Most Significant Bits

Pentium Has Pins—And Now We Know How Many
Ever since Intel's John Crawford told the Microprocessor Forum audience that Pentium "does have pins—but I don't want to talk about what kind or how many," we have wondered what the big secret is. Now that a company called Emulation Technology has announced a logic-analyzer interface for Pentium, the cat is out of the bag. According to a photograph of the interface, Pentium will use 273 pins in a 21×21, four-row pin grid array.

Intel had previously released specifications for an extended OverDrive upgrade socket, intended primarily for 486DX2 systems, that includes a fourth row of pins not used by the 486 for a total of 238 pins. The extra pins are intended for the future P24T, a Pentium derivative with a 32-bit bus. The difference between 238 and 273 pins is just about right to handle Pentium's wider 64-bit bus.

ARM Wins Bid for 3DO Interactive Video
Advanced RISC Machines (ARM) has won another key design for its ARM6 family of processors. The 3DO Company has selected the ARM60 chip for its new "Interactive Multiplayer." 3DO, a high-profile startup led by Trip Hawkins (formerly of Electronic Arts), hopes to set a new standard for interactive multimedia by licensing its technology to hardware and software vendors. The ARM60 will be combined with 3DO's custom graphics hardware. 3DO will not build hardware or sell software but is licensing its technology to other manufacturers.

Matsushita, an investor and one of the first hardware licensees, expects to ship a product this fall. AT&T is also an investor and hardware licensee. Other strategic partners and investors include Time Warner, MCA, Electronic Arts, and Kleiner Perkins Caufield & Byers. Time Warner and MCA will contribute portions of their film libraries to 3DO's "content library" and are also developing interactive software for the system.

Several key members of 3DO's technical team came from Apple's RISC group, including Hugh Martin, who headed Apple's RISC efforts, and Toby Farrand, who led the development of Apple's prototype RISC systems.

The ARM60 is an implementation of the ARM6 CPU macrocell, the same macrocell that is used in the ARM610, which was previously announced as the core of Apple's forthcoming Newton products. Unlike the ARM610, the ARM60 does not include any on-chip cache. The small size (80 mm^2) of the ARM60 allows for low cost, a necessary feature for a consumer-product design. 3DO also plans to take advantage of the size by integrating system functions with the CPU in future products.

This could be a very important design win for ARM because of the high volume potential and open licensing of the hardware design. It is also a significant endorsement of ARM's technology in that, unlike Apple's Newton, the processor was chosen primarily for its price/performance, not for its power-consumption advantages.

Digital Adds New Alpha Services
DEC continues its drive to sign up Alpha AXP vendors by offering a new set of design and integration services. The company will provide its technical personnel (of which DEC is probably over-supplied) to OEMs and end users, performing just about any design service from gate arrays to complete systems. If needed, the company will also provide assistance in software development, system manufacturing, distribution, and support.

Digital is making a serious effort to get vendors signed up for its Alpha architecture. After introducing its 21064 CPU at a stratospheric $1559, the company has cut the price to $1096 in 1000-unit quantities and will drop it to $800 in quantities of 50,000. System designers can use Alpha models with Cadence and Verilog design tools. DEC expects that over 400 applications will be ported to Alpha by March (mostly on VMS), with over 2000 applications "committed" to be ported in the future for VMS, OSF/UNIX, and Windows NT systems. So far, the OEM recruitment drive has netted Cray, Encore, Kubota, Olivetti, and Raytheon. Of these, Kubota recently became the first to announce Alpha-based systems with a family of high-end servers.

Avance Scales Back GUI-Ultra Plans
Avance Logic continues to struggle with its latest graphics accelerator, the GUI-Ultra. Originally expected to ship last November, the first version of the chip ran much slower than expected. The design target for the part was 90 MHz, but the first chips reached just 70 MHz. The designers have now released a metal-layer fix that is expected to improve the frequency to 76 MHz. This new version is expected back from fab soon and, if all goes well, it could be shipping in February.

Based on the 90-MHz target, Avance had expected the GUI-Ultra to significantly outperform similar chips such as S3's popular '805. The company now expects the new version to achieve roughly the same performance as the S3 chip. Despite the slips, Avance hopes that its chip will still find some design wins; the '805 has been so popular that S3 has not been able to meet the demand for its chips. Disgruntled customers may turn to another vendor if they can't get chips from S3, but Avance will have to demonstrate that its new silicon meets its performance goals before it can expect any design wins. ♦

Please note that, effective this issue, Microprocessor Report will be published on every third Monday, rather than on every third Wednesday.

