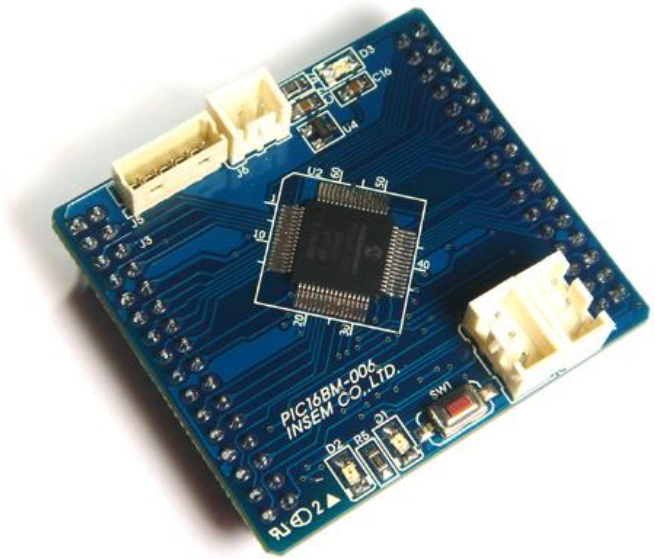
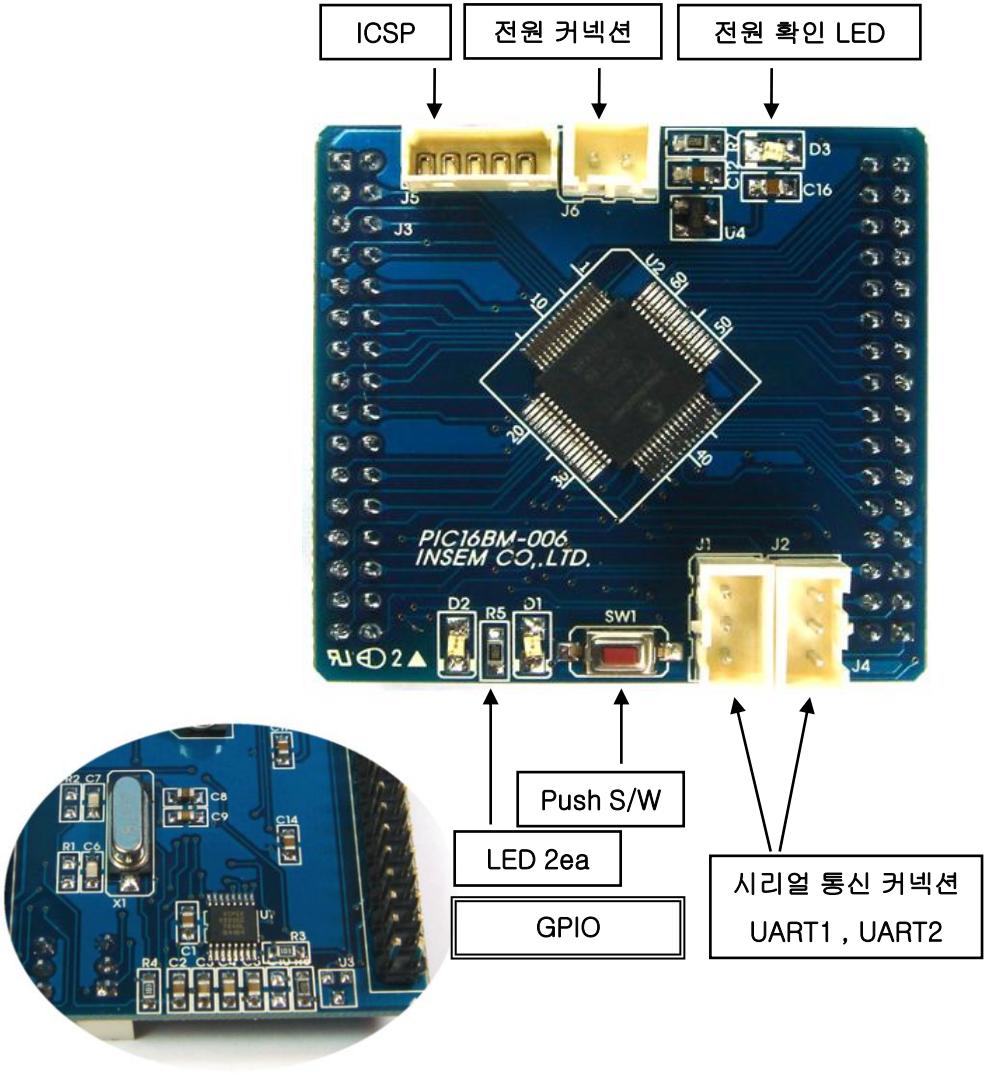
PM16 Module User's Guide



1. PM16 MODULE 의 특징

- dsPIC33F, PIC24H, PIC24F 디바이스
- DC 5V 전원 사용 (MCP1700 3.3V LDO 내장)
- ICSP 지원 (ICD2 , Real ICE 로 프로그래밍 및 디버깅)
- 포트 확인용 2개의 LED 와 1개의 버튼
- SP3232 IC 내장으로 UART1, UART2 통신가능
- 2.54 Header Pin 사용으로 사용자 보드에 적용이 편리

2. 하드웨어 구성도



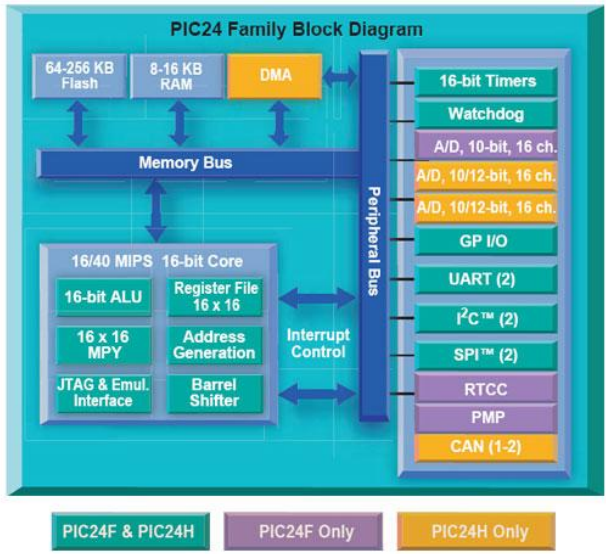
- 8MHz Crystal 내장
- MCP121 Voltage Supervisor 삽입가능. (PCB 회로 제공)

3. MCU Special Features

3-1. PIC24FJ128GA006

제품	핀	플래시 Kbytes	SRAM Bytes	타이머	제어	Output Comp. PWM	Real Time Clock Calendar	A/D 10-bit 500 kSPS	A/D 12-bit 500 kSPS	UART	SPI™	I²C™	CAN	Parallel Master Port	JTAG
PIC24F 제품군 – 16 MIPS, 최저 가격															
PIC24FJ128GA006	64	128	8	5	5	5	Y	16	-	2	2	2	-	Y	Y
PIC24FJ128GA008	80	128	8	5	5	5	Y	16	-	2	2	2	-	Y	Y
PIC24FJ128GA010	100	128	8	5	5	5	Y	16	-	2	2	2	-	Y	Y

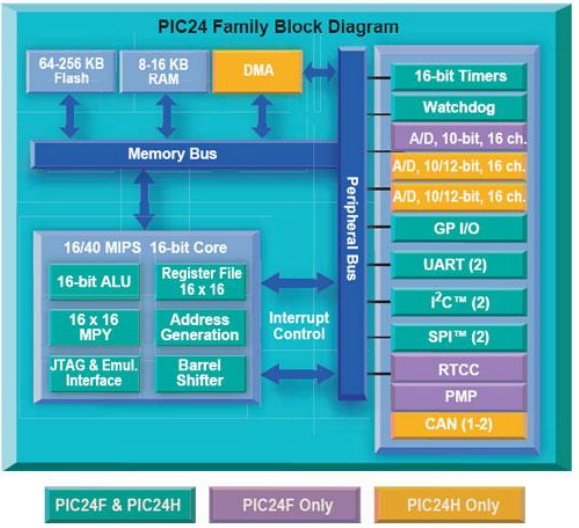
- 16 MIPS performance
- 16 x 16 fractional/integer multiply operations
- 32/16 and 16/16 divide operations
- C compiler optimized instruction set
- Internal oscillator support – 31 kHz to 8 MHz, up to 32 MHz with 4X PLL
- Fail-Safe Clock Monitor – allows safe shutdown if clock fails
- All digital input pins are 5V tolerant



3. MCU Special Features

3-2. PIC24HJ128GP206

제품	핀	플래시 Kbytes	SRAM Bytes	타이머	캡처	Output Comp. PWM	Real Time Clock Calendar	A/D 10-bit 500 kSPS	A/D 12-bit 500 kSPS	UART	SPI™	I²C™	CAN	Parallel Master Port	JTAG
PIC24HJ128GP206	64	128	8	9	8	8	-	*	18	2	2	2	-	-	Y
PIC24HJ128GP210	100	128	8	9	8	8	-	*	32	2	2	2	-	-	Y
PIC24HJ128GP306	64	128	16	9	8	8	-	*	18	2	2	2	-	-	Y



- 40MIPS (@ 3.0-3.6V)
- C compiler optimized instruction set
- 16 x 16 fractional/integer multiply operations
- 32/16 and 16/16 divide operations
- 8-channel hardware DMA
- Most peripherals support DMA Interrupt Controller
- All digital input pins are 5V tolerant
- Flexible clock with Fully integrated PLL

3. MCU Special Features

3-3. dsPIC33FJ128GP206

Product	Pins	Flash Kbytes	RAM Kbytes	DMA # Ch	Timer 16-bit	Input Capture	Output Compare/ Standard PWM	Codec Interface	ADC 10-12-bit* 1.1/0.5 Msps	Codec	UART	SPI	I²C™	CAN	Package Code
dsPIC33FJ128GP206	64	128	8	8	9	8	8	1	1 ADC, 18 ch	1	2	2	1	–	PT
dsPIC33FJ128GP306	64	128	16	8	9	8	8	1	1 ADC, 18 ch	1	2	2	2	–	PT
dsPIC33FJ128GP706	64	128	16	8	9	8	8	1	2 ADC, 18 ch	1	2	2	2	2	PT

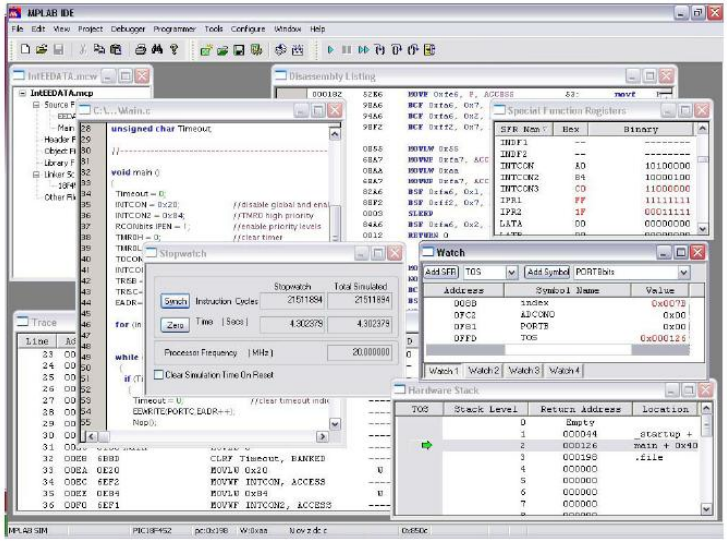
- 40MIPS (@ 3.0-3.6V)
- C compiler optimized instruction set
- Two 40-bit accumulators



- 16 x 16 fractional/integer multiply operations
- 32/16 and 16/16 divide operations
- Single-cycle multiply and accumulate
- 8-channel hardware DMA
- Most peripherals support DMA Interrupt Controller
- All digital input pins are 5V tolerant
- Flexible clock with Fully integrated PLL

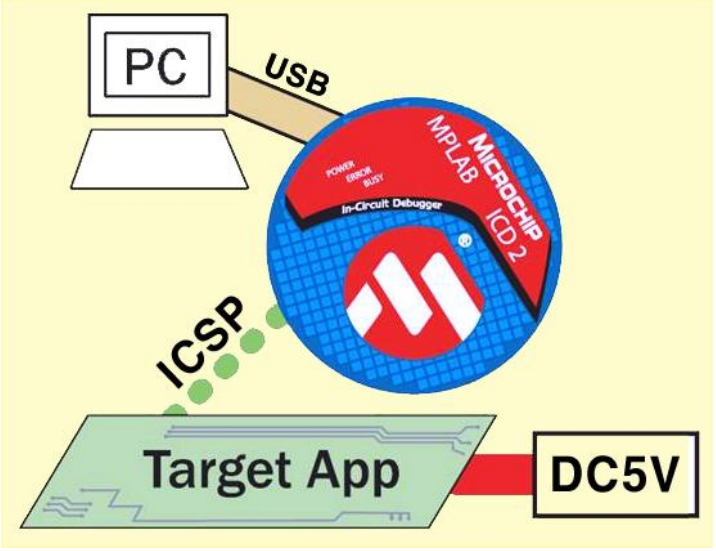
4. 개발환경

4-1. Software : MPLAB® Integrated Development Environment (IDE)

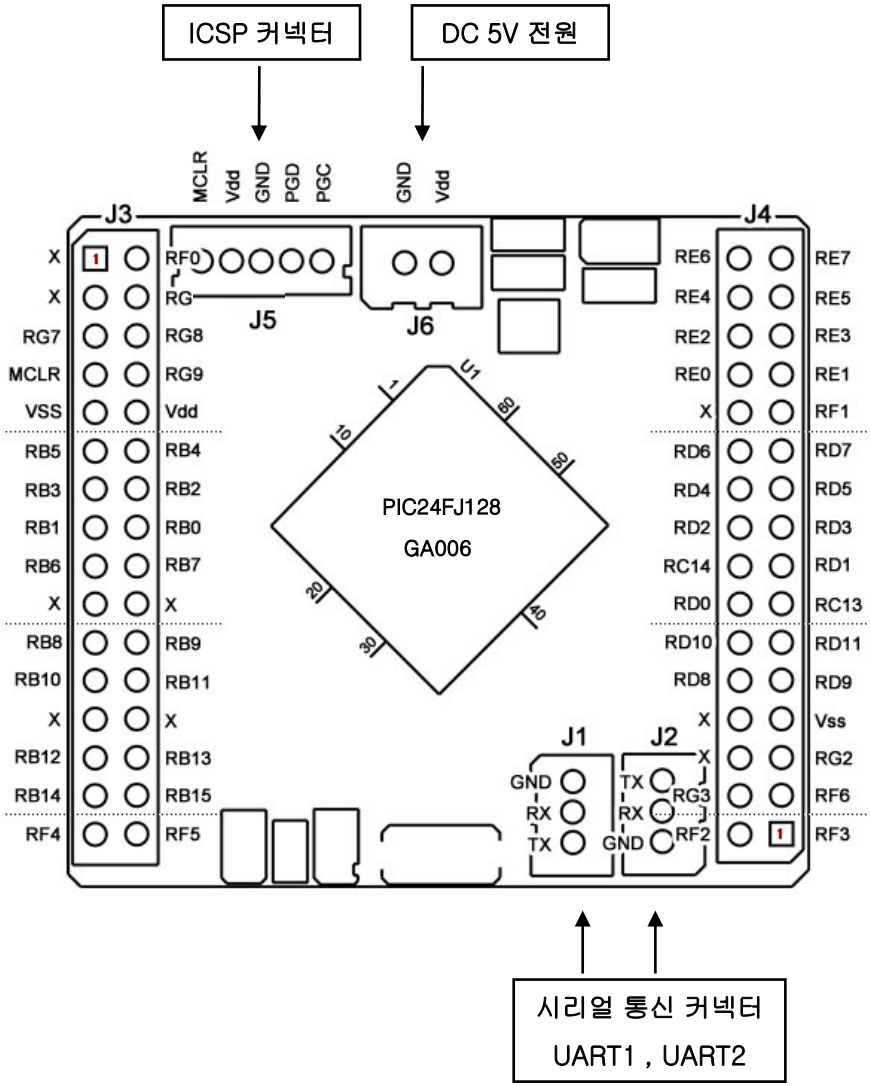


www.microchip.com/ 에서 다운로드 받으실 수 있습니다.

4-2. Debugger : MPLAB ICD 2 In-Circuit Debugger/Programmer

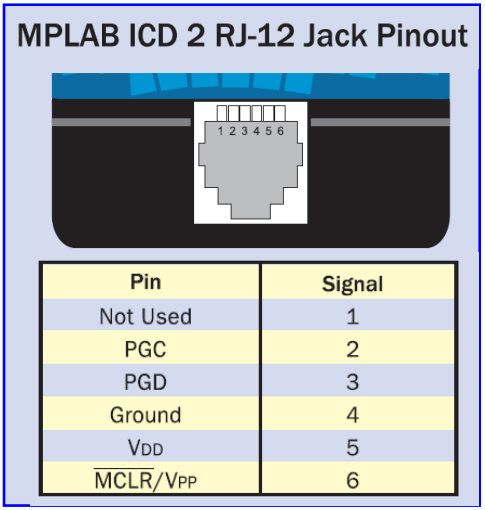


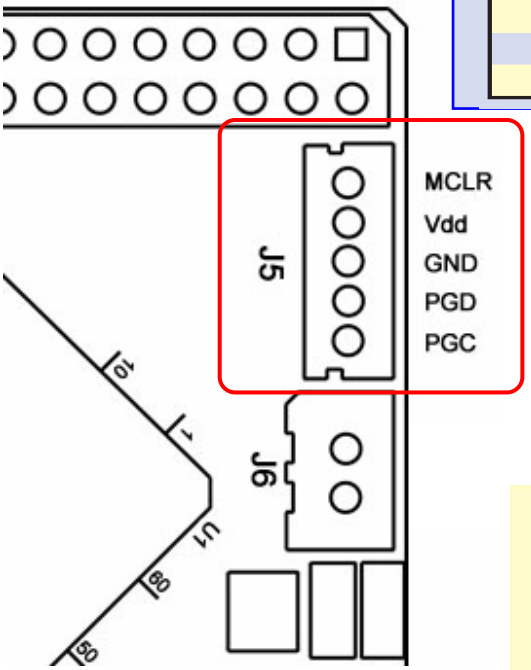
5. 커넥터 연결

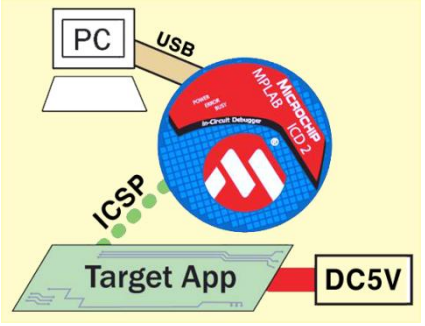


※ 모든 커넥터는 미포함입니다.

6. ICSP 연결

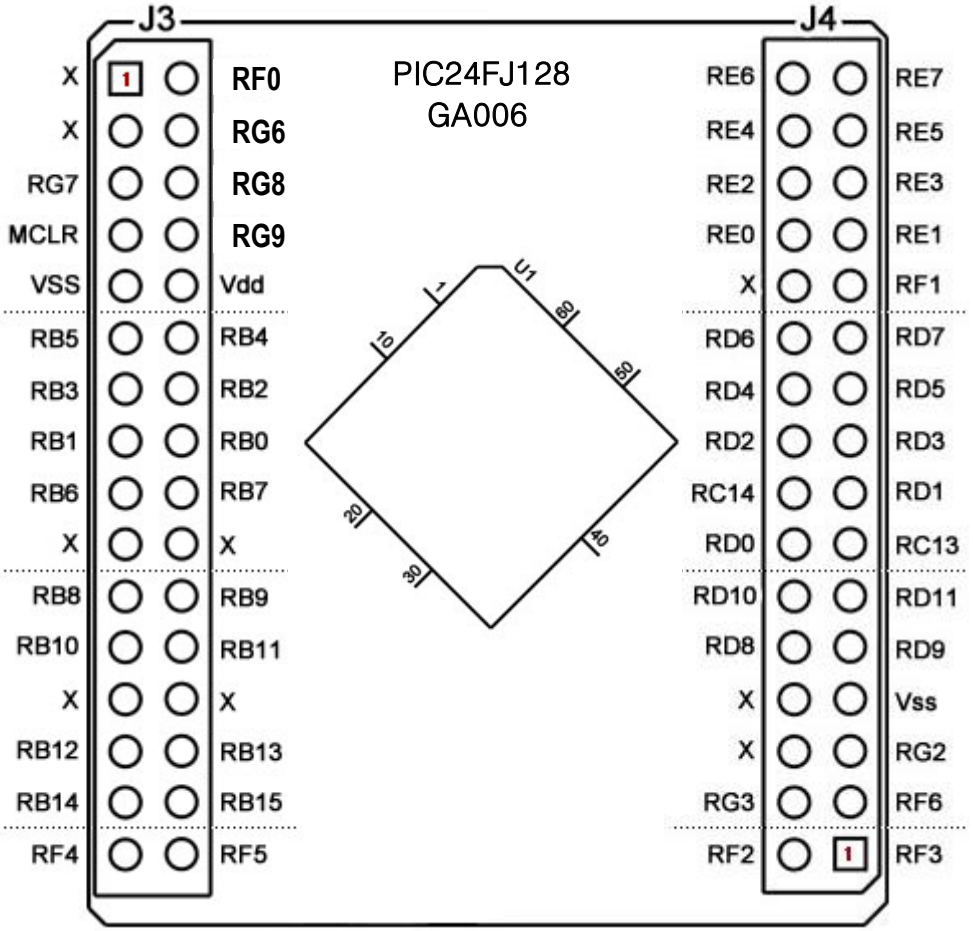

MPLAB ICD 2 RJ-12 Jack Pinout
1 2 3 4 5 6
Pin
Signal
Not Used
1
PGC
2
PGD
3
Ground
4
VDD
5
MCLR/VPP
6


J5
MCLR
Vdd
GND
PGD
PGC
J6
10
1
U1
80
50


PC
USB
ICSP
Target App
DC5V

7. 확장 보드 연결

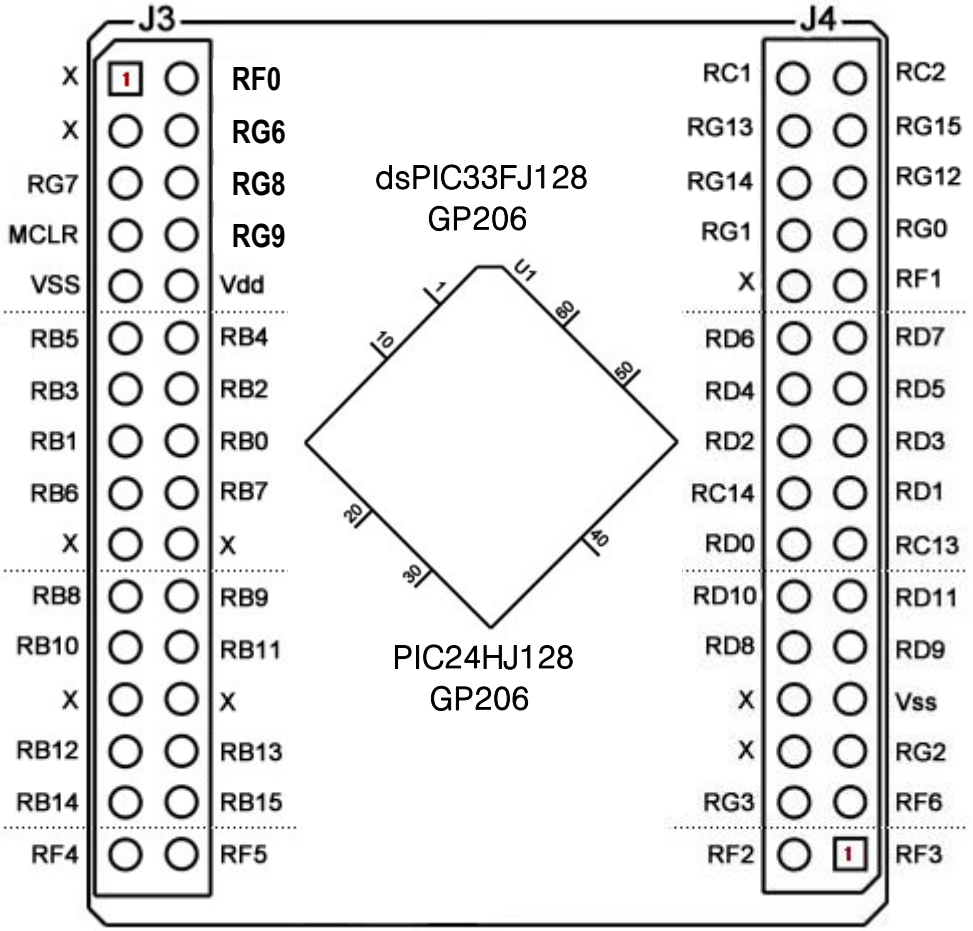
7-1. PIC24FJ128GA006



※ 2.54mm 규격입니다.

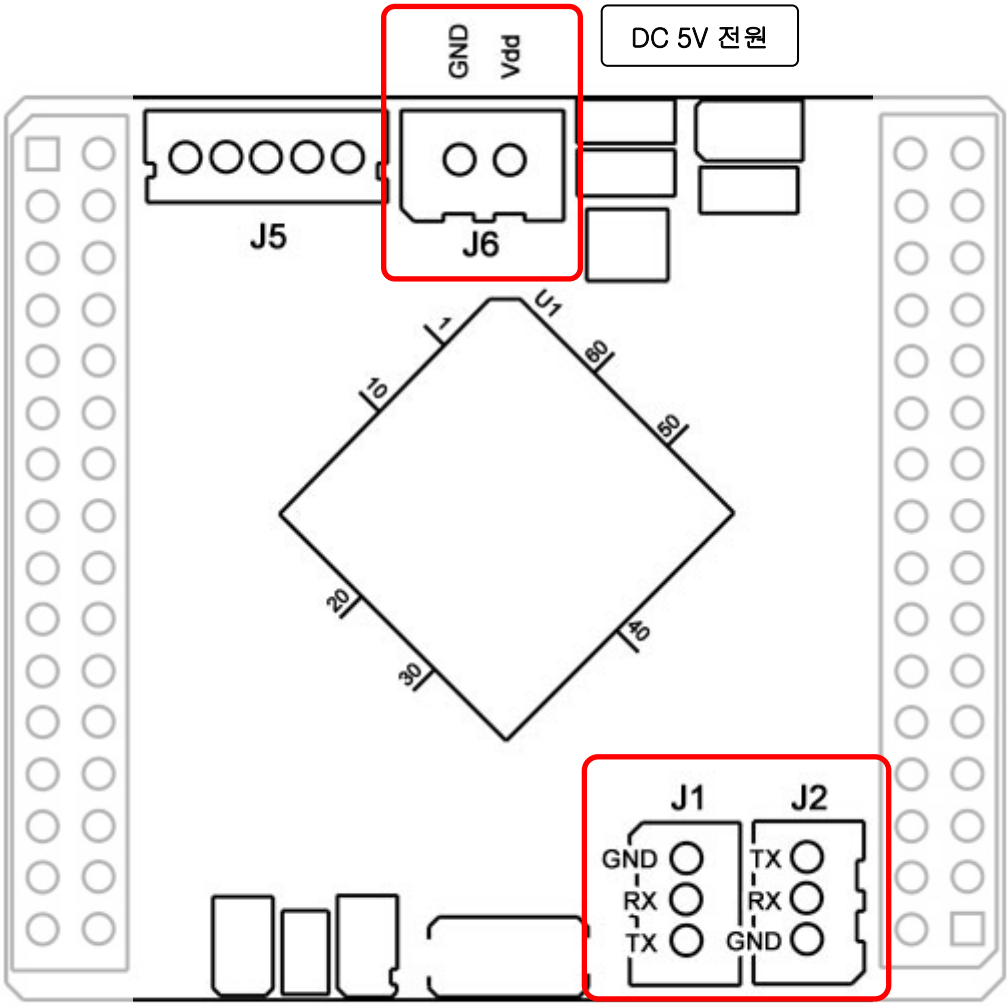
7. 확장 보드 연결

7-2. dsPIC33F , PIC24H



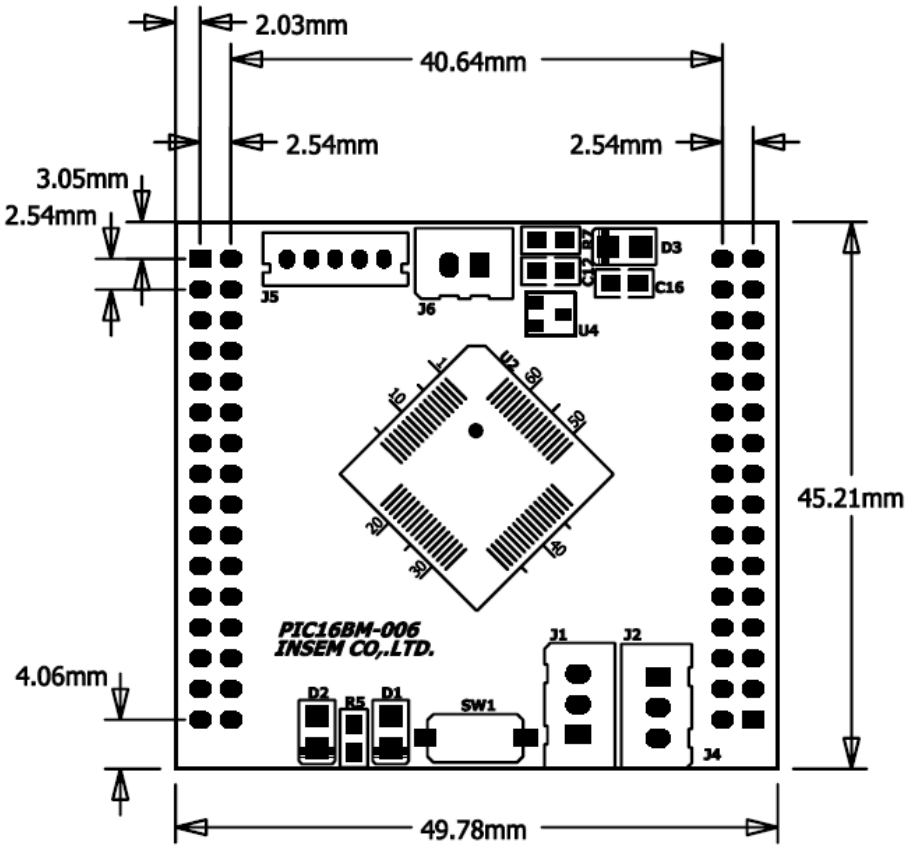
※ 2.54mm 규격입니다.

8. 시리얼 통신, 전원 연결



※ 모든 커넥터는 미포함입니다.

9. Demension


2.03mm
40.64mm
2.54mm
2.54mm
3.05mm
2.54mm
J5
J6
D3
C16
U4
U2
45.21mm
PIC16BM-006
INSEM CO,.LTD.
J1
J2
4.06mm
D2
R5
D1
SW1
J4
49.78mm