

OCTEON SDK 5.1.0 Release Notes

From CaviumApps

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Highlights of Major Changes in OCTEON SDK 5.1.0 Release

General changes

- * Added cn73xx pass1.3, nicx40e and ebb7500 board support
- * Added initial support of LiquidIO 10GBASET "copperhead" board in u-boot.
- * Initial patch release to support CN78XX Pass2.0 chip.
 - Adjust to new deskew byte lanes for cn78xx pass 2.0.
 - Fixed 10G-KR and 40G-KR4 interfaces to work on pass2.0
 - Updated CSRs
 - Fixed oct-remote utils to access correct SLI CSRs, have different addresses between pass1.x and pass2.0
- * Added nic225e board support in u-boot
- * Updated Avago phy for LiquidIO nic225e nic, now the links come up quicker than before.
- * Added NVME driver support in u-boot.
- * Fixed code to go through each core to report IOBP_PP_BIST/IOBN_PP_BIST errors.
- * Fixed CCPI initialization code, now tunes CCPI lanes on both the nodes. node#1 needs to run ocx-boot.bin image, CCPI boot code.
- * Updated Octeon III error array table to show SBE/DBE flags for co-processor blocks.
- * Added new APIs to enable/disable error interrupts based on SBE/DBE flags.
- * Added more functions for LMC & L2C ECC errors for OcteonII models.
- * Enhanced L2C and LMC EDAC driver to handle SBE/DBE errors appropriately for OcteonII and OcteonIII models.
- * Updated PKI microcode, addresses performance issues.
- * Fixed GSER to increase bandwidth of DLLs to address SATA link stability.
- * Added oct-remote-app-ctl utility. This utility requires GCC5 or later version of host compiler. Please install elfutils-libelf-devel-static package to compile oct-remote-app-ctl utility.
- * Use physical coremask to report IOBN BIST status on cn7xxx models.
- * Added hotplug support to BGX interfaces for SE apps.
- * Fixed following in DDR initialization code:
 - Limit hardware write-leveling validity checks
 - Fixed CSR reads to work on multi-node system.
 - Check DDR speed against CPU speed for legal configuration
 - Fix DDR3 configuration data for EBB7500.
 - Use multi-sampling of DAC settings to calculate best values.
 - Correctly handle 32-bit mode in several deskew and DAC routines.
 - Enhance software write-leveling handling of the ECC byte.
 - Set TIMING_PARAMS1[trfc_dlr] field appropriately for 3DS DIMMs
 - Hardware write-leveling change for DDR4 x4 DIMMs
 - Fix Vref calculation when RTT_WR==0 for 1-rank DIMMs

- Adjust tRFC for 7800 PASS2.x when too low
- Use "disable_sequential_delay_check" to disable HWL validity checking and disable RL neighbor consideration, in addition to its original use.
- Update/correct DDR configuration data file for NIC23 and NIC225e.
- Added DDR3 4Rx4 RDIMM support.
- Improve DDR4 read-leveling accuracy
- Improve performance of 1-rank DIMMs
- Improve performance of 2-slot configurations
- Add support for mini-DIMMs and SO-DIMMs
- Allow read bit-deskew to be disabled
- Detection of 3DS and NV DIMMs
- Improve default DIMM information output.
- Added DBI support to DDR4.
- Added memory retaining feature to DDR4 type dimms.
- Added 100 MHz DCLK as an alternative reference clock to be triggered by DDR4 for DDR rates above 2000 MT/s. Need latest MCU release.
- * Fixed various issues with sff70xx, eap7000_ref and wave2 boards.
- * Fixed nic23/nic73 to configure vs7224, the re-clocking chip, based on cable connected when u-boot comes up.
- * Updated USB driver to assert uphy PLL when lock is not detected.
- * Updated eMMC driver to work at 52MHz speed.
- * Added HiGig and HiGig2 support for BGX interfaces.
- * Fixed known issue: Warm/soft reset may corrupt Root.CvmCtl<31:24> and Root.PRId[Revision] (Re-worked on this errata)
- * Fixed known issue: 10GBASE-KR hardware training may not update PHY TX taps
- * Fixed known issue: SERDES temperature issues (Some enhancements)
- * Added NAND support on cn73xx.

Toolchain Changes

- * Backport fix for fsf glibc bug 16009 (CVE-2015-8982)
- * Backport fix for fsf glibc bug 18032 (CVE-2015-8984)
- * Backport fix for fsf glibc bug 17269 (CVE-2015-8983)
- * Backport fix for fsf glibc bug 21624 (CVE-2017-1000366)
- * Backport fixes for thin archive needed to compile newer kernels: fsf binutils bug 15151 and 15140
- * Fixed wrong code dealing with some bitfields insertion in one case.
- * Backport a few C++11 fixes (FSF bug 54086 and FSF bug 54341/54253)
- * Backported fixes for glibc's getaddrinfo so it no longer crashes
- * Backport a gcc fix for creating wrong code in some cases when passing struct argument to a function
- * Debugging PIE applications on Linux userland works now
- * Added cfi (unwind info) to clone, start, etc. so doing unwind (backtrace) from a thread does not cause a crash
- * Fixed some security issues in glibc: CVE-2016-3706, CVE-2016-4429
- * Remove an assert inside GCC which was wrong causes internal compiler errors

Linux kernel Changes

- * Updated Linux kernel to 4.9.57
 - Added OcteonII and OcteonIII SOC support.
- * Special notes:
 - NAND device not supported, NAND support will be added in a future patch releases

Ethernet Driver

- * Added NAPI support to POW driver
- * Added mgmt support to Octeon III driver.
- * Added PTP support to Octeon III driver.
- * Added new APIs to alloc/free FPA buffers for OcteonIII SOC.

Embedded Rootfs

* Upgraded all packages to latest version.

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