SPECIFICATION

MODEL: B11011-eMMC

PART NO: _____

VERSION: V1.06

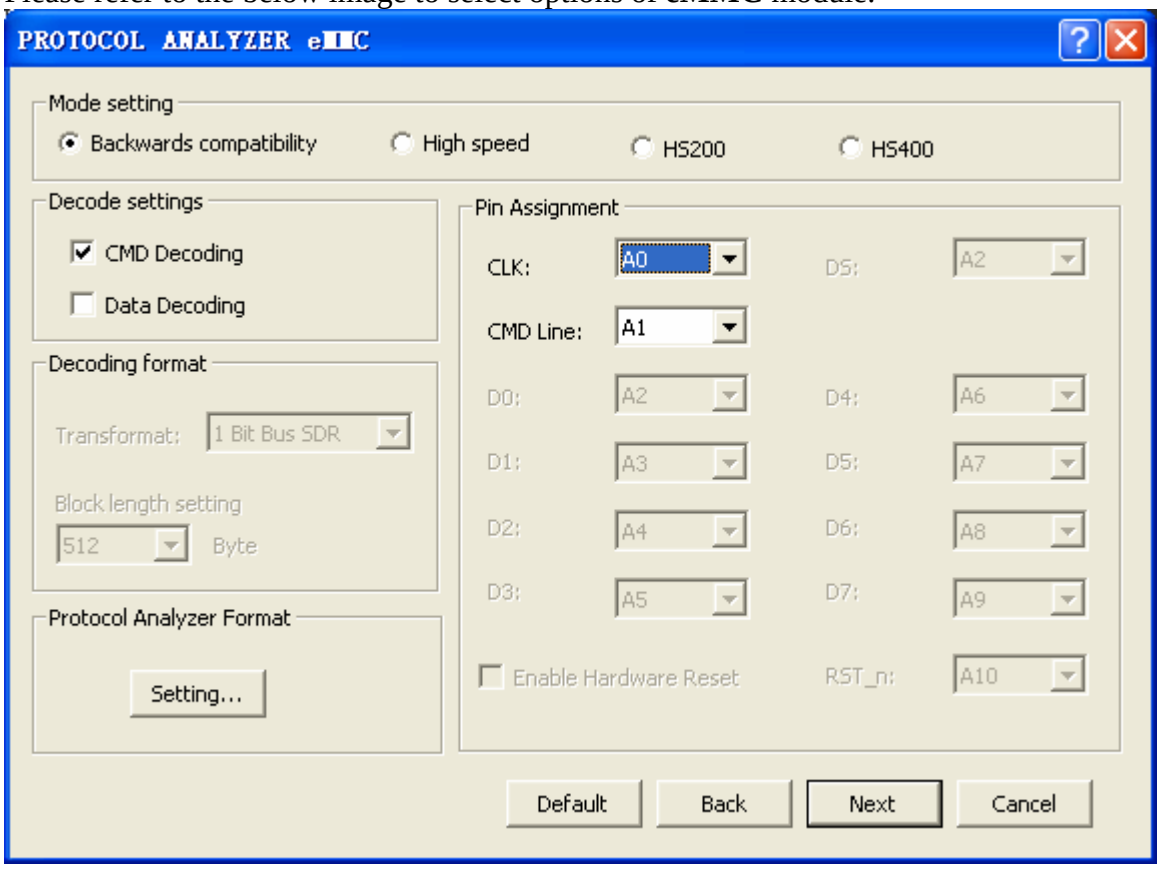
Approver		Check	Design
GM	PM		

Customer Confirm

Content

1 User Interface

Please refer to the below image to select options of **eMMC** module.



Mode setting:

There is four modes: Backwards compatibility, High speed, HS200 and HS400. For HS200 mode, during decoding, if the host transmits data to the device, then it would sample at the rising edge of CLK; if the device transmits data to the host, then it would sample at the previous low position of rising edge of CLK. For HS400, the data send by the host takes CLK as the clock signal, while the data send by the device takes DS as the clock signal.

Decode settings:

CMD Decoding:

Only CLK and CMD Line are available, the module only decodes CMD (command and response), but not Data.

Data Decoding:

Command will be decoded firstly inside the module(its decoding information isn't displayed) and then decode the data packet on the data lines.

Decoding format:

Transformat:

In Backwards compatibility and High speed mode, it has three options: 1Bit Bus SDR, 4Bit Bus SDR and 8 Bit Bus SDR.

In HS200 mode, it has two options: 4Bit Bus SDR and 8 Bit Bus SDR.

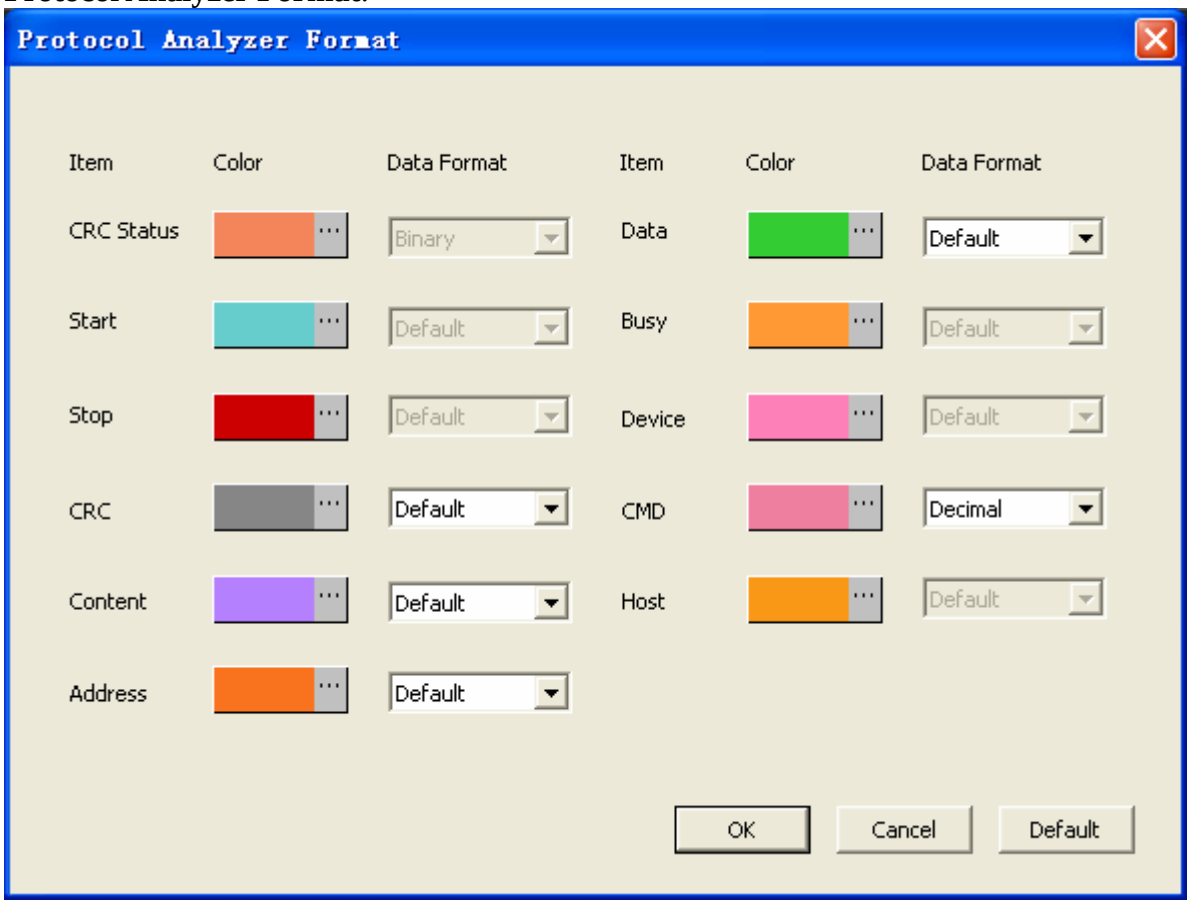
In HS400 mode, it has only one option: 8Bit Bus DDR.

Block length setting:

Select one length from the pulldown menu, which includes 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096, 8192 and 16384 with Byte as the unit; it is 512 by default.

Pin Assignment:
eMMC needs two channels at least to decode signal. CLK is the clock line, CMD Line is the command line, D0-D7 are data lines and RST_n is reset line. Hardware reset could be enabled or not.
In 1 Bit Bus SDR format, channels of CLK, CMD Line and D0 can be used.
In 4 Bit Bus SDR format, channels of CLK, CMD Line and D0~D3 can be used.
In 8 Bit Bus SDR format, channels of CLK, CMD Line and D0~D7 can be used.
In 8 Bit Bus DDR format, channels of CLK, DS, CMD Line and D0-D7 can be used.

Protocol Analyzer Format:

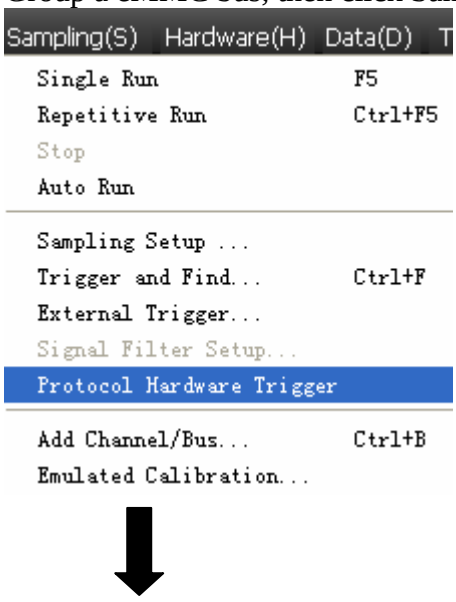


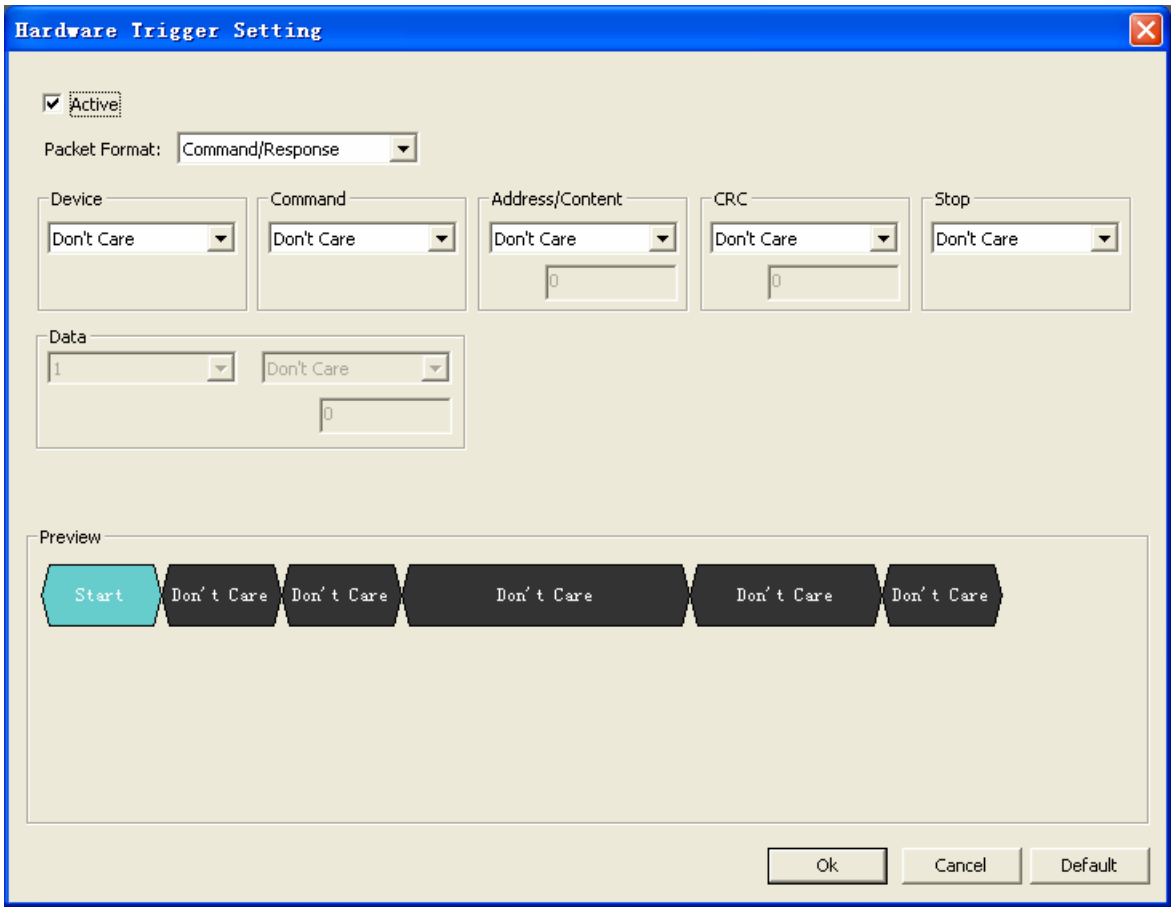
Users can set the color of the packet as their requirements. The items (Data, CMD, CRC, Content, Address) can be set as Binary, Decimal, Hexadecimal, ASCII or Default. And the data format of these items in the Waveform Display Area and Packet List is controlled by the Protocol Analyzer. The default data format is controlled by the main program and the data format of these items is Default except CMD is Decimal..

Hardware Trigger

Hardware trigger could help capturing the needed data more accurate and faster. 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 eMMC bus, then click Sampling→Protocol Hardware Trigger.





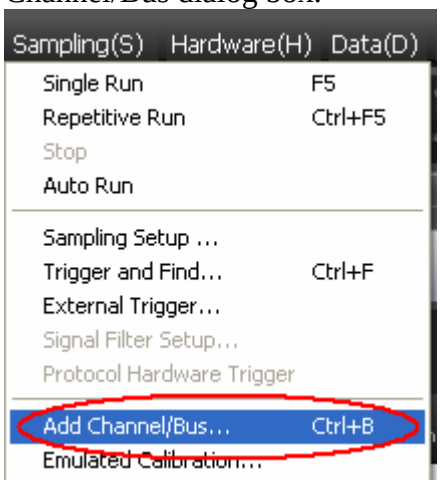
1. Active: Activate hardware trigger.
2. Packet Format: It has two options: Command/Response and Block. Command/Response means command trigger, while Block means data trigger. It is Command/Response by default.
3. Device: Set the host or device data. Host is the command send by host, while Device is the command responded by device. It has three options: Don't Care, Host and Device. It is Don't Care by default.
4. Command: Set the command type. It includes Don't Care and CMD0-CMD63. It is Don't Care by

default.

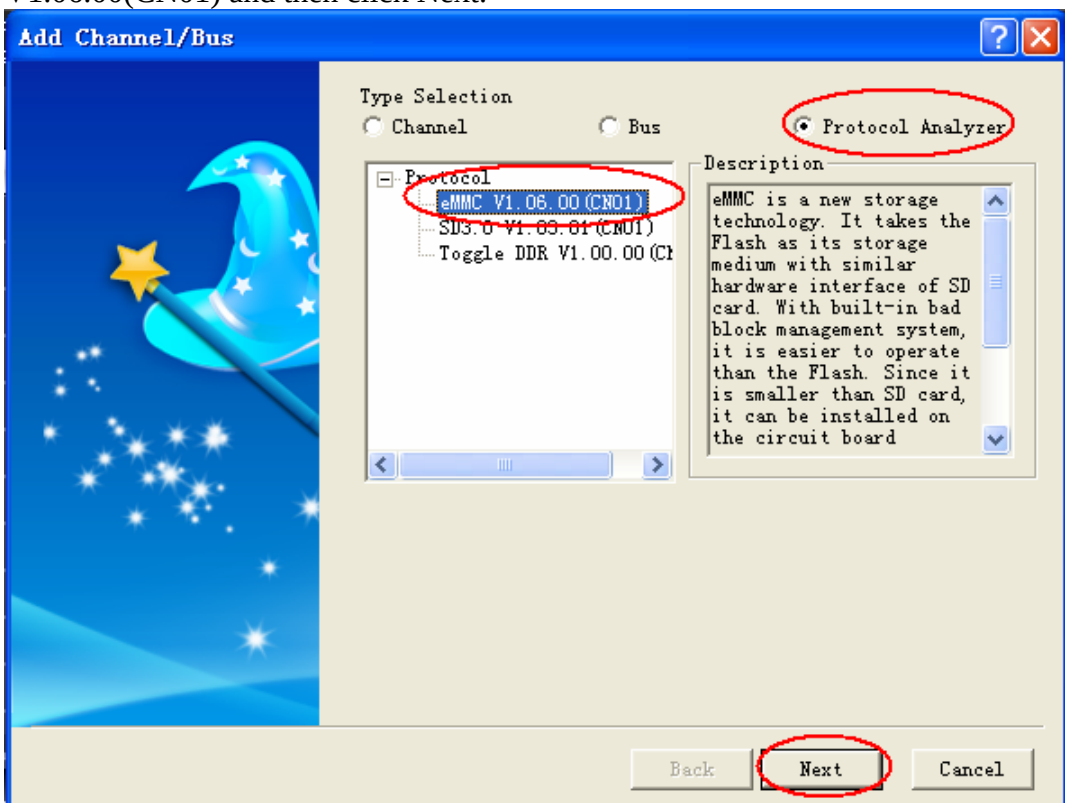
5. Address/Content: Set Address or Content data. It has three options: Don’t Care, Address and Content. It is Don’t Care by default.
6. CRC: Set CRC data. It has two options: Don’t Care and CRC. It is Don’t Care by default.
7. Stop: It has two options: Don’t Care and Stop. It is Don’t Care by default.
8. First combo box of Data: Set Data. 5 could be set at most for 1 line, and 23 for 4 lines and 47 for 8 lines. It is 1 by default.
9. Second combo box of Data: Set Data. It has two options: Don’t Care and Data. It is Don’t Care by default
10. Data Input Box: Set Data. It is 0 by default.
11. Preview: Preview the packet data. Error Frame and OverLoad Frame have no preview.

2 Operating Instructions

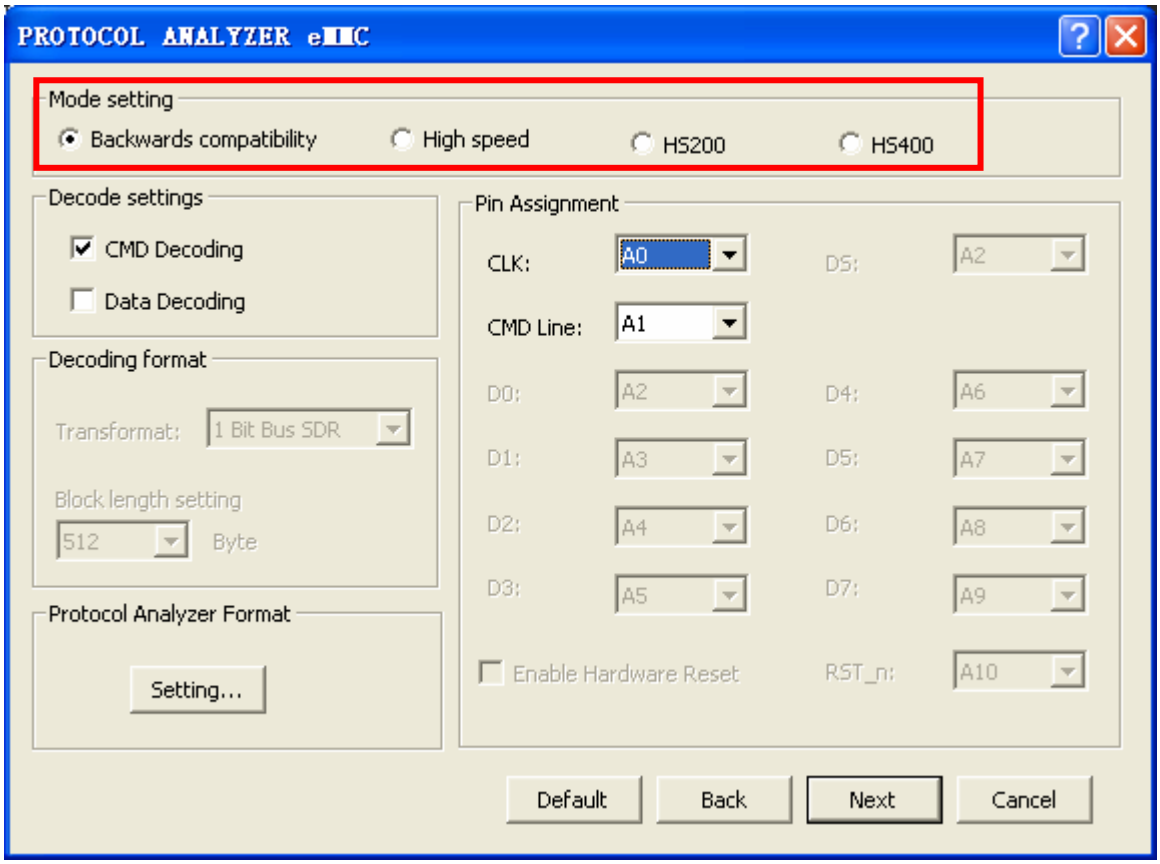
STEP 1. Select the Add Channel/Bus item on the pull-down menu of the Sampling(S) to open the Add Channel/Bus dialog box.



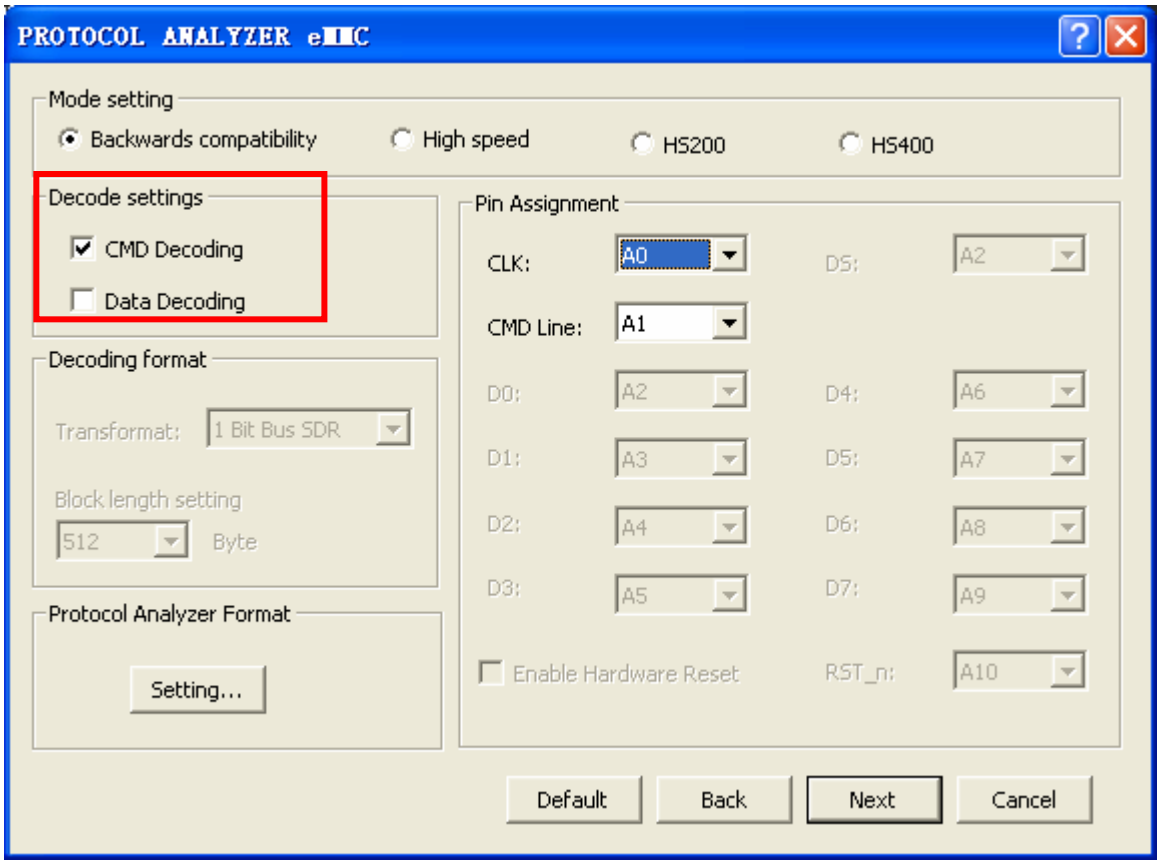
STEP 2. Select the Protocol Analyzer item in the Add Channel/Bus dialog box, select the eMMC V1.06.00(CN01) and then click Next.



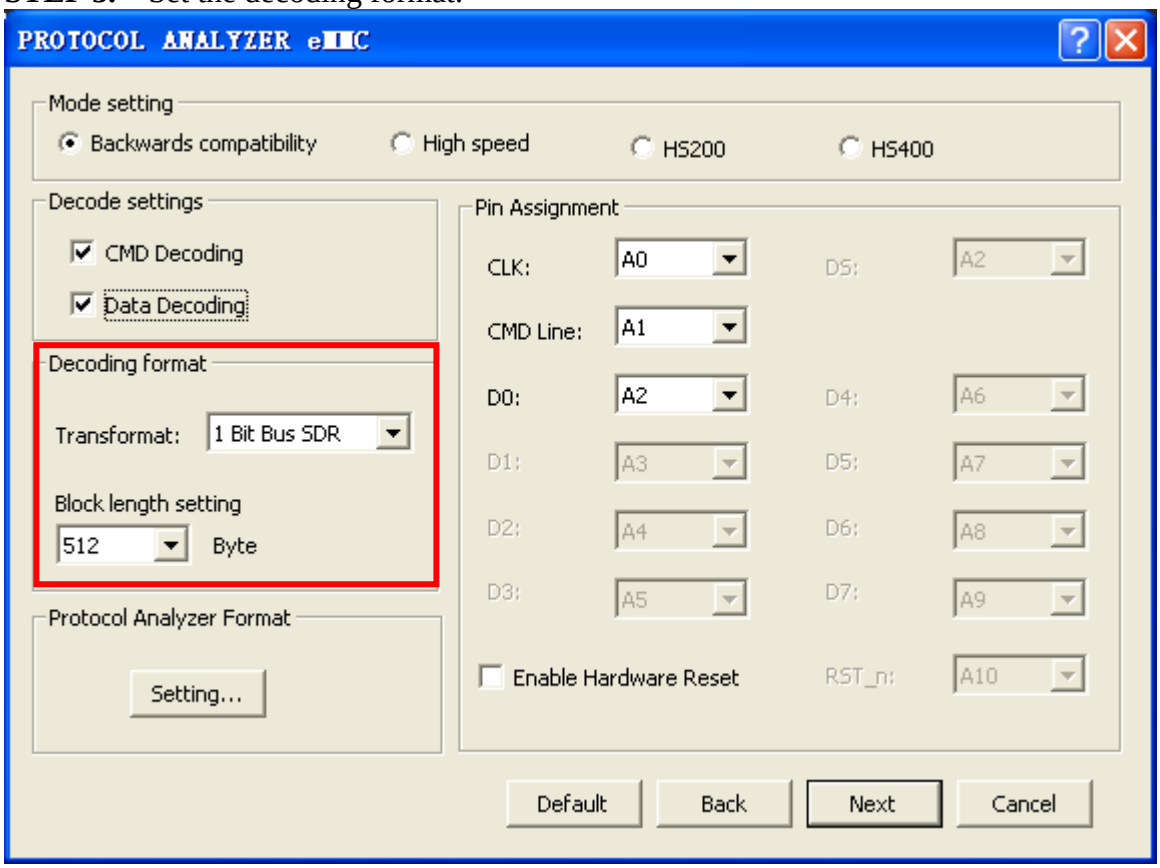
STEP 3. Set the mode.



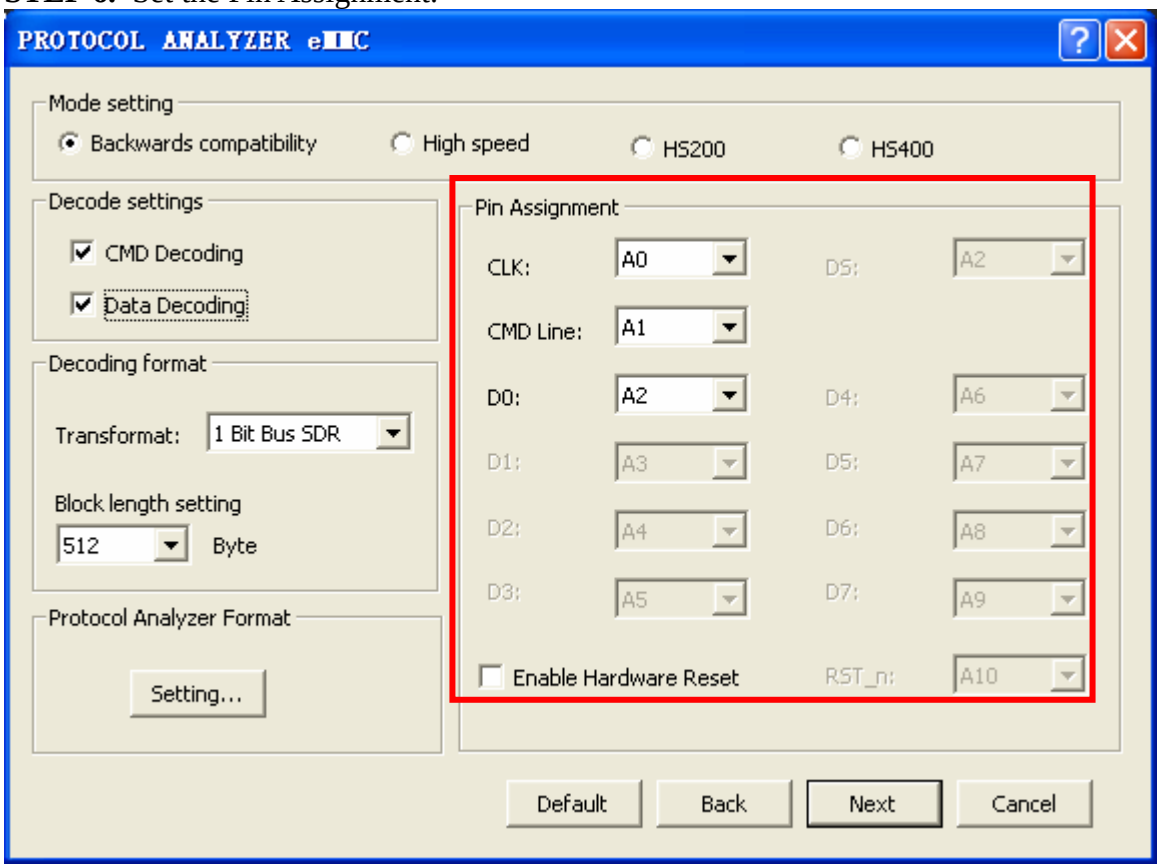
STEP 4. Set the decode .



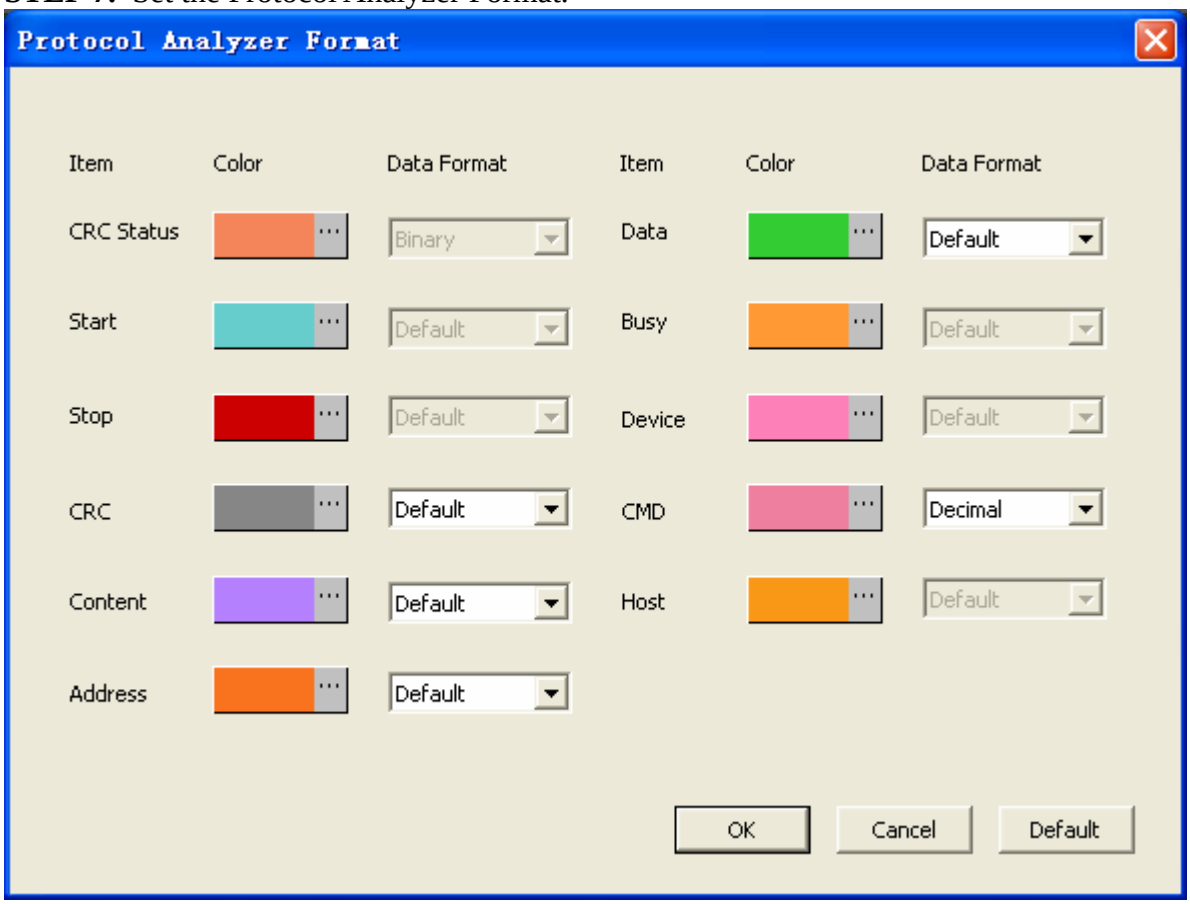
STEP 5. Set the decoding format.



STEP 6. Set the Pin Assignment.

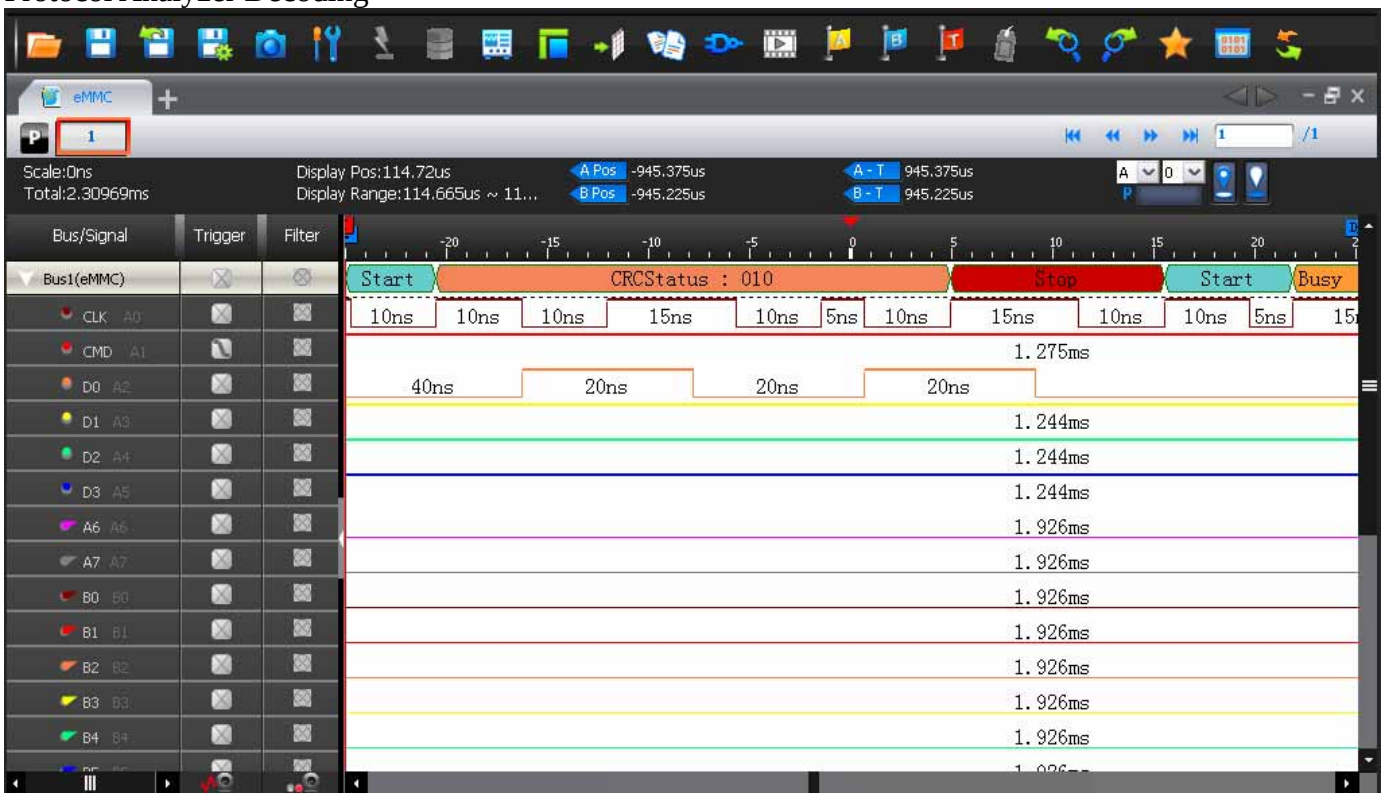


STEP 7. Set the Protocol Analyzer Format.



STEP 8. Following pictures show the completion of the protocol analyzer decoding and the packet list. The trigger condition is set as Falling Edge, the memory depth is 256K and the sampling frequency is 200MHz (the sampling frequency should be more than four times higher than the signal to be tested).

Protocol Analyzer Decoding



Packet List


Packet List
Packet #
Name
TimeStamp
Start
Data
1
Bus1(eMMC)
0.092905ms
Start
0XA4 0XC3 0X09 0XA2 0X91 0X82 0XA8 0X16 0XAC 0XC4 0X5A 0X62 0X5B 0XBD
Data
0XFE 0XA8 0XFE 0XCA 0XBB 0XFD 0X1E 0X25 0XE0 0X4E 0XD2 0X98 0X65 0XAF 0X5E 0XE4 0XB5 0XC0 0X6C
Data
0X0F 0X0D 0XEA 0XFB 0X7B 0XEE 0XCA 0X2E 0X4A 0XBF 0XFA 0X4B 0XD7 0XD7 0X7C 0XD9 0X81 0X73 0XE6
Data
0X01 0X2E 0X8C 0X3D 0XF2 0XFF 0XEE 0XD3 0X42 0XB6 0X30 0XA1 0XE0 0X40 0X44 0XF1 0X12 0XBD 0XBA
Data
0XBB 0XBB 0XF0 0X17 0X04 0XFE 0XD8 0X21 0X4A 0X81 0X03 0X46 0X36 0X49 0X69 0X2D 0X52 0X93 0X84
Data
Navigator
Packet List
Statistics
Memory Analyzer
Auto test
Output