













| Bank Number | VREF | PinName/Function (3), (2) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | R896 (4) | DQS for X8/X9 | DQS for X16/ X18 | DQS for X32/ X36 | HMC pin assignment for DDR3 (5) | HMC pin assignment for LPDDR2 | HPS Pin Mux Select 3 | HPS Pin Mux Select 2 | HPS Pin Mux Select 1 | HPS Pin Mux Select 0 |
|-------------|------|---------------------------|----------------------|------------------------|-------------------------|------------------------------|----------|---------------|------------------|------------------|---------------------------------|-------------------------------|----------------------|----------------------|----------------------|----------------------|
|             |      | GND                       |                      |                        |                         |                              | U24      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U25      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U26      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U29      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U30      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V23      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V27      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V28      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W24      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W29      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W35      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y23      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y25      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y26      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y27      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y28      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AA1      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AA2      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AA7      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB3      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB4      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB5      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB6      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC1      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC2      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC5      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AD3      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AD4      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AE1      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AE2      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AE5      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF3      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF4      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG1      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG2      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG5      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AH3      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AH4      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ1      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ2      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T3       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T4       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L1       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L2       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L5       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L6       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V3       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V4       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V8       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W1       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W2       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W5       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W7       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y3       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y4       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y6       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y8       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | AB10     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | AB14     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | AB17     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | AB20     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | AC19     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | P10      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | RT7      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | R21      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | T10      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCA_FPLL                 |                      |                        |                         |                              | V9       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCA_FPLL                 |                      |                        |                         |                              | V22      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCPLL_HPS                |                      |                        |                         |                              | L10      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCBAT                    |                      |                        |                         |                              | H25      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_AUX                   |                      |                        |                         |                              | AB11     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_AUX                   |                      |                        |                         |                              | AB18     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_AUX                   |                      |                        |                         |                              | R20      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_AUX_SHARED            |                      |                        |                         |                              | R13      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_FPLL                 |                      |                        |                         |                              | V9       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_FPLL                 |                      |                        |                         |                              | Y22      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCA_GXBR0                |                      |                        |                         |                              | W6       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCA_GXBL1                |                      |                        |                         |                              | W20      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_GXBR0                |                      |                        |                         |                              | V7       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_GXBL1                |                      |                        |                         |                              | V24      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_GXBR0                |                      |                        |                         |                              | V5       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_GXBL1                |                      |                        |                         |                              | V6       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_GXBL1                |                      |                        |                         |                              | V25      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_GXBL1                |                      |                        |                         |                              | V26      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBL                 |                      |                        |                         |                              | AA25     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBL                 |                      |                        |                         |                              | AA26     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBR                 |                      |                        |                         |                              | AA5      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBR                 |                      |                        |                         |                              | AA6      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_GXBR0                |                      |                        |                         |                              | V5       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_GXBL1                |                      |                        |                         |                              | V7       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_GXBL1                |                      |                        |                         |                              | W25      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_GXBL1                |                      |                        |                         |                              | V24      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | AA10     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | AA13     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | AA14     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | AA16     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | AA18     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | AA19     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | AA20     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | T17      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | T19      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | T21      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | T22      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | U16      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | U18      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | U20      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V15      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V17      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V19      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V21      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W12      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W14      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W18      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W20      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y11      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y13      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y15      |               |                  |                  |                                 |                               |                      |                      |                      |                      |



| Bank Number | VREF | PinName/Function (3), (2) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | R96 (4) | DQS for X8/X9 | DQS for X16/ X18 | DQS for X32/ X36 | HMC pin assignment for DDR3 (5) | HMC pin assignment for LPDDR2 | HPS Pin Mux Select 3 | HPS Pin Mux Select 2 | HPS Pin Mux Select 1 | HPS Pin Mux Select 0 |
|-------------|------|---------------------------|----------------------|------------------------|-------------------------|------------------------------|---------|---------------|------------------|------------------|---------------------------------|-------------------------------|----------------------|----------------------|----------------------|----------------------|
|             |      | VCC                       |                      |                        |                         |                              | Y16     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y17     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y19     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y21     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W16     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | R12     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | T11     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | T13     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | U12     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | U13     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | U14     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | V11     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | V13     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | AE19    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | AE22    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | AF26    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | AH19    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | AH22    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | AH26    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B                    |                      |                        |                         |                              | AE13    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B                    |                      |                        |                         |                              | AE16    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B                    |                      |                        |                         |                              | AH15    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B                    |                      |                        |                         |                              | AE11    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B                    |                      |                        |                         |                              | AD19    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | AD5     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | AE7     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | AP5     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | AM5     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | AH7     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A_HPS                |                      |                        |                         |                              | C2      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A_HPS                |                      |                        |                         |                              | C5      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A_HPS                |                      |                        |                         |                              | C8      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A_HPS                |                      |                        |                         |                              | F2      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A_HPS                |                      |                        |                         |                              | F4      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A_HPS                |                      |                        |                         |                              | F6      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A_HPS                |                      |                        |                         |                              | H1      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A_HPS                |                      |                        |                         |                              | J5      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B_HPS                |                      |                        |                         |                              | L4      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B_HPS                |                      |                        |                         |                              | M4      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B_HPS                |                      |                        |                         |                              | N1      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B_HPS                |                      |                        |                         |                              | N6      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B_HPS                |                      |                        |                         |                              | T2      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B_HPS                |                      |                        |                         |                              | T5      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A_HPS                |                      |                        |                         |                              | B14     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A_HPS                |                      |                        |                         |                              | B17     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A_HPS                |                      |                        |                         |                              | G10     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A_HPS                |                      |                        |                         |                              | M10     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B_HPS                |                      |                        |                         |                              | R20     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B_HPS                |                      |                        |                         |                              | E12     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0C_HPS                |                      |                        |                         |                              | E14     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0D_HPS                |                      |                        |                         |                              | E18     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0D_HPS                |                      |                        |                         |                              | J14     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0E_HPS                |                      |                        |                         |                              | G15     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | F29     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | J27     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | J29     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | M29     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | N24     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A                    |                      |                        |                         |                              | N27     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B                    |                      |                        |                         |                              | E27     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B                    |                      |                        |                         |                              | F25     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B                    |                      |                        |                         |                              | K23     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0C                    |                      |                        |                         |                              | D25     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0C                    |                      |                        |                         |                              | F23     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0C                    |                      |                        |                         |                              | J1      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0C                    |                      |                        |                         |                              | L19     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0D                    |                      |                        |                         |                              | E21     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0D                    |                      |                        |                         |                              | K17     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD03                    |                      |                        |                         |                              | AB21    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD03                    |                      |                        |                         |                              | AC18    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD03                    |                      |                        |                         |                              | AC24    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD04                    |                      |                        |                         |                              | AB7     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A6B_HPS              |                      |                        |                         |                              | MB      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A6B_HPS              |                      |                        |                         |                              | MB      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A6B_HPS              |                      |                        |                         |                              | OB      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A6B_HPS              |                      |                        |                         |                              | UB      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0A_HPS                |                      |                        |                         |                              | N11     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0B_HPS                |                      |                        |                         |                              | L12     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0C_HPS                |                      |                        |                         |                              | M13     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0D_HPS                |                      |                        |                         |                              | M16     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0E_HPS                |                      |                        |                         |                              | J15     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0E_HPS                |                      |                        |                         |                              | P18     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0E_HPS                |                      |                        |                         |                              | P22     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0E_HPS                |                      |                        |                         |                              | R19     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0E_HPS                |                      |                        |                         |                              | R24     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0E_HPS                |                      |                        |                         |                              | F12     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0E_HPS                |                      |                        |                         |                              | AD26    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD0E_HPS                |                      |                        |                         |                              | C9      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | R10     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | R11     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | R14     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | R15     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VREFB7A/B/C/D/E/N0_HPS    |                      |                        |                         |                              | F14     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AA11    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AA13    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AA15    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AA17    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AA21    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB19    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB9     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB9     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC11    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC14    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC17    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC20    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC23    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AD9     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF11    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF14    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF17    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF20    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF23    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF9     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ14    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ14    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ17    |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ20    |               |                  |                  |                                 |                               |                      |                      |                      |                      |



| Bank Number | VREF | PinName/Function (2), (3) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | FB96 (4) | DQS for X8/X9 | DQS for X16/ X18 | DQS for X32/ X36 | HMC pin assignment for DDR3 (5) | HMC pin assignment for LPDDR2 | HPS Pin Mux Select 3 | HPS Pin Mux Select 2 | HPS Pin Mux Select 1 | HPS Pin Mux Select 0 |
|-------------|------|---------------------------|----------------------|------------------------|-------------------------|------------------------------|----------|---------------|------------------|------------------|---------------------------------|-------------------------------|----------------------|----------------------|----------------------|----------------------|
|             |      | GND                       |                      |                        |                         |                              | A123     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | A126     |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | A15      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | A16      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | B1       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | B2       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | B23      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | B26      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | B29      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | B5       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | B8       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E17      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E2       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E20      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E23      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E26      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E29      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E5       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E8       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | G12      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | G14      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H17      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H2       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H20      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H23      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H26      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H29      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H5       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H8       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | K11      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | K14      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L17      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L2       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L20      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L23      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L26      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L29      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L5       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L8       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | N10      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | N14      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P11      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P17      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P16      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P2       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P20      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P23      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P26      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P29      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P5       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P8       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | R18      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T12      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T14      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T18      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T20      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U11      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U15      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U17      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U19      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U21      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U7       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V10      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V12      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V14      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V18      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V20      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V14      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W13      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W15      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W17      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W19      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W21      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y10      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y12      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y18      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y20      |               |                  |                  |                                 |                               |                      |                      |                      |                      |

Notes:  
 (1) For more information about pin definitions and pin connection guidelines, refer to the [Arria V Device Family Pin Connection Guidelines](#).  
 (2) GAB, REFCLK pin is not supported in current Quartus II version, but will be supported in future Quartus II release version.  
 (3) Pins with \* contains similar name with other pins in the same column. For the selection of the HPS pins, refer to the "HPS Pin Mux Select x" columns.  
 (4) Pins with ~ are the 10 Gbps transceiver channels. For more information about the 10 Gbps transceiver channels clocking recommendation, refer to the [Transceiver Clocking in Arria V Devices chapter](#).  
 (5) RESET pin is only applicable for DDR3 device.

















| Bank Number | VREF | PinName/Function (2), (3) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 (4) | DQS for X8/X9 | DQS for X16/X18 | DQS for X32/X36 | HMC pin assignment for DDR3 (5) | HMC pin assignment for LPDDR2 | HPS Pin Mux Select 3 | HPS Pin Mux Select 2 | HPS Pin Mux Select 1 | HPS Pin Mux Select 0 |
|-------------|------|---------------------------|----------------------|------------------------|-------------------------|------------------------------|-----------|---------------|-----------------|-----------------|---------------------------------|-------------------------------|----------------------|----------------------|----------------------|----------------------|
|             |      | GND                       |                      |                        |                         |                              | AB27      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB28      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB30      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB31      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB32      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC30      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC33      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC34      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AD31      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AD32      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AE30      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AE33      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AE34      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF31      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF32      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG30      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG33      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG34      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AH31      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AH32      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ30      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ33      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ34      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AK31      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AK32      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AL33      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AL34      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E34       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | F31       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | F32       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | G30       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | G33       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | G34       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H31       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H32       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | J30       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | J33       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | J34       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | K31       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | K32       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L30       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L33       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L34       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | M30       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | M31       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | M32       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | N28       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | N29       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | N33       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | N34       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P27       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P31       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P32       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P28       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | R30       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | R33       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | R34       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T27       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T29       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T31       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T32       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U28       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U33       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U34       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V27       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V29       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V32       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W28       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W30       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W33       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W34       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y27       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y29       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y31       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y32       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AA1       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AA2       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB3       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB4       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC1       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC2       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC5       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AD3       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AD4       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AE1       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AE2       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AE5       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF3       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF4       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG1       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG2       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG5       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AH3       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AH4       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ1       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ2       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ5       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AK3       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AK4       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AL1       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AL2       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AL3       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AN1       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V3        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V4        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V7        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W1        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W2        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W5        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y3        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y4        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y8        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y8        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | R18       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | T21       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | U5        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | W10       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | Y10       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | Y12       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | Y22       |               |                 |                 |                                 |                               |                      |                      |                      |                      |



| Bank Number | VREF | PinName/Function (2), (3) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 (4) | DQS for X8/X9 | DQS for X16/X18 | DQS for X32/X36 | HMC pin assignment for DDR3 (5) | HMC pin assignment for LPDDR2 | HPS Pin Mux Select 3 | HPS Pin Mux Select 2 | HPS Pin Mux Select 1 | HPS Pin Mux Select 0 |
|-------------|------|---------------------------|----------------------|------------------------|-------------------------|------------------------------|-----------|---------------|-----------------|-----------------|---------------------------------|-------------------------------|----------------------|----------------------|----------------------|----------------------|
|             |      | VCCP                      |                      |                        |                         |                              | Y24       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCP                      |                      |                        |                         |                              | Y25       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCA_FPLL                 |                      |                        |                         |                              | V26       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCA_FPLL                 |                      |                        |                         |                              | V9        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCA_FPLL                 |                      |                        |                         |                              | T26       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCPLL_HPS                |                      |                        |                         |                              | M9        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCBATT                   |                      |                        |                         |                              | M27       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_AUX                   |                      |                        |                         |                              | AA24      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_AUX                   |                      |                        |                         |                              | F11       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_AUX                   |                      |                        |                         |                              | R24       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_AUX_SHARED            |                      |                        |                         |                              | R12       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_FPLL                 |                      |                        |                         |                              | Y26       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_FPLL                 |                      |                        |                         |                              | V9        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCD_FPLL                 |                      |                        |                         |                              | P26       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCA_GXBLO                |                      |                        |                         |                              | V28       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCA_GXBRO                |                      |                        |                         |                              | V7        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCA_GXBL1                |                      |                        |                         |                              | T28       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCOH_GXBLO                |                      |                        |                         |                              | V28       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCOH_GXBRO                |                      |                        |                         |                              | V16       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCOH_GXBL1                |                      |                        |                         |                              | P28       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VDCL_GXBLO                |                      |                        |                         |                              | V29       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VDCL_GXBLO                |                      |                        |                         |                              | V30       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VDCL_GXBRO                |                      |                        |                         |                              | V5        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VDCL_GXBL1                |                      |                        |                         |                              | V5        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VDCL_GXBL1                |                      |                        |                         |                              | P29       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VDCL_GXBL1                |                      |                        |                         |                              | P30       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBL                 |                      |                        |                         |                              | AA30      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBL                 |                      |                        |                         |                              | AB29      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBL                 |                      |                        |                         |                              | N30       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBL                 |                      |                        |                         |                              | R29       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBR                 |                      |                        |                         |                              | AA5       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBR                 |                      |                        |                         |                              | AB5       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBR                 |                      |                        |                         |                              | AB5       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VDCT_GXBLO                |                      |                        |                         |                              | T30       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VDCT_GXBLO                |                      |                        |                         |                              | U29       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VDCT_GXBLO                |                      |                        |                         |                              | U30       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VDCT_GXBRO                |                      |                        |                         |                              | W6        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VDCT_GXBRO                |                      |                        |                         |                              | R8        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VDCT_GXBL1                |                      |                        |                         |                              | W29       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VDCT_GXBL1                |                      |                        |                         |                              | V30       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | AA30      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | T19       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | T23       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | T26       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V24       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | U18       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | U20       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | U22       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | U24       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V15       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V17       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V19       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V20       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V21       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V22       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V23       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W16       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W14       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W20       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W22       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W24       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y13       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y14       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y15       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y16       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y17       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y19       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y21       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y23       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W18       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | T11       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | U10       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | U12       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | U14       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | V11       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | V12       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | V13       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | W12       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A                    |                      |                        |                         |                              | AF27      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A                    |                      |                        |                         |                              | AF30      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A                    |                      |                        |                         |                              | AH30      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A                    |                      |                        |                         |                              | AJ28      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A                    |                      |                        |                         |                              | AK30      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A                    |                      |                        |                         |                              | AN29      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00B                    |                      |                        |                         |                              | AF25      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00B                    |                      |                        |                         |                              | AK24      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00B                    |                      |                        |                         |                              | AN24      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00C                    |                      |                        |                         |                              | AD21      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00C                    |                      |                        |                         |                              | AF21      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00C                    |                      |                        |                         |                              | AJ21      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00C                    |                      |                        |                         |                              | AM21      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00D                    |                      |                        |                         |                              | AE18      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00D                    |                      |                        |                         |                              | AH18      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00D                    |                      |                        |                         |                              | AL18      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00H                    |                      |                        |                         |                              | AD5       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00H                    |                      |                        |                         |                              | AE8       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00H                    |                      |                        |                         |                              | AF5       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00H                    |                      |                        |                         |                              | AH5       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00H                    |                      |                        |                         |                              | AK5       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00H                    |                      |                        |                         |                              | AD11      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00B                    |                      |                        |                         |                              | AF10      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00B                    |                      |                        |                         |                              | AJ10      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00B                    |                      |                        |                         |                              | AM10      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00C                    |                      |                        |                         |                              | AE13      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00C                    |                      |                        |                         |                              | AH12      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00C                    |                      |                        |                         |                              | AL12      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00D                    |                      |                        |                         |                              | AF15      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00D                    |                      |                        |                         |                              | AJ15      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00D                    |                      |                        |                         |                              | AM15      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00D                    |                      |                        |                         |                              | AN17      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A_HPS                |                      |                        |                         |                              | B3        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A_HPS                |                      |                        |                         |                              | C6        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A_HPS                |                      |                        |                         |                              | D3        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A_HPS                |                      |                        |                         |                              | D8        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A_HPS                |                      |                        |                         |                              | E6        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A_HPS                |                      |                        |                         |                              | F2        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A_HPS                |                      |                        |                         |                              | H5        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A_HPS                |                      |                        |                         |                              | H7        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00A_HPS                |                      |                        |                         |                              | M7        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |      | VCC00B_HPS                |                      |                        |                         |                              | L4        |               |                 |                 |                                 |                               |                      |                      |                      |                      |





| Bank Number | VREF                  | PinName/Function (2), (3) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 (4) | DQS for X8/X9 | DQS for X16/X18 | DQS for X32/X36 | HMC pin assignment for DDR3 (5) | HMC pin assignment for LPDDR2 | HPS Pin Mux Select 3 | HPS Pin Mux Select 2 | HPS Pin Mux Select 1 | HPS Pin Mux Select 0 |
|-------------|-----------------------|---------------------------|----------------------|------------------------|-------------------------|------------------------------|-----------|---------------|-----------------|-----------------|---------------------------------|-------------------------------|----------------------|----------------------|----------------------|----------------------|
|             |                       | VCC0B8 HPS                |                      |                        |                         |                              | M1        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC0B8 HPS                |                      |                        |                         |                              | N8        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC0B8 HPS                |                      |                        |                         |                              | P5        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC0B8 HPS                |                      |                        |                         |                              | Q6        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC0B8 HPS                |                      |                        |                         |                              | U5        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC0B8 HPS                |                      |                        |                         |                              | V2        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC07A HPS                |                      |                        |                         |                              | B9        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC07A HPS                |                      |                        |                         |                              | D11       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC07A HPS                |                      |                        |                         |                              | E13       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC07A HPS                |                      |                        |                         |                              | K11       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC07B HPS                |                      |                        |                         |                              | B13       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC07B HPS                |                      |                        |                         |                              | L13       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC07C HPS                |                      |                        |                         |                              | H15       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC07D HPS                |                      |                        |                         |                              | E17       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC07D HPS                |                      |                        |                         |                              | H18       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC07E HPS                |                      |                        |                         |                              | L18       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08A                    |                      |                        |                         |                              | C27       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08A                    |                      |                        |                         |                              | C30       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08A                    |                      |                        |                         |                              | F29       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08A                    |                      |                        |                         |                              | E32       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08A                    |                      |                        |                         |                              | G27       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08B                    |                      |                        |                         |                              | K27       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08B                    |                      |                        |                         |                              | B24       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08B                    |                      |                        |                         |                              | F24       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08B                    |                      |                        |                         |                              | J24       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08C                    |                      |                        |                         |                              | B22       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08C                    |                      |                        |                         |                              | D21       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08C                    |                      |                        |                         |                              | G21       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08C                    |                      |                        |                         |                              | L21       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08D                    |                      |                        |                         |                              | B18       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08D                    |                      |                        |                         |                              | B20       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC08D                    |                      |                        |                         |                              | H20       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD3                    |                      |                        |                         |                              | AA21      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD3                    |                      |                        |                         |                              | AA23      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD3                    |                      |                        |                         |                              | AB26      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD3                    |                      |                        |                         |                              | AC28      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD4                    |                      |                        |                         |                              | AB8       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD4BCD                 |                      |                        |                         |                              | AA11      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD4BCD                 |                      |                        |                         |                              | AA14      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD4BCD                 |                      |                        |                         |                              | AA15      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD4BCD                 |                      |                        |                         |                              | AB8       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD6AB HPS              |                      |                        |                         |                              | P9        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD6AB HPS              |                      |                        |                         |                              | R8        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD6AB HPS              |                      |                        |                         |                              | U7        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD6AB HPS              |                      |                        |                         |                              | U8        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD7A HPS               |                      |                        |                         |                              | R11       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD7B HPS               |                      |                        |                         |                              | R13       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD7C HPS               |                      |                        |                         |                              | T15       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD7D HPS               |                      |                        |                         |                              | R16       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD7E HPS               |                      |                        |                         |                              | P17       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD8                    |                      |                        |                         |                              | P23       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD8                    |                      |                        |                         |                              | P25       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD8                    |                      |                        |                         |                              | R20       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPD8                    |                      |                        |                         |                              | R22       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPGM                    |                      |                        |                         |                              | H13       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCCPGM                    |                      |                        |                         |                              | AC29      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC2BST3LK HPS            |                      |                        |                         |                              | H6        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC HPS                   |                      |                        |                         |                              | R10       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC HPS                   |                      |                        |                         |                              | R14       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC HPS                   |                      |                        |                         |                              | T13       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | VCC HPS                   |                      |                        |                         |                              | T9        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             | VREFB7A/B7C/D7E/0 HPS | VREFB7A/B7C/D7E/0 HPS     |                      |                        |                         |                              | P15       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | A18       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | A22       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | A5        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AA10      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AA13      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AA16      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AA19      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AA22      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AA26      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AA8       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AB7       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AC6       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AD10      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AD13      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AD16      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AD19      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AD22      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AD26      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AD28      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AD7       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AG10      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AG13      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AG16      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AG19      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AG22      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AG26      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AG28      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AG7       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AK10      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AK13      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AK16      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AK19      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AK22      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AK26      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AK28      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AK7       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AN10      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AN13      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AN16      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AN19      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AN22      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AN26      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AN28      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AN31      |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AN4       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | AN7       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | B11       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | B16       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | B2        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | B26       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | B28       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | B31       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | B33       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | B8        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | C19       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | C22       |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | C5        |               |                 |                 |                                 |                               |                      |                      |                      |                      |
|             |                       | GND                       |                      |                        |                         |                              | D2        |               |                 |                 |                                 |                               |                      |                      |                      |                      |



| Bank Number | VREF | PinName/Function (2), (3) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 (4) | DQS for X8/X9 | DQS for X16/ X18 | DQS for X32/ X36 | HMC pin assignment for DDR3 (5) | HMC pin assignment for LPDDR2 | HPS Pin Mux Select 3 | HPS Pin Mux Select 2 | HPS Pin Mux Select 1 | HPS Pin Mux Select 0 |
|-------------|------|---------------------------|----------------------|------------------------|-------------------------|------------------------------|-----------|---------------|------------------|------------------|---------------------------------|-------------------------------|----------------------|----------------------|----------------------|----------------------|
|             |      | GND                       |                      |                        |                         |                              | D30       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E14       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E25       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E28       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E8        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | F19       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | F22       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | F5        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | G11       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | G2        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H25       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H28       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H8        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | J13       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | J19       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | J22       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | J5        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | K16       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | K2        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L25       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L28       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L8        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | M18       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | M22       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | M5        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | N11       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | N15       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | N2        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | N24       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P13       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P18       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P8        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V18       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V14       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V16       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V8        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W11       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W13       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W15       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W17       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W19       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W21       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W23       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W28       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W9        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y18       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Z20       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Z17       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | R19       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | R21       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | R23       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | R25       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | R5        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | R8        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T10       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T12       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T14       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T18       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T2        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T20       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T22       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T24       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U11       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U13       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U17       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U19       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U21       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U23       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U25       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U6        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U9        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V10       |               |                  |                  |                                 |                               |                      |                      |                      |                      |

Notes:  
(1) For more information about pin definitions and pin connection guidelines, refer to the [Arria V Device Family Pin Connection Guidelines](#).  
(2) GND, REFCLK pin is not supported in current Quartus II version, but will be supported in future Quartus II release version.  
(3) Pins with \* contains similar name with other pins in the same column. For the selection of the HPS pins, refer to the "HPS Pin Mux Select x" columns.  
(4) Pins with \* are the 10 Gbps transceiver channels. For more information about the 10 Gbps transceiver channels clocking recommendation, refer to the [Transceiver Clocking in Arria V Devices chapter](#).  
(5) RESET pin is only applicable for DDR3 device.





Pin Information for the Arria® V 5ASXBB5 Device  
Version 1.3  
Note (1)

Table with columns: Bank Number, VREF, PinName/Function (Z1, Z) [Optional Function(s)], Configuration Function, Dedicated Tx/Rx Channel, Emulated LVDS Output Channel, F1517 (4), DQS for X8/X9, DQS for X16/ X18, DQS for X32/ X36, HMC pin assignment for DDR3 (S), HMC pin assignment for LPDDR2, HPS Pin Mux Select 3, HPS Pin Mux Select 2, HPS Pin Mux Select 1, HPS Pin Mux Select 0. Rows list pins from 5A VREFBAND0 to 5D VREFBAND0.

















| Bank Number | VREF | PinName/Function (Z1) (3) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1517 (4) | DQS for X8/X9 | DQS for X16/ X18 | DQS for X32/ X36 | HMC pin assignment for BDRK3 (5) | HMC pin assignment for LPDDR2 | HPS Pin Mux Select 3 | HPS Pin Mux Select 2 | HPS Pin Mux Select 1 | HPS Pin Mux Select 0 |
|-------------|------|---------------------------|----------------------|------------------------|-------------------------|------------------------------|-----------|---------------|------------------|------------------|----------------------------------|-------------------------------|----------------------|----------------------|----------------------|----------------------|
|             |      | GND                       |                      |                        |                         |                              | AJ38      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ99      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AK36      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AK37      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AL35      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AL38      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AL39      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AM36      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AM37      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AN35      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AN38      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AN39      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AP36      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AP37      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AR35      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AR38      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AR39      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AT36      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AT37      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AL35      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AU38      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AU39      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AV36      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AV38      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AV39      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AW35      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AW38      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | B36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | B37       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | C36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | C38       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | C39       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | D36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | D37       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E38       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | E39       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | F36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | F37       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | G36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | G38       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | G39       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | H37       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | J36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | J38       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | J39       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | K36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | K37       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L38       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | L39       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | M36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | M37       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | N36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | N38       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | N39       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | P37       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | R34       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | R38       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | R39       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T32       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | T37       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U33       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U38       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | U39       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V34       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V38       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | V39       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W33       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W38       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | W39       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y31       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y32       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y36       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | Y37       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AA3       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AA4       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AA6       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AA8       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB1       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB2       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AB7       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC3       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC4       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AC5       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AD1       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AD2       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AD5       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AD7       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AE3       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AE4       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AE6       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AE8       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF1       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF2       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AF9       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG3       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG4       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG5       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG6       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG7       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AG8       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AH1       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AH2       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AH5       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ3       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AJ4       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AK1       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AK2       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AK5       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AL3       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AL4       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                       |                      |                        |                         |                              | AM1       |               |                  |                  |                                  |                               |                      |                      |                      |                      |



| Bank Number | VREF | PinName/Function (2) (3) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1517 (4) | DQS for X8/X9 | DQS for X16/ X18 | DQS for X32/ X36 | HMC pin assignment for BDRK3 (5) | HMC pin assignment for LPDDR2 | HPS Pin Mux Select 3 | HPS Pin Mux Select 2 | HPS Pin Mux Select 1 | HPS Pin Mux Select 0 |
|-------------|------|--------------------------|----------------------|------------------------|-------------------------|------------------------------|-----------|---------------|------------------|------------------|----------------------------------|-------------------------------|----------------------|----------------------|----------------------|----------------------|
|             |      | GND                      |                      |                        |                         |                              | AM2       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AM5       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AN3       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AN4       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AP1       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AP2       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AP5       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AR3       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AR4       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AT1       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AT2       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AT5       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AU3       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AU4       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AV1       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | AV2       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | N3        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | N4        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | P1        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | P2        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | P5        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | R3        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | R4        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | R5        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | T1        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | T2        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | T5        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | U3        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | U4        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | U5        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | U6        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | V1        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | V2        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | V7        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | W3        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | W4        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | W8        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | Y1        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | Y2        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | Y5        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | Y7        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCP                     |                      |                        |                         |                              | AA21      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCP                     |                      |                        |                         |                              | AA25      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCP                     |                      |                        |                         |                              | AB15      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCP                     |                      |                        |                         |                              | U70       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCP                     |                      |                        |                         |                              | U16       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCP                     |                      |                        |                         |                              | V26       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCP                     |                      |                        |                         |                              | V27       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCP                     |                      |                        |                         |                              | W10       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCP                     |                      |                        |                         |                              | V27       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCA_FPLL                |                      |                        |                         |                              | AC30      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCA_FPLL                |                      |                        |                         |                              | AC9       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCA_FPLL                |                      |                        |                         |                              | Y30       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCA_FPLL                |                      |                        |                         |                              | AA9       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCA_FPLL                |                      |                        |                         |                              | V31       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCPLL_HPS               |                      |                        |                         |                              | U8        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCBAT                   |                      |                        |                         |                              | R33       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC_AUX                  |                      |                        |                         |                              | AB14      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC_AUX                  |                      |                        |                         |                              | AB26      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC_AUX                  |                      |                        |                         |                              | U9        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC_AUX_SHARED           |                      |                        |                         |                              | U15       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCD_FPLL                |                      |                        |                         |                              | AD31      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCD_FPLL                |                      |                        |                         |                              | AE9       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCD_FPLL                |                      |                        |                         |                              | W30       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCD_FPLL                |                      |                        |                         |                              | W9        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCD_FPLL                |                      |                        |                         |                              | T31       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCA_GXBL0               |                      |                        |                         |                              | AF33      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCA_GXBR0               |                      |                        |                         |                              | AE7       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCA_GXBL1               |                      |                        |                         |                              | AB33      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCA_GXBR1               |                      |                        |                         |                              | AA7       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCA_GXBL2               |                      |                        |                         |                              | V33       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBL0               |                      |                        |                         |                              | AD33      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBR0               |                      |                        |                         |                              | AC7       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBL1               |                      |                        |                         |                              | Y33       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBR1               |                      |                        |                         |                              | W7        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBL2               |                      |                        |                         |                              | T33       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBR2               |                      |                        |                         |                              | AD34      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBL0               |                      |                        |                         |                              | AD35      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBR0               |                      |                        |                         |                              | AC5       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBR0               |                      |                        |                         |                              | AC6       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBL1               |                      |                        |                         |                              | V34       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBR1               |                      |                        |                         |                              | Y35       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBR1               |                      |                        |                         |                              | W5        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBR1               |                      |                        |                         |                              | W6        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBL2               |                      |                        |                         |                              | T34       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBL2               |                      |                        |                         |                              | T35       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBL                |                      |                        |                         |                              | U34       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBL                |                      |                        |                         |                              | W34       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBL                |                      |                        |                         |                              | AA34      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBL                |                      |                        |                         |                              | AB35      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBL                |                      |                        |                         |                              | AC35      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBL                |                      |                        |                         |                              | AE34      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBL                |                      |                        |                         |                              | AF35      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBR                |                      |                        |                         |                              | U5        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBR                |                      |                        |                         |                              | V5        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBR                |                      |                        |                         |                              | Y5        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBR                |                      |                        |                         |                              | AA5       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBR                |                      |                        |                         |                              | AB5       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCR_GXBR                |                      |                        |                         |                              | AB6       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBL0               |                      |                        |                         |                              | AG35      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBL0               |                      |                        |                         |                              | AG34      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBR0               |                      |                        |                         |                              | AD6       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBR0               |                      |                        |                         |                              | AE5       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBL1               |                      |                        |                         |                              | W35       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBL1               |                      |                        |                         |                              | V35       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBR1               |                      |                        |                         |                              | AF5       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBR1               |                      |                        |                         |                              | AF6       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBL2               |                      |                        |                         |                              | R35       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCCM_GXBL2               |                      |                        |                         |                              | AC34      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC                      |                      |                        |                         |                              | AA10      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC                      |                      |                        |                         |                              | AA12      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC                      |                      |                        |                         |                              | AA14      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC                      |                      |                        |                         |                              | AA16      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC                      |                      |                        |                         |                              | AA18      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC                      |                      |                        |                         |                              | AA20      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC                      |                      |                        |                         |                              | AA22      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC                      |                      |                        |                         |                              | AA24      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC                      |                      |                        |                         |                              | AA26      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC                      |                      |                        |                         |                              | AB11      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |      | VCC                      |                      |                        |                         |                              | AB17      |               |                  |                  |                                  |                               |                      |                      |                      |                      |



| Bank Number | VREF | PinName/Function (Z1 (3)) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1517 (4) | DQS for X8/X9 | DQS for X16/ X18 | DQS for X32/ X36 | HMC pin assignment for BDK3 (5) | HMC pin assignment for LPDDR2 | HPS Pin Mux Select 3 | HPS Pin Mux Select 2 | HPS Pin Mux Select 1 | HPS Pin Mux Select 0 |
|-------------|------|---------------------------|----------------------|------------------------|-------------------------|------------------------------|-----------|---------------|------------------|------------------|---------------------------------|-------------------------------|----------------------|----------------------|----------------------|----------------------|
|             |      | VCC                       |                      |                        |                         |                              | U18       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V17       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V22       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V23       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | V29       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W20       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W18       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W22       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W24       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W26       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | W28       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y11       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y16       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y17       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y19       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y28       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y26       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y29       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC                       |                      |                        |                         |                              | Y21       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | U12       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | V11       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | V12       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | V13       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | V15       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | W12       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | W14       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCC_HPS                   |                      |                        |                         |                              | Y13       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3A                   |                      |                        |                         |                              | AK29      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3A                   |                      |                        |                         |                              | AJ30      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3A                   |                      |                        |                         |                              | AK35      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3A                   |                      |                        |                         |                              | AM30      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3A                   |                      |                        |                         |                              | AP35      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3A                   |                      |                        |                         |                              | AT35      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3B                   |                      |                        |                         |                              | AK28      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3B                   |                      |                        |                         |                              | AL27      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3B                   |                      |                        |                         |                              | AN28      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3B                   |                      |                        |                         |                              | AT28      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3C                   |                      |                        |                         |                              | AL24      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3C                   |                      |                        |                         |                              | AL25      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3C                   |                      |                        |                         |                              | AM24      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3C                   |                      |                        |                         |                              | AP25      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3C                   |                      |                        |                         |                              | AS24      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3C                   |                      |                        |                         |                              | AL25      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3D                   |                      |                        |                         |                              | AJ22      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3D                   |                      |                        |                         |                              | AL21      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3D                   |                      |                        |                         |                              | AM22      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3D                   |                      |                        |                         |                              | AP21      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3D                   |                      |                        |                         |                              | AS22      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO3D                   |                      |                        |                         |                              | AL21      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4A                   |                      |                        |                         |                              | AG10      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4A                   |                      |                        |                         |                              | AJ5       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4A                   |                      |                        |                         |                              | AL5       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4A                   |                      |                        |                         |                              | AN5       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4A                   |                      |                        |                         |                              | AS5       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4A                   |                      |                        |                         |                              | AL5       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4B                   |                      |                        |                         |                              | AK13      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4B                   |                      |                        |                         |                              | AK12      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4B                   |                      |                        |                         |                              | AN10      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4B                   |                      |                        |                         |                              | AN13      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4B                   |                      |                        |                         |                              | AR12      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4C                   |                      |                        |                         |                              | AT10      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4C                   |                      |                        |                         |                              | AJ15      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4C                   |                      |                        |                         |                              | AM15      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4C                   |                      |                        |                         |                              | AR15      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4C                   |                      |                        |                         |                              | AV15      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4D                   |                      |                        |                         |                              | AJ18      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4D                   |                      |                        |                         |                              | AK18      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4D                   |                      |                        |                         |                              | AM19      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4D                   |                      |                        |                         |                              | AN18      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4D                   |                      |                        |                         |                              | AR19      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO4D                   |                      |                        |                         |                              | AT18      |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6A_HPS               |                      |                        |                         |                              | AT0       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6A_HPS               |                      |                        |                         |                              | CS        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6A_HPS               |                      |                        |                         |                              | CS        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6A_HPS               |                      |                        |                         |                              | FB        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6A_HPS               |                      |                        |                         |                              | FB        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6A_HPS               |                      |                        |                         |                              | JB        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6A_HPS               |                      |                        |                         |                              | KB        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6A_HPS               |                      |                        |                         |                              | MB        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6A_HPS               |                      |                        |                         |                              | PB        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6B_HPS               |                      |                        |                         |                              | B3        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6B_HPS               |                      |                        |                         |                              | D4        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6B_HPS               |                      |                        |                         |                              | G3        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6B_HPS               |                      |                        |                         |                              | J3        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6B_HPS               |                      |                        |                         |                              | L3        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6B_HPS               |                      |                        |                         |                              | N2        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO6B_HPS               |                      |                        |                         |                              | N5        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO7A_HPS               |                      |                        |                         |                              | B13       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO7A_HPS               |                      |                        |                         |                              | E10       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO7A_HPS               |                      |                        |                         |                              | G12       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO7A_HPS               |                      |                        |                         |                              | K13       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO7B_HPS               |                      |                        |                         |                              | E14       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO7B_HPS               |                      |                        |                         |                              | J15       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO7B_HPS               |                      |                        |                         |                              | D17       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO7B_HPS               |                      |                        |                         |                              | B18       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO7B_HPS               |                      |                        |                         |                              | G17       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO7B_HPS               |                      |                        |                         |                              | J20       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO7B                   |                      |                        |                         |                              | K19       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8A                   |                      |                        |                         |                              | B35       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8A                   |                      |                        |                         |                              | G31       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8A                   |                      |                        |                         |                              | G33       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8A                   |                      |                        |                         |                              | K31       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8A                   |                      |                        |                         |                              | K33       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8B                   |                      |                        |                         |                              | FP3       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8B                   |                      |                        |                         |                              | E28       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8B                   |                      |                        |                         |                              | E30       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8B                   |                      |                        |                         |                              | HP0       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8B                   |                      |                        |                         |                              | K28       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8C                   |                      |                        |                         |                              | C25       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8C                   |                      |                        |                         |                              | D27       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8C                   |                      |                        |                         |                              | F25       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8C                   |                      |                        |                         |                              | G27       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8C                   |                      |                        |                         |                              | HS        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8C                   |                      |                        |                         |                              | M24       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8D                   |                      |                        |                         |                              | C21       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8D                   |                      |                        |                         |                              | D23       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8D                   |                      |                        |                         |                              | F21       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8D                   |                      |                        |                         |                              | G22       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8D                   |                      |                        |                         |                              | K22       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | VCCIO8D                   |                      |                        |                         |                              | M21       |               |                  |                  |                                 |                               |                      |                      |                      |                      |



| Bank Number | VREF                 | PinName/Function (Z1 (3)) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1517 (4) | DQS for X8/X9 | DQS for X16/ X18 | DQS for X32/ X36 | HMC pin assignment for BDRK3 (5) | HMC pin assignment for LPDDR2 | HPS Pin Mux Select 3 | HPS Pin Mux Select 2 | HPS Pin Mux Select 1 | HPS Pin Mux Select 0 |
|-------------|----------------------|---------------------------|----------------------|------------------------|-------------------------|------------------------------|-----------|---------------|------------------|------------------|----------------------------------|-------------------------------|----------------------|----------------------|----------------------|----------------------|
|             |                      | VCCPD3                    |                      |                        |                         |                              | AA27      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD3                    |                      |                        |                         |                              | AA28      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD3                    |                      |                        |                         |                              | AA29      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD3                    |                      |                        |                         |                              | AB22      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD3                    |                      |                        |                         |                              | AB23      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD3                    |                      |                        |                         |                              | AB24      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD3                    |                      |                        |                         |                              | AB30      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD4A                   |                      |                        |                         |                              | AC10      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD4A                   |                      |                        |                         |                              | AE10      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD4BCD                 |                      |                        |                         |                              | AB12      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD4BCD                 |                      |                        |                         |                              | AB13      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD4BCD                 |                      |                        |                         |                              | AB16      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD4BCD                 |                      |                        |                         |                              | AB18      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD4BCD                 |                      |                        |                         |                              | AB19      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD4AB6_HPS             |                      |                        |                         |                              | L9        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD4AB6_HPS             |                      |                        |                         |                              | T10       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD4AB6_HPS             |                      |                        |                         |                              | T5        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD4AB6_HPS             |                      |                        |                         |                              | T8        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD7A_HPS               |                      |                        |                         |                              | R12       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD7B_HPS               |                      |                        |                         |                              | T14       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD7C_HPS               |                      |                        |                         |                              | R16       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD7D_HPS               |                      |                        |                         |                              | T17       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD7E_HPS               |                      |                        |                         |                              | R18       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD7FG                  |                      |                        |                         |                              | U21       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD8                    |                      |                        |                         |                              | B32       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD8                    |                      |                        |                         |                              | T30       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD8                    |                      |                        |                         |                              | U22       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD8                    |                      |                        |                         |                              | U24       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD8                    |                      |                        |                         |                              | U26       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD8                    |                      |                        |                         |                              | U29       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD8M                   |                      |                        |                         |                              | J19       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCPD8M                   |                      |                        |                         |                              | AG29      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCCORSTCLK_HPS            |                      |                        |                         |                              | L10       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCC_HPS                   |                      |                        |                         |                              | T13       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCC_HPS                   |                      |                        |                         |                              | L14       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCC_HPS                   |                      |                        |                         |                              | U9        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | VCC_HPS                   |                      |                        |                         |                              | V10       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             | VREF2A/B/C/D/END_HPS | VREF2A/B/C/D/END_HPS      |                      |                        |                         |                              | F18       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AA11      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AA13      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AA15      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AA17      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AA19      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AA23      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AA30      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AB10      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AC11      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AC14      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AC17      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AC20      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AC23      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AC26      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AC28      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AD10      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AD30      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AE30      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AF11      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AF14      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AF17      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AF20      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AF23      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AF26      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AF28      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AF30      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AG31      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AG9       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AJ11      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AJ14      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AJ17      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AJ20      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AJ23      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AJ26      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AJ29      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AJ32      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AJ8       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AM11      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AM14      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AM17      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AM20      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AM23      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AM26      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AM29      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AM32      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AM8       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AR11      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AR14      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AR17      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AR20      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AR23      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AR26      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AR29      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AR32      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AR8       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AV11      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AV14      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AV17      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AV20      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AV23      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AV26      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AV29      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AV32      |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AV5       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | AV8       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | B11       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | B16       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | B2        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | B20       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | B23       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | B26       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | B29       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | B32       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | B5        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | B8        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | E11       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | E17       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | E2        |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | E20       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | E23       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | E26       |               |                  |                  |                                  |                               |                      |                      |                      |                      |
|             |                      | GND                       |                      |                        |                         |                              | E29       |               |                  |                  |                                  |                               |                      |                      |                      |                      |



| Bank Number | VREF | PinName/Function (2) (3) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1517 (4) | DQS for X8/X9 | DQS for X16/ X18 | DQS for X32/ X36 | HMC pin assignment for DQR3 (5) | HMC pin assignment for LPDDR2 | HPS Pin Mux Select 3 | HPS Pin Mux Select 2 | HPS Pin Mux Select 1 | HPS Pin Mux Select 0 |
|-------------|------|--------------------------|----------------------|------------------------|-------------------------|------------------------------|-----------|---------------|------------------|------------------|---------------------------------|-------------------------------|----------------------|----------------------|----------------------|----------------------|
|             |      | GND                      |                      |                        |                         |                              | E32       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | E5        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | E9        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | F14       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | H11       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | H17       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | H5        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | H20       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | H23       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | H26       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | H29       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | H32       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | H5        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | H8        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | J14       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | K20       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | L11       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | L17       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | L2        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | L23       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | L26       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | L29       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | L32       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | L5        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | L8        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | N14       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | N17       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | N20       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | P11       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | P23       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | P26       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | P29       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | P32       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | P8        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | W21       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | T12       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | T15       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | T16       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | T18       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | T20       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | T8        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | U11       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | U13       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | U17       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | U23       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | U25       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | U27       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | U30       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | U7        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | V14       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | V8        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | V18       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | V21       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | V24       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | V26       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | V28       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | V30       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | V8        |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | W27       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | W11       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | W13       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | W15       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | W17       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | W19       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | W23       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | W25       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | W29       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | Y10       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | Y12       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | Y14       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | Y16       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | Y18       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | Y20       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | Y22       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | Y24       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | Y26       |               |                  |                  |                                 |                               |                      |                      |                      |                      |
|             |      | GND                      |                      |                        |                         |                              | Y28       |               |                  |                  |                                 |                               |                      |                      |                      |                      |

Notes:  
 (1) For more information about pin definitions and pin connection guidelines, refer to the [Arria V Device Family Pin Connection Guidelines](#).  
 (2) GNB\_REFLCK pin is not supported in current Quartus II version, but will be supported in future Quartus II release version.  
 (3) Pins with \* contains similar name with other pins in the same column. For the selection of the HPS pins, refer to the "HPS Pin Mux Select x" columns.  
 (4) Pins with # are the 10 Gbps transceiver channels. For more information about the 10 Gbps transceiver channels clocking recommendation, refer to the [Transceiver Clocking in Arria V Devices chapter](#).  
 (5) RESET pin is only applicable for DQR3 device.



**Pin Information for the Arria® V 5ASXBB5 Device  
Version 1.3**

| <b>Version Number</b> | <b>Date</b> | <b>Changes Made</b>   |
|-----------------------|-------------|---|
| 1.0                   | 4/19/2013   | Initial release.  |
| 1.1                   | 9/30/2014   | Remove corresponding bank number from VCCRSTCLK_HPS pin.  |
| 1.2                   | 7/31/2015   | Renamed the following columns:<br>- Renamed "DDR3/DDR2 hard memory PHY" to "HMC pin assignment for DDR3".<br>- Renamed "LPDDR2 hard memory PHY" to "HMC pin assignment for LPDDR2". |
| 1.3                   | 12/23/2016  | -Renamed SDMMC_FB_CLK_IN to HPS_GPIO44.   |
|                       |             |   |