



# Installation Guide for Oracle Solaris

## Logical partitioning manager OS Installation Guide

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# Preface

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

This preface includes the following information:

- [Intended audience](#)
- [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 anyone who needs to install and setup Oracle Linux on Compute Blade.

## **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





The term "Compute Blade" see all the models of the Compute Blade, unless otherwise noted.

The Hitachi Virtualization Manager (HVM) name has been changed to Hitachi logical partitioning manager (LPAR manager, or LP). If you are using HVM based logical partitioning feature, substitute references to Hitachi logical partitioning manager (LPAR manager, or LP) with HVM.

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: # 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> <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.

The following table shows abbreviations of logical partitioning manager and logical partition.

Term	Abbreviation
logical partitioning manager	LPAR manager or LP
logical partition	LPAR

## 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://hdssupport.hds.com>.

## 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. **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 System](#)
- [Supported server hardware and LPAR manager firmware](#)

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## Supported Operating System

The following OSes are supported.

- Oracle Solaris 10 1/13 (Update 11)
- Oracle Solaris 11.1

## Supported server hardware and LPAR manager firmware

The following kinds of server hardware and the following versions of LPAR manager firmware are supported.

- Server hardware
  - Hitachi Compute Blade 2000 Standard Server Blade GVAX55S3/GVAX55R3
- LPAR manager firmware
  - LPAR manager firmware version: 59-50 or higher

# Oracle Solaris Installation and Setup

This chapter describes how to install and setup **Oracle Solaris** on Hitachi Compute Blade.

- [General Information](#)
- [Notes](#)
- [Setting up Solaris](#)

## General Information

### Related documentation

Install the OS, referring to the following manuals for the settings of the logical partitioning manager, and so on.

- Hitachi Compute Blade 2000 USER'S GUIDE
- Boot for the Fibre Channel Protocol User Manual for Emulex Adapters

The 'Systems Software' section of the following web site provides the documents how to install, configure and operate **Oracle Solaris**.

Please see these documents before installation.

<http://www.oracle.com/technetwork/documentation/index.html>

## Notes

### Notes on product specifications

- The product specifications for Solaris on Compute Blade are different from those for the OSEs on CB which are supported in public though they for the OSEs on CB which are supported in public are included in the user's guide for CB released publically.

For the differences, see the following tables.

#### Server Blades Supported by LPAR manager

Server blade <sup>*1</sup>		Supported by the following LPAR manager firmware versions
Standard server blade	X55A1	Not supported
	X55A2	Not supported
	X55R3/X55S3	59-50 or higher
High-performance server blade	X57A1	Not supported
	X57A2	Not supported

\*1: Internal disks, HDD and SSD, cannot be used.

#### PCI Devices Supported by LPAR manager

PCI device			Supported (Not supported) by the following LPAR manager firmware versions
NIC	Onboard	Intel 1 Gbps Ethernet x 2	Dedicated/Shared: 57-1X or higher
		Broadcom 1 Gbps Ethernet x 2 <sup>*1</sup>	Dedicated/Shared: 59-0X or higher
	Expansion card	1 Gbps Ethernet x 4	Dedicated/Shared: 57-1X or higher
		Intel Emulex 10 Gbps Ethernet x 2 <sup>*2 *3 *4 *5</sup>	Dedicated/Shared: 59-01 or higher
		Emulex 10 Gbps Ethernet x 4 <sup>*2 *3 *4 *5</sup>	Dedicated/Shared: 59-01 or higher
		Emulex 10 Gbps CNA x 2	Not supported
		Emulex 10 Gbps CNA x 4	Not supported
NIC	PCI card	Intel 1 Gbps Ethernet x 2	Dedicated/Shared: 57-1X or higher
		Intel 1 Gbps Ethernet x 4	Dedicated/Shared: 57-2X or higher
		Intel 10 Gbps Ethernet x 2	Not supported

PCI device			Supported (Not supported) by the following LPAR manager firmware versions
		Emulex 10 Gbps CNA x 2	Not supported
FC	Expansion card	Hitachi 4Gbps Fibre Channel x 2	Not supported
		Hitachi 8Gbps Fibre Channel x 2	Not supported
		Hitachi 8Gbps Fibre Channel x 4	Not supported
		Emulex 8Gbps Fibre Channel x 2	Dedicated: 59-50 or higher
	PCI card	Hitachi 4Gbps Fibre Channel x 2	Not supported
		Hitachi 8Gbps Fibre Channel x 1	Not supported
		Hitachi 8Gbps Fibre Channel x 2	Not supported
		Emulex 8Gbps Fibre Channel x 2	Dedicated: 59-50 or higher
Flash drive	PCI card	Fusion-io 365 GB PCIe Flash drive	Not supported
		Fusion-io 785 GB PCIe Flash drive	Not supported
		Fusion-io 1.2 TB PCIe Flash drive	Not supported

- \*1: This item is supported by standard server blades: X55R3/X55S3.
- \*2: This item is supported by standard server blades: X55R3/X55S3. Multi-channel, iSCSI, and FCoE are not supported.
- \*3: Multi Channel Mode is not supported. Disable Multi Channel Support using Emulex PXE Select Utility. Refer to "10 Gb Converged Network Products User's Guide" for details. With Logical partitioning Enabled, however, you cannot change the setting. If you need to change the setting, change Logical partitioning to Disabled.
- \*4: When used in shared mode, this item is recognized as 1 Gb LAN (Intel 82576) by the guest OS.
- \*5: When used in shared mode, total throughput is about 3 Gbps per LPAR manager.

### Functions Supported by LPAR manager on a Standard server blade

Item		Supported (Not supported) by the following LPAR manager firmware versions
Max number of LPARs	Definable LPARs	2: 59-50 or higher
Max number of LPARs	Activatable LPARs <sup>*1</sup>	
	LPAR manager standard mode	2: 59-50 or higher
	LPAR manager expansion mode	2: 59-50 or higher

Item		Supported (Not supported) by the following LPAR manager firmware versions	
FC	Dedicated FC		
	Minimum division unit	Controller: 57-1X or higher	
	Maximum number of dedicated FC ports to be dedicated to all LPARs	Identical to that of physical FC ports: 57-1X or higher	
	SAN boot	57-1X or higher	
	FC switch configuration for supporting NPIV	57-1X or higher	
	SAN storage direct-coupling configuration	58-1X or higher	
	Shared FC		
	Minimum division unit	Not supported	
	Maximum number of shared FC ports to be shared by all LPARs (4 Gbps fibre channel)	Not supported	
	Maximum number of shared FC ports to be shared by all LPARs (8 Gbps fibre channel)	Not supported	
	SAN boot	Not supported	
	FC switch configuration for supporting NPIV	Not supported	
	SAN storage direct-coupling configuration	Not supported	
	System operation	HCSM <sup>*2*3</sup>	
Supported <sup>*4</sup>			
HVM Navigator			
LPAR settings			
Monitoring		CPU monitoring	57-1X or higher
		NIC monitoring	57-1X or higher
		HBA monitoring	Not supported
		Memory monitoring	Not supported
Configuration viewer			
LPAR migration			
Firmware update			
Solutions			
58-6x or higher			

\*1: Up to 2 for Essential models.

\*2: This item is supported by standard server blade: X55R3/X55S3 models and high-performance server blade: X57A2 model.

\*3: HCSM 7.5.1 or higher is supported.

\*4: Contact your reseller for support status.

## Notes on FC HBA

- Only dedicated mode is supported for Emulex HBA's.
- FC port WWN information is not seen in the Allocated FC information screen when using Emulex HBA's.

## Notes on NIC

- When using virtual NICs and shared NICs, set the VNIC Device Type to NIC2 (Intel 82576) on the Virtual NIC Assignment screen. Do not set the VNIC Device type to NIC1 (PRO/1000).
- Assign 8 or fewer Virtual NIC Numbers to an LPAR where a Solaris 10 operates so that the DHCP server can assign IP addresses to the Solaris 10 when the Solaris 10 communicates. However, you can assign up to 16 Virtual NIC Numbers to an LPAR where a Solaris 10 operates when you set IP addresses on the Solaris 10 and then the Solaris 10 communicates.
- Assign 12 or fewer Virtual NIC Numbers to an LPAR where a Solaris 11 operates. It's recommended that you assign the number of physical ports on a server blade or fewer to an LPAR where a Solaris 11 operates.

## Notes in setup

- The following table shows the resource requirements on an LPAR. Adjust resources to assign to an LPAR for the system environment.

Setting item	Requirement
Processor	2 or more
Memory	2.0 GB or more
Disk	Partition to install an OS: 40 GB or larger on

## Notes on Concurrent Maintenance mode

- Cannot use the "Concurrent Maintenance mode" in "Migration" function on HVM Navigator to the LPAR.

## Notes in setting after installation

It's necessary to do additional settings after installing an OS. Do the settings as follows.

### Setting NTP

Do an NTP setting for OS time to be synchronized with the time of the NTP server.



## Setting packet filtering

For an LPAR with shared NICs configured redundantly, set "Inter-LPAR packet filtering" to "Disable(All)".

For the details, see "CB2000 USER'S GUIDE".

## Setting serial console on Solaris 10

1. Add "console=ttya" and "-v -m verbose" in the kernel line in "/rpool/boot/grub/menu.lst" as follows.

```
kernel$ /platform/i86pc/multiboot -B $ZFS-BOOTFS
```

```
kernel$ /platform/i86pc/multiboot -B console=ttya,$ZFS-BOOTFS -v -m verbose
```

2. Reboot the OS.

## Setting serial console on Solaris 11

1. Execute the following command on the terminal screen.

```
# bootadm change-entry -i 0 kargs="-B console=ttya -v -m verbose"
```

2. Reboot the OS.

## Notes on Solaris 11

This subsection describes notes on Solaris 11.

- When you install a Solaris 11 on an LPAR, the Solaris 11 may hang up. In this case, deactivate the LPAR and then activate the LPAR. You can judge that a Solaris is hanging up when the Solaris doesn't process anything for more than 10 minutes.
- When you install an OS on an LPAR with Solaris 11 Live DVD, don't assign shared NICs or virtual NICs to the LPAR. In this case, assign shared NICs or virtual NICs to the LPAR after installing an OS.

## Setting up Solaris

Outline procedures for setting up an OS are as follows;

- Setup in advance
- LPAR manager settings
- LPAR configuration
- Installing OS
- OS option settings
- OS patches

### Setup in advance

#### Terminal software setting

Prepare Terminal software for LPAR manager Boot.

See "Hitachi Compute Blade 2000 USER'S GUIDE" > LPAR manager (Hitachi Virtualization Management) > **Preparation for LPAR manager Boot** > **Terminal Software Setting**. If you have already set Terminal software, go on to the next step "LPAR manager settings".

### LPAR manager settings

See "Hitachi Compute Blade 2000 USER'S GUIDE" > LPAR manager (Hitachi Virtualization Management) > **LPAR manager Boot**. If you have already set LPAR manager, go on to the next step "LPAR configuration".

### LPAR configuration

It's recommended that 2 LPARs are created on an LP.

For the LPARs, the OS type has to be set to Solaris on the LPAR configuration screen.

Regarding Solaris 11 installation, EFI-BIOS Boot Option for Emulex Adaptor should be disabled during installation and should be enabled after installation to boot the OS.

See "Hitachi Compute Blade 2000 USER'S GUIDE" > LPAR manager (Hitachi Virtualization Management) > **Basic Operation of LPAR manager**. If you have already configured LPARs, go on to the next step "OS setup".

## Installing OS

### Configuring environment for setup

Perform "Remote CD/DVD" from the remote console, have the server blade recognize the DVD image file for installation, and then activate the LPAR.

Or

Connect a USB CD/DVD drive direct to the server blade, insert the installation DVD to the CD/DVD drive, and then activate the LPAR.

### Setting the EFI driver

See "Boot for the Fibre Channel Protocol User Manual for Emulex Adapters" > **EFIBoot**.

### Creating boot options

See "Hitachi Compute Blade 2000 USER'S GUIDE" > Logical partitioning manager > Guest OS Operation > Boot the Guest OS > **Creating Boot Options**.

### Changing boot orders

See "Hitachi Compute Blade 2000 USER'S GUIDE" > Logical partitioning manager > Guest OS Operation > Boot the Guest OS > **Changing Boot Orders**.

## Installing OS

### Installing Solaris 10

See the following web site > Oracle Solaris 10 1/13 Installation Guide: Basic Installations > Installing With the Oracle Solaris Installation Program For UFS File Systems (Tasks) > **x86: Performing an Installation or Upgrade for UFS File Systems With the Oracle Solaris Installation Program.**

[http://docs.oracle.com/cd/E26505\\_01/index.html](http://docs.oracle.com/cd/E26505_01/index.html)

### Installing Solaris 11

See the following web site > Installing Oracle Solaris 11.1 Systems > Installing Using Installation Media > Using Live Media > Installing With the GUI installer > **How to Perform a GUI Installation.**

[http://docs.oracle.com/cd/E26502\\_01/index.html](http://docs.oracle.com/cd/E26502_01/index.html)

## Checking after installation

### Checking screen resolution

Execute "xwininfo" and then check the value of "Depth".

### Checking if setting on serial console is done or not

Press [F8] on the LPAR manager menu screen as soon as the OS booting starts.

Then, check if the boot order is displayed on the LPAR screen or not.

## OS patches

Please apply patches, fixes, and updates on an OS at your own risk though the OS can run normally with no patches, fixes, and updates. You can download the latest binaries from the **Oracle** download site.

# Support

This chapter describes the support inquiries.

- [Inquiry](#)

## Inquiry

- 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 the OS distributor or the I/O device vendor based on the customer's Support Agreement with them.
- The I/O options which aren't explained in this installation guide may not be available in combination with the supported server and the supported OS. Please contact sales representative or contracted support representative for the I/O options on Compute Blade servers.

## Trouble shooting

### Remote Console

Keyboard and mouse operations are rarely unavailable on the remote console for a Solaris 11 when you operate the Solaris 11.

In this case, take one of the following measures:

- When remote console recovery is not indispensable
  - Operate a Solaris 11 on a remote terminal such as SSH.
  - or
  - Operate a Solaris 11 on a serial console
- When the remote console is necessary to be recovered and a remote terminal such as SSH and so on, or a serial console is available
  - (1) Shut down a guest OS with a remote terminal such as SSH and so on, or a serial console
  - (2) Activate the guest OS.



- The remote console cannot recover even if you reboot a guest OS on the LPAR.
- 

- When the remote console is necessary to be recovered and a remote terminal such as SSH, or a serial console is unavailable

- (1) Type [Enter] on "Dump" column of the LPAR where the Solaris 11 is running to retrieve a memory dump on the Solaris 11. For the way to retrieve memory dump on a guest OS, see "Hitachi Compute Blade 2000 USER'S GUIDE".
- (2) Deactivate the LPAR and then activate the LPAR.







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