Press Release

Ramtron 4-Megabit F-RAM Selected for Highly Reliable Industrial Solid-State Disk

Shenzhen-based SBS Science and Technology develops solid-state disk for demanding industrial automation applications

COLORADO SPRINGS, CO – June 23, 2009 – Ramtron International Corporation (Nasdaq: RMTR), the leading developer and supplier of nonvolatile ferroelectric random access memory (F-RAM) and integrated semiconductor products, today announced that its FM22L16 4-Mbit (Mb) F-RAM has been selected by SBS Science & Technology Co., Ltd. (SBS) for use in an innovative solid-state disk (SSD) data storage device.

Headquartered in Shenzhen, China, SBS specializes in the research, development, and manufacturing of international standards-based embedded hardware and software that targets industrial automation markets, such as railway transportation, electric power, medical equipment, and motion control applications.

In addition to retaining data when power is removed, F-RAM memory offers virtually unlimited reads and writes with no write delay and very low power consumption. This unique feature set, combined with 4-megabits of data storage capacity, makes Ramtron's FM22L16 a compelling solution for SBS in their industrial SSD product.

Alex Tsui, Marketing Director for Ramtron, commented, "The advent of Flash-based solid-state disks represents a paradigm shift in the architecture of computer storage subsystems. F-RAM enabled solid-state disks overcome the endurance problems that have challenged the SSD industry while eliminating backup batteries, improving system power consumption, increasing reliability, and shrinking the form factor."

SBS will deploy the FM22L16 along with a standard Hard Disk Drive (HDD) interface and controller to store the virtual block-to-sector map for the Flash memory in the SSD. Flash memory is prone to wearing out prematurely due to its limited write endurance. The block-to-sector map is used to store the frequently updated address locations for the data in the SSD, which reduces wear on the Flash memory. Since virtual block-to-sector maps are written frequently and need to be stored when power is removed, F-RAM is an ideal choice due to its extremely high read/write endurance and low power consumption. F-RAM-enabled SSDs are well suited for industrial applications since they have no moving parts or mechanical failure points that are common in rotating hard disk drives.

Mr. Tsui added, "Ramtron is pleased to assist SBS Science & Technology with the development of its SSD. In the world of industrial automation, the Ramtron FM22L16 is the perfect memory for highly reliable industrial applications that thrive on high-endurance, battery-free operation, and low power consumption."

Mr. Zhao Yong, President of SBS, said, "The high endurance, fast write, and low power consumption of Ramtron's FM22L16 make it an ideal choice for application in the embedded field."

Product Features
Ramtron's FM22L16 is a 256Kx16 nonvolatile memory that reads and writes like a standard SRAM. It is superior to other types of nonvolatile memory because of its fast write speed, virtually infinite write endurance, and its ability to store data during unexpected power down events. The FM22L16 does not require a battery and uses low 18 milliamps active and 150 microamp standby current. It provides data retention for over 10 years while eliminating the reliability concerns, functional disadvantages, and system design complexities of battery-backed SRAM (BBSRAM).

The FM22L16 includes a low voltage monitor that blocks access to the memory array when the supply voltage (VDD) drops below a critical threshold. The memory is protected against an inadvertent access and data corruption under this condition. The device also features software-controlled write protection. The memory array is divided into 8 uniform blocks, each of which can be individually write protected.

In-system operation of the FM22L16 is very similar to other RAM devices and can be used as a drop-in replacement for standard SRAM. Read and write cycles may be triggered by /CE or simply by changing the address. Visit www.ramtron.com/products/nonvolatile-memory for more product details. For a 300-dpi product photo of the FM22L16, please visit www.ramtron.com/press-center/image-bank.aspx (see *Parallel Product Photos*).

About Ramtron
Ramtron International Corporation, headquartered in Colorado Springs, Colorado, is a fabless semiconductor company that designs, develops and markets specialized semiconductor memory and integrated semiconductor solutions used in a wide range of product applications and markets worldwide. For more information, visit www.ramtron.com.

About SBS Science & Technology Co., Ltd.
Founded in 1992, SBS Science & Technology Co., Ltd. is a hi-tech enterprise in China specializing in R&D, manufacturing, sales and service of international standards-based embedded hardware as well as related software. SBS is widely recognized as an industry leader in the embedded field. SBS was one of the first members of the PC/104 Consortium and is a member of the PICMG Organization. All work undertaken by SBS is fully documented and controlled under ISO9001 certified systems. For more information, visit www.sbs.com.cn.

< back