

An SSD in your Future?

Duane Mattern
Sampled Systems, LLC

Solid state drives (SSD) are a replacement for hard disk drives (HDD) and they have become more common as their price continues to fall. They tout better mechanical reliability, (no moving parts), and better performance due to faster response. I could go into deep detail about these issues, but there are already a lot of websites with detailed performance comparisons. Instead I'll talk about my experience with an SSD conversion. I recently added an SSD to a laptop in hope of improving performance. The laptop is a Dell Precision M4400 running Windows XP.



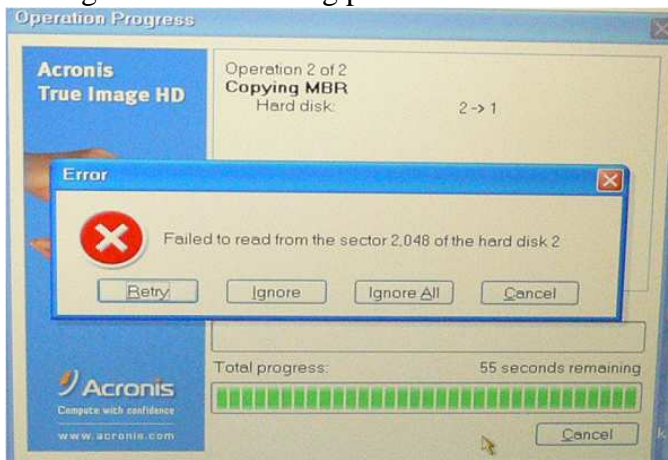
I purchased a Kingston SSDNow V+ Series 64 GB SATA 3GB/s 2.5-inch SSD with the notebook upgrade kit from Amazon for about \$160. The kit comes with a 2.5 inch 64 GB SSD, a USB external hard disk drive (HDD) enclosure and cable, and a CDROM that includes the Acronis disk cloning software. The kit also comes with a 3.5 inch mounting kit for desktop computers which I didn't need.

The laptop has an existing 160 GB HDD, but I managed to back up enough files so that I could get the used space under 60 GB so that it would all fit on the SSD.

The kit is pretty easy to use: yank the hard disk and install it in the external USB hard disk enclosure; install the SSD in place of the hard disk, plug in the external USB hard disk and reboot from the SSDNow CDROM to run the Acronis True Image cloning software to copy the original HDD to the SSD. After the cloning process is complete, reboot to SSD with a copy of your original setup. Simple right? Well I encountered two issues, both of which should be done prior to installing the SSD.



First, it's a good idea to check the original HDD for disk errors so that the cloning software doesn't have to deal with the errors. Under the Windows operating systems, this implies running a program like CHKDSK prior to removing the HDD. This isn't a major issue, but running CHKDSK prior to cloning makes the cloning process easier.



The second problem was with support for SSDs in the laptop's BIOS. When I rebooted with the Acronis cloning disk after installing the SSD, the SSD was visible from the Acronis program. But after the cloning process I rebooted to the SSD and the SSD was not visible to the laptop. The reason for this wasn't apparent, so I had to do some research on the internet with another computer to find out that the problem was likely due to an old BIOS. I proceeded to the Dell website; entered the Dell laptop service tag number; found the latest BIOS=A24 for M4400,

and installed the BIOS update. The main hassle with all of this is that the Dell BIOS upgrade program is a Windows program, which meant that I had to remove the SSD, reinstall the HDD, boot to Windows; run the BIOS upgrade program; shutdown windows; remove the HDD; and reinstall the SSD. After updating the M4400 to the A24 BIOS, the SSD booted properly and I was then off and running.

So, what about performance? After the SSD installation, I ran an embedded software build script that involves a number of Perl scripts, makefiles, code generation, and C file compilation. Surprisingly there was no difference in the build times, 25 minutes both before and after. This was a little bit of a letdown, but according to some websites, this is because the Kingston SSDs are better for large file access than small file random access. What of other performance criteria? It is somewhat subjective, but in my opinion the boot up and shutdown times are much faster. Also, starting up application like Word, Excel, or MatrixX are much snappier. No longer am I drumming my fingers, growling, “why do I have to wait for this stupid machine!!”

What did I do with the original HDD? Well, with the availability of 16 GB USB flash drives, I rarely use a CDROM/DVD player/recorder any more. So I yanked the DVD player, and replaced it with a second HDD caddy from NewModeUS.com for about \$50. I now use the SSD for all Windows application programs for improved response time and I store all application data to the HDD.

Is it worth the plunge? I think so. The update provides enough performance improvement that it'll prolong the useable life of the laptop by at least 18-24 months and as SSD prices continue to drop, it will become an easier decision.