Release Notes: Linux Ph14 IT: mpt3sas driver ph14 GCA release w

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ReleaseOrder ID:	*SCGCQ01220889*
Headline:	*Linux Ph14 IT: mpt3sas driver ph14 GCA release w*
Release Version:	*15.00.00.00-1*
UCM Project:	*LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0*
UCM Stream:	*LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev*
Release Type:	*GCA*
State:	*Deployed*
Release Baseline:	*LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev_2016-11-16_RC@ \SAS2*
Release Date:	*22-NOV-16*
Date Generated:	*Jan 24, 2017*

Release History

- SCGCQ01219342 - Phase14 Beta : LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE
- SCGCQ01208232 - Phase14 Beta : LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE
- SCGCQ01202618 - Phase14 Alpha : LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHAS
- SCGCQ01190321 - Phase14 Alpha : LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHAS
- SCGCQ01185229 - Phase14 PA: LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.
- SCGCQ01177446 - Phase14 PA#2: LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE1
- SCGCQ01167044 - Phase14 PA#1: LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE1

ReleaseOrder ID:	*SCGCQ01219342* Open In CQWeb
Headline:	*Phase14 Beta : LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE*
Release Version:	*14.255.06.00-1*
UCM Project:	*LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0*
UCM Stream:	*LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev*
Release Type:	*Beta*
State:	*Test_Complete*
Release Baseline:	*LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev_2016-11-14_Beta2@ \SAS2*
Release Date:	*15-NOV-16*
Date Generated:	*Jan 24, 2017*

ReleaseOrder ID:	*SCGCQ01208232* Open In CQWeb
Headline:	*Phase14 Beta : LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE*
Release Version:	*14.255.05.00-1*
UCM Project:	*LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0*
UCM Stream:	*LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev*
Release Type:	*Beta*
State:	*Superseded*
Release Baseline:	*LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev_2016-10-25@ \SAS2*
Release Date:	*14-NOV-16*
Date Generated:	*Jan 24, 2017*

Defects Fixed (1):

ID: SCGCQ01205383

Headline: Ph14 Linux Driver : Active Cable Exception events are logged by driver for attachment of Passive cables.

Description Of Change: Driver prints event description for the async events that it receives from the Firmware and hence driver used to print 'Active cable exception' as event description when 'MPI2_EVENT_ACTIVE_CABLE_EXCEPTION' event is received.
As these async events will be same for normal cables too, So modified above description as 'Cable Event' .

Also Cable_Degraded(Reason_Code-0x02) is applicable for normal/passive cables too., and hence message being printed for this reason code is modified, which specifies 'cable' instead of 'active cable'.

Issue Description: Active Cable Exception events are logged by driver for attachment of Passive cables.

The behavior is seen when passive cable (without targets) is attached to any of the ports of controller.

For Proper Passive cable :

Sep 28 19:02:12 dhcp-135-24-225-37 kernel: mpt3sas_cm0: Active cable exception

For Passive cable (with wrong i2c address entries in Mfg 43 to simulate degraded active cable) :

Sep 28 18:53:45 dhcp-135-24-225-37 kernel: mpt3sas_cm0: Active cable exception
Sep 28 18:53:45 dhcp-135-24-225-37 kernel: mpt3sas_cm0: Currently an active cable with ReceptacleID 2 is not running at optimal speed(12 Gb/s rate)

Steps To Reproduce: With the Intruder-A1 controller (3324_A1) flashed with Active Cable Management (ACM) firmware , Active Cable Exception events are logged by driver for attachment of Passive cables.

The behavior is seen when passive cable (without targets) is attached to any of the ports of controller.

For Proper Passive cable :

Sep 28 19:02:12 dhcp-135-24-225-37 kernel: mpt3sas_cm0: Active cable exception

For Passive cable (with wrong i2c address entries in Mfg 43 to simulate degraded active cable) :

Sep 28 18:53:45 dhcp-135-24-225-37 kernel: mpt3sas_cm0: Active cable exception
Sep 28 18:53:45 dhcp-135-24-225-37 kernel: mpt3sas_cm0: Currently an active cable with ReceptacleID 2 is not running at optimal speed(12 Gb/s rate)

OS logs for the same has been attached in "Attachments" section .

Configuration Details:

Controller : Intruder (3324_A1)
OS: RHEL 6.8
Driver Version :PHASE14.0-14.255.03.00
Firmware Version :13.250.03.00-IT (Active Cable management enabled)

Enhancements Implemented (1):

ID: SCGCQ01203873 (Port Of EnhancementRequest SCGCQ01149963)

Headline: Linux SAS3.5 IT: Limit 0x2100 FW fault by updating host index up on reaching the thresh hold value

Description Of Change: Following driver changes are made to fix 0x2100 FW fault and some instance of soft lockups respectively,

1. Update the reply post host index up on continuously processing the thresh hold number of reply descriptors. So that Firmware can find enough free entries in the queue.

2. First distribute the enabled MSIx vectors among the NUMA nodes, then in each NUMA node distribute the node's cpus with the allocated MSIx vectors. So that we won't see any IO loop path with two NUMA nodes.

ReleaseOrder ID: ***SCGCQ01202618*** Open In CQWeb
Headline: ***Phase14 Alpha : LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHAS***
Release Version: ***14.255.04.00-1***
UCM Project: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0***
UCM Stream: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev***
Release Type: ***Alpha***
State: ***Test_Complete***
Release Baseline: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev_2016-10-14@\SAS2***
Release Date: ***18-OCT-16***
Date Generated: ***Jan 24, 2017***

Defects Fixed (2):

ID: SCGCQ01189515

Headline: SAS3Ph14 : System hangs when issuing diag reset along with IOs on Citrix 7.0

Description Of Change: Issue is NON-LSI Issue and is seen because of less system memory and hence followed instructions from below link to increase the system memory., after this issue is not seen.

http://support.citrix.com/article/CTX134951

Issue Description: Have a setup as below :

Controller (Cutlass A1) --> Cub B0 --> Enclosure 1
--> Enclosure 2

Step 1 : Run IOs on all the attched drives
Step 2 : Issue diag reset using lsiutil

Observation : System hangs

Steps To Reproduce: Have a setup as below :

Controller (Cutlass A1) --> Cub B0 --> Enclosure 1
--> Enclosure 2

Step 1 : Run IOs on all the attched drives
Step 2 : Issue diag reset using lsiutil

Observation : System hangs

ID: SCGCQ01192970 (Port Of Defect SCGCQ01175998)

Headline: Linux Ventura IT phase2: Unable to achieve product targets performance numbers with SAS devices

Description Of Change: Removed a lock in the IO completion path and this meeting product targets performance numbers.

Issue Description: Crusader is replying fast to smaller I/O requests and that causes the lock contention in the driver to go pretty high and results in lower performance numbers.

Steps To Reproduce: Run high QD 4K IOs with FIO to a large amount of drives that would allow for the target to theoretically be met.

Enhancements Implemented (3):

ID: SCGCQ01155651

Headline: Upstream mpt3sas - Don't spam logs if logging level is 0

Description Of Change: BZ link : https://bugzilla.suse.com/show_bug.cgi?id=990936&GoAheadAndLogIn=1

Customer reported above BZ saying the noisy prints which driver is printing eventhough logging_level is not set.,

As per the code, driver is printing again @ the end of switch(ioc_status)_case.,

and hence removed the particular chunk of code(which was just before switch(ioc_status)_case i,e.,line:6216 - 6219) which is printing when logging_level is not set.

ID: SCGCQ01197731

Headline: Remove SRIOV specific code from mpt3sas driver and update buildkits accordingly.

Description Of Change: Removed SRIOV support from mpt3sas drivers and updated buildkits accordingly.,

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ID: SCGCQ01198899

Headline: Upstream scsi: rename SCSI_MAX_{SG, SG_CHAIN}_SEGMENTS and "DEFINE_PCI_DEVICE_TABLE" macro is deprecated.

Description Of Change: Replaced SCSI_MAX_SG_SEGMENTS and SCSI_MAX_SG_CHAIN_SEGMENTS with SG_CHUNK_SIZE and SG_MAX_SEGMENTS respectively .,
Also "DEFINE_PCI_DEVICE_TABLE" macro is deprecated from 4.7 kernel & onwards and found patch "[PATCH] wd719x: Remove use of macro DEFINE_PCI_DEVICE_TABLE", which uses "struct pci_device_id" instead of "DEFINE_PCI_DEVICE_TABLE".

ReleaseOrder ID: ***SCGCQ01190321*** Open In CQWeb
Headline: ***Phase14 Alpha : LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHAS***
Release Version: ***14.255.03.00-2***
UCM Project: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0***
UCM Stream: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev***
Release Type: ***Alpha***
State: ***Superseded***
Release Baseline: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev_2016-09-27@\SAS2***
Release Date: ***18-OCT-16***
Date Generated: ***Jan 24, 2017***

Defects Fixed (1):

ID: SCGCQ01188412

Headline: Unwanted messages displayed while installing Ubuntu drivers, which has been generated through source rpm

Description Of Change: Modified src_spec file with below changes, removed spaces and changed find command format...,

-elif [`find /lib/modules/%{kernel}/ -name mpt3sas.ko.xz*`]; then
+elif [[-n $(find /lib/modules/%{kernel}/ -name mpt3sas.ko.xz*)]]; then

-module_init_tool = "unknown"
+module_init_tool="unknown"

-module_init_tool = "mkinitramfs"
+module_init_tool="mkinitramfs"

Issue Description: While installing the .deb file which has been generated through source rpm from generic_source rpm folder in the release folder, the following error comes

Setting up mpt3sas (14.255.03.00-1) ...
post 14.255.03.00
/var/lib/dpkg/info/mpt3sas.postinst: line 6: /: Is a directory
/var/lib/dpkg/info/mpt3sas.postinst: line 6: [: too many arguments
The mpt3sas driver for kernel 4.4.0-21-generic is now version 14.255.03.00
/var/lib/dpkg/info/mpt3sas.postinst: line 56: module_init_tool: command not found
W: mdadm: /etc/mdadm/mdadm.conf defines no arrays.
Working files in /var/tmp/mkinitramfs_Jrzlfa, early initramfs in /var/tmp/mkinitramfs

but the driver installation is successful

Steps To Reproduce: Generate .deb binary from src.rpm meant for Ubuntu distro , try installing this .deb binary installation goes successful but displays below noisy messages

Setting up mpt3sas (14.255.03.00-1) ...
post 14.255.03.00
/var/lib/dpkg/info/mpt3sas.postinst: line 6: /: Is a directory
/var/lib/dpkg/info/mpt3sas.postinst: line 6: [: too many arguments
The mpt3sas driver for kernel 4.4.0-21-generic is now version 14.255.03.00
/var/lib/dpkg/info/mpt3sas.postinst: line 56: module_init_tool: command not found
W: mdadm: /etc/mdadm/mdadm.conf defines no arrays.
Working files in /var/tmp/mkinitramfs_Jrzlfa, early initramfs in /var/tmp/mkinitramfs

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ReleaseOrder ID: ***SCGCQ01185229*** Open In CQWeb
Headline: ***Phase14 PA: LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.***
Release Version: ***14.255.03.00-1***
UCM Project: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0***
UCM Stream: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev***
Release Type: ***Pre-Alpha***
State: ***Test_Complete***
Release Baseline: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev_2016-09-19@\SAS2***
Release Date: ***26-SEP-16***
Date Generated: ***Jan 24, 2017***

Enhancements Implemented (3):

ID: SCGCQ00927263
Headline: Xenserver7.0 (Dundee) OS Support- Ph 14
Description Of Change: Modified buildkit with below change to generate RPM binaries for Xenserver7.0(3.10.0+10)

'/usr/src/redhat/' in previous versions of build kit is now changed to '/root/rpmbuild'

ID: SCGCQ01154419
Headline: Upstream mpt3sas - Ensure the connector_name string is NUL-terminated
Description Of Change: Ensure the connector_name string is NUL-terminated. This is fixed by explicitly writing '\0' to the end of the string to ensure we don't run off the edge of the world in printk().

ID: SCGCQ01181276
Headline: Addition of two events to Active Cable Exception Event Data
Description Of Change: Addition of two events to Active Cable Exception Event Data:

1. Active Cable Present
 ---After the firmware completes initialization of active cable and determined that active cable is present
2. Active Cable Present and Degraded
 ---When we drop below 12 Gb/s

Drivers is processing the second event which indicates an active cable is present but is running at a degraded speed (below the SAS3 12 Gb/s rate). A system message or event log entry should be created to inform the user that the cable is not running at optimal speed.

ReleaseOrder ID: ***SCGCQ01177446*** Open In CQWeb
Headline: ***Phase14 PA#2: LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE1***
Release Version: ***14.255.02.00-1***
UCM Project: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0***
UCM Stream: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev***
Release Type: ***Pre-Alpha***
State: ***Superseded***
Release Baseline: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev_2016-09-08@\SAS2***
Release Date: ***15-SEP-16***
Date Generated: ***Jan 24, 2017***

Defects Fixed (2):

ID: SCGCQ01173476
Headline: LinuxSAS3Phase14 : Error seen while installing .rpm driver generated through .src.rpm file on Centos 7 64 bit
Description Of Change: Driver name was missing in the mpt3sas.conf file in kmod source rpm kit. Added driver name string in mpt3sas.conf file.
Issue Description: Error seen while installing .rpm driver generated through .src.rpm file on Centos 7 64 bit
Steps To Reproduce: Install the source.rpm file

Generate the rpms (rpmbuild -ba mpt3sas.spec)

Go to the location /root/rpmbuild/RPMS/ and install the .rpm file

Observation : errors are generated while installing the driver

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ID: SCGCQ01173953
Headline: Linux IT mpt3sas phase14: Fixed the endian issues while accesing sas device pages
Description Of Change: Fixed the endian issues while accessing sas device pages.
Issue Description: In some places we were directly accessing the sas device pages without any endian conversion.
Steps To Reproduce: NA

Enhancements Implemented (7):

ID: SCGCQ01139697
Headline: Linux mpt3sas IT Phase14: Added driver support for Ubuntu 16.04 LTS ARM 64 OS Support
Description Of Change: Added driver support for Ubuntu 16.04 LTS ARM 64 OS Support via source rpm

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ID: SCGCQ01139698
Headline: Linux mpt3sas IT Phase14: Added driver support for Fedora 23 LTS Open Power Support
Description Of Change: Added driver support for Fedora 23 LTS Open Power Support via source rpm.

ID: SCGCQ01139701
Headline: Linux mpt3sas IT Phase14: Added driver support for Ubuntu 16.04 LTS Open Power OS Support
Description Of Change: Added driver support for Ubuntu 16.04 LTS Open Power OS Support via source rpm

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ID: SCGCQ01140390
Headline: Linux mpt3sas IT Phase14: Added driver support for RHEL 7.2 ARM 64 Support
Description Of Change: Added driver support for RHEL 7.2 ARM 64 Support via source rpm.

ID: SCGCQ01149911
Headline: Linux mpt3sas IT Phase14: Added driver support for Fedora 23 ARM 64 OS Support
Description Of Change: Added driver support for Fedora 23 ARM 64 OS Support via source rpm.

ID: SCGCQ01176562
Headline: Linux mpt3sas IT Phase14: Added driver support for RHEL 7.2 OpenPower Support
Description Of Change: Added driver support for RHEL 7.2 OpenPower Support via source rpm

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ID: SCGCQ01176700
Headline: Add Recognition for Host Managed SMR Drives for Fury/Invader in IT mode with Linux OS
Description Of Change: The driver must be able to recognize and handle Host Managed SMR drives which have a peripheral device type value of 0x14 (instead of the normal HDD direct access type of 0x00). The Linux driver code needs to be examined and possibly modified to handle this new device type and expose it to the SML.

ReleaseOrder ID: ***SCGCQ01167044*** Open In CQWeb
Headline: ***Phase14 PA#1: LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE1***
Release Version: ***14.255.01.00-1***
UCM Project: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0***
UCM Stream: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev***
Release Type: ***Pre-Alpha***
State: ***Superseded***
Release Baseline: ***LINUX_RH_SL_OEL_CTX_MPT_GEN3_PHASE14.0_Dev_2016-08-24@\SAS2***
Release Date: ***06-SEP-16***
Date Generated: ***Jan 24, 2017***

Enhancements Implemented (3):

ID: SCGCQ01154336
Headline: Upstream mpt3sas - Eliminate conditional locking in mpt3sas_scsih_issue_tm().
Description Of Change: Eliminating conditional locking in mpt3sas_scsih_issue_tm().As this flag will conditionally acquire the mutex which is confusing and prone to bugginess.
Code is refactored into two separate function calls, mpt3sas_scsih_issue_locked_tm() and mpt3sas_scsih_issue_tm() .

ID: SCGCQ01154385
Headline: Upstream mpt3sas - Eliminate dead sleep_flag code.
Description Of Change: Eliminated dead sleep_flag code with the exception of a single call to wait_for_doorbell_int(), all this conditional sleeping code is dead, so it is deleted.
As sleep_flag value being used in all cases is CAN_SLEEP ., except while waiting for controller interrupt(which is generated by write to the doorbell) with NO_SLEEP flag in "_base_wait_for_doorbell_int()" after sending message to ioc through doorbell interface via "_base_handshake_req_reply_wait()".

And hence retained this NO_SLEEP flag specific code changes in separate func and is being used via "_base_spin_on_doorbell_int()".

ID: SCGCQ01154412
Headline: Upstream mpt3sas - Fix warnings exposed by W=1
Description Of Change: Functions local to files are declared static and removed unused variables.
