

SPECIFICATION

MODEL: 003-LAP-SPI -M

PART NO: _____

VERSION: V1.16

Approver		Check	Design
GM	PM		

Customer Confirm

Content

1.	Software Register	3
2.	User Interface	6
3.	Operating Instructions	10

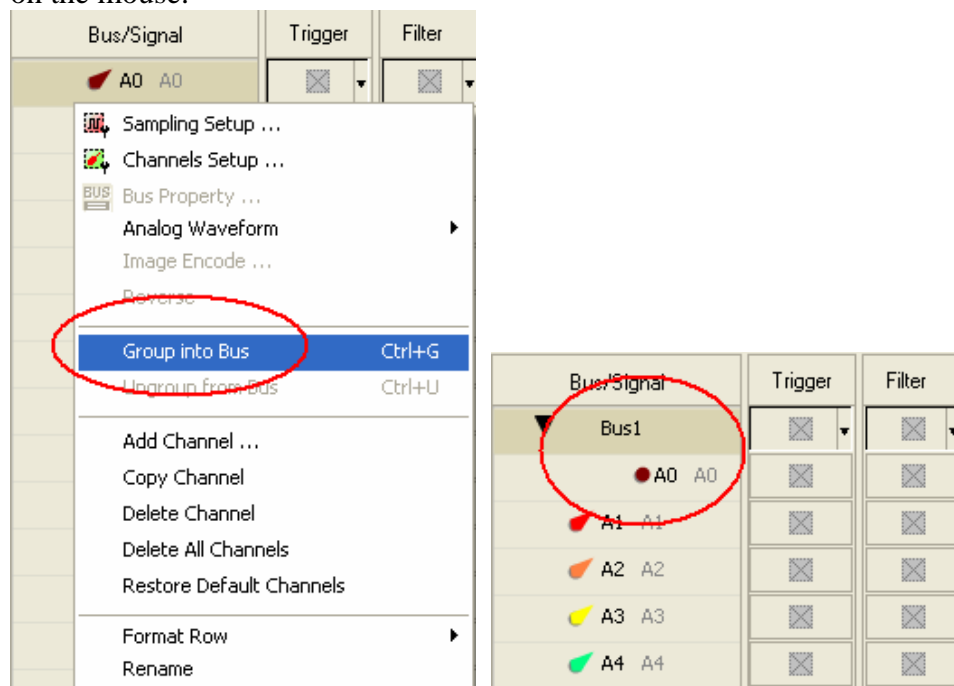
1. Software Register

Please register the software as the following steps:

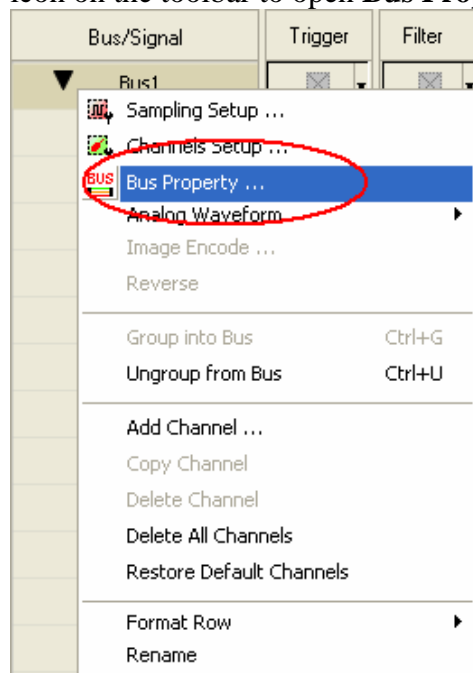
※ Remark1: The registration steps for all protocol analyzers are the same; you can complete the registration by following procedures. Following is an example on how to register the Protocol Analyzer BUS.

※ Remark2: 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.

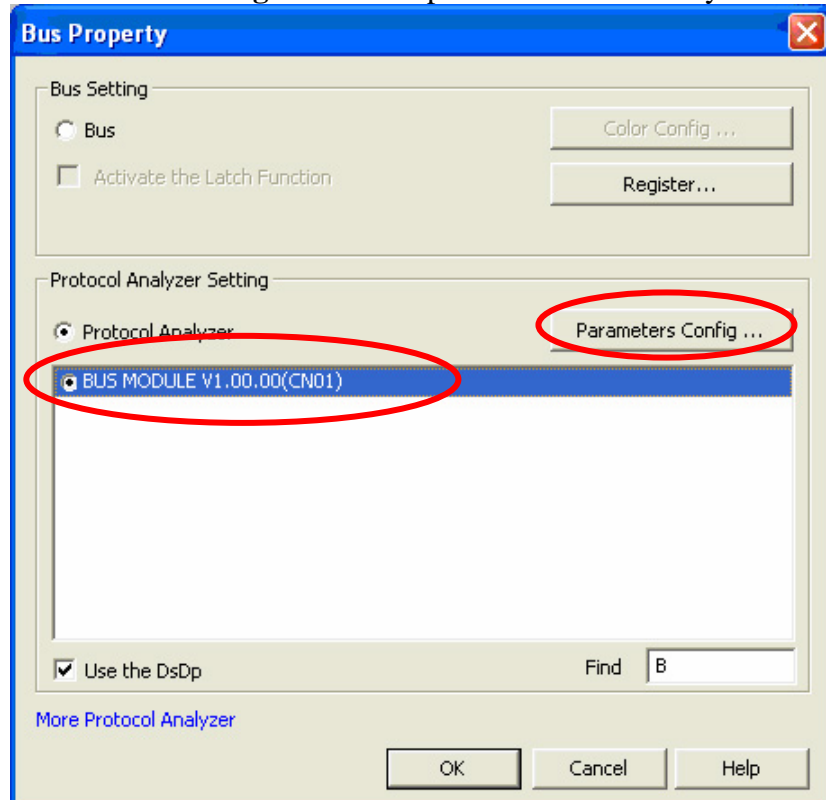
STEP 1. Open the Logic Analyzer and group the unanalyzed channels into **Bus1** by pressing the **Right Key** on the mouse.



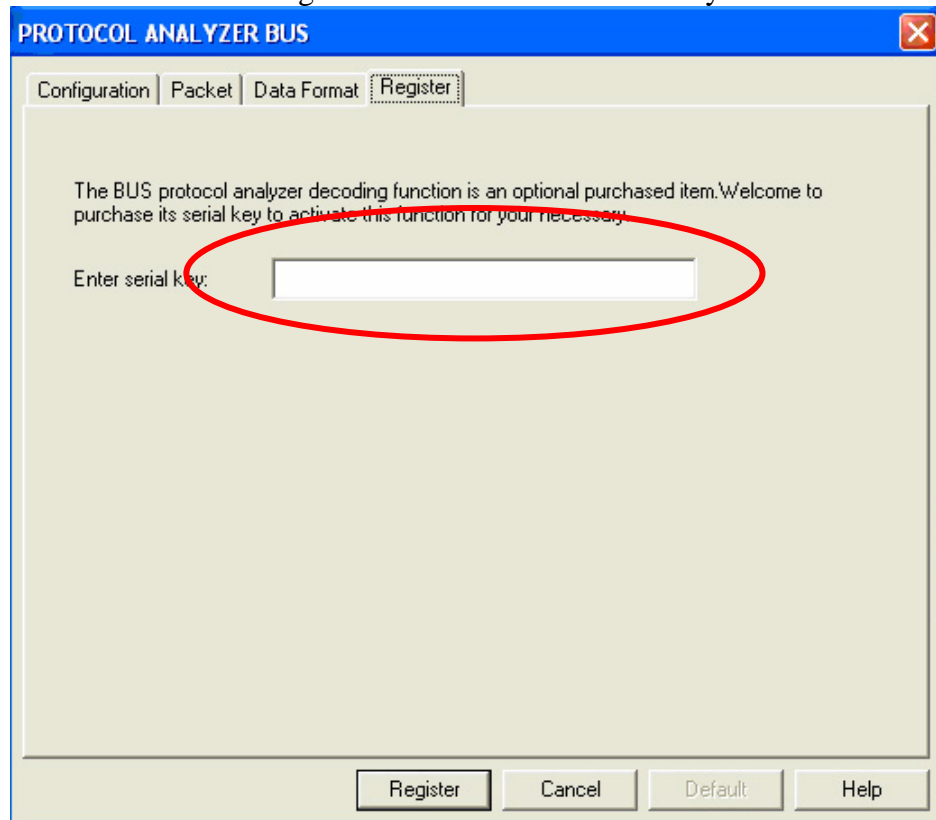
STEP 2. Select **Bus1**, and press **Right Key** on the mouse to list the menu, then click **Bus Property** or **Bus** icon on the toolbar to open **Bus Property** dialog box.



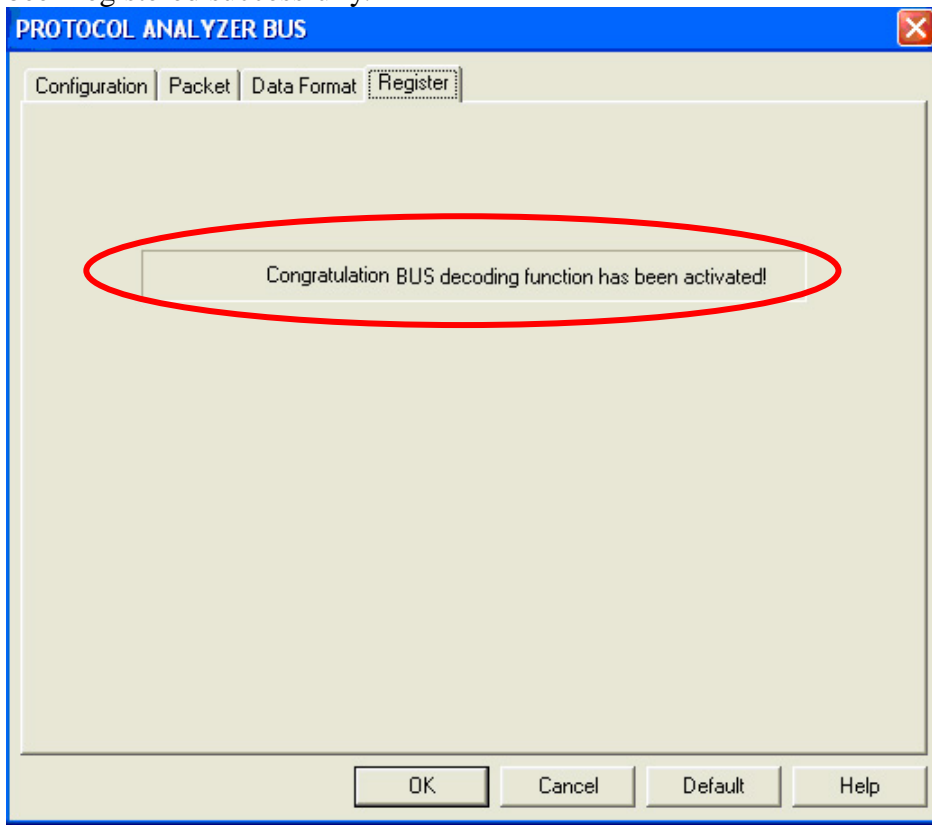
STEP 3. Select the Protocol Analyzer, and then choose **BUS MODULE V1.00.00 (CN01)**. Next click **Parameters Configuration** to open the Protocol Analyzer Bus dialog box.



STEP 4. Click the Register tab and enter the serial key of the **BUS**. Then click **Register**.



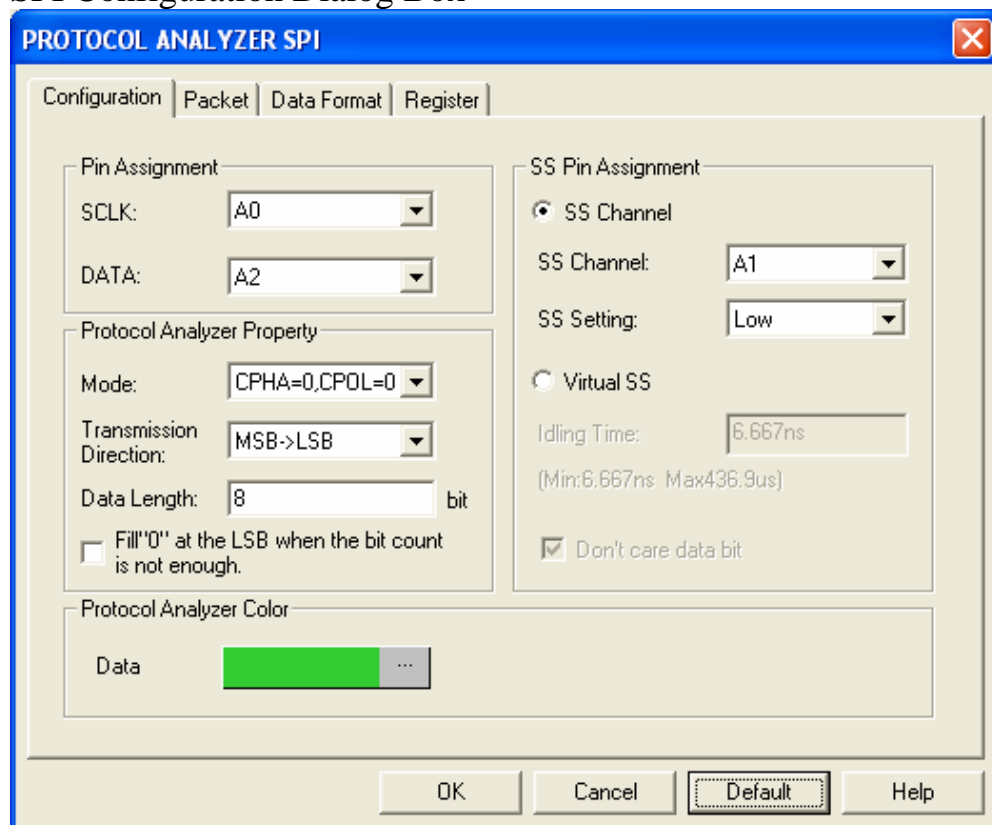
STEP 5. After clicking the Register button, the following dialog box will appear; it denotes that the BUS has been registered successfully.



2. User Interface

Please refer to the below images to select options of setting **SPI Module**.

SPI Configuration Dialog Box



Pin Assignment:

SCLK: It is the Clock channel A0-A2, and the default is A0.

DATA: It is the Data channel A0-A2, and the default is A2.

Protocol Analyzer Property:

Mode:

There are six modes for selecting, which are CPHA=0,CPOL=0; CPHA=1,CPOL=1; CPHA=1, CPOL=0; CPHA=0, CPOL=1; Rising and Falling.

Transmission Direction:

Set the Transmission Direction to MSB->LSB or LSB->MSB.

Data Length:

Set the Data Length in the range from 1 to 56 bit, and the default is 8 bit.

Fill “0” at the LSB when the bit count is not enough: For example, the value of Data is “1001111”, there is only 7 Bits. When the value of Data is set to 8 Bits, the displayed value should be 10011110.

SS Pin Assignment:

SS Channel: Select the channel for the SS, the default is A1.

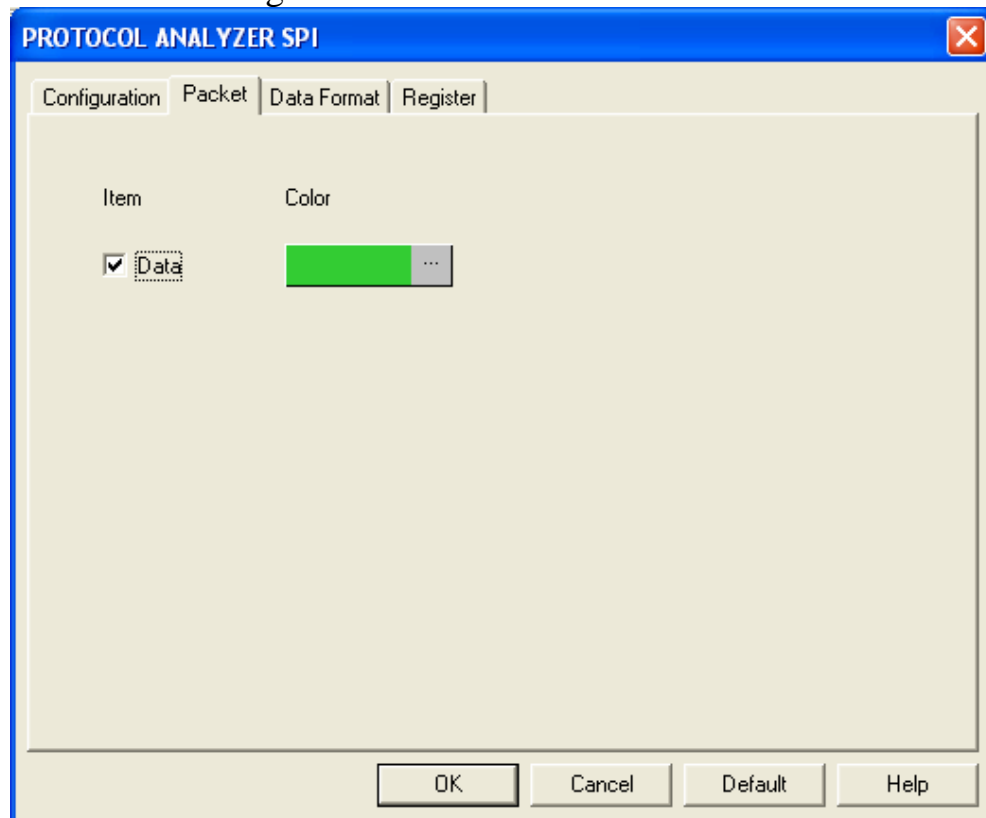
SS Setting: Set the Judgment Level of the SS Channel to Low or High.

Virtual SS: When the SS Channel is not activated, the Virtual SS will be activated. The Idling Time of the Virtual SS should be set as an auxiliary condition to decode.

Protocol Analyzer Color:

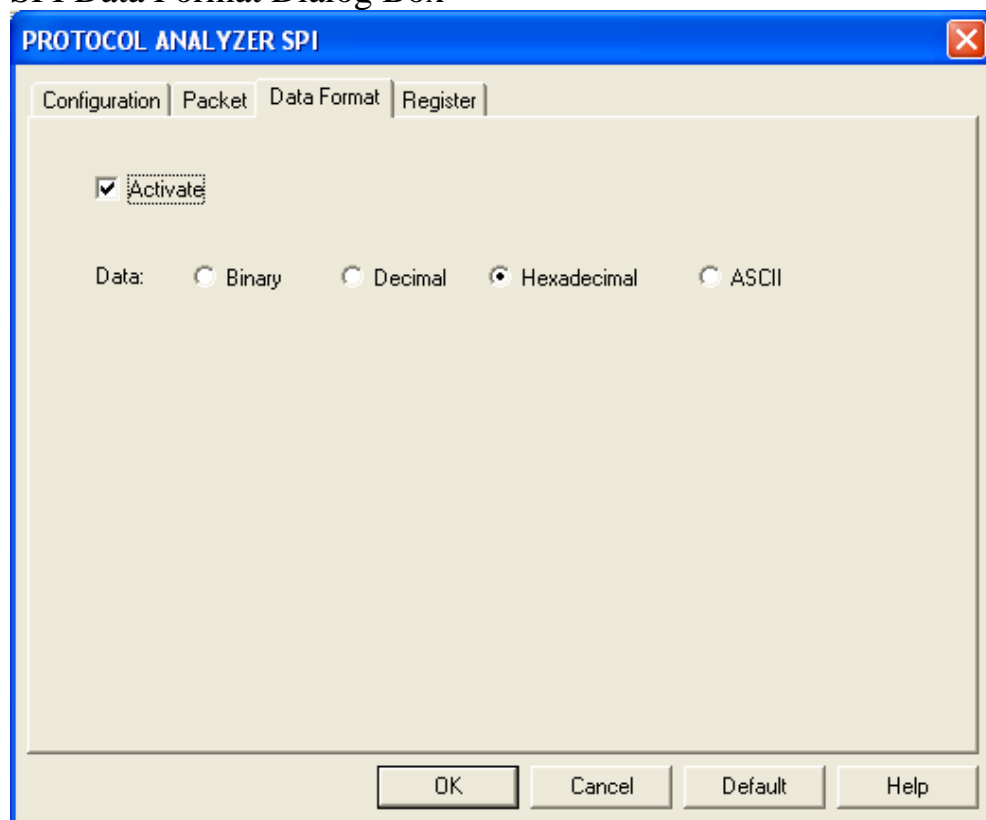
Users can vary the colors of the decoded packet.

SPI Packet Dialog Box



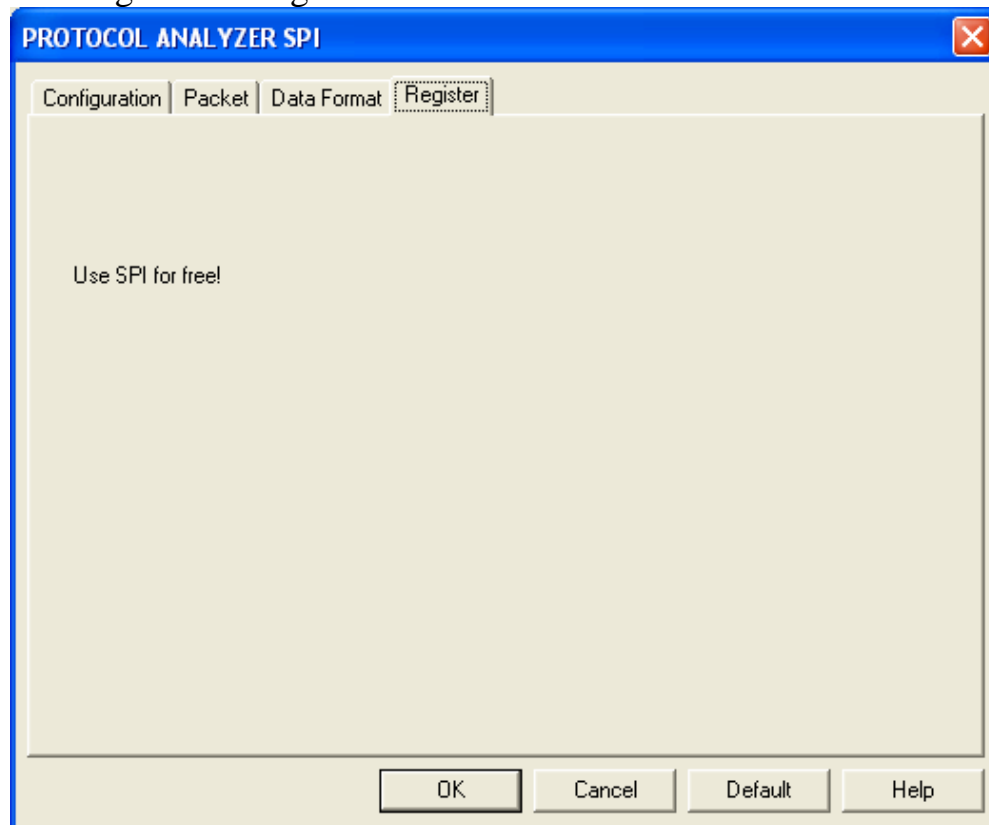
In the Packet dialog box, users can set the item to be displayed and the color of item.

SPI Data Format Dialog Box



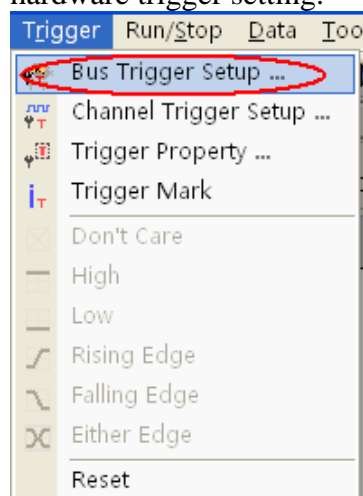
Users can set the Data Format of the Data as their requirements. When selecting the option, Activate, the data format is decided by the settings in the Protocol Analyzer; when not selecting the option, Activate, the data format is decided by the settings in the main program.

SPI Register Dialog Box



Hardware Trigger Function

Group a SPI bus, then click 'Bus Trigger Setup' from the Trigger pulldown menu to open the interface of hardware trigger setting.



HardWare HDTrigger Setting

Data Index: 1
Data Value:

Mode: CPHA = 0, CPOL = 0
Transmission Direction: MSB~LSB
Data length: 8
SS Setting: Low

☒ SS Channel
☐ Virtual SS

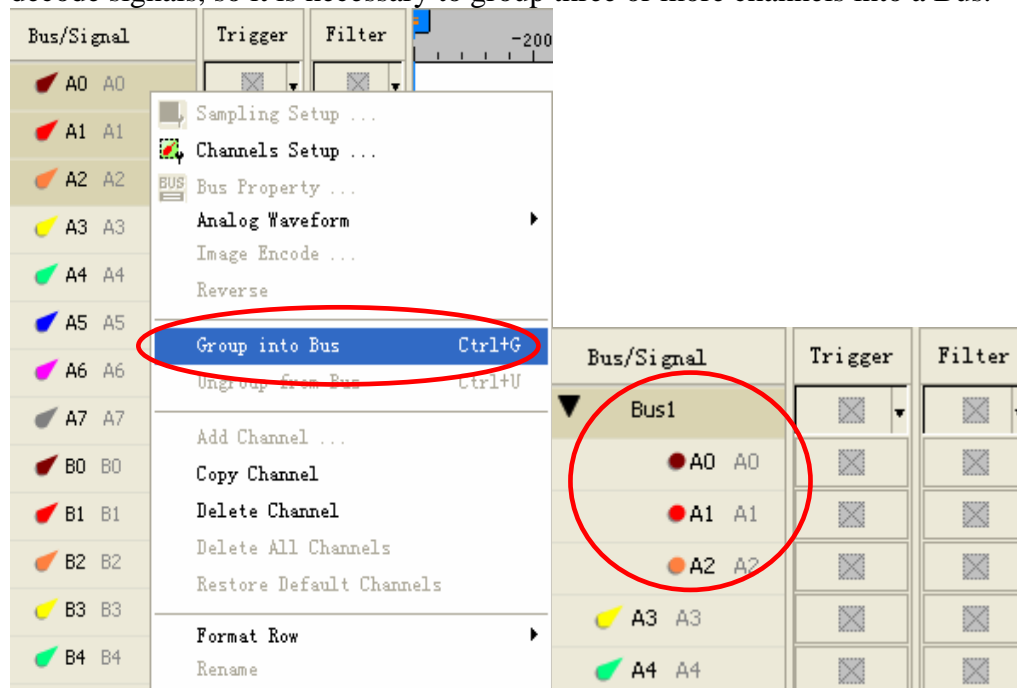
Preview

OK Cancel Default

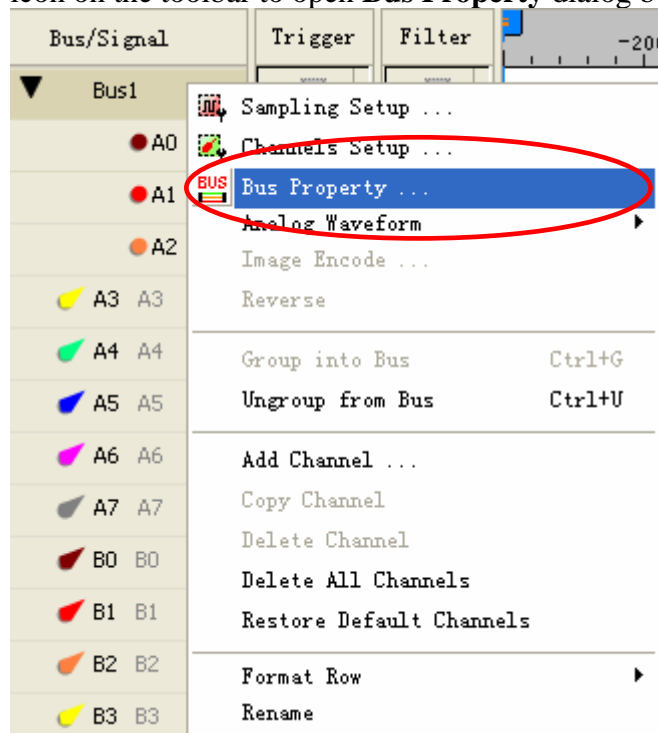
1. **Data Index:** Control the number of input data (range: 1-32). Discontinuous data is unacceptable, for example, if there is data in Data Index = 1 and Data Index = 2, then there must have data in Data Index=3, or only the data of Data Index=1 would be set into the hardware. Data shall start with Data Index=1, or it can't be set into the hardware. The data of Index 1 shall be the first data in the data.
2. **Data Value:** The value of input data, hexadecimal.
3. **Mode:** Select the trigger mode, six options: (CPHA = 0, CHOL=0), (CPHA = 0, CHOL=1), (CPHA = 1, CHOL=0), (CPHA = 1, CHOL=1), Raising and Falling. It shall be the same with that of module interface and can't be changed in trigger interface.
4. **Transmission Direction:** Select the trigger order, two options: LSB→MSB and MSB→LSB. It shall be the same with that of module interface and can't be changed in trigger interface.
5. **Data Length:** Set the data length within the range of 1-56. It shall be the same with that of module interface and can't be changed in trigger interface.
6. **SS Setting:** With SS Channel selected, it could be set to High or Low. It shall be the same with that of module interface and can't be changed in trigger interface.
7. **SS Channel and Virtual SS:** Options of SS Setting. Select SS Channel to active SS channel for trigger, and select Virtual SS to use virtual SS channel. It shall be the same with that of module interface and can't be changed in trigger interface. If Virtual SS is selected in the module interface, the main program wouldn't support hardware trigger.
8. **Preview:** Show the data packet with number and value.
9. **OK:** Set the conditions into the hardware.
10. **Cancel:** Cancel the conditions.
11. **Default:** Restore the original interface.

3. Operating Instructions

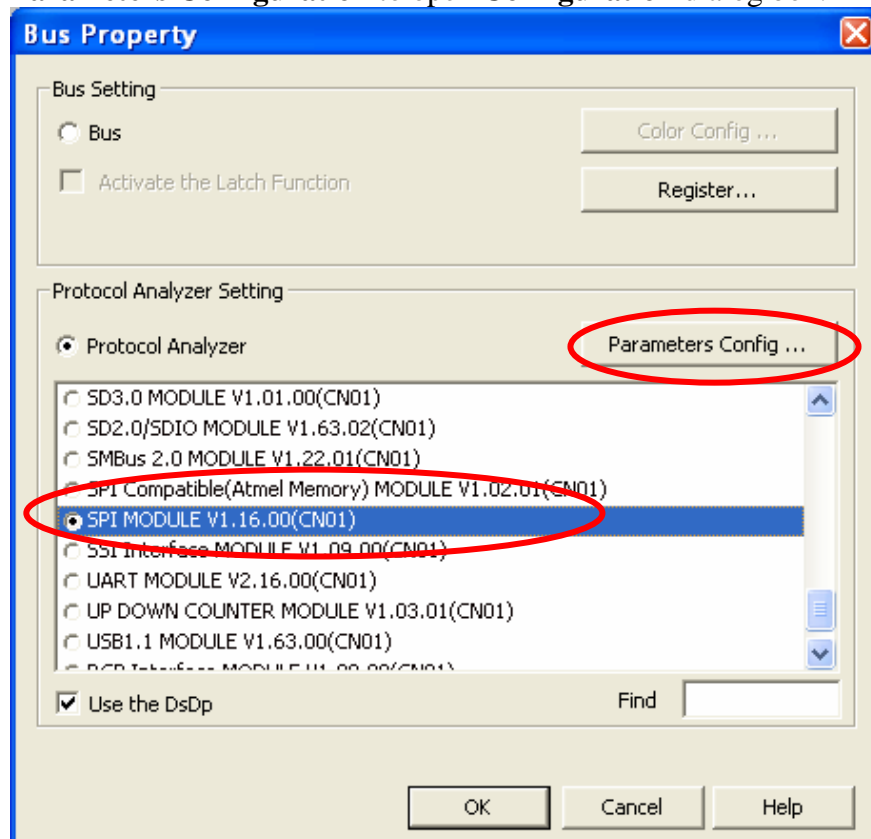
STEP 1. Group A0-A2 into **Bus1** by pressing the **Right Key** on the mouse. SPI needs three channels to decode signals, so it is necessary to group three or more channels into a Bus.



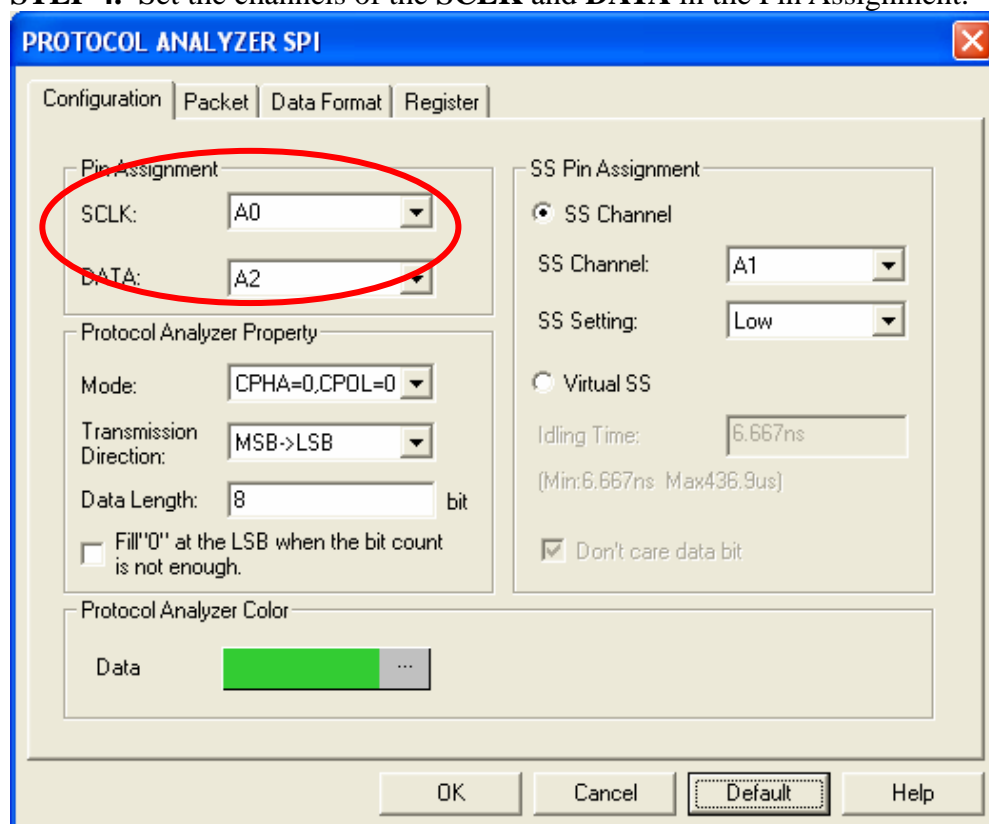
STEP 2. Select **Bus1**, and press **Right Key** on the mouse to list the menu, then press **Bus Property** or **Bus** icon on the toolbar to open **Bus Property** dialog box.



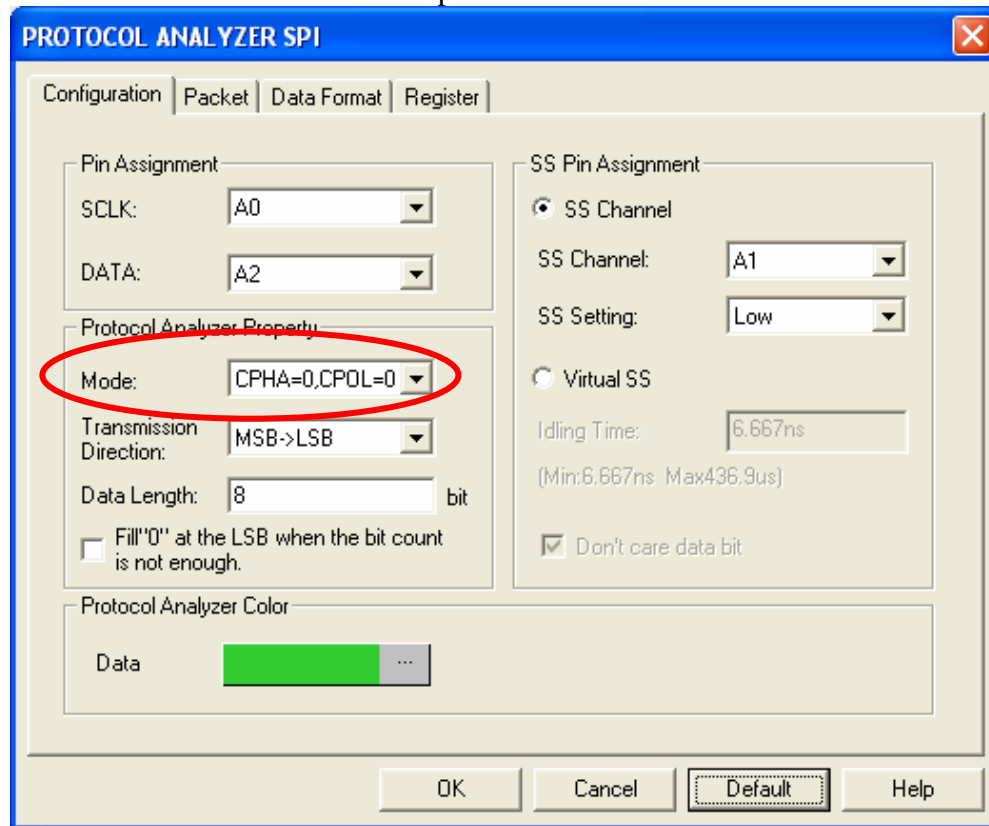
STEP 3. Select Protocol Analyzer, and then choose **SPI MODULE V1.16.00(CN01)**. Next click **Parameters Configuration** to open **Configuration** dialog box.



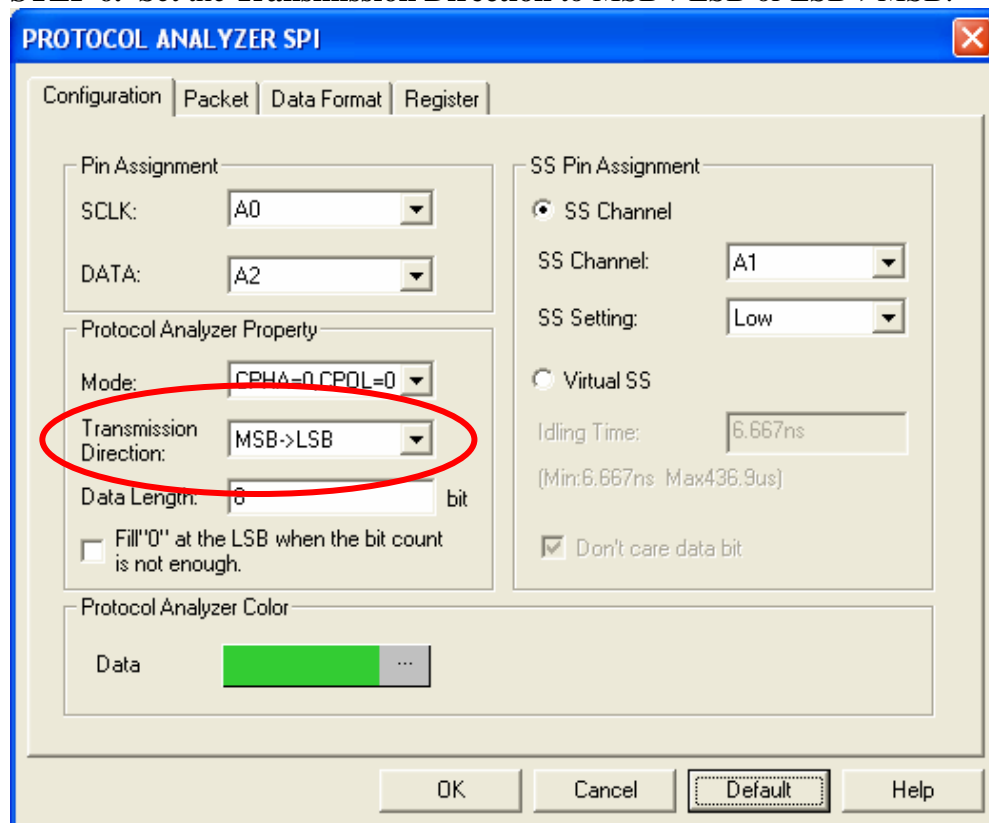
STEP 4. Set the channels of the **SCLK** and **DATA** in the Pin Assignment.



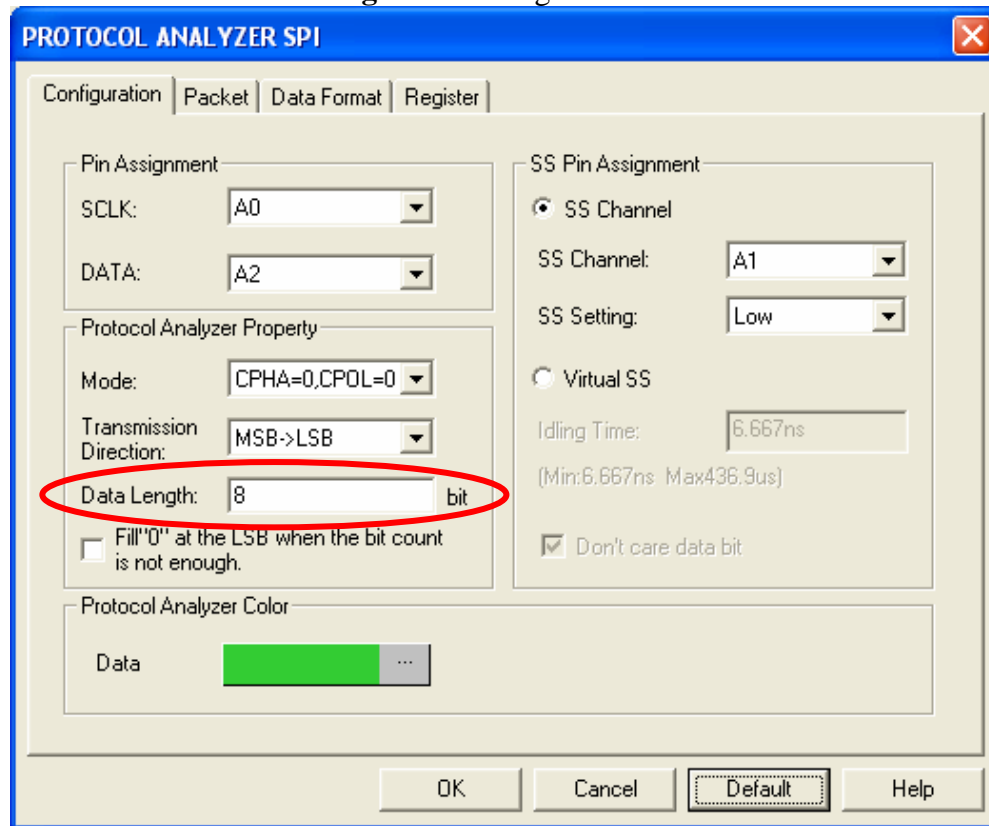
STEP 5. Set the **Mode** from the pull-down menu.



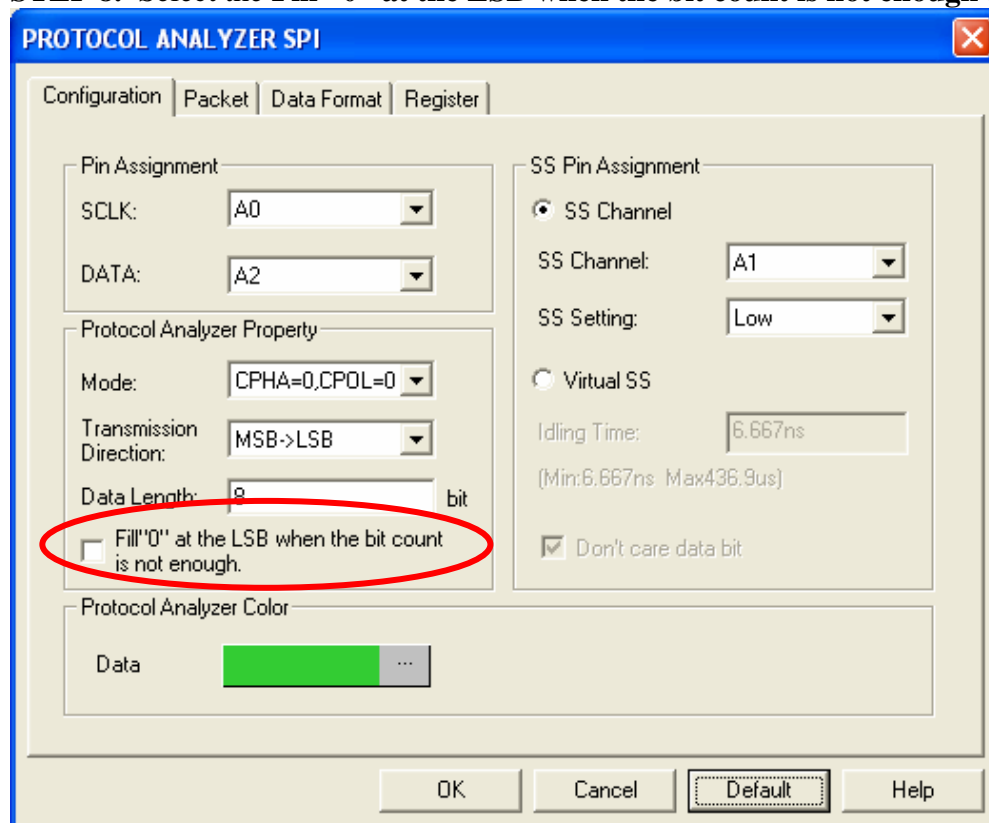
STEP 6. Set the **Transmission Direction** to MSB->LSB or LSB->MSB.



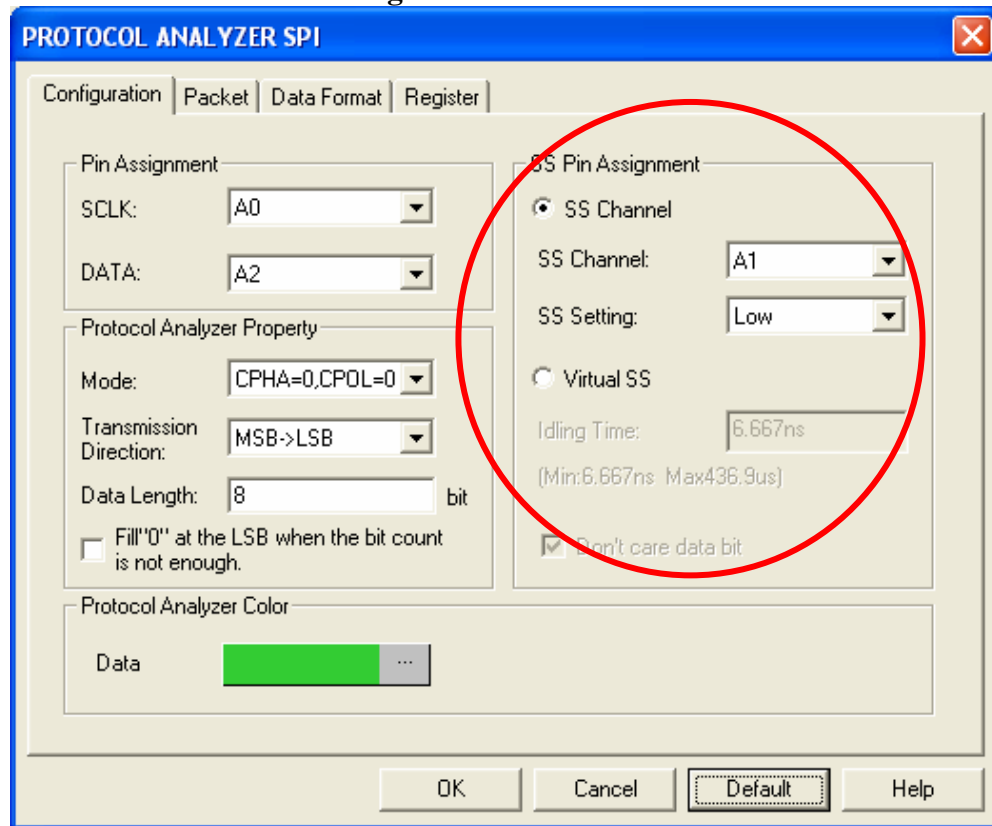
STEP 7. Set the **Data Length** in the range from 1 to 56.



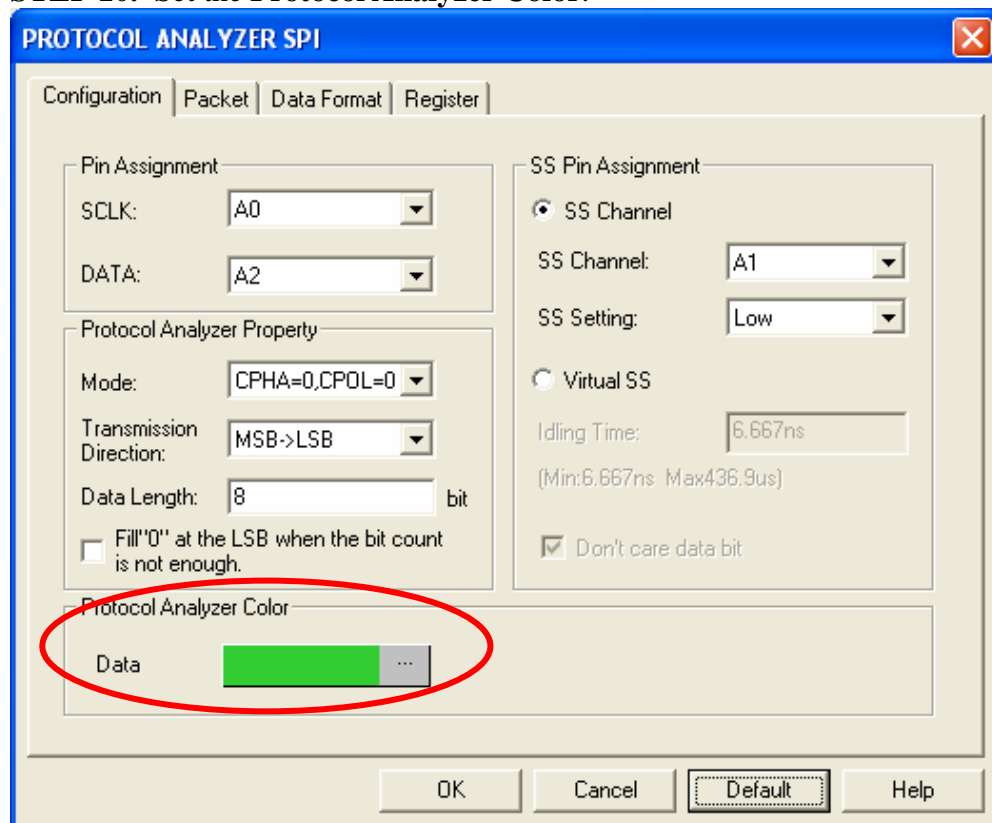
STEP 8. Select the **Fill "0" at the LSB when the bit count is not enough** to fill "0" at the LSB.



STEP 9. Set the SS Pin Assignment.

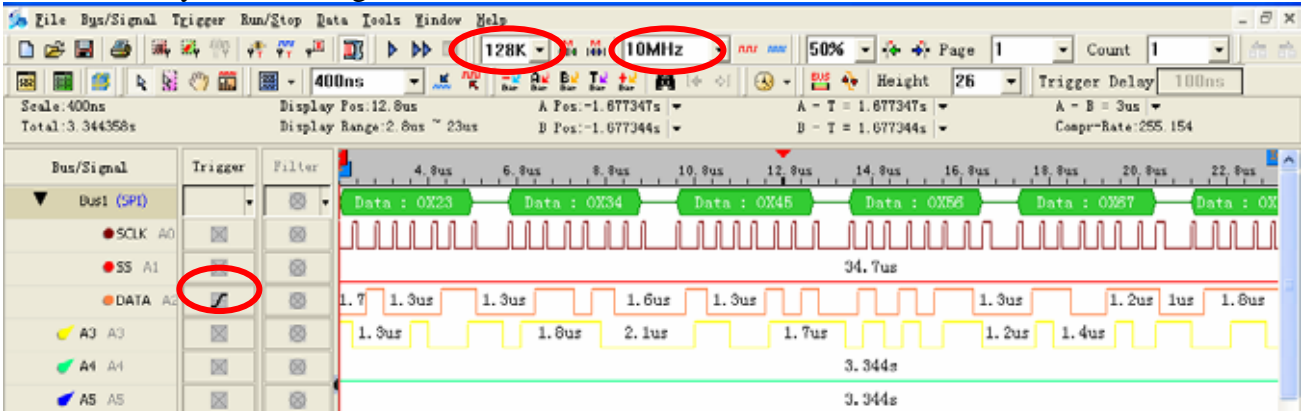


STEP 10. Set the Protocol Analyzer Color.



STEP 11. Following pictures show the completion of the protocol analyzer decoding and the packet list. The trigger condition is Rising Edge; the memory depth is 128K; the sampling frequency is 10MHz (the sampling frequency should be more than four times higher than the signal to be tested).

Protocol Analyzer Decoding



Packet List

