MCB2929
Quick Start Guide

KEIL™
Tools by ARM

Getting Started and Blinky Example

This **Quick Start Guide** introduces the MCB2929 board for the **LPC2929** microcontroller device from NXP. It shows how to install the Keil software development tools for ARM-based devices and run a variety of example projects.
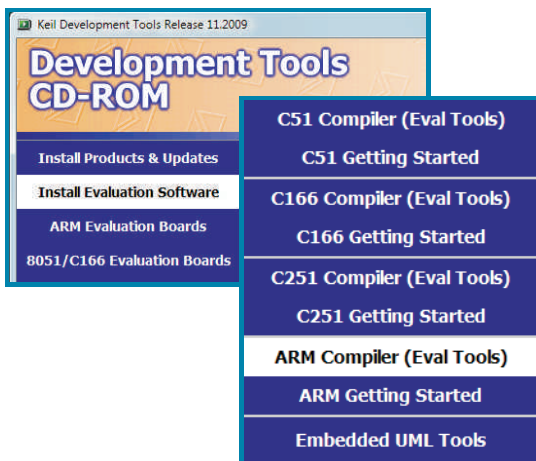
Installing the Software

To install the evaluation version of the Keil Microcontroller Development Kit (MDK-ARM):

- Insert the CD-ROM into your PC.

If the opening screen does not appear, run SETUP from the CD root directory:

- Click Install Evaluation Software, then select ARM Development Tools
- Follow the setup program instructions

The SETUP program installs the Keil µVision4 IDE, Debugger and Simulator; and the ARM Compilation Tools.

Connecting to your Target

The target is powered via your PC, through its USB port. The Keil ULINK family of adapters connect the USB port of your PC to the JTAG port of your target board allowing you to download and debug embedded programs running on your target hardware.

ULINK2 and ULINK-ME support standard JTAG and Real-Time Agent for on-the-fly target debugging.
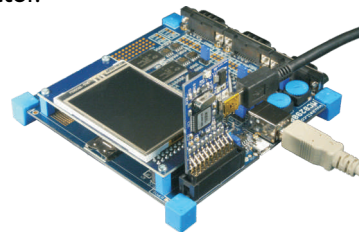
Using ULINK2

The ULINK2 Adapter connects to the MCB2929 using the 20-pin ribbon cable.
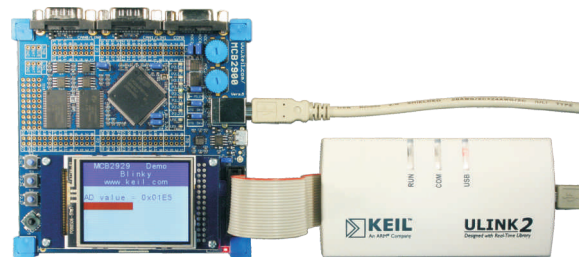
Using ULINK-ME

The ULINK-ME Adapter connects directly to the MCB2929 20-pin JTAG connector.

Blinky Example

This example demonstrates the ease of downloading and debugging an application on a target board.

It can be found at:

   **C:\Keil\ARM\Boards\Keil\MCB2929\Blinky**

To use this example

- Start µVision
- Open the Blinky project file
  Project - Open
- Compile and link the Blinky application
  Project - Build
- Program the application into on-chip Flash ROM
  Flash - Download

- The LEDs on the target blink from left to right, and back again. Press S1 to increase, and S2 to decrease the speed of blinking.

- Start debug mode

Using the debugger commands, you may:

- Single step through code

- Set breakpoints

- Run the application

- Review variables in the watch window

- Reset the device to re-run the application

- Use the yellow arrow (program counter) to view the current assembler or C statement

www.keil.com/mcb2929

Flash File System

**THIS EXAMPLE WILL NOT RE-COMPILE WITHOUT RL-ARM INSTALLED**

This example enables you to create, read, copy and delete files from an SD/MMC flash memory card on the evaluation board.

It can be downloaded from:
www.keil.com/download/docs/397.asp

To use this example:
- Connect the MCB2929 board's COM1 port to the COM1 port on your PC via a serial cable and start a hyperterminal session configured for: 115200 baud, 8 bits, no parity, 1 stop bit, flowcontrol none
- Start μVision
- Install an SD/MMC flash memory card and power up the board
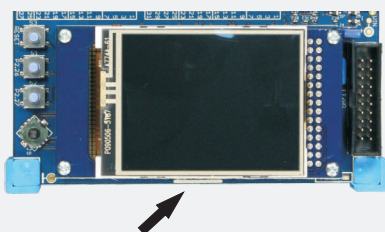
- Open the SD_File project file and download to Flash
        Project - Open
        Flash - Download
- The SD/MMC card can now be read or edited from the Debug window using a HyperTerminal via a serial cable from your PC to the evaluation board

Blinky example with RTX

This example implements a step-motor driver application using the RTX real-time operating system. Four LEDs blink to simulate the activation of the four output driver stages.

It can be found at:
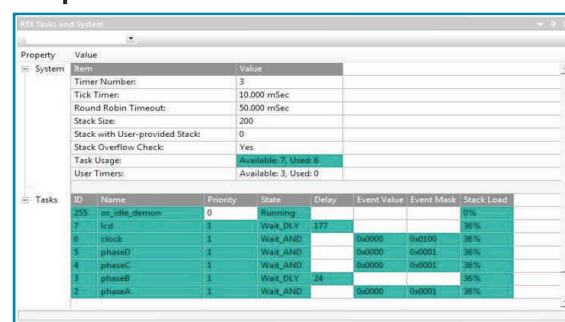   **C:\Keil\ARM\Boards\Keil\MCB2929\RTX_Blinky**

To use this example:
- Start μVision
- Open the Blinky project file
        Project - Open
- Compile and link the application, then program it into on-chip Flash ROM
        Project - Build Target
        Flash - Download
- The LEDs will begin to flash in a controlled manner
- The tasks running in the application may be viewed from the debugger window
        Peripherals - RTX Kernel

USB - HID Demo

This USB example project implements a Human Interface Device (HID), and connects directly to your PC via the USB port. No special USB drivers are required, since the HID support is already built into Windows 2000 and Windows XP.

It can be found at:
        C:\Keil\ARM\Boards\Keil\MCB2929\USBHID

To use this example:
- Start μVision
- Open the HID project file and download to Flash
        Project - Open
        Flash - Download
- Cycle power on the target so that your PC recognizes it as an HID device
    - Install the USB Client application which can be found at:
        C:\Keil\ARM\Utilities\HID_client\Release
Select the evaluation board from the drop-down menu

- Checking or unchecking the boxes in the Output (LEDs) group turns the MCB2929 Board's LEDs on and off
- Inputs (Buttons) show the status of the on-board buttons

USB - Memory Demo

This USB example project implements a USB Memory based on USB Mass Storage Class. The USB Memory is automatically recognized by the host PC running Windows, which will load a generic Mass Storage driver.

It can be found at:
        C:\Keil\ARM\Boards\Keil\MCB2929\USBMem

To use this example:
- Start μVision
- Open the Memory project file and download to Flash
        Project - Open
        Flash - Download
- Cycle power on the target so that your PC recognizes it
- Go to 'My Computer' where you will see the MCB2929 board appear as a removable storage device
- Double-click on the board name to access the data stored in the USB memory device
    - You may view the contents of the README.txt file