Performance of Pentium and the Next Generation Processors

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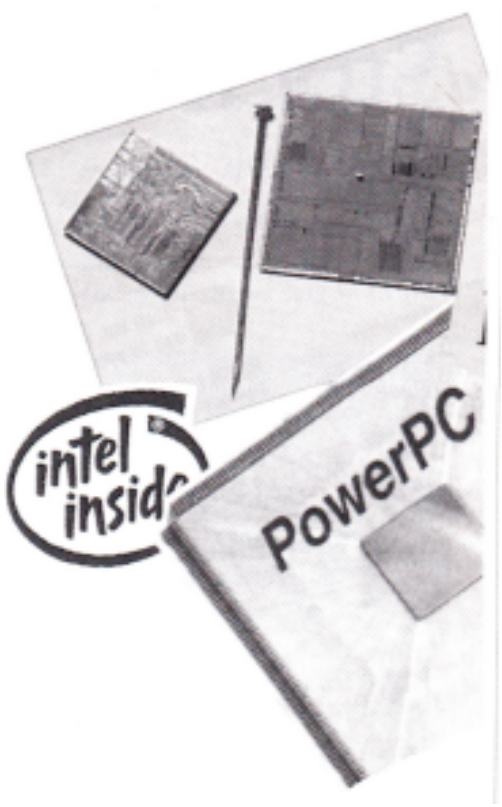

Intel Corporation crowns its Pentium line of processors with the 200 MHz version. The 200 MHz chip is the last among this generation of Pentiums. The next generation uses the multimedia extension instruction set and will be aimed primarily at consumer and small business applications.

Intel’s Pentium Processor combines outstanding performance with the flexibility and compatibility that characterize the personal computer platform. Towering the vast majority of PC’s being sold today, the Pentium processor supports a new generation of multimedia and communication-oriented applications. It has immediate responsiveness for the latest software with powerful realistic graphics and the ability to run full screen full-motion video.

The Pentium processor extends the range of Intel’s microprocessor architecture to new heights, creating an entirely new realm of possibilities for computer systems of today and tomorrow.

Physically, the Pentium processor is a 273-pin package that’s arranged in a 21°21 pin grid array with one additional pin used for keying. The chip uses 0.8-micron (one-millionth of a metre) CMOS (complementary metal oxide semiconductor) technology to incorporate 3.1 million transistors on

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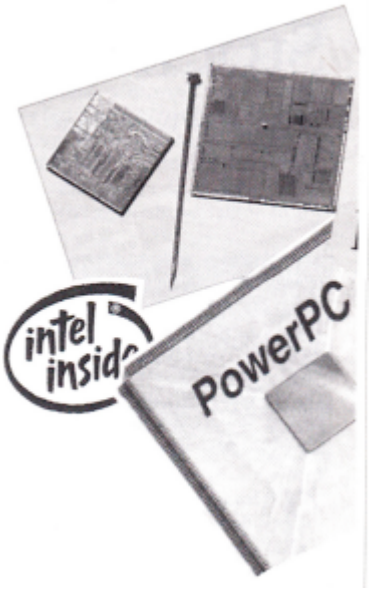
board, making the 1.2 million count of the 486 processor pale by comparison. In a definite break from its traditional multiple bus width processor designs, the Pentium processor uses a 32-bit bus while its external data bus to memory is 64-bits wide.

While incorporating new features and improvements made possible by advances in semiconductor technology, the Pentium processor is fully software-compatible with previous members of the Intel microprocessor family, thereby preserving the value of the user’s software investments which are worth a lot. The Pentium processor family meets the demands of computing in a number of areas. For example, the Pentium processor efficiently executes all the leading operating systems like Windows 95, UNIX, Windows-NT, OS/2, Solaris, Windows 3.11, NEXTstep and numerous demanding applications such as Compute- intensive applications, Computer Aided design/Engineering, 3-D Modeling, Large-scale Financial Analysis, High throughput Client/ Server, Network Applications, Virtual Reality, Electronic Mail etc.

The Pentium processor is very competitive when compared to all the other PC compatible microprocessors, thus raising the standards for the Intel 32-bit architecture. There are many benchmarks to measure performance such as Intel’s iCOMP SPECint95 UNIX benchmark and index, the SPECfp95 UNIX benchmark.

The Pentium Pro processor is the next generation’s family processor from Intel. The Pentium Pro processor includes significant architectural innovations and enhancements like Dynamic Execution. The result is a significant boost in system performance especially with 32-bit software. The Pentium Pro processor is fully compatible with all of the existing PC applications.



Software does not need to be recompiled to gain a performance enhancement on the Pentium Pro processor. It is designed to deliver optimal performance with 32-bit software. But you can also run the same software that you are using today and gain a performance boost.

Even with all these features and advantages, Pentium will face a big threat from PowerPC. Because IBM, Apple and Motorola joined and extended the range of their PowerPC empire, with the introduction of RISC (Reduced Instruction Set Computing)-based

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PowerPC 601, 602, 603, 604 and 620 microprocessors. PowerPC 601 and 604 is targeted for power users, Business Workstations and Application Servers. PowerPC 603 is for Notebooks and Energy-efficient Desktops whereas PowerPC 602 is for consumer electronics and Entry Level computers. PowerPC 620 is the highest performance chip todate in the PowerPC line and uses 64-bit implementation. The rollout of these chips demonstrates a commitment by IBM, Apple and Motorola to target the market with PowerPC.

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Today, there are several computer vendors as well as various other companies (i.e. Canon, Pioneer, Matsushita, Ford etc.) who uses PowerPC for their products. It seems the PowerPC platform is a blueprint for system vendors, and independent hardware vendors as it can run multiple Operating Systems such as IBM’s AIX, OS/2, Microsoft’s Windows NT, Apple’s MAC OS, Novell’s Netware, Sun soft’s Solaris etc.

These sort of processor enhancements and technological advancements from different vendors will enable better solutions to meet the market’s evolving requirements for high performance, continued software compatibility and advanced functionality and no doubt the users will be benefitted significantly.