

## ChangeLog.lpfc.txt

### Known issues :

- \* Please read the associated RELEASE-NOTES file !!!
- \* This source release intended for upstream kernel releases only!

### Changes from 20050323 to 20050413

- \* Changed version number to 8.0.28
- \* Fixed build warning for 2.6.12-rc2 kernels: mempool\_alloc now requires a function which takes an unsigned int for gfp\_flags.
- \* Removed pci dma sync calls to coherent/consistent pci memory.
- \* Merged patch from Christoph Hellwig <hch@lst.de>: split helpers for fabric and nport logins out of lpfc\_cmpl\_els\_flogi.
- \* Removed sysfs attributes that are used to dump the various discovery lists.
- \* Fix for issue where not all luns are seen. Search all lists other than unmap list in lpfc\_find\_target(). Otherwise INQUIRY to luns on nodes in NPR or other relevant states (PLOGI, PRLI...) are errored back and scan() terminates.
- \* Removed FC\_TRANSPORT\_PATCHESxxx defines. They're in 2.6.12-rc1.
- \* Compare return value of lpfc\_scsi\_tgt\_reset against SCSI midlayer codes SUCCESS/FAILED which that function returns rather than SLI return code.
- \* Removed extraneous calls to lpfc\_sli\_next\_iotag which should only be called from lpfc\_sli\_submit\_iocb. Also make lpfc\_sli\_next\_iotag static.
- \* Added PCI ID for LP10000-S.
- \* Changes in lpfc\_abort\_handler(): Return SUCCESS if we did not find command in both TX and TX completion queues. Return ERROR if we timed out waiting for command to complete after abort was issued.
- \* Zero-out response sense length in lpfc\_scsi\_prep\_cmnd to prevent interpretation of stale sense length when the command completes - was causing spurious 0710 messages.
- \* Moved clearing of host\_scribble inside host\_lock in IO completion path.
- \* Fixed a bunch of mixed tab/space indentation.
- \* Allow hex format numbers in sysfs attribute setting. Fix application hang when invalid numbers are used in sysfs settings.
- \* Removed extra iotag allocation by lpfc\_abort\_handler.
- \* Clear host\_scribble in the scsi\_cmnd structure when failing in queuecommand.
- \* Changed logic at top of lpfc\_abort\_handler so that if the command's host\_scribble field is NULL, return SUCCESS because the driver has already returned the command to the midlayer.

### Changes from 20050308 to 20050323

- \* Changed version number to 8.0.27
- \* Changed a few lines from patch submitted by Christoph Hellwig (3/19). MAILBOX\_WSIZE \* (uint32\_t) is replaced with an equivalent MAILBOX\_CMDSIZE macro.
- \* Merged patch from Christoph Hellwig (3/19): some misc patches against the latest drivers:
  - stop using volatile. if you need special ordering use memory barriers but that doesn't seem to be the case here

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- switch lpfc\_sli\_pcimem\_bcopy to take void \* arguments.
- remove typecast for constants - a U postfix marks them unsigned int in C
- add a MAILBOX\_CMD\_SIZE macro, as most users of MAILBOX\_CMD\_WSIZE didn't really want the word count
- kill struct lpfc\_scsi\_dma\_buf and embedded the two members directly in struct lpfc\_scsi\_buf
- don't call dma\_sync function on allocations from pci\_pool\_alloc - it's only for streaming mappings (pci\_map\*)
- \* Merged patch from Christoph Hellwig (3/19) - nlp\_failMask isn't ever used by the driver, just reported to userspace (and that in a multi-value file which is against the sysfs guidelines).
- \* Change pci\_module\_init to pci\_register\_module() with appropriate ifdefs.
- \* Added #include <linux/dma-mapping.h> as required by the DMA 32bit and 64bit defines on some archs.
- \* Merged patch from Christoph Hellwig (03/19) - fix initialization order - scsi\_add\_host must happen last from scsi POV. Also some minor style/comment fixups.
- \* Fixed use of TRANSPORT\_PATCHES\_V2 by changing to FC\_TRANSPORT\_PATCHES\_V2.

#### Changes from 20050223 to 20050308

- \* Changed version number to 8.0.26
- \* Revise TRANSPORT\_PATCHES\_V2 so that lpfc\_target is removed and rport data is used instead. Removed device\_queue\_hash[].
- \* Changed RW attributes of scan\_down, max\_luns and fcp\_bind\_method to R only.
- \* Fixed RSCN handling during initial link initialization.
- \* Fixed issue with receiving PLOGI handling when node is on NPR list and marked for ADISC.
- \* Fixed RSCN timeout issues.
- \* Reduced severity of "SCSI layer issued abort device" message to KERN\_WARNING.
- \* Feedback from Christoph Hellwig (on 2/5) - In the LPFC\_EVT\_SCAN case the caller already has the target ID handy, so pass that one in evt\_arg1.
- \* Fix compile warning/resultant panic in lpfc\_register\_remote\_port().

#### Changes from 20050215 to 20050223

- \* Changed version number to 8.0.25
- \* Add appropriate comments to lpfc\_sli.c.
- \* Use DMA\_64BIT\_MASK and DMA\_32BIT\_MASK defines instead of 0xffffffffffffffffFULL & 0xffffffffFULL respectively. Use pci equivalents instead of dma\_set\_mask and also modify condition clause to actually exit on error condition.
- \* Restart els timeout handler only if txcmplq\_cnt. On submission, mod\_timer the els\_tmofunc. This prevents the worker thread from waking up the els\_tmo handler un-necessarily. The thread was being woken up even when there were no pending els commands.
- \* Added new typedefs for abort and reset functions.
- \* Collapsed lpfc\_sli\_abort\_iocb\_xxx into a single function.
- \* Collapsed lpfc\_sli\_sum\_iocb\_xxx into a single function.

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- \* Removed TXQ from all abort and reset handlers since it is never used.
- \* Fixed Oops panic in 8.0.23 (reported on SourceForge). The driver was not handling LPFC\_IO\_POLL cases correctly in fast\_ring\_event and was setting the tgt\_reset timeout to 0 in lpfc\_reset\_bus handler. This 0 timeout would not allow the FW to timeout ABTS's on bad targets and allow the driver to have an iocb on two lists. Also split the lpfc\_sli\_ringtxcmpl\_get function into two routines to match the fast and slow completion semantics - ELS completions worked for the wrong reasons. Also provided new log message number - had two 0326 entries.
- \* Removed unused #define LPFC\_SCSI\_INITIAL\_BPL\_SIZE.
- \* Removed unused struct lpfc\_node\_farp\_pend definition.
- \* Removed unused #define LPFC\_SLIM2\_PAGE\_AREA.
- \* Changed zeros used as pointers to NULL.
- \* Removed unneeded braces around single line in lpfc\_do\_work.
- \* Close humongous memory leak in lpfc\_sli.c - driver was losing 13 iocbq structures per LIP.
- \* Removed last of GFP\_ATOMIC allocations.
- \* Locks are not taken outside of nportdisc, hbadisc, els and most of the init, sli, mbox and ct groups of functions
- \* Fix comment for lpfc\_sli\_iocb\_cmd\_type to fit within 80 columns.
- \* Replaced wait\_event() with wait\_event\_interruptible(). wait\_event() puts the worker thread in an UNINTERRUPTIBLE state causing it to figure in load average calculations. Also add a BUG\_ON to the ret code of wait\_event\_interruptible() since the premise is that the worker thread is signal-immune.

#### Changes from 20050208 to 20050215

- \* Changed version number to 8.0.24
- \* Fixed a memory leak of iocbq structure. For ELS solicited iocbs sli layer now frees the response iocbs after processing it.
- \* Closed large memory leak -- we were losing 13 iocbq structures per LIP.
- \* Changing EIO and ENOMEM to -EIO and -ENOMEM respectively.
- \* Cleanup of lpfc\_sli\_iocb\_cmd\_type array and typing of iocb type.
- \* Implemented Christoph Hellwig's feedback from 02/05: Remove macros putLunHigh, putLunLow. Use lpfc\_put\_lun() inline instead.
- \* Integrated Christoph Hellwig's feedback from 02/05: Instead of cpu\_to\_be32(), use swab16((uint16\_t)lun). This is the same as "swab16() on LE" and "<<16 on BE".
- \* Added updates for revised FC remote port patch (dev\_loss\_tmo moved to rport, hostdata renamed dd\_data, add fc\_remote\_host() on shutdown).
- \* Removed unnecessary function prototype.
- \* Added code to prevent waking up worker thread after the exit of worker thread. Fixes panic seen with insmod/rmmmod testing with 70 disks.
- \* Integrated Christoph Hellwig's patch from 1/30: Make some variables/code static (namely lpfcAlpaArray and process\_nodev\_timeout()).
- \* Integrated Christoph Hellwig's patch from 1/30: Use switch...case instead of if...else if...else if while decoding JDEC id.

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Changes from 20050201 to 20050208

- \* Changed version number to 8.0.23
- \* Make `lpfc_work_done`, `lpfc_get_scsi_buf`, `lpfc_mbx_process_link_up`, `lpfc_mbx_issue_link_down` and `lpfc_sli_chipset_init` static.
- \* Cleaned up references to `list_head->next` field in the driver.
- \* Replaced `lpfc_discq_post_event` with `lpfc_workq_post_event`.
- \* Implmented Christoph Hellwig's review from 2/5: Check for return values of `kmalloc`.
- \* Integrated Christoph Hellwig's patch from 1/30: Protecting `scan_tmo` and friends in `!FC_TRANSPORT_PATCHES_V2 && !USE_SCAN_TARGET`.
- \* Integrated Christoph Hellwig's patch from 1/30: Some fixes in the evt handling area.
- \* Integrated Christoph Hellwig's patch from 1/30: Remove usage of `intr_inited` variable. The interrupt initialization from OS side now happens in `lpfc_probe_one()`.
- \* Integrated Christoph Hellwig's patch from 1/30: remove shim `lpfc_alloc_transport_attr` - remove shim `lpfc_alloc_shost_attrs` - remove shim `lpfc_scsi_host_init` - allocate phba mem in scsi's `hostdata` readjust code so that they are no use after free's (don't use after `scsi_host_put`) - make `lpfc_alloc_sysfs_attr` return errors
- \* Fixed panic in `lpfc_probe_one()`. Do not delete in a list iterator that is not safe.
- \* Clean up fast lookup array of the `fcpring` when aborting iocbs.
- \* Following timeout handlers moved to the lpfc worker thread: `lpfc_disc_timeout`, `lpfc_els_timeout`, `lpfc_mbox`, `lpfc_fdmi_tmo`, `lpfc_nODEV_timeout`, `lpfc_els_retry_delay`.
- \* Removed unused `NLP_NS_NODE` #define.
- \* Integrated Christoph Hellwig's patch from 1/30: remove unused `lpfc_hba_list`; remove unused `lpfc_rdev_wd30`; remove `lpfc_get_brd_no` and use Linux provided `IDR`.
- \* Changed board reset procedure so that `lpfc_sli_send_reset()` writes the `INITFF` bit and leaves `lpfc_sli_brdreset()` to clear the bit.
- \* Removed `outfcpio` sysfs device attribute.
- \* VPD changes: 1) Modify driver to use the model name and description from the VPD data if it exists 2) Rework use of `DUMP` mailbox command to support HBAs with 256 bytes of SLIM.
- \* Fixed compile error for implicit definition of struct `scsi_target`

Changes from 20050124 to 20050201

- \* Changed version number to 8.0.22
- \* Moved discovery timeout handler to worker thread. There are function calls in this function which are not safe to call from HW interrupt context.
- \* Removed `free_irq` from the error path of HBA initialization. This will fix the free of uninitialised IRQ when `config_port` fails.
- \* Make sure function which processes unsolicited IOCBs on ELS ring still is called with the lock held.
- \* Clear LA bit from `work_ha` when we are not supposed to handle LA.

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- \* Fix double locking bug in the error handling part of `lpfc_mbx_cmpl_read_la`.
- \* Implemented fast IOCB processing for FCP ring.
- \* Since mboxs are now unconditionally allocated outside of the lock, free them in cases where they are not used.
- \* Moved out a couple of GFP\_ATOMICS in `lpfc_disc_timeout`, to before locks so that they can GFP\_KERNEL instead. Also cleaned up code.
- \* Collapsed interrupt handling code into one function.
- \* Removed event posting and handling of solicited and unsolicited iocbs.
- \* Remove ELS ring handling leftovers from the `lpfc_sli_inter()`.
- \* ELS ring (any slow ring) moved from the `lpfc_sli_inter()` into a worker thread. Link Attention, Mbox Attention, and Error Attention, as well as slow rings' attention is passed to the worker thread via worker thread copy of Host Attention register. Corresponding events are removed from the event queue handling.
- \* Add entries to hba structure to delegate some functionality from the `lpfc_sli_inter()` to a worker thread.
- \* Reduced used of GFP\_ATOMIC for memory allocations.
- \* Moved locks deeper in order to change GFP\_ATOMIC to GFP\_KERNEL.
- \* IOCB initialization fix for Raw IO.
- \* Removed `qcmdcnt`, `iodonecnt`, `errcnt` from `lpfc_target` and from driver.
- \* Added call to `lpfc_els_abort` in `lpfc_free_node`. Modified `lpfc_els_abort` to reset `txq` and `txcmplq` iterator after a `iocb_cmpl` call.
- \* Fixed a use after free issue in `lpfc_init.c`.
- \* Defined default mailbox completion routine and removed code in the sli layer which checks the `mbox_cmpl == 0` to free mail box resources.
- \* In `lpfc_workq_post_event`, clean up comment formatting and remove unneeded cast of `kmalloc`'s return.
- \* Removed loop which calls `fc_remote_port_unblock` and `fc_remote_port_delete` for every target as this same effect is accomplished by the `scsi_remove_host` call.
- \* Minor cleanup of header files. Stop header files including other header files. Removed sentinels which hide multiple inclusions. Removed unneeded `#include` directives.
- \* Fixed memory leaks in mailbox error paths.
- \* Moved lock from around of `lpfc_work_done` to `lpfc_work_done` itself.
- \* Removed typedef for `LPFC_WORK_EVT_t` and left just struct `lpfc_work_evt` to comply with linux\_scsi review coding style.
- \* Fixed some trailing whitespaces, spaces used for indentation and ill-formatting multiline comments.
- \* Bug fix for Raw IO errors. Reuse of IOCBs now mandates setting of `ulpPU` and `fcpi_parm` to avoid incorrect read check of Write IO and incorrect read length.

Changes from 20050110 to 20050124

- \* Changed version number to 8.0.21
- \* Removed unpleasant casting in the definition and use of `lpfc_disc_action` function pointer array.

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- \* Makefile cleanup. Use `?` operator for setting default `KERNELVERSION` and `BASEINCLUDE` values. Use `$(PWD)` consistently.
- \* Removed call to `lpfc_sli_intr` from `lpfc_config_port_post`. All Linux systems will service hardware interrupts while bringing up the driver.
- \* Christoph Hellwig change request: Reorg of contents of `lpfc_hbadisc.c`, `lpfc_scsi.h`, `lpfc_init.c`, `lpfc_sli.c`, `lpfc_attr.c`, `lpfc_scsi.c`.
- \* Renamed discovery thread to `lpfc_worker` thread. Moved handling of error attention and link attention and mbox event handler to `lpfc_worker` thread.
- \* Removed `.proc_info` and `.proc_name` from the driver template and associated code.
- \* Removed check of `FC_UNLOADING` flag in `lpfc_queuecommand` to determine what result to return.
- \* Move modification of `FC_UNLOADING` flag under `host_lock`.
- \* Fix `IOERR_RCV_BUFFER_WAITING` handling for CT and ELS subsystem.
- \* Workaround firmware bug for `IOERR_RCV_BUFFER_WAITING` on ELS ring.
- \* Fixed a couple `lpfc_post_buffer` problems in `lpfc_init.c`.
- \* Add missing spaces to the parameter descriptions for `lpfc_cr_delay`, `lpfc_cr_count` and `lpfc_discovery_threads`.
- \* Lock before calling `lpfc_sli_hba_down()`.
- \* Fix leak of "host" in the error path in the `remove_one()` path.
- \* Fix comment for `lpfc_cr_count`. It defaults to 1.
- \* Fix issue where we are calling `lpfc_disc_done()` recursively from `lpfc_linkdown()`, but `list_for_each_entry_safe()` is not safe for such use.
- \* Bump `lpfc_discovery_threads` (count of outstanding ELS commands in discovery) to 32
- \* If the SCSI midlayer tries to recover from an error on a lun while the corresponding target is in the NPR state, lpfc driver will reject all the resets. This will cause the target to be moved to offline state and block all the I/Os. The fix for this is to delay the lun reset to a target which is not in MAPPED state until the target is rediscovered or nodev timeout is fired.

#### Changes from 20041229 to 20050110

- \* Changed version number to 8.0.20
- \* rport fix: use new `fc_remote_port_rolechg()` function instead of direct structure change
- \* rport fix: last null pointer check
- \* Phase II of GFP\_ATOMIC effort. Replaced `iocb_mem_pool` and `scsibuf_mem_pool` with `kmalloc` and linked list. Inserted list operations for `mempool_alloc` calls. General code cleanup. All abort and reset routines converted. `Handle_ring_event` converted.
- \* If the `mbox_cmpl == lpfc_sli_wake_mbox_wait` in `lpfc_sli_handle_mb_event`, `pmb->context1` points to a waitq. Do not free the structure.
- \* rport fixes: fix for `rmmod` crash
- \* rport fixes: when receiving PRLI's, set node/rport role values
- \* rport fixes: fix for unload and for fabric port deletes
- \* VPD info bug fix.

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- \* lpfc\_linkdown() should be able to process all outstanding events by calling lpfc\_disc\_done() even if it is called from lpfc\_disc\_done() Moving all events from phba->dpc\_disc to local local\_dpc\_disc prevents those events from being processed. Removing that queue. From now on we should not see "Illegal State Transition" messages.
- \* Release host lock and enable interrupts when calling del\_timer\_sync()
- \* All related to rports: Clean up issues with rport deletion Convert to using block/unblock on list remove (was del/add) Moved rport delete to freenode - so rport tracks node.
- \* rport fixes: for fport, get maxframe and class support information
- \* Added use of wait\_event to work with kthread interface.
- \* Ensure that scsi\_transport\_fc.h is always pulled in by lpfc\_scsiport.c
- \* In remote port changes: no longer nulling target->pnode when removing from mapped list. Pnode get nulled when the node is freed (after nodev tmo). This bug was causing i/o recieved in the small window while the device was blocked to be errored w/ did\_no\_connect. With the fix, it returns host\_busy (per the pre-remote port changes).
- \* Merge in support for fc transport remote port use. This removes any consistent bindings within the driver. All scanning is now on a per-target basis driven by the discovery engine.

#### Changes from 20041220 to 20041229

- \* Changed version number to 8.0.19
- \* Fixed bug for handling RSCN type 3. Terminate RSCN mode properly after ADISC handling completes.
- \* Add list\_remove\_head macro. Macro cleans up memory allocation list handling. Also clean up lpfc\_reset\_bus\_handler - routine does not need to allocate its own scsi\_cmnd and scsi\_device structures.
- \* Fixed potential discovery bug, nlp list corruption fix potential memory leak
- \* Part 1 of the memory allocation rework request by linux-scsi. This effort fixes the number of bdes per scsi\_buf to 64, makes the scatter-gather count a module parameter, builds a linked list of scsi\_bufs, and removes all dependencies on lpfc\_mem.h.
- \* Reverted lpfc\_do\_dpc, probe\_one, remove\_one to original implementation. Too many problems (driver not completing initial discovery, and IO not starting to disks). Backs out kthread patch.
- \* Fix race condition in lpfc\_do\_dpc. If wake\_up interrupt occurs while lpfc\_do\_dpc is running disc\_done and the dpc list is empty, the latest insertion is missed and the schedule\_timeout does not wakeup. The sleep interval is MAX\_SCHEDULE\_TIMEOUT defined as ~OUL >> 1, a very large number. Hacked it to 5\*HZ for now.
- \* Fixed bug introduced when discovery thread implementation was moved to kthread. kthread\_stop() is not able to wake up thread waiting on a semaphore and "modprobe -r lpfc" is not always (most of the times) able to complete. Fix is in not using semaphore for the interruptable sleep.

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- \* Small Makefile cleanup – Remove remnants of 2.4 vs. 2.6 determination.

#### Changes from 20041213 to 20041220

- \* Changed version number to 8.0.18
- \* Janitorial cleanup after removal of sliinit and ringinit[] ring statistic is owned by the ring and SLI stats are in sli structure.
- \* Integrated patch from Christoph Hellwig <hch@lst.de> Kill compile warnings on 64 bit platforms: %variables for %llx format specifiers must be caste to long long because %(u)int64\_t can just be long on 64bit platforms.
- \* Integrated patch from Christoph Hellwig <hch@lst.de> Removes dead code.
- \* Integrated patch from Christoph Hellwig <hch@lst.de>: use kthread interface.
- \* Print LPFC\_MODULE\_DESC banner in module init routine.
- \* Removed sliinit structure and ringinit[] array.
- \* Changed log message number from 324 to 326 in lpfc\_sli.c.
- \* Wait longer for commands to complete in lpfc\_reset\_bus\_handler and lpfc\_reset\_bus\_handler. Also use schedule\_timeout() instead of msleep() and add error message in lpfc\_abort\_handler()
- \* When setting lpfc\_nODEV\_tmo, from dev\_loss set routine, make 1 sec minimum value.
- \* Functions which assume lock being held were called without lock and kernel complained about unlocking lock which is not locked.
- \* Added code in linkdown to unreg if we know login session will be terminated.
- \* Removed automap config parameter and fixed up use\_adisc logic to include FCP2 devices.

#### Changes from 20041207 to 20041213

- \* Changed version number to 8.0.17
- \* Fix sparse warnings by adding \_\_iomem markers to lpfc\_compat.h.
- \* Fix some sparse warnings -- 0 used as NULL pointer.
- \* Make sure there's a space between every if and it's (.
- \* Fix some overly long lines and make sure hard tabs are used for indentation.
- \* Remove all trailing whitespace.
- \* Integrate Christoph Hellwig's patch for 8.0.14: if pci\_module\_init fails we need to release the transport template. (also don't print the driver name at startup, linux drivers can be loaded without hardware present, and noise in the log for that case is considered unpolite, better print messages only for hardware actually found).
- \* Integrate Christoph Hellwig's patch for 8.0.14: Add missing \_\_iomem annotations, remove broken casts, mark functions static. Only major changes is chaning of some offsets from word-based to byte-based so we cans simply do void pointer arithmetics (gcc extension) instead of casting to uint32\_t.
- \* Integrate Christoph Hellwig's patch for 8.0.14: flag is always LPFC\_SLI\_ABORT\_IMED, aka 0 – remove dead code.
- \* Modified preprocessor #ifdef, #if, #ifndef to reflect upstream kernel submission. Clean build with make clean;make and make



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clean;make ADVANCED=1 on SMP x86, 2.6.10-rc2 on RHEL 4 Beta  
1. IO with a few lips and a long cable pull behaved accordingly.

- \* Implement full VPD support.
- \* Abort handler will try to wait for abort completion before returning. Fixes some panics in iocb completion code path.

#### Changes from 20041130 to 20041207

- \* Changed version number to 8.0.16
- \* Hung dt session fix. When the midlayer calls to abort a scsi command, make sure the driver does not complete post-abort handler. Just NULL the iocb\_cmpl callback handler and let SLI take over.
- \* Add Read check that uses SLI option to validate all READ data actually received.

#### Changes from 20041123 to 20041130

- \* Changed version number to 8.0.15
- \* Ifdef'd unused "binary" attributes by DFC\_DEBUG for clean compiles
- \* Stop DID\_ERROR from showing up along with QUEUE\_FULL set by the Clarion array (SCSI error ret. val. 0x70028) There is no need for driver to hard fail command which was failed by the target device.
- \* Fix for Scsi device scan bug reported on SourceForge. Driver was returning a DID\_ERROR in lpfc\_handle\_fcp\_error causing midlayer to mark report luns as failing even though it succeeded.
- \* Don't ignore SCSI status on underrun conditions for inquiries, test unit ready's, etc. This was causing us to lose reservation conflicts, etc

#### Changes from 20041018 to 20041123

- \* Changed version number to 8.0.14
- \* Added new function "iterator" lpfc\_sli\_next\_iocb\_slot() which returns pointer to iocb entry at cmdidx if queue is not full. It also updates next\_cmdidx, and local\_getidx (but not cmdidx)
- \* lpfc\_sli\_submit\_iocb() copies next\_cmdidx into cmdidx. Now it is the only place where we are updating cmdidx.
- \* lpfc\_sli\_update\_ring() is split in to two -- lpfc\_sli\_update\_ring() and lpfc\_sli\_update\_full\_ring().
- \* lpfc\_sli\_update\_ring() don't to read back correct value of cmdidx.
- \* Simplified lpfc\_sli\_resume\_iocb() and its use.
- \* New static function lpfc\_sli\_next\_iocb(phba, pring, &piocb) to iterate through commands in the TX queue and new command (at the end).
- \* Reduced max\_lun to 256 (due to issues reported to some arrays). Fixed comment, and macro values so def=256, min=1, max=32768.
- \* Fix an obvious typo/bug: kfree was used to free lpfc\_scsi\_buf instead of mempool\_free in lpfc\_scsiport.c.
- \* Suppress nodev\_tmo message for FABRIC nodes.
- \* Fixed some usage of plain integer as NULL pointer.

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- \* Bug fix for FLOGI cml, lpfc\_els\_chk\_latt error path code cleanup.
- \* Fixup lpfc\_els\_chk\_latt() to have Fabric NPorts go thru discovery state machine as well.
- \* Fixes to lpfc\_els\_chk\_latt().
- \* Use DID not SCSI target id as a port\_id and add some missing locks in lpfc\_fcp.c.
- \* Changed eh\_abort\_handler to return FAILED if command is not found in driver.
- \* Fix crash: paging request at virtual address 0000000000100108 - a result of removing from the txcmpl list item which was already removed (100100 is a LIST\_POISON1 value from the next pointer and 8 is an offset of the "prev") Driver runs out of iotags and does not handle that case well. The root of the problem is in the initialization code in lpfc\_sli.c
- \* Changes to work with proposed linux kernel patch to support hotplug.
- \* Zero out seg\_cnt in prep\_io failure path to prevent double sg unmap calls.
- \* Fix setting of upper 32 bits for Host Group Ring Pointers if in SLIM. Old code was inappropriately masking off low order bits.
- \* Use scsi\_[activate|deactivate]\_tcq calls provided in scsi\_tcq.h.
- \* Integrated patch from Christoph Hellwig (hch@lst.de): don't call pci\_dma\_sync\_\* on coherent memory. pci\_dma\_sync\_\* is needed and must be used only with streaming dma mappings pci\_map\_\*, not coherent mappings. Note: There are more consistent mappings that are using pci\_dma\_sync calls. Probably these should be removed as well.
- \* Modified lpfc\_free\_scsi\_buf to accommodate all three scsi\_buf free types to alleviate miscellaneous panics with cable pull testing.
- \* Set hotplug to default 0 and lpfc\_target\_remove to not remove devices unless hotplug is enabled.
- \* Fixed discovery bug: plogi cml uses ndlp after its freed.
- \* Fixed discovery bug: rnid acc cml, can potentially use ndlp after its freed.
- \* Modularize code path in lpfc\_target\_remove().
- \* Changes to support SCSI hotplug (ifdef'ed out because they need kernel support USE\_SCAN\_TARGET requires kernel support to export the interface to scsi\_scan\_target and to move the SCAN\_WILD\_CARD define to a general scsi header file. USE\_RESCAN\_HOST requires kernel support to export an interface to scan\_scsi\_host() with the rescan flag turned on).
- \* Removed redundant variable declaration of lpfc\_linkdown\_tmo.
- \* Fix for large port count remove test.
- \* Added check to see if BAR1 register is valid before using BAR1 register for programming config\_port mail box command.
- \* Added lpfc\_scsi\_hotplug to enable/disable driver support of SCSI hotplug.
- \* Changed lpfc\_disc\_neverdev() to lpfc\_disc\_illegal() and changed lpfc\_disc\_nODEV() to lpfc\_disc\_noop(). Adjusted appropriate events to use these routines.
- \* Add support for SCSI device hotplug.
- \* Take dummy lpfc\_target's into account for lpfc\_slave\_destroy().
- \* Bug fix to store WWPN / WWNN in NameServer / FDMI lpfc\_nodelist entries.

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- \* Added slavecnt in lpfc\_target for diagnostic purposes.
- \* Added lpfc\_hba load/unload flags to take care of special cases for add/remove device.
- \* Have target add/remove delay before scanning.
- \* Have rmmmod path cleanup blocked devices before scsi\_remove\_host.
- \* Added a #define for msleep for 2.6.5 kernels.
- \* In reset bus handler if memory allocation fails, return FAILED and not SUCCESS.
- \* Have lpfc eh handlers, bus\_reset and lun\_reset, wait for all associated I/Os to complete before returning.
- \* Fix memset byte count in lpfc\_hba\_init so that LP1050 would initialize correctly.
- \* Background nodev\_timeout processing to DPC This enables us to unblock (stop dev\_loss\_tmo) when appropriate.
- \* Fix array discovery with multiple luns. The max\_luns was 0 at the time the host structure was initialized. lpfc\_cfg\_params then set the max\_luns to the correct value afterwards.
- \* Remove unused define LPFC\_MAX\_LUN and set the default value of lpfc\_max\_lun parameter to 512.
- \* Reduced stack usage of lpfc\_hba\_init.
- \* Cleaned up the following warning generated by scripts/checkincludes.pl lpfc\_fcp.c: scsi/scsi\_cmnd.h is included more than once.
- \* Replaced "set\_current\_state(TASK\_UNINTERRUPTIBLE); schedule\_timeout(timeout)" with "msleep(timeout)".
- \* Fixnode was losing starget when rediscovered. We saw messages like: lpfc 0000:04:02.0: 0:0263 Cannot block scsi target as a result. Moved starget field into struct lpfc\_target which is referenced from the node.
- \* Add additional SLI layer logging in lpfc\_sli.c.
- \* Ignore more unexpected completions in lpfc\_nportdisc.c.
- \* Can not call lpfc\_target\_unblock from the soft interrupt context. It seems to be not nessasery to unblock target from nodev timeout.
- \* Introduce and use less lethal event handler for unexpected events in lpfc\_nportdisc.c.
- \* Can not call fc\_target\_(un)block() functions with interrupts disabled in lpfc\_scsiport.c.
- \* Added new configuration parameter, lpfc\_max\_luns range 1-32768, default 32768.
- \* Allow lpfc\_fcp.c to call lpfc\_get\_hba\_sym\_node\_name().
- \* Increase nodev timeout from 20 seconds to 30 seconds.
- \* Replace some kfree((void\*)ptr) with kfree(ptr).
- \* Make 3 functions static: lpfc\_get\_hba\_sym\_node\_name, lpfc\_intr\_prep and lpfc\_setup\_slim\_access. Move lpfc\_intr\_prep and lpfc\_setup\_slim\_access so they're defined before being used.
- \* Remove an unnecessary list\_del() in lpfc\_hbadisc.c.
- \* Set nlp\_state before calling lpfc\_nlp\_list() since this will potentially call fc\_target\_unblock which may cause a race in queuecommand by releasing host\_lock.
- \* Since lpfc\_nodev\_tmo < dev\_loss\_tmo remove queuecommand DID\_BAD\_TARGET return for now.
- \* Fix a problem with rcv logo.
- \* Remove unused portstatistics\_t structure.
- \* Remove #if 0 and unnecessary checks in lpfc\_fcp.c.
- \* Simplify lpfc\_issue\_lip: Extra layer of protection removed.

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- \* Grab lock before calling lpfc\_sli\_issue\_mbox(phba, pmb, MBX\_NOWAIT) in lpfc\_sli\_issue\_mbox\_wait().

Changes from 20040920 to 20041018

- \* Changed version number to 8.0.13
- \* Hide some attributes using #ifndef DFC\_DEBUG ... #endif.
- \* Modify Makefile to (1) make BUILD\_NO\_DEBUG=1 will hide some (binary) attributes (2) make BUILD\_FC\_TRANS=0 will build driver for 2.6.5 kernel with block/unblock patch.
- \* Modified #ifdef names.
- \* Added support for proposed FC transport host attributes (which replaces some of the attributes we had local to the driver). Removed the binary statistics sysfs attribute.
- \* Added extra ELS verbose logging for ELS responses.
- \* Added recognition for BUILD\_FC\_TRANS=2 to Makefile to define FC\_TRANS\_VER2.
- \* Add a pointer for link stats allocation.
- \* Exported lpfc\_get\_hba\_sym\_node\_name for use by FC\_TRANS\_VER2 sysfs routines.
- \* Fix discovery problem in lip testing: if device sends an ELS cmd (i.e. LOGO) before our FLOGI completes it should be LS\_RJT'ed.
- \* Moved #defines around to provide target\_add/remove for upstream kernel deliverables only not SLES9. Provided ifdefs to #include target\_block/unblock only if FC\_TRANS\_VER1.
- \* Add sanity check in lpfc\_nlp\_list move setting nlp\_Target outside #ifdef.
- \* Added a blocked member to the lpfc\_target structure for block/unblock. This member allows the driver to know when to unblock for pci\_remove\_one or pci\_add\_one. #ifdef'd some more block/unblock stuff and removed some defensive checks from target\_block/unblock.
- \* Moved + 5 second window to dev\_loss\_tmo setting and updated comments.
- \* Removed NULL target check from target\_block/unblock and fixed up a few comments.
- \* Enable sysfs attributes on 2.6.5 kernels and remove extra compatibility code.
- \* Remove any and all trailing whitespace.
- \* Added message 0718 and return error when dma\_map\_single fails.
- \* Changed the fcpCntl2 commands to include an FCP\_ prefix to get rid of build warnings on later 2.6.9-rc kernels. Build conflicts with scsi/scsi.h. Remove inclusions of scsi/scsi.h from hbadisc.c, sli.c, and fcp.c since these modules had no dependencies on scsi.h.
- \* Fixed a bug with RSCN handling. A RSCN received on one device, shouldn't affect other devices not referenced by the RSCN.
- \* Moved #if LINUX\_VERSION\_CODE >= KERNEL\_VERSION(2,6,6) to include lpfc\_jedec\_to\_ascii to prevent warning in SLES 9.
- \* Update Makefile to account for SLES 9 and scsi-target upstream kernel.
- \* This checkin provides block/unblock hooks for the upstream scsi target kernel and 2.6.5 on SLES9 SP1 with the block/unblock patch.
- \* Discovery changes regarding setting targetp->pnode and ndlp->nlp\_Target Ensure fc\_target \* routines are called properly

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- from discovery. Remove list\_del's from lpfc\_cleanup(). Ensure all the lpfc\_consistent\_bind\_\* routines don't set any driver structure objects.
- \* Fix for timeout of READ\_LA or READ\_SPARAM mailbox command causing panic.
  - \* Cleanup list\_del()'s for Discovery ndlp lists.
  - \* Bug fixes for some insmod/rmmod crashes, link down crashes and device loss crashes.
  - \* Removed NLP\_SEARCH\_DEQUE.
  - \* Call lpfc\_target\_unblock only if the targetp is nonNull and with the host\_lock held.
  - \* Added qcmodcnt back along with misc bug fixes to discovery.
  - \* Changed tgt\_io to outfcpio lpfc\_fcp.c.
  - \* Fixed errors caused by LIP and cable pulls both with and without block/unblock patch.
  - \* For now we have to call fc\_target\_unblock and fc\_target\_block with interrupts enabled.
  - \* Save seg\_cnt from dma\_map\_sg. Save scatter-gather start address and pass back to dma\_unmap\_sg in error with seg\_cnt.
  - \* Incorporating block/unblock calls into driver with ifdefs. This change is supported by scsi-target-2.6 kernel and forward only.
  - \* Merged in some discovery bug fixes and added tgt io counters.
  - \* Added sysfs attributes/interfaces: read only attribute "management\_version" and write only attribute "issue\_lip".
  - \* Fix build on big endian machines: while #if was OK with \_\_BIG\_ENDIAN which defined as 4321, \_\_BIG\_ENDIAN\_BITFIELD has to be tested with #ifdef because it does not have any value, it is either defined or not.
  - \* Add fabric\_name and port\_type attributes.
  - \* Change mdelay to msleep. mdelay works, but wastefully uses cpu resources without a lock held. Revert to msleep. Tested with sg\_reset for bus and three attached targets.
  - \* Added the customary #ifndef...#define...#endif to lpfc\_version.h.
  - \* Integrate patches from Christoph Hellwig: two new helpers common to lpfc\_sli\_resume\_iocb and lpfc\_sli\_issue\_iocb - significant cleanup of those two functions - the unused SLI\_IOCTL\_USE\_TXQ is gone - lpfc\_sli\_issue\_iocb\_wait loses its flags argument totally.
  - \* Fix in lpfc\_sli.c: we can not store a 5 bit value in a 4-bit field.
  - \* Moved some routines out of lpfc\_fcp.c into more appropriate files.
  - \* Whitespace cleanup: remove all trailing whitespace.
  - \* Make lpfc\_disc\_ndlp\_show static to lpfc\_fcp.c.
  - \* Remove leftover printk and replace some with printk(KERN\_WARNING)
  - \* Trivial: fix a few long lines and a soft tab.
  - \* Remove warnings generated by Sparse against driver (make C=1). Mostly these are "using integer as pointer warnings" i.e. use NULL instead of 0.
  - \* Integrated patch from Christoph Hellwig: Quite a lot of changes here, the most notable is that the phba->slim2p lpfc\_dmabuf goes away in favour of a typed pointer and a dma\_addr\_t. Due to the typed pointer lots of the cast mess can go away, and while at it I also replaced the messy SLI2\_SLIM\_t with a simple struct

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lpfc2\_sli2\_slim that only contains the part of the union we care about while using SLI2\_SLIM\_SIZE for all size calculations directly.

- \* Integrated patch from Christoph Hellwig: This streamlines the I/O completion path a little more, especially taking care of fast-pathing the non-error case. Also removes tons of dead members and defines from lpfc\_scsi.h - e.g. lpfc\_target is down to nothing more than the lpfc\_nodelist pointer.
- \* Added binary sysfs file to issue mbox commands
- \* Replaced #if \_\_BIG\_ENDIAN with #if \_\_BIG\_ENDIAN\_BITFIELD for compatibility with the user space applications.
- \* Decrease the amount of data in proc\_info.
- \* Condense nodelist flag members.
- \* Expand INFO for discovery sysfs shost entries.
- \* Notify user if information exceeds 4k sysfs limit.
- \* Removed a bunch of unused #defines.
- \* Added initial sysfs discovery shost attributes.
- \* Remove unused #defines lpfc\_disc.h.
- \* Fixed failMask nodelist settings.
- \* Cleanup some old comments / unused variables.
- \* Add LP101 to list of recognized adapters.

#### Changes from 20040908 to 20040920

- \* Changed version number to 8.0.12
- \* Removed used #defines: DEFAULT\_PCI\_LATENCY\_CLOCKS and PCI\_LATENCY\_VALUE from lpfc\_hw.h.
- \* Changes to accomodate rnid.
- \* Fix RSCN handling so RSCN NS queries only effect NPorts found in RSCN data.
- \* If we rcv a plogi on a NPort queued up for discovery, clear the NLP\_NPR\_2B\_DISC bit since rcv plogi logic will force NPort thru discovery.
- \* Ensure lpfc\_target is also cleaned up in lpfc\_cleanup().
- \* Preliminary changes for block/unblock kernel API extensions in progress with linux-scsi list. These are name changes and prototype changes only.
- \* Added send\_abts flag to lpfc\_els\_abort. For rcv LOGO when ADISC sent, the XRI of the LOGO rcv'ed is the same as the ADISC sent. Thus we cannot ABTS the ADISC before sending the LOGO ACC.
- \* Weed out some unused fc\_flags. Add FC\_DISC\_TMO.
- \* board\_online sysfs attribute added to support libdfc functions InitDiagEnv and SetBrdEnv.
- \* Streamline code in lpfc\_els\_retry fixup abort case in lpfc\_els\_timeout\_handler().
- \* Flush discovery/ELS events when we bring SLI layer down.
- \* ctlreg and slimem binary attributes added to support libdfc read/write mem/ctl functions.
- \* Integrated Christoph Hellwig's patch: Cleanup lpfc\_sli\_ringpostbuf\_get.
- \* Modified lpfc\_slave\_alloc and lpfc\_slave\_destroy to allocate and free a dummy target pointer. This allows queuecommand to skip the NULL target pointer check and avoid the console spam when slave\_alloc fails.
- \* Fix cfg\_scan\_down logic, it was reversed.
- \* Init list head ctrspbuflist.

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- \* Change name of lpfc\_driver\_abort to lpfc\_els\_abort since it is only valid for ELS ring.
- \* Remove unused third argument for lpfc\_consistent\_bind\_get().
- \* Fix up iotag fields in lpfc\_prep\_els\_iocb().
- \* Remove log message on code path triggered by lpfc\_els\_abort().
- \* Set host->unique\_id in lpfc\_fcp.c.
- \* Removed deadwood: lpfc\_target.phba not necessary anymore.
- \* Integrated patch from Christoph Hellwig: remove dead SLI\_IOCTL\_POLL handling.
- \* Integrated patch from Christoph Hellwig: Streamline I/O submission and completion path a little.
- \* Remove unnecessary lpfc\_brd\_no. Ensure brd\_no assignment is unique.
- \* Removed unused MAX\_FCP\_LUN.
- \* Use mod\_timer instead of add\_timer for fdmi in lpfc\_ct.c.
- \* Fixed misc discovery problems.
- \* Move stopping timers till just before lpfc\_mem\_free() call.
- \* Fix up NameServer reglogin error path.
- \* Cleanup possible outstanding discovery timers on rmmmod.
- \* Fix discovery NPort to NPort pt2pt problem.
- \* Get rid of ip\_tmofunc / scsi\_tmofunc.
- \* Integrated patch from Christoph Hellwig:  
lpfc\_disc\_done/lpfc\_do\_dpc cleanup - lpfc\_disc\_done can return void - move lpfc\_do\_dpc and lpfc\_disc\_done to lpfc\_hbadisc.c - remove checking of list emptiness before calling lpfc\_disc\_done, it handles the empty list case just fine and the additional instructions cost less than the bustlocked spinlock operations.
- \* Integrated patch from Christoph Hellwig: This adds a new 64bit counter instead, brd\_no isn't reused anymore. Also some tiny whitespace cleanups in surrounding code.
- \* Reorder functions in lpfc\_els.c to remove need for prototypes.
- \* Removed unused prototypes from lpfc\_crtn.h -  
lpfc\_ip\_timeout\_handler, lpfc\_read\_pci and lpfc\_revoke.
- \* Removed some unused prototypes from lpfc\_crtn.h -  
lpfc\_scsi\_hba\_reset, lpfc\_scsi\_issue\_inqsn,  
lpfc\_scsi\_issue\_inqp0, lpfc\_scsi\_timeout\_handler.
- \* Integrated patch from Christoph Hellwig: remove TRUE/FALSE usage.
- \* Integrated patch from Christoph Hellwig: Remove unused function prototypes lpfc\_set\_pkt\_len and lpfc\_get\_pkt\_data from lpfc\_crtn.h - fixes build warnings.
- \* Removed unused struct lpfc\_dmabufip definition from lpfc\_mem.h.
- \* Removed pre-2.6.5 MODULE\_VERSION macro from lpfc\_compat.h.
- \* Fixing missing static and removing dead code.
- \* Adding nodewwn, portwwn and portfcid shost attributes.
- \* Initial support for CT via sysfs. request payloads of size less than PAGE\_SIZE and rsp payloads of size PAGE\_SIZE are supported. Driver maintains a list of rsp's and passes back rsp's corresponding to the pid of the calling process.
- \* Support for RefreshInformation, GetAdapterAttributes, GetPortStatistics.
- \* Make nodev-tmo default to 20 seconds.
- \* Fix up some DSM error cases, unreg\_login rpi where needed.
- \* Fix up comments for fc\_target\_block / fc\_target\_unblock.
- \* Fix up code for scsi\_block\_requests / scsi\_unblock\_requests.
- \* Add NLP\_FCP\_TARGET for nodeinfo support.

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- \* Move suspend/resume in lpfc\_nlp\_list under appropriate case - Used host\_lock for DPC to avoid race (remove dpc\_lock)
- \* Fix some corner cases for PLOGI receive - simplify error case for cmpl\_reglogin\_reglogin\_issue.
- \* Bug fix for ppc64 EEH MMIO panic - always do readl after writel's of HBA registers to force flush.
- \* Get rid of initial static routine declarations in lpfc\_hbadisc.c and lpfc\_els.c.
- \* Updates to discovery processing.

#### Changes from 20040823 to 20040908

- \* Changed version number to 8.0.11
- \* Removed persistent binding code.
- \* Display both ASC and ASCQ info.
- \* Fixed link down->up transitions when linkdown tmo expires. Fix was in the defensive error checking at the start of queuecommand.
- \* Removed lpfc\_scsi\_timeout\_handler as this timer is no longer required. The midlayer will exhaust retries and then call lpfc\_abort\_handler, lpfc\_reset\_lun\_handler, and lpfc\_reset\_target\_handler.
- \* Minimal support for SCSI flat space addressing/volume set addressing. Use 16 bits of LUN address so that flat addressing/VSA will work.
- \* Changed 2 occurrences of if( 1 != f(x)) to if(f(x) != 1)
- \* Drop include of lpfc\_cfgparm.h.
- \* Reduce stack usage of lpfc\_fdmi\_cmd in lpfc\_ct.c.
- \* Add minimum range checking property to /sys write/store functions.
- \* Fix display of node\_name and port\_name via fc transport attr.
- \* Removed biosparam code.
- \* Removed range checking. phba->config[] array elements are now embedded into the hba struct. lpfc\_config\_setup() has been removed.
- \* Collapsed lpfc\_scsi\_cmd\_start into lpfc\_queuecommand and cleaned up combined routines.
- \* Removed unused prototypes myprint and lpfc\_sched\_service\_high\_priority\_queue.
- \* Removed unused function lpfc\_nodev.
- \* Removed scsi\_cmnd->timeout\_per\_command cancelation. SCSI midlayer now times out all commands - FW is instructed to not timeout.
- \* Removed polling code from lpfc\_scsi\_cmd\_start. Reorganized queuecommand and cmd\_start some.

#### Changes from 20040810 to 20040823

- \* Changed version number to 8.0.10
- \* Additional timer changes as per Arjan / Christoph's comments.
- \* Used mod\_timer() instead of del\_timer\_sync() where appropriate.
- \* Fixed a use after free case (panic on 2.6.8.1 with CONFIG\_DEBUG\_SLAB set).
- \* Fix compile warning in lpfc\_fcp.c.
- \* Minor fix for log message, that prints unassigned brdno which is zero.



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- \* Move `scsi_host_alloc()` to the beginning of `probe_one()`. This ensures that `host_lock` is available at later stages and also avoids tons of unnecessary initializing if `host_alloc()` fails.
- \* Removed else clause from `lpfc_slave_configure` that set `sdev->queue_depth`. The driver informs the midlayer of its setting in the template and only overrides if queue tagging is enabled.
- \* Added `PCI_DEVICE_ID_ZEPHYR` and `PCI_DEVICE_ID_ZFLY` (Junior Zephyr) support

#### Changes from 20040730 to 20040810

- \* Changed version number to 8.0.9
- \* Removed per HBA driver lock. Driver now uses the `host->host_lock`
- \* Restored support for the 2.6.5 kernel for those linux distributions shipped with the 2.6.5 kernel.
- \* Applied patch from Christoph Hellwig ([hch@infradead.org](mailto:hch@infradead.org)) as follows  
"[PATCH] use scsi host private data in `->proc_info`."
- \* Applied patch from Christoph Hellwig ([hch@infradead.org](mailto:hch@infradead.org)) as follows  
"Re: [Emulex] Ready for next round. This patch cleans up the memory allocation routines a little and fixes a missing `mempool_destroy` and some missing error handling."
- \* Changed pointers assignments from 0 to NULL.
- \* Added fixes to the `lpfc_reset_lun_handler` and `lpfc_reset_bus_handler` entry points that caused kernel to Oops or hang.
- \* Added fixes to targetless hosts that caused `modprobe` and `insmod` to

hang.

- \* Ongoing cleanup to many files

#### Changes from 20040723 to 20040730

- \* Changed version number to 8.0.8
- \* Removed unused `LPFN_DRIVER_VERSION` #define.
- \* Folded `lpfc_findnode_scsiid` into `lpfc_find_target`, its only caller.
- \* Removed 2 unneeded arguments to `lpfc_find_target` (`lun` and `create_flag`).
- \* Make `lpfc_sli_reset_on_init = 1`
- \* Minor cleanup to quieten sparse.
- \* Removed missing function = 0 in `tmo` routine in `lpfc_els.c`.
- \* Moved additional binding parameters into `lpfc_defaults.c`:  
`lpfc_automap` / `lpfc_fcp_bind_method`
- \* Use `msecs_to_jiffies()` where applicable.
- \* Only use queue depth attribute only after SLI HBA setup was completed.
- \* Put in memory barriers for PPC
- \* Added `PCI_DEVICE_ID_HELIOS` and `PCI_DEVICE_ID_JFLY` (Junior Helios) support
- \* Added 4&10 gigabit choices in user option `link_speed`
- \* Updated timer logic: Set timer data after `init_timer` use `timer_pending()` instead of `expires`.
- \* Removed some remnants of IP over FC support from `Kconfig` and `Makefile`.
- \* Remove redundant prototypes for `lpfc_handle_eratt`, `lpfc_handle_latt` and `lpfc_read_pci`.

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- \* Ongoing cleanup of lpfc\_init.c.
- \* Changed LPFC\_CFG\_DFT\_HBA\_Q\_DEPTH -> LPFC\_CFG\_HBA\_Q\_DEPTH.
- \* Another cleanup stab at lpfc\_ct.c. Remove castings, structure code sanely, remove redundant code, reorganize code so that functions are invoked after definition.

#### Changes from 20040716 to 20040723

- \* Changed version number to 8.0.7
- \* Cleanup of lpfc\_ct.c. Removed number of casts, removed tons of dead/redundant code, cleaned up badly and poorly written code, cleaned up return values.
- \* Fixed Persistent binding implementation
- \* Removed all references to lpfc\_scsi\_req\_tmo
- \* Removed last references to lun\_skip config parameter.
- \* Removed LPFC\_DEV\_RPTLUN node failure bit because we don't issue REPORT LUNS from the driver anymore.
- \* Removed LUN-tracking in driver. Removed lpfc\_lun struct and moved any functionality we still need to lpfc\_target.
- \* Added new lpfc\_jedec\_to\_ascii() call and replace two instances of duplicate code with calls to this function.
- \* Removed Volume Set Addressing handling on LUN IDs.
- \* Applied patch from Christoph Hellwig (hch@infradead.org) that removes dead code belonging to lpfc\_build\_scsi\_cmd() and its call path. This is related to the recently removed report\_lun code.

#### Changes from 20040709 to 20040716

- \* Changed version number to 8.0.6
- \* Removed internal report LUNs usage. Removed functions: lpfc\_disc\_issue\_rptlun, lpfc\_disc\_cmpl\_rptlun, lpfc\_disc\_retry\_rptlun and their use.
- \* Removed unused scheduler prototypes in lpfc\_crtn.h
- \* Replace lpfc\_geportname() with generic memcmp().
- \* Rearrange code in lpfc\_rcv\_plogi\_plogi\_issue() to make it a little more readable.
- \* Remove redundant port\_cmp != 2 check in if (!port\_cmp) { .... if (port\_cmp != 2).... }
- \* Clock changes: removed struct clk\_data and timerList.
- \* Clock changes: separate nodev\_tmo and els\_retry\_delay into 2 separate timers and convert to 1 argument changed LPFC\_NODE\_FARP\_PEND\_t to struct lpfc\_node\_farp\_pend convert ipfarp\_tmo to 1 argument convert target struct tmofunc and rtplunfunc to 1 argument \* cr\_count, cr\_delay and discovery\_threads are only needed to be module\_params and not visible via sysfs.

#### Changes from 20040614 to 20040709

- \* Changed version number to 8.0.5
- \* Make lpfc\_info static.
- \* Make lpfc\_get\_scsi\_buf static.
- \* Print a warning if pci\_set\_mwi returns an error.
- \* Changed SERV\_PARM to struct serv\_parm.
- \* Changed LS\_RJT to struct ls\_rjt.

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- \* Changed CSP to struct csp.
- \* Changed CLASS\_PARMS to struct class\_parms.
- \* Some cosmetic coding style cleanups to lpfc\_fcp.c.
- \* Providing a sysfs interface that dumps the last 32 LINK\_[UP|DOWN] and RSCN events.
- \* Get rid of delay\_iodone timer.
- \* Remove qfull timers and qfull logic.
- \* Convert mbox\_tmo, nlp\_xri\_tmo to 1 argument clock handler
- \* Removed duplicate extern defs of the bind variables.
- \* Streamline usage of the defines CLASS2 and CLASS3, removing un-necessary checks on config[LPFC\_CFG\_FCP\_CLASS].
- \* Moving the persistent binding variables to new file lpfc\_defaults.c
- \* Changed LPFC SCSI\_BUF\_t to struct lpfc\_scsi\_buf.
- \* Moved config specific code from probe\_one() into config\_setup(). Removing a redundant check on scandown value from bind\_setup() as this is already done in config\_setup().
- \* Changed LPFC\_SLI\_t to struct lpfc\_sli.
- \* Changed FCP\_CMND to struct fcp\_cmnd.
- \* Changed FCP\_RSP to struct fcp\_rsp.
- \* Remove the need for buf\_tmo.
- \* Changed ULP\_BDE64 to struct ulp\_bde64.
- \* Changed ULP\_BDE to struct ulp\_bde.
- \* Cleanup lpfc\_os\_return\_scsi\_cmd() and its call path.
- \* Removed lpfc\_no\_device\_delay.
- \* Consolidating lpfc\_hba\_put\_event() into lpfc\_put\_event().
- \* Removed following attributes and their functionality: lpfc\_extra\_io\_tmo, lpfc\_nodev\_holdio, lpfc\_delay\_rsp\_err, lpfc\_tgt\_queue\_depth and lpfc\_check\_cond\_err.
- \* Clock changes consolidating timers, just in the struct lpfc\_hba, to get rid of clkData and pass only one argument to timeout routine. Also, removing need for outstanding clock linked list to stop these timers at rmmmod.
- \* Move lpfc.conf contents into lpfc\_fcp.c. Removing per adapter attributes in favor of global attributes.
- \* Fix a potential null pointer reference of pmbuf in lpfc\_ct.c.
- \* On reset\_lun, issue LUN\_RESET as opposed to ABORT\_TASK\_SET.
- \* Removed SCSI\_REQ\_TMO related code.
- \* Introducing two new defines LPFC\_ATTR\_R and LPFC\_ATTR\_RW that do a module\_param, MODULE\_PARM\_DESC, lpfc\_param\_show, [lpfc\_param\_store] and CLASS\_DEVICE\_ATTRIBUTE.
- \* Properly clean up when allocation of a linked BDE fails in the SCSI queuecommand path.
- \* Fail SCSI command if dma\_map\_sg call fails.
- \* Remove unused macros SWAP\_ALWAYS and SWAP\_ALWAYS16.
- \* Reset context2 to 0 on exit in lpfc\_sli\_issue\_iocb\_wait\_high\_priority() and lpfc\_sli\_issue\_iocb\_wait().
- \* Arranging lpfc\_scsiport.c to follow style of use after definition. This removes the need for the cruft of forward declarations. Also removing a redundant #define ScsiResult as it already available elsewhere.
- \* Applying "Streamline lpfc error handling" patch from Christoph Hellwig (hch@infradead.org) with following modifications: fix mem leaks, remove some misplaced code that need not be there, print a message on exit (old code prints two (entry/exit)), make

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- ret values consistent (either 1/0 or SUCCESS/FAILURE), keep all eh routines in a single file (lpfc\_scsiport.c).
- \* Move contents of lpfc\_module\_param.h into lpfc\_fcp.c.
  - \* Changed sysfs attributes to CLASS\_DEVICE\_ATTRIBUTES (previously DEVICE\_ATTRIBUTES). They now appear in /sys/class/scsi\_host/hostx (previously in /sys/bus/pci/drivers/lpfc/devx).
  - \* Removed lpfc\_syfs.h and lpfc\_sysfs.c.
  - \* Cleanup of config params. Throttle params have been removed. max\_lun has been removed. max\_target is replaced with a #define, lun\_skip is removed. Remove ipfc config params and related code.
  - \* Changed DMABUF\_t usage to struct lpfc\_dmabuf.
  - \* Downsizing iCfgParam structure to include a\_string, a\_low, a\_hi and a\_default values only.
  - \* Free SCSI buf safety memory pool on shutdown to eliminate memory leak.
  - \* Change lpfc\_printf\_log to a #define. Also include phba->brd\_no and newline in the print string rather than in the #define.
  - \* Remove code that optionally locates Host Group Pointers in host memory SLIM since this is no longer needed for PPC64, once CONFIG\_PORT uses HBA's view of its BAR0.
  - \* Removed the forward declarations of the sli functions and rearranging the code in lpfc\_sli.c.
  - \* Removed the preamble functionality from logging.
  - \* Make lpfc\_sli\_hba\_setup() return negative error codes on error and correct the comment left over in lpfc\_fcp.c
  - \* Removed the lpfc\_loadtime variable.
  - \* Put a space between all ifs and their open parens '('.
  - \* Change Studly\_Caps LPFC\_SCSI\_BUF\_t to struct lpfc\_scsi\_buf.
  - \* Fixed insmod hang after hardware error.
  - \* Relocated scsi\_host alloc to before we enable the interrupt handler
  - \* Add .tmp\_versions directory to Makefile clean target. This directory is created in the 2.6.5+ build process (with Red Hat kernels at least).
  - \* Changing phba->config to kcalloc lpfc\_icfgparam and not \*phba->config. This is manifesting itself as a panic in pci\_release\_region().
  - \* Fix for firmware download / board reset problem.
  - \* Integrated patch from Christoph Hellwig (hch@infradead.org) to reorganize and cleanup lpfc\_fcp.c
  - \* Don't abort commands immediately when there is an RSCN event to give driver time to rediscover targets before the midlayer retries the SCSI commands.

#### Changes from 20040604 to 20040614

- \* Changed version number to 8.0.4
- \* Removed lpfc\_valid\_lun function.
- \* Added scsi\_buf safety pool to address scsi\_buf failures in queuecommand under low memory conditions. Allocations now come from kcalloc initially, but if kcalloc fails, the allocation comes from the safety pool.
- \* Modified lpfc\_slave\_alloc to only set the scsi\_device->hostdata pointer if the driver has discovered the target. This routine

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- always returns success now as well since no error ever occurs in the alloc routine.
- \* Mask only info and warning messages. Print all error messages irrespective of mask.
  - \* Removing lpfc\_log\_chk\_msg\_disabled()
  - \* Changed lpfc\_printf\_log to take struct lpfc\_hba \* directly instead of a "board number".
  - \* Convert dma\_sync\_single to pci\_dma\_sync\_single\_for\_{device/cpu}.
  - \* Implemented new style log messages. The message strings are now embedded in the call to lpfc\_printf\_log.
  - \* Decreased FLOGI discovery timeout to 20 seconds.
  - \* On error in lpfc\_pci\_probe\_one() return -1 and not 1.
  - \* Allow for board numbers that are not sequential, paving the way for hotplug support.
  - \* scsi\_add\_host() can fail, so wrap it around in an if(). Also initiate scsi\_scan\_host() after attaching the sysfs attributes.
  - \* lpfc\_release\_version is used only in lpfc\_ct.c, so move it there and mark it as static.
  - \* Removed lpfc\_sleep\_ms and replaced with mdelay or schedule calls directly
  - \* Removed all (struct list\_head \*) casts from clkData-related list handling in list\_add, list\_del macros.
  - \* Removed EXPORT\_SYMBOLs.
  - \* Removed LPFC\_MIN\_QFULL and lpfc\_qthrottle\_up.
  - \* Replace LPFCSCSITARGET\_t with struct lpfc\_target.
  - \* Replace LPFCSCSILUN\_t with struct lpfc\_lun.
  - \* Remove unused struct declarations (fcPathId and fcRouteId) from lpfc\_scsi.h.
  - \* Rewrite use of FC transport attributes.
  - \* Fix crash when link is lost. This was due to lpfc\_delay\_iodone calling list\_del on an object that was never put on a list.
  - \* Remove trailing spaces at the end of all lines.
  - \* Set MAX\_FCP\_TARGET to 256 from 0xff. Set MAX\_FCP\_LUN and MAX\_FCP\_CMDS to their decimal equivalents and updated documentation.

#### Changes from 20040526 to 20040604

- \* Changed version number to 8.0.3
- \* Completed sysfs FC transport support.
- \* Removed unused fields in SCSI LUN and SCSI Target structures: void \*pTargetProto; void \*pTargetOSEnv; void \*pLunOSEnv;
- \* Modified list\_for\_each to list\_for\_each\_entry. Modified list\_for\_each\_safe to list\_for\_each\_entry\_safe.
- \* Remove lpfc\_dfc.h file.
- \* Changed pHba->phba, pCommand->pcmd
- \* Changed plogi\_ndlp -> plogindlp, pos\_tmp->postmp, pRsp->prsp, pCmd->pcmd
- \* Changed pText -> ptext
- \* Changed p\_tmp\_buff -> ptmpbuff
- \* Changed pBufList -> pbuflist, pRsp -> prsp, pCmd -> pcmd
- \* Changed \*pos\_tmp -> \*postmp, \*p\_mbuf -> \*pmbuf
- \* Following changes are made to the SCSI fast path: Added DMA\_BUF\_t member to the lpfc\_scsi\_buf\_t. This will reduce a memory allocation in the scsi fast path. Added check for targetp == NULL in the scsi fast path. Increased number of

#### ChangeLog.lpfc.txt

- scatter gather entries in lpfc\_scsi\_dma\_ext to 4 from 3 and changed the size of lpfc\_scsi\_dma\_ext to 264
- \* Fixing some missing static lpfc\_nportdisc.c.
- \* Reordered #include lines so that lpfc.h doesn't have to #include other header files.
- \* Remove lpfc\_get\_hba\_sym\_node\_name() as a global EXPORT and make it static.
- \* Move struct clk\_data definition from lpfc\_hw.h to lpfc\_sli.h.
- \* Changed LPFC\_IOCQB\_t to struct lpfc\_iocbq.
- \* Changed LPFC\_SLI\_RING\_t to struct lpfc\_sli\_ring.
- \* Changed LPFC\_NODELIST\_t to struct lpfc\_nodelist.
- \* Rearranged lpfc\_nportdisc.c by moving state machine array (lpfc\_disc\_action) and the one function that uses it, lpfc\_disc\_state\_machine, to the end of the file, removing the need for the raft of prototypes at the top.
- \* Changed LPFC\_BINDLIST\_t to struct lpfc\_bindlist.
- \* Removed lpfc\_issue\_ct\_rsp(), lpfc\_sleep(), lpfc\_add\_bind(), lpfc\_del\_bind(), lpfc\_sli\_wake\_mbox\_wait() and lpfc\_sli\_issue\_mbox\_wait().
- \* Fixed a large number of overly-long lines.
- \* Fixed some discovery problems: Introduced deferred ndlp removal when in DSM to avoid panic when in nested DMSs Fix NportId fffc01 handling to not relogin after LOGO fixed handling of LOGO on PLOGI issue.
- \* Changed SLI\_CT\_REQUEST to lpfc\_sli\_ct\_request.
- \* Changed NAME\_TYPE to struct lpfc\_name.
- \* Changed lpfcCfgParam\_t to struct lpfc\_cfgparam.
- \* Changed LPFC\_STAT\_t to struct lpfc\_stats.
- \* Changed HBAEVT\_t to struct lpfc\_hba\_event.
- \* Changed Studly\_Caps lpfcHBA\_t to struct lpfc\_hba.
- \* Removed no longer used tasklet\_running flag.
- \* Removing \*PSOME\_VAR typedefs and using SOME\_VAR\* directly.
- \* Changing .use\_clustering to ENABLE\_CLUSTERING.
- \* Modify lpfc\_queuecommand to return SCSI\_MLQUEUE\_HOST\_BUSY when it can't queue a SCSI command. Also, remove cmnds\_in\_flight member of struct lpfcHBA for 2.6 kernels as it was only needed to determine what to return from queuecommand.
- \* Change return type of lpfc\_evt\_iocb\_free to void as it doesn't return anything.
- \* Remove unused cmd\_retry\_list and in\_retry members in struct lpfcHBA.
- \* Remove some instances of unneeded casting of kmalloc's return in lpfc\_scsiport.c
- \* Remove lpfc\_linux\_attach() and lpfc\_linux\_detach(). Integrate them into lpfc\_probe\_one() and lpfc\_release\_one() respectively.
- \* Remove lpfc\_num\_iocbs, lpfc\_num\_bufs module parameters
- \* Remove #defines for NUM\_NODES, NUM\_BUFS and NUM\_IOCBS

Changes from 20040515 to 20040526

- \* Changing version number to 8.0.2.
- \* Including dma-mapping.h as one of the include headers. Also rearrange the #include order.
- \* Make functions static as appropriate.
- \* queuecommand() will now return SCSI\_MLQUEUE\_HOST\_BUSY instead of 1 to backpressure midlayer.

#### ChangeLog.lpfc.txt

- \* Removed function prototypes for lpfc\_start\_timer() and lpfc\_stop\_timer()
- \* Changed timer support to be inline. Clk\_data is now declared right next to the corresponding timer\_list entry so we don't have to allocate these clk\_data dynamically.
- \* Add readls after writels to PCI space to flush the writes.
- \* Fix misspelled word "safety" in function names.
- \* Fix up comments in lpfc.conf for per HBA parameters to reflect new implementation.
- \* Change lpfc\_proc\_info handler to get the Nodename from fc\_nodename and not fc\_portname.
- \* Fix up some comments and whitespace in lpfc\_fcp.c.
- \* Formatting changes: get rid of leading spaces in code
- \* Move discovery processing from tasklet to a kernel thread.
- \* Move ndlp node from unmap list to map list if ADISC completed successfully.
- \* Flush all the ELS IOCBs when there is a link event.
- \* LP9802 qdepth is twice the LP9802DC qdepth. Delay elx\_sched\_init after READ\_CONFIG to get max\_xri from the firmware. Reset ELX\_CFG\_DFT\_HBA\_Q\_DEPTH to max\_xri after READ\_CONFIG
- \* Fix fc\_get\_cfg\_parm() to be more robust and support embedded hex values. The lpfc\_param's are now defined as: lpfc\_log\_verbose="lpfc:0,lpfc0:0x10,lpfc1:4,lpfc100:0xffff" The "," delimiter does not matter. It can be anything or not exist at all. ie param = "lpfc:0lpfc0:0x10.lpfc1:4txtlpfc100:0xffff" will also work. Additionally the string is treated as case insensitive.
- \* Changed all usage of lpfc\_find\_lun\_device() to lpfc\_find\_lun().
- \* Removed unnecessary wrappers lpfc\_find\_lun\_device() and lpfc\_tran\_find\_lun().
- \* Switch from using internal bus/id/lun to similar data from scsi\_device structure.
- \* Eliminate one-line function lpfc\_find\_target()
- \* Added slave\_alloc, slave\_destory
- \* lpfc\_scsi\_cmd\_start can now acquire lun pointer from scsi\_device->hostdata, which is setup in slave\_alloc.
- \* Eliminate unnecessary checking on every cmd just to see if we are accessing the device the first time.
- \* Remove assumption in lpfc\_reset\_lun\_handler that a valid lpfc\_scsi\_buf is hung off of linux's scsi\_cmnd->host\_scribble when our reset is called.

Changes from 20040507 to 20040515

- \* Changed version to 8.0.1
- \* Fixed crash on driver rmmmod after error injection tests and lpfc\_tasklet deadlock.
- \* Modified lpfc.conf to remove limit on number of support hosts
- \* Removed HBAAPI
- \* Removed duplication of SCSI opcodes from lpfc\_fcp.h that are available in scsi/scsi.h
- \* Rework module\_param usage
- \* Added MODULE\_PARAM\_DESC for various module\_params
- \* Removed #define EXPORT\_SYMTAB
- \* Removed #includes of if\_arp.h and rtnetlink.h

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- \* Removed string "Open Source" from MODULE\_DESC
- \* Cleanup duplicated string definitions used by MODULE\_DESC
- \* Renamed lpfc\_pci\_[detect|release] to lpfc\_pci\_[probe|remove]\_one
- \* Fix formatting of lpfc\_driver
- \* Remove unnecessary memset to 0 of lpfcDRVR
- \* Attach driver attributes always unless pci\_module\_init failed
- \* Remove all one-line wrappers from lpfc\_mem.
- \* Remove lpfc\_sysfs\_set\_[show|store] as it is no longer needed
- \* Redo lpfc\_sysfs\_params\_[show|store] to one value per attribute rule
- \* Breakdown lpfc\_sysfs\_info\_show into smaller one value per attribute
- \* Use device attributes instead of driver attributes where appropriate
- \* Remove no longer needed EXPORT\_SYMBOLs
- \* Remove some unused code (1600 msg's related)

#### Changes from 20040429 to 20040507

- \* Change version to 8.0.0
- \* Fix the number of cmd / rsp ring entries in lpfc\_fcp.c to match the divisions setup in lpfc\_hw.h.
- \* Remove phba->iflag reference.
- \* Several locking improvements.
- \* Remove functions lpfc\_drvr\_init\_lock, lpfc\_drvr\_lock, lpfc\_drvr\_unlock and lpfc\_hipri\_\*.
- \* Remove LPFC\_DRV\_LOCK and LPFC\_DRV\_UNLOCK macros.
- \* Make lpfc\_info() use lpfc\_get\_hba\_model\_desc() instead of rewriting almost identical code.
- \* Fix 1 overly long line in each of lpfc\_cfgparm.h, lpfc\_ftp.c and lpfc\_sli.c.
- \* Fix build for Red Hat 2.6.3 kernel by #defining MODULE\_VERSION only if it isn't already defined.
- \* Change elx\_sli\_issue\_mbox\_wait to return correct error code to the caller.
- \* In some of the els completion routines, after calling lpfc\_elx\_chk\_latt, driver ignores the return code of the lpfc\_elx\_chk\_latt. This will prevent the discovery state machine restarting correctly when there are link events in the middle of discovery state machine running. Fix this by exiting discovery state machine if lpfc\_els\_chk\_latt returns a non zero value.
- \* Removed MAX\_LPFC\_BRDS from lpfc\_diag.h
- \* Removed unused first\_check.
- \* Remove some unused fields and defines.
- \* Change lpfc-param names to lpfc\_param.
- \* Add use of MODULE\_VERSION macro for 2.6 kernels.
- \* Shorten length of some of the comment lines to make them more readable.
- \* Move FCP\_\* definitions to their own header file, lpfc\_fcp.h.
- \* Remove unused prototypes from lpfc\_crtn.h: fcptst, iptst, lpfc\_DELAYMS.
- \* Remove duplicated prototypes from lpfc\_crtn.h: lpfc\_config\_port\_prep, lpfc\_config\_port\_post, lpfc\_hba\_down\_prep.
- \* Removed some unused export\_symbols.
- \* Install driver files into \*/drivers/scsi/lpfc instead of \*/drivers/scsi.

#### Changes from 20040426 to 20040429



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- \* Declared export symbol `lpfc_page_alloc` and `lpfc_page_free`
- \* Changed lpfc version number to 6.98.3
- \* Move the definition of `MAX_LPFC_BRDS` to the only header file that uses it (`lpfc_diag.h`).
- \* Change `lpfc_sli_wake_iocb_wait` to do a regular `wake_up` since `lpfc_sli_issue_iocb_wait` now sleeps uninterruptible.
- \* Replace `list_for_each()` with `list_for_each_safe()` when a list element could be deleted.
- \* Fix IOCB memory leak

### Changes from 20040416 to 20040426

- \* Change `lpfc_config_port_prep()` to interpret word 4 of the DUMP mbox response as a byte-count
- \* Add info attribute to sysfs
- \* Minor formatting (spaces to tabs) cleanup in `lpfc_sched.h`
- \* Remove unused log message number 732
- \* Completing `MODULE_PARM` -> `module_param` changes
- \* Removed unused targetenable module parameter
- \* Removed locks from `lpfc_sli_issue_mbox_wait` routine
- \* Removed code that retry 29,00 check condition
- \* Removed code that manipulates `rspSnsLen`.
- \* Fix use of `lun-q-depth` config param
- \* Fix severity inconsistency with log message 249
- \* Removed `lpfc_max_target` from `lpfc_linux_attach`
- \* Replace references to `lpfcDRVR.pHba[]` with `lpfc_get_phba_by_inst()`
- \* Change `lpfc_param` to `lpfc-param`
- \* Partially removed 32 HBA restriction within driver. Incorporated `lpfc_instcnt`, `lpfc_instance[]`, and `pHba[]` into `lpfcDRVR` structure Added routines `lpfc_get_phba_by_inst()` `lpfc_get_inst_by_phba()` `lpfc_check_valid_phba()`
- \* Turn on attributes "set" & "params" by default.
- \* Further formatting/whitespace/line length cleanup on: `lpfc_ct.c` `lpfc_els.c` `lpfc_fcp.c` `lpfc_hbadisc.c` `lpfc_init.c` `lpfc_ipport.c` `lpfc_mbox.c` `lpfc_nportdisc.c` `lpfc_sched.c` `lpfc_sched.h` `lpfc_scsi.h` `lpfc_scsiport.c` `lpfc_sli.c` and `lpfc_sli.h`
- \* Add log message 249 to log any unsupported device addressing modes encountered.
- \* Add support for 256 targets and 256 LUNs
- \* Fixed panic in `lpfc_linkdown`.
- \* Removed (struct `list_head*`) casting in several calls to `list_del`
- \* Free irq reservation and kill running timers when `insmod` or `modprobe` are killed via `ctrl-c`
- \* Remove `drivers/scsi` from include path
- \* Wrap use of log message 311 in macro
- \* Detect failure return from `pci_map_sg` call in `lpfc_os_prep_io`
- \* Fix use-after-free of IOCB in `lpfc_sli_process_sol_iocb` which was causing an Ooops on 2.6.5 kernel.
- \* Cleanup use of several `gotos` not used for error exit.
- \* Replace `memcpy_toio()` and `memcpy_toio()` with endian-dependent `lpfc_memcpy_to_slim()` and `lpfc_memcpy_from_slim()` so that for big endian hosts like PPC64, the SLIM is accessed 4 bytes at a time instead of as a byte-stream.

### Changes from 20040409 to 20040416

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- \* The `scsi_register` and `scsi_alloc_host` OS calls can fail and return a zero-valued host pointer. A ctrl-C on 2.6 kernels during driver load will cause this and the driver to panic. Fixed this bug. Also found a bug in the `error_x` handling with `lpfc_sli_hba_down` - it was in the wrong place and the driver lock was not held, but needed to be (in `lpfc_linux_attach`) Fixed both. Did some minor comment clean up.
- \* Removed unwanted (void \*) castings.
- \* Replace define of `INVALID_PHYS`, with kernel 2.6.5's `dma_mapping_error()` and add a inline function for earlier kernels. Remove `lpfc_bad_scatterlist()`.
- \* Clean up formatting in `hbaapi.h`, `lpfc.h`, `lpfc_cfgparm.h`, `lpfc_crtn.h`, `lpfc_ct.c`, `lpfc_diag.h`, `lpfc_disc.h`, `lpfc_els.c`, `lpfc_fcp.c`, `lpfc_hbadisc.c`, `lpfc_hw.h`, `lpfc_init.c`, `lpfc_ipport.c`, `lpfc_logmsg.c`, `lpfc_logmsg.h` and `lpfc_scsiport.c` - mostly replacing groups of 8 spaces with hard tabs and keeping lines to 80 column max..
- \* Removed `LPFC_DRV_LOCK` call from `lpfc_unblock_requests` for 2.4 kernels. The `lpfc_scsi_done` routine already unlocks the driver lock since it expects this lock to be held.
- \* Removed global lock capabilities from driver lock routines
- \* Remove `SA_INTERRUPT` flag from `request_irq`
- \* Move `dma_addr_t` cast inside of `getPaddr` macro as everywhere `getPaddr` is used, the return is cast to `dma_addr_t`.
- \* Clean up formatting in `lpfc_sli.c` and `lpfc_sysfs.c` - mostly replacing groups of 8 spaces with hard tabs and keeping lines to 80 column max.
- \* Fix build for RHEL 2.1 BOOT kernels by always `#including` `interrupt.h` in `lpfc.h`.
- \* Fix RHEL 3 build by `#defining` `EXPORT_SYMTAB`.
- \* Replace `sprintf` with `snprintf` in `lpfc_proc_info`.
- \* Fix build warnings on 2.6 kernels - remove no longer used calls to character device initialization.
- \* Initial support code for discovery in tasklet conversion.
- \* Removing char interface and ioctl code.
- \* Change all `elx` prefixes to `lpfc`
- \* Replace `lpfc_write_slim()` & `lpfc_read_slim()` with `memcpy_toio()`, `memcpy_fromio()`, `writel()` & `readl()`.

Changes from 20040402 to 20040409

- \* Replaced `lpfc_read_hbaregs_plus_offset` and `lpfc_write_hbaregs_plus_offset` functions with `readl` and `writel`.
- \* Get rid of long `mdelay`'s in `insmod` path
- \* Changed the way our `pci_device_id` structures are initialized
- \* Replace `lpfc_read/write_CA/HA/HC/HS` with calls to `readl()` & `writel()` directly.
- \* Increase `SLI2_SLIM` to 16K Increase `cmd / rsp IOCBs` accordingly
- \* Removed `lpfc_els_chk_latt` from the `lpfc_config_post` function. `lpfc_els_chk_latt` will enable the link event interrupts when `flogi` is pending which causes two discovery state machines running parallely.
- \* Add `pci_disable_device` to unload path.
- \* Move `lpfc_sleep_event` from `lpfc_fcp.c` to `lpfc_util_ioctl.c`
- \* Call `dma_map_single()` & `pci_map_single()` directly instead of via

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- macro lpfc\_pci\_map(). Allow address 0 for PPC64.
- \* Change sleep to uninterruptible in lpfc\_sli\_issue\_icob\_wait because this function doesn't handle signals.
- \* Move lpfc\_wakeup\_event from lpfc\_fcp.c to lpfc\_ioctl.c
- \* Remove unneeded #include <linux/netdevice.h>
- \* Remove unused clock variables lpfc\_clkCnt and lpfc\_sec\_clk.
- \* Get rid of capitalization of function names.
- \* Removed lpfc\_addr\_sprintf.
- \* Implemented gotos in lpfc\_linux\_attach for error cases.
- \* Replace mlist->dma.list = dmp->dma.list; to mlist = dmp.
- \* Remove functions lpfc\_get\_OsNameVersion and elx\_wakeup. Change elx\_wakeup to wake\_up\_interruptible
- \* Add function lpfc\_get\_os\_nameversion and change lpfc\_get\_OsNameVersion to lpfc\_get\_os\_nameversion.
- \* Remove lpfc\_get\_OsNameVersion
- \* Change driver name to a consistent lpfc in every visible place.
- \* Fix build warning: removed unused variable ret in lpfc\_fdmi\_tmo.
- \* Remove lpfc\_utsname\_nodename\_check function
- \* Remove functions lpfc\_register\_intr and lpfc\_unregister\_intr
- \* Fill in owner field in lpfc\_ops file\_operations struct and remove now unnecessary open and close entry points.
- \* Change function name prefixes from elx\_ to lpfc\_
- \* Remove special case check for TUR in elx\_os\_prep\_io()
- \* Renamed elx\_scsi.h to lpfc\_scsi.h
- \* Renamed elx\_sched.h to lpfc\_sched.h
- \* Renamed elx\_mem.h to lpfc\_mem.h
- \* Renamed elx\_sli.h to lpfc\_sli.h
- \* Renamed elx\_logmsg.h to lpfc\_logmsg.h
- \* Renamed elx.h to lpfc.h
- \* Renamed elx\_sli.c to lpfc\_sli.c
- \* Renamed elx\_sched.c to lpfc\_sched.c
- \* Renamed elx\_mem.c to lpfc\_mem.c
- \* Renamed elx\_logmsg.c to lpfc\_logmsg.c
- \* Renamed lpfcLINUXfcp.c lpfc\_fcp.c
- \* Renamed elx\_clock.c to lpfc\_clock.c
- \* Reduce stack usage in lpfc\_info().
- \* Move lpip\_stats structure from lpfc\_hba.h to lpfc\_ip.h.
- \* Move lpfc\_stats and HBAEVT\_t structures from lpfc\_hba.h to lpfc.h
- \* Remove lpfc\_hba.h
- \* Remove duplicate rc definitions from
- \* Removed code which used next pointer to store mbox structure.
- \* Cleaned up list iterations.
- \* Removed non list manipulation of the next pointers.
- \* Change list\_del()/INIT\_LIST\_HEAD sequences to list\_del\_init()
- \* In ELX\_IOCTL\_t: Moved hipri\_trigger field to iocb\_flag. Combined hipri\_wait\_queue and rsp\_iocb in union
- \* Replaced casting from list\_head with list\_entry macro.
- \* Added ct\_ndlp\_context field to the ELX\_IOCTL\_t.
- \* Do not use DMABUF\_t list to store ndlp context
- \* Return 0 from lpfc\_process\_ioctl\_util() when ELX\_INITBRDS succeeds.
- \* remove elx\_os\_scsiport.h
- \* Do not use DMABUF\_t list to hold rpi context
- \* Replace elx\_cfg\_\* names with lpfc\_cfg\_\*
- \* Moved FCP activity to ring 0. Moved ELS/CT activity to ring 2.

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- \* Clean up formatting of elx\_sli.h (tabs for indents, 80 column lines).
- \* Remove unused elxclock declaration in elx\_sli.h.
- \* Since everywhere IOCB\_ENTRY is used, the return value is cast, move the cast into the macro.
- \* Split ioctls out into separate files

#### Changes from 20040326 to 20040402

- \* Updated ChangeLog for 20040402 SourceForge drop.
- \* Use safe list iterator for ndlp list
- \* Added code to return NLP\_STE\_FREED\_NODE from the discovery state machine functions if the node is freed from the function.
- \* Fixes to DMABUF\_t handling
- \* Fix for load error in discovery
- \* Remove loop\_cnt variable from lpfc\_rcv\_plogi\_unused\_node.
- \* Remove nle. reference.
- \* Remove support for building 2.4 drivers
- \* Remove elx\_util.h and replace elx\_disc.h with lpfc\_disc.h
- \* Implemented the Linux list macros in the discovery code. Also moved elx\_disc.h contents into lpfc\_disc.h
- \* Unused variable cleanup
- \* Use Linux list macros for DMABUF\_t
- \* Break up ioctls into 3 sections, dfc, util, hbaapi rearranged code so this could be easily separated into a diffenet module later All 3 are currently turned on by defines in lpfc\_ioctl.c LPFC\_DFC\_IOCTL, LPFC\_UTIL\_IOCTL, LPFC\_HBAAPI\_IOCTL
- \* Misc cleanup: some goto's; add comments; clarify function args
- \* Added code to use list macro for ELXSCSITARGET\_t.
- \* New list implementation for ELX\_MBOXQ\_t
- \* Cleaned up some list\_head casting.
- \* Put IPFC ifdef around two members of struct lpfc\_nodelist.
- \* Cleaned up iocb list using list macros and list\_head data structure.
- \* lpfc\_online() was missing some timer routines that were started by lpfc\_linux\_attach(). These routines are now also started by lpfc\_online(). lpfc\_offline() only stopped els\_timeout routine. It now stops all timeout routines associated with that hba.
- \* Replace separate next and prev pointers in struct lpfc\_bindlist with list\_head type. In elxHBA\_t, replace fc\_nlpbind\_start and \_end with fc\_nlpbind\_list and use list\_head macros to access it.
- \* Fix ulpStatus for aborting I/Os overlaps with newer firmware ulpStatus values
- \* Rework params\_show/store to be consistent as the other routines. Remove generic'ness and rely on set attribute.
- \* Remove unused log message.
- \* Collapse elx\_crtn.h and prod\_crtn.h into lpfc\_crtn.h
- \* Ifdef Scheduler specific routines
- \* Removed following unused ioct's: ELX\_READ\_IOCTL  
ELX\_READ\_MEMSEG ELX\_READ\_BINFO ELX\_READ\_EINVAL ELX\_READ\_LHBA  
ELX\_READ\_LXHBA ELX\_SET ELX\_DBG LPFC\_TRACE

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- \* Removed variable `fc_dbg_flg`
- \* Fixed a bug where `HBA_Q_DEPTH` was set incorrectly for 3-digit HBAs. Also changed `can_queue` so midlayer will only send `(HBA_Q_DEPTH - 10)` cmds.
- \* Clean up code in the error path, check condition. Remove unused sense-related fields in `lun` structure.
- \* Added code for safety pools for following objects: `mbox/bpl`, `mbox`, `ioch`, `ndlp`, `bind`
- \* Wrapped `'#include <elx_sched.h>'` in `'#ifdef USE_SCHEDULER'`.
- \* Fixed 'make clean' target.
- \* Build now ignores `elx_sched.o`, and includes `lpfc_sysfs.o`.
- \* Wrapped `lpfndd.o` target in `BUILD_IPFC` `ifdef`.
- \* Removed `elx_os.h` inclusion in implementation files.
- \* Removed `ELX_OS_IO_t` data structure and put data direction and non scatter/gather physical address into the `scsi` buffer structure directly. Moved `DRVR_LOCK`, `putPaddr`, `getPaddr` macros and some defines into `elx.h` since they are required by the whole driver.
- \* Migrated following `ioctl`s (debug) `ELX_DISPLAY_PCI_ALL`, `ELX_DEVP`, `ELX_READ_BPLIST`, `ELX_RESET_QDEPTH`, `ELX_STAT`.
- \* Step 1 of attempt to move all Debug `ioctl`s to `sysfs`. Implemented the following `IOCTL`s in `sysfs`: `ELX_WRITE_HC`, `ELX_WRITE_HS`, `ELX_WRITE_HA`, `ELX_WRITE_CA`, `ELX_READ_HC`, `ELX_READ_HS`, `ELX_READ_HA`, `ELX_READ_CA`, `ELX_READ_MB`, `ELX_RESET`, `ELX_READ_HBA`, `ELX_INSTANCE`, `ELX_LIP`. Also introduced attribute "set" to be used in conjunction with the above attributes.
- \* Removed `DLINK`, `enqueue` and `dequeue` declarations now that `clock` doesn't use them anymore
- \* Separated install rule so that `BUILD_IPFC` has to be set when `make` is called in order for the install rule to attempt to copy the `lpfndd.o` driver. This change fixes a bug that occurs because the install rule by default attempted to install `lpfndd.o`, whereas the default `make` rule did not by default build `lpfndd.o`.
- \* Keep track if `hbaapi` index numbers need to be refreshed.
- \* Removed `prod_os.h` from include list.
- \* Removed `LPFC_LOCK` and `LPFC_UNLOCK` macros. Added OS calls into `elx_os_scsiport.c`. This file is now empty.
- \* Added `spin_lock_irqsave` and `spin_unlock_irqrestore` calls into code directly and removed `LPFC_LOCK_` and `_UNLOCK_` macros
- \* Remove references to `"elx_clock.h"`
- \* Added `utsname.h` to include list. The previous checkin to `elx_os.h` removed its inclusion of `utsname.h` since there is precious little in the file. However, `lpfcLINUXfcp.c` needs it and now has it.
- \* Removed some commented-out code
- \* Removed `elx_lck_t` data structure, stray `elxDRVR_t` type, and include from file. No longer used.
- \* Removed two PCI Sync defines. Removed includes - not needed. Cleaned up macro lines.
- \* Added two functions from `elxLINUXfcp.c`. These functions were IPFC specific.
- \* Removed `hipri` lock abstractions and added OS call into code. Removed `elx_lck_t` and added `spinlock_t` directly. Moved two

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IPFC functions into lpfc\_ipport.c

- \* Moved IP specific structures to lpfc\_ip.h file.
- \* lpfc\_ipfarp\_timeout() uses system timer. Remove all usages of old internal clock support.
- \* Made changes to compile without IPFC support for the default build. Added ifdef IPFC for all lpfc\_ip.h includes.
- \* Patched elx\_free\_scsi\_buf
- \* Removed elx\_sched.o from 2.6 dependencies
- \* Reworked lpfc\_pcimap.
- \* Use Linux swap macros to replace ELX swapping macros (SWAP\_SHORT, SWAP\_LONG, SWAP\_DATA, SWAP\_DATA16, PCIMEM\_SHORT, PCIMEM\_LONG, PCIMEM\_DATA).
- \* move in\_interrupt() check inside of elx\_sleep\_ms()
- \* Moved location of pci.h include.
- \* Restored elx\_lck\_t types in elxHBA\_t.
- \* Removed elx\_pci\_dma\_sync call. Also removed some PCI defines from elx\_hw.h and removed the spinlock\_t locks that are no longer used in elx.h
- \* elx\_iodone() now uses system timer.
- \* elx\_qfull\_retry() now uses system timer.
- \* lpfc\_put\_buf(), lpfc\_ip\_xri\_timeout() and lpfc\_ip\_timeout\_handler() now use system timer.
- \* lpfc\_fdmi\_tmo() and lpfc\_qthrottle\_up() now use system timer.
- \* Removed num\_bufs and num\_iochs configuration parameters.
- \* Fixed a memory corruption bug. This was caused by a memory write to ndlp structure from lpfc\_cmpl\_els\_acc function. This ndlp structure was freed from lpfc\_els\_unsol\_event.
- \* lpfc\_disc\_timeout() and lpfc\_establish\_link\_tmo() now use system timer. Also update lpfc\_els\_retry\_delay() to do a single lock release at the end.
- \* Remove use of PAN (pseudo adapter number).
- \* Reintroduced usage of the cross compiler for building on ppc64 to remove build errors that were cropping up when using the standard gcc compiler.
- \* Fix no-unlock-before return in lpfc\_els\_retry\_delay which was causing a deadlock on insmod in some environments.
- \* Minor format changes fix up comments
- \* Create utility clock function elx\_start\_timer() and elx\_stop\_timer(). All timeout routines now use these common routines.
- \* Minor formatting changes fix up comments
- \* Minor formatting changes get rid of failover defines for syntax checking
- \* Minor formatting changes remove ISCSI defines.
- \* Fix typo in install target for 2.4 kernels.
- \* Removed unused elx\_scsi\_add\_timer extern function declaration.
- \* Cleanup casting around DMA masks.
- \* Comment out lpfndd.o modules\_install section as lpfndd.o is not generated if CONFIG\_NET\_LPFC is not set. Also refer to BASEINCLUDE only in out of kernel source module builds as it will not exist otherwise.
- \* Removed unused malloc counters from lpfcLINUXfcp.c.
- \* Remove some unnecessary #includes in lpfcLINUXfcp.c
- \* Remove unnecessary #includes in elxLINUXfcp.c

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- \* Minor formatting cleanups in Makefile to avoid some linewrapping.
- \* Removed unused `elx_mem_pool` data structure.
- \* Remove several unnecessary `#includes`.
- \* Moving fix for memory leak in `ioctl lip` area to `sysfs's lip`.
- \* Removed unused `elx_dma_handle_t` `elx_acc_handle_t` `FC_MAX_SEGSZ` and `FC_MAX_POOL`.
- \* Rewrite of Makefile. Fixes breakages with `make -j4` during kernel compile. Does not recompile all files on every build. Uses the kernel build's definitions of `CFLAGS`, `MODFLAGS` etc. Removed "make rpm" option.
- \* Removed unused `#defines` `CLOSED`, `DEAD`, `OPENED`, `NORMAL_OPEN` and unneeded `#include` of `elx_sched.h` in `elx.h`.
- \* Several log message updates
- \* Add `PCI_DEVICE_ID_FIREFLY` for LP6000
- \* Fixed known issues in 20040326: driver crashes on `rmmmod` in both 2.4 and 2.6 kernels

#### Changes from 20040319 to 20040326

- \* Updated ChangeLog for 20040326 SourceForge drop.
- \* remove `lpfc_isr / lpfc_tmr` logic fixed up 8 spaces from previous checkins with tabs
- \* replace `elx_in_intr()` with `in_interrupt()`
- \* Remove unused messages 1602 and 1603.
- \* Fix the following issues with log messages: Remove unused messages 406, 407, 409, 927, 928, 1201, 1202, 1204, 1205, 1206 and 1207. Create a new message 738 to fix duplicate instances of 736.
- \* Removed remaining pci interface abstractions from `elxLINUXfcp.c`. Implemented OS calls directly in all remaining files and cleaned up modules. Removed prototypes as well.
- \* Removed following functions/structures `elx_mem_dmapool` `elx_idx_dmapool` `elx_size_dmapool` `elx_kmem_lock` `dfc_data_alloc` `dfc_data_free` `dfc_mem_struct` `mbuf_info` `elx_acc_handle_t` `data_handle` `elx_dma_handle_t` `dma_handle_struct` `elx_memseg` `MEMSEG_t`
- \* `lpfc_els_timeout_handler()` now uses system timer.
- \* Further cleanup of `#ifdef powerpc`
- \* `lpfc_scsi_timeout_handler()` now uses system timer.
- \* Replace common driver's own defines for endianness w/ Linux's `__BIG_ENDIAN` etc.
- \* Added `#ifdef IPFC` for all IPFC specific code.
- \* `lpfc_disc_retry_rptlun()` now uses system timer.
- \* `lpfc_npr_timeout()` now uses system timer.
- \* Modified detect code, on `insmod`, to only wait a max of 2 secs if link comes up and there are no devices.
- \* Move remaining message logging functions into `elx_logmsg.c/elx_logmsg.h`.
- \* Added code to clear link attention bit when there is a pending link event and the memory allocation for `read_la` mail box command fails.
- \* Removed function calls for mapping bar registers and allocating kernel virtual memory mappings to the mapped bars Removed prototypes, `lpfc_driver_cache_line`, and `pci_bar1_map` rename to

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- pci\_bar2\_map.
- \* Allocate mbox only if the hba\_state is in ready state.
- \* Complete lip support via sysfs. To lip, echo brdnum > /sys/bus/pci/drivers/lpfc/lip.
- \* moving sysfs show/store implementations to lpfc\_sysfs.c. Also add support for lip.
- \* Add files: lpfc\_sysfs.c, lpfc\_sysfs.h
- \* move LPFC\_DRIVER\_NAME and LPFC\_MODULE\_DESC out of lpfcLINUXfc.c to lpfc\_version.h, since it is now needed in lpfc\_sysfs.c
- \* elx\_mbox\_timeout now uses system timer
- \* Changed lpfc\_nodet\_timeout, lpfc\_els\_retry\_delay and lpfc\_linkdown\_timeout to use the system timer instead of internal clock support.
- \* Move remaining message logging functions in elx\_util.c to elx\_logmsg.c.
- \* Remove some unnecessary typecasting.
- \* Remove log message that is no longer used (was used by elx\_str\_atox).
- \* Replaced DLINK\_t and SLINK\_t by standard Linux list\_head
- \* Removed deque macro
- \* Replaced ELX\_DLINK\_t and ELX\_SLINK\_t by Linux struct list\_head (except for clock)
- \* Removed following functions from code: linux\_kmalloc linux\_kfree elx\_alloc\_bigbuf elx\_free\_bigbuf
- \* Removed following abstract functions from the code. elx\_malloc elx\_free elx\_ip\_get\_rcv\_buf elx\_ip\_free\_rcv\_buf elx\_mem\_alloc\_dmabuf elx\_mem\_alloc\_dmabufext elx\_mem\_alloc\_dma elx\_mem\_alloc\_buf lpfc\_bufmap
- \* Removed custom PCI configuration #defines and replaced with OS-provided #defines. Also added linux/pci.h to \*.c files.
- \* Remove elx\_str\_ctox. Replace elx\_str\_atox with sscanf.
- \* Many indentation/whitespace fixes.
- \* Replace elx\_str\_ctox with isxdigit where it was only used to check the value of a character.
- \* Removed following functions from the code. elx\_kmem\_free elx\_kmem\_alloc elx\_kmem\_zalloc
- \* Change use of 2.4 SCSI typedef Scsi\_Host\_Template to struct scsi\_host\_template for 2.6 kernels.
- \* Change use of 2.4 SCSI typedefs (Scsi\_Device, Scsi\_Cmdnd, Scsi\_Request) to their real struct names.
- \* Move 2.6 compatibility irqreturn definitions to lpfc\_compat.h. Protect these definitions from conflicting with similar ones in later 2.4 kernels.
- \* Remove unused definitions: LINUX\_TGT\_t, LINUX\_LUN\_t, LINUX\_BUF\_t, elx\_lun\_t, SET\_ADAPTER\_STATUS.
- \* Convert pci\_calls to linux 2.6 dma\_ equivalents.
- \* Removed unused types: struct buf, struct sc\_buf, T\_SCSIBUF typedef.
- \* Fix Makefile so that 2.4 drivers don't always rebuild all files.
- \* Remove unused \_static\_ and fc\_lun\_t definitions.
- \* Cleaned up some memory pool implementation code.
- \* Fix panic with char dev changes. Turns out that 2.6.4 code does the same in kernel space with the 2.4 interface style definitions. So remove the new char dev code altogether.
- \* Remove typecasting from fc\_get\_cfg\_param and consolidate multiple instances of the parameter switch into a single



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instance.

- \* Use `lpfc_is_LC_HBA()` macro that tests `pcidev->device` directly instead of saving a private copy that undergoes varied shifting & casting.
- \* Removed usage of all memory pools.

Changes from 20040312 to 20040319

- \* Use `dev_warn` instead of `printk` for 2.6 kernels
- \* Correct `Ioctlbq` completion routine for 2.6 kernel case
- \* Change `void *pOSCmd` to `Scsi_Smnd *pCmd`
- \* Change `void *pOSCmd` to `struct sk_buff *pCmd`
- \* Remove data directon code.
- \* Removed memory pool for `buf/bpl` buffers and use `kmalloc/kfree` `pci_pool_alloc/free` directly.
- \* Move PPC check for DMA address 0 in scatter-gather list, into `lpfc_compat.h`
- \* Always use `pci_unmap_single()` instead of `pci_unmap_page()`
- \* Clean up the 2.6 vs 2.4 `#if` blocks.
- \* Conditionalize Scheduler
- \* Add a comment to explain a little what the first Makefile section does.
- \* Removed `lpfc_intr_post`
- \* Sysfs new display format. Also added write functionality. You can [ `echo "0 log_verbose 3" > /sys/bus/pci/drivers/lpfc/params` ]. Hex support yet to be added.
- \* Removed several `#ifdef` powerpc, including for a discovery issue in `lpfc_ValidLun()`
- \* Change `elx_printf_log` to use `vsprintf`.
- \* Added `lpfc_compat.h` provides macros to aid compilation in the Linux 2.4 kernel over various platform architectures. Initially support mapping to a DMA address.
- \* Removed memory pool for `nlp/bind` buffers and use `kmalloc/kfree` directly.
- \* Removed memory pool for `iocb` buffers and use `kmalloc/kfree` directly.
- \* Removed memory pool for mailbox buffers and use `kmalloc/kfree` directly.
- \* Cleaned up back and forth casts
- \* Initial support for sysfs for 2.6 kernel.
- \* Changed `elx_dma_addr_t` to `dma_addr_t`
- \* Fix a 2.6 kernel check to be `>= 2.6.0` instead of `>` (was missing 2.6.0).
- \* Remove `elx_printf` and `elx_str_sprintf`. Replace `elx_print` with `printk`.
- \* Replace `elx_printf` with `printk`.
- \* Replace `elx_str_sprintf` with `sprintf`.
- \* Removed the `mem_lock`, its prototype, function, macro, and `iflags`.
- \* Use `kmalloc/kfree` for `ELX_SCSI_BUF_t`
- \* Use `linux pci_pools` for `SCSI_DMA_EXT`
- \* Use `linux pci_pools` for BPLs.
- \* Minor cleanup of DFC args for PPC64.
- \* Several small indentation cleanups.
- \* New Linux 2.6 style of char device registration.
- \* Migrated members of `LPFCHBA_t` and `LINUX_HBA_t` into `elxHBA_t`

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- \* Use strcpy, strcmp, isdigit, strlen instead of abstractions
- \* Cleanup of driver\_template.
- \* Facilitate compile time turn on/off of lpfc\_network\_on.
- \* Split large source files into smaller, better named ones.

Changes from 2.10a to 20040312

- \* Fix build for 2.4 kernels
- \* Move driver version macros into lpfc\_version.h file.
- \* Fixed data miscompare with LIP.
- \* Removed elx\_sli, elx\_ioc, elx\_disc, elx\_sch routines, prototypes, and reference points.
- \* Correct the space insertions with hardtabs
- \* Remove routine call pointers in ELX\_SLI\_INIT\_t struct.
- \* Removed module locks except for drv, mem, and clock.
- \* Removed unused module locks from sourcebase. Kept drv\_lock, mem\_lock, and clock\_lock.
- \* Change NULL to 0