MPLAB® ICD 2 In-Circuit Debugger/Programmer

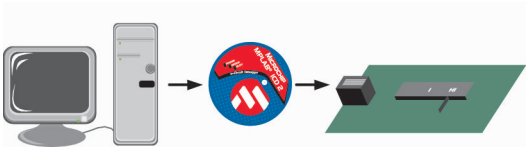
In-Circuit Debugging Basics

Traditionally, embedded systems engineers use in-circuit emulators (ICE) to develop and debug their designs and then programmers to transfer the code to the devices. The in-circuit debugging logic, when implemented, is part of the actual microcontroller silicon and provides a low-cost alternative to a more expensive ICE. In-circuit debugging offers these benefits:

- Low cost
- Minimum of extra hardware
- Expensive sockets or adapters are not needed
- Debugging and programming a production line board is possible

However, it has the following trade-offs:

- Use of some target system resources such as I/O pins, program memory, data memory, and stack space. As a result, some portions of an embedded application may not be debugged.
- Triggering and breakpointing are limited to the built-in capabilities of the in-circuit debugging logic.
- The target chip must be running with a clock and a supply voltage. Often an emulator probe can run without external hardware.

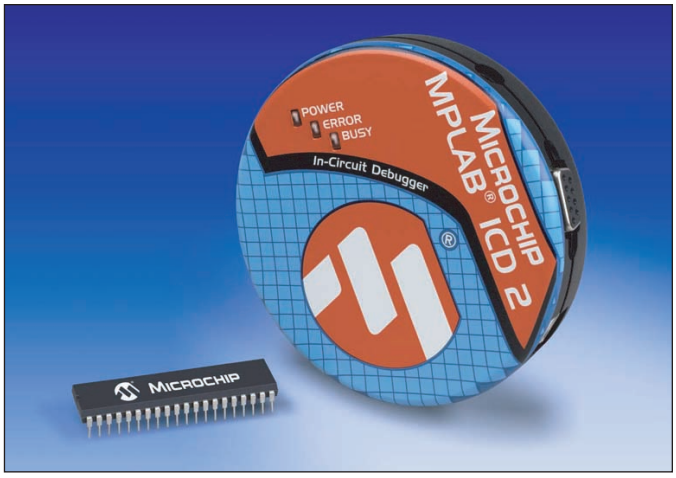


All-in-one Debugger/Programmer Solution for Flash Products

The MPLAB ICD 2 (In-Circuit Debugger 2) allows debugging and programming of PIC® and dsPIC® Flash microcontrollers using the powerful graphical user interface of the MPLAB Integrated Development Environment (IDE), included with each kit. The MPLAB ICD 2 is connected to the design engineer's PC using USB or RS-232 interface and can be connected to the target via an ICD connector. The connector uses two device I/O pins that are shared between in-circuit debugging and In-Circuit Serial Programming™.

Host System Requirements

- PC-compatible system with a Intel Pentium® class or higher processor, or equivalent
- A minimum of 32 MB RAM
- A minimum of 40 MB available hard drive space
- CD-ROM drive (for use with the accompanying CD)
- Available USB or RS-232 port
- Microsoft® Windows® 98, Windows NT® 4.0, Windows 2000 or Windows XP. USB support may be limited by the Windows operating system, particularly Windows 98/NT.



Features

- USB (Full Speed 2 Mbits/s) and RS-232 interface to host PC
- Real-time execution
- MPLAB IDE compatible (free copy included)
- Built-in over voltage/short circuit monitor
- Firmware upgradeable from PC/web download
- Totally enclosed
- Supports low voltage to 2.0 volts (2.0 to 6.0 range)
- Diagnostic LED's (Power, Busy, Error)
- Read/Write program and data memory of microcontroller
- Erase of program memory space with verification
- Freeze-peripherals at breakpoint

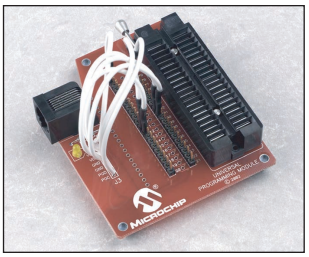
Products Supported

The MPLAB ICD 2 currently supports most PIC and dsPIC Flash microcontrollers. Flash PICmicro MCU's not supported are PIC16F72/73/74/76/77/83/84A.

The MPLAB ICD 2 firmware is continually being updated to add support for new devices. A review of the README file located in MPLAB IDE is recommended for the most current list of supported parts. As new device firmware becomes available, free downloads are available at www.microchip.com.

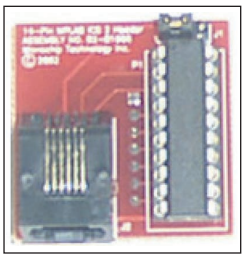
MICROCHIP
Development Systems

Universal Programming Module



The Universal Programming Module can be used in conjunction with the MPLAB ICD 2 to provide an easy means for programming 300 to 600-mil PDIP Flash devices. It features a 40-pin ZIP socket, an MPLAB ICD 2 connector, programming indicator and configuration jumpers.

MPLAB ICD 2 Headers



For 8-pin (PIC12F629/675), 14-pin (PIC16F630/676) or 18-pin (PIC16F627A/628A/648A) devices, limited I/O make integrated in-circuit debugging impractical. Instead, in-circuit debugging is made possible by using a header containing an equivalent device with integrated in-circuit debugging peripheral. For debugging, the header is connected to the MPLAB ICD 2 module via the MPLAB ICD 2 connector and is inserted into the target socket with a stand-off connector.

Part Numbers and Ordering Information – MPLAB® ICD 2 Products and Accessories

Part Number	Description	Availability
DV164005	ICD 2 Module (Includes ICD 2 Module and USB Cable)	Now
DV164006	ICD 2 Evaluation Kit (Includes ICD 2 Module, USB Cable, RS-232 Cable, Power Supply and PICDEM™ 2 Plus Demonstration Board - DV163022)	Now
DV164007	ICD 2 Module ws (Includes ICD 2 Module, USB Cable, RS-232 Cable and Power Supply)	Now
AC162049	Universal Programming Module Works with DV164005, DV164006 and DV164007 above)	Now
AC162048	RS-232 and Power Supply Kit (Use with DV164005 above for RS-232 communication)	Now
DM163022	PICDEM 2 Plus Demonstration Board (Includes PIC18F452, PIC16F877, LCD 2 x 16 Display, LED's, RS-232 Port, Piezo Sounder, Temperature Sensor, Demonstration Programs, Unassembled Source Code and More)	Now
AC162050	Header Interface (8P DIP) for PIC12F629/675	Now
AC162051	Header Interface (28P/40P DIP)	Now
AC162052	Header Interface (14P DIP) for PIC16F676/630	Now
AC162053	Header Interface (18P DIP) for PIC16F627A/628A/648A	Now
AC162054	Header Interface (18P DIP) for PIC16F716	Q1/04

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