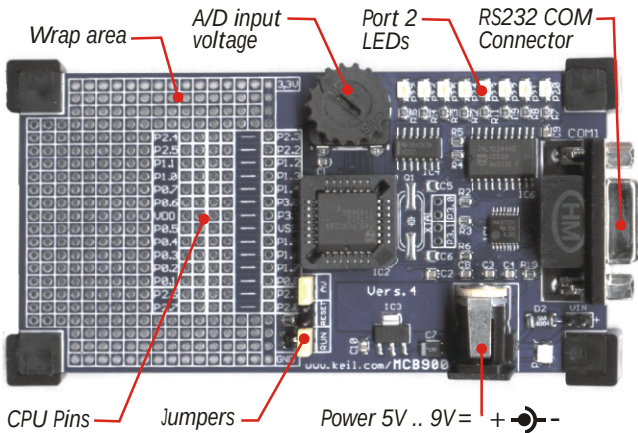


MCB900 Microcontroller Board

Keil MCB900 is a versatile and flexible prototype board for the Philips P89LPC932 and P89LPC935. MCB900 supports software development with the **µVision3 LPC Development Studio** and Flash programming using **FlashMagic**.



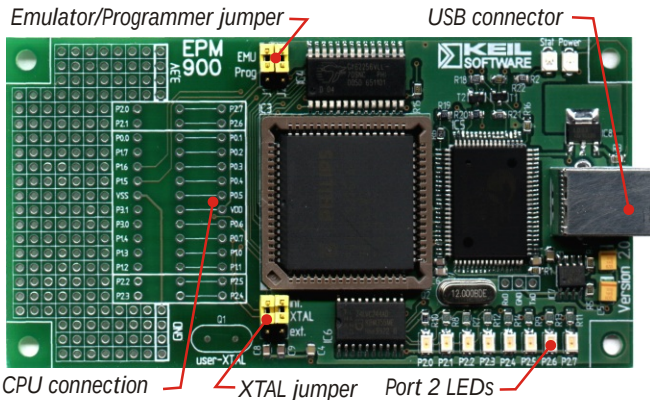
AV: connect potentiometer to A/D input AD12 of LPC935.

Jumper Setting for:	FlashMagic	µVision/ISD51	User Run
RESET: via COM port	ON	ON	OFF
RUN: fixed 3,3V on VDD	OFF	OFF	ON



EPM900 Emulator/Programmer

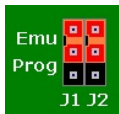
Keil EPM900 supports in-circuit debugging and parallel Flash ROM programming for the Philips LPC9xx microcontroller family. The μ Vision3 IDE/Debugger provides seamless tool integration for the EPM900.



Use Jumpers J1 & J2 to configured Emulation or Programming Mode:



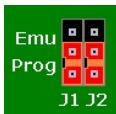
Emulation Mode



Tool configuration
under **Project -
Options - Debug**



Programming Mode

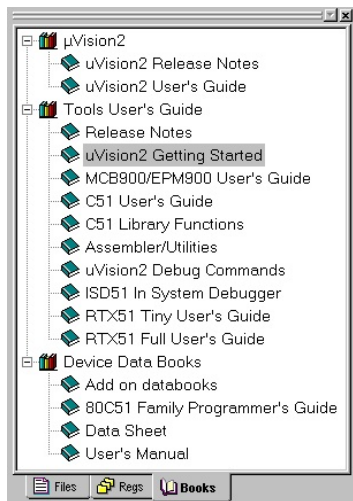


Tool configuration
under **Project -
Options - Utilities**



Install the Keil LPC900 Studio

Install the tools from the menu of the μ Vision3 - LPC Development Studio CD-ROM. The **LPC900 Studio** includes code size limited versions of the industry standard Keil C51 Compiler and the μ Vision3 Debugger. **FlashMagic** allows in-system flash programming on the MCB900 board.



Start μ Vision3 and explore the user interface.

The μ Vision3 **Project window - Books tab** lists available manuals for the LPC900 Studio and the Keil C51 development tools. The **μ Vision3 Getting Started** user's guide contains a step-by-step introduction for the μ Vision3 IDE and debugger functions.

Use the μ Vision3 IDE

Sample applications for Philips LPC9xx devices are located in the folder **Keil\C51\Examples\LPC9xx**. Load one of the following μ Vision project files (*.UV2) with the menu command **Project - Open Project**.

- **Hello** prints “Hello World” via the serial interface and toggles port 2.
- **Blinky** blinks each of the 8 status LEDs connected to I/O port 2.
- **Measure** is a remote measurement system.

Each project is configured for several targets that are selected in the **Build Toolbar**.

ABSTRACT.TXT describes these targets and opens on double-click in the **Project window - Files tab**.



Use μ Vision3 commands to generate a sample application:



Project - Build target: compile and link the sample application.



Project - Options for target: review and configure tool options.



View - Source Browser: review source statistics and navigate to symbol definitions and references.

The Keil ISD51 In-System Debugger supports embedded software testing via a standard 8051 UART. **Keil\C51\ISD51\Examples\Philips LPC9xx** contains a sample project that shows ISD51 debugging on the MCB900.

Use the μ Vision3 Debugger

Verify the program execution of a sample application with the μ Vision Debugger. Chip specific dialogs simplify testing of the LPC peripherals. The μ Vision Debugger includes even full device simulation for Philips LPC devices.



Using debugger commands you may single step through code, set breakpoints, and run the application.



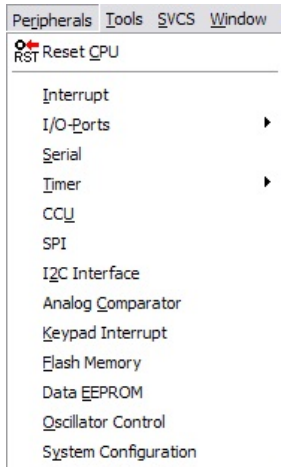
Variables can be reviewed in watch windows. And you may reset the device to re-run the application.



The yellow arrow marks the current assembler or C statement.



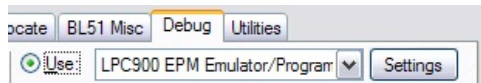
The Serial Window of the μ Vision3 Simulator acts as a terminal.



Technical support for MCB900 and EPM900 users is available under <http://www.keil.com/lpc>. **Self-Service Support** provides access to the Knowledgebase, Application Notes and Discussion Forum. Please understand that email support is restricted for MCB900 and EPM900.

Target and Flash Interface

The μ Vision3 interfaces to the target hardware for debugging and Flash ROM programming is configured under **Project - Options for Target**.

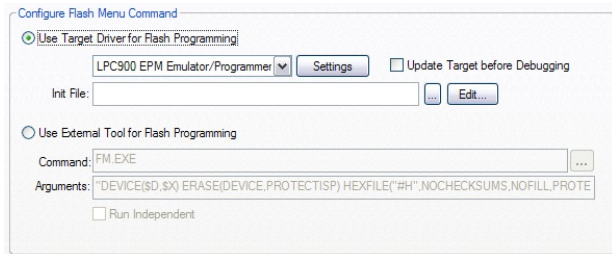


Click on **Settings** to configure debugger options.

 Start the Debug session and connect the μ Vision3 Debugger to the EPM900. Use the ISD51 In-System Debugger for MCB900.

 Flash programming tools are configured under the **Utilities** tab.

You may select **EPM900** for parallel Flash programming or **FlashMagic** as external tool for ISP mode.



FlashMagic uses 9600bps as communication baudrate. Enable *Erase all Flash* and *Options - Advance Options - Hardware Config - Assert DTR and RTS while COM Port open* and make sure that the jumpers are set for FlashMagic on the MCB900 board.