NXP LPCOpen LPC18XX Release Notes

LPCOpen LPC18xx version release history and known issues

The version history and known issue lists on this page are for v3.xx, and 2.xx releases of LPCOpen only. Version history previous to v2.xx releases can be found HERE.

Some issues are known at the time of the versioned package release. Issues found after the release can be found on the LPCOpen bug tracker pages.

LPC18xx release are closely aligned with LPC43xx releases.

LPCOpen v3.02 release (Released: 12/20/2017): NXP LPC18xx LPCXpresso1837/Keil1857/NGX1830/Hitex1850 boards support

Features Added

- None

Changes and Fixes

- Fixed LPCXpresso multicore projects
- Fixed dual core projects
- Cosmetic changes to lwip webserver projects
- Generic SPIFI driver called in LPCXpresso projects

Known issues

- CAN examples are not fully tested
- LIBSPIFI examples are not included in LPCOpen package

LPCOpen v3.01 release (Released: 03/29/2017): NXP LPC18xx LPCXpresso1837/Keil1857/NGX1830/Hitex1850 boards support

Features Added

- V2 LPCOpen code was converted to V3 LPCOpen. This simplifies code structure and decrease path lengths, LPCOpen has been reorganized to a flatter structure. These changes have been made in an effort to improve usability and maintainability of LPCOpen software.

Changes and Fixes

- Before disabling the PLL, SPIFI clock was switched to IRC to prevent SPIFI boot-up issues
- SPIFI Feedback clock is always enabled
- Autoblock bit (PLL1_CTRL) is enabled in the clock initialization. This bit re-synchronized the clock output during frequency changes which will prevent glitches when switching clock frequencies. This solves the previous issue we had in v.2.20 version (“In a few hundred reset cycles one cycle might fail with a Hard Fault right after PLL initialization code.”)
- PLL_PARAM_T was defined since it is used in function static void pll_calc_divs(uint32_t freq, PLL_PARAM_T *ppll)

Known issues

- CAN examples are not fully tested
- LIBSPIFI examples are not included in LPCOpen package

LPCOpen v2.20 release (Released: 10/21/2016): NXP LPC18xx LPCXpresso1837/Keil1857/NGX1830/Hitex1850 boards support

Features Added

- None

Changes and Fixes

- Added Chip_IAP_Init declaration
- Chip_IAP_ReadUID() returns a 32-bit value, not the full 128-bit unique id value. This is fixed.
- I2CM example - Added a case return for reset status code 0xF8
- LWIP (TCPEcho) - Fixed wrong error code return
- Added missing event source for BOD and Deep Power down
- Added OTP Base address
- Corrected pin function for UART1
- Corrected low power mode examples
- Corrected LWIP FreeRTOS examples IRAM allocation
- RTC wakeup issue fixed
- PLL code in the sysinit.c file was updated to follow User Manual procedure
- Feedback clock (fbsek BIT) was corrected.

Known issues

- In a few hundred reset cycles one cycle might fail with a Hard Fault right after PLL initialization code
- CAN examples are not fully tested
- LIBSPIFI examples are not included in LPCOpen package

LPCOpen v2.18 release (Released: 05/27/2015): NXP LPCXpresso1837 board support

Features Added

- NXP LPCXpresso1837/LPCXpresso18S37 Board support added

Changes and Fixes

- Fixed the size of SD card size problem
- Added Newlib IO support

Known issues

- In a few hundred reset cycles one cycle might fail with a Hard Fault right after PLL initialization code
- CAN examples are not fully tested
- LIBSPIFI examples are not included in LPCOpen package

LPCOpen v2.16 release (Released: 02/20/2015): NXP LPCXpresso4337 board support

Features Added

- NXP LPCXpresso4337/LPCXpresso43S37 Board support added
- FreeRTOS lwIP webserver example added
- LCD/TRIM_POT/IO_Expansion(Joystick, LED) examples added to Misc group
- SDIO Driver added

Changes and Fixes

- PLL functions updated according to new user manual

Known issues

- In a few hundred reset cycles one cycle might fail with a Hard Fault right after PLL initialization code
- CAN examples are not fully tested
- LIBSPIFI examples are not included in LPCOpen package (They could be downloaded from here)

LPCOpen v2.12 release (Released: 05/15/2014): Various updates

Features Added

- LPCSPIFILib example, test suit and precompiled libraries for M3 and M4 [Library source package available here]
- SCT PWM Drivers and examples
- USB Host Examples for LPCXpresso tool
- FreeRTOS v8.0.1
- Chip_SetupCoreClock API to set MCU to user-defined core frequency
- StopWatch driver
- LPC4370 HSADC example will output converted sample data to UART2
- LPC4370 NXP Link2 board usbd_rom examples

Changes and Fixes

- Fractional divider calculation algorithm used by Chip_UART_SetBaudFDR
- Clearing stop bits in I2C_Init
- Macro MAX_CLOCK_FREQ in board layer can be used to set MCU core frequency
- LPC4370: High Speed ADC driver power mode and speed calculation
- Frequency divider (ABCD&E) frequency calculation

Known issues

- LPCSPIFILib example projects are available only for Keil MCB boards
- Power down and deep sleep mode in the PMU example does not wakeup [Sleep and deep power down works]

- usbd_rom_hid_sio example is not completely tested it might not enumerate in some boards [currently in alpha state]
- When using FreeRTOS examples in LPCXpresso (REDLIB), malloc inside tasks might fail (See this FAQ for the fix) [This might also prevent printf calls inside tasks to fail]
- periph_dma_timertrig example is experimental and un-tested

LPCOpen v2.09 release (Released: 03/05/2014): Various updates

Changes

- Fixed Clock pinmux init for all the boards
- Fixed EMC init function for RBC mode
- Fixed PMC_PWR_* defines
- Fixed CAN clock divider calculation
- Fixed RTC_Init SDRAM CLK muxing problem
- Documentation updates
- The API documentation package released
- Added readme.txt to all example projects (Keil, IAR and LPCXpresso)

Known issues

- None

LPCOpen v2.04 release (Released: 12/17/2013): Various updates

Changes

- Various updates and changes for multi-core support
- Added LPCXpresso Dual-Core project support
- Triple-Core (multicore) support for the LPCXpresso LPC4370 board for IAR, Keil, and LPCXPresso toolchains
- Simple 3-core LED blinky example
- New CMSIS_m0app file
- Update core revisions for CMSIS core ID (cmsis files)
- Added a function which can set multiple IOCON registers at once from a structure/array
- GPIO driver changes (standardized driver to match other paltforms)
- Old driver removed (had functionality for GPIO, PININT, groups)
- Replace with 3 new drivers similar to other platforms
- GPIO, PININT, GPIO group
- Software APIs **HAVE** changed with this driver
- New I2C master only driver (examples coming soon)
- Fix several build errors when using mixed 18xx/43xx code

- Renamed periph_blinky examples to periph_timer
- Board level cleanup
- Removed replicated code for IRQ vector setup, in chip layer only now
- Use new IOCON function for setting up multiple IOCON (SCU) pin states at once
- Board level functions are now public and common for all platforms to allow better customization at example layer and to override SystemInit()
- DEBUG_ENABLE is now on by default for all 18xx and 43xx boards
- Removed Board_GPIO_Int_Init() and related IRQ handler in board lay8er
- FreeRTOS updated to v7.5.3
- emWIN structure has changed considerably to match new reelase structure
- Will temporarily break LPCOpen emWin projects unless structure is manually setup
- See installation.txt file in emWin software area for more details
- Examples
- Lots of small example tweaks and fixes over a number of examples
- Example documentation updates (readme.dox)
- New GPIO group (multi-GPIO) interrupt example
- New PININT group (multi-GPIO) interrupt example
- Added missing dfuutil projects to Keil LPC1857 package (misc group)

Known issues

- (Carry-over) The LPCXpresso versions of the webserver application fail to load the web page after the first load
- PMC_PWR_* definitions in the pmc_18xx_43xx.h file are not correct
- PMC_PWR_DEEP_SLEEP_MODE is 0x3F00AA, should be 0x3000AA
- PMC_PWR_POWER_DOWN_MODE is 0x3FFCBA, should be 0x30FCBA
- PMC_PWR_DEEP_POWER_DOWN_MODE is 0x3FFF7F, should be 0x30FF7F
- A potential problem with some LPCXpresso projects may occur where the MCU may not be setup correctly. If this happens, a dialog will appear asking for the MCU to be selected prior to build. This apepars to be a delay issue with project settings being updated directly after import. The issue will correct itself after LPCXpresso has had a little time to fully digest the workspace.
- The SDMMC examples may hang on SDMMC data reads
- The API documentation package is not yet released with this update
- Bug in Clock pin muxing (inside board_sysinit.c)
- Will cause ethernet and external memory not to work as expected
- Fix it by replacing line "Chip_SCU_SetPinMuxing(pinclockmuxing, sizeof(pinclockmuxing) / sizeof(PINMUX_GRP_T));" with code given below

```
for (i = 0; i < (sizeof(pinclockmuxing) / sizeof(pinclockmuxing[0])); i++) {
```

```
Chip_SCU_ClockPinMuxSet(pinclockmuxing[i].pinnum, pinclockmuxing[i].modefunc);

}
```

LPCOpen v2.2 release (Released: 11/12/2013): LPC18xx/43xx updates only

The v2.02 update adds support for the Hitex LPC1857 and LPC4357 boards, the Keil MCB1800 and MCB4300 boards, the NGX Xplorer LPC1830 and LPC4330 boards, and the LPC-Link 2 (LPC4370) board.

Changes and Fixes

- All projects converted to v2.xx format - separate projects for IAR and Keil 'per board' and LPCXpresso archived workspace projects.
- Chip layer code and Board layer code are no longer blended into a single platform library.
- The lpc_ip layer has been completely removed and all functionality has been moved the the chip layer. Files in this area had to be selectively added to projects 'per device' along with chip layer code - adding is no longer needed. Removing this layer has also allow the chip layer code to be a bit smaller. In almost all cases, the Chip layer APIs were not altered with this change.
- FreeRTOS source code updated from v7.3.0 to V7.4.
- LPC18xx/43xx chip layer changes
- A new HSADC driver and example are included for the LPC4370 devices and the LPC-Link 2 board
- Combined GPIO driver separated into 3 drivers: GPIO, PININT, and GPIO group interrupt
- All chip layer code for a specific device family can now be (mass) added to a single project and only the files specific to the device in that family will built
- The 'sys_config.h'' file is now a chip file and only details which CHIP_* definition to use when build ing the code. Pre-populated sys_config.h files are available for all supported devices in a single family in the chip layer area. Just add the include path for your device to your project to build for that specific device
- A chip specific Chip_SystemInit() is now provided that sets up the system to boot using the IRC/PLL, but doesn't setup pin muxing or memory
- Moved SystemCoreClockUpdate() function and SystemCoreClock variable from board the chip layer
- Chip layer code no longer requires definitions that were defined in the board layer such as oscillator rate, internal clock input rate, etc.
- For these few cases where these were used, the chip layer now uses them as external constants defined somewhere else (usually in the board layer)
- Very minor API changes for some drivers
- LPC18xx/43xx board layer changes
- Shared 18xx and 43xx board layer code is now separate to make changed and packaging easier
- Named board header file merged with board.h (this extra named file wasn't needed)
- DEBUG_* definitions used to control DEBUG_* functions are now part of the board.h file

- Named board source and system init files renamed to generic named files board.c and board_sysinit.c (allows simply overwriting the files to change the board)
- SystemInit() function renamed to Board_SystemInit()
- Projects
- Keil and IAR project cleanup to improve consistency
- LPCXpresso projects are now contained in archives and are much simpler to use
- Projects are no longer shared across platforms, projects are 1 per board
- The file containing SystemInit() is included in each project example now

Known issues

- The LPCXpresso versions of the webserver application fail to load the web page after the first load
- The API documentation package is not yet released with this update
- Dual-core examples are not yet available in the LPCXpresso projects for LPC43xx based boards
- periph_atimer example doesn't work correctly. It only fires once.

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