



SCS Engineering Release Notice

NA GCA Release Version 14.00.00.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00300256)

(SCGCQ00300256) - NA GCA Release Version 14.00.00.00-1 -
MPT2SAS LINUX RH SL OEL CTX Phase 14

(SCGCQ00293892) - NA Beta Release Version 13.255.06.00-3 -
MPT2SAS LINUX RH SL OEL CTX Phase 14

(SCGCQ00292339) - NA Beta Release Version 13.255.06.00-2 -
MPT2SAS LINUX RH SL OEL CTX Phase 14

(SCGCQ00289492) - NA Beta Release Version 13.255.06.00-1 -
MPT2SAS LINUX RH SL OEL CTX Phase 14

(SCGCQ00285847) - NA Alpha Release Version 13.255.05.00-1 -
MPT2SAS LINUX RH SL OEL CTX Phase 14

(SCGCQ00280217) - NA Alpha Release Version 13.255.04.00-1 -
MPT2SAS LINUX RH SL OEL CTX Phase 14

(SCGCQ00276179) - NA Alpha Release Version 13.255.03.00-1 -
MPT2SAS LINUX RH SL OEL CTX Phase 14

(SCGCQ00258619) - NA Pre-Alpha Release Version 13.255.01.00-1 -
MPT2SAS LINUX RH SL OEL CTX Phase 14



SCS Engineering Release Notice

NA GCA Release Version 14.00.00.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00300256)

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



SCS Engineering Release Notice

NA Beta Release Version 13.255.06.00-3 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00293892)

Change Summary (Defects=1)

SCGCQ00293674 (DFCT) - Linux driver:Driver instillation failed while doing RPM installation on OEL 5.7 32 bit UEK kernel



SCS Engineering Release Notice

NA Beta Release Version 13.255.06.00-3 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00293892)

Total Defects Resolved (1)

(SCGCQ00293674)		Defect 1/1
HEADLINE:	Linux driver:Driver instllation failed while doing RPM installation on OEL 5.7 32 bit UEK kernel	
DESC OF CHANGE:	The ksyms checking in /usr/lib/rpm/redhat/find-requires.ksyms needs to be bypassed on BLR OEL5 build server.	
TO REPRODUCE:	1) Boot to oel 5.7 UEK kernel 2) install driver kmod-mpt2sas-13.255.06.00-2-oel5.7_UEK.i686.rpm using rpm -ivh	
ISSUE DESC:	The issue is because the on the OEL build server, the ksyms checking is not bypassed in the /usr/lib/rpm/redhat/find-requires.ksyms. If this is not set when building the kmod rpm, while installing the kmod rpm --nodeps option needs to be given.	



SCS Engineering Release Notice

NA Beta Release Version 13.255.06.00-2 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00292339)

Change Summary (Defects=1)

SCGCQ00291668 (DFCT) - Incorrect copy of build kit.



SCS Engineering Release Notice

NA Beta Release Version 13.255.06.00-2 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00292339)

Total Defects Resolved (1)

(SCGCQ00291668)		Defect 1/1
HEADLINE:	Incorrect copy of build kit.	
DESC OF CHANGE:	copy correct build kit from main Build server to respective OS servers.	
TO REPRODUCE:	a)Perform dkms install on rhel5.8 machine and then reboot the system . Following errors are observed during reboot .It says error inserting module: mpt2sas: Unknown symbol mpt2sas_trigger_scsi mpt2sas: Unknown symbol mpt2sas_trigger_event mpt2sas: Unknown symbol mpt2sas_trigger_mpi mpt2sas: Unknown symbol mpt2sas_process_trigger_data mpt2sas: Unknown symbol mpt2sas_trigger_	
ISSUE DESC:	This defect has occurred due to some error while copying build kits from main Build server to respective OS servers.	



SCS Engineering Release Notice

NA Beta Release Version 13.255.06.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00289492)

Change Summary (Defects=2)

SCGCQ00285777 (DFCT) - README.pdf which is part of release is not updated according to the current naming convention of the rpm.

SCGCQ00288449 (DFCT) - When staged discovery is enabled, post diag reset, devices get added, removed and then again added with new target ids.



SCS Engineering Release Notice

NA Beta Release Version 13.255.06.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00289492)

Total Defects Resolved (2)

(SCGCQ00285777)		Defect 1/2
HEADLINE:	README.pdf which is part of release is not updated according to the current naming convention of the rpm.	
DESC OF CHANGE:	Updated the README.pdf according to the current naming convention of the rpm and dud for all kernels it supports.	
TO REPRODUCE:	See the rpms section.	
ISSUE DESC:	README.pdf which is part of release is not updated according to the current naming convention of the rpm.	

(SCGCQ00288449)		Defect 2/2
HEADLINE:	When staged discovery is enabled, post diag reset, devices get added, removed and then again added with new target ids.	
DESC OF CHANGE:	Turn off the code which is deleting and adding devices across host reset when the disable_discovery module parameter is turned on, and the host reset is issued for the first time.	
TO REPRODUCE:	1)Disable the device discovery during driver load time using - "modprobe mpt2sas disable_discovery=1". 2)Issue diag reset. This will cause the driver to send port enable and discover the devices. 3)Notice in the logs that devices are added, removed and then readded.	
ISSUE DESC:	When device discovery is disabled during driver load time using the module parameter "disable_discovery", and a diag reset is issued, from the logs, it is observed that the devices get added, removed and then again added with new target ids.	



SCS Engineering Release Notice

NA Alpha Release Version 13.255.05.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00285847)

Change Summary (Defects=3)

SCGCQ00279155 (DFCT) - Providing a negative value to sdev_queue_depth parameter leads to incorrect queue depth for a SAS drive.

SCGCQ00281893 (DFCT) - Infinite TUR command retries happen when a bad drive is connected

SCGCQ00282024 (DFCT) - Staged Device Discovery functionality of driver not working



SCS Engineering Release Notice

NA Alpha Release Version 13.255.05.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00285847)

Total Defects Resolved (3)

(SCGCQ00279155)		Defect 1/3
HEADLINE:	Providing a negative value to sdev_queue_depth parameter leads to incorrect queue depth for a SAS drive.	
DESC OF CHANGE:	Cast the unsigned integer variable sdev_queue_depth to an integer before comparing it with a negative value.	
TO REPRODUCE:	Load mpt2sas module with negative sdev_queue_depth value: modprobe mpt2sas sdev_queue_depth=-1	
ISSUE DESC:	When the driver is loaded by providing a negative value for the SAS queue depth (sdev_queue_depth) parameter, then the qdepth value for the SAS devices is incorrect (e.g. when sdev_queue_depth is set to -1, the qdepth value is 7).	
(SCGCQ00281893)		Defect 2/3
HEADLINE:	Infinite TUR command retries happen when a bad drive is connected	
DESC OF CHANGE:	The return code of the function which issues the TUR command was not being checked properly for number of retries. Modified this code to correctly check the return code and indicate an error if the number of retries is exhausted.	
TO REPRODUCE:	a)Connect a bad drive throwing error with sensekey/ASC/ASCQ as 0x02/0x04/0x00 b)Infinite storm of TUR retry will be seen in driver	
ISSUE DESC:	When a drive that continuously sends Check Condition status, with SenseKey/ASC/ASCQ as 0x02/0x04/0x00 (indicating that the device is not ready) is connected, then it is observed that the driver continously sends TUR commands to the drive, without ever signalling an error.	
(SCGCQ00282024)		Defect 3/3
HEADLINE:	Staged Device Discovery functionality of driver not working	
DESC OF CHANGE:	The Staged Device Discovery functionality, which can be enabled using the "disable_discovery" module parameter, was broken when the Fast Load enhancement was implemented. Fixed the code to restore the Staged Device Discovery functionality.	
TO REPRODUCE:	Enable staged device discovery using module parameter "modprobe mpt2sas disable_discovery=1"	
ISSUE DESC:	The Staged Device Discovery enhancement provides a module parameter (disable_discovery) to disable port enable during driver load, so that the device discovery can be delayed. When this was tried using the option "modprobe mpt2sas disable_discovery=1", it was found that port enable was happening and drives were getting discovered immediately.	



SCS Engineering Release Notice

NA Alpha Release Version 13.255.04.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00280217)

Change Summary (Defects=1)

SCGCQ00280180 (CSET) - Turning-off Log_info available bit in ioc_status for mpi_trigger



SCS Engineering Release Notice

NA Alpha Release Version 13.255.04.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00280217)

Total Defects Resolved (1)

(SCGCQ00280180 - Port of SCGCQ00279997)		Defect 1/1
HEADLINE:	Turning-off Log_info available bit in ioc_status for mpi_trigger	
DESC OF CHANGE:	The change was to mask out the most significant bit in the ioc_status to remove the data pertaining to the presence of log_info data. After this change the mpi trigger's ioc_status would match with that of the actual ioc_status.	
TO REPRODUCE:	Any mpi triggers based on IOC_STATUS would not get the diagnostics invoked.	
ISSUE DESC:	The log_info available bit in ioc_status needs to be masked out before performing the check of ioc_status list in mpi triggers.	



SCS Engineering Release Notice

NA Alpha Release Version 13.255.03.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00276179)

Change Summary (Defects=8 Enhancements=2)

- SCGCQ00259217 (DFCT) - The log_info constant is supposed to be IOP_LOGINFO_CODE_TASK_TERMINATED rather than the non-sensical 0x1CA86D0
- SCGCQ00259827 (DFCT) - writeq changed back to 64bit pci transfers
- SCGCQ00261785 (DFCT) - memory corruption in CSML_SAS_GET_LOCATION_BUFFER
- SCGCQ00266321 (DFCT) - Possible deadlock in IOCTL path
- SCGCQ00268580 (DFCT) - smp_processor_id() need be used in preempt safe condition
- SCGCQ00271607 (DFCT) - move the scsi_host_put to the right place
- SCGCQ00259003 (CSET) - driver oops associated with the max_queue_depth command line option set too small
- SCGCQ00269300 (CSET) -
- SCGCQ00244724 (ENHREQ) - New Ubuntu linux OS currenty support
- SCGCQ00259866 (CSET) - Provide sysfs attribute to report Backup Rail Monitor Status



SCS Engineering Release Notice

NA Alpha Release Version 13.255.03.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00276179)

Total Defects Resolved (8)

(SCGCQ00259217) Defect 1/8

HEADLINE: The log_info constant is supposed to be IOP_LOGININFO_CODE_TASK_TERMINATED rather than the non-sensical 0x1CA86D0

DESC OF CHANGE: Changed 30050000 to 0x30050000 in _base_sas_log_info.

TO REPRODUCE: N/A

ISSUE DESC: The routine that is displaying logininfo following address replies is checking for the incorrect logininfo.

(SCGCQ00259827) Defect 2/8

HEADLINE: writq changed back to 64bit pci transfers

DESC OF CHANGE: Turn on 64bit pci read/write transfers for CONFIG_64BIT.

TO REPRODUCE: N/A

ISSUE DESC: The writq was changed to two writel with spin lock when upstream kernel headers defined writq without spin lock. Please refer to CQ 174579.

(SCGCQ00261785) Defect 3/8

HEADLINE: memory corruption in CSMI_SAS_GET_LOCATION_BUFFER

DESC OF CHANGE: Changed usage of strcpy to memcpy.

TO REPRODUCE: N/A

ISSUE DESC: The strcpy operation was overflowing beyond the end of the designated boundary within a structure. Instead the boundary condition of copy operation needs to be specified.

(SCGCQ00266321) Defect 4/8

HEADLINE: Possible deadlock in IOCTL path

DESC OF CHANGE: Code rearranged in _ctl_ioctl_main so the success of mutex_trylock is not calling mutex_lock_interruptible().

TO REPRODUCE: N/A

ISSUE DESC: If the requested IOCTL block state is equal to NON_BLOCKING and mutex_trylock is succeed, then control flow goes to mutex_lock_interruptible() which will deadlock.

(SCGCQ00268580) Defect 5/8

HEADLINE: smp_processor_id() need be used in preempt safe condition

DESC OF CHANGE: To fix this issue, use get_cpu(), put_cpu().

TO REPRODUCE: N/A

ISSUE DESC: When CONFIG_DEBUG_PREEMPT is enabled, bug is observed in the smp_processor_id(). This is because smp_processor_id() is not called in preempt safe condition.

(SCGCQ00271607) Defect 6/8

HEADLINE: move the scsi_host_put to the right place

DESC OF CHANGE: The calling of scsi_host_put is moved to the end of the probe routine where if scsi_add_host fails , scsi_host_put is getting called.

TO REPRODUCE: N/A

ISSUE DESC: When scsi_add_host fails the scsi_host_put should be called.

(SCGCQ00259003 - Port of SCGCQ00258989) Defect 7/8

HEADLINE: driver oops associated with the max_queue_depth command line option set too small

DESC OF CHANGE: The driver change is to set the scsi mid layer can_queue value equal to the max_queue_depth. Then the overall message frames required IO is the minimum of either (max_queue_depth plus internal commands)



SCS Engineering Release Notice

NA Alpha Release Version 13.255.03.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00276179)

or the IOC global credits.

TO REPRODUCE: load driver specifying max_queue_depth command to small number.

Example:

```
# insmod mpt2sas.ko max_queue_depth=256
```

ISSUE DESC: If the specified max_queue_depth setting is less than the expected number of internal commands, then the driver is calculating the queue size is set to a negative number. The negative number is actually a very large number because the variable is unsigned 16bit integer. So the driver is asking for a very large amount of memory for message frames, thus resulting oops occurring from the memory allocation routines not able to handle such a large request. The driver is requiring about 280 message frames for internal commands, so the issue is occurring when max_queue_depth is less than 280.

(SCGCQ00269300 - Port of SCGCQ00257763)

Defect 8/8

DESC OF CHANGE: Allow the event_log mask to be modified on every MPT2EVENTENABLE ioctl call.

TO REPRODUCE: There are multiple applications registering for SIGIO notification of events. If only one application registers, then it works perfectly.

ISSUE DESC: The driver is allowing the event_log mask to be set only for the first application that has called the ioctl MPT2EVENTENABLE. For any other application that uses MPT2EVENTENABLE, the event_log mask will not be set. This defect is reproduced when the application registering for diagnostic triggers is not the first application. This defect will be accompanied by another defect in the application to ensure all required event_log masks are passed in, refer to defect CQ 257763



SCS Engineering Release Notice

NA Alpha Release Version 13.255.03.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00276179)

Total Enhancements Implemented (2)

(SCGCQ00244724) Enhancement 1/2

HEADLINE: New Ubuntu linux OS currenty support

NEW FUNCTIONALITY: Added support for Ubuntu10.4.3.

- 1) Support was added for creating Ubuntu deb packages. New folder ubuntu10.4 was added to the build kits.
- 2) The binary files for ubuntu are generated under the folder ubuntu10.4/rpms-xx (where xx is release number)
- 3) The files are
for 64 bit mpt2sas-aa.bb.cc.dd-xx_ubuntu10.04.03.amd64.deb
for 32 bit mpt2sas-aa.bb.cc.dd-xx_ubuntu10.04.03.i386.deb
and src rpm mpt2sas-aa.bb.cc.dd-xx_ubuntu10.04.03.src.rpm
where aa.bb.cc.dd is driver version and xx is release number
- 4) Added chcek_ubuntu.sh as part of ubuntu build kits which will verify the generated .deb files.

(SCGCQ00259866 - Port of SCGCQ00251521) Enhancement 2/2

HEADLINE: Provide sysfs attribute to report Backup Rail Monitor Status

NEW FUNCTIONALITY: Implemented new sysfs shost attribute called BMR_status. When reading this attribute, a "0" means healthy whereas "1" means failure.

When reading BMR_status, if the empty string returned, then that means there was an error obtaining the status, then end user can check dmesg output to determine what occurred.

The attribute is located here: /sys/class/scsi_host/host#/BMR_status



SCS Engineering Release Notice

NA Pre-Alpha Release Version 13.255.01.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00258619)

Change Summary (Defects=2 Enhancements=7)

SCGCQ00249415 (DFCT) - Verifying the proper memory allocation for "ioc->chain_lookup" in the function _base_allocate_memory_pools() is missing.

SCGCQ00255209 (CSET) - Turning on the command line option initialize_target_mode is resulting in driver panic under 32 bit Linux OS

SCGCQ00226987 (ENHREQ) - SLES 11 SP2 Support

SCGCQ00229119 (ENHREQ) - Red Hat 5.8 support

SCGCQ00252169 (ENHREQ) - Support for OEL6.2 in Phase 14

SCGCQ00252176 (ENHREQ) - Removing the IA64 Itanium deliverables in Phase 14

SCGCQ00252631 (ENHREQ) - customer branding strings

SCGCQ00254805 (ENHREQ) - 2012 source code copyright

SCGCQ00238480 (CSET) - Add Diagnostic Trigger management and new DiagService Event to Linux Driver



SCS Engineering Release Notice

NA Pre-Alpha Release Version 13.255.01.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00258619)

Total Defects Resolved (2)

(SCGCQ00249415)

Defect 1/2

HEADLINE: Verifying the proper memory allocation for "ioc->chain_lookup" in the function _base_allocate_memory_pools() is missing.

DESC OF CHANGE: The __get_free_pages can fail, so the return value should be checked. Added code to check whether memory is allocated or not for ioc->chain_lookup in the function _base_allocate_memory_pools().

TO REPRODUCE: N/A

ISSUE DESC: In the function _base_allocate_memory_pools(), in the following piece of code

```
ioc->chain_lookup = (struct chain_tracker *)__get_free_pages(
    GFP_KERNEL, ioc->chain_pages);
```

the __get_free_pages can fail. Whether memory is allocated or not for ioc->chain_lookup is not checked.

(SCGCQ00255209 - Port of SCGCQ00249799)

Defect 2/2

HEADLINE: Turning on the command line option initialize_target_mode is resulting in driver panic under 32 bit Linux OS

DESC OF CHANGE: The panic is due to a reference to ioc->pfacts when its set to NULL. Normally ioc->pfacts is set to valid pointer, however in this case it was set to NULL. It got set to NULL when the diag reset was issued as part of the initialize_target_mode handling. The reason it was set to zero is due to a bug in _base_get_ioc_facts. From _base_get_ioc_facts we are refreshing the IOC FACTs data. In that code before we refresh this structure, we are initializing the structure to zero. When its getting initialized to zero, the size passed into the memset call was too large. The size was set to 64 bytes, when it should of been 60 bytes. This resulted in the parameter ioc->pfacts getting clear. See the patch below.

```
diff -uaprN mpt2sas-dual_12.145.00.02/initiator/mpt2sas_base.c
mpt2sas-dual_12.145.00.03/initiator/mpt2sas_base.c
--- mpt2sas-dual_12.145.00.02/initiator/mpt2sas_base.c 2012-02-08 10:30:03.000000000 -0700
+++ mpt2sas-dual_12.145.00.03/initiator/mpt2sas_base.c 2012-02-09 16:04:21.000000000 -0700
@@ -3619,7 +3619,7 @@ _base_get_ioc_facts(struct MPT2SAS_ADAPT
 }

 facts = &ioc->facts;
- memset(facts, 0, sizeof(Mpi2IOCFactsReply_t));
+ memset(facts, 0, sizeof(struct mpt2sas_facts));
 facts->MsgVersion = le16_to_cpu(mpi_reply.MsgVersion);
 facts->HeaderVersion = le16_to_cpu(mpi_reply.HeaderVersion);
 facts->VP_ID = mpi_reply.VP_ID;
```

TO REPRODUCE: Load drivers using load.sh inside driver packaging. This is reproduced under SLES10 SP4 and RHEL6.

The load.sh needs to be modified as follows:

```
insmod mpt2sas_target.ko initialize_target_mode=1
```

ISSUE DESC: This command line when turned on will panic the OS under 32 bit OS. This command line programs controller for target mode then does a diag reset following. The diag reset is allowing for the new settings take immediately instead of rebooting.



SCS Engineering Release Notice

NA Pre-Alpha Release Version 13.255.01.00-1 - MPT2SAS_LINUX_RH_SL_OEL_CTX_Phase_14 (SCGCQ00258619)

Total Enhancements Implemented (7)

(SCGCQ00226987) Enhancement 1/7

HEADLINE: SLES 11 SP2 Support

NEW FUNCTIONALITY: The sles11 build kit was modified to incorporate the new kernel.

(SCGCQ00229119) Enhancement 2/7

HEADLINE: Red Hat 5.8 support

NEW FUNCTIONALITY: The rhel5 build kit was modified to incorporate the new kernel.

(SCGCQ00252169) Enhancement 3/7

HEADLINE: Support for OEL6.2 in Phase 14

NEW FUNCTIONALITY: The oel6 build kit was modified to incorporate the new kernels (standard RHEL6.2 kernel and the UEK kernel).

(SCGCQ00252176) Enhancement 4/7

HEADLINE: Removing the IA64 Itanium deliverables in Phase 14

NEW FUNCTIONALITY: Support for IA64 in the build kits was deleted, as well as the binarys RPM and DUDS.

(SCGCQ00252631) Enhancement 5/7

HEADLINE: customer branding strings

NEW FUNCTIONALITY: The customer branding string for the "SSD 910 Series" controller was updated.

(SCGCQ00254805) Enhancement 6/7

HEADLINE: 2012 source code copyright

NEW FUNCTIONALITY: The copyright string in all the drivers sources was changed to 2012.

(SCGCQ00238480 - Port of SCGCQ00226997) Enhancement 7/7

HEADLINE: Add Diagnostic Trigger management and new DiagService Event to Linux Driver

NEW FUNCTIONALITY:

- 1) Automatically post a Host Trace Buffer (2MB) at startup
- 2) Implement diag service trigger management interface supporting get, set and clear functions
- 3) Based on trigger attributes configured in 2, monitor for errors and add new DiagService event to event queue when an enabled error is detected.

The current thought is that the user (diag service) app will manage the host trace buffers after the initial posting at startup via the Diagnostic Buffer APIs defined in section 1.8.1 of the attached "WarpDrive_Diagnostic_Support" document (SLIR2 uses the diagnostic ioctls).