

Annex H - Raw Card H

DDR4 SODIMM Design File

Raw Card	Applicable Design File	Applicable BOM
H0	PC4-SODIMM_V100_RC_H0_20151021.zip	PC4-SODIMM_V100_RC_H0_20151021-BOM.xlsx

Note 1 "Reference" design file updates will be released as needed. This DIMM specification will reflect the most recent design files, but may also be updated to reflect clarifications to the specification only. In these cases the design files will not be updated.

Module Configuration

SDRAM			DIMM											
Die Density	Die Organization	Pkg. Type	# of Logical Ranks ² per Package Rank		# of Package Ranks per DIMM ^{1, 2}	# of logical Ranks per DIMM ^{2, 3}		# of SDRAM die per DIMM		Capacity per DIMM (GB)		Organization of DIMM (x72)		# of Address bits row/col
			Min.	Max.		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
2 Gb	256M x8	SDP	-	-	2	2	2	18	18	4	4	512 M	512 M	14/10 ⁴
		3DS	2	4	2	4	8	36	72	8	16	1 G	2 G	
4 Gb	512M x8	SDP	-	-	2	2	2	18	18	8	8	1 G	1 G	15/10 ⁴
		3DS	2	4	2	4	8	36	72	16	32	2 G	4 G	
8 Gb	1G x8	SDP	-	-	2	2	2	18	18	16	16	2 G	2 G	16/10 ⁴
		3DS	2	4	2	4	8	36	72	32	64	4 G	8 G	
16 Gb	2G x8	SDP	-	-	2	2	2	18	18	32	32	4 G	4 G	17/10
		3DS	2	4	2	4	8	36	72	64	128	8 G	16 G	

Note 1 When populated with single die packages (SDP), package ranks per DIMM = 2.
 Note 2 When populated with single load stack packages (3DS), logical ranks per package rank = 2-4. Logical ranks per package rank times package ranks per DIMM equals logical ranks per DIMM of 4-8.
 Note 3 DIMM capacity calculation purpose only because logical rank is not defined for non-3DS package.
 Note 4 Address A16 is the highest address bit used based on it being multiplexed with RAS_n.
 Note 5 MO-310 variation is AAXA.

SDRAM Configuration

Supported DRAM Outline (Width x Length) mm nominal	# of Banks for SDRAM BA/BG	SDRAM Package Type	Package Types	MO-207 variation
9.0 x 13.0	2 / 2	78 Ball FBGA	SDP, 3DS	DW-z

Note 1 SDP is a single die per package. 3DS may be a 2 die or a 4 die stack.

Supported Speeds

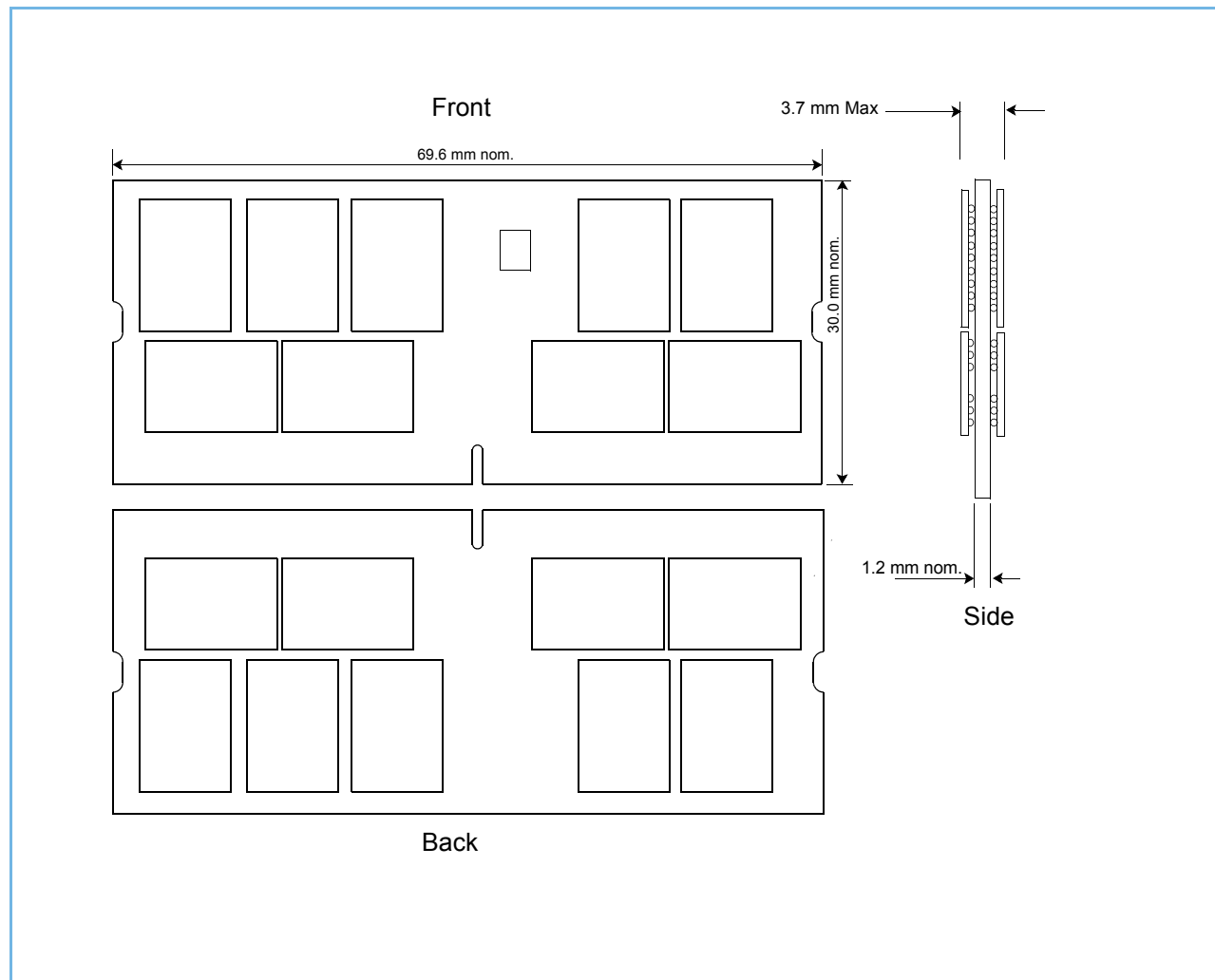
Raw Card	PC4-1333	PC4-1600	PC4-1866	PC4-2133	PC4-2400	PC4-2666	PC4-2933	PC4-3200	Notes
H0	N	N	N	N	N				1, 2

Note 1 X reflects speed grades approved from previous ballots.
 Note 2 N denotes NEW speed grades.

Design Deviations

Note 1 None

General Layout

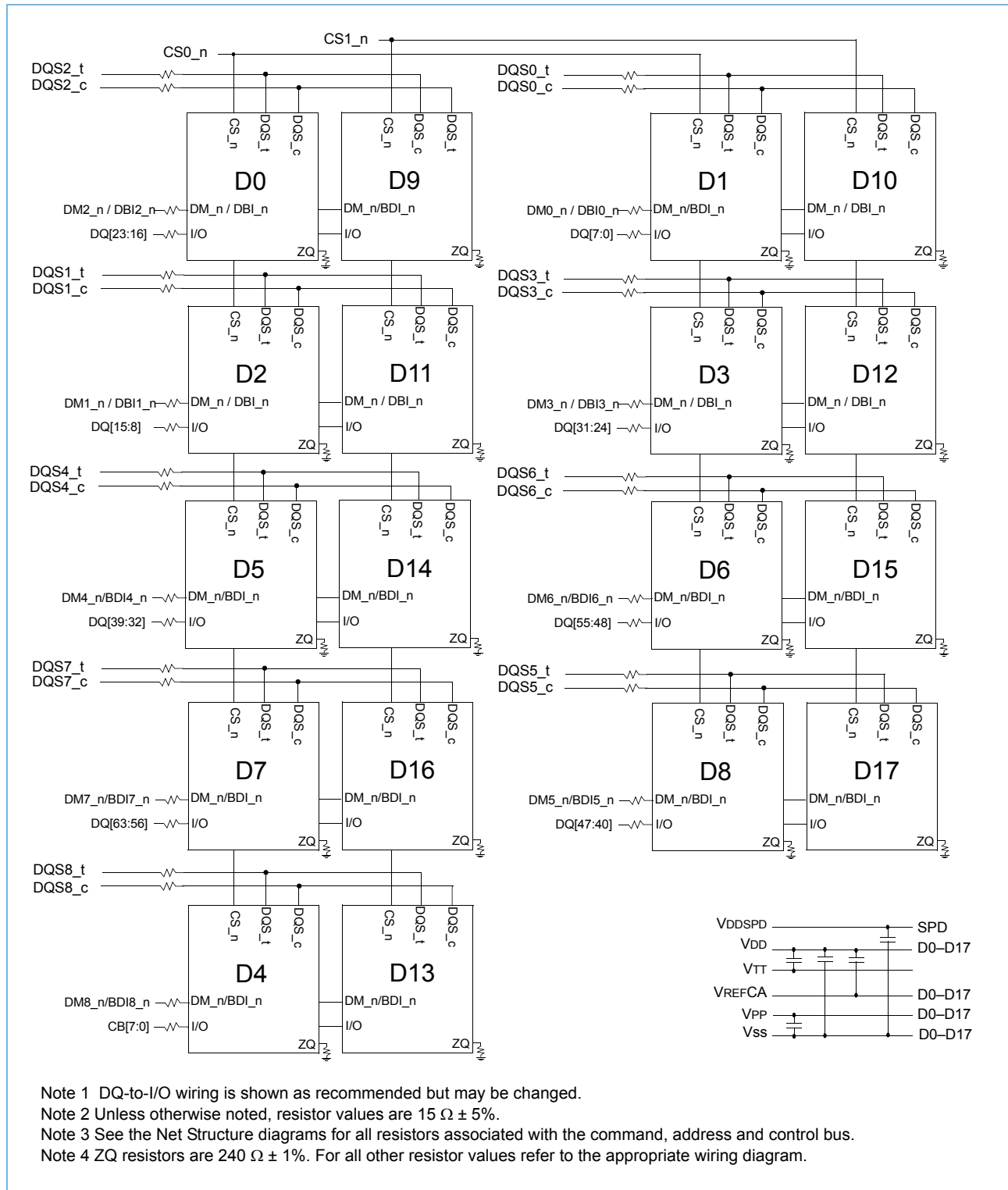


Note 1 Refer to MO-310 for more detailed information.

Note 2 Variation is AAxA (A: Module height, A: Module thickness, x: plating, A: DIMM Type).

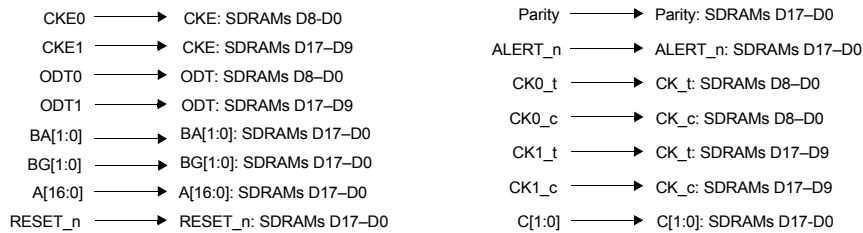
Functional Block Diagram

x72 DIMM, populated as two package ranks of x8 DDR4 SDRAMs (Part 1 of 2)



Functional Block Diagram

x72 DIMM, populated as two package ranks of x8 DDR4 SDRAMs (Part 2 of 2)



SDRAMs for ODD ranks (D9 to D17), which are placed on the back side of the module use the address mirroring for A4:A3, A6:A5, A8:A7, A13:A11, BA1:BA0 and BG1:BG0.

