

$PIC16C73A \rightarrow PIC16C73B \ Migration$

DEVICE MIGRATIONS

This document is intended to describe the functional differences and the electrical specification differences that are present when migrating from one device to the next.

- **Note:** Even though compatible devices are specified to be tested to the same electrical specification, the characteristics of the devices may be different from each other (due to process difference). For systems that were designed to the device specifications, these process differences should not cause any issues in the application. For systems that did not tightly meet the electrical specifications, the process differences may cause the device to behave differently in the application.
- **Note:** While there are no functional or electrical changes to the device oscillator specifications, 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 PIC16C73A to the PIC16C73B.

Functional Differences due to Errata or Module Update											
No.	Module	Difference	H/W	S/W	Prog.						
1	CCP	CCP Special Event Trigger clears Timer1.	_	~	_						
2		Compare mode drives pin correctly.	_	~	_						
3	Timers	Reading or writing TMR1L or TMR1H may affect TMR1L or TMR1H unexpectedly.		>							
4		WDT/TMR0 prescaler assignment changes do not affect TMR0 count.		<							
5	SSP	TMR2 SPI™ clock synchronized to start of SPI Transmission.		~	—						
6		Can now transmit multiple words in SPI mode.		~	_						
7		Supports all four SPI modes. (Now uses SSP vs BSSP module.) See SSP module in the PICmicro™ Mid-Range MCU Family Reference Manual (DS33023A).		>							
8		I ² C [™] no longer generates ACK pulses when module is enabled.	—	~	—						
9	USART	Async receive errors due to BRGH setting corrected.		~							
10	Oscillator	TOST delay may be skipped when waking from SLEEP.	_	~	_						
11	RESET	Short MCLR pulses may cause improper operation.	~	—	_						
12		Operating voltage and frequency ranges have been redefined.	~	_	_						
13	A/D	Digital inputs may be converted if any pin is configured as an analog input.	_	~	_						
 H/W - Issues may exist with regard to the application circuits. S/W - Issues may exist with regard to the user program. Prog Issues may exist when writing the program to the controller. 											

TABLE 1: PIC16C73A \rightarrow PIC16C73B DIFFERENCES

_		Characteristic		PIC16C73A			PIC16C73B			
Param No.	Symbol			Min	T.m.+	Max	Min	Tunt	Max	Unit
-				WIIN	турт	Max	IVIIII	турт	wax	
Core					[
D001	VDD	Supply Voltage		4.0		6.0	4.0		5.5	V
D001A		HS mode		4.0		0.0 6.0	4.0		5.5	V
Boom		BOR enabled (Note 1)			—	—	VBOR	—	5.5	v
D005	VBOR	Brown-out Reset	3.7	4.0	4.3	3.65	_	4.35	V	
D150	Vod	Open-Drain High V RA4		_	14.0	_	—	8.5	V	
A/D Con	verter									
A20	Vref	Reference voltage		3.0	_	VDD + 0.3	2.5		VDD + 0.3	V
131	TCNV	Conversion time (I	Note 2)	—	9.5		11	—	11	TAD
		(not including S/H	time)		(Note 3)		(Note 4)		(Note 4)	
SSP in S	PI mode	1			r					
71	TscH	SCK input high	Continuous	TCY+20	—		1.25Tcy + 30	—	_	ns
71A		time (slave mode)	Single Byte				40	_		ns
72	TscL	SCK input low	Continuous	TCY+20	—	—	1.25Tcy + 30	_	—	ns
72A		time (slave mode)	Single Byte				40	_	—	ns
73	TdiV2scH TdiV2scL	Setup time of SDI data input to SCK edge		—	—	—	100	_	—	ns
73A (Note 5)	Тв2в	Last clock edge of Byte1 to the 1st clock edge of Byte2		100	—	—	1.5Tcy + 40	—	—	ns
74	TscH2diL TscL2diL	Hold time of SDI data input to SCK edge		100	—	—	100	—	—	ns
75	TdoR	SDO data output	PIC16CXX	_	10	25	_	10	25	ns
		rise time	PIC16LCXX				_	20	45	ns
78	TscR	SCK output rise	PIC16CXX	_	10	25	_	10	25	ns
		time (master mode)	PIC16LCXX				_	20	45	ns
80	TscH2doV	SDO data output	PIC16CXX	—	—	50	—	_	50	ns
	TscL2doV	valid after SCK edge	PIC16LCXX				—	—	100	ns
83	TscH2ssH TscL2ssH	SS ↑ after SCK edge					1.5Tcy + 40	_	_	ns

TABLE 2: ELECTRICAL SPECIFICATION DIFFERENCES

† Data in "Typ" column is at 5V, 25°C unless otherwise stated. These parameters are for design guidance only and are not tested.

Note 1: When BOR is enabled, the device will operate until VDD drops below VBOR.

- 2: ADRES register may be read on the following TCY cycle.
- 3: This is the time that the actual conversion requires.

4: This is the time from when the GO/DONE bit is set to when the conversion result appears in ADRES.

5: Specification 73A is only required if specifications 71A and 72A are used.

NOTES:



WORLDWIDE SALES AND SERVICE

AMERICAS

Corporate Office Microchip Technology Inc. 2355 West Chandler Blvd. Chandler, AZ 85224-6199 Tel: 480-786-7200 Fax: 480-786-7277 Technical Support: 480-786-7627 Web Address: http://www.microchip.com

Atlanta

Microchip Technology Inc. 500 Sugar Mill Road, Suite 200B Atlanta, GA 30350 Tel: 770-640-0034 Fax: 770-640-0307

Boston

Microchip Technology Inc. 2 LAN Drive, Suite 120 Westford, MA 01886 Tel: 508-480-9990 Fax: 508-480-8575

Chicago

Microchip Technology Inc. 333 Pierce Road, Suite 180 Itasca, IL 60143 Tel: 630-285-0071 Fax: 630-285-0075

Dallas

Microchip Technology Inc. 4570 Westgrove Drive, Suite 160 Addison, TX 75001 Tel: 972-818-7423 Fax: 972-818-2924

Dayton

Microchip Technology Inc. Two Prestige Place, Suite 150 Miamisburg, OH 45342 Tel: 937-291-1654 Fax: 937-291-9175

Detroit

Microchip Technology Inc. Tri-Atria Office Building 32255 Northwestern Highway, Suite 190 Farmington Hills, MI 48334 Tel: 248-538-2250 Fax: 248-538-2260

Los Angeles

Microchip Technology Inc. 18201 Von Karman, Suite 1090 Irvine, CA 92612 Tel: 949-263-1888 Fax: 949-263-1338

New York

Microchip Technology Inc. 150 Motor Parkway, Suite 202 Hauppauge, NY 11788 Tel: 631-273-5305 Fax: 631-273-5335

San Jose

Microchip Technology Inc. 2107 North First Street, Suite 590 San Jose, CA 95131 Tel: 408-436-7950 Fax: 408-436-7955

AMERICAS (continued)

Toronto

Microchip Technology Inc. 5925 Airport Road, Suite 200 Mississauga, Ontario L4V 1W1, Canada Tel: 905-405-6279 Fax: 905-405-6253

ASIA/PACIFIC

China - Beijing Microchip Technology, Beijing

Unit 915, 6 Chaoyangmen Bei Dajie Dong Erhuan Road, Dongcheng District New China Hong Kong Manhattan Building Beijing, 100027, P.R.C. Tel: 86-10-85282100 Fax: 86-10-85282104

China - Shanghai

Microchip Technology Unit B701, Far East International Plaza, No. 317, Xianxia Road Shanghai, 200051, P.R.C. Tel: 86-21-6275-5700 Fax: 86-21-6275-5060

Hong Kong

Microchip Asia Pacific Unit 2101, Tower 2 Metroplaza 223 Hing Fong Road Kwai Fong, N.T., Hong Kong Tel: 852-2-401-1200 Fax: 852-2-401-3431

India Microchip Technology Inc. India Liaison Office **Divyasree Chambers** I Floor, Wing A (A3/A4) No. 11, O'Shaugnessey Road Bangalore, 560 027, India Tel: 91-80-207-2165 Fax: 91-80-207-2171

Japan

Microchip Technology Intl. Inc. Benex S-1 6F 3-18-20, Shinyokohama Kohoku-Ku, Yokohama-shi Kanagawa, 222-0033, Japan Tel: 81-45-471- 6166 Fax: 81-45-471-6122 Korea Microchip Technology Korea 168-1, Youngbo Bldg. 3 Floor Samsung-Dong, Kangnam-Ku Seoul, Korea Tel: 82-2-554-7200 Fax: 82-2-558-5934



ASIA/PACIFIC (continued)

Singapore Microchip Technology Singapore Pte Ltd. 200 Middle Road #07-02 Prime Centre Singapore, 188980 Tel: 65-334-8870 Fax: 65-334-8850 Taiwan Microchip Technology Taiwan 11F-3, No. 207

Tung Hua North Road

Taipei, 105, Taiwan Tel: 886-2-2717-7175 Fax: 886-2-2545-0139

EUROPE

Denmark Microchip Technology Denmark ApS Regus Business Centre Lautrup hoj 1-3 Ballerup DK-2750 Denmark Tel: 45 4420 9895 Fax: 45 4420 9910 France Arizona Microchip Technology SARL Parc d'Activite du Moulin de Massy 43 Rue du Saule Trapu Batiment A - ler Etage 91300 Massy, France Tel: 33-1-69-53-63-20 Fax: 33-1-69-30-90-79 Germany Arizona Microchip Technology GmbH Gustav-Heinemann-Ring 125 D-81739 München, Germany Tel: 49-89-627-144 0 Fax: 49-89-627-144-44 Italy Arizona Microchip Technology SRL Centro Direzionale Colleoni Palazzo Taurus 1 V. Le Colleoni 1 20041 Agrate Brianza Milan, Italy Tel: 39-039-65791-1 Fax: 39-039-6899883 United Kingdom Arizona Microchip Technology Ltd. 505 Eskdale Road Winnersh Triangle

Wokingham Berkshire, England RG41 5TU Tel: 44 118 921 5858 Fax: 44-118 921-5835

8/01/00

Microchip received QS-9000 quality system certification for its worldwide headquarters design and wafer fabrication facilities in Chandler and Tempe, Arizona in July 1999. The Company's quality system processes and procedures are QS-9000 compliant for its PICmicro[®] 8-bit MCUs, KEEL0Q[®] code hopping devices, Serial EEPROMs and microperipheral products. In addition, Microchip's quality system for the design and manufacture of development systems is ISO 9001 certified.

All rights reserved. © 2000 Microchip Technology Incorporated. Printed in the USA. 8/00 🦃 Printed on recycled paper.

Information contained in this publication regarding device applications and the like is intended through suggestion only and may be superseded by updates. It is your responsibility to ensure that your application meets with your specifications. No representation or warranty is given and no liability is assumed by Microchip Technology Incorporated with respect to the accuracy or use of such information, or infringement of patents or other intellectual property rights arising from such use or otherwise. Use of Microchip's products as critical components in life support systems is not authorized except with express written approval by Microchip. No licenses are conveyed, implicitly or otherwise, except as maybe explicitly expressed herein, under any intellectual property rights. The Microchip logo and name are registered trademarks of Microchip Technology Inc. in the U.S.A. and other countries. All rights reserved. All other trademarks mentioned herein are the property of their respective companies.