

CA Series for PC/104 and CB Series for PC/104-Plus Quick Installation Guide

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Overview

Moxa offers a wide selection of PC/104 and PC/104-Plus serial boards that provide industrial-grade connections to multiple serial devices. The CA Serial Board Series is for PC/104 modules while the CB Serial Board series is for PC/104-Plus module.

Package Checklist

PC/104 or PC/104-Plus boards are shipped with the following items:

- Moxa multiport serial board (PC/104 module is for CA Series; PC/104-Plus module is for CB Series)
- Quick installation guide (printed)
- Warranty card

Please notify your sales representative if any of the above items are missing or damaged.

Hardware Installation

The PC/104 or PC/104-Plus MUST be plugged into the PC before the driver is installed. Follow these steps below.

CA Series		CB Series	
Step 1:	Turn the embedded computer off	Step 1:	Turn the embedded computer off
Step 2:	Set the I/O address, Interrupt vector, IRQ, and serial interface (Refer to the section: "Block Diagram, I/O Address, Interrupt Vector, Serial Interface")	Step 2:	Set interface (Refer to section: "Block Diagram, I/O Address, Interrupt Vector, Serial Interface")
Step 3:	Insert the module into the PC/104 slot	Step 3:	Insert the module into PC/104 slot.
Step 4:	Screw the control board in place	Step 4:	Screw the control board in place.
Step 5:	Connect the cables (Refer to the section: "Pin Assignments")	Step 5:	Connect the cables. (Refer to the section: "Pin Assignments")
Step 6:	Turn the embedded computer on	Step 6:	Turn the embedded computer on.

Software Installation

Follow these steps:

Step 1: Get the driver at www.moxa.com.

Based on the OS type, choose the corresponding driver.

Step 2: Install Driver

- For Windows (Take the installation of Win7 as an example)
 - 2.1. Unzip and execute the .exe file
 - 2.2. Follow the instructions to install the drivers
Note: If your model is from the CB Series, then the installation is done. Otherwise, please do the following steps for the CA Series models.

- 2.3. Follow the instructions of "Add Hardware Wizard"
- 2.4. Follow the instruction of "Found Hardware Wizard". This step is for mapping your driver and hardware device.
- 2.5. Repeat steps 2.3 and 2.4 to activate the other serial ports.
- For Linux
 - 2.1. Get the driver at www.moxa.com and unzip the file:


```
#cd /
#mkdir moxa
#cd moxa
#cp /<driver
directory>/driv_linux_smart_<version>_build_<build_
date>.tgz
#tar-zxvf
driv_linux_smart_<version>_build_<build_date>.tgz
```
 - 2.2. Install the driver:


```
#cd mxser
#./mxinstall
```
 - 2.3. Install the module driver, using the hardware settings that you have selected (This step is only for the CA Series)
 For example: I/O address of 0x180, an INT vector of 0x1C0, and an IRQ of 10

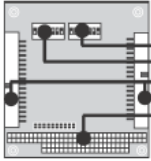
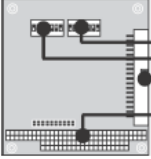
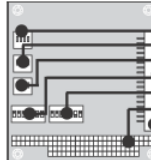
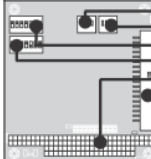
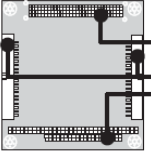
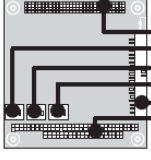
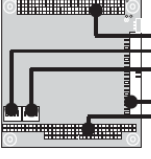

```
#cd mxser
#make clean
#make install
#cd /moxa/mxser/driver
#./msmknod
#modprobe mxser ioaddr=0x180 iovect=0x1C0
irq=10
```
 - 2.4. You can use the Moxa diagnostic utility to verify the driver's status:


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


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

Block Diagram, I/O Address, Interrupt Vector, Serial Interface

Block Diagrams

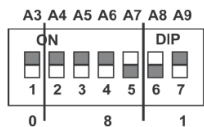
CA Series	
CA-108	 <ul style="list-style-type: none"> SW2: Interrupt Vector SW1: I/O Base Address Box Header Connector PC/104 Slot
CA-104 V2	 <ul style="list-style-type: none"> SW2: Interrupt Vector SW1: I/O Base Address Box Header Connector PC/104 Slot
CA-114	 <ul style="list-style-type: none"> SW1 } Serial Interface SW2 } SW3 } SW4: I/O Base Address SW5: Interrupt Vector PC/104 Slot Box Header Connector
CA-134I, CA-132 V2, CA-132I V2	 <ul style="list-style-type: none"> RS-422/RS-485 2-WIRE/4-WIRE SW1: I/O Base Address SW2: Interrupt Vector PC/104 Slot Box Header Connector 20-pin for CA-132 V2, CA-132I V2 40-pin for CA-134I
CB Series	
CB-108	 <ul style="list-style-type: none"> PC/104-Plus Slot Box Header Connector PC/104 Slot
CB-114	 <ul style="list-style-type: none"> PC/104-Plus Slot SW1 } Serial Interface SW2 } SW3 } Box Header Connector PC/104 Slot
CB-134I	 <ul style="list-style-type: none"> PC/104-Plus Slot RS422/RS485 2-WIRE/4-WIRE Box Header Connector PC/104 Slot

I/O Address (Only for the CA Series)

Use DIP switch SW1 to set port 1's I/O base address. The other ports will be configured automatically.

The default I/O base address is 0x180 and allows settings from 0x000 to 0x3FF.

Some popular settings are provided below:



= on, = off

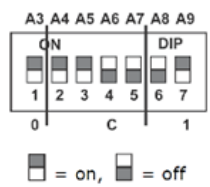
For example, an I/O base address of 0x180 should be set as follows:

A3	A4	A5	A6	A7	A8	A9	Hex
ON	ON	ON	ON	OFF	OFF	ON	0x180

The other serial ports will be set automatically to 0x188, 0x190, 0x198, etc.

Interrupt Vector (Only for CA Series)

A3	A4	A5	A6	A7	A8	A9	
8	1	2	4	8	1	2	Hex
ON	ON	ON	ON	ON	ON	ON	0x000
ON	ON	ON	ON	ON	ON	off	0x200
ON	ON	ON	ON	ON	off	off	0x300
ON	ON	ON	ON	off	off	off	0x380
ON	ON	ON	off	off	off	off	0x3C0
ON	ON	off	off	off	off	off	0x3E0
ON	off	off	off	off	off	off	0x3F0
off	off	off	off	off	off	off	0x3F8
off	ON	ON	ON	ON	ON	ON	0x008
off	off	ON	ON	ON	ON	ON	0x018
off	off	off	ON	ON	ON	ON	0x038
off	off	off	off	ON	ON	ON	0x078
off	off	off	off	off	ON	ON	0x0F8
off	off	off	off	off	ON	off	0x2F8



= on, = off

Use DIP switch SW2 to set port 1's interrupt vector.

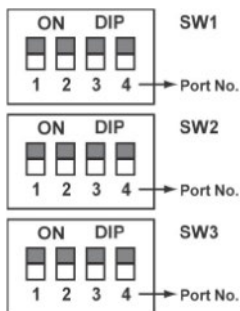
The default interrupt vector is 0x1C0, with SW2 set as follows:

A3	A4	A5	A6	A7	A8	A9	Hex
ON	ON	ON	ON	OFF	OFF	ON	0x1C0

Serial Interface

CA Series

CA-114



Interface	RS-232	RS-422	RS-485 (4w)	RS-485 (2w)
SW1	-	-	ON	OFF
SW2	-	ON	OFF	OFF
SW3	ON	OFF	OFF	OFF

CA-134I, CA-132 V2, and CA-132I V2

Interface	2-wire/4-wire	RS-422/RS-485
RS-422	-	OFF
4-wire RS-485	OFF	ON
2-wire RS-485	ON	ON

CB Series

CB-114

Interface	RS-232	RS-422	RS-485 (4w)	RS-485 (2w)
SW1	-	-	ON	OFF
SW2	-	ON	OFF	OFF
SW3	ON	OFF	OFF	OFF

CB-134I

Interface	2-wire/4-wire	RS-422/RS-485
RS-422	-	OFF
4-wire RS-485	OFF	ON
2-wire RS-485	ON	ON

Pin Assignments

RS-232

(CA-108/CB-108, CA-114/CB-114, and CA-104)

NOTE Note that there are two 40-pin box header connectors on the CA-108/CB-108, of which each connects to 4 serial ports.

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	DCD0	11	DCD1	21	DCD2	31	DCD3
2	DSR0	12	DSR1	22	DSR2	32	DSR3
3	RxD0	13	RxD1	23	RxD2	33	RxD3
4	RTS0	14	RTS1	24	RTS2	34	RTS3

5	TxD0	15	TxD1	25	TxD2	35	TxD3
6	CTS0	16	CTS1	26	CTS2	36	CTS3
7	DTR0	17	DTR1	27	DTR2	37	DTR3
8	-	18	-	28	-	38	-
9	GND0	19	GND1	29	GND2	39	GND3

RS-422, 4-wire RS-485

(CA-132, CA-132I, CA-114/CB-114, and CA-134I)

With regard to the CA Series, pins 21 to 40 apply to CA-114 and CA-134I only.

Pin	Signal	Pin	Signal	Pin*	Signal*	Pin*	Signal*
1	TxD0-(A)	11	TxD1-(A)	21	TxD2-(A)	31	TxD3-(A)
3	TxD0+(B)	13	TxD1+(B)	23	TxD2+(B)	33	TxD3+(B)
5	RxD0+(B)	15	RxD1+(B)	25	RxD2+(B)	35	RxD3+(B)
7	RxD0-(A)	17	RxD1-(A)	27	RxD2-(A)	37	RxD3-(A)
9	GND0	19	GND1	29	GND2	39	GND3

2-wire RS-485

(CA-132, CA-132I, CA-114/CB-114, and CA-134I)

With regard to the CA Series, pins 21 to 40 apply to the CA-114 and CA-134I only.

Pin	Signal	Pin	Signal	Pin*	Signal*	Pin*	Signal*
5	Data0+(B)	15	Data1+(B)	25	Data2+(B)	35	Data3+(B)
7	Data0-(A)	17	Data1-(A)	27	Data2-(A)	37	Data3-(A)
9	GND0	19	GND1	29	GND2	39	GND3