



# CHAPTER 5

## Troubleshooting the System Hardware

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This chapter provides basic troubleshooting information to help you identify some common problems that might occur with your Wide Area Application Engine (WAE).

This chapter contains the following sections:

- [Identifying System Problems, page 5-2](#)
- [Using the System Diagnostic Programs, page 5-5](#)
- [Checking the Power Subsystem, page 5-11](#)
- [Troubleshooting the Ethernet Controller, page 5-12](#)
- [Identifying Problems Using Trouble Indicators and Status LEDs, page 5-15](#)
- [Undetermined Problems, page 5-25](#)
- [Symptoms and Solutions, page 5-28](#)

Use the information in this chapter to determine whether a problem originates with the hardware or the software. For further assistance, contact your service representative.

**Note**

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Cisco ACNS software does not support the use of a keyboard or mouse (Personal System/2 [PS/2] or Universal Serial Bus [USB]) for Linux and ACNS software troubleshooting. However, the keyboard and mouse are supported by the BIOS for power-on self-test (POST) and diagnostic programs that are located in the device ROM.

When console redirection is enabled, all the tests available from a keyboard are accessible through the console connection as well. (Mouse support, however, is not available through the console connection.)

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You can run all the diagnostics and tests that are supported by the BIOS, with a few exceptions. Tests for a disk drive, for example, are invalid because the device does not include a disk drive in the hardware configuration.

Tests for peripheral devices (such as mouse, keyboard, and monitor) and ports (such as the USB port) that are not supported by ACNS software are also invalid.

**Caution**

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Customer-replaceable components include the Fibre Channel adapter and hard disk drives. All other components that are not orderable as spare hardware options can only be replaced by a qualified service technician. Once you have identified a faulty component, contact Cisco Technical Support. (See the [“Obtaining Documentation”](#) section on page xvii.)

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**Note**

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Read the [“Working Inside the WAE with the Power On”](#) section on page 2-7 before opening the chassis cover.

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## Identifying System Problems

To identify system problems, follow these steps:

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- Step 1** Power down the device and all external devices.
  - Step 2** Check all cables and power cords. (See the [“Checking Connections and Switches”](#) section on page 5-3.)

- Step 3** Set all display controls on the terminal or display device to the middle position.
- Step 4** Power up all external devices.
- Step 5** Power up the device.
- Step 6** Record any POST error messages that are displayed on the screen. If an error is displayed, look up the first error in the [“POST Error Codes” section on page 5-52](#).
- Step 7** Check the system error LED on the front panel (see [Figure 1-2](#)); if it is on, see the [“System Error LED and the Diagnostic Panel LEDs” section on page 5-33](#).
- Step 8** Check the system error log. If an error was recorded by the system, see the [“Symptoms and Solutions” section on page 5-28](#).
- Step 9** Start the diagnostic programs and check for the following responses:
- One beep
  - Readable instructions or the main menu
- Step 10** Take one of the following actions:
- If you received both responses, run the diagnostic programs. For information on how to use the diagnostic programs, see the [“Using the System Diagnostic Programs” section on page 5-5](#).  
  
If the diagnostic programs were completed successfully and you still suspect a problem, see the [“Undetermined Problems” section on page 5-25](#).
  - If you did not receive both responses, find the failure symptom in the [“Symptoms and Solutions” section on page 5-28](#).
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## Checking Connections and Switches

Improperly set switches and controls and loose or improperly connected cables are the most likely source of problems for the chassis or other external equipment. A quick check of all the switches, controls, and cable connections can easily solve these problems. (See [Figure 1-2](#) for the location of front panel controls and indicators. See [Figure 1-3](#) for the location of back panel connectors on the system.)

To check all the connections and switches, follow these steps:

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- Step 1** Power down the system, including any attached peripherals such as external drives. Disconnect all the power cables from their electrical outlets.
- Step 2** If the system is connected to a power strip (or power distribution unit), turn the power strip off and then on again.
- Is the power strip receiving power?
- Yes.* Go to [Step 5](#).
- No.* Go to [Step 3](#).
- Step 3** Plug the power strip into another electrical outlet.
- Is the power strip receiving power?
- Yes.* The original electrical outlet probably does not function. Use a different electrical outlet.
- No.* Go to [Step 4](#).
- Step 4** Plug a system that you know works into the electrical outlet.
- Does the system receive power?
- Yes.* The power strip is probably not functioning properly. Use another power strip.
- No.* Go to [Step 5](#).
- Step 5** Reconnect the system to the electrical outlet or power strip.
- Make sure that all connections fit tightly together.
- Step 6** Power up the system.
- Is the problem resolved?
- Yes.* The connections were loose. You have fixed the problem.
- No.* Call your service representative. (See the [“Obtaining Technical Assistance” section on page xx.](#))
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# Using the System Diagnostic Programs

The device diagnostic programs are stored in upgradable read-only memory (ROM) on the system board. These programs are the primary method of testing the following major components of the device: the system board, Ethernet controller, RAM, serial ports, and hard disk drives. You can also use the diagnostic programs to test some external devices. See the [“Diagnostic Programs and Error Messages” section on page 5-7](#).

If you cannot determine whether a problem is caused by the hardware or by the software, you can run the diagnostic programs to confirm that the hardware is working properly.

When you run the diagnostic programs, a single problem might cause several error messages. When this occurs, work to correct the cause of the first error message. After the cause of the first error message is corrected, the other error messages might not occur the next time you run the test.

When troubleshooting, note the following points:

- If multiple error codes are displayed, diagnose the first error code that is displayed.
- If the computer stops with a POST error, go to the [“POST Error Codes” section on page 5-52](#).
- If the computer stops and no error message is displayed, go to the [“Undetermined Problems” section on page 5-25](#).
- For power supply problems, see the [“Power Supply LED Errors” section on page 5-50](#).
- For safety information, see [Chapter 2, “Preparing to Install the Wide Area Application Engine.”](#)
- For intermittent problems, check the error log.

## Diagnostic Tools Overview

The following tools are available to help you identify and resolve hardware-related problems:

- POST beep codes and error messages

The power-on self-test (POST) generates beep codes and messages to indicate successful test completion or the detection of a problem. See the next section, “POST,” for more information.

- Error log  
The POST error log contains the three most recent error codes and messages that the system has generated during POST. The system error log contains all the error messages that were issued during POST.
- SCSI error messages  
For information on SCSI errors, see the “[SCSI Errors](#)” section on page 5-60.
- Diagnostic programs and error messages  
The device diagnostic programs are stored in ROM on the system board. These programs are the primary method of testing the major components of your device. See the “[Diagnostic Programs and Error Messages](#)” section on page 5-7 for more information.
- Light Path Diagnostics  
Your device has LEDs to help you identify problems with device components. These LEDs are part of the Light Path Diagnostics that are built into your device. By following the path of LEDs, you can quickly identify the type of system error that occurred. See the “[Using Light Path Diagnostics](#)” section on page 5-21 for more information.
- Error symptom charts  
These charts list problem symptoms, along with suggested steps to correct the problems. See the “[Error Symptoms](#)” section on page 5-43 for more information.

## POST

When you power up the device, it performs a series of tests to check the operation of device components and some of the hardware options installed in the device. This series of tests is called the power-on self-test, or POST.

If POST finishes without detecting any problems, a single beep sounds, and the first screen of your operating system or application program appears.

If POST detects a problem, more than one beep sounds, and an error message appears on your screen. See the [“Beep Symptoms” section on page 5-28](#) and [“POST Error Codes” section on page 5-52](#) for more information.

**Note**

If you have a power-up password or administrator password set, you must enter the password and press **Enter** when prompted, before POST will continue.

**Note**

A single problem might cause several error messages. When this occurs, work to correct the cause of the first error message. After you correct the cause of the first error message, the other error messages usually will not occur the next time that you run the test.

The POST error log contains the three most recent error codes and messages that the system generated during POST. The system error log contains all messages issued during POST and all system status messages from the service processor.

You can view the contents of the system error log from the diagnostic programs.

## Diagnostic Programs and Error Messages

The device diagnostic programs are stored in upgradable ROM on the system board. These programs are the primary method of testing the major components of your device.

Diagnostic error messages indicate that a problem exists; they are not intended to be used to identify a failing part. Troubleshooting and servicing of complex problems that are indicated by error messages should be performed by trained service personnel.

Sometimes the first error to occur causes additional errors. In this case, the device displays more than one error message. Always follow the suggested action instructions for the *first* error message that appears.

The following sections contain the error codes that might appear in the detailed test log and summary log when the diagnostic programs are run.

The error code format is as follows:

fff-ttt-iii-date-cc-text message

The following are the meanings of the error message elements:

Error Message Element	Explanation
fff	3-digit function code that indicates the function being tested when the error occurred. For example, function code 089 is for the microprocessor.
ttt	3-digit failure code that indicates the exact test failure that was encountered. (These codes are for trained service personnel; see the <a href="#">“Diagnostic Error Codes” section on page 5-37.</a> )
iii	3-digit device ID. (These codes are for trained service personnel; see the <a href="#">“Diagnostic Error Codes” section on page 5-37.</a> )
date	The date that the diagnostic test was run and the error recorded.
cc	Check value that is used to verify the validity of the information.
text message	<p>Message that indicates the reason for the problem. The format is as follows:</p> <p>Function Name: Result (test-specific string)</p> <p>where:</p> <p>Function Name is the name of the function being tested when the error occurred. This corresponds to the function code (fff) shown in the error code format in the previous section.</p> <p>Result can be one of the following:</p> <ul style="list-style-type: none"> <li>• Passed—This result occurs when the diagnostic test is completed without any errors.</li> <li>• Failed—This result occurs when the diagnostic test discovers an error.</li> <li>• User Aborted—This result occurs when you stop the diagnostic test before it is complete.</li> <li>• Not Applicable—This result occurs when you specify a diagnostic test for a device that is not present.</li> <li>• Aborted—This result occurs when the test could not proceed, for example, because of the system configuration.</li> <li>• Warning—This result occurs when a possible problem is reported during the diagnostic test, such as when a device driver is not found.</li> <li>• Test-specific string—This is additional information that you can use to analyze the problem.</li> </ul>

## Starting the Diagnostic Programs

To start the diagnostic programs, follow these steps:

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**Step 1** Power up the device and watch the console.



**Note** To run the diagnostic programs, you must start the device with the highest level password that is set. That is, if an administrator password is set, you must enter the administrator password, not the power-up password, to run the diagnostic programs.

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**Step 2** Press **F2** when this message appears:

F2 for Diagnostics

**Step 3** Enter the appropriate password and then press **Enter**.

**Step 4** From the top of the window, choose either **Extended** or **Basic**.

**Step 5** When the Diagnostic Programs window appears, choose the test that you want to run from the list that appears. Follow the instructions in the window:

- Press **F1** while running the diagnostic programs to obtain help information. You also can press **F1** from within a help window to obtain online documentation from which you can choose different categories. To exit from the help information and return to your last location, press **Esc**.
- If the device stops during testing and you cannot continue, restart the device and try running the diagnostic programs again. If the problem remains, the component that was being tested when the device stopped needs to be replaced.
- If you run the diagnostic programs with either no mouse or a USB mouse attached to your device, you will not be able to navigate between test categories using the **Next Cat** and **Prev Cat** buttons. All other functions provided by mouse-selectable buttons are also available using the function keys.



**Note** Cisco ACNS software does not support USB peripheral devices.

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- You can view device configuration information (such as system configuration, memory contents, interrupt request [IRQ] use, direct memory access [DMA] use, device drivers, and so on) by choosing **Hardware Info** from the top of the window.

If the diagnostic programs do not detect any hardware errors but the problem persists during normal device operations, a software error might be the cause. If you suspect a software problem, see the information that comes with your software package.

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## Viewing the Test Log

When the tests are completed, you can view the test log by choosing **Utility > View Test Log**.



### Note

You can view the test log only while you are in the diagnostic programs. When you exit the diagnostic programs, the test log is cleared. The Save Log option in the diagnostic programs window is *not* supported because the device does not support a disk drive.

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## Viewing Error Logs

Start the diagnostic programs. Choose **Hardware Info > System Error Log**, and then follow the instructions in the window.

## Viewing Diagnostic Error Message Tables

For descriptions of the error messages that might appear when you run the diagnostic programs, see the [“Diagnostic Error Codes”](#) section on page 5-37.



### Note

Depending on your device configuration, some of the error messages might not appear when you run the diagnostic programs.

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**Note**

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If diagnostic error messages appear that are not listed in the tables, make sure that your device has the latest levels of BIOS and diagnostics microcode installed.

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## Checking the Power Subsystem

Power problems can be difficult to solve. For example, a short circuit can exist anywhere on any of the power distribution buses. Usually a short circuit will cause the power subsystem to shut down because of an overcurrent condition.

To perform a general procedure for troubleshooting power problems, follow these steps:

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- Step 1** Power down the device and disconnect all AC power cords.
  - Step 2** Check for loose cables in the power subsystem. Also check for short circuits, for example, if there is a loose screw causing a short circuit on a circuit board.
  - Step 3** Remove adapters and disconnect the cables and power connectors to all internal and external devices until the device is at the minimum configuration required to start it.
  - Step 4** Reconnect all AC power cords and power up the device. If the device starts up successfully, replace adapters and devices one at a time until the problem is isolated. If the device does not start up from the minimal configuration, replace components of a minimal configuration one at a time until the problem is isolated.

To use this method, it is important to know the minimum configuration required for a system to start.

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**Note**

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The following are the minimum operating requirements:

- One power supply
  - Power cage assembly
  - System board
  - One microprocessor and voltage regulator module (VRM)
  - Memory module (with a minimum of two 128-MB DIMMs)
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## Troubleshooting the Ethernet Controller

This section provides troubleshooting information for problems that might occur with the 10/100/1000-Mbps Ethernet controller.

### Network Connection Problems

If the Ethernet controller cannot connect to the network, check the following conditions:

- Make sure that the cable is installed correctly.  
The network cable must be securely attached at all connections. If the cable is attached but the problem remains, try a different cable.  
If you set the Ethernet controller to operate at either 100 Mbps or 1000 Mbps, you must use Category 5 or higher cabling.
- Determine whether the hub supports autonegotiation. If it does not, try configuring the integrated Ethernet controller manually to match the speed and duplex mode of the hub.
- Check the Ethernet controller LEDs on the device back panel. (See [Figure 1-3](#).)

These LEDs indicate whether a problem exists with the connector, cable, or hub.

- The Ethernet activity LED is on when the Ethernet controller sends or receives data over the Ethernet network. If the Ethernet activity LED is off, make sure that the hub and network are operating and that the correct device drivers are installed.
- The Ethernet link status LED is on when the Ethernet controller receives a link pulse from the hub. If the LED is off, there might be a defective connector or cable or a problem with the hub.
- Make sure that you are using the correct device drivers that are supplied with your device.
- Check for operating system-specific causes for the problem.
- Make sure that the device drivers on the client and the device are using the same protocol.
- Test the Ethernet controller.

The method used to test the Ethernet controller depends on which operating system you are using (see the Ethernet controller device driver README files).

## Ethernet Controller Troubleshooting Chart

Use [Table 5-1](#) to find solutions to 10/100/1000-Mbps Ethernet controller problems that have definite symptoms.

**Table 5-1**      **Ethernet Troubleshooting Chart**

<b>Ethernet Controller Problem</b>	<b>Actions</b>
Ethernet link status LED does not work.	Check the following: <ul style="list-style-type: none"> <li>• Make sure that the hub is powered on.</li> <li>• Check all connections at the Ethernet controller and the hub.</li> <li>• Use another port on the hub.</li> <li>• If the hub does not support autonegotiation, manually configure the Ethernet controller to match the hub.</li> <li>• If you manually configured duplex mode, make sure that you also manually configure the speed.</li> <li>• Run diagnostics on the LEDs.</li> <li>• Reseat or replace the adapter.</li> </ul>
The Ethernet activity LED does not work.	Check the following: <ul style="list-style-type: none"> <li>• The network might be idle. Try sending data from this device.</li> <li>• Run diagnostics on the LEDs.</li> </ul>
Data is incorrect or sporadic.	Check the following: <ul style="list-style-type: none"> <li>• Make sure that you are using Category 5 or higher cabling when operating the device at 100 Mbps or 1000 Mbps.</li> <li>• Make sure that the cables do not run close to noise-inducing sources such as fluorescent lights.</li> </ul>

**Table 5-1** Ethernet Troubleshooting Chart (continued)

Ethernet Controller Problem	Actions
The Ethernet controller stopped working when another adapter was added to the device.	Check the following: <ul style="list-style-type: none"> <li>• Make sure that the cable is connected to the Ethernet controller.</li> <li>• Make sure that your PCI system BIOS code is current.</li> <li>• Reseat the adapter.</li> <li>• Determine if the interrupt (IRQ) setting assigned to the Ethernet adapter is also assigned to another device in the system. Use the configuration/setup utility program to determine if this is the case.</li> <li>• Although interrupt sharing is allowed for PCI devices, some devices do not function well when they share an interrupt with a dissimilar PCI device. Try changing the IRQ assigned to the Ethernet adapter or the other device.</li> <li>• Reseat or replace the adapter.</li> </ul>
The Ethernet controller stopped working without apparent cause.	Check the following: <ul style="list-style-type: none"> <li>• Run diagnostics for the Ethernet controller.</li> <li>• Try a different connector on the hub.</li> <li>• Reseat or replace the adapter.</li> </ul>

## Identifying Problems Using Trouble Indicators and Status LEDs

If the system error LED on the front of the device is on, one or more LEDs inside the device or on the power supply will be on. Your device has LEDs to help you identify problems with some device components. These LEDs are part of the Light Path Diagnostics feature built into the device. By following the path of lights, you can quickly identify the type of system error that occurred.

Your device is designed so that any LEDs that are on remain on when the device shuts down as long as the AC power source is good and the power supply can supply +5 VDC current to the device. This feature helps you isolate the problem if an error causes the device to shut down. (See [Table 5-4](#).)

## Power Supply LEDs

The AC power LED on the power supply provides status information about the power supply. [Table 5-2](#) describes the AC power LED.

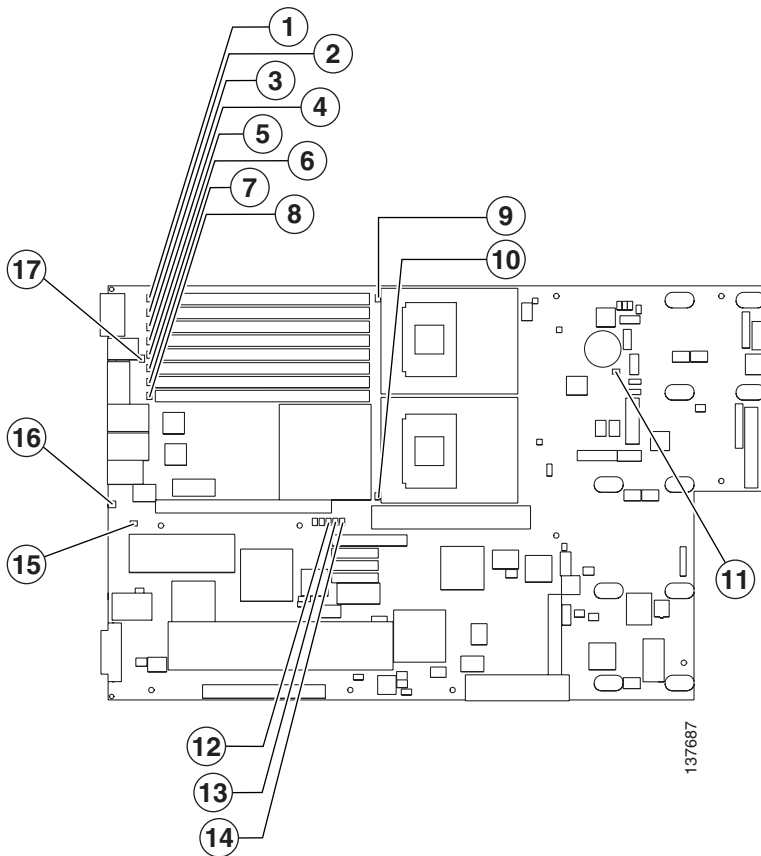
**Table 5-2**      **Power Supply LED**

AC Power LED	Description and Action
On	The power supply is on and operating correctly.
Off	<p>There is an AC power problem. Possible causes are:</p> <ol style="list-style-type: none"> <li>1. There is no AC power to the power supply. Verify these items:               <ol style="list-style-type: none"> <li>a. The electrical cord is properly connected to the device.</li> <li>b. The electrical outlet functions properly.</li> </ol> </li> <li>2. Disconnect the ribbon cable from connector J25 on the system board. If the AC power LED comes on, see the <a href="#">“Undetermined Problems” section on page 5-25</a>.</li> <li>3. The power supply has failed and needs to be replaced. Have the system serviced.</li> </ol>

## System Error LED

If the system error LED on the front of the device is on, one or more LEDs inside the device might be on. Use the Light Path Diagnostic panel to quickly identify the type of error that occurred. For LED locations, see [Figure 5-1](#).

Your device is designed so that LEDs remain on when the device shuts down as long as the power supply is operating properly. This feature helps you to isolate the problem even if an error causes the device to shut down.

**Figure 5-1** System Board LED Locations

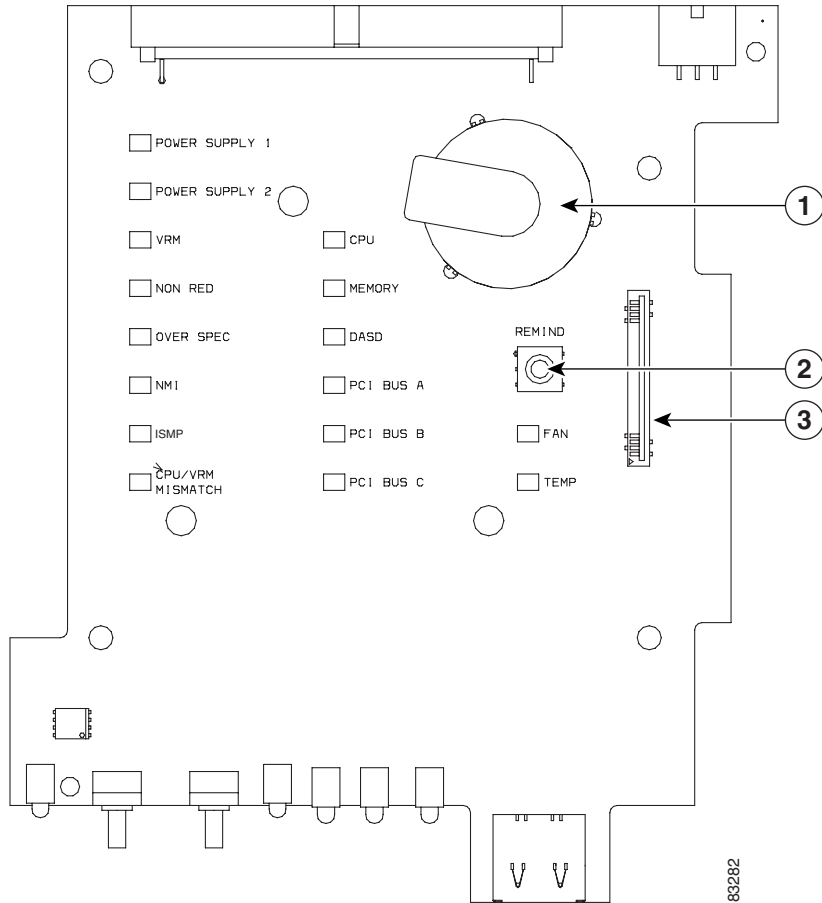
<b>1</b>	DIMM 1 Error LED	<b>8</b>	DIMM 8 Error LED
<b>2</b>	DIMM 2 Error LED	<b>9</b>	Microprocessor 1 Error LED
<b>3</b>	DIMM 3 Error LED	<b>10</b>	Microprocessor 2 Error LED
<b>4</b>	DIMM 4 Error LED	<b>11</b>	3V Battery Error LED

<b>5</b>	DIMM 5 Error LED	<b>12</b>	NVRAM Battery Error LED
<b>6</b>	DIMM 6 Error LED	<b>13</b>	System Board Error LED
<b>7</b>	DIMM 7 Error LED	<b>14</b>	VRM Error LED

## Diagnostic Panel LEDs

[Figure 5-2](#) shows the LEDs on the diagnostic panel inside the device. See [Table 5-4](#) for information about identifying problems using these LEDs.

**Figure 5-2 Diagnostic Panel LEDs**



<b>1</b>	Speaker	<b>3</b>	Disk drive connector (not supported)
<b>2</b>	Remind button		

The Light Path Diagnostics LEDs are described in [Table 5-3](#).



**Note** Depending on your device model, these items might appear in a different order on the LED panel than what is shown in the figure.

**Table 5-3** *Diagnostic Panel LEDs*

<b>Diagnostic Panel LED</b>	<b>Description</b>
POWER SUPPLY 1	The power supply in bay 1 failed.
POWER SUPPLY 2	The power supply in bay 2 failed.
VRM	An error occurred on microprocessor voltage regulator module (VRM).
CPU	One or both microprocessors failed, or one is seated in the wrong socket.
NON-RED	Device power supplies are no longer redundant (applicable only with the redundant power feature).
MEMORY	Memory failure. One or more dual inline memory modules (DIMMs) failed.
OVER SPEC	The system has shut down because of a system overload condition.
DASD	The SCSI backplane or a device connected to a SCSI bus failed. DASD devices are not supported in Cisco ACNS software.
NMI	Nonmaskable interrupt occurred.
PCI BUS A	An error occurred on an adapter in PCI-X slots 1 or 2 or one of the integrated PCI devices on the system board.
ISMP BUS	Service processor failure.
PCI BUS B	An error occurred on an adapter in PCI-X slots 3 or 4.
FAN	A fan (1, 2, 3, 4, 5, 6, 7, or 8) failed or is operating slowly.
CPU/VRM MISMATCH	The service processor detected a CPU or VRM mismatch.
PCI BUS C	An error occurred on an adapter in PCI slot 5.
TEMP	System temperature exceeded maximum rating.

**Note**

The device supports a maximum of three PCI buses.

## Remind Button

You can use the Remind button to place the front panel system error LED into the Remind mode. By pressing the button, you acknowledge the failure but indicate that you will not take immediate action. If a new failure occurs, the system error LED comes on again.

In the Remind mode, the system error LED flashes every 2 seconds. The system error LED remains in the Remind mode until one of the following situations occurs:

- All known problems are resolved.
- The system is restarted.
- A new problem occurs.

You can use the Remind button to delay device maintenance until a later time. Also, resetting the system error LED enables the LED to react to another error. If the LED is still flashing from the first error, it masks additional errors.

## Using Light Path Diagnostics

The system error LED on the front of the device is on when certain system errors occur. If the system error LED on your device is on, use [Table 5-4](#) to help determine the cause of the error and the action needed. These actions should only be performed by qualified service personnel.

Table 5-4 Light Path Diagnostics

System Error LED (on the Outside Front Panel)	Diagnostic Panel LED	Cause	Action
On  A system error was detected. Check to see which LEDs on the diagnostic panel inside the device are on.	None	The system error log is 75% or more full or a PFA alert was logged.	Check the system error log and correct any problems. Disconnecting the device from all power sources for at least 20 seconds turns off the system error LED.
On	CPU	One of the microprocessors has failed, or a microprocessor is installed in the wrong socket.	<ol style="list-style-type: none"> <li>1. Check the microprocessor error LEDs on the system board. If a microprocessor error LED is on for a microprocessor socket that is empty, the microprocessors are not installed in the correct order.</li> <li>2. If the problem remains, the microprocessor needs to be reseated or replaced.</li> </ol> <p>Have the system serviced.</p>
On	VRM	One of the microprocessor VRMs has failed.	<ol style="list-style-type: none"> <li>1. Check the microprocessor VRM connectors on the system board to locate the error LED next to the failing component.</li> <li>2. If the problem remains, the microprocessor VRM needs to be reseated or replaced.</li> </ol> <p>Have the system serviced.</p>

**Table 5-4** *Light Path Diagnostics (continued)*

<b>System Error LED (on the Outside Front Panel)</b>	<b>Diagnostic Panel LED</b>	<b>Cause</b>	<b>Action</b>
On	MEMORY	A memory error occurred.	<ol style="list-style-type: none"> <li>1. Check the DIMM error LEDs on the system board.</li> <li>2. The DIMM indicated by the DIMM error LED needs to be replaced.</li> </ol> <p>Have the system serviced.</p>
On	PCI BUS A PCI BUS B PCI BUS C	An error occurred on PCI bus A, B, or C. An adapter in PCI slot 1, 2, 3, 4, or 5 or the system board caused the error.	<ol style="list-style-type: none"> <li>1. Check the adapter slots to locate the error LED next to the failing bus.</li> <li>2. Check the error log for additional information.</li> <li>3. If you cannot identify the problem from the error LED or information in the error log, try to identify the failing adapter by removing one adapter at a time from PCI bus A (PCI-X slots 1 or 2), PCI bus B (PCI-X slots 3 or 4), or PCI bus C (PCI slot 5) and restarting the device after each adapter is removed.</li> </ol>
On	DASD	A hard disk drive has failed on SCSI channel B.	The error pertains to DASD devices, which are not supported in Cisco ACNS software.
On	NMI	A nonmaskable interrupt occurred. The PCI BUS LED will probably also be on.	<p>If the PCI BUS LED is on, follow the instructions for those LEDs.</p> <p>If the PCI BUS LED is not on, restart the device.</p>

Table 5-4 Light Path Diagnostics (continued)

System Error LED (on the Outside Front Panel)	Diagnostic Panel LED	Cause	Action
On	SP BUS	The service processor has failed.	The service processor needs to be replaced. Have the system serviced.
On	POWER SUPPLY 1	The power supply in bay 1 has failed.	The power supply in bay 1 needs to be replaced. Have the system serviced.
On	POWER SUPPLY 2	The power supply in bay 2 has failed.	The power supply in bay 2 needs to be replaced. Have the system serviced.
On	NON-RED	The device is operating in a nonredundant power mode and one of these two conditions exists: <ul style="list-style-type: none"> <li>Two power supplies are installed in the device, and one power supply has either failed or is not connected to a functioning AC electrical outlet.</li> <li>The system has exceeded the power capabilities of one of the redundant power supplies.</li> </ul>	<p><b>Note</b> This LED will not be on if your device has only one power supply; however, the power is not redundant with only one power supply installed.</p> <p>Check the power supply LEDs to identify the failing power supply.</p> <ol style="list-style-type: none"> <li>Check the power supply connections.</li> <li>If a power supply has failed, it needs to be replaced. Have the system serviced.</li> <li>If neither LED is on, you can remove optional devices from the device to restore redundancy.</li> </ol>

Table 5-4 Light Path Diagnostics (continued)

System Error LED (on the Outside Front Panel)	Diagnostic Panel LED	Cause	Action
On	FAN	<p>One of the fans has failed or is operating too slowly.</p> <p>The LED on the failing fan is on.</p> <p><b>Note</b> A failing fan can also cause the TEMP LED to be on.</p>	<p>The fan needs to be replaced. Have the system serviced.</p>
On	TEMP	<p>The system temperature has exceeded the maximum rating.</p>	<ol style="list-style-type: none"> <li>1. Check to see whether a fan has failed. If it has, the fan needs to be replaced. Have the system serviced.</li> <li>2. Make sure that the room temperature is not too high. (See the “<a href="#">Wide Area Application Engine 7326 Hardware Specifications</a>” section on page A-1.)</li> </ol>

## Undetermined Problems

Use the information in this section if the diagnostic tests did not identify the failure, the devices list is incorrect, or the system is inoperative.


**Note**

Damaged data in CMOS can cause undetermined problems.


**Note**

Damaged data in BIOS code can cause undetermined problems.

Check the LEDs on all the power supplies. If the LEDs indicate the power supplies are working correctly, follow these steps:

- 
- Step 1** Power down the device.
- Step 2** Be sure the device is cabled correctly.
- Step 3** Remove or disconnect the following devices (one at a time) until you find the failure (power up the device and reconfigure it each time):
- Any external devices
  - Surge suppressor device (on the device)
  - Modem, printer, mouse, or non-Cisco devices
  - Each adapter
  - Disk drives
  - Memory modules (minimum requirement = 256 MB [two banks of 128-MB DIMMs])



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**Note** Any component that is internal to the device, with the exception of customer-replaceable adapters, must be serviced by a licensed service technician. Contact your service representative.

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- Step 4** Power up the device. If the problem remains, suspect the following parts in the order listed:
- a. Power supply
  - b. Power cage assembly
  - c. System board



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**Note** If the problem goes away when you remove an adapter from the system, and replacing that adapter does not correct the problem, suspect the system board.

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**Note** If you suspect a networking problem and all the system tests pass, suspect a network cabling problem external to the system.

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## Problem-Solving Tips

Because of the variety of hardware and software combinations that can be encountered, use the following information to assist you in identifying the problems. If possible, have this information available when requesting technical assistance.

- Machine type and model
- Microprocessor or hard disk upgrades
- Failure symptom
  - Do diagnostics fail?
  - What, when, where; single or multiple systems?
  - Is the failure repeatable?
  - Has this configuration ever worked?
  - If it has been working, what changes were made before it failed?
  - Is this the original reported failure?
- Diagnostics type and version level
- Hardware configuration
  - Print (print screen) configuration currently in use
  - BIOS level
- Operating system software type and version level

To eliminate confusion, identical systems are considered identical only if they meet all these conditions:

- Are the exact machine type and models
- Have the same BIOS level
- Have the same adapters or attachments in the same locations

- Have the same address jumpers, terminators, and cabling
- Have the same software versions and levels
- Have the same diagnostics code
- Have the same configuration options set in the system
- Have the same setup for the operating system control files

Comparing the configuration and software setup in working and nonworking systems often leads to resolution of the problem.

## Symptoms and Solutions

This section lists symptoms, errors, and the possible causes. The most likely cause is listed first. Use this symptom-to-solution index to help you decide which components your service representative needs to have available when servicing the system.

The first column of the three-column tables in this section lists the error code or message, the second column describes the error, and the third column lists one or more suggested actions or components that need to be reseated or replaced. Use the table to identify possible causes for the error message and then call your service representative.

The POST BIOS code displays POST error codes and messages on the screen.

## Beep Symptoms

Beep symptoms are short tones or a series of short tones separated by pauses (intervals without sound). See the examples in the following table.

Beeps	Description
1-2-3	<ol style="list-style-type: none"> <li>1. One beep</li> <li>2. A pause (or break)</li> <li>3. Two beeps</li> <li>4. A pause (or break)</li> <li>5. Three beeps</li> </ol>
4	Four continuous beeps

One beep after a successful POST indicates that the system is functioning properly.

[Table 5-5](#) lists the beep symptoms, describes the error, and suggests causes and possible actions to solve the problems. The most likely cause of the symptom is listed first.

**Table 5-5** *Beep Symptoms*

Beep Symptom	Error	Cause and Action
1-1-2	Microprocessor register test failed.	<ol style="list-style-type: none"> <li>1. Check the optional microprocessor (if installed).</li> <li>2. Check the microprocessor.</li> <li>3. Check the system board.</li> </ol>
1-1-3	CMOS <sup>1</sup> write/read test failed.	<ol style="list-style-type: none"> <li>1. Check the battery.</li> <li>2. Check the system board.</li> </ol>
1-1-4	BIOS EEPROM checksum failed.	<ol style="list-style-type: none"> <li>1. Recover the BIOS.</li> <li>2. Check the system board.</li> </ol>
1-2-1	Programmable interval timer failed.	Check the system board.
1-2-2	DMA <sup>2</sup> initialization failed.	Check the system board.
1-2-3	DMA page register write/read failed.	Check the system board.

**Table 5-5** *Beep Symptoms (continued)*

<b>Beep Symptom</b>	<b>Error</b>	<b>Cause and Action</b>
1-2-4	RAM refresh verification failed.	<ol style="list-style-type: none"> <li>1. Check the DIMM.</li> <li>2. Check the system board.</li> </ol>
1-3-1	First 64K RAM test failed.	Check the DIMM.
2-1-1	Secondary DMA register failed.	Check the system board.
2-1-2	Primary DMA register failed.	Check the system board.
2-1-3	Primary interrupt mask register failed.	Check the system board.
2-1-4	Secondary interrupt mask register failed.	Check the system board.
2-2-1	Interrupt vector loading failed.	Check the system board.
2-2-2	Keyboard <sup>3</sup> controller failed.	Not applicable.
2-2-3	CMOS power failure and checksum checks failed.	<ol style="list-style-type: none"> <li>1. Check the battery.</li> <li>2. Check the system board.</li> </ol>
2-2-4	CMOS configuration information validation failed.	<ol style="list-style-type: none"> <li>1. Check the battery.</li> <li>2. Check the system board.</li> </ol>
2-3-1	Screen initialization failed.	Check the system board.
2-3-2	Screen memory failed.	Check the system board.
2-3-3	Screen retrace failed.	Check the system board.
2-3-4	Search for video ROM failed.	The video feature is not supported in the Wide Area Application Engine 7326.
2-4-1	Video failed; screen believed operable.	The video feature is not supported in the Wide Area Application Engine 7326.
3-1-1	Timer tick interrupt failed.	Check the system board.
3-1-2	Interval timer channel 2 failed.	Check the system board.
3-1-3	RAM test failed above address OFFFFH.	<ol style="list-style-type: none"> <li>1. Check the DIMM.</li> <li>2. Check the system board.</li> </ol>
3-1-4	Time of day clock failed.	<ol style="list-style-type: none"> <li>1. Check the battery.</li> <li>2. Check the system board.</li> </ol>

**Table 5-5** *Beep Symptoms (continued)*

<b>Beep Symptom</b>	<b>Error</b>	<b>Cause and Action</b>
3-2-1	Serial port failed.	Check the system board.
3-2-2	Parallel port failed.	Check the system board.
3-2-3	Math coprocessor test failed.	<ol style="list-style-type: none"> <li>1. Check the microprocessor.</li> <li>2. Check the system board.</li> </ol>
3-2-3	Failure comparing CMOS memory size against actual.	<ol style="list-style-type: none"> <li>1. Check the DIMM.</li> <li>2. Check the battery.</li> </ol>
3-3-1	Memory size mismatch occurred.	<ol style="list-style-type: none"> <li>1. Check the DIMM.</li> <li>2. Check the battery.</li> </ol>
3-3-2	Critical SMBUS error occurred.	<ol style="list-style-type: none"> <li>1. Check the power cord connection. Disconnect the device power cord from the outlet, wait 30 seconds, and retry.</li> <li>2. Check the system board.</li> <li>3. Check the DIMMs.</li> <li>4. Check the power supply.</li> <li>5. Check the power cage assembly.</li> <li>6. Check the I2C cable.</li> </ol>
3-3-3	No operational memory in system.	<ol style="list-style-type: none"> <li>1. Check the memory modules. The memory modules need to be installed or reseated and then a 3-boot reset needs to be performed. Contact your service representative.</li> <li>2. Check the DIMMs.</li> <li>3. Check the memory board.</li> <li>4. Check the system board.</li> </ol>
4-4-4	Optional system management adapter not installed in slot 1 or not functioning correctly.	Pertains to a nonavailable hardware option. Not applicable to the device.

**Table 5-5** *Beep Symptoms (continued)*

<b>Beep Symptom</b>	<b>Error</b>	<b>Cause and Action</b>
Two short beeps	Information only, the configuration has changed.	<ol style="list-style-type: none"> <li>1. Run diagnostics.</li> <li>2. Run the configuration/setup utility program.</li> </ol>
Three short beeps		<ol style="list-style-type: none"> <li>1. Check the DIMM.</li> <li>2. Check the system board.</li> </ol>
One continuous beep		<ol style="list-style-type: none"> <li>1. Check the microprocessor.</li> <li>2. Check the optional microprocessor (if installed).</li> <li>3. Check the system board.</li> </ol>
Repeating short beeps		This error pertains to keyboards, which are not supported in Cisco ACNS software.
One long and one short beep		This error pertains to video adapters, which are not supported in the Wide Area Application Engine 7326.
One long and two short beeps		This error pertains to video adapters, which are not supported in the Wide Area Application Engine 7326.
One long and three short beeps		This error pertains to monitors or video adapters. These items are not supported in the Wide Area Application Engine 7326.
Two long and two short beeps		This error pertains to video adapters, which are not supported in the Wide Area Application Engine 7326.

1. CMOS = Complementary Metal Oxide Semiconductor
2. DMA = Direct Memory Access
3. ACNS software does not support keyboards. No keyboard errors are expected; however, if a keyboard error appears during bootup, contact the Cisco Technical Assistance Center.

## No Beep Symptoms

Table 5-6 describes the no beep symptoms.

**Table 5-6** No Beep Symptoms

No Beep Symptom	Error	Cause and Action
No beep and the system operates correctly.		<ol style="list-style-type: none"> <li>1. Check the speaker cables.</li> <li>2. Check the speaker.</li> <li>3. Check the system board.</li> </ol>
No beeps occur after POST is successfully completed.	The power-on status is disabled.	<ol style="list-style-type: none"> <li>1. Set the start options power-up status to enable.</li> <li>2. Check the speaker connection.</li> <li>3. Check the system board.</li> </ol>
No AC power.	Power supply AC LED is off.	<ol style="list-style-type: none"> <li>1. Check the power cord.</li> <li>2. Check the power supply. (If two are installed, swap them to determine if one is defective.)</li> <li>3. Disconnect the ribbon cable from connector J25 on the system board. If the AC power LED comes on, see the <a href="#">“Undetermined Problems” section on page 5-25</a>.</li> <li>4. Check the power cage assembly.</li> </ol>
No beep and no video.		The video feature is not supported in the Wide Area Application Engine 7326.
System will not start.	Power supply AC LED is on.	See the <a href="#">“Power Supply LED Errors” section on page 5-50</a> .

## System Error LED and the Diagnostic Panel LEDs

The system error LED is on when an error is detected. If the system error LED is on, remove the cover and check the diagnostic panel LEDs. Table 5-3 lists all the diagnostic panel LEDs followed by the component or action for correcting the problem. The information in the table is valid only when the system error LED is on.

When checking the diagnostic panel LEDs, note the following information:

- If a diagnostic panel LED is on and the front panel system error LED is off, there is probably an LED problem. Run the LED diagnostics.
- To locate the LEDs on the system board, see [Figure 5-1 on page 5-17](#).
- Check the system error log for additional information before replacing a component. (See the “[Viewing Error Logs](#)” section on page 5-10.)
- The DIMM error LEDs, microprocessor error LEDs, and VRM error LEDs on the system board go off when the system is powered down.

[Table 5-7](#) provides the diagnostic panel LED error definitions. The third column lists one or more suggested actions or components that need to be reseated or replaced. Use this table to identify possible causes for the error message and then call your service representative.

**Table 5-7** *Diagnostic Panel LED Error Definitions*

Diagnostic Panel LED	Description	Cause and Action
All LEDs off	Check system error log for error condition and then clear the system error log when the problem is found.	<ol style="list-style-type: none"> <li>1. System error log is 75% full; clear the log.</li> <li>2. PFA alert; check log for failure; clear PFA alert; disconnect AC power for at least 20 seconds, reconnect, and then power up the system.</li> <li>3. Run Light Path Diagnostics.</li> </ol>
Fan LED on	The LED next to the failing fan is on.	<ol style="list-style-type: none"> <li>1. Failing fan.</li> <li>2. Check the system board.</li> </ol>
Memory LED on	The LED next to the failing DIMM is on.	<ol style="list-style-type: none"> <li>1. Failing DIMM.</li> <li>2. Check the system board.</li> </ol>
CPU LED on	The LED next to the failing CPU is on.	<ol style="list-style-type: none"> <li>1. Verify that all microprocessors have identical cache sizes, dock speeds, and clock frequencies.</li> <li>2. Check microprocessor 1 or 2.</li> <li>3. Check the system board.</li> </ol>

Table 5-7 Diagnostic Panel LED Error Definitions (continued)

Diagnostic Panel LED	Description	Cause and Action
PCI BUS LED on	An error has occurred on a PCI Bus.	<ol style="list-style-type: none"> <li>1. Remove all PCI adapters from slots on the affected bus. (See <a href="#">Figure 5-1 on page 5-17</a> for bus information, and see the “<a href="#">Working with Adapters</a>” section on page 4-3.)</li> <li>2. Check the system board.</li> </ol>
VRM LED on	The LED next to the failing VRM is on.	<ol style="list-style-type: none"> <li>1. Check the voltage regulator module indicated by the VRM LED.</li> <li>2. Check the microprocessor indicated by the microprocessor LED.</li> </ol>
DASD LED on	The LED located next to the drive bay of the failing drive is on. Check the amber drive LED for the failing hard drive.	The error pertains to DASD devices, which are not supported in Cisco ACNS software.
Service processor bus LED is on	The service processor has failed.	<ol style="list-style-type: none"> <li>1. Unplug the device for 30 seconds, and then retry.</li> <li>2. Reflash or update firmware for the ISMP and BIOS.</li> <li>3. Check the system board.</li> </ol>
Power supply 1 LED on	When the LED is lit, the power supply in bay 1 has failed. When the LED flashes, an invalid power-supply configuration has occurred.	<ol style="list-style-type: none"> <li>1. Check the DC good LED on power supply 1. If it is off, power supply 1 needs to be replaced. Have the system serviced.</li> <li>2. Check the power cage assembly.</li> </ol>
Power supply 2 LED on	When the LED is lit, the power supply in bay 2 has failed. When the LED flashes, an invalid power-supply configuration has occurred.	<ol style="list-style-type: none"> <li>1. Check the DC good LED on power supply 2. If it is off, power supply 2 needs to be replaced. Have the system serviced.</li> <li>2. Check the power cage assembly.</li> </ol>
NMI LED on	A machine check error has occurred.	<ol style="list-style-type: none"> <li>1. Restart the device.</li> <li>2. Check the system error log.</li> </ol>

Table 5-7 Diagnostic Panel LED Error Definitions (continued)

Diagnostic Panel LED	Description	Cause and Action
Temperature LED on	The system temperature has exceeded a threshold level.	<ol style="list-style-type: none"> <li>1. Ambient temperature must be within normal operating specifications. See the <a href="#">Appendix A, “Wide Area Application Engine 7326 Hardware Specifications.”</a></li> <li>2. Ensure that fans are operating correctly.</li> <li>3. Ensure that both air baffles are installed.</li> <li>4. Examine the system error log.               <ol style="list-style-type: none"> <li>a. System is over recommended temperature. Check the information LED panel.</li> <li>b. System is over recommended temperature for CPU <math>x</math> (where <math>x</math> is 1 or 2) (CPU LED is also on). Check CPU <math>x</math>. Check the system board.</li> </ol> </li> <li>5. If the CPU LED on the diagnostic panel is also on, one of the microprocessors has caused the error.</li> </ol>
Fan LED on	<p>When the LED is lit, a fan has failed or is operating too slowly. A failing fan can also cause the TEMP LED to be lit.</p> <p>When the LED flashes, an invalid fan configuration has occurred.</p>	<ol style="list-style-type: none"> <li>1. Check individual fan LEDs.</li> <li>2. Have the respective fan replaced.</li> <li>3. Check the fan cable.</li> <li>4. Check the system board.</li> <li>5. Check the power cage assembly.</li> </ol>

## Diagnostic Error Codes

In the following error codes, if XXX is 000, 195, or 197, *do not* replace a component. The descriptions for these error codes are as follows:

- 000—The test passed.
- 195—The Esc key was pressed to stop the test.
- 197—Warning; a hardware failure might not have occurred.

For all remaining error codes, the solution is to check the component or take the action indicated. [Table 5-8](#) lists all the diagnostic error codes. Use this table to identify a faulty component, and then call your service representative for assistance.

**Table 5-8**      **Error Code Definitions**

Error Code	Problem	Action
001-XXX-000	Failed core tests.	Check the system board.
001-XXX-001	Failed core tests.	Check the system board.
001-250-000	Failed system board ECC.	Check the system board.
001-250-001	Failed system board ECC.	Check the system board.
005-XXX-000	Failed video test.	The video feature is not supported in the Wide Area Application Engine 7326.
011-XXX-000	Failed COM1 serial port test.	Check the system board.
011-XXX-001	Failed COM2 serial port test.	Check the system board.
014-XXX-000	Failed parallel port test.	Check the system board.
015-XXX-001	USB <sup>1</sup> interface not found, board damaged.	Not applicable. The USB interface is not supported in ACNS software.
015-XXX-015	Failed USB <sup>1</sup> external loopback test.	Not applicable. The USB interface is not supported in ACNS software.
015-XXX-198	USB <sup>1</sup> device connected during USB test.	Not applicable. USB peripheral devices are not supported in ACNS software.
020-XXX-000	Failed PCI interface test.	Check the system board.

**Table 5-8 Error Code Definitions (continued)**

<b>Error Code</b>	<b>Problem</b>	<b>Action</b>
020-XXX-001	Failed hot-swappable slot 1 PCI latch test.	<ol style="list-style-type: none"> <li>1. Check the PCI hot-swappable latch assembly.</li> <li>2. Check the system board.</li> </ol>
020-XXX-002	Failed hot-swappable slot 2 PCI latch test.	<ol style="list-style-type: none"> <li>1. Check the PCI hot-swappable latch assembly.</li> <li>2. Check the system board.</li> </ol>
020-XXX-003	Failed hot-swappable slot 3 PCI latch test.	<ol style="list-style-type: none"> <li>1. Check the PCI hot-swappable latch assembly.</li> <li>2. Check the system board.</li> </ol>
020-XXX-004	Failed hot-swappable slot 4 PCI latch test.	<ol style="list-style-type: none"> <li>1. Check the PCI hot-swappable latch assembly.</li> <li>2. Check the system board.</li> </ol>
030-XXX-000	Failed internal SCSI interface test.	Check the system board.
035-XXX-099		<ol style="list-style-type: none"> <li>1. No adapters were found.</li> <li>2. If an adapter is installed, recheck the connection.</li> </ol>
035-XXX-S99	Failed RAID <sup>2</sup> test on PCI slot S. S = number of failing PCI slot. Check system error log before replacing a FRU. <sup>3</sup>	<ol style="list-style-type: none"> <li>1. Check the adapter.</li> <li>2. Check the SCSI backplane.</li> <li>3. Check the cable.</li> </ol>
035-XXX-SNN	Check system error log before replacing a FRU. s = number of failing PCI slot. nn = SCSI ID of failing fixed disk.	Hard disk drive with SCSI ID <i>nn</i> on RAID adapter in PCI slot <i>s</i> .

**Table 5-8 Error Code Definitions (continued)**

<b>Error Code</b>	<b>Problem</b>	<b>Action</b>
035-253-S99	RAID adapter initialization failure.	<ol style="list-style-type: none"> <li>1. ServeRAID adapter in slot <i>s</i> is not configured properly.</li> <li>2. Check the cable.</li> <li>3. Check the SCSI backplane.</li> <li>4. Check the adapter.</li> </ol>
075-XXX-000	Failed power supply test.	Check the power supply.
089-XXX-001	Failed microprocessor test.	<ol style="list-style-type: none"> <li>1. Check VRM 1 for microprocessor 1.</li> <li>2. Check the microprocessor 1.</li> </ol>
089-XXX-002	Failed optional microprocessor test.	<ol style="list-style-type: none"> <li>1. Check VRM 2 for optional microprocessor 2.</li> <li>2. Check the optional microprocessor 2.</li> </ol>
166-198-000 System Management: Aborted	Unable to communicate with ASM <sup>4</sup> . It may be busy. Run the test again.	<ol style="list-style-type: none"> <li>1. Run the diagnostic test again.</li> <li>2. Correct other error conditions, including other failed system management tests, and retry.</li> <li>3. Disconnect all device and option power cords from the device, wait 30 seconds, reconnect, and retry.</li> <li>4. Check the system board.</li> </ol>
166-201-001 System Management: Failed	I2C bus error(s). See SERVPROC and DIAGS entries in event log.	<ol style="list-style-type: none"> <li>1. Memory DIMMs need to be reseated. Call your service representative.</li> <li>2. Check the memory DIMMs.</li> <li>3. Check the system board.</li> </ol>
166-201-002 System Management: Failed	I2C bus error(s). See SERVPROC and DIAGS entries in event log.	<ol style="list-style-type: none"> <li>1. I2C cable between the operator information panel and the system board (J22) might need to be reseated. Call your service representative.</li> <li>2. Check the diagnostic panel.</li> <li>3. Check the system board.</li> </ol>

**Table 5-8 Error Code Definitions (continued)**

<b>Error Code</b>	<b>Problem</b>	<b>Action</b>
166-201-003 System Management: Failed	I2C bus error(s). See SERVPROC and DIAGS entries in event log.	<ol style="list-style-type: none"> <li>1. Cables between the system board and the power supply or power cage assembly might need to be reseated. Call your service representative.</li> <li>2. Check the power cage assembly.</li> <li>3. Check the system board.</li> </ol>
166-201-004 System Management: Failed	I2C bus error(s). See SERVPROC and DIAGS entries in event log.	Check the system board.
166-201-005 System Management: Failed	I2C bus error(s). See SERVPROC and DIAGS entries in event log.	<ol style="list-style-type: none"> <li>1. Memory DIMMs might need to be reseated. Have your system serviced.</li> <li>2. Microprocessors might need to be reseated. Have your system serviced.</li> <li>3. Check the memory DIMMs.</li> <li>4. Check the microprocessors.</li> <li>5. Check the system board.</li> </ol>
166-250-000 System Management: Failed	I2C cable is disconnected.	<ol style="list-style-type: none"> <li>1. Check the I2C cables.</li> <li>2. Check the ASM.</li> <li>3. Check the system board.</li> </ol>
166-260-000 System Management: Failed	Restart ASM error. After restarting, communication was lost. Unplug and cold boot to reset ASM.	Disconnect all device and hardware option power cords from the device, wait 30 seconds, reconnect, and retry.
166-342-000 System Management: Failed	ASM processor BIST <sup>5</sup> indicates failed tests.	<ol style="list-style-type: none"> <li>1. Ensure that you have the latest firmware levels for the BIOS.</li> <li>2. Disconnect all device and hardware option power cords from Wide Area Application Engine, wait 30 seconds, reconnect, and retry.</li> </ol>

**Table 5-8 Error Code Definitions (continued)**

<b>Error Code</b>	<b>Problem</b>	<b>Action</b>
166-400-000 System Management: Failed	ISMP self-test result failed tests: $x$ where $x$ = Flash, RAM, or ROM.	<ol style="list-style-type: none"> <li>1. Reflash or update firmware for ISMP.</li> <li>2. Check the system board.</li> </ol>
180-XXX-000	Diagnostics LED failure.	Run diagnostic panel LED test for the failing LED.
180-XXX-001	Failed front LED panel test.	<ol style="list-style-type: none"> <li>1. Check the operator information panel.</li> <li>2. Check the system board.</li> </ol>
180-XXX-002	Failed diagnostic LED panel test.	<ol style="list-style-type: none"> <li>1. Check the diagnostic panel.</li> <li>2. Check the system board.</li> </ol>
180-361-003	Failed fan LED test.	<ol style="list-style-type: none"> <li>1. Check the fan(s).</li> <li>2. Check the system board.</li> </ol>
180-XXX-003	Failed system board LED test.	Check the system board.
180-XXX-005	Failed SCSI backplane LED test.	<ol style="list-style-type: none"> <li>1. Check the SCSI backplane.</li> <li>2. Check the SCSI backplane cable.</li> <li>3. Check the system board.</li> </ol>
201-XXX-0NN	Failed memory test.	<ol style="list-style-type: none"> <li>1. Check the DIMM location slots 1–6 where <math>nn</math> = DIMM location.  <b>Note</b> <math>nn</math> 1 = DIMM 1 <math>nn</math> 2 = DIMM 2 <math>nn</math> 3 = DIMM 3 <math>nn</math> 4 = DIMM 4</li> <li>2. Check the system board.</li> </ol>
201-XXX-999	Multiple DIMM failure; see error text.	<ol style="list-style-type: none"> <li>1. See error text for failing DIMMs.</li> <li>2. Check the system board.</li> </ol>
202-XXX-001	Failed system cache test.	<ol style="list-style-type: none"> <li>1. Check VRM 1.</li> <li>2. Check microprocessor 1.</li> </ol>

**Table 5-8 Error Code Definitions (continued)**

<b>Error Code</b>	<b>Problem</b>	<b>Action</b>
202-XXX-002	Failed system cache test.	<ol style="list-style-type: none"> <li>1. Check VRM 2.</li> <li>2. Check microprocessor 2.</li> </ol>
206-XXX-000	Failed disk <sup>6</sup> drive test.	Not applicable. No disk drive installed.
215-XXX-000	Failed IDE CD-ROM drive test.	<ol style="list-style-type: none"> <li>1. Check the CD-ROM drive cables.</li> <li>2. Check the CD-ROM drive.</li> <li>3. Check the system board.</li> </ol>
217-198-XXX	Could not establish drive parameters.	<ol style="list-style-type: none"> <li>1. Check cable and termination.</li> <li>2. Check the SCSI backplane.</li> <li>3. Check the hard disk.</li> </ol>
217-XXX-000	Failed BIOS hard disk test.	Check hard disk 1.
217-XXX-001	Failed BIOS hard disk test.	Check hard disk 2.
217-XXX-002	Failed BIOS hard disk test.	Check hard disk 3.
217-XXX-003	Failed BIOS hard disk test.	Check hard disk 4.
217-XXX-004	Failed BIOS hard disk test.	Check hard disk 5.
217-XXX-005	Failed BIOS hard disk test	Check hard disk 6.
264-XXX-0NN	Failed tape drive <sup>7</sup> test	Not applicable. No tape drive installed.
264-XXX-999	Errors on multiple tape drives, see error text for more information.	Not applicable. No tape drive installed.
301-XXX-000	Failed keyboard <sup>8</sup> test.	Not applicable.
405-XXX-000	Failed Ethernet test on controller on the system board.	<ol style="list-style-type: none"> <li>1. Verify that Ethernet is not disabled in the BIOS.</li> <li>2. Check the system board.</li> </ol>
405-XXX-00N	Failed Ethernet test on adapter in PCI slot <i>n</i> .	<ol style="list-style-type: none"> <li>1. Check the adapter in PCI slot <i>n</i>.</li> <li>2. Check the system board.</li> </ol>
415-XXX-000	Failed modem <sup>9</sup> test.	Not applicable. No modem installed.

1. USB = Universal Serial Bus. ACNS software does not support USB peripheral devices.

2. RAID = redundant array of inexpensive disks.

3. FRU = field-replaceable unit.
4. ASM = advanced system management adapter.
5. BIST = built-in self-test.
6. ACNS software does not support disk drives. No disk drive errors are expected; however, if a disk drive error appears during bootup, contact the Cisco Technical Assistance Center.
7. ACNS software does not support tape drives. No tape drive errors are expected; however, if a tape drive error appears during bootup, contact the Cisco Technical Assistance Center.
8. ACNS software does not support keyboards. No keyboard errors are expected; however, if a keyboard error appears during bootup, contact the Cisco Technical Assistance Center.
9. ACNS software does not support modems. No modem errors are expected; however, if a modem error appears during bootup, contact the Cisco Technical Assistance Center.

## Error Symptoms

You can use the error symptom tables to find solutions to problems that have definite symptoms.

If you cannot find the problem in the error symptom tables, go to the [“Starting the Diagnostic Programs”](#) section on page 5-9 to test the device.

If you have just added new software or a new hardware option and your device is not working, complete the following steps before using the error symptom tables:

- 
- |               |  |
|---------------|--|
| <b>Step 1</b> | Remove the software or hardware option that you just added.                |
| <b>Step 2</b> | Run the diagnostic tests to determine if your device is running correctly. |
| <b>Step 3</b> | Reinstall the new software or new hardware option.                         |
- 

In the following tables ([Table 5-9](#) to [Table 5-19](#)), the first entry in the “Cause and Action” column is the most likely cause of the symptom.

**Table 5-9** *CD-ROM Drive Problems*

Symptom	Cause and Action
CD-ROM drive is not recognized.	<ol style="list-style-type: none"> <li>1. Verify the following items:               <ol style="list-style-type: none"> <li>a. The IDE channel to which the CD-ROM drive is attached (primary or secondary) is enabled in the configuration/setup utility program.</li> </ol> <p><b>Note</b> On a device with a single IDE channel, only the primary channel can be used.</p> <ol style="list-style-type: none"> <li>b. All cables and jumpers are installed correctly.</li> <li>c. The correct device driver is installed for the CD-ROM drive.</li> </ol> </li> <li>2. Run CD-ROM drive diagnostics.</li> <li>3. Check the CD-ROM drive.</li> </ol>

**Table 5-10** *Expansion Enclosure Problems*

Symptom	Cause and Action
The SCSI expansion enclosure used to work but does not work now.	<p>Verify the following items:</p> <ol style="list-style-type: none"> <li>1. The cables for all external SCSI options are connected correctly.</li> <li>2. The last option in each SCSI chain, or the end of the SCSI cable, is terminated correctly.</li> <li>3. Any external SCSI option is turned on. You must turn on an external SCSI hardware option before powering on the device.</li> </ol>

**Table 5-11**      **Hard Disk Drive Problems**

<b>Symptom</b>	<b>Cause and Action</b>
Not all drives are recognized by the hard disk drive diagnostic test (fixed disk test).	<ol style="list-style-type: none"> <li>1. Remove the first drive not recognized and try the hard disk drive diagnostic test again.</li> <li>2. If the remaining drives are recognized, the drive that you removed needs to be replaced.</li> </ol>
System stops responding during hard disk drive diagnostic test.	<ol style="list-style-type: none"> <li>1. Remove the hard disk drive being tested when the device stopped responding and try the diagnostic test again.</li> <li>2. If the hard disk drive diagnostic test runs successfully, the drive that you removed needs to be replaced.</li> </ol>

**Table 5-12**      **General Problems**

<b>Symptom</b>	<b>Cause and Action</b>
Problems such as broken cover locks or indicator LEDs not working.	Broken component. Call your service representative.

**Table 5-13**      **Intermittent Problems**

<b>Symptom</b>	<b>Cause and Action</b>
A problem occurs only occasionally and is difficult to detect.	<ol style="list-style-type: none"> <li>1. Verify the following items: <ol style="list-style-type: none"> <li>a. All cables and cords are connected securely to the rear of the device and attached hardware options.</li> <li>b. When the device is powered on, air is flowing from the rear of the device at the fan grille. If there is no airflow, the fan is not working. This causes the device to overheat and shut down.</li> <li>c. Ensure that the SCSI bus and devices are configured correctly and that the last external device in each SCSI chain is terminated correctly.</li> </ol> </li> <li>2. Check the system error log.</li> </ol>

**Table 5-14**      **Memory Problems**

Symptom	Cause and Action
The amount of system memory displayed is less than the amount of physical memory installed.	<ol style="list-style-type: none"> <li>1. Verify the following items:               <ol style="list-style-type: none"> <li>a. The memory modules are seated properly.</li> <li>b. The correct type of memory has been installed.</li> <li>c. All banks of memory on the DIMMs are enabled. The device might have automatically disabled a DIMM bank when it detected a problem, or a DIMM bank could have been manually disabled.</li> </ol> </li> <li>2. Check the POST error log for error message 289:               <ol style="list-style-type: none"> <li>a. If the DIMM was disabled by a system management interrupt (SMI), the DIMM needs to be replaced. Have the system serviced.</li> <li>b. If the DIMM was disabled by the user or by POST, follow these steps:                   <ul style="list-style-type: none"> <li>– Start the configuration/setup utility program.</li> <li>– Enable the DIMM.</li> <li>– Save the configuration and restart the device.</li> </ul> </li> </ol> </li> <li>3. Check the DIMM.</li> <li>4. Check the system board.</li> </ol>

**Table 5-15**      **Microprocessor Problems**

Symptom	Cause and Action
The device emits a continuous tone during POST. (The startup [boot] microprocessor is not working properly.)	<ol style="list-style-type: none"> <li>1. Verify that the startup microprocessor is seated properly.</li> <li>2. Check the startup microprocessor.</li> </ol>

**Table 5-16**      **Hardware Option Problems**

Symptom	Cause and Action
A hardware option that was just installed does not work.	<ol style="list-style-type: none"> <li>1. Verify the following items:               <ol style="list-style-type: none"> <li>a. The hardware option is designed for the device.</li> <li>b. You followed the installation instructions that came with the hardware option.</li> <li>c. The hardware option is installed correctly.</li> <li>d. You have not loosened any other installed hardware options or cables.</li> <li>e. You updated the configuration information in the configuration/setup utility program. Whenever a hardware option is changed, you must update the configuration.</li> </ol> </li> <li>2. Check the hardware option that you just installed.</li> </ol>
A hardware option that used to work does not work now.	<ol style="list-style-type: none"> <li>1. Verify that all of the hardware options and cable connections are secure.</li> <li>2. If the hardware option comes with its own test instructions, use those instructions to test the option.</li> <li>3. If the failing hardware option is a SCSI option, verify these items:               <ol style="list-style-type: none"> <li>a. The cables for all external SCSI options are connected correctly.</li> <li>b. The last hardware option in each SCSI chain, or the end of the SCSI cable, is terminated correctly.</li> <li>c. Any external SCSI option is turned on. You must turn on an external SCSI option before powering on the device.</li> </ol> </li> <li>4. Check for a failing hardware option.</li> </ol>

Table 5-17 Power Problems

Symptom	FRU or Action
The device does not power up.	<ol style="list-style-type: none"> <li>1. Verify the following items:               <ol style="list-style-type: none"> <li>a. The power AC LEDs are on.</li> <li>b. The power cables are properly connected to the device.</li> <li>c. The electrical outlet functions properly.</li> <li>d. The type of memory installed is correct.</li> <li>e. If you just installed a hardware option, remove it, and restart the device. If the device now powers up, you might have installed more hardware options than the power supply supports.</li> </ol> </li> <li>2. If LEDs for CPUs or VRMs are on, verify these items:               <ol style="list-style-type: none"> <li>a. A VRM is populated for each microprocessor.</li> <li>b. All microprocessors have identical cache sizes, dock speeds, and clock frequencies.</li> <li>c. Override the front panel push button by turning on switch 7 of SW1; if power comes on, then there is a service processor error and the power reset card needs to be replaced.</li> </ol> </li> <li>3. See the <a href="#">“Undetermined Problems” section on page 5-25</a>.</li> </ol>
The device does not power down.	<ol style="list-style-type: none"> <li>1. Determine whether you are using an ACPI<sup>1</sup> or non-ACPI operating system. If you are using a non-ACPI operating system:               <ol style="list-style-type: none"> <li>a. Press <b>Ctrl+Alt+Delete</b>.</li> <li>b. Power down the system by holding the power control button for 4 seconds.</li> <li>c. If the device fails during BIOS POST and the power control button does not work, remove the AC power cord.</li> </ol> </li> <li>2. If the problem remains or if you are using an ACPI-aware operating system, suspect the system board.</li> </ol>

1. ACPI = Advanced Configuration and Power Interface.

**Table 5-18**      **Serial Port Problems**

Symptom	FRU or Action
The number of serial ports identified by the operating system is less than the number of serial ports installed.	<ol style="list-style-type: none"> <li>1. Verify the following items:               <ol style="list-style-type: none"> <li>a. Each port is assigned a unique address by the configuration/setup utility program and none of the serial ports is disabled.</li> <li>b. The serial port adapter, if you installed one, is seated properly.</li> </ol> </li> <li>2. Check for failing serial port adapter.</li> </ol>
A serial device does not work. For more information about the serial port, see the <a href="#">“Serial Port Connector”</a> section on page 1-13.	<ol style="list-style-type: none"> <li>1. Verify the following items:               <ol style="list-style-type: none"> <li>a. The device is compatible with the WAE.</li> <li>b. The serial port is enabled and is assigned a unique address.</li> <li>c. The device is connected to the correct port (see the <a href="#">“Input/Output Ports and Connectors”</a> section on page 1-11).</li> </ol> </li> <li>2. Check for a failing serial device.</li> <li>3. Check the serial adapter, if installed.</li> <li>4. Check the system board.</li> </ol>

Table 5-19 Software Problems

Symptom	Cause and Action
Suspected software problem.	<ol style="list-style-type: none"> <li>1. To determine if problems are caused by the software, verify the following items:               <ol style="list-style-type: none"> <li>a. Your device has the minimum memory needed to use the software. For memory requirements, see the information that comes with the software.</li> </ol> <p><b>Note</b> If you have just installed an adapter or memory, you might have a memory address conflict.</p> <ol style="list-style-type: none"> <li>b. The software is designed to operate on your device.</li> <li>c. Other software works on your device.</li> <li>d. The software that you are using works on another device.</li> </ol> <p>If you received any error messages when using the software program, see the information that comes with the software for a description of the messages and suggested solutions to the problem.</p> </li> <li>2. If you have verified these items and the problem remains, contact your place of purchase.</li> </ol>

## Power Supply LED Errors

Use the information in this section to identify power supply problems.



**Warning**

**Only trained and qualified personnel should be allowed to install, replace, or service this equipment.** Statement 1030

The following items are necessary for the DC good LED to be on:

- Power supply
- Power cage assembly
- System board (switch 7 of SW1 should be set to bypass the power switch; contact your service representative for assistance)

Table 5-20 lists and describes the power supply LED error codes.

**Table 5-20 Power Supply Error LEDs**

AC Good LED	DC Good LED	Description	Cause and Action
Off	Off	No power to system or AC problem.	<ol style="list-style-type: none"> <li>1. Check AC power to the system.</li> <li>2. Disconnect the ribbon cable from connector J25 on the system board. If the AC power LED comes on, see the <a href="#">“Undetermined Problems”</a> section on page 5-25.</li> <li>3. Check the power supply.</li> </ol>
On	Off	Standby mode or DC problem.	<ol style="list-style-type: none"> <li>1. Check the system board cable connectors J4 and J10. Move switch 7 of SW1 to bypass power control. If the DC good LED is on, press <b>Ctrl+Alt+Delete</b>. Watch the console for any POST errors. Check the system error log for any listed problems. If the system starts with no errors, your service technician should reseal or replace the following items: <ol style="list-style-type: none"> <li>a. Power switch assembly</li> <li>b. System board</li> </ol> </li> </ol>

**Table 5-20** Power Supply Error LEDs (continued)

AC Good LED	DC Good LED	Description	Cause and Action
On	Off		(continued) <ol style="list-style-type: none"> <li>Remove the adapters and disconnect the cables and power connectors to all internal and external devices. Power up the system. If the DC good LED is on, replace the adapters and devices one at a time until you isolate the problem.</li> <li>Check the power supply.</li> <li>Check the power cage assembly.</li> <li>Check the system board.</li> </ol>
On	On	Power is working properly.	No action is required.

## POST Error Codes

In the error codes in [Table 5-21](#), X can be any number or letter.

**Table 5-21** POST Error Codes

Error Code	Symptom	Cause and Action
062	Three consecutive startup failures using the default configuration.	<ol style="list-style-type: none"> <li>Run the configuration/setup utility program.</li> <li>Check the battery.</li> <li>Check the system board.</li> <li>Check the microprocessor.</li> </ol>
101, 102	System and processor error.	Check the system board.
106	System and processor error.	Check the system board.

Table 5-21 POST Error Codes (continued)

Error Code	Symptom	Cause and Action
111	Channel check error.	<ol style="list-style-type: none"> <li>1. Check the memory DIMM.</li> <li>2. Check the system board.</li> </ol>
114	Adapter read-only memory error.	<ol style="list-style-type: none"> <li>1. Check for failing adapter.</li> <li>2. Run diagnostics.</li> </ol>
129	Internal cache error.	<ol style="list-style-type: none"> <li>1. Check the microprocessor.</li> <li>2. Check the optional microprocessor (if installed).</li> </ol>
151	Real-time clock error.	<ol style="list-style-type: none"> <li>1. Run diagnostics.</li> <li>2. Check the battery.</li> <li>3. Check the system board.</li> </ol>
161	Real-time clock battery error.	<ol style="list-style-type: none"> <li>1. Check the battery.</li> <li>2. Check the system board.</li> </ol>
162	Device configuration error.  <b>Note</b> Be sure to load the default settings and any additional desired settings, and then <i>save the configuration</i> .	<ol style="list-style-type: none"> <li>1. Check the battery.</li> <li>2. Check for failing device.</li> <li>3. Check the system board.</li> </ol>
163	Real-time clock error.	<ol style="list-style-type: none"> <li>1. Check the battery.</li> <li>2. Check the system board.</li> </ol>
164	Memory configuration changed.	<ol style="list-style-type: none"> <li>1. Check the DIMM.</li> <li>2. Check the system board.</li> </ol>
175	Hardware error.	Check the system board.
176	Computer cover or cable cover was removed without a key being used.	Check the system board.
177, 178	Security hardware error.	Check the system board.
184	Power-up password damaged.	Check the system board.
185	Drive startup sequence information corrupted.	Check the system board.

Table 5-21 POST Error Codes (continued)

Error Code	Symptom	Cause and Action
186	Security hardware control logic failed.	Check the system board.
187	VPD serial number not set.	Check the system board.
188	Bad EEPROM CRC #2.	Check the system board.
189	An attempt was made to access the device with invalid passwords.	Check your passwords.
201	Memory test error.  If the device does not have the latest level of BIOS installed, update the BIOS to the latest level and run the diagnostic program again.	<ol style="list-style-type: none"> <li>1. Check the DIMM.</li> <li>2. Check the system board.</li> </ol>
229	Cache error.	<ol style="list-style-type: none"> <li>1. Check the microprocessor.</li> <li>2. Check the optional microprocessor (if installed).</li> </ol>
262	DRAM parity configuration error.	<ol style="list-style-type: none"> <li>1. Check the battery.</li> <li>2. Check the system board.</li> </ol>
289	DIMM disabled by POST or user.	Check for a disabled DIMM, if not disabled by the user.
301	Keyboard <sup>1</sup> or keyboard controller error.	Not applicable.
303	Keyboard <sup>1</sup> controller error.	Not applicable.
602	Invalid disk <sup>2</sup> boot record.	The device does not support a disk drive.
604	Disk <sup>2</sup> drive error.	The device does not support a disk drive.
605	Unlock failure. <sup>2</sup>	The device does not support a disk drive.
662	Disk <sup>2</sup> drive configuration error.	The device does not support a disk drive.
762	Coprocessor configuration error.	<ol style="list-style-type: none"> <li>1. Check the battery.</li> <li>2. Check the microprocessor.</li> </ol>

**Table 5-21** POST Error Codes (continued)

Error Code	Symptom	Cause and Action
962	Parallel port error.	<ol style="list-style-type: none"> <li>1. Disconnect the external cable on the parallel port.</li> <li>2. Check the system board.</li> </ol>
11XX	System board serial port 1 or 2 error.	<ol style="list-style-type: none"> <li>1. Disconnect the external cable on the serial port.</li> <li>2. Check the system board.</li> </ol>
1301	I2C cable to front panel not found.	<ol style="list-style-type: none"> <li>1. Check the cable.</li> <li>2. Check the front panel.</li> <li>3. Check the power switch assembly.</li> <li>4. Check the system board.</li> </ol>
1302	I2C cable from system board to power up and reset switches not found.	<ol style="list-style-type: none"> <li>1. Check the cable.</li> <li>2. Check the power switch assembly.</li> <li>3. Check the system board.</li> </ol>
1303	I2C cable from system board to power backplane not found.	<ol style="list-style-type: none"> <li>1. Check the cable.</li> <li>2. Check the power cage assembly.</li> <li>3. Check the system board.</li> </ol>
1304	I2C cable to diagnostic LED board not found.	<ol style="list-style-type: none"> <li>1. Check the power switch assembly.</li> <li>2. Check the system board.</li> </ol>
1600	The system management processor is not functioning.	<ol style="list-style-type: none"> <li>1. Complete the following steps before replacing a FRU: <ol style="list-style-type: none"> <li>a. Ensure that a jumper is not installed on J34.</li> <li>b. Remove the AC power to the device, and wait 20 seconds.</li> <li>c. Reconnect the AC power and wait 30 seconds.</li> <li>d. Power up the device.</li> </ol> </li> <li>2. Check the system board.</li> </ol>

Table 5-21 POST Error Codes (continued)

Error Code	Symptom	Cause and Action
1601	The system is able to communicate to the system management processor, but the system management processor failed to respond at the start of POST.	<ol style="list-style-type: none"> <li>1. Complete the following steps before replacing a FRU:               <ol style="list-style-type: none"> <li>a. Remove the AC power to the device, and wait 20 seconds.</li> <li>a. Reconnect the AC power and wait 30 seconds.</li> <li>b. Power up the device.</li> <li>c. Flash update the system management processor.</li> </ol> </li> <li>2. Check the system board.</li> </ol>
1602	Cable for optional service processor adapter not installed.	Disconnect all device and hardware option power cords from the device, wait 30 seconds, reconnect, and retry.
1762	Hard disk configuration error.	<ol style="list-style-type: none"> <li>1. Check the hard disk drive.</li> <li>2. Check the hard disk cables.</li> <li>3. Check the hard disk adapter.</li> <li>4. Check the SCSI backplane.</li> <li>5. Check the system board.</li> </ol>
178X	Fixed disk error.	<ol style="list-style-type: none"> <li>1. Check the hard disk cables.</li> <li>2. Run diagnostics.</li> <li>3. Check the hard disk adapter.</li> <li>4. Check the hard disk drive.</li> <li>5. Check the system board.</li> </ol>
1800	No more hardware interrupts available for PCI adapter.	<ol style="list-style-type: none"> <li>1. Check for failing adapter.</li> <li>2. Check the system board.</li> </ol>

**Table 5-21** POST Error Codes (continued)

Error Code	Symptom	Cause and Action
1962	Drive does not contain a valid boot sector.	<ol style="list-style-type: none"> <li>1. Verify that a startable operating system is installed.</li> <li>2. Run diagnostics.</li> <li>3. Check the hard disk drive.</li> <li>4. Check the SCSI backplane.</li> <li>5. Check the cable.</li> <li>6. Check the system board.</li> </ol>
2400	Video controller test failure.	The video feature is not supported in the Wide Area Application Engine 7326.
2462	Video memory configuration error.	The video feature is not supported in the Wide Area Application Engine 7326.
5962	IDE CD-ROM drive configuration error.	<ol style="list-style-type: none"> <li>1. Check the CD-ROM drive.</li> <li>2. Check the CD-ROM power cable.</li> <li>3. Check the IDE cable.</li> <li>4. Check the system board.</li> <li>5. Check the battery.</li> </ol>
8603	Pointing device error.	This feature is not supported in Cisco ACNS software.
0001200	Machine check architecture error.	<ol style="list-style-type: none"> <li>1. Check microprocessor 1.</li> <li>2. Check optional microprocessor 2.</li> </ol>
00012000	Microprocessor machine check.	<ol style="list-style-type: none"> <li>1. Check the microprocessor.</li> <li>2. Check the system board.</li> </ol>
00019501	Microprocessor 1 is not functioning.	<ol style="list-style-type: none"> <li>1. Check VRM and microprocessor LEDs.</li> <li>2. Check VRM 1.</li> <li>3. Check microprocessor 1.</li> <li>4. Check the system board.</li> </ol>

**Table 5-21** POST Error Codes (continued)

<b>Error Code</b>	<b>Symptom</b>	<b>Cause and Action</b>
00019502	Microprocessor 2 is not functioning.	<ol style="list-style-type: none"> <li>1. Check VRM and microprocessor LEDs.</li> <li>2. Check VRM 2.</li> <li>3. Check the microprocessor 2.</li> </ol>
00019701	Microprocessor 1 failed.	<ol style="list-style-type: none"> <li>1. Check microprocessor 1.</li> <li>2. Check the system board.</li> </ol>
00019702	Microprocessor 2 failed.	<ol style="list-style-type: none"> <li>1. Check microprocessor 2.</li> <li>2. Check the system board.</li> </ol>
00180100	A PCI adapter has requested memory resources that are not available.	<ol style="list-style-type: none"> <li>1. Reorder the adapters in the PCI slots. It is important that your startup device is positioned early in the startup device order so that it is run by POST.</li> <li>2. Ensure that the PCI adapter and all other adapters are set correctly in the configuration/setup utility program. If the memory resource settings are not correct, change the settings.</li> <li>3. If all memory resources are being used, you might need to remove an adapter to make memory available for the PCI adapter. Disabling the adapter BIOS on the adapter might correct the error. (Refer to the documentation provided with the adapter.)</li> </ol>
00180200	No more I/O space available for PCI adapter.	<ol style="list-style-type: none"> <li>1. Check the adapter.</li> <li>2. Check the system board.</li> </ol>
00180300	No more memory (above 1 MB) for PCI adapter.	<ol style="list-style-type: none"> <li>1. Check the adapter.</li> <li>2. Check the system board.</li> </ol>
00180400	No more memory (below 1 MB) for PCI adapter.	<ol style="list-style-type: none"> <li>1. Move the failing adapter to slot 1.</li> <li>2. Check the adapter.</li> <li>3. Check the system board.</li> </ol>

**Table 5-21** *POST Error Codes (continued)*

<b>Error Code</b>	<b>Symptom</b>	<b>Cause and Action</b>
00180500	PCI option ROM checksum error.	<ol style="list-style-type: none"> <li>1. Remove the failing PCI card.</li> <li>2. Check the system board.</li> </ol>
00180600	PCI to PCI bridge error.	<ol style="list-style-type: none"> <li>1. Move the failing adapter to slot 1.</li> <li>2. Check the adapter.</li> <li>3. Check the system board.</li> </ol>
00180700, 00180800	General PCI error.	<ol style="list-style-type: none"> <li>1. Check the system board.</li> <li>2. Check the PCI card.</li> </ol>
00181000	PCI error.	<ol style="list-style-type: none"> <li>1. Check the adapter.</li> <li>2. Check the system board.</li> </ol>
01295085	ECC checking hardware test error.	<ol style="list-style-type: none"> <li>1. Check the system board.</li> <li>2. Check the microprocessor.</li> </ol>
01298001	No update data for microprocessor 1.	<ol style="list-style-type: none"> <li>1. Ensure that all processors have the same cache size.</li> <li>2. Check microprocessor 1.</li> </ol>
01298002	No update data for microprocessor 2.	<ol style="list-style-type: none"> <li>1. Ensure that all processors have the same cache sizes, dock speeds, and clock frequencies.</li> <li>2. Check microprocessor 2.</li> </ol>
01298101	Bad update data for microprocessor 1.	<ol style="list-style-type: none"> <li>1. Ensure that all processors have the same cache sizes, dock speeds, and clock frequencies.</li> <li>2. Check microprocessor 1.</li> </ol>
01298102	Bad update data for microprocessor 2.	<ol style="list-style-type: none"> <li>1. Ensure that all processors have the same cache sizes, dock speeds and clock frequencies.</li> <li>2. Check microprocessor 2.</li> </ol>
19990301	Hard disk sector error.	<ol style="list-style-type: none"> <li>1. Check the hard disk drive.</li> <li>2. Check the SCSI backplane.</li> <li>3. Check the cable.</li> <li>4. Check the system board.</li> </ol>

**Table 5-21** POST Error Codes (continued)

Error Code	Symptom	Cause and Action
19990305	Hard disk sector error, no operating system installed.	Install operating system on the hard disk.
19990650	AC power has been restored.	<ol style="list-style-type: none"> <li>1. Check the power cable.</li> <li>2. Check for interruption of power.</li> </ol>

1. ACNS software does not support keyboards. No keyboard errors are expected; however, if a keyboard error appears during bootup, contact the Cisco Technical Assistance Center.
2. ACNS software does not support disk drives. No disk drive errors are expected; however, if a disk drive error appears during bootup, contact the Cisco Technical Assistance Center.

## Service Processor Error Codes

When viewed from POST, service processor error codes appear in hexadecimal form (generally beginning with A2, A3, A4, A5, A6, A7, AD, AE, or E1). However, when viewed from the system error log, the messages appear as text. To identify a possible error condition for the service processor, see the system error log. (See the [“Diagnostic Programs and Error Messages”](#) section on page 5-7.)

## SCSI Errors



### Note

If your device does not have a hard disk drive, ignore any message that indicates that the BIOS is not installed.

[Table 5-22](#) describes possible SCSI errors.

**Table 5-22**      **SCSI Errors**

SCSI Error Causes	Action
<p>All SCSI errors. One or more of the following might be causing the problem:</p> <ul style="list-style-type: none"> <li>• A failing SCSI device (adapter, drive, controller)</li> <li>• An improper SCSI configuration or SCSI termination jumper setting</li> <li>• Duplicate SCSI IDs in the same SCSI chain</li> <li>• A missing or improperly installed SCSI terminator</li> <li>• A defective SCSI terminator</li> <li>• An improperly installed cable</li> <li>• A defective cable</li> </ul>	<ol style="list-style-type: none"> <li>1. External SCSI devices must be turned on before you power up the device.</li> <li>2. Make sure that the cables for all external SCSI devices are connected correctly.</li> <li>3. If you have attached an external SCSI device to the device, make sure that the external SCSI termination is set to automatic.</li> <li>4. Make sure that the last device in each SCSI chain is terminated correctly.</li> <li>5. Make sure that the SCSI devices are configured correctly.</li> </ol>

## Temperature Error Messages

[Table 5-23](#) describes the temperature error messages.

**Table 5-23**      **Temperature Error Messages**

Message	Action
Power supply <i>x</i> Temperature Fault (level—critical; power supply <i>x</i> had overtemperature condition)	<p>Ensure that the system is being properly cooled; see <a href="#">“System Reliability Considerations”</a> section on page 2-6.</p> <p>Power supply <i>x</i> needs to be replaced. Have the system serviced.</p>
System board is over recommended temperature (level—warning; system board is over recommended temperature)	<p>Ensure that the system is being properly cooled; see the <a href="#">“System Reliability Considerations”</a> section on page 2-6.</p> <p>The system board needs to be replaced. Have the system serviced.</p>

**Table 5-23**      **Temperature Error Messages (continued)**

Message	Action
System board is under recommended temperature (level—warning; system board is under recommended temperature)	Ambient temperature must be within normal operating specifications; see the <a href="#">Appendix A, “Wide Area Application Engine 7326 Hardware Specifications.”</a>
System over temperature for CPU <i>x</i> (level—warning; CPU <i>x</i> reporting overtemperature condition)	Ensure that the system is being properly cooled; see the <a href="#">“System Reliability Considerations”</a> section on page 2-6.
System under recommended CPU <i>x</i> temperature (level—warning; system reporting undertemperature condition for CPU <i>x</i> )	Ambient temperature must be within normal operating specifications; see the <a href="#">Appendix A, “Wide Area Application Engine 7326 Hardware Specifications.”</a>

## Fan Error Messages

[Table 5-24](#) describes the fan error messages.

**Table 5-24**      **Fan Error Messages**

Message	Action
Fan <i>x</i> failure (level—critical; fan <i>x</i> had a failure)	<ol style="list-style-type: none"> <li>1. Check connections to fan <i>x</i>.</li> <li>2. Fan <i>x</i> needs to be replaced. Have the system serviced.</li> </ol>
Fan <i>x</i> fault (level—critical; fan <i>x</i> beyond recommended RPM range)	<ol style="list-style-type: none"> <li>1. Check connections to fan <i>x</i>.</li> <li>2. Fan <i>x</i> needs to be replaced. Have the system serviced.</li> </ol>
Fan <i>x</i> outside recommended speed action	Fan <i>x</i> needs to be replaced. Have the system serviced.

## Power Error Messages

Table 5-25 describes the power error messages.

**Table 5-25** Power Error Messages

Message	Action
Power supply <i>x</i> current share fault (level—critical; excessive current demand on power supply <i>x</i> )	Power supply <i>x</i> needs to be replaced. Have the system serviced.
Power supply <i>x</i> DC good fault (level—critical; power good signal not detected for power supply <i>x</i> )	Power supply <i>x</i> needs to be replaced. Have the system serviced.
Power supply <i>x</i> temperature fault	Power supply <i>x</i> needs to be replaced. Have the system serviced.
Power supply <i>x</i> removed	No action required: information only.
Power supply <i>x</i> fan fault (level—critical; fan fault in power supply <i>x</i> )	Power supply <i>x</i> needs to be replaced. Have the system serviced.
Power supply <i>x</i> 12 V fault (level—critical; overcurrent condition detected)	See the <a href="#">“Checking the Power Subsystem” section on page 5-11</a> .
Power supply <i>x</i> 3.3 V fault (level—critical; 3.3 V power supply <i>x</i> had an error)	See the <a href="#">“Checking the Power Subsystem” section on page 5-11</a> .
Power supply <i>x</i> 5 V fault (level—critical; 5 V power supply <i>x</i> had an error)	See the <a href="#">“Checking the Power Subsystem” section on page 5-11</a> .
System running nonredundant power (level—noncritical; system does not have redundant power)	<ol style="list-style-type: none"> <li>1. Add another power supply.</li> <li>2. Remove hardware options from the system.</li> <li>3. The system can continue to operate without redundancy protection if Step 1 and Step 2 are not followed.</li> </ol>
System under recommended voltage for <i>x</i> (level—warning; indicated voltage supply under nominal value; value for <i>x</i> can be +12, -12, or +5)	<ol style="list-style-type: none"> <li>1. Check connections to the power subsystem.</li> <li>2. Check the power supply.</li> <li>3. Check the power cage assembly.</li> </ol>

## System Shutdown

Use [Table 5-26](#) and [Table 5-27](#) for troubleshooting when experiencing system shutdown related to voltage or temperature problems.

**Table 5-26 Voltage-Related System Shutdown**

Error Message	Cause and Action
System shutoff due to $x$ current over max value (level—critical; system drawing too much current on voltage $x$ bus)	See the “ <a href="#">Checking the Power Subsystem</a> ” section on page 5-11.
System shutoff due to $x$ V overvoltage (level—critical; system shutoff due to $x$ supply overvoltage)	<ol style="list-style-type: none"> <li>1. Check the power supply connectors.</li> <li>2. Check the power supply.</li> <li>3. Check the power cage assembly.</li> </ol>
System shutoff due to $x$ undervoltage (level—critical; system shutoff due to $x$ supply undervoltage)	<ol style="list-style-type: none"> <li>1. Check the power supply connectors.</li> <li>2. Check the power supply.</li> <li>3. Check the power cage assembly.</li> </ol>
System shutoff due to VRM $x$ overvoltage	The VRM $x$ needs to be replaced. Have the system serviced.
System shutoff due to excessive (< 240 VAC) loading	<ol style="list-style-type: none"> <li>1. See the “<a href="#">Checking the Power Subsystem</a>” section on page 5-11.</li> <li>2. Cycle AC power on and off.</li> </ol>

**Table 5-27**      **Temperature-Related System Shutdown**

Message	Action
System shutoff due to board overtemperature (level–critical; board is over temperature)	<ol style="list-style-type: none"> <li>1. Ensure that the system is being properly cooled; see the <a href="#">“System Reliability Considerations”</a> section on page 2-6.</li> <li>2. The board needs to be replaced. Have the system serviced.</li> </ol>
System shutoff due to CPU <i>x</i> overtemperature (level–critical; CPU <i>x</i> is over temperature)	<ol style="list-style-type: none"> <li>1. Ensure that the system is being properly cooled; see the <a href="#">“System Reliability Considerations”</a> section on page 2-6.</li> <li>2. CPU <i>x</i> needs to be replaced. Have the system serviced.</li> </ol>
System shutoff due to CPU <i>x</i> undertemperature (level–critical; CPU <i>x</i> is under temperature)	Ambient temperature must be within normal operating specifications; see the <a href="#">Appendix A, “Wide Area Application Engine 7326 Hardware Specifications.”</a>
System shutoff due to high ambient temperature (level–critical; high ambient temperature)	Ambient temperature must be within normal operating specifications; see the <a href="#">Appendix A, “Wide Area Application Engine 7326 Hardware Specifications.”</a>
System shutoff due to system board under temperature (level–critical; system board is under temperature)	Ambient temperature must be within normal operating specifications; see the <a href="#">Appendix A, “Wide Area Application Engine 7326 Hardware Specifications.”</a>

## Host Built-In Self-Test

Table 5-28 describes the host Built-In Self-Test (BIST) error message.

**Table 5-28** Host BIST Error Message

Error Message	Action
Host fail (level—informational; built-in self-test for the host failed)	<ol style="list-style-type: none"> <li>1. The microprocessor might need to be reseated. Contact your service representative.</li> <li>2. The VRM might need to be reseated. Contact your service representative.</li> <li>3. The microprocessor CPU needs to be replaced. Have the system serviced.</li> </ol>

## Bus Fault Messages

Table 5-29 describes the bus fault error messages.

**Table 5-29** Bus Fault Messages

Bus Fault Message	Cause and Action
Failure reading I2C device. Check devices on bus 0.	<ol style="list-style-type: none"> <li>1. Check the memory DIMMs.</li> <li>2. Check the system board.</li> </ol>
Failure reading I2C device. Check devices on bus 1.	<ol style="list-style-type: none"> <li>1. The I2C cable between the operator information panel and the system board (J22) might need to be reseated. Contact your service representative.</li> <li>2. Check the operator information panel.</li> <li>3. Check the system board.</li> </ol>
Failure reading I2C device. Check devices on bus 2.	<ol style="list-style-type: none"> <li>1. The cable between the system board and the power supply (power cage assembly) (J10) might need to be reseated. Contact your service representative.</li> <li>2. Check the power cage assembly.</li> <li>3. Check the power supply.</li> <li>4. Check the system board.</li> </ol>

**Table 5-29**      **Bus Fault Messages (continued)**

<b>Bus Fault Message</b>	<b>Cause and Action</b>
Failure reading I2C device. Check devices on bus 3.	Error message pertains to DASD devices, which are not supported in Cisco ACNS software.
Failure reading I2C device. Check device on bus 4.	Check the system board.

