PCI Express 16-Port Serial I/O Cards

The PCIe-1600 PCI Express 16-port serial I/O card is a plug & play high-speed serial I/O expansion card for PCI Express bus. Connecting to a PCI Express bus on your computer, the PCI Express 16-port serial I/O card instantly adds sixteen serial I/O communication ports to your system. The PCI Express 16-port serial I/O card design utilizes the Exar XR17V358 PCI Express to UART chip. The PCIe-1600 card supports high-speed data rate up to 921.6 Kbps. Each serial port is compatible with 16550 UART, with enhanced feature of 256-byte TX and RX FIFO buffer for higher performance.

The PCI Express 16-port serial I/O card is an advanced and high efficient solution for serial data communication and industrial automation applications.

Features of PCI Express 16-Port Serial I/O Card

- PCI Express 2.0 x 1 compliant
- PCI Express 1 Lane compliant
- 16C550 compatibility
- 256 bytes receive FIFO buffer
- 256 bytes transmit FIFO buffer for high speed data throughput
- Automatic RTS/CTS or DTR/DSR hardware flow control with programmable hysteresis
- Automatic Xon/Xoff software flow control
- Drivers provided for Windows and Linux O.S
- Wide ambient temperature operation 0°C to 60°C (32°F to 140°F)
- CE, FCC approval
- Supports sixteen high speed RS-232 serial ports with data transfer rate up to 921.6 Kbps
- Provides 15KV ESD protection for all serial signals
- Provides sixteen DB-9 male connectors
- RS-232 data signals: DCD, RxD, TxD, DTR, GND, DSR, RTS, CTS
- Includes two octopus cable with one DB-62 male connector to eight DB-9 male connectors cable. Cable length: 1 meter (OCT-8-DB9)
- Optional octopus cable with one DB-62 male connector to eight DB-25 male connectors cable. Cable length: 1 meter (OCT-8-DB25)
- Optional external Serial I/O Box with eight DB9 male connectors and link cable of 1.5 meter available. (COMBOX-8)
- Optional external metal Serial I/O Box with eight DB-25 male connectors and link cable of 1.5 meter available. DIN-rail and panel mountable (COMBOX-8-DB25)

Specifications

The tables below show the specifications of PCI Express 16-port serial I/O card

General	
Bus	PCI Express; Single-Lane (x1)
Chipset	Two EXAR XR17V358
Interface	RS-232
Plug & Play	Supported
IRQ &IO Address	Assigned by system BIOS

Serial Port	
Serial Ports Number	16-Port
Connectors & Cable	One DB-62 female connector on card One DB-62 female connector on extended I/O card Two DB-62 male to eight DB-9 male adapter cables included
RS-232 Signals	DCD, RxD, TxD, DTR, GND, DSR, RTS, CTS
Max. Baud Rate	921600 bps
Serial Configuration	Data bits : 5,6,7,8 Parity : None, Odd, Even, Mark , Space Stop bits : 1, 1.5 , 2
UART FIFO Buffer size	Each port with 256 bytes FIFO for transmit and receive

Environment	
Operating Temperature	0°C to 60°C
Storage Temperature	-40°C to 85°C
Humidity	0 to 80% RH. Noncondensing
Safety Approvals	CE, FCC

Pin-out Information

The following are the pin-out of DB-9 connector for PCIe-1600 PCI Express serial I/O card.
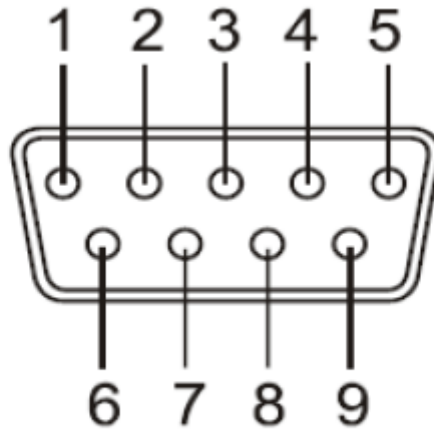
DB9 Male connector pin numbers

RS-232 Pin-out for DB-9 connector

Pin Number	Pin Type	Description
1	Input	DCD : Data Carrier Detect
2	Input	RxD : Receive Data
3	Output	TxD : Transmit Data
4	Output	DTR : Data Terminal Ready
5	Ground	GND : Signal Ground
6	Input	DSR : Data Set Ready
7	Output	RTS : Request To Send
8	Input	CTS : Clear To Send

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| Pin	RS 232	Pin	RS 232	Pin	RS 232
1	TxD (1)	22	RxD (1)	43	CTS (1)
2	DTR (1)	23	DSR (1)	44	RTS (1)
3	RxD (2)	24	DCD (1)	45	GND
4	DSR (2)	25	TxD (2)	46	CTS (2)
5	DCD (2)	26	DTR (2)	47	RTS (2)
6	TxD (3)	27	RxD (3)	48	CTS (3)
7	DTR (3)	28	DSR (3)	49	RTS (3)
8	RxD (4)	29	DCD (3)	50	GND
9	DSR (4)	30	TxD (4)	51	CTS (4)
10	DCD (4)	31	DTR (4)	52	RTS (4)
11	RxD (5)	32	GND	53	CTS (5)
12	DSR (5)	33	TxD (5)	54	RTS (5)
13	DCD (5)	34	DTR (5)	55	GND
14	TxD (6)	35	RxD (6)	56	CTS (6)
15	DTR (6)	36	DSR (6)	57	RTS (6)
16	RxD (7)	37	DCD (6)	58	GND
17	DSR (7)	38	TxD (7)	59	CTS (7)
18	DCD (7)	39	DTR (7)	60	RTS (7)
19	RxD (8)	40	GND	61	CTS (8)
20	DSR (8)	41	TxD (8)	62	RTS (8)
21	DCD (8)	42	DTR (8)		
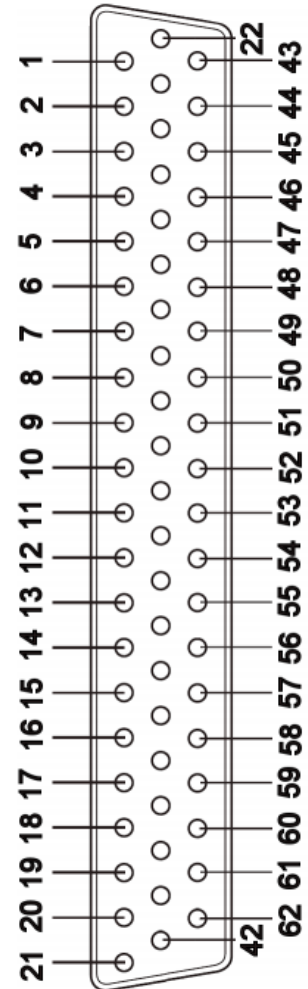
## DB62 Female connector pin-out

Installation

Windows 7/ 8 / 8.1 (32-bit/ 64-bit) Drivers Installation

To install the Windows driver from Device Manager for PCI Express 16-port serial I/O card, please follow the steps below:

1. Switch off the computer.

2. Insert the PCI Express serial I/O card into a free PCI Express Bus slot.

3. Switch on the computer and start Windows O.S.

4. Windows O.S will automatically detect the PCI Express I/O Card.

5. Press "START" button and select "Control Panel".

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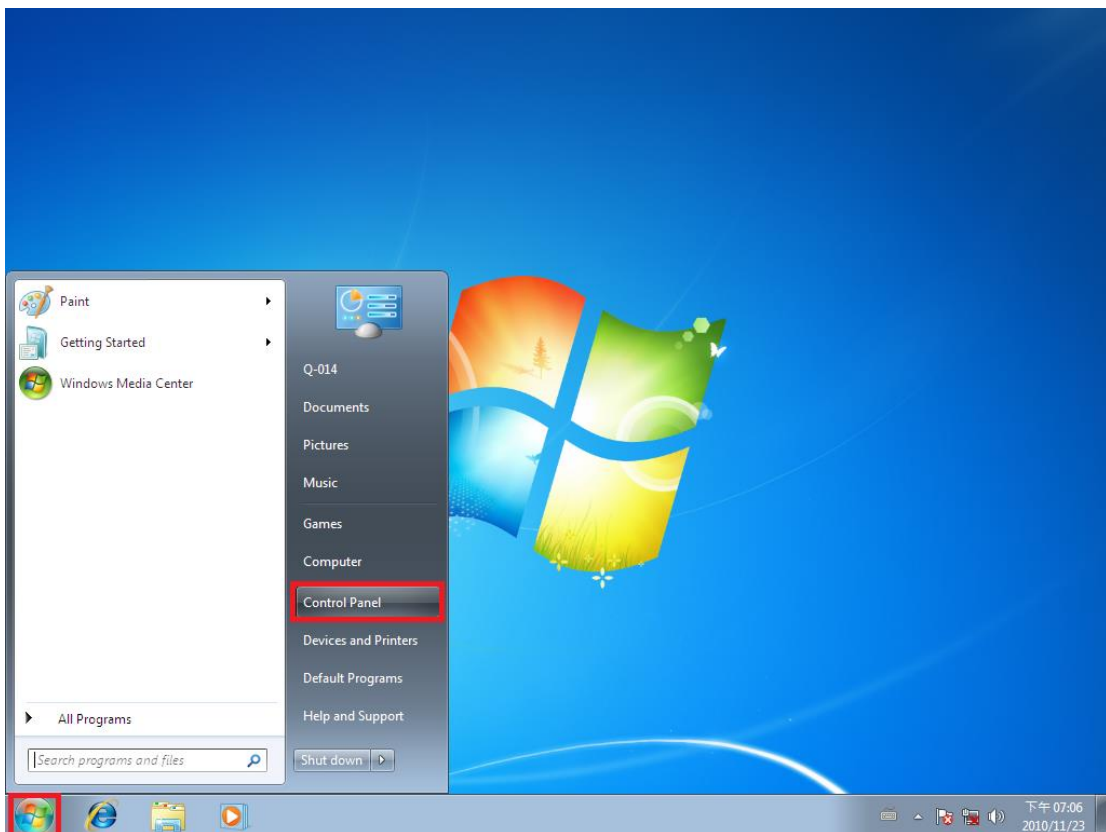
6. Select "Hardware and Sound".

7. Select "Device Manager".

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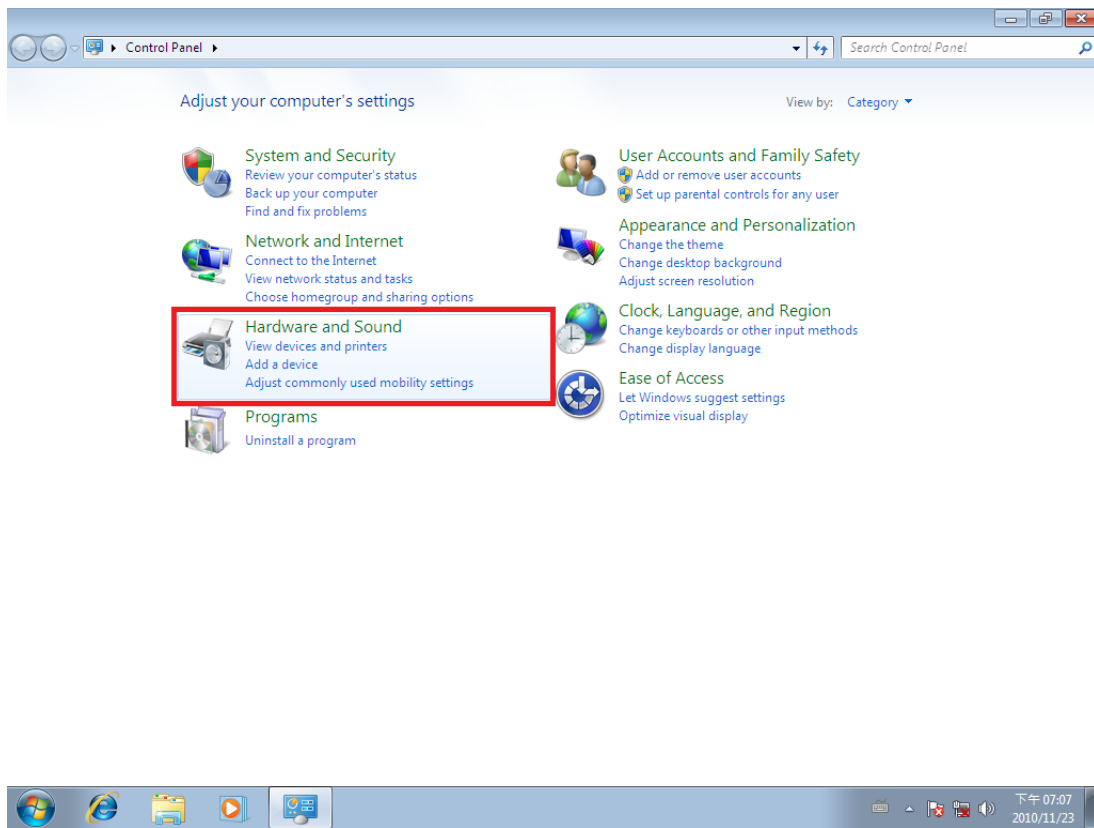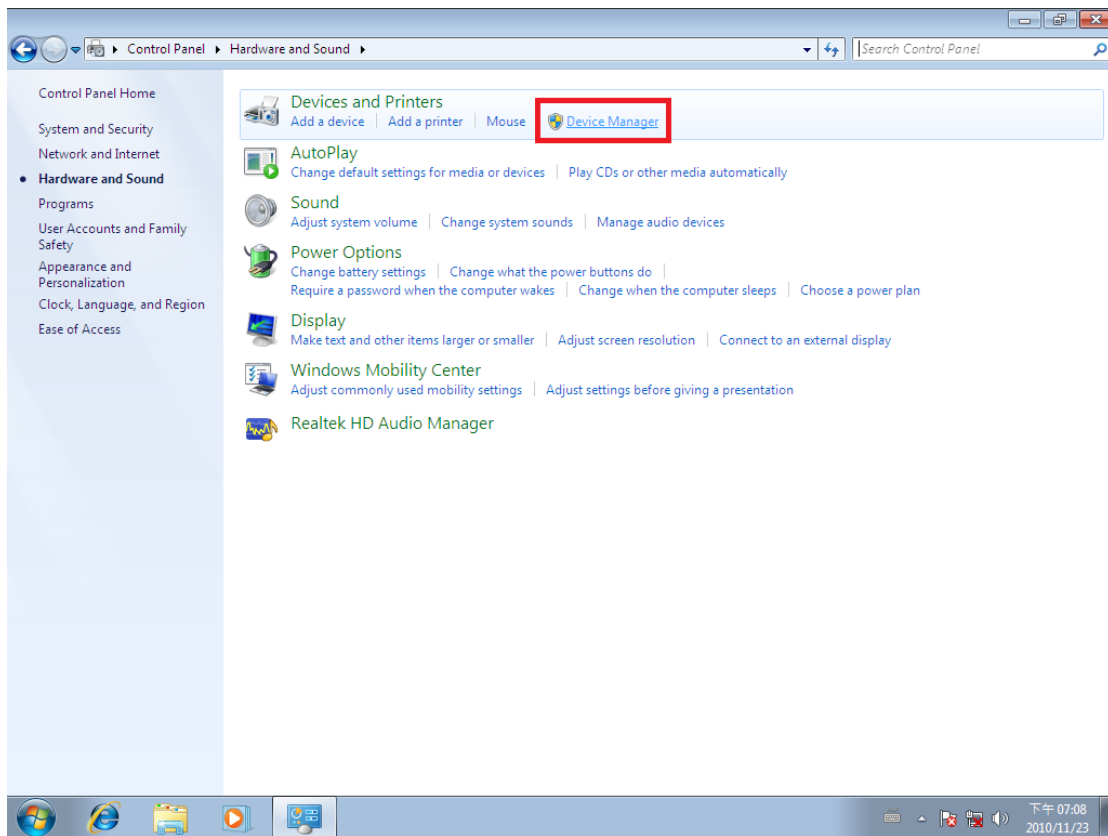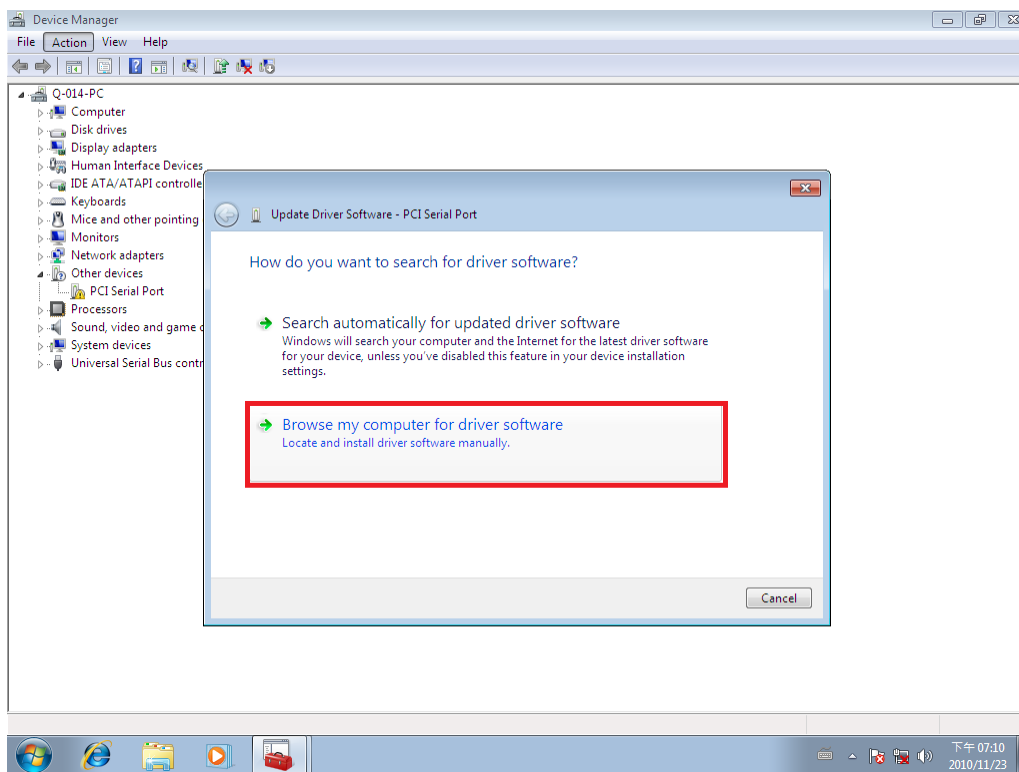
8. Under "Device Manager" of the System properties, you can find "PCI Serial Port" attached to "Other devices". Select "PCI Serial Port".

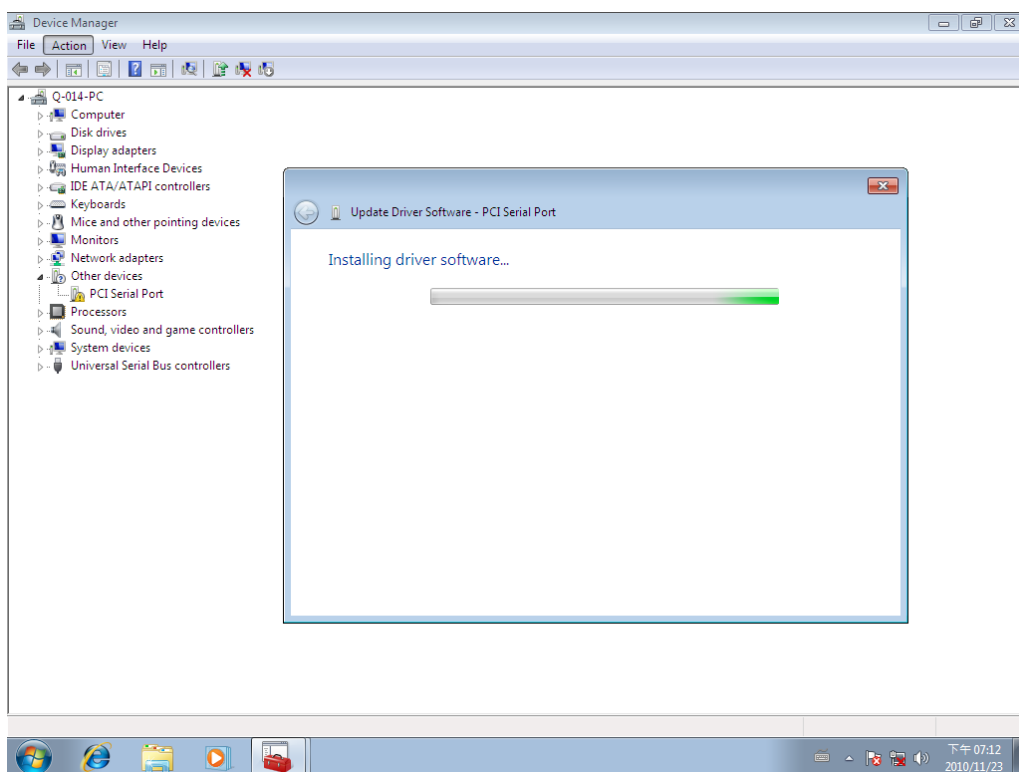9. Select "Action" and execute "Update Driver Software".

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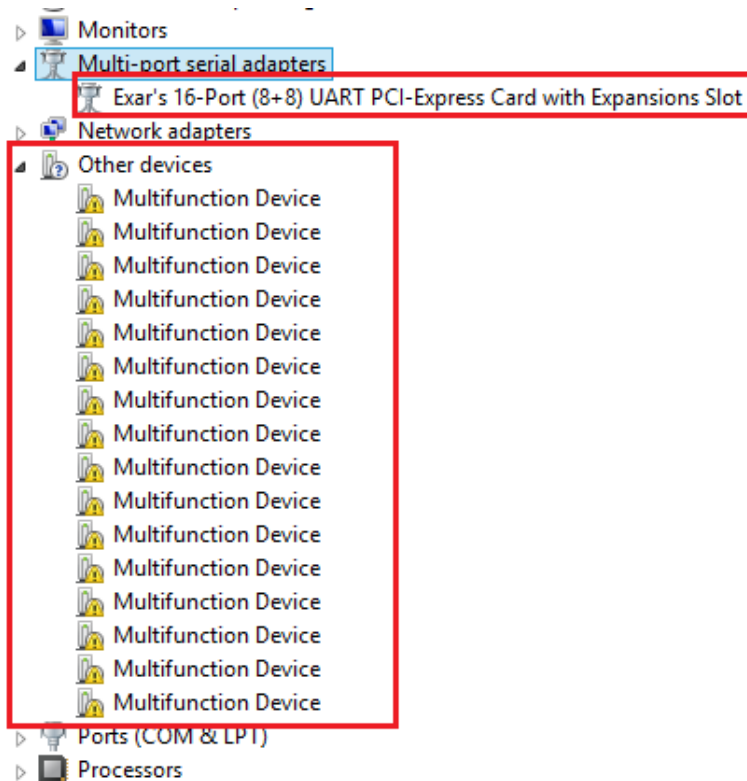
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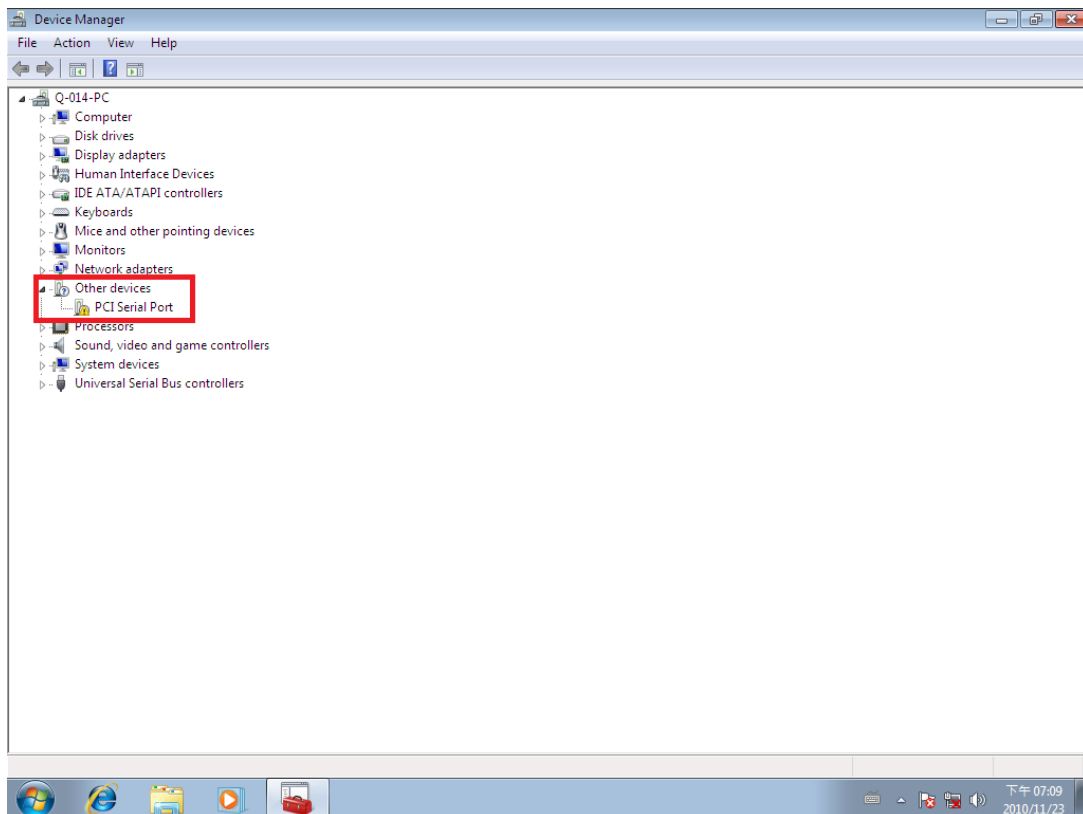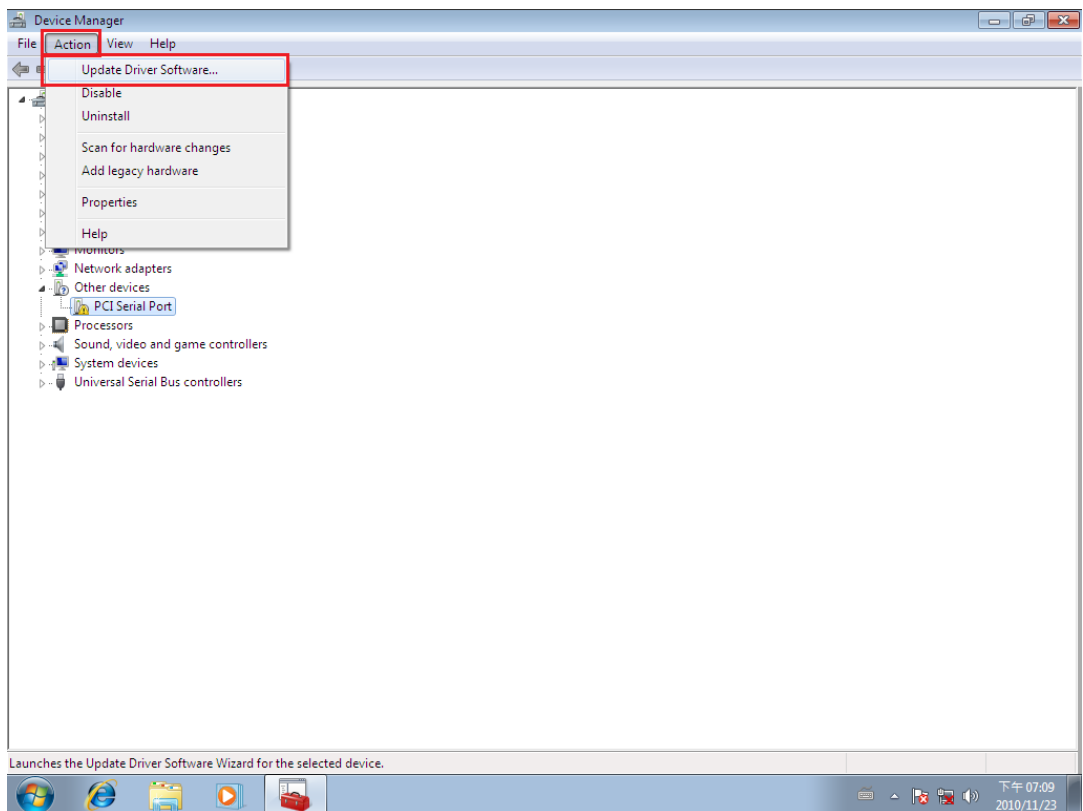
10. Click "Browse my computer for driver software".

11. Insert the driver CD into the CD-ROM or DVD-ROM drive.

12. For 32-bit Windows O.S., select the directory "\PCIe Drivers\x86" as the target. For 64-bit Windows O.S., select the directory "\PCIe Drivers\x64" as the target. Click on "OK", and on "Next" to install driver.

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13. After driver installation is done successfully, you will find in "Device Manager" one "Exar's 16-Port (8+8) UART PCI-Express Card with Expansions Slot" listed under "Multi-port serial adapters" and sixteen "Multifunction Device" listed under "Other devices".

14. Select the first "Multifunction Device".
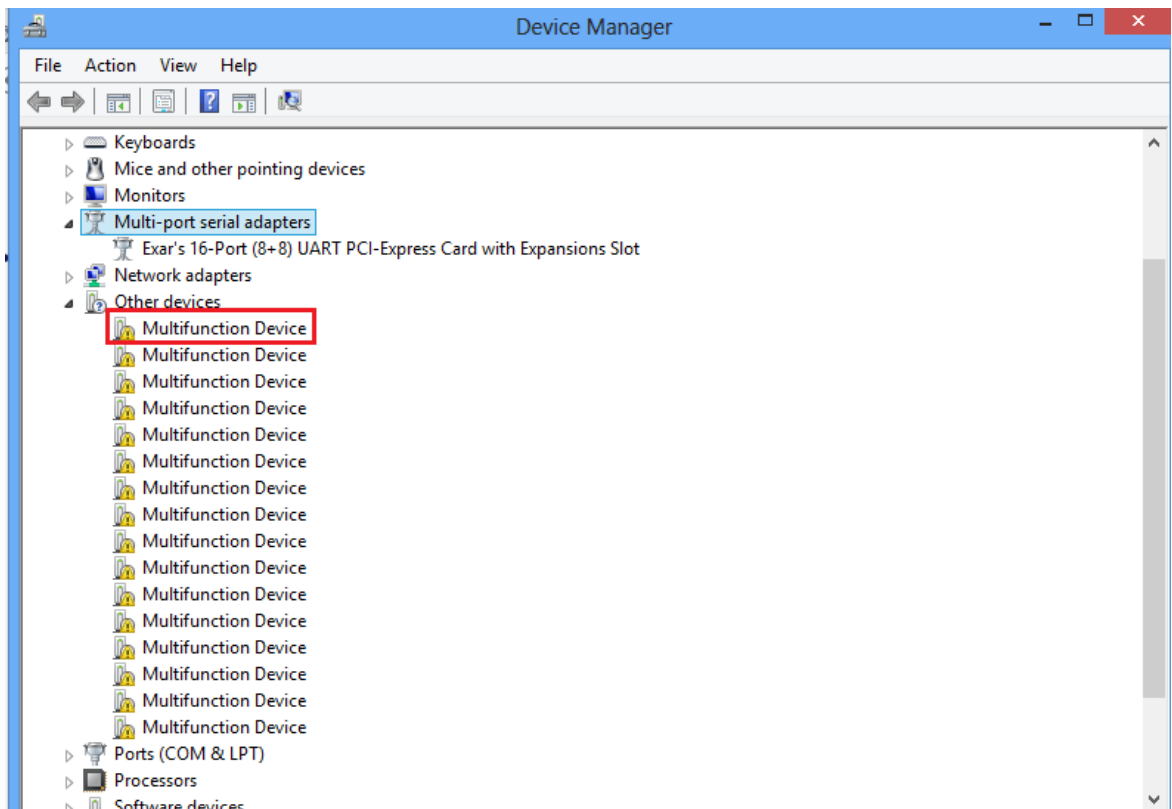
15. Select "Action" and execute "Update Driver Software".
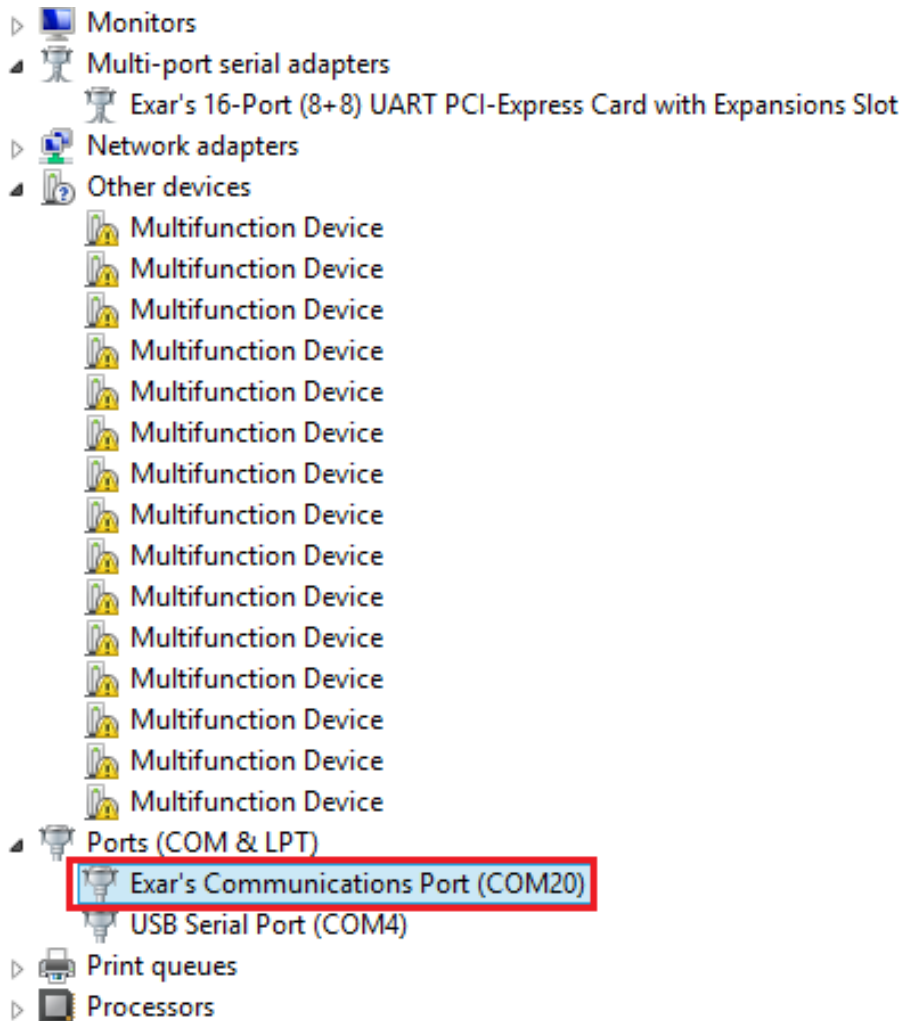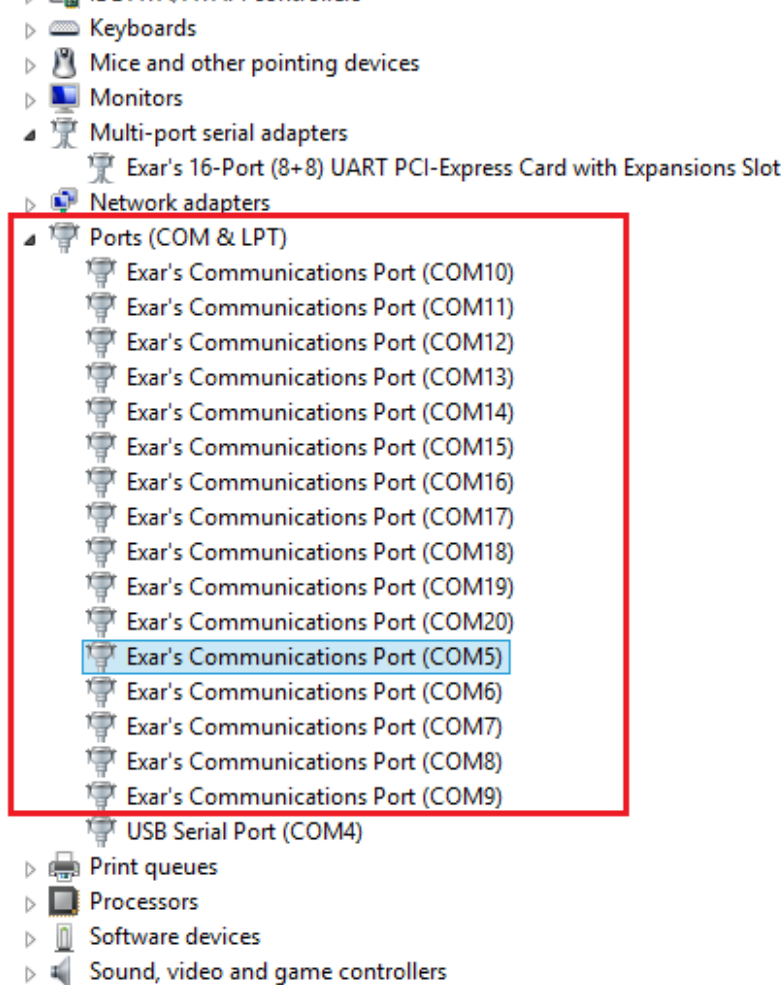
16. Click "Browse my computer for driver software" again.

17. For 32-bit Windows O.S., select the directory "\PCIe Drivers\x86" as the target. For 64-bit Windows O.S., select the directory "\PCIe Drivers\x64" as the target. Click on "OK", and on "Next" to install COM port driver.

18. After COM port driver installation is done successfully, you will find the first "Exar's Communications Port (COMx)" listed under "Ports (COM & LPT) in "Device Manager".

> 🖥 Monitors
▲ 🖩 Multi-port serial adapters
   🖩 Exar's 16-Port (8+8) UART PCI-Express Card with Expansions Slot
> 🖳 Network adapters
▲ 🖳 Other devices
   🖳 Multifunction Device
   🖳 Multifunction Device
   🖳 Multifunction Device
   🖳 Multifunction Device
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   🖳 Multifunction Device
▲ 🖶 Ports (COM & LPT)
   🖶 Exar's Communications Port (COM20)
   🖶 USB Serial Port (COM4)
> 🖨 Print queues
> 🖳 Processors

19. Select the next "Multifunction Device" by order, and repeat step 15~17 to install COM port driver for all "Multifunction Device".

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20. After all COM port driver installation is done successfully, you will find sixteen "Exar's Communications Port (COMx)" listed under "Ports (COM & LPT) in "Device Manager".

- ▷ 🖮 Keyboards
- ▷ 🖱 Mice and other pointing devices
- ▷ 🖵 Monitors
- ⊿ 🖳 Multi-port serial adapters
  - 🖳 Exar's 16-Port (8+8) UART PCI-Express Card with Expansions Slot
- ▷ 🖧 Network adapters
- ⊿ 🖳 Ports (COM & LPT)
  - 🖳 Exar's Communications Port (COM10)
  - 🖳 Exar's Communications Port (COM11)
  - 🖳 Exar's Communications Port (COM12)
  - 🖳 Exar's Communications Port (COM13)
  - 🖳 Exar's Communications Port (COM14)
  - 🖳 Exar's Communications Port (COM15)
  - 🖳 Exar's Communications Port (COM16)
  - 🖳 Exar's Communications Port (COM17)
  - 🖳 Exar's Communications Port (COM18)
  - 🖳 Exar's Communications Port (COM19)
  - 🖳 Exar's Communications Port (COM20)
  - 🖳 Exar's Communications Port (COM5)
  - 🖳 Exar's Communications Port (COM6)
  - 🖳 Exar's Communications Port (COM7)
  - 🖳 Exar's Communications Port (COM8)
  - 🖳 Exar's Communications Port (COM9)
  - 🖳 USB Serial Port (COM4)
- ▷ 🖶 Print queues
- ▷ 🖳 Processors
- ▷ 🖳 Software devices
- ▷ 🔊 Sound, video and game controllers

21. Restart computer to complete driver installation.

Uninstalling Windows Drivers

To uninstall the Windows driver from Device Manager for PCIe-1600 PCI Express serial I/O card, please follow the steps below:

1. Right click on "Exar's Communications Port (COMx)" in "Device Manager " to expand to "Device Control " screen. Select "Uninstall" to start Exar's Communications Port (COMx) driver uninstall.
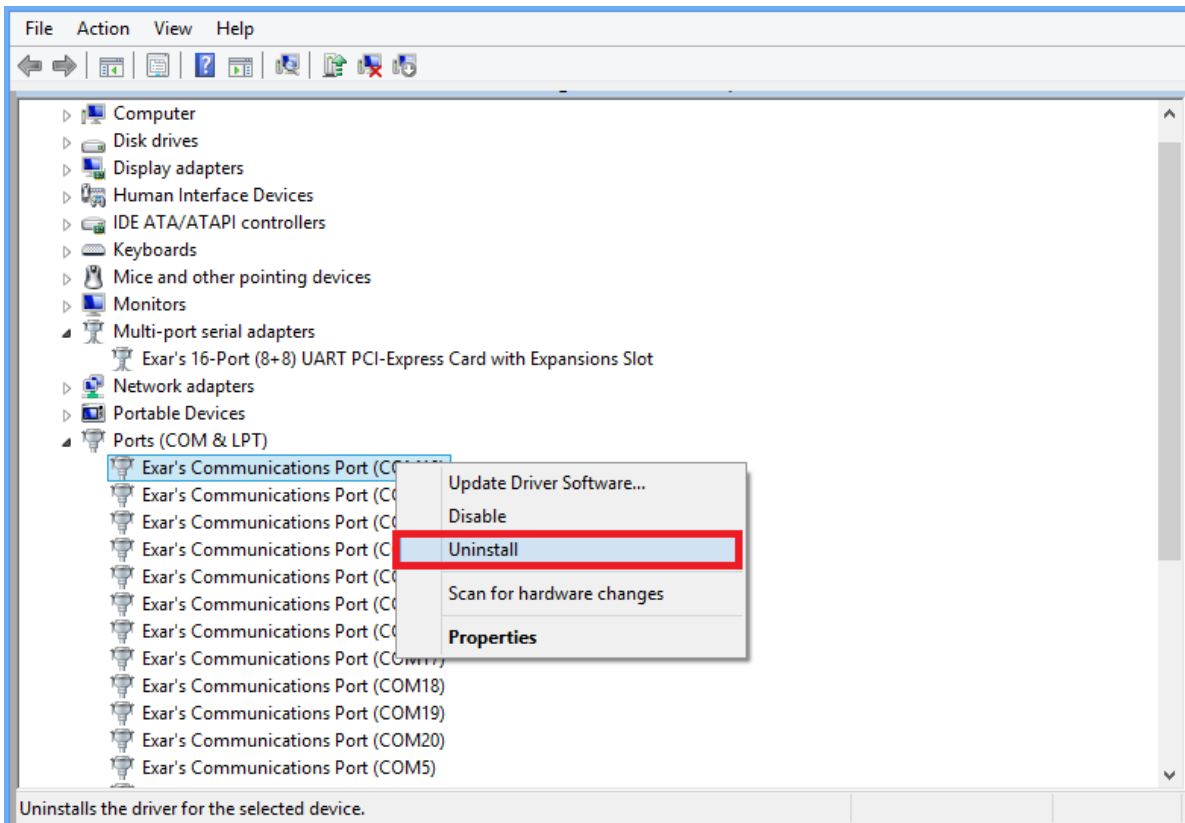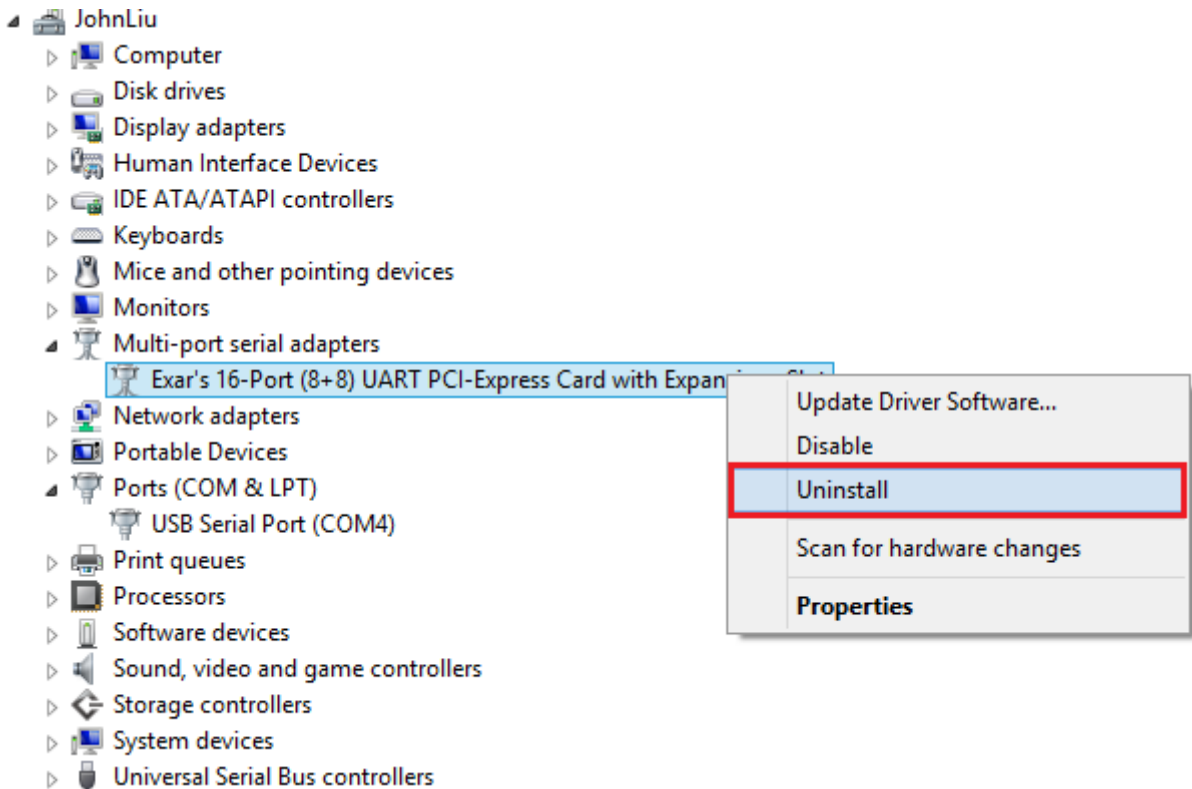

2. Under "Confirm Device Uninstall" screen, check "Delete the driver software for this device". Click "OK" to uninstall the software driver. If you don't find "Delete the driver software for this device" message, then just click "OK" to uninstall the software driver.
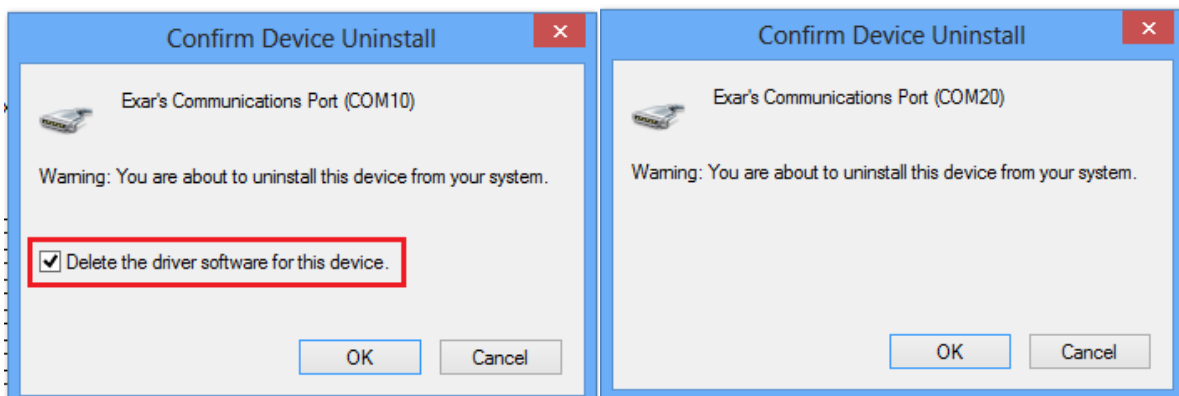

3. Right click on other "Exar's Communications Port (COMx)" and repeat step 1 ~2 to uninstall all Exar's Communications Port driver.

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4. Right click on "Exar's 16-Port (8+8) UART PCI-Express Card with Expansions Slot " under "Device Manager" to expand to "Device Control " screen. Select "Uninstall" to start "Exar's 16-Port UART PCI-Express Card" software driver uninstall.

5. Under "Confirm Device Uninstall" screen, check "Delete the driver software for this device". Click "OK" to uninstall the software driver. If you don't find "Delete the driver software for this device" message, then just click "OK" to uninstall the software driver.
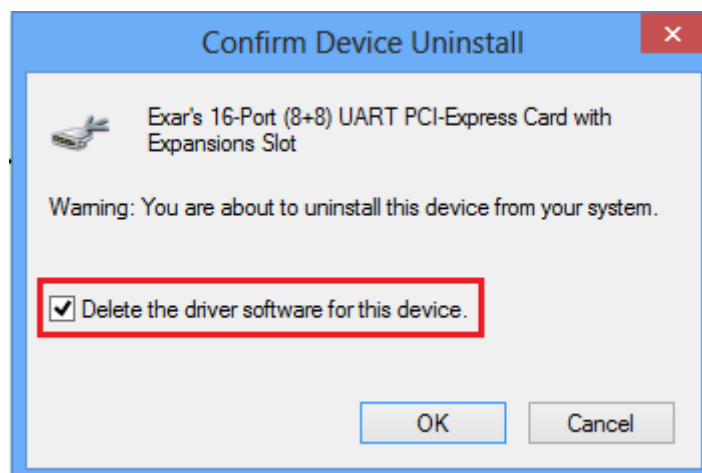
6. If you install more than one PCI Express 16-port serial I/O cards in the system, right click on other "Exar's 16-Port UART PCI-Express Card". Repeat step 4 to 5 to uninstall all PCI Express 16-port serial I/O cards software driver.

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