



Bank Number	VREF	PinName/Function (2)	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 (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
9A		MSEL3		MSEL3			K10								
9A		KCONFIG		KCONFIG			F7								
9A		MSEL4		MSEL4			K9								
		GND					F6								
		GND					N8								
		GND					P9								
		GND					F2								
		GND					F1								
		GND					K2								
		GND					K1								
		GND					P2								
		GND					P1								
		GND					V2								
		GND					V1								
		GND					AB2								
		GND					AB1								
		GND					AF2								
		GND					AF1								
		GND					V5								
		GND					V4								
		GND					A10								
		GND					A3								
		GND					AA1								
		GND					AA17								
		GND					AA2								
		GND					AA3								
		GND					AA9								
		GND					AB24								
		GND					AB27								
		GND					AB3								
		GND					AC1								
		GND					AC2								
		GND					AC3								
		GND					AD14								
		GND					AD22								
		GND					AD26								
		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					B26								
		GND					B29								
		GND					B3								
		GND					B5								
		GND					B7								
		GND					C1								
		GND					C11								
		GND					C2								
		GND					C3								
		GND					D10								
		GND					D13								
		GND					D16								
		GND					D3								
		GND					E1								
		GND					E19								
		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					H4								
		GND					H5								
		GND					H6								
		GND					H								
		GND					J2								
		GND					J3								
		GND					J5								
		GND					J9								
		GND					K11								
		GND					K12								
		GND					K14								
		GND					K16								
		GND					K20								
		GND					K3								
		GND					K4								
		GND					K8								
		GND					L1								
		GND					L10								
		GND					L13								
		GND					L15								
		GND					L17								
		GND					L19								
		GND					L2								
		GND					L24								
		GND					L27								



Bank Number	VREF	PinName/Function (2)	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 (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
		GND					L3								
		GND					L5								
		GND					L8								
		GND					L9								
		GND					M10								
		GND					M11								
		GND					M14								
		GND					M16								
		GND					M20								
		GND					M3								
		GND					M8								
		GND					N1								
		GND					N13								
		GND					N15								
		GND					N17								
		GND					N19								
		GND					N2								
		GND					N3								
		GND					N4								
		GND					P10								
		GND					P12								
		GND					P16								
		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					U12								
		GND					U20								
		GND					U24								
		GND					U27								
		GND					U3								
		GND					U5								
		GND					V14								
		GND					V3								
		GND					V8								
		GND					V9								
		GND					W1								
		GND					W16								
		GND					W18								
		GND					W2								
		GND					W3								
		GND					W4								
		GND					Y12								
		GND					Y14								
		GND					Y20								
		GND					Y25								
		GND					Y3								
		GND					Y26								
		GND					Y21								
		VCC					J11								
		VCC					K13								
		VCC					K15								
		VCC					L11								
		VCC					L12								
		VCC					L14								
		VCC					M12								
		VCC					M13								
		VCC					M15								
		VCC					M9								
		VCC					N10								
		VCC					N11								
		VCC					N12								
		VCC					N14								
		VCC					N9								
		VCC					P11								
		VCC					P13								
		VCC					P14								
		VCC					P15								
		VCC					R10								
		VCC					R12								
		VCC					R14								
		VCC					R9								
		VCC					T15								
		VCC					T9								
		VCC					U4								
		VCC					U4								
		VCC					M5								
		VCC					N5								
		VCC					N5								
		VCC					T5								
		VCC					U26								
		DNLU					A2								
		DNLU					B2								
		DNLU					D1								
		DNLU					D2								
		DNLU					H1								
		DNLU					H2								
		DNLU					M1								
		DNLU					M2								
		DNLU					T1								
		DNLU					T2								
		DNLU					Y1								
		DNLU					Y2								
		DNLU					AD1								
		DNLU					AD2								
		DNLU					L8								
		DNLU					AE14								
		DNLU					D23								
		DNLU					E12								
		VCCPGM					F10								



Bank Number	VREF	PinName/Function (2)	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	M72	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 (2)	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	
		VCCPQM					AD24									
		VCCPQM					H10									
		VCCBAT					D7									
		VCCIOA					AA5									
		VCCIOA					W9									
		VCCIOB					AA12									
		VCCIOB					AE10									
		VCCIOB					AE13									
		VCCIOB					AS4									
		VCCIOA					AA16									
		VCCIOA					AE21									
		VCCIOA					AF14									
		VCCIOA					AF19									
		VCCIOA					AG12									
		VCCIOA					AG22									
		VCCIOA					AH16									
		VCCIOA					AH25									
		VCCIOA					W13									
		VCCIOA					HC26									
		VCCIOA					W17									
		VCCIOB					W26									
		VCCIOA_HPS					C26									
		VCCIOA_HPS					C27									
		VCCIOA_HPS					F27									
		VCCIOA_HPS					G24									
		VCCIOA_HPS					H21									
		VCCIOA_HPS					H26									
		VCCIOA_HPS					L26									
		VCCIOA_HPS					M21									
		VCCIOB_HPS					AD27									
		VCCIOB_HPS					P27									
		VCCIOB_HPS					T21									
		VCCIOB_HPS					T26									
		VCCIOB_HPS					U18									
		VCCIOB_HPS					W27									
		VCCIO7A_HPS					C20									
		VCCIO7A_HPS					D18									
		VCCIO7B_HPS					B13									
		VCCIO7B_HPS					H14									
		VCCIO7C_HPS					B10									
		VCCIO7D_HPS					D6									
		VCCIO7D_HPS					G6									
		VCCIO8A					E7									
		VCCPD3A					AA10									
		VCCPD3B4A					AA14									
		VCCPD3B4A					AD13									
		VCCPD3B4A					AD16									
		VCCPD3B4A					AD18									
		VCCPD3B4A					AD21									
		VCCPD3B4A					AD9									
		VCCPD6A					Y21									
		VCCPD6B					W19									
		VCCPD6A6B_HPS					M21									
		VCCPD6A6B_HPS					M24									
		VCCPD6A6B_HPS					M24									
		VCCPD6A6B_HPS					P21									
		VCCPD6A6B_HPS					P24									
		VCCPD7A_HPS					E21									
		VCCPD7B_HPS					E17									
		VCCPD7C_HPS					E14									
		VCCPD7D_HPS					E13									
		VCCPD8A					E10									
3A	VREFB3A0	VREFB3A0					AE5									
3B	VREFB3B0	VREFB3B0					AF22									
4A	VREFB4A0	VREFB4A0					AF16									
5A	VREFB5A0	VREFB5A0					AC26									
5B	VREFB5B0	VREFB5B0					AA26									
	VREFB7A7B7C7D0_HPS	VREFB7A7B7C7D0_HPS					D19									
8A	VREFB8A0	VREFB8A0					D9									
	VCCRS1CLK_HPS						P22									
	VREF_TL						B1									
	VCCA_FPLL						K5									
	VCCA_FPLL						P4									
	VCCA_FPLL						U4									
	VCCA_FPLL						W5									
	VCCA_FPLL						J4									
	VCCA_FPLL						AA21									
	VCCA_FPLL						M4									
	VCCA_FPLL						R4									
	VCC_AUX						AC21									
	VCC_AUX						AC8									
	VCC_AUX						AD15									
	VCC_AUX						E15									
	VCC_AUX						F8									
	VCC_AUX_SHARED						F21									
	VCCPLL_HPS						H23									
	VCC_HPS						U21									
	VCC_HPS						N17									
	VCC_HPS						L16									
	VCC_HPS						L18									
	VCC_HPS						M17									
	VCC_HPS						M18									
	VCC_HPS						M19									
	VCC_HPS						M16									
	VCC_HPS						N15									
	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 devices.



Pin Information for the Cyclone® V 5CSEMA5 Device
Version 1.3

Version Number	Date	Changes Made
1.0	10/18/2012	Initial release.
1.1	1/17/2013	A pin that was marked as VCC_HPS has been corrected to VCCRSTCLK_HPS
1.2	3/25/2013	Updated the following pin names: - Changed SDMMC_CLK_IN to SDMMC_FB_CLK_IN - Changed SDMMC_CLK to SDMMC_CCLK_OUT
1.3	9/30/2014	- Remove corresponding bank number from VCCRSTCLK_HPS pin. - Changed HMC Pin Assignment for DDR3 to HMC Pin Assignment for DDR3/DDR2. - Added note 3.