System Requirements

Hardware ◊ 68030 or better

RAM ◊ 8 Mb (total)

Supports ◊ PowerMacs ◊ PowerBooks ◊ RAMDoubler

System ◊ 7.0 or later

StreetPrice ◊ $54

I was interested in the Speed Doubler rumors that came out earlier this year for one simple reason: I like fast computers. So, I was eagerly anticipating LOL's copy of Speed Doubler. Around August 15th, I received Speed Doubler from Connectix to review for the newsletter. Happily enough, Speed Doubler came through on most of the rumor mongers' claims. In the almost two weeks since getting the review copy, we have tried it on a Centris 610, a Performa 575 with a PowerPC Upgrade Card, a Performa 638 with a PowerPC Upgrade Card, a Performa 5200, a PowerMac 6100/60 AV, a PowerMac 7100/66 AV, and a PowerMac 7100/80. There have been few problems not attributable to the conflicts listed by Connectix. You'll find the list near the end of the article
, for now let's just get to the good stuff.

The Product

Speed Doubler is a performance enhancement product from Connectix, the makers of RAMDoubler. The package consists of three extensions, Speed Emulator, Speed Access, and Speed Copy. Speed Emulator is a software-based improvement on Apple's standard 680x0 emulator. Speed Access is an improved disk cache system, designed to help alleviate some of the I/O problems Macs have. Finally, Speed Copy allows the faster copying and deleting of files, as well as background copies and the ability to do multiple copy jobs at one time.

Speed Emulator

As any PowerMac user can tell you, using a non-native program is a test of patience. Apple labels its emulator a 68020 emulator for a reason, speed. It was pretty frustrating to upgrade to a powerful new machine and then have to wait for the software to become native. In addition, Apple hard-coded the emulator into the ROMs, virtually preventing PowerMac owners from upgrading to newer Apple emulators. However, one of my biggest complaints against Apple involves some unconfirmed emulator folklore.

The folklore tells us that one engineer wrote it in a single weekend. Hearing this, one concludes that Apple seemed not to care about a major compatibility issue for their new platform. Well, the folklore is not quite up to speed with reality. One engineer did write Apple's emulator, but it took a couple years, not a couple days. The folklore also leaves out one of the nice aspects of the Apple emulator: it was rock solid. For instance, Apple offered $100 at MacHack a year before it shipped to anyone whose code wouldn't work properly with it. One person made the $100. Still, the lack of speed was a big letdown for the first PowerMac owners, and more so when they found out the emulator could not be upgraded.

Fortunately, Connectix again came to Apple's rescue. Connectix created an emulator using a Dynamic Recompilation method. Instead of translating a non-native instruction each and every time it is called, Speed Emulator compiles it the first time and remembers it every subsequent time. Since compiling is slower than translating, Apple's emulator is actually faster the first time an instruction is called. However, Speed Emulator is much faster each subsequent time the instruction is called, since it does not have to translate or compile the instruction again. The work is done already and the emulator immediately executes the corresponding native instruction.

Speed Access

Speed Access attacks another system deficiency, the Mac disk cache system. A disk cache, for those who are wondering, is a buffer between the processor and the hard drive designed to speed up access to certain data by storing it in RAM. Speed Access takes advantage of intelligent algorithms and techniques to better determine which hard drive information should be kept for future processor requests.

Speed Copy

Speed Copy provides several new feature in addition to improving on the standard Finder copy system. First, Speed Copy will work in the background, allowing you to get on with whatever work you have to do. Second, it allows multiple copies totaling up to three separate jobs. You are also given progress information, including the total throughput, elapsed time, and remaining time. There is also a fast replace feature, giving you the option to only copy those items that have changes.

Speed Copy also increase the speed at which you can delete files from the trash. Other options include deleting locked items without asking, deleting specific items in the trash, and a security erase. The security erase simply writes over the data you trashed, making it unrecoverable.

The Real World of Benchmarks

I conducted numerous tests on my 7100/66 AV, using 24 Mb of RAM, RAMDoubler, and all of my normal extensions, including QuickDraw GX. My reasoning was that real world numbers are what counts, so real world tests are in order. I conducted benchmark tests using Norton Utilities' System Info and Speedometer. I also performed some "real" real world tests, including copying and deleting, and the use of non-native applications.

Here are the results of the first tests, using Norton Utilities' System Info with a base reference of the Quadra 700. From these tests, you can see that there is a slight performance increase when using Speed Doubler on the native tests. The gain comes mainly in Disk Access, and therefore can be attributed to Speed Access. When you look at the emulator tests however, you see that Speed Emulator really rocks. Apple's emulator works at about half the speed of the Quadra 700. Speed Emulator, on the other hand, works at almost twice the speed of the 700 or roughly at 354% the speed of the Apple emulator. Here's another huge chart.

This info comes from Speedometer, a shareware benchmarking utility by Scott Berfield. The base reference for these tests is the Quadra 605. These results are some of the most interesting encountered in the making of this review. These tests were also run with my standard extensions, including RAM Doubler.

First of all, you'll notice that I ran the native test with Speed Doubler twice. In fact, they were run back to back, with no changes made. I have repeated this test sequence several times, with virtually the same results each time. The first time, Speed Doubler lost to my straight machine, mainly due to Disk Access. This, however, seems to be a bug in Speedometer. It tests disk access with the psuedo-LED panel and the result is around seven or eight, but then it writes a much lower munber, say around four, into its results table. Steve Kiene, the Speed Access author, suggests running the test on a RAM disk to really see the glitch.

However, the second time the test is run, bizarre things begin to happen. First, the disk access scores went up slightly. Still, they really cannot be accurately assessed. Take a look at the KWhetstones results though. They jumped from a simple 30.38 to an amazing 108.41, bringing the benchmark average up to 14.69. As I said, I've repeated these tests with virtually identical results. I have no explanation for the speed boost the second run through, since these were native tests of floating point capability.

Next, the emulated test results were close to what I expected. Overall, Speed Emulator had a PR of 2.40, while the Apple emulator ambled along

with a 1.04. This means that Speed Emulator performed at around 231% the speed of the Apple emulator in this test. Would you believe that we have more benchmarks?

These tests were conducted by Albert Kammerer using MacBench from Ziff-Davis. The base system is the Quadra 630 this time, and Albert has included his stock system with no extensions. Albert is running a Performa 575 with the Apple PowerMac Upgrade Card and 12 Mb of RAM. "PowerMac 575, Albert's" is the same as "PowerMac 575, RD &SD" with the addition of all of his regular extensions. So, comparing the stock 575 to the one with RAMDoubler and Speed Doubler added, we see some slight speed gains. Also, his tests show that Speed Emulator is running at 252% the speed of Apple's emulator. An interesting aspect of these tests is that they show that disk access is much better with Speed Doubler than without.

Well, you might conclude that there is not enough of a performance increase to warrant buying this product unless you have a PowerMac and run non-native applications. That would be wrong. Take a look at some of my real world results.

The Real World

One thing not tested at all by these benchmark tests is the effect that Speed Copy has on your system. In order to get some figures for this, I compared Symantec's CopyDoubler, Speed Copy, and the standard finder copy. My test article was a folder containing 897 items and weighing in at a heavy 61 Mb. The file was transferred to a blank Zip disk. The finder and Copy Doubler came in at about the same pace, 7'50" and 7'46" respectively. Speed Copy came in at 4'02" for a resounding stomp. I also took the time to delete the same folder from the Zip disk. Again, Copy Doubler and the finder were close, both right around 40 seconds. Speed Copy's delete feature clocked in at a mere nineteen seconds.

Well, conducting speed tests was not all that I had to do for the newsletter, so I started some layout work in DOCMaker, a non-native application. I quickly noticed that the issue was opening and saving faster. I decided to run more tests. Opening the September issue took nineteen seconds without Speed Doubler and saving the issue took 54 seconds. Speed Doubler reduced the times to eight seconds for opening and only 25 seconds for saving. Amazing.

While I was at it, I thought I'd see if Speed Doubler improved the listing of folder sizes in a Finder window. Opening my hard drive, I found that I had eleven folders containing roughly 305 Mb of information. Calculating folder size took twelve seconds without Speed Doubler and only seven with it.

Problems

There are a few problems with Speed Doubler. The read me file lists the known conflicts at the release date. Here's that list, combined with some other possible conflicts found on the net.

◊ Speed Emulator

Not compatible with Calera WordScan OCR for PaperPort v 2.0

◊ Speed Copy

Files compresses with AutoDoubler, Now Compress, Now QuickFiler, and SpaceSaver will become decompressed when copied.

Speed Copy will disable itself if another
copy utility, such as CopyDoubler is installed.

Standard Finder copy activates when copying items into the System Folder.

Speed Copy will not copy a mounted DOS disk image.

◊ Speed Access

With Aaron 1.0 installed, MacPPP may not initialize correctly. While there is no word on if this has been fixed with 1.1.1, we at LOL have had problems with this combination and have removed Aaron.

There is a problem with some Apple PowerMac Upgrade Cards and Speed Access. The problem is eliminated by changing the name of Speed Access to Speed ~Access, so that it loads after Speed Emulator. In order to do this, you must boot with no extensions immediately after loading Speed Doubler.

Speed Access also apparently clashes with some programs which use there own drivers, such as MacBench. Notably, Albert did not have this problem when he performed his tests,

but I did on my machine.

Another problem with Speed Doubler is the way you access the Trash options of Speed Copy. To get to these, you must turn on the "Warn Before Emptying" feature of the Trash. Then, when the warning pops up, you have the option to activate the security erase, the delete selected items, and the delete locked item without asking features. This is a little bit of a hassle. It would have been more convenient to either be able to access the features directly from the Get Info, or perhaps from a menubar icon. Even a regular control panel would have been preferable to me than having to see that warning message. So, as a consequence, I just leave the message off and pass on these options.

However, some of the conflicts listed above may be solved within the next week. Connectix has announced that they are working on a Speed Doubler update (1.0.1). Actually, the update is all but finished as I understand it. The update will mainly address problems people are having with Speed Access. This is one of the things I love about Connectix, whenever an error is found, they fix it fast. I am amazed at how clean their software is, especially since most of it involves direct modifications of the system software.

Conclusions

Overall, I am extremely impressed with Speed Doubler. The results are everything that Connectix claims. If you want a speed boost, this is probably one of the best you can get for your machine, not to mention one of the cheapest. For more info, try Connectix's web site at <http://www.connectix.com>.

Thanks

Back in May of this year, I sent a letter to Connectix about the rumored Speed Doubler. The told me that they had no information on the product. It seems that Connectix does not talk about programs that are not announced. I waited patiently, finally getting the information and a review copy of Speed Doubler from Brian Grove, Product Manager at Connectix. Thank you Brian for all of your help.

Contributed by Mark Brooks