Lab 3.7.1: Video Card Installation and System Booting

Estimated time: 30 Minutes

Objective

Upon completion of this lab, you will have installed the video card. Also, you will have connected the mouse, keyboard, and monitor. If everything is installed properly, you should be able to turn on the computer at the end of this lab.

Equipment

The following equipment is required for this exercise:

- ESD wrist strap
- Tool kit and screws
- Video card
- PS/2 mouse
- PS/2 Keyboard
- 15" monitor
- 3.5" DOS boot floppy
- Motherboard manual

Scenario

Your friend cannot wait any longer for the computer to be finished. It is time to put the finishing touches on the machine and start it up.

Procedure

Before you power up your computer, it is extremely important to properly seat all of the expansion cards. If a card is not properly seated when the computer is turned on, it will malfunction. Also, excessive force when seating an expansion card can damage the motherboard, so the job must be done carefully.

Step 1

Recall from Chapter Two that video cards are built for either the PCI slot or the AGP slot. Check the video card that is included in the equipment inventory. In the space below describe the video card. Include how much video RAM is on the card and whether it is a PCI or an AGP card.

_____

_____

To install the video card, first remove the slot protector from the back of the computer

case. Locate the AGP slot or an available PCI slot. Remove the slot protector by removing the screw that holds it in place.

Step 2

Insert the video card into the AGP or PCI slot. If necessary, rock it gently until it is seated on the motherboard. After the video card is seated, line up the hole in the video card bracket with its corresponding hole in the computer case. Use a case screw to secure the video card to the computer case.

Note: Never leave a slot open without a card in it. Leaving a slot open will cause poor air circulation in the case and some components may overheat.

Step 3

Before closing the computer case, review the following checklist:

____ Are there any loose screws in the computer case?

____ Have all tools have been removed from the computer case?

____ Is the voltage selector switch in the correct position?

____ Is the CPU seated completely?

____ Is the fan secured?

____ Is the fan plugged in?

____ Is the memory in the correct slot, and is it fully seated?

____ Are all of the drives in their correct position and secure to the chassis?

____ Are the ribbon cables fully seated and connected to the correct drives?

____ Is the audio cable connected to the CD-ROM drive correctly?

____ Is the ATX 1 power cable in the right position and has it been latched down?

After completing the checklist, put the computer case together. Attach all of the case panels and secure them with the appropriate screws.

Step 4

Locate the two PS/2 ports on the back of the computer. One port is designated for the mouse and the other for the keyboard. Look closely at these ports. On newer motherboards there is an icon for the mouse and keyboard. Also, each port may be color-coded. It is purple for the keyboard and green for the mouse. Plug the mouse and keyboard into their respective ports by lining up the pins and pinholes and pushing on the connections. Do not push too hard, but make sure they are inserted all the way.

Step 5

Locate the monitor and place it within about one foot of the computer. Examine the video card adapter that was installed in Step 1. It will be a 15-pin female connector. Examine

the monitor connector. It will be a 15-pin male connector. Line up the pins to the pinholes and connect the monitor cable to the video adapter. Most cables come with monitor screws already attached. Tighten these screws evenly until the monitor cable is attached to the video card.

Step 6

Now plug in the computer's power cable. On ATX models there will be a power switch on the back of the computer and a power button on the front. Turn on the power switch first, the computer will not power up because both the switch and the button must be on.

Now, push the power button on the front panel of the computer. This will power up the computer. Some front panel LEDs will turn on, and you should hear the power supply fan spin up.

Step 7

Press the appropriate key to cause the computer to go into the BIOS setup mode. (Some BIOS manufacturers use a different key, or key combination, to enter BIOS configuration mode. When you first power up the computer, a message displays that says something like “Press **F3** to enter Setup”) If this message does not display, consult your motherboard’s manual for the correct button or sequence of keys.

When the computer goes into BIOS setup, the main menu screen displays. Run through the BIOS settings below and then boot the computer from a bootable floppy disk.

Move around the screen using the arrow keys until the Standard CMOS menu item is highlighted. Press the enter key to open the Standard CMOS features screen. In this screen you can change the time, date and the type of drives this computer will recognize.

Check to see if the BIOS recognizes Drive A. Does it show Drive A as a 1.44M, 3.5" floppy? _____

Check to see if there is a Drive B. You should not. Recall that during the building of the computer a second floppy drive was not connected.

To leave the BIOS setup, hit the **Esc** key. A prompt will display that asks if you want to quit without saving. Press the **Y** key for yes.

Step 8

In this step, the computer is booted from a floppy disk. Restart the computer and insert the 3.5” bootable floppy disk. If the standard BIOS settings have not been altered, the computer will look for the operating system in the following order:

1) removable media

2) hard drive

3) CD-ROM

During normal operations the computer is booted without a floppy disk and therefore the computer will skip the floppy and find the operating system on the hard drive.

Recall from Chapter Two that DOS is a command line operating system. After the

computer boots, the screen will display an "A:\>" prompt and there will not be any windows or icons.

Use the DOS boot disk to check some basic functions of the computer. Run the following DOS commands and write out the results of each:

Type “dir”, then press **Enter**.

What are the results of typing this command?

_____

_____

_____

_____

Troubleshooting

Did the computer boot correctly? _____

If not, go over the checklist again. Have the instructor or lab aide look over the system.

How many beeps did you hear?

_____

_____

If the computer did not boot correctly, what steps did you take to troubleshoot it?

_____

_____

Reflection

Did everything go as expected? If not, why not?

_____

_____

What would have made the construction of the computer easier? Describe a tip or technique that you learned when building this computer that you would use in future.

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