1992

32-bit RISC microprocessors/controllers with original architecture (Hitachi)

~ Integrated Circuit ~

32-bit microprocessors came into the limelight in the multimedia era. RISC, which was advantageous in terms of cost performance ratio, rapidly developed as a 32-bit microprocessor technology for servers, while CISC technology had been almost exclusive in 32-bit microprocessors until then.
Many new 32-bit microprocessors of RISC technology such as SPARC, PA-RISC, POWER-PC, MIPS, ARM, etc. started to be released in the market from leading server manufacturers and semiconductor manufacturers.

Meanwhile, in the IT industry such as computers and semiconductors, there were growing concerns about possible controversies on intellectual property rights of computer architectures. Under these circumstances, domestic semiconductor manufacturers were trying to shift from products compatible with overseas microprocessor architectures to microprocessors with their own proprietary architectures. In Hitachi, SH microprocessor with a new 32-bit microprocessor RISC architecture optimized for embedded applications was developed. The development was promoted with the numerical targets of "best in the world in performance (MIPS) / chip size, power consumption/performance (W/MIPS), and code efficiency", and the product was launched in 1992. And it was widely adopted for new digital consumer appliances such as car navigation systems and digital cameras which required performance of 32bit class processors. The road-map based product line up was progressed, and it was widely adopted in the fields such as engine control applications for automobiles, computer peripherals, mobile phones, and in 1995, it achieved world top position in RISC microprocessors.

In the field of cellular phones which grew rapidly since 2000, a new business model was established. Platforms with microprocessors and software were jointly developed in collaboration among communication carriers, cellular phone handset manufacturers, and semiconductor manufacturers, and then provided to the market as references and application development platforms. The SH - Mobile series played a central role in this business model in the domestic market. In June 2010, the SH-microprocessor (SH3) was also adopted for the asteroid explorer "Hayabusa" which returned after 7 years from the 6 billion km of space travel, demonstrating its outstanding power consumption/performance efficiency and reliability.
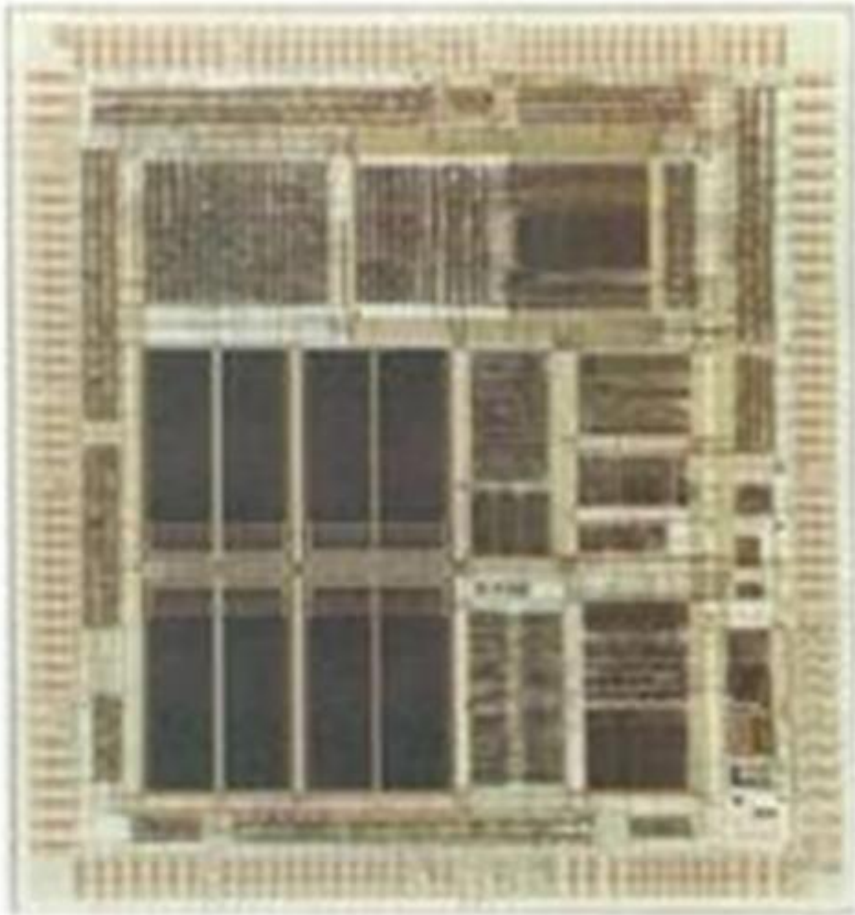
Figure: Die photo of SH microprocessor SH1
(By courtesy of Hitachi)

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