

Finally – A Fast, Flexible File System for Optimizing NOR and PCM Performance

Micron® Flash Data Integrator (FDI) Flash File System

At Micron we know how critical a file system is to the reliability and performance of your cellular handset designs. We built our Flash Data Integrator (FDI) file system with this in mind. FDI offers proven reliability, achieving an installed base of over 1 billion. This accounts for one out of every eight cell phones sold since 2002.

Running on the latest Micron® NOR flash and phase change memory (PCM), our FDI file system provides dependable storage to create a compelling, low-cost solution. In addition, FDI delivers a true eXecute-in-Place (XiP) advantage in an open architecture to manage code and data in NOR and PCM memory devices.

FDI's open architecture and POSIX-compliant API is easy to integrate with most real-time operating systems, helping to reduce time-to-market by minimizing porting and engineering efforts.

Feature-Rich Solutions Enhance Your Design

Behind the scenes, the FDI reclaim manager handles garbage collection and wear leveling of memory data blocks to dramatically increase the lifespan of the memory device.

In addition, our world-class power-loss recovery (PLR) solution is integrated into the core of FDI. This ensures data integrity—even when multiple power-loss events occur during file updates.

5 Reasons to Choose FDI

1. Data Integrity

Power-loss safe operations ensure data integrity—even when power is lost during file updates.

2. Proven Performance

Maximizes the highest performance, lowest cost NOR and PCM devices from Micron, achieving up to 93% of the theoretical speed of the device. FDI is up to 50% faster than competing file systems.

3. Quick Time-To-Market

Dramatically reduces time-to-market for your design and is easily ported to an OEM's environment.

4. World-Class Features

Packed with robust features for easy integration and increased memory lifespan, including both hardware and software RWW support, reclaim, multiple-volume support, multitasking, and a POSIX-compatible API.

5. Multithreading

Makes it possible for concurrent tasks to access the file system simultaneously, giving application designers optimal performance and flexibility.



Flash Data Integrator (FDI)

FDI also incorporates full support of hardware-based READ-While-WRITE (RWW), as featured in multiple-partition devices like Micron® W family wireless NOR flash. When hardware-based RWW is unavailable, FDI acts as a real-time interrupt handler and enables software-based RWW.

Optimized for Micron NOR and PCM

FDI is tested and supported on a wide range of Micron NOR and PCM memory products, including M, L, and W family NOR flash devices and 45nm LPDDR2 PCM devices. In addition, Micron will support next-generation releases of these products.

Key Features and Benefits

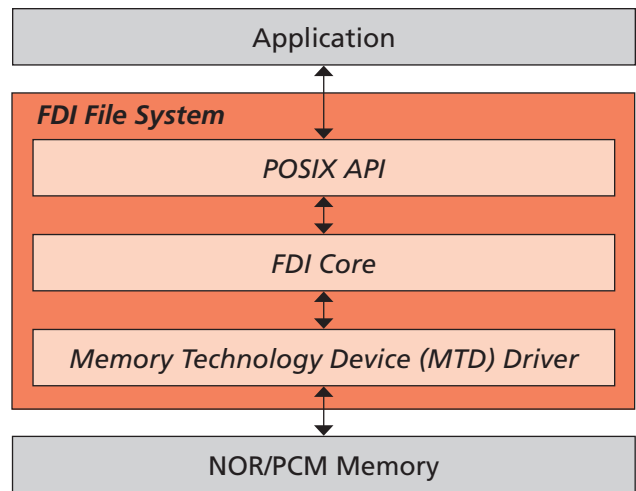
- Multiple-volume support provides the ability to define multiple logical disk volumes on a memory device.
- Optimizations for operating in demanding cellular systems, with flexibility for use on many RTOS applications.
- Highly portable ANSI C source code that has been tested and debugged for optimum reliability.
- Extensive documentation to improve code learning curves for quicker implementations and shorter time-to-market.
- Support services to help you get the most out of your design.
- Full multitasking and multiple access capability for better file access performance from multitasking RTOS applications.
- Extensive product support for our NOR and PCM memory solutions.
- Optimizes RAM performance by reducing RAM consumption during initialization.
- A robust reclaim manager improves WRITE performance and helps reduce RAM usage.
- Reserves allocated space to prevent the loss of system response caused from filling up a memory device to the point where systems edits cannot be completed.
- Flexible wear leveling support for all NOR devices that can be disabled for devices with built-in wear leveling.

- A small file feature increases available space on memory devices by writing four to eight small files (less than 256 bytes) per alignment.
- Permissions management protects key data from accidental erasures by enabling permissions for specific volumes.
- Reference code enables faster development using memory software code as a foundation for third-party software migration.
- The file manager volume provides POSIX-type file handling for greater familiarity with industry-standard file functions.
- Use of quotas improves system reliability and increases performance by limiting the amount of space consumed by certain data.
- Use of reservations to ensure that space is reserved for critical system data.

Contact Us

Visit our Web site for more details on our software solutions. Contact your Micron sales representative with questions about our FDI software.

FDI Architecture



micron.com

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