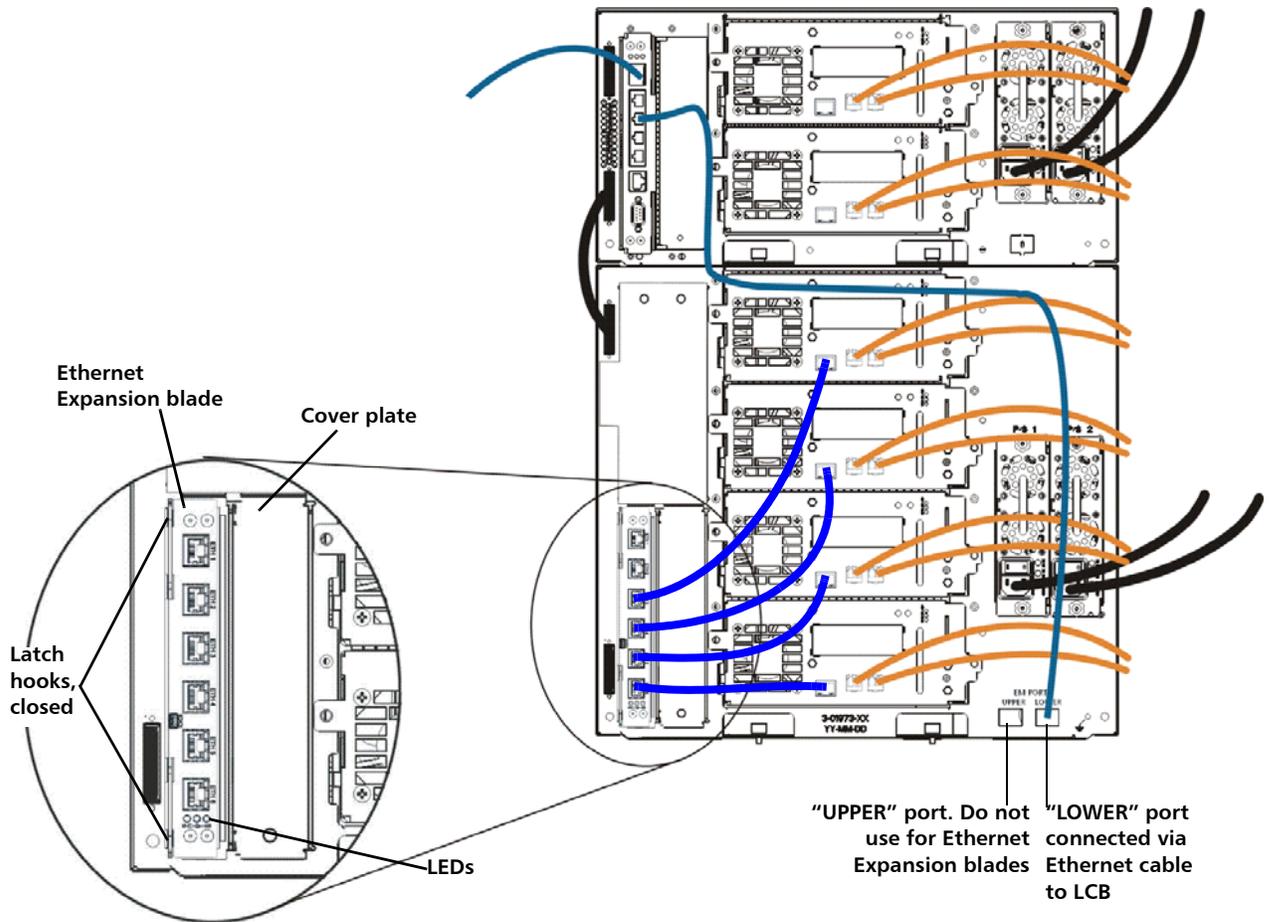


Quantum Scalar i500: Ethernet Expansion Blade Installation

The Ethernet Expansion blade (see [Figure 1](#) on page 2) facilitates direct Ethernet connectivity between HP LTO-5 and LTO-6 Fibre Channel (FC) tape drives and the Scalar[®] i500 library's internal Ethernet via the library control blade.



Figure 1 The Ethernet Expansion Blade Within the Library



To replace the Ethernet Expansion blade, refer to the following sections:

- [Tape Drive Ethernet Connectivity and the Ethernet Expansion Blade](#) on page 2
- [Installing the Ethernet Expansion Blade](#) on page 4

Tape Drive Ethernet Connectivity and the Ethernet Expansion Blade

LTO-5 and LTO-6 FC tape drives enable you to use tape drive Ethernet connectivity for FIPS-certified key exchanges, tape drive log collection, tape drive firmware updates, and tape drive firmware autoleveling via Ethernet instead of via internal serial communication. This speeds up operations and provides the security required for FIPS-certified key exchanges. 5U libraries can access tape drive Ethernet connectivity directly via the library control blade. For libraries

greater than 5U, Quantum provides the Ethernet Expansion blade, which facilitates direct Ethernet connectivity between HP LTO-5 and LTO-6 Fibre Channel tape drives and the library's internal Ethernet via the library control blade.

Details about tape drive Ethernet connectivity and the Ethernet Expansion blade include:

- Library firmware must be at version 600G (i7) or later.
- HP LTO-5 FC or HP LTO-6 FC tape drive firmware must be at the latest version qualified with the Scalar i500 library (see the *Scalar i500 Release Notes* for qualified firmware levels).
- An Encryption Key Management license must be installed on the library sufficient to cover all the tape drives you intend to use for Ethernet operations.
- A Storage Networking license must be installed on the library sufficient to cover all the tape drives you intend to use for Ethernet operations.
- 5U libraries do not support an Ethernet Expansion blade. See the *Quantum Scalar i500 User's Guide* for more information.
- In libraries that are greater than 5U, it is recommended that all HP LTO-5 FC or HP LTO-6 FC tape drives be connected to an Ethernet Expansion blade.
- The Ethernet Expansion blade is not in the data path and does not affect tape drive control paths.
- Each Ethernet Expansion blade has six Ethernet ports to allow you to attach up to six HP LTO-5 FC or HP LTO-6 FC tape drives. Do not attach tape drives of any other type to the Ethernet Expansion blade.
- Do not connect the Ethernet Expansion blade to an external Ethernet source. The Ethernet Expansion blade is for internal Ethernet connectivity within the library.
- The Ethernet Expansion blade must be installed in the bottom left vertical bay in an expansion module. The empty bay to the right of the Ethernet Expansion blade must be covered by a cover plate.
- Libraries may contain both Ethernet Expansion blades and FC I/O blades.
- You may not connect a tape drive to both an Ethernet Expansion blade and an FC I/O blade.
- You are limited to a maximum of four blades per library (Ethernet Expansion blades and FC I/O blades), in any combination.
- If the tape drive Ethernet connection or an Ethernet Expansion blade fails, you will not be able to perform encryption operations on any connected tape drives that have FIPS mode enabled. You will still be able to collect tape drive logs and update tape drive firmware via internal serial communication.

Caution: If the Ethernet Expansion blade or Ethernet connectivity fails and the attached tape drives have FIPS mode enabled, all encryption operations (encrypting, decrypting, key requests) on the attached tape drives will fail. These operations will NOT automatically continue over internal serial communication. If this happens, contact Quantum Support for a replacement Ethernet Expansion blade as soon as possible.

Installing the Ethernet Expansion Blade

The Ethernet Expansion blade must be installed in the bottom left vertical bay in an expansion module. The empty bay to the right of the Ethernet Expansion blade must be covered by a cover plate.

Equipment Required

- Ethernet Expansion blade
- Cover plate
- Ethernet cables (one for each tape drive that you will connect to the Ethernet Expansion blade), plus an extra one per Ethernet Expansion blade, to connect the LCB to the expansion module in which the Ethernet Expansion blade is installed.

Tools Required

None

Instructions

- 1 Upgrade library firmware to version 600G or later.
- 2 Upgrade tape drive firmware on all HP LTO-5 FC or HP LTO-6 FC tape drives that you plan to connect to the Ethernet Expansion blade to the latest version qualified with the Scalar i500 library (see the *Scalar i500 Release Notes* for qualified firmware levels).
- 3 Save the library configuration:
 - a From the Web client, select **Tools > Save/Restore Configuration**.
 - b Select **Save System Configuration**, and click **Apply**.
- 4 Shut down the library.
- 5 For every expansion module that contains an Ethernet Expansion blade, make sure a standard Ethernet cable is connected from one of the four internal Ethernet ports on the library control blade (LCB) to the Ethernet port marked "LOWER" located on the bottom right of the expansion module in which the Ethernet Expansion blade is installed. There are two ports, marked "UPPER" and "LOWER." Since the Ethernet Expansion blade must be installed in the lower bay of the expansion module, you must use the port marked "LOWER." The "LOWER" port is on the right. See [Figure 1](#) on page 2.

You must do this BEFORE placing the Ethernet Expansion blade into the library.

- 6 Prepare the library for Ethernet Expansion blade installation. The Ethernet Expansion blade must be installed in the lower left bay of an expansion module.
 - In some cases, installing the Ethernet Expansion Blade may require removal or relocation of an FC I/O blade and its accompanying fan blade.
 - Remove the cover plate covering the two bottom left slots. To remove the cover plate, unscrew the two captive thumbscrews securing the cover plate and pull outward on the plate. Save the cover plate in case you need to use it later.
- 7 Remove the new Ethernet Expansion blade from the protective anti-static bag.
- 8 Press up and out to open the latch hooks on each side of the blade. Hold the Ethernet Expansion blade upright with the latch hooks on the left side, and the status LEDs at the bottom (see [Figure 1](#) on page 2).
- 9 Carefully align the Ethernet Expansion blade with the guide slots in the bay.

Caution: Forcing the blade into the bay can cause the pins to bend.

- 10 Evenly apply pressure to both sides of the blade and slide it into the expansion module until the latch hooks begin to move toward the middle of the blade. Push the latch hooks toward the middle of the blade and into the locked position. You will feel the blade pins connect with the expansion module's backplane as the blade locks into place.

The status LEDs on the Ethernet Expansion blade should be as follows: The blue LED should blink once every 10 seconds, indicating the blade is powered on. The green LED should blink once per second, indicating the blade's processor is working normally. The amber LED should be off. If the LEDs are not blinking properly, reseal the blade.

Caution: Be sure the cover plate is installed over the empty bay to the right of the Ethernet Expansion blade. If the cover plate next to an Ethernet Expansion blade is not installed, Ethernet Expansion blade temperature errors will occur.

- 11 Cable the Ethernet Expansion blade (see [Cabling the Ethernet Expansion Blade](#) on page 6).
- 12 Power on the library.
- 13 Verify that the Ethernet Expansion blade is in the "Ready" state using one of the following methods:
 - Check the LEDs on the Ethernet Expansion blade.
The green LED should blink once per second, the blue LED should blink once every 10 seconds, and the amber LED should be off.

- From the library Web client, complete the following steps:
 - a Select **Tools > Diagnostics** to enter library diagnostics.
If a message warns you that entering diagnostics will log out all other users of the same or lower privilege level, click **OK** to agree to log all other users out.
The diagnostics menu bar is displayed.
 - b Select **Drives > EE Blade Control**.
A message warns you that power cycling an Ethernet Expansion blade may cause key exchange failures if FIPS is enabled.
 - c Click **OK** to proceed.
The **Diagnostics - Ethernet Expansion Blade Control** screen is displayed.
 - d Check the **Status** column for the Ethernet Expansion blade to be sure it says "Ready" (see [Figure 2](#) on page 6).
- 14 Save the library configuration:
 - a From the Web client, select **Tools > Save/Restore Configuration**.
 - b Select **Save System Configuration**, and click **Apply**.

Figure 2 Ethernet Expansion Blade Control



Cabling the Ethernet Expansion Blade

Cable the library and Ethernet Expansion blade as follows (see [Figure 1](#) on page 2).

- In a 14U and higher library, it is recommended that you do not connect HP LTO-5 FC tape drives to the library control blade (LCB). Instead, you should connect the tape drives to an Ethernet Expansion blade using normal Ethernet cables.
- The Ethernet Expansion blade must be installed in the lower left slot of the expansion module. A cover plate must cover the slot next to the Ethernet Expansion blade. See [Figure 1](#) on page 2.
- For every expansion module that contains an Ethernet Expansion blade, make sure a standard Ethernet cable is connected from one of the four

internal Ethernet ports on the library control blade (LCB) to the Ethernet port marked "LOWER" located on the bottom right of the expansion module in which the Ethernet Expansion blade is installed. There are two ports, marked "UPPER" and "LOWER." Since the Ethernet Expansion blade must be installed in the lower bay of the expansion module, you must use the port marked "LOWER." The "LOWER" port is on the right. See [Figure 1](#) on page 2. You must do this BEFORE placing the Ethernet Expansion blade into the library.

- Tape drives connected to an Ethernet Expansion blade must not be connected to an FC I/O blade. Instead, connect them to a host or switch.

