

**Embedded Benchmarks Grow Up** . . . . . 1  
 After years of making do with Dhrystones as a measure of embedded-processor performance, finally a group has stepped forward with something better. The EEMBC group is now ready to go public with its SPEC-like benchmark suite and already has some preliminary results from benchmark runs on a few processors.

**Editorial: Game Consoles Attack PCs From Below** . . . . . 3  
 Looking much like PCs, but with workstation-class 3D performance, next-generation game consoles from Sony and Nintendo could take a bite out of the sub-\$500 PC market. There is no apparent hardware obstacle, and lack of Windows support may not be debilitating.

**Most Significant Bits** . . . . . 4  
 AMD's mobile assault continues with K6 IIIP; Intel rolls out 0.18-micron Dixon; Desktop Celeron prices continue to plunge; Intel commits to 300-mm wafers; ZDBOp zaps benchmark bugs.

**Embedded News** . . . . . 5  
 Intel expands embedded x86 lineup; Motorola enhances PowerPC line; Sun offers embedded UltraSparc IIe.

**Hitachi SH7751 Gains a PCI Interface** . . . . . 10  
 A new version of Hitachi's SH7750 (the CPU in Sega's Dreamcast) cuts power consumption nearly in half and adds a PCI interface, making it one of only a few CE-capable embedded processors with PCI.

**Arm Refocuses DSP Effort** . . . . . 11  
 After failing to extend its ARM into signal-processing applications with Piccolo, Arm will try again. This time, the company is taking the more conservative—and more likely to succeed—approach of enhancing its popular ARM9 core with DSP features such as fast multiply-accumulate, saturating arithmetic, and SIMD processing.

**A Concise Review of 3D Technology** . . . . . 14  
 Modern 3D-graphics engines employ a number of confusing and complicated tricks to render realistic 3D scenes at high resolution and high speed. In this article, we demystify the popular techniques that are being implemented in many of today's 3D chips.

**Alpha Challenges Xeon With Slot B** . . . . . 19  
 Alpha Processor (API) has created a new Slot B module for Alpha 21264 servers. The new module could someday be used for AMD K7-based servers, since it uses the same bus as AMD's Slot A.

**The Slater Perspective: Business Computers: AMD's Next Hurdle** . . 20  
 AMD has beaten down the barriers in consumer PCs, managing to make K6 processors acceptable replacements for Intel processors. But can it now extend this success into business markets with the K7?

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