

Solo button, which lets you hear one track clearly while all others play at half volume. Performer's tape-recorder metaphor is arguably easier to learn than Vision's, too. This head start is amplified by Performer's well-written main manual—but is diminished by the continuous busy signal of Mark of the Unicorn's technical-support line.

Vision, whose interface feels bright and airy, offers some exclusive goodies of its own. Among them is the indispensable scrubbing feature: you hear the music as you drag across it. Another plus is the eternal-count-off feature: when you want to record, Vision clicks its metronome indefinitely and begins recording only when you start playing. You don't have to come in after a specified number of beats. And only Vision has play quantization, which cleans up your recorded rhythmic inaccuracies during playback, but preserves the original recorded data.

Finally, Vision remains the superior control center for live musical performance. You can adjust the tempo by tapping a computer key as the music plays. And Vision's subsequence feature allows you to compose an infinite number of musical building blocks within a single Vision file. Each subsequence plays when you press a letter key on your Macintosh keyboard. You can easily experiment with different arrangements of a song's sections, simply by typing, say, *AABAC*. Or, in live performance, you can play a vamp (a repeated introductory phrase) over and over again by typing *AAAA* . . . until the performer is ready to begin—and only then trigger the first verse (by typing a *B*).

The Last Word

Except for their annoying system extensions, both programs easily merit buying the upgrade; version 5 is the most worthwhile Performer overhaul in years, and Vision 2's new interface makes the program vastly simpler to grasp than its predecessor. However, neither program is likely to create much of an exodus from its rival's existing ranks of users.

And if you've never used either program? If Performer's sheet-music view appeals to you, your decision is made. Otherwise, Vision's list of exclusive, creativity-slanted features, such as endless count off, scrubbing, and subsequences, give it the usability edge. Both programs are complex, have minor bugs, and come with nearly unreachable technical-support staffs. Learn to tolerate those downsides and you've got your choice of fantastically powerful tools ready to bring your musical ideas to life.

—DAVID POGUE

Brainstorm Accelerator for the Macintosh SE

Upgrade Kit

PROS: Increases SE performance by two to three times; easy to install; stable. **CONS:** Costly relative to resale value of SE; precludes other slot-based expansion; limited to built-in video and 4MB of RAM. **COMPANY:** Brainstorm Products (415/988-2900). **LIST PRICE:** \$199; for education market \$129; 25 units or more \$99 each; installation kit \$19.



SOMETIMES, THE LESS SAID ABOUT a product, the better. In the case of the Brainstorm Accelerator for the Macintosh SE, that's praise. This upgrade does precisely what it should: make your SE faster and otherwise remain invisible. In this day of the Power Mac, accelerating an SE might seem absurd. Yet many SEs still lead serviceable lives in schools, homes, nonprofit organizations, and small offices, for which acceleration may be more practical than replacement.

The Brainstorm consists of an accelerator card that fits into the SE's expansion slot, and a Brainstorm Bus Accelerator (BBA) chip. The card contains a 16MHz 68000 processor—twice the speed of the SE's stock 8MHz 68000.

The unique part of the Brainstorm package is the BBA. It replaces the SE's 8MHz bus controller with a proprietary 16MHz chip, increasing the speed with which data shuttles between memory and SCSI peripherals (such as hard drives) on one side, and the processor on the other. The result is an SE that approaches a Classic II in overall performance.

Installation is only slightly more complex than with card-only accelerators. A novice can do it in 15 minutes. You remove the logic board from the SE and use a chip extractor to remove the SE's

bus controller. Then just snap in the BBA, plug in the card, and reassemble the SE.

The installation kit comes with all you need to install the Brainstorm, including a well-written and well-illustrated manual. The user's guide for the Brainstorm is also clear and informative, with tips on troubleshooting and generally getting the most from your SE. All the code necessary to support the Brainstorm is in firmware on the card, which you can update via floppy disk. That's it: no extensions, no patches. Clean.

Performance

The company claims that the Brainstorm not only more than doubles the SE's speed but outruns competitive 68030-based accelerators. Benchmarks and Macworld Lab's real-world tests confirm that these are no idle boasts.

I had no compatibility problems—something I can't say about most 68030-based SE accelerators I've tested. Unlike the Brainstorm, some of those units support a floating-point unit (FPU), an external monitor, and/or up to 16MB of RAM. Then again, they're more expensive—and, tellingly, most of the companies that made them are now out of business.

Brainstorm's \$199 price isn't much lower than the net cost of selling an SE and buying a used SE/30, a faster and more expandable Mac. Still, weighing the bulk discounts on the accelerator against the difficulties of buying used gear in quantity, the Brainstorm is a winner for those who have a large investment in SEs.

The Last Word

Even with a Brainstorm, your SE will never be a Power Mac, or even a IIsi. But if you're happy with your trusty SE save for the speed, and your budget won't buy a new Mac, you couldn't do better than the Brainstorm.—PETER M STOLLER

