cPCI-3534/3544/3538 &
cPCI-3534R/3544R/3538R

4/8 Ports Serial
Communication Modules

User's Guide



Recycled Paper

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ADLINK cPCI Multi-port Communication Module Comparison Chart

Type	cPCI-3534	cPCI-3544	cPCI-3538	cPCI-3534R	cPCI-3544R	cPCI-3538R
Serial port per system	4~8	4~32	8~16	4~8	4~32	8~16
RS-232 port per module	3	-	8	3	-	8
RS-422/485 per module	1	4	-	1	4	-
Serial communication controller	16C554	16C554	16C554	16C554	16C554	16C554
MAX System throughput	115.2K*4	115.2K*4	115.2K*8	115.2K*4	115.2K*4	115.2K*8
Hardware compatibility	32 bits cPCI bus	32 bits cPCI bus	32 bits cPCI bus	32 bits cPCI bus	32 bits cPCI bus	32 bits cPCI bus
Software compatibility	DOS Windows (3.1/95/98/NT) LINUX SCO Open Server	Windows (95/98/NT) QNX	DOS Windows (3.1/95/98/NT) LINUX SCO Open Server	DOS Windows (3.1/95/98/NT) LINUX SCO Open Server	Windows (95/98/NT) QNX	DOS Windows (3.1/95/98/NT) LINUX SCO Open Server
External connector	Four DB25 male cable connector or DB9 male connector	Four DB25 male cable connector or DB9 male connector	Eight DB25 male cable connector or DB9 connector	Four DB25 male cable connector or DB9 male connector	Four DB25 male cable connector or DB9 male connector	Eight DB25 male cable connector or DB9 connector
Rear IO Connector and Daughter Board	N	N	N	Y	Y	Y
Surge protection	Y	Y	Y	Y	Y	Y
Accessory	C425M C409M	C425M C409M	C825M C809M	C425M C409M	C425M C409M	C825M C809M
Isolation protection	Port D: embedded isolated RS422 or RS 485	Embedded isolated RS422 or RS 485	-	Port D: embedded isolated RS422 or RS 485	Embedded isolated RS422 or RS 485	-
Dimension	160mm (length) 100mm (width)	160mm (length) 100mm (width)	160mm (length) 100mm (width)	160mm (length) 100mm (width)	160mm (length) 100mm (width)	160mm (length) 100mm (width)

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1

Introduction

1.1 cPCI-3534 Overview

1.1.1 What is the cPCI-3534?

The cPCI-3534 is an enhanced four ports serial communication module used for Compact-PCI platform. It includes a PGA (Programmable Gate Array) to support the serial communication controller and a 37-pin connector to connect external I/O port from the front panel or using the rear IO.

The expansion cable has four standard DB25 or DB9 connectors and one DB37 connector to connect with cPCI-3534 interface card.

The cPCI-R3534 transition board can support rear I/O connection by using one DB37 connector.

1.1.2 cPCI-3534 Features

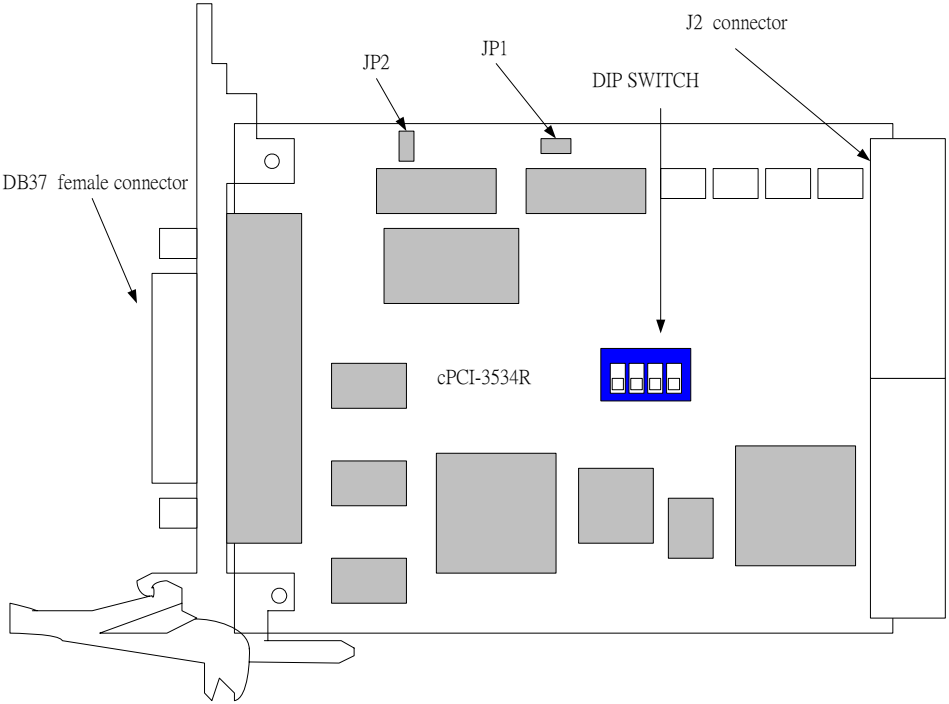
- 32-bit CompactPCI 3U form factor
- PCI Rev.2.1 Plug and Play
- IRQ and I/O address automatically assigned by PCI Plug and Play
- Four communication ports intelligent buffer
- One isolated industry communication port
- High Speed Communication (max. 115200 bps)
- Suitable for modems, data display, data collection, telecommunication
- Supports up to two cards/8 ports per system
- Supports DOS, Windows 3.1, Windows 95/98, and Windows NT operation system

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1.1.3 cPCI-3534 Specifications

- Compliant with PCI Spec.2.1
- Serial communication controller:
  - 16C550A compatible
  - 1.8432 - 7.3728MHz
- System I/O mapping:
  - Assigned by PCI BIOS
  - Shared IRQ
- Flow control
  - Xon/Xoff control
  - RTS/CTS control (Only for RS-232 Interface)
- Port Capability:
  - Three independent RS-232C compatible ports
  - One isolated RS-422/485 port (DIP switch select)
- Max. port per system: 8 (2 card)
- Isolation voltage: 2500VDC
- Baud rate: Each port can be configured to 50 - 115,200 bps
- Operation System Compatibility: DOS, Windows 3.1, and Windows 95/98/NT
- Connector: DB37 female connector
- Cable: External cable with four standard DB25 male connectors
- Operating temperature: 0 - 55 °C
- Storage temperature: -20 - 65°C
- Humidity: 10% - 95%, non-condensing
- Dimension: 160 x 100 mm^2 (6.3 x 3.9 $in.^2$) 3U
- Power consumption: +5V @ 1400mA typical

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cPCI-3534R Profile

1.1.4 cPCI-3534 Connector Pin Assignment

DB37 female connector pin assignment for the cPCI-3534.

Pin No.	RS-232 Interface (Port A, B, C)	RS-422 Interface (Port D)	4S-485 Interface (Port D)
1	PortA_RXD(IN)		
2	PortA_CTS(IN)		
3	PortA_DSR(IN)		
4	PortA_DCD(IN)		
5	GND		
6	PortB_TXD(OUT)		
7	PortB_RTS(OUT)		
8	PortB_DTR(OUT)		
9	GND		
10			
11	GND		

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12	PortC_DTR(OUT)		
13	PortC_RTS(OUT)		
14	PortC_TXD(OUT)		
15	GND	PortD_ Isolated GND	
16			
17		PortD_RXD-(IN)	
18			D-
19		PortD_RXD+(IN)	
20	PortA_TXD(OUT)		
21	PortA_RTS(OUT)		
22	PortA_DTR(OUT)		
23	PortA_RI(IN)		
24	PortB_RXD(IN)		
25	PortB_CTS(IN)		
26	PortB_DSR(IN)		
27	PortB_DCD(IN)		
28	PortB_RI(IN)		
29	PortC_RI(IN)		
30	PortC_DCD(IN)		
31	PortC_DSR(IN)		
32	PortC_CTS(IN)		
33	PortC_RXD(IN)		
34			
35		PortD_TXD-(OUT)	
36			D+
37		PortD_TXD+(OUT)	

DB25 male connector pin assignment in the cPCI-3534 module for RS-232 interfaces (port A, B, and C) and the RS-422/485 interface (port D).

Pin No.	RS-232 Interface	RS-422 Interface	RS-485 Interface
2	TXD(OUT)	TXD+(OUT)	
3	RXD(IN)	RXD+(IN)	
4	RTS(OUT)		D+
5	CTS(IN)		D-
6	DSR(IN)	RXD- (In)	
7	GND	Isolated GND	
8	DCD(IN)		
20	DTR(OUT)	TXD- (Out)	

DB9 male connector pin assignment in the cPCI-3534 module for RS-232 interfaces (port A, B and C) and the RS-422/485 interface (port D).

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Pin No.	RS-232 Interface	RS-422 Interface	RS-485 Interface
1	DCD(IN)		.
2	RXD(IN)	RXD+(IN)	
3	TXD(OUT)	TXD+(OUT)	
4	DTR (OUT)	TXD-(OUT)	
5	GND	Isolated GND	
6	DSR(IN)	RXD-(IN)	
7	RTS(OUT)		D+
8	CTS(IN)		D-
9	RI(IN)		

Compact PCI J2 connector pin assignment in cPCI-3534R module for RS-232/422/485 interfaces (cPCI-3534R only).

22	GND	GA4	GA3	GA2	GA1	GA0	GND	P2 / J2 CONNECTOR
21	GND						GND	
20	GND						GND	
19	GND	FG	D+	D-	SG		GND	
18	GND						GND	
17	GND						GND	
16	GND			TXD+	TXD-	SG	GND	
15	GND	FG	RXD+	RXD-			GND	
14	GND						GND	
13	GND						GND	
12	GND	DSR❸	SG❸	DCD❸	DTR❸		GND	
11	GND	FG❸	TX❸	RX❸	RTS❸	CTS❸	GND	
10	GND						GND	
9	GND						GND	
8	GND	DSR❷	SG❷	DCD❷	DTR❷		GND	
7	GND	FG❷	TX❷	RX❷	RTS❷	CTS❷	GND	
6	GND						GND	
5	GND						GND	
4	GND	DSR❶	SG❶	DCD❶	DTR❶		GND	
3	GND	FG❶	TX❶	RX❶	RTS❶	CTS❶	GND	
2	GND						GND	
1	GND						GND	
Pin	Z	A	B	C	D	E	F	

❶Port A ❷Port B ❸Port C

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RS-232

FG	:	Frame Ground	TX	:	Transmit Data
RX	:	Receive Data			
RTS	:	Request to Send	CTS	:	Clear to Send
DSR	:	Data Set Ready			
SG	:	Signal Ground	DCD	:	Data Carrier Detect
DTR	:	Data Terminal Ready			

RS-422

TXD+	:	Transmit Data Positive
TXD-	:	Transmit Data Negative
RXD+	:	Receive Data Positive
RXD-	:	Receive Data Negative

RS-485

D+	:	Data Signal Positive
D-	:	Data Signal Negative

cPCI-R3534 Rear I/O Daughter Board (Rear I/O function only for cPCI3534R)

The cPCI-R3534 rear I/O daughter board provides a rear I/O connection transition, the connector and cable used in the rear is the same as the front.

DIP Switch and Jumper Setting

SW1	ON	OFF
SW1-1	Card1	Card2
SW1-4	RS-422	RS-485

The JP1 is for the RS422 terminator and the JP2 is for the RS-485 terminator. The terminator is ON while the jumper is ON.

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1.2 cPCI-3544 Overview

1.2.1 What is the cPCI-3544?

The cPCI-3544 is an enhanced four ports serial communication module for industry communication interface RS-422/485 by Compact-PCI platform. It includes a PGA (Programmable Gate Array) to support the serial communication controller and a 37-pin connector to connect external I/O port from the front panel or using the rear I/O.

The expansion cable has four standard DB25 or DB9 connectors and one DB37 connector to connect with cPCI-3544 interface card.

The cPCI-R3544 transition board can support rear I/O connection by using one DB37 connector.

1.2.2 cPCI-3544 Features

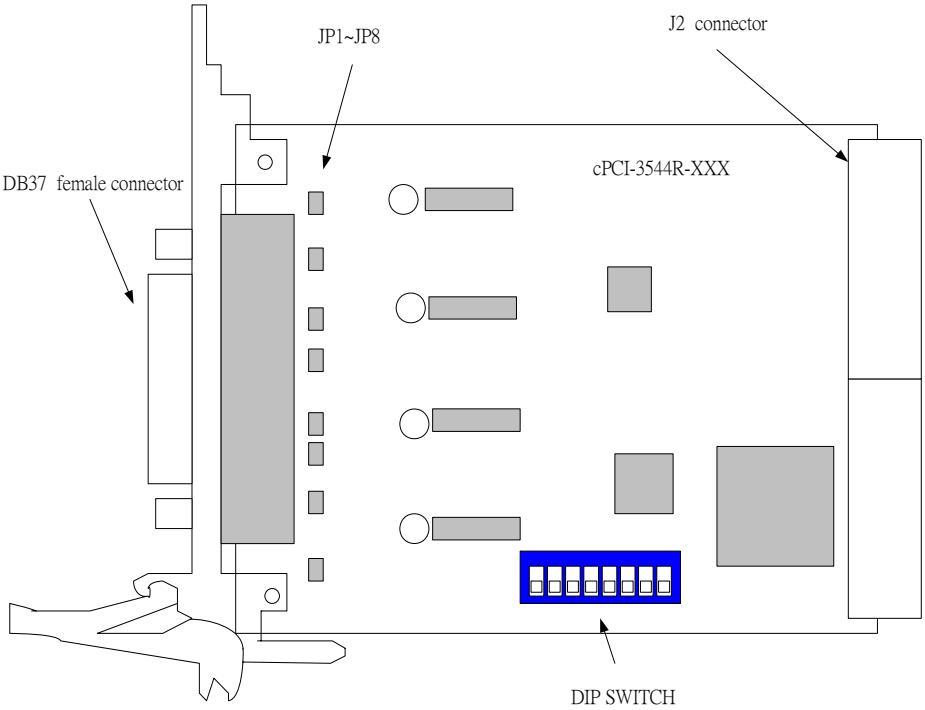
- 32-bit CompactPCI 3U form factor
- PCI Rev.2.1 Plug and Play
- IRQ and I/O address automatically assigned by PCI Plug and Play
- Four communication ports intelligent buffer
- RS-422/485 hardware selectable
- RS-485 with auto direction flow control
- Channel to channel isolated industry communication port
- High speed communications concurrently (max. 115200 bps)
- Supports up to eight cards/32 ports per system
- Supports DOS, Windows 95/98, and Windows NT operation system

1.2.3 cPCI-3544 Specifications

- Compliant with PCI Spec.2.1
- Serial communication controller:
- 16C550A compatible
- 1.8432 - 7.3728 MHz
- System I/O mapping:
  - Assigned by PCI BIOS
  - Shared IRQ
- Flow control
  - RS-485 auto direction

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- Port Capability:
  - Four isolated RS-422/485 port (DIP switch select)
  - Max. port per system: 32 (8 card)
- Isolation voltage: 500VDC
- Baud rate: Each port can be configured to 50 - 115,200 bps
- Operation System Compatibility: Windows 95/98/NT/QNX
- Connector: DB37 female connector
- Cable: External cable with four standard DB25(C425M) or DB9(C409M) male connector
- Operating temperature: 0 - 55 °C
- Storage temperature: -20 - 65 °C
- Humidity: 10% - 95%, non-condensing
- Dimension: 160 x 100 mm^2 (6.3 x 3.9 $in.^2$) 3U
- Power consumption: +5V @ 1400mA typical



cPCI-3544R Profile

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1.2.4 Connector Pin Assignment of cPCI-3544

DB37 female connector pin assignment for cPCI-3544.

Pin No.	RS-422 Interface	4S-485 Interface
1	PortA_RXD+(IN)	
2		PortA_D+(I/O)
3	PortA_RXD-(IN)	
4		PortA_D-(I/O)
5	PortA_ IsolatedGND	
6	PortB_TXD+(OUT)	
7	--	
8	PortB_TXD-(OUT)	
9	PortB_ Isolated GND	
10	--	
11	PortC_Isolated GND	
12	PortC_TXD-(OUT)	
13	--	
14	PortC_TXD+(OUT)	
15	PortD_Isolated GND	
16		PortD_D-(I/O)
17	PortD_RXD-(IN)	
18		PortD_D+(I/O)
19	PortD_RXD+(IN)	
20	PortA_TXD+(OUT)	
21	--	
22	PortA_TXD-(OUT)	
23	--	
24	PortB_RXD+(IN)	
25		PortB_D+(I/O)
26	PortB_RXD-(IN)	
27		PortB_D-(I/O)
28	--	
29	--	
30		PortC_D-(I/O)
31	PortC_RXD-(IN)	
32		PortC_D+(I/O)
33	PortC_RXD+(IN)	
34	--	
35	PortD_TXD-(OUT)	
36	--	
37	PortD_TXD+(OUT)	

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DB25 male connector pin assignment in cPCI-3544 module for RS-422/485 interface. (Port A - D)

Pin No.	RS-422 Interface	RS-485 Interface
2	TXD+	
3	RXD+	
5		D+
6	RXD-	
7	Each Port Isolated GND	
8		D-
20	TXD-	

DB9 male connector pin assignment in cPCI-3544 module for RS-422/485 interface. (Port A - D)

Pin No.	RS-422 Interface	RS-485 Interface
1		D-
2	RXD+	
3	TXD+	
4	TXD-	
5	Each Port Isolated GND	
6	RXD-	
8		D+

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Compact PCI J2 connector pin assignment in cPCI-3544R module for RS-422/485 interface. (cPCI-3544R only)

22	GND	GA4	GA3	GA2	GA1	GA0	GND	P2 / J2 CONNECTOR
21	GND						GND	
20	GND						GND	
19	GND		TXD-❹		TXD+❹		GND	
18	GND	GND❹	D-❹	RXD-❹	D+❹	RXD+❹	GND	
17	GND						GND	
16	GND						GND	
15	GND						GND	
14	GND		TXD-❸		TXD+❸		GND	
13	GND	GND❸	D-❸	RXD-❸	D+❸	RXD+❸	GND	
12	GND						GND	
11	GND						GND	
10	GND						GND	
9	GND		TXD-❷		TXD+❷		GND	
8	GND	GND❷	D-❷	RXD-❷	D+❷	RXD+❷	GND	
7	GND						GND	
6	GND						GND	
5	GND						GND	
4	GND		TXD-❶		TXD+❶		GND	
3	GND	GND❶	D-❶	RXD-❶	D+❶	RXD+❶	GND	
2	GND						GND	
1	GND						GND	
Pin	Z	A	B	C	D	E	F	

❶Port A ❷Port B ❸Port C ❹Port D

RS-422

TXD+ : Transmit Data Positive

TXD- : Transmit Data Negative

RXD+ : Receive Data Positive

RXD- : Receive Data Negative

RS-485

D+ : Data Signal Positive

D- : Data Signal Negative

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cPCi-R3544 Rear I/O Daughter Board (Rear I/O function only for cPCI-3544R)

The cPCi-R3544 rear I/O daughter board provides a rear I/O connection transition, the connector and cable used in the rear is the same as the front.

DIP Switch and Jumper Setting

CARD NO.		Port Select								
SW1-3	#		PortA		PortB		PortC		PortD	
000	0	SW	On	Off	On	Off	On	Off	On	Off
100	1	4	485	422						
010	2	5			485	422				
110	3	6					485	422		
001	4	7							485	422
101	5									
011	6									
111	7									

The JP1, JP3, JP5, JP7 is for the RS422 terminator and the JP2, JP4, JP6, JP8 is for the RS-485 terminator. The terminator is ON while the jumper is ON.

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1.3 cPCI-3538 Overview

1.3.1 What is the cPCI-3538?

The cPCI-3538 is an enhanced eight ports serial communication card used for cPCI platform. It includes a PGA (Programmable Gate Array), which supports the serial communication controller, and a 62-pin connector which connects external I/O port on the front panel or the rear I/O.

The expansion cable has eight standard DB25 connectors and one DB62 connector to connect to cPCI-3538 interface card. User may also use one DB62 to DB62 cable to connect between one cPCI-3538 and C588XB for providing 8 channel isolated RS-232/422/485 interface.

The cPCI-R3538 transition board can support rear I/O connection by using one DB62 connector.

1.3.2 Feature of cPCI-3538

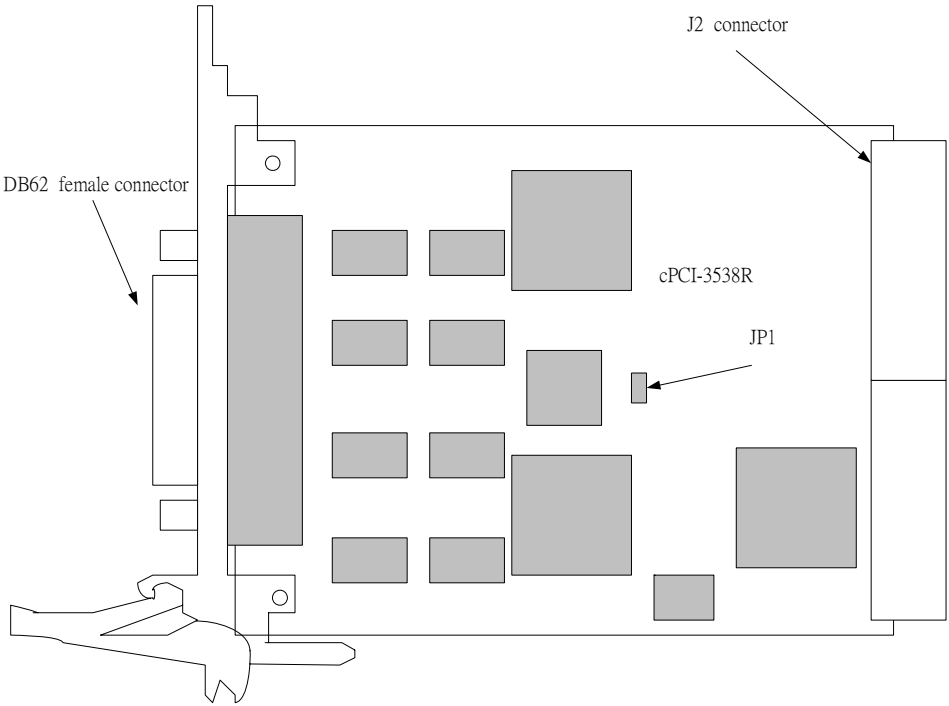
- 32-bit CompactPCI 3U form factor
- PCI Rev.2.1 Plug and Play
- IRQ and I/O address automatically assigned by PCI Plug and Play
- Eight communication ports intelligent buffer
- High Speed Communication (max. 115200 bps)
- Suitable for modems, data display, data collection, telecommunication
- Supports up to 2 cards/8 ports per system
- Supports DOS, Windows 3.1, Windows 95/98, and Window NT operation system
- Optional isolated RS-232/422/485 interface for each port independently by C888XB

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1.3.3 Specification of cPCI-3538

- Compliant with PCI Spec.2.1
- Serial communication controller:
  - 16C550A compatible
  - 1.8432 - 7.3728 MHz
- System I/O mapping:
  - Assigned by PCI BIOS
  - Shared IRQ
- Flow control
  - Xon/Xoff control
  - RTS/CTS control
- Port Capability:
  - Eight independent RS-232C compatible ports
  - Optional external C588XB box for extending to eight isolated RS-232/422/485 port
  - Max. port per system: 16 (2 card)
- Baud rate: Each port can be configured to 50 - 115,200 bps
- Operation System Compatibility: DOS, Windows 3.1, and Windows 95/98/NT
- Connector: DB62 female connector
- Cable: External cable with 8 standard DB25 male connector
- Operating temperature: 0 - 55 °C
- Storage temperature: -20 - 65 °C
- Humidity: 10% - 95%, non-condensing
- Dimension: 160 x 100 mm^2 (6.3 x 3.9 $in.^2$) 3U
- Power consumption: +5V @ 1400mA typical

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cPCI-3538R Profile

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1.3.4 Connector Pin Assignment of cPCI-3538

DB62 female connector pin assignment for cPCI-3538.

Pin No.	Signal Name	Pin No.	Signal Name
1	PortA_TXD (OUT)	32	PortG_CTS(IN)
2	PortA_RXD (IN)	33	PortG_DSR(IN)
3	PortA_RTS (OUT)	34	PortG_DTR(OUT)
4	PortA_CTS (IN)	35	PortG_DCD(IN)
5	PortA_DSR (IN)	36	PortF_TXD(OUT)
6	PortA_DTR (OUT)	37	PortF_RXD(IN)
7	PortA_DCD (IN)	38	PortF_RTS(OUT)
8	PortC_TXD(OUT)	39	PortF_CTS(IN)
9	PortC_RXD(IN)	40	PortF_DSR(IN)
10	PortC_RTS(OUT)	41	PortF_DTR(OUT)
11	PortC_CTS(IN)	42	PortF_DCD(IN)
12	PortC_DSR(IN)	43	GND
13	PortC_DTR(OUT)	44	GND
14	PortC_DCD(IN)	45	GND
15	PortE_TXD(OUT)	46	PortD_TXD(OUT)
16	PortE_RXD(IN)	47	PortD_RXD(IN)
17	PortE_RTS(OUT)	48	PortD_RTS(OUT)
18	PortE_CTS(IN)	49	PortD_CTS(IN)
19	PortE_DSR(IN)	50	PortD_DSR(IN)
20	PortE_DTR(OUT)	51	PortD_DTR(OUT)
21	PortE_DCD5(IN)	52	PortD_DCD(IN)
22	PortB_TXD(OUT)	53	PortH_TXD(OUT)
23	PortB_RXD(IN)	54	PortH_RXD(IN)
24	PortB_RTS(OUT)	55	PortH_RTS(OUT)
25	PortB_CTS(IN)	56	PortH_CTS(IN)
26	PortB_DSR(IN)	57	PortH_DSR(IN)
27	PortB_DTR(OUT)	58	PortH_DTR(OUT)
28	PortB_DCD(IN)	59	PortH_DCD(IN)
29	PortG_TXD(OUT)	60	GND
30	PortG_RXD(IN)	61	GND
31	PortG_RTS(OUT)	62	GND

DB25 male connector pin assignment in the cPCI-3538 module for RS-232 interfaces (port A-H).

Pin No.	Signal Name
2	TXD(OUT)
3	RXD(IN)
4	RTS(OUT)

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5	CTS(IN)
6	DSR(IN)
7	GND
8	DCD(IN)
20	DTR(OUT)

DB9 male connector pin assignment in the cPCI-3538 module for RS-232 interfaces (port A - H).

Pin No.	Signal Name
1	DCD(IN)
2	RXD(IN)
3	TXD(OUT)
4	DTR (OUT)
5	GND
6	DSR(IN)
7	RTS(OUT)
8	CTS(IN)

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Compact PCI J2 connector pin assignment in cPCI-3538R module for RS-232 interface. (cPCI-3538R only)

22	GND	GA4	GA3	GA2	GA1	GA0	GND	P2 / J2 CONNECTOR
21	GND						GND	
20	GND	DSR❽	DCD❽	DTR❽	RTS❽	CTS❽	GND	
19	GND	FG❽	TX❽	RX❽	SG❽		GND	
18	GND	FG❼	TX❼	RX❼	SG❼		GND	
17	GND	DSR❼	DCD❼	DTR❼	RTS❼	CTS❼	GND	
16	GND						GND	
15	GND	DSR❻	DCD❻	DTR❻	RTS❻	CTS❻	GND	
14	GND	FG❻	TX❻	RX❻	SG❻		GND	
13	GND	FG❺	TX❺	RX❺	SG❺		GND	
12	GND	DSR❺	DCD❺	DTR❺	RTS❺	CTS❺	GND	
11	GND						GND	
10	GND	DSR❹	DCD❹	DTR❹	RTS❹	CTS❹	GND	
9	GND	FG❹	TX❹	RX❹	SG❹		GND	
8	GND	FG❸	TX❸	RX❸	SG❸		GND	
7	GND	DSR❸	DCD❸	DTR❸	RTS❸	CTS❸	GND	
6	GND						GND	
5	GND	DSR❷	DCD❷	DTR❷	RTS❷	CTS❷	GND	
4	GND	FG❷	TX❷	RX❷	SG❷		GND	
3	GND	FG❶	TX❶	RX❶	SG❶		GND	
2	GND	DSR❶	DCD❶	DTR❶	RTS❶	CTS❶	GND	
1	GND						GND	
Pin	Z	A	B	C	D	E	F	

RS-232

FG	:	Frame Ground	TX	:	Transmit Data
RX	:	Receive Data			
RTS	:	Request to Send	CTS	:	Clear to Send
DSR	:	Data Set Ready			
SG	:	Signal Ground	DCD	:	Data Carrier Detect
DTR	:	Data Terminal Ready			

cPCI-R3538 Rear I/O Daughter Board (Rear I/O function only for cPCI-3538R)

The cPCI-R3538 rear I/O daughter board provides a rear I/O connection transition; the connector and cable used in the rear are the same as the front.

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2

Installation

This chapter describes the configurations of the serial communication module. The contents in the package and unpacking information that the user should be aware of are described in the beginning. The serial communication modules are Plug and Play and very easy to install into cPCI system.

2.1 What You Have

In addition to this *User's Manual*, the package includes the following items:

- cPCI-3534/3544/3538 Serial Communication Interface Module
- Expansion Cable (C425M, C409M or C825M, C809M)
- R-3534/3538 Rear I/O Daughter Board (For the rear I/O version)
- "ADLINK All-in-One Compact Disc" or Disks

If any of these items are missing or damaged, contact the dealer from whom the product was purchased. Save the shipping materials and carton in case the products needs to be shipped or stored in the future.

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2.2 Unpacking

Your serial communication module contains sensitive electronic components that can be easily damaged by static electricity.

The module should be done on a grounded anti-static mat. The operator should be wearing an anti-static wristband, grounded at the same point as the anti-static mat.

Inspect the module carton for obvious damage. Shipping and handling may cause damage to your module. Ensure there are no shipping and handling damages on the module before processing.

After opening the module carton, remove the system module and place it only on a grounded anti-static surface component side up.

Again inspect the module for damage. Press down on all socket IC's to ensure they are properly seated. Do this only with the module placed on a firm flat surface.

Note: DO NOT APPLY POWER TO THE MODULE IF IT HAS BEEN DAMAGED.

You are now ready to install your cPCI Module.

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2.3 Installation Procedure

1. Turn off your cPCI computer system.

2. Turn off all accessories (printer, modem, monitor, etc.) connected to computer.

3. Select a cPCI slot.

4. Before handling the serial communication module, discharge any static buildup on your body by touching the metal case of the computer. Hold the edge and do not touch the components.

5. Position the module into the cPCI slot selected.

6. Secure the module in place of the system.

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2.4 Hardware Configuration

The serial communication module has Plug and Play component, the card can requests memory usage (I/O port locations) of the card which is assigned by system BIOS. The address assignment is done on a board-by-board basis for all serial communication cards in the system.

The jumper SW1-1 for cPCI-3534 and the JP1 for cPCI-3538 is used for the system to recognize the first or second card of the same model in the system if there are two of the same cards on the board.

The SW1-3 for cPCI-3544 is used for the system to recognize the card number of the same model in the system if there are more than two cards of the same on board.

2.4.1 Wiring Example

You can use the C425M and C409M for wiring. Please refer to Chapter 1 for pin assignment.

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2.5 Software Installation

2.5.1 Windows NT Installation

Once Windows NT system has been started, login using an account with administrative right.

1. Start the [Control Panel] applet by double clicking the icon in the [Program Managers] main group.

2. In the [Control Panel] applet, double click [Network] icon to bring up the Network Control Panel Applet (NCPA).

3. Within the NCPA, select the [Add Adaptor] button, a list of possible adaptors should be displayed. Go to the end of this list and select <Other> requires disk from manufacturer.

4. When prompted for the path, specify the drive and directory where the NCPA can find the new driver for the card installed.

   For cPCI-3534, specify as follows:

   X:\NuCOM\CPCI3534\NT4

   For cPCI-3544, specify as follows:

   X:\NuCOM\CPCI3544\NT4

   For cPCI-3538, specify as follows:

   X:\NuCOM\CPCI3538\NT4

   (Where X indicates CD-ROM drive)

1. Follow the configuration dialog boxes to install the driver.

2. In the default condition, the TTY port is given name from “COM3”. User can specify the start “COM” port number in installation procedure.

3. We can install up to two same type serial communication cards in one NT system.

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4. When two of the same type of serial communication cards are required to be installed in one NT system, confirm to let one card's SW1-1 is ON while the other card's SW1-1 is OFF for cPCI-3534 and JP1 is ON while the other card's JP1 is OFF for cPCI-3538. The same applies to cPCI-3544 with SW1-3 adjusting to a different number.

5. The card with switch ON will have a low COM port number. The card with switch OFF will have a higher COM port number than the former.

6. If two of the same type of serial communication modules are installed with switch ON or OFF simultaneously, it cannot be certain that the system will function properly.

7. If you install multiple cards onto one NT system simultaneously, ensure that the COM port number assigned is not the same as the one used for a different card. Otherwise, the system may not function properly.

8. To avoid confusion of the NT system's COM port number, it is suggested that the switch ON for the first card be installed in NT system.

9. After installing the driver, reboot the PC, where more COM ports are available.

10. If our NT driver has been previously installed in the system before, remove this driver first, then install our new version driver. Otherwise, the user may encounter some problems with the system.

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2.5.2 Windows 95/98 Installation

Once Windows 95/98 system has been started, the Plug and Play function in 95/98 system will find the new serial communication card. If this is the first time installing a serial communication card on the Windows 95/98 system, the user will be prompted to install the driver. Follow the instructions to input the COM port number starting value for the first and second cards.

Because the resource will be assigned by PCI BIOS, It is relatively difficult to check which card is first or second from resource. The switch will assign the COM port number for each card for the system.

After installing the driver, the user may be informed that new hardware has been found. The driver does not need to be installed again, Windows 95/98 will add the COM port automatically.

1. You can install up to two cPCI-3534/3538 cards on one 95/98 system.

2. When two of the same type of cards are required to be installed on one 95/98 system, confirm to let one card's switch to be ON, and the other card's switch OFF.

3. The card with switch ON will have COM port number assigned for the first card. The card with switch OFF will have COM port number assigned for second card.

4. If two of the same type of serial communication cards are installed with switch ON or OFF simultaneously, it cannot be certain that they system will function properly.

5. If multiple cards are installed on one 95/98 system simultaneously, ensure that the COM port number assigned to one card is not used for a different card, otherwise the system may fail to function properly.

6. To avoid confusion of the 95/98 system's COM port number, it is suggested that the switch ON for the first card be installed in 95/98 system

7. The serial communication card can be used in interrupt shared mode. PCI BIOS will assign IRQ for each serial communication card. For multi-card applications, one IRQ can be used in each card, but the user must ensure that the system has a minimum of one

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IRQ left for P&P function. If there are no IRQs left to be assigned to the serial communication card, there may be errors in the operation.

2.5.3 Windows 2000/XP Installation

Once the Windows 2000/XP system has been started, the Plug and Play function in 2000/XP system will find the new cPCI-3534/3538/3544 card. If this is the first time installing drivers on your 2000/XP system, a dialogue box will instruct the user to install the driver. Follow the instructions below to specify the driver location.

For cPCI-3534/3538

X:\SerialComm\cPCI-353X\Win2000-XP; X is the CD-ROM

For cPCI-3544

X: \SerialComm\cPCI-3544W2000; X is the CD-ROM

As the resource will be assigned by PCI BIOS, it is relatively difficult to check which card is first card or second card from resource. For this reason, ADLINK has placed a jumper in each cPCI-3534/3538 card to set the first card or second card for this these comport cards. (cPCI-3544 does not include this function). The COM port number can now be fixed for each card. This is very important for cPCI-3534/3538 card.

2.5.4 LINUX Driver Installation

Installation for cPCI-3534/3538 Linux Driver

1. Copy the "alnxsrc.Z" file onto theLinux system. (alnxsrc.Z is located in “X:\SerialComm \cPCI-353X \Linux” directory; X is the CD-ROM.)
2. Uncompress the file to retrieve the original diskette image file "alnxsrc".

   ```
   uncompress   alnxsrc
   ```
3. Use the "dd" command to duplicate the diskette.

   ```
   dd if=alnxsrc  of=/dev/fd0
   ```
4. Please "tar" this diskette in root directory.

   ```
   cd   /
   tar   xvf    /dev/fd0
   ```
5. Please install driver in /etc/rayon directory.

   ```
   cd /etc/rayon
   ./Install
   ```
6. Select the target card type to install driver.

   The kernel source file is vital, and can be found in the /usr/src/linux directory. Some Linux distribution systems may

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have a different directory name. Please link to /usr/src/linux name.

Installation for cPCI-3544 Linux Driver

1. UNPACK
   Decompress the pci3544.tgz (pci3544.tgz is located in "X:\SerialComm \cPCI-3544 \Linux" directory; X is the CD-ROM.)) :
   tar xvzf pci3544.tgz

   This will extract the 'cPCI_3544' directory in the Linux.
   There are two subdirectories as follows:
   drivers/ contains the device module and the installation script
   util/ the utility for the 422/485 mode setting

2. INSTALL DEVICE
   Because of the cPCI-bus architecture, the cPCI-3544 devices can be detected automatically. All that is required of the user is to insert modules and to make nodes for the devices.
   This can be done manually, or use our installation script below for driver installation.

   ./<InstallDir>/pci_3544/drivers/3544_inst.pl

   Execute the installation script without any parameters, the usage is displayed as follows:

   ==========
   Usage:
   3544_inst.pl -cards num_of_3544 -tty TTY_MAJOR -cua CALLOUT_MAJOR -path installed_dir

   num_of_3544: number of pci3544 installed
   TTY_MAJOR: the Major number for serial ports of cPCI-3544i (optional)
   CALLOUT_MAJOR: the Major number for cPCI-3544 callout ports (optional)
   installed_dir: the dir. cPCI-3544 installed (optional)
   ==========

   The optional parameter '-tty' and '-cua' are used to indicate the major number for TTY serial ports and Callout ports. The user can assign the major number for TTY and Callout ports, or use the default setting (70/71) for these ports.

   To install the driver for three cPCI-3544 cards, execute the script as follows:
   ./3544_inst.pl -cards 3 -tty 70 -cua 71 -path <installed dir.>

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or simply execute the following command if the device module is in the current directory.
./3544_inst.pl -cards 3

The optional parameter '-path' is used to indicate the directory of pci-3544package. If the cPCI-3544 driver can not be found in working directory, the optional parameter '-path' is required.

./3544_inst.pl -cards 2 -path /usr/local/pci_3544

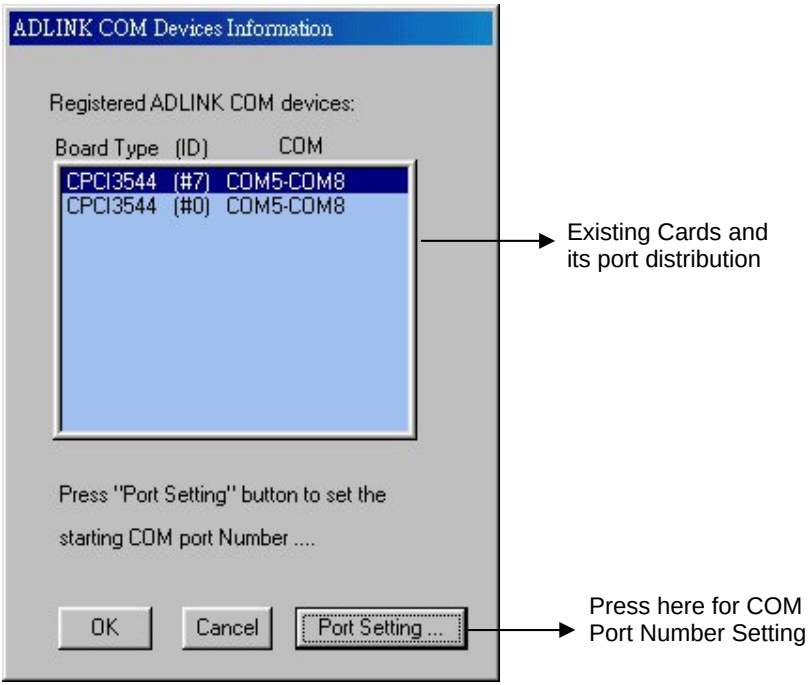
After installing the devices successfully, the ports of cPCI-3544 can be used as the normal serial ports supported by Linux.

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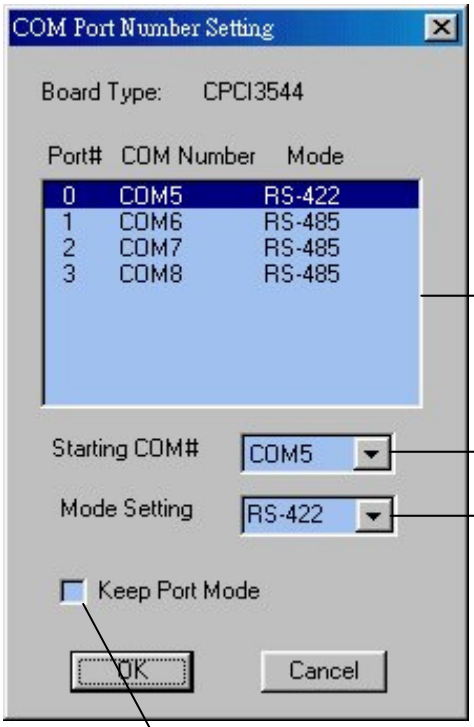
2.5.5 Windows 95/98/NT Utility Diagram for cPCI-3544

The cPCI-3534/3538 does not require any configuration utility. It is similar to the system COM ports.

The cPCI-3544 is a 4-Port RS-422/485 serial communication module. It supports the software configuration for RS-422/485. When choosing the RS-422 mode, the RS-485 port would be disabled automatically. AdlComSet.exe can be used for configuration.



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Existing Cards and its port distribution

The first one port maps to system port.

Port mode

When checked, the configuration will be true after rebooting.
If it is not checked, after rebooting, the port mode will follow the DIP switch configuration.

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2.6 AP Examples

Follow the installation guide above first.

2.6.1 Dos Environment

For cPCI-3534/3538, please refer to the README file included in the driver.

The cPCI-3544 does not provide the DOS library. If the user wishes to program by themselves, contact the dealer from whom the product was purchased, or the service mailbox in ADLINK.

2.6.2 Windows (Windows 95/98/NT) Environment

Extra ports can be found in the system control panel after installing the driver. Programming can be performed as per COM port. Please refer to the sample programs in the driver.

2.6.3 Linux Environment

The sample program can be found in the driver.

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Warranty Policy

Thank you for choosing ADLINK. To understand your rights and enjoy all the after-sales services we offer, please read the following carefully.

1. Before using ADLINK's products please read the user manual and follow the instructions exactly. When sending in damaged products for repair, please attach an RMA application form which can be downloaded from: http://rma.adlinktech.com/policy/.
2. All ADLINK products come with a limited two-year warranty, one year for products bought in China.
    - The warranty period starts on the day the product is shipped from ADLINK's factory.
    - Peripherals and third-party products not manufactured by ADLINK will be covered by the original manufacturers' warranty.
    - For products containing storage devices (hard drives, flash cards, etc.), please back up your data before sending them for repair. ADLINK is not responsible for any loss of data.
    - Please ensure the use of properly licensed software with our systems. ADLINK does not condone the use of pirated software and will not service systems using such software. ADLINK will not be held legally responsible for products shipped with unlicensed software installed by the user.
    - For general repairs, please do not include peripheral accessories. If peripherals need to be included, be certain to specify which items you sent on the RMA Request & Confirmation Form. ADLINK is not responsible for items not listed on the RMA Request & Confirmation Form.
3. Our repair service is not covered by ADLINK's guarantee in the following situations:
    - Damage caused by not following instructions in the User's Manual.

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- Damage caused by carelessness on the user's part during product transportation.
- Damage caused by fire, earthquakes, floods, lightening, pollution, other acts of God, and/or incorrect usage of voltage transformers.
- Damage caused by inappropriate storage environments such as with high temperatures, high humidity, or volatile chemicals.
- Damage caused by leakage of battery fluid during or after change of batteries by customer/user.
- Damage from improper repair by unauthorized ADLINK technicians.
- Products with altered and/or damaged serial numbers are not entitled to our service.
- This warranty is not transferable or extendible.
- Other categories not protected under our warranty.

4. Customers are responsible for all fees necessary to transport damaged products to ADLINK.

For further questions, please e-mail our FAE staff:
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