# DRAM-Interface Flash SIMMs

- Aimed at read-mostly applications - ideal for embedded PCs
- Easy upgrade of resident software without changing devices
- Ideal for storing XIP programs for instant-on operation
- 4 and 8 Mbyte densities
- 72-Pin SIMM form factor similar to DRAM SIMMs
- Reads exactly like a DRAM (with RAS#/CAS# etc.)
- No refresh cycles needed
- No mechanical changes to motherboards necessary for implementation
- Programming at 5V or 12V
- Reading at 3.3V or 5V

SMART Modular Technologies has designed 4 Mbyte and 8 Mbyte single-in-line memory modules (SIMMs) utilizing Intel's DRAM-Interface Flash ICs that combine the high speed read ability of DRAMs with the non-volatile updatable capabilities of flash memory.

The new SIMMs are aimed at "read mostly" applications. The new SIMMs are therefore good replacements for ROMs (Read-Only-Memories) and code DRAMS currently used in embedded systems.

The DRAM-Interface Flash SIMMs enable the user to upgrade resident software programs or other code without the need to replace the devices that contain them. The devices can also help reduce the time to develop code, allowing the user to get the end product to market faster.

The DRAM-Interface Flash modules are also ideal for storing XIP (execute-in-place) instantly executable programs such as BIOS, DOS and other operating systems, application packages, fonts for printers and executable code such as AUTOEXEC.BAT or CONFIG.SYS files. The modules thus save space on a system's code storage memory as well as in the standard DRAM memory while offering instant-on operation.
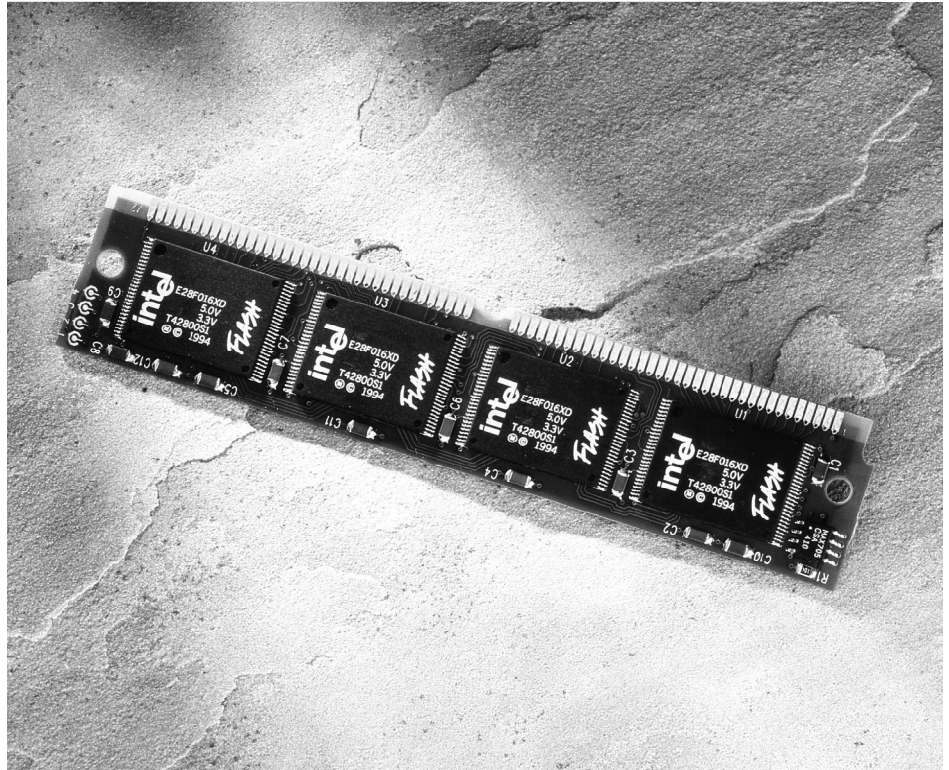
The 4 Mbyte SM532F1000 module is organized as 1M words by 32 bits, and the 8 Mbyte SM532F2000 module is organized as 2M words by 32 bits. Both modules are packaged in 72-pin leadless SIMMs, a form factor familiar to users of SIMMs as the JEDEC standard for DRAM memory.

Control signals are DRAM standard, also. The Intel CMOS 1M $\times$ 16-bit 28F016XD DRAM-Interface Flash memories aboard the SIMMs incorporate a DRAM interface that accommodates RAS#/CAS# signals and multiplexed address lines.

Because DRAM-Interface Flash is non-volatile, no refresh cycles are needed to retain data. The system designer doesn't have to make any mechanical changes to motherboards currently designed to use DRAM SIMMs. The DRAM-Interface Flash modules can be programmed at 5V or 12V and read at 5V or 3.3V.

INTEL FLASH MEMORY SUPPORTED:
28F016XD

AVAILABILITY:
Now

CONTACT:
SMART Modular Technologies
4305 Cushing Parkway
Fremont, CA 94538
Phone: (510) 623-1231
FAX: (510) 623-1434
Email: info@smartm.com

SMART
Modular Technologies®