

Index

Feature:..... 2
FAQ..... 8
Probe and test object connection..... 10
Pin connection..... 10
Way Station connection 11

Feature:

The BF7264B is an SGMII analyzer and offers other protocol analyzer options like eMMC5, NAND flash, SD3, SD4 or MIPI D-PHY(DSI, CSI) as its predecessor.

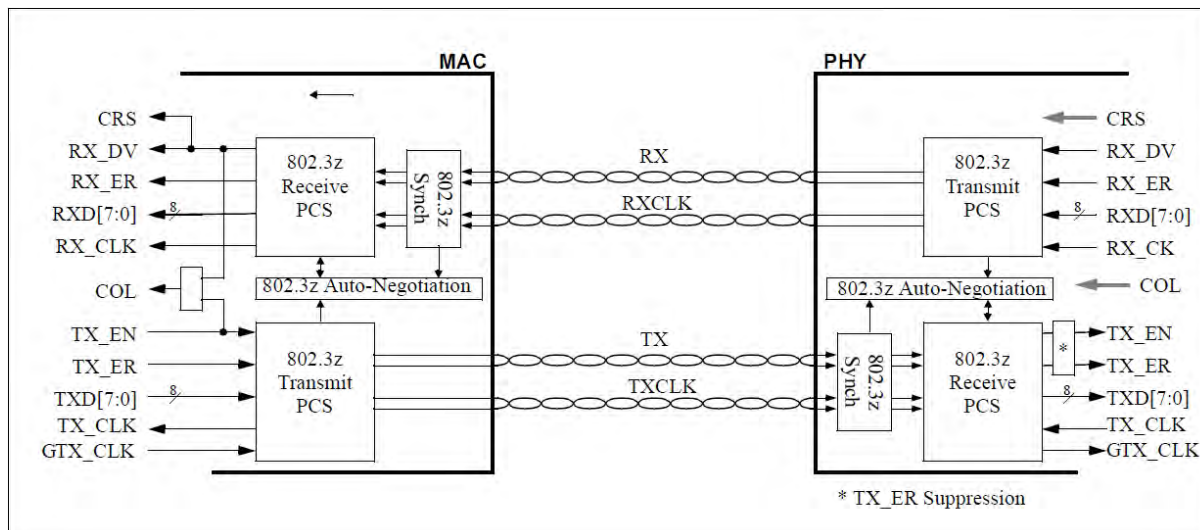
Specifications:

1. BF7264B, 32Gb RAM, SGMII Probes



2. Supports 1000/100/10Mbps SGMII:

Data signals operate at 1.25 Gbaud and the clocks operate at 625 MHz (a DDR interface).



3. Can simultaneously display PCS(PHY) or GMII(MAC) protocol packet data in tabular form, including command parsing.

The screenshot displays the Acute network analysis interface. The main window shows a list of captured packets with columns for Timestamp, Direction, Code, Rx Code, Tx, Rx, Tx Set, and Rx Set. A detailed view window is open for a selected packet, showing the following information:

- Direction:** TX
- Address:** Destination: 00-E0-4C-60-7B-82, Source: 04-D4-C4-4A-42-9D
- EtherType:** IPv4 (0800)
- FCS:** 3963A0D1

The [Raw Data] section shows the hexadecimal and ASCII representation of the packet payload:

```

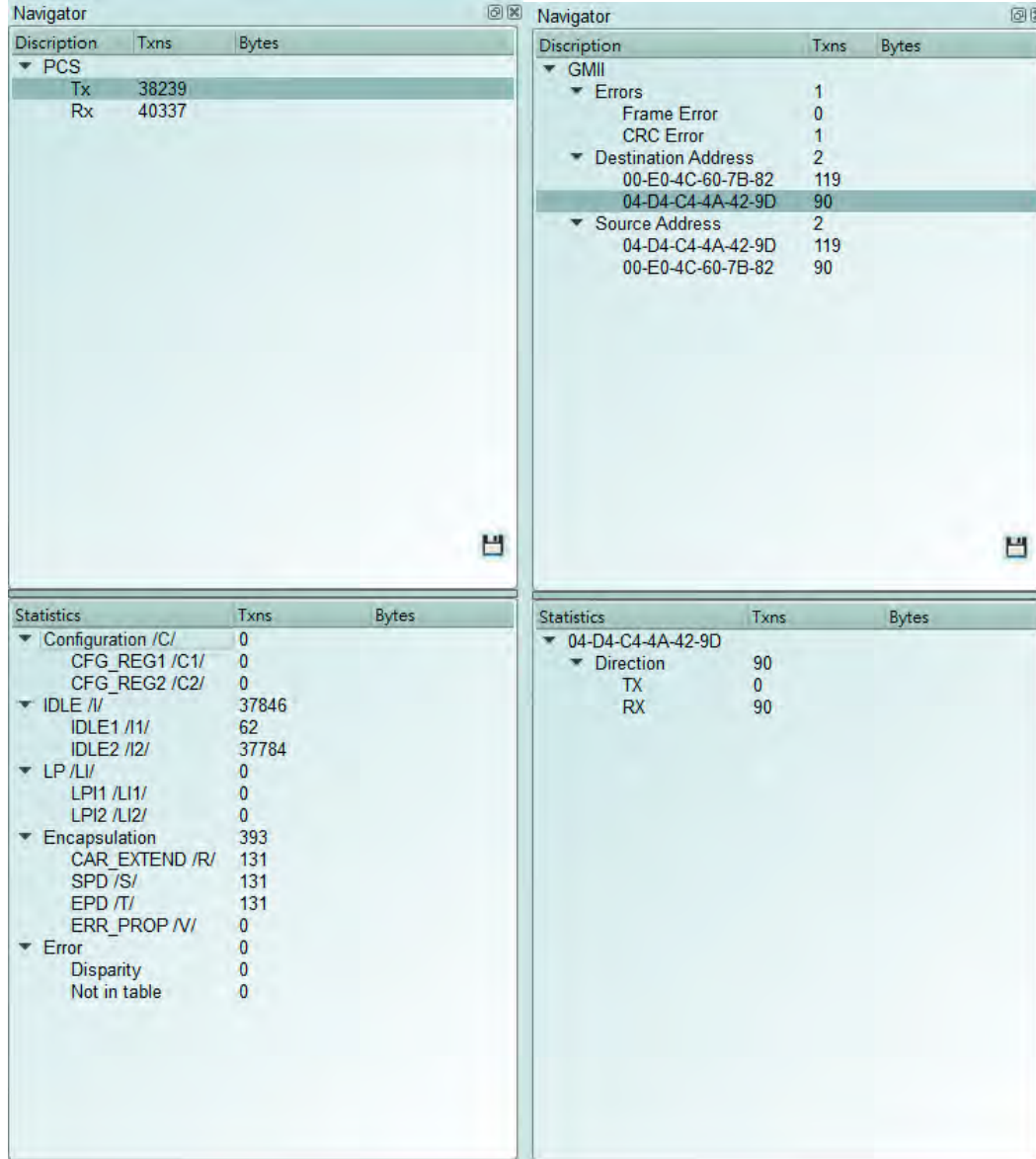
0 1 2 3 4 5 6 7 ASCII
00h 45 00 00 40 DD CB 00 00 E..@....
08h 80 11 D9 8B C0 A8 01 02 .....
10h C0 A8 01 03 04 00 04 D2 .....
18h 00 2C BA B9 54 52 49 47 ,.,.TRIG
20h 30 30 30 30 30 30 30 30 00000000
28h 31 31 31 31 31 31 31 31 11111111
30h 32 32 32 32 32 32 32 32 22222222
38h 33 33 33 33 33 33 33 33 33333333
    
```

4. Use 32Gb RAM as the buffer to stream all Way Station data into the SSD/HDD.
5. “Data Filter” & “Idle Filter” filter unwanted data and idle to save memory.

The screenshot shows the 'Filter' configuration window with the following settings:

- Data Filter Range:** 14~1475 bytes.
- CRC:** CRC is not available with data filter.
- Reserve:** Must reserve Address and Ethertype bytes.
- Data filter:** Data filter > bytes
- Idle filter:** Idle filter

6. “Search” searches specific data.
7. “CRC Packet” displays and counts CRC
8. D-PHY command statistics include numbers of packets, individual command, different data length, and errors



The image displays two side-by-side screenshots of the Acute software interface, showing network statistics for different layers.

Left Screenshot (PCS Layer):

Discription	Txns	Bytes
PCS		
Tx	38239	
Rx	40337	

Statistics	Txns	Bytes
Configuration /C/	0	
CFG_REG1 /C1/	0	
CFG_REG2 /C2/	0	
IDLE /I/	37846	
IDLE1 /I1/	62	
IDLE2 /I2/	37784	
LP /L/	0	
LP11 /L11/	0	
LP12 /L12/	0	
Encapsulation	393	
CAR_EXTEND /R/	131	
SPD /S/	131	
EPD /T/	131	
ERR_PROP /V/	0	
Error	0	
Disparity	0	
Not in table	0	

Right Screenshot (GMII Layer):

Discription	Txns	Bytes
GMII		
Errors	1	
Frame Error	0	
CRC Error	1	
Destination Address	2	
00-E0-4C-60-7B-82	119	
04-D4-C4-4A-42-9D	90	
Source Address	2	
04-D4-C4-4A-42-9D	119	
00-E0-4C-60-7B-82	90	

Statistics	Txns	Bytes
04-D4-C4-4A-42-9D		
Direction	90	
TX	0	
RX	90	

9. SGMII command trigger

- a. Trigger parameters include commands and data in order to cover all kinds of packets.
- b. GMII & PCS Packet
- c. Trigger CRC Error, Frame Error, Propagation Error, Start of Packet, End of Packet, Carrier Extend, Configuration.
- d. The Trigger-Out port is to trigger a DSO to capture waveforms

The image shows two configuration panels. The top panel, titled "Trigger On", has a checked "Trigger On" checkbox and a "Direction" dropdown set to "Both TX & RX". It contains two sections: "PCS" with checkboxes for "Start of Packet (K27_7, SPD)", "End of Packet (K29_7, EPD)", "Carrier Extend (K23_7)", "Propagation Error (K30_7)", "Disparity Error", "Not in Table", and "Configuration (K28_5, D21_5 / K28_5, D2_2)"; and "GMII" with checkboxes for "Frame Error" and "CRC Error". The bottom panel, titled "Data Trigger", has a checked "Data Trigger" checkbox and a "Direction for Data" dropdown set to "Both TX & RX". It has radio buttons for "PCS Configuration Register" (with a "XXXXh" input field) and "GMII Data" (which is selected and has a gear icon).

The "GMII Trigger Settings" dialog box has a close button (X) in the top right. It contains several sections: "Destination Address" (purple header) with six "XXh" input fields; "Source Address" (orange header) with six "XXh" input fields; "Ethertype/Length" (cyan header) with a "XXXXh" input field; "Data" (green header) with eight "Byte" input fields (Byte 1 to Byte 8), each containing "XXh"; "Data Offset" (0) with up/down arrows; and radio buttons for "Default", "OK", and "Cancel".

9. Advanced usage of the report area

a. Dual report correlation: PCS and GMII reports are related to each other.

Double-click to track the corresponding data in another report area.

ex: Click the PCS area report to link to the GMII corresponding report.

b. Statistics list: Quickly categorize and track the location of data with statistical functions.

10. SGMII settings



1. **SGMII way station settings:** Exchange p, n of the same Lane,
2. **Startup Settings:** It needs to be set the mode of the ethernet packet speed at the moment of capturing data.
3. **Trigger On:** Can set GMII/PCS packets, CRC Error, Frame Error, Propagation Error, Start of Packet, End of Packet, Carrier Extend, Configuration, Disparity Error, Configuration, Not in Table trigger settings.
4. **Filter:** After opening Data Filter or Idle Filter, Data Filter will filter out the data behind the packet greater than the set value and Idle Filter will filter out the Idle packet to save memory while recording.

FAQ

1. What SGMII speed is supported, any limitation for differential ports?

A: Support SGMII 1Gbps、100Mbps、10Mbps、Ports: TXp、TXn、RXp、RXn、Ref.Clk。

2. Will the signal quality be affected during measurement?

A: The measurement of the external instrument will inevitably have some load effect. We use the SMPM Coaxial Cable connection to reduce the interference of the object to be measured and improve the signal quality.

3. Is Tx supported?

A: No

4. Precautions during measurement

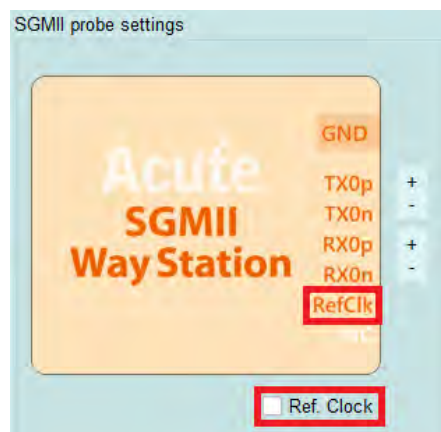
a. Startup Settings:

SGMII supports different packet speeds. If the initial speed is not set correctly, the data volume will be 10 times or 100 times, which will make the analysis result abnormal. Besides, if a Speed Config packet appears during the capture process, the Config packet will be used as the new packet sending speed.



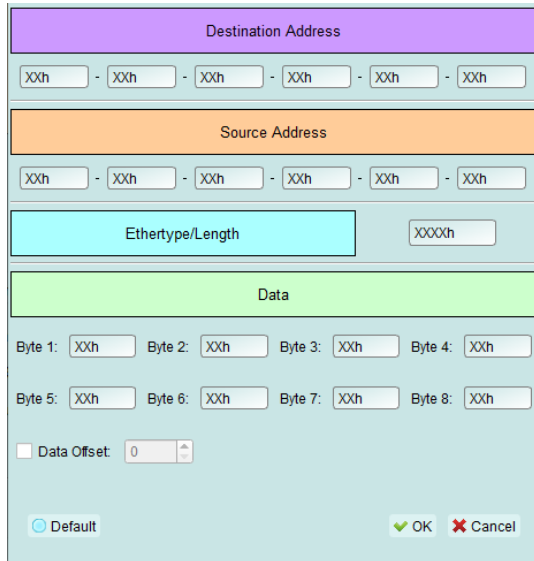
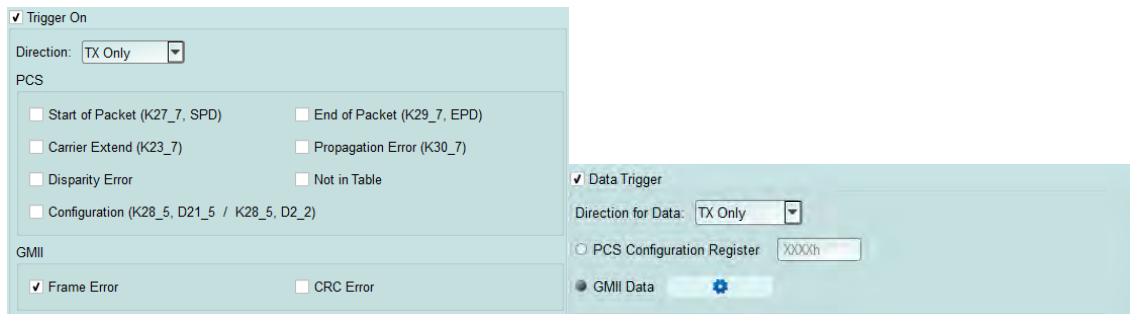
b. Reference clock setting method:

Since SGMII signals are 8b/10b encoding, it can be analyzed normally without connecting the Reference clock during measurement. Ref. clock can also provide by external signal. You can access the Ref Clk port from the SGMII Way Station below, and select Ref. Clock.



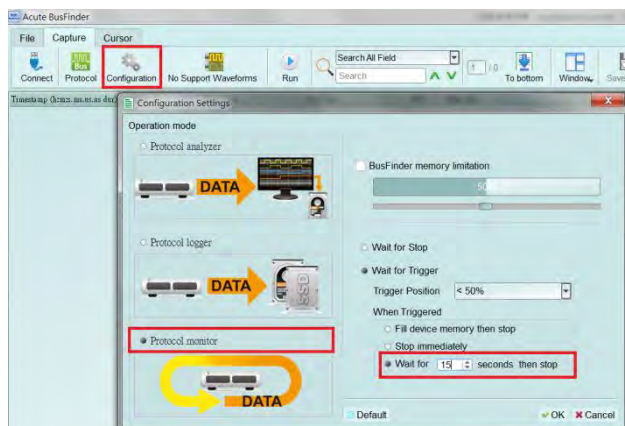
5. Can I specify a PCS, GMII packet as the trigger point function?

A: You can specify specific PCS, GMII packet or Error to trigger.



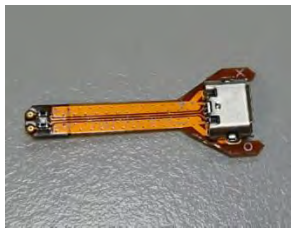
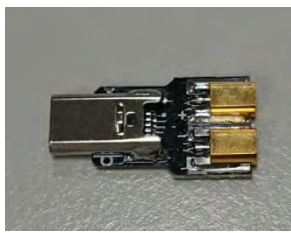
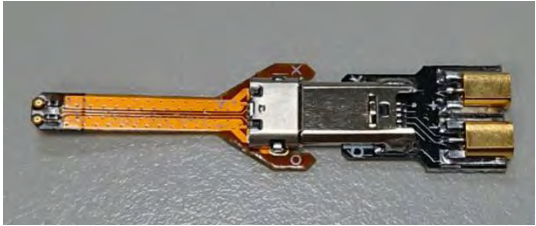
6. Is it possible to set a PCS, GMII starting point, and specify how much time to capture Data?

A: You can set the starting condition to the trigger item and adjust to the data monitor mode in the working mode menu. And specify the length of acquisition time.



Probe and test object connection

With End-Tip connection:

Components		
End-tip (FPC)		Combined
End-Tip Connector(FPC)		
		

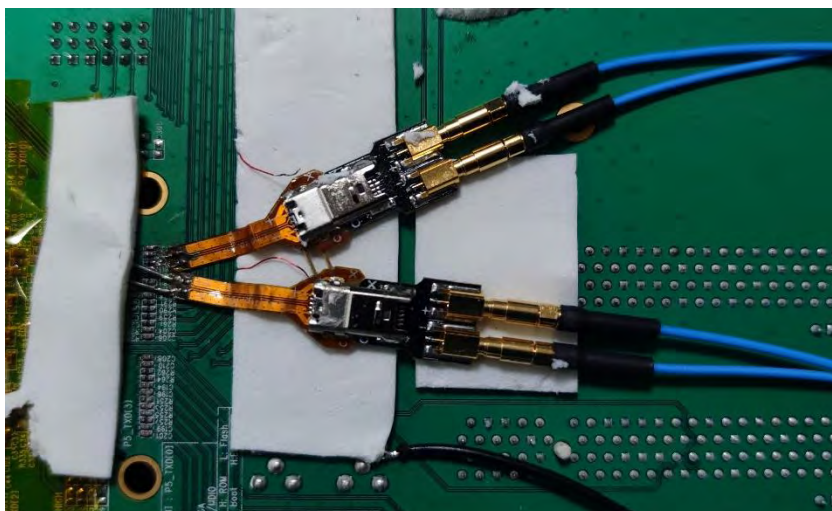
The resistance on the end-tip(FPC) is 250ohm ◦

Pin connection

For SGMII way station USB3.0 connection, please plug in the bottom one.



End-tip Connection:



Way Station connection

