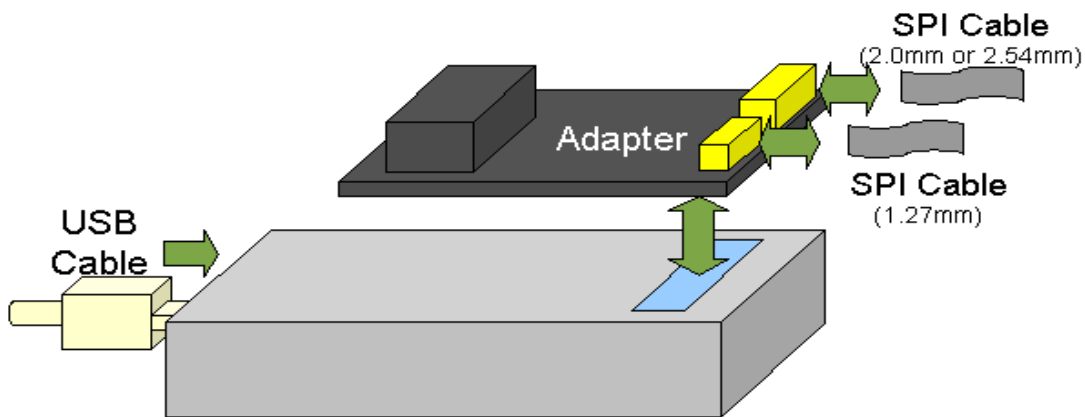


# WICE-SPI Hardware Operation Manual

## 1. Hardware Instruction

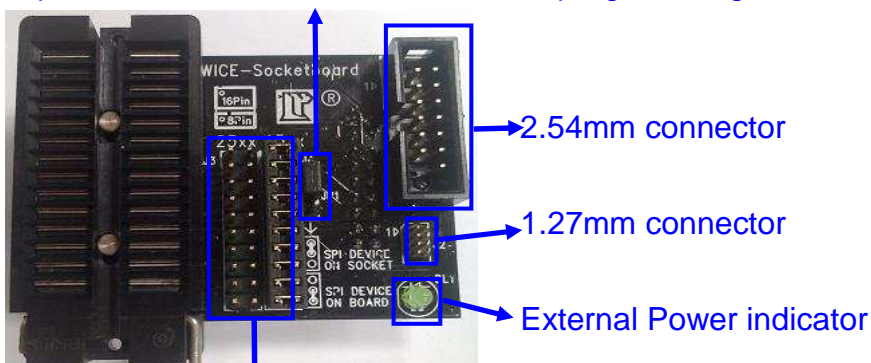
1. WICE-SPI processes data transmission, programming or emulation through USB 2.0 interface and does not need external power.
2. WICE-SPI is equipped with a 2.54mm connector for user to connect with the adaptor to program SPI ICs. (User can set the jumper to program 25 series or 45 series ICs)
3. User achieves IC emulation by connecting the connector of adaptor (2.54mm or 1.27mm) to the external circuit. (2.54mm connector is compatible with 2.54mm or 2.0mm ISP cable.)
4. User also can connect the connector of adaptor to the external circuit via ISP cable to do On board programming.
5. 3.3V (50-100mA) output of WICE-SPI is ONLY used for Off-I board programming. To avoid damaging the unit, do not apply 3.3V output to external power consumption.
6. **Before doing IC programming or emulation, be sure to insert the adaptor to WICE-SPI. Do not directly connect ISP cable to the connector of WICE-SPI.**



## 2. Pin Definition Of WICE-SPI Connector

1. 2.54mm connector is compatible with 2.54mm or 2.0mm ISP cable. User can refer to the Pin definition below to program 25 or 45 series ICs.
2. User also can connect an IC clip to 2.54mm cable to clip the IC on board.
3. 1.27mm ISP cable is **only** used for programming 25 series ICs. Do not use 1.27mm ISP cable to program 45 series ICs.

Jumper: To select On board or Off board programming



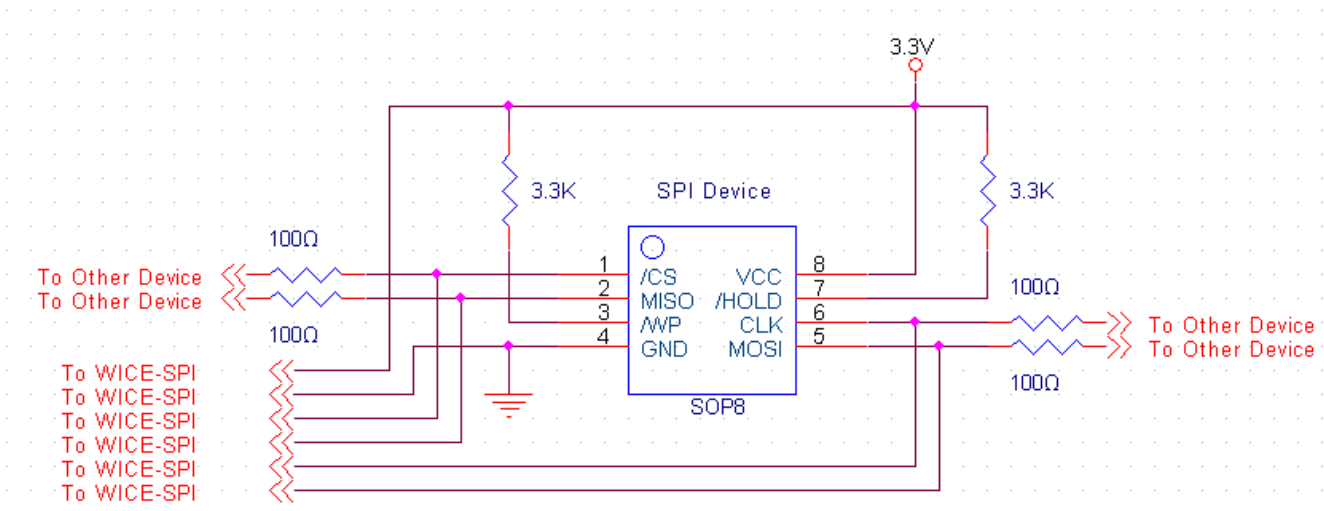
Connector Pin Define (Adapter)					
2.54mm			1.27mm		
/CS	1	IC VCC	IC VCC	1	IC GND
SO		/HOLD	/CS		SCK
/WP		SCK	SDI		SO
IC GND		SDI			
/CS2					
SYS RST					
		GND			

### 3. Circuit Arrangements when processing On-board programming

1. The SPI IC on the board can be powered by WICE- SPI. DL1 LED shines when SPI IC consumes power from the circuit. Be sure to connect SPI IC's GND & VCC Pins to the connector of adaptor before SPI IC consumes power from the circuit.
2. When processing On-Board programming, 100Ω resistor is necessarily used between Chips (Southbridge, SOC, FPGA or DSP) and /CS, SO (MISO), SDI (MOSI), SCK (CLK) Pins of SPI IC. (If a resistor already existed in the circuit, just replace the existing resistor by a 100Ω resistor). Connect /CS, SO(MISO), SDI(MOSI), SCK(CLK), IC VCC and GND Pins to the connector (2.54mm or 1.27mm) of WICE-SPI socket board.
3. Suggest to use resistor (3KΩ resistor or above is recommended) when connect /WP and /HOLD (or RESET) Pins to the power of system (Pull-Up). No need to use WICE-SPI's power.
4. Reset motherboard after programming: Connect WICE-SPI's RESET Pin to the RESET Pin of motherboard and enable Reset function of WICE-SPI software to automatically reset motherboard after programming.

(Refer to WICE-SPI Quick User Guide/ Function introduction.)

**Notice:** Before doing On board programming or Emulation, be sure to select **“Emulator Mode”** in WICE-SPI software, connect VCC& GND Pins to WICE-SPI and set the jumper to **“SPI Device On Board”**.

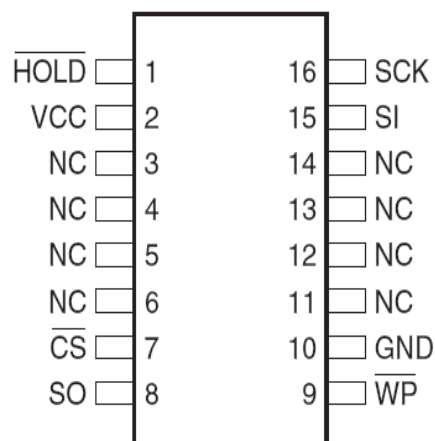
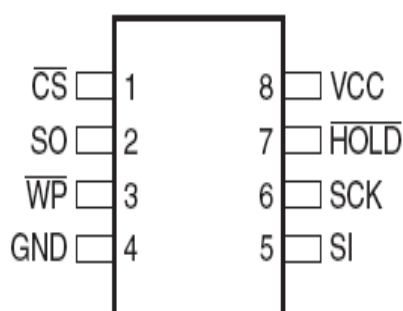


8 Pin SPI FLASH

16 Pin SPI FLASH

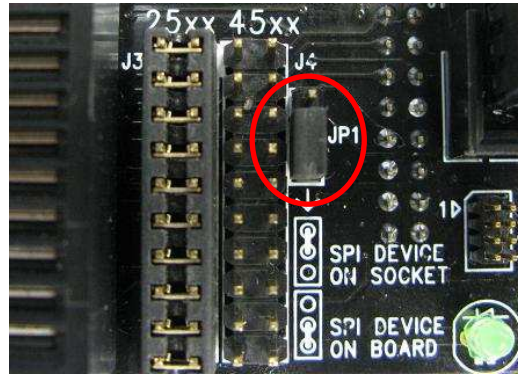
Top View

Top View



## 4. On-Board Programming

**\* Set JP1 to “SPI DEVICE ON BOARD” before processing On-Board Programming.**



Situation1: SPI FLASH is on PCB that has a SPI signal connector; there are 100Ω resistors between Chips and SPI device.

Solution:

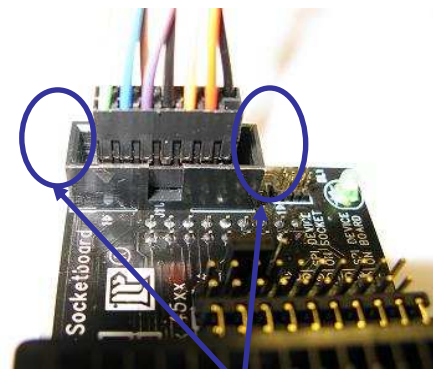
1. Refer to the circuit of PCB to learn how the SPI signals are arranged.
2. Separately connect every ISP signal Pin to the Pin of connector. No need to connect /WP and /HOLD or (/RESET) Pins but user must use Pull Up Resistor in the circuit.

Note: When connecting ISP signal cable to the connector of WICE-SPI, make sure the ISP cable is accurately connected to the connector of WICE-SPI. Misconnection may cause short circuit even damage the unit.

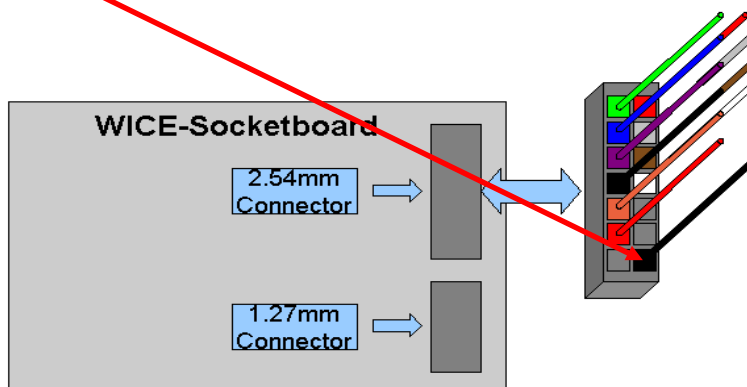
3. Make sure the cable is tightly connected to correct Pin and the connections are ok.
4. Execute WICE-SPI software, load file and then process On-Board programming.



The black cable is at the bottom right of the connector.



Do not make misconnection.



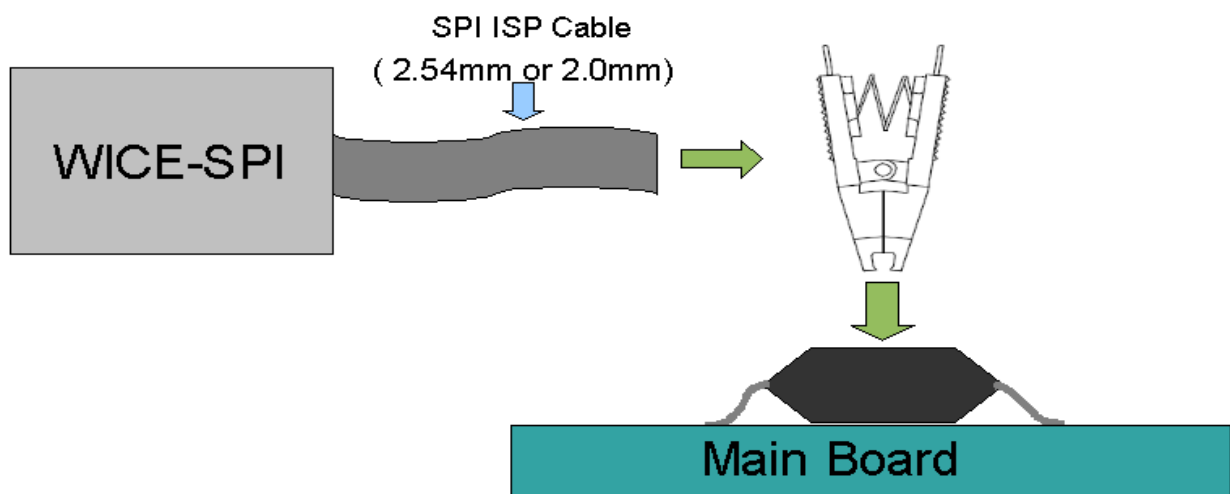
Situation2: SPI FLASH is on PCB that has no SPI signal connector; there are 100Ω series resistors between Chips and SPI device.

Solution:

1. Use SOP8 or SOP16 Pin clip. (SOP16 Pin clip is optional accessory)
2. Refer to device datasheet and separately connect every ISP signal Pin to the Pin of connector. No need to connect /WP and /HOLD or (/RESET) Pins but user must use Pull Up Resistor in the circuit.

**Note: When connecting ISP signal cable to the connector of WICE-SPI, make sure the ISP cable is accurately connected to the connector of WICE-SPI. Misconnection may cause short circuit even damage the unit.**

3. Tightly clip the SPI device on PCB and make sure the cable is tightly connected to correct Pin and the connections are ok.
4. Execute WICE-SPI software, load file and then process On-Board programming.



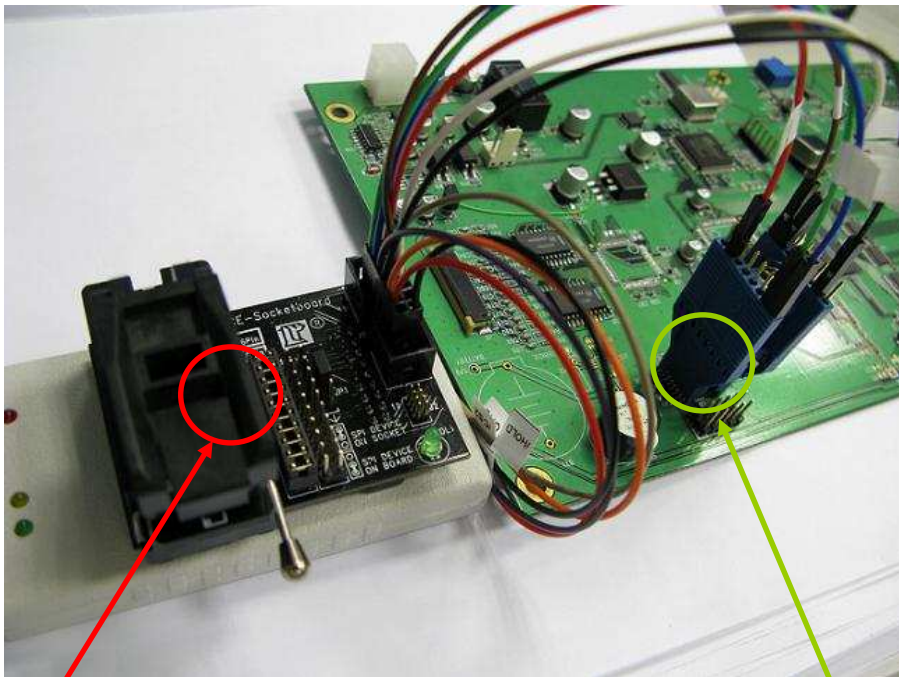
Situation3: Disable the SPI IC on the PCB and use the SPI IC on WICE-SPI socket to do emulation.

Solution:

1. Put a new SPI IC on the socket of WICE-SPI. (Refer to the figure below)
2. Refer to device datasheet and separately connect every ISP signal Pin to to the IC clip.  
(All 8 Pins should be connected)

**Note:** When connecting ISP signal cable to the connector of WICE-SPI, make sure the ISP cable is accurately connected to the connector of WICE-SPI. Misconnection may cause short circuit even damage the unit.

3. Tightly clip the SPI device on PCB and make sure the cable is tightly connected to correct Pin and the connections are ok.
4. Execute WICE-SPI software, load file and then process programming.



New SPI IC

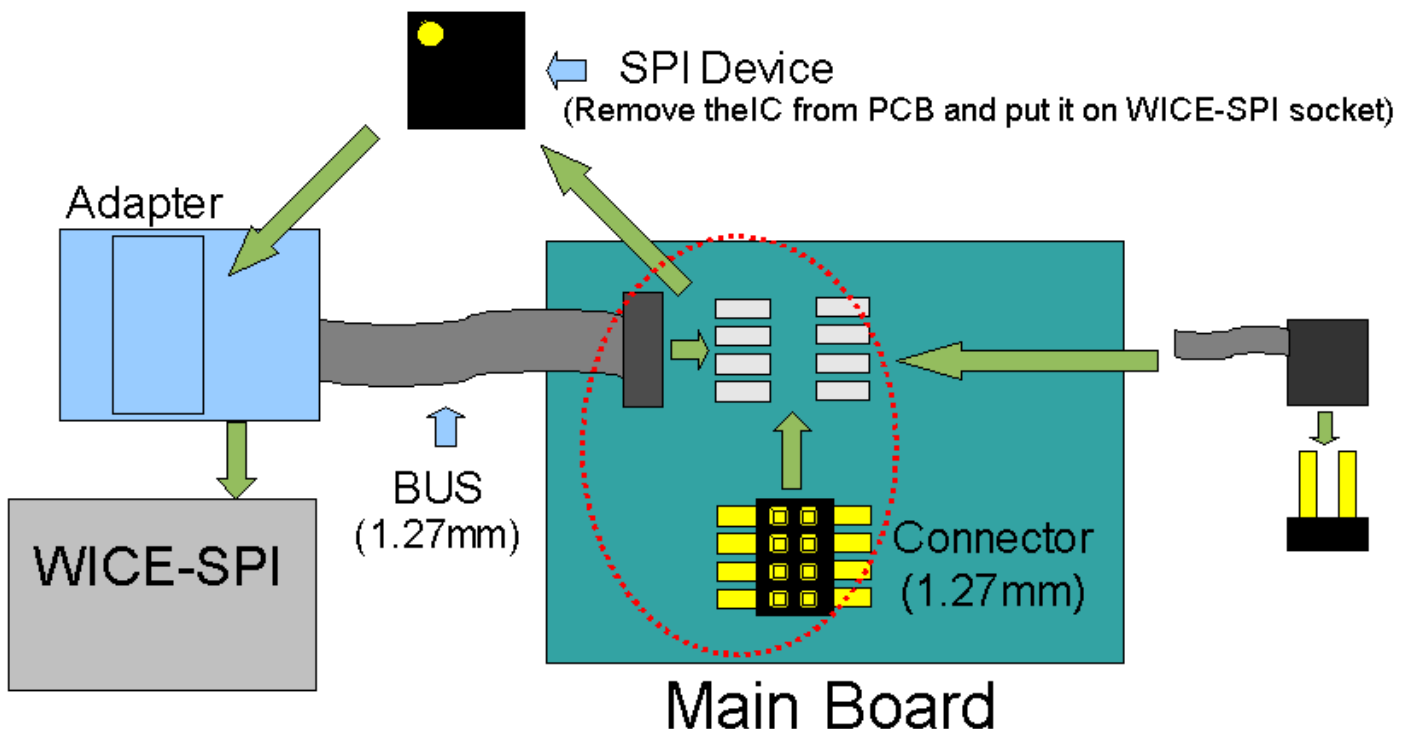
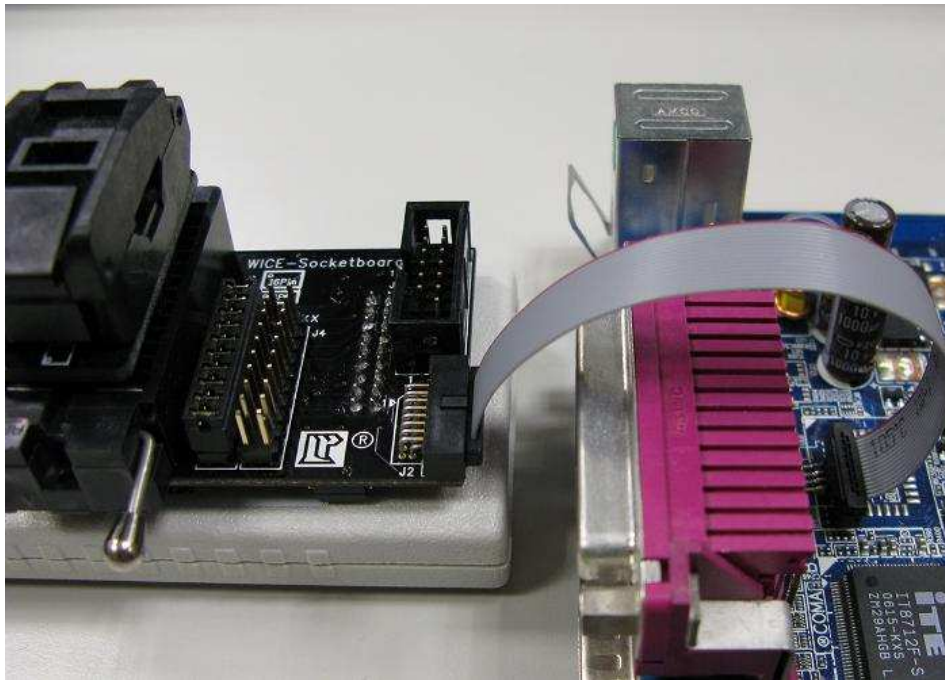
The disabled SPI IC

Situation4: SPI IC is removed from PCB. There are 100Ω series resistors between Chips and SPI device. No SPI signal connector on PCB.

**Note: In this situation, only 25 series ICs can be emulated.**

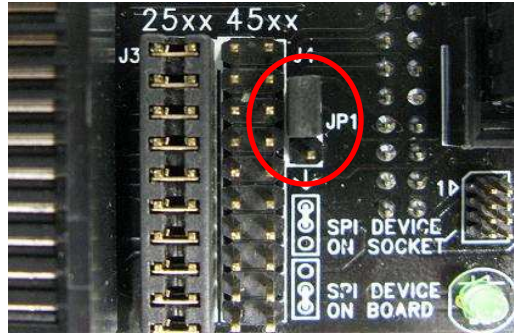
Solution:

1. Remove SPI IC from PCB and put the IC on WICE-SPI socket. (Refer to the figure in next page)
2. Solder a 1.27\*1.27mm male connector (Optional accessory) to PCB.
3. Connect 1.27mm ISP cable (Optional accessory) to the male connector on PCB. Make sure the cable is tightly connected to correct Pin and the connections are ok.
4. Execute WICE-SPI software, load file and then process On board emulation.



## 5. Off- Board Programming

**\*Set JP1 to “SPI DEVICE ON SOCKET” before processing Off-Board Programming.**



Solution:

1. DIP 8 Pin device: Refer to Figure 1 below.
2. SOP 8 Pin device: Use suitable SOP adaptor (Optional accessory) and refer to Figure 2 below.
3. SOP 16 Pin device: Use suitable SOP adaptor and refer to Figure 3 below
4. SOP 8 207 mil device: The 1<sup>st</sup> Pin is at the bottom left of the socket. Refer to Figure 4 below.

### 1. DIP 8 Pin Package

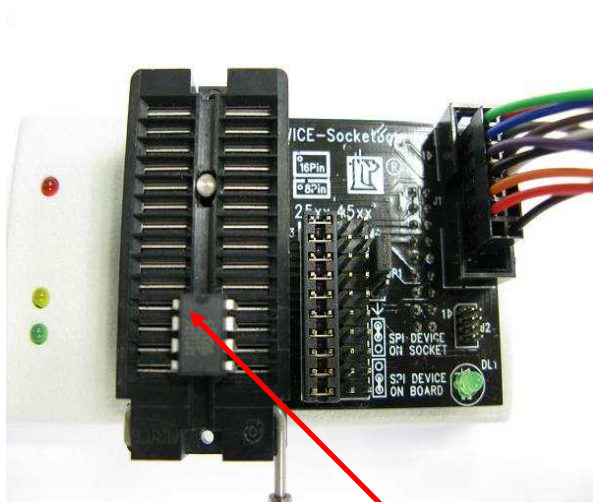


Figure 1.

Orientation Notch

### 2. SOP 8 Pin Package

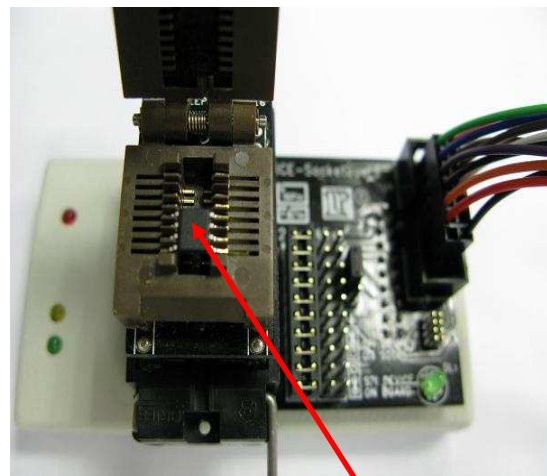


Figure 2.

Orientation Notch

### 3. SOP 16 Pin Package

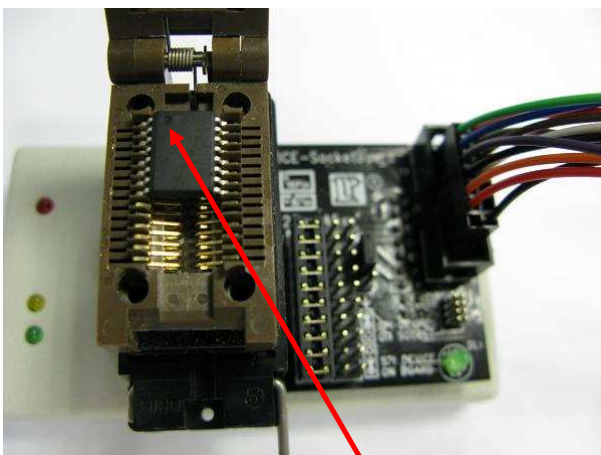


Figure 3.

Orientation Notch

### 4. SOP 8 207 mil Package

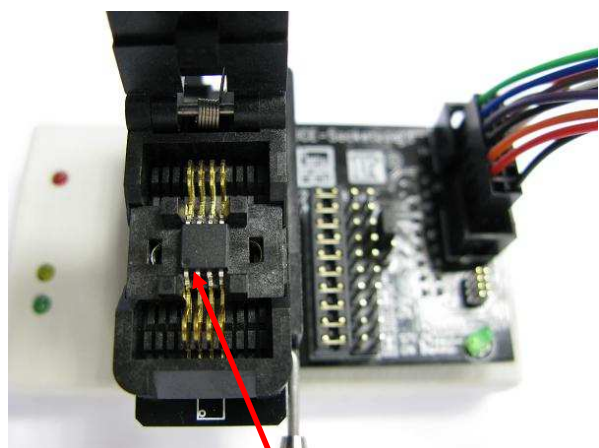


Figure 4.

1<sup>st</sup> Pin