



Bank Number	VREF	PinName/Function (2)	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	F896	DQS for X8	DQS for X16	HMC Pin Assignment for DQB/ADDR2 (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
GBB_L2		GXB_TX_L8n					H3								
GBB_L2		GXB_TX_L8p					H4								
GBB_L2		GXB_RX_L8p.GXB_REFCLK_L8p					J2								
GBB_L2		GXB_RX_L8n.GXB_REFCLK_L8p					J1								
GBB_L2		GXB_TX_L7n					K3								
GBB_L2		GXB_TX_L7p					K4								
GBB_L2		GXB_RX_L7p.GXB_REFCLK_L7p					L2								
GBB_L2		GXB_RX_L7n.GXB_REFCLK_L7n					L1								
GBB_L2		GXB_TX_L6n					M3								
GBB_L2		GXB_TX_L6p					M4								
GBB_L2		GXB_RX_L6p.GXB_REFCLK_L6p					N2								
GBB_L2		GXB_RX_L6n.GXB_REFCLK_L6n					N1								
GBB_L2		REFCLKL6p					P9								
GBB_L2		REFCLKL6n					P8								
GBB_L1		REFCLKL5p					T8								
GBB_L1		REFCLKL5n					T9								
GBB_L1		GXB_TX_L5n					P3								
GBB_L1		GXB_TX_L5p					P4								
GBB_L1		GXB_RX_L5p.GXB_REFCLK_L5p					R2								
GBB_L1		GXB_RX_L5n.GXB_REFCLK_L5n					R1								
GBB_L1		GXB_TX_L4n					T3								
GBB_L1		GXB_TX_L4p					T4								
GBB_L1		GXB_RX_L4p.GXB_REFCLK_L4p					U2								
GBB_L1		GXB_RX_L4n.GXB_REFCLK_L4n					U1								
GBB_L1		GXB_TX_L3n					V3								
GBB_L1		GXB_TX_L3p					V4								
GBB_L1		GXB_RX_L3p.GXB_REFCLK_L3p					W2								
GBB_L1		GXB_RX_L3n.GXB_REFCLK_L3n					W1								
GBB_L0		GXB_TX_L2n					Y3								
GBB_L0		GXB_TX_L2p					Y4								
GBB_L0		GXB_RX_L2p.GXB_REFCLK_L2p					AA2								
GBB_L0		GXB_RX_L2n.GXB_REFCLK_L2n					AA1								
GBB_L0		GXB_TX_L1n					AB3								
GBB_L0		GXB_TX_L1p					AB4								
GBB_L0		GXB_RX_L1p.GXB_REFCLK_L1p					AC2								
GBB_L0		GXB_RX_L1n.GXB_REFCLK_L1n					AC1								
GBB_L0		GXB_TX_L0n					AD3								
GBB_L0		GXB_TX_L0p					AD4								
GBB_L0		GXB_RX_L0p.GXB_REFCLK_L0p					AE2								
GBB_L0		GXB_RX_L0n.GXB_REFCLK_L0n					AE1								
GBB_L0		REFCLKL0p					WB								
GBB_L0		REFCLKL0n					WF								
3A		TDO		TDO			AB9								
3A		nCS0		DATA4			AB8								
3A		TMS		TMS			AB7								
3A		AS_DATA3		DATA3			AC7								
3A		TCK		TCK			AC5								
3A		AS_DATA2		DATA2			AE8								
3A		TDI		TDI			UB								
3A		AS_DATA1		DATA1			AE5								
3A		CLK		CLK			U7								
3A		AS_DATA0.ASDO		DATA0			AE6								
3A	VREFBIAS0	ID		DATA6	DIFFIO_RX_B1n	DIFFOUT_B1n	AE12	DQ1B							
3A	VREFBIAS0	ID		DATA6	DIFFIO_TX_B0n	DIFFOUT_B0n	AE9								
3A	VREFBIAS0	ID		DATA6	DIFFIO_RX_B1p	DIFFOUT_B1p	AD11	DQ1B							
3A	VREFBIAS0	ID		DATA7	DIFFIO_TX_B2p	DIFFOUT_B2p	AD9	DQ1B							
3A	VREFBIAS0	ID		DATA9	DIFFIO_RX_B3n	DIFFOUT_B3n	AD10	DQS1B							
3A	VREFBIAS0	ID		DATA9	DIFFIO_TX_B4n	DIFFOUT_B4n	AF10	DQ1B							
3A	VREFBIAS0	ID		DATA12	DIFFIO_RX_B3p	DIFFOUT_B3p	AC9	DQS1B							
3A	VREFBIAS0	ID		DATA11	DIFFIO_TX_B2n	DIFFOUT_B2n	AE11								
3A	VREFBIAS0	ID		DATA14	DIFFIO_RX_B5n	DIFFOUT_B5n	AE7	DQ1B							
3A	VREFBIAS0	ID		DATA13	DIFFIO_TX_B6p	DIFFOUT_B6p	AH4	DQ1B							
3A	VREFBIAS0	ID		CLKUSR	DIFFIO_RX_B5p	DIFFOUT_B5p	AD7	DQ1B							
3A	VREFBIAS0	ID		DATA15	DIFFIO_TX_B6p	DIFFOUT_B6p	AG3	DQ1B							
3A	VREFBIAS0	ID		PR_DONE	DIFFIO_RX_B7n	DIFFOUT_B7n	AF5								
3A	VREFBIAS0	ID		PR_READY	DIFFIO_TX_B8n	DIFFOUT_B8n	AG8	DQ1B							
3A	VREFBIAS0	ID		PR_ERROR	DIFFIO_RX_B7p	DIFFOUT_B7p	AF4								
3A	VREFBIAS0	ID			DIFFIO_TX_B8p	DIFFOUT_B8p	AF9	DQ1B							
3A	VREFBIAS0	ID			DIFFIO_TX_B9n	DIFFOUT_B9n	AG7								
3A	VREFBIAS0	ID			DIFFIO_RX_B10n	DIFFOUT_B10n	AH2	DQ2B							
3A	VREFBIAS0	ID			DIFFIO_TX_B9p	DIFFOUT_B9p	AF8	DQ2B							
3A	VREFBIAS0	ID			DIFFIO_RX_B10p	DIFFOUT_B10p	AG1	DQ2B							
3A	VREFBIAS0	ID			DIFFIO_RX_B11n	DIFFOUT_B11n	AH12	DQS2B							
3A	VREFBIAS0	ID			DIFFIO_TX_B10n	DIFFOUT_B10n	AG6	DQ2B							
3A	VREFBIAS0	ID			DIFFIO_RX_B11p	DIFFOUT_B11p	AA12	DQS2B							
3A	VREFBIAS0	ID			DIFFIO_TX_B12p	DIFFOUT_B12p	AF6								
3A	VREFBIAS0	ID			DIFFIO_TX_B12n	DIFFOUT_B12n	AH6	DQ2B							
3A	VREFBIAS0	ID			DIFFIO_RX_B14n	DIFFOUT_B14n	AJ2	DQ2B							
3A	VREFBIAS0	ID			DIFFIO_TX_B13p	DIFFOUT_B13p	AG5	DQ2B							
3A	VREFBIAS0	ID			DIFFIO_RX_B14p	DIFFOUT_B14p	AJ1	DQ2B							
3A	VREFBIAS0	ID			DIFFIO_RX_B15n	DIFFOUT_B15n	AD12								
3A	VREFBIAS0	ID			DIFFIO_TX_B16p	DIFFOUT_B16p	AH3	DQ2B							
3A	VREFBIAS0	ID			DIFFIO_RX_B15p	DIFFOUT_B15p	AG2								
3A	VREFBIAS0	ID			DIFFIO_TX_B16p	DIFFOUT_B16p	AG2	DQ2B							
3B	VREFBIAS0	ID			DIFFIO_TX_B17n	DIFFOUT_B17n	AH9								
3B	VREFBIAS0	ID			DIFFIO_RX_B18n	DIFFOUT_B18n	AG11	DQ3B							
3B	VREFBIAS0	ID			DIFFIO_TX_B17p	DIFFOUT_B17p	AG10	DQ3B							
3B	VREFBIAS0	ID			DIFFIO_RX_B18p	DIFFOUT_B18p	AF11	DQ3B							
3B	VREFBIAS0	ID			DIFFIO_TX_B19n	DIFFOUT_B19n	AH3	DQS3B							
3B	VREFBIAS0	ID			DIFFIO_RX_B20n	DIFFOUT_B20n	AK3	DQ3B							
3B	VREFBIAS0	ID			DIFFIO_TX_B19p	DIFFOUT_B19p	AA13	DQS3B							
3B	VREFBIAS0	ID			DIFFIO_RX_B20p	DIFFOUT_B20p	AK2								
3B	VREFBIAS0	ID			DIFFIO_TX_B21n	DIFFOUT_B21n	AK4	DQ3B							
3B	VREFBIAS0	ID			DIFFIO_RX_B22n	DIFFOUT_B22n	AF13	DQ3B							
3B	VREFBIAS0	ID			DIFFIO_TX_B21p	DIFFOUT_B21p	AJ4	DQ3B							
3B	VREFBIAS0	ID			DIFFIO_RX_B22p	DIFFOUT_B22p	AE13	DQ3B							
3B	VREFBIAS0	ID			DIFFIO_RX_B23n	DIFFOUT_B23n	AE14								
3B	VREFBIAS0	ID			DIFFIO_TX_B24n	DIFFOUT_B24n	AK5	DQ3B							
3B	VREFBIAS0	ID			DIFFIO_RX_B23p	DIFFOUT_B23p	AD14								
3B	VREFBIAS0	ID			DIFFIO_TX_B24p	DIFFOUT_B24p	AJ5	DQ3B							
3B	VREFBIAS0	ID			DIFFIO_RX_B25n	DIFFOUT_B25n	AJ7								
3B	VREFBIAS0	ID			DIFFIO_RX_B25p	DIFFOUT_B25p	AG13	DQ4B							
3B	VREFBIAS0	ID			DIFFIO_TX_B25p	DIFFOUT_B25p	AJ6	DQ4B							
3B	VREFBIAS0	ID			DIFFIO_RX_B26n	DIFFOUT_B26n	AG12	DQ4B							
3B	VREFBIAS0	ID			DIFFIO_RX_B27n	DIFFOUT_B27n	AC14	DQS4B							
3B	VREFBIAS0	ID			DIFFIO_TX_B28n	DIFFOUT_B28n	AK8	DQ4B							
3B	VREFBIAS0	ID			DIFFIO_TX_B27p	DIFFOUT_B27p	AH15	DQS4B							
3B	VREFBIAS0	ID			DIFFIO_TX_B28p	DIFFOUT_B28p	AK7								
3B	VREFBIAS0	ID			DIFFIO_TX_B29n	DIFFOUT_B29n	AK9	DQ4B							
3B	VREFBIAS0	ID			DIFFIO_RX_B29n	DIFFOUT_B29n	AH14	DQ4B							
3B	VREFBIAS0	ID			DIFFIO_TX_B29p	DIFFOUT_B29p	AJ9	DQ4B							
3B	VREFBIAS0	ID			DIFFIO_RX_B30p	DIFFOUT_B30p	AH13	DQ4B							
3B	VREFBIAS0	ID			DIFFIO_TX_B31n	DIFFOUT_B31n	AF15								
3B	VREFBIAS0	ID			DIFFIO_TX_B32n	DIFFOUT_B32n	AH8	DQ4B							
3B	VREFBIAS0	ID			DIFFIO_TX_B32p	DIFFOUT_B32p	AF14								
3B	VREFBIAS0	ID			DIFFIO_TX_B32n	DIFFOUT_B32n	AH7	DQ4B							
3B	VREFBIAS0	ID			DIFFIO_TX_B33n	DIFFOUT_B33n	AJ10								
3B	VREFBIAS0	ID			DIFFIO_RX_B34n	DIFFOUT_B34n	AK11	DQ5B							
3B	VREFBIAS0	ID			DIFFIO_TX_B33p	DIFFOUT_B33p	AH10	DQ5B							
3B	VREFBIAS0	ID			DIFFIO_RX_B34p	DIFFOUT_B34p	AJ11	DQ5B							
3B	VREFBIAS0	ID			DIFFIO_RX_B35n	DIFFOUT_B35n	AH16	DQS5B							
3B	VREFBIAS0	ID			DIFFIO_TX_B36n	DIFFOUT_B36n	AK13	DQ5B							
3B	VREFBIAS0	ID			DIFFIO_RX_B35p	DIFFOUT_B35p	AA14	DQS5B							
3B	VREFBIAS0	ID			DIFFIO_TX_B36p	DIFFOUT_B36p	AK12								
3B	VREFBIAS0	ID			DIFFIO_TX_B37n	DIFFOUT_B37n	AJ12	DQ5B							



Bank Number	VREF	PinName/Function (2)	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	F896	DQS for X8	DQS for X16	HMC Pin Assignment for DDR/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
3B	VREFB3BN0	ID			DIFFIO RX B3bn	DIFFOUT B3bn	AH15	DQ08							
3B	VREFB3BN0	ID	FPLL_BL_CLKOUT0,FPLL_BL_CLKOUT1,FPLL_BL_FB		DIFFIO TX B3bn	DIFFOUT B3bn	AH12	DQ08							
3B	VREFB3BN0	ID			DIFFIO RX B3bn	DIFFOUT B3bn	AG15	DQ08		B.A.4					B.CA.4
3B	VREFB3BN0	ID	CLK1n		DIFFIO TX B3bn	DIFFOUT B3bn	Y18	DQ08							
3B	VREFB3BN0	ID			DIFFIO TX B4bn	DIFFOUT B4bn	AK14	DQ08							B.CA.1
3B	VREFB3BN0	ID	CLK1p		DIFFIO RX B3bn	DIFFOUT B3bn	W15	DQ08							
3B	VREFB3BN0	ID	RZ0_0		DIFFIO TX B4bn	DIFFOUT B4bn	AJ14	DQ08		B.A.0					B.CA.0
4A	VREFB4AN0	ID			DIFFIO RX B4bn	DIFFOUT B4bn	AF18	DQ08			B.DQ.0				B.DQ.0
4A	VREFB4AN0	ID			DIFFIO TX B4bn	DIFFOUT B4bn	AG16	DQ08			B.DQ.2				B.DQ.2
4A	VREFB4AN0	ID			DIFFIO RX B4bn	DIFFOUT B4bn	AE17	DQ08			B.DQ.1				B.DQ.1
4A	VREFB4AN0	ID			DIFFIO RX B4bn	DIFFOUT B4bn	W16	DQ08			B.DQS0.0				B.DQS0.0
4A	VREFB4AN0	ID			DIFFIO TX B4bn	DIFFOUT B4bn	AF16	DQ08			B.DQ.3				B.DQ.3
4A	VREFB4AN0	ID			DIFFIO RX B4bn	DIFFOUT B4bn	V16	DQ08			B.DQS.0				B.DQS.0
4A	VREFB4AN0	ID			DIFFIO TX B4bn	DIFFOUT B4bn	AE16	DQ08			B.DQ0.0				B.DQ0.0
4A	VREFB4AN0	ID			DIFFIO TX B4bn	DIFFOUT B4bn	AK16	DQ08			B.DQ0.1				B.DQ0.1
4A	VREFB4AN0	ID			DIFFIO RX B4bn	DIFFOUT B4bn	AH20	DQ08			B.DQ.4				B.DQ.4
4A	VREFB4AN0	ID			DIFFIO TX B4bn	DIFFOUT B4bn	AJ16	DQ08			B.DQ.6				B.DQ.6
4A	VREFB4AN0	ID			DIFFIO RX B4bn	DIFFOUT B4bn	AG21	DQ08			B.DQ.5				B.DQ.5
4A	VREFB4AN0	ID	CLK2n		DIFFIO RX B4bn	DIFFOUT B4bn	AH18	DQ08							
4A	VREFB4AN0	ID			DIFFIO TX B4bn	DIFFOUT B4bn	AB17	DQ08		B.DQ.7					B.DQ.7
4A	VREFB4AN0	ID	CLK2p		DIFFIO RX B4bn	DIFFOUT B4bn	AW16	DQ08							
4A	VREFB4AN0	ID			DIFFIO TX B4bn	DIFFOUT B4bn	AH17	DQ08			B.DM.0				B.DM.0
4A	VREFB4AN0	ID			DIFFIO TX B4bn	DIFFOUT B4bn	AH16	DQ08			GND				GND
4A	VREFB4AN0	ID			DIFFIO RX B5bn	DIFFOUT B5bn	AK18	DQ08	DQ28		B.DQ.8				B.DQ.8
4A	VREFB4AN0	ID			DIFFIO TX B4bn	DIFFOUT B4bn	AE18	DQ08			B.DQ.10				B.DQ.10
4A	VREFB4AN0	ID			DIFFIO RX B5bn	DIFFOUT B5bn	AJ17	DQ08			B.DQ.9				B.DQ.9
4A	VREFB4AN0	ID			DIFFIO RX B5bn	DIFFOUT B5bn	W17	DQS0.7B	DQ28		B.DQS0.1				B.DQS0.1
4A	VREFB4AN0	ID			DIFFIO TX B5bn	DIFFOUT B5bn	AK19	DQ08			B.DQ.11				B.DQ.11
4A	VREFB4AN0	ID			DIFFIO RX B5bn	DIFFOUT B5bn	Y17	DQS0.7B	DQ28		B.DQS.1				B.DQS.1
4A	VREFB4AN0	ID			DIFFIO TX B5bn	DIFFOUT B5bn	AJ19	DQ08			B.CKE.1				B.CKE.1
4A	VREFB4AN0	ID			DIFFIO TX B5bn	DIFFOUT B5bn	AJ21	DQ08			B.CKE.0				B.CKE.0
4A	VREFB4AN0	ID			DIFFIO RX B5bn	DIFFOUT B5bn	AG20	DQ08			B.DQ.12				B.DQ.12
4A	VREFB4AN0	ID			DIFFIO TX B5bn	DIFFOUT B5bn	AJ20	DQ08			B.DQ.14				B.DQ.14
4A	VREFB4AN0	ID			DIFFIO RX B5bn	DIFFOUT B5bn	AF19	DQ08			B.DQ.13				B.DQ.13
4A	VREFB4AN0	ID	CLK3n		DIFFIO RX B5bn	DIFFOUT B5bn	AH17	DQ08							
4A	VREFB4AN0	ID			DIFFIO TX B5bn	DIFFOUT B5bn	AG24	DQ08			B.DQ.15				B.DQ.15
4A	VREFB4AN0	ID	CLK3p		DIFFIO RX B5bn	DIFFOUT B5bn	AC18	DQ08							
4A	VREFB4AN0	ID			DIFFIO TX B5bn	DIFFOUT B5bn	AG23	DQ08			B.DM.1				B.DM.1
4A	VREFB4AN0	ID			DIFFIO TX B5bn	DIFFOUT B5bn	AG22	DQ08			GND				GND
4A	VREFB4AN0	ID			DIFFIO RX B5bn	DIFFOUT B5bn	AE19	DQ08	DQ28		B.DQ.16				B.DQ.16
4A	VREFB4AN0	ID			DIFFIO TX B5bn	DIFFOUT B5bn	AG23	DQ08			B.DQ.18				B.DQ.18
4A	VREFB4AN0	ID			DIFFIO RX B5bn	DIFFOUT B5bn	AE16	DQ08	DQ28		B.DQ.17				B.DQ.17
4A	VREFB4AN0	ID			DIFFIO RX B5bn	DIFFOUT B5bn	AA18	DQS0.8B	DQS28		B.DQS0.2				B.DQS0.2
4A	VREFB4AN0	ID			DIFFIO TX B5bn	DIFFOUT B5bn	AK22	DQ08			B.DQ.19				B.DQ.19
4A	VREFB4AN0	ID			DIFFIO RX B5bn	DIFFOUT B5bn	Y17	DQS0.8B	DQS28		B.DQS.2				B.DQS.2
4A	VREFB4AN0	ID			DIFFIO TX B5bn	DIFFOUT B5bn	AK21	DQ08			B.DQS.1				B.DQS.1
4A	VREFB4AN0	ID			DIFFIO TX B5bn	DIFFOUT B5bn	AG22	DQ08			B.RESET#				B.RESET#
4A	VREFB4AN0	ID			DIFFIO RX B6bn	DIFFOUT B6bn	AF21	DQ08			B.DQ.20				B.DQ.20
4A	VREFB4AN0	ID			DIFFIO TX B6bn	DIFFOUT B6bn	AG23	DQ08			B.DQ.22				B.DQ.22
4A	VREFB4AN0	ID			DIFFIO RX B6bn	DIFFOUT B6bn	AF20	DQ08			B.DQ.21				B.DQ.21
4A	VREFB4AN0	ID			DIFFIO TX B6bn	DIFFOUT B6bn	AA19	DQ08			GND				GND
4A	VREFB4AN0	ID			DIFFIO RX B6bn	DIFFOUT B6bn	AK24	DQ08	DQ28		B.DQ.23				B.DQ.23
4A	VREFB4AN0	ID			DIFFIO TX B6bn	DIFFOUT B6bn	Y18	DQ08			GND				GND
4A	VREFB4AN0	ID			DIFFIO TX B6bn	DIFFOUT B6bn	AK23	DQ08	DQ28		B.DM.2				B.DM.2
4A	VREFB4AN0	ID			DIFFIO TX B6bn	DIFFOUT B6bn	AJ25	DQ08			GND				GND
4A	VREFB4AN0	ID			DIFFIO RX B6bn	DIFFOUT B6bn	AF24	DQ08	DQ28		B.DQ.24				B.DQ.24
4A	VREFB4AN0	ID			DIFFIO TX B6bn	DIFFOUT B6bn	AJ24	DQ08			B.DQ.26				B.DQ.26
4A	VREFB4AN0	ID			DIFFIO RX B6bn	DIFFOUT B6bn	AF23	DQ08	DQ28		B.DQ.25				B.DQ.25
4A	VREFB4AN0	ID			DIFFIO TX B6bn	DIFFOUT B6bn	AH19	DQS0.8B	DQS28		B.DQS0.3				B.DQS0.3
4A	VREFB4AN0	ID			DIFFIO RX B6bn	DIFFOUT B6bn	AK26	DQ08	DQ28		B.DQ.27				B.DQ.27
4A	VREFB4AN0	ID			DIFFIO TX B6bn	DIFFOUT B6bn	AG20	DQS0.8B	DQS28		B.DQS.3				B.DQS.3
4A	VREFB4AN0	ID			DIFFIO TX B6bn	DIFFOUT B6bn	AJ26	DQ08			GND				GND
4A	VREFB4AN0	ID			DIFFIO RX B7bn	DIFFOUT B7bn	AH25	DQ08	DQ28		GND				GND
4A	VREFB4AN0	ID			DIFFIO TX B7bn	DIFFOUT B7bn	AE23	DQ08	DQ28		B.DQ.28				B.DQ.28
4A	VREFB4AN0	ID			DIFFIO TX B7bn	DIFFOUT B7bn	AG25	DQ08	DQ28		B.DQ.30				B.DQ.30
4A	VREFB4AN0	ID			DIFFIO RX B7bn	DIFFOUT B7bn	AE22	DQ08	DQ28		B.DQ.29				B.DQ.29
4A	VREFB4AN0	ID			DIFFIO RX B7bn	DIFFOUT B7bn	W19	DQ08			GND				GND
4A	VREFB4AN0	ID			DIFFIO TX B7bn	DIFFOUT B7bn	AK27	DQ08	DQ28		B.DQ.31				B.DQ.31
4A	VREFB4AN0	ID			DIFFIO RX B7bn	DIFFOUT B7bn	V18	DQ08			GND				GND
4A	VREFB4AN0	ID			DIFFIO TX B7bn	DIFFOUT B7bn	AJ27	DQ08	DQ28		B.DM.3				B.DM.3
4A	VREFB4AN0	ID			DIFFIO TX B7bn	DIFFOUT B7bn	AK29	DQ08			GND				GND
4A	VREFB4AN0	ID			DIFFIO RX B7bn	DIFFOUT B7bn	AD21	DQ10B	DQ28		B.DQ.32				B.DQ.32
4A	VREFB4AN0	ID			DIFFIO TX B7bn	DIFFOUT B7bn	AK28	DQ10B	DQ28		B.DQ.34				B.DQ.34
4A	VREFB4AN0	ID			DIFFIO RX B7bn	DIFFOUT B7bn	AD20	DQ10B	DQ28		B.DQ.33				B.DQ.33
4A	VREFB4AN0	ID			DIFFIO RX B7bn	DIFFOUT B7bn	AA20	DQS0.10B	DQS28		B.DQS0.4				B.DQS0.4
4A	VREFB4AN0	ID			DIFFIO TX B7bn	DIFFOUT B7bn	AH27	DQ10B	DQ28		B.DQ.35				B.DQ.35
4A	VREFB4AN0	ID			DIFFIO RX B7bn	DIFFOUT B7bn	Y19	DQS0.10B	DQS28		B.DQS.4				B.DQS.4
4A	VREFB4AN0	ID			DIFFIO TX B7bn	DIFFOUT B7bn	AG28	DQ08			GND				GND
4A	VREFB4AN0	ID			DIFFIO RX B7bn	DIFFOUT B7bn	AK28	DQ10B	DQ28		B.DQ.36				B.DQ.36
4A	VREFB4AN0	ID			DIFFIO TX B7bn	DIFFOUT B7bn	AC23	DQ10B	DQ28		B.DQ.38				B.DQ.38
4A	VREFB4AN0	ID			DIFFIO RX B7bn	DIFFOUT B7bn	AF25	DQ10B	DQ28		B.DQ.37				B.DQ.37
4A	VREFB4AN0	ID			DIFFIO TX B7bn	DIFFOUT B7bn	AD24	DQ10B	DQ28		GND				GND
4A	VREFB4AN0	ID			DIFFIO RX B7bn	DIFFOUT B7bn	AE21	DQ08			GND				GND
4A	VREFB4AN0	ID			DIFFIO TX B8bn	DIFFOUT B8bn	AE24	DQ10B	DQ28		B.DQ.39				B.DQ.39
4A	VREFB4AN0	ID			DIFFIO TX B8bn	DIFFOUT B8bn	AA21	DQ08			GND				GND
4A	VREFB4AN0	ID	RZ0_1		DIFFIO TX B8bn	DIFFOUT B8bn	AD24	DQ10B	DQ28		B.DM.4				B.DM.4
5A	VREFB5AN0	ID			DIFFIO RX R1p	DIFFOUT R1p	AG27	DQ1R							
5A	VREFB5AN0	ID		INT_DONE	DIFFIO RX R2p	DIFFOUT R2p	AD25	DQ1R							
5A	VREFB5AN0	ID		PR_REQUEST	DIFFIO TX R1n	DIFFOUT R1n	AG28	DQ1R							
5A	VREFB5AN0	ID		CRC_ERROR	DIFFIO RX R2n	DIFFOUT R2n	AC25	DQ1R							
5A	VREFB5AN0	ID		HCIO	DIFFIO TX R3n	DIFFOUT R3n	AJ29	DQ1R							
5A	VREFB5AN0	ID			DIFFIO RX R4p	DIFFOUT R4p	W20	DQ1R							
5A	VREFB5AN0	ID		Cv_CONF_DONE	DIFFIO TX R3n	DIFFOUT R3n	AH29	DQ1R							
5A	VREFB5AN0	ID			DIFFIO RX R4n	DIFFOUT R4n	Y21	DQ1R							
5A	VREFB5AN0	ID		DEV_0E	DIFFIO TX R5p	DIFFOUT R5p	AE26	DQ1R							
5A	VREFB5AN0	ID		IPERSTL0	DIFFIO RX R6p	DIFFOUT R6p	W21	DQS1R							
5A	VREFB5AN0	ID		DEV_12Rn	DIFFIO TX R5n	DIFFOUT R5n	AD27	DQ1R							
5A	VREFB5AN0	ID		IPERSTL1	DIFFIO RX R6n	DIFFOUT R6n	W22	DQS1R							
5A	VREFB5AN0	ID			DIFFIO TX R7p	DIFFOUT R7p	AA25	DQ1R							
5A	VREFB5AN0	ID			DIFFIO RX R6n	DIFFOUT R6n	AE22	DQ1R							
5A	VREFB5AN0	ID			DIFFIO TX R7n	DIFFOUT R7n	AB26	DQ1R							
5A	VREFB5AN0	ID			DIFFIO RX R6n	DIFFOUT R6n	AB23	DQ1R							
5A	VREFB5AN0	ID			DIFFIO TX R6n	DIFFOUT R6n	AK24	DQ08							
5A	VREFB5AN0	ID			DIFFIO TX R10p	DIFFOUT R10p	AE27	DQ2R							
5A	VREFB5AN0	ID			DIFFIO RX R6n	DIFFOUT R6n	AB25	DQ2R							
5A	VREFB5AN0	ID			DIFFIO TX R10n	DIFFOUT R10n	AE28	DQ2R							
5A	VREFB5AN0	ID			DIFFIO RX R11p	DIFFOUT R11p	Y23	DQ2R							
5A	VREFB5AN0	ID			DIFFIO TX R12p	DIFFOUT R12p	AG28	DQ2R							
5A	VREFB5AN0	ID			DIFFIO RX R11n	DIFFOUT R11n	Y24	DQ2R							
5A	VREFB5AN0	ID			DIFFIO TX R12n	DIFFOUT R12n	AF28	DQ2R							



Bank Number	VREF	PinName/Function (2)	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	F896	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
5B	VREFB5BND	ID			DIFFIO_RX_R19a	DIFFOUT_R19a	A430	DQ3R							
5B	VREFB5BND	ID			DIFFIO_TX_R20a	DIFFOUT_R20a	A438	DQ3R							
5B	VREFB5BND	ID	CLK9p		DIFFIO_RX_R21a	DIFFOUT_R21a	A426	DQ3SR							
5B	VREFB5BND	ID	FPLL_BR_CLKOUT0,FPLL_BR_CLKOUT0,FPLL_BR_FB		DIFFIO_TX_R22a	DIFFOUT_R22a	A429	DQ3R							
5B	VREFB5BND	ID	CLK6n		DIFFIO_RX_R21a	DIFFOUT_R21a	A467	DQ3SR							
5B	VREFB5BND	ID	FPLL_BR_CLKOUT1,FPLL_BR_CLKOUT1		DIFFIO_TX_R22a	DIFFOUT_R22a	A429	DQ3R							
5B	VREFB5BND	ID	CLK6a,FPLL_BR_FB		DIFFIO_RX_R22a	DIFFOUT_R22a	V28	DQ3R							
5B	VREFB5BND	ID			DIFFIO_TX_R24a	DIFFOUT_R24a	A430	DQ3R							
5B	VREFB5BND	ID	CLK6a,FPLL_BR_FB		DIFFIO_RX_R22a	DIFFOUT_R22a	V27	DQ3R							
5B	VREFB5BND	ID	R20a_2		DIFFIO_TX_R24a	DIFFOUT_R24a	A430	DQ3R							
5B	VREFB5BND_HPS	HPS_DDR								HPS_DM_4	HPS_DM_4				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_39	HPS_DQ_39				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_37	HPS_DQ_37				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_38	HPS_DQ_38				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_36	HPS_DQ_36				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQS_4	HPS_DQS_4				
5B	VREFB5BND_HPS	HPS_GPI3													
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQS_4	HPS_DQS_4				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_35	HPS_DQ_35				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_33	HPS_DQ_33				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_34	HPS_DQ_34				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_32	HPS_DQ_32				
5B	VREFB5BND_HPS	HPS_GPI12													
5B	VREFB5BND_HPS	HPS_GPI1													
5B	VREFB5BND_HPS	HPS_DDR								HPS_DM_3	HPS_DM_3				
5B	VREFB5BND_HPS	HPS_GPI10													
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_31	HPS_DQ_31				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_29	HPS_DQ_29				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_30	HPS_DQ_30				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_28	HPS_DQ_28				
5B	VREFB5BND_HPS	VREFB5BND_HPS													
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQS_3	HPS_DQS_3				
5B	VREFB5BND_HPS	HPS_GPI8													
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQS_3	HPS_DQS_3				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_27	HPS_DQ_27				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_25	HPS_DQ_25				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_26	HPS_DQ_26				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_24	HPS_DQ_24				
5B	VREFB5BND_HPS	HPS_GPI6													
5B	VREFB5BND_HPS	HPS_GPI7													
5B	VREFB5BND_HPS	HPS_DDR								HPS_DM_2	HPS_DM_2				
5B	VREFB5BND_HPS	HPS_GPI6													
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_21	HPS_DQ_21				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_22	HPS_DQ_22				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_20	HPS_DQ_20				
5B	VREFB5BND_HPS	HPS_GPI5													
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQS_2	HPS_DQS_2				
5B	VREFB5BND_HPS	HPS_DDR								HPS_RESET#	HPS_RESET#				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQS_2	HPS_DQS_2				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_18	HPS_DQ_18				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_17	HPS_DQ_17				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_18	HPS_DQ_18				
5B	VREFB5BND_HPS	HPS_DDR								HPS_DQ_16	HPS_DQ_16				
5A	VREFB5AND	HPS_GPI3													
5A	VREFB5AND	HPS_DDR								HPS_DM_1	HPS_DM_1				
5A	VREFB5AND	HPS_DDR													
5A	VREFB5AND	HPS_DDR								HPS_DQ_15	HPS_DQ_15				
5A	VREFB5AND	HPS_DDR								HPS_DQ_13	HPS_DQ_13				
5A	VREFB5AND	HPS_DDR								HPS_DQ_14	HPS_DQ_14				
5A	VREFB5AND	HPS_DDR								HPS_DQ_12	HPS_DQ_12				
5A	VREFB5AND	HPS_DDR								HPS_DQS_0	HPS_DQS_0				
5A	VREFB5AND	HPS_DDR								HPS_DQS_1	HPS_DQS_1				
5A	VREFB5AND	HPS_DDR								HPS_DQS_1	HPS_DQS_1				
5A	VREFB5AND	HPS_DDR								HPS_DQ_11	HPS_DQ_11				
5A	VREFB5AND	HPS_DDR								HPS_DQ_9	HPS_DQ_9				
5A	VREFB5AND	HPS_DDR								HPS_DQ_10	HPS_DQ_10				
5A	VREFB5AND	HPS_DDR								HPS_DQ_8	HPS_DQ_8				
5A	VREFB5AND	HPS_GPI1													
5A	VREFB5AND	HPS_GPI2													
5A	VREFB5AND	HPS_DDR								HPS_DM_0	HPS_DM_0				
5A	VREFB5AND	HPS_DDR								HPS_DQ_7	HPS_DQ_7				
5A	VREFB5AND	HPS_DDR								HPS_DQ_5	HPS_DQ_5				
5A	VREFB5AND	HPS_DDR								HPS_DQ_6	HPS_DQ_6				
5A	VREFB5AND	HPS_DDR								HPS_DQ_4	HPS_DQ_4				
5A	VREFB5AND	HPS_DDR								HPS_ODT_1	HPS_ODT_1				
5A	VREFB5AND	HPS_DDR								HPS_DQS_0	HPS_DQS_0				
5A	VREFB5AND	HPS_DDR								HPS_DQS_0	HPS_DQS_0				
5A	VREFB5AND	HPS_DDR								HPS_DQ_3	HPS_DQ_3				
5A	VREFB5AND	HPS_DDR								HPS_DQ_1	HPS_DQ_1				
5A	VREFB5AND	HPS_DDR								HPS_DQ_2	HPS_DQ_2				
5A	VREFB5AND	HPS_DDR								HPS_DQ_0	HPS_DQ_0				
5A	VREFB5AND	VREFB5AND_HPS													
5A	VREFB5AND	HPS_DDR								HPS_A_0	HPS_CA_0				
5A	VREFB5AND	HPS_DDR								HPS_A_1	HPS_CA_1				
5A	VREFB5AND	HPS_DDR								HPS_A_4	HPS_CA_4				
5A	VREFB5AND	HPS_DDR								HPS_A_2	HPS_CA_2				
5A	VREFB5AND	HPS_DDR								HPS_A_5	HPS_CA_5				
5A	VREFB5AND	HPS_DDR								HPS_A_3	HPS_CA_3				
5A	VREFB5AND	HPS_DDR								HPS_OK	HPS_OK				
5A	VREFB5AND	HPS_DDR								HPS_A_6	HPS_CA_6				
5A	VREFB5AND	HPS_DDR								HPS_C6#	HPS_C6#				
5A	VREFB5AND	HPS_DDR								HPS_A_7	HPS_CA_7				
5A	VREFB5AND	HPS_DDR								HPS_BA_1	HPS_BA_1				
5A	VREFB5AND	HPS_DDR								HPS_BA_2	HPS_BA_2				
5A	VREFB5AND	HPS_DDR								HPS_BA_2	HPS_BA_2				
5A	VREFB5AND	HPS_DDR								HPS_CAS#	HPS_CAS#				
5A	VREFB5AND	HPS_DDR								HPS_BA#	HPS_BA#				
5A	VREFB5AND	HPS_DDR								HPS_A_8	HPS_CA_8				
5A	VREFB5AND	HPS_DDR								HPS_A_10	HPS_CA_9				
5A	VREFB5AND	HPS_DDR								HPS_A_9	HPS_CA_9				
5A	VREFB5AND	HPS_DDR								HPS_A_11	HPS_CA_9				
5A	VREFB5AND	HPS_DDR								HPS_C5#_0	HPS_C5#_0				
5A	VREFB5AND	HPS_DDR								HPS_A_12	HPS_CA_12				
5A	VREFB5AND	HPS_DDR								HPS_C5#_1	HPS_C5#_1				
5A	VREFB5AND	HPS_DDR								HPS_A_13	HPS_CA_13				
5A	VREFB5AND	HPS_DDR								HPS_A_14	HPS_CA_14				
5A	VREFB5AND	HPS_DDR								HPS_WE#	HPS_WE#				
5A	VREFB5AND	HPS_DDR								HPS_A_15	HPS_CA_15				
5A	VREFB5AND	HPS_DQS_0													
5A	VREFB5AND	GND													
5A	VREFB5AND	GND													
5A	VREFB5AND	HPS_nPDR													
5A	VREFB5AND	HPS_nPDR													
5A	VREFB5AND	HPS_nPDR													
5A	VREFB5AND	HPS_TMS													
5A	VREFB5AND	HPS_TCK													
5A	VREFB5AND	HPS_TDI													
5A	VREFB5AND	HPS_TDO													
5A	VREFB5AND	HPS_PORSEL													
5A	VREFB5AND	HPS_PORSEL													



Pin Information for the Cyclone® V 5CSTFD5 Device
Version 1.4
Note (1)

Bank Number	VREF	PinName/Function (2)	Optional Function(s)	Configuration Function	Dedicated TriX Channel	Emulated LVDS Output Channel	F896	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	
7A		HPS_CLK1					D05									
7A		HPS_CLK2					F26									
7A	VREF/F87B7C7D9D HPS	TRACE_CLK					B06					TRACE_CLK				HPS_GP048
7A	VREF/F87B7C7D9D HPS	TRACE_D0					B05					TRACE_D0	SPIS0_CLK	UART0_RX		HPS_GP049
7A	VREF/F87B7C7D9D HPS	TRACE_D1					C26					TRACE_D1	SPIS0_MOSI	UART0_TX		HPS_GP050
7A	VREF/F87B7C7D9D HPS	TRACE_D2					A25					TRACE_D2	SPIS0_MISO	I2C1_SDA		HPS_GP051
7A	VREF/F87B7C7D9D HPS	TRACE_D3					H03					TRACE_D3	SPIS0_SS0	I2C1_SCL		HPS_GP052
7A	VREF/F87B7C7D9D HPS	TRACE_D4					A24					TRACE_D4	CAN0_RX	CAN0_RX		HPS_GP053
7A	VREF/F87B7C7D9D HPS	TRACE_D6					G21					TRACE_D6	SPIS0_MOSI	CAN0_TX		HPS_GP054
7A	VREF/F87B7C7D9D HPS	TRACE_D6					C24					TRACE_D6	SPIS0_SS0	I2C0_SDA		HPS_GP055
7A	VREF/F87B7C7D9D HPS	TRACE_D7					E23					TRACE_D7	SPIS0_MISO	I2C0_SCL		HPS_GP056
7A	VREF/F87B7C7D9D HPS	SPIM0_CLK					A23					SPIM0_CLK	I2C1_SDA	UART0_CTS		HPS_GP057
7A	VREF/F87B7C7D9D HPS	SPIM0_MOSI					C22					SPIM0_MOSI	I2C1_SCL	UART0_RTS		HPS_GP058
7A	VREF/F87B7C7D9D HPS	SPIM0_MISO					B23					SPIM0_MISO	CAN0_RX	UART1_CTS		HPS_GP059
7A	VREF/F87B7C7D9D HPS	SPIM0_SS0/BOOTSEL0					H00					SPIM0_SS0	CAN0_TX	UART1_RTS		HPS_GP060
7A	VREF/F87B7C7D9D HPS	UART0_RX					B02					UART0_RX	CAN0_RX	SPIM0_SS1		HPS_GP061
7A	VREF/F87B7C7D9D HPS	UART0_TX_CLK/SEL1					G22					UART0_TX	CAN0_TX	SPIM0_SS1		HPS_GP062
7A	VREF/F87B7C7D9D HPS	I2C0_SDA					C03					I2C0_SDA	UART1_RX	SPIM0_CLK		HPS_GP063
7A	VREF/F87B7C7D9D HPS	I2C0_SCL					D02					I2C0_SCL	UART1_TX	SPIM0_MOSI		HPS_GP064
7A	VREF/F87B7C7D9D HPS	CAN0_RX					E24					CAN0_RX	UART0_RX	SPIM0_MISO		HPS_GP065
7A	VREF/F87B7C7D9D HPS	CAN0_TX_CLK/SEL0					D04					CAN0_TX	UART0_TX	SPIM0_SS0		HPS_GP066
7B	VREF/F87B7C7D9D HPS	HPS					H15					NAND_ALE	OSPI_SS3			HPS_GP014
7B	VREF/F87B7C7D9D HPS	NAND_CE					F20					NAND_CE	RGMI0_TXD0	USBI_D0		HPS_GP015
7B	VREF/F87B7C7D9D HPS	NAND_CLE					H19					NAND_CLE	RGMI0_TX_CLK	USBI_D1		HPS_GP016
7B	VREF/F87B7C7D9D HPS	NAND_RE					F21					NAND_RE	RGMI0_TXD2	USBI_D2		HPS_GP017
7B	VREF/F87B7C7D9D HPS	NAND_RB					H18					NAND_RB	RGMI0_TXD3	USBI_D3		HPS_GP018
7B	VREF/F87B7C7D9D HPS	NAND_D00					A21					NAND_D00	RGMI0_RXD0			HPS_GP019
7B	VREF/F87B7C7D9D HPS	NAND_D01					B21					NAND_D01	RGMI0_MIO0	I2C1_SDA		HPS_GP020
7B	VREF/F87B7C7D9D HPS	NAND_D03					E21					NAND_D03	RGMI0_RX_CTL	USBI_D4		HPS_GP021
7B	VREF/F87B7C7D9D HPS	NAND_D04					A20					NAND_D04	RGMI0_TX_CTL	USBI_D5		HPS_GP022
7B	VREF/F87B7C7D9D HPS	NAND_D06					G20					NAND_D06	RGMI0_RX_CLK	USBI_D6		HPS_GP024
7B	VREF/F87B7C7D9D HPS	NAND_D06					B20					NAND_D06	RGMI0_RXD1	USBI_D7		HPS_GP025
7B	VREF/F87B7C7D9D HPS	NAND_D07					H18					NAND_D07	RGMI0_RXD2			HPS_GP026
7B	VREF/F87B7C7D9D HPS	NAND_WP					D21					NAND_WP	RGMI0_RXD3	OSPI_SS2		HPS_GP027
7B	VREF/F87B7C7D9D HPS	NAND_WB/BOOTSEL2					D20					NAND_WB	OSPI_SS1			HPS_GP028
7B	VREF/F87B7C7D9D HPS	OSPI_I00					C20					OSPI_I00		USBI_CLK		HPS_GP029
7B	VREF/F87B7C7D9D HPS	OSPI_I01					H18					OSPI_I01		USBI_STP		HPS_GP030
7B	VREF/F87B7C7D9D HPS	OSPI_I03					A19					OSPI_I03		USBI_D8		HPS_GP031
7B	VREF/F87B7C7D9D HPS	OSPI_I03					E19					OSPI_I03		USBI_NXT		HPS_GP032
7B	VREF/F87B7C7D9D HPS	OSPI_SS0/BOOTSEL1					A18					OSPI_SS0				HPS_GP033
7B	VREF/F87B7C7D9D HPS	OSPI_CLK					H19					OSPI_CLK				HPS_GP034
7B	VREF/F87B7C7D9D HPS	OSPI_SS1					C19					OSPI_SS1				HPS_GP035
7C	VREF/F87B7C7D9D HPS	SDMMC_CMD					F19					SDMMC_CMD	USBI_D0			HPS_GP036
7C	VREF/F87B7C7D9D HPS	SDMMC_PAREN					B17					SDMMC_PAREN	USBI_D1			HPS_GP037
7C	VREF/F87B7C7D9D HPS	SDMMC_D0					G18					SDMMC_D0	USBI_D2			HPS_GP038
7C	VREF/F87B7C7D9D HPS	SDMMC_D1					C17					SDMMC_D1	USBI_D3			HPS_GP039
7C	VREF/F87B7C7D9D HPS	SDMMC_D4					H17					SDMMC_D4	USBI_D4			HPS_GP040
7C	VREF/F87B7C7D9D HPS	SDMMC_D5					C18					SDMMC_D5	USBI_D5			HPS_GP041
7C	VREF/F87B7C7D9D HPS	SDMMC_D6					G17					SDMMC_D6	USBI_D6			HPS_GP042
7C	VREF/F87B7C7D9D HPS	SDMMC_D7					E18					SDMMC_D7	USBI_D7			HPS_GP043
7C	VREF/F87B7C7D9D HPS	HPS_GP044					E17					SDMMC_CLK	USBI_CLK			HPS_GP044
7C	VREF/F87B7C7D9D HPS	SDMMC_CCLK_OUT					A16					SDMMC_CCLK_OUT	USBI_STP			HPS_GP045
7C	VREF/F87B7C7D9D HPS	SDMMC_RZ					D17					SDMMC_D2	USBI_D8			HPS_GP046
7C	VREF/F87B7C7D9D HPS	SDMMC_D3					B16					SDMMC_D3	USBI_NXT			HPS_GP047
7D	VREF/F87B7C7D9D HPS	RGMI0_TX_CLK					F16					RGMI0_TX_CLK				HPS_GP050
7D	VREF/F87B7C7D9D HPS	RGMI0_TXD0					E16					RGMI0_TXD0	USBI_D0			HPS_GP051
7D	VREF/F87B7C7D9D HPS	RGMI0_TXD1					G16					RGMI0_TXD1	USBI_D1			HPS_GP052
7D	VREF/F87B7C7D9D HPS	RGMI0_TXD2					D16					RGMI0_TXD2	USBI_D2			HPS_GP053
7D	VREF/F87B7C7D9D HPS	RGMI0_TXD3					H16					RGMI0_TXD3	USBI_D3			HPS_GP054
7D	VREF/F87B7C7D9D HPS	RGMI0_RXD0					A15					RGMI0_RXD0	USBI_D4			HPS_GP055
7D	VREF/F87B7C7D9D HPS	RGMI0_MIO0					D15					RGMI0_MIO0	USBI_D5			HPS_GP056
7D	VREF/F87B7C7D9D HPS	RGMI0_MIO2					H15					RGMI0_MIO2	I2C1_SDA			HPS_GP057
7D	VREF/F87B7C7D9D HPS	RGMI0_RX_CTL					B15					RGMI0_RX_CTL	USBI_D6			HPS_GP058
7D	VREF/F87B7C7D9D HPS	RGMI0_TX_CTL					H15					RGMI0_TX_CTL	USBI_D7			HPS_GP059
7D	VREF/F87B7C7D9D HPS	RGMI0_RX_CLK					C14					RGMI0_RX_CLK	USBI_D8			HPS_GP060
7D	VREF/F87B7C7D9D HPS	RGMI0_RXD1					E14					RGMI0_RXD1	USBI_STP			HPS_GP011
7D	VREF/F87B7C7D9D HPS	RGMI0_RXD2					H14					RGMI0_RXD2	USBI_D9			HPS_GP012
7D	VREF/F87B7C7D9D HPS	RGMI0_RXD3					A14					RGMI0_RXD3	USBI_NXT			HPS_GP013
8A	VREF/BAND	ID	CLK7p				H15					DIFF0_T1p	DIFFOUT_T1p			
8A	VREF/BAND	ID	CLK7m				B13					DIFF0_T2p	DIFFOUT_T2p			
8A	VREF/BAND	ID					G15					DIFF0_RX_T1p	DIFFOUT_T1p			
8A	VREF/BAND	ID					A13					DIFF0_T2p	DIFFOUT_T2p			
8A	VREF/BAND	ID					C13					DIFF0_RX_T2p	DIFFOUT_T2p			
8A	VREF/BAND	ID	FPLL_TL_CLKOUT0,FPLL_TL_CLKOUT5,FPLL_TL_FB				A11					DIFF0_TX_T4p	DIFFOUT_T4p			
8A	VREF/BAND	ID					B12					DIFF0_T3p	DIFFOUT_T3p			
8A	VREF/BAND	ID	FPLL_TL_CLKOUT1,FPLL_TL_CLKOUT4				A10					DIFF0_T4p	DIFFOUT_T4p			
8A	VREF/BAND	ID					F15					DIFF0_RX_T5p	DIFFOUT_T5p			
8A	VREF/BAND	ID					C12					DIFF0_T5p	DIFFOUT_T5p			
8A	VREF/BAND	ID					F14					DIFF0_RX_T6p	DIFFOUT_T6p			
8A	VREF/BAND	ID					B11					DIFF0_T6p	DIFFOUT_T6p			
8A	VREF/BAND	ID					D11					DIFF0_RX_T7p	DIFFOUT_T7p			
8A	VREF/BAND	ID					A8					DIFF0_T7p	DIFFOUT_T7p			
8A	VREF/BAND	ID					D10					DIFF0_RX_T7p	DIFFOUT_T7p			
8A	VREF/BAND	ID					A8					DIFF0_T7p	DIFFOUT_T7p			
8A	VREF/BAND	ID	CLK6p,FPLL_TL_FBp				K14					DIFF0_RX_T8p	DIFFOUT_T8p			
8A	VREF/BAND	ID					C7					DIFF0_TX_T10p	DIFFOUT_T10p			
8A	VREF/BAND	ID	CLK6n,FPLL_TL_FBn				J14					DIFF0_RX_T8p	DIFFOUT_T8p			
8A	VREF/BAND	ID					H7					DIFF0_TX_T10p	DIFFOUT_T10p			
8A	VREF/BAND	ID					E9					DIFF0_RX_T11p	DIFFOUT_T11p			
8A	VREF/BAND	ID					C9					DIFF0_TX_T12p	DIFFOUT_T12p			
8A	VREF/BAND	ID					D9					DIFF0_RX_T11p	DIFFOUT_T11p			
8A	VREF/BAND	ID					B8					DIFF0_TX_T12p	DIFFOUT_T12p			
8A	VREF/BAND	ID					H14					DIFF0_RX_T13p	DIFFOUT_T13p			
8A	VREF/BAND	ID					C10					DIFF0_TX_T14p	DIFFOUT_T14p			
8A	VREF/BAND	ID					G13					DIFF0_RX_T13p	DIFFOUT_T13p			
8A	VREF/BAND	ID					C9					DIFF0_TX_T14p	DIFFOUT_T14p			
8A	VREF/BAND	ID					F13					DIFF0_RX_T15p	DIFFOUT_T15p			
8A	VREF/BAND	ID					A6					DIFF0_TX_T16p	DIFFOUT_T16p			
8A	VREF/BAND	ID					E13					DIFF0_RX_T15p	DIFFOUT_T15p			
8A	VREF/BAND	ID					H6					DIFF0_TX_T16p	DIFFOUT_T16p			
8A	VREF/BAND	ID					H8					DIFF0_RX_T17p	DIFFOUT_T17p			
8A	VREF/BAND	ID					A4					DIFF0_TX_T18p	DIFFOUT_T18p			
8A	VREF/BAND	ID					C8					DIFF0_RX_T17p	DIFFOUT_T17p			
8A	VREF/BAND	ID					A3					DIFF0_TX_T18p	DIFFOUT_T18p			
8A	VREF/BAND	ID					E12					DIFF0_RX_T19p	DIFFOUT_T19p			
8A	VREF/BAND	ID					D8					DIFF0_TX_T19p	DIFFOUT_T19p			
8A	VREF/BAND	ID					D12					DIFF0_RX_T19p	DIFFOUT_T19p			
8A	VREF/BAND	ID					C5					DIFF0_TX_T20p	DIFFOUT_T20p			
8A	VREF/BAND	ID					H13					DIFF0_RX_T20p	DIFFOUT_T20p			
8A	VREF/BAND	ID					D5					DIFF0_TX_T20p	DIFFOUT_T20p			
8A	VREF/BAND	ID														



Bank Number	VREF	PinName/Function (2)	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	F896	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
BA	VREFBAND	ID			DIFFIO_RX_T29p	DIFFOUT_T29m	K12	DQS4T	DQS2T						
BA	VREFBAND	ID			DIFFIO_TX_T30p	DIFFOUT_T30m	D3								
BA	VREFBAND	ID			DIFFIO_RX_T29m	DIFFOUT_T29p	J12	DQS4T	DQS2T						
BA	VREFBAND	ID			DIFFIO_TX_T30m	DIFFOUT_T30p	I2	DQ4T	DQ2T						
BA	VREFBAND	ID			DIFFIO_RX_T31p	DIFFOUT_T31m	G12	DQ4T	DQ2T						
BA	VREFBAND	ID			DIFFIO_TX_T32p	DIFFOUT_T32m	E4	DQ4T	DQ2T						
BA	VREFBAND	ID			DIFFIO_RX_T31m	DIFFOUT_T31p	G11	DQ4T	DQ2T						
BA	VREFBAND	ID			DIFFIO_TX_T32m	DIFFOUT_T32p	D4								
BA	VREFBAND	ID			DIFFIO_RX_T33p	DIFFOUT_T33m	K7								
BA	VREFBAND	ID			DIFFIO_TX_T34p	DIFFOUT_T34m	E3	DQ2T	DQ2T						
BA	VREFBAND	ID			DIFFIO_RX_T33m	DIFFOUT_T33p	K8								
BA	VREFBAND	ID			DIFFIO_TX_T34m	DIFFOUT_T34p	E2	DQ2T	DQ2T						
BA	VREFBAND	ID			DIFFIO_RX_T35p	DIFFOUT_T35m	G10	DQ2T	DQ2T						
BA	VREFBAND	ID			DIFFIO_TX_T36p	DIFFOUT_T36m	E1	DQ2T	DQ2T						
BA	VREFBAND	ID			DIFFIO_RX_T35m	DIFFOUT_T35p	F10	DQ2T	DQ2T						
BA	VREFBAND	ID			DIFFIO_TX_T36m	DIFFOUT_T36p	D1	DQ2T	DQ2T						
BA	VREFBAND	ID			DIFFIO_RX_T37p	DIFFOUT_T37m	J10	DQS2T	DQ2T						
BA	VREFBAND	ID			DIFFIO_TX_T38p	DIFFOUT_T38m	E7								
BA	VREFBAND	ID			DIFFIO_RX_T37m	DIFFOUT_T37p	J9	DQS4T	DQ2T						
BA	VREFBAND	ID			DIFFIO_TX_T38m	DIFFOUT_T38p	E6	DQ2T	DQ2T						
BA	VREFBAND	ID			DIFFIO_RX_T39p	DIFFOUT_T39m	F9	DQ2T	DQ2T						
BA	VREFBAND	ID			DIFFIO_TX_T40p	DIFFOUT_T40m	G7	DQ2T	DQ2T						
BA	VREFBAND	ID			DIFFIO_RX_T39m	DIFFOUT_T39p	F8	DQ2T	DQ2T						
BA	VREFBAND	ID			DIFFIO_TX_T40m	DIFFOUT_T40p	F6								
BA		MSEL0		MSEL0			L5								
BA		CONF_DONE		CONF_DONE			F3								
BA		MSEL1		MSEL1			K6								
BA		HSTATUS		HSTATUS			F4								
BA		ACE		ACE			G5								
BA		MSEL2		MSEL2			C6								
BA		MSEL3		MSEL3			L7								
BA		hCONFIG		hCONFIG			J5								
BA		MSEL4		MSEL4			F9								
		GND					JF								
		GND					A12								
		GND					A17								
		GND					A2								
		GND					A22								
		GND					A27								
		GND					AA11								
		GND					AA22								
		GND					AA3								
		GND					AA4								
		GND					AA6								
		GND					AA9								
		GND					AB1								
		GND					AB19								
		GND					AB2								
		GND					AB29								
		GND					AB5								
		GND					AB7								
		GND					AC16								
		GND					AC26								
		GND					AC3								
		GND					AC4								
		GND					AC5								
		GND					AC8								
		GND					AD1								
		GND					AD2								
		GND					AD23								
		GND					AD5								
		GND					AE10								
		GND					AE20								
		GND					AE3								
		GND					AE4								
		GND					AF1								
		GND					AF12								
		GND					AF17								
		GND					AF2								
		GND					AF27								
		GND					AF3								
		GND					AG14								
		GND					AG24								
		GND					AG8								
		GND					AH1								
		GND					AH11								
		GND					AH21								
		GND					AH6								
		GND					AJ18								
		GND					AJ28								
		GND					AJ5								
		GND					AJ20								
		GND					AK15								
		GND					AK25								
		GND					AK5								
		GND					BL4								
		GND					B19								
		GND					B24								
		GND					B26								
		GND					B9								
		GND					C1								
		GND					C16								
		GND					C21								
		GND					C26								
		GND					C6								
		GND					D13								
		GND					D23								
		GND					D3								
		GND					E10								
		GND					E25								
		GND					E30								
		GND					F17								
		GND					F2								
		GND					F27								
		GND					F5								
		GND					F7								
		GND					G24								
		GND					G3								
		GND					G4								
		GND					H1								
		GND					H11								
		GND					H6								
		GND					H6								
		GND					J18								
		GND					J28								
		GND					J5								
		GND					J6								
		GND					K1								
		GND					K10								
		GND					K16								
		GND					K3								
		GND					K20								
		GND					K28								
		GND					K5								



Bank Number	VREF	PinName/Function (2)	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	F896	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					L11								
		GND					L13								
		GND					L15								
		GND					L17								
		GND					L19								
		GND					L22								
		GND					L3								
		GND					L4								
		GND					L6								
		GND					M1								
		GND					M10								
		GND					M12								
		GND					M14								
		GND					M16								
		GND					M18								
		GND					M2								
		GND					M20								
		GND					M29								
		GND					M5								
		GND					M7								
		GND					M8								
		GND					N11								
		GND					N13								
		GND					N16								
		GND					N17								
		GND					N19								
		GND					N26								
		GND					N3								
		GND					N4								
		GND					N6								
		GND					N8								
		GND					N9								
		GND					P1								
		GND					P10								
		GND					P12								
		GND					P14								
		GND					P16								
		GND					P18								
		GND					P2								
		GND					P20								
		GND					P5								
		GND					P7								
		GND					R11								
		GND					R13								
		GND					R15								
		GND					R17								
		GND					R3								
		GND					R30								
		GND					R4								
		GND					R6								
		GND					R8								
		GND					R9								
		GND					T1								
		GND					T10								
		GND					T12								
		GND					T14								
		GND					T15								
		GND					T16								
		GND					T2								
		GND					T20								
		GND					T27								
		GND					T5								
		GND					T7								
		GND					U11								
		GND					U13								
		GND					U15								
		GND					U17								
		GND					U21								
		GND					U29								
		GND					U3								
		GND					U4								
		GND					U6								
		GND					U9								
		GND					V1								
		GND					V10								
		GND					V12								
		GND					V14								
		GND					V19								
		GND					V2								
		GND					V21								
		GND					V5								
		GND					W7								
		GND					W11								
		GND					W13								
		GND					W18								
		GND					W28								
		GND					W3								
		GND					W4								
		GND					W6								
		GND					W9								
		GND					Y1								
		GND					Y10								
		GND					Y12								
		GND					Y14								
		GND					Y15								
		GND					Y2								
		GND					Y20								
		GND					Y25								
		GND					Y30								
		GND					Y5								
		GND					Y7								
		GND					Y8								
		GND					U22								
		GND					T18								
		VCC					M11								
		VCC					M13								
		VCC					M9								
		VCC					N10								
		VCC					N12								
		VCC					N14								
		VCC					P11								
		VCC					P10								
		VCC					R10								
		VCC					R12								
		VCC					R14								
		VCC					T11								
		VCC					T13								
		VCC					U10								
		VCC					U12								
		VCC					U14								
		VCC					U1								
		VCC					V13								
		VCC					V15								
		VCC					W10								
		VCC					W12								



Bank Number	VREF	PinName/Function (2)	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	F896	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
		VCC					W14								
		VCC					Y11								
		VCC					Y13								
		VCC					Y5								
		VCC					U21								
		DNU					F1								
		DNU					G2								
		DNU					AA7								
		DNU					AD15								
		DNU					E26								
		DNU					J15								
		VCCP0M					AR10								
		VCCP0M					AA23								
		VCCP0M					J1								
		VCC0A7					HE								
		VCCIO3A					AC11								
		VCCIO3A					AD8								
		VCCIO3A					AF7								
		VCCIO3A					AG4								
		VCCIO3B					AB14								
		VCCIO3B					AD13								
		VCCIO3B					AE15								
		VCCIO3B					AJ13								
		VCCIO3B					AJ8								
		VCCIO3B					AK10								
		VCCIO4A					AA17								
		VCCIO4A					AC21								
		VCCIO4A					AD18								
		VCCIO4A					AE25								
		VCCIO4A					AF22								
		VCCIO4A					AG19								
		VCCIO4A					AH16								
		VCCIO4A					AH26								
		VCCIO4A					AJ23								
		VCCIO4A					AK20								
		VCCIO5A					AB24								
		VCCIO5A					AD28								
		VCCIO5A					AG29								
		VCCIO5B					W23								
		VCCIO5B					AA27								
		VCCIO5B					AE30								
		VCCIO6A HPS					D26								
		VCCIO6A HPS					G29								
		VCCIO6A HPS					H26								
		VCCIO6A HPS					K24								
		VCCIO6A HPS					K30								
		VCCIO6A HPS					L27								
		VCCIO6A HPS					M24								
		VCCIO6A HPS					N21								
		VCCIO6B HPS					P23								
		VCCIO6B HPS					P26								
		VCCIO6B HPS					R25								
		VCCIO6B HPS					T22								
		VCCIO6B HPS					U19								
		VCCIO6B HPS					V26								
		VCCIO7A HPS					F22								
		VCCIO7A HPS					H21								
		VCCIO7B HPS					E20								
		VCCIO7B HPS					G19								
		VCCIO7B HPS					G18								
		VCCIO7B HPS					E15								
		VCCIO7B HPS					H16								
		VCCIO8A					A7								
		VCCIO8A					B4								
		VCCIO8A					C11								
		VCCIO8A					D8								
		VCCIO8A					E5								
		VCCIO8A					F12								
		VCCIO8A					G14								
		VCCIO8A					G9								
		VCCIO8A					H6								
		VCCIO8A					J13								
		VCCPD3A					AA10								
		VCCPD3A					AC10								
		VCCPD3B4A					AB18								
		VCCPD3B4A					AB20								
		VCCPD3B4A					AC13								
		VCCPD3B4A					AC15								
		VCCPD3B4A					AC17								
		VCCPD3B4A					AC19								
		VCCPD3B4A					AD16								
		VCCPD3B4A					AE21								
		VCCPD5A					V22								
		VCCPD5A					V24								
		VCCPD5B					U23								
		VCCPD6A6B HPS					M21								
		VCCPD6A6B HPS					N22								
		VCCPD6A6B HPS					P21								
		VCCPD6A6B HPS					R20								
		VCCPD6A6B HPS					R23								
		VCCPD7A HPS					K19								
		VCCPD7B HPS					K18								
		VCCPD7C HPS					J17								
		VCCPD7D HPS					K16								
		VCCPD8A					K11								
		VCCPD8A					K13								
		VCCPD8A					L10								
		VCCPD8A					L12								
		VCCPD8A					L14								
3A	VREFB3A0	VREFB3A0					AD6								
3B	VREFB3B0	VREFB3B0					AJ15								
4A	VREFB4A0	VREFB4A0					AK17								
5A	VREFB5A0	VREFB5A0					AC24								
5B	VREFB5B0	VREFB5B0					AK23								
6A	VREFB7A7C7D0 HPS	VREFB7A7C7D0 HPS					E22								
	VREFB8A0	VREFB8A0					B10								
		VCC1_GXBL					AB6								
		VCC1_GXBL					PE								
		VCC1_GXBL					VE								
		VCC1_GXBL					LE								
		VCC1_GXBL					RE								
		VCC1_GXBL					WE								
		VCC1_GXBL HPS					LD0								
		RREF_TL					G1								
		VCCA_FPLL					N7								
		VCCA_FPLL					RF								
		VCCA_FPLL					VB								
		VCCA_FPLL					AA6								
		VCCA_FPLL					WS								
		VCC_AUX					Y22								
		VCC_AUX					AB11								
		VCC_AUX					AB16								
		VCC_AUX					AD22								
		VCC_AUX					HY0								
		VCC_AUX					J16								



Bank Number	VREF	PinName/Function (2)	Optional Function(s)	Configuration Function	Dedicated Tx/Rx Channel	Emulated LVDS Output Channel	F896	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
		VCC_AUX_SHARED					L21								
		VCC_GXBL					AA5								
		VCC_GXBL					ME								
		VCC_GXBL					NE								
		VCC_GXBL					TE								
		VCC_GXBL					US								
		VCC_GXBL					YE								
		VCCPLL_HPS					L21								
		VCC_HPS					U18								
		VCC_HPS					L18								
		VCC_HPS					L18								
		VCC_HPS					L20								
		VCC_HPS					M15								
		VCC_HPS					N20								
		VCC_HPS					P19								
		VCC_HPS					P17								
		VCC_HPS					P19								
		VCC_HPS					R18								
		VCC_HPS					T17								
		VCC_HPS					T19								
		VCC_HPS					U16								

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 5CSTFD5 Device
Version 1.4

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.
1.4	12/23/2016	-Renamed SDMMC_FB_CLK_IN to HPS_GPIO44.