Spectra 20K and 64K Library AIT-4 Drive Upgrade

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The Sony AIT-4 drives double the Spectra 20K and 64K library capacity and transfer rate. Review this document for information about AIT-4 and about upgrading your library to take advantage of AIT-4 drive technology.

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Preparation

1. Identify the drives to be upgraded in your Spectra 20K/64K library.

2. Make sure you have an AIT-4 drive for every drive you are replacing, and a library firmware upgrade diskette.

3. If you are going to return the drives to Spectra Logic (for example, for trade-ins or pre-purchase), make sure to reserve the drive packaging for later use.

4. Download from the Sony Web site and install on the library's host system a driver for the host's operating system.

5. Make sure all backup procedures are halted, and that you have fifteen minutes available per drive to be upgraded, so that you can configure, install, and test.

Updating Firmware

If you do not have firmware diskettes, access the library upgrade remotely from the Spectra Logic site, as outlined in the library user guide or www.SpectraLogic.com.

1. Insert Disk 1 in the LCM disk drive (Figure 1).

LCM Disk Drive

Figure 1   *Insert Disk 1 in the LCM disk drive.*

2. Reset the LCM by cycling the power or pressing the reset button on back of LCM.

3. Follow on-screen directions, inserting disks one at a time until operation is complete.

4. Remove all disks and reset the LCM. The operating system and Library Controller will now be upgraded.

5. The Library Controller alerts the user **Configuration of QIP (X) Bus (X) Does Not Match Front Panel** for each logical library. Select **OK**. This message does not appear after all QIPs have been upgraded.

6. Once you have the firmware files added to the local directory, go to *Updating Firmware Using the LC*, next.

Updating Firmware Using the LC

1. On the Library Controller, select **Toolbars**, then select **Maintenance**. The Maintenance toolbar displays.

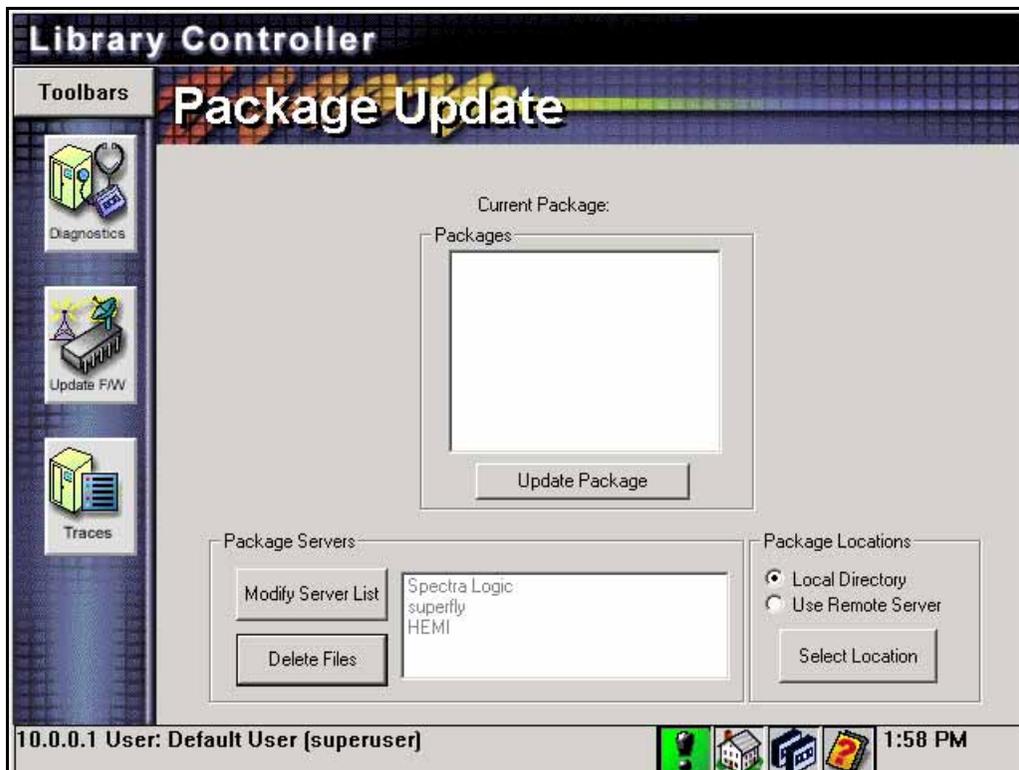2. Select **Update F/W**. The Firmware Update screen displays (Figure 1).

Figure 1 *Firmware Update screen.*

3. In File Locations, select **Local Directory -> Select Location**, then select the most recent firmware package.

4. Select **Update Firmware**. The library firmware update process begins. A window displays a message, asking you to wait.

    Caution: Do not interrupt the library while firmware is downloading. The firmware download takes less than 10 minutes.

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Replacing Drives

Moving Original Drives Off-line

1. On the Library Controller, select **Toolbars -> General.** The General toolbar displays.

2. Select **Drive Config**. The Drive Configuration screen appears Figure 2.

Figure 2   *The Drive Configuration Screen.*

3. Select the drive you want to replace, the select **Replace**. A dialog box series displays, first asking whether it is **Okay to Replace Drive?** then **"Are you sure you want to open the door?**

4. Select Okay for each. This powers down the drive and disengages the solenoid latches on the front door. A dialog box displays the message **Open Door and Replace Drive**. **Close and Latch Door**. **Tap Okay when complete**.

Note: Do *not* select **OK** until you have completed the procedure.

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Removing Original Drives

1. Use the library door key to open the library door.

2. Pull the old drive out of the drive slot (Figure 3).

Figure 3   *Pull the old drive out of the drive slot.*

3. Slide the new drive firmly into the same slot while pressing it to the right against the library wall. A red LED on the drive lights up.

4. Close the library door.

5. Secure the lock with the key.

6. Return to the Library Controller, then select **OK**. The library processes this change, and may require a few minutes to complete. When the drive has been configured, **another statement displays: The library geometry has changed-Reloading geometry, your drive information may be invalid.** Tap **OK**.

7. Select OK.

8. Review the Drive Configuration screen. If the drive displays as offline, select **Config**, then select **OK**. The drive now displays as online.

    The library automatically configures the new drive with the old drive's configuration settings.

9. Repeat this procedure for every drive to be upgraded.

Returning Old Drives

To return old drives to Spectra Logic (for example, if you are trading in the drives, or if you pre-purchased the new drives), use the AIT-4 drive packaging and return the drives to Spectra Logic (North America) or contact Support for assistance in determining how to return the drives.

Completing the Drive Upgrade Process

1. Test your drives. For example, back up a set of data that includes one executable program; restore the data to a temporary directory; then read the restored data and run a restored program. Refer to your backup software documentation for a more specific procedure. After you have performed a drive test successfully, continue.

2. Restart backup processes

Sony AIT Drive and Media Specifications

Sony AIT Drive Specifications

The following table summarizes the specifications for Sony AIT media.

Tape Type	Length	Capacity [a]
AIT-1 (SDX-25C)	170 meters	25 GB native (65 GB with ALDC)
AIT-1-XL (SDX-35C)	230 meters	35 GB native (91 GB with ALDC)
AIT-2 (SDX2-36C)	170 meters	36 GB native (94 GB with ALDC)
AIT-2 (SDX2-50C)	230 meters	50 GB native (130 GB with ALDC)
AIT-3	230 meters	100 GB native (260 GB with ALDC)
AIT-4	230 meters	200 GB native (520 GB with ALDC)

a. All specifications subject to change without notice.

Sony AIT Tape Drive Specifications

The following table summarizes the specifications for Sony AIT drives.

Parameter	AIT-1	AIT-2	AIT-3	AIT-4
Ambient operating temperature[a]	+41°F to +104°F (+5°C to +40°C)			
Storage temperature	-40°F to +158°F (-40°C to +70°C)			
Operating humidity	20% to 80% non-condensing			
MTBF	200,000 hours @ 100% duty cycle	300,000 hours @ 100% duty cycle	400,000 hours @ 100% duty cycle	400,000 hours @ 100% duty cycle
Average file access time	< 55 seconds	< 27 seconds	< 27 seconds	< 52 seconds
Uncorrectable error rate	Less than 1×10^{-17} bits			
Sustained transfer rate[b, c]	3 MB/sec native	6 MB/sec native	12 MB/sec native	24 MB/sec native
Burst transfer rate (synchronous maximum) [d]	40 MB/sec	40 MB/sec	160 MB/sec	160 MB/sec

a.   This applies to the drives; the limits for the library are given in the library user guide.
b.   This is a per-drive value. Total sustained transfer rate for the library depends on the number of drives installed in the library.
c.   The sustained transfer rate can increase by an average of 2.6 times with compression, dependent on the type of data.
d.   The actual burst transfer rate is limited by the performance of the SCSI HBA, the controller, and the buffer control hardware.

LED Information

The following table summarizes the information carried by the drive's LEDs:

| Type of Blink | LED Type | | |
	Tape Motion	Cleaning Request	Replace Tape
Off[a]	No Tape	Cleaning is not necessary	No media error occurred
On[b]	Tape Loaded	Cleaning request	Media error occurred
Slow Flash[c]	Tape access in progress (read/write)	Cleaning is not completed	N/A
Fast Flash[d]	Tape access in progress (other)	N/A	N/A
All Flash[e]	Hardware error occurred		

a. Off: no color in the LED
b. On: Blue and not blinking
c. Slow flash: flashes blue for 3-1/2 seconds and off for 1/2 second
d. Fast flash: flashes blue for 1/4 second and off for 1/4 second
e. All LEDs flashing: all flash blue for 1/4 second and off for 1 second