



Figure 8-17.Socket-G (rPGA988A) Pinmap (Top View, Upper-Left Quadrant)

										VTT0	SB_CK#[0]	SB_CK[0]	VDDQ
										VSS	SA_MA[15]	SA_MA[16]	SB_CK[1]
										VTT0	RSVD	VSS	SA_BS[2]
										VTT0	RSVD	SB_MA[5]	VDDQ
										VSS	RSVD_TP	RSVD_TP	SB_BS[2]
										VTT0	SA_DQ[31]	VSS	SA_CKE[0]
										VTT0	SA_DQS#[3]	SA_DQ[30]	VDDQ
										VSS	SA_DQS[3]	SA_DQ[26]	SA_DM[3]
										VTT0	SA_DQ[27]	VSS	SA_DQ[24]
										VTT0	VSS	SA_DQ[29]	SA_DQ[18]
VTT1	SA_DIMM_VREF	VTT0	VTT0	VTT0	VTT0	VTT0	VTT0	SA_DQ[23]	SA_DQS#[2]	SA_DQ[19]	SA_DQ[22]		
VSS	SB_DIMM_VREF	RSVD_TP	VSS	VTT0	VSS	VTT0	VSS	SA_DQ[16]	SA_DQS[2]	VSS	SA_DM[2]		
FDL_TX#[7]	RSVD	COMP1	VTT_SELECT	VTT0	VTT0	VTT0	VTT0	SA_DQ[21]	VSS	SA_DQ[17]	SA_DQ[20]		
FDL_LSYNC[0]	FDL_FSYNC[0]	VSS	RSVD_TP	VTT0	VTT0	VTT0	VTT0	SA_DQ[9]	SA_DQS[1]	SA_DQS#[1]	SA_DQ[11]		

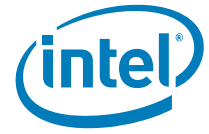


Figure 8-18.Socket-G (rPGA988A) Pinmap (Top View, Upper-Right Quadrant)

23	22	21	20	19	18	17	16	15	14	13
COMP3	VSSAXG_SENSE	VAXG	VSS	VAXG	VAXG	VSS	VAXG	PECI	SA_DQ[59]	SA_DQS#[7]
VSS	VAXG_SENSE	VAXG	VSS	VAXG	VAXG	VSS	VAXG	VSS	SA_DQ[62]	SA_DQS[7]
GFX_VID[3]	GFX_VID[1]	VAXG	VSS	VAXG	VAXG	VSS	VAXG	PM_EXT_TS#[1]	SA_DQ[63]	VSS
VSS	GFX_VID[2]	VAXG	VSS	VAXG	VAXG	VSS	VAXG	PM_EXT_TS#[0]	VCCPWR_GOOD_1	SA_DM[7]
GFX_VID[4]	GFX_VID[0]	VAXG	VSS	VAXG	VAXG	VSS	VAXG	VTT_PWR_GOOD	VSS	SA_DQ[58]
VSS	RSVD	VAXG	VSS	VAXG	VAXG	VSS	VAXG	PM_SYNC	RSTIN#	SA_DQ[61]
BPM#[6]	BPM#[1]	VAXG	VSS	VAXG	VAXG	VSS	VAXG	THERMTRIP#	CATERR#	SM_DRAMPWROK
VSS	BPM#[0]	VAXG	VSS	VAXG	VAXG	VSS	VAXG	RSVD	VSS	RSVD_TP
BPM#[7]	BPM#[5]	VAXG	VSS	VAXG	VAXG	VSS	VAXG	RSVD	VTT0	VSS



Figure 8-20.Socket-G (rPGA988A) Pinmap (Top View, Lower-Right Quadrant)

										VTT0	RSVD	VSS	SA_BSI[2]	SA_MA[9]	SB_MA[0]	VSS	SA_MA[12]	VSS	VDDQ	U
										VTT0	RSVD	SB_MA[5]	VDDQ	VSS	SB_MA[2]	VDDQ	SA_MA[14]	SA_MA[11]	SA_MA[7]	T
										VSS	RSVD_TP	RSVD_TP	SB_BSI[2]	SB_MA[7]	SB_MA[9]	SB_MA[8]	SB_MA[12]	SB_MA[6]	SB_MA[4]	R
										VTT0	SA_DQ[31]	VSS	SA_CKE[0]	SA_CKE[1]	SB_MA[14]	VSS	SB_MA[11]	VSS	VDDQ	P
										VTT0	SA_DQS#[3]	SA_DQ[30]	VDDQ	VSS	SB_DQ[31]	VDDQ	RSVD_TP	RSVD_TP	SB_MA[15]	N
										VSS	SA_DQS[3]	SA_DQ[26]	SA_DM[3]	SA_DQ[25]	SB_DQ[30]	SB_DQ[30]	SB_CKE[0]	SB_CKE[1]	SB_DQ[27]	M
										VTT0	SA_DQ[27]	VSS	SA_DQ[24]	SA_DQ[28]	VSS	SB_DQS#[3]	SB_DQ[26]	VSS	VDDQ	L
										VTT0	VSS	SA_DQ[29]	SA_DQ[18]	VSS	SB_DQ[28]	SB_DQ[29]	VSS	SB_DQ[25]	SB_DM[3]	K
SA_DIM_M_VREF	VTT0	VTT0	VTT0	VTT0	VTT0	VTT0	VTT0	SA_DQ[23]	SA_DQS#[2]	SA_DQ[19]	SA_DQ[22]	SB_DQ[18]	SB_DQ[24]	SB_DQS#[2]	SB_DQ[19]	SB_DQ[22]	SB_DQ[23]			J
SB_DIM_M_VREF	RSVD_TP	VSS	VTT0	VSS	VTT0	VSS	SA_DQ[16]	SA_DQS[2]	VSS	SA_DM[2]	SB_DQ[16]	VSS	SB_DQS[2]	SB_DM[2]	VSS	VDDQ				H
RSVD	COMPL	VTT_SELECT	VTT0	VTT0	VTT0	VTT0	SA_DQ[21]	VSS	SA_DQ[17]	SA_DQ[20]	VSS	SB_DQ[21]	SB_DQ[15]	VSS	SB_DQ[17]	SB_DQ[20]				G
FDI_FSYNC[0]	VSS	RSVD_TP	VTT0	VTT0	VTT0	VTT0	SA_DQ[9]	SA_DQS[1]	SA_DQS#[1]	SA_DQ[11]	SM_DRAMRST#	SB_DQ[13]	SB_DQS#[1]	SB_DQ[14]	SB_DQ[10]	SB_DQ[11]				F
FDI_FSYNC[1]	PEG_CLK	RSVD_TP	VTT0	VSS	VTT0	VSS	SA_DQ[6]	SA_DQ[12]	VSS	SA_DQ[14]	SA_DQ[10]	VSS	SB_DQ[4]	SB_DQS[1]	VSS	SB_DM[1]				E
FDI_LSYNC[1]	PEG_CLK#	RSVD	VTT0	VTT0	VTT0	VTT0	SA_DQ[5]	VSS	SA_DQ[8]	SA_DM[1]	VSS	SB_DQS#[0]	SB_DM[0]	VSS	SB_DQ[9]	SB_DQ[8]				D
FDI_INT	VSS	RSVD	VTT0	VTT0	VTT0	VTT0	SA_DQ[1]	SA_DQS#[0]	SA_DQS[0]	SA_DQ[2]	SA_DQ[15]	SB_DQS[0]	SB_DQ[7]	SB_DQ[2]	SB_DQ[12]	RSVD_NCTF				C
VSS	BCLK#	VTT_SENSE	VTT0	VSS	VTT0	VSS	SA_DQ[4]	SA_DM[0]	VSS	SA_DQ[13]	VSS	SB_DQ[0]	VSS	SB_DQ[3]	VSS_NC	VSS_NC				B
DPLL_REF_SSCLK#	BCLK	VSS_SENSE_VTT	VTT0	VTT0	VTT0	VTT0	SA_DQ[0]	VSS	SA_DQ[7]	SA_DQ[3]	SB_DQ[5]	SB_DQ[1]	SB_DQ[6]	RSVD_NCTF	KEY					A
17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1				



Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
A2	KEY		
A3	RSVD_NCTF		
A4	SB_DQ[6]	DDR3	I/O
A5	SB_DQ[1]	DDR3	I/O
A6	SB_DQ[5]	DDR3	I/O
A7	SA_DQ[3]	DDR3	I/O
A8	SA_DQ[7]	DDR3	I/O
A9	VSS	GND	
A10	SA_DQ[0]	DDR3	I/O
A11	VTT0	REF	
A12	VTT0	REF	
A13	VTT0	REF	
A14	VTT0	REF	
A15	VSS_SENSE_VT T	Analog	O
A16	BCLK	DIFF CLK	I
A17	DPLL_REF_SSC LK#	DIFF CLK	I
A18	DPLL_REF_SSC LK	DIFF CLK	I
A19	RSVD		
A20	RSVD		
A21	DMI_RX#[3]	DMI	I
A22	DMI_RX[3]	DMI	I
A23	VSS	GND	
A24	DMI_RX#[0]	DMI	I
A25	PEG_RBIAS	Analog	I
A26	PEG_ICOMPO	Analog	I
A27	VSS	GND	
A28	PEG_RX[13]	PCIe	I
A29	VSS	GND	
A30	PEG_RX[15]	PCIe	I
A31	PEG_RX#[15]	PCIe	I
A32	PEG_RX[11]	PCIe	I
A33	RSVD_NCTF		

Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
A34	RSVD_NCTF		
A35	VSS_NCTF		
AA1	RSVD_TP		
AA2	RSVD_TP		
AA3	SA_MA[3]	DDR3	O
AA4	RSVD_TP		
AA5	RSVD_TP		
AA6	SA_CK[0]	DDR3	O
AA7	SA_CK#[0]	DDR3	O
AA8	SA_MA[2]	DDR3	O
AA9	SA_MA[5]	DDR3	O
AA10	VSS	GND	
AA26	VCC	REF	
AA27	VCC	REF	
AA28	VCC	REF	
AA29	VCC	REF	
AA30	VCC	REF	
AA31	VCC	REF	
AA32	VCC	REF	
AA33	VCC	REF	
AA34	VCC	REF	
AA35	VCC	REF	
AB1	SB_BS[0]	DDR3	O
AB2	SA_BS[1]	DDR3	O
AB3	SA_RAS#	DDR3	O
AB4	VDDQ	REF	
AB5	SB_MA[10]	DDR3	O
AB6	VSS	GND	
AB7	VDDQ	REF	
AB8	SB_CS#[0]	DDR3	O
AB9	RSVD		
AB10	VTT0	REF	
AB26	VSS	GND	
AB27	VSS	GND	
AB28	VSS	GND	
AB29	VSS	GND	



Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
AB30	VSS	GND	
AB31	VSS	GND	
AB32	VSS	GND	
AB33	VSS	GND	
AB34	VSS	GND	
AB35	VSS	GND	
AC1	VDDQ	REF	
AC2	VSS	GND	
AC3	SA_BS[0]	DDR3	O
AC4	VSS	GND	
AC5	SB_CAS#	DDR3	O
AC6	SB_WE#	DDR3	O
AC7	SB_ODT[0]	DDR3	O
AC8	VSS	GND	
AC9	RSVD		
AC10	VTT0	REF	
AC26	VCC	REF	
AC27	VCC	REF	
AC28	VCC	REF	
AC29	VCC	REF	
AC30	VCC	REF	
AC31	VCC	REF	
AC32	VCC	REF	
AC33	VCC	REF	
AC34	VCC	REF	
AC35	VCC	REF	
AD1	SB_ODT[1]	DDR3	O
AD2	RSVD_TP		
AD3	RSVD_TP		
AD4	SA_MA[10]	DDR3	O
AD5	RSVD_TP		
AD6	SB_CS#[1]	DDR3	O
AD7	RSVD_TP		
AD8	SA_ODT[0]	DDR3	O
AD9	RSVD_TP		
AD10	VSS	GND	

Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
AD26	VCC	REF	
AD27	VCC	REF	
AD28	VCC	REF	
AD29	VCC	REF	
AD30	VCC	REF	
AD31	VCC	REF	
AD32	VCC	REF	
AD33	VCC	REF	
AD34	VCC	REF	
AD35	VCC	REF	
AE1	SA_CAS#	DDR3	O
AE2	SA_CS#[0]	DDR3	O
AE3	RSVD_TP		
AE4	VDDQ	REF	
AE5	RSVD_TP		
AE6	VSS	GND	
AE7	VDDQ	REF	
AE8	SA_CS#[1]	DDR3	O
AE9	SA_WE#	DDR3	O
AE10	VTT0	REF	
AE26	VSS	GND	
AE27	VSS	GND	
AE28	VSS	GND	
AE29	VSS	GND	
AE30	VSS	GND	
AE31	VSS	GND	
AE32	VSS	GND	
AE33	VSS	GND	
AE34	VSS	GND	
AE35	VSS	GND	
AF1	VDDQ	REF	
AF2	VSS	GND	
AF3	SB_DQ[32]	DDR3	I/O
AF4	VSS	GND	
AF5	SA_DQ[33]	DDR3	I/O
AF6	SA_DQ[36]	DDR3	I/O



Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
AF7	SB_MA[13]	DDR3	O
AF8	VSS	GND	
AF9	SA_ODT[1]	DDR3	O
AF10	VTT0	REF	
AF26	VCC	REF	
AF27	VCC	REF	
AF28	VCC	REF	
AF29	VCC	REF	
AF30	VCC	REF	
AF31	VCC	REF	
AF32	VCC	REF	
AF33	VCC	REF	
AF34	VCC	REF	
AF35	VCC	REF	
AG1	SB_DQ[33]	DDR3	I/O
AG2	SB_DQS[4]	DDR3	I/O
AG3	SB_DQ[37]	DDR3	I/O
AG4	SB_DQ[36]	DDR3	I/O
AG5	SA_DQ[37]	DDR3	I/O
AG6	SA_DM[4]	DDR3	O
AG7	RSVD_TP		
AG8	SA_MA[13]	DDR3	O
AG9	RSVD		
AG10	VSS	GND	
AG26	VCC	REF	
AG27	VCC	REF	
AG28	VCC	REF	
AG29	VCC	REF	
AG30	VCC	REF	
AG31	VCC	REF	
AG32	VCC	REF	
AG33	VCC	REF	
AG34	VCC	REF	
AG35	VCC	REF	
AH1	SB_DM[4]	DDR3	O
AH2	SB_DQS#[4]	DDR3	I/O

Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
AH3	VSS	GND	
AH4	SB_DQ[39]	DDR3	I/O
AH5	SA_DQ[32]	DDR3	I/O
AH6	VSS	GND	
AH7	SA_DQS#[4]	DDR3	I/O
AH8	SA_DQS[4]	DDR3	I/O
AH9	VSS	GND	
AH10	VTT0	REF	
AH11	VTT0	REF	
AH12	VTT0	REF	
AH13	VSS	GND	
AH14	VTT0	REF	
AH15	RSVD		
AH16	VAXG	REF	
AH17	VSS	GND	
AH18	VAXG	REF	
AH19	VAXG	REF	
AH20	VSS	GND	
AH21	VAXG	REF	
AH22	BPM#[5]	GTL	I/O
AH23	BPM#[7]	GTL	I/O
AH24	SKTOCC#		
AH25	RSVD		
AH26	VSS	GND	
AH27	VSS	GND	
AH28	VSS	GND	
AH29	VSS	GND	
AH30	VSS	GND	
AH31	VSS	GND	
AH32	VSS	GND	
AH33	VSS	GND	
AH34	VSS	GND	
AH35	VSS	GND	
AJ1	VDDQ	REF	
AJ2	VSS	GND	
AJ3	SB_DQ[34]	DDR3	I/O



Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
AJ4	SB_DQ[38]	DDR3	I/O
AJ5	VSS	GND	
AJ6	SA_DQ[39]	DDR3	I/O
AJ7	SA_DQ[38]	DDR3	I/O
AJ8	VSS	GND	
AJ9	SA_DQ[41]	DDR3	I/O
AJ10	SA_DQ[40]	DDR3	I/O
AJ11	VSS	GND	
AJ12	RSVD_TP		
AJ13	RSVD_TP		
AJ14	VSS	GND	
AJ15	RSVD		
AJ16	VAXG	REF	
AJ17	VSS	GND	
AJ18	VAXG	REF	
AJ19	VAXG	REF	
AJ20	VSS	GND	
AJ21	VAXG	REF	
AJ22	BPM#[0]	GTL	I/O
AJ23	VSS	GND	
AJ24	BPM#[3]	GTL	I/O
AJ25	BPM#[4]	GTL	I/O
AJ26	RSVD		
AJ27	RSVD		
AJ28	CFG[11]	CMOS	I
AJ29	CFG[15]	CMOS	I
AJ30	CFG[16]	CMOS	I
AJ31	VSS	GND	
AJ32	CFG[14]	CMOS	I
AJ33	RSVD		
AJ34	VCC_SENSE	Analog	O
AJ35	VSS_SENSE	Analog	O
AK1	SB_DQ[35]	DDR3	I/O
AK2	SB_DQ[45]	DDR3	I/O
AK3	SB_DQ[40]	DDR3	I/O
AK4	SB_DQ[41]	DDR3	I/O

Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
AK5	SB_DQ[44]	DDR3	I/O
AK6	SA_DQ[34]	DDR3	I/O
AK7	SA_DQ[35]	DDR3	I/O
AK8	SA_DQ[44]	DDR3	I/O
AK9	SA_DQS#[5]	DDR3	I/O
AK10	SA_DQS[5]	DDR3	I/O
AK11	SA_DQ[46]	DDR3	I/O
AK12	SA_DQ[43]	DDR3	I/O
AK13	SM_DRAMPWR OK	DDR3	O
AK14	CATERR#	GTL	I/O
AK15	THERMTRIP#	Async GTL	O
AK16	VAXG	REF	
AK17	VSS	GND	
AK18	VAXG	REF	
AK19	VAXG	REF	
AK20	VSS	GND	
AK21	VAXG	REF	
AK22	BPM#[1]	GTL	I/O
AK23	BPM#[6]	GTL	I/O
AK24	BPM#[2]	GTL	I/O
AK25	VSS	GND	
AK26	RSVD_TP		
AK27	VSS	GND	
AK28	CFG[10]	CMOS	I
AK29	VSS	GND	
AK30	CFG[17]	CMOS	I
AK31	CFG[9]	CMOS	I
AK32	CFG[8]	CMOS	I
AK33	VID[1]	CMOS	O
AK34	VID[2]	CMOS	O
AK35	VID[0]	CMOS	O
AL1	SM_RCOMP[0]	Analog	I
AL2	SB_DM[5]	DDR3	O
AL3	VSS	GND	
AL4	SB_DQS#[5]	DDR3	I/O



Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
AL5	SB_DQS[5]	DDR3	I/O
AL6	VSS	GND	
AL7	SA_DQ[45]	DDR3	I/O
AL8	SA_DQ[47]	DDR3	I/O
AL9	VSS	GND	
AL10	SA_DQ[42]	DDR3	I/O
AL11	SA_DQ[51]	DDR3	I/O
AL12	VSS	GND	
AL13	SA_DQ[61]	DDR3	I/O
AL14	RSTIN#	CMOS	I
AL15	PM_SYNC	CMOS	I
AL16	VAXG	REF	
AL17	VSS	GND	
AL18	VAXG	REF	
AL19	VAXG	REF	
AL20	VSS	GND	
AL21	VAXG	REF	
AL22	RSVD		
AL23	VSS	GND	
AL24	RSVD		
AL25	RSVD		
AL26	RSVD_TP		
AL27	RSVD		
AL28	RSVD		
AL29	RSVD		
AL30	CFG[4]	CMOS	I
AL31	VSS	GND	
AL32	CFG[3]	CMOS	I
AL33	CSC[1]/VID[4]	CMOS	I/O
AL34	VSS	GND	
AL35	CSC[0]/VID[3]	CMOS	I/O
AM1	SM_RCOMP[1]	Analog	I
AM2	VSS	GND	
AM3	SB_DQ[47]	DDR3	I/O
AM4	SB_DQ[46]	DDR3	I/O
AM5	VSS	GND	

Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
AM6	SB_DQ[42]	DDR3	I/O
AM7	SA_DM[5]	DDR3	O
AM8	VSS	GND	
AM9	SA_DQ[52]	DDR3	I/O
AM10	SA_DQ[49]	DDR3	I/O
AM11	VSS	GND	
AM12	SA_DQ[56]	DDR3	I/O
AM13	SA_DQ[58]	DDR3	I/O
AM14	VSS	GND	
AM15	VTTTPWRGOOD	Async CMOS	I
AM16	VAXG	REF	
AM17	VSS	GND	
AM18	VAXG	REF	
AM19	VAXG	REF	
AM20	VSS	GND	
AM21	VAXG	REF	
AM22	GFX_VID[0]	CMOS	O
AM23	GFX_VID[4]	CMOS	O
AM24	GFX_IMON	Analog	I
AM25	VSS	GND	
AM26	TAPPWRGOOD	Async CMOS	O
AM27	VSS	GND	
AM28	CFG[1]	CMOS	I
AM29	VSS	GND	
AM30	CFG[0]	CMOS	I
AM31	CFG[5]	CMOS	I
AM32	CFG[7]	CMOS	I
AM33	CSC[2]/VID[5]	CMOS	I/O
AM34	PROC_DPRSLPVR	CMOS	O
AM35	VID[6]	CMOS	O
AN1	SM_RCOMP[2]	Analog	I
AN2	SB_DQ[43]	DDR3	I/O
AN3	SB_DQ[53]	DDR3	I/O
AN4	SB_DQ[52]	DDR3	I/O



Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
AN5	SB_DQ[49]	DDR3	I/O
AN6	SB_DQ[51]	DDR3	I/O
AN7	SB_DQ[56]	DDR3	I/O
AN8	SA_DQ[48]	DDR3	I/O
AN9	SA_DQ[53]	DDR3	I/O
AN10	SA_DM[6]	DDR3	O
AN11	SA_DQS[6]	DDR3	I/O
AN12	SA_DQ[57]	DDR3	I/O
AN13	SA_DM[7]	DDR3	O
AN14	VCCPWRGOOD_1	Async CMOS	I
AN15	PM_EXT_TS#[0]	CMOS	I
AN16	VAXG	REF	
AN17	VSS	GND	
AN18	VAXG	REF	
AN19	VAXG	REF	
AN20	VSS	GND	
AN21	VAXG	REF	
AN22	GFX_VID[2]	CMOS	O
AN23	VSS	GND	
AN24	GFX_VID[6]	CMOS	O
AN25	DBR#		O
AN26	PROCHOT#	Async GTL	I/O
AN27	VCCPWRGOOD_0	Async CMOS	I
AN28	TCK	CMOS	I
AN29	CFG[6]	CMOS	I
AN30	CFG[12]	CMOS	I
AN31	VSS	GND	
AN32	CFG[13]	CMOS	I
AN33	PSI #	Async CMOS	O
AN34	VSS	GND	
AN35	ISENSE	Analog	I
AP1	RSVD_NCTF		
AP2	VSS	GND	

Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
AP3	SB_DQ[48]	DDR3	I/O
AP4	VSS	GND	
AP4	VSS	GND	
AP5	SB_DQS[6]	DDR3	I/O
AP6	SB_DQ[57]	DDR3	I/O
AP7	VSS	GND	
AP8	SB_DQ[58]	DDR3	I/O
AP9	SB_DQ[61]	DDR3	I/O
AP10	VSS	GND	
AP11	SA_DQS#[6]	DDR3	I/O
AP12	SA_DQ[55]	DDR3	I/O
AP13	VSS	GND	
AP14	SA_DQ[63]	DDR3	I/O
AP15	PM_EXT_TS#[1]	CMOS	I
AP16	VAXG	REF	
AP17	VSS	GND	
AP18	VAXG	REF	
AP19	VAXG	REF	
AP20	VSS	GND	
AP21	VAXG	REF	
AP22	GFX_VID[1]	CMOS	O
AP23	GFX_VID[3]	CMOS	O
AP24	GFX_VID[5]	CMOS	O
AP25	RSVD		
AP26	RESET_OBS#	Async CMOS	O
AP27	PREQ#	Async GTL	I
AP28	TMS	CMOS	I
AP29	TDO_M	CMOS	O
AP30	RSVD		
AP31	CFG[2]	CMOS	I
AP32	RSVD		
AP33	RSVD		
AP34	VSS	GND	
AP35	RSVD_NCTF		



Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
AR1	RSVD_NCTF		
AR2	RSVD_NCTF		
AR3	VSS	GND	
AR4	SB_DM[6]	DDR3	O
AR5	SB_DQS#[6]	DDR3	I/O
AR6	VSS	GND	
AR7	SB_DQS[7]	DDR3	I/O
AR8	SB_DQS#[7]	DDR3	I/O
AR9	VSS	GND	
AR10	SB_DQ[62]	DDR3	I/O
AR11	SA_DQ[50]	DDR3	I/O
AR12	VSS	GND	
AR13	SA_DQS[7]	DDR3	I/O
AR14	SA_DQ[62]	DDR3	I/O
AR15	VSS	GND	
AR16	VAXG	REF	
AR17	VSS	GND	
AR18	VAXG	REF	
AR19	VAXG	REF	
AR20	VSS	GND	
AR21	VAXG	REF	
AR22	VAXG_SENSE	Analog	O
AR23	VSS	GND	
AR24	VSS	GND	
AR25	GFX_VR_EN	CMOS	O
AR26	VSS	GND	
AR27	TDO	CMOS	O
AR28	VSS	GND	
AR29	TDI_M	CMOS	I
AR30	BCLK_ITP	DIFF CLK	O
AR31	VSS	GND	
AR32	RSVD		
AR33	RSVD		
AR34	VSS_NCTF		
AR35	RSVD_NCTF		
AT1	VSS_NCTF		

Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
AT2	RSVD_TP		
AT3	RSVD_NCTF		
AT4	SB_DQ[50]	DDR3	I/O
AT5	SB_DQ[54]	DDR3	I/O
AT6	SB_DQ[55]	DDR3	I/O
AT7	SB_DQ[60]	DDR3	I/O
AT8	SB_DM[7]	DDR3	O
AT9	SB_DQ[59]	DDR3	I/O
AT10	SB_DQ[63]	DDR3	I/O
AT11	SA_DQ[54]	DDR3	I/O
AT12	SA_DQ[60]	DDR3	I/O
AT13	SA_DQS#[7]	DDR3	I/O
AT14	SA_DQ[59]	DDR3	I/O
AT15	PECI	Async	I/O
AT16	VAXG	REF	
AT17	VSS	GND	
AT18	VAXG	REF	
AT19	VAXG	REF	
AT20	VSS	GND	
AT21	VAXG	REF	
AT22	VSSAXG_SENSE	Analog	O
AT23	COMP3	Analog	I
AT24	COMP2	Analog	I
AT25	GFX_DPRSLPVR	CMOS	O
AT26	COMP0	Analog	I
AT27	TRST#	CMOS	I
AT28	PRDY#	Async GTL	O
AT29	TDI	CMOS	I
AT30	BCLK_ITP#	DIFF CLK	O
AT31	RSVD		
AT32	RSVD		
AT33	RSVD_NCTF		
AT34	RSVD_NCTF		
AT35	VSS_NCTF		



Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
B1	VSS_NCTF		
B2	VSS_NCTF		
B3	SB_DQ[3]	DDR3	I/O
B4	VSS	GND	
B5	SB_DQ[0]	DDR3	I/O
B6	VSS	GND	
B7	SA_DQ[13]	DDR3	I/O
B8	VSS	GND	
B9	SA_DM[0]	DDR3	O
B10	SA_DQ[4]	DDR3	I/O
B11	VSS	GND	
B12	VTT0	REF	
B13	VSS	GND	
B14	VTT0	REF	
B15	VTT_SENSE	Analog	O
B16	BCLK#	DIFF CLK	I
B17	VSS	GND	
B18	VSS	GND	
B19	RSVD		
B20	RSVD		
B21	VSS	GND	
B22	DMI_RX#[2]	DMI	I
B23	DMI_RX[2]	DMI	I
B24	DMI_RX[0]	DMI	I
B25	VSS	GND	
B26	PEG_I COMPI	Analog	I
B27	PEG_R COMPO	Analog	I
B28	PEG_RX#[13]	PCIe	I
B29	PEG_RX[14]	PCIe	I
B30	PEG_RX#[14]	PCIe	I
B31	VSS	GND	
B32	PEG_RX#[11]	PCIe	I
B33	PEG_RX[9]	PCIe	I
B34	VSS_NCTF		
B35	RSVD_NCTF		
C1	RSVD_NCTF		

Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
C2	SB_DQ[12]	DDR3	I/O
C3	SB_DQ[2]	DDR3	I/O
C4	SB_DQ[7]	DDR3	I/O
C5	SB_DQS[0]	DDR3	I/O
C6	SA_DQ[15]	DDR3	I/O
C7	SA_DQ[2]	DDR3	I/O
C8	SA_DQS[0]	DDR3	I/O
C9	SA_DQS#[0]	DDR3	I/O
C10	SA_DQ[1]	DDR3	I/O
C11	VTT0	REF	
C12	VTT0	REF	
C13	VTT0	REF	
C14	VTT0	REF	
C15	RSVD		
C16	VSS	GND	
C17	FDI_INT	CMOS	I
C18	FDI_TX[3]	FDI	O
C19	VSS	GND	
C20	VSS	GND	
C21	FDI_TX[1]	FDI	O
C22	VSS	GND	
C23	DMI_RX#[1]	DMI	I
C24	VSS	GND	
C25	PEG_TX[15]	PCIe	O
C26	PEG_TX#[15]	PCIe	O
C27	PEG_TX[14]	PCIe	O
C28	VSS	GND	
C29	VSS	GND	
C30	PEG_RX[12]	PCIe	I
C31	PEG_RX#[12]	PCIe	I
C32	VSS	GND	
C33	PEG_RX#[9]	PCIe	I
C34	VSS	GND	
C35	RSVD_NCTF		
D1	SB_DQ[8]	DDR3	I/O
D2	SB_DQ[9]	DDR3	I/O



Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
D3	VSS	GND	
D4	SB_DM[0]	DDR3	O
D5	SB_DQS#[0]	DDR3	I/O
D6	VSS	GND	
D7	SA_DM[1]	DDR3	O
D8	SA_DQ[8]	DDR3	I/O
D9	VSS	GND	
D10	SA_DQ[5]	DDR3	I/O
D11	VTT0	REF	
D12	VTT0	REF	
D13	VTT0	REF	
D14	VTT0	REF	
D15	RSVD		
D16	PEG_CLK#	DIFF CLK	I
D17	FDI_LSYNC[1]	CMOS	I
D18	FDI_TX#[3]	FDI	O
D19	FDI_TX#[2]	FDI	O
D20	FDI_TX[2]	FDI	O
D21	FDI_TX#[1]	FDI	O
D22	FDI_TX[0]	FDI	O
D23	DMI_RX[1]	DMI	I
D24	DMI_TX#[0]	DMI	O
D25	DMI_TX[0]	DMI	O
D26	VSS	GND	
D27	PEG_TX#[14]	PCIe	O
D28	PEG_TX[13]	PCIe	O
D29	PEG_TX#[13]	PCIe	O
D30	VSS	GND	
D31	PEG_RX[10]	PCIe	I
D32	PEG_RX#[10]	PCIe	I
D33	VSS	GND	
D34	PEG_RX[7]	PCIe	I
D35	PEG_RX#[7]	PCIe	I
E1	SB_DM[1]	DDR3	O
E2	VSS	GND	
E3	SB_DQS[1]	DDR3	I/O

Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
E4	SB_DQ[4]	DDR3	I/O
E5	VSS	GND	
E6	SA_DQ[10]	DDR3	I/O
E7	SA_DQ[14]	DDR3	I/O
E8	VSS	GND	
E9	SA_DQ[12]	DDR3	I/O
E10	SA_DQ[6]	DDR3	I/O
E11	VSS	GND	
E12	VTT0	REF	
E13	VSS	GND	
E14	VTT0	REF	
E15	RSVD_TP		
E16	PEG_CLK	DIFF CLK	I
E17	FDI_FSYNC[1]	CMOS	I
E18	VSS	GND	
E19	FDI_TX#[5]	FDI	O
E20	FDI_TX[5]	FDI	O
E21	VSS	GND	
E22	FDI_TX#[0]	FDI	O
E23	DMI_TX[2]	DMI	O
E24	VSS	GND	
E25	VTT1	REF	
E26	VTT1	REF	
E27	PEG_TX[12]	PCIe	O
E28	PEG_TX#[12]	PCIe	O
E29	VSS	GND	
E30	RSVD		
E31	RSVD		
E32	VSS	GND	
E33	PEG_RX#[8]	PCIe	I
E34	PEG_RX[5]	PCIe	I
E35	VSS	GND	
F1	SB_DQ[11]	DDR3	I/O
F2	SB_DQ[10]	DDR3	I/O
F3	SB_DQ[14]	DDR3	I/O
F4	SB_DQS#[1]	DDR3	I/O



Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
F5	SB_DQ[13]	DDR3	I/O
F6	SM_DRAMRST#	DDR3	O
F7	SA_DQ[11]	DDR3	I/O
F8	SA_DQS#[1]	DDR3	I/O
F9	SA_DQS[1]	DDR3	I/O
F10	SA_DQ[9]	DDR3	I/O
F11	VTT0	REF	
F12	VTT0	REF	
F13	VTT0	REF	
F14	VTT0	REF	
F15	RSVD_TP		
F16	VSS	GND	
F17	FDI_FSXNC[0]	CMOS	I
F18	FDI_LSXNC[0]	CMOS	I
F19	VSS	GND	
F20	FDI_TX[6]	FDI	O
F21	FDI_TX#[6]	FDI	O
F22	VSS	GND	
F23	DMI_TX#[2]	DMI	O
F24	DMI_TX[1]	DMI	O
F25	VSS	GND	
F26	VTT1	REF	
F27	VSS	GND	
F28	PEG_TX[11]	PCIe	O
F29	PEG_TX#[11]	PCIe	O
F30	VSS	GND	
F31	PEG_RX#[6]	PCIe	I
F32	PEG_RX[6]	PCIe	I
F33	PEG_RX[8]	PCIe	I
F34	PEG_RX#[5]	PCIe	I
F35	PEG_RX[3]	PCIe	I
G1	SB_DQ[20]	DDR3	I/O
G2	SB_DQ[17]	DDR3	I/O
G3	VSS	GND	
G4	SB_DQ[15]	DDR3	I/O
G5	SB_DQ[21]	DDR3	I/O

Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
G6	VSS	GND	
G7	SA_DQ[20]	DDR3	I/O
G8	SA_DQ[17]	DDR3	I/O
G9	VSS	GND	
G10	SA_DQ[21]	DDR3	I/O
G11	VTT0	REF	
G12	VTT0	REF	
G13	VTT0	REF	
G14	VTT0	REF	
G15	VTT_SELECT	CMOS	O
G16	COMP1	Analog	I
G17	RSVD		
G18	FDI_TX#[7]	FDI	O
G19	FDI_TX[7]	FDI	O
G20	VSS	GND	
G21	FDI_TX#[4]	FDI	O
G22	FDI_TX[4]	FDI	O
G23	DMI_TX[3]	DMI	O
G24	DMI_TX#[1]	DMI	O
G25	RSVD		
G26	VTT1	REF	
G27	VTT1	REF	
G28	VTT1	REF	
G29	PEG_TX[10]	PCIe	O
G30	PEG_TX[9]	PCIe	O
G31	VSS	GND	
G32	PEG_RX#[4]	PCIe	I
G33	PEG_RX[4]	PCIe	I
G34	VSS	GND	
G35	PEG_RX#[3]	PCIe	I
H1	VDDQ	REF	
H2	VSS	GND	
H3	SB_DM[2]	DDR3	O
H4	SB_DQS[2]	DDR3	I/O
H5	VSS	GND	
H6	SB_DQ[16]	DDR3	I/O



Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
H7	SA_DM[2]	DDR3	O
H8	VSS	GND	
H9	SA_DQS[2]	DDR3	I/O
H10	SA_DQ[16]	DDR3	I/O
H11	VSS	GND	
H12	VTT0	REF	
H13	VSS	GND	
H14	VTT0	REF	
H15	VSS	GND	
H16	RSVD_TP		
H17	RSVD		
H18	VSS	GND	
H19	VTT1	REF	
H20	VTT1	REF	
H21	VTT1	REF	
H22	VSS	GND	
H23	DMI_TX#[3]	DMI	O
H24	VSS	GND	
H25	VTT1	REF	
H26	VSS	GND	
H27	VTT1	REF	
H28	VSS	GND	
H29	PEG_TX#[10]	PCIe	O
H30	PEG_TX#[9]	PCIe	O
H31	PEG_TX[7]	PCIe	O
H32	VSS	GND	
H33	PEG_RX[2]	PCIe	I
H34	PEG_RX[1]	PCIe	I
H35	VSS	GND	
J1	SB_DQ[23]	DDR3	I/O
J2	SB_DQ[22]	DDR3	I/O
J3	SB_DQ[19]	DDR3	I/O
J4	SB_DQS#[2]	DDR3	I/O
J5	SB_DQ[24]	DDR3	I/O
J6	SB_DQ[18]	DDR3	I/O
J7	SA_DQ[22]	DDR3	I/O

Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
J8	SA_DQ[19]	DDR3	I/O
J9	SA_DQS#[2]	DDR3	I/O
J10	SA_DQ[23]	DDR3	I/O
J11	VTT0	REF	
J12	VTT0	REF	
J13	VTT0	REF	
J14	VTT0	REF	
J15	VTT0	REF	
J16	VTT0	REF	
J17	RSVD		
J18	VTT1	REF	
J19	VSS	GND	
J20	VTT1	REF	
J21	VSS	GND	
J22	VTT1	REF	
J23	VTT1	REF	
J24	VTT1	REF	
J25	VTT1	REF	
J26	VTT1	REF	
J27	VTT1	REF	
J28	RSVD		
J29	RSVD		
J30	VSS	GND	
J31	PEG_TX#[7]	PCIe	O
J32	VSS	GND	
J33	PEG_RX#[2]	PCIe	I
J34	PEG_RX#[1]	PCIe	I
J35	PEG_RX[0]	PCIe	I
K1	SB_DM[3]	DDR3	O
K2	SB_DQ[25]	DDR3	I/O
K3	VSS	GND	
K4	SB_DQ[29]	DDR3	I/O
K5	SB_DQ[28]	DDR3	I/O
K6	VSS	GND	
K7	SA_DQ[18]	DDR3	I/O
K8	SA_DQ[29]	DDR3	I/O



Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
K9	VSS	GND	
K10	VTT0	REF	
K26	VTT1	REF	
K27	VSS	GND	
K28	PEG_TX[8]	PCIe	O
K29	PEG_TX#[8]	PCIe	O
K30	VSS	GND	
K31	PEG_TX[5]	PCIe	O
K32	PEG_TX#[5]	PCIe	O
K33	VSS	GND	
K34	VSS	GND	
K35	PEG_RX#[0]	PCIe	I
L1	VDDQ	REF	
L2	VSS	GND	
L3	SB_DQ[26]	DDR3	I/O
L4	SB_DQS#[3]	DDR3	I/O
L5	VSS	GND	
L6	SA_DQ[28]	DDR3	I/O
L7	SA_DQ[24]	DDR3	I/O
L8	VSS	GND	
L9	SA_DQ[27]	DDR3	I/O
L10	VTT0	REF	
L26	VCCPLL	REF	
L27	VCCPLL	REF	
L28	RSVD		
L29	VSS	GND	
L30	PEG_TX[3]	PCIe	O
L31	PEG_TX#[4]	PCIe	O
L32	VSS	GND	
L33	PEG_TX#[0]	PCIe	O
L34	PEG_TX[0]	PCIe	O
L35	VSS	GND	
M1	SB_DQ[27]	DDR3	I/O
M2	SB_CKE[1]	DDR3	O
M3	SB_CKE[0]	DDR3	O
M4	SB_DQ[30]	DDR3	I/O

Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
M5	SB_DQS[3]	DDR3	I/O
M6	SA_DQ[25]	DDR3	I/O
M7	SA_DM[3]	DDR3	O
M8	SA_DQ[26]	DDR3	I/O
M9	SA_DQS[3]	DDR3	I/O
M10	VSS	GND	
M26	VCCPLL	REF	
M27	RSVD		
M28	PEG_TX[6]	PCIe	O
M29	PEG_TX#[6]	PCIe	O
M30	PEG_TX#[3]	PCIe	O
M31	PEG_TX[4]	PCIe	O
M32	PEG_TX[2]	PCIe	O
M33	PEG_TX#[2]	PCIe	O
M34	PEG_TX[1]	PCIe	O
M35	PEG_TX#[1]	PCIe	O
N1	SB_MA[15]	DDR3	O
N2	RSVD_TP		
N3	RSVD_TP		
N4	VDDQ	REF	
N5	SB_DQ[31]	DDR3	I/O
N6	VSS	GND	
N7	VDDQ	REF	
N8	SA_DQ[30]	DDR3	I/O
N9	SA_DQS#[3]	DDR3	I/O
N10	VTT0	REF	
N26	VSS	GND	
N27	VSS	GND	
N28	VSS	GND	
N29	VSS	GND	
N30	VSS	GND	
N31	VSS	GND	
N32	VSS	GND	
N33	VSS	GND	
N34	VSS	GND	
N35	VSS	GND	



Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
P1	VDDQ	REF	
P2	VSS	GND	
P3	SB_MA[11]	DDR3	O
P4	VSS	GND	
P5	SB_MA[14]	DDR3	O
P6	SA_CKE[1]	DDR3	O
P7	SA_CKE[0]	DDR3	O
P8	VSS	GND	
P9	SA_DQ[31]	DDR3	I/O
P10	VTT0	REF	
P26	VCC	REF	
P27	VCC	REF	
P28	VCC	REF	
P29	VCC	REF	
P30	VCC	REF	
P31	VCC	REF	
P32	VCC	REF	
P33	VCC	REF	
P34	VCC	REF	
P35	VCC	REF	
R1	SB_MA[4]	DDR3	O
R2	SB_MA[6]	DDR3	O
R3	SB_MA[12]	DDR3	O
R4	SB_MA[8]	DDR3	O
R5	SB_MA[9]	DDR3	O
R6	SB_MA[7]	DDR3	O
R7	SB_BS[2]	DDR3	O
R8	RSVD_TP		
R9	RSVD_TP		
R10	VSS	GND	
R26	VCC	REF	
R27	VCC	REF	
R28	VCC	REF	
R29	VCC	REF	
R30	VCC	REF	
R31	VCC	REF	

Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
R32	VCC	REF	
R33	VCC	REF	
R34	VCC	REF	
R35	VCC	REF	
T1	SA_MA[7]	DDR3	O
T2	SA_MA[11]	DDR3	O
T3	SA_MA[14]	DDR3	O
T4	VDDQ	REF	
T5	SB_MA[2]	DDR3	O
T6	VSS	GND	
T7	VDDQ	REF	
T8	SB_MA[5]	DDR3	O
T9	RSVD		
T10	VTT0	REF	
T26	VSS	GND	
T27	VSS	GND	
T28	VSS	GND	
T29	VSS	GND	
T30	VSS	GND	
T31	VSS	GND	
T32	VSS	GND	
T33	VSS	GND	
T34	VSS	GND	
T35	VSS	GND	
U1	VDDQ	REF	
U2	VSS	GND	
U3	SA_MA[12]	DDR3	O
U4	VSS	GND	
U5	SB_MA[0]	DDR3	O
U6	SA_MA[9]	DDR3	O
U7	SA_BS[2]	DDR3	O
U8	VSS	GND	
U9	RSVD		
U10	VTT0	REF	
U26	VCC	REF	
U27	VCC	REF	



Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
U28	VCC	REF	
U29	VCC	REF	
U30	VCC	REF	
U31	VCC	REF	
U32	VCC	REF	
U33	VCC	REF	
U34	VCC	REF	
U35	VCC	REF	
V1	SA_MA[4]	DDR3	O
V2	SB_MA[1]	DDR3	O
V3	SB_MA[3]	DDR3	O
V4	RSVD_TP		
V5	RSVD_TP		
V6	SB_CK#[1]	DDR3	O
V7	SB_CK[1]	DDR3	O
V8	SA_MA[6]	DDR3	O
V9	SA_MA[15]	DDR3	O
V10	VSS	GND	
V26	VCC	REF	
V27	VCC	REF	
V28	VCC	REF	
V29	VCC	REF	
V30	VCC	REF	
V31	VCC	REF	
V32	VCC	REF	
V33	VCC	REF	
V34	VCC	REF	
V35	VCC	REF	
W1	SA_MA[1]	DDR3	O
W2	RSVD_TP		
W3	RSVD_TP		
W4	VDDQ	REF	
W5	SB_BS[1]	DDR3	O
W6	VSS	GND	
W7	VDDQ	REF	
W8	SB_CK[0]	DDR3	O

Table 8-48.rPGA988A Processor Pin List by Pin Number

Pin Number	Pin Name	Buffer Type	Dir.
W9	SB_CK#[0]	DDR3	O
W10	VTT0	REF	
W26	VSS	GND	
W27	VSS	GND	
W28	VSS	GND	
W29	VSS	GND	
W30	VSS	GND	
W31	VSS	GND	
W32	VSS	GND	
W33	VSS	GND	
W34	VSS	GND	
W35	VSS	GND	
Y1	VDDQ	REF	
Y2	VSS	GND	
Y3	SA_MA[0]	DDR3	O
Y4	VSS	GND	
Y5	SA_CK#[1]	DDR3	O
Y6	SA_CK[1]	DDR3	O
Y7	SB_RAS#	DDR3	O
Y8	VSS	GND	
Y9	SA_MA[8]	DDR3	O
Y10	VTT0	REF	
Y26	VCC	REF	
Y27	VCC	REF	
Y28	VCC	REF	
Y29	VCC	REF	
Y30	VCC	REF	
Y31	VCC	REF	
Y32	VCC	REF	
Y33	VCC	REF	
Y34	VCC	REF	
Y35	VCC	REF	



Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
BCLK	A16	DIFF CLK	I
BCLK_I TP	AR30	DIFF CLK	O
BCLK_I TP#	AT30	DIFF CLK	O
BCLK#	B16	DIFF CLK	I
BPM#[0]	AJ22	GTL	I/O
BPM#[1]	AK22	GTL	I/O
BPM#[2]	AK24	GTL	I/O
BPM#[3]	AJ24	GTL	I/O
BPM#[4]	AJ25	GTL	I/O
BPM#[5]	AH22	GTL	I/O
BPM#[6]	AK23	GTL	I/O
BPM#[7]	AH23	GTL	I/O
CATERR#	AK14	GTL	I/O
CFG[0]	AM30	CMOS	I
CFG[1]	AM28	CMOS	I
CFG[2]	AP31	CMOS	I
CFG[3]	AL32	CMOS	I
CFG[4]	AL30	CMOS	I
CFG[5]	AM31	CMOS	I
CFG[6]	AN29	CMOS	I
CFG[7]	AM32	CMOS	I
CFG[8]	AK32	CMOS	I
CFG[9]	AK31	CMOS	I
CFG[10]	AK28	CMOS	I
CFG[11]	AJ28	CMOS	I
CFG[12]	AN30	CMOS	I
CFG[13]	AN32	CMOS	I
CFG[14]	AJ32	CMOS	I
CFG[15]	AJ29	CMOS	I
CFG[16]	AJ30	CMOS	I
CFG[17]	AK30	CMOS	I
COMP0	AT26	Analog	I
COMP1	G16	Analog	I
COMP2	AT24	Analog	I
COMP3	AT23	Analog	I
DBR#	AN25		O

Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
DMI_RX[0]	B24	DMI	I
DMI_RX[1]	D23	DMI	I
DMI_RX[2]	B23	DMI	I
DMI_RX[3]	A22	DMI	I
DMI_RX#[0]	A24	DMI	I
DMI_RX#[1]	C23	DMI	I
DMI_RX#[2]	B22	DMI	I
DMI_RX#[3]	A21	DMI	I
DMI_TX[0]	D25	DMI	O
DMI_TX[1]	F24	DMI	O
DMI_TX[2]	E23	DMI	O
DMI_TX[3]	G23	DMI	O
DMI_TX#[0]	D24	DMI	O
DMI_TX#[1]	G24	DMI	O
DMI_TX#[2]	F23	DMI	O
DMI_TX#[3]	H23	DMI	O
DPLL_REF_SSCLK	A18	DIFF CLK	I
DPLL_REF_SSCLK#	A17	DIFF CLK	I
FDI_FSYNC[0]	F17	CMOS	I
FDI_FSYNC[1]	E17	CMOS	I
FDI_INT	C17	CMOS	I
FDI_LSYNC[0]	F18	CMOS	I
FDI_LSYNC[1]	D17	CMOS	I
FDI_TX[0]	D22	FDI	O
FDI_TX[1]	C21	FDI	O
FDI_TX[2]	D20	FDI	O
FDI_TX[3]	C18	FDI	O
FDI_TX[4]	G22	FDI	O
FDI_TX[5]	E20	FDI	O
FDI_TX[6]	F20	FDI	O
FDI_TX[7]	G19	FDI	O
FDI_TX#[0]	E22	FDI	O
FDI_TX#[1]	D21	FDI	O
FDI_TX#[2]	D19	FDI	O
FDI_TX#[3]	D18	FDI	O



Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
FDI_TX#[4]	G21	FDI	O
FDI_TX#[5]	E19	FDI	O
FDI_TX#[6]	F21	FDI	O
FDI_TX#[7]	G18	FDI	O
GFX DPRSLPVR	AT25	CMOS	O
GFX_IMON	AM24	Analog	I
GFX_VID[0]	AM22	CMOS	O
GFX_VID[1]	AP22	CMOS	O
GFX_VID[2]	AN22	CMOS	O
GFX_VID[3]	AP23	CMOS	O
GFX_VID[4]	AM23	CMOS	O
GFX_VID[5]	AP24	CMOS	O
GFX_VID[6]	AN24	CMOS	O
GFX_VR_EN	AR25	CMOS	O
ISENSE	AN35	Analog	I
KEY	A2		
PECI	AT15	Async	I/O
PEG_CLK	E16	DIFF CLK	I
PEG_CLK#	D16	DIFF CLK	I
PEG_ICOMPI	B26	Analog	I
PEG_ICOMPO	A26	Analog	I
PEG_RBIAS	A25	Analog	I
PEG_RCOMPO	B27	Analog	I
PEG_RX[0]	J35	PCIe	I
PEG_RX[1]	H34	PCIe	I
PEG_RX[2]	H33	PCIe	I
PEG_RX[3]	F35	PCIe	I
PEG_RX[4]	G33	PCIe	I
PEG_RX[5]	E34	PCIe	I
PEG_RX[6]	F32	PCIe	I
PEG_RX[7]	D34	PCIe	I
PEG_RX[8]	F33	PCIe	I
PEG_RX[9]	B33	PCIe	I
PEG_RX[10]	D31	PCIe	I
PEG_RX[11]	A32	PCIe	I
PEG_RX[12]	C30	PCIe	I

Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
PEG_RX[13]	A28	PCIe	I
PEG_RX[14]	B29	PCIe	I
PEG_RX[15]	A30	PCIe	I
PEG_RX#[0]	K35	PCIe	I
PEG_RX#[1]	J34	PCIe	I
PEG_RX#[2]	J33	PCIe	I
PEG_RX#[3]	G35	PCIe	I
PEG_RX#[4]	G32	PCIe	I
PEG_RX#[5]	F34	PCIe	I
PEG_RX#[6]	F31	PCIe	I
PEG_RX#[7]	D35	PCIe	I
PEG_RX#[8]	E33	PCIe	I
PEG_RX#[9]	C33	PCIe	I
PEG_RX#[10]	D32	PCIe	I
PEG_RX#[11]	B32	PCIe	I
PEG_RX#[12]	C31	PCIe	I
PEG_RX#[13]	B28	PCIe	I
PEG_RX#[14]	B30	PCIe	I
PEG_RX#[15]	A31	PCIe	I
PEG_TX[0]	L34	PCIe	O
PEG_TX[1]	M34	PCIe	O
PEG_TX[2]	M32	PCIe	O
PEG_TX[3]	L30	PCIe	O
PEG_TX[4]	M31	PCIe	O
PEG_TX[5]	K31	PCIe	O
PEG_TX[6]	M28	PCIe	O
PEG_TX[7]	H31	PCIe	O
PEG_TX[8]	K28	PCIe	O
PEG_TX[9]	G30	PCIe	O
PEG_TX[10]	G29	PCIe	O
PEG_TX[11]	F28	PCIe	O
PEG_TX[12]	E27	PCIe	O
PEG_TX[13]	D28	PCIe	O
PEG_TX[14]	C27	PCIe	O
PEG_TX[15]	C25	PCIe	O
PEG_TX#[0]	L33	PCIe	O



Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
PEG_TX#[1]	M35	PCIe	O
PEG_TX#[2]	M33	PCIe	O
PEG_TX#[3]	M30	PCIe	O
PEG_TX#[4]	L31	PCIe	O
PEG_TX#[5]	K32	PCIe	O
PEG_TX#[6]	M29	PCIe	O
PEG_TX#[7]	J 31	PCIe	O
PEG_TX#[8]	K29	PCIe	O
PEG_TX#[9]	H30	PCIe	O
PEG_TX#[10]	H29	PCIe	O
PEG_TX#[11]	F29	PCIe	O
PEG_TX#[12]	E28	PCIe	O
PEG_TX#[13]	D29	PCIe	O
PEG_TX#[14]	D27	PCIe	O
PEG_TX#[15]	C26	PCIe	O
PM_EXT_TS#[0]	AN15	CMOS	I
PM_EXT_TS#[1]	AP15	CMOS	I
PM_SYNC	AL15	CMOS	I
PRDY#	AT28	Async GTL	O
PREQ#	AP27	Async GTL	I
PROC_DPRSLPVR	AM34	CMOS	O
PROCHOT#	AN26	Async GTL	I/O
PSI#	AN33	Async CMOS	O
RESET_OBS#	AP26	Async CMOS	O
RSTIN#	AL14	CMOS	I
RSVD	A19		
RSVD	A20		
RSVD	AB9		
RSVD	AC9		
RSVD	AG9		
RSVD	AH15		
RSVD	AH25		

Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
RSVD	AJ 15		
RSVD	AJ 26		
RSVD	AJ 27		
RSVD	AJ 33		
RSVD	AL22		
RSVD	AL24		
RSVD	AL25		
RSVD	AL27		
RSVD	AL28		
RSVD	AL29		
RSVD	AP25		
RSVD	AP30		
RSVD	AP32		
RSVD	AP33		
RSVD	AR32		
RSVD	AR33		
RSVD	AT31		
RSVD	AT32		
RSVD	B19		
RSVD	B20		
RSVD	C15		
RSVD	D15		
RSVD	E30		
RSVD	E31		
RSVD	G17		
RSVD	G25		
RSVD	H17		
RSVD	J 17		
RSVD	J 28		
RSVD	J 29		
RSVD	L28		
RSVD	M27		
RSVD	T 9		
RSVD	U 9		
RSVD_NCTF	A3		
RSVD_NCTF	A33		



Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
RSVD_NCTF	A34		
RSVD_NCTF	AP1		
RSVD_NCTF	AP35		
RSVD_NCTF	AR1		
RSVD_NCTF	AR2		
RSVD_NCTF	AR35		
RSVD_NCTF	AT3		
RSVD_NCTF	AT33		
RSVD_NCTF	AT34		
RSVD_NCTF	B35		
RSVD_NCTF	C1		
RSVD_NCTF	C35		
RSVD_TP	AA1		
RSVD_TP	AA2		
RSVD_TP	AA4		
RSVD_TP	AA5		
RSVD_TP	AD2		
RSVD_TP	AD3		
RSVD_TP	AD5		
RSVD_TP	AD7		
RSVD_TP	AD9		
RSVD_TP	AE3		
RSVD_TP	AE5		
RSVD_TP	AG7		
RSVD_TP	AJ12		
RSVD_TP	AJ13		
RSVD_TP	AK26		
RSVD_TP	AL26		
RSVD_TP	AT2		
RSVD_TP	E15		
RSVD_TP	F15		
RSVD_TP	H16		
RSVD_TP	N2		
RSVD_TP	N3		
RSVD_TP	R8		
RSVD_TP	R9		

Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
RSVD_TP	V4		
RSVD_TP	V5		
RSVD_TP	W2		
RSVD_TP	W3		
SA_BS[0]	AC3	DDR3	O
SA_BS[1]	AB2	DDR3	O
SA_BS[2]	U7	DDR3	O
SA_CAS#	AE1	DDR3	O
SA_CK[0]	AA6	DDR3	O
SA_CK[1]	Y6	DDR3	O
SA_CK#[0]	AA7	DDR3	O
SA_CK#[1]	Y5	DDR3	O
SA_CKE[0]	P7	DDR3	O
SA_CKE[1]	P6	DDR3	O
SA_CS#[0]	AE2	DDR3	O
SA_CS#[1]	AE8	DDR3	O
SA_DM[0]	B9	DDR3	O
SA_DM[1]	D7	DDR3	O
SA_DM[2]	H7	DDR3	O
SA_DM[3]	M7	DDR3	O
SA_DM[4]	AG6	DDR3	O
SA_DM[5]	AM7	DDR3	O
SA_DM[6]	AN10	DDR3	O
SA_DM[7]	AN13	DDR3	O
SA_DQ[0]	A10	DDR3	I/O
SA_DQ[1]	C10	DDR3	I/O
SA_DQ[2]	C7	DDR3	I/O
SA_DQ[3]	A7	DDR3	I/O
SA_DQ[4]	B10	DDR3	I/O
SA_DQ[5]	D10	DDR3	I/O
SA_DQ[6]	E10	DDR3	I/O
SA_DQ[7]	A8	DDR3	I/O
SA_DQ[8]	D8	DDR3	I/O
SA_DQ[9]	F10	DDR3	I/O
SA_DQ[10]	E6	DDR3	I/O
SA_DQ[11]	F7	DDR3	I/O



Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
SA_DQ[12]	E9	DDR3	I/O
SA_DQ[13]	B7	DDR3	I/O
SA_DQ[14]	E7	DDR3	I/O
SA_DQ[15]	C6	DDR3	I/O
SA_DQ[16]	H10	DDR3	I/O
SA_DQ[17]	G8	DDR3	I/O
SA_DQ[18]	K7	DDR3	I/O
SA_DQ[19]	J8	DDR3	I/O
SA_DQ[20]	G7	DDR3	I/O
SA_DQ[21]	G10	DDR3	I/O
SA_DQ[22]	J7	DDR3	I/O
SA_DQ[23]	J10	DDR3	I/O
SA_DQ[24]	L7	DDR3	I/O
SA_DQ[25]	M6	DDR3	I/O
SA_DQ[26]	M8	DDR3	I/O
SA_DQ[27]	L9	DDR3	I/O
SA_DQ[28]	L6	DDR3	I/O
SA_DQ[29]	K8	DDR3	I/O
SA_DQ[30]	N8	DDR3	I/O
SA_DQ[31]	P9	DDR3	I/O
SA_DQ[32]	AH5	DDR3	I/O
SA_DQ[33]	AF5	DDR3	I/O
SA_DQ[34]	AK6	DDR3	I/O
SA_DQ[35]	AK7	DDR3	I/O
SA_DQ[36]	AF6	DDR3	I/O
SA_DQ[37]	AG5	DDR3	I/O
SA_DQ[38]	AJ7	DDR3	I/O
SA_DQ[39]	AJ6	DDR3	I/O
SA_DQ[40]	AJ10	DDR3	I/O
SA_DQ[41]	AJ9	DDR3	I/O
SA_DQ[42]	AL10	DDR3	I/O
SA_DQ[43]	AK12	DDR3	I/O
SA_DQ[44]	AK8	DDR3	I/O
SA_DQ[45]	AL7	DDR3	I/O
SA_DQ[46]	AK11	DDR3	I/O
SA_DQ[47]	AL8	DDR3	I/O

Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
SA_DQ[48]	AN8	DDR3	I/O
SA_DQ[49]	AM10	DDR3	I/O
SA_DQ[50]	AR11	DDR3	I/O
SA_DQ[51]	AL11	DDR3	I/O
SA_DQ[52]	AM9	DDR3	I/O
SA_DQ[53]	AN9	DDR3	I/O
SA_DQ[54]	AT11	DDR3	I/O
SA_DQ[55]	AP12	DDR3	I/O
SA_DQ[56]	AM12	DDR3	I/O
SA_DQ[57]	AN12	DDR3	I/O
SA_DQ[58]	AM13	DDR3	I/O
SA_DQ[59]	AT14	DDR3	I/O
SA_DQ[60]	AT12	DDR3	I/O
SA_DQ[61]	AL13	DDR3	I/O
SA_DQ[62]	AR14	DDR3	I/O
SA_DQ[63]	AP14	DDR3	I/O
SA_DQS[0]	C8	DDR3	I/O
SA_DQS[1]	F9	DDR3	I/O
SA_DQS[2]	H9	DDR3	I/O
SA_DQS[3]	M9	DDR3	I/O
SA_DQS[4]	AH8	DDR3	I/O
SA_DQS[5]	AK10	DDR3	I/O
SA_DQS[6]	AN11	DDR3	I/O
SA_DQS[7]	AR13	DDR3	I/O
SA_DQS#[0]	C9	DDR3	I/O
SA_DQS#[1]	F8	DDR3	I/O
SA_DQS#[2]	J9	DDR3	I/O
SA_DQS#[3]	N9	DDR3	I/O
SA_DQS#[4]	AH7	DDR3	I/O
SA_DQS#[5]	AK9	DDR3	I/O
SA_DQS#[6]	AP11	DDR3	I/O
SA_DQS#[7]	AT13	DDR3	I/O
SA_MA[0]	Y3	DDR3	O
SA_MA[1]	W1	DDR3	O
SA_MA[2]	AA8	DDR3	O
SA_MA[3]	AA3	DDR3	O



Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
SA_MA[4]	V1	DDR3	O
SA_MA[5]	AA9	DDR3	O
SA_MA[6]	V8	DDR3	O
SA_MA[7]	T1	DDR3	O
SA_MA[8]	Y9	DDR3	O
SA_MA[9]	U6	DDR3	O
SA_MA[10]	AD4	DDR3	O
SA_MA[11]	T2	DDR3	O
SA_MA[12]	U3	DDR3	O
SA_MA[13]	AG8	DDR3	O
SA_MA[14]	T3	DDR3	O
SA_MA[15]	V9	DDR3	O
SA_ODT[0]	AD8	DDR3	O
SA_ODT[1]	AF9	DDR3	O
SA_RAS#	AB3	DDR3	O
SA_WE#	AE9	DDR3	O
SB_BS[0]	AB1	DDR3	O
SB_BS[1]	W5	DDR3	O
SB_BS[2]	R7	DDR3	O
SB_CAS#	AC5	DDR3	O
SB_CK[0]	W8	DDR3	O
SB_CK[1]	V7	DDR3	O
SB_CK#[0]	W9	DDR3	O
SB_CK#[1]	V6	DDR3	O
SB_CKE[0]	M3	DDR3	O
SB_CKE[1]	M2	DDR3	O
SB_CS#[0]	AB8	DDR3	O
SB_CS#[1]	AD6	DDR3	O
SB_DM[0]	D4	DDR3	O
SB_DM[1]	E1	DDR3	O
SB_DM[2]	H3	DDR3	O
SB_DM[3]	K1	DDR3	O
SB_DM[4]	AH1	DDR3	O
SB_DM[5]	AL2	DDR3	O
SB_DM[6]	AR4	DDR3	O
SB_DM[7]	AT8	DDR3	O

Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
SB_DQ[0]	B5	DDR3	I/O
SB_DQ[1]	A5	DDR3	I/O
SB_DQ[2]	C3	DDR3	I/O
SB_DQ[3]	B3	DDR3	I/O
SB_DQ[4]	E4	DDR3	I/O
SB_DQ[5]	A6	DDR3	I/O
SB_DQ[6]	A4	DDR3	I/O
SB_DQ[7]	C4	DDR3	I/O
SB_DQ[8]	D1	DDR3	I/O
SB_DQ[9]	D2	DDR3	I/O
SB_DQ[10]	F2	DDR3	I/O
SB_DQ[11]	F1	DDR3	I/O
SB_DQ[12]	C2	DDR3	I/O
SB_DQ[13]	F5	DDR3	I/O
SB_DQ[14]	F3	DDR3	I/O
SB_DQ[15]	G4	DDR3	I/O
SB_DQ[16]	H6	DDR3	I/O
SB_DQ[17]	G2	DDR3	I/O
SB_DQ[18]	J6	DDR3	I/O
SB_DQ[19]	J3	DDR3	I/O
SB_DQ[20]	G1	DDR3	I/O
SB_DQ[21]	G5	DDR3	I/O
SB_DQ[22]	J2	DDR3	I/O
SB_DQ[23]	J1	DDR3	I/O
SB_DQ[24]	J5	DDR3	I/O
SB_DQ[25]	K2	DDR3	I/O
SB_DQ[26]	L3	DDR3	I/O
SB_DQ[27]	M1	DDR3	I/O
SB_DQ[28]	K5	DDR3	I/O
SB_DQ[29]	K4	DDR3	I/O
SB_DQ[30]	M4	DDR3	I/O
SB_DQ[31]	N5	DDR3	I/O
SB_DQ[32]	AF3	DDR3	I/O
SB_DQ[33]	AG1	DDR3	I/O
SB_DQ[34]	AJ3	DDR3	I/O
SB_DQ[35]	AK1	DDR3	I/O



Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
SB_DQ[36]	AG4	DDR3	I/O
SB_DQ[37]	AG3	DDR3	I/O
SB_DQ[38]	AJ4	DDR3	I/O
SB_DQ[39]	AH4	DDR3	I/O
SB_DQ[40]	AK3	DDR3	I/O
SB_DQ[41]	AK4	DDR3	I/O
SB_DQ[42]	AM6	DDR3	I/O
SB_DQ[43]	AN2	DDR3	I/O
SB_DQ[44]	AK5	DDR3	I/O
SB_DQ[45]	AK2	DDR3	I/O
SB_DQ[46]	AM4	DDR3	I/O
SB_DQ[47]	AM3	DDR3	I/O
SB_DQ[48]	AP3	DDR3	I/O
SB_DQ[49]	AN5	DDR3	I/O
SB_DQ[50]	AT4	DDR3	I/O
SB_DQ[51]	AN6	DDR3	I/O
SB_DQ[52]	AN4	DDR3	I/O
SB_DQ[53]	AN3	DDR3	I/O
SB_DQ[54]	AT5	DDR3	I/O
SB_DQ[55]	AT6	DDR3	I/O
SB_DQ[56]	AN7	DDR3	I/O
SB_DQ[57]	AP6	DDR3	I/O
SB_DQ[58]	AP8	DDR3	I/O
SB_DQ[59]	AT9	DDR3	I/O
SB_DQ[60]	AT7	DDR3	I/O
SB_DQ[61]	AP9	DDR3	I/O
SB_DQ[62]	AR10	DDR3	I/O
SB_DQ[63]	AT10	DDR3	I/O
SB_DQS[0]	C5	DDR3	I/O
SB_DQS[1]	E3	DDR3	I/O
SB_DQS[2]	H4	DDR3	I/O
SB_DQS[3]	M5	DDR3	I/O
SB_DQS[4]	AG2	DDR3	I/O
SB_DQS[5]	AL5	DDR3	I/O
SB_DQS[6]	AP5	DDR3	I/O
SB_DQS[7]	AR7	DDR3	I/O

Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
SB_DQS#[0]	D5	DDR3	I/O
SB_DQS#[1]	F4	DDR3	I/O
SB_DQS#[2]	J4	DDR3	I/O
SB_DQS#[3]	L4	DDR3	I/O
SB_DQS#[4]	AH2	DDR3	I/O
SB_DQS#[5]	AL4	DDR3	I/O
SB_DQS#[6]	AR5	DDR3	I/O
SB_DQS#[7]	AR8	DDR3	I/O
SB_MA[0]	U5	DDR3	O
SB_MA[1]	V2	DDR3	O
SB_MA[2]	T5	DDR3	O
SB_MA[3]	V3	DDR3	O
SB_MA[4]	R1	DDR3	O
SB_MA[5]	T8	DDR3	O
SB_MA[6]	R2	DDR3	O
SB_MA[7]	R6	DDR3	O
SB_MA[8]	R4	DDR3	O
SB_MA[9]	R5	DDR3	O
SB_MA[10]	AB5	DDR3	O
SB_MA[11]	P3	DDR3	O
SB_MA[12]	R3	DDR3	O
SB_MA[13]	AF7	DDR3	O
SB_MA[14]	P5	DDR3	O
SB_MA[15]	N1	DDR3	O
SB_ODT[0]	AC7	DDR3	O
SB_ODT[1]	AD1	DDR3	O
SB_RAS#	Y7	DDR3	O
SB_WE#	AC6	DDR3	O
SKTOCC#	AH24		
SM_DRAMPWROK	AK13	DDR3	O
SM_DRAMRST#	F6	DDR3	O
SM_RCOMP[0]	AL1	Analog	I
SM_RCOMP[1]	AM1	Analog	I
SM_RCOMP[2]	AN1	Analog	I
TAPPWRGOOD	AM26	Async CMOS	O



Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
TCK	AN28	CMOS	I
TDI	AT29	CMOS	I
TDI_M	AR29	CMOS	I
TDO	AR27	CMOS	O
TDO_M	AP29	CMOS	O
THERMTRIP#	AK15	Async GTL	O
TMS	AP28	CMOS	I
TRST#	AT27	CMOS	I
VAXG	AH16	REF	
VAXG	AH18	REF	
VAXG	AH19	REF	
VAXG	AH21	REF	
VAXG	AJ 16	REF	
VAXG	AJ 18	REF	
VAXG	AJ 19	REF	
VAXG	AJ 21	REF	
VAXG	AK16	REF	
VAXG	AK18	REF	
VAXG	AK19	REF	
VAXG	AK21	REF	
VAXG	AL16	REF	
VAXG	AL18	REF	
VAXG	AL19	REF	
VAXG	AL21	REF	
VAXG	AM16	REF	
VAXG	AM18	REF	
VAXG	AM19	REF	
VAXG	AM21	REF	
VAXG	AN16	REF	
VAXG	AN18	REF	
VAXG	AN19	REF	
VAXG	AN21	REF	
VAXG	AP16	REF	
VAXG	AP18	REF	
VAXG	AP19	REF	
VAXG	AP21	REF	

Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
VAXG	AR16	REF	
VAXG	AR18	REF	
VAXG	AR19	REF	
VAXG	AR21	REF	
VAXG	AT16	REF	
VAXG	AT18	REF	
VAXG	AT19	REF	
VAXG	AT21	REF	
VAXG_SENSE	AR22	Analog	O
VCC	AA26	REF	
VCC	AA27	REF	
VCC	AA28	REF	
VCC	AA29	REF	
VCC	AA30	REF	
VCC	AA31	REF	
VCC	AA32	REF	
VCC	AA33	REF	
VCC	AA34	REF	
VCC	AA35	REF	
VCC	AC26	REF	
VCC	AC27	REF	
VCC	AC28	REF	
VCC	AC29	REF	
VCC	AC30	REF	
VCC	AC31	REF	
VCC	AC32	REF	
VCC	AC33	REF	
VCC	AC34	REF	
VCC	AC35	REF	
VCC	AD26	REF	
VCC	AD27	REF	
VCC	AD28	REF	
VCC	AD29	REF	
VCC	AD30	REF	
VCC	AD31	REF	
VCC	AD32	REF	



Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
VCC	AD33	REF	
VCC	AD34	REF	
VCC	AD35	REF	
VCC	AF26	REF	
VCC	AF27	REF	
VCC	AF28	REF	
VCC	AF29	REF	
VCC	AF30	REF	
VCC	AF31	REF	
VCC	AF32	REF	
VCC	AF33	REF	
VCC	AF34	REF	
VCC	AF35	REF	
VCC	AG26	REF	
VCC	AG27	REF	
VCC	AG28	REF	
VCC	AG29	REF	
VCC	AG30	REF	
VCC	AG31	REF	
VCC	AG32	REF	
VCC	AG33	REF	
VCC	AG34	REF	
VCC	AG35	REF	
VCC	P26	REF	
VCC	P27	REF	
VCC	P28	REF	
VCC	P29	REF	
VCC	P30	REF	
VCC	P31	REF	
VCC	P32	REF	
VCC	P33	REF	
VCC	P34	REF	
VCC	P35	REF	
VCC	R26	REF	
VCC	R27	REF	
VCC	R28	REF	

Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
VCC	R29	REF	
VCC	R30	REF	
VCC	R31	REF	
VCC	R32	REF	
VCC	R33	REF	
VCC	R34	REF	
VCC	R35	REF	
VCC	U26	REF	
VCC	U27	REF	
VCC	U28	REF	
VCC	U29	REF	
VCC	U30	REF	
VCC	U31	REF	
VCC	U32	REF	
VCC	U33	REF	
VCC	U34	REF	
VCC	U35	REF	
VCC	V26	REF	
VCC	V27	REF	
VCC	V28	REF	
VCC	V29	REF	
VCC	V30	REF	
VCC	V31	REF	
VCC	V32	REF	
VCC	V33	REF	
VCC	V34	REF	
VCC	V35	REF	
VCC	Y26	REF	
VCC	Y27	REF	
VCC	Y28	REF	
VCC	Y29	REF	
VCC	Y30	REF	
VCC	Y31	REF	
VCC	Y32	REF	
VCC	Y33	REF	
VCC	Y34	REF	



Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
VCC	Y35	REF	
VCC_SENSE	AJ34	Analog	O
VCCPLL	L26	REF	
VCCPLL	L27	REF	
VCCPLL	M26	REF	
VCCPWRGOOD_0	AN27	Async CMOS	I
VCCPWRGOOD_1	AN14	Async CMOS	I
VDDQ	AB4	REF	
VDDQ	AB7	REF	
VDDQ	AC1	REF	
VDDQ	AE4	REF	
VDDQ	AE7	REF	
VDDQ	AF1	REF	
VDDQ	AJ1	REF	
VDDQ	H1	REF	
VDDQ	L1	REF	
VDDQ	N4	REF	
VDDQ	N7	REF	
VDDQ	P1	REF	
VDDQ	T4	REF	
VDDQ	T7	REF	
VDDQ	U1	REF	
VDDQ	W4	REF	
VDDQ	W7	REF	
VDDQ	Y1	REF	
VID[0]	AK35	CMOS	O
VID[1]	AK33	CMOS	O
VID[2]	AK34	CMOS	O
CSC[0]/VID[3]	AL35	CMOS	I/O
CSC[1]/VID[4]	AL33	CMOS	I/O
CSC[2]/VID[5]	AM33	CMOS	I/O
VID[6]	AM35	CMOS	O
VSS	A23	GND	
VSS	A27	GND	
VSS	A29	GND	

Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
VSS	A9	GND	
VSS	AA10	GND	
VSS	AB26	GND	
VSS	AB27	GND	
VSS	AB28	GND	
VSS	AB29	GND	
VSS	AB30	GND	
VSS	AB31	GND	
VSS	AB32	GND	
VSS	AB33	GND	
VSS	AB34	GND	
VSS	AB35	GND	
VSS	AB6	GND	
VSS	AC2	GND	
VSS	AC4	GND	
VSS	AC8	GND	
VSS	AD10	GND	
VSS	AE26	GND	
VSS	AE27	GND	
VSS	AE28	GND	
VSS	AE29	GND	
VSS	AE30	GND	
VSS	AE31	GND	
VSS	AE32	GND	
VSS	AE33	GND	
VSS	AE34	GND	
VSS	AE35	GND	
VSS	AE6	GND	
VSS	AF2	GND	
VSS	AF4	GND	
VSS	AF8	GND	
VSS	AG10	GND	
VSS	AH13	GND	
VSS	AH17	GND	
VSS	AH20	GND	
VSS	AH26	GND	



Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
VSS	AH27	GND	
VSS	AH28	GND	
VSS	AH29	GND	
VSS	AH3	GND	
VSS	AH30	GND	
VSS	AH31	GND	
VSS	AH32	GND	
VSS	AH33	GND	
VSS	AH34	GND	
VSS	AH35	GND	
VSS	AH6	GND	
VSS	AH9	GND	
VSS	AJ 11	GND	
VSS	AJ 14	GND	
VSS	AJ 17	GND	
VSS	AJ 2	GND	
VSS	AJ 20	GND	
VSS	AJ 23	GND	
VSS	AJ 31	GND	
VSS	AJ 5	GND	
VSS	AJ 8	GND	
VSS	AK17	GND	
VSS	AK20	GND	
VSS	AK25	GND	
VSS	AK27	GND	
VSS	AK29	GND	
VSS	AL12	GND	
VSS	AL17	GND	
VSS	AL20	GND	
VSS	AL23	GND	
VSS	AL3	GND	
VSS	AL31	GND	
VSS	AL34	GND	
VSS	AL6	GND	
VSS	AL9	GND	
VSS	AM11	GND	

Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
VSS	AM14	GND	
VSS	AM17	GND	
VSS	AM2	GND	
VSS	AM20	GND	
VSS	AM25	GND	
VSS	AM27	GND	
VSS	AM29	GND	
VSS	AM5	GND	
VSS	AM8	GND	
VSS	AN17	GND	
VSS	AN20	GND	
VSS	AN23	GND	
VSS	AN31	GND	
VSS	AN34	GND	
VSS	AP10	GND	
VSS	AP13	GND	
VSS	AP17	GND	
VSS	AP2	GND	
VSS	AP20	GND	
VSS	AP34	GND	
VSS	AP4	GND	
VSS	AP7	GND	
VSS	AR12	GND	
VSS	AR15	GND	
VSS	AR17	GND	
VSS	AR20	GND	
VSS	AR23	GND	
VSS	AR24	GND	
VSS	AR26	GND	
VSS	AR28	GND	
VSS	AR3	GND	
VSS	AR31	GND	
VSS	AR6	GND	
VSS	AR9	GND	
VSS	AT17	GND	
VSS	AT20	GND	



Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
VSS	B11	GND	
VSS	B13	GND	
VSS	B17	GND	
VSS	B18	GND	
VSS	B21	GND	
VSS	B25	GND	
VSS	B31	GND	
VSS	B4	GND	
VSS	B6	GND	
VSS	B8	GND	
VSS	C16	GND	
VSS	C19	GND	
VSS	C20	GND	
VSS	C22	GND	
VSS	C24	GND	
VSS	C28	GND	
VSS	C29	GND	
VSS	C32	GND	
VSS	C34	GND	
VSS	D26	GND	
VSS	D3	GND	
VSS	D30	GND	
VSS	D33	GND	
VSS	D6	GND	
VSS	D9	GND	
VSS	E11	GND	
VSS	E13	GND	
VSS	E18	GND	
VSS	E2	GND	
VSS	E21	GND	
VSS	E24	GND	
VSS	E29	GND	
VSS	E32	GND	
VSS	E35	GND	
VSS	E5	GND	
VSS	E8	GND	

Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
VSS	F16	GND	
VSS	F19	GND	
VSS	F22	GND	
VSS	F25	GND	
VSS	F27	GND	
VSS	F30	GND	
VSS	G20	GND	
VSS	G3	GND	
VSS	G31	GND	
VSS	G34	GND	
VSS	G6	GND	
VSS	G9	GND	
VSS	H11	GND	
VSS	H13	GND	
VSS	H15	GND	
VSS	H18	GND	
VSS	H2	GND	
VSS	H22	GND	
VSS	H24	GND	
VSS	H26	GND	
VSS	H28	GND	
VSS	H32	GND	
VSS	H35	GND	
VSS	H5	GND	
VSS	H8	GND	
VSS	J19	GND	
VSS	J21	GND	
VSS	J30	GND	
VSS	J32	GND	
VSS	K27	GND	
VSS	K3	GND	
VSS	K30	GND	
VSS	K33	GND	
VSS	K34	GND	
VSS	K6	GND	
VSS	K9	GND	



Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
VSS	L2	GND	
VSS	L29	GND	
VSS	L32	GND	
VSS	L35	GND	
VSS	L5	GND	
VSS	L8	GND	
VSS	M10	GND	
VSS	N26	GND	
VSS	N27	GND	
VSS	N28	GND	
VSS	N29	GND	
VSS	N30	GND	
VSS	N31	GND	
VSS	N32	GND	
VSS	N33	GND	
VSS	N34	GND	
VSS	N35	GND	
VSS	N6	GND	
VSS	P2	GND	
VSS	P4	GND	
VSS	P8	GND	
VSS	R10	GND	
VSS	T26	GND	
VSS	T27	GND	
VSS	T28	GND	
VSS	T29	GND	
VSS	T30	GND	
VSS	T31	GND	
VSS	T32	GND	
VSS	T33	GND	
VSS	T34	GND	
VSS	T35	GND	
VSS	T6	GND	
VSS	U2	GND	
VSS	U4	GND	
VSS	U8	GND	

Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
VSS	V10	GND	
VSS	W26	GND	
VSS	W27	GND	
VSS	W28	GND	
VSS	W29	GND	
VSS	W30	GND	
VSS	W31	GND	
VSS	W32	GND	
VSS	W33	GND	
VSS	W34	GND	
VSS	W35	GND	
VSS	W6	GND	
VSS	Y2	GND	
VSS	Y4	GND	
VSS	Y8	GND	
VSS_NCTF	A35		
VSS_NCTF	AR34		
VSS_NCTF	AT1		
VSS_NCTF	AT35		
VSS_NCTF	B1		
VSS_NCTF	B2		
VSS_NCTF	B34		
VSS_SENSE	AJ35	Analog	O
VSS_SENSE_VT T	A15	Analog	O
VSSAXG_SENSE	AT22	Analog	O
VTT_SELECT	G15	CMOS	O
VTT_SENSE	B15	Analog	O
VTT0	A11	REF	
VTT0	A12	REF	
VTT0	A13	REF	
VTT0	A14	REF	
VTT0	AB10	REF	
VTT0	AC10	REF	
VTT0	AE10	REF	
VTT0	AF10	REF	
VTT0	AH10	REF	



Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
VTT0	AH11	REF	
VTT0	AH12	REF	
VTT0	AH14	REF	
VTT0	B12	REF	
VTT0	B14	REF	
VTT0	C11	REF	
VTT0	C12	REF	
VTT0	C13	REF	
VTT0	C14	REF	
VTT0	D11	REF	
VTT0	D12	REF	
VTT0	D13	REF	
VTT0	D14	REF	
VTT0	E12	REF	
VTT0	E14	REF	
VTT0	F11	REF	
VTT0	F12	REF	
VTT0	F13	REF	
VTT0	F14	REF	
VTT0	G11	REF	
VTT0	G12	REF	
VTT0	G13	REF	
VTT0	G14	REF	
VTT0	H12	REF	
VTT0	H14	REF	
VTT0	J11	REF	
VTT0	J12	REF	
VTT0	J13	REF	
VTT0	J14	REF	
VTT0	J15	REF	
VTT0	J16	REF	
VTT0	K10	REF	
VTT0	L10	REF	
VTT0	N10	REF	
VTT0	P10	REF	
VTT0	T10	REF	

Table 8-49.rPGA988A Processor Pin List by Pin Name

Pin Name	Pin Number	Buffer Type	Dir.
VTT0	U10	REF	
VTT0	W10	REF	
VTT0	Y10	REF	
VTT1	E25	REF	
VTT1	E26	REF	
VTT1	F26	REF	
VTT1	G26	REF	
VTT1	G27	REF	
VTT1	G28	REF	
VTT1	H19	REF	
VTT1	H20	REF	
VTT1	H21	REF	
VTT1	H25	REF	
VTT1	H27	REF	
VTT1	J18	REF	
VTT1	J20	REF	
VTT1	J22	REF	
VTT1	J23	REF	
VTT1	J24	REF	
VTT1	J25	REF	
VTT1	J26	REF	
VTT1	J27	REF	
VTT1	K26	REF	
VTT1PWRGOOD	AM15	Async CMOS	I