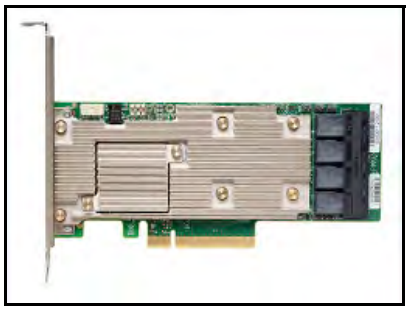
Quick Installation Guide MegaRAID SAS 9460-16i and SAS 9460-8i RAID Controllers



Thank you for purchasing the Host Bus Adapter (HBA). Please take a few minutes to read this quick installation guide before you install the HBA.

ATTENTION: Perform all installation work at an electrostatic discharge (ESD)-safe workstation that meets the requirements of EIA-625. *Requirements for Handling Electrostatic Discharge Sensitive Devices*. You must perform all actions in accordance to the latest revision of the IPC-A-610 ESD-recommended practices.

Hardware Installation Instructions

To install the MegaRAID Tri-Mode storage adapter, follow these steps:

1. **Unpack the adapter, and inspect it for damage.** Unpack the adapter in a static-free environment. Remove the adapter from the anti-static bag, and carefully inspect the device for damage. If you notice any damage, contact Broadcom or your reseller support representative.

ATTENTION: To avoid the risk of data loss, back up your data before you change your system configuration.

2. **Prepare the computer.** Turn off the computer, and disconnect the power cord from the rear of the power supply.

CAUTION: **Disconnect the computer from the power supply and from any networks to which you will install the adapter, or you risk damaging the system or experiencing electrical shock.**

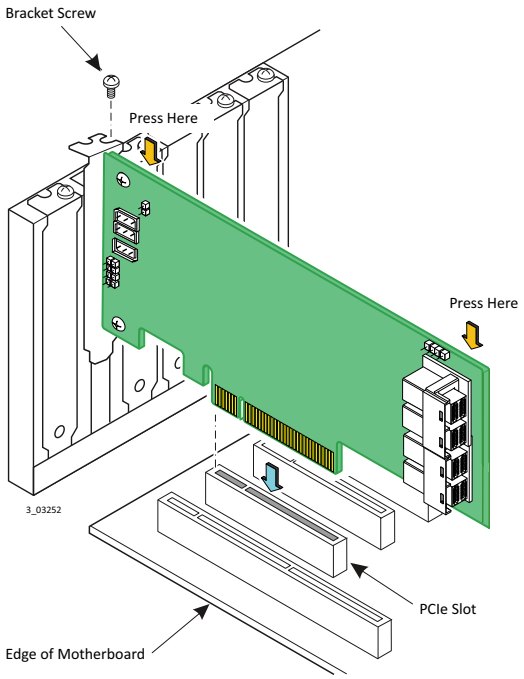
3. **Remove the cover from the chassis.**
4. **Check the mounting bracket on the adapter (system- dependent)** If required for your system, replace the full-height mounting bracket that ships on the adapter with the low-profile bracket supplied. Complete the following steps to attach the short bracket.
   - **a.** Using a #1 Phillips screwdriver that is ESD safe, remove the two Phillips screws that connect the full-profile bracket to the board. Unscrew the two screws located at the top and bottom edges of the board. Avoid touching any board components with the screwdriver or bracket.
   - **b.** Remove the full-profile bracket. Do not damage the adapter.
   - **c.** Place the adapter on top of the low-profile bracket. Position the bracket so that the screw holes in the tabs align with the openings in the board.
   - **d.** Using a #1 Phillips torque screwdriver that is ESD safe, set to a maximum torque of 4.8 ± 0.5 inch-pounds. Replace the two Phillips screws removed in step a.

ATTENTION: Exceeding this torque specification can damage the board, connectors, or screws, and can void the warranty on the board.

5. **Insert the adapter into an available PCIe slot.** Locate an empty x8 PCIe slot adequate for your board. Remove the blank bracket panel on the rear of the computer that aligns with the empty PCIe slot. Save this bracket screw, if applicable. Align the adapter to a PCIe slot. Press down gently, but firmly, to seat the adapter correctly in the slot. The following figure shows how to insert the adapter into a PCIe slot.

NOTE: The shape, size, and locations of the components on your adapter and its bracket might vary from this illustration. The adapter requires an x8 PCIe slot.

Installing the MegaRAID 9460-16i Tri-Mode Adapter in a PCIe Slot



NOTE: This example shows the MegaRAID 9460-16i adapter being installed. The MegaRAID 9460-8i adapter is installed in the same way. The difference between the two adapters is that the MegaRAID 9460-16i adapter supports 16 ports, and the MegaRAID 9460-8i adapter supports eight internal ports.

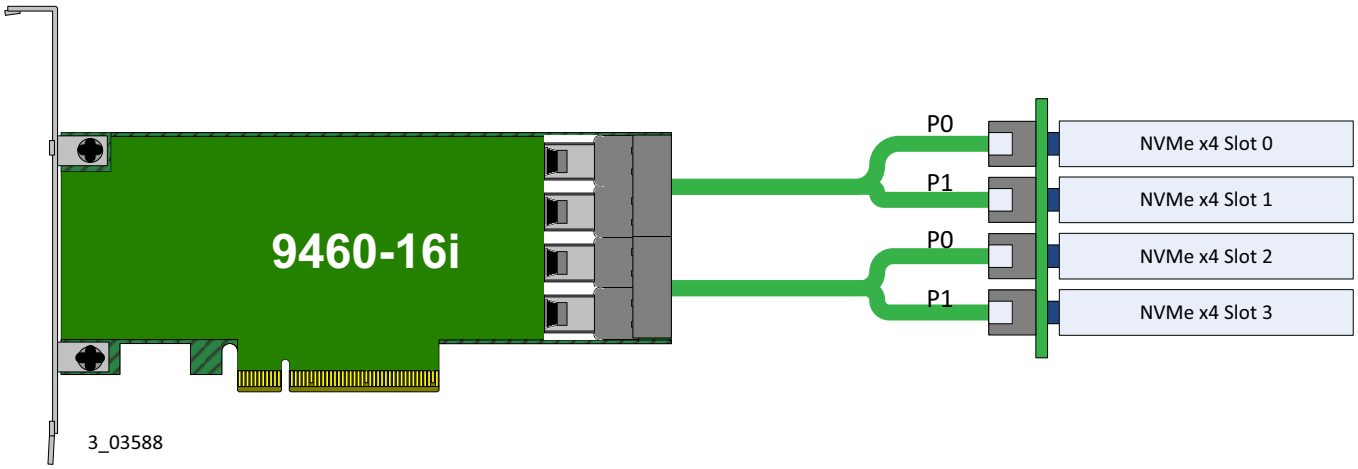
6. Connect SAS cables between the adapter and the SAS backplane or any other SATA device or SAS device. The MegaRAID 9460-16i adapter has four SFF-8643, internal x4, mini-SAS HD connectors and the MegaRAID 9460-8i adapter has two. Use cables with an internal mini-SAS HD connector on one end to connect to the adapter and the appropriate connector on the other end to attach to the backplane or SAS/SATA devices.

- For SAS/SATA connections, connect standard 12Gb/s SAS cables with an internal mini-SAS HD connector on one end to connect to the controller and the appropriate connector on the other end to attach to the backplane or to the SAS/SATA devices.

- For PCIe/NVMe connections, use the appropriate U.2 Enabler Cable to enable connection to the backplane connectors, as shown in the following figure. The U.2 Enabler Cable routes the REFCLK, sidebands, and PCIe signals to the appropriate pins on the backplane connector. Different U.2 Enabler Cables are available, depending on the backplane connector type. Using standard 12Gb/s SAS cables for NVMe connections might result in damage to the PCIe adapter or the drive. For more information, refer to the *Storage Adapter Cable Guide* and the *Broadcom MegaRAID and HBA Tri-Mode Storage Adapters User Guide* at http://www.broadcom.com/support/download-search.

CAUTION: For NVMe connections to a SFF-8639 (U.2) bay or connections to a PCIe switch, use only approved cables with REFCLK forwarded on the proper pins. Improperly connecting a standard 12G SAS cable to a SFF-8639 bay can damage the PCIe storage adapter and the drive.

MegaRAID 9460-16i Connecting by U.2 Enabler Cable to Backplane Connectors



Each leg of the U.2 Enabler Cable needs to connect to adjacent drives; otherwise, the LEDs might not work properly. It does not matter which leg of the cable is plugged into wMR-9460-16i-8i-IG100hich connector pair as long asadjacent pairs are used. For more information on NVMe LED functionality, please refer to thethe *Broadcom MegaRAID and HBA Tri-Mode Storage Adapters User Guide*

7. **Make sure the system provides the required airflow for the adapter.** Airflow must be at least 250 linear feet per minute (LFM) at 55 °C inlet temperature to avoid operating the board components above their maximum rated junction temperatures.
8. **Replace the cover and reconnect any cords and cables, and power up the system.** Replace the chassis's cover, reconnect any power cords, and reconnect any network cables. Turn on the power.
9. **Choose the right storage interface profile.** The MegaRAID adapter supports the following three basic modes or profiles of operation for the storage interface:

    •SAS/SATA Only Mode

    •NVMe Only Mode

    •Mixed Mode

Refer to the **12Gb/s MegaRAID SAS Software User Guide** for a complete list of supported profiles. Each profile is set through StorCLI or HII. The default mode is the SAS/SATA Only profile.

StorCLI: Profile ID Management can be performed on StorCLI using the following two commands:

    •storcli /cx show profile

    •storcli /cx set profile profileid=

After setting a new profile, reboot the system for changes to take effect.

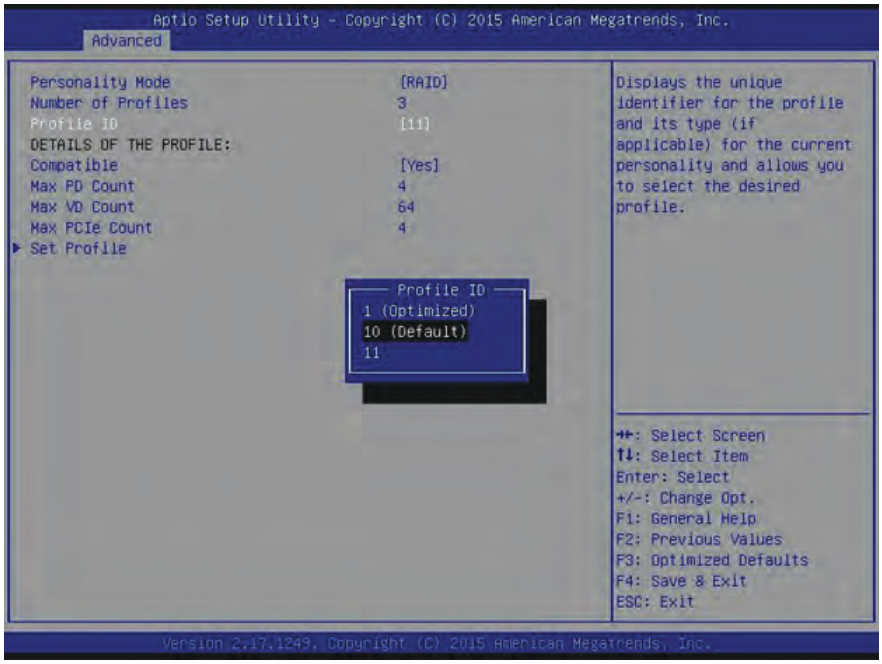
HII:

- **a.** Enter HII during boot of the MegaRAID controller.
- **b.** Select **Main Menu\Controller Management\Advanced Controller Properties\Profile Management**.
- **c.** Use arrow keys to move down to **Profile ID**, then press **Enter**.

A pop-up window displays possible Profile IDs, as shown in the following figure.

- **d.** From the pop-up window, select the new profile then press **Enter**.
- **e.** Reboot the system for the changes to take effect.

Using the HII Configuration Utility to Display and Set the Adapter Profile



10. Run the HII Configuration Utility

Run the HII configuration utility to configure the drive groups and virtual drives. Refer to the *12Gb/s MegaRAID SAS Software User Guide* for detailed steps on drive configuration.

The hardware installation of your adapter is complete.

Driver Installation

The firmware and drivers are routinely updated and made available on the Support and Downloadcenter. Visit http://www.broadcom.com/support/download-search and download the latest firmwareand driver for the controller.

TECHNICAL SUPPORT

For assistance installing, configuring, or running the HBA, contact Broadcom Technical Support:

Web Site: www.broadcom.com

WARRANTY NOTICE

1. Warranty does not cover the return of parts damaged by changing the bracket.

2. Warranty does not cover ESD damage to the HBA. HBAs returned without a bracket mounted on the board will be returned without return merchandise authorization (RMA) processing.

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