



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

SPECIFICATION

MODEL: B09018-LAP-LPT-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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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.

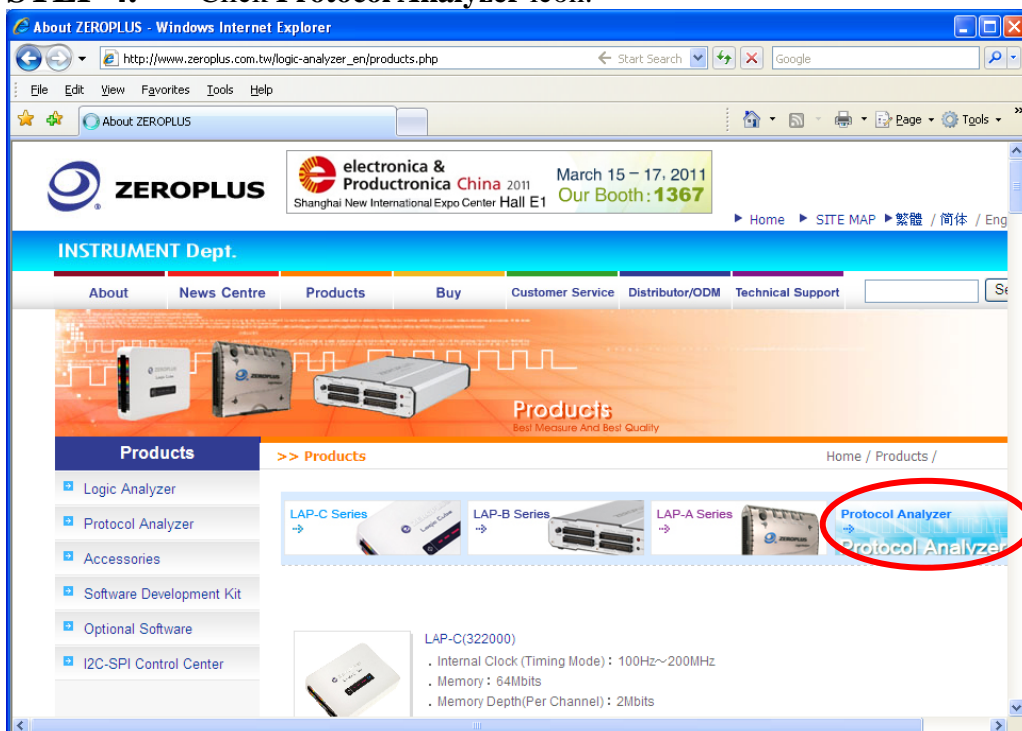




STEP 3. Click **Products** menu or select **Protocol Analyzer** item from its pull-down menu to go straight to STEP 5.

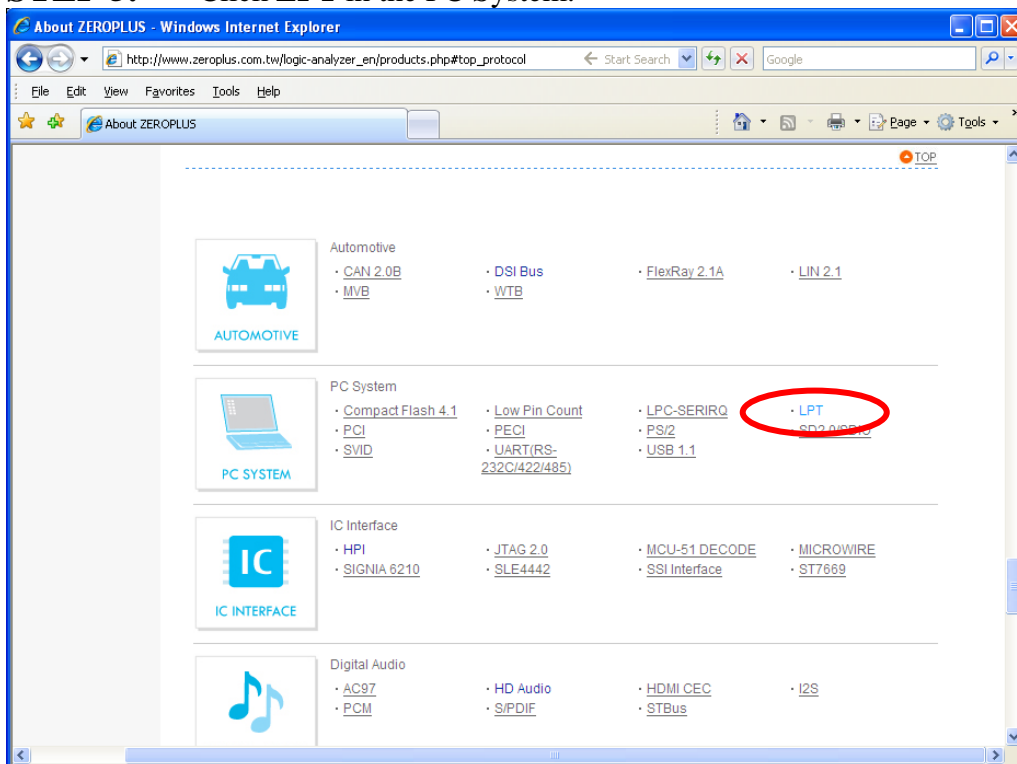


STEP 4. Click **Protocol Analyzer** icon.

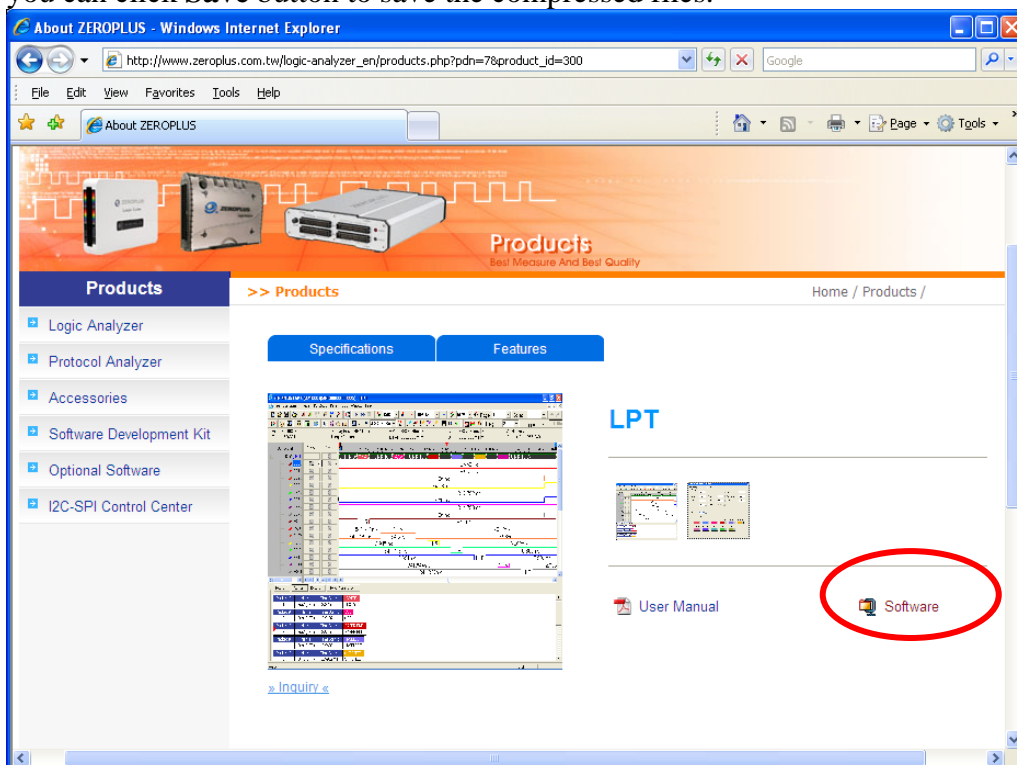




STEP 5. Click **LPT** in the PC System.



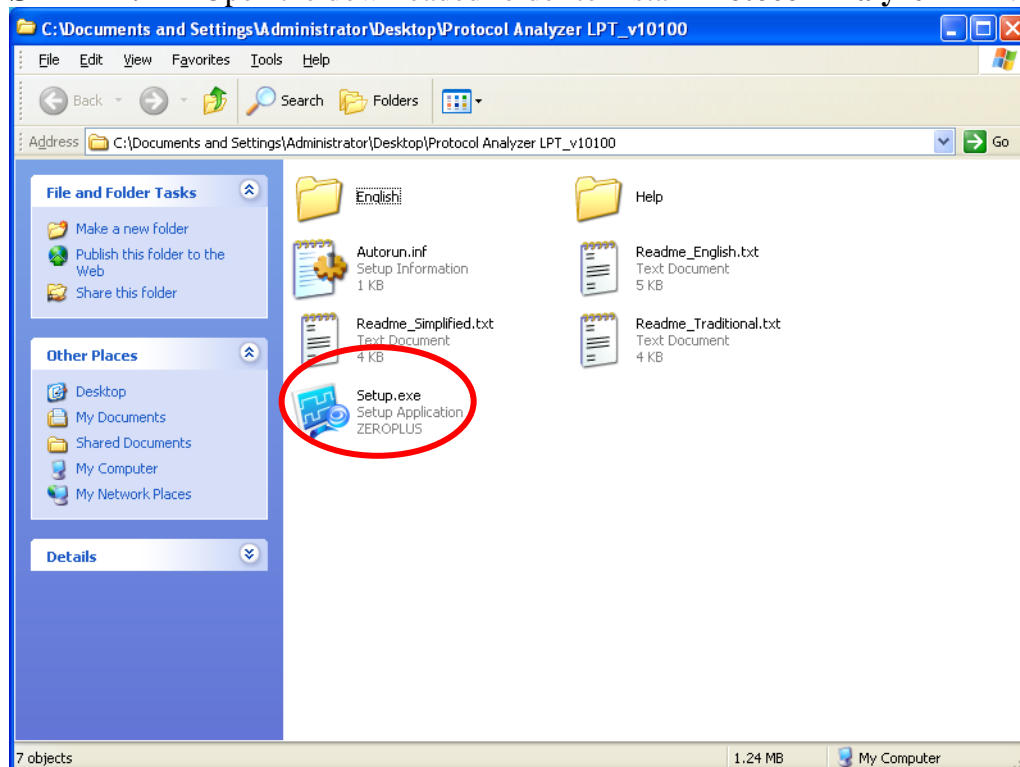
STEP 6. Click **Software** in the Products page. When the File Download dialog box appears, you can click **Save** button to save the compressed files.



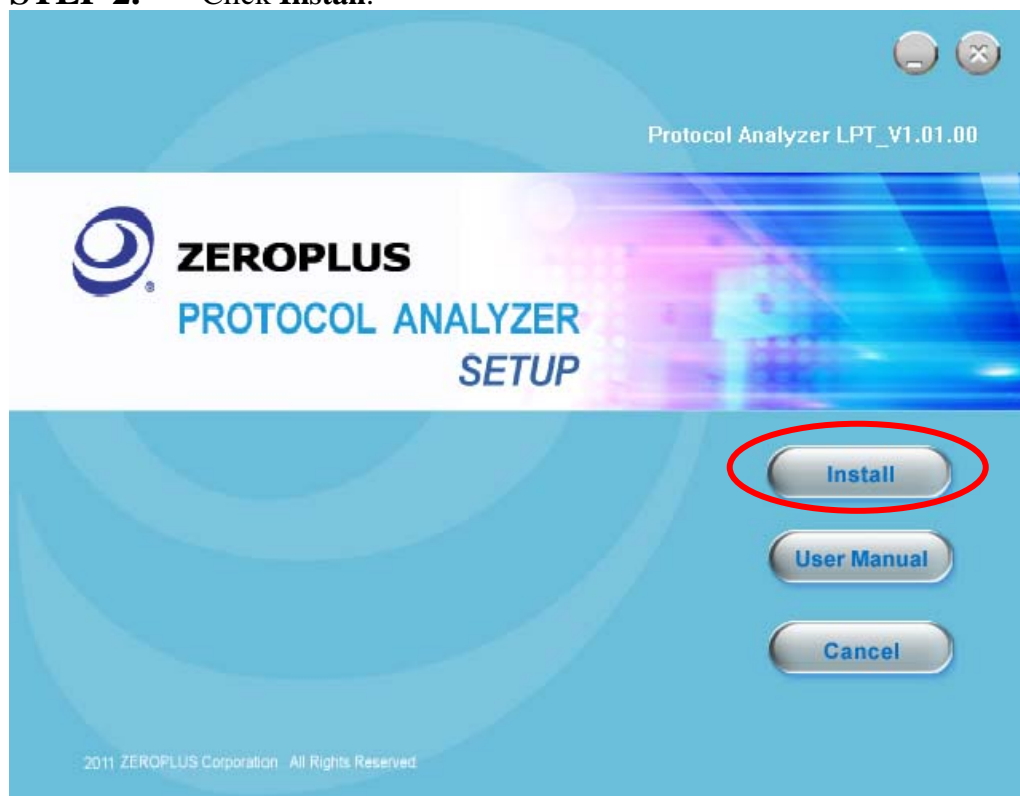


2 Software Installation

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

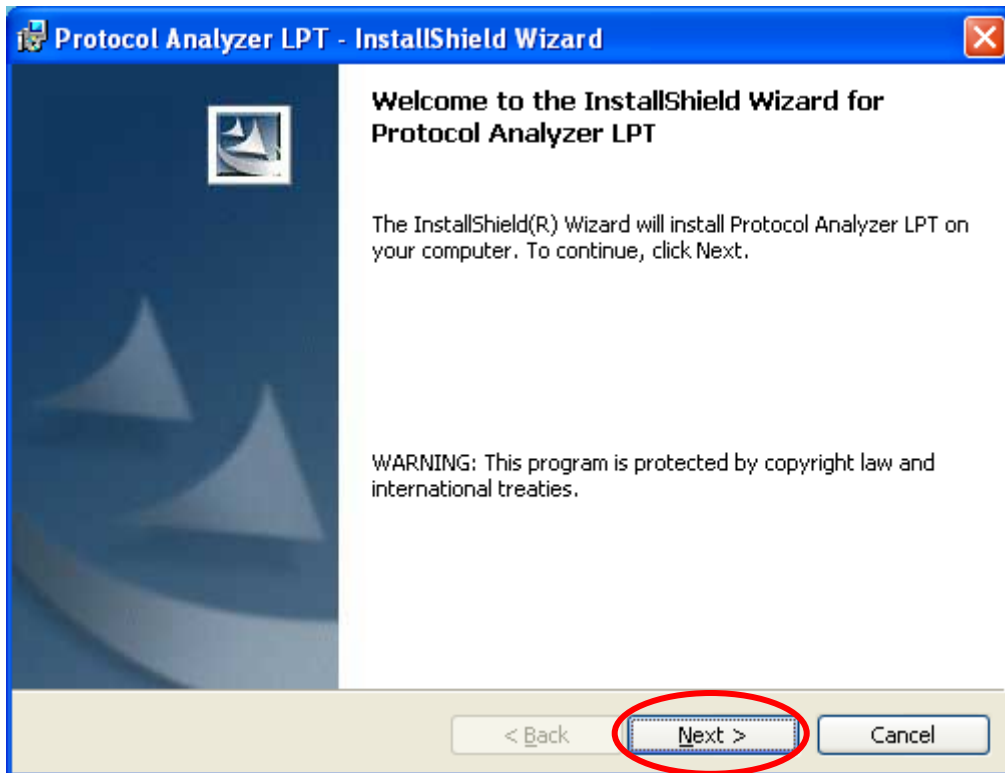


STEP 2. Click **Install**.

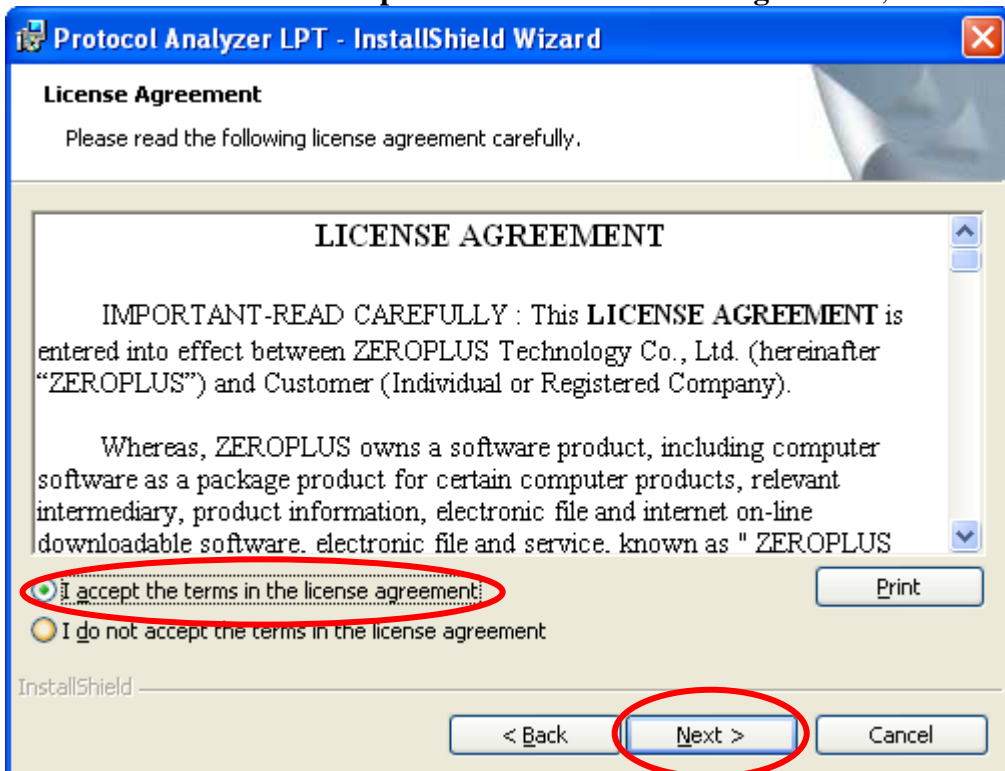




STEP 3. Click Next.



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**.

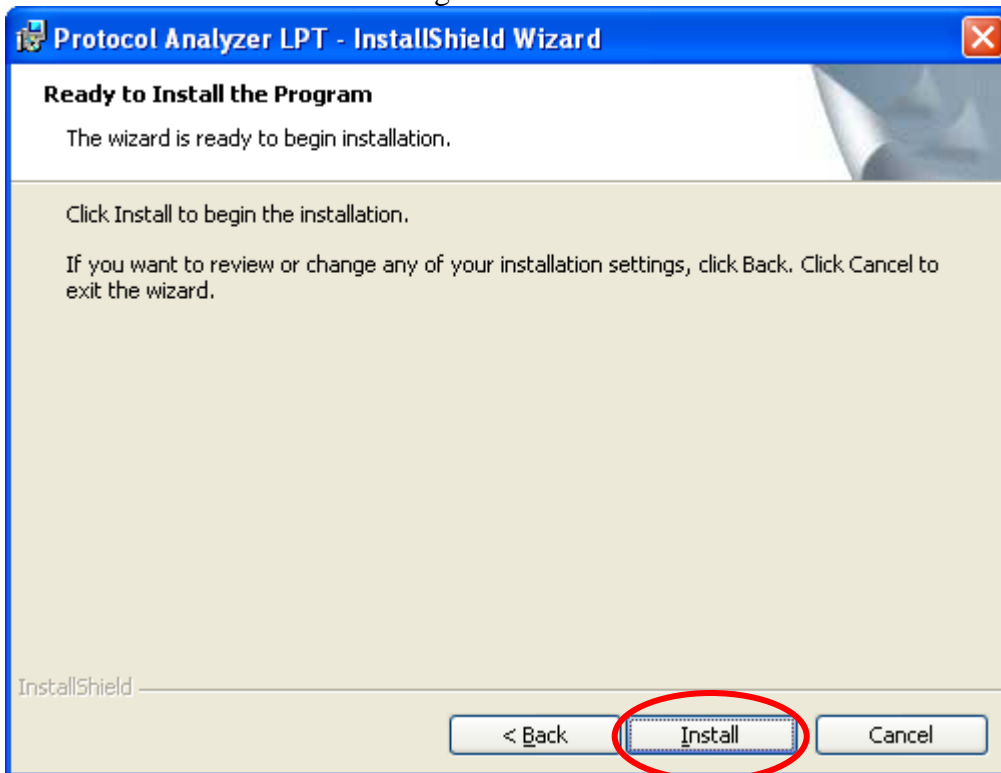
The dialog box is titled "Protocol Analyzer LPT - InstallShield Wizard". It has a blue title bar with a close button. The main area is titled "Customer Information" and contains the text "Please enter your information." Below this are two text input fields: "User Name:" with "Microsoft" entered, and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

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

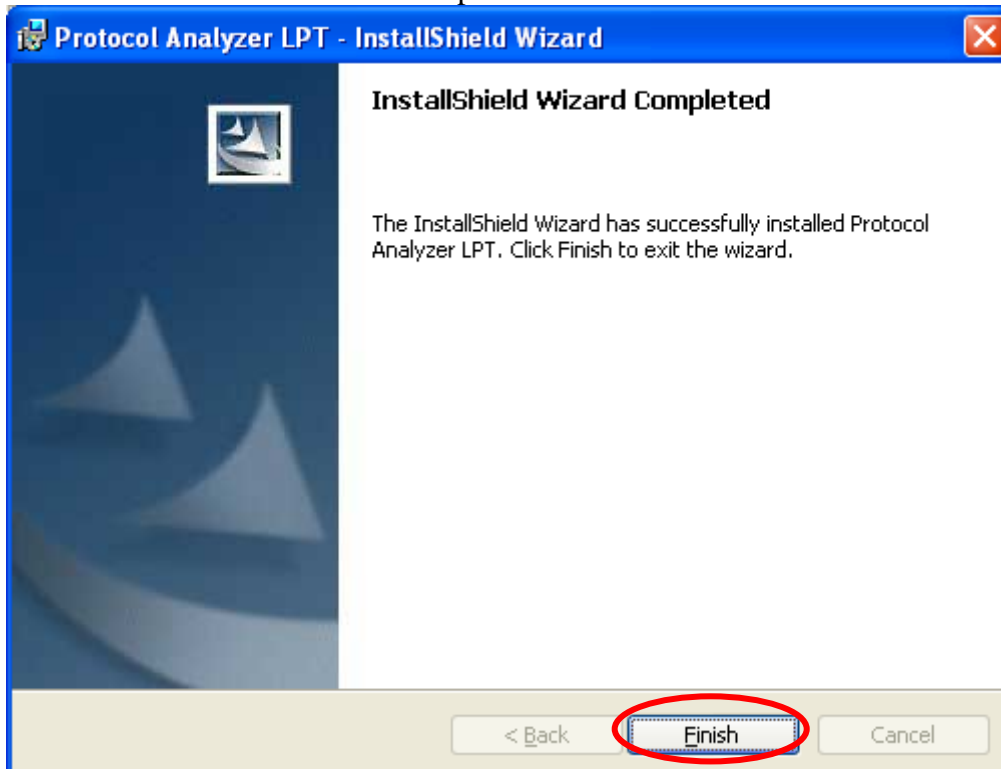
The dialog box is titled "Protocol Analyzer LPT - InstallShield Wizard". It has a blue title bar with a close button. The main area is titled "Setup Type" and contains the text "Choose the setup type that best suits your needs." Below this is the text "Please select a setup type." There are two radio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



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



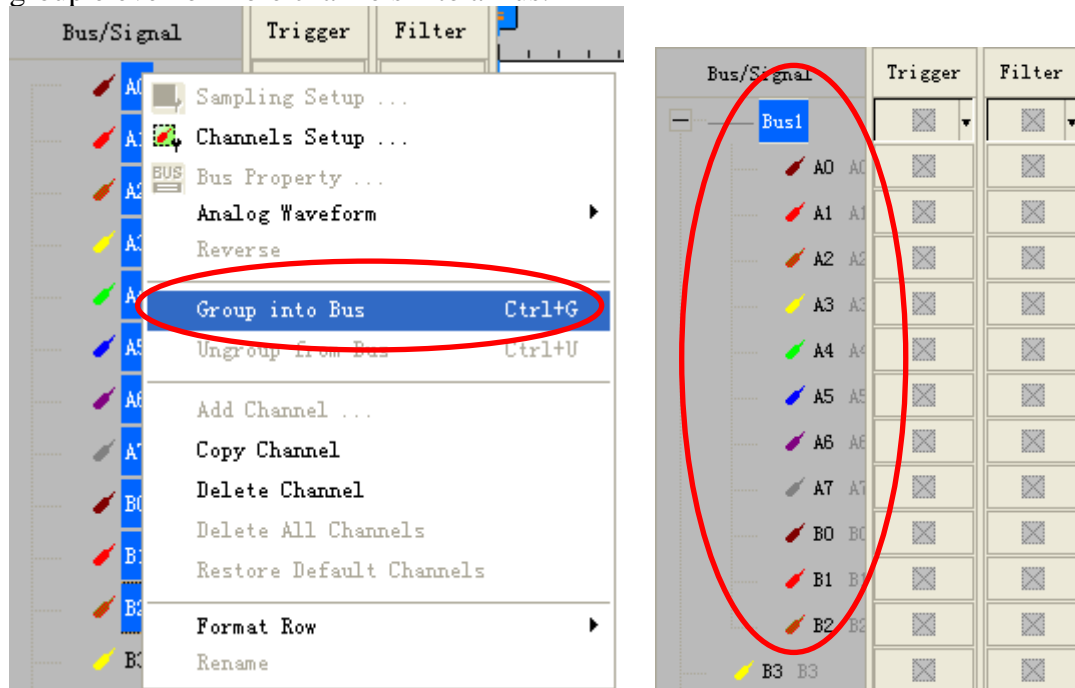
STEP 8. Click **Finish** to complete the installation.



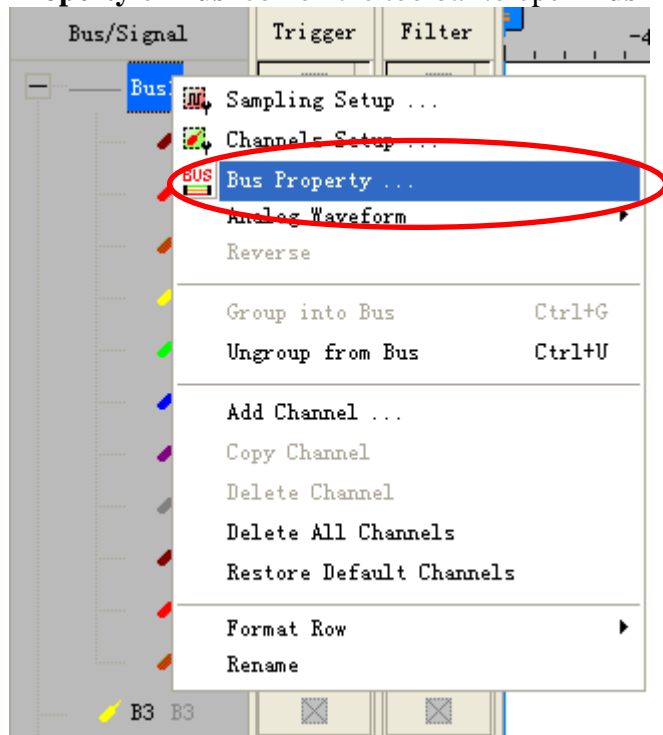


3 Software Register

STEP 1. Open the Logic Analyzer and group the unanalyzed channels into **Bus1** by pressing the **Right Key** on the mouse. **LPT** needs eleven or more channels to decode signals, so it is necessary to group eleven or more channels into a Bus.

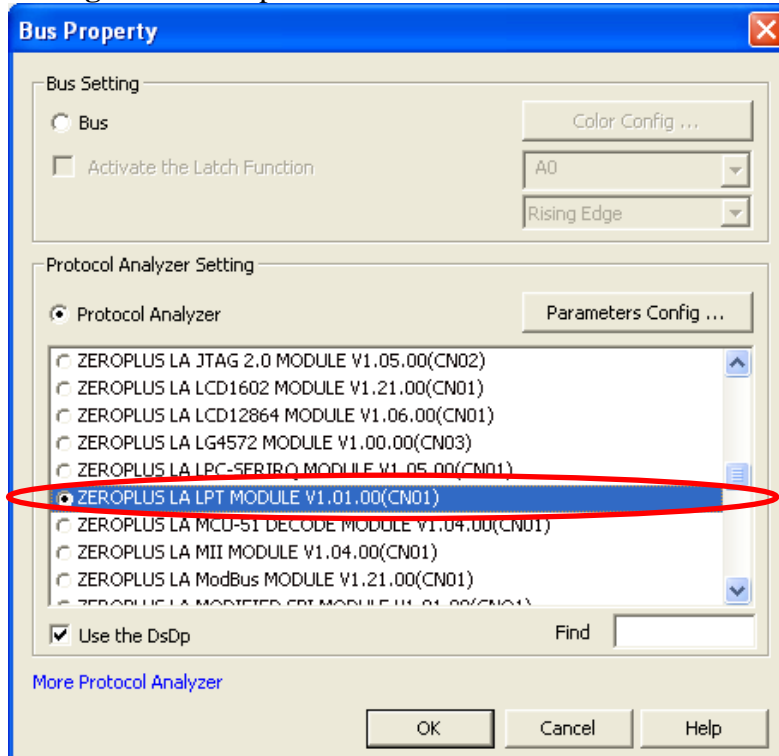


STEP 2. Select **Bus1**, and press **Right Key** on the mouse to list the menu, then press **Bus Property** or **Bus** icon on the toolbar to open **Bus Property** dialog box.

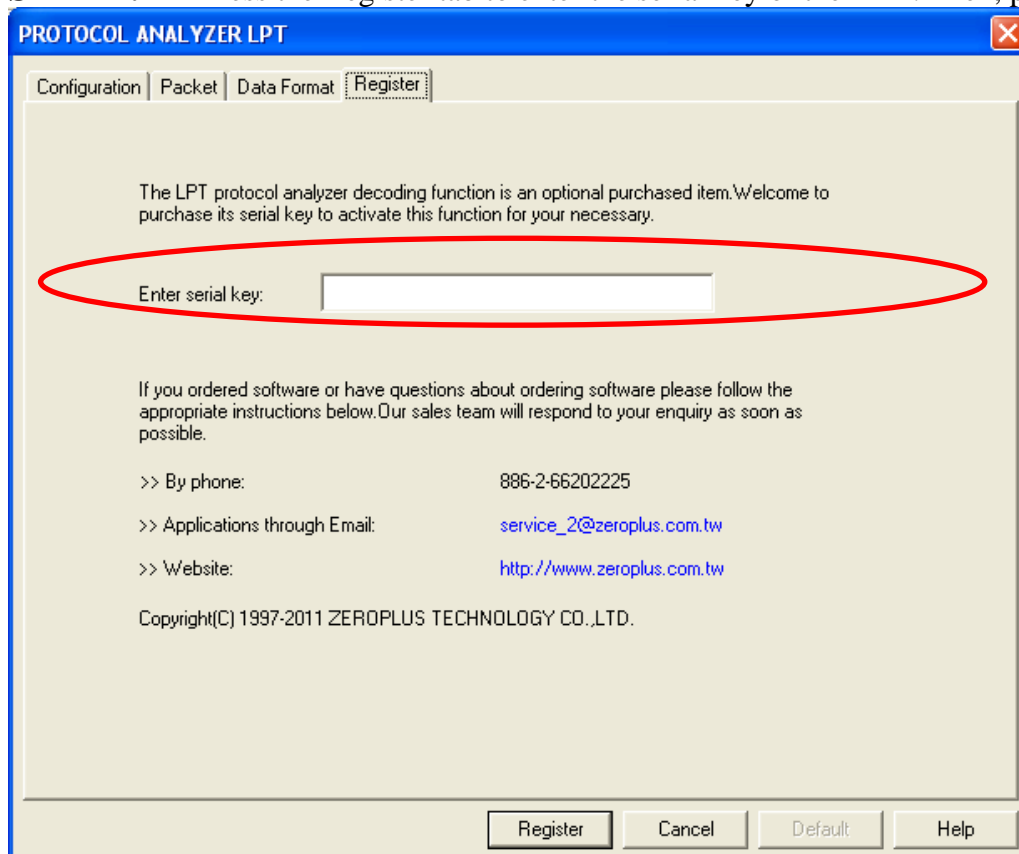




STEP 3. For Protocol Analyzer LPT Parameters Configuration, select Protocol Analyzer, and then choose **ZEROPLUS LA LPT MODULE V1.01.00(CN01)**. Next click **Parameters Configuration** to open the **PROTOCOL ANALYZER LPT** dialog box.

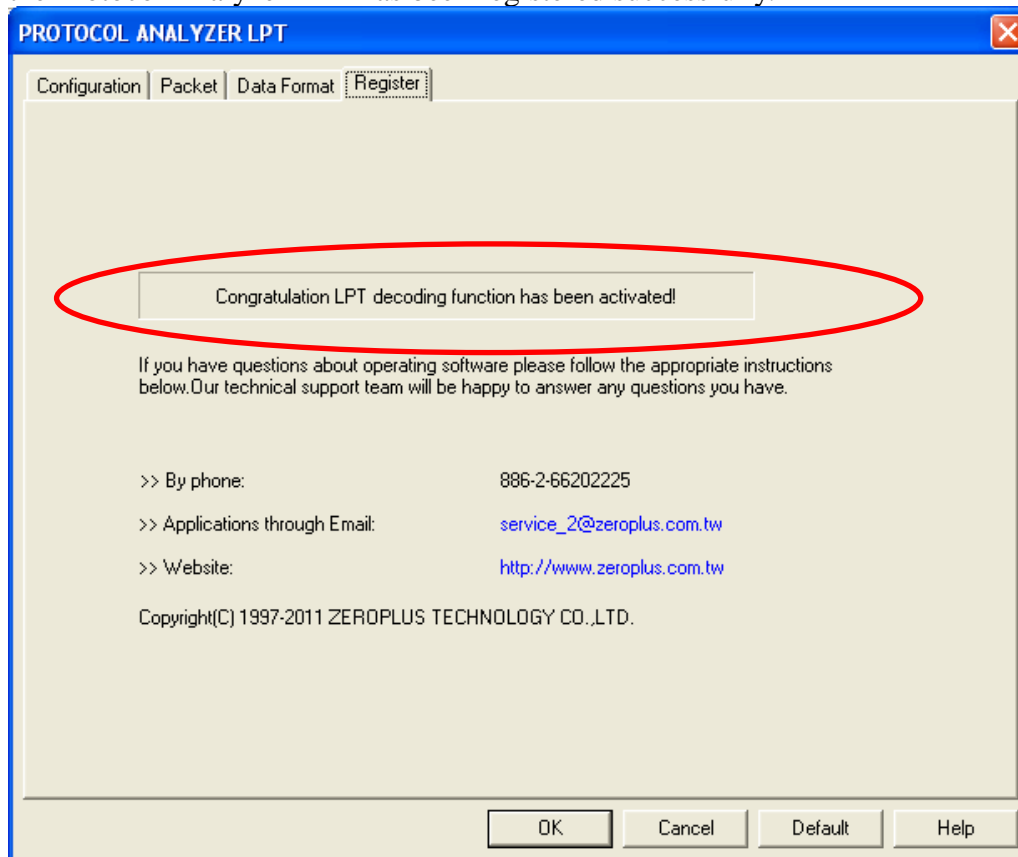


STEP 4. Press the Register tab to enter the serial key of the LPT. Then, press **Register**.





STEP 5. After pressing the Register button, the following dialog box will appear; it denotes that the Protocol Analyzer LPT has been registered successfully.

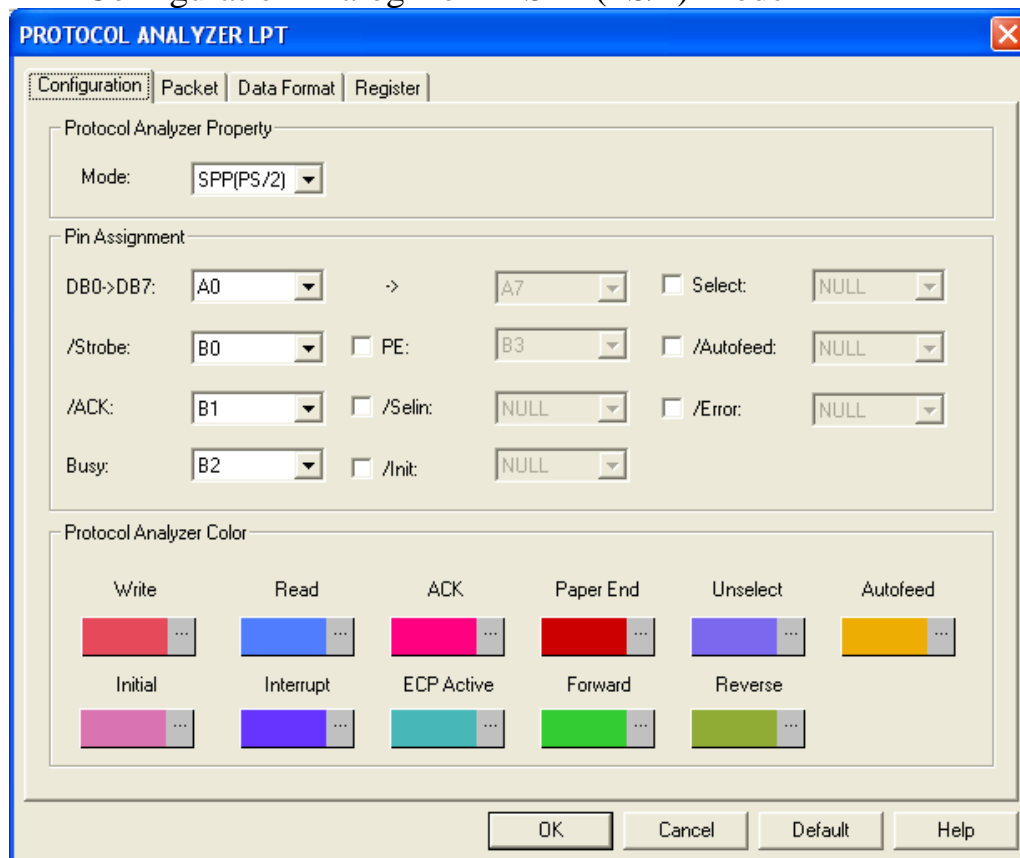




4 User Interface

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

LPT Configuration Dialog Box in SPP (PS/2) Mode



Protocol Analyzer Property:

Mode: There are three modes for LPT, which are the SPP(PS/2), EPP and ECP.

Pin Assignment in the SPP (PS/2) Mode: There are 17 Signal Lines for the SPP (PS/2) Mode in total, which include 8 Data Lines, 5 Status Lines and 4 Control Lines. DB0->DB7 are the Data ports. When the Busy line is in the Low Level, it indicates “Busy”. When the data is transmitted, the /ACK line is in the Low Level at first and then in the High Level. When there is not a piece of paper for the printer, PE line is in the High Level. When the printer is effective, the Select line is the High Level. When there is an error for the printer, the /Error line is in the Low Level. The /Selin line is usually in the High Level in the SPP Mode; when it is in the Low Level, it indicates the selection of input. When the /Init line is in the Low Level, the printer starts initializing. When the /Autofeed line is in the Low Level, it indicates that the printer formfeeds automatically. The /Strobe line represents the Strobe Signal. Thereinto, the Read or the Write Operation of the decoding data mainly uses eleven channels in total, which are DB0->DB7, /Strobe, Busy, /ACK. The other channels are selectable decoding lines.

Protocol Analyzer Color: The Protocol Analyzer Color can be varied by users.



LPT Configuration Dialog Box in EPP Mode

PROTOCOL ANALYZER LPT

Configuration | Packet | Data Format | Register

Protocol Analyzer Property

Mode: **EPP**

Pin Assignment

DB0->DB7: **A0** -> **A7**

/Write: **B0** /Addstb: **B3**

/Datastb: **B2** ☐ Interrupt: **NULL**

/Wait: **B1** ☐ /Init: **NULL**

Protocol Analyzer Color

Write	Read	ACK	Paper End	Unselect	Autofeed
Initial	Interrupt	ECP Active	Forward	Reverse	

OK Cancel Default Help

Protocol Analyzer Property:

Mode: There are three modes for LPT, which are the SPP (PS/2), EPP and ECP.

Pin Assignment in the EEP Mode: It needs 12 channels for EPP decoding, which are the DB0->DB7, /Write, /Wait, /Datastb and /Addstb. The Interrupt and the /Init are selectable decoding lines.

Protocol Analyzer Color: The Protocol Analyzer Color can be varied by users.



LPT Configuration Dialog Box in ECP Mode

PROTOCOL ANALYZER LPT

Configuration | Packet | Data Format | Register

Protocol Analyzer Property

Mode: **ECP**

Pin Assignment

DB0->DB7: **A0** -> **A7** ☒ X-Flag: **B5**

Periphclk: **B1** Hostclk: **B0** ☒ 1284 Active: **C0**

Hostack: **B4** AckReverse: **B3** ☒ PeriphRequest: **B6**

/Periphack: **B2** ☒ ReverseRequest: **B7**

Protocol Analyzer Color

Write	Read	ACK	Paper End	Unselect	Autofeed
Initial	Interrupt	ECP Active	Forward	Reverse	

OK Cancel Default Help

Protocol Analyzer Property:

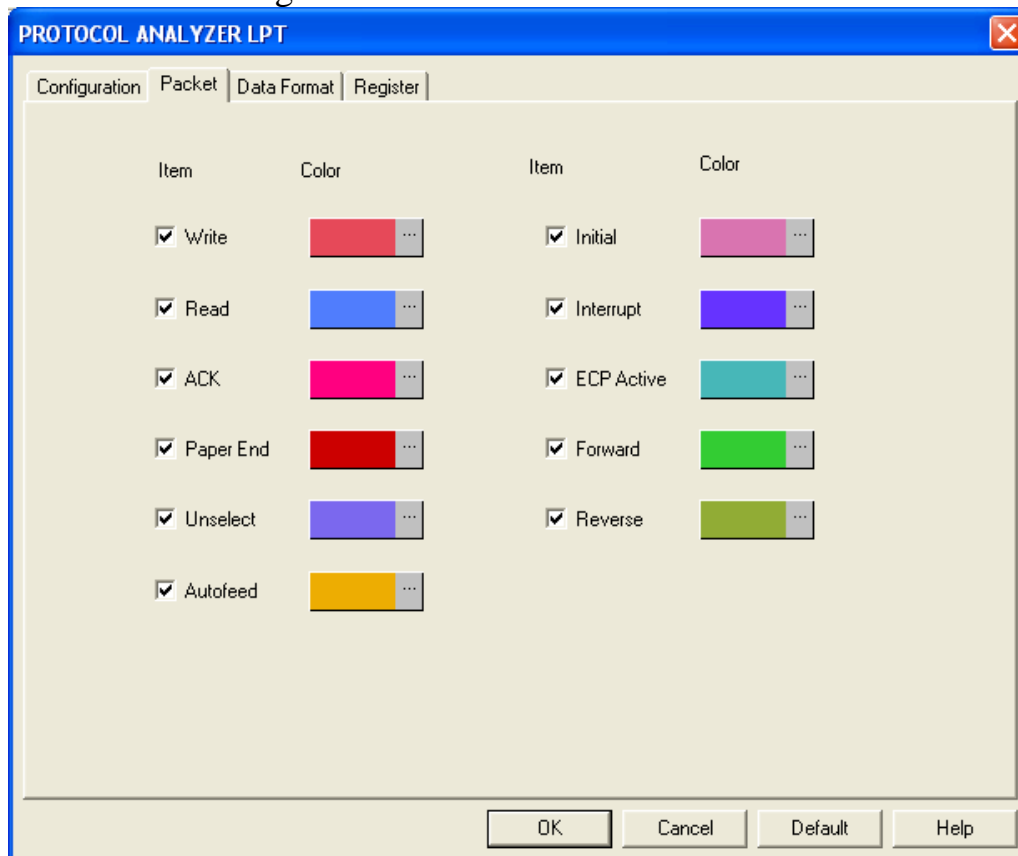
Mode: There are three modes for LPT, which are the SPP (PS/2), EPP and ECP.

Pin Assignment in the ECP Mode: There are 8 Data Lines and 9 Control Lines, thereinto it needs 13 channels for decoding, which are the DB0~BD7, Hostack, Periphclk, /Periphack, AckReverse and Hostclk. The X-Flag, 1284 Active, PeriphRequest and ReverseRequest are selectable decoding lines.

Protocol Analyzer Color: The Protocol Analyzer Color can be varied by users.

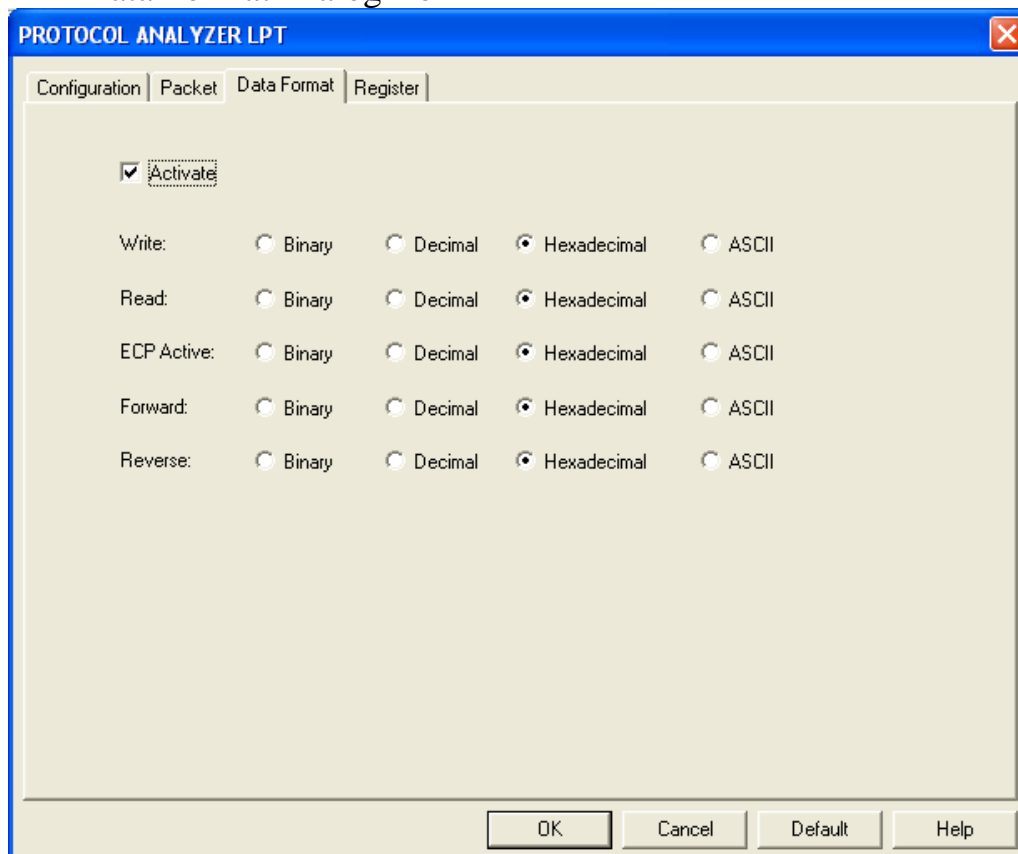


LPT Packet Dialog Box



In the Packet dialog box, users can vary the color of items and set the item to be displayed.

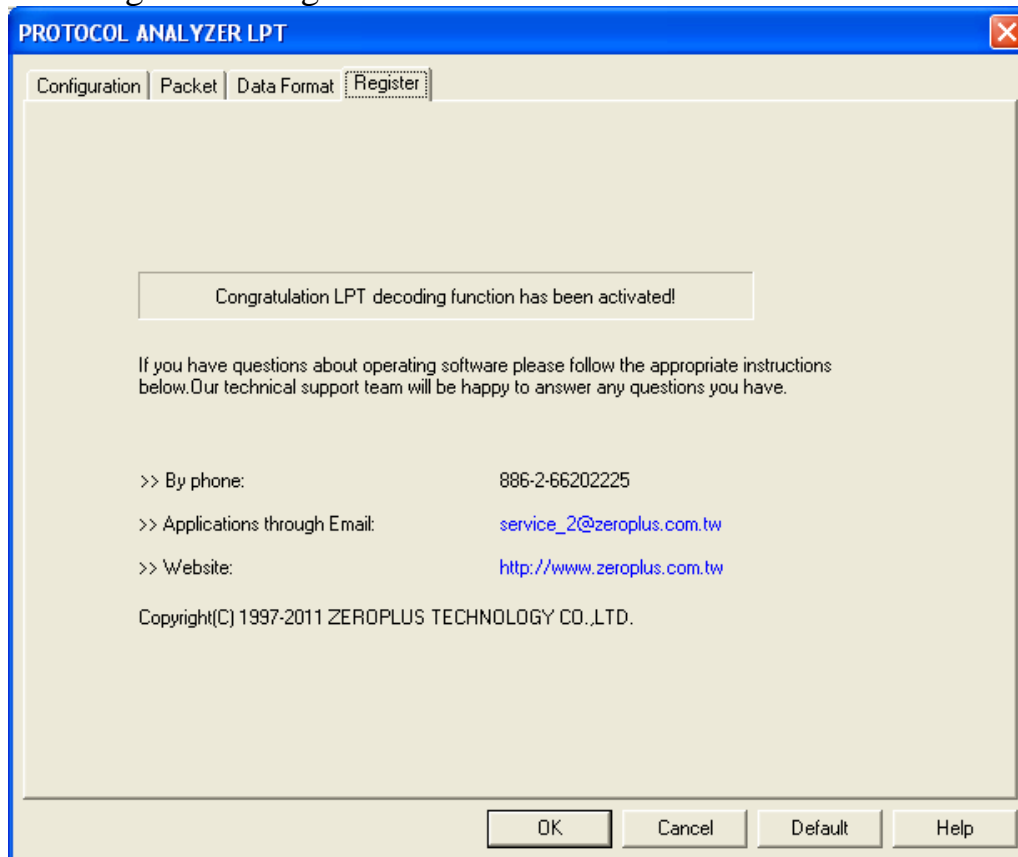
LPT Data Format Dialog Box





Users can set the Data Format of the Write, Read, ECP Active, Forward and Reverse as their requirements. When selecting the option, Activate, the data format is decided by the settings in the Module; when not selecting the option, Activate, the data format is decided by the settings in the main program.

LPT Register Dialog Box

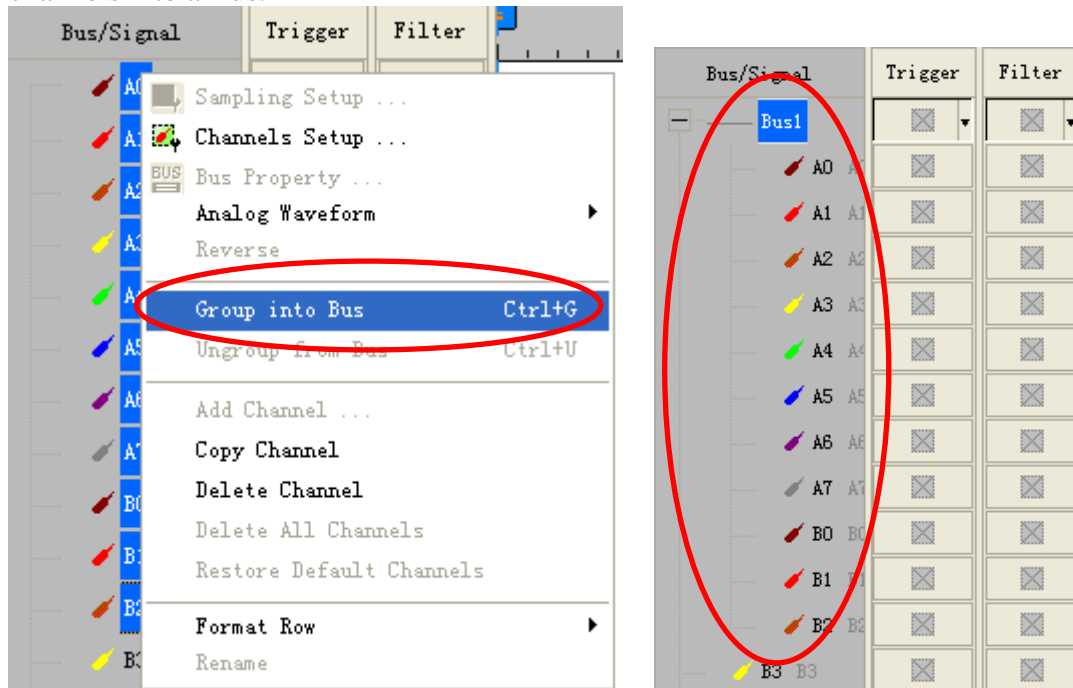


There is written ZeroPlus company information. If you have any questions about software operations, you can contact ZeroPlus by Telephone or Email.

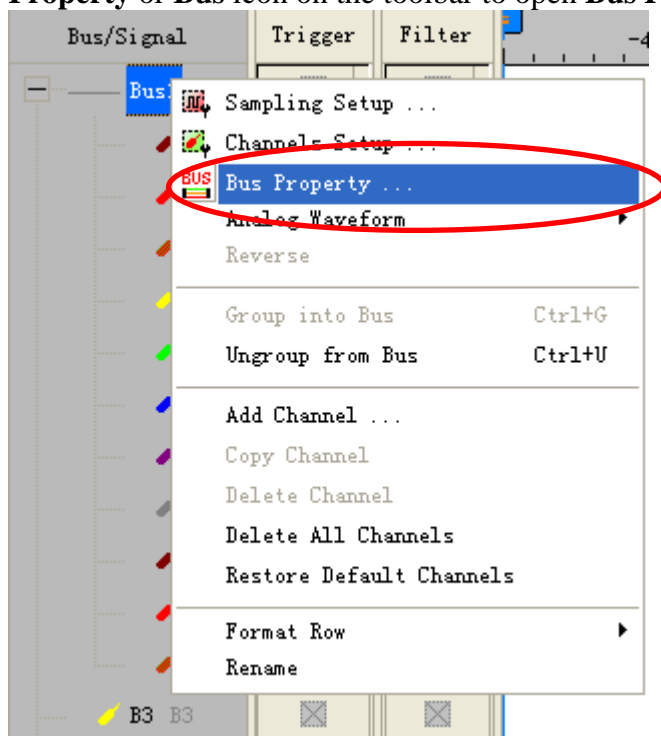


5 Operating Instructions

STEP 1. Group the unanalyzed channels into **Bus1** by pressing the **Right Key** on the mouse. LPT needs eleven or more channels to decode signals, so it is necessary to group eleven or more channels into a Bus.

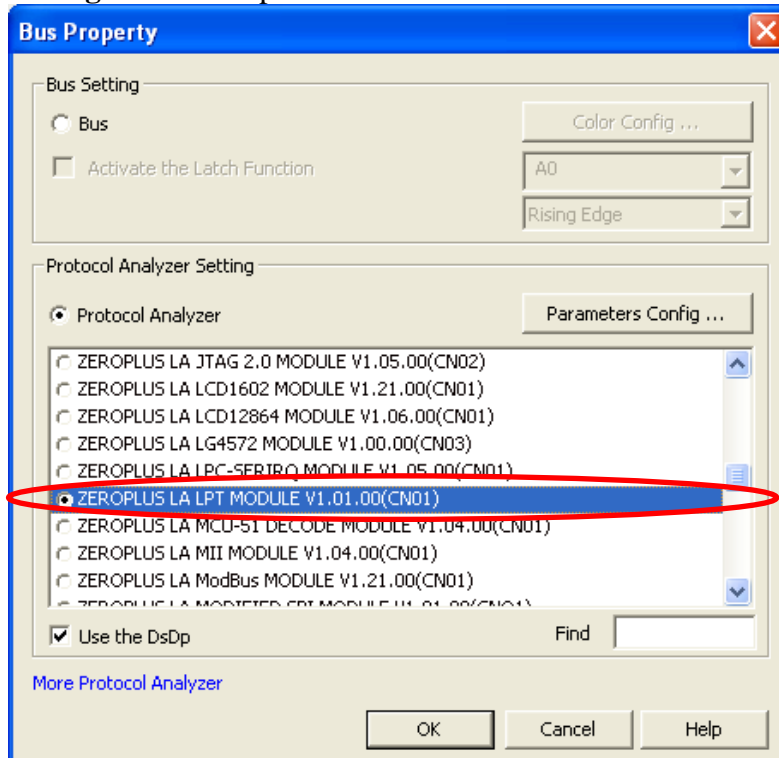


STEP 2. Select **Bus1**, and press **Right Key** on the mouse to list the menu, then press **Bus Property** or **Bus** icon on the toolbar to open **Bus Property** dialog box.

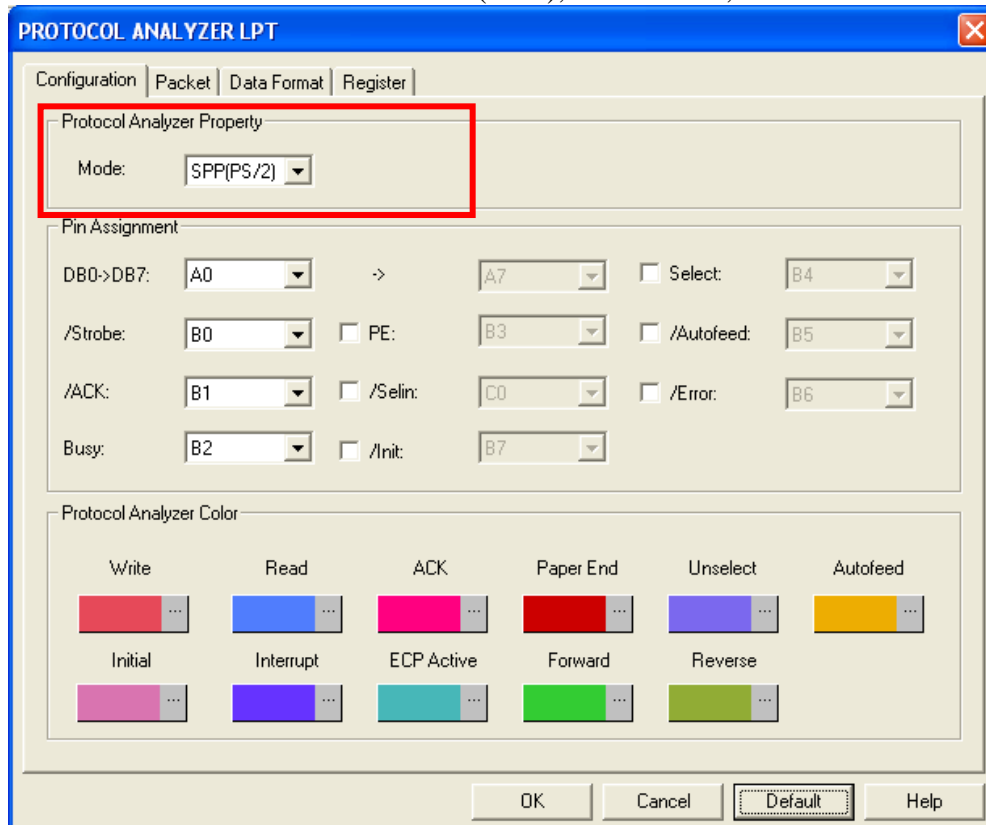




STEP 3. For Protocol Analyzer LPT Parameters Configuration, select Protocol Analyzer, and then choose **ZEROPLUS LA LPT MODULE V1.01.00(CN01)**. Next click **Parameters Configuration** to open the **PROTOCOL ANALYZER LPT** dialog box.



STEP 4. Set the **Mode** to SPP (PS/2), EPP or ECP, and the default is SPP(PS/2).





STEP 5. Set the Pin Assignment.

The screenshot shows the 'PROTOCOL ANALYZER LPT' dialog box with the 'Configuration' tab selected. The 'Pin Assignment' section is highlighted with a red rectangle. It contains the following settings:

Signal	Pin	Signal	Pin	Signal	Pin
DB0->DB7:	A0	->	A7	Select:	B4
/Strobe:	B0	PE:	B3	/Autofeed:	B5
/ACK:	B1	/Selin:	C0	/Error:	B6
Busy:	B2	/Init:	B7		

Below the Pin Assignment section is the 'Protocol Analyzer Color' section, which contains color swatches for various signals: Write (red), Read (blue), ACK (magenta), Paper End (red), Unselect (purple), Autofeed (yellow), Initial (pink), Interrupt (purple), ECP Active (teal), Forward (green), and Reverse (olive green). At the bottom are buttons for OK, Cancel, Default, and Help.

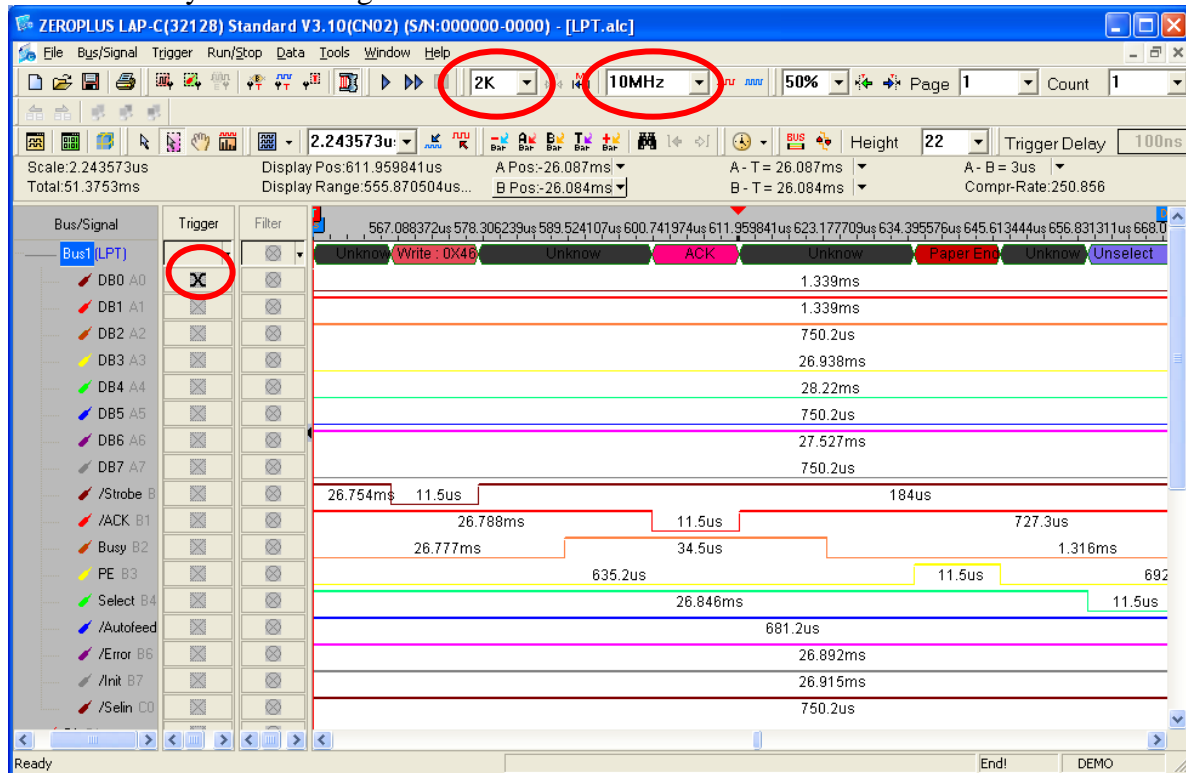
STEP 6. Set the Protocol Analyzer Color.

The screenshot shows the 'PROTOCOL ANALYZER LPT' dialog box with the 'Configuration' tab selected. The 'Protocol Analyzer Color' section is highlighted with a red oval. It contains color swatches for various signals: Write (red), Read (blue), ACK (magenta), Paper End (red), Unselect (purple), Autofeed (yellow), Initial (pink), Interrupt (purple), ECP Active (teal), Forward (green), and Reverse (olive green). At the bottom are buttons for OK, Cancel, Default, and Help.



STEP 7. 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 2K; the sampling frequency is 10MHz (the sampling frequency should be more than eight times higher than the signal to be tested).

Protocol Analyzer Decoding



Packet List

