

**MINI-MAX/P18**  
**Single Board Computer**  
**MPLAB ICD2 Debugger**

**Quick Start Guide**

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## **TABLE OF CONTENTS**

<b>1. OVERVIEW</b>	<b>3</b>
<b>2. SOFTWARE SETUP</b>	<b>3</b>
<b>4. HARDWARE SETUP</b>	<b>3</b>
<b>5. FIRST DEBUG SESSION</b>	<b>4</b>
<b>6. LVP MODE</b>	<b>7</b>

# 1. Overview

## Thank you for your purchase of the MINI-MAX/P18 Single Board Computer.

This document describes the use of MINI-MAX/P18 board with MPLAB ICD2 debugger from Microchip. MPLAB ICD2 Debugger allows you to interact with the target system and debug your programs. You can single-step through your programs, watch the registers and variables, etc.

## 2. Software Setup

Please download and install MC Development System from

[www.bipom.com/picdev.php](http://www.bipom.com/picdev.php)

A serial number of "1" can be used to install DEMO version of Micro-IDE.

Please install the latest release of MPLAB.

To install the MPLAB IDE software, first acquire the latest MPLAB IDE installation executable (MPxxxx.exe, where xxxxx represents the version of MPLAB IDE) from the Microchip web site ([www.microchip.com](http://www.microchip.com)).

Please read **C:\Program Files\Microchip\MPLAB IDE\ICD2\Drivers\ezicd2.htm**.

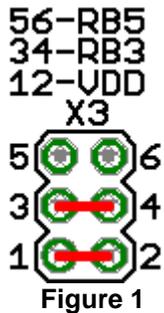
This HTML doc explains how to install USB drivers. Also, it is possible to install drivers manually ( for example, using Windows Wizard ). You can find all USB drivers under

**C:\Program Files\Microchip\MPLAB IDE\ICD2\Drivers**

More information can be obtained if you run MPLAB and go to Help->Topics->Debuggers->MPLAB ICD2.

## 3. Hardware Setup

- Disconnect the power from MINI-MAX/P18 board
- Remove the PIC16F648 from its DIP-18 machine socket
- Observe correct direction and plug the ICD2 adapter into the DIP-18 Socket
- Check whether 2 jumpers are installed to X3 jumper block. See Figure 1.

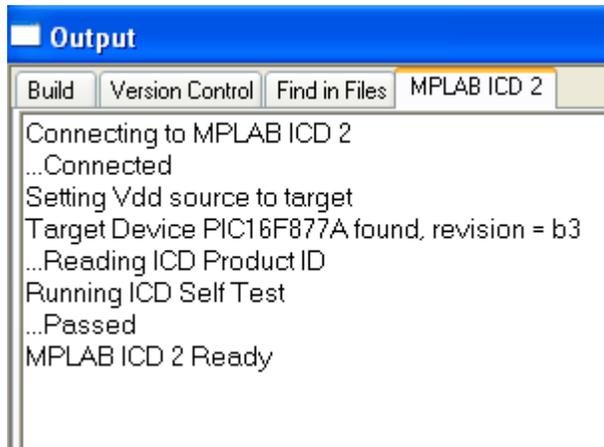


- Connect ICD2 Debugger to USB interface and install USB drivers.
- Connect one end of the 6-wire cable to ICD2 Debugger.
- Connect another end of the 6-wire cable to ICD2 adapter which is installed to MINI-MAX/P18 board.

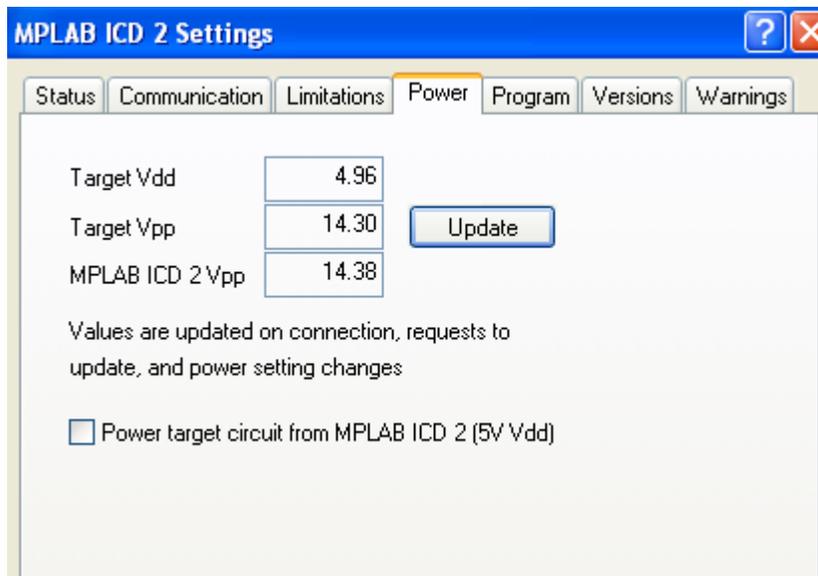
**IMPORTANT NOTE! DO NOT POWER THE TARGET BOARD (MINI-MAX/P18) BY THIS POINT.**

## 4. First Debug Session

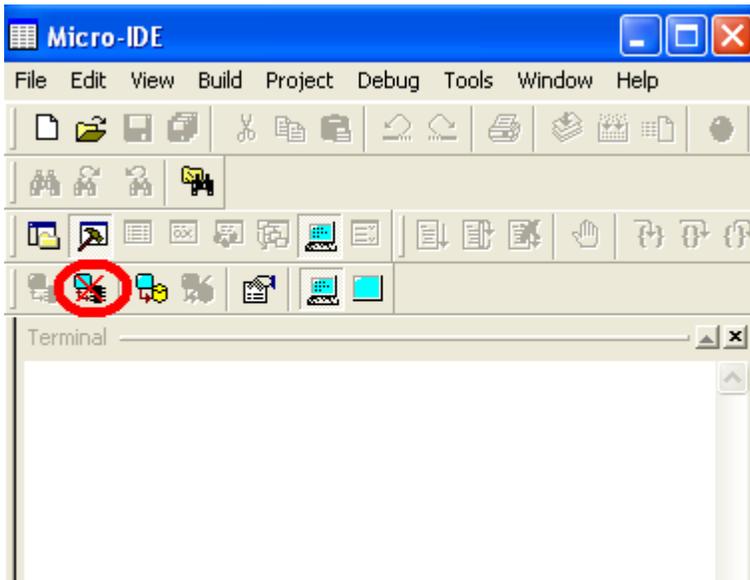
- Run MPLAB and open the icd2 test project ( Project->Open :.\bipom\devtools\MPASM\Examples\ICD2)
- Build the project ( Project->Build All)
- Select Debug tool (Debugger->Select Tool->MPLAB ICD2)



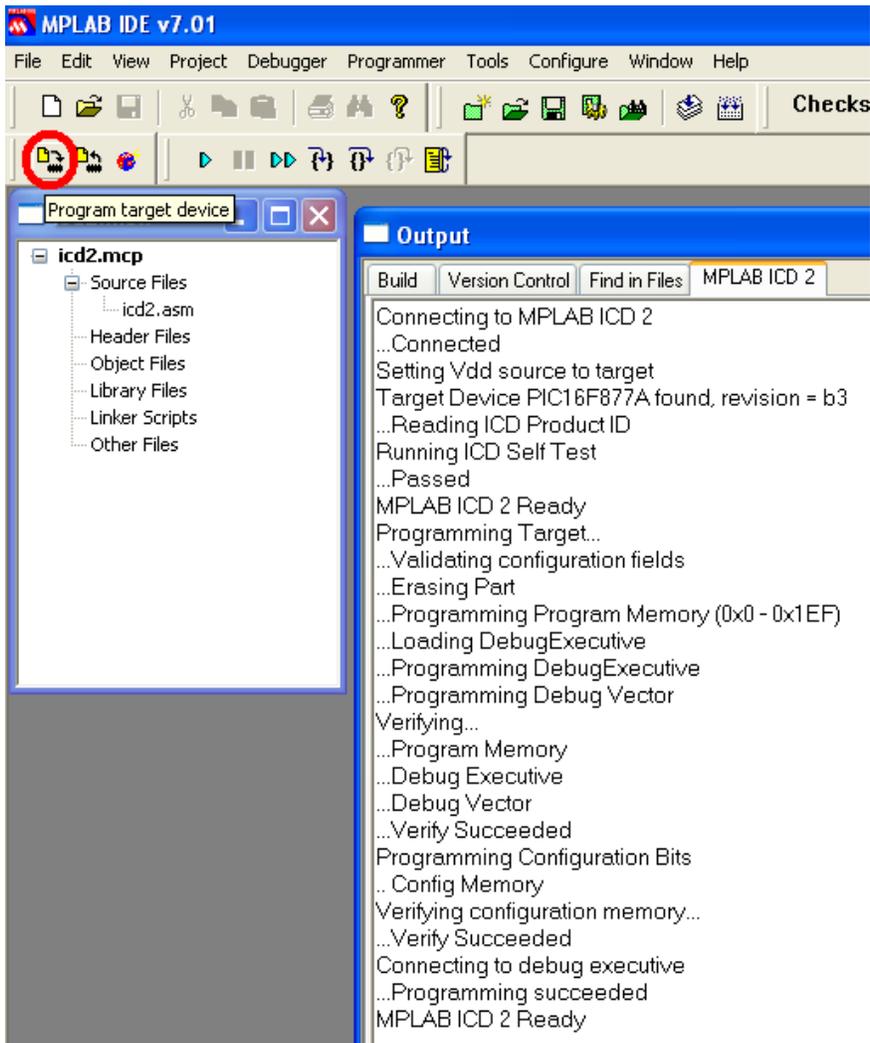
- ***Go to Debugger->Settings->Power and check if “Power target circuit from MPLAB ICD2” checkbox is unchecked. It is very important. Please check this checkbox always when you create a new project.***
- Connect RS-232 cable to the target MINI-MAX/P18 board and to COM port of your PC.
- Power the target MINI-MAX/P18 board
- Press “Update” button
- Target Vdd should display correct voltage ( about 5V)



- Run Micro-IDE and press “Connect” icon button.



- Press “Program Target Device” to download the code to the target MINI-MAX/P18 board



- Press “Step Into” to start Debug Session

```

ADCDIN      equ 5           ; define pin number of .
ADCCLK      equ 3           ; define pin number of .
ADCCS       equ 5           ; define pin number of .

;-----      RESET CODE      -----

RESET      ORG      0x000           ; processor reset vecto
           clrf     PCLATH           ; ensure page bits are
           goto     start           ; go to beginning of pr

;-----      MAIN CODE      -----

start

           clrf     INTCON           ; disable peripheral in
           ; GIE (INTCON<7>) =0 -

;-----      INITIALIZE PORTS      -----

           bcf     STATUS, RPO           ; select SFR
           bcf     STATUS, RPL           ; bank 0
           clrf     PORTA           ; Initialize the ports :
           clrf     PORTB           ; clearing output

```

- Set breakpoint

```

B | banksel PORTA

movlw 0x03           ; load the number of le
movwf count4         ; into count4

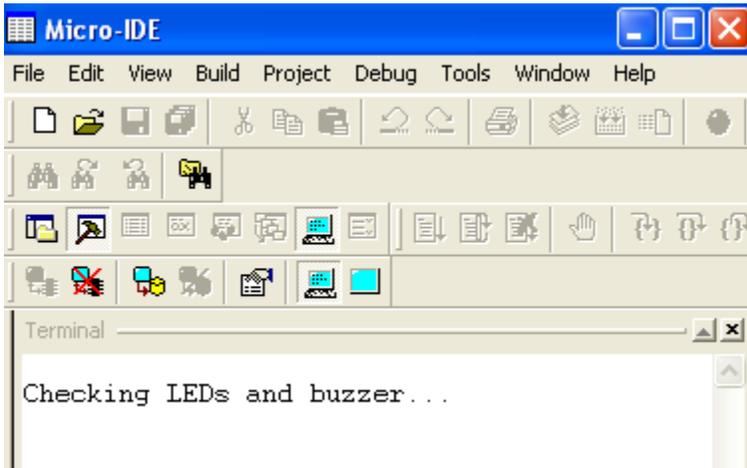
;-----      LED TEST      -----

```

- Press "Run"



- Check Micro-IDE terminal which shows results of debug session



## 4. LVP mode

If the code is debugged using ICD2 debugger the LVP ( low-voltage programming) mode will be disabled automatically. If LVP is disabled it is impossible to download any code to the board using built-in PIC16F648 programmer because it uses LVP method.

In order to solve that issue and enable LVP:

- Run MPLAB and open the enLVP test project  
( Project->Open C:\bipom\devtools\WPASM\Examples\EnableLVP\enLVP.mcp )
- Build the project ( Project->Build All)
- Select Programmer tool (Programmer->Select Programmer->MPLAB ICD2)
- Erase the part (Programmer->Erase Part)
- Program the part ( Programmer->Program)

