



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

SPECIFICATION

MODEL: B08038-LAP-HD Audio-M

PART NO: _____

VERSION: V1.03

Approver		Check	Design
GM	PM		

Customer Confirm

*Please fax the file to ZeroPlus Technology after signing.

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1 Software Download

Please install 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.

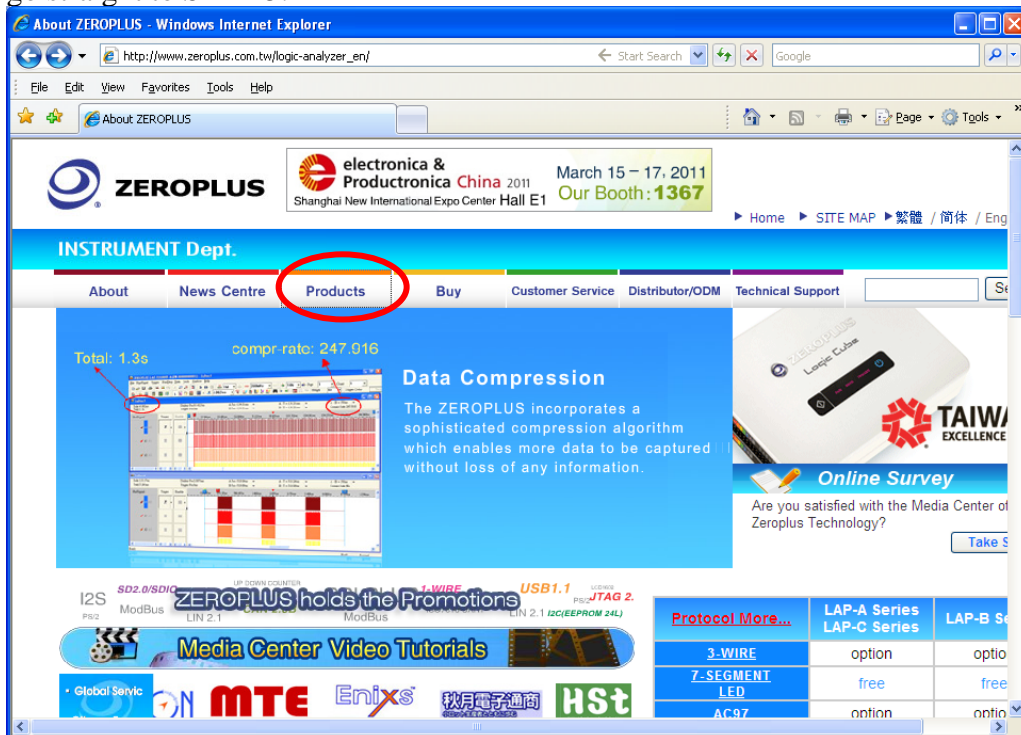
STEP 1. Visit the website of ZeroPlus: <http://www.zeroplus.com.tw>.

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

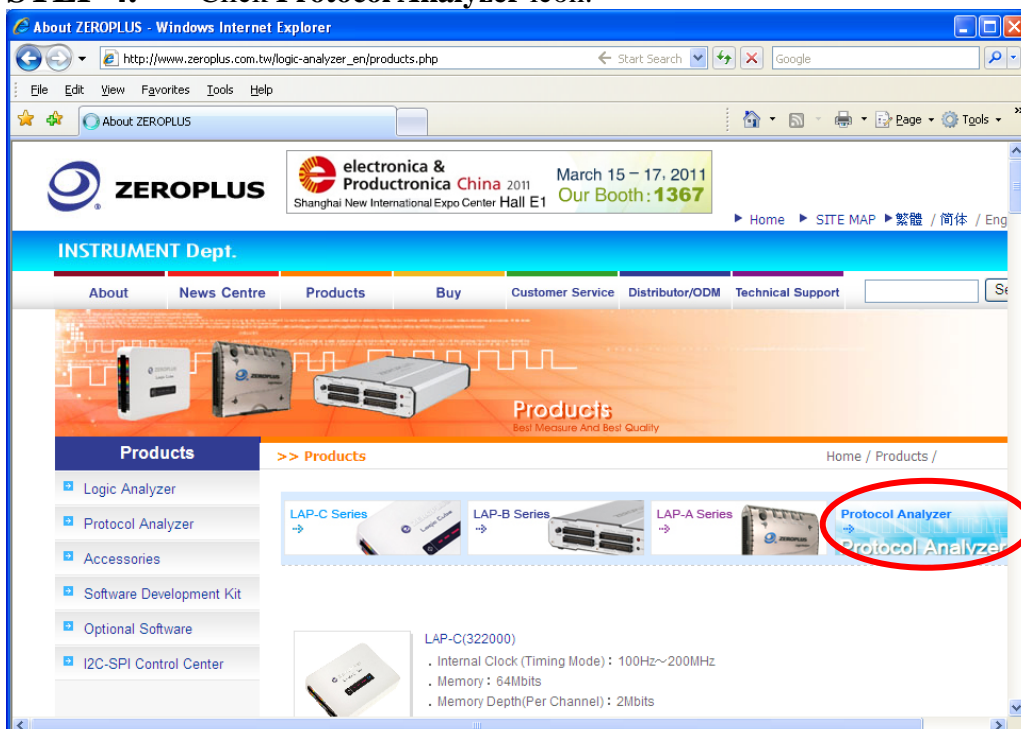




STEP 3. Click **Products** menu or select **Protocol Analyzer** item from its pull-down menu to go straight to STEP 5.

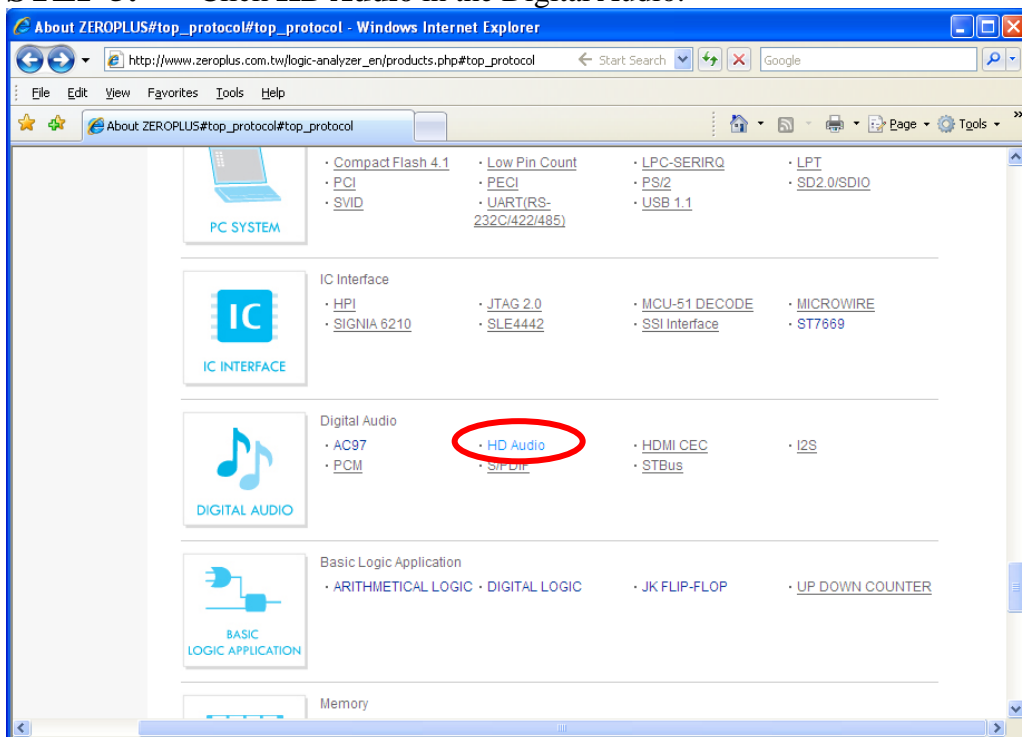


STEP 4. Click **Protocol Analyzer** icon.

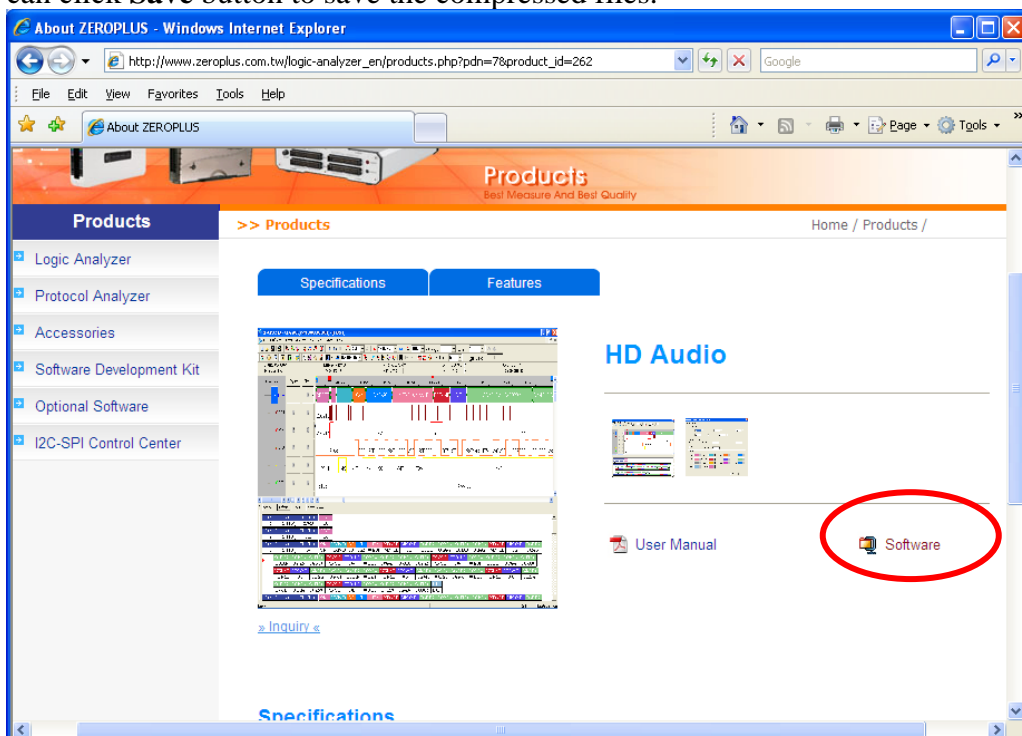




STEP 5. Click **HD Audio** in the Digital Audio.



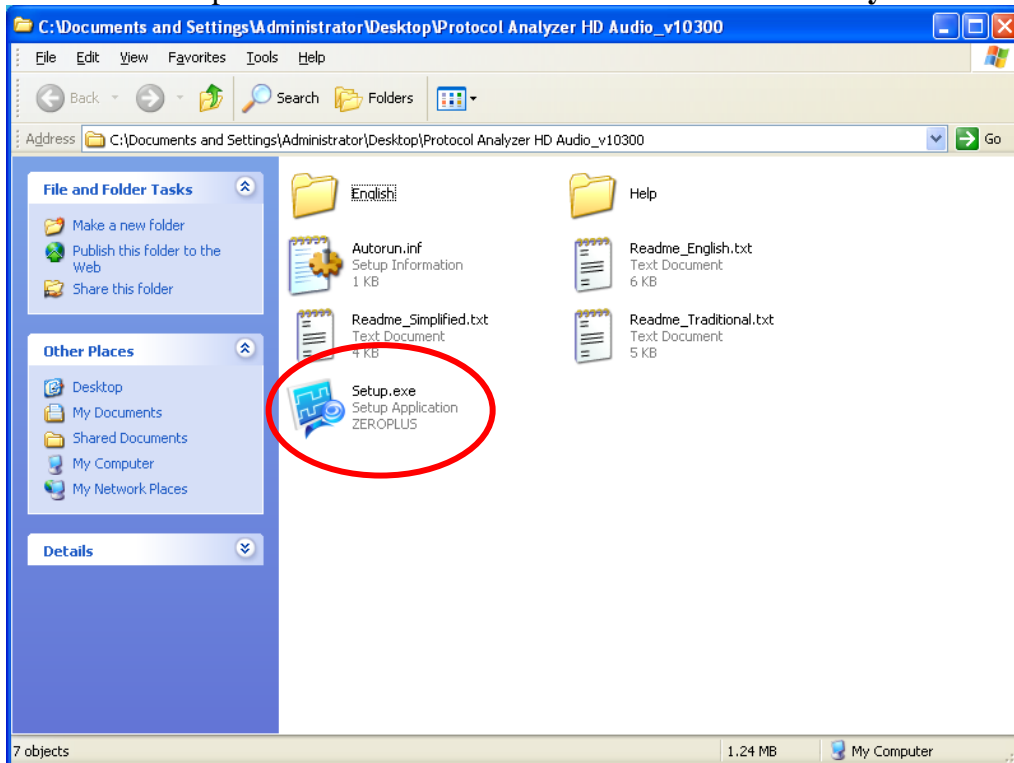
STEP 6. Click **Software** in the Products page. When the File Download dialog box appears, you can click **Save** button to save the compressed files.



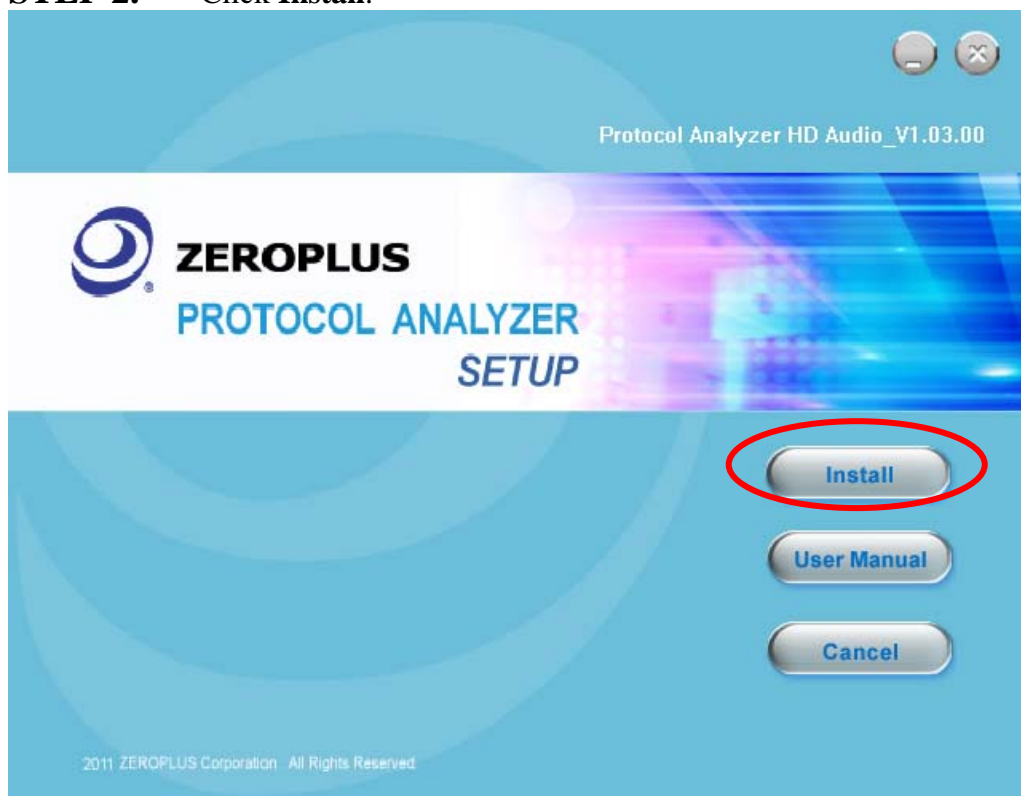


2 Software Installation

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

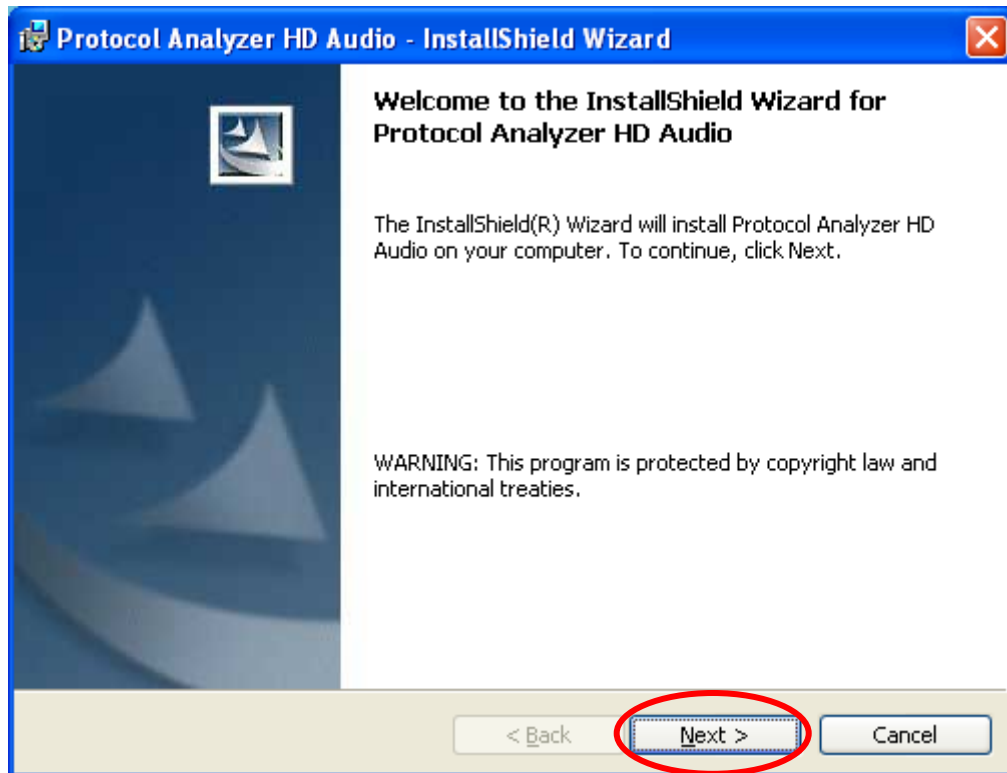


STEP 2. Click **Install**.

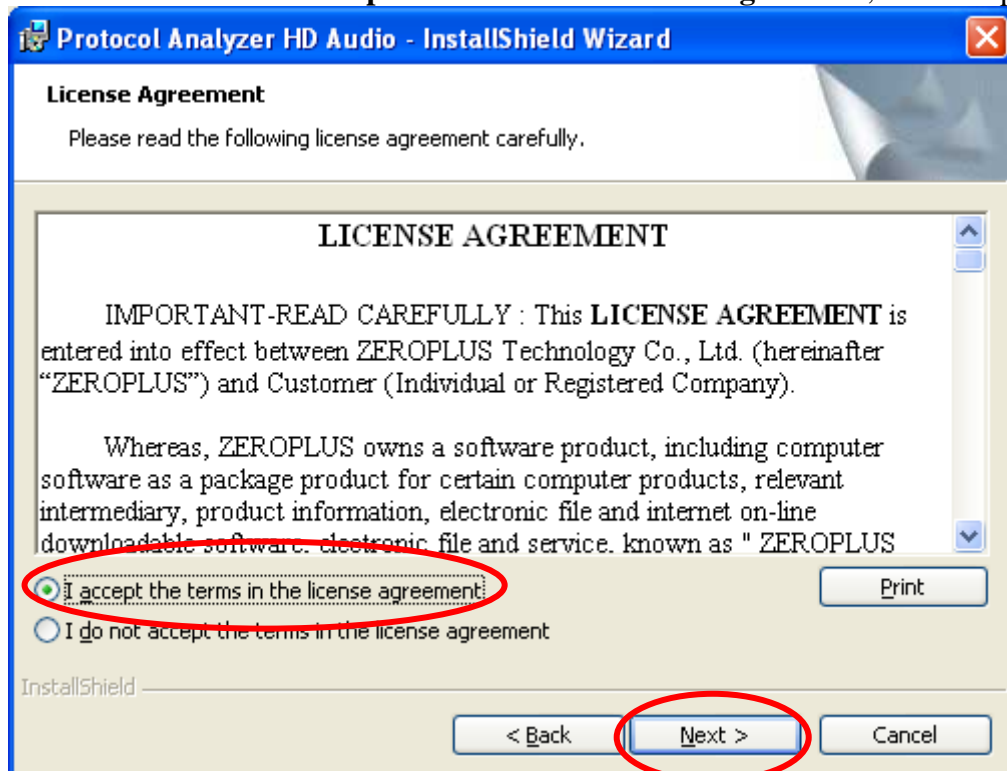




STEP 3. Click Next.



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





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

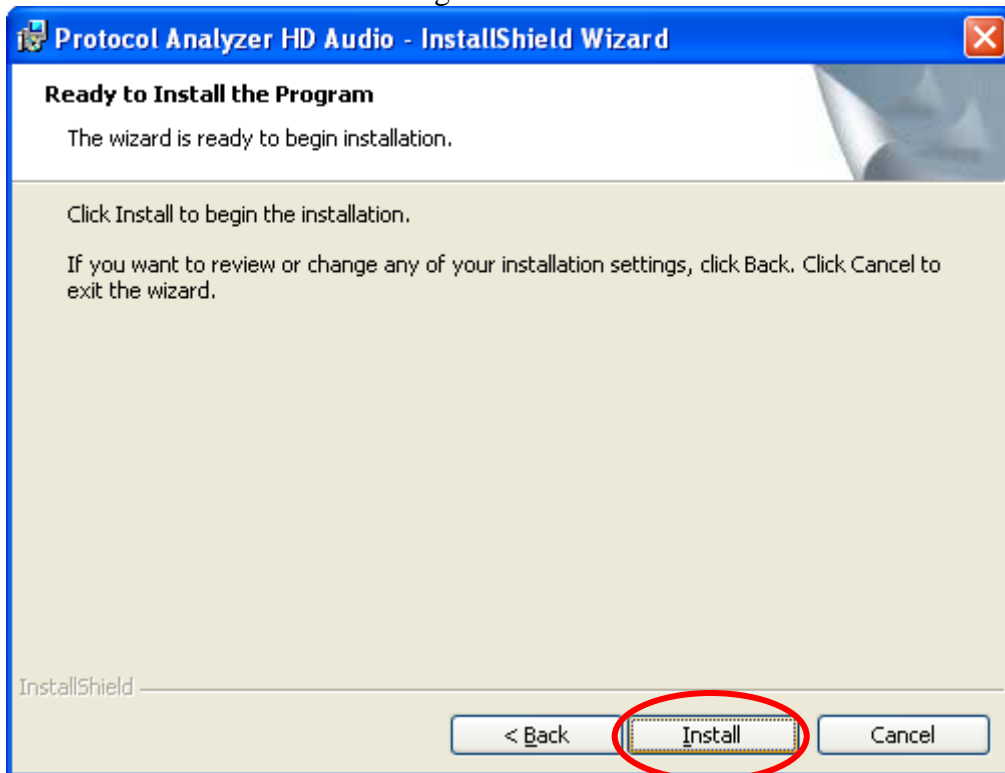
The dialog box is titled "Protocol Analyzer HD Audio - InstallShield Wizard". It has a blue header bar with a close button (X) in the top right corner. The main area is titled "Customer Information" and contains the text "Please enter your information." Below this, there are two text input fields: "User Name:" with "Microsoft" entered, and "Organization:" with "User" entered. Below the input fields, there is a section titled "Install this application for:" with two radio button options: "Anyone who uses this computer (all users)" (which is selected) and "Only for me (Microsoft)". At the bottom of the dialog, there are three buttons: "< Back", "Next >" (which is circled in red), and "Cancel". The "InstallShield" logo is visible in the bottom left corner.

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

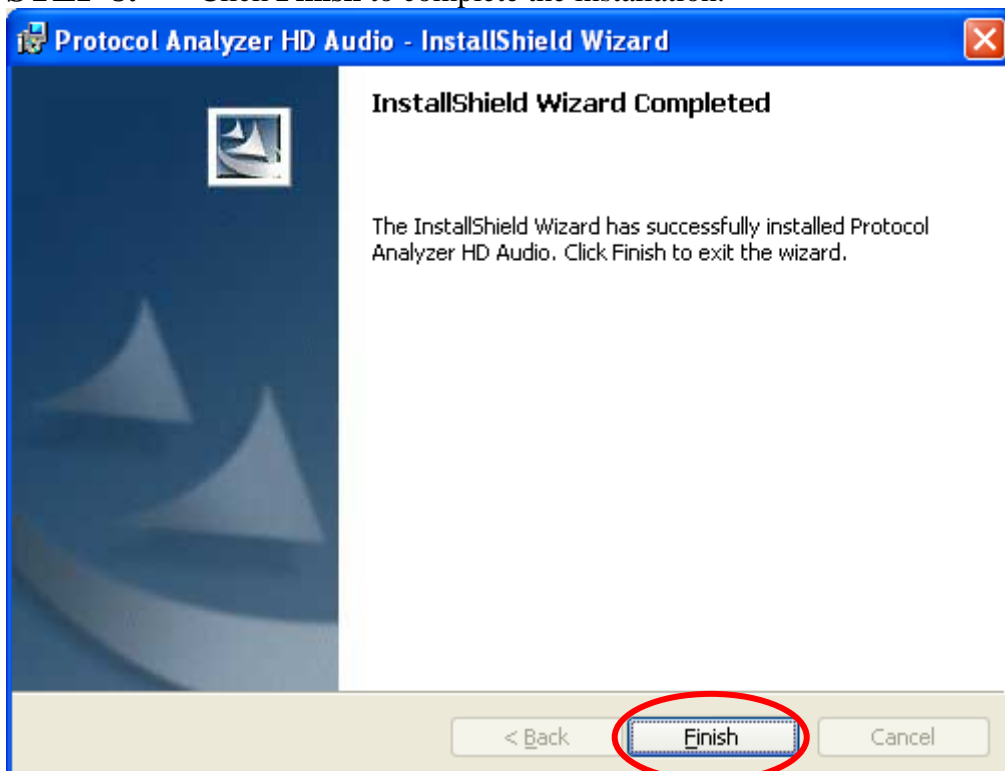
The dialog box is titled "Protocol Analyzer HD Audio - InstallShield Wizard". It has a blue header bar with a close button (X) in the top right corner. The main area is titled "Setup Type" and contains the text "Choose the setup type that best suits your needs." Below this, there is a section titled "Please select a setup type." with two radio button options: "Complete" (which is selected) and "Custom". Each option has a small icon of a computer tower and a description: "Complete" says "All program features will be installed. (Requires the most disk space.)" and "Custom" says "Choose which program features you want installed and where they will be installed. Recommended for advanced users." At the bottom of the dialog, there are three buttons: "< Back", "Next >" (which is circled in red), and "Cancel". The "InstallShield" logo is visible in the bottom left corner.



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



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

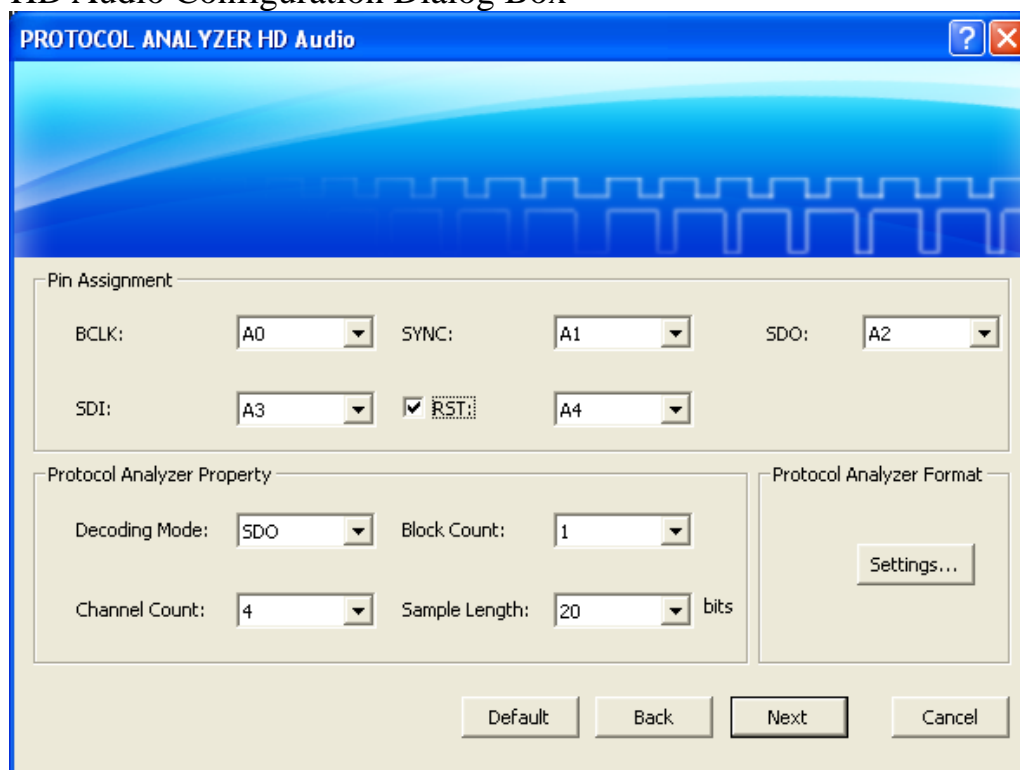




3 User Interface

In the configuration, please refer to the below images to select options of setting **HD Audio** module.

HD Audio Configuration Dialog Box



Pin Assignment:

BCLK: It is the Clock signal channel, and the default is A0.

SYCN: It is the Data Synchronization channel, and the default is A1.

SDO: It is the Data Output channel, and the default is A2.

SDI: It is the Data Input channel, and the default is A3.

RST: It is the Reset channel; RST can have effect when the RST is at the Low Level. There is also the selectable channel, and the default is A4.

Protocol Analyzer Property:

Decoding Mode: Set the Mode to SDO or SDI. It can decode the Output Data or Input Data. When the SDI is selected, the two options of Block Count and Channel Count can't be set.

Block Count: It is used for setting the number of Sample Block in a Stream Packet of the Output Data; the selectable is 1, 2 or 4.

Channel Number: It is used for setting the number of channels in a Block, that's to say, the number of Sample Unit; the selectable value is from 1 to 16.

Sample Length: It is used for setting the Length of a Sample; the selectable value is 8, 16, 20, 24 or 32 bits.

Protocol Analyzer Format:

Press the **Settings** button to open the Protocol Analyzer Format dialog box. The Color of each Item can be varied as the users' requirements. The Items (Verb, Preamble, Stream ID, NID, CAd, Response, Sample and Length) can be set as Binary, Decimal, Hexadecimal, ASCII or Default. And the Data Format of these Items (Verb, Preamble, Stream ID, NID, CAd, Response, Sample and Length) 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 (Verb, Preamble, Stream



ID, NID, CAAd, Response, Sample and Length) is the Default.

Protocol Analyzer Format

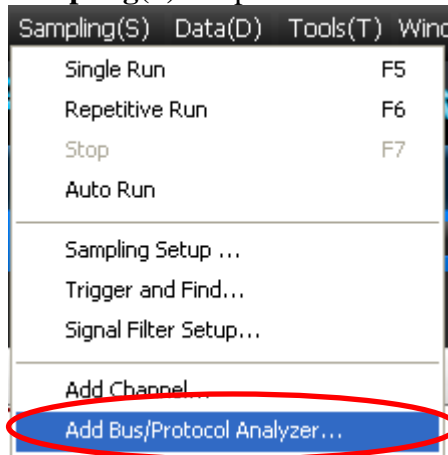
Item	Color	Data Format	Item	Color	Data Format
SYNC		Default	Reset		Default
Verb		Default	CAAd		Default
Valid		Default	Stream ID		Default
Null		Default	Response		Default
Reserved		Default	NID		Default
Preamble		Default	Sample		Default
Unsol		Default	Length		Default

OK Cancel Default

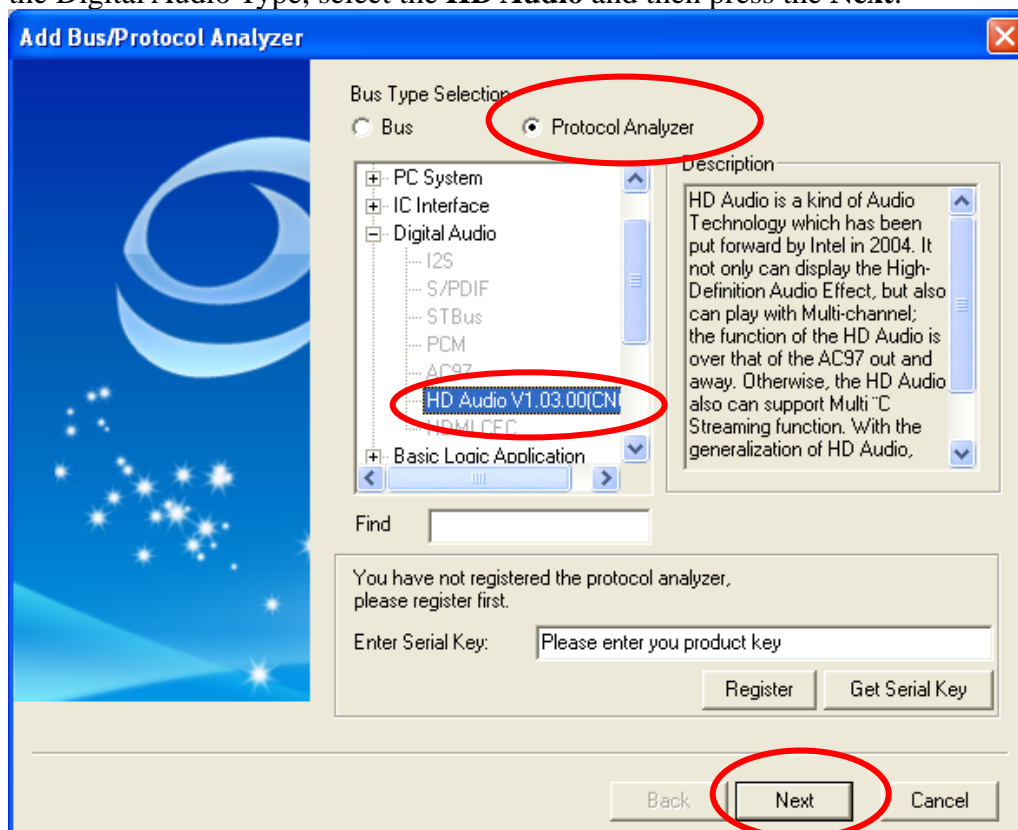


4 Operating Instructions

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.

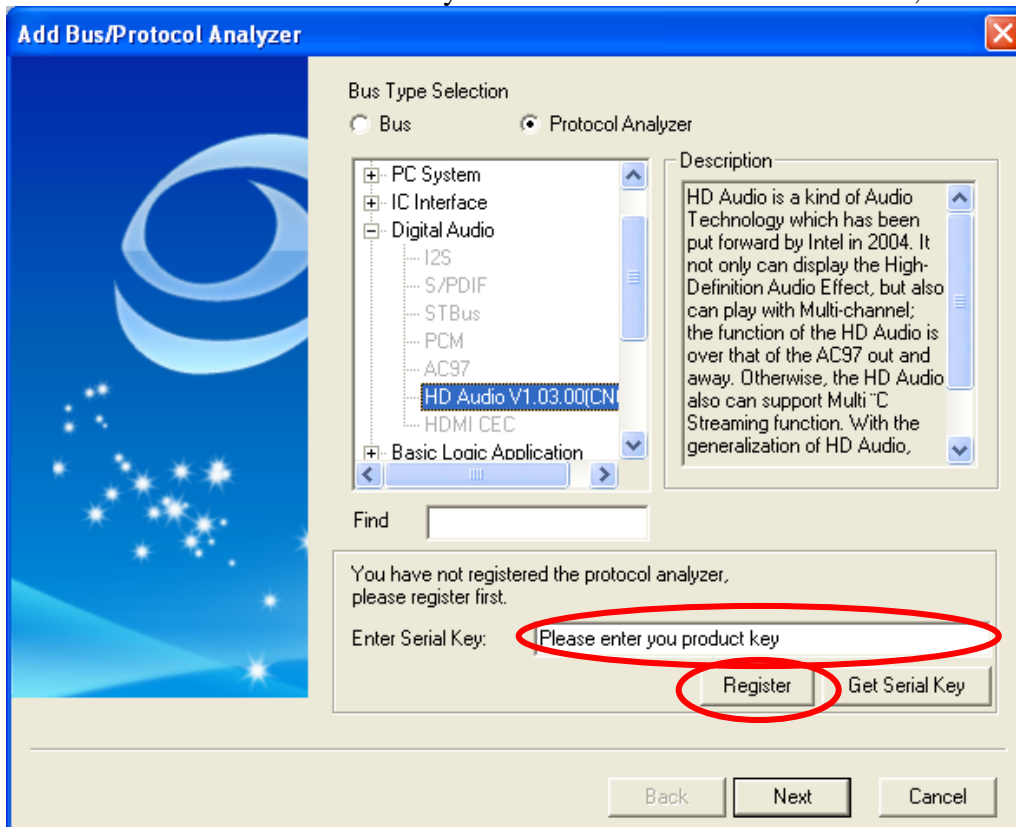


STEP 2. Select the Protocol Analyzer item in the Add Bus/Protocol Analyzer dialog box, expand the Digital Audio Type, select the **HD Audio** and then press the **Next**.

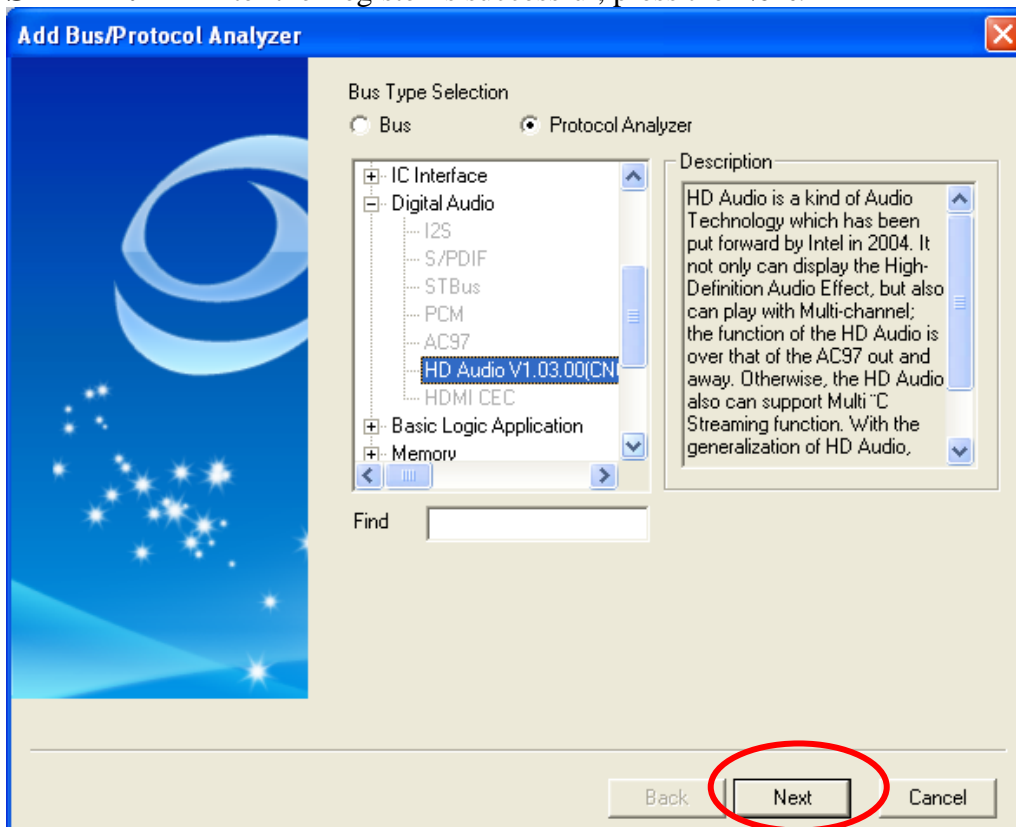




STEP 3. Enter the Serial Key of the **HD Audio** under this Model, and then press the **Register**.

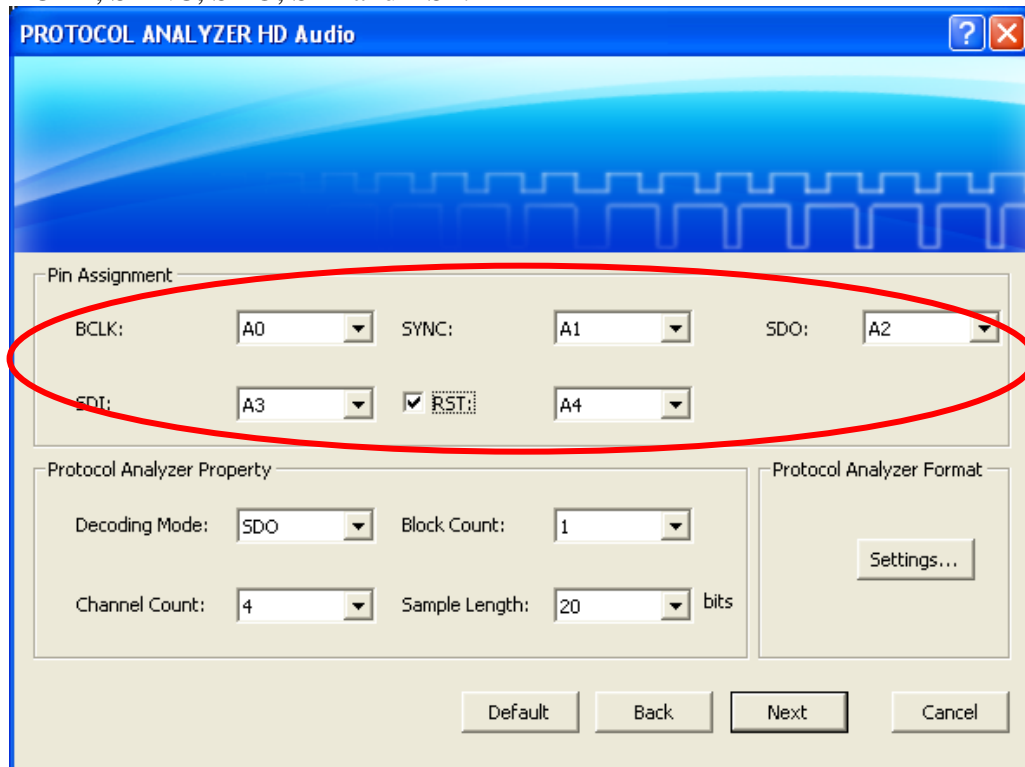


STEP 4. After the Register is successful, press the **Next**.

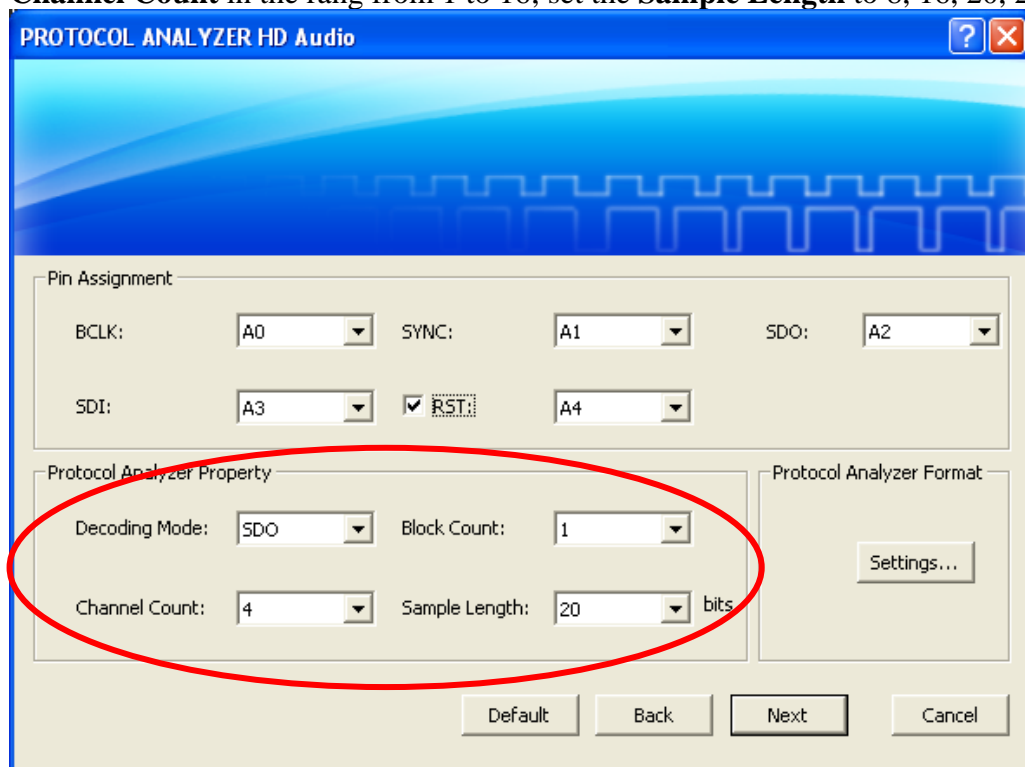




STEP 5. Open the PROTOCOL ANALYZER HD Audio dialog box and set the channels of the BCLK, SYNC, SDO, SDI and RST.

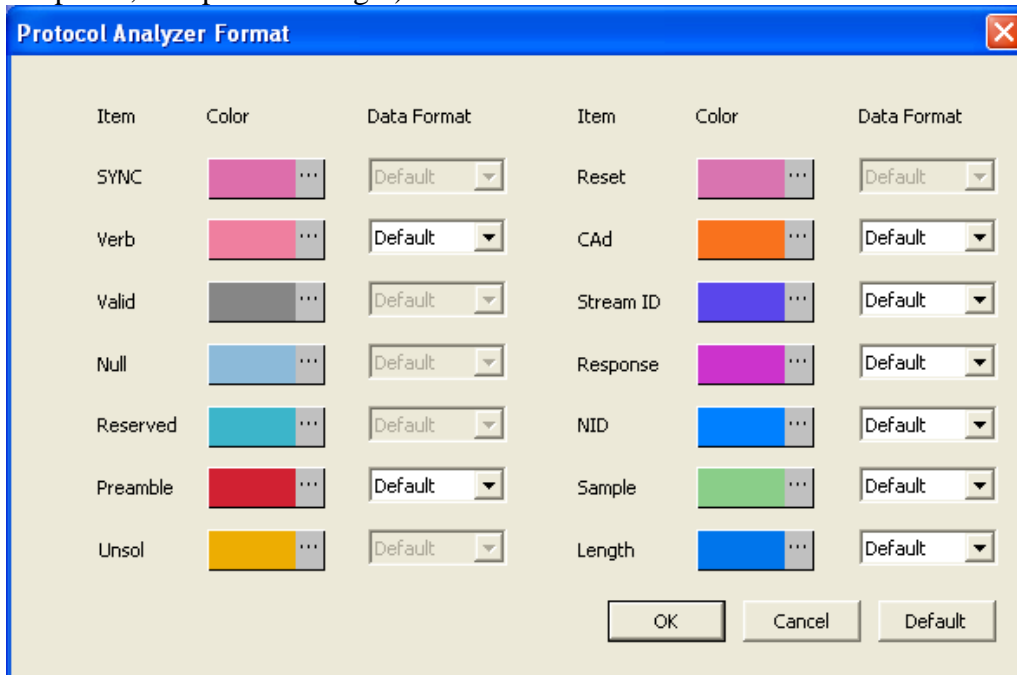


STEP 6. Set the **Decoding Mode** to SDO or SDI; set the **Block Count** to 1, 2 or 4; set the **Channel Count** in the rang from 1 to 16; set the **Sample Length** to 8, 16, 20, 24 or 32bits.





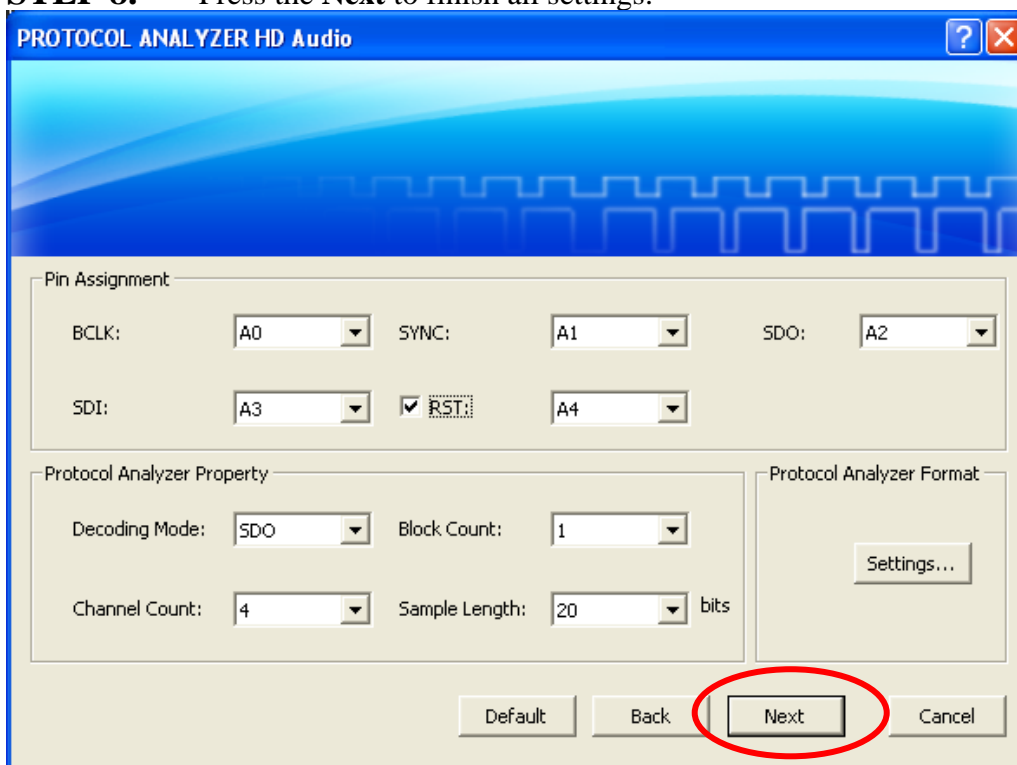
STEP 7. Press the **Settings** button to open the Protocol Analyzer Format dialog box, and then set the Color of each Item and the Data Format of the Items (Verb, Preamble, Stream ID, NID, CAd, Response, Sample and Length).



The dialog box titled "Protocol Analyzer Format" contains two columns of settings. Each row represents an item with a color selection button (a colored square followed by three dots) and a "Data Format" dropdown menu. The items are: SYNC, Verb, Valid, Null, Reserved, Preamble, Unsol, Reset, CAd, Stream ID, Response, NID, Sample, and Length. All "Data Format" dropdowns are currently set to "Default". At the bottom right are "OK", "Cancel", and "Default" buttons.

Item	Color	Data Format	Item	Color	Data Format
SYNC	[Pink]	Default	Reset	[Pink]	Default
Verb	[Pink]	Default	CAd	[Orange]	Default
Valid	[Grey]	Default	Stream ID	[Purple]	Default
Null	[Light Blue]	Default	Response	[Magenta]	Default
Reserved	[Teal]	Default	NID	[Blue]	Default
Preamble	[Red]	Default	Sample	[Green]	Default
Unsol	[Yellow]	Default	Length	[Blue]	Default

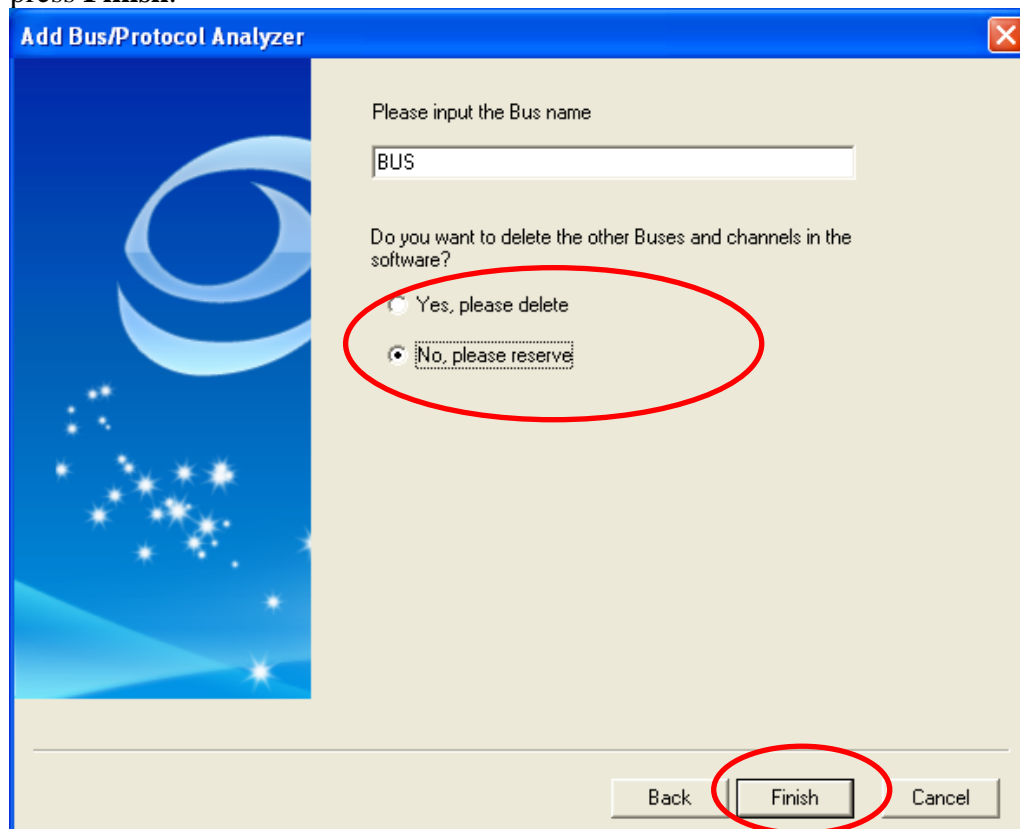
STEP 8. Press the **Next** to finish all settings.



The dialog box titled "PROTOCOL ANALYZER HD Audio" has a blue header with a waveform graphic. It contains several sections: "Pin Assignment" with dropdowns for BCLK (A0), SYNC (A1), SDO (A2), SDI (A3), and RST (A4) (checked); "Protocol Analyzer Property" with dropdowns for Decoding Mode (SDO), Block Count (1), Channel Count (4), and Sample Length (20) bits; and "Protocol Analyzer Format" with a "Settings..." button. At the bottom are "Default", "Back", "Next" (circled in red), and "Cancel" buttons.

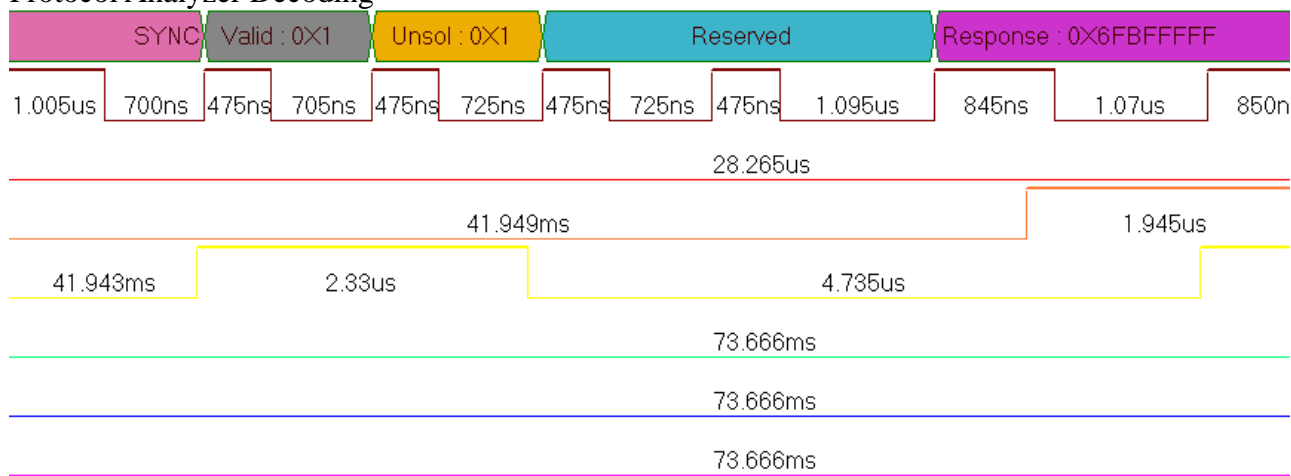


STEP 9. Please enter the Bus Name, select **Yes, please delete** or **No, please reserve** and then press **Finish**.



STEP 10. Following pictures show the completion of the protocol analyzer decoding and the packet list. The trigger condition is set as Either Edge; the memory depth is 64K; the sampling frequency is 150MHz (the sampling frequency should be more than eight times higher than the signal to be tested).

Protocol Analyzer Decoding





Packet List

Navigator Packet List Statistics Memory Analyzer												
Packet #	Name	TimeStamp	SYNC	Valid	Unsol	Resevred	Response	Stream ID	Length	Sample	Sample	Stream ID
1	Bus1(HD Audio)	0.00025ms	SYNC	1	1	Reserved	6FBFFFFFF	4	05	13D4D	987A9	2
	Length	Sample	Sample	Stream ID	Length	Sample	Sample	Stream ID	Length	Sample	Sample	Stream ID
	05	ECC3D	4D987	8	05	C1EA6	CC3D4	D	05	EA6CC	3D4D9	9
	Length	Sample	Sample	Stream ID	Length	Sample	Sample	Stream ID	Length	Sample	Sample	Stream ID
	05	83D4D	987A9	2	05	ECC3D	4D987	8	05	C1EA6	CC3D4	D
	Length	Sample	Sample	Stream ID	Length	Null						
	05	EA6CC	3D4D9	9	00	Null						
Packet #	Name	TimeStamp	SYNC	Valid	Unsol	Resevred	Response	Stream ID	Length	Sample	Sample	Stream ID
2	Bus1(HD Audio)	1.12327ms	SYNC	1	1	Reserved	6FBFFFFFF	4	05	13D4D	987A9	2
	Length	Sample	Sample	Stream ID	Length	Sample	Sample	Stream ID	Length	Sample	Sample	Stream ID
	05	ECC3D	4D987	8	05	C1EA6	CC3D4	D	05	EA6CC	3D4D9	9
	Length	Sample	Sample	Stream ID	Length	Sample	Sample	Stream ID	Length	Sample	Sample	Stream ID
	05	83D4D	987A9	2	05	ECC3D	4D987	8	05	C1EA6	CC3D4	D
	Length	Sample	Sample	Stream ID	Length	Null						
	05	EA6CC	3D4D9	9	00	Null						