Document : Datasheet
Date : 23-Nov-08

Model # : DEV - 1134

eDu PIC 18F Series

Teach Yourself Kit – Overview

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CONTENTS

The eDu PIC18F is a Microchip's PIC18F4520 microcontroller self study kit, suitable for teaching and learning embedded system programming. This tutorial is intended to give a detailed picture of programming the Microchip's PIC18F series microcontroller. The tutorial kit includes all necessary tools to assist you in developing various applications.

The PIC18F4520 Microcontroller includes 32kb of internal flash Program Memory, together with a large RAM area, an internal EEPROM, 13-channel 10-bit A/D convertor, Capture/compare/PWM functions, a synchronous serial port that can be configured as either 3-wire SPI or 2-wire I2C bus, a USART etc making it ideal for real-time systems and monitoring applications.

eDu PIC18F4520 TEACH YOUR SELF PACKAGE INCLUDES

- Fully Assembled and Tested eCee PIC18F4520 Development board
- Printed User Manual
- Serial Cable
- USB Cable
- Software CDROM with
  - Schematic
  - Programming Software
  - Sample Hex Code
  - Development Tools
  - Downloader Software
  - Example Codes For
    - Led Blinking
    - Matrix Keyboard
    - I^2C Protocol
    - Led Control with Timer0
    - PWM Generation
    - ADC Interfacing
    - Capture Module
    - Timer 1
    - LCD Display
    - External Interrupt Interfacing
    - 7-Segment Display
    - UART Communication
    - Buzzer Interfacing
    - Pull-Up Keyboard
    - Compare Module
    - Timer 2

eCee PIC18F4520 BOARD FEATURES

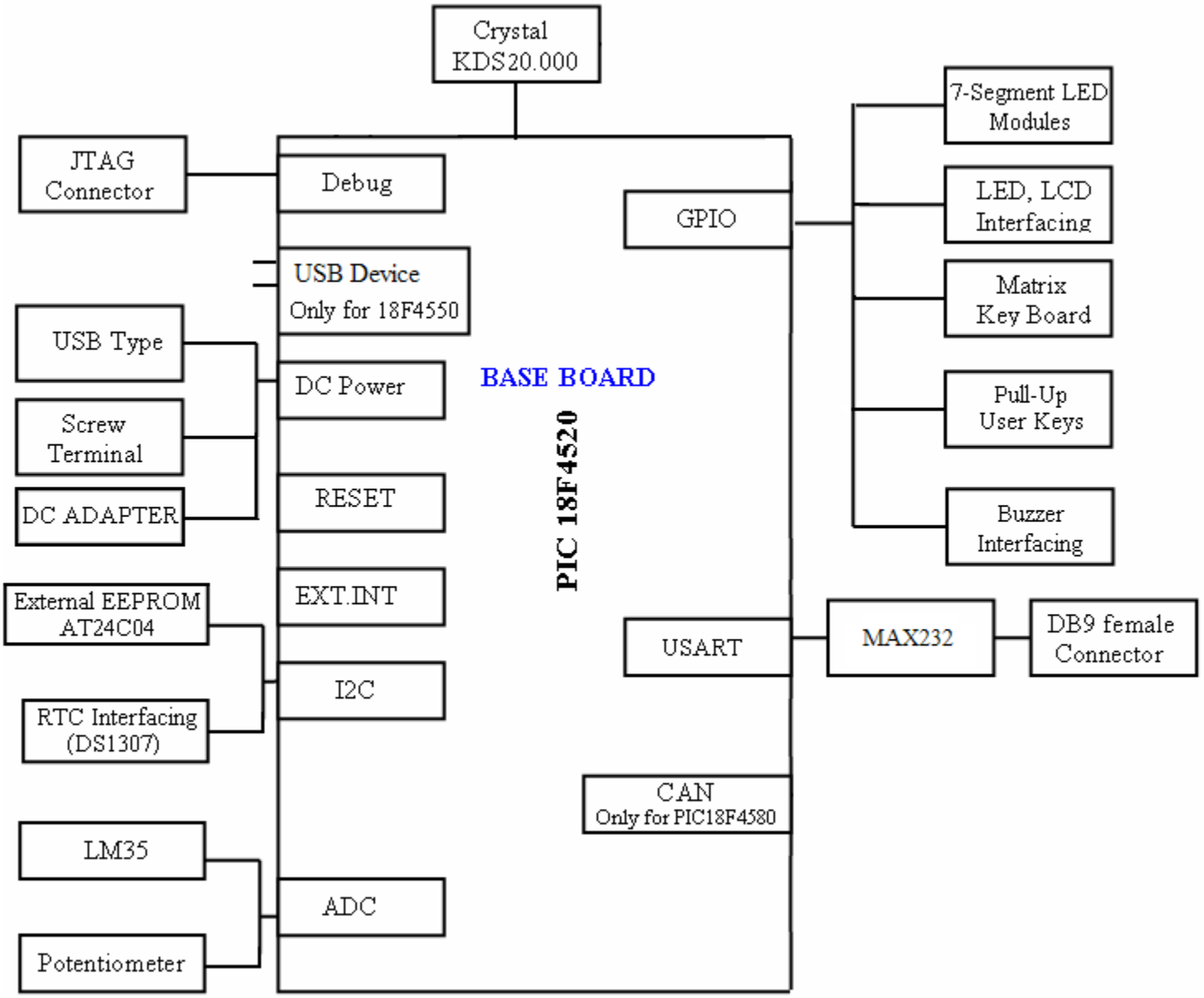
- Compact and Ready to use design
- Professional and Fully EMI/RFI Complaint PCB Layout Design for Noise Reduction
- Includes PIC18F4520 Microcontroller
- Board Supports PIC 16F877/18F 4580/4550* Microcontrollers
- No separate programmer required (Built in Boot loader)
- No Separate power adapter required (USB power source)
- Screw terminal for External power Supply (with Jumper Select Option)
- External Power Supply range of 7V to 20V
- Adaptor (any standard 9-12V power supply) option
- RS-232 Interface (For direct connection to PC's serial port)
- On board Two Line LCD Display (2x16)
- On board I^2C EEPROM (4K-AT24C04)
- On board I^2C RTC (DS 1307) with Crystal and Battery
- On board 32.768 KHz Crystal for RTC
- Four multiplexed 7-Segment LED Display
- Built in Matrix keyboard (12 keys)
- Built in Pull-Up (4 Keys) Keyboard
- Built in IR Sensor Interface – TSOP 1738
- Built in 8 LED Interface to test I/O
- On Board External Interrupt and Reset buttons
- Built in Potentiometer interface for ADC
- On Board Temperature Sensor Interface
- On Board Buzzer Interface
- On Board PWM Output pin
- On Board ICD Connector for Debugging/Programming
- On Board ICSP Connector

- On Board 20 MHz Crystal Oscillator
- On Board Power LED Indicator
- On Board DB9 Connector
- On Board USB Connector
- All Port Pins available at IDC (2x5) Connector
- Power Supply Reverse Polarity Protection
- On Board 1 Amp Voltage Regulator
- Can be used as main board for developing applications
- Demo HEX codes included for testing of board features
- Example codes included

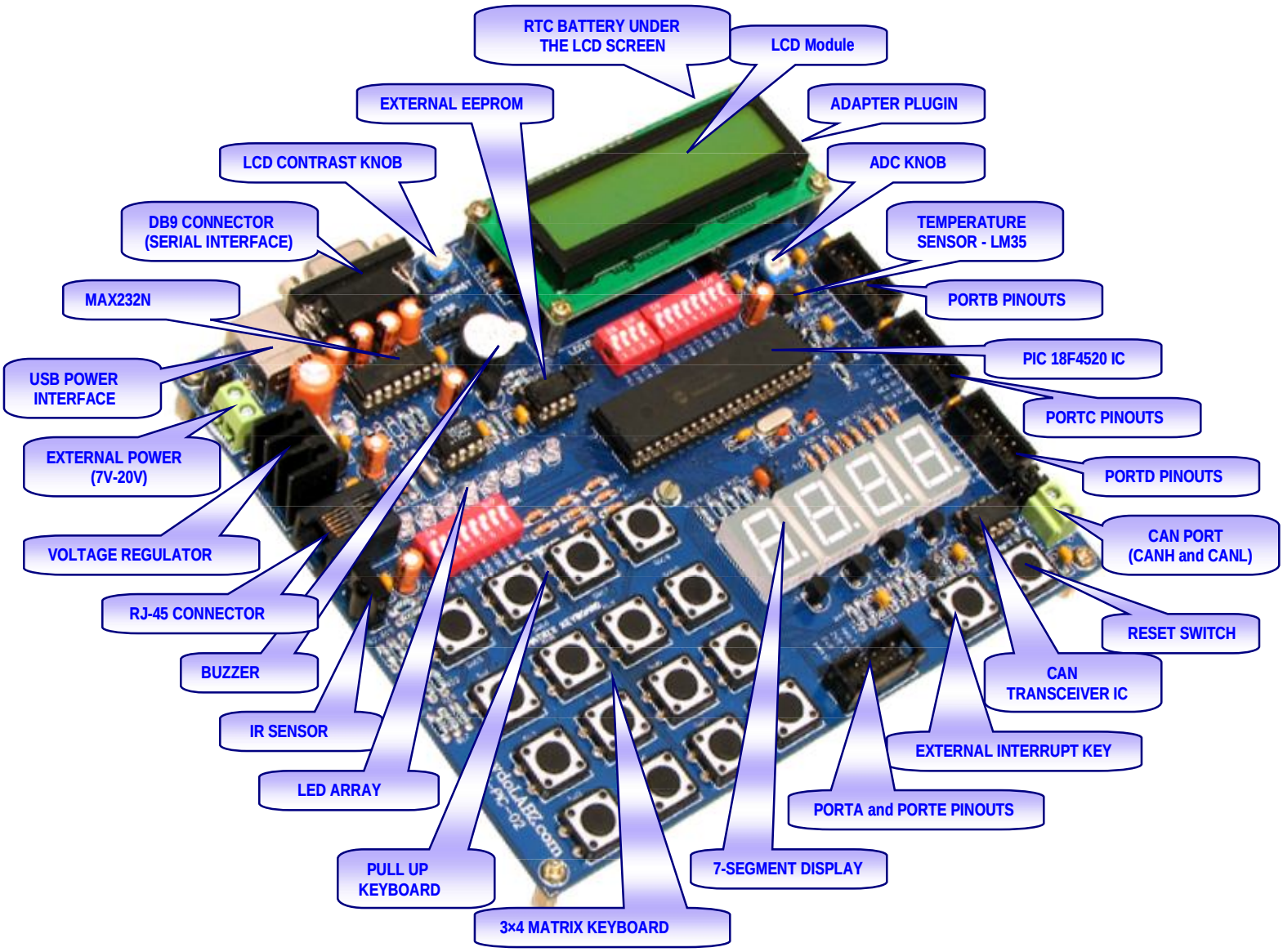
PIC18F4520 SPECIFICATIONS

- High Performance RISC CPU
- 32 KB Programmable Flash Memory
- 1536 bytes Data Memory (RAM)
- 256 bytes EEPROM
- Up to 40 MHz Operation
- 36 I/O pins
- 13-Channel 10-bit Analog to Digital Converter (ADC)
- Two PWM Channels
- One CCP modules and One ECCP modules
- Dual Analog Comparator Module
- One 8-Bit Timer/Counter
- Three 16-Bit Timer/Counter
- One Serial USART (Supports RS-232,RS-485 and LIN 1.2)
- One Master Synchronous Serial Port (MSSP)
- One Serial Peripheral Interface(SPI) Module
- One Inter-Integrated Circuit (I^2C) Module
- Power-On Reset (POR), Power-Up Timer (PWRT) and Oscillator Start-up Timer (OST)
- Interrupt Capability (up to 20 sources)
- ICSP Programming
- Brown Out Reset
- Low Voltage Programming
- Power Saving Sleep Mode
- Programmable Code Protection
- Fully Static Design
- Wide Operating Voltage 2.0V to 5.5V
- Low Power Consumption

PIC18F4520 FUNCTIONAL BLOCK

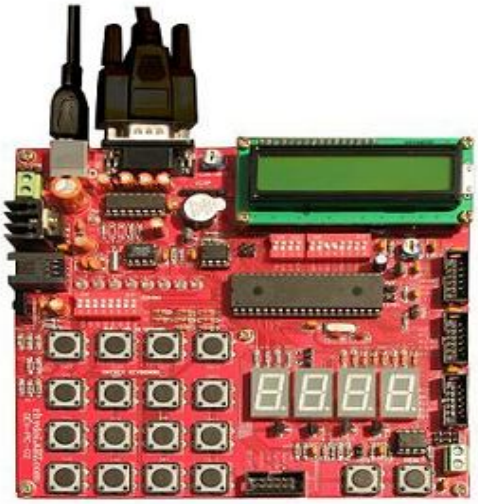


eCee PIC18F4520 INTERFACE OVERVIEW



SETTING UP eCee PIC18f4520

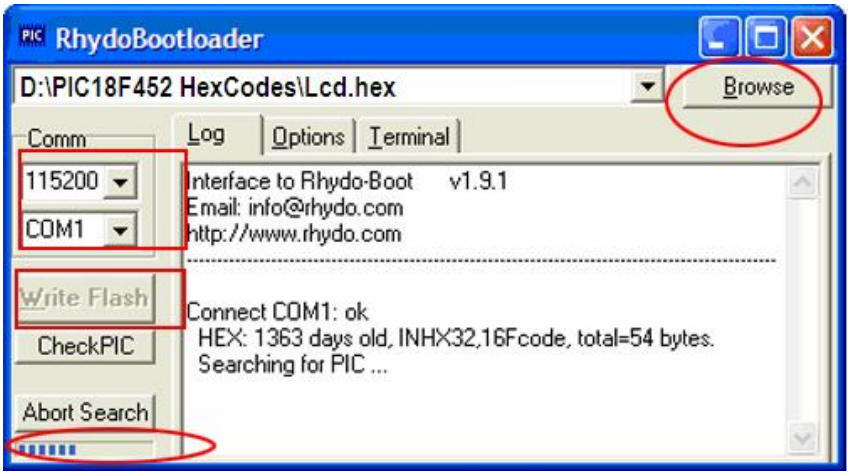
- Power the development board with a USB Cable.
- Make sure that the Power-On LED is ON and the jumper is in proper position.
- Connect the RS-232 Cable to the COM port of your computer.
- Connect the other end to the Serial Port of your Demo Kit.



PROGRAMMING STEPS

The PIC18F4520 Development Kit is preloaded with Boot loader firmware. This allows the user to program the microcontroller without using separate programmer.

1. Setup Rhydo Boot Loader.
2. Select COM port and set Baud rate as 115200 bps.
3. Browse your Hex files.
4. Ensure RS-232 connection and power connection.
5. Click the Write Flash button.
6. Reset PIC using the Reset button while Boot loader searches for PIC.



Note: *The microcontroller is preloaded with boot-loader software. Programming with other devices/programmers or removing the microcontroller from the development board could damage the boot-loader. In this case, the company won't be liable for the damages caused and no replacement/refunding/reloading is entertained.*

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

This product is intended for personal or lab experimental purpose and in no case should be used where it harmfully effect human and nature. No liability will be accepted by the publisher for any consequence of its use. Use of the product software and or hardware is with the understanding that any outcome whatsoever is at the users own risk. All products are tested for their best performance before shipping, still rhydoLABZ is offering One year Free service warranty (Components cost + Shipping cost will be charged from Customer).

DISCLAIMER

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