

# MICRON

## INSIDE/out

a quarterly newsletter for shareholders May 1999

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## In the News

### Memory: Segmentation & Growth

The CPU needs it. Peripherals need it. Graphics need it. Users *demand* it. "It," of course, is memory, and "it" is the most sought-after resource of any PC or computing device built today. While it's true that in the past, the CPU was usually the most limiting factor for system performance, in today's systems it is memory. What about tomorrow's systems?

### The Evolution of the PC

Computers are, quite simply, machines that move and manipulate data. In systems of only a few years ago, the CPU was responsible for all movement of data within the computer. Therefore, the CPU bore the burden of system performance. In recent years some of the intelligence for processing graphics and peripheral requests has moved from the CPU to the peripheral. All of these technologies share a common need—they use and interact directly with memory.

Four years ago most DRAM memory used the Fast Page Mode interface. Since then we have moved rapidly through Extended Data-Out DRAM and into synchronous DRAM interfaces. We've seen SDRAM DIMMs move from 66 MHz to 100 MHz speeds. Memory suppliers clearly are not standing still. Tomorrow's systems will take advantage of technologies like PC133, Direct Rambus® and Double Data Rate SDRAM memories to provide solutions that balance the needs of the system with the available bandwidth of memory while still addressing latency issues.

### Memory Technology for Tomorrow

So what is the ideal memory technology for tomorrow? Certainly it is one that can deliver a balance of high bandwidth and low latency at a reasonable cost. Embedded DRAM is one of the most promising technologies for the PC as well as other cost-sensitive devices of tomorrow. When combined with the graphics accelerator, embedded DRAM offers performance that far exceeds any other external memory solution. Imagine bus widths of 2Kb or more! Bandwidths over 20 GB/sec! This is clearly an enabling technology. Embedded DRAM is equally alluring to other cost-sensitive, space-sensitive, and power-sensitive applications.

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Next-generation memory technologies need to be enabled with system core logic. However, any technology can fail if the cost to implement it is too great. Demonstration platforms can go a long way in solving anticipated problems associated with the implementation of a new memory technology before that technology goes into mass production. Micron is committed to being a premier memory supplier, providing customers with the memory solutions which best meet their needs. The Integrated Products Group's charter is to use system technology to enable the memory technology of choice.

### Crucial Technology Making News

#### Reducing prices

Crucial Technology, a division of Micron Semiconductor Products, reduced prices up to 30% on its entire line of PC133, PC100 and 66MHz SDRAM memory upgrades. Price reductions are available for 32MB, 64MB, 128MB, and 256MB modules for top-brand computers and workstations. Upgrading the memory of a PC or workstation dramatically increases the overall performance for today's demanding applications, in some cases over 60%.

"Crucial is once again committed to delivering the highest quality memory upgrades at the most competitive prices," says Scott Schoenherr, Crucial's General Manager. "Customers can take advantage of an additional 5% savings over today's price reductions by ordering directly through our award-winning Web site ([www.crucial.com](http://www.crucial.com)). Corporations, government entities and resellers can receive up to 15% additional savings by joining our online purchase program."

#### Expanding Operations To United Kingdom

In March, Crucial launched its direct memory upgrade business in the United Kingdom to give computer users there the ability to buy the same high-quality memory Micron supplies to the largest computer manufacturers in the world. Customers can order by Freephone at 0800 013 0330 or by visiting the company's award-winning web site at [www.crucial.com/uk](http://www.crucial.com/uk). "Customers in the UK demand the high level of service and support for which Crucial is known," says Scott Schoenherr, Crucial's General Manager. "We are excited to provide the UK with high-quality Micron memory at factory-direct savings."

#### Kicking off "Education is Crucial"

Crucial will donate up to \$100,000 worth of server memory upgrades to Idaho schools, grades K-12 through its "Education is Crucial" Program 1999. Last year, Crucial donated over \$87,000 in memory upgrades to Idaho schools. "This is our way of showing our continued commitment to helping Idaho schools use technology to improve and expand the learning horizon," said Scott Schoenherr, Crucial's General Manager.

Crucial and the Department of Education have created an online survey, "Education is Crucial" ([www.sde.state.id.us/bots/techgrants/edcrucial.htm](http://www.sde.state.id.us/bots/techgrants/edcrucial.htm)), used to determine the needs for memory upgrades in each school and to insure compatible donations.

"We appreciate the work of Crucial Technology to partner with schools in the State of Idaho," said Dr. Marilyn Howard, Superintendent of Public Instruction. "Crucial's generous contribution will help schools adapt their equipment to keep pace with rapidly changing technology."

## Did You Know?

### MTEC Donating PCs

Micron Technology in Texas donated 160 computers left over from the Twinstar acquisition (now MTEC) to various organizations in the communities of Richardson, Collin County, and Oak Cliff, Texas, and in Boise, Idaho. Both public and charter schools as well as volunteer and youth groups such as the Red Cross, Community Outreach, and Campfire Girls received complete systems. Each system was at least 90 or 100 MHz Pentium with 1 Gig Hard drive, 16 Meg RAM, and complete with 17" monitor, CD ROM drive, keyboard, mouse, and cables.

These donations have helped make Micron better known and appreciated in these communities. The groups receiving the computers have expressed their gratitude and plan to put them to good use.

### Kindergarten-12 Challenge

To help students make the connection between the courses they are taking in school to the larger world of work, Micron employees are sharing information about their careers and encouraging students to excel in math, science, communication, and teamwork skills. Micron has developed several programs to get students of all ages excited about and preparing for technical careers.



### Take Your Parent to School

Micron team members visit classrooms in grades 1 through 12 donning cleanroom suits, distributing scrap parts, and letting students handle product samples as they explain the particular work they do at Micron. Employees' enthusiasm for their work motivates students to pursue technical careers and helps them recognize the value of advanced science and math coursework. Following a "Career Awareness" lesson available through the Education Outreach program, Micron parents have given presentations to 83 classrooms in 36 different area schools!



### Teleconferences

For those schools too distant for classroom visits, Micron works in coordination with the BSU Distance Learning Network providing interactive career presentations. Students in schools as far away as Council and Ontario learn specifics about careers such as technician, product engineer, database administrator, and software engineer.

### Job Shadowing

As students learn about technical career opportunities, more are requesting job-shadowing experiences at Micron. To meet this demand and provide a quality experience, Micron offers Careers @ Micron Day each semester. This year, 88 juniors and seniors from 14 area high schools visited Micron for the full-day event.



### Career Fairs

To whet the appetite of a broad range of students and expose them to high-tech careers they may not have previously considered, Micron participates in school and regional Career Fairs, this year reaching almost 10,000 students in grades 8 through 12.

### Especially for Young Women

Recognizing the disproportionate gender imbalance in technical fields, Micron makes a special effort to encourage and mentor young women as they pursue advanced science and math coursework.

*Women in Technical Careers at Micron (WITCOM)* provides lunchtime panel presentations. This year more than 400 girls in area high schools participated.

*E-Mail Mentoring* matches up women in technical careers at Micron with 8th grade girls to mentor them via e-mail for a period of 6 weeks. As a culminating activity the girls then visit Micron to meet their mentor and learn more through hands-on demonstrations and a tour of the facility. This school year, 88 young women participated in the program.

*Expanding Your Horizon*, a community-based program for 9th and 11th grade females, introduced 128 young women this year to the career of chemical engineer at Micron.

## Latest Products

### MServices for Small Businesses Expanded

Micron Electronics, Inc., has expanded its MServices to include options specifically tailored to small businesses, encompassing a range of desktop, server, and network installation options, as well as ongoing support, upgrade, and repair services. It also includes a service called *Priority Access to Technical Support* that gives small business customers a dedicated toll-free number to Micron's award-winning technical support with usually one minute or less response time.

### Other Micron 'Beyond the Box' Features

Micron customers who purchase or lease desktop systems also receive the benefits of Micron's exclusive technology-enhancing programs and services, not available from any other vendor, including:

- *Micron University* - a 24-hour, online training resource that can help customers make the most of their computer investment, both self-paced tutorials for popular applications as well as instructor-led courses covering everything from Advanced C++ programming to Windows NT Systems Administration.
- *MPower<sup>SM</sup>* - a purchasing program, which includes flexible financing, trade-in of older computers, and environmentally-safe computer disposal.

MServices is an important component of Micron's strategy to deliver total technology solutions that go "beyond the box" to small, rapidly growing business. All services are available immediately. For more information on the options available under Micron's MServices, visit [www.micronpc.com](http://www.micronpc.com), or contact a Micron sales representative at 1-800-MICRONPC.

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## In the Community

### Helping Hands

Micron team members always enjoy lending a helping hand in the community. Again this year they manned the phones for an evening at the Festival '99 Telethon. This has become an annual event for Micron volunteers to help raise money for Idaho Public Television.

In April, helping hands from Micron pitched in to prepare meals, serve, and clean up at the El-Ada Soup Kitchen. They had so much fun, they have decided to do it on a regular basis.

Another group of Micron volunteers grabbed paint brushes and rollers to lend a hand to the Women's and Children's Alliance. The donation room at the WCA facility needed a fresh coat of paint, and Micron team members were happy to give up a Saturday morning to fill that need.

