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POWER7 information

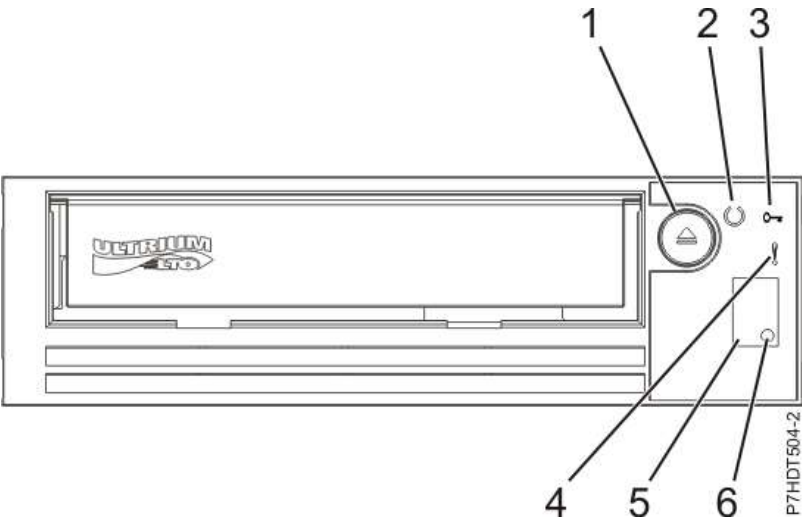
Status lights (FC 5638)

Select

You might need to read the status lights on your tape drive to determine the operating status of the drive. Use the information in this topic to perform this task.

Two status light-emitting diode (LED) lights and their ISO symbols appear on the drive as follows:

Figure 1. Front view of a half-high LTO tape drive



Index number	Description
1	Eject button
2	Ready LED
3	Encrypt LED
4	Fault LED
5	Single-character display (SCD)
6	SCD light

Note:

1. The required preventative maintenance cleaning frequency is approximately 100 tape motion hours or when the drive indicates cleaning is required. Tape motion hours are defined as the time the tape drive is moving tape.
2. When a fault occurs, the drive causes the AIX operating system to log an information error (TAPE_ERR6) in the AIX log, indicating that the tape drive needs to be cleaned.
3. Use only IBM media. IBM only supports the use of IBM media and IBM cleaning cartridges.
4. When the tape drive indicates that the drive needs to be cleaned, it is the customer's responsibility to clean the tape drive with the recommended cleaning cartridge.

Table 1. Status light considerations

Mode	SCD	Ready LED (green)	Fault LED (amber)
Operational	Blank	On	Off
Activity (tape movement) in Operational Mode	Blank	Flashing	Off
Maintenance	Solid character	Off	On
Executing Maintenance Selection	Flashing character	Off	On
Error Condition	Solid character	Off	Flashing
Power-On / Reset Initialization	random segments	Off	On

The following table lists the conditions of the status lights and single-character display (SCD) and provides an explanation of what each condition means.

Table 2. Meaning of Status Lights and Single-character Display (SCD)

If the green Ready Status Light is...	and the amber Fault Status Light is...	and the SCD is...	and the SCD Dot is...	Meaning
Off	Off	Off	Off	The drive has no power or is powered off.
Green/Solid	Off	Off	Off	The drive is powered on and in an idle state.
Flashing Green (once per second)	Off	Off	Off	The drive is reading from the tape, writing to the tape, rewinding the tape, locating data on the tape, loading the tape, or unloading the tape.
Flashing Green (once per second)	Off	Off	Off	If the drive contains a cartridge during the power-on cycle, the drive completes POST and slowly rewinds the tape (the process may take up to ten minutes). The light stops blinking and becomes solid when the drive completes the recovery and ejects the cartridge.
Off	Amber/Solid	Displaying an error code or Maintenance Mode Function	On/Off	The drive is displaying error code(s) from the error code log on the SCD. For information on error code and messages, see Table 3 .
Off/On	Off/On	Displaying random segments / Blank / displaying random segments / displaying 8 / Blank	Off	During power on, or a drive reset, the drive front panel will display drive progress as follows: <ol style="list-style-type: none"> 1. SCD will display random segments (no LEDs ON). 2. SCD will go blank (LEDs - Green ON, Amber OFF) 3. SCD will display random segments (LEDs - Green OFF, Amber ON) 4. SCD will display 8 (LEDs - Green OFF, Amber ON) 5. SCD will go blank (LEDs - Green ON, Amber OFF) after a successful power on or reset. <p>If an error is detected during the power on or reset, the tape drive posts an error code to the SCD.</p>
Off	Amber/Solid	Displaying 0	Off/On	The drive is entering or exiting from maintenance mode.
Off	Amber/Solid	Flashing selected function	Off/On	The drive is executing the selected function while in maintenance mode.
Off	Flashing Amber (once per second)	Displaying error code	Off	An error occurred and the drive or media may require service, or it may require cleaning.
Off	Flashing Amber	Displaying C	Off	The drive needs cleaning.
Off	Flashing Amber	Displaying 2	Off	The drive is updating firmware.
Off	Flashing Amber (twice per second)	Off	Off	The drive detected an error and is performing a firmware recovery. It will reset automatically.
Off	Amber/Solid	Displaying C	Off	The drive is requesting a cartridge to be loaded.
Off	Flashing Amber (twice per second)	Off	On	There is a drive dump in flash memory.

Table 3. LTO-5 Tape Drive Error Codes

Error Code	Cause and Action
0	No error occurred and no action is required. This code displays when diagnostics have finished running and no error occurred. Note: The Single-character Display is blank during normal operation of the tape drive.
1	Temperature problem. The tape drive detected that the recommended operating temperature was exceeded. Perform one or more of the following actions: <ul style="list-style-type: none"> • Ensure that the cooling fan is rotating and is quiet. If not, refer to your enclosure documentation. • Remove any blockage that prevents air from flowing freely through the tape drive. • Ensure that the operating temperature and airflow is within the specified range. <p>Clear the error code by power cycling the tape drive or placing the drive in Maintenance Mode. If the operating temperature and airflow are within the specified range, and the problem persists, replace the drive.</p>
2	Power problem. The tape drive detected that the externally supplied power is outside the specified voltage limits (the tape drive is not operating). Perform the following action: <ul style="list-style-type: none"> • Ensure that the power connector is properly seated. • Ensure that the proper dc voltages are being applied within the tolerances allowed. • If the proper voltages are not being applied, service the power supply. • If the proper voltages are being applied, power off/on the tape drive to see if the problem repeats. • Replace the tape drive if the problem persists.

	<p>Replace the tape drive if the problem persists.</p> <p>The error code clears when you place the tape drive in maintenance mode.</p>
3	<p>Firmware problem. The tape drive determined that a firmware error occurred. Perform the following action:</p> <ul style="list-style-type: none"> Collect a drive dump from one of the following: <p>Note: Do not force a new dump; the tape drive has already created one.</p> <ul style="list-style-type: none"> Server's host interface by using a device driver utility or system tool (for instructions about reading a drive dump from tape, visit the Web at http://www.ibm.com/storage/ltio) Ultrium Tape Drive (copy and read a drive dump) Power the tape drive off and on, then retry the operation that produced the error. If the problem persists, download new firmware and retry the operation. If the problem persists, send the drive dump that you collected to your IBM Support Center. <p>The error code clears when you place the tape drive in maintenance mode.</p>
4	<p>Firmware or hardware problem. The tape drive determined that a firmware or tape drive hardware failure occurred. Perform the following action:</p> <ul style="list-style-type: none"> Collect a drive dump from one of the following: <p>Note: Do not force a new dump; the tape drive has already created one.</p> <ul style="list-style-type: none"> Server's host interface by using a device driver utility or system tool (for instructions about reading a drive dump from tape, visit the Web at http://www.ibm.com/storage/ltio) Ultrium Tape Drive (copy and read a drive dump) Power the tape drive off and on, then retry the operation that produced the error. The error code clears when you place the tape drive in maintenance mode. If the problem persists, download new firmware and retry the operation; if new firmware is not available, replace the drive.
5	<p>Tape drive hardware problem. The drive determined that a tape path or read/write error occurred. To prevent damage to the drive or tape, the tape drive will not allow you to insert a cartridge if the current cartridge was successfully ejected. The error code may clear when you cycle power to the tape drive or place it in maintenance mode. If the problem persists, replace the drive.</p> <p>Note: Copy the drive dump to flash memory before returning the drive.</p>
6	<p>Tape drive or media error. The tape drive determined that an error occurred, but it cannot isolate the error to faulty hardware or to the tape cartridge. Ensure the tape cartridge is the correct media type:</p> <ul style="list-style-type: none"> Ultrium -1 and Ultrium -2 tape cartridges are not supported in Ultrium-5 tape drives. Drive will not accept an expired Cleaning Cartridge. Drive will not accept a WORM cartridge when running diagnostic tests in Maintenance Mode. Drive will not write over existing datasets on a WORM cartridge. Ensure you are appending datasets on WORM media rather than attempting to write over existing datasets. <p>If the tape cartridge is the correct media type, perform the following action:</p> <p>For Problems with Writing Data:</p> <p>If the problem occurred while the tape drive was writing data to the tape, retry the operation with a different cartridge:</p> <ul style="list-style-type: none"> If the operation succeeds, the original cartridge was defective. Copy data from the defective cartridge and discard it. If the operation fails and another tape drive is available, insert the cartridge into the other unit and retry the operation. <ul style="list-style-type: none"> If the operation fails, discard the defective cartridge. If the operation succeeds, insert a scratch data cartridge into the first unit and run the drive diagnostics. <ul style="list-style-type: none"> If the diagnostics fail, replace the tape drive. If the diagnostics succeed, the error was temporary. If the operation fails and another tape drive is not available, insert a scratch data cartridge into the unit and run the drive diagnostics. <ul style="list-style-type: none"> If the diagnostics fail, replace the tape drive. If the diagnostics succeed, discard the cartridge. <p>If the problem occurs with multiple tape cartridges, run the drive diagnostics.</p> <p>The error code clears when you remove the tape cartridge or place the tape drive in maintenance mode.</p> <p>For Problems with Reading Data:</p> <p>If the problem occurred while the tape drive was reading data from the tape, perform one of the following procedures:</p> <ul style="list-style-type: none"> If another tape drive is available, insert the cartridge into the other unit and retry the operation. <ul style="list-style-type: none"> If the operation fails, discard the defective cartridge. If the operation succeeds, insert a scratch data cartridge into the first unit and run the drive diagnostics. <ul style="list-style-type: none"> If the diagnostics fail, replace the tape drive. If the diagnostics succeed, the error was temporary.

	<ul style="list-style-type: none"> If another tape drive is not available, insert a scratch data cartridge into the unit and run the drive diagnostics. <ul style="list-style-type: none"> If the diagnostics fail, replace the tape drive. If the diagnostics succeed, discard the cartridge. <p>If the problem occurs with multiple tape cartridges, run the drive diagnostics.</p>
7	<p>Media error. The tape drive determined an error occurred because of a faulty tape cartridge or an invalid tape cartridge. Ensure the tape cartridge is the correct media type:</p> <ul style="list-style-type: none"> Ultrium -1 and Ultrium -2 tape cartridges are not supported in Ultrium-5 tape drives. Drive will not accept an expired Cleaning Cartridge. Drive will not accept a WORM cartridge when running diagnostic tests in Maintenance Mode. Drive will not accept an FMR tape. Drive will not write over existing datasets on a WORM cartridge. Ensure you are appending datasets on WORM media rather than attempting to write over existing datasets. <p>If the tape cartridge is the correct media type, try another tape cartridge. If the problem occurs with multiple tape cartridges, use the following procedure:</p> <p>If possible, run the tape cartridge in a different tape drive. If the operation in the other unit fails and 6 or 7 displays, replace</p>

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	<ul style="list-style-type: none"> If the drive diagnostic fails, replace the drive. If the drive diagnostic succeeds, perform the operation that produced the initial media error. <p>The error code clears when you remove the tape cartridge or place the tape drive in maintenance mode.</p>
8	Interface problem. The tape drive determined that a failure occurred in the tape drive's hardware or in the host bus.
9	Tape drive or RS-422 error. The tape drive determined that a failure occurred in the tape drive's hardware or in the RS-422 connection. Refer to the Library procedures to isolate the problem to the drive. The error code clears when you place the tape drive in maintenance mode.
A	<p>Degraded operation. The tape drive determined that a problem occurred which degraded the operation of the tape drive, but it did not restrict continued use. If the problem persists, determine whether the problem is with the drive or the media.</p> <p>Note: The drive is usable, though the Single-character Display continues to indicate an error and the Status LED flashes amber. The error code may clear when you cycle power to the tape drive or place it in maintenance mode. To determine if the problem is with the drive hardware, or the tape media, perform the following procedures:</p> <ol style="list-style-type: none"> If possible, run the tape cartridge in a different drive. If the operation in the other drive fails and 6 or 7 displays, replace the media. If the operation succeeds, run the Function Code E: Test cartridge and media diagnostic. If the Test cartridge and media diagnostic fails, replace the media. If it runs successfully, clean the failing drive and run the Function Code 1: drive diagnostics. Once you begin this test, the diagnostic begins the loop sequence. Time the first loop by pressing the Unload button once to stop the diagnostic after the completion of the first loop, then record the time it takes for the test to complete. Compare the recorded time with the Approximate Run Time. If the test runs successfully but the execution time is significantly longer than the Approximate Run Time, run Function Code F: Write performance test. If the Write performance test fails, replace the media and exit maintenance mode. If the drive diagnostics run successfully, perform the operation that produced the initial drive error. If the problem persists replace the drive. <p>If it is not possible to run the tape cartridge in a different drive, perform the following procedures:</p> <ol style="list-style-type: none"> Clean the failing drive and run the drive diagnostics. Once you begin this test, the diagnostic begins the loop sequence. Time the first loop by pressing the Unload button once to stop the diagnostic after the completion of the first loop, then record the time it takes for the test to complete. Compare the recorded time with the Approximate Run Time. If the test runs successfully but the execution time is significantly longer than the Approximate Run Time, run Function Code F: Write performance test. If the write performance test fails, replace the media and exit maintenance mode. If the drive diagnostics run successfully, run the Function Code E: Test cartridge and media diagnostic. If the test cartridge & media diagnostic fails, replace the media. If it runs successfully, perform the operation that produced the initial drive error. If the problem persists replace the drive.
C	<p>The tape drive needs to be cleaned. Clean the tape drive.</p> <p>The error code clears when you clean the tape drive or place it in maintenance mode.</p>
d	Fiber AL_PA conflict. NOT SUPPORTED ON THIS DRIVE.
e	Encryption Error. Displayed when the drive detects an error associated with a encryption operation. If the problem occurred