



# PCI-Express Dual Port 10 Gigabit LAN Card Instruction Manual (Model: CN7821-Y)

## FASTFIND LINKS

[Document Organization](#)

[Getting Help](#)

[Contents](#)

 Hitachi Data Systems

MK-90CRS011-01

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# Contents

Regulatory compliance notices .....	vi
Federal communications commission (FCC) compliance (U.S.A) .....	vi
Canadian compliance statement (Canada) .....	vi
European union notice (EU).....	vi
Acoustics noise (Germany) .....	vi
Product recycling and disposal (EU and Norway) (Waste Electrical and Electronic Equipment Directive 2002/96/EC [WEEE]) .....	vii
Chinese RoHS.....	vii
電波障害自主規制 (Japan) .....	viii
Class A emission statement (Korea) .....	viii
BSMI compliance (Taiwan) .....	viii
Laser compliance notice .....	viii
International compliance .....	ix
Intended audience .....	x
Document revision level.....	x
Document organization .....	x
Document conventions .....	xi
Safety information.....	xi
Getting help.....	xi
Comments .....	xii
Safety information.....	xiv
Common precautions concerning safety .....	xv
General safety precautions.....	xv
Precautions against damage to this product.....	xv
Precautions Marks in This Manual .....	xvi
<b>Before use .....</b>	<b>1-1</b>
For your confirmation .....	1-2
<b>Product overview.....</b>	<b>2-1</b>
Features .....	2-2

Names and function of components .....	3-1
Names and functions .....	3-2
Installing the Card .....	4-1
System configuration and installation procedure.....	4-2
How to connect the Card .....	4-2
Connecting a LAN cable.....	4-2
Installing a driver .....	5-1
Windows 2008 R2 environment .....	5-2
Procedure for installing the driver for Windows 2008 R2 .....	5-2
Troubleshooting .....	6-1
Specifications.....	7-1
Hardware specifications .....	7-2



# Preface

This manual describes how to install and handle the Hitachi PCI-Express Dual Port 10 Gigabit LAN Card (hereinafter referred to as the LAN Card).

- [Regulatory compliance notices](#)
- [Intended audience](#)
- [Document revision level](#)
- [Document organization](#)
- [Document conventions](#)
- [Safety information](#)
- [Getting help](#)
- [Comments](#)

**Notice:** The use of the Compute Rack is governed by the terms of your agreements with Hitachi.

## Regulatory compliance notices

### Federal communications commission (FCC) compliance (U.S.A)

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

The user is cautioned that changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

### Canadian compliance statement (Canada)

This Class A digital apparatus complies with Canadian ICES-003.  
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

### European union notice (EU)

Products with the CE Marking comply with both the EMC Directive (2004/108/EC) and the Low Voltage Directive (2006/95/EC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms (the equivalent international standards are in parenthesis):

- EN55022 Class A Limit-Electromagnetic Interference
- EN55024 (EN61000-4-2, 3, 4, 5, 6, 8, 11)-Electromagnetic Immunity
- EN61000-3-2, 12-Power Line Harmonics
- EN61000-3-3-Power Line Flicker
- EN60950-1 (IEC60950-1)-Product Safety

Warning: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### Acoustics noise (Germany)

Maschinenlärminformations-Verordnung - 3. GPSGV, der höchste Schalldruckpegel beträgt 63 dB(A) oder weniger gemäss EN ISO 7779.

## Product recycling and disposal (EU and Norway) (Waste Electrical and Electronic Equipment Directive 2002/96/EC [WEEE])

The following mark on Products indicates that these Products are to be collected separately and to be recycled or discarded according to applicable local and national regulations. For further information regarding return, collection, recycle or disposal, please contact your sales company where you purchased the Products.



Note: The above regulation / marking applies only to countries within the European Union (EU) and Norway.

## Chinese RoHS

有毒有害物质和元素的名称及含量

零件名称	有毒有害物质和元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
伺服器底座	×	○	○	○	○	○
刀鋒型伺服器	×	○	○	○	○	○
管理模块	×	○	○	○	○	○
局域网交换机模块	×	○	○	○	○	○
光纤交换机模块	×	○	○	○	○	○
网络路径模块	×	○	○	○	○	○
电源模块	×	○	○	○	○	○
分电盘	×	○	×	○	○	○
<p>○：表示该零件的所有均质材料中的有毒有害物质的含量在 SJ/T 11363-2006 标准规定的限量范围内。</p> <p>×：表示该零件的某一均质材料中的有毒有害物质的含量超出 SJ/T 11363-2006 标准规定的限量范围。</p>						

## 電波障害自主規制 (Japan)

本製品は、クラス A 情報技術装置です。本製品を家庭環境で使用すると電波障害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI-A

## Class A emission statement (Korea)

이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

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Manufacturer / 제조자 : HITACHI, LTD.

Origin / 제조국 : Japan / 일본

## BSMI compliance (Taiwan)

### 法規遵循公告



警告使用者：  
此為甲類資訊技術設備，於居住環境中使用時，可能會造成射頻擾動，在此種情況下，使用者會被要求採取某些適當的對策。

## Laser compliance notice

This product may be provided with an optical storage device (that is, CD or DVD drive) and/or fiber optic transceiver. Each of these devices contains a laser that is classified as a Class 1 Laser Product.



## International compliance

No	Standard / Marking	Classification	Country
1	UL 60950-1 	Safety	U.S.A
2	FCC 47 CFR Part 15 Class A Limit <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:              (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.</p> </div>	EMC	
3	<b>EMC Directive</b> (2004/108/EC, formerly 89/336/EEC) EN55022 Class A Limit EN55024 EN61000-3-2, EN61000-3-12 EN61000-3-3 <b>Low Voltage Directive</b> (2006/95/EC, formerly 73/23/EEC) EN60950-1 	Safety / EMC	Europe
4	CB IEC 60950-1	Safety	International

## Intended audience

This document is intended for the personnel who are involved in planning, managing, and performing the tasks to prepare your site for Compute Rack installation and to install the same.

This document assumes the following:

- The reader has a background in hardware installation of computer systems.
- The reader is familiar with the location where the Compute Rack will be installed, including knowledge of physical characteristics, power systems and specifications, and environmental specifications.

## Document revision level

Revision	Date	Description
00	May 2012	Preliminary release
01	December 2012	Secondary release

## Document organization

The table below provides an overview of the contents and organization of this document. Click the chapter title in the left column to go to that chapter. The first page of each chapter provides links to the sections in that chapter.

Chapter	Description
Chapter 1, <a href="#">Before use</a>	Describes what you should be familiar with before connecting and setting this Card.
Chapter 2, <a href="#">Product overview</a>	Describes the product overview.
Chapter 3, <a href="#">Names and function of components</a>	Describes the names and functions of components of this Card. Read this chapter before you install the Card on the system unit.
Chapter 4, <a href="#">Installing the Card</a>	Describes how to install the Card on the system unit.
Chapter 5, <a href="#">Installing a driver</a>	Describes how to install the network driver of the LAN Card in the Windows 2008 R2 environment.
Chapter 6, <a href="#">Troubleshooting</a>	Describes how to address malfunctions of the LAN Card.
Chapter 7, <a href="#">Specifications</a>	Describes main specifications of the Card.

## Document conventions

The term "Compute Rack" refers to all the models of the Compute Rack, unless otherwise noted.

This document uses the following typographic conventions:

Convention	Description
<b>Bold</b>	Indicates text on a window, other than the window title, including menus, menu options, buttons, fields, and labels. Example: Click <b>OK</b> .
<i>Italic</i>	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: <i>copy source-file target-file</i> <b>Note:</b> Angled brackets (< >) are also used to indicate variables.
screen/code	Indicates text that is displayed on screen or entered by the user. Example: # <code>pairdisplay -g oradb</code>
< > angled brackets	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: # <code>pairdisplay -g &lt;group&gt;</code> <b>Note:</b> Italic font is also used to indicate variables.
[ ] square brackets	Indicates optional values. Example: [ a   b ] indicates that you can choose a, b, or nothing.
{ } braces	Indicates required or expected values. Example: { a   b } indicates that you must choose either a or b.
vertical bar	Indicates that you have a choice between two or more options or arguments. Examples: [ a   b ] indicates that you can choose a, b, or nothing. { a   b } indicates that you must choose either a or b.
<u>underline</u>	Indicates the default value. Example: [ <u>a</u>   b ]

## Safety information

Before replacement, read the Safety Guidelines in this document.

## Getting help

When you contact Hitachi Data Systems, provide as much information about the problem as possible, including:

- The circumstances surrounding the error or the failure
- The exact content of any error message displayed on the host system Compute Rack
- The service information messages, including reference codes and severity levels, displayed and/or logged at the Compute Rack

The Hitachi Data Systems support staff are available 24 hours a day, seven days a week. For technical support, visit the portal site at <https://portal.hds.com>. For contact information, visit [www.hds.com](http://www.hds.com).

## Comments

Please send us your comments on this document, if any, by e-mail to: [doc.coments@hds.com](mailto:doc.coments@hds.com).

Make sure that the e-mail includes the document title and number, revision, and section(s) and paragraph(s) whenever possible.

***Thank you!*** (All comments become the property of Hitachi.)



# Safety guidelines













This section contains warnings and important safety guidelines for using a Hitachi Compute Rack System. Read and understand the information in this section before removing, replacing and installing system components.

This section includes the following key topics:

- [Safety information](#)
- [Common precautions concerning safety](#)
- [General safety precautions](#)
- [Precautions against damage to this product](#)
- [Precautions Marks in This Manual](#)

## Safety information

This document uses the following symbols to emphasize certain information.

Symbol	Label	Description
	WARNING	This indicates the presence of a potential risk that might cause death or severe injury.
	CAUTION	This indicates the presence of a potential risk that might cause relatively mild or moderate injury.
<b>NOTICE</b>	NOTICE	This indicates the presence of a potential risk that might cause severe damage to the equipment and/or damage to surrounding properties.
	Note	This indicates notes not directly related to injury or severe damage to equipment.
	Tip	This indicates advice on how to make the best use of the equipment.
	Fire Hazard	This warns fire hazard. Take appropriate precautions to prevent the risk of catching a fire.
	Electric Shock Hazard	This warns electric shock hazard. Failure to take appropriate precautions could result in serious injury or death.
	Hot Surface	Hot Surface indicates the risk of a serious burn by high temperature.
	Laser Hazard	This warns laser hazard. Failure to take appropriate precautions could result in invisible laser radiation.
	General Prohibition Sign	This indicates the general prohibition.
	Disassembly Prohibition Sign	This indicates not to allow customer to disassemble component.
	General Mandatory Sign	This indicates a general action to take. Action by following the instructions in this guide.
	Unplug Power cord	This indicates unplugging the power cable from the outlet to avoid electric shock and fire.

## Common precautions concerning safety

Please carefully read through these safety instructions to follow:

- When operating the equipment, follow the instructions and procedures provided in the manual.
- Be sure to follow notes, cautionary statements and advice indicated on the equipment or in the manual.
- Referring to manuals attached to other products which you install in or connect to the equipment, follow the instructions described in those manuals.

Failure to follow those instructions can cause injury, fire or damage to property including the equipment.

## General safety precautions

---



### Plastic shipping bag

Do not leave the plastic shipping bag of this product such as Air Cap within reach of children. If they get the bag over their head, they can be suffocated.

---



### Laser beam

This product emits laser beam. Do not disassemble or modify this product. Or do not peer inside. Doing so may cause visual loss or blindness. (The laser beam cannot be seen by your eyes.)

---

## Precautions against damage to this product

---



### Impact due to dropping, etc

Avoid excessive impact such as dropping or banging the equipment. Deformation or deterioration may occur, which may cause smoke or malfunction.

---



### Contact with connector terminals

Never touch connector terminals with hand or with a metal. Nor insert a foreign material such as wire. Also, do not put this product on metal chips. Otherwise, smoke or contact failure may be caused.

---



### Contact with connector terminals

Never touch connector terminals with hand or with a metal. Nor insert a foreign material such as wire. Also, do not put this product on metal chips. Otherwise, smoke or contact failure may be caused.

---



### Countermeasure against static electricity

Before handling this product, discharge static electricity from your body by

---

---

touching a metallic part such as a door knob, or wear cotton gloves. Otherwise, static electricity may damage the equipment.

---



### **Mounting this product**

Mount and use this product in a system unit that supports installation and operation of this product. If mounted in any other system, this product causes a failure due to difference in connection specifications. For information about which system units support this product, see the manual of the individual system unit.

---

## **Precautions Marks in This Manual**

---



Not used in this manual.

---



### **Signal cables**

- Lay the cables carefully to prevent your foot from being snagged by them. If you stumble over the cable, it may cause personal injury or malfunction of the connection devices. Also it may cause the data to be lost.

- Do not put something heavy on the cable. Do not lay the cable near a heater. The cable coating may be damaged which may cause a failure of the connected equipment. See page 4-2 Connecting a LAN cable.

---



### **Laser beam**

- On this product, a Class 1 laser defined by IEC60825-1 product is installed. Do not look directly at the laser beam. Do not look at the laser beam using an optical device.

- Under the laser module cover, a laser beam is being emitted. Do not remove the cover of an unused card.

---

**NOTICE**

Not used in this manual.

---



## Before use

This chapter provides the information you have to know before connecting and setting the LAN Card.

- [For your confirmation](#)

## For your confirmation

Confirm the following matters before use. If you should have a problem with the product, contact the sales representative.

- Is it the model or type you ordered?
- Are there any parts damaged during shipping?
- Are all the accessories of the Accessory List included in the package?  
If an enclosed sheet of additional information is included, be sure to read it.

## Product overview

This chapter describes the product overview.

- [Features](#)

## Features

This card is used by being attached to the PCI-Express expansion slot (hereinafter referred to as PCI slot) of the system unit. This product has the following features.

- It supports 10GBASE-SR(IEEE802.3ae) and equipped with 2 ports for network interface connectors.
- It is connected with the cable of Multi Mode Fibre.



PXE/iSCSI boot:  
This Card does not support a PXE/iSCSI boot.

---



Wake On LAN:  
This Card does not support Wake On LAN.

---



PCI Hot-Plug function:  
This Card does not support a PCI Hot-Plug function.

---



Teaming:  
When you create LAN teaming, please use double of this card. Teaming with 1GLAN Card is not supported.

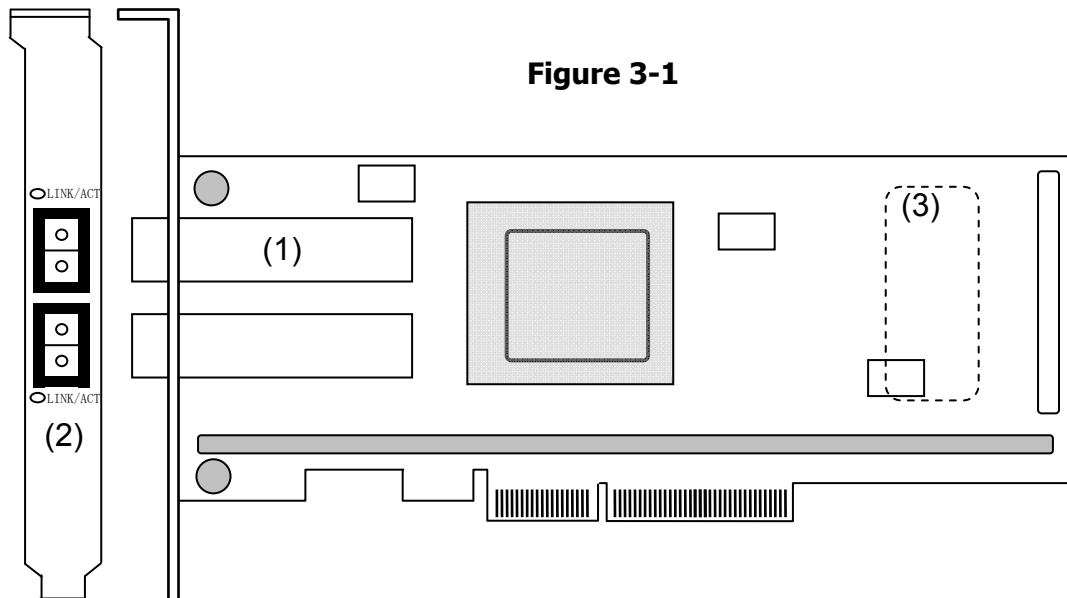
---

## Names and function of components

This chapter describes the names and functions of components of this Card. Read this chapter before you install the Card on the system unit.

- [Names and functions](#)

## Names and functions



(1) SFP+ module

(2) ACT/LNK LED

LED	Color	Status	Indication
ACT/LNKx (Portx:A or B)	Green	On	Established a link
		Blink	Now sending/receiving data
	-	Off	Not establish a link

(3) MAC address

1st to 12th digits obtained from IEEE (one MAC address possessed)

## Installing the Card

This chapter describes how to install the Card on the system unit.

- [System configuration and installation Procedure](#)
- [How to connect the Card](#)

## System configuration and installation procedure

Install the LAN Card into the PCI slot of the system unit. For the procedures to install the system unit, see the manual supplied with the system unit.



When this Card is replaced, its unique information (example: MAC address) is changed.

## How to connect the Card

This section describes how to connect the Card.



### Signal cables

- Lay the cables carefully to prevent your foot from being snagged by them. If you stumble over the cable, it may cause personal injury or malfunction of the connection devices. Also it may cause the data to be lost.
- Do not put something heavy on the cable. Do not lay the cable near a heater. The cable coating may be damaged which may cause a failure of the connected equipment. See page 4-2 Connecting a LAN cable.



### Laser beam

- On this product, a Class 1 laser defined by IEC60825-1 product is installed. Do not look directly at the laser beam.  
Do not look at the laser beam using an optical device.
- Under the laser module cover, a laser beam is being emitted. Do not remove the cover of an unused card.

## Connecting a LAN cable

Use the LAN cables listed in the following table to connect the LAN Card. Do not use any other cable.

**Table 4-1**

specifications	Maximum Cable Length	Connector Type
Multi Mode Fibre Core size: 50um Cladding size:125um Wave length:850nm Bandwidth:2000MHz	300m	LC



Do not connect LAN cable directly with this card. It is not likely to be able to communicate. Please connect this card with the SWHUB.



## Installing a driver

This chapter describes how to install the network driver of the LAN Card in the Windows 2008 R2 environment. When the LAN expansion function is used, see "Instructions for Setting the LAN Expansion Function" contained in the "**Drivers Kit \*\*\*\*-10-\*\***" CD. (\* is an arbitrary number).

The supported OS varies depending on the system unit to which the driver is to be installed. Be sure to confirm the supported OS of the system unit to which it is to be installed. For details about how to install drivers of optional Cards including this LAN Card, see the software guide supplied with the system unit.

- [Windows 2008 R2 environment](#)

## Windows 2008 R2 environment



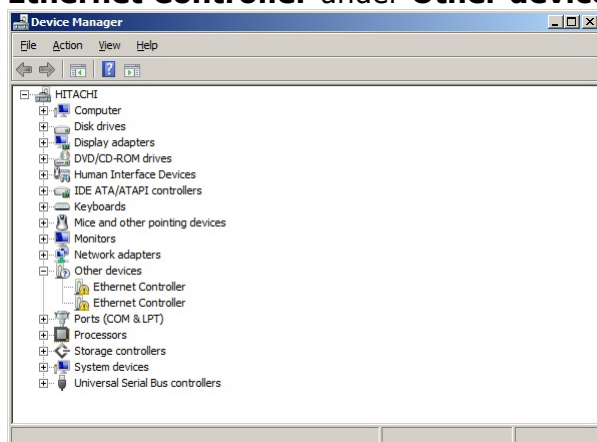
When connecting the LAN cable to the network interface connector, the drivers bundled in the Windows 2008 R2 cannot be used.

When CN7821-Y or CN7821-R LAN Card is added, be sure to apply the driver in the "Drivers Kit \*\*\*\*-10-\*\*" CD. (\* is an arbitrary number). If the driver is preinstalled as a factory expanded model, it is not necessary to install.

### Procedure for installing the driver for Windows 2008 R2

When using this LAN Card, install the network driver for the Windows 2008 R2. It explains an automatic installation method by a driver.

1. Log in with the **user name** having the administration authority (such as Administrator).
2. Click **Hardware** of **Control Panel** and then click **Device Manager** of **Devices and Printers**. In the Device Manager window, double-click **Ethernet Controller** under **Other devices**.



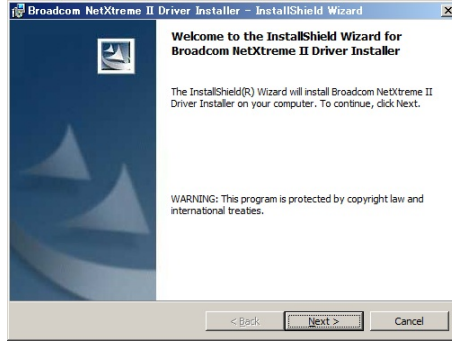
3. The **Update Driver Software** window opens. Click **Browse my computer for driver software**.

On the **Update Driver Software** window, insert the "**Drivers Kit \*\*\*\*-10-\*\***" CD. (\* is an arbitrary number). into the CD-ROM or DVD-RAM drive and enter the directory shown below. Then click **Next**.

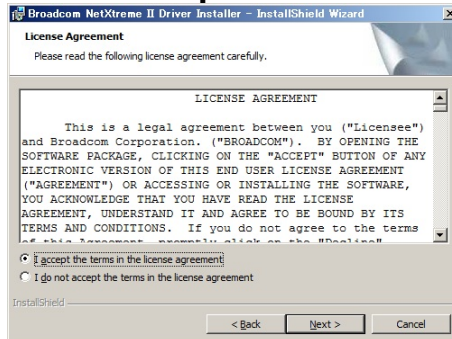
**Table 5-1**

OS	LAN driver storage location
Windows 2008 R2	D:\WIN2008R2\DRIVERS\LAN\BROADXG_01\x64\setup.exe

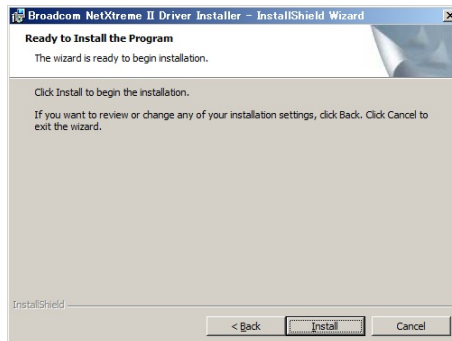
4. **Broadcom NetXtreme II Driver Installer Wizard** opens. Click **Next**.



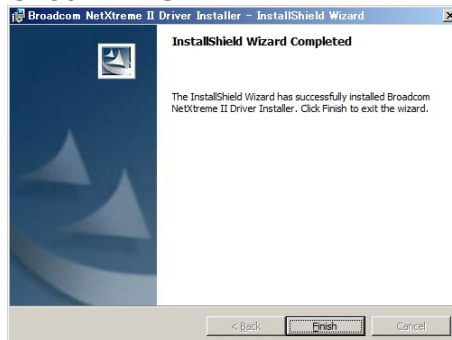
5. Check **I accept the terms in the license agreement** and click **Next**.



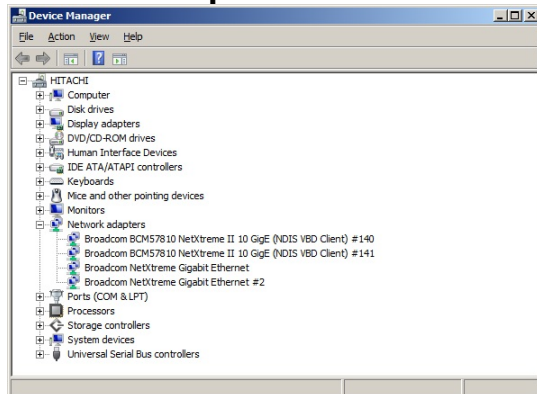
6. Check **Install**



7. Check **Finish**



- Click **Hardware** of **Control Panel** and then click **Device Manager** of **Devices and Printers**. In the Device Manager window, you can see **Broadcom BCM57810 NetXtremeII 10GigE(NDIS VBD Client)** under **Network adapter**.



- Check the IP address. The initial value is obtained automatically. If the fixed value is to be used, it is necessary to change the IP address setting. After setting, check to connect the LAN cable to its destination such as a hub and then restart the system unit.



When completed the driver set-up, the message **This device cannot start. (Code10)** may appear. In this case, restart the system unit and it will work properly. After rebooting, check **Device Manager** to work the driver properly.



**Restrictions to change parameters of the network adapter**  
After changing the network adapter setting, transmission may not be made normally with the changed adapter. Check the changed network adapter in the Device Manager window. If "!" is displayed, right-click the adapter and disable it. Then enable the adapter again. The adapter becomes available.



In an item of **Speed & Duplex**, please do not change setting of **1Gb Full**.



Click **Control Panel, Network and Internet, Network and Sharing Center**, and **Change adapter settings** in this order. The IP address can be changed by clicking the **Properties** button of **Local Area Connection** and selecting a property of **Internet Protocol Version \* (TCP/Ipv\*)**. The location of the LAN Card can be checked by clicking the **Configure** button.



When more than one LAN Card are mounted, set different network IDs (the part masked by a subnet mask) for individual Cards. If the same network ID is set for more than one LAN Card, the system unit may lack of stability.



# 6

## Troubleshooting

This chapter describes how to address malfunctions of the LAN Card.

This chapter describes actions to be taken when the LAN Card does not operate properly. If a problem remains after the following actions are taken, contact your sales representative or call the maintenance personnel:

**Table 6-1**

No.	Problem	Verification & how to take action
1	The LAN Card is not recognized properly.	<ul style="list-style-type: none"> <li>• Check if the driver is installed correctly.</li> <li>• Check if the LAN Card is inserted in the PCI slot correctly.</li> </ul> <p>Try removing and installing it again to see if the problem is resolved.</p>
2	LINK/ACT LED does not light even though the network cable is connected.	<ul style="list-style-type: none"> <li>• Check if the LAN Card is recognized correctly.</li> <li>• Check if the driver is installed correctly.</li> <li>• Check if the power is turned at the connected device.</li> <li>• Check if the length of the LAN cable exceeds the limit.</li> <li>• Check if the link to the connected device is established.</li> </ul> <p>Check that ACT/LNK LED or the LAN connector is not pulled out and the corresponding pin is not bent.</p>
3	The OS is not bootable.	<ul style="list-style-type: none"> <li>• Check if the LAN Card operates normally.</li> </ul> <p>When the OS becomes unbootable after the LAN Card is installed, try removing the Card and booting the OS without the LAN Card.</p>

# Specifications

This chapter describes main specifications of the Card.

- [Hardware specifications](#)

## Hardware specifications

**Table 7-1**

No.	Item		Specification
1	Communication functions	Supported standards	IEEE802.3ae 10GBASE-SR 10 Gigabit Ethernet IEEE802.3x Flow Control
		Data transfer rate	10Gbps Full Duplex
		No. of ports	2 ports for 10Gbps (LC)
		Bus interface	Compatible with PCI-Express2.0 (No. of lanes: x8)
		Cable	Multi Mode Fibre Core size: 50um,Cladding size:125um Wave length:850nm,Bandwidth:2000MHz
2	Power consumption		0.88 A at +12 VDC (Max 10.6 W)
3	Environmental conditions	Operating temperature	0°C to 45°C
		Operating humidity	0% to 90% (non-condensing)
4	EMI		FCC Class A



**Hitachi Data Systems**

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