
Information Sheet

INTRODUCTION

This document provides installation information for MPLAB® ICD 2 headers, which provide a development environment for specific PICmicro® devices.

MPLAB ICD 2 Header	Part Number	Devices Supported
8-Pin	AC162050 AC162058	PIC12F629/675 PIC12F683
14-Pin	AC162052 AC162057 AC162055 AC162056	PIC16F630/676 PIC12F635, PIC16F636 PIC16F684 PIC16F688
18-Pin	AC162053 AC162054	PIC16F627A/628A/648A PIC16F716

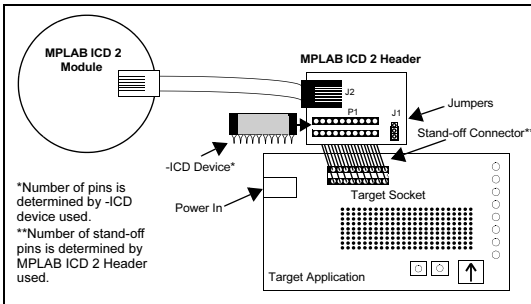
Since in-circuit debugging requires the loss of clock, data and MCLR pins, MPLAB ICD 2 development with actual devices is not practical. A special -ICD device is used with the MPLAB ICD 2 to provide separate clock, data and MCLR pins and frees all normally available pins to the user.

This special -ICD device is mounted on the top of the header and its signals are routed to the MPLAB ICD 2 connector. On the bottom of the header is a socket that plugs into the user's target via the stand-off connector.

The 8-pin and 14-pin headers have a jumper to enable or disable the peripheral functions on the device. In some cases, this selects the device. The 18-pin header does not have a jumper (all devices have the same peripherals), so the device with the largest memory is always selected.

INSTALLATION

FIGURE 1: MPLAB ICD 2 MODULE CONNECTION WITH HEADER



The MPLAB ICD 2 Header is installed by following these steps:

1. Plug the -ICD device into the DIP socket (P1 location) on the MPLAB ICD 2 Header board.
2. Connect the 9-inch modular interface cable between the MPLAB ICD 2 Module and the MPLAB ICD 2 Header.
3. Insert the appropriate male-to-male header (stand-off) onto the target board socket.
4. Plug the MPLAB ICD 2 Header board into the stand-off.
5. For 8-pin and 14-pin headers, select device peripherals by setting the jumper at J1 location to the appropriate position.

PICmicro Device	Jumper Setting	Peripheral Function
PIC12F629	2-3	A/D Disabled
PIC12F675	1-2	A/D Enabled
PIC16F630	2-3	A/D Disabled
PIC16F676	1-2	A/D Enabled
PIC16F636	1-2	PORTC, Comparator 2 Enabled
	2-3	PORTC, Comparator 2 Disabled
PIC16F684 PIC16F688	None	None

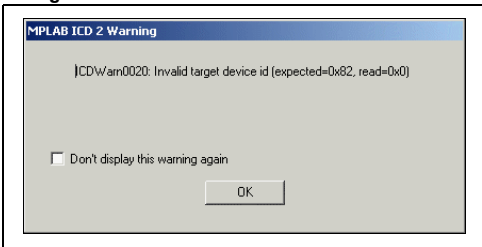
6. For 18-pin headers, there is no jumper. The device with the most program memory is always selected.

If PIC16F627A or PIC16F628A devices are selected for MPLAB ICD 2 development in MPLAB IDE, the following warnings will be received, since the PIC16F648A (device with the most program memory) is installed on the header:

Build Window

ICDWarn0020: Invalid target device id (expected=0x82, read=0x0)

Dialog Box



Ignore these warnings or disable them under the Warnings tab on the ICD Programming dialog.

DEVELOPING WITH ICD DEVICES

An ICD device on a corresponding MPLAB ICD 2 header is used to emulate regular (non-ICD) devices. E.g., the PIC12F675-ICD on the 8-pin header is used to emulate the regular PIC12F675 device for debug operation.

The ICD device has an integrated ICD peripheral. The ICD peripheral is not available in regular (non-ICD) devices; therefore these regular PICmicro devices cannot be used directly with the MPLAB ICD 2. The ICD device uses the ICD pin to enable the background debug mode. (See "Schematics" on page 5.)

ICD Device	Header	Emulated Devices
PIC12F675-ICD	8-pin	PIC12F629 PIC12F675
PIC16F676-ICD	14-pin	PIC16F630 PIC16F676
PIC16F636-ICD	14-pin	PIC16F636
PIC16F684-ICD	14-pin	PIC16F684
PIC16F688-ICD	14-pin	PIC16F688
PIC16F648A-ICD	18-pin	PIC16F627A PIC16F628A PIC16F648A
PIC16F716-ICD	18-pin	PIC16F716

PROGRAMMING NON-ICD DEVICES

The MPLAB ICD 2 Header can only program the -ICD device, not the PICmicro devices. To program the PICmicro devices with the MPLAB ICD 2, use the Universal Programming Module (AC162049) or design a modular interface connector on the target. See the appropriate specification for connections:

Device	Programming Specification
PIC12F629/675	DS41173
PIC16F630/676	DS41191
PIC16F627A/628A/648A	DS41196
PIC16F636	DS41204
PIC16F684	DS40060
PIC16F688	DS41204
PIC16F716	DS40245

CALIBRATION BITS

The calibration bits for the bandgap and internal oscillator are always preserved by the MPLAB ICD 2 to their factory settings.

MPLAB ICD 2 PERFORMANCE

The PICmicro devices do not support partial program memory erase; therefore, users may experience slower MPLAB ICD 2 performance than with other devices.

ADDITIONAL INFORMATION

Please refer to the MPLAB ICD 2 User's Guide (DS51331), MPLAB IDE Help and the MPLAB ICD 2 Readme for additional information.

SCHEMATICS

The following schematics show header electrical connections.

MPLAB® ICD 2 Header

FIGURE 2: MPLAB ICD 2 HEADER SCHEMATIC - 8 PIN

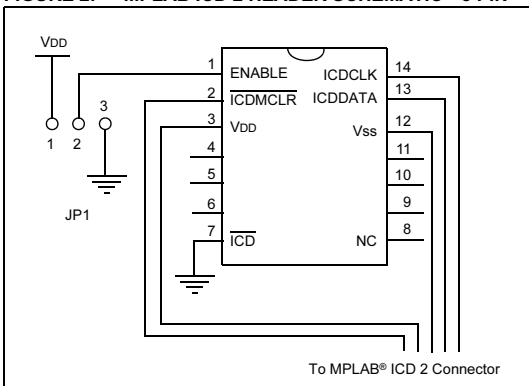


FIGURE 3: MPLAB ICD 2 HEADER SCHEMATIC - 14 PIN

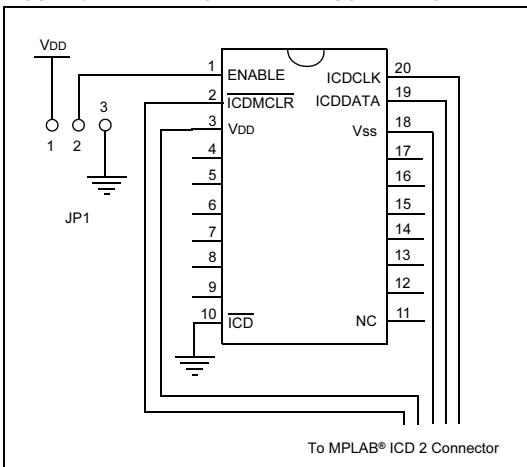
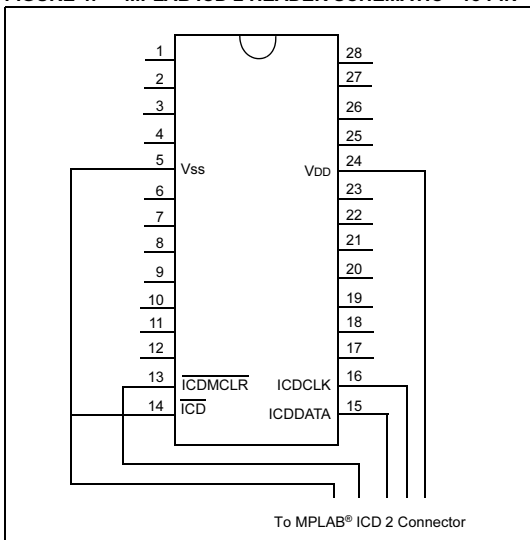


FIGURE 4: MPLAB ICD 2 HEADER SCHEMATIC - 18 PIN



MPLAB® ICD 2 Header

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QUALITY MANAGEMENT SYSTEM

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