Literature Watch

Buses

Home automation buses: protocols really hit home. Buses using wired and wireless technology—including infrared, narrowband, and spread-spectrum communication—are bringing entertainment, security, and energy conservation to the home. Dan Strassberg, *EDN,* 4/13/95, p. 69, 7 pp.

Development Tools

STEP: a new standard for EDA tools. STEP may replace PC-board standards such as EDIF, CFI, and Gerber. Lars Celander, Institutet för Verkstadsteknisk Forskning, *EDN,* 4/13/95, p. 125, 3 pp.

Design-rule checks help users create complex layouts. Many PC-board layout tools incorporate design-rule checkers. Russ Lindgren, *Personal Engineering,* 5/95, p. 24, 5 pp.

Deep-submicron technology forces design-tool changes. Engineers need improvements over existing tools to deal with the challenges of submicron ASIC designs. Lisa Maliniak, et al, *Electronic Design,* 4/3/95, p. 53, 13 pp.

Graphics/Video

Single chip performs both audio and video decoding. Hyundai's 8211M controls both audio and video decoders and other key functions in an MPEG-2 decoder subsystem. Dave Bursky, *Electronic Design,* 4/3/95, p. 77, 4 pp.

Video overlays turn PCs into TVs. A number of video-connection schemes, high-bandwidth buses, and high integration chips can transform tiny video overlays to full-screen, full-motion displays. John Gallant, *EDN,* 4/27/95, p. 67, 6 pp.

Miscellaneous

Innovative technology boosts disk drive performance. Until about three years ago, disk-drive technology had been gaining capacity and improving performance at a rate of 30% per year. Currently, the rate is 60% per year. Charles H. Small, *EDN,* 4/27/95, p. 48, 8 pp.

Microkernel and modular OSs. To produce more compact and adaptable code, software vendors are segmenting their operating-system kernels into modules surrounding a microkernel. Richard A. Quinnell, *EDN,* 4/13/95, p. 43, 5 pp.

Wireless personal communications: what is it? An overview of the standards, technologies, products, and companies in this emerging segment. Donald C. Cox, *IEEE Personal Communications,* 4/95, p. 20, 16 pp.

The interview: David Nagel. Applesoft's top manager scopes out convergence and a Mac-clone strategy. Rick Boyd-Merritt, *OEM,* 4/95, p. 35, 5 pp.

Peripherals

Designing the MPC105 PCI bridge/memory controller. The "Eagle" chip supports PowerPC 60x processors. Karl Wang, et al, Somerset Design Center, *IEEE Micro,* 4/95, p. 44, 6 pp.

Infrared data transmission: the missing link? Cheap, fast, and reliable standards-based infrared builds bridges between computers, peripherals, and PDAs. Lee Goldberg, *Electronic Design,* 4/17/95, p. 47, 9 pp.

Chip set lets PCI bus run at its peak bandwidth. Symphony's Rossini chip set for Pentium integrates direct access to PCI, eliminating the bridge chip. Richard Nass, *Electronic Design,* 4/3/95, p. 155, 2 pp.

Processors

The superscalar architecture of the MC68060. The 68060 delivers 103 Dhrystone MIPS at 66 MHz while maintaining compatibility with 68K user code. Joe Circello, et al, Motorola; *IEEE Micro,* 4/95, p. 11, 12 pp.

Porting software from the 040 to 060. Realize a two- to threefold performance boost by migrating 68040 embedded applications to the 68080. Chris Shinners, Jeff Durst, Heurikon; *Electronic Design,* 4/17/95, p. 136, 5 pp.

Accelerating multimedia with enhanced microprocessors. HP's PA7100LC introduces new multimedia instructions to PA-RISC. Ruby B. Lee, Hewlett-Packard; *IEEE Micro,* 4/95, p. 22, 11 pp.

Superscalar instruction execution in the 21164 Alpha microprocessor. The latest Alpha chip uses a high clock rate, low latencies, and a nonblocking memory system to achieve 345 SPECint92. John H. Edmondson, et al, Digital; *IEEE Micro,* 4/95, p. 33, 11 pp.

DMA module enhances µC CPU performance. Motorola's HC08 contains an on-chip DMA module that offloads many data-transfer tasks from the CPU, enhancing system performance. Kevin Anderson, Motorola; *EDN,* 4/13/95, p. 117, 5 pp.

System Design

Laying siege to the server. Pentium- and P6-based servers are changing the rules for competing against big RISC machines. Michele Clarke, Rick Boyd-Merritt, *OEM,* 4/95, p. 52, 7 pp.

Low-end desktops. In the $5,000 price range, Pentiums sporting Unix give HP and SPARC systems a run for their money. Curt Aubley, Neal Nelson and Associates, Arlie Barber, U.S. Army; *Advanced Systems,* 5/95, p. 42, 7 pp.

Processing in memory; the Terasys massively parallel PIM array. The PIM prototype in a workstation environment delivers supercomputer performance at a fraction of the cost. The next step is to incorporate PIM chips into Cray-3 memory. Maya Gokhale, David Sarnoff Research Center, et al; *IEEE Computer,* 4/95, p. 23, 9 pp.

Set-top boxes: few standards but a rosy outlook. Fast CPUs and MPEG decoders are critical to digital set-tops, but standards are unresolved. Richard Nass, *Electronic Design,* 5/1/95, p. 101, 5 pp.

