

SPECIFICATION

MODEL: 002-LAP-UART-M

PART NO: _____

VERSION: V2.18

Approver		Check	Design
GM	PM		

Customer Confirm

Content

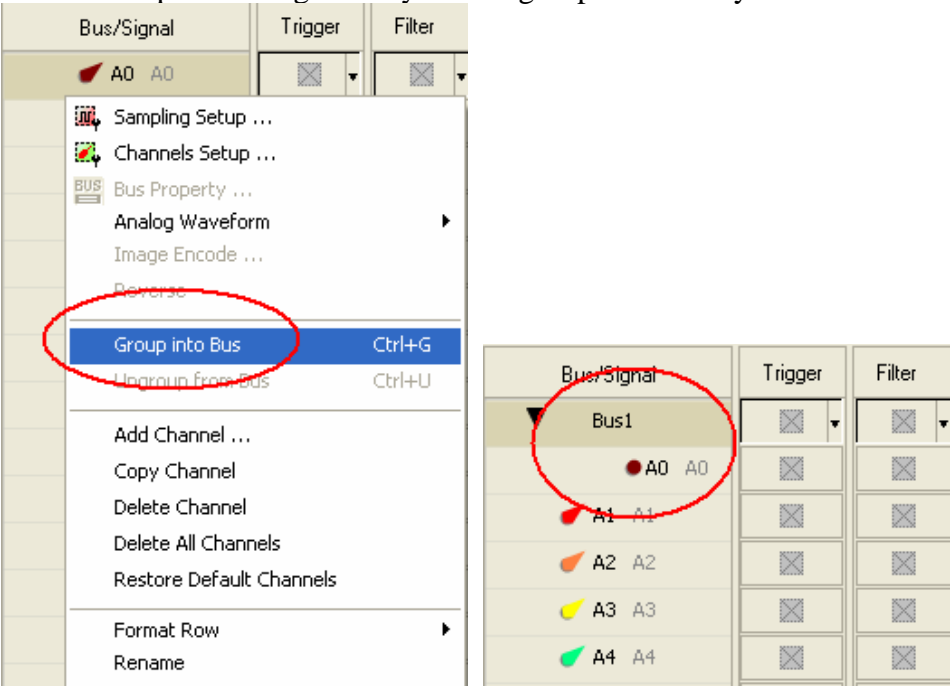
1.	Software Register	3
2.	User Interface	6
3.	Operating Instructions.....	10

1. Software Register

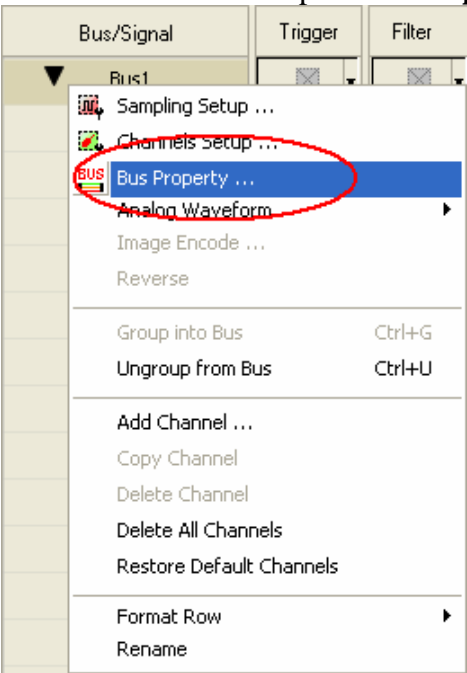
Please register the software as the following steps:

- ※ 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.

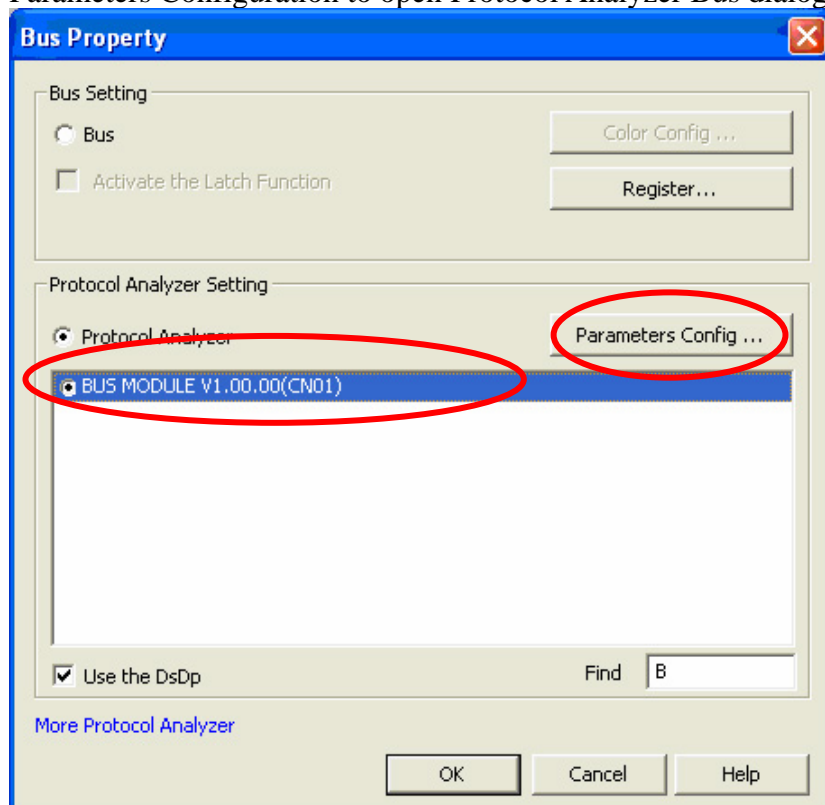
STEP 1. Open the Logic Analyzer and group the unanalyzed channels into **Bus1** by pressing the **Right Key**.



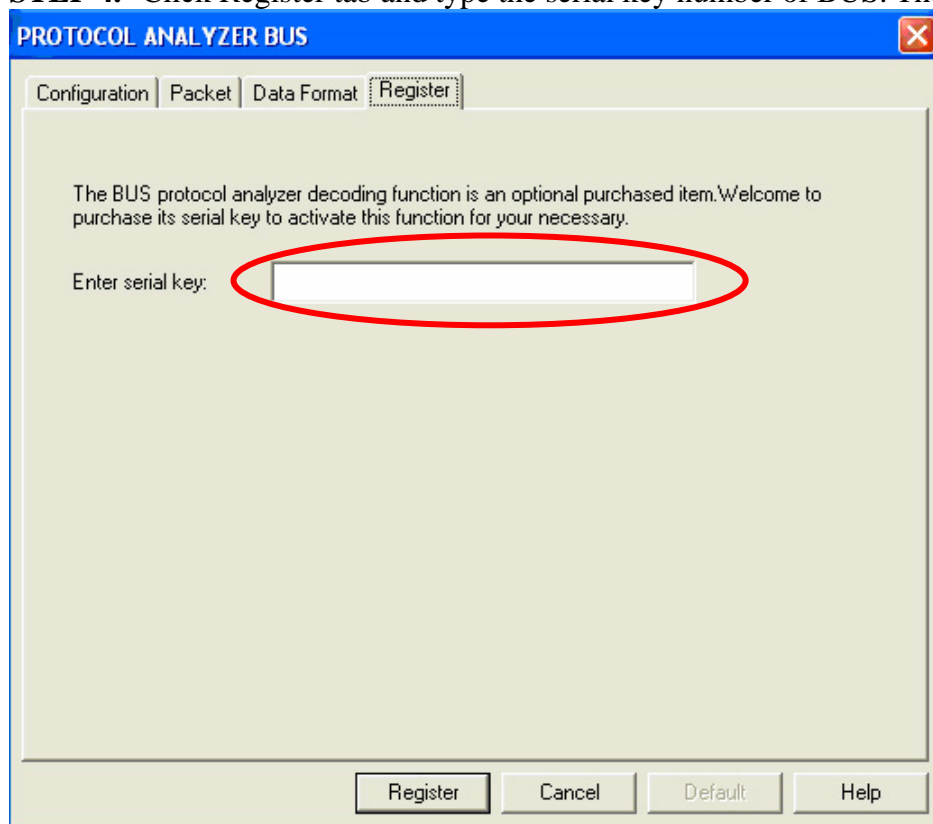
STEP 2. Select **Bus 1**, then press **Right Key** on the mouse to list the menu, then press **Bus Property** or **Bus** icon on the toolbar to open **Bus Property** dialog box.



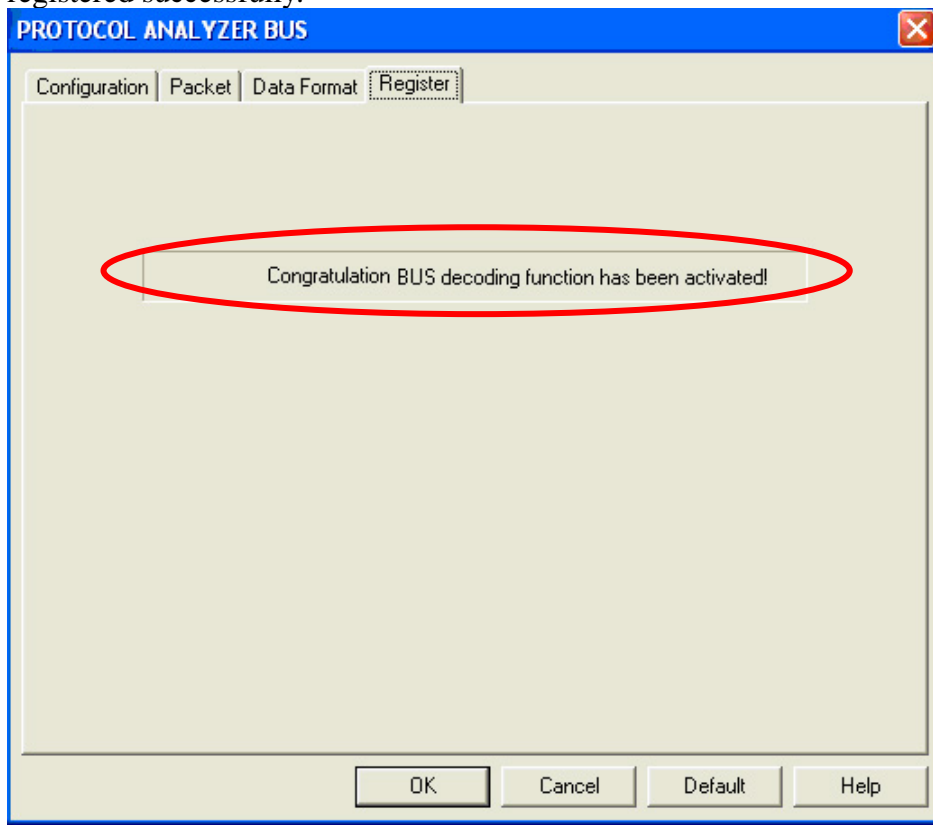
STEP 3. Select the Protocol Analyzer, and then choose **BUS MODULE V1.00.00 (CN01)**. Next click Parameters Configuration to open Protocol Analyzer Bus dialog box.



STEP 4. Click Register tab and type the serial key number of BUS. Then click Register.



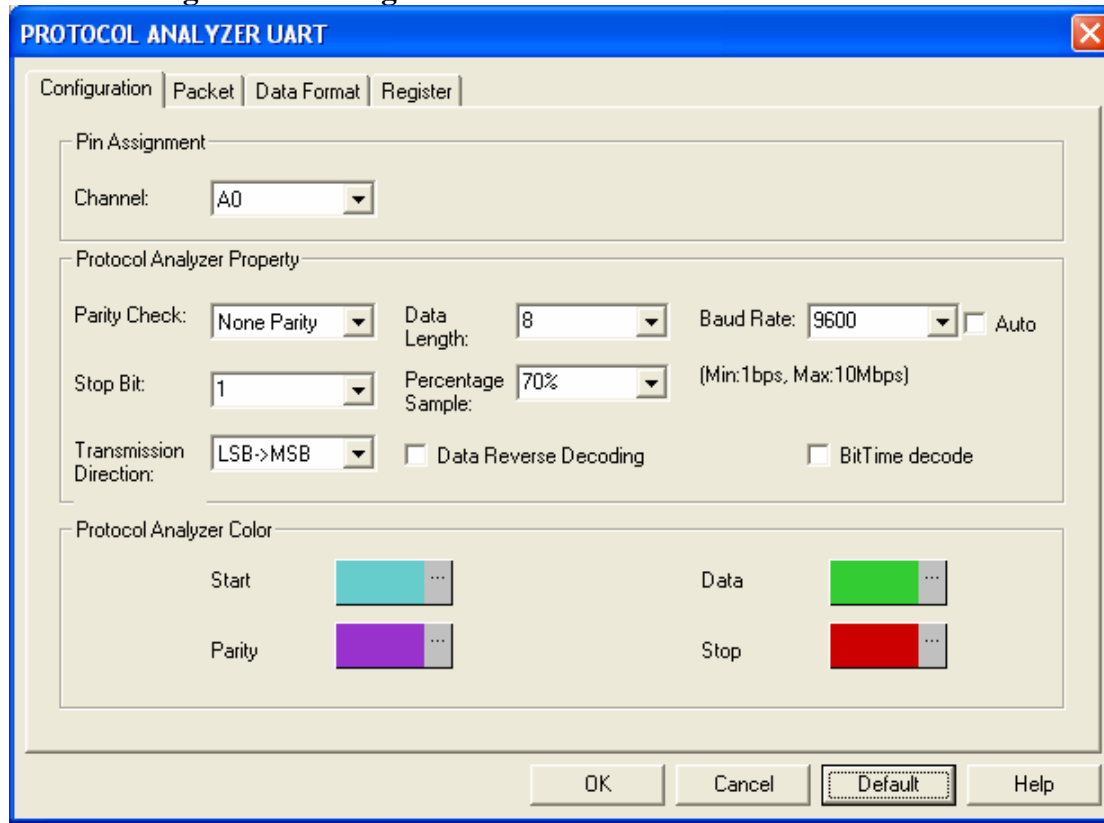
STEP 5. After clicking the Register button, following dialog box will appear, it denotes that the BUS has been registered successfully.



2. User Interface

Please refer to the images below to do settings of setting **UART** Module.

UART Configuration Dialog Box



Pin Assignment:

UART only needs one channel to decode signal, it is A0 by default.

Protocol Analyzer Property:

Parity Check: There are three options on the pull-down menu: None Parity, Odd Parity and Even Parity, and the default is None Parity.

Data Length: It can be set in the range between 1 and 255, and it is 8 by default.

Baud Rate: Users can select these options: 110, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800 and 921600BPS from the pull-down menu, and it is 9600 by default; or input the value from 1bps to 10Mbps by their requirements.

Auto: When the option is selected, the Baud Rate will be found automatically. The option is not activated by default.

Stop Bit: There are three options to be selected: 1, 1.5 and 2, and it is 1 by default. Users also can input a value between 1 and 16.

Percentage Sample: Users can select the Percentage from the options (50%, 60%, 70%, 80% and 90%) on the pull-down menu, and it is 70% by default.

Transmission Direction: It can be set as MSB->LSB or LSB->MSB, and it is LSB->MSB by default.

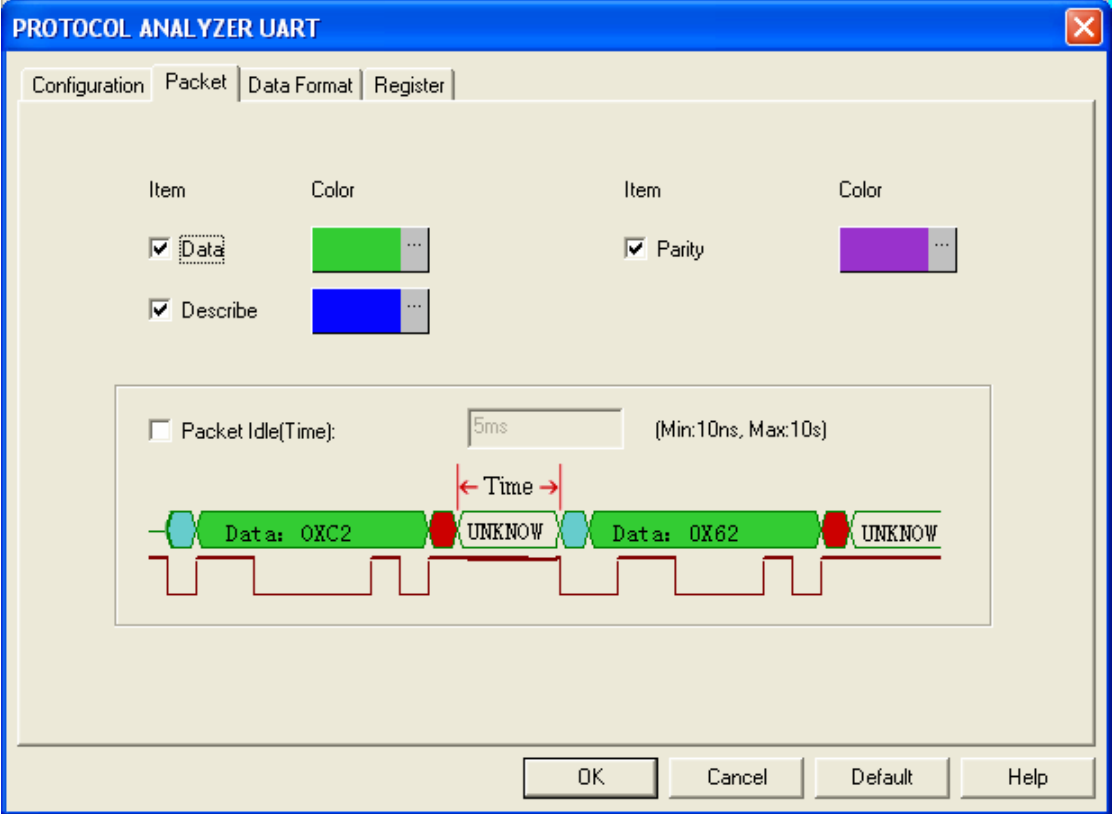
Data Reverse Decoding: When the option is selected, the data will be decoded in reverse. The option is not activated by default.

BitTime decode: Decode according to UART rules, but don't decode Start/Data/Stop. It decodes 0/1 1 bit by 1 bit. It supports different data formats (limited to data length).

Protocol Analyzer Color:

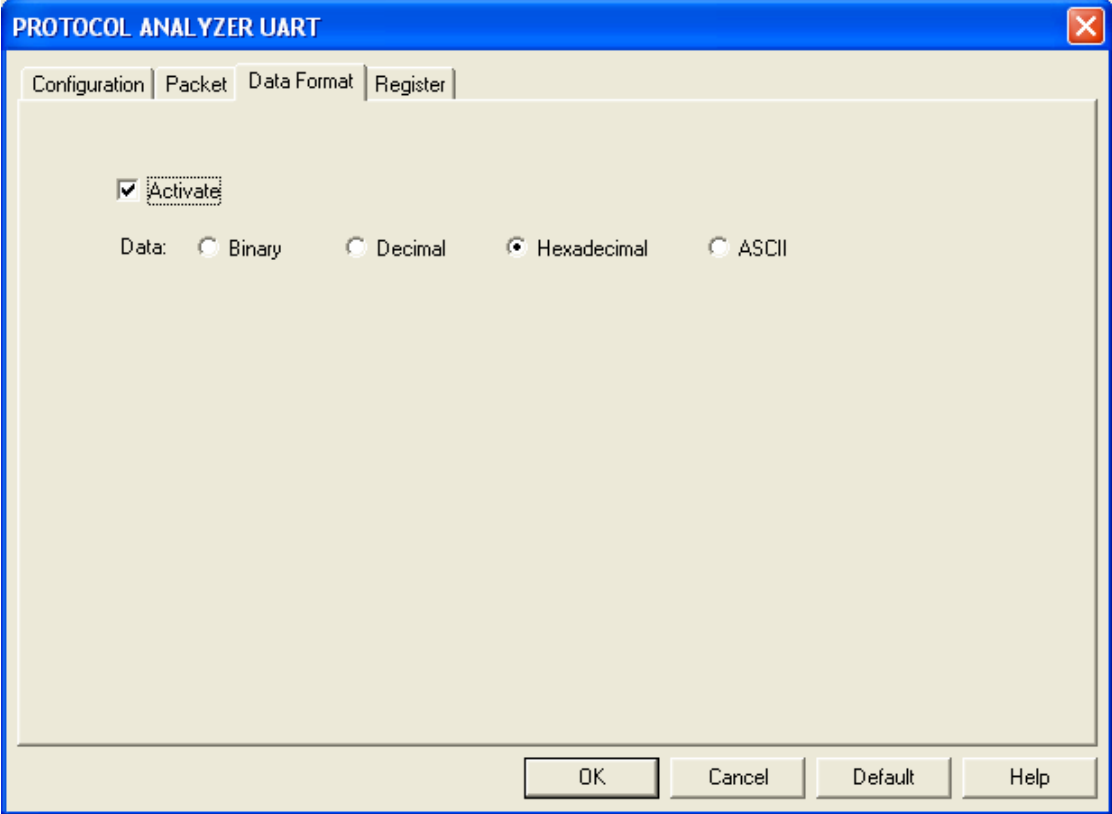
The color can be varied by users.

UART Packet Dialog Box



In the Packet dialog box, users can vary the color of items. When the option “Packet Idle (Time)” is selected, the default is 5ms. The Packet will be divided by this time, the interval time between the previous and the next packet is greater than 5ms, it will be displayed in the two packets, or in a packet.

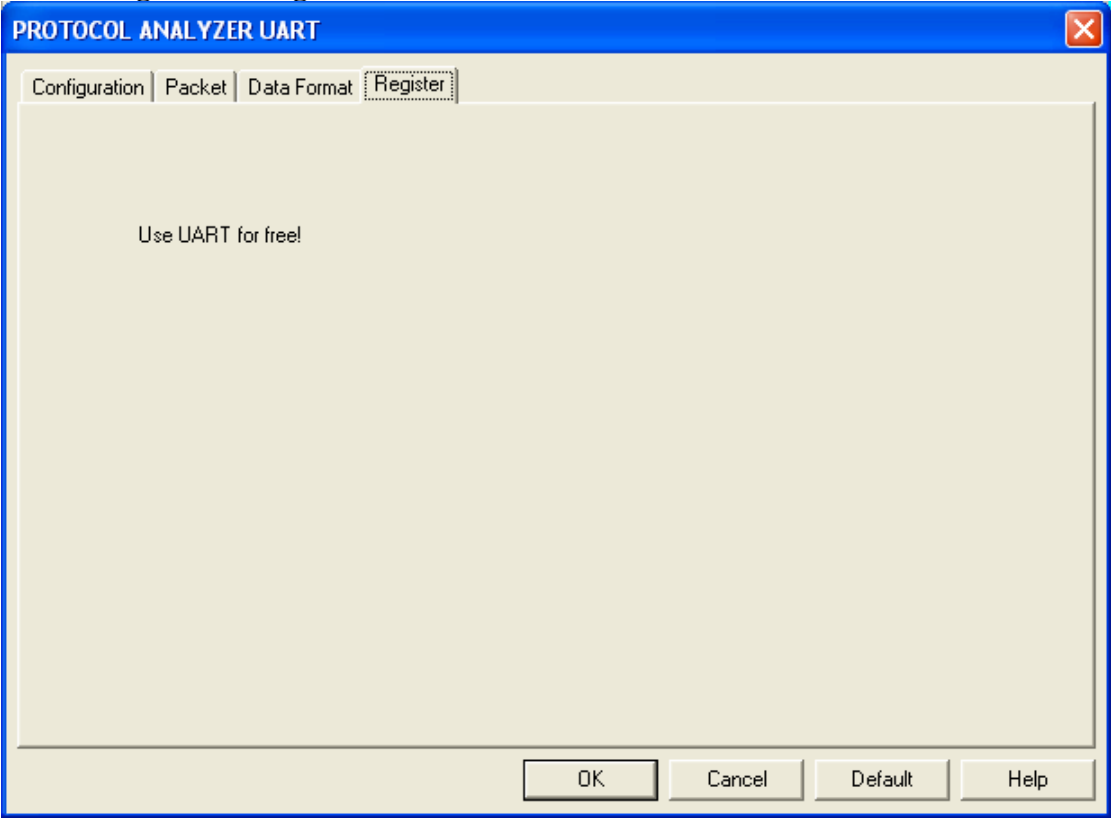
UART Data Format Dialog Box



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.

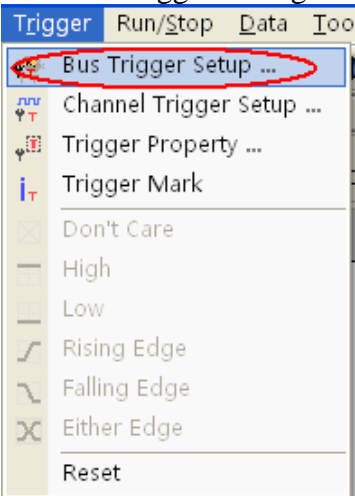
UART Register Dialog Box

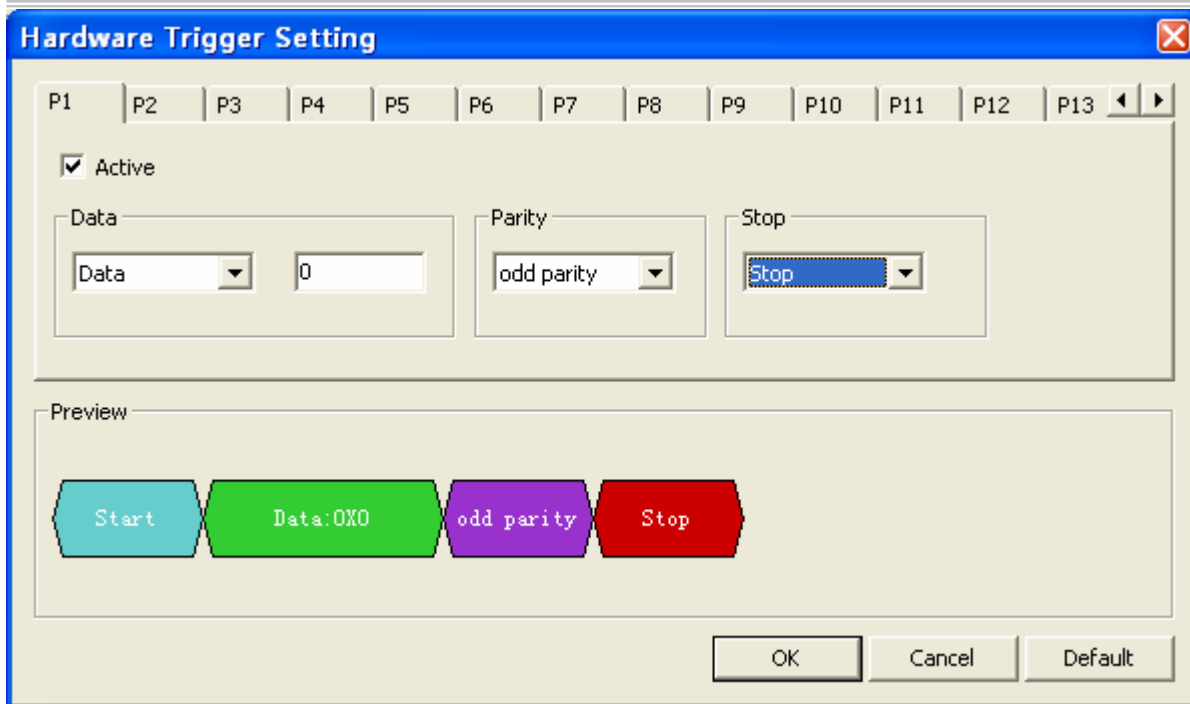


Hardware Trigger Setting

Hardware trigger could help capturing the needed data more accurate and faster. UART module supports trigger of Data, Parity or Stop packet, also supports serial trigger of 16 packets at most. The hardware will do the hardware trigger of packet, while the module will provide UI for users to set and convert their settings to hardware parameters, then sent them to the main program which would transfer them to the hardware to execute.

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





The dialog box is titled "Hardware Trigger Setting" and features a tabbed interface with tabs labeled P1 through P13. The P1 tab is currently selected. Below the tabs, there is a checkbox labeled "Active" which is checked. Underneath, there are three main settings sections: "Data", "Parity", and "Stop". The "Data" section has a dropdown menu set to "Data" and a text input field containing "0". The "Parity" section has a dropdown menu set to "odd parity". The "Stop" section has a dropdown menu set to "Stop". Below these settings is a "Preview" section showing a sequence of four colored boxes: a light blue box labeled "Start", a green box labeled "Data:0X0", a purple box labeled "odd parity", and a red box labeled "Stop". At the bottom right of the dialog are three buttons: "OK", "Cancel", and "Default".

Interface Description:

- 1.**Packet:** At most 16 packets could be set.
- 2.**Active:** Activate the current packet setting.
- 3.**Data:** Set the trigger data. Two options: Don't Care and Data. It is 'Don't Care' by default.
- 4.**Data Input Box:** Input hexadecimal data.
- 5.**Parity:** Four options: Don't Care, odd parity, even parity and none parity. It is 'Don't Care' by default.
- 6.**Stop:** Set the stop bit of bus. Two options: Don't Care and Stop. It is 'Don't Care' by default.
- 7.**Preview:** Show the current setting of one packet in graphic.
- 8.**OK:** Set the data of all activated packets into the main program and close the interface.
- 9.**Cancel:** Close the interface.
- 10.**Default:** Return to the default setting of not active.

Note:

If the 'Data' is 'Don't Care', then the following 'Parity' and 'Stop' could only be 'Don't Care'.

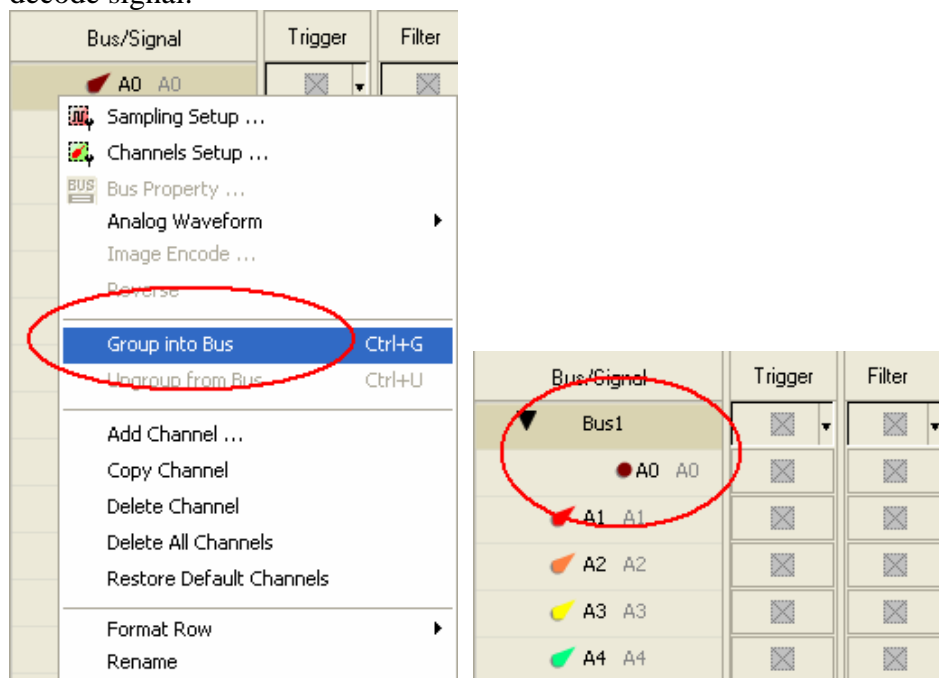
If the 'Parity' is 'Don't Care', then the following 'Stop' could only be 'Don't Care'.

P2 couldn't be activated if one of 'Data', 'Parity' and 'Stop' is 'Don't Care' in P1, P3 couldn't be activated if one of 'Data', 'Parity' and 'Stop' is 'Don't Care' in P2, and the like.

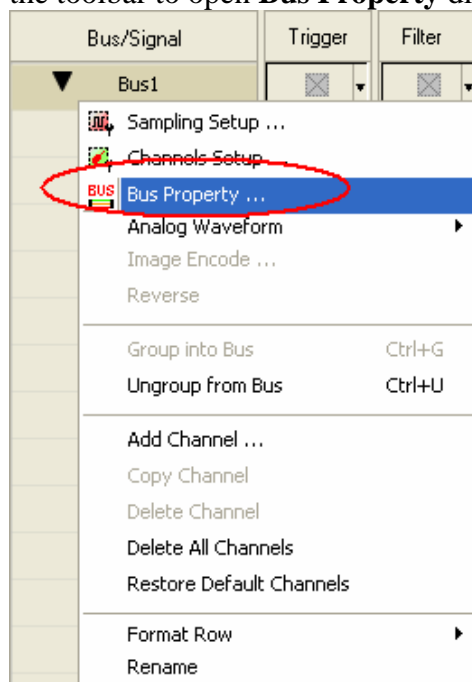
Parity setting shall be the same with the setting of module decoding.

3. Operating Instructions

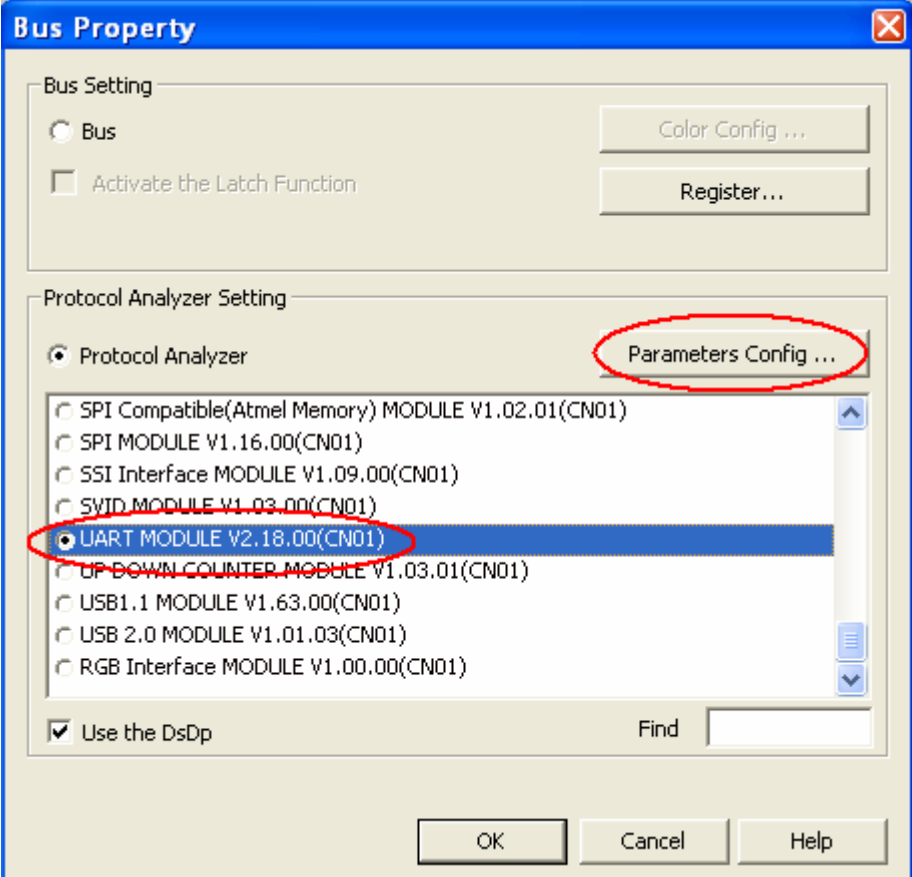
STEP 1. Group A0 into **Bus1** by pressing the **Right Key** on the mouse. UART only needs one channel to decode signal.



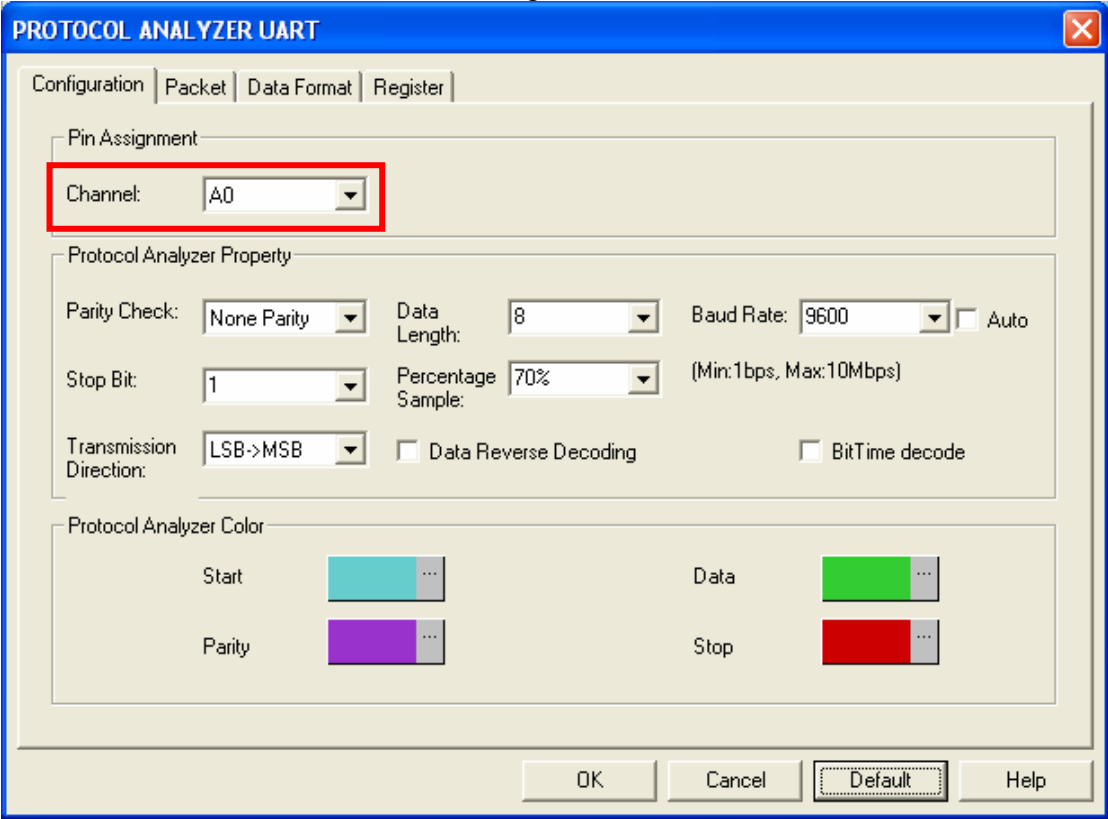
STEP 2. Select **Bus1**, then press **Right key** on the mouse to list menu, then press **Bus Property** or **Bus** bar on the toolbar to open **Bus Property** dialog box.



STEP 3. Select Protocol Analyzer, and select **UART MODULE V2.18.00 (CN01)**. Next click **Parameters Configuration** to open the **Parameters Configuration** dialog box.



STEP 4. Set the Channel in the Pin Assignment.



STEP 5. Set the Parity Check.

The screenshot shows the 'PROTOCOL ANALYZER UART' configuration window. The 'Configuration' tab is selected. In the 'Protocol Analyzer Property' section, the 'Parity Check' dropdown is highlighted with a red box and set to 'None Parity'. Other settings include 'Channel' set to 'A0', 'Data Length' set to '8', 'Baud Rate' set to '9600', 'Stop Bit' set to '1', 'Percentage Sample' set to '70%', and 'Transmission Direction' set to 'LSB->MSB'. The 'Protocol Analyzer Color' section shows color swatches for Start (teal), Data (green), Parity (purple), and Stop (red). Buttons at the bottom include 'OK', 'Cancel', 'Default', and 'Help'.

Section	Parameter	Value
Pin Assignment	Channel	A0
	Protocol Analyzer Property	
Protocol Analyzer Property	Parity Check	None Parity
	Data Length	8
	Baud Rate	9600
	Stop Bit	1
	Percentage Sample	70%
	Transmission Direction	LSB->MSB
Protocol Analyzer Color	Start	Teal
	Data	Green
	Parity	Purple
	Stop	Red

STEP 6. Set the Data Length.

The screenshot shows the 'PROTOCOL ANALYZER UART' configuration window. The 'Configuration' tab is selected. In the 'Protocol Analyzer Property' section, the 'Data Length' dropdown is highlighted with a red box and set to '8'. Other settings include 'Channel' set to 'A0', 'Parity Check' set to 'None Parity', 'Baud Rate' set to '9600', 'Stop Bit' set to '1', 'Percentage Sample' set to '70%', and 'Transmission Direction' set to 'LSB->MSB'. The 'Protocol Analyzer Color' section shows color swatches for Start (teal), Data (green), Parity (purple), and Stop (red). Buttons at the bottom include 'OK', 'Cancel', 'Default', and 'Help'.

Section	Parameter	Value
Pin Assignment	Channel	A0
	Protocol Analyzer Property	
Protocol Analyzer Property	Parity Check	None Parity
	Data Length	8
	Baud Rate	9600
	Stop Bit	1
	Percentage Sample	70%
	Transmission Direction	LSB->MSB
Protocol Analyzer Color	Start	Teal
	Data	Green
	Parity	Purple
	Stop	Red

STEP 7. Set the Baud Rate or select the option “Auto” to calculate the Baud Rate automatically.

PROTOCOL ANALYZER UART

Configuration | Packet | Data Format | Register

Pin Assignment

Channel: A0

Protocol Analyzer Property

Parity Check: None Parity Data Length: 8 Baud Rate: 9600 ☐ Auto
(Min:1bps, Max:10Mbps)

Stop Bit: 1 Percentage Sample: 70%

Transmission Direction: LSB->MSB ☐ Data Reverse Decoding ☐ BitTime decode

Protocol Analyzer Color

Start Data
Parity Stop

OK Cancel Default Help

STEP 8. Set the Stop Bit.

PROTOCOL ANALYZER UART

Configuration | Packet | Data Format | Register

Pin Assignment

Channel: A0

Protocol Analyzer Property

Parity Check: None Parity Data Length: 8 Baud Rate: 9600 ☐ Auto
(Min:1bps, Max:10Mbps)

Stop Bit: 1 Percentage Sample: 70%

Transmission Direction: LSB->MSB ☐ Data Reverse Decoding ☐ BitTime decode

Protocol Analyzer Color

Start Data
Parity Stop

OK Cancel Default Help

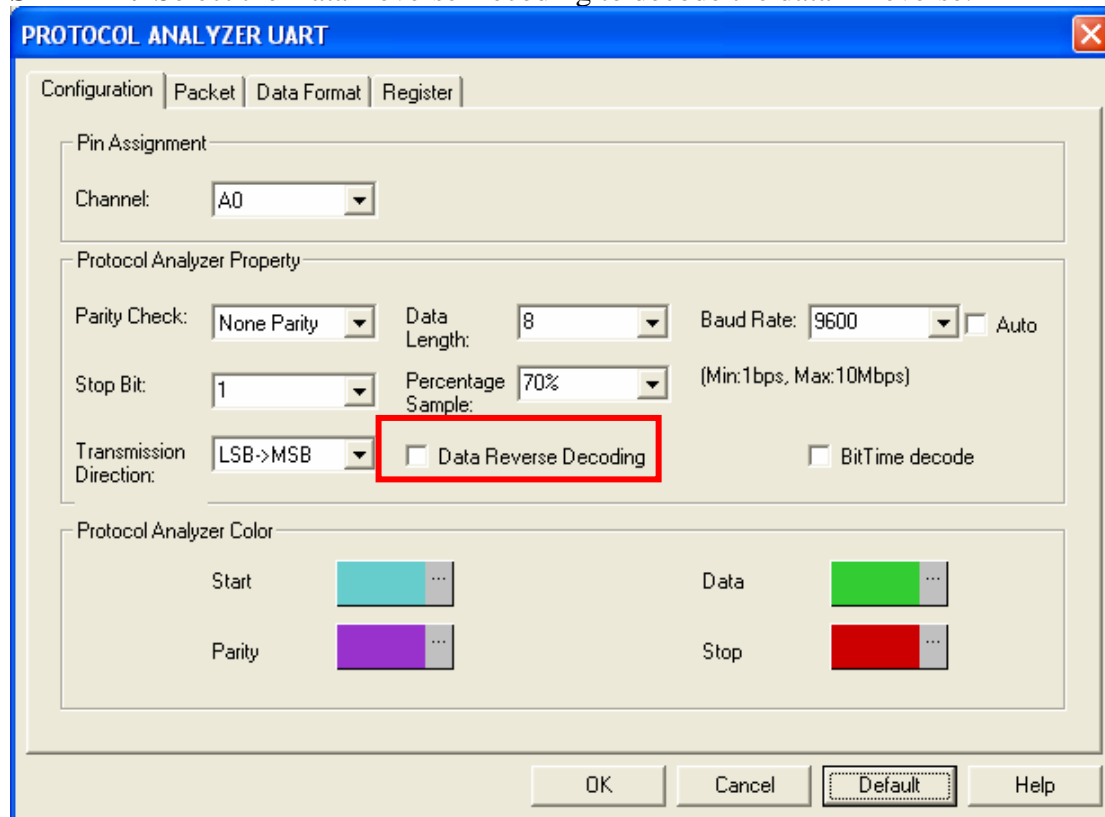
STEP 9. Set the Percentage Sample.

The screenshot shows the 'PROTOCOL ANALYZER UART' dialog box with the 'Configuration' tab selected. The 'Pin Assignment' section shows 'Channel: A0'. The 'Protocol Analyzer Property' section contains the following settings: 'Parity Check: None Parity', 'Data Length: 8', 'Baud Rate: 9600' (with an 'Auto' checkbox), 'Stop Bit: 1', 'Percentage Sample: 70%' (highlighted with a red box), and 'Transmission Direction: LSB->MSB'. There are also checkboxes for 'Data Reverse Decoding' and 'BitTime decode'. The 'Protocol Analyzer Color' section shows color swatches for Start (cyan), Data (green), Parity (purple), and Stop (red). At the bottom are 'OK', 'Cancel', 'Default', and 'Help' buttons.

STEP 10. Set the Transmission Direction.

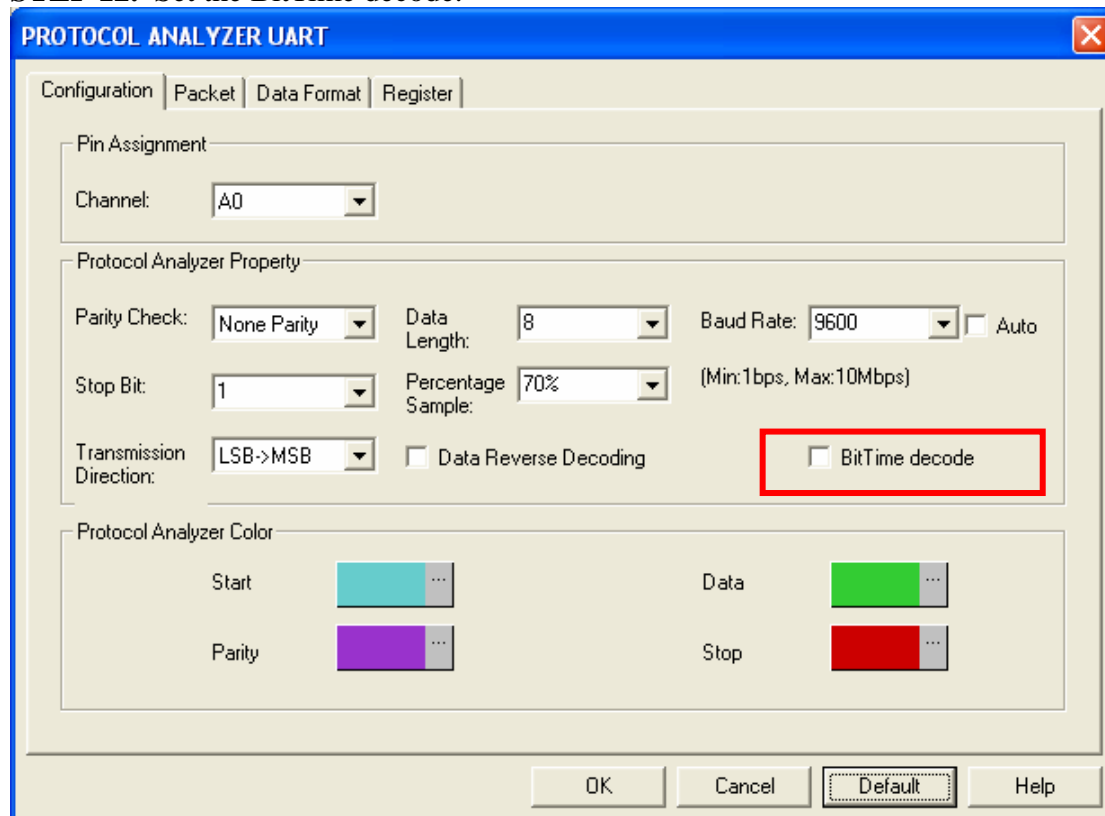
This screenshot is identical to the previous one, but the 'Transmission Direction' dropdown in the 'Protocol Analyzer Property' section is now highlighted with a red box. The 'Percentage Sample' dropdown remains at 70%.

STEP 11. Select the Data Reverse Decoding to decode the data in reverse.



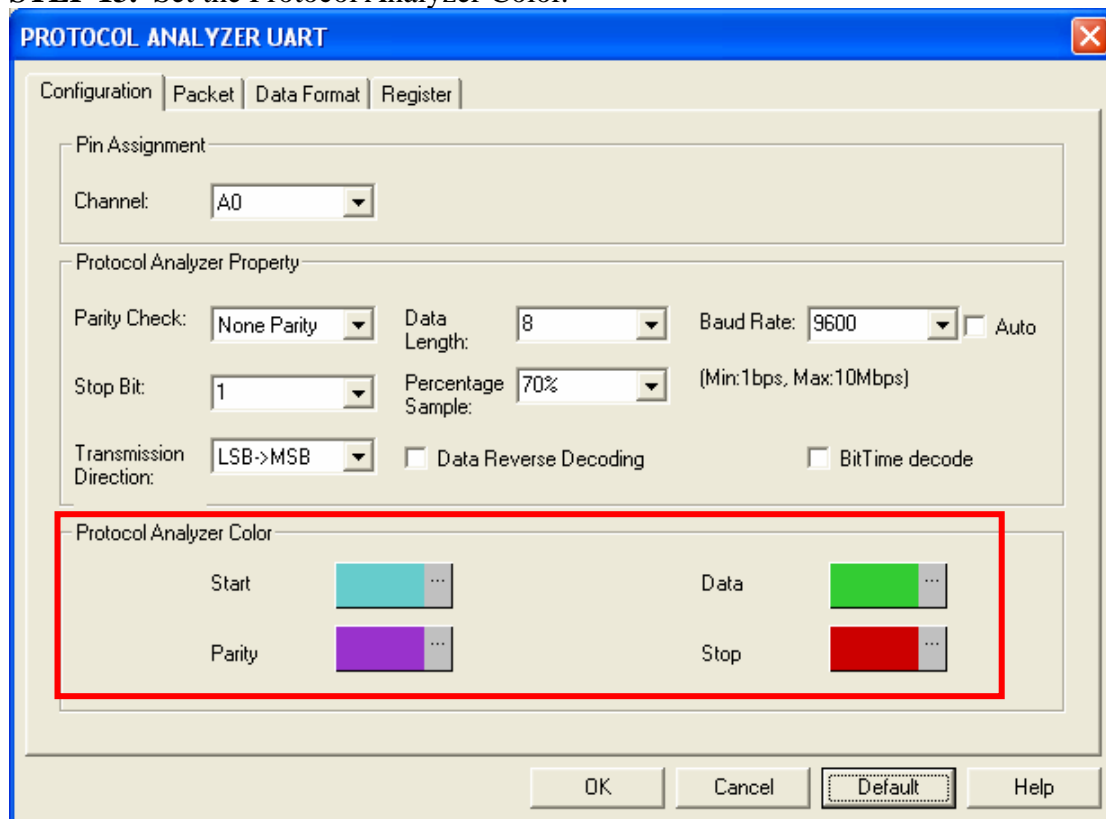
The screenshot shows the 'PROTOCOL ANALYZER UART' dialog box with the 'Configuration' tab selected. The 'Pin Assignment' section has 'Channel' set to 'A0'. The 'Protocol Analyzer Property' section contains the following settings: 'Parity Check' is 'None Parity', 'Data Length' is '8', 'Baud Rate' is '9600' with an 'Auto' checkbox, 'Stop Bit' is '1', 'Percentage Sample' is '70%', and '(Min:1bps, Max:10Mbps)' is displayed. The 'Transmission Direction' is 'LSB->MSB'. The checkbox for 'Data Reverse Decoding' is checked and highlighted with a red rectangle. The 'BitTime decode' checkbox is unchecked. The 'Protocol Analyzer Color' section shows color swatches for 'Start' (cyan), 'Data' (green), 'Parity' (purple), and 'Stop' (red). At the bottom are 'OK', 'Cancel', 'Default', and 'Help' buttons.

STEP 12. Set the BitTime decode.



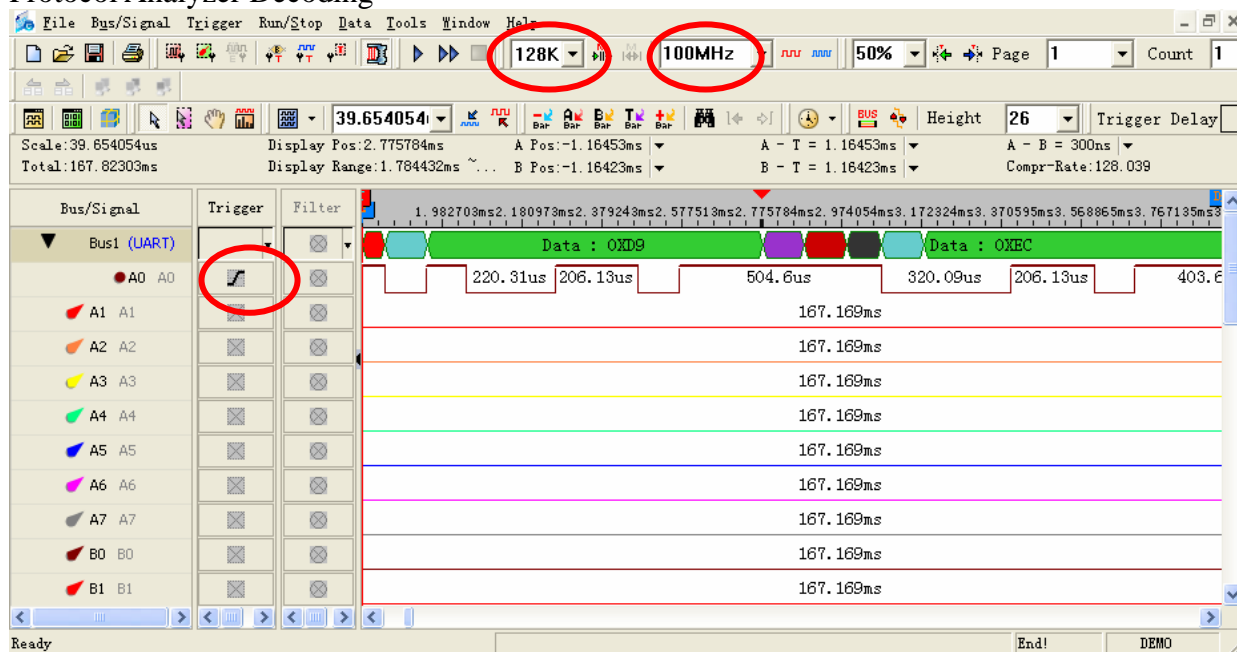
This screenshot shows the same 'PROTOCOL ANALYZER UART' dialog box as in Step 11, but with the 'BitTime decode' checkbox checked and highlighted with a red rectangle. All other settings, including 'Data Reverse Decoding' (which remains checked), are identical to the previous step. The 'Configuration' tab is still selected, and the 'Protocol Analyzer Color' section and bottom buttons are unchanged.

STEP 13. Set the Protocol Analyzer Color.



STEP 14. Following pictures show the completion of the protocol analyzer decoding and the packet list. The trigger condition is set as Rising Edge, the memory depth is 128K and the sampling frequency is 100MHz (the sampling frequency should be more than ten times higher than the signal to be tested).

Protocol Analyzer Decoding



Packet List

