

# Use Restrictions for Hitachi Compute Blade 2500 Series

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# 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

Please send us your comments on this document: [doc.comments@hds.com](mailto:doc.comments@hds.com). Include the document title, number, and revision, and refer to specific sections and paragraphs whenever possible. All comments become the property of Hitachi Data Systems Corporation. **Thank you!**



# 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 degradation
- Intake temperature
- Installation of VMware vSphere® ESXi™
- Installation of VMware vSphere® ESXi™ on SAS 3004 RAID controller
- Using VMware vSphere® ESXi™ on SMP
- FC, iSCSI and FCoE connection on VMware vSphere® ESXi™
- Using onboard CNA / 10Gb 2-port CNA adapter on VMware vSphere® ESXi™
- Using 10Gb 4-port onboard CNA or 2-port CNA adapter
- Using Emulex 16Gb 2-port FC adapter
- LPAR manager
- Using 64GB LRDIMM
- Installation of Windows Server® 2016
- Using Broadcom 1Gb 4-port LAN mezzanine card on VMware vSphere® ESXi™ 6.5
- Using Broadcom 1Gb 4-port LAN mezzanine card on Red Hat® Enterprise Linux® 6 or 7
- Using 10GBASE-SR 2-port LAN adapter when updating to VMware vSphere® ESXi™ 6.7 Update 1 or later
- Using VMware vSphere® ESXi™ on Compute Blade 520H B3

## Models with restriction

The restriction applies to the following Compute Blades.

- 520H B3/B4
- 520X B1/B2/B3

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
Windows Server 2016	Microsoft® Windows Server® 2016 Standard Microsoft® Windows Server® 2016 Datacenter

# Restrictions

## Restriction on CPU degradation

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

This restriction applies to all supported OSs.

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

Compute Blade	CPU conditions	OS
520H B3/B4	After CPU degradation, the available logical core will be reduced below 12 cores.	All supported OSs
520X B1/B2/B3	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 1-2](#), 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 1-2 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
520H B4	E5-2699v4,E5-2697v4, E5-2667v4,E5-2643v4, E5-2637v4,E5-2697Av4	Must be used below 35 degrees C.	All supported OSs

## Restriction on installation of VMware vSphere® ESXi™

When you install VMware vSphere® ESXi™5.x/ 6.x on compute blade shown in table **Table 1-3**, 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 1-3 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 2.5GB(*1)
	VMware vSphere® ESXi™ 6.0		
	VMware vSphere® ESXi™ 6.5		
520H B4	VMware vSphere® ESXi™ 5.5	PCI 64-bit Resource Allocation	Disabled
	VMware vSphere® ESXi™ 6.0	MM Config Base	3GB
	VMware vSphere® ESXi™ 6.5		
520X B1	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 B2	VMware vSphere® ESXi™ 5.5	PCI 64-bit Resource Allocation	Disabled
	VMware vSphere® ESXi™ 6.0	MM Config Base	3GB
	VMware vSphere® ESXi™ 6.5		
520X B3	VMware vSphere® ESXi™ 6.0	PCI 64-bit Resource Allocation	Disabled
	VMware vSphere® ESXi™ 6.5	MM Config Base	3GB

(\*1) if using NVIDIA GRID K2 GPU Adapter with 520HB3

## Restriction on installation of VMware vSphere® ESXi™ on SAS 3004 RAID controller

After you install or update VMware vSphere® ESXi™5.x / 6.x on compute blade with onboard SAS 3004 RAID shown in the following table, you must apply a RAID driver "megaraid\_sas" by the additional procedure.

Refer to *Procedure of applying a RAID driver "megaraid\_sas"* section when applying a RAID driver "megaraid\_sas".

**Table 1-4 Restriction on installation of VMware on SAS 3004 RAID controller**

Compute Blade	OS
520H B3	VMware vSphere® ESXi™ 5.5 Update 3a/ 3b VMware vSphere® ESXi™ 6.0 Update 1a/ 1b/ 2/ 3
520H B4	VMware vSphere® ESXi™ 5.5 Update 3b VMware vSphere® ESXi™ 6.0 Update 1b/ 2/ 3
520X B1	VMware vSphere® ESXi™ 5.5 Update 3a/ 3b VMware vSphere® ESXi™ 6.0 Update 1a/ 1b/ 2/ 3
520X B2	VMware vSphere® ESXi™ 5.5 Update 3a/ 3b VMware vSphere® ESXi™ 6.0 Update 1a/ 1b/ 2/ 3
520X B3	VMware vSphere® ESXi™ 6.0 Update 2/ 3

## 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 1-5 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 VMware vSphere® ESXi™ 6.0	C-States	Disable

## Restriction on FC, iSCSI and FCoE connection on VMware vSphere® ESXi™

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

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

**Table 1-6 OS conditions restricted on FC, iSCSI and FCoE connection on VMware vSphere® ESXi™**

Compute Blade	Condition	OS	Boot	EFI settings	
				Item	setting
520X B1 520X B2	2-blades or 4-blades SMP	VMware vSphere® ESXi™ 5.1	FC iSCSI FCoE	SAS	Disable
		VMware vSphere® ESXi™ 5.5	iSCSI		

## Restriction on using 10Gb 4-port onboard CNA or 2-port CNA adapter on VMware vSphere® ESXi™

When using 10Gb 4-port onboard CNA or 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 using 10Gb 4-port onboard CNA or 2-port CNA adapter**

When using 10Gb 4-port onboard CNA or 2-port CNA adapter, the supported firmware version depends on the OS version. And the way or the procedure to install the driver depends on the driver version. Furthermore the firmware version 11.1.215.0 or later does not support the following features.

- SR-IOV
- iSCSI
- FCoE
- LPAR

For details, refer to MK-99COM103 Hitachi Compute Blade Emulex Adapter User's Guide for Driver.

## **Restriction on using Emulex 16Gb 2-port FC adapter**

When using Emulex 16Gb 2-port FC adapter, the supported firmware version depends on the OS version. And the way or the procedure to install the driver depends on the driver version.

For details, refer to MK-99COM103 Hitachi Compute Blade Emulex Adapter User's Guide for Driver.

## 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, MM Config Base and SAS to prevent an LPAR manager boot failure.

Refer to *Procedure of changing EFI settings* and *Procedure of changing EFI settings (SAS)* sections when changing EFI settings.

**Table 1-7 Restriction on LPAR manager**

Compute Blade	LPAR manager	Condition	EFI settings	
			Item	setting
520X B1	Version 02-40 or lower	All conditions	PCI 64-bit Resource Allocation	Enable (default)
			MM Config Base	2GB (default)
	Version 02-45 or higher	Excluding 4-blades SMP	PCI 64-bit Resource Allocation	Enable (default)
			MM Config Base	2GB (default)
		4-blades SMP	PCI 64-bit Resource Allocation	Enable (default)
			MM Config Base	2GB (default)
520H B3 520H B4	All versions	All conditions	SAS	Disable
520X B2	version 02-1x	All conditions	PCI 64-bit Resource Allocation	Enable (default)
			MM Config Base	2GB
	version 02-25 or higher	All conditions	PCI 64-bit Resource Allocation	Enable (default)
			MM Config Base	3GB (default) (*1) 2GB (*2)
520X B3	All versions	All conditions	PCI 64-bit Resource Allocation	Enable (default)
			MM Config Base	3GB (default)

(\*1) It does not need to change from 3GB as default.

(\*2) It needs to set MM Config Base to the same value for 2 server blades concurrent maintenance are executed.

Ex.: server blade(LPAR manager ver.02-1x) -> 2GB

server blade(LPAR manager ver.02-25) -> 2GB



## Restriction on using 64GB LRDIMM

When you use 64GB LRDIMM on compute blade with both conditions shown in the following table, you must not change default EFI settings shown in the table to avoid Memory Error.

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

**Table 1-8 Restriction on using LRDIMM**

Compute Blade	Condition	EFI settings	
		Item	setting
520X B2	64GB LRDIMM	Fast Boot	Disabled (default)

## Restriction on Windows Server® 2016

When you install Windows Server® 2016 on compute blade shown in the following table, you must use a dedicated driver to avoid fatal system error.

Refer to MK-99COM076 Hitachi Compute Blade Series Hitachi Compute Rack Series OS Installation Guide for Windows Server.

**Table 1-9 Restriction on installation of Windows Server® 2016**

Compute Blade	Condition	OS
520X B2 520X B3 520H B3 520H B4	Broadcom 1Gb 4-port LAN mezzanine card	Windows Server® 2016

## Restriction on using Broadcom 1Gb 4-port LAN mezzanine card on VMware vSphere® ESXi™ 6.5

When using Broadcom 1Gb 4-port LAN mezzanine card on VMware vSphere® ESXi™ 6.5 environment, the following warning message displays on "/var/log/vmkernel.log" at running host OS.

```
WARNING: ntg3: Ntg3Attach:776: 0000:xx:xx.x:Failed to initialize hardware (195887105)
```

You can ignore this message if you can find the following message in "/var/log/vmkernel.log".

```
Mod: 4968: Initialization of tg3 succeeded with module ID 4129. tg3 loaded successfully.
```

## Restriction on using Broadcom 1Gb 4-port LAN mezzanine card on Red Hat® Enterprise Linux®6 or 7

When using Broadcom 1Gb 4-port LAN mezzanine card connect to Brocade 10Gb DCB switch on Red Hat® Enterprise Linux®6 or 7 environment, the following linkdown message about 1Gb 4-port LAN mezzanine card might be displayed on system event log at booting OS.

If the following linkup message is displayed after the linkdown message, you can ignore the linkdown message.

```
localhost kernel: tg3 0000:xx:xx.x xxxxxx: Link is down  
localhost kernel: tg3 0000:xx:xx.x xxxxxx: Link is up at 1000 Mbps, full duplex
```

## Restriction on using 10GBase-SR 2-port LAN adapter when updating to VMware vSphere® ESXi™ 6.7 Update 1 or later

In the configuration using 10GBase-SR 2-port LAN adapter, and when updating VMware vSphere® ESXi™ to 6.7u1 or later from 6.5u2 or earlier, the NIC driver will not become the recommended driver. In the case of updating to ESXi 6.7u1 or later from the past version of ESXi, the two NIC drivers (ixgben and net-ixgbe) need to be removed with the following command before updating ESXi.

```
[root@localhost:~] esxcli software vib remove --vibName=ixgben  
[root@localhost:~] esxcli software vib remove --vibName=net-ixgbe
```

## Restriction on using VMware vSphere® ESXi™ on Compute Blade 520H B3

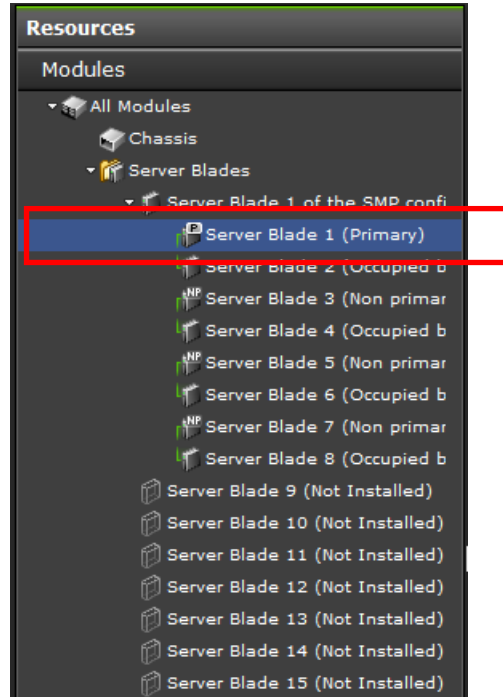
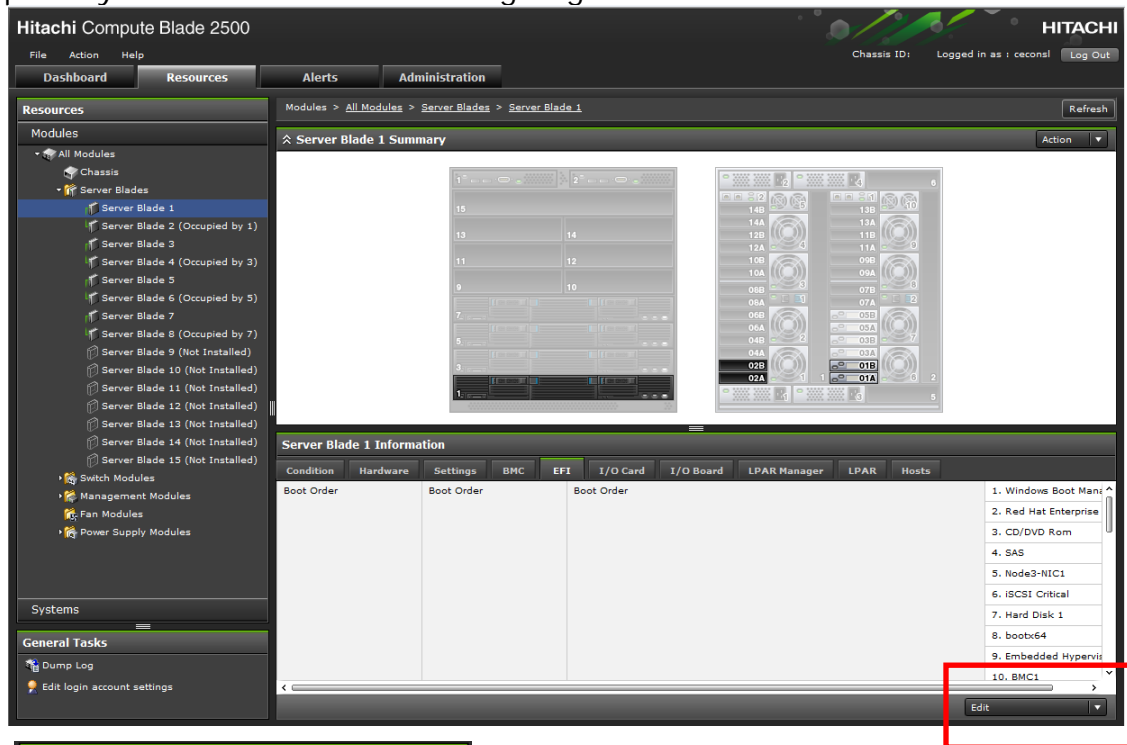
When you use VMware vSphere® ESXi™ 6.5u3 / 6.7u1 or later on compute blade 520H B3, you must NOT change EFI settings from shown in the table to avoid the system failure.

**Table 1-10 Restriction on using VMware on CB520H B3**

Compute Blade	OS	EFI settings	
		Item	setting
520H B3	VMware vSphere® ESXi™ 6.5 Update 3 VMware vSphere® ESXi™ 6.7 Update 1 or later	System Boot Mode	UEFI Mode

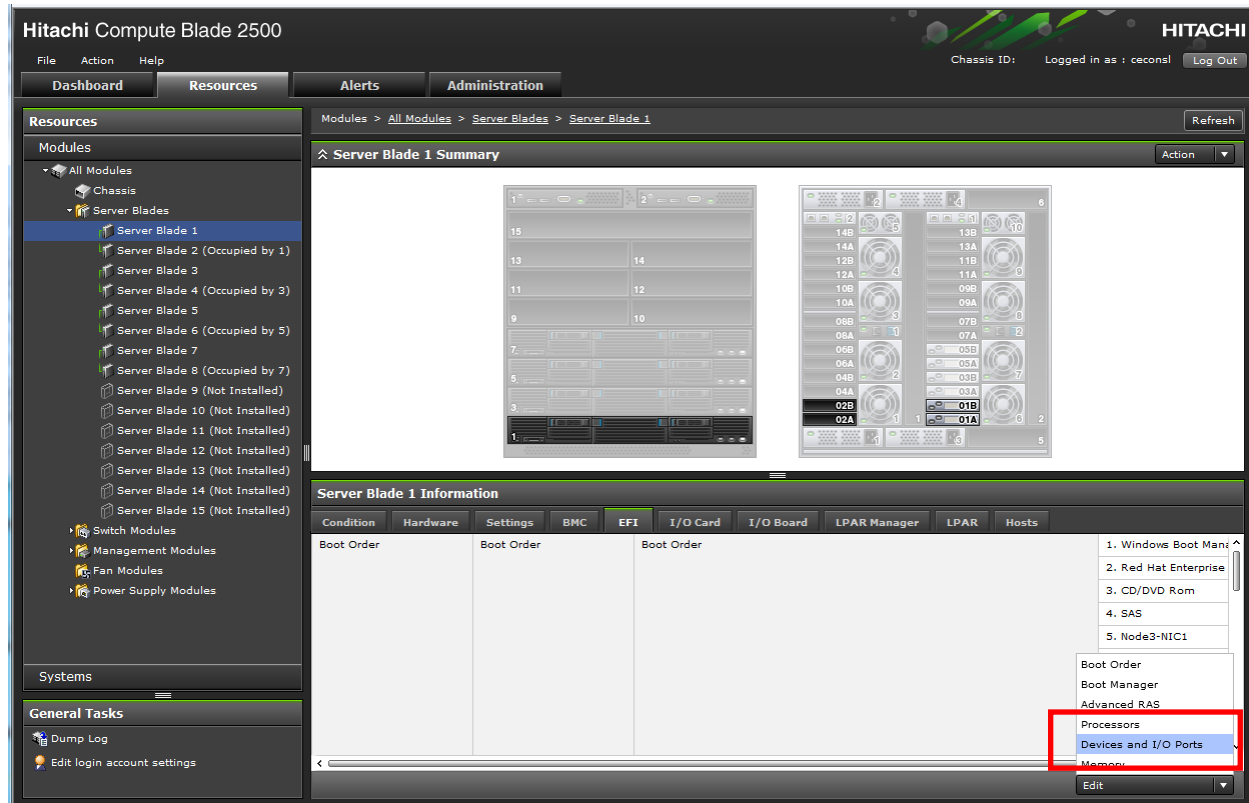
## Procedure of changing EFI settings

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

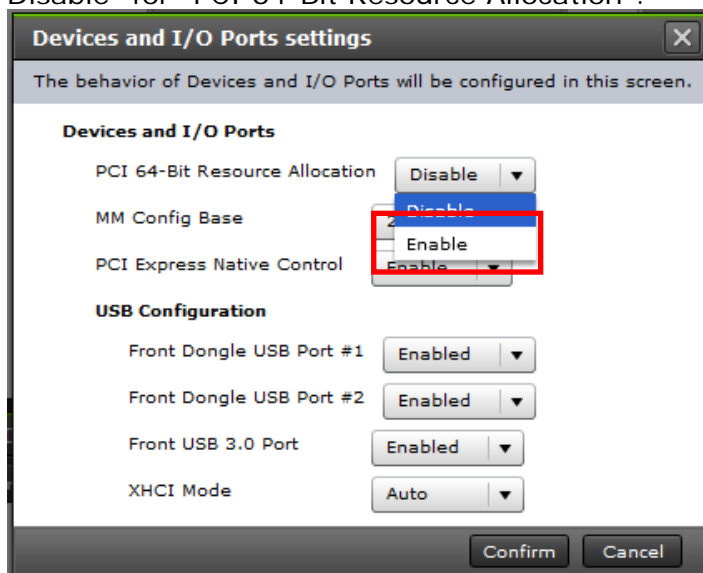
2. Click [Devices and I/O Ports].



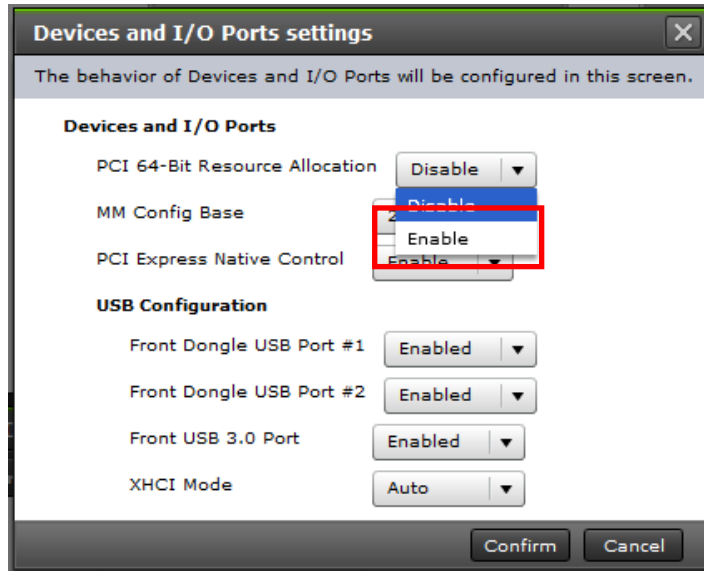
3. In “Devices and I/O Ports setting” dialog box, select and change to the setting you require, and click [Confirm].

(1) Setting PCI 64-Bit Resource Allocation

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



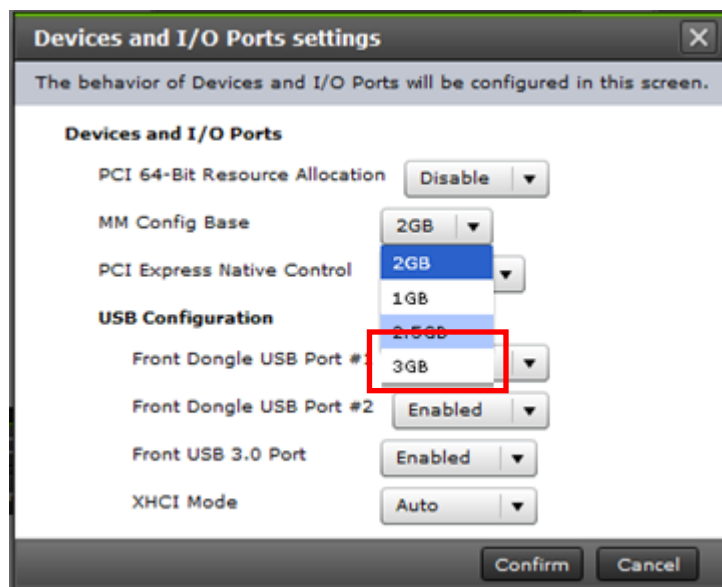
Restriction on LPAR manager requires selecting "Enable" for "PCI 64-Bit Resource Allocation".



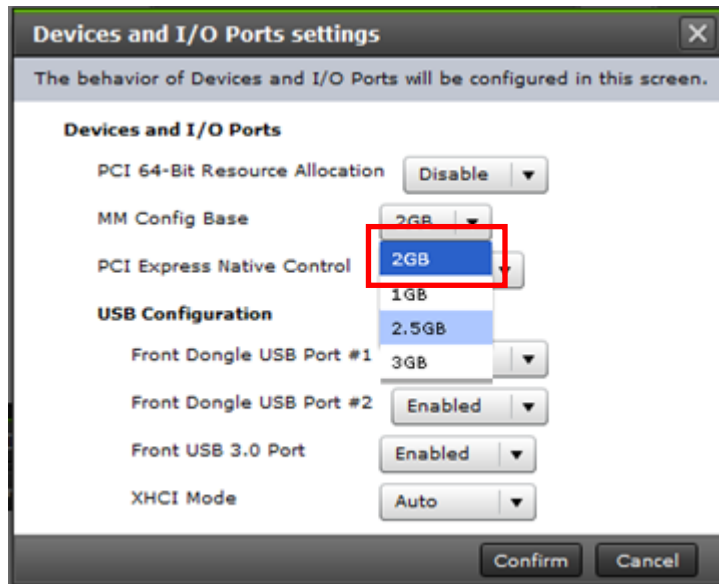
## (2)Setting MM Config Base

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

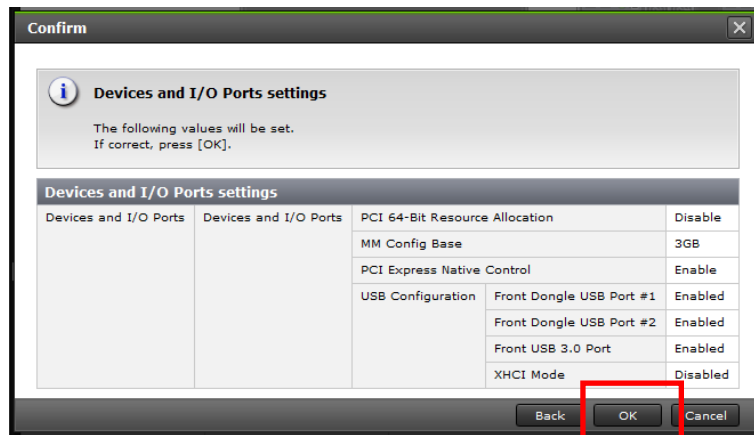
Note : When an NVIDIA GRID K2 GPU Adapter is installed with 520HB3, it requires changing to "2.5GB"



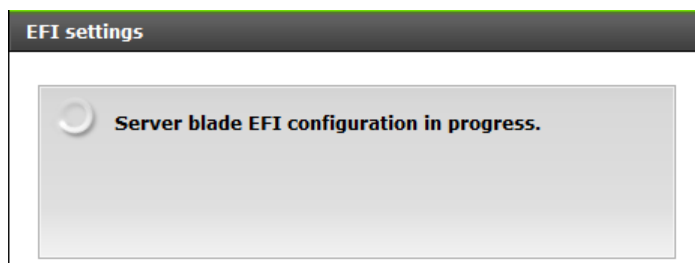
Restriction on LPAR manager requires selecting "2GB" or "3GB" for "MM Config Base".



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

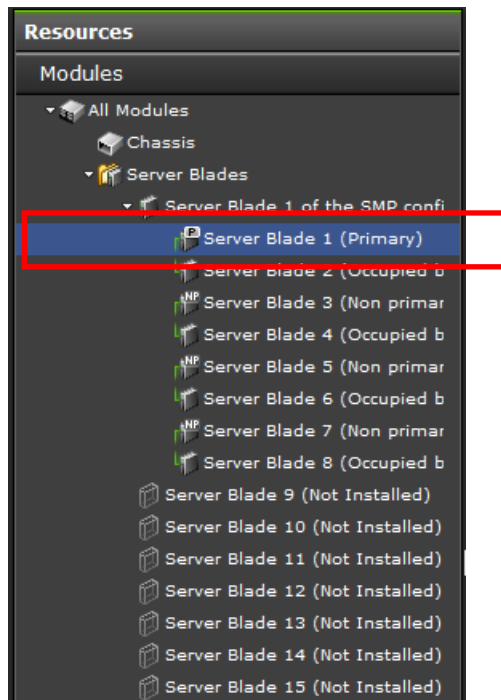
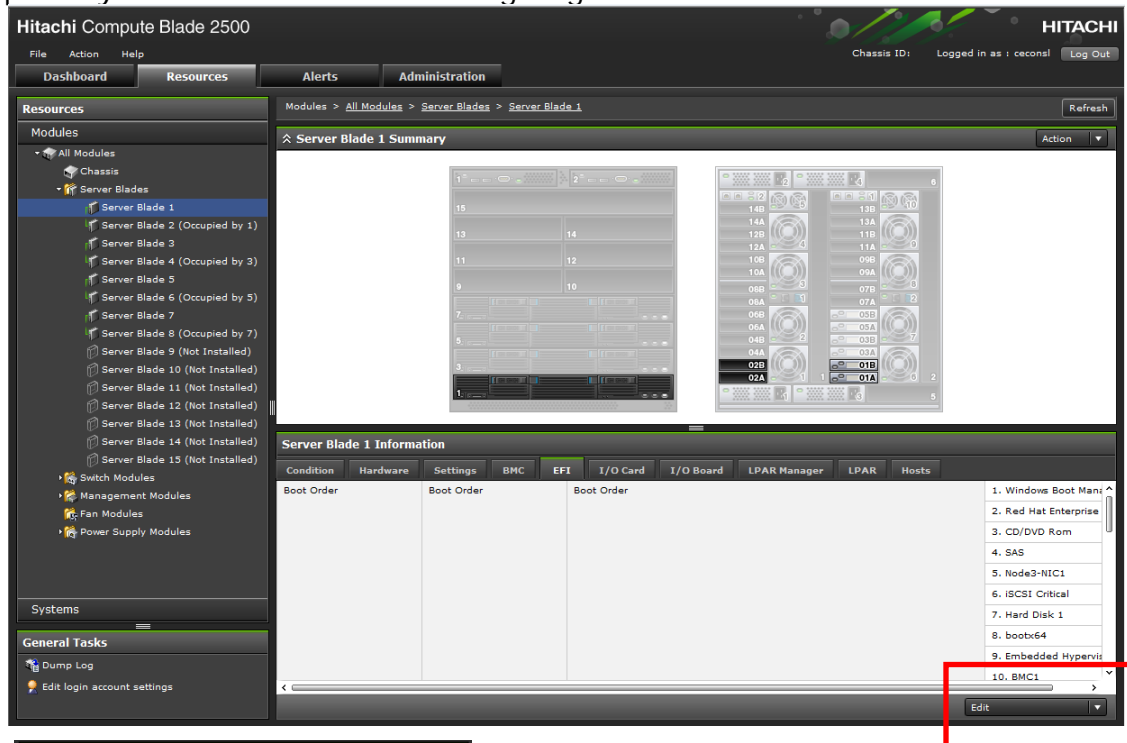


5. Wait for completion of EFI settings.



## Procedure of changing EFI settings (Processors)

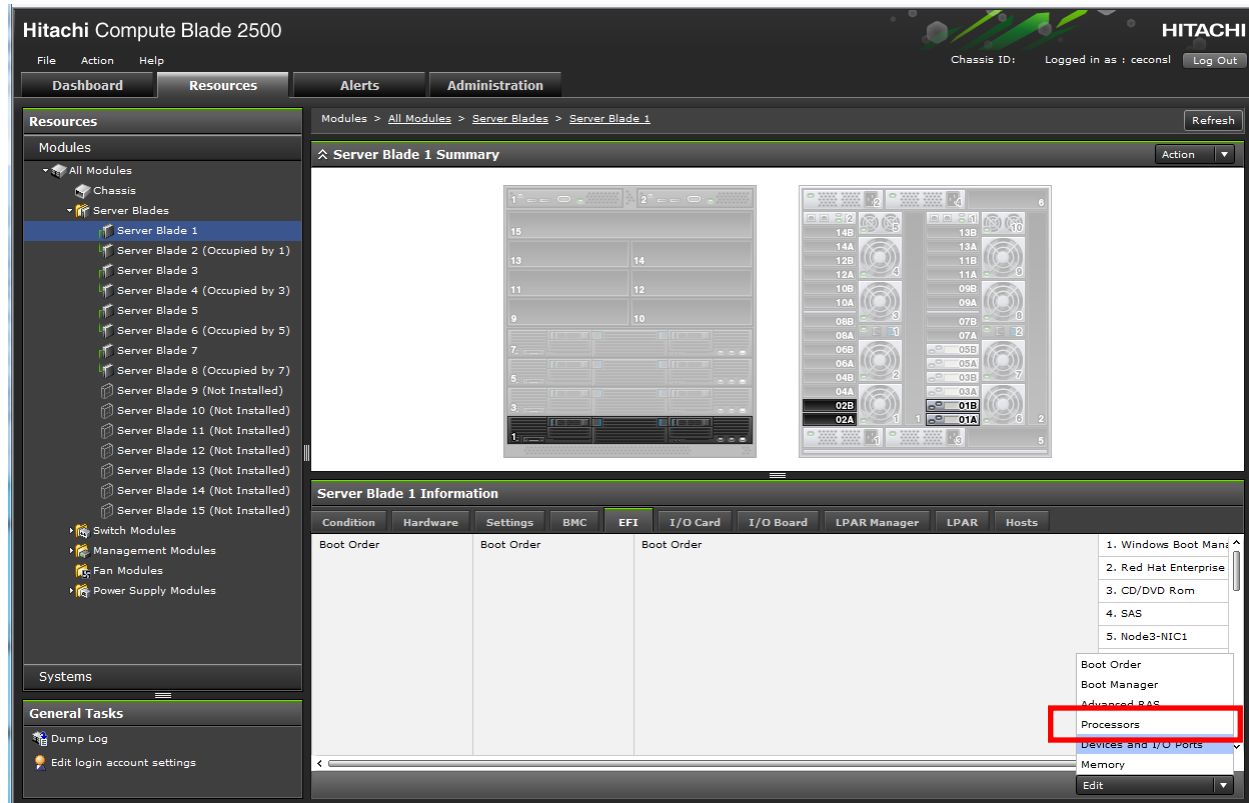
1. Click [Resources] > [Modules] > Target Server blade, then click “EFI” tab and “Edit” button. In SMP(Symmetric Multi Processor) configuration, select the primary server blade when selecting target server blade.



Example of SMP configuration



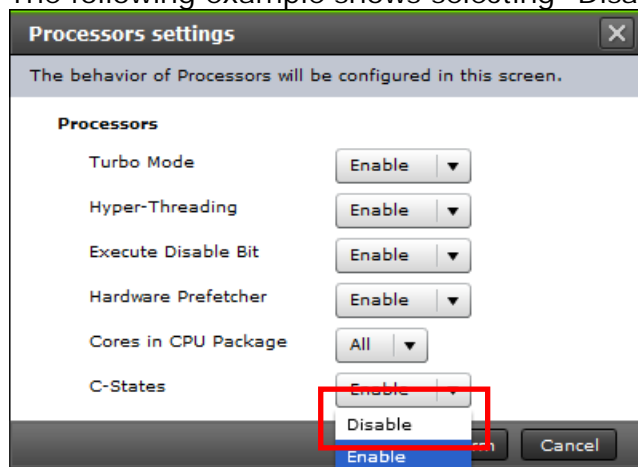
2. Click [Processors].



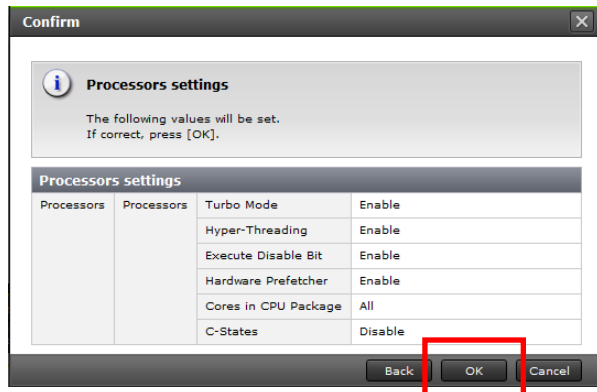
3. In "Processors settings" dialog box, select and change to the setting you require, and click [Confirm].

(1) Setting C-States

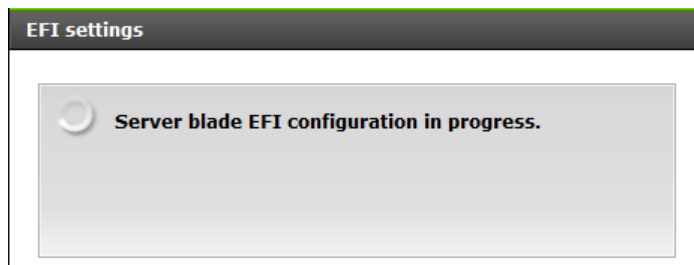
The following example shows selecting "Disable" for "C-States".



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

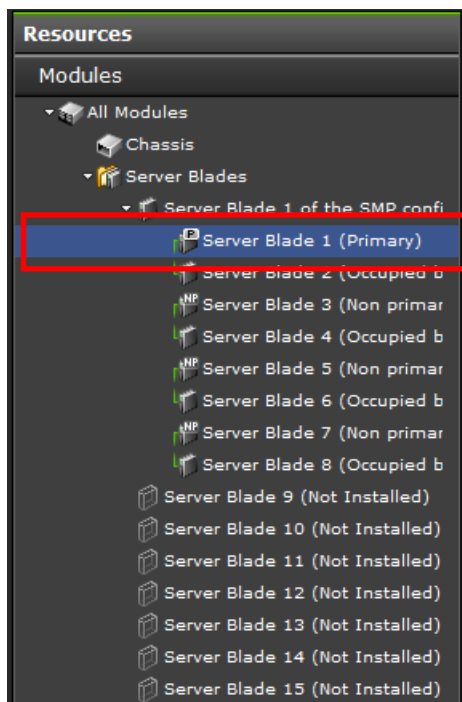
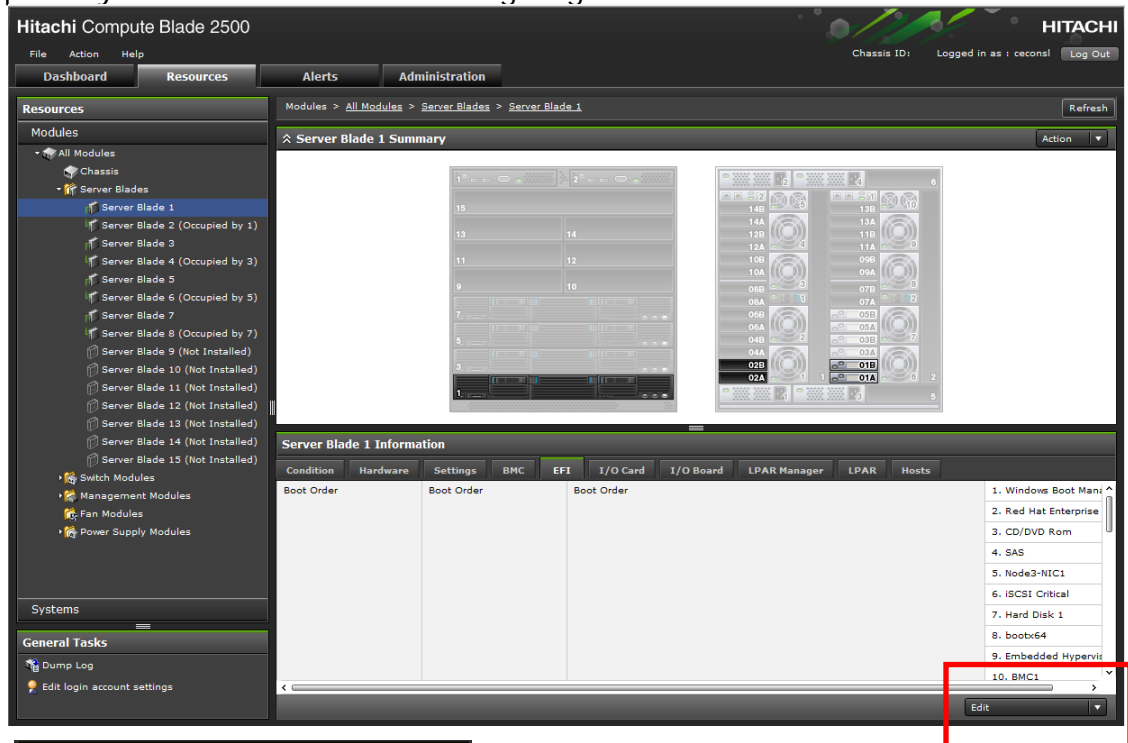


5. Wait for completion of EFI settings.



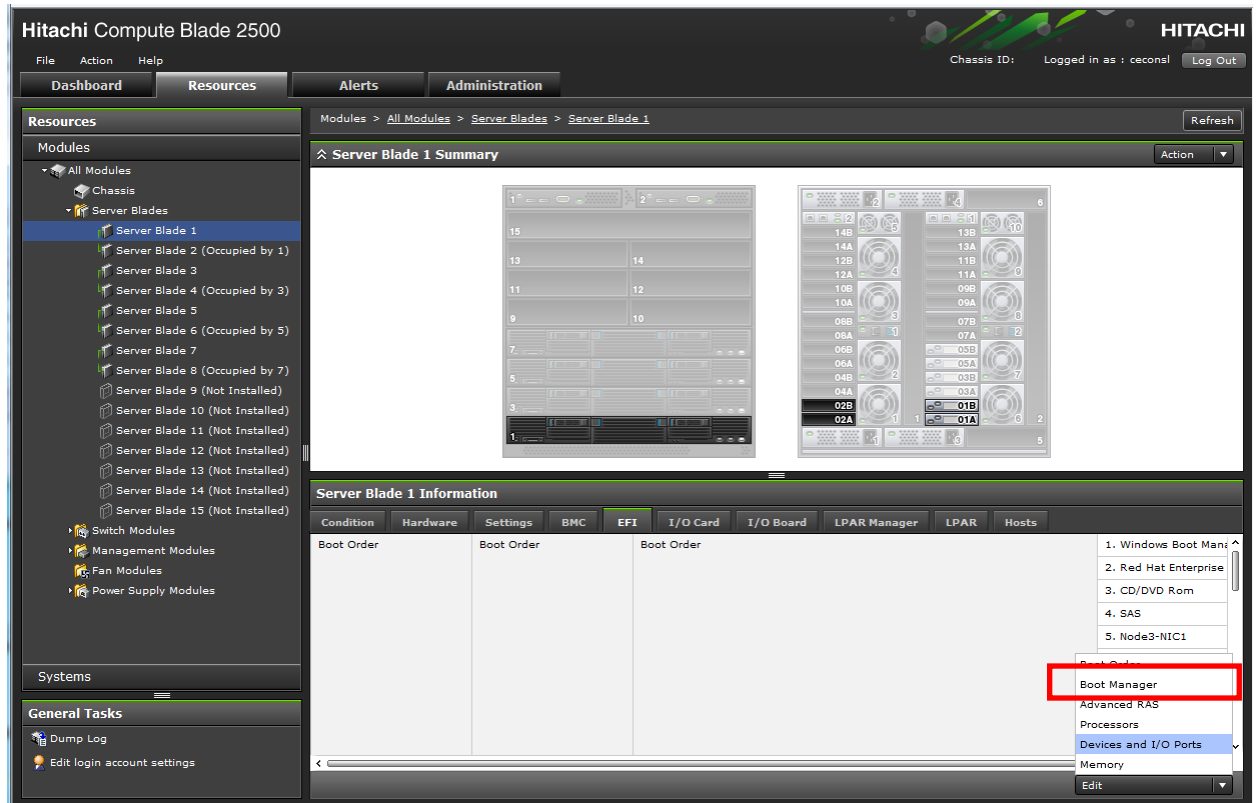
## Procedure of changing EFI settings (Boot Manager)

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

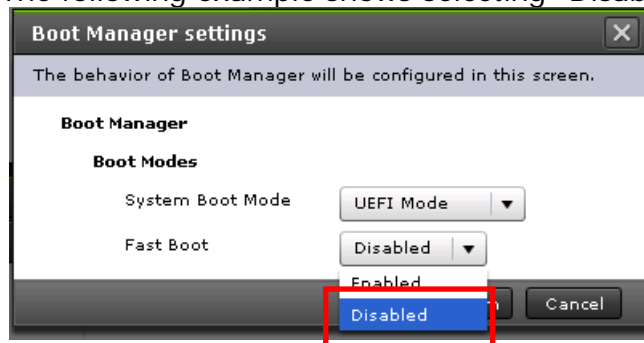
2. Click [Boot Manager].



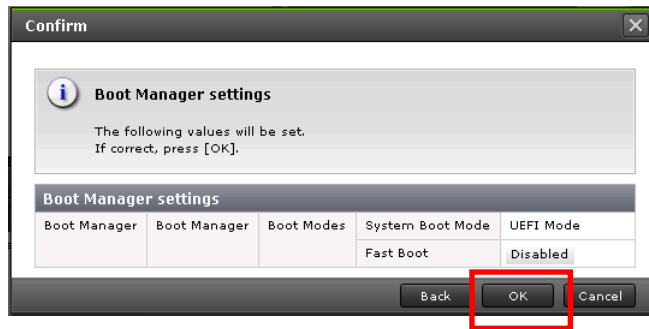
3. In “Boot Manager settings” dialog box, select and change to the setting you require, and click [Confirm].

(1) Setting Fast Boot

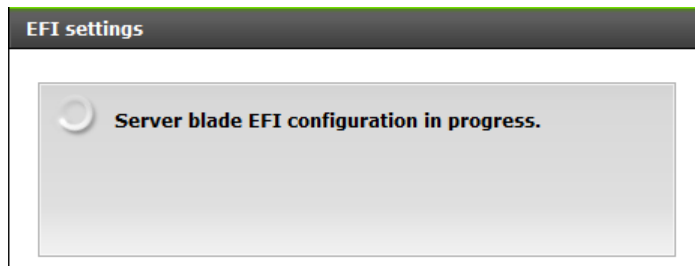
The following example shows selecting “Disabled” for “Fast Boot”.



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

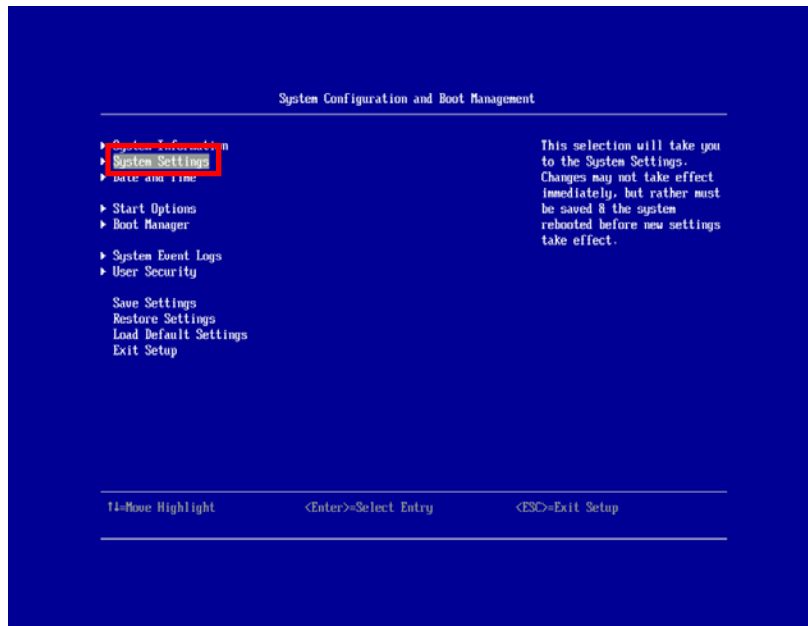


5. Wait for completion of EFI settings.

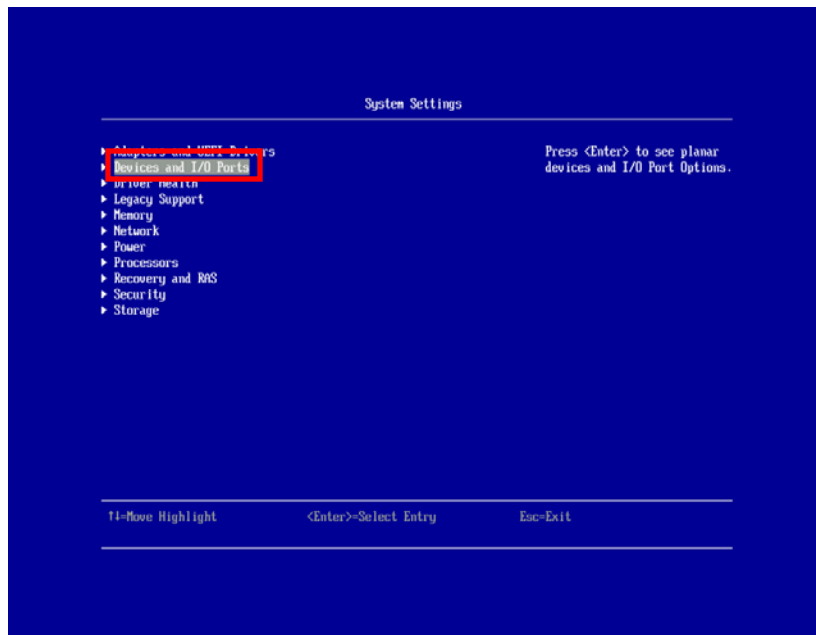


## Procedure of changing EFI settings (SAS)

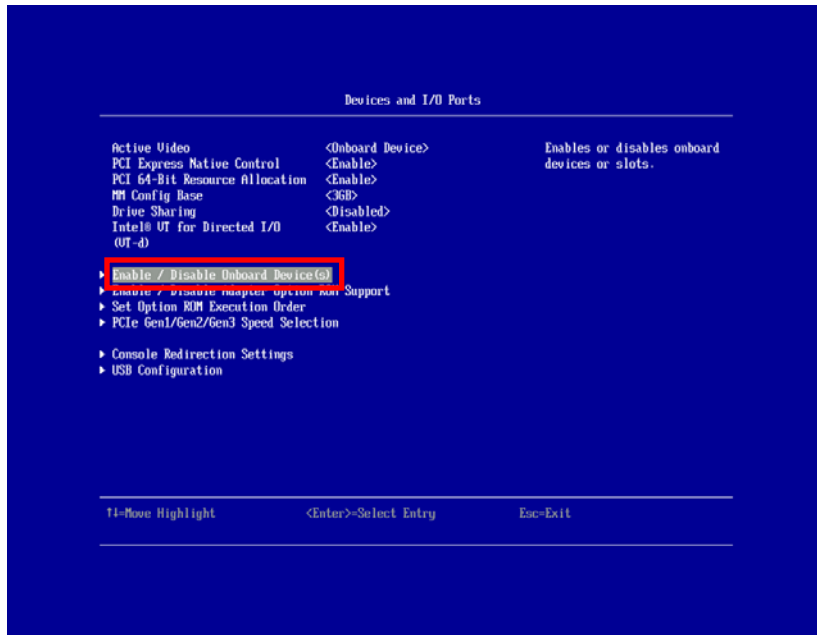
1. Select [System Settings] in [System Configuration and Boot Management] window, and press [Enter].



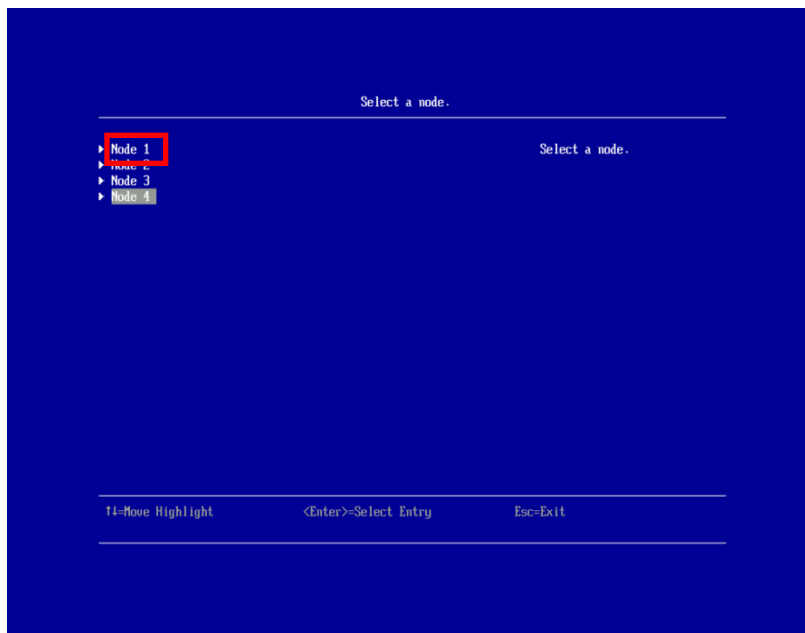
2. Select [Devices and I/O Ports] in [System Settings] window, and press [Enter].



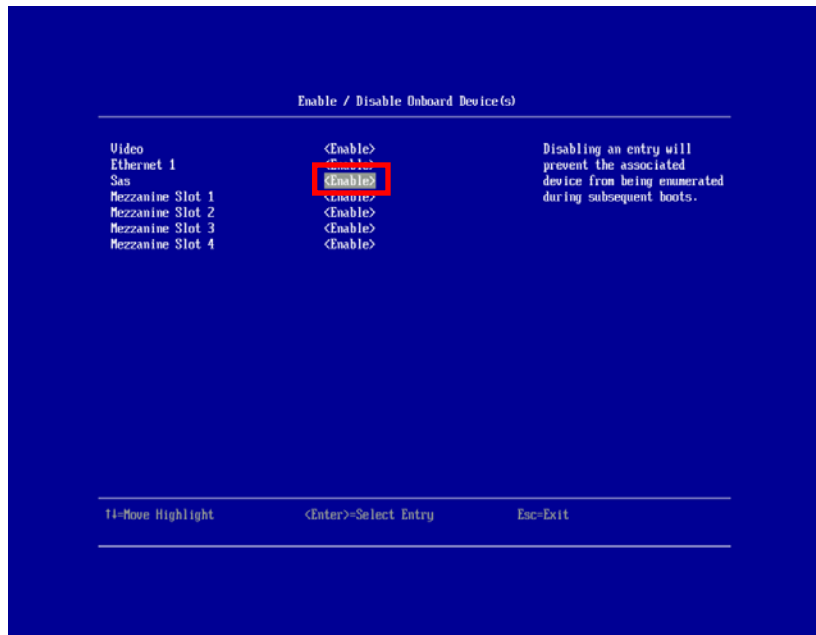
3. Select [Enable / Disable Onboard Device(s)] in [Devices and I/O Ports] window, and press [Enter].



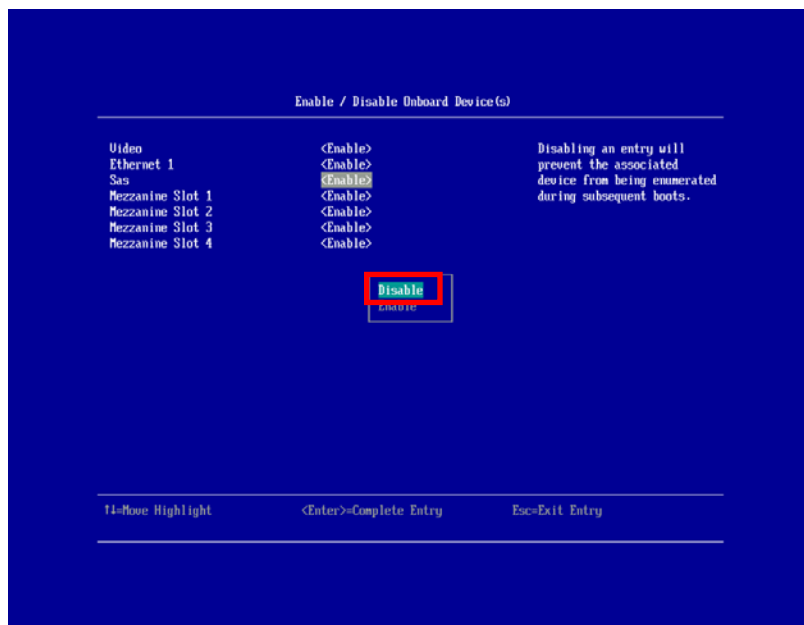
4. Select target node number in [Select a node.] window, and press [Enter].



5. Select [Sas] in [Enable / Disable Onboard Device(s)] window, and press [Enter].



6. Select [Disable], and press [Enter].



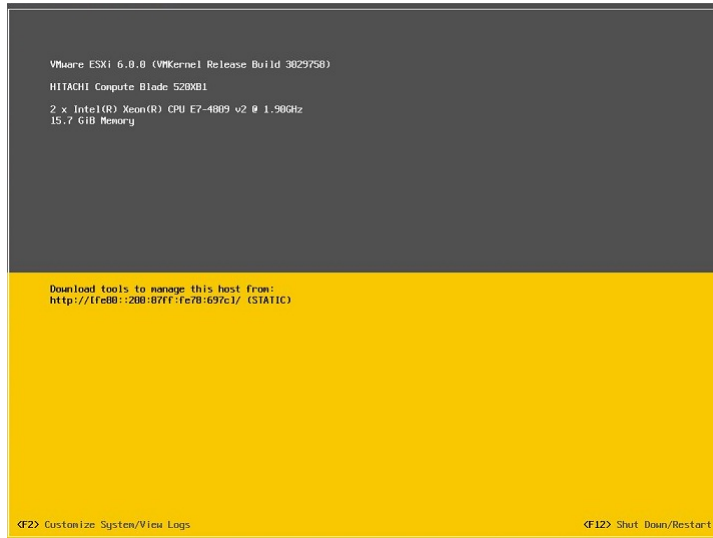


7. Press [Esc] several times until [Select a node.] window in step 4 is displayed. Repeat from step 4 to step 6 for all nodes of SMP.

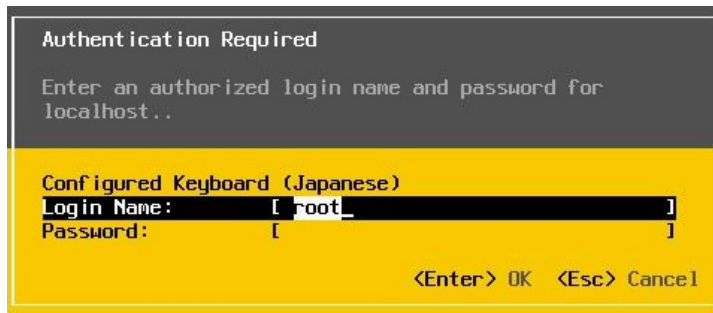
8. Press [Esc] several times until [System Configuration and Boot Management] window in step 1 is displayed. Select [Save Settings], and press [Enter].

## Procedure of applying a RAID driver “megaraid\_sas”

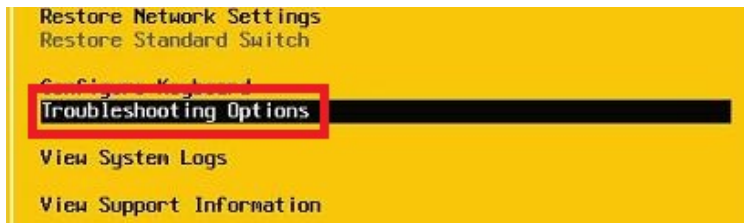
1. If the guest OS is already running on VMware ESXi, shutdown all the guest OS running on VMware ESXi, and change the VMware ESXi into the maintenance mode.
2. Open the VMware ESXi window of targeting server blade.



3. Press [F2] in VMware ESXi window. The [Login] window is displayed. Enter [root] as login name and the [password] for root.



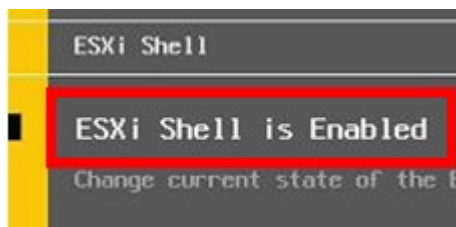
4. After log in, confirm that [System Customization] window is displayed. Move to [Troubleshooting Options] in [System Customization] window by using arrow keys, and then press [Enter].



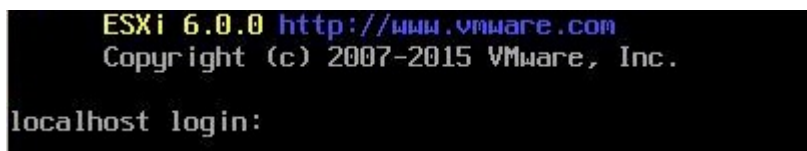
5. When setting of the service console is [ESXi Shell is Disabled], move to [Enable ESXi Shell] by using arrow keys, and then press [Enter].



6. Confirm that the window changed to [ESXi Shell is Enabled].



7. Press [Alt] + [F1] in VMware ESXi window. The [Login] window is displayed. Enter [root] as login name and the [password] for root.



8. Execute the following command on ESXi shell to set up “megaraid\_sas” driver to be loaded.

```
esxcli system module set -e false -m lsi_mr3
```

9. Reboot the VMware ESXi.

10. Execute the following command on ESXi shell, and confirm that the command returns “megaraid\_sas”.

```
vmkload_mod -l | grep megaraid_sas
```





# 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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