

Fastest On-Board Memory

mDiskOnChip P3

Highest Performance,
Most Reliable Flash Disk



M-Systems introduces mDiskOnChip™ P3 (mDOC P3), an ideal solution when top performance is as critical as unmatched reliability. mDiskOnChip P3 is packed into the industry's smallest NAND-based flash disk, thanks to advanced etching processes.

M-Systems' TrueFFS® flash management and a thin controller enable mDiskOnChip P3's outstanding speed and reliability. TrueFFS implements proprietary algorithms for efficient bad block handling and enhanced Error Detection and Correction Code (EDC/ECC). The thin controller supports multiple modes of fast, data access. With unique eXecute In Place (XIP) functionality boosted by DMA support, mDiskOnChip P3 can boot the operating system faster than ever before.

mDiskOnChip P3 supports every major CPU and operating system, making it easy to integrate in products such as telecom (including switches, routers and IP phones), set-top boxes, Digital TVs (DTVs), smart DVD players and Personal Video Recorders (PVRs).



mDiskOnChip P3 brings embedded designers an answer to their needs for unrivalled speed and data reliability in an easy-to-integrate flash disk.

OUTSTANDING PERFORMANCE

Multi-plane access, on-the-fly error detection, Turbo operation, Burst and DMA support achieve unrivalled performance in a NAND-based flash disk.

UNMATCHED RELIABILITY

Based on a patented combination of BCH and Hamming code and M-Systems' customized TrueFFS, mDiskOnChip P3 delivers exceptional data reliability.



BOOT CAPABILITY

A unique 2KByte eXecute In Place (XIP) boot block eliminates the need for a separate boot device to reduce overall system costs. Asynchronous boot for ARM-based CPUs is supported transparently, without any external glue logic.

EASY INTEGRATION

Wide OS and CPU support enable smooth integration. For upgrades, mDiskOnChip P3 uses the same drivers as higher-capacity mDiskOnChip G3 products.

DATA PROTECTION & SECURITY-ENABLING

Features such as a Unique ID, a 6KByte user-controlled One-Time Programmable (OTP) area, and two configurable hardware-protected partitions keep confidential data and code safe.

SMALLEST SIZE

mDiskOnChip P3 delivers all of these benefits in an FBGA package that measures only 7x10x1.2mm.



Actual Size

PERFORMANCE

- Read: Burst 80MB/sec, Sustained 5MB/sec
- Write: 2.5MB/sec
- Access: Normal 55 nsec, Turbo 33 nsec, Burst 25nsec
- Max DMA Block: 64KB

RELIABILITY

- EDC: 5 random bits/512 Byte
- ECC: 4 random bits/512 Byte

PROTECTION & SECURITY-ENABLING

- 16-Byte Unique ID
- 6KB One-Time Programmable (OTP) area
- 2 Read/Write-protected partitions
- Hardware data and code protection

OS & CPU SUPPORT

- OSs: Linux, Nucleus, ThreadX, VxWorks, WinCE, QNX
- CPUs: ARM, MX, OMAP, PowerPC, MIPS, X86, XScale

FORM FACTOR

- FBGA: 85-ball, 7x10x1.2mm
- TSOP-I: 48-pin

FLASH TECHNOLOGY

- 0.13µm NAND process

CAPACITY

- Single device: 32MB
- Device cascading: up to 128MB

ELECTRICAL

- Active (typ): Read 4.2mA, Program 7.2mA
- Deep Power-Down: 10µA
- Voltage: I/O (auto-detect) 1.8V, 3.3V
- Core: 3.3V

ENVIRONMENTAL

- Commercial Temperature: 0°C to +70°C
- Extended Temperature: -40°C to +85°C

ORDERING INFORMATION

- T=Temperature (X: extended, blank: commercial)
 C=Composition (P: lead-free, blank: standard)
- FBGA: MD5832-d256-V3Q18-X-C
 - TSOP-I: MD5811-d256-V3Q18-T-C

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