

# Hitachi Compute Blade Installation Guide for SUSE Linux

## OS Installation Guide

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# Preface

This document describes how to install and setup SUSE Linux on Compute Blade.

This preface includes the following information:

- ☐ [Intended Audience](#)
- ☐ [Release Notes](#)
- ☐ [Document Conventions](#)
- ☐ [Convention for storage capacity values](#)
- ☐ [Getting Help](#)
- ☐ [Comments](#)

**Notice:** The use of Hitachi Compute Blade servers 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 anyone who needs to install and setup SUSE Linux on Compute Blade.

## Release Notes





Read the release notes before installing and using this product. They may contain requirements or restrictions that are not fully described in this document or updates or corrections to this document.

# Document Conventions

This document uses the following typographic conventions:

Convention	Description
<b>Regular text bold</b>	In text: keyboard key, parameter name, property name, hardware labels, hardware button, hardware switch. In a procedure: user interface item
<i>Italic</i>	Variable, emphasis, reference to document title, called-out term
Screen text	Command name and option, drive name, file name, folder name, directory name, code, file content, system and application output, user input
< > (angled brackets)	Variable (used when italic is not enough to identify variable).
[ ] (square bracket)	Optional values
{ } braces	Required or expected value
vertical bar	Choice between two or more options or arguments
_(underline)	Default value, for 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.

## Convention for storage capacity values

Physical storage capacity values (for example, disk drive capacity) are calculated based on the following values:

Physical capacity unit	Value
1 kilobyte (KB)	1,000 ( $10^3$ ) bytes
1 megabyte (MB)	1,000 KB or $1,000^2$ bytes
1 gigabyte (GB)	1,000 MB or $1,000^3$ bytes
1 terabyte (TB)	1,000 GB or $1,000^4$ bytes
1 petabyte (PB)	1,000 TB or $1,000^5$ bytes
1 exabyte (EB)	1,000 PB or $1,000^6$ bytes

Logical storage capacity values (for example, logical device capacity) are calculated based on the following values:

Logical capacity unit	Value
1 block	512 bytes
1 KB	1,024 ( $2^{10}$ ) bytes
1 MB	1,024 KB or $1,024^2$ bytes
1 GB	1,024 MB or $1,024^3$ bytes
1 TB	1,024 GB or $1,024^4$ bytes
1 PB	1,024 TB or $1,024^5$ bytes
1 EB	1,024 PB or $1,024^6$ bytes

## Getting Help

The Hitachi Data Systems customer support staff is available 24 hours a day, seven days a week. If you need technical support, log on to the Hitachi Data Systems Portal for contact information: <https://portal.hds.com>

## Comments

Please send us your comments on this document: [doc.comments@hds.com](mailto:doc.comments@hds.com). Include the document title and number including the revision level (for example, -07), and refer to specific sections and paragraphs whenever possible. All comments become the property of Hitachi Data Systems Corporation.

**Thank you!**



# Scope

This chapter describes the scope and the limitations when installing Operating Systems described in this document on Hitachi Compute Blade servers.

- [Supported Operating Systems](#)
- [Limitations](#)

## Supported Operating Systems

The following chapters provide the information how to install and configure the Operating Systems listed below.

- SUSE Linux Enterprise Server 10
- SUSE Linux Enterprise Server 11
- SUSE Linux Enterprise Server 12
- SUSE Linux Enterprise Server 15

## Limitations

Hitachi is only responsible for the server hardware when installing and the use of Operating Systems, (hereinafter referred to as OS) listed in the section, **Supported Operating Systems**.

- Hitachi Proprietary features such as HSCM, Hitachi Server Conductor, and IOEU are only supported on the Hitachi servers with Windows, Red Hat Enterprise Linux, and VMware.

HSCM:                      Hitachi Compute Systems Manager

IOEU:                      I/O Slot Expansion Unit

- Hitachi Compute Blade servers are certified for each OS version by Operating System distributor. Any inquiries related to OS or the outbox drivers provided from I/O device vendor should be sent to OS distributor or the I/O device vendor based on the customer's Support Agreement with them
- Some I/O options may not be supported in combination with servers and OS. Please check Hardware Compatibility List on I/O options provided by OS distributors, and contact sales representative or contracted support representative for the supported I/O options on Compute Blade servers.

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# SUSE Linux Installation and Setup

This chapter describes how to install and setup **SUSE Linux** on Hitachi Compute Blade.

- [General Information](#)
- [Prerequisites](#)
- [Installing](#)
- [Setting after Installation](#)

## General Information

### Related documentation

The following web site provides the documents how to install, configure and operate **SUSE Linux**.

Please see the document before installation.

#### **SUSE Linux Support**

<https://www.suse.com/>

### Hardware Compatibility

Hitachi Compute Blade servers are certified for each OS version by **Novell**. For detailed information about Server hardware compatibility of Hitachi Compute Blade servers, please see the following web site.

#### **SUSE Linux Certified Hardware**

<https://www.suse.com/yessearch/Search.jsp>

## Prerequisites

### Boot from SAN

If you install **SUSE Linux** to boot from SAN, you have to follow the configuration rules and select the appropriate settings to the Server chassis, the Fibre Channel adapters, the SAN storage systems and Fibre Channel switches.

Please consult the reseller from which you purchased the product for details about updates for the SAN environment configuration.

### Installation Media

Please obtain an appropriate installation media from OS distributor.

In order to install OS to SAN with Hitachi Gigabit Fibre Channel Adapter, please prepare the driver disc media of it.

### Setting up LPAR manager

For setup procedure of LPAR manager, please refer to one of the following user's guides.

**Hitachi Compute Blade 2500 Series Logical partitioning manager User Guide**

**Hitachi Compute Blade 500 Series Logical partitioning manager User's Guide**

**Hitachi Compute Blade 2000 USER'S GUIDE**

# Installing

## Installing

When installing **SUSE Linux**, you can use CD/DVD or specify ISO image directly when connecting a server using Remote Console.

For installation procedure of **SUSE Linux**, please see the following web site.

### **SUSE Documentation**

<https://www.suse.com/documentation/>

For installation procedure with Hitachi Fibre Channel Adapter, please see the following web site.

### **HITACHI Gigabit Fibre Channel Adapter USER'S GUIDE (SUSE Linux Enterprise Server driver Edition)**

<https://download.hds.com/download/epcra/com1372.pdf>

## Management LAN Port on Compute Blade 2000

On particular models (X55A1/A2, X57A1/A2) of Compute Blade 2000 servers, Intel® 82567LF-2 Gigabit Network Connection is a management LAN port. Do not use this network adapter on the Operating System.

The network adapter is identified as eth<number> on **SUSE Linux** and Intel® 82567LF-2 Gigabit Network Connection is assigned as the largest number.

## Restrictions

There are the following restrictions for LPAR manager.

- Performing a migration execution in Shutdown mode or Concurrent Maintenance mode for LPARs with **SUSE Linux** is not supported.
- Performing an N+M Cold Standby execution for an LPAR manager on which LPARs with **SUSE Linux** exist is not supported.
- Detaching a USB/KVM device from the LPAR is not supported if all of the following conditions are met.
  - (1) A Remote Console is connected to the LPAR.
  - (2) **SUSE Linux** Enterprise Server 12 SP3 or higher is running.
  - (3) Systemd.target is Graphical.target(runlevel is 5).

Note:

"Detaching a USB/KVM device from the LPAR" is automatically occurred when you change the connection of Remote Console to other LPAR.

# Settings after installation

## Additional package

### For SUSE Linux Enterprise Server 15

Please install rsyslog package after SUSE Linux Enterprise Server 15 installation.

The rsyslog package isn't automatically installed during the OS installation and system log isn't saved on /var/log/message.

1. Install the following rsyslog package

### For SUSE Linux Enterprise Server 15 SP1

rsyslog-8.33.1-\*.\*.x86\_64.rpm

### For SUSE Linux Enterprise Server 15 SP2

rsyslog-8.39.0-\*.\*.x86\_64.rpm

2. Confirm to be set the following setting in /etc/systemd/journald.conf

ForwardToSyslog=yes

3. Start rsyslog service with the following command.

systemctl start rsyslog

## Additional OS option setting on Basic mode

Please configure the following OS option setting on Basic mode.

### For all SUSE Linux Enterprise Server

1. Customizing /etc/sysctl.conf

Add the following settings.

- kernel.sysrq = 1
- kernel.unknown\_nmi\_panic = 0
- kernel.panic\_on\_unrecovered\_nmi = 1
- kernel.panic\_on\_io\_nmi = 1
- kernel.printk = 3 4 1 7

2. Disabling TCP Checksum Offload function

Targeted drivers

- tg3 driver
- igb driver

### For SUSE Linux Enterprise Server 11 SP3

#### 3. Customizing /etc/modprobe.conf.local

Add the following settings.

- install \*\_edac /bin/true
- install edac\_\* /bin/true

#### 4. Customizing /etc/sysconfig/syslog

Change the following setting.

- KERNEL LOGLEVEL=3

## Additional OS option setting for guest OS on LPAR

Please configure the following OS option setting for the guest OS on an LPAR.

### For all SUSE Linux Enterprise Server

#### 1. Customizing kernel settings

- Execute the following command.  
# yast
- Select "System", and then press the Tab key.
- Select "Boot Loader", and then press an Enter key.
- Press the F4 key to optimize some settings of the kernel.
- Press the Tab key three times, and then add the following options at the end of the "kernel Image" row.

Compute Blade	Options
CB500	console=tty0 console=ttyS1 vga=792
CB2500	
CB2000	console=tty0 console=ttyS0 vga=792

- Press the F10 key to finish setting options.
- Press the F10 key to apply the settings.
- Press the F9 key to exit the yast command mode.

#### 2. Customizing /etc/sysctl.conf

Add the following settings.

- kernel.sysrq = 1



- kernel.unknown\_nmi\_panic = 0
- kernel.panic\_on\_unrecovered\_nmi = 1
- kernel.panic\_on\_io\_nmi = 1
- kernel.printk = 3 4 1 7

### 3. Customizing /etc/securetty

Add the following settings.

Compute Blade	Settings
CB500	ttyS1
CB2500	
CB2000	ttyS0

### 4. Customizing offload option settings

It is necessary to set the values shown in the following Table 1.

Table 1. Offload option settings

NIC scheduling mode	Device	Offload value to be set							
		rx	tx	tso	sg	ufo	gso	gro	lro
Shared NIC and virtual NIC	Intel (R) 82576 Ethernet	off	on	on	on	off	on	off	off
Dedicated NIC	Broadcom 1 Gbps Ethernet	Not supported							
	Emulex 10 Gbps Ethernet	on	on	on	on	off	on	on	off
	Intel (R) 10GBASE-SR Ethernet	on	on	on	on	off	on	off	off
VF NIC	Intel (R) 10GBASE-SR Ethernet	on	on	on	on	off	on	off	off

## For SUSE Linux Enterprise Server 11 SP3

### 5. Customizing /etc/modprobe.conf.local

Add the following settings.

- install \*\_edac /bin/true
- install edac\_\* /bin/true

### 6. Customizing /etc/sysconfig/syslog

Change the following setting.

- KERNEL LOGLEVEL=3

### 7. Customizing /etc/inittab

Add the following settings.

Compute Blade	Settings
CB500	S1:12345:respawn:/sbin/agetty 115200 ttyS1
CB2500	
CB2000	S0:12345:respawn:/sbin/agetty 115200 ttyS0

### For SUSE Linux Enterprise Server 12 and 12 SP1

#### 8. Customizing /etc/modprobe.d/99-local.conf

Add the following settings.

- install \*\_edac /bin/true
- install edac\_\* /bin/true

#### 9. Customizing /etc/rsyslog.conf

Modify the following setting as follows.

- \$klogConsoleLogLevel 3

### For all SUSE Linux Enterprise Server

#### 10. Rebooting OS

Reboot the OS with the reboot command.

## OS patches

Please apply patches, fixes and updates as needed. You can download the latest binaries from the **SUSE** download site.

## Drivers and utilities

Please update drivers of adapters as needed.







# Acronyms and Abbreviations

BSMI	Bureau of Standards, Metrology and Inspection
CD	Compact Disk
CPU	Central Processing Unit
CRU	Customer Replaceable Units
DBS	Deep Brain Stimulation
DCB	Direct Copper Bonding
DIMM	Dual Inline Memory Module
DVD	Digital Versatile/Video Disk
EFI	Extensible Firmware Interface
EIA	Environmental Impact Assessment
FC	Fibre Channel
FCC	Federal Communications Commission
FD	Floppy Disk
FTP	File Transfer Protocol
HDD	Hard Disk Drive
ID	Identity Document
IO	Input/Output
IP	Internet protocol
iSCSI	Internet Small Computer System Interface
KVM	Keyboard, Video and Mouse
LAN	Local Area Network
LED	Light Emitting Diode
OS	Operating System
PC	Personal computer
PCI	Peripheral Component Interconnect
SAN	Storage Area Network
SAS	Serial Attached SCSI
SNMP	Simple Network Management Protocol
SSD	Solid State Drive
SVP	SerVice Processor
USB	Universal Serial Bus
VLAN	Virtual LAN

WEEE	Waste Electrical and Electronic Equipment
WWN	World Wide Name



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