

## CRE&T Component Testing Procedures 1.01

### 1) Memory Test

- a) Use the air compressor to blow dust and particulate matter off the memory to be tested. Exercise care to keep the tip from getting too close to the memory. Do NOT remove or blow off labels affixed to the memory.
- b) Use memory test infrastructure machines to determine the memory bus speed (PC-66, PC-100, PC-133, PC-2100, PC-2700, PC-3200, PC-3500, PC-4000, etc.) and memory size (32M or less, 64M, 128M, 256M, 512M, 1024M, 2048M, 4096M, etc.) Sort the memory by size and type.
- c) Affix labels to the memory, then put away in Build room. Place defective or memory into a special container to be reviewed by a Build team member.

### 2) Processor Test

- a) Use the air compressor to blow dust and particulate matter off the processors to be tested. Exercise care to keep the tip from getting too close to the circuitry. Do NOT remove or blow off labels affixed to the processor.
- b) Use a paper towel to remove old thermal paste, thermal grease, or TIM (Thermal Insulating Material) from the top of the processor chip or its heat spreader.
- c) Read the processor information to determine processor type and speed.
- d) Sort the processors by type in order to test several of them in a row on the testbed you will make.
- e) Examine the processors for bent pins, and straighten them if necessary.
- f) Gather the processor testbed, which consists of a surge suppressor, a test infrastructure machine, an appropriate power supply, motherboard, video card, enough tested memory of the correct type and speed to determine whether the processor is working, and an adequate heatsink/fan combination to cool the processor. Also have a printout for the beep codes appropriate to the motherboard being used in order to troubleshoot any problems.
- g) Attach the surge suppressor and power cord to the power supply.
  - i) The surge suppressor should be OFF.
  - ii) The power supply switch should be OFF.
- h) Attach the following:
  - i) Attach the ATX power cable to the motherboard.
  - ii) Attach a keyboard to the motherboard.
  - iii) Attach a monitor to the motherboard.
  - iv) Attach the power button to the appropriate pins on the motherboard.
  - v) Attach the reset button to the appropriate pins on the motherboard.
  - vi) Attach the speaker to the appropriate pins on the motherboard.
- i) Make certain to have some additional paper towels, thermal grease, and anti-static material on hand.
- j) Place the processor into the appropriate slot or socket on the motherboard.
  - i) Apply Thermal grease to the processor.
  - ii) Affix a heatsink/fan to the processor.
  - iii) Attach the heatsink/fan to the appropriate connector on the motherboard.
- k) Add an appropriate quantity and type of memory to the testbed.
- l) Apply power as follows:
  - i) Turn on the surge suppressor.
  - ii) Turn on the power switch at the back of the power supply.
  - iii) Press the power button on the front of the case.
- m) Listen for appropriate beeps when the system is started... a single beep should mean the system is starting normally. Other multiple beep combinations mean there is some problem. In general, if the processor that is not working there will be no beeps at all.
- n) Whenever a system starts normally the caps lock and scroll lock and num lock LEDs on the keyboard will all flash simultaneously within the first few seconds (immediately after the machine completes its post.)
- o) Turn off the system, the power supply switch, and the surge suppressor.
- p) Remove the processor from the system. If the processor tested OK, then affix a label that says "Working" to the processor in an area that will not interfere with attaching a heatsink, transferring heat to the heatsink, or in a way that will keep the pins from making appropriate contact with the motherboard socket or slot.

## CRE&T Component Testing Procedures 1.01

### 3) Motherboard Test

- a) Use the air compressor to blow dust and particulate matter off the motherboard to be tested. Exercise care to keep the tip from getting too close to the circuitry. Do NOT remove or blow off labels affixed to the motherboard.
- b) Examine the motherboard for popped caps, broken pins, damaged latches, missing heatsinks, missing fans, etc.
- c) Repeat the procedure listed in 2) above, except do it with a known WORKING processor appropriate to the motherboard.
- d) If the motherboard has any fans, make certain that they spin freely.
- e) Once you have determined whether the motherboard is working or not sign either a RED or a GREEN circular sticker with your initials and the date on which you tested the motherboard. Use a red sticker for a defective motherboard and a green sticker for a board that passes the tests.
- f) If the motherboard has an obvious physical defect, such as "Popped CAPS" then write that on the RED sticker too.
- g) Affix either the RED sticker or the GREEN sticker over the MEMORY sockets on the motherboard.
- h) Give the motherboard to a member of Build team to review your work.

### 4) Video Card Test

- a) Use the air compressor to blow dust and particulate matter off the video card to be tested. Exercise care to keep the tip from getting too close to the circuitry. Do NOT remove or blow off labels affixed to the video card.
- b) Examine the video card for popped caps, broken pins, missing heatsinks, missing fans, etc.
- c) If the video card has a fan, make certain that it spins freely.
- d) Once you have determined whether the video card is working or not sign either a RED or a GREEN circular sticker with your initials and the date on which you tested the video card. Use a red sticker for a defective video card and a green sticker for a board that passes the tests.
- e) If the video card has an obvious physical defect, such as "Popped CAPS" then write that on the RED sticker too.
- f) Affix either the RED sticker or the GREEN sticker over the MEMORY sockets on the video card.
- g) Give the video card to a member of Build team to review your work.

### 5) Power Supply Test

- a) Use the air compressor to blow dust and particulate matter out of the power supply to be tested. Exercise care to keep the tip from getting too close to the circuitry. Do NOT remove or blow off labels affixed to the power supply.
- b) Gather a surge suppressor and a power cord.
  - i) Turn off the surge suppressor.
  - ii) Plug the power cord into the surge suppressor.
  - iii) Turn off the power supply.
  - iv) Plug the power cord into the power supply.
- c) Attach the power supply tester to the ATX power cable on the power supply.
  - i) Turn on the surge suppressor.
  - ii) Turn on the power supply.
- d) Check that all appropriate LEDs come on.
- e) IMPORTANT: It is NOT necessary that that -5V LED comes on. -5V is NOT a part of the ATX specification.
- f) IMPORTANT: make CERTAIN that the power supply fans are in working order, moving air, and not too noisy. Also make certain that there are no loose parts rattling around inside the power supply.
- g) DO NOT open the power supply to attempt to fix any component inside. That is UNSAFE and could deliver a severe electric shock. Once you have determined whether the power supply is working or not sign either a RED or a GREEN RECTANGULAR sticker with your initials and the date on which you tested the power supply. Use a red sticker for a defective power supply and a green sticker for a board that passes the tests.

## CRE&T Component Testing Procedures 1.01

- h) If the power supply has an obvious physical defect, such as "BAD FAN" then write that on the RED sticker too.
  - i) Affix either the RED sticker or the GREEN sticker next to the power supply leads where the leads exit the power supply.
  - j) If the sticker is GREEN, also write what the WATTAGE of the power supply is on the sticker.
  - k) Show the power supply to a member of Build team to review your work.
  - l) Sort and place the power supply and place it into an appropriate banana box in the Service Area.
  - m) The power supply should be stored with the Leads facing UP, so that the sticker may be read from the top of the power supply just by looking down into the box containing the power supplies.
- 6) CD-ROM, DVD-ROM, CD-RW, DVD-RW Test
- a) Use the air compressor to blow dust and particulate matter out of the optical drive to be tested. Exercise care to keep the tip from getting too close to the circuitry. Do NOT remove or blow off labels affixed to the optical drive.
  - b) Do NOT blow INSIDE of the optical drive.
  - c) Make certain that the optical drive is 50X or above if it is a CD-ROM.
  - d) Gather a small computer surge suppressor and a power cord and a surge suppressor. Also gather a BOOTABLE COMMERCIAL CD to test the drive.
    - i) Turn off the surge suppressor.
    - ii) Plug the computer into the surge suppressor.
    - iii) Turn off the power supply.
    - iv) Plug the power cord into the power supply.
    - v) Open the case so that a four pin molex power connector is available.
    - vi) Plug the molex power connector into the optical drive.
    - vii) Turn on the surge suppressor.
    - viii) Turn on the power supply in the back of the computer.
    - ix) Turn on the computer with the switch in front of the computer.
  - e) Make certain that the drive can eject the CD.
  - f) Make certain that the drive can boot a COMMERCIAL CD that you have selected.
  - g) Once you have determined whether the optical drive is working or not sign either a RED or a GREEN circular sticker with your initials and the date on which you tested the optical drive. Use a red sticker for a defective optical drive and a green sticker for a board that passes the tests.
  - h) If the optical drive has an obvious physical defect, such as "BROKEN BEZEL" then write that on the RED sticker too.
  - i) Affix either the RED sticker or the GREEN sticker over the MEMORY sockets on the optical drive.
  - j) Give the optical drive to a member of Build team to review your work.