

PIC16F87X Rev. B Silicon Errata Sheet

The PIC16F87X (Rev. B) parts you have received conform functionally to the Device Data Sheet (DS30292A), except for the anomalies described below.

All the problems listed here will be addressed in future revisions of the PIC16F87X silicon.

All devices have been marked revision "B" and "engineering sample" or "ES".

1. Module: Program Memory

When instruction execution resumes after an internal program cycle terminates, the following 16 memory locations must be blank (all 1's). Otherwise this may cause unexpected device operation.

Work Around

To address this issue, use the following software sequence. Fixed in silicon revision B3.

EXAMPLE 1: CODE WORK AROUND

```
bsf          STATUS, RP1
bcf          STATUS, RP0
.
.
.
bcf          INTCON, GIE      ; If interrupts enabled
movlw 0x55
movwf       EECON2
movlw 0xAA
movwf       EECON2
bsf         EECON1, WR
nop
;
; When used with MPASM, the data 0x3fff places all '1's at that point in the program.
; This executes as an addlw 0xff instruction which is completely benign at this point
; in the program.
;
data         0x3fff           ; Instruction with all ones
data         0x3fff           ; needed to clear high voltage
data         0x3fff           ; out of the program memory
data         0x3fff           ; arrays
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
bsf          INTCON, GIE      ; If interrupts enabled
bcf          EECON1, WREN
```

2. Module: MSSP - SPI mode

The SDI pin is controlled by the module and not by the state of the TRIS bit. This means that the SDI pin cannot be an output when the MSSP module is in SPI mode.

Work Around

None for current silicon revision
(fixed in silicon revision B4)

3. Module: Electrical Specifications

The Supply Voltage specification has not yet met the design target (Data Sheet specification). The specification for these devices is shown in Table 1.

4. Module: A/D Specifications

The Offset Error specification has not yet met the design target (Data Sheet specification). The specification for these devices is shown in Table 1.

5. Module: TMR1

When operating in external clock mode (TMR1CS is set), reading either of the timer 1 registers (TMR1H or TMR1L) may cause the timer not to increment as expected. This occurs for both synchronous and asynchronous inputs.

The scenarios which display this are:

- When a read operation of the TMR1H register occurs, the TMR1L register may not increment.
- When a read operation of the TMR1L register occurs, the TMR1H register may not increment. This improper operation is only an issue when the TMR1L register increments from FFh to 00h (FFh → 00H) during the read of the TMR1L register.

Work Around

Do not read either the TMR1H or the TMR1L registers when operating in external clock mode (TMR1CS is set). If the application needs to read the 16-bit counter, evaluate if this function can be moved to the TMR0 or one of the other timer resources on the device.

TABLE 1: DC SPECIFICATION CHANGES FROM DATA SHEET

Param No.	Sym.	Characteristic	Tested Specification			Data Sheet Specification			Units
			Min	Typ	Max	Min	Typ	Max	
D001	VDD	Supply Voltage	2.5	—	5.5	2.0	—	5.5	V
A06	EOFF	Offset Error	—	—	< ± 2	—	—	< ± 1	LSb

6. Module: I/O Ports

The IOL condition for the VOL specification has been relaxed for the I/O ports. Table 2 shows what the current data sheet specification is, as well as the limit that the device is currently tested to.

Work Around

None

Clarifications/Corrections to the Data Sheet:

In the Device Data Sheet (DS30292A), the following clarifications and corrections should be noted:

None.

TABLE 2: DC SPECIFICATION CHANGES FROM DATA SHEET

Param No.	Sym.	Characteristic	Tested Specification				Data Sheet Specification				Units
			Min	Typ	Max	Condition	Min	Typ	Max	Condition	
D080	VOL	Output Low Voltage	—	—	0.6	IOL = 3.0 mA VDD = 4.5 V -40°C -to 85°C	—	—	0.6	IOL = 8.5 mA VDD = 4.5 V -40°C -to 85°C	V
D080A		I/O ports	—	—	0.6	IOL = TBD mA VDD = 4.5 V -40°C -to 125°C	—	—	0.6	IOL = 7.0 mA VDD = 4.5 V -40°C -to 125°C	V

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WORLDWIDE SALES AND SERVICE

AMERICAS

Corporate Office

2355 West Chandler Blvd.
Chandler, AZ 85224-6199
Tel: 480-792-7200 Fax: 480-792-7277
Technical Support: 480-792-7627
Web Address: <http://www.microchip.com>

Rocky Mountain

2355 West Chandler Blvd.
Chandler, AZ 85224-6199
Tel: 480-792-7966 Fax: 480-792-7456

Atlanta

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

Boston

2 Lan Drive, Suite 120
Westford, MA 01886
Tel: 978-692-3848 Fax: 978-692-3821

Chicago

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

Dallas

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

Detroit

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

Kokomo

2767 S. Albright Road
Kokomo, Indiana 46902
Tel: 765-864-8360 Fax: 765-864-8387

Los Angeles

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

New York

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

Toronto

6285 Northam Drive, Suite 108
Mississauga, Ontario L4V 1X5, Canada
Tel: 905-673-0699 Fax: 905-673-6509

ASIA/PACIFIC

Australia

Microchip Technology Australia Pty Ltd
Suite 22, 41 Rawson Street
Epping 2121, NSW
Australia
Tel: 61-2-9868-6733 Fax: 61-2-9868-6755

China - Beijing

Microchip Technology Consulting (Shanghai)
Co., Ltd., Beijing Liaison Office
Unit 915
Bei Hai Wan Tai Bldg.
No. 6 Chaoyangmen Beidajie
Beijing, 100027, No. China
Tel: 86-10-85282100 Fax: 86-10-85282104

China - Chengdu

Microchip Technology Consulting (Shanghai)
Co., Ltd., Chengdu Liaison Office
Rm. 2401, 24th Floor,
Ming Xing Financial Tower
No. 88 TIDU Street
Chengdu 610016, China
Tel: 86-28-6766200 Fax: 86-28-6766599

China - Fuzhou

Microchip Technology Consulting (Shanghai)
Co., Ltd., Fuzhou Liaison Office
Unit 28F, World Trade Plaza
No. 71 Wusi Road
Fuzhou 350001, China
Tel: 86-591-7503506 Fax: 86-591-7503521

China - Shanghai

Microchip Technology Consulting (Shanghai)
Co., Ltd.
Room 701, Bldg. B
Far East International Plaza
No. 317 Xian Xia Road
Shanghai, 200051
Tel: 86-21-6275-5700 Fax: 86-21-6275-5060

China - Shenzhen

Microchip Technology Consulting (Shanghai)
Co., Ltd., Shenzhen Liaison Office
Rm. 1315, 13/F, Shenzhen Kerry Centre,
Renminnan Lu
Shenzhen 518001, China
Tel: 86-755-2350361 Fax: 86-755-2366086

Hong Kong

Microchip Technology Hongkong Ltd.
Unit 901-6, Tower 2, Metroplaza
223 Hing Fong Road
Kwai Fong, N.T., Hong Kong
Tel: 852-2401-1200 Fax: 852-2401-3431

India

Microchip Technology Inc.
India Liaison Office
Divyasree Chambers
1 Floor, Wing A (A3/A4)
No. 11, O'Shaugnessey Road
Bangalore, 560 025, India
Tel: 91-80-2290061 Fax: 91-80-2290062

Japan

Microchip Technology Japan K.K.
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 135-882
Tel: 82-2-554-7200 Fax: 82-2-558-5934

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 Nordic ApS
Regus Business Centre
Lautrup høj 1-3
Ballerup DK-2750 Denmark
Tel: 45 4420 9895 Fax: 45 4420 9910

France

Microchip Technology SARL
Parc d'Activite du Moulin de Massy
43 Rue du Saule Trappu
Batiment A - 1er Etage
91300 Massy, France
Tel: 33-1-69-53-63-20 Fax: 33-1-69-30-90-79

Germany

Microchip Technology GmbH
Gustav-Heinemann Ring 125
D-81739 Munich, Germany
Tel: 49-89-627-144 0 Fax: 49-89-627-144-44

Italy

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 5869 Fax: 44-118 921-5820