

Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic Installation Guide For HBA Model 7335902



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Preface

- **Overview** – Describes how to install and remove the Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic
- **Audience** – Technicians, system administrators, and authorized service providers
- **Required knowledge** – Advanced experience installing and replacing hardware

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Product Documentation Library

Documentation and resources for this product and related products are available at [Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic Documentation](#).

Feedback

Provide feedback about this documentation at <http://www.oracle.com/goto/docfeedback> .

1

HBA Overview

This chapter provides a basic overview of the Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, which uses Marvell, formerly QLogic, technology. This chapter also describes the various operating systems, host platforms, storage, and infrastructure configurations that support the HBA, and lists the HBA environmental requirements.

This chapter contains the following topics:

- [Kit Contents](#)
- [HBA Features and Specifications](#)
- [Operating System and Technology Requirements](#)
- [System Interoperability](#)
- [Environmental Requirements](#)

Kit Contents

- Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic, with a low-profile bracket installed
- *Installing Components* document

HBA Features and Specifications

The Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, which uses Marvell, formerly QLogic, technology (part number: 7335902), is a low-profile, PCIe card that allows connectivity to Fibre Channel (FC) storage outside of the server. The board interfaces an eight-lane PCIe bus, supporting two enhanced Small Form-Factor Pluggable Plus (SFP+) FC optical media ports. Each independent FC port operates at 32 Gb/s and features 32/16/8 autonegotiation.

Table 1-1 HBA Features and Specifications

Feature	Description
Lane width	x8 PCIe 3.0 x8 lane width up to 8 GT/s per lane
PCI transfer rate (maximum)	PCI Express Generation Three x8 (8.0 GT/s) in an electrically x8 slot (default)
Data rate (maximum)	32 Gb/s FC per port, negotiable to 16, and 8 Gb/s
PCIe hot plug and hot swap functionality	Supported
Number of FC ports	Two
FC transfer rate	6400 MBps/line rate 28.05 GBAUD, full duplex
FC topologies	Switched fabric (N-Port), arbitrated loop (NL-Port), and point-to-point (N-Port) Note: Fibre Channel arbitrated loop is not available at 16 Gb/s and above.

Table 1-1 (Cont.) HBA Features and Specifications

Feature	Description
FC SAN boot support	Bootimg is supported for all supported operating systems. For more information about supported operating systems, see Operating System and Technology Requirements .
Diagnostic support	Provided by Oracle VTS software
External connectors	Two enhanced Small-Form Factor Pluggable Plus (SFP+) multimode optics with LC-style connectors per port
FC Compatibility	<ul style="list-style-type: none"> Fibre Channel Physical and Signaling (FC-PH, FC-PH2/3) Fibre Channel Arbitrated Loop (FC-AL, FC-AL-2) <p>Note: Fibre Channel arbitrated loop is not supported at data rates of 16Gb/s or faster. Instead, use point-to-point mode. However, if you manually change the HBA to the 8Gb/s or lower data rate, Fibre Channel arbitrated loop <i>is</i> supported.</p> <ul style="list-style-type: none"> Fibre Channel Framing and Signaling (FC-FS-4) Fibre Channel Link Services (FC-LS-2), including NPIV Fibre Channel Physical Interface (FC-PI, FC-PI-4, FC-PI-5, FC-PI6) Fibre Channel Tape and Medium Changers (FC-Tape) Fibre Channel Protocol for SCSI, (FCP-4-SCSI) Fibre Channel Switch Fabric (FC-SW-4) FMA support T-10 DIFF or T10-PI support
LED indicators	Three LEDs per port (green) on the front panel, as status indicators
Maximum power consumption	11.5 Watts

Operating System and Technology Requirements

The HBA requires the operating system and technology levels, at minimum, listed in [1-2 Supported Operating Systems/Technology Versions \(Minimum\)](#).

Note:

If you need to contact Oracle Support, first verify that you have a supported OS installed on the host system, and install the latest HBA driver, utility, and firmware versions. Updating the system and HBA to the latest OS, driver, utility, and firmware versions might address the issue, preventing the need to contact Oracle Support about an issue that has already been fixed.

Table 1-2 Supported Operating Systems/Technology Versions (Minimum)

Operating System/Technology	Supported Versions (Minimum)
Oracle Solaris OS for x86 and SPARC (64-bit) platforms	Oracle Solaris 11.4 with SRU 16 To obtain the latest patches and SRUs, go to: My Oracle Support
Oracle VM Technology	Oracle VM 3.4.6

Table 1-2 (Cont.) Supported Operating Systems/Technology Versions (Minimum)

Operating System/Technology	Supported Versions (Minimum)
Linux OS	<ul style="list-style-type: none"> Oracle Linux 8.4 with Red Hat Compatible Kernel (RHCK) and Unbreakable Enterprise Kernel (UEK) Release 6 (R6) Oracle Linux 7.7 with RHCK and UEK Release 5
Microsoft Windows Server OS Standard, Enterprise, and Datacenter Editions	<ul style="list-style-type: none"> Window Server 2019 Windows Server 2016
VMware Technology	VMware ESXi 6.5 U1

System Interoperability

This section provides information about selected platforms and storage that are compatible with the heterogeneous FC network design of the HBA. This section contains the following topics:

- [Host Platform Support](#)
- [Storage Support](#)
- [Switch Support](#)

Host Platform Support

The HBA is supported by the platforms listed in this section. For up-to-date information, see your system Product Notes and server platform product web pages. For operating system version information, see [Operating System and Technology Requirements](#).

Table 1-3 Oracle x86 Server Platform Support

Oracle x86 Servers	Supported OS/Technology
Oracle Server X9-2 and X9-2L	Oracle Solaris, Windows, Linux, VMware
Oracle Server X8-2, X8-2L, and X8-8	Oracle Solaris, Windows, Linux, VMware
Oracle Server X7-2, X7-2L, and X7-8	Oracle Solaris, Windows, Linux, VMware

Table 1-4 Oracle SPARC Server Platform Support

Oracle SPARC Servers	Supported OS/Technology
SPARC M7-4, M7-8, M7-16, and M7-32	
SPARC M8-8	Oracle Solaris
SPARC M10-1 and M10-4S	Oracle Solaris
SPARC M12-1, M12-2, and M12-2S	Oracle Solaris
SPARC S7-2 and S7-2L	Oracle Solaris
SPARC T8-1, T8-2, and T8-4	Oracle Solaris

Storage Support

This section lists the arrays, storage systems, and tape storage devices supported by the HBA. This section provides the following topics:

- [Array and System Support](#)
- [Tape Storage Support](#)

Array and System Support

The HBA supports connecting to, using a supported switch, the following arrays and storage systems:

- Oracle FS1-2 Flash Storage System
- Oracle ZFS Storage Appliance
- Zero Data Loss Recovery Appliance X7

Tape Storage Support

The HBA supports connecting to, using a supported switch, the following tape storage devices:

- Oracle StorageTek SL8500 modular library system
- Oracle StorageTek SL4000 modular library system
- Oracle StorageTek SL3000 modular library system
- Oracle StorageTek SL150 modular tape library
- Oracle StorageTek T10000C tape drive
- Oracle StorageTek T10000D tape drive
- Oracle StorageTek T10000E tape drive
- IBM LTO5, LTO6, and LTO7 tape drives

Switch Support



Note:

For technical support issues with any switches, refer to the product documentation or contact the switch manufacturer.

The HBA supports connecting to any 32/16/8 Gb/s Fibre Channel (FC) switch from any vendor that follows standard FC specifications, with the following considerations:

- Direct Access Storage for FC is supported with COMSTAR.
- Fibre Channel arbitrated loop is not supported at data rates of 16Gb/s or faster. Instead, use point-to-point mode. However, if you manually change the HBA to the 8Gb/s or lower data rate, Fibre Channel arbitrated loop is supported.



Note:

This documentation lists switches that are specifically *not* supported by the HBA, when applicable.

Environmental Requirements

[1-4 HBA Environmental Requirements](#) lists the HBA environmental requirements.

Table 1-5 HBA Environmental Requirements

Specification	Operating	Non-Operating
Temperature	0° to 55° C, non-condensing	-40° C to 70° C, non-condensing
Airflow	110 lfm at 55° C	n/a
Humidity	10% to 90% RH, non-condensing, 27° C max wet bulb	93% RH, non-condensing, 38° C max wet bulb
Altitude	3,000 m	12,000 m
Vibration	0.20 G in all axes swept for 5-500 Hz sine	1.0 G in all axes 5-500 Hz sine
Shock	5 G, 11 ms half-sine	30 G, 11 ms half-sine

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Hardware Installation and Removal

This chapter describes how to install and remove the HBA. Refer to your system installation guide or service manual for detailed instructions.

This chapter contains the following topics:

- [Observing ESD and Handling Precautions](#)
- [Best Practices for HBA Installation](#)
- [Installing the Hardware](#)
- [LED Status Overview](#)
- [Replacing the SFP+ Unit on the HBA](#)
- [Removing the HBA Hardware](#)

Observing ESD and Handling Precautions

 **Caution:**

Damage to the HBA can occur as the result of careless handling or electrostatic discharge (ESD). Always handle the HBA with care to avoid damage to electrostatic sensitive components.

To minimize the possibility of ESD-related damage, use both a workstation antistatic mat and an ESD wrist strap. You can get an ESD wrist strap from any reputable electronics store or from Oracle as part number 250-1007. Observe the following precautions to avoid ESD-related problems:

- Leave the HBA in its antistatic bag until you are ready to install it in the system.
- Always use a properly fitted and grounded wrist strap or other suitable ESD protection when handling the HBA and observe proper ESD grounding techniques.
- Hold the HBA by the edge of the PCB, not the connectors.
- Place the HBA on a properly grounded antistatic work surface pad when it is out of its protective antistatic bag.

Best Practices for HBA Installation

Before installing the HBA into the system, review the best practices in this section to avoid potential issues:

- [General Best Practices](#)
- [Best Practices For Switches and Zoning](#)
- [Best Practices For Booting From SAN \(BFS\) Configurations](#)

- [Best Practices For Testing the Environment](#)

General Best Practices

Follow these general best practices for installing and configuring the HBA:

- Spread the I/O load among multiple HBAs and multiple ports to avoid bottlenecks and promote higher availability.
- Use fixed link speeds instead of autonegotiation wherever possible. While the HBA supports autonegotiation, autonegotiation slows the system down in the event of a fabric rebuild.
- Do not configure both tape devices and disks on the same HBA port, even if using a switch and zoning.
- If more than one HBA model is present in the configuration, enable only the OptionROM (OpROM) for the first HBA seen in the boot sequence. There is a limited amount of space for OpROMs; therefore, do *not* unnecessarily enable all OpROMs, as space usage issues might occur.
- When installing the HBA, be sure to also install the latest version of the command-line utility available from the manufacturer web site (see [Installing a CLI for Updating the BIOS and Firmware](#)). Keep the HBA utilities, firmware, and drivers up-to-date, and update them in that order.

Best Practices for Switches and Zoning

Follow these best practices for switches and zoning in your environment:

- FC-SW configurations: check with the switch manufacturer for optimal configuration recommendations, including zoning.
- Note that FC-AL is not supported at 16 Gb/s or faster. Use FC-P2P instead. However, if you manually change the HBA to the 8Gb/s or lower data rate, Fibre Channel arbitrated loop *is* supported, but only at the 8 Gb/s data speed rate.
- Use single initiator hard zoning to do the following:
 - Avoid Registered State Change Notification (RSCN) storms.
 - Shield devices from indiscriminate SCSI inquiries.
 - Provide security by avoiding inappropriate access.
- Use meaningful names for zones, and document the entire configuration.
- Use FCP-2 (also called FC-TAPE or FCP Error Recovery) only with tape and/or sequential devices. While FCP-2 might not cause problems for hard disk drives (HDDs), FCP-2 is a sequence-level error recovery mechanism that is irrelevant to HDDs.
- If using FC tape backups, place tape ports and backup servers on the same FC switch to avoid tying up inter-switch links (ISLs).
- Storage Area Network (SAN) switches can be a major source of disruption if you do not take extreme care with respect to configuration. Do not perform updates to switch operating systems and/or firmware, or enable new features on SAN switches, until you have first tried the updated switches in a test configuration. The HBA might not support newer switch features, and switch operating system and/or

firmware updates might require changes to, and/or restoration of, switch configuration settings.

Best Practices for Booting From SAN (BFS) Configurations

If you plan to install a Boot From SAN (BFS) HBA, follow these best practices:

- Some devices and operating systems do not yet support UEFI-based BIOS and can boot only from the Legacy BIOS boot mode. However, many servers with UEFI firmware allow you to enable a legacy BIOS compatibility mode.
- Legacy BIOS - Many tweaks and patches have been added over the years to resolve various issues, and not all were done with the larger ecosystem (many different types of servers, HBAs, operating systems, and so on) in mind.
- Secure Boot (a UEFI-specific feature) can help you control the boot process, preventing unauthorized code from running.
- Larger devices (greater than 2 TB) require the use of a GUID Partition Table (GPT) instead of a Master Boot Record (MBR). GPT is the standard for EFI. In Legacy BIOS, booting from a device greater than 2 TB is not supported.
- Disable OpROM and BIOS for all HBA cards except the one connected to the boot device.
- When installing a Boot From SAN (BFS) HBA, configure a single connection to a single SAN target/LUN, install the boot OS, and get that working before installing other HBAs and storage. If the configuration is complex, finding the root cause for any BFS issues becomes far more complicated.
- Once BFS is installed and working, make sure that the HBA driver and firmware are at the latest revision levels. If required, configure a multipath connection, and perhaps one or more alternate boot LUNs.

Best Practices for Testing the Environment

Test the storage environment by doing the following:

- Boot the OS on the host server, and then disable the primary path to the SAN boot device to validate the multipath connection.
- Physically pull the cable from the system.
- Intentionally disrupt zoning at the FC switch that you plan to attach to the HBA.
- If you have installed any alternate boot LUNs, try to boot from those (after disrupting the primary connection(s)).
- Make sure the boot LUN is set as the first boot device in the system BIOS/UEFI settings.

Installing the Hardware

The hardware installation process involves the following general tasks, as described in these sections:

- [To Install the HBA](#)
- [To Connect the Optical Cable](#)
- [To Apply Power](#)

- [LED Status Overview](#)

To Install the HBA

1. Attach an antistatic strap (refer to Observing ESD and Handling Precautions).
2. Refer to your system installation guide or service manual to determine an appropriate PCIe slot in which to install the HBA.
3. Shut down, power off, and unplug the system, if required.
4. Remove the system case.
5. Remove the blank panel from an empty PCIe slot.
6. (Optional) Perform the following steps if you need to replace the transceivers (or, SFP+ units):

 **Note:**

Use only supported transceivers for replacement (part number 7340778). To order replacement transceivers, contact Oracle support at [My Oracle Support](#).

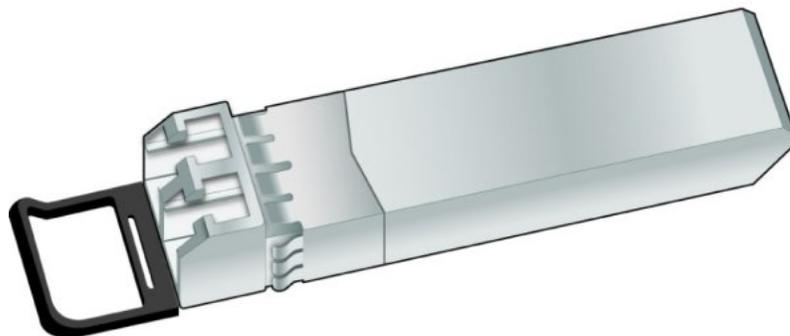
- a. Remove each transceiver from its cage assembly by pulling the bail (handle) out and down to release the latch, and gently pulling the transceiver out of its housing.

Do not force it. After the latch is released, the transceiver slides out easily.

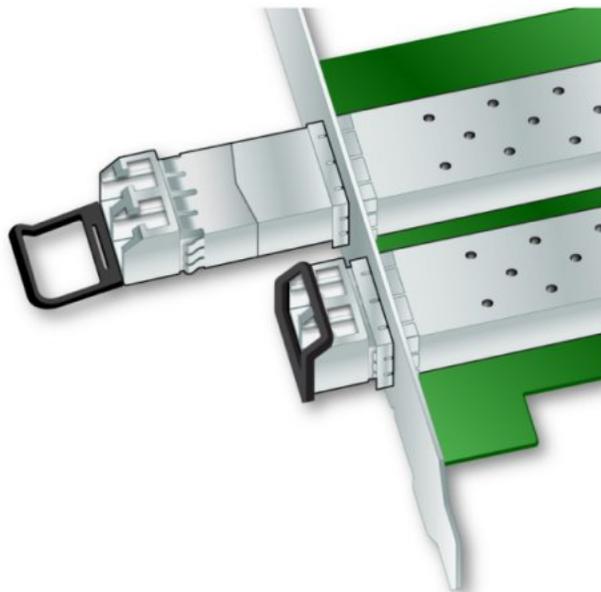
 **Caution:**

This is a delicate operation—take care not to damage the transceiver.

The following image shows the transceiver.



The following image shows an optical transceiver that is partially removed from its housing, and an optical transceiver that is latched in place.



- b. Observing ESD precautions, store each transceiver in an ESD-safe place.
 - c. Install each new transceiver by sliding the new transceiver into the housing.
When the latch engages, it clicks.
 - d. Push the bail back into place.
7. Insert the HBA into the empty PCIe 8-lane slot, and press firmly until the adapter is seated.
 8. Secure the mounting bracket of the HBA to the case with the panel screw or clip.
 9. Replace the system case and tighten the case screws.

The HBA is now installed in the system and is ready for media attachment.

To Connect the Optical Cable

 **Note:**

The HBA does not allow normal data transmission on an optical link unless it is connected to another similar or compatible Fibre Channel product (that is, multimode to multimode).

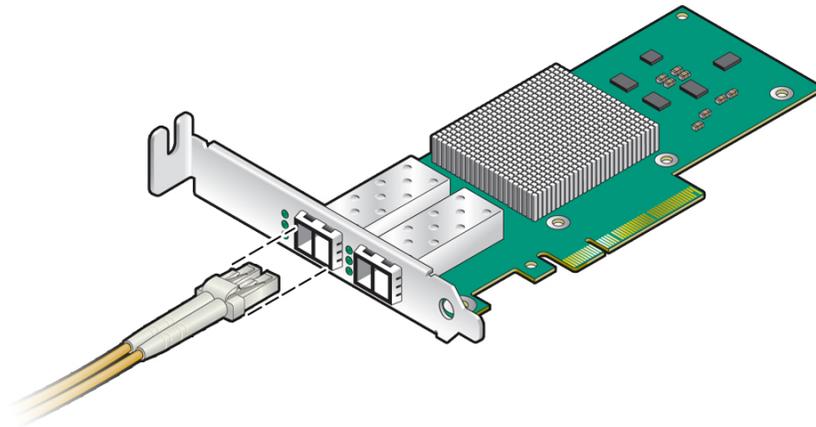
Use multimode fiber-optic cable, intended for short-wave lasers, that adheres to the specifications in the following table.

Fiber-Optic Cable	Maximum Length	Minimum Length	Connector
OM4 - Multimode 50/125 micron fiber (4700 MHz*km bandwidth cable)	<ul style="list-style-type: none"> • 4 GFC: 0.5 m - 400 m • 8 GFC: 0.5 m - 190 m • 16 GFC: 0.5 m - 125 m • 32 GFC: 0.5 m - 100 m 	0.5 meters	LC
OM3 - Multimode 50/125 micron fiber (2000 MHz*km bandwidth cable)	<ul style="list-style-type: none"> • 4 GFC: 0.5 m - 380 m • 8 GFC: 0.5 m - 150 m • 16 GFC: 0.5 m - 100 m • 32 GFC: 0.5 m - 70 m 	0.5 meters	LC
OM2 - Multimode 50/125 micron fiber (500 MHz*km bandwidth cable)	<ul style="list-style-type: none"> • 4 GFC: 0.5 m - 150 m • 8 GFC: 0.5 m - 50 m • 16 GFC: 0.5 m - 35 m • 32 GFC: 0.5 m - 20 m 	0.5 meters	LC

 **Note:**

The HBA does not support OM1 cables.

1. Connect the fiber-optic cable to an LC connector on the HBA.



2. Connect the other end of the cable to the FC device.
After the optical cable is connected to the HBA, you can power on the system.

To Apply Power

1. Verify that the HBA is securely installed in the system.
2. Verify that the correct fiber-optic cable is attached.

3. Refer to your system installation guide or service manual to determine how to power on the system.

LED Status Overview

Three green LEDs can be seen through openings in the mounting bracket of the HBA, per HBA port.

Figure 2-1 HBA LEDs



Callout	Description
1	Port 1 LEDs, from left to right: <ul style="list-style-type: none"> • 32 Gb/s • 16 Gb/s • 8 Gb/s
2	Port 2 LEDs, from left to right: <ul style="list-style-type: none"> • 32 Gb/s • 16 Gb/s • 8 Gb/s

Observe the light-emitting diode (LED) status for the power-on self-test (POST) results as shown in the following table.

32 Gb/s LED	16 Gb/s LED	8 Gb/s LED	Hardware State	Comments
Off	Off	Off	Power off	Card does not have any power
On	On	On	Power on (before firmware initialization)	On continuously
Flash	Flash	Flash	Power on (after firmware initialization)	All at the same time
Flash in sequence	Flash in sequence	Flash in sequence	Firmware fault	
On/flash	Off	Off	32 Gb/s link UP/ACT	On for link up Flash if there is I/O activity
Off	On/flash	Off	16 Gb/s link UP/ACT	On for link up Flash if there is I/O activity
Off	Off	On/flash	8 Gb/s link UP/ACT	On for link up Flash if there is I/O activity
Flash	Off	Flash	Beaconing	Flashing at the same time, like a heart beat

Replacing the SFP+ Unit on the HBA

The HBA is configured with two 32 Gb/s short-range (SR), Small Form-Factor Pluggable Plus (SFP+) optical modules. These optical modules (or, transceivers) can be ordered as a replacement customer replaceable unit (part number 7340778). No other SFP+ modules are supported for use in the HBA. To obtain replacement optical modules, contact Oracle Support at [My Oracle Support](#).

Removing the HBA Hardware

The following instructions describe the tasks required to remove the HBA. Refer to your system installation or service manual for detailed HBA removal instructions.

The following steps summarize the hardware removal process:

1. Halt the operating system and remove power from the system.
2. Remove the HBA hardware.

To Remove the HBA

1. Use an ESD strap (refer to Observing ESD and Handling Precautions).
2. Refer to your system documentation to shut down, power off, and unplug the system.
3. Disconnect all cables.
4. Unscrew the case screws and remove the system case.
5. Remove the mounting bracket of the HBA from the system by unscrewing the panel screw or removing the clip, whichever is being used.

You can now remove the HBA.

3

Software Installation

After you have completed the HBA hardware installation and powered on the system, follow the instructions in this chapter to install any HBA utilities, firmware, and operating system (OS)-specific drivers, in that order, that might be required by the HBA.

This chapter contains the following topics:

- [Installing a CLI for Updating the BIOS and Firmware](#)
- [Installing Diagnostic Software](#)
- [Installing Drivers](#)

Installing a CLI for Updating the BIOS and Firmware

If you need to update the fibre channel BIOS and firmware, use the `QConvergeConsole` command-line interface (CLI) utility.

Download the `QConvergeConsole` CLI package from the QLogic (now Marvell) support site for Oracle at:

[Oracle Driver Download](#)

Use the selection boxes for the HBA, and follow the installation instructions in the `README` file.

Installing Diagnostic Software

This section contains the following topics:

- [Diagnostic Support for the Oracle Solaris OS](#)
- [Diagnostic Support for All Other Supported Operating Systems](#)

Diagnostic Support for the Oracle Solaris OS

In an Oracle Solaris OS environment, diagnostic support for the HBA is included in the Oracle VTS software. The Oracle VTS software is available for download at: [My Oracle Support](#)

For information about the Oracle VTS software, see the Oracle VTS documentation at: [Oracle VTS 7.0 Software Documentation](#)

The `qlctest` utility, which is provided as part of the Oracle VTS software, supports the following functions:

- Connectivity verification
- Firmware version and checksum testing
- Self-testing
- Loopback tests

- External
- Internal, single-bit
- Mailbox

Diagnostic Support for All Other Supported Operating Systems

Diagnostic support for the HBA with all supported operating systems other than the Oracle Solaris OS is available through the `QConvergeConsole` graphical user interface (GUI) utility or the `QConvergeConsole` command-line interface (CLI) utility. These utilities support the following functions:

- Connectivity verification
- BIOS, FCode, EFI, and firmware version information
- Link status, including topology, data rate, and statistics
- Vital product data (VPD) information
- Attached devices list
- Option ROM, NVRAM update utilities
- Loopback test
- Read/Write Buffer test

To Install Diagnostic Support Utilities for Supported OSES Other Than the Oracle Solaris OS

1. Go to the Oracle support area of the QLogic (now Marvell) web site at:
[Oracle Driver Download](#)
2. Use the guided search selection boxes to select the type of HBA that you want, its model number, the OS, and then click Go.
3. On the page that is displayed, click the utility (GUI or CLI) that you want, and download the utility to a local file system.
4. Install the downloaded utility.

For instructions on how to install the utility, use the `QConvergeConsole` documentation located in the Management Utility section of the Marvell, formerly QLogic, support site for Oracle.

Installing Drivers

This section contains the following topics:

- [Installing Drivers for the Oracle Solaris OS](#)
- [Installing Drivers for All Other Supported Operating Systems](#)

Installing Drivers for the Oracle Solaris OS

The `qlc` HBA driver for the Oracle Solaris OS is included with the Oracle Solaris 11.4 OS (or later). Load the latest `qlc` driver by installing the Oracle Solaris 11.4 with SRU 16.

You can download the latest SRUs at:

[My Oracle Support](#)



Note:

Before installing any SRUs, install the utilities and then install the latest firmware for the HBA. For more information, see [Installing a CLI for Updating the BIOS and Firmware](#) and [Installing Diagnostic Software](#).

Installing Drivers for All Other Supported Operating Systems

If drivers for specific operating systems are required by the HBA, the drivers will be available for download at the QLogic (now Marvell) support site for Oracle. Before installing any drivers, install the utilities and then the firmware, in that order, for the HBA. For more information about installing utilities and firmware, see [Installing a CLI for Updating the BIOS and Firmware](#).

1. After installing the utilities and the latest firmware for the HBA, go to the QLogic (now Marvell) support site for Oracle at:
http://driverdownloads.qlogic.com/QLogicDriverDownloads_UI/Oracle_Search.aspx
2. Use the guided search selection boxes to select the type of HBA that you want, its model number, the operating system, and then click Go.
3. On the page that is displayed, click the operating-specific driver that you want, and download the driver to a local file system.
4. Install the driver for OS, as described in the documentation located in the Documentation section of the Marvell, formerly QLogic. support site for Oracle.

4

Important Information and Known Issues

This chapter provides supplementary and workaround information for the HBA. Specific bug identification numbers are provided for service personnel.

This chapter contains the following topics:

- [Supported Speeds Field Value Does Not Display 32 Gb As a Supported Speed](#)
- [HBA Performance Might Be Adversely Impacted Without Use of a Fibre Channel Switch](#)
- [HBA Product Accessibility](#)
- [Diversity and Inclusion](#)

Supported Speeds Field Value Does Not Display 32 Gb As a Supported Speed

Bug ID: 25904735

Issue:

When issuing the `fcinfo hba-port` command from a virtual function domain, the output for the HBA does not display 32 Gb as a supported speed, even though 32 Gb is a supported speed. The following example shows values that might be displayed.

```
$fcinfo hba-port
      HBA Port WWN: 31000024ff19a37c
      Port Mode: Initiator
      Port ID: 0
      OS Device Name: /dev/cfg/c2
      Manufacturer: QLogic Corp.
      Model: 7335902
      ...
      Supported Speeds: 4Gb 8Gb 16Gb
      Current Speed: 16Gb
```

However, if you issue the `fcinfo hba-port` command from a physical function domain, the accurate Supported Speeds values are displayed.

```
$fcinfo hba-port
...
      Supported Speeds: 8Gb 16Gb 32Gb
...
```

Workaround:

Check for the availability of a patch to address this issue. You can obtain patches at: [Oracle Driver Download](#)

Until a patch is available, do not issue the `fcinfo hba-port` command from inside a virtual function domain. Instead, issue the command from a physical domain.

HBA Performance Might Be Adversely Impacted Without Use of a Fibre Channel Switch

Bug ID: 26137238

Issue:

If the HBA is connected directly to a storage device without the use of a Fibre Channel switch, HBA performance might be slow.

Workaround:

Check for the availability of a patch to address this issue. You can obtain patches at: [Oracle Driver Download](#)

Until a patch is available, include a Fibre Channel switch in the topology connecting the HBA to storage devices.

HBA Product Accessibility

Oracle strives to make its products, services, and supporting documentation usable and accessible to the disabled community. To that end, products, services, and documentation include features that make the product accessible to users of assistive technology.

For more information about Oracle's commitment to accessibility, go to [Oracle's Accessibility Program](#).

HBA Hardware Accessibility

Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic hardware has color-coded labels, component touch points, and status indicators (LEDs) that provide information about the system. These labels, touch points, and indicators can be inaccessible features for sight-impaired users. The product's HTML documentation provides context and descriptive text available to assistive technologies to aid in interpreting status and understanding the system.

You can also use the built-in Oracle Integrated Lights Out Manager (ILOM) to obtain information about the system. Oracle ILOM provides a browser-based interface (BUI) and a command-line interface (CLI) that support assistive technologies for real-time viewing of system status, indicator interpretation, and system configuration. For details, see [Oracle ILOM Accessibility](#).

Oracle ILOM Accessibility

You can use the Oracle ILOM BUI to monitor and manage the server hardware. The Oracle ILOM BUI does not require a special accessibility mode; rather, its accessibility features are always available. The BUI was developed using standard HTML and JavaScript and its features conform to accessibility guidelines.

To navigate a BUI page and select items or enter commands, use standard keyboard inputs, such as the Tab key to go to a selection, or the up and down arrow keys to

scroll through the page. You can use standard keyboard combinations to make menu selections.

For example, using the Oracle ILOM Open Problems BUI page, you can identify faulted memory modules (DIMMs) or processors (CPUs) that would otherwise be identified by a lighted LED indicator on the motherboard. Likewise, you can use the Oracle ILOM BUI to monitor the hardware power states that are also indicated by flashing LED indicators on the hardware.

The Oracle ILOM CLI is an alternative and equivalent way to access the Oracle ILOM BUI features and functionality. Because the operating systems that run on the Oracle server hardware support assistive technologies to read the content of the screen, you can use the CLI as an equivalent means to access the color-based, mouse-based, and other visual-based utilities that are part of the BUI. For example, you can use a keyboard to enter CLI commands to identify faulted hardware components, check system status, and monitor system health.

You can use the Oracle ILOM Remote Console Plus to access both a text-based serial console and a graphics-based video console that enable you to remotely redirect host server system keyboard, video, mouse, and storage devices. Note, however, that the Oracle ILOM Java Remote Console Plus does not support scaling of the video frame within the Java application. You need to use assistive technology to enlarge or reduce the content in the Java Remote Console Plus display.

As an alternative method to using the BIOS Setup Utility to configure BIOS settings, Oracle ILOM provides a set of configurable properties that can help you manage the BIOS configuration parameters on an Oracle x86 server. Using Oracle ILOM, you can do the following:

- Back up a copy of the BIOS configuration parameters to an XML file using the Oracle ILOM BUI.
- Edit the XML file using a standard XML editor. The BIOS XML tags correlate directly to the BIOS screen labels.
- Restore the XML file of the backed up or edited configuration parameters to BIOS.

The BUI and CLI methods for using Oracle ILOM are described in the accessible HTML documentation for Oracle ILOM at [Servers Documentation - Systems Management](#).

BIOS Accessibility

When viewing BIOS output from a terminal using the serial console redirection feature, some terminals do not support function key input. However, BIOS supports the mapping of function keys to Control key sequences when serial redirection is enabled. Descriptions of the function key to Control key sequence mappings are provided in the product documentation, typically within the server Service Manual. You can navigate the BIOS Setup Utility by using either a mouse or keyboard commands.

As an alternative method of configuring BIOS settings using the BIOS Setup Utility screens, Oracle ILOM provides a set of configurable properties that can help you manage the BIOS configuration parameters on an Oracle x86 server. For more information, see [Oracle ILOM Accessibility](#).

Documentation Accessibility

Documentation for Oracle hardware is provided in HTML and PDF formats. The HTML documents are accessible using standard operating system controls and assistive

technology. PDF documents are also provided, but are not an accessible format. PDF documents are considered support documents because the PDF content is available in accessible HTML format.

Product documentation provides figures, other types of images, and screenshots that do not rely on color for interpretation. Within the figures, callouts indicate the referenced component information. The callouts are mapped within a table to provide text descriptions of the referenced parts of the figures. In addition, alternative text is provided for all tables and images that provides the context of the information and images.

Note that screen readers might not always correctly read the code examples in the documentation. The conventions for writing code require that closing braces should appear on an otherwise empty line. However, some screen readers might not always read a line of text that consists solely of a bracket or brace.

The documentation might contain links to web sites of other companies and organizations that Oracle does not own or control. Oracle neither evaluates nor makes any representations regarding the accessibility of these web sites.

You can access the accessible HTML documentation for Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic products at [Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic Documentation](#).

Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies, and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.