

What are SPEC ratings? Intel has been trumpeting the P6 [now called the Pentium Pro] as the fastest thing on the earth by quoting its SPECint and SPECfp ratings. What are SPEC ratings and can you actually use them to decide which machine will be faster? — [Brett Dempster, via the Internet.](#)

What SPEC ratings are is relatively easy. SPEC stands for Systems Performance Evaluation Corporation, a non-profit corporation formed in November 1988 by a number of computer companies (including Apollo, Hewlett-Packard, MIPS, Sun, DEC, Fujitsu and Data General) to 'establish, maintain and endorse a standardized set of relevant benchmarks.' Member organizations now include pretty much everyone, from Amdahl through to Ziff-Davis.

The corporation's first benchmark suite consisted of 10 CPU intensive programs, written in C, four of which set integer benchmarks and six of which set floating point benchmarks. At the same time the corporation set the 'SPEC Ratio' for each individual benchmark as the ratio of the time to execute one single copy of the benchmark on the test machine and the equivalent execution time on a VAX 11/780.

A SPECint89 rating was the geometric mean of the results of running the four integer programs, the SPECfp89 number was the geometric mean of the results from the six floating point programs and the SPECmark89 was the geometric mean of all ten benchmark applications. All three ratings are now obsolete.

SPECint92 and SPECfp92 consist of six and fourteen benchmark programs respectively and

are, like their older cousins, generated by taking the geometric mean of the appropriate test suite. There is no SPECmark92 or equivalent. Although the SPECint92 and SPECfp92 are current, they are being replaced by the Cint95 and Cfp95 suites.

The newer versions of the SPEC rating test suites points directly to the second, and more difficult, part of your question: can you actually use them to decide which machine will be faster?

SPEC keeps updating its benchmark programs because execution times for old benchmarks become too short as machines get faster, which produces timing inaccuracies. At least as important, however, is that vendors are always finding ways to 'artificially' inflate the SPEC ratings their computers achieve.

SPEC benchmark programs are distributed as compilable source code. Depending on how you tweak the code as you compile it, you can produce better than real-world results. The SPEC92 benchmarks, for example, "no longer contain a benchmark (030.matrix300) that was excessively influenced by a particular compiler optimization. This optimization... inflated the SPEC ratio for this benchmark since it executed only code susceptible to this optimization."

It is also worth noting that the benchmark programs measure "the performance of CPU, memory system, and compiler code generation" and that "the percentage of time [the benchmark programs] spend in operating system and I/O functions is generally negligible." This means that, while a SPEC rating gives you some idea of how fast the computer is, it won't tell you much about how fast a particular operating system will be when running on that computer.

As an example, the Pentium Pro 'SPECs out' faster than an equivalent clock-speed 604 but, according to the November issue of Byte, Windows NT runs faster on a 604-based PReP machine than it does on a Pentium Pro-based machine. Byte's benchmark test suite, however, deliberately tests such operating system specific things as I/O.

So treat published SPEC ratings with a large pinch of salt. The corporation itself recommends you "compare the characteristics of [your] workload with that of the individual SPEC benchmarks [i.e., the individual tests which are aggregated into the SPECint and SPECfp ratings] and consider those benchmarks that best approximate [your] jobs."

To find out more about SPEC ratings and benchmarks in general, you might want to visit <http://hpwww.epfl.ch/bench/bench.html>. It is a useful jumping off point for more information about the vexed issue of benchmarking and contains, amongst other things, links to the SPEC FAQ and the comp.benchmarks NewsGroup. — [Brian Forté](#).

would like to add another option for Eric [Armstrong, who asked about the sound

capabilities of his LC III last month], especially if he wants to serve up large sound clips. He should look into and consider using RealAudio which uses a proprietary sound format, but readers are available for both windows and mac platforms. The advantage of using RealAudio is that it doesn't wait for the whole file to be downloaded before playing and plays as Netscape or any other web browser is downloading. — Saif Ahmed, via the Internet.

've spent some time playing with the RealAudio software and you're right: RealAudio is an excellent candidate for someone like Eric to consider. Eric wants to serve up recordings of voices he uses to teach accents and dialects to actors. With the RealAudio Server application working in concert with a Web Server application, like Netscape Netsite, he could serve up high-quality recordings which won't take hours to download.

RealAudio Server streams the sound data and pipes it into the RealAudio Player client application (which must be installed on the client's computer) so the sound can be played while it is being downloaded and while you are still browsing the Web. Eric could include detailed notes about each voice sample which people could read as they were listening to the voices.

There are a couple of caveats, however, not least of which is that RealAudio Server (the application required to serve up sounds to a Web server) doesn't currently run on the Mac OS. RealAudio Player (which can play RealAudio files) and RealAudio Encoder (which can create RealAudio files) are both currently available for the Mac OS but RealAudio Server 1.0 only runs under Windows NT or Unix (including Solaris, Linux, BSD and IRIX).

The recently announced RealAudio Server 2.0, however, will run on the Mac OS and will run in concert with Mac OS-based Web servers like Mac HTTPD and WebStar. The first public beta is due for release at the end of November and should be available for download and trial use as you read this.

Eric will still have to upgrade his equipment, however. The RealAudio Encoder, which requires a 68030 or 68040 Mac with an FPU or a PowerPC-based Mac OS computer, only encodes existing sound files (in AIFF, au, snd and Sound Designer II formats). Also, the RealAudio Encoder uses a 'lossy' compression algorithm and the documentation notes that to compensate for this "you must start with a quality recording." Eric's LC III isn't up to creating such quality recordings and he will need to upgrade to something fancier to be able to record and pre-process his audio clips before pouring them into the Encoder.

As well, the forthcoming RealAudio Server 2.0 for the Mac OS will be a PowerPC-only application. Moreover, it will require Open Transport which means, as of the moment, it will only run on a PCI-based Mac OS computer such as the Power Macintosh 7200/90 from Apple or the PowerWave 604/120 from PowerComputing.

Finally, although there is a lower-priced and lower-powered version of the RealAudio Server (called RealAudio Personal Server), it only runs on Windows NT and Windows 95. As we went to press there was no word from Progressive Networks (publishers of RealAudio) if they are planning a Mac OS version of this product. Much more information on RealAudio can be found at the company's home page: <http://www.realaudio.com/index.html> . — Brian Forté.

One of the niftier additions to ClarisWorks 4.0 (also known as ClarisWorks Office) are real, paragraph-based style sheets. With style-sheets it is possible to store all the formatting information pertinent to a particular type of regularly occurring text as a style with a name (i.e., a style called 'Body Copy' could consist of 11-point Garamond Book with 18-point leading, a first line indent of one em-dash and space before the paragraph of 5 points).

Unfortunately, Claris's implementation of paragraph-based styles has one very annoying quirk: when you apply a style to text which has already been formatted manually, or has been pasted in from another document or application, some of the formatting stored in the newly applied style doesn't 'take.' For example, if you paste a 9-point Bold Geneva paragraph into your ClarisWorks document and apply the Body Copy style above to it, the text acquires the paragraph settings of the Body Copy style but doesn't change to 11-point Garamond Book.

To get all of the properties of the desired style to affect take, select the problem text, choose 'Show Styles' from the View menu and then click the Edit button in the Styles palette. The Styles palette will expand to show the properties of the selected text. The properties you want to remove from the text (i.e., the ones which are in addition to those specified by the style-sheet) are in italics. To remove them from the text Shift-click each property listed in italics and choose 'Clear Properties' from the Edit menu within the Styles Palette window.

The troublesome text has been selected as have the superfluous properties. All that's left is to choose 'Clear Properties' from the Edit menu sitting just above and to the left of that strange mouse pointer.

According to the Claris technical support people I've spoken to, this aspect of ClarisWorks 4.0's style-sheets is a feature and not a bug. Suffice to say it annoys me intensely and is contrary to the behaviour of almost every other program on the Mac OS which implements paragraph based style-sheets, including Word, WordPerfect, PageMaker, WriteNow and even Claris's own MacWrite Pro. — [Brian Forté](#).

If you haven't cleaned out your saved e-mail in a while, consider doing so now. I recently had a closer look at my QuickMail mailboxes (actually folders stored in the Personal Folders folder in the QuickMail Stuff folder in CE software folder in my System Folder) and discovered a year's worth of messages taking up 22.7 MB of space. I'm a magpie and couldn't bare to delete them, but a quick trip through Stuffit Deluxe and those old messages were soon taking up only 6.6 MB of precious storage space and I had an extra 16.1 MB of space for cool things and silly toys.

My Eudora folder was only taking up 5.2 MB of space but my eWorld Mail folder was tromping over a massive 27 MB of storage space. A quick harvest of the files I really don't need instant access to and I'd regained another 20 MB of hard drive. All up, not a bad result for no more than ten minutes work, including the time taken to run all the files through Stuffit Deluxe. — [Brian Forté](#).

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