



# Use Restrictions for Hitachi Compute Blade 2500 Series

## FASTFIND LINKS

[Getting Help](#)

[Contents](#)

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# Contents

Preface .....	v
Intended Audience .....	vi
Release Notes .....	vi
Document Conventions .....	vii
Getting Help .....	viii
Comments .....	viii
Use Restrictions for Compute Blade 2500 series .....	1-1
Restriction on CPU Hyper-Threading .....	1-3
Restriction on CPU degradation .....	1-3
Restriction on intake temperature .....	1-4
Restriction on PCI Express Native Control .....	1-4
Restriction on installation of VMware vSphere® ESXi™ .....	1-5
Restriction on using VMware vSphere® ESXi™ on SMP .....	1-5
Restriction on installation of Red Hat® Enterprise Linux® .....	1-6
Restriction on using onboard CNA , 10Gb 2-port CNA adapter on VMware vSphere® ESXi™ .....	1-6
Restriction on Multichannel function of onboard CNA , 10Gb 2-port CNA adapter on Red Hat® Enterprise Linux® .....	1-7
Restriction on LPAR manager .....	1-8
Procedure of changing EFI settings .....	1-9
Procedure of changing EFI settings (Processors) .....	1-14
Acronyms and Abbreviations .....	1





# Preface

This document describes restrictions on the use of Hitachi Compute Blade 2500 Series.

This preface includes the following information:

- [Intended Audience](#)
- [Release Notes](#)
- [Document Conventions](#)
- [Getting Help](#)
- [Comments](#)

**Notice:** The use of Hitachi Compute Blade 2500 Series and all other Hitachi Data Systems products is governed by the terms of your agreement(s) with Hitachi Data Systems.

## 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 Blade 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 Hitachi Compute Blade 2500 Series will be installed, including knowledge of physical characteristics, power systems and specifications, and environmental specifications.

## Release Notes





Release notes contain requirements and more recent product information that may not be fully described in this manual. Be sure to review the release notes before installation.

## Document Conventions

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, 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 ]

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.
<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.

## Getting Help

If you purchased this product from an authorized HDS reseller, contact that reseller for support. For the name of your nearest HDS authorized reseller, refer to the HDS support web site for locations and contact information. To contact the Hitachi Data Systems Support Center, please visit the HDS website for current telephone numbers and other contact information:  
<http://support.hds.com>.

Before calling the Hitachi Data Systems Support Center, please provide as much information about the problem as possible, including:

- The circumstances surrounding the error or failure.
- The exact content of any error message(s) displayed on the host system(s).

## Comments

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# Use Restrictions for Compute Blade 2500 series

This chapter describes restrictions on the use of Hitachi Compute Blade 2500 Series

- [Functions with restriction](#)
- [Models with restriction](#)
- [Restrictions](#)

## Functions with restriction

The restriction applies to the following functions.

- CPU Hyper-Threading
- CPU degradation
- Intake temperature
- PCI Express Native Control
- Installation of VMware vSphere® ESXi™
- Using VMware vSphere® ESXi™ on SMP
- Installation of Red Hat® Enterprise Linux®
- Using onboard CNA / 10Gb 2-port CNA adapter on VMware vSphere® ESXi™
- Multichannel function of onboard CNA / 10Gb 2-port CNA adapter on Red Hat® Enterprise Linux®
- LPAR manager

## Models with restriction

The restriction applies to the following Compute Blades.

- 520H B3
- 520X B1/B2

OS names used in this manual stand for official OS names in “Included OS” in the table below:

Os name in this manual	Included OS
Windows Server 2008 R2	Microsoft® Windows Server® 2008 R2 Standard (SP1) Microsoft® Windows Server® 2008 R2 Enterprise (SP1) Microsoft® Windows Server® 2008 R2 Datacenter (SP1)
Windows Server 2012	Microsoft® Windows Server® 2012 Standard Microsoft® Windows Server® 2012 Datacenter
Windows Server 2012 R2	Microsoft® Windows Server® 2012 R2 Standard Microsoft® Windows Server® 2012 R2 Datacenter

## Restrictions

### Restriction on CPU Hyper-Threading

CPU (Central Processing Unit) Hyper-Threading is enabled at shipment from factory. If CPU Hyper-Threading is disabled, network function of compute blade may not work properly depending on the CPU SKU (Stock Keeping Unit) or the number of installed CPU.

It is recommended that Hyper-Threading is enabled for the compute blades with the CPU SKU and the number of CPU shown in **Table 1-1**.

**Table 1-1 CPU configuration restricted on Hyper-Threading**

Compute blade	CPU SKU	Number of CPU	OS
520H B3	E5-2667v3,E5-2660v3, E5-2640v3	1	Windows Server 2012 Windows Server 2012 R2
	E5-2637v3,E5-2620v3, E5-2603v3	1or2	
520X B1	E7-8891v2,	8 (4 Blade SMP Configuration)	Windows Server 2008 R2 Windows Server 2012 Windows Server 2012 R2
	E7-4820v2	2	
520X B2	E7-8893v3	2	Windows Server 2012 Windows Server 2012 R2

### Restriction on CPU degradation

EFI firmware will suppress CPU degradation for the CPUs under the conditions shown in **Table 1-2**, to prevent network function of compute blade may not work properly.

This restriction applies to all supported OSs.

**Table 1-2 CPU conditions to suppress CPU degradation**

Compute Blade	CPU conditions	OS
520H B3	After CPU degradation, the available logical core will be reduced below 12 cores.	All supported OSs
520X B1/B2	After CPU degradation, the available logical core will be reduced below 12 cores per blade.	

## Restriction on intake temperature

Compute blades with CPU SKU shown in **Table 1-3**, must be used at intake temperature shown the table to avoid performance degradation and reduced lifetime of CPUs.

This restriction applies to all supported OSs.

**Table 1-3 configuration restricted on intake temperature**

Compute Blade	CPU SKU	Intake temperature conditions	OS
520H B3	E5-2699v3,E5-2697v3, E5-2667v3,E5-2637v3	Must be used below 35 degrees C.	All supported OSs

## Restriction on PCI Express Native Control

Compute blades with OSs shown in **Table 1-4** , in case the device is replaced or server blades is switched in the N+M cold standby feature, the device will be identified a new device. As a result, the device settings will be reset. You must install the hotfix shown below.

<http://support.microsoft.com/kb/2550978>

**Table 1-4 OS conditions restricted on PCI Express native control**

Compute Blade	OS
520X B1	Windows Server 2008 R2

## Restriction on installation of VMware vSphere® ESXi™

When you install VMware vSphere® ESXi™5.x/ 6.x on compute blade shown in table **Table 1-5**, you must change EFI settings shown in the table to avoid installation failure.

Refer to *Procedure of changing EFI settings* section when changing EFI settings.

**Table 1-5 Restriction on installation of VMware**

Compute Blade	OS	EFI settings	
		Item	setting
520H B3	VMware vSphere® ESXi™ 5.1	PCI 64-bit Resource Allocation	Disabled
	VMware vSphere® ESXi™ 5.5	MM Config Base	3GB
	VMware vSphere® ESXi™ 6.0		
520X B1	VMware vSphere® ESXi™ 5.1	PCI 64-bit Resource Allocation	Disabled
	VMware vSphere® ESXi™ 5.5	MM Config Base	3GB
520X B2	VMware vSphere® ESXi™ 5.5	PCI 64-bit Resource Allocation	Disabled
	VMware vSphere® ESXi™ 6.0	MM Config Base	3GB

## Restriction on using VMware vSphere® ESXi™ on SMP

When you use VMware vSphere® ESXi™5.x/ 6.x on compute blade with both conditions shown in the following table, you must change EFI settings shown in the table to avoid CPU Error.

Refer to *Procedure of changing EFI settings (Processors)* section when changing EFI settings.

**Table 1-6 OS conditions restricted on using VMware vSphere® ESXi™**

Compute Blade	Condition	OS	EFI settings	
			Item	setting
520X B1	2 blades or 4 blades SMP	VMware vSphere® ESXi™ 5.1 VMware vSphere® ESXi™ 5.5	C-States	Disable

## Restriction on installation of Red Hat® Enterprise Linux®

Compute blades with Red Hat® Enterprise Linux® 6.5/6.6/7.1 shown in table **Table 1-7**, USB 3.0 must be disabled by changing settings of “xHCI” in USB Configuration in EFI menu to avoid OS boot failure

Refer to *Procedure of changing EFI settings* section when changing EFI settings.

**Table 1-7 OS conditions restricted on USB 3.0 support**

Compute Blade	OS	EFI settings	
		Item	setting
520H B3	Red Hat® Enterprise Linux® 6.5 Red Hat® Enterprise Linux® 6.6 Red Hat® Enterprise Linux® 7.1	xHCI	Disabled

## Restriction on using onboard CNA , 10Gb 2-port CNA adapter on VMware vSphere® ESXi™

When using the onboard CNA or 10Gb 2-Port CNA adapter and a Windows Server as a guest OS in VMware vSphere® ESXi™ 5.x/6.x environment, be sure to apply the latest VMware tools.

To find the VMware tools software, click on the following URL.

[VMware – VMware Operating System Specific Packages (OSPs)]

<https://www.vmware.com/support/packages>

To find the VMware tools installing procedure, click on the following URL.

[VMware - General VMware Tools installation instructions (1014294) ]

<http://kb.vmware.com/kb/1014294>

## Restriction on Multichannel function of onboard CNA , 10Gb 2-port CNA adapter on Red Hat® Enterprise Linux®

When using Multichannel function of the onboard CNA or 10Gb 2-port CNA adapter on Red Hat® Enterprise Linux® 6.5/6.6, be sure to add "udevchil ds=1" to the kernel boot parameter in the grub.conf. Otherwise, the OS boot will fail with the following message.

```
"udev d[X]: worker [Y] unexpectedly returned with status 0x0100"
```

The following explains the procedure of adding "udevchil ds=1".

1. Execute "vi" command to edit the grub.conf.

```
#vi /boot/efi/EFI/redhat/grub.conf
```

2. Add "udevchil ds=1" to the kernel boot parameter.

Move the cursor to the end of the kernel parameter line and add udevchil ds=1.

To move the cursor in edit mode, the following keys will be available.

up:"k", down:"j", left:"h", right:"l"

```
title Red Hat Enterprise Linux (2.6.32-431.el6.x86_64)
  root (hd0,1)
  kernel /vmlinuz-2.6.32-431.el6.x86_64 ro root=/dev/mapper/VolGroup00-lv_root rd_NO_LUKS rd_NO_MD
  nodmraid rd_LVM_LV=VolGroup00/lv_root crashkernel=128M KEYBOARDTYPE=pc KEYTABLE=jp106 LANG=ja_JP.UTF-8
  rd_LVM_LV=VolGroup00/lv_swap rd_NO_DM nmiwatchdog=0 pci=noaer scsi_mod.scan=sync edd=off udevchil ds=1
  initrd /initramfs-2.6.32-431.el6.x86_64.img
```

3. Execute ":wq" command to save the new grub.conf and quit vi.

4. Reboot the OS to enable the new grub.conf.

5. After the OS reboot is complete, check the kernel boot parameter again.

Execute the following command, and confirm that "udevchil ds=1" has been added as shown in the example below.

```
#cat /proc/cmdline
```

```
ro root=/dev/mapper/VolGroup00-lv_root rd_NO_LUKS rd_NO_MD nodmraid rd_LVM_LV=VolGroup00/lv_root
crashkernel=128M KEYBOARDTYPE=pc KEYTABLE=jp106 LANG=ja_JP.UTF-8 rd_LVM_LV=VolGroup00/lv_swap rd_NO_DM
nmiwatchdog=0 pci=noaer scsi_mod.scan=sync edd=off udevchil ds=1
```

## Restriction on LPAR manager

When using the Compute blades and LPAR manager's versions in combination shown in the following table, change the EFI settings for PCI 64-Bit Resource Allocation and MM Config Base to prevent an LPAR manager boot failure.

Refer to *Procedure of changing EFI settings* section when changing EFI settings.

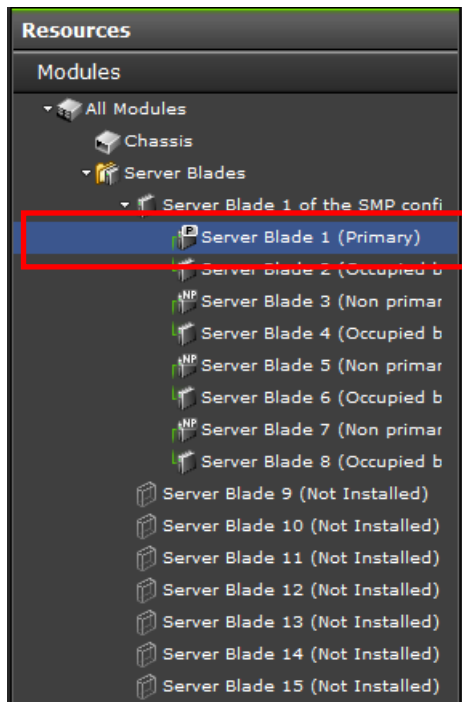
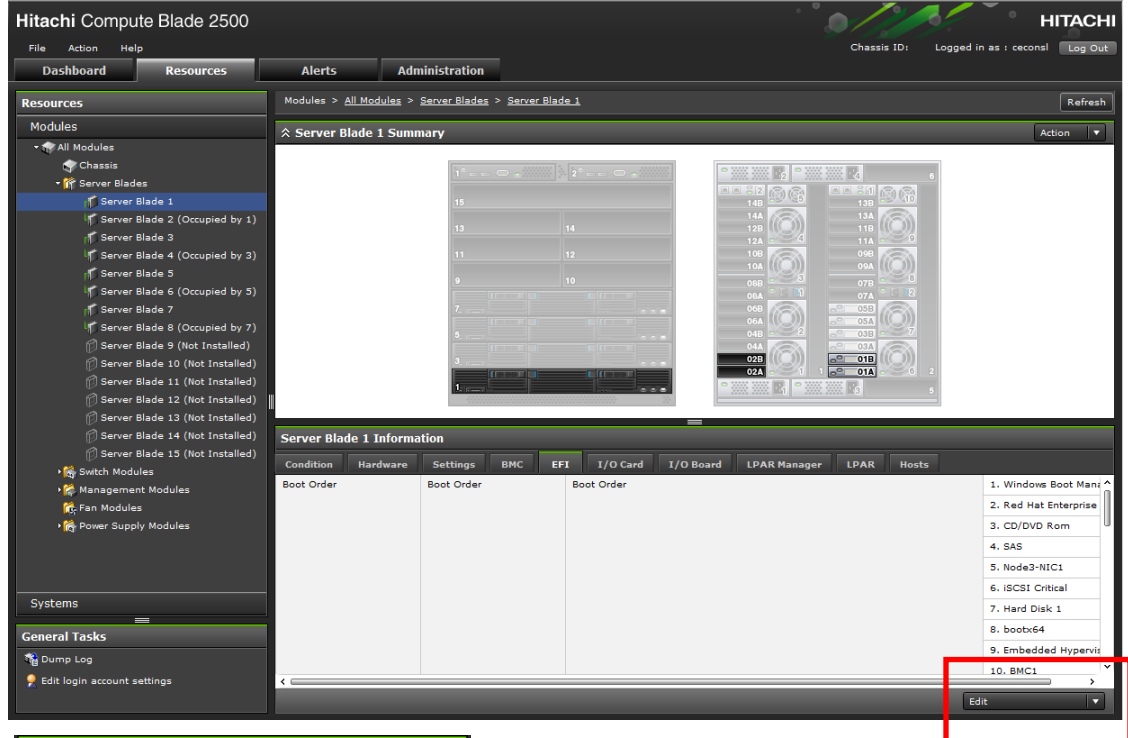
**Table 1-8 Restriction on LPAR manager**

Compute Blade	LPAR manager	EFI settings	
		Item	setting
520X B1 520H B3	version 02-0x	PCI 64-bit Resource Allocation	Enable
	version 02-1x	MM Config Base	2GB
520X B2	version 02-1x	PCI 64-bit Resource Allocation	Enable
		MM Config Base	2GB



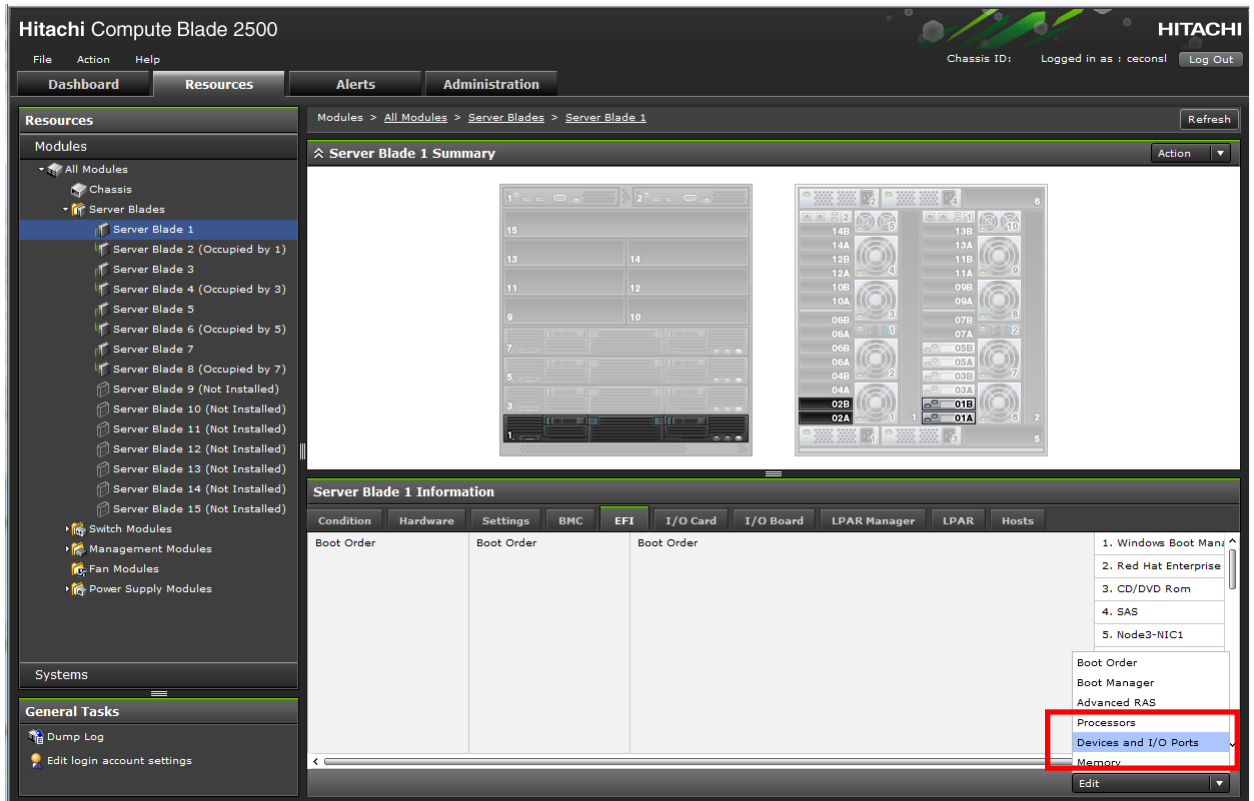
## Procedure of changing EFI settings

1. Click [Resources] > [Modules] > Target Server blade, then click "EFI" tab and "Edit" button. In SMP (Symmetric Multi Processor) configuration, select the primary server blade when selecting target server blade.



### Example of SMP configuration

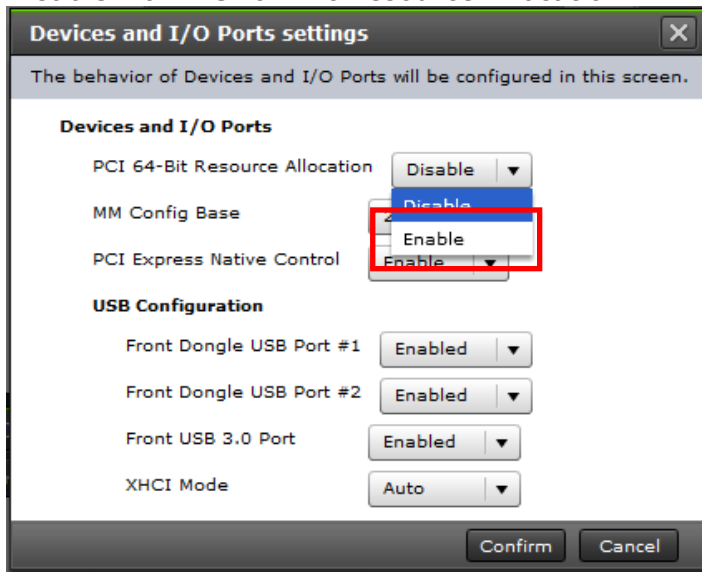
2. Click [Devices and I/O Ports].



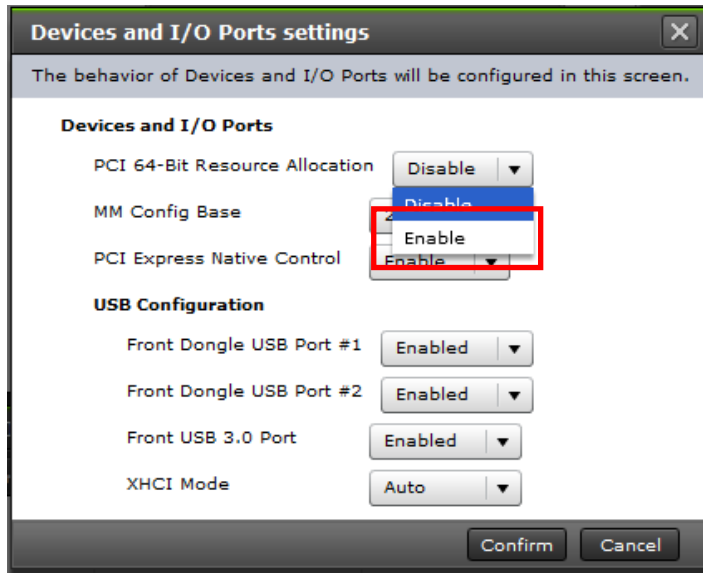
3. In "Devices and I/O Ports setting" dialog box, select and change to the setting you require, and click [Confirm].

(1) Setting PCI 64-Bit Resource Allocation

Restriction on installation of VMware vSphere® ESXi™ requires selecting "Disable" for "PCI 64-Bit Resource Allocation".

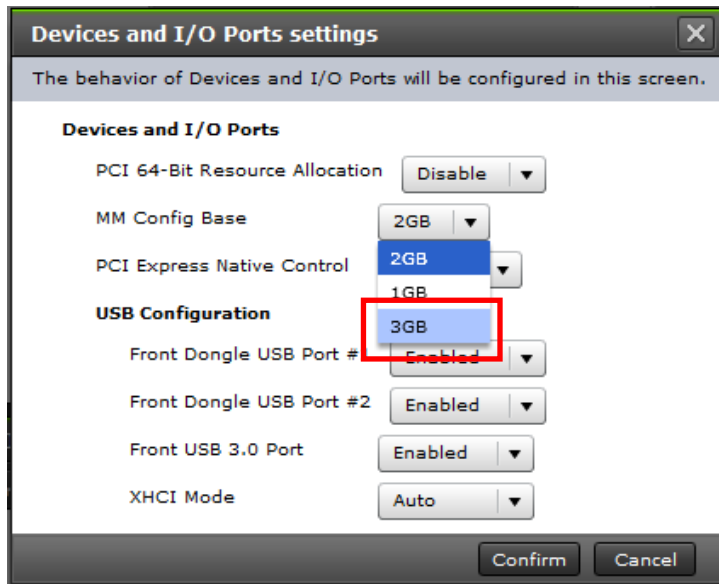


Restriction on LPAR manager requires selecting "Enable" for "PCI 64-Bit Resource Allocation".

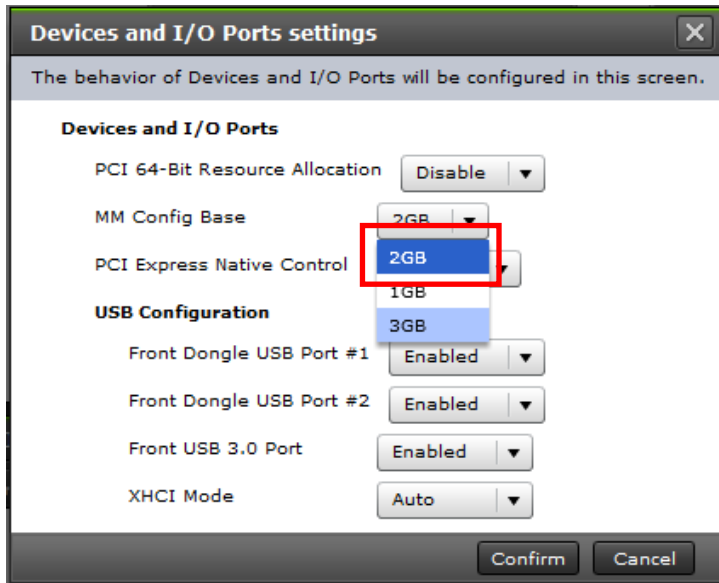


(2) Setting MM Config Base

Restriction on installation of VMware vSphere® ESXi™ requires selecting "3GB" for "MM Config Base".

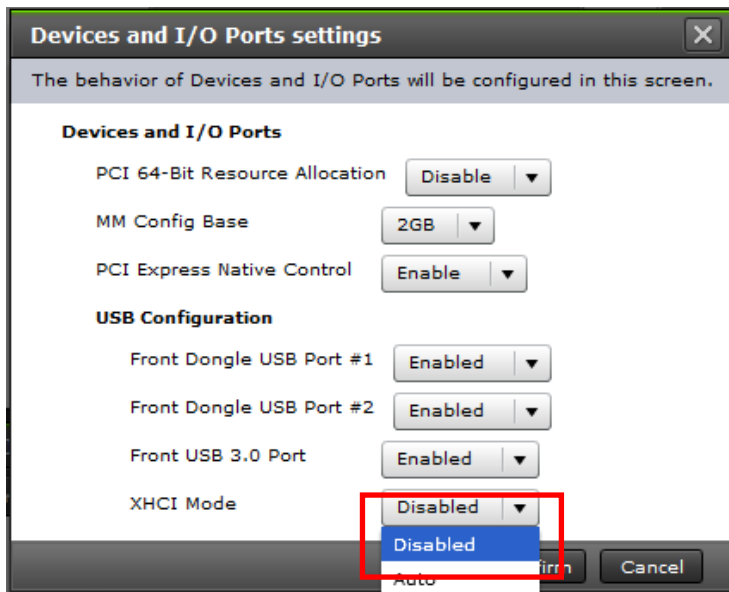


Restriction on LPAR manager requires selecting "2GB" for "MM Config Base".

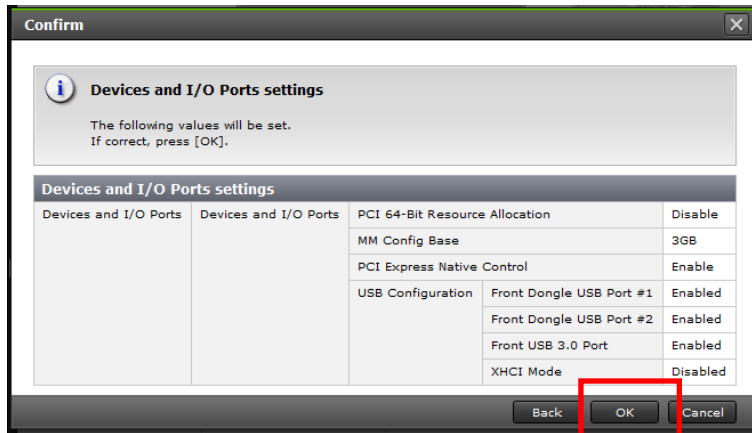


(3) Setting USB configuration

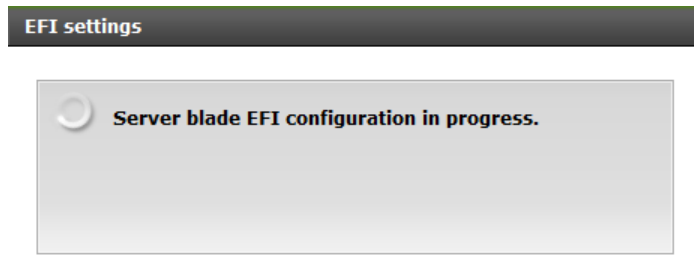
Select "Disabled" for "XHCI Mode" in "USB Configuration".



4. In "Confirm" dialog box, click "OK".

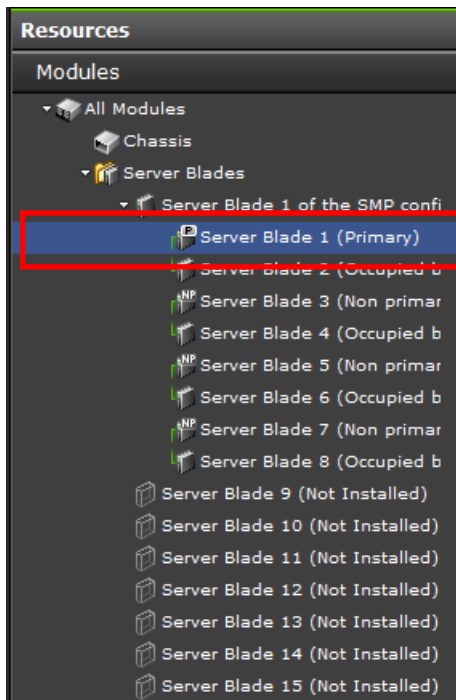
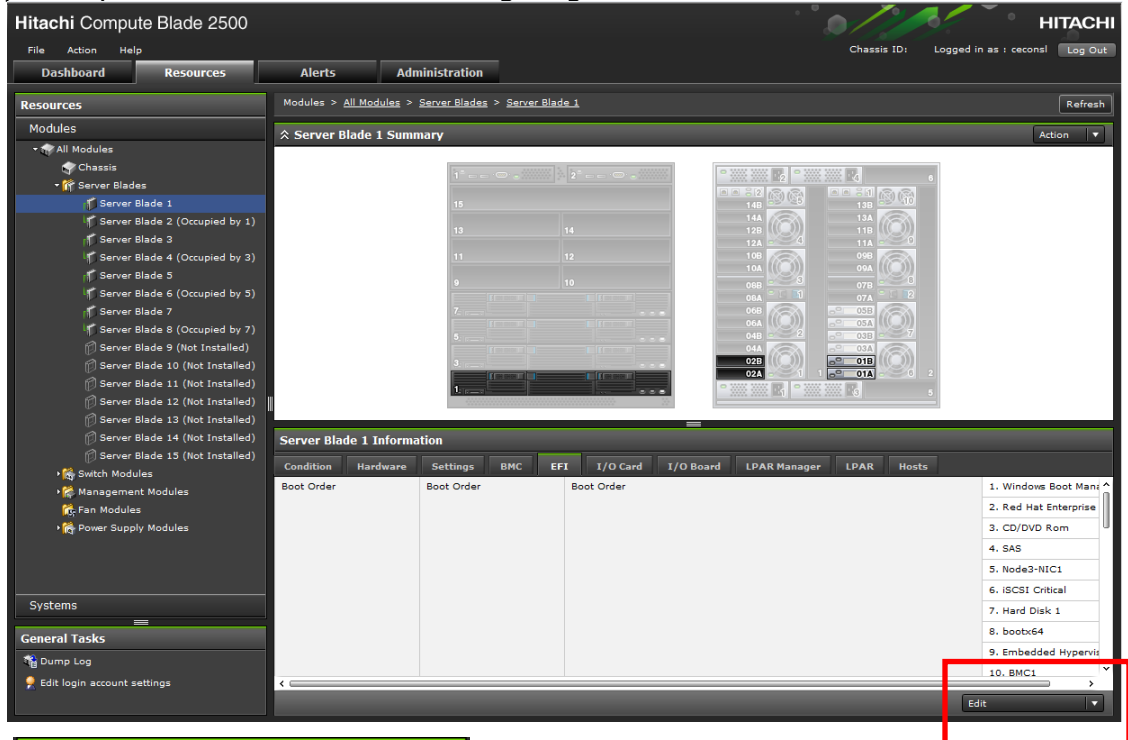


5. Wait for completion of EFI settings.



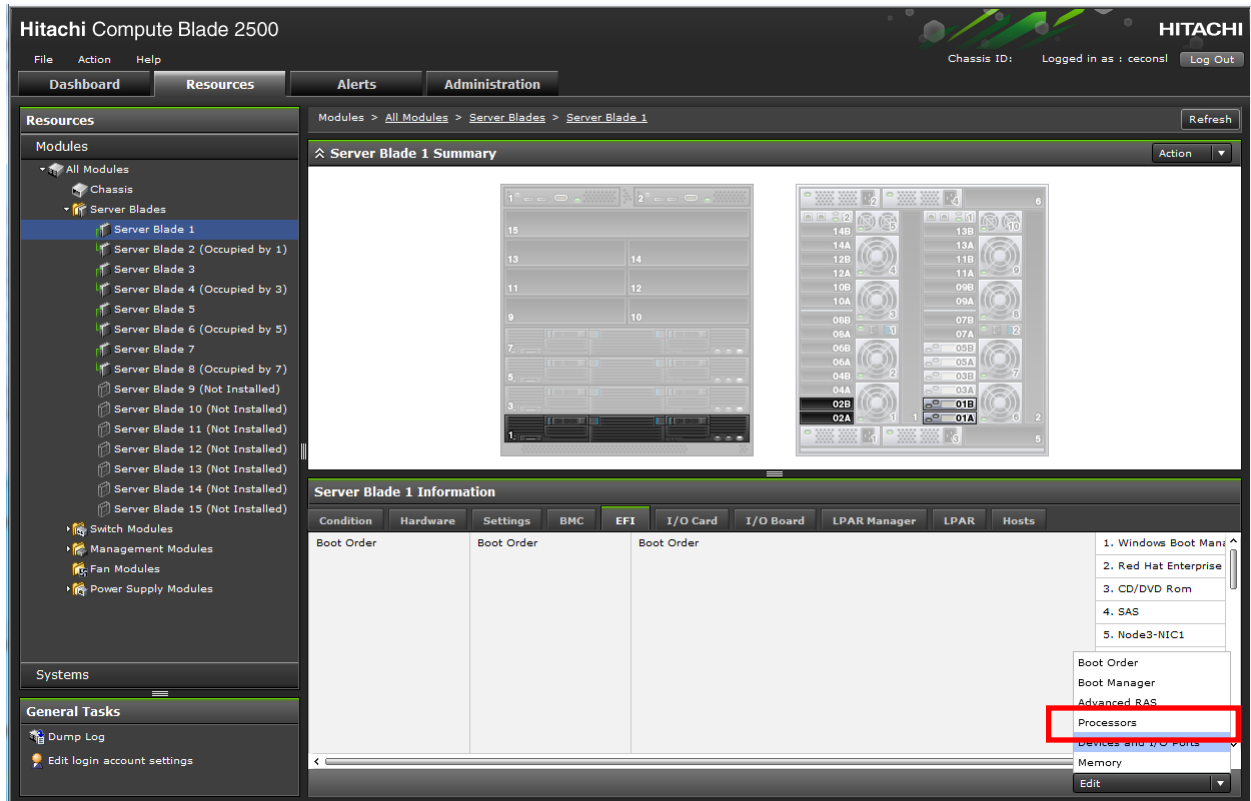
## Procedure of changing EFI settings (Processors)

1. Click [Resources] > [Modules] > Target Server blade, then click "EFI" tab and "Edit" button. In SMP (Symmetric Multi Processor) configuration, select the primary server blade when selecting target server blade.



Example of SMP configuration

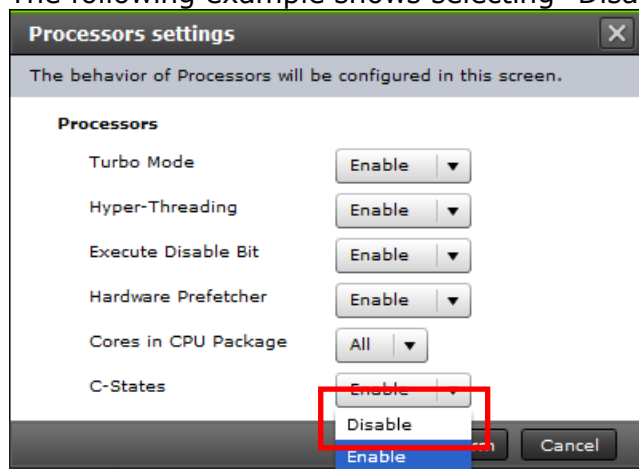
2. Click [Processors].



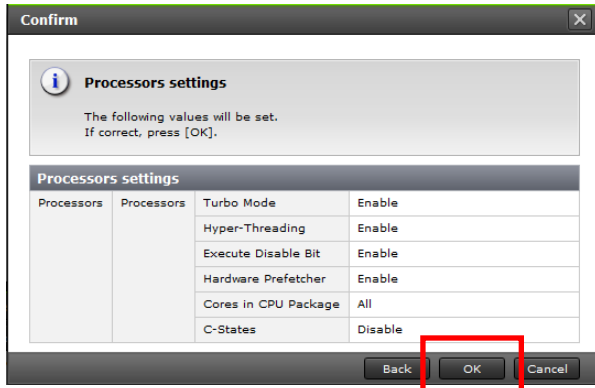
3. In "Processors settings" dialog box, select and change to the setting you require, and click [Confirm].

(1) Setting C-States

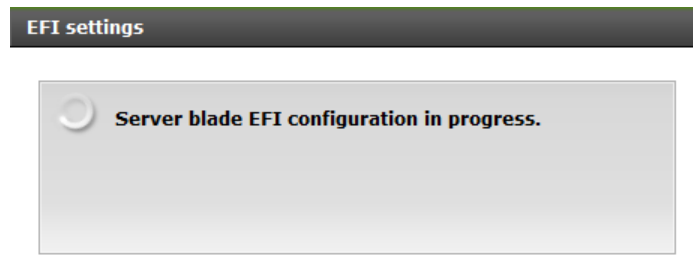
The following example shows selecting "Disable" for "C-States".



4. In "Confirm" dialog box, click "OK".



5. Wait for completion of EFI settings.





# Acronyms and Abbreviations

CNA	Converged Network Adapter
CPU	Central Processing Unit
EFI	Extensible Firmware Interface
iSCSI	Internet Small Computer System Interface
NIC	Network Interface Controller
OS	Operating System
SKU	Stock Keeping Unit
SMP	Symmetric Multi Processor





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