PCIe Multiport Serial Card User Manual

Multiport Serial Communication Board with 2/4/8 RS-232/422/485 Ports

Version 1.0.0, Oct. 2021

WARRANTY

All products manufactured by ICP DAS are warranted against defective materials for a period of one year from the date of delivery to the original purchaser.

WARNING

ICP DAS assumes no liability for damages consequent to the use of this product. ICP DAS reserves the right to change this manual at any time without notice. The information furnished by ICP DAS is believed to be accurate and reliable. However, no responsibility is assumed by ICP DAS for its use, nor for any infringements of patents or other rights of third parties resulting from its use.

COPYRIGHT

Copyright © 2021 by ICP DAS. All rights are reserved.

TRADEMARKS

Names are used for identification purposes only and may be registered trademarks of their respective companies.

CONTACT US

If you have any questions, please feel free to contact us via email at:

service@icpdas.com

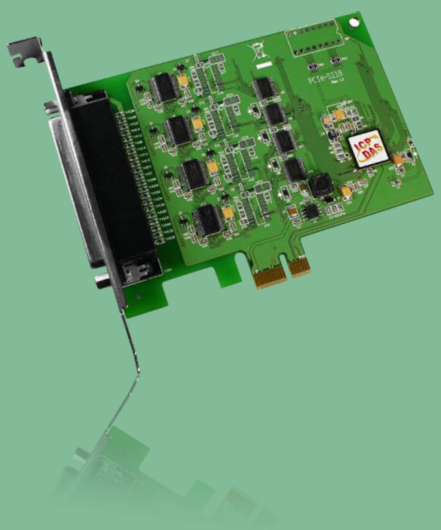
SUPPORT

PCIe-S112/PCIe-S112i、PCIe-S142/PCIe-S142i

PCIe-S114/PCIe-S114i、PCIe-S144/PCIe-S144i

PCIe-S118、PCIe-S148





Written by Albert Deng

Edited by Sunny Chiu

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

TABLE OF CONTENTS

PACKING LIST 4

1. INTRODUCTION 6

1.1 FEATURES 7

1.2 SPECIFICATIONS 9

1.2.1 PCIe-S112(i)/PCIe-S142(i) 9

1.2.2 PCIe-S114(i)/PCIe-S144(i) 10

1.2.3 PCIe-S118/PCIe-S148 11

1.3 OPTIONS 12

2. HARDWARE CONFIGURATION 15

2.1 DIMENSIONS 15

2.1.1 PCIe-S112(i)/ PCIe-S142(i) 15

2.1.2 PCIe-S114(i)/ PCIe-S144(i) 16

2.1.3 PCIe-S118/PCIe-S148 17

2.2 WIRING NOTES FOR RS-232/422/485 18

2.2.1 RS-232 Wiring 18

2.2.2 RS-485 Wiring 18

2.2.3 RS-422 Wiring 19

2.3 PIN ASSIGNMENTS 20

2.3.1 PCIe-S112 20

2.3.2 PCIe-S142 20

2.3.3 PCIe-S114 21

2.3.4 PCIe-S144 22

2.3.5 PCIe-S118 23

2.3.6 PCIe-S148 24

3. HARDWARE INSTALLATION 25

4. SOFTWARE INSTALLATION 29

4.1 OBTAINING THE DRIVER INSTALLER PACKAGE 29

4.2 INSTALLING DRIVER FOR PCIe MULTIPORT SERIAL CARD 30

4.3 PNP DRIVER INSTALLATION 32

4.4 VERIFYING THE INSTALLATION 34

4.4.1 Accessing Windows Device Manager 34

4.4.2 Check the Configuration of the COM Port 36

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

4.5 MANUAL CONFIGURATION FOR COM PORTS 37
4.6 UNINSTALLING THE DEVICE DRIVER 40

5. TESTING THE PCIe MULTIPORT SERIAL CARD 41

5.1 PCIe-S112(I)/ PCIe-S142(I) 41
5.1.1 Preparation 41
5.1.2 Self-test Wiring 41
5.1.3 Executing Test Program 43
5.2 PCIe-S114(I)/ PCIe-S144(I) 45
5.2.1 Preparation 45
5.2.2 Self-test Wiring 45
5.2.3 Executing Test Program 47
5.3 PCIe-S118/ PCIe-S148 49
5.3.1 Preparation 49
5.3.2 Self-test Wiring 49
5.3.3 Executing Test Program 51

REVISION HISTORY 53

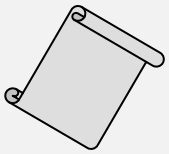
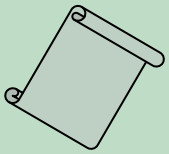
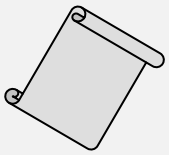
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

Packing List

The shipping package includes the following items:

Note:
If any of these items are missing or damaged, please contact the local distributor for more information. Save the shipping materials and cartons in case you need to ship the card in the future.

PCIe-S112(i)/ PCIe-S142(i)	 **One PCIe-S1x2 Series Card**	 **One Quick Start**	
PCIe-S114(i)/ PCIe-S144(i)	 **One PCIe-S1x4 Series Card**	 **One Quick Start**	 **One CA-4002 Connector**
PCIe-S118/ PCIe-S148	 **One PCIe-S1x8 Series Card**	 **One Quick Start**	 **One CA-PC62M Connector**

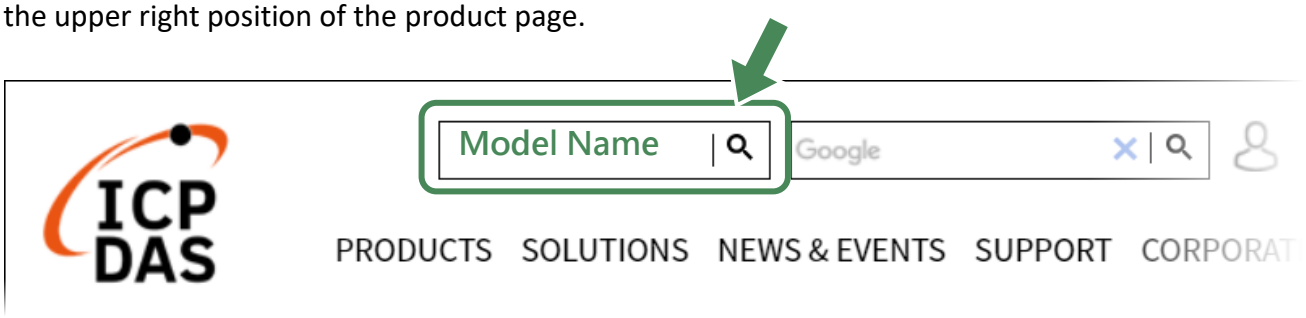
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

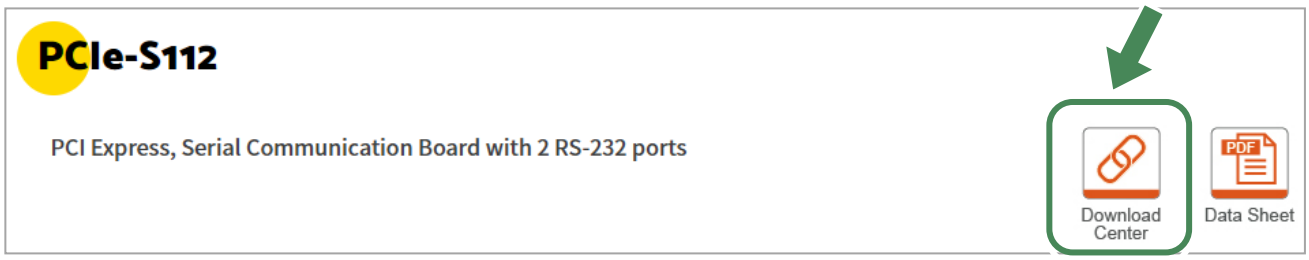
Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

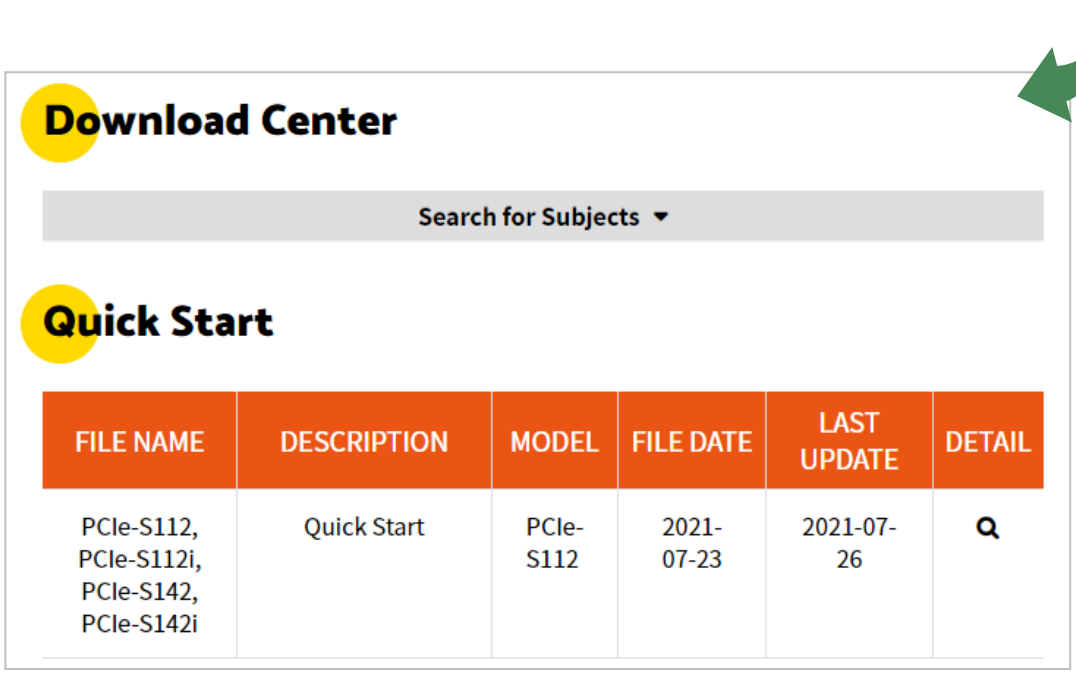
More Information

More information about the software and manual for the PCIe multiport serial cards can be obtained on the ICP DAS website, https://www.icpdas.com/.

You can visit the product page by entering part or all of your model name in the search bar, and get the detailed information about the software and manual by clicking the **Download Center** icon in the upper right position of the product page.



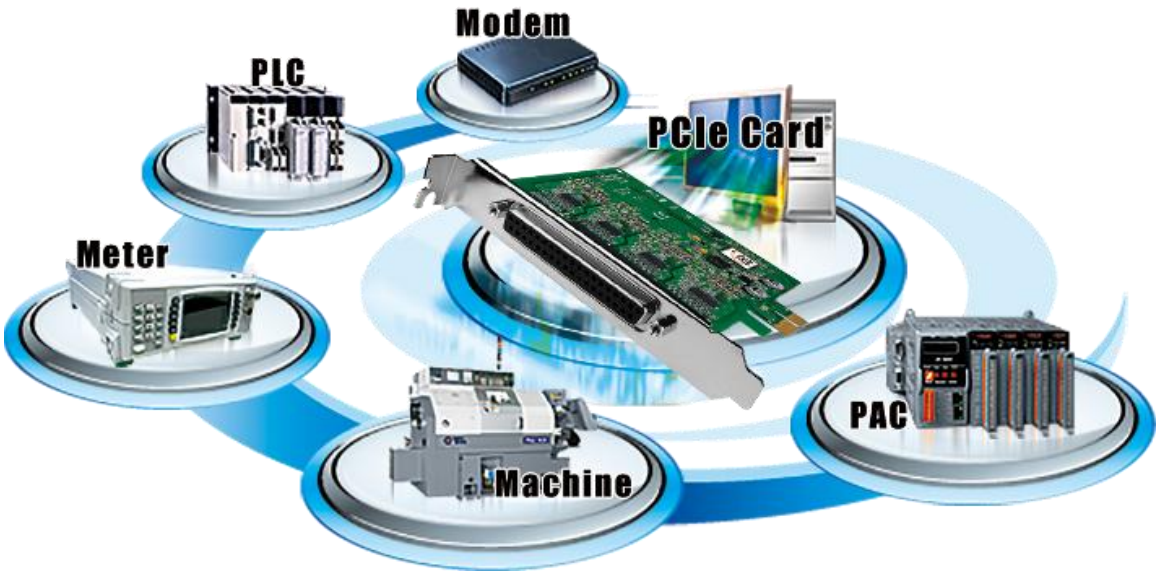




Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

1. Introduction



The PCIe multiport serial card is the foremost choice for PC-based communication solutions, ensuring smooth communication in both time-critical applications and industrial fields. Installing a multiport card increases the number of serial ports available on the PC, meaning that it is much easier to integrate a PC with a large number of external serial communication devices, such as PLCs, meters, controllers, laboratory instruments, modems, card readers, serial printers, RFID readers, bar code readers, and sensors.

Comparison Table for PCIe Multiport Serial Cards:

Model	RS-232		RS-422/RS-485		ESD Protection	Max. Speed (bps)	FIFO Size (bytes)	Connector
	Ports	Isolation	Ports	Isolation				
PCIe-S112	2	-	-	-	-	921.6 K	256	Male DB-9
PCIe-S112i	2	3.0 kV	-	-	±4 kV	921.6 K	256	Male DB-9
PCIe-S142	-	-	2		-	921.6 K	256	Male DB-9
PCIe-S142i	-	-	2	3.0 kV	±4 kV	921.6 K	256	Male DB-9
PCIe-S114	4	-	-	-	-	921.6 K	256	Female DB-37
PCIe-S114i	4	3.0 kV	-	-	±4 kV	921.6 K	256	Female DB-37
PCIe-S144	-	-	4		-	921.6 K	256	Female DB-37
PCIe-S144i	-	-	4	3.0 kV	±4 kV	921.6 K	256	Female DB-37
PCIe-S118	8	-	-	-	-	921.6 K	256	Female DB-62
PCIe-S148	-	-	8	-	-	921.6 K	256	Female DB-62

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

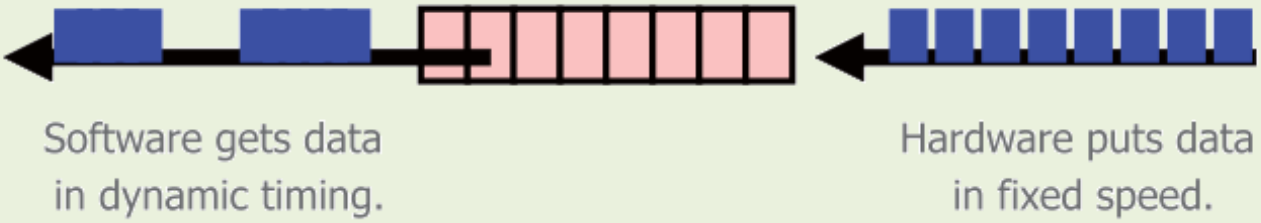
1.1 Features

PCI Express

PCI Express (PCIe) is a computer expansion card standard. A key difference between PCIe and earlier PC buses is a topology based on point-to-point serial links, rather than shared parallel bus architecture. Conceptually, the PCIe bus can be thought of as a 'high-speed serial replacement' of the older PCI/PCI-X bus.

Hardware FIFO up to 256 bytes

FIFO is an acronym for "First In, First Out", and is a method used for organizing and manipulating data relative to time and prioritization. FIFO is used for buffering and flow control while the data is transmitted from the hardware to the software. When using a hardware FIFO (buffer), a small delay in either the software or the operating system will not cause any data loss.



PCIe multiport serial cards are equipped with a large 256-byte hardware FIFO for each port. A large hardware FIFO is useful for preventing data loss if the loading on your system is heavy, e.g. while running a multi-task operating system, such as Windows or Linux.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

Automatically Select COM Port Numbers

The COM ports on a PCIe multiport serial card can be automatically detected and configured by the software driver. You can clearly and easily specify any COM port to access your serial devices in control programs with regardless of which PCI Express slot that the PCIe multiport serial card is inserted in.

.

Various Accessories

There are a lot of optional accessories for the PCIe multiport serial cards, such as RS-232 cables and daughter boards. These tools make wiring much easier than ever before.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

1.2 Specifications

1.2.1 PCIe-S112(i)/PCIe-S142(i)

Models	PCIe-S112	PCIe-S112i	PCIe-S142	PCIe-S142i
COM Ports				
Ports	2 x 9-wire RS-232		2 x RS-422/485	
Baud Rate	300 ~ 921600 bps			
Data Bits	5, 6, 7, 8			
Parity	None, Even, Odd, Mark, Space			
Stop Bits	1, 1.5, 2			
FIFO	Internal 256 bytes			
Isolation	-	3000 VDC	-	3000 VDC
Power				
Consumption	120 mA @ 5 V	440 mA @ 5 V	120 mA @ 5 V	440 mA @ 5 V
Mechanical				
Dimensions (W x L x D)	94 x 109 x 22			
Connector	2 x DB9 (Male)			
Environmental				
Operating Temperature	0°C ~ +60°C			
Storage Temperature	-20°C ~ +70°C			
Humidity	5 ~ 85% RH, Non-condensing			

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

1.2.2 PCIe-S114(i)/PCIe-S144(i)

Models	PCIe-S114	PCIe-S114i	PCIe-S144	PCIe-S144i
COM Ports				
Ports	4 x 9-wire RS-232		4 x RS-422/485	
Baud Rate	300 ~ 921600 bps			
Data Bits	5, 6, 7, 8			
Parity	None, Even, Odd, Mark, Space			
Stop Bits	1, 1.5, 2			
FIFO	Internal 256 bytes			
Isolation	-	3000 VDC	-	3000 VDC
Power				
Consumption	120 mA @ 5 V	880 mA @ 5 V	120 mA @ 5 V	880 mA @ 5 V
Mechanical				
Dimensions (W x L x D)	110 x 110 x 22		100 x 114 x 22	
Connector	Female DB-37			
Environmental				
Operating Temperature	0°C ~ +60°C			
Storage Temperature	-20°C ~ +70°C			
Humidity	5 ~ 85% RH, Non-condensing			

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

1.2.3 PCIe-S118/PCIe-S148

Models	PCIe-S118	PCIe-S148
COM Ports		
Ports	8 x RS-232	8 x RS-422/485
Baud Rate	2400 ~ 921600 bps	
Data Bits	5, 6, 7, 8	
Parity	None, Even, Odd, Mark, Space	
Stop Bits	1, 1.5, 2	
FIFO	Internal 256 bytes	
Power		
Consumption	120 mA @ 5 V	
Mechanical		
Dimensions (W x L x D)	90 x 131 x 22	93 x 128 x 22
Connector	Female DB-62	
Environmental		
Operating Temperature	0°C ~ +60°C	
Storage Temperature	-20°C ~ +70°C	
Humidity	5 ~ 85% RH, Non-condensing	

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

1.3 Options

Item & Description	PCIe-S112(i)	PCIe-S142(i)
 **CA-PC09F** 9-pin Female D-sub connector with plastic cover	✓	✓
 **DN-09-2/DN-09-2F** I/O Connector Block with DIN-Rail Mounting and two 9-Pin male Header	✓	✓
 **CA-0910F** 9-pin Female-Female D-sub Cable, 1 m	✓	✓
 **CA-0915** 9-pin Male-Female D-sub Cable, 1.5 m	✓	✓
 **CA-090910** 9-pin Female D-sub & (9-wire) RS-422 Cable, 1 m	-	✓

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

Item & Description	PCIe-S114 (i)	PCIe-S144 (i)
 **CA-4002** 37-pin Male D-sub connector with plastic cove	✓	✓
 **DN-37** I/O Connector Block (Pitch= 5.08 mm) with DIN-Rail Mounting Include: One CA-3710 (37-pin Male-Male D-sub Cable 1.0 m)	✓	✓
 **CA-3710** 37-Pin Male-Male D-sub Cable 1 m (45º)	✓	✓
 **CA-3710D** 37-Pin Male-Male D-sub Cable 1 m (180º)	✓	✓
 **CA-3720** DB-37 Male-Male D-sub Cable 2 m Cable(45 º)	✓	✓
 **CA-3720D** 37-Pin Male-Male D-sub Cable 2 m (180º)	✓	✓
 **CA-9-3715D** DB-37 Male(D-sub) to 4-Port DB-9 Male(D-sub) Cable 1.5 M (180 º)	✓	✓

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

Item & Description	PCIe-S118	PCIe-S148
 **CA-9-6210** DB-62 Male(D-sub) to 8-Port DB-9 Male(D-sub) Cable 1 m (180 º)	✓	✓
 **CA-PC09F** 9-pin Female D-sub Connector with Plastic Cover	✓	✓
 **CA-PC62M** 62-pin Male D-sub Connector with Plastic Cover	✓	✓
 **DN-09-2/DN-09-2F** I/O Connector Block with DIN-Rail Mounting and two 9-pin Male Headers	✓	✓
 **CA-0910F** 9-pin Female-Female D-sub Cable, 1 m	✓	✓
 **CA-0915** 9-pin Male-Female D-sub Cable, 1.5 M	✓	✓

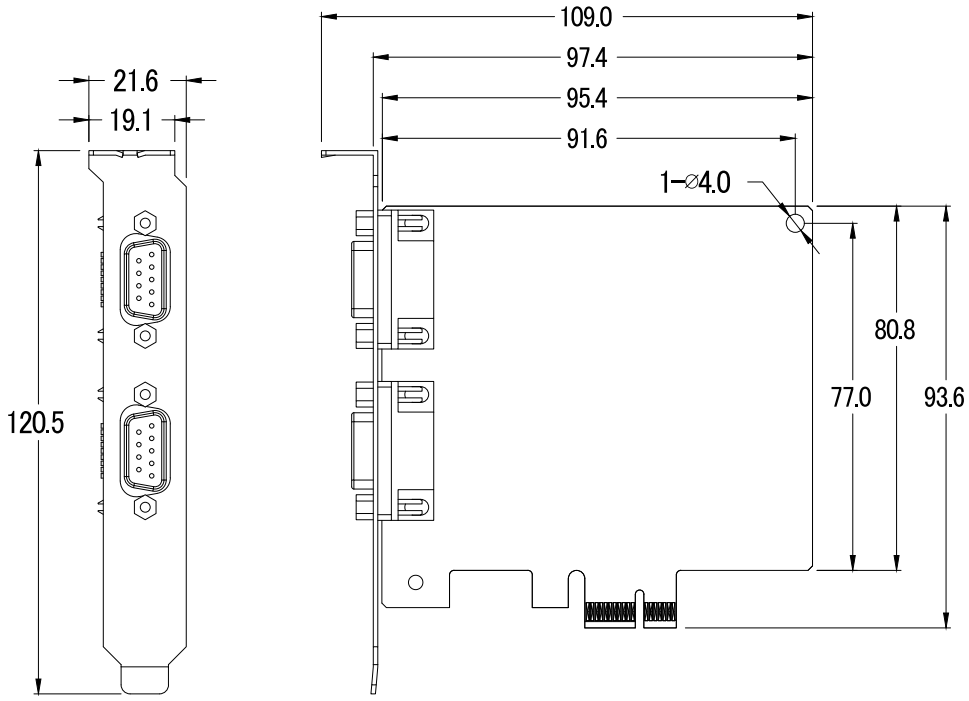
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

2. Hardware Configuration

2.1 Dimensions

2.1.1 PCIe-S112(i)/ PCIe-S142(i)

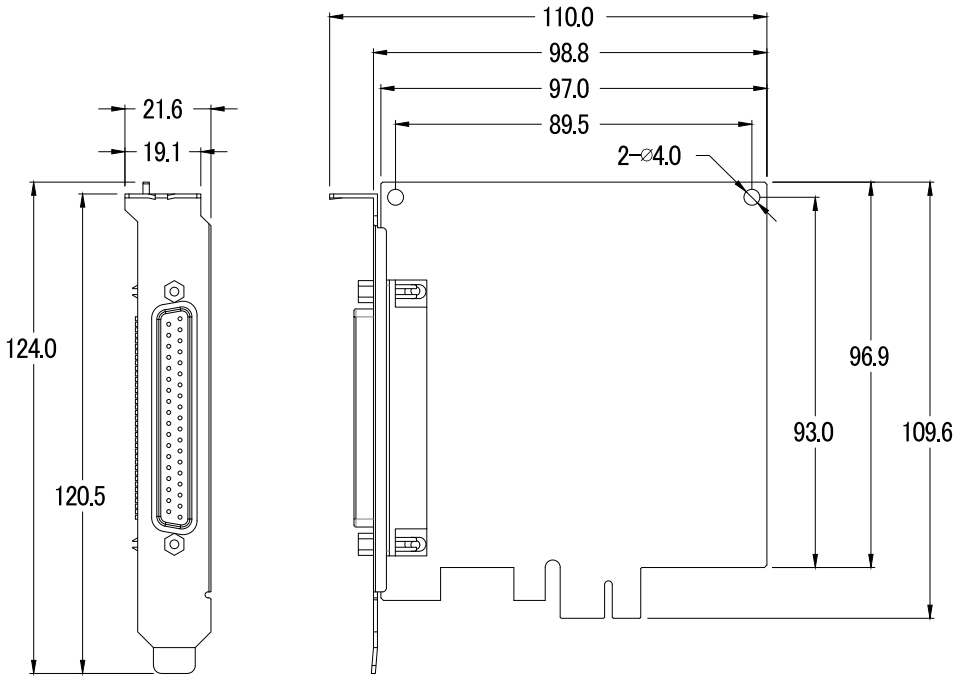


Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

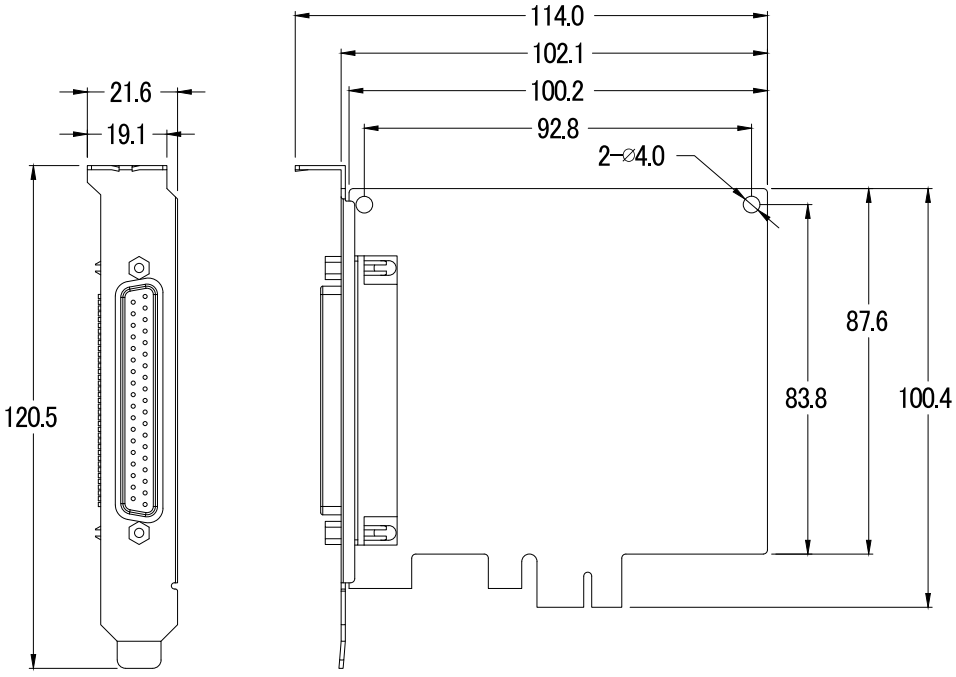
Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

2.1.2 PCIe-S114(i)/ PCIe-S144(i)

PCIe-S114(i)



PCIe-S144(i)

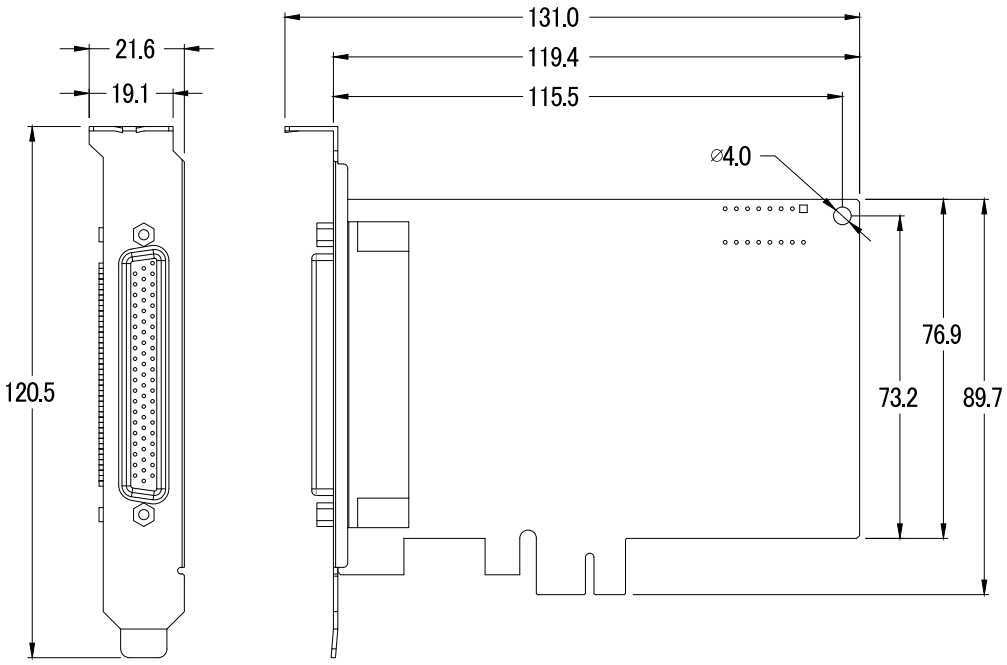


LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

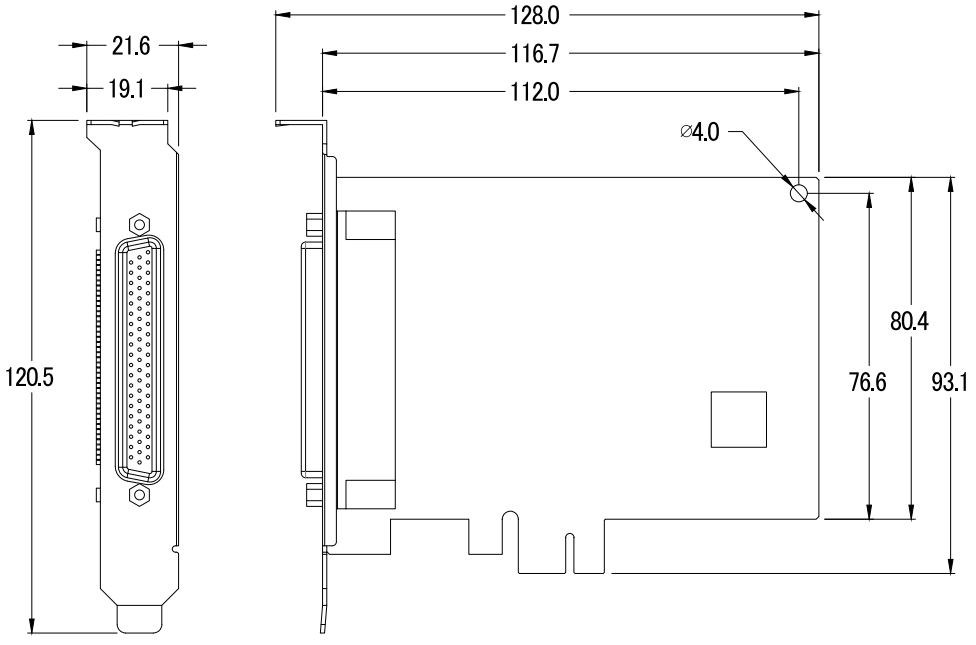
Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

2.1.3 PCIe-S118/PCIe-S148

PCIe-S118



PCIe-S148

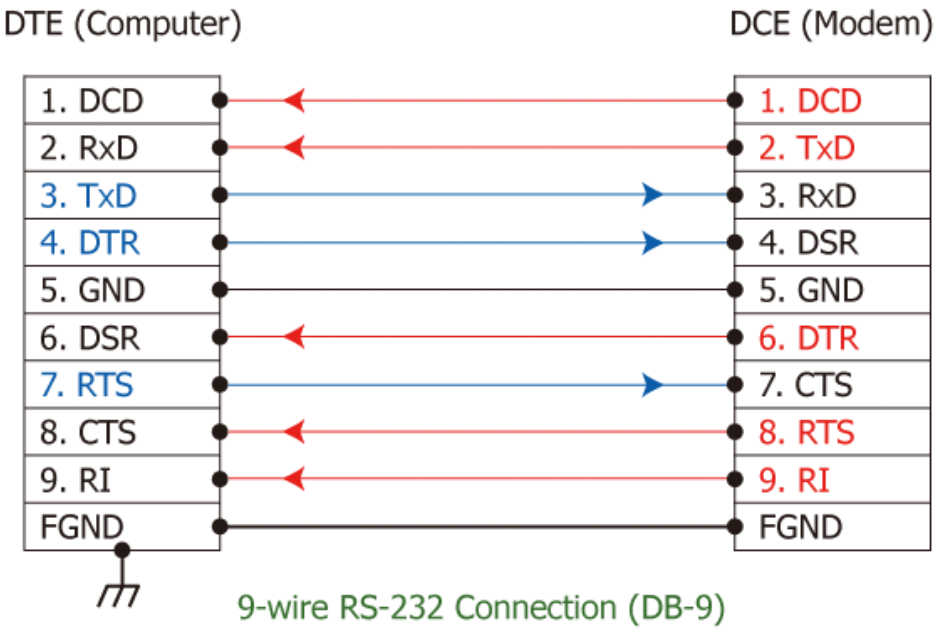


LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

2.2 Wiring Notes for RS-232/422/485

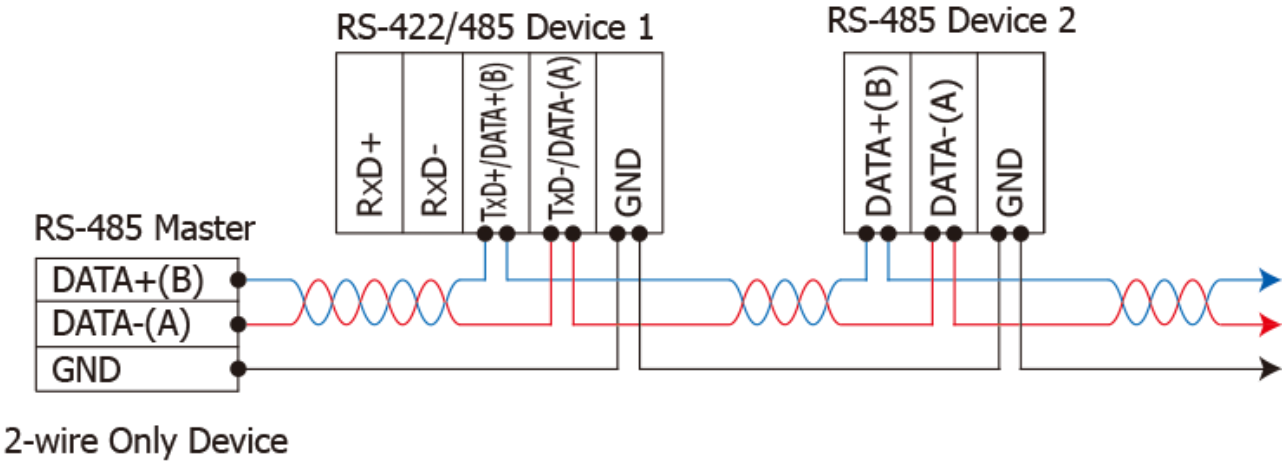
2.2.1 RS-232 Wiring



9-wire RS-232 Connection (DB-9)

Note: FGND is the frame ground that is soldered to the metal shield on the DB-9 cable.

2.2.2 RS-485 Wiring

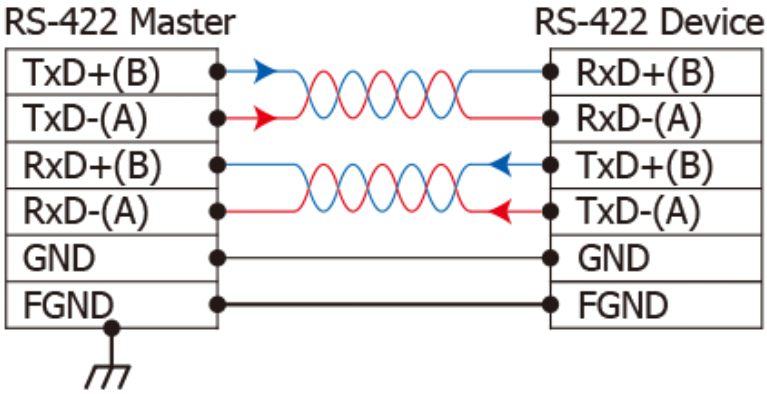


2-wire Only Device

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

2.2.3 RS-422 Wiring



Note:

1. **Usually, you have to connect all signal grounds of RS-422/485 devices together to reduce common-mode voltage between devices.**
2. **Twisted-pair cable must be used for the DATA+/- wires.**
3. **Both two ends of the cable may require a termination resistor connected across the two wires (DATA+ and DATA-). Typically 120 Ω resisters are used.**
4. **The Data+ and B pins are positive-voltage pins, and Data- and A pins are negative-voltage pins in the above figure. The B/A pins may be defined in another way depending on devices, please check it first.**

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

2.3 Pin Assignments

2.3.1 PCIe-S112

Pin Assignment	Terminal No.	Pin Assignment
GND	05	
DTR	04	
TxD	03	
RxD	02	
DCD	01	
	09	RI
	08	CTS
	07	RTS
	06	DSR



Male DB-9 Connector

2.3.2 PCIe-S142

Pin Assignment	Terminal No.	Pin Assignment
GND/VEE	05	
RxD-(A)	04	
RxD+(B)	03	
TxD+(B)/Data+(B)	02	
TxD-(A)/Data-(A)	01	
	09	CTS-(A)
	08	CTS+(B)
	07	RTS+(B)
	06	RTS-(A)



RS-422/485 Male DB-9 Connector

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

2.3.3 PCIe-S114

Pin Assignment	Terminal No.	Pin Assignment
N.C.	01	
DCD3	02	
GND	03	
CTS3	04	
RxD3	05	
RI4	06	
DTR4	07	
DSR4	08	
RTS4	09	
TxD4	10	
DCD2	11	
GND	12	
CTS2	13	
RxD2	14	
RI1	15	
DTR1	16	
DSR1	17	
RTS1	18	
TxD1	19	
	20	RI3
	21	DTR3
	22	DSR3
	23	RTS3
	24	TxD3
	25	DCD4
	26	GND
	27	CTS4
	28	RxD4
	29	RI2
	30	DTR2
	31	DSR2
	32	RTS2
	33	TxD2
	34	DCD1
	35	GND
	36	CTS1
	37	RxD1



RS-232 Female DB-37 Connector

Pin Assignment	Terminal No.	Pin Assignment
GND	05	
DTR	04	
TxD	03	
RxD	02	
DCD	01	
	09	RI
	08	CTS
	07	RTS
	06	DSR



RS-232 Female DB-37 to Male DB-9 Connector

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

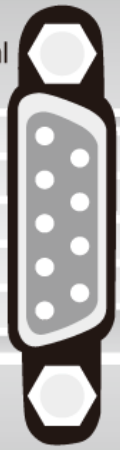
2.3.4 PCIe-S144

Pin Assignment	Terminal No.	Pin Assignment
N.C.	01	
TxD3-(A)/Data3-(A)	02	
GND/VEE3	03	
CTS3+(B)	04	
TxD3+(B)/Data3+(B)	05	
CTS4-(A)	06	
RxD4-(A)	07	
RTS4-(A)	08	
RTS4+(B)	09	
RxD4+(B)	10	
TxD2-(A)/Data2-(A)	11	
GND/VEE2	12	
CTS2+(B)	13	
TxD2+(B)/Data2+(B)	14	
CTS1-(A)	15	
RxD1-(A)	16	
RTS1-(A)	17	
RTS1+(B)	18	
RxD1+(B)	19	
	20	CTS3-(A)
	21	RxD3-(A)
	22	RTS3-(A)
	23	RTS3+(B)
	24	RxD3+(B)
	25	TxD4-(A)/Data4-(A)
	26	GND/VEE4
	27	CTS4+(B)
	28	TxD4+(B)/Data4+(B)
	29	CTS2-(A)
	30	RxD2-(A)
	31	RTS2-(A)
	32	RTS2+(B)
	33	RxD2+(B)
	34	TxD1-(A)/Data1-(A)
	35	GND/VEE1
	36	CTS1+(B)
	37	TxD1+(B)/Data1+(B)



RS-422/485 Female DB-37 Connector

Pin Assignment	Terminal No.	Pin Assignment
GND/VEE	05	
RxD-(A)	04	
RxD+(B)	03	
TxD+(B)/Data+(B)	02	
TxD-(A)/Data-(A)	01	
	09	CTS-(A)
	08	CTS+(B)
	07	RTS+(B)
	06	RTS-(A)

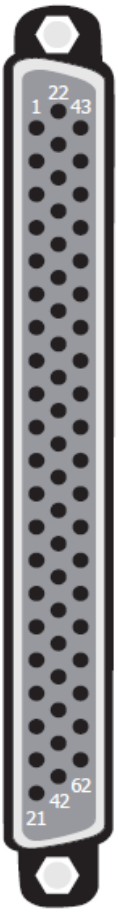


RS-422/485 Female DB-37 to Male DB-9 Connector

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

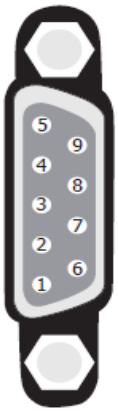
Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

2.3.5 PCIe-S118



Terminal No.	Pin Assignment	Terminal No.	Pin Assignment	Terminal No.	Pin Assignment
01	TxD_0	22	RxD_0	43	CTS_0
02	DTR_0	23	DSR_0	44	RTS_0
03	RxD_1	24	DCD_0	45	GND
04	DSR_1	25	TxD_1	46	CTS_1
05	DCD_1	26	DTR_1	47	RTS_1
06	TxD_2	27	RxD_2	48	CTS_2
07	DTR_2	28	DSR_2	49	RTS_2
08	RxD_3	29	DCD_2	50	GND
09	DSR_3	30	TxD_3	51	CTS_3
10	DCD_3	31	DTR_3	52	RTS_3
11	RxD_4	32	GND	53	CTS_4
12	DSR_4	33	TxD_4	54	RTS_4
13	DCD_4	34	DTR_4	55	GND
14	TxD_5	35	RxD_5	56	CTS_5
15	DTR_5	36	DSR_5	57	RTS_5
16	RxD_6	37	DCD_5	58	GND
17	DSR_6	38	TxD_6	59	CTS_6
18	DCD_6	39	DTR_6	60	RTS_6
19	RxD_7	40	GND	61	CTS_7
20	DSR_7	41	TxD_7	62	RTS_7
21	DCD_7	42	DTR_7		

CON1



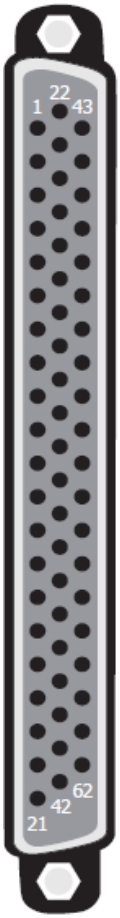
Terminal No.	Pin Assignment
01	DCD
02	RxD
03	TxD
04	DTR
05	GND
06	DSR
07	RTS
08	CTS
09	-

RS-232 Female DB-62 to Male DB-9 Connector

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

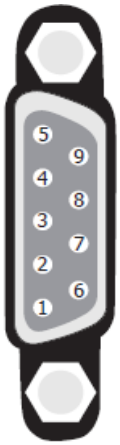
Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

2.3.6 PCIe-S148



Terminal No.	Pin Assignment	Terminal No.	Pin Assignment	Terminal No.	Pin Assignment
01	RxD0+	22	TxD0+/Data0+	43	-
02	RxD0-	23	-	44	-
03	TxD1+/Data1+	24	TxD0-/Data0-	45	GND
04	-	25	RxD1+	46	-
05	TxD1-/Data1-	26	RxD1-	47	-
06	RxD2+	27	TxD2+/Data2+	48	-
07	RxD2-	28	-	49	-
08	TxD3+/Data3+	29	TxD2-/Data2-	50	GND
09	-	30	RxD3+	51	-
10	TxD3-/Data3-	31	RxD3-	52	-
11	TxD4+/Data4+	32	GND	53	-
12	-	33	RxD4+	54	-
13	TxD4-/Data4-	34	RxD4-	55	GND
14	RxD5+	35	TxD5+/Data5+	56	-
15	RxD5-	36	-	57	-
16	TxD6+/Data6+	37	TxD5-/Data5-	58	GND
17	-	38	RxD6+	59	-
18	TxD6-/Data6-	39	RxD6-	60	-
19	TxD7+/Data7+	40	GND	61	-
20	-	41	RxD7+	62	-
21	TxD7-/Data7-	42	RxD7-		

CON1



Terminal No.	Pin Assignment
01	TxD-/Data-
02	TxD+/Data+
03	RxD+
04	RxD-
05	GND
06	-
07	-
08	-
09	-

RS-422/485 Female DB-62 to Male DB-9 Connector

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

3. Hardware Installation

Note:
As certain operating systems, such as Windows XP may require the computer to be restarted after a new driver is installed, it is recommended that the driver is installed first, which will reduce the installation time.

Step 1: Install the driver for the PCIe multiport serial card on your computer.

For detailed information regarding driver installation, refer to
Chapter 4 Software Installation.



PCIe_SPcard_win_setup

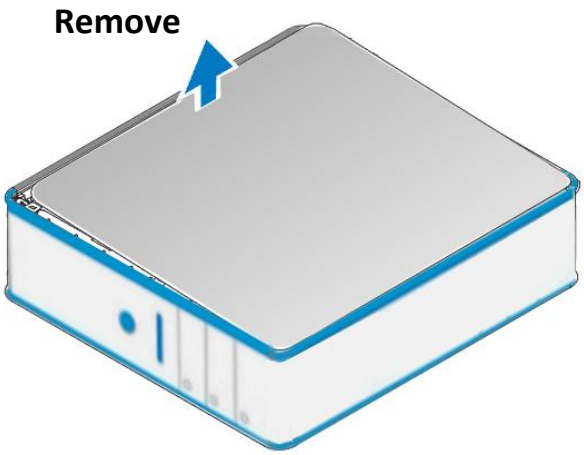


Step 2: Shut down and turn off the power to the computer, and then disconnect the power supply.

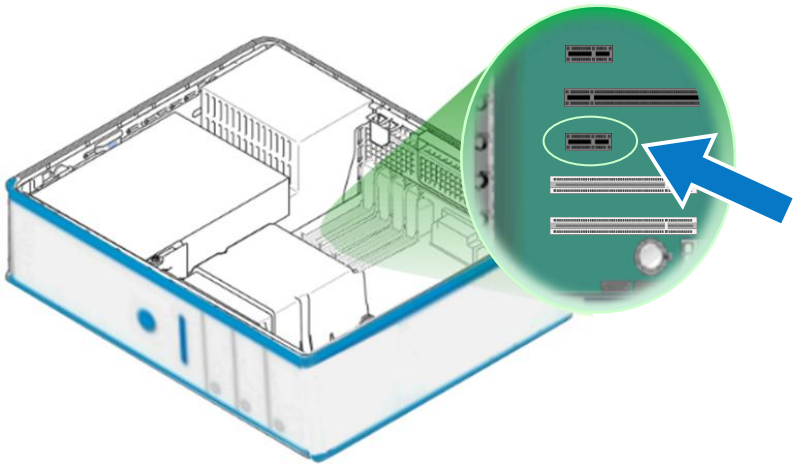
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

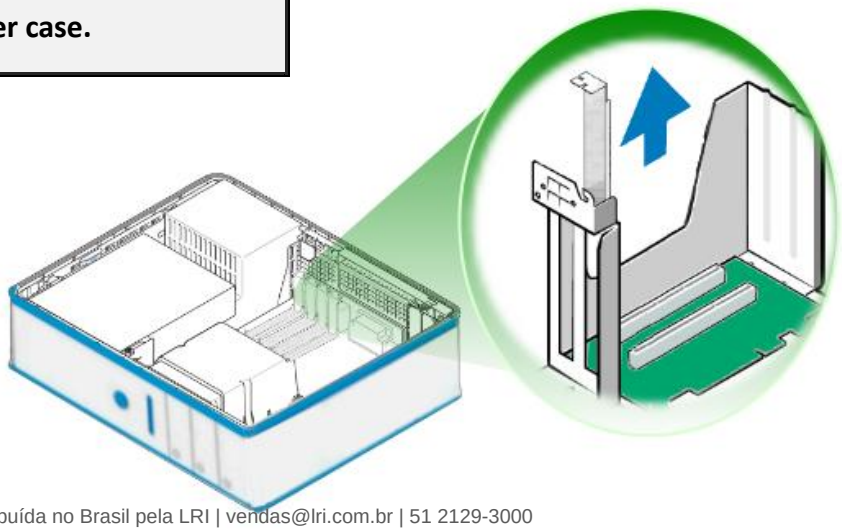
Step 3: Remove the cover from the computer.



Step 4: Select an empty PCI/PCI Express slot.

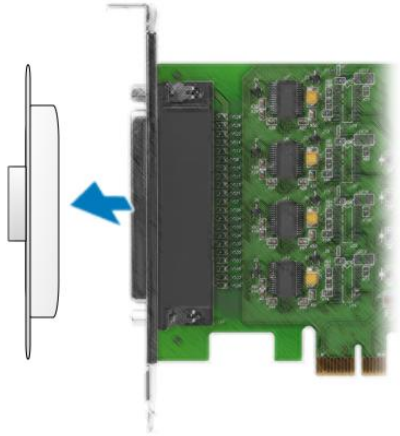


Step 5: Unscrew and remove the PCI Express slot cover from the computer case.



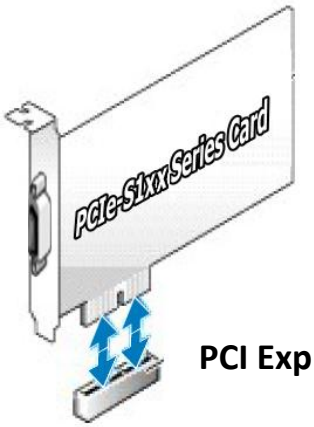
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

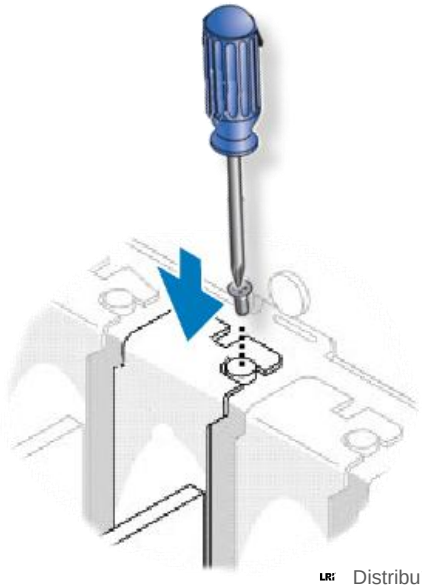


Step 6: Remove the connector cover from the PCIe multiport serial card.

Step 7: Carefully insert the PCIe multiport serial card into the PCI Express slot by gently pushing down on both sides of the card until it slides into the PCI connector.



PCI Express slot

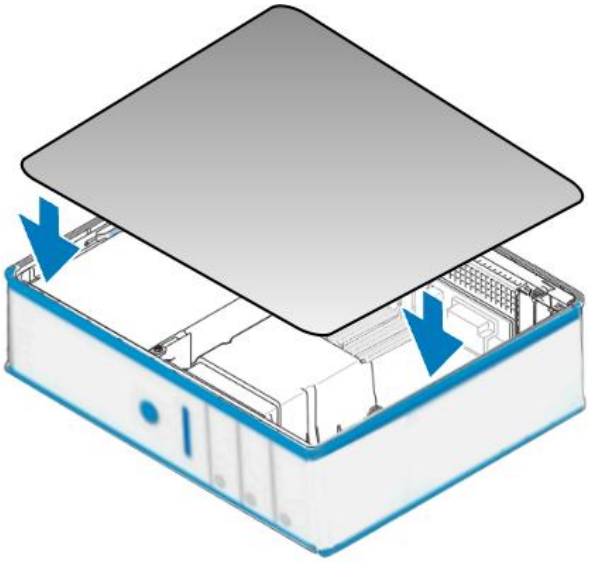


Step 8: Confirm that the card is correctly inserted in the motherboard, and then secure the PCIe multiport serial card in place using the retaining screw that was removed in Step 5.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

Step 9: Replace the covers on the computer.



Step 10: Re-attach any cables, insert the power cord and then switch on the power to the computer.

Once the computer reboots, follow the onscreen messages to complete the Plug and Play installation process. For more information, refer to Chapter 4 Software Installation.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

4. Software Installation

PCIe multiport serial card driver supports both 32 and 64-bit Windows XP/2003/Vista/7/8 systems, and also provides Plug and Play (PnP) functions for easy installation. This chapter provides detailed description of how to install the drivers for the PCIe multiport serial card.

4.1 Obtaining the Driver Installer Package

The installer package for the PCIe multiport serial card driver can be obtained from the ICP DAS web site at the following link:



https://www.icpdas.com/en/download/show.php?num=2142

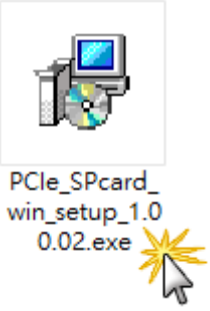
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

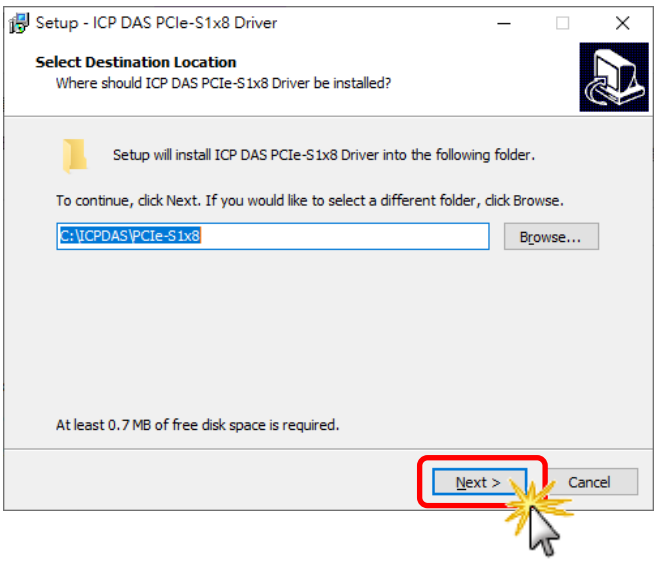
4.2 Installing Driver for PCIe Multiport Serial Card

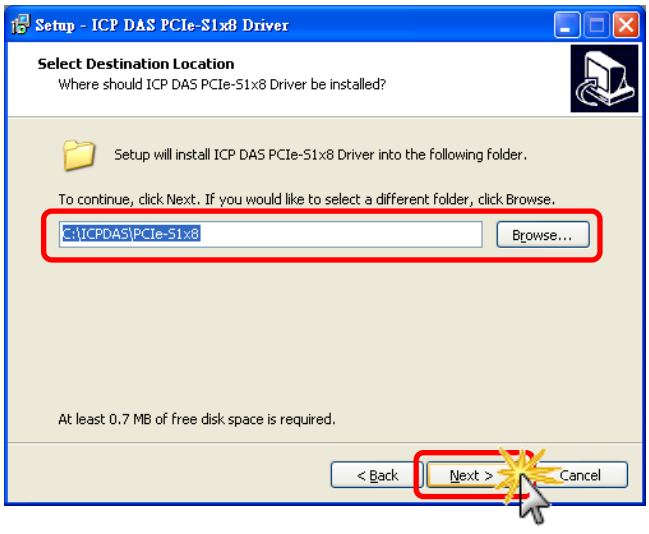
Follow the process described below to set up the software for the PCIe multiport serial card.

Step 1: Double-click the "PCIe_SPcard_win_setup_xxxx.exe" application to install the driver.



Step 2: When the Setup Wizard screen is displayed, click "Next>".



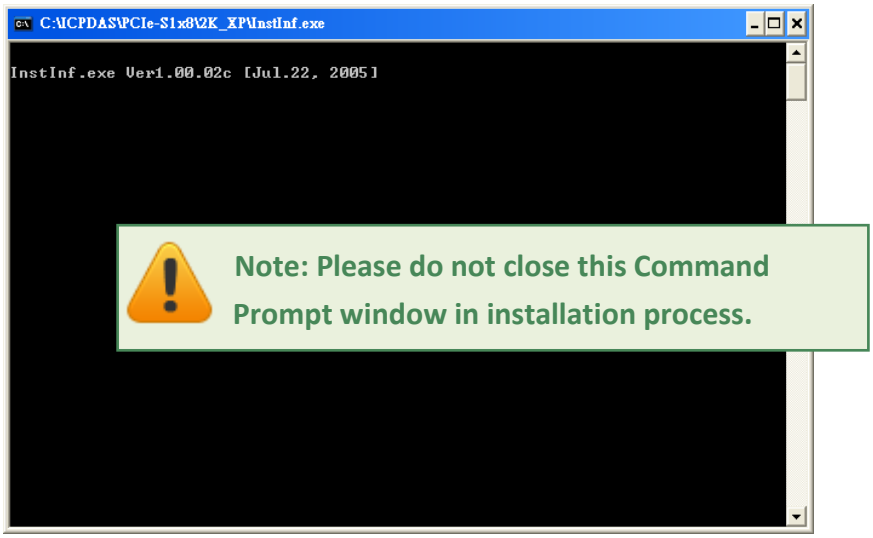


Step 3: Select the folder to install driver. The default path is C:\ICPDAS\PCIe-S1x8. If you wish to install the drivers to a different location, click the "Browse…" button and select the relevant folder and then click the "Next>" button.

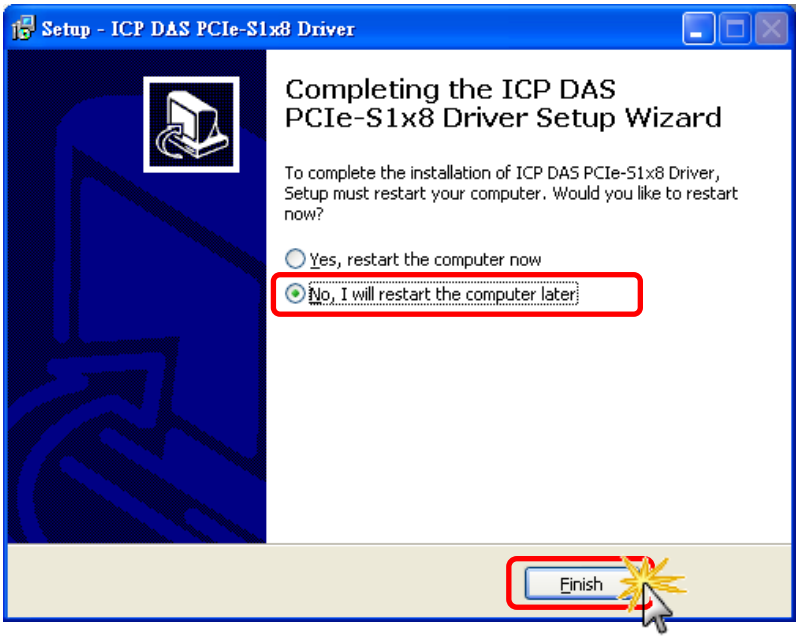
Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Step 4: In the installation process, the Command Prompt windows will be displayed, don't care.



Step 5: Once the driver has been installed, the Setup Wizard will be displayed to advice that the computer must be restarted in order to complete the installation. Select the "No, I will restart the computer later" option, and then click the "Finish" button to exit the Wizard.

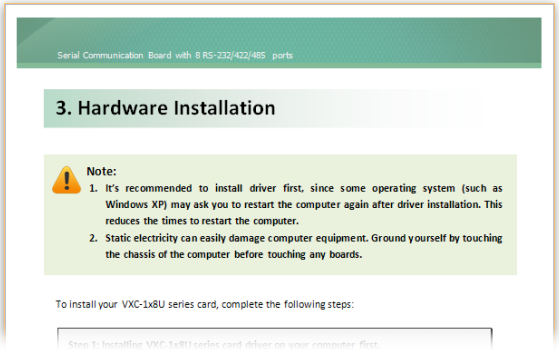


LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

4.3 PnP Driver Installation

Step 1: Correctly shut down your computer and disconnect the power supply, and then install the PCIe multiport serial card into the computer.

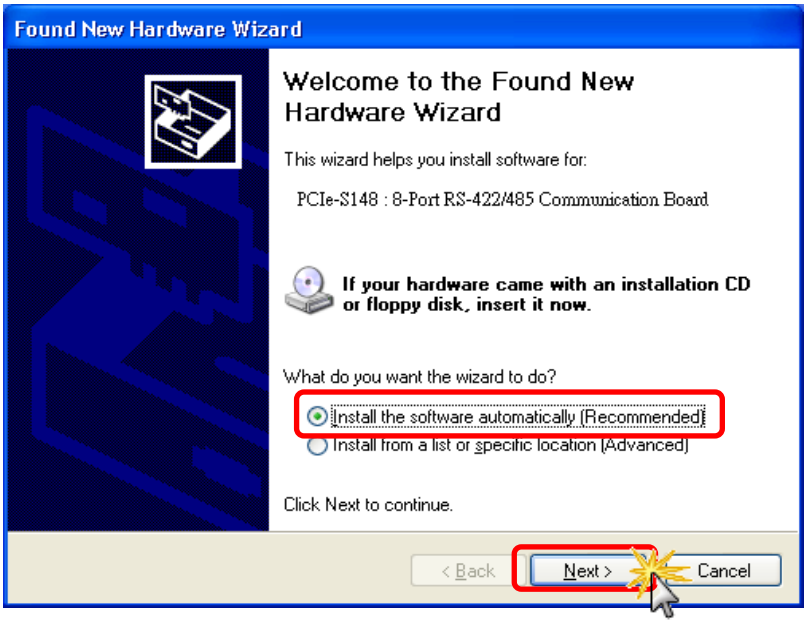


For detailed information regarding installation of the PCIe multiport serial card, refer to Chapter 3 Hardware Installation.

Step 2: Power on the computer and complete the Plug and Play installation.

Note: More recent operating systems, such as Windows Vista/7/8 will automatically detect the new hardware and install the necessary drivers, so Steps 3 to 5 can be skipped.

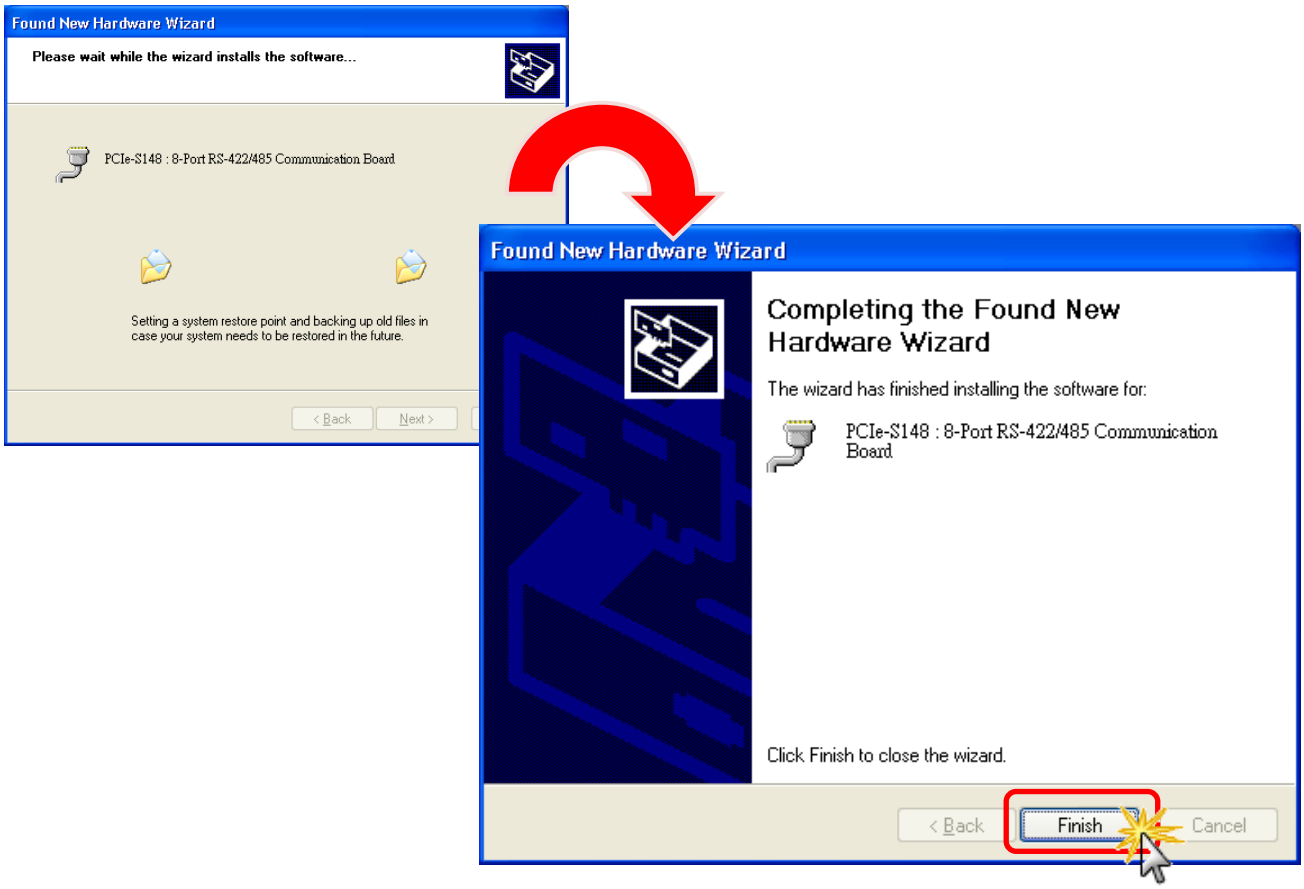
Step 3: When the "Found New Hardware Wizard" is displayed, select "Install the software automatically [Recommended]" option and then click the "Next>" button.



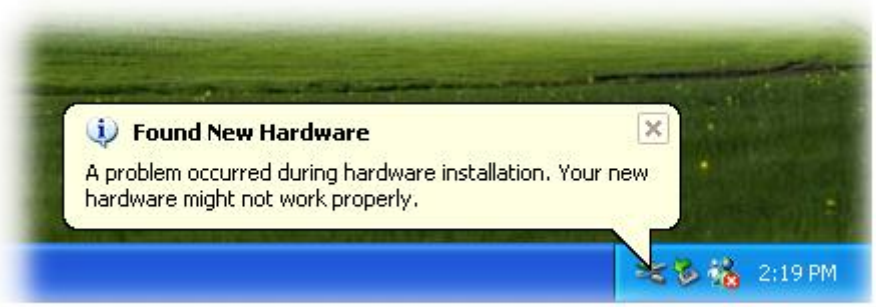
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

Step 4: After the Plug and Play installation completed successfully, click the "Finish" button on the pop up window to exit the Wizard.



Step 5: If the "Found New Hardware Wizard" dialog box is displayed again, repeat Steps 3 and 5 to complete the installation for all COM ports.



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

4.4 Verifying the Installation

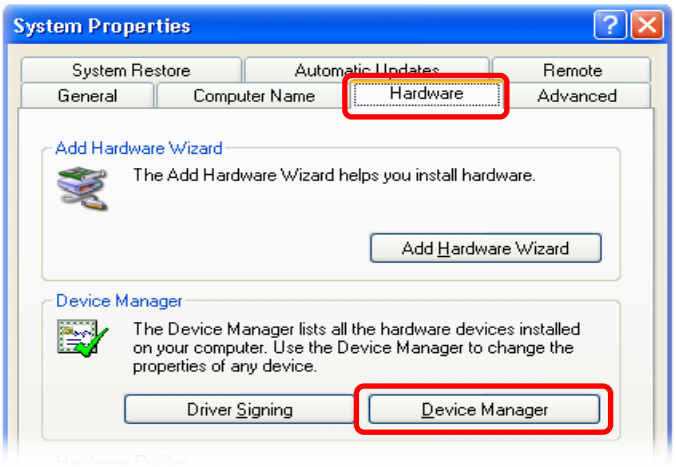
To verify that the driver was correctly installed, use the Windows **Device Manager** to view and update the device drivers installed on the computer, and to ensure that the hardware is operating correctly. The following is a description of how access the Device Manager in each of the major versions of Windows. Refer to the appropriate description for the specific operating system to verify the installation.

4.4.1 Accessing Windows Device Manager

■ Windows XP

Step 1: Click the **"Start"** >> **"Settings"** and click **"Control Panel"**. Double-click the **"System"** icon to open the **"System Properties"** dialog box.

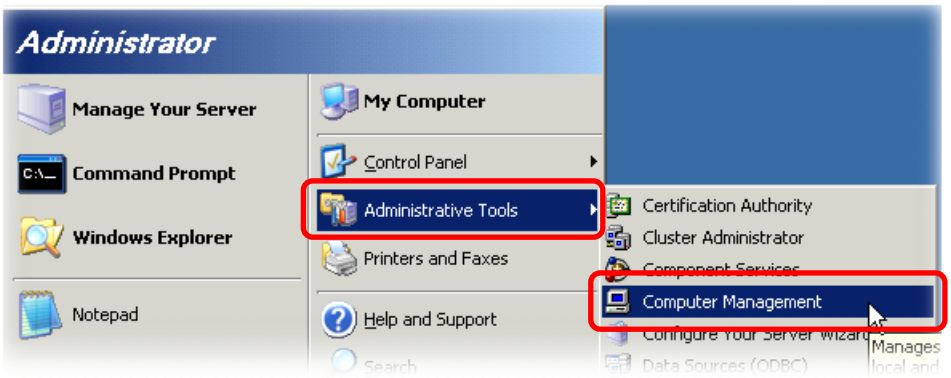
Step 2: Click the **"Hardware"** tab, and then click the **"Device Manager"** button.



■ Windows Server 2003

Step 1: Click **"Start"** >> **"Administrative Tools"**, and then click **"Computer Management"**.

Step 2: Expand the **"System Tools"** item in the console tree, and then click **"Device Manager"**.



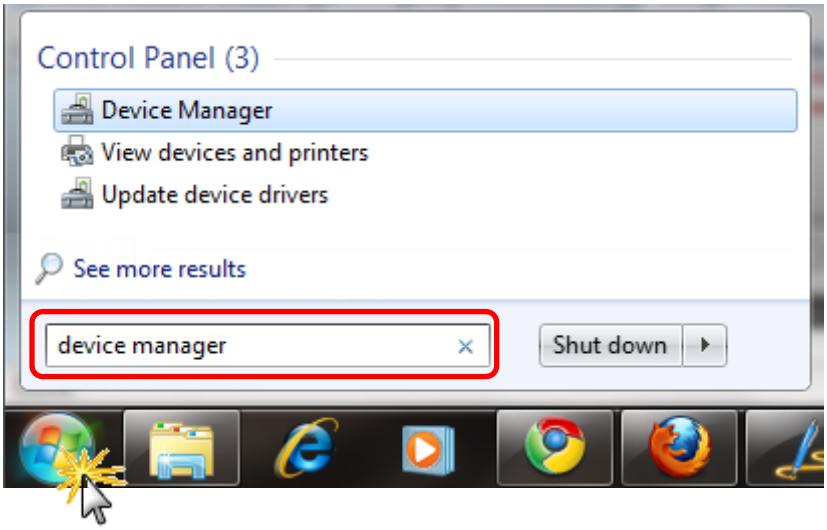
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

■ Windows Vista/7

Step 1: Click the **"Start"** button.

Step 2: In the **Search field,** type **Device Manager** and then press Enter.



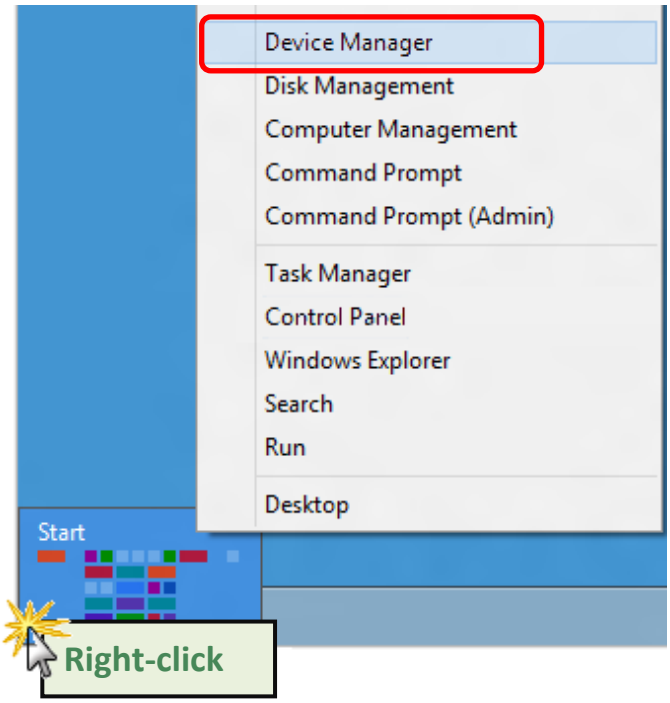
Note that Administrator privileges are required for this operation. If you are prompted for an administrator password or confirmation, enter the password or provide confirmation by clicking the "Yes" button in the User Account control message.

Windows 8

Step 1: To display the **Start screen icon** from the desktop view, hover the mouse cursor over the **bottom-left corner** of screen.

Step 2: **Right-click** the Start screen icon and then click **"Device Manager"**.

Alternatively, press **[Windows Key] +[X]** to open the Start Menu, and then select Device Manager from the options list.

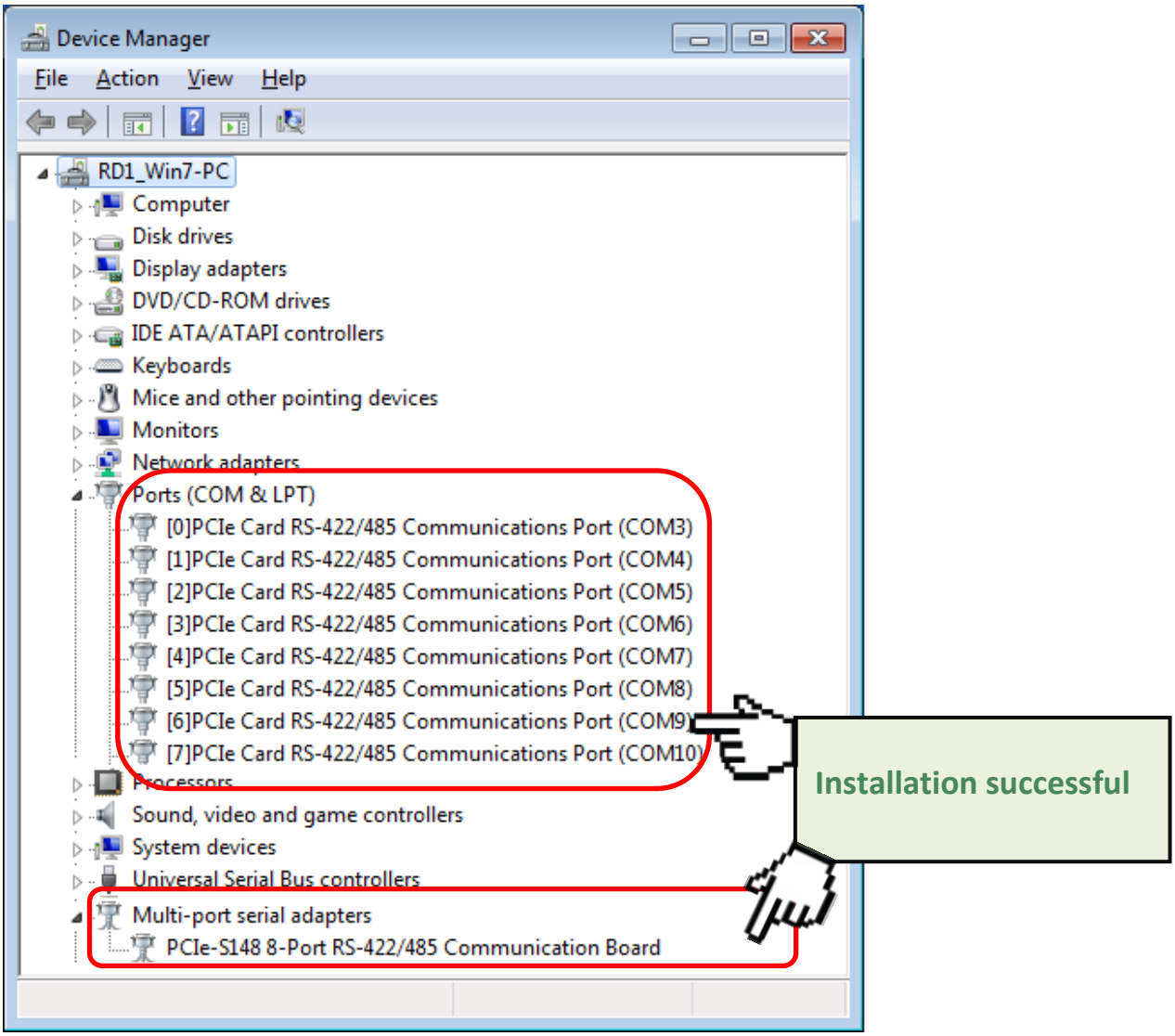


LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

4.4.2 Check the Configuration of the COM Port

Step 3: Verify that the COM Ports for the PCIe multiport serial card are listed correctly.



Note: Depending on the operating system, the COM port mapping may be applied automatically.

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

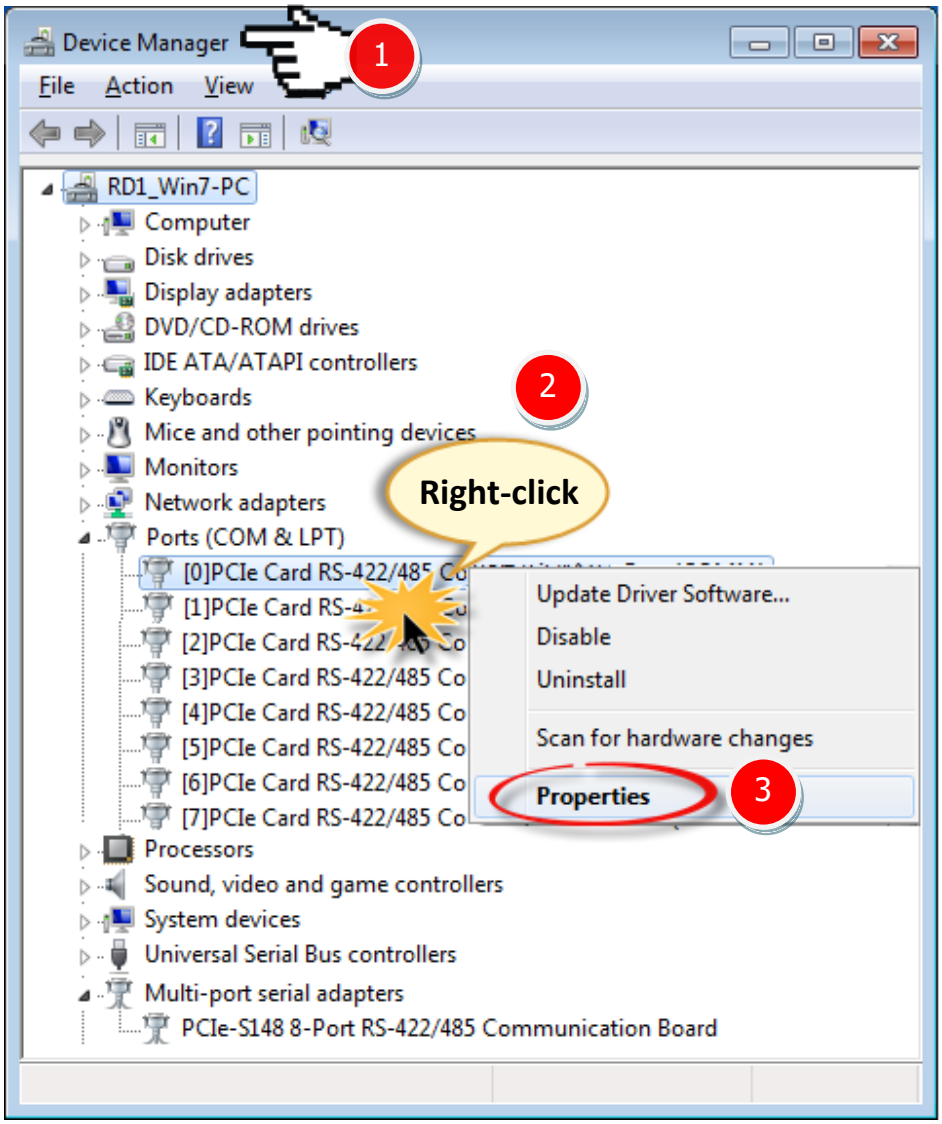
4.5 Manual Configuration for COM Ports

The PCIe multiport serial card supports 2/4/8 RS-232 or RS-422/485 serial ports. Depending on the operating system, COM port mapping may be applied automatically during the hardware and software installation. If the auto-configuration for COM Port is messy or it does not suit your needs, you can change the COM Port mappings manually. In this section, we will take PCIe-S148 as an example to show you the steps of manual configuration.

Step 1: Open Windows **Device Manager**. Refer to Section 4.4.1 for more detailed information.

Step 2: **Right click** on the serial port of the PCIe-S148 card.

Step 3: Select the "**Properties"** item from the popup menu and the "Communications Port (COM n) Properties" dialog box will be displayed.

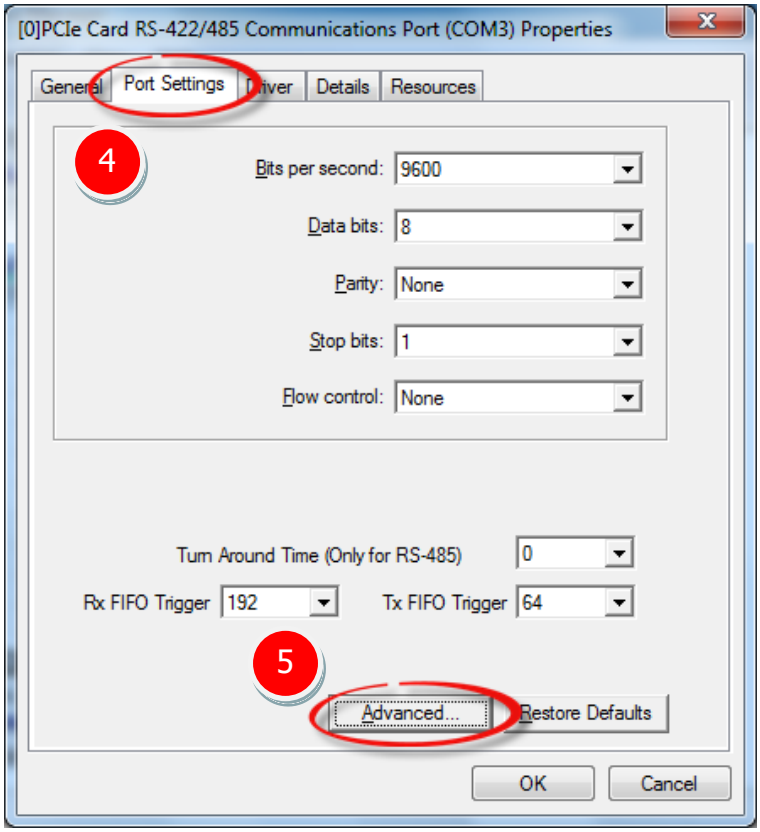


LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

Step 4: Select the **"Port Settings"** item in the "Communications Port (COM n) Properties" dialog box.

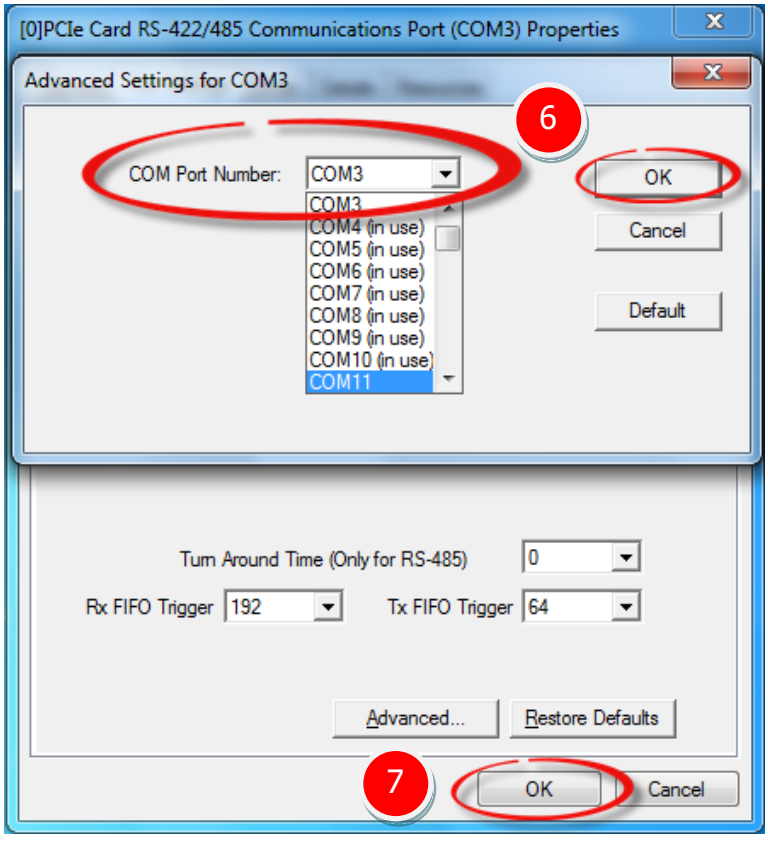
Step 5: Click the **"Advanced…"** button to open the "Advanced Settings for COM n" dialog box.



Step 6: In "Advanced Settings for COM n" dialog box, select the appropriate **COM Port number** from the **"COM Port Number:"** drop-down options and click the **"OK"** button.

Note: The COM port display "(in use)" means this COM port is being used. Therefore, please do not select it.

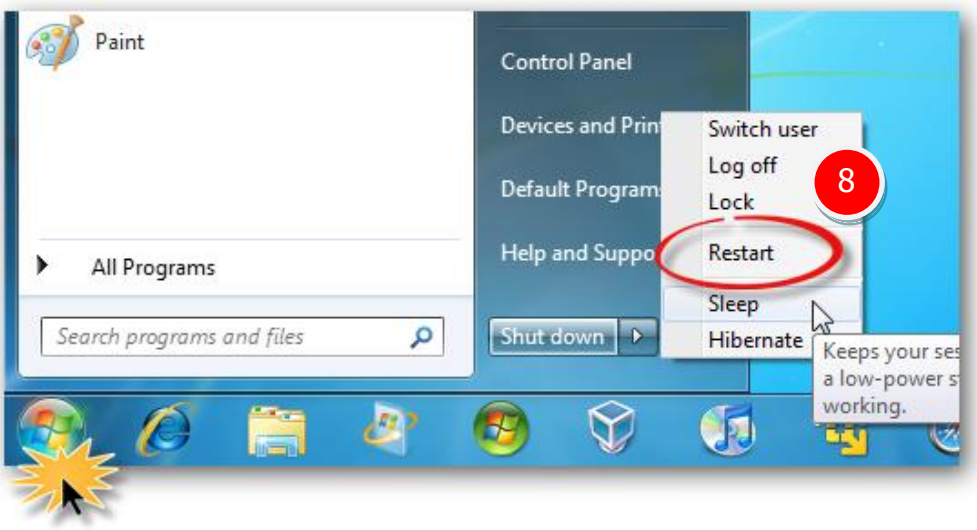
Step 7: Click the **"OK"** button in the "Communications Port (COM n) Properties" dialog box.



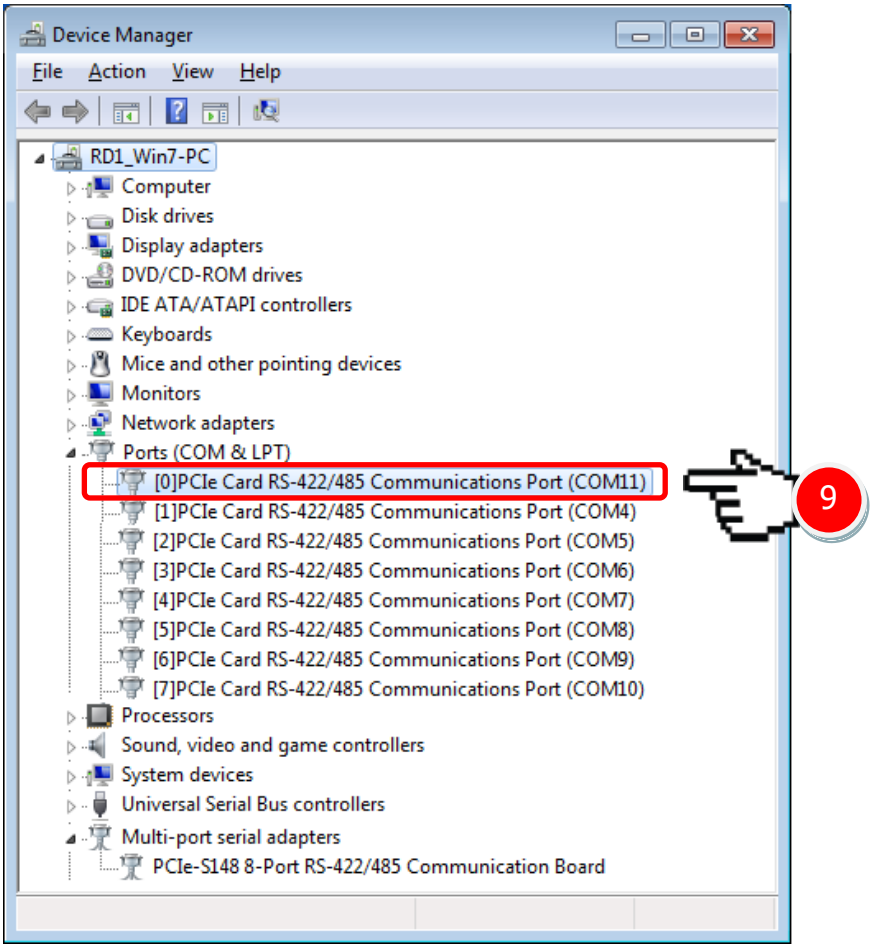
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

Step 8: **Restart your computer** to complete the configuration.



Step 9: Confirm the new COM Ports is correctly displayed.



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

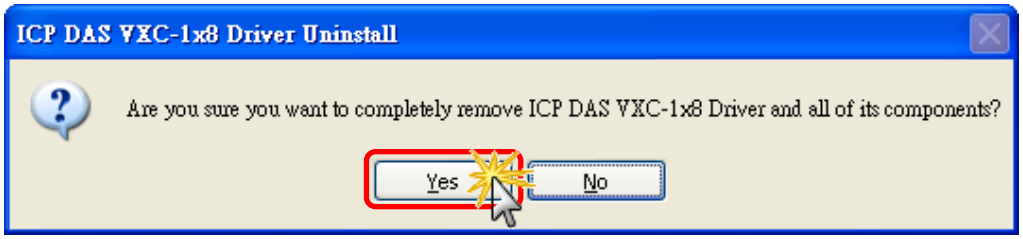
4.6 Uninstalling the Device Driver

The ICP DAS PCIe multiport serial card driver includes a utility that allows you to remove the software from the computer. To uninstall the software, follow the procedure described below:

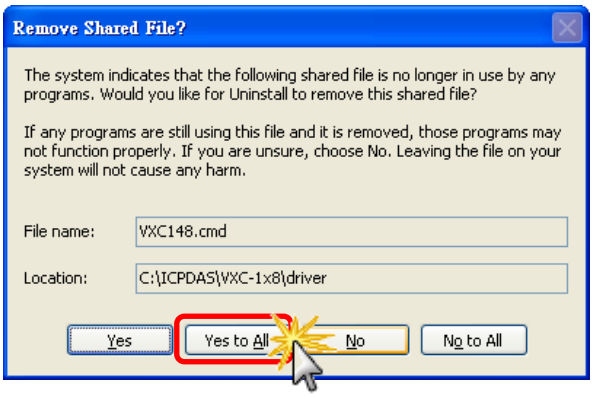
Step 1: Open the driver installation folder, for example **C:\ICPDAS\PCIe-S1x8**, and then double click the **unins000.exe** uninstaller application.



Step 2: The uninstaller application will then ask you to confirm that you want wish to remove the utility program. Click the **"Yes"** button to continue.



Step 3: The **"Remove Shared File?"** dialog box will be displayed asking whether you wish to remove the shared file. Click the **"Yes to All"** button to continue.



Step 4: After the uninstall process is complete, a dialog box will be displayed to notify that the driver was successfully removed. Click the **"OK"** button to finish the process.



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

5. Testing the PCIe Multiport Serial Card

This chapter provides detailed information regarding the “self-test” process, which enables the user to confirm whether or not the PCIe multiport serial card is operating correctly. Before performing the “self-test”, the hardware and driver installation must be completed. For detailed information regarding hardware and driver installation, refer to Chapter 3 Hardware Installation and Chapter 4 Software Installation.

5.1 PCIe-S112(i)/ PCIe-S142(i)

5.1.1 Preparation

Before beginning the “self-test”, ensure that the following items are available:

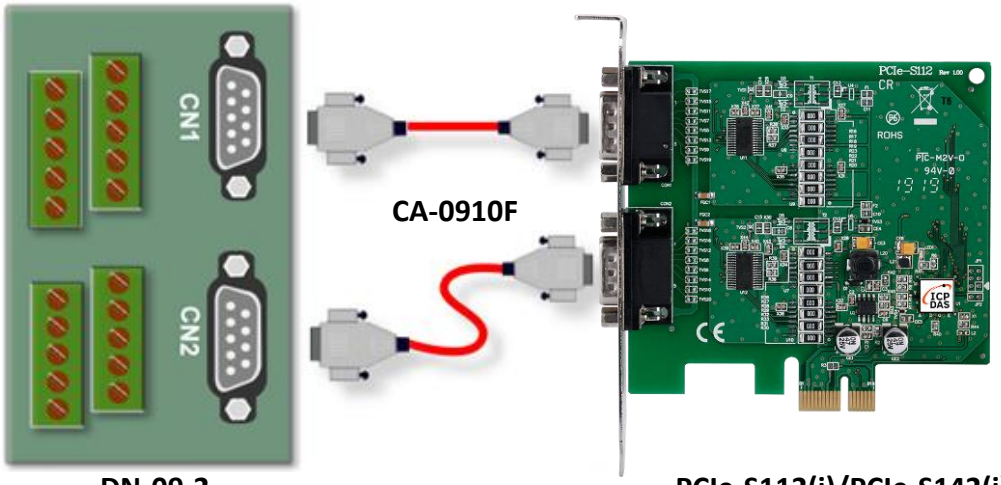
- One DN-09-2 terminal board (optional)
- Two CA-0910F cables (optional)





5.1.2 Self-test Wiring

Step 1: Connect the DN-09-2 terminal board to the PCIe-S1x2 series card using the CA-0910F cables.



DN-09-2 **PCIe-S112(i)/PCIe-S142(i)**

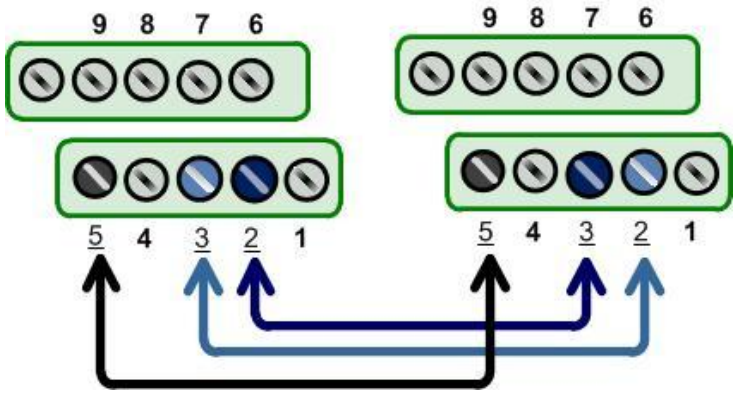
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

PCIe-S112(i) Card (RS-232 Wiring):

Port0 Signal	Pin No.		Pin No.	Port1 Signal
TxD0	3	⟷	2	RxD1
RxD0	2	⟷	3	TxD1
GND	5	⟷	5	GND

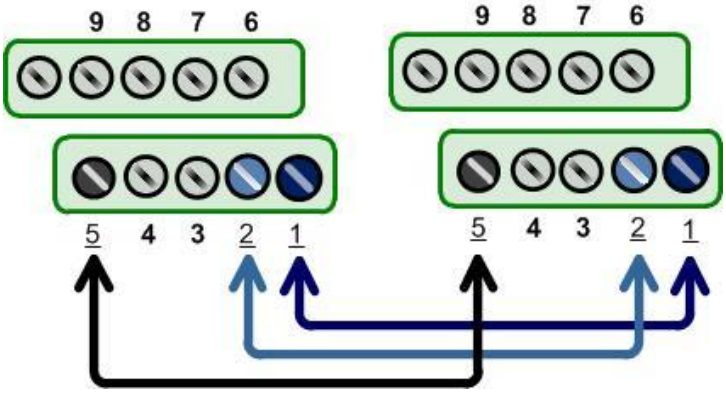
Step 2: Short the RxD, TxD and GND pins of Port0 and Port1.



PCIe-S142(i) Card (RS-485 Wiring):

Port0 Signal	Pin No.		Pin No.	Port1 Signal
Data0-	1	⟷	1	Data1-
Data0+	2	⟷	2	Data1+
GND	5	⟷	5	GND

Step 2: Short Port0 Data+ to Port1 Data+, Port0 Data- to Port1 Data- , and Port0 GND to Port1 GND.



Note: For detailed information regarding wiring and pin assignments for the RS-232/422/485, refer to Section 2.2 Wiring Notes for RS-232/422/485 and Section 2.3 Pin Assignments.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

5.1.3 Executing Test Program

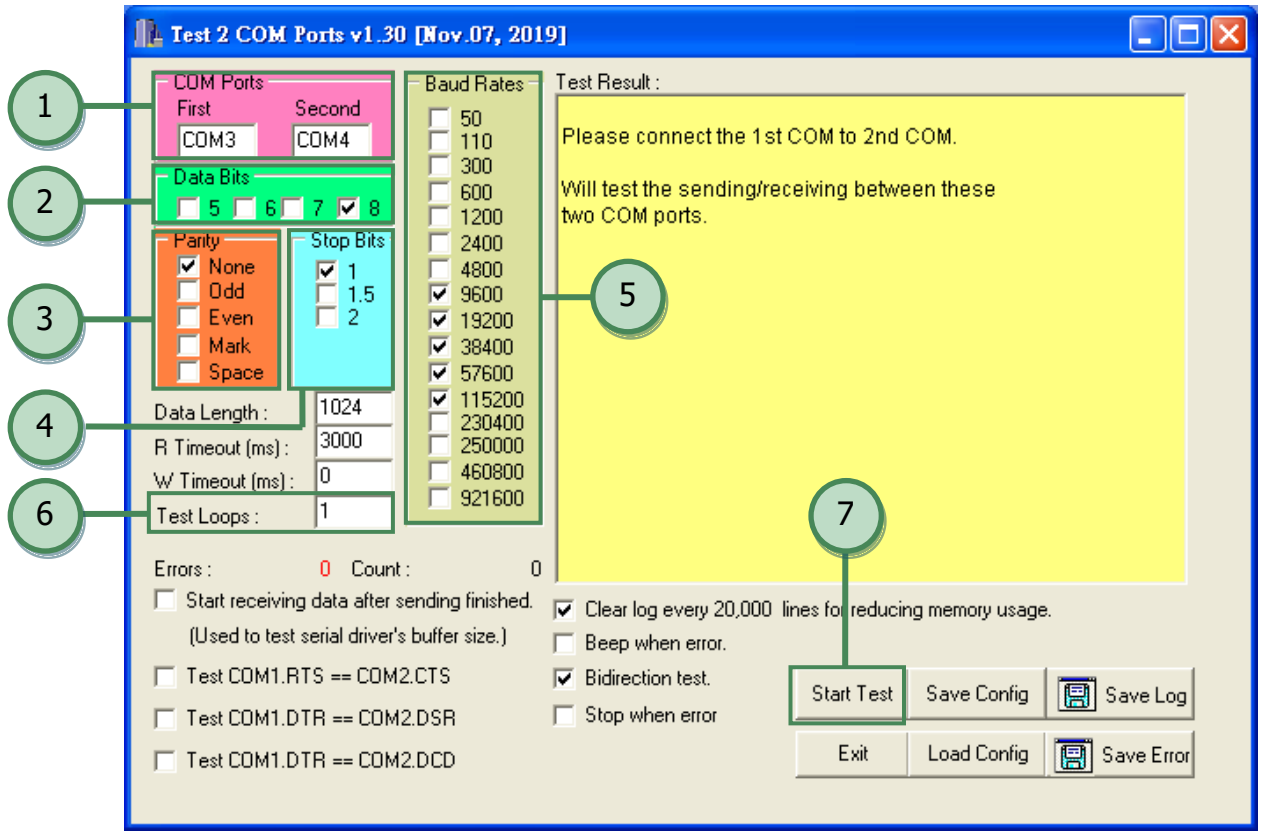
Step 1: Execute the "Test2COM.exe" application



Test2COM.exe can be downloaded from:
https://www.icpdas.com/en/download/show.php?num=2910&kw=Test2COM

Step 2: Set the appropriate COM Ports, Baud Rate and Data Format information as the values shown in the image below.

1: COM Ports: Enter COM3 (First), COM4 (Second).
2: Data Bits: Check "8"
3: Parity: Check "None"
4: Stop Bits: Check "1"
5: Baud Rates: Check values 9600 to 115200
6: Test Loop: Enter "1"
7: Click **"Start Test"** to begin the test.



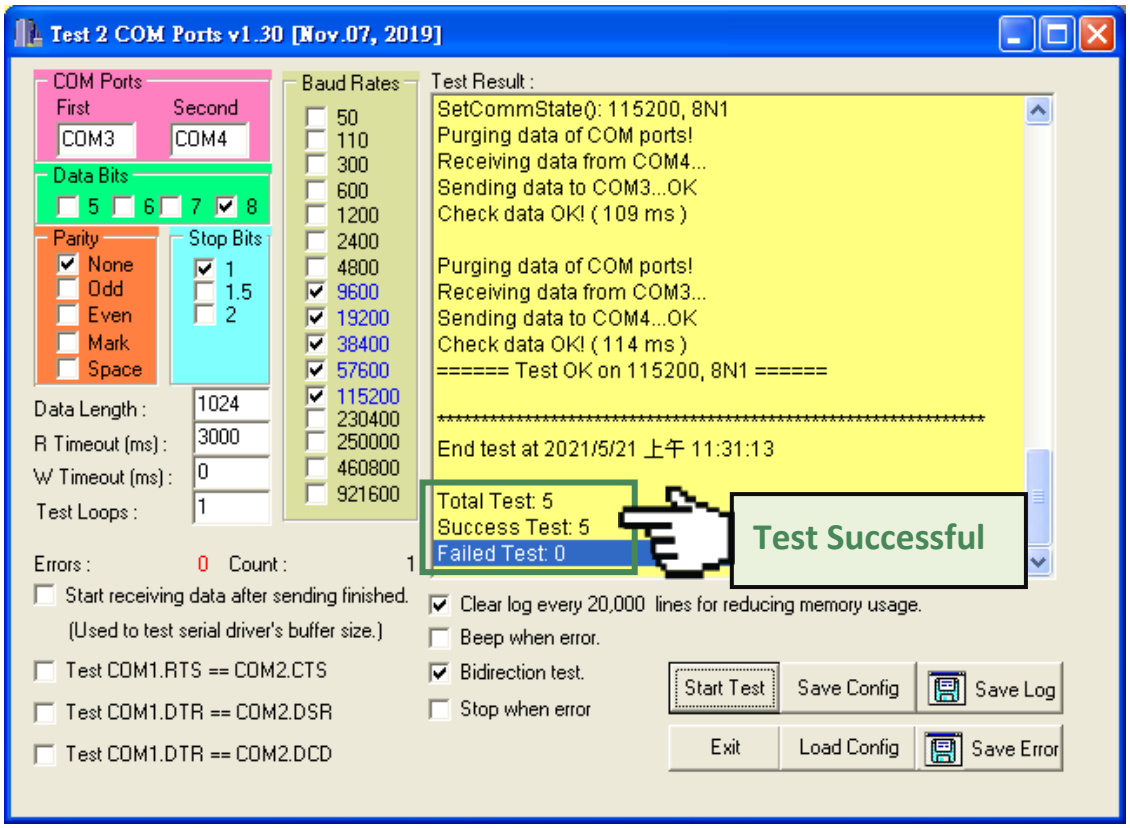
Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

Notes:

1. **Depending on the operating system, COM port mapping may be applied automatically. You should first confirm the number of the COM Port for PCIe multiport serial card through Device Manager (see Section 4.4 Verifying the Installation) and then test this COM Port using the Test2COM.exe application.**
2. **The Baud Rate and Data Format settings used in the Test2COM application depend on the COM ports being used by the PCIe multiport serial card. Refer to Section 1.2 Specifications for more detailed information.**

Step 3: Refer to the test results. If the test was successful, the message "Failed Test: 0" will be displayed.

The "self-test" process is now complete and your COM port program can access serial devices through the extended COM Port.



Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

5.2 PCIe-S114(i)/ PCIe-S144(i)

5.2.1 Preparation

Before beginning the “self-test”, ensure that the following items are available:

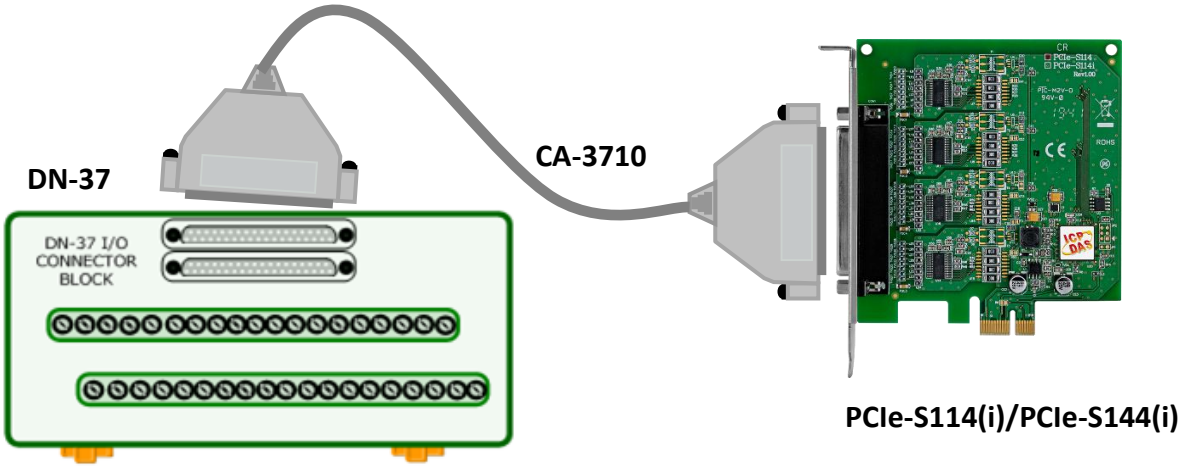
- One DN-37 terminal board (optional)
- One CA-3710 cable (optional)





5.2.2 Self-test Wiring

Step 1: Connect the DN-37 terminal board to the PCIe-S1x4 series card using the CA-3710 cable.



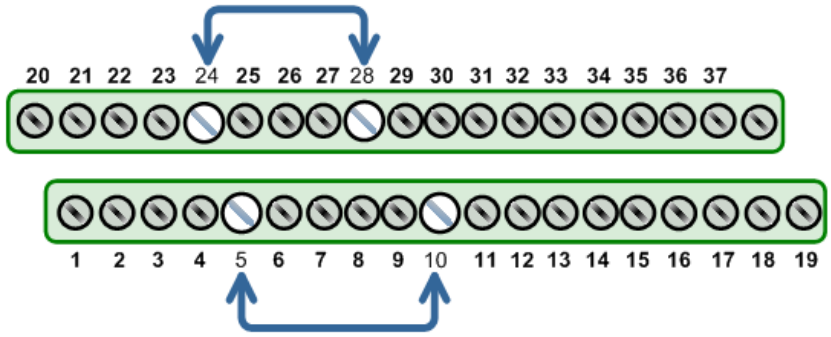
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

PCIe-S114(i) Card (RS-232 Wiring):

Pin Assignment	Pin No.		Pin No.	Pin Assignment
TxD3	24	⟷	28	RxD4
RxD3	5	⟷	10	TxD4

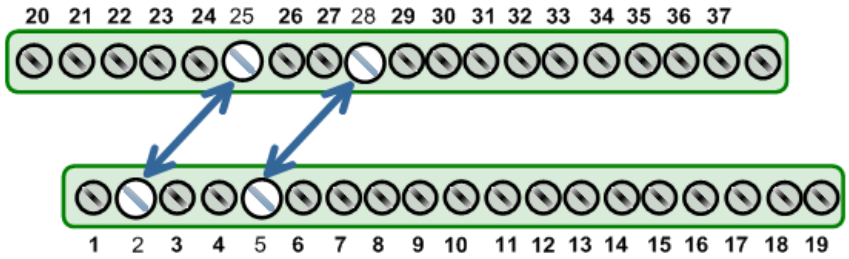
Step 2: Short the RxD, TxD and GND pins of Port3 and Port4.



PCIe-S144(i) Card (RS-485 Wiring):

Pin Assignment	Pin No.		Pin No.	Pin Assignment
Data3-	2	⟷	25	Data4-
Data3+	5	⟷	28	Data4+

Step 2: Short Port3 Data+ to Port4 Data+, Port3 Data- to Port4 Data- , and Port3 GND to Port4 GND.



Note: For detailed information regarding wiring and pin assignments for the RS-232/422/485, refer to Section 2.2 Wiring Notes for RS-232/422/485 and Section 2.3 Pin Assignments.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

5.2.3 Executing Test Program

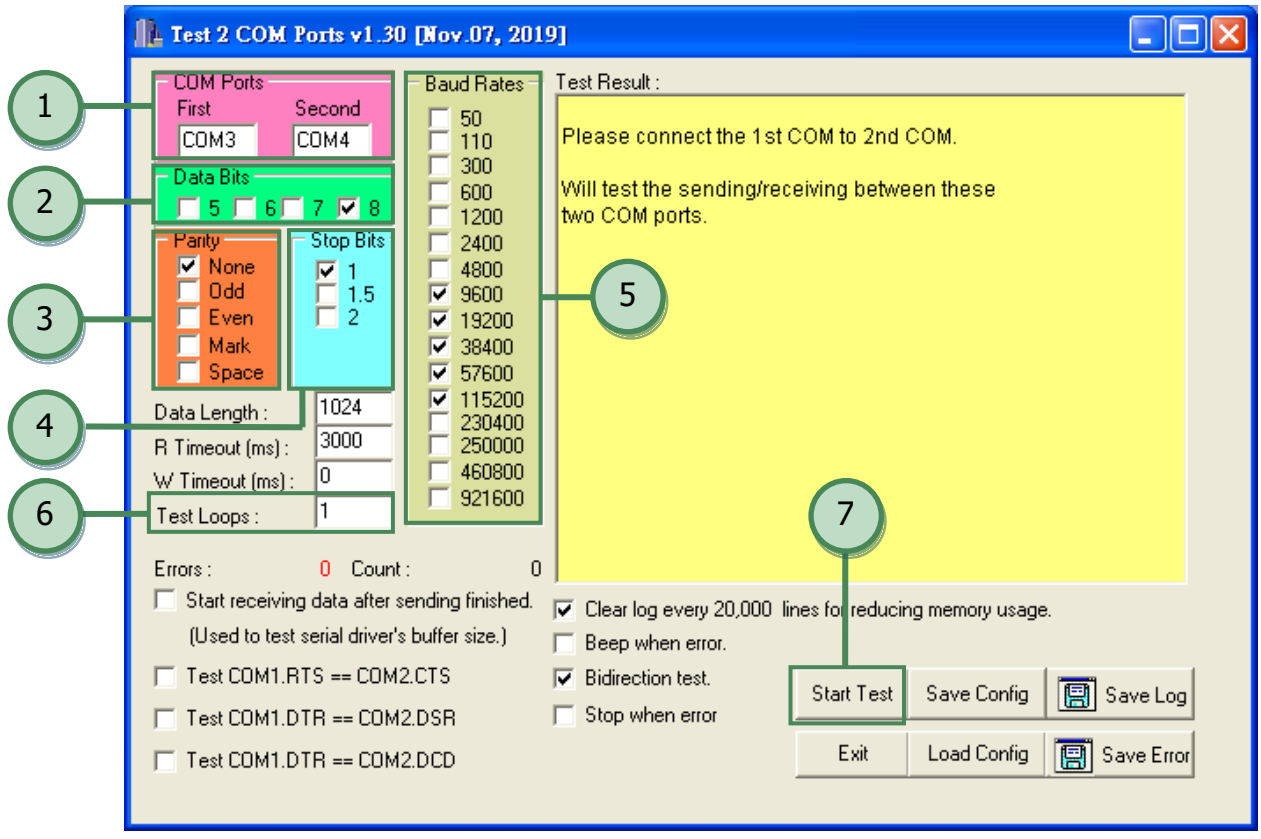
Step 1: Execute the "Test2COM.exe" application



Test2COM.exe can be downloaded from:
https://www.icpdas.com/en/download/show.php?num=2910&kw=Test2COM

Step 2: Set the appropriate COM Ports, Baud Rate and Data Format information as the values shown in the image below.

1: COM Ports: Enter COM3 (First), COM4 (Second).
2: Data Bits: Check "8"
3: Parity: Check "None"
4: Stop Bits: Check "1"
5: Baud Rates: Check values 9600 to 115200
6: Test Loop: Enter "1"
7: Click **"Start Test"** to begin the test.



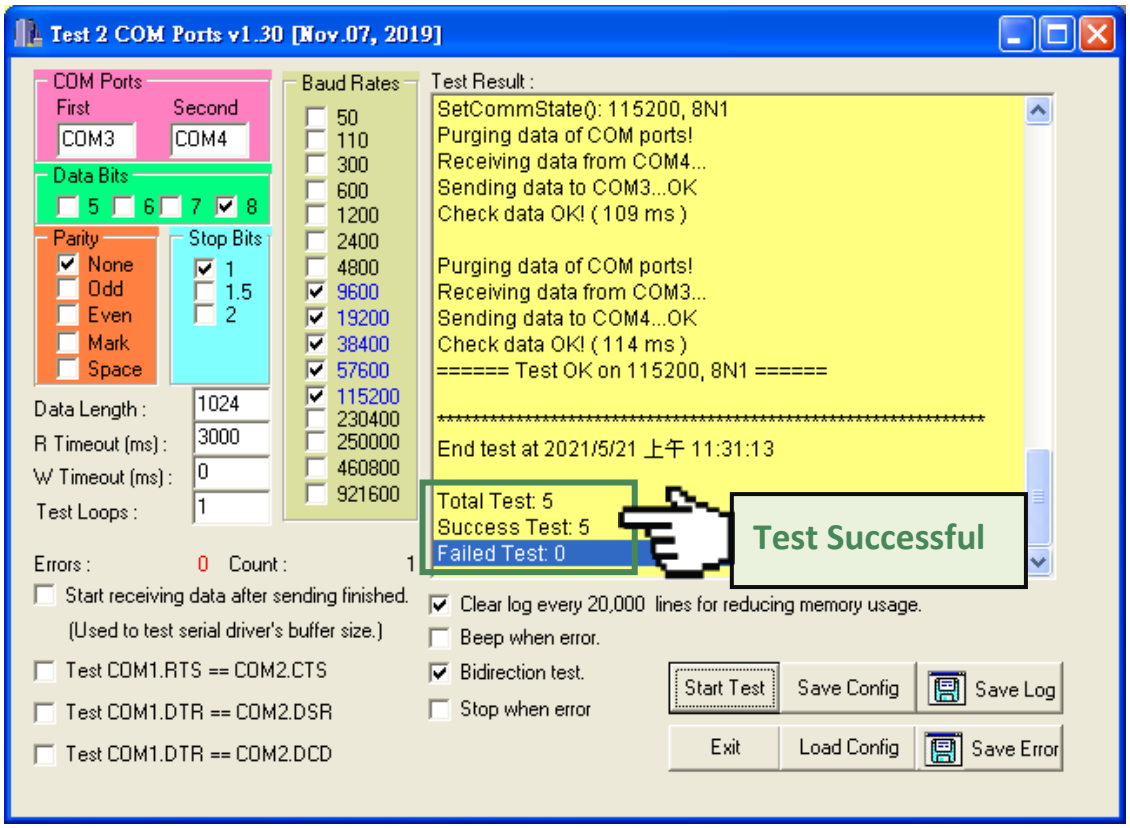
Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

Notes:

1. **Depending on the operating system, COM port mapping may be applied automatically. You should first confirm the number of the COM Port for PCIe multiport serial card through Device Manager (see Section 4.4 Verifying the Installation) and then test this COM Port using the Test2COM.exe application.**
2. **The Baud Rate and Data Format settings used in the Test2COM application depend on the COM ports being used by the PCIe multiport serial card. Refer to Section 1.2 Specifications for more detailed information.**

Step 3: Refer to the test results. If the test was successful, the message "Failed Test: 0" will be displayed.

The "self-test" process is now complete and your COM port program can access serial devices through the extended COM Port.



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

5.3 PCIe-S118/ PCIe-S148

5.3.1 Preparation

Before beginning the “self-test”, ensure that the following items are available:

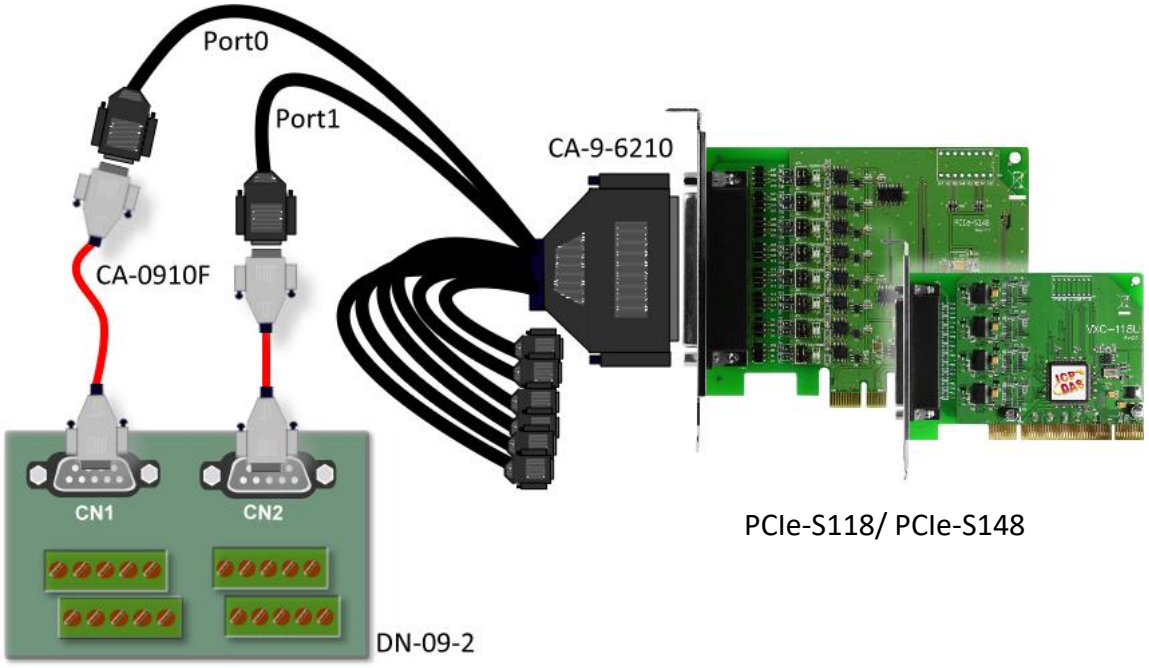
- One DN-09-2 terminal board (optional)
- One CA-9-6210 cable (optional)
- Two CA-0910F cables (optional)





5.3.2 Self-test Wiring

Step 1: Connect the DN-09-2 terminal board to the PCIe-S1x8 series card using the CA-9-6210 and CA-0910F cables.



PCIe-S118/ PCIe-S148

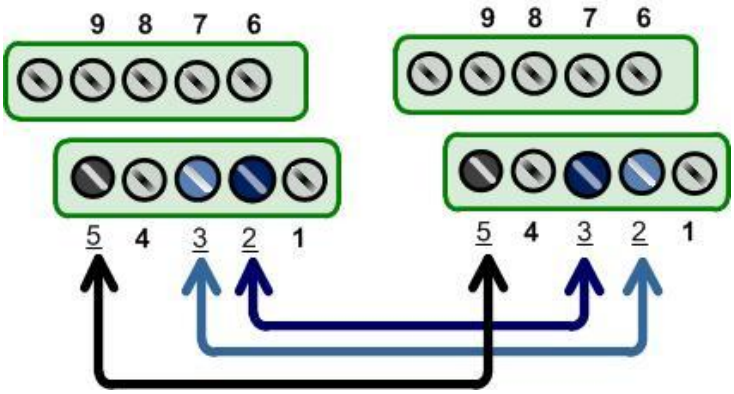
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

PCIe-S118 Card (RS-232 Wiring):

Pin Assignment	Pin No.		Pin No.	Pin Assignment
TxD0	3	⟷	2	RxD1
RxD0	2	⟷	3	TxD1
GND	5	⟷	5	GND

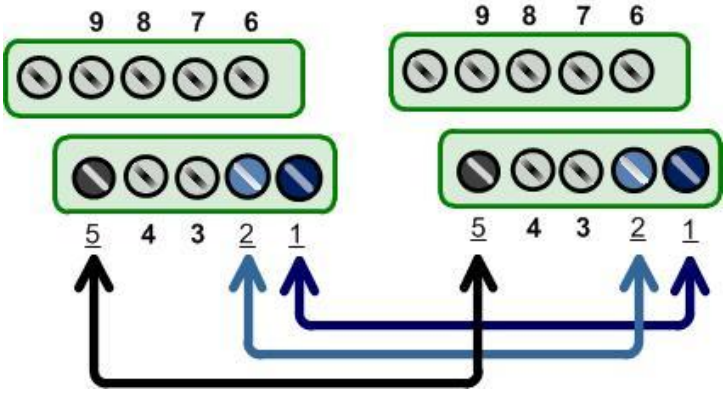
Step 2: Short the RxD, TxD and GND pins of Port0 and Port1.



PCIe-S148 Card (RS-485 Wiring):

Pin Assignment	Pin No.		Pin No.	Pin Assignment
Data0-	1	⟷	1	Data1-
Data0+	2	⟷	2	Data1+
GND	5	⟷	5	GND

Step 2: Short Port0 Data+ to Port1 Data+, Port0 Data- to Port1 Data- , and Port0 GND to Port1 GND.



Note: For detailed information regarding wiring and pin assignments for the RS-232/422/485, refer to Section 2.2 Wiring Notes for RS-232/422/485 and Section 2.3 Pin Assignments.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

5.3.3 Executing Test Program

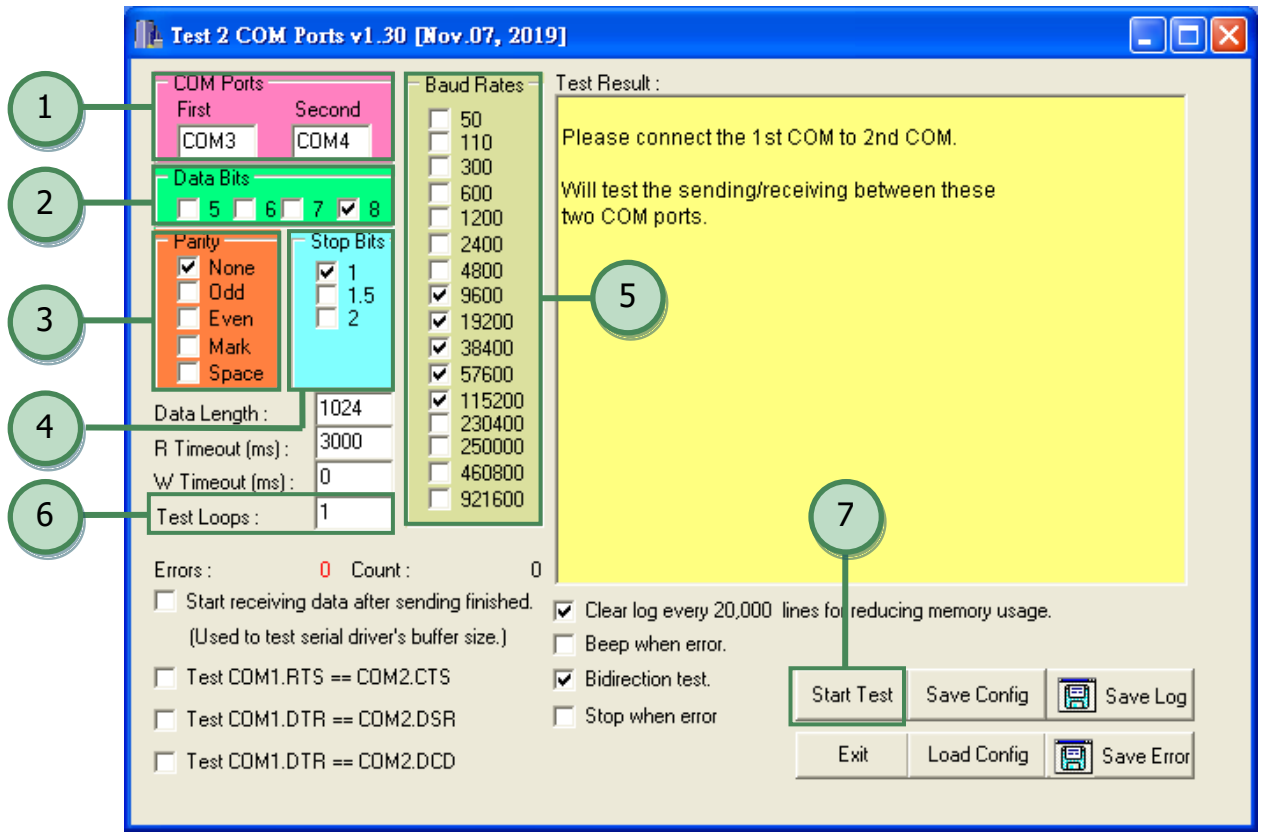
Step 1: Execute the "Test2COM.exe" application



Test2COM.exe can be downloaded from:
https://www.icpdas.com/en/download/show.php?num=2910&kw=Test2COM

Step 2: Set the appropriate COM Ports, Baud Rate and Data Format information as the values shown in the image below.

1: COM Ports: Enter COM3 (First), COM4 (Second).
2: Data Bits: Check "8"
3: Parity: Check "None"
4: Stop Bits: Check "1"
5: Baud Rates: Check values 9600 to 115200
6: Test Loop: Enter "1"
7: Click **"Start Test"** to begin the test.



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

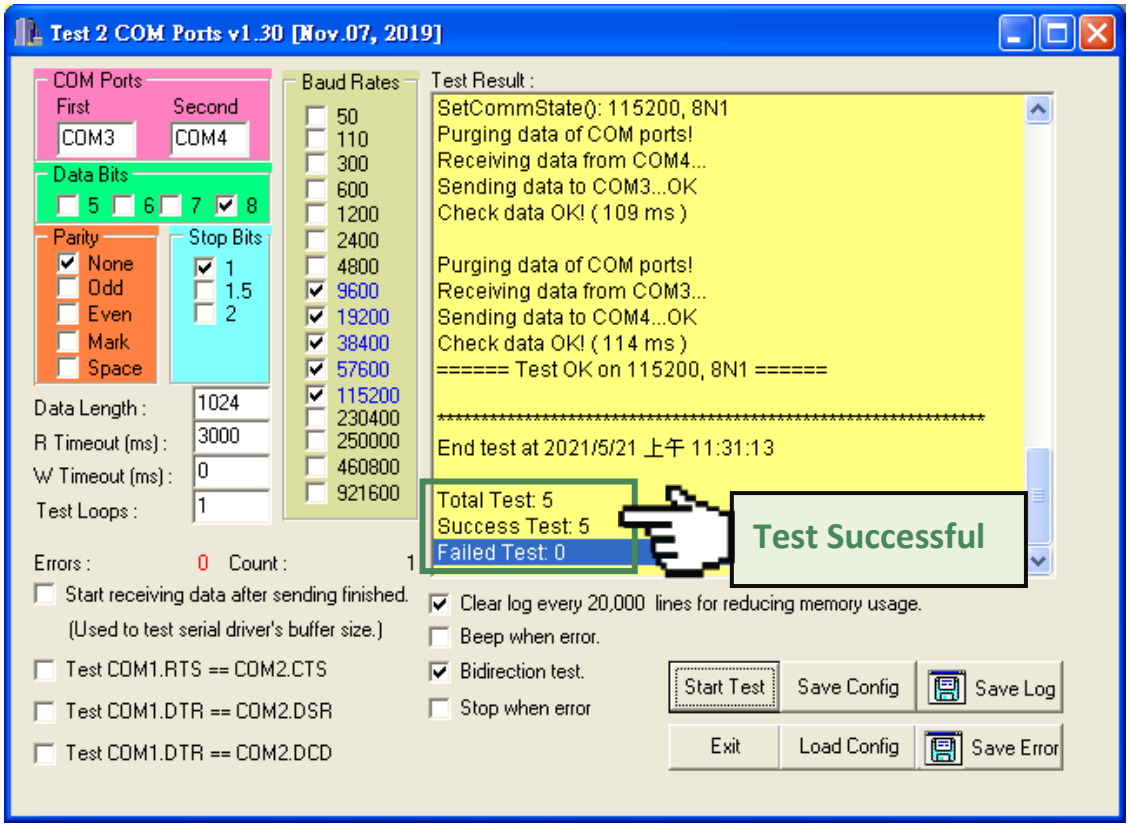
Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

Notes:

1. **Depending on the operating system, COM port mapping may be applied automatically. You should first confirm the number of the COM Port for PCIe multiport serial card through Device Manager (see Section 4.4 Verifying the Installation) and then test this COM Port using the Test2COM.exe application.**
2. **The Baud Rate and Data Format settings used in the Test2COM application depend on the COM ports being used by the PCIe multiport serial card. Refer to Section 1.2 Specifications for more detailed information.**

Step 3: Refer to the test results. If the test was successful, the message "Failed Test: 0" will be displayed.

The "self-test" process is now complete and your COM port program can access serial devices through the extended COM Port.



Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.

Revision History

Revision	Date	Description
1.0.0	Oct. 2021	Initial issue

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2021 ICP DAS CO., Ltd. All Rights Reserved.