

Continued testing of picotool with wireshark. 05/17/21

<https://github.com/develone/rp2040-freertos-project/blob/master/doc/wireshark/4160usbmon0.pcapng>

It appears the first packet is at frame 601.

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

Apply a display filter ... <Ctrl-/>

No.	Time	Source	Destination	Protocol	Length	Info
586	157.891517	1.2.0	host	USBHUB	68	GET_STATUS Response [Port 4]
587	157.891676	host	1.2.0	USBHUB	64	SET_FEATURE Request [Port 4: PORT_RESET]
588	157.891961	1.2.0	host	USBHUB	64	SET_FEATURE Response [Port 4: PORT_RESET]
589	157.921356	host	1.2.0	USBHUB	64	GET_STATUS Request [Port 4]
590	157.921520	1.2.0	host	USBHUB	68	GET_STATUS Response [Port 4]
591	157.921556	host	1.2.0	USBHUB	64	CLEAR_FEATURE Request [Port 4: C_PORT_RESET]
592	157.921916	1.2.0	host	USBHUB	64	CLEAR_FEATURE Response [Port 4: C_PORT_RESET]
593	157.991531	host	1.0.0	USB	64	GET_DESCRIPTOR Request DEVICE
594	157.992279	1.0.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
595	157.992317	host	1.2.0	USBHUB	64	SET_FEATURE Request [Port 4: PORT_RESET]
596	157.992526	1.2.0	host	USBHUB	64	SET_FEATURE Response [Port 4: PORT_RESET]
597	158.021359	host	1.2.0	USBHUB	64	GET_STATUS Request [Port 4]
598	158.021552	1.2.0	host	USBHUB	68	GET_STATUS Response [Port 4]
599	158.021570	host	1.2.0	USBHUB	64	CLEAR_FEATURE Request [Port 4: C_PORT_RESET]
600	158.021684	1.2.0	host	USBHUB	64	CLEAR_FEATURE Response [Port 4: C_PORT_RESET]
601	158.121353	host	1.6.0	USB	64	GET_DESCRIPTOR Request DEVICE
602	158.122042	1.6.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
603	158.122095	host	1.6.0	USB	64	GET_DESCRIPTOR Request CONFIGURATION
604	158.122794	1.6.0	host	USB	73	GET_DESCRIPTOR Response CONFIGURATION
605	158.122831	host	1.6.0	USB	64	GET_DESCRIPTOR Request CONFIGURATION

... = DMA Map Page: False
... = DMA Map SG: False
... = Map Local: False
... = Setup Map Single: False
... = Setup Map Local: False
... = DMA S-G Combined: False
... = Aligned Temp Buffer: False
Number of ISO descriptors: 0
▼ Setup Data
 bmRequestType: 0x80
 1... = Direction: Device-to-host
 00 = Type: Standard (0x0)

0000 c0 c3 e5 c9 00 00 00 00 53 02 80 06 01 00 00 3c S.....<
0010 f3 8f 83 62 00 00 00 00 26 67 09 00 8d ff ff ff ...b...&g.....
0020 12 00 00 00 00 00 00 00 80 06 00 01 00 00 12 00
0030 00 00 00 00 00 00 00 00 00 02 00 00 00 00 00 00

Ready to load or capture Packets: 1788 · Displayed: 1788 (100.0%) · Dropped: 0 (0.0%) Profile: Default

Notice that the length of the packets was 4160

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

Apply a display filter ... <Ctrl-/>

No.	Time	Source	Destination	Protocol	Length	Info
635	158.855904	host	1.6.3	USB	4160	URB_BULK out
636	158.869426	1.6.3	host	USB	64	URB_BULK out
637	158.869495	host	1.6.4	USB	64	URB_BULK in
638	158.870095	1.6.4	host	USB	64	URB_BULK in
639	158.870263	host	1.6.3	USB	96	URB_BULK out
640	158.870338	1.6.3	host	USB	64	URB_BULK out
641	158.870400	host	1.6.4	USB	64	URB_BULK in
642	158.870648	1.6.4	host	USB	64	URB_BULK in
643	158.870712	host	1.6.3	USB	96	URB_BULK out
644	158.870782	1.6.3	host	USB	64	URB_BULK out
645	158.870840	host	1.6.4	USB	64	URB_BULK in
646	158.911177	1.6.4	host	USB	64	URB_BULK in
647	158.911298	host	1.6.3	USB	96	URB_BULK out
648	158.911378	1.6.3	host	USB	64	URB_BULK out
649	158.911437	host	1.6.4	USB	64	URB_BULK in
650	158.911696	1.6.4	host	USB	64	URB_BULK in
651	158.911756	host	1.6.3	USB	96	URB_BULK out
652	158.911826	1.6.3	host	USB	64	URB_BULK out
653	158.911887	host	1.6.3	USB	4160	URB_BULK out
654	158.925432	1.6.3	host	USB	64	URB_BULK out

[Response in: 636]
 [bInterfaceClass: Vendor Specific (0xff)]
 Unused Setup Header
 Interval: 0
 Start frame: 0
 Copy of Transfer Flags: 0x00000000
0 = Short not OK: False
0 = ISO ASAP: False
0 = No transfer DMA map: False
0 = No FSBR: False
0 = Zero Packet: False
0 = No Interrupt: False

```

0000 00 f0 f4 c9 00 00 00 00 53 03 03 06 01 00 2d 00 .....S.....
0010 f4 8f 83 62 00 00 00 00 3d 5a 05 00 8d ff ff ff .....b....=Z....
0020 00 10 00 00 00 10 00 00 00 00 00 00 00 00 00 .....
0030 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
0040 00 b5 32 4b 21 20 58 60 98 68 02 21 88 43 98 60 ..2K! X`-h-!-C`
0050 d8 60 18 61 58 61 2e 4b 00 21 99 60 02 21 59 61 ..aXa.K-!-!Ya
0060 01 21 f0 22 99 50 2b 49 19 60 01 21 99 60 35 20 ..!-P+I-!-!5
0070 00 f0 44 f8 02 22 90 42 14 d0 06 21 19 66 00 f0 ..D-!-B-!-f-
0080 34 f8 19 6e 01 21 19 66 00 20 18 66 1a 66 00 f0 4-n-!-f- f- f-
0090 2c f8 19 6e 19 6e 19 6e 05 20 00 f0 2f f8 01 21 ,n-n-n-!-!-!
00a0 08 42 f9 d1 00 21 99 60 1b 49 19 60 00 21 59 60 B-!-!-I-!-Y
00b0 1a 49 1b 48 01 60 01 21 99 60 eb 21 19 66 a0 21 -I-H-!-!-!f-!
00c0 19 66 00 f0 12 f8 00 21 99 60 16 49 14 48 01 60 -f-!-!-I-H-
00d0 01 21 99 60 01 bc 00 28 00 d0 00 47 12 48 13 49 -!-!-!-G-H-I
00e0 08 60 03 c8 80 f3 08 88 08 47 03 b5 99 6a 04 20 -n-!-!-G-j-
00f0 01 42 fb d0 01 20 01 42 f8 d1 03 bd 02 b5 18 66 B-!-!-B-!-f-
0100 18 66 ff f7 f2 ff 18 6e 18 6e 02 bd 00 00 02 40 -f-!-!-n-!-!@
0110 00 00 00 18 00 00 07 00 00 03 5f 00 21 22 00 00 .....!-!-!-!
0120 f4 00 00 18 22 20 00 a0 00 01 00 10 08 ed 00 e0 .....-!-!-!-!
0130 00 00 00 00 00 00 00 00 00 00 00 00 74 b2 4e 7a .....t-Nz
0140 00 20 04 20 f7 01 00 10 c3 01 00 10 c5 01 00 10 .....
0150 c1 01 00 10 c1 01 00 10 c1 01 00 10 c1 01 00 10 .....
  
```

wireshark_usbmon0FXCEM1.pcapng Packets: 1788 · Displayed: 1788 (100.0%) · Dropped: 0 (0.0%) Profile: Default

Whenever the picotool is used it comes up with a different device in this case 1.6.3

A hexdump of test-read.elf which is the data sent by the picotool to the pico.

```
00001000 00 B5 32 4B 21 20 58 60 98 68 02 21 88 43 98 60
```

```

File Edit Tabs Help
00000EF0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000F00  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000F10  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000F20  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000F30  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000F40  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000F50  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000F60  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000F70  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000F80  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000F90  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000FA0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000FB0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000FC0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000FD0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000FE0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00000FF0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00001000  00 B5 32 4B 21 20 58 60 98 68 02 21 88 43 98 60  ..2K! X`.h.!.C.`
00001010  D8 60 18 61 58 61 2E 4B 00 21 99 60 02 21 59 61  .`.aXa.K.!.`.!Ya
00001020  01 21 F0 22 99 50 2B 49 19 60 01 21 99 60 35 20  .!. ".P+I.`.!.`5
00001030  00 F0 44 F8 02 22 90 42 14 D0 06 21 19 66 00 F0  ..D.. ".B...!.f..
00001040  34 F8 19 6E 01 21 19 66 00 20 18 66 1A 66 00 F0  4..n.!.f. .f.f..
00001050  2C F8 19 6E 19 6E 19 6E 05 20 00 F0 2F F8 01 21  ,..n.n.n. ../..!
--- test-read.elf --0x1050/0x799C0--0%-----

```

Wireshark frame 635

File
Edit
View
Go
Capture
Analyze
Statistics
Telephony
Wireless
Tools
Help

Apply a display filter ... <Ctrl-/>

No.	Time	Source	Destination	Protocol	Length	Info
635	158.855904	host	1.6.3	USB	4160	URB_BULK out
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638	158.870095	1.6.4	host	USB	64	URB_BULK in
639	158.870263	host	1.6.3	USB	96	URB_BULK out
640	158.870338	1.6.3	host	USB	64	URB_BULK out
641	158.870400	host	1.6.4	USB	64	URB_BULK in
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643	158.870712	host	1.6.3	USB	96	URB_BULK out
644	158.870782	1.6.3	host	USB	64	URB_BULK out
645	158.870840	host	1.6.4	USB	64	URB_BULK in
646	158.911177	1.6.4	host	USB	64	URB_BULK in
647	158.911298	host	1.6.3	USB	96	URB_BULK out
648	158.911378	1.6.3	host	USB	64	URB_BULK out
649	158.911437	host	1.6.4	USB	64	URB_BULK in
650	158.911696	1.6.4	host	USB	64	URB_BULK in
651	158.911756	host	1.6.3	USB	96	URB_BULK out
652	158.911826	1.6.3	host	USB	64	URB_BULK out
653	158.911887	host	1.6.3	USB	4160	URB_BULK out
654	158.925432	1.6.3	host	USB	64	URB_BULK out

..... = Dir IN: False
..... = DMA Map Single: False
..... = DMA Map Page: False
..... = DMA Map SG: False
..... = Map Local: False
..... = Setup Map Single: False
..... = Setup Map Local: False
..... = DMA S-G Combined: False
..... = Aligned Temp Buffer: False
Number of ISO descriptors: 0
Leftover Capture Data: 00b5324b212058609868022188439860d860186158612e4b00219960022159610121f022...

0000	00 f0 f4 c9 00 00 00 00	53 03 03 06 01 00 2d 00 S.....
0010	f4 8f 83 62 00 00 00 00	3d 5a 05 00 8d ff ff ff	...b... =Z...
0020	00 10 00 00 00 10 00 00	00 00 00 00 00 00 00 00
0030	00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00
0040	00 b5 32 4b 21 20 58 60	98 68 02 21 88 43 98 60	..2K! X`-h!..C`
0050	d8 60 18 61 58 61 2e 4b	00 21 99 60 02 21 59 61	..aXa.K ..!..!Ya
0060	01 21 f0 22 99 50 2b 49	19 60 01 21 99 60 35 20	!..P+I ..!..5
0070	00 f0 44 f8 02 22 90 42	14 d0 06 21 19 66 00 f0	..D..B ..!..f..
0080	34 f8 19 6e 01 21 19 66	00 20 18 66 1a 66 00 f0	4..n!..f..f..f..
0090	2c f8 19 6e 19 6e 19 6e	05 20 00 f0 2f f8 01 21	,..n..n ..!..!
00a0	08 42 f9 d1 00 21 99 60	1b 49 19 60 00 21 59 60	B...!..I...!Y
00b0	1a 49 1b 48 01 60 01 21	99 60 eb 21 19 66 a0 21	I..H...! ..!..f..!
00c0	19 66 00 f0 12 f8 00 21	99 60 16 49 14 48 01 60	-f...! ..I..H..
00d0	01 21 99 60 01 bc 00 28	00 d0 00 47 12 48 13 49	!...!(...G..H..I
00e0	08 60 03 c8 80 f3 08 88	08 47 03 b5 99 6a 04 20	...G...j..
00f0	01 42 fb d0 01 20 01 42	f8 d1 03 bd 02 b5 18 66	B...Bf
0100	18 66 ff f7 f2 ff 18 6e	18 6e 02 bd 00 00 02 40	-f...n ..n...@
0110	00 00 00 18 00 00 07 00	00 03 5f 00 21 22 00 00!"...
0120	f4 00 00 18 22 20 00 a0	00 01 00 10 08 ed 00 e0".....
0130	00 00 00 00 00 00 00 00	00 00 00 00 74 b2 4e 7at..Nz
0140	00 20 04 20 f7 01 00 10	c3 01 00 10 c5 01 00 10
0150	c1 01 00 10 c1 01 00 10	c1 01 00 10 c1 01 00 10

wireshark_usbmon0FXCEM1.pcapng
Packets: 1788 · Displayed: 1788 (100.0%) · Dropped: 0 (0.0%) · Profile: Default