

Sun Intros Heat RISC Arena

BY JIM DETAR

MOUNTAIN VIEW, CALIF.—Activity heated up in the RISC market last week as Sun Microsystems unveiled a new workstation version of its Sparc architecture and separately introduced an embedded version—microSparc-IIep—at the Embedded Systems Conference in Boston. MicroSparc-IIep will be the first Sparc microprocessor to incorporate the Peripheral Component Interconnect (PCI) bus controller.

Sun also revealed software tools and computer systems partnerships with more than 20 companies supporting UltraSparc, a strategic move designed to position Sparc to compete with a variety of very active RISC competitors, including the IBM/Motorola alliance, which last fall took the wraps off of a common hardware platform at Comdex (EN, Nov. 20, 1995), as well as Advanced RISC Machines (ARM), Hewlett-Packard and others.

ARM last week revealed its network computer (NC) roadmap for development of processors for Oracle's planned line of inexpensive Internet connect devices, and at the same time also announced support for the ARM microprocessor by a variety of software vendors (story on page 64). And Hewlett-Packard last week announced new performance benchmarks for its HP-RISC architecture PA-8000, with a claimed SPECint95 performance benchmark of 11.8 (compared with 5.6 for the first-generation 167MHz UltraSparc) and SPECfp95 of 20.2 (compared with 9.1 for the UltraSparc).

Meanwhile, Sun took the wraps off of the first in a new family of embedded Sparc MPUs. The family will consist of general-purpose MPUs targeted specifically for embedded applications, including office automation, telecommunications and

intra-networking.

The 3.3-volt microSparc-IIep, the first member of the family, with a target price of \$700 will offer an initial claimed performance of 125 MIPS at 100MHz and will be the first Sparc to offer an on-chip Peripheral Component Interconnect (PCI) bus controller.

Dhaval Ajmera, marketing director for Sun Microelectronics' Embedded Products Group, noting the increasing acceptance of the Intel-developed bus said "Based on strong market demand, we're adopting PCI—the popular bus standard—on Sparc embedded processors." The microSparc-IIep is slated to sample in 4Q96.

S. K. Vinod, embedded Sparc product marketing manager, said because the embedded microSparc-IIep is compliant to the Sparc V8 architecture, systems developers can use code tested on Sparc-based workstation without the need for cross-compilation. Developers working with legacy Sparc designs can now move quickly to PCI bus-based designs.

"By developing and deploying on the same architecture, designers avoid the problems associated with the classic routine of developing on the host platform, cross-compiling to the target microprocessor, setting up the emulator and debugging," Mr. Vinod said.

The processor also features a high-speed direct memory interface and flash PROM interface providing high performance for networked embedded applications. An on-chip, 32-bit flash PROM interface allows direct connections to flash devices and enables real-time operating systems and applications to boot and execute from ROM. The PROM interface is suitable for the diskless systems typical in small, deeply embedded applications.

The direct memory inter-

face is said by the company to increase memory bandwidth by allowing data transfers to take place without blocking the processor. The DRAM memory interface controller generates all of the signals needed to support up to 256 megabytes of system memory, with a 64-bit wide data bus and support for EDO DRAMs. The on-chip refresh controller is programmable, and self-refreshed DRAMs are also supported.

In the desktop arena, Sun's Microelectronics division VP of engineering Anant Agrawal said the company has achieved first silicon on its second-generation UltraSparc-II. In about a year since the UltraSparc was introduced, Sun's engineering team has doubled the clock speed of the 5-million-transistor UltraSparc MPU to 300MHz.

Mr. Agrawal said the UltraSparc line has come in on schedule. "UltraSparc-I arrived on time and exceeded the performance estimates we communicated in the roadmap. Now, with UltraSparc-II, we are running like a well-oiled machine. We will sample UltraSparc-II this quarter and expect production availability in 3Q of this year."

In terms of performance, the company said UltraSparc-II silicon boots multi-user Unix at clock rates up to 300MHz and Sun estimates that the first family members will have SPECint95 values in the range of 8.5 to 11 and SPECfp95 values from 15 to 18 (with 2-megabyte cache).

Microarchitectural changes have been made to UltraSparc-II for reduced instruction cycle time, including the addition of full software prefetch and the ability to handle multiple outstanding requests. Second-level cache support has also been extended to 16MB and flexible system clocking and cache interference schemes have been added to UltraSparc-II.

UltraSparc-II features what the company terms the New Media VIS (Visual Instruction Set) which scales system bandwidth to 3 gigoperations/second (GOPs) and 1.6 gigabyte/second (GByte/s).

MARCH BOOKS NO IMPROVEMENT

BY CRISTA HARRIS

MOUNTAIN VIEW, CALIF.—After a book-to-bill ratio dipped below parity in February, March's results are not likely to help.

The Semiconductor Industry Association's book-to-bill ratio of semiconductor orders to be released this week. While the ratio is up from the numbers until they've all been released, analysts aren't looking for much improvement. The preliminary figure is 0.90.

Mercury Research principal analyst David D. combination of declining memory prices and a recovery in PC activity makes a number again above 1.0 almost certain. "There has been a plus burning off, so there may be a recovery (over February), but not enough to get the ratio back on track" by 3Q96, but now it's 0.90.

George Perris, president of Semiconductor Industry Association, agrees there is still inventory to be released this month, "although, it's close to the ratio of 1.0. Mr. Perris earlier predicted the ratio would get better (ENR).

"I think it's still a PC-driven market and there is some saturation in the market. The surplus inventory doesn't burn off as fast as the market will continue to soften. "I don't see a recovery until June or July."

Mr. Perris is looking for 12-15% growth in the industrial electronics distribution market from double that last year.

In-Stat noted March orders are down the first two months of the year. In a typical year, one would expect a recovery in March ratio.

Chris Jones, editor of the firm's Semiconductor Information Services monthly newsletter, made a guess—based on January's book-to-bill ratio—according to In-Stat—that March's book-to-bill ratio, February's preliminary 0.90, but a recovery in March's "adjustment" might bring that down to 1.0.

In-Stat bases its forecasts on the book-to-bill ratio, which aren't available until a month after the fact. Released by the SIA. Looking back at February's (1.06) and January (0.95), the change is as it looked on the surface, March's book-to-bill ratio is 0.90.

"The SIA says the book-to-bill ratio is down the last five years, but based on the current ratio, as recently as November 1994. So I don't see a recovery now is disastrous."

However, the research firm is forecasting a growth of 24 percent of the semiconductor industry in 1996, and expected 12.5 percent growth—a culmination of worldwide and a rush to add capacity.

VLSI LAYS

SAN JOSE, CALIF.—VLSI Technology, a subsidiary of the soft personal computer manufacturer and test workers here announced a new plant in 1996 (see related story, page 64).

Less than a year ago, the company announced its internal manufacturing capacity at

SCI TO BUY APPLE PLANT

FOUNTAIN, COLO.—Apple Computer agreed to sell its Fountain, Colo., manufacturing facility to Huntsville, Ala.-based SCI Systems, Inc. In three years, SCI will be manufacturing Apple products at the Fountain site.

ware platform at Comdex (EN, Nov. 20, 1995), as well as Advanced RISC Machines (ARM), Hewlett-Packard and others.

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Among the 20 companies that have pledged support for UltraSparc are Advance Creative Computer Corp., Aries Research, Cabletron, Cincinnati Bell Supply, Integrix, Pinnacle Data Systems, Texas Microsystems, Triton Electronic GmbH and Western Scientific. The companies join the original 13 who announced support for UltraSparc when it debuted last year. ♦

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Chris Jones, editor of the firm's Sales Information Services monthly forecast, made a guess—based on January's forecast to In-Stat—that March will be February's preliminary 0.90, but a "down adjustment" might bring that down slightly.

In-Stat bases its forecasts on data aren't available until a month after release by the SIA. Looking back at February (1.06) and January (0.95), the change is as it looked on the surface. Ms. Jones says the book-to-bill ratio for the last five years, but based on the latest data as of November 1994. So I don't think now is disastrous."

However, the research firm is forecasting 24 percent growth of the semiconductor market for 1996, and expects 12.5 percent growth—a culmination of a long period of wide and a rush to add capacity. ♦

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FOUNTAIN, COLO.—Apple Computer agreed to sell its Fountain, Colo., manufacturing facility to Huntsville, Ala.-based SCI Systems, Inc. In three years, SCI will be manufacturing Apple products at the Fountain site.

Apple has manufactured subassemblies and finished computers at the 360,000-square-foot facility since 1991. SCI stated that it plans to offer employment to the majority of the 1,100 employees currently working at the site, and expects to take possession of the plant in June.

Fred Forsyth, Apple's senior VP for worldwide operations, described the sale as an "opportunity to benefit from SCI Systems' economies of scale," which will give Apple "an opportunity to reduce both our product costs and inventory-carrying costs." SCI chairman and CEO Olin B. King added, "Our previous experience with...acquisitions from large high-tech companies makes this opportunity a natural fit for us."

VLSI LAYS

SAN JOSE, CALIF.—VLSI Technology is laying off a portion of the soft personal computer manufacturing and test workers here and in other areas (see related story, page 64).

Less than a year ago, the company was expanding its internal manufacturing capacity at its plant in San Antonio, Texas, facilities to meet strong demand for communications and PC markets (ENR 1/22/95 p. 15).

As a major player in the PC chip market, VLSI is hurting, now that the outlook for PCs is dim, according to Datasource Research in Tempe.

"Within the chipset market, as in the case of the Pentium market, most of the market has been locked into the 486 market—the size of what it was last year."

"VLSI was one of the largest 486 chip manufacturers...they would have been in a bad area," he said. ♦