

ET-PIC STAMP 18F8722

ET-PIC STAMP 18F8722 is a small Board Microcontroller that uses 80-Pin TQFP Microcontroller No.PIC18F8722 from Microchip and then arrange them together into the compact board. It uses resources of its Microcontroller mainly. Additionally, it designs ICD2 Port for programming, so it can connect with external programmer such as Programmer "ET-PGM PIC USB".

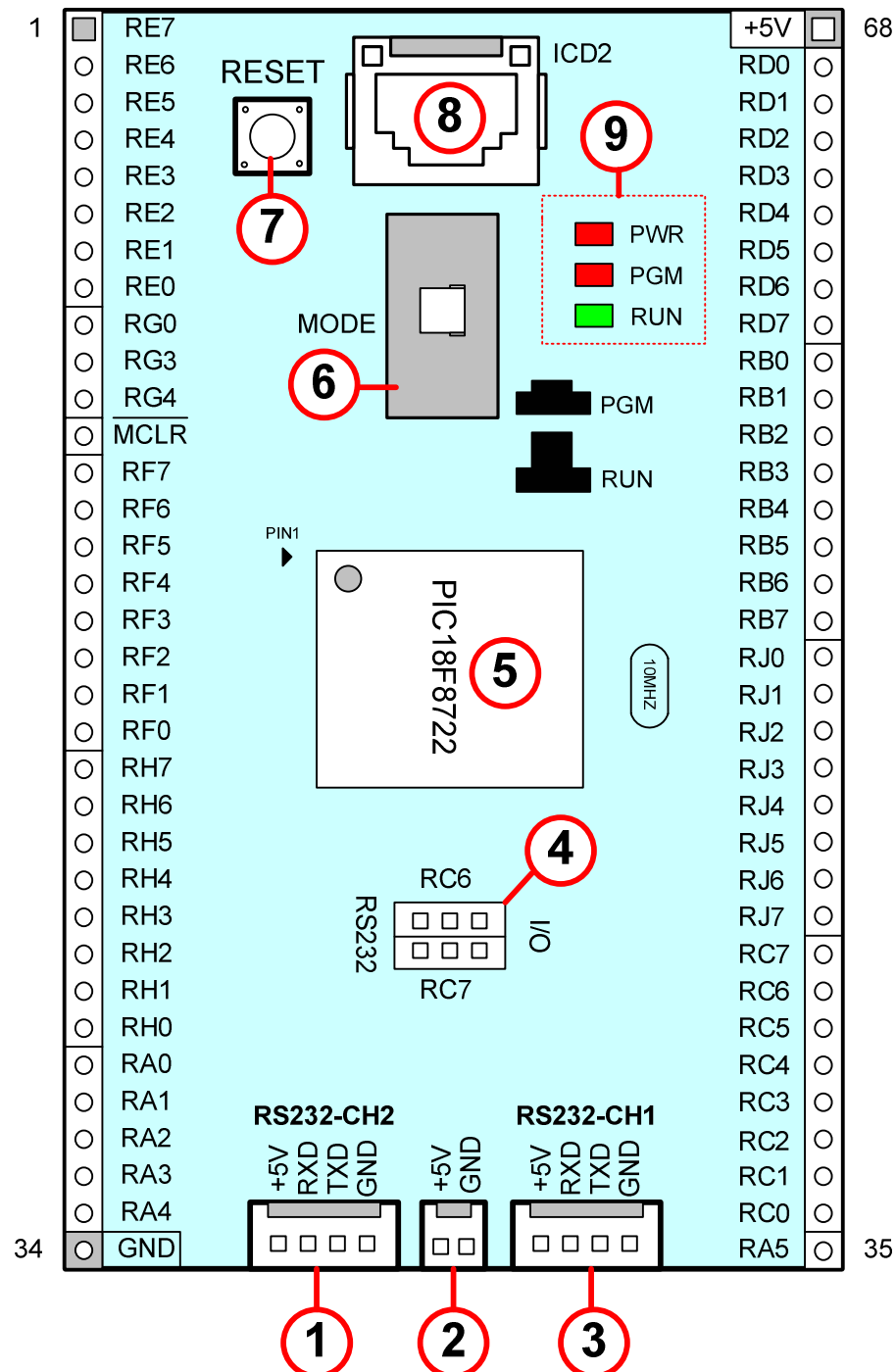
Table shows specifications of Microcontroller PIC18F8722.

Specifications	PIC18F8722
Operating Frequency	DC – 40 MHz
Program Memory (Bytes)	128K
Data Memory (Bytes)	3936
Data EEPROM Memory (Bytes)	1024
Interrupt Sources	29
I/O Ports	Ports A, B, C, D, E, F, G, H, J
Timers	5
Capture/Compare/PWM Modules	2
Enhanced Capture/Compare/ PWM Modules	3
Enhanced USART	2
Serial Communications	MSSP, Enhanced USART
Parallel Communications (PSP)	Yes
10-bit Analog-to-Digital Module	16 Input Channels
Resets (and Delays)	POR, BOR,RESET Instruction, Stack Full, Stack Underflow (PWRT, OST), MCLR (optional), WDT
Programmable High/Low-Voltage Detect	Yes
Programmable Brown-out Reset	Yes
Instruction Set	75 Instructions; 83 with Extended Instruction Set enabled
Packages	80-pin TQFP

▪ Specifications of Board

- Use 80 PIN Microcontroller No.PIC18F8722
- Signal Clock Oscillator 10 MHz; can use x4 from PLL to be 40 MHz
- 2 Port Driver RS232 Circuit
- ICD2 Port Download to support external Programmer ET-PGMPIC USB
- Connector +5V and GND

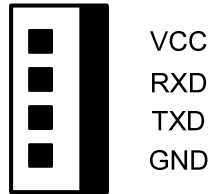
Structure of Board ET-PIC STAMP 18F8722



Details

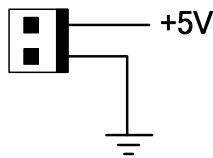
- **No.1** is the second Channel of Connector Port RS232.

RS232-CH2



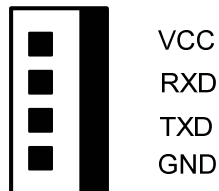
TXD = RG1 RXD = RG2

- **No.2** is Connector 2 Pin VDC power supply input is shown in the picture below.



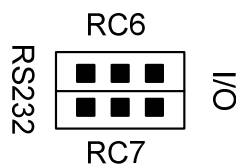
- **No.3** is the first Channel of Connector Port RS232.

RS232-CH1



TXD = RC6 RXD = RC7

- **No.4** is Jumper to select the connection type between Signal I/O Pins; RC6/Tx and RC7/Rx with Driver 3232 Circuit.



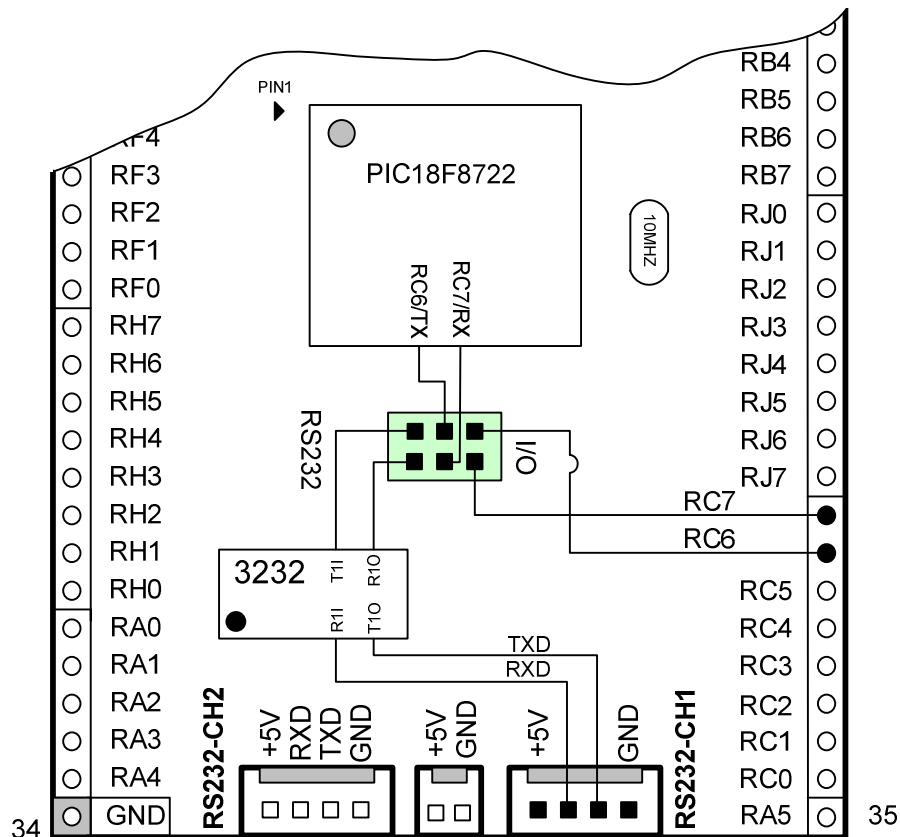
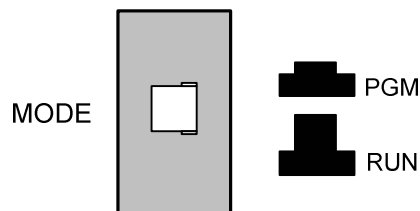


Figure displays the connection of Jumper RS232 / I/O.

- **No.5** is Microcontroller PIC18F8722.
- **No.6** is Switch Mode RUN/PGM. When switch is shifted to PGM Mode, it will ON/OFF signal PIN for programming code data that is designed by self into programmer and when switch is shifted back to RUN Mode, Pins will be back to be normal I/O operation.

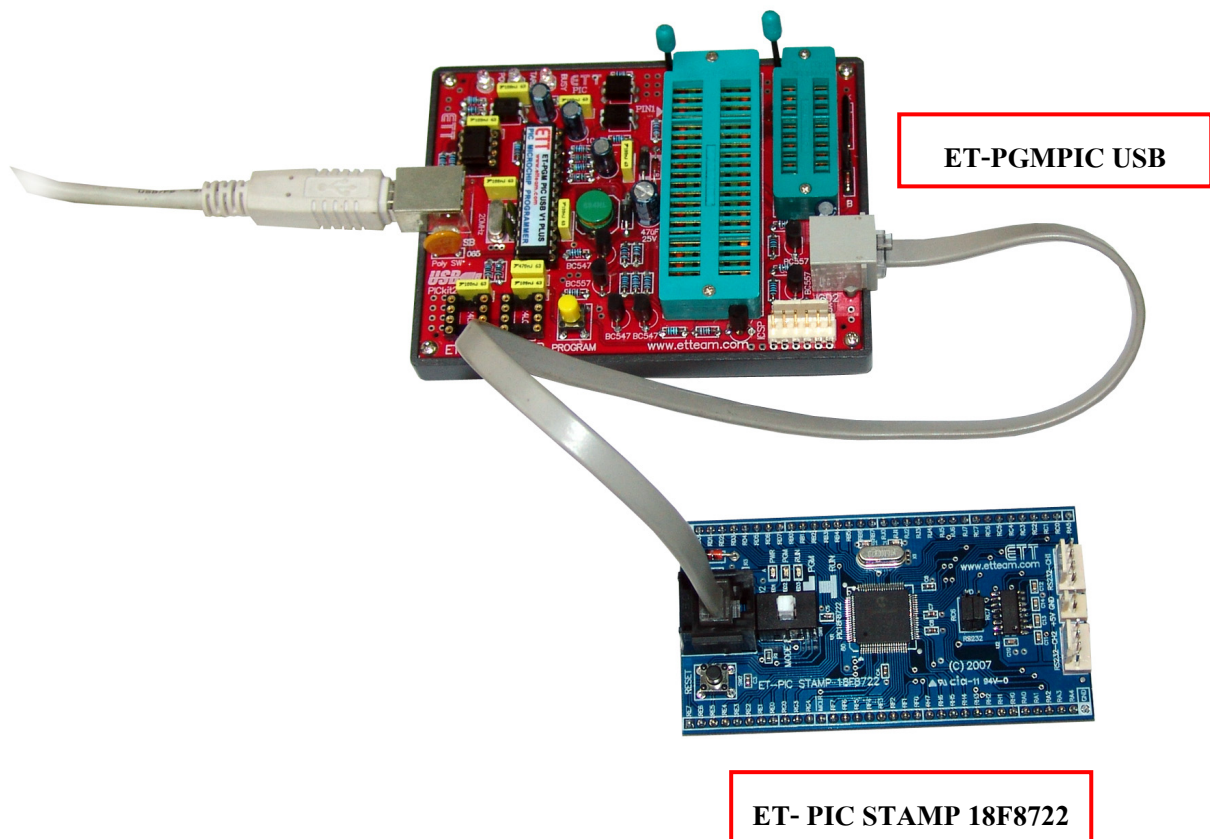


- **No.7** is RESET Switch.
- **No.8** is Connector Program and its pins are arranged follow ICD2 Standard. It can connect with programmers that are the same standard as ICD2 such as Programmer "ET-PGM PIC USB" from ETT.

- **No.9** is LED to display statuses as follows;
 - **PWR** displays status of Power Supply.
 - **PGM** displays status of Programming Mode.
 - **RUN** displays status of Running Mode.

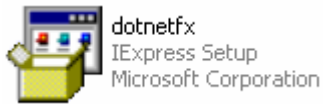
How to program Source Code (Code Programming)

The method to program Source Code into Microcontroller of Board ET-PIC STAMP 18F8722 must use external Programmer such as ICD2, PICKit2 or Programmer ET-PGM PIC USB from ETT. It must connect Cable Program into Connector ICD2 as shown in the picture bellow. Please read more applications from User's Manual of your Programmer for more information.

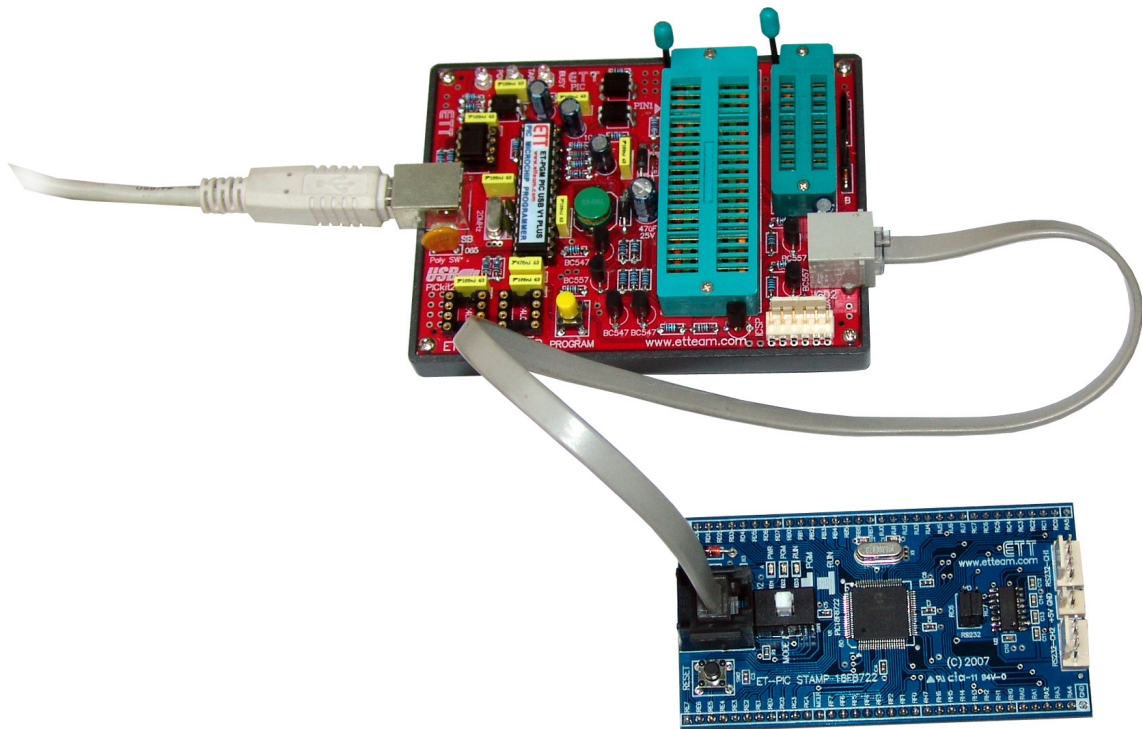


How to download Program with Programmer "ET-PGM PIC USB

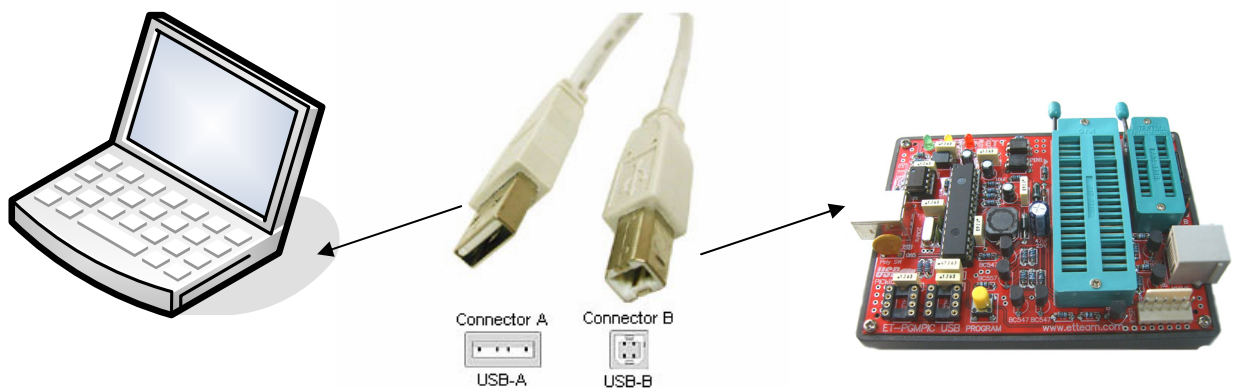
1. Must install Program .NET Framework (dotnetfx) first and then follow by Program PICKit2Setup as below.



2. Connect cable between Programmer ET-PGM PIC USB and ET-PIC STAMP 18F8722 through Port ICD2 and then supply +5VDC Power into Board ET-PIC STAMP 18F8722.



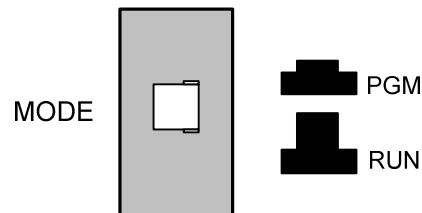
3. Connect USB Cable from ET-PGM PIC USB with Port USB of computer.



4. Set Jumper T/B on Board ET-PGM PIC USB to be B position.



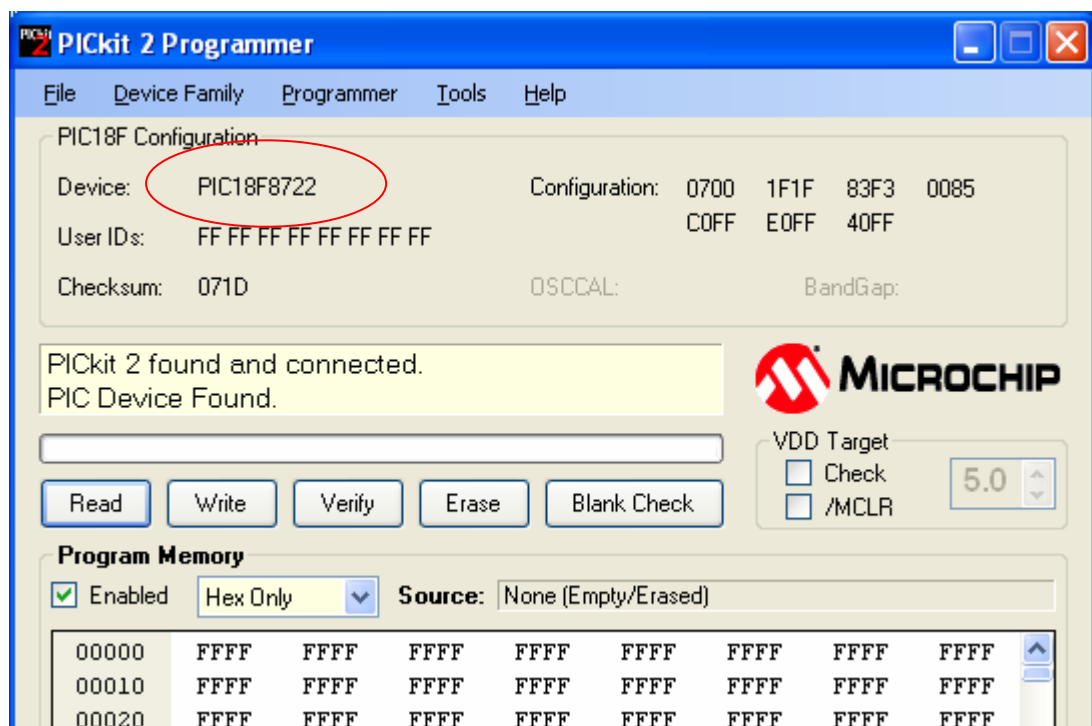
5. Press Switch Mode on Board ET-PIC STAMP 18F8722 to be PGM Mode, it makes LED of PGM on.



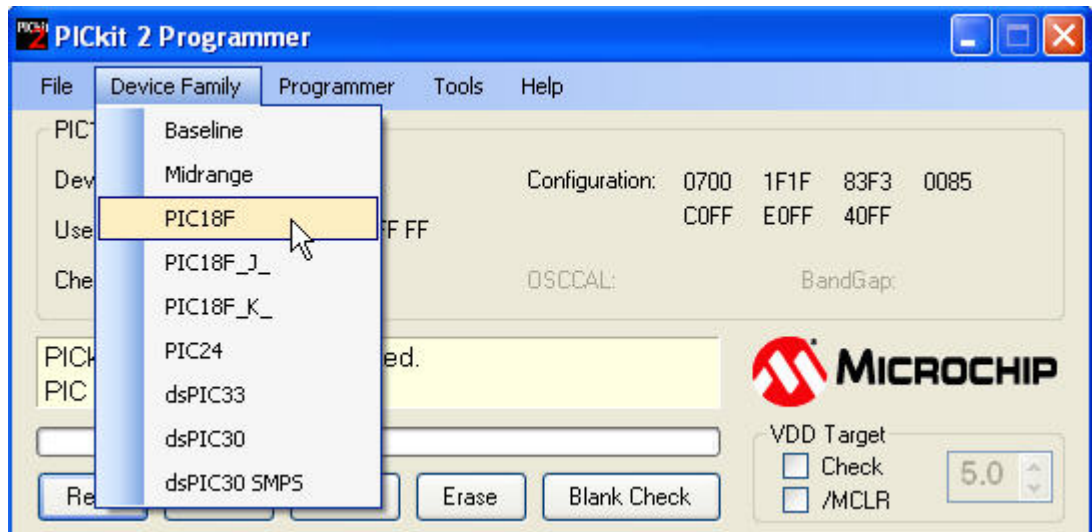
6. Open Program PICKit2 by double click Icon PICKit2.



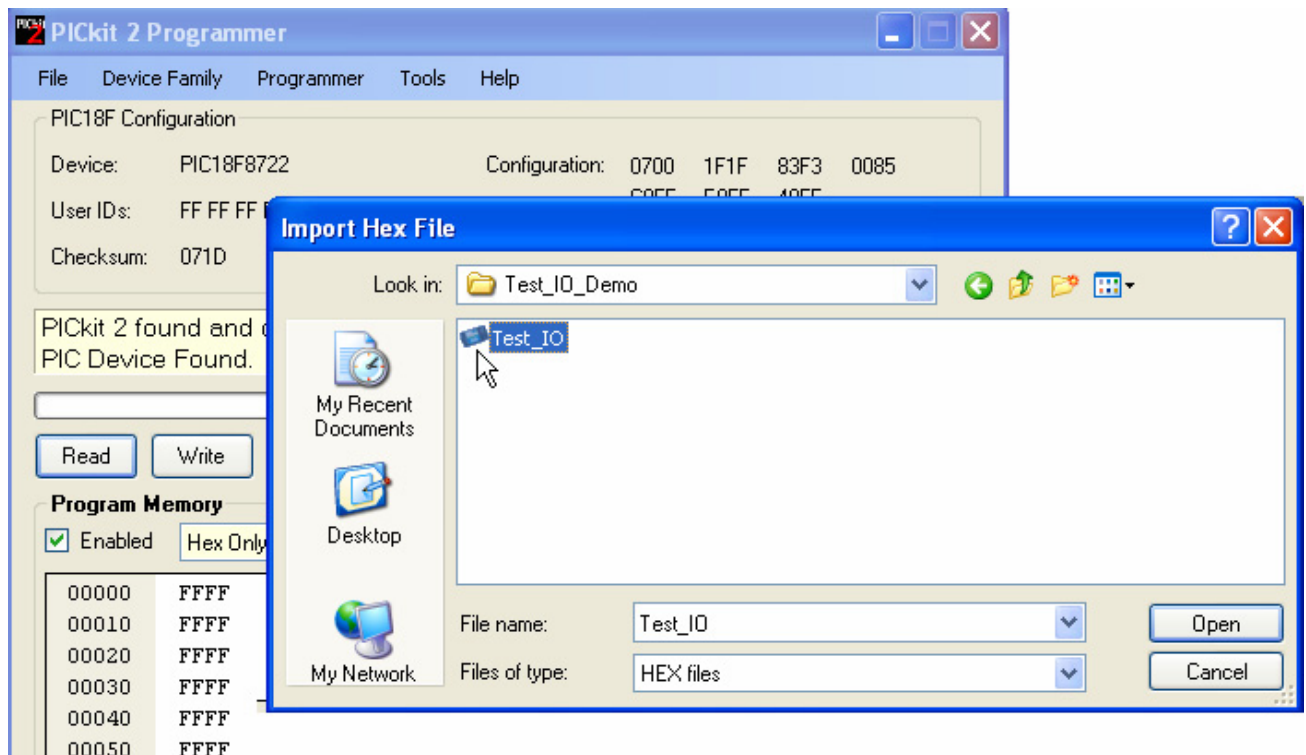
7. Program PICKit2 will check IC Microcontroller; if it is number that is supported by PICKit2 and its connection is correct, it will display the found number of PIC Micro in the Device as shown in the picture below.



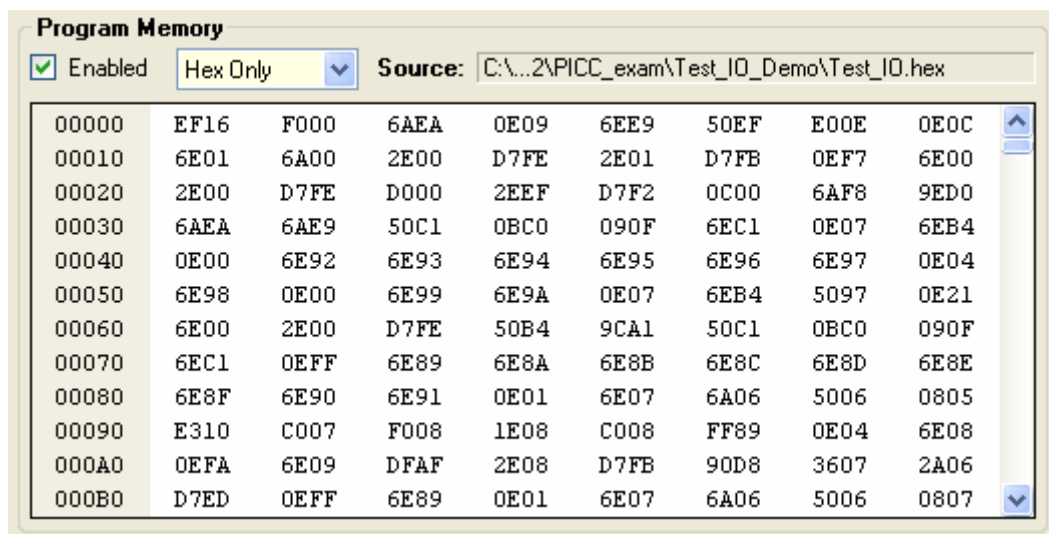
*** If program can not find any Microcontroller that is connected, we recommend user to follow this instruction; click Menu **Device Family** -> **PIC18F** as shown in the picture below.



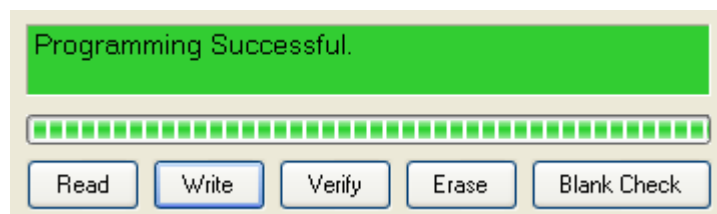
8. Delete old data in PIC Micro first, click Button **Erase** and we will see all data in Program Memory and EEPROM Data will be FF value.
9. Import Hex File as desired, click Menu **File** -> **Import Hex**.



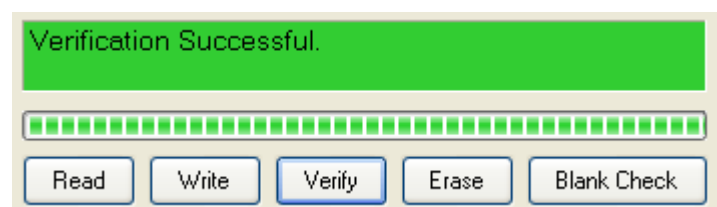
10. We will see data in Program Memory and EEPROM Data will be changed follows the downloaded Hex File.



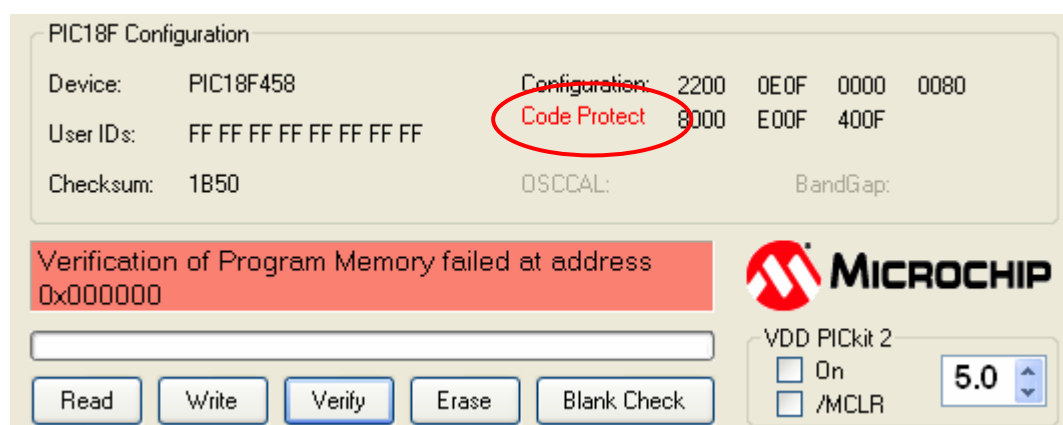
11. Click Button **Write** to write program Hex File into memory of PIC Micro.



12. Click Button **Verify**, if we want to check the right of the written data in PIC Micro.



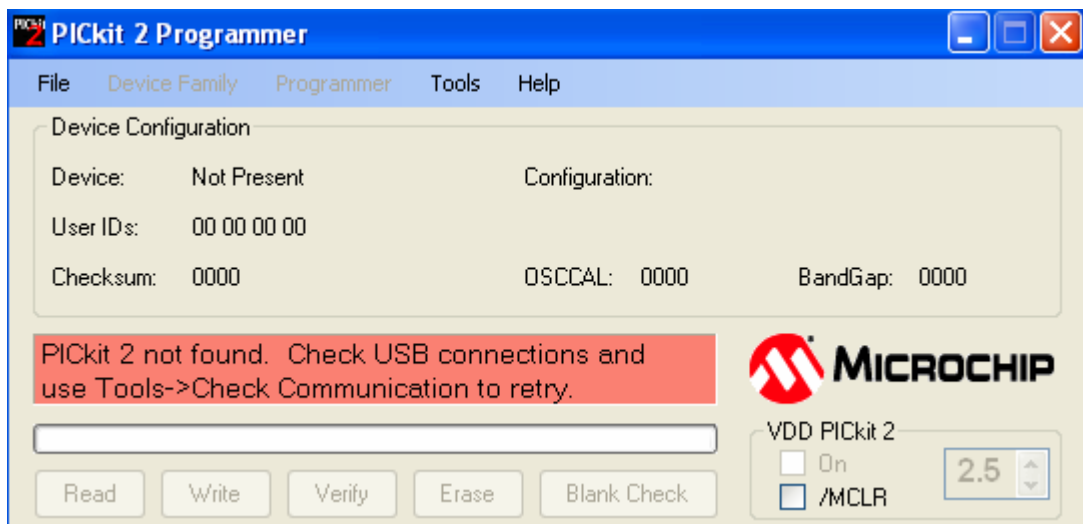
If we have selected Enable Code Protect, it makes Verify process failure because Code Program is protected from reading, so we can not use Verify process in this step.



Problems and Solutions

Problem

The mistake of connection cable between computer and Board ET-PGM PIC USB, it will display Error Message as shown in the picture below.

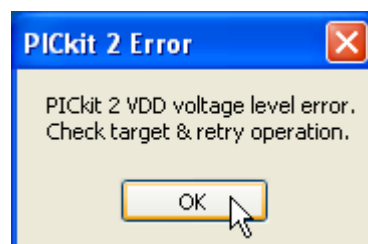


Solution

- Check USB Cable connection between computer and Board ET-PGM PIC USB.
 - Click **Tools** -> **Check Communication** to check its connection again.
-

Problem

The mistake of checking Voltage at Target Board, it will display Error Message as shown in picture below.

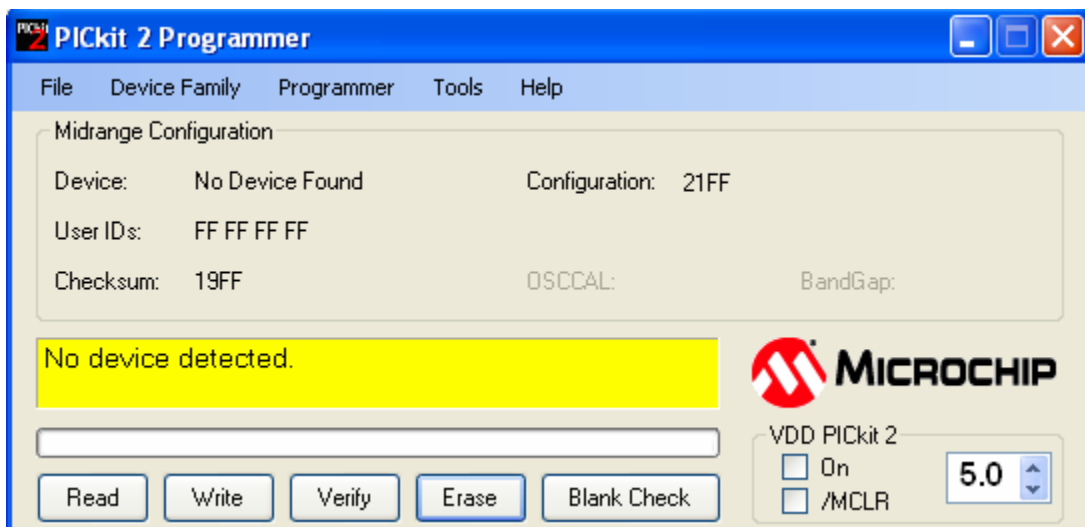


Solution

- Check Jumper T/B that must be in the B position and then check power supply of Target Board. If user does not supply power into Target Board, must supply power into it completely.
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Problem

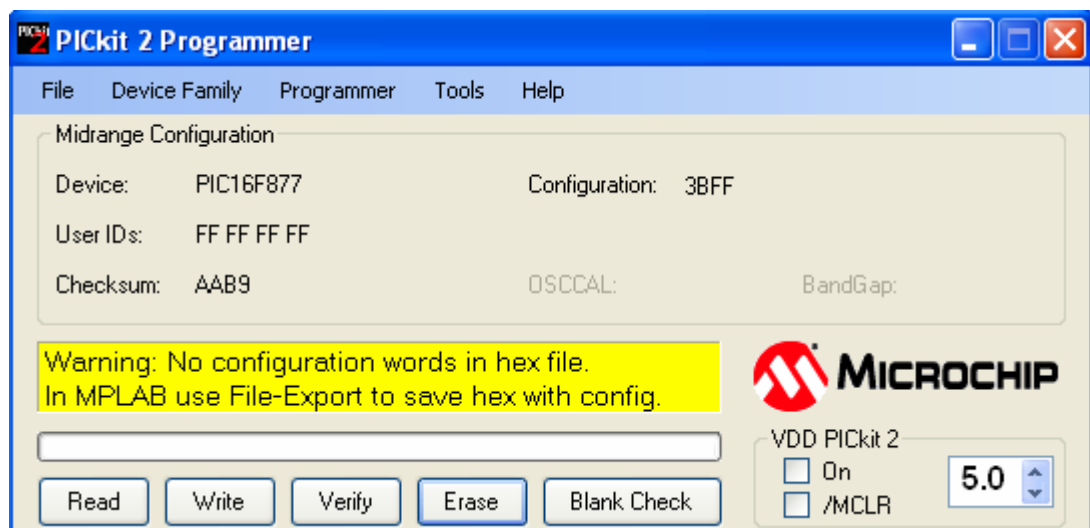
It can not find any Microcontroller.

**Solution**

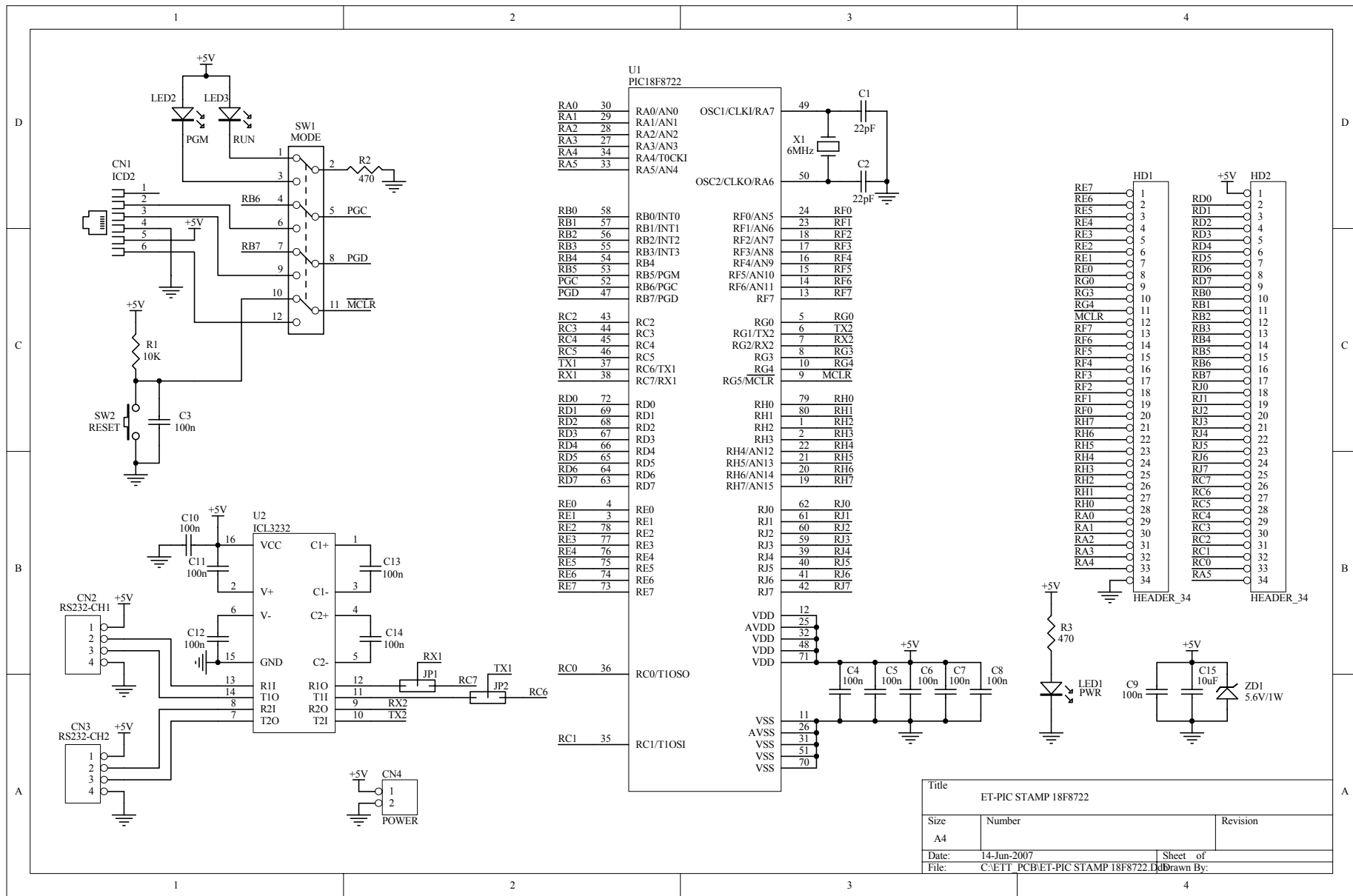
- Check position of IC in Text Tool and Pin 1 of IC must be in the right position.
- If programming with Module Emulator, please check the cable connection and then check voltage at Target Board.

Problem

There's no any Configuration in Hex File that is imported, this problem occurs in the step of design and compile program.

**Solution**

- Set Configuration in the step of design and compile program.



Title		
ET-PIC STAMP 18F8722		
Size	Number	Revision
A4		
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