

USER GUIDE

NCR RealPOS 82XRT (7606)

Release 1.0



B005-0000-2085

Issue D



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Preface

Audience

This book is written for hardware installer/service personnel, system integrators, and field engineers.

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Safety Requirements

The NCR *RealPOS 82XRT* conforms to all applicable legal requirements. To view the compliance statements see the *NCR RealPOS Terminals Safety and Regulatory Statements* (B005-0000-1589).



Caution: The on/off switch is a logic switch only. The AC line voltage primaries are live at all times when the power cord is connected. Therefore, disconnect the AC power cord before opening the unit to install features or service this terminal.



Caution: This product does not contain user serviceable parts. Servicing should only be performed by a qualified service technician.

Fuse Replacement



Warning: For continued protection against risk of fire, replace only with the same type and ratings of fuse.

Attention: Pour prévenir et vous protéger contre un risque de feu, remplacer la fusible avec une autre fusible de même type, seulement.

Lithium Battery Warning



Warning: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Attention: Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Battery Disposal (Switzerland)

Refer to Annex 4.10 of SR814.013 for battery disposal.

IT Power System

This product is suitable for connection to an IT power system with a phase-to-phase voltage not exceeding 240 V.

Peripheral Usage

This terminal should only be used with peripheral devices that are certified by the appropriate safety agency for the country of installation (UL, CSA, TUV, VDE) or those which are recommended by NCR Corporation.



Warning: DO NOT connect or disconnect the transaction printer while the terminal is connected to AC power. This can result in system or printer damage.



Warning: DO NOT connect or disconnect any serial peripherals while the terminal is connected to AC power. This can result in system or printer damage.

Grounding Instructions

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances. Do not modify the plug provided – if it will not fit the outlet, have the proper outlet installed by a qualified electrician. Improper connection of the equipment-grounding conductor can result in a risk of electric shock.

The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor.

If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal. Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if you are in doubt as to whether the product is properly grounded.

Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the product's plug. **Repair or replace damaged or worn cords immediately.**

References

- *NCR RealPOS 82XRT Site Preparation Guide (B005-0000-2086)*
- *NCR RealPOS 82XRT Service Guide (B005-0000-2087)*
- *NCR RealPOS 82XRT Parts Identification Manual (B005-0000-2088)*

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Revision Record

Issue	Date	Remarks
A	Mar 2012	First Issue
B	Jul 2012	Added SSD Optimization chapter
C	Aug 2012	Release 1.1
D	Aug 2014	Release 1.2

Chapter 1: Product Overview

Introduction

The NCR RealPOS 82XRT POS Workstation (also known as NCR 7606) is a powerful, retail-hardened point-of-sale terminal targeted for general merchandise, food and convenience store environments.

Featuring a next generation architecture with support for advanced Intel® vPro™ technology, the NCR RealPOS 82XRT delivers industry-leading power, scalability and systems management capabilities to the point-of-service. With support for Intel's 2nd generation processors, high-speed Gigabit Ethernet, Advanced Format SATA 6Gb/s hard drives, and support for up to 32GB of DDR3 memory, the NCR RealPOS 82XRT is designed to grow with your business and protect your systems investment. In addition, utilizing Intel® Active Management Technology (AMT), the NCR RealPOS 82XRT includes built-in manageability to increase uptime and help drive down your total cost of ownership.

The system offers superior connectivity for retail, with support for legacy peripheral interfaces (RS-232, PS/2, and VGA), as well as mainstream interface standards such as Powered USB and a DVI video interface and also emerging interfaces, such as DisplayPort.

PCI and PCI Express expansion slots allow maximum expansion capability. The NCR RealPOS 82XRT also supports a variety of storage options including dual SATA hard drives with onboard RAID (Redundant Array of Independent Disks), delivering excellent performance and data redundancy.

The cabinet configurations are optimized to save valuable space at the Checkstand while providing expandability for future needs.

The RealPOS 82XRT supports a broad range of industry standard operating system environments including Windows 7 Professional, Windows XP Professional, Windows Embedded POSReady 2009, Windows Embedded POSReady 7, and Fedora 15 for Linux.

New for Release 1.1

- New more efficient 80Plus Gold Power Supply
- 4 GB Memory Upgrade Option
- New Display Port to DVI adapter cable (7606-K353)

New for Release 1.2

- New models with 4GB memory as base
- Removal of US Power cord from EUI (ordered separately)
- 8GB memory feature and kit
- Triple Independent Display capability via PCIe video card (for Japan)
- Kits and features in Black

Product IDs

Major Model	CPU
7606-1004	Intel Celeron G540, 2.5 GHz, 4GB DDR3 1033MHz memory, Diskless, 80Plus Gold Power Supply, Beige
7606-1009	Intel Celeron G540, 2.5 GHz, 4GB DDR3 1033MHz memory, Diskless, 80Plus Gold Power Supply, Charcoal
7606-1114	Intel Celeron G540, 2.5 GHz, 4GB DDR3 1033MHz memory, Diskless, UPS Ready, Beige
7606-1309	Intel Pentium G850, 2.9 GHz, 4GB DDR3 1033MHz memory, Diskless, 80Plus Gold Power Supply, Beige
7606-1509	Intel Core-i3 2120, 3.3 GHz, 4GB DDR3 1033MHz memory, Diskless, 80Plus Gold Power Supply, Charcoal
7606-1709	Intel Core-i5 2400, 3.1 GHz, 4GB DDR3 1033MHz memory, Diskless, 80Plus Gold Power Supply, Charcoal

Configurations

The 7606 can be configured in a modular or an integrated system. Choose from NCR's extensive line of peripherals, including printers, displays, keyboards and scanners. The RealPOS 82XRT provides flexible connectivity options to power peripherals as well as dual display support for customer-facing advertising and messaging.



Integrated Configuration

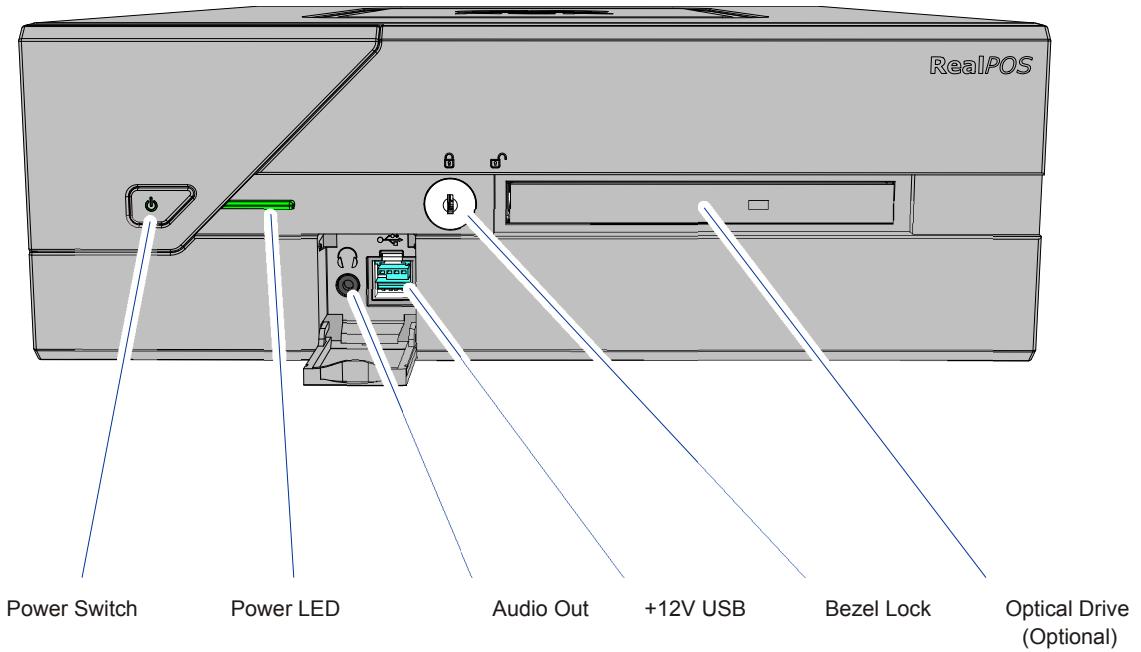


Modular Components



7459-K320 Vertical Mount

Front Accessible Features



Serial Number/Model Number Label

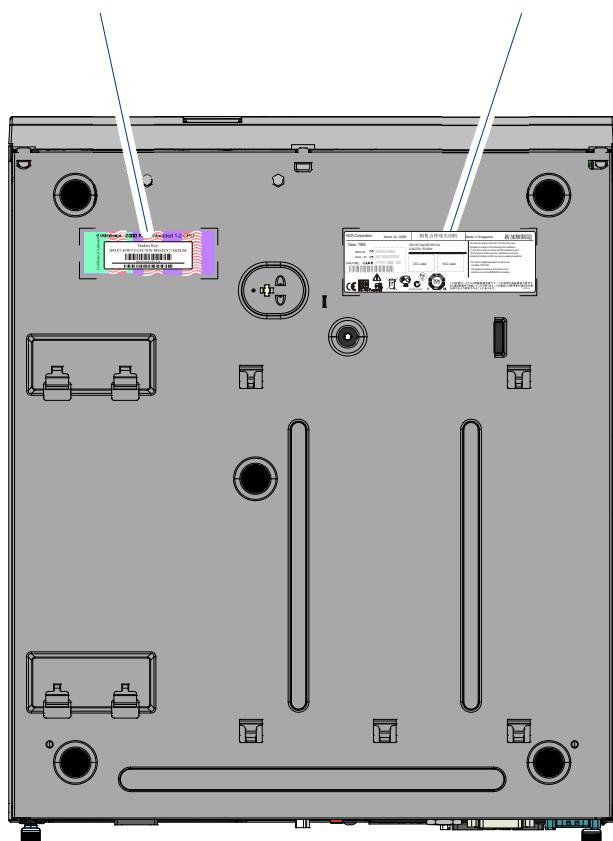
The serial number and model number are included on the Certification Label located on bottom of the terminal. A Microsoft Certificate of Authenticity (COA) label is included if the terminal is ordered and shipped with a pre-installed Microsoft Operating System. There are two types of Microsoft COA stickers. Depending on the Microsoft Operating System ordered the label is located on either the Bottom Cover for XP Professional and Windows 7 OR next to the Certification Label for XP Embedded, WEPOS, POSReady 2009, and POSReady 7.



Note: The serial number is repeated on the rear panel under the PCI expansion slots and on the inside of the Access Door.

Certificate of Authenticity Label

Serial/Model Number Label

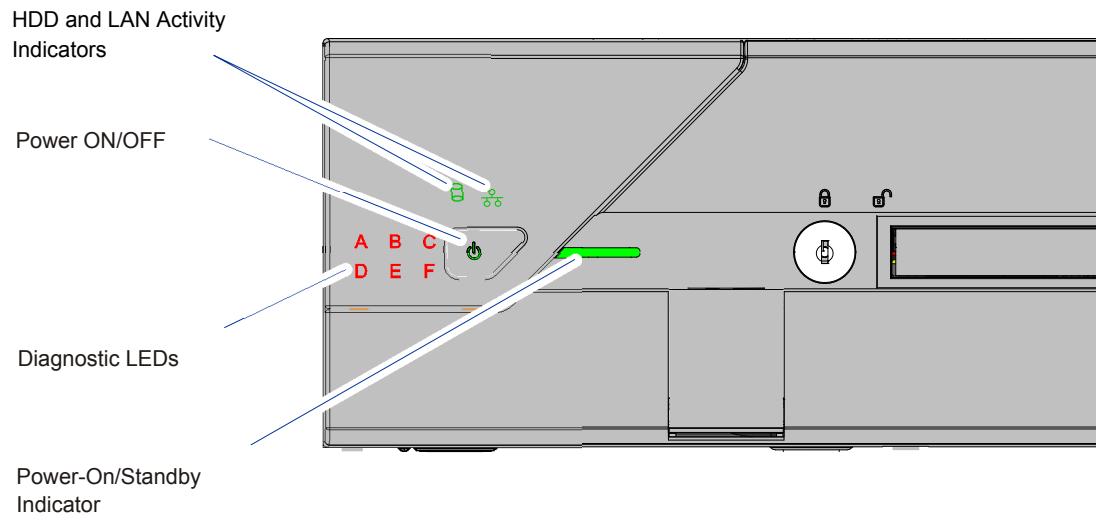


Bottom View

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Front LED Indicators

The Front Panel of the 7606 includes the system power switch and a series of Diagnostic and Status LEDs.



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HDD Activity - This Green LED lights whenever there is activity to the hard drives.

LAN Link - This Green LED lights to indicate that the system is attached to a LAN. It stays on whenever the LAN is present, even if the unit is powered off. This LED also flashes to indicate LAN activity.

Diagnostic LEDs (A-F) - These six Red LEDs are used to indicate various failure modes of the system, primarily when the system fails to boot. These LEDs are hidden behind the Front Bezel, making them visible only when they are lit.

Power-On/Standby Indicator - This indicator indicates that the system is on when lit and in S3 suspend mode when blinking.

Power On Self Test (POST) Error (A-C): These three LEDs Flash during boot-up. If boot fails, different combinations of LEDs indicate the point where POST failed to aid in troubleshooting.

BIOS Checkpoint	Description	A	B	C
	Normal Operating condition after proper boot	OFF	OFF	OFF
D1	Keyboard Controller BAT test. Check if waking from power management suspend state. Save power on CPUD value in scratch CMOS	OFF	OFF	ON
D4	Test Base 512kb memory. Adjust policies and cache first 8MB. Set stack. (Indicates Bad DIMM)	OFF	ON	OFF
04	Verify CMOS and update if necessary. Initialize data variables. Also indicates that SATA device is not initializing. (Indicates SATA Failure)	OFF	ON	ON
0A	Initialize keyboard controller	ON	OFF	OFF
0B	Detect presence of PS/2 mouse	ON	OFF	ON
0C	Detect presence of Keyboard in KBC port	ON	ON	OFF
	Indicates that there is no memory detected in system	ON	ON	ON

Temperature Warning (D): Lights when temperature threshold is exceeded and CPU is throttling to prevent overheating. System performance may be affected during throttling.

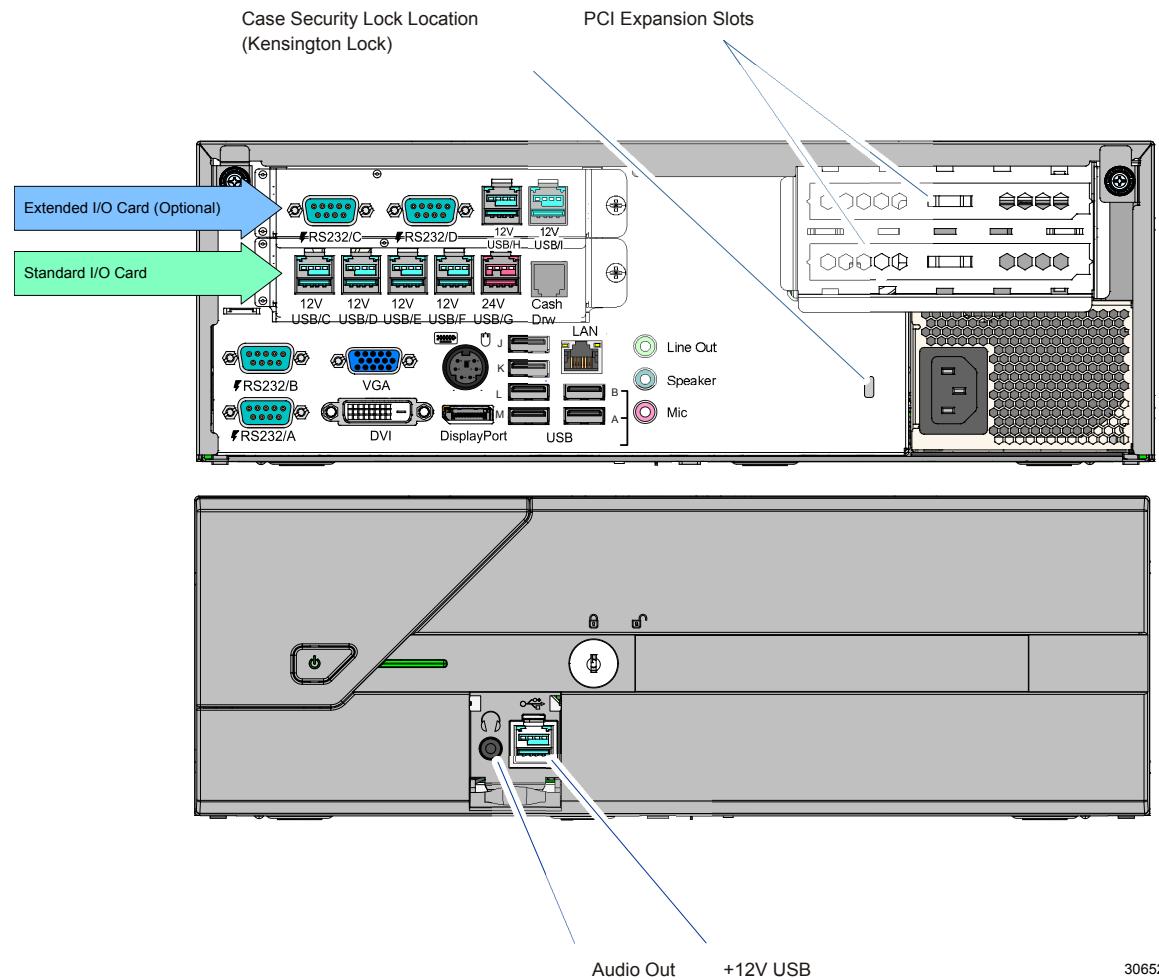
CPU Voltage Bad (E): Lights if CPU is not receiving adequate power to boot the system (Check power supply and internal connection). Also indicates that ATX 12V power connector is not installed. A, D, E, and F LEDs illuminate in this case.

Power Supply Bad (F): Lit when power supply is not providing proper voltage to internal connections, including powered serial ports. Isolates failure to internal power supply. A, D, E, and F LEDs illuminate in this case.

Connectivity and Expansion

FlexPort I/O Modular Design

- Standard
 - 12V RS-232 Ports (2)
 - DVI and VGA Interfaces
 - DisplayPort
 - USB 2.0 (6)
 - LAN
 - Line Out, Speaker, Mic
- Standard I/O Card
 - 12V USB (4)
 - 24V USB (1)
 - Cash Drawer
- Extended I/O Card
 - 12V USB (2)
 - 12V RS-232 (2)
- Expansion Slots
 - PCI and PCI Express



Note: For security purposes individual USB ports can be disabled in the BIOS at:
[Chipset >> South Bridge >> USB Configuration](#).

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Enhanced Manageability (Intel® AMT)

The NCR RealPOS 82XRT features Intel® Active Management Technology 7.0 (Intel® AMT), bringing new value to the POS workstation with remote management techniques that have previously only existed on servers. Intel AMT is a hardware-assisted technology that enables remote management of distributed systems regardless of system state. With out-of-band management capabilities, Intel AMT allows remote problem diagnosis, updates and repairs, even when the operating system is not functioning or the workstation is turned off. Intel AMT 7.0 includes remote provisioning, KVM remote control, encryption, and virtualization support.

Power Management

Power management is implemented on the 7606 terminal using the Advanced Configuration and Power Interface (ACPI) 3.0b specification. A key feature of ACPI is that the operating system, not the BIOS, configures and implements power management.

USB Wakeup

Wakeup from a USB device is dependent on which USB port is used. The port must be powered in order to work. Only the rear I/O Panel USB 2.0 ports can be used for Wakeup, not the Daughter Card or Front Panel ports.

Definitions of the States

G3 Mechanical Off

A computer state that is entered and left by a mechanical means.

Example: Turning off the system's power through the movement of a large red switch.

Various government agencies and countries require this operating mode. It is implied by the entry of this off state through a mechanical means that no electrical current is running through the circuitry and that it can be worked on without damaging the hardware or endangering service personnel. The OS must be restarted to return to the Working state. No hardware context is retained. Except for the real-time clock, power consumption is zero.

G2/S5 Soft Off

A computer state where the computer consumes a minimal amount of power. No user mode or system mode code is run. This state requires a large latency in order to return to the Working state. The system's context will not be preserved by the hardware. The system must be restarted to return to the Working state. It is not safe to disassemble the machine in this state.

G1 Sleeping

A computer state where the computer consumes a small amount of power, user mode threads are not being executed, and the system appears to be off (from an end user's perspective, the display is off, and so on). Latency for returning to the Working state varies on the wake environment selected prior to entry of this state (for example, whether the system should answer phone calls). Work can be resumed without rebooting the OS because large elements of system context are saved by the hardware and the rest by system software. It is not safe to disassemble the machine in this state.

G0 Working

A computer state where the system dispatches user mode (application) threads and they execute. In this state, peripheral devices (peripherals) are having their power state changed dynamically. The user can select, through some UI, various performance/power characteristics of the system to have the software optimize for performance or battery life. The system responds to external events in real time. It is not safe to disassemble the machine in this state.

ACPI Sleep States (S0 - S5)

Under the G1 sleeping state ACPI defines levels of system sleep state support. The 7606 supports the following sleeping states:

- **S0:** Normal Powered-On state
- **S1 (Standby):** The S1 sleeping state is a low wake latency sleeping state. In this state, no system context is lost (CPU or chip set) and hardware maintains all system contexts.



Note: The 7606 does not support S1 state. Turning off the backlight and hard drives provides the equivalent power savings (due to Intel's processor C-states feature) at nearly zero latency.

- **S2:** Not supported
- **S3 (Suspend to Ram):** The S3 sleeping state is a low wake latency sleeping state. This state is similar to the S1 sleeping state except that the CPU and system cache context is lost (the OS is responsible for maintaining the caches and CPU context). Control starts from the processor's reset vector after the wake event. In NCR systems, during S3, power is only provided to the on-board USB ports.



Note: When the terminal resumes from an S3 state, all the USB devices re-enumerate. This causes speaker tones as if they were disconnected and then reconnected. This does not present a problem and the USB devices will continue to operate correctly.

Requirements for S3 support:

- O/S must be built on a system with S3 enabled in the BIOS
- Some peripherals may not be S3 capable, which can prevent the system from entering S3 state.
- **S4 (Suspend to Disk):** The S4 state is the lowest power, longest wake latency sleeping state supported by ACPI. In order to reduce power to a minimum, it is assumed that the hardware platform has powered off all devices. Platform context is maintained.

Requirements for S4 support:

- O/S must be built on a system with S3 enabled in the BIOS
- Some peripherals may not be S4 capable, which can prevent the system from entering S4 state.
- **S5 (Unit OFF)**

Reference the ACPI Specification for details.

Peripherals: ACPI defines power states for peripherals which are separate from the system power state. The device power states range from D0 (fully-on) to D3 (off). It is the responsibility of the driver developer for each peripheral to define and support the available power states.

Power State	S0Working	S1Standby	S2	**S3 Suspend to RAM	S4Hibernate	**S5Soft Off
Supported: Y / N	Y	Y	N	Y	Y	Y
Description	Fully Functional	Video Back Light Off HDD Off Cache Flush Memory in Slow Refresh CPU Halted		Video Back Light Off HDD Off Cache Flush Memory in Slow Refresh CPU Halted	Video Back Light Off HDD Off Cache Flush Memory in Slow Refresh CPU Halted	OFF
Power Supply Status	On	On		Powered Down**	Powered Down**	Powered Down**
Power Consumption*	TBD	TBD		TBD	TBD	TBD
Wake Options:						
Power Switch	N/A	Y		Y	Y	Y
PS/2 Keyboard	N/A	Y		Y	N	N
PS/2 Mouse	N/A	Y		Y	N	N
USB Keyboard	N/A	Y		Per O/S	N	N
USB Mouse	N/A	Y		Per O/S	N	N
LAN (magic packet)	N/A	Y		Y	Y	Y
RTC Alarm	N/A	Y		Y	Y	Y
Serial Port (RI)	N/A	Y		N	N	N

* Power consumption based on the following configuration with no peripherals attached.

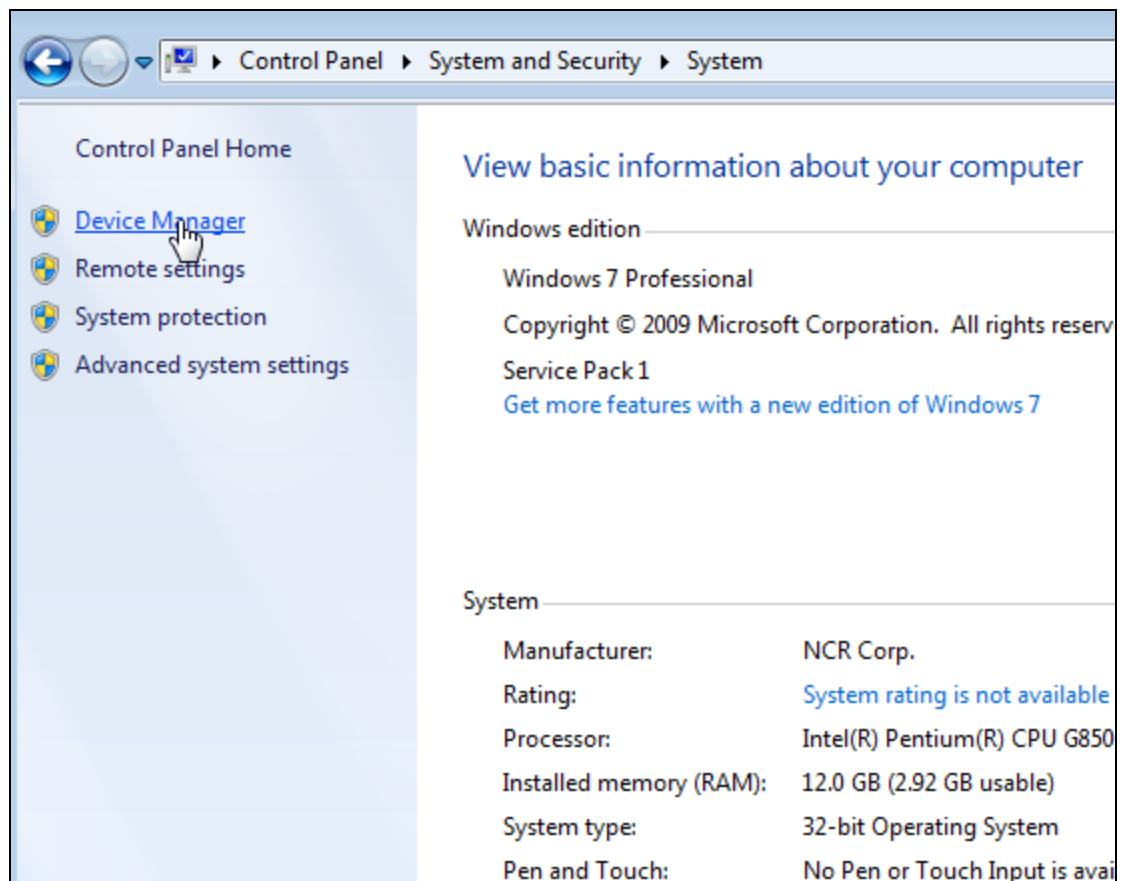
**Powered Down mode; Power supply fan is off. Only +5VSB is provided to the board.

Enabling Wake on LAN

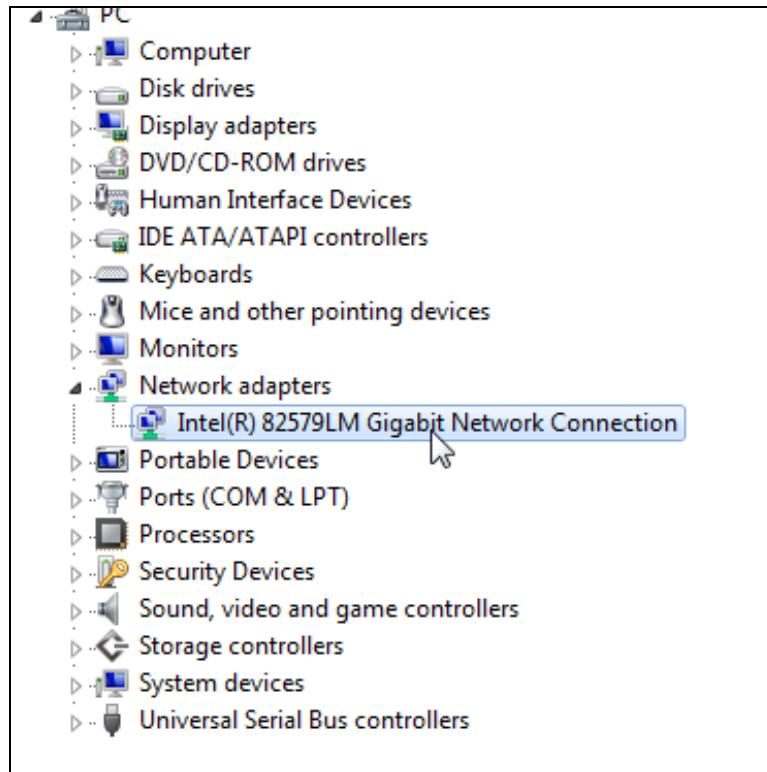
In order for Wake on LAN to function the Network driver must be enabled (factory default). The procedure for enabling the driver depends on which operating system you are using.

Windows 7

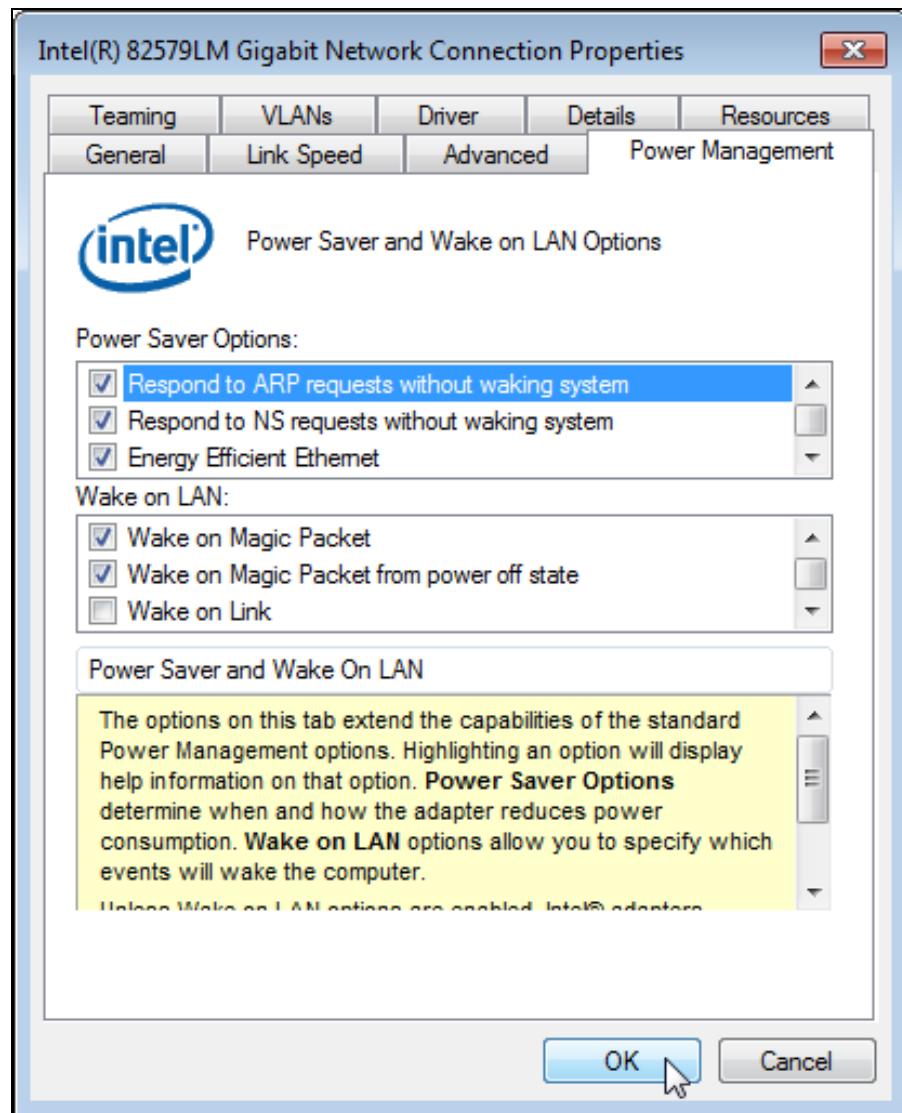
1. Select **Start → Computer → System Properties Tab → Device Manager**



2. Expand **Network adapters** and then Right-mouse click the *Intel(R) 82567V Gigabit Network Connection* driver. Select **Properties**.

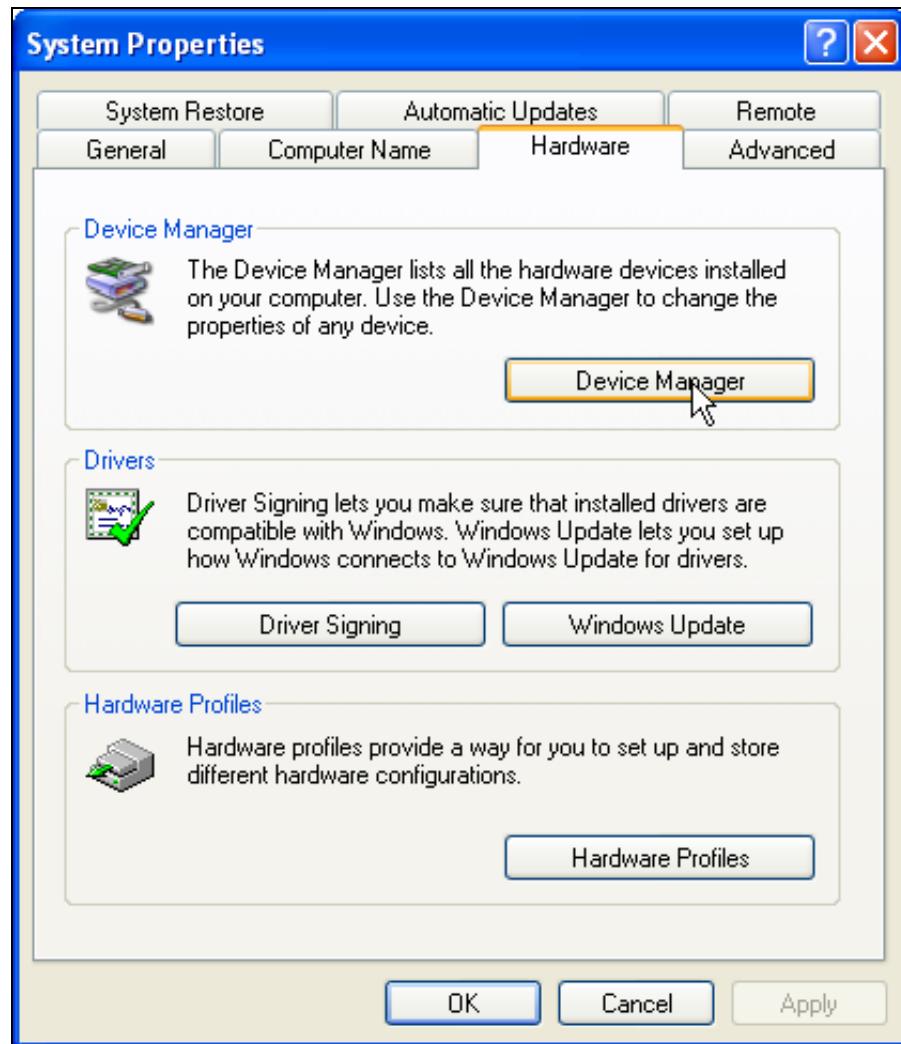


3. Under the *Power Management* tab the *Wake on Magic Packet* and *Wake on Magic Packet from power off state* option boxes should be checked as shown below. Select **OK** after making any changes.

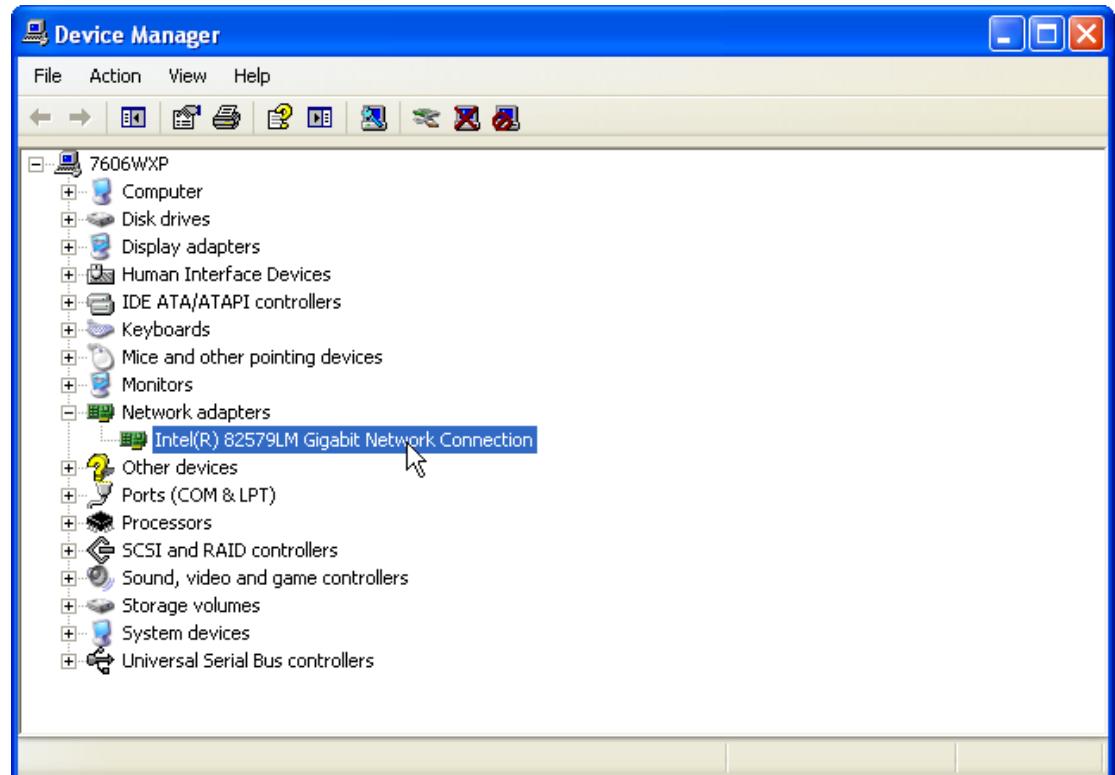


Windows XP

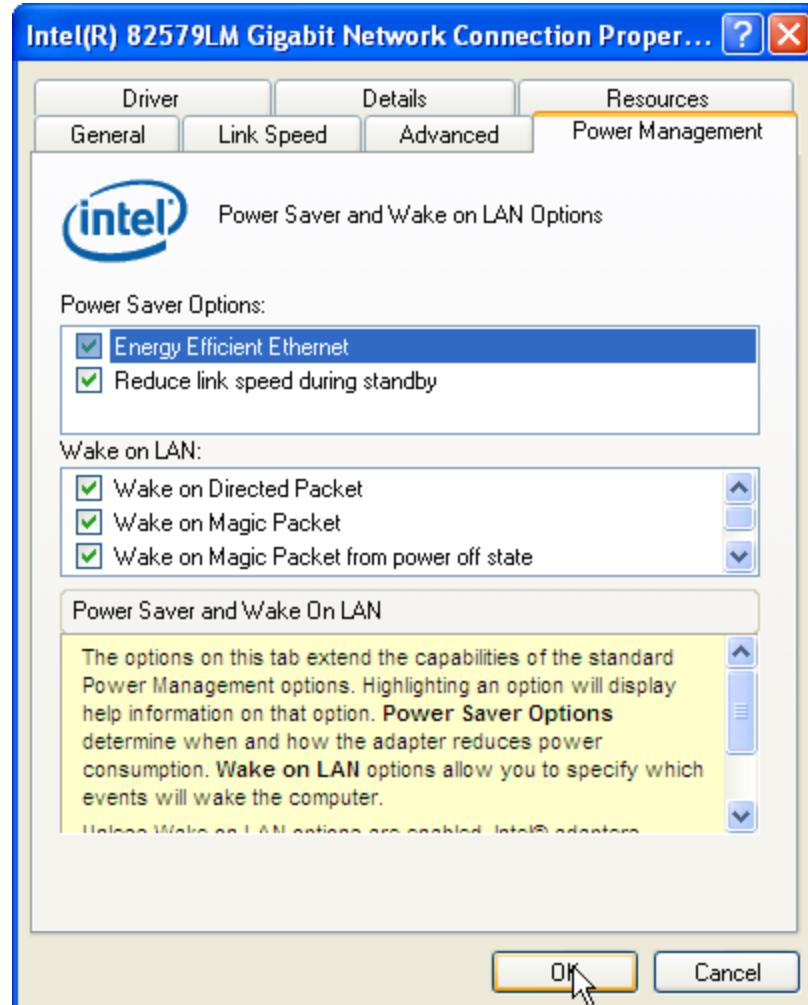
1. Select **Start → Control Panel → Hardware Tab → Device Manager** button.



2. Select **Network adapters** and then Right-mouse click *Intel(R) 82567V Gigabit Network Connection* and select **Properties**.



3. Under the *Power Management* tab the option boxes as shown below should be checked. Select **OK** after making any changes.



ACPI Processor C-States

ACPI defines the power state of system processors while in the G0 working state as being either active (executing) or sleeping (not executing). Processor power states are designated C0, C1, C2, C3, ...Cn.

The C0 power state is an active power state where the CPU executes instructions. The C1 through Cn power states are processor sleeping states where the processor consumes less power and dissipates less heat than leaving the processor in the C0 state.

While in a sleeping state, the processor does not execute any instructions. Each processor sleeping state has a latency associated with entering and exiting that corresponds to the power savings. In general, the longer the entry/exit latency, the greater the power savings when in the state.

To conserve power, OSPM places the processor into one of its supported sleeping states when idle. While in the C0 state, ACPI allows the performance of the processor to be altered through a defined “throttling” process and through transitions into multiple performance states (P-states).



Note: The 7606 processor supports C0 and C1 states. Support of deeper sleep states is not required due to its inherently low power consumption.

Displays

NCR 5954 15-Inch DynaKey



The NCR RealPOS 5954 USB DynaKey is a Point-of-Sale (POS) keypad with a built-in 15-inch flat panel Liquid Crystal Display (LCD). Unique to the DynaKey is a set of ATM-style keys (DynaKeys), which are located beside the display. The functions of these keys change depending on the software application appearing on the LCD.



Note: USB DynaKey requires Windows XP/XPe.

The combined display and keypad is designed to reduce operator training time, simplify complex POS transactions and improve associate/cashier productivity. Combined with the appropriate applications software, the DynaKey can virtually eliminate the need for an operator to memorize function key locations and sequence.

The USB DynaKey interfaces with the host terminal via two cables.

- Digital Video Interface (DVI) cable for video
- Powered Universal Serial Bus (USB) for data and power

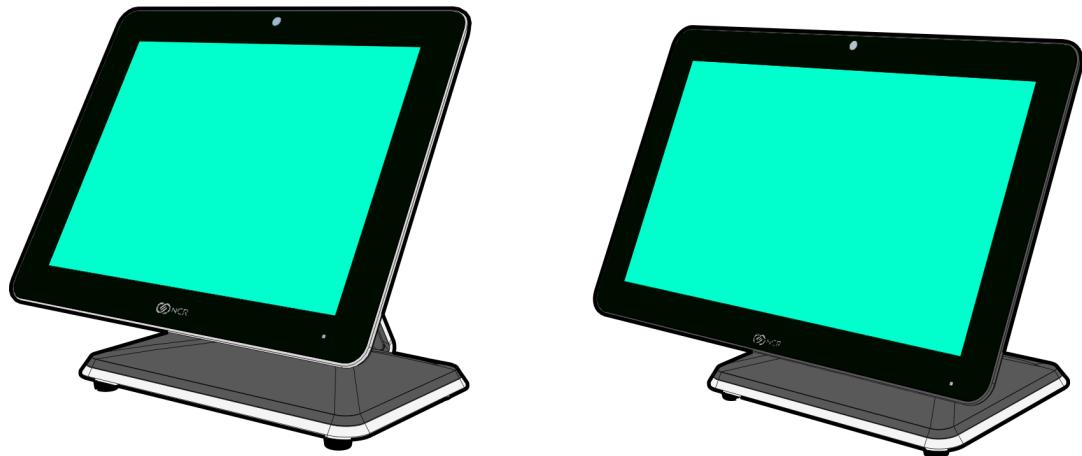
The DynaKey is available in two color schemes.

- Light Gray (G11)
- Charcoal Gray (CG1)

The DynaKey offers optional touch screen models.

NCR RealPOS X-Series Displays

The NCR *RealPOS X-Series Displays* (also known as NCR 5968 and NCR 5985) offer an innovative design, multi-touch capability, ruggedized packaging, and more. The X-series displays are an ideal complement to any point-of-sale (POS) terminal.



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The NCR *RealPOS X-Series Displays* are available in both touch and non-touch models.

- NCR RealPOS 5968 XT (Touch)
- NCR RealPOS 5985 XD (Non-Touch)

The NCR *RealPOS X-Series Displays* are available with a 15" (4:3) or 18.5" (16:9) format. Place it on a tabletop, or hang it on a wall or a pole. You can also customize your solution with integrated options including an encrypted magnetic stripe reader (MSR), biometric fingerprint reader, or camera.

Standard Features

- Display
 - Display Size: 10.4", 15", 18.5"
 - LCD Technology: TFT, Pixel Configuration: RGB Rectangle
 - LCD LED Backlit Technology
 - Viewing Direction: 12 o'clock
 - 50K hour minimum backlight ½ life at rated luminance
 - LCD LED Backlight is controllable using the soft *Software Configuration Utility*
- Touch Sensor (5968); Resistive/Projective Capacitive, USB I/F
- Video inputs: VGA, DVI, Display Port, HDMI
- VESA 75mm/100mm Mounting Compliance
- Flexible cable length options (compatibility with NCR 1m & 4m external cables)

- Clean (hidden) cable management
- Retail hardened display
 - Integrated enclosure containing an optional MSR mount points
 - Rigid mounting attachments
 - Latching / strain relieved cables used where possible
 - Spill proof and sealed front glass

Optional Features

- Table Top Stands
- Magnetic Stripe Reader (ISO 3 track or JIS 2 track)
- Biometric Fingerprint Reader
- Integrated speakers
- Integrated camera (5968 PCap only)
- Terminal power option (USB plus Power)

NCR 5975 2x20 VFD Customer Display



The NCR 5975 Customer Display is designed to be an optional display device for the NCR retail terminals. It can also serve as a display for any industry-standard PC. It is a Vacuum Fluorescent Display (VFD).

- 5975-1000 2x20 VFD (G11)
- 5975-1001 2X20 VFD (CG1)

There are four post options, available in 4 inch increments.

Features

- Display
 - 2X20 Character Vacuum Fluorescent Display (VFD)
 - 7X9 pixel characters
 - Character height
 - Minimum - 9mm
 - Maximum - 11mm
- PCB
 - Microcontroller
 - EIA 232 Interface support
 - USB 2.0 Interface support
- binet
 - UV Stable Material
 - - Available in NCR Light Gray (G-11) and NCR Charcoal Gray (CG1)
- Connectors
 - 9 pin D sub
 - Powered USB

- Cables
 - Powered EIA-232
 - Powered USB Cable
 - Unpowered EIA-232 Cable with Y-Connection for Power Brick
 - Unpowered USB Cable with Y-Connection for Power Brick
 - 1m and 4m Lengths
- Power Supply
 - Universal Power Supply (12V, 12W output)
 - 8 pin Molex Connector
- EIA-232 or USB 2.0 I/F support
 - The components for both interfaces are populated on a single printed circuit board. Both interfaces are active, though only one interface can be physically connected at a time. The display communicates via the interface connected.
- Mounting Options
 - Table Mount, 4-in. Post
 - Table Mount, 8-in. Post
 - Table Mount, 12-in. Post
 - Table Mount, 16-in. Post
 - Integrated Mount

Character Sets

- Support for 19 character sets
- Character sets in base unit
 - Code Page 858 (International)
 - Katakana
 - Code Page 866 (Cyrillic)
- 32 KB Flash Memory for support of up to 16 additional character sets

NCR 5975 Graphical Customer Display



The NCR 5975 Customer Display is designed to be an optional display device for the NCR retail terminals. It can also serve as a display for any industry-standard PC. It is a Vacuum Fluorescent Display (VFD).

- 5975-2010 Graphical VFD (G11)
- 5975-2011 Graphical VFD (CG1)

Features

- Display
 - 256x64 Graphic Vacuum Fluorescent Display (VFD)
- PCB
 - Microcontroller
 - EIA 232/USB 1.1/USB 2.0 Interface support
- Cabinet
 - UV Stable Material
 - Available in NCR Light Gray (G-11) and NCR Charcoal Gray (CG1)
- Connectors
 - 9 pin D sub
 - Powered USB

- Cables
 - Powered EIA-232
 - Powered USB Cable
 - Unpowered EIA-232 Cable with Y-Connection for Power Brick
 - Unpowered USB Cable with Y-Connection for Power Brick
 - 1m and 4m Lengths
- Power Supply
 - Universal Power Supply (12V, 12W output)
 - 8 pin Molex Connector
- EIA-232 or USB 1.1/2.0 I/F support
 - The components for both interfaces are populated on a single printed circuit board. Both interfaces are active, though only one interface can be physically connected at a time. The display communicates via the interface connected to it.
- Mounting Options
 - Table Mount, 4-in. Post
 - Table Mount, 8
 - -in. Post
 - Table Mount, 1
 - 2-in. Post
 - Table Mount, 16-in. Post
 - Integrated Mount for NCR 7456, 7467, 7458

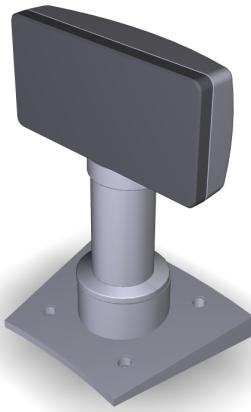
Character Sets

- Support for 21 character sets
- 5 Character sets in base unit
 - Code Page 858 (International)
 - Katakana
 - Code Page 866 (Cyrillic)
- 32 KB Flash Memory for support of up to 16 additional character sets
- Weights and Measures support

Software Features

- Bi-directional parallel interface
- Five default character sets:
 - 16 x 16 or 24 x 24 dots full size JIS 1 and 2 Kanji characters
 - 8 x 16 or 12 x 24 dots half size ANK characters
 - 5 x 7 dots Katakana characters (Fixed: not downloadable)
- Four downloadable character sets:
 - Japanese
 - Traditional Chinese
 - Simplified Chinese
 - Korean-1 (Wansung)
- End User Defined Characters (EUDC)
 - 5 x 7 dot characters
 - 8 x 16 or 16x16 or 12 x 24 or 24 x 24 dot characters
- Diagnostics
 - Micro-controller test
 - External memory test

NCR 5976 2x20 LCD Customer Display



The *NCR RealPOS 5976-1xxx Customer Display* is a 2-line x 20-character LED backlit Liquid Crystal Display (LCD), which can display any downloadable codepage of single byte characters. It supports both RS-232 and USB interfaces.

- 5976-1100 2x20 LCD (G11)
- 5976-1200 2X20 LCD (CG1)

There are four post options, available in 4 inch increments.

Features

- Display
 - 2x20 Character Liquid Crystal Display (LCD)
 - LCD Technology: Advance Black Nematic (ABN)
 - True white on black LED display
 - Sealed against dust and spill resistant
 - High-Contrast/High Bright
 - Low Power Consumption
 - 7x9 pixel characters
 - Character height
 - Minimum - 9.5mm
 - Maximum - 10.5mm
 - LED backlight: 50K hour minimum backlight life at ½ rated luminance
 - Luminance: 200-500 nits

- PCB
 - Three pre-loaded Code pages
 - Up to 19 downloadable Code pages
 - 2 MB Flashable memory
- Power Supply
 - Universal Power Supply (12V, 12W output)
 - 8 pin Molex Connector
- EIA-232 or USB 2.0 I/F support
 - The components for both interfaces are populated on a single printed circuit board. Both interfaces are active, though only one interface can be physically connected at a time. The display communicates via the interface that is connected to it.
- Mounting Options
 - Table Mount, 4-in. Post
 - Table Mount, 8-in. Post
 - Table Mount, 12-in. Post
 - Table Mount, 16-in. Post
 - Integrated Mount for NCR 7456, 7457, 7458

Character Sets

- Support for 19 character sets
- 3 Character sets in base unit
 - Code Page 858 (International)
 - Katakana
 - Code Page 866 (Cyrillic)
- 2 MB Flash Memory for support of up to 16 additional character sets

Keyboards

The NCR keyboards are intended for harsh retail environments and contain an internal membrane to protect against objects such as paper clips, staple wires, pins, and so forth, from falling between the keys and damaging the electronics. This technology improves overall reliability not typically found in standard PC keyboards or many retail keyboards.

Keyboard Power

The 7606 supplies power to PS/2 keyboards even when in the OFF state. This is for systems that require the terminal to power ON when a key is pressed. Most NCR PS/2 keyboards have a Power ON LED, which stays illuminated, indicating power is present in the keyboard. Pressing a key may also cause tones to be sounded.

NCR 5932-222x 64-Key PS/2 POS Keyboard

The NCR 64-Key POS Keyboard, designed for checkout environments where alpha entry is not required, includes 55 assignable function keys and a numeric keypad with 11 keys.



Features

- Keylock
- Speaker
- Scanner
- System Status Indicator LED
- 68-Inch PS/2Keyboard Cable



Note: Configure a NCR 5932-2xxx if you need an MSR feature.

The Wedge controller handles the operations of the user-programmable speaker, Magnetic Stripe Reader (MSR), keylock, and scanner connector. Please refer to the *Wedge Software User's Guide* (BD20-1368-A) for detailed information about interfacing and configuring these devices.

Keylock

The Big Ticket and 64-key keyboards have a four-position keylock switch. The table following explains the keylock positions.

Abbreviation	Position	Description
Ex	Exception	Used by the customer or service representative to perform low-level programming such as terminal diagnostics, configuring the terminal, or loading the terminal.
L	Locked	Used to lock keyboard input to prohibit use of normal functions.
R	Register	Used when performing normal retail mode functions.
S	Supervisor	Used by supervisor to provide highest level of terminal control in cases such as refunds and running totals.

Speaker

A programmable speaker generates key clicks and error tones.

Buzzer

The buzzer is an internal on board Buzzer.

System Status Indicator LED

The system status indicator is a two-color LED. The green color indicates the keyboard has power. Red indicates an error condition. When the system is off, the LED does not light up.

When the 64-key keyboard is in the special PC setup mode, the LED flashes red/green.

The status and condition indicated by the LED are as follows:

Status	Condition
Green	Power ON
Red	Wedge controller reporting an error condition
Flashing Red/Green	Keypad of 64-key keyboard in <i>PC Setup</i> mode
OFF	System OFF (see <i>Keyboard Power</i> section)

MSR (Magnetic Stripe Reader)

The MSR is an optional feature that provides support for reading magnetically coded data cards. The keyboards support two different types of MSR:

- ISO Tracks 1, 2, and 3
- JIS-II and ISO Track 2 (Big Ticket and full-featured 64-key keyboards only)



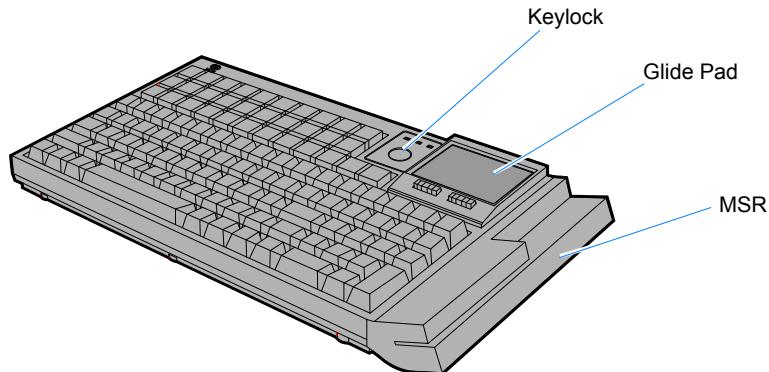
Note: MSR signals are routed to the Wedge controller and passed into the system keyboard data stream. For more information about the Wedge controller, refer to Wedge Software User's Guide (BD20 1368 A).

NCR 5932-65xx PS/2 Compact Alphanumeric Keyboard

The NCR 5932 PS/2 Compact Alphanumeric Keyboard is a multifunctional keyboard that is two keyboards built into one.

The keyboard consists of two major sections:

- 32-key Point-Of-Sale Keyboard
- PC type Alphanumeric Keyboard



29168

The keyboard includes the following features:

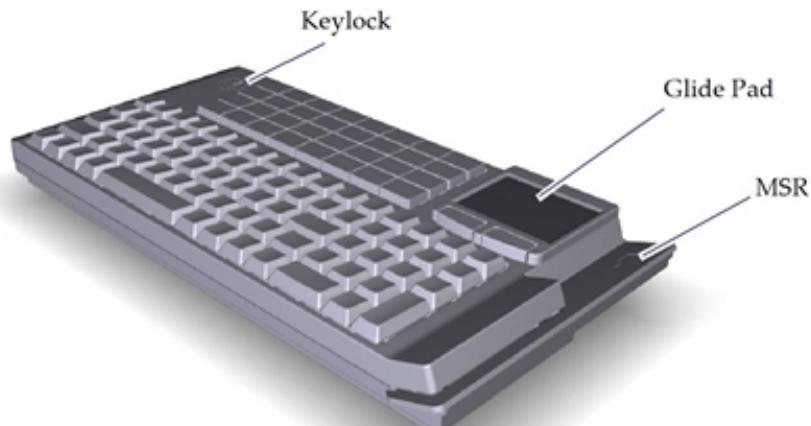
- Keylock
- Tone Indicator
- Keyboard Status Indicator
- Magnetic Stripe Card Reader (MSR)
- Glide Pad

NCR 5932-66xx USB Compact Alphanumeric Keyboard

The *NCR 5932 PS/2 Compact Alphanumeric Keyboard* is a multifunctional keyboard that is two keyboards built into one.

The keyboard consists of two major sections:

- 32-key Point-Of-Sale Keyboard
- PC type Alphanumeric Keyboard



The keyboard includes the following features:

- Keylock
- Tone Indicator
- Keyboard Status Indicator
- Magnetic Stripe Card Reader (MSR)
- Glide Pad
- Cabinet
 - UV Stable Material
 - Available in NCR Light Gray (G-11) and NCR Charcoal Gray (CG1)
- Connectors
 - 9 pin D sub
 - Powered USB

- Cables
 - Powered EIA-232
 - Powered USB Cable
 - Unpowered EIA-232 Cable with Y-Connection for Power Brick
 - Unpowered USB Cable with Y-Connection for Power Brick
 - 1m and 4m Lengths
- Power Supply
 - Universal Power Supply (12V, 12W output)
 - 8 pin Molex Connector
- EIA-232 or USB 2.0 I/F support
 - The components for both interfaces are populated on a single printed circuit board. Both interfaces are active, though only one interface can be physically connected at a time. The display communicates via the interface connected to it.
- Mounting Options
 - Table Mount, 4-in. Post
 - Table Mount, 8-in. Post
 - Table Mount, 12-in. Post
 - Table Mount, 16-in. Post
 - Integrated Mount for NCR 7456, 7457, 7458

Character Sets

- Support for 19 character sets
- 3 Character sets in base unit
 - Code Page 858 (International)
 - Katakana
 - Code Page 866 (Cyrillic)
- 32 KB Flash Memory for support of up to 16 additional character sets

Transaction Printers

NCR RealPOS 7167 Printer

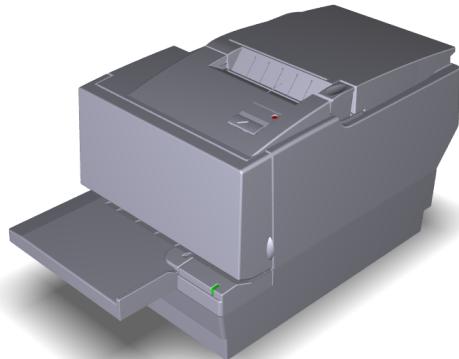


The *NCR 7167 Printer* is a fast, quiet, relatively small and very reliable multi function printer. It prints receipts, validates and prints checks, and prints on a variety of single or multiple part forms. There is not journal as it is kept electronically by the host terminal. The printer can connect through a USB port or a serial port. It can receive power from a power supply or through a USB+ power cable.

Features

- Print speed up to 90 lines/sec (44 columns)
- Supports 80/58 mm media rolls
- Easy drop-in paper loading
- Dual Interface board w/auto-sensing

NCR RealPOS 7168 Printer



The *NCR 7168 Printer* is a fast, quiet, relatively small and very reliable multiple-function printer with front and back printing on the receipt paper capability. It prints receipts, validates and prints checks, and prints on a variety of single- or multiple-part forms. There is no journal as it is kept electronically by the host computer.

The industry-standard RS-232C communication interface allows the 7168 to be connected to any host computer that uses RS-232C or USB communication interface.

The receipt station uses thermal printing technology. Therefore, there is no ribbon cassette to change and paper loading is extremely simple. Printing on single- or multiple-part forms, validating checks, and printing checks is also easy in the accommodating slip station.

Another feature is the Magnetic Ink Character Recognition (MICR) check reader with parsing, which reads account numbers on checks for easy verification. An extended slip table is available for handling large forms and is standard with the MICR option.

Features

- Print speed up to 52 lines/sec (44 columns)
- Supports 58/80 mm media rolls
- Easy drop-in paper loading
- Dual Interface board w/auto-sensing

NCR RealPOS 7197 Printer



The NCR 7197 *Printer* is a fast, quiet, relatively small and very reliable printer. The printer can connect through a USB port or a serial port. It receives power from the 24V connector on the terminal or from an external power supply.

Features

- Print speed up to 90 lines/sec (44 columns)
- Supports 80/58 mm media rolls
- Easy drop-in paper loading
- Dual Interface board w/auto-sensing

NCR RealPOS 7198 2ST Printer



The *NCR 7198 Printer* is a fast, quiet, relatively small and very reliable printer with front and back printing on the receipt paper capability. The printer can connect through a USB port or a serial port. It can receive power from a power supply or through a USB+ power cable.

Features

- Print speed up to 52 lines/sec (44 columns)
- Supports 58/80 mm media rolls
- Supports RoL media
- Automatic paper detect (type)
- Easy drop-in paper loading
- Dual Interface board w/auto-sensing

Chapter 2: Hardware Installation

Introduction

This chapter explains how to perform an out-of-box installation of the RealPOS 82XRT hardware and how to install optional peripheral devices.

The 7606 can also be installed in an integrated configuration using the 7606-K300 (G11) or 7606-K301 (CG1) kits. These kits are designed with flexibility of how to configure the integrated displays and printers. Fillers are used where there are no peripherals present. Please refer to the kit instructions for installation procedures for integrated configurations.

Installation Restrictions

Before installing the RealPOS 82XRT, read and follow the guidelines in the *RealPOS 82XRT Site Preparation* (B005-0000-2086) and the *NCR Workstation and Peripheral AC Wiring Guide* (BST0-2115-53).

Install the RealPOS 82XRT near an electrical outlet that is easily accessible. Use the power cord as a power disconnect device.

Do not permit any object to rest on the power cord. Do not locate the RealPOS 82XRT where the power cord can be walked on.

Use a grounding strap or touch a grounded metal object to discharge any static electricity from your body before servicing the RealPOS 82XRT.



Warning: This unit contains hazardous voltages and should only be serviced by qualified service personnel.



Warning: DO NOT connect or disconnect the transaction printer while the terminal is connected to AC power. This can result in system or printer damage.

Out-of-Box Failures

During installation if there is an Out of Box failure, the defective component will be replaced. The defective part number must be identified by trained service personnel. If required, contact your Equipment Provider, NCR Customer Service or your Service Provider to diagnose the failure to the component level.

A replacement component can be acquired by contacting the NCR Customer Satisfaction Hotline between the hours of 8AM and 5PM EST, Monday - Friday:

1-800-528-8658 (USA)

770-623-7400 (Internationally)

or

E-mail: CustomerSat.Retail@NCR.com

Please have the following information available:

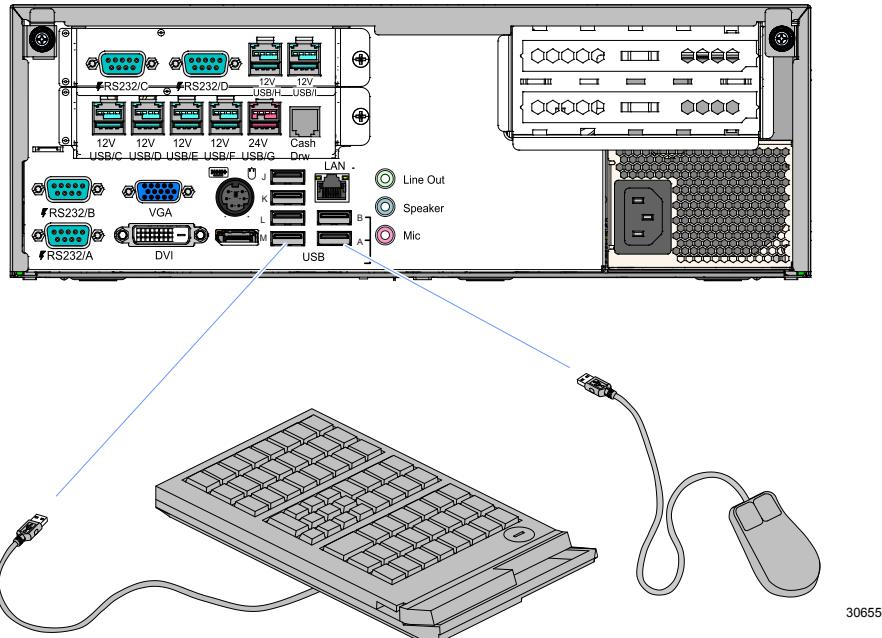
1. NCR Order Number (Order # on label of box)
2. Product Model Number
3. Unit Serial Number
4. NCR part number of defective/missing/wrong component
5. Number of Units Staged/Installed
6. Organization Code
7. Shipping Address with Contact Name & Phone Number

Hard Disk Failures

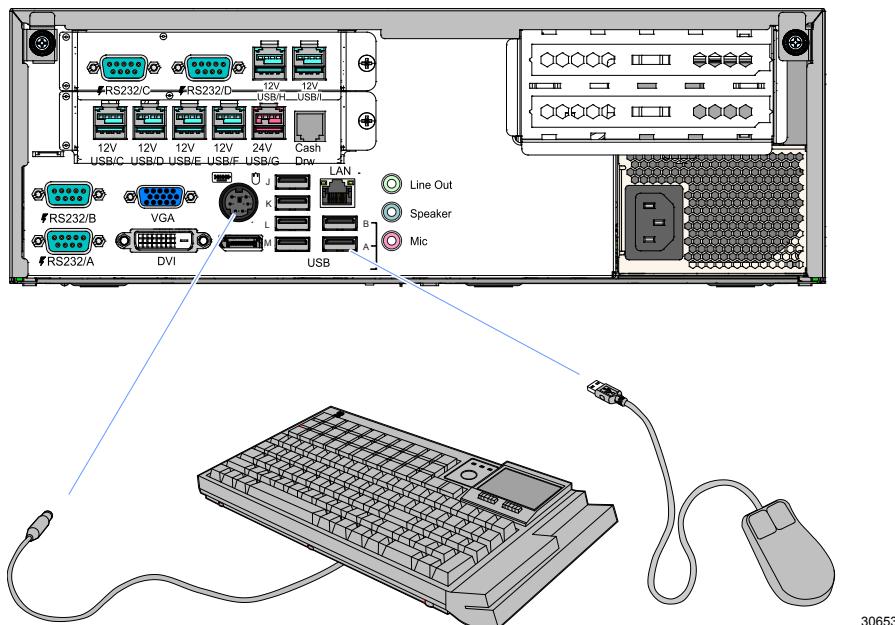
The RSD-Atlanta Customer Satisfaction Hotline will replace out-of-box failed hard disks with identical, preloaded drives. Once a system is successfully installed, all disk contents are the responsibility of the customer. The customer is responsible for restoring operating system software and/or customer-specific data onto replacement disks sent to repair a failed or damaged disk in the field. NCR provides recovery tools for the operating system and platform software.

Keyboard and Mouse Connections

The 7606 supports USB and PS/2 type keyboards. Only USB mice are supported. See the following examples of supported configurations.



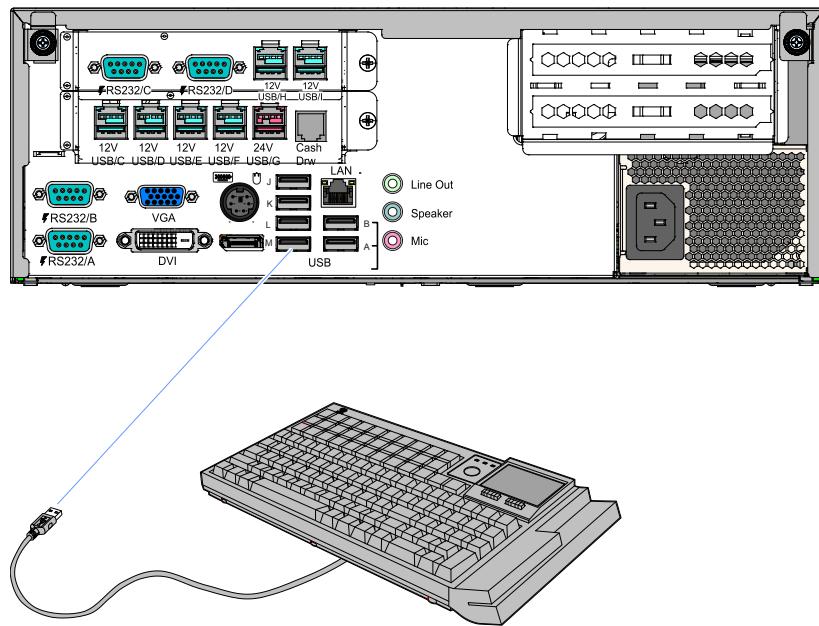
PS/2 Keyboard and USB Mouse



PS/2 Keyboard and USB Mouse



Note: PS/2 Extension Cables cannot be used with PS/2 Keyboards w/Glide Pads.



30656

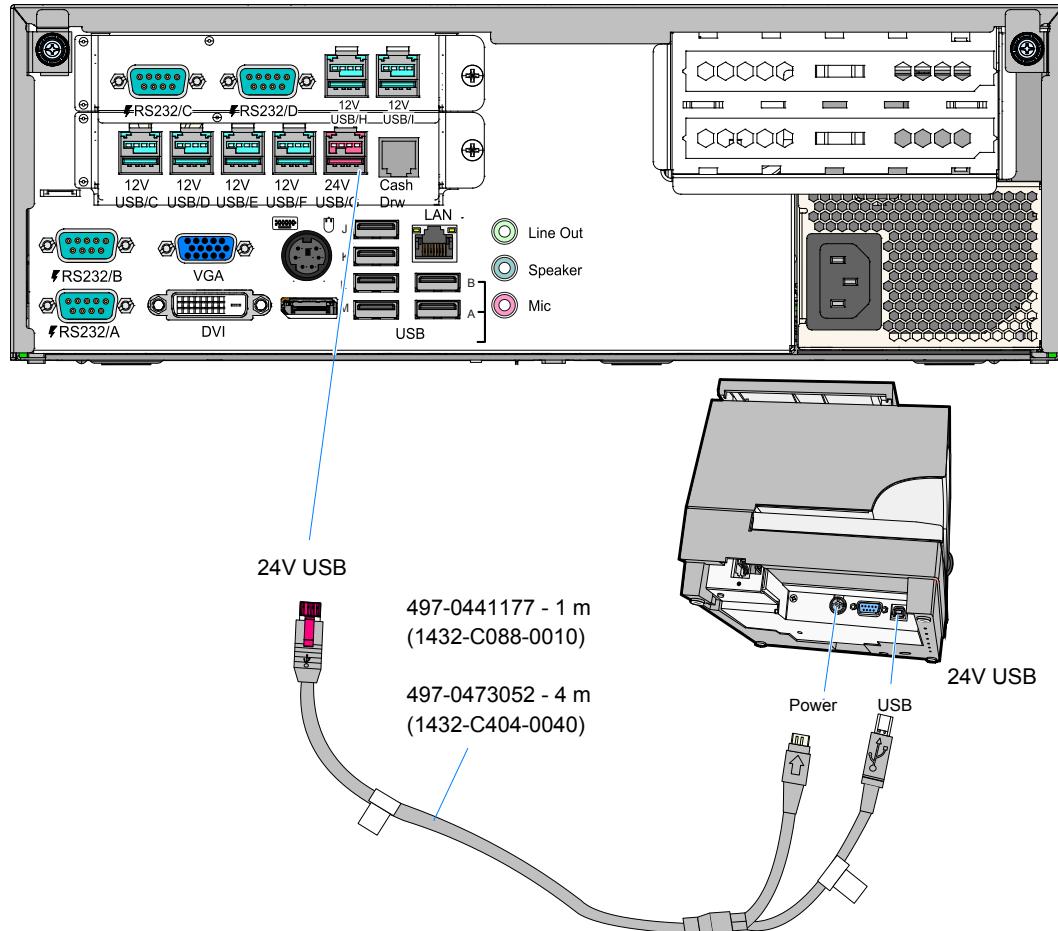
USB Keyboard w/Glide Pad

Installing the Transaction Printer

The printer can interface with a USB port or an RS-232 port on the terminal.

USB Installation

Connect the Powered USB Printer Interface Cable to the *USB* connector and the *Power* connector on the printer and to the *24 V Powered USB* connector on the terminal.



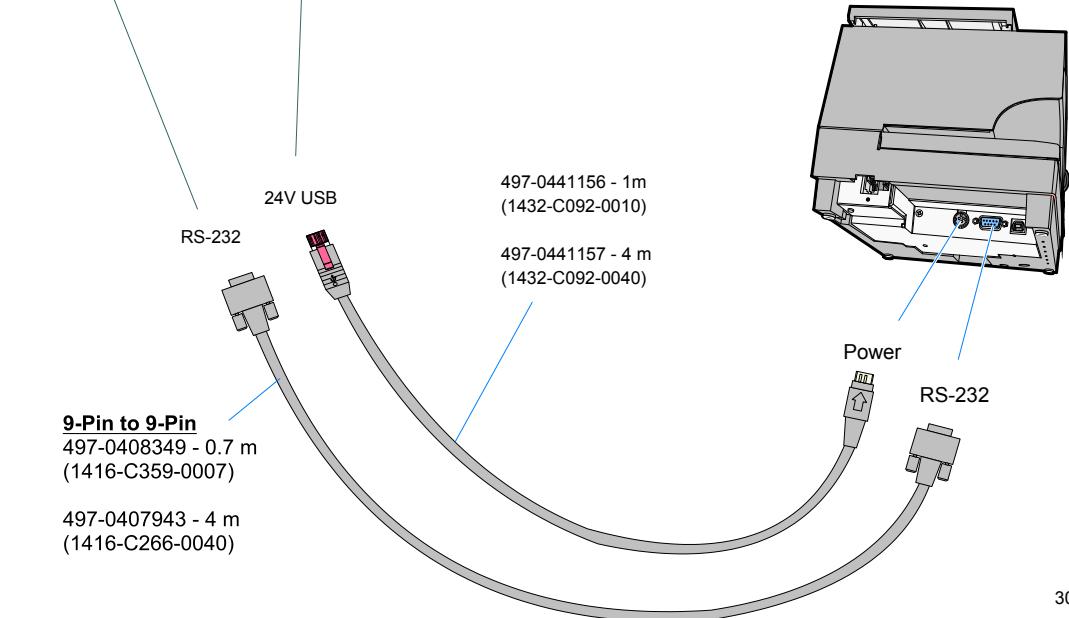
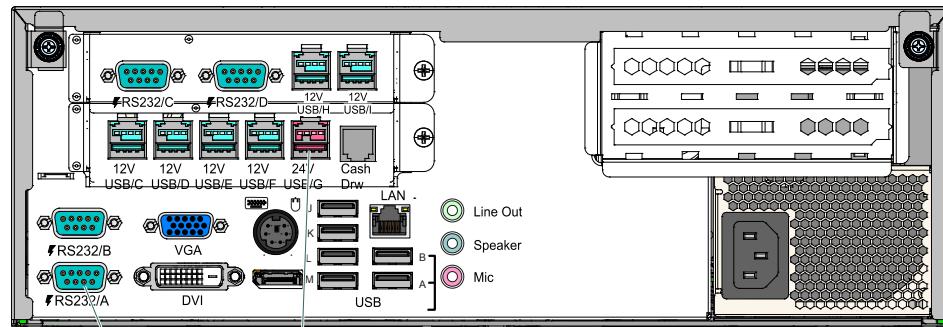
RS-232 Installation

1. Connect the RS-232 Printer Interface Cable to the *RS-232* connector on the printer and to a non-powered *RS-232* connector on the terminal.



Note: The factory default setting for the RS-232 ports is powered. See the *Appendix: Powered Serial Port Settings*.

2. Connect the Powered USB Printer Interface Cable to the *Power* connector on the printer and to the *24V Powered USB* connector on the terminal.

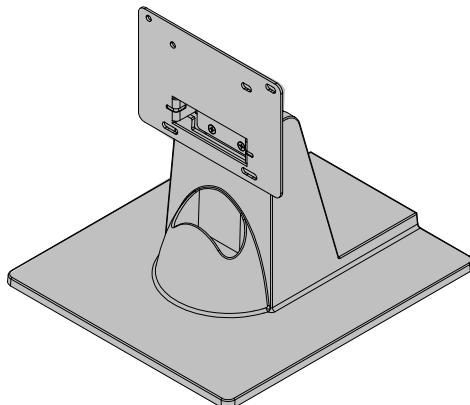


Installing a Remote Operator Display

Installing the Remote Mount.

The Standard Remote Mount is used to mount the Operator Display.

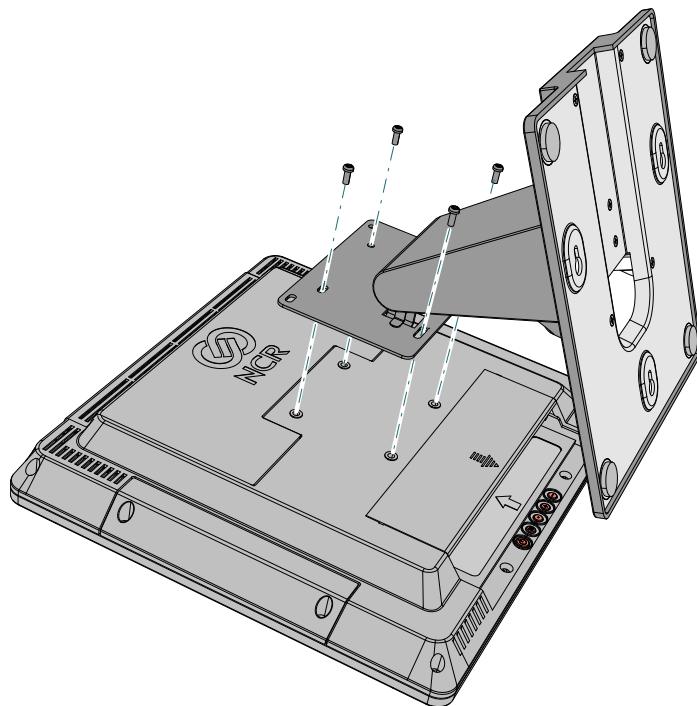
- 5964-K030 Standard Remote Table Top Base (G11)
- 5964-K031 Standard Remote Table Top Base (CG1)



21151b

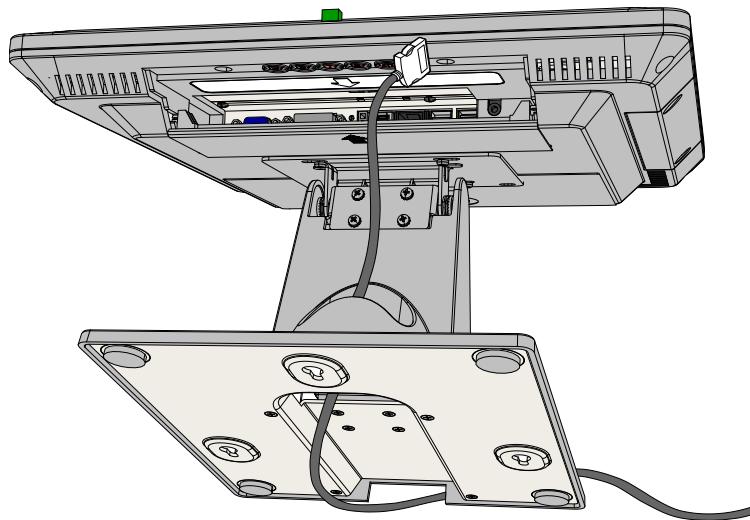
1. Install the mount onto the back of the Operator Display (4 screws).

 **Note:** The back of the 5954 DynaKey has two sets of screw holes for mounting the base. Either set can be used (user preference).



30659

2. Route the cable(s) down through mount and out the rear opening in the base.



30660

3. Connect the cable(s) to the host I/O Panel. See the following sections for specific cable connections.

Installing an NCR X-Series Display



33364

The 5968/5985 Display connects to the host terminal using two cables.

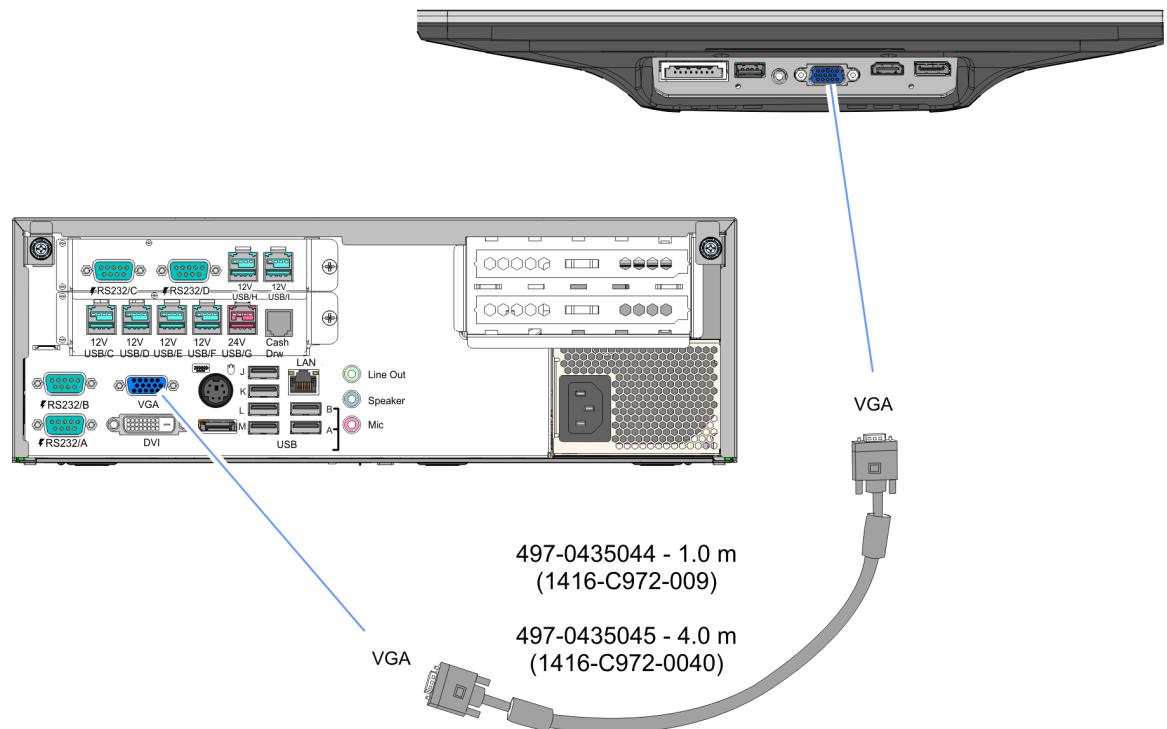
- Digital Video Interface (DVI) or VGA cable for video
- Powered Universal Serial Bus (USB) for data and power



Note: An optional Power Brick is available when USB power is not available on the host terminal. A special USB cable is used for data in this case.

VGA Connections (Video)

Connect the VGA Cable to the VGA connectors on both the 5943 LCD and host terminal.

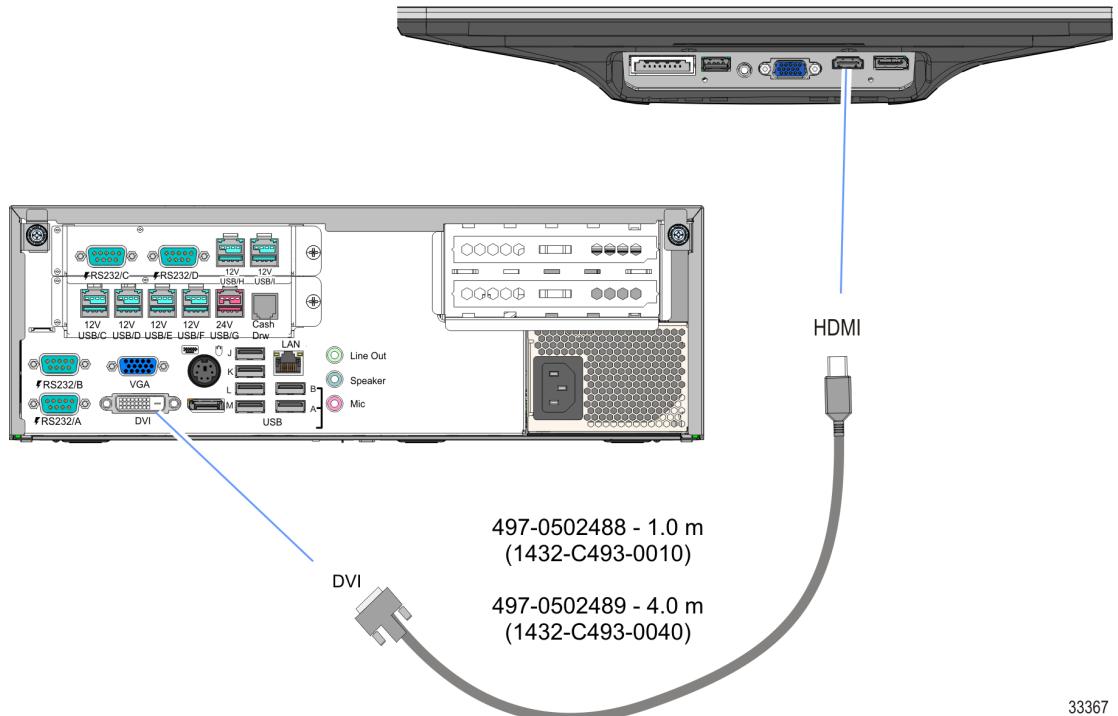


33368

DVI

The 5968/5985 Display does not have a DVI port HDMI port but you can use the DVI to HDMI Cable for video to the display.

1. Connect the DVI end of the cable to the *DVI* connector on the host terminal.
2. Connect the HDMI end of the cable to the *HDMI* connector on the display.
3. *Optional* - Connect an Audio Cable to the *Audio* connectors on both the display and host terminal.

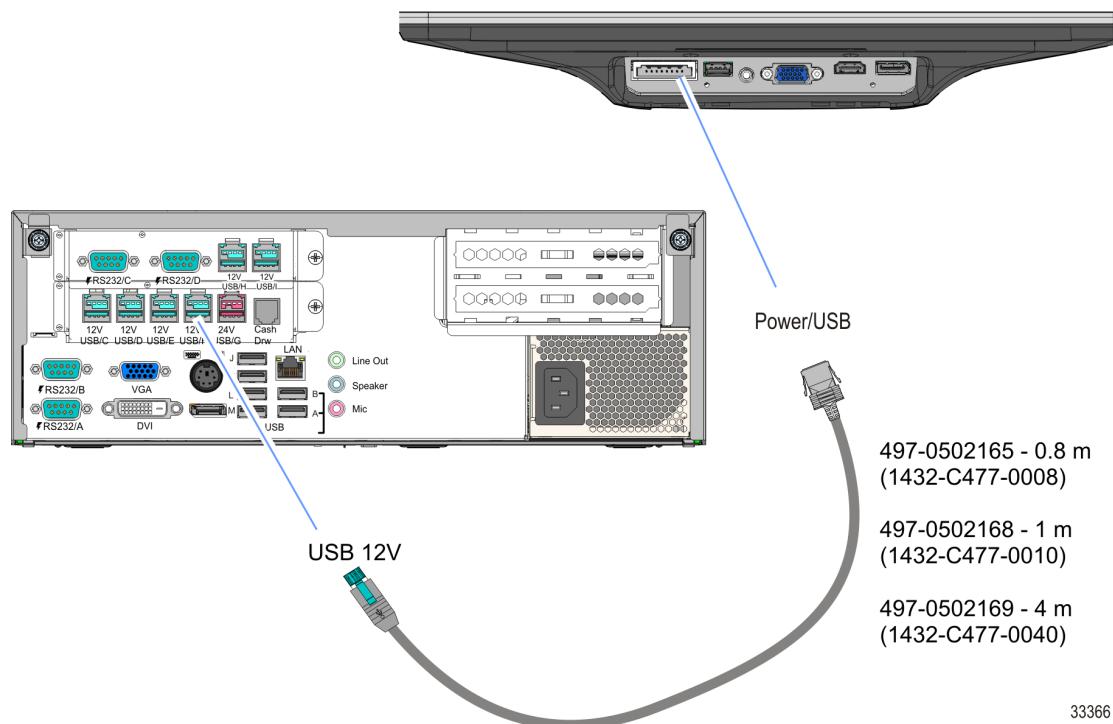


Data and Power Connections

USB and Power (USB12V Cable)

The USB12V Cable provides both USB and power to the display.

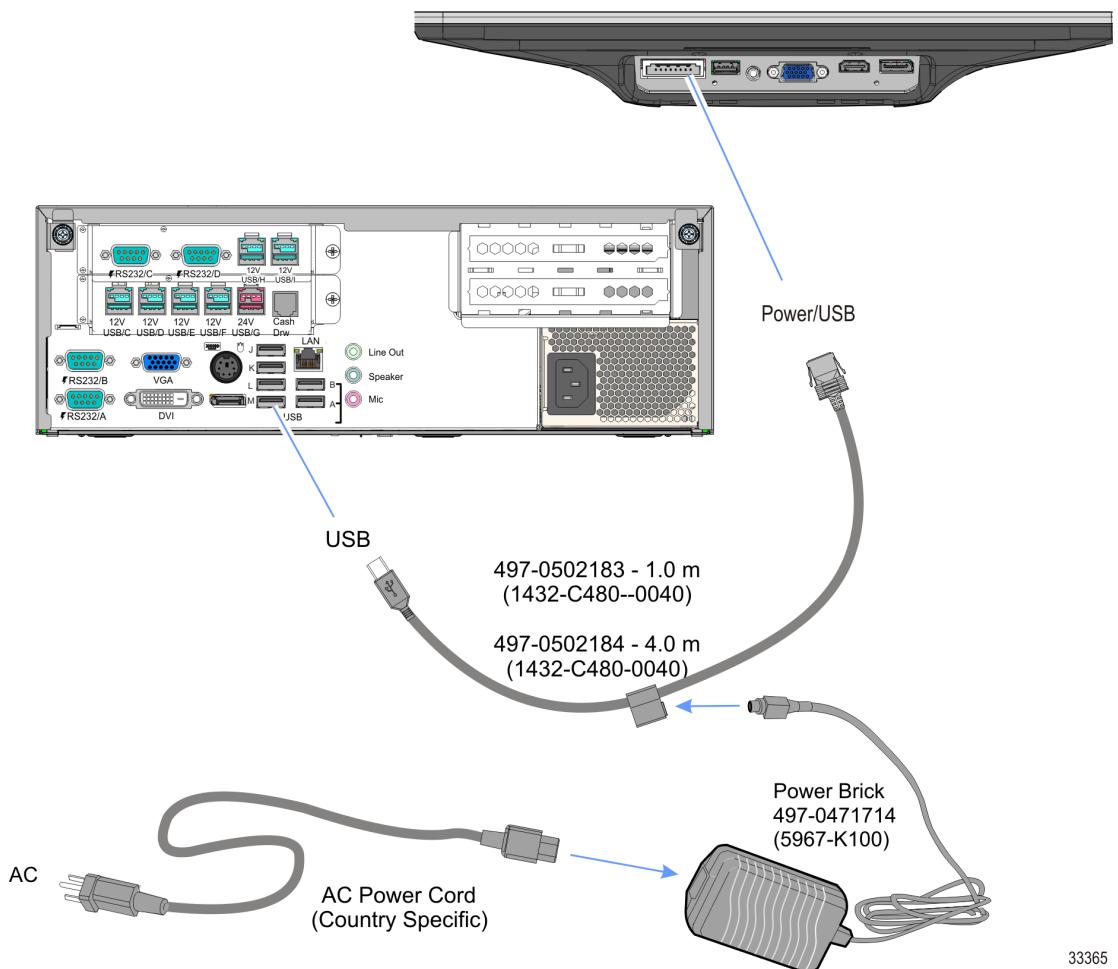
1. Connect the USB Power Cable to the display *Power* connector.
2. Connect the USB12V Cable to one of the *12V Powered USB* connectors on the host terminal.



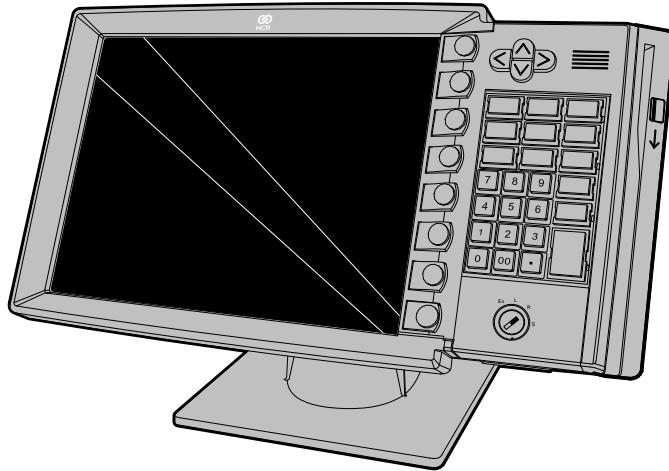
USB and Power (External Power Brick)

A USB-Power Cable is used to provide both USB and power to the display when the host terminal does not have a USB 12V port available, but does have an available standard USB port.

1. Connect the USB Power Cable to the display *Power* connector.
2. Connect the other end of the USB Power Cable to the *USB* connector on the host terminal.
3. Connect the Power Brick DC Cable to the USB Power Cable (middle of the cable).
4. Connect the AC Power Cord to the Power Brick and an AC outlet.



Installing an NCR 5954 USB DynaKey



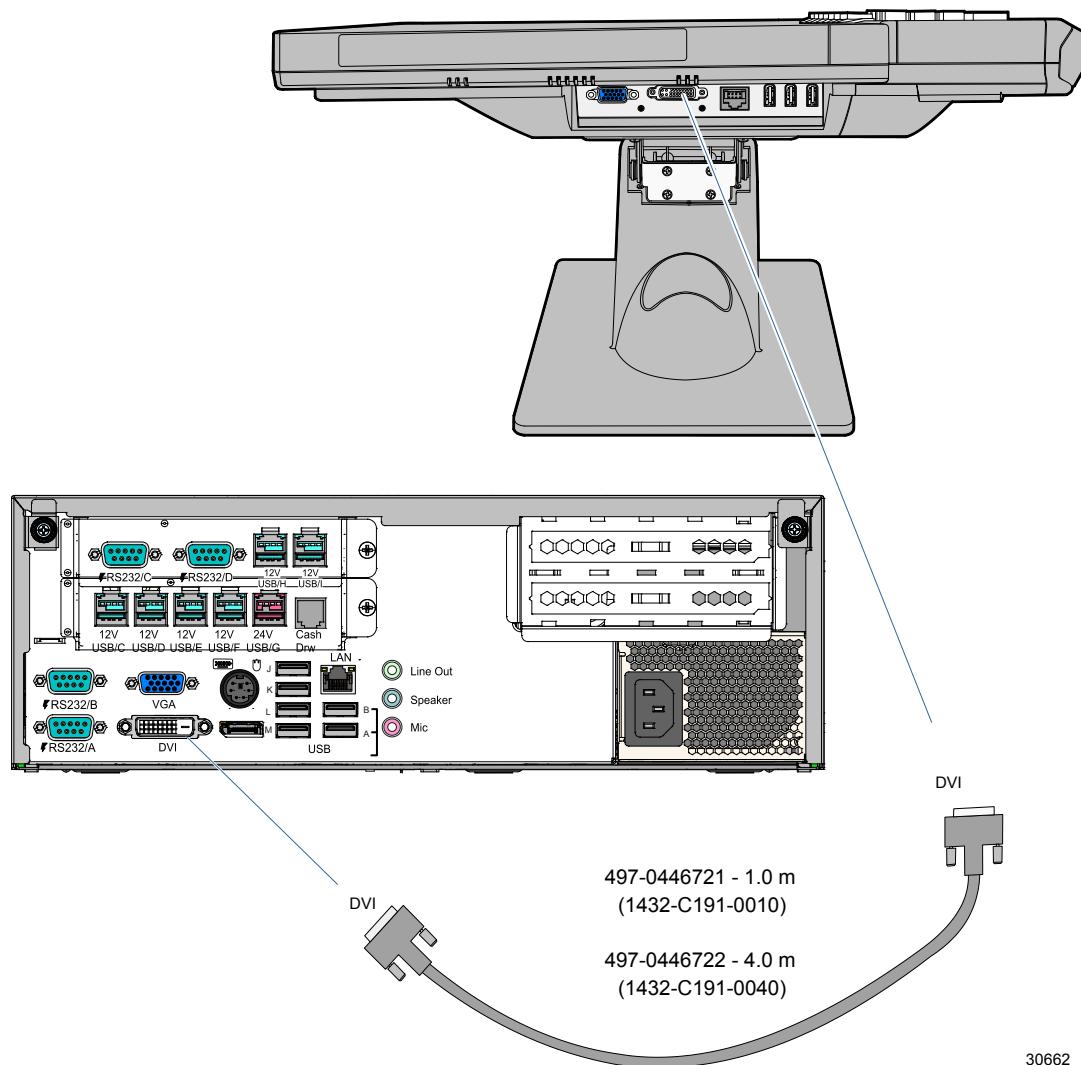
23815

The DynaKey connects to the terminal using two cables.

- Digital Video Interface (DVI) or VGA cable for video
- Powered Universal Serial Bus (USB) for data and power

DVI Cable Connections

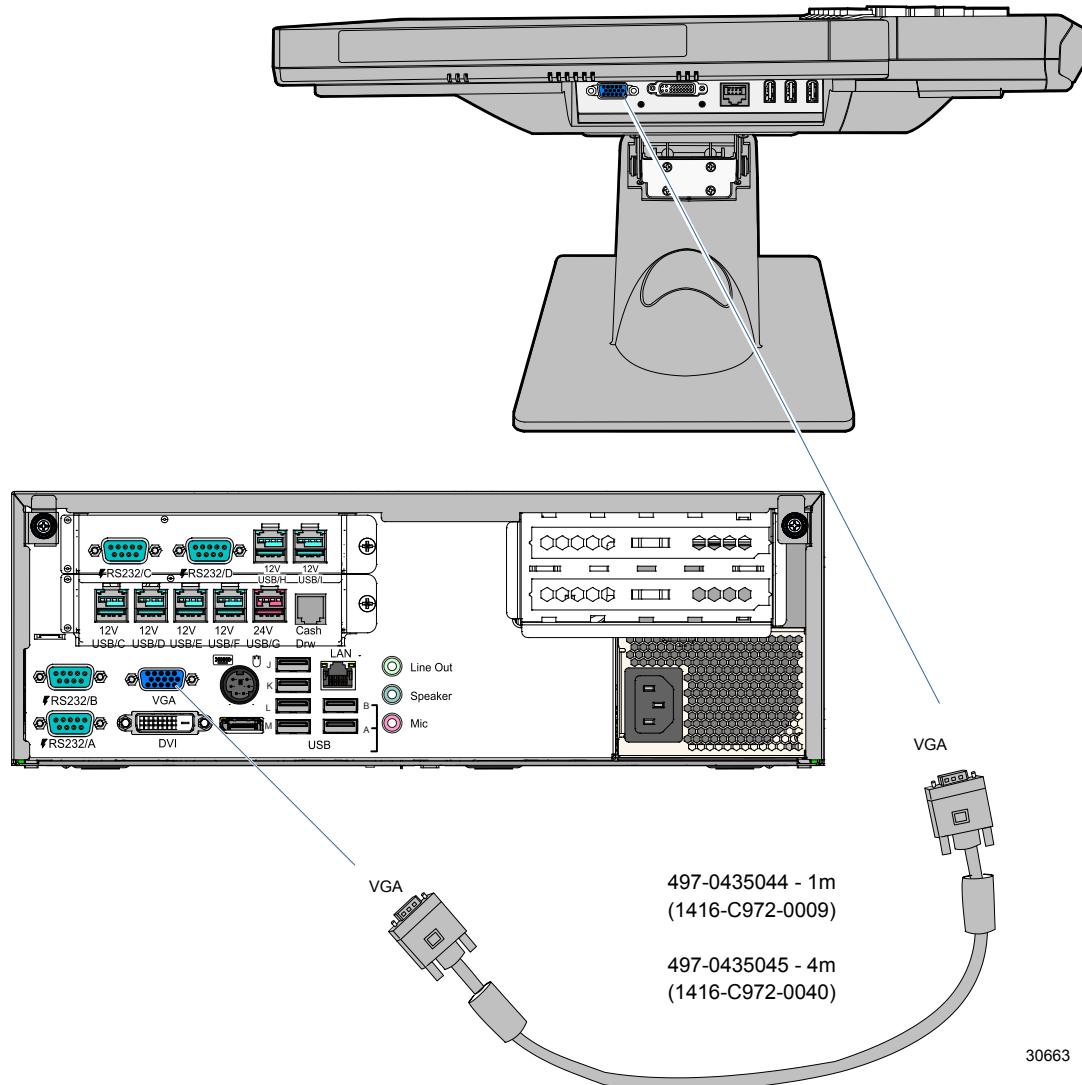
Connect the cable to the *DVI* connectors on the DynaKey and terminal.



30662

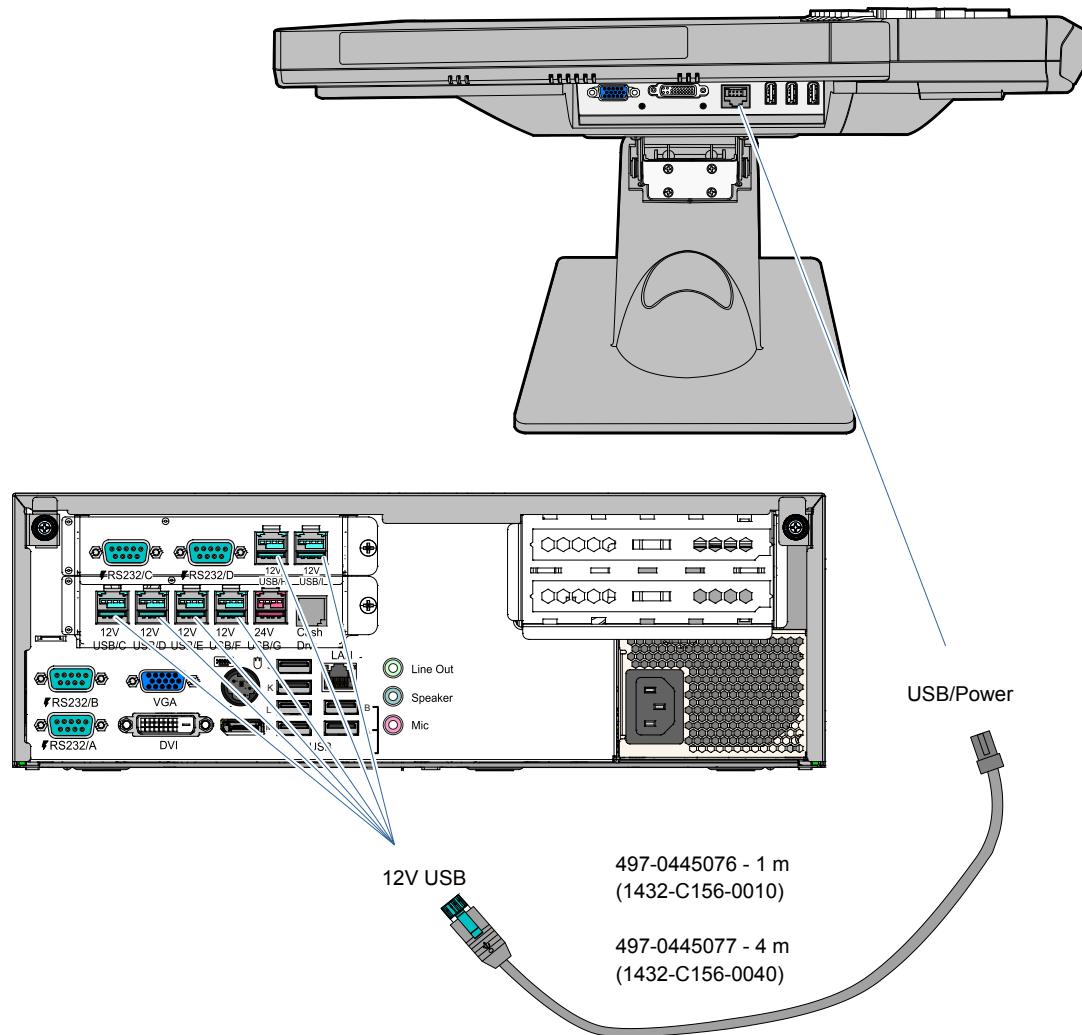
VGA Cable Connections

Connect the cable to the VGA connectors on the DynaKey and terminal.

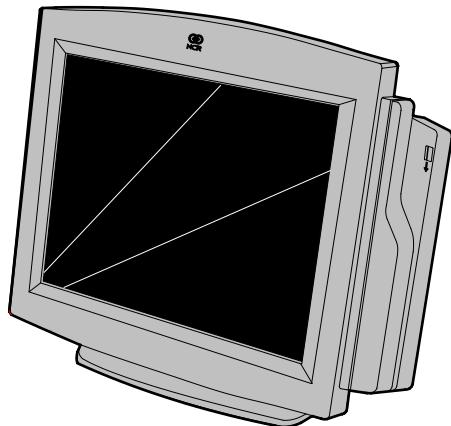


Powered USB Cable Connections

Connect the Powered USB Cable to the DynaKey and to one of the *Powered USB* connectors on the terminal.



Installing an NCR 5964 12.1-inch Touch LCD



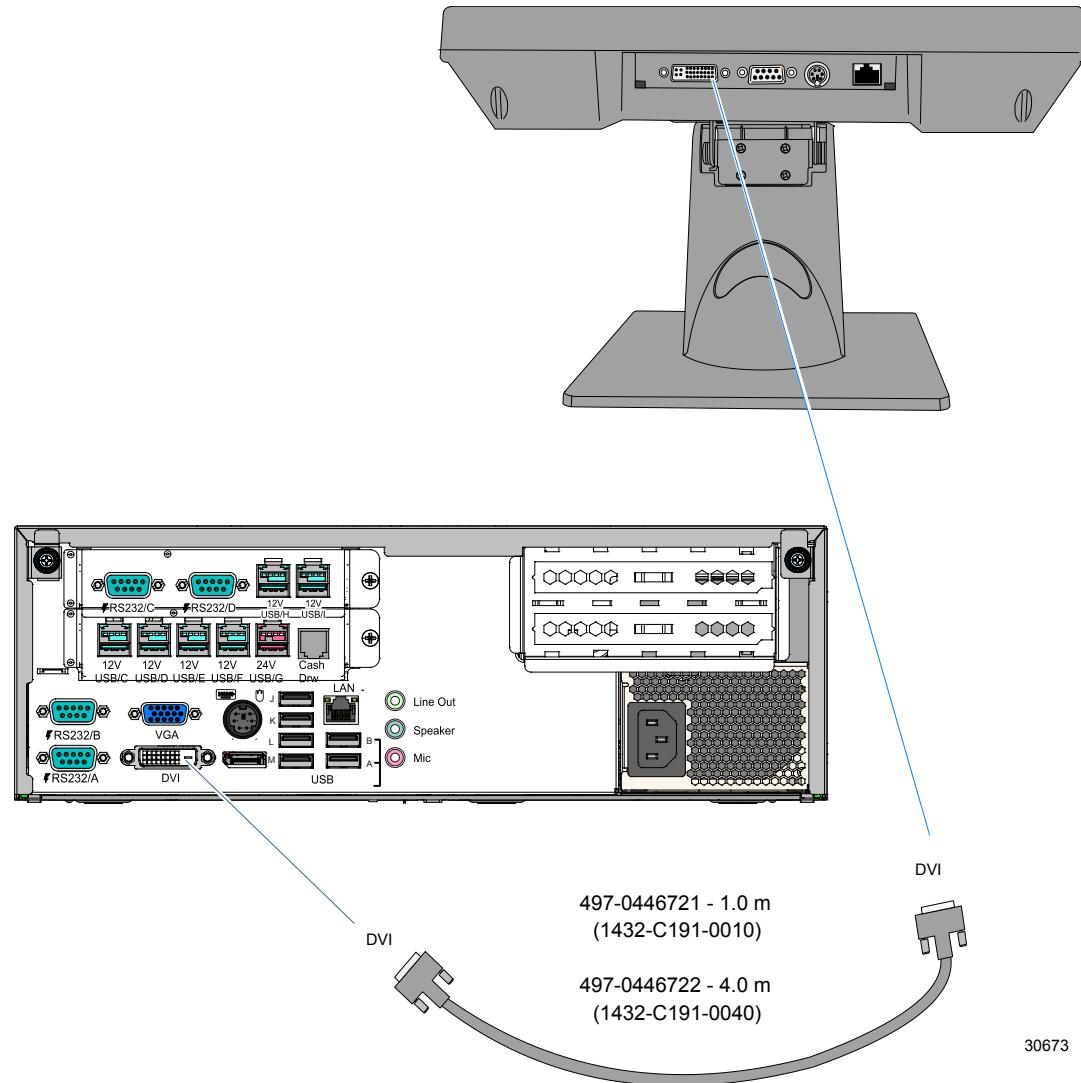
19429a

The 5964 12-Inch LCD Monitor connects to the host terminal using two cables.

- DVI Cable for video
- RS-232 Y-Cable for data and power. Also used to connect the 5964 PS/2 keyboard I/F to the terminal for the wedge controller (MSR, PS/2 Keyboard, Scanner, and Tone Speaker).

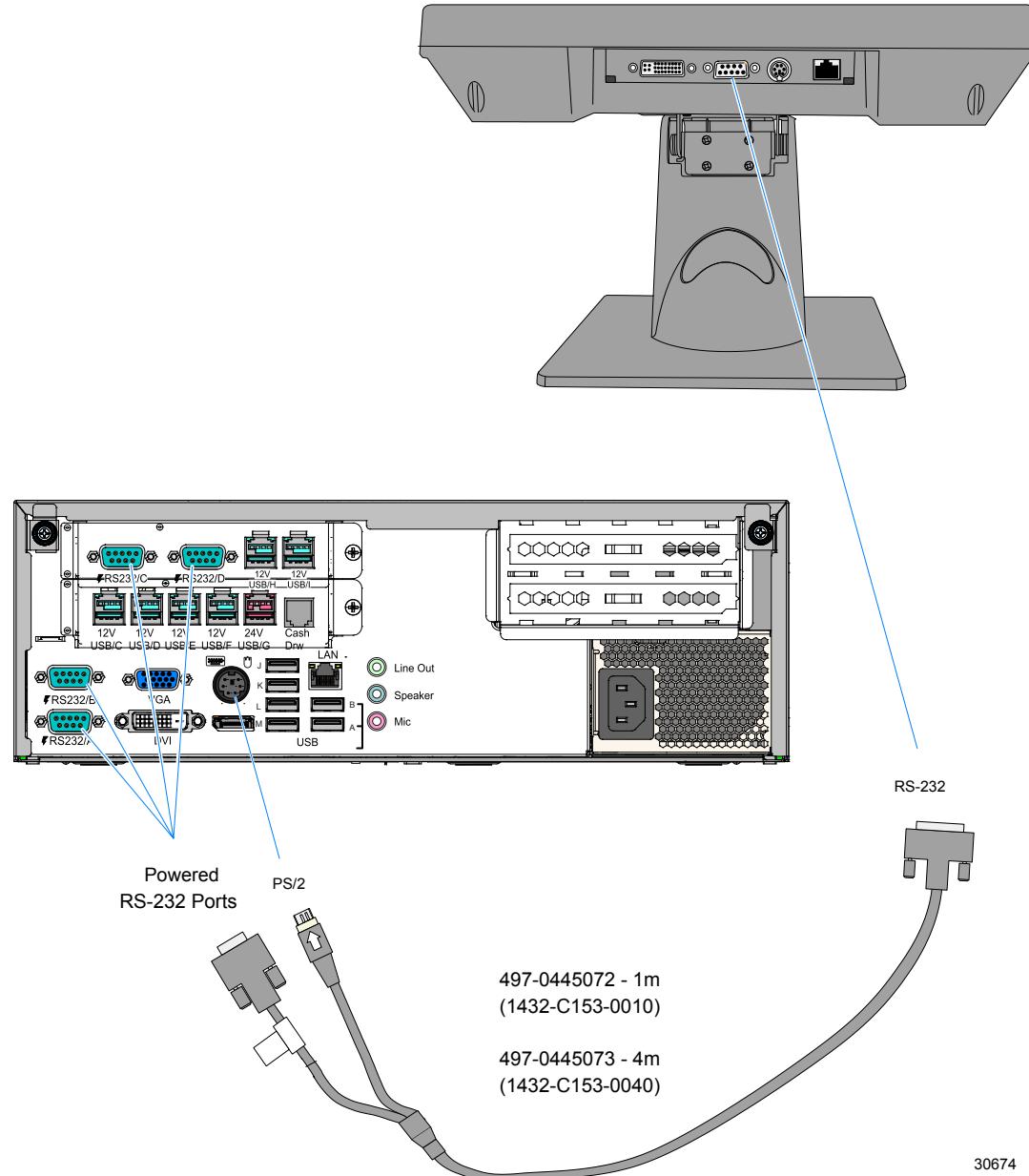
DVI Connections

Connect the cable to the DVI Connectors on the 5964 display and host terminal.



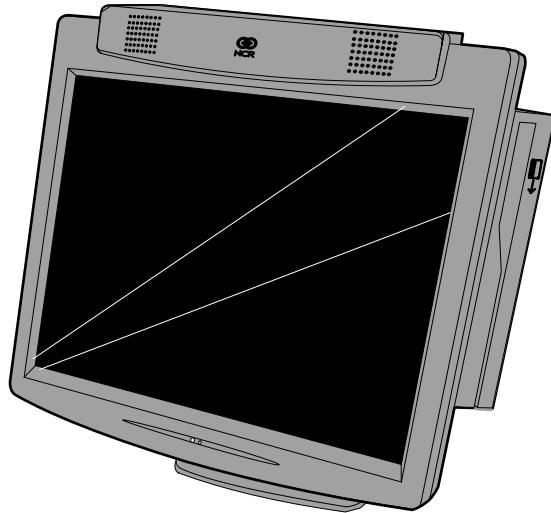
RS-232 Connections

1. Connect the Y-cable to one of the Powered RS-232 ports and to the PS/2 connector on the host terminal.
2. Connect the other end of the Y-Cable to the RS-232 connector on the 5964 display.



30674

Installing an NCR 5965 15-inch Touch LCD



22041

The 5965 15-Inch LCD Monitor connects to the host terminal using the following cables.

- DVI or VGA cable for video
- Powered Universal Serial Bus (USB) for data and power

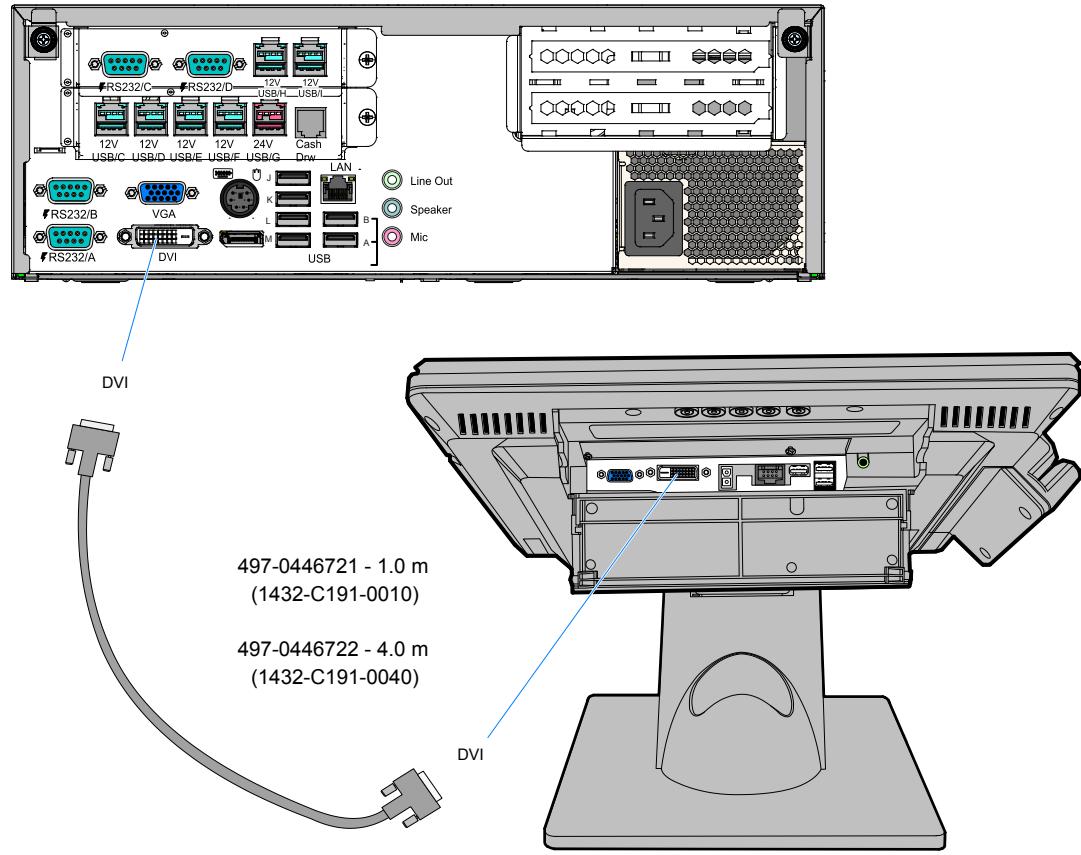


Note: An optional Power Brick is available when USB power is not available on the host terminal. A special USB cable is used for data in this case.

- If audio is used, connect the Audio Connector on the 5965 to the Audio Out port on the host computer through the 0.9 m (3 ft.) or 4.6 m (15 ft.) Audio cable.
- Standard USB ports (1-3) for additional USB devices.

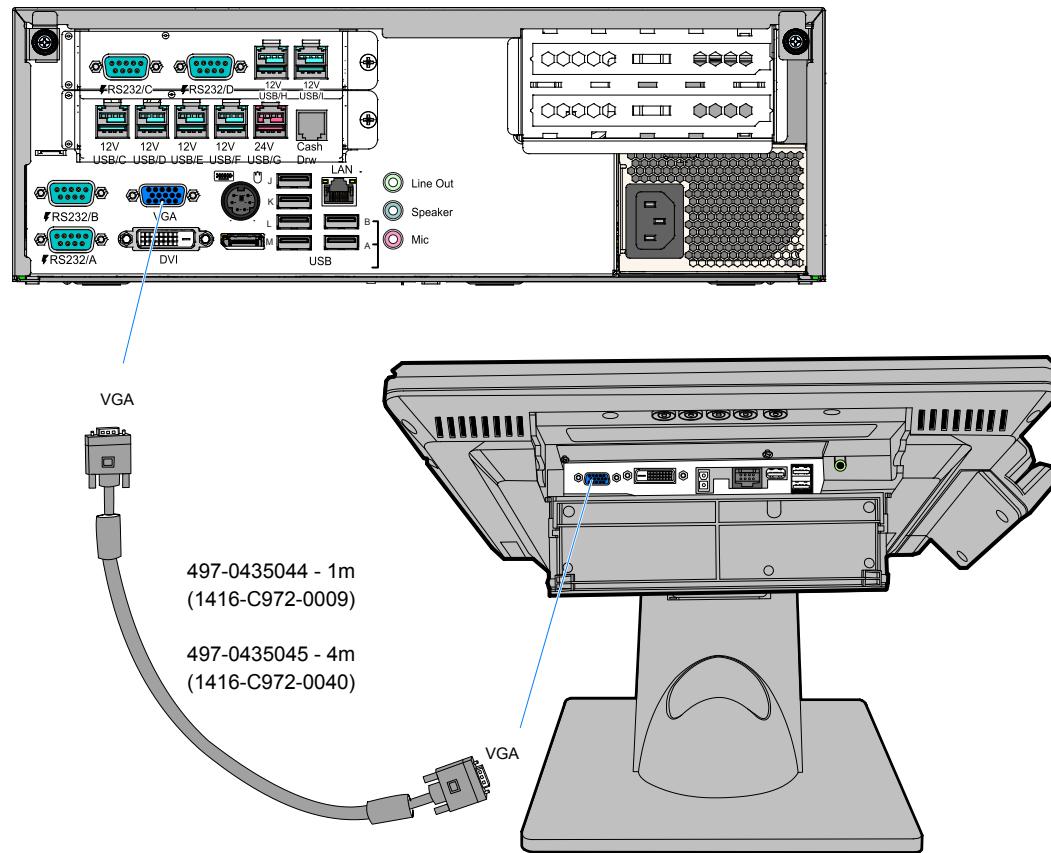
DVI Connections (Video)

Connect the DVI Cable to the *DVI* connectors on both the 5965 Touch LCD and host terminal.



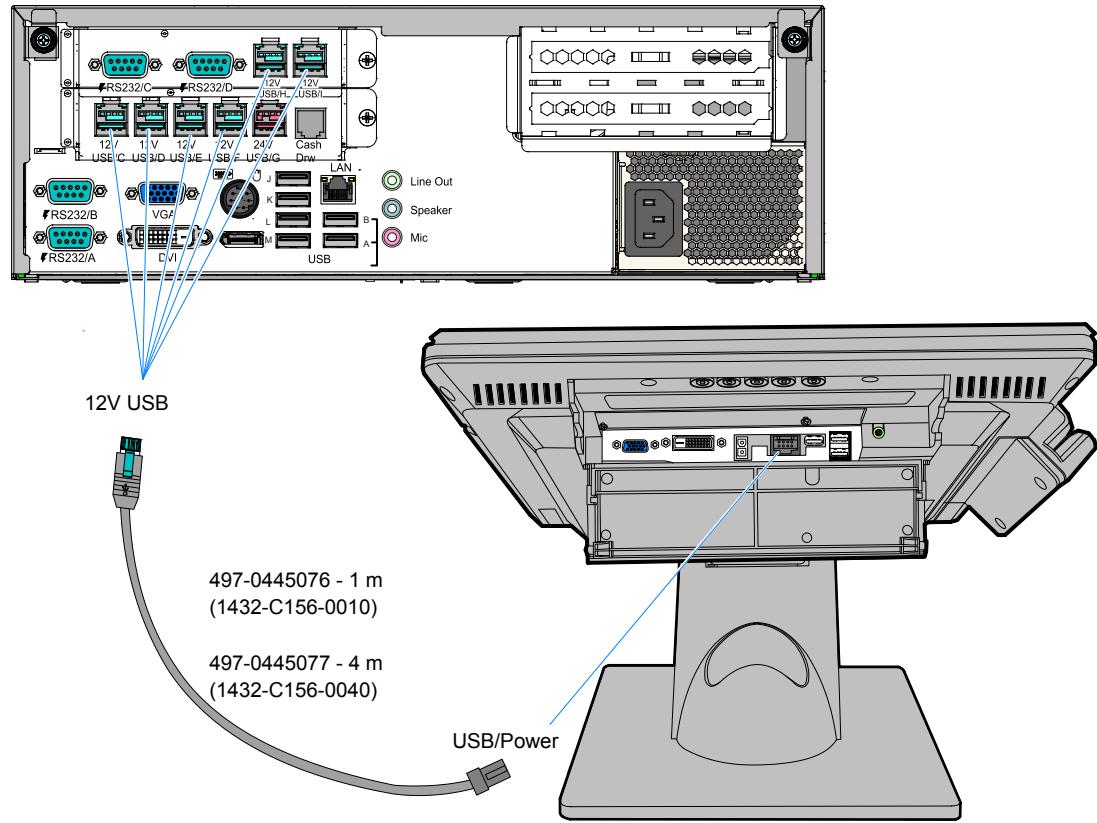
VGA Connections (Video)

Connect the VGA Cable to the VGA connectors on both the 5965 Touch LCD and host terminal.



Powered USB Cable Connections (Data and Power)

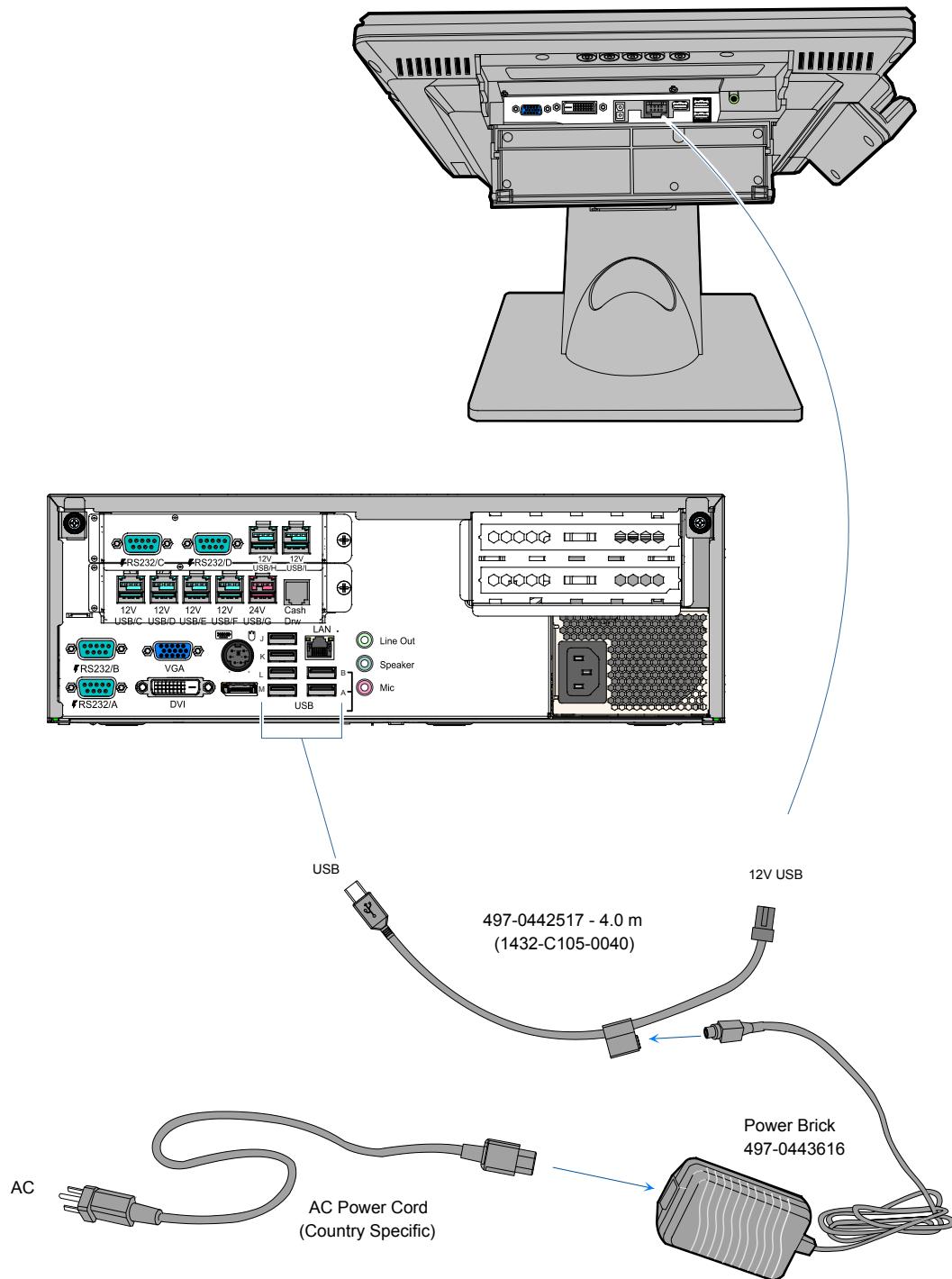
Connect the Powered USB Cable to the 5965 Touch LCD and to one of the 12V Powered USB connectors on the host terminal.



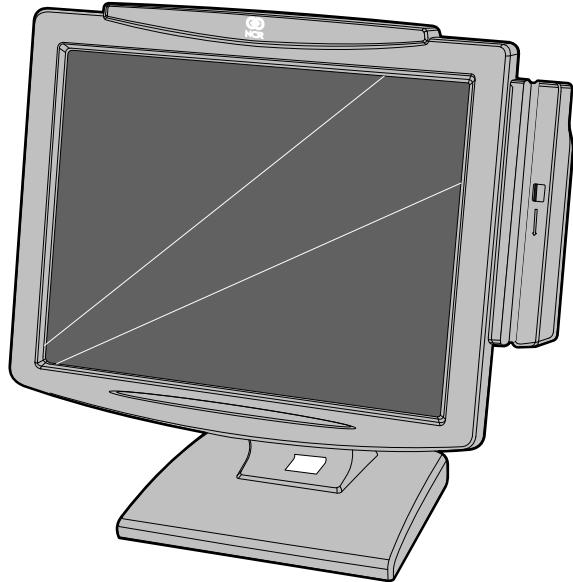
30678

Power Brick and USB Connections (Power and Data)

Connect the USB Cable to the 5965 Touch LCD USB connector and to a USB connector on the host terminal.



Installing an NCR 5966 15-inch Touch LCD



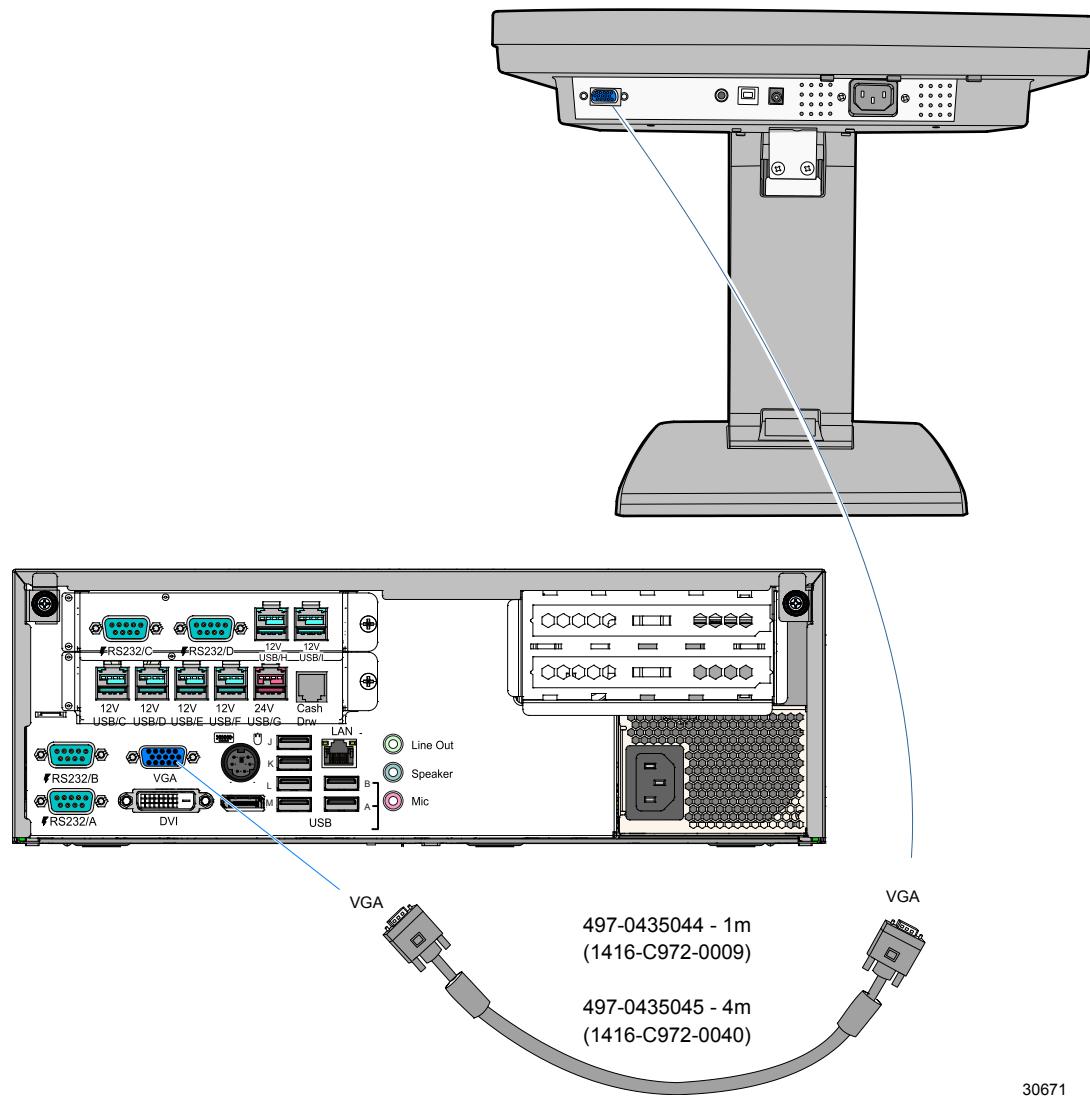
24810

The 5966 12-Inch LCD Monitor connects to the host terminal using the following cables.

- VGA cable for video
- USB cable for data
- Powered Universal Serial Bus (USB) for power
- Audio cable (optional) - Connects to the Audio Connector on the 5966 and the Audio Out port on the host terminal.

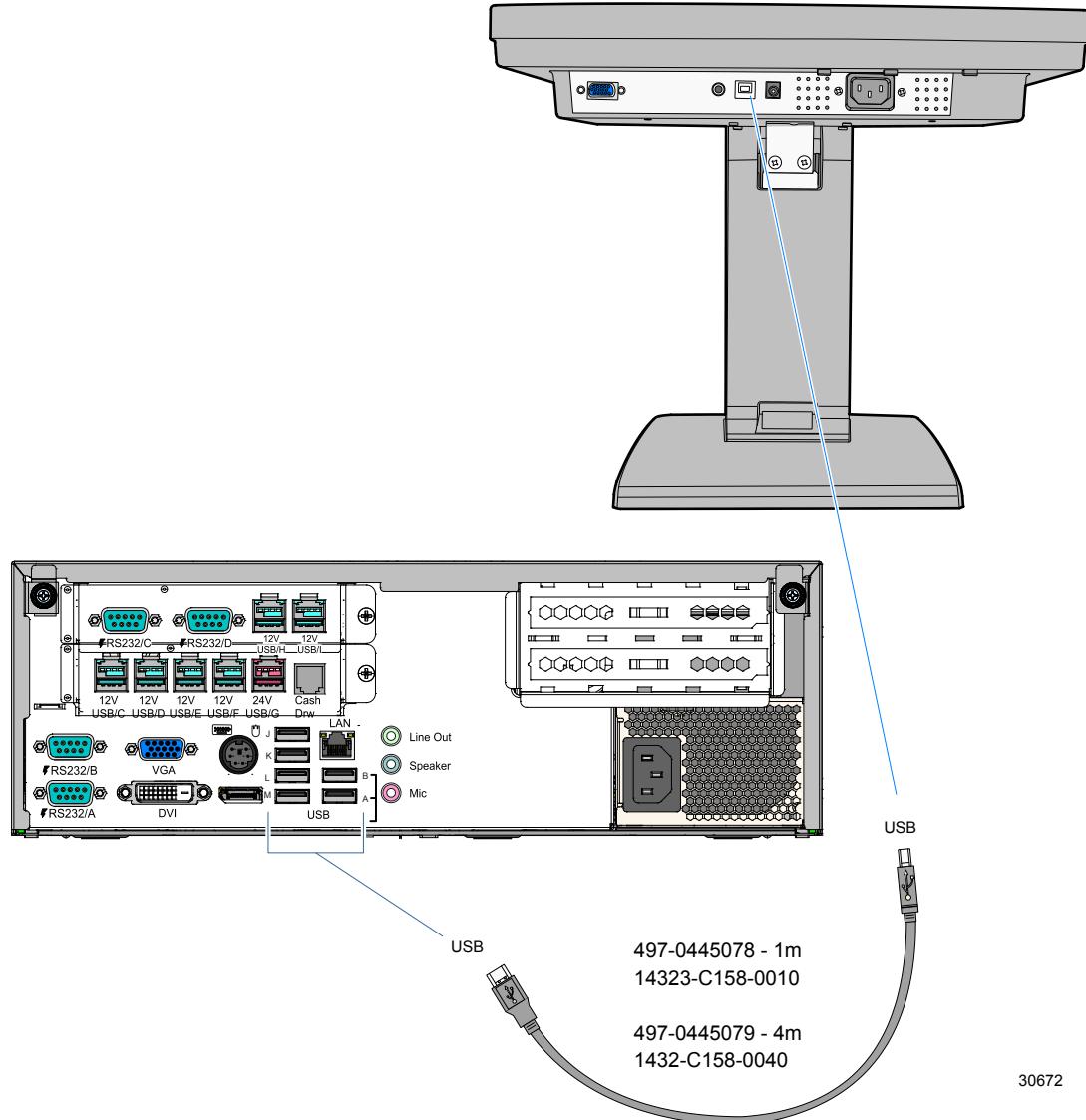
Video Cable Connections

Connect the VGA Cable to the VGA connectors on both the 5966 Touch LCD and host terminal.



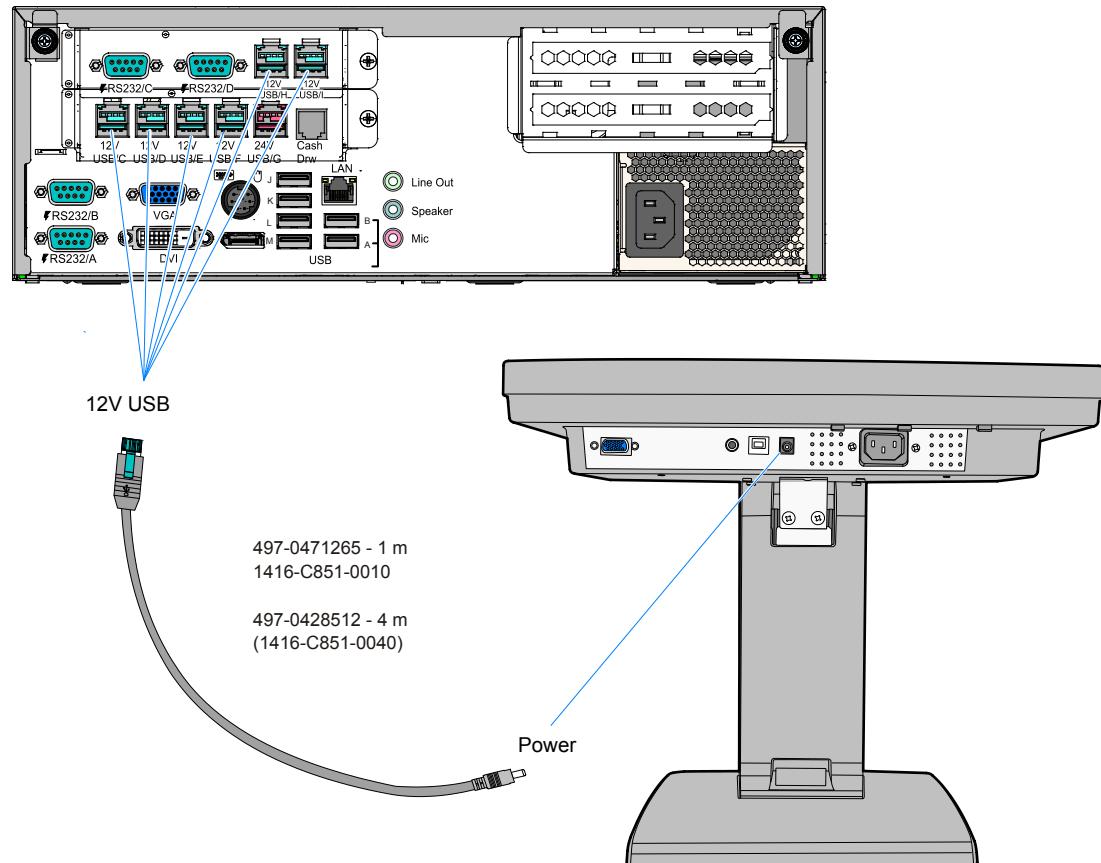
Data Cable Connections

Connect the included USB Cable to the *USB* connector on the 5966 and to a *USB* connector on the host terminal.



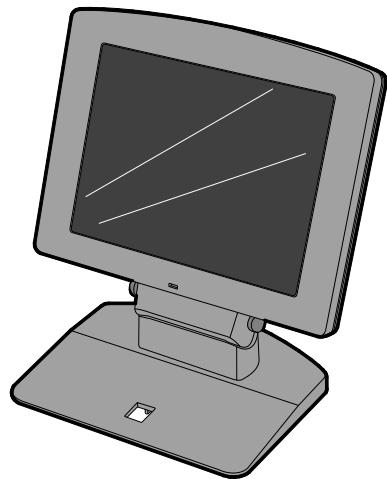
Power Cable Connections

Connect the Powered USB Cable to the 5966 and to the Powered 12V USB connector on the host terminal



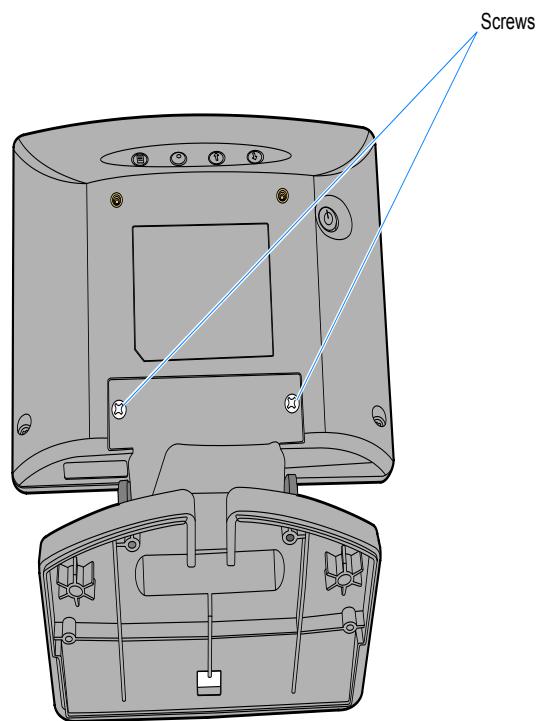
31173

Installing an NCR 5982 6.5-Inch LCD



23157

1. Remove the Base from the Display (2 screws).

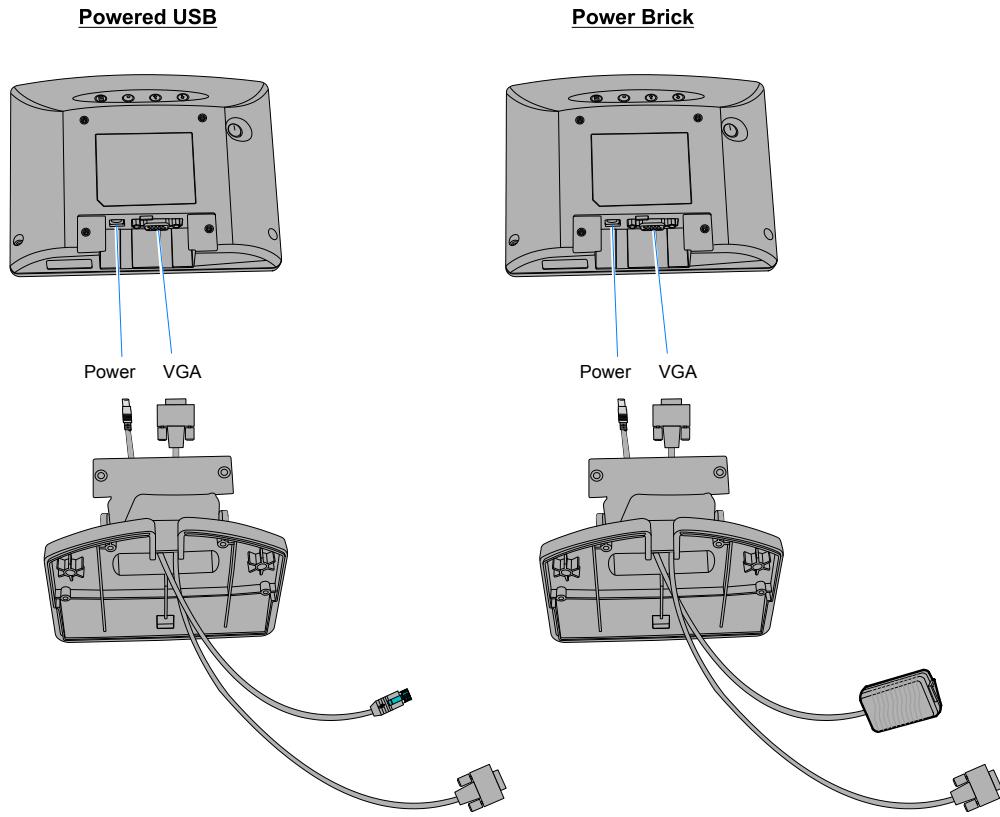


23162a

2. Route the VGA and Power cables up through the bottom of the Base and connect them to the Display.



Note: The power cable can be either an External Power Supply or a Powered USB cable.

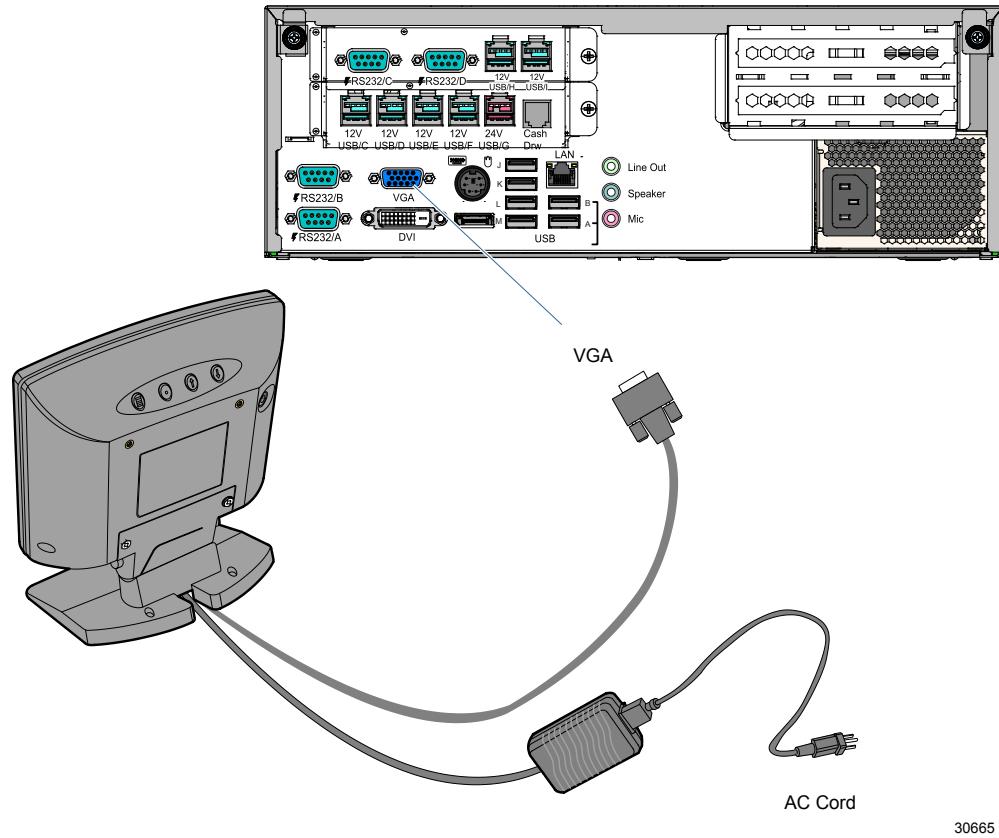


23163a

3. Install the Base to the Display (2 screws).
4. Route the cables out the rear of the Base.
5. Connect the Power Cable:

External Power Supply

- a. Connect the AC Cord to the Power Supply.

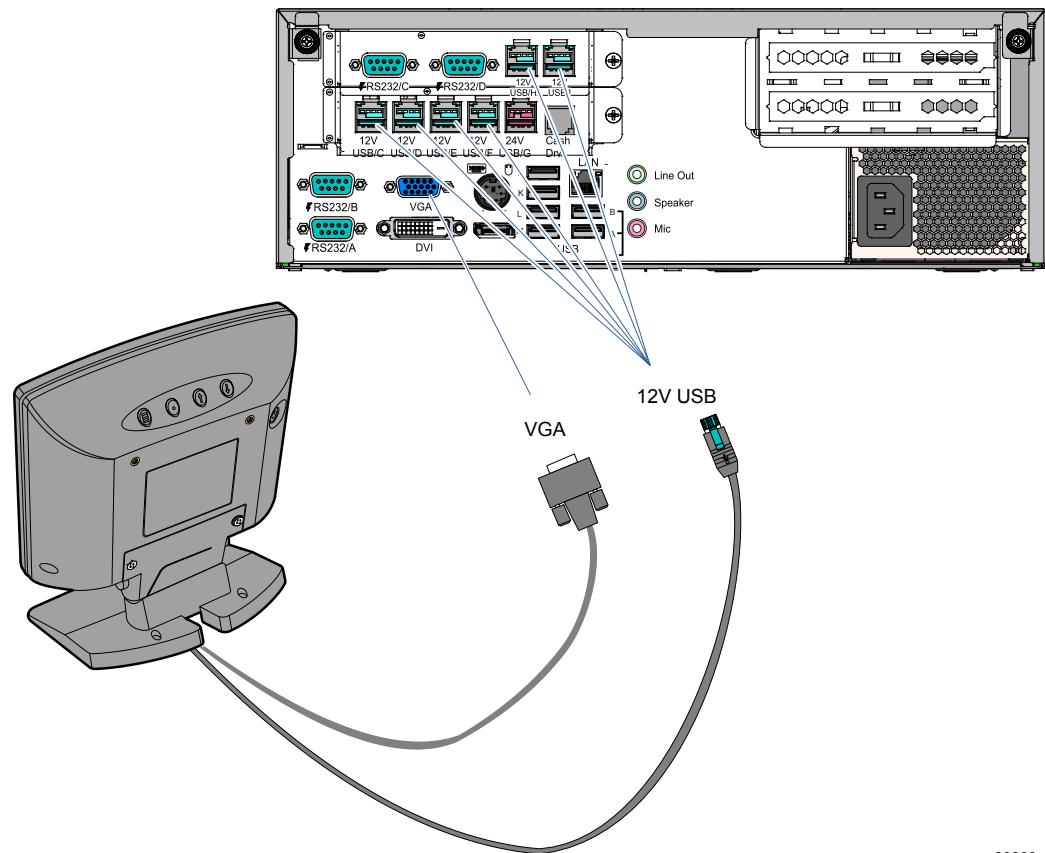


- b. Connect the VGA cable to the *VGA* port on the host terminal.
- c. Connect the power cable to an AC source.

30665

Terminal Powered

- a. Connect the Power Cable to the *Powered 12V USB* port on the host terminal.

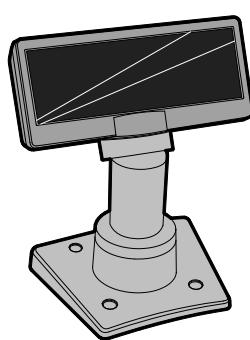


30666

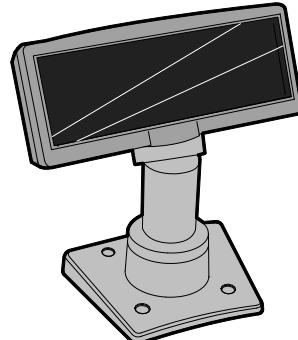
Installing an NCR 5975 Remote Customer Display

There are two models of the NCR 5975 Remote Customer Display:

- 5975-10xx - 2x20 VFD
- 5975-20xx - 256x84 Graphical Display



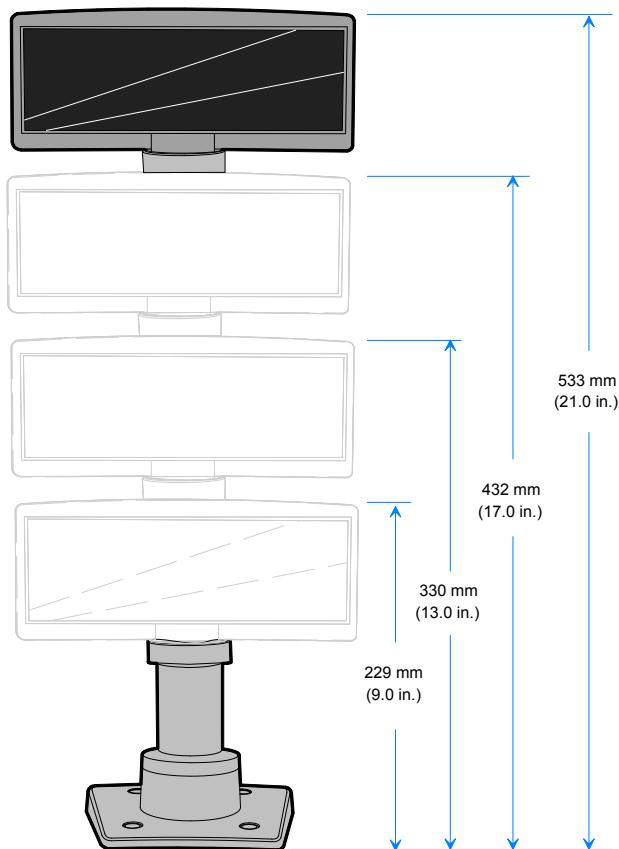
5975-1xxx 2x20 VFD



5975-2xxx Graphical Display

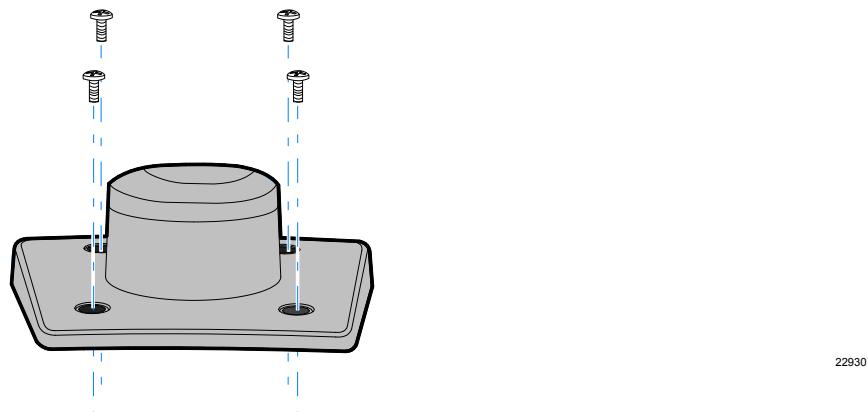
22926

There are four different length posts available, in four inch increments.

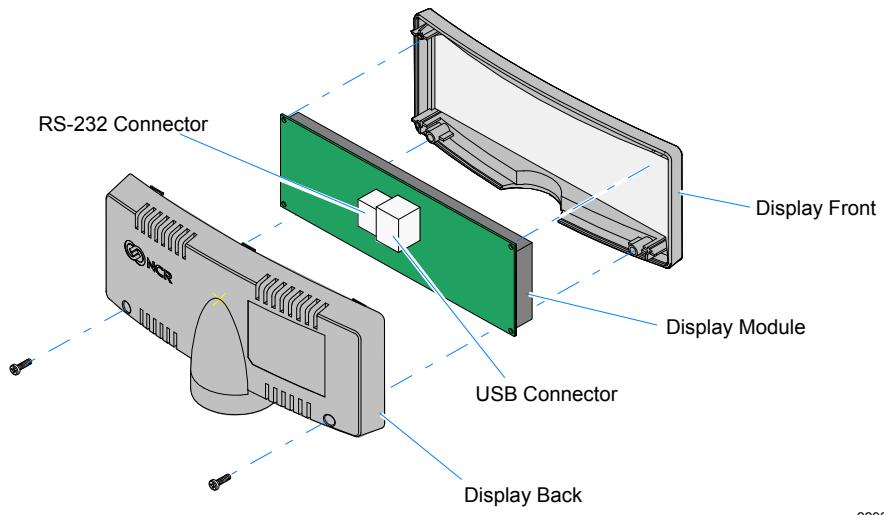


22918

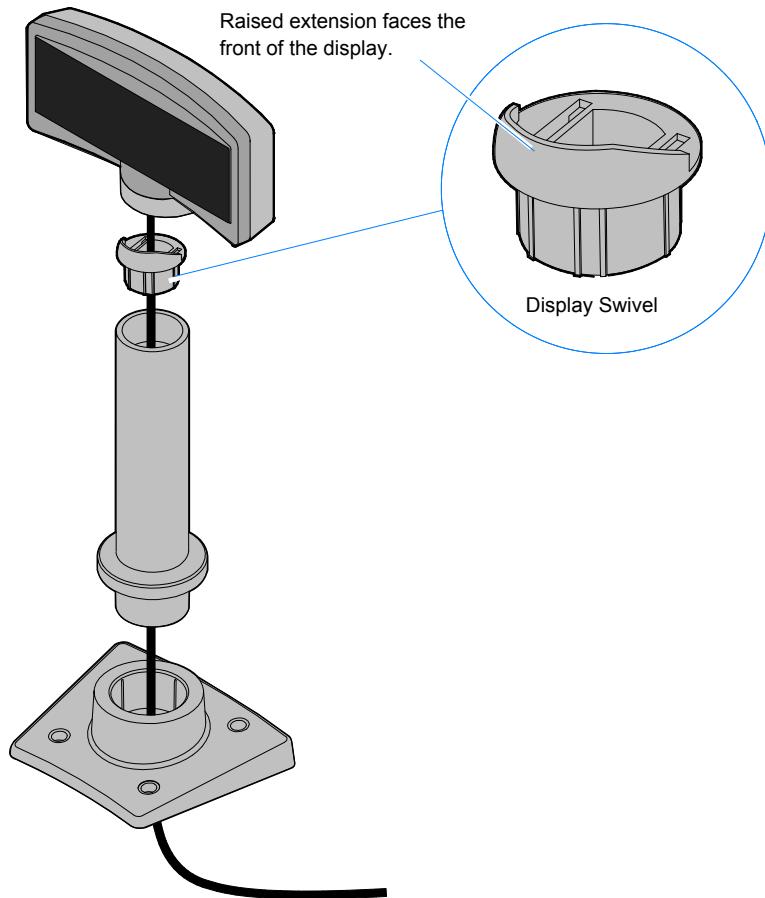
1. Locate the Display Mount within 4 meters (13 ft.) of the host terminal.
2. Determine if the cable should be routed down through the mounting surface or if it should be run on top of the surface. Drill a hole if necessary.
3. If you are installing with a post greater than 215 mm (8.5 in.) secure the Base Plate with screws (4) that are appropriate for the mounting surface.



4. Connect the Interface Cable to the Display Module.
 - a. Remove the screws (2) from the Display Back.
 - b. Remove the Display Back.
 - c. Route the Interface Cable though the opening in the Display Back.
 - d. Connect the cable to the proper connector on the Display Module.



5. Reassemble the Display Assembly.
6. Route the Interface Cable through the Post
7. Assemble the Post components.



22910

8. Connect the Display Cable to the terminal.

RS-232 Interface

Connect the I/F cable to a powered RS-232 connector on the terminal.



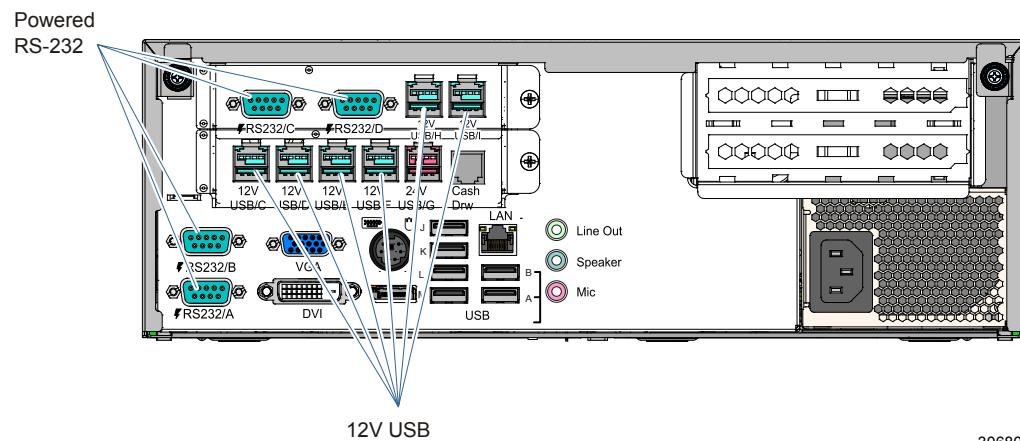
Note: The factory default settings for the COM1 and COM2 ports are powered by default. To change a port to non-powered see the Circuit Boards chapter in the NCR RealPOS 82XRT Hardware Service Guide, B005-0000-2087.

Configure the terminal serial port:

9600 baud, 8 data bits, 1 start bit, 1 stop bit, No parity

USB Interface

Connect the I/F cable to a powered 12V Powered USB connector on the terminal.



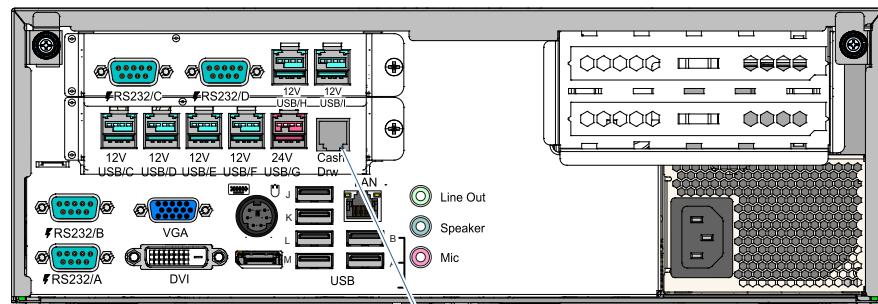
30680

Installing a Cash Drawer

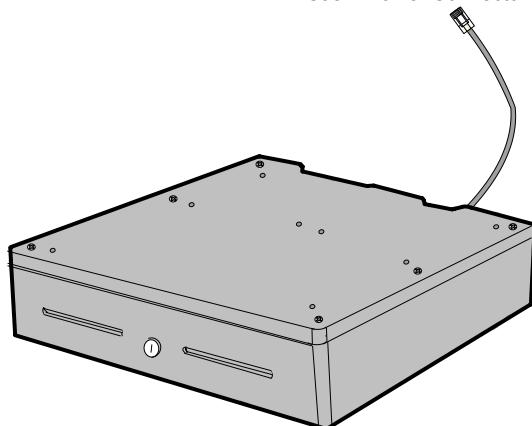
The Cash Drawer can be connected to the Cash Drawer connector or to the transaction printer.



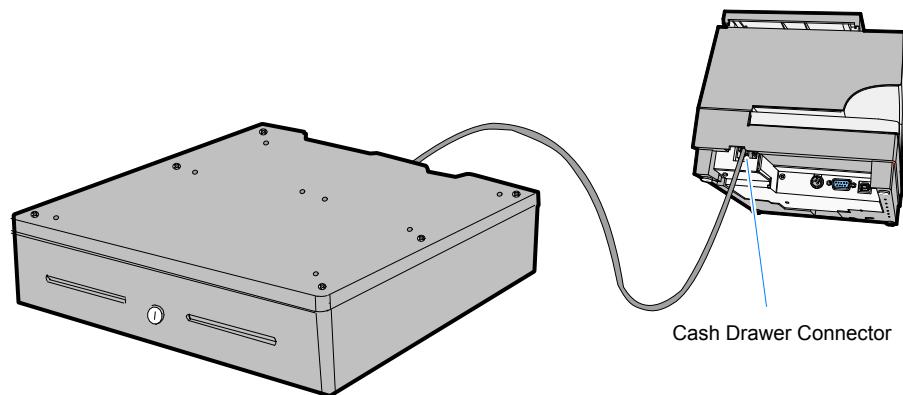
Note: All NCR cash drawers contain circuitry to protect against the drawer solenoid spark back to the terminal. If you are not connecting an NCR cash drawer you may need to use the Cash Drawer Adapter Cable (1432-C395-0002), which has this protective circuitry.



Cash Drawer Connector



30681

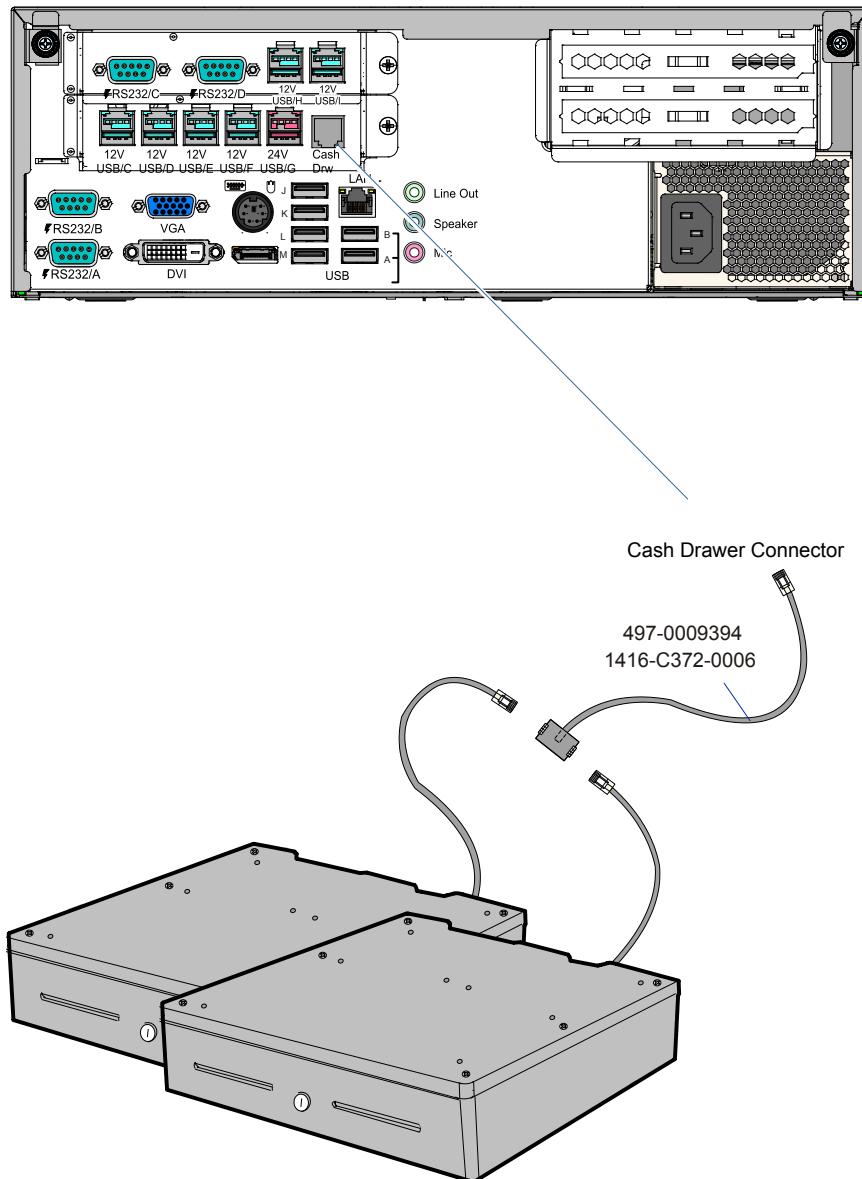


Cash Drawer Connector

20440

Installing a Second Cash Drawer

The terminal supports a 2-drawer configuration with a Y-cable (1416-C372-0006).



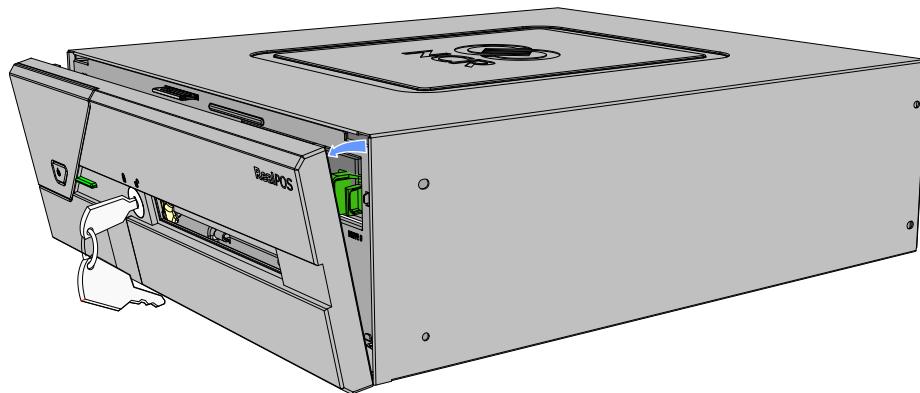
Replacing the Primary HDD/SSD

The Hard Drive is front accessible from behind the Front Cover.

1. Turn Off the power to the terminal and any connected peripheral devices. Unplug the terminal's power cord.
2. Remove the Front Cover.

Modular Terminal

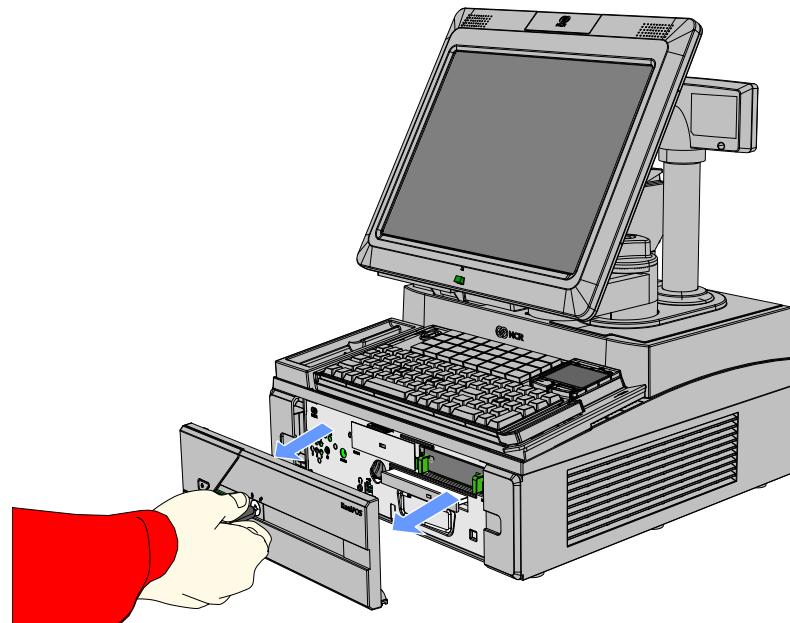
- a. Turn the Keylock to the unlocked position.
- b. Pull the top edge of the Front Cover away from the chassis and remove the cover.



30629

Integrated Terminal

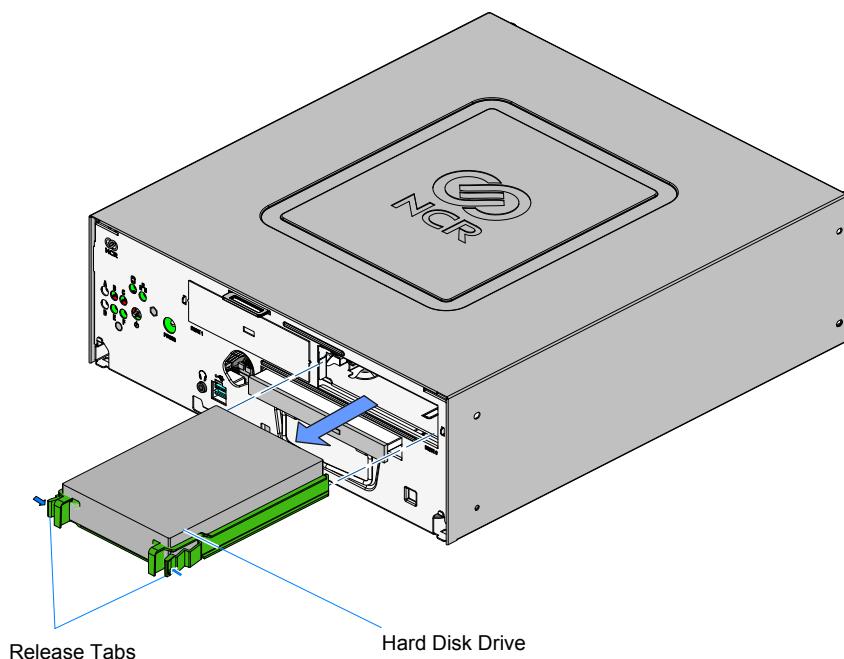
- a. Turn the Keylock to the unlocked position.
- b. Grasp the key and pull straight out to remove the Front Cover.



30631

Removing the Hard Disk Drive

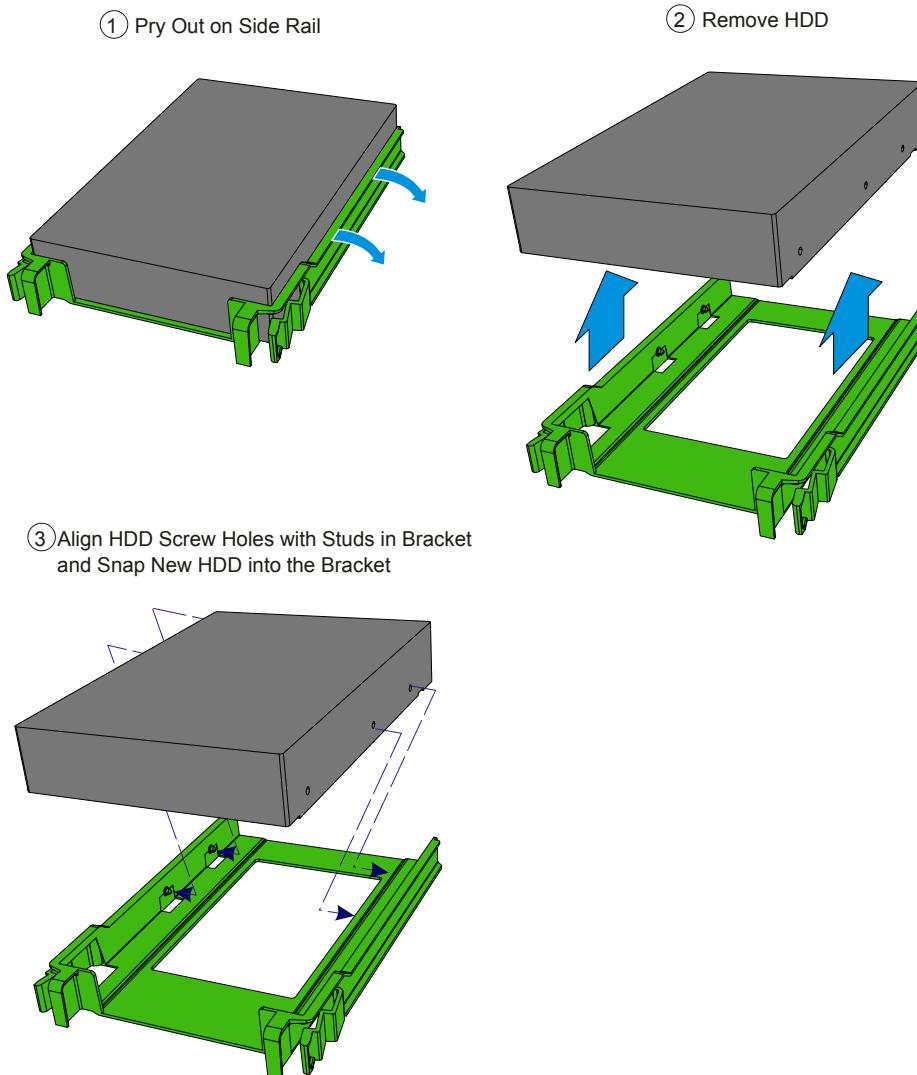
3. Squeeze the Release Tabs on the Hard Drive Bracket and then pull the drive assembly out of the chassis.



30637

Replacing the Hard Disk Drive

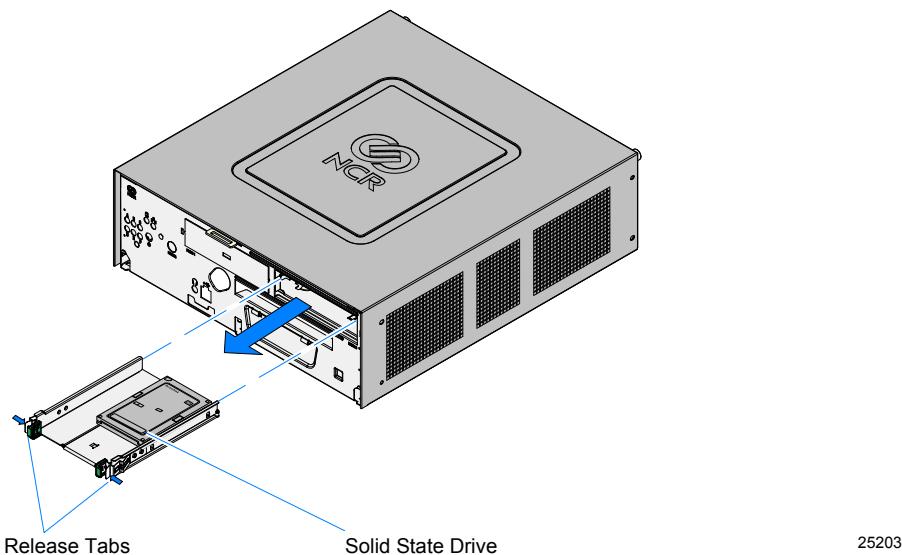
4. The HDD is housed in a flexible plastic bracket. Use the procedure illustrated below to remove/replace an HDD



30633

Removing the Solid State Device

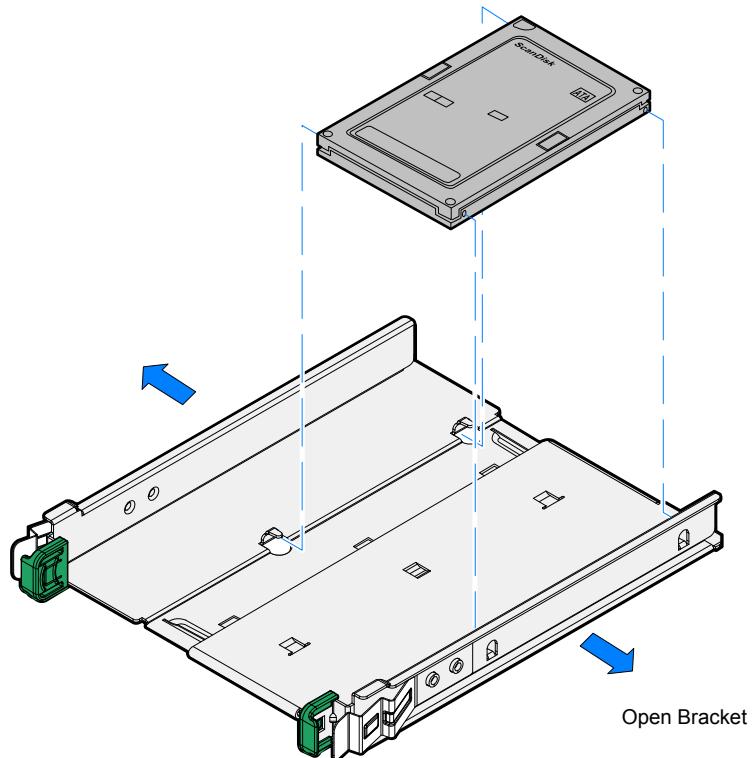
5. Squeeze the Release Tabs on the SSD Bracket and then pull the drive assembly out of the chassis.



25203

Replacing the Solid State Device

1. Slide the Right and Left SSD Brackets apart.
2. Remove the SSD.



25204

Installing a PCI Adapter Card

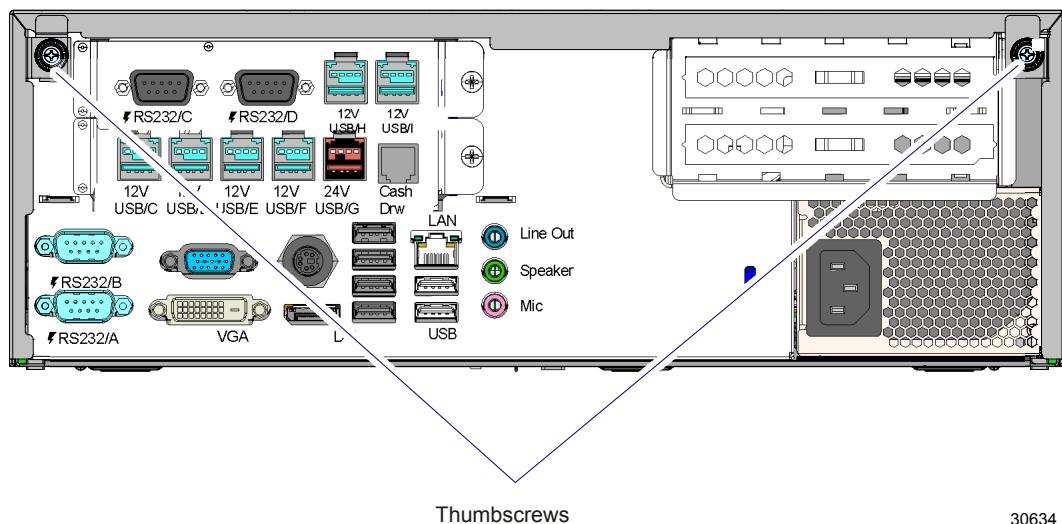
This section describes how to open the cabinet and install a PCI card.



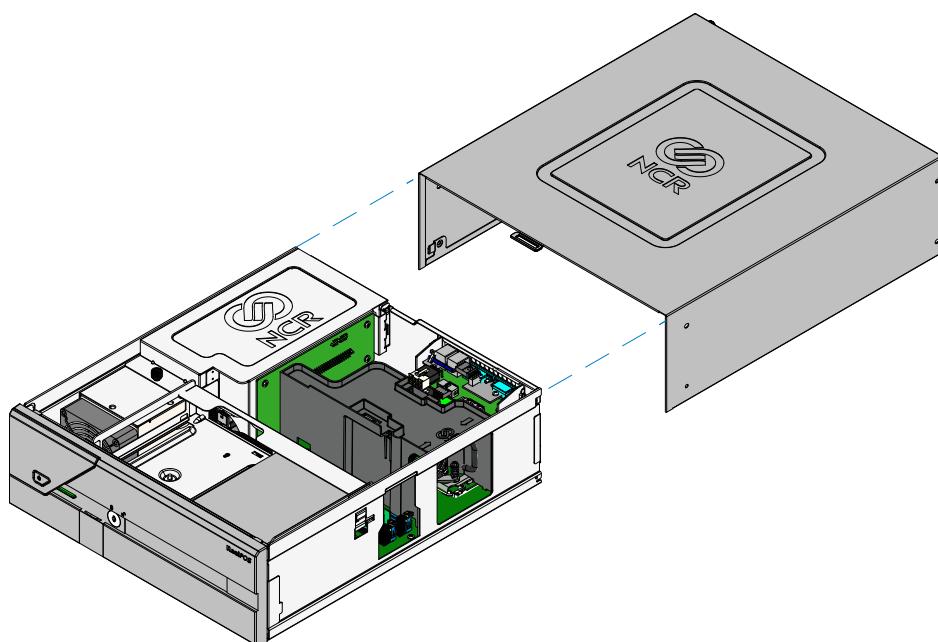
Note: The PCI Riser Card is an optional feature and must be present to install a PCI Adapter Card.

Removing the Top Cover

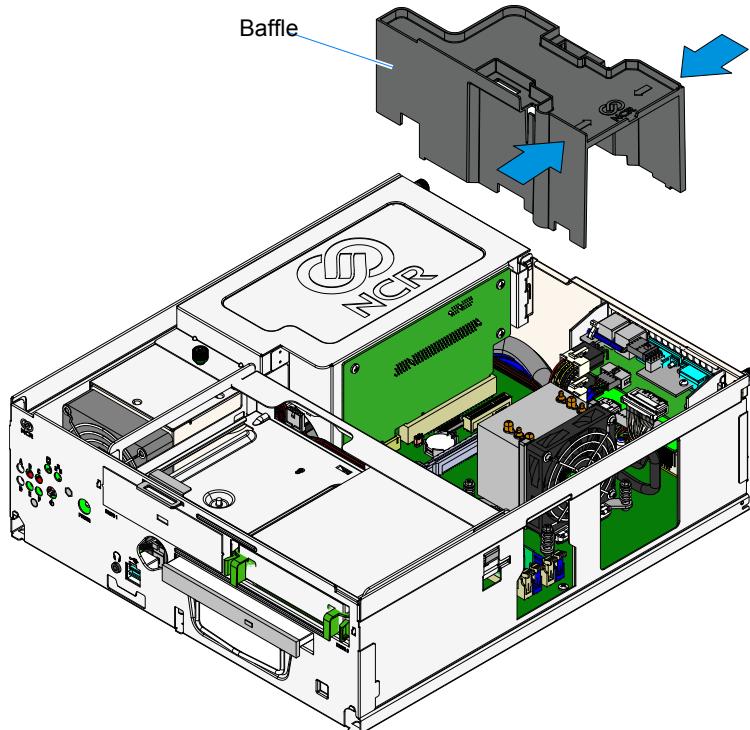
1. Remove the Front Cover (see previous section).
2. Loosen the thumbscrews (2) that secure the Top Cover.



3. Slide the cover toward the rear of the terminal to remove.



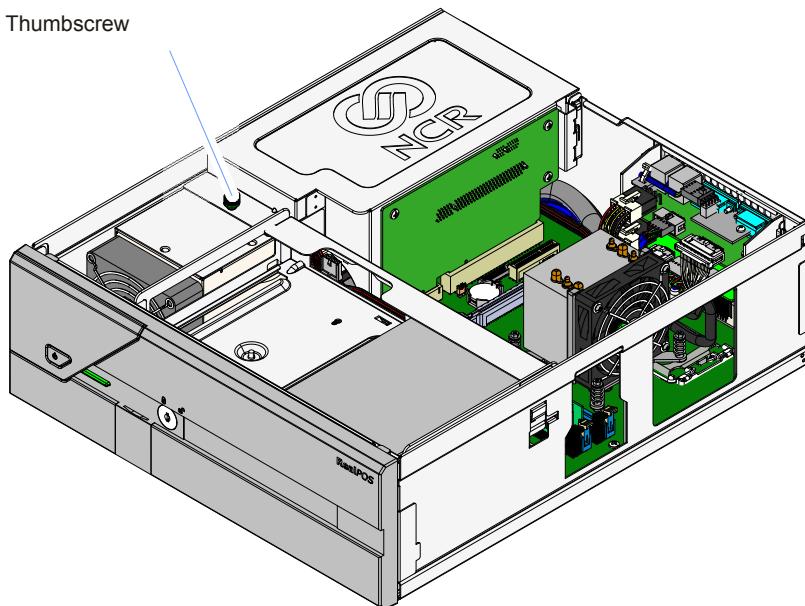
4. Squeeze the Baffle on the sides where indicated to unlatch the Cooling Baffle from the Cooling Solution and then remove it from the unit.



30635

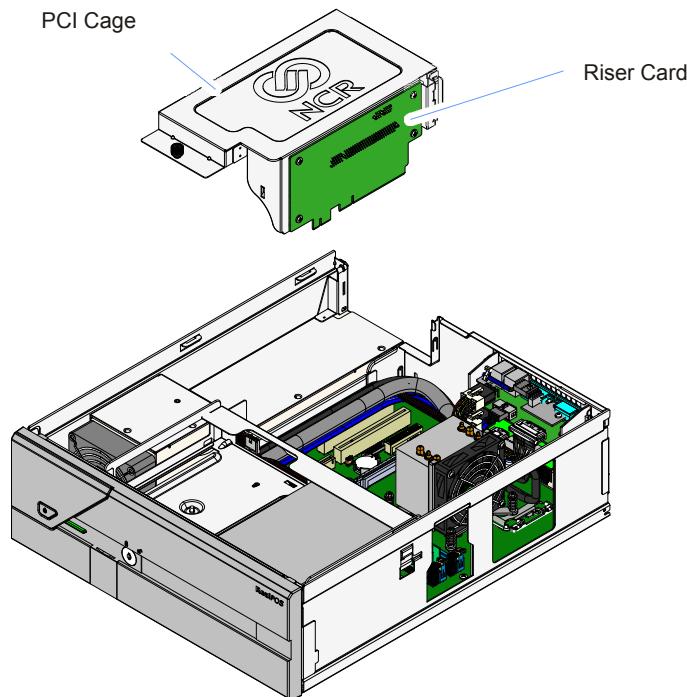
Installing the PCI Adapter Card

5. Loosen the thumbscrew that secures the PCI Adapter Cage.



30826

6. Disconnect the PCI Cage from the Motherboard.

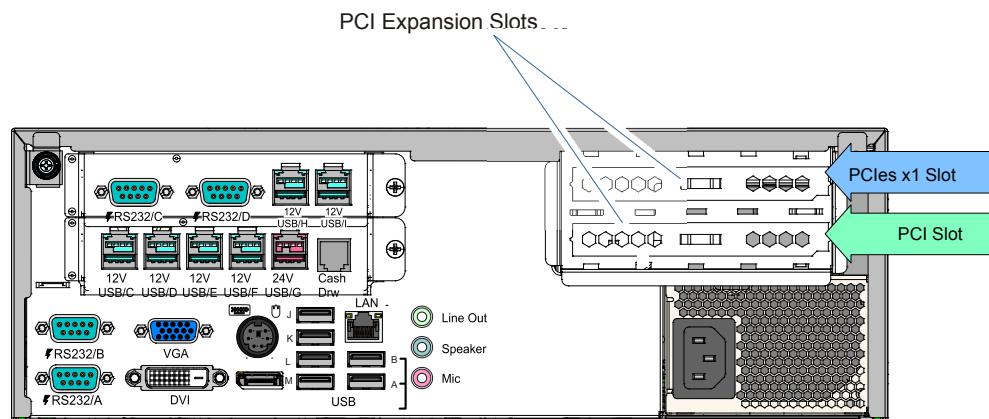


30827

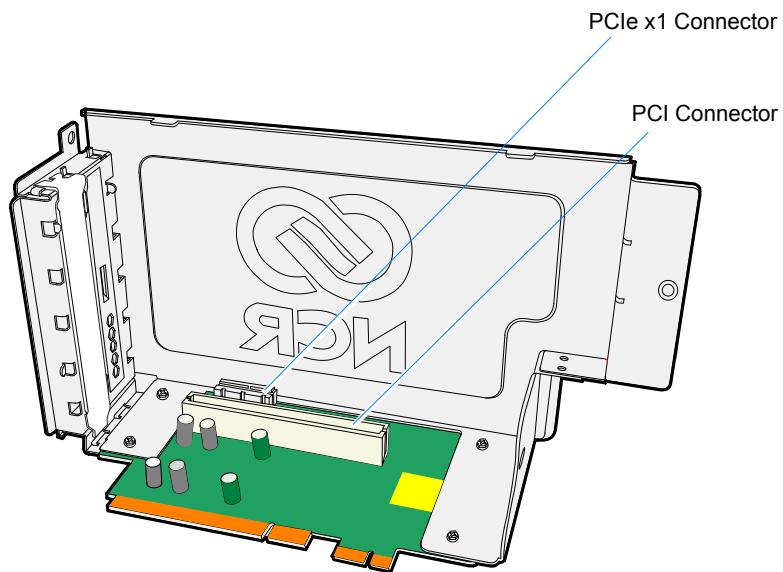
7. Use a screwdriver to twist out the PCI Slot Filler Blank.



Note: The lower slot is the standard PCI interface. The upper slot is a PCIe x1 interface.

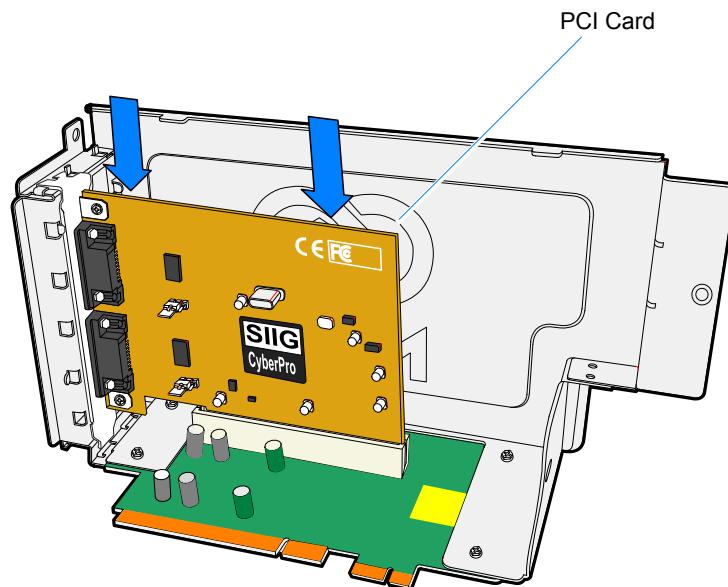


30683



30684

8. Install the PCI Adapter Card in the PCI Riser Card connector.



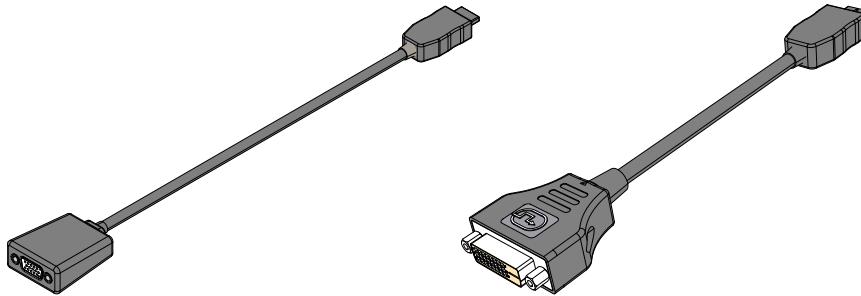
24149

Installing a Secondary Display (Dual Display)

The 7606 Motherboard features a 15 pin D-Shell VGA connector, a Standard DVI-D connector, and DisplayPort connector. Dual independent displays are supported for any combination of these outputs, with display resolutions up to 1920x1200 on each. Dual display mode can be a clone (same video data displayed on both displays) or an extended desktop (the desktop spans across both displays).

Connect the two displays having the same interface types using one of the following two devices.

- *DisplayPort to VGA Adapter* (7606-K352). This device adapts the Motherboard DisplayPort port to VGA.
- *DisplayPort to DVI Adapter* (7606-K353). This device adapts the Motherboard DisplayPort port to DVI.



7606-K352

7606-K353

30691

Setting the Display Mode



Note: Use this procedure for configuring displays that are connected to the Motherboard ports.

The dual mode is configured with the *Intel® Graphics and Media Control Panel*. Right-click the Desktop. From the menu select **Graphics Properties** to display the panel.

1. Under *Display* (left side of the screen), select **Multiple Displays**.



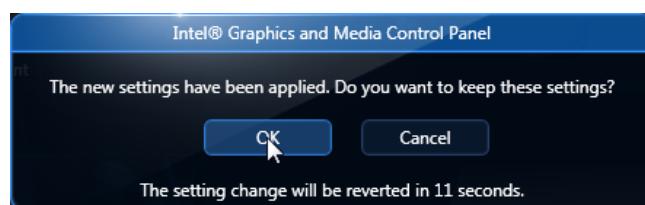
2. Click the **Operating Mode** drop-down menu.

3. Select the display *Configuration Mode*

Configuration Mode	Description
Single Display	Single display (even if two displays are connected)
Clone Displays	Drives both displays with the same video content.
Extended Desktop	Drives the both displays with the desktop that spans from one display onto the other.



4. Select **Apply**.
5. Select **OK** within 15 seconds to accept the new settings.



Applications may behave differently in a multi-monitor configuration depending on their implementation:

- Standard Windows applications that use the GDI (Graphics Device Interface) will clip the window to each display and accelerate the images separately using the display hardware.
- Applications that span multiple monitors and use Microsoft DirectX*, Direct3D* or DirectDraw* will be software accelerated.
- OpenGL* applications may exit unexpectedly, hardware accelerate one display with unknown results on the other or be software accelerated.
- A full screen command prompt or MS-DOS* application will only function on the Primary Device.

Intel Graphics Controller Hot Keys

Hot Keys provide the same functionality as the Intel Graphics Control Panel with specific keystrokes on the keyboard. These Hot Keys are listed in the Intel Control Panel under the Hot Keys tab. The most useful Hot Keys are:

[CTRL] [ALT] [F1] - Monitor in single display mode

[CTRL] [ALT] [F4] - Digital Display in single display mode



Note: The Hot Keys can be used to recover from a blank display in Windows. This is true only if Windows Desktop loads completely; meaning, if Windows is waiting for a login/password entry or if Plug and Play is waiting for operator input, the Hot Keys are not yet active.

Chapter 3: BIOS Setup

Entering Setup

1. Apply power to the terminal.
2. When you see the NCR logo displayed press [Del].

How to Select Menu Options

The following keyboard controls are used to select the various menu options and to make changes to their values.

- Use the arrow keys to select (highlight) options and menu screens.
- Use the **[Enter]** key to select a submenu.
- Use the **[+]** and **[-]** keys to change field values.
- To view help information on the possible selections for the highlighted item, press **[F1]**.
- To save the changes, move the cursor to the *Exit Menu*, select either *Save Changes & Exit* or *Save Changes*, and press **[Enter]**.

Restoring Factory Settings

To reset all values to their default settings for the current screen, press **[F9]**. The terminal automatically loads the BIOS default values. To reset all BIOS settings to their default settings go to the *Exit* menu, press **[F9]**, select either *Save Changes & Exit* or *Save Changes*, and press **[Enter]**.

See the *BIOS Default Settings* sections later in this chapter for the pre-installed Setup defaults.

Special DynaKey Keypad Mode

If your Terminal is configured with a DynaKey or Touch Screen module refer to the following sections that discuss special keypad considerations. Otherwise, proceed to the *Configuration Setup Procedures* section.

Many of the Terminal setup routines require keys that are not present in the regular DynaKey keypad layout (such as the ESC and .0END keys). Although the DynaKey has a PC keyboard connector, a PC keyboard may not be readily available to the operator.



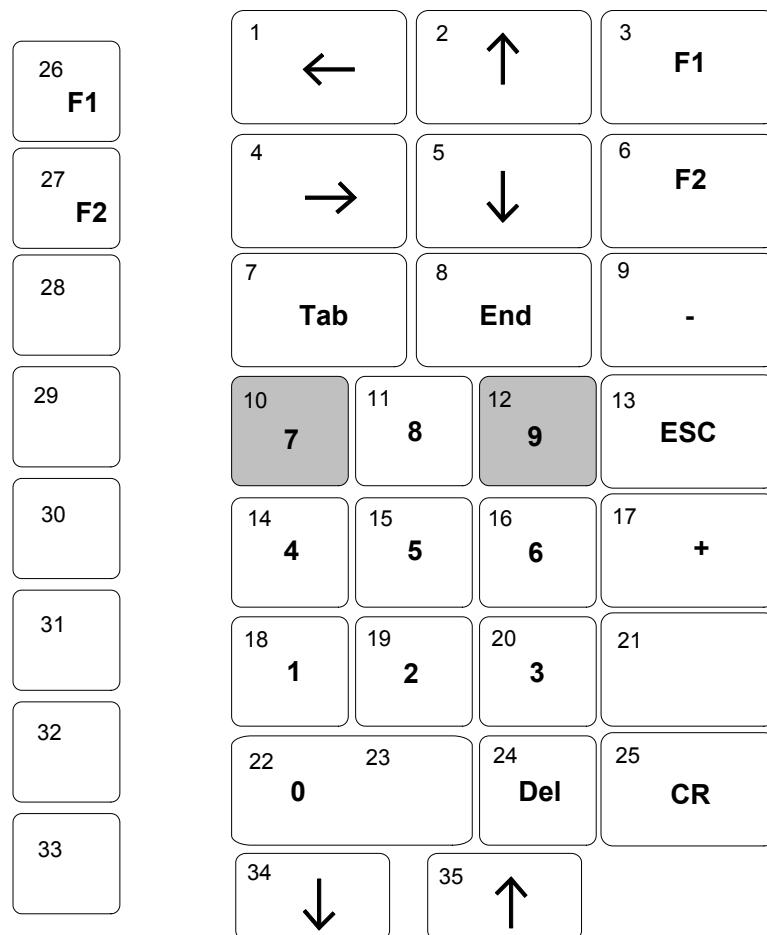
Note: No setup is required for the DynaKey module itself at installation unless the factory default configuration needs changing. The operational parameters can be changed using the *Wedge Configuration Utility* (G370-0701-0000) diskette or the *7452 Diagnostics and BIOS Images* (497-0406703) diskette.

To use the DynaKey without a PC keyboard attached to run the Terminal setup routines, you must place it in the Special DynaKey Keypad Mode. This mode replaces the normal keypad layout and function keys with special key assignments that are required to run setup. To enter the special mode, press the 7 and 9 keys simultaneously during POST diagnostics.



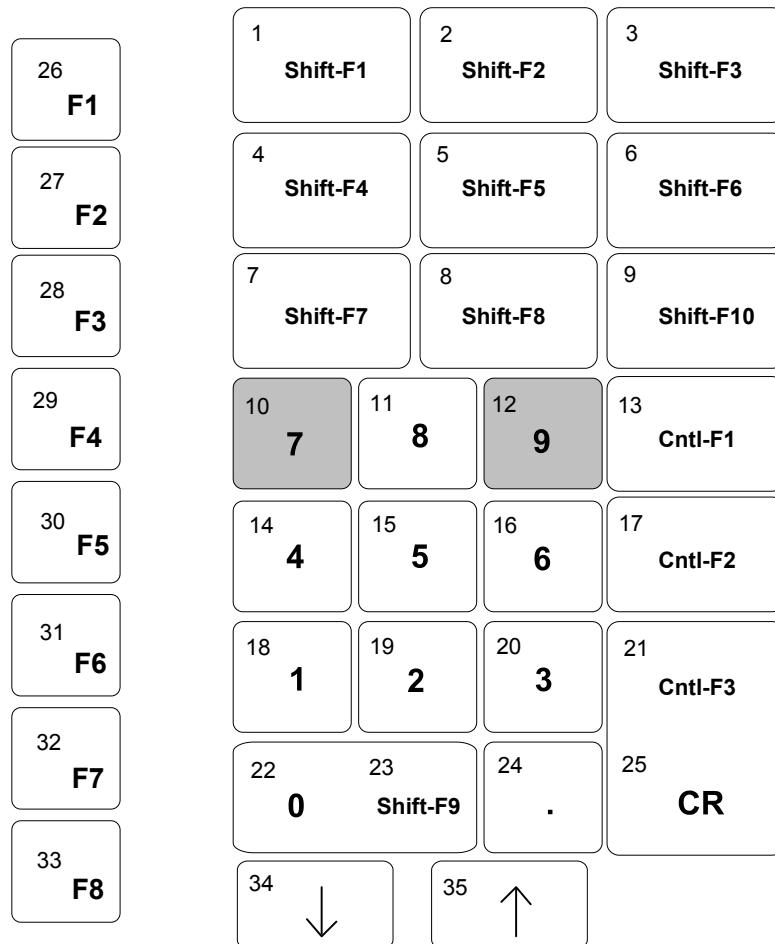
Note: The 7 and 9 keys must be the FIRST keys pressed during/after a power up, otherwise the keypad enters the normal layout.

The following key layout is active in the special mode.



Normal DynaKey Keypad Operating Mode

After running setup the DynaKey can be reset to the normal mode by rebooting or by pressing the 7 and 9 keys simultaneously. The normal keypad layout is shown below.



12389

Disabling Resources

Resources that are disabled in the BIOS (IRQs for COM ports/on-board LAN/secondary IDE) are still detected and installed (sometimes partially) in Windows. The resources are actually available.

Keyboard Shortcuts

Function	Keystroke	Notes
Enter SETUP	DEL	1
Load AMIBIOS "failsafe" CMOS SETUP values	END	
Display extra AMIBIOS information at boot	INS	8
Switch between AMIBIOS "Silent Boot" graphical logo and standard text boot screen	TAB	2, 6
Boot from Network Device	F12	1, 2
Enter SETUP after system error	F1	1
Load CMOS SETUP defaults after system error	F2	1
Initiate BIOS RECOVERY & clear CMOS	CTRL-HOME	7, 8
Initiate BIOS RECOVERY, clear CMOS & NVRAM	CTRL-PGUP	7, 8
Initiate BIOS RECOVERY, preserve CMOS & NVRAM	CTRL-PGDN	7
PopUp Boot Menu	F8 or F11*	1, 2, 3
Enter SETUP (for serial console redirection)	F4	1, 2, 3, 4
PopUp Boot Menu (for serial console redirection)	F3	1, 2, 3, 4
Activate AMIKey Recovery Boot Services	F9	1, 2, 5

Notes:

1. This keystroke can be configured to be a different value, based on the system manufacturer's specification. The keystroke listed here is the "default" setting in AMIBIOS8.
2. This feature is not enabled in all AMIBIOS products.
3. The assigned keystroke & a short description of its function is typically displayed by the BIOS on system startup.
4. These keystrokes are only available when using the AMIBIOS "serial console redirection", which allows access to the BIOS boot screen via a VT-100/ANSI terminal connected to a serial port.

5. This feature is only available if AMIKey Recovery Boot Services are installed on the system drive and the BIOS is configured to use these services.
6. AMIBIOS will automatically switch from the "Silent Boot" logo to the standard BIOS text screen if an error occurs that requires user attention. Some error messages are displayed over the "Silent Boot" logo, depending on system configuration.
7. These BIOS functions are only available during the very early stages of system initialization, also known as "boot block code". To initiate these functions, please hold down the keys immediately after powering on the system.
8. After AMIBIOS recognizes this keystroke, the BIOS will wait and display the following message: Press <F1> to Run SETUP, Press <F2> to load default values and continue.

BIOS Default Values

BIOS Version: 7.1.5.0

Main Menu

System Time	(variable)
System Date	(variable)

Advanced Menu

Network PXE Loading	[Enabled]
Mass Storage Option ROM Loading	[Enabled]
PCI Subsystem Settings	
PCI ROM Priority	
PCI ROM Priority	[EFI Compatible ROM]
PCI Common Settings	
PCI Latency Timer	[32 PCI Bus Clocks]
VGA Palette Snoop	[Disabled]
PERR# Generation	[Disabled]
SERR# Generation	[Disabled]
Port CF9 Full Reset	[Disabled]
PCI Express Device Settings	
Relaxed Ordering	[Disabled]
Extended Tag	[Disabled]
No Snoop	[Enabled]
Maximum Payload	[Auto]
Maximum Read Request	[Auto]
PCI Express Link Settings	
ASPM Support	[Disabled]
Extended Synch	[Disabled]

ACPI Settings	
Enable ACPI Auto Configuration	[Disabled]
Enable Hibernation	[Enabled]
Lock Legacy Resources	[Disabled]
ACPI S5 Shutdown	[Enabled]
Trusted Computing	
TPM Configuration	
TPM Support	[Disabled]
TPM State	[Enabled]
Pending TPM operation	[None]
Current TPM Status Information	[Enabled]
TPM Enable Status:	[Disabled]
TPM Active Status:	[Disabled]
TPM Owner Status:	[Unowned]
CPU Configuration	
Socket 0 CPU Information	
CPU Speed	(variable)
64 Bit	Supported
Active Processor Cores	[All]
Limit CPUID Maximum	[Disabled]
Execute Disable Bit	[Enabled]
Hardware Prefetcher	[Enabled]
Adjacent Cache Line Prefetch	[Enabled]
Intel Virtualization Technology	[Enabled]
Power Technology	[Energy Efficient]
Factory long duration maintained	65 Watts
Long duration power limit	0
Factory long duration maintained	1000 ms
Long duration maintained	0

Recommended short power	1.25 * Long Duration
Short duration power limit	0
SATA Configuration	
SATA Mode	[RAID Mode]; (variable)
Serial-ATA Controller 0	[Enhanced]
Serial-ATA Controller 1	[Enhanced]
SATA Port 0 (SATA 3-1)	ST500DM002-1BD (500.1); (variable)
Hot Plug	[Enabled]
SATA Port 1 (SATA 3-2)	ST500DM002-1BD (500.1); (variable)
Hot Plug	[Enabled]
SATA Port 2 (SATA 2-1)	DV-28S-W ATAPI; (variable)
Hot Plug	[Enabled]
SATA Port 3 (SATA 2-1)	Not Present; (variable)
Hot Plug	[Enabled]
Thermal Configuration	
ME SMBus Thermal Reporting	[Enabled]
Thermal Data Reporting	[Enabled]
SMBus Buffer Length	[20]
Thermal Reporting EC PEC	[Disabled]
PCH Temp Read	[Enabled]
Select slots with TS on DIMM	
Thermal Sensor on DIMM0	[Disabled]
Thermal Sensor on DIMM1	[Disabled]
Thermal Sensor on DIMM2	[Disabled]
Thermal Sensor on DIMM3	[Disabled]
Alert Enable Lock	[Disabled]
PCH Alert	[Disabled]
DIMM Alert	[Disabled]
ASF Configuration	

ASF Support	[Enabled]
ASF WatchDog Timer	[Disabled]
ASF WatchDog Timer ; BIOS	0
ASF WatchDog Timer : OS	0
Acoustic Management Configuration	
Automatic Acoustic Managment	[Disabled]
HDD S.M.A.R.T. Status	
SATA Port 0 (SATA 3-1)	ST500DM002-1BD (500.1); (variable)
SMART Status	Supported/OK
SATA Port 1 (SATA 3-2)	ST500DM002-1BD (500.1); (variable)
SMART Status	Supported/OK
SATA Port 2 (SATA 2-1)	DV-28S-W ATAPI; (variable)
SMART Status	N/A
SATA Port 3 (SATA 2-1)	Not Present; (variable)
SMART Status	N/A
SATA Port0 (SATA 3-1)	ST500DM002-1BD
Intel IGD SWSCI OpRegion Configuration	
DVMT Mode Select	[DVMT Mode]
DVMT/FIXED Memory	[256MB]
IGD - Boot Type	[VBIOS Default]
LCD Panel Type	[1600x1200 LVDS]
Panel Scaling	[Auto]
Backlight Control Support	[Both BLC & BIA Dis...]
BIA Control	[VBIOS Default]
Spread Spectrum Clock	[Disabled]
TV Standard	[VBIOS Default]
Intel TXT(LT) Support	
Secure Mode Extension (SMX)	[Disabled]
Intel TXT(LT) Support	[Disabled]

USB Configuration	
Legacy USB Support	[Enabled]
EHCI Hand-off	[Disabled]
Port 60/64 Emulation	[Enabled]
USB transfer time-out	[20 sec]
USB reset time-out	[20 sec]
Device power-up delay	[Auto]
IT8781F Super IO Configuration	
Serial Port 1/A Configuration	
Serial Port	[Enabled]
I/O Base Address	[0x3F8]
IRQ	[IRQ4]
Device Mode	[Standard Serial Po...]
Serial Port 2/B Configuration	
Serial Port	[Enabled]
I/O Base Address	[0x2F8]
IRQ	[IRQ3]
Device Mode	[Standard Serial Po...]
Serial Port 3/C Configuration	
Serial Port	[Enabled]
I/O Base Address	[0x2E8]
IRQ	[IRQ11]
Device Mode	[Standard Serial Po...]
Serial Port 4/D Configuration	
Serial Port	[Enabled]
I/O Base Address	[0x2E8]
IRQ	[IRQ10]
Device Mode	[Standard Serial Po...]
Parallel Port Configuration	

Parallel Port	[Disabled]
H/W Monitor	
Smart Fan Mode	[Automatic Mode]
Fan OFF temperature limit	10
Fan Start temperature limit	35
Fan Start PWM	50
PWM Slope	[2 PWM]
<i>Temperatures/Speeds/Voltages</i>	<i>(Typical Values)</i>
CPU Die Temperature	+41 C
CPU VRM Temperature	+38 C
System Temperature	+38 C
CPU Fan Speed	2777 RPM
System Fan Speed	N/A
Power Supply Fan Speed	1400 RPM
VDIMM	+1.488 V
VCORE	+1.088 V
VCC3	+3.344 V
+12V	+12.096 V
VCC5	+5.004 V
VAXG	+0.416 V
VBAT	+3.264 V
AMT Configuration	
AMT	[Disabled]
Serial Port Console Redirection	
COM0 (Disabled)	
Console Redirection	Port Is Disabled
COM4 (Pci Dev0,Func0) (Disabled)	
Console Redirection	[Disabled]
<i>Settings (If Enabled)</i>	

Out-of-Band Mgmt Port	[COM0 (Disabled)]
Terminal Type	[VT-UTF8]
Bits per second	[115200]
Flow Control	[None]
Data Bits	8
Parity	None
Stop Bits	1
Network Stack	
Network stack	[Disabled]

Chipset Menu

North Bridge	
Low MMIO Align	[1024]
DMI Gen2	[Enabled]
VT-d	[Enabled]
Initiate Graphic Adapter	[PEG/IGD]
IGD Memory	[64M]
Render Standby	[Enabled]
IGD Multi-Monitor	[Disabled]
PCI Express Port	[Auto]
PEG Force Gen1	[Disabled]
Detect Non-Compliance Device	[Disabled]
MRC Message Print	[Disabled]
South Bridge	
SMBus Controller	[Enabled]
GbE Controller	[Enabled]
Wake on Lan from S5	[Enabled]
Restore AC Power Loss	[Last State]
SLP_S4 Assertion Stretch Enable	[Enabled]
SLP-S4 Assertion Width	[4-5 Seconds]
Deep Sx	[Disabled]
Azalia HD Audio	[Enabled]
Azalia Internal HDMI Codec	[Disabled]
High Precision Timer	[Enabled]
PCI Express Ports Configuration	
PCI Express Port 1	[Auto]
PCI Express Port 2	[Auto]
PCI Express Port 3	[Auto]
PCI Express Port 4	[Auto]

PCI Express Port 5	[Auto]
PCI Express Port 6	[Auto]
PCI Express Port 7	[Auto]
PCI Express Port 8	[Auto]
<i>USB Configuration</i>	
All USB Devices	[Enabled]
EHCI Controller 1	[Enabled]
EHCI Controller 1	[Enabled]
USB Port 0 (Retail Port A)	[Enabled]
USB Port 1 (Retail Port B)	[Enabled]
USB Port 2 (Retail Port H)	[Enabled]
USB Port 3 (Retail Port I)	[Enabled]
USB Port 4 (Retail Port F)	[Enabled]
USB Port 5 (Retail Port G)	[Enabled]
USB Port 6 (Retail PortC)	[Enabled]
USB Port 7 (Retail FrontPortN)	[Enabled]
USB Port 8 (Retail Port D)	[Enabled]
USB Port 9 (Retail Port E)	[Enabled]
USB Port 10 (Retail Port K)	[Enabled]
USB Port 11 (Retail Port J)	[Enabled]
USB Port 12 (Retail Port L)	[Enabled]
ME Subsystem Configuration	
ME Subsystem	[Enabled]
ME Temporary Disable	[Disabled]
End of Post Message	[Enabled]
Execute MEBx	[Enabled]

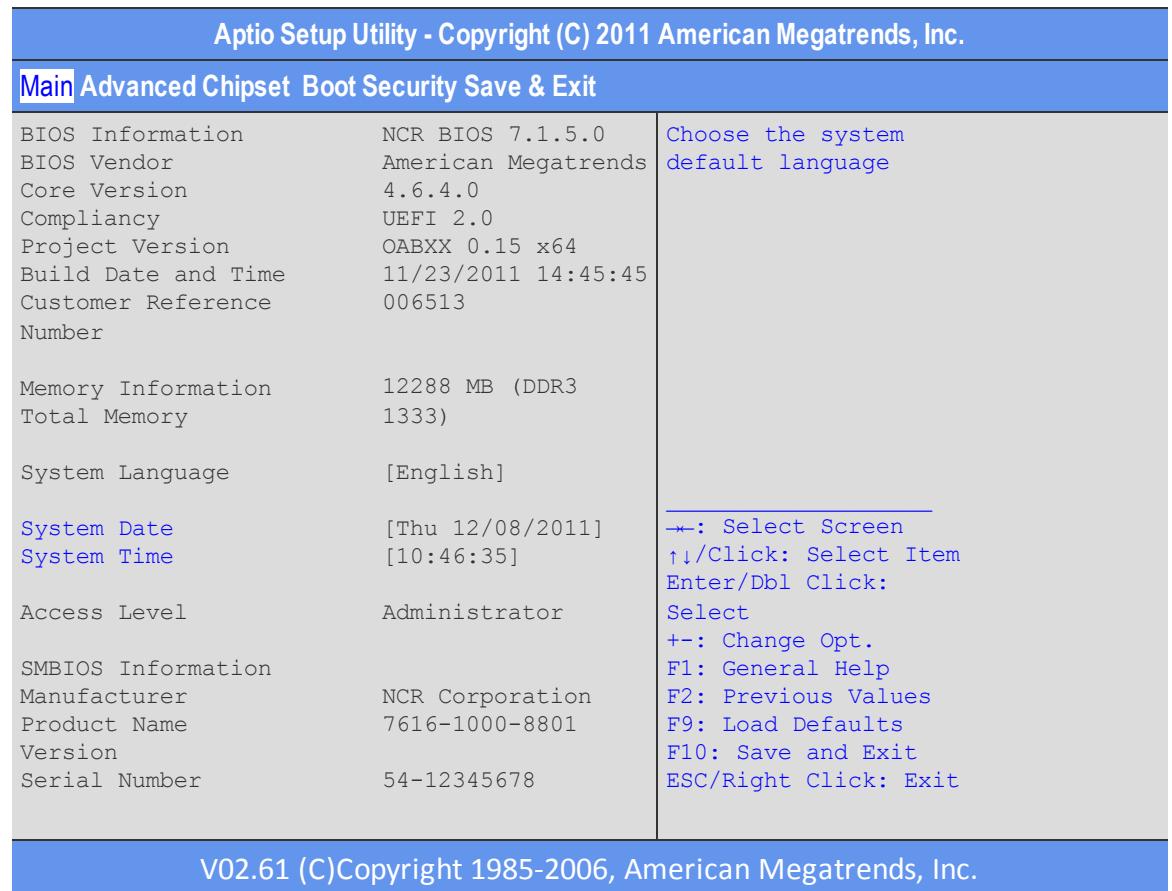
Boot Menu

Setup Prompt Time-out	1
Bootup NumLock State	[On]
Quiet Boot	[Enabled]
Logo Display	[Logo]
Enable F8 BBS Boot Menu	[Enabled]
Boot Type	[Cold Boot]
Fast Boot	[Disabled]
GateA20 Active	[Upon Request]
Option ROM Messages	[Force BIOS]
Interrupt 19 Capture	[Disabled]
Network as First Boot Device	[Enabled]
Boot Option #1	[P2: DV-28S-W]
Boot Option #2	[ST500DM002-1BD142 ...]
Boot Option #3	[1BA GE Slot 00C8 v...]

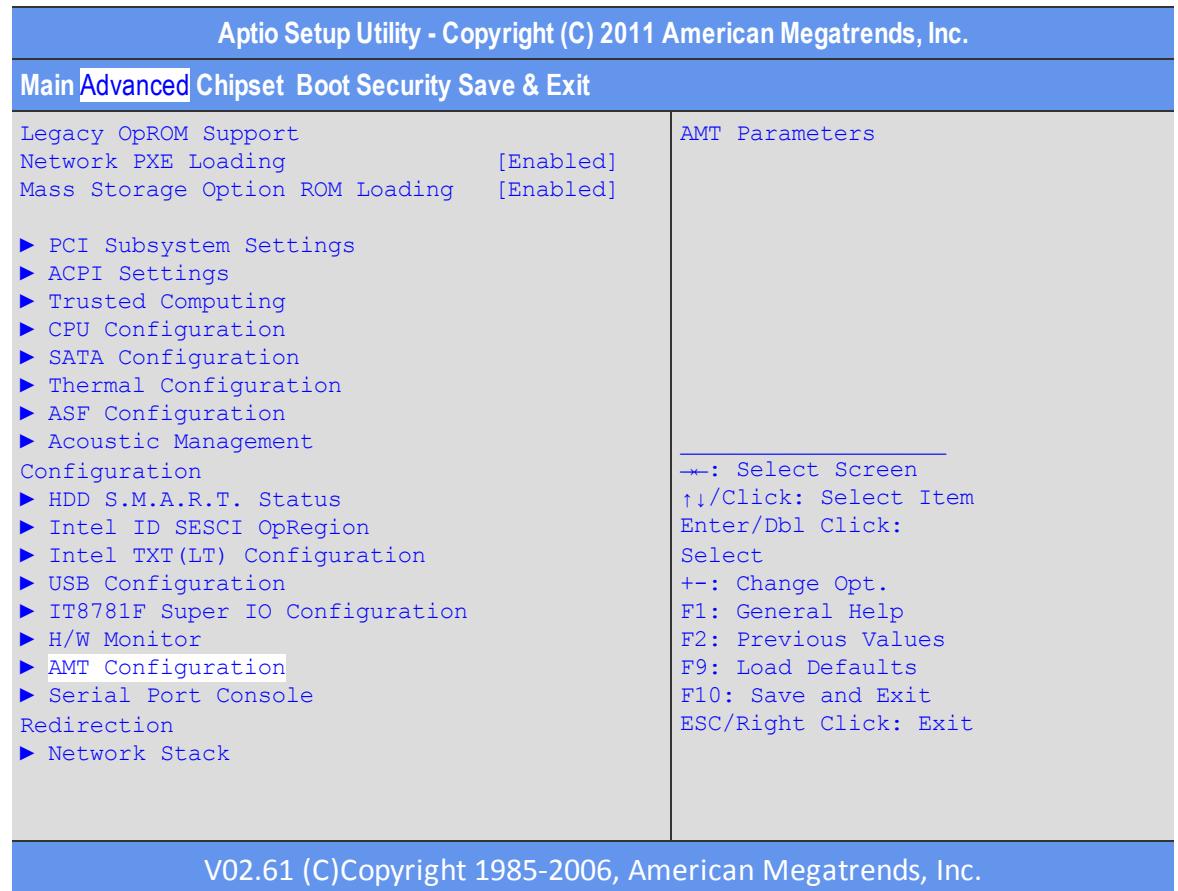
Chapter 4: Configuring AMT

This chapter explains how to configure an NCR RealPOS 82XRT so it can be accessed remotely using *Intel Management Technology (AMT)*.

1. Re-boot the terminal.
2. When you see the message
Press DEL to enter setup
press **[Del]** to start the BIOS Setup Utility.

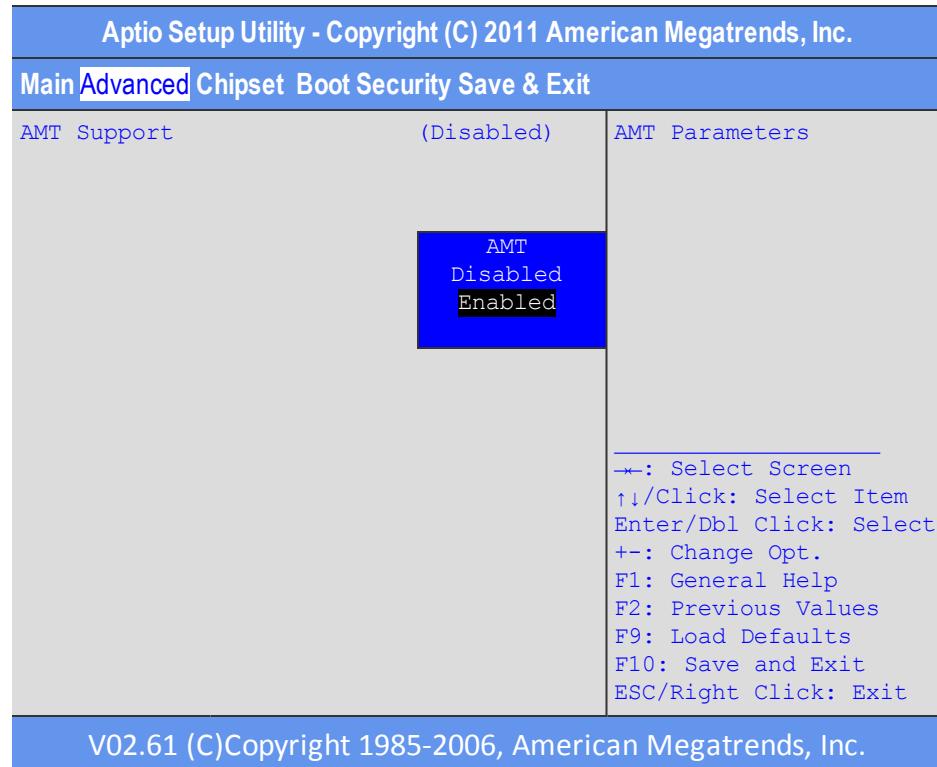


3. Under the *Advanced* tab, select **AMT Configuration** and press **[Enter]**.



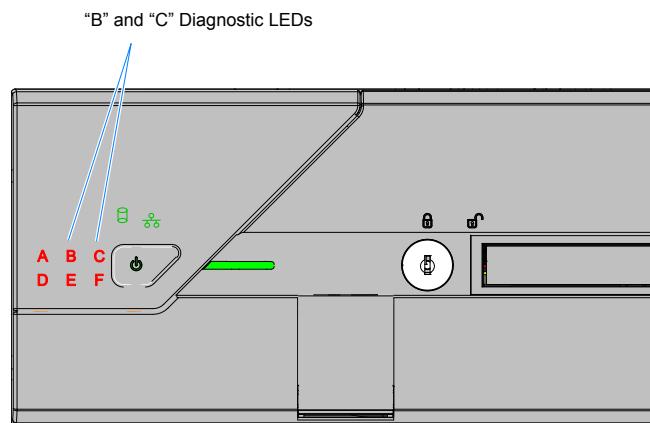
4. Enable *Intel AMT Support*.

- a. Press **[Enter]**.
- b. Select **Enabled**.
- c. Press **[Enter]**.

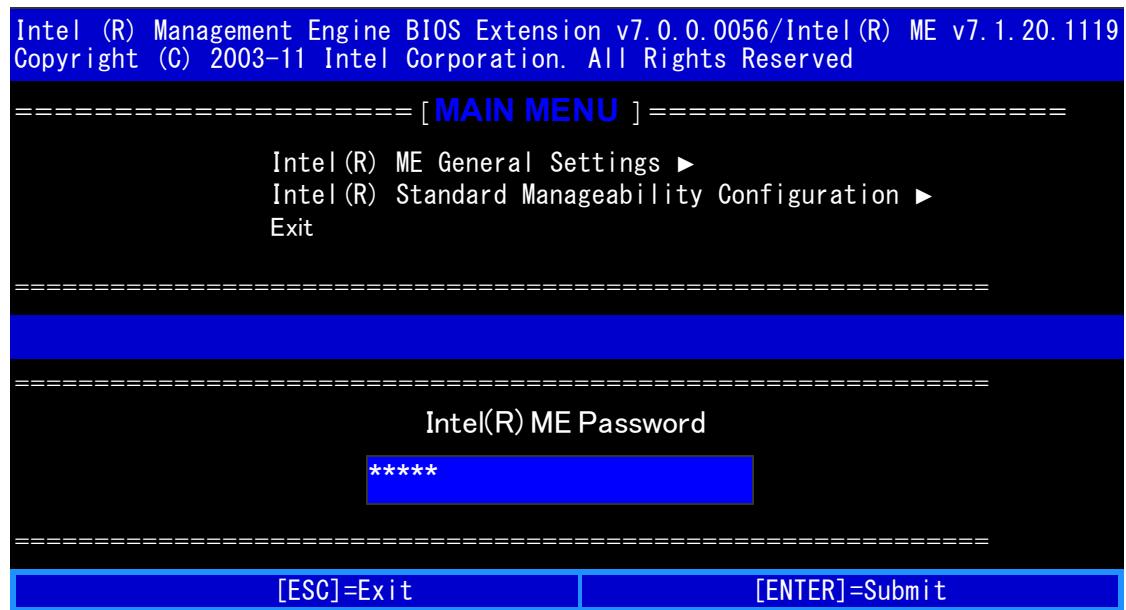


d.

5. Press **F10** and **[Enter]** to *Save and Exit*.
6. During re-boot observe the front panel Diagnostic LEDs. When *B* and *C* (only) are illuminated, press **Ctrl-P**.



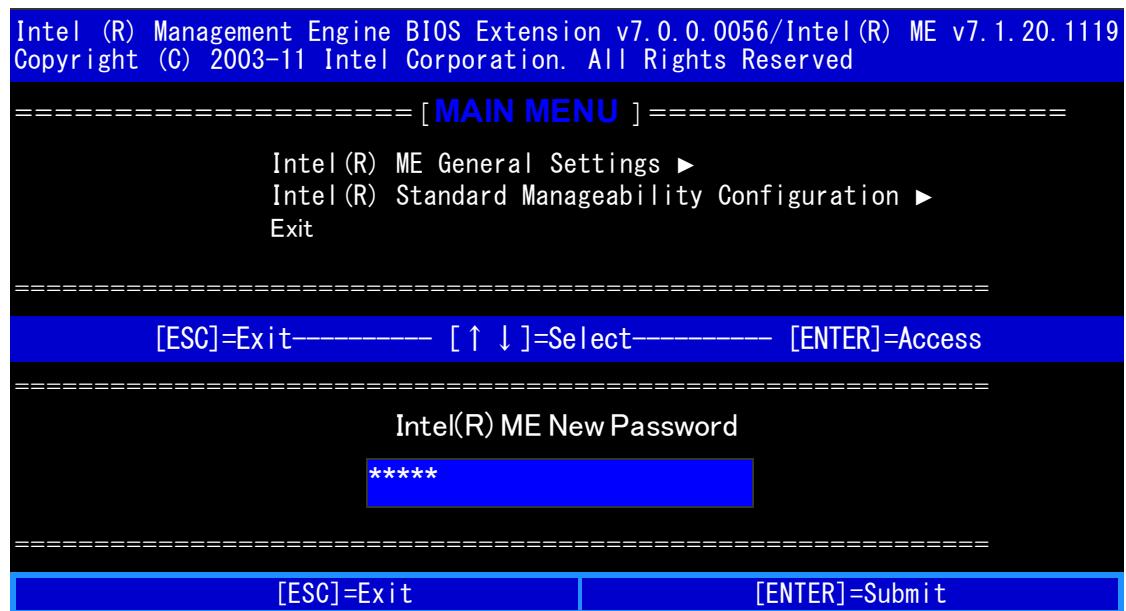
7. The *Intel ® Management BIOS Extension* is displayed. The first time this program is entered you must use the default password. Enter the default Intel ME password; *admin* (lower case). Press **[Enter]**.



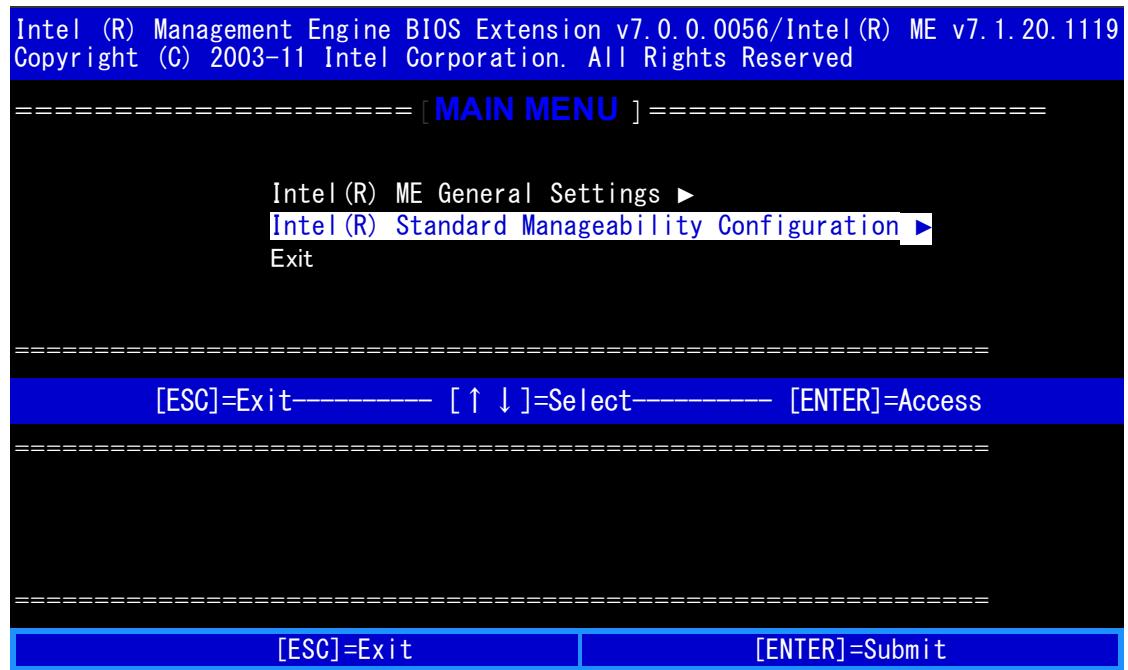
8. Enter the new password (write it down to remember). The password must contain upper, lower, symbol, & numeric characters.

Example: Ncr@2011

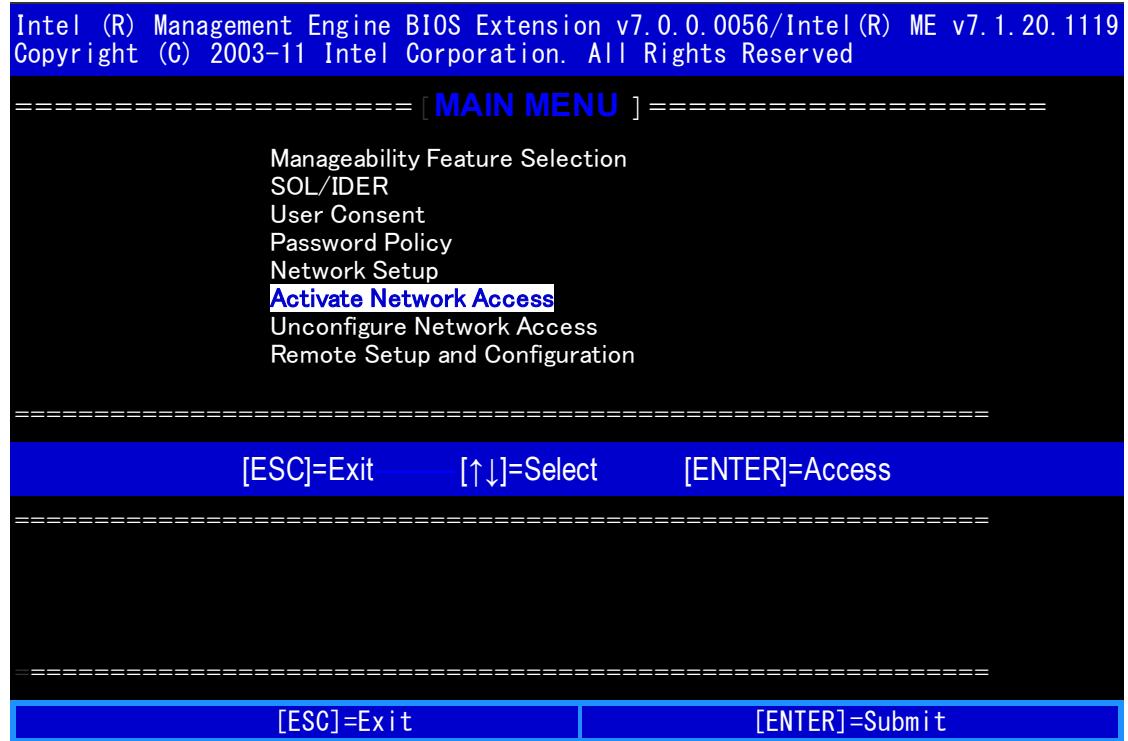
You must enter the password a second time for verification.



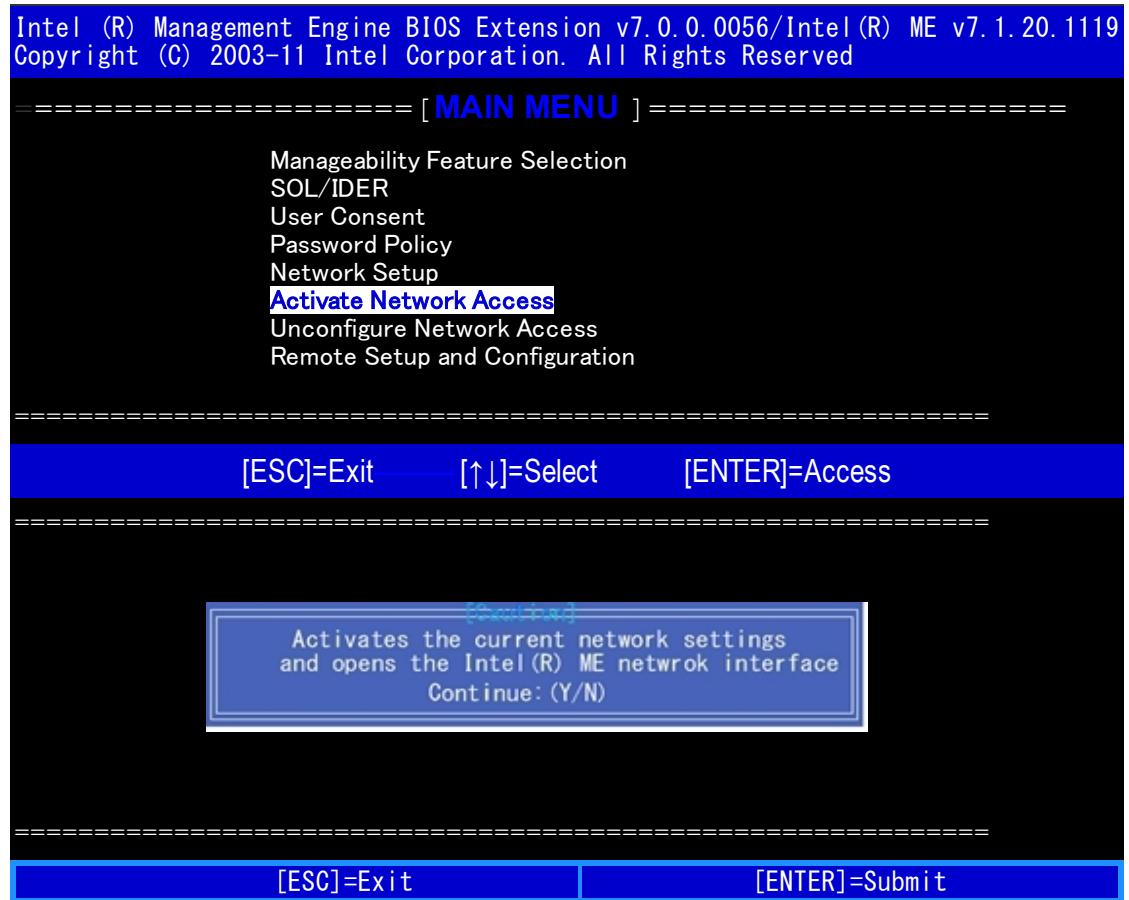
9. Highlight *Intel(R) Standard Manageability Configuration* and press **[Enter]**



10. Highlight *Activate Network Access* and press **[Enter]**



11. Enter **Y** to activate the network interface.



12. Press **[ESC]→[ESC]→Y** to exit the *Intel ® Management BIOS Extension* and reboot the system.
13. The terminal should now be accessible using its IP address.

Chapter 5: Configuring a Second HDD for RAID

Introduction

This chapter discusses how to add a second hard drive and configure a RAID system using the *Intel® Rapid Storage Technology*.



Note: For information about how to install disk images on a system that is already configured as a RAID system see the *Installing Disk Images on a RAID System* chapter.

The *Intel® Rapid Storage Technology* provides new levels of protection, performance, and upgradeability for the 7606 platform. Whether using one or two hard drives you can take advantage of enhanced performance and lower power consumption. When using two drives you can have additional protection against data loss in the event of hard drive failure.

Valuable digital memories are protected against a hard drive failure when the system is configured for one of the fault-tolerant RAID levels: *RAID 1* or *RAID 5*. By seamlessly storing copies of data on one or more additional hard drives, any hard drive can fail without data loss or system downtime. When the failed drive is removed and a replacement hard drive is installed, data fault tolerance is easily restored.

Configuring a RAID System

RAID systems for the NCR RealPOS 82XRT are installed using the 2nd hard disk drives kits. There are two kits.

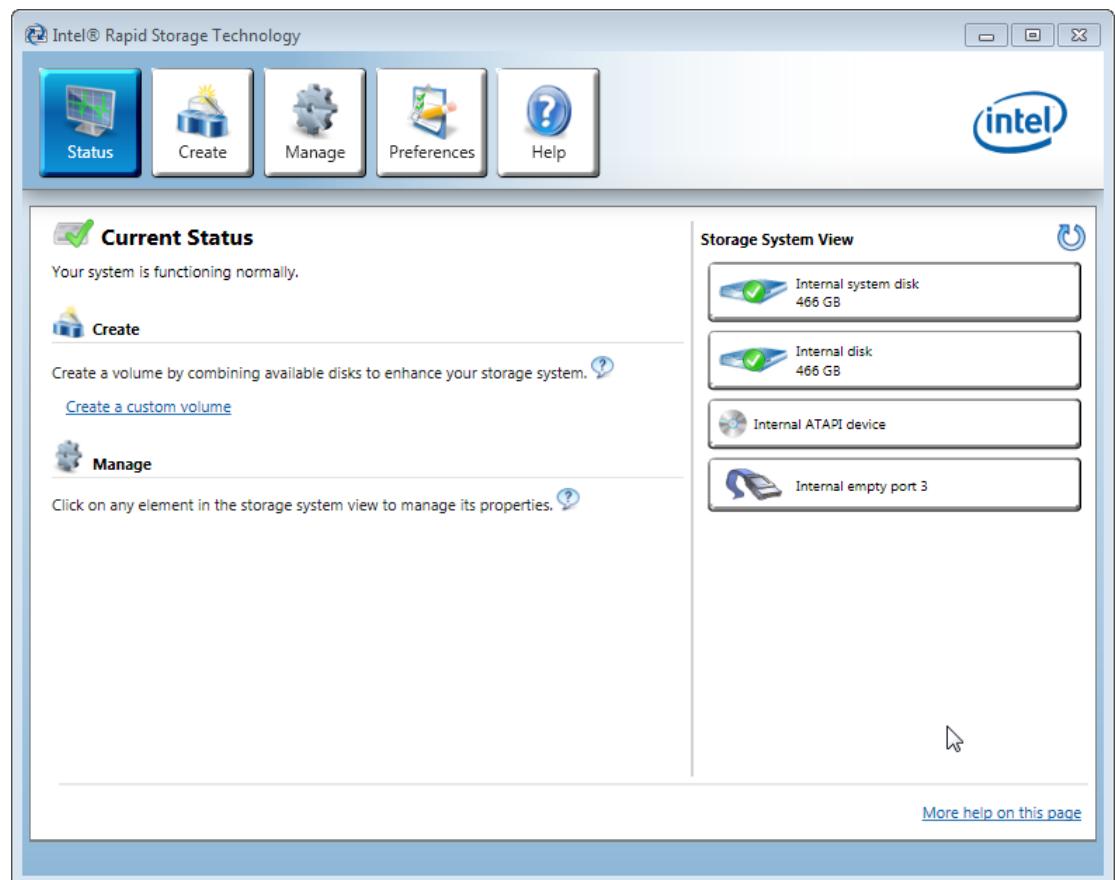
7606-K260	250GB 2nd HDD
7606-K261	500GB 2nd HDD



Note: The primary and 2nd HDDs must be the same type and size in a RAID configuration.

Installation Procedures

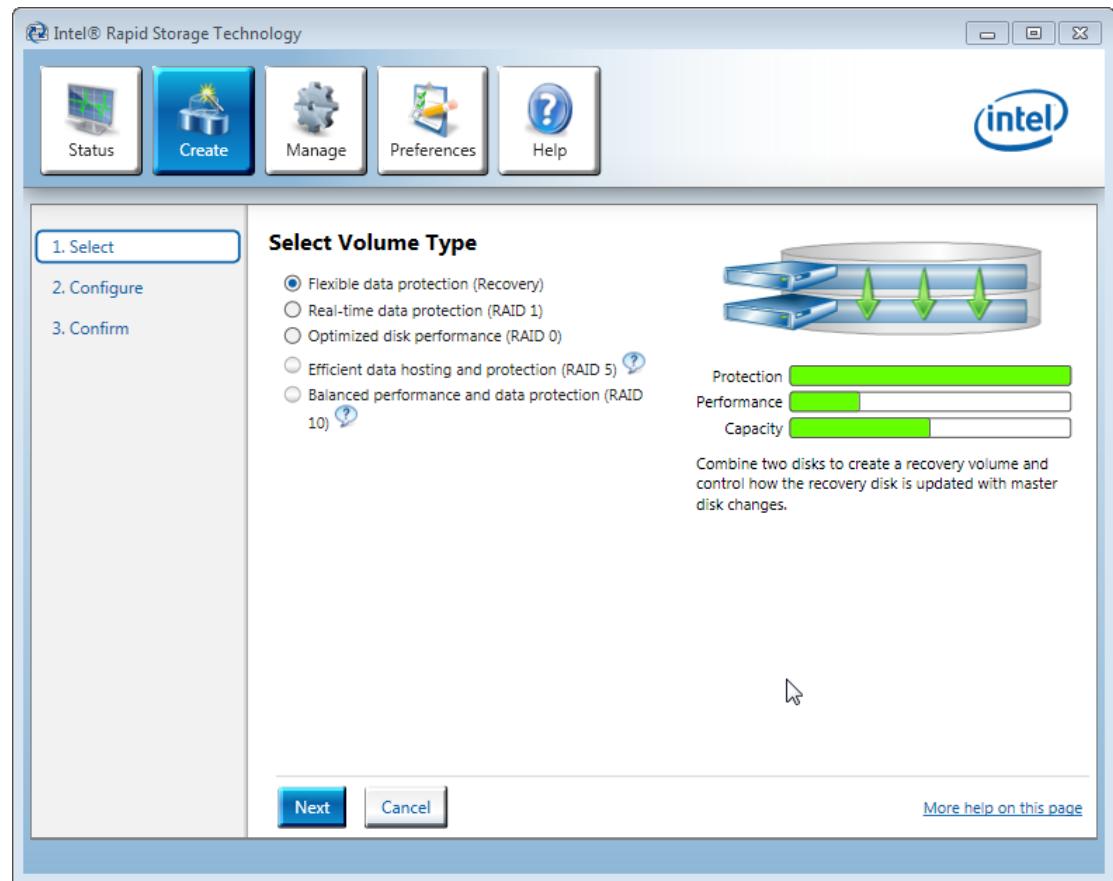
1. Install the primary HDD.
 2. Load the NCR Gold Drive.
 3. Install the second hard disk drive in the terminal (hot plug).
 4. Run the *Intel® Rapid Storage Technology Manager*.
- Start → All Programs → Intel → Intel® Rapid Storage Technology**
5. Both disks should be recognized in the *Main Screen*. Select the **Create** button.



6. Select the type of RAID volume you want to install. NCR supports *RAID 1* and *RAID 0* volume types. Select **Next**.

RAID 1: Combines two disks to create a volume where each disk stores an exact copy of the data and provides real-time redundancy.

RAID 0: Combines two disks to create a volume where data is broken down into *strips* that are distributed across both disks.



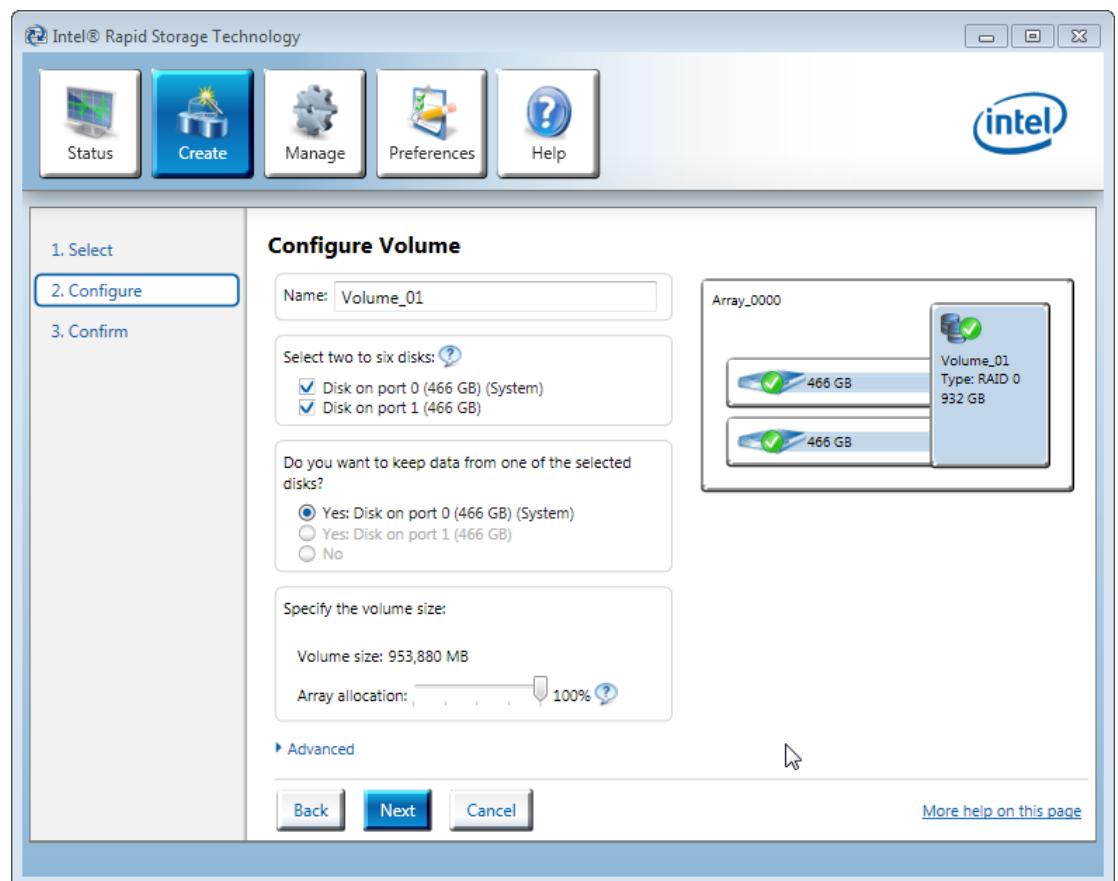
7. Enter a **Volume Name** (user preference).

8. Select the check boxes for both disks.

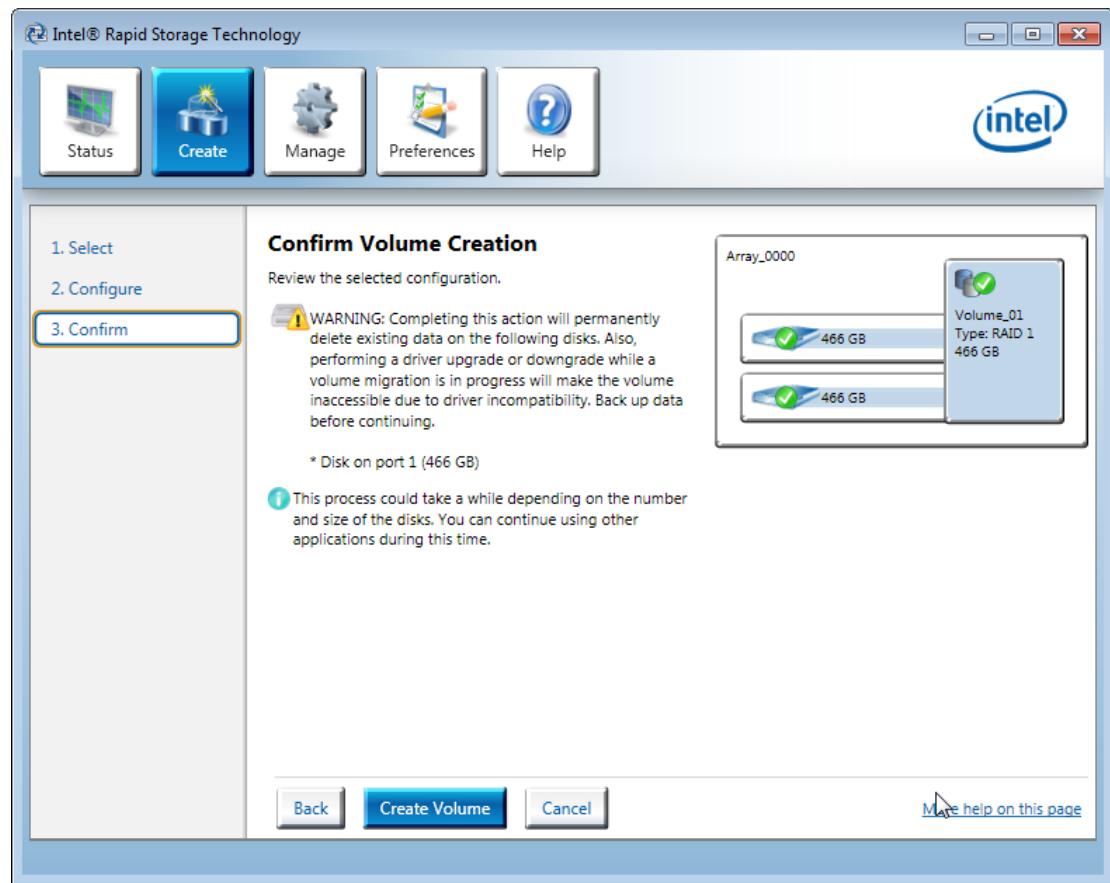
RAID 0 Only: Specify the amount of space to be used by the new RAID volume. Use the slider to enter a percentage.



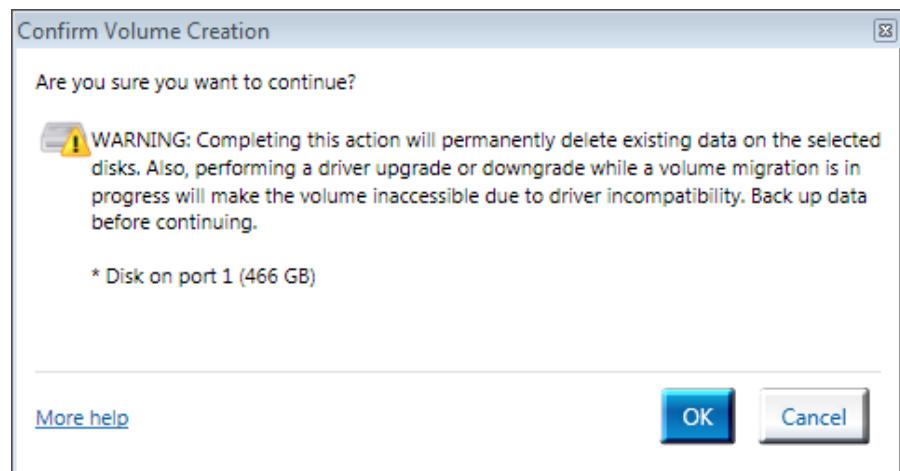
Note: If you create a volume that uses less than 100% of the hard drive space, you may create a second RAID volume to use the remaining space.



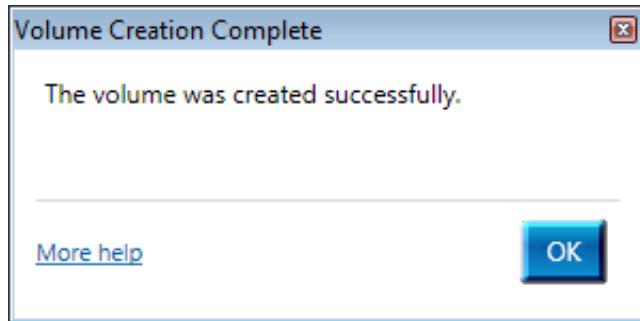
9. Select **Next** to start the volume migration.



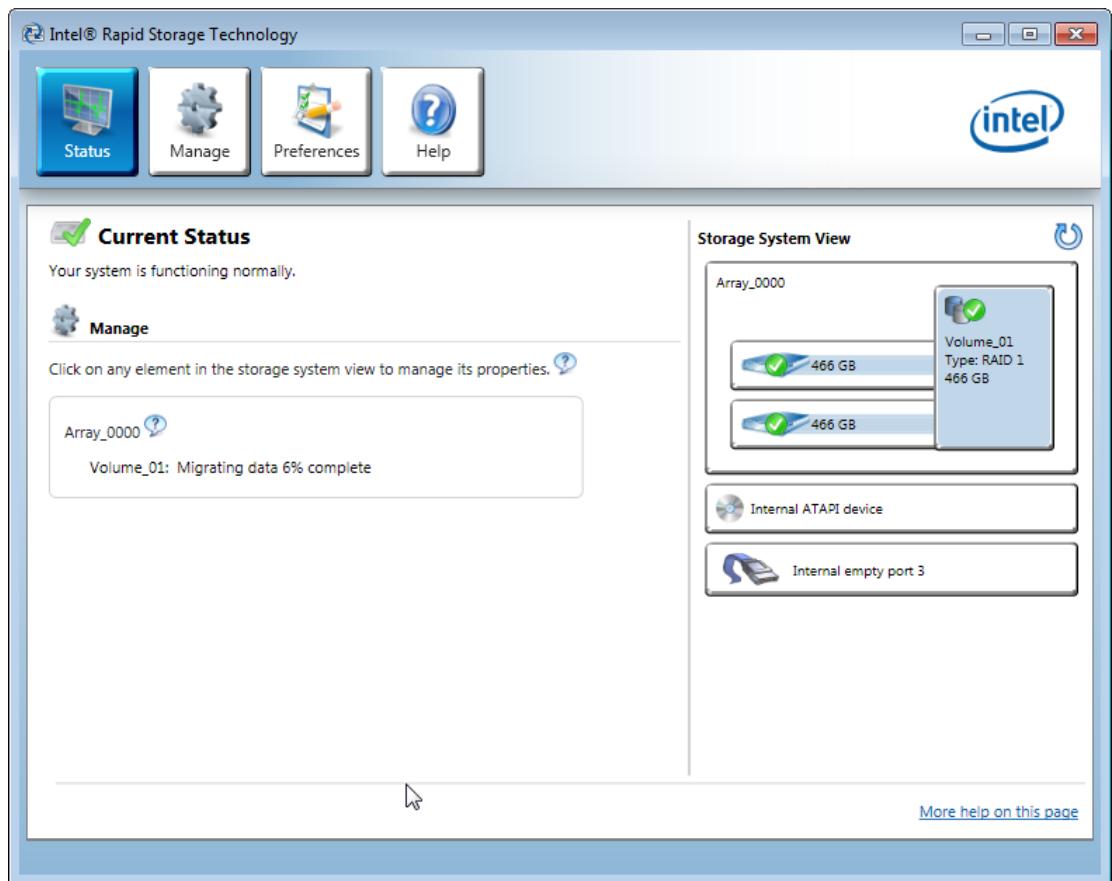
10. Select **OK** to confirm the action.



11. A window is displayed indicating the volume was created successfully. Select **OK** to close the window.



The status of the migration is displayed, showing the progress. This can take 1 - 3 hours to complete.

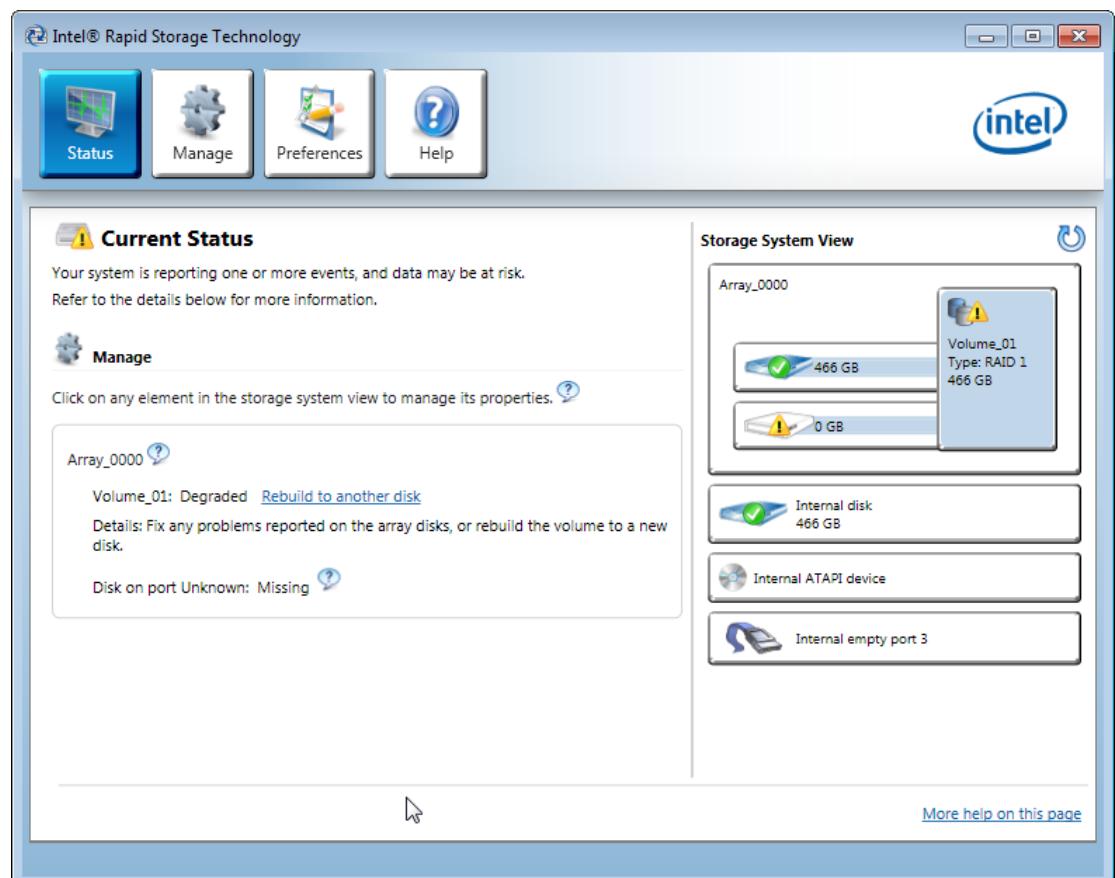


Replacing a Failed RAID 1 (Mirrored) HDD

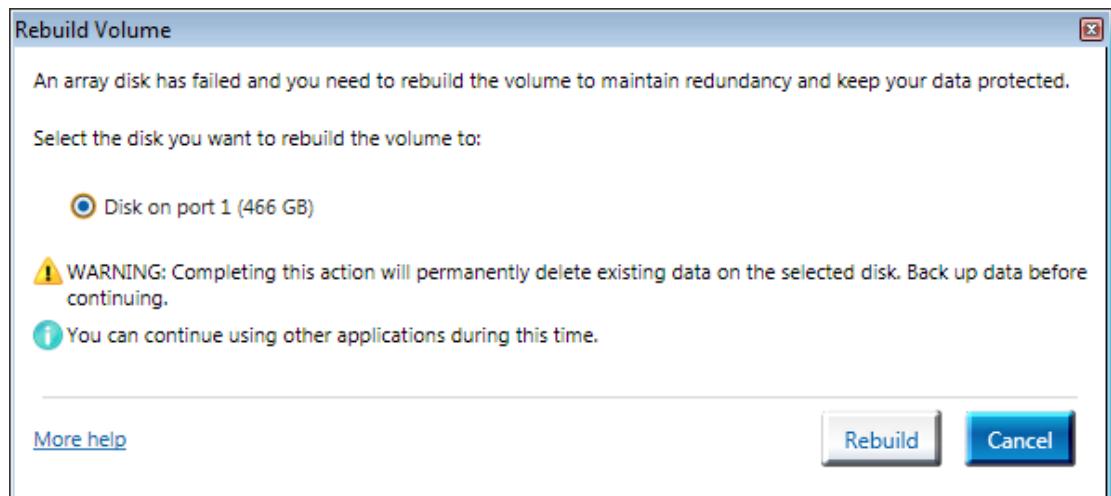
If a hard drives fails there is no indication except for a RAID volume status that is displayed during boot. This may be a *Failed*, *Degraded*, or *Rebuild* status. You are advised to press **CTRL-I** to enter the Configuration Utility to correct the condition. This procedure is not recommended because of the possibility of inadvertently destroying the good disk. It is better to boot Windows and use the *Intel® Rapid Storage Technology Manager* to rebuild a failed disk.

Failed Disk Replacement Procedure

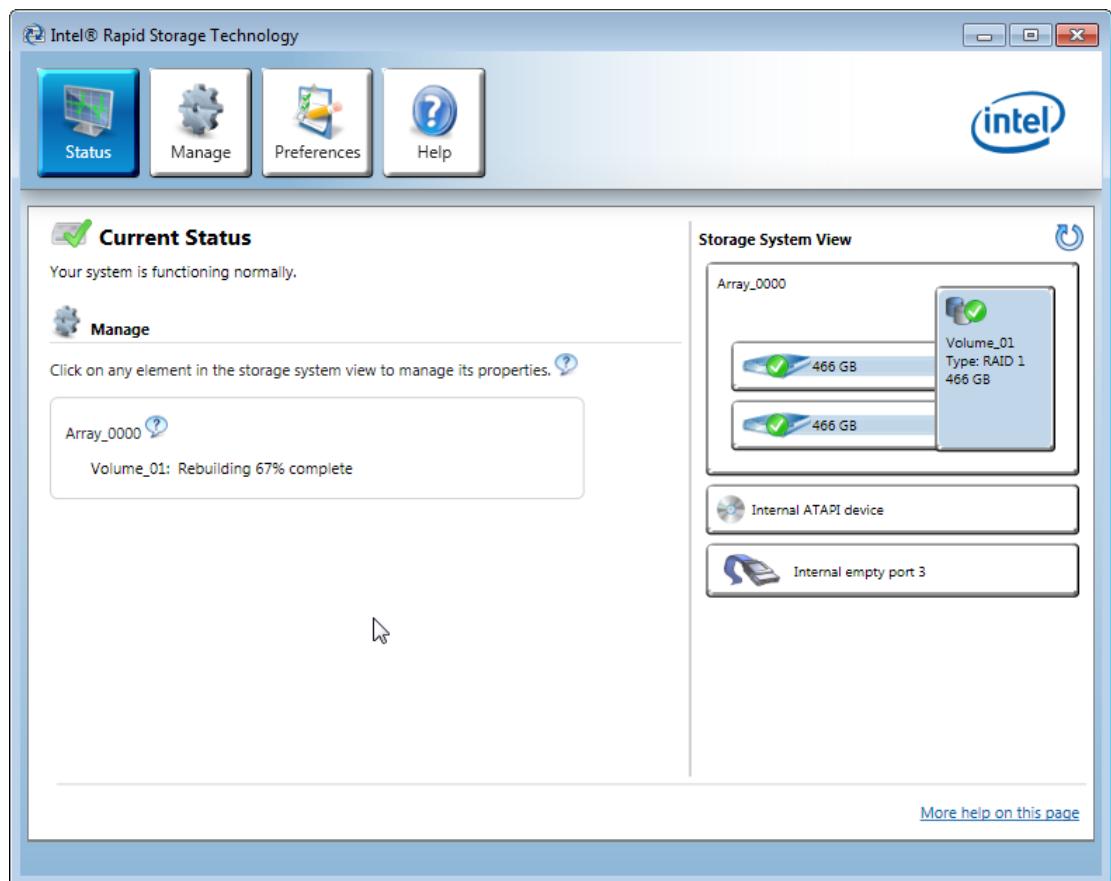
1. Replace the defective HDD (hot plug).
2. Run the *Intel® Rapid Storage Technology Manager*.
Start → All Programs → Intel → Intel® Rapid Storage Technology
3. The Status screen indicates the failed disk. Select **Rebuild to another disk**.



4. Select **Rebuild** to confirm the operation.



5. The status of the disk rebuild is displayed, showing the progress. This can take 1 - 3 hours to complete.



Chapter 6: BIOS Updating Procedure

Introduction

The BIOS is located in the Serial Peripheral Interface (SPI) chip on the processor board. This chapter discusses procedures on how to update the terminal SPI and/or BIOS. The update software is distributed via the NCR Website.

The BIOS update can be performed using the following methods:

- Bootable USB Memory Device
- Network - Refer to the *NCR Retail Systems Manager (RSM) Software User's Guide*, (B005-0000-1518) for information about this procedure.

Prerequisites

The following are required to perform a SPI/BIOS update.

- USB Keyboard
- BIOS Software. Download from the NCR website:

<http://www.ncr.com>

1. At this site, select the Support tab.
2. Select **Drivers and Patches** → **Retail Support Files** → **NCR RealPOS and SelfServ Terminal and Operating Systems** → **NCR RealPOS 82XRT (7606)** → **BIOS**.
3. Select the desired BIOS File.
 - Network Image - Used with Network boot
 - USB Memory Key Image - Used with USB boot device
4. Save the software to your local hard drive.

Creating a Bootable USB Memory Drive

The downloaded file contains the files necessary to create a bootable USB Memory Drive.

1. Insert a USB drive that is formatted as FAT (or FAT32).
2. Unzip the downloaded files.
3. Copy the files to the root directory of the USB drive.
4. Open a DOS command window.

5. Change directory to the USB Memory Drive.
6. Execute the following command:

```
Syslinux -fma <USB drive letter>
```

Example: Syslinux -fma f:

This command erases any bootable methods that may be present on the USB drive and replaces it with the SPI/BIOS update process.

If the resulting USB memory drive is not bootable, try the following command. This runs slower but is more effective.

```
Syslinux -sfma <USB drive letter>
```

Important: Do not run syslinux by double-clicking on it because it may affect the boot drive of the terminal being used to create the drive.

Windows 7 Note: The above commands must be executed as administrator. Failure to run as administrator results in an MBR write failure. To open a command shell with administrator privileges perform the following:

Start → All Programs → Accessories → Command Prompt → [right-click] "Run as" → Administrator

SPI/BIOS Updating Procedures

1. Insert the USB device containing the SPI/BIOS update software into the 7606 terminal.
2. Connect a USB keyboard.
3. Apply power. Validate that the SPI/BIOS configuration setup has the device containing the BIOS media as the first boot device in the Boot Menu or plan on using the **[F8]** override to force the correct boot device. Select the USB device from the list of boot devices.
4. The terminal boots and displays the SPI/BIOS Update main menu.

There are six options from the main menu to run the update program. Three run automatically and two are interactive. *Option 1, the Automatic SPI and BIOS Update* executes automatically in 10 seconds unless the up/down arrow is pressed.

Automatic Method

With the Automatic Method you may see a prompt to enter the DMI (Desktop Management Interface), which is the terminal Class/Model/Serial information. This happens if the program detects invalid DMI information in the current BIOS, or if you are replacing the processor board, which has no Class/Model/Serial information in the BIOS. DMI information is mandatory.

Interactive Method

This method permits you to input/replace the Class/Model/Serial information that is stored in the BIOS.



Note: DMI information that is currently stored in the BIOS is displayed during power up. Press **[Tab]** at the NCR Logo to remove the logo. Press **[Pause]** to freeze the screen. Press **[Esc]** to continue.

5. Make a menu selection and follow the screen prompts (Option 1 is recommended).
 - 1 Update SPI and BIOS - No prompt for Serial/Model/Class unless invalid
 - 2 Update BIOS only - No prompt for Serial/Model/Class unless invalid
(Keeps ME/AMT configuration/provisioning data)
***** Forced Update of Serial/Model/Class Information *****
 - 3 Update DMI only - Serial/Model/Class update ONLY (no BIOS/SPI Update)
(Only one boot - no need for AC Power removal)
 - 4 Update of SPI and BIOS - Always prompts for Serial/Model/Class
(Resets ME/AMT configuration/provisioning data)
 - 5 Update of BIOS only - Always prompts for Serial/Model/Class
(Keeps ME/AMT configuration/provisioning data)

***** For Service Personnel Only *****

6 Update SPI and BIOS - Default Serial/Model/Class. Reset ME/AMT data

Option 1 - Update SPI and BIOS - No prompt for Serial/Model/Class unless invalid

1. Highlight Option 1 and press [ENTER]. (Executes automatically in 10 seconds unless the up/down arrow is pressed.)
2. The Flash Program updates the SPI/BIOS.
3. The Manageability Engine (ME) is programmed and a message is displayed indicating power must be removed before continuing. Press [3] to perform a 20 second AC power removal (automatically executes in 10 seconds if no keys are pressed).
4. Remove the USB device before the system boots.
5. System is ready for operation.

Option 2 - Update BIOS only - No prompt for Serial/Model/Class unless invalid

This option automatically updates the BIOS only.

1. Highlight Option 2 and press [ENTER].
2. The Flash Program updates the BIOS and automatically reboots the terminal.

Option 3 - Update DMI only - Serial/Model/Class update ONLY (no BIOS or SPI Update)

This option lets you enter the DMI information only. The SPI and BIOS are not updated.

1. Highlight Option 3 and press [ENTER].
2. At the prompt press [ENTER] to enter the Class/Model/Serial Number information (DMI). Follow the onscreen format instructions.

Example: 7606-5000-8801[ENTER]

54-19378230[ENTER]

3. Press [1] to confirm the data and to continue.
4. Remove the USB device before the system boots.
5. System is ready for operation.

Option 4 - Update of SPI and BIOS - Always prompts for Serial/Model/Class

This option is similar to Option 1 above except you are prompted for Class/Model/Serial information at the beginning of the program. You also have to select which type of update to run, BIOS or SPI.

1. Highlight Option 4 and press [ENTER].

2. At the prompt press **[ENTER]** to enter the Class/Model/Serial Number information (DMI). Follow the on-screen format instructions.

Example: 7606-5000-8801**[ENTER]**
54-19378230**[ENTER]**

3. Press 1 to confirm the data and to continue.
4. The Flash Program updates the SPI/BIOS and the Manageability Engine (ME) is programmed.
5. A message is displayed indicating power must be removed before continuing. Press **[3]** to perform a 20 second AC power removal (automatically executes in 2 minutes if no keys are pressed).
6. Remove the USB device before the system boots.

Option 5 - Update of BIOS only - Always prompts for Serial/Model/Class

This option prompts for Class/Model/Serial information at the beginning of the program and then updates the BIOS only.

1. Highlight Option 5 and press **[ENTER]**.
2. At the prompt press **[ENTER]** to enter the Class/Model/Serial Number information (DMI). Follow the onscreen format instructions.

Example: 7606-5000-8801**[ENTER]**
54-19378230**[ENTER]**

3. Press **[1]** to confirm the data and to continue.
4. The Flash Program updates the SPI/BIOS and automatically reboots the terminal.

Option 6 - Update SPI and BIOS - Default Serial/Model/Class information

This option is for Service Personnel only. It updates the SPI and BIOS but leaves the Class/Model/Serial fields empty (erased). The DMI information is then entered when the board is installed in a terminal.

1. Highlight Option 6 and press **[ENTER]**.
2. The SPI and BIOS are updated and the system reboots (2 times).
3. Remove the USB device before the system boots.
4. System is ready for operation.

Manually Updating the MAC Address

The SPI/BIOS Updating Utility can be used to replace a lost or corrupted Motherboard MAC address. Make note of the terminal MAC address before performing this procedure.



Note: The MAC address is located on a printed label on the front of the Motherboard.

1. Boot the terminal with the SPI/BIOS Update USB device as described earlier in this chapter.
2. Select Option **3** to perform a manual BIOS update.

```
1 Update SPI and BIOS - No prompt for Serial/Model/Class unless invalid  
2 Update BIOS only - No prompt for Serial/Model/Class unless invalid  
(Keeps ME/AMT configuration/provisioning data)  
  
***** Forced Update of Serial/Model/Class Information *****  
  
3 Update DMI only - Serial/Model/Class update ONLY (no BIOS/ SPI Update)  
(Only one boot - no need for AC Power removal)  
  
4 Update of SPI and BIOS - Always prompts for Serial/Model/Class  
(Resets ME/AMT configuration/provisioning data)  
  
5 Update of BIOS only - Always prompts for Serial/Model/Class  
(Keeps ME/AMT configuration/provisioning data)  
  
***** For Service Personnel Only *****  
  
6 Update SPI and BIOS - Default Serial/Model/Class. Reset ME/AMT data
```

3. When prompted for the DMI information enter **[CTRL-C]** to exit the utility.
4. At the DOS prompt enter the following commands:

```
debug [Enter]
```

```
n outmac.bin [Enter]  
rcx 6 [Enter]  
e 100 xx-xx-xx-xx-xx-xx [Enter]  
where:xx-xx-xx-xx-xx-xx is the terminal MAC address (Hex)  
w [Enter]  
q [Enter]  
fpt /f gbe_reg.bin /a 0x1000 /l 0x2000 [Enter]  
fpt /f outmac.bin /a 0x1000 /l 0x06 [Enter]  
fpt -greset [Enter]
```

Chapter 7: Operating System Recovery

Introduction

This chapter discusses procedures on how to recover the Operating System. The software is distributed on bootable CD/DVD/USB Flash Drive media.

There are two methods that can be used.

- Bootable USB DVD Drive
- USB Flash Drive (64-Bit Operating Systems)
- Network - Refer to the *NCR Retail Systems Manager (RSM) Software User's Guide*, (B005-0000-1518) for information about this procedure.

Prerequisites

The following are required in order to perform an OS recovery from a CD.

- Bootable CD/DVD-ROM drive
- Keyboard

OS Recovery for Windows XP Pro/POSReady 2009

1. Insert the *NCR Partition Image Application CD* (D370-0605-0100) into the CD/DVD drive.
2. Connect a keyboard to the terminal.
3. Apply power to the terminal.
4. Press **[F8]** during boot (when you see the NCR logo) to enter the Boot Select menu.
5. Select **USB:[name of device]**.
6. You should see a message during boot, indicating that the device has been recognized.
7. At the menu, enter **1** to select the image restore function and press **[Enter]**.

```
#####
NCR Partition Image Application
#####
```

```
Select an option
1 - Process Image/Script CD
2 - View Partition Image Documentation on CD
3 - Interactive Create/Restore Via Network/USB
4 - Exit and reboot
```

8. At the prompt, insert the CD containing the operating system image (disk 1 if OS occupies more than one disk). Wait until the LED on the DVD drive stops blinking and then press **[Enter]**.
9. Press **[A]** at the following prompt to accept the arguments and to begin the restore process. Press **[Enter]**.

or

Press **[9]** if you are recovering a dual drive system that is configured in a RAID. A menu of the available drives is displayed. Select the secondary (RAID) drive.

Confirm Pending Operation

Mode is: restore

```
2) Drive is: USB/SATA Storage A Size: 250GB
3) Directory path is: /Images/
4) Filename is: nnnnnaaa
5) Reboot after operation complete: yes
6) Resize last data partition if possible: no
7) Resize last data partition to: Full Disk
8) Write zeros to drive before restore: no
9) RAID - restore to 2nd drive: none
```

```
A) Accept these arguments
V) View OS Documentation
Q) Quit and reboot
```

10. At the following prompt replace the CD with the next CD. Press **[Enter]** to continue.

```
+-----+ Automatic mount +-----+
| |
| Please, press "ok" to mount |
| [/dev/cdrom] on [mnt/cdrom] |
| |
| |
|       +---+
|       | Ok |
|       +---+
| |
+-----+
```

11. Repeat the previous step for each CD as required.

12. Remove the last CD before the system reboots.



Note: The process automatically repeats for the secondary drive if the RAID option was selected above.

13. Complete the OS installation as required per OS.

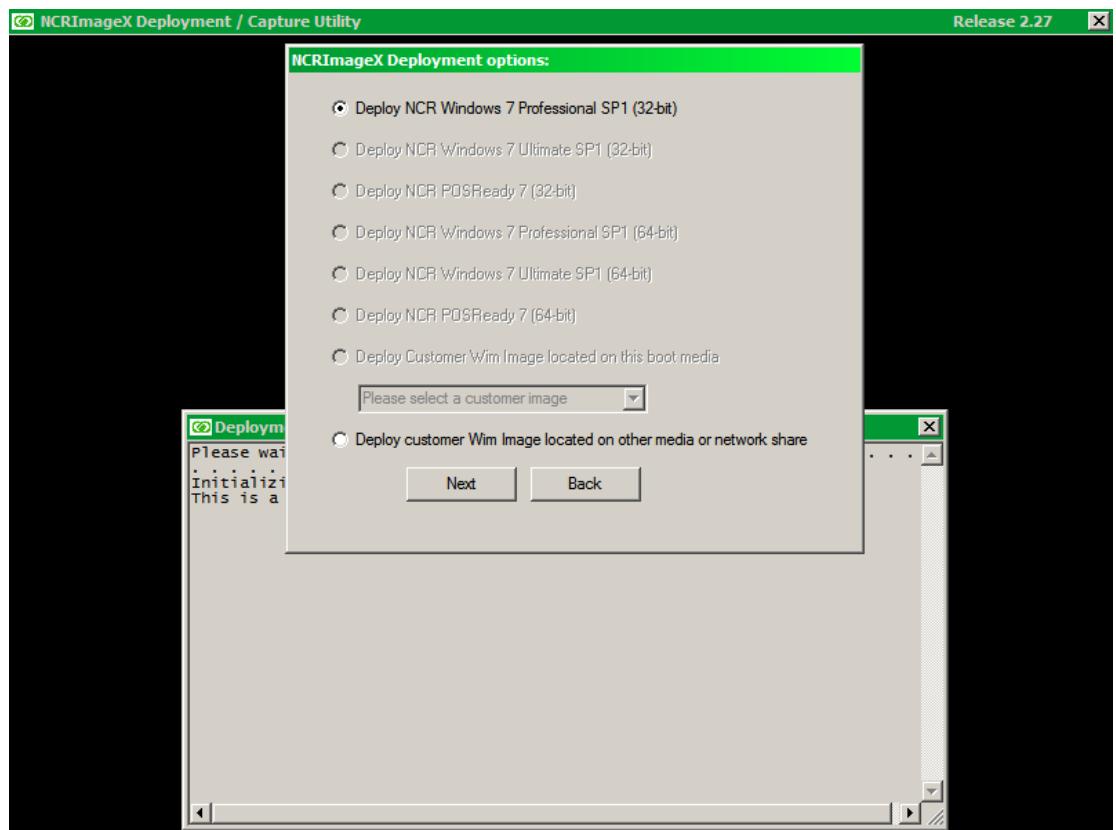
OS Recovery for Windows 7/POSReady 7

The NCRImageX Deployment/Capture Utility application is used to deploy and capture Windows images. It is available on a bootable DVD along with the operating system image.

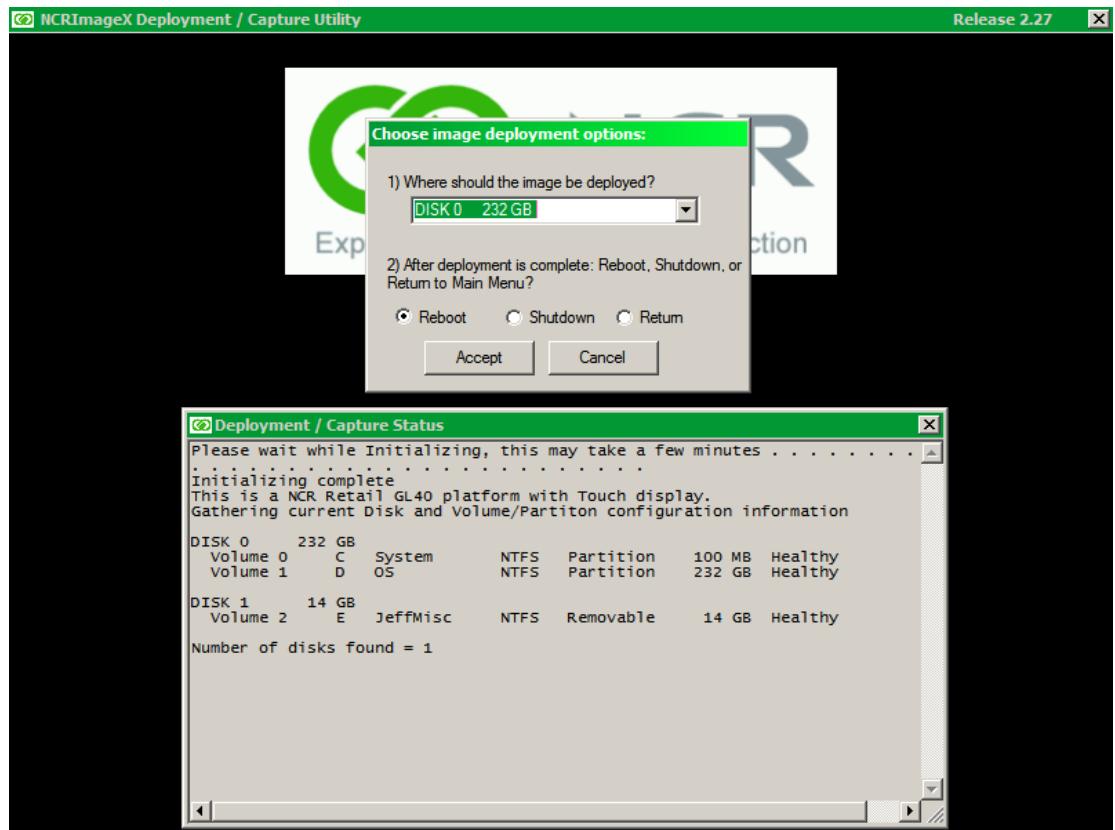


Note: If you are recovering a dual drive system that is configured as a RAID you should change the system back to a non-RAID configuration before performing the OS recovery. After recovering the primary disk you can then re-configure the RAID.

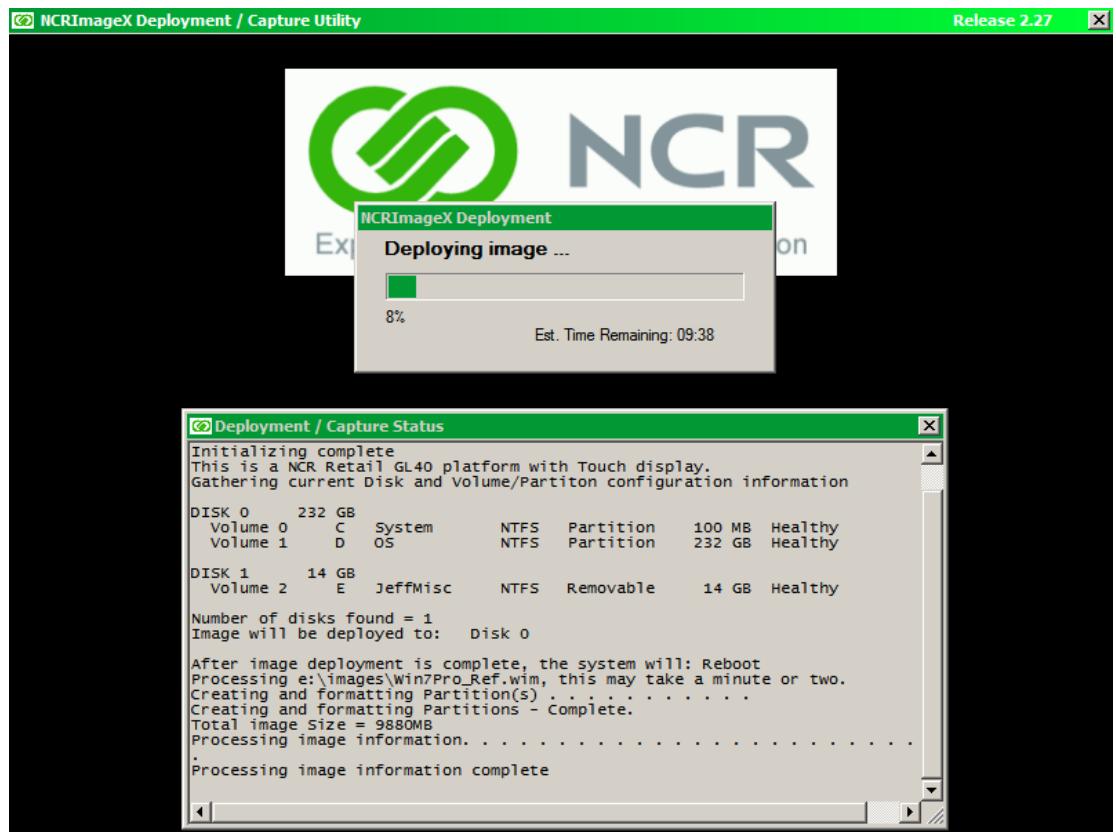
1. Connect a keyboard to the terminal.
2. Insert the imaging utility DVD into the DVD drive (USB Flash Drive for 64-Bit)
3. Apply power to the terminal.
4. Press **[F8]** during boot (when you see the NCR logo) to enter the Boot Select menu.
5. Select **USB:[name of device]**.
6. You should see a message during boot, indicating that the device has been recognized.
7. The Options Menu displays the available operating systems on the media. Verify it is the correct OS and then select **Next**.



8. Select the destination where the image should be deployed from the drop down menu. Also select the radio button to reboot the terminal after the image has been installed. Select **Accept**.



9. As the image is deployed a progress bar indicates the status.



10. After the image has been put on to your terminal, you are given the message "Press OK to Reboot". Select **OK**.
11. Remove the DVD before the system reboots.
12. Complete the Windows 7/POSReady 7 setup.

Chapter 8: Maintenance

Cabinet Cleaning Procedures

1. Disconnect the unit from the power outlet before cleaning.
2. Do not use alcohol (methyl, ethyl, or isopropyl) or any strong dissolvers. Do not use thinner or benzene, abrasive cleaners, or compressed air.
3. Use a cloth lightly dampened with a mild detergent.
4. Avoid getting liquids inside the unit. If liquid does get inside, have a qualified service technician check it before you power it on again.

Touch Screen Cleaning Procedures

1. Do not wipe the screen with a cloth or sponge that could scratch the surface.
2. Spray an ammonia-based glass cleaner on a soft cloth and gently wipe the touch screen clean. Never apply the cleaner directly on the Touchscreen.
-  **Warning:** Do not use any other types of cleaners such as vinegar, solvents, or degreasers. These can damage the screen.
3. Wipe the screen and edges dry.
4. Make sure the glass and screen edges dry completely before using the unit.

MSR Cleaning and Treatment Cards

MSR Cleaning Cards and MSR Treatment Cards may be purchased from NCR or KIC Products. For details, see <http://www.ncr-direct.com> or <http://www.kicproducts.com>.

Part	Part Number	NCR Part Number
MSR Cleaning Card, Dry		998-0052929
MSR Cleaning Card, Wet	520522 (box of 50)	603-9014730
MSR Treatment Card	9436-2446 (box of 20)	497-0453056

MSR Treatment Card

The MSR Treatment Card is used to assist in protecting Magnetic Stripe Readers from Electrostatic Discharge (ESD), which can cause failures when swiping cards that have metallic hologram stripes.

Swipe the card through the MSR in a smooth motion. Only swipe it down ONCE and up ONCE. Allow the device to dry for 5 minutes before swiping any other cards.



Note: Each long side of the card may be used twice. Each short side of the card may be used only once. Thus, a single card can treat 6 MSR devices with one UP and one DOWN swipe per MSR device. These limits should not be exceeded due to the possibility of spreading contaminants from machine to machine and/or reducing ESD protection.

These edges may be used twice



Note: If all six up/down swipes are not used on a fresh card it should be placed in a sealed (Ziploc) bag for future use.

Cleaning/Treatment Frequency

New MSR - Prior to placing in operation, the MSR device should be swiped with the MSR Treatment Card.

Existing MSR - An existing MSR should be cleaned using an MSR Cleaning Card before treating it with a MSR Treatment Card. For low use retail establishments, the cleaning and treatment procedures should be followed at least once per month. In areas of extremely high traffic (in excess of 500 swipes per day) or an operating environment that is high in contaminants, such as found in the food service industry, a weekly cleaning and treatment should be performed.

Cleaning the CPU Cooler

The 7606 cooling solution circulates are through the fins of a heatsink, where dust can get trapped and cause over-heating. In some environments or after several years, preventative maintenance may be required to keep this area free of dust.