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Console wars: M'soft X-Box takes on Sony

By Will Wade and Junko Yoshida

SANTA CLARA, CALIF. – In a bold leap into the hotly contested videogame market, Bill Gates took the stage at the Game Developer's Conference here last week to announce that Microsoft Corp. will design and sell its own game console, the long-rumored X-Box, in time for next year's holiday season. Gates' speech came just four days after Sony Computer Entertainment launched its Playstation 2 in Japan to record sales of nearly 1 million units.

ANALYSIS

Just as the two announcements bracketed the week, the two systems are likely to become opposing standard-bearers in a technology war pitting two styles of graphics processing, two memory architectures

►CONTINUED ON PAGE 170

JOHN SAMORA

Fender amp designers Chuck Adams, Matt Wilkens and Dale Curtis (from left) offer an earful on the DSP-vs.-tube debate. Page 155.

10-Gbit stampede brings rush of ICs

By Loring Wirbel and Craig Matsumoto

BALTIMORE – The Optical Fibers Communications conference, once a quiet but intense series of technical sessions, took on the aura of a gold rush here last week. As system suppliers prepared for metropolitan rings and long-haul meshes with native 10-Gbit/second capabilities, semiconductor and optocomponent suppliers were scrambling to bring up factories, forge alliances and shift production to emphasize a cost-effective OC-192 infrastructure.

New players like ADC Telecommunications Inc. are mov-

►CONTINUED ON PAGE 22

What's Hot

USB 2.0 GETS NEW INTERFACE

At least six companies are prepared to rally around Intel's USB 2.0 Transceiver Macrocell Interface, which divides the 480-Mbit/second specification into two layers connected by a parallel interface. **Page 8**

HOPEFULS DEBUT AT OFC

The Optical Fibers Communications conference was both a hotbed of activity for photonics and MEMS (see story, this page) and a coming-out party for some novel startups. **Pages 4, 22**

MIXED-SIGNAL IPO EN ROUTE

Silicon Laboratories Inc. is readying an $84 million initial public offering. The mixed-signal company, with revenue of $46.9 million last year, makes direct access arrangement circuits, which are used to create "soft" modems for PCs.

eDolphin swims against current business models

Monterey brings EDA into the Internet age

By Michael Santarini

SAN JOSE, CALIF. – In a move one analyst termed a wake-up call to EDA, IC physical design tool startup Monterey Design Systems Inc. launched an aggressive Internet strategy and business model last week with an eye toward reshaping the way EDA companies interact with customers.

CEO Jacques Benkoski: Eyes 24/7 design support.

Monterey is partnering with Hewlett-Packard Co. to offer, via unidentified co-location hardware providers, a Web version of its Dolphin "in one pass" physical design system. The company also announced three e-services business models, the most aggressive of which has Monterey licensing unlimited tool seats and tapeout services to select customers and then collecting an additional fee for each successful design tapeout.

"It is a wake-up call to the EDA industry," said John Barr, financial analyst with Needham and Co. "Monterey has put forward some creative ideas of how to use the Internet with a flexible business model. They are open about what they are doing, and it is different."

Monterey's online move places the company "on the cusp of either greatness or disaster," said Jennifer Smith, analyst at Dain Rausher Wessels. "Everyone else in the software industry is moving to this model."

Smith noted, however, that Monterey's "hosting" model challenges existing EDA indus-

►CONTINUED ON PAGE 172

Bosch R&D manager calls for industry-wide client/server architecture in next-gen networked auto

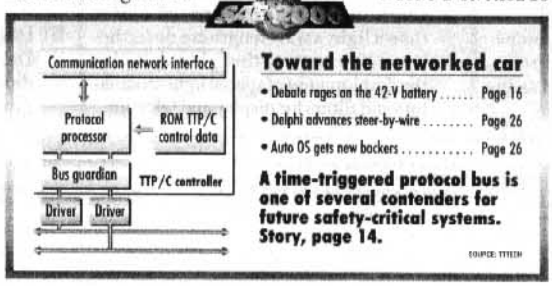
Europe takes lead in search of 'one-wire car'

By Charles J. Murray and Rick Merritt

DETROIT – Automotive engineers call it "the one-wire car." It's a dream of sorts–a vision of a future in which all of a vehicle's electronic features talk to one another. The rain-sensing wipers, for example, might one day tell the antilock brakes that it's raining outside. Or the driver information system could tell the power-train controller that the driver is having a heart attack.

Tying all those islands of electronics together, however, is a formidable task, made more difficult by the lack of a single set of automotive bus communication standards. Suppliers say they can't easily advance the state-of-the-art while dealing with a dozen different OEM-based protocols. Automakers complain that the lack of a standard is forcing them to put old electronics in new vehicles.

►CONT'D ON PAGE 16



Shortage of driver ICs hits LCDs, cellular

By Anthony Cataldo

TOKYO – A severe shortage of driver ICs for flat-panel displays has caused a bottleneck in production of the thin-film transistor (TFT) LCDs used in notebook and desktop monitors and is putting the squeeze on smaller passive screens that go into cellular phones. While many of the large driver IC makers in Japan are scrambling to boost supply, some are reluctant to invest in older technologies required to produce these key components.

LCD drivers are one of several hard-to-get components that threaten to stifle cellular phone shipments. If supply were to keep pace with demand, shipments could rise from last year's 260 million to 400 million this year, said Masatomo Miura,

►CONTINUED ON PAGE 6

Monterey puts physical design system on Web

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try pricing structures and addresses whether EDA vendors can effectively deliver "24/7" support.

Indeed, Monterey is the first of many system-on-chip tool vendors expected to unveil Internet strategies this year. EDA giants Synopsys and Cadence Design Systems are also expected to float new Internet business strategies. Toolwire, meanwhile, announced an EDA third-party application service provider (ASP) business late last year that's somewhat similar to Monterey's e-services strategy.

Monterey president and chief executive Jacques Benkoski said the new tool and "e-services" business model should highlight EDA's importance to the Internet infrastructure and unlock the Internet's potential for improving EDA's ability to make customers more productive.

Monterey's Web technology, eDolphin, is run remotely on HP machines at the customer's site or by co-location providers. Users launch eDolphin from anywhere in the world and on any client that runs a Web browser. After entering the Web address and adding some security coding, customers access the eDolphin physical design system, which is run on HP hardware maintained at a computer center at the customer's site or by Monterey's partner co-location providers.

Benkoski said HP was crucial in helping Monterey develop the new strategy.

"HP has been very aggressive in putting together these 'e-services' offerings," said Benkoski "It did a great job in helping us in qualifying the different co-location providers and also helped us with the business structure."

Others prepping

Bruce Toal, manager of worldwide technical server solutions at HP's High Performance Systems Division, said that HP is helping other EDA companies develop eServices strategies and that many of those should be announced in the coming months. "EDA companies are just now starting to realize the potential of the Internet, and HP is in a great position to help them."

Monterey declined to reveal its co-location partners, which will maintain the hardware and networking for the e-Services.

"Most of the major Internet sites are actually hosted by co-location providers," said Tom Quan, vice president of marketing at Monterey. "These providers have major data centers around the country and around the world that are linked with high-speed fiber optics. They are very secure, and it allows us not to worry about the network infrastructure, IT support or security."

Benkoski said the Web enabling of eDolphin has made the physical design environment well-suited for 24/7, worldwide collaboration. "You launch [eDolphin] remotely and access it interactively in batch mode. You can monitor what is going on, and you can have multiple people accessing the same database in a secure transaction," he said.

Monterey's e-services strategy is similar to Toolwire's EDA third-party ASP business. Toolwire and its co-location providers host third-party EDA tools that customers can access via a browser on a time-fee basis. Thus far, however, Toolwire has only hosted low-cost FPGA tools, not the the high-priced, more-complex EDA offerings that target the ASIC and system-on-chip markets.

Monterey is the first of many tool vendors expected to unveil a Net strategy in 2000.

"ASP is an interesting business model for a company that doesn't own software, but for a company like us that has a significant piece of software, the value we can add is much more significant than just downloading the tool with your credit card," Benkoski said. "We are trying to help our customers, who, to be honest, haven't done much to take advantage of the Internet.

Monterey plans to offer eDolphin through both external and internal deployment models. Under the internal deployment model, a design company and its worldwide design center would collaborate on projects remotely by accessing eDolphin running either on the design company's site or via a co-location provider. In the external deployment model, semiconductor companies, their design centers and their customers would collaborate remotely on eDolphin projects running on the semiconductor company's site or through a co-location data center.

"I have a crush on the external model because it allows our customers to establish a new interaction model with their customers," said Benkoski. "It allows our customers to change the ASIC model into a collaborative model."

Benkoski said semiconductor companies, for example, could have eDolphin virtual design centers for each of their big customers. The chip companies could thus work with customers throughout the RTL-to-physical-design handoff.

Monterey is offering three flexible business models with eDolphin. The most aggressive of the three, the Global Access Model, is a simplified version of the traditional global licensing scheme and borrows greatly from the "star IP" intellectual-property business model used by ARM, MIPS and others. Benkoski said traditional global licensing models restrict the number of seats customers can use at one time and limit tool use to certain geographical locations.

Global Access targets select independent device manufacturers (IDM). Customers get unlimited eDolphin licenses, access and tool support. Customers pay a nominal up-front fee and then a fee for each tapeout successfully produced with eDolphin.

"We want [to be motivated] to have our customers be successful at what they value, and what they value is tapeout," said Benkoski. "The best way is to simply say, 'We will collect a fee for each tapeout you create with our tool. Thus, we have a huge incentive to see that you reach tapeout quickly.' "

Tapeout fees

Benkoski said that the Global Access Model is highly flexible and that pricing will vary from customer to customer. For the right customer with the right design-start volume, he said, Monterey might forgo the up-front licensing fee and collect only a fee for each successful tapeout. The tapeout fee will depend largely on gate count and complexity and will likely range in the few tens of thousands of dollars for a 50,000-gate ASIC to tens of hundred thousands for large, complex systems-on-chip.

"We looked at how much it cost to develop Dolphin, how many people are going to use it, and what the value is to customers of adding access to it," said Benkoski. "What they want is access to Dolphin and to not be limited by a license that says 'per site' or 'per user.' And they don't want to be in the common relationship in which the vendor tries to shove as many licenses as it can and the users try to use as few as they can."

As in the IP business model, Benkoski said, Monterey expects to draw additional revenue when customers upgrade to smaller process geometries.

Design Portal Model

The second business model is the Design Portal Model, in which Monterey and partner semiconductor companies will maintain a design portal to customers and ensure the customers reach tapeout.

Depending on the semiconductor partner, Monterey would be willing to forgo fees from the semiconductor company to draw fees from the end customer, Benkoski said. "We will either be compensated with a flat fee or with a per-tapeout fee. We also want to make sure we are not competing with our customers, so if a semiconductor company prefers it, they can just pay us a flat fee."

The least aggressive of the company's e-service business models, the Time-based Design System Model, lets current Dolphin users access eDolphin and its hardware infrastructure if they need extra compute power or collaborative access for a limited time.

"The real advantage of this model for customers is that they don't have to go through all the up-front capital expenditure to have their small design centers linked to their operation," Benkoski said.

He said the model is not targeted at mom-and-pop shops that want access to high-end place and route. "One day we may offer that, but initially the size of the transaction has to be larger to make sense," he said.

Monterey (*www.monterey design.com*) does not currently have any customers signed for eDolphin but is in negotiations, he added.

Benkoski said his 80-person company is building its ranks to accommodate the new business.