

BF7264B MIPI D-PHY analyzer



Feature:

The BF7264B is an MIPI D-PHY analyzer and offers other protocol analyzer options like eMMC5, NAND flash, SD3, or SD4 as its predecessor, the BF6264B.

Specifications:



2. supports D-PHY V1.2

Up to 2.0Gbps per lane, 1 + 4 Lanes





3. CSI-2 1.3 or DSI 1.3 protocol packets displayed as below with the DSI DCS 1.3 commands

	Timestamp (h:m:s.ms.us.ns dur)	Mode	VC	Data Type	DCS (h)	WC	Data (h)	Transaction Type	ECC (h)		CRC (h)
10	10.637.049.8	LP (LPDT)	0	Generic Long Wri		2	B0 03	Host proces	00 (0	DK)	F84D (OK)
11	10.637.060.1	LP (LPDT)	0	DCS Short WRITE,	53 (write_control_display)		24	Host proces	08 (0	DK)	
12	10.637.066.5	LP (LPDT)	0	DCS Short WRITE,	35 (set_tear_on)		00	Host proces	2F (0	DK)	
13	10.637.083.3	LP (LPDT)	0	Generic Long Wri		2	B0 04	Host proces	00 (0	DK)	8CF2 (OK)
14	10.637.105.0	LP (LPDT)	0	Generic Long Wri		3	EB 00 83	Host proces	1A (C	DK)	AFA7 (OK)
15	10.637.124.2	LP (LPDT)	0	Generic Long Wri…		2	FB 00	Host proces	00 (0	DK)	6818 (OK)
16	10.637.179.2	LP (LPDT)	0	Generic Long Wri		20	C8 01 00 04 FB FC CD 00	Host proces	19 (0	DK)	B76A (OK)
17	10.637.196.0	LP (LPDT)	0	Generic Long Wri		2	D6 01	Host proces	00 (0	DK)	EADA (OK)
18	10.637.208.8	LP (LPDT)	0	Generic Long Wri		2	B0 03	Host proces	00 (0	DK)	F84D (OK)
19	10.637.219.1	LP (LPDT)	0	DCS Short WRITE,	<pre>11 (exit_sleep_mode)</pre>		00	Host proces	36 (0	DK)	
20	10.837.205.4	LP (LPDT)	0	DCS Short WRITE,	29 (set_display_on)		00	Host proces	1C (C	DK)	
21	10.870.540.9	LP (LPDT)	0	DCS Short WRITE,	<pre>51 (set_display_brightness)</pre>		FE	Host proces	0D (C	DK)	
22	10.870.560.9	LP (LPDT)	0	DCS READ, no par	DA		00	Host proces	1F (C	DK)	
23	10.870.562.6	BTA									
24	10.870.571.3	LP (LPDT)	0	DCS Short READ R			E1 00	Peripheral	27 (0	OK)	
25	10.870.573.4	BTA									
26	10.897.116.1	HS	0	DCS Long Write/w	<pre>2C (write_memory_start)</pre>	2881	DC AC AA 9A 5A DC DE D2	Host proces	04 (0	OK)	
27	10.897.116.1	HS	0	End of Transmiss			OF OF	Host proces	01 (0	DK)	
28	10.897.134.6	HS	0	DCS Long Write/w	3C (write_memory_continue)	2881	CA 1B CC EC 7A 5C 55 D2	Host proces	04 (0	DK)	
29	10.897.134.6	HS	0	End of Transmiss			OF OF	Host proces	01 (0	DK)	
30	10.897.153.2	HS	0	DCS Long Write/w	<pre>3C (write_memory_continue)</pre>	2881	CA FD C2 CF F1 B0 3B 77	Host proces	04 (0	DK)	
31	10.897.153.2	HS	0	End of Transmiss			OF OF	Host proces	01 (0	DK)	
32	10.897.171.7	HS	0	DCS Long Write/w	3C (write_memory_continue)	2881	3A 62 52 93 5E 8A 1B 77	Host proces	04 (0	DK)	
33	10.897.171.7	HS	0	End of Transmiss			OF OF	Host proces	01 (0	DK)	
34	10.897.190.2	HS	0	DCS Long Write/w	3C (write_memory_continue)	2881	BA 15 C3 CF E5 B8 1E 6D	Host proces	04 (0	DK)	
LOT.	10 007 100 2	1110	1.0	The d of Managements			100 00	The set of the second second	101 10	1221	

4. Use 32Gb RAM as the buffer to stream all D-PHY data into the SSD HD in order to

record all data flow from Low Power Mode to High Speed Mode Recordable data without streaming into the SSD HD:

Resolutions	Recordable frames	Note
1K (FHD 1080x1920)	~500	
2K (WQHD 1440x2560)	~280	
4K (UHD 2160x3840)	~120	8 lanes or 4 lanes with DSC compression
8K (4320x8192)	Not available	Not available

- 5. "Data Filter" filters unwanted video data to save memory
- 6. "Search" searches specific data
- 7. "ECC/CRC Packet" displays and counts ECC and CRC
- 8. Display DSI(CSI) image data including RGB, YCbCr, RAW format or compressed DSC packets, and count the Porch from raw data. For more information, please refer to Appendix 2.





mage_1 mage_2 mage_3	Image_1 ▼ VSA	BLLP-1	Duration			<u>к </u>		Duration	🛃 Save CSV
mage_4 mage_5 mage_6 mage_7 mage_8 mage_9 mage_10	AVG MIN MAX LINE VBP AVG MIN	0 0 BLLP-1 0	9.3405 9.3305 9.3505 Duration 0.00ps			VSA	LF	BLLP-1 P-11 or Blanking Pa	acket
mage_11 mage_12 mage_13 mage_14 mage_15 mage_16 mage_17	MAX LINE VACT AVG MIN MAX LINE	0 HBP 32 32 32 32	0.00ps Pixel 3240 3240 3240	HFP 0 0 0	Duration 9.34us 9.33us 9.35us	VBP	LF	BLLP-1 P-11 or Blanking Pa	acket
mage_18 mage_19 mage_20 mage_21 mage_22 mage_23 mage_23 mage_24 mage_25	♥ VFP AVG MIN MAX ▶ LINE	BLLP-1 0 0 0	Duration 9.34us 9.33us 9.35us			VACT	HBP LP-11 or Blanking Packet	Pixel Stream (Burst)	BLLP-2 + HF LP-11 or Blanking Packet
mage_26 mage_27 mage_28 mage_29 mage_30 mage_31 mage_32						VFP	LF	BLLP-1 P-11 or Blanking Pa	acket

9. D-PHY command statistics include numbers of packets, individual command,

different data length, and errors

Discription	Txns	Bytes	Statistics	Txns	Bytes 🔺
Sampled Bus Error	2455		5E (set_CABC	1	1
DSI Error Report	0		55 (write_pow	2	4
▼ DSI Bus			53 (write_cont	1	1
VC 0	1044640	29739051	35 (set_tear_on)	1	1
VC 1	18	37	11 (exit_sleep	1	1
VC 2	245	493	29 (set_displa	1	1
VC 3	499	628	51 (set_displa	1	1
BTA	14		DA	1	1
Data Type	1044899	29740212	2C (write_me	407	22385
DCS Command	521835	28694276	3C (write_me	521293	28670727
Packet Count	1044900		20 (exit_invert	3	129
			78	2	86
			1E	2	86
			60	2	44
			80	1	43

10. D-PHY command trigger

a. Trigger parameters include commands and 32 bytes data in order to cover all short packets and most of non-video long packets.

Short Packet: 4-bytes Header

Long Packet: 4-bytes Header + 28-bytes Data

- b. CRC/ECC error trigger
- c. The Trigger-Out port is to trigger a DSO to capture waveforms



11. TE channel detect (Tearing Effect)

 Tearing Effect Signal 	
LA	1.8V (From Channel A0) *Additional LA-Probe is required

Detect the TE signal from the screen. Must purchase LA Probe to use this function. Please refer to Appendix 1 for details.



FAQ

Q1. What MIPI DSI version is supported, any limitation for differential ports?

A: D-PHY V1.2, up to 2.0Gbps per lane, 1 + 4 lanes.

Q2. Is C-PHY supported?

A: No. Not now or in the future.

Q3. Is DSI-2 supported?

A: No, DSI-2 includes C-PHY signal which is not supported in this solution,

the VDC-M image compression/decompression in DSI-2 is also not supported.

Q4. Will signal quality be affected while measuring?

A: Yes, that is why the end-tips and the SMPM coaxial cables are used to minimize the affections of signal quality.

Q5. Is Tx supported?

A: No.

Q6. How to connect the probes with the DUT?

 $A : \bigcirc$ Weld the DUT:

FPC End-tip:



(Do not bend excessively to avoid internal open circuit of the FPC)



Solder R1, R2 to the corresponding resistor in the table, and C1 to the corresponding

capacitor, and follow the PCB End-tip steps to complete the connection with the DUT



<u>PCB End-tip:</u>

The welding line MUST be < 5mm.

On the DUT, you are highly recommended to weld a 100Ω resistor and connect it to the End tip with a 3cm line.

Step 1: Connect the SMPM-SMPM cable to the End-tip first.



Step 2: Weld the End-tip to the DUT after Step 1.





***** End-tip R1/R2 resistor is $1k\Omega/0402$ which can be replaced if it breaks.



②2.0mm pin header (PH): though easier to use, but will lead to lower signal quality due to stub effect.

Weld $1k\Omega$ resistor on the DUT, then the pin socket; Weld the PH on the End-tip and short the End-tip's $1k\Omega$ resistor to lower the stub effect.



Note: Use hot melt adhesive to reinforce the End-tip.

- ③<u>User-tip</u>: User can design his own End-tip with 1kΩ resistor to connect the DUT, then use the 50Ω impedance PCB trace to plug the SMPM connector.
- ④ Breakout: User can design his own EV board with the SMPM connector to connect Acute MIPI D-PHY analyzer by breaking out the D-PHY host and device on the PCB board as the chart below. R1/R2/R3 must be as close as possible by using 50Ω impedance.





Q7. Use multimeter to check the short circuit.



Check point \underline{A} : End-tip resistor front to ground, green line ==> no sound from a multimeter.

Check point **\underline{B}**: End-tip resistor back to ground, red line ==> sound from a multimeter, any short circuit?

A sound from a multimeter at point <u>B</u> is normal because it is low impedance of 50Ω at the resistor back. So, there is no short circuit if the resistor front of 1.05 K Ω without any sound.



Q8. How to connect the ground?

Two ways to connect the ground: End-tip or Way Station. It is better connect the End-tip ground to the DUT ground to have the better quality; but the user may the use to Way Station ground for convenience but to have lower quality signal.

Q9. Is DSI/CSI Data Type or Data trigger supported?

A: Yes, Data Type, DCS Command and Data trigger are supported by BF7264.

Protocol Setting	js	41 0000		Trigger of	n					
MIPI CSI	Lane Number	4 Lanes	Ľ	Ingger of						
MIPI DSI	Probe Connection	DI : 10		ECC Error (Single-bit Error)						
SD 3.0		Physical Conne	ction	ECC	CError (Multi	-bit Error)				
SD 4.0				CRC	c error					
SPI		GND		✓ DSI	Packet					
	MIPI D-PHY	D0+ D0- ± D2	DSI Trigge	r Settings					? ×	
	Way Station	D1+ D1- CIK+	Transmissio	n Type	HS or LP				F	
	JSB JSB	CLK -	Direction		Host Sour	ced	 Perip 	heral Sourced		
			Data Type	Data Type		39h, DCS Long Write/write_LUT Command Packet				
			DCS		11h, exit_sle	ep_mode			-	
		GND	Header							
		D2+ D2 + D0	VC / DT		Any VC	▼ 39h				
	Way Station	D3+ + D1	WC [7:0]		XXh					
	® c	D3 -	WC [15:8]] XXh						
	JSB	NC	ECC		XXh					
	(2		Data							
	Video Data		Byte 0-3		XXh	XXh	XXh	XXh		
	Output DCS write m	emory data to binary file	Byte 4-7		XXh	XXh	XXh	XXh		
	L:\Users\Ray\Docum	nents\Acute\BFA\DSI\WriteM	Byte 8-11		XXh	XXh	XXh	XXh		
	Enable Waveform ca	pture for connection verificat	Byte 12-15		XXh XXh XXh			XXh		
			Byte 16-19		XXh	XXh	XXh	XXh		
	Dofault		Byte 20-23		XXh	XXh	XXh	XXh		
	Delaul		Byte 24-27		XXh	XXh	XXh	XXh		
			 Default 					∢ок з	Cancel	

Q10. Is that possible to setup a HS, LP or DCS command as a start condition and then capture data within specified time range?

A: Yes, after setup the HS, LP or DCS in the trigger settings as start condition, move to Configuration and change the operation mode to Protocol Monitor mode, then you can specify the required capture time range.





Appendix 1: Tearing Effect Signal

Tearing Effect (TE) pin signal detect.



(Image Source: https://blog.csdn.net/kris_fei/article/details/77775553)

The TE pin is used by the display to inform the Host. At present, the data cannot be updated during the screen graphics drawing. If the screen is updated when TE = High, a horizontal break line will appear on the image. This function can clearly identify the failure to follow TE state operation instructions, reduce the time required to guess the problem and set up an oscilloscope to verify

The TE function requires the user to purchase an additional set of LA Probe to support it. The default input is from channel 0, which supports two operating voltage modes of 3.3V and 1.8V. The setting is as follows,





Result:

	Timestamp (himis.ma.ua.ni dur)	Mode	V	CE	Data Type	DCS (h)	WC	Data (h)	Direction	ECC (b)	CRC (h) Pi	kt. No.	TE	nforms 🔺
4655	15:25:57.342	HS		3 1	DCS Long Write/w_	C0	8385	08 FE 89 28 C9 D0 C6 C1	Host -> Dev_	37	Re_		1	Changing	Incon
4656	15:25:57.342	HS	1	1 1	Turn On Peripher_			C9 1A	Host -> Dev_	37	Re		1	Changing	
4657	15:25:57.342	HS		-	a second		1024	07 F8 DB F9 70 10 7C F7		F9	Er-			Second Second	
4658	15:25:57.343	HS	0	DE	End of Transmiss_		1.	46 1E	Host -> Dev_	3A	Re		1	1	
4659	15:25:57.343	HS					1024	63 B8 21 B9 F0 42 60 B9		89	Erm				
4660	15:25:57.343	HS	0	3 5	Sync Event, V Sy_		1000	11 A6	Host -> Dev_	3A	(Re		1	Changing	
4661	15:25:57.343	HS		1			1024	59 82 10 F8 E4 01 D1 39		F8	Er-			la ser anno 1	
4662	15:25:57.343	HS	1	1 1	DCS Short WRITE,	3C (write memory		21	Host -> Dev_	0F	Re_		1	Changing	
4663	15:25:57.343	HS					1024	36 34 18 B8 E8 40 80 B9		B 8	Er.				
4664	15:25:57.344	HS	1	0 0	Generic Long Wri-		33932	2 1C 1F 64 B7 8D 18 38 39	Host -> Dev_	39	Re		1	Changing	Incon
4665	15:25:57.344	HS					1024	56 8B AC 79 08 C9 22 E7		79	Er.,				
4666	15:25:57.345	HS	- 2	2 0	Generic READ, no_		dorane e	64 80	Host -> Dev_	OF	Re		1	Changing	1.000
4667	15:25:57.345	HS					1024	83 63 44 B8 25 B6 4C F9		B8	Er_	1.1		Construction Descent Descent	
4668	15:25:57.347	HS	0	0 3	Sync Event, H Sy_			71 4C	Host -> Dev.	16	Re		1	1	
4669	15:25:57.347	HS					1024	D9 9C 30 B8 58 B3 F4 B6		88	Erm	1		Sector sector sector	1000
4670	15:25:57.350	HS	2		Packed Pixel Str		19580	C8 78 3C F6 A4 95 76 38	Host -> Dev_	38	Re.		1	Changing	Incos
4671	15:25:57.350	HS					1024	6C 35 3A 88 BC 4E 50 F5		88	Er.,			Sector Sector	Concerns of
4672	15:25:57.350	HS	3	3 3	Packed Pixel Str.		36924	4 A4 39 39 C2 A4 58 58 78	Host -> Dev.	34	Rem		1	Changing	Incos
4673	15:25:57.350	HS		21	and the second life of		1024	E4 E1 51 EA 2B 8C 14 B7		EA	Er.			3 - 19 - 19 - 19 - 19 - 19 - 19 - 19 - 1	
4674	15:25:57.353	HS	2	2 0	Generic READ, 1 _			80 16	Host -> Dev.	3A	Rea		1	0	
4675	15:25:57.353	HS			Contraction of the R		1024	82 F9 62 7C 2B 8C E1 B5	and the second second	70	Erm				clock
4676	15:25:57.353	HS	6	3 1	Picture Paramete		4351	10 FF 4C F4 FF FF FF 00	Host -> Dev_	13	Re.		2	1	Incon
4677	15:25:57.353	HS			and the second se		1024	80 8C 11 B4 20 70 5A B8	pourse in an and	84	Er.				Clock
4678	15:25:57.354	HS	1		Packed Pixel Str		27964	4 B8 64 OF 98 1C 98 98 78	Host -> Dev_	34	Rem		1	Changing	Incon
4679	15:25:57.354	HS					1024	64 60 88 B7 FB 7C 60 BA	and the second second	B7	Er			Sector Sector	
4680	15:25:57.354	HS	- 2		Packed Pixel Str_		62750	0 B7 CB 3F 26 FF A5 9F 00	Host -> Dev_	1D	Re_		1	Changing	Incos
4681	15:25:57.354	HS	_				4	68 6F 3A 34							
4682	15:25:57.354	HS	4	2 2	Shut Down Periph_			75 D1	Host -> Dev_	39	[Re		2	1	
4683	15:25:57.354	HS					1024	6C 94 57 D1 E4 05 3A 93		D1	Era			Contraction of the second	
4684	15:25:57.356	HS	1		Packed Pixel Str_		17842	2 F9 7D D9 48 FD D4 43 00	Host -> Dev_	00	Re-		1	Changing	Incos
4685	15:25:57.356	HS					1024	BA 5D 9E 10 E4 12 AD 67						Concern of Carrier Street	
4686	15:25:57.356	HS	1	3 0	Generic READ, 2 -			EE 83	Host -> Dev_	1A	Re-		1	Changing	
4687	15:25:57.356	HS					1024	B8 9C 7A 10 58 E8 E3 58	WALLS STREET		The state				
4688	15:25:57.357	HS	1	2	Picture Paramete_		23429	9 4F 48 8C 58 CA 45 5E 70	Host -> Dev_	LA	Re-		1	Changing	Incon
4689	15:25:57.357	HS					1024	2B BC 29 B3 35 24 B1 76	And a second second	B3	Er.		19	and the second state	
4690	15:25:57.357	HS	3	3 1	Packed Pixel Str		32748	BC B4 B8 1B DC 04 E8 59	Host -> Dev_	3A	Rem		1	Changing	Incos
4691	15:25:57.357	HS		1	Null Packet, no _	1	12039	9 C9 C5 9C F4 59 C8 42 F7	Host -> Dev_	1A	Re		1	Changing	Uncon-



Appendix 2: Video Display Dialog

Click Window-> Video Display Dialog to open the video display dialog,

	File	Capture Cursor				
Image: Descent on the image: Descent of the image: Descen	Conne	ct Protocol Protocol Analyzer No Supp	port Waveforms Run Q Search All Field Search	▼ 1 / 15076575 To bot m Window. Save to te:	t Stack DSO	Tunnin
Norm Norm <th< th=""><th>_</th><th></th><th></th><th>B Report List</th><th></th><th>Navigator</th></th<>	_			B Report List		Navigator
Image: District of the second seco	1	Timestamp (h:m:s.ms.us.nrMode	VC Data Type DCS (h)	WC Data (ID Show Both Report	e E CC (h) CRC (h)	Pkt. No. Information Discription Txms
1 1 <td1< td=""> 1 <td1< td=""></td1<></td1<>	2	11:48:14.976.815 HS	0 DCS Short WRITE, no _ 11 (exit_s)	eep_mode) 00 Show Show Secon	dary Report Report 36 (OK)	1 DSI Error 0
Image: Contract of the second of	3	11:48:15.110.253 HS	0 DCS Short WRITE, no _ 29 (set_dis	play_on) 00 🔤 Video Display Diak	g 1C (OK)	1 P D3 B05 Packet C 15076566
Image: Distribution of the second of the	5	11:48:15.116.592 HS	0 Sync Event, H Sync S	00 00	12 (OK)	1
Image: Strate in the strate in th	6	11:48:15.116.600 HS	0 Sync Event, H Sync S 0 Sync Event, H Sync S	00 00	Host -> Device 12 (OK) Bost -> Device 12 (OK)	1
Image: Instant of the instant of th	8	11:48:15.116.617 HS	0 Sync Event, H Sync S.	00 00	Host -> Device 12 (OK)	1
Image: Description Image: Description Image: Description Image: Description Image: Description Image: Description	9	11:48:15.116.625 HS	0 Sync Event, H Sync S	00 00	Host -> Device 12 (OK)	1
Image:	10	11:40:15.116.641 HS	0 Sync Event, H Sync S	00 00	Host -> Device 12 (OK)	1
Image: 1 Image: 1 <td< td=""><td>12</td><td>11:48:15.116.641 HS</td><td>0 Null Packet, no data</td><td>1 00</td><td>Host -> Device 13 (OK) 0F87 (OK)</td><td>2</td></td<>	12	11:48:15.116.641 HS	0 Null Packet, no data	1 00	Host -> Device 13 (OK) 0F87 (OK)	2
Image:	15	11:48:15.116.641 HS	0 Null Packet, no data	1 00	Host -> Device 13 (OK) 0F87 (OK) Host -> Device 13 (OK) 0F87 (OK)	4
Image: Image	15	11:48:15.116.641 HS	0 Null Packet, no data	1 00	Host -> Device 13 (OK) 0F87 (OK)	5
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Image Process Big Image Image <td< td=""><td>21</td><td>11:48:15.116.642 HS</td><td>0 Null Packet, no data_</td><td>1 00</td><td>Host -> Device 13 (OK) 0F87 (OK)</td><td>11 Statistics TXHS Byten</td></td<>	21	11:48:15.116.642 HS	0 Null Packet, no data_	1 00	Host -> Device 13 (OK) 0F87 (OK)	11 Statistics TXHS Byten
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International de la contraction de la	24	11:48:15.116.642 HS	0 Null Facket, no data	1 00	Host -> Device 13 (OK) 0F87 (OK)	14
International de la bit Nette en de la bit Nett	25 26	11:48:15.116.642 HS	0 Null Packet, no data	1 00	Host -> Device 13 (OK) 0F87 (OK) Host -> Device 13 (OK) 0F87 (OK)	15
International data Interna	27	11:48:15.116.642 HS	0 Null Packet, no data	1 00	Host -> Device 13 (OK) 0F87 (OK)	17
Image Deck Image	28	11:48:15,116,642 HS	0 Null Packet, no data	1 00	Host -> Device 13 (OK) 0F87 (OK) Host -> Device 13 (OK) 0F87 (OK)	18
 	30	11:48:15.116.642 HS	0 Null Facket, no data_	1 00	Host -> Device 13 (OK) 0F87 (OK)	20
International data in a large in and international data in a large in and international data in a large in a	31 32	11:48:15.116.642 HS 11:48:15.116.642 HS	0 Null Packet, no data 0 Null Facket, no data	1 00	Host -> Device 13 (OK) 0F87 (OK) Host -> Device 13 (OK) 0F87 (OK)	21 22
Internation	33	11:48:15.116.642 HS	0 Null Facket, no data_	1 00	Host -> Device 13 (OK) 0F87 (OK)	23
Interview Interview <thinterview< th=""> Interview <th< td=""><td>34</td><td>11:48:15.116.642 HS</td><td>0 Null Packet, no data</td><td>1 00</td><td>Host -> Device 13 (OK) 0F87 (OK)</td><td>24</td></th<></thinterview<>	34	11:48:15.116.642 HS	0 Null Packet, no data	1 00	Host -> Device 13 (OK) 0F87 (OK)	24
111111111111111111111111111111111111	35	11:40:15.116.642 HS	0 Null Packet, no data	1 00	Host -> Device 13 (OK) 0F87 (OK) Host -> Device 13 (OK) 0F87 (OK)	26
Interview Interview <t< td=""><td>37</td><td>11:48:15.116.642 HS</td><td>0 Null Packet, no data_</td><td>1 00</td><td>Host -> Device 13 (OK) 0F87 (OK)</td><td>27</td></t<>	37	11:48:15.116.642 HS	0 Null Packet, no data_	1 00	Host -> Device 13 (OK) 0F87 (OK)	27
Middeo Display Dialog > Middeo Display Dialog > Image Porch Display Settings Image Type Zabit ROB 8-8-8 Image Image Weith 1000 Height 1920 Bove partial uplate Image	39	11:40:15.116.642 HS	0 Null Packet, no data	1 00	Host -> Device 13 (OK) 0F87 (OK) Host -> Device 13 (OK) 0F87 (OK)	20 29
Process Exp		Type Width Height R-G-B Order Show partial update	24bit RGB 8-8-8 1080 1920 R-G-B V			
		Process	Stop			Information
						Exit

Please set the DSI, CSI format, resolution, RGB order, and then press Process to restore the image. Partial analysis function is also provided. If the DUT only updates part of the screen, this option can be checked to display part of the updated content.



zxample:			
🚘 Video Display Dialog			×
Image Porch			
Display Settings			💾 Save Image
Туре	24bit RGB 8-8-8	427118 🕨 🚺 🔯	90 90
Width	1080		
Height	1920	≒ SM +	
R-G-B Order	R-G-B	12:49	
Show partial update		しまた。 「日日」を約5日 「日」を約5日 「日」 「日」を約5日 「日」を約5日 「日」を約5日 「日」を約5日 「日」 「日」 「日」 「日」 「日」 「日」 「日」 「日	
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		① TOUCH ID 無法在此 iPhone 上数杆 Touch ID。	
Process	Stop		
			Information
			Width = 1080 Height = 1920
			Exit

It also provides a linkage function with the data in the main report area, making it easy to find the location of the image data.

Save Image can output the restored image as .jpg / .bmp / .bin.

1

If DSI transmits image data in Video mode, there is also a Porch function that can count the format sent by each image. Ex: VSA, VBP, VFP, HBP, HFP, image.

If you choose TYPE-DSC restore, please select DSC Command mode use DCS Command. If you use V-Sync / H-Sync format, please select DSC Video mode. Specify the PPS file (format .txt) to restore. PPS will also be replaced with the Picture Parameter Set (0A) command.



Appendix 3: Unable to Measure / Only Measure the LP Mode Signal / Too Many Errors Solution:

- Step 1: Please check whether the 2 USBs between the probe and the BudFinder are not connected well.
- Step 2: Please check if the Lane/CLK wire is within 5mm of the regulation, and make sure that each end-tip is connected to Gnd.
- Step 3: Turn on the waveform viewing function and send out the HS signal to make sure the connection is correct.

Step 3.1: Enable Waveform capture for connection verification (Beta)



Step 3.2: Switch the "Configuration Settings". Use the "Protocol Monitor mode" and limit the memory to 1-3%. If the problem is solved, switch back to "Protocol Analyzer mode"





Step 3.3: Show Waveforms

File	Capture	Cursor							
Conne	ct Protoco	i Protocol	Moniter	Show	Waveforms.	Run	Search All Fi	eld	
Time 1	estamp (h	:m:s.ms.	Mode	Hid ✓ Sho	e Waveforms w Waveform:		DCS (h)	WC	Di
•									
Vavefor	m								
ime/Div	= 10 ns _	.	-36.	53 us	-36.52 us	-36.51 us	-36.5 us	-36.49 us	-36.4
		-	IF	ЗВ	ЗF	57	38	зв	5F
⊿ D0	TB-D	р-в5							
	HS-B	0		3.4 n	6.7 ns	9.3 n	3.3 n	3.3 n 5.6 n	is
M	IPI D51								
	T D - D	n- 27							

Step 3.4: Capture the waveform

Step 3.5: Analyze whether there is an HS signal. Before the red arrow is the LP signal, and after the waveform is the HS signal. (At the position of the red arrow, the LP signal of P/N becomes low, and HS starts to have signal.) Please find a similar position and zoom in to view the waveform. If the collection is repeated many times, the intersection of LP and HS still cannot be found. The Lane/CLK may be disconnected. Please refer to the FAQ 7.





Waveform												×
Time/Div = 100 i	ns	-2.54 ms	-2.54 ms -2.	.54 ms -	2.54 ms -2.64	ms -2.5	ms -2.5	2 . 62 1m8 54 ms -2.54 ms -2.54 ms	-2.54 ms -2.54 ms	-2.54 ms -2.54 n	s -2.64 ms -	2.54 ms -2.54 ms -2.54 ms
▲ D0 MIPI DSI	LP-Dp-85 LP-Dn-86 M8-80		Sł	(NC	Start		103.7 ns	247.3 ns				
▲ D1 MPIDSI	LP-Dp-87 LP-Dn-88 HS-81						107.6 ns	249.5 ns				
▲ D2	LP-Dp-B9 LP-Dn-B1 MS-B2						104.2 ns	253 ns				
▲ D3	LP-Dp-B1 LP-Dn-B1 H8-B3					51.7 n:	s 103.8 ns	239.5 ns				C
CLK HS	24											<u></u> 210

Step 3.6: Confirm whether the CLK Duty is 50:50, and check the width of each edge of Lane0-3 behind HS SYNC. Normally, it is the width of half a CLK cycle or multiple. Ifit is abnormal, please check whether the bonding wire meets the requirements again.If it meets the regulations, there will still be noise or CLK Duty problems, pleasecontinue to shorten the wire length, and need to use the GND closest to the signal.

Ex: Bad CLK duty, 65:35, 1.4ns:0.8ns



Ex: The width of high pulse in Lane 0, Lane 3 is not the width of half CLK cycle Half CLK cycle = (1.4 + 0.8) / 2 = 1.1 (ns)

Under normal conditions, the width is about 1.1ns or multiple.





Appendix 4: List of restored images

1. Video mode - 1125 * 2436





2. CMD mode – 1125 * 2436





3. CMD mode – 1170 * 2532

