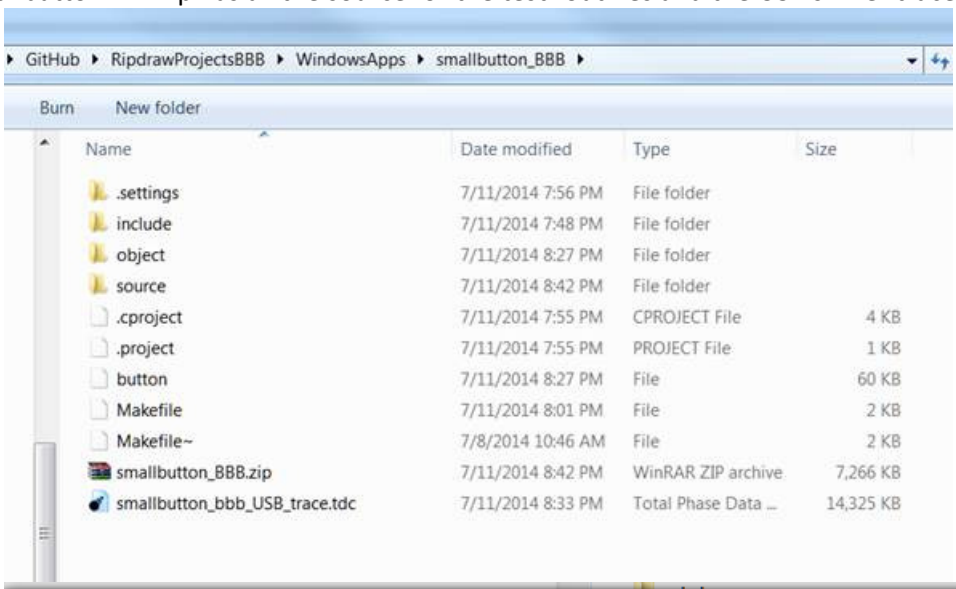
Wellington Chun

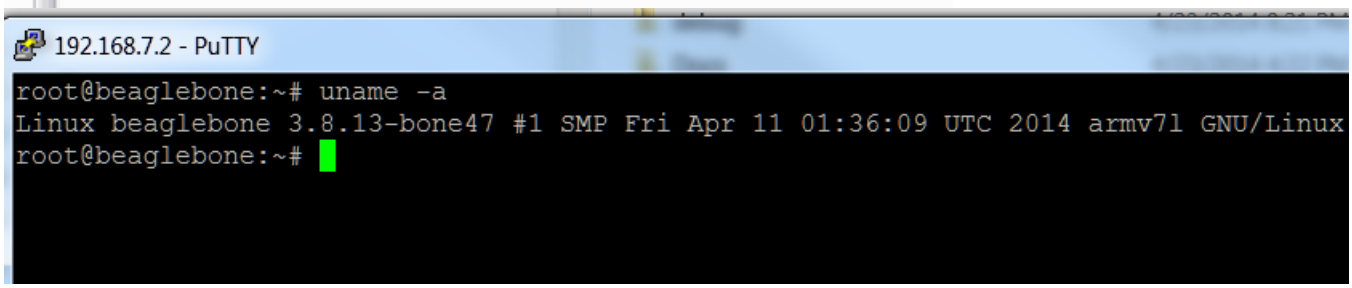
From: Wellington Chun
Sent: Friday, July 11, 2014 9:32 PM
To: greg.hayes@densitron.com
Subject: Beagle Bone Black USB communication very slow;RipDraw - Beagle Board Black Development
Attachments: smallbutton_BBB.zip; smallbuttonswindows.zip

Greg,

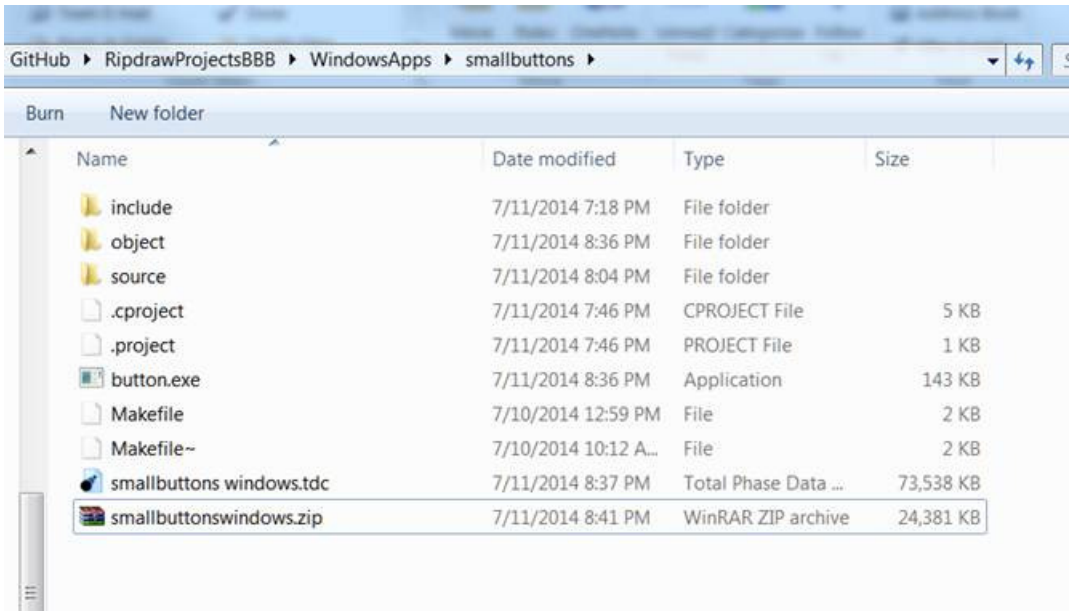
There is an issue with the USB speed between the Beagle Bone Black and the Ripdraw board. Let me know if you need any additional technical information

I have run the following sample ripdraw applications on both the BBB and the Windows.
The smallbuttonBBB.zip has all the source for the test routines and the USB sniffer trace for Beagle Bone Black.

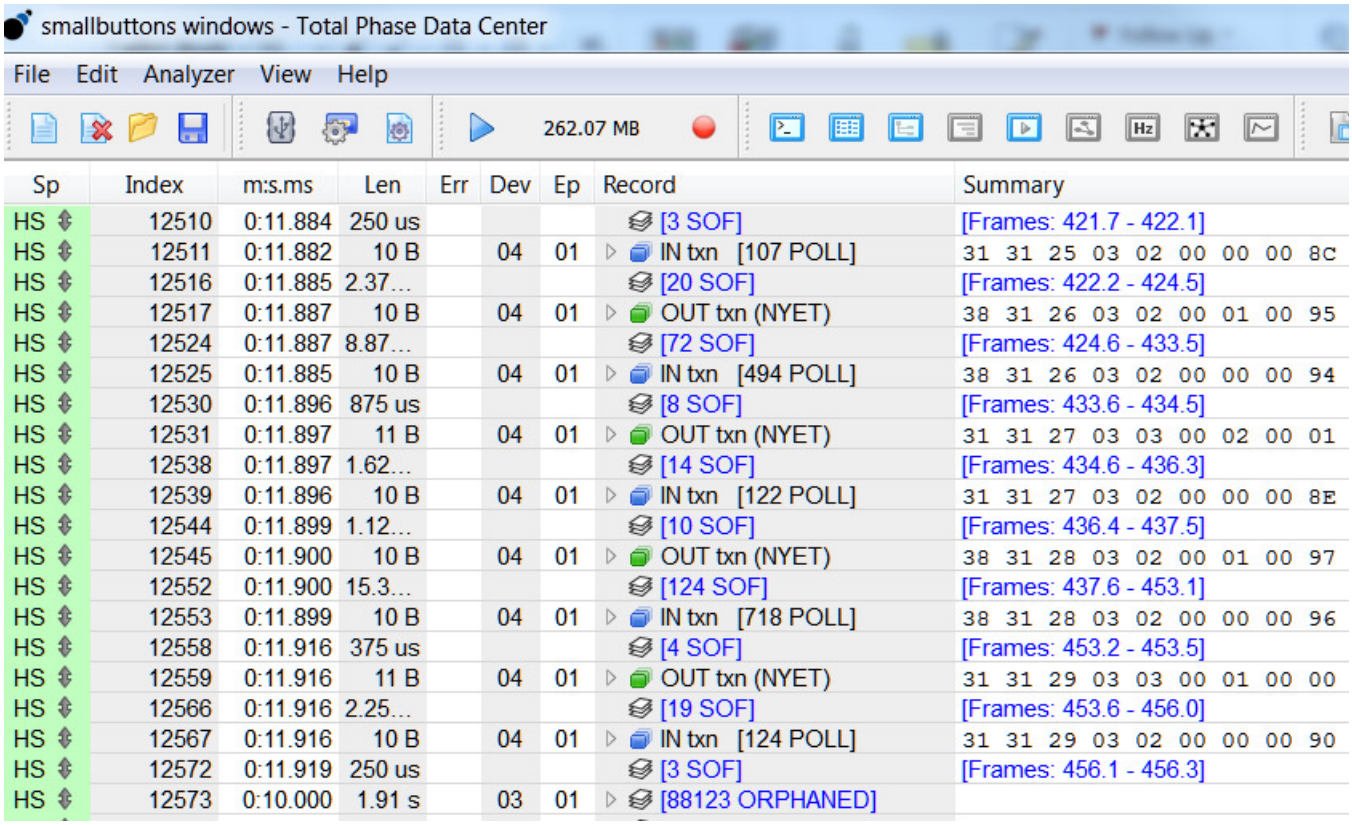




The smallbuttonwindows.zip contains the same application but run under windows, which is fine. This also contains the USB trace for between the ripdraw and windows system

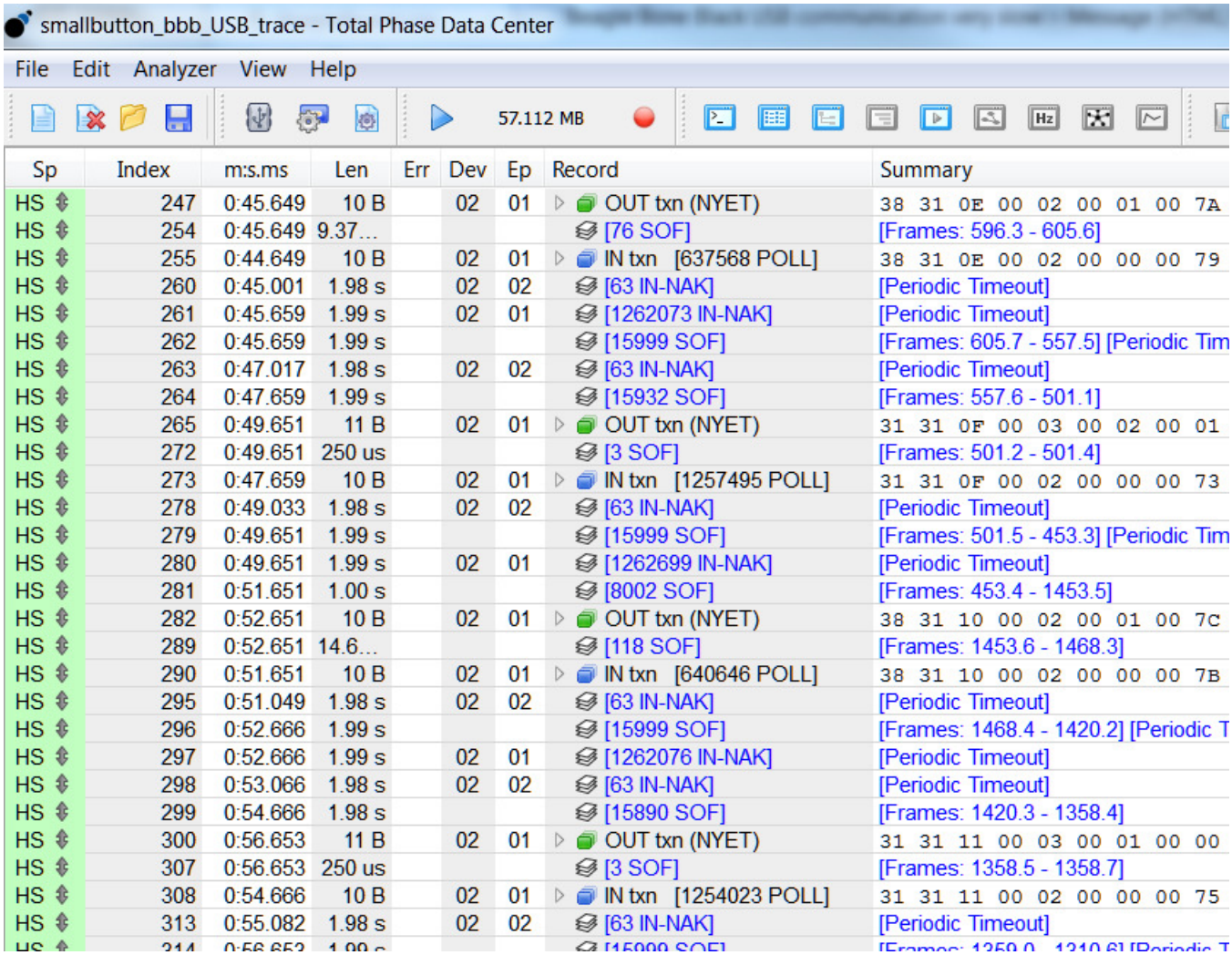


If you look at the windows trace the time between the 0x3131 SetLayer command and 0x3138 ComposeLayersToPage is short



Sp	Index	m:s.ms	Len	Err	Dev	Ep	Record	Summary
HS	12510	0:11.884	250 us				[3 SOF]	[Frames: 421.7 - 422.1]
HS	12511	0:11.882	10 B		04	01	IN txn [107 POLL]	31 31 25 03 02 00 00 00 8C
HS	12516	0:11.885	2.37...				[20 SOF]	[Frames: 422.2 - 424.5]
HS	12517	0:11.887	10 B		04	01	OUT txn (NYET)	38 31 26 03 02 00 01 00 95
HS	12524	0:11.887	8.87...				[72 SOF]	[Frames: 424.6 - 433.5]
HS	12525	0:11.885	10 B		04	01	IN txn [494 POLL]	38 31 26 03 02 00 00 00 94
HS	12530	0:11.896	875 us				[8 SOF]	[Frames: 433.6 - 434.5]
HS	12531	0:11.897	11 B		04	01	OUT txn (NYET)	31 31 27 03 03 00 02 00 01
HS	12538	0:11.897	1.62...				[14 SOF]	[Frames: 434.6 - 436.3]
HS	12539	0:11.896	10 B		04	01	IN txn [122 POLL]	31 31 27 03 02 00 00 00 8E
HS	12544	0:11.899	1.12...				[10 SOF]	[Frames: 436.4 - 437.5]
HS	12545	0:11.900	10 B		04	01	OUT txn (NYET)	38 31 28 03 02 00 01 00 97
HS	12552	0:11.900	15.3...				[124 SOF]	[Frames: 437.6 - 453.1]
HS	12553	0:11.899	10 B		04	01	IN txn [718 POLL]	38 31 28 03 02 00 00 00 96
HS	12558	0:11.916	375 us				[4 SOF]	[Frames: 453.2 - 453.5]
HS	12559	0:11.916	11 B		04	01	OUT txn (NYET)	31 31 29 03 03 00 01 00 00
HS	12566	0:11.916	2.25...				[19 SOF]	[Frames: 453.6 - 456.0]
HS	12567	0:11.916	10 B		04	01	IN txn [124 POLL]	31 31 29 03 02 00 00 00 90
HS	12572	0:11.919	250 us				[3 SOF]	[Frames: 456.1 - 456.3]
HS	12573	0:10.000	1.91 s		03	01	[88123 ORPHANED]	

But if you look at the BBB USB trace, the time 0x3131 SetLayer command and 0x3138 ComposeLayersToPage is about 3 to 4 seconds. Please have a look at why the BBB and Ripdraw board is having this communication delays. Please note that the data is moving, but between each Ripdraw out/Ripdraw respone, the USB port seems to loses connection and needs 3-4 seconds to reconnect.



Sp	Index	m:s.ms	Len	Err	Dev	Ep	Record	Summary
HS	247	0:45.649	10 B		02	01	OUT txn (NYET)	38 31 0E 00 02 00 01 00 7A
HS	254	0:45.649	9.37…				[76 SOF]	[Frames: 596.3 - 605.6]
HS	255	0:44.649	10 B		02	01	IN txn [637568 POLL]	38 31 0E 00 02 00 00 00 79
HS	260	0:45.001	1.98 s		02	02	[63 IN-NAK]	[Periodic Timeout]
HS	261	0:45.659	1.99 s		02	01	[1262073 IN-NAK]	[Periodic Timeout]
HS	262	0:45.659	1.99 s				[15999 SOF]	[Frames: 605.7 - 557.5] [Periodic Tim
HS	263	0:47.017	1.98 s		02	02	[63 IN-NAK]	[Periodic Timeout]
HS	264	0:47.659	1.99 s				[15932 SOF]	[Frames: 557.6 - 501.1]
HS	265	0:49.651	11 B		02	01	OUT txn (NYET)	31 31 0F 00 03 00 02 00 01
HS	272	0:49.651	250 us				[3 SOF]	[Frames: 501.2 - 501.4]
HS	273	0:47.659	10 B		02	01	IN txn [1257495 POLL]	31 31 0F 00 02 00 00 00 73
HS	278	0:49.033	1.98 s		02	02	[63 IN-NAK]	[Periodic Timeout]
HS	279	0:49.651	1.99 s				[15999 SOF]	[Frames: 501.5 - 453.3] [Periodic Tim
HS	280	0:49.651	1.99 s		02	01	[1262699 IN-NAK]	[Periodic Timeout]
HS	281	0:51.651	1.00 s				[8002 SOF]	[Frames: 453.4 - 1453.5]
HS	282	0:52.651	10 B		02	01	OUT txn (NYET)	38 31 10 00 02 00 01 00 7C
HS	289	0:52.651	14.6…				[118 SOF]	[Frames: 1453.6 - 1468.3]
HS	290	0:51.651	10 B		02	01	IN txn [640646 POLL]	38 31 10 00 02 00 00 00 7B
HS	295	0:51.049	1.98 s		02	02	[63 IN-NAK]	[Periodic Timeout]
HS	296	0:52.666	1.99 s				[15999 SOF]	[Frames: 1468.4 - 1420.2] [Periodic T
HS	297	0:52.666	1.99 s		02	01	[1262076 IN-NAK]	[Periodic Timeout]
HS	298	0:53.066	1.98 s		02	02	[63 IN-NAK]	[Periodic Timeout]
HS	299	0:54.666	1.98 s				[15890 SOF]	[Frames: 1420.3 - 1358.4]
HS	300	0:56.653	11 B		02	01	OUT txn (NYET)	31 31 11 00 03 00 01 00 00
HS	307	0:56.653	250 us				[3 SOF]	[Frames: 1358.5 - 1358.7]
HS	308	0:54.666	10 B		02	01	IN txn [1254023 POLL]	31 31 11 00 02 00 00 00 75
HS	313	0:55.082	1.98 s		02	02	[63 IN-NAK]	[Periodic Timeout]

Both versions used the same code expect one version has ripdraw-serial.c configured for com port under windows and the other ripdraw-serial.c configured for com port under Linux.

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