Korenix JetCard Series Multiport Serial Card/Ethernet Switch Card

User's Manual

Third Edition, Dec. 2008

www.korenix.com

Korenix JetCard Series Multiport Serial Card/Ethernet Switch Card User's Manual

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1 Introduction

Welcome to Korenix JetCard Series Multiport Serial Card/Ethernet Switch Card. Korenix JetCard Series Multiport Serial Card/Ethernet Switch Card is a high performance Universal PCI/PCI-104 card. JetCard Series can bring you high-speed and high-quality serial communication service.

The following topics are covered in this chapter:

- **Overview**
- **Product Features**
- **Package Checklist**
- **Installation Guide**

Overview

Korenix JetCard Series Multiport Serial Card/Ethernet Switch Card is a high performance Universal PCI/PCI-104 card. JetCard Series can bring you high-speed and high-quality serial communication service.

JetCard Switch Series uses Marvell 88E6065 chip to provide 5 Ethernet ports. Each Ethernet port in the JetCard Switch Series offers IEEE 802.3 10 Base-T and 100 Base-Tx compliant Ethernet data transmission with auto MDI/MDI-X and auto- negotiation.

JetCard Multiport Series products use high-integrated Oxford chipset, which provides up to 921.6 kbps data transmission speed. JetCard Multiport Series products also come with 128-byte FIFO, which allows JetCard Multiport Series to occupy the least system resources even when operating with full speed and full loading.

In order to cope with harsh industrial environments, Korenix engineers select high quality components, ensuring that JetCard can still operate efficiently and stably under extremely high/low temperature. JetCard is also equipped with built-in surge protection and optical isolation, greatly prevent JetCard and your serial devices from noise or sudden electric surge often exist in industrial environments. For this reason, JetCard products can provide you with stable and reliable communications under any harsh environment.

No matter what your application is, JetCard is the ideal choice for your systems, bringing you the most reliable and cost-effective solution.

JetCard Product Family (Universal PCI Card)

Model Name	JetCard 1204/1204w	JetCard 1208/1208w	JetCard 1402	JetCard 1402i	JetCard 1404	JetCard 1404i	JetCard 2205/2205w
RS-232 Ports	4	8					
RS-422/485 Ports			2	2	4	4	
10/100Mbps Ethernet							5
128 Bytes FIFO	●	●	●	●	●	●	●
921.6 Kbps Speed	●	●	●	●	●	●	●
Surge Protection	●	●	●	●	●	●	●
Optical Isolation				●		●	
Board Connector	DB37 Female	DB62 Female	DB9 Male * 2	DB9 Male * 2	DB37 Female	DB37 Female	RJ45

JetCard Product Family (PCI-104 Card)

Model Name	JetCard 2105/2105w	JetCard 1608/1608w
RS-232 Ports		8 or 4
RS-422/485 Ports		4
10/100Mbps Ethernet	5	
128 Bytes FIFO	●	●
921.6 Kbps Speed	●	●
Surge Protection	●	●
Optical Isolation		
Board Connector	RJ45	DB37 Female

Product Features

Korenix JetCard Series products have the following features:

- IEEE 802.3 10/100 Base-Tx compatible (JetCard 2105/2205)
- IEEE 802.1Q tag VLAN/QoS supported (JetCard 2105/2205)
- High Performance UPCI/PCI-104 Multiport Serial Card/ Ethernet Switch Card
- High Speed Up to 921.6 Kbps
- 2 KV optical isolation (1402i/1404i)
- Built-in surge protection
- Built-In Termination Resistors (RS-422/485)
- Automatic Hardware Flow Control for 2-wire RS-485
- Plug and Play for Easy Installation
- Wide Operating Temperature: -10 to 70℃,-40 to 80℃
  (JetCard 1204w, JetCard 1208w, JetCard 2105w, JetCard 2205w, JetCard 1608w)
- Korenix JetCard Utility (JetCard 1204/1208/1404/1402 Series)

Package Checklist

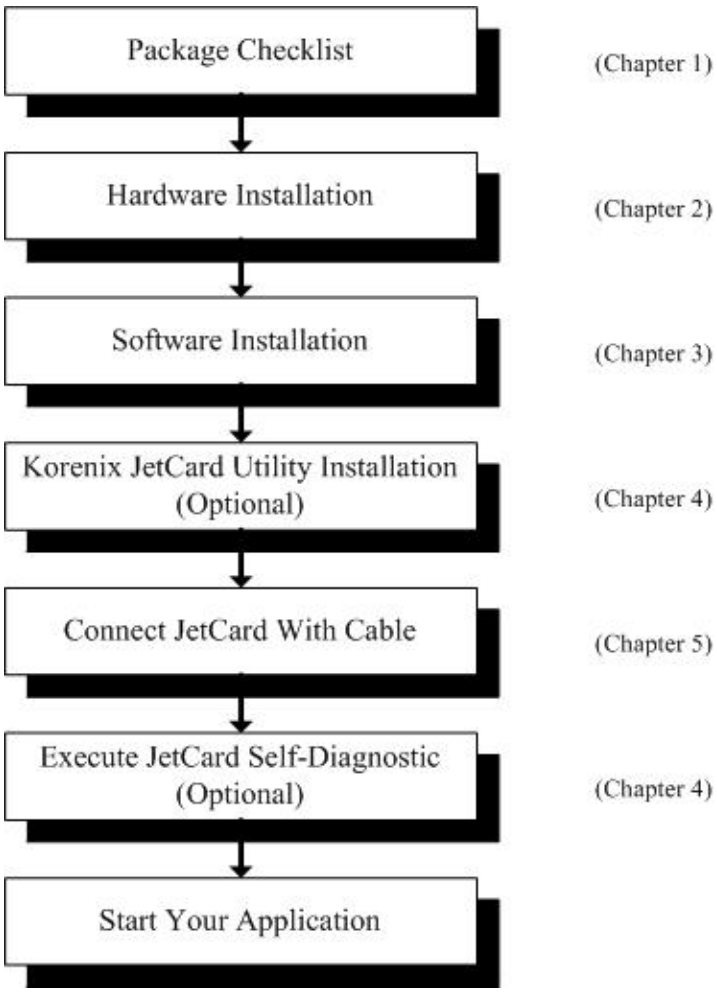
Korenix JetCard Series products are shipped with the following items:

- JetCard Serial Card
- Documentation and Software CD
- Quick Installation Guide
- Screw Pack (JetCard 2105/JetCard 1608)

If any of the above items is missing or damaged, please contact your local sales representative.

Installation Guide

JetCard Series products are easy to install and use. Please follow the steps below to test your JetCard.


Package Checklist
(Chapter 1)
Hardware Installation
(Chapter 2)
Software Installation
(Chapter 3)
Korenix JetCard Utility Installation
(Optional)
(Chapter 4)
Connect JetCard With Cable
(Chapter 5)
Execute JetCard Self-Diagnostic
(Optional)
(Chapter 4)
Start Your Application

2

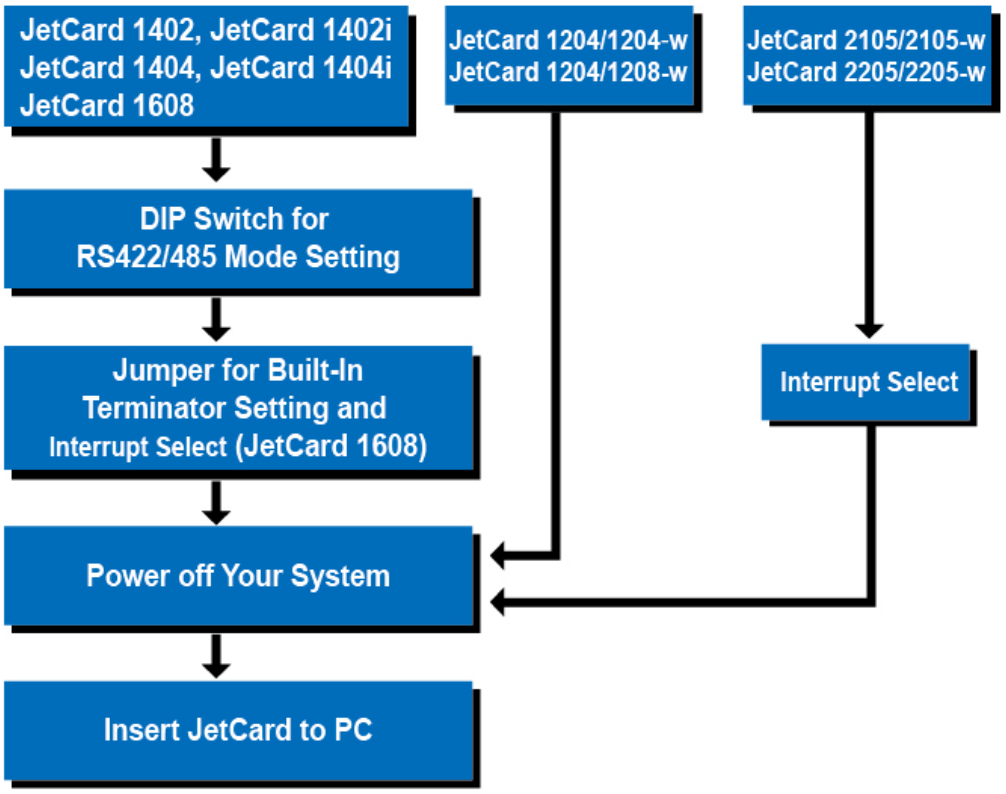
Hardware Installation

This chapter includes information about how to install your JetCard.

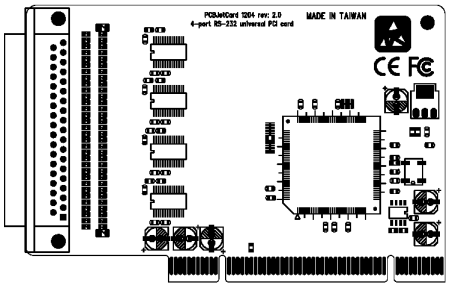
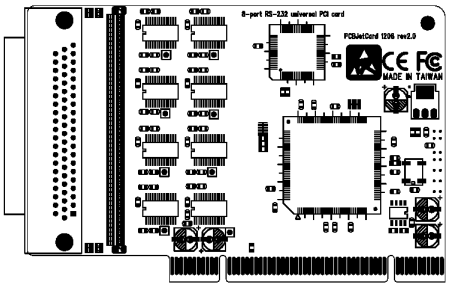
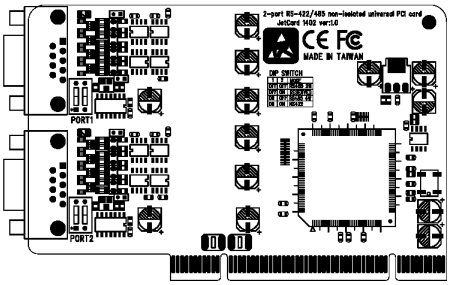
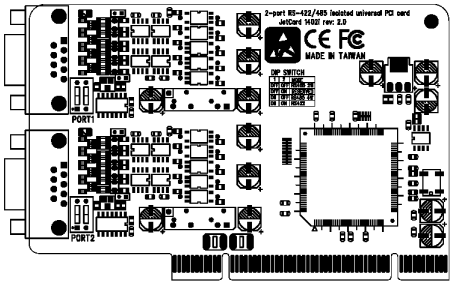
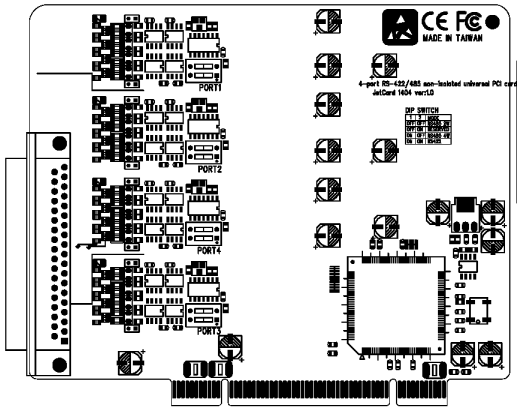
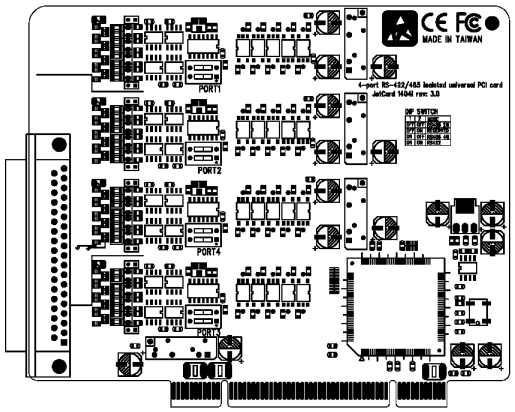
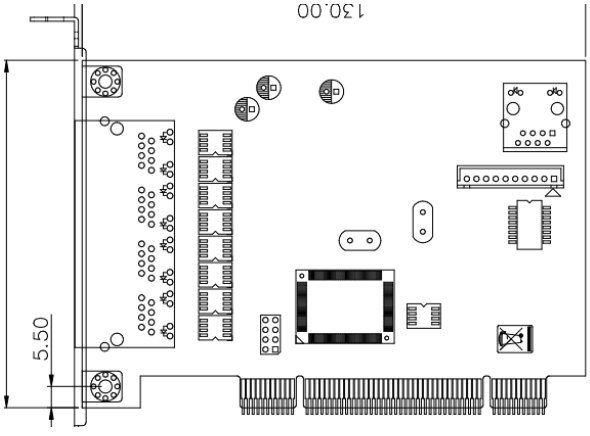
The following topics are covered in this chapter:

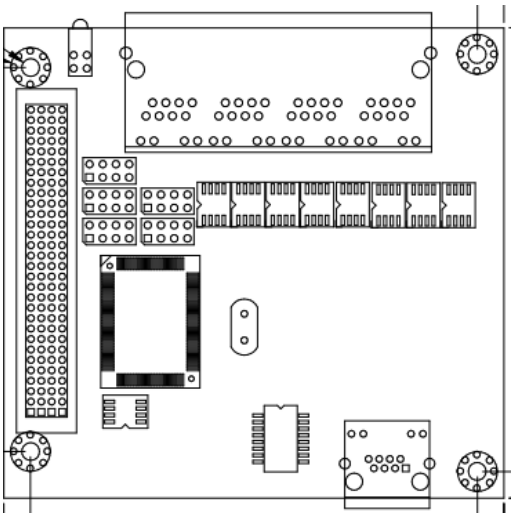
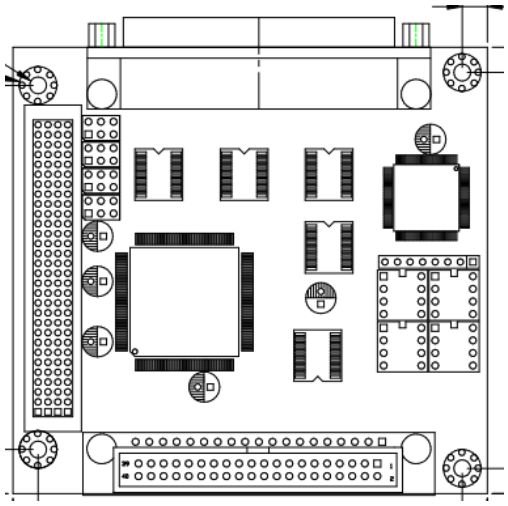
- **Introduction**
- **Panel Layout**
- **DIP Switch and Jumper Settings**
- **Installing Your JetCard**
- **Removing Your JetCard**

Introduction



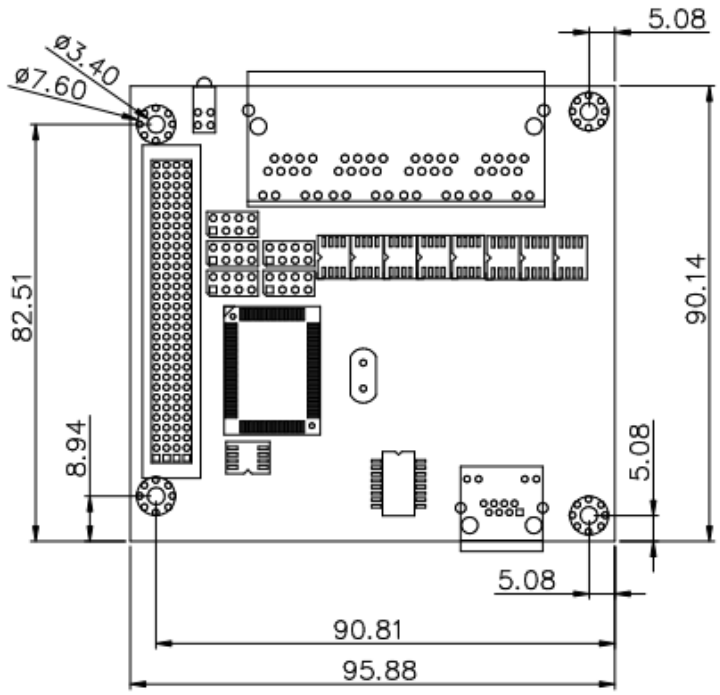
Panel Layout

JetCard 1204/1204w	JetCard 1208/1208w
	
JetCard 1402	**JetCard 1402i**
	
JetCard 1404	**JetCard 1404i**
	
JetCard 2205/2205w	
	

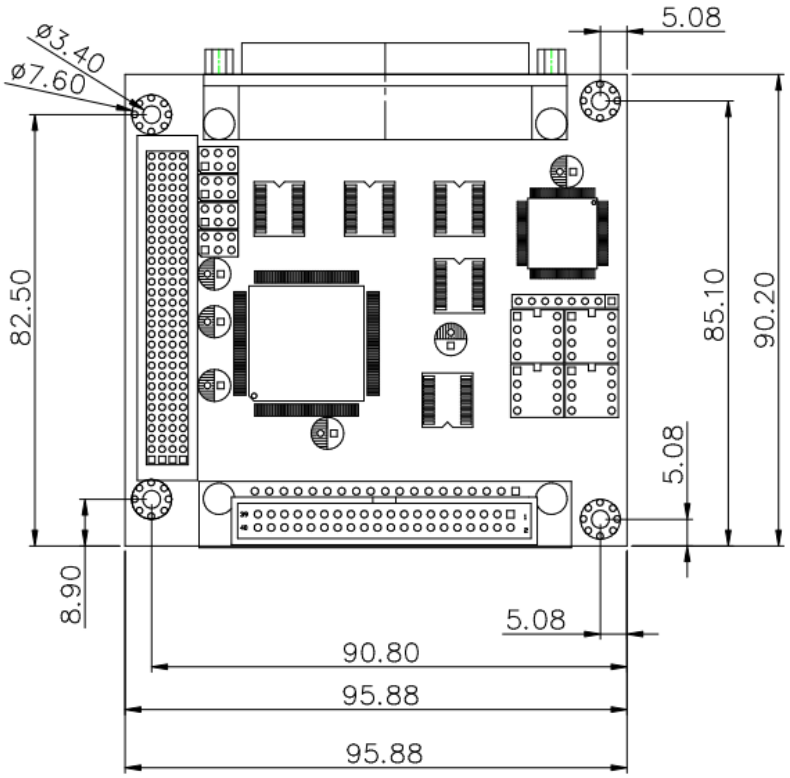
JetCard 2105/2105w	JetCard 1608/1608w
	

Dimensions (Unit-mm)

JetCard 2105/2105w

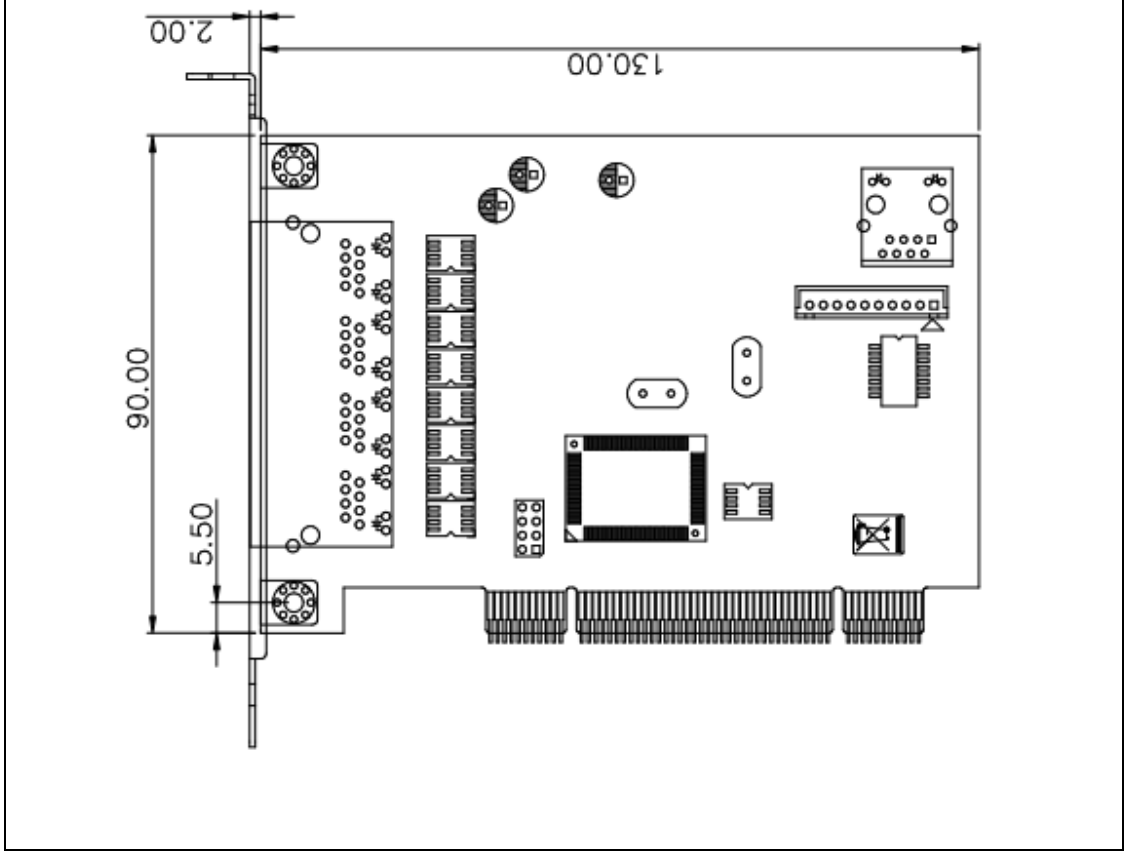


JetCard 1608/1608w



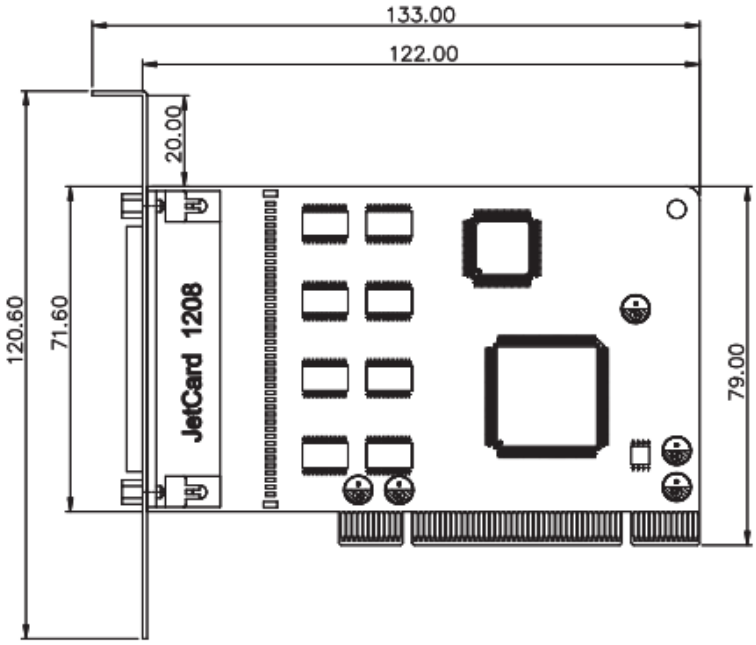
(Unit-mm)

JetCard 2205/2205w

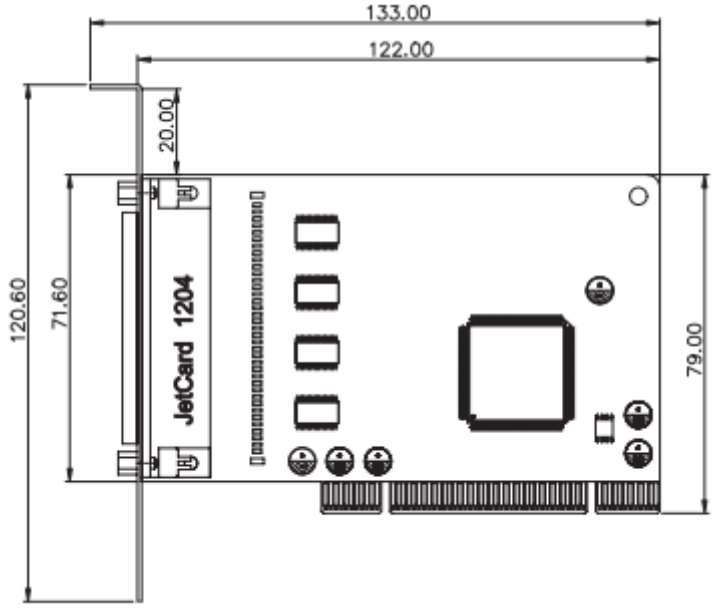


(Unit-mm)

JetCard 1208/1208w

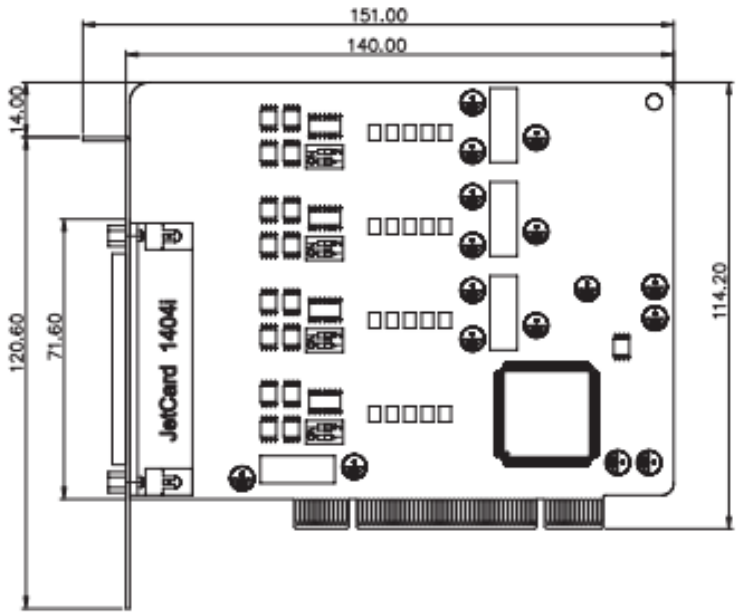


JetCard 1204/1204w

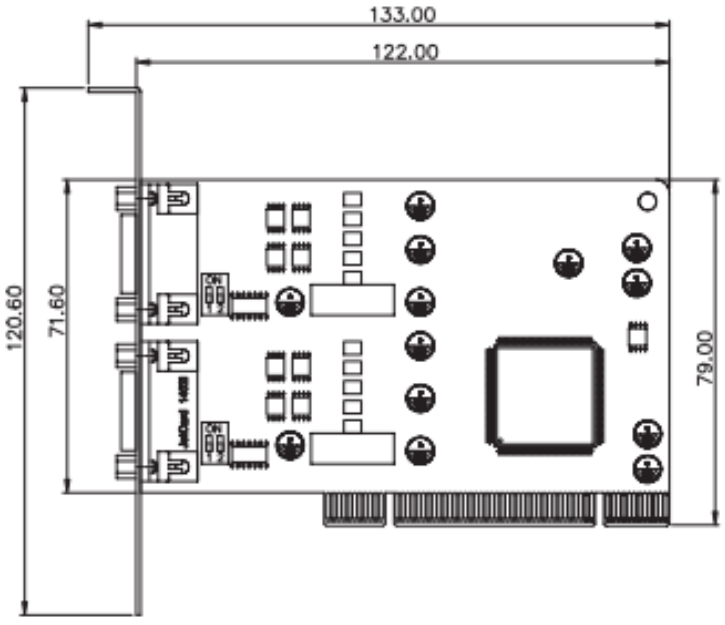


(Unit-mm)

JetCard 1404/1404i

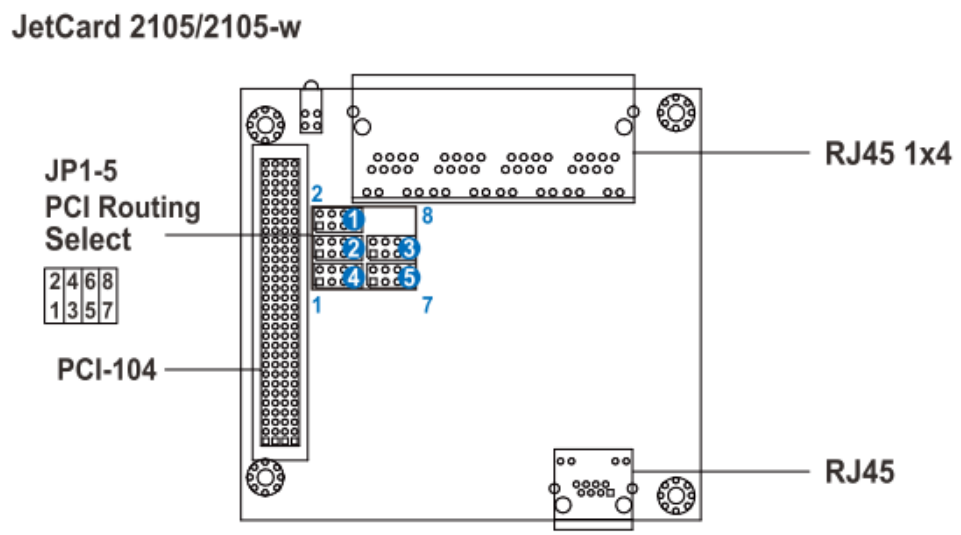


JetCard 1402/1402i

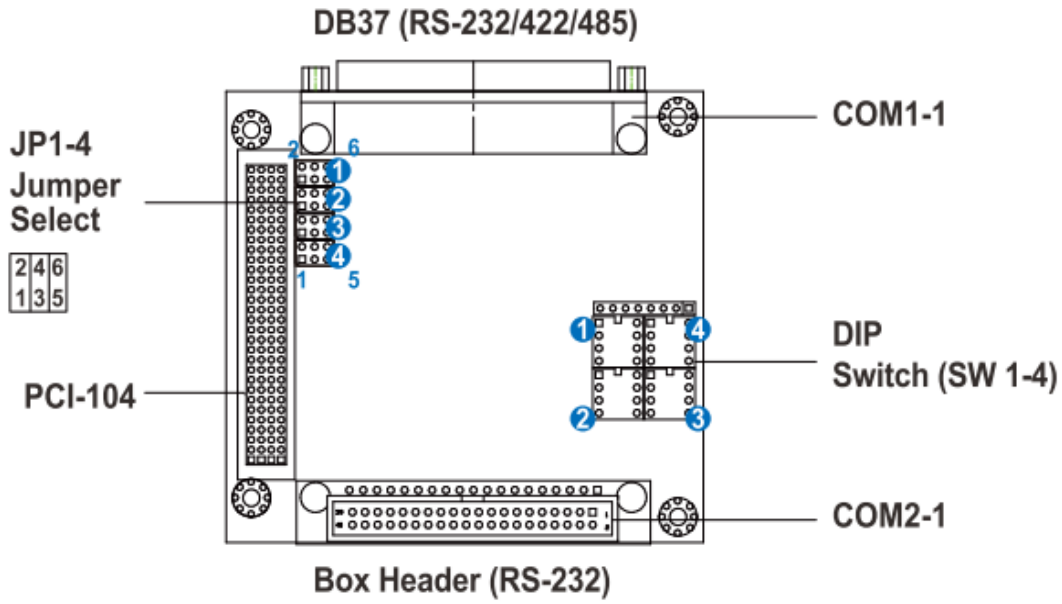


Connecter

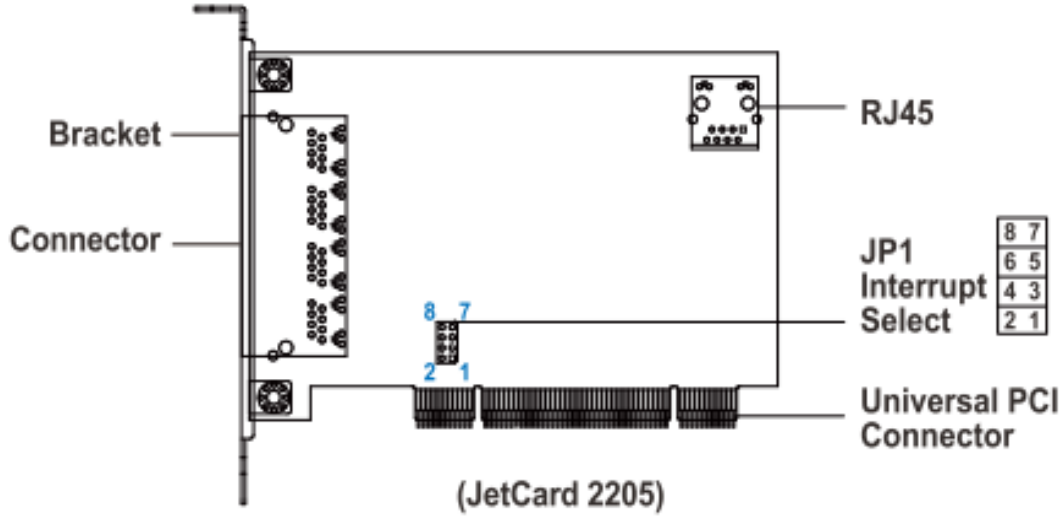
JetCard 2105/2105w



JetCard 1608/1608w



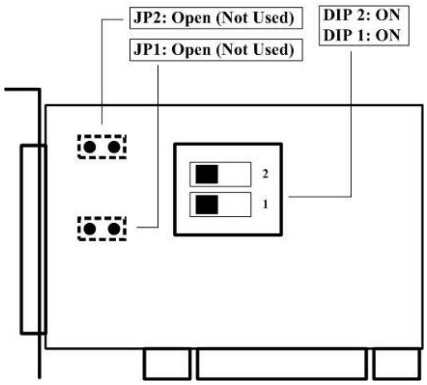
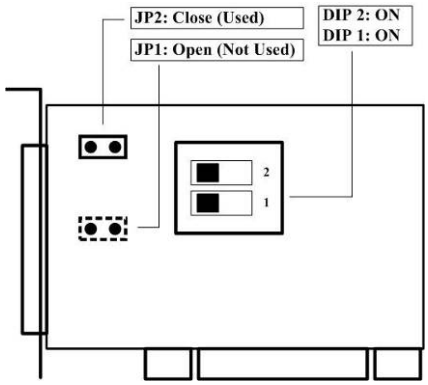
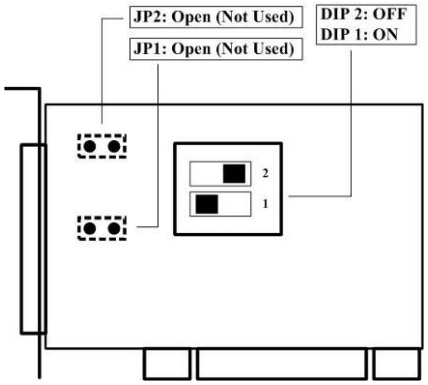
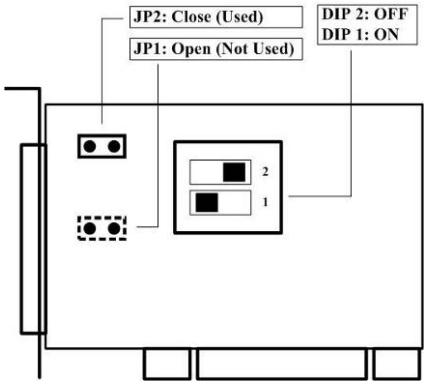
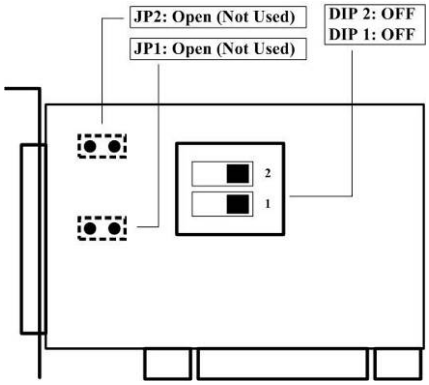
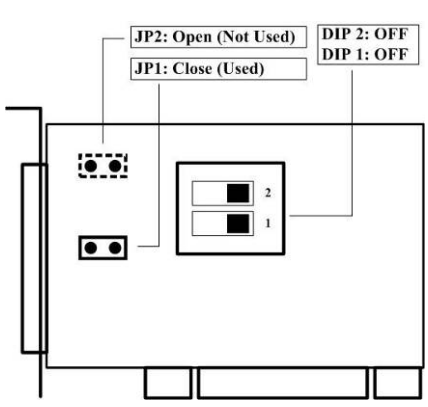
JetCard 2205/2205w/1204/1204w/1208/1208w



DIP Switch and Jumper Settings

Before you start using JetCard RS-422/485 products (JetCard 1402, JetCard 1402i, JetCard 1404, JetCard 1404i and JetCard 1608), configure the DIP Switch and Jumper settings of each port. DIP Switch can configure RS-422, 4-wire RS-485, or 2-wire RS-485. JetCard 1400 Series jumper can be used to configure JetCard' built-in Termination Resistors

Before you start using JetCard Switch Series products (JetCard 2105, JetCard 2205), configure the Jumper of each. Jumper can configure ID select.

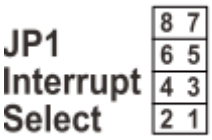
RS-422 without Termination	RS-422 with Termination
	
4-wire RS-485 without Termination	**4-wire RS-485 with Termination**
	
2-wire RS-485 without Termination	**2-wire RS-485 with Termination**
	

DIP Switch and Jumper Settings

JetCard 2205 Jumper1 interrupt Select for ID Select Setting. Use Jumper1 (JP1) short 1-2, 3-4, 5-6 or 7-8 to ID select. The default select is 1-2.

Jumper	Short	Indication
JP1	1-2	INT A

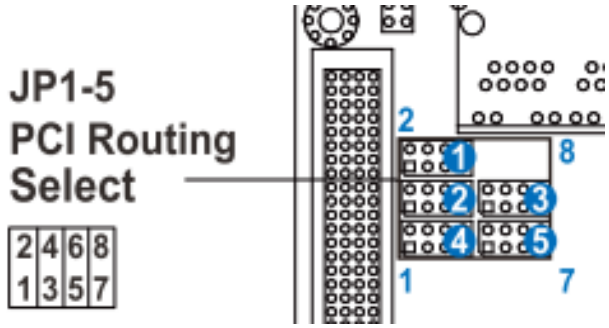
(Default)



JetCard 2105 Jumper1-5 PCI Routing Select for ID Select Setting. Use Jumper1-5 (JP1-5) short 1-2, 3-4, 5-6 or 7-8 to ID select. The default select is 1-2.

Jumper	Short	Indication
JP1	1-2	GNT 0
JP2	1-2	REQ 0
JP3	1-2	PCICLK 0
JP4	1-2	IDSEL 0
JP5	1-2	INT A

(Default)



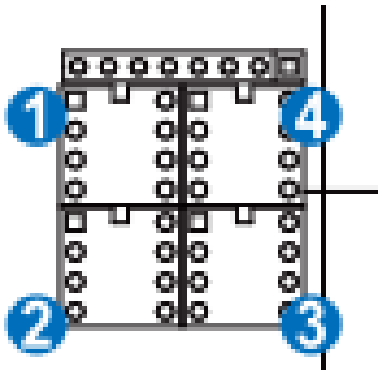
JetCard 2105/2205 LED Indicators

LED	Color	Indication
Link/Act	Green	Blinking: 10/100 Mbps Ethernet connection.
Full Duplex	Yellow	ON
Half Duplex	Yellow	OFF
Collision	Yellow	Blinking: Collision activity (blinking rate is 84ms active)

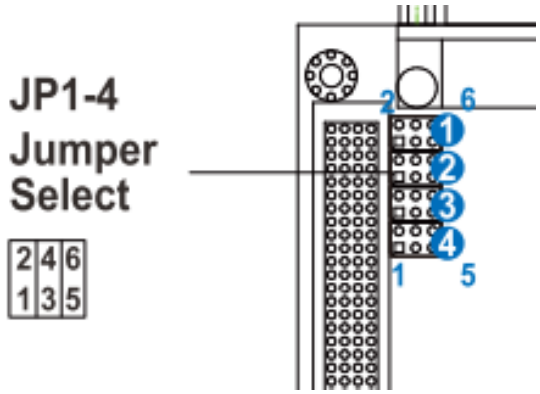
JetCard 1608 DIP Switch

Select the Serial Interface (RS-232/422/485) for Com1.

RS-232 (Default)					**RS-422**			
COM1 (SW1)	OFF	ON	OFF	OFF	ON	ON	ON	ON
COM2 (SW2)	OFF	ON	OFF	OFF	ON	ON	ON	ON
COM3 (SW3)	OFF	ON	OFF	OFF	ON	ON	ON	ON
COM4 (SW4)	OFF	ON	OFF	OFF	ON	ON	ON	ON
RS-485/4W					**RS-485/2W**			
COM1 (SW1)	ON	OFF	ON	ON	OFF	OFF	ON	OFF
COM2 (SW2)	ON	OFF	ON	ON	OFF	OFF	ON	OFF
COM3 (SW3)	ON	OFF	ON	ON	OFF	OFF	ON	OFF
COM4 (SW4)	ON	OFF	ON	ON	OFF	OFF	ON	OFF



JetCard 1608 Jumper 1-4 for PCI Clock, ID Select and Interrupt Select Setting.



Jumper	Short (Default)	Indication
JP1	1-3	INT A
JP2	1-3	INT A
JP3	1-3	PCICLK 0
JP4	1-3	IDSEL 0

(Default)

Jumper	Short	Indication
JP1	4-6	INT C
JP2	2-4	INT C
JP3	2-4	PCICLK 2
JP4	2-4	IDSEL 2

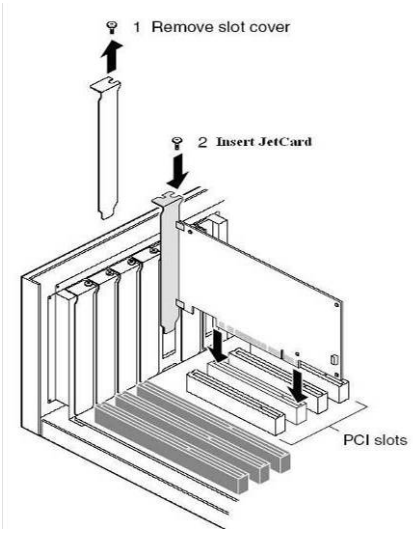
Jumper	Short	Indication
JP1	4-6	INT D
JP2	4-6	INT D
JP3	4-6	PCICLK 3
JP4	4-6	IDSEL 3

Jumper	Short	Indication
JP1	3-5	INT B
JP2	3-5	INT B
JP3	3-5	PCICLK 1
JP4	3-5	IDSEL 1

Installing Your JetCard

Follow the steps below to install your JetCard.

1. Power off the PC.
2. Remove the PC case.
3. Remove the slot cover.
4. Insert the JetCard into the PCI/PCI-104 card.
5. Tighten the JetCard with screws.
6. Place the PC case back.



For JetCard 2105, JetCard 1608 PCI-104 card

The PCI-104 form factor supports the PCI bus. The maximum configuration for the PCI bus of PCI-104 modules is four plus the Host Board.

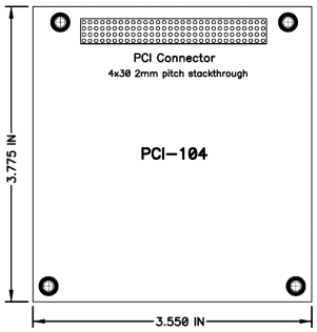
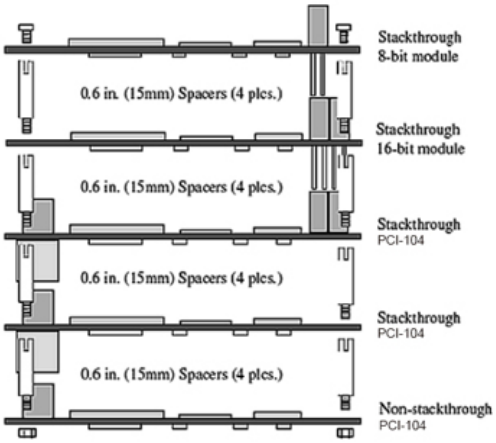
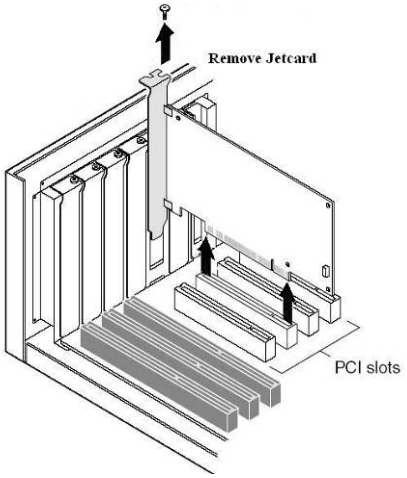


Figure 1: A Possible Module Stack Configuratuin



Removing Your JetCard

1. Power off the PC.
2. Remove the PC case.
3. Remove the screws from the JetCard.
4. Remove the JetCard.
5. Place the PC case back.



3

Software Installation

This chapter includes information about installation and configuration.

The following topics are covered in this chapter:

- **Windows**
  - Windows XP/2003
  - Windows 2000
  - Windows 98/ME
  - Windows NT
- **Linux**

Windows

Korenix JetCard Series products support Windows 2003/XP/2000/98/ME/NT OS. Follow the steps below to install the driver and configure COM ports.

Windows XP/2003

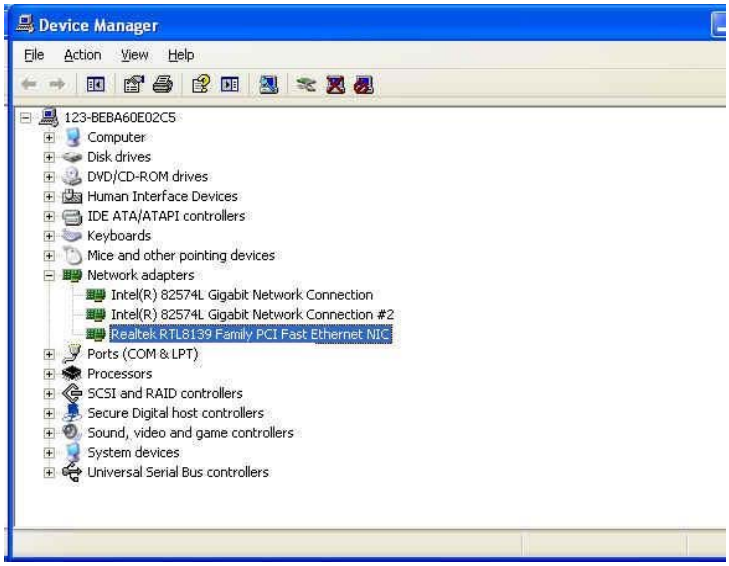
Installing the Driver for JetCard 2105/2205

Follow the hardware installation instructions in the previous chapter to install the JetCard 2105/2205 first. Windows XP/2003 will automatically detect the new JetCard 2105/2205 after you power on your PC.

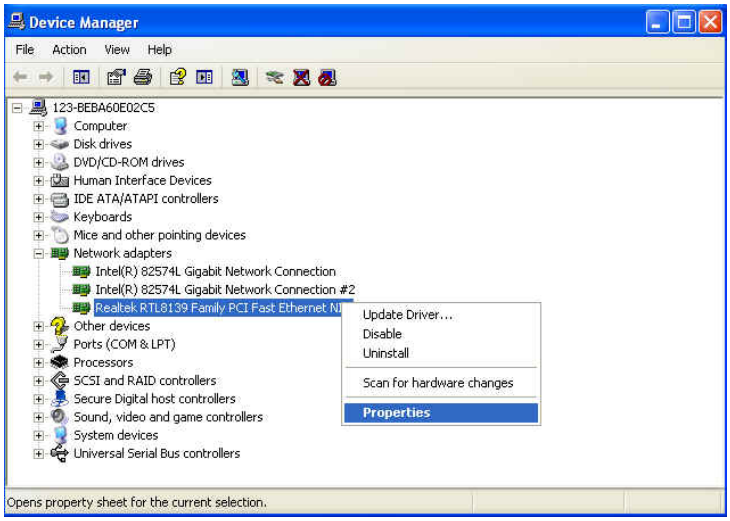
1. Found new hardward

2. Insert the JetCard software CD into the CD-ROM.

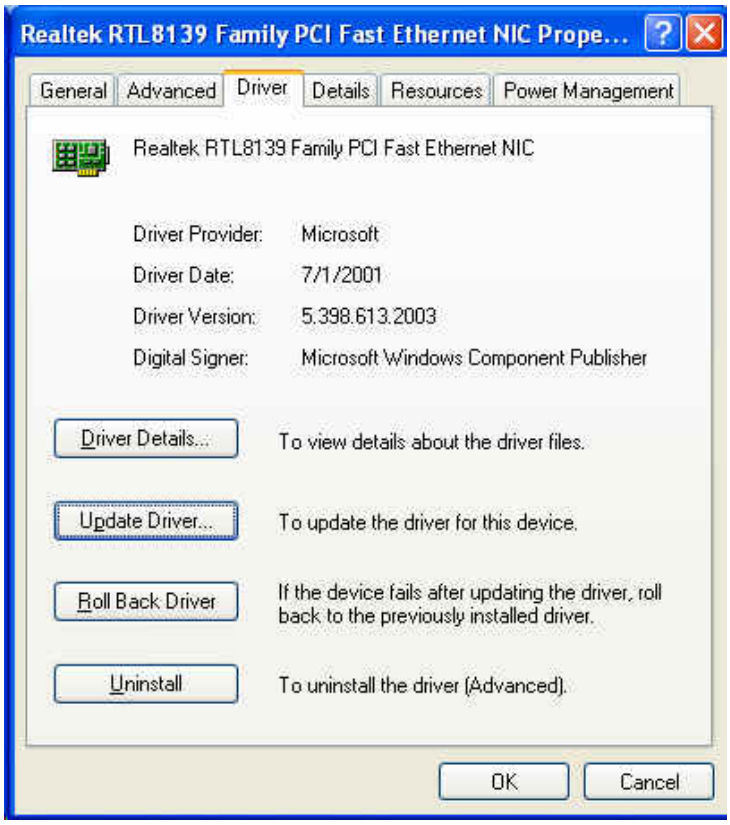
3. Select **Hardware** tab, and click on the **Device Manager** button.



4. Click on the **Properties** button



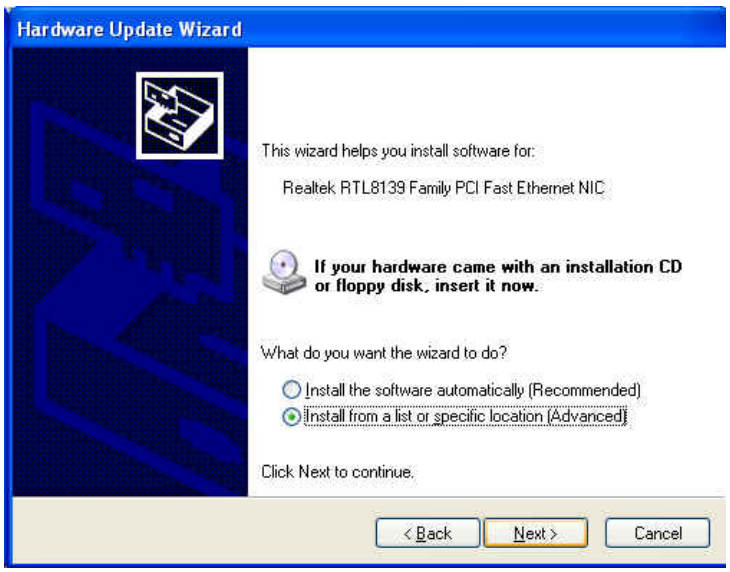
5. Click on the **Update Driver** button



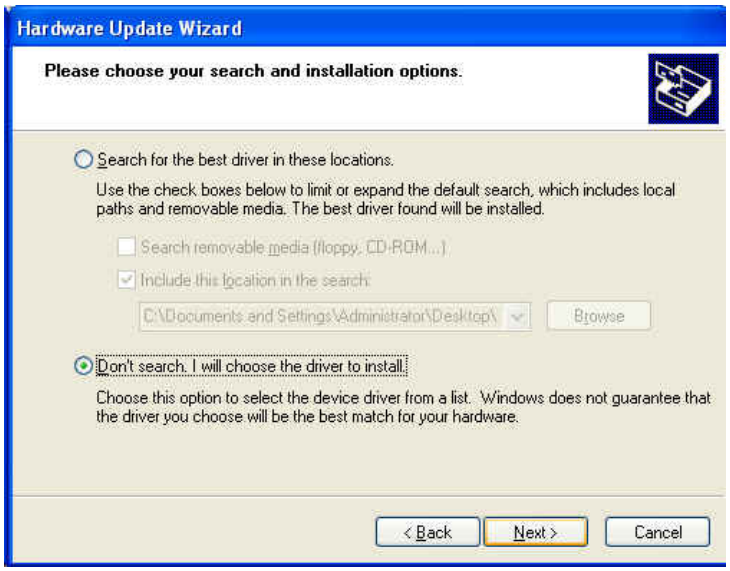
6. In the **Found New Hardware Wizard** window, select **No, not this time**, and click on **Next** to continue. Sometimes, this window might not appear. It depends on your Windows XP/2003 version.

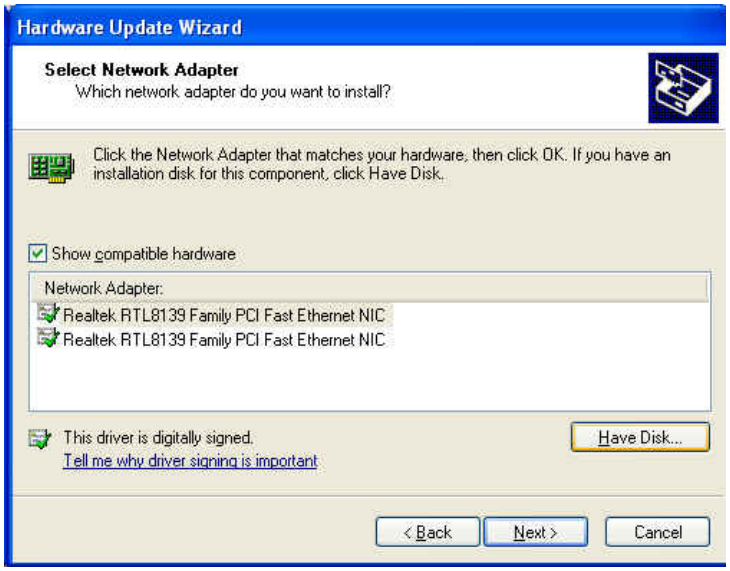


7. In the window to open next, select **Install from a list or specific location (Advanced)**, and click on **Next** to continue.

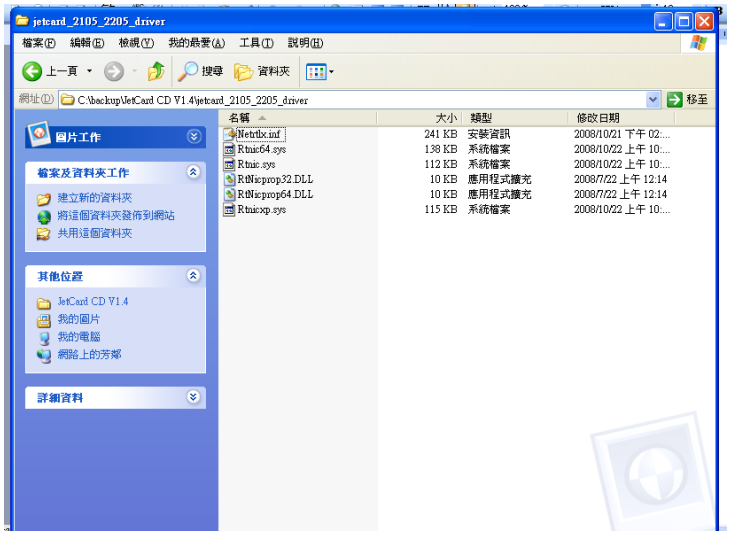


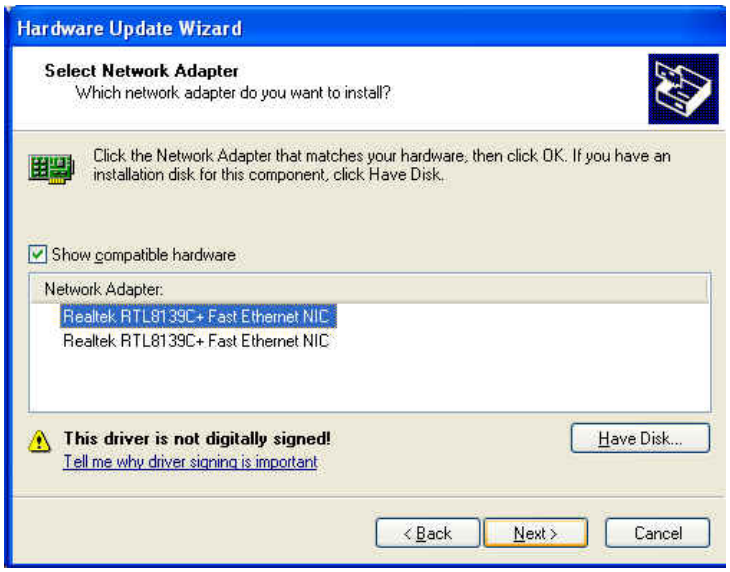
8. In the window that opens next, select **Search for the best driver in these locations**, and check **Include this location in the search**. Click on **Next** to start installing the driver.

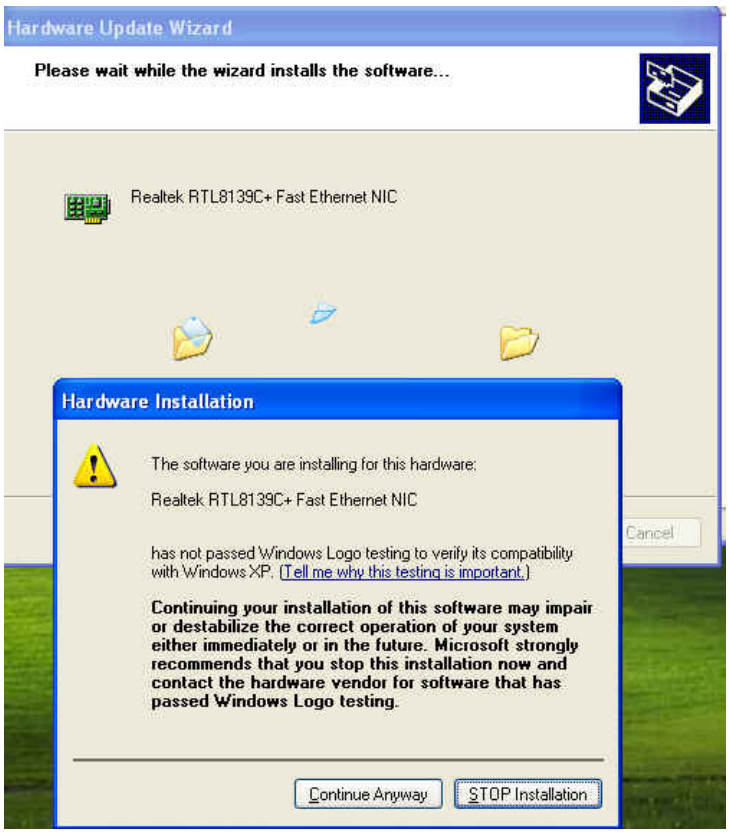


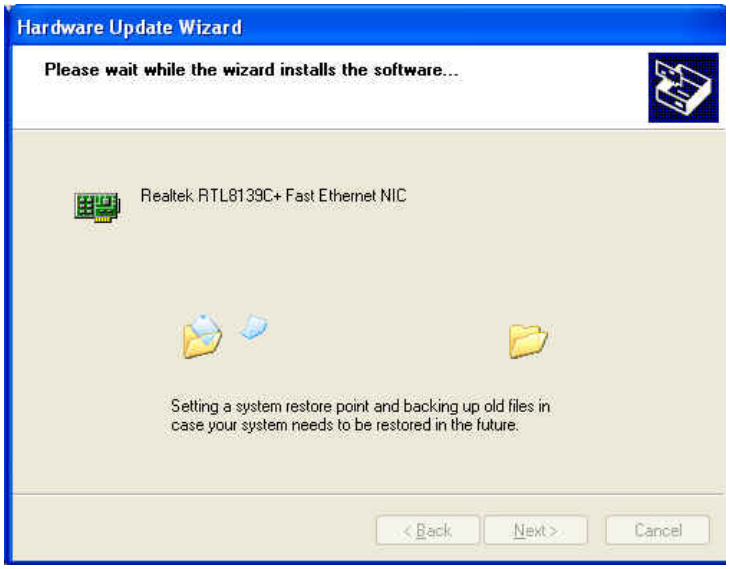


9. C:JetCard CD V1.4\jetcard_2105_2205_driver\Netrtls.inf

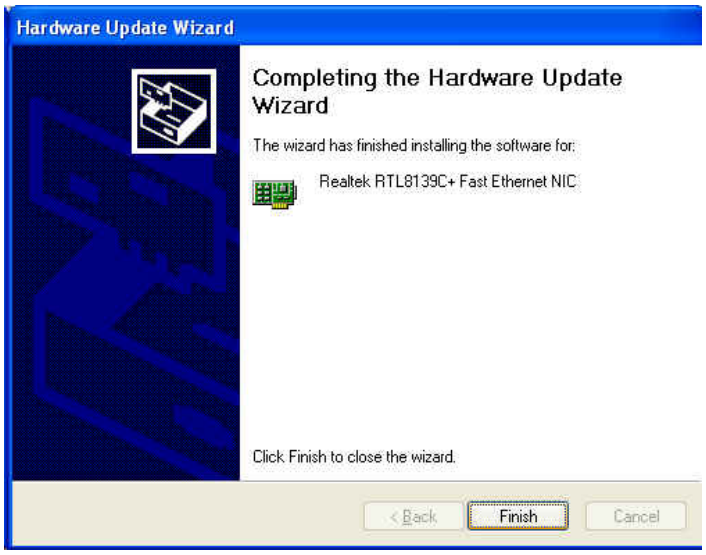





Hardware Update Wizard
Please wait while the wizard installs the software...
Realtek RTL8139C+ Fast Ethernet NIC
Hardware Installation
The software you are installing for this hardware:
Realtek RTL8139C+ Fast Ethernet NIC
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation
Cancel


Hardware Update Wizard
Please wait while the wizard installs the software...
Realtek RTL8139C+ Fast Ethernet NIC
Setting a system restore point and backing up old files in case your system needs to be restored in the future.
< Back
Next >
Cancel

10. A **Completing the Found New Hardware Wizard** window will open when the driver installation is complete. Click on **Finish** to leave the installation window.



Installing the Driver for JetCard 1200/1400/1600 Series

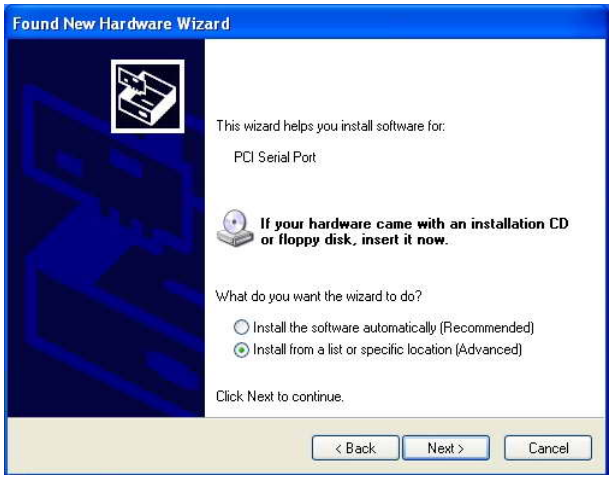
1. Follow the hardware installation instructions in the previous chapter to install the JetCard first. Windows XP/2003 will automatically detect the new JetCard after you power on your PC.



2. Insert the JetCard software CD into the CD-ROM.
3. In the **Found New Hardware Wizard** window, select **No, not this time**, and click on **Next** to continue. Sometimes, this window might not appear. It depends on your Windows XP/2003 version.



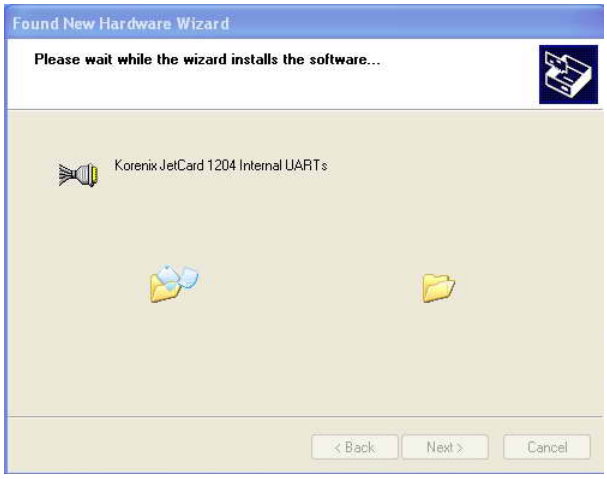
4. In the window to open next, select **Install from a list or specific location (Advanced)**, and click on **Next** to continue.



5. In the window that opens next, select **Search for the best driver in these locations**, and check **Include this location in the search**. Click on **Next** to start installing the driver.



6. The window to open next will show you that wizard starts installing the driver. In the window that prompts next, click on **Continue Anyway** to proceed the driver installation.





7. A **Completing the Found New Hardware Wizard** window will open when the driver installation is complete. Click on **Finish** to leave the installation window.

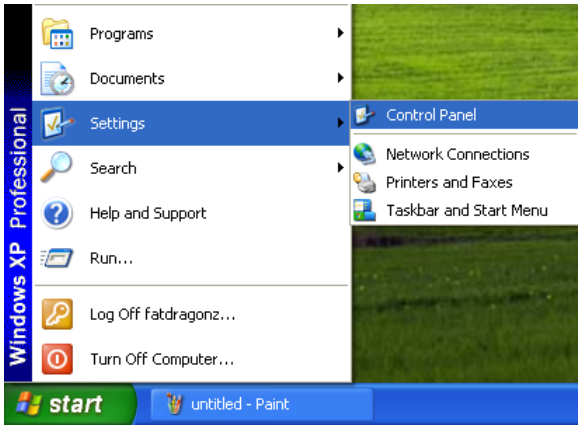


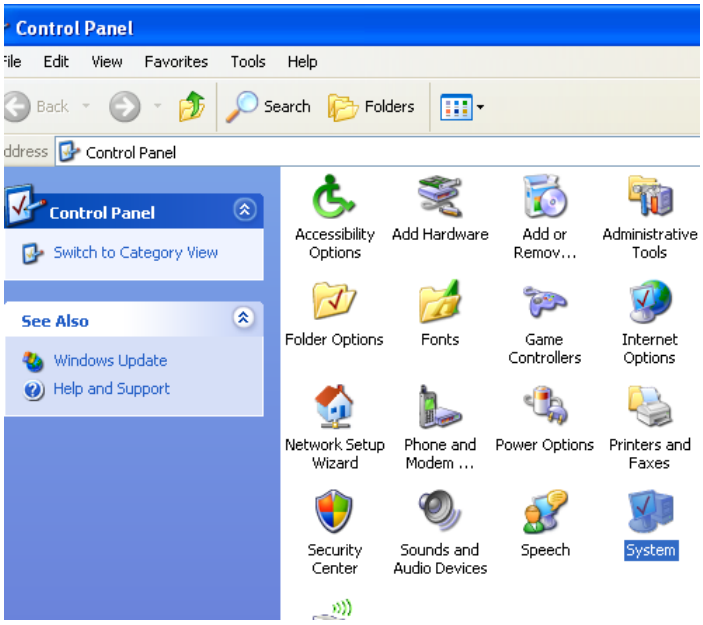
8. Next, you need to install JetCard Auxiliary Function and COM ports. The steps for installing COM ports are almost the same. Follow the windows instructions and repeat several times until each COM port is installed.

How to Check the Installation

After the driver installation is complete, follow the steps below to check if the installation is successful.

1. Click on **Start→Control Panel→System**.

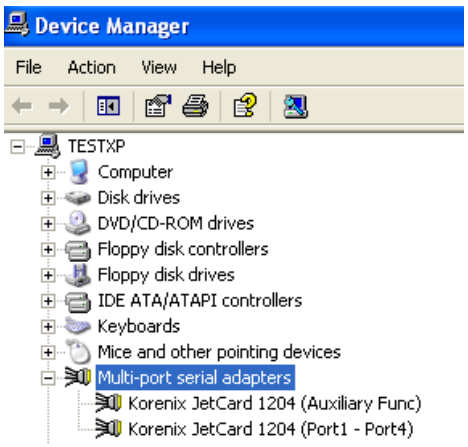




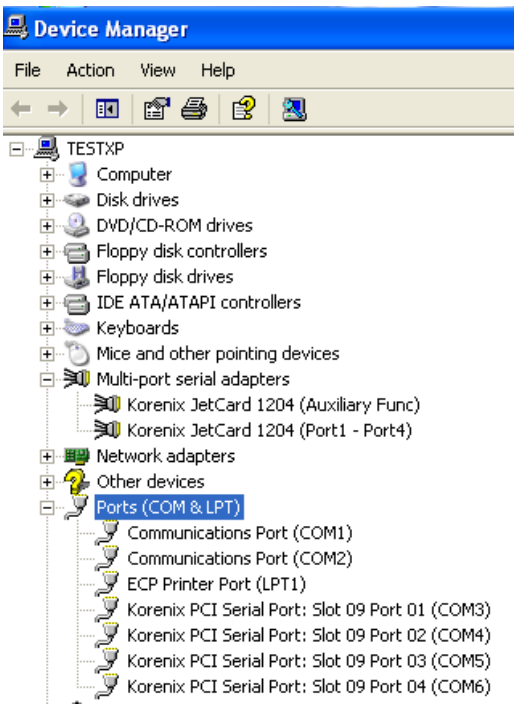
2. Select **Hardware** tab, and click on the **Device Manager** button.



3. Select **Multi-port serial adapters** to check if your JetCard is installed.



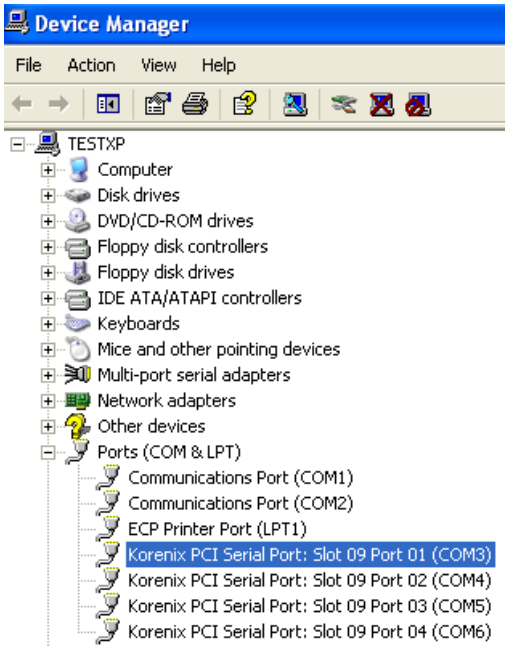
4. Select **Port (COM & LPT)** to check if each port of the JetCard is installed successfully. The port number depends on which JetCard model you installed. In this case, 4 COM ports of JetCard 1204/1204w were installed.



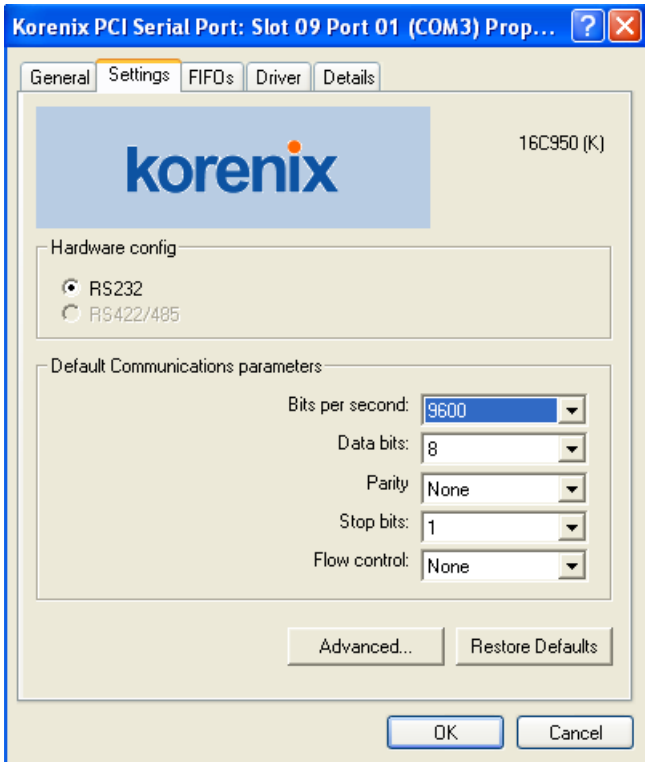
COM Port Configuration

This section includes information of how to configure COM ports.

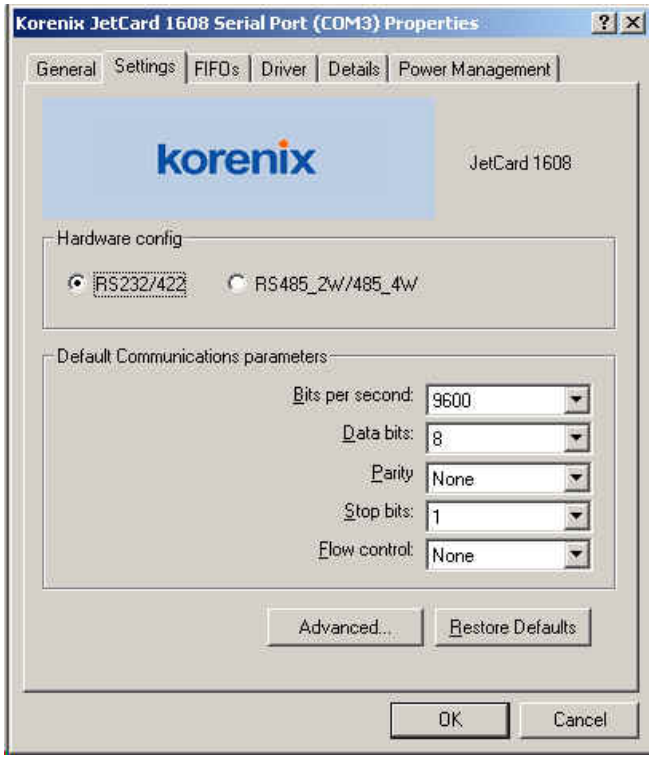
1. Click on **Start→Settings→Control Panel →System→Hardware→Device Manager**. And then double click on the COM port you wish to configure.



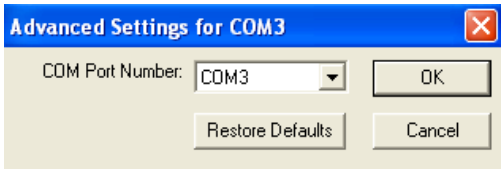
2. Select **Settings** tab. This window is for you to configure the basic settings of the COM port. If you wish to reconfigure COM port mapping, click on **Advanced…**button.



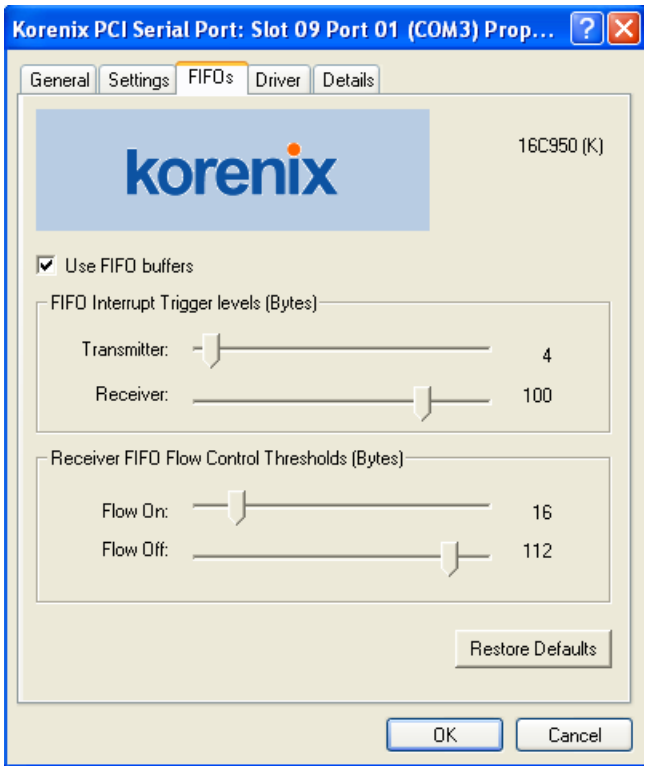
For JetCard 1608



3. In this **Advanced Settings for COM** window, you can remap this COM port.

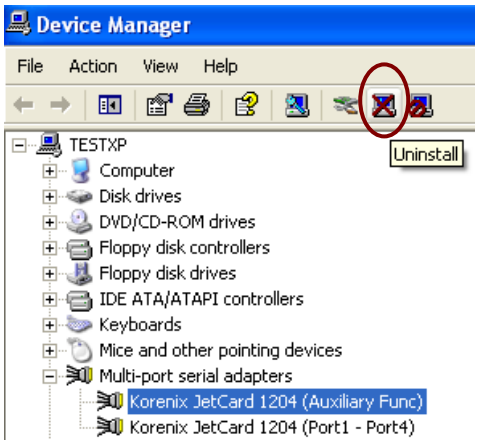


4. Select **FIFOs** tab to configure FIFO settings. In this window, you can adjust FIFO Interrupt levels and XON/XOFF Flow Control threshold.



Removing the Driver

Click on **Start→Settings→Control Panel →System→Hardware→Device Manager**. Select the JetCard and Auxiliary Function, and click on the **Uninstall** icon located in the tool bar.



Windows 2000

Installing the driver

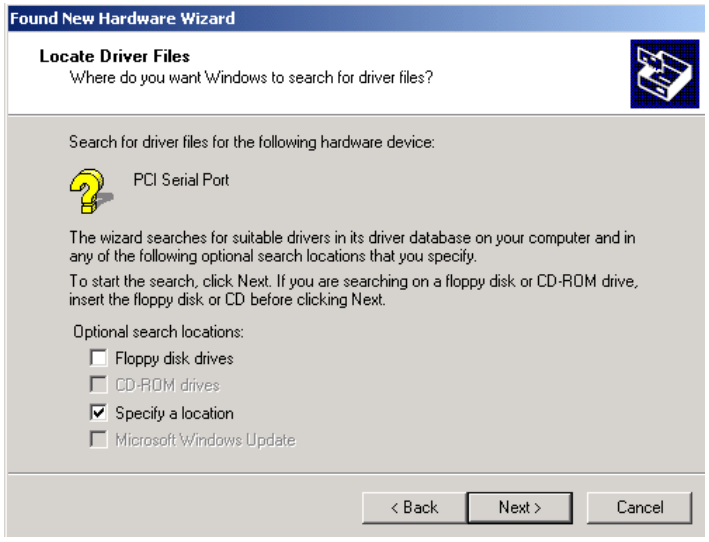
1. Follow the hardware installation instructions in the previous chapter to install the JetCard first. Windows 2000 will automatically detect the new JetCard after you power on your PC.
2. Insert the JetCard software CD into the CD-ROM.
3. The window to open next indicates that the Hardware Wizard found the new hardware. Click on **Next** to install.



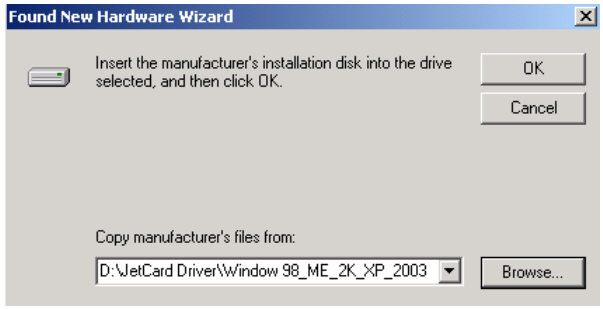
4. Select **Search for a suitable driver for my device (recommended)**, and click on **Next** to continue.



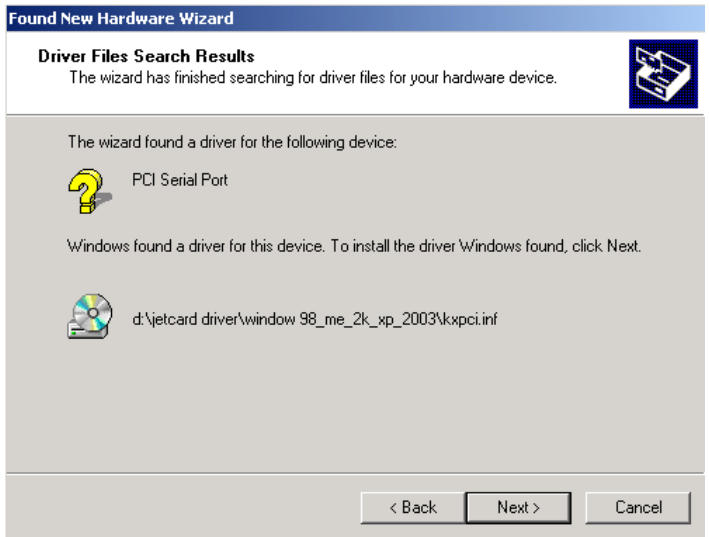
5. Select **Specify a location**, and click on **Next** to continue.



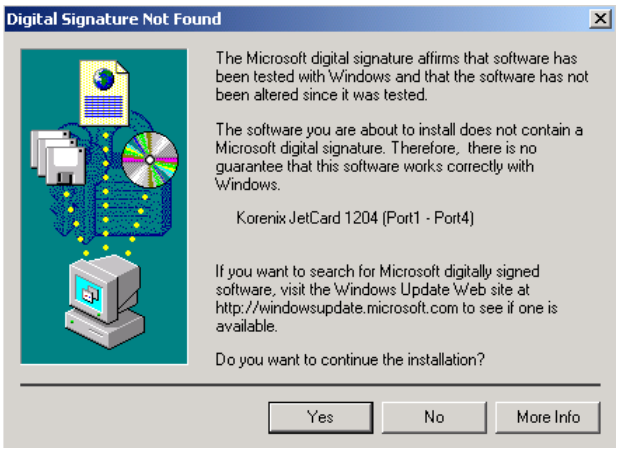
6. Use **Browse…** to locate the driver file on the CD.



7. The window that opens next shows the driver files search results. Click on **Next** to continue.



8. The **Digital Signature Not Found** window will prompt next. Click on **Yes** to continue.



9. After the driver installation is complete, click on **Finish** to leave the installation window.



10. Next, you need to install JetCard Auxiliary Function and COM ports. The steps for installing COM ports are almost the same. Follow the windows instructions and repeat several times until each COM port is installed.

How to Check the Installation

Follow the instructions in **How to Check the Installation** section in **Windows XP/2003**.

COM Port Configuration

Follow the instructions in **COM Port Configuration** section in **Windows XP/2003**.

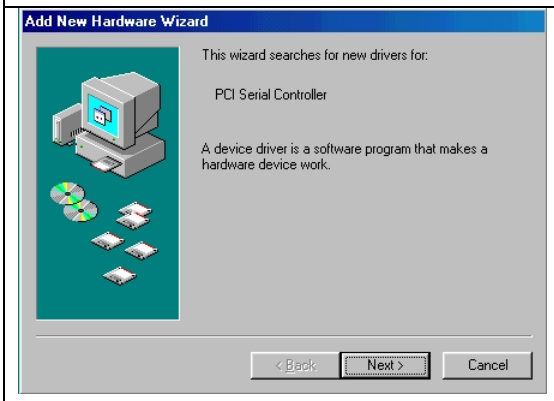
Removing the Driver

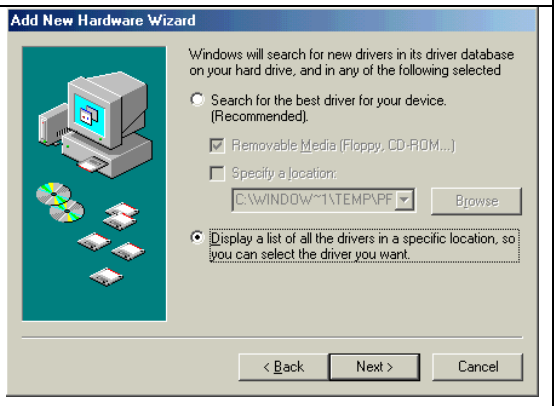
Follow the instructions in **Removing the Driver** section in **Windows XP/2003**.

Windows 98/ME

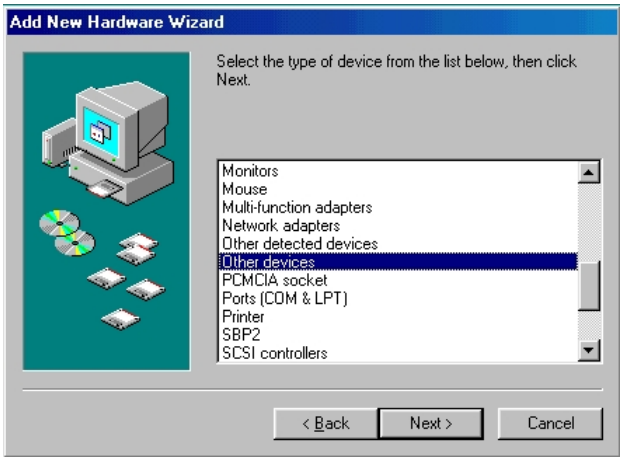
Installing the Driver

1. Follow the hardware installation instructions in the previous chapter to install the JetCard first. Windows 98/ME will automatically detect the new JetCard after you power on your PC.
2. Insert the JetCard software CD into the CD-ROM.

Windows 98	**Windows ME**
3. The window to open next indicates that the Hardware Wizard found the new hardware. Click on **Next** to install.	3. Select **Specify the location of the driver (Advanced)**. Click on **Next** to install.
	

Windows 98	**Windows ME**
4. Select **Display a list of all the drivers in a specific location, so you can select the driver you want**, and click on **Next** to continue.	4. Select **Display a list of all the drivers in a specific location, so you can select the driver you want**, and click on **Next** to continue.
	

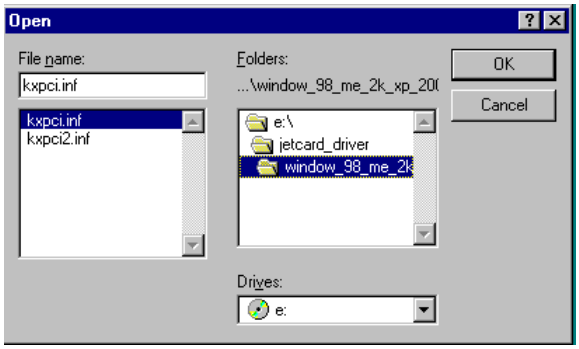
5. Select **Other Devices**, and click on **Next** to continue.



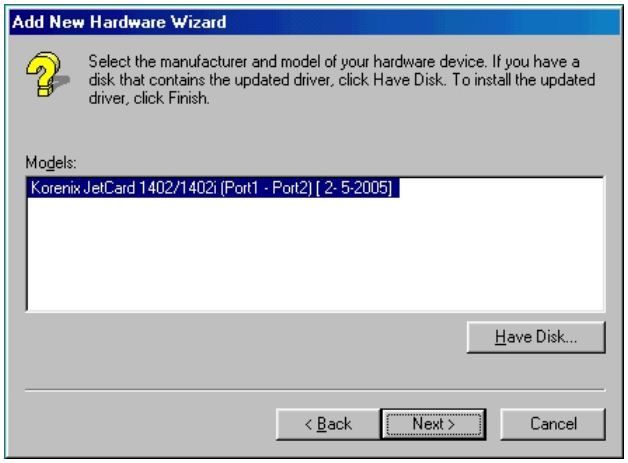
6. Click on **Have Disk…** to locate the driver file.



7. Locate the driver file on the CD, and click on **OK** to continue.



8. Click on **Next** to continue.



9. Click on **Next** to start installing the driver.



10. After the driver installation is complete, click on **Finish** to leave the installation window.



11. Next, Windows 98/ME will start to install COM ports automatically. Sit back and wait for the COM port installation to finish.

How to Check the Installation

Follow the instructions in **How to Check the Installation** section in **Windows XP/2003**.

COM Port Configuration

Follow the instructions in **COM Port Configuration** section in **Windows XP/2003**.

Removing the Driver

Follow the instructions in **Removing the Driver** section in **Windows XP/2003**.

Windows NT

Installing the Driver

1. Insert the JetCard software CD into the CD-ROM.
2. Open the **\jetcard_driver\windows_nt** folder located on the CD-ROM, and click on **KXInstaller** icon to start the driver installation.



3. Click on Next to continue.



4. In the window to open next, select **INSTALL**, and in the **License Agreement** window, click on **Yes** to agree to the terms.





5. After the driver installation is complete, click on **Exit** to leave the installation window.

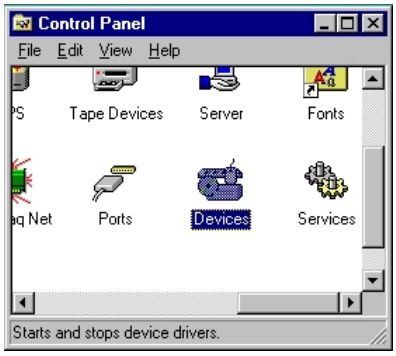


How to Check the Installation

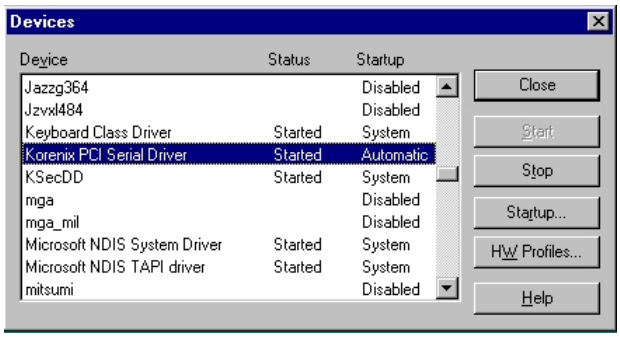
1. Click on **Start→Settings→Control Panel**.



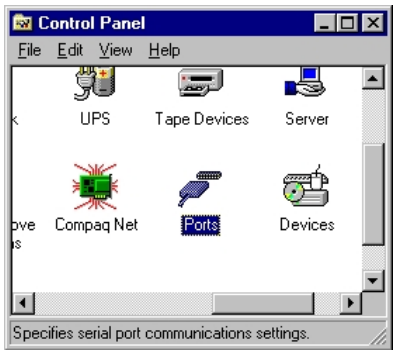
2. Double clicks on the **Devices** icon.



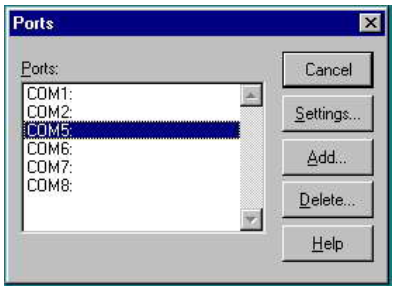
3. Windows NT Devices List will open next. Check if **Korenix PCI Serial Driver** is in the list. Click on **Close** to close the window.



4. The next step is to check COM ports installation. Double click on **Ports** icon in **Control Panel**.



5. The COM Ports list will open next. Check if the COM Ports are all successfully installed. Click on **Cancel** to close the window.



Removing the Driver

1. Repeat step 1 to 3 of **Installing the Driver** in Windows NT.
2. Click on **Uninstall** to uninstall the driver.



3. Click on **Exit** to leave the uninstallation window.

Linux

Installing the Linux Driver

Note: use **root** as the username to log in.

Note: mount your CD device and insert Korenix JetCard CD first.

1. Copy the driver file to the hard disk and decompress.

   ```
   # mkdir korenix
   # cp /mnt/cdrom/jetcard_driver/linux/jetcarddrv.tgz korenix
   # cd korenix
   # tar xfz jetcarddrv.tgz
   ```

2. Compile the driver file.

   ```
   # cd jetcarddrv
   # make
   ```

3. Create the device files.

   ```
   # ./mknod.jetcard
   ```

4. Now the JetCard driver is installed correctly. JetCard driver will be loaded into your system automatically during the next boot up. Or you could start to load the driver manually right now with the command below:

   ```
   #/etc/init.d/jetcard start
   ```

Testing JetCard Under Linux

Korenix provides a test program "**rstest**" for testing your JetCard under Linux. Before you start to test, finish the JetCard hardware and driver installation.

"**rstest**" program can test to see if two serial ports communicate with each other. You need to connect two serial ports' TX, RX, RTS, and CTS for testing ("**rstest**" uses hardware handshaking mode). The test procedures are described below:

1. You need to compile the test program if you are using "**rstest**" for the first time.

   ```
   #cd /……/korenix/jetcarddrv/rstest
   #make
   ```

2. The commands of the test program are as follows:

   ```
   #./rstest [-d] [-m] [-s n] </dev/ttyJn1> </dev/ttyJn2>

   [-d] disable RX/TX transfer test
   [-m] enable modem control line test
   [-s n] The highest test baud rate
         n = 9, baud rate = 230K
         n = 10, baud rate = 460K
         n = 11, baud rate = 921K
   ```

For Example:

Ex1. Test to see if ttyJ0 and ttyJ1 communicate with each other with baud rate up to 921 Kbps.

```
# ./rstest –s 11 /dev/ttyJ0 /dev/ttyJ1
```

Ex2. Test to see the modem line status of ttyJ0 and ttyJ1.

```
# ./rstest –d –m /dev/ttyJ0 /dev/ttyJ1
```

4

Korenix JetCard Utility

This chapter includes information about how to use Korenix JetCard Utility to test and diagnose your JetCard (except JetCard 2205/2105/1608)

The following topics are covered in this chapter:

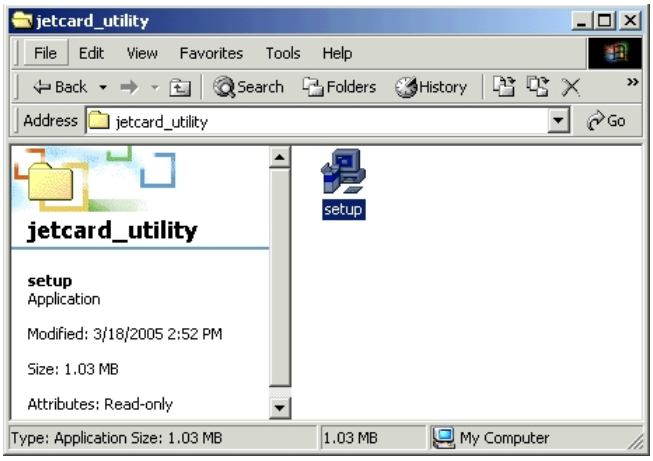
- **Installing Korenix JetCard Utility**
- **Using Korenix JetCard Utility**
  - JetCard Diagnostic Test
- **Uninstalling Korenix JetCard Utility**

After you finish JetCard's hardware and software installation, you can use the provided Korenix JetCard Utility to test functions of your communication system.

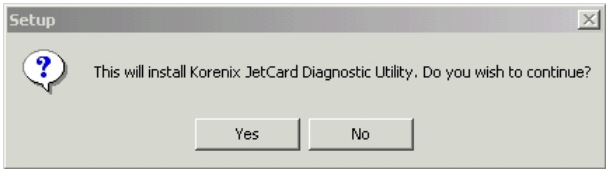
Installing Korenix JetCard Utility

Note: Korenix JetCard Utility can be operated under Windows 2003/XP/2000/ME/98.

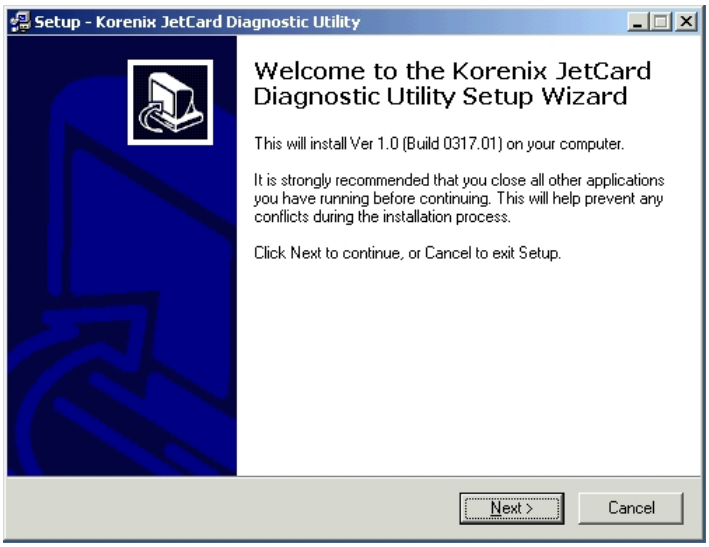
1. Insert the JetCard software CD into the CD-ROM. Locate the **setup** file in **jetcard_utility** folder.



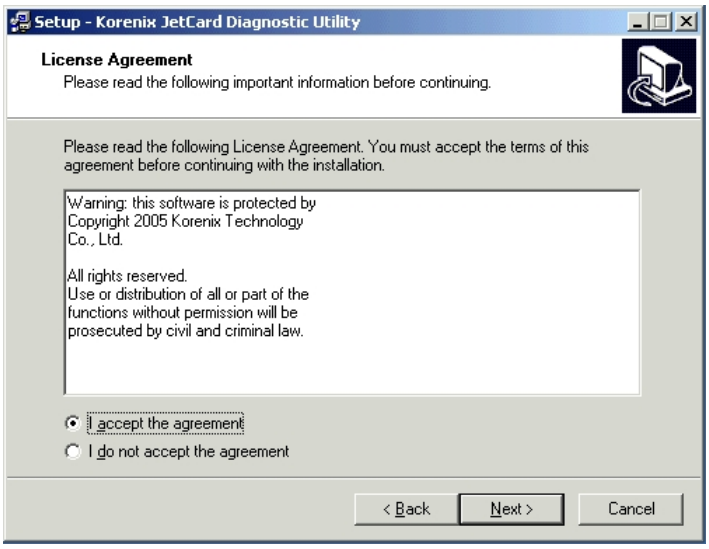
2. Click on **Yes** to continue.



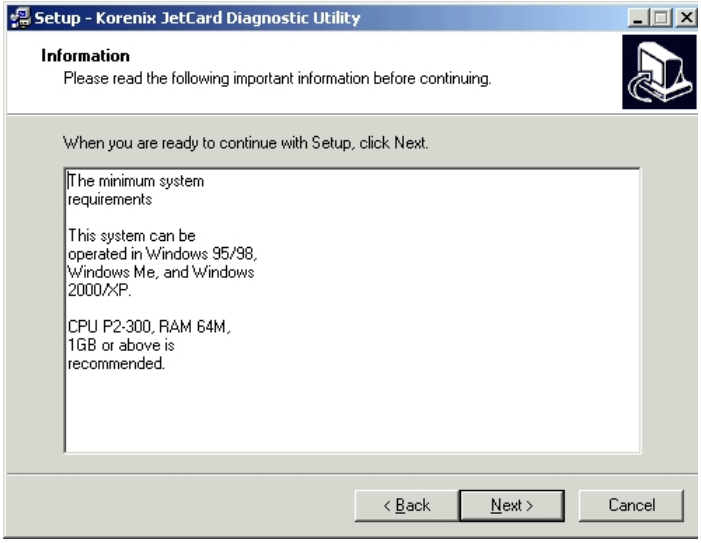
3. Click on **Next** to continue.



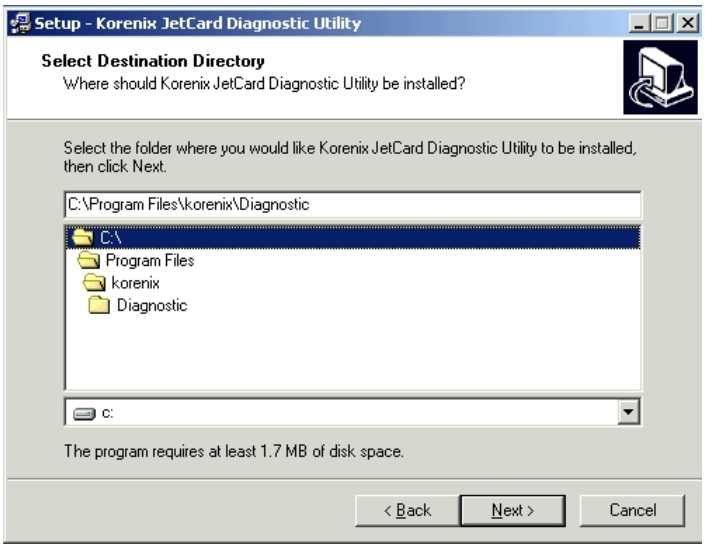
4. In the **License Agreement** window, select **I accept the agreement**, and click on **Next** to continue.



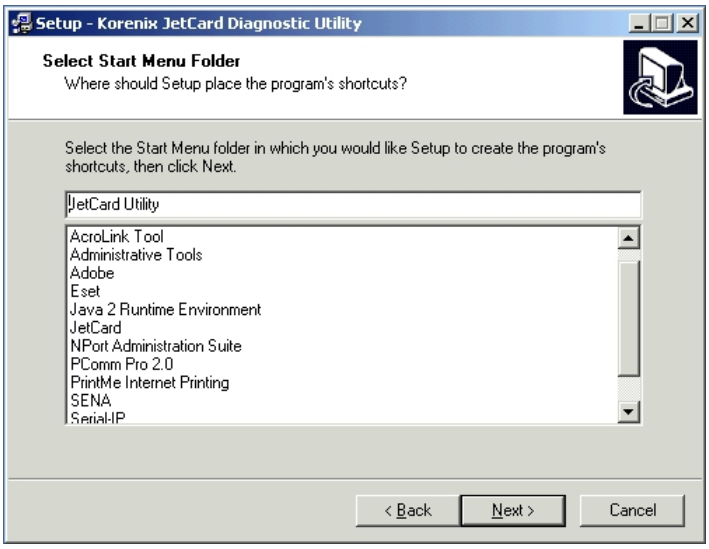
5. In the **Information** window, the setup program will inform you of the recommended system requirements. Click on **Next** to continue.



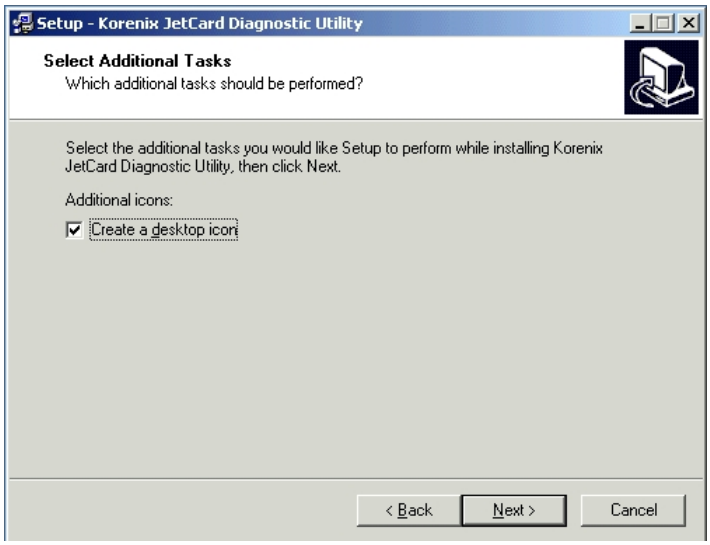
6. The setup program will ask you to select the destination where you wish to install the Korenix JetCard Utility. Click on **Next** to continue.



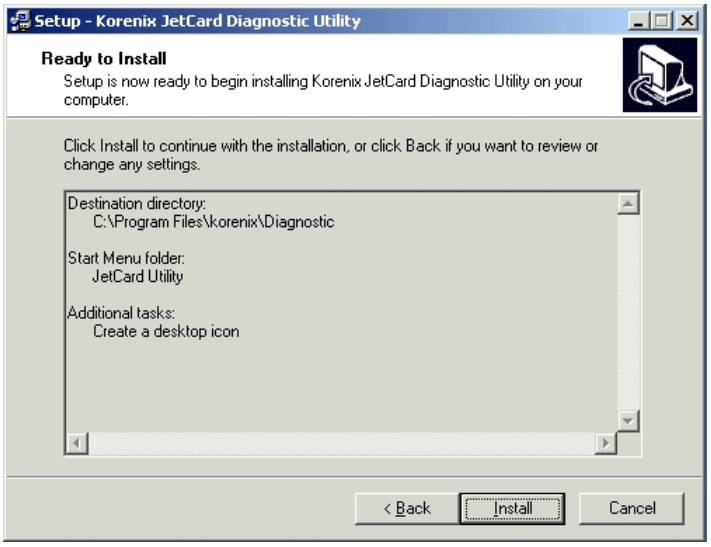
7. The window to open next will ask you where you wish to place the JetCard Utility in the Start Menu. Click on **Next** to continue.



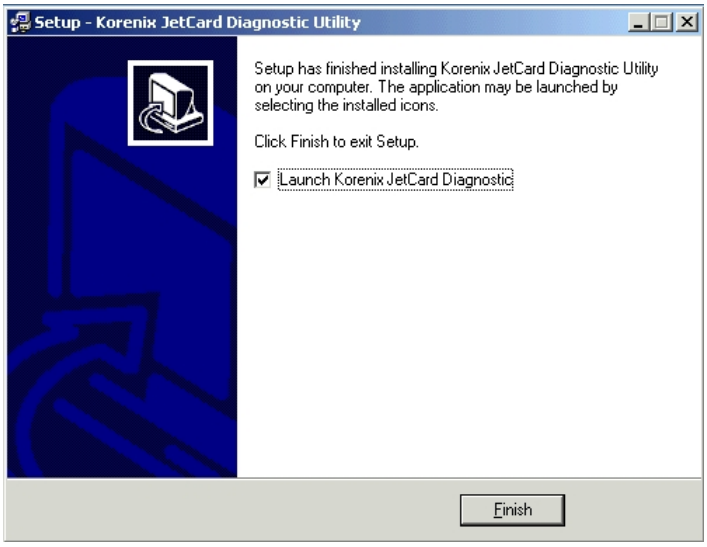
8. The window to open next will ask if you wish to create a desktop icon. Check the **Create a desktop icon** box if you wish to have a JetCard Utility icon on your desktop. Click on **Next** to continue.



9. The window to open next will allow you to confirm whether all of the settings are correct. If you wish to make changes, click on **Back** to do so. If the settings are correct, click on **Install** to start the installation process.



10. The JetCard Utility installation is complete. If you wish to start up the utility right away, check the **Launch Korenix JetCard Diagnostic** box and click on **Finish**. Otherwise uncheck the **Launch Korenix JetCard Utility** box, and click on **Finish** to leave the installation window.



Using Korenix JetCard Utility

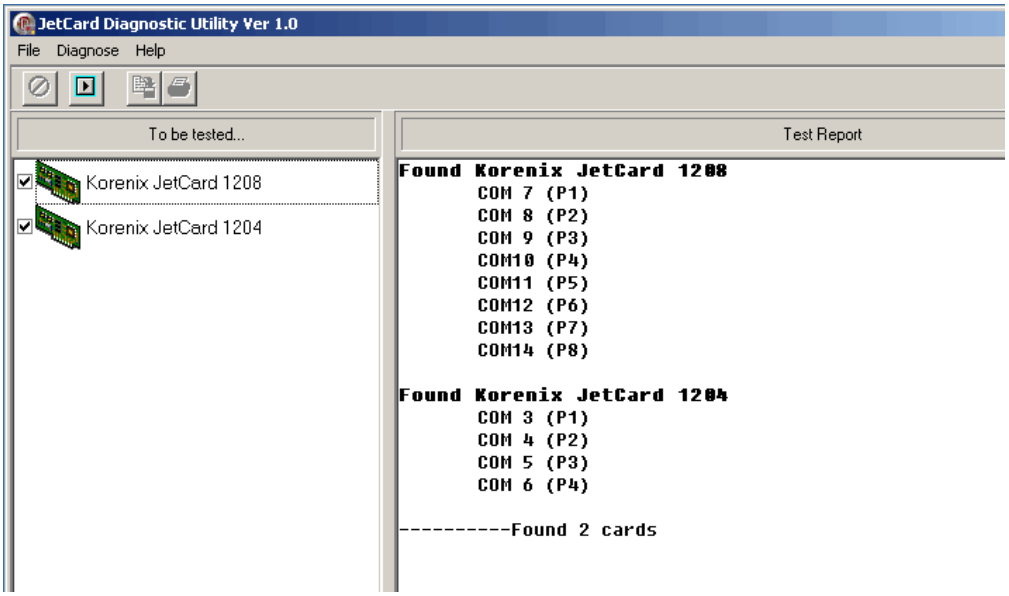
Korenix JetCard Utility comprises of JetCard Diagnostic Internal Test and External Test. The Internal Test of the JetCard Diagnostic Test can allow you to check JetCard's status, while the External Test can allow you to check if the pins and cables needed for communications are functioning normally (please use loop back circuit for your test environment).

JetCard Diagnostic Test

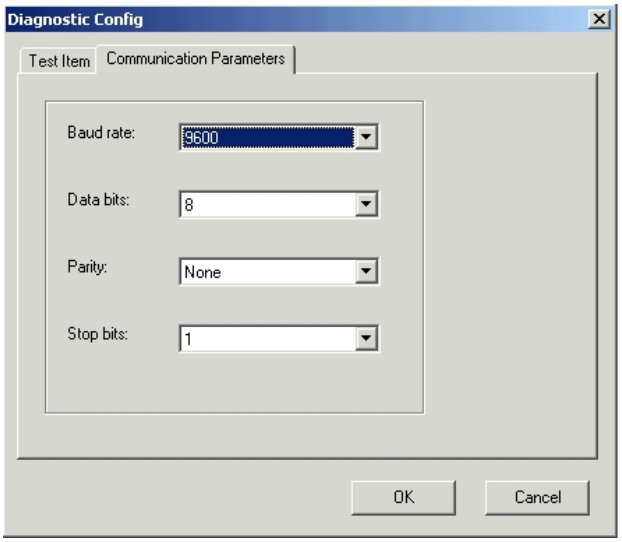
1. Double click on JetCard Utility Icon to launch the program.



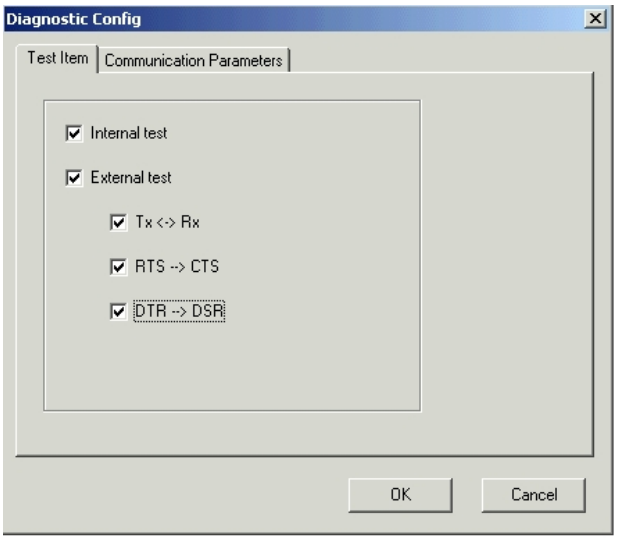
2. The JetCard Utility will automatically detect how many JetCards are installed in your PC.



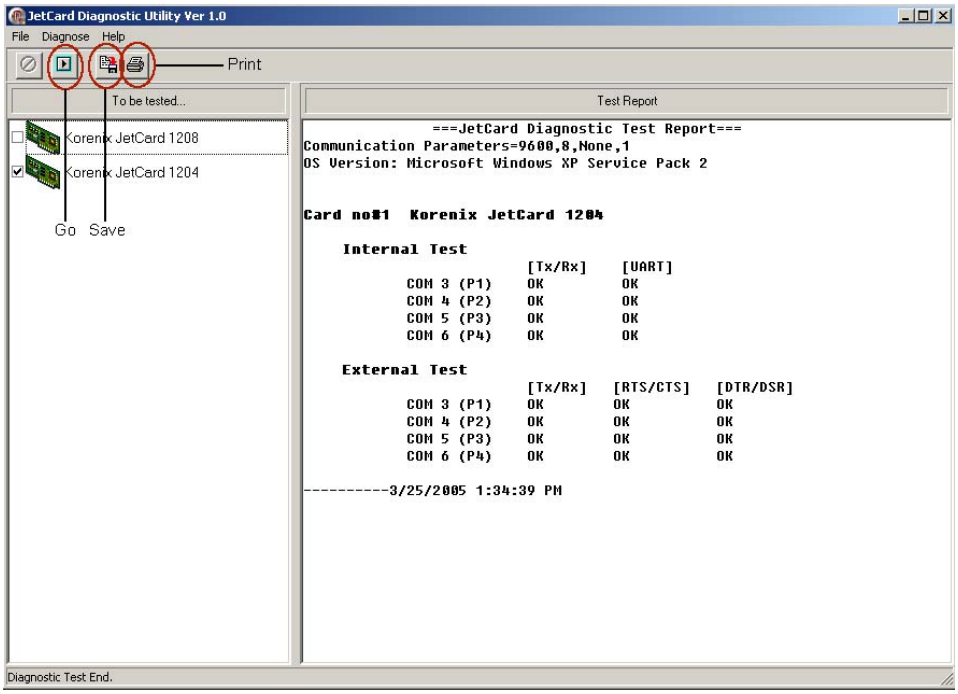
3. Click on **Diagnose→Config** to open the Diagnostic window. Click on **Communication Parameters** tag to set up serial communication basic parameters.



4. Click on **Test Item** tag to select the test you wish to perform. The Internal Test can allow you to check JetCard's status, while the External Test can allow you to check if the pins and cables needed for communications are functioning normally (please use loop back circuit for your test environment).

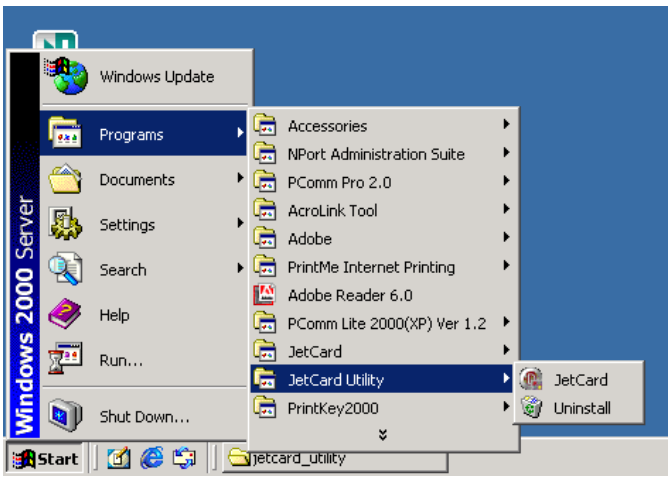


5. After finishing setting all of the parameters, click on **Diagnose→Go** or the **Go** icon to start the test. If the JetCards and pins are functioning normally, you will see **OK** message on the **Test Report**. If connections are not correct, you will see **ERR** message on the **Test Report**. You can save or print the report by clicking on the icons of the menu bar.



Uninstalling Korenix JetCard Utility

1. Click on Start→Program→JetCard Utility→Uninstall.



2. In the window to open next, click on **Yes** to start the uninstallation.



3. The uninstallation is now complete. Click on **OK** to leave the uninstallation window.


Korenix JetCard Diagnostic Utility Uninstall
Korenix JetCard Diagnostic Utility was successfully removed from your computer.
OK

5

Cable Selection and Cable Wiring

This chapter includes information of how to select cables for your systems and cable pin assignments.

The following topics are covered in this chapter:

- **Cable Selection and Pin Assignments**
  - JetCard 1204/1204w/1208/1208w
  - JetCard 1402/1402i
  - JetCard 1404/1404i
  - JetCard 1608
- **RS-232/422/485 Cable Wiring**

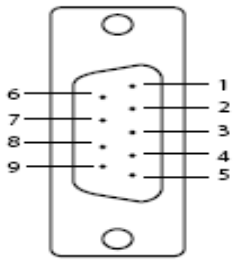
Cable Selection and Pin Assignments

Korenix provides 4 types of cables for JetCard Series, which are CM62M9x8, CM62M25x8, CM37M9x4 and CM37M25x4. These 4 cables can convert JetCard DB37/DB62 connectors into 4/8 sets of DB9 or DB25 male connectors.

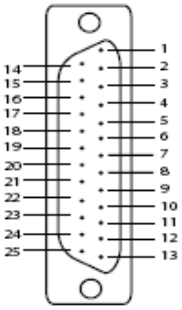
Accessories

1. CM37M9x4-60: Male DB37 to 4-port male DB9 cable, 60cm (for JetCard 1204, 1204w 1404, 1404i, 1608, 1608w)
2. CM37M25x4-60: Male DB37 to 4-port male DB25 cable, 60cm (for JetCard 1204, 1204w, 1404, 1404i, 1608, 1608w)
3. CM62M9x8-100: Male DB62 to 8-port male DB9 cable, 60cm (for JetCard 1208, 1208w)
4. CM62M25x8-100: Male DB62 to 8-port male DB25 cable, 60cm (for JetCard 1208, 1208w)

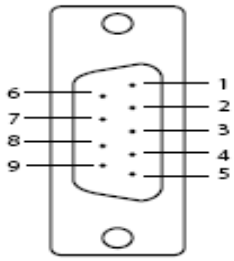
JetCard 1208, JetCard 1208w, JetCard 1204, JetCard 1204w, JetCard 1404, JetCard 1404i Pin Assignments



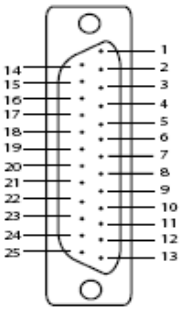
DB-9 Pin	RS-232	RS-422	RS-485 4 wires	RS-485 2 wires
1	DCD	TxD-(A)	TxD-(A)	Data-(A)
2	RxD	TxD+(B)	TxD+(B)	Data+(B)
3	TxD	RxD+(B)	RxD+(B)	
4	DTR	RxD-(A)	RxD-(A)	
5	GND	GND	GND	GND
6	DSR	RTS-(A)		
7	RTS	RTS+(B)		
8	CTS	CTS+(B)		
9		CTS-(A)		



DB-25 Pin	RS-232	RS-422	RS-485 4 wires	RS-485 2 wires
2	TxD	RxD+(B)	RxD+(B)	
3	RxD	TxD+(B)	TxD+(B)	Data+(B)
4	RTS	RTS+(B)		
5	CTS	CTS+(B)		
6	DSR	RTS-(A)		
7	GND	GND	GND	GND
8	DCD	TxD-(A)	TxD-(A)	Data-(A)
20	DTR	RxD-(A)	RxD-(A)	
22		CTS-(A)		

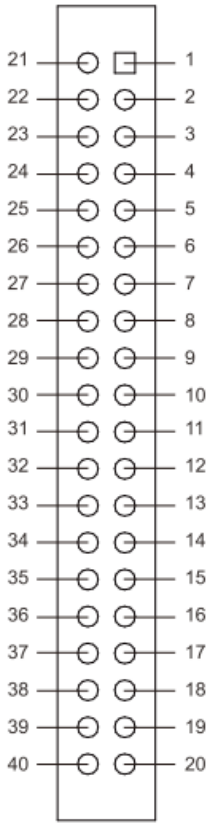


		RS-422	RS-485 4 wires	RS-485 2 wires
		TxD-(A)	TxD-(A)	Data-(A)
		TxD+(B)	TxD+(B)	Data+(B)
		RxD+(B)	RxD+(B)	
4	DTR	RxD-(A)	RxD-(A)	
5	GND	GND	GND	GND
6	DSR			
7	RTS			
8	CTS			
9				



		RS-422	RS-485 4 wires	RS-485 2 wires
		RxD+(B)	RxD+(B)	
		TxD+(B)	TxD+(B)	Data+(B)
		RTS+(B)		
		CTS+(B)		
6	DSR	RTS-(A)		
7	GND	GND	GND	GND
8	DCD		TxD-(A)	Data-(A)
20	DTR		RxD-(A)	
22				

JetCard 1608 Box header Pin Assignments



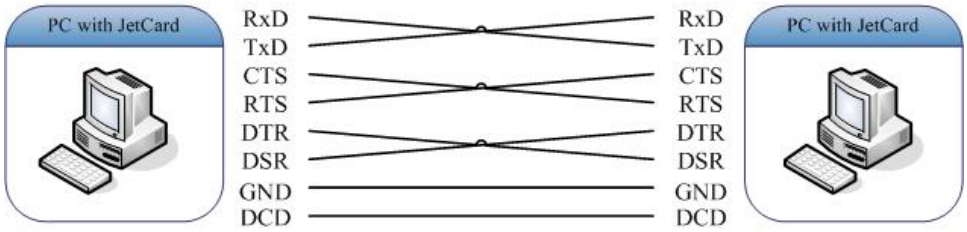
COM2-1 (COM5~COM8)			
1		21	DTR7
2	DCD7	22	DSR7
3	GND	23	RTS7
4	CTS7	24	TXD7
5	RXD7	25	DCD8
6	RI8	26	GND
7	DTR8	27	CTS8
8	DSR8	28	RXD8
9	RTS8	29	RI6
10	TXD8	30	DTR6
11	DCD6	31	DSR6
12	GND	32	RTS6
13	CTS6	33	TXD6
14	RXD6	34	DCD5
15	RI5	35	GND
16	DTR5	36	CTS5
17	DSR5	37	RXD5
18	RTS5	38	
19	TXD5	39	
20	RI7	40	

COM2-2 (COM5~COM8)			
1		21	DTR7
2	DCD7	22	DSR7
3	GND	23	RTS7
4	CTS7	24	TXD7
5	RXD7	25	DCD8
6	RI8	26	GND
7	DTR8	27	CTS8
8	DSR8	28	RXD8
9	RTS8	29	RI6
10	TXD8	30	DTR6
11	DCD6	31	DSR6
12	GND	32	RTS6
13	CTS6	33	TXD6
14	RXD6	34	DCD5
15	RI5	35	GND
16	DTR5	36	CTS5
17	DSR5	37	RXD5
18	RTS5	38	
19	TXD5	39	
20	RI7	40	

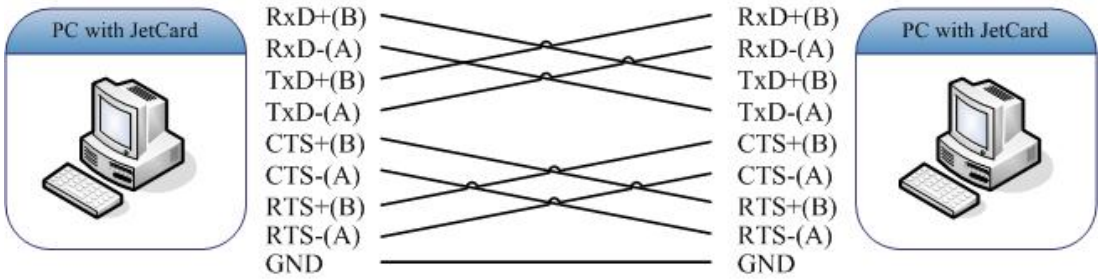
RS-232/422/485 Cable Wiring

In this section, we will talk about RS-232/422/485 cable wiring in detail by presenting several wiring examples.

Example 1

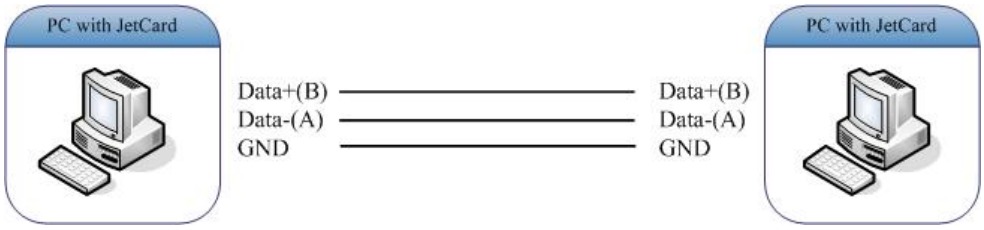
Topology Type	Point-to-Point RS-232
Model Name	JetCard 1204/1204w, JetCard 1208/1208w
	
In this example, you can use standard DB9 or DB25 cross-over cables to connect 2 PCs with JetCard Series RS-232 Multiport Serial Cards installed. Since the handshaking signals (CTS, RTS, DTR, DSR) are connected too, you can select Hardware Handshaking options in your application software for communications. Please note that RS-232 transmission distance is up to 15m (50ft).	

Example 2

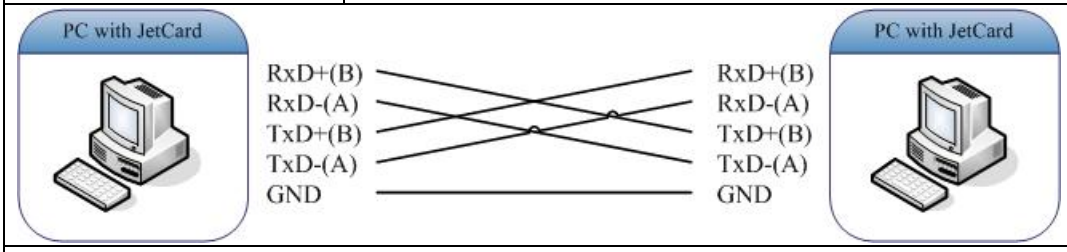
Topology Type	Point-to-Point RS-422
Model Name	JetCard 1402, JetCard 1402i JetCard 1404, JetCard 1404i
	
In this example, you can use 4 twisted pairs of cables and a ground cable to connect 2 PCs with JetCard Series RS-422/485 Multiport Serial Cards installed. These JetCards are configured to RS-422 mode. Since 2 of the twisted pairs of cables (CTS+(B), CTS-(A), RTS+(B), RTS-(A)) are connected too, you can select Hardware Handshaking options in your application software for communications. Please note that RS-422 transmission distance is up to 1200m (5000ft).	

Example 3

Topology Type	Point-to-Point 2-wire RS-485
Model Name	JetCard 1402, JetCard 1402i

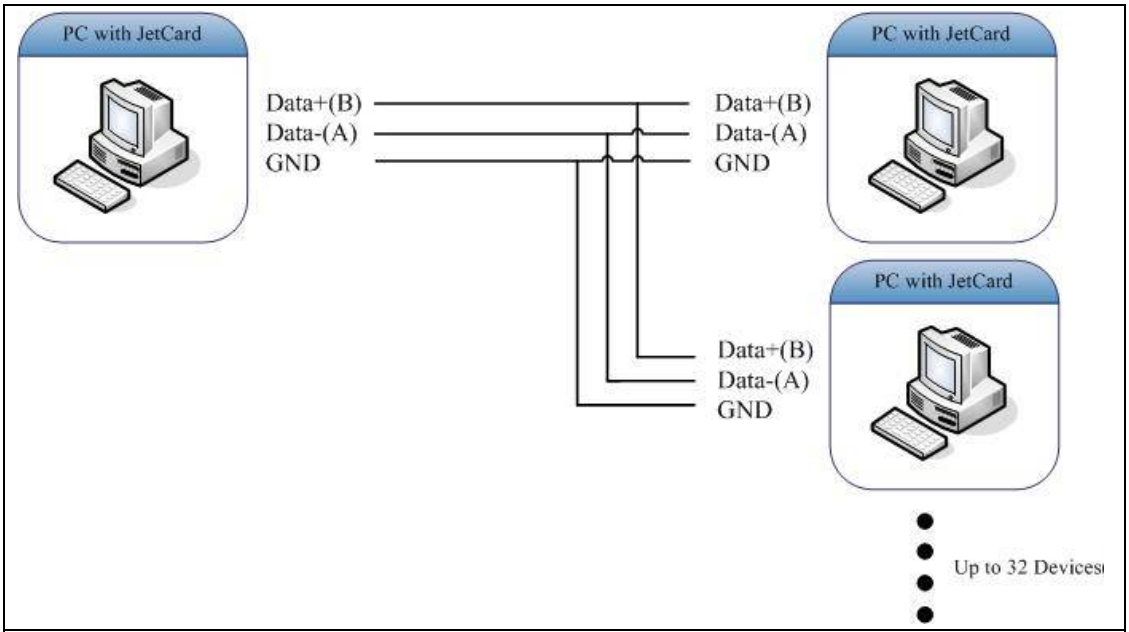
	JetCard 1404, JetCard 1404i
	
In this example, you can use 1 twisted pair of cables and a ground cable to connect 2 PCs with JetCard Series RS-422/485 Multiport Serial Cards installed. These 2 JetCards are configured to 2-wire RS-485 mode. Please note that RS-485 transmission distance is up to 1200m (5000ft).	

Example 4

Topology Type	Point-to-Point 4-wire RS-485
Model Name	JetCard 1402, JetCard 1402i JetCard 1404, JetCard 1404i
	
In this example, you can use 2 twisted pairs of cables and 1 ground cable to connect 2 PCs with JetCard Series RS-422/485 Multiport Serial Cards installed. These 2 JetCards are configured to 4-wire RS-485 mode. Please note that RS-485 transmission distance is up to 1200m (5000ft).	

Example 5

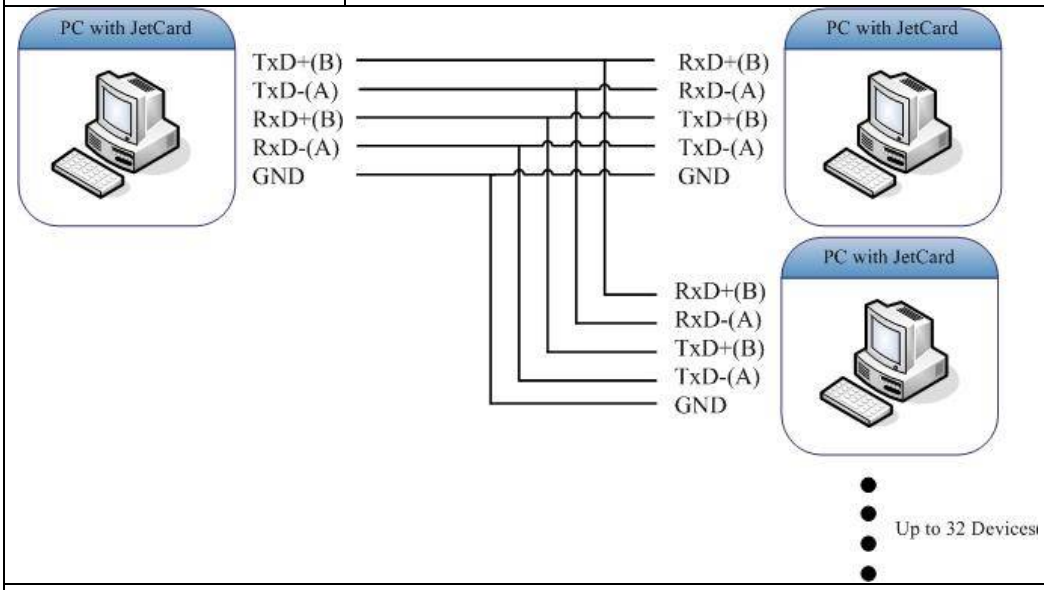
Topology Type	Multidrop 2-wire RS-485
Model Name	JetCard 1402, JetCard 1402i JetCard 1404, JetCard 1404i



In this case, you can use 1 twisted pair of cables and 1 ground cable to connect multiple PCs with JetCard Series RS-422/485 Multiport Serial Cards installed via Bus interface. All JetCards are configured to 2-wire RS-485 mode. Please note that RS-485 transmission distance is up to 1200m (5000ft). In this topology, the number of connected devices (JetCards) can be up to 32.

Example 6

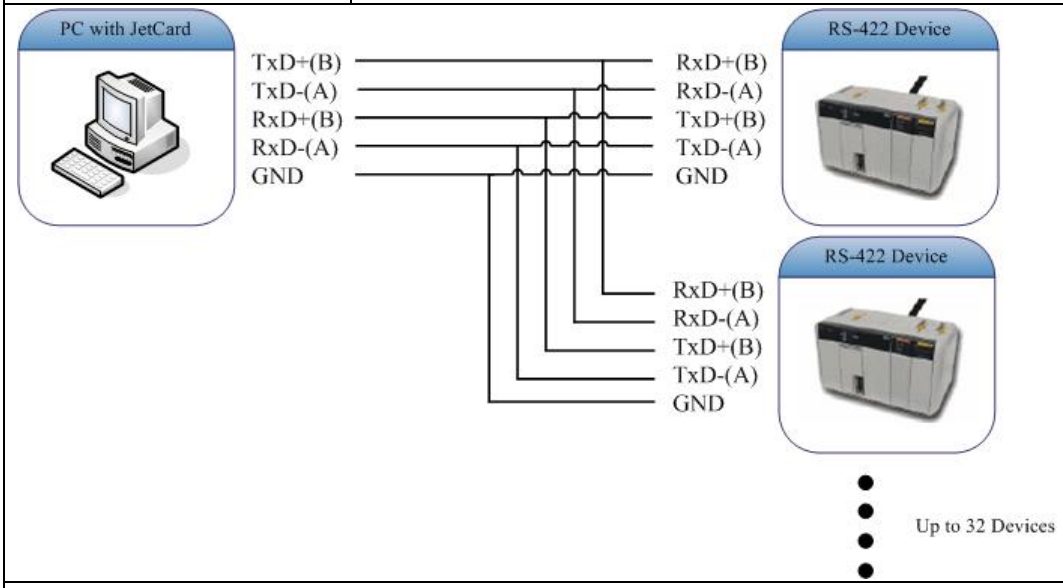
Topology Type	Multidrop 4-wire RS-485
Model Name	JetCard 1402, JetCard 1402i JetCard 1404, JetCard 1404i



In this example, you can use 2 twisted pairs of cables and 1 ground cable to connect multiple PCs with JetCard Series RS-422/485 Multiport Serial Card installed. All JetCards are configured to 4-wire RS-485 mode. Please note that RS-485 transmission distance is up to 1200m (5000ft). In this topology, the number of connected devices (PCs) can be up to 32.

Example 7

Topology Type	RS-422 Broadcasting
Model Name	JetCard 1402, JetCard 1402i JetCard 1404, JetCard 1404i



In this example, you can use 2 twisted pairs of cables and 1 ground cable to connect 1 host PC and multiple RS-422 devices. The host PC is configured to RS-422 mode. Please note that RS-422 transmission distance is up to 1200m (5000ft). In this topology, the number of connected RS-422 devices can be up to 32.

A

Selection Guide

Korenix Industrial Product Selection Guide - Multiport Serial Card


JetCard 1204 / 1204-w


JetCard 1208 / 1208-w


JetCard 1402 / 1402i


JetCard 1404 / 1404i


JetCard 1608 / 1608-w

Multi-port

Function	UPCI	UPCI	UPCI	UPCI	PCI-104
Ports	RS-232 x4	RS-232 x8	RS-422/485 x2	RS-422/485 x4	RS-232/422/485 x4 RS-232 x4 (Internal)
Max. stacked boards	4	4	4	4	4
Bus interface	32-bit Universal PCI	32-bit Universal PCI	32-bit Universal PCI	32-bit Universal PCI"	32-bit PCI-104
Board connector	DB-37 female	DB-37 female	DB-9 male x2	DB-9 male x2	DB-37 female x1 Box header x1
Cable connection	DB-9/ DB-25	DB-9/ DB-25	DB-9/ DB-25	DB-9/ DB-25	DB-9/ DB-25
Communication Controller	16C950 compatible	16C950 compatible	16C950 compatible	16C950 compatible	Oxford OXmPCI954
Performance	FIFO 128 Bytes, Up to 921.6Kbps, 15KV ESD protection HW/SW Flow control				FIFO 128 Bytes, Up to 921.6Kbps, 15KV ESD protection，SW Flow control
Optical Isolation Protection: 2KV per Port			JetCard 1402i	JetCard 1404i	
Operating Temp.	-10~70°C (JetCard 1204) -40~80°C (JetCard 1204-w)	-10~70°C (JetCard 1208) -40~80°C (JetCard 1208-w)			-25~70°C (JetCard 1608) -40~80°C (JetCard 1608-w)
OS supported	98/Me/NT/2000/ XP/2003/Linux 2.4.x/2.6.x				NT/2000/XP/2003/Linux2.6.x (optional)


JetCard 2205 / 2205-w


JetCard 2105 / 2105-w

Ethernet Switch Card

Function	UPCI	PCI-104
Ports	10/100Mbps Ethernet x5	10/100Mbps Ethernet x5
Max. stacked boards	5	5
Bus interface	32-bit Universal PCI	32-bit PCI-104
Board connector	RJ45 1x4 external RJ45 x1 internal	RJ45 1x4 external RJ45 x1 internal
Cable connection	RJ45	RJ45
Communication Controller	Realtek 8139C+ Marvell 88E6065	Realtek 8139C+Marvell 88E6065
Performance	QoS/ VLAN, 10/100Mbps with auto-MDI/MDI-X, Ethernet Statistics monitor, SW Flow control, 1.5KV Hi-pot	
Operating Temp.	-25~70°C (JetCard 2205) -40~80°C (JetCard 2205-w)	-25~70°C (JetCard 2105) -40~80°C (JetCard 2105-w)
OS supported	Me/NT/2000/XP/2003/Linux 2.4.x/2.6.x	Me/NT/2000/XP/2003/Linux 2.4.x/2.6.x

B

Revision History

Version	Description	Date
V1.0	The first released version.	Mar. 2005
V1.1	Add JetCard 1404/i	Aug. 2005
V1.2	Add JetCard 2105/2205/1608	Dec. 2008