

MICROPROCESSOR 1992

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Ever since IBM chose the 8088 for the original IBM PC, Intel has enjoyed success unparalleled in the semiconductor industry. By maintaining compatibility with previous models while upgrading the capabilities of the 80x86 line, Intel has done a masterful job of moving forward both the technology and the industry.

Through the first half of the 1980s, Intel though dominant, was not only the company supplying chips (8088 and 286) for the MS DOS computers, through various second source and cross licensing agreements NEC, AMD and Harries also produced industry standard and a healthy competition prevailed. With the advent of the 386 in 1986, however Intel became sole supplier of the architecture. And since then till the announcement of AMD 386 clone in 1991 became the sole supplier of the architecture.

Because it hasn't had to compete like most companies, Intel has made a series of blunders. Early on, for instance, it introduced the 386SX processors as a lower cost version of 386DX until it discovered that real competition was the 286. Even then it merely tried to kill the 286 instead of pricing 386SX competitively - until AMD announced its 386. Then, when Intel introduced the 486DX processor which is a combination of existing 80386, 80387, the memory management chip and 8K of cache it priced those chips at a stiff premium to the equivalent 386 models, because it believed customers will automatically migrate to more performance and would pay anything for the chip. But customers decided there

wasn't much speed improvement to recommend the 486, so the 486 is still has a fraction of the total market.

Now the AMD is about to introduce a competition to the 486. Intel suddenly perceives that it should cut prices because of fear instilled by the fact that AMD managed to get more than 20 percent of the 386 business away from Intel by being aggressive in its prices and product design. Intel does not want AMD to get 20 percent of the 486 business, so it suddenly becoming more aggressive. Sure, Intel has done a fabulous job of development on these processors and of investing in the future with the money it has made. And AMD itself was motivated by fear (of going out of business) to reproduce the 386 clone. The result is we will see very few manufacturer making the original IBM PC compatible, IBM PC/AT compatible will also meet the same fate and by year end minimum configuration will be 80386 based machine. This year will also see introduction of 586. Packing upto 4 million transistors the 586 will ensure that PC users have access to same class of performance as workstation users have.

In the Apple end there is a strong rumour that from April Apple will discontinue every Macintosh that does not have at least 68030 processor. Look for close out prices for Classics and LC. In fact look for prices on all Macs as of April 1.

In the RISC business IBM announced RS/6000 model 220. The first single chip implementation of IBM's Power chip which runs at 33 MHz and delivers 26 SPEC marks. *

IBM, Apple's first Power PC in early 1993

IBM and Apple Computer Inc's first PowerPC-based system will be priced under US\$2,000 to compete with 386SX machines, officials from both companies and Motorola Inc revealed.

The system, a low-end desktop expected as soon as early 1993, will offer about 20 SPECmarks in performance, said officials from the three companies, speaking at the fourth annual Microprocessor Forum here.

"We expect the first products to compete with the 386SX-level products — offering those price points but much better performance," said Eric Harslem, vice-president of Apple's desktop product division.

The current road map calls for the powerPC — a single-chip implementation of IBM's RS/6000 CPU — to be ready "in the second half of 1992," said Les Crudele, general manager of Motorola's RISC microprocessor division, which is working on the chips with IBM.

By 1993, PowerPCs will be available for portable and "mainstream" PCs, Crudele said. These chips will offer performance of about 20 and 70 SPECmarks, respectively. In 1994, PowerPCs will be available for high-end workstations and servers, offering up to 200 SPECmarks of performance.

By comparison, Sun Microsystems Inc's \$15,495 40MHz SPARCstation 2 processes 24.7 SPECmarks.

In addition to unveiling details of the PowerPC, Phil Hester, vice-president of IBM's Advanced Workstation Division, said the group is considering

Byte Magazine's Awards for Excellence

Byte Magazine, has released its editor's choice for the best products of 1991. The Awards for Excellence went to the following products:

* System 7.0, the Macintosh operating system from Apple Computer. Also from Apple was the Quick Time 1.0 movie file

format for multimedia.

* Another operating system winning the top award was Digital Research's DR DOS 6.0.

* Fox Pro from Fox Software took an award for being the top-quality database.

* The PCMCIA 2.01C card standard that

may replace floppy cards as a common way to store data and programs.

* Microsoft did not win for MS-DOS 5.0 but did garner top awards for Excel 3.0 and Visual BASIC.

* Cayman Systems' GatorBox CS Macintosh and Unix network system got a top network award, as did Novell's NetWare 3.11.

There were several other top awards, and a number of other products were also cited in other categories. *

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Porting its PowerOpen environment to the Intel platform. Hester also said the group next year will build a reference design to enable other firms to design PowerPC-based systems.

"This is not a three-person club," he said. "We fully expect to have other manufacturers participating by early next year."

Forum attendees were surprised at the level of redesign that the group is planning. "It's clear that PowerPC is designed to do more than just fill out IBM's current RS/6000 line — it's a whole new platform," said George White, president of Corollary Inc., a multiprocessing design firm.

Other announcements at the Microprocessor Forum included the following:

- * Officials from Texas Instruments Inc confirmed that the firm's "Viking" Super-SPARC processor has been delivered to Sun. The new chip will deliver "up to three times the performance of SPARCstation 2," they said.

- * Motorola unveiled its new 88110 Symmetric Superscalar RISC chip for workstations and high-end peripherals. It supports 3-D color graphics and two levels of cache.

- * Advanced Micro Devices Inc announced the 29200, a single-chip processor for laser printers designed to compete with Intel Corp's i960 processor. It processes 7 mips. Samples are due in the first quarter, said officials. ♦

- Vance McCarthy

Novell's integrated net scheme manages all

Novell, Inc. is to leapfrog rivals Banyan Systems, Inc. and Microsoft Corp. by an integrated network management platform that will manage Netware and just about anything else within a corporate local area network installation.

Novell's Netware Management System, a graphics-based system allows the network manager to centrally monitor real-time alerts and collect configuration information from multiple distributed LANs and servers.

Novell's system will reach beyond the Netware environment to give users insight into everything from the health of a hub card to CPU and disk use on a LAN server to the status of an uninterruptible power supply, according to Janet Hyland, director of network strategy research at Forrester Research, Inc., who was briefed recently by Novell. "The momentum is incredible," she added. Dozens of vendors have committed to supporting the system.

Compaq Computer Corp., for example, is already writing software to allow its servers to be managed by Novell's platform.

The platform will also be able to manage Simple Network Management Protocol compliant LAN systems, Hyland said. ♦

cellular networks cover nearly the entire country in uniform frequencies, analysts said. RF networks, on the other hand, are not as well-established. However, despite its advantages over other wireless technologies, linking a notebook and a cellular phone today often means a tangle of equipment: a notebook, a phone, batteries and a separate interface unit to provide the necessary "handshake" connection, since cellular phones have no dial tone. To address the problem, IBM has announced a 10MHz 186-based 9075 PCradio, a 5-pound notebook with an integrated cellular modem and cellular phone capabilities.

Other haven't gone as far. NEC Technologies Inc's Cellular workstation bundles its UltraLite notebook with a P200 cellular phone. AT&T Computer systems is developing a package that will include its Safari notebook, a cellular phone and a single "smart" cable to link them, said AT&T officials.

In February, Microcom and Mitsubishi International Corp plan to ship the Cellular Data Link, which combines a Mitsubishi cellular telephone with a Microcom cellular MNP Class 10 modem, according to official of both firms.

Toshiba America information Systems Inc, meanwhile, is shipping a US\$359 T24D/X modem capable of both land line and cellular connections, and officials at the company.

Sending data over cellular networks is also expensive. Even if users can afford the cost, there is no guarantee of a stable connection, because existing cellular networks use analog, rather than digital technology. Pauses in cellular connections can garble data or cause the modem to terminate the transmission.

Transferring small, separate volumes of data is not as effective, however, because call setup takes up to 1 minute, said Ira Brosky, president of Datacomm Research Co.

"Cellular is optimized to carry voice, but it's not yet there for data" said WorkGroup's Mack. ♦

- Neal Boudette and Steven Loudemilk

Cellular PCs offer benefits, face obstacles

Cellular technology, which revolutionized wireless telephones in the 1980s, now promises to do the same for mobile computers in the 1990s.

Analysts predict that most notebook PC makers will offer wireless options by the third quarter of next year. Yet despite the promise, sending data over cellular networks still poses some daunting challenges in terms of product development, cost, reliability and standards.

Of the three main wireless technologies — infrared and radio frequency (RF) are the other two — cellular is the most similar to the land-line connections many notebook computer users use today, analysts noted.

"Right now, cellular has some advantages over the other types of wireless communications," said David Mack, business development director at WorkGroup Technologies Inc, a market research firm. For example,

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