CA-104

User's Manual

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Moxa Technologies Co., Ltd. Tel: +886-2-8919-1230 Fax: +886-2-8919-1231

www.moxa.com support@moxa.com.tw

CA-104 User's Manual

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1 Introduction

Welcome to MOXA CA-104 Series of advanced 4-port RS-232 PC/104 communication modules, a new industrial multiport serial board solution. With its PC/104 standard, CA-104 is compatible with any PC/104 CPU module or CPU card that accepts PC/104 expansion modules.

The following topics are covered in this chapter:

- **Overview**
- Package Checklist
- Product Features
- **D** Product Specifications

Overview

CA-104 is a PC/104 module that supports the RS-232 serial interface, and can be used with PC/104 CPU modules or CPU cards that accept PC/104 expansion modules.CA-104 has 4 RS-232 ports accessed through RJ-45 connectors. You can configure the I/O Base Address and INT Vector of each port by two 7-switch DIP switch panels. The module's industry-standard MOXA UART (16C550 compatible) is fully programmable. The built-in 16 KV ESD surge protection protects other devices connected to the RS-232 network.

Package Checklist

MOXA CA-104 products are shipped with the following items:

- 1 MOXA CA-104 4-port serial board
- CA-104 Document & Software CD
- CA-104 Quick Installation Guide

NOTE: Notify your sales representative if any of the above items is missing or damaged.

Product Features

CA-104 products enjoy the following features:

- 4 RS-232 ports
- Tx/Rx LEDs for each port
- High speed data transmission—up to 230.4 Kbps
- DIP Switches for I/O Base address and Interrupt Vector
- IRQ settings are selectable by jumper
- Built-in 16 KV ESD surge protection for each serial port
- 64-byte FIFOs

Product Specifications

CA-104's specifications:

- Dimensions: $9.6 \text{ cm} \times 9.0 \text{ cm}$
- Bus: PC/104
- Baud rate: 50 to 230.4 Kbps
- Character length: 5, 6, 7, or 8 bits
- Parity: even, odd, none, mark, and space
- Stop bit: 1, 1.5 or 2
- I/O connectors: four 8-pin RJ45 connectors
- Interrupt levels: IRQ 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15
- Clock input: 14.745 MHz
- Power consuption (+5 V): 205 mA
- MTBF: 100,000 hrs under 25°C environment
- Operating temperature: 0 to 55°C
- Storage temperature: -20 to 85°C
- Relative humidity: 5 to 95%, non-condensing

Hardware Installation

This chapter includes information about hardware installation for CA-104. The following topics are covered:

- □ Hardware Installation
- □ I/O Address & Interrupt Vector Settings
- □ IRQ Setting
- Initial Inspection
- □ RS-232 pin assignments

Hardware Installation

The hardware installation of CA-104 serial boards is easy to carry out. Before you insert the card into the PC/104 interface, you must first configure I/O Base Address & Interrupt Vector, and IRQ Settings. Follow the detailed steps given below to install the CA-104 serial board in your computer.

Step 1: Configure I/O Base Address & Interrupt Vector, and IRQ Settings (see details below).

ATTENTION

Safety First!

To avoid damaging your system and boards, make sure your PC's power is turned off before installing your CA-104 board.

- **Step 2:** Turn your PC's power off, and also shut off the power to any peripheral devices, and then remove the PC's cover.
- Step 3: Insert the CA-104 serial board into the PC/104 interface slot.
- Step 4: Fasten the holding screw to fix the serial board in place.
- Step 5: Replace the PC's cover.

Step 6: Power on the PC.

Block Diagram of CA-104



I/O Base Address & Interrupt Vector Settings

CA-104 Series has two 7-switch DIP switch panels, named SW1 and SW2. Panel SW1 is for I/O Base Address setting, and SW2 is for Interrupt Vector setting. Once you configure Port 1's I/O Base Address and Interrupt Vector, the settings for the other ports will be configured automatically as well. You can choose base addresses from Hex 000 to 3FF. The default settings are CH#1 (Hex 180) for I/O

Base Address, and 1C0 for Interrupt Vector settings.

Example:

When you wish to configure your Port 1's I/O base address to 180, the DIP switch settings of panel SW1 should be as follows:

| A3 | A4 | A5 | A6 | A7 | A8 | A9 | Hex |
|----|----|----|-----|-----|-----|----|---------|
| On | On | On | Off | Off | Off | On | 0 × 180 |

When you wish to configure your Port 1's INT Vector to 1C0, the DIP switch settings of panel SW2 should be as follows:

| A3 | A4 | A5 | A6 | A7 | A8 | A9 | Hex |
|----|----|----|-----|-----|-----|----|---------|
| On | On | On | Off | Off | Off | On | 0 × 1C0 |

The following diagrams show the DIP switch settings of panel SW1 and panel SW2 when the I/O base address is configured to be 180, and when INT Vector is configured to be 1C0.





The diagram shown above is SW1 for setting I/O Base Address.

The diagram shown above is SW2 for setting INT Vector.

| A3 | Γ | A 4 | A5 | A6 | A7 |
|-----|---|------------|-----|-----|-----|
| 8 | | 1 | 2 | 4 | 8 |
| On | Ī | On | On | On | On |
| On | _ | On | On | On | On |
| On | - | On | On | On | On |
| On | Ī | On | On | On | Off |
| On | Ī | On | On | Off | Off |
| On | | On | Off | Off | Off |
| On | Ī | Off | Off | Off | Off |
| Off | | Off | Off | Off | Off |
| Off | | On | On | On | On |
| Off | | Off | On | On | On |
| Off | | Off | Off | On | On |
| Off | Ī | Off | Off | Off | On |
| Off | - | Off | Off | Off | Off |
| Off | | Off | Off | Off | Off |

At this point, the start of I/O addresses of Port 2, Port 3, and Port 4 will be automatically configured at 188, 190, and 198.

1 2 Hex On On 0x000 On Off 0×200 Off Off 0x300 0x380 Off Off Off Off 0x3C0 Off Off 0×3E0 Off On 0x3F0 Off Off 0×3F8 0×008 On On On On 0×018 On On 0x038 On On 0×078 On On 0×0F8 Off On 0×2F8

A9

A8

IRQ Setting

The IRQ settings of CA-104 are selectable by jumper. Before you insert a CA-104 board into the PC/104 interface, you need to choose an available jumper from 3, 4, 5, 6, 7, 9, 10, 11, 12, or 15 to configure the IRQ setting.

Initial Inspection

Before we ship CA-104 products, we first perform a careful mechanical and electrical inspection of the serial boards. Products should be free of any marks or scratches and in perfect electrical order when customers receive them. Handle these boards only by their edges, since the static charge from your body may damage the integrated circuits. Always keep the boards in their anti-static package whenever they are not installed. You can also use this package to return the board should it need to be repaired.

RS-232 Pin Assignment



| PIN | SIGNAL |
|-----|--------|
| 1 | DSR |
| 2 | RTS |
| 3 | GND |
| 4 | TXD |
| 5 | RXD |
| 6 | DCD |
| 7 | CTS |
| 8 | DTR |

3 Software Installation

After installing the CA-104 serial boards in your computer, the next step is the software installation. The driver for CA-104 supports various operating systems, including Windows NT, Windows 2000/XP/2003, and Windows 95/98/Me. This chapter includes information about how to install and remove the CA-104 driver.

The following topics are covered in this chapter:

- □ Windows NT
- **Windows 2000/XP/2003**
- □ Windows 95/98/Me

Windows NT

Installing the driver

The following procedure is for installing the CA-104 serial board driver under Windows NT 4.0.

1. Use the mouse to position the cursor over your desktop's **Network** icon, and then click the right mouse button. Select **Properties** and then click the left mouse button.



2. When the Network window opens, click on the Adapters tab and then click on Add.

| Network | ? × |
|--|-----|
| Identification Services Protocols Adapters Bindings | |
| Network Adapters: | |
| [1] D-Link DFE-530TX PCI Fast Ethernet Adapter (Rev B) | |
| Add Bemove Properties Update Item Notes: D-Link DFE-530TX PCI Fast Ethemet Adapter (Rev B) | |
| | |
| | |
| OK Can | cel |

3. When the **Select Network Adapter** window opens, click on **Have Disk** to install the driver from the floppy disk enclosed with the CA-104 serial board.



The Insert Disk window will open asking you to insert the disk into your computer. Type A:\windows.nt to locate the setup file on the disk and then click OK.

| đ | Insert disk with software provided by the software or hardware manufacturer. If the files can be found at a different location, for example on another drive type a new path to the files below. | OK Cancel |
|---|---|--------------|
| | A:\windows:nt | |

5. The **Setup** window will open, showing that the computer is copying the setup file to your computer.



6. After the setup file has been copied, the **Moxa PC104 Communication Module Configuration Panel** window will open. Click **Add** to continue.

| loard Type | I/O address | INT vector | IRQ | Bus | Dev | COM Number |
|------------|-------------|------------|-----|-----|-----|------------|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Add | | Remove | | | | Property |
| | | | | | | |

7. When the **Property** window opens, select **CA104 Series** under **Board Type**. The window will show the COM port number to which the serial ports of CA-104 are assigned, and the default settings for the ports. Click **OK** to continue.

| Prop | erty | | | | | | × |
|------|--------------------|------------------|--------------------------|----------------------------|--------|--------------|---|
| | <u>B</u> oard Type | | CA104 | Series | | • | |
| | INT ⊻ecto | or | CA104 CA132 CA132I | Series Series Series | | | |
| | Interrupt No. | | ŕ | 10 | - | | 1 |
| | Base I/O Por | t <u>A</u> ddre: | ss [| 180 | | | |
| | art COM No. | Ry FIE | O Tria | |) Size | | |
| 1 | COM3 | 56 | o mg. | 64 | / 5120 | | |
| 2 | COM4 | 56 | | 64 | | | |
| 3 | COM5 | 56 | | 64 | | | |
| 4 | COM6 | 56 | | 64 | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | Port Setting | |
| | | | | <u>o</u> k | | Cancel | |

8. The **Network** window will open, showing the serial board you just added to your computer. Click **OK** to finish the installation.

| letwork | | | ? × | |
|--|--------------------|--------------|----------------|--|
| Identification Se | rvices Protocols | Adapters Bi | ndings) | |
| <u>N</u> etwork Adapter | s: | | | |
| [1] D-Link DFE-530TX PCI Fast Ethernet Adapter (Rev B) [8] M0XA PC104 Communication Module Adapter | | | | |
| <u>A</u> dd | <u>R</u> emove | Properties | <u>U</u> pdate | |
| Item Notes: | | | | |
| MOXA PC104 C | ommunication Mo | dule Adapter | | |
| | | | | |
| | | OK | Cancel | |

Removing a CA-104 serial board

1. If you wish to remove a CA-104 serial board, move your mouse to your desktop's **Network** icon, <u>click the right mouse button</u>, and then select **Properties**.



2. When the Network window opens, choose Adapters, select MOXA PC104 Communication Module Adapter, and then click on Remove.

| Network | ? × |
|--|----------------|
| Identification Services Protocols Adapters Binding | 38 |
| Network Adapters: | |
| [1] D-Link DFE-530TX PCI Fast Ethernet Adapter [8] M0XA PC104 Communication Module Adapter | Rev B) |
| Add <u>R</u> emove <u>Properties</u> | <u>U</u> pdate |
| MOXA PC104 Communication Module Adapter | |
| | |
| ОК | Cancel |

3. A Warning window will open. Click Yes if you wish to remove the CA-104 serial board.



Windows 2000/XP/2003

Installing the driver

The following procedure explains how to install the CA-104 serial board driver under Windows 2000/XP/2003.

1. Use your mouse to position the cursor over your desktop's **My Computer** icon, click the right mouse button, and then select **Properties**.



2. When the **System Properties** window opens, click on the **Hardware** tab, and then click on **Hardware Wizard...** to start the installation.

| system Prope | ercies | | | | | |
|--------------|--|---|--|--|--|--|
| General Ne | twork Identification Hardwar | User Profiles Advanced | | | | |
| - Hardware | Wizard The Hardware wizard helps yo unplug, eject, and configure y | u install, uninstall, repair, our hardware. Hardware Wizard | | | | |
| Device M | anager | | | | | |
| | The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device. | | | | | |
| | Driver <u>S</u> igning | Device Manager | | | | |
| Hardware | Profiles | | | | | |
| \sim | Hardware profiles provide a w different hardware configuratio | ay for you to set up and store ns. | | | | |
| | | Hardware Profiles | | | | |
| | | | | | | |
| | ОК | Cancel Apply | | | | |

3. The Add/Remove Hardware Wizard window will open next. Click on Next to continue. Add/Remove Hardware Wizard

| Welcome to the Add/Remove Hardware Wizard This wizard helps you add, remove, unplug, and troubleshoot your hardware. |
|---|
| To continue, click. Next. |
| < Back Next > Cancel |

4. When the **Choose a Hardware Task** window opens, select **Add/Troubleshoot a device**, and then click on **Next** to continue.

| Add/Remove Hardware Wizard |
|--|
| Choose a Hardware Task Which hardware task do you want to perform? |
| Select the hardware task you want to perform, and then click Next. Add/Troubleshoot a device Choose this option if you are adding a new device to your computer or are having problems getting a device working. Uninstall/Unplug a device Choose this option to uninstall a device or to prepare the computer to unplug a device. |
| < <u>B</u> ack <u>N</u> ext > Cancel |

5. The **New Hardware Detection** window will open showing that the Wizard is searching for the CA-104 serial board on your computer.

| Add/Remove Hardware Wizard | |
|--|-----|
| New Hardware Detection The wizard automatically locates new Plug and Play hardware. | |
| Windows is searching for new Plug and Play hardware to install. | |
| | |
| | |
| | |
| | |
| | |
| | |
| < <u>B</u> ack <u>N</u> ext > Carr | sel |

6. When the **Choose a Hardware Device** window opens, select **Add** a new device and then click **Next** to continue.

| Add/Remove Hardware Wizard |
|---|
| Choose a Hardware Device Which hardware device do you want to troubleshoot? |
| The following hardware is already installed on your computer. If you are having problems with one of these devices, select the device, and then click Next. If you are attempting to add a device and it is not shown below, select Add a new device, and then click Next. |
| Devices Add a new device |
| Plug and Play Monitor Floppy disk drive E-IDE CD-ROM 50X L Maxtor 33073H3 ISAPNP Read Data Port |
| < Back Next > Cancel |

7. The **Find New Hardware** window will open next. Select **No**, **I want to select the hardware from a list**, since CA-104 is a brand new type of ISA serial board, and then click on **Next** to continue.

| Add/Remove Hardware Wizard |
|---|
| Find New Hardware Windows can also detect hardware that is not Plug and Play compatible. |
| When Windows detects new hardware, it checks the current settings for the device and installs the correct driver. |
| Do you want Windows to search for your new hardware? Ýes, search for new hardware No, I want to select the hardware from a list |
| < <u>B</u> ack <u>N</u> ext > Cancel |

8. When the Hardware Type window opens, select Multi-port serial adapters under Hardware types, and then click on Next to continue.

| Add/Remove Hardware Wizard | |
|--|----------|
| Hardware Type What type of hardware do you want to install? | |
| Select the type of hardware you want to install. | |
| <u>H</u> aluwale (ypes. | |
| 🛃 Imaging devices | <u> </u> |
| 🔊 Infrared devices | |
| Memory technology driver | |
| A Modems | |
| Multi-port serial adapters | |
| Network adapters | |
| 2 Other devices | |
| | |
| Ports (COM & LPT) | • |
| | |
| | |
| < <u>₿</u> ack <u>N</u> ext > | Cancel |

9. When the **Select a Device Driver** window opens, click on **Have Disk** to install the CA-104 driver from the floppy disk that came with the CA-104 serial board.

| Add/Remove Hardware Wizard | |
|--|--|
| Select a Device Driver Which driver do you want to in | nstall for this device? |
| Select the manufacturer an have a disk that contains the | id model of your hardware device and then click Next. If you ne driver you want to install, click Have Disk. |
| Manufacturers: Comtrol Corporation Digi International Equinox Systems Inc. Moxa Technologies Inc. Specialix International Ltd. Stallion Technologies | Models: RocketHUB 4 Port Device RocketPort 16 Port, ISA-BUS RocketPort 32 Port, ISA-BUS RocketPort 4 Port, ISA-BUS RocketPort 8 Port, ISA-BUS VS1000 16 to 64 Port Device Have Disk |
| | < <u>B</u> ack <u>N</u> ext > Cancel |

10. The **Install from Disk** window that opens will prompt you to insert the installation disk into your computer's floppy disk drive.

| Install Fro | om Disk | × |
|-------------|---|--------------|
| _ | Insert the manufacturer's installation disk into the drive selected, and then click DK. | OK Cancel |
| | Copy manufacturer's files from: | Browse |

11. After inserting the installation disk, click **OK** to continue.

| nstall Fro | om Disk | × |
|------------|---|--------------|
| _ | Insert the manufacturer's installation disk into the drive selected, and then click DK. | OK Cancel |
| | Copy manufacturer's files from: | Browse |

12. When the Select a Device Driver window opens, select MOXA CA104 Series and click Next to continue.

| Add/Remove Hardware Wizard | | |
|---------------------------------|--|-------|
| Sele: V | lect a Device Driver Which driver do you want to install for this device? | |
| ×1) | Select the manufacturer and model of your hardware device and then click Next. I have a disk that contains the driver you want to install, click Have Disk. | f you |
| Models: MOXA MOXA MOXA | ls: <mark>(A CA104 Series)</mark> (A CA132 Series (A CA132I Series) | |
| | Have D | isk |
| | < Back Next > Ca | ancel |

13. The Start Hardware Installation window will open next. Click on Next to continue.

| d/Remove Hardware Wizard |
|---|
| Start Hardware Installation Windows is ready to install drivers for your new hardware. |
| MOXA CA104 Series |
| Windows will use default settings to install the software for this hardware device. To install the software for your new hardware, click Next. |
| |
| |
| |
| |
| < Back Next> Cancel |

14. A **Digital Signature Not Found** window will open. Although this message states that the MOXA CA104 Series driver does not contain a Microsoft digital signature, you can rest assured, since the CA104 Series driver has already been tested and been shown that it can support Windows OS. Click **Yes** to continue the installation.

| Digital Signature Not Found | | |
|-----------------------------|--|--|
| 9 | The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested. | |
| | The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows. | |
| | MOXA CA104 Series | |
| | If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available. | |
| <u> </u> | Do you want to continue the installation? | |
| | Yes No More Info | |

The next window to open states that the installation is completed. Click Finish to end the installation.
 Add/Remove Hardware Wizard



16. After the installation is completed, use your mouse to position the cursor over your desktop's **My Computer** icon, click the right mouse button, and then select **Properties**.



17. When the **System Properties** window opens, click on the **Hardware** tab, and then click on **Device Manager**.

| System Prop | erties | | | ? × |
|-------------|--|---|--|--------------------|
| General N | etwork Identification | Hardware | User Profiles Adv | anced |
| Hardware | e Wizard The Hardware wizard | d helps you | install, uninstall, repa | ir, |
| | unpiug, eject, and cu | oningure you | II naruware. | rd |
| Device M | lanager | | | |
| | The Device Manage on your computer. Us properties of any dev | r lists all the se the Devi rice. | e hardware devices in ce Manager to chang | istalled ge the |
| | Driver <u>S</u> igning. | | <u>D</u> evice Manage | er |
| - Hardware | e Profiles | | | |
| Ð | Hardware profiles pro different hardware co | ovide a way onfiguration: | i for you to set up and s. | l store |
| | | J | Hardware <u>P</u> rofile | es |
| | | | | |
| | | OK | Cancel | Apply |

18. The Device Manager window will open next. At this point, you should be able to find MOXA CA104 Series under Multi-port serial adapters, and MOXA communication Port 1 to Port 4 (assigned to COM 15 to COM 18, respectively) under Ports (COM & LPT).



19. Select MOXA CA104 Series, click the right mouse button, and then select Properties.



20. The **MOXA CA104 Series Properties** window will open, allowing you to view general information, Ports Configuration, Driver version, and Resource Settings.

| MOXA CA I | .04 Series Prope | rcies | - 1 스 |
|------------------|--|----------------------------|-------|
| General | Ports Configuratio | n Driver Resources | |
| »Q | MOXA CA104 Se | ries | |
| | Device type: | Multi-port serial adapters | |
| | Manufacturer: | Moxa Technologies Inc. | |
| | Location: | Unknown | |
| - Devic This | e status device is working p Lare baving problem | roperly. | |
| start | the troubleshooter. | | |
| | | Troubleshooter | |
| Device | usage: | | |
| Use th | is device (enable) | | |
| | | | |
| | | | ncel |

Disabling the device

1. Use your mouse to position the cursor over your desktop's **My Computer** icon, click the right mouse button, and then select **Properties**.



2. A System Properties window will open. Choose Hardware and select Device Manager.
System Properties

| General Ne | etwork Identification Hardware User Profiles Advanced |
|------------|--|
| - Hardware | e Wizard |
| | The Hardware wizard helps you install, uninstall, repair, unplug, eject, and configure your hardware. |
| | Hardware Wizard |
| - Device M | lanager |
| | The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device. |
| | Driver Signing Device Manager |
| - Hardware | e Profiles |
| \sim | Hardware profiles provide a way for you to set up and store different hardware configurations. |
| | Hardware Profiles |
| | |
| | OK Cancel Apply |

3. When the **Device Manager** window opens, select **MOXA CA104 Series** under **Multi-port serial adapters**, and then click the right mouse button. Select **Disable** and click the left mouse button. The device is disabled now.



Uninstalling the device

- 1. Follow steps 1 and 2 of **Disabling the device**.
- 2. Select **MOXA CA104 Series** under **Multi-port serial adapters** and then click the right mouse button. Select **Uninstall** and click the left mouse button.

| 📇 Device Manager | |
|-----------------------------|---------------------------|
|] <u>A</u> ction ⊻iew] ← → | 🖿 🖬 😭 🔡 🙋 |
| □ | |
| 🗄 🛄 Computer | |
| 🛓 🚍 Disk drives | |
| 🗄 🖳 Display adapters | |
| 📄 👜 DVD/CD-ROM drives | |
| 📄 🖶 🚭 Floppy disk controlle | rs |
| 🕀 🖅 Floppy disk drives | |
| 📋 🕀 🚭 IDE ATA/ATAPI cont | rollers |
| 🗄 🦓 Keyboards | |
| | ing devices |
| 🕀 🥹 Modems | |
| 🕀 🖳 Monitors | |
| Multi-port serial adap | oters |
| MOXA CA104 Se | Disable |
| Brack (control pr) | Uninstall |
| Ports (COM & LPT) | |
| | Scan for hardware changes |
| E C Universal Serial Bus | Properties |
| I | |

3. A Warning window will open. Click **OK** to uninstall the device.

| Confirm Device Removal |
|---|
| MOXA CA104 Series |
| Warning: You are about to uninstall this device from your system. |
| |
| OK Cancel |

Windows 95/98/ME

Installing the driver

The following procedure is for installing the CA-104 serial board driver under Windows 95/98/ME.

1. Insert the installation disk into your computer, and then click on **Run** under the **Start Menu**. Click on **Browse** to locate the setup file in the disk or directly type in the path if you already know it, and then click **OK** to continue.

| Run | ? × |
|---------------|---|
| <u>_</u> | Type the name of a program, folder, document, or Internet resource, and Windows will open it for you. |
| <u>O</u> pen: | A:\Setup95.exe |
| | OK Cancel <u>B</u> rowse |
| 🛃 Start | M 🔿 |

2. A Welcome message will appear. Click Next to continue. Moxa PC104 Communication Module Drivers Installation



3. A window will open stating the computer is ready to install the driver. Click on Next to continue.

| | Ready to Install! |
|------|--|
| | You are now ready to install Moxa PC104 Communication Module driver. Press the Next button to begin the installation or the Back button to reenter the Update Driver information. |
| \$** | |
| | < <u>B</u> ack <u>N</u> ext> <u>C</u> ancel |

4. A message will appear showing that the setup file is being installed.

| Copying Moxa PC104 Communicati C:\WIN98\SYSTEM\mxiser.vxd | on Module Driver: |
|--|-------------------|
| 39% | |
| Cancel | |

5. A window will appear showing that the installation is completed. Click on **Finish** to end the installation.



6. The Moxa PC104 Communication Module Configuration Panel window will appear. Click on Add to add the CA-104 serial board to your computer.

| Board Type | I/O address | INT vector | IRQ | Bus | Dev | COM Number |
|------------|-------------|----------------|-----|-----|-----|------------|
| | | | | | | |
| | | | | | | |
| | | | _ | | _ | |
| Add | | Remove | 1 | | | Property |
| Add | | <u>R</u> emove | | | | Property |

7. A Property window will open. Select CA104 Series under Board Type.

| ropert | y | | | | | |
|--------|--------------|------------------|----------------|----------------------------|------|-------------|
| ₿ | oard Type | | CA104 | Series | | • |
| Ţ. | 7 INT ⊻ecto | or | CA104 CA132 | Series Series Series | | |
| Įn | terrupt No. | | 1 | 10 | • | |
| B | ase I/O Port | : <u>A</u> ddre: | ss [| 180 | - | |
| | | | | | | |
| Port | COM No. | Rx FIF | FO Trig. | Tx FIFO | Size | |
| 1 | COM3 | 56 | | 64 | | |
| 2 | COM4 | 56 | | 64 | | |
| 3 | COM18 | 56 | | 64 | | |
| 4 | COM19 | 56 | | 64 | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | Po | ort Setting |
| | | | | | | 1 |

8. The **Property** window will show the COM port number to which the serial ports of CA-104 are assigned, and the default settings. Click **OK** to continue.

| Topen | y | | | |
|-------|---------------------|-------------------|--------------|--------------|
| ₿ | oard Type | CA10 | 4 Series | _ |
| R | 7 INT <u>∨</u> ecti | or | 1C0 | _ |
| ļr | iterrupt No. | | 10 | • |
| в | ase I/O Por | t <u>A</u> ddress | 180 | _ |
| | | | | |
| Port | COM No. | Rx FIFO Trig | . Tx FIFO Si | ze |
| 1 | COM40 | 56 | 64 | |
| 2 | COM41 | 56 | 64 | |
| 3 | COM42 | 56 | 64 | |
| 4 | COM43 | 56 | 64 | |
| | | | | |
| L | | | | |
| L | | | | |
| | | | | |
| | | | | Port Setting |
| | | | <u>o</u> k | Cancel |

9. The Moxa PC104 Communication Module Configuration Panel window will show the CA-104 serial board you just added. Click OK to close the window.
EN Mova PC104 Communication Module Configuration Panel

| | | | gara | | | |
|--------------|-------------|------------|------|-----|-----|------------|
| | | | | | | |
| Board Type | I/O address | INT vector | IRQ | Bus | Dev | COM Number |
| CA104 Series | 180 | 1C0 | 10 | | | COM40 COM4 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Add | | Remove | 1 | | | Property |
| | | | | | | |
| | | | | | | |
| | | OK | | | | Cancel |
| | | | | | | |

10. If you want to open the Moxa PC104 Communication Module Configuration Panel window, click on Start → Programs → Moxa Utilities → MOXA PC104 Communication Module Configuration Panel.



11. The **Moxa PC104 Communication Module Configuration Panel** window will open. You should be able to see the CA104 Series serial board you just added. Click on **Property** to see and configure the information and settings of the board's COM ports.

| Board Type | I/O address | INT vector | IRQ | Bus | Dev | COM Number |
|-------------|-------------|------------|-----|-----|-----|-------------|
| A104 Series | 180 | 1C0 | 10 | | | COM40 COM4. |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| , | | | - 1 | | | |

Removing the device

1. If you wish to remove the device, follow steps 11 and 12 of the **Installing the driver** section. Click on **Remove** when the **Moxa PC104 Communication Module Configuration Panel** opens.

- Moxa PC104 Communication Module Configuration Panel

 Board Type I/O address INT vector IRQ Bus Dev COM Number
 CA104 Series 180 1C0 10 --- COM3 ... COM19

 Add

 Remove
 Property

 QK
 Cancel
- 2. A warning message will appear asking you if you really want to remove this board. Click on **Yes** to remove the CA-104 serial board.



Uninstalling the driver

- 1. Click on Start \rightarrow Settings \rightarrow Control Panel.
- 2. Select Add/Remove Programs.



Choose Install/Uninstall, and select MOXA PC104 Communication Module Driver, and then click Add/Remove to uninstall the driver.

| Add/Remove Programs Properties ? 🗙 | | | | | |
|---|--|--|--|--|--|
| Install/Uninstall Windows Setup Startup Disk | | | | | |
| To install a new program from a floppy disk or CD-ROM drive, click Install. | | | | | |
| Install | | | | | |
| Ihe following software can be automatically removed by Windows. To remove a program or to modify its installed components, select it from the list and click Add/Remove. | | | | | |
| Microsoft Jet 4.0 Service Pack 4 MDXA Intellio Driver MDXA Smartio/Industio Driver MDXA Smartio/Industio Driver Nero - Burning Rom (Web installer) PartitionMagic 5.0 PComm Lite 2.5 PComm Pro Ver 2.0 Sentinel System Driver | | | | | |
| Add/ <u>B</u> emove | | | | | |
| OK Cancel Apply | | | | | |

3. A message will appear asking you if you really want to remove the driver. Click **Yes** to uninstall the driver.

| MOXA PC104 Communication Module Driver 🛛 🛛 🕅 | | | | | |
|---|--|--|--|--|--|
| Do you really want to remove MOXA PC104 Communication Module Driver ? | | | | | |
| Yes No | | | | | |

4. A message will appear confirming that the uninstallation of the driver is completed. Click **OK** to close the window.

| MOXA PC104 Communication Module Driver | × |
|---|----|
| Remove M0XA PC104 Communication Module Driver complet | e! |
| OK | |

Serial Programming Tool

Moxa supports a class of easy to use, yet powerful serial programming libraries and communication troubleshooting utilities under Windows NT/2000/XP and Windows 95/98. Use these MOXA Serial Programming Tools to decrease your software development time.

In the following sections, we describe the installation of the library, and the utilities supported for various programming platforms.

PComm, a professional serial comm tool for PCs, is a software package that runs under Windows NT/2000/XP and Windows 95/98. *PComm* provides:

- A powerful serial communication library for easy programming in the most popular programming languages. The serial communication library is useful for developing applications for data communications, remote access, data acquisition, and industrial control under Windows NT/2000/XP or Windows 95/98. It is an simpler solution compared to the more complex Windows Win32 COMM API.
- Useful utilities such as diagnostic, monitor, and terminal emulator.
- Illustrative sample programs,
- Comprehensive on-line documentation.

The following topics are covered in this chapter:

- **D** PComm Installation
- **D** PComm Programming Library
- □ Utilities

PComm Installation

To install *PComm*, run \Setup.exe from the diskette enclosed in the package. Please note that the *PComm* diagnostic and monitor utilities are for MOXA boards only; these two utilities will not work with other manufacturer's serial boards.

PComm Programming Library

The serial communication library assists you in developing serial communications programs for any COM port that complies with Microsoft Win32 API. It facilitates the implementation of multi-process and multi-thread serial communication programs and hence remarkably reduces development time.

This serial communication library provides a complete function library and sample programs for Visual C++, Visual Basic, and Delphi. To view detailed function descriptions and sample programs, click on [Start] \rightarrow [Program] \rightarrow [PComm Libe] \rightarrow [PComm Lib Help], [PComm Programming Notes] or [PComm Programming Guide], or refer to the sample programs in the PComm directory.

Utilities

In this section, we give brief descriptions of each utility. For more information about these utilities, see the on-line help from the software diskette.

Diagnostic (for MOXA boards only)

A convenient diagnostic program, ONLY for MOXA boards and ports, provides internal and external testing of IRQ, TxD/RxD, UART, CTS/RTS, DTR/DSR, DTR/DCD, etc. It allows the user to check the function of both software and hardware.

To run the Diagnostic program, click on [Start] \rightarrow [Program] \rightarrow [*Pcomm* Lite] \rightarrow [Diagnostic].

| <u>File Diagnose H</u> elp | | | |
|----------------------------|--|--|--|
| 2 🗸 🤜 🔲 🎒 | | | |
| To be tested | Test Report | | |
| CP-104U Seties (CDM3-CDM6) | CP-104U Series Dev#=11,Bus#=0,IRQ=9,I/0=A800 Communication Parameter=38400,None,8,1 Driver Version:1.5.0 OS Version:Windows NT 5.0(Build:2195 Service Pack 3) Internal Loopback Test | | |
| | [Tx/Fx] [UART] COM3 (P1) 0K 0K COM4 (P2) 0K 0K COM5 (P3) 0K 0K COM6 (P4) 0K 0K IRQ fest IRQ 9 0K | | |
| ۲ | External Test (RS-232) PortA - PortB [Tx/Fx] [RTS/CTS] [DTR/DSR] [DTR/DCD] COM3 - COM4 OK OK OK OK COM5 - COM6 OK OK OK OK (Test Time : 01/24/03 17:15:30) | | |
| Ready | 1 | | |

Monitor (for MOXA boards under Windows NT Only)

A useful port status monitoring program allows you to monitor data transmission of selected MOXA COM ports. It monitors data transmission/receiving throughput, and communication line status, with data updated and displayed on the screen at regular time intervals. Click on a specific port to see a graph of the current communication parameters and status of that port. To run the Monitor program, click on [Start] \rightarrow [Program] \rightarrow [*Pcomm* Lite] \rightarrow [Monitor].



Terminal Emulator

Terminal Emulator can be used to connect to various ports to see if data transmission is functioning correctly. Terminal Emulator features multi-windows, and supports VT100 and ANSI terminal types. You can transfer data interactively, send patterns periodically, and transfer files using ASCII, XMODEM, YMODEM, ZMODEM, and KERMIT protocols.

To run Terminal Emulator, click on [Start]→[Program]→[*PComm* Lite]→[Terminal Emulator]. PComm Terminal - COM44,38400,None,8,1,Dumb Terminal



For more information on these functions, please refer to the *PComm* library on-line Help file for Windows NT and Windows 95/98 or API-232.txt file for DOS, respectively.

A Service Information

This appendix shows you how to contact Moxa for information about this and other products, and how to report problems.

In this appendix, we cover the following topics.

- **D** MOXA Internet Services
- **D** Problem Report Form
- **D** Product Return Procedure

MOXA Internet Services

Customer satisfaction is our number one concern, and to ensure that customers receive the full benefit of our products, Moxa Internet Services has been set up to provide technical support, driver updates, product information, and user's manual updates.

The following services are provided

E-mail for technical support support@moxa.com.tw

World Wide Web (WWW) Site for product information:

.....<u>http://www.moxa.com</u>

Problem Report Form

MOXA CA-104 Series

| Customer name: | | | | |
|----------------|-------|--|--|--|
| Company: | | | | |
| Tel: | Fax: | | | |
| Email: | Date: | | | |

- **1. Moxa Product:** □ CA-104
- 2. Serial Number:

Problem Description: Please describe the symptoms of the problem as clearly as possible, including any error messages you see. A clearly written description of the problem will allow us to reproduce the symptoms, and expedite the repair of your product.

Product Return Procedure

For product repair, exchange, or refund, the customer must:

- Provide evidence of original purchase.
- Obtain a Product Return Agreement (PRA) from the sales representative or dealer.
- Fill out the Problem Report Form (PRF). Include as much detail as possible for a shorter product repair time.
- Carefully pack the product in an anti-static package, and send it, pre-paid, to the dealer. The PRA should be visible on the outside of the package, and include a description of the problem, along with the return address and telephone number of a technical contact.