

# MAP 0020: Power Start

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this MAP because you were unable to complete the POST, you have been directed here from another MAP, or you suspect a power problem.	<ul style="list-style-type: none"><li>• The power supply is failing.</li><li>• A diskette drive is failing.</li><li>• A fixed disk drive is failing.</li><li>• An option adapter is failing.</li><li>• The system board is failing.</li><li>• The math coprocessor is failing.</li><li>• The speaker is failing.</li></ul>

## 001

Find your system type in the following figure and go to the MAP indicated.

System Type	MAP
Personal Computer . . . . .	MAP 0020: Power (PC)
Personal Computer XT . . . . .	MAP 0020: Power (PC)
Portable PC . . . . .	MAP 0020: Power (PC)
Personal Computer AT . . . . .	MAP 0020: Power (AT)

Figure 1. System Identification

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# Notes:



# MAP 0020: Power (PC)

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### 001

- Power off the system.
- Unplug the power cord of the system unit (and expansion unit, if attached) from the electrical outlet.
- Disconnect the keyboard and any external devices, except the primary display (and expansion unit if attached) from the system unit.
- Plug the power cord of the system unit (and expansion unit, if attached) into the electrical outlet.
- Power on the system.

**Note:** A 301 error may occur if you disconnected the keyboard. Disregard this error.

### DID THE SYMPTOM REMAIN?

Yes    No

002

**CAUTION**

**Power off the system before connecting any device.**

- Connect the external devices to the system unit, one at a time.

(Step 002 continues)

**002 (continued)**

- Power on the system after connecting each device. Repair or replace the device that causes the failure to return.

**003**

- Power off the system.
- Connect the keyboard to the system unit.
- Disconnect the expansion unit cable (if attached) from the system unit.
- Power on the system unit; do not power on the expansion unit.

**Note:** An 1801 error code may appear if you disconnected an expansion unit. Disregard the error and continue with the POST.

**DID THE SYMPTOM REMAIN?**

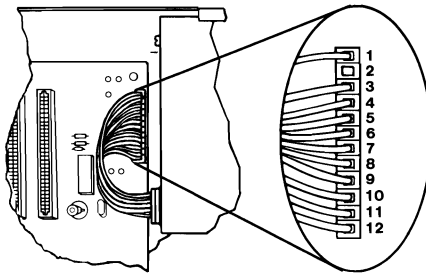
Yes No

**004**

Go to Step 039 in this MAP.

**005**

- Check for a voltage of 2.4 to 5.2 Vdc between pins 1 and 5 (ground) at the system board power connector (Figure 1).



**Figure 1. System Board Power Connector**

005 (continued)

**DO YOU HAVE 2.4 TO 5.2 VDC BETWEEN PINS 1 AND 5?**

Yes No

006

Go to Step 012 in this MAP.

007

- Check the system board power connectors for the correct voltages (Figure 2).

Voltage (Vdc)		Pins	
Minimum	Maximum	-Lead	+Lead
+ 4.8	+ 5.2	5	10
+ 4.5	+ 5.4	9	6
+11.5	+12.6	7	3
+10.8	+12.9	4	8

Figure 2. System Board Voltages

- Check the diskette drive and fixed disk drive power connectors for the correct voltages (Figure 3).

Voltage (Vdc)		Pins	
Minimum	Maximum	-Lead	+Lead
+ 4.8	+ 5.2	2	4
+11.5	+12.6	3	1

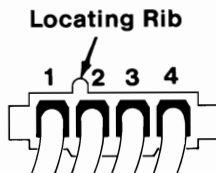


Figure 3. Diskette and Fixed Disk Drive Power Connectors

**ARE ALL VOLTAGES CORRECT?**

Yes No

008

(Step 008 continues)

**008** (continued)

Replace the power supply.

**009**

- Power off the system.
- Disconnect the speaker cable from the system board.
- Check the continuity of the speaker.

**DOES THE SPEAKER HAVE CONTINUITY?**

Yes    No

**010**

Replace the speaker.

**011**

Reconnect the speaker then go to Step 016 in this MAP.

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**012**

(From Step 006 in this MAP)

You may have a failing diskette drive or fixed disk drive. Perform the following procedure.

- Power off the system.
- Remove the power supply connector from one of the drives.
- Power on the system.

**DID THE SYMPTOM REMAIN?**

Yes    No

**013**

Replace the failing drive.

**014**

- Repeat this procedure for any remaining drives.

**DID THE SYMPTOM REMAIN?**

Yes    No

**015**

Replace the failing drive.

(Step 016 continues)

**016**

(From Step 011 in this MAP)

**IS A MATH COPROCESSOR INSTALLED IN THE SYSTEM UNIT?**

Yes No

**017**

Go to Step 021 in this MAP.

**018**

- Power off the system.
- Remove the math coprocessor from the system board.
- Power on the system.

**DID THE SYMPTOM REMAIN?**

Yes No

**019**

Replace the math coprocessor and the 8088 processor.

**020**

Reinstall the math coprocessor then continue with Step 021 in this MAP.

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**021**

(From Steps 017 and 020 in this MAP)

An adapter may be failing. Perform the following procedure:

- Power off the system.
- Remove one option adapter from the system board. Do not remove the diskette drive adapter or the primary display adapter.
- Power on the system.
- Repeat the above procedure until you find the failing adapter, or all option adapters, except the diskette drive adapter and the primary display adapter, have been removed.

**Note:** As adapters are removed, switches may need to be reset to match the system configuration.

(Step 021 continues)

021 (continued)

**DID THE SYMPTOM REMAIN?**

Yes No

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**022**

Replace the last adapter removed.

**023**

- Power off the system.
- Remove the diskette drive adapter from the system board.
- Power on the system.

**Note:** Removal of the diskette drive adapter may result in a 601 error code. Disregard the error and continue with the POST.

**DID THE SYMPTOM REMAIN?**

Yes No

|

|

**024**

Replace the diskette drive adapter.

**025**

**IS THE PRIMARY DISPLAY ADAPTER AN ENHANCED GRAPHICS ADAPTER?**

Yes No

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**026**

Go to Step 030 in this MAP.

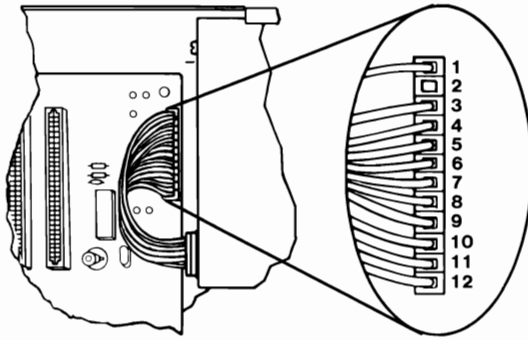
**027**

- Power off the system.
- Remove the Enhanced Graphics Adapter from the system board.
- Set switches 5 and 6 of Switch Block 1 on the system board for color display operation. Set switch 5 to the Off position and 6 to the On position.
- Power on the system.

(Step 027 continues)







**Figure 4. System Board Power Connectors**

**DO YOU HAVE 2.4 TO 5.2 VDC BETWEEN PINS 1 AND 5?**

Yes    No

**034**

Go to Step 036 in this MAP.

**035**

Replace the system board.

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**036**

(From Step 034 in this MAP)

- Power off the system.
- Disconnect the power supply connectors from the system board.
- Ensure all option adapters have been removed from the system board.
- Check for resistance as shown in Figure 5 on page 0020-9.

Pins		Minimum Resistance
-Lead	+Lead	
5	3	17 Ohms
6	4	17 Ohms
7	9	17 Ohms
8	10	0.8 Ohms
8	11	0.8 Ohms
8	12	0.8 Ohms

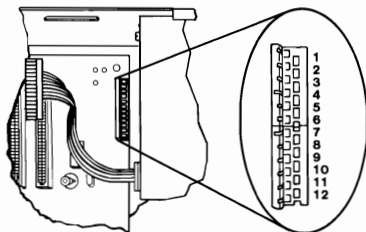


Figure 5. System Board Resistance

**ARE ANY RESISTANCE VALUES BELOW THE MINIMUM INDICATED?**

Yes No

037

Replace the power supply.

038

Replace the system board.

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039

(From Step 004 in this MAP)

- Power off the system.
- Connect the expansion unit cable.
- Insert the Advanced Diagnostics diskette into drive A.
- Power on the system.

**Note:** An 1801 error may occur. Disregard the error and continue with the POST.

(Step 039 continues)



**046**

You have successfully completed the Advanced Diagnostic tests. If you suspect an intermittent problem, start an error log. If you need instructions, refer to the Reference manual.

**047**

Replace the expansion card.

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# Notes:



# MAP 0020: Power (AT)

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### 001

#### ARE YOU IN THIS MAP FOR A 101 OR 107 POST ERROR MESSAGE?

Yes    No

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### 002

Go to Step 004 in this MAP.

### 003

Go to Step 017 in this MAP.

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### 004

(From Step 002 in this MAP)

- Power off the system.
- Unplug the system unit power cord from the electrical outlet.
- Verify the 115/230 Vac selector switch is set for the correct voltage.
- Disconnect all cables and external devices, except the display, from the system unit.
- Plug the system unit power cord into the electrical outlet.
- Power on the system.

(Step 004 continues)

**004** (continued)

**DID THE SYMPTOM REMAIN?**

Yes No

**005**

**CAUTION**

**Power off the system before connecting any device.**

- Connect the external devices to the system unit, one at a time, until the symptom returns.
- Repair or replace the device causing the failure.

**006**

- Power off the system.
- Remove the system unit cover.
- Reseat the power connectors.
- Power on the system.
- Check for a voltage of 2.4 to 5.2 Vdc between pins 1 and 5 (ground) at power supply connector P8.

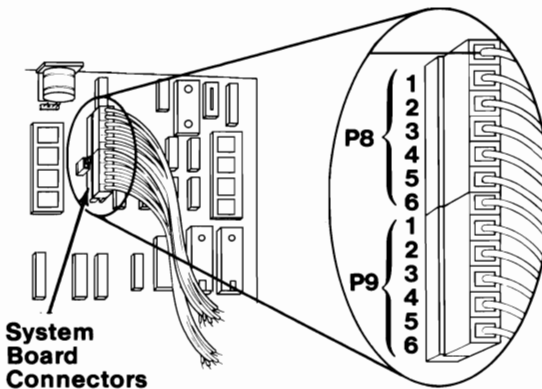


Figure 1. System Board Power Supply Connector

**DO YOU HAVE 2.4 TO 5.2 VDC BETWEEN PINS 1 AND 5?**

Yes No

(Step 007 continues)



007

Go to Step 013 in this MAP.

008

- Check the system board power connectors for the correct voltages (see Figure 2).
- Check the diskette drive and fixed disk drive power connectors for the correct voltages ( see Figure 3).

**Note:** If no fixed disk drives are installed in the system, a power supply load resistor is required for normal operation of the power supply. It may be attached to either connector P10 or P11.

Voltage (Vdc)		Pins	
Minimum	Maximum	-Lead	+Lead
+ 4.8	+ 5.2	P8-5	P9-4
+ 4.5	+ 5.4	P9-3	P8-6
+11.5	+12.6	P9-1	P8-3
+10.8	+12.9	P8-4	P9-2

Figure 2. System Board Voltages

Voltage (Vdc)		Pins	
Minimum	Maximum	-Lead	+Lead
+ 4.8	+ 5.2	2	4
+11.5	+12.6	3	1

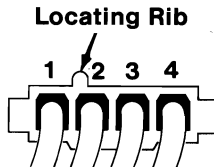


Figure 3. Diskette Drive and Fixed Disk Drive Voltages

**ARE ALL VOLTAGES CORRECT?**

Yes No

009

Replace the power supply.

(Step 010 continues)

**010**

- Power off the system.
- Set the meter to the Ohms X 1 scale.
- Disconnect the speaker cable from the system board.
- Check the continuity of the speaker.

**DOES THE SPEAKER HAVE CONTINUITY?**

Yes No

**011**

Replace the speaker.

**012**

- Reconnect the speaker.
- Go to Step 013 in this MAP.
- 

**013**

(From Steps 007, 012, and 015 in this MAP)

You may have a failing diskette drive or fixed disk drive. Perform the following:

- Power off the system.
- Remove the power connector from one of the drives.
- Power on the system.

**DID THE SYMPTOM REMAIN?**

Yes No

**014**

Replace the failing drive.

**015**

- Reinstall the connector you removed in Step 013 in this MAP.
- Perform the same procedure for any remaining drives.

**DID THE SYMPTOM REMAIN?**

Yes No

**016**

Replace the failing drive.

(Step 017 continues)

**017**

(From Step 003 in this MAP)

You may have a failing adapter. Perform the following:

- Power off the system.
- Remove one option adapter from the system board. Do not remove the Fixed Disk and Diskette Drive Adapter or the primary display adapter.
- Power on the system.
- Repeat this procedure until you find the failing adapter or all option adapters (except the Fixed Disk and Diskette Drive Adapter and primary display adapter) have been removed.

**DID THE SYMPTOM REMAIN?**

Yes	No
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**018**

Replace the last adapter removed.

**019**

You may have a failing math coprocessor.

**IS A MATH COPROCESSOR INSTALLED IN THE SYSTEM?**

Yes	No
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**020**

Go to Step 023 in this MAP.

**021**

- Power off the system.
- Remove the math coprocessor from the system board.
- Power on the system.

**DID THE SYMPTOM REMAIN?**

Yes	No
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**022**

Replace the math coprocessor. If this does not correct the problem, replace the system board.

**023**

(From Step 020 in this MAP)

(Step 023 continues)

**023 (continued)**

- Power off the system.
- Remove the Fixed Disk and Diskette Drive Adapter from the system board.
- Power on the system.

Removal of the Fixed Disk and Diskette Drive Adapter results in a 601 error code, disregard this error.

**DID THE SYMPTOM REMAIN?**

**Yes    No**

**024**

Replace the Fixed Disk and Diskette Drive Adapter. If that does not correct the problem, replace the system board.

**025**

- Power off the system.
- Remove the primary display adapter from the system board.
- Power on the system.

Removal of the primary display adapter results in one long and two short beeps during the POST.

**DID YOU RECEIVE ONE LONG AND TWO SHORT BEEPS?**

**Yes    No**

**026**

Go to Step 028 in this MAP.

**027**

Replace the primary display adapter. If that does not correct the problem replace the system board.

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**028**

(From Step 026 in this MAP)

- Power off the system.
- Wait 10 seconds.
- Power on the system.
- Check for a voltage of 2.4 to 5.2 Vdc between pins 1 and 5 (ground) at power supply connector P8.

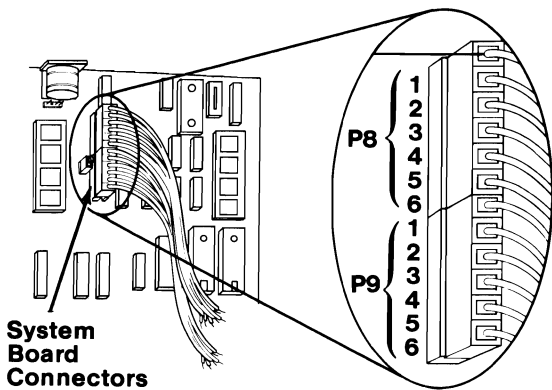


Figure 4. System Board Power Supply Connector

**DO YOU HAVE 2.4 TO 5.2 VDC BETWEEN PINS 1 AND 5?**

Yes    No

**029**

Replace the power supply. If that does not correct the problem, replace the system board.

**030**

Replace the system board. If that does not correct the problem replace the power supply.

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# Notes:

