SurePOS 300

Installation and Service Guide for 4810/4910

Models x5x and x4x

G362-0560-02

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G362-0560-02

Note

Before using this information and the products it support, be sure to read the general information in Appendix B, "Notices," on page 71, and the *Safety Information* and *Warranty Documents* that ships with this product.

May 2012

This edition applies to Models x5x and x4x of the IBM 4810/4910 Point of Sale terminal and to all subsequent releases and modifications until otherwise indicated in new editions.

Current versions of the Retail Store Solutions documentation are available on the IBM Retail Store Solutions website at www.ibm.com/solutions/retail/store/support. Select the product category and click **Publications** to find the latest version of the document.

A form for reader's comments is also provided at the back of this publication. If the form has been removed, address your comments to:

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Safety

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الآمنية

Antes de instalar este produto, leia as Informa&cc;§es de Seguran&cc;a.

在安装本产品之前，请仔细阅读 Safety Information
(安全信息)。

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, f&os;r du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Ennen kuin asennat t&ae;m&ae;n tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de s&ea;curit&ea;.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας
(safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Les sikkerhetsinformasjonen (Safety Information) f&os;r du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się
z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informa&cc;§es sobre Seguran&cc;a.

Перед установкой продукта прочтите инструкции по
технике безопасности.

Pred inštaláciou tohto zariadenia si pečítaje Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto, lea la informaci¾n de seguridad.

L&ae;s s&ae;kerhetsinformationen innan du installerar den h&ae;r produkten.

About this guide

This guide provides product planning information, replacement and removal procedures, problem determination, and orderable field-replaceable units (FRUs) parts for the IBM® SurePOS™ 300. Within this guide, the term *x5x* refers to the IBM SurePOS 4810 Model x5x, and the term x4x refers to the IBM SurePOS 4810/4910 Model x4x unless otherwise specified.

The guide is organized as follows:

- Chapter 1, "Introduction," on page 1 provides an overview of the 4810/4910.
- Chapter 2, "Getting started," on page 13 provides information about the hardware and software that ships with the 4810/4910.
- Chapter 3, "Removal and installation procedures for the 4810/4910 SurePOS 300," on page 15 describes how to install and remove the components of the 4810/4910 SurePOS 300.
- Chapter 4, "Problem determination," on page 47 describes problem determination and diagnostics information for the IBM SurePOS 300 Models.
- Chapter 5, "Parts catalog," on page 55 provides information about the field-replaceable units (FRUs) for the product.
- Chapter 6, "Power cords," on page 61 provides information about power cords.

Who should read this manual

This manual is intended for use by experienced personnel responsible for installing and maintaining Models x5x and x4x of the IBM SurePOS 300.

Related publications and drivers

The following IBM publications are available from IBM Retail Store Solution website at www.ibm.com/solutions/retail/store. Click **Support**, and then **Publications**.

- *Safety and Regulatory Information - Read this First* , GA27-4004
- *SureMark 4610 Printers User's Guide for Models 2CR and 2NR*, GY27-5003
- *SureMark 4610 Printers Hardware Service Guide for Models 2CR and 2NR*, GA27-5004
- *SureMark 4610 Printers User's Guide for Models 1NR, 1NA, and 1ND*,G362-0564
- *SureMark 4610 Printers Hardware Service Guide for Models 1NR, 1NA, and 1ND*, G362-0565
- *SureMark 4610 Printers User's Guide for Models TI1, TI2, TI3, TI4, TI8, TI9, TG3, TG4, TG8, TG9, TF6, and TM6*, GA27-4151
- *SureMark 4610 Printers Hardware Service Guide for Models TI1, TI2, TI3, TI4, TI8, TI9, TG3, TG4, TG8, TG9, TF6, and TM6*, GY27-0355
- *SureMark 4610 Printers DBCS Hardware Service Manual*, GY27-0397
- *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

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 website at www.ibm.com/solutions/retail/store/support. Click **Support**, and then the link under **Peripheral Drivers** to access these drivers:

- OLE for POS (OPOS)
- JavaPOS
- POS for Linux

Additional technical information is available at:

www.ibm.com/solutions/retail/store/support.

Ask your questions in the TechLine section located at the bottom of this web page.

Publications accessibility

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

Notice statements

Notices 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.

Summary of changes

This section documents the revisions of the IBM SurePOS 300 Installation and Service Guide.

May 2012

This edition of the IBM SurePOS 300 Installation and Service Guide documents the following changes:

- Support for the IBM 4690 Operating System.
- Support for the IBM 4810 SurePOS 300 for Model x5x.

September 2011

This edition of the IBM SurePOS 300 Installation and Service Guide includes updates to the USB hot plugging guidelines.

May 2011

This edition of the IBM SurePOS 300 Installation and Service Guide documents the following changes:

- Windows® 7 operating system
- POSReady 2009

Chapter 1. Introduction

This chapter describes the characteristics of the IBM 4810 SurePOS 300 for Models x5x and the IBM 4810/4910 for Models x4x Point of Sale terminals.

IBM SurePOS 300 Model x5x overview

Model x5x of the IBM 4810 SurePOS 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 terminal can be mounted under a check stand or counter.

Models x5x product summary

Models x5x of the IBM 4810 SurePOS 300 refers to the following models numbers:

- **4810-350**: IBM SurePOS 300 unit (no preload)
- **4810-E50**: IBM SurePOS 300 unit preloaded with Windows® operating system (HDD included)
- **4810-35A**: IBM SurePOS 300 unit (no preload)
- **4810-E5A**: : IBM SurePOS 300 unit preloaded with Windows operating system (HDD included)

Model x5x standard features

Table 1 describes the standard features of the IBM 4810 SurePOS 300 Model x5x.

Table 1. Model x5x summary of features

Type of feature	**Description**	
CPU	Intel Celeron Dual Core T3100	
Core chip set	Intel GL40 / ICH9M	
I/O ports	• Two VGA • One RS-232 port standard (nine pin male D-shell) • Two to five USB 2.0 high speed ports: • Keyboard and mouse ports, PS/2 compatible • One - line in • One - microphone • One - line-out/headphone • One - 10 / 100 / 1000 MB Ethernet LAN (RJ45) • One - 5 V / 12 V powered RS232 (nine pin female D-shell) • One - Cash drawer port, standard IBM 24V-compatible • One - 24 V Powered USB 2.0 • One - 12 V Powered USB 2.0 • RS232 Connector Card installed – Three 5V/12V powered RS232 (nine pin female D-shell) • USB Connector Card installed – Three 12V Powered USB 2.0	
Memory	**Model E5x:**	2 GB Standard
	Model 35x	1 GB Standard
Storage media	**Model E5x:**	500 GB hard disk drive (HDD)
	Model 35x	No HDD

Table 1. Model x5x summary of features (continued)

Type of feature	Description
Video	Mobile Graphics Media Accelerator 4500
LAN	Intel
Clock	Nonvolatile realtime clock
Audio	Realtek ALC262

Model x5x optional features

Table 2 describes the optional features of the IBM 4810 SurePOS 300 Model x5x.

Table 2. Model x5x optional features

Type of feature	Description	
Storage	**Model 35x:**	500 GB hard disk drive, dual 64 GB SSD, or 64 GB SSD (SATA connection)
	Model E5x:	64 GB SSD or dual 64GB SSD (SATA connection)
SurePort cards	5 V / 12 V Powered RS-232 connector card or powered USB connector card	
Memory	**Model 35x:**	2GB or 4GB total system memory is optional
	Model E5x:	4GB total system memory is optional

Model x5x user information

This section describes the front and rear controls, indicators, and connectors on the IBM 4810 SurePOS 300 Model x5x.

Model x5x controls and indicators (front view)

Figure 1 is a diagram of the front view of the IBM 4810 SurePOS 300 Model x5x system unit.

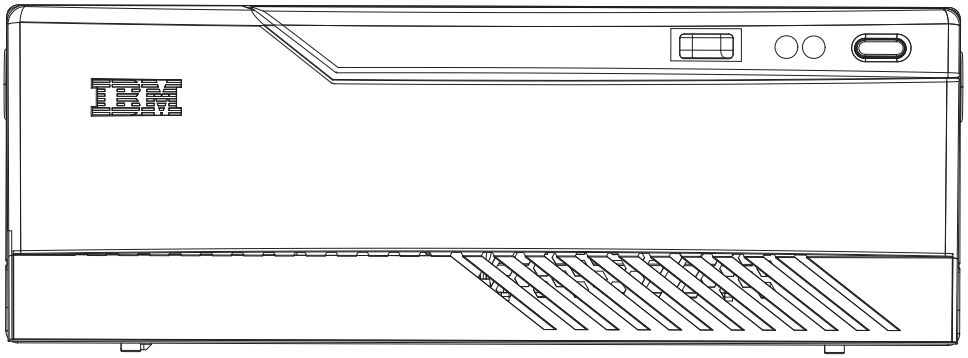


Figure 1. Front view of the x5x 4810 system unit

The following indicators are included on the front cover of the Model x5x system unit:

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.

Attention: Holding down the power button to turn the unit off can potentially corrupt your operating system files. Only use this method to power off the unit in extreme cases (such as the system locked up).

Table 3. Model x5x LED operation

System state	LED state or operation
Off (No AC supplied)	OFF
Off (AC supplied) **Note:** This state can be entered by shutting down your system.	OFF
On (POST)	Blinking (0.5 second ON, 0.5 second OFF)
On (Normal operation after post '8B'h)	ON
S3 (Suspend to RAM)	Blinking (0.5 second ON, 0.5 second OFF)

Model x5x rear connectors

Figure 2 is a diagram of the rear view of the IBM 4810 SurePOS 300 Model x5x. unit with RS232 connectors and Figure 3 on page 4 is a rear view of the IBM 4810 SurePOS 300 Model x5x unit with USB connectors.

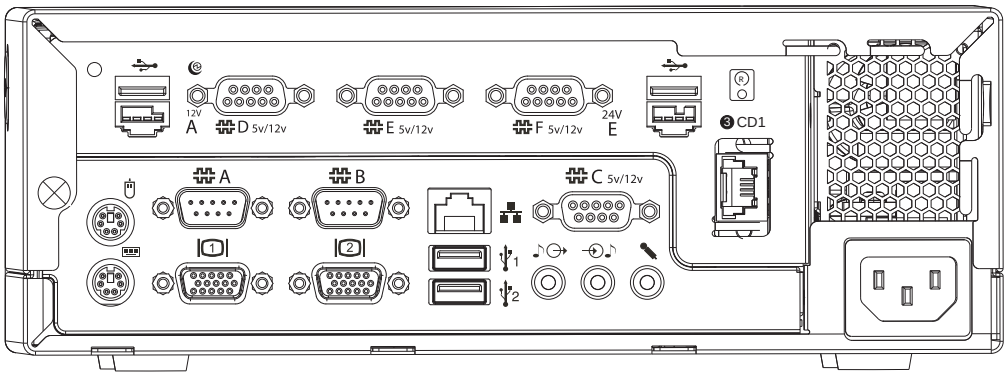
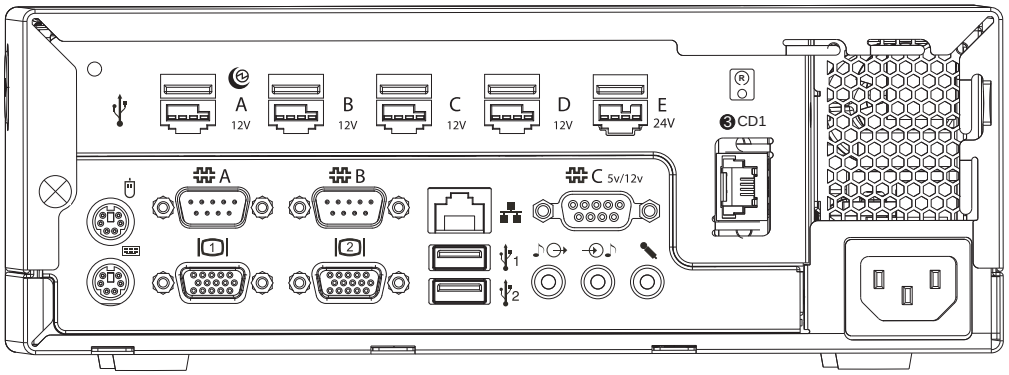


Figure 2. Rear view of the 4810 model x5x (RS232)

1.



1

Figure 3. Rear view of the 4810 model x5x (USB)

Table 4. Model x5x rear connector icons and descriptions (USB)

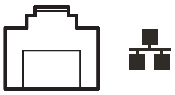
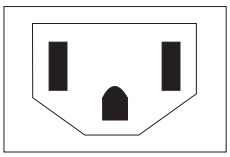
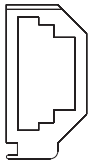
Icon	Description
	Mouse port
	PS/2 or compatible keyboard port **Important:** Hot plugging a powered USB device (24 V and 12 V red and green plugs, respectively) can cause system errors and is not supported on any IBM system unit.
	USB ports
	VGA display port
	Port for first and second external serial devices, such as a scale or a scanner
	Third, fourth, fifth, and sixth external serial device ports. These connectors also provide 12V and 5V for external devices.
	Ethernet LAN cable port
	Microphone port
	Audio input port
	Port for audio output, such as self-amplified speakers or headphones
	Power cord inlet connector

Table 4. Model x5x rear connector icons and descriptions (USB) (continued)

Icon	Description
	Recessed dump switch
	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 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.

IBM SurePOS 300 Model x4x overview

Model x4x of the IBM 4810/4910 SurePOS 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 terminal can be mounted under a check stand or counter.

Model x4x product summary

Models x4x of the IBM 4810/4910 SurePOS 300 refer to the following model numbers:

- **4810-340**: IBM SurePOS 300 system unit (no preload)
- **4810-E40**: Windows operating system 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

Model x4x standard features

Table 5 describes the standard features of Model x4x of the 4810/4910 SurePOS 300.

Table 5. Summary of features

Type of feature	Description
CPU	Intel ULV Celeron M 373 (1.0 GHz)
Core chip set	Intel 910GMLE / ICH6M
I/O ports	• Two VGA • Two RS-232 ports standard (nine pin male D-shell) • Three USB 2.0 high speed ports: – Two rear – One front • Keyboard and mouse ports, PS/2 compatible • One - line in • One - microphone • One - line-out/headphone • One - 10/100 Mb Ethernet LAN (RJ45) • One - 5 V / 12 V powered RS232 (nine pin female D-shell) • One - Cash drawer port, standard IBM 24 V-compatible • One - 24 V Powered USB 2.0 • One - 12 V Powered USB 2.0 • RS232 Connector Card installed – Three 5 V / 12 V powered RS232 (nine pin female D-shell) • USB Connector Card installed – Three 12 V Powered US B2.0
Memory	• Two DIMM slots for 400 MHz DDR2 RAM • 512 MB standard, expandable to 2 GB
Video	Intel Graphics Media Accelerator 900
LAN	Broadcom BCM5906M 10/ 100 MB
Clock	Nonvolatile real-time clock
Media	3.5-inch SATA Hard Disk Drive or optional 4 GB Modular-Flash Drive
Audio	Analog Devices AD1882 Codec

Model x4x optional features

Table 6 describes the optional features of Model x4x of the 4810/4910 SurePOS 300

Table 6. Optional features

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

Model x4x user information

This section describes the front and rear controls, indicators, and connectors on the IBM 4810/4910 SurePOS 300 Model x4x.

Model x4x controls and indicators (front view)

Figure 4 show the indicators that are available on the front view of the 4810/4910 system units.

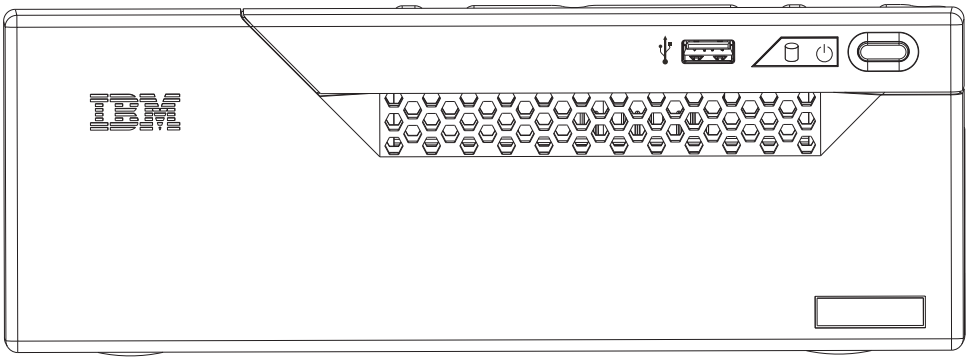


Figure 4. Front view of the x4x 4810/4910 system unit

The following indicators are included on the front cover of the Model x4x system unit:

This indicates a standard USB port (Model x4x only).

This LED indicates HDD activity.

This LED indicates the 4810/4910 power state. Hold down the power button for 4 seconds to power off.

Attention: Holding down the power button to turn the unit off can potentially corrupt your operating system files. Only use this method to power off the unit in extreme cases (such as the system locked up).

Table 7. Model x4x 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 **Attention:** Holding down the power button to turn the unit off can potentially corrupt your operating system files. Only use this method to power off the unit in extreme cases (such as the system locked up).	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)

Model x4x rear connectors

Figure 5 and Figure 6 show examples of the rear view of the 4810/4910.

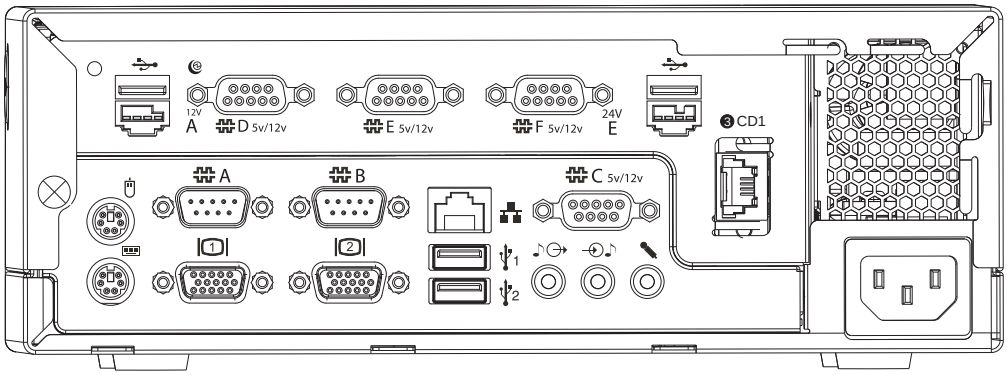


Figure 5. Rear view of the 4810/4910 model x4x (RS232)

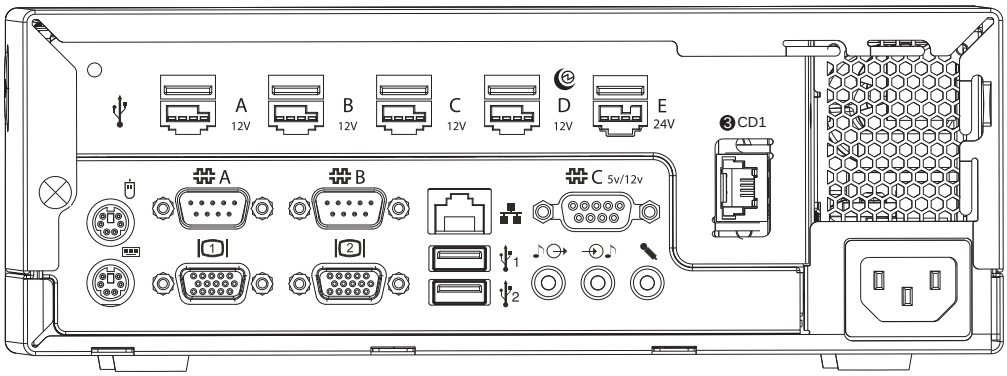
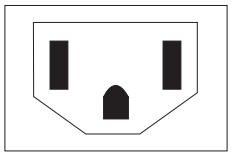
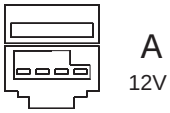
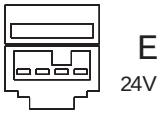
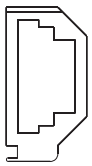


Figure 6. Rear view of the 4810/4910 model x4x (USB)

Table 8. Rear connector icons and descriptions (USB)

Icon	Description
	Mouse port
	PS/2 or compatible keyboard port **Important:** Hot plugging a powered USB device (24 V and 12 V red and green plugs, respectively) can cause system errors and is not supported on any IBM system unit.
	USB ports
	VGA display port
 A, B	Port for first and second external serial devices, such as a scale or a scanner

Table 8. Rear connector icons and descriptions (USB) (continued)

Icon	Description
	Third, fourth, fifth, and sixth external serial device ports. These connectors also provide 12V and 5V for external devices.
	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 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.

Models x5x and x4x planning information

The section includes information to help you plan for the cables, USB devices, physical dimensions, and environmental considerations for the SurePOS 300.

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

Attention: Powered USB 24 V 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 attachments

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.

Note: Standard USB (5 V) devices can be plugged into any USB port on an IBM system unit. If the hot plugged device does not function properly, try unplugging and reattaching the device to resolve the issue.

Important: Hot plugging a powered USB device (24 V and 12 V red and green plugs, respectively) can cause system errors and is not supported on any IBM system unit.

Physical dimensions

Table 9 on page 11 include the physical dimension for the Models x5x and x4x. Although the dimensions are similar, the weight and depth of the Models x5x are slightly more than the Models x4x. Figure 7 on page 11 is an example of the Model x4x product.

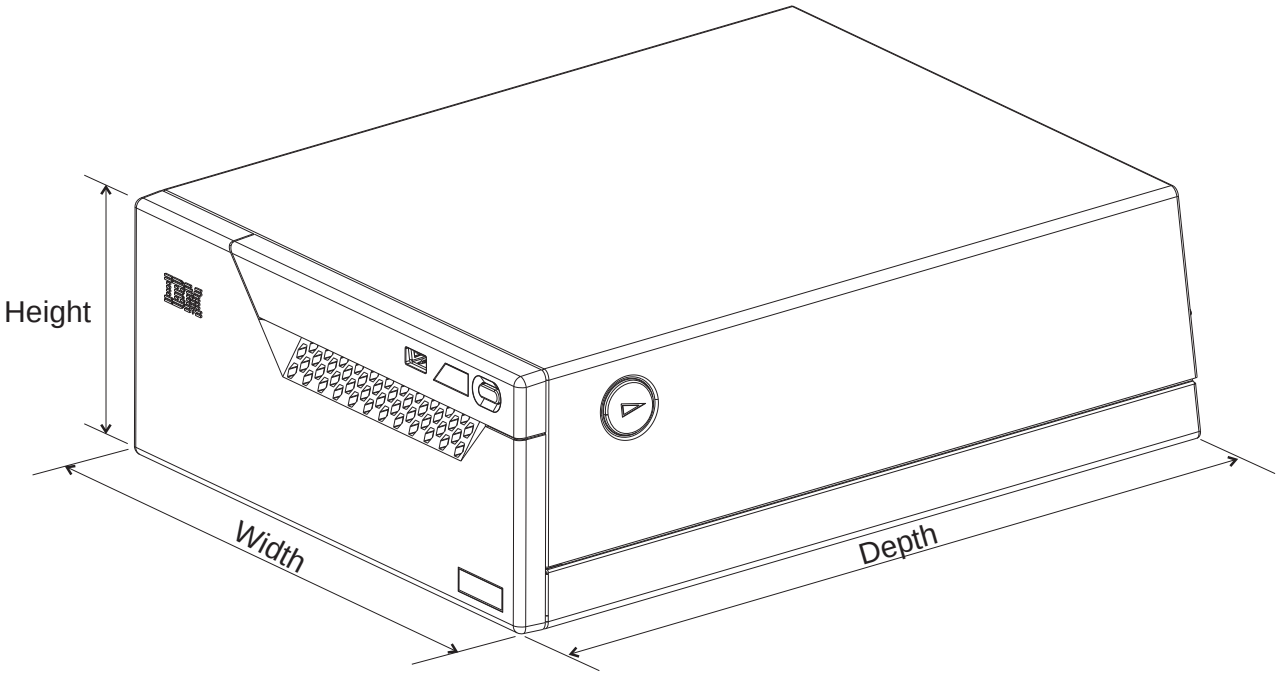


Figure 7. Dimensions of the 4810/4910 SurePOS 300

Table 9. Size specifications of the 4810/4910 SurePOS 300

	4810 - Model x5x	**4810/4910 - Model x4x**
Width	245 mm (9.6 in.)	245 mm (9.65 in.)
Depth	277 mm (10.9 in.)	257 mm (10.12 in.)
Height	90 mm (3.54 in.)	90 mm (3.54 in.)
Weight	4.00 kg (8.8 lb.) nominal	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 Sales for Models x4x and x5x terminals.

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 10. Power consumption

Power State	**EnergyStar (1)**	**Point-of-Sale (2)**
OFF (S5)	1.4 W	1.4 W
Suspend-to-RAM (S3)	2.3 W	2.3 W
On, idle (S0)	31 W	33 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 11. 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	**Model x5x**: 2.1A
		Model x4x: 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 A (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:
  - **Models x5x:** 0°C to 40°C (32° to 104°F) with 8% to 80% relative humidity
  - **Models x4x:** +5°C to 40°C (32° 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 B, “Notices,” on page 71 for a complete description.

Chapter 2. Getting started

This chapter describes the hardware, software, and operating system specifications for the IBM 4810/4910 SurePos 300 system units.

Hardware information

The hardware shipping carton contains:

- One SurePOS 300 unit
- One power cord
- Safety and regulatory documents
- (Model x4x only) Modular flash drive (MFD); this is optional

Note: You can purchase the Model x4x system 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 (Model x4x only)" on page 24.

Software information system preload

Models x5x (E50 and E5A) incorporate a preloaded Windows operating system.

Note: Models 350 and 35A are not preloaded with a Windows operating system.

Model x5x preload features:

- Windows POSReady 2009
- Windows POSReady 7

Model x4x preload features:

- Windows 7
- Windows XP
- Windows Embedded for Point of Service (WEPOS)
- Windows POSReady 2009 Ready

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

Operating systems supported

The following operating systems are supported on the Models x5x system units. Refer to *IBM 4810/4910 SurePOS 300 Operating System Installation Guide* for information on installing these operating systems.

Model x5x operating systems:

- IBM 4690 Operating Systems Version 6.3
- Microsoft Window 7
- SUSE Linux Enterprise Point of Service 11 with Service Pack 2
- SUSE Linux Enterprise 11 Desktop with Service Pack 2
- DOS 2000 (no POSSDOS support)
- Microsoft Windows Embedded POSReady 2009 or POSReady 7

Model x4x operating systems:

- Microsoft Window XP
- Microsoft Window 7
- Microsoft Windows Embedded POSReady 2009
- SUSE Linux Enterprise Point of Service 11 with Service Pack 2
- SUSE Linux Enterprise 11 Desktop with Service Pack 2
- PC DOS

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

This section describes how to remove and install the components of the 4810/4910 system units. In some instances, the removal and installation instructions are the same for both the Models x5x and x4x. Unless otherwise specified, the diagrams are interchangeable for both models.

The following procedures are documented in this section:

Removing and installing the top cover

The removal and installation instructions are the same for both the Models x5x and x4x; however, Figure 8 is a diagram of the Model x4x unit.

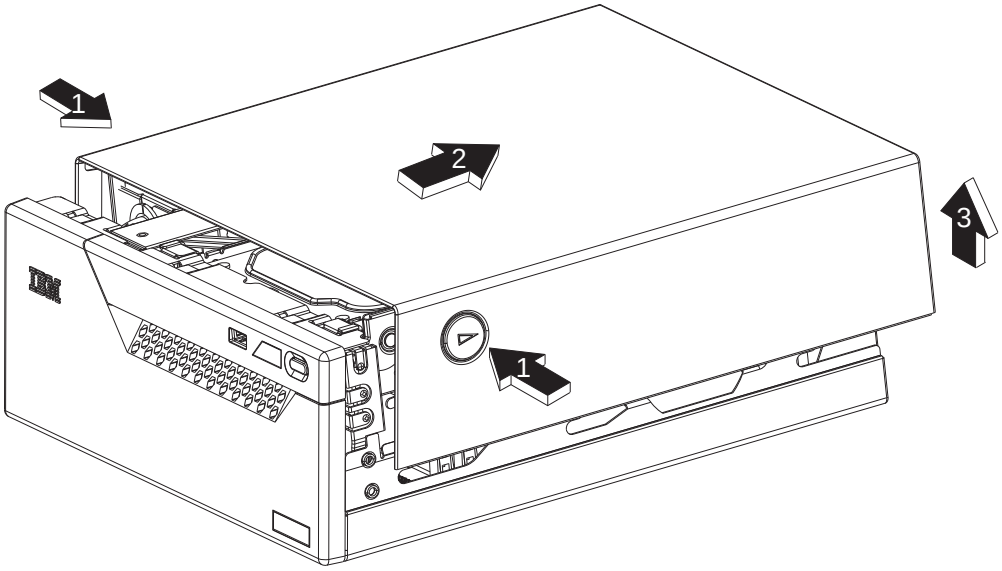


Figure 8. Removing and installing the top cover

To open the top cover:

1. Shut down the system and then turn **OFF** the power to the unit.
2. Unplug the power cord from the system unit.

   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 6 on page 8 for the location of the optional security screw and to Table 8 on page 8 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: A service label (seeFigure 9 on page 17) is located on the inside of the top cover.

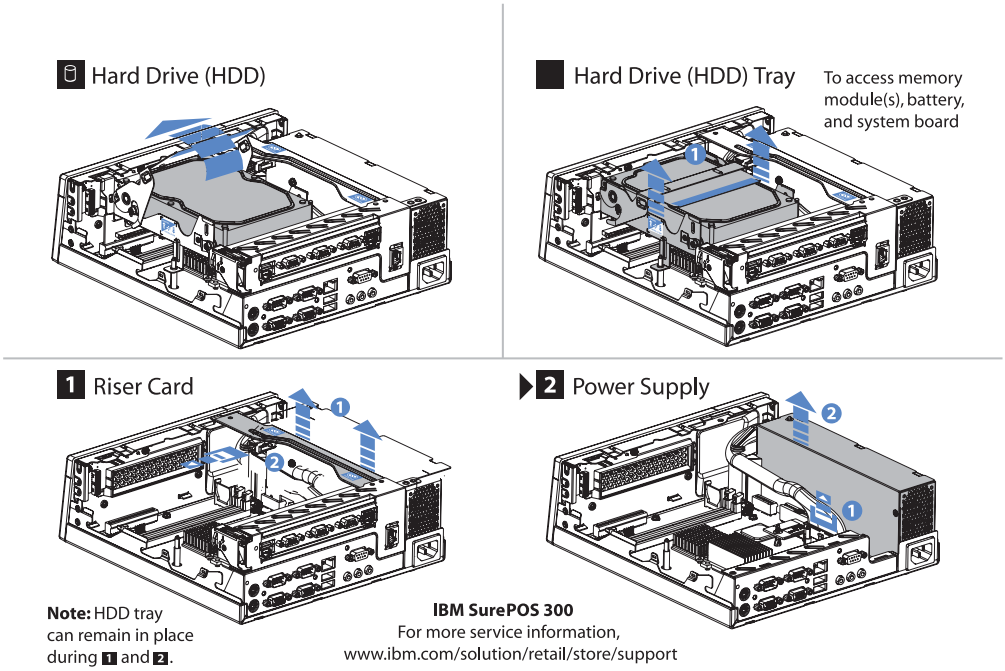


Figure 9. Service label

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 drive tray as an assembly” on page 20.

Model x5x hard disk drive

Figure 10 is a diagram of the hard disk drive for a Model x5x unit.

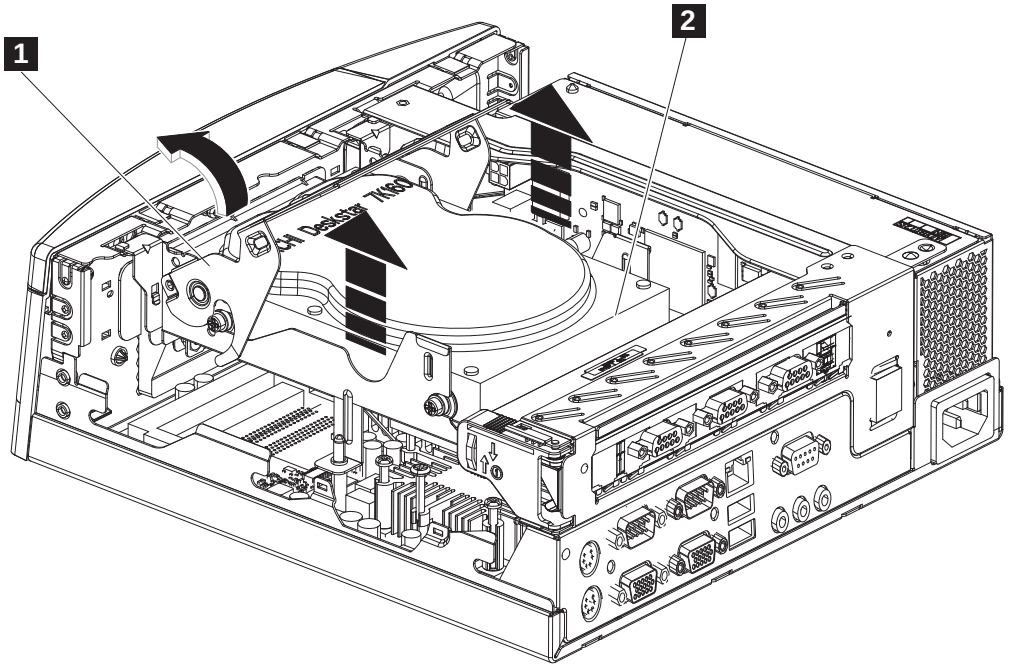


Figure 10. Removing the hard disk drive from a Model x5x

To remove the hard disk drive from a Model x5x system unit:

1. Open the unit. See “Removing and installing the top cover” on page 16.
2. Rotate the hard drive retainer **1** to the fully open position, as shown by the arrow in Figure 10.
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 16.

Model x4x hard disk drive

Figure 11 is a diagram of the hard disk drive for a Model x4x unit.

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

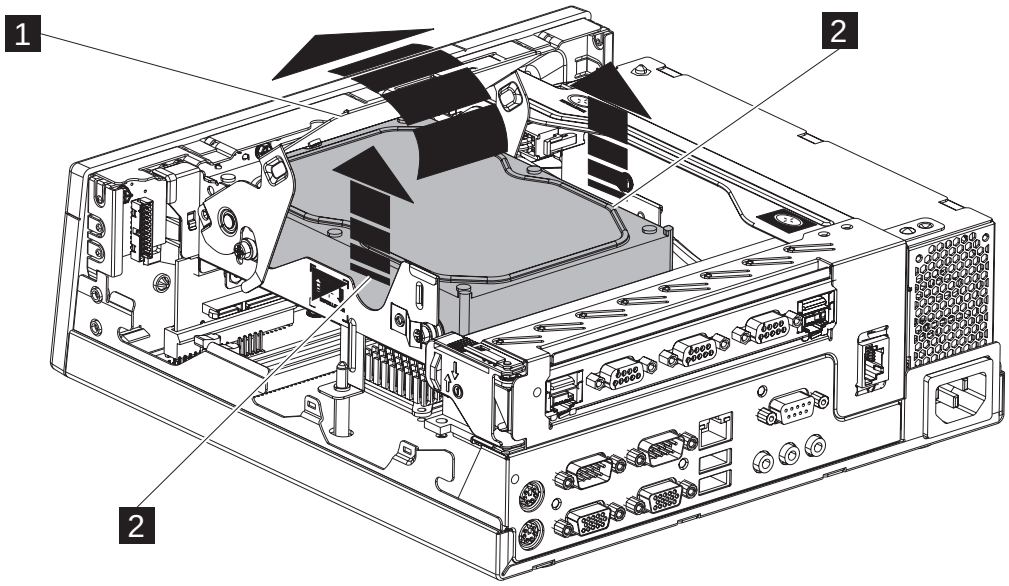


Figure 11. Removing the hard disk drive

To remove the hard disk drive:

1. Open the unit. See "Removing and installing the top cover" on page 16.
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 16.

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

This section describes the procedures to remove and install the hard disk drive and hard disk drive tray as an assembly in the IBM SurePos 300 system unit.

Model x5x hard disk drive assembly

Figure 12 is a diagram of the hard disk drive and hard disk tray as an assembly for a Model x5x unit.

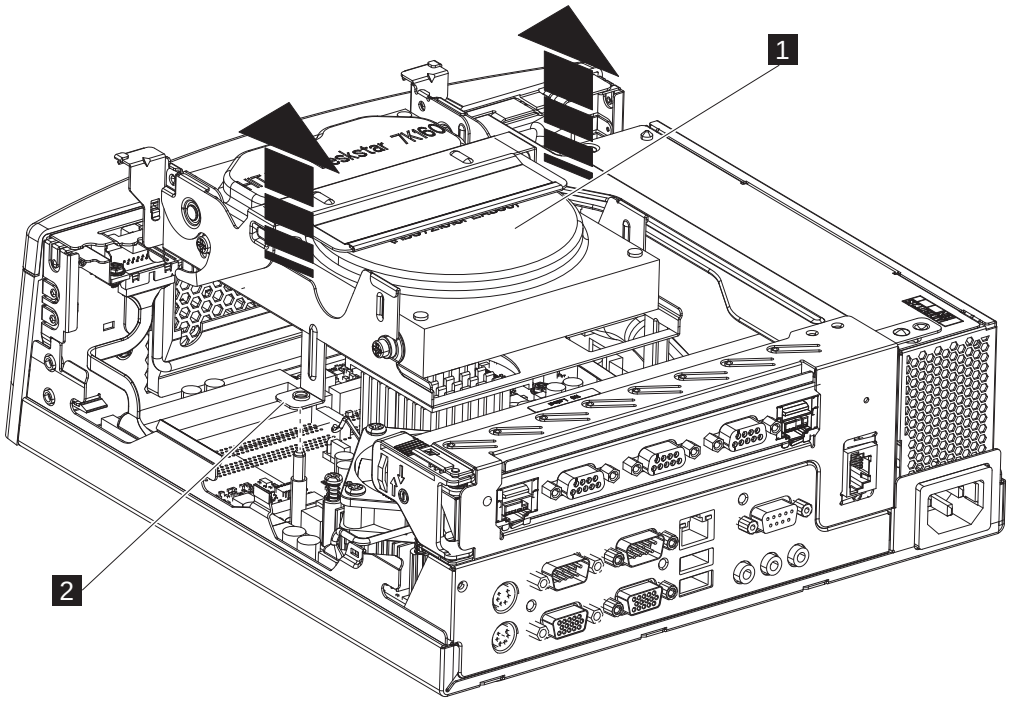


Figure 12. Removing the hard drive and hard drive tray as an assembly

To remove the hard drive and tray as an assembly:

1. Open the unit. See "Removing and installing the top cover" on page 16.
2. Grasp the tray assembly **1** where the arrows originate.
3. 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 alignment features **2** . Move the hard drive tray down and over the alignment features **2** 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 16.

Model x4x hard disk drive assembly

Figure 13 is a diagram of how to remove the hard disk drive and hard disk drive tray as an assembly from the Model x4x unit.

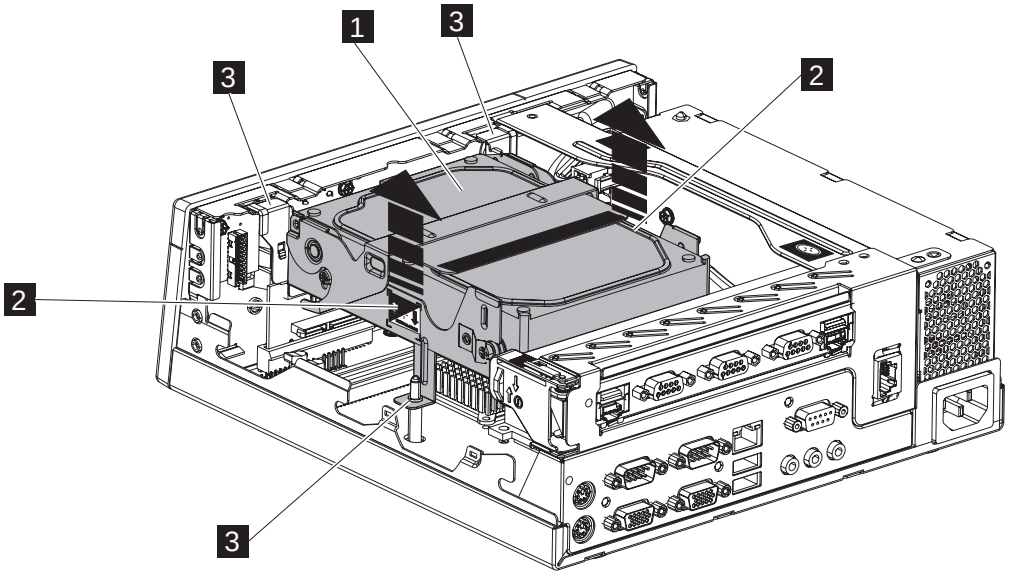


Figure 13. Removing the hard drive and hard drive tray as an assembly

To remove the hard drive and tray as an assembly:

1. Open the unit. See "Removing and installing the top cover" on page 16.
2. Grasp the tray assembly **1** where the arrows originate **2**.
3. 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 16.

Removing and installing the solid state drive (Model x5x only)

This section describes how to remove, install, and replace the solid state drive unit on a Model x5x.

To remove the solid state drive:

1. Open the unit. See "Removing and installing the top cover" on page 16.
2. Rotate the solid state drive retainer **1** to the fully open position, as shown by the arrow in Figure 14.
3. Grasp the solid state drive on each side **2** and lift it up and out of the system unit.

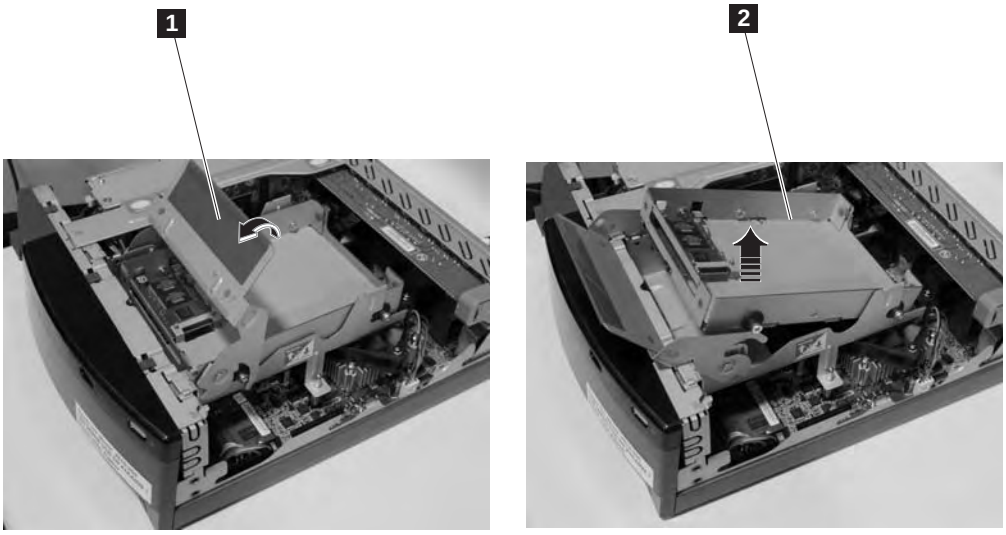


Figure 14. Removing the solid state drive

To install the solid state drive:

1. When replacing the solid state drive into the solid state drive tray, the solid state drive connectors face the front of the system unit. Ensure that the solid state drive is firmly in place.
2. Replace the cover. See "Removing and installing the top cover" on page 16.

Removing and installing the solid state drive tray as an assembly (Model x5x only)

This section describes how to remove, install, and replace the solid state drive assembly on a Model x5x.

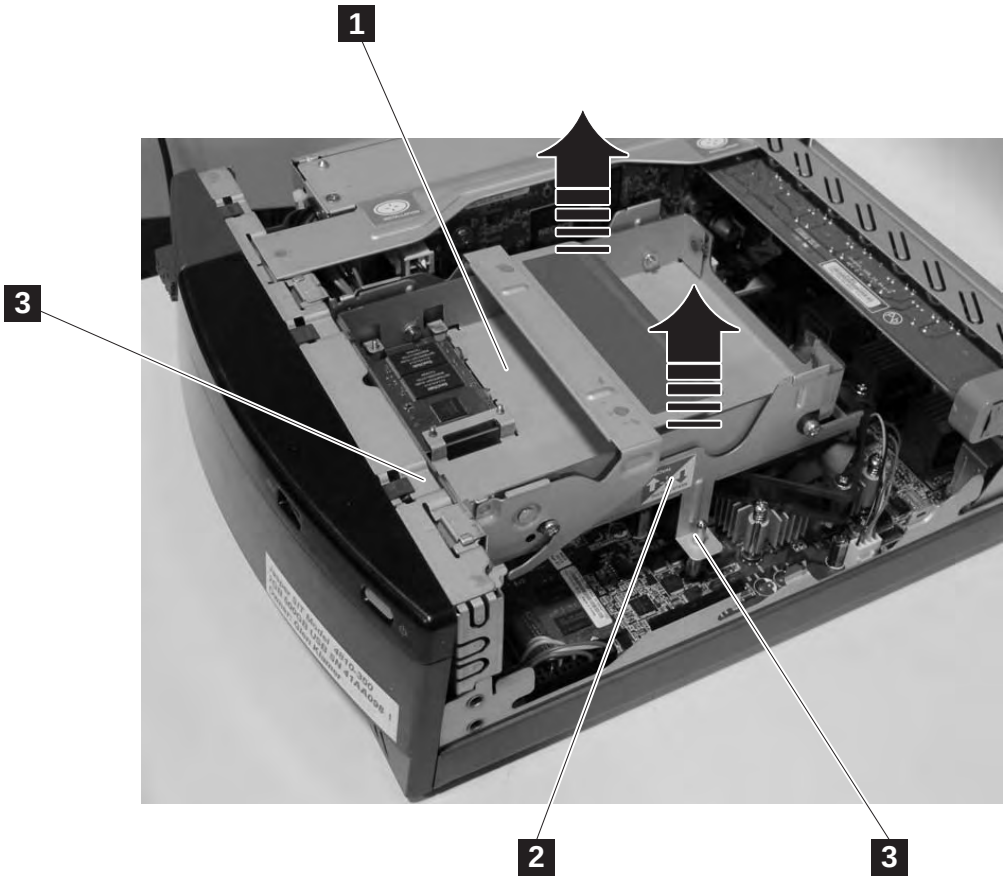


Figure 15. Removing the solid state drive and solid state drive tray as an assembly

To remove the solid disk drive and tray as an assembly:

1. Open the unit. See "Removing and installing the top cover" on page 16.
2. Grasp the tray assembly **1** where the arrows originate **2**.
3. Pull the tray assembly in an upward direction as shown by the arrows; this will disengage the tray assembly retainers.

To install the solid state drive and tray as an assembly:

1. Align the solid state drive tray with the three alignment features **3**. Move the solid state drive tray down and over the alignment features **3** and snap into place.
2. Ensure that the solid state 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 16.

Removing and installing the flash drive (Model x4x only)

This section describes the removal and installation instructions for the flash drive in a Models x4x.

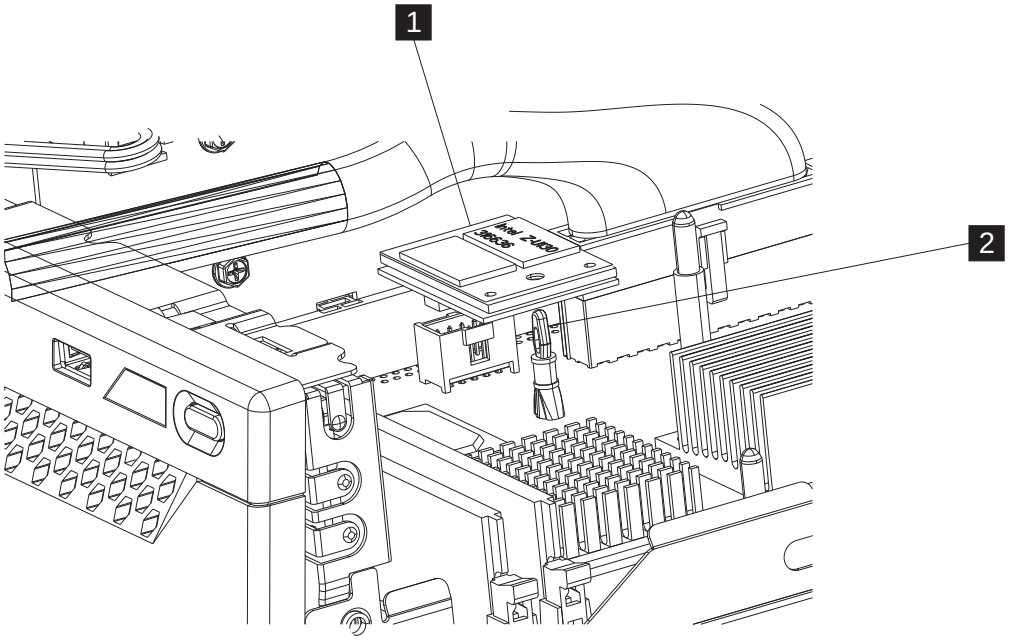


Figure 16. Removing the flash drive

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 16.
2. If present, remove the hard drive tray assembly. See "Removing and installing the hard disk drive and hard disk drive tray as an assembly" on page 20.
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 drive tray as an assembly" on page 20
3. Replace the top cover. See "Removing and installing the top cover" on page 16.

Removing and installing the memory module

This section describes the procedures for removing and installing the memory on the SurePos 300. The Model x5x units use SoDIMM memory, and the Model x4x units only use DIMM memory.

Removing and replacing the SoDIMM memory (Model x5x only)

To remove the SODIMM memory module on a Model x5x unit:

1. Open the unit. See “Removing and installing the top cover” on page 16.
2. Remove the hard drive (see“Removing and installing the hard disk drive and hard disk drive tray as an assembly” on page 20) or SDD assembly (see “Removing and installing the solid state drive tray as an assembly (Model x5x only)” on page 23).
3. Touch the static-protective package containing the SoDIMM to any unpainted metal surface on the system.
4. Remove the SoDIMM from the package.
5. Turn the SoDIMM so that the SoDIMM keys align correctly with the slot.

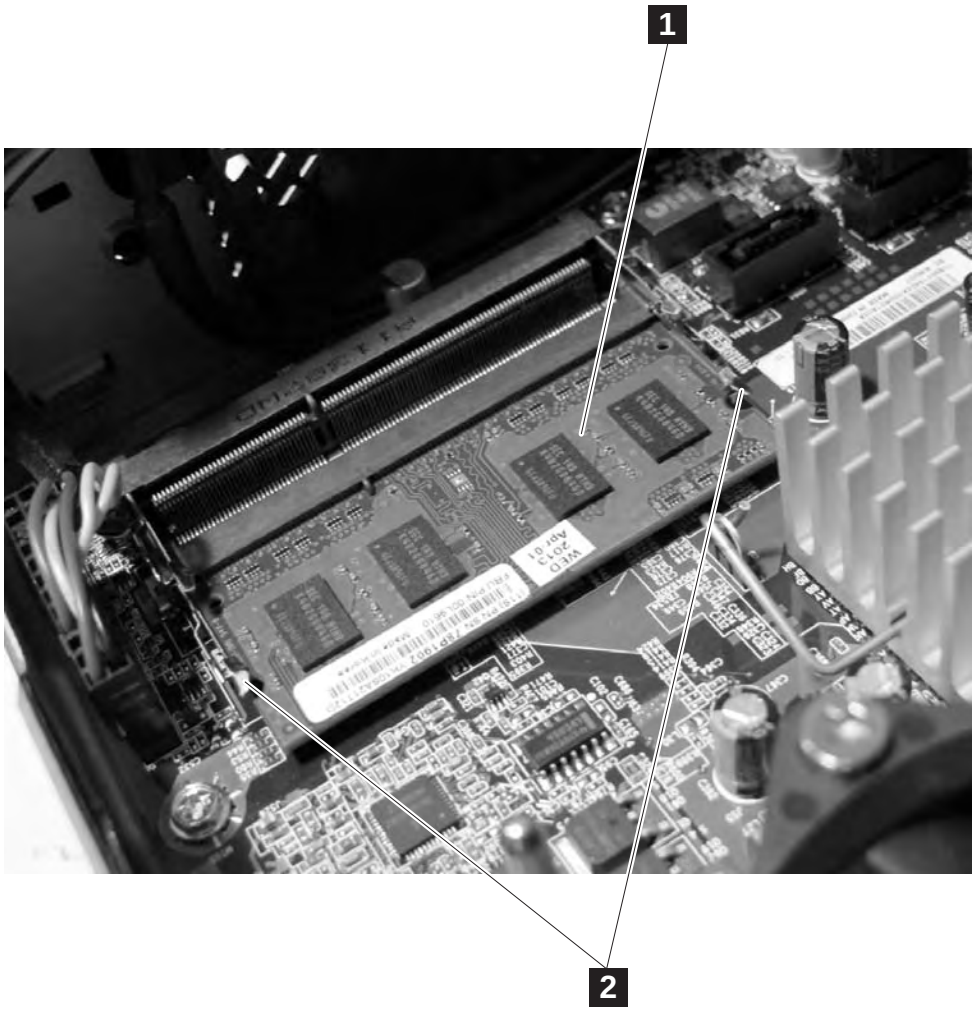


Figure 17. Removing the SoDIMM memory

6. Insert the SoDIMM (1 in Figure 17 on page 25) into the connector by aligning the edges of the SoDIMM with the slots at the ends of the SoDIMM connector 2 . Rotate the top edge of the SoDIMM down toward the system board. The retaining clips snap into the locked position when the SoDIMM is firmly seated in the connector. If there is a gap between the SoDIMM and the retaining clips, the SoDIMM has not been correctly inserted; open the retaining clips, remove the SoDIMM, and then reinsert it.
7. Replace the hard drive and tray assembly. See "Removing and installing the hard disk drive and hard disk drive tray as an assembly" on page 20.
8. Replace the top cover. See "Removing and installing the top cover" on page 16.

To replace the SoDIMM memory module on a Model x5x units:

1. Open the unit. See "Removing and installing the top cover" on page 16.
2. Remove the hard drive (see"Removing and installing the hard disk drive and hard disk drive tray as an assembly" on page 20) or SDD assembly (see "Removing and installing the solid state drive tray as an assembly (Model x5x only)" on page 23).
3. Touch the static-protective package containing the SoDIMM to any unpainted metal surface on the system.
4. Remove the SoDIMM from the package.
5. Turn the SoDIMM so that the SoDIMM keys align correctly with the slot.
6. Insert the SoDIMM (1 in Figure 17 on page 25) into the connector by aligning the edges of the SoDIMM with the slots at the ends of the SoDIMM connector. Rotate the top edge of the SoDIMM down toward the system board. The retaining clips snap into the locked position when the SoDIMM is firmly seated in the connector. If there is a gap between the SoDIMM and the retaining clips, the SoDIMM has not been correctly inserted; open the retaining clips, remove the SoDIMM, and then reinsert it.
7. Replace the hard drive and tray assembly. See "Removing and installing the hard disk drive and hard disk drive tray as an assembly" on page 20.
8. Replace the top cover. See "Removing and installing the top cover" on page 16.

Removing and replacing DIMM memory (Model x4x only)

To remove the DIMM memory module on a SurePos 300 Model x4x:

1. Open the unit. See "Removing and installing the top cover" on page 16.
2. Remove the hard drive and tray assembly. See "Removing and installing the hard disk drive and hard disk drive tray as an assembly" on page 20
3. Rotate the memory-module-retainer clips 1 to the open position. The memory module is disengaged from the memory connector. See Figure 18 on page 27.
4. Lift the memory module 2 straight up to remove it from the memory connector. See Figure 19 on page 27.

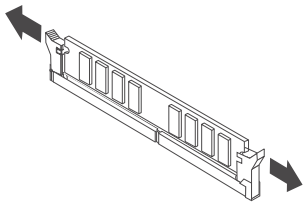


Figure 18. Opening the DIMM memory-module retainer clips

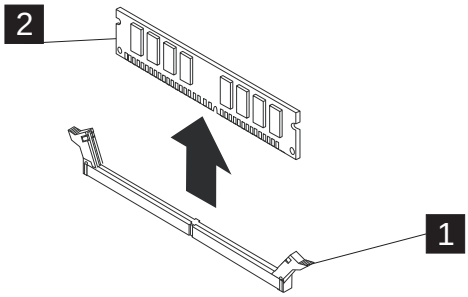


Figure 19. DIMM Memory-module retainer clips in the open position.

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 20.
2. Align the memory module with the memory socket and push down engaging the memory-module retainer clips; push down firmly to engage.

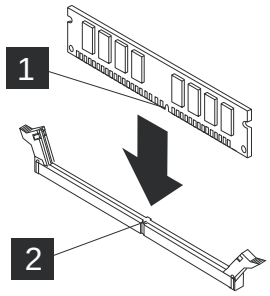


Figure 20. Installing the memory module

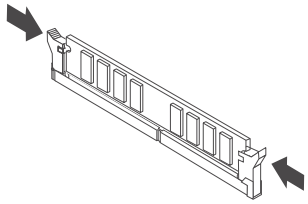


Figure 21. Closing the memory-module retainer clips

Note: Be sure the memory-module retainer clips are fully closed. See Figure 21.

3. Replace the hard drive and tray assembly. See "Removing and installing the hard disk drive and hard disk drive tray as an assembly" on page 20.
4. Replace the top cover. See "Removing and installing the top cover" on page 16.

Removing and installing the front-panel card

This section describes the procedures to remove and install the front-panel card of the IBM SurePos 300 system unit.

Model x5x front-panel card

Figure 22 is a diagram of the front-panel card for a Model x5x unit:

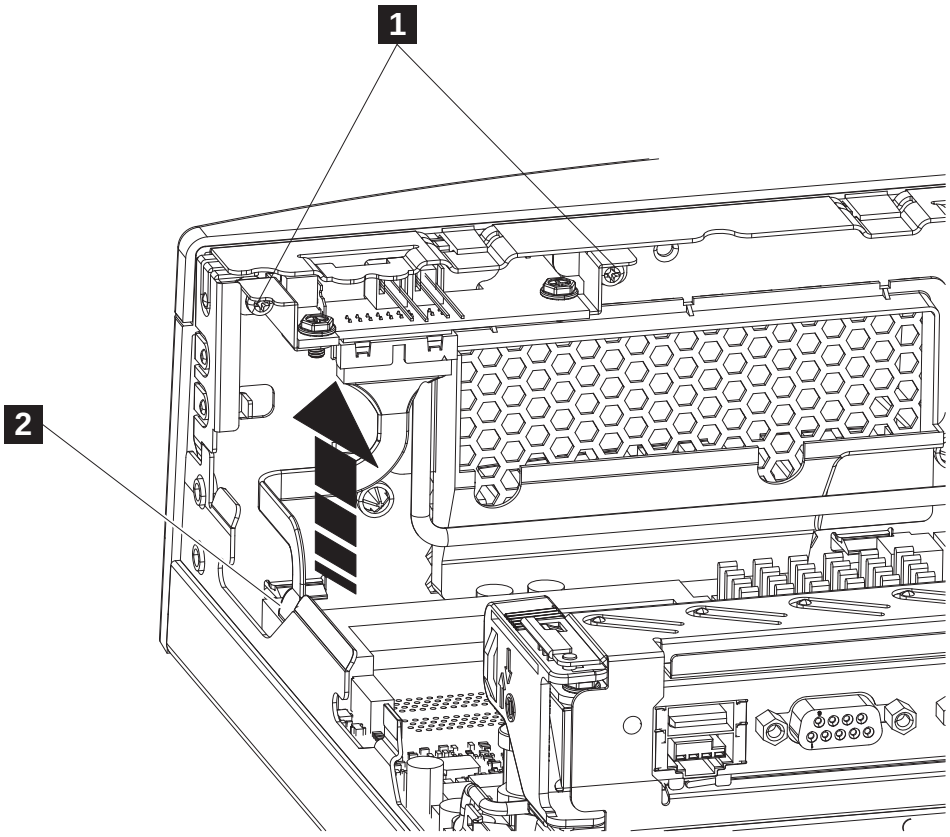


Figure 22. Removing and replacing the Model x5x front-panel card

To remove the front-panel card:

1. Open the unit. See "Removing and installing the top cover" on page 16.
2. Remove the hard drive and tray assembly. See

   Remove the hard drive assembly (see"Removing and installing the hard disk drive and hard disk drive tray as an assembly" on page 20) or SDD (see "Removing and installing the solid state drive tray as an assembly (Model x5x only)" on page 23).
3. Remove the two screws **1** that attach the front-panel card assembly to the front cover.
4. Disconnect the front-panel card cable **2** from the system board.
5. Slide the front-panel card assembly out.
6. To replace the front-panel card assembly, reverse this procedure.

Model x4x front panel card

Figure 23 is a diagram of how the front-panel card for a Model x4x unit:

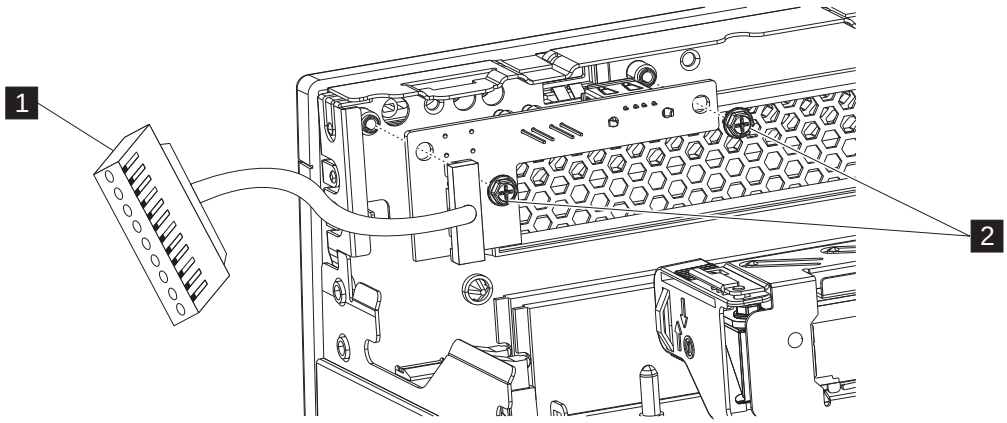


Figure 23. Removing and replacing the front-panel card

To remove the front-panel card:

1. Open the unit. See "Removing and installing the top cover" on page 16.
2. Remove the hard drive and tray assembly. See "Removing and installing the hard disk drive and hard disk drive tray as an assembly" on page 20.
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

The removal and installation instructions are the same for both the Models x5x and x4x; however, Figure 24 is a diagram of the Model x4x unit.

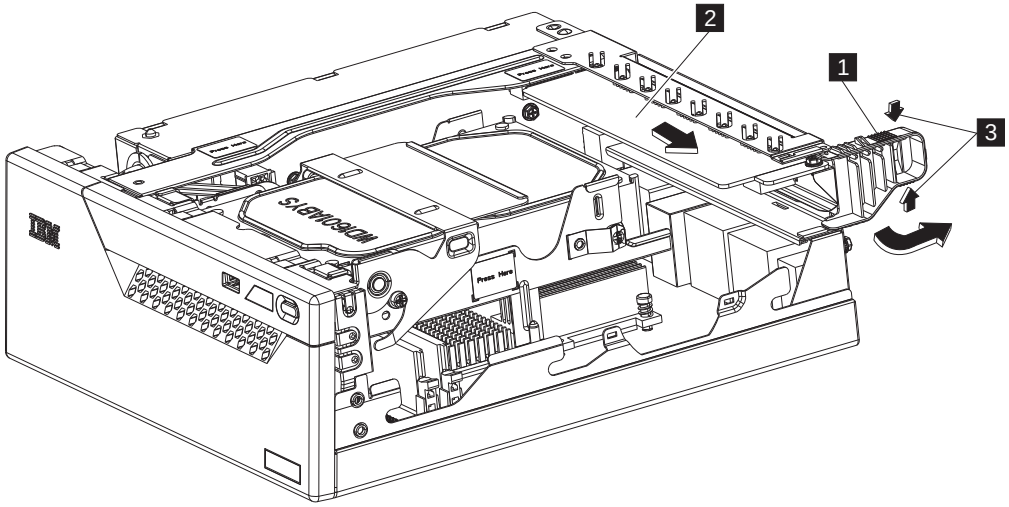


Figure 24. Removing the I/O connector card

To remove the I/O connector card:

1. Open the unit. See "Removing and installing the top cover" on page 16.
2. Squeeze the blue plastic connector-card retainer at the top and bottom (where the two small arrows **3** are located in Figure 24) 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

The removal and installation instructions are the same for both the Models x5x and x4x; however, Figure 25 is a diagram of the Model x4x unit.

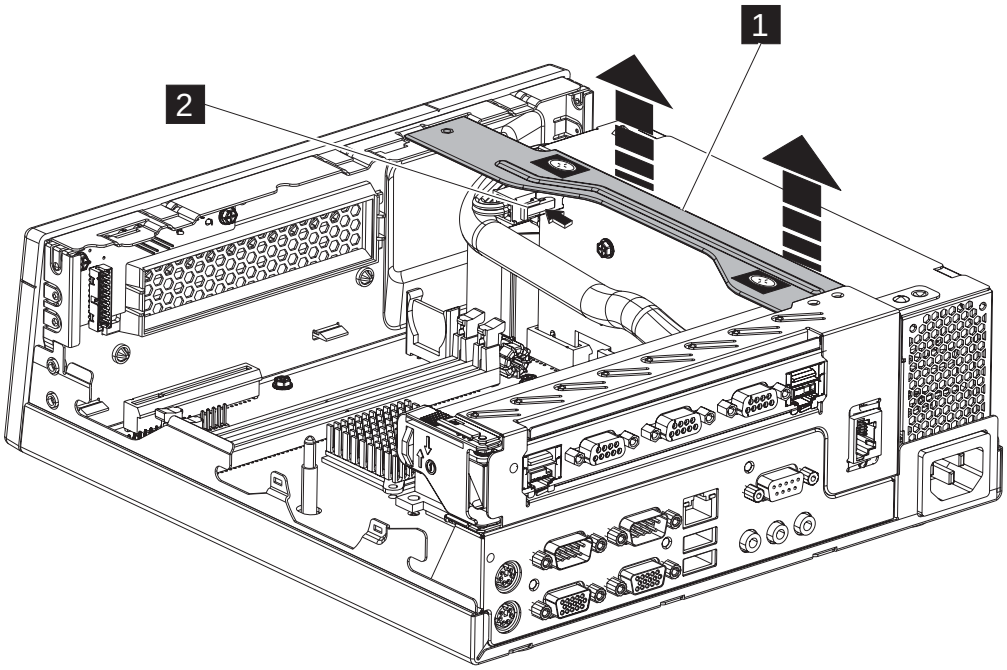


Figure 25. Removing the riser card and the I/O connector card as an assembly

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 16.

   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 microprocessor heatsink (Model x5x only)

This section describes how to remove, install, and replace the microprocessor heatsink fan. To remove the microprocessor heatsink fan:

1. Open the unit. See “Removing and installing the top cover” on page 16.
2. Remove the hard drive assembly (see“Removing and installing the hard disk drive and hard disk drive tray as an assembly” on page 20) or SDD assembly (see “Removing and installing the solid state drive tray as an assembly (Model x5x only)” on page 23).
3. Lift out the riser card assembly. See “Removing and installing the riser card and the I/O connector card as an assembly” on page 31.
4. Unscrew the four screws of the heatsink fan (see **1**) and lift out the unit.
5. To replace the microprocessor heatsink fan, reverse this procedure.

Note: Be careful not to dislodge the retention bracket of the heatsink fan when you unscrew the unit. If the retention bracket is dislodged, see “Model x5x system board” on page 40 to realign the retention bracket to the heatsink fan.

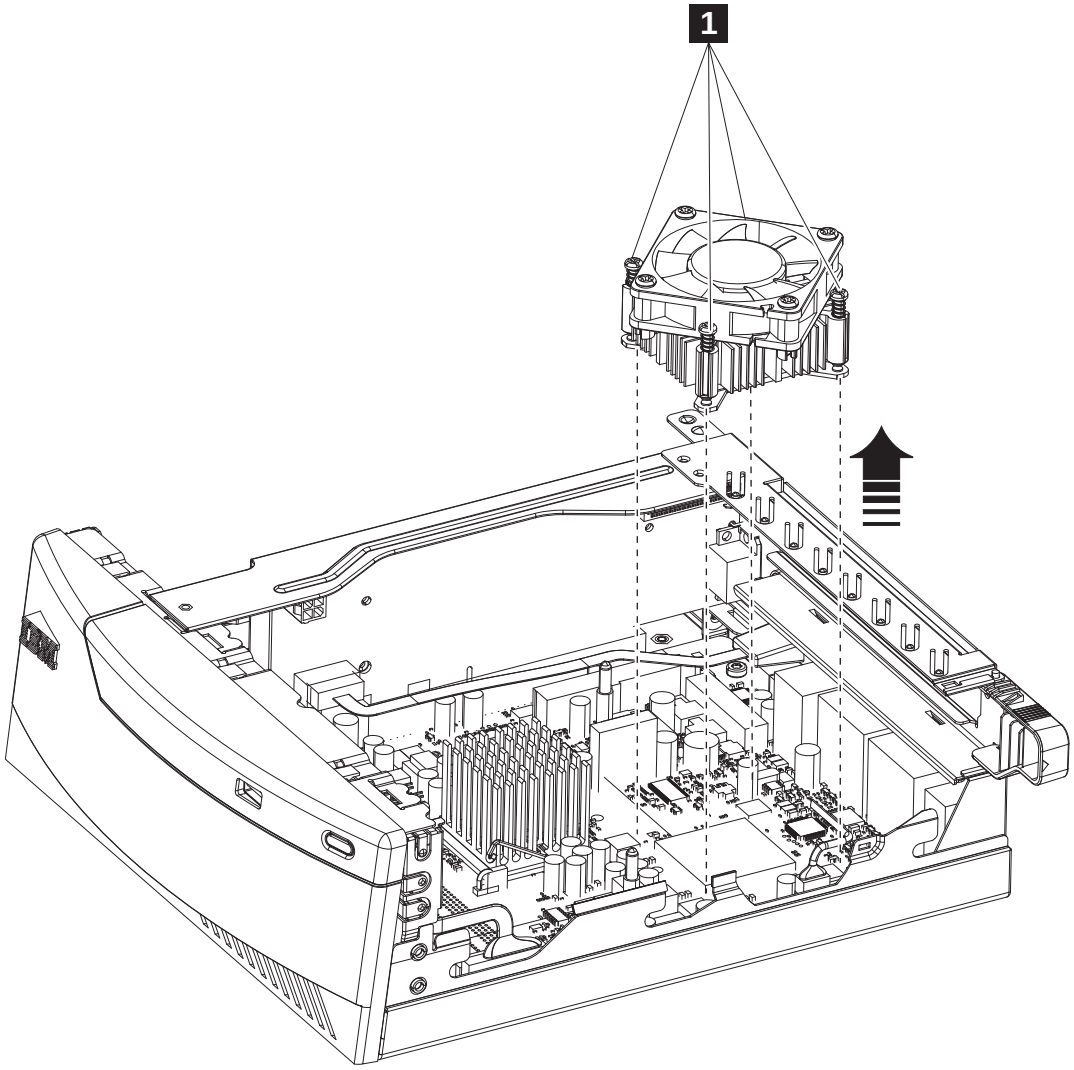


Figure 26. Removing the microprocessor heatsink fan

Removing and installing the power supply

The removal and installation instructions are the same for both the Models x5x and x4x; however, Figure 27 is a diagram of the Model x4x unit.

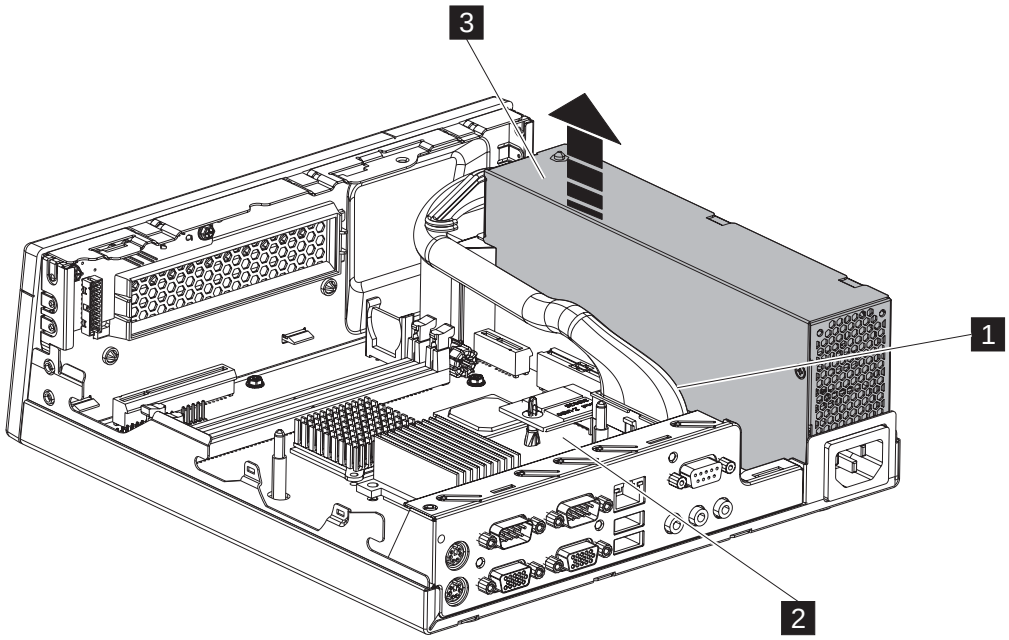


Figure 27. Removing the power supply

To remove the power supply:

1. Open the unit. See "Removing and installing the top cover" on page 16.

   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 31.
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

This section describes how to remove, install, and replace the hard disk drive air duct on the IBM SurePos 300.

Model x5x HDD air duct

Figure 28 is a diagram of the hard disk drive air duct of the IBM SurePos 300 for Model x5x.

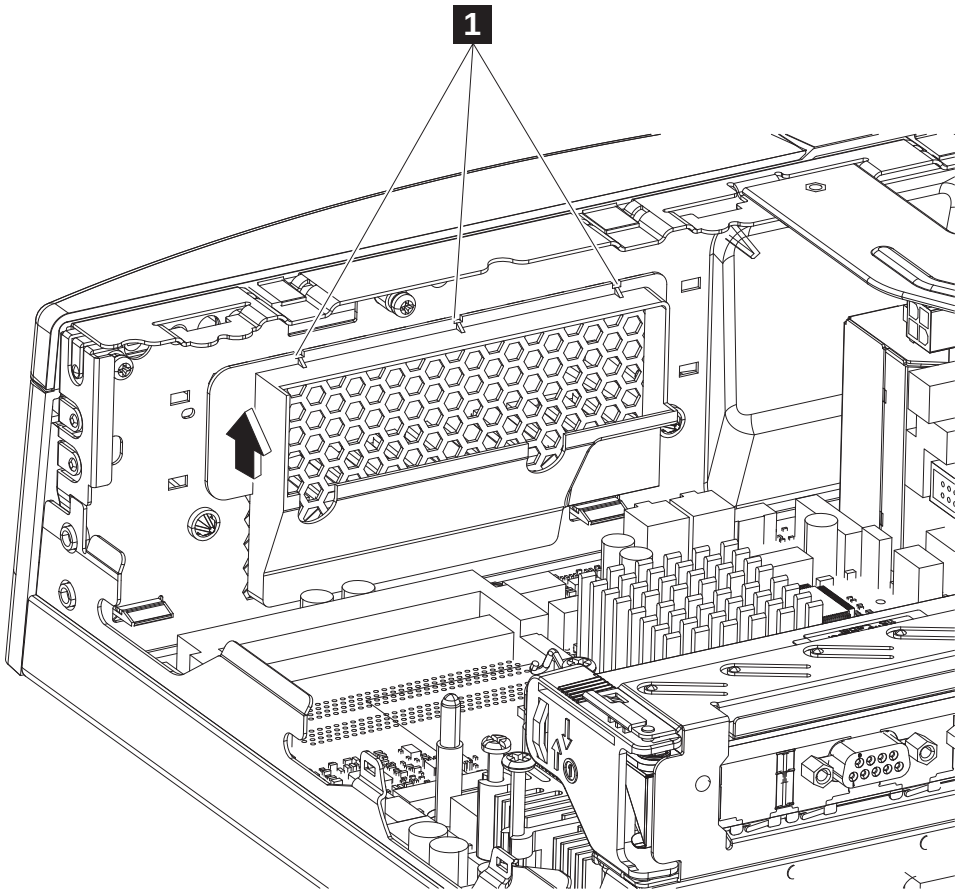


Figure 28. Removing the hard drive air duct from a Model x5x

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. After 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 16.
2. Remove the hard drive assembly (see"Removing and installing the hard disk drive and hard disk drive tray as an assembly" on page 20) or SDD assembly (see "Removing and installing the solid state drive tray as an assembly (Model x5x only)" on page 23).
3. 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 (see Figure 28).

4. To install the hard drive front air duct, reverse this procedure.

Model x4x HDD air duct

Figure 29 is a diagram of the hard disk drive air duct for the IBM SurePos 300 for Model x4x.

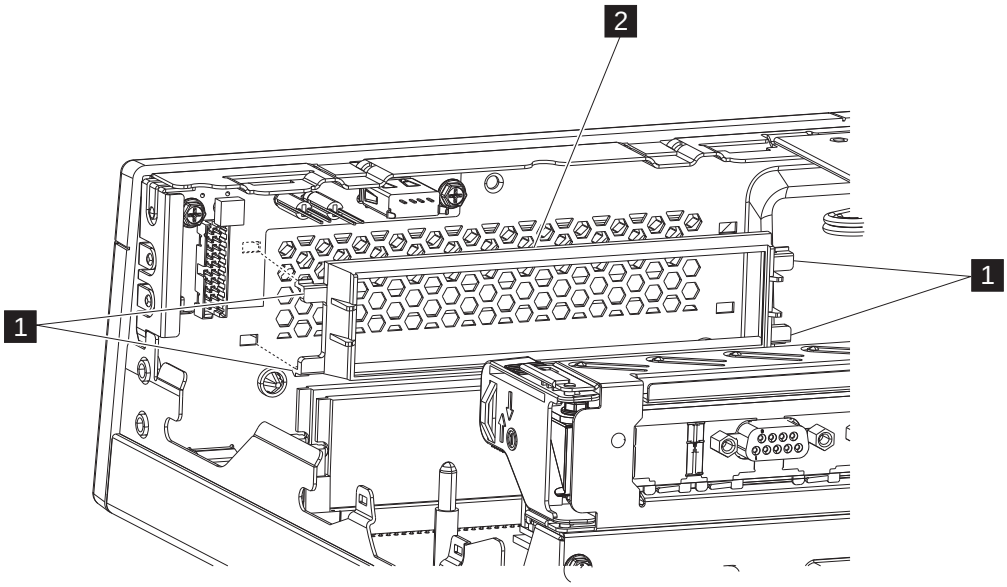


Figure 29. Removing the hard drive air duct a Model x4x

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. After 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 16.
2. Remove the hard drive assembly (see“Removing and installing the hard disk drive and hard disk drive tray as an assembly” on page 20).
3. 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** (see Figure 29.
4. To install the hard drive front air duct, reverse this procedure.

Resetting the system board CMOS settings

The removal and installation instructions are the same for both the Models x5x and x4x; however, Figure 30 is a diagram of the Model x4x unit.

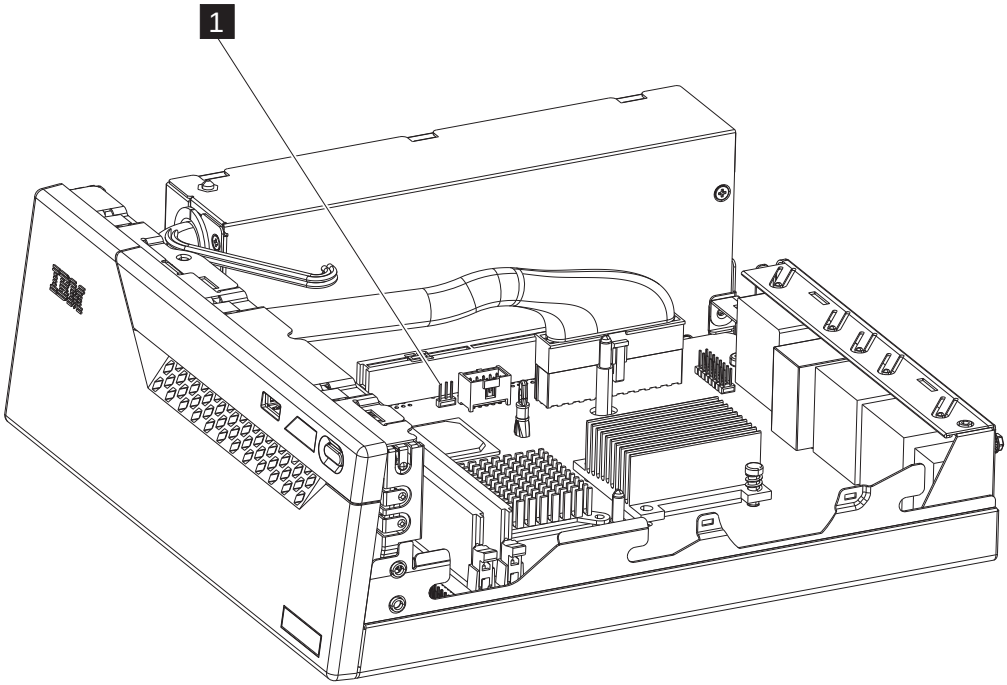


Figure 30. Locating and resetting the CMOS jumper

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 16.
2. Remove the hard drive assembly. See "Removing and installing the hard disk drive and hard disk drive tray as an assembly" on page 20.
3. If a flash drive is installed, remove it. See "Removing and installing the flash drive (Model x4x only)" on page 24.
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 31.
5. Locate the CMOS jumper **1** , as shown in Figure 30.
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. Reinstall 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

This section describes the procedures to remove and install the battery in the IBM SurePos 300 system units.

Model x5x battery

There are two batteries in the IBM SurePos 300 for Model x5x. Figure 31 shows where the batteries are located in the IBM SurePos 300 for Model x5x.

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

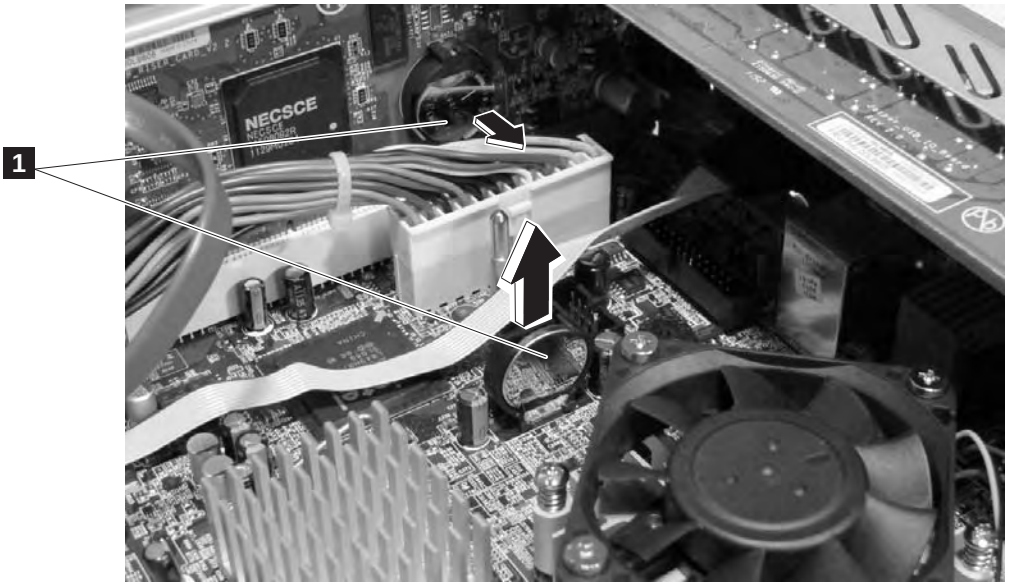


Figure 31. Removing and installing the battery (Model x5x)

1. Open the unit. See "Removing and installing the top cover" on page 16.
2. Remove the hard drive assembly (see"Removing and installing the hard disk drive and hard disk drive tray as an assembly" on page 20) or SDD assembly (see "Removing and installing the solid state drive tray as an assembly (Model x5x only)" on page 23).
3. Remove the battery **1** by sliding it up in the direction of the arrow, as shown in Figure 31.
4. To install the battery, reverse this procedure. Be sure that the battery orientation is correct, with the plus (+) sign facing toward the microprocessor heatsink fan.

Model x4x battery

Figure 32 shows the battery location of the IBM SurePos 300 for Model x4x.

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

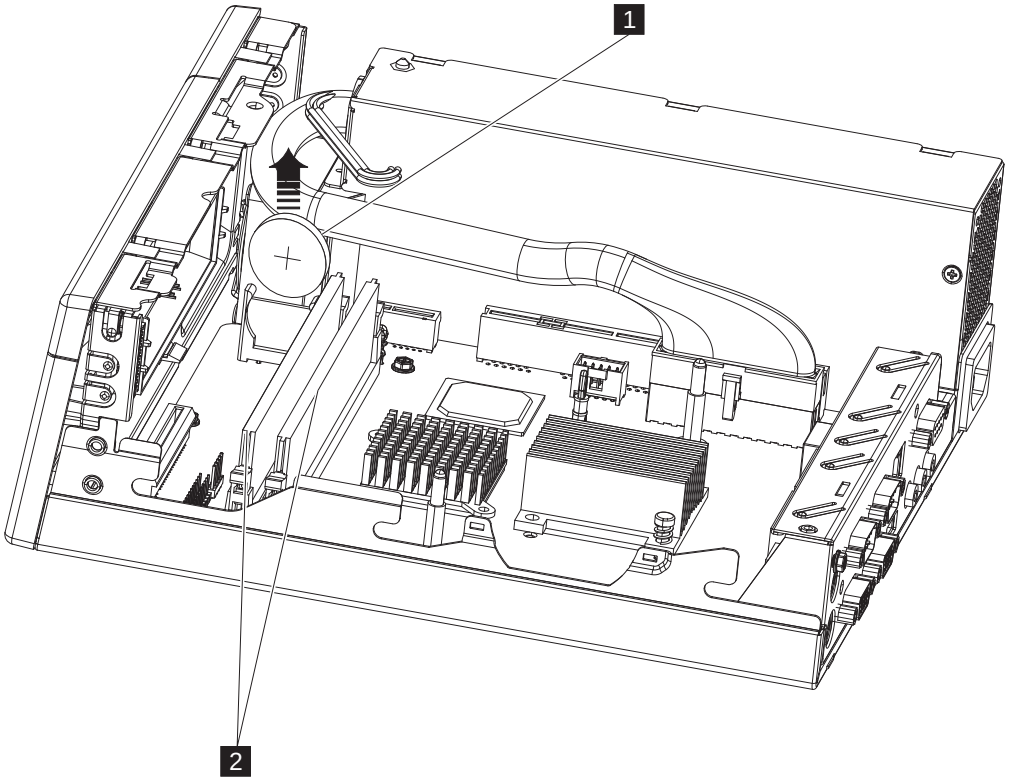


Figure 32. Removing and installing the battery

1. Open the unit. See "Removing and installing the top cover" on page 16.
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 plus (+) sign facing toward the memory modules **2**, as shown in Figure 32.

Removing and installing the system board

This section describes how to remove, install, and replace the system board of the IBM SurePos 300 system units.

Model x5x system board

To remove the system board on a Model x5x:

1. Open the unit. See “Removing and installing the top cover” on page 16.
2. Remove the hard drive assembly (see“Removing and installing the hard disk drive and hard disk drive tray as an assembly” on page 20) or SDD assembly (see “Removing and installing the solid state drive tray as an assembly (Model x5x only)” on page 23).
3. Remove the riser card. See “Removing and installing the riser card and the I/O connector card as an assembly” on page 31.
4. Disconnect the front-panel card cable. See “Model x5x front-panel card” on page 28.
5. Remove the memory. See “Removing and installing the memory module” on page 25.

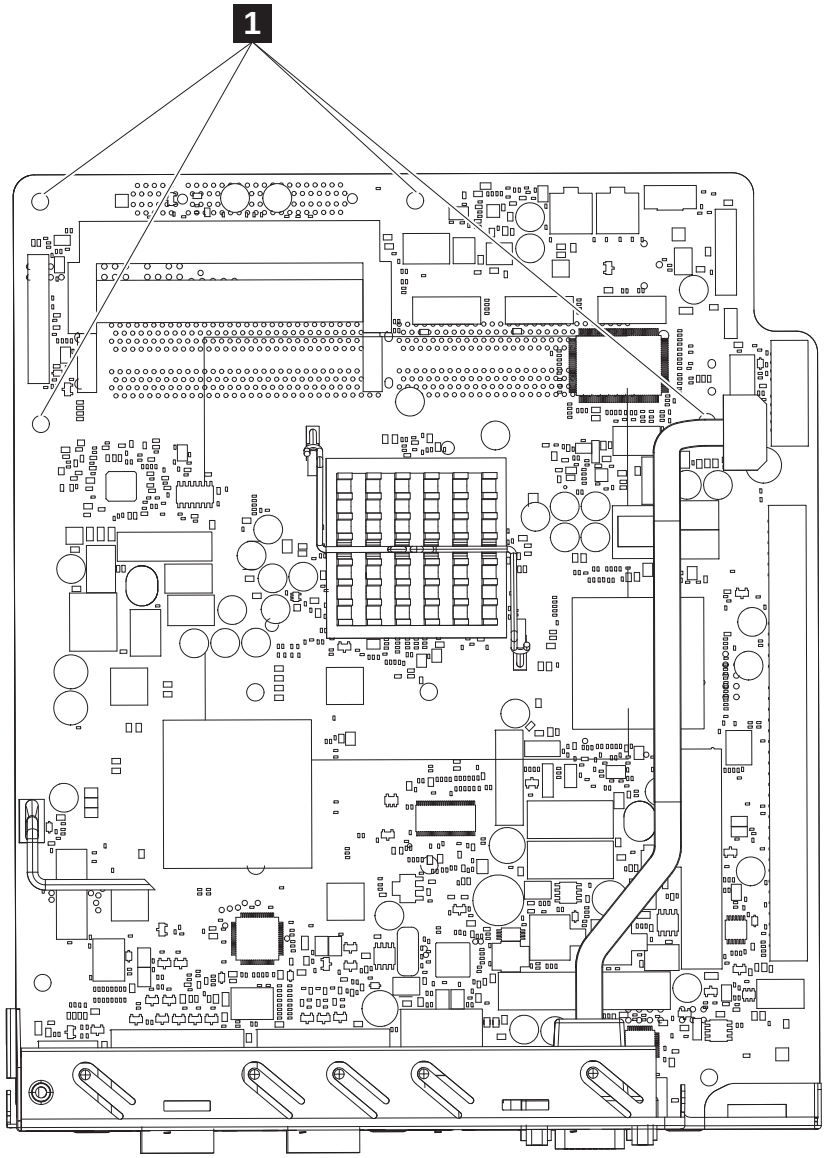


Figure 33. Removing the system board

6. Remove the four system-board retaining screws **1** on the system board (see Figure 33).
7. Remove the system board by rotating it, **2** , as shown in Figure 34 on page 42; then lift up.

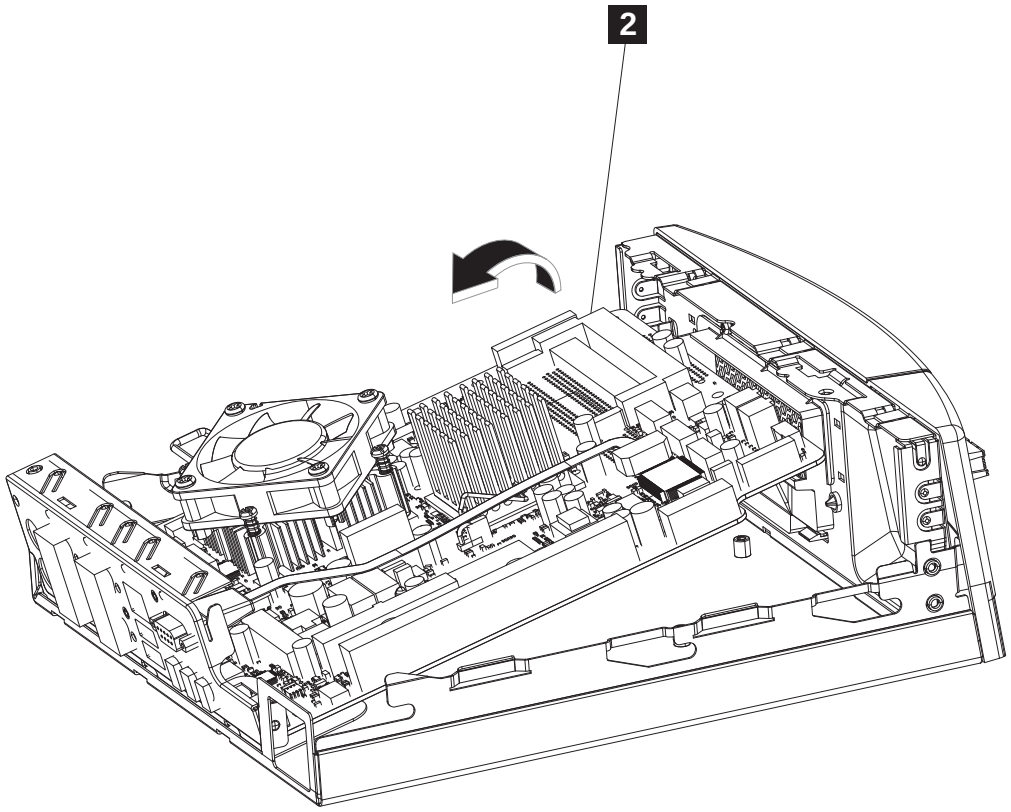


Figure 34. Tilting and removing the system board

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

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

Model x4x system board

Figure 8 on page 16 is a diagram of the system board of the Model x4x unit.

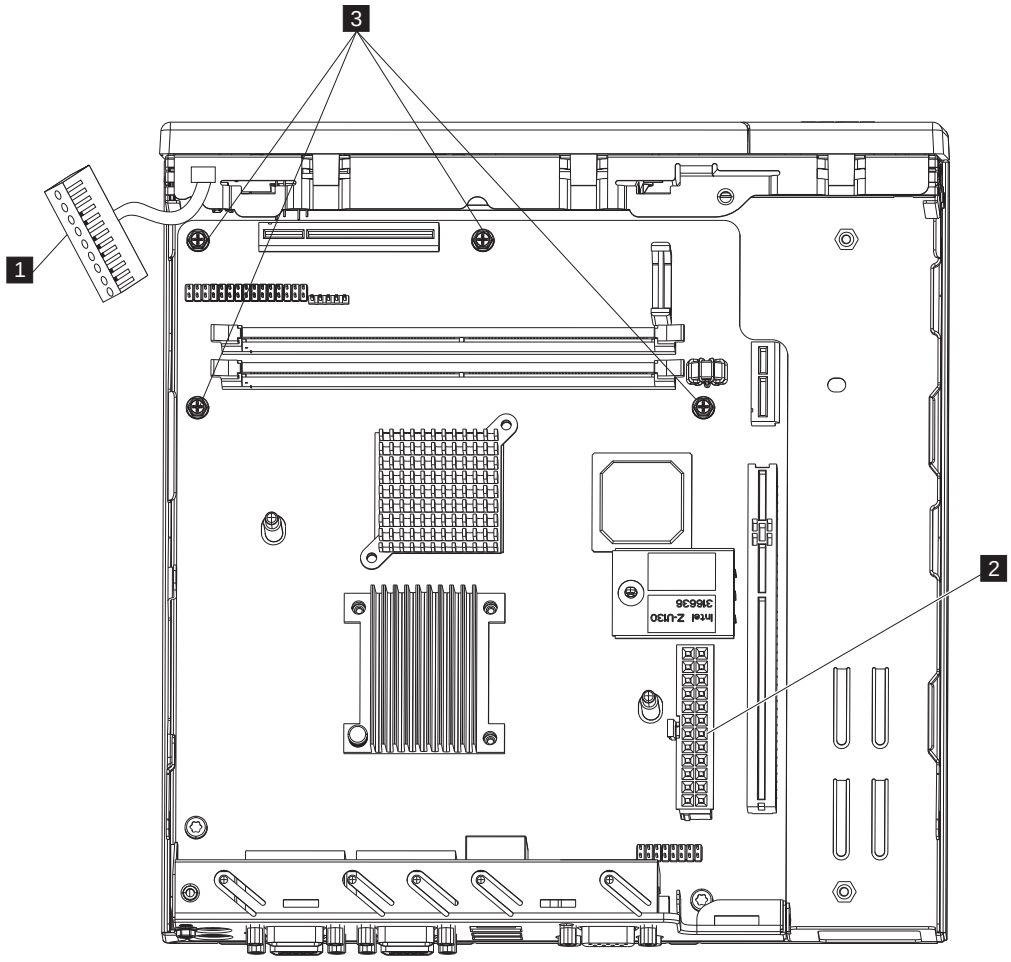


Figure 35. Removing the system board

To remove the system board:

1. Open the unit. See "Removing and installing the top cover" on page 16.
2. Remove the hard drive. See "Removing and installing the hard disk drive and hard disk drive tray as an assembly" on page 20.
3. Remove the riser card. See "Removing and installing the riser card and the I/O connector card as an assembly" on page 31.
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 25.
6. Remove the flash drive, if installed. See "Removing and installing the flash drive (Model x4x only)" on page 24.
7. Remove the four system-board retaining screws **3** on the system board. See Figure 35.

8. Remove the system board by rotating it 4 , as shown in Figure 36; then lift up 5 .

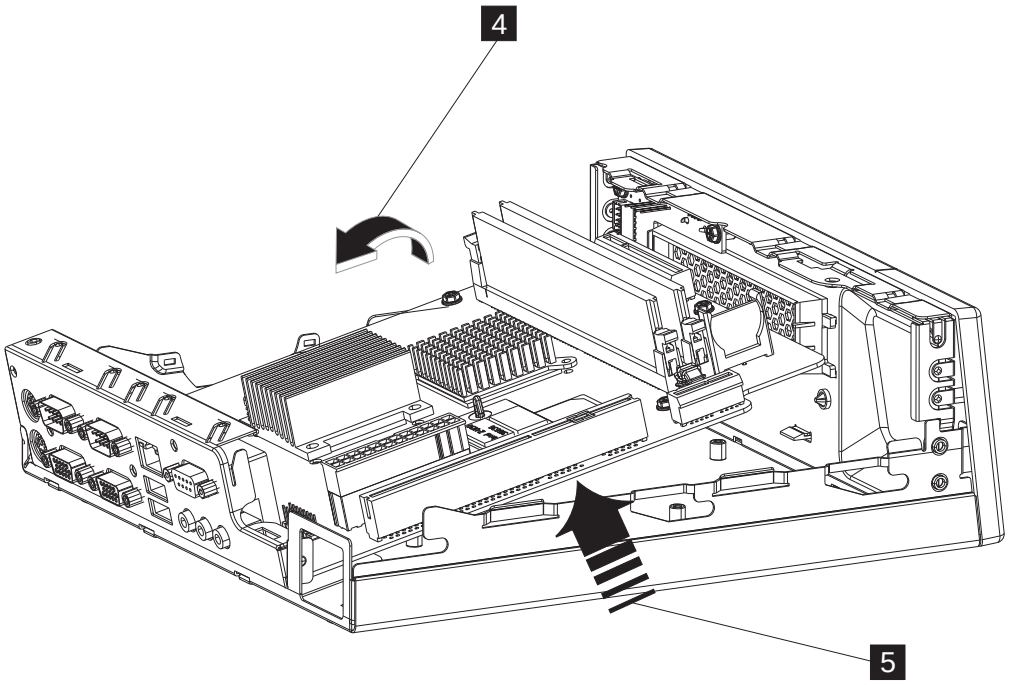


Figure 36. rotating and removing the system board

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

The removal and installation instructions are the same for both the Models x5x and x4x; however, Figure 37 is a diagram of the Model x4x unit.

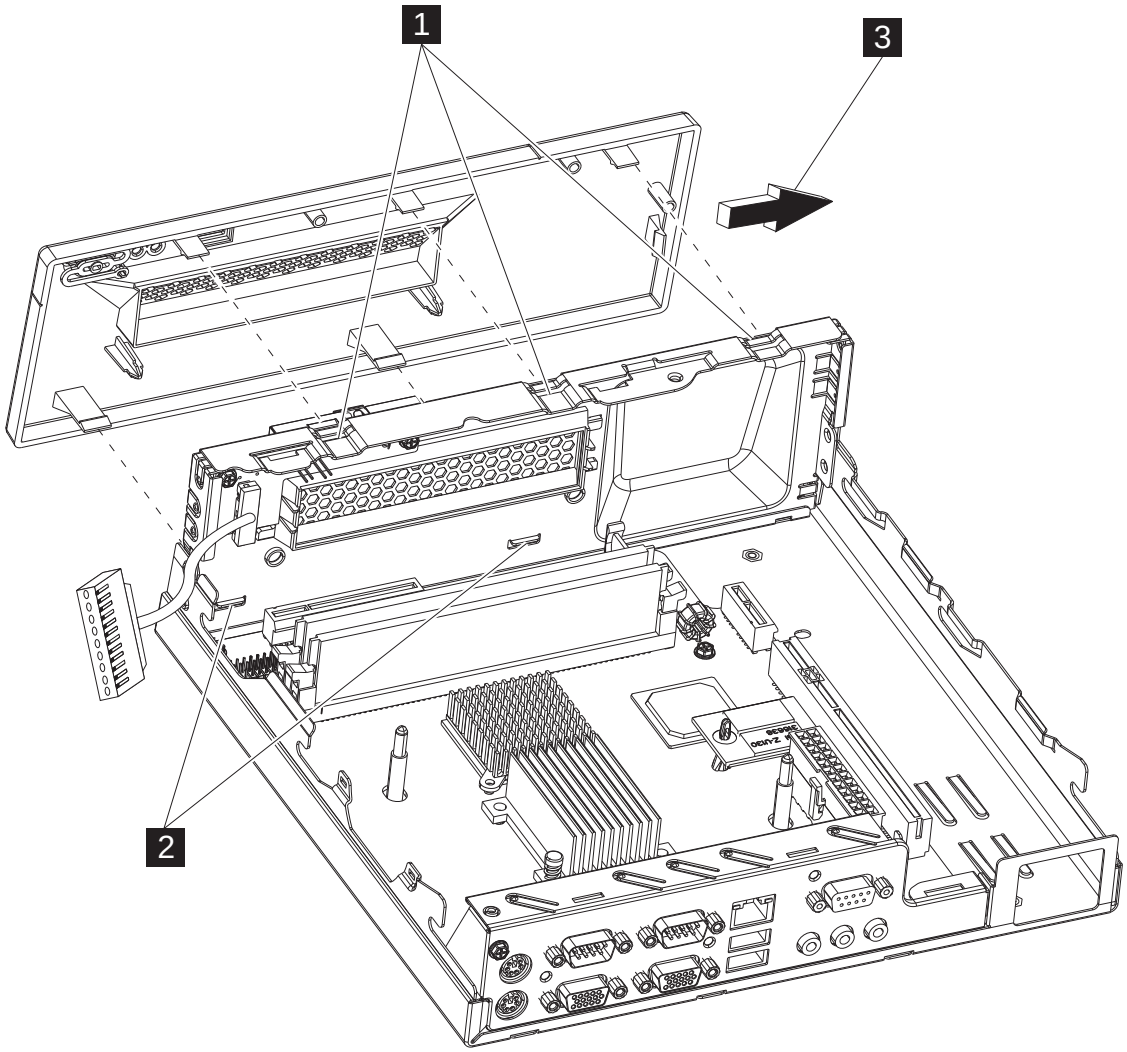


Figure 37. Removing the front cover

To remove the front cover:

1. Open the unit. See "Removing and installing the top cover" on page 16.
2. Remove the hard drive assembly (see"Removing and installing the hard disk drive and hard disk drive tray as an assembly" on page 20) or SDD assembly (see "Removing and installing the solid state drive tray as an assembly (Model x5x only)" on page 23).
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. Click **diagnostics** on the bottom, right hand side of the IBM RSS support website (www.ibm.com/solutions/retail/store/support) for instructions on loading diagnostics onto a memory key.
- 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 are available in the IBM Diagnostics for POS Systems and Peripherals package. This package installs to a supported memory key, as described in “Supported memory keys”

Diagnostics memory key setup

For directions on how to set up your diagnostics memory key, see the README file that is located under the **Diagnostic** heading of the RSS support website (www.ibm.com/solutions/retail/store/support).

1. Obtain a memory key. See “Supported memory keys” described above.
2. Access the IBM Retail Store Solutions website at www.ibm.com/solutions/retail/store/support.
3. Click **Support** on the left side of the panel, and then **IBM SurePOS 300 Series**.
4. Click **SurePOS 300-35x Downloads** or **SurePOS 300-34x Downloads**.

5. Download the 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 might prevent the booting of the IBM RSS diagnostics USB memory key.
8. **For Model x5x:** To ensure that the BIOS setup configuration is correct, complete the following steps:
   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 **Boot** menu.
   e. Verify that the inserted IBM RSS diagnostics USB memory key is located at the top of the boot order.
9. **For Model x4x:** To ensure that the BIOS setup configuration is correct, complete the following steps:
   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 that 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

This section includes 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.

- Table 15 on page 52 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 14 on page 50 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 Table 3 on page 3 and Table 7 on page 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 12.

   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, see to “Diagnostics memory key setup” on page 47, Step 8 (item a).

Power LED operation

The powered LED functions as an indicator of the system power state. Table 3 on page 3 and Table 7 on page 7 defines the operation of the power LED.

Beep codes

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

Table 12. 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 13. 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.

Table 13. POST messages displayed to the system monitor (continued)

Message	Meaning/action
CMOS Checksum Error **(Model x4x only)**	The CMOS has become corrupt. It is recommended that defaults be restored through BIOS setup: 1. Power **ON** the system. 2. Press **DEL** when prompted to enter setup. 3. Select **Load Optimized Defaults** and press **F10** to save settings and exit BIOS setup.
System Health Check **(Model x4x only)** • Memory status • System board status • 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 14. 4810/4910 Problem symptoms table

Symptom	Actions
System unit does not boot	1. Unplug from the power outlet, wait at least 5 seconds, replug 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. 2. 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. 3. Check for a blown fuse, a tripped circuit breaker, or a power failure. 4. Verify that all internal cables are securely connected. 5. Shut down your system between each reboot to avoid file corruption.
Power LED does not light and the system boots	1. Replace the front panel card/cable assembly. 2. Replace the system board.
Time of day not maintained across AC removal	Replace the system battery.

Table 14. 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. 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. 2. Confirm that there is a solid connection of the video cable to the system unit in the correct monitor port. 3. Ensure that the monitor is powered **ON**. 4. Perform monitor diagnostics.
Serial I/O device not working	1. Examine the device cable and replace if indicated. 2. Run self tests on the device and replace if indicated. 3. Use the RSS diagnostic program and the appropriate wrap plug tool. If this test is successful, then the problem relates to the I/O device or to a non-hardware system software problem. 4. Replace a SurePort card if the port is part of the SurePort card.
USB I/O device not working	Confirm operation of the I/O port USB connection using the memory key to boot diagnostics through that port.

Table 14. 4810/4910 Problem symptoms table (continued)

Symptom	Actions
Cash drawer not working	**Note:** The cash drawer port is located on the riser card. 1. Boot the RSS diagnostics memory key. 2. Choose the POS I/O tests from the main screen. Check to see if the cash drawer test displays on the screen; if this test does not display, replace the riser card. 3. If the cash drawer test displays on the screen, run the cash drawer diagnostic test. If the cash drawer diagnostic test passes, the cash drawer is functioning. 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 does not boot.	Follow the steps in Table 13 on page 49.
Continuous tone after POST	1. Confirm presence and proper seating of the memory module. 2. If a DIMM socket is available, move the memory module to the other socket. 3. Replace the memory module.

Suspected Fault

Based on the symptoms, if a fault is suspected in a particular FRU, complete the confirming checks in Table 15

Table 15. Suspected fault

FRU	Evaluation
HDD	1. During POST, verify that the HDD Health Check runs successfully. 2. Examine the boot sequence in the BIOS setup. Verify HDD is in the boot sequence. 3. Run the RSS diagnostics, including the extended diagnostics for the hard drive. 4. Verify that the HDD connector is fully seated into the HDD card connector. 5. If the HDD tests pass, the file system might be corrupt. Refer to the operating system recovery process for additional information.
HDD card/tray assembly	1. Verify that HDD connector is fully seated into the HDD card connector 2. Examine for interface card damage. Replace if damaged. 3. Confirm proper seating of the HDD interface card in the motherboard connector.

Table 15. Suspected fault (continued)

FRU	Evaluation
Modular flash drive	Run the system unit tests. Does the system unit test identify the modular flash drive as an option? If not, replace the flash drive. If it does, run the test for the modular flash drive. Does the test pass? If not, replace the flash drive.
System Board	1. During POST, verify that the system board check program runs successfully. If not, remove and re-seat all cables and board-board connections as follows: • Riser • Power Connector • Power switch card cable • Memory • HDD Assembly **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. 2. Clear CMOS with the jumper. 3. If none of these items are causing the problem with the port, use RSS diagnostics to perform the wrap plug test on the serial port. 4. Shut down your system between each reboot to avoid file corruption.
USB Connector Card	Try booting the USB key in the questionable USB port. Between each boot sequence, shut down the unit to prevent file corruption.
RS-232 Connector card	1. Try booting the USB key in the questionable USB port. 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 that AC power is available at the power outlet. 2. Verify that the power cord is plugged into the outlet. 3. Reseat the power cord in the system unit. 4. Connect the system unit with a different power cord. 5. Reseat the two power supply cables inside the system unit.

Table 15. Suspected fault (continued)

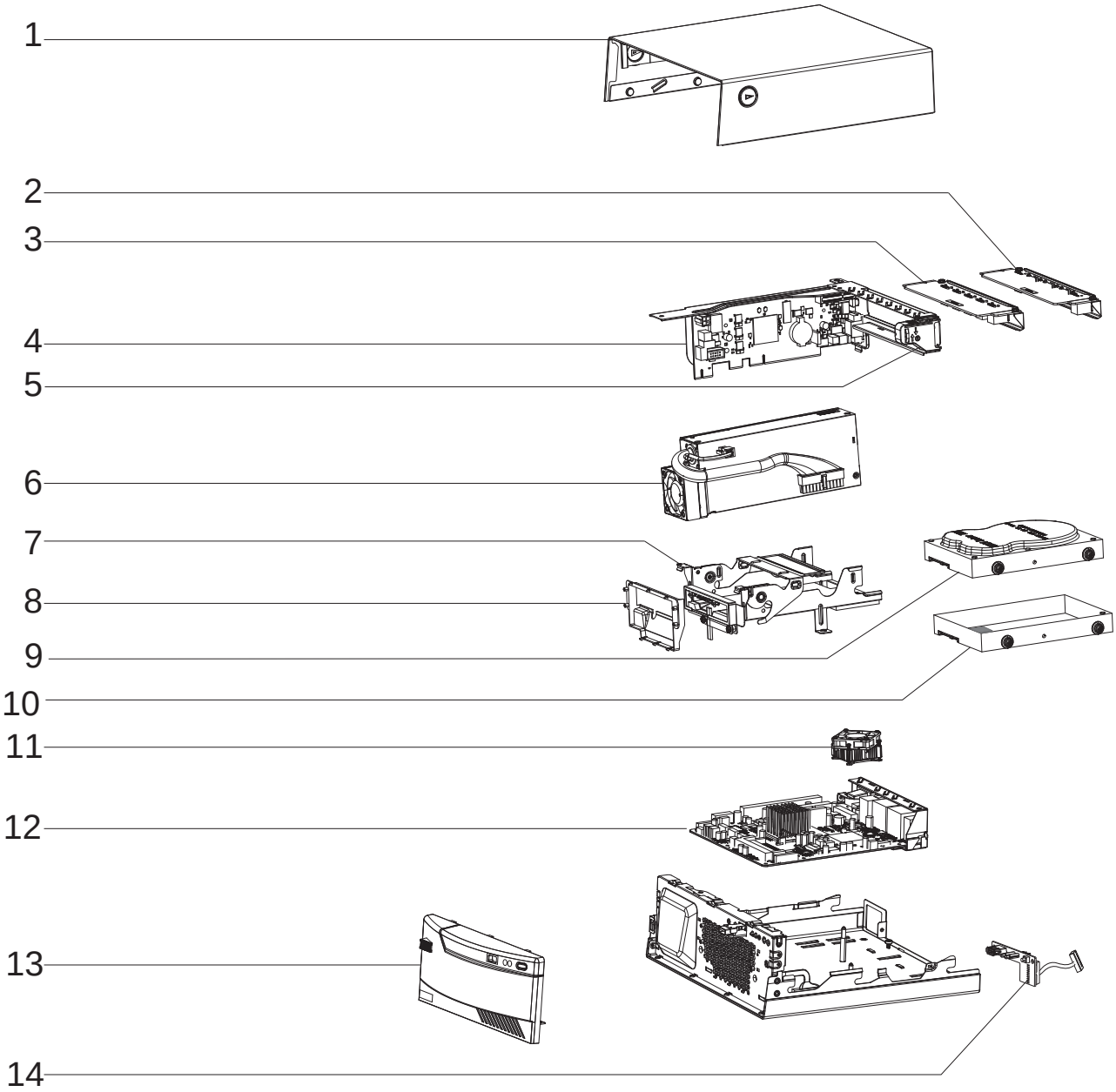
FRU	Evaluation
Battery/coin cell	1. Check that the battery is installed properly. 2. Re-seat the battery.
IO Connector Card Latch	Physical examination.
Top Cover	Physical examination.

Chapter 5. Parts catalog

This chapter provides parts information available for the 4810 and 4910 system units.

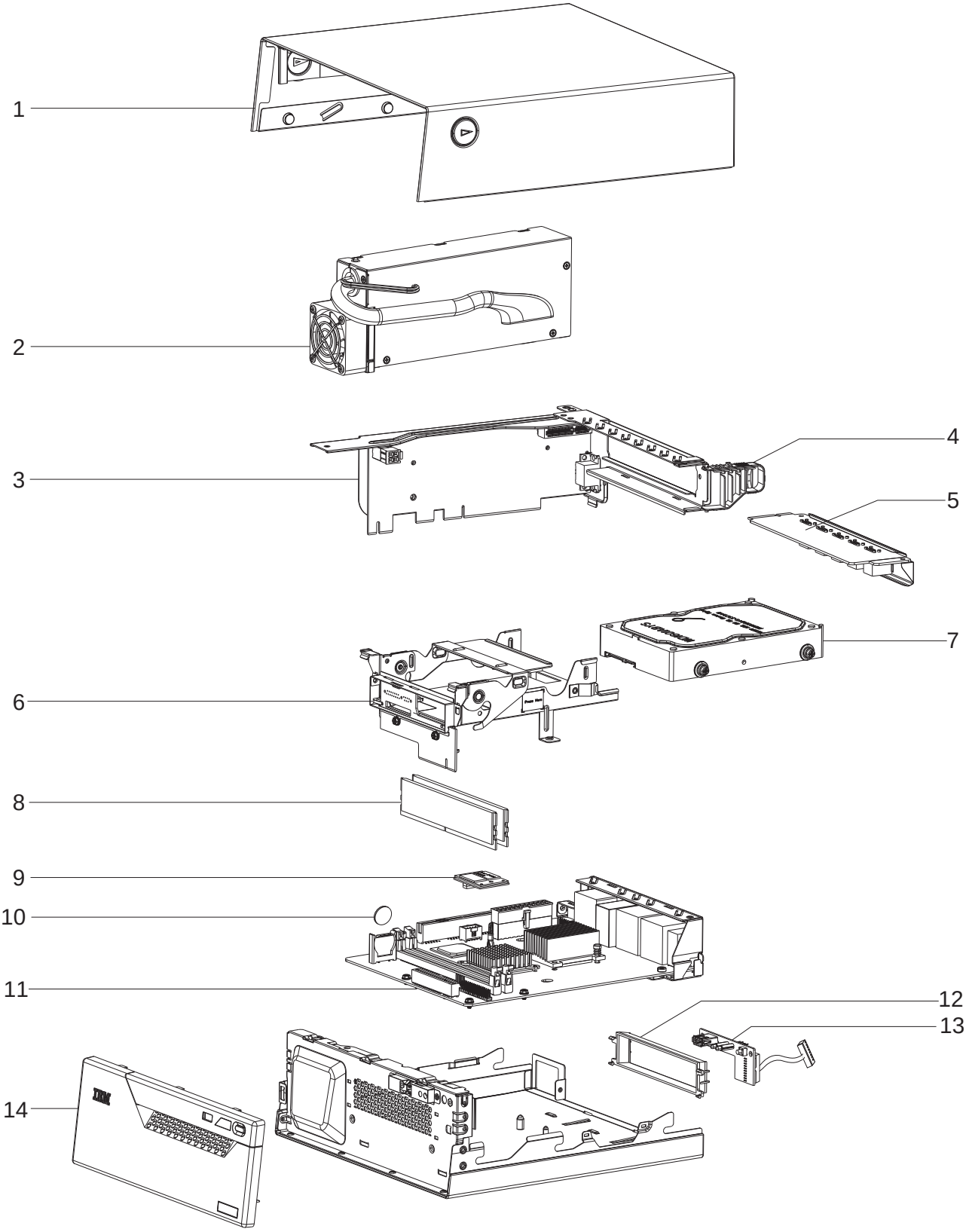
See the hardware service guide for each peripheral device for parts information about the device.

Assembly 1: Model x5x field-replaceable units



Asm–Index	Part Number	Units	Description
1–			**(Model x5x) 4810 System Unit Assembly**
–1	44V2034	1	Top cover
–2	00L9604	1	RS232 Sureport card ASM
–3	00L9605	1	USB Sureport card ASM
–4	00L9608	1	Riser card ASM with NVRAM
–4	00L9607	1	Riser card ASM without NVRAM
–5	44V2039	1	I/O connector card latch
–6	00L9601	1	Power supply
–7	00L9682	1	HDD tray/SATA cable bracket ASM
–8	00L9688	1	HDD air duct
–9	00L9606	1	HDD ASM, 500 GB
–10	00L9602	1	SDD ASM, 64 GB
–10	00L9603	1	SDD ASM, Dual 64 GB
–11	00L9676	1	Microprocessor heatsink
–12	00L9697	1	System board
–13	00L9686	1	Front Bezel ASM
–14	00L9684	1	Front panel card
–	00L9609	1	Memory module, 1 GB, SODIMM
–	00L9610	1	Memory module, 2 GB, SODIMM
–	00L9699	1	Memory module, 4 GB, SODIMM
–	45P6222	1	Coin cell battery (Maxell CR2032)
–	00L9690	1	SATA cable
–	44V2078	1	Tool, Wrap plug, 9 pin standard RS232
–	44V2079	1	Tool, Wrap plug, 9 pin powered RS232
–			**4810 Tools**
–	44V2078	1	Wrap plug, 9-pin standard serial port (RS232)
–	44V2079	1	Wrap plug, 9-pin powered serial port (RS232)
–			**4810 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

Assembly 2: Model x4x field-replaceable units



Asm–Index	Part Number	Units	Description
2–			**(Model x4x) 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

The chapter includes a list of the power cords by country that are compatible with Models x5x and x4x of the IBM 4810/4910 Point of Sale terminals.

Table 16. 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

This appendix includes a description for each of the connector pinouts that are available with Models x5x and x4x of the IBM 4810/4910 Point of Sale terminal.

Keyboard/Mouse Connector

This section includes a diagram and description of the pins for the keyboard and mouse connector.

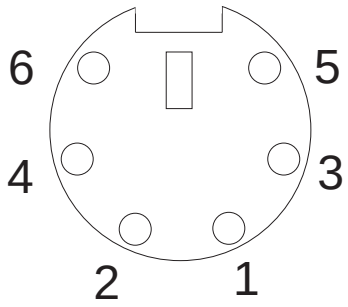


Figure 38. Keyboard/Mouse Connector

Table 17 list the pin number and signal strength for the keyboard or mouse connectors.

Table 17. Keyboard/mouse connector pin descriptions

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

RS232 connector

This section describes the pins for the RS232 connector.

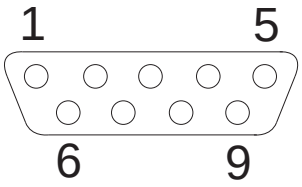


Figure 39. RS232 Connector

Table 18 list the signal strength and direction for each pin number of a RS232 connector.

Table 18. 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

This section includes a diagram and description of the pins for a powered RS232 connector.

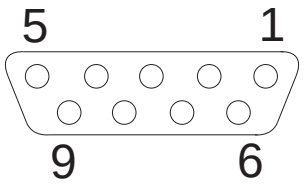


Figure 40. Powered RS232 Connector

Table 19 list the signal strength and direction for each pin number of a powered RS232 connector.

Table 19. Powered RS232 Connector

Pin	Signal	Direction
1	12 V	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

This section includes a diagram and description of the pins of an external VGA connector.

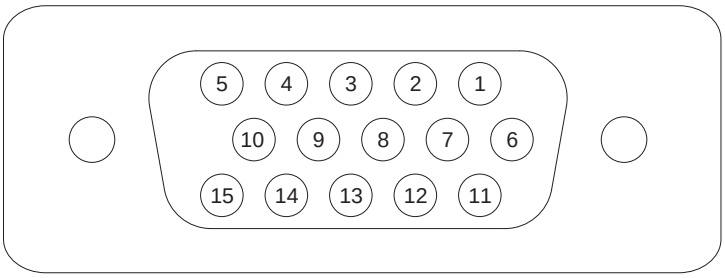


Figure 41. External VGA connector

Table 20 list the signal strength for each pin number of a powered external VGA connector.

Table 20. 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

This section includes a diagram and description of the pins for an Ethernet connector.

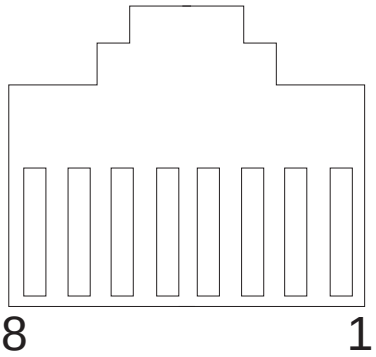


Figure 42. Ethernet connection

Table 21 list the signal strength and direction for each pin number of an Ethernet connector.

Table 21. 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

This section includes a diagram and description of the pins for USB connector.

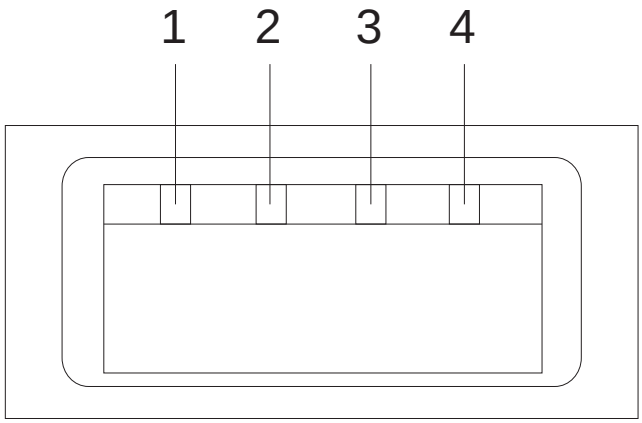


Figure 43. USB Connector

Table 22 list the connector for each pin number of an USB connector.

Table 22. USB Connector

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

Headphone, line-in, or microphone connector

Table 23 list the signal strength for each pin number of a headphone, line-in, or microphone connector.

Table 23. Headphone/Line-in/Microphone Connector

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

Cash drawer connector

This section includes a diagram and description of the pins for a cash drawer connector.

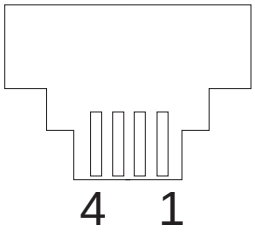


Figure 44. Cash Drawer Connector

Table 24 list the connector for each pin number of cash drawer connector.

Table 24. Cash Drawer Connector

Pin	Connector
1	Ground
2	Sense
3	Open
4	24 V

Powered USB Connector

This section includes a diagram and description of the pins for a powered USB connector.

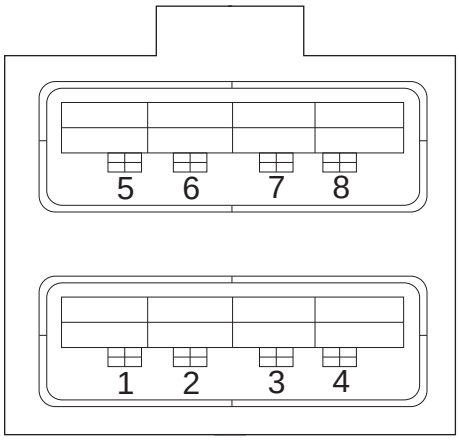


Figure 45. Powered USB Connector

Table 25 list the connectors for each pin number of a powered USB connector.

Table 25. Powered USB Connector

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

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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.

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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:

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"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 vergrö*ß*ern."

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

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高調波ガイドライン適合品

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Japan Electronics and Information Technology Industries Association (JEITA) statement

高調波ガイドライン適合品

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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

Attention: Electrostatic discharge (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 the IBM Website at www.ibm.com/ibm/environment/products/recycling.shtml.

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Remarque : Cette marque s'applique uniquement aux pays de l'Union Européenne et à la Norvège. L'etiquette du système respecte la Directive européenne

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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 www.ibm.com/ibm/environment/products/battery.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 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: Visit the website of the Department of Environmental Protection at www.ct.gov/depfor 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 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 Website at https://fortress.wa.gov/ecy/recycle/ or telephone the Washington Department of Ecology at 1-800Recycle.

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Appendix C. Additional notices

Conforms to ANSI/UL STD.60950-1.

Certified to CAN/CSA STD.C22.2 NO. 60950-1

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

SurePOS 300
Installation and Service Guide for 4810/4910
Models x5x and x4x

Publication No. G362-0560-02

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