

# The Emerging Market for Access

by Hal Speed

Product Manager, Integrated Processors

Cyrix Corporation

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The dynamic computer industry has been rapidly evolving over the past three decades. The market has taken many forms — from mainframe systems to today's multipurpose computers linked by intricate networks of clients and servers. As the market continues to mature, more and more segments have developed, such as notebook computers and personal digital assistants. From this maturation, a new trend is emerging in the PC industry — the shift from computing to information access.

Historically, computers were complex devices geared to hobbyists and scientists. Today's multi-purpose PCs offer a mixture of functions with increasing ease-of-use for the consumer. Most modern-day applications are intended to increase convenience in managing everyday tasks, facilitate communications in electronic forms, and provide entertainment for all ages.

While the PC market continues to grow, there is a growing need for information access. Rather than the complex computations of early computers, today's quest has become directed toward gathering and sharing existing data. Millions of individuals around the world — who formerly had no interest in or need for a PC — are using one to access information ranging from term paper research to the most recent photograph of their newborn grandchild.

## **Sub-Segmentation – Specialized Devices for Access**

Increased demand for information access is already causing markets to diverge, offering solutions that are tailored to meet specific market demands. These solutions are moving away from the general-purpose PC to the streamlined operations of access devices.

This kind of sub-segmentation offers advantages in terms of market optimization. For example, a game console is intended for the sole purpose of gaming. This type of specialization offers key benefits in terms of design, promotion and costs. Manufacturers can design these devices for optimum performance for a specific operation. The product's marketable feature is focused and targeted. Consumers can enjoy a device that excels at its intended purpose with added benefits of low maintenance and an affordable price.

### **Expected Growth of the IA Market**

Market specialization has brought about the birth of a new segment – information appliances (IAs). Many IAs are already in the hands of consumers and the market is expected to expand significantly.

International Data Corporation shows that in 1997, IAs compiled a mere four percent of total access devices deployed in the United States, significantly outnumbered by PCs. Their research indicates that by the year 2001, IAs will command nearly half – 42 percent – of the market. In addition, IDC predicts U.S. shipments will increase from 26.3 million to more than 63 million units during that same period (a growth that will likely be facilitated by the IA's ease-of-use and low costs).

### **Today's Information Appliances**

The IAs in use today are driving the first generation of market-optimized devices. In the business segment, Windows®-based terminals (WBT) follow a new kind of server-based computing model. Large servers host, control and compute data while WBTs are seated at each workspace to simply retrieve documents, applications and other information. These WBTs require nominal on-board computing power, relying on the server to compute and execute applications. This new form of server-based computing presents increased security and reliability with a lower total-cost-of-ownership.

A variety of set-top boxes offer increased options for home entertainment. DVD-based digital cable boxes provide crisp digital-quality pictures with the added benefit of Internet connectivity. Web TV, another form of set-top-box, enables viewers to access information related to their television programming.

Other forms of IAs include palm-sized devices, which provide mobile, electronic access to important on-the-go data such as calendar entries and contact information — and offer the ability to synchronize with a desktop PC. Mini-notebook PCs are portable, software-compatible devices that have dial-up capabilities for email.

### **Changing Hardware Requirements**

Solutions for this new computing model require infrastructures to supply and store information. Individual IA units will focus on retrieval of information from a designated source. All of these transactions will be transparent to the consumer. In order to achieve these transparent operations, the computing components will be integrated for optimum performance, size and cost.

A leader in the integration of computing solutions, Cyrix pioneered the sub-\$1000 PC market with the innovative MediaGX™ processor. The Cyrix MediaGX moves key system features such as audio and video directly into the processor.

In the IA market, mass customization will also be necessary to supply the appropriate components for these targeted, optimized solutions. With its proven integrated technology, Cyrix, a subsidiary of National Semiconductor, is well prepared to provide market-optimized computing solutions for the emerging IA market.

Combining Cyrix and National's strengths will enable the vision of PC-on-a-chip to become reality. Together, Cyrix and National have world-class design and manufacturing capabilities for key system functions. Building blocks that could be integrated into future generations of Cyrix processors include DVD, 3-D graphics, and connectivity

capabilities. Each of these components can be integrated into silicon to provide maximum efficiency for information appliances. This type of smart integration gives the processor solution a smaller form factor with a lower cost, ideal for the specialized IA market.

### **The Future of IA– Living in a Digital World**

The changing marketplace offers endless possibilities for a highly networked society. As the shift from computing to access continues, the most essential element of new devices will be connectivity. These appliances can be built to retrieve and send all kinds of information.

What about a moisture sensor for your lawn that automatically sets off your sprinklers? Or a touchpad on your refrigerator where you can order your groceries electronically? How about an automobile PC that selects a radio station with your chosen musical style when you're driving cross-country? What if airports and hotels had terminals that allowed you to link directly to your office from anywhere in the world, without carrying a laptop?

Whatever new devices are developed, it is certain that the limits of time and space will be minimal. Information appliances will bring information to people -- anytime, anywhere.

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