

PIC18F26J50-EVK User Manual

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Revision History

Rev	Date	Description
0.9	11/25/2011	Initialization
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Kit Overview 1_

The PIC18F26J50-EVK is a development and demonstration kit designed to provide developers a hands-on approach to learn Flowcode 4 (Graphical Programming Languages) more easily.

The kit is based on PIC18F26J50 microcontroller, and integrates temperature sensor, capacitor touch sensor and potentiometer to help developers verify their programs designed by Flowcode 4.

Contents of Package



Figure 1–1 PIC18F26J50 EVK Board

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Figure 1–2 Kit Package

- 1 x PIC18F26J50-EVK board
- 1 x USB Cable (Mini USB type)
- 1 x CD-ROM
- 1 x One page Package list

1.1

Antistatic Precautions 2.

- Please make sure that an antistatic strap is grounded and used on your wrist before taking out the kit from antistatic bag.
- Please make sure that all the four rubber feet are attached to bottom of kit when • it is unpacked.
- Please always handle the kit on a non-conducting surface.

3. Pin Definition of Connectors

This section will briefly introduce the connectors used on PIC18F26J50-EVK board and the pins of these connectors in terms of definition, function and applications.



3.1 Board Layout

Figure 3–1 Kit Layout

As shown in the figure above, five connectors marked as CN1, CN2, CN3, CN4 and CN5 are mounted on the kit. Please refer to the following section for details.

3.2 Pin Definition

1) CN1: ICSP Connector

ICSP (In-Circuit Serial Programming) is a serial program interface of Microchip, it is used to program Microchip's PIC and dsPIC series MCU. Please see the Pin definition and description of ICSP as below:

Pin No.	Name	Description	
1	MCLP	Master Clear (Reset) input	
2	3.3V	3.3V Power Supply	

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Pin No.	Name	Description
3	GND	Ground
4	PGD	ICSP Data.
5	PGC	ICSP Clock.
6	NC	Not Use

2) CN2: PICKIT Serial Connector

Pin	Name	Description	
1	RXD1	Asynchronous serial receive data input	
2	3.3V	3.3V Power Supply Output	
3	GND	Ground	
4	SDA	I2Cdata input/output	
5	SCL	I2C clock input/output	
6	TXD1	EUSART1 asynchronous transmit	

3) CN3: Mini USB

Pin No.	Name	Description	
1	VDD	+5V Power Supply	
2	D-	Differential data signal: Negative	
3	D+	Differential data signal: Positive	
4	NC	ID Pin, not use	
5	GND	Ground	

4) CN4: OUTPUT

Pin No.	Name	Description	
1	GND	Ground	
2	3.3V	3.3V Power Supply Output	

5) CN5: E-Blocks Connectors

Unused

The related software should be installed on your PC prior to hardware connection so that the kit could be working properly.

4.1 Software Introduction

1) Flowcode 4

Flowcode 4 is one of the world's most advanced graphical programming languages for microcontrollers. The great advantage of Flowcode is that it allows those with little experience to create complex electronic systems in minutes.

2) HID Bootloader

HID Bootloader functions as a bridge between Flowcode 4 and hardware to allow users easily download program to their hardware (e.g. PIC18F26J50-EVK board) through USB cables.

4.2 Software Download

A free version of Flowcode 4 for PICmicros, which is suitable for the Microchip PIC18 Starter Kit for Flowcode by element14, can be downloaded from the link shown below.

http://www.matrixmultimedia.com/lc_index.php?p=26

Also the free version as well as HID Bootloader can be found in the CD-ROM attached with the kit.

4.3 System requirement

- Personal computer with USB 1.0 or 2.0
- Pentium processor or greater
- Windows XP or later with Net Framework v4.0.30319 installed
- 256MB RAM
- 100MB hard disk space

4.4 Software Installation

1) Flowcode 4

The Flowcode installation routine will guide you through the installation process

including the installation of any subsidiary programs or tools required by the software.

When asked to select the default programmer, you can choose either E-blocks or PICkit2. This choice is ignored when using the Microchip PIC18 Starter Kit for Flowcode by element14.

HID Bootloader 2)

Please follow the installation guide to complete the process.

5. Hardware Setup

After the software installation is complete, please follow the illustration shown below to connect the kit to PC with the USB cable included in product package.



6. Kit Demonstration

Through the demonstration on PIC18F26J50-EVK, developers would have a general understanding of how demo program works to display the signals detected by temperature sensor, capacitive touch sensor and potentiometer through LED indicators on the kit.

6.1 Introduction to Demo Program

Demo program keeps tracking status of the sensors integrated on PIC18F26J50-EVK, and display the detected signals by driving LEDs through I/O port on the kit. Developers could switch around among temperature sensor, capacitive touch sensor and potentiometer by pressing a push-button on the kit to view the results respectively.

6.2 Downloading Demo Program

After the steps illustrated in previous section 5 Hardware Setup are complete, you could start to download demo program using HID Bootloader as shown below.

 Click the button Open Hex File on the interface and select demo program PIC18F26J50_EVK_Application_Program.hex in your hard drive to start downloading.

🛃 Microchip PIC	18 Starter Kit	for Flowcode f	rom element14		
Open Hex File	Erase Device	Read Device	Export Hex	1	Міскоснір
Program/Verify	Verify	Reset Device	tion Word Programming	Close	
Device attached.		<u> </u>			S Farnell
					Farilien
					MATRIX

Figure 6–1 Downloading Demo Program

2) Click the button Reset Device on the interface to reboot the kit.

6.3 Running Demo Program

The reboot process is quite fast, and now the kit is ready to test the demo program by going through the following operations.

• By default the sensor U3 is activated first. The LEDs on PIC18F26J50-EVK change status when U3 detects temperature fluctuation caused by, for example, putting your figure on the sensor.

- Press the S1 button to switch to the on-board potentiometer P1 and turn it to observe the status change of LEDs.
- Press S1 again to switch to the capacitive touch sensor and touch the sensor ۲ with your fingers to observe the status change of LEDs.

Development on this Kit 7.

Now let's start to make your first program with Flowcode 4 and PIC18F26J50-EVK board.

1) When you first load Flowcode you will be given a choice of creating a new flowchart or opening an existing chart. Click on the first option and you will be asked to choose a target device.



Figure 7–1 Choose a Target Device

Scroll down and select the "PIC18_STARTERKIT_E14" target.

2) You will see a Begin and End icon in the window marked 'Main'. This is your main program.



Figure 7–2 Main Program Window



Figure 7–3 Toolbar Icons' Functions

The graphic above shows the functions of icons on the Toolbar. To find out what an icon's function is simply hold the mouse pointer over the icon and a small 'tool tip' will give you a clue.

3) From the Icon toolbox drag an Output icon onto the space between the Begin and End icons. Then double click on the icon to bring up the properties window.



Figure 7–4 Output Properties Setting

Set the properties as shown. (Variable = 1, Port = PORTB, single bit).

4) Click on the Step Into icon (see below) or select RUN...STEP INTO on the menu. You can use this to step through your program.



Figure 7–5 Stepping through Program

Notice B0 on the chip goes red to indicate logic 1 output.

5) Click on Compile to Chip button to compile your program and download it to the board.



Figure 7–6 Compiling and Programming

Press and hold the S1 button while inserting the USB cable to put the board into program mode.

Once programming has completed, the LED connected to B0 will be lit.

8. Helpful Links

Helpful Links			
Matrix Multimodia	http://www.matrixmultimedia.com		
	http://www.matrixmultimedia.com/flowcode.php		
Misuschin	http://www.microchip.com		
Microcnip	http://www.microchip.com/support/HotTopics.aspx		
element14	http://uk.farnell.com/ http://us.element14.com/ http://sg.element14.com/ http://cn.element14.com/		
	http://www.element14.com/community/docs/DOC-40330		

9. Schematic



Figure 9–1 Schematic of PIC18F26J50-EVK

10. PCB Layout



Figure 10–1 PCB Layout of PIC18F26J50-EVK

11. Bill of Materials

location	Order Code	Part No.	Description	Manufacturer
U1	1706309	PIC18F26J50-I/SP	MCU, 8BIT, 64K FLASH, NANOWATT, 28SPDIP	MICROCHIP
U2	1331271	24AA02-I/P	IC, EEPROM SERIAL 2KB, SMD, PDIP8	MICROCHIP
U3	1605577	MCP9700AT-E/TT	THERMAL SENSOR, 2.3 ~5.5V, SOT23-3	MICROCHIP
LED 1	1710526	ASMT-RJ45-AQ502	LED, SMD, 0603, ORANGE	AVAGO TECHNOLOGIES
LED 2	1710526	ASMT-RJ45-AQ502	LED, SMD, 0603, ORANGE	AVAGO TECHNOLOGIES
LED 3	1710526	ASMT-RJ45-AQ502	LED, SMD, 0603, ORANGE	AVAGO TECHNOLOGIES
LED 4	1710526	ASMT-RJ45-AQ502	LED, SMD, 0603, ORANGE	AVAGO TECHNOLOGIES
LED 5	1710526	ASMT-RJ45-AQ502	LED, SMD, 0603, ORANGE	AVAGO TECHNOLOGIES
LED 6	1710526	ASMT-RJ45-AQ502	LED, SMD, 0603, ORANGE	AVAGO TECHNOLOGIES
LED 7	1710526	ASMT-RJ45-AQ502	LED, SMD, 0603, ORANGE	AVAGO TECHNOLOGIES
LED 8	1710526	ASMT-RJ45-AQ502	LED, SMD, 0603, ORANGE	AVAGO TECHNOLOGIES
S1	1863398	3-1825910-5	SWITCH, PUSHBUTTON, SPST	TE CONNECTIVITY / AMP
S2	1863398	3-1825910-5	SWITCH, PUSHBUTTON, SPST	TE CONNECTIVITY / AMP
P1	9352651	3266W-1-103LF	TRIMMER, 12 TURN 10K	BOURNS
VR1		MCP1804T-3302I/DB SOT223	LDO 3.3V OUTPUT, CMOS 28V, SOT223-3	MICROCHIP
R13	9238484	RC0603FR-071KL	RESISTOR, 1K, 100MW, 1%	YAGEO (PHYCOMP)
R14	9238484	RC0603FR-071KL	RESISTOR, 1K, 100MW, 1%	YAGEO (PHYCOMP)
R15	9238484	RC0603FR-071KL	RESISTOR, 1K, 100MW, 1%	YAGEO (PHYCOMP)
R16	9238484	RC0603FR-071KL	RESISTOR, 1K, 100MW, 1%	YAGEO (PHYCOMP)
B17	9238484	BC0603FB-071KL	RESISTOR, 1K, 100MW, 1%	YAGEO (PHYCOMP)
B18	9238484	BC0603EB-071KI	RESISTOR 1K 100MW 1%	YAGEO (PHYCOMP)
R19	9238484	BC0603FB-071KI	RESISTOR 1K 100MW 1%	YAGEO (PHYCOMP)
B20	9238484	BC0603FB-071KI	RESISTOR 1K 100MW 1%	YAGEO (PHYCOMP)
R4	9238360	BC0603FB-07100BI	RESISTOR BC22H 0603 100B	YAGEO (PHYCOMP)
B7	9238360	BC0603FB-07100BI	RESISTOR BC22H 0603 100B	YAGEO (PHYCOMP)
B10	9238360	BC0603EB-07100BI	RESISTOR BC22H 0603 100B	YAGEO (PHYCOMP)
R11	9238360	BC0603EB-07100BI	RESISTOR BC22H 0603 100B	YAGEO (PHYCOMP)
B12	9238360	BC0603EB-07100BI	RESISTOR BC22H 0603 100B	YAGEO (PHYCOMP)
B21	9238360	BC0603EB-07100BI	RESISTOR BC22H 0603 100B	YAGEO (PHYCOMP)
R22	9238360	BC0603EB-07100BL	BESISTOB BC22H 0603 100B	YAGEO (PHYCOMP)
R1	9238603	BC0603EB-0710KI	RESISTOR 10K 100MW 1%	YAGEO (PHYCOMP)
R8	9238603	BC0603EB-0710KL	BESISTOB 10K 100MW 1%	YAGEO (PHYCOMP)
R9	9238603	BC0603EB-0710KL	BESISTOB 10K 100MW 1%	YAGEO (PHYCOMP)
R23	9238603	BC0603EB-0710KL	RESISTOR 10K 100MW 1%	
R2	9238247	BC0603EB-0710BL	RESISTOR BC22H 0603 10B	
R3	0238247	RC0603FR-0710RL	RESISTOR RC22H 0603 10R	
R5	9238565	BC0603EB-074K7I	RESISTOR BC22H 0603 4K7 1%	
R6	9238565	BC0603EB-074K7L	RESISTOR BC22H 0603 4K7 1%	
C1	1657036	08056C106KAT2A	CAPACITOR 10 LIE 6 3V 0805 X7B	
C3	1657036	08056C106KAT2A	CAPACITOR 10 UE 6 3V 0805 X7R	
C4	1657036	08056C106KAT2A	CAPACITOR 10 UE 6 3V 0805 X7R	
C5	1007 000	060354220 14724	CAPACITOR 0603 22PE 50V	
C5	490040	06035A2205A12A	CAPACITOR, 0003, 22FF, 50V	
C0	490040 017007	06022610474724	CAPACITOR, 0003, 22FF, 30V	
CZ	217207	06022G104ZAT2A	CAPACITOR, 0003, 100NF, 25V, 15V	
C7	217207	06022G104ZAT2A	CAPACITOR, 0003, 100NF, 25V, 15V	
00	217207	06022G104ZAT2A	CARACITOR 0603, 100NF, 25V, 15V	
CNI	1502/20	MC24751	HEADER 1 DOW DANGLE GWAY	
CN2	1502430	MC34751	HEADER 1 ROW RANGLE SWAT	MULTICOMP
CNA	1000400			
CN2	1606500		I ERIVIIIVAL DLOUR, EUROSTILE, 2003 24-12AWG	
CNE	1000204		SOURCET, WINNI USD, FUD, ITTE AD, SWII	
Qz1	1667001	HC49S-12-30-50-70-30-ATF	CRYSTAL, HC-49/S, 12.0MHZ	MULTICOMP

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