BUSES

Firewire unleashes the power of digital video. Developing a simple digital-video application shows the potential as well as the limitations of the interfaces and projects how you might use it as Microsoft makes 1394 support standard in Windows NT, 95, and CE. Maury Wright, *EDN*, 7/3/97, p. 44, 10 pp.

IC DESIGN

ASIC design flow scores on first pass. Crystal Semiconductor and Cirrus Logic team up to design a wavetable synthesizer chip. Shekhar Patkar and Pran Kurup, Cirrus; *Integrated System Design*, 8/97, p. 18, 5 pp.

The seven deadly sins of scan-based designs. Scan-based design in ASICs requires attention to certain design techniques. Benson Cheung and L.T. Wang, SynTest Technologies; *Integrated System Design*, 8/97, p. 50, 4 pp.

Presynthesis chip design: a view from the top. When designing complex chips, eliminating false design paths is as important as accurately executing the correct design procedures. Jim Lipman, *EDN*, 7/17/97, p. 73, 6 pp.

Using hierarchical clock-tree synthesis to generate balanced clock trees. High-performance ASICs require careful clock design to achieve full performance from ASIC processes. Pierre Ragon, Lucent Technologies, and Abhijeet Dugar, Compass Design Automation; *Integrated System Design*, 8/97, p. 40, 4 pp.

Creating a cost-effective alternate supply for single-source ICs. Here's a way to minimize costly board redesign and time-consuming system requalification. George Chamberlain, et al, Semiconductor Insights, and Les Thurlow, Technology Marketing Services; *Integrated System Design*, 8/97, p. 28, 5 pp.

MEMORY

Data storage in a flash. Flash vendors are overwhelming the market with incompatible products for data and file storage. Look beyond the data sheets and consider both current and future operating requirements. Brian Dipert, *EDN*, 7/3/97, p. 65, 9 pp.

MISCELLANEOUS

Transistors of the future: will diamonds be an engineer's best friend? The electronics industry will have to start developing and using new materials and technologies to keep up with the increasing need for smaller, faster transistors. Clive Maxfield, Intergraph Computer Systems; *EDN*, 7/17/97, p. 123, 5 pp.

Plasma-display panel technology targets 21st-century consumers. Perhaps the most alluring consumer application for flat-panel displays with screen sizes larger than 20" diagonal is high-definition television (HDTV). Albert Lee, Fujitsu; *Electronic Design*, 6/23/97, p. 80, 3 pp.

Intelligent transportation systems hit the road. Innovative applications, developing standards, and advanced technologies are spurring an increase in ITS deployments. Cheryl Ajluni, *Electronic Design*, 6/23/97, p. 65, 4 pp.

Windows CE: at the center of a juggling act. Find out if WinCE has what it takes to compete with the traditional embedded OSs. Markus Levy, *EDN*, 7/17/97, p. 38, 7 pp.

Java moves full-tilt toward the embedded world. Several developments point the way toward a wide variety of embedded and portable communicating systems based on Java. Tom Williams, *Electronic Design*, 6/23/97, p. 127, 3 pp.

PERIPHERALS

ATM isn't dead yet—ADSL could be the catalyst for deployment. ATM provides manageability and multimedia capabilities, while ADSL delivers services over existing twisted-pair cabling. Gary Mading, Motorola; *Electronic Design*, 6/23/97, p. 133, 3 pp.

ATM-switch chips switch on Net reliability. Redundancy is the key to building reliable ATM switches: chips and system architectures must collaborate on switches that can survive multiple simultaneous faults. Stephen Kempainen, *EDN*, 7/3/97, p. 89, 8 pp.

PROCESSORS

The need for speed. The new generation of CPUs pushes the gaming envelope even further. Loyd Case and Dave Salvator, *Computer Gaming World*, 8/97, p. 116, 9 pp.

SYSTEM DESIGN

Consumer-product pressures drive emulation and prototyping. High volumes and tough competition are behind the improvements in EDA system design and verification. Michel Courtoy, Aptix; *Electronic Design*, 6/23/97, p. 73, 4 pp.

When caches aren't enough: data-prefetching techniques. With data prefetching, memory systems call data into the cache before the processor needs it, thereby reducing memory-access latency. Steven P. VanderWiel and David J. Lilja, Univ. of Minnesota; *Computer*, 7/97, p. 23, 8 pp.

Boosting the performance of shared memory multiprocessors. Proposed hardware optimizations to ccNUMA machines—shared memory multiprocessors that use cache-consistency protocols—can shorten the time processors lose because of cache misses and invalidations. Per Stenström, Chalmers Univ. of Technology; Mats Brorsson, Lund Univ.; et al; *Computer*, 7/97, p. 63, 8 pp.

PCI speeds encourage processorless frame grabbers. A processorless frame grabber uses the host CPU for image-processing tasks and thereby reduces both the cost and the complexity of the imaging card. Sam Shearman, *Personal Engineering*, 7/97, p. 25, 11 pp.

Low-voltage differential-signaling ICs provide speed, impedance match. Low-voltage differential signaling (LVDS) offers a way to achieve blazing data-transfer rates with minimal power consumption and high noise immunity. Bill Travis, *EDN*, 7/17/97, p. 89, 6 pp.