



# Introduction to LPCXpresso



# LPCXpresso



- LPCXpresso is a complete toolchain for evaluation thru development for NXP microcontrollers
- Consists of
  - LPCXpresso IDE and development tools
    - Enhanced, Eclipse-based IDE
    - GNU compiler, linker, libraries
    - Enhanced GDB debugger
  - LPCXpresso starter board
    - LPC-Link debug interface
    - Simple LPC13xx target

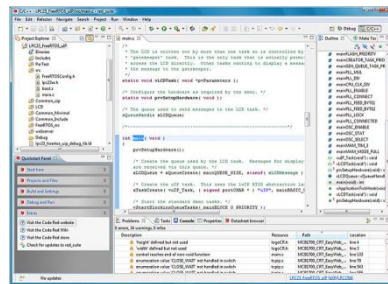


# LPCXpresso

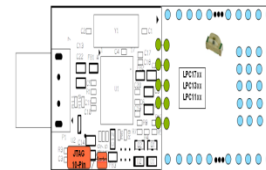
## NXP's First Low Cost Toolchain



LPCXpresso Tools



LPCXpresso Starter Board



*Evaluation*

*Product Development*



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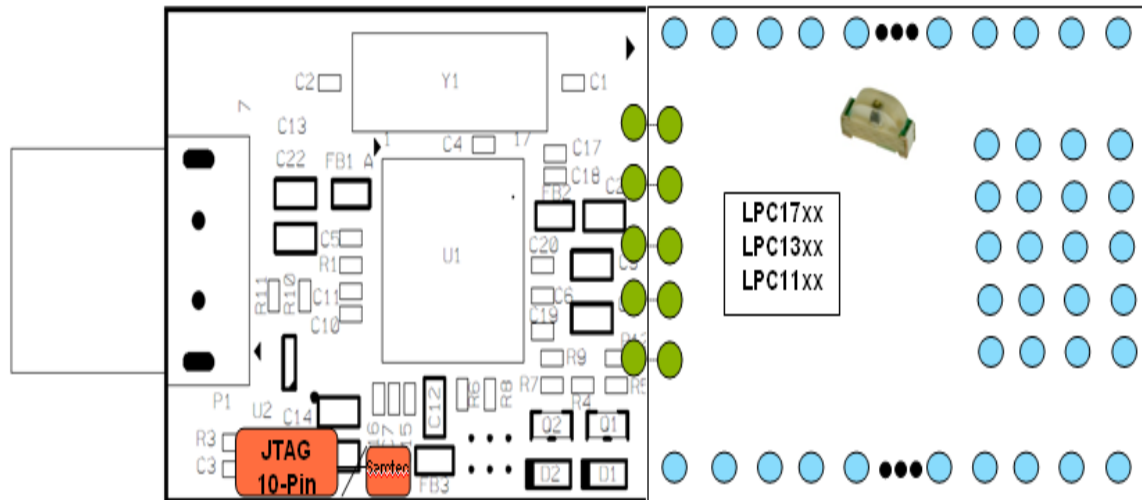
# LPCXpresso - In the box

- LPCXpresso IDE and tools with **128k** download limit
  - All members of LPC17, LPC13 and LPC11 families
  - Selected members of LPC2000 and LPC31xx families
  - **No timeout**
- LPCXpresso starter boards
  - LPC-Link
  - Connected debug target
- Discount coupons for upgrades
  - Embedded Artists
    - “LPCXpresso Base Board”
    - Developer Kits
  - Code Red Technologies
    - Upgrade to full, unrestricted tools



# LPCXpresso Starter board

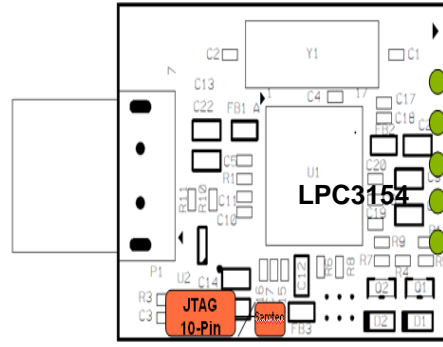
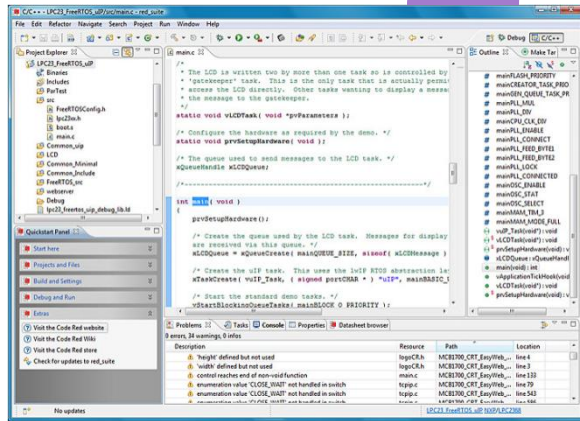
- LPC-Link
  - High Speed USB to JTAG/SWD
- Simple target board
  - LPC13xx a single LED (LPC11xx coming soon)
- LPC-Link can be used standalone by separating the target board
  - Operates as full debug probe to any supported target







# Development



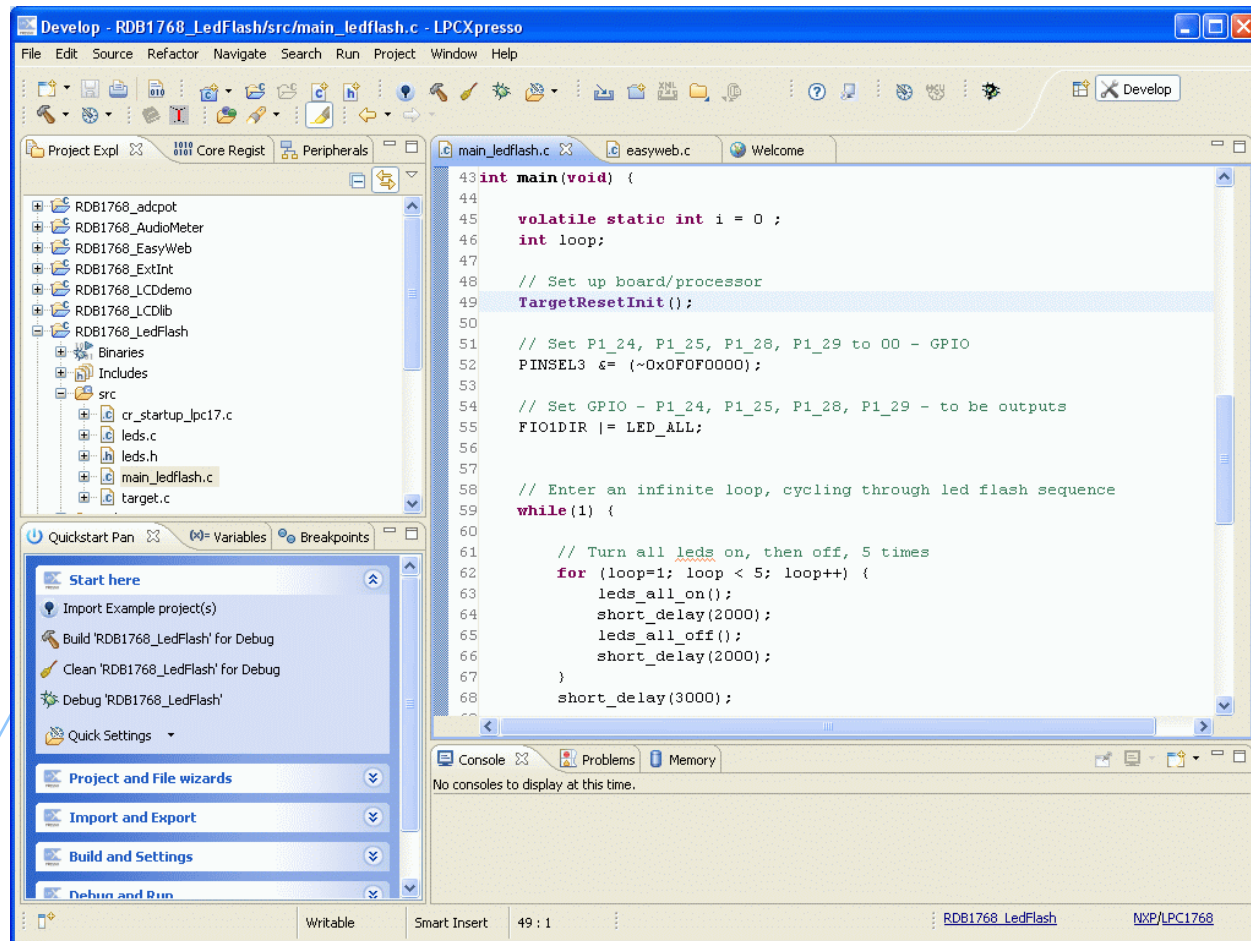
Customer's own board which will use JTAG

- Simple target board can be isolated by cutting traces
- Use LPC-Link JTAG/SWD to connect to own application board
  - Uses the same existing IDE and USB connection
- Customers can use LPCXpresso for their complete application development without ever having to upgrade



# LPCXpresso IDE

- Enhanced and simplified Eclipse-based IDE



# Enhanced Debugger

- Supports LPC-Link and Red Probe
  - Target connection via JTAG or SWD
- ARM Core knowledge
  - ARM7TDMI (LPC2000 family)
  - Cortex-M3 (LPC1700/LPC1300 family)
  - Cortex-M0 (LPC1100 family)
  - ARM9 (LPC3100 family) (coming soon)
- Debugger features
  - Access to full register set
  - Correct access to peripherals
    - Respects access size to registers
    - Respects read-only/write-only/volatile
  - Direct download to on-chip flash



# LPCXpresso debug view

The screenshot displays the LPCXpresso IDE interface for debugging the RDB1768\_LedFlash project. The main window shows the C source code for `main_ledflash.c`, with the `TargetResetInit()` function highlighted. The Disassembly window shows the assembly code for `TargetResetInit()`, including instructions like `bl 0x7c0 <TargetResetInit>`, `PINSEL3 &= (~0x0F0F0000);`, `movw r2, #49164 ; 0xc00c`, and `movt r2, #16386 ; 0x4002`.

The Core Registers window shows the following registers and values:

Register	Core Registers	IntMask
r0	0x10000004	
r1	0x10000004	
r2	0x0	
r3	0x0	
r4	0x3456abcd	
r5	0x3456abcd	
r6	0x12345678	
r7	0x10007fd0	
r8	0x0	
r9	0x0	
r10	0x0	
r11	0x0	
r12	0x0	
sp	0x10007fd0	
lr	0x0000013f	
pc	0x0000028a	
PSR	0x61000000	

The Console window shows the SYSCTL peripheral registers:

Register	Address	Value
SYSCTL	0x400fc000	
MEMMAP	0x400fc040	0x1
CLKSRCSEL	0x400fc10c	RC_OSC



# Installation and Requirements

- LPCXpresso System Requirements
  - ~250Mb disc space
  - At least 512Mb RAM
    - But recommend 1Gb
  - Windows XP, Vista, Windows 7 (32-bit or 64-bit)
  - No particular CPU speed (i.e. Netbook is fine)
- Single installer executable contains everything required for running LPCXpresso
- LPCXpresso does not modify the users environment
  - No path, no registry modifications etc
  - Allows multiple, non-interfering, installations



# Availability

- LPCXpresso will be available from mid-November
  - Through NXP distribution channels
- Initial starter boards will be LPC1343
  - More in the pipeline
- LPCXpresso Development tools
  - Download from web site
    - Registration required
- Variety of baseboards will be available for purchase
- Discounted upgrades to full tools and boards



**END**



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