



Bank Number	VREF	PinName/Function (2)	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	U484	DQS for X8	HMC Pin Assignment for DDR3/DDR2 (3)	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
BA	VREFBSA0	IO	CLK6p,FPLL_TL_FBp		DIFFIO_RX_T9p	DIFFOUT_T9p	C6							
BA	VREFBSA0	IO	CLK6p,FPLL_TL_FBn		DIFFIO_RX_T9n	DIFFOUT_T9n	C5							
BA		MSEL0		MSEL0			R4							
BA		CONF_DONE		CONF_DONE			A3							
BA		MSEL1		MSEL1			E4							
BA		STATUS		STATUS			B3							
BA		HCE		HCE			A2							
BA		MSEL2		MSEL2			A1							
BA		MSEL3		MSEL3			C4							
BA		KCONFIG		KCONFIG			B2							
BA		MSEL4		MSEL4			C2							
GND							C1							
GND							A14							
GND							A4							
GND							AA14							
GND							AA4							
GND							AB1							
GND							AB11							
GND							AB21							
GND							B1							
GND							B11							
GND							B21							
GND							B6							
GND							C16							
GND							C3							
GND							C8							
GND							D1							
GND							D16							
GND							E1							
GND							E12							
GND							E2							
GND							E22							
GND							E3							
GND							F14							
GND							F19							
GND							F2							
GND							F3							
GND							F4							
GND							F9							
GND							G1							
GND							G16							
GND							G2							
GND							G4							
GND							G5							
GND							G8							
GND							H13							
GND							H2							
GND							H4							
GND							H5							
GND							J10							
GND							J20							
GND							J3							
GND							J5							
GND							J7							
GND							K1							
GND							K11							
GND							K13							
GND							K17							
GND							K2							
GND							K4							
GND							K6							
GND							K8							
GND							K9							
GND							L10							
GND							L12							
GND							L14							
GND							L2							
GND							L3							
GND							L5							
GND							L7							
GND							L8							
GND							M1							
GND							M11							
GND							M2							
GND							M21							
GND							M4							
GND							M8							
GND							M9							
GND							N1							
GND							N10							
GND							N12							
GND							N16							
GND							N2							
GND							N3							
GND							N5							
GND							N6							
GND							N7							
GND							N8							
GND							P11							
GND							P15							
GND							P2							
GND							P4							
GND							P6							
GND							P9							
GND							R1							
GND							R12							
GND							R14							
GND							R2							
GND							R22							
GND							R3							
GND							R5							
GND							R7							
GND							R9							
GND							T1							
GND							T13							
GND							T15							
GND							T19							
GND							T2							
GND							T4							
GND							T6							
GND							T8							
GND							U11							
GND							U12							
GND							U13							
GND							U14							



Bank Number	VREF	PinName/Function (2)	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	U484	DQS for X8	HMC Pin Assignment for DDR3DDR2 (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					U15							
		GND					U16							
		GND					U17							
		GND					U3							
		GND					U5							
		GND					U6							
		GND					U9							
		GND					V1							
		GND					V13							
		GND					V3							
		GND					V8							
		GND					W10							
		GND					W15							
		GND					W20							
		GND					Y1							
		GND					Y17							
		GND					Y2							
		GND					Y7							
		GND					R16							
		GND					P13							
		VCC					R8							
		VCC					J4							
		VCC					J6							
		VCC					J8							
		VCC					R3							
		VCC					R5							
		VCC					R7							
		VCC					L4							
		VCC					L6							
		VCC					M3							
		VCC					M5							
		VCC					M7							
		VCC					M8							
		VCC					N4							
		VCC					N6							
		VCC					P3							
		VCC					P5							
		VCC					P7							
		VCC					P8							
		VCC					R4							
		VCC					R8							
		VCC					R8							
		VCC					T3							
		VCC					T5							
		VCC					T7							
		VCC					PT7							
		DNU					J2							
		DNU					H1							
		DNU					G17							
		DNU					G8							
		DNU					W2							
		DNU					Y9							
		VCCPGM					Y4							
		VCCPGM					Y18							
		VCCPGM					D4							
		VCCBAT					D2							
		VCCD3A					AB6							
		VCCD3A					W5							
		VCCD3B					AA9							
		VCCD4A					AB10							
		VCCD4A					AB16							
		VCCD4A					Y12							
		VCCD6A					V18							
		VCCD6A					Y22							
		VCCD6A_HPS					D20							
		VCCD6A_HPS					E17							
		VCCD6A_HPS					G21							
		VCCD6A_HPS					H18							
		VCCD6A_HPS					J15							
		VCCD6A_HPS					K22							
		VCCD6A_HPS					L13							
		VCCD6A_HPS					L19							
		VCCD6B_HPS					M16							
		VCCD6B_HPS					N13							
		VCCD6B_HPS					P20							
		VCCD6B_HPS					R17							
		VCCD6B_HPS					T14							
		VCCD6B_HPS					U21							
		VCCD7A_HPS					A19							
		VCCD7A_HPS					B16							
		VCCD7B_HPS					G13							
		VCCD7B_HPS					G11							
		VCCD7C_HPS					D10							
		VCCD7D_HPS					A9							
		VCCD7D_HPS					E7							
		VCCD8A					D5							
		VCCPD3A					Y6							
		VCCPD3B4A					AA12							
		VCCPD3B4A					V12							
		VCCPD3B4A					V14							
		VCCPD3B4A					W13							
		VCCPD3B4A					W8							
		VCCPD5A					T16							
		VCCPD6AB_HPS					H16							
		VCCPD6AB_HPS					J17							
		VCCPD6AB_HPS					L17							
		VCCPD6AB_HPS					M16							
		VCCPD7A_HPS					G13							
		VCCPD7B_HPS					F12							
		VCCPD7C_HPS					E10							
		VCCPD7D_HPS					C9							
		VCCPD8A					D6							
3A	VREFB3AN0	VREFB3AN0					AB4							
3B	VREFB3BN0	VREFB3BN0					AA10							
4A	VREFB4AN0	VREFB4AN0					AA20							
5A	VREFB5AN0	VREFB5AN0					AB16							
	VREFB7A7B7C7DNO_HPS	VREFB7A7B7C7DNO_HPS					B17							
8A	VREFB8AN0	VREFB8AN0					B5							
		NC					G3							
		NC					H3							
		NC					R10							
		NC					R11							
		NC					T10							
		NC					T11							



Bank Number	VREF	PinName/Function (2)	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	U484	DQS for X8	HMC Pin Assignment for DDR3/DDR2 (3)	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
		NC					T12							
		NC					T9							
		VCCRSTCLK_HPS					D16							
		RREF_TL					J1							
		VCCA_FPLL					L1							
		VCCA_FPLL					P1							
		VCCA_FPLL					U1							
		VCCA_FPLL					W1							
		VCCA_FPLL					F1							
		VCCA_FPLL					W17							
		VCC_ALIX					AA17							
		VCC_ALIX					AA3							
		VCC_ALIX					D3							
		VCC_ALIX					D9							
		VCC_ALIX					Y10							
		VCC_ALIX_SHARED					E16							
		VCCPLL_HPS					F16							
		VCC_HPS					R13							
		VCC_HPS					R10							
		VCC_HPS					R12							
		VCC_HPS					L11							
		VCC_HPS					L9							
		VCC_HPS					M10							
		VCC_HPS					M12							
		VCC_HPS					N11							
		VCC_HPS					N9							
		VCC_HPS					P10							
		VCC_HPS					P12							

Notes:

- (1) For more information about pin definitions and pin connection guidelines, refer to the [Cyclone V Device Family Pin Connection Guidelines](#).
- (2) HPS_DDR pins are for memory interface only. For the dedicated pin function corresponding with the respective memory interfaces, refer to the HMC columns.
- (3) RESET pin is only applicable for DDR3 device.



Bank Number	VREF	PinName/Function (Z)	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	U672	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 (Z)	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					AC1									
		GND					AC2									
		GND					AC3									
		GND					AD14									
		GND					AD22									
		GND					AD25									
		GND					AD3									
		GND					AD6									
		GND					AD8									
		GND					AE1									
		GND					AE16									
		GND					AE18									
		GND					AE2									
		GND					AE3									
		GND					AF24									
		GND					AF3									
		GND					AG1									
		GND					AG17									
		GND					AG2									
		GND					AG27									
		GND					AG3									
		GND					AG7									
		GND					AH10									
		GND					AH20									
		GND					B15									
		GND					B17									
		GND					B20									
		GND					B22									
		GND					B25									
		GND					B27									
		GND					B3									
		GND					B5									
		GND					B7									
		GND					C1									
		GND					C11									
		GND					C2									
		GND					C3									
		GND					D10									
		GND					D15									
		GND					D16									
		GND					D3									
		GND					E1									
		GND					E10									
		GND					E2									
		GND					E22									
		GND					E24									
		GND					E27									
		GND					E3									
		GND					E9									
		GND					F3									
		GND					G1									
		GND					G2									
		GND					G3									
		GND					H11									
		GND					H15									
		GND					H18									
		GND					H20									
		GND					H24									
		GND					H27									
		GND					H3									
		GND					I3									
		GND					I25									
		GND					I28									
		GND					J1									
		GND					J2									
		GND					J3									
		GND					J5									
		GND					J9									
		GND					K11									
		GND					K12									
		GND					K14									
		GND					K16									
		GND					K20									
		GND					K3									
		GND					K4									
		GND					K14									
		GND					L1									
		GND					L12									
		GND					L13									
		GND					L15									
		GND					L17									
		GND					L19									
		GND					L2									
		GND					L24									
		GND					L27									
		GND					L3									
		GND					L5									
		GND					L4									
		GND					M10									
		GND					M19									
		GND					M11									
		GND					M14									
		GND					M16									
		GND					M20									
		GND					M3									
		GND					M5									
		GND					N1									
		GND					N13									
		GND					N15									
		GND					N17									
		GND					N19									
		GND					N2									
		GND					N3									
		GND					N4									
		GND					P10									
		GND					P12									
		GND					P15									
		GND					P18									
		GND					P20									
		GND					P25									
		GND					P3									
		GND					P5									
		GND					P9									
		GND					R1									
		GND					R11									
		GND					R13									
		GND					R15									
		GND					R2									
		GND					R3									
		GND					R8									
		GND					T10									
		GND					T14									
		GND					T3									
		GND					U1									
		GND					U2									



Bank Number	VREF	PinName/Function (Z)	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	U62	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 (Z)	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					U17								
		GND					U2								
		GND					U20								
		GND					U24								
		GND					U27								
		GND					U3								
		GND					U8								
		GND					V14								
		GND					V3								
		GND					V8								
		GND					V9								
		GND					V15								
		GND					W18								
		GND					W2								
		GND					W24								
		GND					Y24								
		GND					AB26								
		GND					W21								
		GND					V26								
		GND					V21								
		VCC					L11								
		VCC					K13								
		VCC					R15								
		VCC					L11								
		VCC					L12								
		VCC					L16								
		VCC					M12								
		VCC					M13								
		VCC					M16								
		VCC					M8								
		VCC					N10								
		VCC					N11								
		VCC					N12								
		VCC					N14								
		VCC					N6								
		VCC					P11								
		VCC					P13								
		VCC					P14								
		VCC					P15								
		VCC					R10								
		VCC					R13								
		VCC					R14								
		VCC					R9								
		VCC					T13								
		VCC					T3								
		VCC					L4								
		VCC					T4								
		VCC					M5								
		VCC					N5								
		VCC					R5								
		VCC					T5								
		VCC					U26								
		DNV					A2								
		DNV					B2								
		DNV					D1								
		DNV					D2								
		DNV					H1								
		DNV					H2								
		DNV					M1								
		DNV					M2								
		DNV					T1								
		DNV					T2								
		DNV					Y1								
		DNV					Y2								
		DNV					AD1								
		DNV					AD2								
		DNV					D23								
		DNV					E12								
		DNV					U8								
		DNV					AE14								
		VCCP6M					Y10								
		VCCP6M					AD24								
		VCCP6M					H10								
		VCCBAT					D7								
		VCCIO3A					AA5								
		VCCIO3A					W9								
		VCCIO3B					AA12								
		VCCIO3B					AE10								
		VCCIO3B					AE13								
		VCCIO3B					AE4								
		VCCIO4A					AA16								
		VCCIO4A					AE21								
		VCCIO4A					AF14								
		VCCIO4A					AF19								
		VCCIO4A					AG12								
		VCCIO4A					AG22								
		VCCIO4A					AH15								
		VCCIO4A					AH25								
		VCCIO4A					W13								
		VCCIO5A					AC26								
		VCCIO5A					W17								
		VCCIO5A_HPS					C25								
		VCCIO5A_HPS					C27								
		VCCIO5A_HPS					C37								
		VCCIO5A_HPS					G24								
		VCCIO5A_HPS					H21								
		VCCIO5A_HPS					H26								
		VCCIO5A_HPS					L26								
		VCCIO5A_HPS					M21								
		VCCIO5B_HPS					AD27								
		VCCIO5B_HPS					P27								
		VCCIO5B_HPS					T21								
		VCCIO5B_HPS					T25								
		VCCIO5B_HPS					U18								
		VCCIO5B_HPS					W27								
		VCCIO7A_HPS					C20								
		VCCIO7A_HPS					D18								
		VCCIO7B_HPS					B13								
		VCCIO7B_HPS					H14								
		VCCIO7C_HPS					B10								
		VCCIO7D_HPS					D6								
		VCCIO7D_HPS					G5								
		VCCIO8A					E7								
		VCCPD3A					AA10								
		VCCPD3A4					AA14								
		VCCPD3B4					AD13								
		VCCPD3B4					AD16								
		VCCPD3B4					AD18								
		VCCPD3B4					AD21								
		VCCPD3B4					AD9								
		VCCPD3A					V21								



Bank Number	VREF	PinName/Function (Z)	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	U67	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 (Z)	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
		WCPC06A0B_HPS					K21								
		WCPC06A0B_HPS					K24								
		WCPC06A0B_HPS					M24								
		WCPC06A0B_HPS					P21								
		WCPC06A0B_HPS					P24								
		WCPC07A_HPS					E21								
		WCPC07B_HPS					E17								
		WCPC07C_HPS					E14								
		WCPC07D_HPS					E13								
		WCPC08A					E10								
3A	VREFB3AND	VREFB3AND					AE5								
3B	VREFB3BND	VREFB3BND					AF12								
4A	VREFB4AND	VREFB4AND					AF16								
5A	VREFB5AND	VREFB5AND					AC26								
		VREFB7A7B7C7DND_HPS					D19								
8A	VREFB8AND	VREFB8AND					D9								
		NC					W25								
		NC					AA25								
		NC					W19								
		WCRCSTCLK_HPS					F22								
		RREF_TL					B1								
		VCCA_FPLL					K5								
		VCCA_FPLL					P4								
		VCCA_FPLL					U4								
		VCCA_FPLL					W5								
		VCCA_FPLL					J6								
		VCCA_FPLL					AA21								
		VCCA_FPLL					M6								
		VCCA_FPLL					R4								
		VCC_ALIX					AC21								
		VCC_ALIX					AC6								
		VCC_ALIX					AD15								
		VCC_ALIX					E16								
		VCC_ALIX					F8								
		VCC_ALIX_SHARED					F21								
		WCPLL_HPS					AC3								
		VCC_HPS					U21								
		VCC_HPS					K17								
		VCC_HPS					L16								
		VCC_HPS					L18								
		VCC_HPS					M17								
		VCC_HPS					M18								
		VCC_HPS					M19								
		VCC_HPS					N16								
		VCC_HPS					N18								
		VCC_HPS					P17								
		VCC_HPS					P19								

Notes:
 (1) For more information about pin definitions and pin connection guidelines, refer to the [Cyclone V Device Family Pin Connection Guidelines](#).
 (2) HPS, DDR pins are for memory interface only. For the dedicated pin function corresponding with the respective memory interfaces, refer to the HMC columns.
 (3) RESET pin is only applicable for DDR3 device.



Pin Information for the Cyclone® V 5CSEBA2 Device
Version 1.3

Version Number	Date	Changes Made
1.0	7/8/2013	Initial release.
1.1	9/30/2014	Remove corresponding bank number from VCCRSTCLK_HPS pin.
1.2	1/4/2016	Removed the USB0 pin from Pin List U19.
1.3	12/23/2016	-Renamed SDMMC_FB_CLK_IN to HPS_GPIO44.