

Repairing a Notebook PC



Toshiba Satellite J40. Broken CPU fan on the bottom right

A local company gave me the laptop PC you see in the photo. They often give me older PCs because I'm actually doing them a favor to take away their junk! It costs money in Japan to dispose of materials.

I was interested in this particular laptop PC because the keyboard looked so clean. It was as if it had hardly ever been used! And the specs were not bad. It had 256 megabytes of RAM and a 40-gigabyte hard disk and an Intel Pentium M CPU with a Japanese version of Windows XP. There was only one problem: The CPU fan had failed! I installed software to check the CPU temperature and it was up to 75 Celsius! Windows gave a warning every minute indicating high temperature. I knew the notebook PC could not be used very long with an overheated CPU / Motherboard. It certainly would not run very well for long. The CPU was engineered to drop to a lower speed and performance if its operating temperature increased too high.

The same company gave me another Toshiba laptop a few months previously. The display was dead but when hooked to an external monitor, the laptop did work. A laptop without a working display has zero mobility if it needs an external monitor. I used it for parts.

With two junk laptops gotten for free, I did what I would not do with a customer's laptop PC. I unscrewed each and every screw in both the top and bottom of the Toshiba Satellite J40 laptop PC, put them in order on my desk, removed the bottom plastic case from the top case, removed the defective CPU fan, and replaced it with the CPU fan from the Toshiba laptop with the broken monitor. Because the size of the fan was not the same, it could only be secured with one screw. But it was enough.

I added 256 megabytes more RAM and installed Linux, Fedora 17 on it. This of course destroyed the Windows XP installation entirely, something I could not

even use legally because of licensing. Who needs Windows anyway? My new used laptop boots faster and shuts down quicker than it did with Windows!

A totally successful operation! The hardest part was not taking it apart without breaking it, but putting it back together – and without a single screw left over. I think you technicians know what I'm talking about. □

[How to reinstall Windows on a Notebook PC with no CD / DVD drive](#)



My friend's daughter has a lightweight Sotec notebook PC with Windows XP. As often with the case of browsing the Internet with Windows XP logged in with Administrator privileges, in spite of the antivirus program in use, some virus crept in and was causing poor performance. Moreover, it corrupted some Windows system file so that no hardware devices displayed in the device manager! And, the Network device went missing so that the Notebook could not connect to the Internet any more. The only solution I knew was to either run a repair using a Windows XP installation, or to reinstall Windows. But because this Notebook had no internal CD/DVD drive, I had to figure out how to create a bootable media from the USB port. Thankfully this particular Notebook has an option in the BIOS to boot from a USB device.

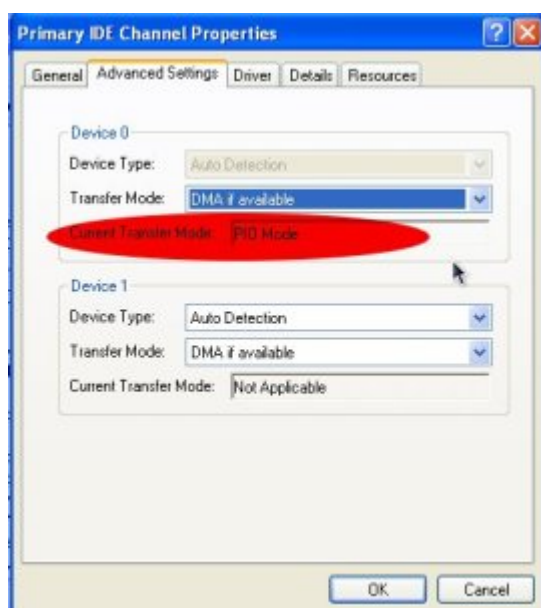
I attached an external IDE DVD drive to it using a IDE to USB connector, and set the boot settings in the BIOS to boot from the USB port. However for some reason the Notebook's BIOS would not recognize my DVD drive. I knew there was no problem with the DVD drive itself.

I have a 2 gigabyte USB flash memory stick and plugged that into the USB slot. The Notebook's BIOS recognized the stick! Now all I have to figure out is how to make the USB stick bootable with a Windows XP installation on it.

After some googling for the answer and after a couple failed attempts to make the USB stick bootable, I found an excellent free program called WintoFlash

which did the job very well. The Notebook booted from the USB stick and gave me a menu. I chose the first menu item which ran the Windows installation program on the stick, If you're technically savvy enough to be interested in reading this post, you'll have no trouble figuring out the rest after downloading and installing this software. ☐

[Dramatically restoring the performance of an exceedingly slow Windows XP machine](#)



Last night a young lady asked me to look at her Windows XP laptop. It was running much slower than it did when she first got it. Usually, I first consider that the system is probably infected with malware or spyware, and I installed and ran [SuperAntiSpyware](#) to scan the C drive of her PC. But later I realized that she, being the type of girl she is, would not be going to dangerous websites from where she would be infected. SuperAntiSpyware reported no malware present. I then remembered that the primary IDE channel of a Windows XP system sometimes reverts from DMA to PIO. The graphic on the right shows what the current transfer mode should **not** be!

IDE stands for Integrated Drive Electronics. It refers to the electronics of either your hard disk or DVD drive. In this case, the hard disk is in question.

DMA stands for Direct Memory Access, a technique for transferring data from the main memory to a device (like your hard disk) without passing it through the CPU (central processing unit, the computer's brain).

PIO stands for Programmed Input/Output, a method of transferring data between

two devices that *uses* the computer's CPU.

PIO is the older and slower method of data transfer. DMA is at least 10 times faster than PIO from my personal observation. This means that if the IDE primary channel is set for PIO, this will slow down the read and write speed of your hard disk by at least 10 times which dramatically slows down the entire system! Windows XP will automatically revert from DMA to PIO if there are too many DMA errors. In such a case, it may be a sign your hard disk is beginning to fail.

You can check the if the transfer mode of your hard disk is DMA or not with the procedure below.

1. Click Start
2. Click Control Panel
3. Click Switch to Classic View (if you are not there already)
4. Double-click the System applet to open it.
5. Click on the Hardware tab to open it
6. Click on Device Manager to open it
7. Click on the plus sign of IDE ATA/ATAPI controllers to expand it
8. Right click on Primary IDE Channel
9. Left click on Properties
10. Click on the Advanced Settings tab
11. Look at the current transfer mode of Device 0. It should say Ultra DMA Mode with a number after it as shown in the picture. If it says PIO Mode, this is the reason for your slow PC.



Ultra DMA mode

If you see that the current transfer mode of the primary IDE channel on your PC is PIO, you may be able to reset it back to ultra DMA mode by [downloading and running this script](#). Just right click the and left click "save link as" to save the file. Windows may save it as a text file by adding a .txt after the real extension of .vbs If so, you would need to rename the file before you can run it by deleting the .txt, and to do that you may have to change the Windows default setting to show registered file extensions.

After you run the script, reboot and check the primary IDE channel settings again. If it is restored back to ultra DMA mode, congratulations! If not, the only fix would be to change the hard disk altogether to a new one or buy a new PC.