

**Ultra Wide SCSI (FAST-40) CardBus PC Card  
for PowerBook & MacOS 8.1/8.5/8.6**

# **CB32PB**

## **User Guide**

Rev. 1.0

Aug 1999

** RATOC Systems, Inc.**

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# CB32PB User Guide

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<b>FCC Statement</b>	<b>3</b>
<hr/>	
<b>1. Introduction</b>	<b>5</b>
<hr/>	
1-1. Features	5
1-2. Trademarks	5
1-3. Before Using the CB32	6
1-4. System Requirements	6
1-5. Check Package Contents	6
1-6. How to Register	6
1-7. Program Update and Support	7
<b>2. Using the CB32</b>	<b>9</b>
<hr/>	
2-1. Before Using the CB32	9
2-2. Setup Procedure	9
2-3. Connecting the SCSI device	10
2-4. Installation of the Driver	12
2-5. Using SCSI devices	14
2-6. Removing the CB32	14
2-7. For MacOS 8.5,8.6 User	15
<b>3. SCSI Configuration Utility</b>	<b>15</b>
<hr/>	
3-1. Using SCSI Configuration Utility	16
3-2. SCSI Configuration Utility Window	17
<b>4. Troubleshooting</b>	<b>19</b>
<hr/>	
<b>5. Specifications</b>	<b>23</b>
<hr/>	

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# FCC Statement

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This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- (1) Reorient or relocate the receiving antenna.
- (2) Increase the separation between the equipment and receiver.
- (3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- (4) Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance may result in this unit not complying with FCC Rules Part 15.



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# 1. Introduction

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Thank you for purchasing the CB32PB kit. This kit contains the CB32 Ultra Wide SCSI CardBus PC Card, two SCSI cables (High-density 50 pin cable and High-density 68 pin cable), the support software for MacOS8.1,8.5,8.6 and this document. This guide contains the most complete information for installation and operation of the CB32 Ultra Wide SCSI CardBus PC Card at press time. Be sure to read this guide before using the SCSI PC Card for the first time. The README file included on the supplied floppy disk may contain more recent information which may not be included in this guide. Be sure to read the README file as well.

## 1-1. Features

- CardBus Compatible
- 32-bit data Bus and 33MHz operation
- Supports Bus-mastering data transfer
- Low power consumption
- Multi-tasking
- Scatter/gather
- Tag queuing
- Disconnect/reconnect

## 1-2. Trademarks

- MacOS and Macintosh are registered trademarks of Apple Computer Inc.
- Initio Corporation has a original copyright of the driver software.
- Other names of companies and products appearing in this guide are trademarks or registered trademarks respectively of those companies.

### 1-3. Before Using the CB32

- Never attempt to disassemble the PC Card and the cable.
- Do not bend, drop or strike the PC Card and the cable, or subject it to heavy pressure.
- Information in this document is subject to change without notice.
- If you have any questions or find errors in this guide, do not hesitate to let us know.

### 1-4. System Requirements

- Macintosh PowerBook with CardBus-enabled PC Card slot
- MacOS 8.1, 8.5 ,8.6 or later

NOTE:

- You can not use Macintosh 3400, 2400 , 1400 , 5300 and PowerBookG3 without /xxx marks such as G3/233,G3/250 with this PC Card.
- Macintosh PowerBooks with CardBus-enabled PC Card slot as of August 1999 are as follows:  
Macintosh PowerBook G3/233, G3/250, G3/266,G3/292, G3/300,G3/333, G3/400

### 1-5. Check Package Contents

- CB32 Ultra SCSI CardBus PC Card
- High-density 50-pin cable
- High-density 68-pin cable
- Support software CD-ROM
- B's Crew Lite
- User Guide (This document)

NOTE:

- If anything is missing, contact your store or RATOOC Systems.

### 1-6. How to Register

1. On the Internet, access our site. (<http://www.rexpccard.co.jp>)
2. Follow window menu guide to register.
3. Fill out and submit the registration form.

## 1-7. Program Update and Support

We recognize the need to keep users up-to-date with the latest software releases. Software updates can be downloaded from our web site (<http://www.rexpccard.co.jp>).

Technical support is handled by RATOOC Systems, Inc. at the following:

<b>RATOOC Systems, Inc.</b>
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1-6-14 Shikitsu-higashi, Naniwa-ku, Osaka, JAPAN 556-0012
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FAX : +81-6-6633-3553      E-mail : <a href="mailto:int-support@rexpccard.co.jp">int-support@rexpccard.co.jp</a>
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NOTE:

- Please include the following information to help us to assist you in the event of a problem:
  - Model type, serial number, and product description
  - Host Computer Name, MacOS version
  - Software driver version number





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## 2. Using the CB32

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### 2-1. Before Using the CB32

- At least one SCSI device on the SCSI bus must supply termination power to the SCSI bus for proper operation.
- Disable automatic sleep. For more information on disabling automatic sleep, refer to the Macintosh PowerBook manual.
- Do not remove the CB32 before turning off the PowerBook.
- Turn on the SCSI devices and insert the CB32 into the PowerBook before turning on the PowerBook.
- You cannot boot from a device connected to the CB32.
- The optional software is needed when you connect CD-ROM, CD-Changer or CD-R.
- Keep the total length of the SCSI daisy-chain to less than 1.5m.
- Connecting more than two devices via daisy-chain is not recommended.
- Scanners, film scanners or printers cannot be connected to the CB32.
- The CB32 kit has two external SCSI cables. One has a 50-pin high-density connector and the other has a 68-pin high-density connector. So, you can connect SCSI devices which have a 50-pin high-density connector or a 68-pin high-density connector directly to CB32. If your SCSI device requires a different kind of connector, you can not connect it directly to CB32. Never use a converter connector. But if you use a converter cable, you can connect it via a SCSI device which has a 50-pin high-density connector connected to CB32. For more information, contact RATOC Systems.

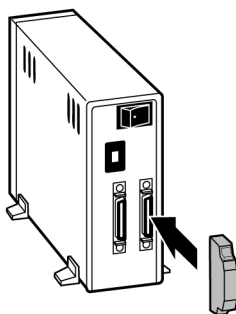
### 2-2. Setup Procedure

**Here's how to get started using the CB32 and the SCSI devices:**

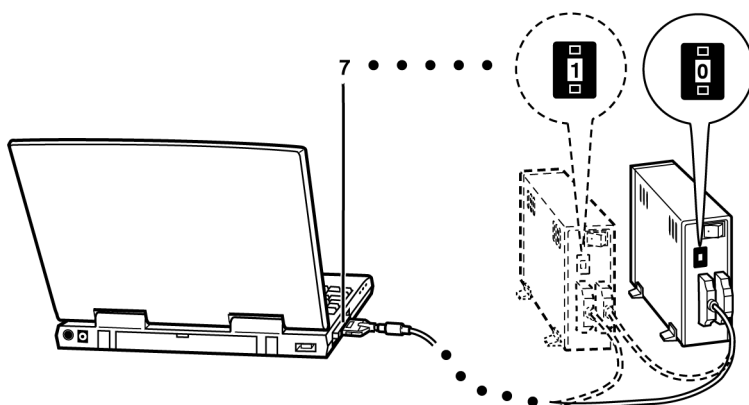
1. Connect the CB32 to the SCSI cable and remove the SCSI devices to the CB32, following the **Connecting the SCSI devices** (Page 10) instructions.
2. Install the driver of the CB32 Ultra Wide SCSI CardBus PC Card, following **Installation of the Driver** (Page 12 ).

### 2-3. Connecting the SCSI device

1. Terminate the last (or only) SCSI device connected to the CB32.

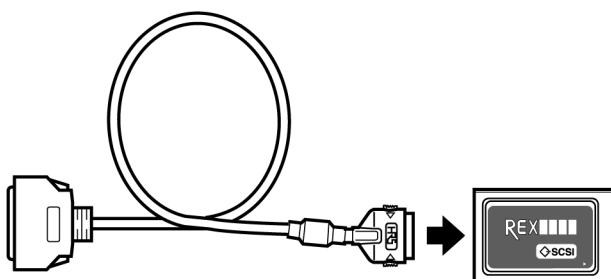


2. Be sure that at least one SCSI device connected to the CB32 supplies termination power to the SCSI bus.
3. Be sure that each SCSI device has a unique SCSI ID, ranging from 0 to 15. The CB32 uses SCSI ID 7.

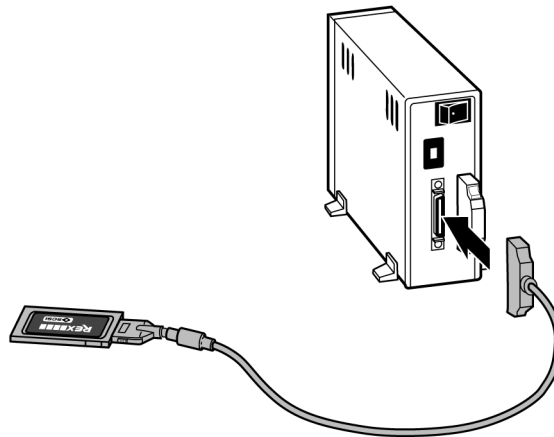


#### NOTE:

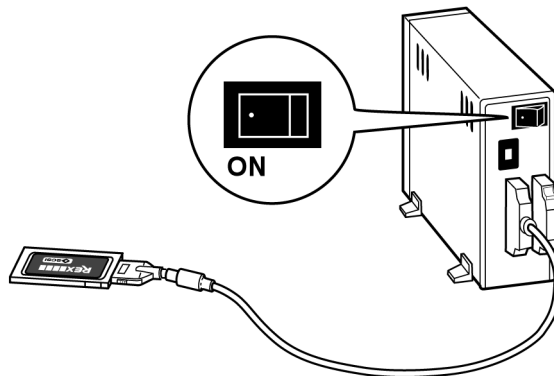
- 1 SCSI IDs on most SCSI device are set with jumpers or switches. Refer to the device manual for more information.
4. Attach the PCMCIA connector at the end of the SCSI cable to the mating connector on the end of the CB31. Press the cable connector gently into the connector on the card until it clicks into place. Do not force the connection.



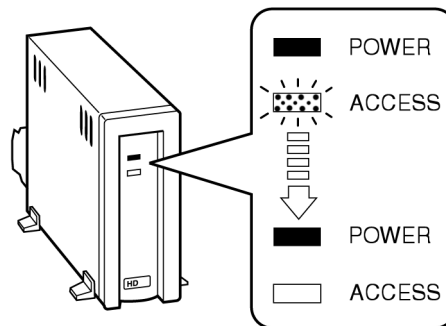
5. Attach the SCSI connector on the other end of the SCSI cable into a SCSI device.



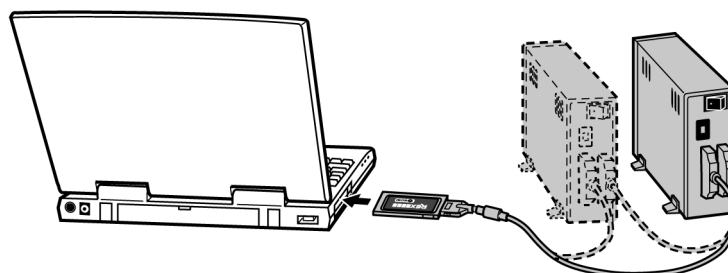
6. Turn on all SCSI devices connected to the CB32.



7. Wait until ACCESS lights of the SCSI devices are off.

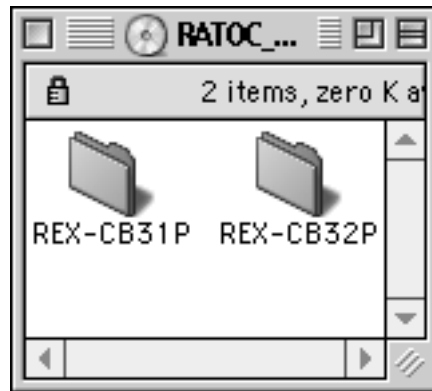


8. Turn your PowerBook on after inserting the CB32 into your PowerBook . When you use two kinds of PC Cards at the same time, insert CB32 into the upper PC Card slot.

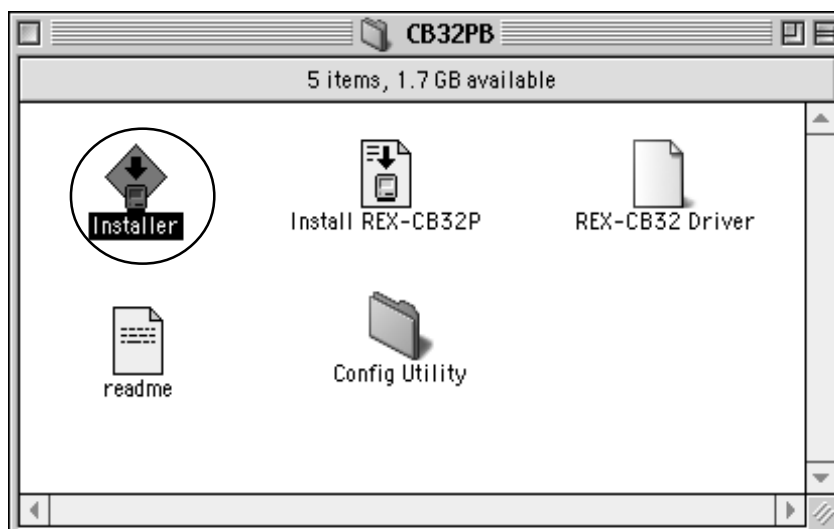


### 2-4. Installation of the Driver

1. Insert the support software CD-ROM into the PowerBook then double click on the CD-ROM icon. You will see a screen below.



2. Open REX-CB32P folder. You will see a screen below.

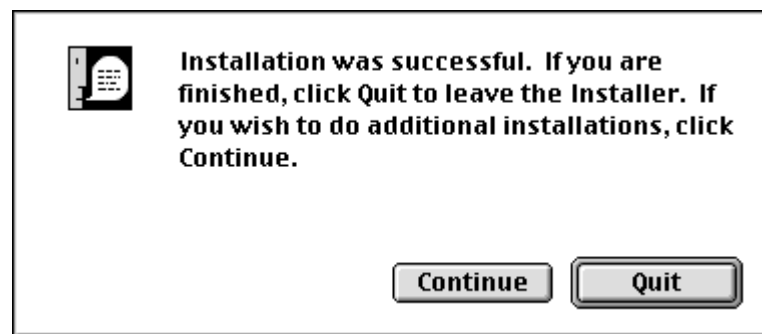


3. Double click on the **Installer** icon.

4. When the following window appears, select the destination disk and click on the **Install** button.



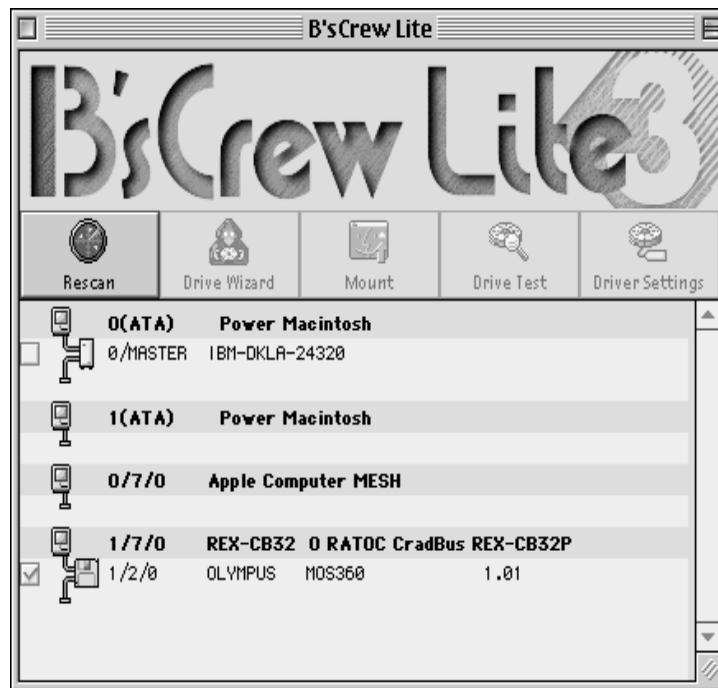
5. When the following window appears, click on the **Quit** button.



6. Installation of the driver is completed. Restart the PowerBook.

### 2-5. Using SCSI devices

To use SCSI devices connected to the CB32, the devices have to be mounted by a mounting utility software. **B's Crew Lite**, a mounting utility is included in the CB32PB package. **B's Crew Lite** has the function to mount SCSI devices automatically. For more information on **B's Crew Lite**, refer to the **B's Crew Lite** manual.



B's Crew Lite Main Screen

### 2-6. Removing the CB32

1. Shut down the PowerBook.
2. Turn off the SCSI devices.
3. Press the eject button for the PC Card slot and remove the CB32.

**NOTE:**

- Do not turn off the SCSI devices before turning off the PowerBook.
- Do not remove the CB32 before turning off the PowerBook.

## 2-7. For MacOS 8.5,8.6 User

If you use hard disk drives connected to the CB32 for MacOS 8.5 or 8.6, you can remove the CB32 as follows:

1. Drag the hard disk icon to **Trash**.
2. Press the eject button for the PC Card slot and remove the CB32.

You do not have to turn off the PowerBook before removing the CB32.

**NOTE:**

- Do not remove the CB32 following this procedures when you use SCSI devices except hard disk drives. When you use other devices, refer 2-6. *Removing the CB32*.
- Do not remove the CB32 following this procedures when you use hard disk drives for MacOS 8.1. When you use hard disk drives for MacOS 8.1, refer 2-6. *Removing the CB32*.

## 3. SCSI Configuration Utility

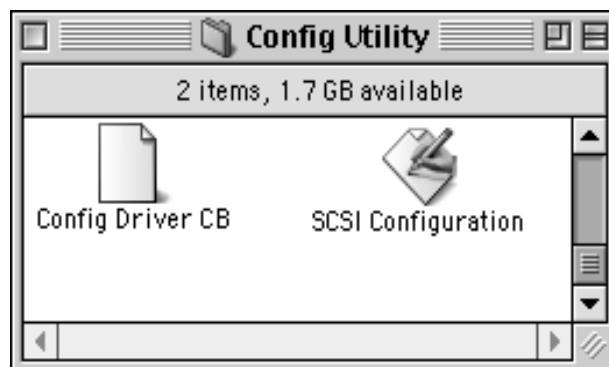
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The support software CD-ROM includes a SCSI configuration utility. This utility displays the SCSI configuration to EEPROM and updates it. It may be necessary to change configuration according to the SCSI device connected to the CB32.

Before starting this utility, be sure that all programs are closed and there is nothing accessing the SCSI devices.

### 3-1. Using SCSI Configuration Utility

1. Check to see all SCSI devices connected the CB32 are turned off.
2. Insert the support software CD-ROM into the PowerBook. Then double-click the CD-ROM icon.
3. Double-click on the **REX-CB32P** icon and double-click on the **Config Utility**.
4. When the following window appears, click on the **SCSI Configuration** button.



5. When the following window appears, click on the **OK** button.



6. Change the configurations referring to the next page and click **OK**.
7. If a message saying [EEPROM updated successfully. Please reboot your machine.] appears, click **OK** button to reboot your PowerBook.



## 3-2. SCSI Configuration Utility Window

SCSI Configuration

Host SCSI ID: 7    Reset Recovering Time(sec): 5    Burst transfer: ☐ Enable ☒ Disable    Parity: ☒ Enable ☐ Disable

	ID 0	ID 1	ID 2	ID 3	ID 4	ID 5	ID 6	ID 7
Max Transfer(MB/s)	20	40	40	40	40	40	40	40
Sync.Transfer Enable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Wide Transfer Enable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Disconnect Enable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

	ID 8	ID 9	ID 10	ID 11	ID 12	ID 13	ID 14	ID 15
Max Transfer(MB/s)	40	40	40	40	40	40	40	40
Sync.Transfer Enable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Wide Transfer Enable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Disconnect Enable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Version  
SCSI Configuration 1.0  
Configuration Driver 1.0 PCB 12.00

Default Cancel OK

### Host SCSI ID

Default is 7. If you connect the device which can be not assigned other than 7, change the ID.

If you use SCSI devices which are not Wide SCSI, choose ID from among 0-7.

### Burst transfer

Default is **Enable**. Do not care this section.

### Parity

Default is **Enable**. If you connect the device which does not have parity check function, check the **Disable** button.

### Max. Transfer(MB/s.)

Default is 40MB/s. Select the transfer rate speed by trying the choices shown until you find one that is successful.

### Sync. Transfer Enable

Default is **Enable**(checked). If you connect an asynchronous device, Set disable.

### Wide Transfer Enable

Default is **Enable**(checked). If you connect an Wide SCSI device, Set enable.

### Disconnect Enable

Default is **Enable**(checked). In case of **Enable**,the device is disconnected from SCSI bus temporarily. While the device is disconnected, the SCSI PC Card can run other functions to the SCSI bus faster.

### 3. SCSI Configuration Utility

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**SCSI Configuration** means a version of this program.

**Configuration Driver** means a version of sub program of this program.

**PCB** means a hardware version of CB32PB.

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## 4. Troubleshooting

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### 4-1. No icon on the desktop

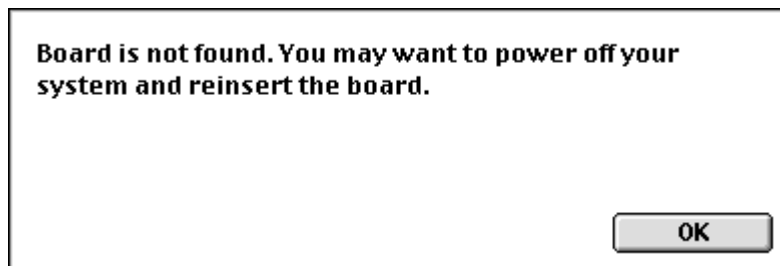
**The CB32 icon does not appear on the desktop!**

**Solution:**

It is natural a CB32 icon does not appear on the desktop.

### 4-2. The CB32 is not found

**When the SCSI configuration utility starts, the following window appears!**



**Check:**

1. Check to see that the CB32 is inserted into the PowerBook properly.
2. Try to reinstall the driver referring to **Installation of the Driver** (MPage 12).

### 4-3. SCSI configuration utility does not operate

**The SCSI configuration utility hangs up or an error happens!**

**Solution:**

1. Check to see that all SCSI devices connected to the CB32 are turned off.
2. Start the SCSI configuration utility from the place in the support software CD-ROM.

### 4-4. The Host System hangs up

**When transferring data, the PowerBook hangs up or does not boot-up!**

**Solution:**

1. Check to see if there is any problem with the SCSI cable.
2. Check to see that the terminator is an active terminator.
3. Check to see that the total length of the daisy chain is less than 1.5m.
4. Try to reduce the SCSI devices connected to the CB32.

**When removing the CB32, the PowerBook hangs up!**

**Solution:**

Check to see that the PowerBook is turned off before the CB32 is removed.

**After Sleep mode, the PowerBook hangs up or does not boot-up!**

**Solution:**

Macintosh does not support sleep mode for SCSI devices. Do not put PowerBook to sleep. Disable automatic sleep option in **Control Panels**.

### 4-5. The CB32 was inserted by wrong procedure

**The CB32 was inserted after turning on the PowerBook!**

**The SCSI device were not turned on before starting the PowerBook!**

**Solution:**

Rescan and mount the SCSI devices by a mounting utility as like **B's Crew Lite**. For more information on rescanning and mounting the SCSI device, refer to the mounting utility manual.

## 4-6. The CB32 was removed before Shut down

**The CB32 was removed before turnnig off the PowerBook!**

**Check:**

The PowerBook might hang up. Make sure the CB32, PowerBook and SCSI devices work correctly.

1. Turn off the PowerBook.
2. Insert the CB32 by correct procedure.
3. Turn on the PowerBook.
4. Make sure the CB32, PowerBook and SCSI devices work correctly.

## 4-7. Just can't boot OS from hard drive connected to CB32

You can't boot OS from hard drive connected to CB32.

It is because PC Cards will be recognized after OS finish booting up.

## 4-8. B's Crew Lite can't find SCSI devices connected to CB32

B's Crew Lite can't find SCSI devices connected to CB32 and when you connect SCSI devices to CB32, OS hangs up.

**Check:**

1. Turn off the SCSI devices.
2. Restart the PowerBook.
3. After restarting, Click **Rescan** button on the B's Crew Lite menu.
4. Turn on the SCSI devices.
5. Click **Rescan** button again.
6. If you have no response from it, SCSI devices connected to CB32 have problems.  
Reduce transfer speed and try to avoid this problem.

### **4-9. CB32 doesn't make much difference on transfer rate, compared to Internal SCSI bus.**

The point is your SCSI devices are operating at full throttle already.

Ask their makers for help.

If you ask us for help, measure how much time it takes to copy 50MB files to a hard drive in advance.

### **4-10. Though you connect Ultra Wide SCSI devices to CB32, the detailed info of B's Crew shows [SCSI-2], instead of [SCSI-3]**

This is because those SCSI devices return the value:[SCSI-2]

(ANSI version of Inquiry data) to your Macs and B's Crew just display the value [SCSI-2].

If SCSI devices return the value [SCSI-3], B's Crew will display the value [SCSI-3].

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# 5. Specifications

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## 5-1. Specifications of the CB32

### System Requirements

- Macintosh PowerBook equipped with CardBus-enabled PC Card slot  
Macintosh PowerBooks with CardBus-enabled PC Card slot as of August 1999 are as follows:  
Macintosh PowerBook G3/233,G3/250,G3/266,G3/292,G3/300,G3 333,G3 400
- MacOS 8.1, 8.5,8.6 or later

### Interface Type

- Single ended SCSI

### Bus Interface

- PC Card Standard (CardBus)

### Data Transfer Rate

- Up to 40MB/sec with Ultra Wide SCSI devices (synchronous)
- Up to 20MB/sec with Ultra SCSI devices (synchronous)
- Up to 10MB/sec with SCSI II devices (synchronous)
- Up to 132MB/sec between host and CB31

### Power Consumption

- Voltage +3.3V (Supplied from PC Card slot)
- 150mA (TYP) - at Reading/Writing
- 100mA (TYP) - at Idle

### Size

- PC Card Type II

### Termination Power

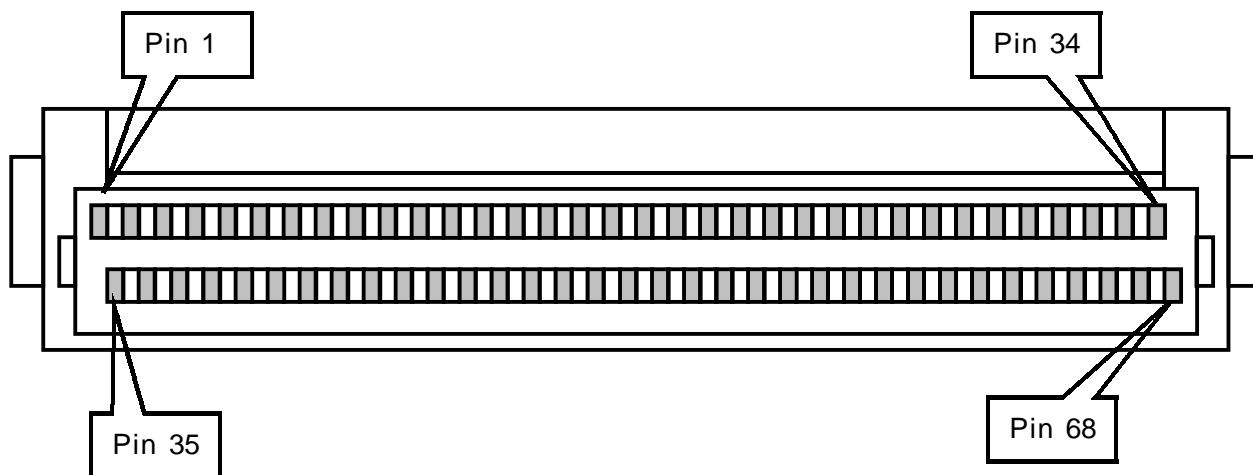
- Internal active termination provided

### 5-2. SCSI Connector(High-density 68-pin)

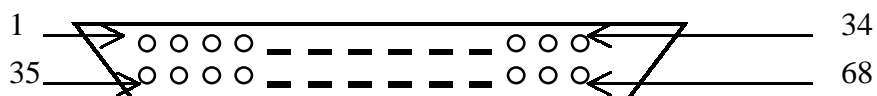
The following figure indicates the pin assignment of CB32 connector. The connector is a Hirose NX30H-68P, NX-68H-CV or compatible connector.

Do not use any other SCSI cable than the supplied cable.

PC Card SCSI Side:



SCSI Devices Side:High-density 68-pin male





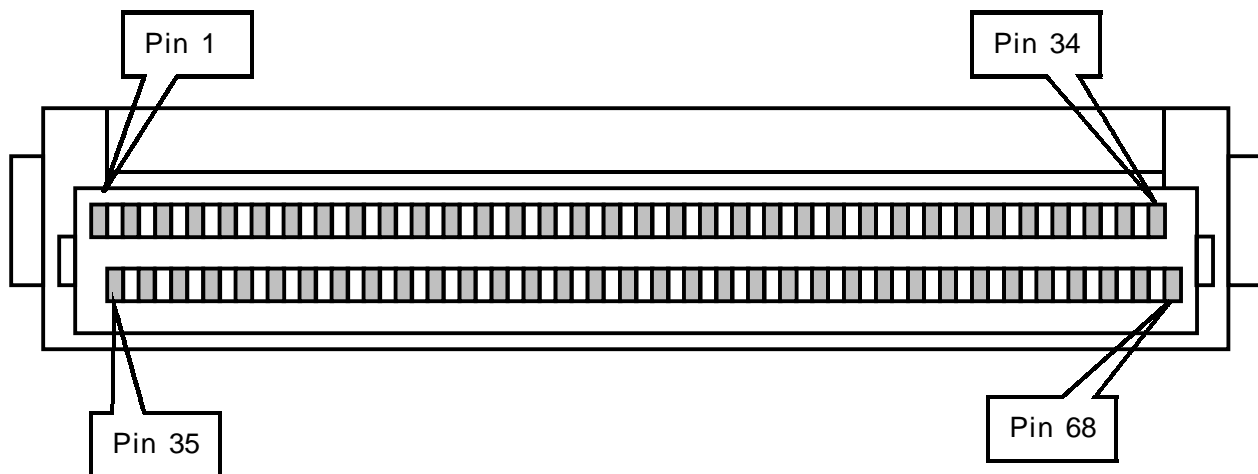
SIGNAL	Pin NO	Pin NO	SIGNAL
N/C	1	35	SCD12
N/C	2	36	SCD13
N/C	3	37	SCD14
N/C	4	38	SCD15
N/C	5	39	SCDP1
N/C	6	40	SCD0
N/C	7	41	SCD1
N/C	8	42	SCD2
N/C	9	43	SCD3
N/C	10	44	SCD4
N/C	11	45	SCD5
N/C	12	46	SCD6
N/C	13	47	SCD7
N/C	14	48	SCDP
GND	15	49	GND
GND	16	50	GND
TERMP	17	51	TERMP
TERMP	18	52	TERMP
N/C	19	53	N/C
GND	20	54	GND
GND	21	55	ATN-
GND	22	56	GND
GND	23	57	BSY-
GND	24	58	ACK-
GND	25	59	RST-
GND	26	60	MSG-
GND	27	61	SEL-
GND	28	62	CD-
GND	29	63	REQ-
GND	30	64	IO-
N/C	31	65	SCD8
N/C	32	66	SCD9
N/C	33	67	SCD10
N/C	34	68	SCD11

### 5-3. SCSI Connector(High-density 50-pin)

The following figure indicates the pin assignment of CB32 connector. The connector is a Hirose NX30H-68P, NX-68H-CV or compatible connector.

Do not use any other SCSI cable than the supplied cable.

PC Card SCSI Side:



SCSI Devices Side:High-density 50-pin male



Pin assign of High-density 50-pin connector

68 pin PC Card Side

SIGNAL	SCSI	Pin NO		Pin NO	SCSI	SIGNAL
N/C		1		35		N/C
N/C		2		36		N/C
N/C		3		37		N/C
N/C		4		38		N/C
N/C		5		39		N/C
GND		6		40	26	SCD0
GND		7		41	27	SCD1
GND		8		42	28	SCD2
GND		9		43	29	SCD3
GND		10		44	30	SCD4
GND		11		45	31	SCD5
GND		12		46	32	SCD6
GND		13		47	33	SCD7
GND		14		48	34	SCDP
GND		15		49		GND
GND		16		50		GND
TERMP	38	17		51	38	TERMP
TERMP	38	18		52	38	TERMP
N/C		19		53		N/C
GND		20		54		GND
GND		21		55	41	ATN-
GND		22		56		GND
GND		23		57	43	BSY-
GND		24		58	44	ACK-
GND		25		59	45	RST-
GND		26		60	46	MSG-
GND		27		61	47	SEL-
GND		28		62	48	CD-
GND		29		63	49	REQ-
GND		30		64	50	IO-
N/C		31		65	N/C	
N/C		32		66	N/C	
N/C		33		67	N/C	
N/C		34		68	N/C	

SCSI device side

SIGNAL	Pin NO	Pin NO	SIGNAL
GND	1	26	SCD0
GND	2	27	SCD1
GND	3	28	SCD2
GND	4	29	SCD3
GND	5	30	SCD4
GND	6	31	SCD5
GND	7	32	SCD6
GND	8	33	SCD7
GND	9	34	SCDP
GND	10	35	GND
GND	11	36	GND
GND	12	37	N/C
N/C	13	38	TERMP
GND	14	39	N/C
GND	15	40	GND
GND	16	41	ATN-
GND	17	42	GND
GND	18	43	BSY-
GND	19	44	ACK-
GND	20	45	RST-
GND	21	46	MSG-
GND	22	47	SEL-
GND	23	48	CD-
GND	24	49	REQ-
GND	25	50	IO-

