TB079

Programming Baseline Flash Devices with PICkit™ 1

Author: *Dan Butler*
Microchip Technology Inc.

INTRODUCTION

The PICkit 1 Baseline Flash Programmer PC application together with the PICkit 1 Flash Starter Kit firmware version 2.0.0 or later can program baseline Flash devices. This Technical Brief discusses the programming of the following Baseline Flash devices:

- PIC12F508/509 and PIC16F505
- PIC10F200/202/204/206
- PIC16F54/57/59

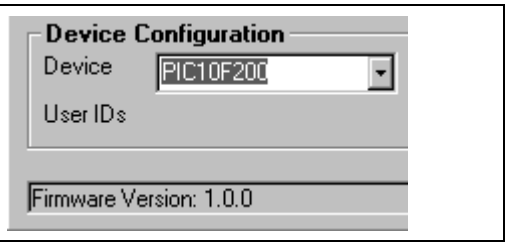
Note: The PICkit 1 Baseline Flash Programmer PC application can be downloaded from the Microchip Technology Inc. web site at: www.microchip.com.

PICkit 1 FIRMWARE VERSION 2.0.0

When the PICkit 1 Baseline Flash Programmer starts up, the PICkit 1 Flash Starter Kit firmware version is displayed in the bottom left corner of the interface window, as shown in Figure 1. If “Firmware Version: 1.0.0” is displayed, upgrade the firmware to Version 2.0.0 or later.

The PICkit 1 Flash Starter Kit firmware version 2.0.0, or later, can be downloaded from the Microchip web site at: www.microchip.com or an upgrade kit, part number “UK164101”, can be ordered online at: buy.microchip.com, or by contacting the nearest Microchip sales location (see Worldwide Sales and Service listing page).

FIGURE 1: FIRMWARE VERSION



PIC12F508/509 AND PIC16F505 PROGRAMMING

The 8-pin PIC12F508/509 and PIC16F505 Baseline Flash devices are pin compatible with the Evaluation Socket of the PICkit 1 Flash Starter Kit. The PIC12F508/509 and PIC16F505 can be directly plugged into the evaluation socket and programmed by the PICkit 1 Flash Starter Kit with firmware version 2.0.0 or later, and the PICkit 1 Baseline Flash programming software for the PC.

PIC10F2XX Programming

The 6- and 8-pin PIC10F2XX universal programming adapter that provides connections to the PIC10F2XX devices to the following programmers:

- PICkit™ 1 Flash Starter Kit
- PICSTART® Plus Programmer
- MPLAB® ICD 2 In-Circuit Debugger
- Baseline Flash Microcontroller Programmer

The PIC10F2XX Universal Programming Adapter, part number “AC163020”, can be ordered online at: buy.microchip.com or by contacting the nearest Microchip sales location (see Worldwide Sales and Services listing page).

Note: The PIC10F2XX Universal Programming Adapter will only work with PIC10F2XX devices.

Building a PIC10F2XX Programming Adapter

Adapters are electrically simple, only 5 pins are used by the programming process. The adapter only needs to rearrange the pins from the programmer (for example, the PICkit 1 Flash Starter Kit evaluation socket). No additional active or passive components are necessary. Other pins should be left unconnected. Schematic and Gerber files for sample adapters are available on the Microchip web site at: www.microchip.com and on the *PICkit™ 1 Flash Starter Kit CD-ROM*, (DS40049). The adapter may be built to plug into the PICkit 1 Flash Starter Kit 14-pin Evaluation Socket, or into the 14-pin J3 connector at the right most edge of the main PICkit board. A programming adapter for the 6-pin PIC10F2XX can be built using the information in **TABLE 1: "PIC10F2XX 6-Pin SOT-23 Adapter Pins"**. A programming adapter for the 8-pin PIC10F2XX can be built using the information in **TABLE 2: "PIC10F2XX 8-Pin DIP Adapter Pins"**.

PIC16F54/57/59 PROGRAMMING

The PIC16F54/57/59 devices can be programmed directly in the PICSTART Plus, PRO MATE® II or MPLAB® PM3 programmers.

Building a PIC16F54/57/59 Programming Adapter

To program the PIC16F54/57/59 devices using the PICkit 1 Flash Starter Kit, a programming adapter is necessary. At present, Microchip does not offer PIC16F54/57/59 programming adapters. **Table 3**, **Table 4** and **Table 5** list the pins required to build programming adapters for the PIC16F54/57/59, respectively.

Note:	The 28-pin pinout of the PIC16F57 follows the pinout convention of the original PIC16C57. This pinout **is not** compatible with newer 28-pin PICmicro® devices.

TABLE 1: PIC10F2XX 6-PIN SOT-23 ADAPTER PINS

Programming Pin	Description	PIC10F2XX Pin Assignment (SOT-23)	PICkit 1 Evaluation Socket Pin	PICkit 1 J3 Connector
VDD	Power Supply	VDD – pin 5	VDD – 1	13
VSS	Ground	VSS – pin 2	VSS – 14	14
ICSPCLK	Serial Clock	GP1 – pin 3	RA1 – 12	8
ICSPDAT	Serial Data	GP0 – pin 1	RA0 – 13	7
VPP	Programming Mode Select	GP3 – pin 6	RA3 – 4	3

TABLE 2: PIC10F2XX 8-PIN DIP ADAPTER PINS

Programming Pin	Description	PIC10F2XX Pin Assignment (8-pin)	PICkit 1 Evaluation Socket Pin	PICkit 1 J3 Connector
VDD	Power Supply	VDD – pin 2	VDD – 1	13
VSS	Ground	VSS – pin 7	VSS – 14	14
ICSPCLK	Serial Clock	GP1 – pin 4	RA1 – 12	8
ICSPDAT	Serial Data	GP0 – pin 5	RA0 – 13	7
VPP	Programming Mode Select	GP3 – pin 8	RA3 – 4	3

TABLE 3: PIC16F54 ADAPTER PINS

Programming Pin	Description	PIC16F54 Pin Assignment (18-pin)	PICkit 1 Evaluation Socket Pin	PICkit 1 J3 Connector
VDD	Power Supply	VDD – pin 14	VDD – 1	13
VSS	Ground	VSS – pin 5	VSS – 14	14
ICSPCLK	Serial Clock	RB6 – pin 12	RA1 – 12	8
ICSPDAT	Serial Data	RB7 – pin 13	RA0 – 13	7
VPP	Programming Mode Select	$\overline{\text{MCLR}}$ – pin 4	RA3 – 4	3

TABLE 4: PIC16F57 ADAPTER PINS

Programming Pin	Description	PIC16F57 Pin Assignment (28-pin)	PICkit 1 Evaluation Socket Pin	PICkit 1 J3 Connector
VDD	Power Supply	VDD – pin 2	VDD – 1	13
VSS	Ground	VSS – pin 4	VSS – 14	14
ICSPCLK	Serial Clock	RB6 – pin 16	RA1 – 12	8
ICSPDAT	Serial Data	RB7 – pin 17	RA0 – 13	7
VPP	Programming Mode Select	$\overline{\text{MCLR}}$ – pin 28	RA3 – 4	3

TABLE 5: PIC16F59 ADAPTER PINS

Programming Pin	Description	PIC16F59 Pin Assignment (40-pin)	PICkit 1 Evaluation Socket Pin	PICkit 1 J3 Connector
VDD	Power Supply	VDD – pin 35	VDD – 1	13
VSS	Ground	VSS – pin 5	VSS – 14	14
ICSPCLK	Serial Clock	RB6 – pin 12	RA1 – 12	8
ICSPDAT	Serial Data	RB7 – pin 13	RA0 – 13	7
VPP	Programming Mode Select	$\overline{\text{MCLR}}$ – pin 14	RA3 – 4	3

NOTES:

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10/20/04