Defects=0, Enhancements=0 (Version Change Only)

Change Summary (Defects=1)

SCGCQ00549321 (CSET) - 4k sector size drives with 512e reporting enabled show wrong physical size when issueing a read capacity 16 command.

Total Defects Resolved (1)

(SCGCQ00549321 - Port of SCGCQ00549318)	*Defect 1/1*
HEADLINE:	4k sector size drives with 512e reporting enabled show wrong physical size when issueing a read capacity 16 command.
DESC OF CHANGE:	modified block size handler to use correct byte order when the above condition exists
TO REPRODUCE:	connected a 4k sector size drive volume to a controller with 512e reporting enabled and issue a read capacity 16 command.
ISSUE DESC:	a 4k sector size drive with 512e reporting enabled show 32k physcial sector size instead of 4k sector size when issued a read capacity 16 command.

Change Summary (Defects=1)

SCGCQ00518382 (DFCT) - Add Locale, class and ArgType for the Log codes.

Total Defects Resolved (1)

(SCGCQ00518382)	*Defect 1/1*
HEADLINE:	Add Locale, class and ArgType for the Log codes.
DESC OF CHANGE:	Added Locale, class and ArgType for the new Log codes.
TO REPRODUCE:	Generate log codes.
ISSUE DESC:	Update the Event Description structure with ArgType, Class and Locale for the following log codes. IOPI_LOG_CODE_PI_ERROR IOPI_LOG_CODE_PD_DFU_MODE_ENABLED IOPI_LOG_CODE_PD_DFU_MODE_DISABLED IOPI_LOG_CODE_GUID_MISMATCH IOPI_LOG_CODE_GSN_MISMATCH

Change Summary (Defects=9 Enhancements=1)

SCGCQ00466709 (DFCT) - Gen2 - Negotiated link speed for a 6G drive when connected to Cobra Expander (EDFB/Databolt enabled phy's) comes as 12G

SCGCQ00501272 (DFCT) - pl SATL: Incorrect SAT error translation observed during Writesame command execution

SCGCQ00501322 (DFCT) - (Sata Only) Multiple 'Write Verify' SCSI commands with zero data length leads to f/w fault.

SCGCQ00501346 (DFCT) - Information field is incorrectly populated for Verify command when accessing out of range LBA

SCGCQ00504621 (DFCT) - NVDATA - Remove unused 9207-8e NVDATA file

SCGCQ00445337 (DFCT) - Direct attached IBM SATA SSD drive is not getting detected

SCGCQ00486233 (DFCT) - Speed Negotiation for 3Gig SATA drives is not handled properly

SCGCQ00478540 (CSET) - Added Support for Report Luns Command

SCGCQ00505107 (CSET) - Drive drops while running Hard Reset Test.

SCGCQ00518763 (CSET) - IOC Init Multiple reply descriptor post queue host addresses

Total Defects Resolved (9)

(SCGCQ00466709)	*Defect 1/9*
HEADLINE:	Gen2 - Negotiated link speed for a 6G drive when connected to Cobra Expander (EDFB/Databolt enabled phy's) comes as 12G
DESC OF CHANGE:	12G EDFB link speed was not handled properly in the Gen 2 FW. So I have added the code to handle a EDFB enhanced link speed and display the correct supported link speed.
TO REPRODUCE:	1) Connect a 6G drive to Cobra Expander 2) View the link speed from BIOS or dump the config page and read the expander pages
ISSUE DESC:	When Gen 2 controller connected to a 6G drive via Cobra expander , negotiated speed was observed 12G, which is EDFB enhanced speed. But a gen 2 controller only supports link speed upto 6 G.

(SCGCQ00501272)	*Defect 2/9*
HEADLINE:	pl SATL: Incorrect SAT error translation observed during Writesame command execution
DESC OF CHANGE:	During Writesame command execution, LBA out of range error was not handled properly. I have added a LBS out of range error check to report LBA out of range correctly.
TO REPRODUCE:	1) Send a Writesame16 command to the Last LBA with No of logical blocks =2 2) Observe the error reported by FW
ISSUE DESC:	During Writesame command execution, LBA out of range error was not handled properly due to that Incorrect SAT error translation was observed during Writesame command execution.

(SCGCQ00501322)	*Defect 3/9*
HEADLINE:	(Sata Only) Multiple 'Write Verify' SCSI commands with zero data length leads to f/w fault.
DESC OF CHANGE:	A check for 'data length' field of MPI message was added to function handling translation for 'Write Verify' command which completes the command successfully in case data length was zero.
TO REPRODUCE:	Send multiple 'Write Verify' SCSI command to a SATA drive with non zero transfer length in CDB and data length set to zero in MPI message. A F/w fault (0x4203 or 0x4C31) is observed.
ISSUE DESC:	Multiple 'Write Verify' command send to a SATA drive with 'Transfer Length' field in CDB set to a non zero value and 'Data Length' field in MPI message set to 0 leads to f/w fault. Write verify translation was sending Write command and keeping verify in callback stack. The function handling Write was checking for 'data length' field in MPI message and completing it successfully in case it was zero without calling the callback function or clearing the stack. This leads to either callback stack getting full or causing SATA translation of other SCSI commands behave erratically and leading to f/w fault in both cases.

(SCGCQ00501346)	*Defect 4/9*
HEADLINE:	Information field is incorrectly populated for Verify command when accessing out of range LBA
DESC OF CHANGE:	Added Information field if LBA found is out of range .
TO REPRODUCE:	Send Verify(10) command to the last LBA with Verification length field set to 2
ISSUE DESC:	Information field is incorrectly populated for Verify command when accessing out of range LBA.

(SCGCQ00504621)	*Defect 5/9*
HEADLINE:	NVDATA - Remove unused 9207-8e NVDATA file
DESC OF CHANGE:	Removed unused 9207-8e NVDATA pre-production version.
TO REPRODUCE:	Observe 9207-8e NVDATA file in release. There are 2 versions.
ISSUE DESC:	This file should be removed to avoid customer confusion with production version.

(SCGCQ00445337)	*Defect 6/9*
HEADLINE:	Direct attached IBM SATA SSD drive is not getting detected
DESC OF CHANGE:	To fix this issue requires changes in SataLockControl and SataLockDef settings which in turn requires considerable amount of testing on as many different drives as possible. There are chances of emerging new problem if we miss some thing during validation. Considering these facts we are marking this defect as Not Fixed.

TO REPRODUCE:	Attach an IBM STEC SSD 1.5G drive directly to SAS2 controller.
ISSUE DESC:	Direct attached IBM STEC SATA SSD 1.5G Drive is not getting detected.

(SCGCQ00486233)	*Defect 7/9*
HEADLINE:	Speed Negotiation for 3Gig SATA drives is not handled properly
DESC OF CHANGE:	To fix this issue requires changes in SataLockControl and SataLockDef settings which in turn requires considerable amount of testing on as many different drives as possible. There are chances of emerging new problem if we miss some thing during validation. Considering these facts we are marking this defect as Not Fixed.
TO REPRODUCE:	Connect a direct attach SATA 3G drive to the controller and do phy offline and phy online.
ISSUE DESC:	When SATA drives of 3 Gig are connected directly to the controller, and when phy offline and phy online is performed on the connected drives,the controller renegotiates 1.5 G speed with the drive.

(SCGCQ00478540 - Port of SCGCQ00380252)	*Defect 8/9*
HEADLINE:	Added Support for Report Luns Command
DESC OF CHANGE:	Added Support for Report Luns Command
TO REPRODUCE:	Issue a Report Luns Command
ISSUE DESC:	Report Luns was previously not suppported

(SCGCQ00505107 - Port of SCGCQ00481408)	*Defect 9/9*
HEADLINE:	Drive drops while running Hard Reset Test.
DESC OF CHANGE:	Don't allow SMP failures internal to the chip to be considered a real SMP failure.
TO REPRODUCE:	While running IOs, do hard phy resets. If a link reset to the expander occurs at just the right time during discovery, discovery may fail and mark the expander missing.
ISSUE DESC:	An SMP failure on SMP_REPORT_PHY_SATA can incorrectly cause an expander to be marked missing.

Total Enhancements Implemented (1)

(SCGCQ00518763 - Port of SCGCQ00475659)	*Enhancement 1/1*
HEADLINE:	IOC Init Multiple reply descriptor post queue host addresses
NEW FUNCTIONALITY:	Added support for the Reply Descriptor Post Queue array feature in MPI which allows host drivers to allocate discontiguous reply descriptor post queues in host memory. A restriction exists which requires the host to allocate every 8 queues within the same 4GB system memory region (the upper 32 bits must match).

Change Summary (Defects=1)

SCGCQ00487555 (DFCT) - Parameter list length field value is populated wrong value in Security Protocol IN Command

Total Defects Resolved (1)

(SCGCQ00487555)	*Defect 1/1*
HEADLINE:	Parameter list length field value is populated wrong value in Security Protocol IN Command
DESC OF CHANGE:	Changed the parameter list length field to 0xE as per the document SAT3R03 for Security IN command with Security protocol Field 0xEF.
TO REPRODUCE:	1) Connect Security Supported Sata Drive to the Controller. 2) Issue Security Protocol IN Command to Connected Security Supported Drive. sg_raw /dev/sdb a2 ef 00 00 00 00 00 00 00 10 00 00 -v -r 16 Actual Result: Parameter list length value is showing 0D in Security Protocol IN Parameter Data. Expected Result: PLL Value should be 0E as per SAT3R03 table 160.
ISSUE DESC:	when we sent a security IN command (Security protocol Field 0xEF and allocation length as 10) to a Security feature set supported drive (ST33000650NS) on a Gen 2 controller. The parameter list length field is populating with data 0D as per SAT2R09 Table 129 instead of 0E (SAT3R03 Table 160).

Change Summary (Enhancements=8)

SCGCQ00385306 (ENHREQ) - Allow Protection Information bit for IR Volume Create
SCGCQ00415512 (ENHREQ) - MPI 2.5: Toolbox Console Text Display Tool
SCGCQ00438437 (ENHREQ) - MPI 2.5: obsolete SAS IO Unit Control _TRANSMIT_PORT_SELECT_SIGNAL
SCGCQ00466819 (ENHREQ) - MPI 2.5: IOCInit multiple Reply Descriptor Post Queue addresses
SCGCQ00469990 (ENHREQ) - MPI 2.5: Signed images for FWDownload
SCGCQ00471293 (ENHREQ) - MPI 2.5: obsolete "Limit SATA max rate to 1.5 Gbps"
SCGCQ00477817 (ENHREQ) - MPI 2.5: add reserved fields to IO Unit Page 7 for future use
SCGCQ00457820 (CSET) - OEM Specific: Update NVDATA Mfg Page 11 to enable Write Same foreground operation

Total Enhancements Implemented (8)

(SCGCQ00385306)	*Enhancement 1/8*
HEADLINE:	Allow Protection Information bit for IR Volume Create
NEW FUNCTIONALITY:	Added Allow Protection Information bit for MPI2_RAID_ACTION_CREATE_VOLUME Action.

(SCGCQ00415512)	*Enhancement 2/8*
HEADLINE:	MPI 2.5: Toolbox Console Text Display Tool
NEW FUNCTIONALITY:	Added Toolbox Console Text Display Tool that allows the host to provide a string for the IOC to display on one of its consoles.

(SCGCQ00438437)	*Enhancement 3/8*
HEADLINE:	MPI 2.5: obsolete SAS IO Unit Control _TRANSMIT_PORT_SELECT_SIGNAL
NEW FUNCTIONALITY:	MPI2_SAS_OP_TRANSMIT_PORT_SELECT_SIGNAL is not supported in MPI v2.5 or later.

(SCGCQ00466819)	*Enhancement 4/8*
HEADLINE:	MPI 2.5: IOCInit multiple Reply Descriptor Post Queue addresses
NEW FUNCTIONALITY:	Added optional functionality to IOCInit Request so that the host may specify a separate base address for each Reply Descriptor Post Queue. IOC support for this is indicated using a new IOCCapabilities bit in the IOCFacts Reply.

(SCGCQ00469990)	*Enhancement 5/8*
HEADLINE:	MPI 2.5: Signed images for FWDownload
NEW FUNCTIONALITY:	For security purposes, firmware images can now be signed using an encrypted hash.

(SCGCQ00471293)	*Enhancement 6/8*
HEADLINE:	MPI 2.5: obsolete "Limit SATA max rate to 1.5 Gbps"
NEW FUNCTIONALITY:	Bit 13 of the SAS IO Unit Page 1 ControlFlags field is now obsolete. It was used to enable limiting direct attached SATA maximum link rate to 1.5 Gbps.

(SCGCQ00477817)	*Enhancement 7/8*
HEADLINE:	MPI 2.5: add reserved fields to IO Unit Page 7 for future use
NEW FUNCTIONALITY:	Add reserved fields to IO Unit Page 7 for future use.

(SCGCQ00457820 - Port of SCGCQ00447906)	*Enhancement 8/8*
HEADLINE:	OEM Specific: Update NVDATA Mfg Page 11 to enable Write Same foreground operation
NEW FUNCTIONALITY:	Write same operation is set to foreground.

Change Summary (Defects=7 Enhancements=4)

SCGCQ00471214 (DFCT) - IR did not check for drive size being less than MetaData size, when half a boot volume was present and a 2nd drive was available but too small

SCGCQ00462829 (CSET) - PL: Out of resource conditions may lead to discovery non completion

SCGCQ00466811 (CSET) - Security Protocol In with Security Protocol 0xEF does not retrieve the proper data

SCGCQ00466812 (CSET) - OS hang during install of Linux system to a SSD

SCGCQ00469046 (CSET) - Removed allocation length handling for Read Capacity code

SCGCQ00469049 (CSET) - Removed allocation length compliance code for Request Sense

SCGCQ00470743 (CSET) - PL: Internal structures associated with missing Initiator devices may not be removed

SCGCQ00425011 (ENHREQ) - Provide option to force BGI to always use read-write algorithm to decrease IR init time

SCGCQ00463086 (ENHREQ) - Implementation of SATL handling while the SATA drive is in security 'frozen' state

SCGCQ00451073 (CSET) - PL: Reduce IOC Link Up Initialization Time

SCGCQ00477825 (CSET) - Don't report EEDP errors if there was a transport error that may have caused the EEDP error

Total Defects Resolved (7)

(SCGCQ00471214)	*Defect 1/7*
HEADLINE:	IR did not check for drive size being less than MetaData size, when half a boot volume was present and a 2nd drive was available but too small
DESC OF CHANGE:	Modified the loadInitialData handler to handle not only drives who don't report capacity, but also drives whos reported capacity is less than the metadata size
TO REPRODUCE:	Create an IR boot volume, let it fully resync turn off the machine remove one drive from the volume and attach a 2nd one whos capacity is less than 512MB
ISSUE DESC:	IR attempted to bring a 2nd drive into the volume when the volume was partially present and optimal, but the 2nd drive was too small for use, this caused a math error when it tried to figure out how much space was available.

(SCGCQ00462829 - Port of SCGCQ00435398)	*Defect 2/7*
HEADLINE:	PL: Out of resource conditions may lead to discovery non completion
DESC OF CHANGE:	Out of resource conditions as they relate to many Discovery events are now tracked on a port basis. Discovery will restart for all ports that had been waiting on resources when resources become available.
TO REPRODUCE:	1) Create a topology and environment such that resources will not be available when the discovery module is attempting to send discovery related events. 2) Cause discovery to start on a port 3) Discovery will stop due to an out of resource condition. 4) Cause discovery to start on another port 5) Cause resources to become available, discovery should complete for the port used in step 2. 6) Discovery will never complete for the port used in step 4.
ISSUE DESC:	Discovery may not complete if the discovery process starts after an out of resources condition was encountered during discovery on another port.

(SCGCQ00466811 - Port of SCGCQ00443913)	*Defect 3/7*
HEADLINE:	Security Protocol In with Security Protocol 0xEF does not retrieve the proper data
DESC OF CHANGE:	Changed code to return the proper data
TO REPRODUCE:	Send Security Protocol In command with security protocol 0xEF to a drive that supports the Security Protocol
ISSUE DESC:	Security Protocol In command is not returning the correct data

(SCGCQ00466812 - Port of SCGCQ00463284)	*Defect 4/7*
HEADLINE:	OS hang during install of Linux system to a SSD
DESC OF CHANGE:	Modified some values reported to the host that allowed the OS to perform more efficient unmap commands.
TO REPRODUCE:	Install linux OS to a SSD device
ISSUE DESC:	Linux OS wasn't sending unmap commands with enough efficiency to allow the install to complete

(SCGCQ00469046 - Port of SCGCQ00468124)	*Defect 5/7*
HEADLINE:	Removed allocation length handling for Read Capacity code
DESC OF CHANGE:	Removed allocation length handling for Read Capacity 16 command
TO REPRODUCE:	Install Windows 2012 UEFI on a system with a IR Volume where the drives are over 2TB
ISSUE DESC:	Windows 2012 drive with UEFI and IR installation requires that Read Capacity 16 command handle an allocation length of zero and still return data

(SCGCQ00469049 - Port of SCGCQ00469044)	*Defect 6/7*
HEADLINE:	Removed allocation length compliance code for Request Sense
DESC OF CHANGE:	Removed SCSI Compliance code for allocation length from SAS2, all of this code should be in SAS3 only
TO REPRODUCE:	Issue a Request Sense command with an allocation length of 1
ISSUE DESC:	allocation length handling has been moved to SAS3 to allow for more test time

(SCGCQ00470743 - Port of SCGCQ00446007)	*Defect 7/7*
HEADLINE:	PL: Internal structures associated with missing Initiator devices may not be removed
DESC OF CHANGE:	Direct attached devices that are missing for which add and missing events have not been sent will have their internal structures removed.
TO REPRODUCE:	1) Configure the controller as an Initiator only device 2) Directly connect a initiator only device to the controller 3) Disconnect the controller SAS Device Page 0 will still be available for the device connected in step 2.
ISSUE DESC:	SAS Device Page 0 may still be present for Initiator devices that have been removed from the topology.

Total Enhancements Implemented (4)

(SCGCQ00425011)	*Enhancement 1/4*
HEADLINE:	Provide option to force BGI to always use read-write algorithm to decrease IR init time
NEW FUNCTIONALITY:	Provided the option to force BGI to always use read-write algorithm.

(SCGCQ00463086)	*Enhancement 2/4*
HEADLINE:	Implementation of SATL handling while the SATA drive is in security 'frozen' state
NEW FUNCTIONALITY:	When a SATA drive is in frozen state, there will not be any translation for the below security protocols of SECURITY Protocol OUT command. - Tape Data encryption - Authentication in Host Attachments of Transient Storage Devices - Device Server Password Security - IEEE 1667 - TCG Instead, SATL will return a CC SCSI_ASC_SECURITY_CONFLICT_IN_TRANSLATED_DEVICE (0x7479).

(SCGCQ00451073 - Port of SCGCQ00414458)	*Enhancement 3/4*
HEADLINE:	PL: Reduce IOC Link Up Initialization Time
NEW FUNCTIONALITY:	This feature requires bit 1 of Man Page 11's AddlFlags2 field to be set. Certain timers used during the discovery process have been reduced for some Link Up events.

(SCGCQ00477825 - Port of SCGCQ00423193)	*Enhancement 4/4*
HEADLINE:	Don't report EEDP errors if there was a transport error that may have caused the EEDP error
NEW FUNCTIONALITY:	If a CRC error occurs before or concurrent with an EEDP error, don't report the EEDP error.