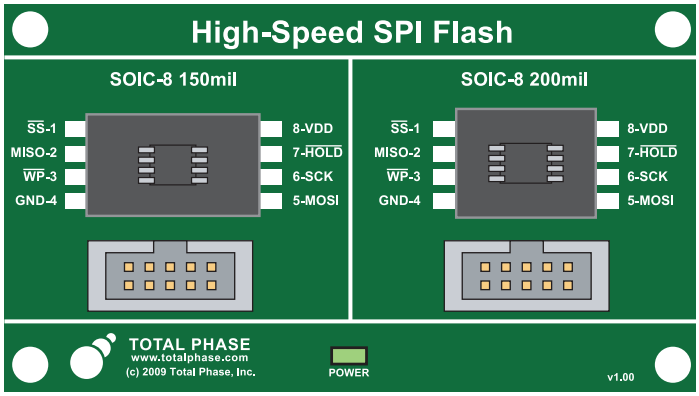
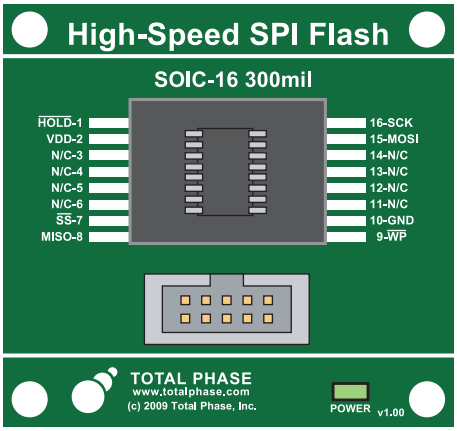
SOIC-8/SOIC-8W Flash Socket Board



SOIC-16 Flash Socket Board



Summary

The Flash Socket Boards allow a developer to flash and burn stand-alone SPI Serial Flash memory chips by using a Cheetah™ SPI Host Adapter as an interface from a Windows or Linux computer. The SOIC-8/SOIC-8W Flash Socket Board supports SOIC-8 and SOIC-8W chip packages. The SOIC-16 Flash Socket Board supports SOIC-16 chip package.

TOTAL PHASE

Flash Socket Boards

CHEETAH™ SPI

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1 Overview

The Flash Socket Boards provide embedded systems engineers with an easy and cost-effective method of programming SPI Serial Flash memory chips. Using Total Phase's industry-leading Cheetah™ SPI Host Adapter, engineers can take full advantage of the Flash Center™ programming software to program their SPI Serial Flash memory chips.

1.1 Features

- Flash and burn SPI Serial Flash chips that have a standard pinout and are in any of these standard chip packages: SOIC-8, SOIC-8W, or SOIC-16
- Provides 3.3V to target device
- Gang-program multiple devices by using multiple socket board and programming adapter sets in parallel on the same host computer.

1.2 What's Included

The SOIC-8/SOIC-8W Flash Socket Board and SOIC-16 Flash Socket Board are sold separately. A Flash Programming Kit is available which bundles both of the Flash Socket Boards with a Cheetah SPI Host Adapter and 10-pin split cable.

1.3 Flash Center Software

The Flash Center Software is a free software package that allows engineers to quickly erase, program, and verify SPI Serial Flash memory chips that are interfaced through a Cheetah SPI Host Adapter.



Figure 1: *The Flash Center Software is a free memory chip programming software*

Features

- **Fast speeds** - the Flash Center Software can read a typical 4 Megabyte flash memory in 0.7 seconds.

- **Gang programming support** - the Flash Center Software can program multiple devices in parallel by connecting to multiple Cheetah SPI Host Adapters on the same computer.
- **Extensible device support** - the Flash Center Software has an extensible XML-based memory device library. By adding or modifying the XML descriptions of target memory devices, developers can instantly support almost any I^2C- or SPI-based EEPROM or Serial Flash memory.

Minimum Requirements

- Linux (kernel 2.6 and above), Windows 2000 (SP4 or later), Windows XP (SP2 or later), Windows Vista 32-bit/64-bit, or Windows 7 32-bit/64-bit
- One or more available High-speed USB 2.0 ports
- One or more Cheetah SPI Host Adapters

1.4 Cheetah SPI Host Adapter

The Cheetah SPI Host Adapter is a high-speed SPI adapter that is capable of communicating over SPI at up to 40+ MHz. The Cheetah adapter is specifically designed to communicate with high-speed, SPI-based Flash memory. It is an ideal tool to develop, debug, and program SPI-based systems.



Figure 2: *The Cheetah SPI Host Adapter is a high-speed SPI Master-only adapter. It is capable of signaling from 1 to 40+ MHz with no inter-byte delays.*

Features

- SPI Master signaling up to 40+ MHz
- Maximum throughput with no inter-byte delays
- User-configurable timing delays
- Windows and Linux support
- Free software and royalty-free API

2 Sockets

The Flash Socket Boards offers different sockets to interface with your memory chip.

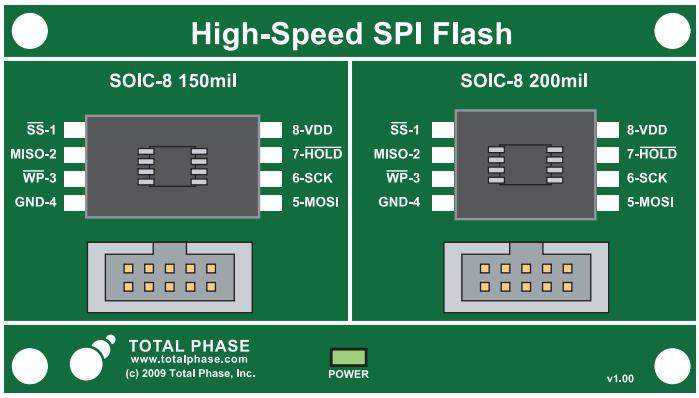


Figure 3: *The SOIC-8/SOIC-8W Flash Socket Board provides SOIC-8 (150mil) and SOIC-8W (200mil) sockets for interfacing with your stand-alone memory chip.*

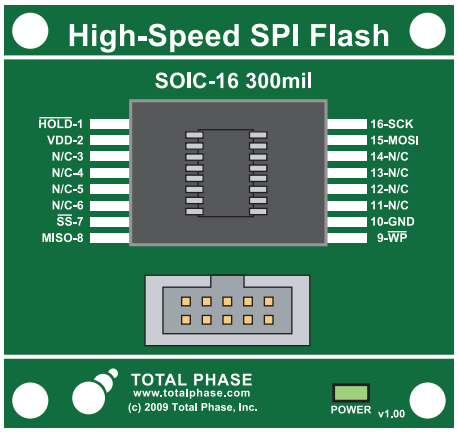


Figure 4: *The SOIC-16 Flash Socket Board provides a SOIC-16 socket for interfacing with your stand-alone memory chip.*

Please note that each socket has its own dedicated 10-pin boxed header for connecting a Cheetah SPI Host Adapter. The signal pins of the 10-pin boxed headers are not cross connected.

2.1 Compatible Chip Sizes

The sockets of the Flash Socket Boards are with standard sized chip packages. Figure 5 provides information about the supported sizes for all the sockets. Please note that all measurements are in millimeters (mm).

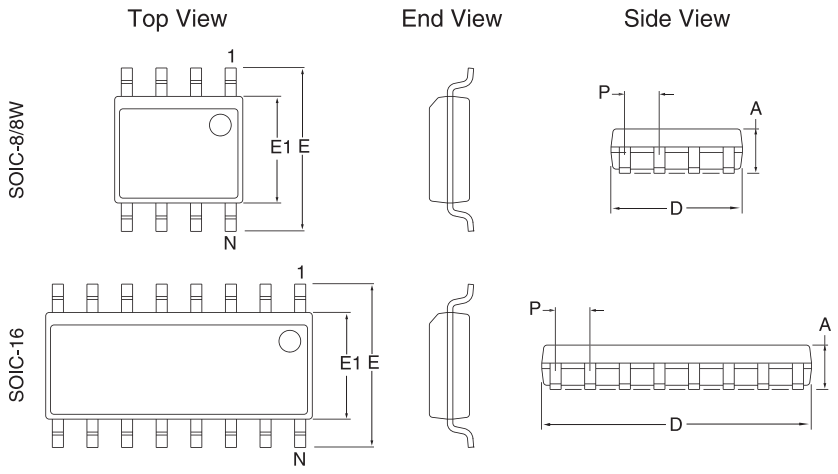


Figure 5: *Diagrams of the supported package sizes. Please note that the diagrams are not to scale.*

Compatible chip sizes for each of the sockets available on the Flash Socket Boards. All measurements are in millimeters (mm).

		SOIC-8	SOIC-8W	SOIC-16
Pitch	(P)	1.27	1.27	1.27
Thickness	(A)	1.90	1.90	1.90
Lead Tip to Tip Width	(E)	8.00	6.00	10.40
Molded Package Width	(E1)	5.23	3.90	7.50
Overall Length	(D)	5.23	5.40	10.50

2.2 Pinouts

The sockets of the Flash Socket Boards are compatible with standard SPI Serial Flash chip pinout configurations. Each socket is labeled with the specific pinout. Please verify that the Serial Flash memory chip that is to be programmed is compatible with the pinouts as seen in Figure 6 and Figure 7 .

On the Flash Socket Boards, VDD is nominally 3.3V and the HOLD and WP lines are tied to VDD through a weak pull-up resistor.

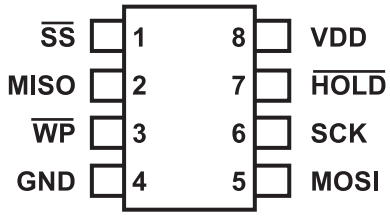


Figure 6: *Pinouts for the SOIC-8 and SOIC-8W sockets on the SOIC-8/SOIC-8W Flash Socket Board .*

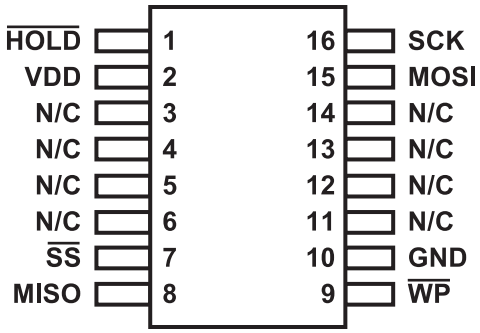


Figure 7: *Pinout for the SOIC-16 socket on the SOIC-16 Flash Socket Board .*

If your Serial Flash memory chip has a non-standard pinout configuration, please consider using the EEPROM Socket Board. It is possible to arbitrarily assign signals to different pins with this board using its 8-pin split cable.

3 Connectors

3.1 10-pin Boxed Connector

Each socket is connected to a 10-pin boxed connector which is located directly beneath it. These boxed connectors are used to connect the socket to a Cheetah SPI Host Adapter to program the target device.

On the SOIC-8/SOIC-8W Flash Socket Board, the signal lines of the sockets are not cross connected, however both sockets share a common GND and VDD. Consequently, HOLD and WP are cross connected as they are both pulled-up to VDD. The MISO, MOSI, SCLK, and SS lines however are independent.

3.2 Powering the Flash Socket Boards

The Flash Socket Boards will provide 3.3V to the target device. To power the Flash Socket Boards, the Cheetah adapter must be configured to send target power to the board. This can be accomplished via the Rosetta Language Bindings, the Flash Center software, the Aardvark Control Center Software or the Cheetah GUI Software. When powered-on, the board's Power LED will be lit.

4 Programming a Device

SPI Serial Flash memory can be programmed using the Flash Center Software in conjunction with a Cheetah adapter. Detailed technical information about all these products can be found on Total Phase's website.

4.1 Inserting a Device

To program a chip, insert the chip into the appropriate socket.

Whenever handling chips, always be sure to follow safe handling procedures to ensure that the chips are not damaged.

All sockets are zero insertion force sockets and work on the same principle.

To insert a chip:

1. Press down on the top of the socket to raise the contact pins.
2. While pressing down on the socket, carefully place the chip into the socket and make sure that the orientation of the chip is correct (pin 1 should always be in the top left corner).
3. Once the chip is in place, release the top of the socket to allow the contact pins to drop and hold the chip in place.

At this point, the chip should be held securely in place. Please make sure that all the contact pins have made contact with the correct pins on the chip.

4.2 Removing a Device

When removing the chip, we recommend using a vacuum pickup tool to prevent damage to the chip and its pins.

To remove a chip:

1. Press down on the top of the socket to raise the contact pins.
2. Carefully remove the chip using a vacuum pickup tool or equivalent tool.
3. Release the top of the socket.

4.3 Supported Vendors

The Flash Socket Boards support SPI Serial Flash memory from these leading manufacturers:

- Atmel
- Chingis

- Intel
- Macronix
- Numonyx/ST Micro
- Spansion
- SST
- Winbond

SPI Serial Flash memory chips from other vendors may also be supported as long as they conform to the standard pinout as described in the previous sections.

5 Legal / Contact

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Total Phase can be found on the Internet at http://www.totalphase.com/. If you have support-related questions, please email the product engineers at support@totalphase.com. For sales inquiries, please contact sales@totalphase.com.

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