

Getting Started and Blinky Example

This **Quick Start Guide** introduces the MCBSTM32 boards for the **STM32F10x** family of devices from STMicroelectronics. It shows how to install the ARM software development tools and run a variety of example projects.

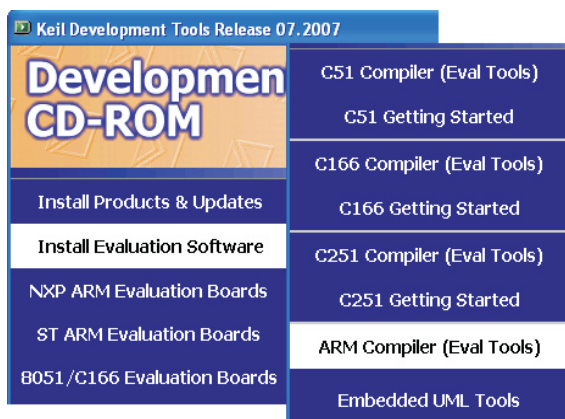
Installing the Software

To install the evaluation version of the ARM RealView Microcontroller Development Kit (MDK)

- 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 ARM Compiler (Eval Tools)
- Follow the setup program instructions



The SETUP program installs Keil Vision and the ARM RealView compilation tools.




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\MCBSTM32\Blinky

To use this example

-  Start Vision
- Open the Blinky.uv2 project file
Project - Open
- Compile and link the Blinky application
 **Project - Build**
- Program the application into on-chip Flash ROM
 **Flash - Download**

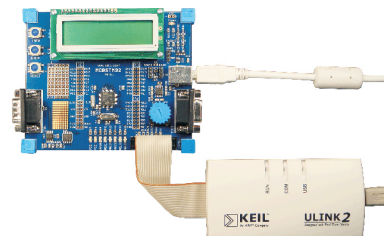
Connecting to your Target

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.

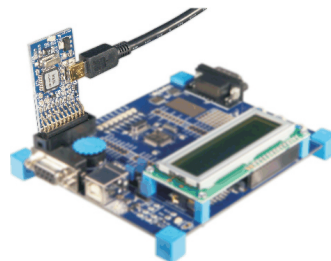
Using ULINK2


The ULINK2 Adapter connects to the MCBSTM32 using the 20-pin ribbon cable.









Using ULINK-ME

The ULINK-ME Adapter connects directly to the 20-pin JTAG connector on the MCBSTM32.



- The LEDs on the target are controlled by the potentiometer setting. As the setting increases, the LEDs scroll faster.
-  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

Real-Time Trace using SWV

This example demonstrates the value of Real-Time Trace using the Serial Wire Viewer (SWV) features of STM32.


It can be found at:

C:\Keil\ARM\Boards\Keil\MCBSTM32\STLIB_Blinky

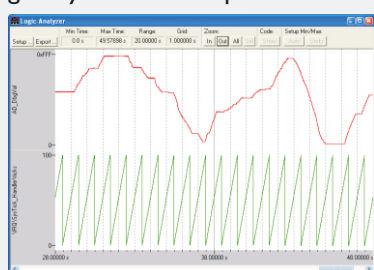
To use this example:

- Select target build option - STM32 Trace C

STM32 Trace C

- Compile and download to Flash.
-  Start Debug mode.
- Select the Serial Wire Viewer and Logic Analyzer
View - Serial Window - Serial Wire Viewer
View - Logic Analyzer

- The A/D converter output will be displayed in both the Serial Wire Viewer Window and the Logic Analyzer. These values change as you move the potentiometer.



```
Serial-Wire Viewer
AD value = 0x054E
AD value = 0x0286
AD value = 0x0148
AD value = 0x0064
AD value = 0x0000
AD value = 0x0000
AD value = 0x0109
AD value = 0x0374
AD value = 0x05EE
AD value = 0x0794
AD value = 0x094F
```

Application note 197 provides full information on Real-Time Trace,
http://www.keil.com/appnotes/docs/apnt_197.asp

USB - HID Demo

This USB example project implements a Human Interface Device (HID), and connects directly to your PC via the USB. 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\MCBSTM32\USBHID

To use this example:

- Start Vision
- Open the HID.uv2 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 MCBSTM32 Board's LEDs on and off.
- Inputs (Buttons) show the status of the on-board buttons

Flash File System

DO NOT RECOMPILE THIS EXAMPLE WITHOUT AN RL-ARM LICENSE

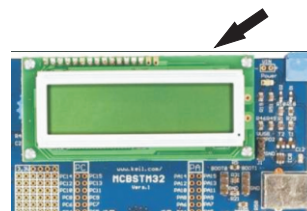
This example enables you to create, read, copy and delete files from an SD/MMC flash memory card on the evaluation board.

It can be downloaded from:

www.keil.com/download/docs/366.asp

To use this example:

- Connect the MCBSTM32 board's COM port to the COM port on your PC via a serial cable and start a hyperterminal session configured for 115200 baud, 8 bits, no parity, 1 stop bit, XON/XOFF.
- Start Vision
- Install an SD/MMC flash memory card and power up the board



- Open the SD_File.uv2 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.

Traffic example with RTX

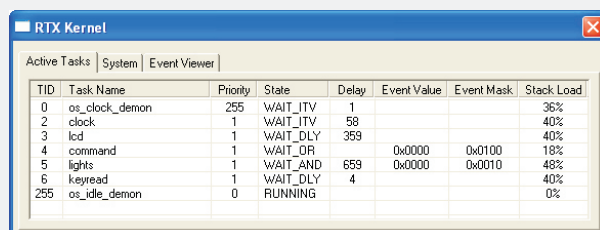
This example uses interrupts to control a traffic light system running on the RTX real-time operating system.

It can be found at:

C:\Keil\ARM\Boards\Keil\MCBSTM32\RTX_Traffic

To use this example:

- Start Vision
- Open the RTX_Traffic.uv2 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



TID	Task Name	Priority	State	Delay	Event Value	Event Mask	Stack Load
0	os_clock_demon	255	WAIT_ITV	1			36%
2	clock	1	WAIT_ITV	58			40%
3	led	1	WAIT_DLY	359			40%
4	command	1	WAIT_OR		0x0000	0x0100	18%
5	lights	1	WAIT_AND	659	0x0000	0x0010	48%
6	keyread	1	WAIT_DLY	4			40%
255	os_idle_demon	0	RUNNING				0%