Power Macintosh and Performa Results: MacBench 3.0 Processor Scores

This paper reports the findings of a benchmark test program recently performed by Ziff-Davis Labs, using a well-established—and widely available—benchmarking system known as MacBench® 3.0. Developed to provide an accurate and easy-to-implement means of assessing the relative performance of Mac® OS–based computers and peripherals, MacBench has gained broad acceptance within the industry, with support from Apple and many companies that produce Mac OS–compatible products. The goal behind the development of MacBench was to provide users with a much more accurate assessment of the performance they will experience from a system than can be made on the basis of processor speed alone, as measured in megahertz (MHz).
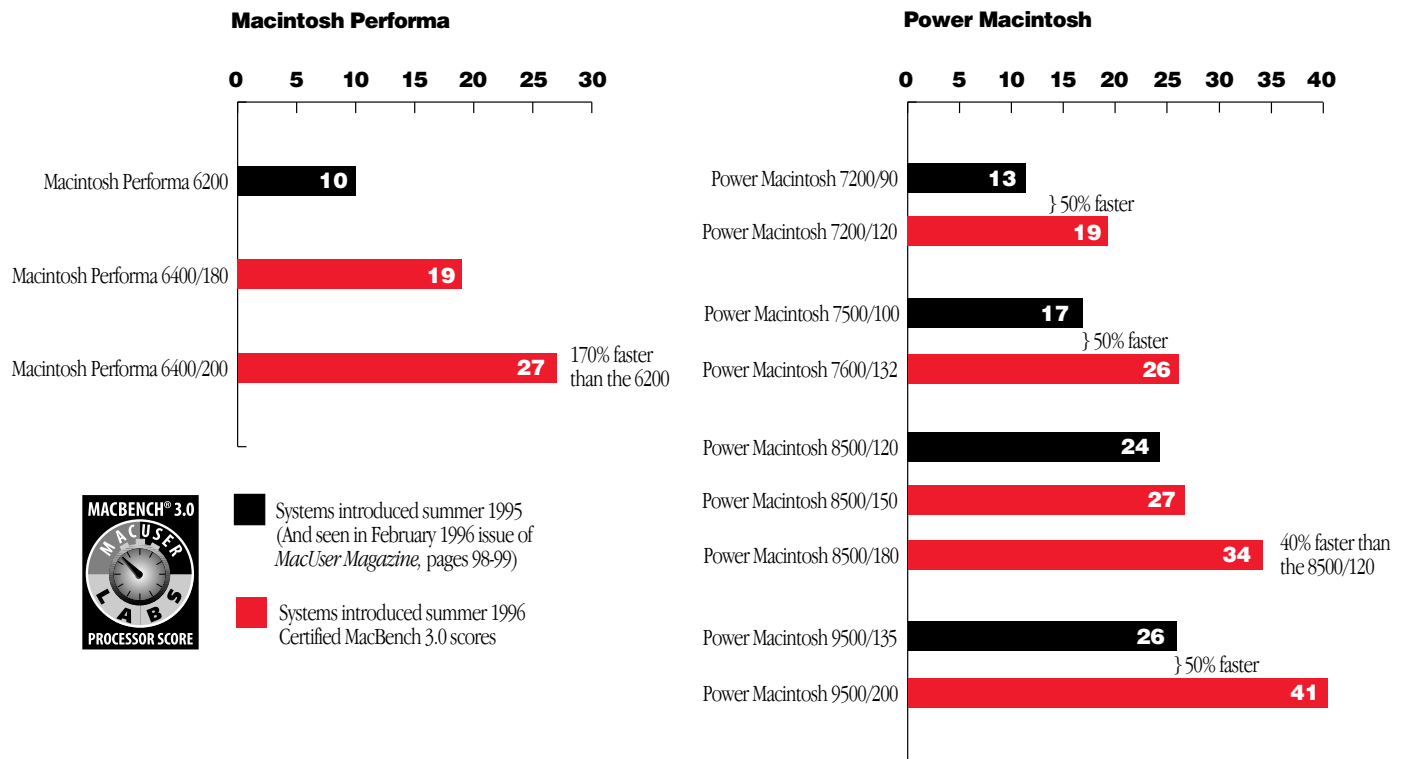
Summary

The latest Apple® Power Macintosh® and Macintosh® Performa® computers provide significant performance gains over the Power Macintosh and Macintosh Performa lines offered by Apple just a year ago, as shown in the chart below. In fact, PowerPC 604 processors, such as those found in Power Macintosh systems, provide performance in the highest range of desktop processors—including Pentium Pro. The PowerPC 603e, found in Macintosh Performa systems, delivers mainstream performance in the same class as processors such as Pentium.

Key results:
- The Macintosh Performa 6400/200 offers a 170 percent performance gain over the Macintosh Performa 6200 (27 compared with 10).
- The Power Macintosh 7200/120 system's performance improved by 50 percent over the Power Macintosh 7200/90 (19 compared with 13).
- The Power Macintosh 7600/132 offers a 50 percent performance gain over the Power Macintosh 7500/100 (26 compared with 17).
- The current Power Macintosh 8500/180 system offers performance gains of up to nearly 50 percent over the Power Macintosh 8500/120 (34 compared with 24).
- The Power Macintosh 9500/200 offers more than a 50 percent performance gain over the 9500/132 (41 compared with 26).

Numbers given are normalized relative scores, with the base machine— a Power Macintosh 6100/60—always scoring 10.

MacBench 3.0 Processor Test Scores

Macintosh Performa

	Score
0 5 10 15 20 25 30	
Macintosh Performa 6200	10
Macintosh Performa 6400/180	19
Macintosh Performa 6400/200	27 170% faster than the 6200

MACBENCH® 3.0 MACUSER LABS PROCESSOR SCORE

■ Systems introduced summer 1995
(And seen in February 1996 issue of *MacUser Magazine,* pages 98-99)

■ Systems introduced summer 1996
Certified MacBench 3.0 scores

Power Macintosh

	Score
0 5 10 15 20 25 30 35 40	
Power Macintosh 7200/90	13
Power Macintosh 7200/120	19 } 50% faster
Power Macintosh 7500/100	17
Power Macintosh 7600/132	26 } 50% faster
Power Macintosh 8500/120	24
Power Macintosh 8500/150	27
Power Macintosh 8500/180	34 40% faster than the 8500/120
Power Macintosh 9500/135	26
Power Macintosh 9500/200	41 } 50% faster

About the Testing

The MacBench Processor Test isolates and measures the performance of any Mac OS–based system's processor subsystem. The processor subsystem consists of the processor, memory bus, and level 2 cache. The Processor Test in MacBench 3.0 measures the speed at which a Mac OS–based system executes instructions that closely match those generated by applications as users go about their usual tasks.

Rather than requiring that the tester actually run the applications and execute the tasks, MacBench is a "synthetic" benchmark whose tests mimic the operations performed by the applications during the tasks. This is accomplished through a process called *application profiling,* which involves the scientific logging and analysis of application behavior in order to provide a reasonable simulation.

Other Purchase Considerations

The benchmarks produced by MacBench are widely accepted as offering users a far better picture of computer performance—and more specifically, relative computer performance—than is provided by simply looking at and comparing clock speeds in megahertz. But beyond the application-level performance that MacBench examines are a number of additional factors that combine to shape the user's computing experience and contribute to the overall value of a system—factors such as upgradability, expandability, and networking capabilities. Both Macintosh Performa and Power Macintosh computers offer a number of features that might be considered add-ons on competitors' systems or might not even be available.

Macintosh Performa

Easy Internet access

All Macintosh Performa computers now come with Internet access software—including Apple's new Personalized Internet Launcher, which takes users directly to a collection of web sites tailored to their interests and needs. And the new Macintosh Performa systems will come with an internal high-speed, 28.8-Kbit/s modem, to make it even easier—and more efficient—for users to take advantage of the wealth of available Internet resources.

Digital media capabilities

Every Macintosh Performa system is "multimedia ready" right out of the box—with a CD-ROM drive and excellent sound and video support. And many can accommodate a host of multimedia add-ons. In fact, the newest Performa computers can support an inexpensive kit called Avid Cinema— available this fall—that brings sophisticated video-editing capabilities to the desktop, letting users add music, titles, and even special effects to their home videos, business presentations, or educational efforts.

Value-added software

Designed to be complete solutions for users who want to get started with computing right away, Macintosh Performa systems come with a wealth of software—for everything from productivity to education to entertainment.

Compatibility options

For users needing to run Windows applications as well as applications for the Mac OS, there are several hardware and software solutions available for Macintosh Performa computers that can let them do exactly that.

Power Macintosh

Upgradability

Featuring an advanced modular design, nearly all of the Power Macintosh models allow users to upgrade their systems to a faster processor as their performance needs increase—making these systems a safe investment for users looking to the future. All Power Macintosh models support processor speeds of up to 250 megahertz.

Expandability

All of the Power Macintosh systems include full-size, industry-standard Peripheral Component Interconnect (PCI) expansion slots. PCI combines high performance with extensive flexibility. Because PCI is an industry standard shared by the PC world, there are a number of solutions available at a low cost. And for users interested in owning one of the most compatible computers available, Apple PC Compatibility Cards allow any Power Macintosh with a PCI slot to run MS-DOS and Windows software.

Networking

Particularly as Internet—and organizational "intranet"—use expands, networking and communications capabilities are becoming primary concerns for computer users. Power Macintosh computers come with both LocalTalk® and Ethernet (10BASE-T and AAUI) ports, and support all of the most popular networking protocols, making it easy to connect them in almost any networking environment. They also run version 7.5.3 of the Mac OS, which incorporates Open Transport. This OS-level software not only provides a number of tools designed to help users configure and organizations manage multiprotocol networking, but also offers full support for TCP/IP, the protocol of the Internet. All current Power Macintosh systems come bundled with the Apple Internet Connection Kit for quick and easy access to the Internet.

Display support

All Power Macintosh computers can be expanded to 4 megabytes of video RAM to support 32-bit color on large monitors at resolutions of up to 1,178 by 1,024 pixels.

Memory expansion

Power Macintosh systems can accept additional DRAM for robust computing. For example, the Power Macintosh 7200/120 can expand to 256 megabytes, and the Power Macintosh 9500/180 can support up to 768 megabytes of RAM.

Digital media features

The Power Macintosh line includes built-in features for digital media content development and viewing. For example, the Power Macintosh 7600/132 has 24-bit video-input capabilities, while the Power Macintosh 8500 models offer 24-bit video input and output.

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