

■ **Settlement Between 3Dfx, Sega Game Graphics**
Graphics-chip maker 3Dfx has settled its lawsuit against Sega, NEC, and VideoLogic over an alleged breach of contract regarding development for Sega's next-generation video game, now called Dreamcast (see MPR 6/1/98, p. 8). Terms of the settlement are being kept secret, but all parties concerned say they are happy with the resolution.

The conflict arose after a *Microprocessor Report* article announced that Sega was planning to switch from 3Dfx to NEC graphics chips for Dreamcast (see MPR 7/14/97, p. 5). The stock of 3Dfx, which had gone public just a few days earlier, lost up to 43% of its value on release of the news. Subsequently, 3Dfx sued Sega, accusing it of gaining access to 3Dfx proprietary information and then canceling its contract. The suit also named NEC, and later VideoLogic, for interfering with the Sega relationship.

Although the Sega Dreamcast does, in fact, use NEC's PowerVR graphics controllers, losing the Sega business does not seem to have wounded 3Dfx too seriously. The company's Voodoo and Voodoo 2 graphics chips are still the preferred graphics controller among PC gamers. —J.T.

■ NEC Releases 144-MHz V832

Adding to its line of stealth microprocessors, NEC has quietly announced sampling of the V832, the newest member of its V830 family (see MPR 6/2/97, p. 22). The V832 has the fastest clock rate of any family member and is the first with an integrated synchronous DRAM controller. Like previous V830 chips, the V832 is destined for midrange consumer items such as navigation systems and printers.

In addition to its SDRAM controller, the V832 has a four-channel DMA controller, hardware MAC (multiply-accumulate), pulse-generation unit, serial interfaces, and an interrupt controller. The 0.25-micron CMOS part consumes 380 mW (typical), according to the company.

At \$18.50 in 10,000-piece quantities, the V832 is about the same price as Matsushita's new AM33 processor, but has a faster clock rate, significant hardware assists for media processing, and somewhat better tool support. The V832 will doubtless appear in NEC-branded consumer items before the middle of next year. —J.T.

■ Motorola PowerPC 603e-266 Gets Hot

Extending its agreement with two subcontractors (see MPR 7/14/97, p. 4), Motorola is offering its 266-MHz PowerPC 603e chip in industrial (–40° to 85° C) and military (–55° to 125° C) temperature ranges. Previously, these temperature grades were available at speeds up to 200 MHz. In lots of 1,000, the industrial version sells for \$289, a hefty 2.5× premium over the price of a commercial-grade 250-MHz chip. Pricing for the military version is top secret. —J.T.

■ Mitsu M32Rx/D Increases Speed, Capacity

Mitsubishi is planning an upgrade to its oddball microprocessor-cum-memory chip, the M32R/D (see MPR 5/27/96, p. 10). The newer version, dubbed the M32Rx/D, increases performance through a faster clock rate, a dual-issue CPU, a wider external bus, and a larger memory array. Mitsubishi has not revealed a production schedule for the new part, although we expect that the chip will ship in the latter half of 1999.

Like its predecessor, the new M32Rx/D is both a 32-bit microprocessor and a synchronous DRAM. That is, the chip contains 32 Mbits (4 Mbytes) of DRAM on the same die as the M32 microprocessor core. A 128-bit bus between the CPU and the DRAM array allows the part to fill a cache line in a single cycle. The chip has a bidirectional external interface, which the M32 CPU can use to access external memory and peripherals, or that another bus master can use to access the chip as a synchronous DRAM.

In Mitsubishi's 0.25-micron "HyperDRAM" fabrication process, the chip is expected to reach 100 MHz, a 33% improvement over the earlier 0.4-micron parts. The company also reworked the microarchitecture of the M32 processor core: the new version can issue up to two instructions at once, and it sports 12 new instructions. Finally, Mitsubishi increased the width of the chip's external bus from 16 to 32 bits and raised its speed from 16 to 25 MHz.

Although the M32R/D has not been spectacularly successful in the commercial marketplace, it does have some compelling advantages. Embedded DRAM promises lower power consumption, smaller package sizes, less EMI, and (at least potentially) better performance than more conventional CPUs. The biggest hurdle for Mitsubishi is the shortage of development tools for the M32 family. Once Mitsubishi starts using the ColdFire or 68K architectures it licensed from Motorola (see MPR 10/28/96, p. 5) that problem may go away. —J.T.

■ Panasonic Promotes Proprietary Processor

Matsushita (better known by its Panasonic brand name) has developed a line of 32-bit microprocessors for use in its own consumer-electronics systems. The MN30100 family has variable-length instructions, eight 32-bit registers, and architectural support for media coprocessors or other extensions. A port of Windows CE is also in the works. M-Core and V800 chips will be the primary competition. —J.T.

■ Erratum: NEC VR5432

In an earlier issue (see MPR 6/1/98, p. 13), some data regarding NEC's VR5432 was incorrectly listed in Table 1. The correct data for that chip is 167 MHz, 347 MIPS, 32K caches, and 2.5 -W power consumption. —J.T. □