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Installation Guide for SUSE Linux

Logical partitioning manager OS Installation Guide

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Contents

Preface

This document describes how to install and set up a SUSE Linux OS on Compute Blade.

This preface includes the following information:

- ☐ Intended Audience
- ☐ Product Version
- ☐ Release Notes
- ☐ Document Conventions
- ☐ 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 users who desire to install and set up a SUSE Linux OS on Compute Blade.

Product Version

This document revision applies to Hitachi Compute Blade servers.

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
Bold	Indicates text on a window, other than the window title, including menus, menu options, fields, and labels. Example: Click **OK**.
Italic	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: `copy` *`source-file target-file`* ***Note:*** Angled brackets (< >) are also used to indicate variables.
`screen/code`	Indicates text that is displayed on screen or entered by the user. Example: `# pairdisplay -g oradb`
< > angled brackets	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: `# pairdisplay -g <group>` ***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.
underline	Indicates the default value. Example: [a | 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.
	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. 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!**

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Scope

This chapter introduces the supported combinations of OS version and server blade models, the hardware requirements, and the setting requirements.

- ☐ Supported combinations of OS and server blade model
- ☐ Hardware requirements
- ☐ Setting requirements

Supported combinations of OS and server blade model

The following table lists the supported combinations of OS and server blade model.

Table 1-1 Supported combinations of OS and server blade model

Server blade model \ OS		SUSE for SAP 11 SP3 [1]	SUSE for SAP 12 [2]
CB 2500	CB 520X server blade B2 [3]	Yes	Yes
	CB 520X server blade B3 [3]	No	Yes

[1]: SUSE Linux Enterprise Server for SAP Applications 11 SP3

[2]: SUSE Linux Enterprise Server for SAP Applications 12

[3]: The Enterprise license is required.

Hardware requirements

The hardware requirements are as follows:

- I/O device

  You are required to install all of the following I/O devices in a server blade.

  - Onboard LAN
  - 10GBASE-SR 2-port LAN adapter

    Note that the "ixgbe LAN" driver is required.
  - Hitachi 16Gb 2-port fibre channel adapter

Requirements of LPAR configuration

The following table lists the requirements of LPAR configuration.

Table 1-2 Requirements of LPAR configuration

Item		Requirement
Resource assignment	Scheduling mode of processors	Dedicated mode
	Scheduling mode of NIC	Dedicated mode
	Scheduling mode of FC	Dedicated mode
Performance tuning options		Enabled
The other requirements		See in "Performance tuning options" in "5 Setting Processors and Memory Functionality" in the *Hitachi Compute Blade 2500 Series Logical partitioning manager User Guide*

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Installation and Setup

This chapter describes how to install and set up a SUSE Linux OS on Hitachi Compute Blade.

- Related document
- Restrictions
- Setting up SUSE Linux

Related document

You are required to refer to the following documents to set up an LPAR manager, install a SUSE Linux OS and a SUSE Linux Enterprise Server driver, and so on.

- *Hitachi Compute Blade 2500 Series Logical partitioning manager User Guide*
- *HITACHI Gigabit Fibre Channel Adapter USER'S GUIDE (SUSE Linux Enterprise Server driver Edition)*

Restrictions

There are the following restrictions on LPARs with a SUSE Linux OS.

- Performing a migration execution in Shutdown mode or Concurrent Maintenance mode to LPARs with the subject OS.
- Performing an N+M Cold Standby execution to an LPAR manager where LPARs with the subject OS exist.

Setting up SUSE Linux

The steps for setting up a SUSE Linux OS are as follows:

- LPAR manager settings
- LPAR configuration
- OS installation
- OS option settings
- Application of OS patches

Note that, for the step “OS option settings”, the procedure for SUSE Linux Enterprise Server for SAP Applications 11 SP3 and that for SUSE Linux Enterprise Server for SAP Applications 12 are respectively described below in this section: “Setting up SUSE Linux”.

LPAR manager settings

See “Starting and Stopping LPAR manager” in the *Hitachi Compute Blade 2500 Series Logical partitioning manager User Guide*.

Then, enable the “Performance tuning options” parameter and confirm the restrictions on “Performance tuning options”, seeing “Performance tuning options” in “Setting Processors and Memory Functionality” in the *Hitachi Compute Blade 2500 Series Logical partitioning manager User Guide*.

LPAR configuration

See “Creating LPARs” in “Creating LPARs” in the *Hitachi Compute Blade 2500 Series Logical partitioning manager User Guide*.

Then, see “Changing the configuration of an LPAR” in “Creating LPARs” in the *Hitachi Compute Blade 2500 Series Logical partitioning manager User Guide*.

OS installation

Having the LPAR recognize the Driver & Utility CD for SUSE Linux

You are able to select one way to have the LPAR recognize the Driver & Utility CD for SUSE Linux from the following two ways:

- Having the remote console recognize the ISO image of the Driver & Utility CD

  Start the remote console. Next, push the "Remote CD/DVD" button on the remote console and then have the remote console recognize the ISO image of the Driver & Utility CD in a CD/DVD drive.

- Connecting a CD/DVD drive with the Driver & Utility CD to a USB port

  Connect the USB connector of a CD/DVD drive direct to a USB port on a server blade and then insert the Driver & Utility CD to the CD/DVD drive.

Changing the boot order and setting the UEFI driver

Make sure that you configure two paths so that an LU in which to install the OS can be accessed through the two paths, in advance. See "Setting the boot order for LPARs from the Web console" in "Creating LPARs" in the *Hitachi Compute Blade 2500 Series Logical partitioning manager User Guide*.

Saving the LPAR manager configuration

See "Saving the LPAR manager" in "Creating LPARs" in the *Hitachi Compute Blade 2500 Series Logical partitioning manager User Guide*.

Installing OS and SUSE Linux Enterprise Server driver

Once the message "Connecting Boot Devices and Adapters --" is displayed on the remote console after activating the LPAR, you are required to push the F1 key. We recommend that you read “Install driver on Linux” in the *HITACHI Gigabit Fibre Channel Adapter USER’S GUIDE (SUSE Linux Enterprise Server driver Edition)* in advance. Also, you can move on to the next step smoothly by starting the remote console in advance.

(1) Activate the LPAR and then enlarge the remote console screen.

(2) From the step required to push the F1 key in “Install driver to SAN with Hitachi Gigabit Fibre Channel Adapter” in “Install driver on Linux” in the *HITACHI Gigabit Fibre Channel Adapter USER’S GUIDE (SUSE Linux Enterprise Server driver Edition)*, follow the procedure in the chapter.

(3) Install LAN drivers, seeing in the Hitachi Compute Blade 2500 Intel LAN Driver Instruction Manual for SUSE Linux Enterprise Server.

OS Option settings for SUSE Linux Enterprise Server for SAP Applications 11 SP3

Start the terminal console and then configure the following settings.

Customizing kernel settings

1. Execute the following command.

yast

2. Select “System”, and then press the Tab key.

3. Select “Boot Loader”, and then press an Enter key.

4. Press the F4 key to optimize some settings of the kernel.

5. Press the Tab key three times, and then add the following options at the end of the “kernel Image” row.

nmi_watchdog=0 mce=0 pci=noaer scsi_mod.scan=sync no_timer_check console=tty0 console=ttyS1,115200 apic=verbose intel_idle.max_cstate=0 processor.max_cstate=0 elevator=deadline

6. Press the F10 key to finish setting options.

7. Press the F10 key to apply the settings.

8. Press the F9 key to exit the yast command mode.

Customizing /etc/modprobe.conf.local

Add the following settings.

install *_edac /bin/true

install edac_* /bin/true

Customizing /etc/sysconfig/syslog

Change the following setting.

KERNEL_LOGLEVEL=3

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

Customizing /etc/securetty

Add the following settings.

```
ttyS1
```

Customizing /etc/inittab

Add the following settings.

```
S1:12345:respawn:/sbin/agetty 115200 ttyS1
```

Rebooting OS

Reboot the OS with the reboot command.

OS Option settings for SUSE Linux Enterprise Server for SAP Applications 12

Start the terminal console and then configure the following settings.

Customizing kernel settings

1. Execute the following command.

yast

2. Select "System", and then press the Tab key.

3. Select "Boot Loader", and then press an Enter key.

4. Select "Kernel Parameters" with the right arrow key.

5. Press the Tab key twice, and then add the following options at the end of the "Optional Kernel Command Line Parameter" row.

intel_idle.max_cstate=0 processor.max_cstate=0 elevator=deadline nmi_watchdog=0 mce=0 pci=noaer scsi_mod.scan=sync no_timer_check console=tty0 console=ttyS1,115200 apic=verbose

6. Press the F10 key to apply the settings.

7. Press the F9 key to exit the yast command mode.

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

Add the following settings.

install *_edac /bin/true

install edac_* /bin/true

Customizing /etc/rsyslog.conf

Modify the following setting as follows.

$klogConsoleLogLevel 3

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

Customizing /etc/securetty

Add the following settings.

```
ttyS1
```

Rebooting OS

Reboot the OS with the reboot command.

Application of OS patches

Apply patches, fixes, or updates to the OS at your own risk though the OS can run properly with no patches, fixes, or updates. You are able to download the latest patches, fixes, and updates from the SUSE Linux download site.

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Support

This chapter describes support inquiries.

- Inquiry

Inquiry

- A server configuration that meets the requirements described in Chapter 1 has been certified for SUSE Linux Enterprise Server for SAP Applications 11 SP3 by the Operating System vendor. You should make any inquiries about the OS to the Operating System vendor according to the customer's Support Agreement with them.
- You should make any inquiries about the outbox drivers to the I/O device vendor according to the customer's Support Agreement with them.
- I/O options not described in this installation guide may not fit in with the combination with SUSE Linux Enterprise Server for SAP Applications 11 SP3 and a supported server blade where the OS is running. For I/O options on Compute Blade servers, contact your sales representative or support representative.

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