Replacing the new motherboard

1. The process of replacing the motherboard began with removing the old motherboard. Now it's time to compare the old motherboard with the replacement motherboard to see how the physically match. We have to pull the I/O core shield out of the back of the case, and place it on the I/O core of the old motherboard. You can see (if the flash isn't blinding you:-) that the old I/O core didn't have a game port or integrated sound, which the new motherboard supports. New motherboards should always ship with their own I/O shield, but with a second-hand replacement like we're using here, you have to make due. Fortunately, the old I/O shield has punch-outs in the proper locations.

2. You'll need to exercise a bit of common sense when removing sharp pieces of tin from a flimsy shield. While pliers may seem like a good idea, you want to control the amount of force carefully, it doesn't take much to stretch the shield so that it will never fit on the motherboard I/O core properly. The game port cover is pulled out
with fingers as shown in the following picture, and now a screwdriver is used to pop out the tabs over the sound jacks for mic, line and speakers. Once the metal tab is standing up, one or two bends is enough to break it off.

![Image of a screwdriver popping out a tab]

3. After we double check that the I/O shield now fits over the new I/O core, we install it in the case. It's always a two handed job, the only thing that secures the shield is the spring force on the dimples around the edges, and of course, the motherboard, once the ports protrude through the shield. You need to get the shield firmly fixed in place because otherwise it will just slip when you're trying to align the motherboard ports and making installing the motherboard a pain.
4. Here we've stood the new motherboard up in the case to compare the locations of the holes in the motherboard with the standoffs in the case. In this particular instance, it happens that all seven of the installed standoffs aligned properly with holes in the motherboard (thanks to a standard ATX form factor) so we didn't have to do anything. The main trick is to count the standoffs before installing the motherboard, count out a like number of screws, and make sure you use all of them to secure the motherboard.
5. The motherboard is installed into the case on an angle, with the back edge and the I/O core going first. Once the I/O core is properly aligned with the shield, you can push the ports through the openings and set the motherboard down on the standoffs. Check for wires and cables having been caught below the motherboard before you start securing it with screws.

6. We counted out seven screws to match the number of standoffs in the case, and now we are going to use every one of those screws to secure the motherboard. If there's a screw leftover when you're done, it means that there's a metal standoff that didn't end up under a hole in the motherboard, and is probably waiting for you to plug in the power and burn up the replacement motherboard. In other words, if you didn't use up all the screws, take the motherboard back out and count again. If you counted right, you need to visually inspect the motherboard and the standoff locations, figure out which one isn't being used, and remove it.
7. It is preferred to make the most important motherboard connection first, and that's the power switch. It's normally labeled "PW SW" or "Power SW" and the motherboard will be labeled with "PW SW", "P-ON" "PW" or something similarly cryptic. You won't hurt anything if you attach the power switch to the wrong connector in the block, but you won't get the PC to turn on either. Then go ahead and connected the rest of the front panel leads to the motherboard, but you really don't need to. Nobody uses reset switches or keyboard locks anymore, most motherboards have a built in piezoelectric speaker, and who cares about LED's.
8. Now it's time to load the adapters back in, in no particular order. In the following image, the PCI adapters are placed first, starting with the modem. Last was the AGP adapter, which fortunately was compatible with the new motherboard. If you were doing a serious motherboard upgrade, with PCI Express or AGP 8X video, you'd need a new video card as well.
9. As soon as all the adapter are in place, secure them all with a single hold down screw on the back rail. It pays to do them all at once since the exact dimensions of each card and motherboard vary a little, which means if you installed the adapters and secured them one at a time, you might have to loosen the screws up later to get another adapter to seat in the motherboard. Just make sure you inspect the way the adapters are seated in the motherboard when you're done, that inserting the screw didn't force the back of the adapter down so far that the front popped out, especially with AGP cards.

10. Standard ATX motherboards all use the 20 pin ATX power connector, but newer motherboards for Pentium 4 and Athlon 64 will always require at least one more connection, often a 2x2 12V header, sometimes an addition 1x4 lead, as the type used for the drives.
11. All that's left is reconnecting all the drive cables, power and data, that we undid when removing the old motherboard. The recent ATA ports are color coded for use with 80 wire cables and auto selecting master/slave on ATA drives. If you have serial ATA (SATA) drives, it's even easier, just one slim data cable per drive. Plenty more details for the individual component is available in the other replacing parts pages on this site if you get a little lost. In the second image below we finish the job off with a cable tie, just to neaten up the case a little and encourage better air circulation.
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صفحة 10
POST Checking

The computer power-on self-test (POST) tests the computer to make sure it meets the necessary system requirements and that all hardware is working properly before starting the remainder of the boot process. If the computer passes the POST the computer will have a single beep (with some computer BIOS manufacturers it may beep twice) as the computer starts and the computer will continue to start normally. However, if the computer fails the POST, the computer will either not beep at all or will generate a beep code, which tells the user the source of the problem. If you're receiving an irregular POST or a beep code not mentioned below follow the POST troubleshooting steps to determine the failing hardware.
Installing Windows XP

This article describes how to partition (prepare) and format a hard disk before you install Windows XP using the Windows XP Setup program. You can use other methods to partition and format the hard disk before you install Windows XP, such as the Fdisk and Format tools. For additional information about how to use Fdisk and Format to partition and format your hard disk.

If your computer is already running Windows XP, and you want to create partitions other than the System or the Startup partitions, you can use the Windows XP Disk Management tools.

Before you partition and format the hard disk

Before you partition and format your hard disk, make sure that you do the following:

Prepare the hard disk according to the manufacturer's instructions

If you are using a SATA hard disk, skip this step and go to the "Determine the type of file system that you want to use" section. If you are using an IDE hard disk, set the jumpers and the cabling according to the role of the hard disk (for example, master or subordinate) and make any required BIOS (or CMOS) changes. To set the jumpers and cabling, and make any required BIOS or CMOS changes, see the documentation that was included with your hard disk and motherboard, or contact the manufacturers.

Determine the type of file system that you want to use

You can use either the NTFS or FAT file systems. NTFS is the preferred file system to format the hard disk unless you want to run an earlier version of Windows that cannot read NTFS partitions.
If the hard disk already contains data, back it up

Make sure that you back up all your important data before you continue. When you partition and format a hard disk, all the data on that partition is permanently deleted. You can view current partition information without deleting your data.

If you have software that you want to reinstall, verify that you have the disks

Make sure that you have the original CDs or floppy disks so that you can reinstall the software programs after you partition and format your drive. If you purchased an upgrade for a program, make sure that you have the full version of the original program. Many upgrades for programs require a compliance check before you can install the upgraded product. If you cannot find the original CDs or floppy disks, contact the software manufacturer before you continue.

If you have updated device drivers for peripheral devices, back them up

If you have installed an updated device driver for your peripheral devices (for example, modems and printers), make sure that you back up the new driver for the device to a location other than the drive that you want to format and partition so that you can reinstall it after you install your operating system.

Configure your computer to start from the CD or DVD drive

To start your computer from the Windows XP CD, your computer must be configured to start from the CD or DVD drive. In some cases, you may have to modify your computer's BIOS settings to set this configuration.
How to partition and format the hard disk using the Windows XP Setup program

You can use the Windows XP Setup program to partition and format the hard disk. To do this, use the following steps:

Step 1: Partition the hard disk

a. Insert the Windows XP CD into your CD or DVD drive, or insert the first Windows XP Setup disk into the floppy disk drive, and then restart the computer to start the Windows XP Setup program.

Note If you are using the Windows XP Setup disks, insert each additional disk when you are prompted, and then press ENTER to continue after you insert each disk.

b. If you are prompted, select any options that are required to start the computer from the CD or DVD drive.

c. If your hard disk controller requires a third-party original equipment manufacturer (OEM) driver, press F6 to specify the driver.

d. At the Welcome to Setup page, press ENTER.

Note If you are using the Setup disks (six bootable disks), the setup prompts you to insert the Windows XP CD.

e. Press F8 to accept the Windows XP Licensing Agreement.

f. If an existing Windows XP installation is detected, you are prompted to repair it. To bypass the repair, press ESC.

g. All existing partitions and non-partitioned spaces are listed for each physical hard disk. Use the ARROW keys to select an existing partition, or create a new partition by selecting the non-partitioned space where you want to create a new partition. You can also press C to create a new partition using non-partitioned space.

Note If you want to create a partition where one or more partitions already exist, you must first delete the existing partition or partitions,
and then create the new partition. You can press D to delete an existing partition, and then press L (or press ENTER, and then press L if it is the System partition) to confirm that you want to delete the partition. Repeat this step for each existing partition that you want to include in the new partition. When all the partitions are deleted, select the remaining non-partitioned space, and then press C to create the new partition.

h. To create the partition with the maximum size, press ENTER. To specify the partition size, type the size in megabytes (MB) for the new partition, and then press ENTER.

i. If you want to create additional partitions, repeat steps g. and h.

j. To format the partition and install Windows XP, go to step 2.

If you do not want to install Windows XP, press F3 two times to exit the Windows Setup program, and then do not follow the remaining steps in this article.

To format the partition without installing Windows XP, use a different utility.

**Step 2: Format the hard disk and install Windows XP**

a. Use the ARROW keys to select the partition where you want to install Windows XP, and then press ENTER.

b. Select the format option that you want to use to format the partition. You can select from the following options:

   o **Format the partition by using the NTFS file system (Quick)**
   o **Format the partition by using the FAT file system (Quick)**
   o **Format the partition by using the NTFS file system**
   o **Format the partition by using the FAT file system**
   o **Leave the current file system intact (no changes)**
Notes

- If the selected partition is a new partition, the option to leave the current file system intact is not available.

- If the selected partition is larger than 32 gigabytes (GB), the FAT file system option is not available.

- If the selected partition is larger than 2 GB, the Windows Setup program uses the FAT32 file system (you must press ENTER to confirm).

- If the partition is smaller than 2 GB, the Windows Setup program uses the FAT16 file system.

- If you deleted and created a new System partition, but you are installing Windows XP on a different partition, you are prompted to select a file system for both the System and Startup partitions.

c. Press ENTER.

d. After the Windows Setup program formats the partition, follow the instructions that appear on the screen to install Windows XP. After the Windows Setup program is finished and you have restarted the computer, you can use the Disk Management tools in Windows XP to create or format more partitions.

Additional notes

Before you can install an operating system such as Windows XP, you must first create a primary partition on the first physical hard disk (Disk 0) on your computer. Then, you can format a file system on that partition to create what is called the System partition.

Or, you can create a separate partition for the operating system on any physical hard disk. This is known as the Startup partition. The System partition on Disk 0 can also be used as a Startup partition.
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