

Rohleder, senior analyst with In-Stat Inc., Scottsdale, Ariz. "This may be a precursor of a trend in the industry where we'll see more and more use of programmable logic in embedded applications."

The new chips, dubbed the PSD4XX

More than 25% of microcontrollers shipped today need external peripheral logic to function, said John Ekiss, vice president of marketing at Fremont, Calif.-based WSI. "These [parts] are a cost-effective solution compared to other designs that use

Sun, TI Agree To Develop Next-Generation Sparc

By Darrell Dunn

DALLAS — Sun Microsystems Inc. and Texas Instruments Inc. last week extended their partnership to the development and manufacture of the next-generation Sparc microprocessor, the 64-bit UltraSparc-I.

The new RISC processor would be the successor to TI's current 32-bit generation of devices, including the SuperSparc+, introduced in June.

As part of an "ongoing effort to expand

the open availability" of Sparc technology, Mountain View, Calif.-based Sun also announced that its Sparc Technology Business (STB) will begin offering system designers pre-production access to the UltraSparc-I core technologies, development tools, and processor prototypes through a newly created Early Access Program (EAP).

The UltraSparc-I will be fabricated in TI's 0.5-micron CMOS technology, and is expected to provide performance of more than 200 SPECint92, while operating with a clock speed in the range of 100 to 170 MHz. First silicon on the device is expected in late 1994, with full production scheduled for the early part of 1995.

The SuperSparc+, a 3.1-million transistor, 60-MHz device priced at \$849, provides SPECint92 levels of 77 to 80, according to TI.

Although the new generation will feature 64-bit capability, the planned family of processors will be binary-compatible with all 32-bit Sparc applications, which will help preserve software investments, the companies said.

The UltraSparc-I is designed to execute up to four instructions simultaneously, resulting in high performance with minimum clock speed, according to Rich Templeton, vice president of TI's semiconductor group.

Several UltraSparc-I CPUs will be interconnectable for even higher-performance multiprocessing applications, Templeton said.

Sun has previously indicated that future offerings in the 1995-97 time frame will include UltraSparc-II, also utilizing 0.5-micron CMOS technology, and UltraSparc-III, utilizing 0.5- to 0.4-micron BiCMOS technology. The family will ultimately have performance ranging from 700 to 1,000 SPECint92, the company said.

Licensees of the EAP will be able to reduce time-to-market cycles by getting "more than a year's jump" on the development of products based on the UltraSparc-I design, said Chet Silvestri, STB's vice president of technology sales.

Massimini.

"The cost of FPGAs is typically excessive for system designers, especially in high-volume application markets," Ekiss said. Also, FPGAs consume more power. "You still have to build an interface to the microcontroller if you bundle PLDs," he said.

The PSD4XX will be priced from \$6.68 in volume orders, which will be available next month. The PSD5XX will cost \$9.81 in volume, and likewise will be in production next month. Both devices are packaged in 68-pin plastic leaded chip carriers or 68-pin ceramic leaded chip carriers.

BiCMOS Fab Expansion

By Jonathan Cassell

SAN JOSE, CALIF. — Beefing up capacity to accommodate its increasing presence in the wireless communications market, National Semiconductor Corp. has begun a major expansion of its South Portland, Maine, BiCMOS production fab.

The expansion, part of Santa Clara, Calif.-based National's ongoing move to consolidate its manufacturing at a few key sites, will establish South Portland as National's center for BiCMOS production and research. Expected to cost \$77 million, the South Portland fab will begin production of 0.8-micron 6-in. wafers next summer.

The expansion reflects National's bid to be a major player in the emerging wireless market. The company said it will use the new fab capacity for its line of mixed-signal wireless communications ICs, such as its Digital European Cordless Telecommunications transceiver chip set and its PLLatinum PLL frequency synthesizer line for cellular telephones and wireless communications systems. National has said it will expand its wireless IC line in the future, offering chips for wireless LANs and WANs and for personal communications systems.

Communications represents a growing part of National's business; the company's computing and communications group has increased its percentage of total revenue to 31% for fiscal 1993, ended May 30, up from 29% in fiscal 1992, National said.

The expansion will add 12,000 sq. ft. of Class 1 clean-room space to South Portland's existing 444,000-sq.-ft. manufacturing facility. National said it will hire an additional 30 professional and production workers to staff the center.

National also maintains a CMOS center in Arlington, Texas, and an analog center in Greenock, Scotland.

Unitrode Controller

SAN JOSE, CALIF. — Unitrode Integrated Circuits Corp. last week unveiled what it described as the industry's first high-speed pulse-width modulation controller designed for high-frequency, synchronous rectifier, or zero voltage switching (ZVS) operation. Running in either voltage or current mode, the UC3824 is designed for use in low-output-voltage synchronous rectifier applications as well as off-line and dc-dc forward converter designs where low EMI/RFI is important.

One of the chip's two outputs controls the main converter-switch pulse width to regulate output voltage; the other output, when used in a synchronous rectifier application, drives a MOSFET in place of the commutating diode, for high efficiency in low-voltage supplies.

The device features a wide bandwidth error amplifier, a 50-ns propagation delay to output, and high-current dual totem-pole outputs. On-chip protection circuitry includes a current limit comparator with a 1-volt threshold, a TTL-compatible shutdown port, and a soft-start pin that doubles as a maximum-duty cycle clamp.

The UC3824 is available now in a 16-pin plastic, ceramic, or wide-body SOIC, a 20-pin PLCC, or a 20-pin LCC. Pricing is \$4.10 in 1,000-piece quantities.

The software... ing HLDA m... used for the... circuit patter... tern layout t... coordination... stages of the... nies will also... megacells to... velopment co... As the new... duced at Tos... sign centers... offer custom... and courses.

Speedy ECL

NEC Elect... View, Calif.,... pling a very... coupled logic... cember. The... ECL-8 family... ond-per-gate... toggle speeds...

The chips... quencies of u... company said... in a 0.5-micr... using NEC's... architecture.

A 23,000-g... fered in a 20... flatpack for 8... gate part in... QFP will cos... gate part wil... a 364-pin cer...

Actel 'Fitter'

Actel Corp... set to annou... age that will... programmab... easily integr... signs into a... field-program...

The "fitter... known, is ca... available at... buyers of AC... FPGA design... 2,500-gate F... allow PLD d... behavioral-a... signs, and w... of popular P... in Advanced... PALASM for... accepts sche... parts like an...