

AUDIO/VIDEO

Trade-offs in multimedia design. The challenge for multimedia design is how to balance trade-offs early on, so you don't make a solid commitment to an approach that's hard to change later in the design. John Bond, *Computer Design*, 11/98, p. 68, 7 pp.

BUSES

Crossbar switching becomes a viable design alternative. To reach performance goals, systems designers must choose a standard bus architecture or invent their own. Crossbar technology should be considered whenever the aggregate bandwidth of computing elements is capable of saturating a bus. Robert Gott, *Computer Design*, 11/98, p. 14, 3 pp.

DEVELOPMENT TOOLS

Real-time development environments for DSP. Today's complex, real-time DSP systems place new stringent requirements on developers. Interactive graphical development environments tuned for DSP applications can make the difference. John Stevenson and Omar Fattah, *Go DSP*; *RTC*, 11/98, p. 21, 3 pp.

DSP

Heterogeneous multiprocessing: changing levels of integration. New generations of processors—multiple DSP engines on a single die—and RISC machines with new levels of integration, such as Motorola's AltiVec and Intel's Katmai, are raising the performance bar. *RTC*, 11/98, p. 51, 2 pp.

Digital signal processors are faster, smaller. Assisted by Apollo's timing-driven option, ZSP revs up its 16-bit DSP engine to 200 MHz while reducing overall system power and cost. Chakra Srivatsa, ZSP; *Electronics Journal*, 12/98, p. 24, 3 pp.

On building a DSP. What would it be like if you could replace your resistors, capacitors, and op-amps with the laws of nature they're meant to simulate? Don Morgan, Ultra Stereo Labs; *Embedded Systems Programming*, 11/98, p. 117, 4 pp.

IC DESIGN

Silicon-on-insulator technology hits the ground running. SOI entails surrounding on-chip transistors with a blanket of insulation that eliminates loss while enabling microchips to cut energy use by two-thirds and run 33% faster. Robert Patton, *Electronics Journal*, 12/98, p. 11, 3 pp.

Bringing up an ASIC prototype. With months of effort at stake, designers should keep in mind several guidelines to tame the chaos of the ASIC evaluation and characterization process. Kenneth Ngoc Nguyen and James Fenton, Tektronix; *Integrated System Design*, 12/98, p. 38, 6 pp.

MEMORY

Memory design considerations for accelerating data transfer rates. Rambus leads the performance pack, but the jury is still out on the cost/performance question. Mark Ellsberry, Hyundai; *Computer Design*, 11/98, p. 58, 3 pp.

PERIPHERAL CHIPS

Gigabit Ethernet PHY chip sets LAN speed record for copper. With 150 billion DSP operations/s, the first IEEE-802.3ab-compliant IC delivers Gigabit Ethernet over Cat-5 twisted pairs. Lee Goldberg, *Electronic Design*, 11/16/98, p. 40, 4 pp.

PROCESSORS

Multimedia drives unified processor architecture. Two processors that will have a significant impact on real-time applications with signal- and image-processing components are Intel's Katmai and Motorola's next-generation PowerPC G4. Richard Jaenicke, Sky Computers; *RTC*, 11/98, p. 67, 3 pp.

Advanced processes and architectures boost x86 CPU performance levels. Pushing clock speeds to 500 MHz and beyond, x86 processors can now deliver supercomputing performance on the desktop. Dave Bursky, *Electronic Design*, 11/16/98, p. 69, 6 pp.

PROGRAMMABLE LOGIC

How do you program your processor? It's a PLD. It's a microprocessor. Can you say configurable processor system unit? What's it worth to you? Jim Turley, Micro-Design Resources; *Embedded Systems Programming*, 11/98, p. 11, 4 pp.

Focus report: programmable logic. Looking to lure designers with the promise of flexibility and fast turnaround, vendors have cooked up a virtual feast of programmable devices. Gil Bassak, *Integrated System Design*, 12/98, p. 50, 7 pp.

SYSTEM DESIGN

Asymmetric multiprocessing for CompactPCI. Although single-processor systems provide adequate solutions to many of today's control challenges, a multiprocessing system can increase performance, hasten response time, and simplify software development. Greg Kopchinski, Ziatech; *RTC*, 10/98, p. 21, 3 pp.

64-bit computing with Alpha and CompactPCI. Emerging 64-bit technology delivers the bandwidth and speed needed to address the increasing performance demands of embedded applications. Clark Roundy and Jason Lowry, Alta Technology; *RTC*, 10/98, p. 67, 2 pp.

Configuring changable embedded systems. Here are some guidelines for designing and implementing software to handle configuration in changable systems. The example is the energy-control system for Tera Computer's new supercomputer. Eric McRae, *Embedded Systems Programming*, 12/98, p. 42, 5 pp.

Shining light on short-haul connectivity. IrDA's upcoming Very Fast Infrared (VFIR) specs will move IrDA-compliant links from today's limit of 4 Mbits/sec to a whopping 16 Mbits/sec. Paul Gendreau, *Portable Design*, 11/98, p. 29, 5 pp.