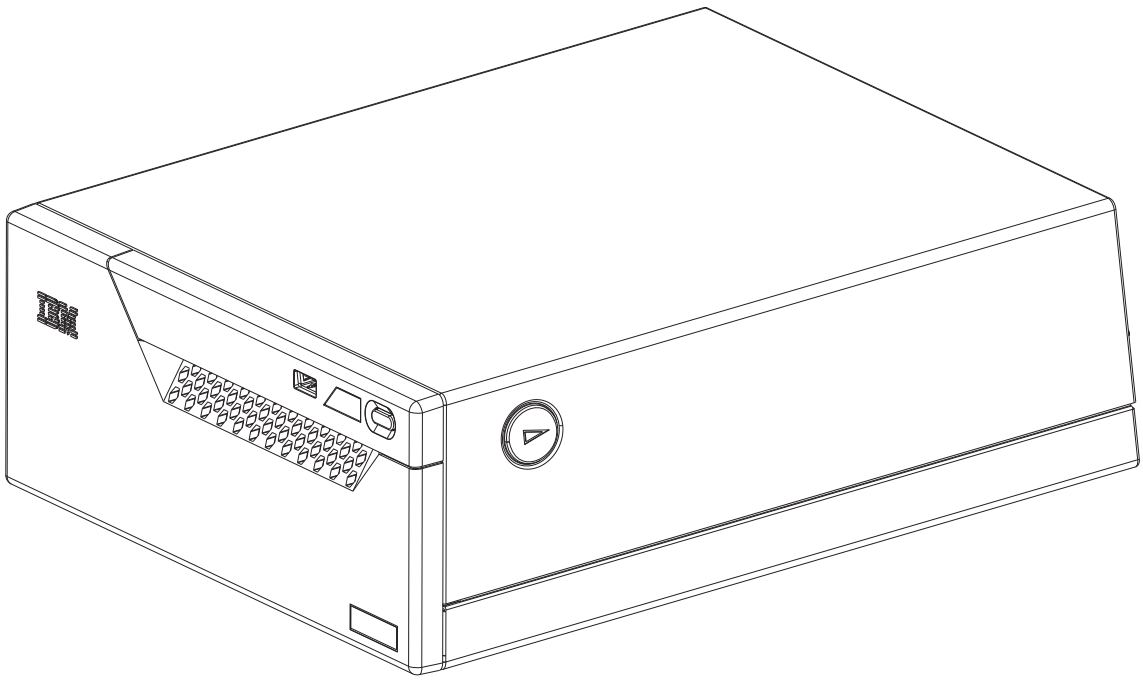
SurePOS 300

# Installation and Service Guide for 4810/4910 Model x4x



March 2009

G362-0560-00

SurePOS 300

# Installation and Service Guide for 4810/4910 Model x4x

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**Note**

Before using this information and the product it supports, be sure to read the general information under Appendix B, “Safety information,” on page 51 and Appendix C, “Notices,” on page 57.

**March 2009**

This edition applies to Model x4x of the IBM 4810/4910 Point of Sale terminal and to all subsequent releases and modifications until otherwise indicated in new editions.

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# Contents

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# About this guide

This guide provides product-planning information, replacement and removal procedures, problem determination, and a parts listing of field-replaceable units (FRUs) for Model x4x of the IBM SurePOS 300 (also referred to as the 4810/4910). Within this guide, the terms 4810/4910 or Model x4x refer to the IBM SurePOS 300.

The chapters are organized as follows:

- Chapter 1, “Introduction,” on page 1 provides an overview of the 4810/4910 x4x.
- Chapter 2, “Getting started,” on page 9 provides information about the hardware and software that ships with the Model x4x.
- Chapter 3, “Removal and installation procedures for the 4810/4910 SurePOS 300,” on page 11 describes how to install and remove the components of Model x4x of the 4810/4910 SurePOS 300.
- Chapter 4, “Problem determination,” on page 29 describes problem determination and diagnostics information for the IBM SurePOS 300 Models.
- Chapter 5, “Parts catalog,” on page 37 provides information about the field-replaceable units (FRUs) for the product.
- Chapter 6, “Power cords,” on page 41 provides information about power cords.

Safety information and notices are in the appendixes.

## Who should read this manual

This manual is intended for use by experienced personnel responsible for installing and maintaining Model x4x SurePOS 300.

## Related publications and drivers

The following IBM publications are available from IBM Retail Store Solution Web site at http://www.ibm.com/solutions/retail/store. Select **Support**, then select **Publications**.

- *Safety and Regulatory Information - Read this First* , GA27-4004
- *SureMark 4610 Printers User’s Guide*, GA27-4151
- *SureMark 4610 Printers Hardware Service Guide*, GY27-0355
- *SureMark 4610 Printers DBCS Hardware Service Manual*, GY27-0397
- *SureMark 4610 Printers User’s Guide for Models 2CR and 2NR*, GA27-5003
- *SureMark 4610 Printers Hardware Service Guide for Models 2CR and 2NR*, GA27-5004
- *4820 SurePoint Solution Planning, Installation and Service Guide*, GA27-4231
- *4820 SurePoint Solution System Reference*, SA27-4249
- *Point of Sale Options and I/O Devices Service Guide*, GC30-9737
- *SurePOS 300 Operating System Installation Guide*, GA27-4360

Model x4x of the IBM 4810/4910 SurePOS 300 requires UPOS drivers at level 1.9.6 or higher. IBM drivers are available from the IBM Retail Store Solutions Web site at http://www.ibm.com/solutions/retail/store. Select **Support**, then select the link under **Peripheral Drivers** to access these drivers:

- OLE for POS (OPOS)
- JavaPOS

- POS for Linux

Additional technical information is available at http://www.ibm.com/solutions/retail/store/support. Ask your questions in the TechLine section located at the bottom of this webpage.

## Publications accessibility

The softcopy version of this guide and other related publications are accessibility enabled.

## Notice statements

Notices contained in this guide are defined as follows:

**Notes:** These notices provide important tips, guidance, or advice.

**Important:** These notices provide information or advice that might help you avoid inconvenient or problem situations.

**Attention:** These notices indicate potential damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage could occur.

**Caution:** These statements indicate situations that can be potentially hazardous to you. A caution statement is placed just before the description of a potentially hazardous procedure step or situation.

**Danger:** These statements indicate situations that can be potentially lethal or extremely hazardous to you. A danger statement is placed just before the description of a potentially lethal or extremely hazardous procedure step or situation.

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March 2009

Between major revisions of this document, there might be minor technical updates. The latest version of this document is available on the Retail Store Solutions Web site at www.ibm.com/solutions/retail/store/support/publications/.

# Chapter 1. Introduction

This chapter describes the characteristics of model x4x of the IBM 4810/4910 SurePOS 300 Point of Sale terminal.

## Product summary

The 4810/4910 Point of Sale terminal consists of a PC-compatible core with ports enabling you to attach retail I/O devices. Designed specifically for distributed environments, the 4810/4910 can be mounted under a check stand or counter. terminal:

## IBM SurePOS 300 models

The following can be included with the 4810/4910 Point of Sale terminal:

- 4810–340 IBM SurePOS 300 system unit (no preload)
- 4810–E40 Windows® preload units
- 4910–E4S 4810–E40 base system unit bundled with a 4610 or 4679 Single Station Printer and Non-Touch Monitor (in some countries)
- 4910–E4D 4810–E40 base system unit bundled with a 4610 Dual Station Printer and Non-Touch Monitor (in some countries)
- 4910–E4T 4810–E40 base system unit bundled with a 4610 Single Station Printer and 4820 Touch Monitor
- 4910–E4F 4810–E40 base system unit bundled with 4820 Non-Touch Monitor

## Standard features Model x4x

Table 1 describes the features of Model x4x of the 4810/4910 SurePOS 300.

*Table 1. Summary of features*

| Type of feature | Description |
|---|---|
| CPU | Intel ULV Celeron M 373 (1.0GHz) |
| Core chip set | Intel 910GMLE / ICH6M |
| I/O ports | • Two VGA<br>• Two RS-232 ports standard (nine pin male D-shell)<br>• Three USB 2.0 high speed ports:<br>– Two rear<br>– One front<br>• Keyboard and mouse ports, PS/2 compatible<br>• One - line in<br>• One - microphone<br>• One - line-out/headphone<br>• One - 10/100Mb Ethernet LAN (RJ45)<br>• One - 5V/12V powered RS232 (nine pin female D-shell)<br>• One - Cash drawer port, standard IBM 24V-compatible<br>• One - 24V Powered USB 2.0<br>• One - 12V Powered USB 2.0<br>• RS232 Connector Card installed<br>– Three 5V/12V powered RS232 (nine pin female D-shell)<br>• USB Connector Card installed<br>– Three 12V Powered USB2.0 |
| Memory | • Two DIMM slots for 400 MHz DDR2 RAM<br>• 512 MB standard, expandable to 2 GB |
| Video | Intel Graphics Media Accelerator 900 |

*Table 1. Summary of features (continued)*

| Type of feature | Description |
|---|---|
| LAN | Broadcom BCM5906M 10/100Mb |
| Clock | Nonvolatile real-time clock |
| Media | 3.5-inch SATA Hard Disk Drive or optional 4GB Modular-Flash Drive |
| Audio | Analog Devices AD1882 Codec |

## Optional features Model x4x

*Table 2. Optional features*

| Type of feature | Description |
|---|---|
| Storage | 160 GB hard disk drive or 4 GB modular flash drive |
| SurePort cards | 5V/12V Powered RS-232 connector card or powered USB connector card |
| Memory | 512 MB, 1 GB, or 2 GB total system memory |

# Planning information

## Required classification of 24V I/O cables (DP-3 information)

**Attention:** Powered USB 24V ports are intended for use with POS printers (IBM SureMark 4610). All IBM POS printer cables are classified as UL Data-Processing Cables DP-3. For safe use of these ports, any third-party cables must meet the same requirements.

## Powered USB device attachment

Attaching powered USB devices should adhere to the requirements of Section 2.3.3 of the *Universal Serial Bus OEM Point-of-Sale Device Interface Specification*. Devices falling outside this specification may operate properly, but are not supported.

## Physical dimensions

Figure 1 on page 3 shows the dimensions of the product.

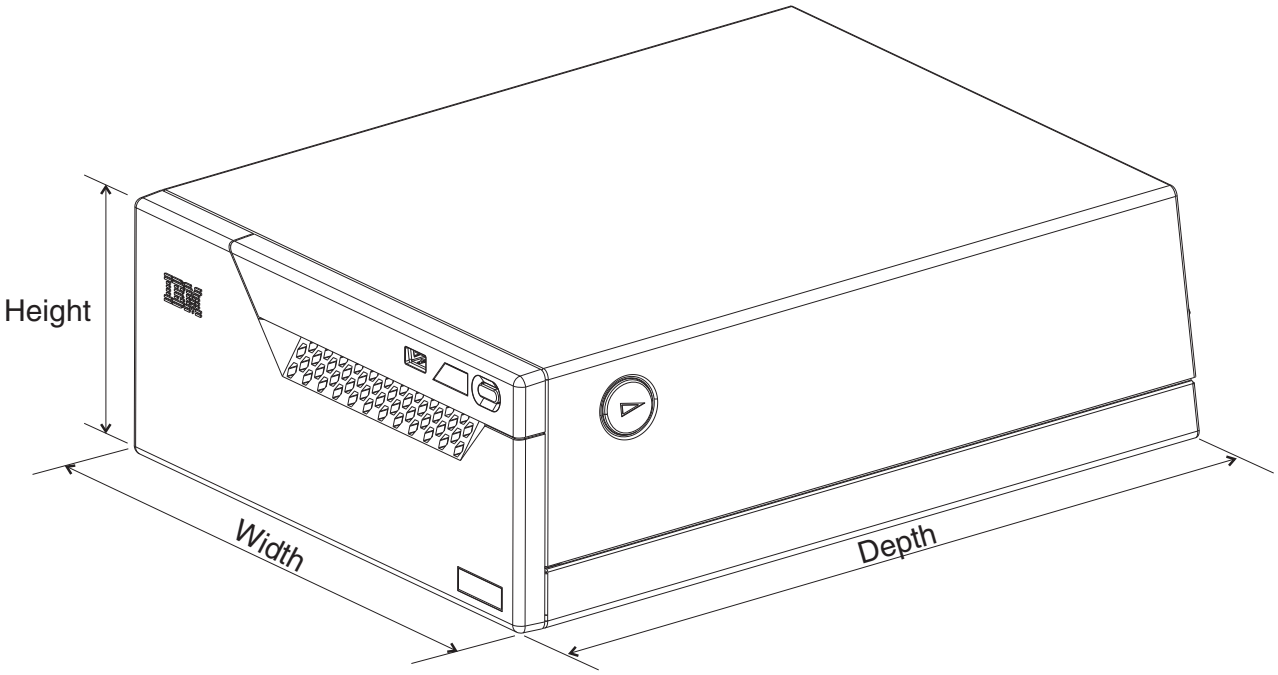



*Figure 1. Dimensions of the 4810/4910 SurePOS 300*

- Width: 245 mm (9.65 in.)
- Depth: 257 mm (10.12 in.)
- Height: 90 mm (3.54 in.)
- Weight: 4.53 kg (10.0 lb.) nominal

## Power requirements and consumption

This section describes the power requirements and power consumption of the SurePOS 300 Point of Sale terminal.

**Power input:**

- AC Input Connector: IEC 320 C14
- Input Voltage: 100-127, 200-240 VAC
- Input Frequency: 50 or 60 Hz (+/- 3Hz)

**Power consumption:**

*Table 3. Power consumption*

| Power State | EnergyStar (1) | Point-of-Sale (2) |
|---|---|---|
| OFF (S5) | 2.0 W | 2.0 W |
| Suspend-to-RAM (S3) | 2.5 W | 2.5 W |
| Standby (S1) | 20 W | 31 W |
| On, idle (S0) | 27 W | 55 W |

(1) Configured with 15" analog VGA monitor, PS/2 keyboard and PS/2 mouse at 115V AC input voltage with Wake-on-LAN enabled.

(2) Configured with 15" IBM LCD 4820 Touch Display, IBM 2x20 Customer Display, IPM POS 4610 printer, PS/2 keyboard and PS/2 mouse at 115V AC input voltage with Wake-on-LAN enabled.

**Port power ratings:**

*Table 4. Port power ratings*

| Port/name | Port Voltage Ratings | Maximum Current |
|---|---|---|
| Powered Serial Ports C/D/E/F | 5V | 1.0A |
| | 12V | 1.0A |
| USB (2 back, 1 front) | 5V | 0.5A |
| 12V powered USB – A/B/C/D | 12V | 1.5A |
| 24V powered USB – E | 24V | 3.0A |
| Cash Drawer | 24V | 1.0 A / 150 ms pulse |
| Keyboard and Mouse | 5V | 1.0A |

**Notes:**

1. Suspend-to-RAM (S3) wake-capable ports include:
   - USB ports 1 and 2
   - PS/2 keyboard and mouse ports
   - 12V powered USB port A (RS232 connector card)
   - 12V powered USB port D (USB connector card)

   Note that 12V is not present during Suspend-to-RAM (S3). Ports are enabled for wake through BIOS setup.
2. Combined, the wake-enabled USB ports 1 and 2, the 12V USB port, and the PS/2 keyboard and mouse ports can only support a maximum 5V load of 1.5A without the modular flash drive installed or 1.2A with the modular flash drive installed.
3. The total 12V current for all external loads is 3A.
4. The total 5V current for all external loads is 3.5A.

### Environmental considerations

These are the temperature and humidity requirements:

- Operating: +5°C to 40°C (41° to 104°F) with 8% to 80% relative humidity
- Shipping: –40°C to +60°C (–40° to 140° F), which includes condensation but not rain
- Storage: 0°C to +60°C (32° to 140° F)

A fan contained in the power supply provides forced-air cooling. All the vents on the front and rear of the 4810/4910 must have 51 mm (2 in.) minimum clearance.

The 4810/4910 SurePOS 300 meets applicable worldwide Electromagnetic Compatibility (EMC) standards. Refer to Appendix C, “Notices,” on page 57 for a complete description.

# User information

## Controls and indicators (front view)

Figure 2 on page 5 shows the indicators that are available on the front view of the 4810/4910 system unit.

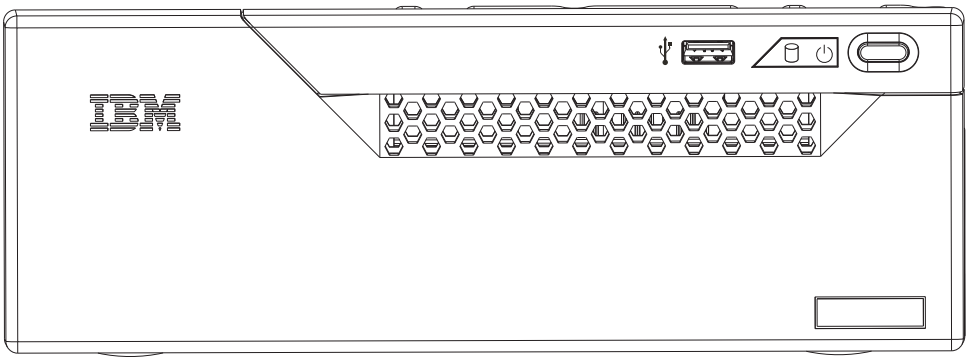



*Figure 2. Front view of 4810/4910 system unit*

These are the descriptions of the indicators that are on the front cover:

This indicates a standard USB port.

This LED indicates HDD activity.

This LED indicates the 4810 power state. Hold down the power button for 4 seconds to power off.

*Table 5. LED operation*

| System state | LED state or operation |
|---|---|
| Off (No AC supplied) | OFF |
| Off (AC supplied) (Note: this state can be entered by holding the power button down for at least 4 seconds) | Blip (0.25 second ON, 1.75 seconds OFF) |
| On (POST) | Blinking (0.5 second ON, 0.5 second OFF) |
| On (Normal operation after post '8B'h) | ON |
| S1 (Standby) | Blinking (0.5 second ON, 0.5 second OFF) |
| S3 (Suspend to RAM) | Blinking (0.5 second ON, 0.5 second OFF) |

## Rear connectors

Figure 3 and Figure 4 show examples of the rear view of the 4810/4910 model x4x.

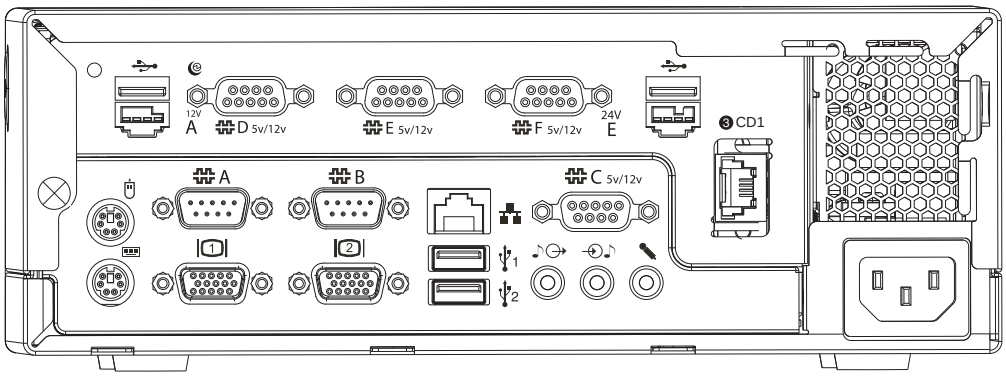



*Figure 3. Rear view of the 4810/4910 model x4x (RS232)*

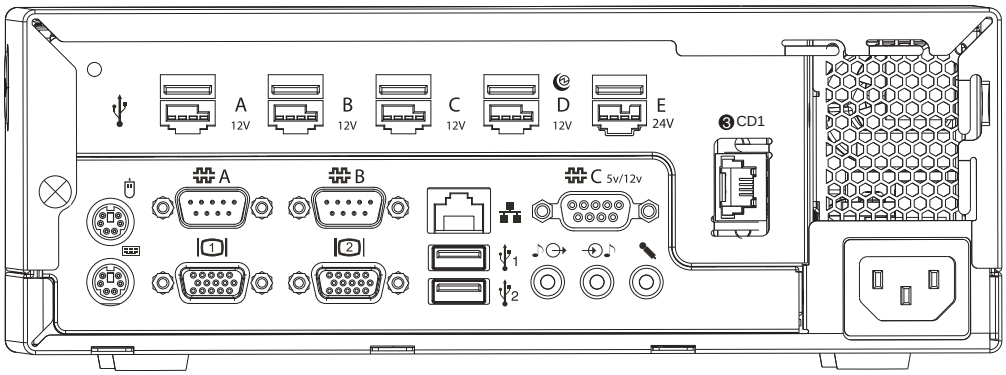
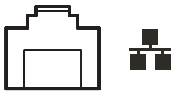
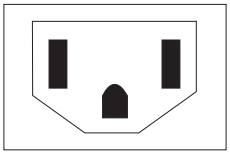
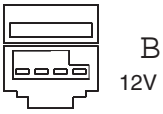
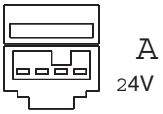
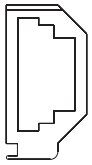



*Figure 4. Rear view of the 4810/4910 model x4x (USB)*

*Table 6. Rear connector icons and descriptions (USB)*

| Icon | Description |
|---|---|
|  | Mouse port |
|  | PS/2 or compatible keyboard port |
|  | USB ports |
|  | VGA display port |
|  A, B | Port for first and second external serial devices, such as a scale or a scanner |
|  C, D E, F | Third, fourth, fifth, and sixth external serial device ports. These connectors also provide 12V and 5V for external devices. |

*Table 6. Rear connector icons and descriptions (USB) (continued)*

| Icon | Description |
|---|---|
|  | Ethernet LAN cable port |
|  | Microphone port |
|  | Audio input port |
|  | Port for audio output, such as self-amplified speakers or headphones |
|  | Power cord inlet connector |
|  | USB, 12V powered port |
|  | USB, 24V powered port |
|  | Cash drawer port |
|  | Indicates that USB wake devices are supported when attached to this port |
|  | Security screw location<br><br>This symbol indicates the location where a security screw can be optionally installed by a customer to protect access to the inside of the system unit. (IBM does not provide this screw.) The screw is an M3 and can protrude into the unit for 6 to 9 mm. The screw head needs to be a pan head or the equivalent. The screw head outside diameter is to be 8 mm maximum, and the screw head height can be up to 3.5 mm. |

# Chapter 2. Getting started

## Hardware information

The hardware shipping carton contains:

- One SurePOS 300 unit
- One power cord
- Safety and regulatory documents
- Modular flash drive (MFD); this is optional

**Note:** You can purchase this unit with the standard 160 GB hard disk drive and install the 4 GB modular flash drive feature. See “Removing and installing the flash drive” on page 16.

## Software information

## Operating system preload - Model E4x

The Model E4x incorporates a preloaded Windows operating system. All hardware features are the same for all models.

**Preload features**:

- Windows® XP®
- Windows® Embedded for Point of Service (WEPOS)
- Windows® POS Ready

Refer to *IBM 4810/4910 SurePOS 300 Operating System Installation Guide* for information about installing other operating systems.

# Chapter 3. Removal and installation procedures for the 4810/4910 SurePOS 300

This section describes how to remove and install the components of Model x4x of the 4810/4910 SurePOS 300. These are the procedures that are included:

## Removing and installing the top cover

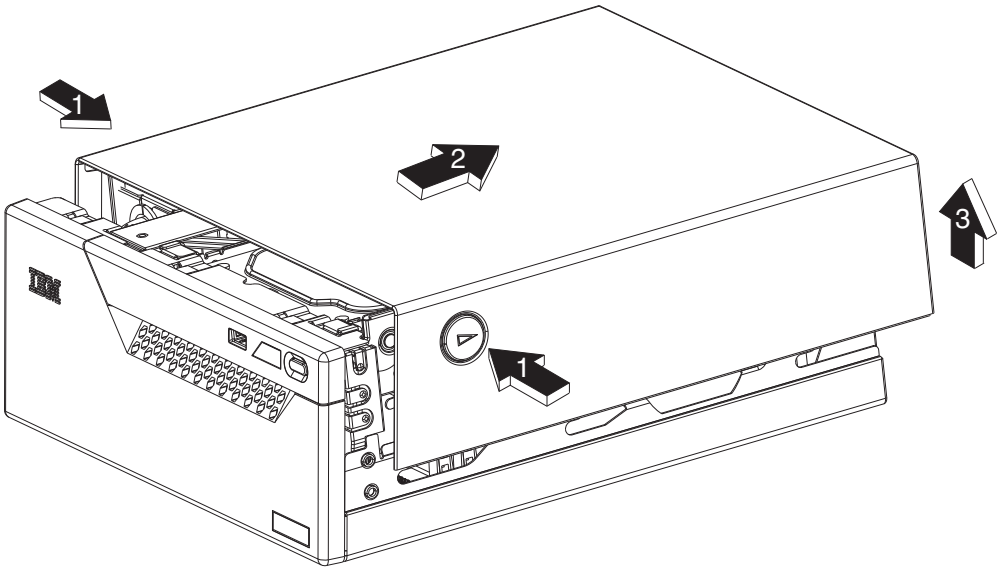



*Figure 5. Removing and installing the top cover*

To open the top cover:

1. Switch **OFF** the power to the unit. Unplug the power cord from the system unit.
2. **Attention**: Establish personal grounding before touching this unit.
3. If a security screw is present, remove it using the appropriate tool (to be provided by the customer). Refer to Figure 4 on page 6 for the location of the optional security screw and to Table 6 on page 6 for more information about the security screw.
4. Press the side latches **1** .
5. Slide the top cover back **2** for approximately 15 mm (5/8 in.), then lift it up **3** .

**Note:** Notice the SERVICE LABEL that is located on the inside of the top cover; see Figure 6 on page 13.

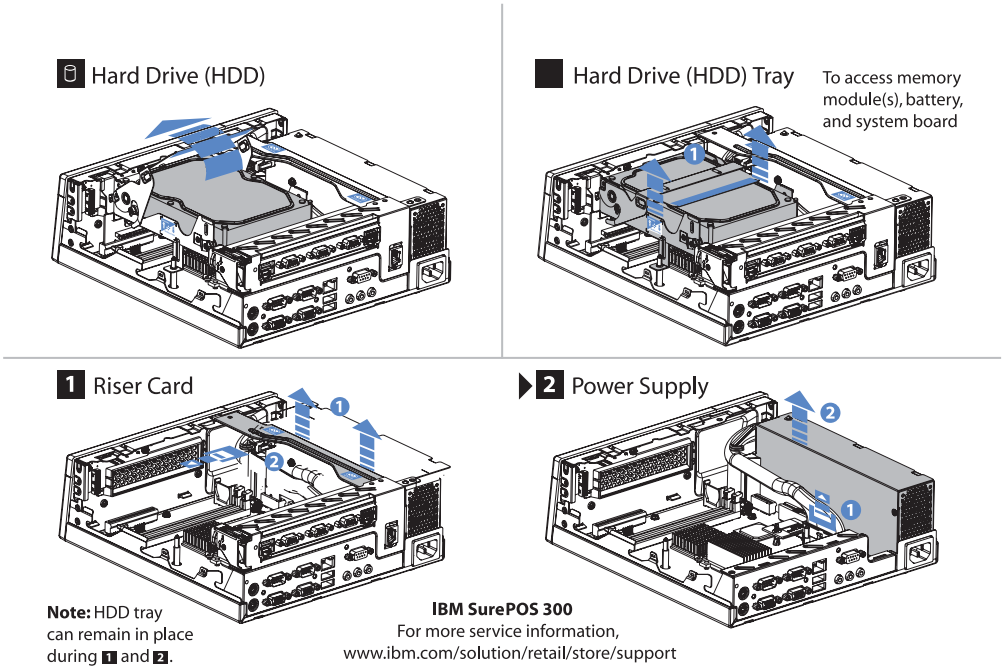



*Figure 6. Service label*

To replace the top cover:

1. Place the top cover so that it is approximately 15 mm (5/8 in.) from the front of the unit.
2. Slide the top forward until the latches make a clicking noise and are engaged. Check both side latches to ensure that both latches are fully latched and appear to align up evenly with the sides of the top cover.

## Removing and installing the hard disk drive

This section describes how to remove, install and replace the hard drive unit. To remove the hard drive and the hard drive tray as an assembly, see “Removing and installing the hard disk drive and hard disk tray as an assembly” on page 15.

**Note:** The hard drive assembly might not be installed on a unit where the modular flash drive is installed instead.

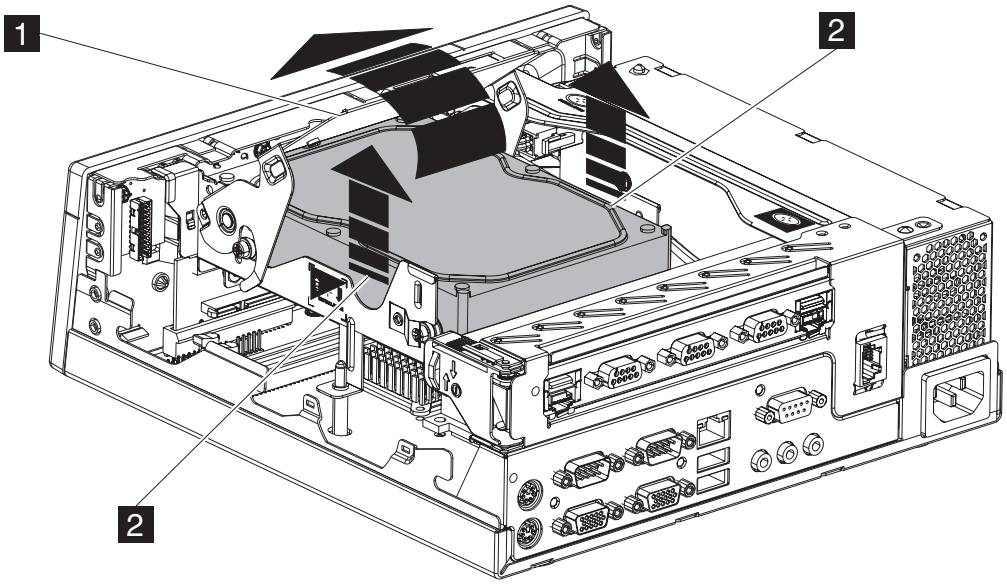



*Figure 7. Removing the hard disk drive*

To remove the hard disk drive:

1. Open the unit. See “Removing and installing the top cover” on page 12.
2. Rotate the hard drive retainer **1** to the fully open position as shown by the arrow in the figure.
3. Grasp the hard drive on each side **2** and lift it up and out of the system unit.

To install the hard disk drive:

1. When replacing the hard drive into the hard drive tray, the hard drive connectors face the front of the system unit. Ensure that the hard drive is firmly in place.
2. Replace the cover. See “Removing and installing the top cover” on page 12.

## Removing and installing the hard disk drive and hard disk tray as an assembly

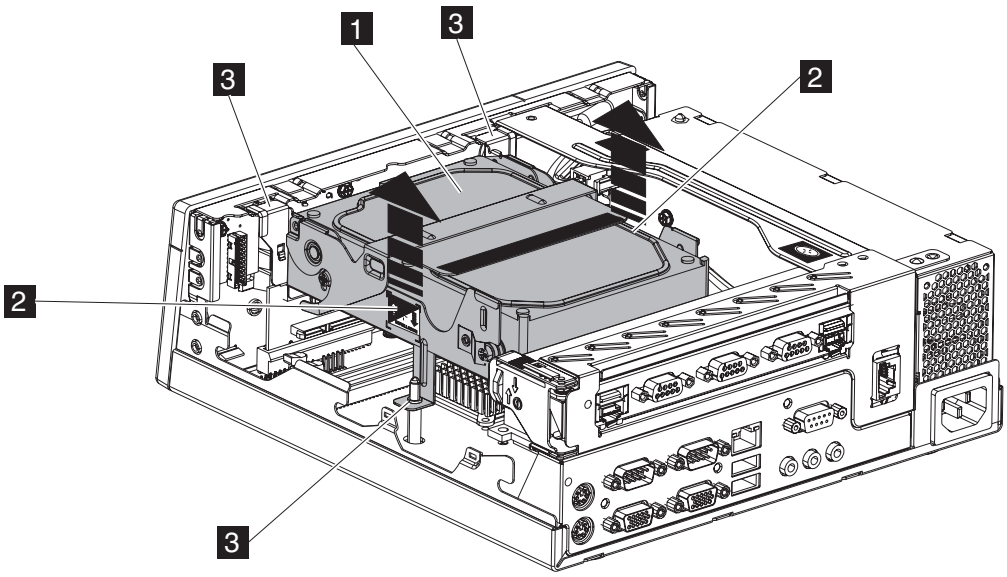



*Figure 8. Removing the hard drive and hard drive tray as an assembly*

To remove the hard drive and tray as an assembly:

- Open the unit. See “Removing and installing the top cover” on page 12.
- Grasp the tray assembly **1** where the arrows originate **2** .
- Pull the tray assembly in an upward direction as shown by the arrows; this will disengage the tray assembly retainers.

To install the hard drive and tray as an assembly:

1. Align the hard drive tray with the three alignment features **3** . Move the hard drive tray down and over the alignment features **3** and snap into place.
2. Ensure that the hard drive is completely seated on the alignment pins and the front of the tray is correctly positioned in the slots on the chassis.
3. Replace the cover. See “Removing and installing the top cover” on page 12.

## Removing and installing the flash drive

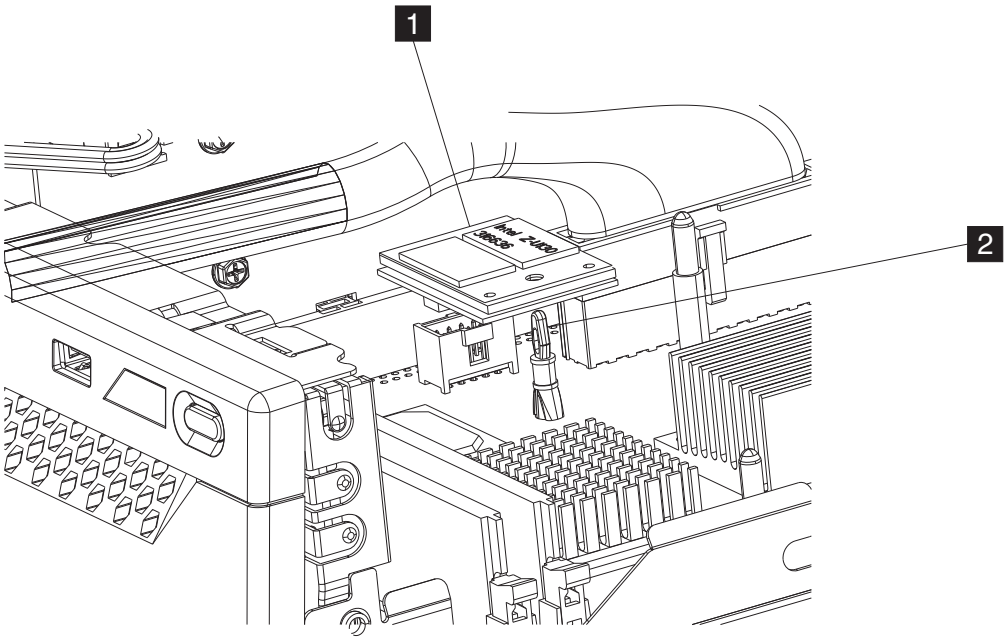



*Figure 9. Removing the flash drive*

To remove the flash drive or to access the system board to install a flash drive:

1. Open the unit. See “Removing and installing the top cover” on page 12.
2. If present, remove the hard drive tray assembly. See “Removing and installing the hard disk drive and hard disk tray as an assembly” on page 15.
3. To remove the flash drive, gently lift the flash drive **1** straight up and off the white plastic guide pin **2** .

To replace or install a flash drive:

1. Align the flash drive **1** with the white plastic guide pin **2** and with the connectors on the system board. Push down until the flash drive is seated.
2. Replace the hard drive tray assembly. See “Removing and installing the hard disk drive and hard disk tray as an assembly” on page 15
3. Replace the top cover. See “Removing and installing the top cover” on page 12.

## Removing and installing the memory module

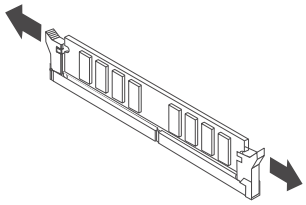


*Figure 10. Opening the memory-module retainer clips*

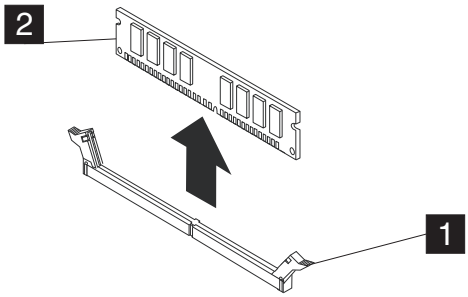



*Figure 11. Memory-module retainer clips in the open position.*

To remove the memory module:

1. Open the unit. See “Removing and installing the top cover” on page 12.
2. Remove the hard drive and tray assembly. See “Removing and installing the hard disk drive and hard disk tray as an assembly” on page 15
3. Rotate the memory-module-retainer clips **1** to the open position. The memory module is disengaged from the memory connector. See Figure 11.
4. Lift the memory module **2** straight up to remove it from the memory connector. See Figure 11.

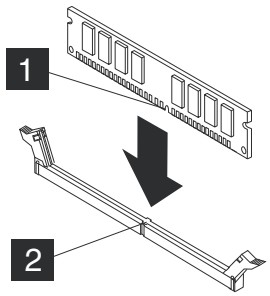



*Figure 12. Installing the memory module*

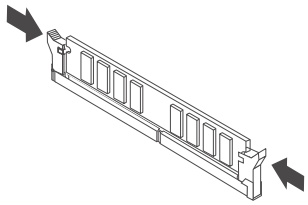


*Figure 13. Closing the memory-module retainer clips*

To install the memory module:

1. Position the replacement memory module **1** over the memory connector. Be sure the notch on the memory module aligns correctly with the connector key **2** on the memory connector. See Figure 12.
2. Align the memory module with the memory socket and push down engaging the memory-module retainer clips; push down firmly to engage.

   **Note:** Be sure the memory-module retainer clips are fully closed. See Figure 13.
3. Replace the hard drive and tray assembly. See “Removing and installing the hard disk drive and hard disk tray as an assembly” on page 15.
4. Replace the top cover. See “Removing and installing the top cover” on page 12.

## Removing and installing the front-panel card

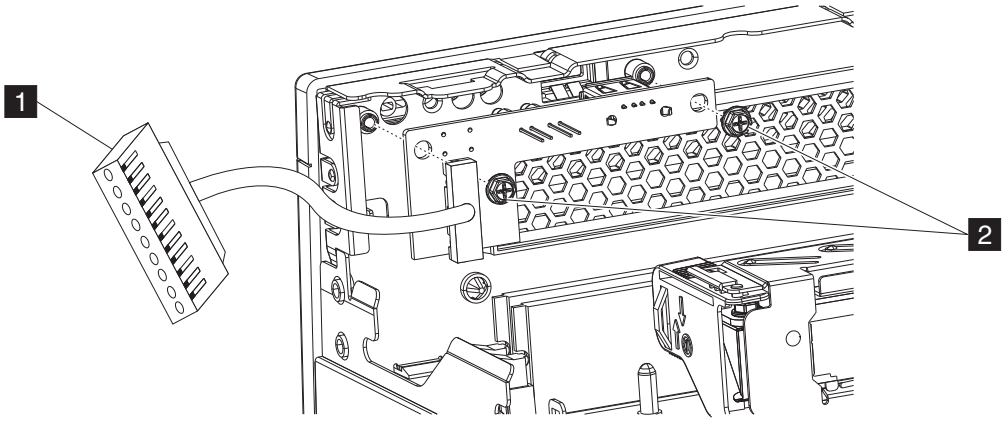



*Figure 14. Removing and replacing the front-panel card*

To remove the front-panel card:

1. Open the unit. See “Removing and installing the top cover” on page 12.
2. Remove the hard drive and tray assembly. See “Removing and installing the hard disk drive and hard disk tray as an assembly” on page 15.
3. Disconnect the front-panel card cable **1** from the system board .
4. Remove the two screws **2** that attach the front-panel card assembly to the front cover.
5. Slide the front-panel card assembly out.
6. To replace the front-panel card assembly, reverse this procedure.

## Removing and installing the I/O connector card

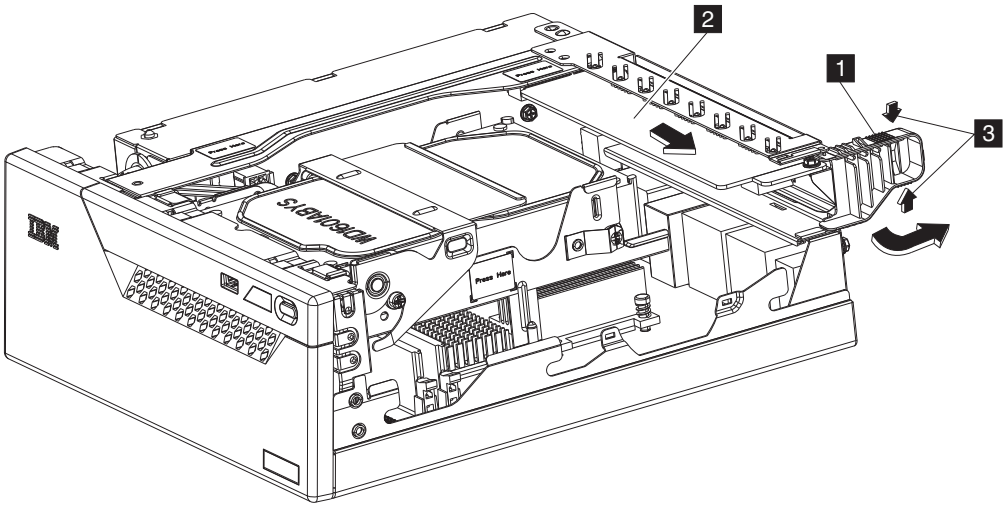



*Figure 15. Removing the I/O connector card*

To remove the I/O connector card:

1. Open the unit. See “Removing and installing the top cover” on page 12.
2. Squeeze the blue plastic connector-card retainer at the top and bottom (where the two small arrows **3** are located in Figure 15) to unlatch. Rotate the I/O connector-card retainer outward to the open position **1** as shown.
3. Slide the I/O connector card **2** out of the slot.
4. To install the I/O connector card, reverse this procedure.

   **Note:** The I/O connector card must be fully installed before the connector card latch is rotated closed.

## Removing and installing the riser card and the I/O connector card as an assembly

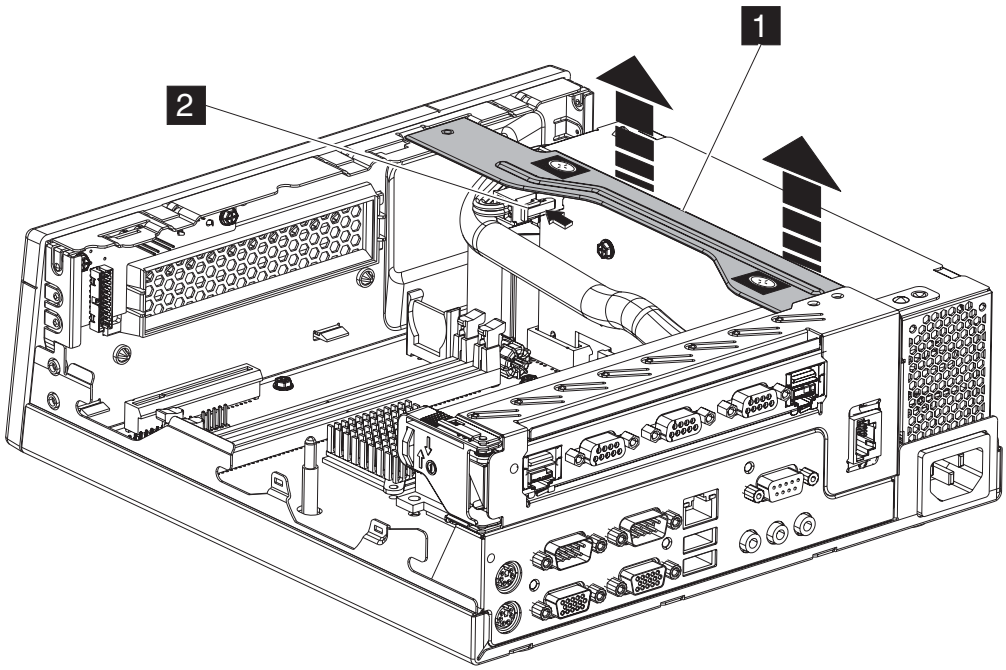



*Figure 16. Removing the riser card and the I/O connector card as an assembly*

To remove the riser card and the I/O connector card as an assembly:

1. Open the unit. See “Removing and installing the top cover” on page 12.

   **Note:** The HDD tray can remain in place.
2. Lift the riser card assembly **1** up and out to access the cable.
3. Disconnect the cable **2** by pinching the latch on the connector that connects to the riser card assembly.
4. To install the riser card assembly, reverse this procedure, being careful to avoid pinching the cables.
5. Be sure to press down on the riser-card assembly at the locations indicated in blue on the riser card and on the I/O connector card assembly to ensure that it is snapped into place.

## Removing and installing the power supply

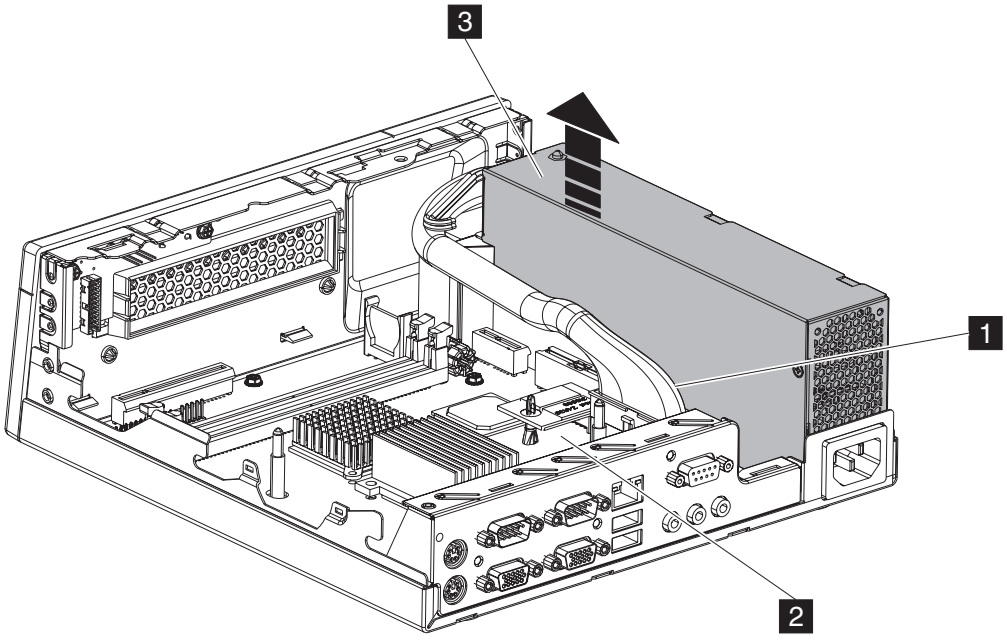



*Figure 17. Removing the power supply*

To remove the power supply:

1. Open the unit. See “Removing and installing the top cover” on page 12.

   **Note:** The HDD tray can remain in place.
2. Lift out the riser card assembly. See “Removing and installing the riser card and the I/O connector card as an assembly” on page 20.
3. Disconnect the power-supply cable **1** from the system board. **2** .
4. Lift up the front end of the power supply **3** and then lift it out of the chassis.
5. To install the power supply, reverse this procedure.

# Removing and installing the hard disk drive air duct

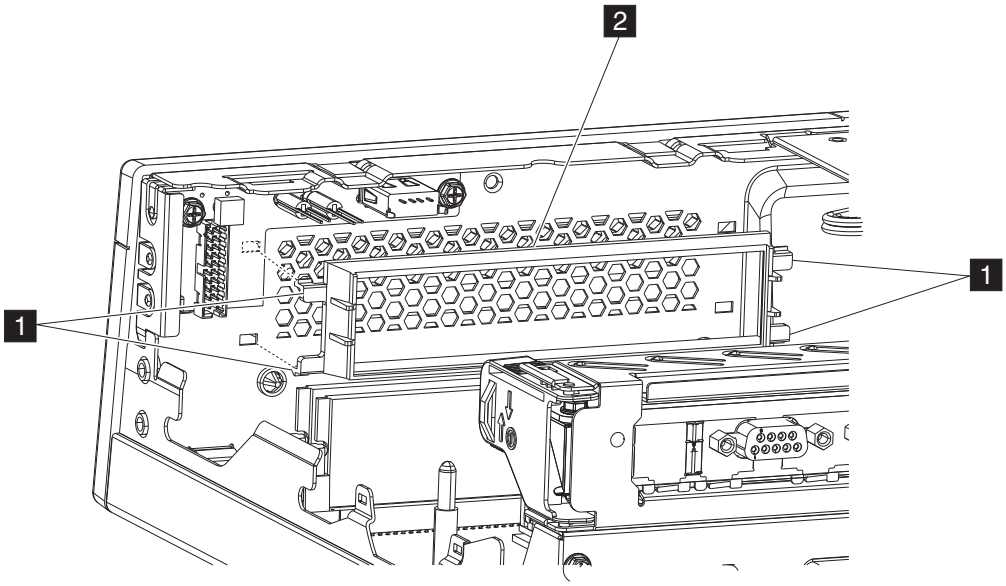



*Figure 18. Removing the hard drive air duct*

**Attention:** The hard drive front air duct must be installed correctly to allow the flow of air for the hard drive; incorrect installation can result in hard drive failure. The hard disk drive air duct should not be removed unless it is broken or installed improperly. Once the air duct is removed, it typically cannot be reinstalled. A new air duct (one that has never been installed) must be installed in the unit.

To remove the hard drive air duct:

1. Open the unit. See “Removing and installing the top cover” on page 12.
2. Using a small flat blade screw driver, unlatch the snap latches **1** on the left and right sides of the hard drive air duct and remove the air duct **2** .
3. To install the hard drive front air duct, reverse this procedure.

## Resetting the system board CMOS settings

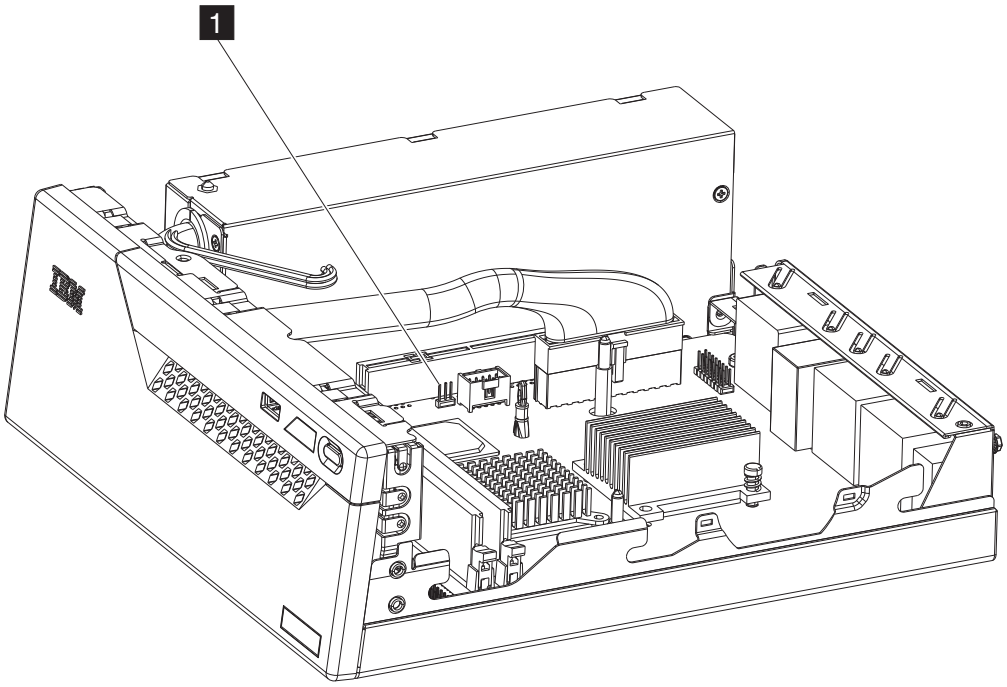



*Figure 19. Locating and resetting the CMOS jumper*

Follow these steps to reset the system board CMOS to the default settings:

1. Open the unit. See “Removing and installing the top cover” on page 12.
2. Remove the hard drive assembly. See “Removing and installing the hard disk drive and hard disk tray as an assembly” on page 15.
3. If a flash drive is installed, remove it. See “Removing and installing the flash drive” on page 16.
4. Remove the riser card and the I/O connector card. See “Removing and installing the riser card and the I/O connector card as an assembly” on page 20.
5. Locate the CMOS jumper **1** as shown in Figure 19.
6. Remove the jumper from the left and middle pins and place it on the middle and right pins; leave it there for at least 10 seconds.
7. Re-install the jumper to the original position on the left and middle pins.
8. Reverse the steps to reassemble the unit.

## Removing and installing the battery

**Note:** The system board coin cell battery is a Lithium Manganese Dioxide type.

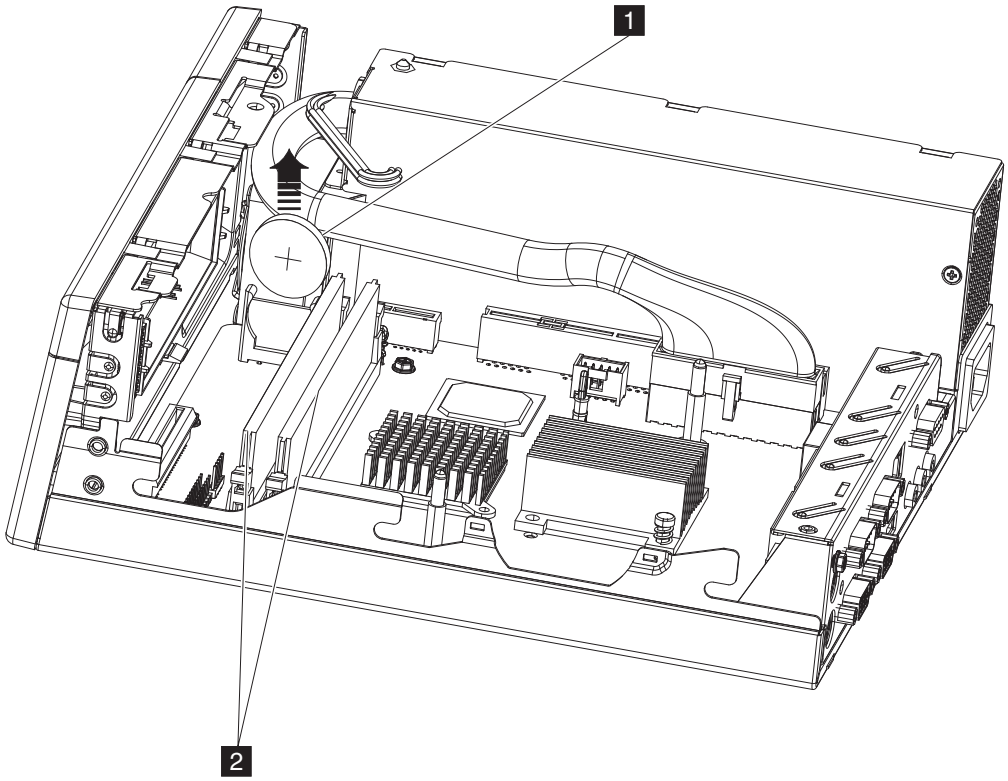



*Figure 20. Removing and installing the battery*

1. Open the unit. See “Removing and installing the top cover” on page 12.
2. Remove the battery **1** by sliding it up in the direction of the arrow as shown.
3. To install the battery, reverse this procedure. Be sure that the battery orientation is correct, with the '**+**' sign facing toward the memory modules **2**, as shown.

## Removing and installing the system board

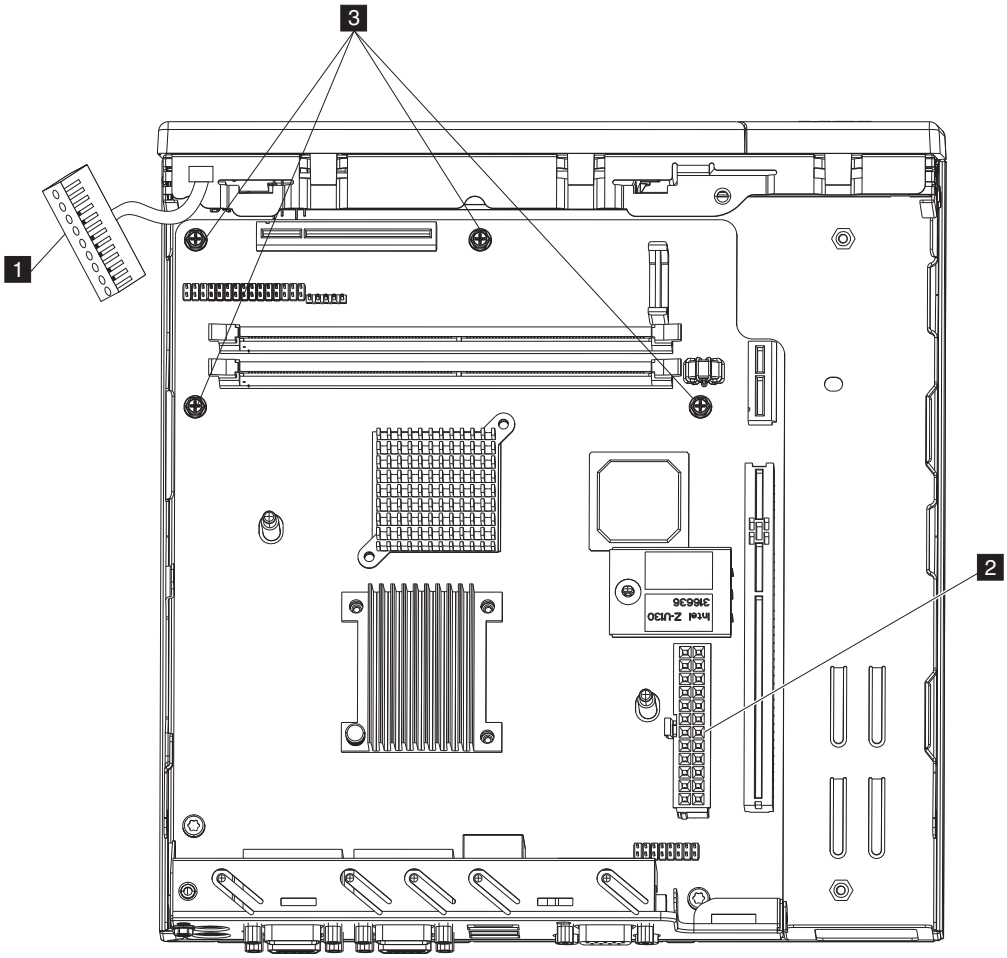



*Figure 21. Removing the system board*

To remove the system board:

1. Open the unit. See “Removing and installing the top cover” on page 12.
2. Remove the hard drive assembly. See “Removing and installing the hard disk drive and hard disk tray as an assembly” on page 15.
3. Remove the riser card assembly. See “Removing and installing the riser card and the I/O connector card as an assembly” on page 20.
4. Disconnect the front-panel card cable **1** and power supply cable **2** .
5. Remove the memory. See “Removing and installing the memory module” on page 17.
6. Remove the flash drive, if installed. See “Removing and installing the flash drive” on page 16.
7. Remove the four system-board retaining screws **3** on the system board. See Figure 21.

8. Remove the system board by tilting it **4** as shown in Figure 22; then lift up **5** .

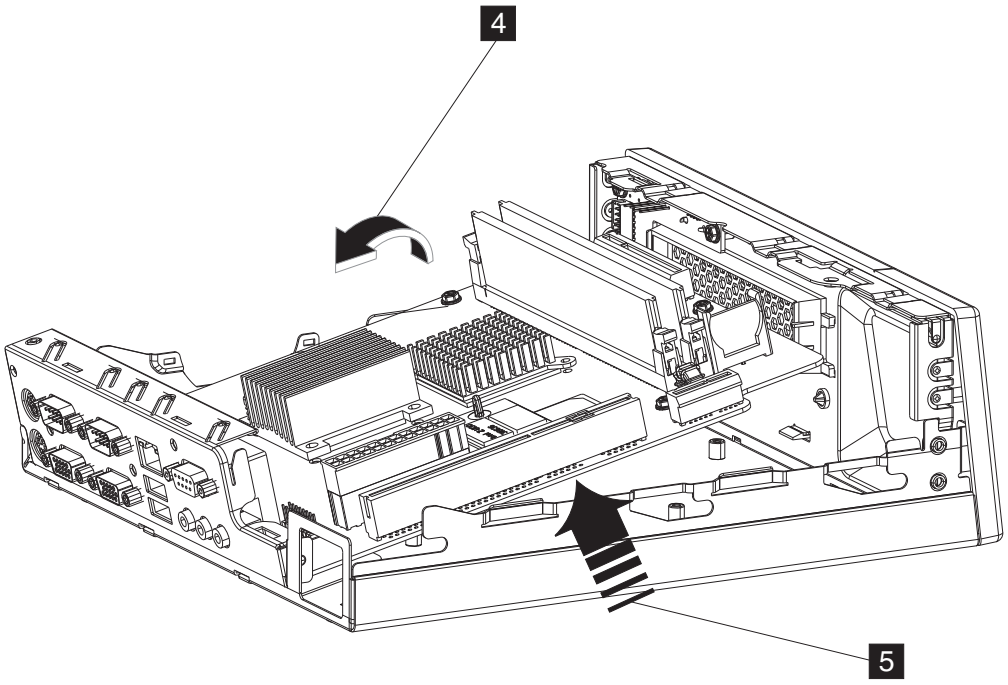



*Figure 22. Tilting and removing the system board*

9. To install the system board, reverse this procedure.

   **Note:** Be sure the system board is aligned with the 4 screw holes correctly before installing the 4 retaining screws.

## Removing and installing the front cover

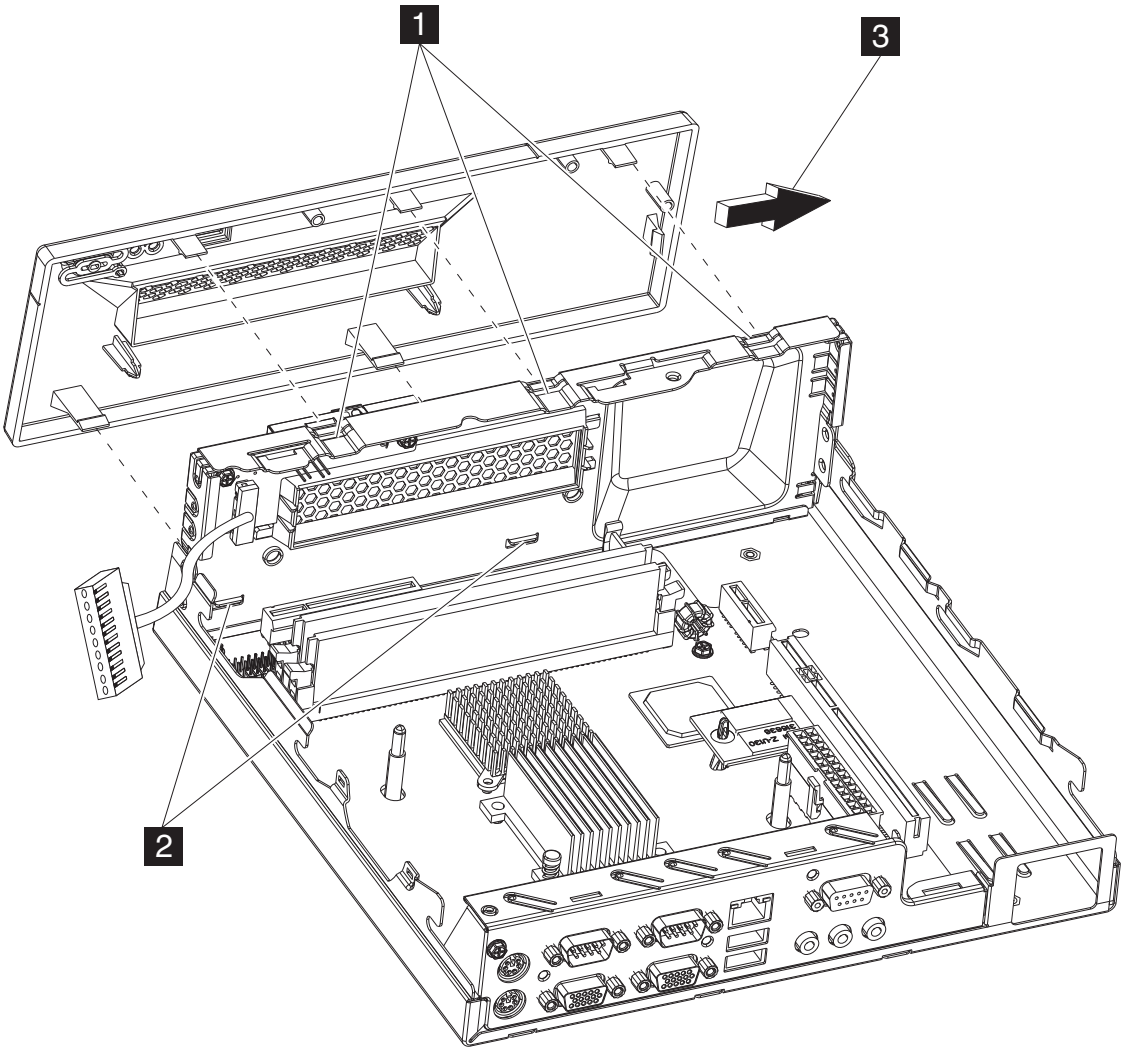



*Figure 23. Removing the front cover*

To remove the front cover:

1. Open the unit. See “Removing and installing the top cover” on page 12.
2. Remove the hard drive assembly. See “Removing and installing the hard disk drive and hard disk tray as an assembly” on page 15.
3. Release the bottom two retaining tabs **2** one at a time, applying pressure to separate the front cover from the chassis.
4. Release the top three retaining tabs **1** one at a time, and slide the cover to the right **3** to separate the front cover from the chassis.
5. Unsnap the sixth retaining tab as you move the front cover toward the right **3**.

To install the front panel:

1. Align all five of the front panel retainers.
2. Push the front panel toward the chassis and snap into position.

# Chapter 4. Problem determination

**Note:** Refer to *IBM Safety Information - Read This First*, GA27-4004, before beginning the procedures in this chapter.

Hardware failures, BIOS errors, or firmware errors can cause problems with the 4810/4910 SurePOS 300. This chapter contains information to assist in problem determination and the identification of needed repair actions.

## Problem determination tools

The following tools can be helpful in performing problem determination with the 4810/4910 SurePOS 300:

- USB memory key loaded with the IBM diagnostics for POS systems and peripherals. Instructions for loading the available diagnostics onto a memory key are given at the IBM RSS support web site:

  **http://www.ibm.com/solutions/retail/store/support** under the **Diagnostic** heading on the panel.
- IBM powered serial port wrap plug. (IBM P/N 44V2079)
- IBM standard serial port wrap plug. (IBM P/N 44V2078)
- Security screw removal tool (needed only if the customer has installed the optional, customer-supplied security screw). Neither the screw or the removal tool is supplied by IBM.

## Supported memory keys

The following memory keys are supported for usage with the IBM diagnostics for POS systems and peripherals:

**IBM USB 2.0 (1 GB)**

- FRU: 41D9746

**PNY USB 2.0 (1 GB)**

- Part number: P-FD01GU20-RF

## Using the IBM diagnostics for POS systems and peripherals package

Diagnostics for the IBM SurePOS 300 Models x4x are available in the IBM diagnostics for POS systems and peripherals package. This package installs to a supported memory key, as described above.

## Diagnostics memory key setup

See the README file found at the RSS support web site: **http://www.ibm.com/solutions/retail/store/support** under the **Diagnostic** heading for directions on how to setup your diagnostics memory key.

1. Obtain a memory key. See “Supported memory keys” described above.
2. Access the IBM Retail Store Solutions Web site at: **www.ibm.com/solutions/retail/store/support**.
3. Select **Support** on the left side of the panel, then select **IBM SurePOS 300 Series**.
4. Next, select **SurePOS 300-34x Downloads**.

5. Download the update program to a temporary location on the PC's hard-disk drive. Run the self-extracting program and respond to the messages that display. This program writes the updates and provides instructions on inserting the memory key.
6. In most cases, the Diagnostics key should boot on the IBM SurePOS 300 unit by inserting the USB memory key into the unit and then powering **ON** the system.
7. BIOS setup allows specific configuration of both the USB ports and the BIOS boot device boot order. In some cases, the configuration of these parameters may prevent the booting of the IBM RSS diagnostics USB memory key. To ensure that the BIOS setup configuration is correct, please follow the directions below:
   a. Insert the IBM RSS diagnostic USB memory key.
   b. Power **ON** the system.
   c. Press **DEL** when prompted to enter BIOS setup.
   d. Open the "Advanced BIOS Feature" menu.
   e. Open the "Hard Disk Boot Priority" menu.
   f. Verify the inserted IBM RSS diagnostics USB memory key is located at the top of the boot order.
   g. If the IBM RSS diagnostics USB memory key is attached to the front USB port (adjacent to the power button and power/hard disk LEDs), continue to the next step; otherwise, the IBM RSS diagnostic USB memory key should boot after pressing **F10** to save changes and to exit BIOS setup.
   h. To enable the front USB port, enter the "Integrated Peripherals" menu.
   i. Select the **USB Configuration** option.
   j. Ensure the "Front USB Control" option is set to **Enabled**.
   k. Press **F10** to save settings and exit setup.

After the diagnostic program initiates, an attached keyboard can be used, if available. The diagnostics program will ask you to accept the User License Agreement. Click the **I Agree** button. The next screen contains a selection menu for System Components, Point Of Sale Devices, and Utilities (for VPD, and others) with sub-menus dynamically-tailored for the SurePOS 300.

## Troubleshooting

Following is a list of items to consider when diagnosing your 4810/4910 SurePOS 300 unit:

- The preliminary checklist provides items to be verified at the start of each service call.
- The problem symptoms table provides a list of potential problem reports, along with the recommended problem determination steps to perform.
- The suspected fault table provides a list of the main service parts and recommended steps to perform if that part is suspected of being defective.

## Preliminary checklist

Begin each service call by checking all of the items in this preliminary checklist. If, after performing all the steps, a problem still exists, refer to Table 10 on page 32 to continue problem determination.

1. Verify that the power and device communication cables are securely and correctly connected.

2. Verify that any externally-powered I/O devices connected to an AC power outlet are operating correctly and that the devices are powered ON.
3. Verify that the contrast and brightness controls on the video display (if attached) are set correctly.
4. Observe the power indicator. The power indicator LED operation is shown in the Table 7.
5. If the machine will boot, reboot the machine (without the USB memory key installed) and listen to the beep codes. If a monitor is attached, observe the system health check status. Refer to Table 8.

   **Note:** Be sure to observe the customer-reported symptom prior to booting with the memory key.
6. If the front USB port is disabled, use another USB port if possible. If booting from the USB key is disabled, refer to 7a on page 30.

## Power LED operation

The powered LED functions as an indicator of the system power state. Table 7 defines the operation of the power LED.

*Table 7. LED operation*

| System State | LED State or operation |
|---|---|
| Off (No AC supplied) | OFF |
| Off - (AC supplied) Note: this state can be entered by holding the power button down for at least 4 seconds | Blip (0.25 second ON, 1.75 seconds OFF) |
| On (POST) | Blinking (0.5 second ON, 0.5 second OFF) |
| On (Normal operation after post '8B'h) | ON |
| S1 (Standby) | Blinking, (0.5 second ON, 0.5 second OFF) |
| S3 (Suspend to RAM) | Blinking (0.5 second ON, 0.5 second OFF) |

## Beep codes

The following table describes the beep codes you may hear during servicing of the 4810/4910 SurePOS 300 and what the beep tones mean.

*Table 8. Beep Codes*

| Beeps | System state |
|---|---|
| Continuous tone immediately after powering ON | No memory. All inserted memory failed |
| One short beep after POST completion | POST completed successfully |

## POST messages displayed to the system monitor

The following table summarizes all messages that may be displayed on the system monitor during POST.

*Table 9. POST messages displayed to the system monitor*

| Message | Meaning/Action |
|---|---|
| Hard Disk S.M.A.R.T. Failure | The hard disk is reporting an internal error that may result in the loss of data. It is recommended that all relevant data on the drive be moved to a safe storage media. |
| CMOS Checksum Error | The CMOS has become corrupt. It is recommended that defaults be restored through BIOS setup:<br>1. Power **ON** the system.<br>2. Press **DEL** when prompted to enter setup.<br>3. Select "Load Optimized Defaults" and press **F10** to save settings and exit BIOS setup. |
| System Health Check<br>• Memory status<br>• System board status<br>• Hard disk health check | This test is run at the end of POST and provides a summary of POST tests, as well as a more thorough inspection of the hard disk drive. The results of all tests will be visible for 5 seconds after completion of tests. |

# Symptoms

The following table summarizes all symptoms for problems for the 4810/4910.

*Table 10. 4810/4910 Problem symptoms table*

| Symptom | Actions |
|---|---|
| System unit does not boot | • Unplug from the power outlet, wait at least 5 seconds, re-plug the power outlet, and then power **ON**. Verify that the power light on the front panel is **ON**. Look for any error messages on an attached monitor and listen for a beep at the completion of POST.<br>• Disconnect all I/O devices, and power ON the system. If the system powers ON and boots up correctly, then the problem is likely to be an I/O device. Reconnect each device one at a time, from the powered OFF state, booting the system completely after each device connection. If the system does not power up after connecting a device, then that device or cable is likely the failure point.<br>• Check for a blown fuse, a tripped circuit breaker, or a power failure.<br>• Verify that all internal cables are securely connected. |
| Power LED does not light and the system boots | 1. Replace the front panel card/cable assembly.<br>2. Replace the system board. |
| Time of day not maintained across AC removal. | 1. Replace the system battery. |

*Table 10. 4810/4910 Problem symptoms table (continued)*

| Symptom | Actions |
|---|---|
| System Getting Blue Screens | Often, blue screens are caused by OS, driver, or application software issues. Diagnosing blue screens should be handled through a software diagnostic path.<br><br>To determine if the hardware has contributed to a blue screen situation, run the system unit diagnostics, including running the extended diagnostics for the hard drive. |
| Slow System Behavior | Run the RSS system unit diagnostics test to determine if the system unit hardware is having any problems detected by the diagnostics; if not, invoke a software diagnostic path. |
| Ethernet Connection slow | Run the RSS system unit diagnostics test, including the Ethernet test, while the system is connected to the Ethernet; if not, invoke a software diagnostic path. |
| No Audio | Confirm that speaker cables are securely plugged into the system unit. Run the RSS system unit diagnostics test, including the audio test. Confirm that the proper audio driver is installed. |
| No Video | 1. Confirm that the monitor power cord is attached.<br>2. Confirm that there is a solid connection of the video cable to the system unit in the correct monitor port.<br>3. Ensure that the monitor is powered **ON**.<br>4. Perform monitor diagnostics. |
| Serial IO Device Not Working | 1. Examine the device cable and replace if indicated.<br>2. Run self tests on the device and replace if indicated.<br>3. Use the RSS diagnostic program and the appropriate wrap plug tool. If this test is successful, then the problem relates to the IO device or to a non-hardware system software problem.<br>4. Replace a SurePort card if the port is part of the SurePort card. |
| USB IO Device Not Working | 1. Confirm operation of the IO port USB connection using the memory key to boot diagnostics through that port. |

*Table 10. 4810/4910 Problem symptoms table (continued)*

| Symptom | Actions |
|---|---|
| Cash Drawer not working | *Note:* The cash drawer port is located on the riser card.<br>1. Boot the RSS diagnostics memory key.<br>2. Choose the POS I/O tests from the main screen. Check to see if the cash drawer test appears on the screen; if this test does not appear, replace the riser card.<br>3. If the cash drawer test appears on the screen, run the cash drawer diagnostic test. If the cash drawer diagnostic test passes, the cash drawer is functioning.<br>If the cash drawer diagnostic test does not pass, attach a known "good" cash drawer mechanism and run the cash drawer test again. If the test sill does not pass – replace the riser card. If the test passes – replace the cash drawer. |
| HDD not enumerated by POST, OS doesn't boot. | Follow the steps in Table 9 on page 32. |
| Continuous tone after POST | 1. Confirm presence and proper seating of the DIMM.<br>2. If a DIMM socket is available, move the DIMM to the other socket.<br>3. Replace DIMM. |

## Suspected Fault

If, based on the symptoms, a fault is suspected in a particular FRU, the confirming checks in the table below should be performed.

*Table 11. Suspected Fault Table*

| FRU | Evaluation |
|---|---|
| HDD | 1. Verify that the HDD connector is fully seated into the HDD card connector.<br>2. Examine the boot sequence in the BIOS setup. Verify HDD is in the boot sequence.<br>3. During POST, verify the HDD Health Check runs successfully.<br>4. Run the RSS diagnostics, including the extended diagnostics for the hard drive.<br>5. If above tests pass, re-imaging/re-installing the OS may be required. |
| HDD card/tray assembly | 1. Verify that HDD connector is fully seated into the HDD card connector<br>2. Examine for interface card damage. Replace if damaged.<br>3. Confirm proper seating of the HDD interface card in the motherboard connector. |

*Table 11. Suspected Fault Table (continued)*

| FRU | Evaluation |
|---|---|
| Modular Flash Drive | Run the system unit tests. Does the system unit test identify the modular flash drive as an option? No – Replace the flash drive. Yes – Run the test for the modular flash drive. Does the test pass? No – Replace flash drive. |
| System Board | 1. During POST, verify the system board check program runs successfully. If not, remove and/or re-seat all cables and board-board connections as follow:<br>• Riser<br>• Power Connector<br>• Power switch card cable<br>• Memory<br>• HDD Assembly<br>*Note:* Disconnect all external cables and reconnect one at a time from the powered OFF state. Power ON completely after each device connection to determine if a device is causing a problem.<br>2. Clear CMOS with the jumper.<br>3. If there is a problem with a port, use RSS diagnostics to perform the wrap plug test on the serial port. |
| USB Connector Card | Try booting the USB key in the questionable USB port. |
| RS-232 Connector card | 1. Try booting the USB key in the questionable USB port.<br>2. Use the RSS diagnostic wrap plug test on the suspected serial port. |
| Memory Module | Run the RSS system unit diagnostic tests. During boot of the diagnostic memory key, a memory test is run. Upon completion of the test, press the **ENTER** key to request the extended diagnostic test for the memory. |
| Power Supply | 1. Verify AC power is available at the power outlet.<br>2. Verify the power cord is plugged into the outlet.<br>3. Re-seat the power cord in the system unit.<br>4. Connect the system unit with a different power cord.<br>5. Re-seat the 2 power supply cables inside the system unit. |
| Battery/coin cell | 1. Check that the battery is installed properly.<br>2. Re-seat the battery. |

*Table 11. Suspected Fault Table (continued)*

| FRU | Evaluation |
|---|---|
| IO Connector Card Latch | Physical examination. |
| Top Cover | Physical examination. |

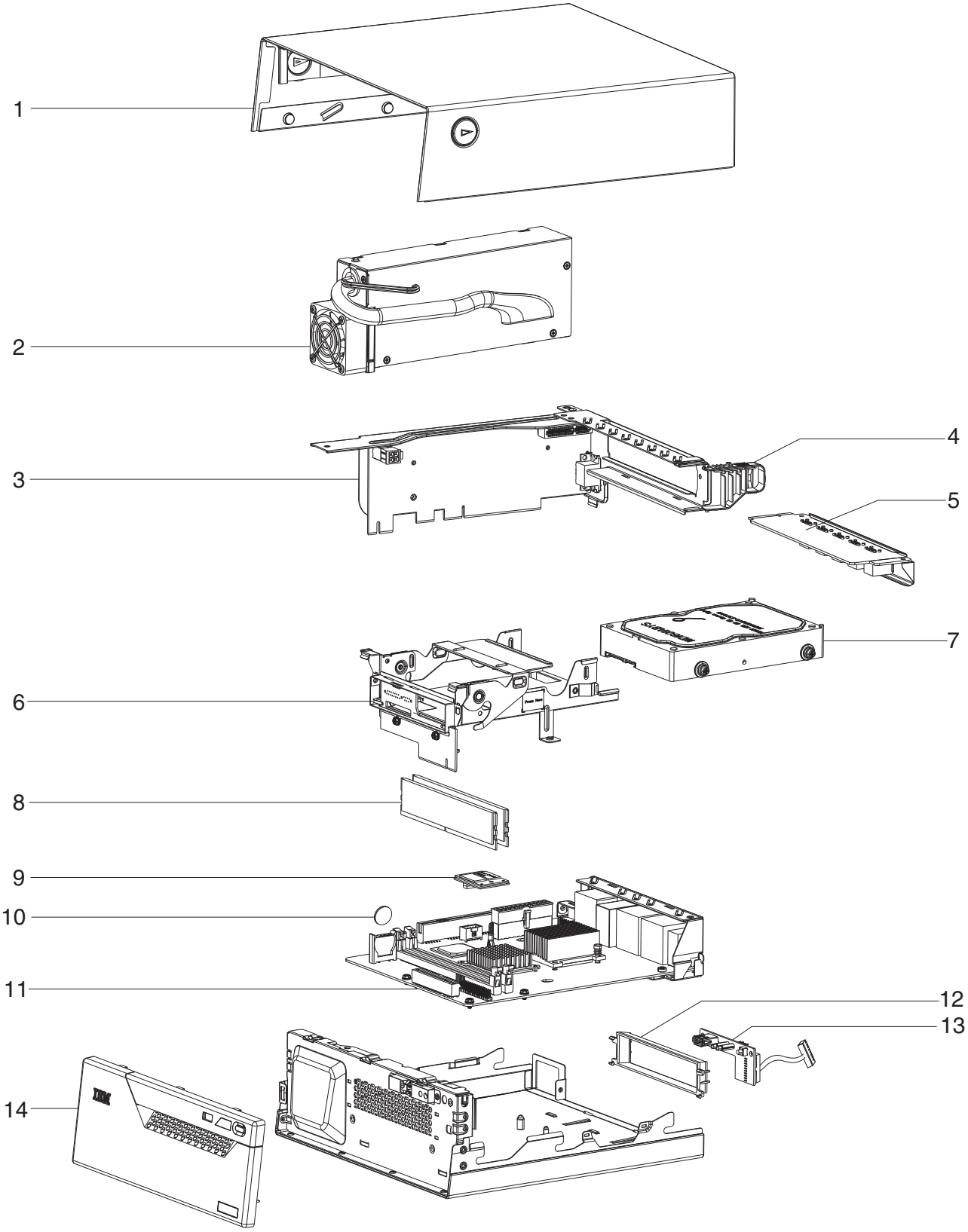
# Chapter 5. Parts catalog



This chapter provides parts information available for the Model x4x system units.

See the hardware service guide for each peripheral device for parts information about the device.

## Assembly 1: Field-replaceable units



| Asm–Index | Part Number | Units | Description |
|---|---|---|---|
| 1– | | | **4810/4910 System Unit Assembly** |
| –1 | 44V2034 | 1 | Top cover |
| –2 | 44V2031 | 1 | Power supply |
| –3 | 44V2036 | 1 | Riser card assembly |
| –4 | 44V2039 | 1 | I/O Connector card latch |
| –5 | 44V2025 | 1 | SurePort Serial Connector card (RS232) |
| –5 | 44V2026 | 1 | SurePort USB Connector card |
| –6 | 44V2033 | 1 | Hard-disk drive card/tray assembly |
| –7 | 44V2032 | 1 | Hard-disk drive, 160 GB |
| –8 | 44V2027 | 1 | Memory module, 0.5 GB |
| –8 | 44V2028 | 1 | Memory module, 1 GB |
| –9 | 44V2041 | 1 | Modular flash drive, 4 GB |
| –10 | 45P6222 | 1 | Battery, coin cell (CR2032) |
| –11 | 44V2038 | 1 | System board (planar) |
| –12 | 44V2040 | 1 | Hard-disk-drive air duct |
| –13 | 44V2035 | 1 | Front-panel card (Includes cable) |
| –14 | 44V2037 | 1 | Front cover |
| – | 44V2030 | 1 | Miscellaneous hardware kit containing the following: 4 card (circuit board) screws, 4 HDD mounting screws, 4 HDD mounting rubber grommets, 1 foot (rubber), 1 foot screw, 4 serial (RS232)/VGA port jack screws, 1 modular flash drive support post. |
| – | | | **4810/4910 Tools** |
| – | 44V2078 | 1 | Wrap plug, 9 pin standard serial port (RS232) |
| – | 44V2079 | 1 | Wrap plug, 9 pin powered serial port (RS232) |
| – | | | **4810/4910 Options and I/O (announced January 2009)** |
| – | 44V2047 | 1 | Display, 1x11 LED, RS232 |
| – | 44V2013 | 1 | Display cable, 1x11 LED, 9 pin powered serial, 3.8 meter |
| – | 44V2011 | 1 | Cable, 40 char/APA VFD/LCD customer display, 9 pin powered serial, 3.8 meter |
| – | 44V2014 | 1 | Cable, converter, 9 pin powered serial port to 15 pin powered serial port |
| – | 44V2048 | 1 | Value Cash drawer, black |
| – | | | **4910 Express Options and I/O** |
| – | 41D7062 | 1 | 4610-TF6 Express single station printer, Serial (RS232) interface |
| – | 44V2049 | 1 | 4610-TF6 Express single station printer, USB interface |
| – | 41D7063 | 1 | 4610-TF7 Express single station printer, Serial (RS232) interface |
| – | 44V2050 | 1 | 4610-TF7 Express single station printer, USB interface |
| – | 44V2051 | 1 | 4610-2NR Express dual station printer (no interface card) |
| – | 44V2052 | 1 | 4610-2CR Express dual station printer (no interface card) |
| – | 44D0158 | 1 | 4610-2NR/2CR Interface card, Serial (RS232) |
| – | 44D0159 | 1 | 4610-2NR/2CR Interface card, USB |
| – | 41D0403 | 1 | 4679-GCN Express single station printer, Serial (RS232) interface, (China only) |
| – | 41D7087 | 1 | 4820-2GD Express 12″ Non-touch display |
| – | 44V2053 | 1 | 4820-5GB Express 15″ Touch display |

# Chapter 6. Power cords

*Table 12. Power cords*

| FRU P/N | Usage |
|---|---|
| 39M5066 | Argentina, Paraguay, Uruguay |
| 39M5079 | Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Canada, Cayman Islands, Costa Rica, Columbia, Cuba, Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Jamaica, Mexico, Micronesia (Federal States of), Netherlands Antilles, Nicaragua, Panama, Peru, Philippines (HV use), Saudi Arabia, Thailand, Turks and Caicos Islands, United States, Venezuela |
| 39M5100 | Australia, Fiji, Kiribati, Nauru, New Zealand, Papua New Guinea |
| 39M5121 | Afghanistan, Albania, Algeria, Andorra, Angola, Armenia, Austria, Azerbaijan, Belarus, Belgium, Benin, Bosnia and Herzegovina, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo (Democratic Republic of), Congo (Republic of), Cote D'Ivoire (Ivory Coast), Croatia (Republic of), Czech Rep, Dahomey, Djibouti, Egypt, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Finland, France, French Guyana, French Polynesia, Gabon, Georgia, Germany, Greece, Guadeloupe, Guinea, Guinea Bissau, Hungary, Iceland, Indonesia, Iran, Kazakhstan, Kyrgyzstan, Laos (Peoples Democratic Republic of), Latvia, Lebanon, Lithuania, Luxembourg, Macedonia (former Yugoslav Republic of), Madagascar, Mali, Martinique, Mauritania, Mauritius, Mayotte, Moldova (Republic of), Monaco, Mongolia, Morocco, Mozambique, Netherlands, New Caledonia, Niger, Norway, Poland, Portugal, Reunion, Romania, Russian Federation, Rwanda, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Slovakia, Slovenia (Republic of), Somalia, Spain, Suriname, Sweden, Syrian Arab Replublic, Tajikistan, Tahiti, Togo, Tunisia, Turkey, Turkmenistan, Ukraine, Upper Volta, Uzbekistan, Vanuatu, Vietnam, Wallis and Futuna, Yugoslavia (Federal Republic of), Zaire |
| 39M5128 | Denmark |
| 39M5142 | Bangladesh, Lesotho, Maceo, Maldives, Namibia, Nepal, Pakistan, Samoa, South Africa, Sri Lanka, Swaziland, Uganda |
| 39M5149 | Abu Dhabi, Bahrain, Botswana, Brunei Darussalam, Channel Islands, Cyprus, Dominica, Gambia, Ghana, Grenada, Guyana, Hong Kong, Iraq, Ireland, Jordan, Kenya, Kuwait, Liberia, Malawi, Malaysia, Malta, Myanmar (Burma), Nigeria, Oman, Qatar, Saint Kitts & Nevis, Saint Lucia, Saint Vincent and the Grenadines, Seychelles, Sierra Leone, Singapore, Sudan, Tanzania (United Republic of), Trinidad & Tobago, United Arab Emirates (Dubai), United Kingdom, Yemen, Zambia, Zimbabwe, Uganda |
| 39M5156 | Liechtenstein, Switzerland |
| 39M5163 | Chile, Italy, Libyan Arab Jamahiriya |
| 39M5197 | Japan |
| 39M5204 | China (SAR) |
| 39M5217 | Korea (Democratic Peoples Republic of), Korea (Republic of) |
| 39M5224 | India |
| 39M5231 | Brazil |
| 39M5245 | Taiwan |
| 39M5170 | Israel |
| 39M5077 | Columbia, United States (required in Chicago), 1.8 meter non-locking |
| 39M5135 | Japan, 4.3 meter locking |
| 39M5107 | United States, 4.3 meter locking |
| 39M5162 | Chile, 2.8 meter non-locking |
| 39M5065 | Argentina, 2.8 meter non-locking |
| 39M5099 | Australia, 2.8 meter non-locking |
| 39M5078 | Columbia, 2.8 meter non-locking |
| 39M5230 | Brazil, 2.8 meter non-locking |

**Note: Unless otherwise indicated, all power cords are 4.3 meter (14.1 feet) non-locking.**

# Appendix A. Connector Pinouts

## Keyboard/Mouse Connector

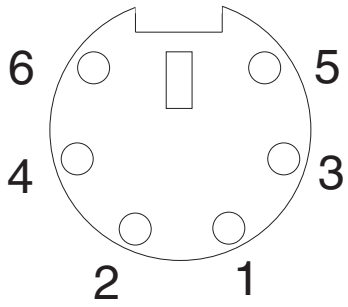



*Figure 24. Keyboard/Mouse Connector*

*Table 13. Keyboard/Mouse Connector*

| Pin | Signal |
|---|---|
| 1 | Keyboard Data |
| 2 | Mouse Data |
| 3 | Ground |
| 4 | 5V |
| 5 | Keyboard Clock |
| 6 | Mouse Clock |

## RS232 Connector

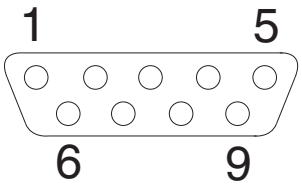



*Figure 25. RS232 Connector*

*Table 14. RS232 Connector*

| Pin | Signal | Direction |
|---|---|---|
| 1 | Carrier Detect (DCD) | Input |
| 2 | Received Data (RxD) | Input |
| 3 | Transmitted Data (TxD) | Output |
| 4 | Data Terminal Ready (DTR) | Output |
| 5 | Common Ground | |
| 6 | Data Set Ready (DSR) | Input |
| 7 | Request to Send (RTS) | Output |
| 8 | Clear to Send (CTS) | Input |
| 9 | Ring Indicator (RI) | Input |

## Powered RS232 Connector

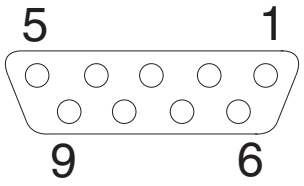



*Figure 26. Powered RS232 Connector*

*Table 15. Powered RS232 Connector*

| Pin | Signal | Direction |
|---|---|---|
| 1 | 12V | Output |
| 2 | Received Data (RxD | Input |
| 3 | Transmitted Data (TxD) | Output |
| 4 | Data Terminal Ready (DTR) | Output |
| 5 | Common Ground | |
| 6 | Data Set Ready (DSR) | Input |
| 7 | Request to Send (RTS) | Output |
| 8 | Clear to Send (CTS) | Input |
| 9 | 5V | Output |

# External VGA Connector

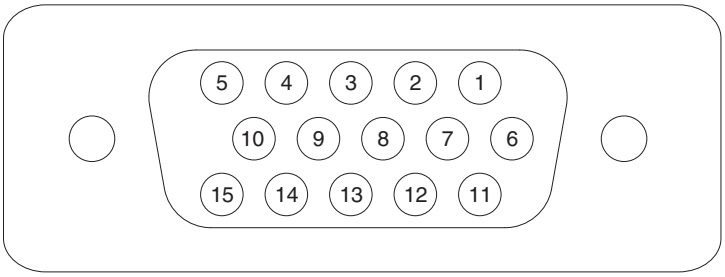



*Figure 27. External VGA Connector*

*Table 16. External VGA Connector*

| Pin | Signal |
|---|---|
| 1 | RED |
| 2 | GREEN |
| 3 | BLUE |
| 4 | N/C |
| 5 | Ground |
| 6 | RED Ground |
| 7 | GREEN Ground |
| 8 | BLUE Ground |
| 9 | 5V |
| 10 | Ground |
| 11 | N/C |
| 12 | SDA ($I^2C$) |
| 13 | HSync |
| 14 | VSync |
| 15 | SCL ($I^2C$) |

## Ethernet Connector

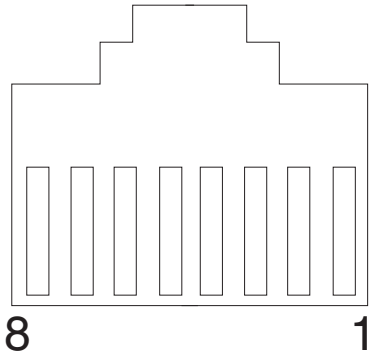



*Figure 28. Ethernet Connection*

*Table 17. Ethernet Connector*

| Pin | 10/100Base-T Signal | 10/100Base-T Direction |
|---|---|---|
| 1 | TxD+ | Output |
| 2 | TxD- | Output |
| 3 | RxD+ | Input |
| 6 | RxD- | Input |

## USB Connector

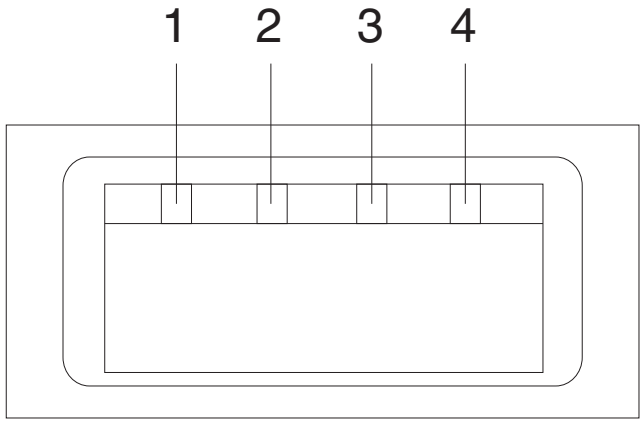



*Figure 29. USB Connector*

*Table 18. USB Connector*

| Pin | Connector |
|---|---|
| 1 | 5V VBus |
| 2 | -Data |
| 3 | +Data |
| 4 | Ground |

## Headphone/Line-in/Microphone Connector

*Table 19. Headphone/Line-in/Microphone Connector*

| Pin | Signal |
|---|---|
| Tip | Left channel audio |
| Ring | Right channel Audio |
| Base | Ground |

## Cash Drawer Connector

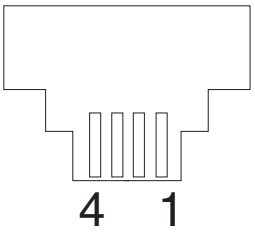



*Figure 30. Cash Drawer Connector*

*Table 20. Cash Drawer Connector*

| Pin | Connector |
|---|---|
| 1 | Ground |
| 2 | Sense |
| 3 | Open |
| 4 | 24V |

## Powered USB Connector

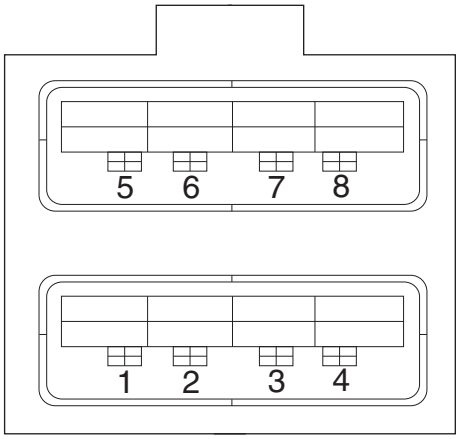



*Figure 31. Powered USB Connector*

*Table 21. Powered USB Connector*

| Pin | Connector |
|---|---|
| 1 | 5V VBus |
| 2 | -Data |
| 3 | +Data |
| 4 | Ground |
| 5 | Ground |
| 6 | 12V or 24V |
| 7 | 12V or 24V |
| 8 | Ground |

# Appendix B. Safety information

**Danger:**

Before you begin to install this product, read the safety information in *IBM Safety Information — Read This First*, GA27-4004. This booklet describes safe procedures for cabling and plugging in electrical equipment.

**Gevaar:**

Voordat u begint met de installatie van dit produkt, moet u eerst de veiligheidsinstructies lezen in de brochure *Veiligheidsinstructies—Lees dit eerst*, GA27-4004. Hierin wordt beschreven hoe u electrische apparatuur op een veilige manier moet bekabelen en aansluiten.

**Perigo:**

Antes de começar a instalar este produto, leia as informações de segurança contidas em *Informações Sobre Seguranaça—Leia Isto Primeiro,* GA27-4004. Esse folheto descreve procedimentos de segurança para a instalação de cabos e conexões em equipamentos elétricos.

**Fare!**

Før du installerer dette produkt, skal du læse sikkerhedsforskrifterne i *Sikkerhedsforskrifter—Læs dette først* GA27-4004. Vejledningen beskriver den fremgangsmåde, du skal bruge ved tilslutning af kabler og udstyr.

**Gevaar**

Voordat u begint met het installeren van dit produkt, dient u eerst de veiligheidsrichtlijnen te lezen die zijn vermeld in de publikatie *IBM Safety Information — Read This First*, GA27-4004. In dit boekje vindt u veilige procedures voor het aansluiten van elektrische appratuur.

**VAARA**

Ennen kuin aloitat tämän tuotteen asennuksen, lue julkaisussa *Turvaohjeet—Luetämä ensin*, GA27-4004, olevat turvaohjeet. Tässä kirjasessa on ohjeet siitä, miten sähkölaitteet kaapeloidaan ja kytketään turvallisesti.

**Danger**

Avant d'installer le présent produit, consultez le livret *Informations pour la sécurité–Lisez-moi d'abord*, GA27-4004, qui décrit les procédures à respecter pour effectuer les opérations de câblage et brancher les équipements électriques en toute sécurité.

**Vorsicht**

Bevor mit der Installation des Produktes begonnen wird, die Sicherheitshinweise in *Sicherheitsinformationen—Bitte zuerst lesen,* IBM Form GA27-4004. Diese Veröffentlichung beschreibt die Sicherheitsvorkehrungen für das Verkabeln und Anschlie*ß*en elektrischer Geräte.

**Vigyázat**

Mielôtt megkezdi a berendezés üzembe helyezését, olvassa el a *IBM Safety Information — Read This First*, GA27-4004 könyvecskében leírt biztonsági információkat. Ez a könyv leírja, milyen biztonsági intézkedéseket kell megtenni az elektromos berendezés huzalozásakor illetve csatlakoztatásakor.

**Pericolo**

prima di iniziare l'installazione di questo prodotto, leggere le informazioni relative alla sicurezza riportate nell'opuscolo *Informazioni di sicurezza—Prime informazioni da leggere* in cui sono descritte le procedure per il cablaggio ed il collegamento di apparecchiature elettriche.

**Fare**

Før du begynner å installere dette produktet, må du lese sikkerhetsinformasjonen i *Sikkerhetsinformasjon—Les dette først,* GA27-4004 som beskriver sikkerhetsrutinene for kabling og tilkobling av elektrisk utstyr.

**Perigo**

Antes de iniciar a instalação deste produto, leia as informações de segurança *Informações de Segurança—Leia Primeiro,* GA27-4004. Este documento descreve como efectuar, de um modo seguro, as ligações eléctricas dos equipamentos.

**Peligro**

Antes de empezar a instalar este producto, lea la información de seguridad en *Información de Seguridad—Lea Esto Primero,* GA27-4004. Este documento describe los procedimientos de sequridad para cablear y enchufar equipos eléctricos.

**Varning—livsfara**

Innan du börjar installera den här produkten bör du läsa säkerhetsinformationen i dikumentet *Säkerhetsföreskrifter—Läs detta först,* GA27-4004. Där beskrivs hur du på ett säkert sätt ansluter elektrisk utrustning.

危險：安裝本產品之前， 請先閱讀
"IBM Safety Information--Read
This First" GA27-4004 手冊中所提
供的安全注意事項。 這本手冊將會說明
使用電器設備的纜線及電源的安全程序。

Opasnost: Prije nego sto počnete sa instalacijom produkta,
pročitajte naputak o pravilima o sigurnom rukovanju u
Upozorenje: Pravila o sigurnom rukovanju - Prvo pročitaj ovo,
GA27-4004. Ovaj privitak opisuje sigurnosne postupke za
priključrivanje kabela i priključivanje na električno napajanje.

**Upozornění**: než zahájíte instalaci tohoto produktu, přečtěte si
nejprve bezpečnostní informace v pokynech „ Bezpečnostní
informace“ č. GA27-4004. Tato brožurka popisuje bezpečnostní
opatření pro kabeláž a zapojení elektrického zařízení.

**Κίνδυνος:** Πριν ξεκινήσετε την εγκατάσταση αυτού του προϊόντος,
διαβάστε τις πληροφορίες ασφάλειας στο φυλλάδιο *IBM Safety
Information-Read this first,* GA27-4004. Στο φυλλάδιο αυτό
περιγράφονται οι ασφαλείς διαδικασίες για την καλωδίωση των
ηλεκτρικών συσκευών και τη σύνδεσή τους στην πρίζα.

危険： 導入作業を開始する前に、安全に関する
小冊子 GA27-4004 の「最初にお読みください」
(Read This First)の項をお読みください。
この小冊子は、電気機器の安全な配線と接続の
手順について説明しています。

위험: 이 제품을 설치하기 전에 반드시
"주의: 안전 정보-시작하기 전에"
(GA27-4004) 에 있는 안전 정보를
읽으십시오.

סכנה: לפני שמתחילים בהתקנת מוצר זה, יש לקרוא את הוראות הבטיחות בחוברת
Caution: Safety Information - Read This First, GA27-4004
חוברת זו מתארת את הוראות הבטיחות לחיבור הכבלים ולחיבור לחשמל של ציוד חשמלי.

خطـــر: قبـــل عمـــلية بـــدء تركيـــب هذا المنتـــج، قم بقراءة معلومـــات
الحمـــاية الموجودة في التحذيـــر: معلومـــات الحمـــاية – Read This First،
GA27-4004 . يقـــوم هذا الكتيـــب بوصـــف اجـــراءات الآمـــان
لتوصـــيل الأدوات الكـــهربائية بالكـــابلات والمقبـــس الكـــهربائـــي.

ОПАСНОСТ
Пред да почнете да го инсталирате овој продукт, прочитајте ја информацијата за безбедност:
"Предупредување: Информација за безбедност: Прочитајте го прво ова", GA27-4004.
Оваа брошура опишува безбедносни процедури за каблирање и вклучување на електрична опрема.

Uwaga:
Przed rozpoczęciem instalacji produktu należy zapoznać się z instrukcją:
"IBM Safety Information - Read This First", GA27-4004.
Zawiera ona warunki bezpieczeństwa przy podłączaniu do sieci elektrycznej i eksploatacji.

**ОСТОРОЖНО:** Прежде чем инсталлировать этот продукт, прочтите Инструкцию по технике безопасности в документе "Внимание: Инструкция по технике безопасности -- Прочесть в первую очередь", GA27-4004. В этой брошюре описаны безопасные способы каблирования и подключения электрического оборудования.

Nebezpečenstvo: Pred inštaláciou výrobku si prečítajte bezpečnosté predpisy v
Výstraha: Bezpeč osté predpisy - Prečítaj ako prvé, GA27-4004. V tejto brožúrke sú opísané bezpečnosté postupy pre pripojenie elektrických zariadení.

Pozor: Preden zaènete z instalacijo tega produkta preberite poglavje: 'Opozorilo: Informacije o varnem rokovanju-preberi pred uporabo," GA27-4004. To poglavje opisuje pravilne postopke za kabliranje,

危險：

開始安裝此產品之前，請先閱讀安全資訊。

注意：

請先閱讀 - 安全資訊 GA27-4004

此冊子說明插接電器設備之電纜線的安全程序。

危险：
在开始安装本产品之前，请阅读
IBM Safety Information - Read This First，
GA27-4004 中的安全信息。
此手册描述了如何安全地连接和插拔电气设备。

# Appendix C. Notices

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# Electronic emission notices

## Federal Communications Commission (FCC) statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

## European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

**Attention:** This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

European Community contact:

IBM Technical Regulations
Pascalstr. 100, Stuttgart, Germany 70569
Telephone: 0049 (0)711 785 1176
Fax: 0049 785 1283
E-mail: tjahn@de.ibm.com

## Industry Canada Class A Emission Compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

## Avis de conformité aux normes d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

## Germany

**Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) vom 30. August 1995 (bzw. der EMC EG Richlinie 89/336).**

Dieses Gerät ist berechtigt in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

Verantwortlich für die Konformitätserklärung nach Paragraph 5 des EMVG ist die

IBM Deutschland Informationssysteme GmbH, 70548 Stuttgart

Informationen in Hinsicht EMVG Paragraph 3 Abs. (2) 2:

| |
|---|
| Das Gerät erfüllt die Schutzanforderungen nach EN 50082–1 und EN 55022 Klasse A. |

EN 55022 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden:

"Warnung: dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maβnahmen durchzuführen und dafür aufzukommen."

EN 50082–1 Hinweis:

"Wird dieses Gerät in einer industriellen Umgebung betrieben (wie in EN 50082–2 festgelegt), dann kann es dabei eventuell gestört werden. In solch einem Fall ist der Abstand bzw. die Abschirmung zu der industriellen Störquelle zu vergrößern."

Anmerkung:

Um die Einhaltung des EMVG sicherzustellen sind die Geräte, wie in den IBM Handbüchern angegeben, zu installieren und zu betreiben.

## Australia and New Zealand

**Attention:** This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

## Chinese Class A warning statement

**Attention:** This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

中华人民共和国“A 类”警告声明

声 明

此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

## Japanese power line harmonics compliance statement

高調波ガイドライン適合品

高調波ガイドライン適合品

## Japanese Voluntary Control Council for Interference (VCCI) statement

**Attention:** This product is a Class A Information Technology Equipment and conforms to the standards set by the Voluntary Control Council for Interference by Technology Equipment (VCCI). In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

## Korean communications statement

Please note that this device has been approved for business purposes with regard to electromagnetic interference. If you find this is not suitable for your use, you may exchange it for a non-business purpose one.

A급 기기(업무용)

이 기기는 업무용으로 전자파적합등록을 받은 기기이오니 판매자 또는 이용자는 이점을 주의하시기 바라며, 만약 구입하였을 때에는 구입한 곳에서 가정용으로 교환하시기 바랍니다.

## Taiwanese Class A warning statement

警告使用者:
這是甲類的資訊產品，在
居住的環境中使用時，可
能會造成射頻干擾，在這
種情況下，使用者會被要
求採取某些適當的對策。

## Taiwan contact information

台灣IBM 產品服務聯絡方式：
台灣國際商業機器股份有限公司
台北市松仁路7號3樓
電話：0800-016-888

IBM Taiwan Product Service Contact Info:
IBM Taiwan Corporation
3F, No 7, Song Ren Road, Taipei Taiwan
Telephone: 0800-016-888

## Cable ferrite requirement

All cable ferrites are required to suppress radiated EMI emissions and must not be removed.

## Electrostatic Discharge (ESD)

**Attention:** ESD damage can occur when there is a difference in charge between the part, the product, and the service person. No damage will occur if the service person and the part being installed are at the same charge level.

### ESD Damage Prevention

Anytime a service action involves physical contact with logic cards, modules, back-panel pins, or other ESD sensitive (ESDS) parts, the service person must be connected to an ESD common ground point on the product through the ESD wrist strap and cord.

The ESD ground clip can be attached to any frame ground, ground braid, green wire ground, or the round ground prong on the AC power plug. Coax or connector outside shells can also be used.

### Handling Removed Cards

Logic cards removed from a product should be placed in ESD protective containers. No other object should be allowed inside the ESD container with the logic card. Attach tags or reports that must accompany the card to the outside of the container.

## Product Recycling and disposal

This unit must be recycled or discarded according to applicable local and national regulations. IBM encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. IBM offers a variety of product return programs and services in several countries to assist equipment owners in recycling their IT products. Information on IBM product recycling offerings can be found on IBM's Internet site at http://www.ibm.com/ibm/environment/products/prp.shtml.

Español:
Esta unidad debe reciclarse o desecharse de acuerdo con lo establecido en la normativa nacional o local aplicable. IBM recomienda a los propietarios de equipos de tecnología de la información (TI) que reciclen responsablemente sus equipos cuando éstos ya no les sean útiles. IBM dispone de una serie de programas y servicios de devolución de productos en varios países, a fín de ayudar a los propietarios de equipos a reciclar sus productos de TI. Se puede encontrar información sobre las ofertas de reciclado de productos de IBM en el sitio web de IBM http://www.ibm.com/ibm/environment/products/prp.shtml.

**Notice:** This mark applies only to countries within the European Union (EU) and Norway.

Appliances are labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as applicable throughout the European Union. This label is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

Remarque : Cette marque s'applique uniquement aux pays de l'Union Européenne et à la Norvège. L'etiquette du système respecte la Directive européenne 2002/96/EC en matière de Déchets des Equipements Electriques et Electroniques

(DEEE), qui détermine les dispositions de retour et de recyclage applicables aux systèmes utilisés à travers l'Union européenne. Conformément à la directive, ladite étiquette précise que le produit sur lequel elle est apposée ne doit pas être jeté mais être récupéré en fin de vie.

注意: このマークは EU 諸国およびノルウェーにおいてのみ適用されます。

この機器には、EU 諸国に対する廃電気電子機器指令 2002/96/EC(WEEE) のラベルが貼られています。この指令は、EU 諸国に適用する使用済み機器の回収とリサイクルの骨子を定めています。このラベルは、使用済みになった時に指令に従って適正な処理をする必要があることを知らせるために種々の製品に貼られています。

In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and recovery of WEEE. Customer participation is important to minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE. For proper collection and treatment, contact your local IBM representative.

Disposal of IT products should be in accordance with local ordinances and regulations.

## Battery return program

This product may contain sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries outside the United States, go to http://www.ibm.com/ibm/environment/products/batteryrecycle.shtml or contact your local waste disposal facility.

In the United States, IBM has established a return process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and other battery packs from IBM equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Please have the IBM part number listed on the battery available prior to your call.

## For Taiwan:


Please recycle batteries.

## For the European Union:

**Notice:** This mark applies only to countries within the European Union (EU)

Batteries or packaging for batteries are labeled in accordance with European Directive 2006/66/EC concerning batteries and accumulators and waste batteries and accumulators. The Directive determines the framework for the return and recycling of used batteries and accumulators as applicable throughout the European Union. This label is applied to various batteries to indicate that the battery is not to be thrown away, but rather reclaimed upon end of life per this Directive.

Les batteries ou emballages pour batteries sont étiquetés conformément aux directives européennes 2006/66/EC, norme relative aux batteries et accumulateurs en usage et aux batteries et accumulateurs usés. Les directives déterminent la marche à suivre en vigueur dans l'Union Européenne pour le retour et le recyclage des batteries et accumulateurs usés. Cette étiquette est appliquée sur diverses batteries pour indiquer que la batterie ne doit pas être mise au rebut mais plutôt récupérée en fin de cycle de vie selon cette norme.

バッテリーあるいはバッテリー用のパッケージには、EU 諸国に対する廃電気電子機器指令 2006/66/EC のラベルが貼られています。この指令は、バッテリーと蓄電池、および廃棄バッテリーと蓄電池に関するものです。この指令は、使用済みバッテリーと蓄電池の回収とリサイクルの骨子を定めているもので、EU 諸国にわたって適用されます。このラベルは、使用済みになったときに指令に従って適正な処理をする必要があることを知らせるために種々のバッテリーに貼られています。

In accordance with the European Directive 2006/66/EC, batteries and accumulators are labeled to indicate that they are to be collected separately and recycled at end of life. The label on the battery may also include a chemical symbol for the metal concerned in the battery (Pb for lead, Hg for mercury and Cd for cadmium). Users of batteries and accumulators must not dispose of batteries and accumulators as unsorted municipal waste, but use the collection framework available to customers for the return, recycling and treatment of batteries and accumulators. Customer participation is important to minimize any potential effects of batteries and accumulators on the environment and human health due to the potential presence of hazardous substances. For proper collection and treatment, contact your local IBM representative.

This notice is provided in accordance with Royal Decree 106/2008 of Spain: The retail price of batteries, accumulators and power cells includes the cost of the environmental management of their waste.

## For California:

**Perchlorate material – special handling may apply**

Refer to http://www.dtsc.ca.gov/hazardouswaste/perchlorate.

The foregoing notice is provided in accordance with *California Code of Regulations Title 22, Division 4.5, Chapter 33: Best Management Practices for Perchlorate Materials*. This product/part includes a lithium manganese dioxide battery which contains a perchlorate substance.

## Flat panel displays

The fluorescent lamp in the liquid crystal display contains mercury. Dispose of it as required by local ordinances and regulations.

## Monitors and workstations

Connecticut - Please see the web site of the Department of Environmental Protection at http://www.ct.gov/dep for information about recycling covered electronic devices in the State of Connecticut, or telephone the Connecticut Department of Environmental Protection at 1-860-424-3000.

Oregon - For information regarding recycling covered electronic devices in the state of Oregon, go to the Oregon Department of Environmental Quality site at http://www.deq.state.or.us/lq/electronics.htm.

Washington - For information about recycling covered electronic devices in the State of Washington, go to the Department of Ecology Web site at https://fortress.wa.gov/ecy/recycle/ or telephone the Washington Department of Ecology at 1-800Recycle.

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# Readers' Comments — We'd Like to Hear from You

**SurePOS 300**
**Installation and Service Guide for 4810/4910**
**Model x4x**

**Publication No. G362-0560-00**

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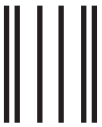

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