eCee PIC 18F4580
Development Board
Quick Start Guide

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The eCee-PIC18F4580 Development and Evaluation Board from RhydoLabz can be used to evaluate and demonstrate the capabilities of microchip PIC18F4580 microcontrollers. The board is designed for general purpose applications and includes a variety of hardware to exercise microcontroller peripherals. Ideally suitable for training and development purposes.

<table>
<thead>
<tr>
<th>eCee PIC18F4580 BOARD FEATURES</th>
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<tbody>
<tr>
<td>➢ Compact and Ready to use design</td>
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<tr>
<td>➢ Professional and Fully EMI/RFI Complaint PCB Layout Design for Noise Reduction</td>
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<td>➢ High Quality Two layer PTH PCB</td>
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<tr>
<td>➢ Includes PIC18F4580 Microcontroller with built-in CAN Module</td>
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<tr>
<td>➢ Board Supports PIC 16F877A/18F 4520/4550 Microcontrollers</td>
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<td>➢ No separate programmer required (Built in Boot loader)</td>
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<td>➢ No Separate power adapter required (USB power source)</td>
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<tr>
<td>➢ Screw terminal for External power Supply (with Jumper Select Option)</td>
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<td>➢ External Power Supply range of 7V to 20V</td>
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<tr>
<td>➢ Adaptor (any standard 9-12V power supply) option</td>
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<tr>
<td>➢ RS-232 Interface (For direct connection to PC’s serial port)</td>
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<tr>
<td>➢ On board Two Line LCD Display (2x16)</td>
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<td>➢ On board I²C EEPROM (4K-AT24C04)</td>
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<td>➢ On board I²C RTC (DS 1307) with Crystal and Battery</td>
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<tr>
<td>➢ On board 32.768 KHz Crystal for RTC</td>
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<tr>
<td>➢ Four multiplexed 7-Segment LED Display</td>
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<td>➢ Built in Matrix keyboard (12 keys)</td>
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<td>➢ Built in Pull-Up (4 Keys) Keyboard</td>
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<td>➢ Built in IR Sensor Interface – TSOP 1738</td>
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<td>➢ Built in 8 LED Interface to test I/O</td>
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<td>➢ On Board External Interrupt and Reset buttons</td>
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<tr>
<td>➢ Built in Potentiometer interface for ADC</td>
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<tr>
<td>➢ On Board Temperature Sensor Interface</td>
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We bring the world to you.

- On Board Buzzer Interface
- On Board PWM Output pin
- Screw terminal for CAN BUS (with Jumper Select Option)
- On Board CAN Transceiver IC
- 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

**eCee PIC18F4580 PACKAGE CONTENTS**

- Fully Assembled and Tested eCee PIC18F4580 Development board
- Software CDROM with
  - Schematic
  - Programming Software
  - Sample Hex Code
  - Example Codes for
    - Led Blinking
    - Matrix Keyboard
    - I²C Protocol
    - Led Control with Timer0
    - PWM Generation
    - ADC Interfacing
    - Capture Module
    - Timer 1
    - CAN Communication
    - LCD Display
    - External Interrupt Interfacing
    - 7-Segment Display
    - UART Communication
    - Buzzer Interfacing
    - Pull-Up Keyboard
    - Compare Module
    - Timer 2
PIC 38F4580 SPECIFICATIONS

- High Performance RISC CPU
- 32 KB Programmable Flash Memory
- 1536 bytes Data Memory (SRAM)
- 256 bytes EEPROM
- Supports Up to 40 MHz Operation
- 36 I/O pins
- 11-Channel 10-bit Analog to Digital Converter (ADC)
- One Capture module/ Compare Module/PWM Module
- One Enhanced Capture Module/ Compare Module/ PWM module
- One ECAN Module with Message bit rates up to 1 Mbps
- Parallel Communications (PSP) Support
- One 8-Bit Timer/Counter and Three 16-Bit Timer/Counter
- One Enhanced USART (Supports RS-232, RS-485 and LIN 1.3)
- One Master Synchronous Serial Port (MSSP)
- One Serial Peripheral Interface (SPI) Module
- One Inter-Integrated Circuit (I²C) Module
- Power-On Reset (POR), Power-Up Timer (PWRT) and Oscillator Start-up Timer (OST)
- Interrupt Capability (up to 20 sources)
- Three External Interrupts
- In-Circuit Serial Programming (ICSP) via two pins
- In-Circuit Debug (ICD) via two pins
- Self Programmable under software control
- Programmable Brown Out Reset
- Low Voltage Programming
- Power Saving Sleep Mode
- Extended WatchDog Timer (WDT)
- Wide Operating Voltage 2.0V to 5.5V
- Low Power Consumption using nanoWatt Technology
eCee PIC18F4580 Board has three power supplies; you can choose one of the following ways to supply power:

(1) Through a Screw Terminal (7V - 20V External DC Power Supply)
(2) Through the motherboard USB port
(3) Through an adapter (7V - 20V External DC Power Supply)

The Power Supply circuit is given below:

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**CLOCK SOURCE**

eCee PIC18F4580 evaluation board has two clock sources:

- 32.768 KHz as the RTC clock source
- 20 MHz Crystal as the MCU clock source
SETTING UP eCee PIC 18f4580

- 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.
The PIC18F4580 Demo 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 WARRANTIES

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).

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