

ChangeLog.megaraid\_sas.txt

1 Release Date : Thur. Oct 29, 2009 09:12:45 PST 2009 -  
(email-id:megaraidlinux@lsi.com)  
Bo Yang

2 Current Version : 00.00.04.17.1-rc1  
3 Older Version : 00.00.04.12

1. Add the pad\_0 in mfi frame structure to 0 to fix the context value larger than 32bit value issue.
2. Add the logic drive list to the driver. Driver will keep the logic drive list internal after driver load.
3. driver fixed the device update issue after get the AEN PD delete/ADD, LD add/delete from FW.

1 Release Date : Tues. July 28, 2009 10:12:45 PST 2009 -  
(email-id:megaraidlinux@lsi.com)  
Bo Yang

2 Current Version : 00.00.04.12  
3 Older Version : 00.00.04.10

1. Change the AEN sys PD update from scsi\_scan to scsi\_add\_device and scsi\_remove\_device.
2. Takeoff the debug print-out in aen\_polling routine.

1 Release Date : Thur. July 02, 2009 10:12:45 PST 2009 -  
(email-id:megaraidlinux@lsi.com)  
Bo Yang

2 Current Version : 00.00.04.10  
3 Older Version : 00.00.04.08

1. Add the 3 mins timeout during the controller initialize.
2. Add the fix for 64bit sense data errors.

1 Release Date : Tues. May 05, 2009 10:12:45 PST 2009 -  
(email-id:megaraidlinux@lsi.com)  
Bo Yang

2 Current Version : 00.00.04.08  
3 Older Version : 00.00.04.06

1. Add the fix of pending in FW after deleted the logic drives.
2. Add the fix of deallocating memory after get pdlist.

1 Release Date : Tues. March 26, 2009 10:12:45 PST 2009 -  
(email-id:megaraidlinux@lsi.com)  
Bo Yang

2 Current Version : 00.00.04.06  
3 Older Version : 00.00.04.04

1. Add the fix of the driver cmd empty fix of the driver cmd empty.
2. Add the fix of the driver MSM AEN CMD cause the system slow.

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1 Release Date : Tues. March 03, 2009 10:12:45 PST 2009 -  
(email-id:megaraidlinux@lsi.com)  
Bo Yang

2 Current Version : 00.00.04.04

3 Older Version : 00.00.04.01

1. Add the Tape drive fix to the driver: If the command is for the tape device, set the pthru timeout to the os layer timeout value.
2. Add Poll\_wait mechanism to Gen-2 Linux driv.  
In the aen handler, driver needs to wakeup poll handler similar to the way it raises SIGIO.
3. Add new controller new SAS2 support to the driver.
4. Report the unconfigured PD (system PD) to OS.
5. Add the IEEE SGL support to the driver
6. Reassign the Application cmds to SAS2 controller

1 Release Date : Thur. July. 24 11:41:51 PST 2008 -  
(email-id:megaraidlinux@lsi.com)  
Sumant Patro  
Bo Yang

2 Current Version : 00.00.04.01

3 Older Version : 00.00.03.22

1. Add the new controller (0078, 0079) support to the driver  
Those controllers are LSI's next generation(gen2) SAS controllers.

1 Release Date : Mon. June. 23 10:12:45 PST 2008 -  
(email-id:megaraidlinux@lsi.com)  
Sumant Patro  
Bo Yang

2 Current Version : 00.00.03.22

3 Older Version : 00.00.03.20

1. Add shutdown DCMD cmd to the shutdown routine to make FW shutdown proper.
2. Unexpected interrupt occurs in HWR Linux driver, add the dummy readl pci flush will fix this issue.

1 Release Date : Mon. March 10 11:02:31 PDT 2008 -  
(email-id:megaraidlinux@lsi.com)  
Sumant Patro  
Bo Yang

2 Current Version : 00.00.03.20-RC1

3 Older Version : 00.00.03.16

1. Rollback the sense info implementation

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Sense buffer ptr data type in the ioctl path is reverted back to u32 \* as in previous versions of driver.

2. Fixed the driver frame count.

When Driver sent wrong frame count to firmware. As this particular command is sent to drive, FW is seeing continuous chip resets and so the command will timeout.

3. Add the new controller(1078DE) support to the driver and Increase the max\_wait to 60 from 10 in the controller operational status. With this max\_wait increase, driver will make sure the FW will finish the pending cmd for KDUMP case.

1 Release Date : Thur. Nov. 07 16:30:43 PST 2007 -  
(email-id:megaraidlinux@lsi.com)  
Sumant Patro  
Bo Yang

2 Current Version : 00.00.03.16

3 Older Version : 00.00.03.15

1. Increased MFI\_POLL\_TIMEOUT\_SECS to 60 seconds from 10. FW may take a max of 60 seconds to respond to the INIT cmd.

1 Release Date : Fri. Sep. 07 16:30:43 PST 2007 -  
(email-id:megaraidlinux@lsi.com)  
Sumant Patro  
Bo Yang

2 Current Version : 00.00.03.15

3 Older Version : 00.00.03.14

1. Added module parameter "poll\_mode\_io" to support for "polling" (reduced interrupt operation). In this mode, IO completion interrupts are delayed. At the end of initiating IOs, the driver schedules for cmd completion if there are pending cmds to be completed. A timer-based interrupt has also been added to prevent IO completion processing from being delayed indefinitely in the case that no new IOs are initiated.

1 Release Date : Fri. Sep. 07 16:30:43 PST 2007 -  
(email-id:megaraidlinux@lsi.com)  
Sumant Patro  
Bo Yang

2 Current Version : 00.00.03.14

3 Older Version : 00.00.03.13

1. Setting the max\_sectors\_per\_req based on max SGL supported by the FW. Prior versions calculated this value from controller info (max\_sectors\_1, max\_sectors\_2). For certain controllers/FW, this was resulting in a value greater than max SGL supported by the FW. Issue was first reported by users running LUKS+XFS with megaraid\_sas. Thanks to RB for providing the logs and duplication steps that helped to get to the root cause of the issue. 2. Increased MFI\_POLL\_TIMEOUT\_SECS to 60 seconds from

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10. FW may take a max of 60 seconds to respond to the INIT cmd.

1 Release Date : Fri. June. 15 16:30:43 PST 2007 -  
(email-id:megaraidlinux@lsi.com)  
Sumant Patro  
Bo Yang

2 Current Version : 00.00.03.13  
3 Older Version : 00.00.03.12

1. Added the megasas\_reset\_timer routine to intercept cmd timeout and throttle io.

On Fri, 2007-03-16 at 16:44 -0600, James Bottomley wrote:  
It looks like megaraid\_sas at least needs this to throttle its commands  
> as they begin to time out. The code keeps the existing transport  
> template use of eh\_timed\_out (and allows the transport to override the  
> host if they both have this callback).  
>  
> James

1 Release Date : Sat May. 12 16:30:43 PST 2007 -  
(email-id:megaraidlinux@lsi.com)  
Sumant Patro  
Bo Yang

2 Current Version : 00.00.03.12  
3 Older Version : 00.00.03.11

1. When MegaSAS driver receives reset call from OS, driver waits in reset routine for max 3 minutes for all pending command completion. Now driver will call completion routine every 5 seconds from the reset routine instead of waiting for depending on cmd completion from isr path.

1 Release Date : Mon Apr. 30 10:25:52 PST 2007 -  
(email-id:megaraidlinux@lsi.com)  
Sumant Patro  
Bo Yang

2 Current Version : 00.00.03.11  
3 Older Version : 00.00.03.09

1. Memory Manager for IOCTL removed for 2.6 kernels.  
pci\_alloc\_consistent replaced by dma\_alloc\_coherent. With this change there is no need of memory manager in the driver code

On Wed, 2007-02-07 at 13:30 -0800, Andrew Morton wrote:  
> I suspect all this horror is due to stupidity in the DMA API.  
>  
> pci\_alloc\_consistent() just goes and assumes GFP\_ATOMIC, whereas  
> the caller (megasas\_mgmt\_fw\_ioctl) would have been perfectly happy  
> to use GFP\_KERNEL.  
>  
> I bet this fixes it

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It does, but the DMA API was expanded to cope with this exact case, so use `dma_alloc_coherent()` directly in the megaraid code instead. The dev is just `&pci_dev->dev`.

James <James.Bottomley@SteelEye.com>

- 3. SYNCHRONIZE\_CACHE is not supported by FW and thus blocked by driver.
- 4. Hibernation support added
- 5. Performing diskdump while running IO in RHEL 4 was failing. Fixed.

1 Release Date : Fri Feb. 09 14:36:28 PST 2007 -  
(emaild-id:megaraidlinux@lsi.com)  
Sumant Patro  
Bo Yang

2 Current Version : 00.00.03.09  
3 Older Version : 00.00.03.08

- i. Under heavy IO mid-layer prints "DRIVER\_TIMEOUT" errors

The driver now waits for 10 seconds to elapse instead of 5 (as in previous release) to resume IO.

1 Release Date : Mon Feb. 05 11:35:24 PST 2007 -  
(emaild-id:megaraidlinux@lsi.com)  
Sumant Patro  
Bo Yang

2 Current Version : 00.00.03.08  
3 Older Version : 00.00.03.07

- i. Under heavy IO mid-layer prints "DRIVER\_TIMEOUT" errors

Fix: The driver is now throttling IO.  
Checks added in `megasas_queue_command` to know if FW is able to process commands within timeout period. If number of retries is 2 or greater, the driver stops sending cmd to FW temporarily. IO is resumed if pending cmd count reduces to 16 or 5 seconds has elapsed from the time cmds were last sent to FW.

- ii. FW enables WCE bit in Mode Sense cmd for drives that are configured as WriteBack. The OS may send "SYNCHRONIZE\_CACHE" cmd when Logical Disks are exposed with WCE=1. User is advised to enable Write Back mode only when the controller has battery backup. At this time Synhronize cache is not supported by the FW. Driver will short-cycle the cmd and return success without sending down to FW.

1 Release Date : Sun Jan. 14 11:21:32 PDT 2007 -  
Sumant Patro <Sumant.Patro@lsil.com>/Bo Yang  
2 Current Version : 00.00.03.07  
3 Older Version : 00.00.03.06

- i. `bios_param` entry added in `scsi_host_template` that returns disk geometry information.

1 Release Date : Fri Oct 20 11:21:32 PDT 2006 - Sumant Patro  
<Sumant.Patro@lsil.com>/Bo Yang

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2 Current Version : 00.00.03.06  
3 Older Version : 00.00.03.05

1. Added new memory management module to support the IOCTL memory allocation. For IOCTL we try to allocate from the memory pool created during driver initialization. If mem pool is empty then we allocate at run time.
2. Added check in megasas\_queue\_command and dpc/isr routine to see if we have already declared adapter dead  
(hw\_crit\_error=1). If hw\_crit\_error==1, now we donot accept any processing of pending cmds/accept any cmd from OS

1 Release Date : Mon Oct 02 11:21:32 PDT 2006 - Sumant Patro  
<Sumant.Patro@lsil.com>  
2 Current Version : 00.00.03.05  
3 Older Version : 00.00.03.04

- i. PCI\_DEVICE macro used

Convert the pci\_device\_id-table of the megaraid\_sas-driver to the PCI\_DEVICE-macro, to save some lines.

- Henrik Kretzschmar <henne@nachtwindheim.de>

- ii. All compiler warnings removed
- iii. megasas\_ctrl\_info struct reverted to 3.02 release
- iv. Default value of megasas\_dbg\_lvl set to 0
- v. Removing in megasas\_exit the sysfs entry created for megasas\_dbg\_lvl
- vi. In megasas\_teardown\_frame\_pool(), cmd->frame was passed instead of cmd->sense to pci\_pool\_free. Fixed. Bug was pointed out by Eric Sesterhenn

1 Release Date : Wed Sep 13 14:22:51 PDT 2006 - Sumant Patro  
<Sumant.Patro@lsil.com>  
2 Current Version : 00.00.03.04  
3 Older Version : 00.00.03.03

- i. Added Reboot notify
- ii. Reduced by 1 max cmds sent to FW from Driver to make the reply\_q\_sz same as Max Cmds FW can support

1 Release Date : Tue Aug 22 16:33:14 PDT 2006 - Sumant Patro  
<Sumant.Patro@lsil.com>  
2 Current Version : 00.00.03.03  
3 Older Version : 00.00.03.02

- i. Send stop adapter to FW & Dump pending FW cmds before declaring adapter dead.  
New variable added to set dbg level.
- ii. Disable interrupt made as fn pointer as they are different for 1068 / 1078
- iii. Frame count optimization. Main frame can contain 2 SGE for 64 bit SGLs and  
3 SGE for 32 bit SGL
- iv. Tasklet added for cmd completion
- v. If FW in operational state before firing INIT, now we send RESET Flag to FW instead of just READY. This is used to do soft reset.
- vi. megasas\_ctrl\_prop structure updated (based on FW struct)

vii. Added print : FW now in Ready State during initialization

1 Release Date : Sun Aug 06 22:49:52 PDT 2006 - Sumant Patro  
<Sumant.Patro@lsil.com>  
2 Current Version : 00.00.03.02  
3 Older Version : 00.00.03.01

i. Added FW tranistion state for Hotplug scenario

1 Release Date : Sun May 14 22:49:52 PDT 2006 - Sumant Patro  
<Sumant.Patro@lsil.com>  
2 Current Version : 00.00.03.01  
3 Older Version : 00.00.02.04

i. Added support for ZCR controller.

New device id 0x413 added.

ii. Bug fix : Disable controller interrupt before firing INIT cmd to FW.

Interrupt is enabled after required initialization is over.  
This is done to ensure that driver is ready to handle interrupts

when

it is generated by the controller.

-Sumant Patro <Sumant.Patro@lsil.com>

1 Release Date : Wed Feb 03 14:31:44 PST 2006 - Sumant Patro  
<Sumant.Patro@lsil.com>  
2 Current Version : 00.00.02.04  
3 Older Version : 00.00.02.04

i. Remove superflous instance\_lock

gets rid of the otherwise superflous instance\_lock and avoids an unsave  
unsynchronized access in the error handler.

- Christoph Hellwig <hch@lst.de>

1 Release Date : Wed Feb 03 14:31:44 PST 2006 - Sumant Patro  
<Sumant.Patro@lsil.com>  
2 Current Version : 00.00.02.04  
3 Older Version : 00.00.02.04

i. Support for 1078 type (ppc IOP) controller, device id : 0x60 added.  
During initialization, depending on the device id, the template members  
are initialized with function pointers specific to the ppc or  
xscale controllers.

-Sumant Patro <Sumant.Patro@lsil.com>

1 Release Date : Fri Feb 03 14:16:25 PST 2006 - Sumant Patro  
<Sumant.Patro@lsil.com>  
2 Current Version : 00.00.02.04  
3 Older Version : 00.00.02.02

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- i. Register 16 byte CDB capability with scsi midlayer

"This patch properly registers the 16 byte command length capability of the megaraid\_sas controlled hardware with the scsi midlayer. All megaraid\_sas hardware supports 16 byte CDB's."

-Joshua Giles <joshua\_giles@dell.com>

1 Release Date : Mon Jan 23 14:09:01 PST 2006 - Sumant Patro  
<Sumant.Patro@lsil.com>

2 Current Version : 00.00.02.02

3 Older Version : 00.00.02.01

- i. New template defined to represent each family of controllers (identified by processor used).

The template will have definitions that will be initialised to appropriate values for a specific family of controllers. The template definition has four function pointers. During driver initialisation the function pointers will be set based on the controller family type. This change is done to support new controllers that has different processors and thus different register set.

-Sumant Patro <Sumant.Patro@lsil.com>

1 Release Date : Mon Dec 19 14:36:26 PST 2005 - Sumant Patro  
<Sumant.Patro@lsil.com>

2 Current Version : 00.00.02.00-rc4

3 Older Version : 00.00.02.01

- i. Code reorganized to remove code duplication in megasas\_build\_cmd.

"There's a lot of duplicate code megasas\_build\_cmd. Move that out of the different codepaths and merge the remainder of megasas\_build\_cmd into megasas\_queue\_command"

- Christoph Hellwig <hch@lst.de>

- ii. Defined MEGASAS\_IOC\_FIRMWARE32 for code paths that handles 32 bit applications in 64 bit systems.

"MEGASAS\_IOC\_FIRMWARE can't be redefined if CONFIG\_COMPAT is set, we need to define a MEGASAS\_IOC\_FIRMWARE32 define so native binaries continue to work"

- Christoph Hellwig <hch@lst.de>