Chapter 27 - Troubleshooting a Failed PC

What do you do when your PC fails before Windows even starts? If your machine greets you with nothing more than a few beeps and a blank screen, prepare for a technicians expenses or try doing it yourself.

All is not lost, though. You might be able to revitalize a flatlining computer simply by tightening a loose connection. But the problem could also be as complex--and as expensive--as a shot CPU, motherboard, or other major component. Before you can decide whether a hardware repair is worth the time and money, you have to find the source of the trouble. Here is my approach to PC diagnostics.

Got Juice?

If you turn on your PC and absolutely nothing happens--no indicator lights, beeps, clicks, whirs, or flashes on your monitor screen--your PC isn't getting power. Look for a lit LED on the system's case and the sound of the power supply's exhaust fan (if it exists) spinning.

Before you conclude that your power supply is dead, make sure all power cords are plugged in at both ends. Check the brightness and contrast settings on your monitor to ensure that they aren't at their highest or lowest levels. And take a close look at your uninterruptible power supply or surge protector--it may have a fuse or a circuit breaker that has tripped.

If everything outside the box checks out, unplug all the cables, open the PC's case, and verify that the power connectors for each internal component are seated firmly. Keep in mind that electric charges from your body can destroy your system's delicate circuitry. Whenever you venture inside your machine's case, use a grounding strap that attaches to your wrist (available at most computer stores for less than $15), better yet and cheaper, ground yourself beforehand by touching a water pipe, lamp, or other grounded object. Often touching just the case if it is plugged into a grounded electrical outlet.

Your PC's power wires run through a plastic container from the power supply to each device joining it. One bad connection won't account for complete power loss, but it will shut down a critical component such as your hard drive. To check your power supply for signs of life, test it with a device like the $8 ATX Power Supply Tester from PC Power and Cooling available at most electronic or PC stores.

If you find that your supply has indeed gone belly up, replace it. A new power supply is a lot cheaper than a new system. A good 250-watt (300-watt is better) supply costs less than $50, and anyone with even a smidgen of mechanical aptitude can install it. Just disconnect the power line for each component, remove a few screws, and then do the reverse for the new supply. (Make sure everything is unplugged before you start working, of course.)

Your new power supply must have sufficient wattage to run your PC. If you've loaded your system with extra hard drives, expansion cards, or a power-hungry graphics card, you may have overloaded your old power supply. Replace with a larger one. (300 to 400 watt)

Call to POST

If your PC is getting all the power it needs but still won't boot up, it may be trying to tell you something. Look and listen to its hardware tests for clues: Every time your PC starts, it performs a Power On Self Test (POST) that alerts you to errors via a series of beeps (if an error is detected before the graphics card has initialized) or via messages displayed on your screen.

These POST error messages and beep codes vary from vendor to vendor; you'll have to check your PC maker's Web site for explanations of individual messages or codes. You may have a motherboard manufacturer's manual with your original PC papers.

Some error messages clearly state the source of trouble, such as "Fixed disk failure" or "CMOS battery failed." Many other error messages are more cryptic. Even if you don't understand it, write the message down. If you end up talking to a service technician, having this message handy could save you time and maybe even some money.

After POST has completed, watch for other on-screen announcements. As your computer initializes different components, it often displays a brief confirmation; if it detects a problem, it shows an error message. If your PC locks up during the boot process, note the last device displayed on screen--that part may be the source of the problem.

Sometimes these messages flash across the screen so fast you can't read them. To freeze an on-screen message--and the boot process--press the Pause or Break key on your keyboard. When you're ready to continue, just press any key.

You can also employ a diagnostic utility such as #1-PC Diagnostics' excellent #1-TuffTest, which doesn't need Windows to run. Just put the application's disk in the floppy drive and reboot your system. The program checks your memory and other hardware components. Download the free trial version of the $10 #1-TuffTest-Lite (the Pro release costs $30) or install from your CyberSmart CD:

http://www.pcworld.com/downloads/file_description/0,fid,7725,tk,urx,00.asp

You can rule out your hard drive as the source of trouble by booting your PC from its floppy drive or optical drive. To do this, go into the PC Setup program and change its Boot Order setting (the exact wording may vary) so that your floppy and/or optical drives are listed before the hard drive in your system's boot order. Access your PC Setup program by pressing the appropriate key (often Delete or F1) as your computer starts. Directions to these setting are often on your screen at initial start-up. If your display doesn't tell you how to access PC Setup, look in your manual for the proper procedure.

Inside Job

Once you've determined that your hard drive is healthy, remove and reconnect all the power connections, expansion cards, hard-drive cables, and RAM modules inside the PC's case. Make sure each cable and card has a solid connection. Also remember to ground yourself before handling any cables or components.

If all else fails, remove everything from your system except the motherboard, keyboard (plugged into the back of your computer), and graphics card (often graphics cards are built into the motherborad). If your PC reboots without trouble, you know one of the removed components is the culprit. Reinstall

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the devices one by one until the problem reappears, and then replace or repair (probably replace) the offending component. If the problem recurs after you first remove the extra hardware, you've probably got a bad graphics card or motherboard. To check your graphics card, install it in a different PC to see if it works there. If possible, put a different graphics card in your current PC to see if that rectifies the problem.

The last suspect is your motherboard. You can replace it, but buying a new PC may be more economical.

When the Windows Operating (95, 98, ME) system acts up, you can run a troubleshooting utility such as Easy Desk Software's RegRepair (free to try, $30 to keep if it works for you), use System Restore to turn back the clock, or in the worst cases reinstall the operating system.

You can download RegRepair from *PC World or install from CyberSmart CD*:

http://www.pcworld.com/downloads/file_description/0,fid,5226,tk,urx,00.asp

Problem: Windows has become cranky. Sometimes applications don't launch, sometimes programs don't close, and sometimes they just don't work at all.

Quick fix #1: Go to the Windows Update site to download the latest patches for your version. To configure Windows XP to automatically download and install updates, right-click My Computer, select Properties, Automatic Updates, and click Automatic (recommended). In Windows 2000 and Me, open Control Panel, double-click Automatic Updates, make sure 'Keep my computer up to date' is checked, and choose one of the three options under Settings. For Windows 98, go to the Windows Update site and download the Critical Update Notification utility.

Most Windows patches deal with security holes, but the update service also adds support for Bluetooth, Wi-Fi, the latest DirectX versions, and other new technologies.

Quick fix #2: Roll back Windows 2000 or XP to the last time your PC worked by launching in Safe Mode. Restart your PC and press F8 to bring up the Windows Advanced Options. Select "Last Known Good Configuration (your most recent settings that worked)" and press Enter.

If that doesn't do the trick, you can restore even earlier settings in Windows XP and Me by using System Restore. Click Start, All Programs (Programs in Me), Accessories, System Tools, System Restore and choose Restore my computer to an earlier time. Click Next, select a recent date checkpoint, and then proceed through the rest of the System Restore wizard.

Windows Treatments: Bad XP Prescription?

Problem: Since you installed Windows XP Service Pack 2, your PC seems slower, and several programs have started acting strangely.

Quick fix #1: Often the fix is as simple as a driver update. Go to this site to read Microsoft's list of programs with SP2 compatibility issues:

http://support.microsoft.com/default.aspx?kbid=884130&product=windowsxpsp2