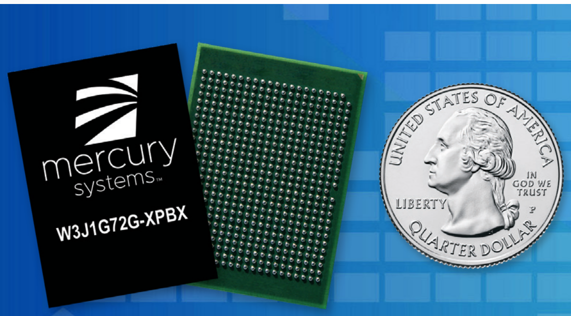
mercury systems™

High Density Secure Memory DDR3 SDRAM

Models W3J128M64X-XPBX, W3J128M72X-XPBX, W3J128M64X-XLBX, W3J128M72X-XLBX, W3J512M32X(T)-XB3X, W3J512M64X-XPBX, W3J512M64X-XPB2X, W3J512M72X-XPBX, W3J512M72X-XPB2X, W3J512M64X-XLBX, W3J512M64X-XLB2X, W3J512M72X-XLBX, W3J512M72X-XLB2X, W3J512M64X(T)-XHDX, W3J512M72X(T)-XHDX, W3J1G64X-XPBX, W3J1G72X-XPBX

- **Advanced miniaturization technology**
- **Data transfer speeds up to 1600 Mb/s**
- **-55 to +125°C operating temperatures**
- **Including Decoupling and Terminations**
- **Manufactured in a DMEA-trusted US facility**



Mercury Systems' BuiltSECURE™ technology miniaturizes DDR3 SDRAM memory in a compact, highly ruggedized package. This device is ideally suited for military and commercial aerospace applications requiring high-speed DDR3 memory optimized for size, weight, and power.

Mercury Systems is currently engaging with customers in design opportunities requiring DDR3 memory performance. To participate in this design program, please contact your Mercury Systems representative or contact us at Secure.Memory@mrcy.com

Product Features

- DDR3 Data Rate = 800, 1066, 1333, 1600 Mb/s
- Supply Voltage = 1.35V (DDR3L) or 1.5V (DDR3)
- Backward compatible to $V_{CC} = V_{CCQ} = 1.5V$
- Supports DDR3L devices to be backward compatible to 1.5V applications
- Center terminated push/pull I/O
- Differential bidirectional data strobe
- Differential clock inputs (CK, CK#)
- 8n-bit prefetch architecture
- Eight internal banks
- Fixed Burst length (BL) of 8 and Burst Chop (BC) of 4
- Selectable BC4 or BL8 on-the-fly (OTF)
- Auto Refresh and Self Refresh Modes
- Nominal and dynamic On Die Termination (ODT)
- Programmable CAS read latency (CL)
- Programmable CAS write latency (CWL)
- Programmable Posted CAS additive latency (AL)
- Write leveling
- Configured as 1-Rank x72-bit or x64-bit data
- Requires V_{TT}
- Built-in Termination and Decoupling

Benefits

- Up to 75% space savings vs discrete chip packages
- Military-grade performance without sacrificing the benefits of DDR3 memory
- 1.0 mm pitch allows escape routing between balls
- Eutectic solder balls for superior board-level reliability
- Up to 88% component reduction
- 100% burn-in and electrical test for the highest quality assurance
- Available component End of Life management for long-term supply continuity

Package

- 21.5mm x 20.5mm - 375 plastic ball grid array (PBGA); 10mm x 14.5mm - 204 PBGA; 23mm x 32mm - 543 PBGA; 14mm x 21.5mm - 399 PBGA; 24.5mm x 32mm - 543 PBGA
- 1.00mm pitch, with larger balls for better second level reliability
- Solder ball composition: Eutectic
- Moisture Sensitivity Level (MSL): 3

** These products are subject to change without notice.*

Mercury Systems is a leading commercial provider of secure sensor and safety-critical processing subsystems. Optimized for customer and mission success, Mercury's solutions power a wide variety of critical defense and intelligence programs.

ACQUIRE DIGITIZE PROCESS STORAGE EXPLOIT DISSEMINATE

Figure 1 - Part Numbers

DDR3 SDRAM MCPs

Size	Organization	Part Number	Data Rate (Mb/s)	Voltage (V)	Package	Dimensions	Temperature
1GB	128M x 64	W3J128M64X-XPBX	800-1333	K=1.35, G=1.5	375 PBGA	21.5mm x 20.5mm	C, I, M
1GB	128M x 72	W3J128M72X-XPBX	800-1333	K=1.35, G=1.5	375 PBGA	21.5mm x 20.5mm	C, I, M
1GB	128M x 64	W3J128M64X-XLBX	800-1600	K=1.35, G=1.5	375 PBGA	21.5mm x 20.5mm	C, I, M
1GB	128M x 72	W3J128M72X-XLBX	800-1600	K=1.35, G=1.5	375 PBGA	21.5mm x 20.5mm	C, I, M
2GB	512M x 32	W3J512M32X(T)-XB3X	800-1333	K=1.35, G=1.5	204 PBGA	10mm x 14.5mm	C, I, M
4GB	512M x 64	W3J512M64X-XPBX	800-1600	K=1.35, G=1.5	543 PBGA	23mm x 32mm	C, I, M
4GB	512M x 64	W3J512M64X-XPB2X	800-1600	K=1.35, G=1.5	543 PBGA	23mm x 32mm	C, I, M
4GB	512M x 72	W3J512M72X-XPBX	800-1600	K=1.35, G=1.5	543 PBGA	23mm x 32mm	C, I, M
4GB	512M x 72	W3J512M72X-XPB2X	800-1600	K=1.35, G=1.5	543 PBGA	23mm x 32mm	C, I, M
4GB	512M x 64	W3J512M64X-XLBX	800-1600	K=1.35, G=1.5	543 PBGA	23mm x 32mm	C, I, M
4GB	512M x 64	W3J512M64X-XLB2X	800-1600	K=1.35, G=1.5	543 PBGA	23mm x 32mm	C, I, M
4GB	512M x 72	W3J512M72X-XLBX	800-1600	K=1.35, G=1.5	543 PBGA	23mm x 32mm	C, I, M
4GB	512M x 72	W3J512M72X-XLB2X	800-1600	K=1.35, G=1.5	543 PBGA	23mm x 32mm	C, I, M
4GB HD	512M x 64	W3J512M64X(T)-XHDX **	800-1600	K=1.35, G=1.5	399 PBGA	14mm x 21.5mm	C, I, M
4GB HD	512M x 72	W3J512M72X(T)-XHDX **	800-1600	K=1.35, G=1.5	399 PBGA	14mm x 21.5mm	C, I, M
8GB	8GB x 64	W3J1G64X-XPBX **	800-1600	K=1.35, G=1.5	543 PBGA	24.5mm x 32mm	C, I, M
8GB	8GB x 72	W3J1G72X-XPBX	800-1600	K=1.35, G=1.5	543 PBGA	24.5mm x 32mm	C, I, M

Figure 2 - Part Numbering Matrix

W 3J XXMXX X T - X XX X X

MERCURY SYSTEMS

DDR3 SDRAM:

CONFIGURATION:
1GB = 128M x 64, 128M x 72
2GB = 512M x 32
4GB = 512M x 64, 512M x 72
8GB = 1G x 64, 1G x 72

POWER SUPPLY:
G = 1.5V
K = 1.35V

OPTIONAL:
Blank = Not terminated
T = Address/Control/Clock Termination resistors included.

DATA RATE (Mbs):
800 = 800Mb/s
1066 = 1,066Mb/s
1333 = 1,333Mb/s
1600 = 1,600Mb/s

PACKAGE:
HD = High Density
LB = ???????????????????? LB2 = ????????????????????
PB = ???????????????????? LB2 = ????????????????????
B3 = ????????????????????

DEVICE GRADE:
M = Military -55°C to +125°C
I = Industrial -40°C to +85°C
C = Commercial 0°C to +70°C

LEAD CONTENT:
Blank = Leaded Sn63Pb37
F = Lead Free SAC305
G = RoHS

Example Part Number: W3J1G72K-1600B3M

Need More Help?

Contact Mercury's Secure Memory application engineering team at

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www.mrcy.com

mercury systems™

INNOVATION THAT MATTERS™

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