

4GByte DDR3 iPEM, Unbuffered Non-ECC – 512M x 64, ODT and Fly-By Address & Control Termination

Features

- Designed as small footprint, unbuffered, Non-ECC memory array in BGA
- $V_{CC} = 1.35V$
- Module Organization: 512M x 64
- Data path configuration: 64bit Non-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}

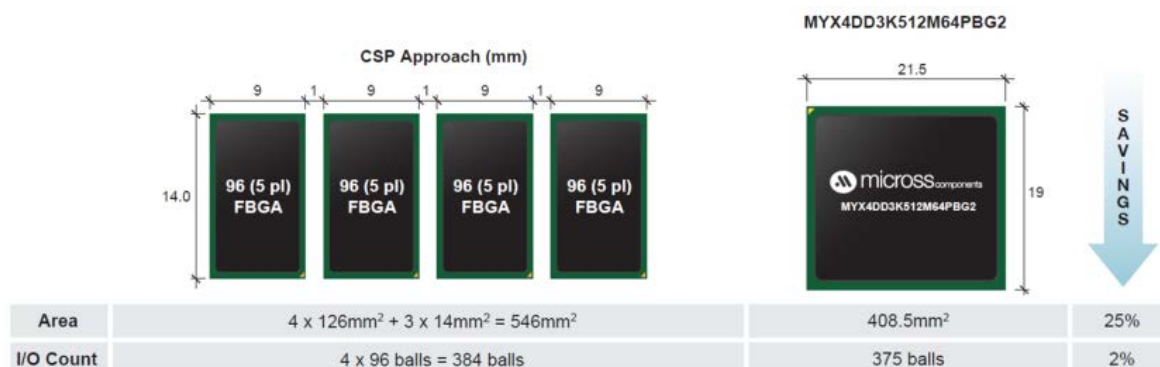
Benefits

- 25% space savings vs. Discrete FBGA approach
- 2% 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 |
|-------------------------|-----------------|-----------|-----------------|
| MYX4DD3K512M72PBG2-25IT | 400 | 800 | Industrial |
| MYX4DD3K512M72PBG2-19IT | 533 | 1066 | |
| MYX4DD3K512M72PBG2-15IT | 667 | 1333 | |
| MYX4DD3K512M72PBG2-13IT | 800 | 1600 | Consult Factory |
| MYX4DD3K512M72PBG2-25ET | 400 | 800 | Enhanced |
| MYX4DD3K512M72PBG2-19ET | 533 | 1066 | |
| MYX4DD3K512M72PBG2-15ET | 667 | 1333 | |
| MYX4DD3K512M72PBG2-13ET | 800 | 1600 | Consult Factory |
| MYX4DD3K512M72PBG2-25XT | 400 | 800 | Mil-Temp |
| MYX4DD3K512M72PBG2-19XT | 533 | 1066 | |
| MYX4DD3K512M72PBG2-15XT | 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 | GND | 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 | GND | GND | NC | GND | DQ20 | VCC | | | | K |
| L | VCC | VCC | V _{REFDQ} | 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 | GND | GND | VCC | GND | GND | VCC | VCC | VCC | GND | GND | GND | VCC | VCC | | | R |
| T | VCC | VTT | VTT | A9 | VCC | VCC | VCC | NC | A5 | A12 | CS\ | RAS\ | GND | VCC | 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 | 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 | 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

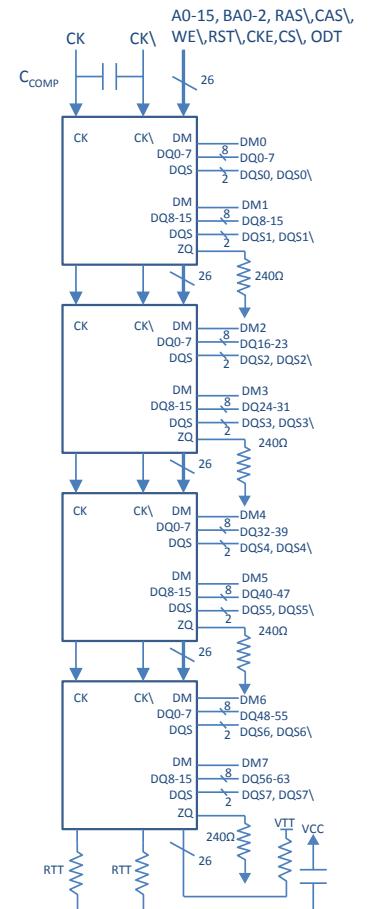


Figure 4: Mechanical

