

MOXA®

CP-132EL/CP-132EL-I PCI Express Multiport Serial Board Quick Installation Guide

First Edition, July 2008

1. Overview

Moxa's new PCI Express multiport serial boards, the CP-132EL and CP-132EL-I, are designed for POS and ATM applications and for use by industrial automation system manufacturers and system integrators. The boards are compatible with all popular operating systems and support data rates of up to 921.6Kbps as well as full modem control signals, ensuring compatibility with a wide range of serial peripherals. In addition, the CP-132EL and CP-132EL-I work with PCI Express ×1, allowing the boards to be installed in any available PCI Express slot (including ×1, ×2, ×4, ×8, ×16, and ×32).

2. Package Checklist

Before installing the PCI Express board, verify that the package contains the following items:

- 1 PCI Express serial board
- Documentation and Software CD
- Quick Installation Guide
- Low Profile Bracket

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

3. Hardware Installation Procedure

The PCI Express board MUST be plugged into the PC before the driver is installed. Follow these steps to install the board in the PC.

- STEP 1:** Power off the PC.
- STEP 2:** Plug the board firmly into an open PCI Express slot.
- STEP 3:** Fasten the holding screw to fix the control board in place.
- STEP 4:** Connect the connection cable.
- STEP 5:** Power on the PC; the BIOS will automatically set the IRQ and I/O address.

4. Software Installation Information

The board MUST be plugged in before installing the driver. See the previous section for instructions on how to install the board in your PC. Refer to the PCI Express Board User's Manual for detailed instructions on installing the drivers for this board.

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NOTE: The following procedure shows how to install the CP-132EL driver.

Windows 2008/Vista (32-bit/64-bit) Driver Installation

1. After powering on your PC, Windows 2008 will automatically detect the PCIe board.
2. Insert the PCIe software CD in your CD-ROM drive.
3. Select **Locate and install driver software (recommended)**.
4. After selecting **Search for driver software in this location**, select the **Include subfolders**, and then click **Browse**. If the system is a 32-bit (x86) platform, navigate to the \CP-132EL Series\Software\Windows 2008_Vista\x86 folder on the CD, if the system is 64-bit (x64) platform, navigate to the \CP-132EL Series\Software\Windows 2008_Vista\x64 folder on the CD, and then click **Next** to continue.
5. Click **Install this driver software anyway** in response to any warnings that the software has not passed Windows Logo testing.
6. After the board has been installed, the installation wizard will guide you through the port installation procedure. Port installation is complete when Port 0 has been set up.
7. Use the **Device Manager** to check the installation of the board and ports. Click the + sign next to **Hardware**, and then check **Multi-port serial adapters and Ports (COM & LPT)**. Click the +sign next to **Multi-port serial adapters**, right-click on **MOXA CP-132EL Series (PCI Express Bus)**, select **Properties**, then choose **Port Configuration**. Click the port to configure **Interface (RS-422, 2-wire RS-485, 4-wire RS-485)** and **Termination Resistor (120Ω, Enable or Disable)**. If there are warning marks, such as a question mark or exclamation point in front of the board or port icons, examine the **Event Log** to determine the problem.

Windows 2003/XP (32-bit/64-bit) Driver Installation

1. After powering on your PC, Windows 2003/XP will automatically detect the PCIe board.
2. Insert the PCIe 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**, select the **Include this location in the search**, and then click **Browse**. If the system is a 32-bit (x86) platform, navigate to the \CP-132EL Series\Software\Windows XP_2003\x86 folder on the CD, if the system is 64-bit (x64) platform, navigate to the \CP-132EL Series\Software\Windows XP_2003\x64 folder on the CD, and then click **Next** to continue.
5. Click **Continue Anyway** in response to any warnings that the software has not 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 the installation of the board and ports. Click the + sign next to **Hardware**, and then check **Multi-port serial adapters and Ports (COM & LPT)**. Click the +sign next to **Multi-port serial adapters**, right-click on **MOXA CP-132EL Series (PCI Express Bus)**, select **Properties**, then choose **Port Configuration**. Click the port to configure **Interface (RS-422, 2-wire RS-485, 4-wire RS-485)** and **Termination Resistor (120Ω, Enable or Disable)**. If there are warning marks, such as a question mark or exclamation point in front of the board or port icons, examine the **Event Log** to determine the problem.

Windows 2000 Driver Installation

1. After powering on your PC, Windows 2000 will automatically detect the PCIe board.
2. Insert the PCIe software CD in your CD-ROM drive.
3. Select **Search for a suitable driver for my device (recommended)**.
4. Under **Optional search location**, select **specify a location**. Navigate to the \CP-132EL Series\Software\Windows 2K folder on the software CD.
5. Click **Continue Anyway** in response to any warnings that the software has not 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 the installation of the board and ports. Click the + sign next to **Hardware**, and then check **Multi-port serial adapters and Ports (COM & LPT)**. Click the +sign next to **Multi-port serial adapters**, right-click on **MOXA CP-132EL Series (PCI Express Bus)**, select **Properties**, then choose **Port Configuration**. Click the port to configure **Interface (RS-422, 2-wire RS-485, 4-wire RS-485)** and **Termination Resistor (120Ω, Enable or Disable)**. If there are warning marks, such as a question mark or exclamation point in front of the board or

P/N: 1802001320020

port icons, examine the **Event Log** to determine the problem.

Linux Driver Installation

- Execute the following commands from the Linux prompt:


```
#mount /dev/cdrom /mnt/cdrom
#cd /
#mkdir moxa
#cd /moxa
#cp /mnt/cdrom/<driver directory>/
driv_linux_smart_vx.x_build_yymmddhh.tgz .
#tar -xvzf driv_linux_smart_vx.x_build_yymmddhh.tgz
```
- ```
#cd mxser
#make clean; make install
```
- ```
#cd /moxa/mxser/driver
#./msmknod
```
- ```
#modprobe mxupcie
```
- Use the Moxa Port Configuration Tool to set Interface and Termination Resistor for the MUE series. The MUE series includes CP-102E, CP-102EL, CP-132EL, CP-132EL-I, CP-114EL, and CP-114EL-I.  
 Usage: `muestty <operation> device`  
 Device: The MUE series device node  
 Operation:
 

|          |                                             |
|----------|---------------------------------------------|
| -h       | Help                                        |
| -g       | Get interface and terminator type           |
| -i intf  | Set interface type with options below       |
| -t value | Set termination resistor with options below |

 intf
 

|         |                    |
|---------|--------------------|
| RS422   | RS-422 mode        |
| RS4852W | RS-485 2-wire mode |
| RS4854W | RS-485 4-wire mode |

 value
 

|         |                             |
|---------|-----------------------------|
| NONTERM | Non termination resistor    |
| 120TERM | 120ohm termination resistor |

For example:

```
To set the MUE interface
muestty -i RS422 /dev/ttyMUE2

To set the MUE termination resistor
muestty -t 120TERM /dev/ttyMUE2
```

- Use the Moxa diagnostic utility to verify the driver status:
 

```
#cd /moxa/mxser/utility/diag
#./msdiag
```
- Use the Moxa terminal utility to test the tty ports:
 

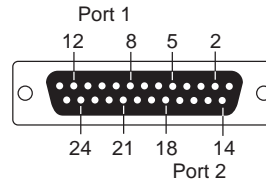
```
#cd /moxa/mxser/utility/term
#./mstern
```

### 5. Pin Assignments

The CP-132EL and CP-132EL-I boards have a female DB25 connector on the board. In this section, we give the on-board connector's pin

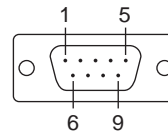
assignments to facilitate making your own connection cable, and the male DB9 device-side pin assignments for the optional CBL-M25M9x2-50 cable.

#### Female DB25: Board-side Pin Assignments



| Pin | Transmission Signals |               |               |
|-----|----------------------|---------------|---------------|
|     | RS-422               | 4-wire RS-485 | 2-wire RS-485 |
| 2   | P2: TxD-(A)          | P2: TxD-(A)   | ---           |
| 3   | P2: SGND             | ---           | ---           |
| 4   | ---                  | ---           | ---           |
| 5   | P2: TxD+(B)          | P2: TxD+(B)   | ---           |
| 8   | ---                  | ---           | ---           |
| 9   | P1: RxD-(A)          | P1: RxD-(A)   | P1: Data-(A)  |
| 10  | ---                  | ---           | ---           |
| 11  | ---                  | ---           | ---           |
| 12  | P1: RxD+(B)          | P1: RxD+(B)   | P1: Data+(B)  |
| 14  | ---                  | ---           | ---           |
| 15  | P2: RxD-(A)          | P2: RxD-(A)   | P2: Data-(A)  |
| 16  | ---                  | ---           | ---           |
| 17  | ---                  | ---           | ---           |
| 18  | P2: RxD+(B)          | P2: RxD+(B)   | P2: Data+(B)  |
| 21  | P1: TxD-(A)          | P1: TxD-(A)   | ---           |
| 22  | P1: SGND             | ---           | ---           |
| 23  | ---                  | ---           | ---           |
| 24  | P1: TxD+(B)          | P1: TxD+(B)   | ---           |

#### Male DB9 Connector: Device-side Pin Assignments



| Pin | Transmission Signals |               |               |
|-----|----------------------|---------------|---------------|
|     | RS-422               | 4-wire RS-485 | 2-wire RS-485 |
| 1   | TxD-(A)              | TxD-(A)       | ---           |
| 2   | TxD+(B)              | TxD+(B)       | ---           |
| 3   | RxD+(B)              | RxD+(B)       | Data+(B)      |
| 4   | RxD-(A)              | RxD-(A)       | Data-(A)      |
| 5   | GND                  | GND           | GND           |
| 6   | ---                  | ---           | ---           |

|   |     |     |     |
|---|-----|-----|-----|
| 7 | --- | --- | --- |
| 8 | --- | --- | --- |
| 9 | --- | --- | --- |

### 6. Specifications

#### Hardware

|                  |                    |
|------------------|--------------------|
| Connectors       | Female DB25        |
| Comm. Controller | 16C550C compatible |

#### Interface

|                   |                 |
|-------------------|-----------------|
| Bus Interface     | PCI Express × 1 |
| Number of Ports   | 2               |
| Max No. of Boards | 4               |

#### Signal

|               |                                         |
|---------------|-----------------------------------------|
| RS-422        | TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND |
| RS-485 4-Wire | TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND |
| RS-485 2-Wire | Data+(B), Data-(A), GND                 |

#### Performance

|          |                      |
|----------|----------------------|
| Baudrate | 50 bps to 921.6 Kbps |
|----------|----------------------|

#### Configuration

|                 |                              |
|-----------------|------------------------------|
| Data Bits       | 5, 6, 7, 8                   |
| Stop Bits       | 1, 1.5, 2                    |
| I/O address/IRQ | BIOS assigned                |
| Parity          | None, Even, Odd, Space, Mark |
| Flow Control    | XON/XOFF                     |

#### Environment

|                       |                                                                                                                                                                                        |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature | 0 to 55°C (32 to 132°F)                                                                                                                                                                |
| Operating Humidity    | 5 to 95% RH                                                                                                                                                                            |
| Storage Temperature   | -20 to 85°C (-4 to 185°F)                                                                                                                                                              |
| ESD Protection        | Embedded 15 KV ESD Protection                                                                                                                                                          |
| Optical Isolation     | 2 KV (only for CP-132EL-I)                                                                                                                                                             |
| Regulatory Approvals  | EN55022, EN55024, EN61000-3-2, EN61000-3-3, EN61000-6-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11, FCC Part 15 Class B |

#### Warranty

5 years

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[www.moxa.com/support](http://www.moxa.com/support)

The Americas: +1-714-528-6777 (toll-free: 1-888-669-2872)  
 Europe: +49-89-3 70 03 99-0  
 Asia-Pacific: +886-2-8919-1230  
 China: +86-21-5258-9955 (toll-free: 800-820-5036)

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