Sorry for the long posting. This is a summary of the current state of several of the problems reported in this forum based on my experience with my pi-topCEED in April and May of 2017.

Source photos and a pdf version of this can be found here:
https://github.com/uChip/pi-topIssuesStatus

I learned about the pi-top products from their new product announcement on SparkFun.com. Before making my purchase I read through the forums here to see how people were doing using the product. There were a number of issues raised but I thought many were old and probably resolved by now, some were one-off problems and some I could just live with. The thing is, many of the issues lack any follow-up to know whether they still exist. Therefore I decided that when I received my pi-topCEED I would review the issues that were of concern to me and report back to the community.

The comments here are my personal opinion based on assembling and using the CEED for a few hours. I have perhaps 20 to 30 hours total invested so far. My opinion is subject to change as I gain more experience. It is based on using one unit. Your unit may be different. I have no affiliation with CEED.

Conclusion

Since this is long I will put the conclusion here rather than at the bottom. Then you can just skip down to the particular problems that interest you.

Overall I am very happy with my purchase of the pi-topCEED. The CEED wraps together the RPi, a good sized display, and a power supply into a case that keeps all the pieces together and tidy. The supply seems more than adequate to power the display and the RPi, but not much more. The supply is software integrated with the OS to enable proper shutdown and power off. The RPi is left almost completely accessible and functional (a few GPIOs removed from general availability). Most of the issues raised against the early units appear to have been resolved. The few that remain are design trade-offs that are not blocking for most users.

Issues & Questions

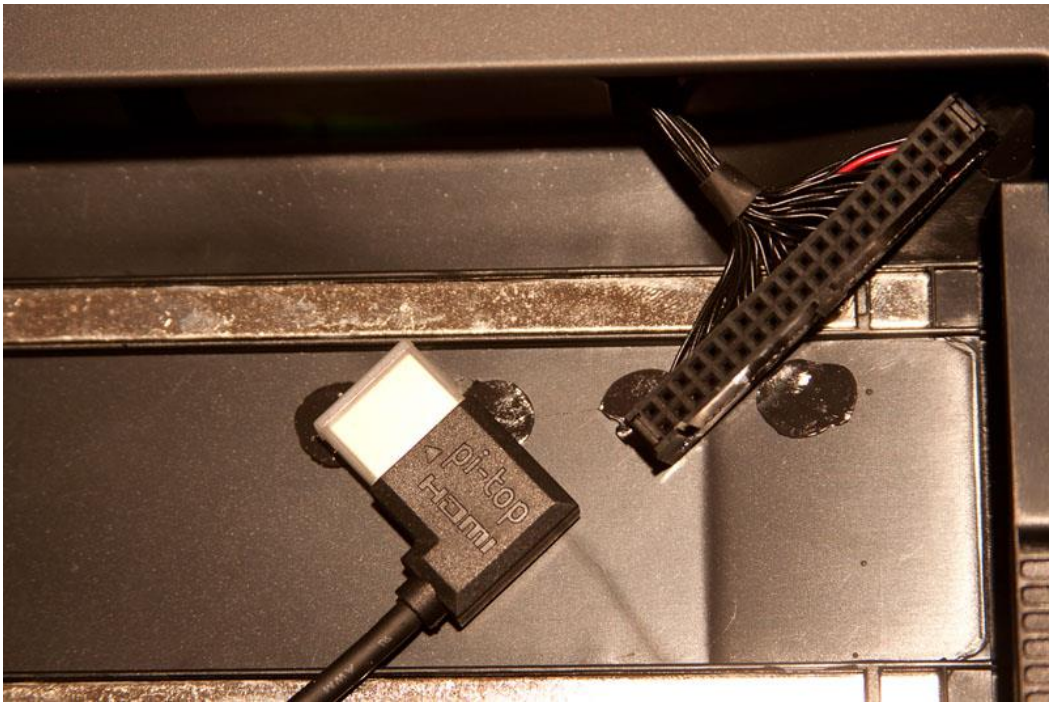
PROBLEM: Cable vs Jumper

http://support.pi-top.com/support/discussions/topics/6000038405
http://support.pi-top.com/support/discussions/topics/6000038827

My unit came with the cable. Speculation: I am reasonably certain that the cable between the RPi GPIOs and the HUB board is custom fabricated for the pi-top. A standard ribbon cable would have been difficult to route inside the case. Also the connector is 40 pins on the Pi end and 30 pins on the HUB end plus another 2 pins (power) on a separate connector. It appears to me that the custom cable arrived late and the first CEEDs were shipped with jumpers as a stop-gap.

RESOLUTION: I'll bet that all units shipping from the factory today have the correct cables. Beware of NOS units lingering in retailer inventory.

PROBLEM: HDMI, HUB or LCD Cables Loose



There are always issues when the customer has to do assembly. Instructions are hard to make clear. People make mistakes. Partially assembled components are not properly secured and can flop around in shipping. I checked the cables on my CEED as part of unboxing. The HDMI and HUB cables were properly plugged at the HUB board end and glued to the case with rubber cement at the Pi end so they couldn't flop. The LCD cable was plugged in right, but the locking lever was loose. The display worked in spite of this and seating the locking lever was easy.

RESOLUTION: Check that all cables (even the preassembled ones) are seated correctly as part of assembly.

PROBLEM: Jumper height interferes with acrylic cover

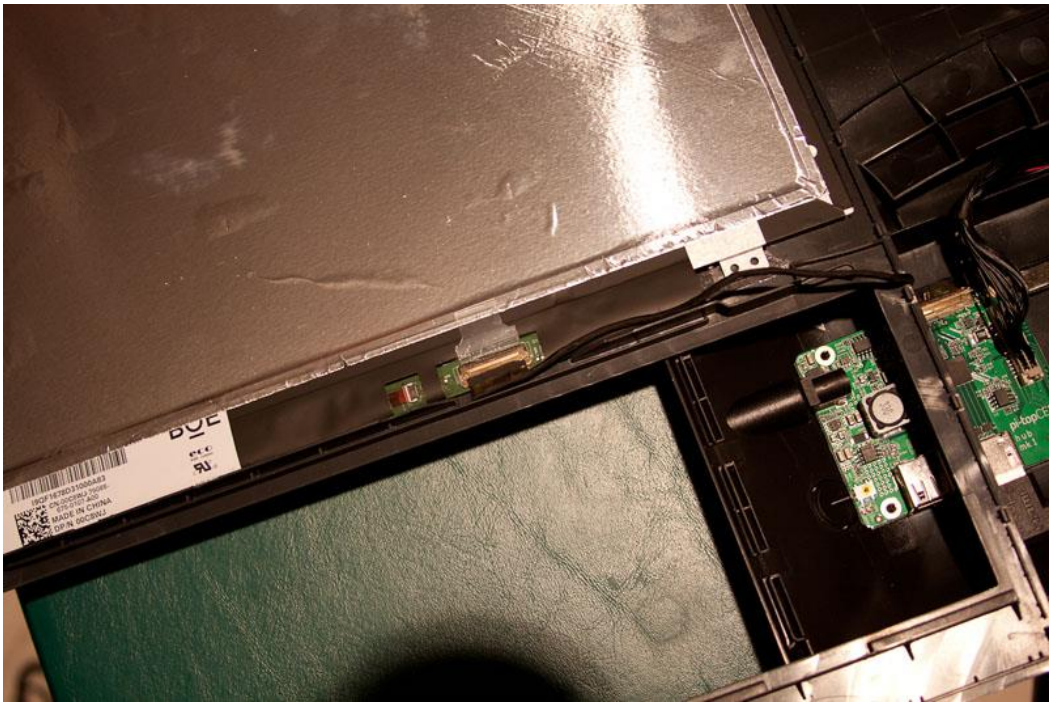
http://support.pi-top.com/support/discussions/topics/6000041259

My unit has the cable so I cannot verify the problem, but if my speculation is correct, the jumpers were never designed to fit in the first place. They were not supposed to be there. I further speculate that once the cables became available no more jumper units were shipped.

RESOLUTION: Fixed by using cables instead of jumpers. Not a problem on my unit (and presumably on all recently manufactured units). Beware NOS.

HACK: Screen Upgrade

http://support.pi-top.com/support/discussions/topics/24000000494



Someone in the pi-top forum wrote that they upgraded their screen to one with higher resolution (1920x1080). Is that true? Is it a reasonable hack? What I learned from tearing down the CEED would indicate that this is certainly possible electrically, but you are taking a risk mechanically. Unless you are VERY careful you are likely to damage the CEED case. The display itself carries a Dell part number (DP/N 00C8WJ). Replacement screens with this number are available on ebay.com. The higher resolution display can be found by searching for "14" IPS WUXGA 1920x1080 FHD EDP LED LCD Screen for HP Chromebook 14 G3".

RESOLUTION: Partially confirmed.

PROBLEM: Magnetic feet are too difficult to press into RPI / Magnets fall out of the feet
http://support.pi-top.com/support/discussions/topics/6000041259
The feet are intended to snap fit into the RPi circuit board, then the magnets in the feet hold the board to the mounting rails in the pi-top. The snaps on my CEED are quite stiff and there is a danger of damaging the RPI (or your fingers as circuit boards sometimes have sharp bits). Still I was able to insert the feet without incident. When I installed the feet onto the Proto board I experimented with greasing the plastic snaps on the feet with petroleum jelly before inserting them. It seemed like this did allow them to be inserted more easily.

There have also been complaints that when removing the RPi from the CEED the magnets pull out of the feet. I have only removed the RPi a few times but so far the magnets have stayed where they are supposed to (in the feet). As others have noted you can glue the magnets back in if you encounter this problem.

RESOLUTION: Minor problem. Likely still exists. There are work arounds.

PROBLEM: HDMI cable is too stiff

http://support.pi-top.com/support/discussions/topics/6000041259

The HDMI cable on my unit has a right-angle connector on both ends so there is no sharp bend in the cable when it is inserted correctly. Therefore cable stiffness is not an issue. It's unclear whether this is a manufacturing improvement based on customer feedback or another case where early units were shipped with alternate cables because the custom ones had not yet arrived.

RESOLUTION: The unit I received (and presumably all currently shipping units) have a cable that is not a problem.

PROBLEM: Unsecure board mounting - Board shifting when plugging in USB devices

The report was that the RPi can shift making plugging and unplugging cables a problem. I found that the board mount is secure enough. The pair of magnetic feet on the right end sit in little wells that keep the board from sliding. The wells are not that deep so if you push too hard or at an angle the feet can pop out of the wells and the board will still slide. This can be exacerbated by nice new tight USB connectors on the RPi. This will be less of a problem as the connectors break in. Make sure the RPi is seated properly. The USB and Ethernet connectors should be flush with the case. If they are further inside then the feet are not in the wells.

RESOLUTION: Problem still exists but is minor and, with care, avoidable.

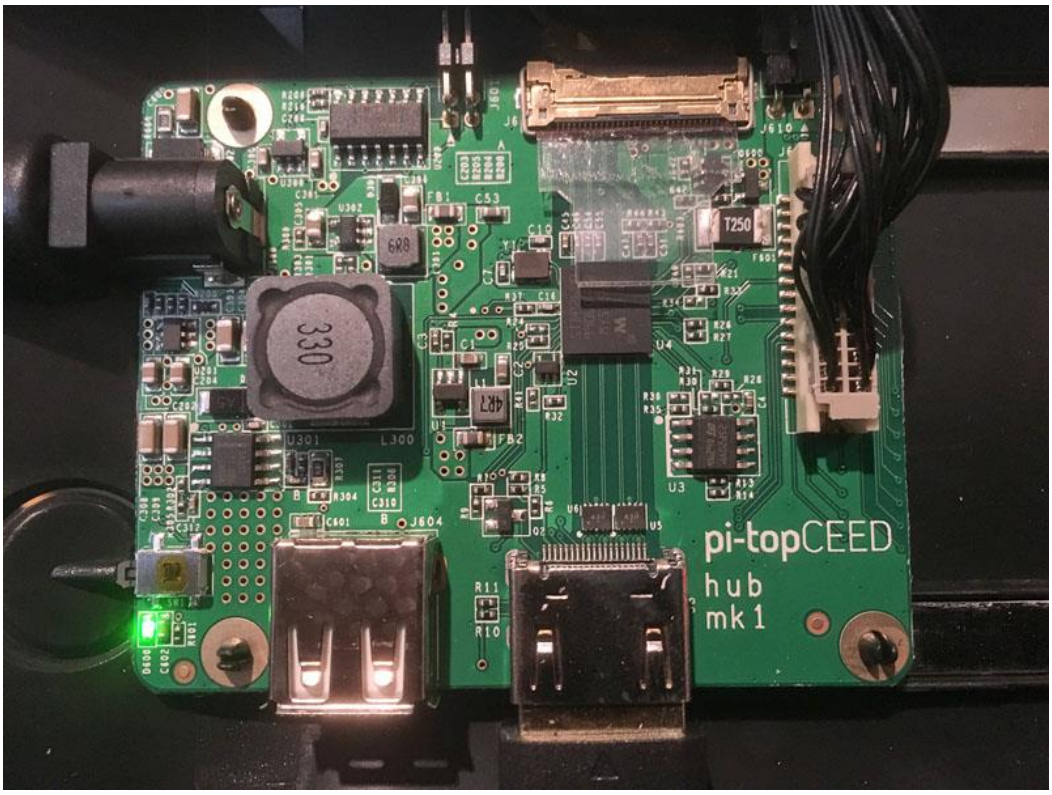
PROBLEM: Power Supply doesn't turn off under Raspbian
The power supply has a soft-switch. The supply stays hot as long as the wall unit is plugged in. There is a small controller in the supply that monitors the power button and applies power to the RPi & LCD when pressed. The RPi communicates to the controller on Shutdown telling it to remove power from the RPi & LCD. The software to communicate to the controller is not part of the standard Raspbian distribution. Rene Richarz has created and posted software to add this functionality to Raspbian.

RESOLUTION: Rene's solution works well. Get Rene's SW for Raspbian at https://www.github.com/rrichars/pi-top-install. Follow instructions there for installation. Then join me in giving a huge THANK YOU! to Rene for his efforts.

PROBLEM: Brightness control under Raspbian
The LCD backlight is controlled through the pi-top HUB board. The pi-top OS, Polaris, has software to control the backlight. This backlight software is not part of the Raspbian distribution. Rene's software adds this as well. See reference under Power Supply above.

RESOLUTION: Rene's solution works well. See link above. Thanks again, Rene!

PROBLEM: Lack of details about HUB board



There still does not appear to be any published details about the HUB board from pi-top. I was able to find a mechanical drawing for the HUB board in the laptop, but nothing for the board in the CEED. Still, with some observation and study I was able to discern the following. Simply, the HUB board has three functions. It has a soft-switched power supply, an HDMI to DisplayPort converter for driving the LCD display, and a pass-through that brings the RPi GPIO pins to the pi-top accessory connector. The accessory connector is a 34-pin header connector on the back side of the HUB board used by the pi-topPROTO board and pi-topSPEAKER.

You can tell that line power is applied by the "breathing" state of the LED on the HUB board. Press the power button for a couple of seconds and the supply "wakes up" indicated by the LED on the HUB board coming on solid and the LEDs on the RPi coming on and flashing. Selecting the Shutdown menu item in either Raspbian or Polaris stops the OS and turns off power to the RPi. If for some reason the OS has hung, holding down the power button for a few seconds will force a power off.

The power supply is actually a collection of supplies each with their own intended purpose. Power comes in the barrel jack connector at 18 volts. There is a linear regulator (U300) that provides 3.3v to the ATTiny24A microcontroller (U200). This regulator and therefore the microcontroller is on all the time. Or at least all the time the CEED is plugged in. The microcontroller is the 14-pin IC near the top left of the board. It tells the other supplies when to power up or down based on commands sent to it over the SPI buss from the RPi or when the power switch is pressed. The 8-pin package (U301) near the large inductor is a TI TPS54332 DC-DC converter. The converter steps the 18v down to 5v for powering the RPi and the accessory buss. The wall wart that comes with the CEED is capable of 1A or 18 watts. Given a conversion efficiency of 85% (or better) the 5v supply should be capable of delivering at least 3A. There is another small switching supply between the large inductor and the microcontroller. This second supply is based on the TI LMR10510 (U302) and is a beefier 3.3v supply for the display controller and the accessory bus. Note that the RPi does not supply either the 3.3v or 5v to the accessory bus. Instead, those voltages are provided by the HUB board. There is a third small switching supply based on the TI LM3670 (U1) that provides 1.2v for the display controller core.

The display controller is implemented with an STMicrosystems STDP2600 HDMI to DisplayPort converter chip (U4) with an ST 25P20 serial FLASH memory (U3) providing configuration information. The STDP2600 supports up to 4kx2k resolution at 30fps or up to 1920x1080 at 120fps. It also splits out the S/PDIF audio and routes it to the accessory buss. One of the outputs from the ATTiny24A goes directly to the DisplayPort connector to control the display backlight.

On my unit the USB connector (J604) at the bottom of the HUB board but is not used. I speculate that at some point the design was to route 5v power from the HUB board to the RPi through the USB connector, but later the design was changed to bring in 5v using the RPi GPIO Expansion connector eliminating one cable. Note that the USB connector on the HUB board is not a real USB interface. Only the power pins are active.

The pin-out of the accessory bus on the laptop is listed on the mechanical drawing I mentioned. I assume that the buss on the CEED is the same. For reference I will repeat the pin definitions below. Note that the accessory buss pin-out IS NOT the same as the RPi GPIO Expansion (HAT) connector, though all the same RPi GPIOs are available (just not on the same pins). The RPi GPIO expansion connector is 40 pins. The accessory connector is 34 pins but carries all the same signals and more. They do this by dropping the repeated ground signals from the GPIO connector. Insufficient grounds could be a problem in high current draw scenarios, but since power and ground come from the HUB board at least the wire length is shorter.

Accessory Buss Connector Pinout
Pin 1 is toward the top of the CEED in the row further away from the circuit board. Pin 2 is at the same end in the row closer to the circuit board. Comments are mine not pi-top's.

PIN	NAME	DESCRIPTION	COMMENTS
1	PWR	12 to 18V, 25W MAX	12V did not work for me
2	5V	+5V, 3A MAX	3A includes RPi & Display
3	3V3_PRST	+3.3V PERSISTENT, 0.1A MAX	Note 1
4	3V3	+3.3V, 0.5A MAX	
5	GND	GROUND	
6	SPDIF_OUT	HDMI AUDIO	
7	SDA_BCM-2	GPIO 2 / RPi PIN 3	
8	SCL_BCM-3	GPIO 3 / Rpi PIN 5	
9	GPCLK0-BCM-4	GPIO 4 / Rpi PIN7	
10	TXD_BCM-14	GPIO 14 / Rpi PIN 8	
11	RXD_BCM-15	GPIO 15 / Rpi PIN 10	
12	BCM-17	GPIO 17 / Rpi PIN 11	
13	PCM_C_BCM-18	GPIO 18 / Rpi PIN 12	
14	PCM_D_BCM-27	GPIO 27 / Rpi PIN 13	
15	BCM-22	GPIO 22 / Rpi PIN 15	
16	BCM-23	GPIO 23 / Rpi PIN 16	
17	BCM-24	GPIO 24 / Rpi PIN 18	
18	MOSI_BCM-10	GPIO 10 / Rpi PIN 19	Shared with HUB uController
19	MISO_BCM-9	GPIO 9 / Rpi PIN 21	Shared with HUB uController
20	BCM-25	GPIO 25 / Rpi PIN 22	
21	SCLK_BCM-11	GPIO 11 / Rpi PIN 23	Shared with HUB uController
22	CE0_BCM-8	GPIO 8 / Rpi PIN 24	
23	CE1-BCM-7	GPIO 7 / Rpi PIN 26	Used by HUB uController
24	ID_SD_BCM-0	GPIO 0 / Rpi PIN 27	
25	ID_SC_BCM-1	GPIO 1 / Rpi PIN 28	
26	BCM-5	GPIO 5 / Rpi PIN 29	
27	BCM-6	GPIO 6 / Rpi PIN 31	
28	BCM-12	GPIO 12 / Rpi PIN 32	

29	BCM-13	GPIO 13 / Rpi PIN 33
30	MISO_BCM-19	GPIO 19 / Rpi PIN 35
31	BCM-16	GPIO 16 / RPi PIN 36
32	BCM-26	GPIO 26 / RPi PIN 37
33	MOSI_BCM-20	GPIO 20 / RPi PIN 39
34	SCLK_BCM-21	GPIO 21 / RPi PIN 40

Note 1: The persistent 3.3v is supplied by a linear regulator in a very small package that drops almost 15v. If you try to pull too much current the regulator will burn up.

The HUB board and RPi communicate over the SPI buss on GPIOs 9, 10 & 11 (RPi pins 21, 19 & 23) plus the HUB board select line, CE1 on GPIO 7 (RPi pin 26). The HUB board therefore consumes 4 GPIOs. However, if you wish to also use the SPI buss you can as long as you use a different select line (e.g. CE0 on GPIO 8). So in this case you could say that the HUB board only consumes 1 GPIO and shares three others. The pi-topPROTO board reconstitutes the RPi 40-pin connector allowing a HAT board, T-Cobbler / Pi Wedge or equivalent RPi add-on to be used as long as the add-on does not interfere with the GPIOs used by the HUB board.

RESOLUTION: Only partly resolved, but there are enough details to make use of the HUB board and the accessory bus. If you are interested in designing your own accessory boards you can start from my project template here:
https://github.com/uChip/pi-top_Template--KiCad_BZR_4027 (KiCad stable build on RPi) or
https://github.com/uChip/pi-top_Template--DailyBuild (built on a KiCad on Windows development build). These are complete, but untested so watch for updates.

PROBLEM: Sound out in RetroPie
raspberrypi.org/documentation/configuration/audio-config.md
http://support.pi-top.com/support/discussions/topics/24000000032
Not yet tested. I will update when I learn more.

PROBLEM: WiFi problems with pi-top OS (Polaris) and the RPi3
http://support.pi-top.com/support/discussions/topics/6000022873
http://support.pi-top.com/support/discussions/topics/6000042899
Not yet tested. I will update when I learn more.