



IVORY SERIES INSTALLATION AND OPERATION MANUAL



808 134th Street SW Suite 120
Everett, WA 98204
Phone: 425.745.3229
Fax: 425.745.3429

Email: maple@maple-systems.com
Web: www.maplesystems.com

COPYRIGHT NOTICE

This manual is a publication of Maple Systems, Inc., and is provided for use by its customers only. The contents of the manual are copyrighted by Maple Systems, Inc.; reproduction in whole or in part, for use other than in support of Maple Systems equipment, is prohibited without the specific written permission of Maple Systems. HMI600 and Ivory Series are trademarks of Maple Systems, Inc. IBM, PC/AT, and PS/2 are trademarks of International Business Machines Corporation. Windows CE, Windows XP Embedded and ActiveSync are trademarks of Microsoft Corporation. WebStudio is a trademark of Indusoft Corporation. All other brand and product names mentioned herein are trademarks or registered trademarks of their respective holders.

LIMITATIONS OF USE

The XPe device may not be used in any device or system in which a malfunction of the operating system would result in foreseeable risk of personal injury, death to the operator of the device or system, or to others, or severe physical or environmental damage.

WARRANTY

Maple Systems warrants each product to be free from electrical and mechanical defects in materials and workmanship for a period of two years from the date of shipment. This warranty does not apply to defects in the Products caused by abuse, misuse, accident, casualty, alteration, negligence, repair not authorized by Maple Systems, use on current or voltages other than specified by Maple Systems, or application or installation not in accordance with published instruction manuals. This warranty is in lieu of any other warranty either expressed or implied.

Maple Systems' liability is limited to the repair or replacement of the Product only, and not costs of installation, removal, or damage to user's property or other liabilities. If Maple Systems is unable to repair or replace a nonconforming Product, it may offer a refund of the amount paid to Maple Systems for such Product in full satisfaction of its warranty obligation. Maximum liability of Maple Systems is the cost of the Product.

Information furnished by Maple Systems, Inc., is believed to be accurate and reliable. However, no responsibility is assumed by Maple Systems for the use of this information nor for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication, or otherwise, under any patent or patent rights of Maple Systems, Inc. Maple Systems retains the right to revise or change its products and documentation at any time without notice.

IF SERVICE IS REQUIRED

Package the unit in its original packaging container or, if unavailable, any suitable rigid container. If a substitute container is used, surround the unit with shock absorbing material; damage in shipment is not covered by the warranty. Include a letter with the unit describing the difficulty and designating a contact person. Send to the following address: Maple Systems, Inc., 808 134th Street SW, Suite 120, Everett, WA 98204-7333.

Only Products that have been issued a Return Material Authorization (RMA) number from Maple Systems may be returned. All RMAs must be accompanied with a written purchase order for tracking purposes or, in the case of out-of-warranty repairs, for repair charges on a time and material basis.

All returns will be tested to verify customer claims of noncompliance with the product warranty. Improper return packaging, which makes verification impossible, will void the warranty. Products passing the tests will be returned "AS IS" to the customer.

If noncompliance is verified and is not due to customer abuse or the other exceptions described with product warranty, Maple Systems will, at its option, repair or replace the Product returned to it, freight prepaid, which fail to comply with the foregoing warranty, provided Maple Systems is notified of such noncompliance within the two-year warranty period.

APPLICATIONS ASSISTANCE

This manual is designed to provide the necessary information for trouble-free installation and operation of your new Ivory Series Panel PC; however, if you need assistance, please call Maple Systems at 425-745-3229 or visit our web site at www.maplesystems.com.

Table of Contents

About Your Documentation	1	Chapter 3 - Networking.	27
Conventions.	1	Networking Via Ethernet Using	
What You Need	2	Windows CE.	27
What is an Ivory Series Panel PC?	2	Networking Via Ethernet Using	
Windows CE Basics.	3	Windows XPe	27
Windows XPe Basics	3	Networking via Serial Port Using	
List of Features.	3	Windows CE.	27
Connecting to a PC	3	Installing Active Sync	27
Chapter 1 - Installation Instructions.	5	Web Browser	29
Before You Begin	5	Chapter 4 - Developing Applications.	31
Unpacking the Unit	5	Windows CE.	31
Managing Electrostatic Discharge.	5	Microsoft Visual Studio 2008	31
CE Compliance	5	Microsoft eMbedded Visual C++ 4.0	31
NEMA Rating	5	Ivory Series SDK.	31
FCC Class A Rating	5	Windows XPe	31
Environmental Considerations	5	Chapter 5 - Using Third Party Software to	
Safety Precautions	6	Configure the Ivory Series Panel PCs.	33
Control Panel Design Guidelines	7	Indusoft WebStudio	33
Control Panel Grounding	7	Other HMI Configuration Software.	33
Connect Panel PC Chassis Ground to		Chapter 6 - Maintenance and System	
Control Panel.	8	Configuration	35
Power Supply Selection	8	Fuse Maintenance	35
Cable Routing and Noise Immunity	9	Cleaning the Overlay.	35
Installation.	9	Calibrating the Touchscreen.	35
Connect the Panel PC to Power	9	System Configuration.	37
Panel Preparation	11		
Mount the Panel PC to the Panel	12		
Communications	13		
COM1 [RS232]/COM2 [RS232]	13		
COM1 [RS-485 2/4 W] Port ,			
COM3[RS485], COM3[RS232] Port.	14		
Connecting to the Panel PC Using			
Ethernet.	14		
USB Host Port	15		
USB Client Port	15		
Compact Flash.	15		
Printing - Windows CE	15		
Printing - Windows XPe	16		
Using a Networked Printer - Windows CE			
and Windows XPe	16		
Factory Configuration.	17		
What Comes with the Ivory Series Panel			
PC?	17		
Dip Switch Settings.	17		
Chapter 2 - Using Windows CE.net & Windows			
XPe.	19		
What is Windows CE.net 5.0?	19		
Utilities	19		
Soft Keyboard	19		
System Settings	20		
NorFlash	24		
Start Up	24		
Remote Desktop Connection	25		
About Windows XPe	26		

Introduction - Welcome

Welcome to the Maple Systems' Ivory Series of Panel PCs. This powerful family of Panel PCs can be configured with any Windows CE or Windows XP Embedded compatible HMI software, such as WebStudio, to connect to programmable logic controllers (PLCs) and motion controllers to provide the human-machine interface in industrial applications. This manual explains the installation and operation of the Ivory Series.

About Your Documentation

Conventions

In most cases, we will describe each method when the task is first discussed. The menu method is then used whenever the task is used in later procedures. Other conventions used in this book are listed in the following table.

Convention	Meaning
Bold	Characters that you must type exactly as they appear. For example, if you are directed to type a:\setup , you should type all the bold characters exactly as they are printed.
<i>Italic</i>	Placeholders for information you must provide. For example, if you are directed to type <i>filename</i> , you should type the actual name for a file instead of the word shown in italic type. Italics are also used to indicate a glossary term.
ALL CAPITALS	Directory names, file names, key names, and acronyms
KEY1+KEY2	A plus sign (+) between key names means to press and hold down the first key while you press the second key.
click	When referring to the touch screen, click means to tap icon onscreen once with either a finger or stylus. When referring to a computer with a mouse, click refers to clicking the left mouse button once.
Double-click	When referring to the touchscreen, this refers to quickly tapping an onscreen icon twice in rapid succession with either a finger or a stylus. When discussing a computer with a mouse, refers to quickly clicking the primary mouse button (usually the left mouse button) twice.
Right-click	Refers to clicking the secondary mouse button (usually the right mouse button) once. Right-clicking usually opens shortcut menus.

The following terminology will be used when referring to computers and PCs:

Term	Meaning
Panel PC	Refers to the Ivory Series Panel PC
PC	Refers to a desktop PC - not the Ivory Series Panel PC

The following table identifies symbols and margin icons.

Icon	Meaning
▶	Identifies a procedure.
	Indicates a reference to additional information.
	Indicates an important note.

What You Need

The following items are needed to configure and operate your Panel PC.

Configuration Software	WebStudio or other CE or Windows XP Embedded (XPe)-compatible HMI software.
Configuration Cable (Panel PC to PC)	7431-0106
Personal Computer ¹	User Provided
Power Cable	6030-0009
24VDC Power Supply	User Provided (for details refer to Appendix A: Specifications)
PLC	User Provided

¹PC requirements include at least a Pentium IV-compatible PC; 256MB RAM; 500MB available hard disk space; VGA or SVGA display adapter; Microsoft Windows 2000, XP, Vista, 2003/2008 server or NT, and one available RS-232 serial port.

What is an Ivory Series Panel PC?

The Ivory Series is a compact Panel PC designed to operate in an industrial environment. The Ivory Series employs a RISC-based ARM processor and Flash technology embedded with the Microsoft® Windows® CE.net™ or Microsoft Windows XPe operating system. These models include the following key features:

- **All-in-one platform:** The CPU, DRAM and even Windows CE or XPe are integrated. The Ivory Series is a plug-and-play machine.
- **Slim but robust:** The Ivory Series is very thin (50mm thickness); nevertheless, its plastic bezel provides protection in harsh industrial environments - protecting against dust and water, and providing resistance to chemicals.
- **EMI protection:** The Ivory Series meets standards for electrical noise emissions and immunity according to the European CE directives.
- **Excellent display characteristics:** The Ivory Series uses 65K color TFT displays for high brightness and contrast clarity.
- **Fanless operation:** The low power consumption and fanless design provide reliable operation and longer lifespan.
- **Powerful communications capability:** The Ivory Series provides serial ports, Ethernet port, USB ports and sound and IDE expansion ports (HMI 615X, HMI612X, HMI610X and HMI608T models). Compact flash is available on T models only.
- **Windows CE or Windows XPe Support:** The Ivory Series offers platform support for either Windows CE.net (5.0) or Windows XPe. These operating systems allow the user to develop his own application software or use a number of available third-party applications.

There are currently EIGHT models in the Ivory Series:

Model	Display Size	Resolution	LCD Type	Brightness (cdm ²)	Contrast	Ethernet	Compact Flash	Operating System
HMI606T	5.7"	320x234	65K-color TFT	500	250:1	Yes	Yes	CE
HMI608T	8.8"	640 x480	65K-color TFT	400	250:1	Yes	Yes	CE
HMI610X-CE	10.4"	640x480	65K-color TFT	400	300:1	Yes	No	CE
HMI610X-XPe	10.4"	640x480	65K-color TFT	400	300:1	Yes	No	XPe
HMI612X-CE	12.1"	800x600	65K-color TFT	450	600:1	Yes	No	CE
HMI612X-XPe	12.1"	800x600	65K-color TFT	450	600:1	Yes	No	XPe

HMI615X-CE	15"	1024x768	65K-color TFT	350	700:1	Yes	No	CE
HMI615X-XP	15"	1024x768	65K-color TFT	350	700:1	Yes	No	XP

Windows CE Basics

The Ivory Series comes preloaded with either Microsoft Windows CE.net 5.0 or Windows XP. Windows CE.net is a real-time embedded operating system for use in small foot print and mobile devices. With a complete operating system feature set and comprehensive development tools, Windows CE.net contains the features developers need to build, debug, and deploy customized Windows CE.net-based devices. Some basic benefits of Windows CE.net 5.0 include:

- Secure networking
- Enhanced real-time processing
- High-speed performance
- Multimedia and Web browsing capabilities
- Connectivity with PCs, Servers, PLCs, and other devices

Windows XP Embedded Basics

Windows XP for Embedded (Windows XP Embedded) Systems is an edition of Windows XP that contains the full feature set of Windows XP Professional, but has restrictions on licensing that requires that it be used in a process-specific application. Some of the benefits of XP Embedded include:

- Secure networking
- Enhanced real-time processing
- High-speed performance
- Multimedia and Web browsing capabilities
- Connectivity with PCs, Servers, PLCs, and other devices
- USB or Network Boot capability
- File sharing capability

List of Features

The Ivory Series has a host of features that make it the ideal open-platform Panel PC for every application:

- One Ethernet port for networking or Internet connection
- Two device-ready USB ports on the HMI606 and three on the HMI615X/HMI612X/HMI610X/HMI608T
- Two serial ports for RS232, RS422 or RS485 communications
- One RS232 port for downloading application software
- Built-in 32 MB Flash memory (T Models)
- Built-in 256 MB DOM (X models with CE)
- Built-in 2 G DOM (X models with XP)
- 64 MB DRAM
- 256 MB DDR (all X models)
- Built-in compact flash port is available on T models
- Fanless, low-power operation

Connecting to a PC

To connect the Ivory Series to a PC for configuration, refer to Chapter 3, under *Networking via Serial Port*.

Chapter 1 - Installation Instructions

Before You Begin

Please read the following for proper handling of your new Ivory Series Panel PC.

Unpacking the Unit

Carefully unpack the Panel PC. Please read any instructions or cautions that appear on the shipping container. Check all material in the container against the enclosed packing list. Maple Systems, Inc. will not accept responsibility for shortages against the packing list unless notified within 30 days. The equipment and its accessories were inspected and tested by Maple Systems before shipment; all of the equipment should be in good working order. Examine the equipment carefully; if any shipping damage is evident, notify the carrier immediately. You are responsible for claim negotiations with the carrier. Save the shipping container and packing material in case the equipment needs to be stored, returned to Maple Systems, or transported for any reason.

Managing Electrostatic Discharge

It is best NOT to remove the rear enclosure of the Panel PC. When the rear part of the enclosure is removed, the circuitry inside is exposed to possible damage by electrostatic discharge during handling. Minimize the possibility of electrostatic discharge by:

- Discharging personal static by grounding yourself prior to handling the computer
- Handling the computer at a static-free grounded workstation
- Connecting the frame ground (FG) connector of the computer to a clean earth ground
- Placing the computer in an anti-static bag during transport

CE Compliance

The Ivory Series Panel PCs have been tested to conform to European CE requirements per Council Directive 89/336/EEC. The European Union created these requirements to ensure conformity among products traded in those countries. Specifically, the Ivory Series Panel PCs meet or exceed the noise emissions and immunity requirements as set forth in the EN50081 (Emissions) and EN50082 (Immunity) standards. These products are designed to withstand electrical noise in harsh industrial environments. They also conform to requirements that limit electrical emissions. However, this does not guarantee that the products will be totally immune from possible malfunction in cases where severe electrical noise occurs. Therefore, we strongly recommend that you follow the guidelines outlined in this chapter for proper wire routing and grounding to insure the proper operation of the Ivory Series Panel PC.

NEMA Rating

The Ivory Series Panel PCs are rated for NEMA 4 (indoor). This means that when the Panel PC is properly mounted to a panel or other enclosure, the front enclosure of the Panel PC will provide protection to the inside of the panel from splashing water, wind blown dust, or hose-directed water. The computer must be installed according to the instructions in this chapter to be properly sealed.

FCC Class A Rating

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

Environmental Considerations

The Ivory Series is designed to operate in temperatures from 0-45° C. It is intended for indoor installations and not designed for outdoor applications. Avoid installing the Ivory Series in environments with severe mechanical

vibration or shocks. Do not install the computer in enclosures with rapid temperature variations or high humidity. Either will cause condensation of water inside the device and eventual damage to the computer.

Safety Precautions

Please observe the following precautions when installing the Ivory Series Panel PCs. Failure to comply with these restrictions could result in loss of life, serious personal injury, or equipment damage.

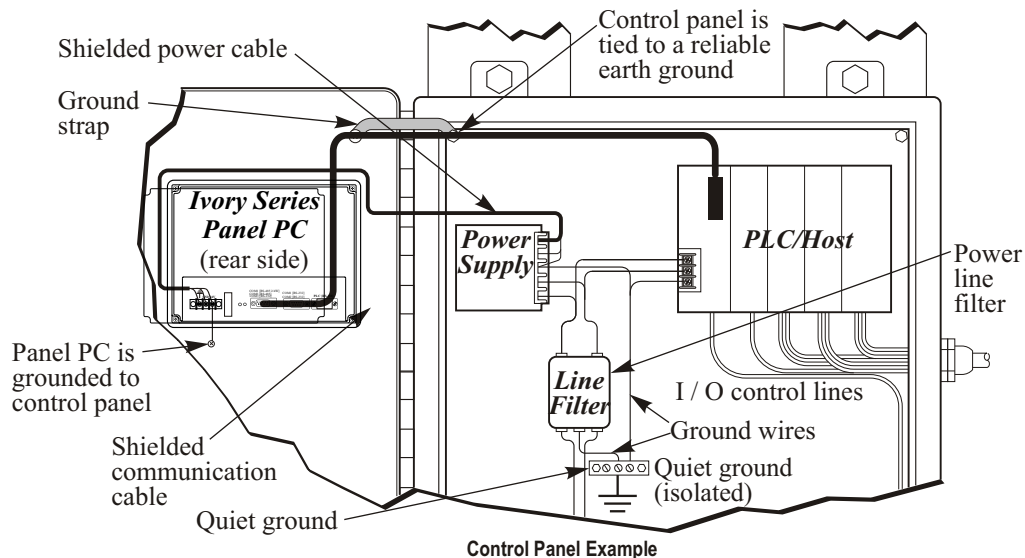
	Warning: Disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
	Warning: Keep this equipment away from humidity.
	Warning: The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
	Warning: Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
	Warning: Position the power cord so that people cannot step on it. Do not place anything over the power cord.
	Warning: If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
	Warning: Never pour any liquid into an opening. This could cause fire or electrical shock.
	Warning: Never open the equipment. For safety reasons, the equipment should be opened only by a qualified service technician.
	Warning: If any of the following situations arise, get the equipment checked by qualified service personnel • The power cord or plug is damaged. • Liquid has penetrated into the equipment. • The equipment has been exposed to moisture. • The equipment does not work well, or you cannot get it to work according to the installation reference guide. • The equipment has been dropped and damaged. • The equipment has obvious signs of breakage.
	DO NOT LEAVE THIS EQUIPMENT IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW - 20°C (-4° F) OR ABOVE 60°C (140° F). IT MAY DAMAGE THE EQUIPMENT.

In addition, please observe all of the following safety precautions:

- Read these instructions carefully.
- Keep this installation reference guide for later reference.
- For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
- Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
- All cautions and warnings on the equipment should be noted.

Control Panel Design Guidelines

Pay careful attention to the placement of system components and associated cable routing. These items can significantly enhance the performance and integrity of your control application.



Control Panel Grounding

The control panel should be connected to a good, high-integrity earth ground both for safety considerations and shielding purposes. Maple Systems cannot overemphasize the importance of good grounding. If you fail to use good grounding procedures during installation, sporadic malfunction of the Panel PC may occur:

Connect the Panel PC's chassis ground terminal to a reliable earth ground with a low-resistance path.

Route all earth ground wires that lead from the computer, the PLC, the power supply, and the line filter to a central earth ground point such as a barrier strip. This will ensure that no ground current from one device influences the operation of the other devices.

Connect the Panel PC's chassis ground terminal to the control panel door using a heavy-gauge short braided cable or ground wire to minimize resistance.

Connect the power cable's shield wire to the Panel PC's chassis ground terminal.

Connect the control panel to earth ground using a copper grounding rod close to the Panel PC and control panel.

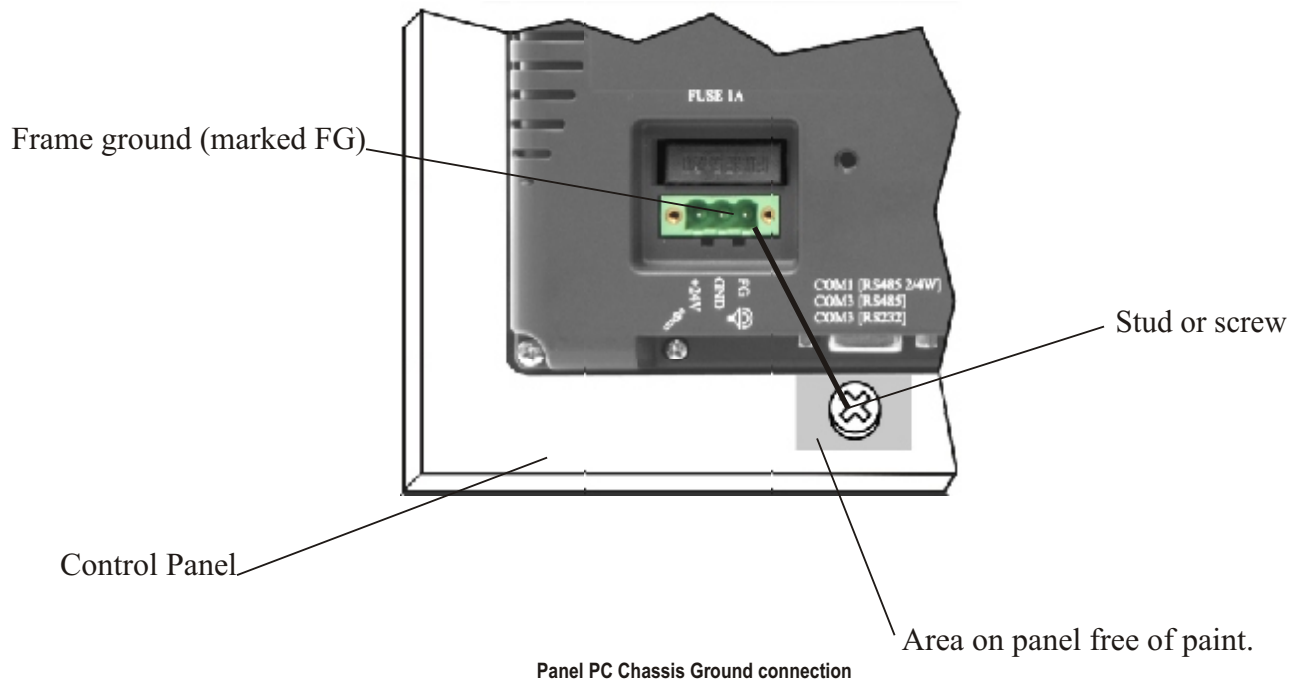
Hinged doors on control panels do not provide a long-term electrical connection to the rest of the enclosure. Corrosion develops over time and prevents good electrical contact. For this reason, a separate wire braid should be installed from the hinged control panel to the rest of the enclosure.

For a more in-depth overview of ground wiring techniques, refer to technical note #1027, “HMI Ground Wiring and Electrical Noise Reduction,” which you can find at <http://www.maplesystems.com> in the Support Center section.

Connect Panel PC Chassis Ground to Control Panel

To reduce the possibility of electrical interference, connect the chassis ground terminal of the computer to a clean earth ground. If the control panel is metal, make sure it is properly grounded. Then connect a *short* heavy-gauge wire (#18 AWG) from the chassis ground terminal of the computer to a mounting bolt on the control panel door. The mounting bolt must have good electrical contact to the control panel; scrape away any paint that may be covering the panel to provide a good connection.

If the control panel is made of a non-conductive material, it is essential that you connect the chassis ground terminal of the computer to a clean earth ground point located close to the panel.



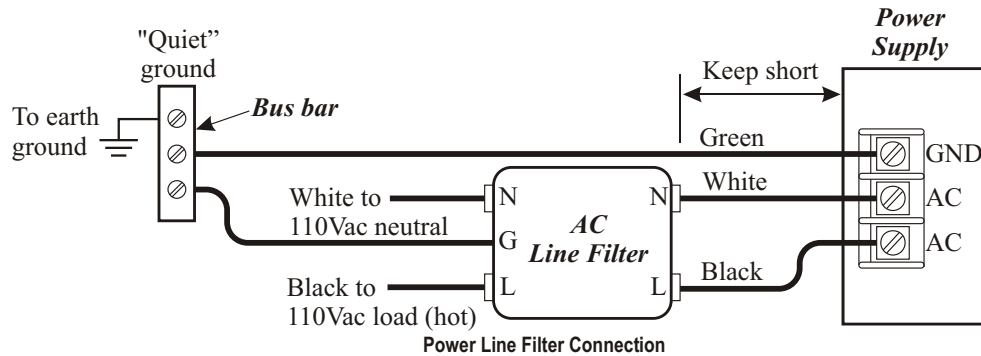
Power Supply Selection

The power supply used to power the computer should provide an output of +24 VDC 5% measured at the Panel PC power terminal block. A 24VDC regulated power supply dedicated to the computer is required.

The power cable for the computer should be 18AWG, 2-conductor wire with a shield drain wire and protective shield (foil or braid). The shield drain wire must be connected to earth ground at both ends of the cable. Please refer to the “Connect the Panel PC to Power” section for more information.

A power line filter installed at the AC input to the computer power supply is highly recommended as a safeguard against conducted RF noise, which is often present on factory power lines. The wires connecting the output of the power line filter to the power supply should be kept as short as possible to minimize any additional noise pickup. The case of the power line filter should be connected to a quiet earth ground. The power line filter should have a current rating of at least 3 Amps with common mode and differential mode attenuation.

Do not use the power supply used to provide power to the computer to power switching relays, solenoids, or other active devices.



Cable Routing and Noise Immunity

Follow these guidelines when routing cable to the computer:

Always route the Panel PC communication cable and the power cable away from any AC voltage or rapidly switching DC control lines.

Never bundle the Panel PC cables together with 120VAC power wires or with relay wiring.

Try to keep at least 8 inches (20 cm) of separation between the Panel PC cables and other power wiring. If voltages greater than 120VAC are used in the system, greater separation is required.

If the Panel PC cables must come near AC wiring, make sure they cross at 90 degrees.

Run AC power wires in a separate grounded conduit to reduce electrical noise interference.

Keep the cable lengths for the Panel PC as short as possible. Do not coil excess cable and place it next to AC powered equipment.

Cover any equipment used in the enclosure that operates at high frequency or high current levels with a grounded metal shield.

Installation

It is necessary to follow all installation procedures described in this chapter for electrical noise immunity and CE compliance.

Your Maple Systems Panel PC is designed to connect easily to your PLC. External rear connectors provide quick connections for power, communications and programming wiring.

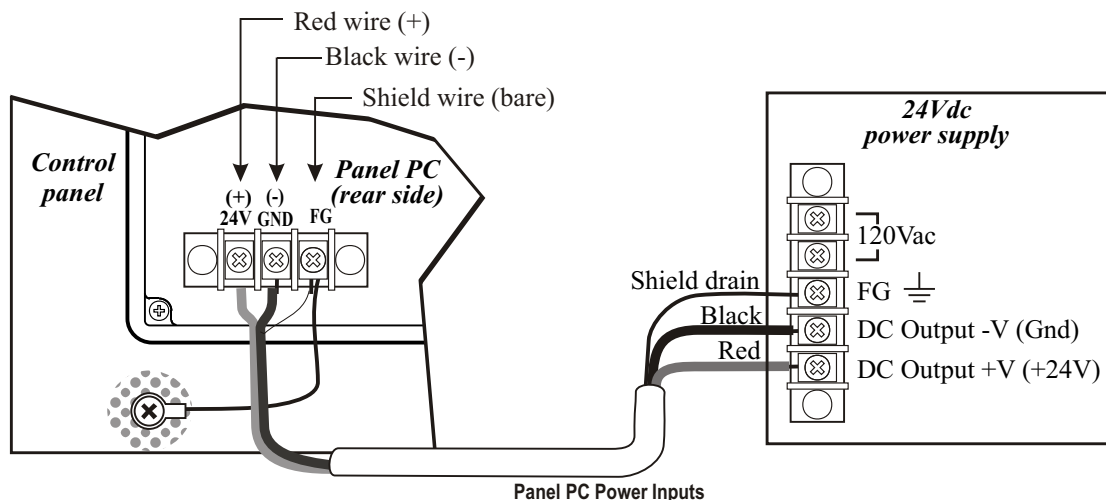
There are two serial port connections on the rear of the Panel PC. These are D-subminiature 9-pin connectors. The female connector can be used for RS232 or RS485 connection to a PLC. The male connector can be used for RS232 connections to a PLC or to the PC used for configuration.

Use the supplied separate 3-position terminal block to provide power to the Panel PC.

Connect the Panel PC to Power

The power cable for the Panel PC should be 18AWG, 2-conductor wire with a shield drain wire and protective shield foil. You may buy cable P/N 6030-0009 by the foot from Maple Systems to make these.

Always run the DC ground wire directly back to the signal return of the power supply. *Do not use the chassis ground wire as your signal return!* Maple Systems recommends using an axial ferrite coil with each Panel PC to further reduce the electrical interference that may be conducted on the power lines. Thread the positive and negative wires of the power cable through the ferrite coil so that the coil is no more than two inches from the Panel PC's power input.



► **To connect the Panel PC to power:**

1. Connect the power cable to the Panel PC
 - a. Strip the power cable shield to expose 2" of the black and red wires.
 - b. Strip about ¼" of insulation from the black and red wires.
 - c. Thread the black and red wires through the ferrite core. The shield wire must be outside.
 - d. Connect the red wire to the DC positive (+) input of the Panel PC power terminal.
 - e. Connect the black wire to the DC negative (-) input of the Panel PC power terminal.
 - f. Connect the power cable shield wire to the Panel PC power terminal's chassis ground input.
2. Route the power cable to the Panel PC power supply. The power cable should not be any longer than necessary.
3. Install the power supply wires as follows (with colors shown for Maple Systems cable P/N 6030-0009):

Color	Power Supply	Panel PC
Red	+Output/+24 Vdc	+24V
Black	-Output/+24 Vdc return	GND
Shield	Case ground	FG

 The power connector on the Ivory Series is a terminal block with wire clamps. Lugs are not required.



24+VDC

0V

FG

Ivory Series Power Wiring

Panel Preparation

A metal panel or mounting surface with a minimum thickness of 15 gauge (0.059 inch/3.3mm) if cold-rolled steel or hardened steel, or 10 gauge (0.101 inch/2.6mm) if aluminum alloy (6061-T6 preferred) is required. Thinner panels or surfaces may bow between the mounting clamps and not form a seal with the gasket.

The area of the panel or mounting surface where the gasket comes into contact must be flat and free of scratches, pits, and other features that prevent the gasket from sealing properly. If the panel or mounting surface is not uniform, thick, flat, stiff, or smooth enough, then a sealant such as silicone may be required.

WARNING

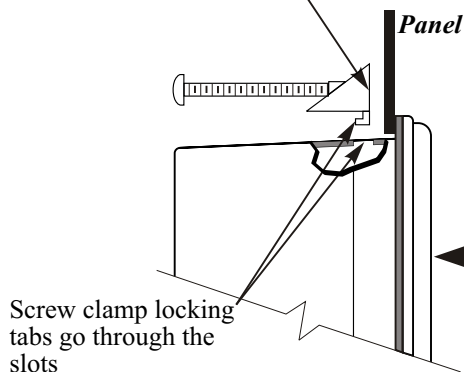
The Panel PC requires a stiff, flat, smooth mounting surface free of blemishes to seal properly to NEMA 4.

The diagrams in Appendix B show the dimensions of the panel cutout required for proper installation of the all models.

 *Clean and deburr the panel cutout before the Panel PC is installed.*

Mount the Panel PC to the Panel

Ends of screws must not protrude from the clamp

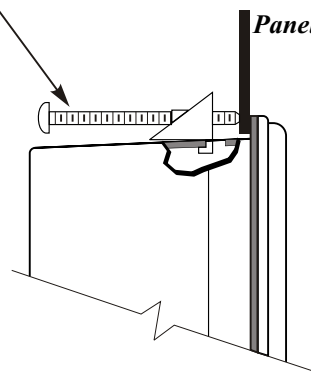


Screw Clamp Placement

Hold the Panel PC against the panel until all screw clamps are in position

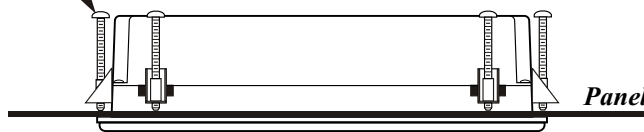
Installing Screws on the Panel PC

Tighten all screw clamps until they are uniformly snug



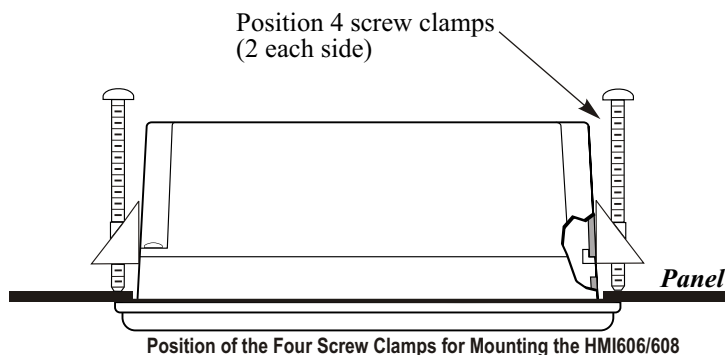
Clamps Tightened

Position screw clamps 6 places in slots provided:
2 screw clamps each side and one top and bottom



Side View

Position of the Six Screw Clamps for Mounting the
HMI615/612/610

**STEPS:**

1. Prepare the four screw clamps for the HMI606/608 or the six screw clamps for the HMI615/612/610 by positioning the metal brackets at the midpoints of the screws. Position the screws so that the ends don't protrude from the plastic portions.
2. Set the Panel PC in the panel cutout and hold it in place until all clamps are in position.
3. Tighten the screw clamps until all are uniformly snug.

CAUTION: Do not over-tighten the screws beyond snugness, or you may damage the housing.

REINSTALLATION: Because the gasket will take a "set" to the panel, be sure to reinstall the Panel PC to the same panel cutout when a NEMA 4 seal is required. For best results, also replace the gasket itself.

Communications

The Ivory Series have 2 DE9 connectors for serial devices.

- The male connector is designated COM1[RS232]/COM2[RS232]
- The female connector is designated COM1[RS485 2/4W]/COM3[RS485]/COM3[RS232].
- The COM1 port can be used in RS232, RS485, or RS422 modes.
- The COM3 port can be used in RS232 or RS485 modes.
- The COM2 port can only be used in RS232 mode.

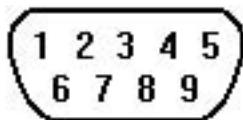
The ports are set up using the CEC utility's Set Serial Port Mode option. Note that although the com port number setting is the same, different connections are required for using RS232 or RS422/485. The pinouts for each port are shown.



Restrict cable length to less than 500 feet (150m) for RS-422/RS485 devices and less than 50 feet (15m) for RS-232 devices in order to avoid communication problems.

COM1 [RS232]/COM2 [RS232]

Pinout of DE9P (male) connector

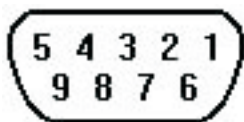


Pin #	Symbol	COM1[RS232]	COM2[RS232]
1	Not Used		
2	RxD	Received Data	
3	TxD	Transmit Data	

4	TxD		Transmit Data
5	GND	Signal Ground	
6	RxD		Receive Data
7	RTS	Ready to send output	
8	CTS	Clear to send input	
9	Not Used		

COM1 [RS-485 2/4 W] Port , COM3[RS485], COM3[RS232] Port

Pinout of DE9S (female) connector



Pin#	Symbol	COM1 [RS485 2W]	COM1 [RS485 4W]	COM3[RS485 2w]	COM3[RS232]
1	Rx-	RS485 Receive	Data -	RX -	
2	Rx+	RS485 Receive	Data +	RX +	
3	Tx-	RS485 Transmit		TX -	
4	Tx+	RS485 Transmit		TX +	
5	GND	Signal Ground			
6	Data-			Data -	
7	TxD	RS232 Transmit			Transmit Data
8	RxD	RS232 Receive			Receive Data
9	Data+			Data +	

Connecting to the Panel PC Using Ethernet - Windows CE

The Ivory Series comes equipped with a 10/100BaseT Ethernet port. By default, the Ivory Series' Ethernet port is set to get an IP address from a DHCP server.

► To change the static IP address:

1. From the Windows CE.net desktop, click the **Start** button.
2. Click **Settings**.
3. Click **Network and Dial-up Connections**.
4. Double-click **CS89501**.
5. Select the **IP Address** tab.
6. Click the **Specify an IP address** option button.
7. Enter an *IP Address* and *Subnet Mask*. Make sure that the IP Address and Subnet mask are consistent with the IP addresses that the Panel PC will be connected to.
8. Enter a *Default Gateway* if needed.
9. Select the **Name Servers** tab.
10. If required, enter the *IP addresses* of the Primary and Secondary *Domain Name Service* servers.
11. If required, enter the IP addresses of the Primary and Secondary *Windows Internet Naming Service* servers.
12. Click the OK button. Then close the *Network Connections* window.

13. Select the CEC icon from the system tray.



9. Select the **Save** tab from the System Settings dialog box.
10. Click **Save registry**.
11. Click **OK**.
12. Reboot the Panel PC to make settings take effect.

Connecting to the Panel PC Using Ethernet - Windows XPe

► To connect to a network on an Windows XPe unit:

1. Click **Start - Network Connections**.
2. Double-click **Local Area Connection (RealTek RTL8139)**.
3. Under This connection uses the following items, double click **Internet Protocol (TCP/IP)**.
4. On the General tab, select **Obtain an IP address automatically** if your network uses a DHCP server; otherwise, select **Use the following IP address** and then enter the appropriate information.
5. Click **OK** on each dialog to accept the new settings.

USB Host Port

The USB Host Port has the following uses:

- Connect to USB mouse.
- Connect to USB keyboard.
- Connect to USB mass storage device that has been connected to an external power source.

The USB Host port supports a USB 2.0 full-speed host at 12 Mbps.

USB Client Port

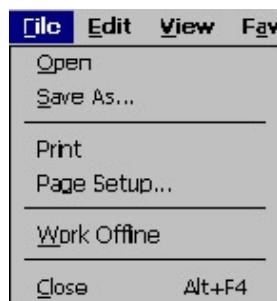
The Windows XPe units support the USB client ports and work with plug and play devices. Windows CE units do not support USB Client Port.

Compact Flash

The Ivory Series can accommodate a standard Type 1 Compact Flash (CF) card. When installed, the CF card will be recognized as *StorageCard* by the Ivory Series' Windows CE operating system. Files and folders can be manipulated on the card just like any other device. The CF card is also the mechanism by which the WindowsCE operating system is repaired or reinstalled. *Windows XPe Panel PCs do not support CompactFlash.*

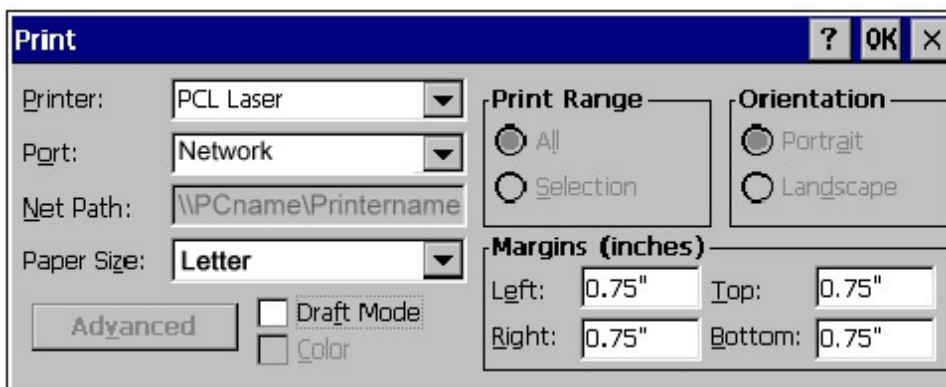
Printing - Windows CE

The Ivory Series Windows CE Panel PCs support HP PCL printers. The printer connection can be obtained via USB Host port or network connection to a shared printer.



► To print:

1. From the **Internet Explorer** or **User's Application** menu, select **File-Print...** and follow the onscreen prompts to select print settings.



2. **Printer:** Use drop-down menu to select *printer type*.
3. **Port:** Use drop-down menu to select *COM port*.
4. **Net Path:** If printer selected is a network printer, enter *network path*.
5. **Print Range:** Select **All** for entire document or **Selection** to print selected area.
6. **Orientation:** Select **Portrait** or **Landscape**.
7. **Margins:** Set margins here.

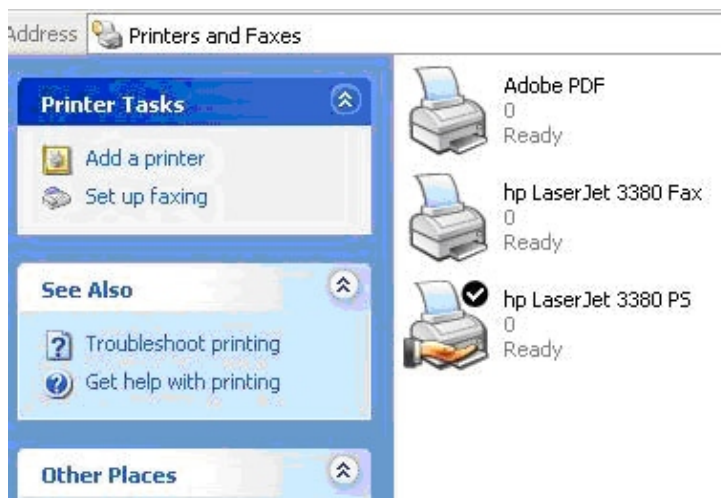
Printing - Windows XPe

XPe supports any plug and play printer.

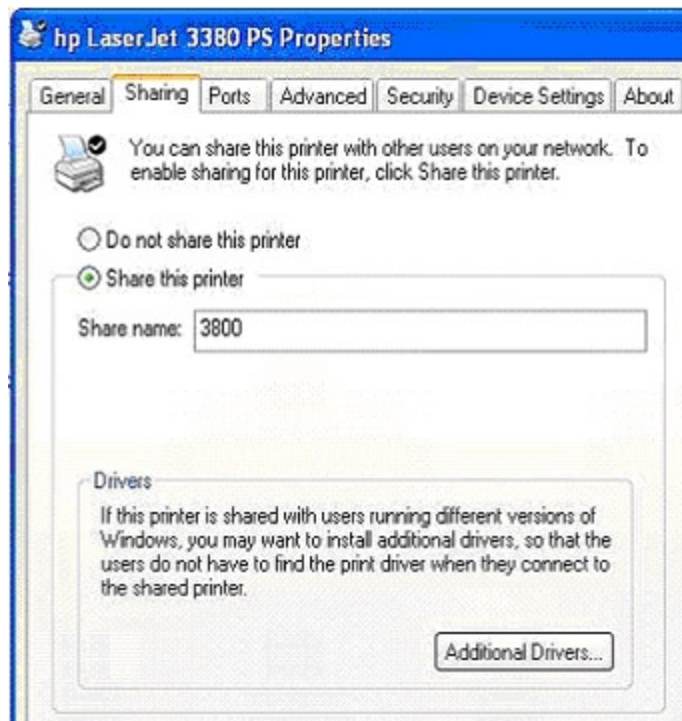
Using a Networked Printer - Windows CE and Windows XPe

► To share a network printer connected to a desktop PC:

1. On your desktop PC, select **Start-Settings-Printers and Faxes**.



2. Right click on the printer you wish to set as the network computer, then select **Properties**. The printer properties dialog appears.



3. Select the Sharing tab and select **Share this Printer**. Assign a name to the printer.
4. Click **OK**.

Factory Configuration

What Comes with the Ivory Series Panel PC?

The Ivory Series Panel PC arrives from the factory with the following components:

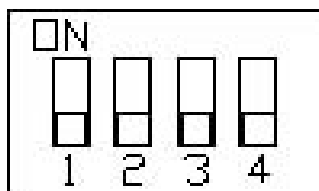
- One Ivory Series Panel PC, preloaded with Microsoft Windows CE.net 5.0 or Windows XPe.
- CD containing Ivory Series Installation and Operation Manual, Windows CE/XPe image files, and the software development kit (SDK) for the Ivory Series.

Not included with the Ivory Series Panel PC:

- HMI configuration software must be purchased separately. The Ivory Series can be configured with any CE or XPe-compatible HMI configuration software. We recommend WebStudio.
- Power supply and cabling must be purchased separately. Contact Maple Systems for more information.
- Development tools for creating Windows CE/XPe applications.

Dip Switch Settings

The following table shows factory-configured dip switch settings of the Ivory Series.



Calibration Mode

SW1	SW2	SW3	SW4	Mode
ON	OFF	OFF	OFF	Touchscreen
OFF	ON	OFF	OFF	Reserved
OFF	OFF	ON	OFF	Boot loader mode
OFF	OFF	OFF	ON	Reserved
OFF	OFF	OFF	OFF	Normal Operation

Boot Loader Mode

This mode allows users to load a new Windows CE or Windows XPe image file.

► To load a new image file from compact flash:

1. Turn off Panel PC.

2. Load the image onto compact flash
3. Insert Compact Flash into unit or Compact Flash reader.
4. Set dip SW3 to ON.
5. Reapply power to the Ivory Series Panel PC. Panel PC will boot in boot loader mode.
6. The image file will automatically load and Panel PC automatically reboots when the download is complete. While loading the CPU LED will flash continuously. The download takes approximately 10 minutes to complete.
7. Be sure to reset all dip switches to OFF before turning on the Panel PC the next time, or it will load in Boot Loader Mode.



Contact Maple Systems for information on the operating system image files.

Chapter 2 - Using Windows CE.net & Windows XPe

What is Windows™ CE.net 5.0?

The Ivory Series Panel PC is designed to be a Windows CE or Windows XPe platform. Microsoft Windows CE is a compact operating system that occupies less storage space or system resources than other operating systems. By its modular nature, it is possible to choose those functions that are useful for specific applications, not only reducing the system resources required, but also reducing start-up time. In the field of industrial automation or for operator interface terminal, this is an appealing feature because the impact of downtime is minimized. Furthermore, the small storage space it needs makes operating systems on solid-state disk possible.



Utilities

There are several useful utilities that come with the Windows CE.net v. 5.0 operating system of the Ivory Series.

Soft Keyboard

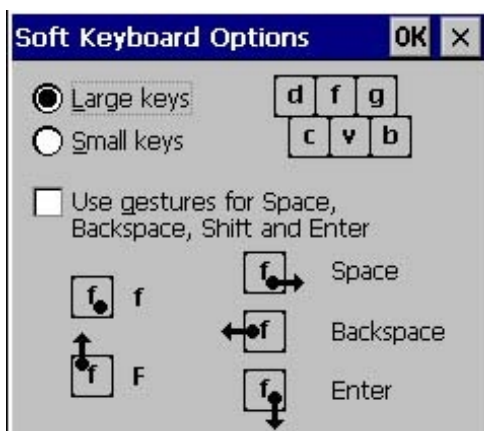
There are two options available on the Ivory Series for keyboard input - a separate keyboard that can be connected to the USB port or a built-in 'software keypad' that can be activated and displayed on the touchscreen of the Panel PC.

To use the soft keyboard, click on the small keyboard icon located on the right side of the Task bar. Soft keyboard options include smaller or larger keys and the use of "gestures" for space, backspace, shift and enter.

► To access keyboard options

1. Click **Start...Settings..Control Panel**.
2. Double click on the **Input Panel** icon. The **Input Panel** dialog box appears.

3. Click **Options...**



System Settings

Several system components can be configured using CE.net system settings.

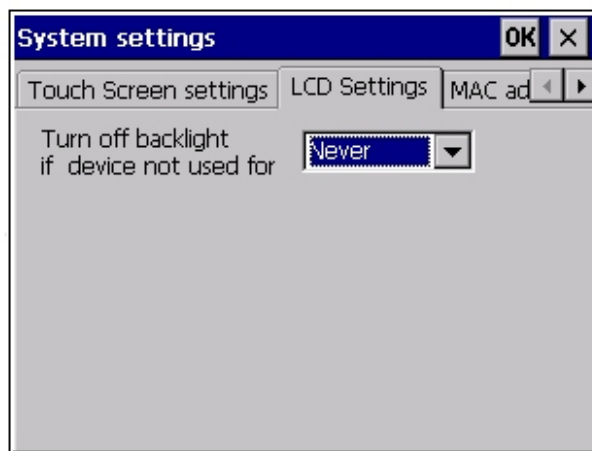
 *Whenever a change is made, the settings must be saved to the registry. See Save Settings section later in this chapter.*

Backlight Settings

The backlight can be configured to operate in backlight saver mode, which directs the backlight to turn off after a certain period of inactivity.

► To configure the backlight

1. From the desktop, double click on the CECP icon. This will display the System settings dialog.
- 2.. Click on the **LCD Settings** tab.



3. Select the backlight setting option you desire in the dropdown box for *Turn off backlight if device not used for*.
4. Click **OK**.

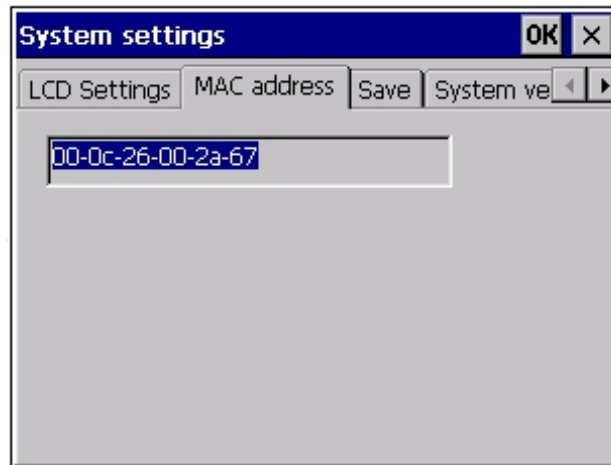
MAC Address

► To view the Media Access Controller Address (MAC Address):

1. Double-click on the CECF icon on desktop.



2. The system setting dialog box appears. Select the **MAC Address** tab.



3. The network MAC address shows in the block.

Save Settings

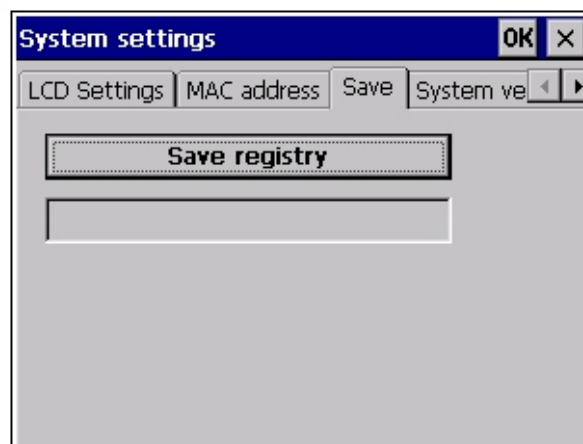
It is possible to save current registry data so that CE.net will use it the next time the computer is booted. It is important to save the registry whenever a change is made to the Panel PC's configuration.

► To save the registry :

1. Double click CECF icon on desktop.



2. The system setting dialog box appears. Use the arrow key to scroll to the **Save** tab.



3. Click **Save Registry**.
4. Click **OK**.

System Version

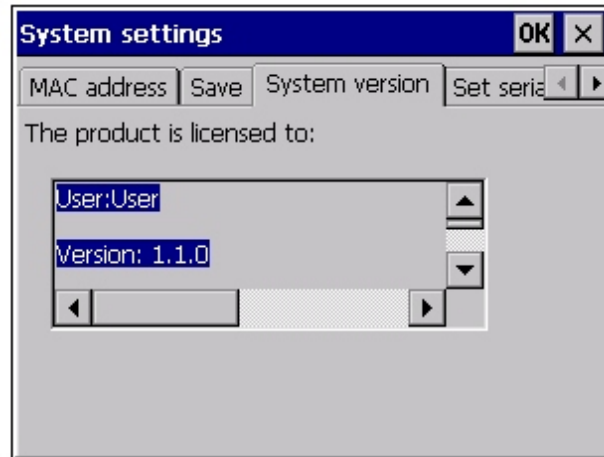
Displays information about the Panel PC's installed software.

► **To view the current CE image version:**

1. Double click the CECF icon on desktop.



2. The system setting dialog box appears. Use the arrow key to scroll to the **System Version** tab. The current system version information will be displayed.



3. Select **OK**.

Set Serial Port Mode

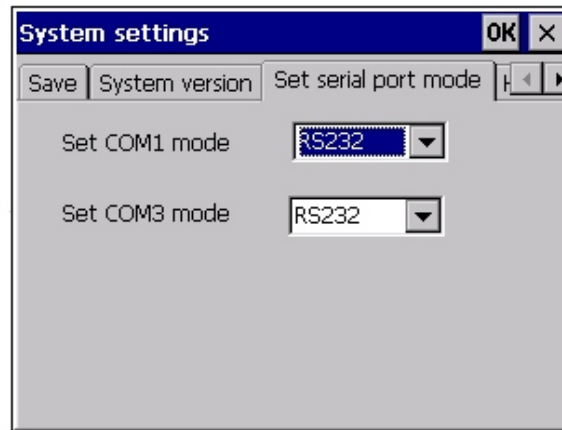
This setting allows you to set COM1 for RS232, RS485, or RS422 and COM3 for RS232 or RS485.

► **To set serial port mode:**

1. Double click the CECF icon on desktop.



2. The system setting dialog box appears. Use the arrow key to scroll to the **Set Serial Port Mode** tab.



3. Select *COM1 mode* from the drop down box.
4. Select *COM3 mode* from the drop down box.
5. Click **OK**.

Home Directory Change

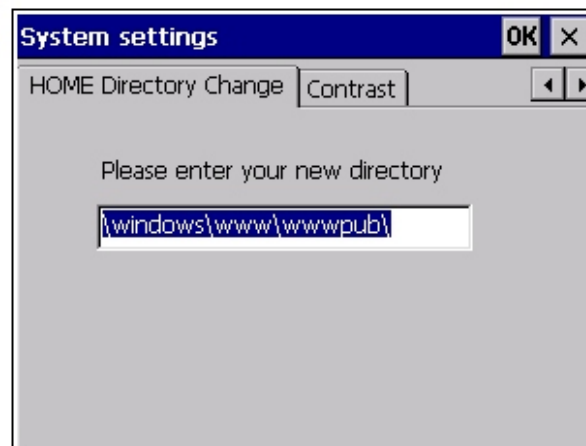
When the Panel PC is configured as a Web Server, this sets the local folder where HTML files are stored.

► To change the Home Directory:

1. Double click the CECP icon on desktop.



2. The system setting dialog box appears. use the arrow key to scroll to the **Home Directory Change** tab.



3. Enter the **new directory**.
4. Select **OK**.
5. Reboot the computer so that changes take effect.

Contrast

This setting sets the display contrast.

► **To adjust LCD contrast:**

1. Double click the CECF icon on desktop.



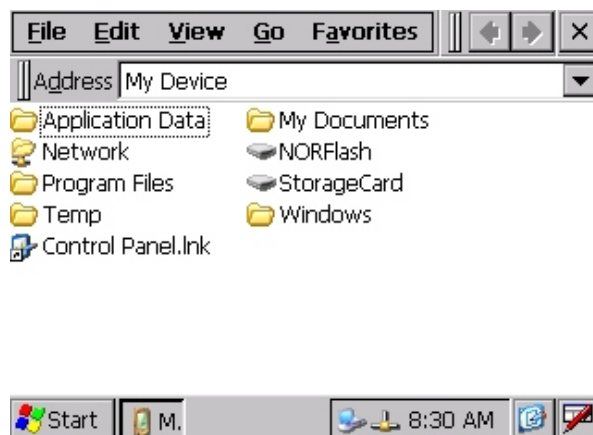
2. The system setting dialog box appears. Use the arrow key to scroll to the **Contrast** tab.



3. Slide control to desired contrast level.
4. Select **OK**.

NorFlash

NorFlash serves as a small-capacity non-volatile hard disk that allows storage of critical application files and data in Flash ROM. This can prevent loss of important data due to power failure. When the registry is backed up using system utilities, it is stored in the NorFlash folder. The NorFlash folder can be located by double clicking **My Device** from the desktop.



Start Up

The start up function automatically boots on system boot up. Start up functions are stored in the NorFlash directory.

► **To create a customized start up function:**

1. Double click the **My Device** icon from the Windows CE desktop.

2. Double click on the **NorFlash** folder.
3. Create a new directory and call it start up.
4. Copy executable files to the Startup directory.

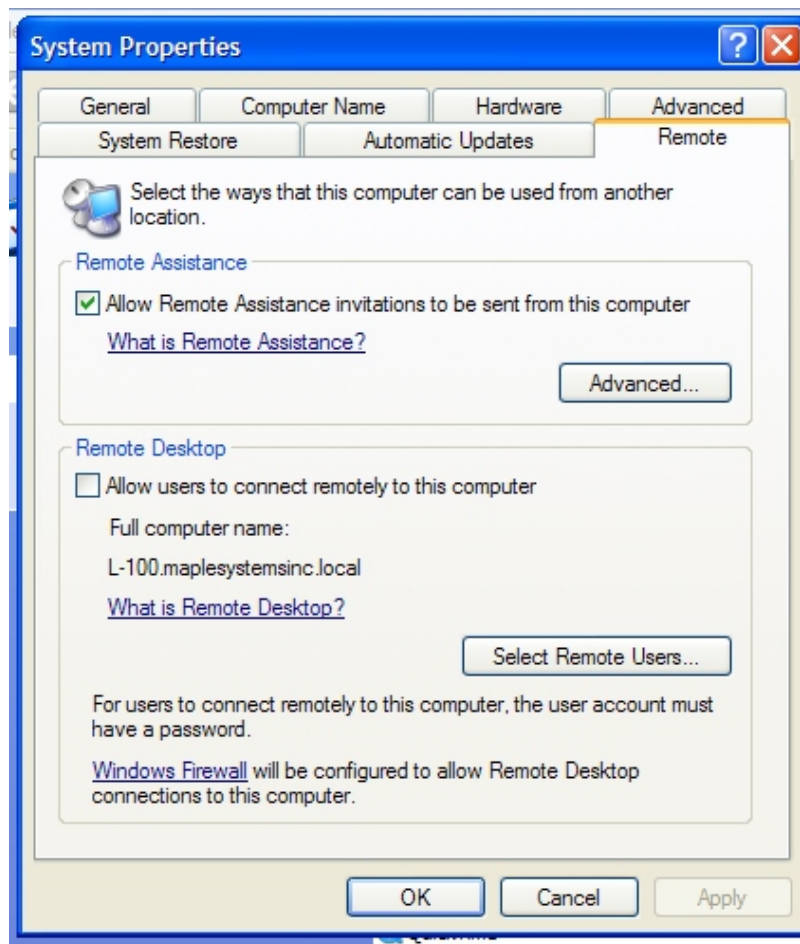
Remote Desktop Connection



This feature allows users to use the Ivory Series Panel PC to connect remotely to another PC. To use the remote desktop connection, the remote PC (which will be controlled by the Ivory Series) must have Windows XP Professional installed on it.

► **To enable Remote Desktop Connection on the Panel PC:**

1. Log onto the remote PC as an administrator.
2. Click the **Remote Desktop** icon, if available. If not, choose **Start - My Computer - View System Information**. The System Properties Dialog appears. Select the **Remote** tab.



3. Check the Allow users to connect remotely to this computer checkbox, and then click **Select Remote Users...** The remote users dialog appears.



4. Click **Add..** and add the host computer. Click **OK**.
- **To connect to the remote PC using the Ivory Series Panel PC:**
1. Click on **Remote Desktop Connection**. The Logon to Windows dialog appears.
 2. Type *user name, password and domain*, if required. Click **OK**.

About Windows XPe

Windows XP for Embedded (Windows XPe) Systems is an edition of Windows XP that contains the full feature set of Windows XP Professional, but has restrictions on licensing that requires that it be used in a process-specific application. XPe works in much the same fashion as Windows XP depending on the features provided by the developer (Maple Systems). Discussion of Windows XP operations is beyond the scope of this manual. For information on using XPe, visit Microsoft's website:

<http://www.microsoft.com/windows/embedded/products/wexpe/default.msp>.

Chapter 3 - Networking

Networking Via Ethernet Using Windows CE

The Ivory Series Panel PCs are equipped with an Ethernet 10/100Base-T port. The port comes already activated and set to obtain an IP address via DHCP.

► **To specify an IP address on a Windows CE Unit:**

1. Click the **Start** button on the Windows Task Bar.
2. Click **Settings** and then click **Network and Dial-Up Connections**.
3. Double-click on the **CS89501** icon. The EP9312 Ethernet Driver Settings dialog box displays.
4. Under the IP Address tab, select **Specify an IP address**, then fill in the correct IP address information for your network.
5. To make the change permanent, the settings must be saved to the registry as described in the previous chapter under *Save Settings*.

Networking Via Ethernet Using Windows XPe

► **To connect to a network on an Windows XPe unit:**

1. Click **Start - Network Connections**.
2. Double-click **Local Area Connection (RealTek RTL8139)**.
3. Under This connection uses the following items, double click **Internet Protocol (TCP/IP)**.
4. On the General tab, select **Obtain an IP address automatically** if your network uses a DHCP server; otherwise, select **Use the following IP address** and then enter the appropriate information.
5. Click **OK** on each dialog to accept the new settings.

Networking via Serial Port Using Windows CE

The Ivory Series with built-in Windows CE supports serial connections to host computers. The host computer must install the Microsoft ActiveSync service offered by Microsoft. Use Maple Systems' cable 7431-0106 to connect the serial ports of the host computer and the Panel PC. Then activate ActiveSync service on the host computer. See the next section for information about setting up communications. The cable drawing can be downloaded here: <http://www.maplesystems.com/1029/10290106.pdf>.

Installing Active Sync



ActiveSync is a Microsoft product for connecting to Windows CE devices.

The first ActiveSync connection to the Ivory Series must be made via the serial port. Once ActiveSync has been properly installed and opened:

1. Connect the RS232 ActiveSync cable between the PC and the Ivory Series Panel PC's COM1/COM2 port.
2. On the Ivory Series Panel PC, click the **Start** button, then select **Run**. The **Run** dialog box appears.
3. Enter **repllog**. Do not click the **OK** button yet.
4. On the PC, click the **Next** button in the **Get Connected** dialog box.
5. On the Ivory Series Panel PC, click the **OK** button in the **Run** dialog box.
6. ActiveSync should recognize the Ivory Series Panel PC.
7. On the Ivory Series Panel PC, use the CECF utility to save the registration so that the Panel PC will remember the partnership. Double click the **CECF** icon. This will start the Panel PC's configuration utility.

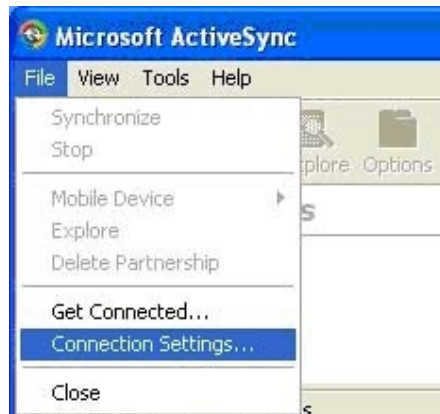
8. Select the **Save** tab.
9. Click the **Save registry** button.
10. When the registry has been saved, **OK**.



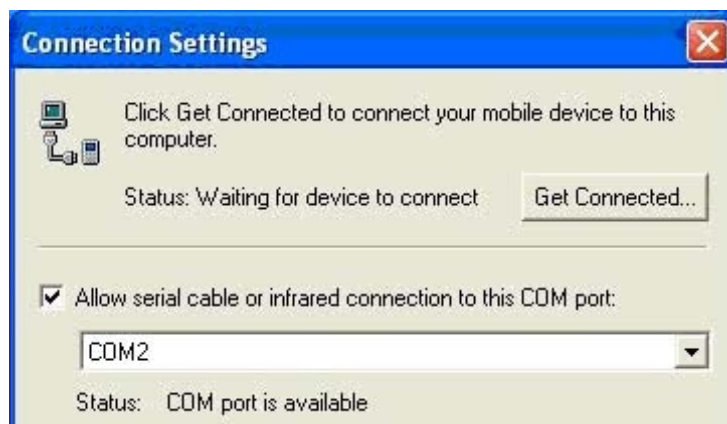
ActiveSync takes several seconds to scan each serial port. The higher the serial port number (COM1, COM2, COM3, etc.), the longer it will take ActiveSync to recognize the Panel PC.

► **If ActiveSync fails to connect to the Ivory Series Panel PC:**

1. From ActiveSync's **File** menu, select **Connection Settings**.



2. Check the **Allow serial cable or infrared connection to this COM port** box, and select the **COM port** to which the cable is connected.



3. Uncheck the **Allow USB...** and **Allow Network...** boxes. The Panel PC does not support ActiveSync via USB because it is a USB *Host* itself, not a USB client. ActiveSync via network connection is supported, but a serial connection must be established first.
4. Click the **Get Connected** button, and follow the on-screen instructions. ActiveSync will begin looking for the Panel PC.
5. On the Ivory Series Panel PC, click the **Start-Run**.
6. In the dialog that is displayed, enter **repllog**, and click **OK**. ActiveSync should recognize the Panel PC and connect.
7. On the Ivory Series Panel PC, use the CECP utility to save the registration so that the Panel PC will remember the partnership. Double click the **CECP** icon. This will start the Panel PC's configuration utility.
8. Select the **Save** tab.
9. Click the **Save registry** button.
10. When the registry has been saved, **OK**.

Once ActiveSync has established a partnership, a network connection can be set up (the IP addresses of the Panel PC and the PC must be on the same subnet):

1. Disconnect the RS232 cable.
2. Open ActiveSync.
3. Select **Connection Settings...** from the **File** menu.
4. Check the **Allow network (Ethernet) and Remote Access Service (RAS) server connection with this desktop computer** box.
5. Uncheck the **Allow Serial...** and **Allow USB...** boxes.
6. Click the **Get Connected** button, and follow the on-screen instructions. ActiveSync will begin looking for the Ivory Series Panel PC.
7. On the Panel PC, click the **Start** button, then **Run**.
8. In the dialog that is displayed, enter **repllog /remote**, and click the **OK**.
9. In the next dialog, select **Network Connection**, and the name of the computer to establish the connection with. Click **Connect**.

The Ethernet connection between the PC and the Panel PC should now be established.

Once a connection (serial or Ethernet) has been established, ActiveSync provides a mechanism for transferring files between the Panel PC and the PC.

► **To transfer files between the Panel PC and PC:**

1. On the ActiveSync window, click the **Explore** button. An explorer window will be displayed, showing all the files and folders on the Ivory Series.
2. Files and folders can be dragged and dropped, copied, deleted, renamed, etc., just like any other folder.

Web Browser

The Microsoft Windows CE operating system included with the Ivory Series has a built-in web browser called Microsoft Pocket Internet Explorer. With Internet Explorer, you can connect to the internet and browse web pages via LAN or dial-up connection.



Windows XPe comes with a full version of Internet Explorer for Internet browsing. To access, click the **Internet Explorer** icon on the desktop or select **Start-Internet**.

Chapter 4 - Developing Applications

The Ivory Series comes with either the Microsoft Windows CE.net v. 5.0 or the Windows XP Embedded operating system. Because of this, users can create their own application programs that can be installed onto the Panel PC.

Windows CE

Tools for building Windows CE applications.

- Microsoft Visual Studio
- Microsoft eMbedded C++ 4.0

Microsoft Visual Studio 2008

This can be used to develop Windows CE 5.0 Compact Framework applications. For Ivory Series T models, the target processor is an ARM v4i. The X Series target processor is the Intel x86.

Microsoft eMbedded Visual C++ 4.0

Please refer to the Microsoft eMbedded Visual C++ 4.0 documentation for the specifics of application programming.

Ivory Series SDK

The Ivory Series SDK provides developers with access to a set of functions that are specific to the Ivory Series hardware.

► **To install Ivory Series SDK:**

1. From the Ivory Series Utility CD, locate the **EP931X_SDK.msi** file in the \SDK folder. Double click on the file icon to start the installation wizard.
2. Follow the onscreen instructions to install SDK.

► **To use SDK:**

1. Open eVC++.
2. In the WCE configuration toolbars, select **EP931X Device**.



Windows XPe

XPe has built in support for:

- .Net Framework 2.0
- Active Template Library
- Common Control Libraries Version 5
- Common Control Libraries Version 6 [6000]
- Common Control Libraries Version XPSP2
- Common File Dialogs
- Microsoft Visual C++ Run Time (Legacy)

- Microsoft Visual C++ Run Time
- Visual Basic 50 Runtime Library
- Visual Basic 60 Runtime Library
- Visual C++ Runtime Libraries (Side X Side)
- Visual C++ Runtime Libraries Policy XPSP2
- Visual C++ Runtime Libraries XPSP2
- Visual Studio 2008
- Any other development tool that can target a Windows XP platform

Support for a number of other technologies is also included. Please contact Maple Systems for more information.

Chapter 5 - Using Third Party Software to Configure the Ivory Series Panel PCs

Indusoft WebStudio

Although you can use any application development software that is compatible with Windows CE.net 5.0 or Windows XPe, Maple systems recommends WebStudio. For more information, visit our website at www.maplesystems.com.

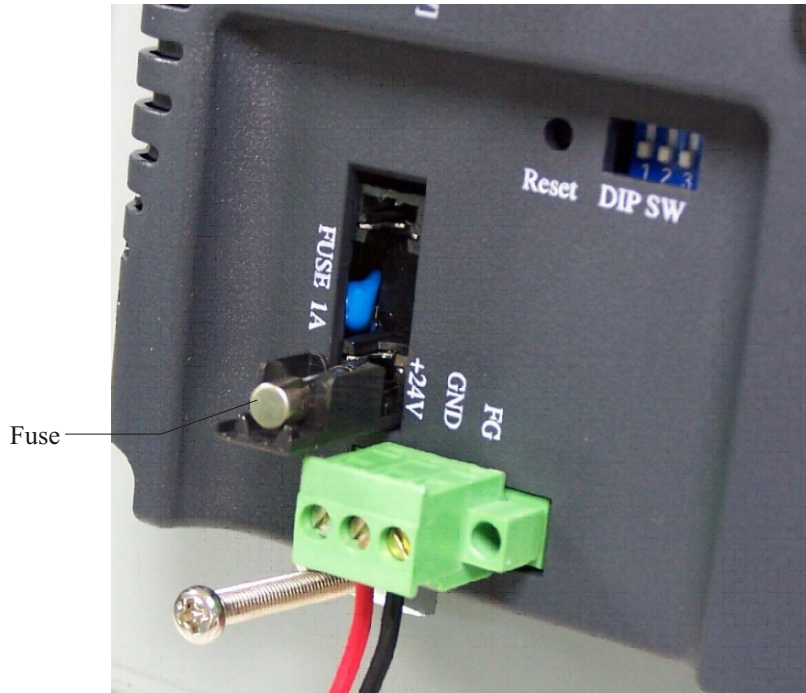
Other HMI Configuration Software

There are many companies that offer HMI configuration software that is compatible with Windows CE.net 5.0. We have not tested any of this software with the Ivory Series Panel PCs. Below is a partial list:

- Iconics Embedded Genesis32
- Rockwell RSView Machine Edition
- GE Fanuc Proficy View Machine Edition

Chapter 6 - Maintenance and System Configuration

Fuse Maintenance



The fuse used on Ivory Series Panel PCs is:
BUSSMANN GDBI
Fast Acting, Glass Tube
Rating: 250VAC, 1A
Size: 5x20mm

	Make sure the power is off before replacing the fuse.
	Do not replace the fuse with a fuse that has a different rating.

Cleaning the Overlay

Use a soft, lint-free cloth to gently wipe dust and debris off of overlay. Do not use alcohol or ammonia based products to clean overlay. For hard-to-remove soil, use a damp soft cloth dipped in warm soapy water. Be certain to wring out any excess fluid.

Calibrating the Touchscreen

It is necessary to calibrate the touchscreen for use with Windows CE.

► **To calibrate the touchscreen:**

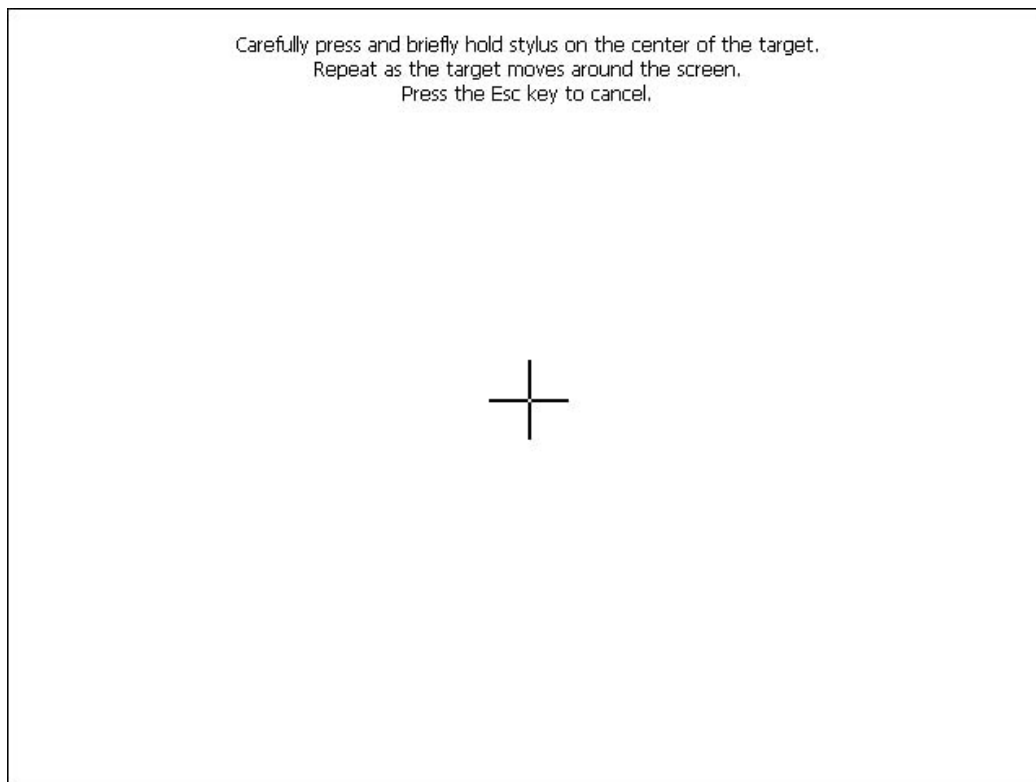
1. Double click the CECF icon.



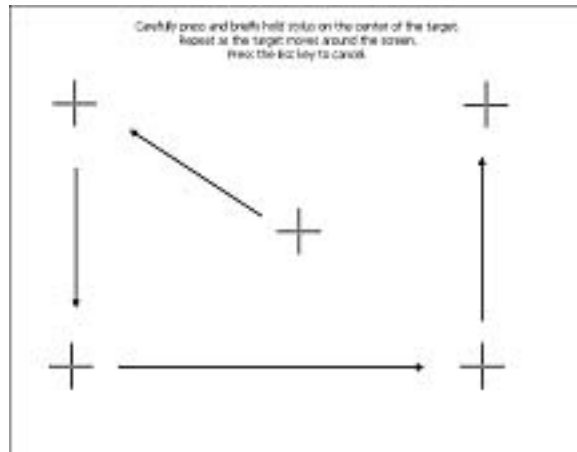
2. Under the Touchscreen Settings tab, choose **Calibrate**.



3. The screen displays a "+" sign in the center.



4. Touch and drag the "+" sign. It will begin to move on its own.



5. The + sign will now move to each corner, starting in the upper left and moving from corner to corner in a counter-clockwise direction. When calibration is done, the + sign disappears. Press the **ENTER** key or tap the screen to save settings.
6. Touchscreen parameters will be stored in the Panel PC's Flash.

System Configuration

Like Windows for a desktop PC, Windows CE includes a number of applets for configuration.

Certificates

Lists and manages Digital Certificates for establishing safe and secure communications.

Date/Time

Sets the date and time for the unit.

Dialing

Set up the Dialing Rules used with modems and telephones.

Input Panel

Configures the pop-up keyboard used when an external keyboard is not available.

Internet Options

Set the Home and Search pages used by Internet Explorer, as well as connection and security settings.

Keyboard

Configures an external keyboard.

Mouse

Configures the mouse.

Network and Dial-up Connections

Configures additional network and dial-up connections.

Owner

Sets up user and network identification information.

Password

Configures passwords for power-up and/or screen saver.

PC Connection

Lists the available connections for communicating with another PC.

Regional Settings

Set the number, date, time, and currency formats.

Remove Programs

Lists the installed applications, and allows their proper and complete removal.

Storage Manager

Configures how the Ivory Series' internal non-volatile memory is allocated.

System

Displays hardware and operating system information.

Volume and Sounds

Configures the sound volume, and whether sounds are played for various system events.

Windows XPe also has a number of applets:

MS Word Viewer

Allows viewing of word documents.

.NET Framework

Improves scalability and performance of applications with improved caching, application deployment and updating with ClickOnce, support for a broad array of browsers and devices with ASP.NET 2.0 controls and services.

Administration Support Tools**Advanced Configuration and Power Interface (ACPI)**

Common interfaces for hardware recognition, motherboard and device configuration and power management.

ASP.NET 2.0

A web application framework that programmers can use to build dynamic web sites, web applications and web services.

Common Control Libraries Versions 5, 6 and XPSP2

Provides common user interface (UI) controls.

Common File Dialogs

Allows for viewing of files in easily recognizable formats such as thumbnails.

Communications Port

Support for communications ports.

Device Manager

Allows management of recognized devices.

DHCP Client Service

Manages network configuration by registering and updating IP addresses and DNS names.

Dial-up Networking Common Libraries

Provides support for the Dial-Up Networking Common Libraries. This component includes common resources that are used by the Remote Access Service (RAS) client and the RAS Server.

Dial-up Server for Windows

Enables dial-up connection.

DirectMusic Core

Provides core functionality for applications using DirectMusic, including loading data and managing the synthesizer.

DirectShow

A multimedia framework and API for software developers to perform various operations with media files or streams.

File Sharing

Allows files to be shared between network users.

Generic USB Composite Device

Provides support for generic USB composite devices. This component supplies the USB Common Class Generic Parent driver in the usbccgp.sys file. This driver represents the interfaces of a composite device as separate devices. The interfaces of a composite device can then be separately managed by different drivers.

HTML Help Engine

The standard Help system for the Microsoft Windows platform. This component includes the run-time ActiveX controls and executable files that are used to display compiled Help (.chm) files.

IIS Web Server

A group of Internet servers (including a Web or Hypertext Transfer Protocol server and a FTP server) with additional capabilities for Microsoft's XPe.

Internet Explorer

Microsoft's web browser.

IP Security Services

Internet protocol security.

Microsoft Foundation ClassLibrary (Legacy and MFC)

A library that wraps portions of the Windows API in C++ classes, including functionality that enables them to use a default application framework.

Microsoft Visual C++ Run Time

Installs runtime components of Visual C++ Libraries required to run applications developed with Visual C++ on a computer that does not have Visual C++ 2005 installed.

Offline Browsing for Internet Explorer

Provides the architecture needed to synchronize when your computer is offline and online with Internet Explorer.

Registry Editor

Allows editing of registries.

Remote Registry Service

Enables remote users to modify registry settings on this computer. If this service is stopped, the registry can be modified only by users on this computer. If this service is disabled, any services that explicitly depend on it will fail to start.

Shockwave Flash

Views rich-media content on the web including animations, interactive presentations, and online entertainment.

TCP/IP Networking & Utilities

Enables use of TCP/IP protocol.

USB 20, 20 Common, Mass Storage Device, Printing Support and User Interface

Enables use of USB ports.

Visual Basic Runtime Library (50 & 60)

Allows Visual Basic applications to be run on the Panel PC.

Windows API-User

Application programming interfaces.

Windows Firewall Control Panel

Allows control of the firewall.

Windows Image Acquisition Core and User Interface

Provides both an application programming interface (API) and a device driver interface (DDI). It supports still digital cameras and scanners.

Windows Installer Service

Allows installation of Windows applications.

Index

A

applets, Windows XPe 40

B

Backlight Settings 22

Boot Loader Mode 18

C

Cable Routing 9

Cable Routing and Noise Immunity 9

Calibrating the Touchscreen 37

CE Compliance 5

Certificates 39

Compact Flash 15

connect the HMI to power 10

Control panel grounding 7

Control panel, requirements 7

D

Date/Time 39

Dialing 39

Dip Switch Settings 18

E

Electrostatic Discharge, managing 5

Ethernet 14,29

Ethernet, Windows CE 14

Ethernet, Windows XPe 15

F

FCC Class A Rating 5

Fuse Maintenance 37

G

Grounding 7

H

Home Directory 25

I

Indusoft WebStudio 35

Installing Active Sync 29

Installing the OIT 9

Internet Explorer 31

Internet Explorer 31

Internet Options 39

IP address 14

IP address, static 14

Ivory Series CE Touchscreen Computer 2

K

Keyboard 39

L

LCD contrast 26

M

MAC Address 23

Maintenance 37

Microsoft eMbedded Visual C++ 4.0 33

Microsoft support for XPe 28

Mount the HMI to the Panel 12

N

NEMA rating 5

NEMA Rating 5

Network and Dial-up Connections 39

Networking via Ethernet 29

Noise Immunity 9

NorFlash 26

O

Owner 39

P

Panel Preparation 11

PC Connection 40

Port wiring 9

Power Supply 8

Power supply requirements 8

printer, networked 16

Printing - Windows CE 16

Printing - Windows XPe 16

printing, Windows CE 16

printing, Windows XPe 16

R

Regional Settings 40

registry 23

Remote Desktop 27

S

Safety Precautions. 6

Save Settings. 23

Serial Port 24

Soft Keyboard 21

System Configuration 39

System Settings 22

System Version 24

T

transfer files 31

U

Unpacking. 5

USB Client Port 15

USB Master Port. 15

Utilities. 21

W

Windows XP Embedded 3

Windows XPe 3,28

X

XPe 3,28