



**BF7264 Series**  
**MIPI M-PHY analyzer**  
**UFS2.1**

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## Feature:

Supported Models:

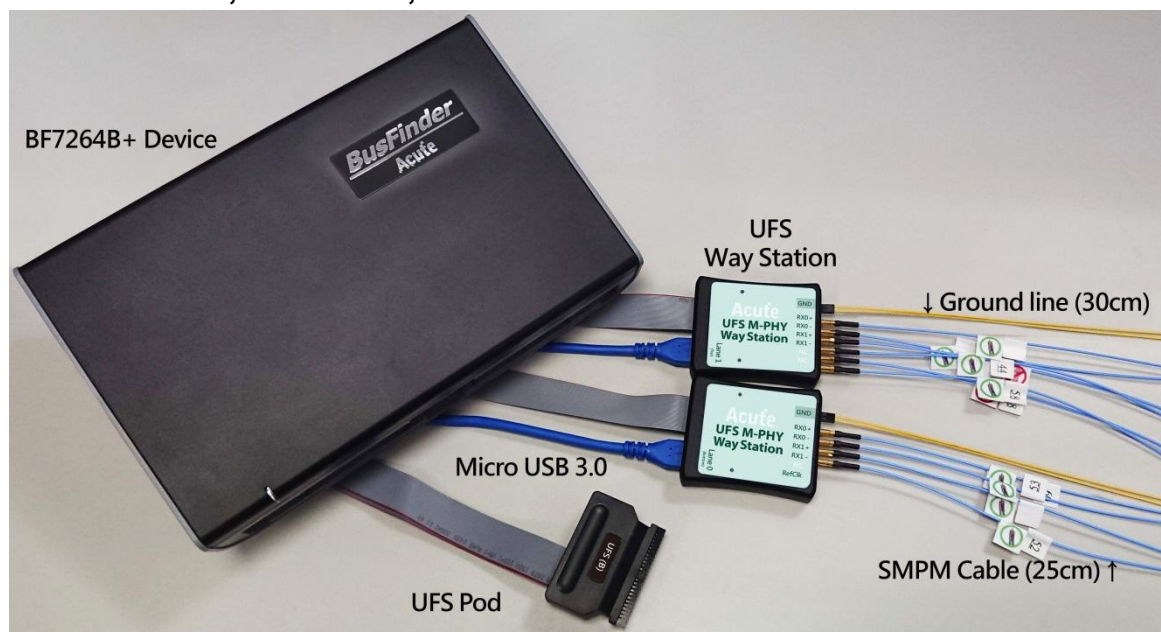
BF6264B	BF7264B	BF7264B+	BF7264 Pro
		●	●

**BF7264B+/Pro has two USB holes at the front.**

It provides the protocol analyzer function of MIPI M-PHY UFS2.1 (supports UFS3.1 commands).

Specifications:

### 1. BF7264B+/Pro, 32Gb RAM, MIPI M-PHY UFS2.1 Probes



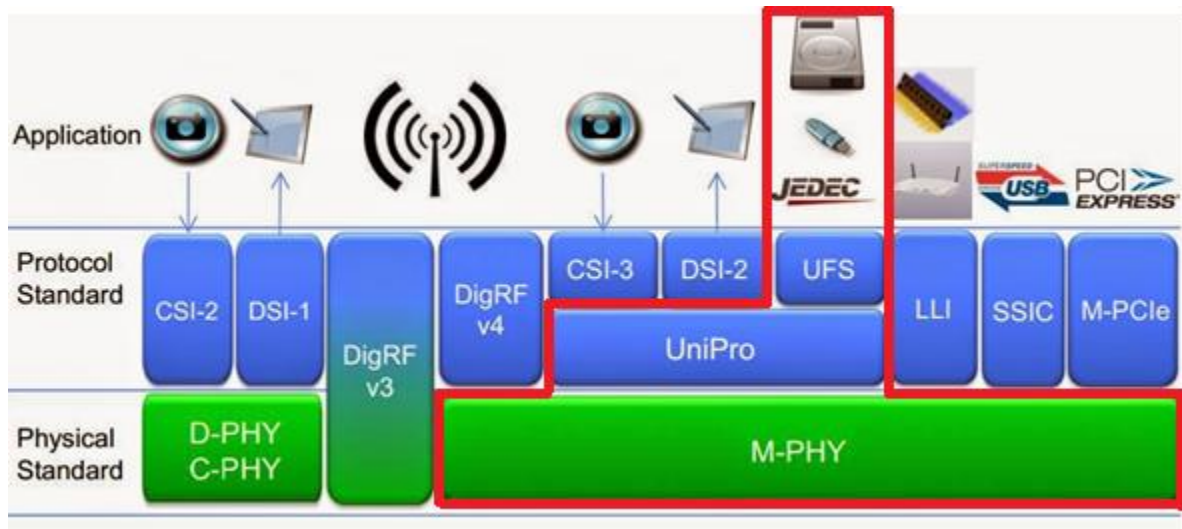
### 2. Fully supports MIPI M-PHY UFS2.1, and support UFS3.1 commands.

MIPI M-PHY 3.0, Up to 5.8Gbps ( Gear 3, Rate A / B ), 2 Lanes

MIPI Unipro 1.8

JEDEC UFS 2.1

JEDEC UFS 3.1 commands



### 3. Can simultaneously display Unipro or UFS protocol packet data in tabular form, including command parsing

Timestamp

Host

Device

Seq. #

11:29:31.586.787.079 170.1

Start of Burst

11:29:31.586.787.086 6.66ns

Filler(2x)

11:29:31.586.792.809 5.72us

AFC TCO CReq=0

06

11:29:31.586.798.598 5.78us

Filler(2x)

11:29:31.586.804.347 5.74us

AFC TCO CReq=0

06

11:29:31.586.810.097 5.74us

Filler(2x)

11:29:31.586.815.833 5.73us

AFC TCO CReq=0

06

11:29:31.586.821.609 5.77us

Filler(2x)

11:29:31.586.827.315 5.70us

Data Frame TCO

11:29:31.586.878.120 51.80...

EOF EVEN

17

11:29:31.586.884.876 5.75us

End of Burst

11:29:31.586.884.893 6.66ns

Filler(2x)

11:29:31.586.998.931 114.0...

PREPARE

11:29:31.587.027.862 28.93...

Start of Burst

11:29:31.587.027.868 6.66ns

Filler(4x)

11:29:31.587.032.528 4.65us

AFC TCO CReq=0

17

11:29:31.587.041.770 9.24us

Data Frame TCO

11:29:31.587.051.283 9.51us

STALL

11:29:31.587.106.624 55.34...

EOF EVEN

07

11:29:31.587.111.270 4.64us

Data Frame TCO

11:29:31.587.152.959 41.68...

EOF EVEN

08

11:29:31.587.157.592 4.63us

Filler(4x)

11:29:31.587.175.584 17.99...

PREPARE

11:29:31.587.208.560 32.97...

End of Burst

11:29:31.587.208.567 6.66ns

Filler(2x)

11:29:31.587.244.577 36.00...

STALL

11:29:31.587.371.111 126.5...

Start of Burst

11:29:31.587.371.117 6.66ns

Filler(2x)

11:29:31.587.376.897 5.77us

AFC TCO CReq=0

07

11:29:31.587.382.630 5.73us

Filler(2x)

11:29:31.587.388.379 5.74us

AFC TCO CReq=0

07

11:29:31.587.394.142 5.76us

Filler(2x)

11:29:31.587.399.918 5.77us

AFC TCO CReq=0

07

11:29:31.587.405.654 5.73us

Filler(2x)

11:29:31.587.411.403 5.74us

AFC TCO CReq=0

08

11:29:31.587.417.166 5.76us

Filler(2x)

11:29:31.587.422.942 5.77us

AFC TCO CReq=0

08

11:29:31.587.428.705 5.76us

Data Frame TCO

11:29:31.587.480.510 51.80...

EOF EVEN

18

11:29:31.587.486.266 5.75us

Filler(2x)

11:29:31.587.492.002 5.73us

End of Burst

11:29:31.587.492.009 6.66ns

Filler(2x)

11:29:31.587.603.491 111.4...

PREPARE

Timestamp

Host

Device

Seq. #

2.824.603.474 803.56us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.824.603.614 200.13us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.825.610.440 806.82us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.825.816.500 206.05us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.826.617.393 800.89us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.826.817.846 200.45us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.827.624.342 806.49us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.827.830.785 206.44us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.828.631.308 800.52us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.828.832.105 200.77us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.829.639.301 806.11us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.829.845.100 206.75us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.830.645.253 800.15us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.830.846.393 201.13us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.831.652.216 805.82us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.831.859.332 207.11us

QREQ(READ FLAG)

QRESP(READ FLAG) (Su...

2.832.659.235 799.90us

CMD (TEST UNIT READY)

D

2.832.860.692 201.45us

RESPONSE

D

2.833.240.377 379.68us

QREQ(REQUEST SENSE)

QRESP(READ DESCRIPTO...

2.833.450.076 209.69us

CMD (REQUEST SENSE)

D

2.833.627.315 377.23us

REQUEST\_SENSE\_RESPON...

D

2.834.041.770 214.45us

RESPONSE

D

2.834.111.270 69.49us

RESPONSE

D

2.834.428.705 317.43us

CMD (START STOP UNIT)

D

2.834.645.047 216.34us

RESPONSE

D

2.835.441.380 796.33us

CMD (INQUIRY)

D

2.835.647.220 205.83us

INQUIRY\_RESPONSE

D

2.835.744.483 97.26us

RESPONSE

D

2.836.062.902 318.41us

QREQ(READ DESCRIPTOR)

D

2.836.276.064 213.16us

QRESP(READ DESCRIPTO...

D

2.836.810.970 534.90us

QREQ(READ ATTRIBUTE)

D

2.837.023.105 212.13us

QRESP(READ ATTRIBUTE)

D

2.837.829.438 806.33us

QREQ(READ ATTRIBUTE)

D

2.838.034.361 204.92us

QRESP(READ ATTRIBUTE)

D

2.838.836.431 802.06us

QREQ(READ DESCRIPTOR)

D

2.839.038.024 201.59us

QRESP(READ DESCRIPTO...

D

2.839.486.686 448.66us

CMD (TEST UNIT READY)

D

2.839.694.728 208.04us

RESPONSE

D

2.841.782.943 2.08ms

CMD (REQUEST SENSE)

D

2.841.788.047 5.10us

REQUEST\_SENSE\_RESPON...

D

2.841.788.767 719.92ns

RESPONSE

D

2.841.823.555 34.78us

QREQ(READ DESCRIPTOR)

D

2.841.829.351 5.79us

QRESP(READ DESCRIPTO...

D

Detail

Navigator

Hide Items

CMD (START STOP UNIT)

7 6 5 4 3 2 1 0 7 6 5 4 3 2 1 0

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Unipro

UFS

Detail

4. Use 32Gb RAM as the buffer to stream all M-PHY data into the SSD HD in order to record all data flow from PWM 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. Unipro / UFS command statistics include numbers of packets, individual command, different data length, and errors

Navigator		
Discription	Txns	Bytes
▼ Unipro		
▼ L2	83257	
SOF	8318	
AFC TC0	66591	
AFC TC1	8	
NAC	0	
COF TC0	22	
EOF EVEN	8318	
EOF ODD	0	
▶ L1.5	1252	
▼ L1	310	
HIBERN8	2	
STALL	135	
SLEEP	19	
LINE RESET	0	
LINE CONFIG	0	
PREPARE	154	
▶ Error Packets	13	

Statistics		
	Txns	Bytes
▼ AFC TC0	66591	
Host	66311	
Device	280	

Unipro

Navigator		
Discription	Txns	Bytes
▼ UFS		
SCSI Command	148	
UFS Protocol	655	
QUERY REQUEST	34	
QUERY RESPONSE	34	
TASK MANAGEMENT	0	
LUN	799	
TRANSFER LENGTH	129	
RESERVED		

Statistics		
	Txns	Bytes
NOP OUT	2	
NOP IN	2	
RESPONSE	147	
READ(10) DATA(DATA IN)	496	
REQUEST SENSE RESPONSE DATA(DATA IN)	7	
INQUIRY RESPONSE DATA(DATA IN)	1	

UFS

## 9. Command trigger

- Trigger parameters include commands and data in order to cover all kinds of packets.
- CRC Error, Unknown packet
- VCC drop, VCCQ2 drop
- The Trigger-Out port is to trigger a DSO to capture waveforms

☒ Trigger On

Trigger Item 1/8 Clear All

<input type="checkbox"/>	MODE SELECT (10)
<input type="checkbox"/>	MODE SENSE (10)
<input type="checkbox"/>	PRE-FETCH (10)
<input type="checkbox"/>	PRE-FETCH (16)
<input checked="" type="checkbox"/>	READ (6)
<input type="checkbox"/>	READ (10)
<input type="checkbox"/>	READ (16)

☐ Unknown Packet ☐ CRC Error

Voltage Drop

☐ VCC(A0) Drop

☐ VCCQ2(A1) Drop

---

READ (6)

7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	
HD		DD		Transaction Code				Reserved		Flag		Flag		Reserved		CP		ATTR		LUN				Task Tag								
0	0	0	0	01h				X	X	X	X	X	X	X	X	X	X	X	X	XXh				XXh								
IID		Command Set Type		Reserved				Reserved		Reserved		Reserved		Reserved		Reserved		Reserved		Reserved				Reserved								
4	XXh		XXh		XXh				XXh		XXh		XXh		XXh		XXh		XXh		XXh				XXh							
EHS Length		Reserved		Data Segment Length				Reserved		Reserved		Reserved		Reserved		Reserved		Reserved		Reserved				Reserved								
8	XXh		XXh		XXh				XXh		XXh		XXh		XXh		XXh		XXh		XXXXh				XXXXh							
Expected Data Transfer Length [31:24]		Expected Data Transfer Length [23:16]		Expected Data Transfer Length [15:8]				Expected Data Transfer Length [7:0]		Expected Data Transfer Length [31:24]		Expected Data Transfer Length [23:16]		Expected Data Transfer Length [15:8]				Expected Data Transfer Length [7:0]		Expected Data Transfer Length [31:24]				Expected Data Transfer Length [23:16]		Expected Data Transfer Length [15:8]				Expected Data Transfer Length [7:0]		
12	XXh		XXh		XXh				XXh		XXh		XXh		XXh		XXh		XXh		XXh				XXh		XXh				XXh	
OPERATION CODE		Reserved		SICAL BLOCK ADDRESS [20:16]				LOGICAL BLOCK ADDRESS [15:8]		LOGICAL BLOCK ADDRESS [7:0]		Reserved		Reserved		Reserved		Reserved		Reserved				Reserved		Reserved				Reserved		
16	08h		Xh		XXh				XXh		XXh		XXh		XXh		XXh		XXh		XXh				XXh		XXh				XXh	
TRANSFER LENGTH		CONTROL		Reserved				Reserved		Reserved		Reserved		Reserved		Reserved		Reserved		Reserved				Reserved		Reserved				Reserved		
20	XXh		XXh		XXh				XXh		XXh		XXh		XXh		XXh		XXh		XXh				XXh		XXh				XXh	

Default OK Cancel

## 9. Advanced usage of the report area

- a. Dual report correlation: Unipro and UFS reports are related to each other.

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

ex: Click the Unipro area report to link to the UFS corresponding report.

Timestamp (h:m:s.ms.us.ns dur)	Host	Device	Timestamp	Host	Device	Task Tag Data
1280	16:15:03.796.342.673 13.33..	Filler(2x)	2	16:15:03.783.717.515 0 (Ma..	NOP OUT	00 00 00 00 0
1281	16:15:03.796.342.703 29.99..	AFC TCO CReq=0	3	16:15:03.783.938.943 221.4..	NOP IN	00 20 00 00 0
1282	16:15:03.796.342.729 26.66..	Filler(2x)	4	16:15:03.792.935.487 8.99ms	CHD (TEST UNIT READY)	01 01 00 00 0
1283	16:15:03.796.342.756 26.66..	AFC TCO CReq=0	5	16:15:03.792.940.406 4.91us	RESPONSE	01 21 00 00 0
1284	16:15:03.796.342.783 26.66..	Filler(2x)	6	16:15:03.793.956.611 1.01ms	CHD (TEST UNIT READY)	02 01 00 00 0
1285	16:15:03.796.342.813 29.99..	AFC TCO CReq=0	7	16:15:03.793.960.981 4.36us	RESPONSE	02 21 00 00 0
1286	16:15:03.796.342.839 26.66..	AFC TCO CReq=0	8	16:15:03.793.985.555 24.67..	CHD (READ (10))	03 01 40 00 0
1287	16:15:03.796.342.893 53.32..	AFC TCO CReq=0	9	16:15:03.794.209.246 223.6..	DATA IN	03 22 00 00 0
1288	16:15:03.796.342.906 13.33..	EOF EVEN	10	16:15:03.794.238.410 29.16..	RESPONSE	03 21 00 00 0
1289	16:15:03.796.342.919 13.33..	AFC TCO CReq=0	11	16:15:03.794.310.372 71.96..	CHD (READ (10))	04 01 40 00 0
1290	16:15:03.796.342.933 13.33..	Filler(6x)	12	16:15:03.794.372.383 62.01..	DATA IN	04 22 00 00 0
1291	16:15:03.796.342.976 43.32..	Filler(4x)	13	16:15:03.794.401.543 29.16..	RESPONSE	04 21 00 00 0
1292	16:15:03.796.343.029 53.32..	AFC TCO CReq=0	14	16:15:03.796.251.568 1.85ms	CHD (READ (10))	05 01 40 00 0
1293	16:15:03.796.343.056 26.66..	Filler(2x)	15	16:15:03.796.313.495 61.92..	DATA IN	05 22 00 00 0
1294	16:15:03.796.343.086 29.99..	AFC TCO CReq=0	16	16:15:03.796.342.659 29.16..	RESPONSE	05 21 00 00 0
1295	16:15:03.796.343.112 26.66..	Filler(6x)	17	16:15:03.796.342.107 19.44..	CHD (READ (10))	06 01 40 00 0
1296	16:15:03.796.343.306 193.3..	AFC TCO CReq=0	18	16:15:03.796.424.391 62.28..	DATA IN	06 22 00 00 0
1297	16:15:03.796.343.332 26.66..	Filler(2x)	19	16:15:03.796.453.551 29.16..	RESPONSE	06 21 00 00 0
1298	16:15:03.796.343.359 26.66..	AFC TCO CReq=0	20	16:15:03.796.491.171 37.61..	CHD (READ (10))	07 01 40 00 0
1299	16:15:03.796.343.386 26.66..	Filler(2x)	21	16:15:03.796.553.098 61.92..	DATA IN	07 22 00 00 0
1300	16:15:03.796.343.412 26.66..	AFC TCO CReq=0	22	16:15:03.796.592.262 29.16..	RESPONSE	07 21 00 00 0
1301	16:15:03.796.343.442 29.99..	Filler(6x)	23	16:15:03.796.592.559 10.29..	CHD (READ (10))	08 01 40 00 0
1302	16:15:03.796.342.107 18.66..	Data Frame TCO	24	16:15:03.796.655.115 62.55..	DATA IN	08 22 00 00 0
1303	16:15:03.796.342.354 246.6..	EOF EVEN	25	16:15:03.796.684.275 29.16..	RESPONSE	08 21 00 00 0
1304	16:15:03.796.342.381 26.66..	Filler(4x)	26	16:15:03.797.375.309 691.0..	CHD (READ (10))	09 01 40 00 0
1305	16:15:03.796.343.270 889.9..	AFC TCO CReq=0	27	16:15:03.797.450.942 75.63..	DATA IN	09 22 00 00 0
1306	16:15:03.796.343.324 53.32..	Filler(6x)	28	16:15:03.797.480.105 29.16..	DATA IN	09 22 00 00 0
1307	16:15:03.796.343.350 26.66..	AFC TCO CReq=0	29	16:15:03.797.509.266 29.16..	DATA IN	09 22 00 00 0
1308	16:15:03.796.343.407 56.66..	Filler(4x)	30	16:15:03.797.538.430 29.16..	DATA IN	09 22 00 00 0
1309	16:15:03.796.424.391 60.98..	Data Frame TCO	31	16:15:03.797.567.593 29.16..	DATA IN	09 22 00 00 0
1310	16:15:03.796.426.281 1.88us	EOF EVEN	32	16:15:03.797.596.754 29.16..	DATA IN	09 22 00 00 0
1311	16:15:03.796.426.307 26.66..	Data Frame TCO	33	16:15:03.797.625.918 29.16..	DATA IN	09 22 00 00 0
1312	16:15:03.796.426.681 373.2..	AFC TCO CReq=0	34	16:15:03.797.655.081 29.16..	DATA IN	09 22 00 00 0
1313	16:15:03.796.426.707 26.66..	Filler(2x)	35	16:15:03.797.684.242 29.16..	DATA IN	09 22 00 00 0
1314	16:15:03.796.426.734 26.66..	AFC TCO CReq=0	36	16:15:03.797.713.405 29.16..	DATA IN	09 22 00 00 0
1315	16:15:03.796.426.764 29.99..	Filler(2x)	37	16:15:03.797.742.566 29.16..	DATA IN	09 22 00 00 0
1316	16:15:03.796.426.791 26.66..	AFC TCO CReq=0	38	16:15:03.797.771.730 29.16..	DATA IN	09 22 00 00 0
1317	16:15:03.796.426.817 26.66..	Filler(2x)	39	16:15:03.797.800.893 29.16..	DATA IN	09 22 00 00 0
1318	16:15:03.796.426.844 26.66..	AFC TCO CReq=0	40	16:15:03.797.830.054 29.16..	DATA IN	09 22 00 00 0
1319	16:15:03.796.426.871 26.66..	AFC TCO CReq=0	41	16:15:03.797.859.218 29.16..	DATA IN	09 22 00 00 0
1320	16:15:03.796.426.827 56.66..	AFC TCO CReq=0	42	16:15:03.797.888.381 29.16..	DATA IN	09 22 00 00 0
1321	16:15:03.796.426.854 26.66..	AFC TCO CReq=0	43	16:15:03.797.917.542 29.16..	DATA IN	09 22 00 00 0
1322	16:15:03.796.427.011 56.66..	Filler(4x)	44	16:15:03.797.946.705 29.16..	DATA IN	09 22 00 00 0
1323	16:15:03.796.428.201 1.18us	EOF EVEN	45			

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

Open the Statistics List

The screenshot shows the Acute Technology software interface. The main window displays a report area with a table of data. A red box highlights the 'Report List' button in the top toolbar. The 'Report List' window is open, showing a table of statistics categorized by task tag and data type. The table includes columns for Line No., Timestamp, Host, Device, LUN, Task Tag, Data Segment Length, Original Block Address, Transfer Length, and Data. The Statistics List window is open over the main report area, and a red box highlights the 'Report List' button in the top toolbar.



Acute BufFinder (Ver1.5.57, Demo mode)

Timestamp	Host	Device	Timestamp	Host	Device	LUN
11:29:31.594.240.624 52.01.		Start of Burst	258	2.834.041.770 214.45us	REQUEST_SENSE_RESPON.	D0
11:29:31.594.752.936 542.2.		Start of Burst	259	2.834.111.370 69.49us	RESPONSE	D0
11:29:31.594.752.936 542.2.		Start of Burst	260	2.834.426.705 317.43us	CMD (START STOP UNIT)	D0
11:29:31.594.752.936 542.2.		Start of Burst	261	2.834.445.047 216.34us	RESPONSE	D0
11:29:31.594.752.936 542.2.		Start of Burst	262	2.835.441.350 756.33us	CMD (INQUIRY)	D0
11:29:31.594.752.936 542.2.		Start of Burst	263	2.835.447.220 205.83us	INQUIRY_RESPONSE	D0
11:29:31.594.752.936 542.2.		Start of Burst	264	2.835.744.493 97.26us	RESPONSE	D0
11:29:31.594.752.936 542.2.		Start of Burst	265	2.836.042.902 318.41us	QREQ (READ_DESCRIPTOR)	D0
11:29:31.594.752.936 542.2.		Start of Burst	266	2.836.276.064 213.16us	QRESP (READ_DESCRIPTOR)	D0
11:29:31.594.752.936 542.2.		Start of Burst	267	2.836.610.970 534.90us	QREQ (READ_DESCRIPTOR)	D0
11:29:31.594.752.936 542.2.		Start of Burst	268	2.837.023.105 212.13us	QRESP (READ_DESCRIPTOR)	D0
11:29:31.594.752.936 542.2.		Start of Burst	269	2.837.025.435 806.33us	QREQ (READ_DESCRIPTOR)	D0
11:29:31.594.752.936 542.2.		Start of Burst	270	2.838.034.361 204.82us	QRESP (READ_DESCRIPTOR)	D0
11:29:31.594.752.936 542.2.		Start of Burst	271	2.838.036.432 802.06us	QREQ (READ_DESCRIPTOR)	D0
11:29:31.594.752.936 542.2.		Start of Burst	272	2.838.038.503 201.88us	QRESP (READ_DESCRIPTOR)	D0
11:29:31.594.752.936 542.2.		Start of Burst	273	2.839.486.686 445.66us	CMD (TEST UNIT READY)	D0
11:29:31.594.752.936 542.2.		Start of Burst	274	2.839.694.728 208.04us	RESPONSE	D0
11:29:31.594.752.936 542.2.		Start of Burst	275	2.842.022.943 3.08us	CMD (REQUEST_SENSE)	D0
11:29:31.594.752.936 542.2.		Start of Burst	276	2.841.788.047 5.10us	REQUEST_SENSE_RESPON.	D0
11:29:31.594.752.936 542.2.		Start of Burst	277	2.841.823.555 34.78us	QREQ (READ_DESCRIPTOR)	D0
11:29:31.594.752.936 542.2.		Start of Burst	278	2.841.829.353 5.79us	QRESP (READ_DESCRIPTOR)	D0
11:29:31.594.752.936 542.2.		Start of Burst	279	2.841.867.511 39.15us	QREQ (READ_DESCRIPTOR)	D0
11:29:31.594.752.936 542.2.		Start of Burst	280	2.841.872.424 4.91us	QRESP (READ_DESCRIPTOR)	D0
11:29:31.594.752.936 542.2.		Start of Burst	281	2.841.862.178 89.75us	CMD (READ (10))	D0
11:29:31.594.752.936 542.2.		Start of Burst	282	2.842.217.430 255.25us	READ	D0
11:29:31.594.752.936 542.2.		Start of Burst	283	2.842.224.723 7.29us	RESPONSE	D0
11:29:31.594.752.936 542.2.		Start of Burst	284	2.842.270.017 45.25us	CMD (READ (10))	D0
11:29:31.594.752.936 542.2.		Start of Burst	285	2.842.375.741 105.72us	READ	D0
11:29:31.594.752.936 542.2.		Start of Burst	286	2.842.383.034 7.29us	RESPONSE	D0
11:29:31.594.752.936 542.2.		Start of Burst	287	2.842.445.363 45.32us	CMD (READ (10))	D0
11:29:31.594.752.936 542.2.		Start of Burst	288	2.842.445.363 45.32us	CMD (READ (10))	D0

Statistics	Trans	Bytes
CMD (TEST UNIT READY)	10	129
CMD (READ (10))	7	1
CMD (REQUEST_SENSE)	1	1
CMD (START STOP UNIT)	1	1
CMD (INQUIRY)	1	1

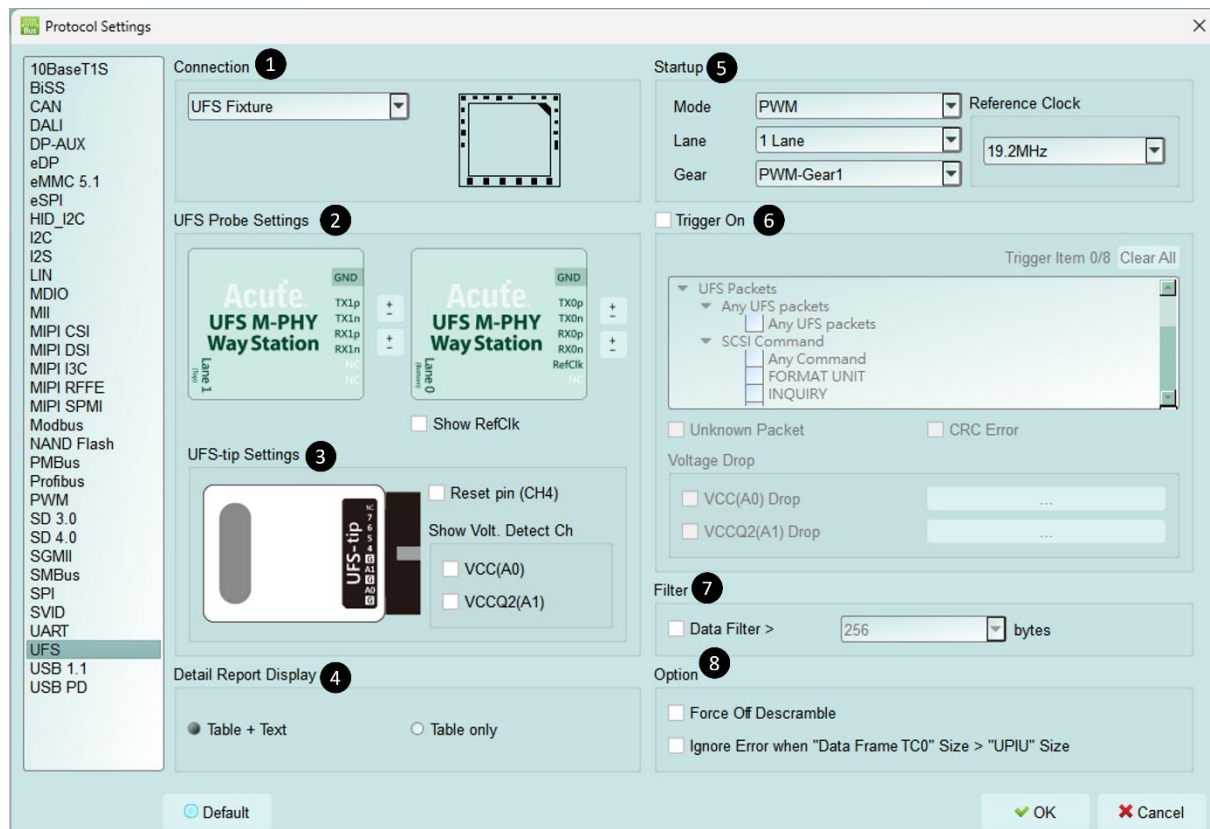
  

Line No.	Timestamp	Host	Device	LUN	Task Tag	..Data Segment Len. (Logical Block Addr. TL/Transfer Length)	Data
257	2.833.527.315 0		CMD (REQUEST_SENSE)	D0	17	0000	01 40 D0 1.
275	2.841.782.943 3.08us		CMD (REQUEST_SENSE)	D0	17	0000	01 40 D0 1.
283	2.842.330.111 2.55us		CMD (REQUEST_SENSE)	D0	26	0000	01 40 01 2.
311	2.844.730.045 2.35us		CMD (REQUEST_SENSE)	D0	20	0000	01 40 02 3.
329	2.846.089.525 2.35us		CMD (REQUEST_SENSE)	D0	34	0000	01 40 03 3.
347	2.847.449.333 2.35us		CMD (REQUEST_SENSE)	D0	38	0000	01 40 04 3.

The process of tracing from UFS statistic data to Unipro original data



## 10. UFS Settings



1. **Connection:** You need to select the connection method between BF7264B+/Pro and the test object
2. **UFS Probe Settings:** Exchange p/n of the same Lane. RefClk Option can observe whether RefClk is operating..
3. **UFS-tip Settings:**
  - a. To enable the UFS Reset pin option, you need to connect the reset pin to the UFS-tip CH4 position of the UFS Probe. When the protocol analysis receives the Reset signal, it will reset the Power mode and return to the PWM mode.
  - b. After the Show Volt. Detect Ch is turned on, the detected voltage value will be displayed when the voltage changes
4. **Detail Report Display:** Add the detail report by using text description.
5. **Startup:** It needs to be set the mode of the DUT at the moment of capturing data and Reference clock(19.2 / 26 / 38.4 / 52 MHz). (It doesn't matter if the RefClk is not connected, but its frequency must be set)
6. **Trigger On:** can set Unipro / UFS packets, a total of 8 groups, and Unknown Packet, CRC Error trigger options, another two sets of voltage detection can be used,
7. **Filter:** After opening, it will filter out the data behind the packet greater than the set value
8. **Option:**

- **Force Off Descramble:** Showing the scrambled data only, if it was checked.
- **Ignore Error when “Data Frame TC0” size > “UPIU” size:** Ignoring the error when the size of “Data Frame TC0” is greater than that of “UPIU”, if it was checked.

## FAQ

### 1. What UFS version is supported, any limitation for differential ports?

A: MIPI M-PHY 3.0, Up to 5.8Gbps ( Gear 3, Rate A / B ), 2 Lanes

MIPI Unipro 1.8

JEDEC UFS 2.1

JEDEC UFS 3.1 commands

### 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. Wiring problem:

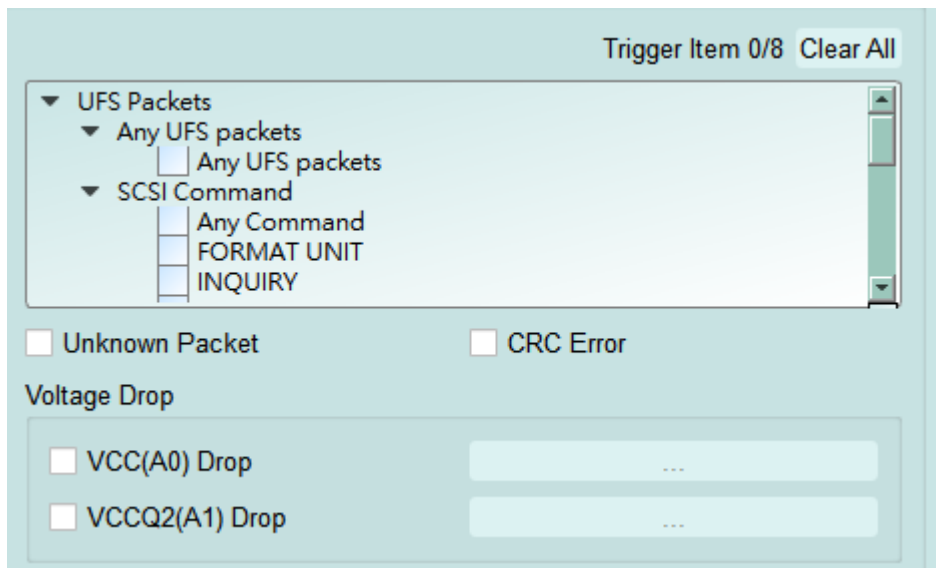
Please make sure to connection according to the “Probe and test object connection” on page 10. If the PWM is normal during measurement, but you cannot see any HS data or you can only go to 1 Lane and not 2 Lane, you should first check whether the wiring is wrong.

#### b. Reference clock setting method:

There are four options for Ref CLK 19.2MHz (default) / 26MHz / 38.4MHz / 52MHz in Settings. If it is not clear what the Ref CLK is used, refer to the following method. If the PWM is normal but the HS Data is wrong, please try to adjust the Ref CLK to others and try again.

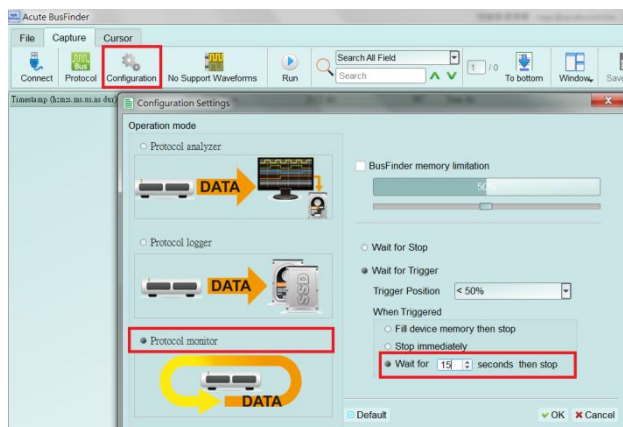
### 5. Can I specify a Unipro, UFS packet as the trigger point function?

A: You can specify specific Unipro, UFS packet or Error to trigger.



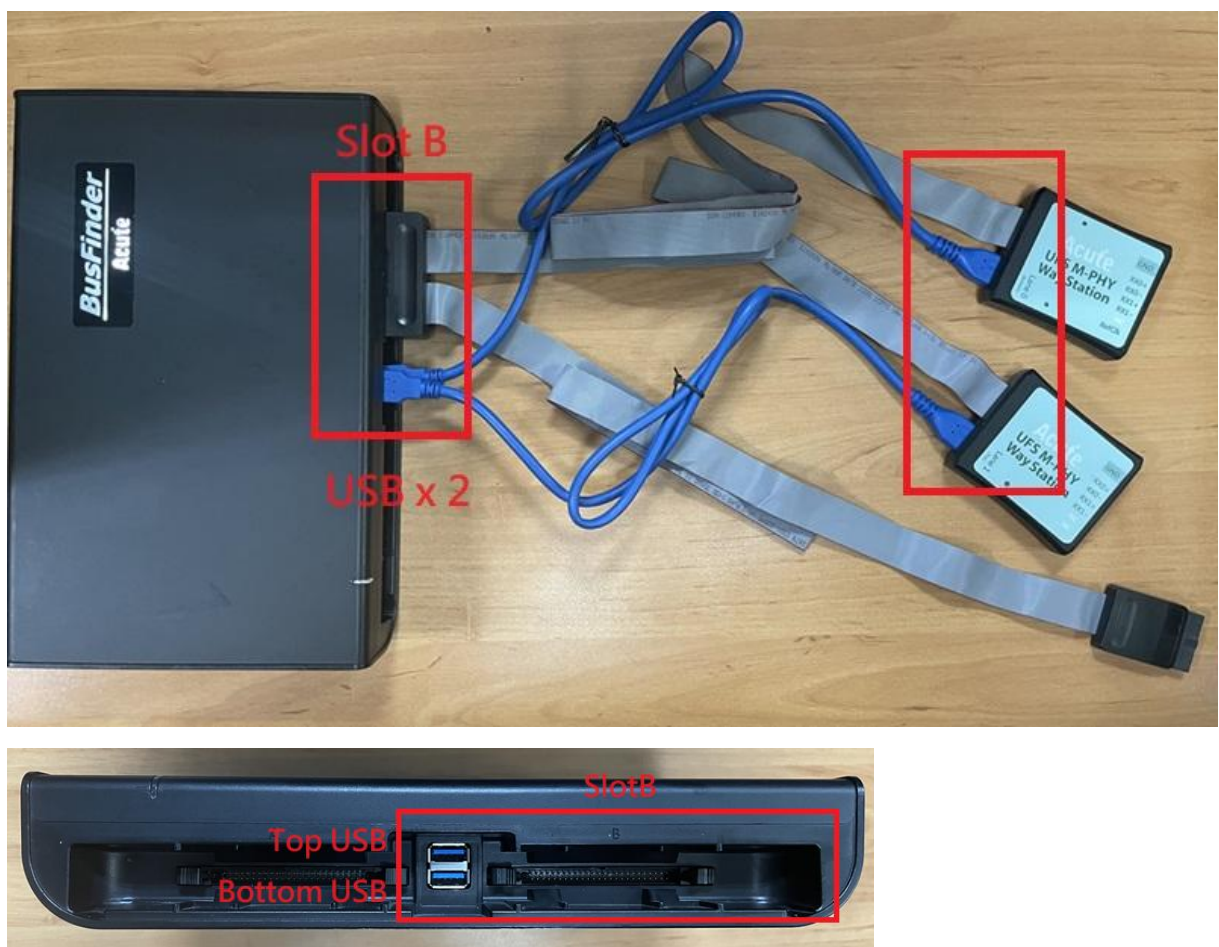
**6. Is it possible to set a Unipro, UFS starting point, and specify how much time to capture Data?**

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.

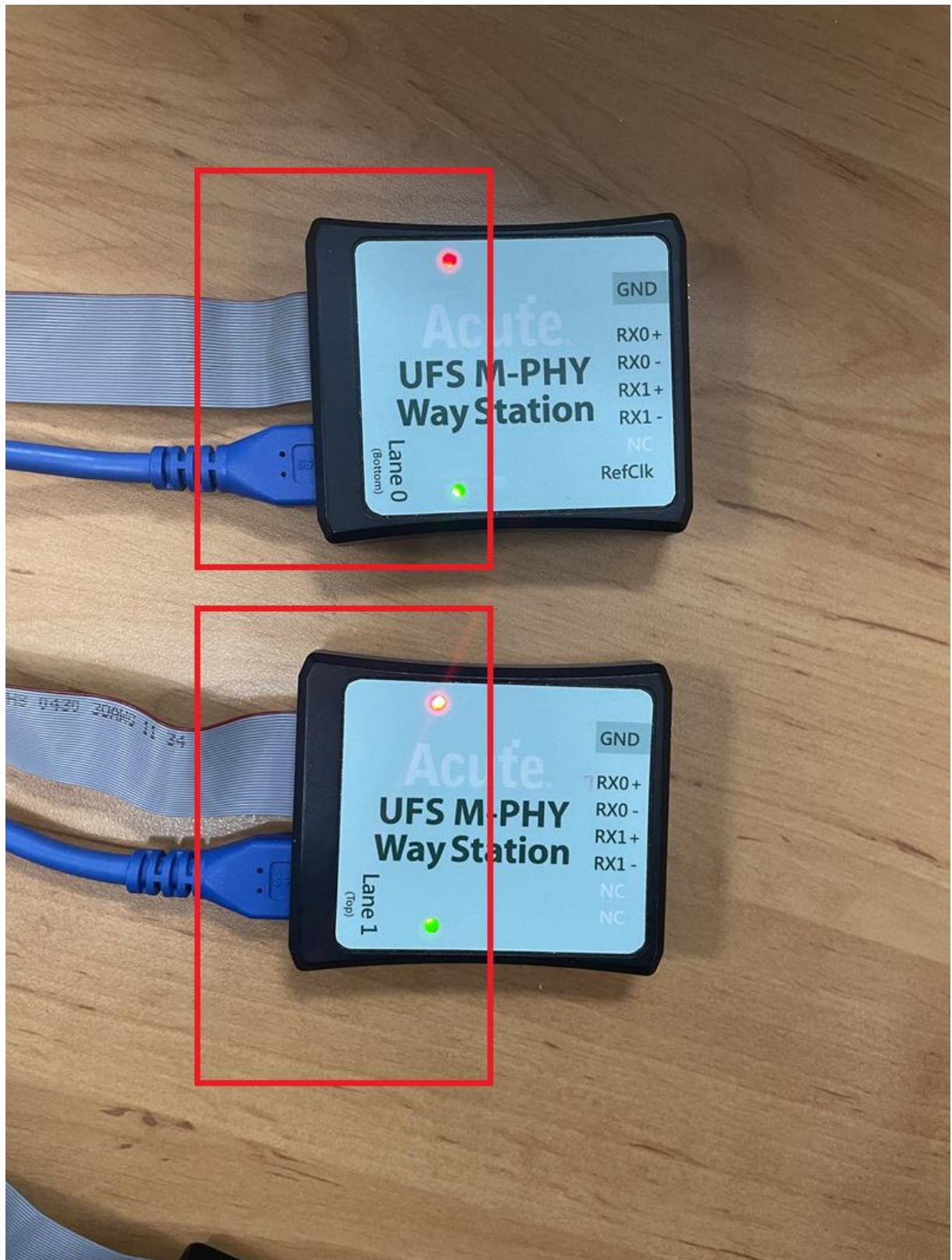


## BusFinder and Probe connection

The BusFinder can only use the Slot-B to connect the UFS probe. Please note that the two USB slots on the front of the BusFinder also need to be connected to the Way Station. The upper USB slot corresponds to the Top Way Station, and the lower USB slot corresponds to the Bottom Way Station. Then turn on the software, choose the UFS, and pay attention to whether the two road station lights have red and green lights on.





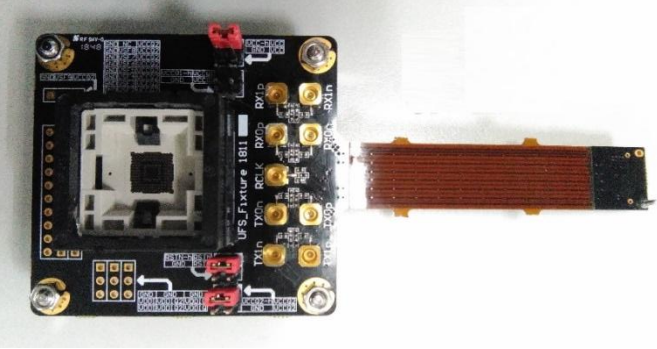
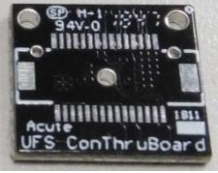
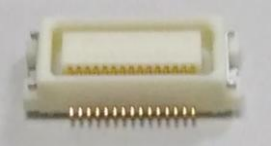


## Probe and test object connection

### a. Connect using UFS Fixture (connector)

If the Host has multiple sets of connectors, it is convenient to replace the Host and UFS Chip, and directly use the SMPM Cable to connect to the Way Station without jumpers.

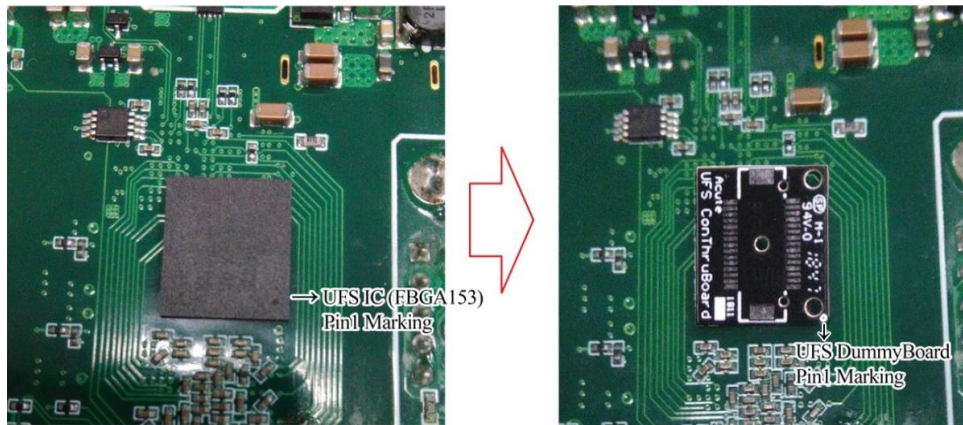
Since the connector uses a flexible cable to extend the signal, it is only suitable for applications where the peripheral components of the UFS Chip do not interfere.

Components	
1. Con Fixture	
2. Con Dummy Board	 <p>0.3mm tin balls need to be planted on the back</p>
3. Connector DF17-30DS-0.5V (HiRose Connector)	

Step1: Remove the UFS chip on your DUT, and then rebuild the solder ball on UFS chip.

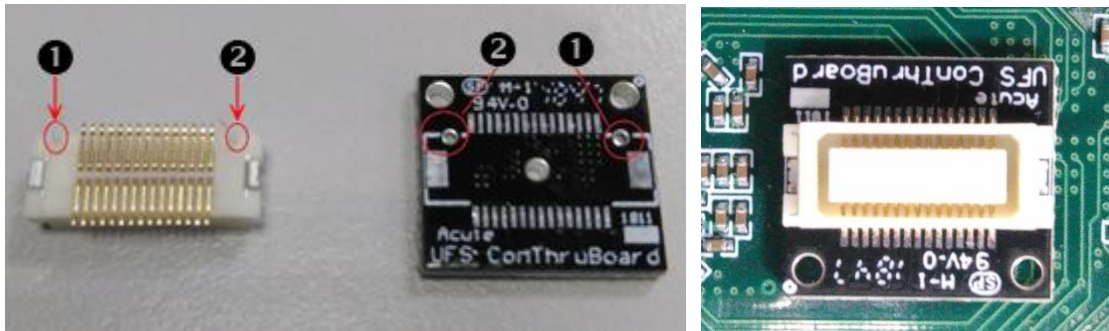
Step2: Welding the connector to the position where the UFS Chip has been removed.



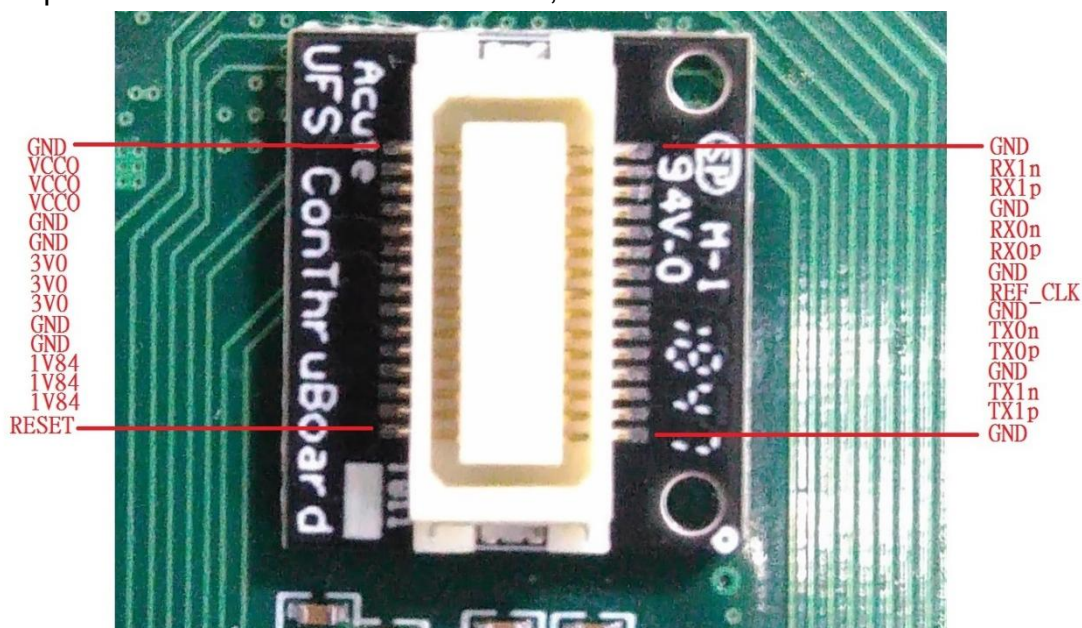


(Pay attention to the direction of Pin1 when welding the connector.)

**Step3:** Place the connector (DF17-30DS-0.5V) on the small board of the connector. Before welding, please pay attention to the mistake proofing between the connector and the board.

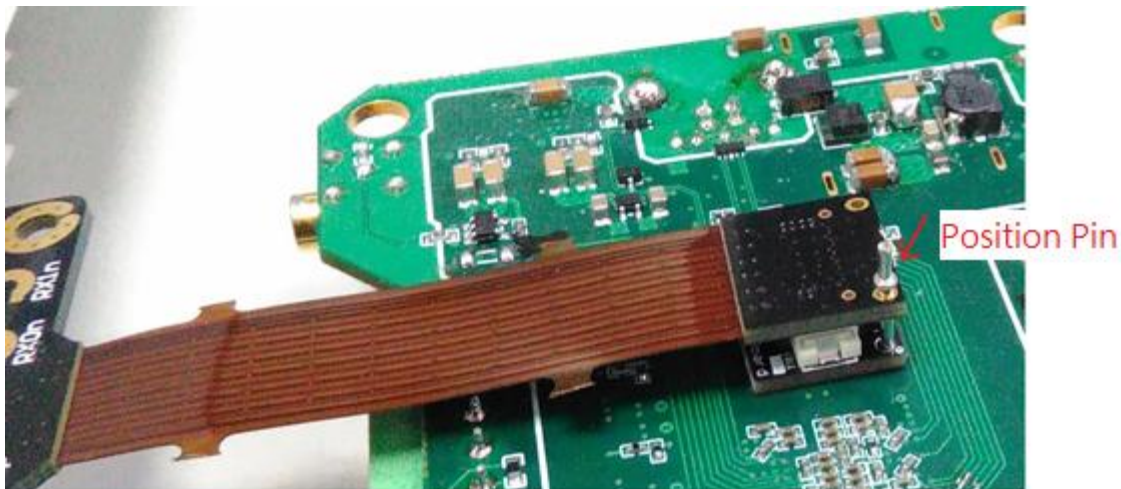


**Step4:** After the welding is completed, confirm whether there is a short circuit between the pins. Pin defined is shown as below,





Step5: Connect the Con Fixture, please pay attention to the mistake proofing between the board and the Fixture.



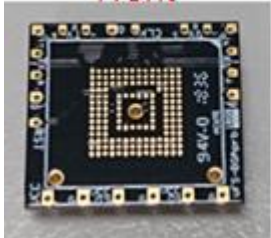
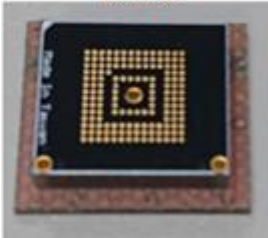
Step6: Put the unplugged UFS Chip into the Con Fixture UFS Socket (FBGA153 Socket), and finish.

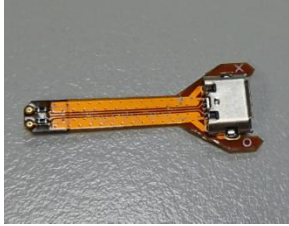
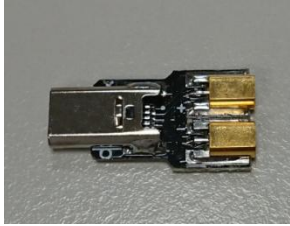

#### **b. Use Interposer with End-tip connection**

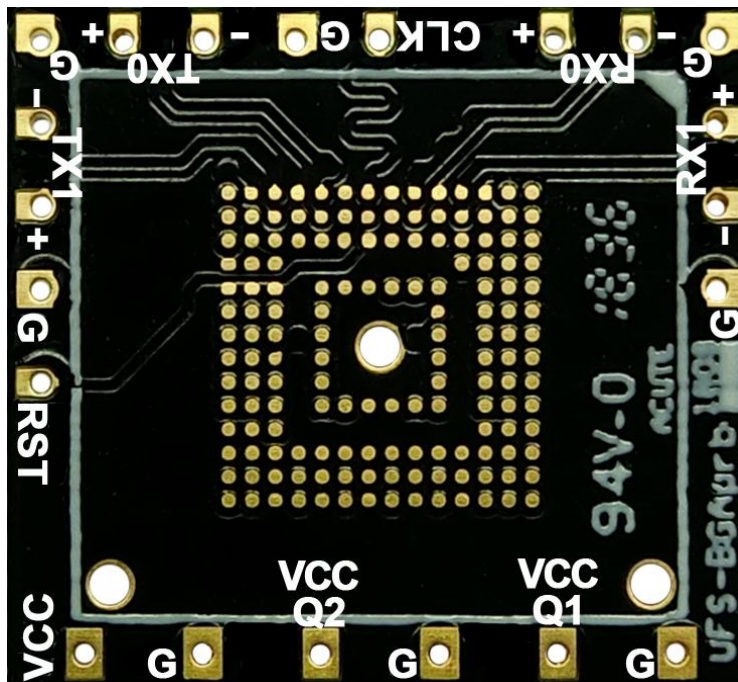
If the components around the original UFS Chip interfere, UFS Fixture cannot be used and there is no test point around the UFS Chip can jumper on, you need to remove the UFS Chip and reball the interposer on the board, and then reball the UFS chip again.

Connect End- from the test point. use the SMPM cable to connect to the Way Station.

If there are test points left on the board to be tested, they can be used directly

Components	
Interposer	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Front</p>  </div> <div style="text-align: center;"> <p>Back</p>  </div> </div>

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



(Interposer Pin Define)

### **C. Connect using End-tip**

If the board has a test point that can be jumpered, it can be used directly. After the End-tip is connected to the test, there is no need to use a booster board.

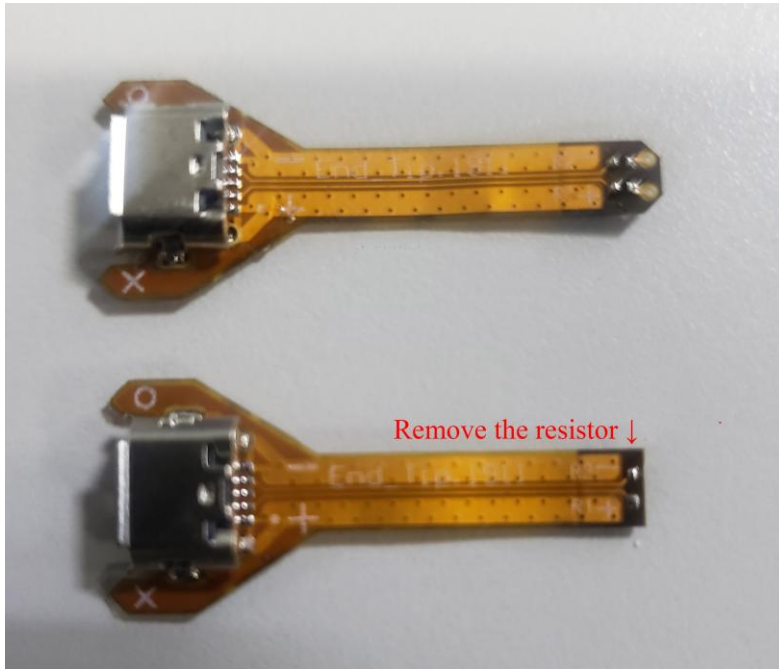
The UFS standard terminal soft board resistance is 250ohm, which can be used directly under normal circumstances.

If you want to shorten the jumper distance to improve signal quality, you can use the following resistance bridge method.

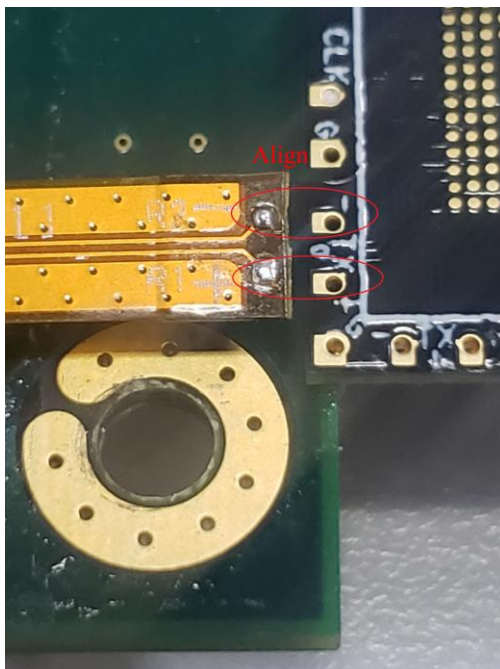
To use the resistance bridging method without jumpers (as shown in the figure below), the End-tip needs to be modified.

Modification process:

Step1: Remove the resistor, cut off the head, and reserve 2 welding point.

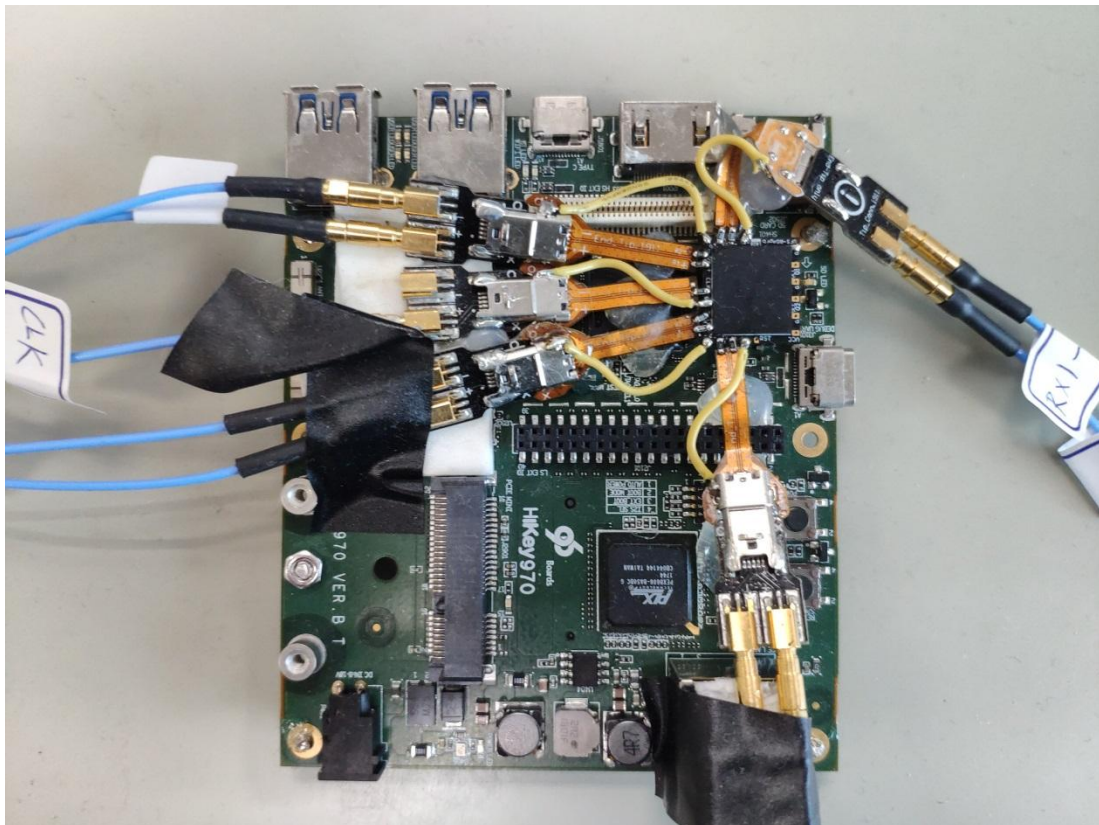
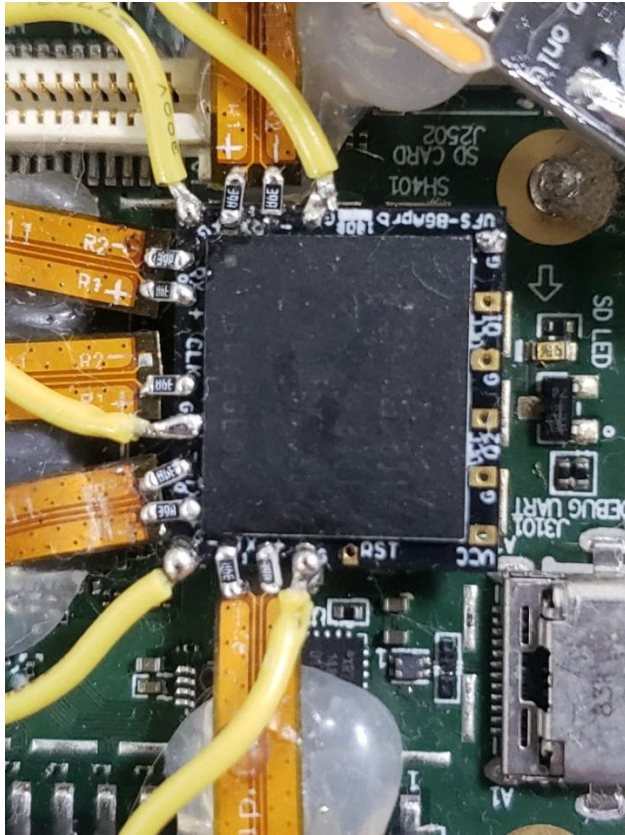


Step2: After the modification, aligning the P / N welding point between the End-tip and the interposer. Welding the resistor 250ohm (4 groups of data + 1 CLK), and the Gnds.





In this way, the shortest distance makes the signal quality better than the End-tip jumper connection.



## Way Station connection

1. Please install UFS Probe in Slot B of BusFinder 7264B+/Pro
2. Each Way Station has a USB type B interface, please use the corresponding USB cable to install it to the BusFinder front panel. When installing, please check the installation according to the top/bottom of the Way Station nameplate mark.

