



**BF7264B/ B+**  
**SD 3.0 / SDIO 3.0 analyzer**

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## Feature

This option is supported in BF7264B, and BF7264B+ ◦

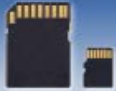

Specifications:

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### 1. BF7264B/ B+, 32Gb RAM, SD 4.0 / SD 3.0 probe



### 2. Supports SD 3.0 SDR104 / SD6.0 Legacy mode SDR104, DDR200/ SDIO 3.0

Pin Layout				
Bus Interface	High Speed	UHS-I High Speed	UHS-II UHS-I High Speed	UHS-III <span>New</span> UHS-II UHS-I High Speed
Capacity (file system)	2TB (exFAT) 32GB (FAT32) 2GB (FAT12/16)	SD XC I SD HC I SD	SD XC II SD HC II	SD XC III SD HC III 624MB/sec
Bus Speed	25MB/sec	104MB/sec	312MB/sec	

### 3. Can display SD 3.0 protocol packet data in tabular form, including command parsing

Timestamp (h:m:s.ms.us.ns.dsr)	Event	Data	Information	Error message	Bus	Clock	CMD	Duration	Data Duration	Detail
596	17:35:59.697.190.429 606.5...	ACMD04 SET BUS WIDTH	46 00 00 00 02 CB		232.451 K	Hrc: 94	202.196us			CMD06 SWITCH_FUNC
597	17:35:59.697.444.247 253.8...	Resp6 R1	06 00 00 09 20 B9			Hrc: 11	202.196us			[31] Mode= Check function (0)
598	17:35:59.698.052.980 408.7...	CMD16 SET_BLOCKLEN	50 00 00 02 00 15		232.446 K	Hrc: 94	202.196us			[30] group 1 Access mode= SDR104 (3b)
599	17:35:59.698.306.790 253.8...	Resp16 R1	10 00 00 09 00 0B			Hrc: 11	202.196us			[CRC7] = 15h (0b:38h)
600	17:35:59.698.954.350 647.5...	CMD55 APP_CMD	77 AA AA 00 00 2B		14.8622 M	Hrc: 6618	3.15968us			[Raw Data]
601	17:35:59.698.988.316 3.96us	Resp55 R1	37 00 00 09 20 33			Hrc: 11	3.15968us			0 1 2 3 4 5 6 7 ASCII
602	17:35:59.699.247.424 289.1...	ACMD51 SEND_SCR	73 00 00 00 00 C7		14.8622 M	Hrc: 4249	3.15968us			0h 46 00 FF FF F3 3B F....
603	17:35:59.699.251.390 3.96us	Resp51 R1	33 00 00 09 20 91			Hrc: 12	3.15968us			
604	17:35:59.699.398.786 147.4...	Read, 16 bytes	02 35 84 03 00 00 00 00...	SC=1 WaitTime:144.246us	4bit	Hrc: 2147	2.22311us			
605	17:35:59.699.344.700 945.9...	CMD06 SWITCH_FUNC	46 00 FF FF FF E3		14.8622 M	Hrc: 15	3.15968us			
606	17:35:59.699.348.937 4.23us	Resp6 R1	06 00 00 09 00 DD			Hrc: 16	3.15968us			
607	17:35:59.699.344.272 1.01ms	Read, 64 bytes	00 44 80 01 80 01 80 0F...	SC=1 WaitTime:1.01218ms	4bit	Hrc: 15046	9.74902us			
608	17:35:59.699.145.894 701.6...	CMD06 SWITCH_FUNC	46 00 FF FF F3 3B		14.8852 M	Hrc: 15	3.15968us			
609	17:35:59.699.150.127 4.23us	Resp6 R1	06 00 00 09 00 DD			Hrc: 15	3.15968us			
610	17:35:59.699.198.052 47.92...	Read, 64 bytes	00 FA 80 01 80 01 80 0F...	SC=1 WaitTime:44.765us	4bit	Hrc: 666	9.74902us			
611	17:35:59.699.096.862 658.8...	CMD06 SWITCH_FUNC	46 00 FF FF F3 0D		14.8852 M	Hrc: 15	3.15635us			
612	17:35:59.699.901.095 4.23us	Resp6 R1	06 00 00 09 00 DD			Hrc: 15	3.15968us			
613	17:35:59.699.732.738 1.81ms	Read, 64 bytes	00 C8 80 01 80 01 80 0F...	SC=1 WaitTime:1.8248ms	4bit	Hrc: 27178	9.74902us			
614	17:35:59.699.628.089 585.3...	CMD06 SWITCH_FUNC	46 00 FF 3F FF 9F		14.8852 M	Hrc: 33	3.15968us			
615	17:35:59.699.633.468 5.37us	Resp6 R1	06 00 00 09 00 DD			Hrc: 33	3.15968us			
616	17:35:59.699.917.394 283.9...	Read, 64 bytes	00 FA 80 01 80 01 80 0F...	SC=1 WaitTime:280.769us	4bit	Hrc: 4179	9.74902us			
617	17:35:59.699.604.911 687.5...	CMD06 SWITCH_FUNC	46 00 FF 3F FF A9		14.8622 M	Hrc: 33	3.15968us			
618	17:35:59.699.610.291 5.37us	Resp6 R1	06 00 00 09 00 DD			Hrc: 33	3.15968us			
619	17:35:59.699.917.340 307.0...	Read, 64 bytes	00 FA 80 01 80 01 80 0F...	SC=1 WaitTime:303.89us	4bit	Hrc: 4523	9.75236us			
620	17:35:59.701.159.949 4.14ms	CMD13 SEND_STATUS	4D AA AA 00 00 43		204.276 M	Hrc: 33	229.977ms			
621	17:35:59.701.160.339 389.9...	Resp13 R1	0D 00 00 09 00 3F			Hrc: 33	226.644ms			
622	17:35:59.701.831.008 670.6...	CMD13 SEND_STATUS	4D AA AA 00 00 43		204.276 M	Hrc: Over	229.977ms			
623	17:35:59.701.831.390 389.9...	Resp13 R1	0D 00 00 09 00 3F			Hrc: 32	229.977ms			
624	17:35:59.702.394.882 548.4...	CMD13 SEND_STATUS	4D AA AA 00 00 43		204.276 M	Hrc: Over	229.977ms			
625	17:35:59.702.397.245 393.2...	Resp13 R1	0D 00 00 09 00 3F			Hrc: 33	229.977ms			
626	17:35:59.702.963.360 564.1...	CMD13 SEND_STATUS	4D AA AA 00 00 43		204.276 M	Hrc: Over	226.644ms			
627	17:35:59.702.963.758 389.9...	Resp13 R1	0D 00 00 09 00 3F			Hrc: 33	229.977ms			
628	17:35:59.703.530.462 564.7...	CMD13 SEND_STATUS	4D AA AA 00 00 43		204.276 M	Hrc: Over	229.977ms			
629	17:35:59.703.530.852 389.9...	Resp13 R1	0D 00 00 09 00 3F			Hrc: 32	229.977ms			
630	17:35:59.704.098.232 567.3...	CMD13 SEND_STATUS	4D AA AA 00 00 43		204.276 M	Hrc: Over	229.977ms			
631	17:35:59.704.098.622 389.9...	Resp13 R1	0D 00 00 09 00 3F			Hrc: 32	229.977ms			
632	17:35:59.704.644.551 567.9...	CMD13 SEND_STATUS	4D AA AA 00 00 43		204.276 M	Hrc: Over	229.977ms			
633	17:35:59.704.646.575 383.2...	Resp13 R1	0D 00 00 09 00 3F			Hrc: 33	229.977ms			
634	17:35:59.705.235.618 548.6...	CMD13 SEND_STATUS	4D AA AA 00 00 43		204.276 M	Hrc: Over	229.977ms			
635	17:35:59.705.236.000 393.2...	Resp13 R1	0D 00 00 09 00 3F			Hrc: 33	229.977ms			

### 4. Use 32Gb RAM as the buffer to stream all SD 3.0 data into the SSD HD in order to record all data flow from Low Power Mode to High Speed Mode.

### 5. “Data Filter” filters unwanted data to save memory.

### 6. “Search” searches specific data.

### 7. “CRC Packet” displays and counts CRC

### 8. SD 3.0 command statistics include numbers of packets, individual command, different data length, and errors

Navigator			Statistics	
Discription	Txns	Bytes	Txns	Bytes
CMD	489		CMD00	8
ACMD	84		CMD08	8
DATA	16533	8397134	CMD55	84
Write SC of CMD24	0	0	CMD11	3
Write SC of CMD25	2	8212	CMD02	5
Read SC of CMD17	5	2560	CMD03	5
Read SC of CMD18	58	8391632	CMD09	5
ERROR	28		CMD07	5
			CMD13	119
			CMD16	5
			CMD06	17
			CMD17	5
			CMD18	58
			CMD12	60
			CMD36	1
			CMD45	2
			CMD39	1
			CMD19	96
			CMD25	2

## 9. SD 3.0 command trigger

- a. Trigger parameters include commands and data in order to cover all kinds of packets.
- b. Command or 16 byte Data.
- c. CRC7, CRC16, End Bit Error.
- d. CRC Status timeout, CRC Status pattern.
- e. VCC drop, VCCQ2 drop.
- f. The Trigger-Out port is to trigger a DSO to capture waveforms

☒ Trigger on

☐ CMD/DATA

☐ CMD ☐ DATA

☐ End bit error

☐ CRC7 error

☐ CRC16 error

☐ CRC status Positive

☐ CRC status timeout 1 ns

☐ VDD Drop

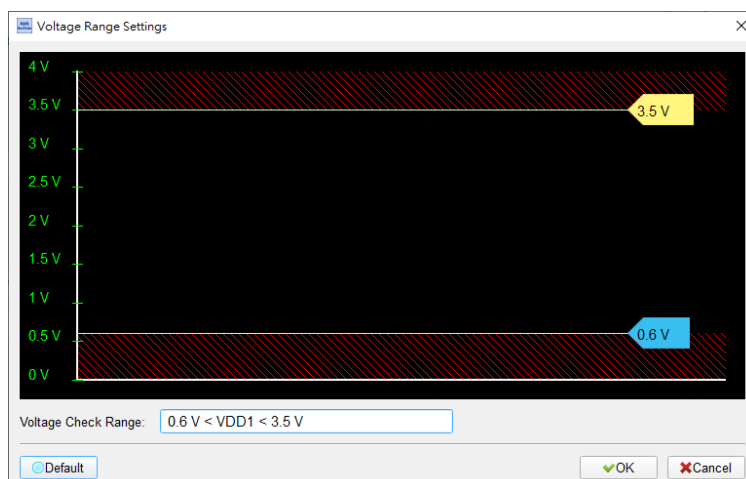
☐ VCCQ2 Drop

Trigger Setting

Any Command

S	T	Command	(Description)
0	1	XXh	
		Stuff Bits[31:24]	
		XXh	
		Stuff Bits[23:16]	
		XXh	
		Stuff Bits[15:8]	
		XXh	
		Stuff Bits[7:0]	
		XXh	
		CRC	
	1	XXh	

☐ Default ☒ OK ☐ Cancel



## 10. Report area

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

The screenshot displays the Acute Technology software interface. The main window shows a table of events with columns: Timestamp (hh:mm:ss.ms.us.ns.dur), Event, Data, Information, Error message Bus, Clock, CMD Duration, and Data Duration. The table lists various events such as ACMD06 SET\_BUS\_WIDTH, CMD16 SET\_BLOCKLEN, and CMD06 SWITCH\_FUNC. On the right, the Navigator panel shows a tree view of commands and their durations/bytes. Below the Navigator, the Statistics List panel is visible, showing a summary of commands and their durations/bytes. A red arrow points from the Statistics List panel to the main data table, indicating the relationship between the summary and the detailed data.

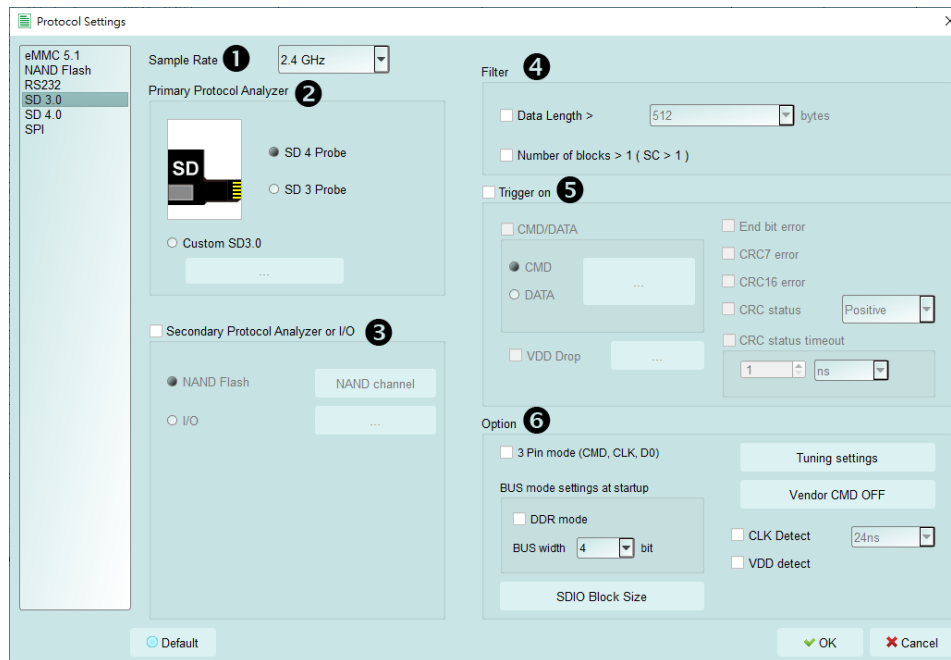
Timestamp (hh:mm:ss.ms.us.ns.dur)	Event	Data	Information	Error message Bus	Clock	CMD Duration	Data Duration
17:35:59.687.190.429.606.5	ACMD06 SET_BUS_WIDTH	46 00 00 00 02 CB			232.451 K	202.196us	
17:35:59.687.444.247.253.8	Resp6 R1	06 00 00 09 20 B9			Nor: 11	202.196us	
17:35:59.688.052.850.605.7	CMD16 SET_BLOCKLEN	50 00 00 02 00 15			232.446 K	202.196us	
17:35:59.688.306.798.253.8	Resp16 R1	10 00 00 09 00 08			Nor: 11	202.196us	
17:35:59.688.954.350.647.5	CMD55 APP_CMD	77 AA AA 00 00 2B			14.8622 M	3.15968us	
17:35:59.688.950.316.3.96us	Resp55 R1	37 00 00 09 20 33			Nor: 11	3.15968us	
17:35:59.689.247.424.289.1	ACMD51 SEND_SCR	73 00 00 00 00 C7			14.8622 M	3.15968us	
17:35:59.689.251.390.3.96us	Resp51 R1	33 00 00 09 20 91			Nor: 12	3.15968us	
17:35:59.689.390.795.147.4	Read, 16 bytes	02 35 84 03 00 00 00...	SC=1 WaitTime:144.246us		4bit	Nor: 2147	2.22311us
17:35:59.690.344.700.945.9	CMD06 SWITCH_FUNC	46 00 FF FF FF E3			14.8622 M	3.15968us	
17:35:59.690.348.937.4.23us	Resp6 R1	06 00 00 09 00 DD			Nor: 16	3.15968us	
17:35:59.691.369.272.1.01ms	Read, 64 bytes	00 E4 80 01 80 01 80 0F...	SC=1 WaitTime:1.0121ms		4bit	Nor: 25066	9.74902us
17:35:59.692.145.894.781.6	CMD06 SWITCH_FUNC	46 00 FF FF FF 3B			14.8852 M	3.15968us	
17:35:59.692.150.127.4.23us	Resp6 R1	06 00 00 09 00 DD			Nor: 15	3.15968us	
17:35:59.692.198.052.47.92	Read, 64 bytes	00 FA 80 01 80 01 80 0F...	SC=1 WaitTime:44.7655us		4bit	Nor: 666	9.74902us
17:35:59.692.896.862.698.8	CMD06 SWITCH_FUNC	46 80 FF FF FF 0D			14.8852 M	3.15635us	
17:35:59.692.901.055.4.23us	Resp6 R1	06 00 00 09 00 DD			Nor: 15	3.15968us	
17:35:59.694.732.735.1.83ms	Read, 64 bytes	00 C8 80 01 80 01 80 0F...	SC=1 WaitTime:1.8284ms		4bit	Nor: 27175	9.74902us
17:35:59.695.628.089.895.3	CMD06 SWITCH_FUNC	46 00 FF 3F FF 9F			14.8852 M	3.15968us	
17:35:59.695.633.468.5.37us	Resp6 R1	06 00 00 09 00 DD			Nor: 33	3.15968us	
17:35:59.695.917.356.282.9	Read, 64 bytes	00 FA 80 01 80 01 80 0F...	SC=1 WaitTime:280.769us		4bit	Nor: 4179	9.74902us
17:35:59.696.604.911.607.5	CMD06 SWITCH_FUNC	46 00 FF 3F FF A9			14.8622 M	3.15968us	
17:35:59.696.610.291.5.37us	Resp6 R1	06 00 00 09 00 DD			Nor: 33	3.15968us	
17:35:59.696.917.340.307.0	Read, 64 bytes	00 FA 80 01 80 01 80 0F...	SC=1 WaitTime:303.89us		4bit	Nor: 4523	9.75236us
17:35:59.701.159.949.4.24ms	CMD13 SEND_STATUS	4D AA AA 00 00 43			204.276 M	229.977ms	
17:35:59.701.160.339.385.9	Resp13 R1	0D 00 00 09 00 3F			Nor: 33	226.644ms	
17:35:59.701.831.008.670.6	CMD13 SEND_STATUS	4D AA AA 00 00 43			204.276 M	229.977ms	
17:35:59.701.831.350.385.9	Resp13 R1	0D 00 00 09 00 3F			Nor: 32	229.977ms	

Command	Turns	Bytes
CMD08	8	
CMD05	84	
DATA	16533	8397134
Write SC of CMD04	0	0
Write SC of CMD25	2	8212
Read SC of CMD17	5	2560
Read SC of CMD18	58	8391632
ERROR	28	

Statistics	Turns	Bytes
CMD08	8	
CMD05	84	
CMD11	3	
CMD02	5	
CMD03	5	
CMD09	5	
CMD07	5	
CMD13	119	
CMD16	5	
CMD06	17	
CMD17	5	
CMD18	58	
CMD12	60	
CMD36	1	
CMD45	2	
CMPT06	1	



## 11. SD 3.0 settings



1. **Sample Rate:** Choose the sampling rate to use. To enable the Secondary Protocol Analyzer – NAND Flash option, the sampling rate must be set below 1GHz,
2. **Primary Protocol Analyzer:** Can choose to use the probe type, can also customize the channel / trigger level,
3. **Secondary Protocol Analyzer or I/O:** An additional set of specified logic analysis can be opened to analyze the remaining available pins at the same time,
4. **Filter:** Each Data Frame can specify the size of the collection, and data larger than the set value will not be recorded
5. **Trigger on:** CMD, DATA, ERROR, Voltage, Timeout, CRC Status trigger conditions can be set
6. **Option:**
  - a. **3 Pin mode:** After connecting CLK, CMD, D0, the protocol flow and status agreement can be analyzed,
  - b. **Startup:** It needs to be set to the mode of the current acquisition, the mode of the test object is running, and has the Tuning function.
  - c. **Tuning setting:** Phase adjust.
  - d. **Vendor CMD:** Can change the name of the command group by itself, with or without information,
  - e. **CLK Detect:** Can detect whether CLK has action,
  - f. **Two sets of voltage detection function**

## FAQ

### 1. What SD version is supported?

A : Support SD3.0 SDR104, SD6.0 Legacy mode SDR104 / DDR200.

### 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 active probe to reduce the interference of the object to be measured and improve the signal quality.

### 3. Is Tx supported?

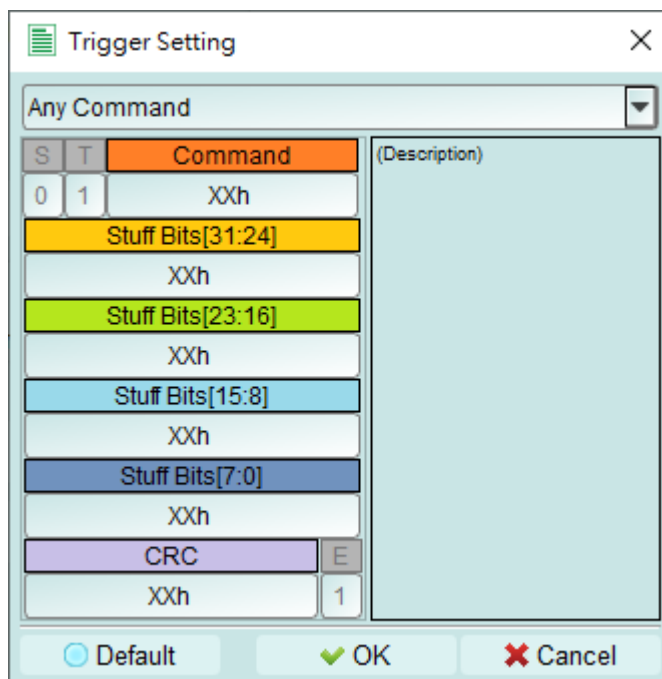
A: No

### 4. Precautions during measurement

Please make sure to connection according to the “Probe and test object connection” on page 9.

### 5. Can I specify an SD packet as the trigger point function?

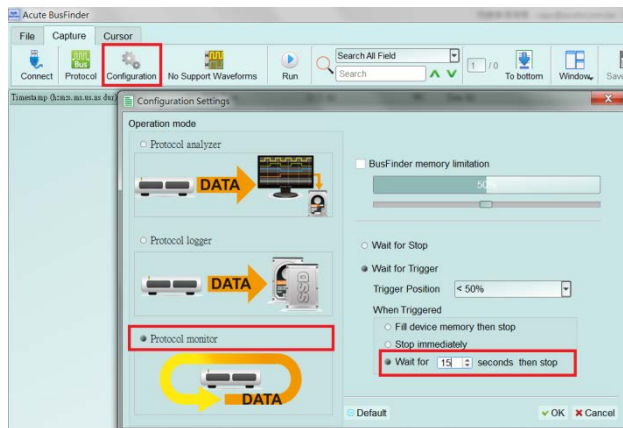
A: You can specify specific SD packet or Error to trigger.





**6. Is it possible to set an SD 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

