

■ Pentium/MMX Goes High Temperature

Intel is qualifying its aging Pentium/MMX processor for extended temperature ranges, a move that could make the one-time PC processor more attractive to designers of embedded industrial and automotive applications. In fact, Visteon, Ford's automotive-electronics subsidiary, has already signed up to use the processor in unspecified "future in-car computing applications."

Officially dubbed the Extended Temperature Pentium Processor with MMX Technology (ETPPMT), the 166-MHz chip is unchanged from its earlier days as a PC processor. The 0.25-micron silicon is housed in a plastic ball-grid-array package that measures 35 mm on a side. The chip is rated for temperatures from -40°C to $+85^{\circ}\text{C}$ (ambient) or $+115^{\circ}\text{C}$ (case temperature). Intel rates the mixed-voltage device's power consumption at 4.1 W (maximum).

The chip is scheduled to go on sale in 2Q99 at a 1,000-piece price of \$49.50. Although this is only a small premium over the standard-temperature part, it is still more expensive than comparable high-temperature RISC processors.

For many customers, the x86 support structure, tools, and software base are worth the premium. The value of Windows compatibility in automotive applications remains unclear, however. Avoiding for now the obvious jokes about the danger of crashes, it seems a PC-compatible car computer would be relegated to entertainment functions, not navigation or safety features. —*J.T.*

■ Lucent Releases Two-Headed DSP16410

In the never-ending quest for higher DSP performance, Lucent has doubled up on its DSP16000 cores, placing two identical processors in the same package. The new bicephalic device, the DSP16410, delivers a peak performance of 800 multiply-accumulate operations per second. The chip will begin sampling 2Q99 with production quantities slated for 4Q99, according to Lucent. In 10,000-unit quantities, the DSP16410 will sell for about \$80.

Some DSP users are less interested in MIPS/mW than in MIPS/in². Packing density in cellular base stations, for example, is of vital importance. Modem banks, too, place a high premium on packing density, leading Lucent and other vendors to create superscalar—or just multiple scalar—DSP processors. TI's 'C5420 chip is similar to Lucent's new device, with two 'C54x DSP cores in a single package. Marketing literature for such devices has a bad tendency to claim performance is twice that of the basic DSP, a misleading statistic that confuses quantity with quality. Spreading work across two cores is nontrivial, and both cores share the same buses, limiting scalability. Nevertheless, such densely packed DSPs are becoming more common, competing for floor space and rack space with their more conventional cousins. —*J.T.*

■ TI Does Floating-Point DSP on the Cheap

DSP titan Texas Instruments is extending its considerable selection of DSPs at the high and low ends, introducing two new floating-point DSPs. The 'C33, at the low end, sells for as little as \$5, while the 'C6711 complements TI's young 'C6211 fixed-point device (see MPR 9/14/98, p. 11). In typical TI fashion, both chips are a long way from production, which is currently scheduled for 2Q00.

The 120-MHz 'C33 is compatible with the existing 'C30, 'C31, and 'C32 chips, but it has a much larger 1-Mbit block of local SRAM. In large (100,000-unit) quantities, the chip's price can dip below \$5; in single units, the 'C33 is priced closer to \$20. Because the 'C3x family uses a 2× clock multiplier, the 'C33 should deliver 60 (not 120) native MIPS, comparable with ADI's 2106x Sharc chips.

The new 'C6711 is based on the eight-way VLIW core of its 'C6201 progenitor (see MPR 2/17/97, p. 14). Like the fixed-point 'C6211, the 'C6711 has an unusual two-level internal memory structure. Its 64K block of SRAM can be carved into 16K blocks of SRAM or cache, at the user's option. The 'C6711 will be offered at 100 and 150 MHz; like the 'C33, the chips are built in TI's new 0.18-micron process.

TI's 'C3x family has enjoyed considerable success in the past, but TI has let the family stagnate, leading some to speculate that the family would be passed over for further development. This announcement is a definitive refutation of that speculation—TI is bringing the 'C3x up to date with respect to clock speed and on-chip memory. —*J.T. and Jeff Bier*

■ MediaQ Debuts With Embedded Graphics Chip

Startup MediaQ (Santa Clara, Calif.) has announced its first product, a 2D-graphics controller with embedded DRAM for use in consumer-electronics devices. The MQ-200 includes a 2D-graphics engine, an LCD controller, DACs for a CRT display, and 2M of on-chip DRAM. The chip works with embedded SuperH, StrongArm, and MIPS processors, by virtue of its flexible host interface.

The 23-person company includes S3, C&T, and Cirrus alumni with experience in 2D- and 3D-graphics controllers and system logic. The group believes that consumer devices, such as set-top boxes, game consoles, PDAs, and Web terminals, will be the best targets for its integrated controller. The device is sampling now in a small (12 × 12 mm) package. When production begins next quarter, the MQ-200 will sell for \$28 in 1,000-piece quantities. Wisely, MediaQ (www.mediaq.com) is staying well away from the 3D-accelerator fray, focusing entirely on low-cost devices that the company hopes will become commonplace. Its integrated DRAM is unusual but eliminates the need for an external frame buffer, making the chip attractive for devices that need an LCD, modest 2D-graphics performance, and a small footprint on the PCB. —*J.T.* □