

**M07---USB+RS232 COM Serial PORT ICD2 PIC In-circuit Debugger and Programmer
+
Universal Programming Module
+
Development Board**

Summary

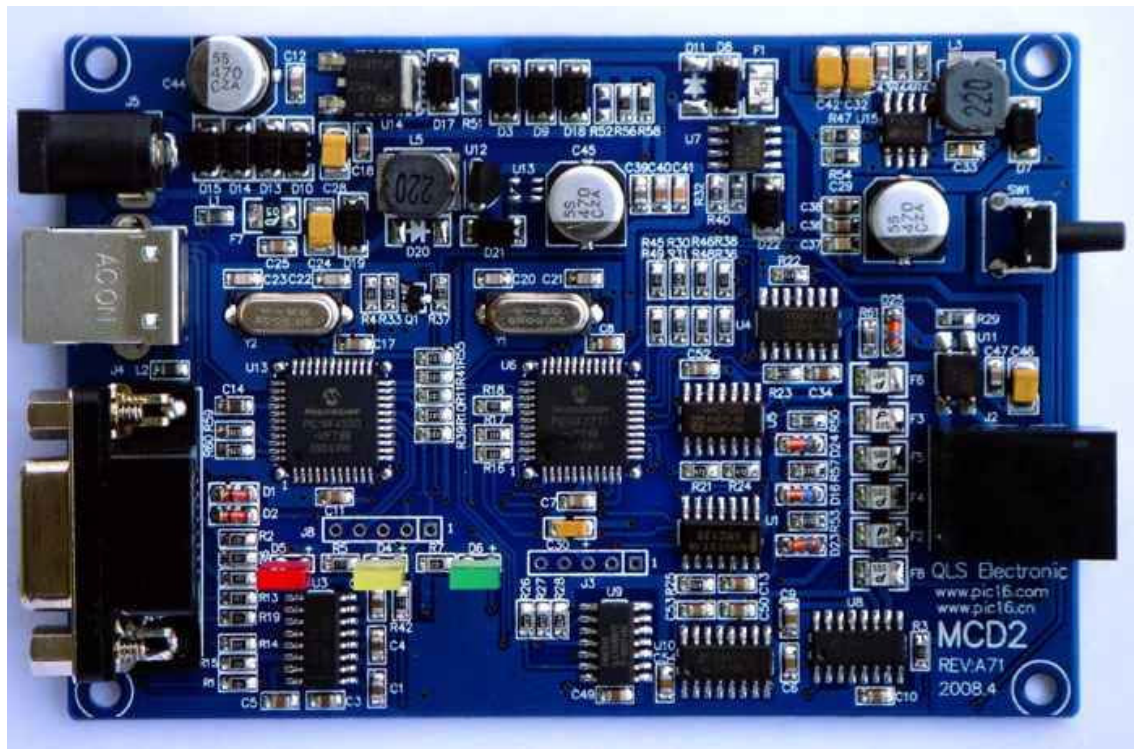
An all-in-one debugger/programmer solution: MPLAB® ICD 2 is a low cost, real-time debugger and programmer for selected PIC® MCUs and dsPIC® DSCs. Using Microchip Technology's proprietary In-Circuit Debug functions, programs can be downloaded, executed in real time and examined in detail with the debug functions of MPLAB. Set watch variables and breakpoints from symbolic labels in C or assembly source code, and single step through C source lines or into assembly code. MPLAB ICD 2 can also be used as a development programmer for supported MCUs.

The secret behind In Circuit Debugging is two dedicated hardware lines (microcontroller pins used only during debugging mode) that control In Circuit Serial Programming™ (ICSP™) of the device and, afterwards, debugging through proprietary, on-chip firmware. The ICD 2 debug features are built into the microcontroller and activated by programming the debug code into the target processor. There is some shared overhead expense that includes one stack level, some general purpose file registers and a small area of program memory when in the debug mode.

IMPORTANT NOTE: MPLAB ICD 2 requires minimal design guidelines be followed to ensure stable communications between the unit and the target.



Product Appearance



ICD2 Internal PCB board

Description:

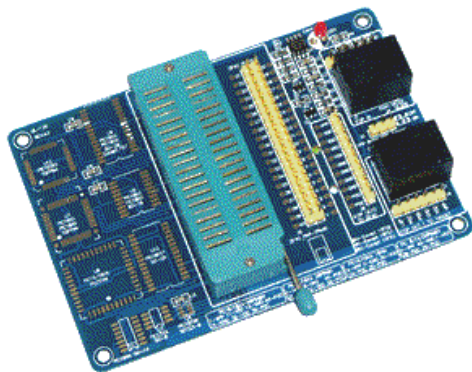
New design Enhanced USB ICD2 PIC debugger and programmer for Microchip's PIC and dsPIC digital signal controllers. Using the powerful user interface of the MPLAB IDE (Integrated Development Environment).

USB ICD2 In-circuit Debugger and Programmer:

- USB (Full Speed 2 M bits/s) & RS-232 interface to host PC
- Real time background debugging
- MPLAB IDE GUI (free copy included)
- Built in over-voltage/short circuit monitor
- Firmware upgradeable from PC
- Totally enclosed
- Supports low voltage to 2.0 volts. (2.0 to 6.0 range)
- Diagnostic LEDs (Power, Busy, Error)
- Reading/Writing memory space and EEDATA areas of target microcontroller
- Programs configuration bits
- Erase of program memory space with verification
- Peripheral freeze-on-halt stops timers at breakpoints
- Built-in USB Reset self-reconnected function.
- High reliably ICs and Components.
- Compact design with mounting hole.
- Increased overcurrent protection
- Increased electrostatic protection
- Increased User Board first opened power protection
- Increased Users Board Overvoltage Protection

The MPLAB ICD 2 connects using USB or RS-232 between the design engineer's PC operating with MPLAB IDE and their product board (target) being developed. It acts as an intelligent interface/translator between the two, allowing the engineer to look into the active target board's microcontroller, viewing variables and registers at breakpoints with MPLAB watch windows. A breakpoint can be set to halt the program at a specific location. The program can be single-stepped or run at full speed. At breakpoints, data and program memory can be read and modified. Additionally, the MPLAB ICD 2 can be used to program or reprogram the Flash-based microcontroller while installed on the board.

Universal Programming Module(free):



1. This is an easy to use Universal Programming Module for ICD2,MCD2,ICD2.5
2. Using a clamp for the SOIC Support socket :SOT23-6(PIC10FXXX) SO-8 SO-14 SO-18 SO-28 TQFP44 PQFP44 PLCC44 TQFP64 DIP40
3. VPP can choose before VDD, ICD2 support internal oscillations and internal reset chip's repeated programming
4. We have to you DuPont lines for programming different chips (red DuPont lines*4,black DuPont lines*4,purple DuPont lines*1, yellow DuPont lines*1,white DuPont lines*1)
5. Have ICSP OUT interface, convenient to other target's internal oscillation and internal reset chip programming
6. 40-Pin 3M ZIF socket. ZIF on programmable chip package: DIP8, DIP14, DIP18, DIP20, DIP28, DIP40

Devices Support Details (MPLAB IDE 7.62 version):

ICD2 Debugger - Support

PIC10FXXX:				
PIC10F200*	PIC10F202*	PIC10F204*	PIC10F206*	PIC10F220*
PIC10F222*				
PIC12XX:				
PIC12F508*	PIC12F509*	PIC12F510*	PIC12F609*	PIC12F615*
PIC12F629*	PIC12F635*	PIC12F675*	PIC12F683*	PIC12HV609*
PIC12HV615*				
PIC16XX:				
PIC16F505*	PIC16F506*	PIC16F610*	PIC16F616*	PIC16F627A*
PIC16F628A*	PIC16F630*	PIC16F631*	PIC16F636*	PIC16F639*
PIC16F648A*	PIC16F676*	PIC16F677*	PIC16F684*	PIC16F685*
PIC16F687*	PIC16F688*	PIC16F689*	PIC16F690*	PIC16F716*
PIC16F737	PIC16F747	PIC16F767	PIC16F777	PIC16F785*
PIC16F818	PIC16F819	PIC16F87	PIC16F870	PIC16F871
PIC16F872	PIC16F873(A)	PIC16F874(A)	PIC16F876(A)	PIC16F877(A)
PIC16F88	PIC16F882	PIC16F883	PIC16F884	PIC16F886
PIC16F887	PIC16F913	PIC16F914	PIC16F916	PIC16F917
PIC16F946	PIC16HV610*#	PIC16HV616*	PIC16HV785*	
PIC18CXX:				
PIC18C601	PIC18C801			
PIC18FXX:				
PIC18F1220	PIC18F1230	PIC18F1320	PIC18F1330	PIC18F2220
PIC18F2221	PIC18F2320	PIC18F2321	PIC18F2331	PIC18F2410
PIC18F242	PIC18F2420	PIC18F2423	PIC18F2431	PIC18F2439
PIC18F2450	PIC18F2455	PIC18F2458	PIC18F248	PIC18F2480
PIC18F24J10	PIC18F24K20#	PIC18F2510	PIC18F2515	PIC18F252
PIC18F2520	PIC18F2523	PIC18F2525	PIC18F2539	PIC18F2550

PIC18F2553	PIC18F258	PIC18F2580	PIC18F2585	PIC18F25J10
PIC18F25K20#	PIC18F2610	PIC18F2620	PIC18F2680	PIC18F2682
PIC18F2685	PIC18F4220	PIC18F4221	PIC18F4320	PIC18F4321
PIC18F4331	PIC18F4410	PIC18F442	PIC18F4420	PIC18F4423
PIC18F4431	PIC18F4439	PIC18F4450	PIC18F4455	PIC18F4458
PIC18F448	PIC18F4480	PIC18F44J10	PIC18F44K20#	PIC18F4510
PIC18F4515	PIC18F452	PIC18F4520	PIC18F4523#	PIC18F4525
PIC18F4539	PIC18F4550	PIC18F4553	PIC18F458	PIC18F4580
PIC18F4585	PIC18F45J10	PIC18F45K20#	PIC18F4610	PIC18F4620
PIC18F4680	PIC18F4682	PIC18F4685	PIC18F46K20#	PIC18F6310
PIC18F6390	PIC18F63J11	PIC18F63J90	PIC18F6410	PIC18F6490
PIC18F6493#	PIC18F64J11	PIC18F64J90	PIC18F6520	PIC18F6525
PIC18F6527	PIC18F6585	PIC18F65J10	PIC18F65J11	PIC18F65J15
PIC18F65J50	PIC18F65J90	PIC18F6620	PIC18F6621	PIC18F6622
PIC18F6627	PIC18F6628	PIC18F6680	PIC18F66J10	PIC18F66J11
PIC18F66J15	PIC18F66J16	PIC18F66J50	PIC18F66J55	PIC18F66J60
PIC18F66J65	PIC18F6720	PIC18F6722	PIC18F6723	PIC18F67J10
PIC18F67J11	PIC18F67J50	PIC18F67J60	PIC18F8310	PIC18F8390
PIC18F83J11	PIC18F83J90	PIC18F8410	PIC18F8490	PIC18F8493#
PIC18F84J11	PIC18F84J90	PIC18F8520	PIC18F8525	PIC18F8527
PIC18F8585	PIC18F85J10	PIC18F85J11	PIC18F85J15	PIC18F85J50
PIC18F85J90	PIC18F8620	PIC18F8621	PIC18F8622	PIC18F8627
PIC18F8628	PIC18F8680	PIC18F86J10	PIC18F86J11	PIC18F86J15
PIC18F86J16	PIC18F86J50	PIC18F86J55	PIC18F86J60	PIC18F86J65
PIC18F8720	PIC18F8722	PIC18F8723	PIC18F87J10	PIC18F87J11
PIC18F87J50	PIC18F87J60	PIC18F96J60	PIC18F96J65	PIC18F97J60
PIC18LF24J10	PIC18LF25J10	PIC18LF44J10	PIC18LF45J10	
PIC24XXXX:				
PIC24FJ16GA002*	PIC24FJ16GA004*	PIC24FJ32GA002*	PIC24FJ32GA004*	PIC24FJ48GA002*
PIC24FJ48GA004*	PIC24FJ64GA002*	PIC24FJ64GA004*	PIC24FJ128GA006*	PIC24FJ128GA008*
PIC24FJ128GA010*	PIC24FJ64GA006*	PIC24FJ64GA008*	PIC24FJ64GA010*	PIC24FJ96GA006*
PIC24FJ96GA008*	PIC24FJ96GA010*	PIC24HJ128GP206*	PIC24HJ128GP210*	PIC24HJ128GP306*
PIC24HJ128GP310*	PIC24HJ128GP506*	PIC24HJ128GP510*	PIC24HJ256GP206*	PIC24HJ256GP210*
PIC24HJ256GP610*	PIC24HJ64GP206*	PIC24HJ64GP210*	PIC24HJ64GP506*	PIC24HJ64GP510*
PIC24HJ12GP201*	PIC24HJ12GP202*	PIC24HJ16GP304#*	PIC24HJ32GP202#*	PIC24HJ32GP204#*
dsPIC30FXX:				
dsPIC30F1010#	dsPIC30F2010	dsPIC30F2011	dsPIC30F2012	dsPIC30F2020
dsPIC30F2023	dsPIC30F3010	dsPIC30F3011	dsPIC30F3012	dsPIC30F3013
dsPIC30F3014	dsPIC30F4011	dsPIC30F4012	dsPIC30F4013	dsPIC30F5011
dsPIC30F5013	dsPIC30F5015	dsPIC30F5016	dsPIC30F6010	dsPIC30F6010A
dsPIC30F6011	dsPIC30F6011A	dsPIC30F6012	dsPIC30F6012A	dsPIC30F6013
dsPIC30F6013A	dsPIC30F6014	dsPIC30F6014A	dsPIC30F6015	
dsPIC33FXX:				
dsPIC33FJ128GP206	dsPIC33FJ128GP306	dsPIC33FJ128GP310	dsPIC33FJ128GP706	dsPIC33FJ128GP708
dsPIC33FJ128GP710	dsPIC33FJ128MC506	dsPIC33FJ128MC510	dsPIC33FJ128MC706	dsPIC33FJ128MC708
dsPIC33FJ128MC710	dsPIC33FJ12GP202	dsPIC33FJ12MC201	dsPIC33FJ12MC202	dsPIC33FJ16GP304
dsPIC33FJ16MC304	dsPIC33FJ256GP506	dsPIC33FJ256GP510	dsPIC33FJ256GP710	dsPIC33FJ256MC510

dsPIC33FJ256MC710	dsPIC33FJ32GP202	dsPIC33FJ32GP204	dsPIC33FJ32MC202	dsPIC33FJ32MC204
dsPIC33FJ64GP306	dsPIC33FJ64GP206	dsPIC33FJ64GP310	dsPIC33FJ64GP706	dsPIC33FJ64GP708
dsPIC33FJ64GP710	dsPIC33FJ64MC506	dsPIC33FJ64MC508	dsPIC33FJ64MC510	dsPIC33FJ64MC706
dsPIC33FJ64MC710				
*** Devices Debugging needs Header Interface				
# Devices with preliminary support				

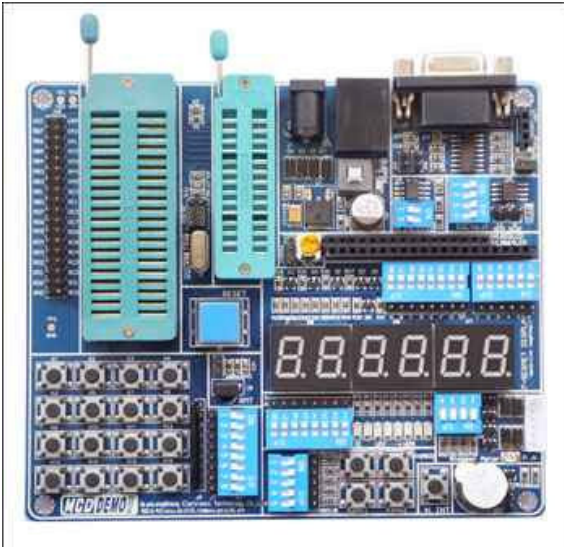
ICD2 Programmer- Support

PIC10FXXX:				
PIC10F200	PIC10F202	PIC10F204	PIC10F206	PIC10F220
PIC10F222				
PIC12XX:				
PIC12F508	PIC12F509	PIC12F510	PIC12F629	PIC12F615
PIC12F635	PIC12F675	PIC12F683	PIC12HV609	PIC12HV615
PIC16XX:				
PIC16F505	PIC16F506	PIC16F54	PIC16F57	PIC16F59
PIC16F610	PIC16F616	PIC16F627	PIC16F627A	PIC16F628
PIC16F628A	PIC16F630	PIC16F631	PIC16F636	PIC16F639
PIC16F648A	PIC16F676	PIC16F677	PIC16F684	PIC16F685
PIC16F687	PIC16F688	PIC16F689	PIC16F690	PIC16F716
PIC16F72	PIC16F73	PIC16F74	PIC16F76	PIC16F77
PIC16F737	PIC16F747	PIC16F767	PIC16F777	PIC16F785
PIC16F818	PIC16F819	PIC16F84A	PIC16F87	PIC16F870
PIC16F871	PIC16F872	PIC16F873 (A)	PIC16F874 (A)	PIC16F876 (A)
PIC16F877 (A)	PIC16F88	PIC16F913	PIC16F914	PIC16F916
PIC16F917	PIC16F946	PIC16F882	PIC16F883	PIC16F884
PIC16F886	PIC16F887	PIC16HV610	PIC16HV616	PIC16HV785
rfPIC12F675F*	rfPIC12F675H*	rfPIC12F675K*		
PIC18CXX:				
PIC18C601	PIC18C801			
PIC18FXX:				
PIC18F1220	PIC18F1230	PIC18F1320	PIC18F1330	PIC18F2220
PIC18F2221	PIC18F2320	PIC18F2321	PIC18F2331	PIC18F2410
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PIC18F2520	PIC18F2523	PIC18F2525	PIC18F2539	PIC18F2550
PIC18F2553	PIC18F258	PIC18F2580	PIC18F2585	PIC18F25J10
PIC18F25K20*	PIC18F2610	PIC18F2620	PIC18F2680	PIC18F2682
PIC18F2685	PIC18F4220	PIC18F4221	PIC18F4320	PIC18F4321
PIC18F4331	PIC18F4410	PIC18F442	PIC18F4420	PIC18F4423
PIC18F4431	PIC18F4439	PIC18F4450	PIC18F4455	PIC18F4458
PIC18F448	PIC18F4480	PIC18F44J10	PIC18F44K20*	PIC18F4510
PIC18F4515	PIC18F452	PIC18F4520	PIC18F4523*	PIC18F4525
PIC18F4539	PIC18F4550	PIC18F4553	PIC18F458	PIC18F4580
PIC18F4585	PIC18F45J10	PIC18F45K20*	PIC18F4610	PIC18F4620
PIC18F4680	PIC18F4682	PIC18F4685	PIC18F46K20*	PIC18F6310

PIC18F6390	PIC18F63J11	PIC18F63J90	PIC18F6410	PIC18F6490
PIC18F6493*	PIC18F64J11	PIC18F64J90	PIC18F6520	PIC18F6525
PIC18F6527	PIC18F6585	PIC18F65J10	PIC18F65J11	PIC18F65J15
PIC18F65J50	PIC18F65J90	PIC18F6620	PIC18F6621	PIC18F6622
PIC18F6627	PIC18F6628	PIC18F6680	PIC18F66J10	PIC18F66J11
PIC18F66J15	PIC18F66J16	PIC18F66J50	PIC18F66J55	PIC18F66J60
PIC18F66J65	PIC18F6720	PIC18F6722	PIC18F6723	PIC18F67J10
PIC18F67J11	PIC18F67J50	PIC18F67J60	PIC18F8310	PIC18F8390
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PIC18F84J11	PIC18F84J90	PIC18F8520	PIC18F8525	PIC18F8527
PIC18F8585	PIC18F85J10	PIC18F85J11	PIC18F85J15	PIC18F85J50
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PIC18F8628	PIC18F8680	PIC18F86J10	PIC18F86J11	PIC18F86J15
PIC18F86J16	PIC18F86J50	PIC18F86J55	PIC18F86J60	PIC18F86J65
PIC18F8720	PIC18F8722	PIC18F8723	PIC18F87J10	PIC18F87J11
PIC18F87J50	PIC18F87J60	PIC18F96J60	PIC18F96J65	PIC18F97J60
PIC18LF24J10	PIC18LF25J10	PIC18LF44J10	PIC18LF45J10	
PIC24XXXX:				
PIC24FJ16GA002	PIC24FJ16GA004	PIC24FJ32GA002	PIC24FJ32GA004	PIC24FJ48GA002
PIC24FJ48GA004	PIC24FJ64GA002	PIC24FJ64GA004	PIC24FJ128GA006	PIC24FJ128GA008
PIC24FJ128GA010	PIC24FJ64GA006	PIC24FJ64GA008	PIC24FJ64GA010	PIC24FJ96GA006
PIC24FJ96GA008	PIC24FJ96GA010	PIC24HJ128GP206	PIC24HJ128GP210	PIC24HJ128GP306
PIC24HJ128GP310	PIC24HJ128GP506	PIC24HJ128GP510	PIC24HJ256GP206	PIC24HJ256GP210
PIC24HJ256GP610	PIC24HJ64GP206	PIC24HJ64GP210	PIC24HJ64GP506	PIC24HJ64GP510
PIC24HJ12GP201	PIC24HJ12GP202	PIC24HJ16GP304*	PIC24HJ32GP202	PIC24HJ32GP204*
dsPIC30FXX:				
dsPIC30F1010*	dsPIC30F2010	dsPIC30F2011	dsPIC30F2012	dsPIC30F2020
dsPIC30F2023	dsPIC30F3010	dsPIC30F3011	dsPIC30F3012	dsPIC30F3013
dsPIC30F3014	dsPIC30F4011	dsPIC30F4012	dsPIC30F4013	dsPIC30F5011
dsPIC30F5013	dsPIC30F5015	dsPIC30F5016	dsPIC30F6010	dsPIC30F6010A
dsPIC30F6011	dsPIC30F6011A	dsPIC30F6012	dsPIC30F6012A	dsPIC30F6013
dsPIC30F6013A	dsPIC30F6014	dsPIC30F6014A	dsPIC30F6015	
dsPIC33FXX:				
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dsPIC33FJ128GP710	dsPIC33FJ128MC506	dsPIC33FJ128MC510	dsPIC33FJ128MC706	dsPIC33FJ128MC708
dsPIC33FJ128MC710	dsPIC33FJ12GP202	dsPIC33FJ12MC201	dsPIC33FJ12MC202	dsPIC33FJ16GP304
dsPIC33FJ16MC304	dsPIC33FJ256GP506	dsPIC33FJ256GP510	dsPIC33FJ256GP710	dsPIC33FJ256MC510
dsPIC33FJ256MC710	dsPIC33FJ32GP202	dsPIC33FJ32GP204	dsPIC33FJ32MC202	dsPIC33FJ32MC204
dsPIC33FJ64GP306	dsPIC33FJ64GP206	dsPIC33FJ64GP310	dsPIC33FJ64GP706	dsPIC33FJ64GP708
dsPIC33FJ64GP710	dsPIC33FJ64MC506	dsPIC33FJ64MC508	dsPIC33FJ64MC510	dsPIC33FJ64MC706
dsPIC33FJ64MC710				
*** Devices with preliminary support				

PIC 16F87X Microcontroller Development Board 2 (Brand new)

The development board can be used for all PIC16XX/PIC18XX 28PIN or 40PIN PIN devices (except 16 F59)



Ideal for the Student or Hobbyist to start developing and testing your PIC projects with this multi-featured and flexible PIC Development board.

- PIC 16F87X Development board 2 consists of :
- 8 indicator LEDs
- ICD2 Header connector for programming / Debugging with Microchips ICD2
- 16x2 LCD Character display
- 6 Seven segment display
- RS232 Serial communication port
- 16 button matrix Keypad
- Stepp motor slot
- 4 push buttons
- Infrared reception
- DB9 connector and RS232 Transceiver (for serial Comms)
- I2C Serial EEPROM 24c01B - dipswitch used for write enable and setting device address (on supported eeproms)
- 2 pin socket for main Osc (4MHz resonator -Default) allows for easy changing of the main Osc frequency. Provision for loading caps if using a crystal.
- Buzzer
- Reset switch
- Uncommitted PIC I/O ports - So the PIC's I/O lines may be connected to any of the onboard modules or external circuits
- onboard power regulator (accepts 9 - 12v AC/DC supply)



4*4 Matrix keyboard – to test password lock and other items.



Buzzer voice/PWM output experiment – to practice normal voice, music and PWM output sound.



5-way independent key-press—for easy various key-press input experiments.



RS232 serial communication – to realize the communication between SCM and computer.



Infrared remote-control receiver – to practice infrared remote-



All I / O output to facilitate



IIC (I2C) communication – to read/write 24CXX series



SPI communication—to read/write EEPROM of 93CXX with hardware

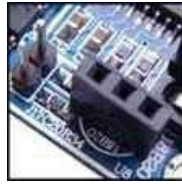
control decoding and all kinds of expansion infrared remote control.



Clock selection – jumper for switch between various oscillation modes, to replace crystal vibration of different frequency as required by development of product.



On-board power module – can connect to the polarity of external AC or DC power supply optionally, voltage range 7-12V



DS18B20 digital temperature sensor – 1-wire bus communication, wide range for temperature measurement, high accuracy and sensitivity (remark: chip DS18B20 is optional).



mcu/mpu reset key

chips with hardware IIC or software IIC directly.



Stepper motor driver circuit(remark: Setpper motor is optional).



1-way A/D converter signal input.

SPI or software analog SPI, to select 8-bit or 16-bit read/write method through jumper.



Simulation debugging interface – to directly connect ICD1/ICD2/MCD1/MCD2 and carry out on-line simulation for on-board chips and resources



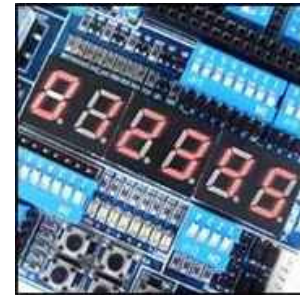
8-way independent LED



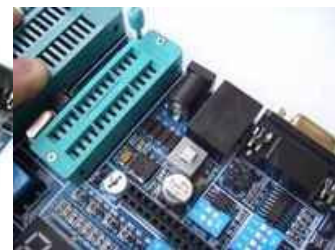
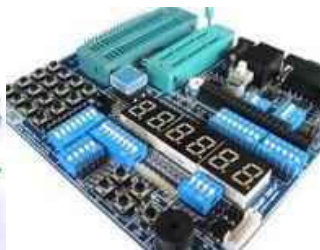
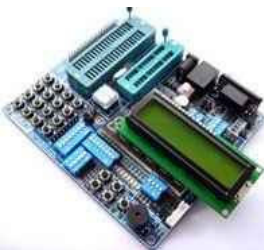
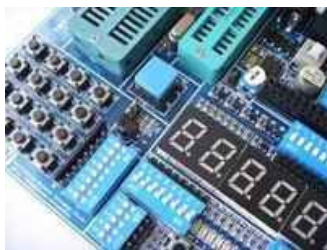
12864-character LCD–128*64 lattices. (remark:12864- character LCD is optional).



1602-character LCD–internal 5*7 lattices, to display 16*2-character.



6-bit 7-segment digital tube – to realize dynamic or static display experiment of digital tube, to display clock,temperature or to make counter.



The auction includes

1. PIC 16F87X Microcontroller Development Board 2
2. USB & RS-232 PIC ICD2 In-circuit Debugger and Programmer.(PIC16-MCD2)
3. USB cable
4. serial cable
5. Universal Programming Module.
6. 1 x 6-Pin Individual ICSP Cable.
7. 1 x RJ12 Connection Cable.
8. 16F877A Chip
9. 1602 LCD
10. CD-ROM (icd2 soft, Development PCB Layout,Development Board Schematic,Sample code (C / ASM) for each onboard module, MPLAB 7.50 .)

11. Power supply(110-240 AC TO 9V DC)

Sample with C and ASM Program sources code as below (using pic16f877a):

- DS1820
- Buzzer
- 128x64 GLCD (See the following Photos)
- 1602 LCD (See the following Photos)
- 93C46
- 24C02
- 4x4 Key testing
- 8x LED
- 7x segment
- ADC
- Infrared Remote
- stepp motor