Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	M383	DQS for X8	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2	Board Connection Requirement for Pin Migration Only
1A	VREFB1AN0	IO			DIFFIO_TX_L1n	DIFFOUT_L1n	H23				GND
1A	VREFB1AN0	IO			DIFFIO_RX_L2n	DIFFOUT_L2n	F25	DQ1L			DNU
1A	VREFB1AN0	IO			DIFFIO_TX_L1p	DIFFOUT_L1p	H22	DQ1L			GND
1A	VREFB1AN0	IO			DIFFIO_RX_L2p	DIFFOUT_L2p	G25	DQ1L			DNU
1A	VREFB1AN0	IO			DIFFIO_RX_L3n	DIFFOUT_L3n	G24	DQSn1L			GND
1A	VREFB1AN0	IO			DIFFIO_TX_L4n	DIFFOUT_L4n	E22	DQ1L			GND
1A	VREFB1AN0	IO			DIFFIO_RX_L3p	DIFFOUT_L3p	H24	DQS1L			GND
1A	VREFB1AN0	IO			DIFFIO_TX_L4p	DIFFOUT_L4p	F22				GND
1A	VREFB1AN0	IO			DIFFIO_TX_L5n	DIFFOUT_L5n	F23	DQ1L			GND
1A	VREFB1AN0	IO			DIFFIO_RX_L6n	DIFFOUT_L6n	J25	DQ1L			DNU
1A	VREFB1AN0	IO			DIFFIO_TX_L5p	DIFFOUT_L5p	G22	DQ1L			GND
1A	VREFB1AN0	IO			DIFFIO_RX_L6p	DIFFOUT_L6p	J24	DQ1L			GND
1A	VREFB1AN0	IO			DIFFIO_RX_L7n	DIFFOUT_L7n	K25				DNU
1A	VREFB1AN0	IO			DIFFIO_TX_L8n	DIFFOUT_L8n	J23	DQ1L			GND
1A	VREFB1AN0	IO			DIFFIO_RX_L7p	DIFFOUT_L7p	L25				GND
1A	VREFB1AN0	IO			DIFFIO_TX_L8p	DIFFOUT_L8p	K23	DQ1L			VCC
2A	VREFB2AN0	IO			DIFFIO_TX_L9n	DIFFOUT_L9n	L22				GND
2A	VREFB2AN0	IO			DIFFIO_RX_L10n	DIFFOUT_L10n	M25	DQ1L			DNU
2A	VREFB2AN0	IO			DIFFIO_TX_L9p	DIFFOUT_L9p	M22	DQ1L			GND
2A	VREFB2AN0	IO			DIFFIO_RX_L10p	DIFFOUT_L10p	M24	DQ1L			GND
2A	VREFB2AN0	IO			DIFFIO_RX_L11n	DIFFOUT_L11n	N24	DQSn1L			GND
2A	VREFB2AN0	IO			DIFFIO_TX_L12n	DIFFOUT_L12n	N23	DQ1L			VCC
2A	VREFB2AN0	IO			DIFFIO_RX_L11p	DIFFOUT_L11p	P24	DQS1L			VCC
2A	VREFB2AN0	IO			DIFFIO_TX_L12p	DIFFOUT_L12p	N22				GND
2A	VREFB2AN0	IO			DIFFIO_TX_L13n	DIFFOUT_L13n	P23	DQ1L			GND
2A	VREFB2AN0	IO			DIFFIO_RX_L14n	DIFFOUT_L14n	P25	DQ1L			GND
2A	VREFB2AN0	IO			DIFFIO_TX_L13p	DIFFOUT_L13p	R22	DQ1L			GND
2A	VREFB2AN0	IO			DIFFIO_RX_L14p	DIFFOUT_L14p	R25	DQ1L			DNU
2A	VREFB2AN0	IO			DIFFIO_RX_L15n	DIFFOUT_L15n	T25				DNU
2A	VREFB2AN0	IO			DIFFIO_TX_L16n	DIFFOUT_L16n	T23	DQ1L			VCC
2A	VREFB2AN0	IO			DIFFIO_RX_L15p	DIFFOUT_L15p	T24				GND
2A	VREFB2AN0	IO			DIFFIO_TX_L16p	DIFFOUT_L16p	T22	DQ1L			GND
2A	VREFB2AN0	IO			DIFFIO_TX_L17n	DIFFOUT_L17n	U22				GND
2A	VREFB2AN0	IO			DIFFIO_RX_L18n	DIFFOUT_L18n	U25	DQ2L			GND
2A	VREFB2AN0	IO			DIFFIO_TX_L17p	DIFFOUT_L17p	V22	DQ2L			GND
2A	VREFB2AN0	IO			DIFFIO_RX_L18p	DIFFOUT_L18p	V24	DQ2L			GND
2A	VREFB2AN0	IO			DIFFIO_RX_L19n	DIFFOUT_L19n	W25	DQSn2L			DNU
2A	VREFB2AN0	IO			DIFFIO_TX_L20n	DIFFOUT_L20n	V23	DQ2L			GND
2A	VREFB2AN0	IO			DIFFIO_RX_L19p	DIFFOUT_L19p	Y25	DQS2L			GND
2A	VREFB2AN0	IO			DIFFIO_TX_L20p	DIFFOUT_L20p	W23				VCC
2A	VREFB2AN0	IO			DIFFIO_TX_L21n	DIFFOUT_L21n	Y23	DQ2L			GND
2A	VREFB2AN0	IO			DIFFIO_RX_L22n	DIFFOUT_L22n	AA25	DQ2L			DNU
2A	VREFB2AN0	IO			DIFFIO_TX_L21p	DIFFOUT_L21p	Y22	DQ2L			GND
2A	VREFB2AN0	IO			DIFFIO_RX_L22p	DIFFOUT_L22p	Y24	DQ2L			VCC
2A	VREFB2AN0	IO			DIFFIO_RX_L23n	DIFFOUT_L23n	AB25				DNU
2A	VREFB2AN0	IO			DIFFIO_TX_L24n	DIFFOUT_L24n	AA22	DQ2L			GND
2A	VREFB2AN0	IO			DIFFIO_RX_L23p	DIFFOUT_L23p	AA24				GND
2A	VREFB2AN0	IO			DIFFIO_TX_L24p	DIFFOUT_L24p	AB22	DQ2L			GND
3A		TDO		TDO			AD25				
3A		nCSO		DATA4			AD24				
3A		TMS		TMS			AE25				
3A		AS_DATA3		DATA3			AE24				
3A		TCK		TCK			AC22				
3A		AS_DATA2		DATA2			AB21				
3A		TDI		TDI			AD23				
3A		AS_DATA1		DATA1			AE21				
3A		DCLK		DCLK			AE22				
3A		AS_DATA0,ASDO		DATA0			AE23				
3A	VREFB3AN0	IO		DATA6	DIFFIO_RX_B1n	DIFFOUT_B1n	AE18	DQ1B			
3A	VREFB3AN0	IO		DATA5	DIFFIO_TX_B2n	DIFFOUT_B2n	AE20				
3A	VREFB3AN0	IO		DATA8	DIFFIO_RX_B1p	DIFFOUT_B1p	AD19	DQ1B			
3A	VREFB3AN0	IO		DATA7	DIFFIO_TX_B2p	DIFFOUT_B2p	AD21	DQ1B			
3A	VREFB3AN0	IO		DATA10	DIFFIO_RX_B3n	DIFFOUT_B3n	AD18	DQSn1B			
3A	VREFB3AN0	IO		DATA9	DIFFIO_TX_B4n	DIFFOUT_B4n	AB20	DQ1B			
3A	VREFB3AN0	IO		DATA12	DIFFIO_RX_B3p	DIFFOUT_B3p	AC17	DQS1B			
3A	VREFB3AN0	IO		DATA11	DIFFIO_TX_B4p	DIFFOUT_B4p	AB19				
3A	VREFB3AN0	IO		DATA14	DIFFIO_RX_B5n	DIFFOUT_B5n	AE17	DQ1B			
3A	VREFB3AN0	IO		DATA13	DIFFIO_TX_B6n	DIFFOUT_B6n	AC19	DQ1B			

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	M383	DQS for X8	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2	Board Connection Requirement for Pin Migration Only
3A	VREFB3AN0	IO		CLKUSR	DIFFIO_RX_B5p	DIFFOUT_B5p	AD16	DQ1B			
3A	VREFB3AN0	IO		DATA15	DIFFIO_TX_B6p	DIFFOUT_B6p	AC18	DQ1B			
3A	VREFB3AN0	IO		PR_DONE	DIFFIO_RX_B7n	DIFFOUT_B7n	AE16				
3A	VREFB3AN0	IO		PR_READY	DIFFIO_TX_B8n	DIFFOUT_B8n	AB17	DQ1B			
3A	VREFB3AN0	IO		PR_ERROR	DIFFIO_RX_B7p	DIFFOUT_B7p	AE15				
3A	VREFB3AN0	IO			DIFFIO_TX_B8p	DIFFOUT_B8p	AA17	DQ1B			
3B	VREFB3BN0	IO			DIFFIO_RX_B10n	DIFFOUT_B10n	AA16				
3B	VREFB3BN0	IO			DIFFIO_RX_B11p	DIFFOUT_B11p	AC16				
3B	VREFB3BN0	IO			DIFFIO_RX_B14n	DIFFOUT_B14n	AB15				
3B	VREFB3BN0	IO	CLK0n,FPLL_BL_FBn		DIFFIO_RX_B15n	DIFFOUT_B15n	AD15				
3B	VREFB3BN0	IO	CLK0p,FPLL_BL_FBp		DIFFIO_RX_B15p	DIFFOUT_B15p	AD14				
3B	VREFB3BN0	IO			DIFFIO_TX_B17n	DIFFOUT_B17n	AB14				
3B	VREFB3BN0	IO			DIFFIO_RX_B18n	DIFFOUT_B18n	AE13	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_TX_B17p	DIFFOUT_B17p	AA14	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B18p	DIFFOUT_B18p	AE12	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B19n	DIFFOUT_B19n	AE11	DQSn2B			
3B	VREFB3BN0	IO			DIFFIO_TX_B20n	DIFFOUT_B20n	AD13	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B19p	DIFFOUT_B19p	AE10	DQS2B			
3B	VREFB3BN0	IO			DIFFIO_TX_B20p	DIFFOUT_B20p	AC14				
3B	VREFB3BN0	IO	FPLL_BL_CLKOUT1,FPLL_BL_CLKOUTn		DIFFIO_TX_B21n	DIFFOUT_B21n	AB12	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B22n	DIFFOUT_B22n	AD11	DQ2B			
3B	VREFB3BN0	IO	FPLL_BL_CLKOUT0,FPLL_BL_CLKOUTp,FPLL_BL_FB		DIFFIO_TX_B21p	DIFFOUT_B21p	AA12	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B22p	DIFFOUT_B22p	AC12	DQ2B			
3B	VREFB3BN0	IO	CLK1n		DIFFIO_RX_B23n	DIFFOUT_B23n	AD10				
3B	VREFB3BN0	IO			DIFFIO_TX_B24n	DIFFOUT_B24n	AB11	DQ2B			
3B	VREFB3BN0	IO	CLK1p		DIFFIO_RX_B23p	DIFFOUT_B23p	AD9				
3B	VREFB3BN0	IO			DIFFIO_TX_B24p	DIFFOUT_B24p	AA11	DQ2B			
4A	VREFB4AN0	IO	RZQ_0		DIFFIO_TX_B25n	DIFFOUT_B25n	AB10				
4A	VREFB4AN0	IO			DIFFIO_RX_B26n	DIFFOUT_B26n	AE8	DQ3B			
4A	VREFB4AN0	IO			DIFFIO_TX_B25p	DIFFOUT_B25p	AA9	DQ3B			
4A	VREFB4AN0	IO			DIFFIO_RX_B26p	DIFFOUT_B26p	AD8	DQ3B			
4A	VREFB4AN0	IO			DIFFIO_RX_B27n	DIFFOUT_B27n	AC9	DQSn3B			
4A	VREFB4AN0	IO			DIFFIO_TX_B28n	DIFFOUT_B28n	AB9	DQ3B			
4A	VREFB4AN0	IO			DIFFIO_RX_B27p	DIFFOUT_B27p	AC8	DQS3B			
4A	VREFB4AN0	IO			DIFFIO_TX_B28p	DIFFOUT_B28p	AA8				
4A	VREFB4AN0	IO			DIFFIO_TX_B29n	DIFFOUT_B29n	AC7	DQ3B			
4A	VREFB4AN0	IO			DIFFIO_RX_B30n	DIFFOUT_B30n	AE6	DQ3B			
4A	VREFB4AN0	IO			DIFFIO_TX_B29p	DIFFOUT_B29p	AC6	DQ3B			
4A	VREFB4AN0	IO			DIFFIO_RX_B30p	DIFFOUT_B30p	AD6	DQ3B			
4A	VREFB4AN0	IO	CLK2n		DIFFIO_RX_B31n	DIFFOUT_B31n	AE5				
4A	VREFB4AN0	IO			DIFFIO_TX_B32n	DIFFOUT_B32n	AC4	DQ3B			
4A	VREFB4AN0	IO	CLK2p		DIFFIO_RX_B31p	DIFFOUT_B31p	AD5				
4A	VREFB4AN0	IO			DIFFIO_TX_B32p	DIFFOUT_B32p	AB5	DQ3B			
4A	VREFB4AN0	IO			DIFFIO_TX_B33n	DIFFOUT_B33n	AC3				
4A	VREFB4AN0	IO			DIFFIO_RX_B34n	DIFFOUT_B34n	AE3	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_TX_B33p	DIFFOUT_B33p	AB4	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B34p	DIFFOUT_B34p	AE2	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B35n	DIFFOUT_B35n	AD4	DQSn4B			
4A	VREFB4AN0	IO			DIFFIO_TX_B36n	DIFFOUT_B36n	AA4	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B35p	DIFFOUT_B35p	AD3	DQS4B			
4A	VREFB4AN0	IO			DIFFIO_TX_B36p	DIFFOUT_B36p	AA3				
4A	VREFB4AN0	IO			DIFFIO_TX_B37n	DIFFOUT_B37n	W3	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B38n	DIFFOUT_B38n	AE1	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_TX_B37p	DIFFOUT_B37p	V4	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B38p	DIFFOUT_B38p	AD1	DQ4B			
4A	VREFB4AN0	IO	CLK3n		DIFFIO_RX_B39n	DIFFOUT_B39n	AC2				
4A	VREFB4AN0	IO			DIFFIO_TX_B40n	DIFFOUT_B40n	Y3	DQ4B			
4A	VREFB4AN0	IO	CLK3p		DIFFIO_RX_B39p	DIFFOUT_B39p	AC1				
4A	VREFB4AN0	IO			DIFFIO_TX_B40p	DIFFOUT_B40p	W4	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B43n	DIFFOUT_B43n	AB2				
4A	VREFB4AN0	IO			DIFFIO_RX_B43p	DIFFOUT_B43p	AB1				
4A	VREFB4AN0	IO			DIFFIO_RX_B46n	DIFFOUT_B46n	AA2				
4A	VREFB4AN0	IO			DIFFIO_RX_B46p	DIFFOUT_B46p	Y2				
4A	VREFB4AN0	IO			DIFFIO_RX_B47n	DIFFOUT_B47n	Y1				
4A	VREFB4AN0	IO			DIFFIO_RX_B47p	DIFFOUT_B47p	W1				
5A	VREFB5AN0	IO	RZQ_1		DIFFIO_TX_R1p	DIFFOUT_R1p	U2				
5A	VREFB5AN0	IO		INIT_DONE	DIFFIO_RX_R2p	DIFFOUT_R2p	V2				
5A	VREFB5AN0	IO		PR_REQUEST	DIFFIO_TX_R1n	DIFFOUT_R1n	U1				

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	M383	DQS for X8	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2	Board Connection Requirement for Pin Migration Only
5A	VREFB5AN0	IO		CRC_ERROR	DIFFIO_RX_R2n	DIFFOUT_R2n	V1				
5A	VREFB5AN0	IO		nCEO	DIFFIO_TX_R3p	DIFFOUT_R3p	T4				
5A	VREFB5AN0	IO			DIFFIO_RX_R4p	DIFFOUT_R4p	R2				
5A	VREFB5AN0	IO		CvP_CONFDONE	DIFFIO_TX_R3n	DIFFOUT_R3n	R3				
5A	VREFB5AN0	IO			DIFFIO_RX_R4n	DIFFOUT_R4n	T2				
5A	VREFB5AN0	IO		DEV_OE	DIFFIO_TX_R5p	DIFFOUT_R5p	P3				
5A	VREFB5AN0	IO			DIFFIO_RX_R6p	DIFFOUT_R6p	P1				
5A	VREFB5AN0	IO		DEV_CLRn	DIFFIO_TX_R5n	DIFFOUT_R5n	N2				
5A	VREFB5AN0	IO			DIFFIO_RX_R6n	DIFFOUT_R6n	R1				
5A	VREFB5AN0	IO			DIFFIO_TX_R7p	DIFFOUT_R7p	N4				
5A	VREFB5AN0	IO			DIFFIO_RX_R8p	DIFFOUT_R8p	M1				
5A	VREFB5AN0	IO			DIFFIO_TX_R7n	DIFFOUT_R7n	N3				
5A	VREFB5AN0	IO			DIFFIO_RX_R8n	DIFFOUT_R8n	N1				
5B	VREFB5BN0	IO	CLK6p		DIFFIO_RX_R9p	DIFFOUT_R9p	L2				
5B	VREFB5BN0	IO	CLK6n		DIFFIO_RX_R9n	DIFFOUT_R9n	M2				
5B	VREFB5BN0	IO			DIFFIO_RX_R11p	DIFFOUT_R11p	K2				
5B	VREFB5BN0	IO	FPLL_BR_CLKOUT0,FPLL_BR_CLKOUTp,FPLL_BR_FB		DIFFIO_TX_R12p	DIFFOUT_R12p	M4				
5B	VREFB5BN0	IO			DIFFIO_RX_R11n	DIFFOUT_R11n	K1				
5B	VREFB5BN0	IO	FPLL_BR_CLKOUT1,FPLL_BR_CLKOUTn		DIFFIO_TX_R12n	DIFFOUT_R12n	L3				
5B	VREFB5BN0	IO			DIFFIO_RX_R13p	DIFFOUT_R13p	H1				
5B	VREFB5BN0	IO			DIFFIO_TX_R14p	DIFFOUT_R14p	J4				
5B	VREFB5BN0	IO			DIFFIO_RX_R13n	DIFFOUT_R13n	J1				
5B	VREFB5BN0	IO			DIFFIO_TX_R14n	DIFFOUT_R14n	J3				
5B	VREFB5BN0	IO			DIFFIO_RX_R15p	DIFFOUT_R15p	H2				
5B	VREFB5BN0	IO			DIFFIO_TX_R16p	DIFFOUT_R16p	H4				
5B	VREFB5BN0	IO			DIFFIO_RX_R15n	DIFFOUT_R15n	G1				
5B	VREFB5BN0	IO			DIFFIO_TX_R16n	DIFFOUT_R16n	H3				
7A		GND					F3				
7A	VREFB7AN0	IO			DIFFIO_RX_T1p	DIFFOUT_T1p	E1		GND	GND	
7A	VREFB7AN0	IO			DIFFIO_RX_T1n	DIFFOUT_T1n	D1		GND	GND	
7A	VREFB7AN0	IO			DIFFIO_RX_T3p	DIFFOUT_T3p	F2				
7A	VREFB7AN0	IO			DIFFIO_RX_T3n	DIFFOUT_T3n	E2				
7A	VREFB7AN0	IO			DIFFIO_TX_T6p	DIFFOUT_T6p	F4		T_RESET#	T_RESET#	
7A	VREFB7AN0	IO			DIFFIO_RX_T7p	DIFFOUT_T7p	E3				
7A	VREFB7AN0	IO			DIFFIO_RX_T7n	DIFFOUT_T7n	D3				
7A	VREFB7AN0	IO	CLK11p		DIFFIO_RX_T9p	DIFFOUT_T9p	C1				
7A	VREFB7AN0	IO			DIFFIO_TX_T10p	DIFFOUT_T10p	C7	DQ1T	T_DM_1	T_DM_1	
7A	VREFB7AN0	IO	CLK11n		DIFFIO_RX_T9n	DIFFOUT_T9n	B1				
7A	VREFB7AN0	IO			DIFFIO_TX_T10n	DIFFOUT_T10n	C6	DQ1T	T_DQ_15	T_DQ_15	
7A	VREFB7AN0	IO			DIFFIO_RX_T11p	DIFFOUT_T11p	C3	DQ1T	T_DQ_13	T_DQ_13	
7A	VREFB7AN0	IO			DIFFIO_TX_T12p	DIFFOUT_T12p	D4	DQ1T	T_DQ_14	T_DQ_14	
7A	VREFB7AN0	IO			DIFFIO_RX_T11n	DIFFOUT_T11n	C2	DQ1T	T_DQ_12	T_DQ_12	
7A	VREFB7AN0	IO			DIFFIO_TX_T12n	DIFFOUT_T12n	C4	DQ1T	T_CKE_0	T_CKE_0	
7A	VREFB7AN0	IO			DIFFIO_RX_T13p	DIFFOUT_T13p	B2	DQS1T	T_DQS_1	T_DQS_1	
7A	VREFB7AN0	IO			DIFFIO_TX_T14p	DIFFOUT_T14p	D8		T_CKE_1	T_CKE_1	
7A	VREFB7AN0	IO			DIFFIO_RX_T13n	DIFFOUT_T13n	A2	DQSn1T	T_DQS#_1	T_DQS#_1	
7A	VREFB7AN0	IO			DIFFIO_TX_T14n	DIFFOUT_T14n	C8	DQ1T	T_DQ_11	T_DQ_11	
7A	VREFB7AN0	IO			DIFFIO_RX_T15p	DIFFOUT_T15p	A4	DQ1T	T_DQ_9	T_DQ_9	
7A	VREFB7AN0	IO			DIFFIO_TX_T16p	DIFFOUT_T16p	B5	DQ1T	T_DQ_10	T_DQ_10	
7A	VREFB7AN0	IO			DIFFIO_RX_T15n	DIFFOUT_T15n	A3	DQ1T	T_DQ_8	T_DQ_8	
7A	VREFB7AN0	IO			DIFFIO_TX_T16n	DIFFOUT_T16n	B4		GND	GND	
7A	VREFB7AN0	IO	CLK10p		DIFFIO_RX_T17p	DIFFOUT_T17p	B6				
7A	VREFB7AN0	IO			DIFFIO_TX_T18p	DIFFOUT_T18p	E8	DQ2T	T_DM_0	T_DM_0	
7A	VREFB7AN0	IO	CLK10n		DIFFIO_RX_T17n	DIFFOUT_T17n	A5				
7A	VREFB7AN0	IO			DIFFIO_TX_T18n	DIFFOUT_T18n	D9	DQ2T	T_DQ_7	T_DQ_7	
7A	VREFB7AN0	IO			DIFFIO_RX_T19p	DIFFOUT_T19p	B7	DQ2T	T_DQ_5	T_DQ_5	
7A	VREFB7AN0	IO			DIFFIO_TX_T20p	DIFFOUT_T20p	E10	DQ2T	T_DQ_6	T_DQ_6	
7A	VREFB7AN0	IO			DIFFIO_RX_T19n	DIFFOUT_T19n	A7	DQ2T	T_DQ_4	T_DQ_4	
7A	VREFB7AN0	IO			DIFFIO_TX_T20n	DIFFOUT_T20n	D10	DQ2T	T_ODT_1	T_ODT_1	
7A	VREFB7AN0	IO			DIFFIO_RX_T21p	DIFFOUT_T21p	A9	DQS2T	T_DQS_0	T_DQS_0	
7A	VREFB7AN0	IO			DIFFIO_TX_T22p	DIFFOUT_T22p	E11		T_ODT_0	T_ODT_0	
7A	VREFB7AN0	IO			DIFFIO_RX_T21n	DIFFOUT_T21n	A8	DQSn2T	T_DQS#_0	T_DQS#_0	
7A	VREFB7AN0	IO			DIFFIO_TX_T22n	DIFFOUT_T22n	D11	DQ2T	T_DQ_3	T_DQ_3	
7A	VREFB7AN0	IO			DIFFIO_RX_T23p	DIFFOUT_T23p	B9	DQ2T	T_DQ_1	T_DQ_1	
7A	VREFB7AN0	IO			DIFFIO_TX_T24p	DIFFOUT_T24p	C11	DQ2T	T_DQ_2	T_DQ_2	
7A	VREFB7AN0	IO			DIFFIO_RX_T23n	DIFFOUT_T23n	A10	DQ2T	T_DQ_0	T_DQ_0	
7A	VREFB7AN0	IO	RZQ_2		DIFFIO_TX_T24n	DIFFOUT_T24n	B10				
8A	VREFB8AN0	IO	CLK9p		DIFFIO_RX_T25p	DIFFOUT_T25p	B12				

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	M383	DQS for X8	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2	Board Connection Requirement for Pin Migration Only
8A	VREFB8AN0	IO			DIFFIO_TX_T26p	DIFFOUT_T26p	E13	DQ3T	T_A_0	T_CA_0	
8A	VREFB8AN0	IO	CLK9n		DIFFIO_RX_T25n	DIFFOUT_T25n	A12				
8A	VREFB8AN0	IO			DIFFIO_TX_T26n	DIFFOUT_T26n	D14	DQ3T	T_A_1	T_CA_1	
8A	VREFB8AN0	IO			DIFFIO_RX_T27p	DIFFOUT_T27p	A14	DQ3T	T_A_4	T_CA_4	
8A	VREFB8AN0	IO	FPLL_TL_CLKOUT0,FPLL_TL_CLKOUTp,FPLL_TL_FB		DIFFIO_TX_T28p	DIFFOUT_T28p	E15	DQ3T	T_A_2	T_CA_2	
8A	VREFB8AN0	IO			DIFFIO_RX_T27n	DIFFOUT_T27n	A13	DQ3T	T_A_5	T_CA_5	
8A	VREFB8AN0	IO	FPLL_TL_CLKOUT1,FPLL_TL_CLKOUTn		DIFFIO_TX_T28n	DIFFOUT_T28n	D15	DQ3T	T_A_3	T_CA_3	
8A	VREFB8AN0	IO			DIFFIO_RX_T29p	DIFFOUT_T29p	C13	DQS3T	T_CK	T_CK	
8A	VREFB8AN0	IO			DIFFIO_TX_T30p	DIFFOUT_T30p	E17		T_A_6	T_CA_6	
8A	VREFB8AN0	IO			DIFFIO_RX_T29n	DIFFOUT_T29n	C12	DQSn3T	T_CK#	T_CK#	
8A	VREFB8AN0	IO			DIFFIO_TX_T30n	DIFFOUT_T30n	E16	DQ3T	T_A_7	T_CA_7	
8A	VREFB8AN0	IO			DIFFIO_RX_T31p	DIFFOUT_T31p	C14	DQ3T	T_BA_1		
8A	VREFB8AN0	IO			DIFFIO_TX_T32p	DIFFOUT_T32p	C16	DQ3T	T_BA_0		
8A	VREFB8AN0	IO			DIFFIO_RX_T31n	DIFFOUT_T31n	B14	DQ3T	T_BA_2		
8A	VREFB8AN0	IO			DIFFIO_TX_T32n	DIFFOUT_T32n	B15		GND	GND	
8A	VREFB8AN0	IO	CLK8p,FPLL_TL_FBp		DIFFIO_RX_T33p	DIFFOUT_T33p	B16				
8A	VREFB8AN0	IO			DIFFIO_TX_T34p	DIFFOUT_T34p	E18	DQ4T	T_CAS#		
8A	VREFB8AN0	IO	CLK8n,FPLL_TL_FBn		DIFFIO_RX_T33n	DIFFOUT_T33n	A15				
8A	VREFB8AN0	IO			DIFFIO_TX_T34n	DIFFOUT_T34n	D19	DQ4T	T_RAS#		
8A	VREFB8AN0	IO			DIFFIO_RX_T35p	DIFFOUT_T35p	B17	DQ4T	T_A_8	T_CA_8	
8A	VREFB8AN0	IO			DIFFIO_TX_T36p	DIFFOUT_T36p	C19	DQ4T	T_A_10		
8A	VREFB8AN0	IO			DIFFIO_RX_T35n	DIFFOUT_T35n	A17	DQ4T	T_A_9	T_CA_9	
8A	VREFB8AN0	IO			DIFFIO_TX_T36n	DIFFOUT_T36n	C18	DQ4T	T_A_11		
8A	VREFB8AN0	IO			DIFFIO_RX_T37p	DIFFOUT_T37p	A19	DQS4T	T_CS#_0	T_CS#_0	
8A	VREFB8AN0	IO			DIFFIO_TX_T38p	DIFFOUT_T38p	C21		T_A_12		
8A	VREFB8AN0	IO			DIFFIO_RX_T37n	DIFFOUT_T37n	A18	DQSn4T	T_CS#_1	T_CS#_1	
8A	VREFB8AN0	IO			DIFFIO_TX_T38n	DIFFOUT_T38n	B20	DQ4T	T_A_13		
8A	VREFB8AN0	IO			DIFFIO_RX_T39p	DIFFOUT_T39p	B19	DQ4T	T_A_14		
8A	VREFB8AN0	IO			DIFFIO_TX_T40p	DIFFOUT_T40p	D21	DQ4T	T_WE#		
8A	VREFB8AN0	IO			DIFFIO_RX_T39n	DIFFOUT_T39n	A20	DQ4T	T_A_15		
9A		MSEL0		MSEL0			A23				
9A		CONF_DONE		CONF_DONE			A22				
9A		MSEL1		MSEL1			A24				
9A		nSTATUS		nSTATUS			B22				
9A		nCE		nCE			A25				
9A		MSEL2		MSEL2			B25				
9A		MSEL3		MSEL3			B24				
9A		nCONFIG		nCONFIG			C23				
9A		MSEL4		MSEL4			C24				
		GND					C22				
		GND					A1				
		GND					A11				
		GND					AA1				
		GND					AA10				
		GND					AA15				
		GND					AA23				
		GND					AB13				
		GND					AB24				
		GND					AC10				
		GND					AC23				GND
		GND					AC25				
		GND					AC5				
		GND					AD17				
		GND					AD22				
		GND					AE14				
		GND					AE19				
		GND					AE4				
		GND					B13				
		GND					B18				
		GND					B23				
		GND					B8				
		GND					C25				
		GND					C5				
		GND					D12				
		GND					D17				
		GND					D2				
		GND					D22				
		GND					D7				

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	M383	DQS for X8	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2	Board Connection Requirement for Pin Migration Only
		GND					E14				
		GND					E23				
		GND					E25				
		GND					E4				
		GND					F24				
		GND					G3				
		GND					H25				
		GND					J22				GND
		GND					K4				
		GND					L1				
		GND					L12				
		GND					L14				
		GND					M11				
		GND					M13				
		GND					M15				
		GND					M23				
		GND					P11				
		GND					P13				
		GND					P15				
		GND					R12				
		GND					R14				
		GND					R24				
		GND					T1				
		GND					U3				
		GND					W22				
		GND					W24				
		GND					Y4				
		VCC					L11				
		VCC					L13				
		VCC					L15				
		VCC					M12				
		VCC					M14				
		VCC					N11				
		VCC					N12				
		VCC					N13				
		VCC					N14				
		VCC					N15				
		VCC					P12				
		VCC					P14				
		VCC					R11				
		VCC					R13				
		VCC					R15				
		DNU					D24				
		DNU					E24				
		DNU					G2				
		DNU					B11				
		VCCPGM					AC21				
		VCCPGM					T3				
		VCCPGM					D20				
		VCCBAT					B21				
		VCCIO1A					G23				DNU
		VCCIO1A					K24				DNU
		VCCIO2A					N25				DNU
		VCCIO2A					P22				DNU
		VCCIO2A					U23				DNU
		VCCIO2A					V25				DNU
		VCCIO3A					AB18				
		VCCIO3A					AC20				
		VCCIO3B					AC15				
		VCCIO3B					AD12				
		VCCIO3B					AE9				
		VCCIO4A					AB3				
		VCCIO4A					AB8				
		VCCIO4A					AD2				
		VCCIO4A					AD7				
		VCCIO4A					W2				
		VCCIO5A					P2				
		VCCIO5A					R4				

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	M383	DQS for X8	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2	Board Connection Requirement for Pin Migration Only
		VCCIO5B					J2				
		VCCIO5B					M3				
		VCCIO7A					A6				
		VCCIO7A					B3				
		VCCIO7A					C10				
		VCCIO7A					E9				
		VCCIO7A					F1				
		VCCIO8A					A16				
		VCCIO8A					A21				
		VCCIO8A					C15				
		VCCIO8A					C20				
		VCCPD1A2A					K22				DNU
		VCCPD1A2A					R23				DNU
		VCCPD3A					AB16				
		VCCPD3B4A					AB7				
		VCCPD3B4A					AC13				
		VCCPD5A					P4				
		VCCPD5B					L4				
		VCCPD7A8A					D13				
		VCCPD7A8A					D16				
		VCCPD7A8A					D6				
1A	VREFB1AN0	VREFB1AN0					L23				GND
2A	VREFB2AN0	VREFB2AN0					AC24				GND
3A	VREFB3AN0	VREFB3AN0					AD20				
3B	VREFB3BN0	VREFB3BN0					AC11				
4A	VREFB4AN0	VREFB4AN0					AE7				
5A	VREFB5AN0	VREFB5AN0					V3				
5B	VREFB5BN0	VREFB5BN0					K3				
7A	VREFB7AN0	VREFB7AN0					C9				
8A	VREFB8AN0	VREFB8AN0					C17				
		RREF_TL					D25				
		VCCA_FPLL					L24				
		VCCA_FPLL					U24				
		VCCA_FPLL					AB23				
		VCCA_FPLL					D23				
		VCCA_FPLL					U4				
		VCCA_FPLL					G4				
		VCC_AUX					AA13				
		VCC_AUX					AA18				
		VCC_AUX					AB6				
		VCC_AUX					D18				
		VCC_AUX					D5				
		VCC_AUX					E12				

Notes:
(1) For more information about pin definition and pin connection guidelines, refer to the Cyclone V Device Family Pin Connection Guidelines.
(2) RESET pin is only applicable for DDR3 device.

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	U484	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 (2)	HMC Pin Assignment for LPDDR2
2A	VREFB2AN0	IO			DIFFIO_TX_L9n	DIFFOUT_L9n	C1				
2A	VREFB2AN0	IO			DIFFIO_RX_L10n	DIFFOUT_L10n	L1	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_TX_L9p	DIFFOUT_L9p	C2	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_RX_L10p	DIFFOUT_L10p	L2	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_RX_L11n	DIFFOUT_L11n	N1	DQSn1L			
2A	VREFB2AN0	IO			DIFFIO_TX_L12n	DIFFOUT_L12n	E2	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_RX_L11p	DIFFOUT_L11p	N2	DQS1L			
2A	VREFB2AN0	IO			DIFFIO_TX_L12p	DIFFOUT_L12p	D3				
2A	VREFB2AN0	IO			DIFFIO_TX_L13n	DIFFOUT_L13n	G1	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_RX_L14n	DIFFOUT_L14n	U1	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_TX_L13p	DIFFOUT_L13p	G2	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_RX_L14p	DIFFOUT_L14p	U2	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_RX_L15n	DIFFOUT_L15n	W2				
2A	VREFB2AN0	IO			DIFFIO_TX_L16n	DIFFOUT_L16n	AA1	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_RX_L15p	DIFFOUT_L15p	Y3				
2A	VREFB2AN0	IO			DIFFIO_TX_L16p	DIFFOUT_L16p	AA2	DQ1L			
3A		TDO		TDO			V3				
3A		nCSO		DATA4			AB6				
3A		TMS		TMS			R4				
3A		AS_DATA3		DATA3			AA5				
3A		TCK		TCK			V5				
3A		AS_DATA2		DATA2			T5				
3A		TDI		TDI			P5				
3A		AS_DATA1		DATA1			W5				
3A		DCLK		DCLK			M5				
3A		AS_DATA0,ASDO		DATA0			AB4				
3A	VREFB3AN0	IO		DATA6	DIFFIO_RX_B1n	DIFFOUT_B1n	P6	DQ1B			
3A	VREFB3AN0	IO		DATA5	DIFFIO_TX_B2n	DIFFOUT_B2n	U7				
3A	VREFB3AN0	IO		DATA8	DIFFIO_RX_B1p	DIFFOUT_B1p	N6	DQ1B			
3A	VREFB3AN0	IO		DATA7	DIFFIO_TX_B2p	DIFFOUT_B2p	U6	DQ1B			
3A	VREFB3AN0	IO		DATA10	DIFFIO_RX_B3n	DIFFOUT_B3n	M6	DQSn1B			
3A	VREFB3AN0	IO		DATA9	DIFFIO_TX_B4n	DIFFOUT_B4n	R5	DQ1B			
3A	VREFB3AN0	IO		DATA12	DIFFIO_RX_B3p	DIFFOUT_B3p	M7	DQS1B			
3A	VREFB3AN0	IO		DATA11	DIFFIO_TX_B4p	DIFFOUT_B4p	R6				
3A	VREFB3AN0	IO		DATA14	DIFFIO_RX_B5n	DIFFOUT_B5n	R7	DQ1B			
3A	VREFB3AN0	IO		DATA13	DIFFIO_TX_B6n	DIFFOUT_B6n	L7	DQ1B			
3A	VREFB3AN0	IO		CLKUSR	DIFFIO_RX_B5p	DIFFOUT_B5p	T7	DQ1B			
3A	VREFB3AN0	IO		DATA15	DIFFIO_TX_B6p	DIFFOUT_B6p	L8	DQ1B			
3A	VREFB3AN0	IO		PR_DONE	DIFFIO_RX_B7n	DIFFOUT_B7n	T8				
3A	VREFB3AN0	IO		PR_READY	DIFFIO_TX_B8n	DIFFOUT_B8n	P7	DQ1B			
3A	VREFB3AN0	IO		PR_ERROR	DIFFIO_RX_B7p	DIFFOUT_B7p	T9				
3A	VREFB3AN0	IO			DIFFIO_TX_B8p	DIFFOUT_B8p	P8	DQ1B			
3B	VREFB3BN0	IO			DIFFIO_TX_B9n	DIFFOUT_B9n	V8				
3B	VREFB3BN0	IO			DIFFIO_RX_B10n	DIFFOUT_B10n	N8	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_TX_B9p	DIFFOUT_B9p	W8	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B10p	DIFFOUT_B10p	M8	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B11n	DIFFOUT_B11n	N9	DQSn2B			
3B	VREFB3BN0	IO			DIFFIO_TX_B12n	DIFFOUT_B12n	AA7	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B11p	DIFFOUT_B11p	N10	DQS2B			
3B	VREFB3BN0	IO			DIFFIO_TX_B12p	DIFFOUT_B12p	AB7				
3B	VREFB3BN0	IO			DIFFIO_TX_B13n	DIFFOUT_B13n	Y7	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B14n	DIFFOUT_B14n	U8	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_TX_B13p	DIFFOUT_B13p	W7	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B14p	DIFFOUT_B14p	V9	DQ2B			
3B	VREFB3BN0	IO	CLK0n,FPLL_BL_FBn		DIFFIO_RX_B15n	DIFFOUT_B15n	R9				
3B	VREFB3BN0	IO			DIFFIO_TX_B16n	DIFFOUT_B16n	AB8	DQ2B			
3B	VREFB3BN0	IO	CLK0p,FPLL_BL_FBp		DIFFIO_RX_B15p	DIFFOUT_B15p	P9				
3B	VREFB3BN0	IO			DIFFIO_TX_B16p	DIFFOUT_B16p	AA8	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_TX_B17n	DIFFOUT_B17n	Y10				
3B	VREFB3BN0	IO			DIFFIO_RX_B18n	DIFFOUT_B18n	AA9	DQ3B			
3B	VREFB3BN0	IO			DIFFIO_TX_B17p	DIFFOUT_B17p	AA10	DQ3B			
3B	VREFB3BN0	IO			DIFFIO_RX_B18p	DIFFOUT_B18p	Y9	DQ3B			
3B	VREFB3BN0	IO			DIFFIO_RX_B19n	DIFFOUT_B19n	L9	DQSn3B			
3B	VREFB3BN0	IO			DIFFIO_TX_B20n	DIFFOUT_B20n	W11	DQ3B			
3B	VREFB3BN0	IO			DIFFIO_RX_B19p	DIFFOUT_B19p	M10	DQS3B			
3B	VREFB3BN0	IO			DIFFIO_TX_B20p	DIFFOUT_B20p	Y11				
3B	VREFB3BN0	IO	FPLL_BL_CLKOUT1,FPLL_BL_CLKOUTn		DIFFIO_TX_B21n	DIFFOUT_B21n	AB10	DQ3B			
3B	VREFB3BN0	IO			DIFFIO_RX_B22n	DIFFOUT_B22n	U10	DQ3B			
3B	VREFB3BN0	IO	FPLL_BL_CLKOUT0,FPLL_BL_CLKOUTp,FPLL_BL_FB		DIFFIO_TX_B21p	DIFFOUT_B21p	AB11	DQ3B			
3B	VREFB3BN0	IO			DIFFIO_RX_B22p	DIFFOUT_B22p	U11	DQ3B			
3B	VREFB3BN0	IO	CLK1n		DIFFIO_RX_B23n	DIFFOUT_B23n	T10				

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	U484	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 (2)	HMC Pin Assignment for LPDDR2
3B	VREFB3BN0	IO			DIFFIO_TX_B24n	DIFFOUT_B24n	R11	DQ3B			
3B	VREFB3BN0	IO	CLK1p		DIFFIO_RX_B23p	DIFFOUT_B23p	R10				
3B	VREFB3BN0	IO			DIFFIO_TX_B24p	DIFFOUT_B24p	P12	DQ3B			
4A	VREFB4AN0	IO	RZQ_0		DIFFIO_TX_B25n	DIFFOUT_B25n	AA13				
4A	VREFB4AN0	IO			DIFFIO_RX_B26n	DIFFOUT_B26n	W12	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_TX_B25p	DIFFOUT_B25p	AB13	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B26p	DIFFOUT_B26p	Y12	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B27n	DIFFOUT_B27n	U12	DQSn4B			
4A	VREFB4AN0	IO			DIFFIO_TX_B28n	DIFFOUT_B28n	R12	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B27p	DIFFOUT_B27p	T12	DQS4B			
4A	VREFB4AN0	IO			DIFFIO_TX_B28p	DIFFOUT_B28p	T13				
4A	VREFB4AN0	IO			DIFFIO_TX_B29n	DIFFOUT_B29n	AB15	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B30n	DIFFOUT_B30n	W13	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_TX_B29p	DIFFOUT_B29p	AB16	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B30p	DIFFOUT_B30p	V13	DQ4B			
4A	VREFB4AN0	IO	CLK2n		DIFFIO_RX_B31n	DIFFOUT_B31n	T14				
4A	VREFB4AN0	IO			DIFFIO_TX_B32n	DIFFOUT_B32n	AB18	DQ4B			
4A	VREFB4AN0	IO	CLK2p		DIFFIO_RX_B31p	DIFFOUT_B31p	U13				
4A	VREFB4AN0	IO			DIFFIO_TX_B32p	DIFFOUT_B32p	AA18	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_TX_B33n	DIFFOUT_B33n	AA19				
4A	VREFB4AN0	IO			DIFFIO_RX_B34n	DIFFOUT_B34n	Y14	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B33p	DIFFOUT_B33p	Y19	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B34p	DIFFOUT_B34p	W14	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B35n	DIFFOUT_B35n	P14	DQSn5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B36n	DIFFOUT_B36n	AA20	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B35p	DIFFOUT_B35p	R14	DQS5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B36p	DIFFOUT_B36p	Y20				
4A	VREFB4AN0	IO			DIFFIO_TX_B37n	DIFFOUT_B37n	AA15	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B38n	DIFFOUT_B38n	U15	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B37p	DIFFOUT_B37p	Y15	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B38p	DIFFOUT_B38p	V15	DQ5B	DQ1B		
4A	VREFB4AN0	IO	CLK3n		DIFFIO_RX_B39n	DIFFOUT_B39n	R15				
4A	VREFB4AN0	IO			DIFFIO_TX_B40n	DIFFOUT_B40n	AB20	DQ5B	DQ1B		
4A	VREFB4AN0	IO	CLK3p		DIFFIO_RX_B39p	DIFFOUT_B39p	T15				
4A	VREFB4AN0	IO			DIFFIO_TX_B40p	DIFFOUT_B40p	AB21	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B41n	DIFFOUT_B41n	AB22				
4A	VREFB4AN0	IO			DIFFIO_RX_B42n	DIFFOUT_B42n	Y16	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B41p	DIFFOUT_B41p	AA22	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B42p	DIFFOUT_B42p	Y17	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B43n	DIFFOUT_B43n	U16	DQSn6B	DQSn1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B44n	DIFFOUT_B44n	AA17	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B43p	DIFFOUT_B43p	U17	DQS6B	DQS1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B44p	DIFFOUT_B44p	AB17				
4A	VREFB4AN0	IO			DIFFIO_TX_B45n	DIFFOUT_B45n	Y22	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B46n	DIFFOUT_B46n	V18	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B45p	DIFFOUT_B45p	Y21	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B46p	DIFFOUT_B46p	W18	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B47n	DIFFOUT_B47n	W16				
4A	VREFB4AN0	IO			DIFFIO_TX_B48n	DIFFOUT_B48n	W21	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B47p	DIFFOUT_B47p	W17				
4A	VREFB4AN0	IO			DIFFIO_TX_B48p	DIFFOUT_B48p	W22	DQ6B	DQ1B		
5A	VREFB5AN0	IO	RZQ_1		DIFFIO_TX_R1p	DIFFOUT_R1p	U22	DQ1R			
5A	VREFB5AN0	IO		INIT_DONE	DIFFIO_RX_R2p	DIFFOUT_R2p	V20				
5A	VREFB5AN0	IO		PR_REQUEST	DIFFIO_TX_R1n	DIFFOUT_R1n	U21	DQ1R			
5A	VREFB5AN0	IO		CRC_ERROR	DIFFIO_RX_R2n	DIFFOUT_R2n	V19				
5A	VREFB5AN0	IO		nCEO	DIFFIO_TX_R3p	DIFFOUT_R3p	T19	DQ1R			
5A	VREFB5AN0	IO			DIFFIO_RX_R4p	DIFFOUT_R4p	T17	DQ1R			
5A	VREFB5AN0	IO		CvP_CONFDONE	DIFFIO_TX_R3n	DIFFOUT_R3n	T20	DQ1R			
5A	VREFB5AN0	IO			DIFFIO_RX_R4n	DIFFOUT_R4n	T18	DQ1R			
5A	VREFB5AN0	IO		DEV_OE	DIFFIO_TX_R5p	DIFFOUT_R5p	T22				
5A	VREFB5AN0	IO			DIFFIO_RX_R6p	DIFFOUT_R6p	R16	DQS1R			
5A	VREFB5AN0	IO		DEV_CLRn	DIFFIO_TX_R5n	DIFFOUT_R5n	R22	DQ1R			
5A	VREFB5AN0	IO			DIFFIO_RX_R6n	DIFFOUT_R6n	R17	DQSn1R			
5A	VREFB5AN0	IO			DIFFIO_TX_R7p	DIFFOUT_R7p	R20	DQ1R			
5A	VREFB5AN0	IO			DIFFIO_RX_R8p	DIFFOUT_R8p	R19	DQ1R			
5A	VREFB5AN0	IO			DIFFIO_TX_R7n	DIFFOUT_R7n	R21				
5A	VREFB5AN0	IO			DIFFIO_RX_R8n	DIFFOUT_R8n	P19	DQ1R			
5B	VREFB5BN0	IO	CLK6p		DIFFIO_RX_R9p	DIFFOUT_R9p	L17				
5B	VREFB5BN0	IO			DIFFIO_TX_R10p	DIFFOUT_R10p	E20	DQ2R			
5B	VREFB5BN0	IO	CLK6n		DIFFIO_RX_R9n	DIFFOUT_R9n	K17				
5B	VREFB5BN0	IO			DIFFIO_TX_R10n	DIFFOUT_R10n	F20	DQ2R			

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	U484	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 (2)	HMC Pin Assignment for LPDDR2
5B	VREFB5BN0	IO			DIFFIO_RX_R11p	DIFFOUT_R11p	H20	DQ2R			
5B	VREFB5BN0	IO	FPLL_BR_CLKOUT0,FPLL_BR_CLKOUTp,FPLL_BR_FB		DIFFIO_TX_R12p	DIFFOUT_R12p	G18	DQ2R			
5B	VREFB5BN0	IO			DIFFIO_RX_R11n	DIFFOUT_R11n	H19	DQ2R			
5B	VREFB5BN0	IO	FPLL_BR_CLKOUT1,FPLL_BR_CLKOUTn		DIFFIO_TX_R12n	DIFFOUT_R12n	G17	DQ2R			
5B	VREFB5BN0	IO			DIFFIO_RX_R13p	DIFFOUT_R13p	K16	DQS2R			
5B	VREFB5BN0	IO			DIFFIO_TX_R14p	DIFFOUT_R14p	F19				
5B	VREFB5BN0	IO			DIFFIO_RX_R13n	DIFFOUT_R13n	J16	DQSn2R			
5B	VREFB5BN0	IO			DIFFIO_TX_R14n	DIFFOUT_R14n	F18	DQ2R			
5B	VREFB5BN0	IO			DIFFIO_RX_R15p	DIFFOUT_R15p	J17	DQ2R			
5B	VREFB5BN0	IO			DIFFIO_TX_R16p	DIFFOUT_R16p	J19	DQ2R			
5B	VREFB5BN0	IO			DIFFIO_RX_R15n	DIFFOUT_R15n	J18	DQ2R			
5B	VREFB5BN0	IO			DIFFIO_TX_R16n	DIFFOUT_R16n	H18				
7A		GND					F17				
7A	VREFB7AN0	IO			DIFFIO_RX_T1p	DIFFOUT_T1p	H16			GND	GND
7A	VREFB7AN0	IO			DIFFIO_TX_T2p	DIFFOUT_T2p	C21	DQ1T	DQ1T	T_DM_2	T_DM_2
7A	VREFB7AN0	IO			DIFFIO_RX_T1n	DIFFOUT_T1n	G16			GND	GND
7A	VREFB7AN0	IO			DIFFIO_TX_T2n	DIFFOUT_T2n	C20	DQ1T	DQ1T	T_DQ_23	T_DQ_23
7A	VREFB7AN0	IO			DIFFIO_RX_T3p	DIFFOUT_T3p	D18	DQ1T	DQ1T	T_DQ_21	T_DQ_21
7A	VREFB7AN0	IO			DIFFIO_TX_T4p	DIFFOUT_T4p	B20	DQ1T	DQ1T	T_DQ_22	T_DQ_22
7A	VREFB7AN0	IO			DIFFIO_RX_T3n	DIFFOUT_T3n	E17	DQ1T	DQ1T	T_DQ_20	T_DQ_20
7A	VREFB7AN0	IO			DIFFIO_TX_T4n	DIFFOUT_T4n	B21	DQ1T	DQ1T	GND	GND
7A	VREFB7AN0	IO			DIFFIO_RX_T5p	DIFFOUT_T5p	G15	DQS1T	DQS1T	T_DQS_2	T_DQS_2
7A	VREFB7AN0	IO			DIFFIO_TX_T6p	DIFFOUT_T6p	B22			T_RESET#	T_RESET#
7A	VREFB7AN0	IO			DIFFIO_RX_T5n	DIFFOUT_T5n	G14	DQSn1T	DQSn1T	T_DQS#_2	T_DQS#_2
7A	VREFB7AN0	IO			DIFFIO_TX_T6n	DIFFOUT_T6n	A22	DQ1T	DQ1T	T_DQ_19	T_DQ_19
7A	VREFB7AN0	IO			DIFFIO_RX_T7p	DIFFOUT_T7p	E16	DQ1T	DQ1T	T_DQ_17	T_DQ_17
7A	VREFB7AN0	IO			DIFFIO_TX_T8p	DIFFOUT_T8p	A20	DQ1T	DQ1T	T_DQ_18	T_DQ_18
7A	VREFB7AN0	IO			DIFFIO_RX_T7n	DIFFOUT_T7n	D17	DQ1T	DQ1T	T_DQ_16	T_DQ_16
7A	VREFB7AN0	IO			DIFFIO_TX_T8n	DIFFOUT_T8n	A19			GND	GND
7A	VREFB7AN0	IO	CLK11p		DIFFIO_RX_T9p	DIFFOUT_T9p	G13				
7A	VREFB7AN0	IO			DIFFIO_TX_T10p	DIFFOUT_T10p	C19	DQ2T	DQ1T	T_DM_1	T_DM_1
7A	VREFB7AN0	IO	CLK11n		DIFFIO_RX_T9n	DIFFOUT_T9n	F14				
7A	VREFB7AN0	IO			DIFFIO_TX_T10n	DIFFOUT_T10n	C18	DQ2T	DQ1T	T_DQ_15	T_DQ_15
7A	VREFB7AN0	IO			DIFFIO_RX_T11p	DIFFOUT_T11p	C16	DQ2T	DQ1T	T_DQ_13	T_DQ_13
7A	VREFB7AN0	IO			DIFFIO_TX_T12p	DIFFOUT_T12p	B16	DQ2T	DQ1T	T_DQ_14	T_DQ_14
7A	VREFB7AN0	IO			DIFFIO_RX_T11n	DIFFOUT_T11n	C15	DQ2T	DQ1T	T_DQ_12	T_DQ_12
7A	VREFB7AN0	IO			DIFFIO_TX_T12n	DIFFOUT_T12n	B15	DQ2T	DQ1T	T_CKE_0	T_CKE_0
7A	VREFB7AN0	IO			DIFFIO_RX_T13p	DIFFOUT_T13p	G12	DQS2T	DQ1T	T_DQS_1	T_DQS_1
7A	VREFB7AN0	IO			DIFFIO_TX_T14p	DIFFOUT_T14p	A18			T_CKE_1	T_CKE_1
7A	VREFB7AN0	IO			DIFFIO_RX_T13n	DIFFOUT_T13n	H12	DQSn2T	DQ1T	T_DQS#_1	T_DQS#_1
7A	VREFB7AN0	IO			DIFFIO_TX_T14n	DIFFOUT_T14n	A17	DQ2T	DQ1T	T_DQ_11	T_DQ_11
7A	VREFB7AN0	IO			DIFFIO_RX_T15p	DIFFOUT_T15p	F15	DQ2T	DQ1T	T_DQ_9	T_DQ_9
7A	VREFB7AN0	IO			DIFFIO_TX_T16p	DIFFOUT_T16p	B18	DQ2T	DQ1T	T_DQ_10	T_DQ_10
7A	VREFB7AN0	IO			DIFFIO_RX_T15n	DIFFOUT_T15n	E14	DQ2T	DQ1T	T_DQ_8	T_DQ_8
7A	VREFB7AN0	IO			DIFFIO_TX_T16n	DIFFOUT_T16n	B17			GND	GND
7A	VREFB7AN0	IO	CLK10p		DIFFIO_RX_T17p	DIFFOUT_T17p	H10				
7A	VREFB7AN0	IO			DIFFIO_TX_T18p	DIFFOUT_T18p	A15	DQ3T		T_DM_0	T_DM_0
7A	VREFB7AN0	IO	CLK10n		DIFFIO_RX_T17n	DIFFOUT_T17n	G11				
7A	VREFB7AN0	IO			DIFFIO_TX_T18n	DIFFOUT_T18n	A14	DQ3T		T_DQ_7	T_DQ_7
7A	VREFB7AN0	IO			DIFFIO_RX_T19p	DIFFOUT_T19p	D13	DQ3T		T_DQ_5	T_DQ_5
7A	VREFB7AN0	IO			DIFFIO_TX_T20p	DIFFOUT_T20p	C14	DQ3T		T_DQ_6	T_DQ_6
7A	VREFB7AN0	IO			DIFFIO_RX_T19n	DIFFOUT_T19n	C13	DQ3T		T_DQ_4	T_DQ_4
7A	VREFB7AN0	IO			DIFFIO_TX_T20n	DIFFOUT_T20n	D14	DQ3T		T_ODT_1	T_ODT_1
7A	VREFB7AN0	IO			DIFFIO_RX_T21p	DIFFOUT_T21p	H9	DQS3T		T_DQS_0	T_DQS_0
7A	VREFB7AN0	IO			DIFFIO_TX_T22p	DIFFOUT_T22p	A13			T_ODT_0	T_ODT_0
7A	VREFB7AN0	IO			DIFFIO_RX_T21n	DIFFOUT_T21n	G8	DQSn3T		T_DQS#_0	T_DQS#_0
7A	VREFB7AN0	IO			DIFFIO_TX_T22n	DIFFOUT_T22n	B13	DQ3T		T_DQ_3	T_DQ_3
7A	VREFB7AN0	IO			DIFFIO_RX_T23p	DIFFOUT_T23p	E12	DQ3T		T_DQ_1	T_DQ_1
7A	VREFB7AN0	IO			DIFFIO_TX_T24p	DIFFOUT_T24p	B12	DQ3T		T_DQ_2	T_DQ_2
7A	VREFB7AN0	IO			DIFFIO_RX_T23n	DIFFOUT_T23n	F12	DQ3T		T_DQ_0	T_DQ_0
7A	VREFB7AN0	IO	RZQ_2		DIFFIO_TX_T24n	DIFFOUT_T24n	A12				
8A	VREFB8AN0	IO	CLK9p		DIFFIO_RX_T25p	DIFFOUT_T25p	G10				
8A	VREFB8AN0	IO			DIFFIO_TX_T26p	DIFFOUT_T26p	C11	DQ4T		T_A_0	T_CA_0
8A	VREFB8AN0	IO	CLK9n		DIFFIO_RX_T25n	DIFFOUT_T25n	F10				
8A	VREFB8AN0	IO			DIFFIO_TX_T26n	DIFFOUT_T26n	B11	DQ4T		T_A_1	T_CA_1
8A	VREFB8AN0	IO			DIFFIO_RX_T27p	DIFFOUT_T27p	D11	DQ4T		T_A_4	T_CA_4
8A	VREFB8AN0	IO	FPLL_TL_CLKOUT0,FPLL_TL_CLKOUTp,FPLL_TL_FB		DIFFIO_TX_T28p	DIFFOUT_T28p	A8	DQ4T		T_A_2	T_CA_2
8A	VREFB8AN0	IO			DIFFIO_RX_T27n	DIFFOUT_T27n	E11	DQ4T		T_A_5	T_CA_5
8A	VREFB8AN0	IO	FPLL_TL_CLKOUT1,FPLL_TL_CLKOUTn		DIFFIO_TX_T28n	DIFFOUT_T28n	A7	DQ4T		T_A_3	T_CA_3
8A	VREFB8AN0	IO			DIFFIO_RX_T29p	DIFFOUT_T29p	J9	DQS4T		T_CK	T_CK
8A	VREFB8AN0	IO			DIFFIO_TX_T30p	DIFFOUT_T30p	F8			T_A_6	T_CA_6

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	U484	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2
8A	VREFB8AN0	IO			DIFFIO_RX_T29n	DIFFOUT_T29n	J8	DQSn4T		T_CK#	T_CK#
8A	VREFB8AN0	IO			DIFFIO_TX_T30n	DIFFOUT_T30n	E7	DQ4T		T_A_7	T_CA_7
8A	VREFB8AN0	IO			DIFFIO_RX_T31p	DIFFOUT_T31p	C10	DQ4T		T_BA_1	
8A	VREFB8AN0	IO			DIFFIO_TX_T32p	DIFFOUT_T32p	C6	DQ4T		T_BA_0	
8A	VREFB8AN0	IO			DIFFIO_RX_T31n	DIFFOUT_T31n	C9	DQ4T		T_BA_2	
8A	VREFB8AN0	IO			DIFFIO_TX_T32n	DIFFOUT_T32n	D7			GND	GND
8A	VREFB8AN0	IO	CLK8p,FPLL_TL_FBp		DIFFIO_RX_T33p	DIFFOUT_T33p	K7				
8A	VREFB8AN0	IO			DIFFIO_TX_T34p	DIFFOUT_T34p	A10	DQ5T		T_CAS#	
8A	VREFB8AN0	IO	CLK8n,FPLL_TL_FBn		DIFFIO_RX_T33n	DIFFOUT_T33n	J7				
8A	VREFB8AN0	IO			DIFFIO_TX_T34n	DIFFOUT_T34n	A9	DQ5T		T_RAS#	
8A	VREFB8AN0	IO			DIFFIO_RX_T35p	DIFFOUT_T35p	D9	DQ5T		T_A_8	T_CA_8
8A	VREFB8AN0	IO			DIFFIO_TX_T36p	DIFFOUT_T36p	B6	DQ5T		T_A_10	
8A	VREFB8AN0	IO			DIFFIO_RX_T35n	DIFFOUT_T35n	D8	DQ5T		T_A_9	T_CA_9
8A	VREFB8AN0	IO			DIFFIO_TX_T36n	DIFFOUT_T36n	B5	DQ5T		T_A_11	
8A	VREFB8AN0	IO			DIFFIO_RX_T37p	DIFFOUT_T37p	H8	DQS5T		T_CS#_0	T_CS#_0
8A	VREFB8AN0	IO			DIFFIO_TX_T38p	DIFFOUT_T38p	C8			T_A_12	
8A	VREFB8AN0	IO			DIFFIO_RX_T37n	DIFFOUT_T37n	G7	DQSn5T		T_CS#_1	T_CS#_1
8A	VREFB8AN0	IO			DIFFIO_TX_T38n	DIFFOUT_T38n	B8	DQ5T		T_A_13	
8A	VREFB8AN0	IO			DIFFIO_RX_T39p	DIFFOUT_T39p	H6	DQ5T		T_A_14	
8A	VREFB8AN0	IO			DIFFIO_TX_T40p	DIFFOUT_T40p	E6	DQ5T		T_WE#	
8A	VREFB8AN0	IO			DIFFIO_RX_T39n	DIFFOUT_T39n	G6	DQ5T		T_A_15	
8A	VREFB8AN0	IO			DIFFIO_TX_T40n	DIFFOUT_T40n	F7			GND	GND
9A		MSEL0		MSEL0			L6				
9A		CONF_DONE		CONF_DONE			J6				
9A		MSEL1		MSEL1			K6				
9A		nSTATUS		nSTATUS			G5				
9A		nCE		nCE			H5				
9A		MSEL2		MSEL2			A2				
9A		MSEL3		MSEL3			E5				
9A		nCONFIG		nCONFIG			A4				
9A		MSEL4		MSEL4			C5				
9A		GND					F3				
		GND					A21				
		GND					AB19				
		GND					AB2				
		GND					AB1				
		GND					AA16				
		GND					AA11				
		GND					AA4				
		GND					AA3				
		GND					Y13				
		GND					Y8				
		GND					Y5				
		GND					Y2				
		GND					Y1				
		GND					W20				
		GND					W4				
		GND					W3				
		GND					V22				
		GND					V17				
		GND					V4				
		GND					V2				
		GND					V1				
		GND					U19				
		GND					U14				
		GND					U9				
		GND					U5				
		GND					U4				
		GND					U3				
		GND					T11				
		GND					T2				
		GND					T1				
		GND					R13				
		GND					R3				
		GND					P10				
		GND					P4				
		GND					P2				
		GND					P1				
		GND					N22				
		GND					N15				
		GND					N13				

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	U484	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2
		GND					N11				
		GND					N7				
		GND					N5				
		GND					N3				
		GND					M19				
		GND					M14				
		GND					M12				
		GND					M9				
		GND					M4				
		GND					M2				
		GND					M1				
		GND					L16				
		GND					L13				
		GND					L11				
		GND					L5				
		GND					L3				
		GND					K14				
		GND					K12				
		GND					K10				
		GND					K8				
		GND					K4				
		GND					K2				
		GND					K1				
		GND					J20				
		GND					J15				
		GND					J13				
		GND					J11				
		GND					J5				
		GND					J3				
		GND					H14				
		GND					H4				
		GND					H3				
		GND					H2				
		GND					H1				
		GND					G9				
		GND					G4				
		GND					G3				
		GND					F21				
		GND					F16				
		GND					F11				
		GND					F6				
		GND					F5				
		GND					F2				
		GND					F1				
		GND					E13				
		GND					E4				
		GND					E3				
		GND					D20				
		GND					D10				
		GND					D5				
		GND					D2				
		GND					D1				
		GND					C22				
		GND					C17				
		GND					C7				
		GND					C4				
		GND					C3				
		GND					B14				
		GND					B2				
		GND					B1				
		GND					A11				
		GND					A5				
		VCC					L4				
		VCC					P15				
		VCC					P13				
		VCC					P11				
		VCC					P3				
		VCC					N14				
		VCC					N12				
		VCC					N4				
		VCC					M15				

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	U484	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2
		VCC					M13				
		VCC					M11				
		VCC					L14				
		VCC					L12				
		VCC					L10				
		VCC					K13				
		VCC					K11				
		VCC					K9				
		VCC					K5				
		VCC					K3				
		VCC					J14				
		VCC					J12				
		VCC					J10				
		VCC					J4				
		VCC					H15				
		VCC					H13				
		VCC					H11				
		DNU					B3				
		DNU					B4				
		DNU					D21				
		DNU					E10				
		VCCPGM					Y6				
		VCCPGM					U20				
		VCCPGM					B7				
		VCCBAT					A3				
		VCCIO2A					D4				
		VCCIO2A					Y4				
		VCCIO2A					R1				
		VCCIO2A					J1				
		VCCIO3A					T6				
		VCCIO3A					AA6				
		VCCIO3B					R8				
		VCCIO3B					AB9				
		VCCIO3B					W10				
		VCCIO3B					V7				
		VCCIO4A					T16				
		VCCIO4A					AB14				
		VCCIO4A					AA21				
		VCCIO4A					Y18				
		VCCIO4A					W15				
		VCCIO4A					V12				
		VCCIO5A					T21				
		VCCIO5A					R18				
		VCCIO5B					G19				
		VCCIO5B					P20				
		VCCIO5B					N17				
		VCCIO5B					L21				
		VCCIO5B					K18				
		VCCIO5B					H22				
		VCCIO7A					B19				
		VCCIO7A					H17				
		VCCIO7A					E18				
		VCCIO7A					D15				
		VCCIO7A					C12				
		VCCIO7A					A16				
		VCCIO8A					B9				
		VCCIO8A					H7				
		VCCIO8A					E8				
		VCCIO8A					A6				
		VCCPD1A2A					R2				
		VCCPD1A2A					J2				
		VCCPD1A2A					E1				
		VCCPD3A					V6				
		VCCPD3B4A					W9				
		VCCPD3B4A					V16				
		VCCPD3B4A					V14				
		VCCPD3B4A					V10				
		VCCPD5A					P17				
		VCCPD5B					M18				
		VCCPD5B					N19				
		VCCPD7A8A					E15				

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	U484	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2
		VCCPD7A8A					F13				
		VCCPD7A8A					F9				
		VCCPD7A8A					E9				
2A	VREFB2AN0	VREFB2AN0					W1				
3A	VREFB3AN0	VREFB3AN0					W6				
3B	VREFB3BN0	VREFB3BN0					AB12				
4A	VREFB4AN0	VREFB4AN0					AA14				
5A	VREFB5AN0	VREFB5AN0					V21				
5B	VREFB5BN0	VREFB5BN0					K20				
7A	VREFB7AN0	VREFB7AN0					D16				
8A	VREFB8AN0	VREFB8AN0					B10				
		NC					AB3				
		NC					V11				
		NC					P22				
		NC					P21				
		NC					P18				
		NC					P16				
		NC					N21				
		NC					N20				
		NC					N18				
		NC					N16				
		NC					M22				
		NC					M21				
		NC					M20				
		NC					M17				
		NC					M16				
		NC					L22				
		NC					L20				
		NC					L19				
		NC					L18				
		NC					L15				
		NC					K22				
		NC					K21				
		NC					K19				
		NC					K15				
		NC					J22				
		NC					J21				
		NC					H21				
		NC					G22				
		NC					G21				
		NC					G20				
		NC					F22				
		NC					E22				
		NC					E21				
		NC					D22				
		RREF_TL					A1				
		VCCA_FPLL					M3				
		VCCA_FPLL					T3				
		VCCA_FPLL					T4				
		VCCA_FPLL					F4				
		VCCA_FPLL					U18				
		VCCA_FPLL					E19				
		VCC_AUX					D6				
		VCC_AUX					D12				
		VCC_AUX					D19				
		VCC_AUX					W19				
		VCC_AUX					AA12				
		VCC_AUX					AB5				

Notes:
(1) For more information about pin definition and pin connection guidelines, refer to the Cyclone V Device Family Pin Connection Guidelines.
(2) RESET pin is only applicable for DDR3 device.

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	F484	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2
2A	VREFB2AN0	IO			DIFFIO_TX_L9n	DIFFOUT_L9n	C1				
2A	VREFB2AN0	IO			DIFFIO_RX_L10n	DIFFOUT_L10n	G1	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_TX_L9p	DIFFOUT_L9p	C2	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_RX_L10p	DIFFOUT_L10p	G2	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_RX_L11n	DIFFOUT_L11n	E2	DQSn1L			
2A	VREFB2AN0	IO			DIFFIO_TX_L12n	DIFFOUT_L12n	L1	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_RX_L11p	DIFFOUT_L11p	D3	DQS1L			
2A	VREFB2AN0	IO			DIFFIO_TX_L12p	DIFFOUT_L12p	L2				
2A	VREFB2AN0	IO			DIFFIO_TX_L13n	DIFFOUT_L13n	N1	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_RX_L14n	DIFFOUT_L14n	U1	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_TX_L13p	DIFFOUT_L13p	N2	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_RX_L14p	DIFFOUT_L14p	U2	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_RX_L15n	DIFFOUT_L15n	W2				
2A	VREFB2AN0	IO			DIFFIO_TX_L16n	DIFFOUT_L16n	AA1	DQ1L			
2A	VREFB2AN0	IO			DIFFIO_RX_L15p	DIFFOUT_L15p	Y3				
2A	VREFB2AN0	IO			DIFFIO_TX_L16p	DIFFOUT_L16p	AA2	DQ1L			
3A		TDO		TDO			M5				
3A		nCSO		DATA4			R4				
3A		TMS		TMS			P5				
3A		AS_DATA3		DATA3			T4				
3A		TCK		TCK			V5				
3A		AS_DATA2		DATA2			AA5				
3A		TDI		TDI			W5				
3A		AS_DATA1		DATA1			AB3				
3A		DCLK		DCLK			V3				
3A		AS_DATA0,ASDO		DATA0			AB4				
3A	VREFB3AN0	IO		DATA6	DIFFIO_RX_B1n	DIFFOUT_B1n	R6	DQ1B			
3A	VREFB3AN0	IO		DATA5	DIFFIO_TX_B2n	DIFFOUT_B2n	U7				
3A	VREFB3AN0	IO		DATA8	DIFFIO_RX_B1p	DIFFOUT_B1p	R5	DQ1B			
3A	VREFB3AN0	IO		DATA7	DIFFIO_TX_B2p	DIFFOUT_B2p	U8	DQ1B			
3A	VREFB3AN0	IO		DATA10	DIFFIO_RX_B3n	DIFFOUT_B3n	P6	DQSn1B			
3A	VREFB3AN0	IO		DATA9	DIFFIO_TX_B4n	DIFFOUT_B4n	W8	DQ1B			
3A	VREFB3AN0	IO		DATA12	DIFFIO_RX_B3p	DIFFOUT_B3p	N6	DQS1B			
3A	VREFB3AN0	IO		DATA11	DIFFIO_TX_B4p	DIFFOUT_B4p	W9				
3A	VREFB3AN0	IO		DATA14	DIFFIO_RX_B5n	DIFFOUT_B5n	T7	DQ1B			
3A	VREFB3AN0	IO		DATA13	DIFFIO_TX_B6n	DIFFOUT_B6n	U6	DQ1B			
3A	VREFB3AN0	IO		CLKUSR	DIFFIO_RX_B5p	DIFFOUT_B5p	T8	DQ1B			
3A	VREFB3AN0	IO		DATA15	DIFFIO_TX_B6p	DIFFOUT_B6p	V6	DQ1B			
3A	VREFB3AN0	IO		PR_DONE	DIFFIO_RX_B7n	DIFFOUT_B7n	M6				
3A	VREFB3AN0	IO		PR_READY	DIFFIO_TX_B8n	DIFFOUT_B8n	R7	DQ1B			
3A	VREFB3AN0	IO		PR_ERROR	DIFFIO_RX_B7p	DIFFOUT_B7p	M7				
3A	VREFB3AN0	IO			DIFFIO_TX_B8p	DIFFOUT_B8p	P7	DQ1B			
3B	VREFB3BN0	IO			DIFFIO_TX_B9n	DIFFOUT_B9n	AB6				
3B	VREFB3BN0	IO			DIFFIO_RX_B10n	DIFFOUT_B10n	V9	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_TX_B9p	DIFFOUT_B9p	AB5	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B10p	DIFFOUT_B10p	V10	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B11n	DIFFOUT_B11n	P8	DQSn2B			
3B	VREFB3BN0	IO			DIFFIO_TX_B12n	DIFFOUT_B12n	AA7	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B11p	DIFFOUT_B11p	N8	DQS2B			
3B	VREFB3BN0	IO			DIFFIO_TX_B12p	DIFFOUT_B12p	AB7				
3B	VREFB3BN0	IO			DIFFIO_TX_B13n	DIFFOUT_B13n	AA8	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B14n	DIFFOUT_B14n	T9	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_TX_B13p	DIFFOUT_B13p	AB8	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_RX_B14p	DIFFOUT_B14p	U10	DQ2B			
3B	VREFB3BN0	IO	CLK0n,FPLL_BL_FBn		DIFFIO_RX_B15n	DIFFOUT_B15n	M8				
3B	VREFB3BN0	IO			DIFFIO_TX_B16n	DIFFOUT_B16n	AA10	DQ2B			
3B	VREFB3BN0	IO	CLK0p,FPLL_BL_FBp		DIFFIO_RX_B15p	DIFFOUT_B15p	M9				
3B	VREFB3BN0	IO			DIFFIO_TX_B16p	DIFFOUT_B16p	AA9	DQ2B			
3B	VREFB3BN0	IO			DIFFIO_TX_B17n	DIFFOUT_B17n	Y10				
3B	VREFB3BN0	IO			DIFFIO_RX_B18n	DIFFOUT_B18n	T10	DQ3B			
3B	VREFB3BN0	IO			DIFFIO_TX_B17p	DIFFOUT_B17p	Y9	DQ3B			
3B	VREFB3BN0	IO			DIFFIO_RX_B18p	DIFFOUT_B18p	R9	DQ3B			
3B	VREFB3BN0	IO			DIFFIO_RX_B19n	DIFFOUT_B19n	U11	DQSn3B			
3B	VREFB3BN0	IO			DIFFIO_TX_B20n	DIFFOUT_B20n	R12	DQ3B			
3B	VREFB3BN0	IO			DIFFIO_RX_B19p	DIFFOUT_B19p	U12	DQS3B			
3B	VREFB3BN0	IO			DIFFIO_TX_B20p	DIFFOUT_B20p	P12				
3B	VREFB3BN0	IO	FPLL_BL_CLKOUT1,FPLL_BL_CLKOUTn		DIFFIO_TX_B21n	DIFFOUT_B21n	AB10	DQ3B			
3B	VREFB3BN0	IO			DIFFIO_RX_B22n	DIFFOUT_B22n	R10	DQ3B			
3B	VREFB3BN0	IO	FPLL_BL_CLKOUT0,FPLL_BL_CLKOUTp,FPLL_BL_FB		DIFFIO_TX_B21p	DIFFOUT_B21p	AB11	DQ3B			
3B	VREFB3BN0	IO			DIFFIO_RX_B22p	DIFFOUT_B22p	R11	DQ3B			
3B	VREFB3BN0	IO	CLK1n		DIFFIO_RX_B23n	DIFFOUT_B23n	P9				

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	F484	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2
3B	VREFB3BN0	IO			DIFFIO_TX_B24n	DIFFOUT_B24n	Y11	DQ3B			
3B	VREFB3BN0	IO	CLK1p		DIFFIO_RX_B23p	DIFFOUT_B23p	N9				
3B	VREFB3BN0	IO			DIFFIO_TX_B24p	DIFFOUT_B24p	AA12	DQ3B			
4A	VREFB4AN0	IO	RZQ_0		DIFFIO_TX_B25n	DIFFOUT_B25n	AB13				
4A	VREFB4AN0	IO			DIFFIO_RX_B26n	DIFFOUT_B26n	V13	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_TX_B25p	DIFFOUT_B25p	AB12	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B26p	DIFFOUT_B26p	U13	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B27n	DIFFOUT_B27n	T12	DQSn4B			
4A	VREFB4AN0	IO			DIFFIO_TX_B28n	DIFFOUT_B28n	AA14	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B27p	DIFFOUT_B27p	T13	DQS4B			
4A	VREFB4AN0	IO			DIFFIO_TX_B28p	DIFFOUT_B28p	AA13				
4A	VREFB4AN0	IO			DIFFIO_TX_B29n	DIFFOUT_B29n	AB15	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B30n	DIFFOUT_B30n	Y14	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_TX_B29p	DIFFOUT_B29p	AA15	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_RX_B30p	DIFFOUT_B30p	Y15	DQ4B			
4A	VREFB4AN0	IO	CLK2n		DIFFIO_RX_B31n	DIFFOUT_B31n	V14				
4A	VREFB4AN0	IO			DIFFIO_TX_B32n	DIFFOUT_B32n	AB17	DQ4B			
4A	VREFB4AN0	IO	CLK2p		DIFFIO_RX_B31p	DIFFOUT_B31p	V15				
4A	VREFB4AN0	IO			DIFFIO_TX_B32p	DIFFOUT_B32p	AB18	DQ4B			
4A	VREFB4AN0	IO			DIFFIO_TX_B33n	DIFFOUT_B33n	AB20				
4A	VREFB4AN0	IO			DIFFIO_RX_B34n	DIFFOUT_B34n	Y16	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B33p	DIFFOUT_B33p	AB21	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B34p	DIFFOUT_B34p	Y17	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B35n	DIFFOUT_B35n	T14	DQSn5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B36n	DIFFOUT_B36n	AA17	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B35p	DIFFOUT_B35p	U15	DQS5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B36p	DIFFOUT_B36p	AA18				
4A	VREFB4AN0	IO			DIFFIO_TX_B37n	DIFFOUT_B37n	AA19	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B38n	DIFFOUT_B38n	V20	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B37p	DIFFOUT_B37p	AA20	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B38p	DIFFOUT_B38p	W19	DQ5B	DQ1B		
4A	VREFB4AN0	IO	CLK3n		DIFFIO_RX_B39n	DIFFOUT_B39n	V16				
4A	VREFB4AN0	IO			DIFFIO_TX_B40n	DIFFOUT_B40n	AB22	DQ5B	DQ1B		
4A	VREFB4AN0	IO	CLK3p		DIFFIO_RX_B39p	DIFFOUT_B39p	W16				
4A	VREFB4AN0	IO			DIFFIO_TX_B40p	DIFFOUT_B40p	AA22	DQ5B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B41n	DIFFOUT_B41n	Y22				
4A	VREFB4AN0	IO			DIFFIO_RX_B42n	DIFFOUT_B42n	Y20	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B41p	DIFFOUT_B41p	W22	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B42p	DIFFOUT_B42p	Y19	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B43n	DIFFOUT_B43n	P14	DQSn6B	DQSn1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B44n	DIFFOUT_B44n	Y21	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B43p	DIFFOUT_B43p	R14	DQS6B	DQS1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B44p	DIFFOUT_B44p	W21				
4A	VREFB4AN0	IO			DIFFIO_TX_B45n	DIFFOUT_B45n	U22	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B46n	DIFFOUT_B46n	V19	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_TX_B45p	DIFFOUT_B45p	V21	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B46p	DIFFOUT_B46p	V18	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B47n	DIFFOUT_B47n	U16				
4A	VREFB4AN0	IO			DIFFIO_TX_B48n	DIFFOUT_B48n	U21	DQ6B	DQ1B		
4A	VREFB4AN0	IO			DIFFIO_RX_B47p	DIFFOUT_B47p	U17				
4A	VREFB4AN0	IO			DIFFIO_TX_B48p	DIFFOUT_B48p	U20	DQ6B	DQ1B		
5A	VREFB5AN0	IO	RZQ_1		DIFFIO_TX_R1p	DIFFOUT_R1p	T19	DQ1R			
5A	VREFB5AN0	IO		INIT_DONE	DIFFIO_RX_R2p	DIFFOUT_R2p	T18				
5A	VREFB5AN0	IO		PR_REQUEST	DIFFIO_TX_R1n	DIFFOUT_R1n	T20	DQ1R			
5A	VREFB5AN0	IO		CRC_ERROR	DIFFIO_RX_R2n	DIFFOUT_R2n	T17				
5A	VREFB5AN0	IO		nCEO	DIFFIO_TX_R3p	DIFFOUT_R3p	T22	DQ1R			
5A	VREFB5AN0	IO			DIFFIO_RX_R4p	DIFFOUT_R4p	T15	DQ1R			
5A	VREFB5AN0	IO		CvP_CONFDONE	DIFFIO_TX_R3n	DIFFOUT_R3n	R22	DQ1R			
5A	VREFB5AN0	IO			DIFFIO_RX_R4n	DIFFOUT_R4n	R15	DQ1R			
5A	VREFB5AN0	IO		DEV_OE	DIFFIO_TX_R5p	DIFFOUT_R5p	R21				
5A	VREFB5AN0	IO			DIFFIO_RX_R6p	DIFFOUT_R6p	R16	DQS1R			
5A	VREFB5AN0	IO		DEV_CLRn	DIFFIO_TX_R5n	DIFFOUT_R5n	P22	DQ1R			
5A	VREFB5AN0	IO			DIFFIO_RX_R6n	DIFFOUT_R6n	R17	DQSn1R			
5A	VREFB5AN0	IO			DIFFIO_TX_R7p	DIFFOUT_R7p	P19	DQ1R			
5A	VREFB5AN0	IO			DIFFIO_RX_R8p	DIFFOUT_R8p	P16	DQ1R			
5A	VREFB5AN0	IO			DIFFIO_TX_R7n	DIFFOUT_R7n	P18				
5A	VREFB5AN0	IO			DIFFIO_RX_R8n	DIFFOUT_R8n	P17	DQ1R			
5B	VREFB5BN0	IO	CLK6p		DIFFIO_RX_R9p	DIFFOUT_R9p	N16				
5B	VREFB5BN0	IO			DIFFIO_TX_R10p	DIFFOUT_R10p	N20	DQ2R			
5B	VREFB5BN0	IO	CLK6n		DIFFIO_RX_R9n	DIFFOUT_R9n	M16				
5B	VREFB5BN0	IO			DIFFIO_TX_R10n	DIFFOUT_R10n	N21	DQ2R			

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	F484	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 (2)	HMC Pin Assignment for LPDDR2
5B	VREFB5BN0	IO			DIFFIO_RX_R11p	DIFFOUT_R11p	N19	DQ2R			
5B	VREFB5BN0	IO	FPLL_BR_CLKOUT0,FPLL_BR_CLKOUTp,FPLL_BR_FB		DIFFIO_TX_R12p	DIFFOUT_R12p	M22	DQ2R			
5B	VREFB5BN0	IO			DIFFIO_RX_R11n	DIFFOUT_R11n	M18	DQ2R			
5B	VREFB5BN0	IO	FPLL_BR_CLKOUT1,FPLL_BR_CLKOUTn		DIFFIO_TX_R12n	DIFFOUT_R12n	L22	DQ2R			
5B	VREFB5BN0	IO			DIFFIO_RX_R13p	DIFFOUT_R13p	K17	DQS2R			
5B	VREFB5BN0	IO			DIFFIO_TX_R14p	DIFFOUT_R14p	M20				
5B	VREFB5BN0	IO			DIFFIO_RX_R13n	DIFFOUT_R13n	L17	DQSn2R			
5B	VREFB5BN0	IO			DIFFIO_TX_R14n	DIFFOUT_R14n	M21	DQ2R			
5B	VREFB5BN0	IO			DIFFIO_RX_R15p	DIFFOUT_R15p	L19	DQ2R			
5B	VREFB5BN0	IO			DIFFIO_TX_R16p	DIFFOUT_R16p	K21	DQ2R			
5B	VREFB5BN0	IO			DIFFIO_RX_R15n	DIFFOUT_R15n	L18	DQ2R			
5B	VREFB5BN0	IO			DIFFIO_TX_R16n	DIFFOUT_R16n	K22				
7A		GND					F17				
7A	VREFB7AN0	IO			DIFFIO_RX_T1p	DIFFOUT_T1p	K20			GND	GND
7A	VREFB7AN0	IO			DIFFIO_TX_T2p	DIFFOUT_T2p	B16	DQ1T	DQ1T	T_DM_2	T_DM_2
7A	VREFB7AN0	IO			DIFFIO_RX_T1n	DIFFOUT_T1n	K19			GND	GND
7A	VREFB7AN0	IO			DIFFIO_TX_T2n	DIFFOUT_T2n	C16	DQ1T	DQ1T	T_DQ_23	T_DQ_23
7A	VREFB7AN0	IO			DIFFIO_RX_T3p	DIFFOUT_T3p	D17	DQ1T	DQ1T	T_DQ_21	T_DQ_21
7A	VREFB7AN0	IO			DIFFIO_TX_T4p	DIFFOUT_T4p	G17	DQ1T	DQ1T	T_DQ_22	T_DQ_22
7A	VREFB7AN0	IO			DIFFIO_RX_T3n	DIFFOUT_T3n	E16	DQ1T	DQ1T	T_DQ_20	T_DQ_20
7A	VREFB7AN0	IO			DIFFIO_TX_T4n	DIFFOUT_T4n	G16	DQ1T	DQ1T	GND	GND
7A	VREFB7AN0	IO			DIFFIO_RX_T5p	DIFFOUT_T5p	G18	DQS1T	DQS1T	T_DQS_2	T_DQS_2
7A	VREFB7AN0	IO			DIFFIO_TX_T6p	DIFFOUT_T6p	J19			T_RESET#	T_RESET#
7A	VREFB7AN0	IO			DIFFIO_RX_T5n	DIFFOUT_T5n	H18	DQSn1T	DQSn1T	T_DQS#_2	T_DQS#_2
7A	VREFB7AN0	IO			DIFFIO_TX_T6n	DIFFOUT_T6n	J18	DQ1T	DQ1T	T_DQ_19	T_DQ_19
7A	VREFB7AN0	IO			DIFFIO_RX_T7p	DIFFOUT_T7p	E15	DQ1T	DQ1T	T_DQ_17	T_DQ_17
7A	VREFB7AN0	IO			DIFFIO_TX_T8p	DIFFOUT_T8p	A15	DQ1T	DQ1T	T_DQ_18	T_DQ_18
7A	VREFB7AN0	IO			DIFFIO_RX_T7n	DIFFOUT_T7n	F15	DQ1T	DQ1T	T_DQ_16	T_DQ_16
7A	VREFB7AN0	IO			DIFFIO_TX_T8n	DIFFOUT_T8n	A14			GND	GND
7A	VREFB7AN0	IO	CLK11p		DIFFIO_RX_T9p	DIFFOUT_T9p	H16				
7A	VREFB7AN0	IO			DIFFIO_TX_T10p	DIFFOUT_T10p	J17	DQ2T	DQ1T	T_DM_1	T_DM_1
7A	VREFB7AN0	IO	CLK11n		DIFFIO_RX_T9n	DIFFOUT_T9n	H15				
7A	VREFB7AN0	IO			DIFFIO_TX_T10n	DIFFOUT_T10n	K16	DQ2T	DQ1T	T_DQ_15	T_DQ_15
7A	VREFB7AN0	IO			DIFFIO_RX_T11p	DIFFOUT_T11p	C15	DQ2T	DQ1T	T_DQ_13	T_DQ_13
7A	VREFB7AN0	IO			DIFFIO_TX_T12p	DIFFOUT_T12p	G15	DQ2T	DQ1T	T_DQ_14	T_DQ_14
7A	VREFB7AN0	IO			DIFFIO_RX_T11n	DIFFOUT_T11n	B15	DQ2T	DQ1T	T_DQ_12	T_DQ_12
7A	VREFB7AN0	IO			DIFFIO_TX_T12n	DIFFOUT_T12n	F14	DQ2T	DQ1T	T_CKE_0	T_CKE_0
7A	VREFB7AN0	IO			DIFFIO_RX_T13p	DIFFOUT_T13p	H14	DQS2T	DQ1T	T_DQS_1	T_DQS_1
7A	VREFB7AN0	IO			DIFFIO_TX_T14p	DIFFOUT_T14p	B13			T_CKE_1	T_CKE_1
7A	VREFB7AN0	IO			DIFFIO_RX_T13n	DIFFOUT_T13n	J13	DQSn2T	DQ1T	T_DQS#_1	T_DQS#_1
7A	VREFB7AN0	IO			DIFFIO_TX_T14n	DIFFOUT_T14n	A13	DQ2T	DQ1T	T_DQ_11	T_DQ_11
7A	VREFB7AN0	IO			DIFFIO_RX_T15p	DIFFOUT_T15p	E14	DQ2T	DQ1T	T_DQ_9	T_DQ_9
7A	VREFB7AN0	IO			DIFFIO_TX_T16p	DIFFOUT_T16p	J11	DQ2T	DQ1T	T_DQ_10	T_DQ_10
7A	VREFB7AN0	IO			DIFFIO_RX_T15n	DIFFOUT_T15n	F13	DQ2T	DQ1T	T_DQ_8	T_DQ_8
7A	VREFB7AN0	IO			DIFFIO_TX_T16n	DIFFOUT_T16n	H10			GND	GND
7A	VREFB7AN0	IO	CLK10p		DIFFIO_RX_T17p	DIFFOUT_T17p	H13				
7A	VREFB7AN0	IO			DIFFIO_TX_T18p	DIFFOUT_T18p	G11	DQ3T		T_DM_0	T_DM_0
7A	VREFB7AN0	IO	CLK10n		DIFFIO_RX_T17n	DIFFOUT_T17n	G13				
7A	VREFB7AN0	IO			DIFFIO_TX_T18n	DIFFOUT_T18n	F12	DQ3T		T_DQ_7	T_DQ_7
7A	VREFB7AN0	IO			DIFFIO_RX_T19p	DIFFOUT_T19p	D13	DQ3T		T_DQ_5	T_DQ_5
7A	VREFB7AN0	IO			DIFFIO_TX_T20p	DIFFOUT_T20p	B12	DQ3T		T_DQ_6	T_DQ_6
7A	VREFB7AN0	IO			DIFFIO_RX_T19n	DIFFOUT_T19n	C13	DQ3T		T_DQ_4	T_DQ_4
7A	VREFB7AN0	IO			DIFFIO_TX_T20n	DIFFOUT_T20n	A12	DQ3T		T_ODT_1	T_ODT_1
7A	VREFB7AN0	IO			DIFFIO_RX_T21p	DIFFOUT_T21p	H11	DQS3T		T_DQS_0	T_DQS_0
7A	VREFB7AN0	IO			DIFFIO_TX_T22p	DIFFOUT_T22p	L8			T_ODT_0	T_ODT_0
7A	VREFB7AN0	IO			DIFFIO_RX_T21n	DIFFOUT_T21n	G12	DQSn3T		T_DQS#_0	T_DQS#_0
7A	VREFB7AN0	IO			DIFFIO_TX_T22n	DIFFOUT_T22n	K9	DQ3T		T_DQ_3	T_DQ_3
7A	VREFB7AN0	IO			DIFFIO_RX_T23p	DIFFOUT_T23p	D12	DQ3T		T_DQ_1	T_DQ_1
7A	VREFB7AN0	IO			DIFFIO_TX_T24p	DIFFOUT_T24p	C11	DQ3T		T_DQ_2	T_DQ_2
7A	VREFB7AN0	IO			DIFFIO_RX_T23n	DIFFOUT_T23n	E12	DQ3T		T_DQ_0	T_DQ_0
7A	VREFB7AN0	IO	RZQ_2		DIFFIO_TX_T24n	DIFFOUT_T24n	B11				
8A	VREFB8AN0	IO	CLK9p		DIFFIO_RX_T25p	DIFFOUT_T25p	G10				
8A	VREFB8AN0	IO			DIFFIO_TX_T26p	DIFFOUT_T26p	L7	DQ4T		T_A_0	T_CA_0
8A	VREFB8AN0	IO	CLK9n		DIFFIO_RX_T25n	DIFFOUT_T25n	F10				
8A	VREFB8AN0	IO			DIFFIO_TX_T26n	DIFFOUT_T26n	K7	DQ4T		T_A_1	T_CA_1
8A	VREFB8AN0	IO			DIFFIO_RX_T27p	DIFFOUT_T27p	J7	DQ4T		T_A_4	T_CA_4
8A	VREFB8AN0	IO	FPLL_TL_CLKOUT0,FPLL_TL_CLKOUTp,FPLL_TL_FB		DIFFIO_TX_T28p	DIFFOUT_T28p	H8	DQ4T		T_A_2	T_CA_2
8A	VREFB8AN0	IO			DIFFIO_RX_T27n	DIFFOUT_T27n	J8	DQ4T		T_A_5	T_CA_5
8A	VREFB8AN0	IO	FPLL_TL_CLKOUT1,FPLL_TL_CLKOUTn		DIFFIO_TX_T28n	DIFFOUT_T28n	G8	DQ4T		T_A_3	T_CA_3
8A	VREFB8AN0	IO			DIFFIO_RX_T29p	DIFFOUT_T29p	J9	DQS4T		T_CK	T_CK
8A	VREFB8AN0	IO			DIFFIO_TX_T30p	DIFFOUT_T30p	A10			T_A_6	T_CA_6

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	F484	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 (2)	HMC Pin Assignment for LPDDR2
8A	VREFB8AN0	IO			DIFFIO_RX_T29n	DIFFOUT_T29n	H9	DQSn4T		T_CK#	T_CK#
8A	VREFB8AN0	IO			DIFFIO_TX_T30n	DIFFOUT_T30n	A9	DQ4T		T_A_7	T_CA_7
8A	VREFB8AN0	IO			DIFFIO_RX_T31p	DIFFOUT_T31p	B10	DQ4T		T_BA_1	
8A	VREFB8AN0	IO			DIFFIO_TX_T32p	DIFFOUT_T32p	A5	DQ4T		T_BA_0	
8A	VREFB8AN0	IO			DIFFIO_RX_T31n	DIFFOUT_T31n	C9	DQ4T		T_BA_2	
8A	VREFB8AN0	IO			DIFFIO_TX_T32n	DIFFOUT_T32n	B5			GND	GND
8A	VREFB8AN0	IO	CLK8p,FPLL_TL_FBp		DIFFIO_RX_T33p	DIFFOUT_T33p	E10				
8A	VREFB8AN0	IO			DIFFIO_TX_T34p	DIFFOUT_T34p	B6	DQ5T		T_CAS#	
8A	VREFB8AN0	IO	CLK8n,FPLL_TL_FBn		DIFFIO_RX_T33n	DIFFOUT_T33n	F9				
8A	VREFB8AN0	IO			DIFFIO_TX_T34n	DIFFOUT_T34n	B7	DQ5T		T_RAS#	
8A	VREFB8AN0	IO			DIFFIO_RX_T35p	DIFFOUT_T35p	A8	DQ5T		T_A_8	T_CA_8
8A	VREFB8AN0	IO			DIFFIO_TX_T36p	DIFFOUT_T36p	C6	DQ5T		T_A_10	
8A	VREFB8AN0	IO			DIFFIO_RX_T35n	DIFFOUT_T35n	A7	DQ5T		T_A_9	T_CA_9
8A	VREFB8AN0	IO			DIFFIO_TX_T36n	DIFFOUT_T36n	D6	DQ5T		T_A_11	
8A	VREFB8AN0	IO			DIFFIO_RX_T37p	DIFFOUT_T37p	E9	DQS5T		T_CS#_0	T_CS#_0
8A	VREFB8AN0	IO			DIFFIO_TX_T38p	DIFFOUT_T38p	D7			T_A_12	
8A	VREFB8AN0	IO			DIFFIO_RX_T37n	DIFFOUT_T37n	D9	DQSn5T		T_CS#_1	T_CS#_1
8A	VREFB8AN0	IO			DIFFIO_TX_T38n	DIFFOUT_T38n	C8	DQ5T		T_A_13	
8A	VREFB8AN0	IO			DIFFIO_RX_T39p	DIFFOUT_T39p	G6	DQ5T		T_A_14	
8A	VREFB8AN0	IO			DIFFIO_TX_T40p	DIFFOUT_T40p	F7	DQ5T		T_WE#	
8A	VREFB8AN0	IO			DIFFIO_RX_T39n	DIFFOUT_T39n	H6	DQ5T		T_A_15	
8A	VREFB8AN0	IO			DIFFIO_TX_T40n	DIFFOUT_T40n	E7			GND	GND
9A		MSEL0		MSEL0			L6				
9A		CONF_DONE		CONF_DONE			K6				
9A		MSEL1		MSEL1			J6				
9A		nSTATUS		nSTATUS			H5				
9A		nCE		nCE			G5				
9A		MSEL2		MSEL2			A2				
9A		MSEL3		MSEL3			E5				
9A		nCONFIG		nCONFIG			A4				
9A		MSEL4		MSEL4			F3				
9A		GND					C5				
		GND					P2				
		GND					AB19				
		GND					AB14				
		GND					AB9				
		GND					AB2				
		GND					AB1				
		GND					AA11				
		GND					AA6				
		GND					AA4				
		GND					AA3				
		GND					Y18				
		GND					Y5				
		GND					Y2				
		GND					Y1				
		GND					W4				
		GND					W3				
		GND					V22				
		GND					V17				
		GND					V12				
		GND					V7				
		GND					V4				
		GND					V2				
		GND					V1				
		GND					U9				
		GND					U5				
		GND					U4				
		GND					U3				
		GND					T21				
		GND					T16				
		GND					T2				
		GND					T1				
		GND					R13				
		GND					R3				
		GND					P10				
		GND					P4				
		GND					P1				
		GND					N22				
		GND					N17				
		GND					N15				

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	F484	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2
		GND					N13				
		GND					N11				
		GND					N7				
		GND					N5				
		GND					N3				
		GND					M14				
		GND					M12				
		GND					M10				
		GND					M4				
		GND					M2				
		GND					M1				
		GND					L21				
		GND					L15				
		GND					L13				
		GND					L11				
		GND					L5				
		GND					L3				
		GND					K14				
		GND					K12				
		GND					K10				
		GND					K8				
		GND					K4				
		GND					K2				
		GND					K1				
		GND					J20				
		GND					J15				
		GND					J5				
		GND					J3				
		GND					H22				
		GND					H12				
		GND					H7				
		GND					H4				
		GND					H3				
		GND					H2				
		GND					H1				
		GND					G19				
		GND					G9				
		GND					G4				
		GND					G3				
		GND					F16				
		GND					F6				
		GND					F5				
		GND					F2				
		GND					F1				
		GND					E13				
		GND					E4				
		GND					E3				
		GND					D20				
		GND					D10				
		GND					D5				
		GND					D2				
		GND					D1				
		GND					C17				
		GND					C4				
		GND					C3				
		GND					B14				
		GND					B9				
		GND					B2				
		GND					B1				
		GND					A21				
		GND					A11				
		VCC					N4				
		VCC					P15				
		VCC					P13				
		VCC					P11				
		VCC					P3				
		VCC					N14				
		VCC					N12				
		VCC					N10				
		VCC					M15				
		VCC					M13				

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	F484	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2
		VCC					M11				
		VCC					L16				
		VCC					L14				
		VCC					L12				
		VCC					L10				
		VCC					L4				
		VCC					K15				
		VCC					K13				
		VCC					K11				
		VCC					K5				
		VCC					K3				
		VCC					J16				
		VCC					J14				
		VCC					J12				
		VCC					J10				
		VCC					J4				
		DNU					B3				
		DNU					B4				
		DNU					E17				
		DNU					L9				
		VCCPGM					V8				
		VCCPGM					R19				
		VCCPGM					F8				
		VCCBAT					A3				
		VCCIO2A					D4				
		VCCIO2A					Y4				
		VCCIO2A					R1				
		VCCIO2A					J1				
		VCCIO3A					T6				
		VCCIO3A					Y8				
		VCCIO3B					T11				
		VCCIO3B					Y13				
		VCCIO3B					W10				
		VCCIO3B					R8				
		VCCIO4A					U19				
		VCCIO4A					AA21				
		VCCIO4A					AA16				
		VCCIO4A					W20				
		VCCIO4A					W15				
		VCCIO4A					U14				
		VCCIO5A					P20				
		VCCIO5A					R18				
		VCCIO5B					M19				
		VCCIO5B					K18				
		VCCIO7A					A16				
		VCCIO7A					H17				
		VCCIO7A					G14				
		VCCIO7A					F21				
		VCCIO7A					F11				
		VCCIO7A					E18				
		VCCIO7A					D15				
		VCCIO7A					C22				
		VCCIO7A					C12				
		VCCIO7A					B19				
		VCCIO8A					A6				
		VCCIO8A					G7				
		VCCIO8A					E8				
		VCCIO8A					C7				
		VCCPD1A2A					E1				
		VCCPD1A2A					R2				
		VCCPD1A2A					J2				
		VCCPD3A					W6				
		VCCPD3B4A					W17				
		VCCPD3B4A					W14				
		VCCPD3B4A					W12				
		VCCPD3B4A					W11				
		VCCPD5A					P21				
		VCCPD5B					N18				
		VCCPD5B					M17				
		VCCPD7A8A					D16				
		VCCPD7A8A					E11				

Bank Number	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	F484	DQS for X8	DQS for X16	HMC Pin Assignment for DDR3/DDR2 *(2)*	HMC Pin Assignment for LPDDR2
		VCCPD7A8A					D14				
		VCCPD7A8A					D8				
		VCCPD7A8A					C10				
2A	VREFB2AN0	VREFB2AN0					W1				
3A	VREFB3AN0	VREFB3AN0					Y7				
3B	VREFB3BN0	VREFB3BN0					Y12				
4A	VREFB4AN0	VREFB4AN0					AB16				
5A	VREFB5AN0	VREFB5AN0					R20				
5B	VREFB5BN0	VREFB5BN0					L20				
7A	VREFB7AN0	VREFB7AN0					C14				
8A	VREFB8AN0	VREFB8AN0					B8				
		NC					Y6				
		NC					V11				
		NC					J22				
		NC					J21				
		NC					H21				
		NC					H20				
		NC					G22				
		NC					G21				
		NC					G20				
		NC					F22				
		NC					F20				
		NC					F19				
		NC					F18				
		NC					E22				
		NC					E21				
		NC					E20				
		NC					E19				
		NC					D22				
		NC					D21				
		NC					D19				
		NC					C21				
		NC					C20				
		NC					C19				
		NC					C18				
		NC					B22				
		NC					B21				
		NC					B20				
		NC					B18				
		NC					B17				
		NC					A22				
		NC					A20				
		NC					A19				
		NC					A18				
		NC					A17				
		RREF_TL					A1				
		VCCA_FPLL					M3				
		VCCA_FPLL					T3				
		VCCA_FPLL					T5				
		VCCA_FPLL					F4				
		VCCA_FPLL					U18				
		VCCA_FPLL					H19				
		VCC_AUX					E6				
		VCC_AUX					D11				
		VCC_AUX					D18				
		VCC_AUX					W18				
		VCC_AUX					W13				
		VCC_AUX					W7				

Notes:
(1) For more information about pin definition and pin connection guidelines, refer to the Cyclone V Device Family Pin Connection Guidelines.
(2) RESET pin is only applicable for DDR3 device.

Version Number	Date	Changes Made
1.0	9/20/2012	Initial release.
1.1	10/5/2012	Removed nPERST* pins because Cyclone V E devices do not support PCIe interface.
1.2	1/3/2013	Removed F256 and U324 pin lists.
1.3	6/12/2013	- Added M383 package. - Updated the column from "HMC Pin Assignment for DDR3" to "HMC Pin Assignment for DDR3/DDR2". - Added note to the "HMC Pin Assignment for DDR3/DDR2" column.