

Installation and Configuration Guide



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URL References

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Installation and Setup

This section discusses the following topics:

- Audience
- Product overview
- Installing the hardware
- Configuring the network settings on the ATS-XPE
- Changing the default computer and workgroup names, for multiple unit installations
- Starting the Routing and Remote Access service for remote access and for use with Remote Desktop
- Configuring dial-in on the ATS-XPE

Note: Appropriate user accounts and permissions must be set up for dial-in and Remote Desktop to work on the ATS-XPE.

Please refer to the End-User License Agreement for Microsoft[®] Windows[®] XP Embedded shipped with the ATS-XPE for licensing information.

Audience

The DeviceMaster ATS-XPE requires that you have a working knowledge and familiarity with the Windows XP operating system including areas such as:

- System administration
- Network configuration
- Operating system installation

Product Overview

The DeviceMaster ATS-XPE is a standalone, user-programmable microcomputer designed to run Microsoft[®] Windows[®] applications in a solid-state environment. The ATS-XPE model provides built-in Ethernet connectivity and is designed for remote deployment and management of local programs and the attached serial devices.



SERIAL PORTS 1-8 connector and fanout cable, if RocketPort PC104 option ordered.

The ATS-XPE is designed as a deployment platform, not a development platform. The solid-state compact flash technology does not support an unlimited number of writes. While development could be done on the ATS-XPE, it is recommended that application development is conducted on a different machine and the resulting application moved to, tested, and run on the ATS-XPE.

The ATS-XPE is running Comtrol Corporation's customized version of the Windows XP[®] Embedded operating system. See <u>Appendix B. Specifications and</u> <u>Notices</u> starting on Page 63 for detailed default system information.

If you are unfamiliar with using an embedded operating system, you should review information about the operating system before installation. Please refer to the existing documentation provided by Microsoft at <u>http://www.microsoft.com/</u><u>windows/embedded/xp/</u>.

Initial Hardware Installation

Installation of the hardware may vary depending on the configuration you ordered from Comtrol. Although the ATS-XPE can be placed in a remote location, you will need to connect a monitor, keyboard, and mouse (optional) to configure the ATS-XPE before it is placed into service.

Use the following procedures to setup the DeviceMaster ATS-XPE.

Note: If you need pin out information about any of the connectors on the ATS-XPE, see <u>Appendix A.Connectors</u> starting on Page 59.

- 1. Verify that the compact flash is fully inserted. When installed correctly, the compact flash is recessed into the ATS-XPE and the eject button protrudes about 1/4 inch. If necessary, without using excessive force or sharp objects, seat the compact flash in its socket. Too much force can damage the device.
- 2. If you ordered the PCMCIA option, insert one of the Comtrol approved PCMCIA devices into one of the **PCMCIA** slots. The PCMCIA device must be inserted in the slot if you want to configure the device in the following sections.

Note: The PCMCIA option supports two Type II PCMCIA slots or one Type III slot, which is installed at the factory. Drivers for Comtrol approved PCMCIA devices are installed in the system.

• Linksys® Wireless PC Card (WPC11)

Carefully align the adapter (with the label side facing up) and gently seat it into either the top or bottom rail of the **PCMCIA** slot.

- Linksys EtherFast 10/100 + 56K Modem PC Card (PCMLM56)
 - a. Carefully align the adapter (with the triangle on the face of the card facing up) and gently seat it into the **PCMCIA** slot. The driver is already installed and configured as COM3.
 - b. For modem use, connect a phone line, if you want to use the modem.
 - c. Connect a standard Ethernet cable between the Ethernet port and the network, if you want to use the PCMCIA Ethernet port.

PCMCIA to Compact Flash Adapter

- a. Insert a compact flash into the PCMCIA to Compact Flash adapter.
- b. Carefully align the PCMCIA adapter (compact flash facing up) with the bottom rail and gently seat it into the **PCMCIA** slot.

When the ATS-XPE is powered up, the system automatically installs the PCMCIA compact flash as drive d.

3. Place the DeviceMaster ATS-XPE on a stable surface or attach it to a suitable surface using the mounting brackets shipped with the device.

Note: Optionally, mount the ATS-XPE to a DeviceMaster Rackmount Shelf.

4. If you ordered the PC104 RocketPort[®] option, connect the PC104 RocketPort cable (quador octacable) to the **SERIAL PORTS 1-8** connector.



- **Note:** If you have the PC104 RocketPort card option installed, do not connect any RS-422 or RS-485 devices to the serial ports until you have configured the driver.
- 5. Connect a standard PS/2 (6-pin mini DIN) compatible keyboard into the **KEYBOARD** connector or a USB-compatible keyboard into one of the **USB** ports (1 or 2).
- 6. Connect a PS/2 (6-pin mini DIN) compatible mouse into the MOUSE connector or a USB-compatible mouse into one of the USB ports (1 or 2).
- 7. Connect the 15-pin monitor cable from a standard VGA monitor to the VGA connector.
- 8. To use the built-in Ethernet ports, connect a standard Ethernet cable to the Ethernet port (or ports) that you want to configure for the network. The ports are labeled 1 and 2 (10/100 ETHERNET).
- 9.
- 10. If you want to connect a parallel printer to the system, connect the printer cable to the **PARALLEL** connector. You may need a driver to install your printer.
- 11. Optionally, connect up two USB devices to the **USB** ports. You may need to install a driver to support your USB device.

Powering on the ATS-XPE

After connecting the cables and devices, you are ready to power on the ATS-XPE.

- 1. Connect the power cable into the power supply and connect the power supply (with the latch and key up) into the **POWER** connector.
- 2. Connect the power cable to a power source.
 - **Note:** The system beeps during the power on cycle. If you have the RocketPort PC104 option installed, solid yellow Tx LEDs also indicate that you have power to the unit.
- 3. You may receive a Display Settings balloon. Select **Yes** to the Display Settings popup message:

Display Settings	x
Do you want Windows to automatically correct your screen resolution and color depth settings?	
In the future, do not show me this dialog box	
(<u>Y</u> es <u>N</u> o	

If you installed a PCMCIA compact flash, it will display as drive d: on the system.

Other Installation and Configuration Procedures After the initial installation of the hardware there are other procedures you may need to perform to complete installation and configuration of the ATS-XPE.

- If you want to connect and configure the ATS-XPE to a network (Ethernet or PCMCIA wireless adapter), review and perform the appropriate procedures:
 - *PCMCIA wireless option*, see <u>Linksys Wireless PC Card (WPC11)</u> on Page 43 to complete the wireless card installation.
 - <u>Configuring the Network Settings on the ATS-XPE</u> on Page 9, for initial setup of the Ethernet ports or the Linksys PCMLM56 Ethernet card.
 - <u>Changing the Default Computer and Workgroup Names</u> on Page 11, if you are configuring multiple ATS-XPE units on your network.
- If you installed a PCMCIA modem, perform the appropriate procedures:
 - <u>Starting Routing and Remote Access Services</u> starting on Page 13, to start remote services.
 - <u>Setting Up Dial-In</u> on Page 15, if you want to configure the PCMCIA modem for dial-up on the ATS-XPE.
- If you ordered the PC104 RocketPort option, see <u>Configuring the RocketPort</u> <u>Serial Ports</u> on Page 26 before connecting your serial devices.

Note: Only install serial device drivers for the Windows XP Embedded operating system. Refer to the <u>Customer Support Policy</u> on Page 56, before installing any drivers.

• See <u>Installing Modems</u> starting on Page 49, if you want to connect an external modem to the AUX A or CONSOLE ports.

Configuring the Network Settings on the ATS-XPE

After installing the hardware, you are ready to configure the network. The ATS-XPE provides Ethernet ports that function as two independent Ethernet network interface cards and support for an optional wireless adapter in the PCMCIA slot. See <u>Linksys Wireless PC Card (WPC11)</u> on Page 43 for wireless configuration procedures before configuring the network settings.

Each network port must be connected to a different network segment or the ports will conflict with each other.

Note: If you did not connect a standard Ethernet cable between the Ethernet (1 or 2) or the PCMCIA (PCMLM56) Ethernet port that you want to configure and the network hub, do so now.

Use the following procedure to configure the port for DHCP or a static IP address, or to set DNS server addresses.

1. If necessary, log into the ATS-XPE and open the Network Connections control panel.



2. Right-click on the enabled Local Area Network (LAN) Connection that you want to configure and select **Properties**.

3. Highlight Internet Protocol (TCP/IP) and select Properties.

	<u> </u>
General Authentication Advanced	
Connect using:	
Linksys EtherFast 10&100 + 56K PC Card (PCMLM56) (LA
	Configure
This connection uses the following items:	
Install Uninstall	Properties
Install Uninstall Description Transmission Control Protocol/Internet Protoco wide area network protocol that provides comm across diverse interconnected networks.	Properties

Internet Protocol (TCP/IP) Properties

4. Configure the network connection to your network as needed, and select **Ok**.

The default network settings for the adapters are:

Adapter#1 IP Address 192.168.250.251

 Subnet mask
 255.255.255.0

 Gateway
 192.168.250.1

Adapter#2 IP Address

192.168.255.252 Subnet mask 255.255.255.0 Gateway 192.168.255.1

Note: The PCMCIA adapter is set to obtain an IP address and has no default address unless it is manually configured.

General	
You can get IP settings assigned a this capability. Otherwise, you need the appropriate IP settings.	utomatically if your network supports to ask your network administrator for
C Obtain an IP address automat	tically
_ ┌● Use the following IP address:	
IP address:	192.168.11.40
Subnet mask:	255.255.0.0
Default gateway:	192.168.11.1
C Obtain DNS server address a	utomaticallu
─● Use the following DNS server	addresses
Preferred DNS server:	
Alternate DNS server:	
	Advanced
	OK Cancel

? ×

5. Select **Ok** to save the Local Area

Connection Properties sheet and **Close** the Network Connections control panel. The network connection will be available momentarily.

Changing the Default Computer and Workgroup Names

If you plan on installing more than one $\mbox{ATS-XPE}$ on your network, you must change the default computer name.

1. Right-click My Computer, select Properties and the Computer Name tab.

System Properties	<u>?</u> ×
General Computer Name	Hardware Advanced Remote
Windows uses on the network	s the following information to identify your computer k.
Computer description:	
	For example: "Kitchen Computer" or "Mary's Computer".
Full computer name:	XPE4-8.
Workgroup:	WORKGROUP
To use the Network Ider domain and create a loc- ID.	ntification Wizard to join a al user account, click Network
To rename this computer	r or join a domain, click Change. Change
	OK Cancel Apply

- 2. Select the **Change** button and enter the new computer name.
 - Note: Use standard characters (A-Z, a-z), digits (0-9), and hyphens. Using non-standard characters may prevent other users from locating this system unless the network is using the Microsoft DNS Server.

Computer Name Changes		<u>? ×</u>
You can change the name a computer. Changes may affe	and the membershi ect access to netw	p of this ork resources.
Computer name:		
XPE-01		
Full computer name: XPE-01.		
		More
Member of		
C Domain:		
HQ_US		
Workgroup:		
WORKGROUP		
	OK	Cancel

3. Optionally, select the \underline{M} ore... button to enter the primary DNS suffix of this computer.

DNS Suffix and NetBIOS Computer Name	? ×
Primary DNS suffix of this computer:	
$\overleftarrow{\ensuremath{{\rm V}}}$ Change primary DNS suffix when domain membership changes	
NetBIOS computer name:	
XPE-01	
This name is used for interoperability with older computers and services	
OK Car	icel

4. Optionally, select **Domain** to enter a domain name or change the default name of the Workgroup.

Computer Name Changes		? ×
You can change the name and computer. Changes may affect a	the membersh access to netw	ip of this vork resources.
Computer name: XPE-01		
Full computer name: XPE-01.		
		More
Member of		
Oomain:		
HQ_US		
Workgroup:		
	OK	Cancel

- 5. After completing all changes, select the Ok button.
- 6. Select **Ok** to close the popup message.



7. Select the Ok button to close the System Properties window.	System Properties
	General Computer Name Hardware Advanced Remote
	Windows uses the following information to identify your computer on the network.
	Computer description:
	For example: "Kitchen Computer" or "Mary's Computer".
	Full computer name: XPE-01.
	Workgroup: WORKGROUP
	To use the Network Identification Wizard to join a domain and create a local user account, click Network ID ID.
	To rename this computer or join a domain, click Change. Change
	🔥 Changes will take effect after you restart this computer.
	OK Cancel Apply
8. Select Yes to restart the system now.	System Settings Change
	You must restart your computer before the new settings will take effect. Do you want to restart your computer now?
	Yes No

Starting Routing and Remote Access Services

Use the following procedure if you want to enable the Routing and Remote Access service. You must enable this service before you can configure dial-in.

1. Access the Computer Management console, open the Services folder, right-click Routing and Remote Access, and select Properties.

📮 Computer Management					
📃 File Action View Window H	felp				_ 8 ×
	} → ■ Ⅱ ⇒				
🗐 Computer Management (Local)	Name 🛆	Description	Status	Startup Type	Log On A: 🔺
🖻 🎬 System Tools	Network Connections	Manages objects in the Netw	Started	Manual	Local Syst
Event Viewer	Network Location Awar	Collects and stores network	Started	Manual	Local Syst
E Shared Folders	NT LM Security Support	Provides security to remote		Manual	Local Syst
Local Users and Groups Device Mapager	🏶 Plug and Play	Manages device installation	Started	Automatic	Local Syst
Storage	Rint Spooler	Loads files to memory for lat	Started	Automatic	Local Syst
Storage Services and Applications	Rotected Storage	Provides protected storage f	Started	Automatic	Local Syst
Services	Remote Access Auto C	Creates a connection to a re		Manual	Local Syst
F Mindexing Service	Remote Access Connec	Creates a network connection.		Manual	Local Syst
	Remote Procedure Call	Provides the endpoint mapp	Started	Automatic	Local Syst
	Remote Procedure Call	Manages the RPC name serv		Manual	Network S
	🆓 Remote Registry	Enables remote users to mod	Started	Automatic	Local Ser
	Removable Storage			Manual	Local Syst
	Routing and Remote Ac	Offers routing services to bu		Disabled	Local Syst
	Security Accounts Man	Stores security information f	Started	Automatic	Local Syst
	🆓 Server	Supports file, print, and nam	Started	Automatic	Local Syst
	🆏 Shell Hardware Detection		Started	Automatic	Local Syst
	🆓 Smart Card	Manages access to smart car	Started	Automatic	Local Serv
	68. CAMAD Commission	*	Concernant of	A	الشويرة تحري
	V Extended & Standard				

2. Select Automatic in the Startup type drop list and Apply.

Routing and Remo	te Access Properties (Local Computer)	? ×
General Log On	Recovery	
Service name:	RemoteAccess	
Display name:	Routing and Remote Access	
Description:	Offers routing services to businesses in local area and wide area network environments.	▲ ▼
Path to executabl C:\WINDOWS\S	e: ystem32\svchost.exe -k netsvcs	-
Startup type:	Automatic	•
Service status:	Stopped	_
Start	Stop Pause Resume	
You can specify th from here.	ne start parameters that apply when you start the servic	æ
Start parameters:		
	OK Cancel App	ly

3. Select the **Start** button and **Ok** to close.

Routing and Remo	e Access Properties (Local Computer)	? ×
General Log On	Recovery	
Service name:	RemoteAccess	
Display name:	Routing and Remote Access	
Description:	Offers routing services to businesses in local area and wide area network environments.	4
Path to executable C:\WINDOWS\S)	x istem32\svchost.exe -k netsvcs	
Startup type:	Automatic	⊡
Service status:	Stopped	_
Start	Stop Pause Resume	:
You can specify th from here.	e start parameters that apply when you start the serv	rice
Start parameters:		
	OK Cancel Ap	ply

- 4. To configure remote desktop use, select the Log On tab, Allow service to interact with desktop, and Ok.
- 5. Close the Computer Management console.

General Log On Rec	overy	
Log on as:		
 Local System account Allow service to 	unt interact with desktop	
C This account:		Browse
Password:		
Confirm password:		
Hardware Profile	ble this service for the	e hardware profiles listed below:
Profile 7		
1 TONIC 2		Enabled
		Enabled
		Enabled
		Enable Disable
		Enable Disable

Setting Up Dial-In

Use the following procedure if you want to enable dial-in on the ATS-XPE. The modem must be installed and configured before configuring dial-in. You must start the Routing and Remote Access service before an Incoming Connections entry appears in the Network Connections control panel.

If you need to create additional users, use the User Accounts control panel. A password is required on any dial-in account. To use the default Administrator account for dial-in, you must create a password for the account.

Note: See <u>Installing Modems</u> on Page 49, to install modems other than the Linksys PCMCIA PCMLM56 modem.

- 1. Open the Network Connections control panel, right-click Incoming Connections, and select Properties.
- 2. Check the appropriate entry under **Devices**.

Incoming Connections Properties
General Users Networking
Incoming connections Allow incoming connections on these devices. Devices:
Virtual private network Virtual private network Allow others to make private connections to my computer by tunneling through the Internet or other network
Show icon in notification area when connected

access.

 Incoming Connections Properties
 ? ×

 General Users Networking
 Users allowed to connect:

 Users allowed to connect:
 •

 Image: Connect of the second se

3. Select the Users tab, check the user (or users) that you want to allow dial-in

4. To set up callback capabilities for a user, highlight the user name, select **Properties**, and the **Callback** tab.

Rada Dawn Properties	? ×
General Callback	
Do not allow callback	
O Allow the caller to set the callback number	
O Always use the following callback number:	
OK C	Cancel

5. If you are not using DHCP, select the Networking tab, highlight Internet Protocol (TCP/IP) and select Properties.

lncoming Connections Properties
General Users Networking
Network components:
Install Uninstall Properties
Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
OKCancel

6. Check Allow calling computers to specify its own IP address or specify an IP address and select Ok.

Network access	
Allow callers	to access my local area network
TCP/IP address a	ssignment
Assign TCP.	'IP addresses automatically using DHCP
C Specify TCF	/IP addresses
From:	
To:	· · · · ·
Total:	
🔽 Allow calling	computer to specify its own IP address
	OK Cancel

7. If necessary, select the **Properties** button to configure Call Preferences or Data Connection Preferences on the **General** tab or Terminal Window usage or Hardware Settings on the **Advanced** tab.

Linksys EtherFast 10&100 + 56K PC Card (PCMLM56 <mark>?</mark> 🗙	Linksys EtherFast 10&100 + 56K PC Card (PCMLM56 ? 🗙
General Advanced	General Advanced
Call preferences Dependor assisted (manual) dial Disconnect a call if idle for more than 30 mins Cancel the call if not connected within 60 secs	Terminal Window Bring up terminal window before dialing Bring up terminal window after dialing
Data Connection Preferences Port speed: 115200 ▼ Data Protocol: Standard EC ▼ Compression: Enabled ▼ Flow control: Hardware ▼	Hardware Settings Data bits: 8 Parity: None Stop bits: 1 Modulation: Standard
OK Cancel	OK Cancel

8. Select the **Ok** button on the Incoming Connections Properties screen after completing the set up procedures.

Setting Up Remote Desktop Access

Remote Desktop is installed and configured on the ATS-XPE so that administrators can control the ATS-XPE (host) from a remote location through a modem or a network connection. See the *Installation and Configuration Guide* to enable remote users that do not have administrative permissions.

You may need to install Remote Desktop on a Windows XP client or Terminal Services on a Microsoft client with an operating system previous to Windows XP. You can download the Terminal Services client (**msrdpcli.exe**) from Microsoft or install Remote Desktop (**msrdpcli.exe**) from a Windows XP CD.

Note: If you need to create additional users, use the User Accounts control panel. A password is required on any dial-in account. To use the default Administrator account for dial-in, you must create a password for the account.

The following procedure is only required if the Remote Desktop user does not have administrative rights.

1. Open the **System** control panel on the ATS-XPE (host) and select the **Remote** tab.

System Properties	<u>? ×</u>	
General Computer Name Hardware Advanced Remote		
Select the ways that this computer can be used from another location.		
Remote Assistance		
Allow Remote Assistance invitations to be sent from this computer		
Learn more about <u>Remote Assistance</u> .		
Advanced		
Remote Desktop		
Allow users to connect remotely to this computer		
Full computer name: XPE-01		
Learn more about <u>Remote Desktop</u> .		
Select Remote Users		
UK Cancel Ap	ply	

2. Select the Select Remote Users... button and add those users to the list using the Add button.

Remote Desktop Users	? ×
The users listed below can connect to this computer, and any mem the Administrators group can connect even if they are not listed.	bers of
Administrator already has access.	
Add Remove	
To create new user accounts or add users to other groups, go to C Panel and open <u>User Accounts</u> .	ontrol
OK Ca	ncel

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Managing Files on the ATS-XPE

You can share the ATS-XPE and use Windows Explorer to access or move files or applications to or from any remote system. In addition, you may want to use Remote Desktop (called Terminal Services in operating systems previous to Windows XP) to control the ATS-XPE from a remote (client) system.

Note: Compact flash technology does not support an unlimited number of writes. Use the compact flash to store applications but avoid using it for file storage. If your application generates files, save the files on a remote system.

Accessing the ATS-XPE Using Remote Desktop

After installing and configuring the client for Remote Desktop, use the appropriate procedure for your environment. Remote Desktop is included on Windows XP systems. To use an operating system previous to Windows XP, you must download the Terminal Services client from Microsoft or copy it from a Windows XP CD.

You can refer to Microsoft help systems for more information about using Remote Desktop or Terminal Services.

Use this procedure to initiate a Remote Desktop session.

1. From the Start button, select Programs, Accessories, Communications, Remote Desktop.

2. Complete the Logon settings information on the General tab.

🐮 Remote Desktop Connection 📃 📃		
	emote Desktop Connection	
General Displa Logon setting	ay Local Resources Programs Experience s be the name of the computer, or choose a comp drop-down list.	uter from
Co	mputer: XPE-01	•
U	er name: Administrator	
Pa	issword:	
D	omain:	
	Save my password	
Connection s	ettings ve current settings, or open saved connection. Save As Dpen	
	Connect Cancel Help	Options <<

Using Remote Desktop through the Network 3. Select the **Experience** tab and the appropriate connection speed.

🐮 Remote I	Desktop Connection	_ 🗆 🗙
2	Remote Desktop Connection	
General D	isplay Local Resources Programs Experience Ince Choose your connection speed to optimize performance Image: I	3.
	Connect Cancel Help	Options <<

4. Select the **Connect** button.



Using Remote Desktop through a Modem

Use this procedure to initiate a Remote Desktop session.

- 1. If necessary, create a dial-up connection on the client to the ATS-XPE.
- 2. Initiate the dial-up connection to the ATS-XPE.
- 3. From the Start button, select Programs, Accessories, Communications, Remote Desktop.
- 4. Complete the Logon settings information on the General tab,

🐮 Remote Desktop Connection 📃 💷 🔀		
Remote Desktop Connection		
General Display Local Resources Programs Experience Logon settings Type the name of the computer, or choose a computer from the drop-down list. Computer: XPE-01 Image: Computer is the computer is the drop down list. User name: Administrator Password: Image: Compaction settings Image: Connection settings		
Save current settings, or open saved connection. Save As Dpen		
Connect Cancel Help Options <<		

5. Select the **Experience** tab and select the appropriate modem line.

🐲 Remote Desktop Connection	_ 🗆 X
Remote Desktop Connection	
General Display Local Resources Programs Experience Performance Choose your connection speed to optimize performance. Modem (28.8 Kbps) Image: Choose your connection speed to optimize performance. Allow the following: Image: Choose your contents of window while dragging Show contents of window animation Themes Image: Choose your contents of window animation Themes	
Connect Cancel Help Or	otions <<

6. Select the Connect button.



PC104 RocketPort Option

The PC104 RocketPort serial card is optional in the DeviceMaster ATS-XPE.

Note: This option can only be installed by Comtrol.

This section discusses the following topics:

- PC104 RocketPort default settings.
- Configuring the serial ports for your serial devices. Review *Default PC104 Port Configuration* (below) to determine whether you need to reconfigure any of the default settings.

Note: The driver default for the ports is RS-232.

- Connecting your serial devices to the ATS-XPE.
- Adding modems on the serial ports:
 - Using the ATS-XPE default driver.
 - · Using the modem manufacturer's driver.
- RocketPort quad- or octacable:
 - Connector pinouts
 - Building loopback plugs
 - Building cables (null-modem and straight-through).
- Troubleshooting serial ports with Comtrol tools (Test Terminal and PortMon).
- Device driver and operating system capabilities and limitations.

Default PC104 Port Configuration

This subsection lists the default configuration values for the RocketPort PC104. If these settings are suitable for your installation, you do not need to configure the driver and can begin connecting your devices using <u>Configuring the RocketPort</u>. <u>Serial Ports</u> on Page 26.

Item	Default Value
Mode	RS-232
Starting COM Port	COM4 (see Page 28 for more information)
Verbose Event log	Off
Scan Rate	10 ms (see Page 29 for more information)
Override and lock baud rate to	None
Timeout on transmit data on port close	0 sec
Map 2 stop bits to 1	Disabled
Wait on physical transmission before completing write	Disabled

Configuring the RocketPort Serial Ports

Use the following procedure if you need to reconfigure the RocketPort driver for your serial devices.

- 1. Access the *RocketPort 8 Port Properties* page through the Device Manager.
 - a. Right-click My Computer and select **Properties**.
 - b. Select the Hardware tab and the Device Manager button.
 - c. Expand the Multi-port serial adapters selection, right-click RocketPort 8 Port, ISA-BUS, and select Properties.
- 2. Select the Main Setup tab.





3. To change the name of the PC104 RocketPort adapter or the starting COM port number, highlight **RK #2** and select **Properties**.

RocketPort 8 Port, ISA-BUS Properties	? ×
General Main Setup Options Driver Resources	
COMTROL	
Configuration	
Image: Properties Image: Properties	
OK Cancel	Help

- a. Change the Name or the Starting COM Port number.
 - COM1 is assigned to the CONSOLE port.
 - COM2 is assigned to the AUX A port.
 - COM3 is assigned to the optional PCMCIA Ethernet/Modem card.
 - Note: The default starting COM port number is COM4.
- b. Select **Ok** to return to the Main Setup screen.

Device Properties
Summary RocketPort - 8 ISA Name: RocketPort
COM Port Range Starting COM Port: COM4

4. Highlight the port for which you want to configure COM port characteristics and select **Properties**.

Note: COM4 is the default starting COM port.

- COM1 is assigned to the CONSOLE port.
- COM2 is assigned to the AUX A port.
- COM3 is assigned to the optional PCMCIA Ethernet/Modem cards.
- a. Change the communications mode to match the device you plan to connect.

COM4 Properties	<u>? ×</u>
Port Setup RS485	
General RS mode: 232 Verified and lock baud rate to: None Timeout on transmit data on port close: 0 sec Map CD to DSR Map 2 stop bits to 1 Vait on physical transmission before completing write Emulate modem hardware RING signal Clone Apply these settings to all ports	
Defaults	
OK Cancel H	elp

b. If necessary, set an Override and lock baud rate to value.

This option lets you lock selected ports to specific baud rates. After you do so, no matter what baud rate is selected in a host application, the *actual* rate used is the rate specified here.

c. If necessary, set the Time on transmit data on port close value.

Use this drop list to select the length of time to wait for data to clear the transmit buffer after a host application has closed the port. This is typically used with peripheral devices such as printers, to give the data sufficient time to flush through the system.

d. If necessary, select the Map CD to DSR option.

This option is used in installations where there is no connection to the port's DSR input. Check this box to cause the CD input to appear as DSR to the host application, and to perform hardware handshaking with CD rather than DSR. This is ignored if flow control is not enabled via IOCTL_SERIAL_SET_HANDFLOW.

- e. If necessary, select the Map 2 stop bits to 1 option for your application.
- f. If necessary, set the Wait on physical transmission before completing write option.

This option forces all write packets to wait until the transmit data has physically completed the transmission before returning completion to the host application. The default mode (box not checked) is to buffer the data in the transmit hardware buffer, and return completion as soon as the packet is in the buffer.

g. If necessary, set Emulate modem hardware RING signal.

Note: This emulates a hardware RI (ring indicator) signal.

h. Select the **Clone** option if you want to clone all of the ports on the adapter with the characteristics set in this port.

Note: If this box is not checked, changes apply to the selected port only.

- i. Select **Ok** to make the changes to the selected port.
- j. Repeat Step 4 for each port that requires configuration.

- 5. If you selected RS-485 as the communications mode, highlight the port, select **Properties** and then the RS-485 tab.
 - a. Check the Check the RS-485 Port Properties - RTS Toggle RTS Low box to toggle the RTS output signal low during data transmission. If this box is not checked, RTS is toggled high (asserted) during data transmission.
 - b. Check the **RS-485 Port Properties - Override and lock to RTS toggle mode** box to lock the port in RTS toggle mode, then set the mode (low or high) as desired. If this box is not checked the RTS output size

COM4 Properties	? ×
Port Setup RS485	
E overlik enderskie D0405 verde ende	
Uverride and lock to R5485 toggle mode	
F RS485 Toggle RTS Low	
Defaults	
OK Cancel	Help

checked, the RTS output signal is ignored.

- c. Select **Ok** to make the changes to the selected port.
- 6. If you want to set the verbose event log or change the scan rate, select the **Options** tab.
 - a. Check Verbose Event Log if you want more information logged in to the Event Viewer when the driver loads.
 - b. Use the **Scan Rate** drop list to select a driver servicing rate.
 - c. Check Enable RS-485 options for all devices if external RS-232 to RS-485 converters are connected to the ports.

7. Select **Ok** to close the Setup window and select **Yes** to add

the program group.

RocketPort 8 Port, ISA-BUS Properties	? ×
General Main Setup Options Driver Resources	
TroubleShooting Options	
Performance Adjustments Scan Rate(ms): 10(Default)	
RS-485 Enable RS-485 options for all devices (NOTE: External RS-232 to RS-485 converters may be required when stardard ports are used in RS-485 mode)	
Defaults	
OK Cancel	Help

Comtrol RocketPort/RocketMod	lem Setup	×
Would you like to add program man	nager menu selections for the u	tilities?.
Yes	No	

- 8. Close the Device Manager and select Ok to close the System Properties page.
- 9. Reboot if requested by the system.

RocketPort Serial Port Connectors

The following subsections illustrate the pinouts for the quad- and octacable connector types and how to build loopback plugs for testing serial ports.



Ο

Pin 1

Pin 14

••

 \cap

Pin 1

Pin 14

Pin 14

Pin 1

 \cap

Building Additional DB25 Loopback Plugs

Loopback connectors are DB25 female serial port plugs that you can use to test serial ports. The ATS-XPE is shipped with a a single loopback plug (RS-232/422) that corresponds to your quad- or octacable type.

Note: You can run loopback tests with Test Terminal.

Wire the following pins together to build additional plugs or replace a missing RS-232 loopback plug:

- Pins 2 to 3
 - Pins 4 to 5 to 22
 Pin 1
 Pin 1
- Pins 6 to 8 to 20
- The RS-232 loop back plug also works for RS-422.

Wire the following pins together for an RS-422 loopback plug:

Pins 2 to 3Pin 1RS-422 OnlyPins 4 to 5Pin 14Gack View)

RJ45 Connectors

This illustrates the pinouts for RJ45 quad- or octacables.



Building Additional RJ45 Loopback Plugs

Loopback connectors are RJ45 serial port plugs that can be used to test serial ports. The ATS-XPE is shipped with a a single loopback plug (RS-232/422) that corresponds to your quad- or octacable type.

Note: You can run loopback tests with Test Terminal.

- Pins 4 to 5
- Pins 1 to 8
- Pins 2 to 6 to 7



Building an RS-485 Test Cable

You can use a straight-through cable as illustrated previously, or build your own cable.

<u>Signal</u>	RJ45 <u>Pins</u>	DB9 <u>Pins</u>	RJ45 <u>Pins</u>	DB25 <u>Pins</u>	<u>Signal</u>
TxD or TRX-	4 —	3	4	2	TxD or TRX-
RTS or TRX+	1	7	1	4	RTS or TRX+

Building Null-Modem Cables

Use the following figure if you need to build a null-modem cable. A null-modem cable is required to connect the **CONSOLE** port to a PC COM port or to connect DTE devices.



Note: You may want to purchase or build a straight-through cable and purchase a null-modem adapter.

Building Straight-Through Cables

Use the following figure if you need to build a straight-through cable. Straight-through cables are used to connect DCE devices.

	Signal	DB9 Pins	RJ45 <u>Pins</u>		DB9 <u>Pins</u>	RJ45 <u>Pins</u>	DB25 <u>Pins</u>	<u>Signal</u>	
	DCD	1	6		$\blacktriangleright 1$	6	8	DCD	
lle	RxD	2	5	}	$\triangleright 2$	5	3	RxD	
na	TxD or TRx-	- 3	4		►3	4	2	TxD or TRx-	e
ē	DTR	4	2		\rightarrow 4	2	20	DTR	ž
	GND	5	3		5	3	7	GND	è
Ë	DSR	6	7		6	7	6	DSR	Η
A	RTS or TRx-	+ 7	1		▶7	1	4	RTS or TRx+	
	CTS	8	8		▶8	8	5	CTS	
	RI	9	N/A		▶9	N/A	22	RI	

Troubleshooting Serial Ports

The following subsections discuss the following utilities that are installed on the ATS-XPE:

- Test Terminal program (wcom32.exe), which can be used to troubleshoot communications on a port-by-port basis.
- Port Monitor program (**portmon.exe**), which checks for errors, modem control, and status signals (*Using Port Monitor* on Page 35). In addition, it provides you with raw byte input and output counts.
- Peer Tracer program (**peer.exe**), which traces driver events (<u>Using Peer Tracer</u> on Page 40).

Using Test Terminal WCOM32 is a terminal program that enables you to open a port, send characters and commands to the port, and toggle the control signals.

Note: WCOM32 will not work on ports used by RRAS if Remote Access Service is running or any other application is using the port.

If you have started RRAS service on any of the ports you want to test, you must stop RRAS on those ports before starting WCOM32. To test ports that are not used by RRAS, you do not need to stop RRAS.

Follow these steps:

- 1. To start
 - WCOM32, select **Test Terminal** from the Comtrol program group. The program window displays:



- 2. Select **Open Port** from the **Port** menu. A list of possible COM port numbers displays.
- 3. Select the COM port you want to test.

If the COM port does not exist or if it is currently being used by another program, a *Create File Error* message displays.

If the COM port is available, a terminal window pops up:

Note: Notice the <loop> button in the terminal window. If this option is activated, it is green and uppercase (IOOP), the COM port internal loopback feature is activated, and the data is returned by the



COM port hardware. If this option is deactivated, it is gray and lowercase (loop), the internal loopback is deactivated, and the data is sent out the COM port.

Testing a Comtrol	Use	e the following procedure to test	the RocketPort PC1	04 serial port.				
Port	1. Place a loopback plug on the COM port you are testing. Make sure all connectors are seated firmly and that the loop button is off.							
		Note: Test terminal works for I	or RS-232 and RS-422 mode.					
		To build loopback plugs, see <u>Bui</u> 30, <u>Building Additional DB25 I</u> Additional RJ45 Loopback Plus	<i>ilding Additional DI</i> <u>Loopback Plugs</u> on F gs on Page 31.	<u>39 Loopback Plugs</u> on Page Page 31, or <u>Building</u>				
	2.	 From the Port menu, select Send Test Data. The program sends out a repeating data stream. Note: To stop the data stream, select Send Test Data again. If the loopback plug is in place and the port is working correctly, the test data should be echoed back to the screen. 	COM4 SDSRCD ri ATS DTR loog bedefghijklmnopqrstuvwxyz A bedefghijklmnopqrstuvwxyz A bedefghijklmnopqrstuvwxyz Al bedefghijklmnopqrstuvwxyz Al bedefghijklmnopqrstuvwxyz Al bedefghijklmnopqrstuvwxyz Al bedefghijklmnopqrstuvwxyz Al bedefghijklmnopqrstuvwxyz Al bedefghijklmnopqrstuvwxyz Al bedefghijklmnopqrstuvwxyz Al bedefghijklmnopqrstuvwxyz Al	A ABC ABCC ABCDE ABCDEF ABCDEFF ABCDEFGH ABCDEFGHI ABCDEFGHI ABCDEFGHIJK ABCDEFGHIJKL ABCDEFGHIJKL ABCDEFGHIJKL ABCDEFGHIJKL				
		• If the loopback plug is not is data or garbled data is echo	in place or the port i oed back to the scree	s not working correctly, no n.				
		Note: If no characters appear, try putting the loopback plug on an adjacen port. It may be that you have the ports mixed up.						
	3.	If further testing is required, se	elect Loopback Test fi	rom the Port menu.				
		If the loopback plug is in place a working correctly, the system sl message <i>Passed</i> .	Wcom - Test Terminal - Loopback Test X COM4 passed the loopback test.					
		If the loopback plug is not in pla not working correctly, the syste message <i>Failed</i> .	OK					
Testing an RS-485 Port	Perform the following procedure to determine if a port or ports are functioning properly.							
	1.	1. Connect a straight-through cable from Port 1 to Port 2.						
		Note: See <u>Building an RS-485</u> information. If testing po- between the two ports between	<u>Test Cable</u> on Page orts other than Ports ing tested.	31 for the cable 1 and 2, connect the cable				
	2.	Open a session for each port.						
	3.	Enter data into the Port 1 sessi window.	a into the Port 1 session, the data should a					
	4.	Enter data into the Port 2 sessi window.	er data into the Port 2 session, the data should appear in the <i>Port 1</i> dow.					
		<i>Note:</i> If the data appears as described in Steps 3 and 4, the hardware is functioning properly.						
Test Terminal Modem Control	The or g	e terminal window displays the r green lights at the top of the wind	modem control signa dow. The first four a	ls as gray re inputs: cts dsr cd ri				
Signals	The lights are green if they are turned on, or gray if off. The text on the light also changes from uppercase (CTS), which is on, to lowercase (cts), which is off. The next two lights are outputs:							
	No	te: If you have a loopback plug of the corresponding signal is stoggle accordingly.	connected and you cl sent to the input and	lick on one of the outputs, the input lights should				

The right most light is the loop indicator: [loop]

If this is on, the COM port internal loopback feature is activated and any information or code entered in the terminal window loops back through the COM port circuitry. If this is off, the COM port internal loopback is deactivated, and any information or code entered in the terminal window is sent out of the port.

Using Port Monitor The Port Monitor program (**portmon.exe**) offers a summary of all Comtrol device statistics in one spreadsheet view. It also enables you to verify operation of all Comtrol device ports from a single window.

The Port Monitor display follows the familiar spreadsheet model: each COM port is a horizontal row, and each vertical column displays a variable or value for the respective COM port. For definitions of the abbreviations used, see <u>Port Monitor</u> <u>Variables</u> on Page 38.

Port Monitor can also produce statistics and reports that can help you verify the operation of the COM ports and connected peripherals. Some immediate feedback includes:

- The state of the modem control and status signals
- Open ports
- Raw byte input and output counts obtained from NS-Link
- Port errors

The available statistics include:

- Instantaneous characters per second (CPS) calculations
- Minute, hour, and day CPS averages and peaks
- Carrier detect (CD) signal runtime and transition count

Reports can be automatically generated on an hourly and/or daily basis, and can cover all ports collectively or a separate report for each port. You can also set how often the values are recalculated, fine-tuning thoroughness against system efficiency, and automatically run external batch files to perform additional processing and analysis.

Starting Port Monitor To run Port Monitor, select **Port Monitor** from the Comtrol program group. The monitor window displays:

ntor									_ 🗆 🗙
<u>t</u> elp									
Oper	CTS	DSI	CD	RT	DTI	TxTotal	RxTotal	TxCPSInst	RxCPSI
Off	Off	Off	Off	Off	Off	0	0	0	0
Off	Off	Off	Off	Off	Off	0	0	0	0
Off	Off	Off	Off	Off	Off	0	0	0	0
Off	Off	Off	Off	Off	Off	0	0	0	0
Off	Off	Off	Off	Off	Off	0	0	0	0
Off	Off	Off	Off	Off	Off	0	0	0	0
Off	Off	Off	Off	Off	Off	0	0	0	0
Off	Off	Off	Off	Off	Off	0	0	0	0
	1elp Open Off Off Off Off Off Off Off Off Off	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0	Help Oper CTS DSI CD Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off	Image: second system Image: se	Help Oper CTS DSI CD RTS DTI Off Off Off Off Off Off Off Off Off	Image: second state Image: second state	Help CTS DSI CD RTS DTI T×Total RxTotal Off Off <td>Image: Second state Off Off</td>	Image: Second state Off Off

Note: To change the appearance of the screen, see the following discussion.

Once the monitor window displays, Port Monitor is active and collecting data. If any cumulative data has been saved from previous sessions, it is automatically brought in and used.

Port Monitor continues to run and collect data until you terminate it, at which point all accumulated data is automatically saved for use in the next session.

Changing Screen Appearance

While Port Monitor is running, there are a number of commands and controls that change the appearance of the screen.

Desired Change	Procedure	
Change the monitor window font.	Select Font from the Edit menu.	
Change width of a single column.	Left-click on the column separator (vertical) line and drag it to the desired width.	
Change column placement.	Left-click in the middle of the column you want to move and drag it to the desired location.	
Remove a column.	Right-click on the column you want to remove and select Remove from the pop-up menu.	
Clear all fields and reset them to null values.	Right-click on the upper left cell in the table and select Reset from the pop-up menu.*	
Clear any single field <i>except</i> the upper left cell.	Right-click on the field to be cleared and select Reset from the pop-up menu.*	
Add a column.	Right-click on the column now occupying the desired location and select Add from the pop-up menu.	
	You are prompted to name the variable you want to display, as well as other information. (See <i>Column Setup</i> , below.)	
	After you click OK , the column is inserted in the selected location and the existing column is moved to the right.	
Change other properties of a column.	Right-click on the column and select Properties from the pop-up menu. (See <i>Column Setup</i> , below.)	

resets the selected display fields to their null values.

Column Setup

When you select **Add** or **Properties** from the column pop-up menu, the Column Setup window displays:

- Use the **Input** drop list to select the variable displayed in the column.
- Use the **Type** drop list to select the way in which the value displays: either as an integer, as an on/off state, as an integer with a kilo, mega, or giga suffix, or as an hh:mm:ss time stamp. This defaults to the appropriate type for the selected Input variable.
- Use the Name variable to change the column heading name.

Column S	etup		×
Input	Enore		*
<u>Т</u> уре:	Integer	۲	
<u>N</u> ame:	Errors	_	
<u>W</u> idth:	12		
	Color0		
	Color1		
<u>0</u>	Cancel		Help

- Use the **Width** variable to specify the column width in characters.
- Use Color0 to set the column character color when the value is zero.
- Use Color1 to set the column character color when the value is not zero.
- When done, click **OK** to save your changes and return to Port Monitor.
Report Configuration To configure reports, select **Config** from the Edit menu.

The **Single** report options cover all ports and are overwritten each time the reports are generated. The **Multiple** report options generate a separate report for each port, and each report file is appended each time the report is generated.

For **Hour** reports, use the Single and Multiple drop lists to select whether you are generating single or multiple reports, or both.

rogram Setup		
Single: None	Multiple: None	
External Program		Test
Day Reports	Matinize Euro	
Ange None T	None I	
External Program		Test
Update Time(seconds)	2	
<u>D</u> K	Cancel Help	

For each report type, select from the following types of data to include:

- None: no report is generated.
- Hour Data: only variables with "Hour" in the name are included.
- All Data: all variables are included.
- View Data: only variables that appear on-screen are included.

The External Program field is used to enter a command line to run another program after the hourly reports have been generated. For example, you can use this to run a batch file that performs custom report processing. The Test button causes the command line to be executed immediately.

For *Day* reports, the single and multiple drop lists behave the same:

- None: no report is generated.
- Day Data: only variables with the words *Day* or *Raw* in the names are included.
- All Data: all variables are included.
- View Data: only the variables that appear in the Port Monitor window are included.

Likewise, the **External Program** field is used to enter a command line to be executed after the daily reports have been generated.

The **Update Time** option allows you to set the rate at which the port information is obtained and the calculations performed. There is a trade-off between Port Monitor efficiency and response time. If you are using Port Monitor to view the port activity on the screen, you may want to set the update time to 1 or 2 seconds, so that the screen is updated frequently. If you are concerned about the monitor program using CPU resources, set this to a higher value, (6 to 20 seconds) in order to decrease the time required by the program to perform the calculations and update the screen.

If Port Monitor is left active to generate reports, minimizing or reducing the display area of the program helps reduce the CPU overhead of updating the screen.

Port Monitor Files

Port Monitor creates and uses the following files:

- portmon.vew
- calcs.dat

The default column layout is saved in **portmon.vew**. If you have been experimenting with the appearance of the monitor screen, you can use the File menu **Save** option to save your customized layout in another.vew file. You can retrieve this file later by using the File menu **Open** option, or you can use the Edit menu **View Default** option to retrieve **portmon.vew** and restore the default view.

All Port Monitor calculations are saved at program exit and on the hour in a binary file named **calcs.dat**. This enables you to halt Port Monitor execution without losing accumulated data.

Port Monitor also creates a **\REPORTS** directory. All hourly and daily reports are saved in this directory, under the following names:

- hall.txt hourly single report
- **dall.txt** daily single report
- **hcomx.txt** hourly multiple reports, where *x* is the port number
- **dcomx.txt** daily multiple reports, where *x* is the port numb



Compact flash technology does not support an unlimited number of writes. Use the compact flash to store applications but avoid using it for file storage. If your application generates files, save the files on a remote system.

Some safeguards are built into the program to avoid filling up a hard disk drive due to growing report files. The monitoring program stops writing additional data to the multiple reports if they reach a size of 2 MB. Also, the program will not write out data files to the disk drive if the spare room on the drive is less than 2 MB in size.

To view or edit an hourly or daily report, use the Edit Report option on the File menu, or use a system tool such as NOTEPAD.

For more information, see the Port Monitor Help file.

The following table lists Port Monitor variables.

Variable	Description
Open	Open status, on if open, off if closed.
Cts	Input CTS pin status.
Dsr	Input DSR pin status.
Cd	Input CD (carrier detect) pin status.
Rts	Output RTS pin status.
Dtr	Output DTR pin status.
TxTotal	Total bytes transmitted.
RxTotal	Total bytes received.
TxCPSInst	Instantaneous average of transmit characters per second.
RxCPSInst	Instantaneous average of receive characters per second.
Errors	Total hardware receive errors (parity, framing, and overruns.)
TxMinCPS	Last minute average of transmit characters per second.
RxMinCPS	Last minute average of receive characters per second.
TxCPSMinAvMax	Peak TxCPSInst for the last minute.
RxCPSMinAvMax	Peak RxCPSInst for the last minute.
TxCPSHourAvMax	Peak TxMinCPS for the last hour.
RxCPSHourAvMax	Peak RxMinCPS for the last hour.
TxCPSDayAvMax	Peak TxMinCPS for the last day.
RxCPSDayAvMax	Peak RxMinCPS for the last day.
TxTotalRaw	Total number of transmit bytes raw data from driver.
RxTotalRaw	Total number of receive bytes raw data from driver.
TxMinCnt	Count of transmit bytes sent in last minute.
TxHourCnt	Transmit bytes count sent in the last hour.

Port Monitor Variables

Variable	Description
TxDayCnt	Transmit bytes count sent in the last day.
RxMinCnt	Receive bytes count sent in the last minute.
RxHourCnt	Receive bytes count sent in the last hour.
RxDayCnt	Receive bytes count sent in the last day.
TxMinCntWrk	Transmit bytes count sent in this minute.
TxHourCntWrk	Transmit bytes count sent in this hour.
TxDayCntWrk	Transmit bytes count sent in this day.
RxMinCntWrk	Receive bytes count sent in this minute.
RxHourCntWrk	Receive bytes count sent in this hour.
RxDayCntWrk	Receive bytes count sent in this day.
TxCPSMinAvMaxWrk	Peak TxCPSInst for the current minute.
TxCPSHourAvMaxWrk	Peak TxMinCPS for the current hour.
TxCPSDayAvMaxWrk	Peak TxHourCPS for the current day.
RxCPSMinAvMaxWrk	Peak RxCPSInst for the current minute.
RxCPSHourAvMaxWrk	Peak RxMinCPS for the current hour.
RxCPSDayAvMaxWrk	Peak RxHourCPS for the current day.
CDRuns	Carrier detect turn-on count.
CDDayRuns	Carrier detect turn-on count in the last day.
CDDayRunsWrk	Carrier detect turn-on count in the current day.
CDRunTime	Time in seconds carrier detect has been on.
CDHourRunTime	Time in seconds carrier detect has been on in the last hour.
CDDayRunTime	Time in seconds carrier detect has been on in the last day.
CDHourRunTimeWrk	Time in seconds carrier detect has been on this hour.
CDDayRunTimeWrk	Time in seconds carrier detect has been on this day.
StatusFlags	Bit flags, Open, CTS, DSR, CD, RTS, DTR
TxPkts	Raw count of total transmit packets sent.
RxPkts	Raw count of total receive packets sent.
OverrunErrors	Total count of receive overrun errors.
FramingErrors	Total count of receive framing errors.
ParityErrors	Total count of receive parity errors.
OverrunErrorsRaw	Total count of receive overrun errors, from NS-Link.
FramingErrorsRaw	Total count of receive framing errors, from NS-Link.
ParityErrorsRaw	Total count of receive parity errors, from NS-Link.

Using Peer Tracer	The Peer Tracer program (peer.exe) is specifically designed to view the internal operations of NS-Link for the purpose of troubleshooting communications on Windows NT systems. Peer enables you to see:
	Receive and transmit data
	Internal driver event traces
	Advanced configuration and status information
	Like Test Terminal, Peer acts as a simple terminal session, and is used to send and receive text information to and from NS-Link. To use Peer , you type in commands, and status and information are sent back.
	Unlike Test Terminal, Peer enables you to keep a continuous log of the commands sent and the results received in a file named peer.log .
	Comtrol Technical Support may ask you to run Peer in order to help diagnose reported problems.
Starting Peer	Peer Tracer does not appear in the Comtrol program group. To use it, you must open Windows Explorer, access the C:\WINDOWS\system32\Ro cket directory, and double- click on peer.exe. The Peer Tracer window displays (at right).

Log Functions



Using Peer

All logging functions are found under the File menu. To start keeping a log, select **Log to Disk** from the File menu. The other options on this menu are View Disk Log, Clear Disk Log, Clear Screen, and Exit.

Compact flash technology does not support an unlimited number of writes. Use the compact flash to store applications but avoid using it for file storage. If your application generates files, save the files on a remote system.

To use peer, simply type in commands at the : prompt. (It may be necessary to press Enter to make the : prompt appear.) For example, to examine COM5, type: PORT COM5 <Enter>

To gather some information about the port, type: **STAT <Enter>**. This should return details about the port.

To turn on monitoring of any calls into driver (events), type: MON EV <Enter>

To send strings and commands to attached peripherals—for example, to send "ATH0" to a modem—type: **SEND ATH0 <Enter>**. A return and linefeed are always appended to each string sent.

Other Peer Commands Enter commands at the : prompt and follow each command with Enter.

Command	Effect	
MON TX	Monitor data being transmitted through the selected port.	
MON RX	Monitor data being received through the selected port.	
М	Turn off all monitoring.	
?	Display Peer Tracer command summary.	
PORT COMxx	Change port being examined to COMxx.	

Keep in mind that all commands are processed in the driver, and that **Peer** simply acts as a conduit for this information.

For more information, see the **Peer.hlp** help file.

Device Driver and OS Capabilities and Limitations

This device driver supports the Win32 API. The following tables list known device driver and operating system capabilities and limits. This information is not relevant to ordinary users, but is important to software developers.

Note: In Windows NT, device names above COM9 require the \\.\ prefix in order to be recognized by the system. For example, to reference COM20, use \\.\COM20 as the file name.

Device Control Block Settings	Status
ByteSize	7 or 8
ErrorChar	Supported
EofChar	Not supported, supports only binary
EvtChar	Supported
fAbortOnError	Supported
fBinary	Always binary mode
fDtrControl	Supported
fDsrSensitivity	Not supported
fErrorChar	Supported

Device Control Block Settings	Status
fInX, fOutX	Supported
fNull	Supported
fParity	Supported
fOutxCtsFlow	Supported
fRtsControl RTS_CONTROL_DISABLE, RTS_CONTROL_ENABLE, RTS_CONTROL_HANDSHAKE, RTS_CONTROL_HANDSHAKE, RTS_CONTROL_TOGGLE fTXContinueOnXoff	Supported as always TRUE
Parity	EVENPARITY, NOPARITY, or ODDPARITY
StopBits	ONESTOPBIT or TWOSTOPBITS
XonChar, XoffChar	Supported

Certified PCMCIA Adapters

This section discusses configuration issues for Comtrol certified PCMCIA options.

Comtrol Certified PCMCIA Devices

The ATS-XPE supports the following PCMCIA devices.

- Any standard PCMCIA to Compact Flash adapter
- Linksys Wireless PC Card (WPC11)
- Linksys EtherFast 10/100 + 56K Modem PC Card (PCMLM56)
- **Note:** The ATS-XPE PCMCIA option supports two Type II PCMCIA slots or one Type III slot, which is installed at the factory. Drivers for Comtrol approved PCMCIA devices are installed in the system.

Linksys Wireless PC Card (WPC11)

The device driver for the Linksys Wireless PC Card (WPC11) is installed on the ATS-XPE. To configure the Linksys Ethernet card, it is necessary to have a configured and operating wireless access point connected to the local network and have it situated within range of the wireless adapter (preferably less than 100 feet indoors with no obstructions).

For support of the card, see <u>http://www.linksys.com</u>.

1. Select Install from a specific list or specific location (Advanced) and Next.



- Found New Hardware Wizard

 Please choose your search and installation options.

 Image: Search for the best driver in these locations.

 Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.

 Image: Search removable media (floppy, CD:ROM...)

 Image: Include this location in the search:

 Image: New Yourgenergy of the driver to install.

 Choose this option to select the device driver form a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.

 Image: Classical content of the best match for your hardware.
- 3. Select Network adapters from the Common hardware types list and Next.

nd New Hardware Wizard		
Hardware Type.		A
Select a hardware type, and then click	: Next.	
Common hardware types:		
Multifunction adapters		_
Multi-port serial adapters		
Network adapters		
Network Client		
Network Service		
Ports (COM & LPT)		
Storage volume shadow conies		•
	< Back Nex	kt > Cancel

4. Select LINKSYS Corporation from the Manufacture list, Instant Wireless - Network PC CARD from the Network Adapter list, and Next.

und New Hardware Wizard
Select Network Adapter Which network adapter do you want to install?
Click the Network Adapter that matches your hardware, then click OK. If you have an installation disk for this component, click Have Disk.
Manufacturer Network Adapter: 1-0 DATA DEVICE,INC. Instant Wireless - Network PC CARD KATRON Instant Wireless - Network PCI CARD Linksys Instant Wireless - Network USB CARD MELCO Instant Wireless - Network USB CARD Minore Have Disk

2. Select Don't search. I will choose the driver to install and Next.

5. Select Yes to the Update Driver Warning message.



6. Select Finish.



7. Open the Network Connections control panel, right click Wireless Network Connection from LAN or High-Speed Internet, and select View Available Wireless Networks.



8. Highlight the network to which you want to connect.



9. If requested, enter the appropriate information in the Network key and Confirm network key fields, and select **Connect**.

Wireless Network Connection
The following wireless network(s) are available. To access a wireless network, select it from the list, and then click Connect.
Available wireless networks:
i r0cket
i ehssan
This wireless network requires the use of a network key (WEP). To access this network, type the key, then click Connect.
Network key:
Confirm network key:
Enable IEEE 802.1x authentication for this network
If you are having difficulty connecting to a network, click Advanced.
Advanced Connect Cancel

10. Right-click the Wireless Network Connection and select Properties.



11. To configure the card exclusively for a specific network, select View Available Wireless Networks.

🚣 Wireless Network Connection Properties 🏼 🔋 🗙
General Wireless Networks Advanced
Connect using:
Instant Wireless - Network PC CARD
Configure
Client for Microsoft Networks Pile and Printer Sharing for Microsoft Networks Pile and Printer Sharing for Microsoft Networks Pile and Printer Protocol (TCP/IP)
Install Uninstall Properties Description Allows your computer to access resources on a Microsoft network.
Show icon in notification area when connected
OK Cancel

- 12. Highlight the appropriate network connection and Advanced.
- 13. Select Access point (infrastructure) networks only and Close.

Ad	wanced ?>	(
Г	Networks to access	
	O Any available network (access point preferred)	
	 Access point (infrastructure) networks only 	
	C Computer-to-computer (ad hoc) networks only	
Γ	Automatically connect to non-preferred networks	
	Close	

- 14. Select **Ok** to close the Wireless Network Connection Properties window and close the Network Connections control panel.
- 15. Go to *<u>Configuring the Network Settings on the ATS-XPE</u>* on Page 9 to configure the card for your network.

Linksys EtherFast 10/100 + 56K Modem PC Card (PCMLM56)

Although the Linksys PCMLM56 driver for this adapter is pre-configured into the ATS-XPE as COM3, you must start remote access service and you may need to select a country code if you are using it outside North America.

See <u>Starting Routing and Remote Access Services</u> on Page 13 and <u>Setting Up Dial-</u> <u>In</u> on Page 15, if necessary to complete the configuration.

For support of the card, see <u>http://www.linksys.com</u>.

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Installing Serial Devices

Overview

The COM ports provided by the **SERIAL PORTS 1-8** can support any asynchronous serial modem for use by any application that uses TAPI.

There is a remote possibility that connecting a peripheral using the wrong configuration (**RS-232** device connected to a **RS-422** configured port) could damage the peripheral. Configure each serial port specifically for the peripheral that will be connected prior to connecting the peripheral to the ATS-XPE. See <u>Configuring the RocketPort Serial Ports</u> on Page 26 for information about configuring port characteristics.

Note: If your serial devices require a driver that does not support the Windows XP Embedded system, contact Comtrol before driver installation.

Connect your serial devices to the configured ports using the appropriate cables. If you need to build cables for RocketPort serial ports, see <u>*RocketPort Serial Port*</u><u>*Connectors*</u> on Page 30.

Installing Modems

This subsection illustrates how to install modems on ATS-XPE serial ports.

- 1. Make sure that you have the driver available to the ATS-XPE system.
- 2. If you have not done so, connect a modem to the AUX A, CONSOLE, or one of the RocketPort serial ports.

Note: The ATS-XPE will automatically detect the modem and start the Found New Hardware Wizard.

3. Select Install from a list or specific location (Advanced) and Next.



4. Select Don't search. I will choose the driver to install and Next.



5. Select Modems from the Common hardware types list and Next.

Found New Hardware Wizard		
Hardware Type.		
Select a hardware type, and then click Ne	xt.	
Common Hardware opes.		
Computer		-
CIDE ATA/ATAPI controllers		
🥌 Keyboards		
Mice and other pointing devices		
Modems 📄		
🥞 Monitors		-1
Multifunction_adapters		
	< Back Next :	> Cancel

6. Select Have Disk and Next.

Found New Hardware Wizard	
Install New Modem Please select the modem you want to ins	tall.
Select the manufacturer and model of have an installation disk, click Have D	your modem. If your modem is not listed, or if you isk.
Models	PCMLM56) (Modem)
This driver is digitally signed. <u>Tell me why driver signing is important</u>	Have Disk
	<back next=""> Cancel</back>



7. Browse to the location of the driver for your modem and select **Open**.

8. Select Ok.



9. Select Next.

Found New Hardware Wizard		
Install New Modem Please select the modem you want to insta	И.	
Select the manufacturer and model of yc have an installation disk, click Have Dist	ur modem. If your mod k.	em is not listed, or if you
Show compatible hardware		
ST Zoom External 56K LT Voice Faxmodem		
This driver is digitally signed. <u>Tell me why driver signing is important</u>		Have Disk
	< Back	Next > Cancel

10. Select Continue Anyway.



11. Select Finish.



In some installations you may get the following message, so you may need to verify that the modem installed properly through the Device Manager.



12. See <u>Starting Routing and Remote Access Services</u> on Page 13 and <u>Setting Up</u> <u>Dial-In</u> on Page 15 to complete modem configuration.

Troubleshooting and Technical Support

This section contains troubleshooting information for your Comtrol device. You should review the following subsections before calling Technical Support because they will request that you perform many of the procedures or verifications before they will be able to help you diagnose the problem.

- Troubleshooting checklist
- Enabling the Windows Event Viewer
- Using the recovery CD
- Customer support policy

If you cannot diagnose the problem, you can contact Technical Support using <u>Technical Support</u> on Page 57.

Troubleshooting Checklist

The following checklist may help you diagnose your problem:

- Verify that you are using the correct types of cables on the correct connectors and that all cables are connected securely using the hardware documentation.
 - **Note:** Most customer problems reported to Comtrol Technical Support are eventually traced to cabling or network problems. Use a standard Ethernet cable to connect from the 1 or 2 port to an Ethernet hub or a cross-over cable if connected directly to a NIC in a server.
- Verify that the Ethernet hub and any other network devices between the server and the Comtrol device are powered up and operating.
- Reset the power on the Comtrol device by disconnecting and reconnecting the power cord.
- Verify that the network IP address is correct. If IP addressing is being used, the server should be able to ping the Comtrol device.
- Verify that the IP address programmed into the Comtrol device matches the unique reserved IP configured address assigned by the system administrator.

Note: See <u>Using Test Terminal</u> on Page 33, if you need to test the PC104 ports.

- Verify that you are addressing the serial port correctly. In many applications, device names above COM9 require the prefix \\.\ in order to be recognized. For example, to reference COM20, use \\.\COM20 as the file or port name.
- If using a PC104 RocketPort adapter, you can use one of the tools bundled with the drivers. See *Troubleshooting Serial Ports* on Page 33 for information about using these tools.
 - Test Terminal program (wcom32.exe), which can be used to troubleshoot communications on a port-by-port basis.
 - Port Monitor program (**portmon.exe**), which checks for errors, modem control, and status signals. In addition, it provides you with raw byte input and output counts.
 - Peer Tracer program (peer.exe), which traces driver events.
- Enable the Verbose Event Log feature under the Options tab and then reboot the ATS.

Enabling the Event Viewer

The Windows Event Viewer has been disabled in the ATS-XPE to prevent excess file logging. Compact flash technology does not support an unlimited number of writes. We recommend using the compact flash to store applications but avoid using it for file storage.

Use the following procedure if you wish to enable the Event Viewer.

1. Access the Computer Management console, open the Services folder, right-click Event Log, and select Properties.



2. Select Manual in the Startup type drop list and Ok.

Event Log Properti	es (Local Computer)	<u>? ×</u>
General Log On	Recovery	
Service name:	Eventlog	
Display name:	Event Log	
Description:	Logs event messages issued by programs and Windows. Event Log reports contain information	•
Path to executable C:\WINDOWS\sy	e: istem32\services.exe	
Startup type:	Manual	•
Service status:	Started	_
Start	Stop Pause Resume	
You can specify th from here.	ne start parameters that apply when you start the serv	ice
Start parameters:		-
	OK Cancel Ap	ply

3. Close the Computer Management console.

Using the Recovery CD

Comtrol ships a Recovery CD with each ATS-XPE system. You can use the Recovery CD to:

- Reflash the compact flash in the event that the Windows XP Embedded system becomes corrupt.
- Recover the default image to the ATS-XPE compact flash.
- Replace the existing flash with a larger flash.

To use the Recovery CD, you will need the following:

- A PC with a Windows operating system and a CD-ROM that supports bootable CDs.
- One of the compact flash adapters or readers:

- IDE

Note: The IDE flash adapter must be a master with no other devices on that channel because the recovery process is propagated to all devices on the channel.

- USB
- PCMCIA
- A compact flash.

Use the following procedure to recover the default ATS-XPE image onto a compact flash.

- 1. Install the compact flash adapter or reader using the instructions that came with the device.
- 2. Insert a compact flash into the compact flash adapter or reader.
- 3. Disconnect any IDE hard drives.



If you do not disconnect the PC hard drives, run the risk of accidentally overwriting the contents of an existing IDE drive. Comtrol strongly recommends that you disconnect all IDE hard drives until the recovery process has been completed.

4. Insert the Recovery CD and power on the PC.

Note: You may need to enter the system BIOS and have the CD-ROM boot first.

- 5. Select the 2. Boot from CD-ROM item.
- 6. Select the 1. Restore Hard Drive From CD-ROM item.
- 7. Select the **Restore** button when the Hard Disk Recovery Menu appears.
- 8. During the reboot cycle:
 - a. Remove the CD from the drive.
 - b. Turn off the system power.
 - c. Remove the compact flash from the adapter and insert it into the ATS-XPE.
- 9. Reconnect the hard drives disconnected in Step 3.

Note: If necessary, you may need to enter the BIOS and reset the boot sequence.

Customer Support Policy

Comtrol will provide no charge support on the installation, use, and configuration of the ATS-XPE product with the original operating system and any "Comtrol Certified" hardware options.

Support beyond normal installation and configuration, including operating system modifications and installation or use of untested hardware options will be provided on a fee for services basis.

Fees will be \$100 per hour with a \$100 minimum per case. Customers wishing support on a fee for services basis must be pre-approved by Comtrol prior to receiving support. Please contact Comtrol Customer Service for information on fees for services.

Technical Support

Contact Method	Corporate Headquarters	Comtrol Europe		
FAQ/Online	http://support.comtrol.com/support.asp			
Downloads	ftp://ftp.comtrol.com/Dev_Mstr/ATS/XPE			
Email	support@comtrol.com	support@comtrol.co.uk		
Web site	http://www.comtrol.com	http://www.comtrol.co.uk		
Fax	(763) 494-4199	+44 (0) 1 869-323-211		
Phone	(763) 494-4100	+44 (0) 1 869-323-220		

If you need technical support, contact Comtrol using one of the following methods.

Repair and Return Policy

The DeviceMaster ATS-XPE has a Microsoft licensed operating system on the compact flash installed in the unit. According to the OEM license agreement with Microsoft, the operating system must be installed on the unit at Comtrol and may not be shipped on a separate compact flash media.

To comply with this requirement, Comtrol has instituted the following policy:

• The customer can return a unit for repair provided that the compact flash containing the operating system is installed in the unit and that the Certificate of Authenticity (COA) label is affixed to the unit.

Note: You will be billed \$150 for a new license if the COA label is missing from the unit.

• See the *Warranty* statement shipped with the product.

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Appendix A. Connectors

This section contains information about the standard connectors on the ATS-XPE. For connector information for the optional **SERIAL PORTS 1-8** connector, see the section that discusses the PCMCIA option.

VGA Connector

Pin	Signal	Pin	Signal	Pin	Signal
1	Red	6	Ground	11	Not connected
2	Green	7	Ground	12	DDCDAT
3	Blue	8	Ground	13	HSYNC
4	Not connected	9	Not connected	14	VSYNC
5	Ground	10	Ground	15	DDCCLK

This table illustrates the 15-pin female VGA connector pinouts.

PS/2 Keyboard and Mouse Connectors

This table illustrates the DIN 6-pin (PS/2) keyboard and mouse connector pinouts.

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

Ethernet Connectors

This table illustrates the RJ45 LAN connector pinouts.

Pin	Signal	Pin	Signal
1	TX+	5	Not connected
2	TX-	6	RX-
3	RX+	7	Not connected
4	Not connected	8	Not connected

USB Interfaces

Pin	Description	Pin	Description
1	USBVCC1	2	D1F-
3	D1F+	4	GND
5	USBVCC2	6	D2F-
7	D2F+	8	GND
9	GND	10	GND

The USB interfaces provide plug and play for up to 127 external devices.

Compact Flash Disk Connector

ible illustr	ates	the compact flash c	onne	ctor pinouts.
	Pin	Signal	Pin	Signal
-	1	Ground	26	VCC-IN, CHECK1
-	2	DATA 3	27	DATA 11
-	3	DATA 4	28	DATA 12
-	4	DATA 5	29	DATA 13
-	5	DATA 6	30	DATA 14
-	6	DATA 7	31	DATA 15
-	7	HDC_CS0#	32	HDC_CS1
-	8	Not connected	33	Not connected
-	9	Ground	34	IOR#
-	10	Not connected	35	IOW#
-	11	Not connected	36	Not connected
-	12	Not connected	37	Interrupt
-	13	VCC_COM	38	VCC_COM
-	14	Not connected	39	CSEL
-	15	Not connected	40	Not connected
-	16	Not connected	41	HDD_RESET
-	17	Not connected	42	IORDY
-	18	SA2	43	N/C
-	19	SA1	44	VCC_COM

HDD_ACTIVE#

Not connected

DATA 8

DATA 9

DATA 10

Ground

45

46

47

48

49

50

SA0

21 DATA 0

22 DATA 1

DATA 2

Not connected

VCC-IN, CHECK2

20

23

24

25

This table illustrates the compact flash connector pinouts.

-

AUX A and CONSOLE Port Connectors

Pin	Signal	Pin	Signal	Pin	Signal
1	CD	4	DTR	7	RTS
2	RxD	5	Ground	8	CTS
3	TxD	6	DSR	9	RI

This table illustrates the DB9 pinouts for the AUX A and CONSOLE connectors.

PARALLEL Port

Pin	Signal	Pin	Signal
1	Strobe#	14	Auto form feed #
2	Data 0	15	Error#
3	Data 1	16	Initialize
4	Data 2	17	Printer select line#
5	Data 3	18	Ground
6	Data 4	19	Ground
7	Data 5	20	Ground
8	Data 6	21	Ground
9	Data 7	22	Ground
10	Acknowledge	23	Ground
11	Busy	24	Ground
12	Paper empty	25	Ground
13	Printer select	26	Not connected

This table il

Note: The default printer is the Epson FX80.

Serial Ports 1-8 Connector (Optional)

	Signals				Signals		
Pin	RS232	RS422	RS485	Pin	RS232	RS422	RS485
1	DTR 7	NC	NC	40	TXD 4	TXD-4	TX/RX-4
2	TXD 5	TXD- 5	TX/RX-5	41	RTS 5	TXD+ 5	TX/RX+5
3	DTR 5	NC	NC	42	DSR 5	NC	NC
4	CTS 5	RXD+ 5	NC	43	CD 4	NC	NC
5	DSR 4	NC	NC	44	RI 4	NC	NC
6	CD 7	NC	NC	45	CTS 7	RXD+7	NC
7	RI 7	NC	NC	46	RXD 6	RXD- 6	NC
8	RXD 5	RXD- 5	NC	47	RI 6	NC	NC
9	CTS 6	NC	NC	48	CD 6	NC	NC
10	TXD 3	TXD- 3	TX/RX-3	49	DTR 0	NC	NC
11	TXD 2	TXD- 2	TX/RX-2	50	TXD 1	TXD- 1	TX/RX-1
12	RTS 2	TXD+ 2	TX/RX+2	51	RTS 0	TXD+ 0	TX/RX+0
13	DTR 2	NC	NC	52	DTR 3	NC	NC
14	RTS 3	TXD+3	NC	53	CTS 1	RXD+1	NC
15	RI 1	NC	NC	54	DSR 0	NC	NC
16	CTS 0	RXD+ 0	NC	55	RXD 0	RXD- 0	NC
17	RXD 1	RXD-1	NC	56	RXD 3	RXD- 3	NC
18	CD 3	NC	NC	57	CTS 3	RXD+3	NC
19	RI 3	NC	NC	58	DSR 2	NC	NC
20	RI 2	NC	NC	59	CTS 2	RXD+ 2	NC
21	RTS 4	TXD+4	TX/RX+4	60	RTS 7	TXD+7	TX/RX+7
22	DTR 4	NC	NC	61	DTR 6	NC	NC
23	CD 5	NC	NC	62	RTS 6	TXD+ 6	TX/RX+6
24	RI 5	NC	NC	63	TXD 6	TXD- 6	TX/RX-6
25	CTS 4	RXD+4	NC	64	TXD 7	TXD-7	TX/RX-7
26	DSR 7	NC	NC	65	Ground	Ground	Ground
27	RXD 7	RXD-7	NC	66	Ground	Ground	Ground
28	RXD 4	RXD-4	NC	67	8 PORT	8 PORT	8 PORT
29	DSR 6	NC	NC	68	Ground	Ground	Ground
30	TXD 0	TXD- 0	TX/RX-0	69	Ground	Ground	Ground
31	RTS 1	TXD+1	TX/RX+1	70	Ground	Ground	Ground
32	DTR 1	NC	NC	71	Ground	Ground	Ground
33	CD 1	NC	NC	72	Ground	Ground	Ground
34	DSR 1	NC	NC	73	Ground	Ground	Ground
35	CD 0	NC	NC	74	Ground	Ground	Ground
36	RI 0	NC	NC	75	Ground	Ground	Ground
37	RXD 2	RXD- 2	NC	76	Ground	Ground	Ground
38	DSR 3	NC	NC	77	Ground	Ground	Ground
39	CD 2	NC	NC	78	Ground	Ground	Ground

This table lists the pinouts for the DB78 connector.

Note: This option must be ordered or installed at the Comtrol factory.

Appendix B. Specifications and Notices

This section discusses the following topics:

- Product specifications
 - Electromagnetic compliances
 - Environmental condition specifications
 - Hardware specifications
 - Technical specifications
 - Default operating system configuration
- FCC Part 15 Class A notices

Product Specifications

The following subsections provide a variety of information about the DeviceMaster ATS-XPE.

Electromagnetic Compliances The following table illustrates the status of electromagnetic compliance for the ATS-XPE.

Electromagnetic Compliances	Status
Emission : Canadian EMC requirements CISPR-22/EN55022 Class A FCC Part 15 Class A	Yes Yes Yes
Immunity (motherboard): EN55024: 1998 EN61000-4-2: 1995 ESD EN61000-4-3: 1996 RF EN61000-4-4: 1994 Fast Transient EN61000-4-5: 1995 Surge EN61000-4-6: 1996 Conducted disturbance EN61000-4-8: 1993 Magnetic field EN61000-4-11: 1994 Dips and Voltage Variations	Yes Yes Yes Yes Yes Yes Yes
Safety (power supply): EN60950 UL / C-UL Listed	Yes Yes

Environmental Condition Specifications

The following table illustrates environmental condition specifications for the DeviceMaster ATS-XPE.

Environmental Condition	Value	
Air temperature:* System on (operational) System off (storage)	0 to 60°C -20 to 85°C	
Altitude	0 to 10,000 feet	
Heat output	47 BTU/Hr	
Humidity (non-condensing): System on (operational) System off (storage)	8% to 80% 20% to 80%	

* If the DeviceMaster ATS-XPE is stacked, the environment air flow must insure that the Ambient Operating Temperature does NOT exceed these limits.

Hardware Specifications This table lists hardware specifications for the ATS-XPE.

Specification	Description	
Baud rates (default): COM1 - AUX A COM2 - CONSOLE COM3 - PCMCIA modem (optional)* COM4 to COM11 - SERIAL PORTS 1-8 (optional)	57.6 Kbps 28.8 Kbps 57.6 Kbps 300 bps to 230.4 Kbps	
Optional PC104 driver control	Data bits: 7 or 8 Parity: Odd, even, none Stop bits: 1 or 2	
Power input: Frequency Voltage	50/60 Hz 5 VDC	
Power consumption	13.75 W	
Current consumption	2.75 A	
Dimensions	11" x 5.69" x 2.75" (W x L x H)	
Weight:		
Fully-configured system with RocketPort PC104 and PCMCIA options installed	3.52 lbs	
Power supply	0.62 lbs	
Octacable	1.12 lbs	

* See <u>*Certified PCMCIA Adapters*</u> on Page 43 for the list of Comtrol approved adapters.

Technical Specifications

This subsection lists the DeviceMaster ATS-XPE technical specifications.

- Compact flash (512 MB) with pre-configured Windows XP operating system. See <u>Default Operating System Configuration</u> on Page 66 for detailed information.
- NS GXLV/GX1-300 MMX 32-Bit x86 Processor that supports the Intel[®] MMX instruction set extension for the acceleration of multi media applications. It has 16 KB unified L1 cache, five-stage pipe lined integer unit, and an integrated Floating Point Unit (FPU).
- 128 MB SDRAM system memory
- AWARD 256 Kb flash memory BIOS
- Display controller that has a MediaGx processor with 4 MB memory that supports non-interlaced CRT monitors resolutions up to 1280 x 1024 @ 256 colors or 1024 x 768 @ 16 bpp.
- 10/100M bps Ethernet Controller, with two Realtek[™] RTL8139 IEEE802.u 100 BASE-TX standard dual auto-sensing interface to 10 Mbps or 100 Mbps networks. On board RJ45 connectors provide for easy connection.
- Serial ports on the motherboard.
 - AUX A (COM2)
 - CONSOLE (COM1)
- Parallel port (DB25), which supports SPP/EPP/ECP mode.
- PS/2 mouse connector (6-pin mini DIN) connector.
- PS/2 keyboard connector (6-pin mini DIN) connector.
- USB connector, which supports up to two USB devices.
- Optional PC104 serial ports with a quadcable or octacable interface that is software configurable with speeds up to 230.4 Kbps.
- Optional PCMCIA slot for Comtrol approved devices that are pre-configured in the ATS-XPE system.

Note: The ATS-XPE PCMCIA option supports two Type II PCMCIA slots or one Type III slot, which is installed at the factory. Drivers for Comtrol approved PCMCIA devices are installed in the system.

- Linksys EtherFast 10/100 + 56K Modem PC Card (PCMLM56)
- Linksys Wireless PC card (WPC11)

The hardware supports Power management, but it is not supported by the Windows XP Embedded operating system.

Default Operating System Configuration

The following list is a baseline operating system configuration for the ATS-XPE. For information about the operating system, see Windows XP Embedded on the Microsoft web site at: http://www.microsoft.com/windows/embedded/xp/ Hardware Devices Computers Standard PC Disk drives Disk drive Disk drive **IDE ATA/ATAPI controllers** Standard Dual-Channel PCI IDE controller **Primary IDE Channel** Secondary IDE Channel PCMCIA IDE/ATAPI Controller **Keyboards** Standard 101/102-Key or Microsoft Natural PS/2 Keyboard Mice and other pointing devices PS/2 Compatible Mouse Modems Linksys Etherfast 10&100 + 56K PC Card (PCMLM56) (Modem) Monitors **Default Monitor** Multiport serial adapters RocketPort 8 Port, PC104-Bus Multifunction adapters Linksys Etherfast 10&100 + 56K PC Card (PCMLM56) Network adapters Realtek RTL8139 Family PCI Fast Ethernet NIC Linksys Etherfast 10&100 + 56K PC Card (PCMLM56) (LAN) Linksys WPC11 Wireless Network PC Card MAC Bridge Miniport **PCMCIA** adapters Intel PCIC compatible PCMCIA controller Ports (COM and LPT) Communications port Printer port System devices PCI standard host CPU bridge PCI standard ISA bridge Programmable interrupt controller

Direct memory access controller System timer System CMOS/real time clock System speaker Numeric data processor System board Motherboard resources PCI bus **ISAPNP** Read Data Port ISA Plug and Play bus Comtrol hardware controller Comtrol display controller Plug and Play Software Device Enumerator Universal Serial Bus controllers Compag PCI to USE Open Host Controller USB Root Hub

Software

```
System
```

User Interface Shells **Explorer Shell** Windows Shell Accessories/Communications Add Hardware Control Panel Add/Remove Programs Control Panel **Base Support Binaries** Common Ctl Libraries Ver 5 Common Ctl Libraries Ver 6 (1.0.0.0) Common Ctl Libraries Ver 6 (1.10.0.0) **Common File Dialogs Date/Time Control Panel Device Manager Display Control Panel** Down-level Shell Compatible **Explorer** Application Friendly Logon User Map Network Drives Network Setup Wizard Power Meter Control Panel **Registry Editor** Safely Remove Hardware Program Shell Control Panel Registry Data

Shell Core Registry Data Shell Explorer Registry Data (Pro) Shell Explorer Registry Data Shell Group Conversion Registry Data Shell Hyperterminal Registry Data Shell Legacy Registry Data Shell Namespace Extensions Shell Namespace Registry Data Shell Notepad Registry Data Shell Paint Registry Data Shell Utilities Registry Data Standard Start Menu Shortcuts System Control Panel Task Manager Tray Icon Add/Remove Support **USB User Interface** User Interface Core Users Control Panel Windows Accessories Infrastructure **GUI Base Format Common Libraries** System Services Base CDFS FAT NTFS Administrator Account **Client For Microsoft Networks** Core Networking Workstation Service Administration Support Tools **Base Performance Counters Class Installer - Stream** Client / Server Runtime **CMD** - Windows Command Processor **Compression & Expansion Tools** FBA: Crypto Filter MIME Messages For Indexing Svc Intel Microcode Update MSFS NT Loader Performance Counter Configurations PnP (User-mode)

Remote Registry Service Session Manager (Windows Subsystem) Setup & Safe Mode VGA System Cloning Tool System Event Notification Service Volume Shadow Copy Service **Application Support Application Compatibility Core** COM Base COM+ Services **Distributed Transaction Coordinator** DOS Windows on Windows Support HTML Help Engine Jet Database Engine Jet Database OLEDB Support Microsoft Data Access Components (MDAC) Microsoft Foundation Class Library (Legacy) Microsoft Foundation Class Library (MFC) **Microsoft Line Services** Microsoft Visual C++ Run Time (Legacy) Microsoft Visual C++ Run Time Msxml 3.1 **OLE Dialog Services** Rich Edit Control Version 1.0 Rich Edit Control Version 3.0 Rich Edit Control Version 4.1 **Standard Template Libraries** Task Scheduler Windows Script Engines Storage & File Systems Infrastructure **Disk Management Basic Volume Runtime Disk Performance Counters** Format Common User Interface **Removable Storage Service** File Systems Webday Client Redirector Applications Active Template Library FAT Format I/O Error Log Messages Misc. File System Utilities

Security Infrastructure Certificate Request Client & Certificate Autoenrollment **Certificate User Interface Services Credential Management User Interface Cryptographic Network Services Cryptographic Service Providers** Kernel Mode Crypto Driver for RSA Key Manager Netlogon/Net Join **RPC** Local Support **RPC** Remote Secure RPC over Kerberos Secure RPC over Negotiate Secure RPC over NTLM Security Accounts Manager Server Library Smart Card Cryptographic Service Providers Smart Card Subsystem Time Service Core Windows Logon Windows NT MARTA Provider Windows Security Configuration Editor Networking & Communications **Domain Participation** TCP/IP Networking with Client For MS Networks Infrastructure **Computer Browser Service Computer Name User Interface DHCP** Client Service **Dial-up Client for Windows Dial-up Networking Common Libraries Dial-up Server for Windows** File Server for Macintosh Management Interface **File Sharing** H323 Telephony Service Provider HID Phone Telephony Service Provider Home Networking Monitory Library Internet Authentication Service (IAS) & Remote Access Common Files Internet Authentication Service (IAS) Server Data Object (SDO) and RAP Engine **IP** Conference Telephony Provider **IP** Security Services Local Network Bridge

Mapi32 Libraries Ndisuio Inf Netbios Driver Netbrdgs Inf NetDav Inf Netmscli Inf Netrib Inf Netrasa Inf Netrass Inf Netrast Inf Netserv Inf Netshell Nettcpip Inf **Network Diagnostics Network Performance Counters Network Routing** Netwzc Inf Other TCP/IP Services **Routing Common Files** SDP Blob Parser SNMP SMB Redirector TAPI 2.2 Client TAPI Audio, Video & RTP Filters TAPI COM Client **TAPI** Terminal Manager TAPI User Interface **TCP/IP** Networking Telephony Unimodem Wireless Zero Configuration Applications Internet Explorer **IP Router Monitor Library** Net.exe Utility Network Command Shell Network Command Shell Interface Context Phone & Modem Control Panel **Remote Access Monitory TCP/IP** Utilities Multimedia & Graphics Infrastructure Analog TV

GDI+ 1.0.0.0 GDI+ 1.0.10.0 Kernel Streaming User Mode Support MCI Support Microsoft Audio Compression Manager (MME Core) Video for Windows Core DirectX DIrect3D DirectShow ASF/DMO **DirectShow Capture DirectShow** Core DirectSound Management Terminal Services Infrastructure Active Directory Service Interface (ADSI) Core Active Directory Service Interface (ADSI) LDAP Provider Active Directory Service Interface (ADSI) Windows NT Provider Lightweight Directory Access Protocol (LDAP) Terminal Server Remote Desktop **Terminal Services Core Terminal Services Runtime** WMI Core WMI Correlation WMI Filter Applications Event Log Microsoft Management Console (MMC) Windows Installer Service International **Regional & Language Options** Infrastructure Font: Marlett Fonts: EGA Fonts: Fonts Arial Fonts: Fonts Microsoft_San_Serif Fonts: Fonts Tahoma Fonts: Fonts tahoma_bold Fonts: Fonts verdana Fonts: Fonts webdings Fonts: Fonts wingdings Fonts: vgaoem_fon **English Language Support**
NLS: Core Files NLS: Locale Map Ids NLS: Time Zones Accessibility Infrastructure Accessibility Core

Default Component Settings

Hardware

Devices Computers Standard PC System Identification Computer name: XPE4-8 Registered owner: OEM Registered organization: OEM Pagefile no pagefile support Power Management Settings

Power mgmt. Policy: Presentation

Software System System Services Base **Client/Server Runtime** Console screen window width: 80 columns Console screen window height: 50 lines Console screen buffer width 80 columns Console screen buffer height: 300 lines **Application Support** HTML Help Engine Include art and shared help files that XP help content (*.CHM) requires International Infrastructure **English Language Support** #1252 (ANSI -Latin I) Code pages conversion table Support all system locales for English Include multi-language user interface resources (partial)

Management					
Infrastructure					
Lightweight Directory Access Protocol (LDAP)					
Default LDAP Connection Signing: Connections signed if possible					
International					
Regional and Language Options					
User interface language: English					
Standards and formats: English US					
Default input language: English US					
Language for non-Unicode programs: English US					
Geographical location: United States					
Security					
Infrastructure					
Windows Logon					
Show Friendly Winlogon					
Show Welcome to Windows screen before Winlogon					
User Interface					
Shells					
Windows Shell					
User Interface Core					
Show My Computer on Start Menu					
Show My Network Places on Start Menu					
Show Desktop icons					
Show Control Panel on Start Menu					
Show Network Connections on Start Menu					
Show Search on Start Menu					
Show Run on Start Menu					
Show Log Off on Start Menu					
Show Shut Down on Start Menu					
Show Internet Explorer on Start Menu					
Show All Programs list on Start Menu					
Show context menu on Shell folders					
Show context menu on Task bar					
Show Notifications on Task bar					
Lock Task bar					
Use Windows Classic folders					
Enable Drag & Drop on Start Menu					

_

Notices

Radio Frequency Interference (RFI) (FCC 15.105)	 This equipment has been tested and found to comply with the limits for Class A digital devices pursuant to Part 15 of the FCC Rules. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures: 				
	• Reorient or relocate the receiving antenna.				
	• Increase the separation between the equipment and the receiver.				
	• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.				
	• Consult the dealer or an experienced radio/TV technician for help.				
Labeling Requirements (FCC 15.19)	This equipment complies with part 15 of FCC rules. Operation is subject to the following two conditions:This device may not cause harmful interference.				
	• This device must accept any interference received, including interference that may cause undesired operation.				
Modifications (FCC 15.21)	Changes or modifications to this equipment not expressly approved by Comtrol Corporation may void the user's authority to operate this equipment.				
Serial Cables (FCC 15.27)	This equipment is certified for Class A operation when used with unshielded cables.				
Underwriters Laboratory	This equipment is Underwriters Laboratory "UL" listed.				
Important Safety Information	To avoid contact with electrical current: • Never install electrical wiring				
	during an electrical storm. Warning				
	• Never install the power plug in wet locations.				
	• Use a screwdriver and other tools with insulated handles.				

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Appendix C. Default System Values

The following section provides information for changing default configuration of the DeviceMaster ATS motherboard. In most cases, it will not be necessary to reconfigure the motherboard.

Note: The information in this document is for reference only. The DeviceMaster ATS is pre-configured before shipment.

You may want to access the motherboard to perform the following tasks:

- Change the watch-dog timer settings.
- Clear CMOS setup. For example, to clear the BIOS password.
- Apply +5V or +12V to AUX A serial port.

Before you can perform any of the above tasks, you should use the following *Accessing the Motherboard* section.

This subsection contains the following information:

- System I/O address map
- First MB memory map

Accessing the Motherboard

Use this procedure to access the motherboard on the DeviceMaster ATS. A detailed illustration of the motherboard is available on the following page.

1. Follow standard ESD procedures (outlined below) to remove the two screws.



2. Use the following motherboard illustration (on the next page) to locate the jumper reference in the specific procedure that you are performing.



Clearing the CMOS Setup

If you need to clear the CMOS Setup. For example, if you forgot the password you should clear the setup and then set the password again. You should close the **JP1** jumper for about 3 seconds and then open it again. To set the CMOS back to normal operation mode, open **JP1**.

JP1	Description
1-2	Normal Operation.
2-3	Clear CMOS Setup.

Note: Use the screenshots in <u>Changing BIOS Configuration</u> on Page 83 to reconfigure the factory default BIOS settings.

Applying Power to the AUX A Port

The AUX A (CN9) connector can supply +5V or +12V power to the serial devices through the RI pin (Pin 8) of the COM2 (AUX A) port connector. The maximum current is 1 A with fuse protection, from these two connector's 5V/12V output. If the output is set to 12V, make sure that you have 12V to supply to the board.

CN9 Pin 8 (RS-232)	JP13	JP12
RI Signal	2-3	Not applicable.
+5V	1-2	2-3
+12V	1-2	1-2

Changing the Watch-Dog Timer

The Watch-Dog Timer is a device used to ensure that standalone systems can reset themselves and recover from catastrophic conditions that cause the CPU to hang or crash. The Watch-Dog Timer is a countdown timer that will reset the CPU when it times out.

The Watch-Dog Timer is enabled by reading port **443H**. It should be triggered before the time-out period ends, otherwise it will assume that the program operation is abnormal and will issue a reset signal to restart, or activate NMI to CPU. The Watch-Dog Timer is disabled by reading port **843H**.

JP4	Watch-Dog Timer Settings Description
1-2	Activate NMI to CPU when WDT times-out.
2-3	Reset when WDT time-out.
Open	Disable WDT.

Note: Bold text that is shaded green illustrates the default value.

Hex Address	Read/Write	Description
443H	Write	Set Watch-Dog Time period
443H	Read	Enable and refresh the Watch-Dog Timer.
843H	Read	Disable the Watch-Dog Timer.

Three I/O ports control the Watch-Dog Timer and are accessed using the addresses defined in the following table.

Prior to enabling the Watch-Dog Timer, the user has to define the time interval to be used. The timer interval is defined by writing a value to address 443H. This value is within the range from 01 (hex) to FF (hex) and defines an interval between 1 second to 255 seconds, respectively. The following table illustrates this correlation:

Hex Value	Time Interval
01	1 sec
02	2 sec
03	3 sec
04	4 sec
•	
•	•
•	•
FF	255 sec

The Watch-Dog Timer is activated by reading the value at address 443H. To ensure that a reset condition does not occur, the timer must be periodically reset to restart the countdown at the beginning of the defined interval before the time out period has expired. This is achieved by first disabling the timer by reading address 843H and then re-enabling it by reading the value at 443H before the timer reaches zero. Refer to the example of the assembly program below.

A tolerance of at least 5% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time consuming. Therefore if the time out period has been set to 10 seconds, the I/O port 443H must be read within 7 seconds.

Note: When exiting a program it is necessary to disable the Watch-Dog Timer, otherwise the system will reset.

Example of Assembly Program

TIMER_PORT = 443H TIMER_START = 443H TIMER_STOP = 843H ;;INITIAL TIME PERIOD COUNTER MOV DX, TIME_PORT MOV AL, 8:;;8 SECONDS OUT DX,AL ;;ADD YOUR APPLICATION HERE MOV DX, TIMER_START IN AL, DX.;;START COUNTER ;;ADD YOUR APPLICATION HERE W_LOOP: MOV DX, TIMER_STOP IN AL, DX MOV DX, TIMER_START IN AL, DX. ;;RESTART COUNTER ;;ADD YOUR APPLICATION HERE CMP EXIT_AP, 0 JNE W_LOOP MOV DX, TIMER_STOP IN AL, DX ;;EXIT AP

System I/O Address Map

I/O Address	Map Description	
000-01F	DMA Controller #1	
020-021	Interrupt Controller # 1, Master	
022-023	Chipset address	
040-05F	System Timer	
060-06F	Standard 101/102 keyboard Controller	
070-07F	Real time Clock, NMI Controller	
080-0BF	DMA Page Register	
0A0-0BF	Interrupt Controller # 2	
0C0-0DF	DMA Controller # 2	
0F0-0F0	Clear Math Coprocessor Busy	
0F1-0F1	Reset Math Coprocessor	
0F8-OFF	Math Coprocessor	
1F0-1F8	VIR BUS Master PCI IDE Controller	
200-207	Game I/O	
278-27F	Reserved	
2F8-2FF	Serial Port 2	
378-37F	Parallel Printer Port 1	
3B0-3DF	Cyrix Graphic Adapter	
3F0-3F7	Available	
3F8-3FF	Serial Port 1	
443	Watch-Dog timer enable	
843	Watch-Dog timer disable	

This table illustrates the system I/O address map for the ATS.

First MB Memory Map

Address	Description
F000h-FFFFh	System ROM
D800h-EFFFh	Unused
C800h-D7FFh	Ethernet ROM
C000h-C7FFh	Expansion ROM
B800h-BFFFh	CGA/EGA/VGA text
B000h-B7FFh	Unused
A000h-AFFFh	EGA/VGA graphics
0000h-9FFFh	Base memory

This table illustrates the first MB memory map.

Appendix D. Changing BIOS Configuration

This section discusses using the BIOS to change the system defaults. The DeviceMaster ATS-XPE uses the AWARD PCI/ISA BIOS for system configuration. The AWARD BIOS setup program is designed to provide maximum flexibility in configuring the system by offering various options which may be selected to meet your requirements.

Note: The information in this appendix is for reference only. The DeviceMaster ATS-XPE is pre-configured before shipment. If you need to recover the Comtrol BIOS default, use this Appendix to reconstruct the proper BIOS settings.

The Recovery CD does not recover the Comtrol BIOS settings.

Getting Started

When you apply power on the DeviceMaster ATS-XPE, the BIOS enters Power-on-Self Test (POST) routines. These routines are executed for system test, initialization, and system configuration verification. After the POST routines are completed, the following message appears:

" Hit DEL if you want to run SETUP"

To access the AWARD BIOS SETUP UTILITY, press the ** key. This screen displays.

ROM PCI/ISA BIOS (2A434I9F) CMOS SETUP UTILITY AWARD SOFTWARE, INC.					
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS				
BIOS FEATURES SETUP	SUPERVISOR PASSWORD				
CHIPSET FEATURES SETUP	USER PASSWORD				
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION				
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP				
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING				
LOAD SETUP DEFAULTS					
Esc : Quit F10 : Save & Exit Setup	†↓→+ : Select Item (Shift)F2 : Change Colo r				

Standard CMOS Setup

Dat Tim	e (mm:dd:yy) : e (hh:mm:ss) :	Thu, Apr 11 : 25	26 200 : 55	1					
Har	D DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Pri Pri Sec Sec	mary Master mary Slave ondary Master ondary Slave	None None None Auto	0м 0м 0м 0м	0 0 0 0	0 0 0 0	0 0 0	0 0 0	0 0 0	AUTO
Dri Dri	ve A : None ve B : None								
Vid Hal	eo : EGA/VGF t On : No Err	ors							

The **Standard CMOS Setup** screen is used for basic hardware system configuration, such as the Date and Time settings.

This figure illustrates the DeviceMaster ATS-XPE factory defaults.

Use the following procedure to change the system date.

- 1. Press either the Arrow or **<Enter>** key on your keyboard to select one of the fields (Month, Date or Year).
- 2. Press either <PgUp> or <PgDn> to increase or decrease the value of that field.
- 3. Use the same key sequence to change the time setting.

BIOS Features Setup

The **BIOS Features Setup** screen is designed for fine-tuning your system and improving its performance. Typically, you do not have to change the default settings, which are pre-set for the most reliable operation.

	F	ROM PCI/ISA E BIOS FEATUF AWARD SOFT	BIOS (2A434I9F) RES SETUP HARE, INC.
	Virus Warning CPU Internal Cache Quick Power On Self Test Boot From LAN First Boot Sequence Swap Floppy Drive Boot Up Floppy Seek Boot Up NumLock Status Boot Up System Speed Gate A20 Option Memory Parity Check Typematic Rate Setting Typematic Rate (Chars/Sec)	: Disabled : Enabled : Disabled : C only : Disabled : Disabled : On : High : Fast : Enabled : Disabled : Disabled : Disabled : On	Video BIOS Shadow : Enabled C8000-CBFFF Shadow : Disabled CC000-CFFFF Shadow : Disabled D0000-D3FFF Shadow : Disabled D4000-D3FFF Shadow : Disabled D8000-DBFFF Shadow : Disabled DC000-DFFFF Shadow : Disabled Cyrix 6x86/MII CPUID: Enabled
	Security Option PCI/VGA Palette Snoop OS Select For DRAM > 64MB Report No FDD For WIN 95	: 200 : Setup : Disabled : Non-OS2 : Yes	ESC : Quit 14++ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

This figure illustrates the DeviceMaster ATS-XPE factory defaults.

Chipset Features Setup

The Chipset Features Setup screen primarily controls the board's chipset and is used to change the chipset configuration.

This figure illustrates the DeviceMaster ATS-XPE factory defaults.

CHIPSET FEATURES SETUP AWARD SOFTWARE, INC.		
SDRAM CAS latency Time : 3 T SDRAM Clock Ratio Div By : 4		
16-bit I/O Recovery (CLK): 5 8-bit I/O Recovery (CLK): 5		
USB Controller : Enabled USB Legacy Support : Disabled		
	ESC : Quit ↑↓→+ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

Note: Improperly changing these default settings can result in an unstable system.

Power Management Setup

The **Power Management Setup** screen helps you handle the ROCKY-568SEV board's *green* function. This feature can shut down the video display and hard disk to save energy.

ROM PCT/TSA BIOS (20434T9E)

This figure illustrates the DeviceMaster ATS-XPE factory defaults.

POWER MANAGEMENT SETUP AWARD SOFTWARE, INC.		
Power Management ** PM Timers ** Doze Mode Standby Mode HDD Power Down MODEM Use IRQ Throttle Duty Cycle	: Disabled : Disabled : Disabled : Disabled : NA : 33.3 %	IRQ1 (KeyBoard) : ON IRQ3 (COM 2) : OFF IRQ4 (COM 1) : OFF IRQ5 (LPT 2) : OFF IRQ6 (Floppy Disk): OFF IRQ7 (LPT 1) : OFF IRQ7 (LPT 1) : OFF IRQ10 (Reserved) : OFF IRQ11 (Reserved) : OFF IRQ11 (Reserved) : OFF IRQ13 (Coprocessor): OFF IRQ14 (Hard Disk) : OFF IRQ15 (Reserved) : OFF
		ESC : Quit ↑↓++ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

PNP/PCI Configuration

figure illustrates the DeviceMaster ATS-XPE factory defaults.		
ROM PCI/ISA E PNP/PCI CONF AWARD SOFTW	BIOS (2A43419F) IGURATION MARE, INC	
PNP OS Installed : No Resources Controlled By : Manual Reset Configuration Data : Disabled	PCI IRQ Actived By : Level	
IRQ-3 assigned to : PCI/ISA PnP IRQ-4 assigned to : PCI/ISA PnP IRQ-5 assigned to : Legacy ISA IRQ-6 assigned to : Legacy ISA IRQ-7 assigned to : Legacy ISA IRQ-9 assigned to : PCI/ISA PnP IRQ-10 assigned to : PCI/ISA PnP IRQ-11 assigned to : PCI/ISA PnP IRQ-14 assigned to : PCI/ISA PnP IRQ-15 assigned to : PCI/ISA PnP IRQ-15 assigned to : PCI/ISA PnP	Used MEM base addr : N/A	
DMA-0 assigned to : PCI/ISA PAP DMA-1 assigned to : PCI/ISA PAP DMA-3 assigned to : PCI/ISA PAP DMA-5 assigned to : PCI/ISA PAP DMA-6 assigned to : PCI/ISA PAP DMA-7 assigned to : PCI/ISA PAP	ESC : Quit 11++ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

This menu is used to assign IRQ numbers to your PNP/PCI devices manually. This figure illustrates the DeviceMaster ATS-XPE factory defaults.

• **PNP OS Installed:** If you install a Plug and Play operating system (OS), the OS will reassign the interrupt even if you choose **Yes** for this option. If you install a non-Plug and Play OS or if you want to prevent the OS from reassigning the board's IRQ settings, choose **No** for this option.

• **Resources Controlled By:** Select Auto if you want the computer to assign the IRQs.

- **Reset Configuration Data:** Enabling this field means you allow the configuration data to be reset.
- *IRQ-xx assigned to*: These fields show whether a certain IRQ is used by a PCI/ISA card.

Load BIOS Defaults



If you choose to activate the Load BIOS Defaults menu and then answer Y to load

Note: If you load the default BIOS, you will change Comtrol[™] Corporation's default settings and may experience unreliable results and an unstable platform.

Select N to abort this screen.

Load Setup Defaults

If you select Y to this field, the Setup Defaults load except Standard CMOS SETUP. ROM PCI/ISA BIOS (2843419F)

CMOS SETUP UTILITY AWARD SOFTWARE, INC.		
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS	
BIOS FEATURES SETUP	SUPERVISOR PASSWORD	
CHIPSET FEATURES SETUP	USER PASSWORD	
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION	
PNP/PCI CONFIGURA	A ETUP	
LOAD BIOS DEFAULT	SAVING	
LOAD SETUP DEFAULTS		
Esc : Quit F10 : Save & Exit Setup	†↓→+ : Select Item (Shift)F2 : Change Color	

Note: If you load the Setup defaults, you will change Comtrol Corporation's default settings.

The screens in this document illustrate the Comtrol default settings, which are optimal configuration settings for your system.

Integrated Peripherals

ROM PCI/ISA BIOS (2A434I9F) INTEGRATED PERIPHERALS AWARD SOFTWARE, INC.		
IDE HDD Block Mode: EnablPrimary IDE Channel: EnablMaster Drive PIO Mode: AutoSlave Drive PIO Mode: AutoSecondary IDE Channel: EnablMaster Drive PIO Mode: AutoSlave Drive PIO Mode: Auto	ed ed Onboard Parallel Port : 378/IRQ7 Parallel Port Mode : SPP ed	
IDE Primary Master UDMA : Auto IDE Primary Slave UDMA : Auto IDE Secondary Master UDMA: Auto IDE Secondary Slave UDMA: Auto		
KBC input clock : 8 MHz Onboard FDC Controller : Enabl Onboard Serial Port 1 : 3F8/I Onboard Serial Port 2 : 2F8/I UART Mode Select : Norma	ed RQ4 Video Memory Size : 2.5 M RQ3 Flat Panel Status : Both I Flat Panel Resolution : 800x600	

This option is used to assign Onboard I/O, IRQ, DMA, etc.

This figure illustrates the DeviceMaster ATS-XPE factory default settings.

- Multiple Monitor Support -- No Onboard, PCI first, M/B first Use to select the primary VGA for multiple monitor support in Windows.
- Video Memory Size -- 4.0M Use to select the size of video memory.

Supervisor Password and User Password

The **Supervisor Password** screen sets a password that is used to protect your system and Setup Utility. The Supervisor Password has higher priority than User Password. Once you setup the Supervisor password, the system will always ask you to key-in the Supervisor Password every time you enter the BIOS SETUP.

If you enter the BIOS SETUP with Supervisor Password, you can choose every setup/option on the main menu. When entering the BIOS with the User Password, however, you can only choose three setup/options (USER PASSWORD, SAVE & EXIT SETUP and EXIT WITHOUT SAVING).

Use the following procedure to disable the Supervisor and User passwords:

1. Enter the BIOS SETUP program with the Supervisor password.

2. Press the **<Enter>** key when prompted for a new password.

Note: If you forget the password, follow the Clear/Reset CMOS procedure. See <u>Clearing the CMOS Setup</u> on Page 79.

SVGA Setup Introduction

The DeviceMaster ATS-XPE is equipped with an on-board LCD/VGA interface. The following subsections discuss its specifications and features.

Chipset

The DeviceMaster ATS-XPE uses a Cyrix[™] CX5530 chipset as its SVGA controller. The chipset is compatible with most traditional analog CRT monitors and also accepts most interlaced and non-interlaced analog monitors (color and monochrome VGA) with high-resolution quality while maintaining complete IBM[™] VGA compatibility.

Digital monitors (i.e. MDA, CGA, and EGA) cannot be supported. Multiple frequency (multisync) monitors operate as if they are analog monitors.

Display Memory

With the 4 MB UMA memory, the VGA controller can make CRT displays or color panel displays perform with resolutions up to 1024 x 768 at 64K colors.

Display Driver

A standard VGA driver is loaded.

PCI Bus Ethernet Interface

The DeviceMaster ATS-XPE provides a high performance 32-bit Ethernet chipset which is fully compliant with the IEEE 802.3 standard. The Ethernet port supports a standard RJ45 connector and is both 100Base-T and 10Base-T compatible. The major network operating system fits it. The Ethernet port supplies a standard RJ45 connector on board.

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Appendix E. Changing the WatchDog Timer

The hardware watch-dog timer is not supported by the installed Linux kernel. However, it may be accessed directly by user applications if desired.

The Watch-Dog Timer is a device used to ensure that standalone systems can reset themselves and recover from catastrophic conditions that cause the CPU to hang or crash. The Watch-Dog Timer is a countdown timer that will reset the CPU when it times out.

The Watch-Dog Timer is enabled by reading port **443H**. It should be triggered before the time-out period ends, otherwise it will assume that the program operation is abnormal and will issue a reset signal to restart, or activate NMI to CPU.

The Watch-Dog Timer is disabled by reading port 843H.

JP4	Watch-Dog Timer Settings Description	
1-2	2 Activate NMI to CPU when WDT times-out.	
2-3	Reset when WDT time-out.	
Open	Disable WDT.	

Note: Bold text (shaded green in the online version) illustrates the default value.

Three I/O ports control the Watch-Dog Timer and are accessed using the addresses defined in the following table.

Hex Address	Read/Write	Description
443H	Write	Set Watch-Dog Time period
443H	Read	Enable and refresh the Watch-Dog Timer.
843H	Read	Disable the Watch-Dog Timer.

Prior to enabling the Watch-Dog Timer, the user has to define the time interval to be used. The timer interval is defined by writing a value to address 443H. This value is within the range from 01 (hex) to FF (hex) and defines an interval between 1 second to 255 seconds, respectively. The following table illustrates this correlation:

Hex Value	Time Interval
01	1 sec
02	2 m sec
03	3 sec
04	4 sec
•	
•	•
•	•
FF	255 sec

The Watch-Dog Timer is activated by reading the value at address 443H. To ensure that a reset condition does not occur, the timer must be periodically reset to restart the countdown at the beginning of the defined interval before the time out period has expired. This is achieved by first disabling the timer by reading address 843H and then re-enabling it by reading the value at 443H before the timer reaches zero. Refer to the example of the assembly program below.

A tolerance of at least 5% must be maintained to avoid unknown routines within the operating system, such as disk I/O that can be very time consuming. Therefore if the time out period has been set to 10 seconds, the I/O port 443H must be read within 7 seconds.

Note: When exiting a program it is necessary to disable the Watch-Dog Timer, otherwise the system will reset.

Example of Assembly Program

TIMER_PORT = 443H $TIMER_START = 443H$ TIMER STOP = 843H ;;INITIAL TIME PERIOD COUNTER MOV DX, TIME_PORT MOV AL, 8:;;8 SECONDS OUT DX,AL ;;ADD YOUR APPLICATION HERE MOV DX, TIMER_START IN AL, DX.;;START COUNTER ;;ADD YOUR APPLICATION HERE W LOOP: MOV DX, TIMER_STOP IN AL, DX MOV DX, TIMER_START IN AL, DX. ;;RESTART COUNTER ;;ADD YOUR APPLICATION HERE CMP EXIT_AP, 0 JNE W LOOP MOV DX, TIMER_STOP IN AL, DX

;;EXIT AP

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