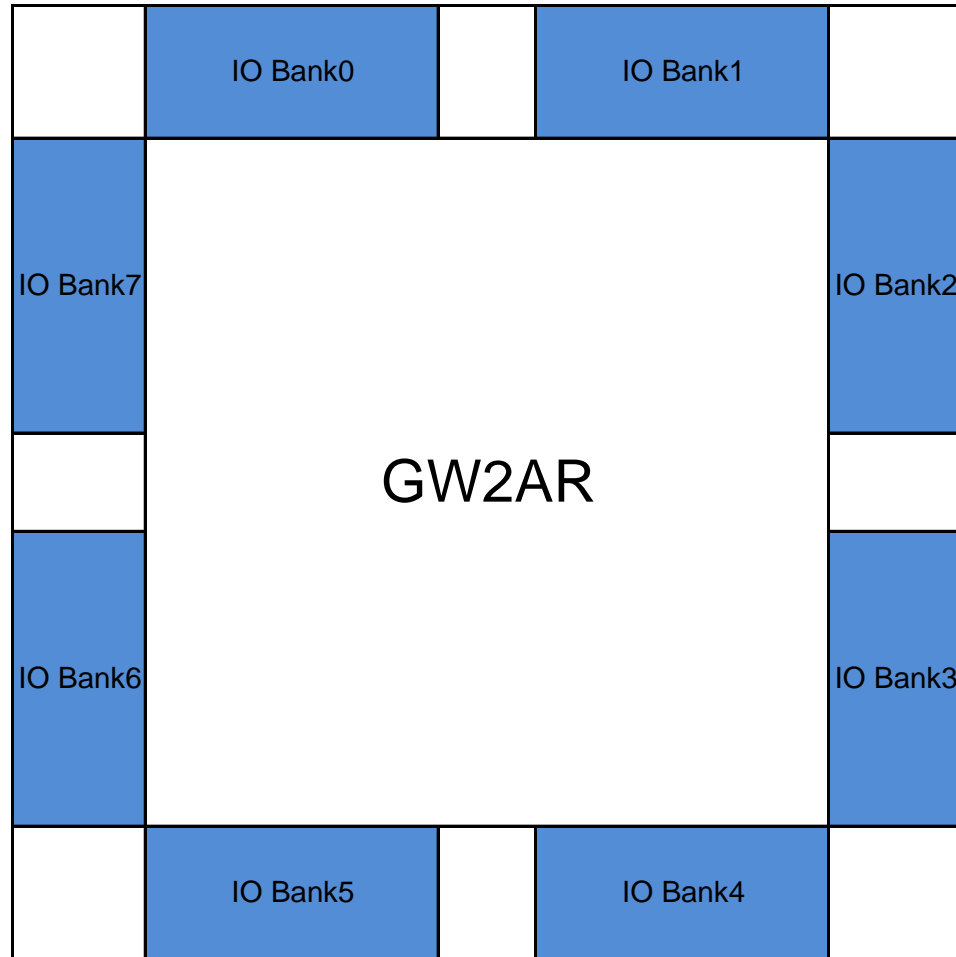


Date	Version	Description
09/02/2016	1.0E	Initial version published.
03/28/2019	1.1E	The info. of EQ176 package added.
03/10/2020	1.2E	The descriptions of pin MODE0/MODE1/MODE2 improved.
06/30/2020	1.2.1E	QN88/EQ144 package embedded with PSRAM renamed QN88P/EQ144P.
08/07/2020	1.3E	The info. of QN88PF and EQ144PF packages added. The power supply pin in package LQ176 and EQ176 modified.
04/22/2021	1.4E	The info. of PG256S package added.
10/25/2021	1.5E	Pin definitions updated.
08/12/2022	1.6E	The info. of PG256S package removed.
10/20/2022	1.6.1E	The note in Power sheet updated. The note in Pin Definitions sheet updated.
03/10/2023	1.7E	LQ176 and LQ144 packages removed. The note of EQ144/QN88/EQ176/QN88P/EQ144P/EQ144PF/QN88PF package in Power sheet added. The description of CLKHOLD_N pin in Pin Definitions sheet updated.
06/30/2023	1.7.1E	The descriptions of pin definitions and info. for MODE0, MODE1, MODE2 pins optimized.

Pin Name	I/O	Description
User I/O		
IO[End][Row/Column Number][A/B]	I/O	[End] indicates the pin location, including L(left), R(right), B(bottom), and T(top).
		[Row/Column Number] indicates the pin row/column number. If [End] is T(top) or B(bottom), the pin indicates the column number of the corresponding CFU. If [End] is L(left) or R(right), the pin indicates the row number of the corresponding CFU.
		[A/B] indicates differential signal pair information.
Multi-Function Pins		
IO[End][Row/Column Number][A/B]/MMM		/MMM represents one or more of the other functions in addition to being general purpose user I/O. When these functions are not in use, these pins can be used as user I/O.
D0	I/O	Data port D0 in CPU mode
D1	I/O	Data port D1 in CPU mode
D2	I/O	Data port D2 in CPU mode
D3	I/O	Data port D3 in CPU mode
D4	I/O	Data port D4 in CPU mode
D5	I/O	Data port D5 in CPU mode
D6	I/O	Data port D6 in CPU mode
D7	I/O	Data port D7 in CPU mode
WE_N	I	Select data input/output of D[7:0] in CPU mode.0: Write;1: Read.
DOUT	O	Data output in SERIAL mode
DIN	I, internal weak pull-up	Data input in SERIAL mode
TMS	I, internal weak pull-up	Serial mode input in JTAG mode
TCK	I	Serial clock input in JTAG mode
TDO	O	Serial data output in JTAG mode
TDI	I, internal weak pull-up	Serial data input in JTAG mode
JTAGSEL_N	I, internal weak pull-up	Reconfigure JTAG download function signal
RECONFIG_N	I, internal weak pull-up	Global reset GowinCONFIG logic signal, active low
FASTRD_N	I	Access SPI FLASH to select signal. Low, Fast Read mode; High, Read mode.
DONE ^[1]	O	High, the programming configuration has been completed successfully; Low, the programming configuration has not been completed or failed.
	I	When the DONE signal is low, delay the chip to activate. Activate the chip until the DONE signal is high.
READY ^[1]	I/O	High, the device can be programmed and configured currently; Low, the device cannot be programmed and configured currently.
MI	I	MI in MSPI mode
MO	O	MO in MSPI mode

Pin Name	I/O	Description
MCS_N	O	Enable signal MCS_N in MSPI mode, active-low
MCLK	O	Clock output MCLK in MSPI mode, with default frequency of 2.5Mhz
SCLK	I	Clock input in SSPI, SERIAL, and CPU modes
SO	O	SO in SSPI mode
SI	I/O	SI in SSPI mode
SSPI_CS_N	I/O	Enable signal SSPI_CS_N in SSPI mode, active-low, and internal weak pull-up
CLKHOLD_N	I, internal weak pull-up	Active-high in SSPI mode; Active-low in CPU mode.
GCLKC_[x]	I	Differential input pin of GCLKT_[x], C(Comp), [x]: global clock No. ^[2]
GCLKT_[x]	I	Global clock input pin, T(True), [x]: global clock No.
LPLL_C_fb/RPLL_C_fb	I	Left/Right PLL feedback input pin, C(Comp)
LPLL_T_fb/RPLL_T_fb	I	Left/Right PLL feedback input pin, T(True)
LPLL_C_in/RPLL_C_in	I	Left/Right PLL clock input pin, C(Comp)
LPLL_T_in/RPLL_T_in	I	Left/Right PLL clock input pin, T(True)
MODE2	I, internal weak pull-up	GowinCONFIG modes selection pin; if this pin is marked as "VCCIO", it's internally powered; if this pin is marked as "GND", it's internally grounded.
MODE1	I, internal weak pull-up	GowinCONFIG modes selection pin; if this pin is marked as "VCCIO", it's internally powered; if this pin is marked as "GND", it's internally grounded.
MODE0	I, internal weak pull-up	GowinCONFIG modes selection pin; if this pin is marked as "VCCIO", it's internally powered; if this pin is marked as "GND", it's internally grounded.
Other Pins		
EXTR	NA	External 10K 1% resistor to ground
NC	NA	Reserved
VSS	NA	Ground
VCC	NA	Power supply pin of core voltage
VCCIO#	NA	Power supply pin of I/O voltage for I/O BANK#
VCCX	NA	Power supply pin of auxiliary voltage
VCCPLL0/1	NA	Left PLL0/1 voltage supply pin, LQFP is separately packaged.
VCCPLLR0/1	NA	Right PLL0/1 voltage supply pin, LQFP is separately packaged.
VCCPLLL	NA	Package PBGA: Left PLL0/1 voltage supply pin
VCCPLLR	NA	Package PBGA: Right PLL0/1 voltage supply pin
Note!		
[1] The default state of READY/DONE is open-drain output, internal weak pull-up. DONE outputs 0 during configuration.		
[2] When the input is single-ended, GCLKC_[x] pin is not a global clock pin.		



Note!

[1] Each Bank has independent reference voltage (VREF).

[2] You can select to use IOB internal VREF (equals to 0.5 X VCCIO).

[3] You can also select to use external VREF input (use any IO pins as external VREF input).

Note!

[1] It is embedded with SDRAM.

[2] It is embedded with PSRAM.

[3] "Tie to VSS by 10K Resistor" indicates the pin is connected to the ground with 10K resistance.

[4] The pin is internally grounded.

Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
EXTR	Ground		N/A				47	75	91	47	75	75	47
IOB12A	I/O	DQ5	5		True_of_IOB12B	TRUE		44	53		44	44	
IOB12B	I/O	DQ5	5		Comp_of_IOB12A	TRUE		45	54		45	45	
IOB13A	I/O	DQ5	5		True_of_IOB13B	NONE							
IOB13B	I/O	DQ5	5		Comp_of_IOB13A	NONE							
IOB14A	I/O	DQ5	5		True_of_IOB14B	TRUE	29	46	55	29	46	46	29
IOB14B	I/O	DQ5	5		Comp_of_IOB14A	TRUE	30	47	56	30	47	47	30
IOB15A	I/O	DQ5	5		True_of_IOB15B	NONE							
IOB15B	I/O	DQ5	5		Comp_of_IOB15A	NONE							
IOB16A	I/O	DQ5	5		True_of_IOB16B	TRUE							
IOB16B	I/O	DQ5	5		Comp_of_IOB16A	TRUE							
IOB17A	I/O	DQ5	5		True_of_IOB17B	NONE		48	57		48	48	
IOB17B	I/O	DQ5	5		Comp_of_IOB17A	NONE		49	58		49	49	
IOB18A	I/O	DQ5	5		True_of_IOB18B	TRUE	31		59	31			31
IOB18B	I/O	DQ5	5		Comp_of_IOB18A	TRUE	32		60	32			32
IOB19A	I/O	DQ5	5		True_of_IOB19B	NONE							
IOB19B	I/O	DQ5	5		Comp_of_IOB19A	NONE							
IOB20A	I/O	DQ5	5		True_of_IOB20B	TRUE		50			50	50	
IOB20B	I/O	DQ5	5		Comp_of_IOB20A	TRUE		51			51	51	
IOB21A	I/O	DQS5	5		True_of_IOB21B	NONE			61				
IOB21B	I/O	DQS5	5		Comp_of_IOB21A	NONE			62				
IOB22A	I/O	DQ5	5		True_of_IOB22B	TRUE		52			52	52	
IOB22B	I/O	DQ5	5		Comp_of_IOB22A	TRUE		54			54	54	
IOB23A	I/O	DQ5	5		True_of_IOB23B	NONE							
IOB23B	I/O	DQ5	5		Comp_of_IOB23A	NONE							
IOB24A	I/O	DQ5	5		True_of_IOB24B	TRUE	33			33			33
IOB24B	I/O	DQ5	5		Comp_of_IOB24A	TRUE	34			34			34
IOB25A	I/O	DQ5	5		True_of_IOB25B	NONE							
IOB25B	I/O	DQ5	5		Comp_of_IOB25A	NONE							
IOB26A	I/O	DQ5	5		True_of_IOB26B	TRUE							
IOB26B	I/O	DQ5	5		Comp_of_IOB26A	TRUE							
IOB27A/GCLKT_5	I/O	DQ5	5	GCLKT_5	True_of_IOB27B	NONE			63				
IOB27B/GCLKC_5	I/O	DQ5	5	GCLKC_5	Comp_of_IOB27A	NONE			64				

Note!
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Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
IOB2A	I/O	DQ4	5		True_of_IOB2B	TRUE							
IOB2B	I/O	DQ4	5		Comp_of_IOB2A	TRUE							
IOB30A/GCLKT_4	I/O	DQ6	4	GCLKT_4	True_of_IOB30B	TRUE	35	56	68	35	56	56	35
IOB30B/GCLKC_4	I/O	DQ6	4	GCLKC_4	Comp_of_IOB30A	TRUE	36	57	69	36	57	57	36
IOB31A	I/O	DQ6	4		True_of_IOB31B	NONE							
IOB31B	I/O	DQ6	4		Comp_of_IOB31A	NONE							
IOB32A	I/O	DQ6	4		True_of_IOB32B	TRUE							
IOB32B	I/O	DQ6	4		Comp_of_IOB32A	TRUE							
IOB33A	I/O	DQ6	4		True_of_IOB33B	NONE		58			58	58	
IOB33B	I/O	DQ6	4		Comp_of_IOB33A	NONE		59			59	59	
IOB34A	I/O	DQ6	4		True_of_IOB34B	TRUE	37	60	70	37	60	60	37
IOB34B	I/O	DQ6	4		Comp_of_IOB34A	TRUE	38	61	71	38	61	61	38
IOB35A	I/O	DQ6	4		True_of_IOB35B	NONE							
IOB35B	I/O	DQ6	4		Comp_of_IOB35A	NONE							
IOB36A	I/O	DQ6	4		True_of_IOB36B	TRUE							
IOB36B	I/O	DQ6	4		Comp_of_IOB36A	TRUE							
IOB37A	I/O	DQS6	4		True_of_IOB37B	NONE			72				
IOB37B	I/O	DQS6	4		Comp_of_IOB37A	NONE			73				
IOB38A	I/O	DQ6	4		True_of_IOB38B	TRUE		62	74		62	62	
IOB38B	I/O	DQ6	4		Comp_of_IOB38A	TRUE		63	75		63	63	
IOB39A	I/O	DQ6	4		True_of_IOB39B	NONE							
IOB39B	I/O	DQ6	4		Comp_of_IOB39A	NONE							
IOB3A	I/O	DQ4	5		True_of_IOB3B	NONE							
IOB3B	I/O	DQ4	5		Comp_of_IOB3A	NONE							
IOB40A	I/O	DQ6	4		True_of_IOB40B	TRUE	39	64	76	39	64	64	39
IOB40B	I/O	DQ6	4		Comp_of_IOB40A	TRUE	40	65	77	40	65	65	40
IOB41A	I/O	DQ6	4		True_of_IOB41B	NONE							
IOB41B	I/O	DQ6	4		Comp_of_IOB41A	NONE							
IOB42A	I/O	DQ6	4		True_of_IOB42B	TRUE		66	78		66	66	
IOB42B	I/O	DQ6	4		Comp_of_IOB42A	TRUE	42	67	79	42	67	67	42
IOB43A	I/O	DQ6	4		True_of_IOB43B	NONE	41			41			41
IOB43B	I/O	DQ6	4		Comp_of_IOB43A	NONE							
IOB44A	I/O	DQ6	4		True_of_IOB44B	TRUE			80				

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Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
IOB44B	I/O	DQ6	4		Comp_of_IOB44A	TRUE			81				
IOB45A	I/O	DQ6	4		True_of_IOB45B	NONE							
IOB45B	I/O	DQ6	4		Comp_of_IOB45A	NONE							
IOB48A	I/O	DQS7	4		True_of_IOB48B	TRUE		68	82		68	68	
IOB48B	I/O	DQS7	4		Comp_of_IOB48A	TRUE		69	83		69	69	
IOB49A	I/O	DQ7	4		True_of_IOB49B	NONE							
IOB49B	I/O	DQ7	4		Comp_of_IOB49A	NONE							
IOB4A	I/O	DQ4	5		True_of_IOB4B	TRUE							
IOB4B	I/O	DQ4	5		Comp_of_IOB4A	TRUE			47				
IOB50A	I/O	DQ7	4		True_of_IOB50B	TRUE			84				
IOB50B	I/O	DQ7	4		Comp_of_IOB50A	TRUE			85				
IOB51A	I/O	DQ7	4		True_of_IOB51B	NONE							
IOB51B	I/O	DQ7	4		Comp_of_IOB51A	NONE							
IOB52A	I/O	DQ7	4		True_of_IOB52B	TRUE			86				
IOB52B	I/O	DQ7	4		Comp_of_IOB52A	TRUE							
IOB53A	I/O	DQ7	4		True_of_IOB53B	NONE		70			70	70	
IOB53B	I/O	DQ7	4		Comp_of_IOB53A	NONE		71			71	71	
IOB54A	I/O	DQ7	4		True_of_IOB54B	TRUE							
IOB54B	I/O	DQ7	4		Comp_of_IOB54A	TRUE							
IOB55A	I/O	DQ7	4		True_of_IOB55B	NONE							
IOB55B	I/O	DQ7	4		Comp_of_IOB55A	NONE		72			72	72	
IOB5A	I/O	DQ4	5		True_of_IOB5B	NONE		38	48		38	38	
IOB5B	I/O	DQ4	5		Comp_of_IOB5A	NONE		39			39	39	
IOB6A	I/O	DQ4	5		True_of_IOB6B	TRUE	25	40	49	25	40	40	25
IOB6B	I/O	DQ4	5		Comp_of_IOB6A	TRUE	26	41	50	26	41	41	26
IOB7A	I/O	DQ4	5		True_of_IOB7B	NONE		42			42	42	
IOB7B	I/O	DQ4	5		Comp_of_IOB7A	NONE		43			43	43	
IOB8A	I/O	DQ4	5		True_of_IOB8B	TRUE	27		51	27			27
IOB8B	I/O	DQ4	5		Comp_of_IOB8A	TRUE	28		52	28			28
IOB9A	I/O	DQS4	5		True_of_IOB9B	NONE							
IOB9B	I/O	DQS4	5		Comp_of_IOB9A	NONE							
IOL11A	I/O	DQ1	7		True_of_IOL11B	TRUE			6				
IOL11B	I/O	DQ1	7		Comp_of_IOL11A	TRUE							

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Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
IOL12A	I/O	DQ1	7		True_of_IOL12B	NONE							
IOL12B	I/O	DQ1	7		Comp_of_IOL12A	NONE							
IOL13A	I/O	DQ1	7		True_of_IOL13B	TRUE							
IOL13B	I/O	DQ1	7		Comp_of_IOL13A	TRUE							
IOL14A	I/O	DQ1	7		True_of_IOL14B	NONE							
IOL14B	I/O	DQ1	7		Comp_of_IOL14A	NONE			7				
IOL15A	I/O	DQ1	7		True_of_IOL15B	TRUE			8				
IOL15B	I/O	DQ1	7		Comp_of_IOL15A	TRUE			9				
IOL16A	I/O	DQ1	7		True_of_IOL16B	NONE							
IOL16B	I/O	DQ1	7		Comp_of_IOL16A	NONE							
IOL17A	I/O	DQ1	7		True_of_IOL17B	TRUE			10				
IOL17B	I/O	DQ1	7		Comp_of_IOL17A	TRUE			11				
IOL18A	I/O	DQ1	7		True_of_IOL18B	NONE			12				
IOL18B	I/O	DQ1	7		Comp_of_IOL18A	NONE							
IOL20A	I/O	DQ1	7		True_of_IOL20B	TRUE							
IOL20B	I/O	DQ1	7		Comp_of_IOL20A	TRUE							
IOL21A	I/O	DQ1	7		True_of_IOL21B	NONE							
IOL21B	I/O	DQ1	7		Comp_of_IOL21A	NONE							
IOL22A	I/O	DQS1	7		True_of_IOL22B	TRUE		9			9	9	
IOL22B	I/O	DQS1	7		Comp_of_IOL22A	TRUE		10			10	10	
IOL23A	I/O	DQ1	7		True_of_IOL23B	NONE			14				
IOL23B	I/O	DQ1	7		Comp_of_IOL23A	NONE							
IOL24A	I/O	DQ1	7		True_of_IOL24B	TRUE			15				
IOL24B	I/O	DQ1	7		Comp_of_IOL24A	TRUE			16				
IOL25A	I/O	DQ1	7		True_of_IOL25B	NONE							
IOL25B	I/O	DQ1	7		Comp_of_IOL25A	NONE			18				
IOL26A	I/O	DQ1	7		True_of_IOL26B	TRUE			17				
IOL26B	I/O	DQ1	7		Comp_of_IOL26A	TRUE			19				
IOL27A/GCLKT_7	I/O	DQ1	7	GCLKT_7	True_of_IOL27B	NONE		11	20		11	11	
IOL27B/GCLKC_7	I/O	DQ1	7	GCLKC_7	Comp_of_IOL27A	NONE		12	21		12	12	
IOL29A/GCLKT_6	I/O	DQ2	6	GCLKT_6	True_of_IOL29B	TRUE	10	25		10	25	25	10
IOL29B/GCLKC_6	I/O	DQ2	6	GCLKC_6	Comp_of_IOL29A	TRUE	11	26		11	26	26	11
IOL2A	I/O	DQ0	7		True_of_IOL2B	TRUE		3	3		3	3	

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Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
IOL2B	I/O	DQ0	7		Comp_of_IOL2A	TRUE		4	4		4	4	
IOL30A	I/O	DQ2	6		True_of_IOL30B	NONE							
IOL30B	I/O	DQ2	6		Comp_of_IOL30A	NONE							
IOL31A	I/O	DQ2	6		True_of_IOL31B	TRUE							
IOL31B	I/O	DQ2	6		Comp_of_IOL31A	TRUE							
IOL32A	I/O	DQ2	6		True_of_IOL32B	NONE		23			23	23	
IOL32B	I/O	DQ2	6		Comp_of_IOL32A	NONE		24			24	24	
IOL33A	I/O	DQ2	6		True_of_IOL33B	TRUE		27			27	27	
IOL33B	I/O	DQ2	6		Comp_of_IOL33A	TRUE		28			28	28	
IOL34A	I/O	DQ2	6		True_of_IOL34B	NONE							
IOL34B	I/O	DQ2	6		Comp_of_IOL34A	NONE							
IOL35A	I/O	DQ2	6		True_of_IOL35B	TRUE							
IOL35B	I/O	DQ2	6		Comp_of_IOL35A	TRUE							
IOL36A	I/O	DQS2	6		True_of_IOL36B	NONE		29			29	29	
IOL36B	I/O	DQS2	6		Comp_of_IOL36A	NONE		30			30	30	
IOL38A	I/O	DQ2	6		True_of_IOL38B	TRUE			24				
IOL38B	I/O	DQ2	6		Comp_of_IOL38A	TRUE			25				
IOL39A	I/O	DQ2	6		True_of_IOL39B	NONE							
IOL39B	I/O	DQ2	6		Comp_of_IOL39A	NONE							
IOL3A	I/O	DQ0	7		True_of_IOL3B	NONE							
IOL3B	I/O	DQ0	7		Comp_of_IOL3A	NONE							
IOL40A	I/O	DQ2	6		True_of_IOL40B	TRUE			26				
IOL40B	I/O	DQ2	6		Comp_of_IOL40A	TRUE			27				
IOL41A	I/O	DQ2	6		True_of_IOL41B	NONE							
IOL41B	I/O	DQ2	6		Comp_of_IOL41A	NONE							
IOL42A	I/O	DQ2	6		True_of_IOL42B	TRUE		32	28		32	32	
IOL42B	I/O	DQ2	6		Comp_of_IOL42A	TRUE		33	29		33	33	
IOL43A	I/O	DQ2	6		True_of_IOL43B	NONE							
IOL43B	I/O	DQ2	6		Comp_of_IOL43A	NONE							
IOL44A	I/O	DQ2	6		True_of_IOL44B	TRUE			30				
IOL44B	I/O	DQ2	6		Comp_of_IOL44A	TRUE			31				
IOL45A/LPLL2_T_in	I/O	DQ2	6	LPLL2_T_in	True_of_IOL45B	NONE	13	34	32	13	34	34	13
IOL45B/LPLL2_C_in	I/O	DQ2	6	LPLL2_C_in	Comp_of_IOL45A	NONE		35	33		35	35	

Note!
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Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
IOL47A/LPLL2_T_fb	I/O	DQ3	6	LPLL2_T_fb	True_of_IOL47B	TRUE	15		35	15			15
IOL47B/LPLL2_C_fb	I/O	DQ3	6	LPLL2_C_fb	Comp_of_IOL47A	TRUE	16		36	16			16
IOL48A	I/O	DQ3	6		True_of_IOL48B	NONE							
IOL48B	I/O	DQ3	6		Comp_of_IOL48A	NONE							
IOL49A	I/O	DQ3	6		True_of_IOL49B	TRUE	17		37	17			17
IOL49B	I/O	DQ3	6		Comp_of_IOL49A	TRUE	18			18			18
IOL4A	I/O	DQ0	7		True_of_IOL4B	TRUE							
IOL4B	I/O	DQ0	7		Comp_of_IOL4A	TRUE							
IOL50A	I/O	DQS3	6		True_of_IOL50B	NONE			38				
IOL50B	I/O	DQS3	6		Comp_of_IOL50A	NONE			39				
IOL51A	I/O	DQ3	6		True_of_IOL51B	TRUE	19			19			19
IOL51B	I/O	DQ3	6		Comp_of_IOL51A	TRUE	20			20			20
IOL52A	I/O	DQ3	6		True_of_IOL52B	NONE							
IOL52B	I/O	DQ3	6		Comp_of_IOL52A	NONE							
IOL53A	I/O	DQ3	6		True_of_IOL53B	TRUE			41				
IOL53B	I/O	DQ3	6		Comp_of_IOL53A	TRUE			42				
IOL54A	I/O	DQ3	6		True_of_IOL54B	NONE							
IOL54B	I/O	DQ3	6		Comp_of_IOL54A	NONE							
IOL5A	I/O	DQ0	7		True_of_IOL5B	NONE							
IOL5B	I/O	DQ0	7		Comp_of_IOL5A	NONE							
IOL6A	I/O	DQS0	7		True_of_IOL6B	TRUE							
IOL6B	I/O	DQS0	7		Comp_of_IOL6A	TRUE							
IOL7A/LPLL1_T_in	I/O	DQ0	7	LPLL1_T_in	True_of_IOL7B	NONE	4	6		4	6	6	4
IOL7B/LPLL1_C_in	I/O	DQ0	7	LPLL1_C_in	Comp_of_IOL7A	NONE		7			7	7	
IOL8A/LPLL1_T_fb	I/O	DQ0	7	LPLL1_T_fb	True_of_IOL8B	TRUE							
IOL8B/LPLL1_C_fb	I/O	DQ0	7	LPLL1_C_fb	Comp_of_IOL8A	TRUE							
IOL9A	I/O	DQ0	7		True_of_IOL9B	NONE							
IOL9B	I/O	DQ0	7		Comp_of_IOL9A	NONE							
IOR11A	I/O	DQ10	2		True_of_IOR11B	TRUE							
IOR11B	I/O	DQ10	2		Comp_of_IOR11A	TRUE							
IOR12A	I/O	DQ10	2		True_of_IOR12B	NONE							
IOR12B	I/O	DQ10	2		Comp_of_IOR12A	NONE							
IOR13A	I/O	DQ10	2		True_of_IOR13B	TRUE							

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IOR13B	I/O	DQ10	2		Comp_of_IOR13A	TRUE							
IOR14A	I/O	DQ10	2		True_of_IOR14B	NONE			126				
IOR14B	I/O	DQ10	2		Comp_of_IOR14A	NONE							
IOR15A	I/O	DQ10	2		True_of_IOR15B	TRUE							
IOR15B	I/O	DQ10	2		Comp_of_IOR15A	TRUE							
IOR16A	I/O	DQ10	2		True_of_IOR16B	NONE							
IOR16B	I/O	DQ10	2		Comp_of_IOR16A	NONE							
IOR17A	I/O	DQ10	2		True_of_IOR17B	TRUE							
IOR17B	I/O	DQ10	2		Comp_of_IOR17A	TRUE							
IOR18A	I/O	DQ10	2		True_of_IOR18B	NONE							
IOR18B	I/O	DQ10	2		Comp_of_IOR18A	NONE							
IOR20A	I/O	DQ10	2		True_of_IOR20B	TRUE		102	125		102	102	
IOR20B	I/O	DQ10	2		Comp_of_IOR20A	TRUE		101	124		101	101	
IOR21A	I/O	DQ10	2		True_of_IOR21B	NONE							
IOR21B	I/O	DQ10	2		Comp_of_IOR21A	NONE							
IOR22A	I/O	DQS10	2		True_of_IOR22B	TRUE		100	123		100	100	
IOR22B	I/O	DQS10	2		Comp_of_IOR22A	TRUE		99	122		99	99	
IOR23A	I/O	DQ10	2		True_of_IOR23B	NONE							
IOR23B	I/O	DQ10	2		Comp_of_IOR23A	NONE							
IOR24A	I/O	DQ10	2		True_of_IOR24B	TRUE							
IOR24B	I/O	DQ10	2		Comp_of_IOR24A	TRUE							
IOR25A/TDO	I/O	DQ10	2	TDO	True_of_IOR25B	NONE	8	18	121	8	18	18	8
IOR25B/TMS	I/O	DQ10	2	TMS	Comp_of_IOR25A	NONE	5	13	119	5	13	13	5
IOR26A/TCK	I/O	DQ10	2	TCK	True_of_IOR26B	TRUE	6	14	120	6	14	14	6
IOR26B/TDI	I/O	DQ10	2	TDI	Comp_of_IOR26A	TRUE	7	16	117	7	16	16	7
IOR27A/GCLKT_2	I/O	DQ10	2	GCLKT_2	True_of_IOR27B	NONE		98	116		98	98	
IOR27B/GCLKC_2	I/O	DQ10	2	GCLKC_2	Comp_of_IOR27A	NONE		97			97	97	
IOR29A/GCLKT_3	I/O	DQ9	3	GCLKT_3	True_of_IOR29B	TRUE	63		114	63			63
IOR29B/GCLKC_3	I/O	DQ9	3	GCLKC_3	Comp_of_IOR29A	TRUE							
IOR2A	I/O	DQ11	2		True_of_IOR2B	TRUE							
IOR2B	I/O	DQ11	2		Comp_of_IOR2A	TRUE							
IOR30A/MODE0	I/O	DQ9	3	MODE0	True_of_IOR30B	NONE	88	144	113	88	144	144	88
IOR30B/MODE1	I/O	DQ9	3	MODE1	Comp_of_IOR30A	NONE	87	142	111	87	142	142	87

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IOR31A/MODE2	I/O	DQ9	3	MODE2	True_of_IOR31B	TRUE	GND ^[4]	143	112	GND ^[4]	143	143	GND ^[4]
IOR31B/RECONFIG_N	I/O	DQ9	3	RECONFIG_N	Comp_of_IOR31A	TRUE	9	20	108	9	20	20	9
IOR32A/READY	I/O	DQ9	3	READY	True_of_IOR32B	NONE		22	109		22	22	
IOR32B/DONE	I/O	DQ9	3	DONE	Comp_of_IOR32A	NONE		21	107		21	21	
IOR33A/MI/D7	I/O	DQ9	3	MI/D7	True_of_IOR33B	TRUE	62	96	106	62	96	96	62
IOR33B/MO/D6	I/O	DQ9	3	MO/D6	Comp_of_IOR33A	TRUE	61	95	105	61	95	95	61
IOR34A/MCS_N/D5	I/O	DQ9	3	MCS_N/D5	True_of_IOR34B	NONE	60	94	104	60	94	94	60
IOR34B/MCLK/D4	I/O	DQ9	3	MCLK/D4	Comp_of_IOR34A	NONE	59	93	103	59	93	93	59
IOR35A/FASTRD_N/D3	I/O	DQ9	3	FASTRD_N/D3	True_of_IOR35B	TRUE	57	92	102	57	92	92	57
IOR35B/SI/D2	I/O	DQ9	3	SI/D2	Comp_of_IOR35A	TRUE		90	101		90	90	
IOR36A/SO/D1	I/O	DQS9	3	SO/D1	True_of_IOR36B	NONE	56	88	100	56	88	88	56
IOR36B/SSPI_CS_N/D0	I/O	DQS9	3	SSPI_CS_N/D0	Comp_of_IOR36A	NONE	55	87	99	55	87	87	55
IOR38A/DIN/CLKHOLD_N	I/O	DQ9	3	DIN/CLKHOLD_N	True_of_IOR38B	TRUE	54	86	98	54	86	86	54
IOR38B/DOUT/WE_N	I/O	DQ9	3	DOUT/WE_N	Comp_of_IOR38A	TRUE	53	85	97	53	85	85	53
IOR39A/SCLK	I/O	DQ9	3	SCLK	True_of_IOR39B	NONE	52	15	96	52	15	15	52
IOR39B	I/O	DQ9	3		Comp_of_IOR39A	NONE							
IOR3A	I/O	DQ11	2		True_of_IOR3B	NONE							
IOR3B	I/O	DQ11	2		Comp_of_IOR3A	NONE							
IOR40A	I/O	DQ9	3		True_of_IOR40B	TRUE							
IOR40B	I/O	DQ9	3		Comp_of_IOR40A	TRUE							
IOR41A	I/O	DQ9	3		True_of_IOR41B	NONE							
IOR41B	I/O	DQ9	3		Comp_of_IOR41A	NONE							
IOR42A	I/O	DQ9	3		True_of_IOR42B	TRUE		84			84	84	
IOR42B	I/O	DQ9	3		Comp_of_IOR42A	TRUE		83			83	83	
IOR43A	I/O	DQ9	3		True_of_IOR43B	NONE							
IOR43B	I/O	DQ9	3		Comp_of_IOR43A	NONE							
IOR44A	I/O	DQ9	3		True_of_IOR44B	TRUE							
IOR44B	I/O	DQ9	3		Comp_of_IOR44A	TRUE							
IOR45A/RPLL2_T_in	I/O	DQ9	3	RPLL2_T_in	True_of_IOR45B	NONE	51	82	93	51	82	82	51
IOR45B/RPLL2_C_in	I/O	DQ9	3	RPLL2_C_in	Comp_of_IOR45A	NONE							

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IOR47A/RPLL2_T_fb	I/O	DQ8	3	RPLL2_T_fb	True_of_IOR47B	TRUE			92				
IOR47B/RPLL2_C_fb	I/O	DQ8	3	RPLL2_C_fb	Comp_of_IOR47A	TRUE							
IOR48A	I/O	DQ8	3		True_of_IOR48B	NONE							
IOR48B	I/O	DQ8	3		Comp_of_IOR48A	NONE							
IOR49A	I/O	DQ8	3		True_of_IOR49B	TRUE	49	80		49	80	80	49
IOR49B	I/O	DQ8	3		Comp_of_IOR49A	TRUE	48	79		48	79	79	48
IOR4A	I/O	DQ11	2		True_of_IOR4B	TRUE							
IOR4B	I/O	DQ11	2		Comp_of_IOR4A	TRUE							
IOR50A	I/O	DQS8	3		True_of_IOR50B	NONE		78			78	78	
IOR50B	I/O	DQS8	3		Comp_of_IOR50A	NONE		76			76	76	
IOR51A	I/O	DQ8	3		True_of_IOR51B	TRUE							
IOR51B	I/O	DQ8	3		Comp_of_IOR51A	TRUE							
IOR52A	I/O	DQ8	3		True_of_IOR52B	NONE							
IOR52B	I/O	DQ8	3		Comp_of_IOR52A	NONE							
IOR53A	I/O	DQ8	3		True_of_IOR53B	TRUE							
IOR53B	I/O	DQ8	3		Comp_of_IOR53A	TRUE							
IOR54A	I/O	DQ8	3		True_of_IOR54B	NONE							
IOR54B	I/O	DQ8	3		Comp_of_IOR54A	NONE							
IOR5A	I/O	DQ11	2		True_of_IOR5B	NONE							
IOR5B	I/O	DQ11	2		Comp_of_IOR5A	NONE							
IOR6A	I/O	DQS11	2		True_of_IOR6B	TRUE							
IOR6B	I/O	DQS11	2		Comp_of_IOR6A	TRUE							
IOR7A/RPLL1_T_in	I/O	DQ11	2	RPLL1_T_in	True_of_IOR7B	NONE		106	129		106	106	
IOR7B/RPLL1_C_in	I/O	DQ11	2	RPLL1_C_in	Comp_of_IOR7A	NONE		105	128		105	105	
IOR8A/RPLL1_T_fb	I/O	DQ11	2	RPLL1_T_fb	True_of_IOR8B	TRUE							
IOR8B/RPLL1_C_fb	I/O	DQ11	2	RPLL1_C_fb	Comp_of_IOR8A	TRUE							
IOR9A	I/O	DQ11	2		True_of_IOR9B	NONE							
IOR9B	I/O	DQ11	2		Comp_of_IOR9A	NONE							
IOT12A	I/O	DQ14	0		True_of_IOT12B	TRUE		134	169		134	134	
IOT12B	I/O	DQ14	0		Comp_of_IOT12A	TRUE		133	168		133	133	
IOT13A	I/O	DQ14	0		True_of_IOT13B	NONE							
IOT13B	I/O	DQ14	0		Comp_of_IOT13A	NONE							
IOT14A	I/O	DQ14	0		True_of_IOT14B	TRUE		132	167		132	132	

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IOT14B	I/O	DQ14	0		Comp_of_IOT14A	TRUE		131	166		131	131	
IOT15A	I/O	DQ14	0		True_of_IOT15B	NONE							
IOT15B	I/O	DQ14	0		Comp_of_IOT15A	NONE							
IOT16A	I/O	DQ14	0		True_of_IOT16B	TRUE			165				
IOT16B	I/O	DQ14	0		Comp_of_IOT16A	TRUE			164				
IOT17A	I/O	DQ14	0		True_of_IOT17B	NONE	82	130		82	130	130	82
IOT17B	I/O	DQ14	0		Comp_of_IOT17A	NONE	81	129		81	129	129	81
IOT18A	I/O	DQ14	0		True_of_IOT18B	TRUE			163				
IOT18B	I/O	DQ14	0		Comp_of_IOT18A	TRUE			162				
IOT19A	I/O	DQ14	0		True_of_IOT19B	NONE		128			128	128	
IOT19B	I/O	DQ14	0		Comp_of_IOT19A	NONE							
IOT20A	I/O	DQ14	0		True_of_IOT20B	TRUE							
IOT20B	I/O	DQ14	0		Comp_of_IOT20A	TRUE							
IOT21A	I/O	DQS14	0		True_of_IOT21B	NONE			161				
IOT21B	I/O	DQS14	0		Comp_of_IOT21A	NONE			160				
IOT22A	I/O	DQ14	0		True_of_IOT22B	TRUE		125			125	125	
IOT22B	I/O	DQ14	0		Comp_of_IOT22A	TRUE							
IOT23A	I/O	DQ14	0		True_of_IOT23B	NONE		126			126	126	
IOT23B	I/O	DQ14	0		Comp_of_IOT23A	NONE		124			124	124	
IOT24A	I/O	DQ14	0		True_of_IOT24B	TRUE			159				
IOT24B	I/O	DQ14	0		Comp_of_IOT24A	TRUE			158				
IOT25A	I/O	DQ14	0		True_of_IOT25B	NONE							
IOT25B	I/O	DQ14	0		Comp_of_IOT25A	NONE							
IOT26A	I/O	DQ14	0		True_of_IOT26B	TRUE							
IOT26B	I/O	DQ14	0		Comp_of_IOT26A	TRUE							
IOT27A/GCLKT_0	I/O	DQ14	0	GCLKT_0	True_of_IOT27B	NONE	80	123	157	80	123	123	80
IOT27B/GCLKC_0	I/O	DQ14	0	GCLKC_0	Comp_of_IOT27A	NONE	79	122	156	79	122	122	79
IOT2A	I/O	DQ15	0		True_of_IOT2B	TRUE							
IOT2B	I/O	DQ15	0		Comp_of_IOT2A	TRUE		141			141	141	
IOT30A/GCLKT_1	I/O	DQ13	1	GCLKT_1	True_of_IOT30B	TRUE	77	121	152	77	121	121	77
IOT30B/GCLKC_1	I/O	DQ13	1	GCLKC_1	Comp_of_IOT30A	TRUE	76	120	151	76	120	120	76
IOT31A	I/O	DQ13	1		True_of_IOT31B	NONE							
IOT31B	I/O	DQ13	1		Comp_of_IOT31A	NONE							

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IOT32A	I/O	DQ13	1		True_of_IOT32B	TRUE							
IOT32B	I/O	DQ13	1		Comp_of_IOT32A	TRUE							
IOT33A	I/O	DQ13	1		True_of_IOT33B	NONE							
IOT33B	I/O	DQ13	1		Comp_of_IOT33A	NONE							
IOT34A	I/O	DQ13	1		True_of_IOT34B	TRUE	75			75			75
IOT34B	I/O	DQ13	1		Comp_of_IOT34A	TRUE	74			74			74
IOT35A	I/O	DQ13	1		True_of_IOT35B	NONE							
IOT35B	I/O	DQ13	1		Comp_of_IOT35A	NONE							
IOT36A	I/O	DQ13	1		True_of_IOT36B	TRUE							
IOT36B	I/O	DQ13	1		Comp_of_IOT36A	TRUE							
IOT37A	I/O	DQS13	1		True_of_IOT37B	NONE			150				
IOT37B	I/O	DQS13	1		Comp_of_IOT37A	NONE			149				
IOT38A	I/O	DQ13	1		True_of_IOT38B	TRUE		119	148		119	119	
IOT38B	I/O	DQ13	1		Comp_of_IOT38A	TRUE		118	147		118	118	
IOT39A	I/O	DQ13	1		True_of_IOT39B	NONE							
IOT39B	I/O	DQ13	1		Comp_of_IOT39A	NONE							
IOT3A	I/O	DQ15	0		True_of_IOT3B	NONE							
IOT3B	I/O	DQ15	0		Comp_of_IOT3A	NONE							
IOT40A	I/O	DQ13	1		True_of_IOT40B	TRUE	73	117	146	73	117	117	73
IOT40B	I/O	DQ13	1		Comp_of_IOT40A	TRUE	72	116	145	72	116	116	72
IOT41A	I/O	DQ13	1		True_of_IOT41B	NONE							
IOT41B	I/O	DQ13	1		Comp_of_IOT41A	NONE							
IOT42A	I/O	DQ13	1		True_of_IOT42B	TRUE		115	144		115	115	
IOT42B	I/O	DQ13	1		Comp_of_IOT42A	TRUE		114	143		114	114	
IOT43A	I/O	DQ13	1		True_of_IOT43B	NONE							
IOT43B	I/O	DQ13	1		Comp_of_IOT43A	NONE							
IOT44A	I/O	DQ13	1		True_of_IOT44B	TRUE	71		142	71			71
IOT44B	I/O	DQ13	1		Comp_of_IOT44A	TRUE	70		141	70			70
IOT45A	I/O	DQ13	1		True_of_IOT45B	NONE							
IOT45B	I/O	DQ13	1		Comp_of_IOT45A	NONE							
IOT48A	I/O	DQS12	1		True_of_IOT48B	TRUE		113	140		113	113	
IOT48B	I/O	DQS12	1		Comp_of_IOT48A	TRUE		112	139		112	112	
IOT49A	I/O	DQ12	1		True_of_IOT49B	NONE							

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IOT49B	I/O	DQ12	1		Comp_of_IOT49A	NONE							
IOT4A	I/O	DQ15	0		True_of_IOT4B	TRUE	86	140		86	140	140	86
IOT4B	I/O	DQ15	0		Comp_of_IOT4A	TRUE	85	139	174	85	139	139	85
IOT50A	I/O	DQ12	1		True_of_IOT50B	TRUE	69	111	138	69	111	111	69
IOT50B	I/O	DQ12	1		Comp_of_IOT50A	TRUE		110	137		110	110	
IOT51A	I/O	DQ12	1		True_of_IOT51B	NONE							
IOT51B	I/O	DQ12	1		Comp_of_IOT51A	NONE							
IOT52A	I/O	DQ12	1		True_of_IOT52B	TRUE			136				
IOT52B	I/O	DQ12	1		Comp_of_IOT52A	TRUE			135				
IOT53A	I/O	DQ12	1		True_of_IOT53B	NONE							
IOT53B	I/O	DQ12	1		Comp_of_IOT53A	NONE							
IOT54A	I/O	DQ12	1		True_of_IOT54B	TRUE							
IOT54B	I/O	DQ12	1		Comp_of_IOT54A	TRUE							
IOT55A	I/O	DQ12	1		True_of_IOT55B	NONE							
IOT55B/JTAGSEL_N	I/O	DQ12	1	JTAGSEL_N	Comp_of_IOT55A	NONE							
IOT5A	I/O	DQ15	0		True_of_IOT5B	NONE							
IOT5B	I/O	DQ15	0		Comp_of_IOT5A	NONE							
IOT6A	I/O	DQ15	0		True_of_IOT6B	TRUE	84	138	173	84	138	138	84
IOT6B	I/O	DQ15	0		Comp_of_IOT6A	TRUE	83	137	172	83	137	137	83
IOT7A	I/O	DQ15	0		True_of_IOT7B	NONE		136			136	136	
IOT7B	I/O	DQ15	0		Comp_of_IOT7A	NONE		135			135	135	
IOT8A	I/O	DQ15	0		True_of_IOT8B	TRUE							
IOT8B	I/O	DQ15	0		Comp_of_IOT8A	TRUE							
IOT9A	I/O	DQS15	0		True_of_IOT9B	NONE			171				
IOT9B	I/O	DQS15	0		Comp_of_IOT9A	NONE			170				
VCC	Power		N/A				1			1			1
VCC	Power		N/A				22		44	22			22
VCC	Power		N/A				45		89	45			45
VCC	Power		N/A				66		132	66			66
VCC	Power		N/A						1				
VCC	Power		N/A										
VCC/VCCPLL1	Power		N/A					1					
VCC/VCCPLL1	Power		N/A					36					

Note!
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Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
VCC/VCCPLL1	Power		N/A					73					
VCC/VCCPLL1	Power		N/A					108					
VCC/VCCPLL1	Power		N/A								1	1	
VCC/VCCPLL1	Power		N/A								36	36	
VCC/VCCPLL1	Power		N/A								73	73	
VCC/VCCPLL1	Power		N/A								108	108	
VCCIO0	Power		N/A				78		155	78			78
VCCIO0	Power		N/A					127			127	127	
VCCIO0	Power		N/A						176				
VCCIO1	Power		N/A				67	109	133		109	109	
VCCIO1	Power		N/A						153				
VCCIO2	Power		N/A									103	64
VCCIO2/VCCIO3/VCCIO6/VCCIO7	Power		N/A						5				
VCCIO2/VCCIO3/VCCIO6/VCCIO7	Power		N/A						13				
VCCIO2/VCCIO3/VCCIO6/VCCIO7	Power		N/A						22				
VCCIO2/VCCIO3/VCCIO6/VCCIO7	Power		N/A						40				
VCCIO2/VCCIO3/VCCIO6/VCCIO7	Power		N/A						95				
VCCIO2/VCCIO3/VCCIO6/VCCIO7	Power		N/A						110				
VCCIO2/VCCIO3/VCCIO6/VCCIO7	Power		N/A						118				
VCCIO2/VCCIO3/VCCIO6/VCCIO7	Power		N/A						130				
VCCIO2/VCCIO7	Power		N/A								5		
VCCIO2/VCCIO7	Power		N/A								19		
VCCIO2/VCCIO7	Power		N/A								103		
VCCIO2/VCCIO7	Power		N/A							3			
VCCIO2/VCCIO7	Power		N/A							64			

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Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
VCCIO3	Power		N/A				58	91		58	91	91	58
VCCIO3	Power		N/A					77			77	77	
VCCIO4	Power		N/A				44		88	44			44
VCCIO4	Power		N/A					55	67				
VCCIO5	Power		N/A				23	37	45	23	37	37	23
VCCIO5	Power		N/A						65				
VCCIO7	Power		N/A									5	3
VCCIO7	Power		N/A									19	
VCCPLLL	Power		N/A										
VCCPLLL0	Power		N/A					8			8	8	
VCCPLLL1	Power		N/A				14		34	14			14
VCCPLLR	Power		N/A										
VCCPLLR0	Power		N/A					104	127		104	104	
VCCPLLR1	Power		N/A				50	81	94	50	81	81	50
VCCX	Power		N/A						23				
VCCX	Power		N/A						66				
VCCX	Power		N/A						115				
VCCX	Power		N/A						154				
VCCX/VCCIO1/VCCIO6	Power		N/A							12			12
VCCX/VCCIO1/VCCIO6	Power		N/A							67			67
VCCX/VCCIO2/ VCCIO6/VCCIO7	Power		N/A				3						
VCCX/VCCIO2/ VCCIO6/VCCIO7	Power		N/A				12						
VCCX/VCCIO2/ VCCIO6/VCCIO7	Power		N/A				64						
VCCX/VCCIO2/ VCCIO6/VCCIO7	Power		N/A					5					
VCCX/VCCIO2/ VCCIO6/VCCIO7	Power		N/A					19					
VCCX/VCCIO2/ VCCIO6/VCCIO7	Power		N/A					31					

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VCCX/VCCIO2/ VCCIO6/VCCIO7	Power		N/A					103					
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										

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Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO2/ VCCIO3/VCCIO6/ VCCIO7	Power		N/A										
VCCX/VCCIO4/VCCIO6	Power		N/A								31	31	
VCCX/VCCIO4/VCCIO6	Power		N/A								55	55	
VSS	Ground		N/A				2	2	2	2	2	2	2
VSS	Ground		N/A				21			21			21
VSS	Ground		N/A				24			24			24
VSS	Ground		N/A				43			43			43

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Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
VSS	Ground		N/A				46	74	90	46	74	74	46
VSS	Ground		N/A				65		131	65	107	107	65
VSS	Ground		N/A				68			68			68
VSS	Ground		N/A					17	134		17	17	
VSS	Ground		N/A					53	175		53	53	
VSS	Ground		N/A					89			89	89	
VSS	Ground		N/A					107					
VSS	Ground		N/A						43				
VSS	Ground		N/A						46				
VSS	Ground		N/A						87				
VSS	Ground		N/A										
VSS	Ground		N/A										
VSS	Ground		N/A										
VSS	Ground		N/A										
VSS	Ground		N/A										
VSS	Ground		N/A										
VSS	Ground		N/A										
VSS	Ground		N/A										
VSS	Ground		N/A										
VSS	Ground		N/A										
VSS	Ground		N/A										
VSS	Ground		N/A										
VSS	Ground		N/A										
VSS	Ground		N/A										
NC	N/A		N/A										

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Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
BANK7 True LVDS Pair													
IOL11A	I/O	DQ1	7		True_of_IOL11B	TRUE							
IOL11B	I/O	DQ1	7		Comp_of_IOL11A	TRUE							
IOL13A	I/O	DQ1	7		True_of_IOL13B	TRUE							
IOL13B	I/O	DQ1	7		Comp_of_IOL13A	TRUE							
IOL15A	I/O	DQ1	7		True_of_IOL15B	TRUE			8				
IOL15B	I/O	DQ1	7		Comp_of_IOL15A	TRUE			9				
IOL17A	I/O	DQ1	7		True_of_IOL17B	TRUE			10				
IOL17B	I/O	DQ1	7		Comp_of_IOL17A	TRUE			11				
IOL20A	I/O	DQ1	7		True_of_IOL20B	TRUE							
IOL20B	I/O	DQ1	7		Comp_of_IOL20A	TRUE							
IOL22A	I/O	DQS1	7		True_of_IOL22B	TRUE	9			9	9		
IOL22B	I/O	DQS1	7		Comp_of_IOL22A	TRUE	10			10	10		
IOL24A	I/O	DQ1	7		True_of_IOL24B	TRUE			15				
IOL24B	I/O	DQ1	7		Comp_of_IOL24A	TRUE			16				
IOL26A	I/O	DQ1	7		True_of_IOL26B	TRUE			17				
IOL26B	I/O	DQ1	7		Comp_of_IOL26A	TRUE			19				
IOL2A	I/O	DQ0	7		True_of_IOL2B	TRUE	3	3		3	3		
IOL2B	I/O	DQ0	7		Comp_of_IOL2A	TRUE	4	4		4	4		
IOL4A	I/O	DQ0	7		True_of_IOL4B	TRUE							
IOL4B	I/O	DQ0	7		Comp_of_IOL4A	TRUE							
IOL6A	I/O	DQS0	7		True_of_IOL6B	TRUE							
IOL6B	I/O	DQS0	7		Comp_of_IOL6A	TRUE							
IOL8A/LPLL1_T_fb	I/O	DQ0	7	LPLL1_T_fb	True_of_IOL8B	TRUE							
IOL8B/LPLL1_C_fb	I/O	DQ0	7	LPLL1_C_fb	Comp_of_IOL8A	TRUE							
BANK6 True LVDS Pair													
IOL29A/GCLKT_6	I/O	DQ2	6	GCLKT_6	True_of_IOL29B	TRUE	10	25		10	25	25	10
IOL29B/GCLKC_6	I/O	DQ2	6	GCLKC_6	Comp_of_IOL29A	TRUE	11	26		11	26	26	11
IOL31A	I/O	DQ2	6		True_of_IOL31B	TRUE							
IOL31B	I/O	DQ2	6		Comp_of_IOL31A	TRUE							
IOL33A	I/O	DQ2	6		True_of_IOL33B	TRUE		27			27	27	
IOL33B	I/O	DQ2	6		Comp_of_IOL33A	TRUE		28			28	28	
IOL35A	I/O	DQ2	6		True_of_IOL35B	TRUE							
IOL35B	I/O	DQ2	6		Comp_of_IOL35A	TRUE							

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Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
IOL38A	I/O	DQ2	6		True_of_IOL38B	TRUE			24				
IOL38B	I/O	DQ2	6		Comp_of_IOL38A	TRUE			25				
IOL40A	I/O	DQ2	6		True_of_IOL40B	TRUE			26				
IOL40B	I/O	DQ2	6		Comp_of_IOL40A	TRUE			27				
IOL42A	I/O	DQ2	6		True_of_IOL42B	TRUE		32	28		32	32	
IOL42B	I/O	DQ2	6		Comp_of_IOL42A	TRUE		33	29		33	33	
IOL44A	I/O	DQ2	6		True_of_IOL44B	TRUE			30				
IOL44B	I/O	DQ2	6		Comp_of_IOL44A	TRUE			31				
IOL47A/LPLL2_T_fb	I/O	DQ3	6	LPLL2_T_fb	True_of_IOL47B	TRUE	15		35	15			15
IOL47B/LPLL2_C_fb	I/O	DQ3	6	LPLL2_C_fb	Comp_of_IOL47A	TRUE	16		36	16			16
IOL49A	I/O	DQ3	6		True_of_IOL49B	TRUE	17			17			17
IOL49B	I/O	DQ3	6		Comp_of_IOL49A	TRUE	18			18			18
IOL51A	I/O	DQ3	6		True_of_IOL51B	TRUE	19			19			19
IOL51B	I/O	DQ3	6		Comp_of_IOL51A	TRUE	20			20			20
IOL53A	I/O	DQ3	6		True_of_IOL53B	TRUE			41				
IOL53B	I/O	DQ3	6		Comp_of_IOL53A	TRUE			42				
BANK5 True LVDS Pair													
IOB12A	I/O	DQ5	5		True_of_IOB12B	TRUE		44	53		44	44	
IOB12B	I/O	DQ5	5		Comp_of_IOB12A	TRUE		45	54		45	45	
IOB14A	I/O	DQ5	5		True_of_IOB14B	TRUE	29	46	55	29	46	46	29
IOB14B	I/O	DQ5	5		Comp_of_IOB14A	TRUE	30	47	56	30	47	47	30
IOB16A	I/O	DQ5	5		True_of_IOB16B	TRUE							
IOB16B	I/O	DQ5	5		Comp_of_IOB16A	TRUE							
IOB18A	I/O	DQ5	5		True_of_IOB18B	TRUE	31		59	31			31
IOB18B	I/O	DQ5	5		Comp_of_IOB18A	TRUE	32		60	32			32
IOB20A	I/O	DQ5	5		True_of_IOB20B	TRUE		50			50	50	
IOB20B	I/O	DQ5	5		Comp_of_IOB20A	TRUE		51			51	51	
IOB22A	I/O	DQ5	5		True_of_IOB22B	TRUE		52			52	52	
IOB22B	I/O	DQ5	5		Comp_of_IOB22A	TRUE		54			54	54	
IOB24A	I/O	DQ5	5		True_of_IOB24B	TRUE	33			33			33
IOB24B	I/O	DQ5	5		Comp_of_IOB24A	TRUE	34			34			34
IOB26A	I/O	DQ5	5		True_of_IOB26B	TRUE							
IOB26B	I/O	DQ5	5		Comp_of_IOB26A	TRUE							
IOB2A	I/O	DQ4	5		True_of_IOB2B	TRUE							

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Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
IOB2B	I/O	DQ4	5		Comp_of_IOB2A	TRUE							
IOB4A	I/O	DQ4	5		True_of_IOB4B	TRUE							
IOB4B	I/O	DQ4	5		Comp_of_IOB4A	TRUE							
IOB6A	I/O	DQ4	5		True_of_IOB6B	TRUE	25	40	49	25	40	40	25
IOB6B	I/O	DQ4	5		Comp_of_IOB6A	TRUE	26	41	50	26	41	41	26
IOB8A	I/O	DQ4	5		True_of_IOB8B	TRUE	27		51	27			27
IOB8B	I/O	DQ4	5		Comp_of_IOB8A	TRUE	28		52	28			28
BANK4 True LVDS Pair													
IOB30A/GCLKT_4	I/O	DQ6	4	GCLKT_4	True_of_IOB30B	TRUE	35	56	68	35	56	56	35
IOB30B/GCLKC_4	I/O	DQ6	4	GCLKC_4	Comp_of_IOB30A	TRUE	36	57	69	36	57	57	36
IOB32A	I/O	DQ6	4		True_of_IOB32B	TRUE							
IOB32B	I/O	DQ6	4		Comp_of_IOB32A	TRUE							
IOB34A	I/O	DQ6	4		True_of_IOB34B	TRUE	37	60	70	37	60	60	37
IOB34B	I/O	DQ6	4		Comp_of_IOB34A	TRUE	38	61	71	38	61	61	38
IOB36A	I/O	DQ6	4		True_of_IOB36B	TRUE							
IOB36B	I/O	DQ6	4		Comp_of_IOB36A	TRUE							
IOB38A	I/O	DQ6	4		True_of_IOB38B	TRUE		62	74		62	62	
IOB38B	I/O	DQ6	4		Comp_of_IOB38A	TRUE		63	75		63	63	
IOB40A	I/O	DQ6	4		True_of_IOB40B	TRUE	39	64	76	39	64	64	39
IOB40B	I/O	DQ6	4		Comp_of_IOB40A	TRUE	40	65	77	40	65	65	40
IOB42A	I/O	DQ6	4		True_of_IOB42B	TRUE		66	78		66	66	
IOB42B	I/O	DQ6	4		Comp_of_IOB42A	TRUE		67	79		67	67	
IOB44A	I/O	DQ6	4		True_of_IOB44B	TRUE			80				
IOB44B	I/O	DQ6	4		Comp_of_IOB44A	TRUE			81				
IOB48A	I/O	DQS7	4		True_of_IOB48B	TRUE		68	82		68	68	
IOB48B	I/O	DQS7	4		Comp_of_IOB48A	TRUE		69	83		69	69	
IOB50A	I/O	DQ7	4		True_of_IOB50B	TRUE			84				
IOB50B	I/O	DQ7	4		Comp_of_IOB50A	TRUE			85				
IOB52A	I/O	DQ7	4		True_of_IOB52B	TRUE							
IOB52B	I/O	DQ7	4		Comp_of_IOB52A	TRUE							
IOB54A	I/O	DQ7	4		True_of_IOB54B	TRUE							
IOB54B	I/O	DQ7	4		Comp_of_IOB54A	TRUE							

Note!													
[1] It is embedded with SDRAM.													
[2] It is embedded with PSRAM.													
Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
BANK3 True LVDS Pair													
IOR29A/GCLKT_3	I/O	DQ9	3	GCLKT_3	True_of_IOR29B	TRUE							
IOR29B/GCLKC_3	I/O	DQ9	3	GCLKC_3	Comp_of_IOR29A	TRUE							
IOR31A/MODE2	I/O	DQ9	3	MODE2	True_of_IOR31B	TRUE		143	112		143	143	
IOR31B/RECONFIG_N	I/O	DQ9	3	RECONFIG_N	Comp_of_IOR31A	TRUE		20	108		20	20	
IOR33A/MI/D7	I/O	DQ9	3	MI/D7	True_of_IOR33B	TRUE	62	96	106	62	96	96	62
IOR33B/MO/D6	I/O	DQ9	3	MO/D6	Comp_of_IOR33A	TRUE	61	95	105	61	95	95	61
IOR35A/FASTRD_N/D3	I/O	DQ9	3	FASTRD_N/D3	True_of_IOR35B	TRUE		92	102		92	92	
IOR35B/SI/D2	I/O	DQ9	3	SI/D2	Comp_of_IOR35A	TRUE		90	101		90	90	
IOR38A/DIN/CLKHOLD_N	I/O	DQ9	3	DIN/CLKHOLD_N	True_of_IOR38B	TRUE	54	86	98	54	86	86	54
IOR38B/DOUT/WE_N	I/O	DQ9	3	DOUT/WE_N	Comp_of_IOR38A	TRUE	53	85	97	53	85	85	53
IOR40A	I/O	DQ9	3		True_of_IOR40B	TRUE							
IOR40B	I/O	DQ9	3		Comp_of_IOR40A	TRUE							
IOR42A	I/O	DQ9	3		True_of_IOR42B	TRUE		84			84	84	
IOR42B	I/O	DQ9	3		Comp_of_IOR42A	TRUE		83			83	83	
IOR44A	I/O	DQ9	3		True_of_IOR44B	TRUE							
IOR44B	I/O	DQ9	3		Comp_of_IOR44A	TRUE							
IOR47A/RPLL2_T_fb	I/O	DQ8	3	RPLL2_T_fb	True_of_IOR47B	TRUE							
IOR47B/RPLL2_C_fb	I/O	DQ8	3	RPLL2_C_fb	Comp_of_IOR47A	TRUE							
IOR49A	I/O	DQ8	3		True_of_IOR49B	TRUE	49	80		49	80	80	49
IOR49B	I/O	DQ8	3		Comp_of_IOR49A	TRUE	48	79		48	79	79	48
IOR51A	I/O	DQ8	3		True_of_IOR51B	TRUE							
IOR51B	I/O	DQ8	3		Comp_of_IOR51A	TRUE							
IOR53A	I/O	DQ8	3		True_of_IOR53B	TRUE							
IOR53B	I/O	DQ8	3		Comp_of_IOR53A	TRUE							
BANK2 True LVDS Pair													
IOR11A	I/O	DQ10	2		True_of_IOR11B	TRUE							
IOR11B	I/O	DQ10	2		Comp_of_IOR11A	TRUE							
IOR13A	I/O	DQ10	2		True_of_IOR13B	TRUE							
IOR13B	I/O	DQ10	2		Comp_of_IOR13A	TRUE							
IOR15A	I/O	DQ10	2		True_of_IOR15B	TRUE							
IOR15B	I/O	DQ10	2		Comp_of_IOR15A	TRUE							
IOR17A	I/O	DQ10	2		True_of_IOR17B	TRUE							

Note!

[1] It is embedded with SDRAM.

[2] It is embedded with PSRAM.

Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
IOR17B	I/O	DQ10	2		Comp_of_IOR17A	TRUE							
IOR20A	I/O	DQ10	2		True_of_IOR20B	TRUE		102	125		102	102	
IOR20B	I/O	DQ10	2		Comp_of_IOR20A	TRUE		101	124		101	101	
IOR22A	I/O	DQS10	2		True_of_IOR22B	TRUE		100	123		100	100	
IOR22B	I/O	DQS10	2		Comp_of_IOR22A	TRUE		99	122		99	99	
IOR24A	I/O	DQ10	2		True_of_IOR24B	TRUE							
IOR24B	I/O	DQ10	2		Comp_of_IOR24A	TRUE							
IOR26A/TCK	I/O	DQ10	2	TCK	True_of_IOR26B	TRUE	6	14	120	6	14	14	6
IOR26B/TDI	I/O	DQ10	2	TDI	Comp_of_IOR26A	TRUE	7	16	117	7	16	16	7
IOR2A	I/O	DQ11	2		True_of_IOR2B	TRUE							
IOR2B	I/O	DQ11	2		Comp_of_IOR2A	TRUE							
IOR4A	I/O	DQ11	2		True_of_IOR4B	TRUE							
IOR4B	I/O	DQ11	2		Comp_of_IOR4A	TRUE							
IOR6A	I/O	DQS11	2		True_of_IOR6B	TRUE							
IOR6B	I/O	DQS11	2		Comp_of_IOR6A	TRUE							
IOR8A/RPLL1_T_fb	I/O	DQ11	2	RPLL1_T_fb	True_of_IOR8B	TRUE							
IOR8B/RPLL1_C_fb	I/O	DQ11	2	RPLL1_C_fb	Comp_of_IOR8A	TRUE							
BANK1 True LVDS Pair													
IOT30A/GCLKT_1	I/O	DQ13	1	GCLKT_1	True_of_IOT30B	TRUE	77	121	152	77	121	121	77
IOT30B/GCLKC_1	I/O	DQ13	1	GCLKC_1	Comp_of_IOT30A	TRUE	76	120	151	76	120	120	76
IOT32A	I/O	DQ13	1		True_of_IOT32B	TRUE							
IOT32B	I/O	DQ13	1		Comp_of_IOT32A	TRUE							
IOT34A	I/O	DQ13	1		True_of_IOT34B	TRUE	75			75			75
IOT34B	I/O	DQ13	1		Comp_of_IOT34A	TRUE	74			74			74
IOT36A	I/O	DQ13	1		True_of_IOT36B	TRUE							
IOT36B	I/O	DQ13	1		Comp_of_IOT36A	TRUE							
IOT38A	I/O	DQ13	1		True_of_IOT38B	TRUE		119	148		119	119	
IOT38B	I/O	DQ13	1		Comp_of_IOT38A	TRUE		118	147		118	118	
IOT40A	I/O	DQ13	1		True_of_IOT40B	TRUE	73	117	146	73	117	117	73
IOT40B	I/O	DQ13	1		Comp_of_IOT40A	TRUE	72	116	145	72	116	116	72
IOT42A	I/O	DQ13	1		True_of_IOT42B	TRUE		115	144		115	115	
IOT42B	I/O	DQ13	1		Comp_of_IOT42A	TRUE		114	143		114	114	
IOT44A	I/O	DQ13	1		True_of_IOT44B	TRUE	71		142	71			71
IOT44B	I/O	DQ13	1		Comp_of_IOT44A	TRUE	70		141	70			70

Note!

[1] It is embedded with SDRAM.

[2] It is embedded with PSRAM.

Pin Name	Function	DQS	BANK	Configuration Function	Differential Pair	LVDS	QN88 ^[1]	EQ144 ^[1]	EQ176 ^[1]	QN88P ^[2]	EQ144P ^[2]	EQ144PF ^[2]	QN88PF ^[2]
IOT48A	I/O	DQS12	1		True_of_IOT48B	TRUE		113	140		113	113	
IOT48B	I/O	DQS12	1		Comp_of_IOT48A	TRUE		112	139		112	112	
IOT50A	I/O	DQ12	1		True_of_IOT50B	TRUE		111	138		111	111	
IOT50B	I/O	DQ12	1		Comp_of_IOT50A	TRUE		110	137		110	110	
IOT52A	I/O	DQ12	1		True_of_IOT52B	TRUE			136				
IOT52B	I/O	DQ12	1		Comp_of_IOT52A	TRUE			135				
IOT54A	I/O	DQ12	1		True_of_IOT54B	TRUE							
IOT54B	I/O	DQ12	1		Comp_of_IOT54A	TRUE							
BANK0 True LVDS Pair													
IOT12A	I/O	DQ14	0		True_of_IOT12B	TRUE		134	169		134	134	
IOT12B	I/O	DQ14	0		Comp_of_IOT12A	TRUE		133	168		133	133	
IOT14A	I/O	DQ14	0		True_of_IOT14B	TRUE		132	167		132	132	
IOT14B	I/O	DQ14	0		Comp_of_IOT14A	TRUE		131	166		131	131	
IOT16A	I/O	DQ14	0		True_of_IOT16B	TRUE			165				
IOT16B	I/O	DQ14	0		Comp_of_IOT16A	TRUE			164				
IOT18A	I/O	DQ14	0		True_of_IOT18B	TRUE			163				
IOT18B	I/O	DQ14	0		Comp_of_IOT18A	TRUE			162				
IOT20A	I/O	DQ14	0		True_of_IOT20B	TRUE							
IOT20B	I/O	DQ14	0		Comp_of_IOT20A	TRUE							
IOT22A	I/O	DQ14	0		True_of_IOT22B	TRUE							
IOT22B	I/O	DQ14	0		Comp_of_IOT22A	TRUE							
IOT24A	I/O	DQ14	0		True_of_IOT24B	TRUE			159				
IOT24B	I/O	DQ14	0		Comp_of_IOT24A	TRUE			158				
IOT26A	I/O	DQ14	0		True_of_IOT26B	TRUE							
IOT26B	I/O	DQ14	0		Comp_of_IOT26A	TRUE							
IOT2A	I/O	DQ15	0		True_of_IOT2B	TRUE							
IOT2B	I/O	DQ15	0		Comp_of_IOT2A	TRUE							
IOT4A	I/O	DQ15	0		True_of_IOT4B	TRUE	86	140		86	140	140	86
IOT4B	I/O	DQ15	0		Comp_of_IOT4A	TRUE	85	139		85	139	139	85
IOT6A	I/O	DQ15	0		True_of_IOT6B	TRUE	84	138	173	84	138	138	84
IOT6B	I/O	DQ15	0		Comp_of_IOT6A	TRUE	83	137	172	83	137	137	83
IOT8A	I/O	DQ15	0		True_of_IOT8B	TRUE							
IOT8B	I/O	DQ15	0		Comp_of_IOT8A	TRUE							

Note! VCCX should be greater than or equal to VCCIO.			
Recommended Operating Conditions of EQ144/QN88 Package Embedded with SDR SDRMA in GW2AR-18			
Name	Description	Min.	Max.
VCC	Core voltage	0.95V	1.05V
VCCPLLL0/1	Left PLL 0/1 supply voltage, VCC/VCCPLLL1 in package LQ144 are internally connected.	0.95V	1.05V
VCCPLLR0/1	Right PLL 0/1 supply voltage	0.95V	1.05V
VCCIO0, VCCIO1, VCCIO4, VCCIO5	I/O Bank power supply voltage	1.14V	3.6V
VCCIO2, VCCIO3, VCCIO6, VCCIO7	I/O Bank power supply voltage, connected to SDR SDRAM port	3.135V	3.6V
VCCX/VCCIO2/ VCCIO6/VCCIO7	VCCX, VCCIO2, and VCCIO7 provide SDR SDRAM voltage; VCCX/VCCIO2/VCCIO6/VCCIO7 are internally connected.	3.135V	3.6V
Note ! It is highly recommended that the epad connect to GND, but not a requirement.			
Recommended Operating Conditions of EQ176 Package Embedded with DDR SDRMA in GW2AR-18			
Name	Description	Min.	Max.
VCC	Core voltage	0.95V	1.05V
VCCPLLL0/1	Left PLL 0/1 supply voltage	0.95V	1.05V
VCCPLLR0/1	Right PLL 0/1 supply voltage	0.95V	1.05V
VCCIO0, VCCIO1, VCCIO4, VCCIO5	I/O Bank power supply voltage	1.14V	3.6V
VCCIO2, VCCIO3, VCCIO6, VCCIO7	I/O Bank power supply voltage, connected to DDR SDRAM and provides power for DDR SDRAM.	2.3V	2.7V
VCCX	Auxiliary voltage	2.7V	3.6V
Note ! It is highly recommended that the epad connect to GND, but not a requirement.			

Note! VCCX should be greater than or equal to VCCIO.			
Recommended Operating Conditions of QN88P Package Embedded with PSRAM in GW2AR-18			
Name	Description	Min.	Max.
VCC	Core voltage	0.95V	1.05V
VCCPLLL0/1	Left PLL 0/1 supply voltage	0.95V	1.05V
VCCPLLR0/1	Right PLL 0/1 supply voltage	0.95V	1.05V
VCCIO0, VCCIO3, VCCIO4, VCCIO5	I/O Bank power supply voltage	1.14V	3.6V
VCCIO2/7	I/O Bank power supply voltage, connected to PSRAM port. VCCIO2/VCCIO7 provides power for PSRAM.	1.71V	1.89V
VCCX/VCCIO1/VCCIO6	VCCX/VCCIO1/VCCIO6 are internally connected.	2.7V	3.6V
Note! It is highly recommended that the epad connect to GND, but not a requirement.			
Recommended Operating Conditions of EQ144P Package Embedded with PSRAM in GW2AR-18			
Name	Description	Min.	Max.
VCC	Core voltage	0.95V	1.05V
VCCPLLL0/1	Left PLL 0/1 supply voltage	0.95V	1.05V
VCCPLLR0/1	Right PLL 0/1 supply voltage	0.95V	1.05V
VCCIO0, VCCIO1, VCCIO3, VCCIO5	I/O Bank power supply voltage	1.14V	3.6V
VCCIO2/7	I/O Bank power supply voltage, connected to PSRAM port. VCCIO2/VCCIO7 provides power for PSRAM.	1.71V	1.89V
VCCX/VCCIO4/VCCIO6	VCCX/VCCIO4/VCCIO6 are internally connected.	2.7V	3.6V
Note! It is highly recommended that the epad connect to GND, but not a requirement.			

Note! VCCX should be greater than or equal to VCCIO.			
Recommended Operating Conditions of EQ144PF Package Embedded with PSRAM in GW2AR-18			
Name	Description	Min.	Max.
VCC	Core voltage	0.95V	1.05V
VCCPLLL0/1	Left PLL 0/1 supply voltage	0.95V	1.05V
VCCPLLR0/1	Right PLL 0/1 supply voltage	0.95V	1.05V
VCCIO0, VCCIO1, VCCIO2, VCCIO3, VCCIO5	I/O Bank power supply voltage	1.14V	3.465V
VCCIO7	I/O Bank power supply voltage, connected to PSRAM port. VCCIO7 provides power for PSRAM.	1.71V	1.89V
VCCX/VCCIO4/VCCIO6	VCCX/VCCIO4/VCCIO6 are internally connected.	2.7V	3.465V
Note! It is highly recommended that the epad connect to GND, but not a requirement.			
Recommended Operating Conditions of QN88PF Package Embedded with PSRAM in GW2AR-18			
Name	Description	Min.	Max.
VCC	Core voltage	0.95V	1.05V
VCCPLLL0/1	Left PLL 0/1 supply voltage	0.95V	1.05V
VCCPLLR0/1	Right PLL 0/1 supply voltage	0.95V	1.05V
VCCIO0, VCCIO2, VCCIO3, VCCIO4, VCCIO5	I/O Bank power supply voltage	1.14V	3.6V
VCCIO7	I/O Bank power supply voltage, connected to PSRAM port. VCCIO7 provides power for PSRAM.	1.71V	1.89V
VCCX/VCCIO1/VCCIO6	VCCX/VCCIO1/VCCIO6 are internally connected.	2.7V	3.6V
Note! It is highly recommended that the epad connect to GND, but not a requirement.			