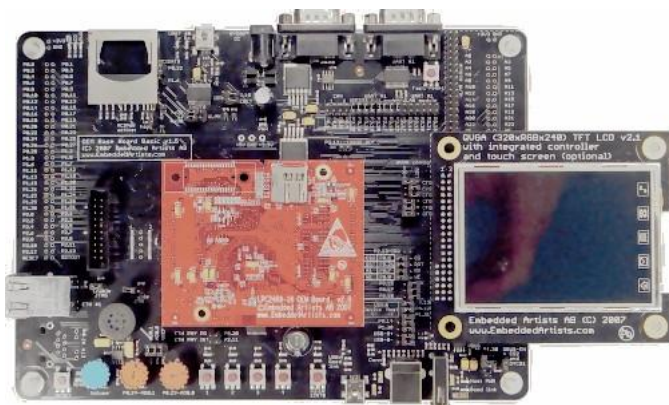# MCB2460 Evaluation Board

The Keil MCB2100 Evaluation Board introduces you to the NXP (founded by Philips) LPC2129 family of ARM processor-based devices. The MCB2100 allows you to quickly create and test programs for this advanced architecture.

The Keil MCB2100 Evaluation Board connects to your PC using the serial port (for Flash download using FlashMagic) or the JTAG interface (for program debug using a Keil ULINK family USB-JTAG Adapter and the µVision IDE and Debugger).

Two Serial and two CAN interfaces make this board a great starting point for your next ARM project.

Components Included

The MCB2460 Evaluation Board includes the following:

- MCB2460 Evaluation Board,
- QVGA LCD and Touch Screen,
- MDK-ARM Evaluation Tools.

System Requirements

- PC with one available USB port,
- Windows 2000, XP and Vista,
- One CD-ROM drive,
- ULINK family USB-JTAG Adapter for high-performance Debug/Download (optional).

Starter Kit

The MCB2460 is also available as a starter kit which includes the ULINK2 USB-JTAG adapter.

Part numbers are:

- MCB2460: MCB2460 Only
- MCB2460U: MCB2460 and ULINK2

Evaluation Software

The MCB2460 Evaluation Board and Starter Kit include the RealView MDK-ARM Evaluation Tools. These tools help you get started writing programs and testing the microcontroller and its capabilities. Sample applications that run on the MCB2460 are included.

Introduction

The ARM7TDMI based MCB2400 Evaluation Board allows you to generate and test application programs for the NXP (formerly Philips) LPC24xx microcontroller family. With this hands-on process, you can determine the hardware and software requirements for current and future product development.

The MCB2400 Evaluation Board ships with the LPC2468 device that is a superset of several other device variants of the LPC24xx microcontroller series. The MCB2400 Board contains all the hardware components required in a single-chip LPC24xx system.

Features

The MCB2400 OEM board contains an NXP (formerly Philips) LPC2468 microcontroller with 512Kb on-chip Flash and 96Kb on-chip RAM. In addition, the MCB2400 OEM board contains the following components:

- **External Flash**
  128 MB NAND Flash plus 4 MB NOR Flash
- **External RAM**
  32 Mb SDRAM
- **I2C EPROM**
  256 Kbit
- **Crystals**
  12.0000 MHz for MCU, CAN and USB
  32.768 kHz for Real-Time Clock
- **100/10M Ethernet**
  Micrel KSZ8001L Ethernet PHY/ transceiver
- **Backup Power**
  0.3F capacitor

The connectors on the MCB2400 evaluation board set provide easy access to many of the LPC2478's on-chip peripherals.

- **Color QVGA LCD with Touchscreen**
  A detachable, 320x240 TFT LCD color VGA display module with built-in touchscreen is accessible via 8-bit serial or 16-bit parallel interface.
- **Serial Port**
  A standard DB9 connector is on the MCB2400 board for the LPC2478's built-in UART interfaces. Your application may use this full duplex, serial port, if required.
- **CAN Port**
  A standard DB9 connector is on the MCB2400 board for CAN communications.
- **100/10M Ethernet Port**
  A standard RJ45 connector on the MCB2400 base board connects to the Ethernet transceiver on the OEM board for applications requiring Ethernet communications.
- **USB Ports**
  Standard USB connectors for USB Device, USB-OTG, USB Host and UART via USB on the MCB2400 board for applications requiring USB communications.
- **Amplifier and Speaker**
  An amplifier with volume control on the MCB2400 connects the D/A output of the LPC2468 device to a speaker. You may use this amplifier to generate sound.
- **Analog Voltage Control for ADC Input**
  An adjustable analog voltage source is on the MCB2400 board for testing the Analog to Digital output feature of the LPC2478.
- **SD/MMC Card Connector**
  An SD/MMC Card connector for developing applications requiring access to SD/MMC Cards.
- **JTAG Download and Debug**
  A JTAG interface is on the MCB2400 board and, coupled with the ULINK USB-JTAG adapter, allows flash programming. The on-chip debug interface can perform real-time in-circuit emulation of the LPC2478 device. For fast PC communication, use your PC's USB port.

Hardware Requirements

To use the MCB2400 Evaluation Kit, you need:

- The MCB2400 Base Board with the LPC2468 OEM Board installed.
- A PC with:
    - One USB port for ULINK USB-JTAG downloading and debugging.
    - Another USB port to provide power to the board.
- One standard USB A/B cable for ULINK.
- One standard mini-USB cable(included) for power.

Software Requirements

You must install the following required software to use the MCB2400 Evaluation Board:

Windows Operating System

The Keil µVision tool chain runs in these Windows Operating Systems:

- Microsoft Windows 2000
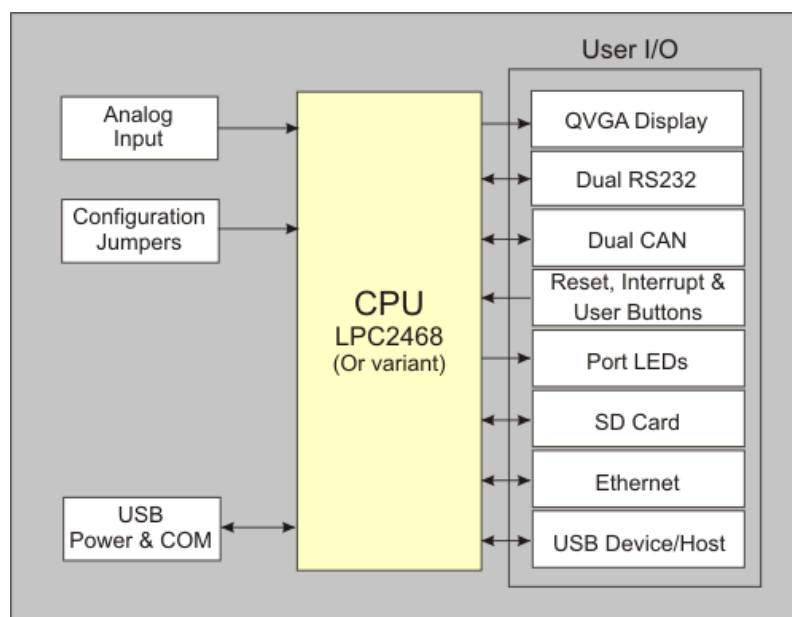- Microsoft Windows XP
- Microsoft Windows Vista

Tools and Examples

To compile, link, and run applications on the MCB2400 Evaluation Board, you must install these Keil products:

- MDK-ARM Evaluation Tools.
- Example programs written for the MCB2400. These programs are included in the MDK-ARM, DB-ARM and Keil ARM Evaluation Toolkits.

Block Diagram

The hardware block diagram displays input, configuration, power system, and User I/O on the board. This visual presentation helps you to understand the MCB2400 board components.

Technical Data

Parameter	Description
Supply Voltage	5 VDC via USB bus or 9-12 VDC power adapter
Supply Current	145mA typical, 200mA maximum
XTAL Frequency	12 MHz -- MCU 32.768 KHz -- Real-Time Clock
Microcontroller	NXP LPC2468
Peripherals	1 × RS232 Modem Interface via DB9 connector, 1 × RS232 Interface via USB connector, 1 × CAN Interface, 1 × Ethernet Interface, 1 × QVGA LCD Color Display with Touchscreen, 1 × JTAG Interface, 1 × SD/MMC Card Adapter, 1 × USB Device/Host Interface, 2 × Analog Input (connected to 2 potentiometers by default) 1 × ETM Interface (optional)
Board Size	Base Board -- 150mm x 2.1mm (5.9" x 8.1") OEM Board -- 80mm x 66mm (3.15" x 2.6").