



| VREF | PinName/Function (Z1, Z) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 (4) | DQS for X809 | DQS for X16/ X18 | DQS for X32/ X36 | HMC pin assignment for DDR3 (9) | 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 | | | | | N30 | | | | | | | | | |
| | GND | | | | | N33 | | | | | | | | | |
| | GND | | | | | N34 | | | | | | | | | |
| | GND | | | | | P32 | | | | | | | | | |
| | GND | | | | | P33 | | | | | | | | | |
| | GND | | | | | P34 | | | | | | | | | |
| | GND | | | | | R30 | | | | | | | | | |
| | GND | | | | | R33 | | | | | | | | | |
| | GND | | | | | R34 | | | | | | | | | |
| | GND | | | | | T27 | | | | | | | | | |
| | GND | | | | | T29 | | | | | | | | | |
| | GND | | | | | T31 | | | | | | | | | |
| | GND | | | | | T32 | | | | | | | | | |
| | GND | | | | | U28 | | | | | | | | | |
| | GND | | | | | U33 | | | | | | | | | |
| | GND | | | | | U34 | | | | | | | | | |
| | GND | | | | | V27 | | | | | | | | | |
| | GND | | | | | V31 | | | | | | | | | |
| | 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 | | | | | 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 | | | | | | | | | |
| | VCCP | | | | | R18 | | | | | | | | | |
| | VCCP | | | | | T21 | | | | | | | | | |
| | VCCP | | | | | V36 | | | | | | | | | |
| | VCCP | | | | | W10 | | | | | | | | | |
| | VCCP | | | | | Y10 | | | | | | | | | |
| | VCCP | | | | | Y12 | | | | | | | | | |
| | VCCP | | | | | Y22 | | | | | | | | | |

| VREF | PinName/Function (2), (3) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 (4) | DQS for X809 | 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 | | | | | | | | | |
| | VCCBAT | | | | | M27 | | | | | | | | | |
| | VCC_AUX | | | | | AA24 | | | | | | | | | |
| | VCC_AUX | | | | | Y11 | | | | | | | | | |
| | VCC_AUX | | | | | R24 | | | | | | | | | |
| | VCC_AUX_SHARED | | | | | R12 | | | | | | | | | |
| | VCCD_FPLL | | | | | Y26 | | | | | | | | | |
| | VCCD_FPLL | | | | | Y9 | | | | | | | | | |
| | VCCD_FPLL | | | | | P26 | | | | | | | | | |
| | VCCA_GXBL0 | | | | | V28 | | | | | | | | | |
| | VCCA_GXBL0 | | | | | Y7 | | | | | | | | | |
| | VCCA_GXBL1 | | | | | T28 | | | | | | | | | |
| | VCCG_GXBL0 | | | | | V28 | | | | | | | | | |
| | VCCG_GXBL0 | | | | | V8 | | | | | | | | | |
| | VCCG_GXBL1 | | | | | P28 | | | | | | | | | |
| | VCCG_GXBL1 | | | | | V29 | | | | | | | | | |
| | VCCG_GXBL0 | | | | | V30 | | | | | | | | | |
| | VCCG_GXBR0 | | | | | V5 | | | | | | | | | |
| | VCCG_GXBR0 | | | | | Y5 | | | | | | | | | |
| | VCCG_GXBL1 | | | | | P29 | | | | | | | | | |
| | VCCG_GXBL1 | | | | | P30 | | | | | | | | | |
| | VCCR_GXBL | | | | | AA30 | | | | | | | | | |
| | VCCR_GXBL | | | | | AA29 | | | | | | | | | |
| | VCCR_GXBL | | | | | R30 | | | | | | | | | |
| | VCCR_GXBL | | | | | R29 | | | | | | | | | |
| | VCCR_GXBR | | | | | AA5 | | | | | | | | | |
| | VCCR_GXBR | | | | | AA6 | | | | | | | | | |
| | VCCR_GXBR | | | | | AA5 | | | | | | | | | |
| | VCCG_GXBL0 | | | | | T30 | | | | | | | | | |
| | VCCG_GXBL0 | | | | | U29 | | | | | | | | | |
| | VCCG_GXBL0 | | | | | U30 | | | | | | | | | |
| | VCCG_GXBR0 | | | | | W6 | | | | | | | | | |
| | VCCG_GXBR0 | | | | | AA4 | | | | | | | | | |
| | VCCG_GXBL1 | | | | | W29 | | | | | | | | | |
| | VCCG_GXBL1 | | | | | Y30 | | | | | | | | | |
| | VCC | | | | | AA20 | | | | | | | | | |
| | VCC | | | | | T19 | | | | | | | | | |
| | VCC | | | | | T23 | | | | | | | | | |
| | VCC | | | | | T28 | | | | | | | | | |
| | 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 | | | | | V21 | | | | | | | | | |
| | VCC | | | | | V23 | | | | | | | | | |
| | 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 | | | | | | | | | |
| | VCCIO0A | | | | | AF27 | | | | | | | | | |
| | VCCIO0A | | | | | AF30 | | | | | | | | | |
| | VCCIO0A | | | | | AF30 | | | | | | | | | |
| | VCCIO0A | | | | | AJ28 | | | | | | | | | |
| | VCCIO0A | | | | | AK30 | | | | | | | | | |
| | VCCIO0A | | | | | AK29 | | | | | | | | | |
| | VCCIO0B | | | | | AF25 | | | | | | | | | |
| | VCCIO0B | | | | | AK24 | | | | | | | | | |
| | VCCIO0B | | | | | AK24 | | | | | | | | | |
| | VCCIO0C | | | | | AK21 | | | | | | | | | |
| | VCCIO0C | | | | | AF21 | | | | | | | | | |
| | VCCIO0C | | | | | AJ21 | | | | | | | | | |
| | VCCIO0C | | | | | AK21 | | | | | | | | | |
| | VCCIO0D | | | | | AE18 | | | | | | | | | |
| | VCCIO0D | | | | | AF18 | | | | | | | | | |
| | VCCIO0B | | | | | AL18 | | | | | | | | | |
| | VCCIO0A | | | | | AD5 | | | | | | | | | |
| | VCCIO0A | | | | | AE8 | | | | | | | | | |
| | VCCIO0A | | | | | AF5 | | | | | | | | | |
| | VCCIO0A | | | | | AF6 | | | | | | | | | |
| | VCCIO0A | | | | | AK5 | | | | | | | | | |
| | VCCIO0B | | | | | AD11 | | | | | | | | | |
| | VCCIO0B | | | | | AF10 | | | | | | | | | |
| | VCCIO0B | | | | | AJ10 | | | | | | | | | |
| | VCCIO0B | | | | | AM9 | | | | | | | | | |
| | VCCIO0C | | | | | AE13 | | | | | | | | | |
| | VCCIO0C | | | | | AF12 | | | | | | | | | |
| | VCCIO0C | | | | | AF15 | | | | | | | | | |
| | VCCIO0D | | | | | AJ15 | | | | | | | | | |
| | VCCIO0D | | | | | AM15 | | | | | | | | | |
| | VCCIO0D | | | | | AM17 | | | | | | | | | |
| | VCCIO0A_HPS | | | | | B3 | | | | | | | | | |
| | VCCIO0A_HPS | | | | | C6 | | | | | | | | | |
| | VCCIO0A_HPS | | | | | D3 | | | | | | | | | |
| | VCCIO0A_HPS | | | | | D8 | | | | | | | | | |
| | VCCIO0A_HPS | | | | | E6 | | | | | | | | | |
| | VCCIO0A_HPS | | | | | F3 | | | | | | | | | |
| | VCCIO0A_HPS | | | | | H6 | | | | | | | | | |
| | VCCIO0A_HPS | | | | | H7 | | | | | | | | | |
| | VCCIO0A_HPS | | | | | M9 | | | | | | | | | |
| | VCCIO0B_HPS | | | | | L4 | | | | | | | | | |



| VREF | PinName/Function (Z1, Z) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 (4) | DQS for X8X9 | DQS for X16/ X18 | DQS for X32/ X36 | HMC pin assignment for DDR3 (9) | 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 |
|----------------------|--------------------------|----------------------|------------------------|-------------------------|------------------------------|-----------|--------------|------------------|------------------|---------------------------------|-------------------------------|----------------------|----------------------|----------------------|----------------------|
| | VCCIO6B_HPS | | | | | M1 | | | | | | | | | |
| | VCCIO6B_HPS | | | | | N6 | | | | | | | | | |
| | VCCIO6B_HPS | | | | | P3 | | | | | | | | | |
| | VCCIO6B_HPS | | | | | R6 | | | | | | | | | |
| | VCCIO6B_HPS | | | | | U5 | | | | | | | | | |
| | VCCIO6B_HPS | | | | | V2 | | | | | | | | | |
| | VCCIO7A_HPS | | | | | B9 | | | | | | | | | |
| | VCCIO7A_HPS | | | | | D11 | | | | | | | | | |
| | VCCIO7A_HPS | | | | | E13 | | | | | | | | | |
| | VCCIO7A_HPS | | | | | K11 | | | | | | | | | |
| | VCCIO7B_HPS | | | | | B13 | | | | | | | | | |
| | VCCIO7B_HPS | | | | | L13 | | | | | | | | | |
| | VCCIO7C_HPS | | | | | H15 | | | | | | | | | |
| | VCCIO7D_HPS | | | | | E17 | | | | | | | | | |
| | VCCIO7D_HPS | | | | | H18 | | | | | | | | | |
| | VCCIO7E_HPS | | | | | L18 | | | | | | | | | |
| | VCCIO8A | | | | | C27 | | | | | | | | | |
| | VCCIO8A | | | | | C30 | | | | | | | | | |
| | VCCIO8A | | | | | E29 | | | | | | | | | |
| | VCCIO8A | | | | | E32 | | | | | | | | | |
| | VCCIO8A | | | | | G27 | | | | | | | | | |
| | VCCIO8A | | | | | K27 | | | | | | | | | |
| | VCCIO8B | | | | | B24 | | | | | | | | | |
| | VCCIO8B | | | | | F24 | | | | | | | | | |
| | VCCIO8B | | | | | J24 | | | | | | | | | |
| | VCCIO8C | | | | | B22 | | | | | | | | | |
| | VCCIO8C | | | | | D21 | | | | | | | | | |
| | VCCIO8C | | | | | G21 | | | | | | | | | |
| | VCCIO8C | | | | | L21 | | | | | | | | | |
| | VCCIO8D | | | | | B18 | | | | | | | | | |
| | VCCIO8D | | | | | B20 | | | | | | | | | |
| | VCCIO8D | | | | | H20 | | | | | | | | | |
| | VCCPD3 | | | | | AA21 | | | | | | | | | |
| | VCCPD3 | | | | | AA23 | | | | | | | | | |
| | VCCPD3 | | | | | AB26 | | | | | | | | | |
| | VCCPD3 | | | | | AC28 | | | | | | | | | |
| | VCCPD4 | | | | | AB8 | | | | | | | | | |
| | VCCPD4BCD | | | | | AA11 | | | | | | | | | |
| | VCCPD4BCD | | | | | AA14 | | | | | | | | | |
| | VCCPD4BCD | | | | | AA15 | | | | | | | | | |
| | VCCPD4BCD | | | | | AB8 | | | | | | | | | |
| | VCCPD4A6B_HPS | | | | | P9 | | | | | | | | | |
| | VCCPD4A6B_HPS | | | | | R9 | | | | | | | | | |
| | VCCPD4A6B_HPS | | | | | U9 | | | | | | | | | |
| | VCCPD4A6B_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 | | | | | | | | | |
| | VCCPBTCLK_HPS | | | | | H9 | | | | | | | | | |
| | VCC_HPS | | | | | R10 | | | | | | | | | |
| | VCC_HPS | | | | | R14 | | | | | | | | | |
| | VCC_HPS | | | | | T13 | | | | | | | | | |
| | VCC_HPS | | | | | T9 | | | | | | | | | |
| VREFB/A7B/C7D/E0_HPS | VREFB/A7B/C7D/E0_HPS | | | | | P15 | | | | | | | | | |
| | GND | | | | | A19 | | | | | | | | | |
| | GND | | | | | A22 | | | | | | | | | |
| | GND | | | | | A5 | | | | | | | | | |
| | GND | | | | | AA10 | | | | | | | | | |
| | GND | | | | | AA13 | | | | | | | | | |
| | GND | | | | | AA16 | | | | | | | | | |
| | GND | | | | | AA19 | | | | | | | | | |
| | GND | | | | | AA22 | | | | | | | | | |
| | GND | | | | | AA25 | | | | | | | | | |
| | GND | | | | | AA8 | | | | | | | | | |
| | GND | | | | | AB7 | | | | | | | | | |
| | GND | | | | | AD6 | | | | | | | | | |
| | GND | | | | | AD10 | | | | | | | | | |
| | GND | | | | | AD13 | | | | | | | | | |
| | GND | | | | | AD16 | | | | | | | | | |
| | GND | | | | | AD19 | | | | | | | | | |
| | GND | | | | | AD22 | | | | | | | | | |
| | GND | | | | | AD25 | | | | | | | | | |
| | GND | | | | | AD29 | | | | | | | | | |
| | GND | | | | | AD7 | | | | | | | | | |
| | GND | | | | | AG10 | | | | | | | | | |
| | GND | | | | | AG13 | | | | | | | | | |
| | GND | | | | | AG16 | | | | | | | | | |
| | GND | | | | | AG19 | | | | | | | | | |
| | GND | | | | | AG22 | | | | | | | | | |
| | GND | | | | | AG25 | | | | | | | | | |
| | GND | | | | | AG28 | | | | | | | | | |
| | GND | | | | | AG7 | | | | | | | | | |
| | GND | | | | | AK10 | | | | | | | | | |
| | GND | | | | | AK13 | | | | | | | | | |
| | GND | | | | | AK16 | | | | | | | | | |
| | GND | | | | | AK19 | | | | | | | | | |
| | GND | | | | | AK22 | | | | | | | | | |
| | GND | | | | | AK25 | | | | | | | | | |
| | GND | | | | | AK28 | | | | | | | | | |
| | GND | | | | | AK7 | | | | | | | | | |
| | GND | | | | | AN10 | | | | | | | | | |
| | GND | | | | | AN13 | | | | | | | | | |
| | GND | | | | | AN16 | | | | | | | | | |
| | GND | | | | | AN19 | | | | | | | | | |
| | GND | | | | | AN22 | | | | | | | | | |
| | GND | | | | | AN25 | | | | | | | | | |
| | GND | | | | | AN28 | | | | | | | | | |
| | GND | | | | | AN31 | | | | | | | | | |
| | GND | | | | | AN4 | | | | | | | | | |
| | GND | | | | | AN7 | | | | | | | | | |
| | GND | | | | | B11 | | | | | | | | | |
| | GND | | | | | B16 | | | | | | | | | |
| | GND | | | | | B2 | | | | | | | | | |
| | GND | | | | | B25 | | | | | | | | | |
| | GND | | | | | B28 | | | | | | | | | |
| | GND | | | | | B31 | | | | | | | | | |
| | GND | | | | | B33 | | | | | | | | | |
| | GND | | | | | B4 | | | | | | | | | |
| | GND | | | | | C19 | | | | | | | | | |
| | GND | | | | | C22 | | | | | | | | | |
| | GND | | | | | C6 | | | | | | | | | |
| | GND | | | | | D2 | | | | | | | | | |

| VREF | PinName/Function (2), (3) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 (4) | DQS for X809 | 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 | | | | | E26 | | | | | | | | | |
| | GND | | | | | E38 | | | | | | | | | |
| | GND | | | | | E8 | | | | | | | | | |
| | GND | | | | | F19 | | | | | | | | | |
| | GND | | | | | F22 | | | | | | | | | |
| | GND | | | | | F6 | | | | | | | | | |
| | GND | | | | | G11 | | | | | | | | | |
| | GND | | | | | G2 | | | | | | | | | |
| | GND | | | | | H25 | | | | | | | | | |
| | GND | | | | | H28 | | | | | | | | | |
| | GND | | | | | H8 | | | | | | | | | |
| | GND | | | | | J13 | | | | | | | | | |
| | GND | | | | | J19 | | | | | | | | | |
| | GND | | | | | J29 | | | | | | | | | |
| | GND | | | | | J5 | | | | | | | | | |
| | GND | | | | | K16 | | | | | | | | | |
| | GND | | | | | K2 | | | | | | | | | |
| | GND | | | | | L25 | | | | | | | | | |
| | GND | | | | | L88 | | | | | | | | | |
| | GND | | | | | L8 | | | | | | | | | |
| | GND | | | | | M19 | | | | | | | | | |
| | 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 | | | | | W25 | | | | | | | | | |
| | GND | | | | | W9 | | | | | | | | | |
| | GND | | | | | Y18 | | | | | | | | | |
| | GND | | | | | Y20 | | | | | | | | | |
| | GND | | | | | R17 | | | | | | | | | |
| | GND | | | | | R19 | | | | | | | | | |
| | GND | | | | | R21 | | | | | | | | | |
| | GND | | | | | R23 | | | | | | | | | |
| | GND | | | | | R25 | | | | | | | | | |
| | GND | | | | | R5 | | | | | | | | | |
| | GND | | | | | R9 | | | | | | | | | |
| | 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 | | | | | V19 | | | | | | | | | |

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 pins 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" 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 | F1517 (4) | DQS for X0/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 | | | | | AJ38 | | | | | | | | | |
| | | GND | | | | | AJ39 | | | | | | | | | |
| | | GND | | | | | AK36 | | | | | | | | | |
| | | GND | | | | | AK37 | | | | | | | | | |
| | | GND | | | | | AL35 | | | | | | | | | |
| | | GND | | | | | AL38 | | | | | | | | | |
| | | GND | | | | | AL39 | | | | | | | | | |
| | | GND | | | | | AM36 | | | | | | | | | |
| | | GND | | | | | AM17 | | | | | | | | | |
| | | GND | | | | | AN35 | | | | | | | | | |
| | | GND | | | | | AN38 | | | | | | | | | |
| | | GND | | | | | AN39 | | | | | | | | | |
| | | GND | | | | | AP36 | | | | | | | | | |
| | | GND | | | | | AP37 | | | | | | | | | |
| | | GND | | | | | AR35 | | | | | | | | | |
| | | GND | | | | | AR38 | | | | | | | | | |
| | | GND | | | | | AR39 | | | | | | | | | |
| | | GND | | | | | AT36 | | | | | | | | | |
| | | GND | | | | | AT37 | | | | | | | | | |
| | | GND | | | | | AU35 | | | | | | | | | |
| | | GND | | | | | AU38 | | | | | | | | | |
| | | GND | | | | | AU39 | | | | | | | | | |
| | | GND | | | | | AV36 | | | | | | | | | |
| | | GND | | | | | AV39 | | | | | | | | | |
| | | GND | | | | | AV37 | | | | | | | | | |
| | | GND | | | | | AV38 | | | | | | | | | |
| | | GND | | | | | AV39 | | | | | | | | | |
| | | GND | | | | | AW35 | | | | | | | | | |
| | | GND | | | | | AW38 | | | | | | | | | |
| | | GND | | | | | B36 | | | | | | | | | |
| | | GND | | | | | B17 | | | | | | | | | |
| | | GND | | | | | C36 | | | | | | | | | |
| | | GND | | | | | C38 | | | | | | | | | |
| | | GND | | | | | C39 | | | | | | | | | |
| | | GND | | | | | D36 | | | | | | | | | |
| | | GND | | | | | D37 | | | | | | | | | |
| | | GND | | | | | E35 | | | | | | | | | |
| | | GND | | | | | E38 | | | | | | | | | |
| | | GND | | | | | E39 | | | | | | | | | |
| | | GND | | | | | F36 | | | | | | | | | |
| | | GND | | | | | F37 | | | | | | | | | |
| | | GND | | | | | G35 | | | | | | | | | |
| | | GND | | | | | G38 | | | | | | | | | |
| | | GND | | | | | G39 | | | | | | | | | |
| | | GND | | | | | H36 | | | | | | | | | |
| | | GND | | | | | H37 | | | | | | | | | |
| | | GND | | | | | J36 | | | | | | | | | |
| | | GND | | | | | J38 | | | | | | | | | |
| | | GND | | | | | J39 | | | | | | | | | |
| | | GND | | | | | K36 | | | | | | | | | |
| | | GND | | | | | K37 | | | | | | | | | |
| | | GND | | | | | L35 | | | | | | | | | |
| | | GND | | | | | L38 | | | | | | | | | |
| | | GND | | | | | L39 | | | | | | | | | |
| | | GND | | | | | M36 | | | | | | | | | |
| | | GND | | | | | M37 | | | | | | | | | |
| | | GND | | | | | N35 | | | | | | | | | |
| | | GND | | | | | N38 | | | | | | | | | |
| | | GND | | | | | N39 | | | | | | | | | |
| | | GND | | | | | P36 | | | | | | | | | |
| | | GND | | | | | P37 | | | | | | | | | |
| | | GND | | | | | R34 | | | | | | | | | |
| | | GND | | | | | R38 | | | | | | | | | |
| | | GND | | | | | R39 | | | | | | | | | |
| | | GND | | | | | T32 | | | | | | | | | |
| | | GND | | | | | T36 | | | | | | | | | |
| | | GND | | | | | T37 | | | | | | | | | |
| | | GND | | | | | U33 | | | | | | | | | |
| | | GND | | | | | U38 | | | | | | | | | |
| | | GND | | | | | U39 | | | | | | | | | |
| | | GND | | | | | V32 | | | | | | | | | |
| | | GND | | | | | V34 | | | | | | | | | |
| | | GND | | | | | V36 | | | | | | | | | |
| | | GND | | | | | V37 | | | | | | | | | |
| | | GND | | | | | W33 | | | | | | | | | |
| | | GND | | | | | W38 | | | | | | | | | |
| | | GND | | | | | W39 | | | | | | | | | |
| | | GND | | | | | Y31 | | | | | | | | | |
| | | GND | | | | | Y32 | | | | | | | | | |
| | | GND | | | | | Y36 | | | | | | | | | |
| | | GND | | | | | Y37 | | | | | | | | | |
| | | GND | | | | | AA3 | | | | | | | | | |
| | | GND | | | | | AA4 | | | | | | | | | |
| | | GND | | | | | AA5 | | | | | | | | | |
| | | GND | | | | | AA8 | | | | | | | | | |
| | | GND | | | | | AB1 | | | | | | | | | |
| | | GND | | | | | AB2 | | | | | | | | | |
| | | GND | | | | | AB7 | | | | | | | | | |
| | | GND | | | | | AC3 | | | | | | | | | |
| | | GND | | | | | AC4 | | | | | | | | | |
| | | GND | | | | | AC5 | | | | | | | | | |
| | | GND | | | | | AD1 | | | | | | | | | |
| | | GND | | | | | AD3 | | | | | | | | | |
| | | GND | | | | | AD5 | | | | | | | | | |
| | | GND | | | | | AD7 | | | | | | | | | |
| | | GND | | | | | AE1 | | | | | | | | | |
| | | GND | | | | | AE4 | | | | | | | | | |
| | | GND | | | | | AE6 | | | | | | | | | |
| | | GND | | | | | AE8 | | | | | | | | | |
| | | GND | | | | | AF1 | | | | | | | | | |
| | | GND | | | | | AF2 | | | | | | | | | |
| | | GND | | | | | AG3 | | | | | | | | | |
| | | 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 X0/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 | | | | | U15 | | | | | | | | | |
| | | VCC | | | | | V17 | | | | | | | | | |
| | | VCC | | | | | V22 | | | | | | | | | |
| | | VCC | | | | | V29 | | | | | | | | | |
| | | VCC | | | | | V29 | | | | | | | | | |
| | | VCC | | | | | W20 | | | | | | | | | |
| | | VCC | | | | | W18 | | | | | | | | | |
| | | VCC | | | | | W22 | | | | | | | | | |
| | | VCC | | | | | W24 | | | | | | | | | |
| | | VCC | | | | | W26 | | | | | | | | | |
| | | VCC | | | | | W28 | | | | | | | | | |
| | | VCC | | | | | Y11 | | | | | | | | | |
| | | VCC | | | | | Y15 | | | | | | | | | |
| | | VCC | | | | | V17 | | | | | | | | | |
| | | VCC | | | | | X19 | | | | | | | | | |
| | | VCC | | | | | V23 | | | | | | | | | |
| | | VCC | | | | | V25 | | | | | | | | | |
| | | VCC | | | | | V29 | | | | | | | | | |
| | | VCC | | | | | Y21 | | | | | | | | | |
| | | VCC_HPS | | | | | U12 | | | | | | | | | |
| | | VCC_HPS | | | | | U11 | | | | | | | | | |
| | | VCC_HPS | | | | | V12 | | | | | | | | | |
| | | VCC_HPS | | | | | V13 | | | | | | | | | |
| | | VCC_HPS | | | | | V15 | | | | | | | | | |
| | | VCC_HPS | | | | | W12 | | | | | | | | | |
| | | VCC_HPS | | | | | W14 | | | | | | | | | |
| | | VCC_HPS | | | | | Y13 | | | | | | | | | |
| | | VCC03A | | | | | AH29 | | | | | | | | | |
| | | VCC03A | | | | | AJ30 | | | | | | | | | |
| | | VCC03A | | | | | AK35 | | | | | | | | | |
| | | VCC03A | | | | | AM30 | | | | | | | | | |
| | | VCC03A | | | | | AP35 | | | | | | | | | |
| | | VCC03A | | | | | AT35 | | | | | | | | | |
| | | VCC03B | | | | | AK29 | | | | | | | | | |
| | | VCC03B | | | | | AL27 | | | | | | | | | |
| | | VCC03B | | | | | AN28 | | | | | | | | | |
| | | VCC03B | | | | | AT28 | | | | | | | | | |
| | | VCC03C | | | | | AL24 | | | | | | | | | |
| | | VCC03C | | | | | AL25 | | | | | | | | | |
| | | VCC03C | | | | | AM24 | | | | | | | | | |
| | | VCC03C | | | | | AP26 | | | | | | | | | |
| | | VCC03C | | | | | AE24 | | | | | | | | | |
| | | VCC03C | | | | | AJ25 | | | | | | | | | |
| | | VCC03D | | | | | AJ22 | | | | | | | | | |
| | | VCC03D | | | | | AL21 | | | | | | | | | |
| | | VCC03D | | | | | AM22 | | | | | | | | | |
| | | VCC03D | | | | | AP21 | | | | | | | | | |
| | | VCC03D | | | | | AE22 | | | | | | | | | |
| | | VCC03D | | | | | AJ21 | | | | | | | | | |
| | | VCC04A | | | | | AG10 | | | | | | | | | |
| | | VCC04A | | | | | AJ5 | | | | | | | | | |
| | | VCC04A | | | | | AL5 | | | | | | | | | |
| | | VCC04A | | | | | AN5 | | | | | | | | | |
| | | VCC04A | | | | | AP5 | | | | | | | | | |
| | | VCC04A | | | | | AUS | | | | | | | | | |
| | | VCC04B | | | | | AK13 | | | | | | | | | |
| | | VCC04B | | | | | AM12 | | | | | | | | | |
| | | VCC04B | | | | | AN10 | | | | | | | | | |
| | | VCC04B | | | | | AN13 | | | | | | | | | |
| | | VCC04B | | | | | AR12 | | | | | | | | | |
| | | VCC04C | | | | | AT10 | | | | | | | | | |
| | | VCC04C | | | | | AJ15 | | | | | | | | | |
| | | VCC04C | | | | | AM15 | | | | | | | | | |
| | | VCC04C | | | | | AR15 | | | | | | | | | |
| | | VCC04C | | | | | AV15 | | | | | | | | | |
| | | VCC04D | | | | | AJ19 | | | | | | | | | |
| | | VCC04D | | | | | AK18 | | | | | | | | | |
| | | VCC04D | | | | | AM19 | | | | | | | | | |
| | | VCC04D | | | | | AN18 | | | | | | | | | |
| | | VCC04D | | | | | AR19 | | | | | | | | | |
| | | VCC04D | | | | | AT18 | | | | | | | | | |
| | | VCC06A_HPS | | | | | AT9 | | | | | | | | | |
| | | VCC06A_HPS | | | | | CS | | | | | | | | | |
| | | VCC06A_HPS | | | | | CS | | | | | | | | | |
| | | VCC06A_HPS | | | | | CS | | | | | | | | | |
| | | VCC06A_HPS | | | | | FB | | | | | | | | | |
| | | VCC06A_HPS | | | | | FB | | | | | | | | | |
| | | VCC06A_HPS | | | | | J6 | | | | | | | | | |
| | | VCC06A_HPS | | | | | K8 | | | | | | | | | |
| | | VCC06A_HPS | | | | | M8 | | | | | | | | | |
| | | VCC06A_HPS | | | | | P9 | | | | | | | | | |
| | | VCC06B_HPS | | | | | B3 | | | | | | | | | |
| | | VCC06B_HPS | | | | | D4 | | | | | | | | | |
| | | VCC06B_HPS | | | | | G3 | | | | | | | | | |
| | | VCC06B_HPS | | | | | J3 | | | | | | | | | |
| | | VCC06B_HPS | | | | | L3 | | | | | | | | | |
| | | VCC06B_HPS | | | | | N2 | | | | | | | | | |
| | | VCC06B_HPS | | | | | N5 | | | | | | | | | |
| | | VCC07A_HPS | | | | | B13 | | | | | | | | | |
| | | VCC07A_HPS | | | | | E10 | | | | | | | | | |
| | | VCC07A_HPS | | | | | G12 | | | | | | | | | |
| | | VCC07A_HPS | | | | | K13 | | | | | | | | | |
| | | VCC07B_HPS | | | | | E14 | | | | | | | | | |
| | | VCC07B_HPS | | | | | J15 | | | | | | | | | |
| | | VCC07C_HPS | | | | | D17 | | | | | | | | | |
| | | VCC07D_HPS | | | | | B18 | | | | | | | | | |
| | | VCC07D_HPS | | | | | G17 | | | | | | | | | |
| | | VCC07E_HPS | | | | | M7 | | | | | | | | | |
| | | VCC07E | | | | | Z6 | | | | | | | | | |
| | | VCC07E | | | | | K18 | | | | | | | | | |
| | | VCC08A | | | | | B35 | | | | | | | | | |
| | | VCC08A | | | | | G31 | | | | | | | | | |
| | | VCC08A | | | | | G33 | | | | | | | | | |
| | | VCC08A | | | | | K31 | | | | | | | | | |
| | | VCC08A | | | | | K33 | | | | | | | | | |
| | | VCC08A | | | | | P33 | | | | | | | | | |
| | | VCC08B | | | | | E28 | | | | | | | | | |
| | | VCC08B | | | | | E30 | | | | | | | | | |
| | | VCC08B | | | | | H30 | | | | | | | | | |
| | | VCC08B | | | | | K28 | | | | | | | | | |
| | | VCC08C | | | | | C25 | | | | | | | | | |
| | | VCC08C | | | | | D27 | | | | | | | | | |
| | | VCC08C | | | | | F25 | | | | | | | | | |
| | | VCC08C | | | | | G27 | | | | | | | | | |
| | | VCC08C | | | | | J25 | | | | | | | | | |
| | | VCC08C | | | | | M24 | | | | | | | | | |
| | | VCC08D | | | | | C21 | | | | | | | | | |
| | | VCC08D | | | | | D23 | | | | | | | | | |
| | | VCC08D | | | | | F21 | | | | | | | | | |
| | | VCC08D | | | | | G22 | | | | | | | | | |
| | | VCC08D | | | | | K21 | | | | | | | | | |
| | | VCC08D | | | | | M21 | | | | | | | | | |

| Bank Number | VREF | PinName/Function (2), (3) | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1517 (4) | DQS for X0/X9 | DQS for X16/ X18 | DQS for X32/ X36 | HMC pin assignment for DBR3 (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 | | | | | | | | | |
| | | VCCPD6A/B_HPS | | | | | L9 | | | | | | | | | |
| | | VCCPD6A/B_HPS | | | | | T10 | | | | | | | | | |
| | | VCCPD6A/B_HPS | | | | | T6 | | | | | | | | | |
| | | VCCPD6A/B_HPS | | | | | T8 | | | | | | | | | |
| | | VCCPD7A_HPS | | | | | R12 | | | | | | | | | |
| | | VCCPD7B_HPS | | | | | T14 | | | | | | | | | |
| | | VCCPD7C_HPS | | | | | R16 | | | | | | | | | |
| | | VCCPD7D_HPS | | | | | T17 | | | | | | | | | |
| | | VCCPD7E_HPS | | | | | R18 | | | | | | | | | |
| | | VCCPD7F/G | | | | | U21 | | | | | | | | | |
| | | VCCPD8 | | | | | ES2 | | | | | | | | | |
| | | VCCPD8 | | | | | T30 | | | | | | | | | |
| | | VCCPD8 | | | | | U22 | | | | | | | | | |
| | | VCCPD8 | | | | | U24 | | | | | | | | | |
| | | VCCPD8 | | | | | U26 | | | | | | | | | |
| | | VCCPD8 | | | | | U29 | | | | | | | | | |
| | | VCCPD8M | | | | | J19 | | | | | | | | | |
| | | VCCPD8M | | | | | AC29 | | | | | | | | | |
| | | VCCRSCLK_HPS | | | | | L10 | | | | | | | | | |
| | | VCC_HPS | | | | | T13 | | | | | | | | | |
| | | VCC_HPS | | | | | U14 | | | | | | | | | |
| | | VCC_HPS | | | | | U8 | | | | | | | | | |
| | | VCC_HPS | | | | | V10 | | | | | | | | | |
| | VREFB7A/B/C/D/E/N0_HPS | VREFB7A/B/C/D/E/N0_HPS | | | | | P16 | | | | | | | | | |
| | | GND | | | | | AA11 | | | | | | | | | |
| | | GND | | | | | AA13 | | | | | | | | | |
| | | GND | | | | | AA16 | | | | | | | | | |
| | | 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 | | | | | AF29 | | | | | | | | | |
| | | GND | | | | | AF30 | | | | | | | | | |
| | | GND | | | | | AG31 | | | | | | | | | |
| | | GND | | | | | AG28 | | | | | | | | | |
| | | GND | | | | | AJ11 | | | | | | | | | |
| | | GND | | | | | AJ14 | | | | | | | | | |
| | | GND | | | | | AJ17 | | | | | | | | | |
| | | GND | | | | | AJ20 | | | | | | | | | |
| | | GND | | | | | AJ23 | | | | | | | | | |
| | | GND | | | | | AJ26 | | | | | | | | | |
| | | GND | | | | | AJ29 | | | | | | | | | |
| | | GND | | | | | AJ32 | | | | | | | | | |
| | | GND | | | | | AJ38 | | | | | | | | | |
| | | 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 | | | | | B8 | | | | | | | | | |
| | | GND | | | | | E11 | | | | | | | | | |
| | | GND | | | | | E17 | | | | | | | | | |
| | | GND | | | | | E2 | | | | | | | | | |
| | | GND | | | | | E20 | | | | | | | | | |
| | | GND | | | | | E23 | | | | | | | | | |
| | | GND | | | | | E26 | | | | | | | | | |
| | | GND | | | | | E29 | | | | | | | | | |
| | | 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 X0/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 | | | | | E32 | | | | | | | | | |
| | | GND | | | | | E5 | | | | | | | | | |
| | | GND | | | | | E8 | | | | | | | | | |
| | | GND | | | | | F14 | | | | | | | | | |
| | | GND | | | | | H11 | | | | | | | | | |
| | | GND | | | | | H17 | | | | | | | | | |
| | | GND | | | | | H2 | | | | | | | | | |
| | | GND | | | | | H50 | | | | | | | | | |
| | | GND | | | | | H23 | | | | | | | | | |
| | | GND | | | | | H26 | | | | | | | | | |
| | | GND | | | | | H29 | | | | | | | | | |
| | | GND | | | | | H32 | | | | | | | | | |
| | | GND | | | | | H6 | | | | | | | | | |
| | | GND | | | | | H8 | | | | | | | | | |
| | | GND | | | | | J14 | | | | | | | | | |
| | | GND | | | | | K29 | | | | | | | | | |
| | | GND | | | | | L11 | | | | | | | | | |
| | | GND | | | | | L17 | | | | | | | | | |
| | | GND | | | | | L2 | | | | | | | | | |
| | | GND | | | | | L23 | | | | | | | | | |
| | | GND | | | | | L26 | | | | | | | | | |
| | | GND | | | | | L28 | | | | | | | | | |
| | | GND | | | | | L29 | | | | | | | | | |
| | | GND | | | | | L5 | | | | | | | | | |
| | | GND | | | | | L8 | | | | | | | | | |
| | | GND | | | | | N14 | | | | | | | | | |
| | | GND | | | | | N17 | | | | | | | | | |
| | | GND | | | | | N20 | | | | | | | | | |
| | | GND | | | | | P11 | | | | | | | | | |
| | | GND | | | | | P23 | | | | | | | | | |
| | | GND | | | | | P26 | | | | | | | | | |
| | | GND | | | | | P29 | | | | | | | | | |
| | | GND | | | | | P32 | | | | | | | | | |
| | | GND | | | | | R8 | | | | | | | | | |
| | | GND | | | | | W21 | | | | | | | | | |
| | | GND | | | | | T12 | | | | | | | | | |
| | | GND | | | | | T15 | | | | | | | | | |
| | | GND | | | | | T16 | | | | | | | | | |
| | | GND | | | | | T18 | | | | | | | | | |
| | | GND | | | | | T20 | | | | | | | | | |
| | | GND | | | | | T6 | | | | | | | | | |
| | | GND | | | | | U11 | | | | | | | | | |
| | | GND | | | | | U13 | | | | | | | | | |
| | | GND | | | | | U17 | | | | | | | | | |
| | | GND | | | | | U23 | | | | | | | | | |
| | | GND | | | | | U25 | | | | | | | | | |
| | | GND | | | | | U27 | | | | | | | | | |
| | | GND | | | | | U29 | | | | | | | | | |
| | | GND | | | | | U7 | | | | | | | | | |
| | | GND | | | | | U14 | | | | | | | | | |
| | | GND | | | | | V8 | | | | | | | | | |
| | | GND | | | | | V18 | | | | | | | | | |
| | | GND | | | | | V21 | | | | | | | | | |
| | | GND | | | | | V24 | | | | | | | | | |
| | | GND | | | | | V26 | | | | | | | | | |
| | | GND | | | | | V28 | | | | | | | | | |
| | | GND | | | | | V29 | | | | | | | | | |
| | | GND | | | | | V8 | | | | | | | | | |
| | | GND | | | | | W27 | | | | | | | | | |
| | | GND | | | | | W11 | | | | | | | | | |
| | | GND | | | | | W13 | | | | | | | | | |
| | | GND | | | | | W15 | | | | | | | | | |
| | | GND | | | | | W17 | | | | | | | | | |
| | | GND | | | | | W19 | | | | | | | | | |
| | | GND | | | | | W23 | | | | | | | | | |
| | | GND | | | | | W26 | | | | | | | | | |
| | | GND | | | | | W29 | | | | | | | | | |
| | | GND | | | | | V10 | | | | | | | | | |
| | | GND | | | | | V12 | | | | | | | | | |
| | | GND | | | | | V14 | | | | | | | | | |
| | | GND | | | | | V16 | | | | | | | | | |
| | | GND | | | | | V18 | | | | | | | | | |
| | | GND | | | | | V20 | | | | | | | | | |
| | | GND | | | | | V22 | | | | | | | | | |
| | | GND | | | | | V24 | | | | | | | | | |
| | | GND | | | | | V26 | | | | | | | | | |
| | | GND | | | | | V28 | | | | | | | | | |

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 DDR3 device.



**Pin Information for the Arria® V 5ASTFD3 Device
Version 1.3**

| Version Number | Date | Changes Made |
|-----------------------|-------------|---|
| 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: - Renamed "DDR3/DDR2 hard memory PHY" to "HMC pin assignment for DDR3". - Renamed "LPDDR2 hard memory PHY" to "HMC pin assignment for LPDDR2". |
| 1.3 | 12/23/2016 | -Renamed SDMMC_FB_CLK_IN to HPS_GPIO44. |
| | | |