Manuals+ — User Manuals Simplified.
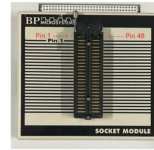
MICROCHIP SM48DB Silicon Sculptor 4 Conformance Test

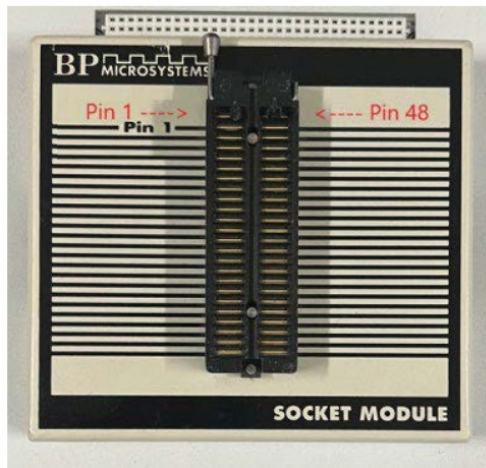# MICROCHIP SM48DB Silicon Sculptor 4 Conformance Test Instruction Manual

MICROCHIP SM48DB Silicon Sculptor 4 Conformance Test Instruction Manual

Contents

MICROCHIP

MICROCHIP SM48DB Silicon Sculptor 4 Conformance Test

Product Information

Silicon Sculptor 4 Conformance Test Instructions

Specifications

- **Model:** Silicon Sculptor 4 (SS4)
- **Hardware** Compatibility: SM48D or SM48DB Socket Module
- **Software:** SculptW Software
- **Power Supply:** Required
- **Connection:** USB cable

Product Usage Instructions

Setup Instructions

1. Place SM48D or SM48DB onto the SS4 programmer.
2. Connect the SS4 programmer to the PC using a USB cable.
3. Connect the power supply to the programmer and power outlet.
4. Install the latest version of the SculptW software on your computer if not installed.
5. Launch the SculptW software after connecting all hardware components.

Test Instructions

1. Click the Device menu in the software, type 'BP' in the Look for box, and select 'BP Microsystems SS4 Certificate of Conformance Test'.
2. Follow the on-screen instructions to start the test.

High Voltage Test

1. Connect the voltmeter probes to pins 1 and 48.
2. Measure the voltage of pin 1 and ensure it falls within the specified range.

Low Voltage Test

1. Measure the voltage of pin 1 and verify if it is within the specified range.

Low-Frequency Test

1. Connect the scope probe to pin 1 and ground to pin 48.
2. Set the probe voltage of the oscilloscope to 2 V/Div and adjust timing to observe an entire wave period.
3. Measure the frequency of one period of the waveform and check if it is within the specified range.

FAQ (Frequently Asked Questions)

Q: What should I do if the programmer fails to turn on during setup?
A: Close the software, check USB and power connections, and attempt to power up the programmer again.

Q: How do I know if the programmer requires service during testing?
A: If voltage or frequency readings fall outside of the specified range during tests, it indicates that the programmer may be out of calibration and requires service.

Introduction

This document provides detailed instructions on the Silicon Sculptor 4 (SS4) conformance test.

Required Hardware
The following is the list of required hardware for the conformance test:

- SS4 to be tested
- SM48D or SM48DB socket module
- Voltmeter
- Oscilloscope

The following figure shows the location of pins 1 and 48 of the SM48D/SM48DB socket module. These pins are used to perform the actual voltage and waveform measurements.

Figure 1. SM48D/SM48DB Socket Module

Setup Instructions

To setup the unit, perform the following steps:

1. Place SM48D or SM48DB onto the SS4 programmer as shown in the following figure.

    Figure 2. SM48D/SM48DB Socket Module Placed on SS4 Programmer

Figure 2. SM48D/SM48DB Socket Module Placed on SS4 Programmer

2. Connect the SS4 programmer to the PC using a USB cable.
3. Connect the power supply to the programmer and power outlet.

Note: Ensure that the power for the programmer is still turned off.

4. Install the latest version of the SculptW software on your computer, if not installed.
5. Launch the SculptW software. The programmer must be powered after this step. Ensure that the green LED illuminates after powering up the system. If the programmer fails to turn on, then close the software, check the USB and power connections, and attempt to power up the programmer again.

The following figure shows SculptW software.

Figure 3. SculptW Sofware
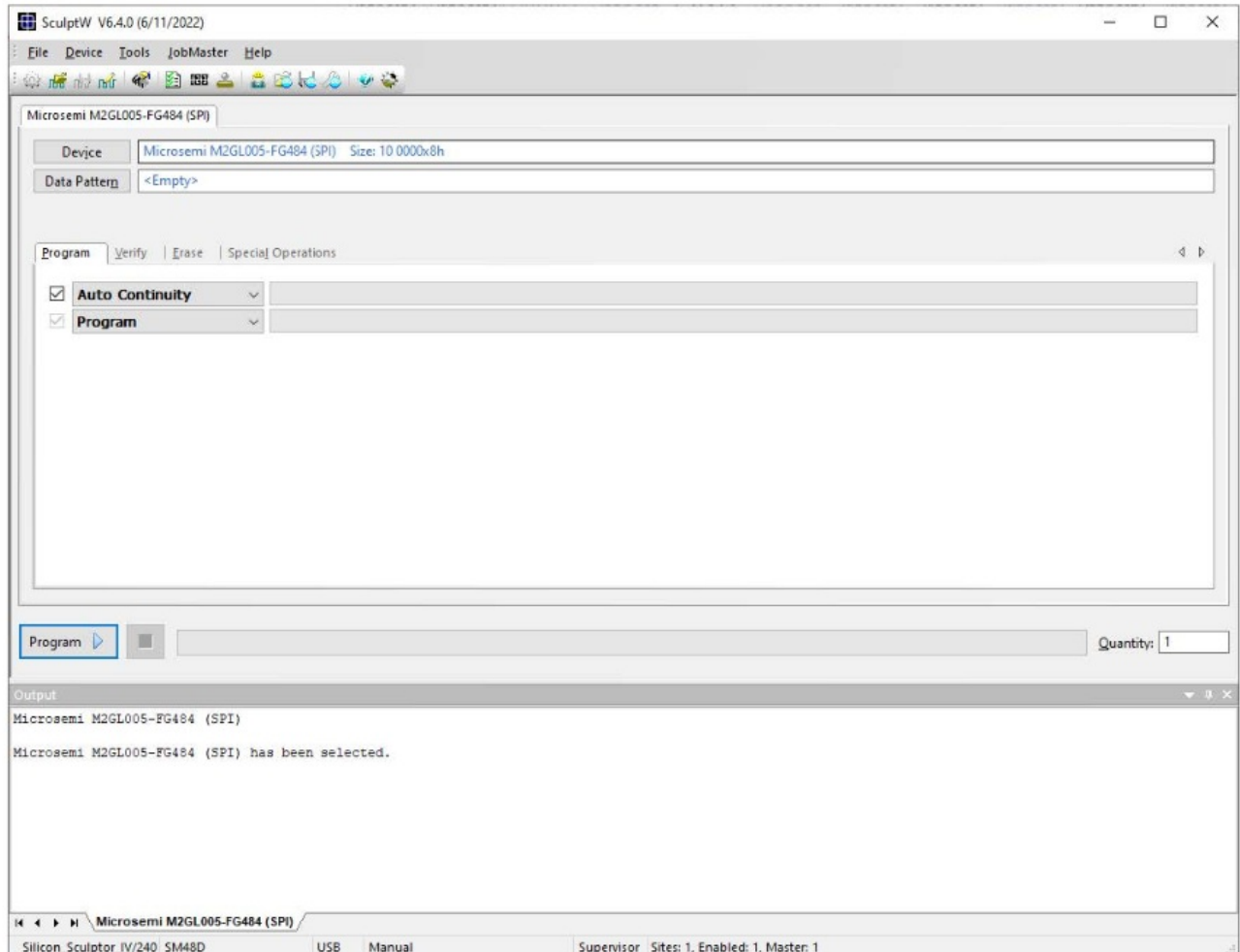
Test Instructions

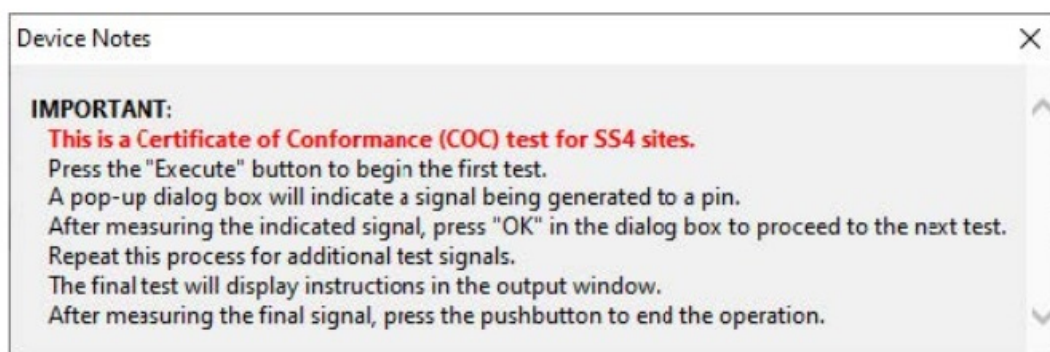To start the test, perform the following steps:

1. Click the Device menu, then in the Look for box, type BP as shown in the following figure.
2. Click BP Microsystems SS4 Certificate of Conformance Test, and then click Select.

Figure 4. Select Device
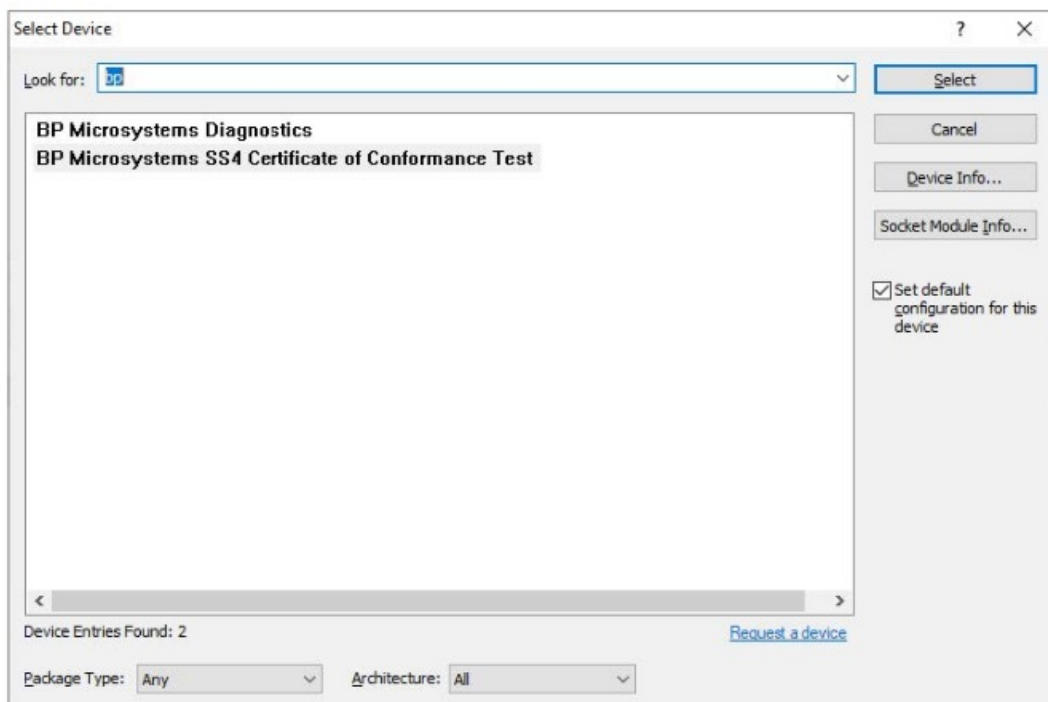
3. The following window then appears explaining how to run the test. Press Enter to close this window.
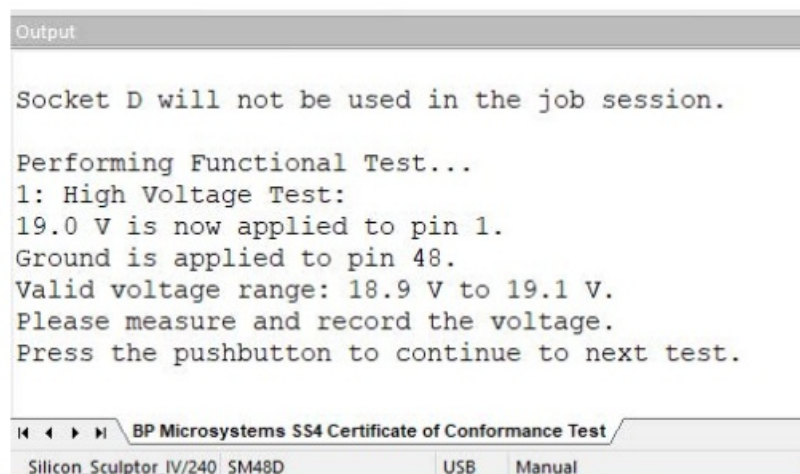
Figure 5. Device Notes

4. Click Execute to start the test.

High Voltage Test
To conduct the high voltage test, perform the following steps:

1. Connect the voltmeter probes to pins 1 and 48.

Figure 6. High Voltage Test

2. Measure the voltage of the pin 1 as shown in the following figure. Check if the voltage reading is within the

specified range. If the voltage readings fall outside of the specified range, it indicates that the programmer is out of calibration and requires service. The following figure shows voltage measurement of the pin 1.

Figure 7. Voltage Measurement of the Pin 1

3. Press Start to move on to the next test.

Low Voltage Test

To conduct the low voltage test, perform the following steps:

1. Measure the voltage of the pin 1 as shown in the following figure. Check if the voltage reading is within the specified range. If the voltage readings fall outside of the specified range, it indicates that the programmer is out of calibration and requires service.

Figure 8. Low Voltage Test

```
1: Low Voltage Test:
1.0 V is now applied to pin 1.
Ground is applied to pin 48.
Valid voltage range: 0.95 V to 1.05 V.
Please measure and record the voltage.
Press the pushbutton to continue to next test.
```

|◀ ◀ ▶ ▶| BP Microsystems SS4 Certificate of Conformance Test
Silicon_Sculptor_IV/240 SM48D   USB   Manual

Figure 9. Voltage Measurement of the Pin 1

2. Press Start to move on to the next test.

Low Frequency Test
To conduct the low frequency test, perform the following steps:

1. Connect the scope probe to pin 1 and ground to pin 48.

Figure 10. Low Frequency Test

```
1: Low Frequency Test:
FCLK with 800 kHz frequency is now applied to pin 1.
Ground is applied to pin 48.
Valid frequency range: 798 kHz to 802 kHz.
Please measure and record the frequency.
Press the pushbutton to continue to next test.
```

|◀ ◀ ▶ ▶| BP Microsystems SS4 Certificate of Conformance Test
Silicon_Sculptor_IV/240 SM48D   USB   Manual   Supen

2. Set the probe voltage of the oscilloscope to 2 V/Div.
3. Adjust the timing to see an entire wave period as shown in the following figure.

Figure 11. Expected Result of Low Frequency Test
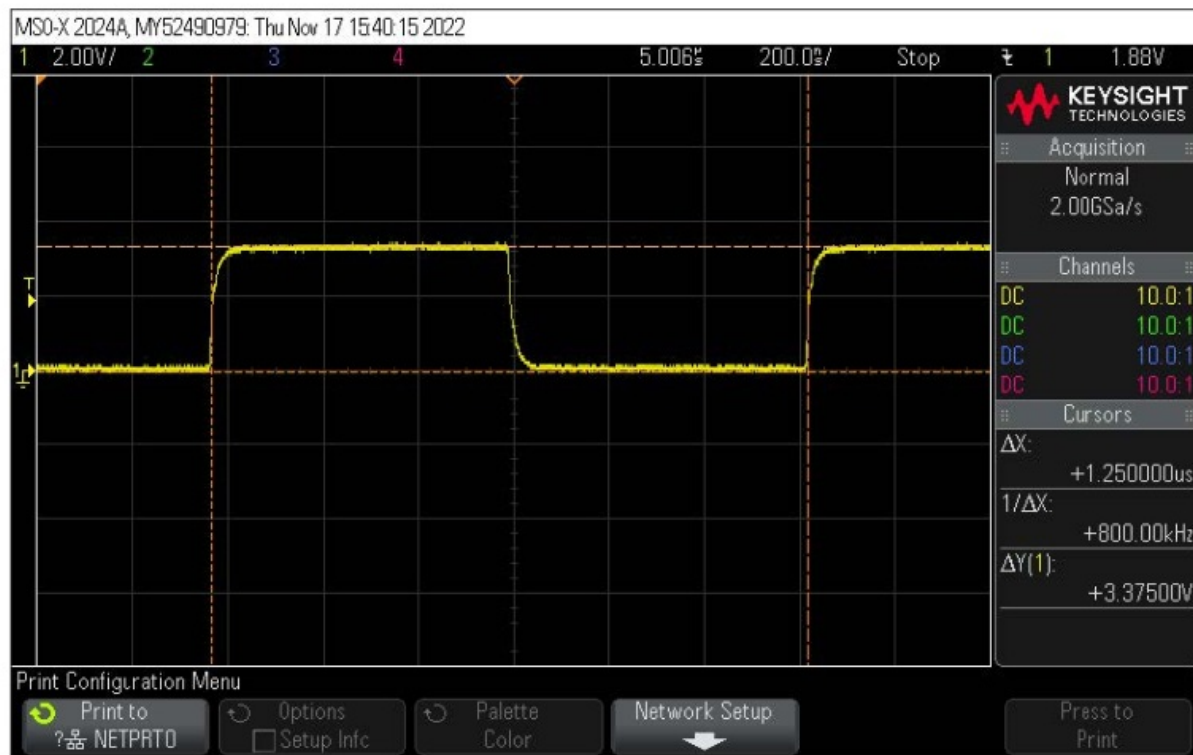
4. Measure the frequency of one period of the wave form. Check if the frequency reading is within the specified range. If the measured frequency falls outside of the specified range, it indicates that the programmer is out of calibration and requires service.

5. Press Start to move on to the next test.

Pulse Width Test
To conduct the pulse width test, perform the following steps:

1. Set the trigger of the oscilloscope to capture the signal on the rising edge of the signal.

Figure 12. Pulse Width Test


```
1: Pulse Width Test:
Now toggling pin 1 every 900 us.
Ground is applied to pin 48.
Valid pulse width range: 890 us to 910 us.
Please measure and record the pulse width.
Press the pushbutton to end the operation.
```

BP Microsystems SS4 Certificate of Conformance Test

Silicon_Sculptor_IV/240 SM48D   USB   Manual

2. Measure the pulse width. Check if the pulse width reading is within the specified range. If the measured pulse width falls outside of the specified range, it indicates that the programmer is out of calibration and requires service. The following figure shows the expected result of pulse width test.

Figure 13. Expected Result of Pulse Width Test
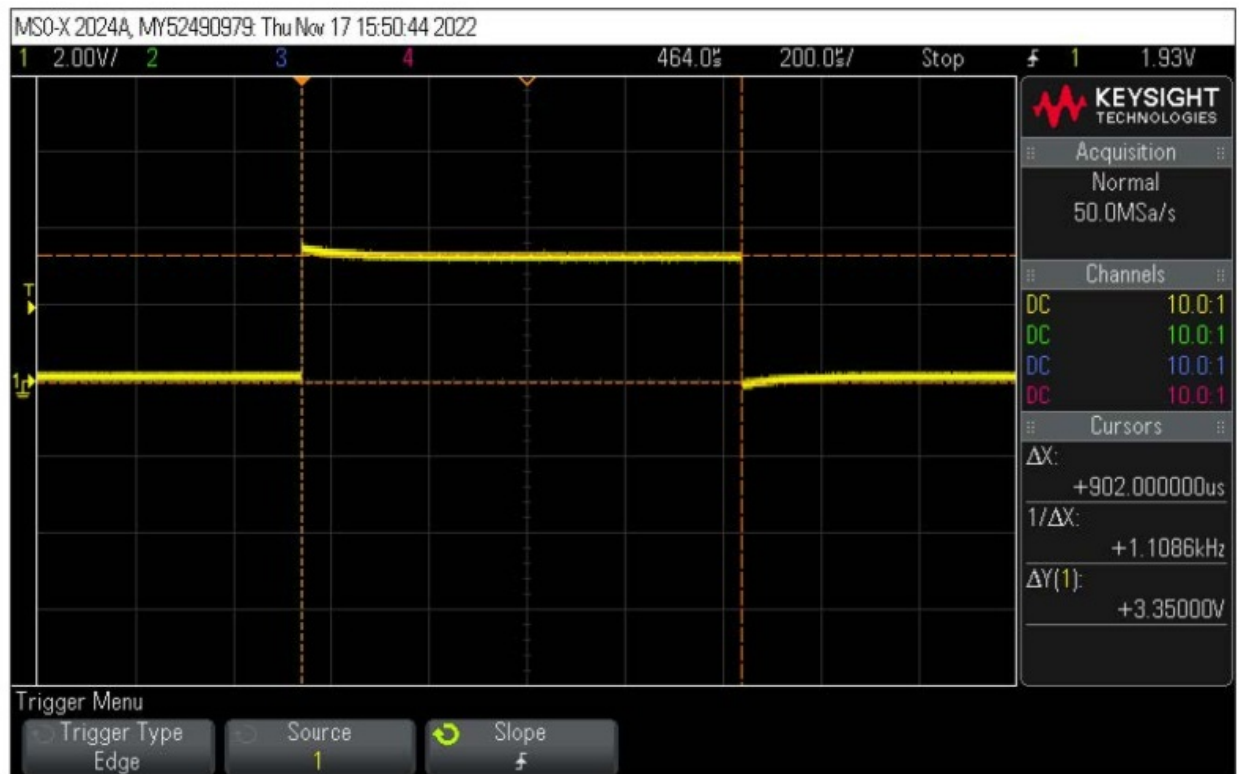
3. Press Start to terminate the test.

Microchip Information

The Microchip Website

Microchip provides online support via our website at **www.microchip.com/**. This website is used to make files and information easily available to customers. Some of the content available includes:

- Product Support – Data sheets and errata, application notes and sample programs, design resources, user's guides and hardware support documents, latest software releases and archived software

- General Technical Support – Frequently Asked Questions (FAQs), technical support requests,online discussion groups, Microchip design partner program member listing

- Business of Microchip – Product selector and ordering guides, latest Microchip press releases,listing of seminars and events, listings of Microchip sales offices, distributors and factory representatives

Product Change Notification Service

Microchip's product change notification service helps keep customers current on Microchip products. Subscribers will receive email notification whenever there are changes, updates, revisions or errata related to a specified product family or development tool of interest.

To register, go to **www.microchip.com/pcn** and follow the registration instructions.

Customer Support

Users of Microchip products can receive assistance through several channels:

- Distributor or Representative
- Local Sales Office
- Embedded Solutions Engineer (ESE)

- Technical Support

Customers should contact their distributor, representative or ESE for support. Local sales offices are also available to help customers. A listing of sales offices and locations is included in this document.
Technical support is available through the website at: **www.microchip.com/support**

Microchip Devices Code Protection Feature
Note the following details of the code protection feature on Microchip products:

- Microchip products meet the specifications contained in their particular Microchip Data Sheet.
- Microchip believes that its family of products is secure when used in the intended manner, within operating specifications, and under normal conditions.
- Microchip values and aggressively protects its intellectual property rights. Attempts to breach the code protection features of Microchip product is strictly prohibited and may violate the Digital Millennium Copyright Act.
- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of its code. Code protection does not mean that we are guaranteeing the product is "unbreakable".

Code protection is constantly evolving. Microchip is committed to continuously improving the code protection features of our products.

Worldwide Sales and Service

AMERICAS	ASIA/PACIFIC	ASIA/PACIFIC	EUROPE
			Austria – Wels Tel: 43-7242-2244-39 Fax: 43-7242-2244-393
Corporate Office 2355 West Chandler Blvd. Chandler, AZ 85224-6199 Tel: **480-792-7200** Fax: **480-792-7277** Technical Support: **www. microchip.com/support** Web Address: **www.micr ochip.com**			**Denmark – Copenhagen** Tel: 45-4485-5910 Fax: 45-4485-2829
			Finland – Espoo Tel: 358-9-4520-820
	Australia – Sydney Tel: 61-2-9868-6733 **China – Beijing**	**India – Bangalore**	**France – Paris**

Atlanta

Duluth, GA

Tel: **678-957-9614**

Fax: **678-957-1455**

Austin, TX

Tel: **512-257-3370**

Boston Westborough, MA Tel: **774-760-0087**

Fax: **774-760-0088**

Chicago

Itasca, IL

Tel: **630-285-0071**

Fax: **630-285-0075**

Dallas

Addison, TX

Tel: **972-818-7423**

Fax: **972-818-2924**

Detroit

Novi, MI

Tel: **248-848-4000**

Houston, TX

Tel: **281-894-5983**

Indianapolis Noblesville, IN Tel: **317-773-8323**

Fax: **317-773-5453**

Tel: **317-536-2380**

Los Angeles Mission Viejo, CA Tel: **949-462-9523**

Fax: **949-462-9608**

Tel: **951-273-7800**

Raleigh, NC

Tel: **919-844-7510**

New York, NY

Tel: **631-435-6000**

San Jose, CA

Tel: 86-10-8569-7000

China – Chengdu

Tel: 86-28-8665-5511

China – Chongqing

Tel: 86-23-8980-9588

China – Dongguan

Tel: 86-769-8702-9880

China – Guangzhou

Tel: 86-20-8755-8029

China – Hangzhou

Tel: 86-571-8792-8115

China – Hong Kong SAR

Tel: 852-2943-5100

China – Nanjing

Tel: 86-25-8473-2460

China – Qingdao

Tel: 86-532-8502-7355

China – Shanghai

Tel: 86-21-3326-8000

China – Shenyang

Tel: 86-24-2334-2829

China – Shenzhen

Tel: 86-755-8864-2200

China – Suzhou

Tel: 86-186-6233-1526

China – Wuhan

Tel: 86-27-5980-5300

China – Xian

Tel: 86-29-8833-7252

China – Xiamen

Tel: 86-592-2388138

China – Zhuhai

Tel: 86-756-3210040

Tel: 91-80-3090-4444

India – New Delhi

Tel: 91-11-4160-8631

India – Pune

Tel: 91-20-4121-0141

Japan – Osaka

Tel: 81-6-6152-7160

Japan – Tokyo

Tel: 81-3-6880- 3770

Korea – Daegu

Tel: 82-53-744-4301

Korea – Seoul

Tel: 82-2-554-7200

Malaysia – Kuala Lumpur

Tel: 60-3-7651-7906

Malaysia – Penang

Tel: 60-4-227-8870

Philippines – Manila

Tel: 63-2-634-9065

Singapore

Tel: 65-6334-8870

Taiwan – Hsin Chu

Tel: 886-3-577-8366

Taiwan – Kaohsiung

Tel: 886-7-213-7830

Taiwan – Taipei

Tel: 886-2-2508-8600

Thailand – Bangkok

Tel: 66-2-694-1351

Vietnam – Ho Chi Minh

Tel: 84-28-5448-2100

Tel: 33-1-69-53-63-20

Fax: 33-1-69-30-90-79

Germany – Garching

Tel: 49-8931-9700

Germany – Haan

Tel: 49-2129-3766400

Germany – Heilbronn

Tel: 49-7131-72400

Germany – Karlsruhe

Tel: 49-721-625370

Germany – Munich

Tel: 49-89-627-144-0

Fax: 49-89-627-144-44

Germany – Rosenheim

Tel: 49-8031-354-560

Israel – Ra'anana

Tel: 972-9-744-7705

Italy – Milan

Tel: 39-0331-742611

Fax: 39-0331-466781

Italy – Padova

Tel: 39-049-7625286

Netherlands – Drunen

Tel: 31-416-690399

Fax: 31-416-690340

Norway – Trondheim

Tel: 47-72884388

Poland – Warsaw

Tel: 48-22-3325737

Romania – Bucharest

Tel: 40-21-407-87-50

Spain – Madrid

Tel: 34-91-708-08-90

Fax: 34-91-708-08-91

Tel: **408-735-9110**			**Sweden – Gothenberg**
Tel: **408-436-4270**			Tel: 46-31-704-60-40
Canada – Toronto			**Sweden – Stockholm**
Tel: **905-695-1980**			Tel: 46-8-5090-4654
Fax: **905-695-2078**			**UK – Wokingham**
			Tel: 44-118-921-5800
			Fax: 44-118-921-5820

Documents / Resources

MICROCHIP SM48DB Silicon Sculptor 4 Conformance Test [pdf] Instruction Manual
SM48D, SM48DB, SM48DB Silicon Sculptor 4 Conformance Test, Silicon Sculptor 4 Conformance Test, Sculptor 4 Conformance Test, Conformance Test, Test

References

- { 42 ,18   ,   ,   AV }
- **Empowering Innovation | Microchip Technology**
- **Design Help and Other Services | Microchip Technology**
- **Microchip Lightning Support**
- **Empowering Innovation | Microchip Technology**
- **User Manual**