Appendix A. Disk Array Controller Log

The array controller continually monitors all components of the disk array, and logs any information that may be of helpful in evaluating the performance and operation of the array. All aspects of array operation are logged, including:

- changes to the operating status of the array
- changes to the configuration of the array
- performance data
- port error statistics

Table 1 lists all event codes that can appear in the controller log event pages. The table also includes events that are not logged, but can still generate SCSI sense data. Appropriate corrective action is included for all events that require it. Many events are informational and require no action on the part of the user. The Suspected Component column lists the hardware components potentially implicated by the event code.

FC-SCSI Interface Specification Describes the IceCube SCSI interface. Targetted as part of OEM manual.**Disk Array Con**

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Table 1. Controller Log Event Code Descriptions

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
0/0x0	No Sense	N	N.A.	None	N	No sense data is available.
1/0x01	Undefined	N	N.A.	None	N	Undefined event code.
2/0x02	Unsupported LUN Capacity	N	N.A.	None	N	An attempt was made to create a LUN with an unsupported capacity. The capacity was either zero or was greater than the maximum LUN capacity supported by the subsystem.
3/0x03	Parameter List Length Error	N	N.A.	None	Y	The length of the parameter list was incorrect for the command and it's parameters.
4/0x04	Invalid Field In Parameter List	N	N.A.	None	Y	One or more of the fields in the parameter list contained an invalid value.
5/0x05	No Physical Device Present	N	N.A.	None	Y	A command attempted to access a device (disk or enclosure controller) that is not currently present in the subsystem.
6/0x06	Invalid Opcode	N	N.A.	None	Y	The opcode in the command that was received is not supported by the subsystem. This error could be due to the LUN Security configuration.
7/0x07	Invalid Bit In CDB	N	N.A.	None	Y	One or more fields in the CDB contained an illegal or unsupported value.
8/0x08	Logical Block Address Out Of Range	N	N.A.	None	Y	The LBA specified in the command was out of range for the LUN that it was sent to.
9/0x09	Not Ready	N	N.A.	None	N	The array is not ready to process the command that was received. Furthermore, the array will not become ready until an initializing command is received and successfully processed.
10/0x0a	Undefined	N	N.A.	None	N	Undefined event code.
11/0x0b	Power On Unit Attention	N	N.A.	None	N	The array just completed a reset operation.
12/0x0c	Hardware Error Unit Attention	N	N.A.	None	Y	The most recent reset operation detected a hardware error during a selftest operation.
13/0xd	Commands Cleared Unit Attention	N	N.A.	None	N	Another originator sent commands to the array that resulted in commands being cleared for the current originator.
14/0x0e	Mode Parameters Changed Unit Attention	N	N.A.	None	N	Another initiator sent commands to the array that resulted in shared mode parameters being changed for the current initiator.
15/0x0f	Unconfigured LUN	N	N.A.	None	N	The LUN to which the command was sent is currently not configured for use.
16/0x10	Invalid Target LUN	N	N.A.	None	N	The subsystem does not support the LUN that was specified in the most recent command. The LUN is the target of the requested action.
17/0x11	Invalid Source LUN	N	N.A.	None	N	The subsystem does not support the LUN that was specified in the most recent command. The LUN is the source of the requested action.
18/0x12	Not Enough Space	Y	Ignore	None	Y	A write command had to move data in order to find enough space to complete. Errors were encountered during this process which precluded the controller from providing enough space for the write. This would generally result from multiple failing or missing drives. This failure can also result from faulty space management logic in the controller.
19/0x13	Command Illegal In Current State	N	N.A.	None	N	The current subsystem state precludes processing of the requested command.
20/0x14	Becoming Ready	N	N.A.	None	N	The subsystem is not ready to process the command that was received. However, it is in the process of becoming ready and will be able to process that command soon.
21/0x15	Recovered With Low Level Retries	Y	Ignore	Disk, controller, disk interface	N	On a previous attempt(s), the drive failed the I/O. The PDD retried the I/O and the drive returned good status. PDD stands for Physical Device Driver. Specifically this error indicates that the RAID implementation was not involved in the retries.
22/0x16	Recovered By Disk Drive	Y	See information provided by drive vendor	Disk Drive	N	The disk drive returned a status of CHECK_CONDITION, RECOVERED_ERROR.
23/0x17	Disk Drive Media Error	Y	See information	Disk Drive	N	The disk drive returned a status of

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
			provided by drive vendor			CHECK_CONDITION, MEDIA_ERROR. The PDD's retries are exhausted. The PDD may or may not have attempted a REASSIGN BLOCKS command.
24/0x18	Disk Drive Hardware Error	Y	See information provided by drive vendor	Disk Drive	N	The disk drive returned a status of CHECK_CONDITION, HARDWARE_ERROR. The PDD's retries are exhausted or the the I/O is not retryable.
25/0x19	Disk Drive Reset By Related Hot Plug	N	N.A.	None	N	A device sharing the same backend bus as this drive was either inserted or removed causing a bus reset. The ID returned status of HOT_RESET_ID for this I/O. The PDD could not retry this I/O either because it is not retryable, or its retries were exhausted.
26/0x1a	Disk Drive Reset Itself	Y	Ingore if accompanied by hot plug.	Disk Drive	N	The disk drive returned a status of CHECK_CONDITION, UNIT_ATTENTION, PWR_ON_RESET. The PDD could not retry this I/O. If there wasn't already a reconfiguration in progress when the PDD got the callback for this I/O, the PDD used the JCB for this I/O to reconfigure the drive; the UNIT ATTENTION condition has already been cleared. Recommend that the client retry the I/O.
27/0x1b	Disk Drive Reset by Pass Through	Y	Ignore	None	N	A passThruReset occurred. The PDD could not retry this I/O.
28/0x1c	Disk IO Failed Due To Drive Removal	N	N.A.	None	N	Subsequent to a hot removal, the PDD's destroy method was invoked. I/Os in the PDD's waiting queue are flushed with this status. Active I/Os which complete with good status, after the destroy method is invoked, but which executed during a device configuration, will also be returned with this status. (Active I/Os which complete with good status status and not concurrent with device configuration will be returned with good status.)
29/0x1d	Disk Drive Failed Initialization	Y	N.A.	None	Y	A disk drive failed the reconfiguration attempt (TUR, inquiry, mode sense, mode select, read capacity). The PDD attempted a device reconfiguration after the device was reset during the normal course of operation (i.e. not during a hotplug of this drive, but possibly during a hotplug of another drive). If the device reconfiguration fails, the PDD flushes all non-passthru I/Os from its waiting queue with this status. The I/O whose JCB was used for the config is also returned with this status. If there was active I/Os concurrent with the config, it is also returned with this status.
30/0x1e	Disk I/O Failed Due To Related Hot Plug	Y	Ignore.	None	N	The I/O executed concurrently with a device reconfiguration. The state of the drive was unknown (danger of write cache being enabled.) The I/O was not retryable or the PDD's retries are exhausted. The I/O should be retried by the client.
31/0x1f	Unexpected Disk Drive Error	Y	Single Occurrence Unless Excluded For Drive Type	Disk Drive	N	The drive returned CHECK CONDITION status with meaningless sense data, or sense data not otherwise handled by the PDD's error recovery algorithms. The PDD's retries are exhausted or the I/O is not retryable.
32/0x20	Invalid SLRC transition	N	N.A.	None	N	An attempt was made to change the SLRC mode parameter from a value of AutoRAID to RAID1 while LUNs were configured in the subsystem. This transition cannot be made unless no LUNs are configured.
33/0x21	Disk Drive Miscompare on Write And Verify	Y	Single Occurrence	Disk Drive, Controller, Disk Interface	N	The disk drive returned a MISCOMPARE error status. The PDD's retries are exhausted or the I/O is not retryable.
34/0x22	Disk Drive State Conflict	Y	Ignore	None	N	The PDM was in the wrong state for read, write or pass thru. down, missing or initialization failed. missing.
35/0x23	Disk Drive Data Out Of Sync After Access	Y	Ingore - See accomapnying errors	None	N	Data being read or written on a device through the PDM was out of sync after the access was complete.
36/0x24	Illegal Drive State For Down	N	N.A.	None	N	A state conflict was detected in an attempt to down

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
	Command					a PDM. This covers conflicts in both the device state in the PDM label and the sync state of the data effected by the down.
37/0x25	Recovered With RAID 5 Retries	Y	Ignore - See accompanying errors	None	N	Retries were used by the R5 module in the successful completion of a read or write. This error code has been replaced by 96&97, but has been left in the table so that log readers built from this file will be able to read old firmware.
38/0x26	Recovered With RAID 5 Redundancy	Y	Ignore - See accompanying errors	None	N	Redundancy was used by the R5 module in the successful completion of a read or write. This error code has been replaced by 98&99, but has been left in the table so that log readers built from this file will be able to read old firmware.
39/0x27	Unavailable Data Detected By RAID 5	Y	See Accompanying Errors	None	N	R5 detected that the devices necessary for a read or write were not available for access before the access was attempted. This can apply to an initial attempt to read or write or to a retry.
40/0x28	Send Diagnostic Self Test Failure	N	Single Occurrence	Controller	Y	Send Diagnostic Self test failure The current system state and warnings indicate that the self test should return bad status.
41/0x29	Invalid Pass Through	N	N.A.	None	Y	The host attempted an execute pass thru command without a valid Set Pass Thru Mode command preceding it.
42/0x2a	Pass Through Reset Failed	Y	Ignore	None	N	Passthru reset resulted in a bad status.
43/0x2b	Recovered With RAID 1 Redundancy	Y	Ignore - See Accompanying Errors	None	N	Redundancy was used by the R1 module in the successful completion of a read or write. This error code has been replaced by 100&101, but has been left in the table so that log readers built from this file will be able to read old firmware.
44/0x2c	Invalid RG ID	N	N.A.	None	N	A command that specifies an Redundancy Group ID specified one that is invalid for the current subsystem configuration.
45/0x2d	Shutdown Failed	N	N.A.	None	N	CFM could not shutdown the subsystem because no volume set members were present (all members missing)
46/0x2e	Not Enough Space	Y	Ignore - See accompanying errors	None	Y	A write command had to move data in order to find enough space to complete. Errors were encountered during this process which precluded the controller from providing enough space for the write. This would generally result from multiple failing or missing drives. This failure can also result from faulty space management logic in the controller.
47/0x2f	Disk Drive Removed During Add Physical Drive	N	N.A.	None	N	A drive disappeared from the subsystem through hot plug removal while an add physical drive command was in progress against the drive.
48/0x30	Cancel Rebuild With Auto-Rebuild Enabled	N	N.A.	None	Y	A rebuild operation was cancelled by the host while auto-rebuild was enabled. Since auto-rebuild is enabled, rebuild would only start up again after the cancel, rendering it ineffective. Therefore the controller rejects cancel rebuild commands while auto-rebuild is enabled.
49/0x31	Disk Drive Stamp Write Failed	Y	Single Occurrence - See accompanying errors	Disk Drive, Controller, Disk Interface	N	In order to make a drive a member of a volume set it must have a stamp written onto it by the controller. This error indicates that the writing or updating of the stamp failed during an add physical drive command, causing the command to fail.
50/0x32	Disk Drive State Changed During Add Physical Drive	N	N.A.	None	N	During the add physical drive command the drive is reconfigured for ICE access. If the reconfiguration process succeeds when it previously failed, then the disposition of the drive must be reassessed by the controller. This is processed as an independent hot plug event which may cause the host to reconsider whether or not to add the drive to the volume set. Therefore the add physical drive command fails if this condition is encountered. The drive state should be reassessed then the add command reattempted if appropriate.this err is intentionally not logged (in general, all * hdwr errs are logged)

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
51/0x33	Offline firmware download with disk size derating	N	Ignore	None	N	An offline controller firmware download was attempted while disk size derating was in effect. Derating of the disks causes the shutdown portion of the offline download to post the shutdown image at the wrong location on the disk, and, as a result, the subsystem boots to a No Maps state after the download. To prevent this error, remove the disk derating and try the download again.
52/0x34	Concurrent downloads attempted	Y	Ignore - Host Problem	None	Y	A host attempted to start a controller firmware download operation while another was already in progress.
53/0x35	Feature capability exceeded	N	Ignore - Host Porblem	None	N	A host request was found to require more capability than current feature licensing has enabled. This may be a request for an operation that is not enabled in a currently licensed feature.
54/0x36	Incompatible Image family	N	Ignore - Normal for some cases of firmware	None	N	The firmware image that was sent is of a family that is incompatible with the currently executing firmware. As a result, the download cannot be performed online.
55/0x37	Configuration change occurred during discover subsystem	N	Ignore - should be handled by host	None	Y	A configuration change or component hot plug was detected during the execution of the Discover Subsystem command. As a result, the response that was built may not reflect the current configuration.
56/0x38	Download Image Checksum Failure	Y	Ignore - Likely image distribution problem	None	Y	The firmware image that was sent contained defects such that the checksum verification failed.
57/0x39	Unavailable Data Detected By RAID1 Read	Y	Ignore - See accompanying errors	None	N	R1 detected that the devices necessary for a read were not available for access before the access was attempted. This can apply to an initial attempt to read or to a retry.
58/0x3a	Unavailable Data Detected By RAID1 Write	Y	Ignore - See accompanying errors	None	N	R1 detected that the devices necessary for a write were not available for access before the access was attempted. This can apply to an initial attempt to write or to a retry.
59/0x3b	Disk Interface Error	Y	N.A.	None	Y	An error occurred on a disk interface command.
60/0x3c	Unsupported feature	N	Ignore. Device Management error	None	Y	An attempt was made to install a license for a feature that this product does not support.
61/0x3d	LUN specified exceeds maximum	N	N.A.	None	Y	An 8-byte hierarchic LUN reference specified a LUN value that exceeds the maximum specified by the LUN creation limit mode parameter.
62/0x3e	Reassign Failed	Y	Single Occurrence	Disk Drive	Y	The PDD's attempts to reassign a bad block failed due to device errors.
63/0x3f	Reassign Out Of Resources	Y	Single Occurrence	Disk Drive	Y	The PDD was unable to complete a Reassign Blocks command because the sparing buffer is too small.
64/0x40	Optimal Space Error In RAID 5	Y	Ingore	None	N	R5 detected that space allocated for an "optimal only" migrating write (i.e. rebuild policy) was no longer optimal after the write had completed. The write completed in degraded mode but the client module requires an optimal completion as indicated by the optimal only allocation hint.
65/0x41	Optimal Space Error In RAID 1	Y	Ignore	None	N	R1 detected that space allocated for an "optimal only" migrating write (i.e. rebuild policy) was no longer optimal after the write had completed. The write completed in degraded mode but the client module requires an optimal completion as indicated by the optimal only allocation hint.
66/0x42	No Shutdown Image Posted	N	N.A.	None	Y	CFM could not shutdown subsystem because no volume set members was successfully posted with the NVRAM image.
67/0x43	Bad Disk Drive State During Add Physical Drive	N	N.A.	None	N	A drive was in the initialization failed state after the spin up attempt during an add physical drive command. The drive is failing initialization, so information on the nature of the failure should appear in the log.
68/0x44	Disk Interface Data Underrun	Y	N.A.	None	N	A backend device sent/received less data than expected.
69/0x45	Disk Interface Data Overrun	Y	N.A.	None	N	A backend device sent/received more data than expected.

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
70/0x46	Disk Interface Command Timeout	Y	N.A.	None	Y	A backend device did not complete a command within the allotted time.
71/0x47	Disk Interface Hot Plug	N	N.A.	None	N	A command was aborted by a disk hotplug or by error error recovery for some other command.
72/0x48	Host Write Collision With Failed Cache Post	Y	ignore - see accompanying errors	None	N	A write launched from cache but ended with a non-SUCCESS status; this caused cache to mark the write cache entry as RETRY which means it is stuck in cache. A flush is required by a new FUA write. One of the pages from the flush is stuck in cache and the response is to fail the new write.
73/0x49	Disk Drive Defect List Error	Y	Single Occurrence	Disk Drive	N	The disk drive returned a status of CHECK_CONDITION, HARDWARE_ERROR, . The PDD's retries are exhausted or the I/O is not retryable. The drive may need to be formatted.
74/0x4a	Disk Drive Format Error	Y	Single Occurrence	Disk Drive	N	The disk drive returned a status of CHECK_CONDITION, MEDIA_ERROR, FORMAT CORRUPTED/FAILED. May be cause for immediate failure. The PDD did not attempt to send a REASSIGN BLOCKS command. The drive may need to be formatted.
75/0x4b	Invalid/unsupported hierarchic LUN reference	N	Ignore - Host LUN addressing problem	None	Y	The host specified an 8-byte hierarchic LUN reference that contained either an unsupported address mode or made use of hierarchy levels that the subsystem does not support.
76/0x4c	Disk Interface State Error	Y	N.A.	None	N	The backend disk interface hardware or software state information was incorrect for observed activity.
77/0x4d	Write Sequence In Cache Broken By Host Abort	N	N.A.	None	N	A part of a write cache stream was aborted by the host. The failed write was forced because the operation could not be completed. The host should retry the operation.
78/0x4e	Silent Disk Drive Error Recovery	N	N.A.	None	N	On a previous attempt(s), the drive failed the I/O. (Usually due to hot plug.) The PDD retried the I/O and the drive returned good status. We do not log a recovered error because the original error was not logged. We report GOOD status to the host.
79/0x4f	Check Condition From Disk Drive With No Sense	Y	Single Occurrence	Disk Drive	N	The disk drive returned a check condition with no sense data. The PDD's retries are exhausted or the I/O is not retryable.
80/0x50	Disk Drive Failed Start Unit Command	Y	Single Occurrence	Disk Drive	N	The disk drive returned bad status for a start unit command. The PDD's retries are exhausted.
81/0x51	Unexpected Disk Drive Status	Y	Single Occurrence, possible compatibility problem	Disk Drive, Controller, Disk Interface	N	The disk drive returned a status of SCSI_BUSY, RESERVATION_CONFLICT, or some undecodable status. The PDD's retries are exhausted or the I/O is not retryable.
82/0x52	Insufficient resources for LUN operation.	N	N.A.	None	N	There is insufficient physical disk storage capacity present for the LUN operation that was requested. More disks must be added to the subsystem before the operation can be successful.
83/0x53	Microcode Changed Unit Attention	N	N.A.	None	N	New controller microcode was just installed.
84/0x54	Create LUN can't get LUN WWN seed	Y	None allowed	None	Y	The create LUN operation cannot be completed because the memory device that holds the seed for the LUN WWN has either failed or cannot return the requested data. LUN WWNs cannot be made unique without this data.
85/0x55	Recovered By Disk Drive On Retry	Y	See drive vendor recommendation	Disk Drive	N	On a previous attempt(s), the drive failed the I/O. The PDD retried the I/O and the disk drive returned a status of CHECK_CONDITION, RECOVERED_ERROR
86/0x56	Not ready, manual intervention required	N	N.A.	None	Y	The command is not possible in current subsystem state.
87/0x57	Data loss detected	Y	N.A.	None	Y	An otherwise successful read op failed due to data loss recorded in at least 1 of the disk blks read This is a rev2 error; the error is defined but not used in rev1 firmware.
88/0x58	Insufficient memory resources	N	N.A.	None	N	There is not enough memory installed in the

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
	for LUN operation.					controllers to complete the requested LUN operation. More memory must be installed before the requested operation can be completed successfully.
89/0x59	Undefined	N	N.A.	None	N	Undefined event code.
90/0x5a	Host Read Collision With Failed Cache Post	Y	ignore - see accompanying errors	None	N	A host write was flushed from cache but ended with a non-SUCCESS status; this caused cache to mark the write cache entry as RETRY which means it is stuck in cache. A new host read partially hits the same address which normally causes the write to flush but the write is stuck in cache. The response is to fail the read.
91/0x5b	Ambiguous Volume Set Reference	Y	ignore - operator error	None	Y	A volume set ID referenced in a recover command was ambiguous. If a null (wild card) volume set was used in a recover command then this error means that the controller found drives from multiple volume sets present. If a non-null volume set uas used then this error means that the contoller is already attached to a volume set other than the one referenced in the recover command.
92/0x5c	Recovery From RAM Loss Failed	Y	Single Occurrence	Disk Drive, Disk Interface, Controller, Operator	Y	This error indicates that the controller was unable to recover an NVRAM image from any disk in the volume set. This could be because none of the disks present have images, or the disks that did have images were removed, or failed before the images could be fully uploaded into the controller.
93/0x5d	Multiple Failures Suspected During Recovery	Y	ignore - see accompanying errors	None	Y	Conditions detected during recovery indicate that at least one failure or hot plug event occurred in addition to the loss of NVRAM that prompted the recovery. This implies that data integrity is likely to have been compromised in ways that are not detectable outside of the occurrance of this log entry or sense data report. It is likely that the controller does not have sufficient information to determine the extent of the damage.
94/0x5e	Volume Set Missing During Recovery	Y	ignore - operator error	None	Y	The volume set referenced in a recover command is not present in the subsystem. If a NULL volume set was referenced then this error indicates that no members of any volume set were present. This error can also result from imcompatible stamp versions
95/0x5f	RAM Configuration Mismatch During Recovery	Y	Single Occurrence	Controller SIMM, operator error	Y	An attempt was made to recover an image after RAM loss but the image would not fit in the non-failing memory available on the controller. Either the SIMM configuration has been modified, or one or more SIMMs have failed. Recovery may be possible using the another controller as the primary.
96/0x60	Read Recovered With RAID 5 Retries	Y	Ignore - See accompanying errors	None	N	Retries were used by the R5 module in the successful completion of a read.
97/0x61	Write Recovered With RAID 5 Retries	Y	Ignore - See accompanying errors	None	N	Retries were used by the R5 module in the successful completion of a write.
98/0x62	Read Recovered With RAID 5 Redundancy	Y	Ignore - See accompanying errors	None	N	Redundancy was used by the R5 module in the successful completion of a read.
99/0x63	Write Recovered With RAID 5 Redundancy	Y	Ignore - See accompanying errors	None	N	Redundancy was used by the R5 module in the successful completion of a write.
100/0x64	Read Recovered With RAID 1 Redundancy	Y	Ignore - See Accompanying Errors	None	N	Redundancy was used by the R1 module in the successful completion of a read.
101/0x65	Write Recovered With RAID 1 Redundancy	Y	Ignore - See Accompanying Errors	None	N	Redundancy was used by the R1 module in the successful completion of a write.
102/0x66	Disk drive reported a SMART event	Y	Signals internal drive errors threshold exceeded,	Disk Drive	Y	The disk drive reported a SMART event. The event is logged and the common sense data is updated for all regular read/write and passthru commands. The precedence for SMART event data in the common area is low, so that other errors that occur during the same I/O are reported back to the host. A SMART event does not affect the I/O except that it does

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
						count as one try of the I/O.
103/0x67	JM Write Recovered With Retries	Y	Ignore - See Accompanying Errors	None	N	Retries were used by the JM module in the successful completion of a write.
104/0x68	Force Unit Access Failed with no Sense Data	Y	Ignore - See accompanying errors	Cache	N	A forced unit access write command failed. The component returning the bad return code may not have provided valid sense data to notify the host that an error has occurred. Cache will fill in valid sense data to alert the host to the write failure.
105/0x69	Host DATA-OUT FCP-DL and CDB transfer lengths not equal	Y	Ignore - Host Protocol Incompatibility	None	Y	A Host DATA-OUT phase attempted to use an FCP-DL parameter that does NOT exactly match the targets desired data transfer length.
106/0x6a	Host Block command attempted with FCP-DL NOT a block size	Y	Ignore - Host Protocol Incompatibility	None	Y	The Host attempted to perform a block oriented command but the FCP-DL parameter was not a multiple of a SCSI block size.
107/0x6b	LUN Security prevents the requested operation	N	Ignore - Host LUN addressing problem	None	Y	The Host attempted to perform an operation on a LUN that LUN security, in the current configuration, prohibits.
108/0x6c	An unsupported operation was attempted on a snapshot LUN	Y	Ignore - Incorrect host behavior	None	Y	The Host attempted to perform a command, on a snapshot LUN, that required an operation that is unsupported for snapshots.
109/0x6d	flush of storage object failed	Y	disallow snapshot	None	Y	in preparation for a snapshot of a particular storage object, the system will attempt to flush all writes for the storage object from the cache to the back-end disks. If, for any reason the flush does not complete successfully, the snap must not be allowed to proceed.
110/0x6e	Parameter Value Invalid	N		None	N	Parameter Value Invalid
111/0x6f	Host is not authorized to read from a LUN	Y	Ignore - Host doesn't have permission to access LUN	None	Y	The Host attempted to perform an operation on LUN without having an appropriate access permission.
112/0x70	Host can not be authenticated to access LUN Security map	Y	Ignore - Provide correct password	None	N	The Host failed the authentication for access to LUN Security map because the password that it presented is incorrect.
113/0x71	Limit to Maximum number of Principals is reached	Y	Ignore - Remove unwanted associations from Security map	None	N	The LUN Security Utility cannot be allowed to add any more associations for new Principals since the maximum limit for Principals set in the firmware is reached.
114/0x72	Host is not authorized to write to a LUN	Y	Ignore - Host doesn't have permission to access LUN	None	Y	The Host attempted to perform an operation on a LUN without having an appropriate access permission.
115/0x73	Feature is not licensed	N	Ignore - Host Porblem	None	Y	A host request was found to use a feature without having purchased its license.
116/0x74	Hot plug or LIP occured during processing of passthrough	Y	Ignore - should be handled by host	None	N	The host Pass through request was not successfull. This could be due to a LIP or Hot Reset of the device.
117/0x75	Unexpected JBOD Error	Y	Unknown	JBOD ESD	N	The JBOD ESD returned CHECK CONDITION status with sense information not handled by the JBOD error recovery algorithms. The JBOD retries are exhausted or the I/O is not retryable.
118/0x76	Recovered By Enclosure Service Device (ESD)	Y	See information provided by JBOD vendor	JBOD ESD	N	The disk drive returned a status of CHECK_CONDITION, RECOVERED_ERROR
119/0x77	PassThru request Failed	Y	Ignore - Should be handled by host	JBOD ESD	N	The requested command (valid or NotValid) has Failed to be sent to the requested JBOD ESD due to the fact that there is no valid Path for communication to the desired device at the current time.
120/0x78	JBOD ESD IO Failed Due To ESD Removal	N	N.A.	None	N	Subsequent to a hot removal, the ESD's (JEM/JBOD Enclosure Manager) destroy method was invoked. I/O's in the JEM's waiting queue are flushed with this status.
121/0x79	Mode Select command failed due to NV memory write failure	Y	None of these are allowed	Midplane	Y	An attempt to write new mode parameter data to the chassis NV memory failed. As a result, none of the mode parameter changes are being recorded. If the chassis NV memory problems persist, the mode

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
						parameters stored there will probably revert to their default values.
122/0x7a	Hardware error prevents successful command completion	Y	None of these are allowed	Unknown	Y	The command failed because a required access to hardware failed and was either not retried or was retried unsuccessfully.
123/0x7b	Host Port Behavior Table overflow	Y	None of these are allowed	Unknown	Y	An attempt was made to add a new entry to the host port behavior table but no unused entry was available. An existing entry must be deleted to make room for the new entry.
124/0x7c	Sequencer error injection error	N	These only occur in internal testing	Unknown	Y	This error is used for a variety of purposes when injecting errors in sequencer module tests.
125/0x7d	Test mode is required for this command	N	These only occur in internal testing	Unknown	Y	The command that was received is only allowed when the test mode flag in the personality is true.
126/0x7e	Subsystem LUN configuration changed UA	N	Ignore	None	N	This error is used to report a Unit Attention for LUN Inventory changed.
127/0x7f	Mode parameters were restored from defaults UA	N	Ignore	None	N	This error is used to report a Unit Attention for the case where mode parameters were restored from defaults.
128/0x80	Limit to supported number of Principals has been reached	Y	Ignore - Remove unwanted associations from Security map	None	Y	The LUN Security Utility cannot add any more associations for new Principals because the supported limit for Principals has been reached.
129/0x81	Disk Interface Error - no logging	N	N.A.	None	N	A command to a backend device failed in an expected manner, so that logging is not required.
130/0x82	Disk Interface Error	Y	N.A.	None	N	A command to a backend device failed with sense data indicating an unexpected error.
131/0x83	Disk Interface Command Failed	Y	N.A.	None	N	A command to a backend device failed due to an error that does not include sense data from the device.
132/0x84	Host is not authorized to access LUN	Y	Ignore - Host doesn't have permission to access LUN	None	Y	LUN Security Authoriztion failed - Host attempted to perform an operation on a LUN without having an appropriate access permission.
133/0x85	Cannot identify a FRU in phatom enclosure with id 0xff	Y	Ignore - Cannot identify FRU in phantom enclosure	None	N	Phantom enclosure is a collection of disks with no physical slot mapping. Ideally there should not be any disk in phatom enclosure
134/0x86	Journal Manager Buffer Write Failed	Y	N.A.	Journal Manager	Y	A Journal Manager Buffer Write has failed. Resilient map updates have not been posted to disk. FUA write failures may result from this condition
135/0x87	Journal Manager Stage Write Failed	Y	N.A.	Journal Manager	Y	A Journal Manager Stage Write has failed. Resilient map updates have not been posted to disk. FUA write failures may result from this condition
Event	Event	Event	Predictive	Suspected	Mfg	Description
Number	Name	Logged?	Maintenance	Components	Fail?	
(dec/hex)			Implication			
256/0x100	Access Time Count Error	Y	Ignore.	None	N	The frequency distribution table used to locate recently modified blocks was found to be inconsistent. This is indicative of a firmware problem. This problem is self correcting.
257/0x101	Disk Drive Placed In Failed State	Y	Single Occurrence	Disk Drive, Controller, Back End FC Link	N	The firmware made a decision to automatically fail a disk device due to its accumulated error history.
258/0x102	NVRAM Image Out Of Date	Y	Ignore - Operator activity	None	N	During startup a disk stamp newer than the NVRAM committed stamp copy was found. This indicates the volume set attached successfully to a different controller and this VS related NVRAM is not valid.
259/0x103	No Quorum For Disk Set Access	Y	Ignore - Operator activity or	None	N	During startup a quorum of the drives belonging to the volume set the NVRAM stamp were not present.

FC-SCSI Interface Specification Describes the IceCube SCSI interface. Targetted as part of OEM manual.**Disk Array Con**

Error! No text of specified style in document.

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
			accompanying errors			Since volume set partitioning is not allowed the system cannot attach to this VS.
260/0x104	No Quorum For Disk Set Attachment	Y	Ignore - Operator activity or accompanying errors	None	N	During startup (with VS related NVRAM invalid) we were unable to find a VS with a quorum of its members present.
261/0x105	No Quorum Due To Broadcast Failure	Y	Ignore - See accompanying errors	None	N	During startup (with VS related NVRAM invalid) we were unable to invalidate the NVRAM image on a quorum of the members of the VS we tried to attach to.
262/0x106	No Address Table	Y	Ignore - Operator activity or accompanying errors	None	N	During startup (with VS related NVRAM invalid) we were unable to to find a VS present that had a valid shutdown image on any of the members present.
263/0x107	No Disk Drives Found During Initialization	Y	Ignore - Operator activity	None	N	During startup no disks were present so a new volume set with no members was created.
264/0x108	Insufficient Space During Rebuild	Y	Ignore - See accompanying errors.	None	N	here is insufficient disk space for migrating data. This is a controllererror, although the subsystem may still support some I/Os without adding disks.his message follows the message, if the error isdiscovered during rebuild.
265/0x109	Rebuild Started	Y	Ignore - See accompanying errors.	None	N	ebuild has been started either automatically or by command. Unless there wasa reset during rebuild, at least two more messages follow this , ,, ,, or . The messageindicates that a format subsystem was issued through the front panel or byhost command, eliminating the need for a rebuild. If there was a resetduring rebuild, you will see the message repeated.
266/0x10a	Rebuild Complete	Y	Ignore	None	N	ebuild has completed successfully. This message follows the message.
267/0x10b	Insufficient Space To Start Rebuild	Y	Ignore - See accompanying errors	None	N	here is insufficient disk space for rebuild to execute. This message followsthe message and may follow the REBUILD message.
268/0x10c	Rebuild Failed	Y	Ignore - See accompanying errors	None	N	ebuild has failed to complete due to multiple disk failures or a controllerfailure. Previous messages in the log should indicate whether or not therehave been multiple disk failures. This message follows the message.
269/0x10d	Cancel Rebuild Complete	Y	Ignore - Operator or Host Activity	None	N	ebuild cancellation has completed. This message always follows the message.
270/0x10e	Disk Drive Table Overflow	Y	Ignore - Operator activity	None	N	The controller is capable of retaining information about 16 drives. Since only 12 can be inserted at a time the remaining 4 would have to be missing drives on which the controller still depends. If the total number of missing drives and present drives ever exceeds this limit, the TOO_MANY_DRIVES condition is logged. At this point the controller cannot recognise any additional inserted drives. The system always reports data unavailable before this condition is reached.
271/0x10f	Duplicate Disk Drive Identifier	Y	Single Occurrance	Controller or Erroneous Operator Activity	N	As part of its stamp, each drive indicates its logical position in the volume set to which it is attached. This error is logged whenever the controller encounters two drives which claim to be in the same position of the same volume set. The most likely source of this error is the erroneous assignment of duplicate volume set ID's. This would generally originate with incorrect controller serial number assignment, and/or loss of NVRAM. This error would also occur if a user made an image copy of a drive.
272/0x110	Disk Drive Installed	Y	Ignore - Operator Activity	None	N	This error code indicates the system state change consisting of a hot plug insertion. This event occurs regardless of the disposition of the drive toward the volume set. The device number of the drive added appears in this change record. A device number consisting of the controller serial number followed

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
						by a 0 indicates that the device number has not yet been assigned.
273/0x111	Disk Drive Added To Disk Set	Y	Ingore - Operator activity	None	N	This error code indicates the system state change consisting of the addition of a new volume set member. This occurs only when a drive that was not previously a member becomes a member. It does NOT occur then down, failed, or missing drives are returned to good standing. The device number of the drive added appears in this change record.
274/0x112	Disk Drive Removed	Y	Ignore unless no Operator activity	Disk Drive, Back End SCIS Bus, Controller	N	This error code indicates the system state change consisting of a hot plug removal. This event occurs for volume set members only. The device number of the drive removed appears in this change record. A device number consisting of the controller serial number followed by a 0 indicates that the device number has not yet been assigned.
275/0x113	Disk Drive Deleted From Disk Set	Y	Ignore - Operator activity or assocaited errors	None	N	This error code indicates the system state change consisting of the deletion of a new volume set member. This occurs only when a drive that was previously a member becomes a non-member. The drive may or may not be present in the subsystem at the time. The device number of the drive added appears in this change record.
276/0x114	Logical Unit Created	Y	Ignore - Operator or host activity	None	N	This error code indicates the system state change consisting of the creation of a new SCSI LUN. This change occurs only if LUN creation succeeds.
277/0x115	Logical Unit Deleted	Y	Ignore - Operator or Host activity	None	N	This error code indicates the system state change consisting of the deletion of an existing SCSI LUN. This change occurs only if LUN deletion succeeds.
278/0x116	Logical Unit Modified	Y	Ignore - Host Activity	None	N	This error code indicates the system state change that occurs when an existing LUN is modified. This change occurs only if LUN modification succeeds.
279/0x117	Disk Set Attached	Y	Ignore - Operator activity	None	N	This error code indicates the system state change consisting of attachment to a new volume set has occurred. This occurs after every format subsystem and whenever a power on or reset occurs while the controller is not attached to a volume set. In some cases the currently attached volume set may be empty.
280/0x118	Reset To Clear VSC7130 interrupt	Y	Ignore - unless repeated	VSC7130 - on controller	Y	This error code indicates that VSC7130 interrupt could not be cleared. The controller was reset in an effort to clear the interrupt.
281/0x119	Unable To Recreate Memory Error	Y	Ignore	None	N	This error code indicates that the system experienced a memory error and was unable to recreate the failed memory accesses. An excessive number of un-reproducible memory errors will result in a controller failure.
282/0x11a	Memory Error Not Recovered With Redundancy	Y	> 1 in 6 mo.	SIMM, Controller, Backplane	Y	This error code indicates that the system experienced a unrecoverable error that could not be recovered via redundant memory. This will cause information loss if the error occurs in non-redundant NVRAM memory.
283/0x11b	Memory Error Recovered With Redundancy	Y	Ignore - See accompanying errors	None	N	This error code indicates that the system experienced a unrecoverable error that could be recovered via redundant memory or a controller reset
284/0x11c	Uncorrectable Memory Error	Y	> 1 in 6 months per controller	Controller, SDRAM, midplane	Y	This error code indicates that the system experienced a uncorrectable shared-memory error. The two word queue entry found in the shared-memory controller error queue will be placed in the event extended info area. After all entries currently in the queue have been processed, the subsystem will undergo a short reset at which time an attempt will be made to correct the error using the mirrored copy of memory (if available).
285/0x11d	Correctable Memory Error	Y	See correctable rate assocaited with usage page	SDRAM, controller, midplane	Y	This error code indicates that the system experienced a correctable shared-memory error. The two word queue entry found in the shared-memory controller error queue will be placed in the event extended info area. After all entries currently

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Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
						in the queue have been processed, the subsystem will undergo a short reset at which time the correctable error will be permanently corrected.
286/0x11e	Memory Compare Error	Y	Ingore - See accompanying errors	SDRAM, controller, midplane	Y	This error code indicates that the system experienced a compare error between the redundant shared memory copies. The two word queue entry found in the shared-memory controller error queue will be placed in the event extended info area. After all entries currently in the queue have been processed, the subsystem will undergo a short reset, at which time an attempt will be made to sync the two copies of memory (if available) to see if the error was transient. If the error is permanent, non-volatile memory must be invalidated. Single miscompare can be recovered by selecting one of the two versions of the data and syncing both sides to that version.
287/0x11f	Controller Data Bus Microprocessor Access Parity Error	Y	> 1 in 6 months	Controller	N	This event code indicates that the a reset was initiated due to excessive errors on the microprocessor local bus.
288/0x120	Internal Data Bus Error	Y	> 1 in 6 months	Controller, SIMM	N	This error code indicates that the system experienced a parity error during a DMA Operation.
289/0x121	Volume Set Full Reset	Y	Ignore - see accompanying errors	None	N	This error code indicates that an inconsistancy was detected in one of the volume set clusters seed values, fsb or rbtables. The migration bypassed this cluster. This could be the result of a r6 restore consistency posting temporary data to the cluster, the data in the cluster will remain bad until the data is reposted by the cache. In the mean time all reads for data will be satisfied by the cache. After the cache repost the data may then be successfully migrated.
290/0x122	Warm Boot IO Expander Fault	Y	Ignore if recovered by power cycle	Controller	Y	This error code indicates that the IO Expander containing the warm boot bit did not power-on in the correct default condition or that attempts to set the warm boot bit in the IO Expander failed.
291/0x123	Disk Set Detached	Y	Ignore - Operator/Host activity	None	N	This is a system change event posted to the log when shutdown has completed sucessfully; i.e., the volume set is no longer attacheddevice number field in log record is volume set number (system change event)
292/0x124	Microprocessor Software Fault	Y	> 1 in 1 month	Controller	N	This is an error detected by the processor which caused the processor to vector to the software fault isr. The controller always resets following this log entry. This error is caused by illegal instruction fetches, divide by zero, or other illegal processor activity.
293/0x125	Microprocessor Hardware Fault	Y	> 1 in 1 month	Controller	N	This is an error detected by the processor which caused the processor to vector to the hardware fault isr. The controller always resets following this log entry. This error occurs when the microprocessor attempts an illegal interrupt vector.
294/0x126	Disk Interface Event	Y	Ignore, unless occurring frequently	Disk, controller, disk interface	N	An error occurred on the disk interface. These may occur during disk hotplug. More detailed status is available in the event expanded information.
295/0x127	Insufficient RAM For Image Upload	Y	Ignore - Operator error or accompanying errors	None	N	This is an error detected by the startupSystem when the current RAM config is not large enough to hold the NV image stored on disk. Since we do not support shrinking RAM, this fails the upload process and causes a new VS to be created. System state is NO_MAPS.
296/0x128	Disk Interface Queueing Disabled	Y	Immediate Performance Problem - Unsupported Disk	Disk	N	An attached disk could not be configured for command queueing. Command queueing and disconnects are disabled for this interface.
297/0x129	Disk Disconnects Disabled	Y	Immediate Performance	Disk	N	This event indicates that the firmware could not configure the drive to disable disconnects during

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
			Problem - Unsupported Disk			data transfer phase. This will cause disconnects to be disabled for the entire on the interface, thus causing degraded drive performance. This event may also indicate that the firmware could not enable queueing on this drive, which also causes disconnects to be disabled on the interface. The reported FRU is the slot number. (See the "Disk Interface Queuing Disabled" event.)
298/0x12a	Disk Reassign Completed	Y	See disk drive vendor's reassign rate spec.	Disk	N	This event indicates that the array firmware successfully completed a data reassignment (sparing) operation. The reported FRU is the slot number. This is informational only, not an error condition.
299/0x12b	Disk Reassign Cancelled	Y	Ignore	None	N	This event indicates that a data-reassign (sparing) operation was cancelled by the array firmware. The most likely reason is that the firmware detected that the disk was reset and in need of reconfiguration. The reported FRU is the slot number. This is informational only, not an error.
300/0x12c	No Error On Disk Media After Medium Error	Y	Ingore unless medium error recurs	Disk Drive	N	This event indicates that the PDD's media test has determined that media for which a drive had reported a MEDIUM ERROR is actually OK. The data stored at the affected LBA may or may not have been recovered. The reported FRU is the slot number.
301/0x12d	Incompatible RAM Image Revision	Y	Ignore - Operator Error	None	N	This event indicates that the NVRAM image stored on the volume set when it was shutdown is not compatible with the current version of firmware. The image cannot be uploaded and the resulting system state is NO_MAPS for this volume set.
302/0x12e	Controller Presence Detect Faulted Off	Y	Single Occurrence	Controller, Midplane	Y	he presence detect bit for the other controller is not working. This controller does not "see" another controller in the enclosure, yet it can communicate successfully with the Trifid on the other controller. This error is logged only once per power on.
303/0x12f	No Interrupts From Other Controller	Y	Single Occurrence	Controller, Backplane	N	he "other controller" interrupt seems to be broken. The timer interrupt fired multiple times with new communication messages but no "other controller" interrupts were present. This error is logged only once per power on.
304/0x130	Disk Interface Disconnect	Y	Ignore - Disk compatibility problem	Disk Drive	N	An attached disk unexpectedly disconnected during a disk data transfer. This is informational, not an error.
305/0x131	Disk Downed	Y	Ignore - Operator or Host activity	None	N	A device was successfully transitioned to the down state in response to user request.
306/0x132	Data Unavailable	Y	Ignore - See accompanying errors	None	N	The data unavailable condition was triggered. This is due to multiple failed, down, or missing drive(s). The condition persists as a warning until less than 2 drives and down, failed, or missing.
307/0x133	Insufficient Optimal Space For Rebuild	Y	Ingore - See accompanying errors	None	N	here is insufficient disk space for rebuild to execute. This may be due to the mix of disk sizes on the subsystem. This message follows the message and may follow the REBUILD message.
308/0x134	Rebuild Restarted	Y	Ignore	None	N	ebuild has been automatically restarted due to disk failure or removal. Thismessage follows the message.
309/0x135	Rebuild Executing	Y	N.A.	None	N	ab Instrumentation Only.
310/0x136	Rebuild Preempted	Y	N.A.	None	N	ab Instrumentation Only.
311/0x137	Cancel Rebuild Started	Y	Ingore - Operator or Host activity	None	N	ebuild has been cancelled either automatically or by command. The subsystemautomatically cancels rebuild if it needs to restart rebuild due to a diskaddition, a LUN deletion, or a LUN format. This message follows the message and may be followed by another message.
312/0x138	Rebuild IO Priority Changed	Y	Ignore - Host activity	None	N	host command has changed rebuild I/O priority relative to host I/Os. Thismessage follows the message.
313/0x139	Non-Member Drive Removed	Y	Ignore - Operator activity	None	N	This error code indicates the system state change consisting of a hot plug removal. This event occurs for drives that are not volume set members when they are removed. The device number field is not

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
						used.
314/0x13a	Drive Missing At Power On	Y	Ignore unless no Operator activity	Disk Drive, Controller, Back End FC Link	N	This error code indicates that a drive was discovered to be missing during a power on or reset. This event occurs for volume set members only. The device number of the drive removed appears in this change record. A device number consisting of the controller serial number followed by a 0 indicates that the device number has not yet been assigned.
315/0x13b	RAM Image Upload Failed	Y	Single Occurrence	Disk Drives, Controller, Back End FC Link	N	The subsystem was unable to upload a usable disk copy of NVRAM during startup. System state is NO_MAPS.
316/0x13c	Old Cache Configuration Used	Y	Ignore - See errors associated with shut down	None	N	Write data found in the uploaded NVRAM image blocked a requested transition to a new cache configuration; the previous configuration is being used. To get to the new configuration, get cache flushed and do another upload.
317/0x13d	Incompatible RAM Image Content	Y	Ignore - Operator error	None	N	This is an error detected by the startupSystem when the current RAM config is not compatible with the RAM config of the NVRAM disk image. This is similar to except that not enough physical RAM space is not the problem but rather a different mapping of NVRAM in the disk image that cannot be supported by the current config (i.e., the image supports 8G drives but the current config does not). A new VS is created. System state is NO_MAPS. To use the disk image the current config must be updated to the disk config.
318/0x13e	Disk Interface Underrun Event	Y	Single Occurrance not with other entries	Disk, controller, disk interface	N	An attached device sent/received less data than expected.
319/0x13f	Disk Interface Overrun Event	Y	Single Occurrance not with other entries	Disk, controller, disk interface	N	An attached disk sent/received more data than expected.
320/0x140	Disk Interface Timeout Event	Y	> 2 occurrances per hot plug insert or removal	Disk, controller, disk interface	N	A command to an attached disk did not complete within the allotted time.
321/0x141	Controller ECC Miscorrection	Y	Single Occurrence	SIMM, Controller	N	This error code indicates that the system experienced a correctable error which was mostlikly misscorrected.
322/0x142	Controller Data Bus Microprocessor Access Error	Y	Single Occurrence	Controller	N	This error code indicates that the system experienced a uP access error without the needed other qualifiers. Microprocessor access errors should only occur in conjunction with correctable or uncorrectable memory errors, or with parity errors. If no other condition is present this event is reported to indicate the malfunction.
323/0x143	Incompatible Address Table In RAM Image	Y	Ignore - Operator error	None	N	This error occurs when NVRAM (SIMM(S)) is removed, forcing the Time Stamp Table to shrink, or the image to be reloaded has an invalid size. Once NVRAM is added and the Table is expanded, it cannot shrink.
324/0x144	Non-Volatile Memory Initialized	Y	Ignore unless no operator activity	SDRAM DIMM, Controller	N	This message is logged when NV-SDRAM is found to be invalid at boot and must be initialized. This should not cause concern if memory was purposely invalidated or a new board or new memory has just been installed.
325/0x145	Battery Failed Discharge Test	Y	Single Occurrence	Battery	N	This error code indicates that a battery has failed the long discharge test. This test occurs following power on and every 30 days thereafter. The test takes about 36 hours to complete. Replace Batteries.
326/0x146	Fan Failed	Y	Single Occurrence	Fan, Controller, Backplane	N	This error code indicates that a fan has failed.
327/0x147	Power Supply Failed	Y	Single Occurrence	Power Supply, Controller, Backplane	N	This error code indicates that a power supply has failed.
328/0x148	Power Down Due To Fan	Y	Single	Fans,	N	This error code indicates that the Background

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
	Failure		Occurrence	Controller, Backplane		Manager (BGM) has discovered that there are not enough good fans to cool the system. The BGM is shuttingThe NVRAM is not posted to disk, so it is critical to repair the system quickly.
329/0x149	Fan Missing At Initialization	Y	Ignore - See accompanying errors.	None	N	This error code indicates that the BGM has started timing that a fan is missing from the enclosure. The total length of time a fan has been missing will be checked periodically and if it exceeds TIME_FAN_MISSING_ALLOWED_BGM (approx. 10 minutes) the BGM will shut off the power supply.
330/0x14a	Power Down Due To Missing Fan	Y	Single Occurrence	Fan, Controller, Backplane	N	This error code indicates that the BGM is shutting off the power supply because a fan has been missing from the enclosure for too long (approx. 10 minutes).
331/0x14b	Replace Battery	Y	Single Occurrence	Battery, Controller	N	This error code indicates that the batteries have failed a discharge test or have dropped below an acceptable voltage level. Both batteries should be replaced.
332/0x14c	Cache Shrink Attempted After Shutdown Warning	Y	Ignore - see errors during shutdown	None	N	Attempting to shrink write cache with valid writes still in cache.
333/0x14d	Controller Failed	Y	Ignore if recovered with reset	Controller	N	This error code indicates that a controller was discovered to be bad during the poweron process This can be caused by the controller having difficulty in establishing communication. Ignore if recovered by power cycle or reset.
334/0x14e	SIMM Failed	Y	Single Occurrence	SIMM, Controller	N	This error code indicates that a SIMM was discovered to be bad during the poweron process.
335/0x14f	Extended Drive Insertion Event	Y	Ignore unless no operator activity	Disk Drive, Controller, Back End FC Link	N	A backend SCSI channel was held reset longer than the time allowed for a drive hotplug. Probably caused by a partially inserted drive module, a failing drive, a failing controller, or a bent pin on a connector.
336/0x150	Disk Interface State Event	Y	Single Occurrence not with other entries	Controller, disk, disk interface	N	The disk interface controller and/or software state information was incorrect for observed interface activity.
337/0x151	Uncorrectable ECC Error During Initialization	Y	> 1 in 6 months if no operator activity	SIMM, Controller	N	This error code indicates that the system experienced a unrecoverable error - The batteries have been fully discharged. - The batteries were disconnected from the memory - New SDRAM memory was added All other occurance is a true memory error
338/0x152	Correctable ECC Error During Initialization	Y	> 1 in 6 months if no operator activity	SIMM, Controller	N	This error code indicates that the system experienced a correctable memory - The batteries have been fully discharged. - The batteries were disconnected from the memory - New SDRAM memory was added All other occurance is a true memory error
339/0x153	Inter-controller data path error	Y	> 1 in 6 mo.	Controller, midplane	Y	Failure in the test of data movement between controllers over the high-speed bus. This controller has been placed in isolation mode.
340/0x154	Inter-controller address decode error	Y	> 1 in 6 mo.	Controller, midplane	Y	Failure in the test which exercises all address bits while moving data between controllers over the high-speed bus. This controller has been placed in isolation mode.
341/0x155	Inter-controller mirror error	Y	> 1 in 6 mo.	Controller, midplane	Y	Failure in the test which performs mirrored writes and reads of data between controllers over the high-speed bus. This controller has been placed in isolation mode. If this is a transient error, reset or power cycle will recover, otherwise hardware has failed.
342/0x156	controller signature mismatch	Y	probably caused by user action	Controller, Backplane	N	Controller doesn't match signature in midplane EEPROM. The user has probably inserted a controller with a valid image from another enclosure. This controller is in isolation mode.
343/0x157	controller firmware mismatch	Y	probably caused by user action	Controller	N	Firmware on controllers is not identical. This controller is in isolation mode.
344/0x158	remote memory config error	Y		Controller	N	The remote controller reports that it was unable to configure its memory. The local controller is in isolation mode.

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
345/0x159	Bus A TWSI communication failure	Y		Controller, battery, power supply, midplane	Y	Either local controller or remote controller SRAM on two-wire serial bus A could not be accessed for controller sync. Bus B SRAM will be used instead (if Bus B SRAMs are also inaccessible, both controllers will reset and and try again; finally one controller will be disabled and the system will continue in single controller mode)
346/0x15a	Data Loss Detector entry	Y	Indicates multiple failure causing data loss	Disk drive(s)	N	This error code indicates that the data loss detector module was called because of multiple failures. A data loss has occurred.
347/0x15b	Member Disk Drive Added Back Into Disk Set	Y	Ignore - Operator or host activity	None	N	This error code is a system change event indicating that a member of a volume set that was either down, failed, or missing has been returned to the unrestricted use (aka ready) state. This can occur via the add physical drive command, or via hot plug insertion of the drive.
348/0x15c	Frontend Fibre Channel ABTS Event	Y	Ignore	None	N	This error code indicates that the Host sent a Fibre Channel ABTS (Abort Sequence) BLS frame to the abort an IO. The array will log this event for informational and debug purposes only. It does not necessarily indicate a problem with the array.
349/0x15d	Cache Version Mismatch In RAM Image	Y	See errors associated with shut down	None	N	A firmware download has a new version of the cacheVersionNumber. This is OK if there are no writes stuck in cache but it causes upload to fail with this error code if there are writes stuck in cache. To fix this it is necessary to revert to the old version of firmware and solve whatever problem was causing writes to be stuck in cache (probably one or more disks have failed).
350/0x15e	RAM Version Mismatch	Y	N.A.	None	N	The upload routine was unable to upload part of the disk NVRAM image because the current firmware does not support that use of RAM. (Most likely an older version of firmware is trying to upload a disk image posted by some other firmware version.)
351/0x15f	Disk Format Version Mismatch	Y	N.A.	None	N	The NVRAM format of the disks does not match the format used by the controller. This event is logged when an icicle controller attempts to use disks previously shutdown by an Ice controller or visa-versa. The controller cannot use an NVRAM image in the incorrect format.
352/0x160	ShutDown Due To Power Supply Failure	Y	Single Occurrence	Power Supplies, Controller, Backplane	N	This error code indicates that the Background Manager (BGM) has discovered that there are not enough good power supplies to run the system. The BGM is shutting down the subsystem to minimize system operation with inadequate power.The NVRAM is posted to disk.
353/0x161	Recovery from battery backed RAM Loss Started	Y	Single Occurrence	Controller	N	This error code indicates that recovery from a battery backed RAM loss has been initiated.
354/0x162	Recovery from Battery Backed RAM Loss complete	Y	Ignore	None	N	This error code indicates that recovery from a battery backed RAM loss completed with at least partial success. Maps were recovered. Multiple failures may or may not have occurred. Occurrance of multiple failures are reported in the log between the RECOV_STARTED and RECOV_DONE events.
355/0x163	Redundancy corrected	Y	Suspect data if followed by error code 93 (0x5d)	Disk Drive, Back End FC Link, Controller	N	This error code indicates that the parity scan which executes during recovery from RAM loss found an instance of incorrect redundant data. Data which was being updated when RAM was lost may produce this error in single failure scenarios. This error can also result from multiple failure conditions. Firmware differentiates the two scenarios by placing a limit on the number of these conditions which can occur before recovery is terminated due to multiple component failures. If this error is followed by error 93 (0x5d) then the contents of data blocks reported in this error should be considered suspect. The block address of the

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
						error appears in the first 4 bytes of the controller serial number field of this log record. The LUN appears in the fifth byte of the controller serial number, and the length of the affected area in 512 byte blocks appears in the last 3 bytes. The FRU field reports the FRU of the drive corrected.
356/0x164	Local Controller Failed DRAM Address Decode Test	Y	Ignore if recovered by reset or power on	DRAM SIMM, Controller	N	This error code indicates that the DRAM SIMM on the local controller failed the DRAM address decode test during the poweron process. Specifically, the DRAM SIMM on the primary controller failed the decode test.
357/0x165	Remote Controller Failed DRAM Address Decode Test	Y	Ignore if recovered by reset or power on	DRAM SIMM, Controller	N	This error code indicates that the DRAM SIMM on the remote controller failed the DRAM address decode test during the poweron process. Specifically, the DRAM SIMM on the secondary controller failed the decode test.
358/0x166	Controller Failed Background ROM checksum test	Y	Ignore if recovered by reset or power on	ROM, Controller	N	This error code indicates that the ROM on the local controller failed the ROM checksum test done in the background during idle time. The firmware stored in the ROM is corrupted.
359/0x167	Scrub policy detected error	Y	Ignore - should be preceded by Drive errors	Disk drive	N	This error code indicates that an error was returned to the Scrub policy by a device read. It is logged to provide information about the cause of the error. Additional information about the error from the device should precede this entry.
360/0x168	New controller firmware was downloaded	Y	Ignore - Operator activity	None	N	New controller firmware was successfully installed in all controllers present in the subsystem.
361/0x169	Mode Parameters changed	Y	Ignore - Operator activity	None	N	A mode select command was processed and it changed one or more changeable mode parameters in the subsystem.
362/0x16a	Shared memory recovered error	Y	Ignore; other errors will follow if significant	Controller	N	This error code indicates that some non-fatal error appeared in the shared-memory error queue. The two words of this queue entry will be placed in the log entry extended info area.
363/0x16b	Shared-memory controller error	Y	Ignore if recovered by reset or power cycle	Controller	N	This error code indicates that some fatal error appeared in the shared-memory controller error queue. The two words of this error entry will be placed in the event extended info area. After all entries in the queue have been processed, the subsystem will undergo a short reset.
364/0x16c	Shared-memory checksum error	Y	> 1 in 6 mo.	Controller, SDRAM, midplane, disks	N	This error code indicates that a fatal checksum error appeared in the shared-memory controller error queue. The two words of this queue entry will be placed in the event extended info area. After all entries currently in the queue have been processed, the subsystem will undergo a reset.
365/0x16d	Flash failure resulting from command sent to flash	Y	N.A.		Y	This error code results if we get an error during the programming, erasing or reading flash. So if we get any error when commanding flash to perform a task that we interpret as Flash not responding correctly, we will log this error.
366/0x16e	DRAM Checksum failure during download	Y	N.A.		N	If during the download sequence of events we fail the checksum performed in DRAM this error will result. This event occurs before we try to copy to FLASH.
367/0x16f	Flash Checksum failure during download	Y	N.A.		Y	If after copying the download image into the flash part(s) the checksum of the image fails this error will result.
368/0x170	Download Semaphore request failed	Y	N.A.		N	Only one download command from the host can be executed at a time. If a host request for download occurrs while one is already active the redunant requests will get this error.
369/0x171	Download image failed validation	Y	N.A.		N	The download image sent from the host is validated by the Download Sequncer as to it validity. If the data received does not appear to be firmware image then this error will result.
370/0x172	Family Image compare failed	Y	N.A.		N	If the firmware image to be downloaded has a different family image value then the currently running image and this is a online download, then this error will result.
371/0x173	Download failed on slave	Y	N.A.		Y	In a dual controller environment the command to

FC-SCSI Interface Specification Describes the IceCube SCSI interface. Targetted as part of OEM manual.**Disk Array Con**

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Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
	controller					download is sent to one of the controllers. This controller becomes the master of the download process. The other controller becomes the secondary controller (or the controler that just executes the download and reports back to the master.) This error will result if an error occurs on the secondary controller.
372/0x174	Download failed on the master controller	Y	N.A.		Y	In a dual controller environment the command to download is sent to one of the controllers. This controller becomes the master of the download process. The other controller becomes the secondary controller. If it is a single controller environment then the download process see the single controller as the master controller for the download regardless of the slot it exists in. If the download fails on this controller this error will result.
373/0x175	Unused error code	N	N.A.		N	This error code value is unused.
374/0x176	TWSI Event	Y	ignore, unless occurring frequently	Controller, power-supply, battery, midplane	N	This error code indicates that a transaction on one of the two-wire serial buses did not complete successfully. The bus, target device, and fail code will be placed in the extended info area. The bus, controller slot, device address, and fail code will also be placed in the enclosureID, slot, component, and subcomponent fields of the CompID structure respectively.
375/0x177	TWSI Bus Failure	Y			Y	This error code indicates that one of the two-wire serial buses has failed. This log entry should always be preceded by several entries. The bus that failed will be identified in the extended info of the log entry.
376/0x178	Frontend Fibre Channel Event	Y	Ignore	None	N	This error code indicates that the Front End Fibre Channel port had an event that it has logged. Specific information about the event is placed in the extended info area of the log.
377/0x179	Frontend Services Event	Y	Ignore	None	N	This error code indicates that a Front End Services (FES) event has occurred and has been logged. Specific information about the event is placed in the extended info area of the log.
378/0x17a	Recovered Dual Comm Failure	Y			N	This error code indicates that a controller was reset due to a dual-controller communication failure (one in which the two controllers failed to sync) and that the controllers successfully synced after the reset. The comm failure would result from either a transient hardware failure in the shared-memory controller, TWSI, or TSWI SRAM or from a situation where the controllers were not resetting within two seconds of each other.
379/0x17b	Reflection ECC single-bit error overflow	Y		Processor DRAM	Y	This error code indicates that the number of single-bit ecc errors found in processor memory has exceeded the threshold. This threshold is half the number set up in the ECC Single-Bit Trigger register. The idea is to catch a high error rate, log, reset and reload processor memory in hopes of correcting any soft memory errors. If errors are occurring so fast that the count in ECC Single-Bit Trigger reg is exceeded before a periodic scan can discover and log this overflow, a Machine Check will result. The first byte of extended info is the ECC Single-Bit Counter register and the second byte is the ECC Single-Bit Trigger register.
380/0x17c	processor MCP or TEA machine check error	Y		Processor, proc memory bus component	Y	This error code indicates that a processor MCP or TEA fault resulted in a machine check. Information was dumped into nvsram when the error occured and this log entry was generated during the next successful reset. The first four bytes of extended info is the 60x PCI Error Addr. The fifth byte is ErrEnR1. The sixth byte is ErrDR1. The ninth byte

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
						is ErrEnR2. The tenth byte is ErrDR2.
381/0x17d	LCC Installed	Y	Ignore - Operator Activity	LCC, Back End FC Port, Controller	N	This error code indicates the system state change consisting of an LCC hot plug insertion. The device number of the drive added appears in this change record. A device number consisting of the controller serial number followed by a 0 indicates that the device number has not yet been assigned.
382/0x17e	LCC Removed	Y	Ignore unless no Operator activity	LCC, Back End FC Port, Controller	N	This error code indicates the system state change consisting of an LCC hot plug removal. The device number of the lcc removed appears in this change record. A device number consisting of the controller serial number followed by a 0 indicates that the device number has not yet been assigned.
383/0x17f	DDM failed image disks	Y	Ignore unless no Operator activity	disk drives	N	This error code indicates the system could find a usable image disk to reload NVRAM from at system start up.
384/0x180	Battery charger firmware downloader status	Y		battery charger	N	This event is used to report status related to the battery charger firmware download process. See the extended event info field for the actual status.
385/0x181	Failure in TWSI Driver module	Y		Controller, battery, power supply, midplane	Y	2C_DRIVER_FAILURE This error indicates that an attempt to communicate with a two-wire serial device has failed, possibly after multiple retries.
386/0x182	VSC7130 chip failed	Y		VSC7130 Signal Detect / Port Bypass Control chip	Y	The VSC7130 chip used for FC signal detect and port-bypass control has suffered a hardware failure. There is a VSC7130 for the host port and one for the JBOD port. This will result in the controller being failed. See extended information for which 7130 failed.
387/0x183	Internal drive inserted	Y		Disk internal to the controller enclosure	N	An internal disk has been inserted into the enclosure.
388/0x184	Internal drive removed	Y		Disk internal to the controller enclosure	N	An internal disk has been removed from the enclosure.
389/0x185	Internal drive requesting port bypass	Y		Disk internal to the controller enclosure	N	An internal disk is requested that its FC port be bypassed.
390/0x186	Internal drive has stopped requesting port bypass	Y		Disk internal to the controller enclosure	N	An internal disk has stopped requesting that its FC port be bypassed.
391/0x187	Internal drive is indicating a fault	Y		Disk internal to the controller enclosure	N	An internal disk is indicating that it is faulted.
392/0x188	Internal drive is no longer indicating a fault	Y		Disk internal to the controller enclosure	N	An internal disk is no longer indicating that it is faulted.
393/0x189	No GBIC Installed	Y		GBIC port	N	No GBIC is installed on this controller
394/0x18a	GBIC of type MOD DEF 4 Installed	Y		GBIC port	N	A GBIC has been inserted on this controller
395/0x18b	GBIC of type Mod Def 4 Removed	Y		GBIC port	N	A GBIC has been removed from this controller
396/0x18c	GBIC Transmit Fault	Y		GBIC port	N	The GBIC is indicating a transmit fault
397/0x18d	GBIC no longer indicating Transmit Fault	Y		GBIC port	N	The GBIC is no longer indicating a transmit fault
398/0x18e	GBIC Receive Signal Lost	Y		GBIC port	N	The GBIC is indicating that the no receive signal is present
399/0x18f	GBIC no longer indicating Receive Signal Lost	Y		GBIC port	N	The GBIC is no longer indicating that the no receive signal is present
400/0x190	Non-Mod Def 4 GBIC Installed	Y		GBIC port	Y	A non-Module Definition 4 type GBIC has been installed. This GBIC type is not supported and will be disabled. This GBIC will also be marked as failed.
401/0x191	Non-Mod Def 4 GBIC Removed	Y		GBIC port	N	A non-Module Definition 4 type GBIC has been installed. This GBIC type is not supported but will be used anyway.
402/0x192	GBIC EEPROM has failed	Y		GBIC	Y	Unable to communicate with the EEPROM on the GBIC. The EEPROM must be failed.
403/0x193	JBOD FC Signal Detected	Y		JBOD Port	N	An FC signal is now detected on the JBOD port.
404/0x194	JBOD FC Signal Lost	Y		JBOD Port	N	An FC signal is no longer detected on the JBOD

FC-SCSI Interface Specification Describes the IceCube SCSI interface. Targetted as part of OEM manual.**Disk Array Con**

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Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
						port.
405/0x195	Host FC Signal Detected	Y		Host Port	N	An FC signal is now detected on the Host port.
406/0x196	Host FC Signal Lost	Y		JBOD Port	N	An FC signal is no longer detected on the Host port.
407/0x197	Bypassing JBOD FC Port	Y		JBOD Port	N	The JBOD FC port has been bypassed from the FC loop.
408/0x198	Including JBOD FC Port	Y		JBOD Port	N	The JBOD FC port has been included in the FC loop.
409/0x199	Bypassing internal disk FC Port	Y		Internal Disk	N	The disk port specified in the event extended information has been bypassed from the FC loop.
410/0x19a	Including internal disk FC Port	Y		Internal Disk	N	The disk port specified in the event extended information has been included in the FC loop.
411/0x19b	Bypassing Host FC Port	Y		Host Port	N	The Host FC port has been bypassed from the FC loop.
412/0x19c	Including Host FC Port	Y		Host Port	N	The Host FC port has been included in the FC loop.
413/0x19d	VSC055 Initialization Failed	Y		VSC055 IO Expander Chip	Y	An attempt to initialize the VSC055 indicated in the event extended information has failed. The controller will be failed.
414/0x19e	VSC055 Cache Load Failed	Y		VSC055 IO Expander Chip	Y	An attempt to load a cache of data fromt the VSC055 indicated in the event extended information has failed. The controller will be failed.
415/0x19f	VSC055 Write Failed	Y		VSC055 IO Expander Chip	Y	An attempt to write to the VSC055 indicated in the event extended information has failed. The controller will be failed.
416/0x1a0	VSC055 Read Failed	Y		VSC055 IO Expander Chip	Y	An attempt to read from the VSC055 indicated in the event extended information has failed. The controller will be failed.
417/0x1a1	VSC055 Read Failed	Y		VSC055 IO Expander Chip	Y	An attempt to read from the VSC055 indicated in the event extended information has failed. The controller will be failed.
418/0x1a2	VSC055 Cache Flush Failed	Y		VSC055 IO Expander Chip	Y	An attempt to flush cache data to the VSC055 indicated in the event extended information has failed. The controller will be failed.
419/0x1a3	VSC055 Interrupt Clear Failed	Y		VSC055 IO Expander Chip	Y	An attempt to clear an interrupt on the VSC055 indicated in the event extended information has failed. The controller will be failed.
420/0x1a4	Power supply was inserted	Y		Power Supply	N	The power supply has been inserted into the enclosure.
421/0x1a5	Power supply status is GOOD	Y		Power Supply	N	The power supply has changed from a failure state to a good state.
422/0x1a6	Battery manufacture date obtained	Y		NVRAM battery	N	The manfacture date from the battery has been read and stored internally
423/0x1a7	Battery manufacturer name obtained	Y		NVRAM battery	N	The manufacturer name from the battery has been read and stored internally
424/0x1a8	Battery device name obtained	Y		NVRAM battery	N	The device name from the battery has been read and stored internally
425/0x1a9	Charger update function called	Y		NVRAM battery charger	N	The charger's update function has been called for the first time after power on or a system reset
426/0x1aa	Charger current limit set	Y		NVRAM battery charger	N	The NVRAM battery charger circuit has been limited to supply a max value of current to the battery while charging
427/0x1ab	NVRAM charger reset	Y		NVRAM battery charger	N	The NVRAM battery charger was reset
428/0x1ac	NVRAM battery charging enabled	Y		NVRAM battery charger	N	The NVRAM battery charger has been enabled to charge the batteries
429/0x1ad	NVRAM battery charging disabled	Y		NVRAM battery charger	N	The NVRAM battery charger has been disabled from charging the batteries
430/0x1ae	NVRAM battery backing up memory enabled	Y		NVRAM battery charger	N	The NVRAM battery has been enabled to backup memory in case of a power loss
431/0x1af	NVRAM battery backing up memory disabled	Y		NVRAM battery charger	N	The NVRAM battery has been disabled from backing up memory in case of power loss
432/0x1b0	NVRAM battery reconditioning is being started	Y		NVRAM battery charger	N	The NVRAM battery charger has been issued a command to start the reconditioning of a battery.
433/0x1b1	NVRAM battery reconditioning is being stopped	Y		NVRAM battery charger	N	The NVRAM battery charger has been issued a command to stop the reconditioning of a battery.
434/0x1b2	Battery Manager update function call	Y		NVRAM battery	N	The battery manager update function has been called for the first time after power on or reset
435/0x1b3	NVRAM battery charger in	Y		NVRAM	N	The NVRAM battery charger has been switched to

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
	download mode			battery charger		download mode to update the charger firmware
436/0x1b4	TWSI bus is busy	Y	Ignore, unless occurring frequently	Controller	N	The two-wire serial bus local to the controlle is busy.
437/0x1b5	NVRAM battery not present	Y		NVRAM battery	N	The NVRAM battery charger does not detect the presence of NVRAM battery
438/0x1b6	NVRAM battery failed	Y		NVRAM battery	Y	The NVRAM battery charger has declared the NVRAM battery as failed
439/0x1b7	NVRAM battery not responding	Y		NVRAM battery	Y	The NVRAM battery is not responding to two-wire serial bus commands
440/0x1b8	NVRAM battery reconditioning stopped	Y		NVRAM battery charger	N	The NVRAM battery charger has aborted the reconditioning of a battery
441/0x1b9	NVRAM battery reconditioning started	Y		NVRAM battery charger	N	The NVRAM battery charger has successfully started reconditioning of a battery.
442/0x1ba	Array switched to secure mode	Y		NVRAM battery	N	The array has been switched to secure mode due to the condition of the batteries
443/0x1bb	Array out of secure mode	Y		NVRAM battery	N	The array has been switched out of secure mode since the condition of the batteries do not warrant it anymore
444/0x1bc	Turning on LED due to battery failure	Y		Battery amber LED	Y	The amber LED that indicates battery failure has been turned on due to a battery failure condition. When this log entry is unaccompanied by the log entry, it indicates that the battery management firmware module was unable to communicate with the NVRAM battery. Possible two-wire serial bus communication error.
445/0x1bd	Battery has reached end of life	Y		NVRAM battery	Y	The NVRAM battery internal status indicates that the battery has reached the end of life condition
446/0x1be	NVRAM battery status is LOW	Y		NVRAM battery	N	The status of NVRAM battery is low. This means that the battery charge is less than a specified threshold value
447/0x1bf	NVRAM battery status is GOOD	Y		NVRAM battery	N	The status of NVRAM battery is good. This means that the battery charge is equal or higher than a specified threshold value
448/0x1c0	NVRAM battery status is UNKNOWN	Y		NVRAM battery	N	The status of the NVRAM battery is unknown. This may be due to the firmware not being able to communicate with the battery
449/0x1c1	TWSI bus has been requested by another module	Y	Ignore, unless occurring frequently	Controller, battery, power supply	N	The battery management firmware has received a request from another firmware module to use the two-wire serial bus
450/0x1c2	Unable to communicate with the NVRAM battery charger	Y		Controller, battery	Y	The battery management firmware module is unable to communicate with the NVRAM battery charger. Possible two-wire serial bus communication error
451/0x1c3	NVRAM battery reconditioning done	Y		NVRAM battery charger	N	The NVRAM battery charger has successfully reconditioned a battery
452/0x1c4	NVRAM battery reconditioning status	Y		NVRAM battery	N	The state of the controller and batteries that are checked before a decision is taken on reconditioning
453/0x1c5	EEPROM status is good	Y			N	The eeprom can be communicated with and has valid contents.
454/0x1c6	EEPROM status is "not present"	Y			N	Communication with the eeprom has failed. The module assumes that no hardware is present.
455/0x1c7	EEPROM status is "failed"	Y			Y	The TWSI bus may have failed, the read after a write resulted in inconsistent data, or the crc checksums in a device and it's mirror (if available) are not correct.
456/0x1c8	EEPROM status is "unknown"	Y			N	This can is caused when an TWSI bus command fails. The eeprom is marked as unknown until a retry is done or the TWSI bus reports a hard failure.
457/0x1c9	Invalid state in state machine	Y			Y	This is caused by an invalid state in an eeprom state machine. If this error is found, there is a bug in the firmware which must be fixed.
458/0x1ca	TWSI Request Failure	Y		Controller, battery, power supply, midplane	Y	The two-wire serial bus module would not allow the read or write request. This is usually due to a bus failure.
459/0x1cb	TWSI Read Failure	Y		Controller, battery, power supply, midplane	Y	The two-wire serial bus module retried the read and was either not able to get a response from the device, the transaction failed, or the bus failed. In the case of a bus failure, the bus was good at the time the read request was made. Now it has failed.

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
460/0x1cc	TWSI Write Failure	Y		Controller, battery, power-supply, midplane	Y	The two-wire serial bus module retried the write and was either not able to get a response from the device, the transaction failed, or the bus failed. In the case of a bus failure, the bus was good at the time the read request was made. Now it has failed.
461/0x1cd	TWSI transmit Failure	Y		Controller, battery, power supply, midplane	Y	The two-wire serial bus module retried the transmit and was either not able to get a response from the device, the transaction failed, or the bus failed. In the case of a bus failure, the bus was good at the time the read request was made. Now it has failed.
462/0x1ce	EEPROM now present	Y			N	The eeprom was marked as not present because of "no hardware" status from the TWSI module. Upon further attempts to communicate, the device is now responding.
463/0x1cf	EEPROM new status	Y			N	The status (GOOD, NOT_PRESENT, FAILED, CRITICAL) has changed.
464/0x1d0	EEPROM Selftest Passed	Y		Midplane	N	The eeprom selftest was able to verify that the midplane eeproms are mirrored.
465/0x1d1	EEPROM Selftest Failed	Y		Midplane	Y	The selftest of the mirrored eeproms detected the data was not identical between the pair. An attempt to fix this inconsistancy failed.
466/0x1d2	EEPROM Read Failed	Y		Midplane	Y	The firmware was not able to read correctly from either of the mirrored midplane eeproms.
467/0x1d3	EEPROM Write Failed	Y		Midplane	Y	The firmware was not able to read correctly from either of the mirrored midplane eeproms.
468/0x1d4	EEPROM not mirrored	Y		Midplane	Y	The firmware was not able to read or write correctly from one of the mirrored midplane eeproms. The system is no longer fully redundant.
469/0x1d5	EEPROM can not get wwn	Y		Midplane	Y	During a request for a new lun WWN, the firmware was not able to read from either of the midplane eeproms. This is can be due to a variety of TWSI failures or the eeprom failing. The eeprom can only create 2,000 trillion (2 quadrillion) LUN's. If this limit has been exceeded, the midplane must be replaced.
470/0x1d6	Firmware clone complete	Y		N.A.	N	Cloning of firmware to the other controller has completed.
471/0x1d7	Firmware clone failed.	Y	Controller or midplane	N.A.	N	Cloning of firmware to the other controller has failed.
472/0x1d8	VSC7130_INT_DISABLE_EH	Y		VSC7130 Signal Detect / Port Bypass Control chip	Y	We've exceeded the maximum number of retries in attempting to clear a VSC7130 signal detect interrupt. The interrupt is being disabled to allow other TWS devices sharing the interrupt line to be able to generate interrupts. When this condition exists, the controller will not be able to respond to JBOD cable insertion and removal instantaneously, instead it will take up to five seconds to recognize the state change. This condition generally indicates bad FC conditions or a problem with the 7130.
473/0x1d9	LCC_DEVICE_STATE_INVALID_EH	Y		LCC/ESD	N	Happens when a JEM is no longer allowed to send requests to an LCC its retries are zeroed. The current outstanding I/O may complete but no additional I/O will be started.
474/0x1da	LCC_EVENT_EH	Y		LCC/ESD	N	Status of elements as well as information on the LCC.
475/0x1db	LCC_DATA_LENGTH_ERROR_EH	Y		LCC/ESD	N	The amount of data sent by the LCC was not what was expected or calculated.
476/0x1dc	LCC_NOT_SUPPORTED_ERROR_EH	Y		LCC/ESD	N	Data that was received from the LCC was not supported. e.g. LCC F/W not supported or a NEW element type is not supported by the array F/W.
477/0x1dd	LCC_RETRIES_EXCEEDED_EH	Y		LCC/ESD	N	The retries for an I/O have been exceeded.
478/0x1de	LCC_ELEMENT_EXCEEDED_MAX_EH	Y		LCC/ESD	N	The number of elements ,for a specific element type, exceeded the maximum allowed. (e.g. Disk element type reports 60 drives in a single JBOD)
479/0x1df	LCC_STORAGE_EXCEEDED_EH	Y		LCC/ESD	N	Exceeded element or status storage space.
480/0x1e0	LCC_JEM_DELETE_DONE_	Y		LCC/ESD	N	Topology Manager requested a delete of a JEM.

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
	EH					The JEM object has completed its deletion.
481/0x1e1	LCC_JEM_DELETE_PENDING_EH	Y		LCC/ESD	N	Topology Manager requested a delete of a JEM when the JEM has an outstanding I/O. The deletion is pending on the completion/failure of the outstanding I/O. Any qued I/O would be aborted.
482/0x1e2	TWSI bus retry	Y	Ignore, unless occurring frequently.	Controller, midplane, power supply, battery	N	A transaction on the two-wire serial bus failed and was retried.
483/0x1e3	Keyswitch error	Y		Keyswitch circuitry	Y	This error code indicates that a controller was removed from the system without generating a park interrupt to the remaining controller when inter-controller communication was enabled. The operating state of the logging controller is placed in the extended info area. If the removed controller was in use, the remaining controller will go through a short reset after logging this error.
484/0x1e4	Power-on reset	Y		controller	N	This event code indicates that a controller went through a power-on reset. This is a normal power-on condition.
485/0x1e5	Hot plug reset	Y		controller	N	This event code indicates that a controller reset was initiated due to a controller insertion or removal.
486/0x1e6	Heartbeat timeout reset	Y		controller	N	This event code indicates that a controller reset was initiated due to a controller heartbeat timeout. One of the controllers in the system failed to check-in with the controller heartbeat checking module.
487/0x1e7	software fault reset	Y		controller	N	This event code indicates that the firmware performed an illegal action which resulted in a software fault and reset.
488/0x1e8	hardware fault reset	Y		controller	N	This event code indicates that the hardware performed an illegal action which resulted in a hardware fault and reset. This could mean that the hardware generated an unrecognized interrupt vector or that the shared-memory controller detected an internal error.
489/0x1e9	abterm reset	Y		controller	N	This event code indicates that the controller reset due to an abnormal termination in the firmware.
490/0x1ea	front panel reset	Y		controller	N	This event code indicates that the controller reset due to a request through the front panel.
491/0x1eb	host reset	Y		controller	N	This event code indicates that the controller reset due to a request from the host.
492/0x1ec	firmware download reset	Y		controller	N	This event code indicates that the controller reset due to the completion of a successful firmware download.
493/0x1ed	controller failover reset	Y	replace the failed controller	controller	Y	This event code indicates that the controller reset due to the failure of the other controller in the enclosure.
494/0x1ee	memory error reset	Y		controller	N	This event code indicates that the controller reset due to a memory error.
495/0x1ef	dual controller comm failure	Y	Ignore unless a dual controller system is in a communication failure state	controller	Y	This event code indicates that the controller reset due to a dual controller communication failure. If the controllers are able to communicate after the reset, this error can be ignored.
496/0x1f0	Controller Removed	Y		controller	N	This event code indicates that the controller was removed from the enclosure with the power on. This is a normal entry for a controller that was hot-removed previously.
497/0x1f1	reset requested by other controller	Y		controller	N	This event code indicates that the controller reset due to a reset request from the other controller.
498/0x1f2	Shared-memory error reset	Y		controller	N	This event code indicates that the controller reset in order to recover from an error detected in shared memory.
499/0x1f3	Controller reset	Y		controller	N	This event code indicates that the controller reset for an unknown reason.
500/0x1f4	Current mode parameters were saved	Y		controller	N	This event code indicates that the current mode parameters were saved to the saved mode parameters without changing them.
501/0x1f5	Unsupported mode parameter region revision	Y		controller	N	An access to the mode parameter region of the chassis NV memory found data with a format

FC-SCSI Interface Specification Describes the IceCube SCSI interface. Targetted as part of OEM manual.**Disk Array Con**

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Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
						revision that is unsupported by this firmware.
502/0x1f6	Enclosure NV memory contains an invalid mode parameter	Y		controller	N	During an upload of enclosure-specific mode parameters from enclosure NV memory, an invalid value was found. A default value for this parameter is being substituted.
503/0x1f7	Enclosure Power Switch Pressed	Y		enclosure	N	The enclosure power switch has been pressed.
504/0x1f8	Event Log uploaded	Y		controller	N	The event log data prior to this entry has been uploaded from an image copy (due to invalid NVRAM). There has been an unknown amount of elapsed time after uploaded log entries that is not accounted for in the current system time. Following this entry and prior to the LOG_UPLOAD_DONE entry are any events logged prior to the upload. Times for those events will not be consistent with any other log entries, but will be internally consistent.
505/0x1f9	Event Log upload complete	Y		controller	N	The event log data prior to this entry and following the entry have occurred prior to the upload of the event log image. These entries have been recorded with a system time that is not consistent with the uploaded entries, or the time in this entry and those following it.
506/0x1fa	Power Supply EEPROM Failed	Y		Power Supply	Y	Unable to communicate with the power supply EEPROM. It is assumed to be failed. The power supply must be replaced.
507/0x1fb	Temperature Sensor Failed	Y		Controller	Y	A write/read to/from the Temperature sensor failed.
508/0x1fc	format subsystem reset	Y		controller	N	This event code indicates that the controller reset due to a format subsystem command.
509/0x1fd	Miscompare during midplane EEPROM selftest	Y		midplane	Y	This event code indicates that the data on the two eeproms at a given location was different. This problem is usually fixed if the firmware can write to the eeproms.
510/0x1fe	FC Signal Detect Interrupt	Y		VSC7130 PBC / Dual Repeater Chip	N	An interrupt on one of the VSC7130 port-bypass control / signal detect chips has occurred. See the extended information for details.
511/0x1ff	Dual-controller clock sync error	Y		controller	N	An interrupt from the shared-memory controller reported the controller clocks were more than 1 tick out of sync with each other.
512/0x200	Event Log copy from NVSRAM start	Y		controller	N	Following this entry, events are being added to the log from NVSRAM entries that were written when the log memory was not available. The time and sequence numbers for these entries may not be valid. Some normal entries may be interleaved with these entries. The completion of the additions will be noted by a corresponding event log system event.
513/0x201	Event Log copy from NVSRAM complete	Y		controller	N	The addition of entries from NVSRAM to the controller log has been completed. The time and sequence numbers for those entries may not be valid. Some normal entries may be interleaved with those entries. The start of the additions should have been noted by a corresponding event log system event.
514/0x202	Power supply failure	Y		Power Supply	Y	Indicates the output voltages supplied by the power supply have dropped below or raised above their normal operating ranges. This can be ignored if seen after a sudden power loss, or when unplugging, plugging in, removing, or inserting power supplies.
515/0x203	Cannot communicate with the power supply expander	Y		Power Supply	Y	The communication with the power supply expander was not successful
516/0x204	The power supply eeprom had an error	Y		Power Supply	Y	The EEPROM update function returned an error
517/0x205	The power supply blower had an error	Y		Power Supply	Y	The Blower update function returned an error
518/0x206	The over voltage error bit is set	Y		Power Supply	Y	The over voltage error bit is set in the power supply expander
519/0x207	The over current error bit is set	Y		Power Supply	Y	The over current error bit is set in the power supply expander

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
520/0x208	The over temperature error bit is set	Y		Power Supply	Y	The over current error bit is set in the power supply expander
521/0x209	The under voltage error bit is set	Y		Power Supply	Y	The under voltage error bit is set in the power supply expander
522/0x20a	Dram text area cksum error	Y		Controller	Y	The DRAM Text area checksum does not match the checksum calculated during initialization. A bgm timer polls to check the CKSUM once every hour.
523/0x20b	Software address warning	Y		Controller	N	This warning indicates that there is switch conflict in the JBOD enclosures. Two or more enclosure switches are set to the same address.
524/0x20c	LCC switch address warning	Y		Controller	N	This warning indicates that there is an LCC switch mismatch within a JBOD enclosures.
525/0x20d	Power supply not present	Y		Power Supply	Y	This warning indicates that the power supply is not present
526/0x20e	Map Disk Event	Y		Controller	N	This error code indicates that the Topology Manager MAP DISK code had an event that it has logged. The defined events are REDUNDANT MAP DISKS, MAP_DISK_REDUNDANCY_LOSS, and NO_MAP_DISKS.
527/0x20f	Battery NVRAM backup command	Y		NVRAM battery charger	N	The command sent to enable or disable the batteries from backing up the NVRAM has failed.
528/0x210	Unsupported host port behavior table revision	Y	Ignore	None	N	The host port behavior table that was read from chassis NV memory contains an unsupported revision value. The RAM-based table will be initialized as empty.
529/0x211	Host Port Behavior table was initialized as empty	Y		None	N	The host port behavior table was initialized as empty due to a failure to read the contents from chassis NV storage.
530/0x212	Firmware download failed	Y	Ignore. These should be detected by the download utility.	none	N	A firmware download operation failed. The details of the failure are included in the event unique section of the event and other events logged in conjunction with this one.
531/0x213	AutoFormat Event Occured	Y	Ignore unless no Operator activity	Disk Drive, Back End FC Link	N	An AutoFormat event was logged, this is caused either by a backend format of an internal drive beginning or completing. Look as the associated data for drive and status.
532/0x214	Power supply is not connected to an AC source	Y		Power Supply	Y	This warning indicates that the power supply is not connected to an AC source.
533/0x215	Some non-critical midplane eeprom data was not restored.	Y		Midplane EEPROM	N	This warning indicates that some non-critical eeprom data was not restored during the automatic restore process. The user should be able to replace this data by hand. (Licenses, mode parms, Host port behavior, etc.
534/0x216	Automatic midplane repair failed.	Y		Midplane EEPROM	Y	This warning indicates the automatic midplane eeprom repair process has failed because of bad NVSRAM data. The repair can not be done.
535/0x217	Temp sensor exceeded warning temperature.	Y		Controller Temp Sensor	Y	The temperature sensor has exceeded the recommended temperature for asserting an over-temp warning.
536/0x218	Temp sensor exceeded shutdown temperature.	Y		Controller Temp Sensor	Y	The temperature sensor has exceeded the recommended temperature for issuing a controller shutdown.
537/0x219	Temp sensor is now in range.	Y		Controller Temp Sensor	N	The temperature sensor had exceeded the recommended temperature for asserting a warning. The temperature has now come back down within range. There is 3 degrees C of hysteresis.
538/0x21a	Disk interface online.	Y	Ignore	Disk interface	N	A disk interface has come online and is functional. This occurs normally during reset or reconfiguration (hotplug).
539/0x21b	Disk interface device discovered.	Y	Ignore	Disk interface	N	A device has been discovered on a disk interface during reset or reconfiguration (hotplug). This is normal.
540/0x21c	Disk interface device logout	Y	Ignore	Disk Interface	N	The login to a device on a disk interface has been closed. This occurs normally during reconfiguration (hotplug).
541/0x21d	Disk interface error count has incremented	Y	Ignore, unless occurring frequently	Disk interface	N	The count of link-level errors on a disk interface has incremented. This can occur under normal circumstances (especially with disk hotplug), so it does not indicate a problem unless it occurs frequently.

FC-SCSI Interface Specification Describes the IceCube SCSI interface. Targetted as part of OEM manual.**Disk Array Con**

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Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
542/0x21e	Disk interface is down	Y	Disk interface, disk or controller	Disk interface	N	A disk interface has been down for longer than the time allowed for normal recovery. Array function will continue without use of this channel. This can be caused by a bad connection to disks (internal or external), or by a failind disk or controller.
543/0x21f	Lost flash log entry	Y	Ignore	Controller flash log	N	This event code should only appear in the flash logs. It indicates that a log entry was lost because the flash log queue was full when a new event arrived to be logged. This is expected to be a normal occurrence, but is logged to show that some information has been lost.
544/0x220	Backend channel hardware failure	Y	Failing controller	Backend channel	N	An error has occurred which indicates that the disk interface electronics is failing. It is also possible that this error could be caused by failing interconnect hardware.
545/0x221	Maintenance reset	Y	Ignore. These occur periodically.	controller	N	This reset is performed periodically to scrub ECC errors from NV memory.
546/0x222	Disk dropped for map data	Y	Failing disk	Disk	N	An error has occurred accessing the map data index region of a map disk and the disk will no longer be used to store map data.
547/0x223	Using spare map disk index region	Y	Failing disk	Disk	N	An error in the primary map disk index data and the spare copy of the data is being used.
548/0x224	Event log structure corrupted	Y		controller	N	The Event log structure in NVRAM was determined to be corrupt. The event log has been reset and any contents have been lost.
549/0x225	Front End FC Link Up Event	Y		controller	N	The Front End Fibre Channel port is now up. The topology that was acquired is in the extended log information.
550/0x226	Front End SCSI Queue Full defected	Y		controller	N	The Front End Fibre Channel port has reached a SCSI QUEUE FULL condition.
551/0x227	Decoder lock exclusive lock grant timed out.	Y	Ignore. Lab only.	none	N	The cross controller lock module failed to grant the decoder's lock in exclusive mode, within the allowed period, after an obtain request was deferred. This may indicate a deadlock in the system or that the system is too busy.
552/0x228	Decoder lock request was deferred.	Y	Ignore. Lab only.	none	N	The cross controller lock module deferred a request to obtain the decoder's lock. This is normal for exclusive acquisition but not for shared acquisition.
553/0x229	Decoder deferred lock request was granted.	Y	Ignore. Lab only.	none	N	The cross controller lock module granted a lock request that had previously been deferred.
554/0x22a	Decoder deferred lock was released.	Y	Ignore. Lab only.	none	N	The sequencer released a decoder lock that was originally deferred when it was requested from the cross controller lock module.
555/0x22b	Disk interface Check-Condition error	Y	Ignore	Disk, LCC, Disk interface	N	A command sent to a device on a disk interface has returned a Check Condition status. This can occur under normal circumstances, so it does not indicate a problem unless it occurs frequently, or if the Sense Data indicates a problem.
556/0x22c	Power Switch Failed	Y	Ignore	Midplane	N	The power switch's redundant switch outputs are inconsistent. To repair this problem, the midplane must be replaced.
557/0x22d	Map disk dropped	Y	Ignore	Disk	Y	The Dump Disk Manager has decided to drop a map disk due to a disk failure or hotplug event. This should normally result in a Map Disk Redudancy Loss warning or No Map Disks warning.
558/0x22e	Map disk added	Y	Ignore	Disk	Y	The Dump Disk Manager has added a map disk.
559/0x22f	Map disk reduplex complete	Y	Ignore	Disk	N	The Dump Disk Manager has finished reduplexing the map disks. This process begins after a disk is inserted and is being set up as the second map disk.
560/0x230	Map disk removed	Y	Ignore	Disk	N	The Dump Disk Manager has removed a map disk.
561/0x231	Backend Disk Initialization Failure	Y	Ignore	Backend Disk	N	One of the backend disks was set to an "Init Failed" state. This could indicate a significant problem with the disk, or simply that it needs to be formatted.
562/0x232	Backend Invalid BlockSize Disk	Y	Ignore	Backend Disk	N	One of the backend disks was set to an "Init Failed" state because it has an invalid blockSize. This could mean the disk failed a previous format (0-block size) or came new from the factory (512-block size).

Event Number (dec/hex)	Event Name	Logged?	Predictive Maintenance Implication	Suspected Components	Mfg Fail?	Description
						The actual blockSize is output in the verbose log eventInfo.
563/0x233	PDM Add	Y	Ignore	Disk	N	A PDM has been added for the specified device. This could mean that a previously downed drive is being re-added, or that a PDM was added for a newly added drive.
564/0x234	Disk Redundant Path Found	Y		Disk	N	A redundant path to an already known drive has been discovered.
565/0x235	Disk Redundant Path Lost	Y		Disk	N	A redundant path to an already known drive has been lost.
566/0x236	State Changing Start	Y			N	The state changing bit has been asserted.
567/0x237	State Changing End	Y			N	The state changing bit has been deasserted.
568/0x238	Disk Driver Created	Y			N	A PDD (proxy and real) has been instantiated for a disk.
569/0x239	Disk Driver Deleted	Y			N	A PDD (proxy and real) has been destroyed for a disk.
570/0x23a	Hot Plug Event	Y			N	A generic hot plug event occurred. See the event unique description for more information.
571/0x23b	New Device Found	Y			N	A new device was discovered by CFMhot.
572/0x23c	Old Device Lost	Y			N	A device CFMhot already knew about has disappeared.
573/0x23d	Warning Indicator Activated	Y			N	One of the warning indicators has been actviated. Check the extended event information for more information.
574/0x23e	Warning Indicator Deactivated	Y			N	One of the warning indicators has been deactviated. Check the extended event information for more information.
575/0x23f	PDM Label Table Mismatch	Y			N	A PDM, during instantiation, came up with different basic information. One possible cause is downloading unsupported mech FW that doesn't conform to the required capacity point for drive category.
576/0x240	Uploaded mode parms were defaulted	Y	NA	None	Y	The midplane EEPROM mode parameters region contains a revision that is older than the revision expected by current firmware. As a result, some mode parameters were set to their default values since there was no saved value present in the EEPROM.
577/0x241	Start multi disk loss scan	Y	Ignore. should be other prior failure events	controller	N	A backend scan was started to detect a multiple disk loss condition because of a raid 5 DP write failure. If a multiple disk loss is detected, raid 5 DP writes will not be allowed to proceed. Another log entry will indicate if the condition is detected. No additional entry will be made otherwise.
578/0x242	Multi disk loss detected	Y	Ignore. should be other prior failure events	controller	N	A multiple disk loss was detected. Raid 5 DP writes will not be processed until this condition is cleared.
579/0x243	Exit multi disk loss reset	Y	Ignore. should be other prior failure events	controller	N	This controller is exiting from the excessive disk missing condition. Enough of the missing disks have been restored to attempt normal operations.
580/0x244	Policy generated relocation error	Y	NA	None	Y	A policy sponsored data relocation failed.
581/0x245	Insufficent space for policy relocation	Y	NA	None	Y	There is not enough space to perform a policy sponsored relocation.
582/0x246	Frontend Fibre Channel Hung Port Event	Y	Ignore	None	N	This error code indicates that the Front End Fibre Channel port appears to be in a HUNG state. The port will be reset in an attempt to recover from the event. Additional information about the event is placed in the extended info area of the log.
583/0x247	DDM Disk Change Event	Y	Ignore	None	N	This error is being used to indicate (in the extended info field) changes in Dump Disk Manager disk change event processing. This code should be removed before release.
584/0x248	Repair of corrupted eeprom done.	Y	Ignore	Controller EEPROM	N	The eeprom region located at 0 or 48 was corrupted and repaired with it's backup copy at 48 or 0 respectively.