Subsys	Error #	What it means	Cause	Description
ACT	08000	The ACT is in use by another task	Firmware error that will occur during firmware development and testing.	To prevent firmware conflicts, the actuator subsystem can only be accessed by one user at a time. Since the actuator subsystem will wait for one user to complete an action before the next user is allowed access, this error will indicate a firmware development error.
	08001	Actuator initialization failed	1. Problems with the registration of NVS parameters. This would tend to indicate a problem with the registry (such as a corrupt registry). 2. Firmware error that will occur during firmware development and testing.	During initialization, the actuator subsystem attempts to read all NVS parameters and initialize the fast shutter. This will initialize the entire actuator subsystem and verify all required resources. If any error occurs, the actuator subsystem is disabled and this error is returned for all monitor commands. Note that immediately after initialization, the actual error that caused the initialization failure (as well as this error) will be displayed on the diagnostic port.
	08002	The board version is not supported	The actuator board does not support the stepper drivers.	The actuator subsystem requires an actuator board that supports the stepper drivers. This error indicates that the actuator board does not support the stepper drivers.
	08003	The shutter control is invalid	The fast shutter control is invalid.	The monitor command act shutter (open|close) will control the fast shutter. The fast shutter control can be one of the following: Open or Close.
	08004	The stepper driver is invalid	The stepper driver is invalid.	The monitor command act actuate <index> <steps> will actuate the stepper driver. This error code indicates that the stepper driver is invalid.
	08005	The number of steps is invalid	The number of steps is invalid	The monitor command act actuate <index> <steps> will actuate the stepper driver. The number of steps for the actuation of the stepper driver can be from -31 to 31 for the fast shutter and -4095 to 4095 for the beam-blockers (zero is an invalid number of steps).
	08006	The shutter state is unknown	1. A failure of the previous actuation of the stepper driver. 2. A manual actuation of the stepper driver.	The monitor command act shutter (open|close) requires that the fast shutter be in a known state. Attempting to operate the fast shutter in an unknown state may result in "bouncing" of the fast shutter causing a variety of problems. This error code indicates that the fast shutter is in an unknown state caused by either a failure of the previous actuation or a manual actuation of the stepper driver.
	08007	The stepper driver is active	1. The maximum acceleration and / or the maximum speed is too low. 2. Hardware failure of the stepper driver.	The monitor commands act initialize, act shutter (open|close) and act actuate <index> <steps> will wait a maximum of thirty seconds for the actuation of the stepper driver to complete. This error code indicates that the previous actuation of the stepper driver is not complete.
	08008	Timeout actuating the stepper driver	1. The maximum acceleration and / or the maximum speed is too low. 2. Hardware failure of the stepper driver.	The monitor commands act initialize, act shutter (open|close) and act actuate <index> <steps> will wait a maximum of thirty seconds for the actuation of the stepper driver to complete. This error code indicates that a timeout occurred waiting for the actuation of the stepper driver to complete.
	08009	The fast shutter was not open for imaging	1. Hardware failure of the stepper driver. 2. Firmware error that will occur during firmware development and testing.	During imaging, the fast shutter must be open. This error indicates that the fast shutter was not open for the start of the swath.
	08010	Unexpected software failure	Firmware error that will occur during firmware development and testing.	When the actuator subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.

BBS	06410	The spot increment is invalid	The spot increment is invalid.	The monitor command bbs profile [<increment>] will calculate the stroke profile. The spot increment for the calculation of the stroke profile can be 1, 2 or 4.
	06411	The specified spots could not be configured	Firmware error that will occur during firmware development and testing.	Performing a beam-balance, stroke profile, etc, requires the manipulation of pixel levels and spot states. This error indicates that the pixel level or spot state could not be set typically due to a firmware development error.
	06412	The polarity could not be configured	Firmware error that will occur during firmware development and testing.	Performing a beam-balance requires the polarity to be set. This error indicates that the polarity could not be set typically due to a firmware development error.
	06421	The polarity state is invalid	The polarity state is invalid	The monitor command bbs balance (master|slave) (high|low) <piston> will perform a beam-balance (master / slave). The light valve polarity state can be one of the following: High or Low
	06422	The beam piston is invalid	1. The beam piston is invalid. 2. The beam piston for the master profile is not greater than the beam piston for the slave profile.	The monitor command bbs balance (master|slave) (high|low) <piston> will perform a beam-balance (master / slave). This error code indicates the beam piston is invalid. Note that the beam piston for the master profile must be greater than the beam piston for the slave profile.
	06424	Imaging may be affected by a dead pixel	The stroke profile suggests that there is a dead pixel	Beam-balance determines stroke profile at maximum pixel level. Average pixel level is calculated from the stroke profile. This error indicates that a pixel level is less than 65% of the average pixel level and suggests that the pixel is dead. Additional information (polarity, pixel, etc) should be available in the device log.
BPD	04403	The laser mode is invalid	The beam-pointing laser mode is invalid	The monitor command bpd on (dual|a|b) will set the beam-pointing laser mode. The beam-pointing laser mode can be one of the following: Dual, A, or B. Operator Action: Verify the previous monitor command and enter a valid beam-pointing laser mode.
	04404	The sensor mode is invalid	The BPD sensormode and controlmode parameter settings are incompatible.	The sensormode and controlmode parameter settings are incompatible. Sensormode 'psd' is only valid for controlmodes: A or B.
	04405	The DBPS configuration is invalid	The differential beam-pointing sensor configuration is invalid	The monitor command bpd dbpsconfig [(norm|rev)] will set the differential beam-pointing sensor configuration. The differential beam-pointing sensor configuration can be one of the following: Norm or Rev. Operator Action: Verify the previous monitor command and enter a valid differential beam-pointing sensor configuration.
	04406	The DBPS configuration is unknown	Firmware error that will occur during firmware development and testing	The monitor commands bpd setup [(a|b)] and bpd xtalk will attempt to automatically configure the NVS parameter bpd dbpsconfig. The algorithm expects to find that laser A generates more signal on one half of the differential beam-pointing sensor while laser B generates more signal on the other half of the differential beam-pointing sensor. This error code indicates that the results were unexpected. Operator Action: Call service.
	04407	Timeout waiting for the sample acquisition	1. The PBP or DBP satellite board is not installed. 2. The Beam-Pointing sensors cannot be read due to hardware problems.	The monitor command "bpd sample" acquires Beam-Pointing sensor samples. Failure to acquire sensor samples indicates either or both of the PBP or DBP satellite boards are "uninstalled" or that a hardware problem is preventing the reading of sensors.
	04408	The beam-pointing controller is invalid	The beam-pointing controller is invalid	The monitor command bpd setup [(a|b)] will setup the specified beam-pointing controller and the monitor command bpd tune [(a|b|c)] will tune the specified beam-pointing controller. The beam-pointing controller can be one of the following: A, B, or C (only for tuning the beam-pointing controller). Operator action: Verify the previous monitor command and enter a valid beam-pointing controller. Note that the beam-pointing controller for the centroid cannot be individually setup.
	04409	The beam-pointing actuator is invalid	The beam-pointing actuator is invalid	The monitor command bpd characterize [(a|b)] will characterize the beam-pointing actuator. The beam-pointing actuator can be one of the following: A or B. Operator Action: Verify the previous monitor command and enter a valid beam-pointing actuator.
	04410	Invalid function parameter	The monitor command is invalid	A parameter and / or combination of parameters for the monitor command is invalid. Operator Action: Verify the previous monitor command and enter a valid monitor command.

BPD Cont'd	04411	The sample data is preventing a linear fit	• Insufficient signal from the beam-pointing sensors • A hardware failure is corrupting the A/D samples • Firmware error that will occur during firmware development and testing	Setup of the beam-pointing controller(s) includes an algorithm to acquire A/D samples while either increasing or decreasing the piezo voltage. The resulting sample data should be linear in nature and can be used to calibrate a variety of parameters. This error indicates that a linear fit cannot be calculated for the sample data acquired from the beam-pointing sensors. Operator Action: Call service.
	04412	The calibrated values are out of range	• Insufficient signal from the beam-pointing sensors • A hardware failure is corrupting the A/D samples • Firmware error that will occur during firmware development and testing	Setup of the beam-pointing controller(s) includes algorithms to automatically calibrate a variety of NVS parameters. This error indicates the automatically calibrated NVS parameter(s) are out-of-range. Operator Action: Call service.
	04413	The beam-pointing signal level is invalid	• Insufficient signal from the beam-pointing sensors • Saturation of the beam-pointing sensors • A hardware failure is corrupting the A/D samples	While attempting to track the write laser(s), the beam-pointing control loop has found that there is either insufficient signal from the beam-pointing sensors or saturation of the beam-pointing sensors. As a result of this error, a fatal fault will be generated if the beam-pointing control loop fails to settle within 5 seconds. As a result of the fatal fault, the beam-pointing driver is shutdown and the system fault handler will shutdown the exposure head. Note that this error code is also returned to the host as an unsolicited fatal fault. After the beam-pointing control loop has settled, a warning fault will be generated on a single occurrence. Note that this error code is also returned to the host as an unsolicited warning fault. Operator Action: Call service.
	04414	The beam-pointing actuator is saturated	The piezo voltage for the beam-pointing actuator is saturated	While attempting to track the write laser(s), the beam-pointing control loop has found that the piezo voltage for the beam-pointing actuator is saturated. As a result of this error, a fatal fault will be generated if the beam-pointing control loop fails to settle within 5 seconds. As a result of the fatal fault, the beam-pointing driver is shutdown and the system fault handler will shutdown the exposure head. Note that this error code is also returned to the host as an unsolicited fatal fault. After the beam-pointing control loop has settled, a warning fault will be generated on a single occurence. Note that this error code is also returned to the host as an unsolicited warning fault. Operator Action: Call service.
	04415	The beam-pointing controller is unstable	The tracking error is exceeding three microns	While attempting to track the write laser(s), the beam-pointing control loop error has exceeded three microns. During initialization of the beam-pointing control loop, a fatal fault will be generated if the beam-pointing control loop fails to settle within 5 seconds. As a result of the fatal fault, the beam-pointing driver is shutdown and the system fault handler will shutdown the exposure head. Note that this error code is also returned to the host as an unsolicited fatal fault. After the beam-pointing control loop has settled, a warning fault will be generated if the beam-pointing control loop goes unstable for 0.2 seconds. Note this error code is also returned to the host as an unsolicited warning fault. Operator Action: Call service.
	04416	The configuration is not supported	A sensor mode of "PSD" in conjunction with a laser mode of "Dual" is not supported	The beam-pointing driver does not support a sensor mode of "PSD" in conjunction with a laser mode of "Dual". If this error occurs while the beam-pointing control loop is tracking the write laser(s), the beam-pointing control loop will be shutdown. Operator Action: Change the configuration of the beam-pointing driver.
DBG	06602	The memory test buffer specification is invalid	Invalid parameter specified in a monitor command. Firmware error that will occur during firmware development and testing.	The error indicates that the memory buffer specified for a monitor command or an internal API call was invalid. The valid memory buffers are 'swath' or 'spare'.
	06603	The memory test failed	Hardware fault in the DDR memory buffer subsystem.	An error has been detected during the test of the DDR memory subsystem. The address, expected value, and read value will be displayed for the detected errors.

DBG Cont'd	06604	The Ethernet controller data bit walk test failed	Hardware fault in the copper Ethernet controller subsystem.	An error has been detected during the test of the Ethernet controller data bus. The expected value and read value will be displayed for the detected errors.
	06605	The address bus bit walk test failed	Hardware fault in the external memory subsystem.	An error has been detected during the test of the external memory interface address bus. The expected value and read value will be displayed for the detected errors.
	06606	The relative clock frequency test failed	Hardware fault on the head controller board.	An error has been detected during the test of the relative clock frequencies. If all four frequencies tested failed, then it is likely that the reference clock is out of spec. If only one frequency failed, then the indicated clock source is out of spec. A failure indicates a hardware fault with the head controller board.
DGS	04800	The diagnostic stream is in use by another task	Firmware error that will occur during firmware development and testing.	To prevent firmware conflicts, the diagnostic stream subsystem can only be accessed by one user at a time. Since the diagnostic stream subsystem will wait for one user to complete an action before the next user is allowed access, this error will indicate a firmware development error.
	04801	Failure opening a socket		The socket( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
	04802	Failure setting the socket options		The setsockopt( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
	04803	Failure binding the socket		The bind( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
	04804	Failure listening to the socket		The listen( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
	04805	Failure accepting the socket		The accept ( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
	04806	Failure sending the stream data		The send( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
	04807	Unexpected software failure		When the diagnostic stream subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.
DIR	00202	Directory does not exist	Firmware error that will occur during firmware development and testing.	The directory section of an internal directory subsystem API function was invalid. This error will indicate a firmware development error.
	00205	End of directory has been found		The end of the directory of the firmware bundle has been found. This error will indicate a firmware development error. The error may be normal (typically a search is complete), but it should be handled internally.
	00208	The compressed file is corrupt	1. Data corruption during the firmware download. 2. The binary file on the PC is corrupt. 3. Firmware error that will occur during firmware development and testing.	To conserve resources, files may be compressed using non-adaptive Huffman compression. This error indicates that the compressed file is corrupt and / or cannot be uncompressed.
	00209	Unexpected software failure	An unexpected firmware error in the directory subsystem.	When the directory subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.

DTL	07005	The datalink has been corrupted	1. Intermittent or faulty communication equipment. 2. Firmware error that will occur during firmware development and testing.	The datalink has been corrupted. The datalink subsystem implements a protocol that verifies the synchronization of the datalink. If the datalink becomes corrupted, the datalink will be re-initialized.
	07006	Failure opening a socket	Firmware error that will occur during firmware development and testing.	The socket( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
	07007	Failure setting the socket options		The setsockopt( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
	07008	Failure binding the socket		The bind( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
	07009	Failure listening to the socket		The listen( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
	07010	Failure accepting the socket		The accept( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
	07011	Failure receiving the character(s)		The recv ( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
	07012	Failure sending the character(s)		The send( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
EVT	05000	The event logger is in use by another task	Firmware error that will occur during firmware development and testing.	To prevent firmware conflicts, the event logger subsystem can only be accessed by one user at a time. Since the event logger subsystem will wait for one user to complete an action before the next user is allowed access, this error will indicate a firmware development error.
	05001	Event logger initialization failed	1. Problems with the registration of NVS parameters. This would tend to indicate a problem with the registry (such as a corrupt registry). 2. Firmware error that will occur during firmware development and testing.	During initialization, the event logger subsystem attempts to read all NVS parameters. This will initialize the entire event logger subsystem and verify all required resources. If any error occurs, the event logger subsystem is disabled and this error is returned for all monitor commands. Note that immediately after initialization, the actual error that caused the initialization failure (as well as this error) will be displayed on the diagnostic port.
	05002	The event point is invalid	The event point is invalid	The monitor command evt cache <point> (enable|disable) will configure the cache configuration for the acquisition of event data. This error indicates that the event point is invalid. Note that the monitor command evt cache will display the cache configuration for the acquisition of event data.
	05003	The cache state is invalid	The cache state is invalid	The monitor command evt cache <point> (enable|disable) will configure the event configuration for the acquisition of event data. This error indicates that the cache state is invalid. The cache state can be one of the following: Enable or Disable Note that the monitor command evt cache will display the cache configuration for the acquisition of event data.
	05004	Invalid function parameter	Firmware error that will occur during firmware development and testing.	An internal API function was called with an invalid parameter. This error will indicate a firmware development error.
	05005	Unexpected software failure	Firmware error that will occur during firmware development and testing.	When the event logger subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.

FBT	00600	Boot level is invalid	The boot level is invalid	The monitor command reset [bbr|boot|main] will reboot firmware to the specified boot level. The boot level can be one of the following: BBR, Boot, or Main
	00601	Section type is invalid	The directory section is invalid.	The monitor command load (boot|main) will load firmware from the specified directory section (only while executing the boot-block recovery firmware). The directory section can be one of the following: Boot, Main
	00602	Unexpected software failure	An unexpected firmware error in the flash boot subsystem.	When the flash boot subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.
FLS	00801	Flash section invalid	The flash section is invalid.	The monitor commands fls erase (main|extended) <address> <length>, fls write (main|extended) <address> <value> and fls read (main|extended) <address> <length> will access the flash sections. The flash section can be one of the following: Main, Extended
FOC	01000	Focus subsystem internal error	An unexpected firmware error in the auto focus subsystem.	When the auto focus subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.
	01002	Invalid command line argument	A monitor command argument is invalid.	Check that the arguments of the monitor command are within the specified range.
	01003	Failure opening a socket	Failure opening a TCP/IP socket while attempting to download an auto focus stimulus file.	This error is only possible while downloading auto focus plate profile stimulus files during very specific test scenarios. Such tests are likely to be performed only by product developers.
	01004	Failure setting the socket options	Failure setting options for a TCP/IP socket while attempting to download an auto focus stimulus file	
	01005	Failure binding the socket	Failure binding a TCP/IP socket while attempting to download an auto focus stimulus file	
	01006	Failure listening to the socket	Failure to configure a TCP/IP socket as a 'listen' socket while attempting to download an auto focus stimulus file	
	01007	Failure accepting the socket	Failure to accept a TCP/IP socket while attempting to download an auto focus stimulus file	
	01008	Failure sending the stream data	Failure to send data on a TCP/IP socket while attempting to download an auto focus stimulus file	
	01009	Failure receiving the stream data	Failure to receive data on a TCP/IP socket while attempting to download an auto focus stimulus file	
	01010	End of stimulus data file reached	Premature end of data reached on a TCP/IP socket while downloading an auto focus stimulus file.	
	01011	Stimulus table filled before download complete	Auto focus stimulus table full before stimulus file completely revived	
	01012	Stimulus table is empty	The auto focus stimulus table is empty. The foc stim command is not possible.	

FOC Cont'd	01013	LVDT primary offset out of range	Primary offset voltage out of range during LVDT calibration	The auto focus lens tube position sensing device is known to product developers as the 'LVDT sensor'. This sensor supplies feedback to the auto focus servo system and is critical to its operation. This error can occur only when the lvdt sensor is calibrated. The LVDT is calibrated under two circumstances: When the thermal head powers up or when a user issues a 'foc cal lvdt' monitor command If the error occurs during system power up it will be displayed on the monitor before the sign on message (together with any other start up errors). When an LVDT calibration fails this is one of the possible errors. It indicates a serious malfunction in auto focus hardware. If the error persists after several attempts at the 'foc cal lvdt' command the head will likely need to be replaced. The thermal head firmware 'remembers this error and is aware that the LVDT calibration has failed on the last attempt. This will cause several other auto focus monitor commands to fail. A typical example is the 'foc init' command. The equivalent of a 'foc init' command always occurs at power up provided the LVDT calibration was successful first. A failed LVDT calibration will ensure that the auto focus servo subsystem will not initialize. An uninitialized servo will cause several other auto focus commands to fail. However, a failed LVDT calibration is not the only reason a focus servo initialization may fail.
	01014	LVDT primary amplitude out of range	Primary amplitude voltage out of range during LVDT calibration	The auto focus lens tube position sensing device is known to product developers as the 'LVDT sensor'. This sensor supplies feedback to the auto focus servo system and is critical to its operation. This error can occur only when the lvdt sensor is calibrated. The LVDT is calibrated under two circumstances: When the thermal head powers up or when a user issues a 'foc cal lvdt' monitor command If the error occurs during system power up it will be displayed on the monitor before the sign on message (together with any other start up errors). When an LVDT calibration fails this is one of the possible errors. It indicates a serious malfunction in auto focus hardware. If the error persists after several attempts at the 'foc cal lvdt' command the head will likely need to be replaced. The thermal head firmware 'remembers this error and is aware that the LVDT calibration has failed on the last attempt. This will cause several other auto focus monitor commands to fail. A typical example is the 'foc init' command. The equivalent of a 'foc init' command always occurs at power up provided the LVDT calibration was successful first. A failed LVDT calibration will ensure that the auto focus servo subsystem will not initialize. An uninitialized servo will cause several other auto focus commands to fail. However, a failed LVDT calibration is not the only reason a focus servo initialization may fail.
	01015	LVDT primary phase out of range	Primary phase out of range during LVDT calibration	
	01016	LVDT secondary offset out of range	Secondary offset voltage out of range during LVDT calibration	
	01017	LVDT secondary amplitude out of range	Secondary amplitude voltage out of range during LVDT calibration	
	01018	Unsafe to execute command in the current state	Unsafe to execute command in the current state	Certain monitor commands are blocked when the auto focus servo subsystem is in various control states. This is required to prevent possible damage to delicate mechanical assemblies. Most auto focus monitor commands are allowed when the auto focus actuator is in a 'parked' position. However, the command to park the actuator 'foc park' may be itself be disallowed in the current control state. Many focus servo commands are blocked during initialization sequences or imaging and edge detection states.
	01019	The current focus mode is invalid	The current focus mode is invalid	This error can occur after issuing the 'foc mode' command. The only supported mode numbers that may be passed as an argument to this command are 'mode 0' (profile tracking) and mode 1 (fixed lens position). These two modes are provided to supply basic backward compatibility with the 'foc mode' command as implemented on Thermal 2 heads. These heads used several other mode numbers to implement various test scenarios. Thermal 3 heads use a different testing methodology that does not involve modes.

FOC Cont'd	01020	Timeout initializing focus lens tube	Timeout while initializing the focus lens tube actuator	Before the auto focus servo system can operate it must determine the mechanical and electrical integrity of its actuator hardware. The central method of checking the actuator hardware is through a 'focus initialization' operation. This occurs automatically at system power up and may be invoked manually with the 'foc init' command. Focus initialization moves the auto focus lens tube actuator through various expected degrees of freedom while using all possible means to reduce the risk of lens damage due to excessive acceleration caused by unexpected malfunctions. This error is one of several that can occur during the initialization process One of the main 'recoverable' ways focus initialization can fail is when the head is not sitting horizontally. In this case, gravitational forces may overcome the small (but safe) accelerations used during initialization and cause an apparent failure. In most cases however, a failure to initialize the auto focus lens tube actuator will indicate a serious hardware problem and the head will likely need repaired or replacement.
	01021	Excessive travel during focus lens tube init	Excessive travel while initializing the focus lens tube actuator	
	01022	Insufficient travel during focus lens tube init	Insufficient travel while initializing the focus lens tube actuator	
	01023	Focus lens actuator offset current out of range	Focus lens actuator offset current out of range while initializing the focus lens tube actuator	
	01024	Focus drive system not initialized	Focus drive system not initialized	Before the auto focus servo system can operate it must determine the mechanical and electrical integrity of its actuator hardware. The central method of checking the actuator hardware is through a 'focus initialization' operation. This occurs automatically at system power up and may be invoked manually with the 'foc init' command. Focus initialization moves the auto focus lens tube actuator through various expected degrees of freedom while using all possible means to reduce the risk of lens damage due to excessive acceleration caused by unexpected malfunctions. Auto focus initialization can fail for many reasons few of which are easily recoverable but most of which are not. If initialization is not successful many subsequent auto focus monitor commands may fail.
	01025	Focus drive update timeout	Focus drive update timeout	The auto focus servo subsystem firmware must update the lens tube actuator position drive control once every 100 microseconds. Hardware within the Thermal 3 head maintains counters and logic to check that the firmware meets this update time specification. If the update time is ever exceeded even once, the auto focus servo system shuts down and enters an 'idle' mode where the actuator amplifier is disabled and the lens tube position is no longer under active servo control. Although this error is unlikely to occur in the field, it could occur under several circumstances and is not necessarily dependent on any particular monitor command. The error falls into a 'grey area' between a 'hardware' and 'software' error. It is possible that a side effect from a firmware subsystem other than focus has caused this error to be manifest. Once this error occurs, all focus monitor commands that would normally cause movement of the focus lens tube will fail except the 'foc init' command. The foc init command will clear this error and attempt to reestablish normal lens tube servo control. This error indicates a firmware scheduling problem which could have a wide variety of complex causes having related to interaction between hardware and various firmware subsystems. It is best to try and recreate the conditions that lead up to this error and work with firmware developers to find a solution.

FOC Cont'd	01026	Focus drive control signal out of range	Focus drive control signal out of range	The auto focus servo subsystem output drive control must remain within specific limits. Hardware within the Thermal 3 head maintains logic to check that the firmware update drive value meets this range specification. If the update value is ever exceeded even once, the auto focus servo system shuts down and enters an 'idle' mode where the actuator amplifier is disabled and the lens tube position is no longer under active servo control. Although this error is unlikely to occur in the field, it could occur under several circumstances and is not necessarily dependent on any particular monitor command. The error falls into a 'grey area' between a 'hardware' and 'software' error. It is possible that a side effect from a firmware subsystem other than focus has caused this error to be manifest. Once this error occurs, all focus monitor commands that would normally cause movement of the focus lens tube will fail except the 'foc init' command. The foc init command will clear this error and attempt to reestablish normal lens tube servo control. This error may indicate a firmware resource sharing problem which could have a wide variety of complex causes having related to interaction between hardware and various firmware subsystems. It is best to try and recreate the conditions that lead up to this error and work with firmware developers to find a solution.
	01027	LVDT sensor not calibrated	This error is generated when a 'foc init' command is issued before a successful LVDT calibration has occurred.	The LVDT sensor measures the position of the auto focus lens tube. To perform properly it must be successfully calibrated at power up. The calibration process is also repeated whenever the 'foc cal lvdt' command is issued. The LVDT sensor must be calibrated before the auto focus system is initialized. This error is generated when a 'foc init' command is issued before a successful LVDT calibration has occurred.
	01028	Timeout waiting to enter edge ISR state	Focus servo does not enter edge state	When the focus subsystem is commanded to the edge detect mode it must first move the focus lens tube to the home position before it can enter the focus ISR edge state. This requires waiting for the edge detect state to be entered. This error is generated if the edge detect states is not entered within 2 seconds. This will occur if the lens tube is enabled to move due to electrical or mechanical malfunctions.
	01029	Timeout waiting to learn focus	Inability to establish minimal error during 'focus learn' or 'focus adjust'	This error occurs when the auto focus system takes too many drum rotations to establish a plate profile table which can be tracked with minimum focus error during a 'focus learn' or a 'focus adjust' operation. Minimum focus error is established when the error does not exceed +/-10 microns more than 10 times in a single drum rotation. This minimum focus error condition must be established within a maximum of 10 drum rotations or this error is generated. In a typical normal scenario, the focus error falls to less than 5 microns on any sample period of 100 us and remains steady within 3 drum rotations.
	01030	Focus Tracking Error	Focus tracking error exceeds +/- 10 microns on the last plot	This 'error' is actually just a warning. It occurs if the focus tracking error exceeds +/- 10 microns on any plot. The error is sent to the host to warn the operator that image focus problems may be manifest. A tracking error of greater than 10 microns does not guarantee a focus errors. For this reason the plot is allowed to continue to avoid wasting the plate. However, the plate may need to be examined closely for focus errors.
	01031	Timeout entering sine state in Bode analysis	Time out waiting to enter the focus SINE state during Bode analysis tests	The auto focus ISR has timed out waiting to enter the SINE state during Bode analysis testing. This error is only possible while running special diagnostic monitor command. Such tests are to be performed only by product developers.
	01032	Timeout entering park state in Bode analysis	Time out waiting to enter the focus PARK state during Bode analysis tests	The auto focus ISR has timed out waiting to enter the PARK state during Bode analysis testing. This error is only possible while running special diagnostic monitor command. Such tests are to be performed only by product developers.
	01033	Learn 2 not allowed twice in a row	The monitor command 'foc learn 2' was issued twice in a row without and intervening 'foc learn 1' command.	The 'foc learn 2' command is not allowed twice in a row. Each foc learn 2 command must be preceded by a 'foc learn 1' command
	01034	Learn 1 must precede learn 2	The monitor command 'foc learn 2' without first issuing a 'foc learn 1' command.	The 'foc learn 2' command must be preceded with a 'foc learn 1' command

FOC Cont'd	01035	Timeout waiting for fixed lens position	There has been a timeout entering the fixed lens position state in the auto focus ISR	There has been a timeout entering the 'fixed lens position' state in the auto focus Interrupt Service Routine (ISR). A 'foc cal rcvrgain' command requires the auto focus lens tube to be in a fixed lens position. The auto focus ISR has been unable to get to the fixed lens position state.	
	01036	Timeout entering parked lens position	There has been a timeout entering the parked lens position state in the auto focus ISR	There has been a timeout entering the park lens position state in the auto focus Interrupt Service Routine (ISR). Several calibration commands require the lens tube to be parked before they can proceed. This error occurs when there is a problem parking the autofocus lens.	
	01037	Total swaths exceeded: holding for remainder of image	The number of image swaths or the maximum swaths to hold parameters are set incorrectly	To avoid generating spurious focus errors at the end of an image as the head moves off the media the focus enters a hold state after the specified number of active swaths. If the number of imaging swaths during this hold state exceeds the number set with the maximum swaths to hold parameter this error is generated.	
HDW	01200	Unexpected software failure	Unexpected internal firmware error	The firmware HDW subsystem has encountered an unexpected failure. These types of error are always fatal and will cause the head to display the error number and then reset itself. Included in the error display is the file and line number within the firmware where the error occurred. It is helpful to developers if this information is captured.	
	01201	FPGA programming: 'Init pin' asserted before config load done.	Hardware error detected while programming FPGA chip	This is an error which could occur during initialization when the FPGA is programmed. It indicates that the FPGA chip's 'Init' was asserted before the configuration load was complete. It is probably due to a main head controller electronics board hardware problem.	
	01202	FPGA programming: 'Done pin' not asserted after config loaded	Hardware error detected while programming FPGA chip	This is an error which could occur during initialization when the FPGA is programmed. It indicates that the FPGA chip's 'Done' pin did not assert after the configuration load was complete. It is probably due to a main head controller electronics board hardware problem.	
	01203	FPGA programming: Timeout on 'Init pin' deassert after 'Prg pin' deassert		This is an error which could occur during initialization when the FPGA is programmed. It indicates a time out waiting for the 'Init' pin to deassert after 'Prg' pin is deasserted. It is probably due to a main head controller electronics board hardware problem.	
	01204	FPGA programming: Timeout on 'Init init' assert after 'Pgm pin' assert		This is an error which could occur during initialization when the FPGA is programmed. It indicates a time out waiting for the 'Init' pin to assert after the 'Pgm pin is asserted. It is probably due to a main head controller electronics board hardware problem.	
	01205	FPGA programming: Timeout on PLL lock status after reset	Hardware error detected while programming FPGA chip	This is an error which could occur during initialization when the FPGA is programmed. It indicates a time out waiting on the 'DLL lock status after a system reset. It is probably due to a main head controller electronics board hardware problem.	
	01206	SAT: Timeout on satellite register update	Hardware error accessing satellite board registers	This error could occur when attempting to read or write satellite board registers in 'polled' mode. In the case of reading, it means a time out occurred waiting for FPGA signals to indicate a successful update from a satellite board. In the case of writing, it means a time out has occurred waiting for the holding registers for outgoing satellite values (the 'FIFO') to accept more values. It is probably due to a main head controller electronics board hardware problem or an FPGA configuration problem.	
	01207	Invalid command line argument	Invalid argument entered as a command line argument	Invalid argument entered as a command line argument	
	01208	Satellite not detected during system initialization	An installed satellite board failed to respond when programming was attempted during system initialization.	A specific satellite board was not detected during system initialization. In most cases this will be a fatal system error.	
	01209	Polled read satellite interface read timeout	Polled read satellite interface read timeout	This error occurs when an FPGA read cycle completes with a flagged 'timeout' error indicating a non-responsive satellite while attempting polled communication with a satellite board. (This should error not be confused with a "HDW_FPGA_TIMEOUT3" error which indicated a timeout waiting for the FPGA the satellite read cycle itself to complete).	

HDW Cont'd	01210	Polled read satellite interface received framing error	Polled read satellite interface received framing error	This error occurs when an FPGA read cycle completes with a flagged 'framing' error indicating a bit framing error occurred while attempting polled communicating with a satellite board.	
	01211	Polled read satellite interface received parity error	Polled read satellite interface received parity error	This error occurs when an FPGA read cycle completes with a flagged 'parity' error indicating a bit parity error occurred while attempting polled communication with a satellite board.	
HLT	03800	Invalid command line argument	Invalid argument entered as a command line argument	Invalid argument entered as a command line argument	
	03801	All metric faults now cleared	The last metric monitoring fault has been cleared	This is an informational message and not technically an error.	
	03802	Unexpected software failure	Firmware error that will occur during firmware development and testing	When the health subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.	
	03810	Volt Range Error [mask 0]: HC Board (3.3V)	An internal Thermal 3 head hardware failure	The Head Controller Board '3.3V' signal is out of range	
	03811	Volt Range Error [mask 1]: HC Board (A3.3V)	An internal Thermal 3 head hardware failure	The Head Controller Board 'A3.3V' signal is out of range	
	03812	Volt Range Error [mask 2]: HC Board (2.5V)		The Head Controller Board '2.5V' signal is out of range	
	03813	Volt Range Error [mask 3]: HC Board (G2.5V)		The Head Controller Board 'G2.5V' signal is out of range	
	03814	Volt Range Error [mask 4]: HC Board (1.5V)		The Head Controller Board '1.5V' signal is out of range	
	03815	Volt Range Error [mask 5]: HC Board (Vdsp)		The Head Controller Board 'Vdsp' signal is out of range	
	03816	Volt Range Error [mask 6]: HC Board (Vref)		The Head Controller Board 'Vref' signal is out of range	
	03817	Volt Range Error [mask 7]: HC Board (Vtt)		The Head Controller Board 'Vtt' signal is out of range	
	03818	Volt Range Error [mask 8]: HC Board (Vid)		The Head Controller Board 'Vid' signal is out of range	
	03819	Volt Range Error [mask 9]: HC Board (GND)		The Head Controller Board 'GND' signal is out of range	
	03820	Volt Range Error [mask 10]: HC Board (Ext)		The Head Controller Board 'Ext' signal is out of range	
	03821	Temp Range Error [mask 11]: HC Board (BoardTemp)		The Head Controller Board 'BoardTemp' signal is out of range	
	03822	Temp Range Error [mask 12]: HC Board (FpgaTemp)		The Head Controller Board 'FpgaTemp' signal is out of range	
	03823	Volt Range Error [mask 13]: ACT Board (3.3V)		The ACT Satellite Board '3.3V' signal is out of range	

HLT Cont'd	03824	Volt Range Error [mask 14]: ACT Board (2.5V)	An internal Thermal 3 head hardware failure	The ACT Satellite Board '2.5V' signal is out of range	
	03825	Volt Range Error [mask 15]: ACT Board (VDD12)		The ACT Satellite Board 'VDD12' signal is out of range	
	03826	Volt Range Error [mask 16]: ACT Board (VDD8)		The ACT Satellite Board 'VDD8' signal is out of range	
	03827	Volt Range Error [mask 17]: ACT Board (VSS12)		The ACT Satellite Board 'VSS12' signal is out of range	
	03828	Volt Range Error [mask 18]: ACT Board (VSS8)		The ACT Satellite Board 'VSS8' signal is out of range	
	03829	Volt Range Error [mask 19]: ACT Board (VDD12FANS)		The ACT Satellite Board 'SHUT2Volt' signal is out of range	
	03830	Volt Range Error [mask 20]: ACT Board (VBUS)		The ACT Satellite Board 'VBUS' signal is out of range	
	03831	Volt Range Error [mask 21]: ACT Board (VPZ)		The ACT Satellite Board 'VPZ' signal is out of range	
	03832	Volt Range Error [mask 22]: ACT Board (VPP)		The ACT Satellite Board 'VPP' signal is out of range	
	03833	Temp Range Error [mask 23]: ACT Board (BoardTemp)		The ACT Satellite Board 'BoardTemp' signal is out of range	
	03834	Volt Range Error [mask 24]: ACT Board (Vmid)		The ACT Satellite Board 'Vmid' signal is out of range	
	03835	Volt Range Error [mask 25]: ACT Board (1.25 Vref)		The ACT Satellite Board '1.25Vref' signal is out of range	
	03836	Pres Range Error [mask 26]: ACT Board (AirPress)		The ACT Satellite Board 'AirPress' signal is out of range	
	03837	Temp Range Error [mask 27]: ACT Board (AuxTemp)		The ACT Satellite Board 'AuxTemp' signal is out of range	
	03838	Temp Range Error [mask 28]: NPE Board (BoardTemp)		The NPE Satellite Board 'BoardTmp' signal is out of range	
	03839	Temp Range Error [mask 29]: NPE Board (ThermTmp1)		The NPE Satellite Board 'ThermTmp1' signal is out of range	
	03840	Temp Range Error [mask 30]: NPE Board (ThermTmp2)		The NPE Satellite Board 'ThermTmp2' signal is out of range	
	03841	Temp Range Error [mask 31]: RFE Board (BoardTemp)		The RFE Satellite Board 'BoardTmp' signal is out of range	
	03842	Humi Range Error [mask 32]: IBS Board (Humidity)		The IBS Satellite Board 'Humidity' signal is out of range	
	03843	Volt Range Error [mask 33]: WLC Board (3.3V)		The WLC Satellite Board '3.3V' signal is out of range	

HLT Cont'd	03844	Volt Range Error [mask 34]: WLC Board (2.5V)	An internal Thermal 3 head hardware failure	The WLC Satellite Board '2.5V' signal is out of range	
	03845	Volt Range Error [mask 35]: WLC Board (VDD12)		The WLC Satellite Board 'VDD12' signal is out of range	
	03846	Volt Range Error [mask 36]: WLC Board (VPP)		The WLC Satellite Board 'VPP' signal is out of range	
	03847	Volt Range Error [mask 37]: WLC Board (VSS12)		The WLC Satellite Board 'VSS12' signal is out of range	
	03848	Temp Range Error [mask 38]: NPE Board (BoardTemp)		The WLC Satellite Board 'BoardTmp' signal is out of range	
	03849	Volt Range Error [mask 39]: WLC Board (VBUS)		The WLC Satellite Board 'VBUS' signal is out of range	
	03850	Curr Range Error [mask 40]: WLC Board (IDOCTRIP)		The WLC Satellite Board 'IDOCTRIP' signal is out of range	
	03851	Volt Range Error [mask 41]: WLC Board (GND)		The WLC Satellite Board 'GND' signal is out of range	
	03852	Volt Range Error [mask 42]: WLC Board (GND)		The WLC Satellite Board 'GND' signal is out of range	
	03853	Volt Range Error [mask 43]: WLC Board (VPPCTRL)		The WLC Satellite Board 'VPPCTRL' signal is out of range	
	03854	Temp Range Error [mask 44]: WLC Board (Laser 1)		The WLC Satellite Board 'Laser 1' signal is out of range	
	03855	Temp Range Error [mask 45]: WLC Board (Laser 2)		The WLC Satellite Board 'Laser 2' signal is out of range	
	03856	Temp Range Error [mask 46]: LVDL Board (PulseAmp0)		The LVDL Satellite Board 'PulseAmp0' signal is out of range	
	03857	Temp Range Error [mask 47]: LVDL Board (StrokeAmp)		The LVDL Satellite Board 'StrokeAmp' signal is out of range	
	03858	Temp Range Error [mask 48]: LVDL Board (PulseAmp1)		The LVDL Satellite Board 'PulseAmp1' signal is out of range	
	03859	Volt Range Error [mask 49]: LVDL Board (VPP1-80)		The LVDL Satellite Board 'VPP1-80' signal is out of range	
	03860	Volt Range Error [mask 50]: LVDL Board (VPP2-40)		The LVDL Satellite Board 'VPP2-40' signal is out of range	
	03861	Volt Range Error [mask 51]: LVDL Board (A+5V)		The LVDL Satellite Board 'A+5V' signal is out of range	
	03862	Volt Range Error [mask 52]: LVDL Board (A–5V)		The LVDL Satellite Board 'A-5V' signal is out of range	
	03863	Volt Range Error [mask 53]: LVDL Board (+2.5V)		The LVDL Satellite Board '+2.5V' signal is out of range	

HLT Cont'd	03864	Volt Range Error [mask 54]: LVDL Board (+1.8V)	An internal Thermal 3 head hardware failure	The LVDL Satellite Board '+1.8V' signal is out of range	
	03865	Volt Range Error [mask 55]: LVDL Board (VPP3-25)		The LVDL Satellite Board 'VPP3-25' signal is out of range	
	03866	Volt Range Error [mask 56]: LVDL Board (GND)		The LVDL Satellite Board 'GND' signal is out of range	
	03867	Temp Range Error [mask 57]: LVDU Board (PulseAmp0)		The LVDU Satellite Board 'PulseAmp0' signal is out of range	
	03868	Temp Range Error [mask 58]: LVDU Board (StrokeAmp)		The LVDU Satellite Board 'StrokeAmp' signal is out of range	
	03869	Temp Range Error [mask 59]: LVDU Board (PulseAmp1)		The LVDU Satellite Board 'PulseAmp1' signal is out of range	
	03870	Volt Range Error [mask 60]: LVDU Board (VPP1-80)		The LVDU Satellite Board 'VPP1-80' signal is out of range	
	03871	Volt Range Error [mask 61]: LVDU Board (VPP2-40)		The LVDU Satellite Board 'VPP2-40' signal is out of range	
	03872	Volt Range Error [mask 62]: LVDU Board (A+5V)		The LVDU Satellite Board 'A+5V' signal is out of range	
	03873	Volt Range Error [mask 63]: LVDU Board (A–5V)		The LVDU Satellite Board 'A-5V' signal is out of range	
	03874	Volt Range Error [mask 64]: LVDU Board (+2.5V)		The LVDU Satellite Board '+2.5V' signal is out of range	
	03875	Volt Range Error [mask 65]: LVDU Board (+1.8V)		The LVDU Satellite Board '+1.8V' signal is out of range	
	03876	Volt Range Error [mask 66]: LVDU Board (VPP3-25)		The LVDU Satellite Board 'VPP3-25' signal is out of range	
	03877	Volt Range Error [mask 67]: LVDU Board (GND)		The LVDU Satellite Board 'GND' signal is out of range	
	03900	NPE board interface timeout		NPE board interface timeout	
	03901	ACT board interface timeout		ACT board interface timeout	
	03902	PBP board interface timeout		PBP board interface timeout	
	03903	IBS board interface timeout		IBS board interface timeout	
	03904	DBP board interface timeout		DBP board interface timeout	
	03905	WLC board interface timeout		WLC board interface timeout	
	03906	RFE board interface timeout		RFE board interface timeout	
	03907	LVDU board interface timeout		LVDU board interface timeout	
	03908	LVDL board interface timeout		LVDL board interface timeout	
	03909	NPE board interface framing error		NPE board interface framing error	

HLT Cont'd	03910	ACT board interface framing error	An internal Thermal 3 head hardware failure	ACT board interface framing error	
	03911	PBP board interface framing error		PBP board interface framing error	
	03912	IBS board interface framing error		IBS board interface framing error	
	03913	DBP board interface framing error		DBP board interface framing error	
	03914	WLC board interface framing error		WLC board interface framing error	
	03915	RFE board interface framing error		RFE board interface framing error	
	03916	LVDU board interface framing error		LVDU board interface framing error	
	03917	LVDL board interface framing error		LVDL board interface framing error	
	03918	NPE board interface parity error		NPE board interface parity error	
	03919	ACT board interface parity error		ACT board interface parity error	
	03920	PBP board interface parity error		PBP board interface parity error	
	03921	IBS board interface parity error		IBS board interface parity error	
	03922	DBP board interface parity error		DBP board interface parity error	
	03923	WLC board interface parity error		WLC board interface parity error	
	03924	RFE board interface parity error		RFE board interface parity error	
	03925	LVDU board interface parity error		LVDU board interface parity error	
	03926	LVDL board interface parity error		LVDL board interface parity error	
	03927	NPE board interface fifo overflow		NPE board interface fifo overflow	
	03928	ACT board interface fifo overflow		ACT board interface fifo overflow	
	03929	PBP board interface fifo overflow		PBP board interface fifo overflow	
	03930	IBS board interface fifo overflow		IBS board interface fifo overflow	
	03931	DBP board interface fifo overflow		DBP board interface fifo overflow	
	03932	WLC board interface fifo overflow		WLC board interface fifo overflow	
	03933	RFE board interface fifo overflow		RFE board interface fifo overflow	
	03934	LVDU board interface fifo overflow		LVDU board interface fifo overflow	
	03935	LVDL board interface fifo overflow		LVDL board interface fifo overflow	
	03936	Satellite missed interrupt		Satellite missed interrupt	

IBS	07600	The IBS is in use by another task	Firmware error that will occur during firmware development and testing.	To prevent firmware conflicts, the internal beam-balance sensor subsystem can only be accessed by one user at a time. Since the internal beam-balance sensor subsystem will wait for one user to complete an action before the next user is allowed access, this error will indicate a firmware development error.
	07601	Internal balance initialization failed	1. Problems with the registration of NVS parameters. This would tend to indicate a problem with the registry (such as a corrupt registry). 2. Firmware error that will occur during firmware development and testing.	During initialization, the internal beam-balance sensor subsystem attempts to read all NVS parameters and configure the internal beam-balance sensor. This will initialize the entire internal beam-balance sensor subsystem and verify all required resources. If any error occurs, the internal beam-balance sensor subsystem is disabled and this error is returned for all monitor commands. Note that immediately after initialization, the actual error that caused the initialization failure (as well as this error) will be displayed on the diagnostic port.
	07602	The internal beam-balance sensor calibration is invalid	The internal beam-balance sensor calibration (automatic or manual) is invalid.	The internal beam-balance sensor will normally be automatically calibrated. The optional token "nocal" allows the internal beam-balance sensor to be manually calibrated. This error indicates the optional token "nocal" has not been entered correctly.
	07603	Failure opening the media	Problems with the registration of NVS parameters. This would tend to indicate a problem with the registry (such as a corrupt registry).	The internal beam-balance sensor subsystem will read the NVS parameters med <media index> beamslope <polarity>, med <media index> beamcurve <polarity >, med <media index> beampiston, med <media index> scorr <polarity / spot quad> and med <media index> stroke <polarity / spot quad> before performing the internal balance. This error indicates that an error occured accessing the NVS parameters. Enabling the error translation level for the internal beam-balance sensor subsystem will display the media error.
	07604	Failure closing the media		The internal beam-balance sensor subsystem will write the NVS parameter med <media index> stroke <polarity / spot quad> after performing the internal balance. This error indicates that an error occurred accessing the NVS parameter. Enabling the error translation level for the internal beam-balance sensor subsystem will display the media error.
	07605	The mode / state of the laser diode is invalid	The control mode or control state of the laser diode driver is invalid.	The internal beam-balance sensor subsystem will determine the state of the laser diode driver. This error indicates that the control mode or control state of the laser diode driver is invalid or an error occurred accessing the laser diode driver. Enabling the error translation level for the internal beam-balance sensor subsystem will display the laser diode driver error (if the error occurred accessing the laser diode driver).
	07606	The mode / state of the beam-pointing is invalid	The control mode or control state of the beam-pointing driver is invalid.	The internal beam-balance sensor subsystem will determine the state of the beam-pointing driver. This error indicates that the control mode or control state of the beam-pointing driver is invalid or an error occurred accessing the beam-pointing driver. Enabling the error translation level for the internal beam-balance sensor subsystem will display the beam-pointing driver error (if the error occurred accessing the beam-pointing driver).
	07607	The mode of the light valve is invalid	The control mode or polarity state of the light valve driver is invalid.	The internal beam-balance sensor subsystem will determine the state of the light valve driver. This error indicates that the control mode or polarity state of the light valve driver is invalid or an error occured accessing the laser diode driver. Enabling the error translation level for the internal beam-balance sensor subsystem will display the light valve driver error (if the error occured accessing the light valve driver).
	07608	The control mode is invalid	The internal beam-balance sensor control mode is invalid.	The monitor command ibs mode (initiate|query|abort) will set the internal beam-balance sensor control mode. The internal beam-balance sensor control mode can be one of the following: Initiat, Query, or Abort.

IBS Cont'd	07609	The spot increment is invalid	The spot increment is invalid.	The monitor command ibs profile [<increment>] [nocal] will calculate the stroke profile. The spot increment for the calculation of the stroke profile can be either 1, 2 or 4.
	07610	The specified spots could not be configured	Firmware error that will occur during firmware development and testing.	Performing an internal balance, stroke profile, etc, requires the manipulation of pixel levels and spot states. This error indicates that the pixel level or spot state could not be set typically due to a firmware development error.
	07611	The polarity could not be configured		Performing an internal balance requires the polarity to be set. This error indicates that the polarity could not be set typically due to a firmware development error.
	07612	Failure configuring the internal beam-balance sensor	The internal beam-balance sensor configuration is invalid.	The internal beam-balance sensor configuration is invalid.
	07613	Failure calibrating the internal beam-balance sensor	Hardware failure of the internal beam-balance sensor.	The internal beam-balance sensor subsystem will automatically calibrate the internal beam-balance sensor to achieve pulse heights of 1000 counts while calculating the stroke profile. This error indicates that the automatic calibration has failed typically due to a hardware failure of the internal beam-balance sensor.
	07614	An internal balance is in progress	A non-blocking internal balance is in progress.	The monitor command ibs mode (initiate|query|abort) and the monitor command ibs balance [nocal] perform an identical internal balance. However the monitor command ibs mode (initiate|query|abort) performs a non-blocking internal balance while the monitor command ibs balance [nocal] performs a blocking internal balance. The non-blocking internal balance is intended to allow the host to perform an internal balance while executing other functionality (i.e. initializing the focus). Since the internal beam-balance sensor is being used by the non-blocking internal balance, all functionality that requires the internal beam-balance sensor must wait until the non-blocking internal balance is complete. This error indicates that the non-blocking internal balance is not complete.
	07615	The internal balance has been aborted	The non-blocking internal balance was aborted.	The monitor command ibs mode (initiate|query|abort) and the monitor command ibs balance [nocal] perform an identical internal balance. However the monitor command ibs mode (initiate|query|abort) performs a non-blocking internal balance while the monitor command ibs balance [nocal] performs a blocking internal balance. The non-blocking internal balance is intended to allow the host to perform an internal balance while executing other functionality (initializing the focus).
	07616	Internal balance prevented by the range of pulse heights	The stroke profile does not provide sufficient range to meet the requirements of the target profile.	The internal balance determines the stroke profiles at the maximum pixel level and the minimum pixel level. A target profile is then calculated based on the NVS parameters med <media index> beamslope <polarity>, med <media index> beamcurve <polarity>, med <media index> beampiston, med <media index> scorr <polarity / spot quad> and the stroke profiles. This error indicates that the range between the stroke profiles at the maximum pixel level and the minimum pixel level is insufficient to meet the requirements of the target profile. Enabling the verbose information for the internal beam-balance sensor subsystem will display the stroke profiles at the maximum pixel level and the minimum pixel level and the target profile. Typically the internal balance will succeed if the NVS parameter ibs maximumerror is increased or the NVS parameters med <media index> beamslope <polarity>, med <media index> beamcurve <polarity> or med <media index> beampiston are decreased.

IBS Cont'd	07617	Internal balance prevented by drift errors	The internal balance could not achieve a consistent target profile.	The internal balance determines the stroke profiles at the maximum pixel level and the minimum pixel level. A target profile is then calculated based on the NVS parameters med <media index> beamslope <polarity>, med <media index> beamcurve <polarity>, med <media index> beampiston, med <media index> scorr <polarity / spot quad> and the stroke profiles. This error indicates that the stroke profiles at the maximum pixel level and minimum pixel level were drifting sufficiently to prevent a consistent target profile. Enabling the verbose information for the internal beam-balance sensor subsystem will display the results of the three coarse balance iterations and six fine balance iterations. This information will include the pixel level and errors for the final fine balance iteration. Typically the internal balance will succeed if the NVS parameter ibs maximumerror is increased or the NVS parameters med <media index> beamslope <polarity>, med <media index> beamcurve <polarity> or med <media index> beampiston are decreased.
	07618	Internal balance error exceeds the maximum error	The internal balance could not achieve a stroke profile that matches the target profile.	The internal balance attempts to set the pixel level for all pixel quads in the stroke such that the stroke profile matches the target profile within the error configured by the NVS parameter ibs maximumerror. This error indicates that six fine balance iterations were not able to achieve a stroke profile that matches the target profile. Enabling the verbose information for the internal beam-balance sensor subsystem will display the results of the coarse balance and six fine balance iterations. This information will include the pixel level and errors for the final fine balance iteration. Typically the internal balance will succeed if the NVS parameter ibs maximumerror is increased or the NVS parameters med <media index> beamslope <polarity>, med <media index> beamcurve <polarity> or med <media index> beampiston are decreased.
	07619	Insufficient signal at maximum gain	Insufficient signal from the internal beam-balance sensor.	The internal beam-balance sensor subsystem will automatically calibrate the internal beam-balance sensor to achieve pulse heights of 1000 counts while calculating the stroke. This error indicates that the automatic calibration has failed due to insufficient signal from the internal beam-balance sensor.
	07620	The internal beam-balance sensor samples are saturated	Samples from the internal beam-balance sensor are saturated.	Samples acquired from the internal beam-balance sensor are saturated. This error will indicate a hardware failure.
	07621	Timeout waiting for the sample acquisition	1. A hardware failure preventing the generation of A/D samples. 2. Firmware error that will occur during firmware development and testing.	Performing an internal balance, stroke profile, etc, requires the acquisition of A/D samples from the internal beam-balance sensor. Failure to acquire internal beam-balance sensor samples indicates either a hardware failure or a firmware development error.
	07622	The board version does not support the functionality	Configuration of the internal beam-balance sensor gain and offset is not required.	Configuration of the internal beam-balance sensor gain and offset is not required. The first version of the internal beam-balance sensor board required configuration of the hardware to provide sufficient dynamic range for sampling of the internal beam-balance sensor. All other versions of the internal beam-balance sensor board do not required configuration of the hardware.
	07623	Unexpected software failure	An unexpected firmware error in the internal beam-balance sensor subsystem.	When the internal beam-balance sensor subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.

JTG	01400	The JTAG device is invalid	Firmware error that will occur during firmware development and testing.	An internal API function will program or verify the JTAG device. This error code indicates that the JTAG device is invalid.
	01401	The file version is invalid		An internal API function will program the JTAG device. This error code indicates that the file version is invalid.
	01402	The BSDL configuration is invalid		The IEEE standard 1532 BSDL file is an ASCII file that contains the information necesary to access the JTAG device. The IEEE standard 1532 BSDL file is manually converted to a binary format that can be used to access JTAG devices. This error code indicates that the binary format of the IEEE standard 1532 BSDL file contains invalid information.
	01403	Failure verifying the BSDL data	1. The ID code returned by the JTAG device does not correctly identify the expected JTAG device. 2. The status of the JTAG device indicates a programming failure.	The IEEE standard 1532 BSDL file is an ASCII file that contains the information necesary to access the JTAG device. The IEEE standard 1532 BSDL file is manually converted to a binary format that can be used to access JTAG devices. This error indicates that one of the blocks in the IEEE standard 1532 BSDL file failed verification.
	01404	Failure reading the program file	1. The flash device has failed. 2. Firmware error that will occur during firmware development and testing.	An internal API function will program the JTAG device. This error code indicates that the program file could not be read while programming the JTAG device. Note that enabling the error translation level for the JTAG subsystem will display a more specific error.
	01405	Unexpected software failure	An unexpected firmware error in the JTAG subsystem.	When the JTAG subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.
LDD	05203	The laser mode is invalid	The laser mode is invalid	The monitor commands ldd cal (dual|a|b) <setpoint>, ldd on (dual|a|b) <setpoint>, ldd on man (dual|a|b) <setpoint>, ldd current (dual|a|b) <setpoint> and ldd man (dual|a|b) <setpoint> will set the laser mode. The laser mode can be one of the following: Dual, A, or B. Operator Action: Verify the previous monitor command and enter a valid laser mode.
	05205	The drive mode is invalid	The drive mode is invalid	The monitor command ldd drivemode [(eqcur|eqpwr|eqdisp)] will configure the drive mode. The drive mode can be one of the following: Eqcur (or "Equal Current), Eqpwr (or "Equal Power"), Eqdisp (or "Equal Dissipation"). Operator Action: Verify the previous monitor command and enter a valid drive mode.
	05206	The laser diode is invalid	The laser diode is invalid	The monitor command ldd characterize [(a|b)] will characterize the laser diode(s). The laser diode can be one of the following: A or B. Note that if the token is not entered, both laser diodes will be characterized. Operator Action: Verify the previous monitor command and enter a valid laser diode.
	05208	Failure controlling the WLC	A hardware failure of the WLC board	The monitor commands ldd cal (dual|a|b) <setpoint>, ldd on (dual|a|b) <setpoint>, ldd on man (dual|a|b) <setpoint>, ldd current (dual|a|b) <setpoint>, ldd man (dual|a|b) <setpoint>, ldd hold and ldd off will set the laser diode control mode. The laser power supplies will be enabled / disabled as required through the WLC. This error code indicates that the WLC has failed to provide the appropriate status information. Operator Action: Call service.
	05210	Light Valve HV setting out of range	Voltage specified in the "ldd vpp [volts]" command is out of range.	The requested light valve voltage is out of range.

LDD Cont'd	05211	Commanded current exceeds limit: check nominal current(s)	1. Specified current out of range. 2. Specified power cannot be reached within the current limit. 3. Laser power sensor calibration wrong.	The write laser current has reached its limit and will be clamped.
	05212	PBP failed integrity check, possibly not installed	1. The PBP 'installed' status flag = FALSE. 2. The PBP was not detected and configured during initialization.	The Power/Beam-Pointing (PBP) satellite board has failed its integrity check.
	05213	WLC failed integrity check, possibly not installed	1. The WLC 'installed' status flag = FALSE. 2. The WLC was not detected and configured during initialization.	The Write Laser Controller (WLC) satellite board has failed its integrity check.
	05214	Timeout waiting for laser power to settle	1. The laser nominal current parameter(s) are incorrect. 2. The PID gains are set incorrectly.	The LDD subsystem is unable to control the write laser power to with 1% of the requested power.
	05215	The laser power signal level is invalid	• Insufficient signal from the laser power sensor • A hardware failure is corrupting the A/D samples	While attempting to maintain the laser power, the laser power control loop has found that there is insufficient signal from the laser diode sensor. As a result of this error, a fatal fault will be generated from a single occurrence. As a result of the fatal fault, the laser diode driver is shutdown and the system fault handler will shutdown the exposure head. Note that this error code is also returned to the host as an unsolicited fatal fault. Note that before initiating the laser power control loop, the laser current is ramped to the estimated setpoint. As a result, a single occurrence of this error will trigger the fatal fault. Operator Action: Call service.
	05216	The laser current exceeds the current limits	• The requested laser power is too high • The requested laser current is too high • The nominal current of the laser diode is too low • The laser diode is nearing end-of-life	The monitor commands ldd cal (dual|a|b) <setpoint>, ldd on (dual|a|b) <setpoint>, ldd on man (dual|a|b) <setpoint>, ldd current (dual|a|b) <setpoint> and ldd man (dual|a|b) <setpoint> will set the laser diode control mode. This error indicates that the setpoint will cause the laser current to exceed 120% of the nominal current. The laser power control loop will maintain the laser power by adjusting the laser current. If the laser current exceeds 120% of the nominal current, a fatal fault will be generated from a single occurence. As a result of the fatal fault, the laser diode driver is shutdown and the system fault handler will shutdown the exposure head. Note that this error code is also returned to the host as an unsolicited fatal fault. Operator Action: Call service.
	05219	The write laser is over-temperature	The write laser is over-temperature	Note that this error is a redundant check of the laser temperature. Typically the exposure head will be disabled before this error can occur. Operator Action: Call service.
LGA	06800	The logic analyzer is in use by another task	Firmware error that will occur during firmware development and testing.	To prevent firmware conflicts, the logic analyzer can only be accessed by one user at a time. Since the logic analyzer will wait for one user to complete an action before the next user is allowed access, this error will indicate a firmware development error.
	06801	The logic analyzer is invalid	The logic analyzer is invalid.	All logic analyzer monitor commands specify a logic analyzer. The logic analyzer can be one of the following: LVDU or LVDL
	06802	The control mode is invalid	The logic analyzer control mode is invalid.	The monitor command lga mode (lvdu|lvdl) (enable|disable) will set the logic analyzer control mode. The logic analyzer control mode can be one of the following: Enable or Disable

LGA Cont'd	06803	The trigger configuration is invalid	1. Trigger offset greater than 100%. 2. Trigger holdoff exceeds holdoff width. 3. Trigger mask exceeds probe width. 4. Trigger match exceeds probe width.	The monitor command lga config (lvdu|lvdl) <offset> <holdoff> <mask> <match> will update the trigger configuration of the logic analyzer. This error code indicates the trigger configuration is invalid.
	06804	The hardware configuration is not supported	1. Data width does not equal 16. 2. Probe width less than 1 or greater than 15. 3. Holdoff width less than 2 or greater than 16. 4. Address width less than 2 or greater than 16.	The firmware will support a range of hardware configuration for the logic analyzer. The hardware configuration includes the data width, the probe width, the holdoff width and the address width. This error will indicate the hardware configuration is not supported.
	06805	Unexpected software failure	An unexpected firmware error in the logic analyzer subsystem.	When the logic analyzer subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.
LOG	04604	Invalid function parameter	Firmware error that will occur during firmware development and testing.	An internal API function was called with an invalid parameter. This error will indicate a firmware development error.
	04606	Point registration error		The data logger subsystem tracks the sample points that have been registered. This error indicates that duplicate registration of a sample point has been detected.
	04607	Invalid field table		All sample points must be registered with a table describing the fields of the sample / plot data. When the sample point is registered, the field table is verified. Since sample point registration is part of initialization, this error will indicate a firmware development error. Note that the table describing the fields of the sample / plot data is verified as follows: • The name string must not be null and the length of the name string is limited to sixteen characters. • The description string must not be null and the length of the description string is limited to sixty characters. • The units string must not be null and the length of the units string is limited to sixteen characters. • The field type is verified. • The size of all fields must equal the sample size.
LVD	05802	The hardware version(s) are invalid	Firmware error that will occur during firmware development and testing.	The light valve driver requires compatible light valve driver boards. This error indicates that the light valve driver boards are not compatible.
	05803	Insufficient configuration access level		For debugging and / or development purposes, the light valve driver will function with only a single light valve driver board. The "Dev" access level is required to enable this functionality.
	05806	The polarity type is invalid	The light valve polarity type is invalid.	The monitor command lvd mode (plot [(high|low)]|local [(high|low)]|disable|off) will set the light valve polarity type. The light valve polarity type can be one of the following: High or Low
	05809	The polarity state is invalid	The polarity state is invalid.	The monitor command lvd (<offset> <width>|all) level (high|low) <level> will set the level of the spot(s). The light valve polarity state can be one of the following: High or Low

LVD Cont'd	05813	The diagnostic command is invalid	1. The polarity is invalid. 2. The stroke correction amplifier offset is invalid. 3. The pulse amplifier range is invalid. 4. The satellite board is invalid. 5. The continuous flag is invalid.	An argument of the diagnostic monitor command is invalid.
	05814	The diagnostic function is not supported	1. Verifying the bias linearity requires the LVDL satellite board to be present. 2. Displaying the bias voltage requires the LVDL satellite board to be present. 3. Sampling the pulse amplifiers on the LVDU satellite board requires the LVDU satellite board to be present. 4. Sampling the pulse amplifiers on the LVDL satellite board requires the LVDL satellite board to be present. 5. Sampling the pulse amplifiers on the LVDU and LVDL satellite boards requires the LVDU and LVDL satellite boards to be present.	A subset of the diagnostic monitor commands require specific satellite board(s) to be present. This error indicates that the required satellite board(s) are not present.
	05815	The diagnostic function has failed	1. The bias linearity is invalid. 2. The stroke linearity is invalid.	While the diagnostic monitor command completely successfully, the results of the diagnostic monitor command indicate a hardware failure.
	05816	Unexpected software failure	An unexpected firmware error in the light valve driver	When the light valve driver encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.
MAT	05400	Insufficient cycles for Bode analysis	The Bode plot analyzer called a fourier integration function with an insufficient number of cycles for analysis.	A mathematical support function used by the Bode plot analyzer was called with incorrect arguments. This is and internal firmware error
	05401	The step response is invalid	1. The input step is not present. 2. There are insufficient samples before the input step. 3. There are insufficient samples after the input step.	The automatic tuning of the PID controller analyzes the step response of the PID controller. This error indicates the step response is insufficient to automatically tune the PID controller.
	05402	The step response has failed	1. The apparent dead time of the PID controller is negative. 2. The controllability factor of the PID controller indicates the PID controller can't be tuned.	The automatic tuning of the PID controller analyzes the step response of the PID controller. This error indicates the calculated parameter(s) are invalid.
	05403	Unexpected software failure	An unexpected firmware error in the math subsystem.	When the math subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.
MON	01616	The password is invalid	The user password of the specified action was invalid	A generic routine requests the password of the specified action from the user. This error indicates that the user password for the specified action was invalid.
	01617	Timeout entering the password	A timeout occurred waiting for the user password of the specified action	A generic routine requests the password of the specified action from the user. This error indicates that a timeout occurred waiting for user password of the specified action.

NET	04200	Network initialization failed	1. An invalid IP address, subnet mask or default gateway of the network interface. 2. Hardware failure preventing initialization of the network interface. 3. Problems with the registration of NVS parameters. This would tend to indicate a problem with the registry (such as a corrupt registry). 4. Firmware error that will occur during firmware development and testing.	During initialization, the network subsystem attempts to read the NVS parameters and to initialize the network interface. This will initialize the entire network subsystem and verify all required resources. If any error occurs, the network subsystem is disabled and this error is returned for all monitor commands. Note that immediately after initialization, the actual error that caused the initialization failure (as well as this error) will be displayed on the diagnostic port.
	04201	Failure initializing the Turbo Treck TCP/IP stack	Firmware error that will occur during firmware development and testing.	An error was returned while initializing the Turbo Treck TCP/IP stack. No specific information is available based on this error code.
	04202	The network address is invalid	An invalid IP address, subnet mask or default gateway of the network interface.	The IP address, subnet mask and default gateway of the network interface are configured in decimal dotted notation. Decimal dotted notation requires the configuration string to be in the form "xxx.xxx.xxx.xxx". The only acceptable variation is that leading zeroes are not required (10.1.40.33 is acceptable).
	04203	The network interface is invalid	The network interface is invalid.	The monitor command net diag [ethernet|fiber] will display diagnostics from the network interface of Turbo Treck TCP/IP. The network interface can be one of the following: Ethernet or Fiber
	04204	Failure initializing the network interface	1. Hardware failure preventing initialization of the network interface. 2. Firmware error that will occur during firmware development and testing.	An error was returned while initializing the network interface of Turbo Treck TCP/IP. No specific information is available based on this error code.
	04205	The network interface loopback test is invalid	The loopback test is invalid.	The monitor command net loopback [fiber [parallel|serial]] will perform a loopback test on the network interface of Turbo Treck TCP/IP. The loopback test can be one of the following: <Blank>, Fiber, Fiber Parallel, or Fiber Serial
	04206	Failure retrieving diagnostics from the network interface	Firmware error that will occur during firmware development and testing.	An error was returned while retrieving diagnostics from the network interface of Turbo Treck TCP/IP. No specific information is available based on this error code.
	04207	The telnet session handle is invalid		The telnet session handle of an internal network subsystem API function was invalid. This error will indicate a firmware development error.
	04208	The telnet session state is invalid		An attempt was made either to open a telnet session that is already open or to close a telnet session that is already closed. This error will indicate a firmware development error.
	04209	The telnet session notification is invalid		The telnet session notification of an internal network subsystem API function was invalid. This error will indicate a firmware development error.
	04210	The telnet session buffer is empty		An attempt was made to get a character from the receive buffer and the buffer was empty. This error will indicate a firmware development error. The error may be normal (the receive buffer could be empty), but it should be handled internally.
	04211	The telnet session buffer is full		An attempt was made to put a character to the transmit buffer and the buffer was full. This error will indicate a firmware development error. The error may be normal (the transmit buffer could be full), but it should be handled internally.
	04212	Failure opening a socket		The socket( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
	04213	Failure sending the BOOTP request		The sendto( ) API function of Turbo Treck TCP/TCP has failed. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.

NET Cont'd	04214	The file does not support reads	Reading of the file is not supported.	The file is a known file; but reading of the file is not supported. Note that this error code is one of seven error codes implemented to aid in diagnosing problems downloading / uploading firmware using TFTP.
	04215	The file does not support writes	Writing to the file is not supported.	The file is a known file; but writing to the file is not supported. Note that this error code is one of seven error codes implemented to aid in diagnosing problems downloading / uploading firmware using TFTP.
	04216	The file is unknown	The name of the file is invalid.	The file is unknown. Note that this error code is one of seven error codes implemented to aid in diagnosing problems downloading / uploading firmware using TFTP.
	04217	The autoboot algorithm prevents erasing the file	1. The firmware download of the main firmware was blocked because the boot firmware is erased / corrupted. 2. The firmware download of the boot firmware was blocked because the main firmware is erased / corrupted.	The main firmware and the boot firmware duplicate functionality to provide a redundant backup. If the main firmware is erased / corrupted, then the boot firmware cannot be downloaded; if the boot firmware is erased / corrupted, then the main firmware cannot be downloaded. This error indicates that the firmware download was blocked to ensure that there is a valid firmware bundle in the exposure head. Note that this error code is one of seven error codes implemented to aid in diagnosing problems downloading / uploading firmware using TFTP.
	04218	The flags are invalid	Firmware error that will occur during firmware development and testing.	The flags are invalid. Note that this error code is one of seven error codes implemented to aid in diagnosing problems downloading / uploading firmware using TFTP.
	04219	The buffer is invalid		The buffer is invalid. Note that this error code is one of seven error codes implemented to aid in diagnosing problems downloading / uploading firmware using TFTP.
	04220	Unexpected software failure	An unexpected firmware error in the network subsystem.	When the network subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.
PLT	06200	The plot is in use by another task	Firmware error that will occur during firmware development and testing.	To prevent firmware conflicts, the plot subsystem can only be accessed by one user at a time. Since the plot subsystem will wait for one user to complete an action before the next user is allowed access, this error will indicate a firmware development error.
	06201	Plot initialization failed	1. Problems with the registration of NVS parameters. This would tend to indicate a problem with the registry (such as a corrupt registry). 2. Firmware error that will occur during firmware development and testing.	During initialization, the plot subsystem attempts to read all NVS parameters, initialize the plot mode, configure the image timing and the image data, configure the engine synthesizer and configure the test pattern generator. If any error occurs, the plot subsystem is disabled and this error is returned for all monitor commands. Note that immediately after initialization, the actual error that caused the initialization failure (as well as this error) will be displayed on the diagnostic port.
	06202	The control mode is invalid	The plot control mode is invalid.	The monitor command plt mode (image|off) will set the plot control mode. The plot control mode can be one of the following: Image or Off
	06203	The image configuration is invalid	1.The source of the image timing is invalid. 2. The source of the image data is invalid. 3. The tpg pattern is invalid. 4. The tpg pattern doesn't apply.	The monitor command plt image (fiber|rs422|synthesizer) (fiber|tpg [<pattern>]) will update the image configuration. This error code indicates the image configuration is invalid.

PLT Cont'd	06204	The synthesizer configuration is invalid	1. The drum speed is 0.0 RPM. 2. The drum size is less than 1000 pixels or greater than 4,194,303 pixels. 3. The image mainscan size is less than 100 pixels or greater than 4,194,303 pixels. 4. The drum size is less than the image mainscan size. 5. The stroke clock frequency is greater than 7800.0 MHz. 6. The invert flag is invalid. 7. The overlap flag is invalid.	The monitor command plt synthesizer <dd> <ds> <msz> <ssz> <dpi> [invert] [overlap] will update the synthesizer configuration. This error code indicates the synthesizer configuration is invalid.
	06205	The TPG configuration is invalid	1. The image mainscan size is less than 100 pixels or greater than 4,194,303 pixels. 2. The invert flag is invalid. 3. The overlap flag is invalid.	The monitor command plt tpg <msz> <dpi> [invert] [overlap] will update the TPG configuration. This error code indicates the TPG configuration is invalid.
	06206	The TGP label is invalid	The length of the TPG label is greater than or equal to 180 characters.	The monitor command plt label <label> will set the TPG label. This error code indicates the TPG label is invalid.
	06207	The pattern data is invalid	1. TPG pattern is greater than 3. 2. Pattern name is greater than or equal to 40 characters. 3. Row number is 0 or greater than 16. 4. Row repeat is 0 or greater than 16. 5. Column number is 0 or greater than 16. 6. Row index is greater than 15. 7. Pattern string has an invalid character. 8. Pattern string is an invalid length.	The monitor command plt pattern config <pattern> <name> <row> <repeat> <column> is used to configure the dimensions of the pattern data and then the monitor command plt pattern init <pattern> <row> <nibbles> is used to initialize each row of the pattern data. This error indicates that the pattern data is invalid.
	06208	The combination data is invalid	1. TPG pattern less than 1000 or greater than 1003. 2. Combination name greater than or equal to 40 characters. 3. Stripe number less than 2 or greater than 64. 4. Stripe index greater than 63. 5. Stripe pattern greater than 46.	The monitor command plt combination config <combination> <name> <number> is used to configure the number of stripes of the combination data and then the monitor command plt combination init <combination> <stripe> <pattern> <width> is used to initialize each stripe of the combination data.
	06209	Invalid function parameter	Firmware error that will occur during firmware development and testing.	An internal API function was called with an invalid parameter. This error will indicate a firmware development error.
	06210	The command packet is invalid	1. The command packet must contain a minimum of twelve bytes. 2. The command packet must contain sufficient bytes for the packet header. 3. The command packet must contain valid flags (a valid command).	The image data receiver provides support for post-screening raster manipulation (PSRM). A command packet received by the image data receiver was invalid. This error will indicate a firmware development error.

PLT Cont'd	06211	The protocol version is unsupported	A firmware upgrade is required.	The image data receiver provides support for post-screening raster manipulation (PSRM). The server for the image data receiver does not support the protocol version required by the client. This error indicates that a firmware upgrade is required.
	06212	The sequence number is invalid	Firmware error that will occur during firmware development and testing.	The image data receiver provides support for post-screening raster manipulation (PSRM). When opening a connection for the image data receiver, the client must select an initial sequence number of zero. This error will indicate a firmware development error.
	06213	Failure opening a socket		The image data receiver provides support for post-screening raster manipulation (PSRM). To initialize the server for the image data receiver, a UDP socket must be opened. This error will indicate a firmware development error. Note that enabling the debug information for the plot subsystem will display more specific information.
	06214	Failure binding the socket		The image data receiver provides support for post-screening raster manipulation (PSRM). To initialize the server for the image data receiver, the UDP socket must be bound to a "well-known" address. This error will indicate a firmware development error. Note that enabling the debug information for the plot subsystem will display more specific information.
	06215	Failure receiving from the socket		The image data receiver provides support for post-screening raster manipulation (PSRM). To process the server for the image data receiver, command packets must be received from the client. This error will indicate a firmware development error. Note that enabling the debug information for the plot subsystem will display more specific information.
	06216	Failure sending to the socket		The image data receiver provides support for post-screening raster manipulation (PSRM). To process the server for the image data receiver, response packets must be sent to the client. This error will indicate a firmware development error. Note that enabling the debug information for the plot subsystem will display more specific information.
	06217	Failure getting the ARP entry	Firmware error that will occur during firmware development and testing.	The image data receiver provides support for post-screening raster manipulation (PSRM). To configure the hardware to intercept data packets, the MAC address must be determined based on the IP address. This error will indicate a firmware development error. Note that enabling the debug information for the plot subsystem will display more specific information.
	06218	A partial swath is still buffering, the image may be corrupt	The image data is corrupt.	The quantity of image data received from the host does not match the quantity of image data required for the image. As a result, a partial swath has not been imaged. Typically this will result in corruption of the image. Specifically, the FIFO's for the light valve driver were not empty at the end of the plot.
	06219	The plot has been aborted due to multiple hosts	Multiple hosts are attempting to send image data to the exposure head.	The exposure head will receive image data from a single host. This error code indicates that multiple hosts are attempting to send image data to the exposure head.
	06220	The plot has been aborted prematurely	1. The host has aborted the plot prematurely. 2. The user has aborted the plot prematurely (using the monitor command plot mode off). 3. A unrelated failure has caused the plot to be aborted.	The plot has been aborted prematurely. Either the host has aborted the plot prematurely, the user has aborted the plot prematurely (using the monitor command plt mode off) or an unrelated failure has caused the plot to be aborted.
	06221	The mainscan image size is mismatched, the image may be corrupt	1. The host has incorrectly configured the mainscan image size. 2. The host is generating an invalid imaging signal.	A mismatch has been detected in the mainscan image size. Either the host has incorrectly configured the mainscan image size or the host is generating an invalid imaging signal. Specifically, the exposure head has determined the mainscan image size by counting the number of SCLK's in the imaged swath and this does not match the mainscan image size that has been configured by the host.

PLT Cont'd	06222	FIFO underrun error, the image may be corrupt	1. The host is attempting to image the next swath before the exposure head is ready to image the next swath. 2. The host has incorrectly configured the mainscan image size. 3. The host is generating an invalid imaging signal.	The plot subsystem implements a swath buffer for the image data. This error indicates that the FIFO used to transfer image from the swath buffer to the light valve has underrun.
	06223	FIFO overflow error, the image may be corrupt	Firmware error that will occur during firmware development and testing.	The plot subsystem implements a swath buffer for the image data. This error indicates that the FIFO used to transfer image from the swath buffer to the light valve has overflowed.
	06224	SCLK overrun error, the image may be corrupt	1. Noise is causing spurious SCLK pulses. 2. The SCLK frequency is too high.	The hardware received an unexpected SCLK pulse while processing image data.
	06225	Swath buffer overflow error, the image may be corrupt	1. The post-screening raster manipulation (PSRM) client has exceeded the window size. 2. Firmware error that will occur during firmware development and testing.	The plot subsystem implements a swath buffer for the image data. This error indicates that either the post-screening raster manipulation (PSRM) or the test pattern generator (TPG) has tried to write to the swath buffer when the swath buffer was full. When using post-screening raster manipulation (PSRM), typically this error will indicate that the client has exceeded the window size. When using the test pattern generator (TPG), the generator will automatically halt when the swath buffer is full.
	06226	The TPG pattern has not been found	The TPG pattern does not exist	Operator Action Enter a TPG pattern that exists.
	06227	Unexpected software failure	An unexpected firmware error in the plot subsystem.	When the plot subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.
RTOS	02400	A function parameter is invalid	Firmware error that will occur during firmware development and testing.	An internal API function was called with an invalid parameter. This error will indicate a firmware development error.
	02401	The event flag(s) are not present		An attempt was made (by a call to an internal API function) to retrieve event flag(s) from the event group and the event flag(s) were not present. This error will indicate a firmware development error. The error may be normal, but it should be handled internally. Note that the error actually indicates a semaphore timeout. The only API functions in DSP/BIOS that include suspension capabilities are semaphores.
	02402	The partition pool is empty		An attempt was made (by a call to an internal API function) to receive a partition from the pool and the pool was empty. This error will indicate a firmware development error.
	02403	The partition pool is full		An attempt was made (by a call to an internal API function) to send a partition to the pool and the pool was full. This error will indicate a firmware development error.
	02404	The queue is empty		An attempt was made (by a call to an internal API function) to receive a queue element from the queue and the queue was empty. This error will indicate a firmware development error. The error may be normal, but it should be handled internally. Note that the error actually indicates a sempahore timeout. The only API functions in DSP/BIOS that include suspension capabilities are semaphore's.

RTOS Cont'd	02405	The queue is full		An attempt was made (by a call to an internal API function) to send a queue element to the queue and the queue was full. This error will indicate a firmware development error. The error may be normal, but it should be handled internally. Note that the error actually indicates a sempahore timeout. The only API functions in DSP/BIOS that include suspension capabilities are semaphore's.
	02406	Timeout obtaining the semaphore		An attempt was made (by a call to an internal API function) to obtain a semaphore and the semaphore was non-signaled. This error will indicate a firmware development error. The error may be normal, but it should be handled internally.
	02407	Unexpected software failure	An unexpected firmware error in the real-time operating system subsystem.	When the real-time operating system subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.
SAT	04000	Unexpected firmware failure	Unexpected firmware failure	The SAT firmware subsystem has encountered an unexpected failure. These types of error are always fatal and will cause the head to display the error number and then reset itself. Included in the error display is the file and line number within the firmware where the error occurred. It is helpful to developers if this information is captured.
	04001	Invalid command line argument	Invalid argument entered as a command line argument	Invalid argument entered as a command line argument
	04002	No existing servo handler	No existing servo handler exists to allow enabling of servo loop.	This is an informational error that occurs when attempting to enable or disable a servo for which there is no interrupt handler installed. This should only occur in development scenario. In a field scenario the command that could generate this error would not likely be used and the missing handler servo would have already generated a much more significant error.
	04003	Hardware/firmware interrupt counts differ	Satellite board configuration error	The firmware and hardware servo interrupt counters do not agree. It is therefore assumed that one or more hardware generated servo interrupt events were not serviced by firmware. This indicates a serious system problem that requires immediate investigation.
	04004	Satellite timer stopped	Satellite board configuration error	An installed satellite board was not configured during Thermal 3 firmware initialization which forced the system event timer to shut down.
	04005	Satellite not installed	Satellite is not installed	This is an informational error that can occur when attempting check satellite version criteria this 'error' is never exposed externally and should therefore never be seen.
	04006	Satellite board is wrong type	Satellite board is wrong type	
	04007	Satellite version not supported	Satellite board version is unsupported	
	04008	Satellite configuration incorrect	Satellite board has no available configuration file	
	04009	Satellite version reads inconsistent	A Satellite board has been programmed with two different configurations and a different hardware version has been reported between the loads. This is not supposed to happen since the hardware version is hard coded with jumper straps on the board and should be independent of the loaded configuration.	
	04010	All satellite status faults now cleared	All previous satellite status faults are cleared.	All previously flagged satellite status faults are now cleared. The head is able resume normal operation. This is not technicall an error but in fact an informational message.
	04011	RFE power relay frozen 'on'	The RFE power relay is frozen 'on'	The RFE 'Power Control Relay' is a focus laser safety device that disables the focus laser almost instantly when the head is powered off. During system initialization the relay is tested for both 'on' and 'off' operation this error indicates that the relay remains on when commanded to go off.

SAT Cont'd	04012	RFE power relay frozen 'off'	The RFE power relay is frozen 'off'	The RFE 'Power Control Relay' is a focus laser safety device that disables the focus laser almost instantly when the head is powered off. During system initialization the relay is tested for both 'on' and 'off' operation this error indicates that the relay remains off when commanded to go on.
	04020	NPE: IO disabled	I/O is disabled on the NPE satellite board	This error is caused by a fault condition on a Thermal 3 satellite board. Each satellite board has a status register containing bit flags indicating internal malfunctions. These flags are scanned periodically by firmware on the main head controller. If any of these flags goes to a faulted state a system error is generated that consequently shuts down imaging and components such as the write laser, focus laser and servo controllers.
	04021	NPE: parity error	Parity error on the NPE satellite board	
	04022	NPE: framing error	Framing error on the NPE satellite board	
	04023	NPE: VDD undervoltage	VDD undervoltage on the NPE satellite board	
	04024	NPE: VSS undervoltage	VSS undervoltage on the NPE satellite board	
	04025	NPE: pcb temp no ack	PCB temp not acknowledged on the NPE satellite board	This error is caused by a fault condition on a Thermal 3 satellite board. Each satellite board has a status register containing bit flags indicating internal malfunctions. These flags are scanned periodically by firmware on the main head controller. If any of these flags goes to a faulted state a system error is generated that consequently shuts down imaging and components such as the write laser, focus laser and servo controllers.
	04026	NPE: power monitor fault	Power monitor fault on the NPE satellite board	
	04027	ACT: IO disabled	I/O is disabled on the ACT satellite board	This error is caused by a fault condition on a Thermal 3 satellite board. Each satellite board has a status register containing bit flags indicating internal malfunctions. These flags are scanned periodically by firmware on the main head controller. If any of these flags goes to a faulted state a system error is generated that consequently shuts down imaging and components such as the write laser, focus laser and servo controllers.
	04028	ACT: parity error	Parity error on the ACT satellite board	
	04029	ACT: framing error	Framing error on the ACT satellite board	
	04030	ACT: dac fifo overflow	DAC fifo overflow on the ACT satellite board	
	04031	ACT: piezo1 overtemp	Piezo 1 overtemp on the ACT satellite board	
	04032	ACT: piezo2 overtemp	Piezo 2 overtemp on the ACT satellite board	
	04033	ACT: power supply fault	Power monitor fault on the ACT satellite board	
	04034	ACT: shutter2 fault	Shutter2 fault on the ACT satellite board	
	04035	PBP: IO disabled	I/O is disabled on the PBP satellite board	This error is caused by a fault condition on a Thermal 3 satellite board. Each satellite board has a status register containing bit flags indicating internal malfunctions. These flags are scanned periodically by firmware on the main head controller. If any of these flags goes to a faulted state a system error is generated that consequently shuts down imaging and components such as the write laser, focus laser and servo controllers.
	04036	PBP: parity error	Parity error on the PBP satellite board	
	04037	PBP: framing error	Framing error on the PBP satellite board	
	04038	PBP: VDD undervoltage	VDD undervoltage on the PBP satellite board	
	04039	PBP: VSS undervoltage	VSS undervoltage on the PBP satellite board	
	04040	PBP: power monitor	Power monitor fault on the PBP satellite board	
	04041	IBS: IO disabled	I/O is disabled on the IBS satellite board	This error is caused by a fault condition on a Thermal 3 satellite board. Each satellite board has a status register containing bit flags indicating internal malfunctions. These flags are scanned periodically by firmware on the main head controller. If any of these flags goes to a faulted state a system error is generated that consequently shuts down imaging and components such as the write laser, focus laser and servo controllers.
	04042	IBS: parity error	Parity error on the IBS satellite board	
	04043	IBS: framing error	Framing error on the IBS satellite board	
	04044	IBS: VDD undervoltage	VDD undervoltage on the PBP satellite board	
	04045	IBS: VSS undervoltage	VSS undervoltage on the PBP satellite board	
	04046	DBP: IO disabled	I/O is disabled on the DBP satellite board	This error is caused by a fault condition on a Thermal 3 satellite board. Each satellite board has a status register containing bit flags indicating internal malfunctions. These flags are scanned periodically by firmware on the main head controller. If any of these flags goes to a faulted state a system error is generated that consequently shuts down imaging and components such as the write laser, focus laser and servo controllers.
	04047	DBP: parity error	Parity error on the DBP satellite board	
	04048	DBP: framing error	Framing error on the DBP satellite board	
	04049	DBP: VDD undervoltage	VDD undervoltage on the DBP satellite board	

SAT Cont'd	04050	DBP: VSS undervoltage	VSS undervoltage on the DBP satellite board	
	04051	DBP: power monitor fault	Power monitor fault on the DBP satellite board	
	04052	WLC: IO disabled	I/O is disabled on the WLC satellite board	This error is caused by a fault condition on a Thermal 3 satellite board. Each satellite board has a status register containing bit flags indicating internal malfunctions. These flags are scanned periodically by firmware on the main head controller. If any of these flags goes to a faulted state a system error is generated that consequently shuts down imaging and components such as the write laser, focus laser and servo controllers.
	04053	WLC: parity error	Parity error on the WLC satellite board	
	04054	WLC: framing error	Framing error on the WLC satellite board	
	04055	WLC: laser1 overcurrent	Laser 1 over current on the WLC satellite board	
	04056	WLC: laser2 overcurrent	Laser 2 over current on the WLC satellite board	
	04057	RFE: IO disabled	I/O is disabled on the RFE satellite board	This error is caused by a fault condition on a Thermal 3 satellite board. Each satellite board has a status register containing bit flags indicating internal malfunctions. These flags are scanned periodically by firmware on the main head controller. If any of these flags goes to a faulted state a system error is generated that consequently shuts down imaging and components such as the write laser, focus laser and servo controllers.
	04058	RFE: power monitor fault	Power monitor fault on the RFE satellite board	
	04059	RFE: parity error	Parity error on the RFE satellite board	
	04060	RFE: framing error	Framing error on the RFE satellite board	
	04061	RFE: VDD undervoltage	VDD undervoltage on the RFE satellite board	
	04062	RFE: VSS undervoltage	VSS undervoltage on the RFE satellite board	
	04063	RFE: PCB temp no ack fault	PCB temp not acknowledged on the RFE satellite board	
	04064	RFE: LD flex not detected	LD flex not detected on the RFE satellite board	
	04065	RFE: PSD flex not detected	PSD flex not detected on the RFE satellite board	
	04066	LVDU: IO disabled	I/O is disabled on the LVDU satellite board	This error is caused by a fault condition on a Thermal 3 satellite board. Each satellite board has a status register containing bit flags indicating internal malfunctions. These flags are scanned periodically by firmware on the main head controller. If any of these flags goes to a faulted state a system error is generated that consequently shuts down imaging and components such as the write laser, focus laser and servo controllers.
	04067	LVDU: parity error	Parity error on the LVDU satellite board	
	04068	LVDU: framing error	Framing error on the LVDU satellite board	
	04069	LVDU: VPP1 fault (1v8 fault Alpha)	VPP1 fault (1v8 fault in Alpha) on the LVDU satellite board	
	04070	LVDU: 3v3/2v5/1v8 fault (5v Alpha)	3v3/2v5/1v8 fault (5v in Alpha) on the LVDU satellite board	
	04071	LVDU: datapath CRC error	Datapath CRC error on the LVDU satellite board	
	04072	LVDL: IO disabled	I/O is disabled on the LVDL satellite board	This error is caused by a fault condition on a Thermal 3 satellite board. Each satellite board has a status register containing bit flags indicating internal malfunctions. These flags are scanned periodically by firmware on the main head controller. If any of these flags goes to a faulted state a system error is generated that consequently shuts down imaging and components such as the write laser, focus laser and servo controllers.
	04073	LVDL: parity error	Parity error on the LVDL satellite board	
	04074	LVDL: framing error	Framing error on the LVDL satellite board	
	04075	LVDL: VPP1 fault (1v8 fault Alpha)	VPP1 fault (1v8 fault in Alpha) on the LVDU satellite board	
	04076	LVDL: 3v3/2v5/1v8 fault (5v Alpha)	3v3/2v5/1v8 fault (5v in Alpha) on the LVDU satellite board	
	04077	LVDL: datapath CRC error	Datapath CRC error on the LVDU satellite board	
SBT	02601	Section type is invalid	The directory section is invalid.	The monitor command fload bundle (bbr|boot|main) will load the firmware bundle into the appropriate directory section. The directory section can be one of the following: BBR, Boot, or Main

STG	07800	The registry is in use by another task	Firmware error that will occur during firmware development and testing.	To prevent firmware conflicts, the registry can only be accessed by one user at a time. Since the registry will wait for one user to complete an action before the next user is allowed access, this error will indicate a firmware development error.
	07801	A registry key was not found	1. An initialization error preventing the registration of parameters. 2. Firmware error that will occur during firmware development and testing.	During initialization, the firmware verifies that all registry keys (or parameters) exist by reading all registry keys. If a registry key does not exist, then a registry key is created using the default value. This error indicates that the registry key does not exist when accessing the registry key. This will typically indicate an initialization error preventing the registration of parameters.
	07802	A registry key already exists	Firmware error that will occur during firmware development and testing.	During initialization, the firmware verifies that all registry keys (or parameters) exist by reading all registry keys. If a registry key does not exist, then a registry key is created using the default value. This error indicates that the registry key exists when creating the registry key. Since registry keys should be created only when they do not exist, this is a firmware development error.
	07803	Entry size is invalid		Registry keys (or parameters) are written as a registry control block followed by a data block. When creating, reading and writing registry keys, the size of the data block associated with the registry key is verified. The caller is either attempting to create a registry key with a data block of an invalid size or to read or write a registry key with a data block that does not equal the size of the supplied buffer.
	07804	Unexpected software failure	An unexpected firmware error in the storage subsystem.	When the storage subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.
SYS	05623	Failure configuring the plot subsystem	1. A combination of system parameters is invalid. 2. A hardware problem is causing an initialization failure. 3. Firmware error that will occur during firmware development and testing.	Failure configuring the plot subsystem. Due to limitations of the Thermal 1.0 / 1.7x interface, the number of error codes that can be returned to the host are limited. Enabling the error translation level for the system subsystem will display a more specific error.
	05631	Failure accessing the plot subsystem	Firmware error that will occur during firmware development and testing.	Failure accessing the plot subsystem. Due to limitations of the Thermal 1.0 / 1.7x interface, the number of error codes that can be returned to the host are limited. Enabling the error translation level for the system subsystem will display a more specific error.
	05650	Health metric(s) have faulted	System monitoring of the health metrics has detected as least one fault in the exposure head.	The exposure head will monitor a variety of health metrics (temperatures, voltages, pressures, etc) and shutdown the exposure head if required. To allow operation of the exposure head to continue, the user can mask any combination of health metrics to prevent the exposure head from being shutdown. This error code indicates that the launching of a plot has either been prevented or would be prevented by a health metric. It is undesireable to mask health metrics. Masking a health metric implies that there is either a hardware failure in the exposure head or the range checking performed by the firmware is invalid. Regardless, the underlying problem should be fixed; not masked. Note that the monitor command adc <hc|act|npe|rfe|wlc|lvdl|lvdu|ibs|pbp|dbp> will display the health metrics and the monitor command hlt mask <on|off> <mask_index> will configure the fault mask's.

SYS Cont'd	05651	Health metric(s) have been masked	System monitoring of at least one health metric has been masked in the exposure head.	The exposure head will monitor a variety of health metrics (temperatures, voltages, pressures, etc) and shutdown the exposure head if required. To allow operation of the exposure head to continue, the user can mask any combination of health metrics to prevent the exposure head from being shutdown. This error code is an informational message (generated at the start of every plot) reminding the user that health metrics have been masked in the exposure head. It is undesirable to mask health metrics. Masking a health metric implies that there is either a hardware failure in the exposure head or the range checking performed by the firmware is invalid. Regardless, the underlying problem should be fixed; not masked. Note that the monitor command adc <hc|act|npe|rfe|wlc|lvdl|lvdu|ibs|pbp|dbp> will display the health metrics and the monitor command hlt mask <on|off> <mask_index> will configure the fault mask's. Note that this error code is also returned to the host as an unsolicited warning fault.
	05652	Satellite fault(s) have been detected	System monitoring of the satellite faults has detected as least one fault in the exposure head.	The exposure head will monitor a variety of satellite faults (voltages, communications, etc) and shutdown the exposure head if required. To allow operation of the exposure head to continue, the user can mask any combination of satellite faults to prevent the exposure head from being shutdown. This error code indicates that the launching of a plot has either been prevented or would be prevented by a satellite fault. It is undesirable to mask satellite faults. Masking a satellite fault implies that there is a hardware failure in the exposure head. Regardless, the underlying problem should be fixed; not masked. Note that the monitor command sat status will display the satellite faults and the monitor command sat mask <on|off> <MaskId> will configure the fault mask's.
	05653	Satellite fault(s) have been masked	System monitoring of at least one satellite fault has been masked in the exposure head.	The exposure head will monitor a variety of satellite faults (voltages, communications, etc) and shutdown the exposure head if required. To allow operation of the exposure head to continue, the user can mask any combination of satellite faults to prevent the exposure head from being shutdown. This error code is an informational message (generated at the start of every plot) reminding the user that satellite faults have been masked in the exposure head. It is undesirable to mask satellite faults. Masking a satellite fault implies that there is a hardware failure in the exposure head. Regardless, the underlying problem should be fixed; not masked. Note that the monitor command sat status will display the satellite faults and the monitor command sat mask <on|off> <MaskId> will configure the fault mask's. Note that this error code is also returned to the host as an unsolicited warning fault.
	05654	The exposure head has been disabled	The exposure head has been disabled.	In an attempt to prevent damage to the exposure head, the exposure head will be disabled for a variety of monitor commands. If you need to look here, you shouldn't be using these monitor commands.
	05655	The host has specified an invalid plot setup	1. The source of the image data is invalid. 2. The LVD polarity is invalid.	To support the test plot applet, the exposure head allows the host to override the plot defaults and specify the plot setup. This error indicates that the host has specified an invalid plot setup.
	05656	The light valve annealing is in progress	Firmware error that will occur during firmware development and testing	After the plot is complete, the host may configure the "Anneal" write laser control mode to anneal the light valve. This error code indicates that light valve annealing is in progress. While the error may be normal, it should be handled internally by the firmware.
	05657	The light valve annealing is not required		After the plot is complete, the host may configure the "Anneal" write laser control mode to anneal the light valve. This error code indicates that light valve annealing is either disabled or not required. While the error may be normal, it should be handled internally by the firmware.
	05658	The write laser standby is in progress		After the plot is complete, the host may configure the "Standby" write laser control mode to improve the lifetime of the write laser. This error code indicates that write laser standby is in progress. While the error may be normal, it should be handled internally by the firmware.

SYS Cont'd	05659	The write laser standby is not required	Firmware error that will occur during firmware development and testing	After the plot is complete, the host may configure the "Standby" write laser control mode to improve the lifetime of the write laser. This error code indicates that write laser standby is disabled. While the error may be normal, it should be handled internally by the firmware.
	05660	Failure accessing the beam-pointing driver	Firmware error that will occur during firmware development and testing	Due to limitations of the Thermal 1.0 / 1.7x interface, the number of error codes that can be returned to the host are limited. Enabling the error translation level for the system subsystem will display a more specific error. Operator Action: Call service.
	05661	The laser diode control mode is invalid	• Attempting multiple accesses of the laser diode driver (for example, entering monitor commands while the host is turning on the write laser). • Firmware error that will occur during firmware development and testing	The system subsystem will determine the state of the laser diode driver. This error indicates that the control mode of the laser diode driver is invalid. Operator Action: Call service.
	05662	The rated power has been exceeded	The rated power has been exceeded	The requested write laser power for the media has exceeded the rated power for the exposure head (at full stroke width). Note that full stroke width is 448 pixels and that the rated power for the exposure head will decrease as the stroke width decreases. Operator Action Decrease the write laser power for the media or increase the stroke width for the media.
URT	03002	The serial port notification is invalid	Firmware error that will occur during firmware development and testing.	The serial port notification of an internal uart subsystem API function was invalid. This error will indicate a firmware development error.
	03005	Unexpected software failure	An unexpected firmware error in the uart subsystem.	When the uart subsystem encounters an unexpected error, the firmware will crash with this error code. If possible, the system will dump the filename and line number. Return this information to the firmware developer for analysis and attempt to determine the sequence of events that caused the error. In order to continue, the head must be reset. It may be required to avoid the sequence of events that caused the error to prevent re-occurrences of the error.
VER	03605	Invalid sorting option	The sorting option is invalid.	The monitor command ver list [(name|date)] will list all registered subsystems. The sorting option can be one of the following: Name or Date