



## PIC12F675 → PIC12F615 Migration

### DEVICE MIGRATIONS

This document is intended to describe the functional differences that are present when migrating from the PIC12F675 to the PIC12F615.

**Note:** The PIC12F615 is not a revision of the PIC12F675, but a new device. As a result, the performance characteristics may be different and designers are recommended to consult the electrical characteristics in the PIC12F615 data sheet.

### INTRODUCTION

The PIC12F615 device offers a migration path from the PIC12F675 for designs requiring higher frequency internal oscillator, increased peripheral options, and higher operating voltage. This migration document will identify, explain these differences and how they could affect a system design, and identify sources of further information.

**Note:** The user should verify that any external crystal or ceramic resonator oscillator circuit starts and performs as expected. Adjustment of the loading capacitor values and/or the Oscillator mode may be required.

**TABLE 1: MIGRATION CONSIDERATIONS**

No.	Description	H/W	S/W	Data Sheet Section
1	Data EEPROM No internal data EEPROM in the PIC12F615. Thus, no EEIF bit in PIR1 register, no EEDAT, EEADR, EECON1 and EECON2 registers.	✓	—	N/A
2	Analog Inputs The I/O pins are configured as analog inputs for the comparator by the ANSEL register rather than through the CMCON register.	—	✓	4.2.1
3	Internal Oscillator The internal oscillator now supports 8 MHz or 4 MHz depending on a Configuration bit setting.	—	✓	3.4
4	Brown-out Detect Brown-out Detect is referred to as Brown-out Reset and has additional configuration options.	—	—	11.3.4
5	Comparator Voltage Reference VRCON register is now in Bank 0, where previously it was in Bank 1.	—	✓	2.2.2
6	Comparator Configuration The input multiplexing of the comparator has changed. There are now 2 registers (CMCON0, CMCON1) which control comparator operation.	—	✓	8.0

**Legend:** H/W – issues may exist with regard to the application circuit.  
S/W – issues may exist with regard to the user program.  
Data Sheet Section – section of the PIC12F615 data sheet detailing this feature.

**TABLE 2: NEW PIC12F615 FEATURES**

Number	Feature	Data Sheet Section
1	Enhanced Capture, Compare and PWM module. The Capture and Compare modes are used with Timer1 whilst the PWM mode makes use of the new Timer2. There are corresponding CCP interrupt enable and flag bits for the module. The comparator output can be used to trigger the auto-shutdown feature of the PWM.	10.0
2	Comparator Each comparator has selectable built-in comparator hysteresis.	8.11
3	Timer2 There is an additional timer, Timer2, which is an 8-bit timer with pre and post scalers. It has associated Timer2 interrupt enable bit and interrupt flag.	7.0
4	Pin Steering The PWM output and Timer1 gate can be configured to use alternative pins on the device. The Alternative pin functionality control register controls this pin steering.	2.2.2.7
5	Timer1 FOSC mode Timer1 has the option to increment at the device FOSC, controlled by the T1ACS bit, which gives increased resolution of signals measured using the Timer1 gate feature.	6.2
6	Timer1 Gate Timer1 can be gated by the comparator output as well as the Timer1 gate pin. Where this feature allows various peripherals to be built using the timer and comparator.	8.8
7	Comparator Synchronization Timer1 clock source can be used to synchronize the comparator output. This mode should be used when Timer1 is gated by the comparator output.	8.9
8	Fixed Voltage Reference for Comparator A 0.6V nominal internal voltage reference can selectively be connected to the positive input of either comparator.	8.10.5
9	Fixed Voltage References to the ADC References of 0.6V and 1.2V, nominal are available as conversion sources. Conversion of these references allows V <sub>DD</sub> to the device to be calculated.	9.0
10	Sleep Current There is an additional Brown-out Reset configuration which disables the Brown-out Reset during low-power Sleep mode for lower current consumption.	11.3.4
11	Shunt Regulator Built-in shunt regulator in the PIC12HV615 allows the device to operate at higher voltages when used with the correct value series resistor.	12.0
<b>Legend:</b> Data Sheet Section – section of the PIC12F615 data sheet detailing this feature.		

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