

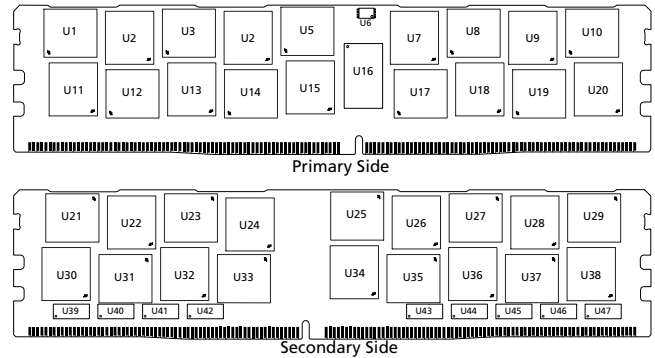
DDR4 SDRAM LRDIMM Addendum

MTA36ASF8G72LZ – 64GB

Features

- DDR4 functionality and operations supported as defined in the component data sheet
- Features and specifications supported in the Micron DDR4 LRDIMM core data sheet
- 288-pin, command/address/control registered, data buffered dual in-line, load reduced memory module (LRDIMM)
- Fast data transfer rates: PC4-3200, PC4-2933
- 64GB (4 Gig x 72)
- Dual-rank
- 16 internal banks; 4 groups of 4 banks each

Figure 1: 288-Pin LRDIMM (R/C-B2)



Options

- Operating temperature
 - Commercial ($0^{\circ}\text{C} \leq T_{\text{OPER}} \leq 95^{\circ}\text{C}$)
- Package
 - 288-pin DIMM (Green)
- Frequency/CAS latency
 - 0.625ns @ CL = 22 (DDR4-3200)
 - 0.682ns @ CL = 21 (DDR4-2933)

Marking

None
Z
-3G2
-2G9

Table 1: Addressing

Parameter	64GB
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	16Gb (4 Gig x 4), 16 banks
Module rank address	2 CS_n[1:0]



Table 2: Part Numbers and Timing Parameters – 64GB Modules

Base device: MT40A4G4,¹ 16Gb DDR4 SDRAM

Part Number ²	Module Density	Configuration	Module Bandwidth	Memory Clock/ Data Rate	Clock Cycles (CL- ⁿ RCD- ⁿ RP)
MTA36ASF8G72LZ-3G2__	64GB	8 Gig x 72	25.6 GB/s	0.625ns/3200 MT/s	22-22-22
MTA36ASF8G72LZ-2G9__	64GB	8 Gig x 72	23.47 GB/s	0.682ns/2933 MT/s	21-21-21

- Notes:
1. The data sheet for the base device can be found on 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: MTA36ASF8G72LZ-3G2B1.

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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
U1	0	0	5	U2	0	10	23
	1	2	12		1	8	16
	2	1	150		2	11	168
	3	3	157		3	9	161
U3	0	22	32	U4	0	31	188
	1	21	170		1	29	181
	2	23	177		2	30	43
	3	20	25		3	28	36
U5	0	CB6	54	U7	0	34	104
	1	CB5	192		1	32	97
	2	CB7	199		2	35	249
	3	CB4	47		3	33	242
U8	0	40	108	U9	0	50	126
	1	42	115		1	48	119
	2	41	253		2	51	271
	3	43	260		3	49	264
U10	0	60	128	U11	0	7	155
	1	62	135		1	5	148
	2	61	273		2	6	10
	3	63	280		3	4	3
U12	0	14	21	U13	0	17	172
	1	12	14		1	19	179
	2	15	166		2	16	27
	3	13	159		3	18	34
U14	0	25	183	U15	0	CB0	49
	1	27	190		1	CB3	201
	2	24	38		2	CB1	194
	3	26	45		3	CB2	56
U17	0	38	102	U18	0	46	113
	1	36	95		1	44	106
	2	39	247		2	47	258
	3	37	240		3	45	251
U19	0	52	117	U20	0	58	137
	1	54	124		1	57	275
	2	53	262		2	59	282
	3	55	269		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	62	135	U22	0	48	119
	1	60	128		1	50	126
	2	63	280		2	49	264
	3	61	273		3	51	271
U23	0	42	115	U24	0	32	97
	1	40	108		1	34	104
	2	43	260		2	33	242
	3	41	253		3	35	249
U25	0	CB5	192	U26	0	29	181
	1	CB6	54		1	31	188
	2	CB4	47		2	28	36
	3	CB7	199		3	30	43
U27	0	21	170	U28	0	8	16
	1	22	32		1	10	23
	2	20	25		2	9	161
	3	23	177		3	11	168
U29	0	2	12	U30	0	57	275
	1	0	5		1	58	137
	2	3	157		2	56	130
	3	1	150		3	59	282
U31	0	54	124	U32	0	44	106
	1	52	117		1	46	113
	2	55	269		2	45	251
	3	53	262		3	47	258
U33	0	36	95	U34	0	CB3	201
	1	38	102		1	CB0	49
	2	37	240		2	CB2	56
	3	39	247		3	CB1	194
U35	0	27	190	U36	0	19	179
	1	25	183		1	17	172
	2	26	45		2	18	34
	3	24	38		3	16	27
U37	0	12	14	U38	0	5	148
	1	14	21		1	7	155
	2	13	159		2	4	3
	3	15	166		3	6	10



I_{DD} Specifications

Table 5: DDR4 I_{DD} Specifications and Conditions – 64GB (Die Revision B)

Values are for the MT40A4G4 DDR4 SDRAM only and are computed from values specified in the DDR4 (4 Gig x 4) component data sheet

Parameter	Symbol	3200	2933	Units
One bank ACTIVATE-PRECHARGE current	I _{DD0}	1854	1836	mA
One bank ACTIVATE-PRECHARGE, wordline boost, I _{pp} current	I _{PP0}	126	126	mA
One bank ACTIVATE-READ-PRECHARGE current	I _{DD1}	2034	2016	mA
Precharge standby current	I _{DD2N}	1872	1836	mA
Precharge standby ODT current	I _{DD2NT}	1782	1764	mA
Precharge power-down current	I _{DD2P}	1548	1548	mA
Precharge quiet standby current	I _{DD2Q}	1692	1692	mA
Active standby current	I _{DD3N}	2808	2772	mA
Active standby I _{pp} current	I _{PP3N}	108	108	mA
Active power-down current	I _{DD3P}	2484	2448	mA
Burst read current	I _{DD4R}	3870	3726	mA
Burst write current	I _{DD4W}	3726	3600	mA
Different logic rank burst refresh current (1x REF)	I _{DD5R}	2196	2178	mA
Different logic rank burst refresh I _{pp} current (1x REF)	I _{PP5R}	144	144	mA
Self refresh current: Normal temperature range (0°C to 85°C)	I _{DD6N (0-85°C)}	2412	2412	mA
Self refresh current: Extended temperature range (0°C to 95°C)	I _{DD6E (0-95°C)}	4356	4356	mA
Self refresh current: Reduced temperature range (0°C to 45°C)	I _{DD6R (0-45°C)}	1044	1044	mA
Auto self refresh current (25°C)	I _{DD6A (25°C)}	360	360	mA
Auto self refresh current (45°C)	I _{DD6A (45°C)}	1044	1044	mA
Auto self refresh current (75°C)	I _{DD6A (75°C)}	2196	2196	mA
Auto self refresh current (95°C)	I _{DD6A (95°C)}	4356	4356	mA
Auto self refresh I _{pp} current (0°C to 95°C)	I _{PP6X}	396	396	mA
Bank interleave read current	I _{DD7}	5058	4932	mA
Bank interleave read I _{pp} current	I _{PP7}	252	252	mA
Maximum power-down current	I _{DD8}	1440	1440	mA

Note: 1. For all I_{DD} values, one package rank in active I_{DD} condition, all other package ranks in I_{DD2P} or I_{PP3N}.



64GB (x72, ECC, DR) 288-Pin DDR4 LRDIMM Functional Block Diagram

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This data sheet contains minimum and maximum limits specified over the power supply and temperature range set forth herein.
Although considered final, these specifications are subject to change, as further product development and data characterization some-
times occur.