DDR4 3DS SDRAM RDIMM Addendum

MTA72ASS16G72PSZ – 128GB

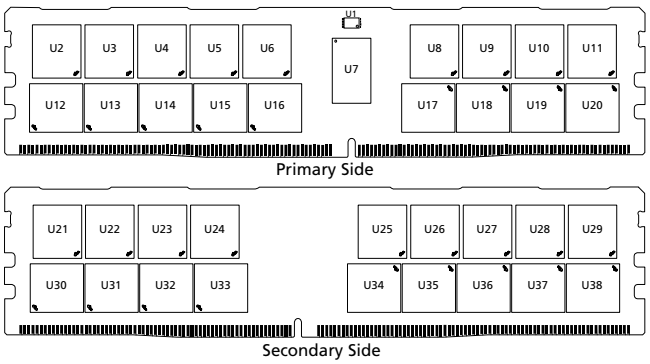
Introduction

Information provided here is in addition to or supersedes information provided in the Micron DDR4 RDIMM Core data sheet.

Features

- DDR4 functionality and operations supported as defined in the component data sheet
- Features and specifications supported in the Micron DDR4 RDIMM core data sheet
- 288-pin, registered dual in-line memory module (RDIMM)
- Fast data transfer rate: PC4-3200
- 128GB (16 Gig x 72)
- Two package ranks x two logic ranks
- 32Gb, 3DS 2-high die stack x4 package, Master/Slave control logic. Each die with16 internal banks; 4 groups of 4 banks each

Figure 1: 288-Pin RDIMM (MO-309, R/C-B2)



Options	Marking
• Operating temperature	
– Commercial ($0°C \leq T_{OPER} \leq 95°C$)	None
• Package	
– 288-pin DIMM (halogen-free)	Z
• Frequency/CAS latency	
– 0.625ns @ CL = 26 (DDR4-3200)	-3S2

Table 1: Addressing

Parameter	128GB
Row address	256K A[17:0]
Column address	1K A[9:0]
Device bank group address	4 BG[1:0]
Device bank address per group	4 BA[1:0]
Device configuration	32Gb (256 Meg x 4 x 16 banks x2 ranks)
Logic rank address	1 C0
Package rank address	2 CS_n[1:0]

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Table 2: Part Numbers and Timing Parameters – 128GB Modules

Base device: MT40A8G4,[1] 32Gb DDR4 2H 3DS M/S DRAM DDR4 SDRAM

Part Number[2]	Module Density	Configuration	Module Bandwidth	Memory Clock/ Data Rate	Clock Cycles ($CL\text{-}_nRCD\text{-}_nRP$)
MTA72ASS16G72PSZ-3S2__	128GB	16 Gig x 72	25.6 GB/s	0.625ns/3200 MT/s	26-22-22

Notes:
1. The data sheet for the base device can be found at micron.com.
2. All part numbers end with a two-place code (not shown) that designates component and PCB revisions. Consult factory for current revision codes. Example: MTA72ASS16G72PSZ-3S2B1.

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DQ Map

Table 3: Component-to-Module DQ Map Front

Component Reference Number	Component DQ	Module DQ	Module Pin Number	Component Reference Number	Component DQ	Module DQ	Module Pin Number
U2	0	7	155	U3	0	15	166
	1	5	148		1	13	159
	2	6	10		2	14	21
	3	4	3		3	12	14
U4	0	23	177	U5	0	31	188
	1	21	170		1	29	181
	2	22	32		2	30	43
	3	20	25		3	28	36
U6	0	CB7	199	U8	0	39	247
	1	CB5	192		1	37	240
	2	CB6	54		2	38	102
	3	CB4	47		3	36	95
U9	0	47	258	U10	0	55	269
	1	45	251		1	53	262
	2	46	113		2	54	124
	3	44	106		3	52	117
U11	0	63	280	U12	0	3	157
	1	61	273		1	1	150
	2	62	135		2	2	12
	3	60	128		3	0	5
U13	0	10	23	U14	0	16	27
	1	9	161		1	18	34
	2	11	168		2	17	172
	3	8	16		3	19	179
U15	0	24	38	U16	0	CB0	49
	1	26	45		1	CB2	56
	2	25	183		2	CB1	194
	3	27	190		3	CB3	201
U17	0	32	97	U18	0	41	253
	1	34	104		1	42	115
	2	33	242		2	40	108
	3	35	249		3	43	260

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Table 3: Component-to-Module DQ Map Front (Continued)

Component Reference Number	Component DQ	Module DQ	Module Pin Number	Component Reference Number	Component DQ	Module DQ	Module Pin Number
U19	0	51	271	U20	0	59	282
	1	49	264		1	57	275
	2	50	126		2	58	137
	3	48	119		3	56	130

Table 4: Component-to-Module DQ Map Back

Component Reference Number	Component DQ	Module DQ	Module Pin Number	Component Reference Number	Component DQ	Module DQ	Module Pin Number
U21	0	61	273	U22	0	53	262
	1	63	280		1	55	269
	2	60	128		2	52	117
	3	62	135		3	54	124
U23	0	45	251	U24	0	37	240
	1	47	258		1	39	247
	2	44	106		2	36	95
	3	46	113		3	38	102
U25	0	CB5	192	U26	0	29	181
	1	CB7	199		1	31	188
	2	CB4	47		2	28	36
	3	CB6	54		3	30	43
U27	0	21	170	U28	0	13	159
	1	23	177		1	15	166
	2	20	25		2	12	14
	3	22	32		3	14	21
U29	0	5	148	U30	0	57	275
	1	7	155		1	59	282
	2	4	3		2	56	130
	3	6	10		3	58	137
U31	0	49	264	U32	0	42	115
	1	51	271		1	41	253
	2	48	119		2	43	260
	3	50	126		3	40	108

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Table 4: Component-to-Module DQ Map Back (Continued)

Component Reference Number	Component DQ	Module DQ	Module Pin Number	Component Reference Number	Component DQ	Module DQ	Module Pin Number
U33	0	34	104	U34	0	CB2	56
	1	32	97		1	CB0	49
	2	35	249		2	CB3	201
	3	33	242		3	CB1	194
U35	0	26	45	U36	0	18	34
	1	24	38		1	16	27
	2	27	190		2	19	179
	3	25	183		3	17	172
U37	0	9	161	U38	0	1	150
	1	10	23		1	3	157
	2	8	16		2	0	5
	3	11	168		3	2	12

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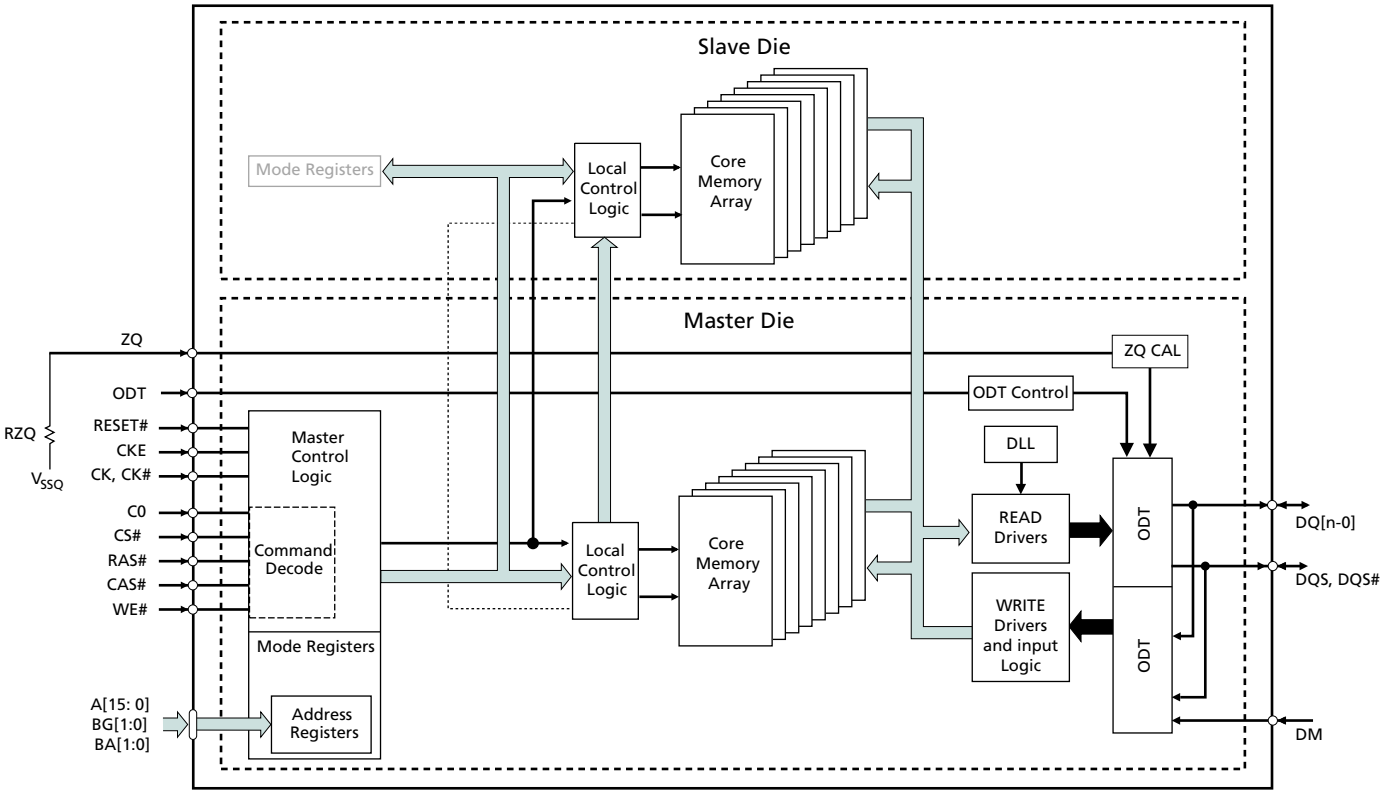
3DS Device Functional Block Diagram

Figure 2: 2-High 3DS Device Functional Block Diagram



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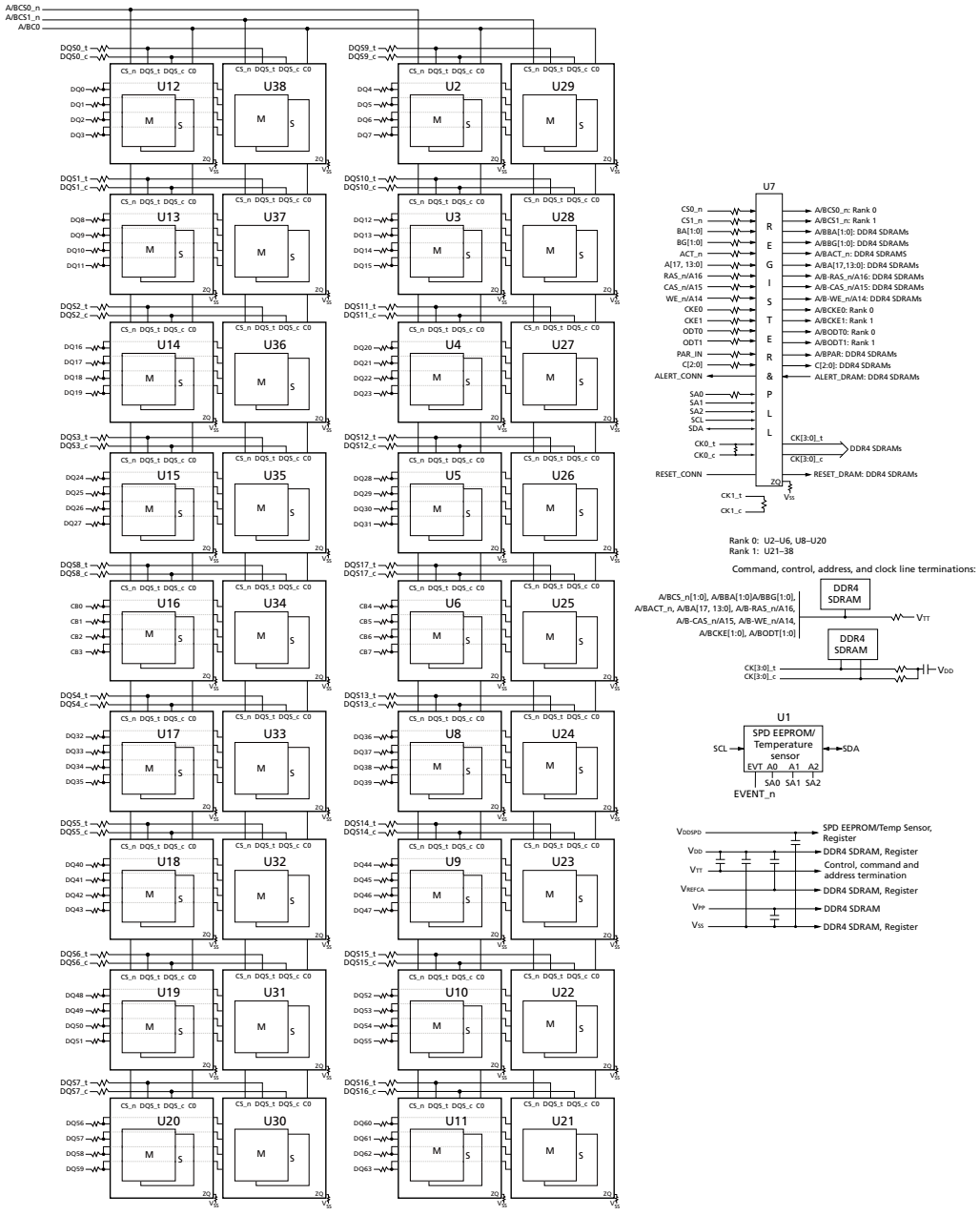
Module Functional Block Diagram

Figure 3: Functional Block Diagram, R/C-B2



Note: 1. The ZQ ball on each DDR4 component is connected to an external 240Ω ±1% resistor that is tied to ground. It is used for the calibration of the component's ODT and output driver.

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