孕龍科技股份有限公司
Zeroplus Technology Co., Ltd.

SPECIFICATION

MODEL: B09019-LAP-HPI-M

PART NO: _____

VERSION: V1.01

Approver		Check	Design
GM	PM		

Customer Confirm

*Please fax the file to Zeroplus Technology after signing.

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Chung Ho City, Taipei Hsian, R.O.C.

Tel:+886-2-66202225
Fax:+886-2-22234362

中和市建八路 123 號 2F
電話：886-2-66202225
傳真：886-2-22234362
www.zeroplus.com.tw

2F., No.123,Jian Ba Rd,
Chung Ho City, Taipei Hsien, R.O.C.
Tel: 886-2-66202225
Fax: 886-2-22234362

Content

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1 Software Download

Please download the software as the following steps:

Remark: We won't have additional notice for you, when there is any modification of the module specification. If there is some unconformity caused by the module version upgrade, users should take the module software as the standard.

STEP 1. Visit the website of Zeroplus: http://www.zeroplus.com.tw.

STEP 2. Click **English** in the Instrument Division part on the Homepage.

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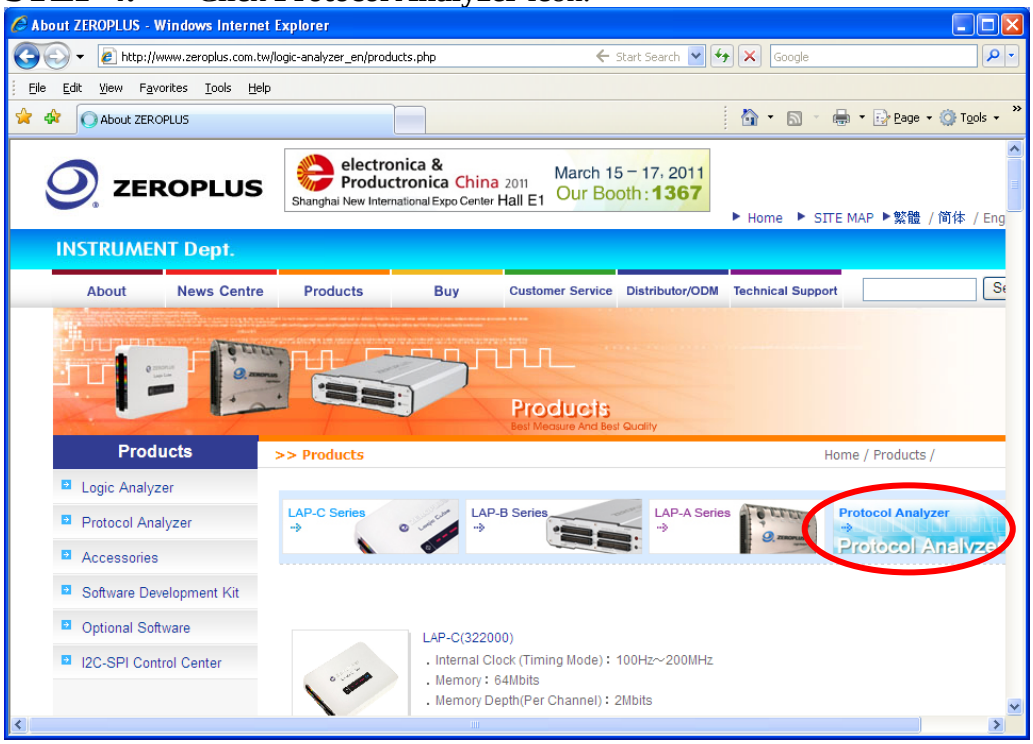
STEP 3. Click **Products** menu or select Protocol Analyzer item from its pull-down menu to go straight to STEP 5.

STEP 4. Click **Protocol Analyzer** icon.



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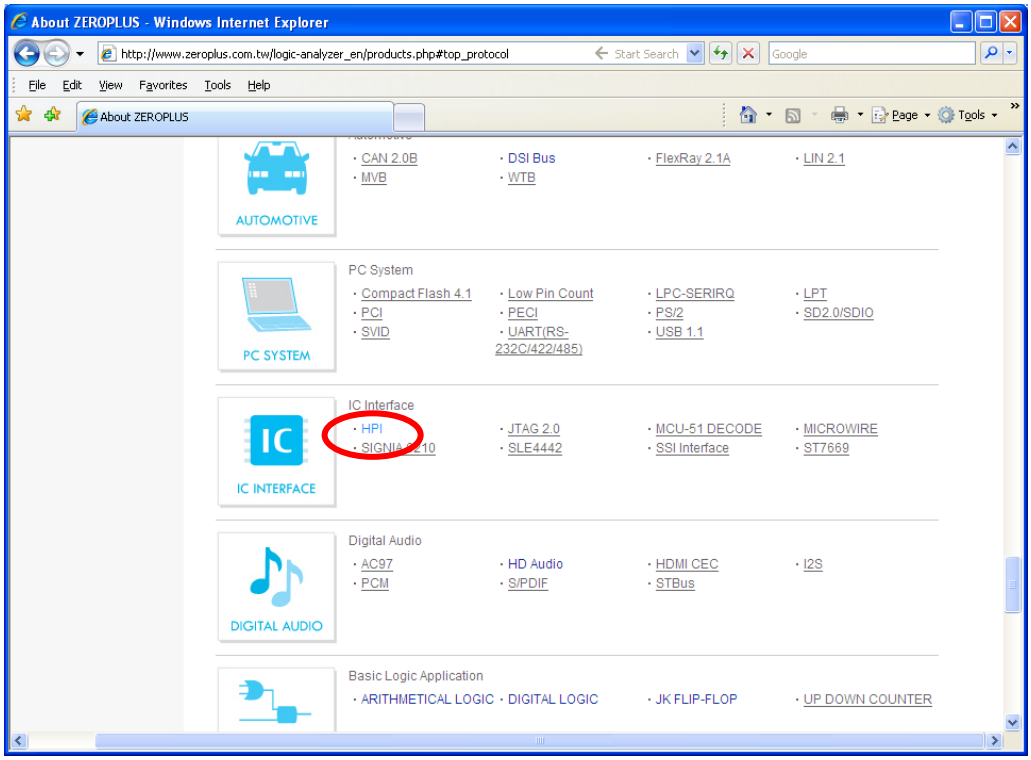
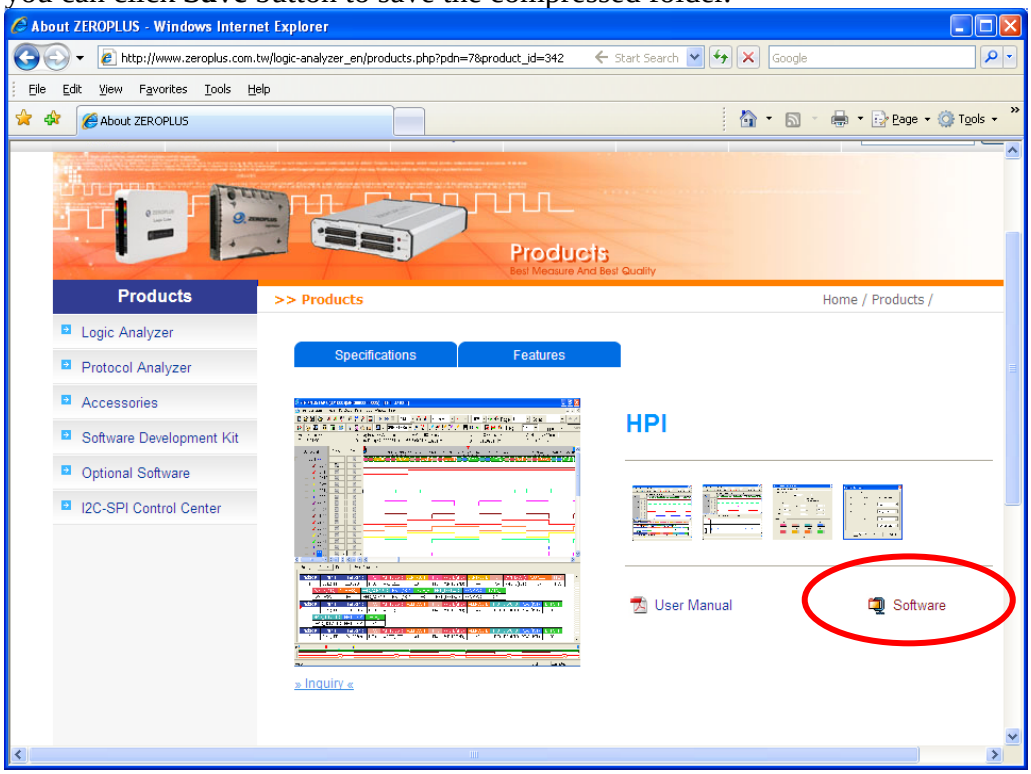
STEP 5. Click **HPI** in the IC Interface column.



STEP 6. Click **Software** in the Products page. When the File Download dialog box appears, you can click **Save** button to save the compressed folder.



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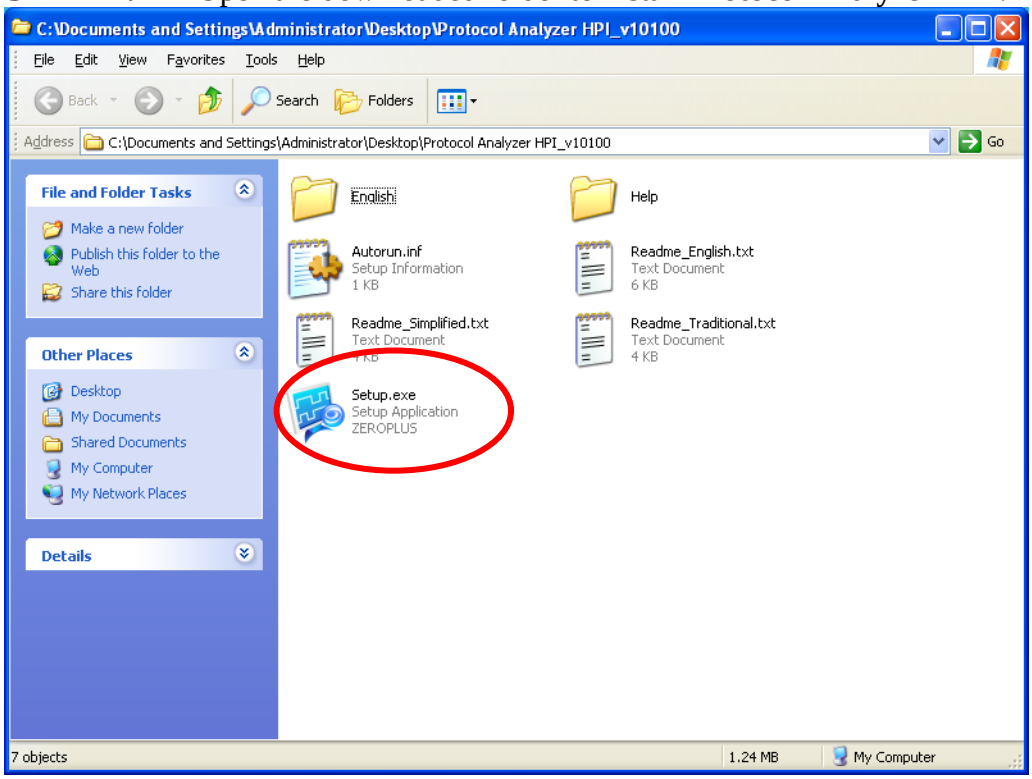
2 Software Installation

STEP 1. Open the downloaded folder to install **Protocol Analyzer HPI**.



STEP 2. Click **Install**.

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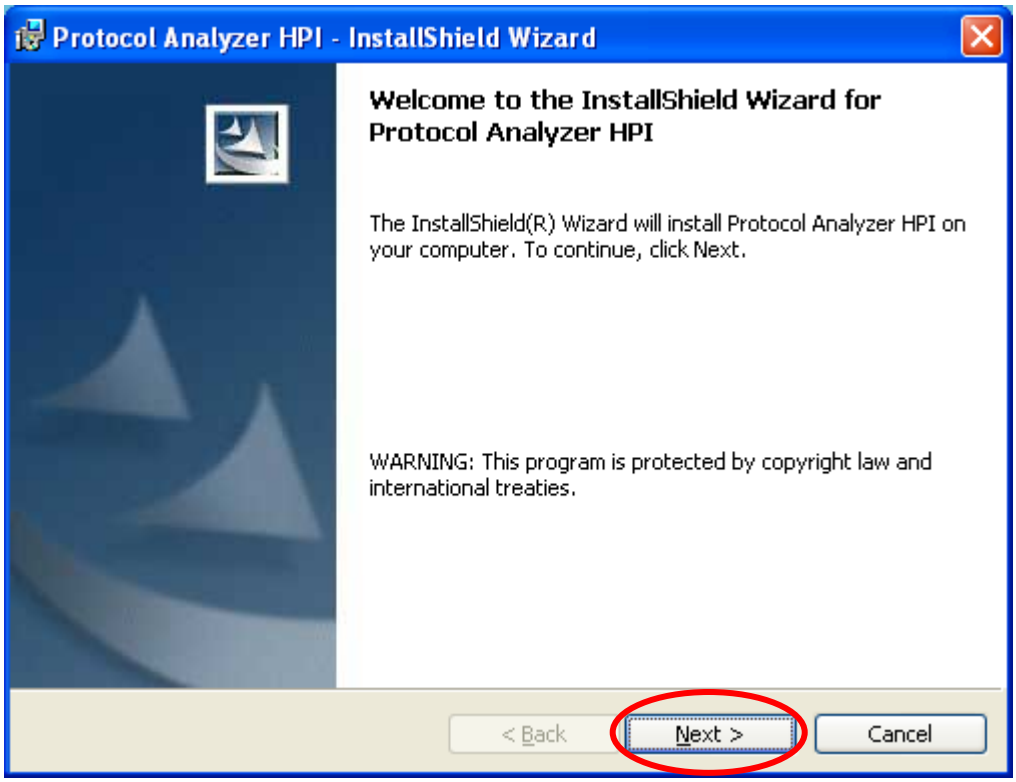
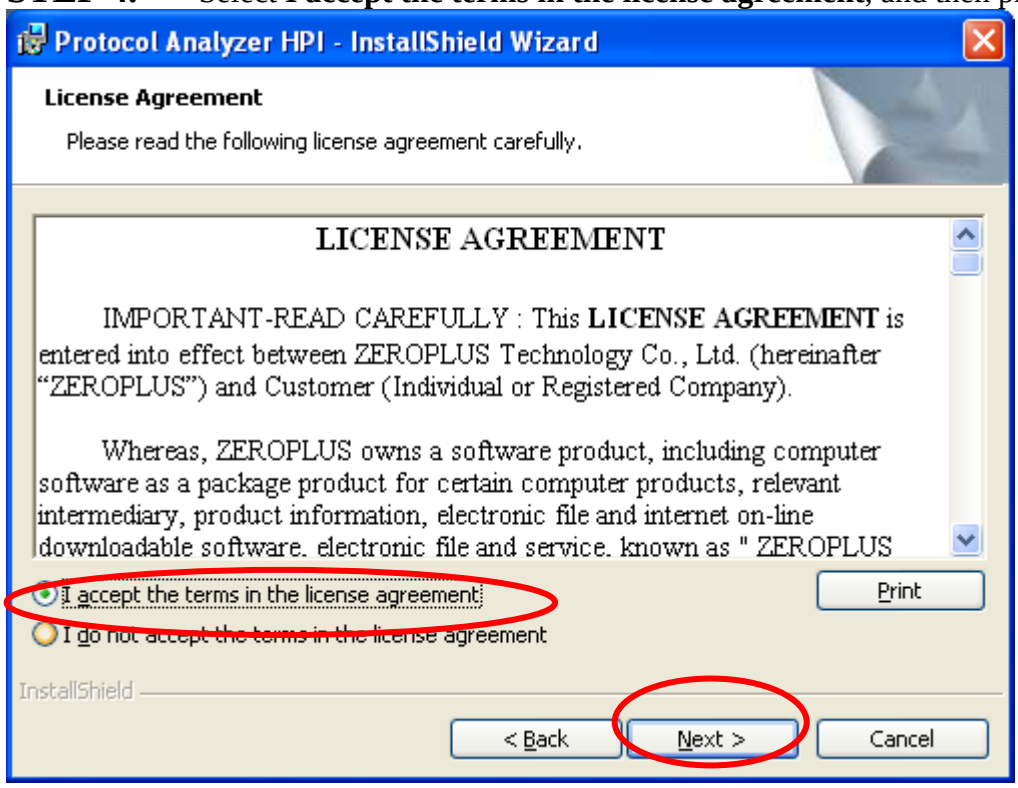
STEP 3. Click **Next**.



STEP 4. Select **I accept the terms in the license agreement**, and then press **Next**.



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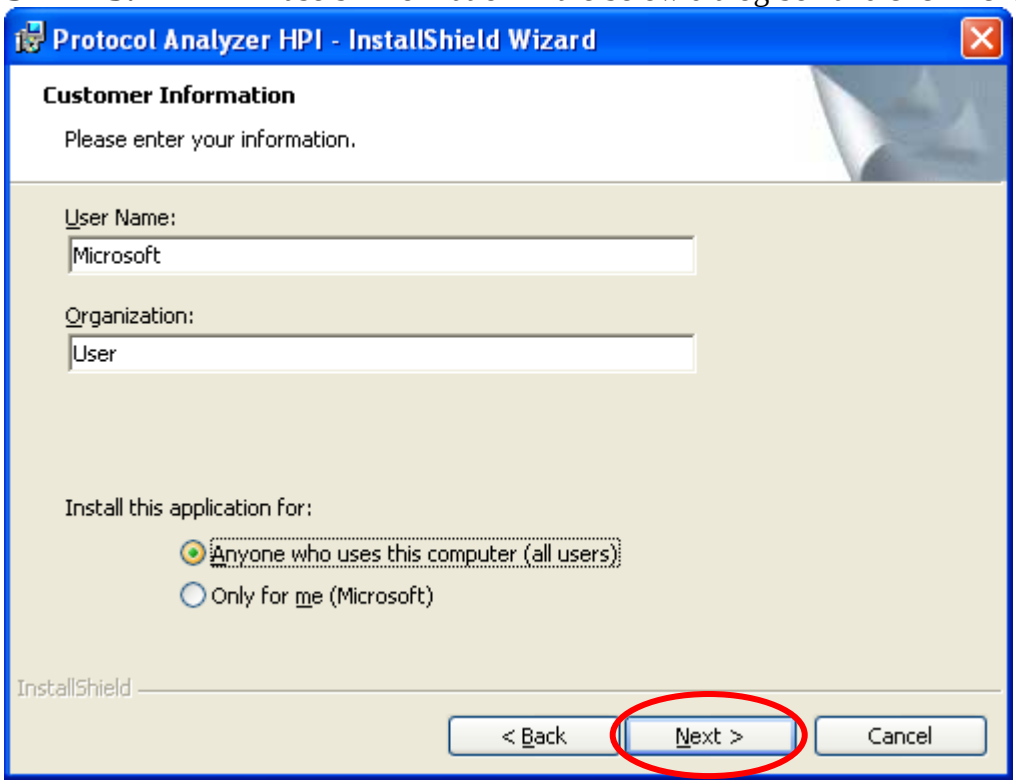
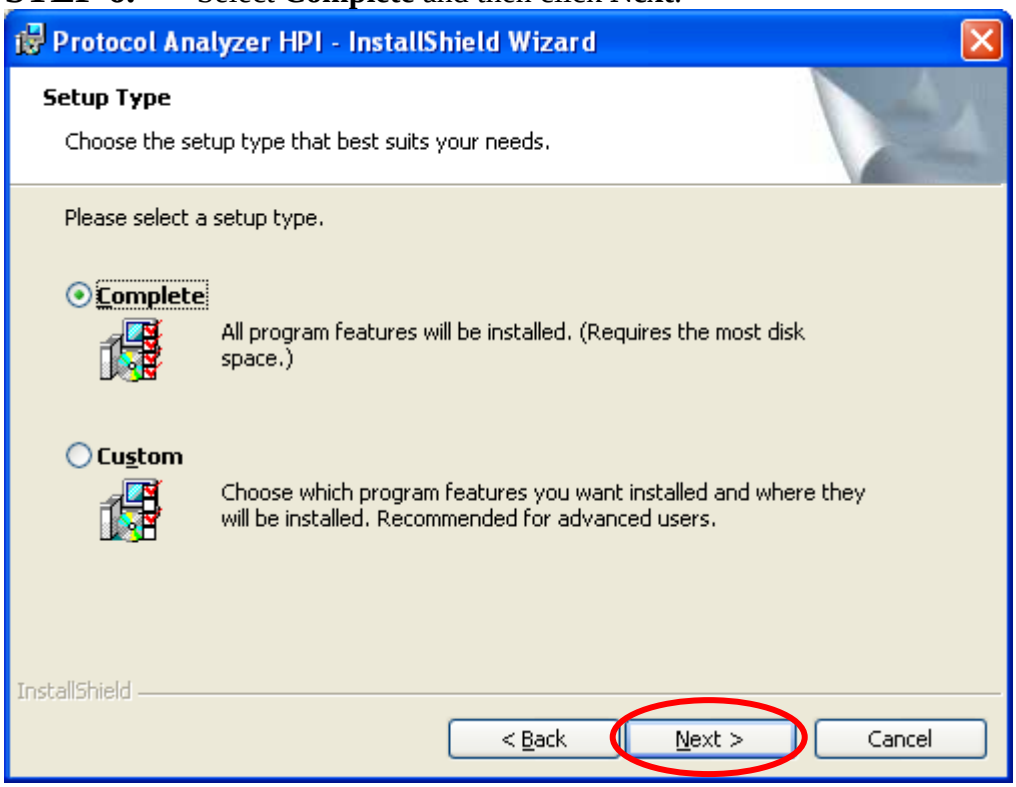
STEP 5. Fill in users' information in the below dialog box and click **Next**.



STEP 6. Select **Complete** and then click **Next**.



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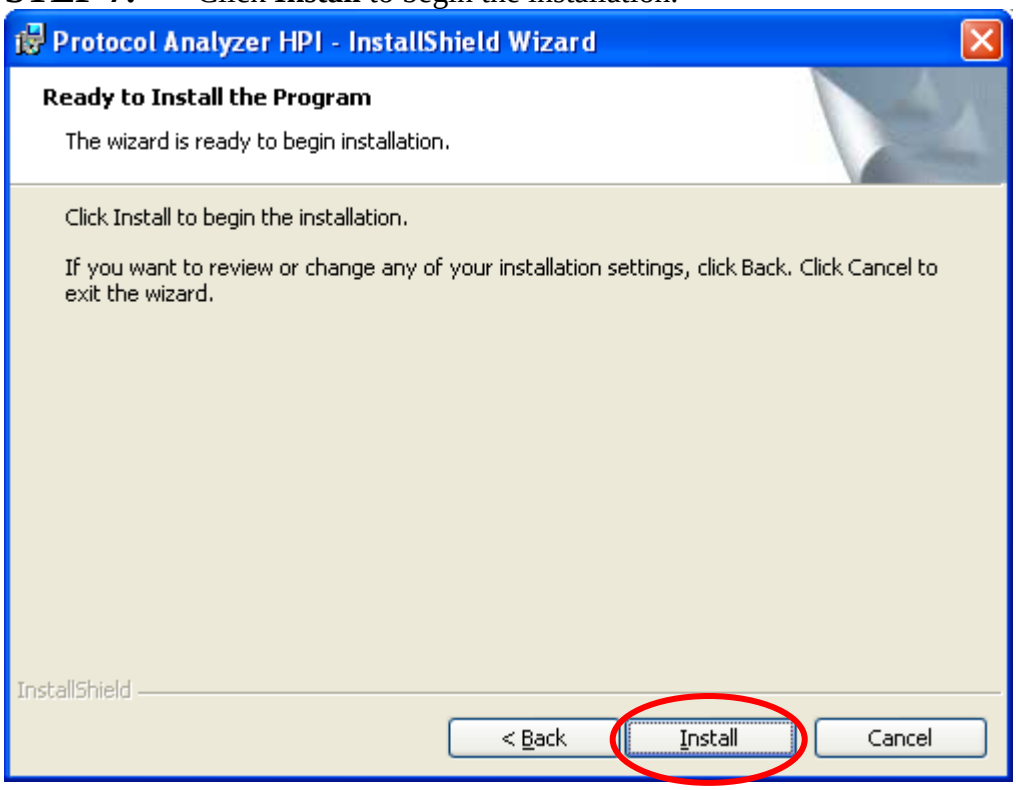
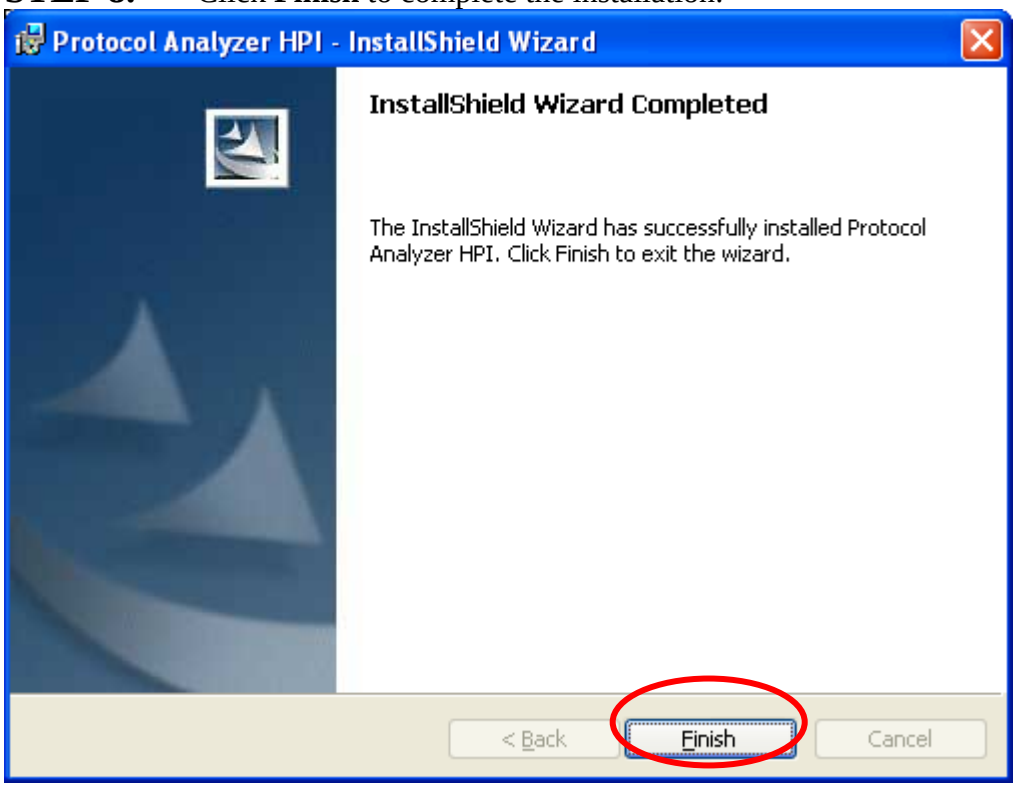
STEP 7. Click **Install** to begin the installation.



STEP 8. Click **Finish** to complete the installation.



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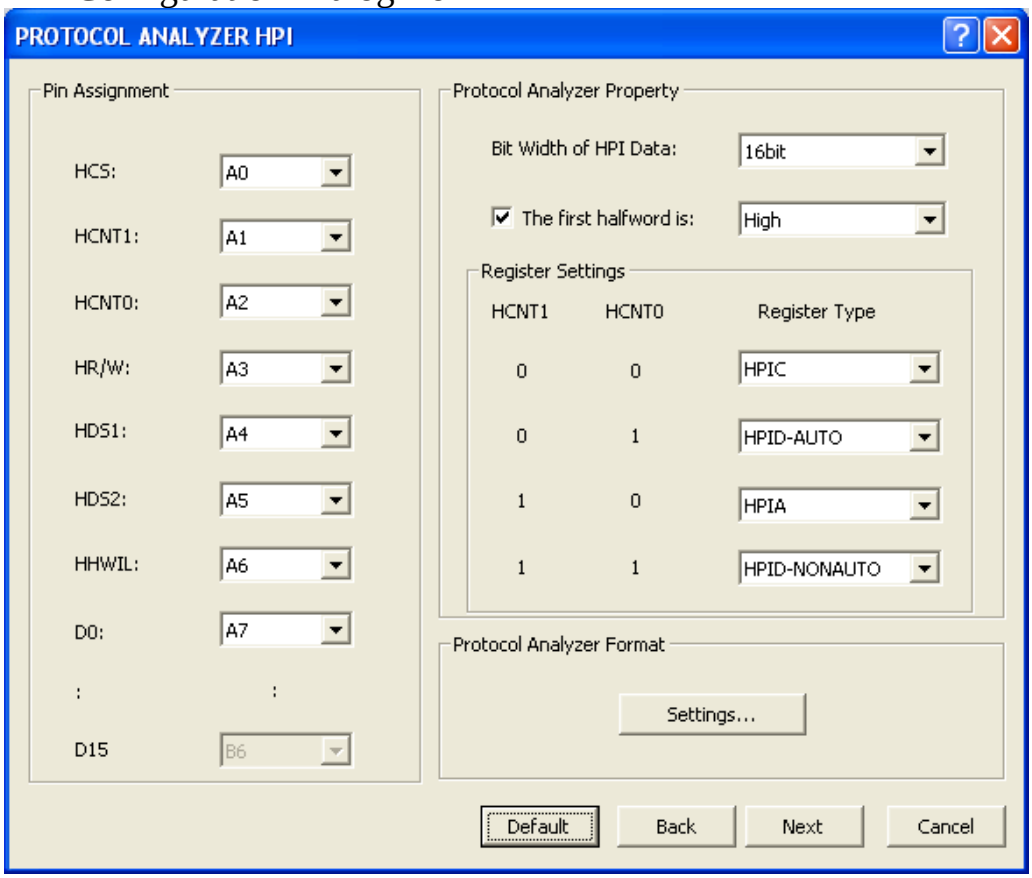
3 User Interface

In the configuration, please refer to below images to select options of setting HPI module.

HPI Configuration Dialog Box



Pin Assignment:
HCS: It is the Chip Select channel.
HCNT1-0: It is the Register Select channel.
HR/W: It is the Read/Write Control channel.
HDS1-2: It is the Data Latch channel.
HHWIL: It is the Halfword Indication channel. When the Option, **The first halfword is**, is disabled, the channel is disabled.
D0-D15: They are the Data Transmission channels, but only the channel, D0, can be set, and the other channels are increased gradually. At the same time, when the different Bit Widths of HPI Data are selected, the Channel Length will be changed accordingly.

Protocol Analyzer Property:
Bit Width of HPI Data: Set the Bit Width (or the number of the Data channel) to 8bit or 16bit.
The first halfword is: When the Option is selected, it is necessary to set the Level of the first halfword to High or Low in the behind column; when the Option is disabled, the column is disabled.

Register Settings: Set the Types of the Register according to the values of the HCNT[1:0]. Notice that the Type of the set Register should not be the same.

Protocol Analyzer Format:
Press the **Settings** to open the Protocol Analyzer Format dialog box. The Color of each Item can be varied as the users' requirements. The Items (Address, Control and Data) can be set as Binary,

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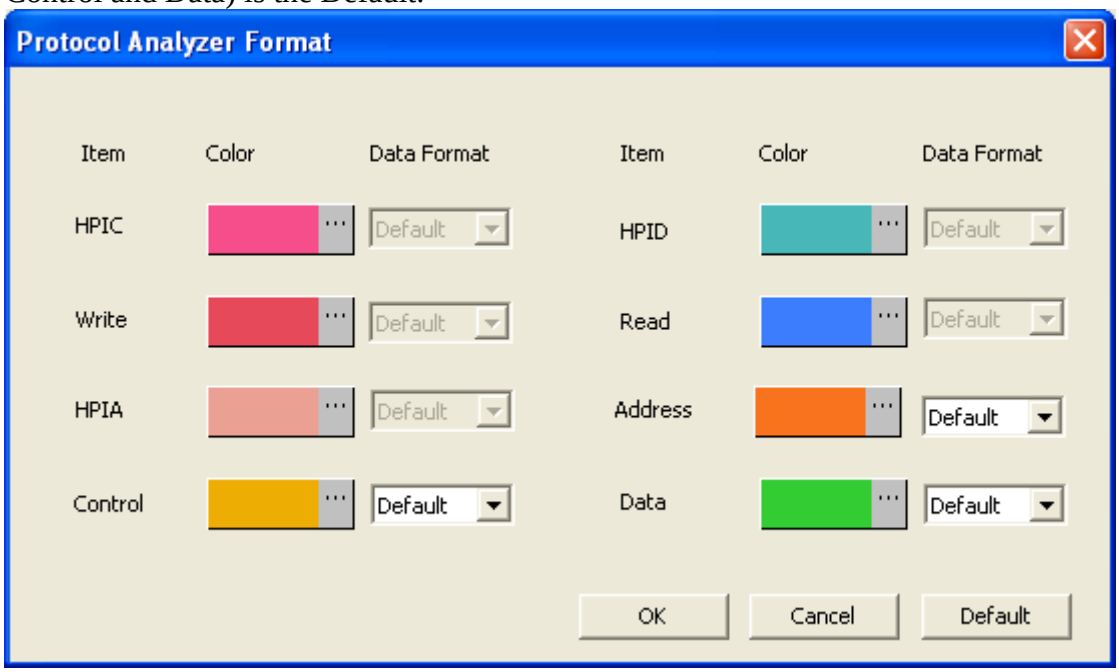
Decimal, Hexadecimal, ASCII or Default. And the Data Format of these Items (Address, Control and Data) in the Waveform Display Area and Packet List is controlled by the Protocol Analyzer. The default Data Format is controlled by the main program and the Data Format of these items (Address, Control and Data) is the Default.



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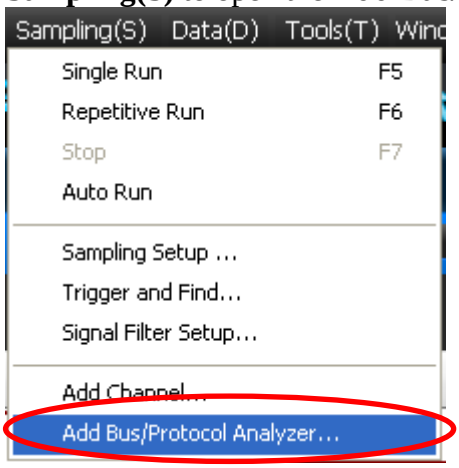
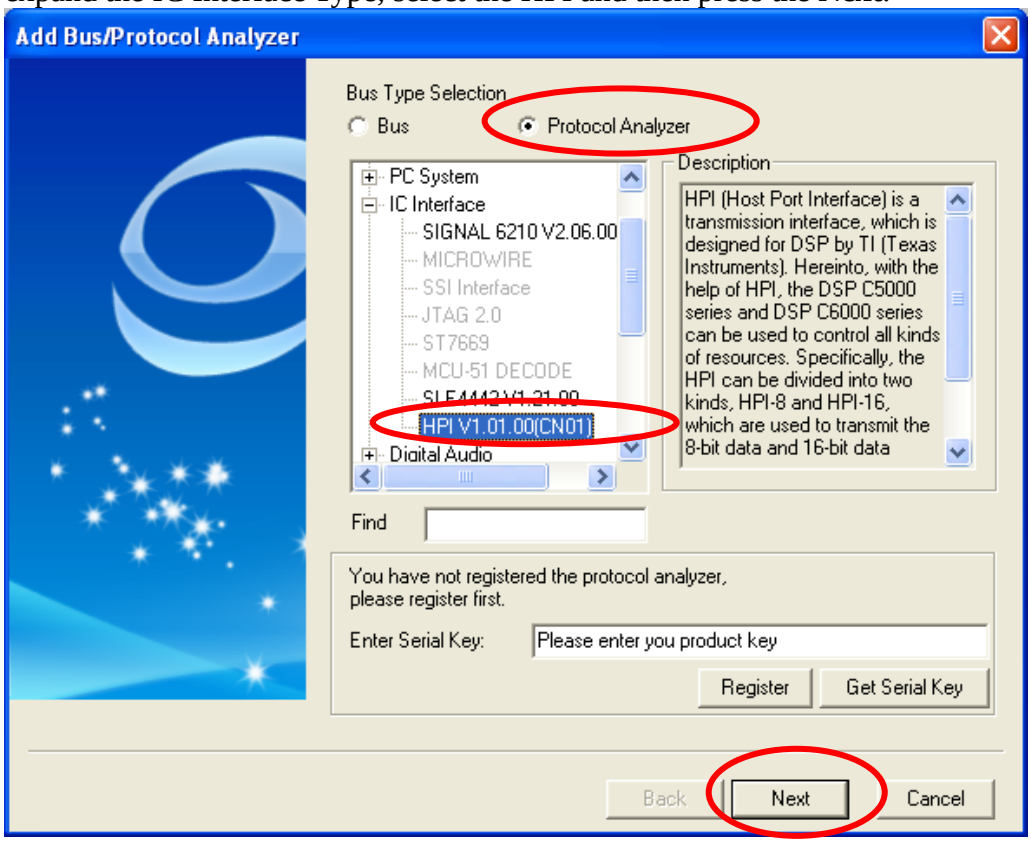
4 Operating Instructions

STEP 1. Select the **Add Bus/Protocol Analyzer** item on the pull-down menu of the **Sampling(S)** to open the **Add Bus/Protocol Analyzer** dialog box.



STEP 2. Select the Protocol Analyzer item in the Add Bus/Protocol Analyzer dialog box, expand the IC Interface Type, select the HPI and then press the **Next**.



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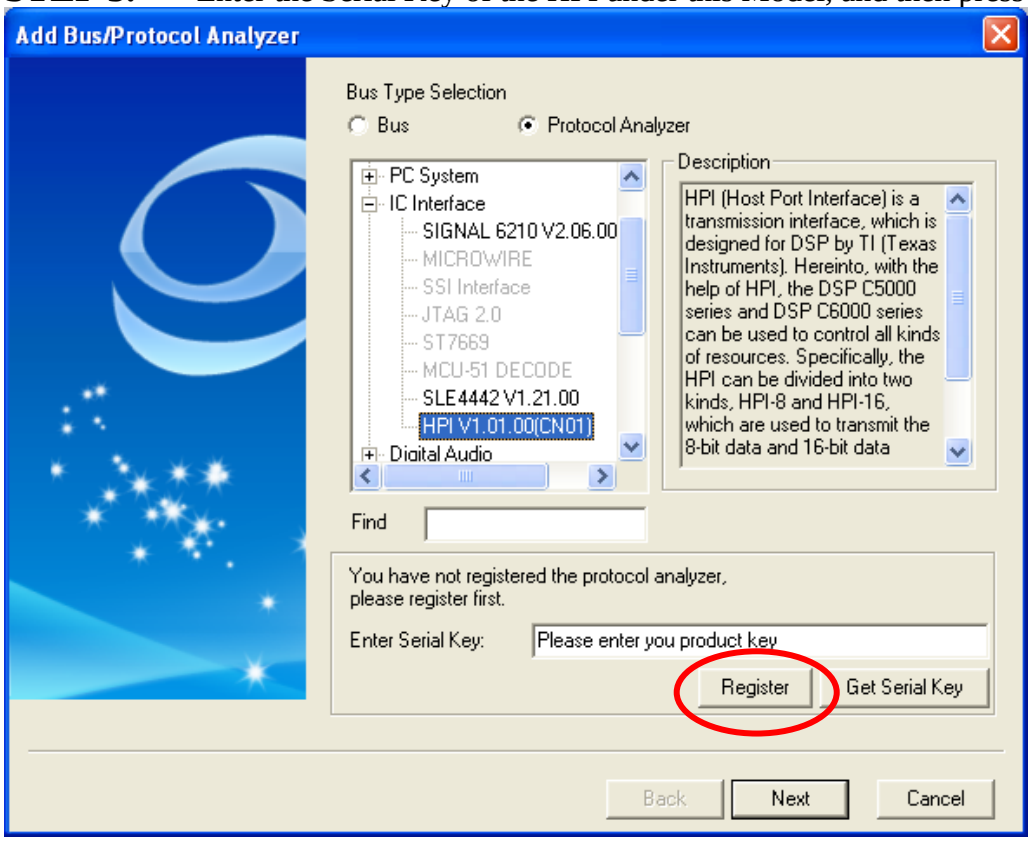
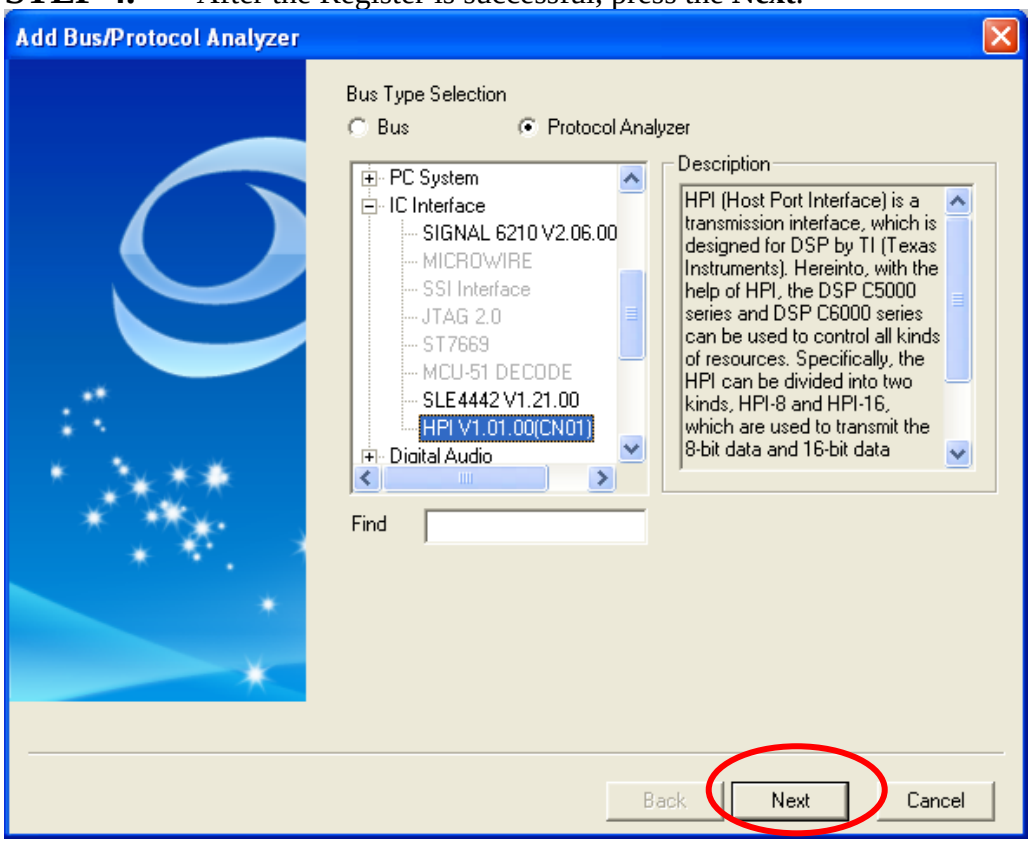
STEP 3. Enter the Serial Key of the HPI under this Model, and then press the **Register**.



STEP 4. After the Register is successful, press the **Next**.



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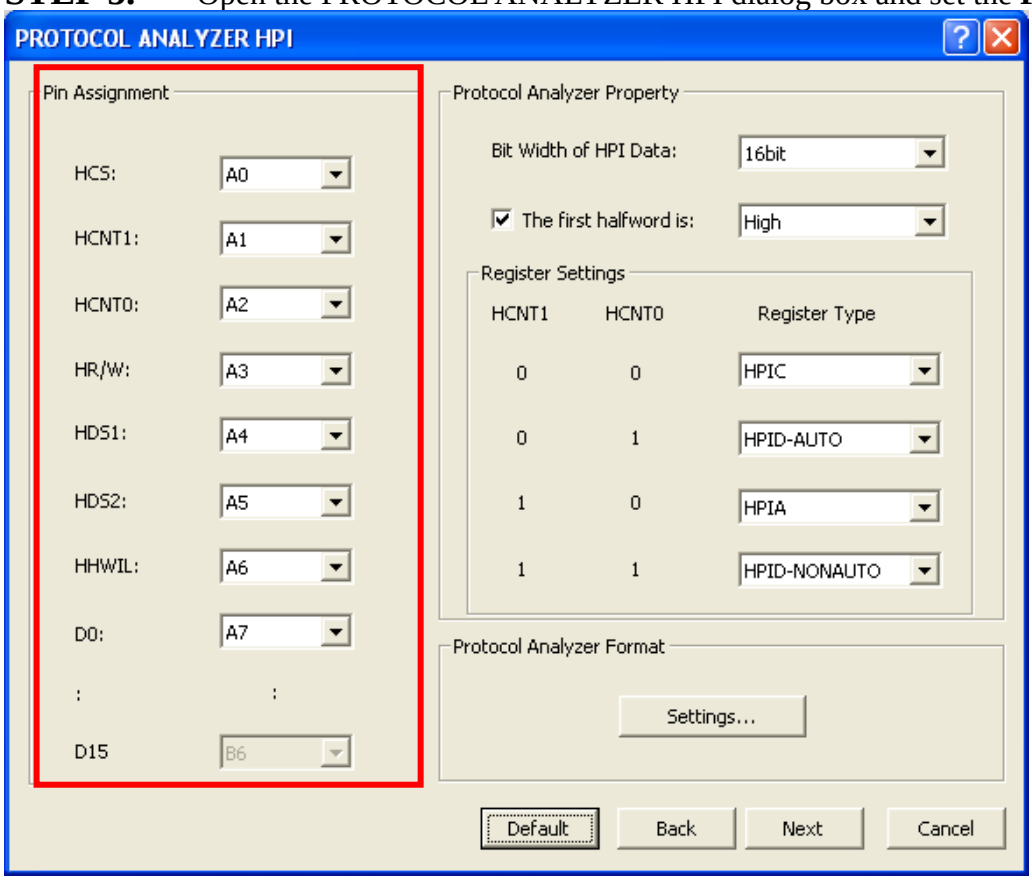
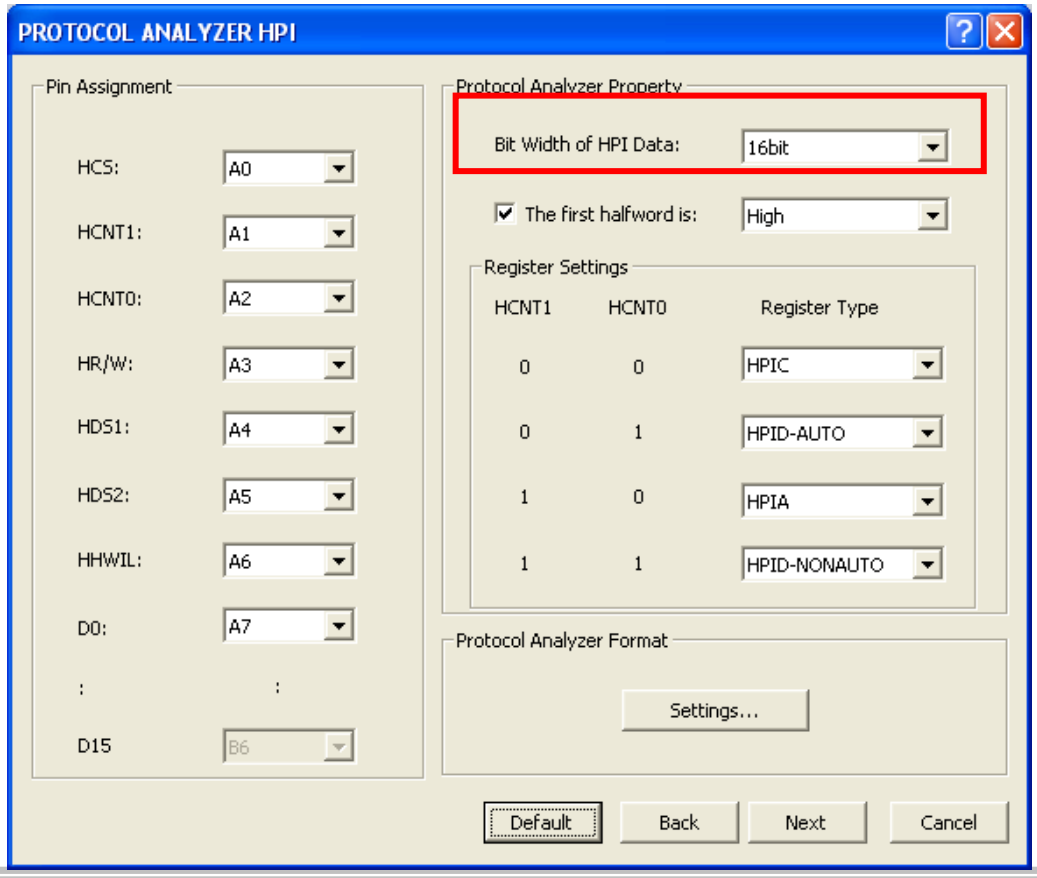
STEP 5. Open the PROTOCOL ANALYZER HPI dialog box and set the **Pin Assignment**.



STEP 6. Set the **Bit Width of HPI Data** to 8bit or 16bit.



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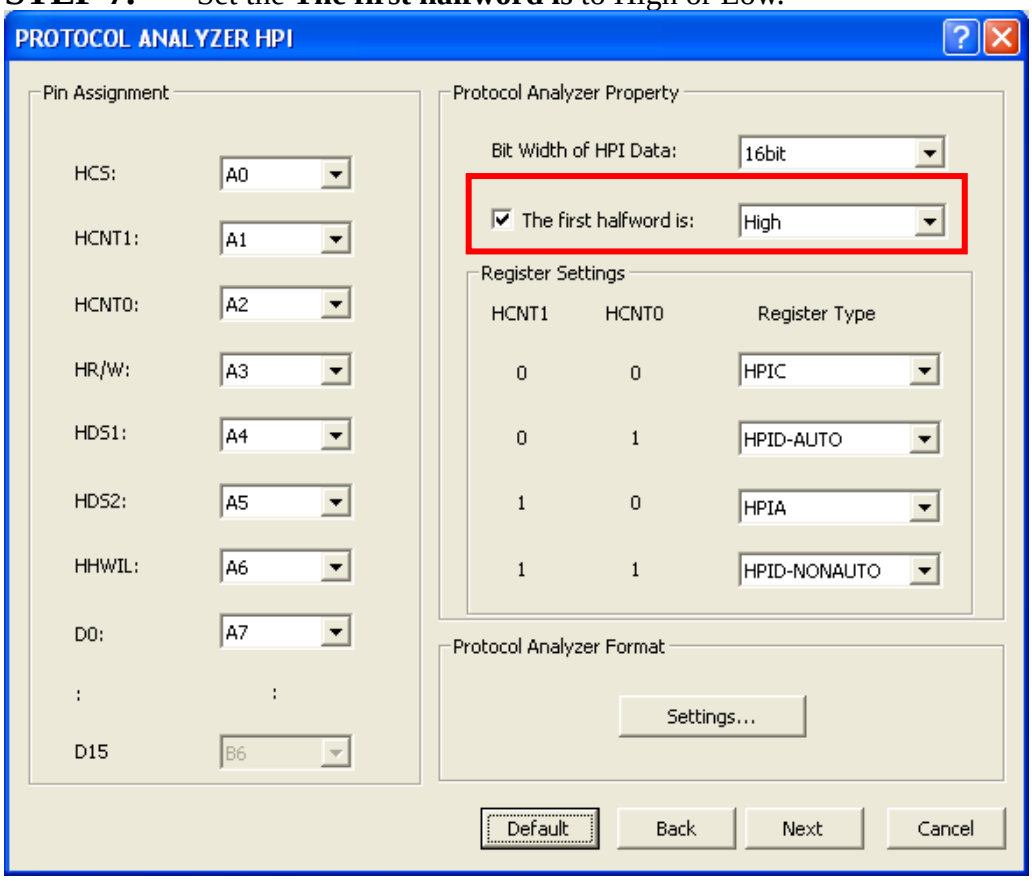
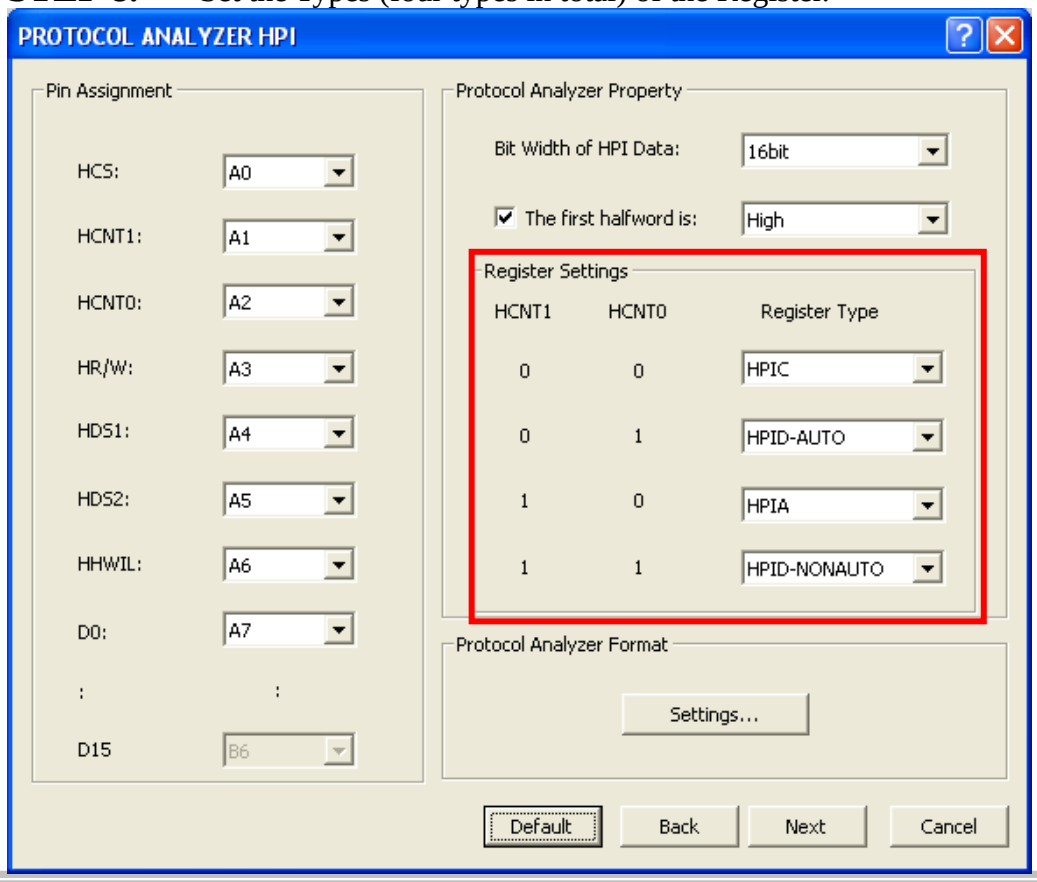
STEP 7. Set the **The first halfword is** to High or Low.



STEP 8. Set the Types (four types in total) of the Register.



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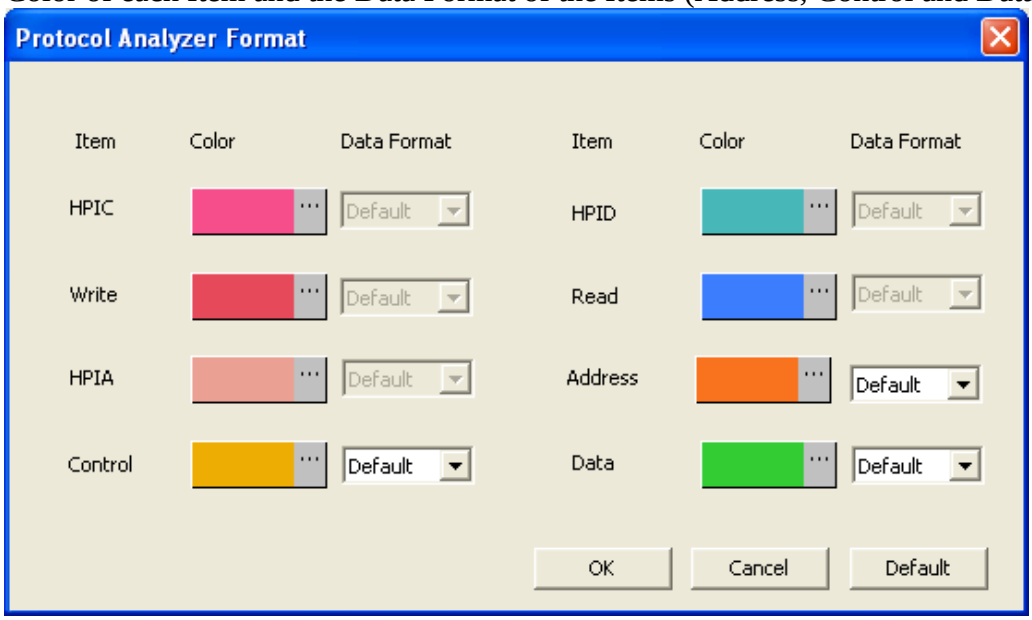
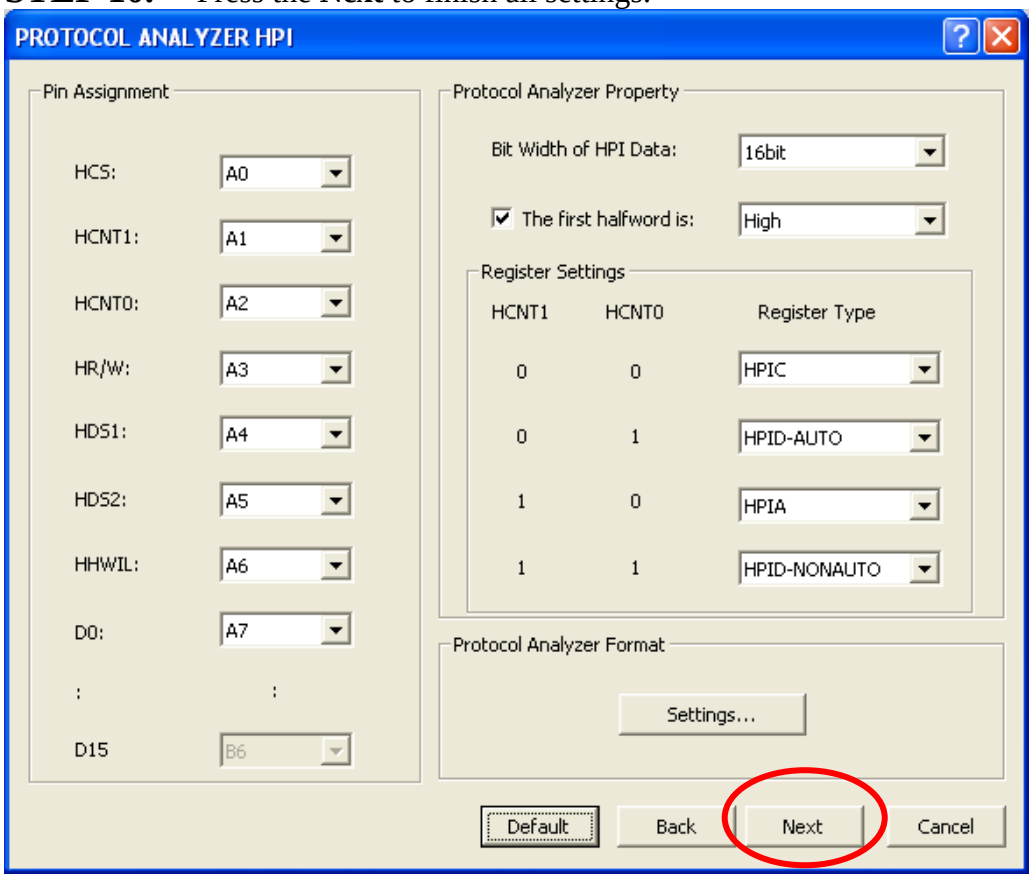
STEP 9. Press the **Settings** button to open the Protocol Analyzer Format dialog box and set the Color of each Item and the Data Format of the Items (Address, Control and Data).



STEP 10. Press the **Next** to finish all settings.



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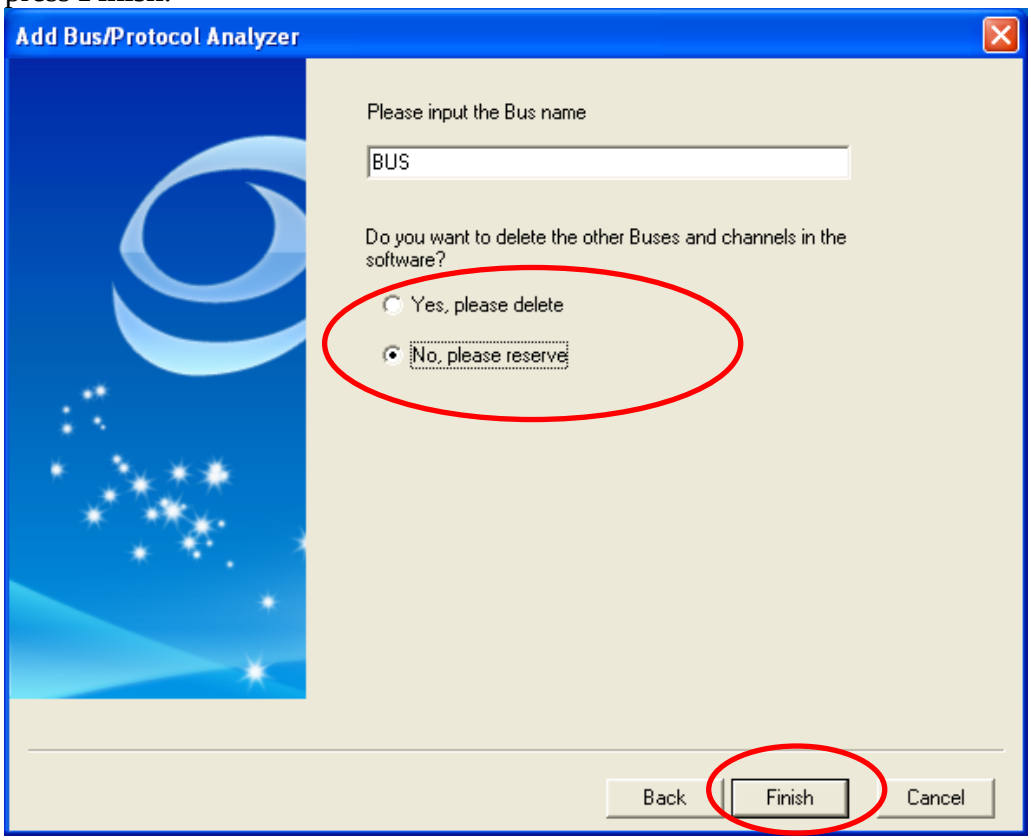
STEP 11. Please enter the Bus Name, select **Yes, please delete** or **No, please reserve** and then press **Finish**.



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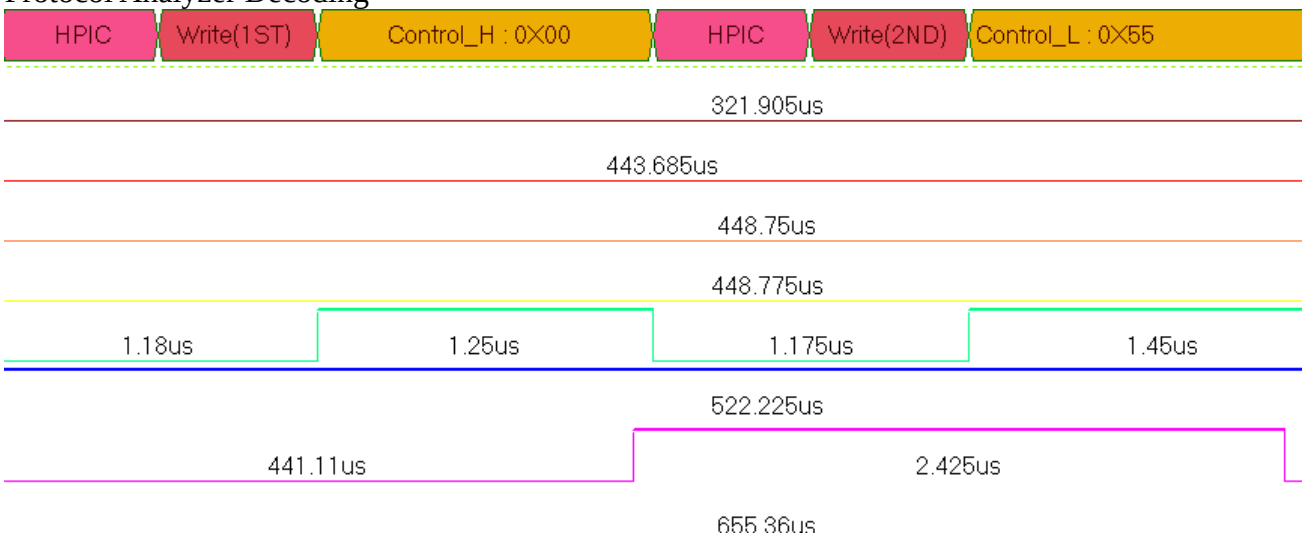
STEP 12. Following pictures show the completion of the protocol analyzer decoding and packet list. The trigger condition is set as Either Edge; the memory depth is 128K; the sampling frequency is 200MHz (the sampling frequency should be more than 4 times higher than the signal to be tested).

Protocol Analyzer Decoding



Packet List

Navigator | Packet List | Statistics | Memory Analyzer

Packet #	Name	TimeStamp	HPIC	Write(1ST)	Control_H	HPIC	Write(2ND)	Control_L	HPIA	Write(1ST)	Address_H	HPIA
1	Bus1(HPI)	0.37322ms	HPIC	Write(1ST)	00	HPIC	Write(2ND)	55	HPIA	Write(1ST)	AA	HPIA
Write(2ND)	Address_L	HPID-NONAUTO	Read(1ST)	Data_H	HPID-NONAUTO	Read(2ND)	Data_L					
Write(2ND)	FF	HPID-NONAUTO	Read(1ST)	54	HPID-NONAUTO	Read(2ND)	A9					
Packet #	Name	TimeStamp	HPIA	Write(1ST)	Address_H	HPIA	Write(2ND)	Address_L	HPID-NONAUTO	Read(1ST)	Data_H	
2	Bus1(HPI)	0.38837ms	HPIA	Write(1ST)	FE	HPIA	Write(2ND)	53	HPID-NONAUTO	Read(1ST)	A8	
HPID-NONAUTO	Read(2ND)	Data_L										
HPID-NONAUTO	Read(2ND)	FD										
Packet #	Name	TimeStamp	HPIA	Write(1ST)	Address_H	HPIA	Write(2ND)	Address_L	HPID-NONAUTO	Read(1ST)	Data_H	
3	Bus1(HPI)	0.39847ms	HPIA	Write(1ST)	52	HPIA	Write(2ND)	A7	HPID-NONAUTO	Read(1ST)	FC	
HPID-NONAUTO	Read(2ND)	Data_L										
HPID-NONAUTO	Read(2ND)	51										
Packet #	Name	TimeStamp	HPIC	Write(1ST)	Control_H	HPIC	Write(2ND)	Control_L	HPIA	Write(1ST)	Address_H	HPIA
4	Bus1(HPI)	0.40858ms	HPIC	Write(1ST)	A6	HPIC	Write(2ND)	FB	HPIA	Write(1ST)	50	HPIA
Write(2ND)	Address_L	HPID-AUTO	Read(1ST)	Data_H	HPID-AUTO	Read(2ND)	Data_L	HPID-AUTO	Read(1ST)	Data_H		
Write(2ND)	A5	HPID-AUTO	Read(1ST)	FA	HPID-AUTO	Read(2ND)	4F	HPID-AUTO	Read(1ST)	A4		