

## USB-BIOS EMULATOR

This product is designed for professional BIOS engineers. It can help BIOS engineers to significantly reduce the time in BIOS development and debug. This product includes two versions: preliminary version and premium version. Three topics are covered in this specification:

- ◆ **1. The aim of this product**
- ◆ **2. The working theory of this product**
- ◆ **3. How to use this product**

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### >>> Preliminary Version

This version provides the Port80-Data-Capture function.

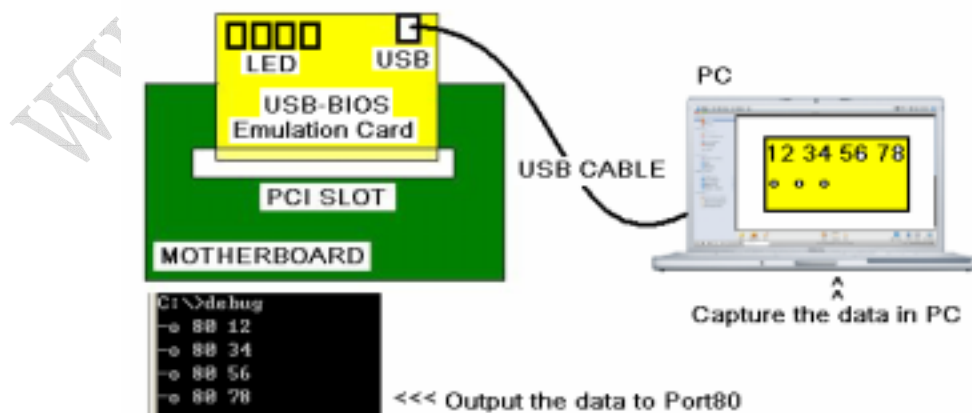
#### 1. The aim of this product

During BIOS development, BIOS engineers often need to check mass data, for example, 512 bytes PCI-Configuration-Space data, the memory data, the chip register data and etc... This product can help BIOS engineers to get mass data easily, and save those data into the computers.

#### 2. The working theory of this product

This product has a 256-bytes built-in FIFO buffer. When you output a data to Port-80, this data will be kept in the FIFO buffer, then you can capture those data through USB port, and save those data into your computers.

#### 3. How to use this product



- Step 1:** Plug the USB-BIOS Emulator into the Motherboard's PCI slot.
- Step 2:** Connect the USB-BIOS Emulator to your PC through USB cable.
- Step 3:** Power on your Motherboard
- Step 4:** Install the USB-BIOS Emulator driver if it is your first time to use
- Step 5:** Run the application in your PC.
- Step 6:** In your Motherboard side, using application to output data to the Port-80.
- Step 7:** USB-BIOS Emulator's LED will show the Port80 data.
- Step 8:** In your PC side, click the "Capture" button in the application.
- Step 9:** Then you get the Port80 data in your PC.

**Note:**

- ✧ The data record length is 256 bytes. Every time, when you click the "Capture" button of the application, you will get the newest 256 bytes data.
- ✧ When you power-on or reset your motherboard, the PC will be able to record 256 bytes debug-codes, which are posted to Port-80.

>>> **Premium Version**

This version provides the Port80-Data-Capture function and the SPI ROM emulation function.

- ✧ For the Port80-Data-Capture function, please refer the above description in Preliminary-Version.
- ✧ Below description is for SPI-ROM-Emulation function

**1. The aim of this product**

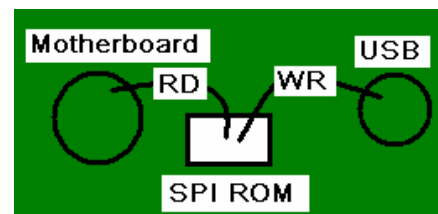
During BIOS development, BIOS engineers need to frequently compile the BIOS, then flash it into SPI ROM to test. This product provides SPI-ROM switch function to simplify the operation.

**2. The working theory of this product**

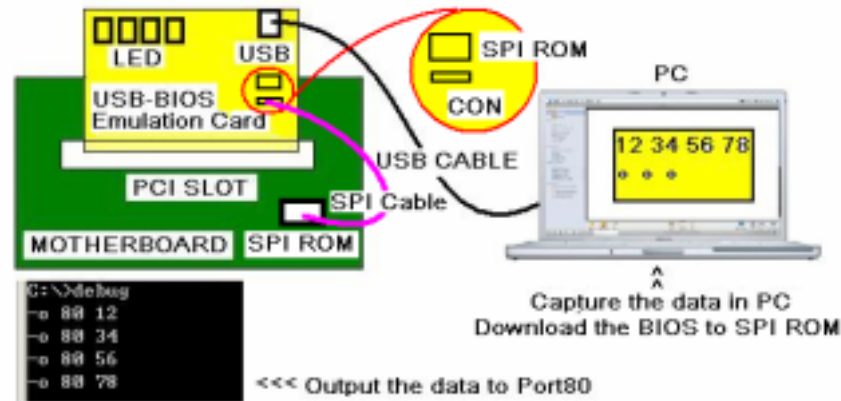
The right figure show the SPI-ROM-Emulator structure. The SPI ROM is controlled by USB and Motherboard in different time.

**First:** The BIOS data is written to SPI ROM through USB.

**Then:** The Motherboard read the SPI ROM to boot the motherboard.



### 3. How to use this product



- Step 1:** Plug the USB-BIOS Emulator into the Motherboard's PCI slot.
- Step 2:** Connect the USB-BIOS Emulator to your PC through USB cable.
- Step 3:** Connect the USB-BIOS Emulator to your motherboard's SPI ROM socket through SPI cable.
- Step 4:** Power on your Motherboard
- Step 5:** Install the USB-BIOS Emulator driver if it is your first time to use.
- Step 6:** Run the application in your PC.
- Step 7:** In your PC side, click the "Download BIOS" button in the application..
- Step 8:** Reset your Motherboard when the step-7 is done.
- Step 9:** Your motherboard will boot with this new BIOS.

**Note:**

- ✧ If your Motherboard hasn't SPI ROM socket, you may need to solder the SPI Cable to your SPI ROM's PINs.

**Q&A:**

- ✧ **Question:** When I output a data to port-80, the Emulator's LED can't display the corresponding data.
- ✧ **Answer:** This Emulator is a PCI slave device. In some motherboard, when the system successfully boots, it will disable the PCI CLK to save power. In this case, you will need to set the CMOS correctly to make sure the PCI CLK is always enabled.