

4GByte DDR3 iPEM, Unbuffered w/ECC – 512M x 72, ODT and Fly-By Address & Control Termination

Features

- Designed as small footprint, unbuffered, memory array w/ECC in BGA
- $V_{CC} = 1.35V$
- Module Organization: 512M x 72
- Data path configuration: 64bit w/ECC
- DDR3 Data rate: 800, 1066, 1333 Mbps
- Differential Clock Inputs
- Differential Data Strobe
- 8 internal banks for concurrent operation (per each 16bit word)
- 8n-bit prefetch architecture
- Auto & Self Refresh modes
- Nominal and Dynamic On-Die Termination (ODT)
- Fly-By-Termination for Address & Control
- Programmable CAS latency: 6, 7, 8, 9, 10, 11
- Posted CAS additive Latency: 0, 1, 2
- Selectable BC4 or BL8 on the Fly
- Write leveling
- Fixed Burst Length (BL)=8, and Burst Chop (BC)=4
- Programmable Write Latency: 5, 6, 7, 8 based on T_{CK}

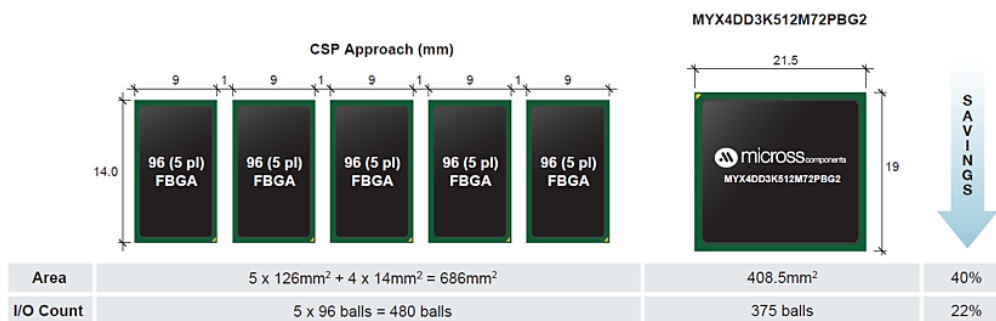
Benefits

- 40% space savings vs. Discrete FBGA approach
- 22% I/O reduction vs. Discrete FBGA approach
- Reduced part count and I/O reduction improves interconnect reliability of your memory array
- Reduced trace lengths for lower parasitic capacitance
- Suitable for Hi-Reliability applications
- Designed as SO-DIMM in BGA footprint with Fly-By-Termination, resulting in a robust, enhanced signal integrity solution
- Includes VTT, VREFCA and VREFDQ decoupling

Table 1: Product Availability

Part Number	Clock Frequency	Data Rate	Device Grade
MYX4DD3K512M64PBG2-25IT	400	800	Industrial
MYX4DD3K512M64PBG2-19IT	533	1066	
MYX4DD3K512M64PBG2-15IT	667	1333	
MYX4DD3K512M64PBG2-13IT	800	1600	Consult Factory
MYX4DD3K512M64PBG2-25ET	400	800	Enhanced
MYX4DD3K512M64PBG2-19ET	533	1066	
MYX4DD3K512M64PBG2-15ET	667	1333	
MYX4DD3K512M64PBG2-13ET	800	1600	Consult Factory
MYX4DD3K512M64PBG2-25XT	400	800	Mil-Temp
MYX4DD3K512M64PBG2-19XT	533	1066	
MYX4DD3K512M64PBG2-15XT	667	1333	

Figure 1: Footprint Space Comparisons



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Figure 2: 375-Ball PBGA (Top View, Ball Down)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21			
A		GND	VCC	DM7	DQ57\	DQ57	DQ65	DQ69	DQ33	DQ39	DM4	DQ34	DQ36	DQ45	DQ56\	DQ55\	DQ55	VCC	GND	GND		A		
B		GND	VCC	DQ68	GND	DQ60	DQ71	GND	DQ56	DQ35	GND	VCC	GND	DQ50	DQ54	GND	DM5	DQ41	GND	DQ51	VCC	GND		B
C		VCC	DQ59	DQ70	DQ64	DQ62	DQ58	DQ67	DM8	DQ37	DQ32	DQ38	DQ54\	DQ48	DQ52	DQ43	DQ47	DQ55	DQ40	DQ46	VCC			C
D		DQ63	GND	DQ58\	GND	DQ57	VCC	VCC	VCC	GND	VCC	GND	VCC	VCC	VCC	DQ42	GND	DM6	GND	DQ53				D
E		DQ61	DQ66	DQ58	DQ13	DQ15	GND	VCC	NC	NC	NC	NC	NC	NC	VCC	GND	DQ31	DQ28	DQ30	DQ49	DQ44			E
F		DQ11	DQ9	DQ12	DQ51\	DQ51	GND	VCC	NC	NC	NC	NC	NC	NC	VCC	GND	DQ29	DQ24	DQ53	DQ53\	DQ26			F
G		DM1	GND	DQ14	GND	DQ10	VCC	VCC	NC	NC	NC	NC	NC	NC	VCC	VCC	DQ27	GND	DQ25	GND	DM2			G
H		DQ0	DQ2	DQ50	DQ8	DM0	VCC	VCC	NC	NC	NC	NC	NC	NC	VCC	VCC	DQ52	DQ16	DM3	DQ17	DQ19			H
J		DQ6	DQ4	DQ50\	DQ1	DQ3	GND	GND	NC	NC	NC	NC	NC	NC	GND	GND	DQ52\	DQ22	DQ18	DQ23	DQ21			J
K		GND	DQ7	GND	DQ5	GND	GND	NC	NC	NC	NC	NC	NC	NC	GND	GND	NC	GND	DQ20	VCC				K
L		VCC	VCC	V _{REF00}	ODT	VCC	VCC	VCC	NC	NC	NC	NC	NC	NC	VCC	VCC	GND	NC	NC	VCC	VCC			L
M		CK	GND	CAS\	WE\	VCC	VCC	VCC	NC	NC	NC	NC	NC	NC	VCC	VCC	GND	VCC	GND	GND	GND			M
N		CK\	GND	A10	BA2	GND	GND	GND	NC	NC	NC	NC	NC	NC	GND	GND	VCC	VCC	VCC	GND	GND			N
P		VCC	VCC	BA1	A0	GND	GND	GND	NC	NC	NC	NC	NC	NC	GND	GND	VCC	VCC	VCC	GND	GND			P
R		A4	A2	A6	VTT	VCC	VCC	VCC	VCC	GND	GND	VCC	GND	GND	VCC	VCC	GND	GND	GND	VCC	VCC			R
T		VCC	VTT	VTT	A9	VCC	VCC	VCC	NC	A5	A12	CS\	RAS\	GND	VCC	VCC	GND	GND	GND	GND	VCC			T
U		GND	VCC	VTT	A8	GND	GND	GND	A14	A11	A3	A15	CKE	VCC	GND	GND	GND	VCC	VCC	VCC	GND			U
V		GND	GND	VCC	A13	GND	GND	GND	RST\	A7	A1	BA0	V _{REFCA}	VCC	GND	GND	GND	VCC	VCC	VCC	GND			V
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21			

Figure 3: Functional Block Diagram

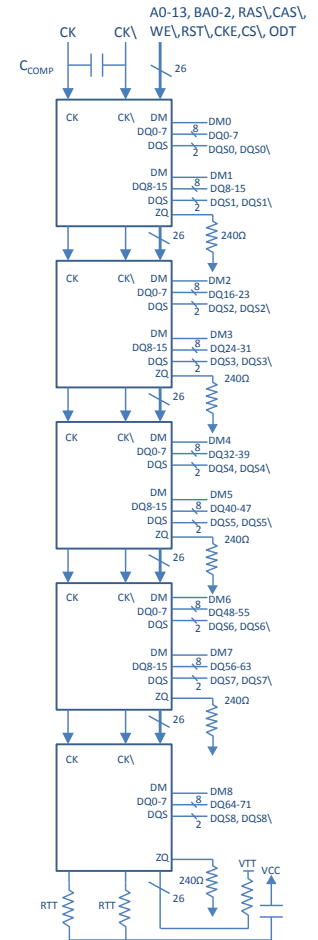


Figure 4: Mechanical

