



PIC16C54C → PIC16F54 Migration

DEVICE MIGRATIONS

This document is intended to describe the functional differences that are present when migrating from the PIC16C54C to the PIC16F54.

Note 1: This device has been designed to perform to the parameters of its data sheet. It has been tested to an electrical specification designed to determine its conformance with these parameters. Due to process differences in the manufacture of this device, this device may have different performance characteristics than its earlier version. These differences may cause this device to perform differently in your application than the earlier version of this device.

2: The user should verify that the device oscillator starts and performs as expected. Adjusting the loading capacitor values and/or the Oscillator mode may be required.

Table 1 shows the considerations that must be taken into account when migrating from the PIC16C54C to the PIC16F54.

TABLE 1: PIC16C54C → PIC16F54 MIGRATION DIFFERENCES

Functional Differences				
No.	Difference	H/W	S/W	Prog.
1	Programming algorithm change, PIC16F54 uses a new programming algorithm	—	—	✓
2	Program memory code protection, bits 11-4 now unimplemented	—	✓	—
3	Operating regions	✓	—	—

Legend: H/W – Issues may exist with regard to the application circuit.
 S/W – Issues may exist with regard to the user program.
 Programming – Issues may exist with regard to programming the device.

TABLE 2: PIC16C54C → PIC16F54 NEW FEATURES

No.	Feature
1	PIC16F54 has 512 words of Flash program memory
2	ICSP™ programming added

Legend: H/W – Issues may exist with regard to the application circuit.
 S/W – Issues may exist with regard to the user program.
 Programming – Issues may exist with regard to programming the device.

DEVICE MIGRATIONS

The PIC16F54 is mainly a technology process change from the PIC16C54C 18-pin parts. There are some changes that may affect older designs looking to use the new parts. The changes are grouped into two categories: those that affect hardware and those that affect software. In most cases, an older design will have little or no problems migrating to these new parts.

HARDWARE CHANGES

In-Circuit Serial Programming™ (ICSP™)

ICSP has been added allowing users to make use of MPLAB® ICD 2 for programming in addition to the PRO MATE® II and PICSTART® Plus programmers.

Customers may also implement ICSP directly in their application for programming “In-Line” during the manufacturing process.

Operating Regions

The commercial temperature operating region has been incorporated into the industrial temperature region. Please see the voltage frequency graphs in the data sheet for more information.

The “LF” operating region has been incorporated into the “F” parts. Please see the voltage frequency graphs in the data sheet for more information.

Process Differences

Because the PIC16F54 uses a newer process technology, there will be subtle behavior differences between the PIC16C54C and the PIC16F54. Before starting on a design migration, check the data sheets and verify that the electrical specifications for the new part are appropriate for your application.

SOFTWARE CHANGES

Flash Program Memory Code Protection

The Code Protect bits for the program memory have changed from the PIC16C54C to the PIC16F54. Configuration bits <11:4> (\overline{CP}) are now unimplemented. They have been replaced with one Configuration bit <3> (\overline{CP}).

Note the following details of the code protection feature on Microchip devices:

- Microchip products meet the specification contained in their particular Microchip Data Sheet.
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