

## LPCXpresso IDE 8

### == Supported Hosts ==

\* Following the discontinuation of support by Microsoft, Windows XP is no longer an officially supported platform. LPCXpresso IDE may continue to work on Windows XP, but this can no longer be guaranteed. LPCXpresso is no longer tested on Windows XP.

\* Mac OS X 10.7 (Lion) is no longer an officially supported platform. LPCXpresso IDE may continue to work on Mac OS X 10.7, but this can no longer be guaranteed. LPCXpresso is no longer tested on Mac OS X 10.7.

### == Known Issues ==

\* Restart workaround on Mac OS X (due to an issue with GDB) may leave an unknown "thread" in the debug view - hit Terminate again to remove this.

\* Setting a breakpoint on an unused function that has been removed by the linker may result in the target taking a hard fault.

### == Version Information ==

\* 8.2.2 (Sep 2016)

\* Upgraded GNU tools to ARM launchpad GCC 5 update 2

\* Fixed issues with debugging FreeRTOS applications

\* Fixed issue with startup code generated by the New Project Wizard for LPC177x\_8x family

\* Latest LP18xx/43xx LPCOpen packages included in Examples

\* New LPC8xx series "code bundles" added to Examples

\* 8.2.0 (July 2016)

- \* Upgraded GNU tools to ARM launchpad GCC 5 update 1
- \* Updated supported C/C++ dialects in IDE preferences and wizards
- \* Fixed issue with optimization level of CM4/HardABI Redlib C library build
- \* Fixed issue with Redlib strncasecmp() function incorrectly matching for some input strings
- \* Corrected size of third RAM bank from 32KB to 16KB on LPC1820, LPC1810 and LPC18S10
- \* Fixed issue causing some peripheral registers not to be displayed debugging LPC5411x MCUs
- \* Target CPU automatically selected if possible when debugging multicore MCUs, based on project's CPU settings
- \* New "Resume all" and "Pause all" buttons for multicore debug sessions
- \* Enabled disassembly view to show opcodes by making GDB always return opcodes when CDT requests disassembly information.
- \* Fixed backtrace issue when debugging inside interrupt handlers
- \* Fixed issue with IDE failing to use selected GDB when debug launch configuration modified to use different executable
- \* Resolved Mac OS X specific issue with USB reenumeration which could cause a Linkserver crash
- \* Fixed issue where flash driver could start with incorrect XPSR and improved error reporting
- \* Added support for additional devices in SPIFI flash drivers
- \* Added SPIFI flash driver for use with LPC40xx family
- \* Updated LPC-Link2 CMSIS-DAP firmware to allow SWO Trace and power measurement to run at the same time. Also to provide an alternative firmware variant that provides higher priority for serial-VCOM data
- \* Fixed issue with SWO Trace which could trigger IDE crash if trace

collected for long period of time

- \* Improved SWO Performance Counters view

- \* Fixed a Power measurement buffering issue which could result in upto 20 samples per 3k being overwritten with newer data.

- \* 8.1.4 (mid Mar 2016)

- \* Fixed issue with some debugger writes to memory silently failing

- \* 8.1.2 (Mar 2016)

- \* Fixed issue with IDE failing to boot debug Linkserver on certain non-English Windows variants

- \* Fixed issue triggering GDB to occasionally crash when debugging interrupt handlers

- \* Upgraded Eclipse to Mars SR2 (4.5.2) and CDT 8.8.1

- \* 8.1.0 (Feb 2016)

- \* Upgraded GNU tools to ARM launchpad GCC 5

- \* Added support for LPC5411x devices

- \* Updated LPC-Link2 CMSIS-DAP firmware, providing probe serial number support and additional power measurement functionality

- \* Support for debugging via multiple LPC-Link2 probes concurrently using the latest CMSIS-DAP probe firmware

- \* All Cortex-M debug connections are now made via Redlink LinkServer

- \* Project wizard mechanism updated to add -fno-common compiler option and -print-memory-usage linker option to new projects

- \* IDE no longer compares Freemarker linker script with a linker script created by the pre-LPCXpresso IDE v7.90 linker script generator

- \* Makefile projects now correctly save MCU settings, including memory

configuration and flash drivers (required for debugging)

- \* "Average Power" view added to compliment existing "Power Measurement Tool" view (for use with latest CMSIS-DAP firmware on LPCXpressoV3 boards)

- \* Fixed issue with GUI / command-line flash programmer when programming images with certain complex layouts

- \* Fixed issue when connecting in attach mode to LPC18xx/LPC43xx projects that use the Generic SPIFI flash driver

- \* Old SPIFI flash drivers for LPC18xx/LPC43xx removed and replaced by copies of the Generic SPIFI driver

- \* Documentation restructured, splitting the old User Guide up into several manuals

- \* Resolved issues with LPC-Link1 booting on Mac OS X 10.11 El Capitan. The use of Mac OS X 10.11.3 or later is recommended

- \* LPC-Link2 Redlink firmware is no longer provided or supported. Use the default CMSIS-DAP firmware instead

- \* "Red Trace" (SWO Trace via Red Probe+) is no longer supported. Use SWO Trace via LPC-Link2 instead

- \* 8.0.0 (Nov 2015)

- \* Upgraded Eclipse to Mars SR1 / CDT 8.8 (plus Java 1.8)

- \* Upgraded GNU tools to ARM launchpad GCC 4.9 update 3

- \* Support for multiple flash drivers within a single project

- \* Generic SPIFI flash driver source project debug build fixed so that it will execute on parts with internal flash (and less RAM)

- \* SWO ITM Trace Console View added to provide printf support via ITM Stimulus Port 0

- \* Fixed an issue triggering error dialogs when the "Terminate All" option was used for non-multicore debug sessions

- \* Updated Redlink server/CMSIS-DAP LPC-Link2 firmware to support ISP

reset of target MCU (requires target hardware support)

\* Restart button now enabled on Mac by default

\* Last release to support LPC-Link2 Redlink firmware. Use the default CMSIS-DAP firmware instead

\* Last release to support "Red Trace" (SWO Trace via Red Probe+). Use SWO Trace via LPC-Link2 instead

\* 7.9.2 (Sept 2015)

\* Various fixes and improvements for Freemaker linker script templates:

- Fixed link templates for LPC29xx and LPC3xxx
- Added '\_\_\_base...' symbols for each memory region
- Fixed reporting of template errors in headless builds

\* Corrected base address of SRAM2 block for LPC1517/47

\* Fixed issue with multicore symbols being defined by the IDE for non-multicore parts in some circumstances

\* Improved handling of debug termination to allow target to clean up

\* Instruction trace and SWO trace updated to avoid conflicts when both are trying to use DWT comparators

\* SCT code generation updated to support latest LPCOpen register names

\* Fixed rare issue with creating activation serial number on Linux hosts

\* The use of LPC-Link2 Redlink firmware is now deprecated, and support will be removed in a future LPCXpresso IDE release.

Use the (now default) CMSIS-DAP firmware instead.

\* The use of "Red Trace" (SWO Trace via Red Probe+) is now deprecated, and support will be removed in a future LPCXpresso IDE release.

Use SWO Trace via LPC-Link2 instead.

\* 7.9.0 (July 2015)

\* Initial support for Windows 10

- \* Upgraded GNU tools to ARM launchpad GCC 4.9 update 2
- \* New Generic SPIFI flash driver mechanism, which will autoconfigure based on SPIFI device detected in target system
- \* Enhanced managed linker script template mechanism
  - Known as Freemarker linker script templates
- \* Support for generating LPC MCU vector table checksums directly in the image, using the startup file and linker script
- \* "Active Config" is now the default for the indexer
- \* Fixes to Multicore projects
  - Fixed data sections placement
  - Slave image now has bss and noint sections removed, as they are not required
- \* Fixed an issue that was preventing MTB trace with LPC82x parts
- \* Extended CMSIS-DAP JTAG support (for Cortex-M parts) to include Keil ULINK2/ULINK-ME probes
- \* Support for LPC4367 and LPC43S67 parts

#### \* 7.8.0 (June 2015)

- \* New SWO Interrupt Trace Graph and Table views (Pro Edition only)
- \* LPC-Link2 will now soft-boot with CMSIS-DAP rather than Redlink firmware by default.
- \* Improved selection of JTAG vs SWD connections - requires launch configurations to be recreated
- \* Fixed an issue with flash programming occasionally failing to initialize or complete
- \* Fixed an issue with debugging of LPC11A parts through LPC-Link2
- \* Fixed a problem with semihosting output for C++ projects
- \* Fixed an issue with reading and displaying unaligned data from the target
- \* Fixed an issue with making an attach-only debug connection

- \* Fixed an IDE hang if resuming a debug session mid-way through editing a peripheral register
- \* Performance improvements when displaying registers
- \* Optimized display of Peripherals when editing fields or registers
- \* It is now possible to add miscellaneous command-line options to the GUI flash programming dialog.
- \* Fixed an issue with the reset target option not working when flash programming an AXF file
- \* Added path when disambiguating Launch Configurations
- \* Wizards now generate liblinks.xml 'smart update' file in library projects, which will still work after a project is renamed.
- \* Code generated by LPCOpen project wizards now calls SystemCoreClockUpdate() in all cases, not just when linking to a board library.
- \* For multicore-capable systems an LPCOpen project wizard-generated main.c now only calls Board\_Init() for a master core and not for slaves.
- \* LPC43xx wizards now generate code using new-style multicore defines.
- \* Fixed an issue with SymbolViewer not being able to display source for C++ symbols
- \* De-cluttered the toolbar by removing the duplicate quickstart toolbar (this can be re-enabled using the User Interface Enablement preferences)
  
- \* 7.7.2 (March 2015)
- \* Added support for LPC18Sxx and LPC43Sxx parts
- \* Upgraded Eclipse to Luna SR2 (4.4.2) and CDT 8.6
- \* Added Technology Preview of SWO Trace support with LPC-Link2 (Redlink)
- \* Further major improvements to Flash Download performance

- \* Added "Terminate, Build and Debug" Quickstart button
- \* SPIFI flash drivers now check for recognized parts.
- \* CMSIS-DAP support has been extended to allow multicore and JTAG debug connections (where supported by probe implementation).
- \* Fixed an issue with the managed linker script for multicore projects that caused misalignment of the slave data section
- \* Added support for M4 multicore projects to use HardABI floating-point variant
- \* Redlib realloc() fixed to handle heap memory becoming exhausted
- \* The LPCXpresso54102 board Power measurement tool is now included.

#### \* 7.6.2 (February 2015)

- \* Fixed the managed linker scripts for GCC 4.9 NewlibNano library names
- \* Stopped tracking project selection in Symbol Viewer
- \* Added a toolbar button for hide/show Red Trace views. Note that a restart of LPCXpresso is required after showing these views before Red Trace can be used.
- \* Fixed a problem with MCU settings not being saved if they were changed by using the Quickstart Panel's Edit project settings button
- \* Target chip and core type are displayed alongside the executable name in Debug View.

#### \* 7.6.0 (January 2015)

- \* Added support for the new LPC112x family
- \* Upgraded GNU tools to ARM launchpad GCC 4.9
- \* Significantly improved flash programming performance across all Cortex-M targets and debug probes
- \* Support for additional SPIFI flash parts based on latest LPCSPIFI Library v1.03
- \* Added new Symbol Viewer feature to display the symbols in an object/library/executable



- \* Redlink firmware enhanced to improve performance and provide bridging capabilities similar to the latest CMSIS-DAP
- \* Managed linker scripts now contain start and end symbols for all data and bss sections.
- \* Improved highlighting of changed registers when single-stepping
- \* Changed colors of stub console messages - dark yellow for warnings and green for information
- \* Added support for m0 small-multiplier
- \* Redlib now implements single precision fmodf() in math.h
- \* Redlib free() will now coalesce with any consecutive free blocks.
- \* Fixed a problem with the assembler -D option when selecting No library headers
- \* Fixed an issue with the Memory Configuration Editor when merging memory blocks during import
- \* Fixed an issue with the semihosting SEEK operation (affecting Redlib and Newlib fseek()) always resetting to the start of the file
- \* Fixed the linker script generation for the Internal builder
- \* Fixed the display of the second core index for an LPC5410x part (from 16->1)
- \* Fixed Build All Projects if no project is selected
- \* Fixed the target connection sequence to avoid a timeout when downloading very large applications

#### \* 7.5.0 (November 2014)

- \* Upgraded Eclipse to 4.4.1 ('Luna SR1') and CDT to v8.5.0
- \* Upgraded GNU tools to ARM launchpad GCC 4.8 update 3
- \* Added support for LPC5410x devices
- \* Default optimization level reverted to -O0 (rather than -Og) for Debug builds
- \* LPC18/43 project wizards now provide access to the Memory Configuration Editor

- \* Added ability to merge memory configurations and join contiguous memory blocks in the Memory Configuration Editor
- \* Enhanced link-time-optimization (LTO) options
- \* Disabled "Set library type" on projects where it is not applicable
- \* Added a default workspace location for Linux
- \* Redlib string.h functions extended to include implementations of (non-ANSI-standard) strcasecmp() and strncasecmp()
- \* Fixed a very rare cause of a hard fault in Redlib malloc()
- \* Prevented changing Peripheral registers while the target is running
- \* Fixed a problem preventing debug display of arrays within a structure within a union
- \* Fixed an issue with viewing of byte-sized peripheral registers, such as CM3/CM4 NVIC priority registers
- \* Fixed an issue with writing to byte-sized variables/registers

#### \* 7.4.0 (September 2014)

- \* Upgraded to latest Eclipse release (4.4 'Luna') and CDT 8.4.
- \* This fixes a number of display problems with complex data structure variables.
- \* Several improvements have been made to the Opcode display in the disassembly view. Opcodes can be displayed by right-clicking in the disassembly view margin and selecting 'Show Opcodes'.
- \* Eclipse Luna requires Java 7, which is installed on all platforms in the 'jre' subdirectory. This is independent of the 'System' Java installation, which is not affected.
- \* Added support for LPC82x devices.
- \* Disabled inline editing of the Pre/Post build steps and forced editing via a dialog.
- \* Peripherals displayed in Memory View now display hexadecimal, decimal, and binary in hover for 'numeric' values.

- \* Tidied up the toolbar to remove little-used buttons (which are still available in the Quickstart panel).
- \* Added new preprocessor defines for multicore projects.
- \* LPCOpen Project wizards will now prepopulate the chip library name where possible.
- \* Cleaned up inconsistencies in various Redlib header files.
- \* Redlib memcpy and related functions now avoid use of unaligned LDR/STR instructions on Cortex-M3/M4.
- \* Fixed various single-precision Redlib math.h functions.
- \* Fixed a peripheral problem with LPC11U6x/11E6x GPIO word registers.
- \* LPCOpen code bundles are now shipped inside the Examples subdirectory, though users are recommended to check LPCware.com for the latest versions.
- \* Absolute rather than relative paths are now used in the debugger for breakpoints by default for new workspaces.
- \* The default make command is now 'make -r', which should reduce build times, particularly on Windows.
- \* Added new Quick Settings menu for changing a project's FP type.
- \* Fixed a flash programming issue for LPC15x7 parts.
- \* Fixed a flash programming issue for certain LPC21xx/22xx parts.
- \* Updated SPIFI flash drivers based on LPCOpen 'LPCSPIFI' library to use v0.07, adding drivers for more SPIFI devices
- \* Improved support for the 'Dark' Theme.
  
- \* 7.3.0 (July 2014)
- \* Upgraded GNU tools to ARM launchpad GCC 4.8 update 2.
- \* Run->Debug As... now works correctly for MCU targets.
- \* Fixed a problem that caused CMSIS-DAP to be unavailable for some targets.
- \* Redlink Server is now correctly terminated after using the Flash Utility.
- \* Updated LPC15xx startup code generated by new project wizards to

match interrupt handler names used by LPCOpen.

- \* LPC43xx M0 startup code no longer references systick (which is only implemented on the M4 CPU in LPC43xx MCUs, not M0 CPUs).

- \* Fixed an issue with LPC43xx (Cortex-M0 basic) wizards failing to create a startup file.

- \* Quickstart Debug button now respects the build setting in the launch configuration.

- \* Additional LPC18/43 SPIFI flash drivers are now supplied, based on LPCOpen lpcspifilib.

- \* The C Library memory allocator no longer checks new heap end against current stack pointer.

- \* New 'boot\_link1' and 'boot\_link2' scripts are available on all platforms for downloading probe firmware from the command line.

- \* Peripheral rendering 'Refresh' option now forces re-read from target.

- \* Peripheral register fix for LPC15xx GPIO port word pin registers.

- \* 7.2.0 (May 2014)

- \* Improved the reliability of Redlink server connections.

- \* Added `__MULTICORE_type` preprocessor symbol to the compiler for multicore projects.

- \* Project wizards now place default main() into <projname>.c rather than main.c.

- \* On Mac OS X, prevented an occasional hang during Debug Probe discovery.

- \* On Windows, the debug drivers are now built with Visual Studio 2013 to increase compatibility with the latest version of Windows.

- \* Removed crt\_directory.xml to build the parts database dynamically at runtime.

- \* 7.1.1 (April 2014)

- \* Fixed a problem affecting LPC-Link2 debug connections to Cortex-M0+ cores.

- \* Fixed a regression preventing debugging with CMSIS-DAP.

- \* Fixed a Red State UI regression that prevented users from graphically adding an output pin to a signal.

- \* 7.1.0 (late March 2014)

- \* Upgraded IDE to Kepler SR2 and CDT 8.3.

- \* Upgraded GNU tools to ARM launchpad GCC 4.8 update 1.

- \* Fixed a problem with the C/C++ indexer being disabled on startup.

- \* Made further reliability improvements with LPC-Link2 connections.

- \* Default optimisation level is now -Og for Debug builds.

- \* Improved the Create Binary option to allow multiple commands (for example to checksum the created binary).

- \* Improved NVIC/SCB peripheral displays.

- \* Added a preference to display peripheral registers with leading zeroes.

- \* Added a preference for the array 'chunk' size in variable and expression views.

- \* Fixed an issue with instruction trace when restart is carried out.

- \* Updated the Redlib limits.h for when the compiler is configured to treat unspecified chars as signed (instead of the default of unsigned).

- \* Redlib now implements an integer-only version of vprintf() as well as a floating-point compatible version.

- \* The wrench overlay icon is now correctly displayed on a file/folder with local build settings.

- \* A Redlink Server debug session on a target that is already being debugged is now prevented.

- \* Updated RAMFUNC definitions are provided by cr\_section\_macros.h.

- \* 7.0.2 (early March 2014)

- \* Fixed a problem with setting breakpoints on Windows with source paths containing spaces.

- \* Fixed a problem with the Memory Configuration editor losing changes.
  - \* Debugging of LPC12xx and LPC11A02/LPC11A04 are now supported with LPC-Link2.
  - \* Improved the reliability of LPC-Link2 when downloading large images.
  - \* SCT code generator version updated to 2.6: switched from using register names that are undocumented on some parts, e.g. CAP\_L[0] to CAP[0].L.
  - \*\* Users should regenerate their SCT code.
  - \* Added managed linker script support for placing specific functions into RAM.
  - \* Fixed display of memory if first displayed when target is executing.
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- \* 7.0.0 (Feb 2014)
  - \* First release of LPCXpresso v7.

## Upgrades

- \* LPCXpresso (Free Edition) can be upgraded to LPCXpresso (Pro Edition).
- For more details, visit <http://www.nxp.com/lpcxpresso/purchase>