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Model # : QSB - 122

LPC2138
Quick Start Board
User Manual

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The QsLPC2138 is a Low Cost Development Board that can be used to quickly evaluate and demonstrate the capabilities of NXP LPC2138 microcontroller. The board is designed to work as a header board with access to all pins for external connection. The board consists of a base board and a header board with microcontroller. Ideally suitable for development purposes.

LPC2138 FEATURES

- Compact and Ready to use design
- Professional EMI/RFI Complaint PCB Layout Design for Noise Reduction
- High Quality Two layer PTH PCB

BASE BOARD FEATURES

- Supports LPC2129/32/48* Header Boards
- Includes LPC2138 Header Board
- No separate programmer required (On-Chip Boot loader)
- No Separate power adapter required (USB power source)
- Screw terminal for External power Supply
- Power Supply range of 7V to 20V
- RS-232 Interface for direct connection to PC's serial port (UART 0)
- On Board RS 232 to TTL Converter (UART 1)
- On Board Power LED Indicator
- On Board LED Connected via Jumper to port pin
- On Board Reset button
- All Port Pins available at Berge Strip and at Round Machine-cut female connector
- On Board JTAG Connector for Debugging/Programming
- Can be used as header board for developing applications
- Power Supply Reverse Polarity Protection

- On Board DB9 Connector
- On Board USB Connector
- On Board 1 Amp Voltage Regulator
- On Board Connector for regulated 3V3 output

HEADER BOARD FEATURES

- Easy to use DIP Package
- Includes NXP LPC 2138 Microcontroller
- On Board Power LED Indicator
- On Board JTAG Jumper
- On Board 10 MHz Crystal Oscillator
- On Board 32.768 KHz Crystal for RTC
- On Board 3.3V Regulator
- On Board Power Supply de-Coupling Capacitors
- All Port Pins available at Berge Strip
- Header Module can be removed for developing your circuit

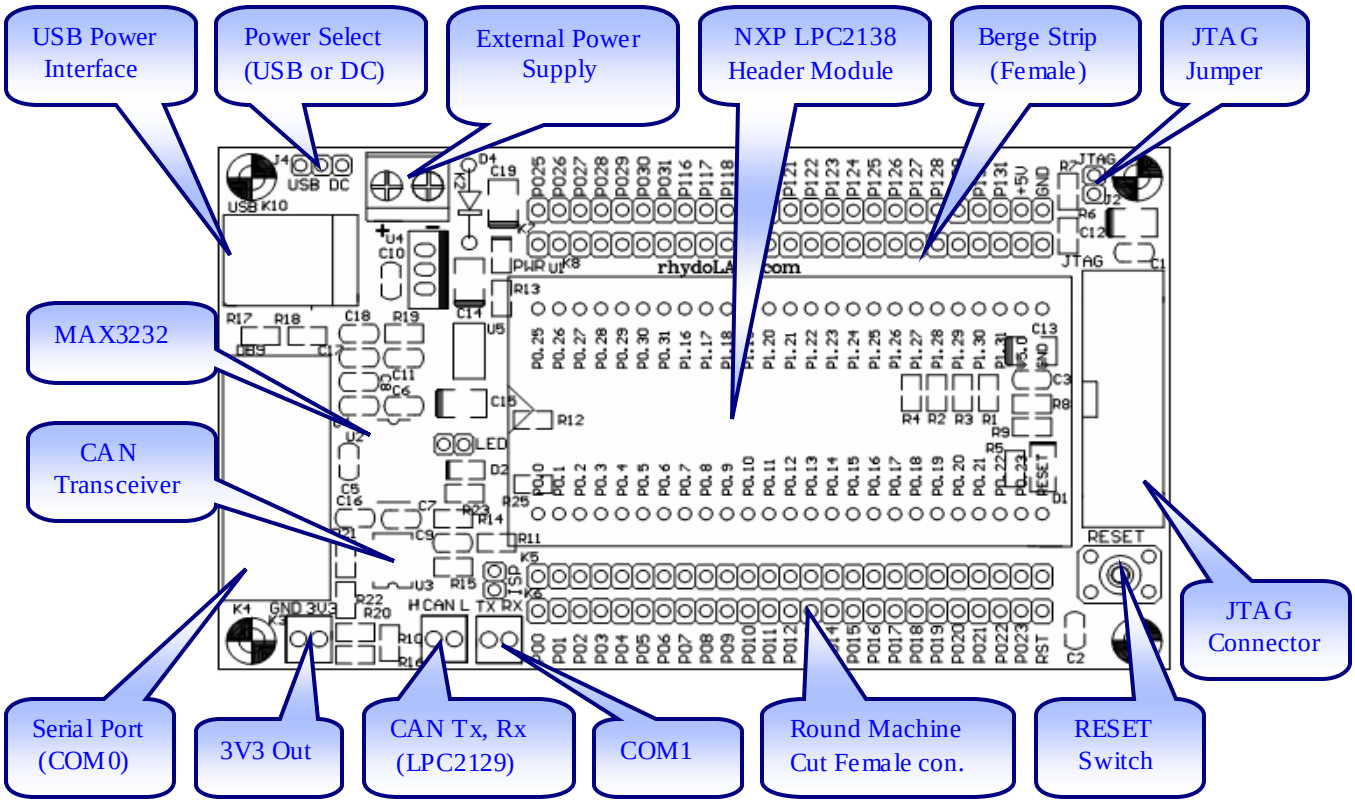
LPC2138 PACKAGE INCLUDES

- Fully Assembled and Tested QsLPC2138 Development board
- Software CDROM with
  - Schematic
  - Programming Software
  - Sample Hex Code
  - Example Codes

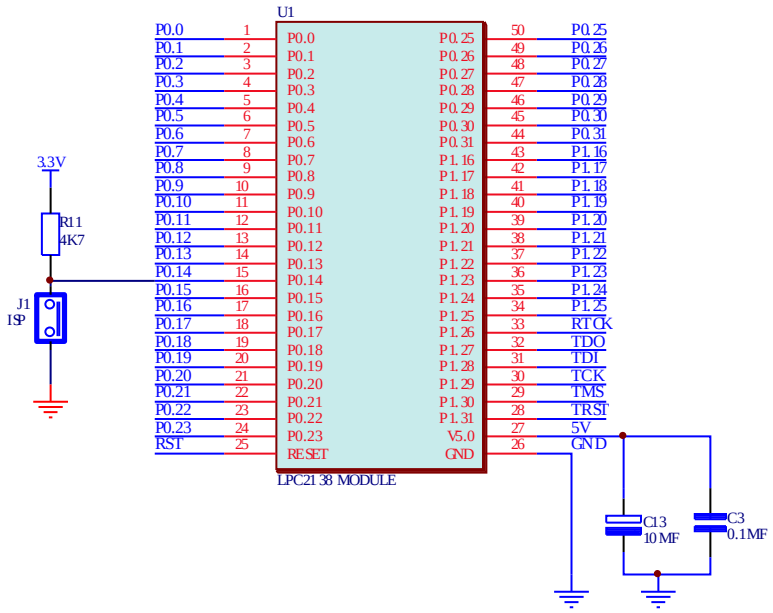
LPC 2138 SPECIFICATION

- NXP LPC 2138 with 10 MHz Crystal Oscillator (With Boot loader Software)
- High Performance 32-bit ARM7TDMI-S™ CPU
- 512 KB Programmable Flash Memory provides minimum of 10,000 erase/write cycles and 10 years of data-retention.
- 32 KB Data Memory (SRAM)
- In-System/In-Application Programming (ISP/IAP) via on-chip boot-loader software.
- Single Flash sector or full chip erase in 400 ms and 256 bytes programming in 1 ms.
- EmbeddedICE and Embedded Trace interfaces offer real-time debugging with the on-chip RealMonitor™ software and high speed tracing of instruction execution.
- Two 8-channel 10-bit A/D with conversion times as low as 2.44 us per channel.
- Single 10-bit D/A converter provide variable analog output.
- Two 32-bit Timers/External event counters.
- Four Capture and four Compare channels.
- PWM unit with six output pins.
- Low power Real-time clock with independent power and dedicated 32 kHz clock input.
- Multiple serial interfaces including two UARTs, two Fast I^2C (400 kbit/s), SPI™ and SSP with buffering and variable data length capabilities.
- Vectored interrupt controller with configurable priorities and vector addresses.
- Up to 47 of 5 V tolerant general purpose I/O pins.
- Up to nine edge or level sensitive external interrupt pins.
- 60 MHz maximum CPU clock available from programmable on-chip Phase-Locked Loop (PLL) with settling time of 100us.
- On-chip integrated oscillator operates with external crystal in range of 1 MHz to 30 MHz or with external oscillator from 1 MHz to 50 MHz.
- Power saving modes include Idle and Power-down.
- Individual enable/disable of peripheral functions.
- Processor wake-up from Power-down mode via external interrupt or Real-time Clock.
- Single power supply chip with Power-On Reset (POR) and Brown-Out Detection (BOD:
- CPU Operating Voltage range of 3.0 V to 3.6 V

INTERFACE OVERVIEW

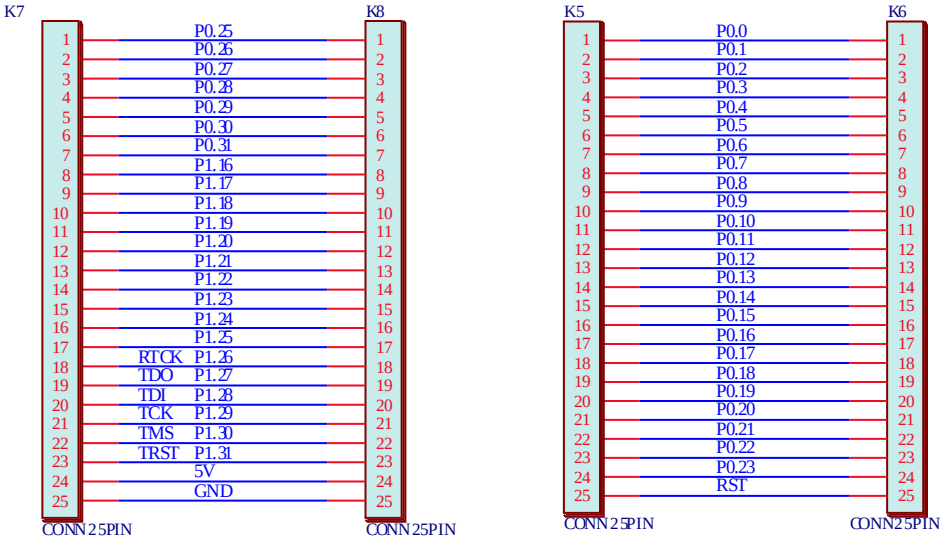


HEADER BOARD - PIN OUT

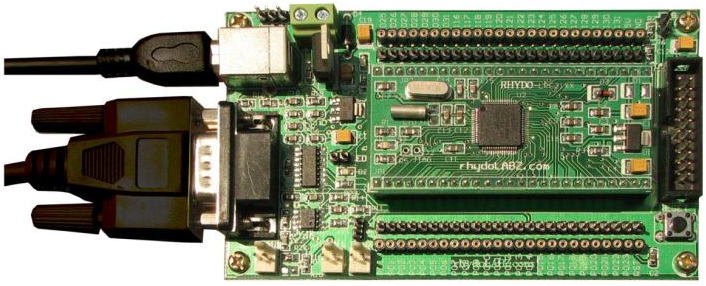


PORT PINS – BERGE STRIP & ROUND MACHINE CUT CONNECTOR

The QsLPC2138 board has all port pins available at Berge strip and at round machine cut female connector. The connection is as given below.

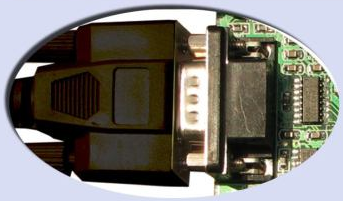


SETTING UP Qs LPC 2138

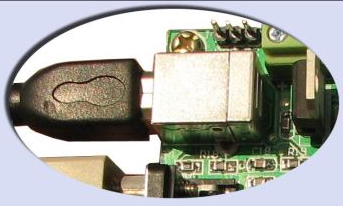


- Power the development board with a USB Cable
- Make sure that the Power-On LED is ON and Jumper in proper position.
- Connect the RS-232 Cable to the COM port of your computer.
- Connect the other end to the Serial Port of your development board

CONNECTIONS



RS232



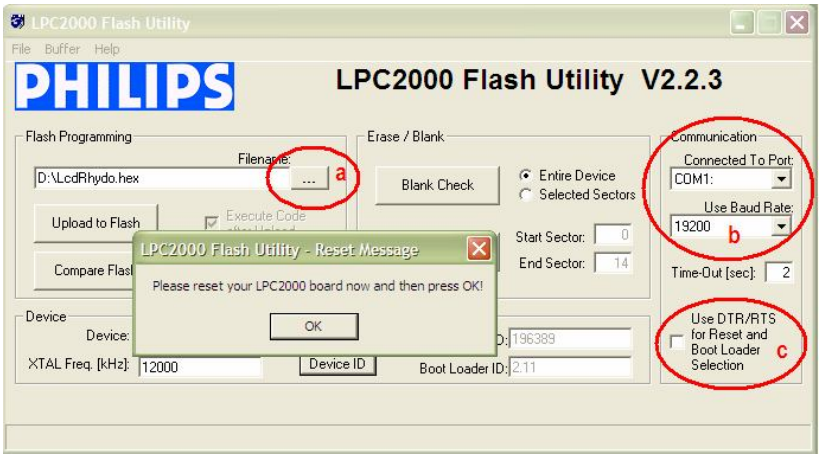
USB POWER

JTAG

PROGRAMMING STEPS

(The Quick Start board uses COM0 for programming)

1. *Configure LPC Flash Utility software at the PC side*
   a. *Browse your hex file here.*
   b. *Select your COM port and Set baud rate (9600) here.*
   c. *Disable DTR/RTS for Reset and boot loader selection.*
2. *Connect system serial port to COM port of Qs LPC 2138 .*
3. ***Put jumper** on **ISP***
4. *Click "Read Device ID"*
5. *The **software prompts you** to reset the quick start board.*
6. *Press Reset button and press OK*
7. *Wait till Device Id is shown*
5. *Click "Upload to Flash" button in the flash utility software and wait till the programming is over.*
6. *Remove jumper on ISP*
7. *Now Reset the quick start board*



Note: *This product has been tested and certified by the company before shipping. Removing or replacing the components from the PCB could damage the product. In this case, the company won't be liable for the damages caused and no replacement/ refunding are entertained. No warranty or guarantee is provided on this product, unless it's specified.*

TECHNICAL SUPPORT

If you are experiencing a problem that is not described in this manual, please contact us. Our phone lines are open from 9:00 AM – 5.00 PM (*Indian Standard Time*) Monday through Saturday excluding holidays. Email can be sent to *support@rhydolabz.com*

LIMITATIONS AND WARRANTEES

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