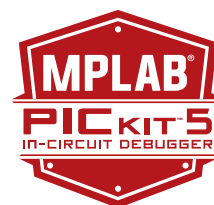


# MPLAB® PICKit™ 5 In-Circuit Debugger

## Quick Start Guide



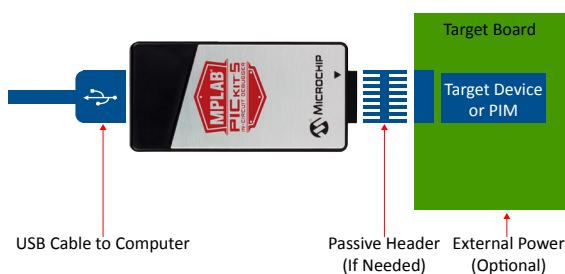
### 1 Install the Latest Software

Download the MPLAB X IDE software from [microchip.com/mplabx](http://microchip.com/mplabx) and install onto your computer. The installer automatically loads the USB drivers. Launch MPLAB X IDE.

### 2 Connect to Target Device

1. Connect the MPLAB PICKit 5 to the computer using the supplied USB Type-C® cable.
2. Plug the 8-pin connector on the bottom of the PICKit 5 into the target (see figure.) For more on target connections, see "Additional Information".
3. Connect external power\* to target board or select power from PICKit 5 in project properties.

#### Typical Debugger System



\*External target board power supply to be provided by user.

### 3 Create, Build and Run Project

1. Refer to the MPLAB X IDE User's Guide or online help for instructions to install language tools, create or open a project, and configure project properties.
2. Check that the configuration bits in your code match the Recommended Settings below.
3. To execute your code in Debug mode, perform a debug run. To execute your code in Non-Debug (release) mode, perform a run. To hold a device in Reset after programming, use the Hold in Reset icon in the toolbar.



#### Recommended Settings

Component	Setting
Oscillator	<ul style="list-style-type: none"><li>• OSC bits set properly</li><li>• Running</li></ul>
Power	Supplied by target
WDT	Disabled (device dependent)
Code-Protect	Disabled
Table Read Protect	Disabled
LVP	Disabled
BOD	VDD > BOD VDD min.
JTAG	Disabled
AVDD and AVSS	Must be connected
PGCx/PGDx	Proper channel selected, if applicable
Programming	VDD voltage levels meet programming spec

Note: See MPLAB PICKit 5 In-Circuit Debugger online help for more information.

#### Reserved Resources

For information on reserved resources used by the debugger, see the MPLAB X IDE Help > Release Notes, Reserved Resources links.

# MPLAB® Programmer-To-Go Operation

## Quick Start Guide

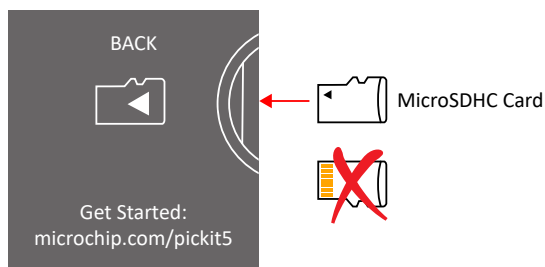


### 1 Install

Once code development is complete, use the PICKit™ 5 to download a device memory image to a microSDHC card for later programming into a specific device. The button on the PICKit 5 can program the latest image or the MPLAB® PTG smartphone application can select, program, and manage other images on the SD card. See the MPLAB PICKit 5 In-Circuit Debugger User's Guide (DS50003525) for details on PTG.

### 2 Insert microSDHC Card

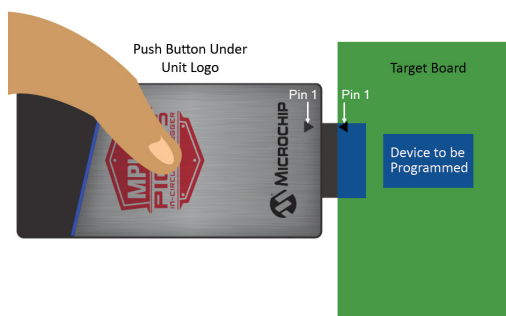
Download image(s) from MPLAB X IDE.



Program selected image using MPLAB PTG App.

### 3 Push Button to Program Target Device

Program the latest downloaded image. Align the PICKit 5 pin 1 with the target pin 1.



### 4 Use MPLAB PTG to Program Target Device

Ensure that PICKit 5 enables the Bluetooth® wireless communications feature by selecting Project Properties > PICKit 5 category > Bluetooth options > Bluetooth Setting: On.



## Additional Information

### Pinouts for Debug Interfaces

MPLAB® PICKIT™ 5		DEBUG									Target <sup>4</sup>	
8-pin SIL Connector <sup>1</sup>	Pin Name	ICSP™ (MCHP)	MIPS EJTAG	Cortex® SWD	AVR® JTAG	AVR debugWIRE	AVR UPDI	AVR PDI	AVR ISP	AVR TPI	8-pin SIL Connector	6-Pin SIL Connector
1	TVPP	MCLR/VPP	MCLR	RESET			RESET <sup>3</sup>				1	1
2	TVDD	VDD	VDD/VDDIO	VDD	VTG	VTG	VTG	VTG	VTG	VTG	2	2
3	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	3	3
4	PGD	DAT	TDO	SWO <sup>2</sup>	TDO		DAT <sup>3</sup>	DAT	MISO	DAT	4	4
5	PGC	CLK	TCK	SWCLK	TCK				SCK	CLK	5	5
6	TAUX				RESET	RESET/dW		CLK	RESET	RESET	6	6
7	TTDI		TDI		TDI				MOSI		7	
8	TTMS		TMS	SWDIO <sup>2</sup>	TMS						8	

1. Use of a 6-pin header will result in the loss of functions on Pins 7 and 8 affecting, EJTAG, JTAG, SWD and ISP.

2. SWO is used for trace. SWDIO is for debug.

3. Pin may be used for High-Voltage Pulse reactivation of UPDI function depending on device. See device data sheet for details.

4. These are example target connectors that are assumed similar to the debug unit (SIL).

### Pinouts for Data Stream Interfaces

MPLAB® PICKIT™ 5		DATA STREAM		Target <sup>3</sup>
8-pin SIL Connector <sup>1</sup>	PIC® and AVR® Devices	SAM Devices <sup>2</sup>	8-Pin SIL Connector	
Pin #	DGI UART/CDC	DGI UART/CDC	Pin #	
1			1	
2	VTG	VTG	2	
3	GND	GND	3	
4		TX (target)	4	
5			5	
6			6	
7	TX (target)	RX (target)	7	
8	RX (target)		8	

1. Use of an 8-pin connector is required for data streaming. A 6-pin connector will result in the loss of functions on Pins 7 and 8.

2. RX and TX pins moved because of wiring for other devices.

3. This is an example target connector that is assumed similar to the debug unit (SIL).