PE51EX

PCI Express to ExpressCard External Adapter

User's Manual

Rev.1.1



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Advisories

Three types of advisories are used throughout this manual to provide helpful information, or to alert you to the potential for hardware damage or personal injury. They are Note, Caution and Warning. The followings is an example of each type of advisory.



Used to amplify or explain a comment related to procedural steps or text.



Used to indicate and prevent the following step from causing injury.



Used to indicate and prevent the following procedure or step from causing damage to the equipment.

1 Introduction

Thank you for purchasing the RATOC PCI Express to ExpressCard Adapter. This device allows to use ExpressCard on a desktop computer. Normally ExpressCard is need to inserted into the ExpressCard slot before system boot and never allow to exchange ExpreassCard after system boot both Windows PC and MAC pro. This product provide ExpressCard Hot-plug capable driver for Windows PC and MAC Pro. To install ExpressCard Hot-plug driver you can exchange ExpressCard at any time.

1-1.Feature

- > To assure PCI Express signal quality signal repeater is located on the PCI Express board.
- > To enable ExpressCard Hot-Plug capability Hot-Plug driver is provided for Windows PC and MAC Pro.
- Recommended as a SxS Pro compliant product on the web site below. https://www.oss-formats.org/en/sxs/outline/index.html

1-2.Pre-Installation Information

Before using ExpressCard adapter you should perform the following steps:

- 1. Inventory the shipping carton contents for all of the required parts
- 2. Read this manual

1-3.Package Contents

	A CONTRACTOR	e la se	
ExpressCard Adapter	PCI Express add-in card	Low Profile bracket	PCI Express extension Cable
\bigcirc		If any of these items	are missing, contact the
CD-ROM	Manual	supplier immediately.	3, 11 11 11

1-4.System Requirements

Supported Operating System

Windows 7 / Windows Vista / Windows XP(x32/x64, Latest Service Pack should be installed) Mac OSX 10.4.11 or later / 10.5.6 or later / 10.6 or later

> Supported Computer

Windows PC PCI Express slot equipped.

Intel Mac Pro

1-5.Supported ExpressCard

ExpressCard/34 (ExpressCard/54 is not supported.)

- Sony SxS Card
 - SxS Pro SBP-8/SBP-16, SxS-1 SBS-32G1
- Sony MemoryStick DUO Adapter MSAC-EX1



For the latest information, go to our web site. http://www.ratocsystems.com/english

1-6.Layout



2 Setup

2-1.Installing the PCI Express add-in card and ExpressCard adapter

Shut down all power connected to the host computer



As an added step to ensure safe installation, unplug the power supply from the computer.

After the host computer is off and all power cords disconnected, remove the cover and insert the card into a vacant PCI Express slot by gently pushing the card until it is firmly seated. Be sure to secure the card with a retaining screw.



Mac Pro



Electrostatic Discharge (ESD) is the enemy of semiconductor devices. You should always take precautions to eliminate any electrostatic charge from your body and clothing before touching any semiconductor device or card by using an electrostatic wrist strap and/or conductive mat.

Connect PCI Express add-in card and ExpressCard Adapter by the PCI Express extension cable



PCI Express extension cable



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If PCI Express slot of your computer is low profile, you need to change the bracket of PCI Express add-in card to low profile bracket



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2-2.Windows Software Installation Steps



> Installation Steps

Following steps are example under Windows 7.

Insert provided CD into your disc drive. You will see the AutoPlay dialog box, click "Run RATOC-PE51HotPlugTool-Setup.exe".



Under Windows 7 or Windows Vista you will see "User Account Control" dialog box. Click "Yes" button.





Confirm the destination location and click	RATOC PE51EX HotPlug Tool - InstallShield Wizard
"Next >" button.	Choose Destination Location Select folder where setup will install files.
	InstallShield
	Kext > Cancel
Click "Install" button.	RATOC PESIEX HotPlug Tool - InstallShield Wizard Ready to Install the Program The wizard is ready to begin installation. Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
	InstallShield
Security warning message will be shown	Windows Security
up.	Would you like to install this device software?
Click "Install" button.	Name: RATOC Systems,Inc. Otherdevices Publisher: RATOC Systems, Inc.
	<u>A</u> lways trust software from "RATOC Systems, Inc.". <u>Install</u> Don't Install You should only install driver software from publishers you trust. <u>How can I decide</u> which device software is safe to install?

Installation complete. Select "Yes, I want to restart my computer now" and click "Finish" button.

RATOC PE51EX HotPlug Tool - InstallShield Wizard		
	InstallShield Wizard Complete The InstallShield Wizard has successfully installed RATOC PE5TEX HotPlug Tool. Before you can use the program, you must restart your computer. • Yes, I want to restart my computer now: • No, I will restart my computer later.	
	< <u>B</u> ack Finish Cancel	

After system restart PE51EX HotPlug Tool icon will stay on TaskBar.





Under Windows 7 HotPlug Tool icon is hide. You should change the setting to view hide icon at any time from the "Customize..." menu.



Change the setting from "Only show notification" to "Show icon and notifications".





You can confirm installation complete successfully or not by Device Manager as follows.



You will see Device Manager. Select "devices by connection" from view menu.

Insert SxS Card.

If you can find "SxS Memory Card" under the "PCI Express standard Upstream Switch Port", installation complete successfully.



➤Uninstallation Steps

Following steps are example under Windows 7.



2-3.MAC Software Installation Steps

Insert the provided CD into your disc drive. You will see following file and double click.

- Mac OS 10.4 : PE51_Device_Driver104x.dmg
- Mac OS 10.5 or 10.6 : PE51_Device_Driver.dmg

Installation Steps

Followings are installation steps under Mac OS 10.6.

Double click the "PE51_Driver_Installer" icon and installation will be start.



Enter your name and password.	
Click "OK" button.	Type your password to allow Installer to make changes.
	Name: ratoc
	Details Cancel OK
Confirm system restart message and click "Continue Installation" button.	When this software finishes installing, you must restart your computer. Are you sure you want to install the software now? Cancel Continue Installation
Installation complete message will be	\varTheta 🔿 🔿 😜 Install PE51 Device Driver
displayed, click "Restart" button.	The installation was completed successfully.
	 Introduction Destination Select Installation Type Installation Summary The installation was successful. The software was installed. Click Restart to finish installing the software.
	Go Back Restart



You can confirm installation complete successfully or not by the system profiler as follows.

- 1. Run the system profiler under utility folder of application.
- 2. Open "PCI Cards" on the Hardware as show below.
- 3. If five kinds of driver is installed, installation complete successfully.

000			N	lac Pro			
doi akinori の Mac Pro							09/12/11 16:52
Contents	T	Card		Type	Driver Installed	Bus	Slot
▼ Hardware	0	NVIDIA GeForce 7	300 CT	display	Yes	PCI	Slct-1
ATA		pci-bridge		PCI-to-PCI Bridge	Yes	PCI	Slct-3
Audio (Built In)	111	pci-bridge		PCI-to-PCI Bridge	Yes	PCI	Slct-3
Bluetooth	111	pci-bridge		PCI-to-PCI Bridge	Yes	PCI	Slct-3@13,0,0
Diagnostics	111	pci1217,2ef		USB Open Host Controller	Yes	PCI	Slct-3@16,0,0
Disc Burning	111	pci1217,2f1		USB Enhanced Host Controller	Yes	PCI	Slct-3@16,0,1
FireWire Graphics/Displays Hardware KAID Memory PCI Cards		pci-bridge: Type: Driver Installed: Bus: Slot: Vendor ID:	PCI-to-PCI Bridge Yes PCI Slot-3 0x1217	1			
Parallel SCSI Power Printers SAS	Ļ	Device ID: Revision ID: Link Width: Link Speed	0x02e0 0x0001 x1 2.5 GT/s				
USB	Ψ						

➤Uninstallation Steps

Followings are uninstallation steps under Mac OS 10.6.

Insert provided CD into your disc drive. You will see following file and double click.

- Mac OS 10.4 PE51_Device_Driver104x.dmg
- Mac OS 10.5 or 10.6 PE51_Device_Driver.dmg

Double click "PE51_Driver_Uninstaller" icon	O O O PE51 Device Driver
and uninstallation will be start.	又 項目、8.9 MB 空き
	🥪 💙 炎
	PE51_Driver_Installer PE51_Driver_Uninstaller
Enter your name and password.	
Click "OK" button.	Type your password to allow PE51_Driver_Uninstaller to make changes.
	Name: ratod
	► Details
	(?) Cancel OK
Uninstallation complete message will be	
displayed and click "OK" button.	Device Driver was deleted.
	ОК

3 SxS Card (EpressCard) HotPlug Operation

3-1.Install SxS Card driver (3rd Party ExpressCard driver)

You need to install SxS Card driver (or 3rd party card driver) before insert SxS Card to PE51EX ExpressCard Slot. Please follow the steps of SxS Card install manual.

> Example (Windows PC)

Insert SxS Card to the slot and start balloon message will be displayed.



3-2. Windows PC SxS Card Remove operation

Step.1

You must stop SxS Card from HotPlug Tool icon menu first before remove SxS Card from the slot.

SxS Card stopped balloon message will be displayed. Now you can remove SxS Card from the slot safely.





Step.2

Push out the eject lever(①), push the eject lever(②) again and pull out the SxS Card(③).



If you remove SxS Card without above step.1 operation, Windows system will be freeze. Don't remove SxS Card suddenly.

3-3. Mac Pro ExpressCard Remove operation

Sony SxS Card

Step.1

box.





Step.2

Push out the eject lever(①), push the eject lever(②) again and pull out the ExpressCard(③).



If you remove ExpressCard without above step.1 operation, system will be freeze. Don't remove ExpressCard suddenly.

Other ExpessCard

Step.1

Select "Power off Card" from the PC Card icon of menu bar.



Push out the eject lever(①), push the eject lever(②) again and pull out the ExpressCard(③).



If you remove ExpressCard without above step.1 operation, system will be freeze. Don't remove ExpressCard suddenly.







4 Troubleshooting

You can visit the RATOC Technical Support FAQ pages on the Internet at : www.ratocsystems.com/english/support/faq/pe51u.html

Below is a listing of commonly asked questions and basic troubleshooting steps.

Q1 : SxS Card not recognized

≻Answer

Please confirm SxS Card is recognized on Device Manager as follows.

 Open Device Manager and select
 "devices by connection" from view menu.
 Please refer page.9.

2. Select "devices by connection"

from view menu of Device Manager.

9999999	NOTE
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"?" mark is displayed at "REX-PE51 System Device", but this is not a problem.

3. If "SxS Memory Card" is not recognized, please check followings.

- a) Make sure PCI Express extension cable is connected to add-in card and SxS Card slot as explained at page.5?
- b) Change PCI Express slot where add-in card is inserted as a trial.
- c) Make sure SxS Card driver is installed?

Device Manager	
ile <u>A</u> ction <u>V</u> iew <u>H</u> elp	
• 🔿 🖬 🚺 🗊 😥	
4 🚔 Intel-Dx58S0	~
⊿ 📲 ACPI x86-based PC	
Microsoft ACPI-Compliant System	
Intel(R) Core(TM) i7 CPU 920 @ 2.67GHz	
Intel(R) Core(TM) i7 CPU 920 @ 2.67GHz	
Intel(R) Core(TM) i7 CPU 920 @ 2.67GHz	=
Intel(R) Core(TM) i7 CPU 920 @ 2.67GHz	
Intel(R) Core(TM) i7 CPU 920 @ 2.67GHz	
Intel(R) Core(TM) i7 CPU 920 @ 2.67GHz	
▲ I PCI bus	
Advanced programmable interrupt controller	
▷ 1 High Definition Audio Controller	
High precision event timer	
Intel(R) 5520/5500/X58 I/O Hub Control Status and RAS Regist	ers - 3423
Intel(R) 5520/5500/X58 I/O Hub GPIO and Scratch Pad Register	rs - 3422
Intel(R) 5520/5500/X58 I/O Hub PCI Express Root Port I - 3408	
PCI Express standard Upstream Switch Port	
PCI Express standard Downstream Switch Port	
Some Sec	
Sony 3x5	
REX-RE51 System Device	
CI/PCI-X Bridge	
Standard Enhanced PCI to USB Host Controller	
USB Root Hub	
A - Standard OpenHCD USB Host Controller	
USB Root Hub	
Intel(R) 5520/5500/X58 I/O Hub PCI Express Root Port 3 - 340A	
Intel(R) 5520/5500/X58 I/O Hub PCI Express Root Port 7 - 340F	
Intel(R) 5520/5500/X58 I/O Hub System Management Register	rs - 342E +

≻Answer

Step.1

1. Open Device Manager and select "devices by connection" from the view menu.

Please refer page.9.

2. If yellow "!" mark is displayed on the PCI Express Root Port, memory resource required by PE51EX conflicts with another device.



PCI Express Root Port number "2660" will be different depend on your environment.

_ 0 × 🚔 Device Manager File Action View Help 🧼 🏟 📅 🚺 🖬 📢 ACPI x86-based PC Microsoft ACPI-Compliant System ACPI Fixed Feature Button Intel(R) Pentium(R) 4 CPU 3.00GHz Intel(R) Pentium(R) 4 CPU 3.00GHz PCI bus > 1 Intel(R) 82801 PCI Bridge - 244E Intel(R) 82801FB LPC Interface Controller - 2640 Intel(R) 82801FB Ultra ATA Storage Controllers - 2652 Intel(R) 82801FB/FBM PCI Express Root Port - 2660 💻 Intel(R) 82801FB/FBM PCI Express Root Port - 2662 Intel(R) 82801FB/FBM PCI Express Root Port - 2664 Intel(R) 82801FB/FBM PCI Express Root Port - 2666 Intel(R) 82801FB/FBM Ultra ATA Storage Controllers - 266F ▷ - 🟺 Intel(R) 82801FB/FBM USB Universal Host Controller - 2658 ▶ 🖶 Intel(R) 82801FB/FBM USB Universal Host Controller - 2659 Intel(R) 82801FB/FBM USB Universal Host Controller - 265A Intel(R) 82801FB/FBM USB Universal Host Controller - 265B Intel(R) 82801FB/FBM USB2 Enhanced Host Controller - 265C Intel(R) 925X/XE Memory Controller Hub - 2584 AAFW AVE BOT

Step.2

To solve memory resource conflict issue follow the steps below.

1.Select "devices by connection" from the view menu.

2.You will find "80000000-FFFFFFF" is assigned for the PCI bus. And "80000000-D76FFFFF" is free area

3. This means that you can assign memory range "80000000-D76FFFFF" to PE51EX.

	A Device Manager				X
	File Action View	Help		T	
		Devices by type			
		Devices by connecti	ion		_
	Direct	Benees by connect			
	Input	Resources by type			
	A Mem	Resources by conne	ction		
	01 🔳				
	⊳ -1, 🛄 [0	Show hidden device	15		
	1 !!! [0				
		Customize			
	10010000	0 - 7FFFFFFF] System bo	ard		
	1 [800000	0 - FFFFFFFF] PCI bus			
	<u>1</u> . [D77	00000 - D77FFFFF] Intel(F) 82801 PCI Bridge	- 244E	
		00000 - D7CFFFFF] Intel(() 82801FB/FBM PC	I Express Root Port - 2660	
	1¶ [D7D	00000 - D7DFFFFF] Intel(R) 82801FB/FBM PC	CI Express Root Port - 2662	
		00000 - D7EFFFFF] Intel(F	.) 82801FB/FBM PC	I Express Root Port - 2664	
_		00000 - D7FFFFFF] Intel(F) 82801FB/FBM PC	I Express Root Port - 2666	
	⊳ . ¶ . [D80	00000 - DFFFFFFF] Intel(F) 925X/XE PCI Expr	ess Root Port - 2585	
	⊳ - 1 ₩ [E000	00000 - EFFFFFFF] Mothe	board resources		
		00000 - FEC00FFF] Moth	rboard resources		
		13000 - FED13FFF] Moth	rboard resources		
		14000 - FED17FFF] Moth	rboard resources		
		18000 - FED18FFF] Moth	rboard resources		
	IFED:	19000 - FED19FFFJ Moth	rboard resources		
	IFED:	1C000 - FED1FFFFJ Moth	erboard resources		
	IFED.	20000 - FED9FFFFJ Moth	rboard resources		
		00000 - FEE00FFFJ Mothe	board resources		
	UFFOR	FF800 - FF0FFBFFJ Intel(K	82801FB/FBM USE	32 Enhanced Host Controller - 265C	
		FFC00 - FF0FFFFFJ Intel(R	82801FB Ultra AT	A Storage Controllers - 2652	
		00000 - FFIFFFFJ Intel(K	82801 PCI Bridge -	- 244E	
		00000 - FF6FFFFJ Intel(R	82801FB/FBM PCI	Express Root Port - 2660	
		00000 - FF/FFFFFJ Intel(K	82801FB/FBM PCI	Express Root Port - 2662	
		JUUUU - FF8FFFFFI Intel(R	82801FB/FBM PCI	Express Root Port - 2004	

Step.3

1.Right click **HotPlug Tool** icon on TaskBar and select "Settings".



2. Dialog to edit memory resource range will be shown up.

From here you can assign memory range "80000000-D76FFFFF" to PE51EX.

Enter "800" in the start address, "D76" to the end adress and "002" to the memory size.

Click "OK" button.

3. Finally restart dialog will be shown up. Click "Yes" button.

E51EX HotPlug Tool	
StartUp	arted when system starts.
Memory Start Address	0x 800 00000
End Address	0x D76 FFFFF
Memory Size	0x 002 00000
ОК	Cancel

PE51EX Ho	tPlug Tool	x
	Memory allocation was chan Do you restart now?	nged.
	<u>Y</u> es	No

Step.4

1. Confirm device manager after reboot your system.

If memory resource issue is worked out, yellow "!" mark which was on "PCI Express Root Port -2660" is not displayed any more.

- 🐣 Device Manager _ 🗆 🗙 File Action View Help 🔶 🧼 📰 🔄 🔢 🖬 🛝 🕼 🐙 🕷 Interrupt request (IRQ) Memory 19 [00000000 - 0009FFFF] System board 1 [000A0000 - 000BFFFF] PCI bus 📜 [000C0000 - 000DFFFF] System board 🖳 [000E0000 - 000FFFFF] System board [00100000 - 7FFFFFF] System board E 18000000 - FEFEFEEI DCL ▶ 💵 [D6D00000 - D71FFFFF] Intel(R) 82801FB/FBM PCI Express Root Port - 2660 🚛 [D/200000 - D/6FFFFF] Intel(R) 82801FB/FBM PCI Express Root Port - 2660 ID7700000 - D77FFFFF] Intel(R) 82801 PCI Bridge - 244E ID7D00000 - D7DFFFFF] Intel(R) 82801FB/FBM PCI Express Root Port - 2662 [D7E00000 - D7EFFFFF] Intel(R) 82801FB/FBM PCI Express Root Port - 2664 ID7F00000 - D7FFFFFF] Intel(R) 82801FB/FBM PCI Express Root Port - 2666 | [D8000000 - DFFFFFF] Intel(R) 925X/XE PCI Express Root Port - 2585 [E0000000 - EFFFFFF] Motherboard resources IFEC00000 - FEC00FFF] Motherboard resources IFED13000 - FED13FFF1 Motherboard resources [FED14000 - FED17FFF] Motherboard resources [FED18000 - FED18FFF] Motherboard resources IFED19000 - FED19FFF1 Motherboard resources [FED1C000 - FED1FFF] Motherboard resources [FED20000 - FED9FFFF] Motherboard resources [FEE00000 - FEE00FFF] Motherboard resources [FF0FF800 - FF0FFBFF] Intel(R) 82801FB/FBM USB2 Enhanced Host Controller - 265C a IFF0FFC00 - FF0FFFF1 Intel(R) 82801 FB Ultra ATA Storage Controllers - 2652
- 2. Insert SxS Card and confirm "SxS Memory Card" is displayed on device manager.



≻Technical Specification

-	
Model Number	PE51EX
Product name	PCI Express to ExpressCard External Adapter
PCI Express BUS Interface	PCI Express Specification Revision 1.1 PCI Express x1 Lane, 2.5Gbps
ExpressCard BUS Interface	ExpressCard Standard Release 1.0 PCI Express(2.5Gbps), USB2.0(480Mbps)
ExpressCard slot	1 slot ExpressCard/34
Max power supply capability	Max.1300mA/3.3V
(to ExpreassCard)	Max.275mA/3.3Vaux
	Max.650mA/1.5V
Dimension	ExpressCard Adapter
	120(L) X 103.6(W) X 27.4(H)
	PCI Express add-in card
	65.3(L) X 69.8(W) X 1.6(T)
Weight	Total 760g
Operating Environment	0°C to 40°C Operating Temperature
	-20°C to 60°C Storage Temperature
Operational Humidity	20 to 85% Relative Humidity, Non-condensing
Support OS	Windows 7 / Windows Vista / XP (x32/x64)
	(Latest Service Pack should be installed)
	Mac OSX 10.4.11 or later / 10.5.6 or later / 10.6 or later
Supported Computer	Windows PC PCI Express slot equipped.
	Intel Mac Pro
Regulatory Compliance	RoHS
	FCC Class B Verified
Warranty	1 Year

≻Compliance

- FCC

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 followingmeasures:

- (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.

- CE

The product(s) described in this manual complies with all applicable European Union (CE) directives (EN55022 Class B/EN55024). RATOC will not retest or recertify systems or components that have been reconfigured by customers.



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