

## Prizes offered for designs using FRAM-equipped MCUs

By R. Colin Johnson

**N**eed some extra cash? A \$49 investment in Ramtron International Corp.'s microcontroller development system for its Versa 8051 could bag you one of the more than \$20,000 in prizes the company is offering via a design contest.

The Versa 8051 microcontroller features integrated ferroelectric random-access memory, or FRAM. By eliminating the need for memory hierarchies and battery backup, nonvolatile FRAM enables the Versa 8051 to simplify the development of applications for freestanding and portable devices.

Engineers are using Ramtron's Versa 8051 with FRAM for applications that need fast access to software parameters. The Versa 8051 already had 4 kbytes of volatile SRAM for data and 64 kbytes of

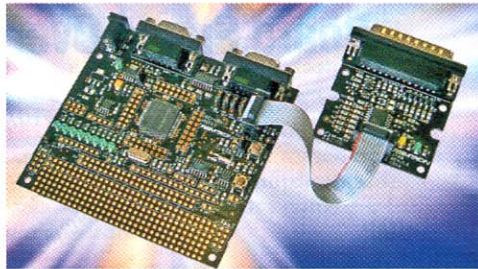
nonvolatile flash memory for programs; now it also includes 8 kbytes of nonvolatile FRAM for quickly changing parameters and similar data.

For instance, portable data-collection devices, such as those carried by meter readers, are making use of the Versa 8051 to eliminate the battery backup that used to be necessary to ensure the safety of collected data. However, Ramtron's contest is aimed at originating entirely new application categories.

"Having a fast, easy-to-use nonvolatile memory on the same chip with the microcontroller opens up new application possibilities," said François Turgeon, applications manager at Ramtron (Colorado Springs, Colo.).

The part number for the Versa 8051 with FRAM contributes its name to the contest's official title: the "VRS51L3074 Design Contest." The development system's part

number is VersaKit-3074—and its price has been reduced from \$99 to \$49 for the contest. Design engineers are invited to exploit the advantages of FRAM's high-speed



**VersaKit development** system is being offered at \$49 for the contest, which ends in November.

reads (400 nanoseconds), byte-by-byte erasures and nonvolatility.

Before FRAM, design engineers had to design a memory hierarchy that stored nonvolatile information in flash. Then, when that information needed to be updated by the microcontroller, its 512-byte block had to be copied from nonvolatile

memory to SRAM and changed before the whole block was rewritten back into flash. But with FRAMs, the nonvolatile information can be changed by merely rewriting a single byte.

The contest is under way and runs until Nov. 1. It will have separate grand prizes of \$2,500 each for four regions—the Americas, Europe, Asia and Japan. In addition, five runners-up per region will win a portable Garmin StreetPilot navigation tool, which typically retails for \$643 ([www.garmin.com/products/sp530](http://www.garmin.com/products/sp530)).

The Versa 8051 with FRAM has a 40-Mips, single-cycle 8051 core. Its development system comes with the Versa JTAG programming/debugging interface, DSP extensions and demo programs. It also includes a C compiler, assembler and documentation. Entries will be judged on technical merit, originality, usefulness and design optimization. ■