AUDIO/VIDEO

Prep for a multimedia future. It's not just your home and office electronics that may soon handle streaming video and multichannel audio. Designers are feverishly pursuing a mobile environment in which the Internet, wireless links, personal communication devices, entertainment electronics, and traditional car systems converge. Maury Wright, *EDN*, 8/19/99, p. 78, 6 pp.

Everything you wanted to know about MPEG-7: part 1. Audio-visual information must allow some degree of interpretation, which can be passed onto, or accessed by, a device or a computer code. MPEG-7 aims to create a standard for describing these operational requirements. Frank Nack, GMD-IPSI, and Adam Lindsay, Starlab; *IEEE Multimedia*, 7/99, p. 65, 13 pp.

DESIGN TOOLS

Perk up productivity with profiling tools. Debugging and optimizing today's 32-bit embedded applications is becoming increasingly difficult. Designers of embedded systems are relying more on software profiling techniques to optimize and debug the code. N. S. Manju Nath, *EDN*, 9/2/99, p. 123, 5 pp.

A Verilog programming-language-interface primer. Using the HDL's programming-language interface is valuable for invoking a C function from Verilog. This article provides the information to start writing useful PLI routines. Swapnajit Mittra, SGI; *EDN*, 9/2/99, p. 75, 6 pp.

DEVELOPMENT TOOLS

Validation-based development of dependable systems. The authors have defined a strategy for testing fault-tolerance mechanisms, integrated it into the design process, and developed fault-injection techniques for VHDL models that are supported by a generic tool. Jean Arlat et al., LAAS-CNRS; *IEEE Micro*, 7/99, p. 66, 14 pp.

IC DESIGN

10 tips for generating reusable VHDL. Your ability to reuse blocks expressed in an HDL is critical to designing systems on chips. Here are some tips you can use to generate VHDL-based blocks that you—and others—can reuse in subsequent chip designs. Subbu Meiyappan et al., VLSI Technology; *EDN*, 8/19/99, p. 49, 8 pp.

Fine-tuning memory macros using variable internal delays. Embedded memory blocks should be as versatile as possible, with optimal performance and an adequate sense-amplifier signal over the manufacturing process range of each chip. Several simple techniques exist for adapting these macros to different applications running at different speeds. Ken Gray, VLSI Technology; *IEEE Spectrum*, 8/99, p. 44, 6 pp.

RTL tools take design planning to a higher level. Systems-on-a-chip (SOC) reaching into the tens of millions of gates have made gate-level design planning inadequate. Making design decisions at the RTL, before synthesis, is desirable. Jim Lipman, *EDN*, 8/5/99, p. 87, 6 pp.

Enhanced flip-chip packaging technique boosts IC reliability and performance. A new flip-chip package promises better system reliability and performance by combining a fluoropolymer dielectric with a stress compensation layer. Dave Bursky, *Electronic Design*, 8/23/99, p. 29, 2 pp.

MEMORY

DDR-SDRAM, high-speed, source-synchronous interfaces create design challenges. System-performance expectations are outstripping the capabilities of traditional synchronous interfaces. Source-synchronous interface alternatives provide additional bandwidth but require more careful design analysis and implementation. Hansel Collins and Ronald Nikel, TriCN Associates; *EDN*, 9/2/99, p. 63, 6 pp.

MISCELLANEOUS

Competitive challenges force innovation. Improvements in semiconductor manufacturing technology, based on the famous Moore's Law, continue to push performance to higher levels. A key concern, however, is what the end product of these increases will be. Linley Gwennap, Cahners MicroDesign Resources; *Cahners Electronics 2000*, p. 102, 6 pp.

What events from the past will define our future? What factors and events from the past decades stand out as pivotal? What do these tell us about where the electronics industry is going? William Swift, Technical Market Investigations; *Cahners Electronics 2000*, p. 46, 7 pp.

PERIPHERAL CHIPS

Getting the most from Fast Ethernet ICs. Highly integrated Fast Ethernet ICs decrease system costs without diminishing system performance. However, controlling EMI, ensuring performance and interoperability, and protecting against ESD are still crucial to producing the desired end product. David Jones, Level One; *EDN*, 8/19/99, p. 69, 4 pp.

PROCESSORS

High-performance RISC microprocessors. Two MIPS cores based on the Montage architecture support the needs of embedded systems and consumer appliances. The flexibility of the architecture permits extensions to be rapidly implemented to meet demanding customer requirements. Jack Choquette et al., Sandcraft; *IEEE Micro*, 7/99, p. 48, 8 pp.

SYSTEM DESIGN

Microprocessors start to become power misers. To meet the needs of booming portable markets, microprocessor vendors are now paying serious attention to power dissipation, along with increased performance and new features. *Portable Design*, 8/99, p. 16, 5 pp.

IrDA technology. Cameras talking to PDAs, talking to PCs, talking over the Internet, talking to each other … . Once you get the latest word on IR communication standards, your embedded designs will want to join the conversation too. Hari Ramachandran, Parallax Research; *Circuit Cellar*, 10/99, p. 60, 5 pp.