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**Microcontroller Development System**

# **In System Programming for 800 Series**

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**2008. 08. 25**

**ABOV Semiconductor MDS Team**

# 1. Getting Started / ISP Installation

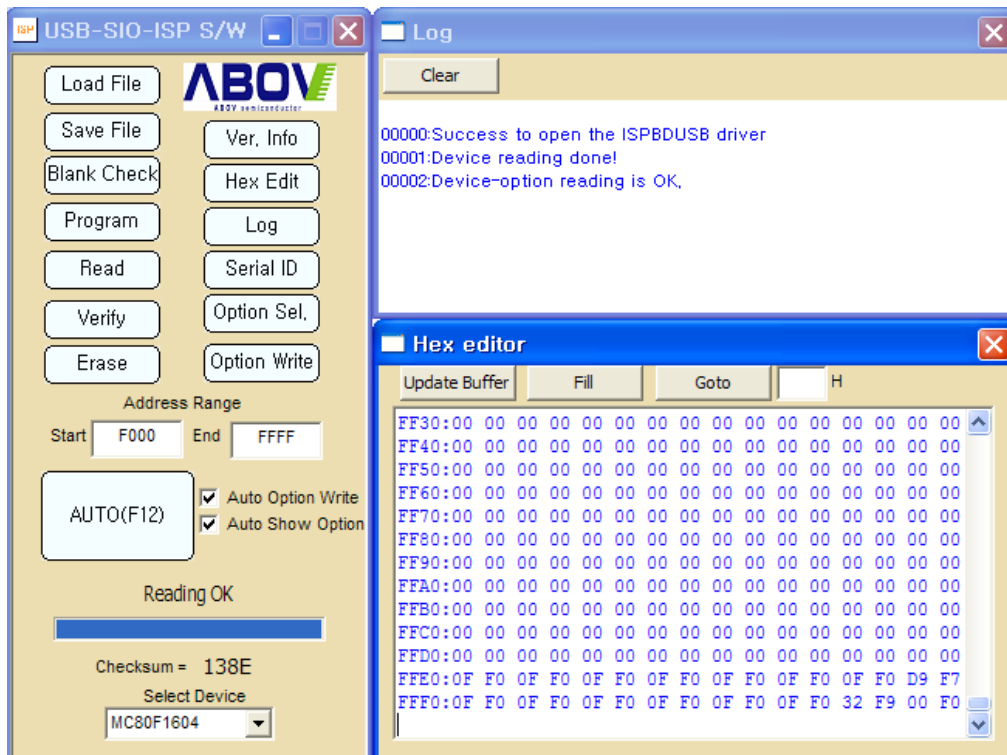
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The In-System Programming (ISP) is performed without removing the microcontroller from the system. The In-System Programming (ISP) facility consists of a series of internal hardware resources coupled with internal firmware through the Serial IO(SIO) port. The In-System Programming (ISP) facility has made in-circuit programming in an embedded application possible with a minimum of additional expense in components and circuit board area.

The following section details the procedure for accomplishing the installation procedure.

1. Power off a target system.
2. Configure a target system as ISP mode.
  - Refer to chapter3. Hardware Conditions to enter the ISP mode at page4.
3. Attach a USB-SIO-ISP B/D into a target system.
4. Run the ABOV USB-SIO-ISP software.
  - Down load the ISP S/W from [www.abov.co.kr](http://www.abov.co.kr).
  - Unzip the download file and run USB-SIO-ISP.exe
6. Select a device in the ISP S/W.
7. Power on a target system.
8. Execute ISP command such as read, program, auto... by pressing buttons on the ISP S/W.

## 2. Basic ISP S/W Information



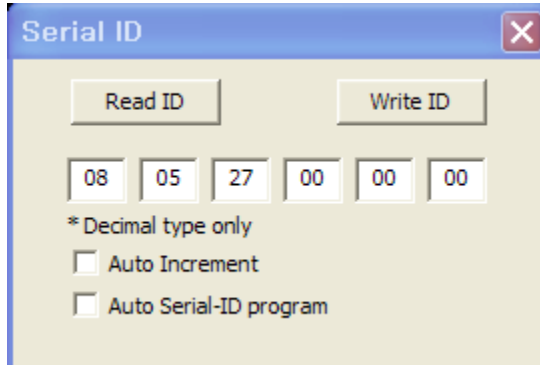
Select Device	Select a target MCU. <b>You need to select a device before turning on the target-Vdd.</b>
Auto Option Write check button	If you want to program the option(config) value after pressing the Auto Button, check this button
Auto Show Option check button	If you check this button, the option(config) dialog is displayed whenever pressing the Auto button.

Load File button	Load the data from the selected file storage into the memory buffer.
Save File button	Save the current data in your memory buffer to a disk storage by using the Motorola HEX format.
Blank Check button	Verify whether or not a device is in an erased or un-programmed state.
Program button	This button enables you to place new data from the memory buffer into the target device.
Read button	Read the data in the target MCU into the buffer for examination. The checksum will be displayed on the checksum box.
Verify button	Assures that data in the device matches data in the memory buffer. If your device is secured, a verification error is detected.
Option Write button	Configure target MCU.
Erase button	Erase the data in your target MCU before programming it.
Auto button	Following sequence is performed ; 1.Erase 2.Program 3.Verify 4.Option Write
Fill button	Fill the selected area with a user specified data.
Goto button	Display the selected page.
Update Buffer butto	Update buffer by pressing this button
Serial ID button	To program the serial ID. Refer to the next page.

**Note 1.** MCU configuration value is erased after erase operation. It must be configured to match with user target board. Otherwise, it is failed to enter ISP mode, or its operation is not desirable.

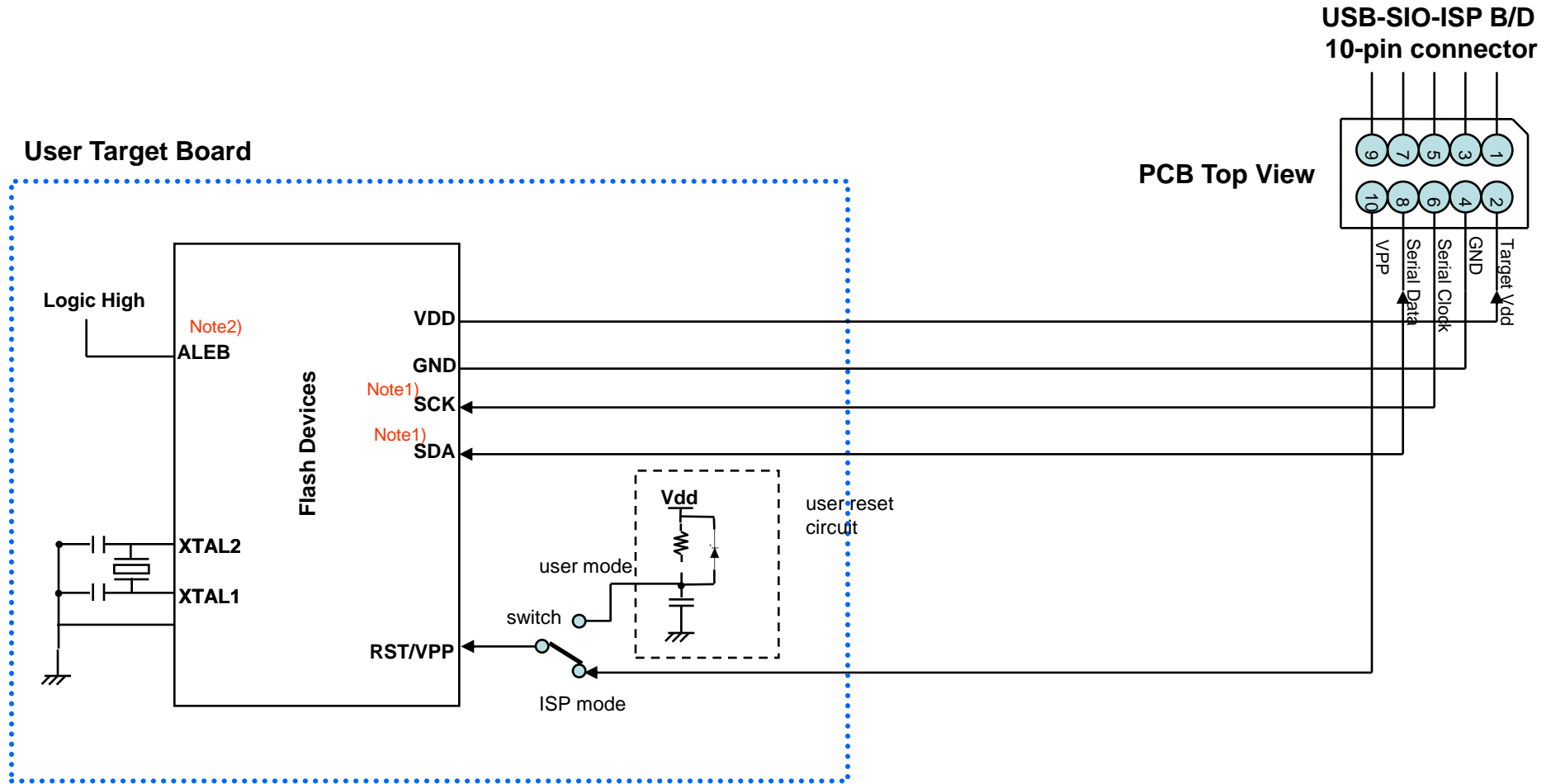
# 3. Programming User-Serial ID

If you press the Serial ID button on the main dialog, below Serial ID dialog is displayed. 6 bytes are allocated for serial-ID. The default displayed values are year-month-date-first value- second value-third value.



Read ID button	To read the serial-ID of the target-device. The serial-ID is updated after pressing the Read ID.
Write ID button	To program the displayed serial-ID.
Auto Increment check button	If this check button is checked, the displayed values are increased after programming serial-ID.
Auto Serial-ID program check button	If this check button is checked, you can program serial-ID after pressing the Auto button in main program.  After pressing the Auto button, following sequence is performed. Following sequence is performed ; 1.Erase 2.Program 3.Verify 4.Option Write 5. Serial-ID write

# 4. Hardware Conditions to enter the ISP mode



**Note1)** If other signals affect SIO communication in ISP mode, disconnect these pins by using jumper or switch.

**Note2)** if ALEB is sharing with other function, toggle the port between ISP and user mode.

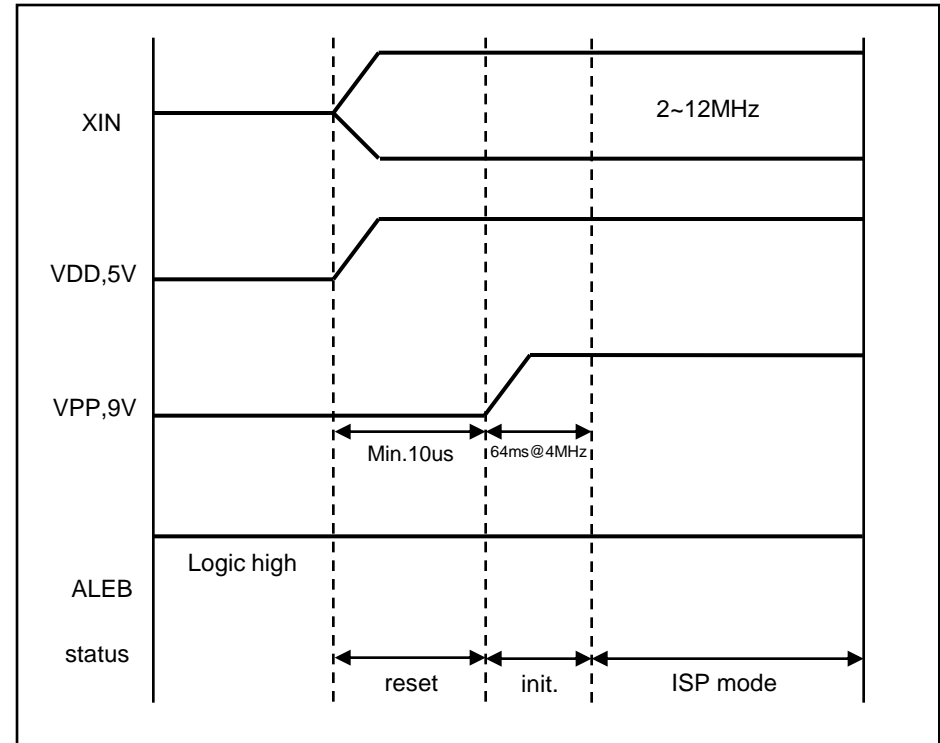
# 5. Sequence to enter ISP mode/user mode.

\* Sequence to enter ISP mode from user mode.

- 1) Power off a target system.
- 2) Configure a target system as ISP mode.
- 3) Attach a ISP B/D into a target system.
- 4) Run the ISP S/W.
- 5) Select the target device.
- 6) Power on a target system.

\*Sequence to enter user mode from ISP mode.

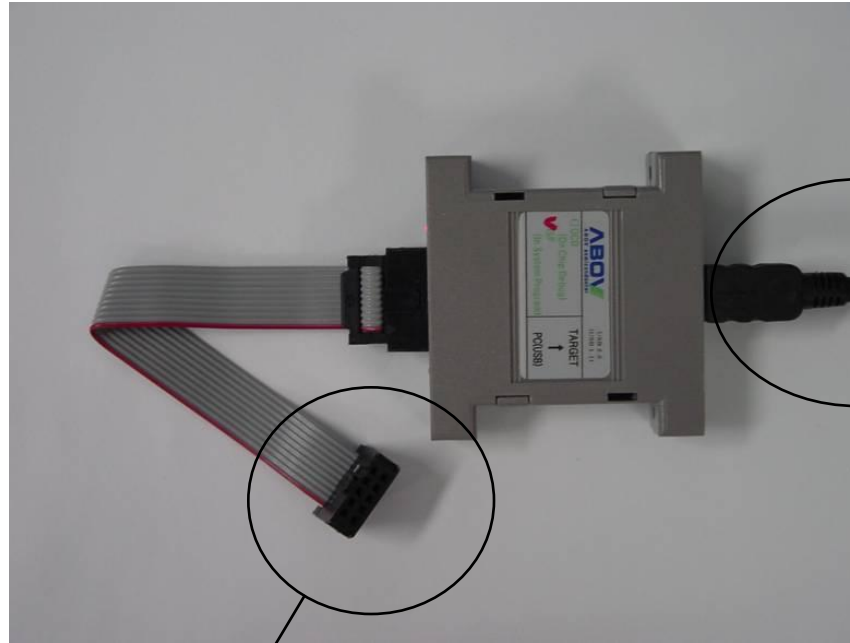
- 1) Close the ISP S/W.
- 2) Power off a target system
- 3) Configure a target system as user mode.
- 4) Detach a ISP B/D from a target system.
- 5) Power on



Timing Diagram to enter the ISP mode

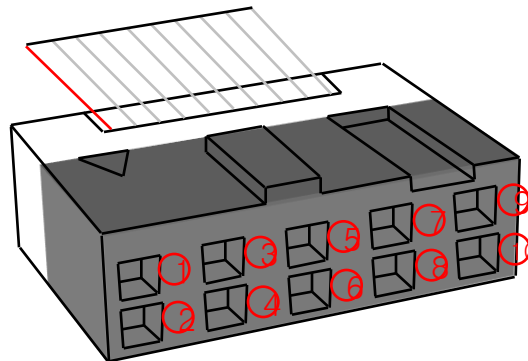
\* Vpp is needed to rise within 64ms@4MHz after Vdd is high.

# 6. USB-SIO-ISP Board



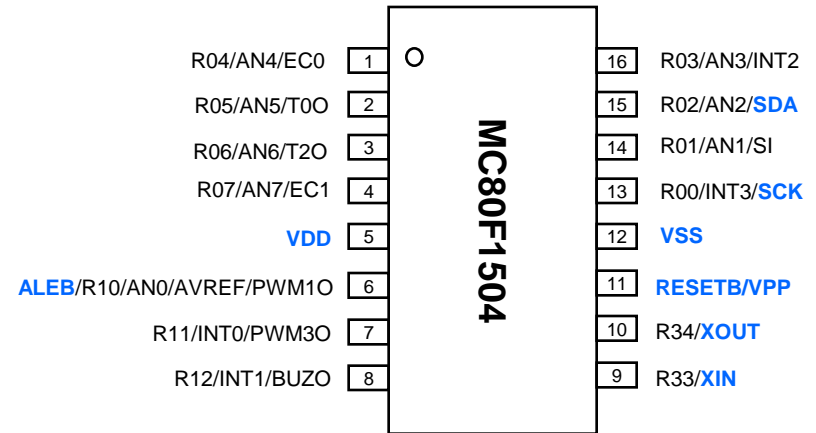
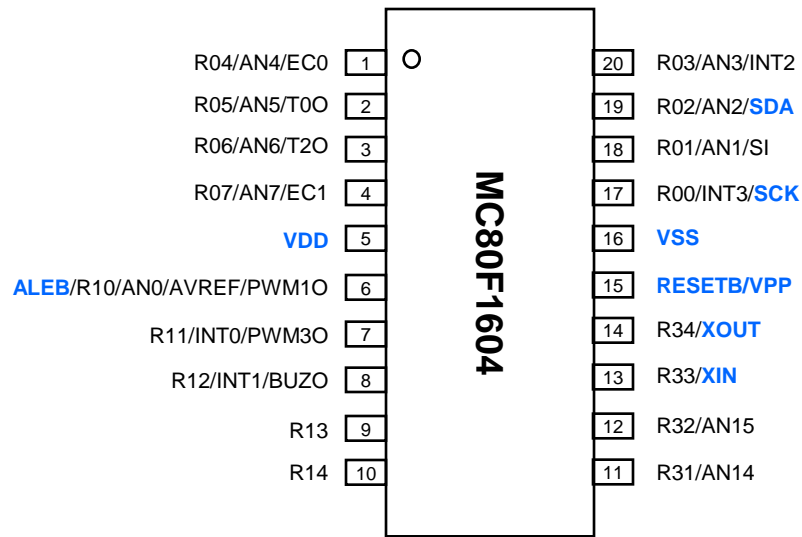
Connect USB mini type cable.

USB-SIO-ISP B/D  
10-pin connector



- ② Target Vdd
- ④ GND
- ⑥ Serial Clock
- ⑧ Serial Data
- ⑩ Vpp

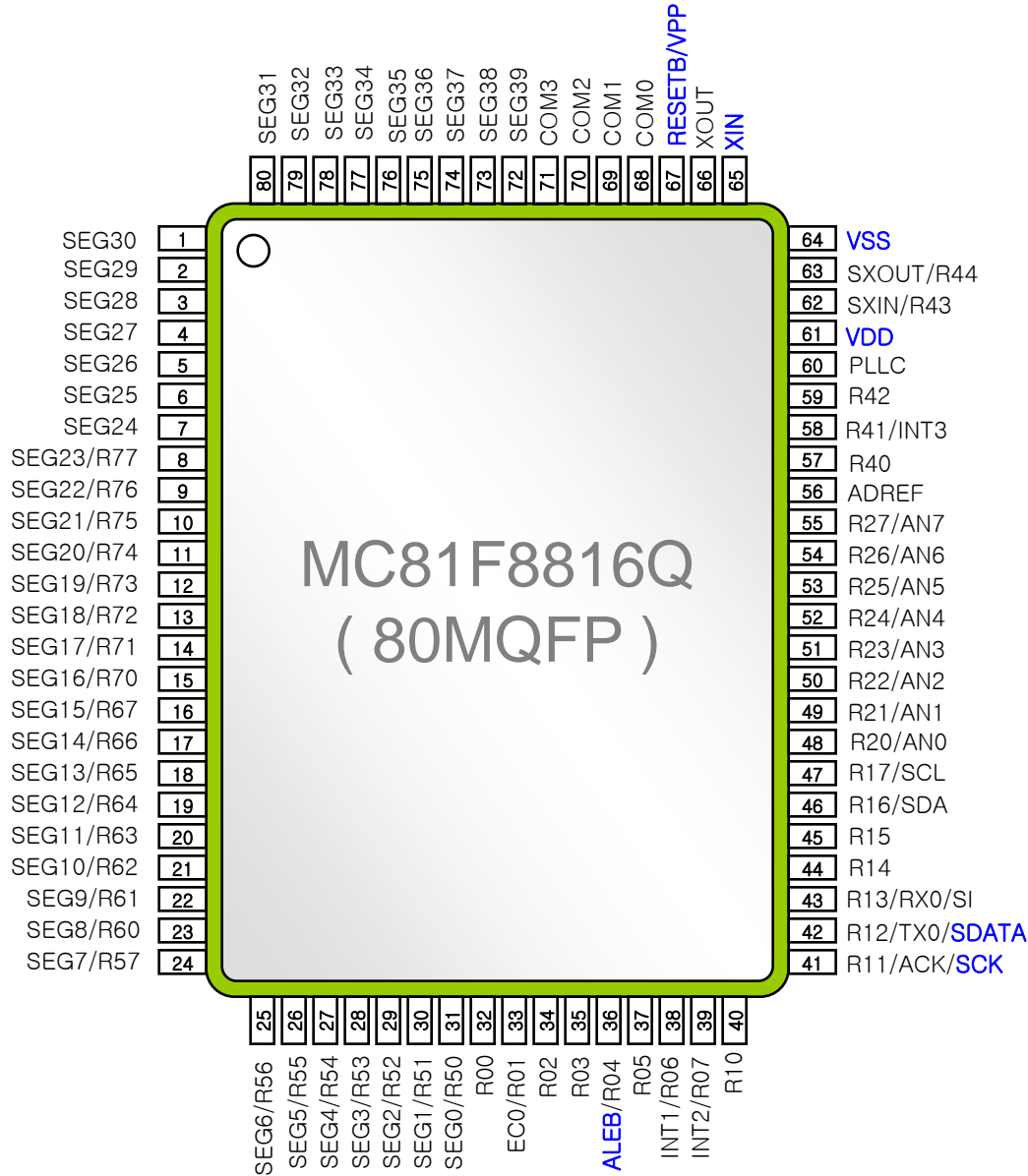
# 7-1 ISP configuration for MC80F1604/1504



\* **ALEB** must be in logic high state.

\* Refer to at page 4. Hardware Conditions to enter the ISP mode.

# 7-2 ISP configuration for MC81F8816



# 8-1. Installing the USB driver

1. Connect the USB cable to the USB-SIO-ISP board, and the other end to the USB port of your computer.

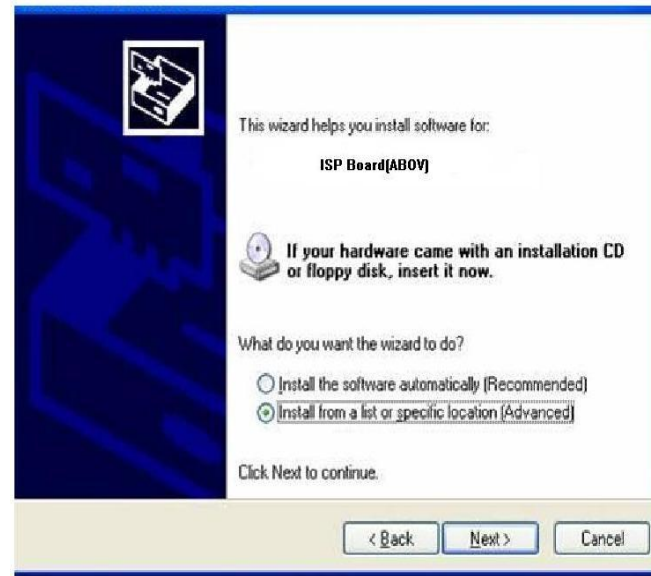
You will see some notifications in your system tray that say 'New Hardware Found', 'USB Device'. Shortly after, the following screen will appear:

Click 'No' then click 'Next >'



2. Select

"Install from a list or specific location(Advanced)" as shown right and then click "Next".



## 8-2. Installing the USB driver

3. Select "Search for the best driver in these locations" and enter the file path for driver files(ispbdusb.sys and ispbdusb.inf) in the combo-box or browse to it by clicking the browse button. Once the file path has been entered in the box, click next to proceed.

\* The ispbdusb.SYS and ispbdusb.inf are included with USB\_SIO\_ISP zipped file.



4. If Windows XP is configured to warn when unsigned (non-WHQL certified) drivers are about to be installed, the following screen will be displayed unless installing a Microsoft WHQL certified driver. Click on "Continue Anyway" to continue with the installation. If Windows XP is configured to ignore file signature warnings, no message will appear.



## 8-3. Installing the USB driver

5. Windows should then display a message indicating that the installation was successful. Click "Finish" to complete the installation for the first port of the device.



Note: In WindowsXP, each USB port has it's own set of drivers. This means that if you plug your USB-SIO-ISP Board USB into a different port you will be prompted to install the drivers again. You will need to repeat the above process for each USB port you plan to use.