

Hitachi Compute Rack Series LAN Driver Instruction Manual For RedHat Enterprise Linux

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Preface

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

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Intended audience

This document is intended for the personnel who are involved in managing, configuring and operating the Compute Rack.

Document revision level

Revision	Date	Description
MK-90CRC007-00	December 2012	Preliminary release
MK-90CRC007-01	July 2013	Supersedes and replaces MK-90CRC007-00
MK-90CRC007-02	February 2014	Supersedes and replaces MK-90CRC007-01
MK-90CRC007-03	April 2014	Supersedes and replaces MK-90CRC007-02
MK-90CRC007-04	July 2014	Supersedes and replaces MK-90CRC007-03
MK-90CRC007-05	March 2015	Supersedes and replaces MK-90CRC007-04

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, Installing the Driver	Describes how to install the network driver for the LAN card in RHEL5.7, RHEL6.2, RHEL6.4, RHEL6.5, or RHEL6.6 environments.





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
Bold	Indicates text on a window, other than the window title, including menus, menu options, buttons, fields, and labels. Example: Click OK .
<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> Note: 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 <group></code> Note: 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]

This document uses the following icons to draw attention to information:

Icon	Meaning	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.
NOTICE	NOTICE	This indicates the presence of a potential risk that might cause severe damage to the equipment and/or damage to surrounding properties.
	RESTRICTION	This indicates restrictions on the use of Expander Link Check Tool.
	TIP	This indicates advice on how to make the best use of the tool.

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Thank you!

Installing the Driver

This chapter describes how to install the network driver for the LAN card in RHEL environments. To use the LAN expansion function, see *Instructions for Setting the LAN Expansion Function* section in the "**DriverKit for RHEL 5.7 CD-ROM**" or "**DriverKit for RHEL 6.2 CD-ROM**" or "**DriverKit for RHEL 6.4 CD-ROM**" or "**DriverKit for RHEL 6.5 CD-ROM**" or "**Driver & Utility CD for Red Hat Enterprise Linux 6.6**".

Different system units support different OSs; confirm the OS supported for your system unit. For the details of how to install drivers for optional cards such as LAN cards, see the software guide supplied with the system unit.

Red Hat Enterprise Linux 5.7 environments



To use the LAN card, install the driver from the "DriverKit for RHEL 5.7 CD-ROM". Download the latest-version driver from the following Web site: <http://www.hitachi.com>

Installing the driver for RHEL5.7 (Gigabit LAN Card)

To use any of the following LAN cards, install the network driver for RHEL5.7. In the course of OS installation, the installer automatically installs the Gigabit LAN Card driver.

1	CR210H on chip LAN
2	CR220H on chip LAN
3	CR220S on chip LAN
4	CN7721-Y
5	CN7721-R
6	CN7723-Y
7	CN7723-R
8	CN7741-Y
9	CN7741-R
10	CN7M0T-Y
11	CN7M0T-R

1. Log in using the **user name** authorized as the root user.
2. -Confirm the version number of the LAN driver by the following command:

```
# modinfo -F version tg3
```

Then, the installer returns the version number like this: 3.136e

Return of the message indicates that the LAN driver is installed.

Installing the driver for RHEL5.7 (10Gigabit LAN Card)

To use any of the following LAN cards, install the network driver for RHEL5.7. You can also update the already installed driver in the step similar to the following. Make sure that the RHEL5.7 is already installed.

12	CN7821-Y
13	CN7821-R
14	CN7M1S-Y
15	CN7M1S-R

1. Log in using the **user name** authorized as the root user.
2. The bnx2x module (bnx2x.ko) listed in the table below (and contained in the directory shown below), of which architecture matches yours. The bnx2x module already copied at the table below during OS installation, whether 10Gigabit LAN Card installed or not.

Directory	-	/lib/modules/<Kernel version>/updates
Architecture	Kernel version	-
x86	2.6.18-274.el5	bnx2x.ko
x86PAE	2.6.18-274.el5PAE	bnx2x.ko
x64	2.6.18-274.el5	bnx2x.ko

<kernel version> indicates the version "2.6.18-274.el5" or "2.6.18-274.el5PAE".

3. Open `/etc/modprobe.conf`. If this file does not exist create a new file `/etc/modprobe.conf`. To append an alias line like the following examples:

```
alias eth0 bnx2x
alias eth1 bnx2x
alias eth2 tg3
```

4. Create a new file containing texts like the following example, and save it with the file name `ifcfg-ethX` in `/etc/sysconfig/network-scripts/` path: (X is a unique number.)

```
TYPE=Ethernet
DEVICE=eth0
HWADDR=xx:xx:xx:xx:xx:xx
BOOTPROTO=none
ONBOOT=yes
USERCTL=no
IPV6INT=no
PEERDNS=yes
```

5. Execute the following command:
`# depmod -a`
6. Restart the system by entering the following command:
`#reboot`
This rebooting installs the LAN driver.
7. Confirm the version number of the LAN driver by the following command:
`# modinfo -F version bnx2x`
Then, the installer returns the version number like this: 1.74.17
Return of the message indicates that the LAN driver is installed.



To use the Linux bridge function, append the following text line to the `"/etc/modprobe.conf"` file :

`options bnx2x disable_tpa=1`

After the configuration, restart the system.

Red Hat Enterprise Linux 6.2 environment



To use any of the following LAN cards, be sure to install the driver from the "DriverKit for RHEL 6.2 CD-ROM".



In the course of OS installation, the installer automatically installs the Gigabit LAN Card driver but not the 10Gigabit LAN Card driver; therefore, install the OS first, and then, manually install the 10Gigabit driver from the "DriverKit for RHEL 6.2 CD-ROM".

Installing the driver for RHEL6.2 (Gigabit LAN Card)

To use any of the following LAN cards, install the network driver for RHEL6.2. In the course of OS installation, the installer automatically installs the Gigabit LAN Card driver.

- | | |
|----|--------------------|
| 1 | CR210H on chip LAN |
| 2 | CR220H on chip LAN |
| 3 | CR220S on chip LAN |
| 4 | CN7721-Y |
| 5 | CN7721-R |
| 6 | CN7723-Y |
| 7 | CN7723-R |
| 8 | CN7741-Y |
| 9 | CN7741-R |
| 10 | CN7M0T-Y |
| 11 | CN7M0T-R |

1. Log in using the **user name** authorized as the root user.
2. --Confirm the version number of the LAN driver by the following command:

```
# modinfo -F version tg3
```

Then, the installer returns the version number like this: 3.136e

Return of the message indicates that the LAN driver is installed.

Installing the driver for RHEL6.2 (10Gigabit LAN Card)

To use any of the following LAN cards, install the network driver for RHEL6.2. You can also update the already installed driver in the step similar to the following. Make sure that the RHEL6.2 is already installed.

12	CN7821-Y
13	CN7821-R
14	CN7M1S-Y
15	CN7M1S-R



In the course of OS installation, the installer automatically installs the Gigabit LAN Card driver but not the 10Gigabit LAN Card driver; therefore, install the OS first, and then, manually install the 10Gigabit driver from the "DriverKit for RHEL 6.2 CD-ROM".

1. Log in using the **user name** authorized as the root user.
2. Copy one of the netxtreme2 rpm package files listed in the table below (and contained in the CD-ROM), of which architecture matches yours, to /tmp directory.

Directory	(x86) /rpms/i686	(x64) /rpms/x86_64
Architecture	Kernel version	Filename
x86	2.6.32-220.4.2.el6.i686	netxtreme2-7.4.21-1.i686.rpm
x64	2.6.32-220.4.2.el6.x86_64	netxtreme2-7.4.21-1.x86_64.rpm



To use this driver, use the kernel "**2.6.32-220.4.2.el6**" because the driver operates only with the kernel. If you use any other kernel version, this driver does not operate.

3. -If the rpm package is already installed, uninstall it. If not, skip this step.

To check if the rpm package is already installed, enter this command:
`#rpm -qa | grep netxtreme2`

Then, the installer returns a message like this:
`netxtreme2-7.0.36-1.x86_64`

Return of the message indicates that the rpm package is already installed.

To uninstall the already-installed the rpm package, enter this command:
`# rpm -e netxtreme2-7.0.36-1.x86_64`

4. Install the rpm package by entering the following command:

```
# rpm -ivh /tmp/<rpm package file name>
```

5. Open /etc/modprobe.d/modprobe.conf. If this file does not exist create a new file /etc/modprobe.d/modprobe.conf. To append an alias line like the following examples:

```
alias eth0 bnx2x
alias eth1 bnx2x
alias eth2 tg3
```

6. Create a new file containing texts like the following example, and save it with the file name ifcfg-ethX in /etc/sysconfig/network-scripts/ path: (X is a unique number.)

```
TYPE=Ethernet
DEVICE=eth0
HWADDR=xx:xx:xx:xx:xx:xx
BOOTPROTO=none
ONBOOT=yes
USERCTL=no
IPV6INT=no
PEERDNS=yes
```

7. Execute the following command:

```
# depmod -a
```

8. Restart the system by entering the following command:

```
#reboot
```

This rebooting installs the LAN driver.

9. Confirm the version of the LAN driver by entering the following command:

```
# modinfo -F version bnx2x
```

Then, the installer returns the version number like this: 1.74.17

Return of the message indicates that the LAN driver is installed.



To use the Linux bridge function, append the following text line to the "/etc/modprobe.d/dist.conf" file :

options bnx2x disable_tpa=1

After the configuration, restart the system.

Red Hat Enterprise Linux 6.4 environment



To use any of the following LAN cards, be sure to install the driver from the "DriverKit for RHEL 6.4 CD-ROM".

Installing the driver for RHEL6.4 (Gigabit LAN Card)

To use any of the following LAN cards, install the network driver for RHEL6.4. In the course of OS installation, the installer automatically installs the Gigabit LAN Card driver.

1	CR210H on chip LAN
2	CR220H on chip LAN
3	CR220S on chip LAN
4	CN7721-Y
5	CN7721-R
6	CN7723-Y
7	CN7723-R
8	CN7741-Y
9	CN7741-R
10	CN7743-Y
11	CN7743-R
12	CN7M0T-Y
13	CN7M0T-R

1. Log in using the **user name** authorized as the root user.
2. Confirm the version number of the LAN driver by the following command:

```
# modinfo -F version tg3
```

Then, the installer returns the version number like this: 3.136e

Return of the message indicates that the LAN driver is installed.

Installing the driver for RHEL6.4 (10Gigabit LAN Card)

To use any of the following LAN cards, install the network driver for RHEL6.4. In the course of OS installation, the installer automatically installs the 10Gigabit LAN Card driver.

12	CN7821-Y
13	CN7821-R
14	CN7M1S-Y
15	CN7M1S-R
16	CN7823-Y
17	CN7823-R
18	CN7841-Y
19	CN7841-R
20	CN7M1T-Y
21	CN7M1T-R

1. Log in using the **user name** authorized as the root user.
2. Confirm the version number of the LAN driver by the following command:

```
# modinfo -F version bnx2x
```

Then, the installer returns the version number like this: 1.76.54

Return of the message indicates that the LAN driver is installed.



In RHEL6.4, set the setting follow. If this setting does not reflect, encounter "**Kernel Panic**". Appending the following text line to the "/etc/modprobe.d/dist.conf" file :

options bnx2x disable_tpa=1

This setting also enables to use the Linux bridge function.

After the configuration, restart the system.

Red Hat Enterprise Linux 6.5 environment



To use any of the following LAN cards, be sure to install the driver from the "DriverKit for RHEL 6.5 CD-ROM".

Installing the driver for RHEL6.5 (Gigabit LAN Card)

To use any of the following LAN cards, install the network driver for RHEL6.5. In the course of OS installation, the installer automatically installs the Gigabit LAN Card driver.

1	CR210H on chip LAN
2	CR220H on chip LAN
3	CR220S on chip LAN
4	CN7721-Y
5	CN7721-R
6	CN7723-Y
7	CN7723-R
8	CN7741-Y
9	CN7741-R
10	CN7743-Y
11	CN7743-R
12	CN7M0T-Y
13	CN7M0T-R

1. Log in using the **user name** authorized as the root user.
2. Confirm the version number of the LAN driver by the following command:

```
# modinfo -F version tg3
```

Then, the installer returns the version number like this: 3.136e

Return of the message indicates that the LAN driver is installed.

Installing the driver for RHEL6.5 (10Gigabit LAN Card)

To use any of the following LAN cards, install the network driver for RHEL6.5. In the course of OS installation, the installer automatically installs the 10Gigabit LAN Card driver.

12	CN7821-Y
13	CN7821-R
14	CN7M1S-Y
15	CN7M1S-R
16	CN7823-Y
17	CN7823-R
18	CN7841-Y
19	CN7841-R
20	CN7M1T-Y
21	CN7M1T-R

1. Log in using the **user name** authorized as the root user.
2. Confirm the version number of the LAN driver by the following command:

```
# modinfo -F version bnx2x
```

Then, the installer returns the version number like this: 1.78.80

Return of the message indicates that the LAN driver is installed.



In RHEL6.5, set the setting follow. If this setting does not reflect, encounter "**Kernel Panic**". Appending the following text line to the "/etc/modprobe.d/dist.conf" file :

options bnx2x disable_tpa=1

This setting also enables to use the Linux bridge function.

After the configuration, restart the system.

Red Hat Enterprise Linux 6.6 environment



To use any of the following LAN cards, be sure to install the driver from the "Driver & Utility CD for Red Hat Enterprise Linux 6.6".

Installing the driver for RHEL6.6 (Gigabit LAN Card)

To use any of the following LAN cards, install the network driver for RHEL6.6. In the course of OS installation, the installer automatically installs the Gigabit LAN Card driver.

1	CR210H on chip LAN
2	CR220H on chip LAN
3	CR220S on chip LAN
4	CN7721-Y
5	CN7721-R
6	CN7723-Y
7	CN7723-R
8	CN7741-Y
9	CN7741-R
10	CN7743-Y
11	CN7743-R
12	CN7M0T-Y
13	CN7M0T-R

3. Log in using the **user name** authorized as the root user.

4. Confirm the version number of the LAN driver by the following command:

```
# modinfo -F version tg3
```

Then, the installer returns the version number like this: 3.137e

Return of the message indicates that the LAN driver is installed.

Installing the driver for RHEL6.6 (10Gigabit LAN Card)

To use any of the following LAN cards, do not need to install the network driver for RHEL6.6. In the course of OS installation, the driver does not install. The driver for 10Gigabit LAN Card is inbox driver included in RHEL6.6 package.

12	CN7821-Y
13	CN7821-R
14	CN7M1S-Y
15	CN7M1S-R
16	CN7823-Y
17	CN7823-R
18	CN7841-Y
19	CN7841-R
20	CN7M1T-Y
21	CN7M1T-R

3. Log in using the **user name** authorized as the root user.

4. Confirm the version number of the LAN driver by the following command:

```
# modinfo -F version bnx2x
```

Then, the installer returns the version number like this: 1.78.19-1

Return of the message indicates that the inbox LAN driver is installed.



In RHEL6.6, set the setting follow. If this setting does not reflect, encounter "**Kernel Panic**". Appending the following text line to the "/etc/modprobe.d/dist.conf" file :

options bnx2x disable_tpa=1

This setting also enables to use the Linux bridge function.

After the configuration, restart the system.

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