

Laptop Upgrade: How To Install SSD

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1. Time For a Change

You can upgrade your laptop's hard drive from a bulky disk to a svelte solid state drive—we'll show you how. Performance boost included.

By now, you've probably heard that Windows-based PCs—and Windows 7 in particular—perform faster when using solid state drives (SSDs) rather than conventional hard disk drives (HDDs). Up until the last few months, SSDs were prohibitively expensive for the average consumer, but recent price drops have placed even top-performance, consumer-class drives within the \$250 and under category. Most likely, 2010 will be the year that mainstream users get a serious performance boost by making their boot drives (usually C:) SSDs and leaving most of their data and secondary applications on larger, slower hard drives.

For hobbyists and enthusiasts, drive upgrading is old hat. But for many Tom's Guide readers, the upgrade process may still be a mystery. Screwdriver work inside of a PC is something "for gurus." The thought of changing a notebook's hardware remains daunting. In this first of two photo walk-throughs, we're going to show you exactly how easy an SSD upgrade can be. Experts in the audience may roll their eyes, but we're out to show the rest of you that this is within your reach. You don't need to pay a professional. There's no magic at work. The process is so easy, you may be shocked.



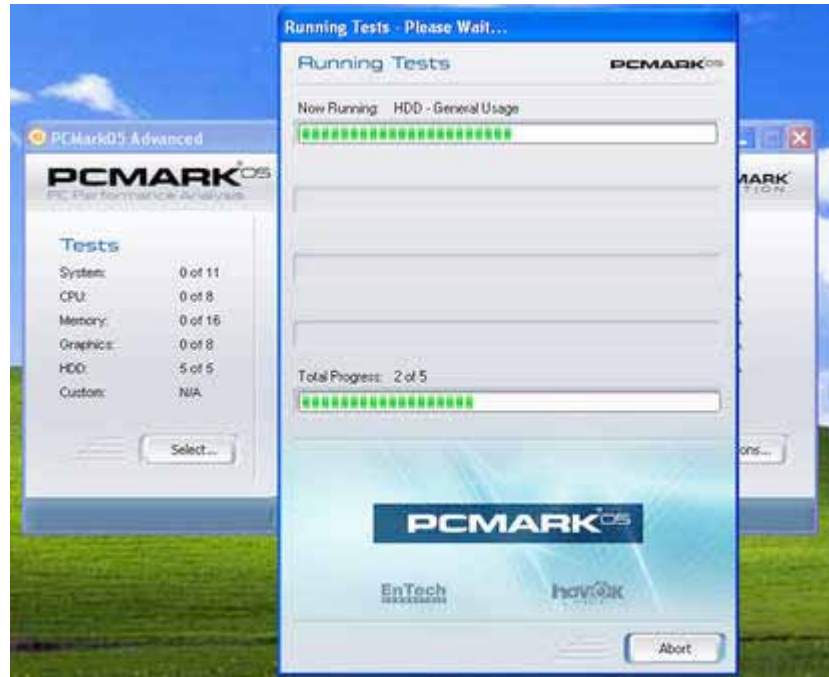
In this first article, we're going to focus on upgrading an Acer AspireOne netbook, which came from the factory with an Intel Z520 (1.33 GHz) Atom processor and only 1GB of memory. With specs like those, you know this little unit could use a lift.

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2. Does SSD Deliver?

You've heard that SSD is better than HDD. Exactly how much better? And is there a commensurate benefit to paying more for a higher-end SSD when upgrading? I don't want to totally let the cat out of the bag just yet. If you're into these kinds of numbers, stay tuned for a piece I have coming up soon over on Tom's Hardware. For now, I'll tease you with a little before and after peek.

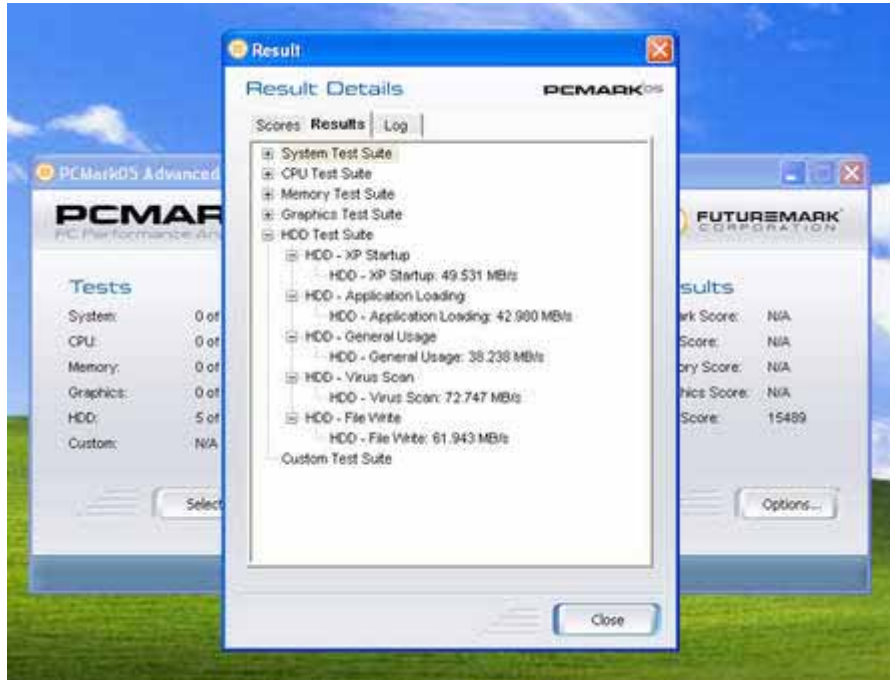
I installed PCMark 05, a common benchmarking title from the Windows XP and Vista days, onto our Acer netbook by way of an external optical drive. (Like most netbooks, the AspireOne lacks an internal DVD burner.) The system shipped with a 160GB Seagate Momentus 5400.5. Using the procedure you're about to see, I upgraded it to a 160GB Intel X25-M (G2) SSD. Here are the results I pulled out of PCMark's HDD test set:



Seagate HDD overall score: 3588
XP Startup: 6.296 MB/sec
Application loading: 4.488 MB/sec
General usage: 3.794 MB/sec
Virus scan: 50.511 MB/sec
File write: 45.170 MB/sec

Intel SSD overall score: 15489
XP Startup: 49.531 MB/sec
Application loading: 42.980 MB/sec
General usage: 38.238 MB/sec
Virus scan: 72.747 MB/sec
File write: 61.943 MB/sec

Oh, yes. That's what I'm talkin' about.



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3. The Easy Way

I could lead you through this long process of taking out the mobile PC's hard drive, attaching it to a test system, running some utility like Norton Ghost, and so on. But who's got time for all that? Let's do this the easy way!



According to Intel, which provided us an X25-M (G2) drive for this project, some resellers are offering the X25-M with an Apricorn EZ Upgrade Universal Hard Drive Upgrade Kit (normally \$39 direct from Apricorn). This is essentially a tough 2.5" drive enclosure with a USB cable and EZ Gig II software. You can find the 80GB X25-M (G2) online for around \$250. The idea is that you stick a 2.5" drive in the enclosure, connect it to your notebook, use the software to copy everything on your internal drive to the external, then swap the two drives, making the one that was in the enclosure your new internal boot drive.

Your first step in the upgrade is to install the EZ Gig II application. This is totally business as usual. Pop in the CD, click on the Install EZ Gig II link, and start clicking Next and agreeing to a bunch of fine print you'll never read. If you're in a hurry, click the Typical installation method.



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4. A Custom Job

The Custom setup offers a few little twists if you're interested. It's always good to have a rescue boot disc on hand in case of system failure. The Windows 7 software disc serves this function, but if you're running XP or Vista, you may want to use this little Apricorn tidbit. If not, there's no reason to install it. Next, you can decide whether to make EZ Gig II accessible to all users or only the current one. Apricorn then lets you review your program settings and, if everything looks good, proceed with installation.



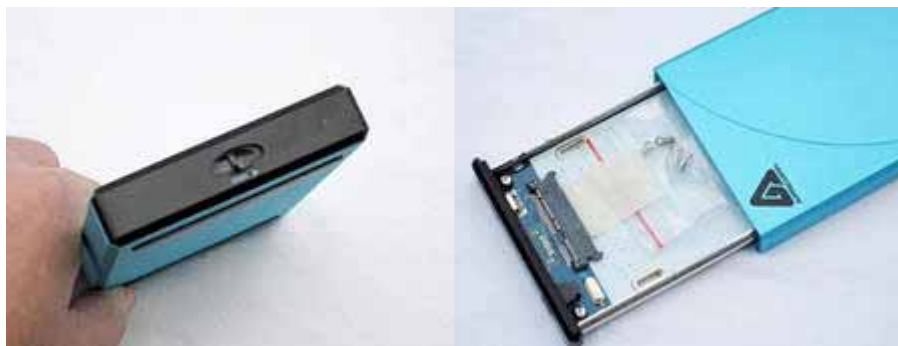
After a moment, the installation will finish and prompt you to reboot. Select Yes. When Windows comes back up, you should have a new entry on your Start menu under (All Programs >) Apricorn > Apricorn EZ Gig II > Apricorn EZ Gig II. Launch the program and get ready for the heavy lifting.



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5. Assemble the Apricorn

We need to pause right about here and make sure your external drive is ready to receive its drive image. The Apricorn enclosure is pretty basic, with a mini USB port (and optional AC power port) on one side and a release latch marked OPEN on the other. Push the latch and the enclosure will pop open. You'll see the SATA port block mounted on a board and a baggy with four screws in it taped down.



Remove the drive sled from the outer blue enclosure. Set your drive into the sled such that the male SATA data and power ports line up with the female SATA ports mounted to the sled. Slide the drive firmly into place so that the SATA ports dock together. Now turn the sled over. You should be able to use the four provided screws to secure the mounted drive into position on the sled. With this done, simply push the sled back into the enclosure until it clicks and locks into place.

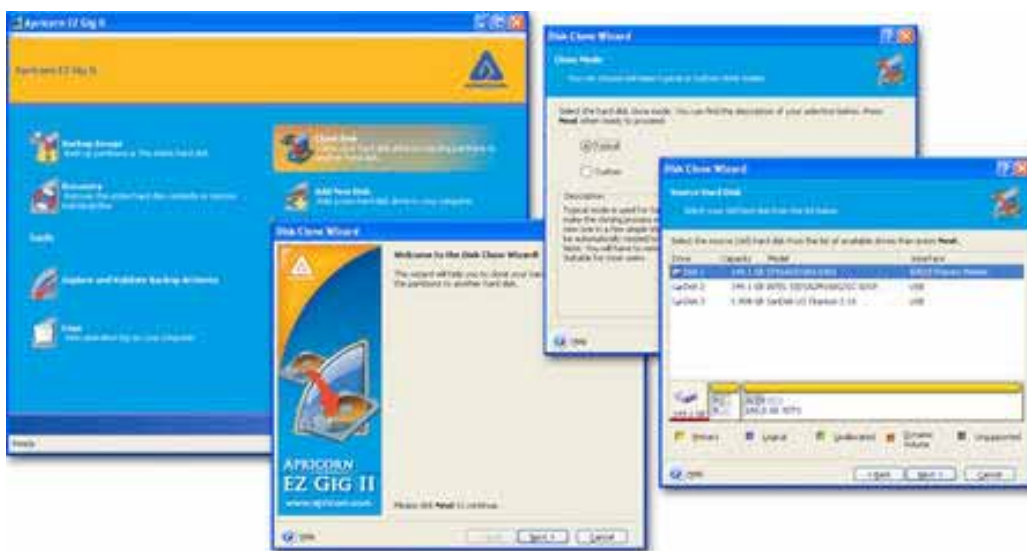


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6. Another Custom Job

We're only here to do one thing, so let's side-step all of the other things EZ Gig II can do and only direct you to clicking the Clone Disk function. This opens the Disk Clone wizard, which again will prompt you to pick a Typical or Custom installation. The Typical route will copy all of your current drive's contents, including system files and all the rest, to the external drive. If the new drive is of a different size than the current internal, EZ Gig II will scale the partitions proportionately on the new drive. For example, say you have an 80GB disk with two 35GB partitions on it (35GB for C: and D: volumes), and you're upgrading to a 160GB drive. EZ Gig II would double the partition sizes to roughly 70GB each on the new drive.

In this example, I selected a Custom installation. This will ask if you want to keep or toss your data on the old drive, then determine if your partitions should be left as is, scaled proportionally, or be manually resized to capacities you set. You then select your source and target drives. Pretty basic stuff. In my case, there was no scaling to worry about because my two drives were of identical size. I was in this for the performance upgrade, not a capacity jump. (Of course, getting both is always good, but SSDs of today tend to be sized where HDDs were two years ago.) The final stage of the Clone Wizard shows you a summary of the operations that are about to be performed. When ready, hit Proceed and Acronis will prompt you to reboot the system.



The first time I started this operation, the Acer puked and dropped me at a Blue Screen of Death. I rebooted without my USB optical and flash drives inserted, went through the exact same steps, and the installation went just fine. Lesson learned: When doing a major system upgrade, keep your configuration as stripped down and simple as possible.

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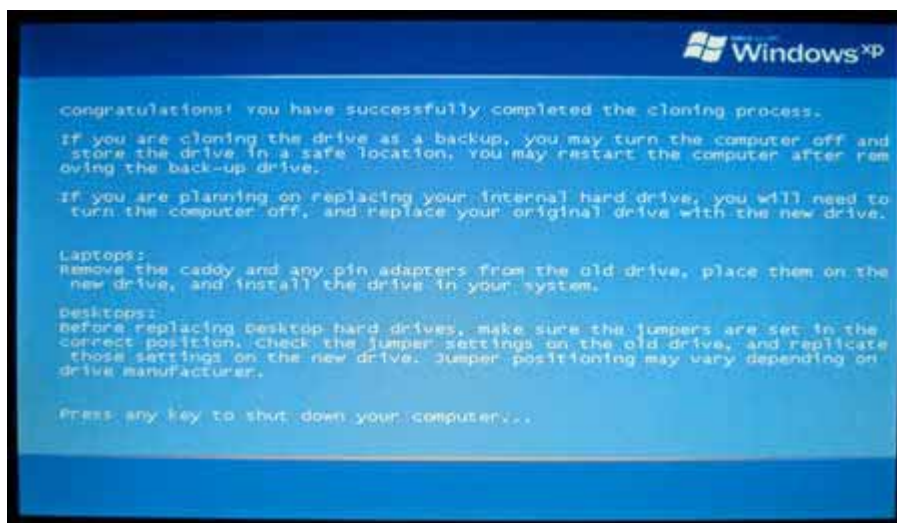
7. Stop – Copy Time

I hate to deliver bad news, but there's really nothing for you to do here. All that work that used to happen with BIOS adjusting and disk cloning parameters is gone. Your system will reset and drop you at a screen that looks a lot like this:



Acronis is already hard at work copying your files. There are two basic steps in this process: copying of the master boot record (MBR) and copying of the partitions on the system. My Acer had an 8GB hidden partition that got copied first followed by the main system partition. I started with a rather minimal disk image—only 10.4GB used out of a 160GB drive—so my total transfer time was only about 25 minutes.

When the copying is done, Acronis offers a congratulatory message along with some brief instructions on what to do with your hardware next. But why tell you when we can show you?



8. Drive Swap I

I'm going to dispense with all of the usual cautions about working on notebooks. Just be extra careful about keeping those tiny screws in a safe place, work on a surface that isn't conducive to screws bouncing who-knows-where, and touch a big metal object every now and then to discharge any static buildup. Dumb as it may sound (and look before I deal with it in Photoshop), I prefer to work on a cloth sheet sometimes because it keeps small components from slipping around. Notebooks tend not to come with extra screws, and you can't exactly grab more at Lowes.

Now, turn your notebook over so the bottom faces up. Odds are good that the biggest rectangular panel hides your internal hard drive. Here's the location on our Acer:



Use a small screwdriver and carefully remove the panel. The hard drive will be mounted into a thin sled meant to firmly hold the drive within its bay. The sled will usually be secured by four or five screws, although if you get a used unit, as we did, some geniuses feel that one screw is sufficient. I tend not to agree. Anyway, remove any securing screws and use the little tab to pull the drive out of its docking with the notebook's built-in SATA ports.



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9. Drive Swap II

With the hard drive sled in hand, you should find four screws securing the drive to the sled along its left and right edges. Remove these four screws. You should now have the hard drive hanging loose and the sled open to receive the new drive.



The object now is to remove the SSD from the Apricorn enclosure. As we've seen already, slide the latch to pop open the enclosure, remove the four securing screws from the bottom of the sled, and gently but firmly disconnect the drive from the sled's SATA ports.

Now take the SSD over to the notebook's open sled. While the drive might go into the sled in either of two directions, the sled and drive together will only dock into the notebook's drive bay one way. Make sure you line up the SATA ports and sled properly. When you've got it figured out, use the sleds four side screws and secure the SSD to the sled.



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10. Installing the SSD

OK, we're in the home stretch. With your SSD now installed in the notebook's drive sled, set the sled down into the drive bay. Sometimes this can be a little tricky. You expect it to just drop in and it doesn't. This is usually because the sled and bay are designed such that you have to start the drive toward the back of the bay to give yourself enough room to clear the SATA ports. In the photo here, the screwdriver tip is pointing to a tab that sticks out from the side of the drive sled. When the drive goes into the bay, this tab has to line up with a gap in the side of the bay's bezel. Once you have the drive set flush on the bottom of the bay, use that plastic (or whatever it happens to be made of) tab attached to the bottom of the sled and pull the drive firmly into the bay's SATA ports.



Note that we've pulled off a couple of these hanging tabs in the past. They're usually just attached with cheap glue, so be careful. That said, don't be on pins and needles with your drives. They're a bit like children. Be as careful as you can, but if one takes a fall, odds are very good it'll be perfectly fine.

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11. Well, That Was Easy

If I hadn't been photographing the whole thing, the SSD upgrade process shown here would have taken somewhere between 45 and 60 minutes. The hardest part of the whole affair? It wasn't when I freaked out about that Blue Screen of Death, which is just one of the daily hazards of using Windows. I hope you can see that this is about as easy of an upgrade as you can imagine considering that we're migrating an entire multi-partition drive image. Installing a couple of RAM modules might be easier, but not by much.



In the photo here, you can see the finished product, our Acer AspireOne running on its shiny new SSD. The transition was totally seamless. Everything looked the same, but Windows was tangibly faster, even from the first boot-up. I can't recommend doing an SSD upgrade like this enough. The drives are finally affordable, and the little performance improvements you'll get throughout your daily use will soon make the expense seem more than worthwhile.

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12. More on this topic



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For gamers and gear guys on the go, we've created an ideal combination of gadgets: netbook,...



Apple's iSlate and the Competition

All eyes are on an Apple iSlate computer unveiling later this month. What is the competition...



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For The Bachelor Pad: Asus NX90

We can't imagine this beast of a laptop from Asus anywhere else but a swanky penthouse full of...

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<http://www.tomsguide.com/us/netbook-upgrade-ssd,review-1481.html>

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