

# MOXA<sup>®</sup>

## CP-168U Smart Serial Board

### Quick Installation Guide

Fourth Edition, April 2008

#### 1. Overview

CP-168U is an 8-port RS-232 Universal PCI serial board that is ideal for connecting a wide range of serial devices to a PC. Suitable devices include terminals, modems, printers, scanners, cash registers, bar code readers, keypads, numeric displays, electrical scales, and data acquisition equipment. The board's device drivers make full use of the 128-byte Tx/Rx FIFO and on-chip H/W and S/W flow control, which allow data transmission at speeds of up to 921.6 Kbps.

CP-168U is a MOXA Green Product. Moxa's Green Products satisfy the RoHS directive of the European Parliament, and accordingly, do not contain cadmium and cadmium compounds, hexavalent chromium compounds, lead and lead compounds, mercury and mercury compounds, PBBs (polybrominated biphenyls), or PBDEs (polybrominated diphenyl ethers).

#### 2. Package Checklist

Before installing the CP-168U board, verify that the package contains the following items:

- 1 CP-168U 8-port serial board
- Documentation and Software CD that contains drivers for Windows 2000/XP/2003, Windows NT, Windows 95/98, DOS, FreeBSD, SCO, and Linux.
- CP-168U Quick Installation Guide

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

#### 3. Hardware Installation Procedure

The CP-168U board MUST be installed in the PC before installing the driver. The following directions explain how to install the board in the PC.

**STEP 1:** Power off the PC.

**STEP 2:** Insert the CP-168U control board firmly into a free PCI or PCI-X slot.

**STEP 3:** Fasten the holding screw to fix the control board in place.

**STEP 4:** Power on the PC; the BIOS will set the IRQ and I/O address automatically.

**STEP 5:** Proceed with installing the driver, as described in the next section.

**P/N: 1802001683200**

#### 4. Software Installation Information

The board MUST be plugged in before installing the driver software. See the previous section for instructions on how to install the board in your PC. Refer to the CP-168U User's Manual for detailed instructions on installing the drivers for this board.

##### Windows 2003/XP Driver Installation

1. After powering on your PC, Windows 2003/XP will detect the CP-168U board automatically.
2. Insert the CP-168U software CD in your CD-ROM drive.
3. Select **Install from a list or specific location (Advanced)**.
4. After selecting **Search for the best driver in these locations**, check the **Include this location in the search** checkbox, and then use the browse button to navigate to the CD's **CP-168U v2\Software\Win2K-XP-2003** folder.
5. Click **Continue Anyway** in response to any warnings that the software hasn't passed Windows Logo testing.
6. After the board has been installed, the installation wizard will guide you through the port installation procedure, starting with port 0.
7. Use the **Device Manager** to check if the installation of the board and ports was successful. Click on the + sign next to **Hardware**, and then check under **Multi-port serial adapters** and **Ports (COM & LPT)**. If there are any special marks, such as a question mark or exclamation point in front of the board or port icons, examine the **Event Log** as a first step to determine where the problem is.

##### Windows 2000 Driver Installation

1. After powering on your PC, Windows 2000 will detect the CP-168U board automatically.
2. Insert the CP-168U software CD in your CD-ROM drive.
3. Select **Search for a suitable driver for my device (recommended)**.
4. In **Optional search location**, checkmark **specify a location**. Navigate to the **\CP-168U\Software\Win2K-XP-2003** folder on the software CD, and then click on **OK** to continue.
5. Click **Continue Anyway** in response to any warnings that the software hasn't passed Windows Logo testing.
6. After the board has been installed, the installation wizard will guide you through the port installation procedure, starting with port 0.
7. Use the **Device Manager** to check if the installation of the board and ports was successful. Click on the + sign next to **Hardware**, and then check under **Multi-port serial adapters** and **Ports (COM & LPT)**. If there are any special marks, such as a question mark or exclamation point in front of the board or port icons, examine the **Event Log** as a first step to determine where the problem is.

##### Windows 95/98 Driver Installation

1. After powering on your PC, Windows 95/98 will detect the CP-168U board automatically.
2. Insert the CP-168U software CD in your CD-ROM drive.

3. There some differences between the installation procedures for Windows 95 and Windows 98. However, in both cases, be sure to install the driver from the CD's **CP-168U v2\Software\Win9x\Windows.95** folder.
4. Click **Continue Anyway** in response to any warnings that the software hasn't passed Windows Logo testing.
5. After the board has been installed, the installation wizard will open the port configuration window.  
NOTE: If an error message similar to "CP-168U board (BusNo=x, DevNo=x, Port1=COMx) interrupt number is invalid!" pops up, refer to the "Troubleshooting" chapter of the User's Manual for information on how to handle this error.

##### Windows NT Driver Installation

1. After powering on your PC, log into NT as Administrator.
2. Copy the folder **CP-168U v2\Software\WinNT\Windows.nt** to your hard drive.
3. Open the **Control Panel**, click on the **Network** icon, and select the **Adaptors** tab.
4. Click the **Add** button, and then **Have Disk...** in the **Select Network Adapter** window.
5. Specify the exact path to the folder created in step 2. above.
6. Select **MOXA Smartio/Industio Family multiport board** in the **Select OEM Option** window, and then click on **OK** to start installing the driver.
6. When the Moxa Smartio/Industio Configuration Panel dialog box appears, click on **Add** to open the **Property** window to modify port settings and advanced FIFO configuration done automatically by the system.

##### Linux Driver Installation

1. Execute the following commands from the Linux prompt:

```
#mount /dev/cdrom /mnt/cdrom
#cd /
#mkdir moxa
#cd moxa
#cp /mnt/cdrom/<driver directory>/mxser.tgz .
#tar xvfz mxser.tgz
```
2. 

```
#cd mxser
#make clean; make install
```
3. 

```
#cd /moxa/mxser/driver
#./msmkod
```
4. 

```
#modprobe mxser
```
5. You can use the Moxa diagnostic utility to verify the driver status:

```
#cd /moxa/mxser/utility/diag
#./msdiag
```
6. You can use the Moxa terminal utility to test the tty ports:

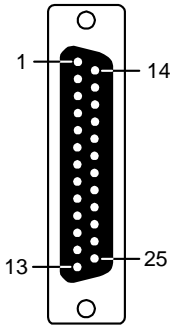
```
#cd /moxa/mxser/utility/term
#./msterm
```

## 5. Pin Assignments

### RS-232 Cable Wiring for Opt8A/B/C/D/S

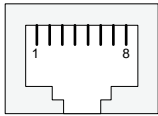
#### OPT8A/S (DCE, DB25 Female)

Pin No.	Signal
2	RxD
3	TxD
4	CTS
5	RTS
6	DTR
7	GND
8	DCD
20	DSR



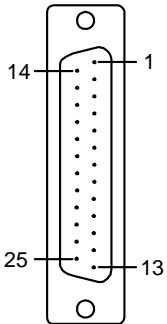
#### OPT8-RJ45 (8-pin)

Pin No.	Signal
1	DSR
2	RTS
3	GND
4	TxD
5	RxD
6	DCD
7	CTS
8	DTR



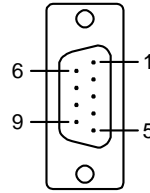
#### OPT8B/C (DCE, DB25 Male)

Pin No.	Signal
2	TxD
3	RxD
4	RTS
5	CTS
6	DSR
7	GND
8	DCD
20	DTR



#### OPT8-M9, Opt8D (DTE, DB9 Male)

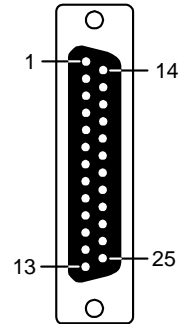
Pin No.	Signal
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS



### RS-422 Cable Wiring for Opt8F

#### OPT8F/Z (DB25 Female)

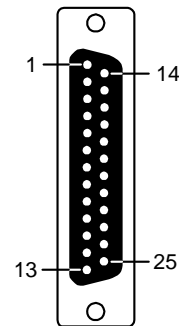
Pin No.	Signal
2	RxD+(B)
3	TxD+(B)
14	RxD-(A)
16	TxD-(A)
7	GND



### RS-422/485 Cable Wiring for Opt8K

#### 4-wire RS-485, RS-422 for Opt8K

Pin No.	Signal
2	RxD+(B)
3	TxD+(B)
14	RxD-(A)
16	TxD-(A)
7	GND



#### 2-wire RS-485, RS-485 for Opt8K

Pin No.	Signal
2	Data+(B)
14	Data-(A)
7	GND

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