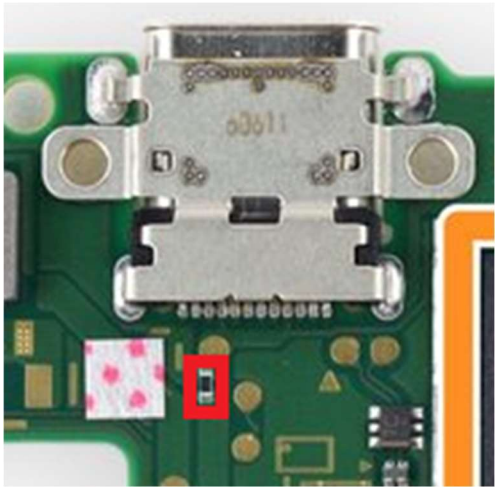
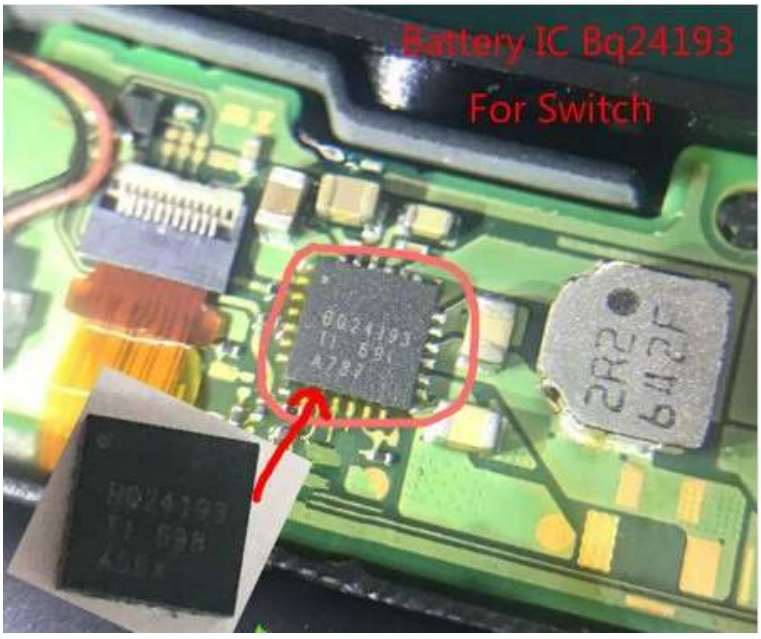
fuse

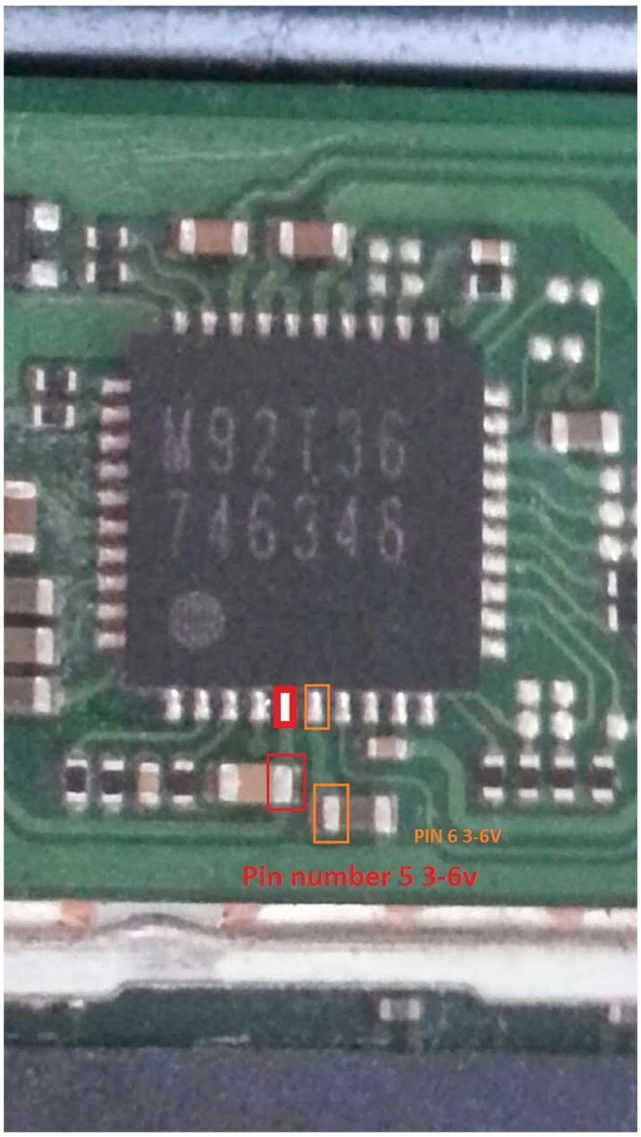


https://ro.mouser.com/ProductDetail/Littelfuse/0438035WRA?qs=wd5RIQLrsJi0ppmxLVSh6Q==

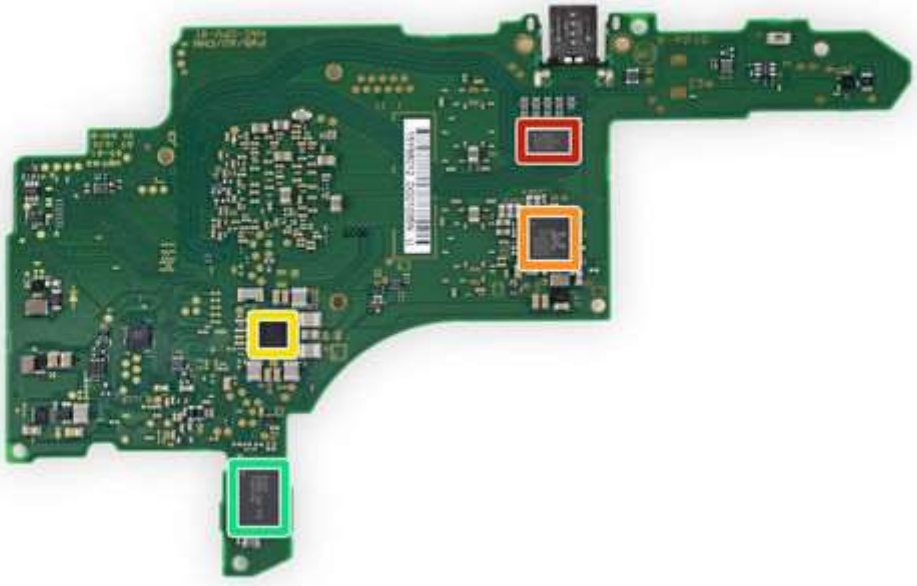
BQ24193

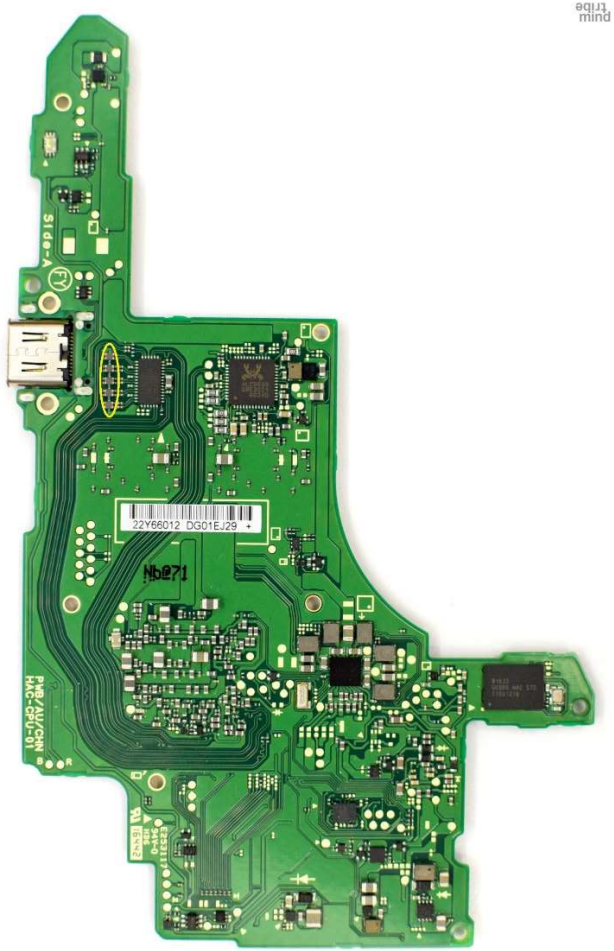
BQ24193

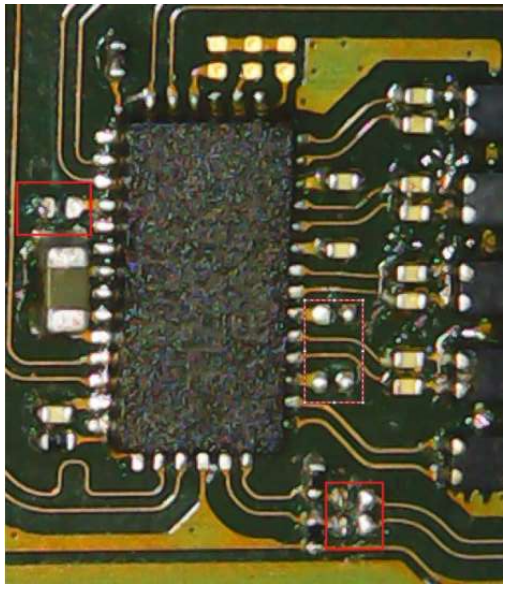


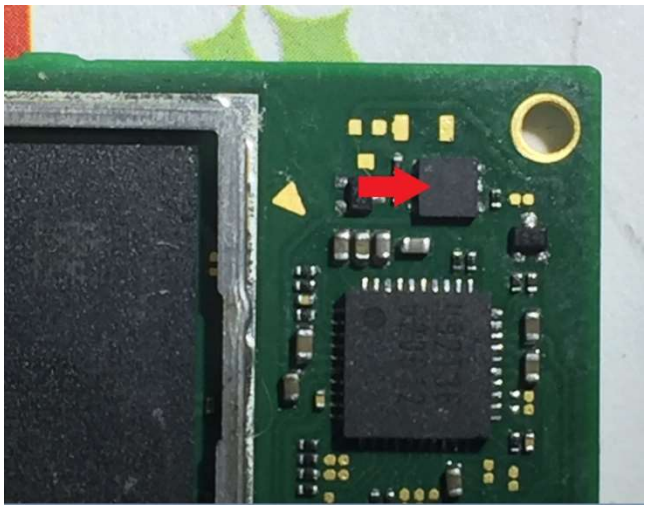


M92T36

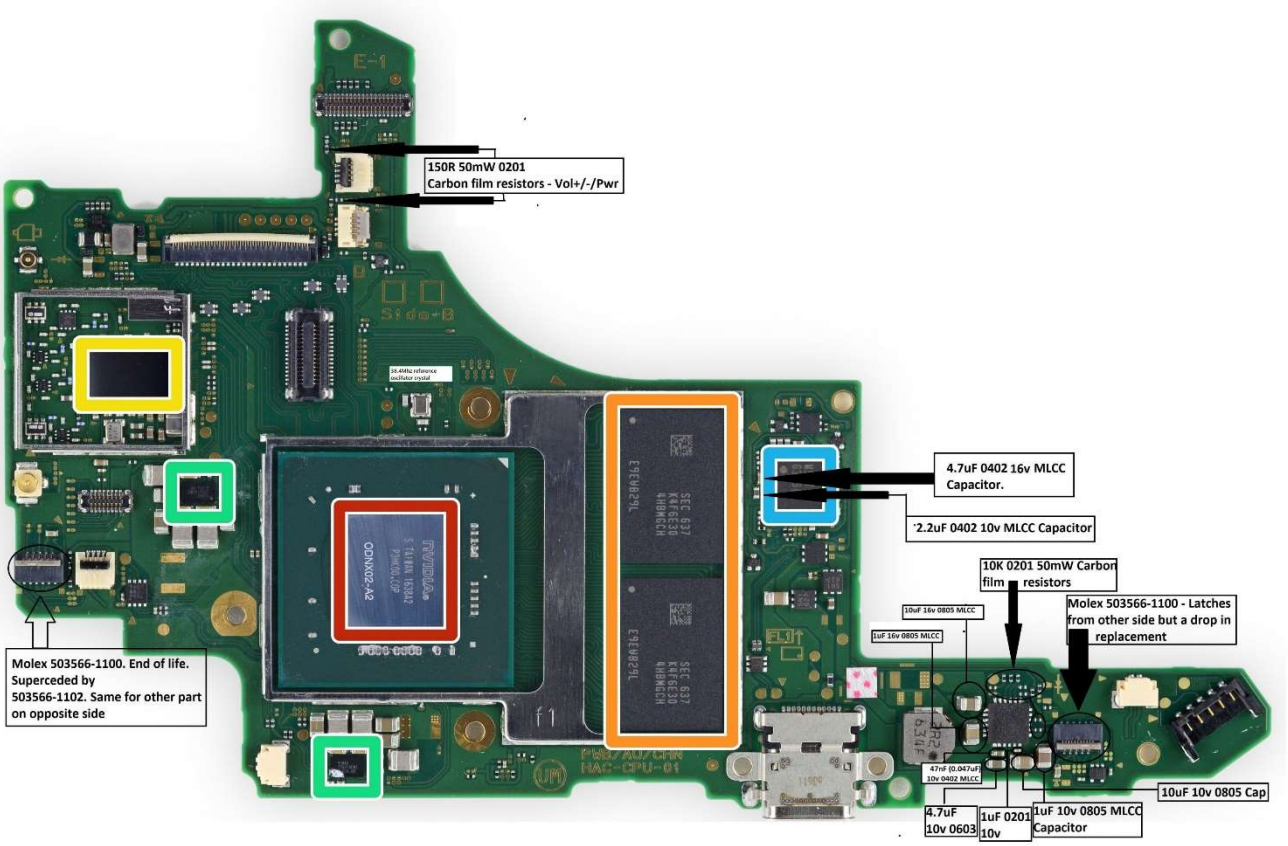



Side-A
22Y66012 DG01EJ29 +
PWB/AU/CHN
HAC-CPU-01





SSM6P49NU



Pinouts

Cluster A

Pad #	Name	Type	Levels	Continuity	Frequency	Comment
1	Batt GND?					
2	Battery pulse?	Pulse train	0-3.3V	L-5?		
3	Battery Vdd					
4	??	Square wave	0-3.3V		329kHz? (undersampled?)	Square wave when screen on, but looks like vias to Speaker R
5	??	Square wave	0-3.3V		329kHz? (undersampled?)	Square wave when screen on, but looks like vias to Speaker R

6	Weak GND?					
7	SDA	I2C	0-1.8V			
8	SCL	I2C	0-1.8V			
9	USB-PWR-WAVE?	Square wave	0-3.3V	K-4, K-5?	~11 Hz	
10	USB-PWR-WAVE?	Square wave	0-3.3V	K-4, K-5?	~11 Hz	

Cluster B

Pad #	Name	Type	Levels	Continuity	Frequency	Comment
1		DBVDD				from ALC5639 pin 43
2	D+	USB-C				Cluster B - 3
3	D-	USB-C				Cluster B - 2
4	+3.3V	XRST				from M92T36 pin 4
5	+3.3V	VSVR				from M92T36 pin 6
5(b)	VUSB	VB				from M92T36 pin 9
6	GND					

Cluster C

Pad #	Name	Type	Levels	Continuity	Frequency	Comment
1	??		0-1.8V			No clue. This is definitely important, we just have no idea how. May need to interface with dock for comms.

2	UART-A TX		0-1.8V			
3	UART-A RX		0-1.8V			
4	??		0-1.8V			
5	??		0-1.8V			
6	??		0-1.8V			
7	??		0-1.8V			
8	??		0-1.8V			
9	??		0-1.8V			
10	??		0-1.8V			
11	+1.8V		0-1.8V			

Cluster D

Pad #	Name	Type	Levels	Continuity	Frequency	Comment
1	GND					
4	Seaker L +					Speaker Left +
5	Seaker L -					Speaker Left -

Cluster E

Pad #	Name	Type	Levels	Continuity	Frequency	Comment

1	Vol (-)					Button Vol (-)
10	Reset					
11	Vdd Referance					

Cluster G

Pad #	Name	Type	Levels	Continuity	Frequency	Comment
2	GND					
4	Vol(+)					Button Vol (+)
5	Li-Ion Batt Vdd Mirror					Power Supply
9	BUTTON_HOME					RCM strap

Cluster I

Pad #	Name	Type	Levels	Continuity	Frequency	Comment
1	GND					
2	Screen_on	On/Off	0-1.8V			Screen power state, active high
3		UART	0-1.8V		1.5MBaud?	
4		UART	0-1.8V		1.5MBaud?	
5		Flow control	0-1.8V			Flow control for pad I-4?
6			0-1.8V			Needs testing with chip/touch screen interface board plugged in

Cluster J

Pad #	Name	Type	Levels	Continuity	Frequency	Comment
1	?	Edge	0-1.8V			Turns on around same time as pad J-3
2	GND					
3	?	Edge	0-1.8V			Turns on around same time as pad J-1, slightly after
4	Power button	Pushbutton	4V-0V			Active low
5	?	Constant?	0V	Ground?-NT		
6	?	Edge	0-1.8V			Turns on with pad J-6, ~1s after J-1/J-3
7	?	Edge	0-1.8V			Turns on with pad J-5, ~1s after J-1/J-3
8	?	Edge?	0-1.8V			Turns on ~1s after J-6/J-7, turns off at unknown point

Cluster K

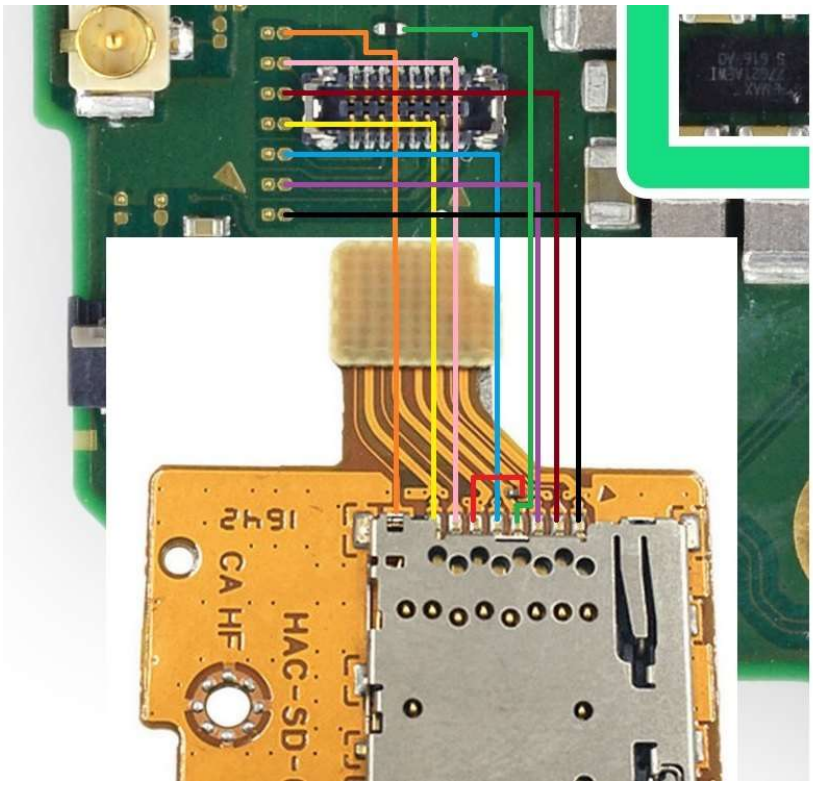
Pad #	Name	Type	Levels	Continuity	Frequency	Comment
1	GND					
2	D-	USB-C				Cluster B - 3
3	D+	USB-C				Cluster B - 2
4	USB-PWR-WAVE?	Square wave	0V-3.3V	A-9, A-10?	~11 Hz	

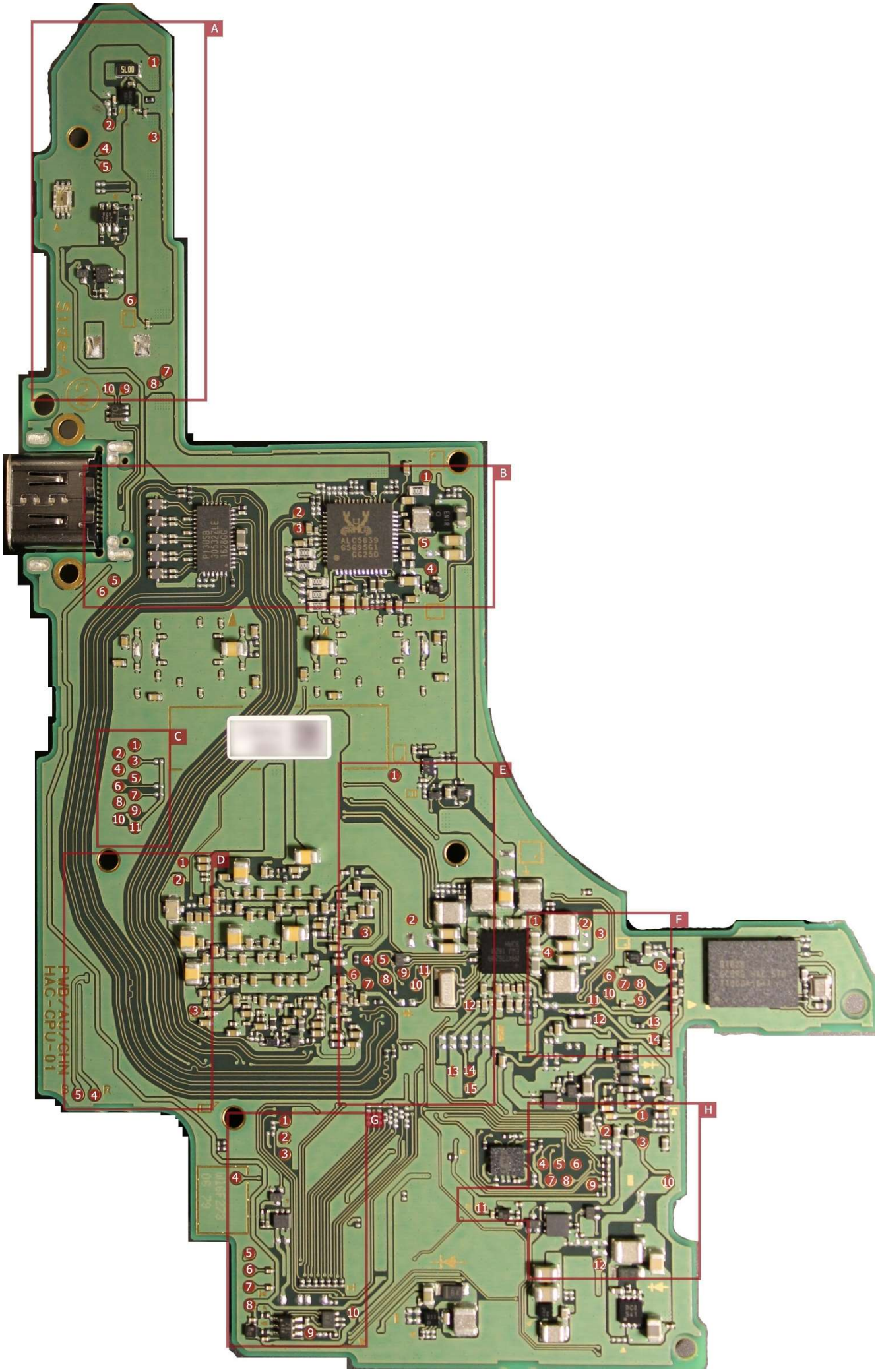
5	USB-PWR-WAVE?	Square wave	0V-3.3V	A-9, A-10?	~11 Hz	Appears to mirror K4. Duty cycle 66.67%. Low on screen lock. Off until first interaction.
6	USB-C V+	Supply power				support fast charger : "normal mode = 5V+" "Fast changer = 12V+"
7	Unknown	Power supply?	~3V-0V	None known	N/A	0 when usb-c not plugged in, falls slowly on first interaction if USB-C plugged in. Power draw related?

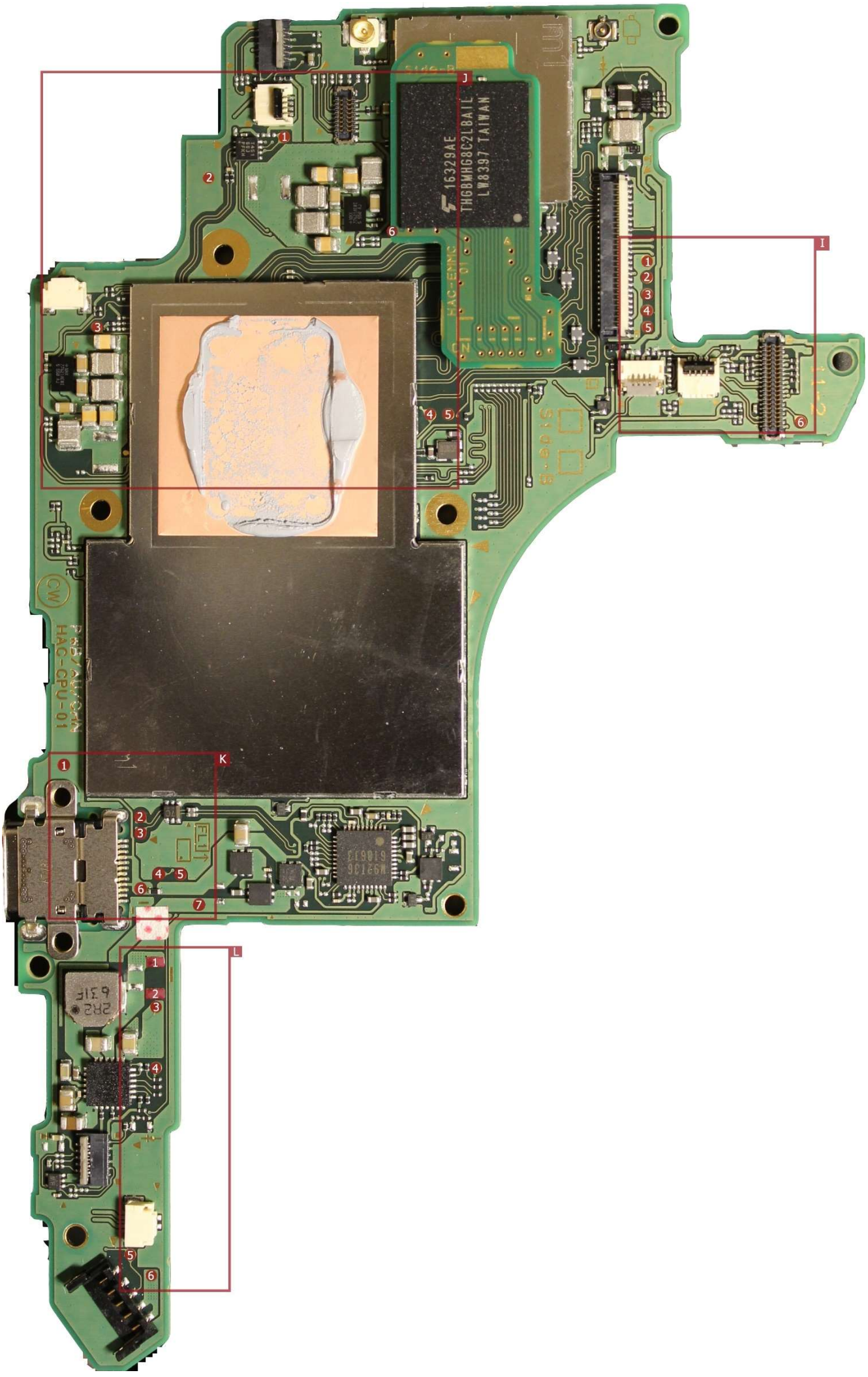
Cluster L

TODO: Update diagram

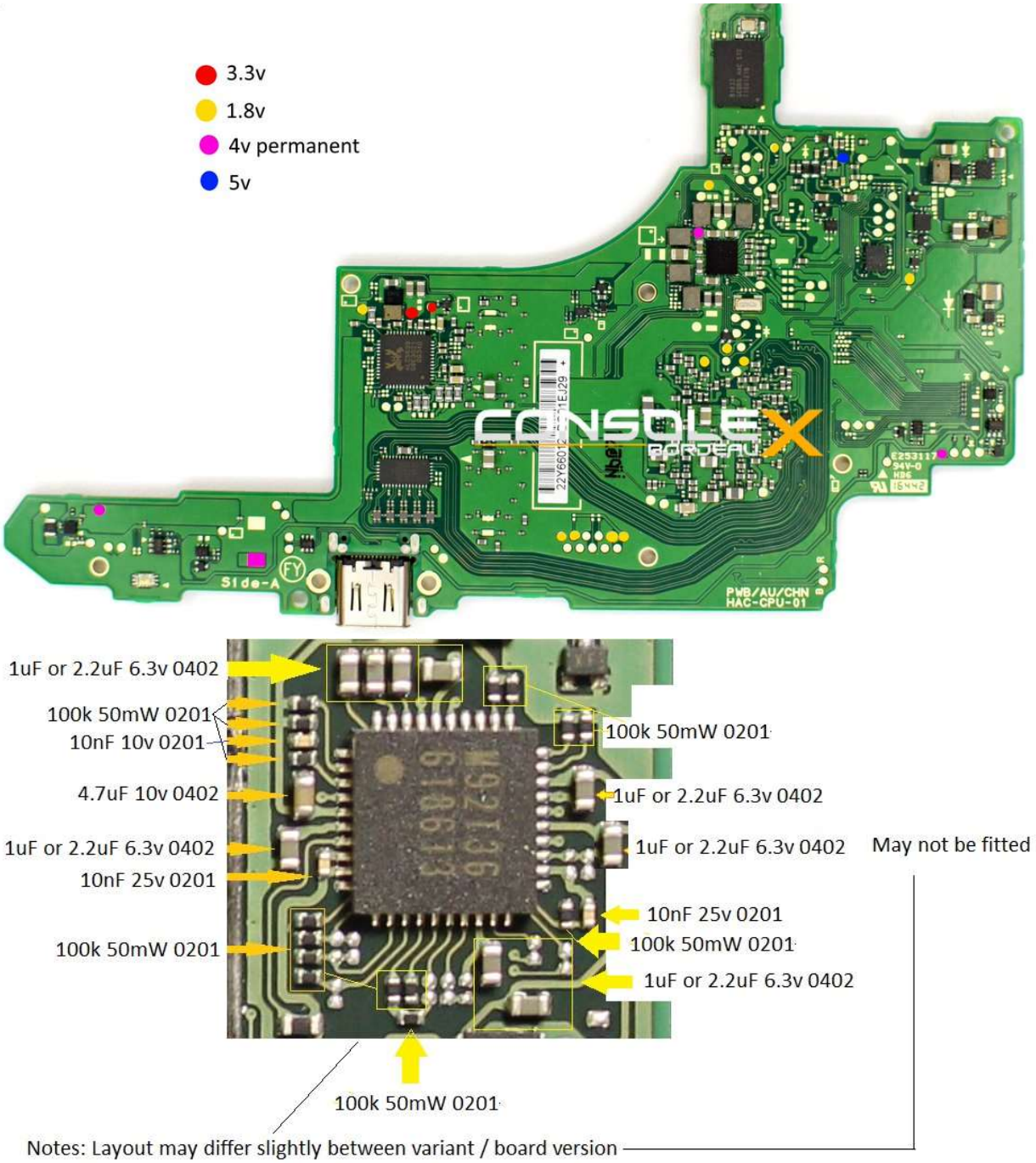
Pad #	Name	Type	Levels	Continuity	Frequency	Comment
1	Li-Ion Batt Vdd Mirror	Power Supply	Std. Li-Ion			
2	GND					
3	Li-Ion Batt Vdd	Battery Input	Std. Li-Ion			Should have 3v
4	Mirrored Ground?					Holds steady @ 0, looks like a decoupled isolated ground
5	Battery pulse?				<1 Hz	Duty cycle ~0%
6	GND					


HAC-SD-
CA HF


A
B
C
D
E
F
G
H
HAC-CPU-01

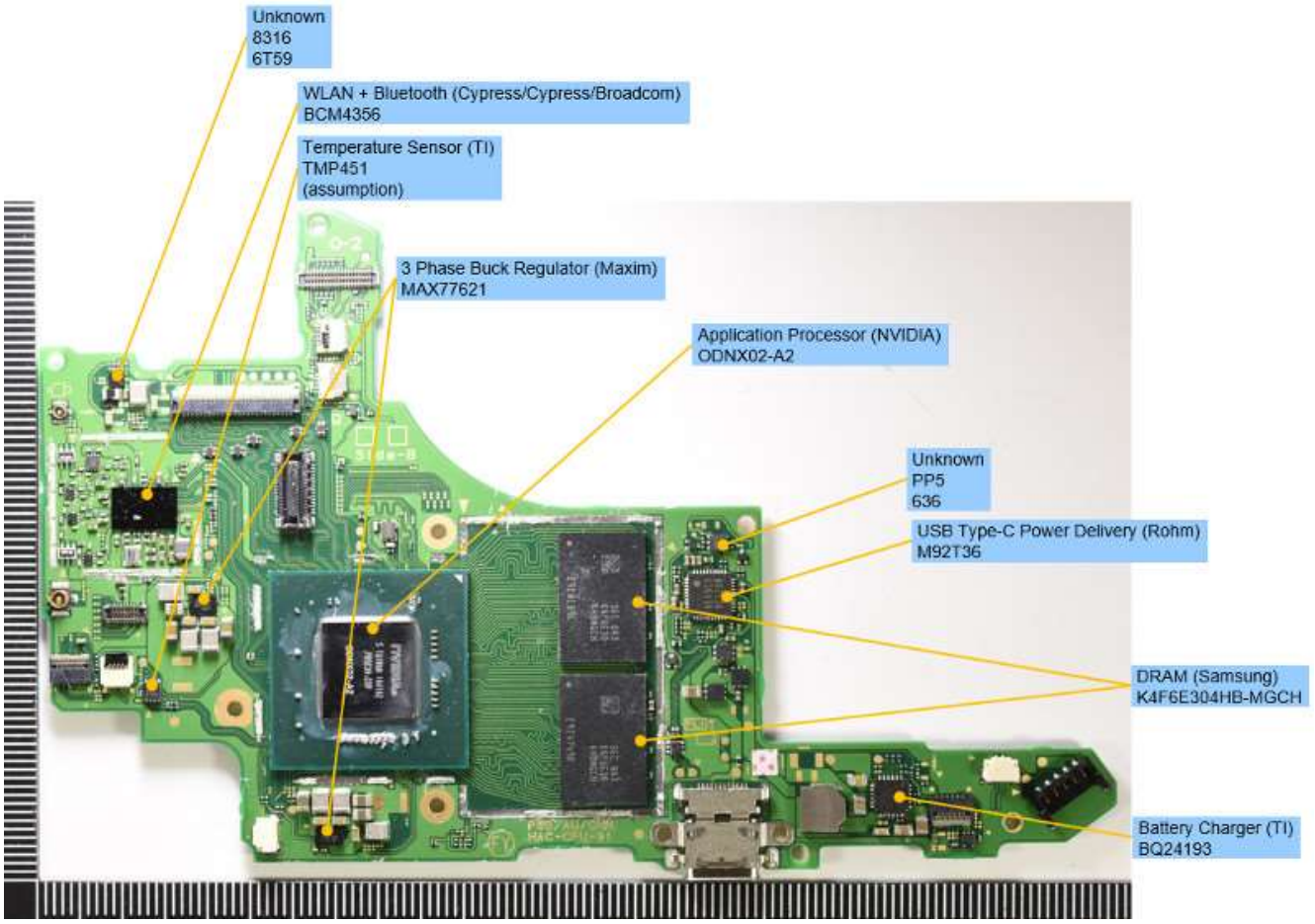

J
I
K
L
HAC-ENNC-01
HAC-CPU-01
THGBMHG8C2LBAIL
LW8397 TAIWAN

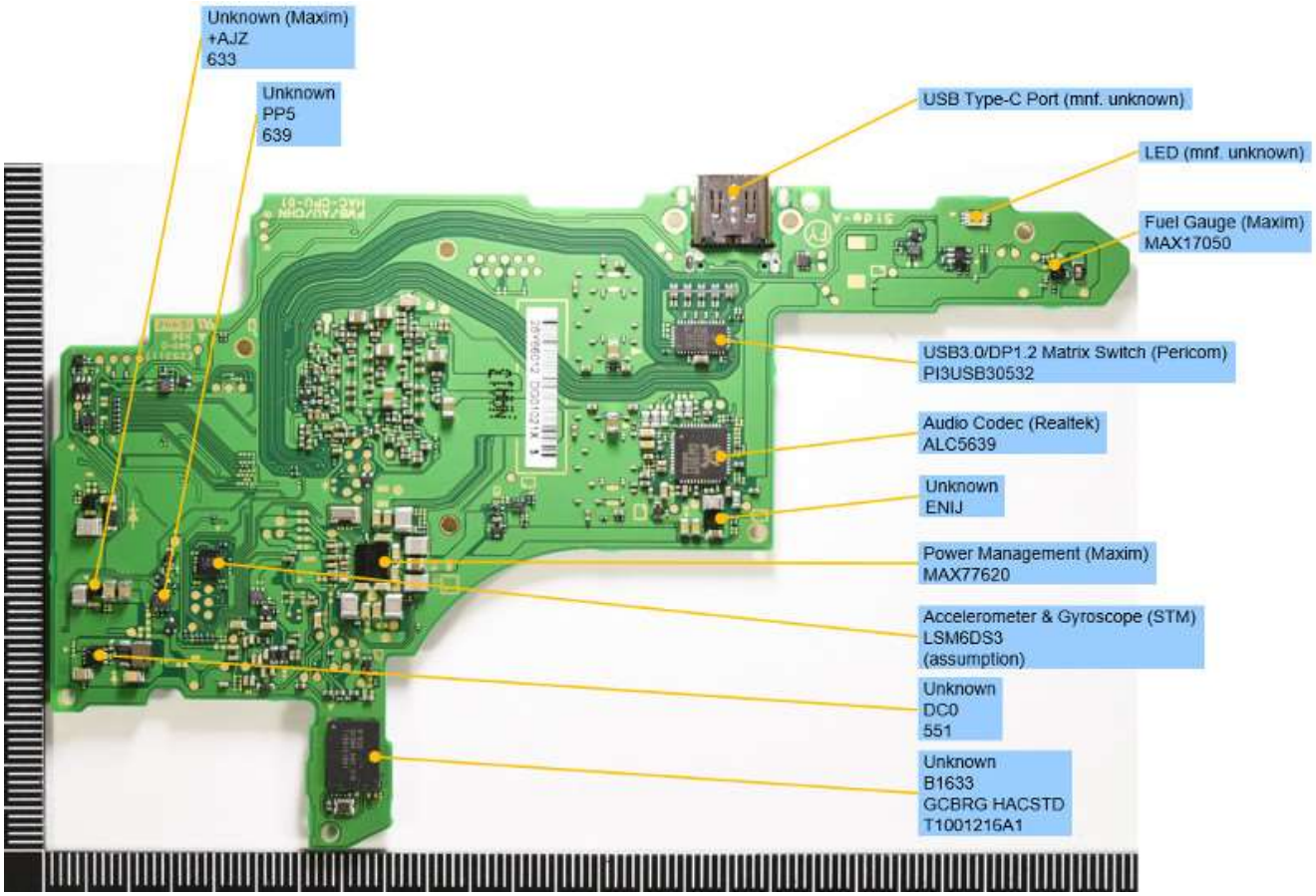
-

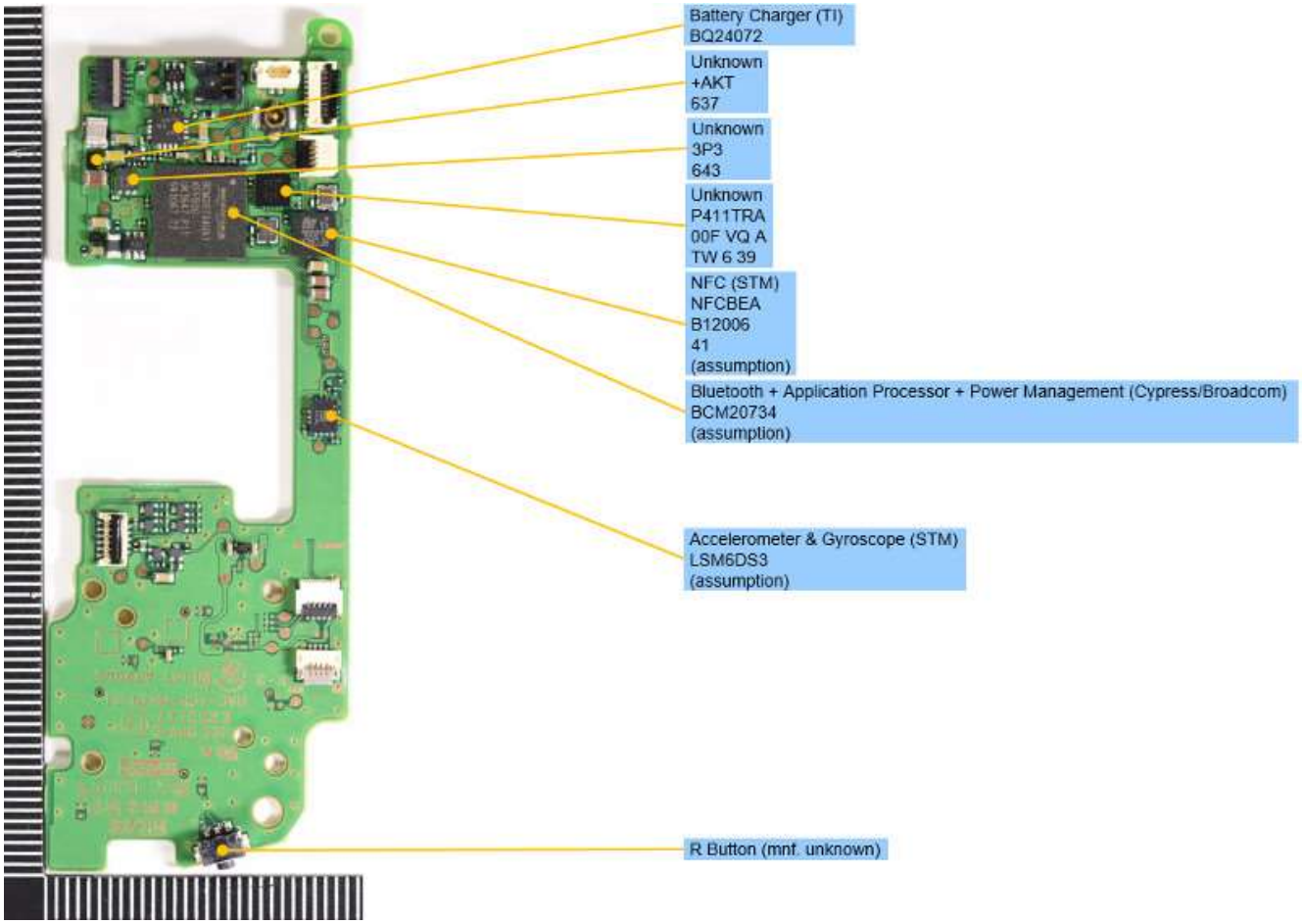


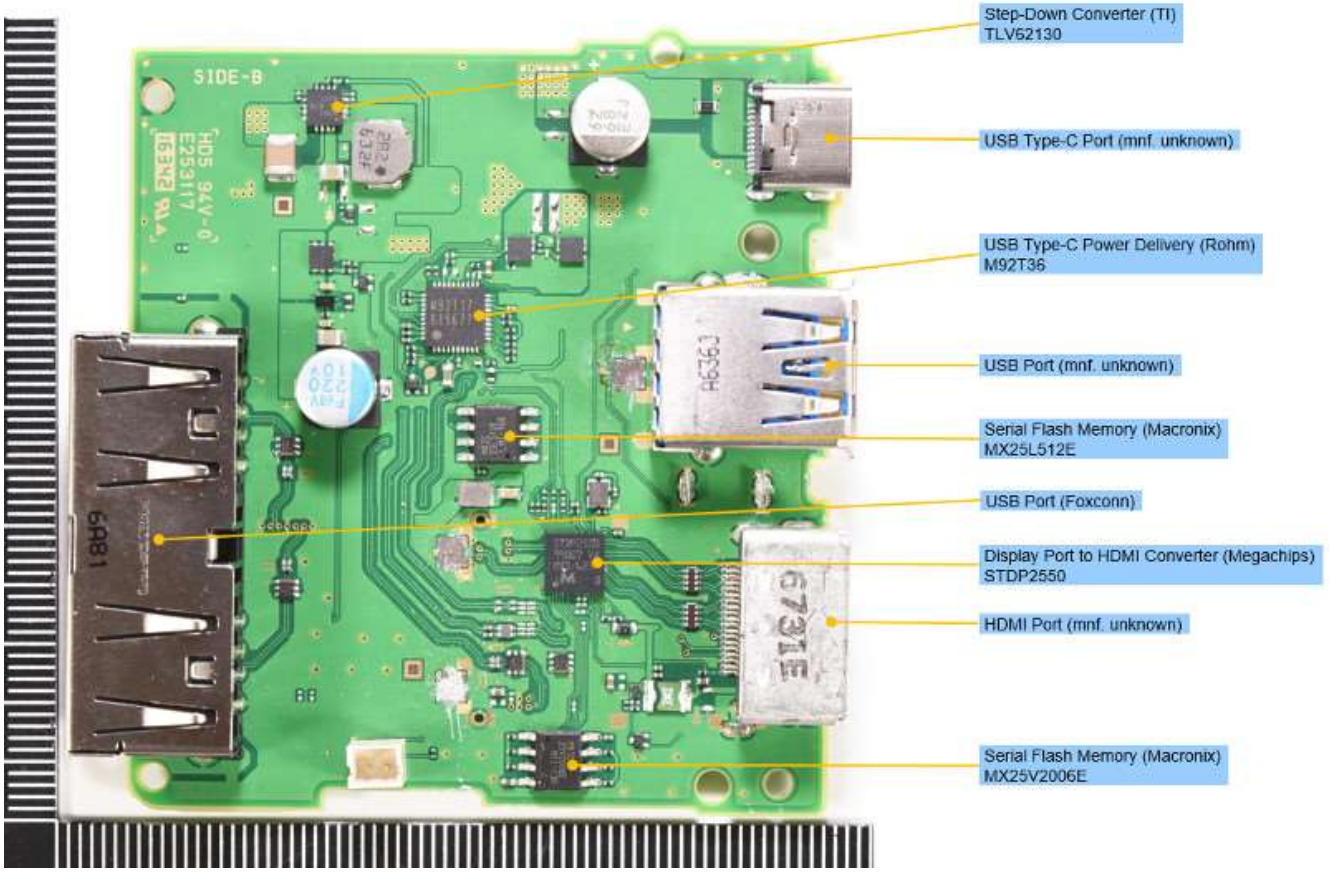
Notes: Layout may differ slightly between variant / board version

Bigger grey caps - all 1uF or 2.2 uF (10v ideally)
1 x 4.7uF on VCC-IN
3 x 10nF caps. 0201 in size.
All resistors - 100k 50mW 0201


Unknown
8316
6T59
WLAN + Bluetooth (Cypress/Cypress/Broadcom)
BCM4356
Temperature Sensor (TI)
TMP451
(assumption)
3 Phase Buck Regulator (Maxim)
MAX77621
Application Processor (NVIDIA)
ODNX02-A2
Unknown
PP5
636
USB Type-C Power Delivery (Rohm)
M92T36
DRAM (Samsung)
K4F6E304HB-MGCH
Battery Charger (TI)
BQ24193


Unknown (Maxim)
+AJZ
633
Unknown
PP5
639
USB Type-C Port (mnf. unknown)
LED (mnf. unknown)
Fuel Gauge (Maxim)
MAX17050
USB3.0/DP1.2 Matrix Switch (Pericom)
PI3USB30532
Audio Codec (Realtek)
ALC5639
Unknown
ENIJ
Power Management (Maxim)
MAX77620
Accelerometer & Gyroscope (STM)
LSM6DS3
(assumption)
Unknown
DC0
551
Unknown
B1633
GCBRG HACSTD
T1001216A1

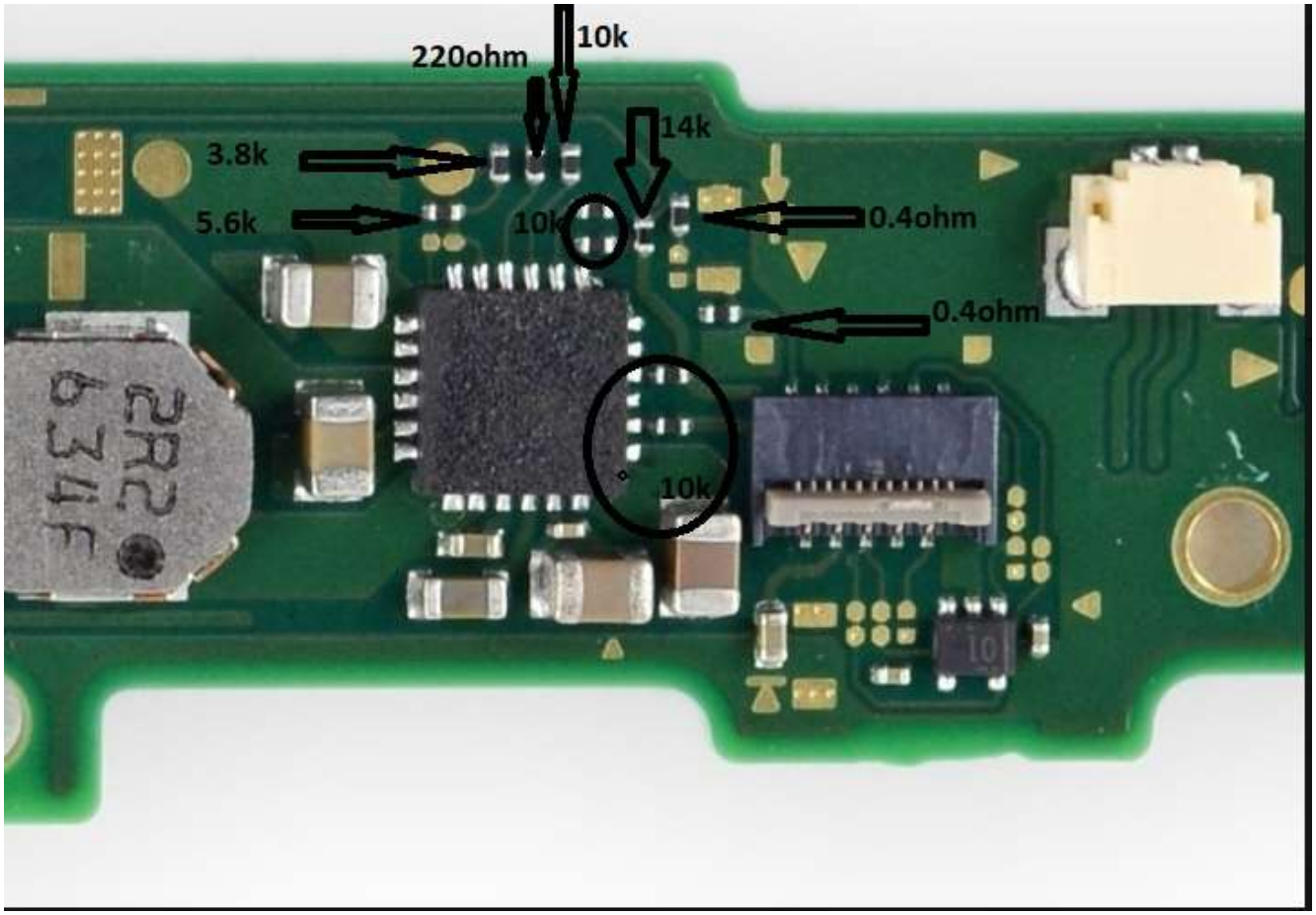

Battery Charger (TI)
BQ24072
Unknown
+AKT
637
Unknown
3P3
643
Unknown
P411TRA
00F VQ A
TW 6 39
NFC (STM)
NFCBEA
B12006
41
(assumption)
Bluetooth + Application Processor + Power Management (Cypress/Broadcom)
BCM20734
(assumption)
Accelerometer & Gyroscope (STM)
LSM6DS3
(assumption)
R Button (mnf. unknown)

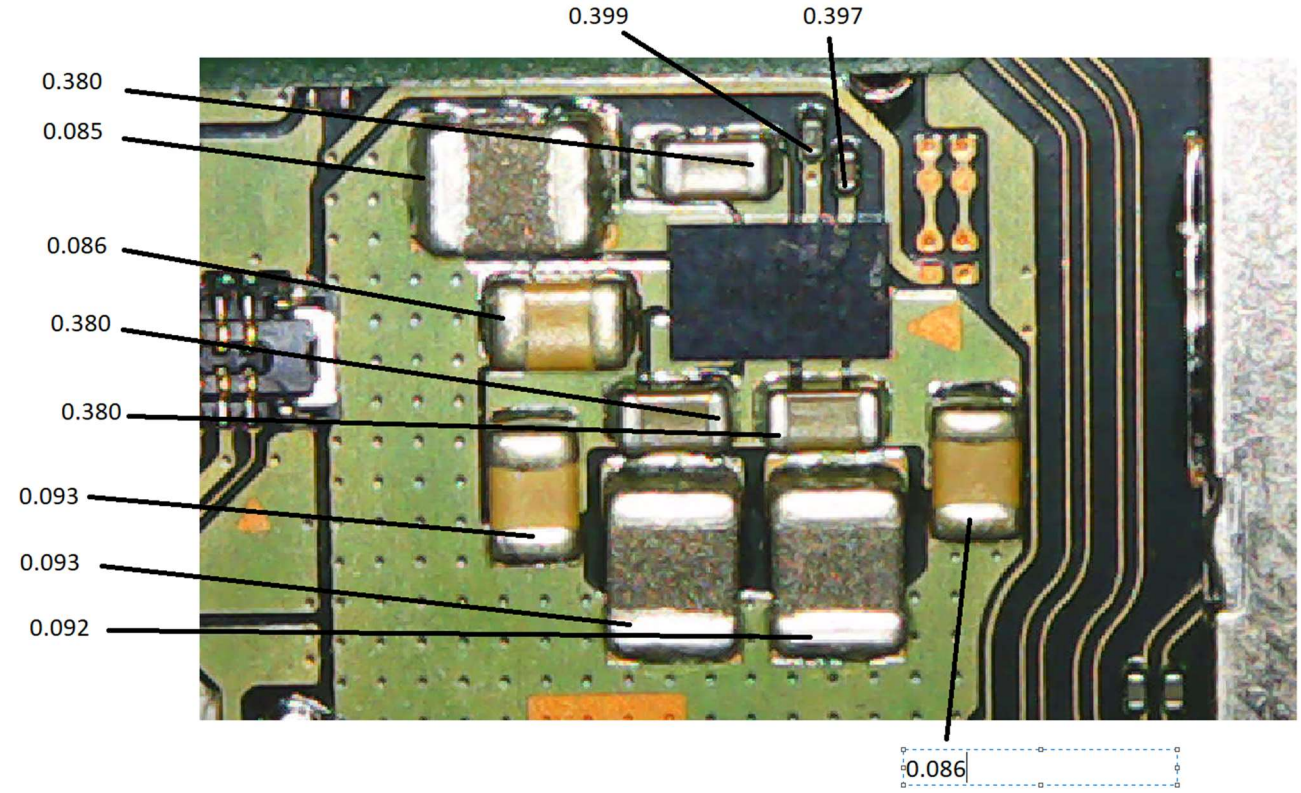

Step-Down Converter (TI)
TLV62130
USB Type-C Port (mnf. unknown)
USB Type-C Power Delivery (Rohm)
M92T36
USB Port (mnf. unknown)
Serial Flash Memory (Macronix)
MX25L512E
USB Port (Foxconn)
Display Port to HDMI Converter (Megachips)
STDP2550
HDMI Port (mnf. unknown)
Serial Flash Memory (Macronix)
MX25V2006E
SIDE-B

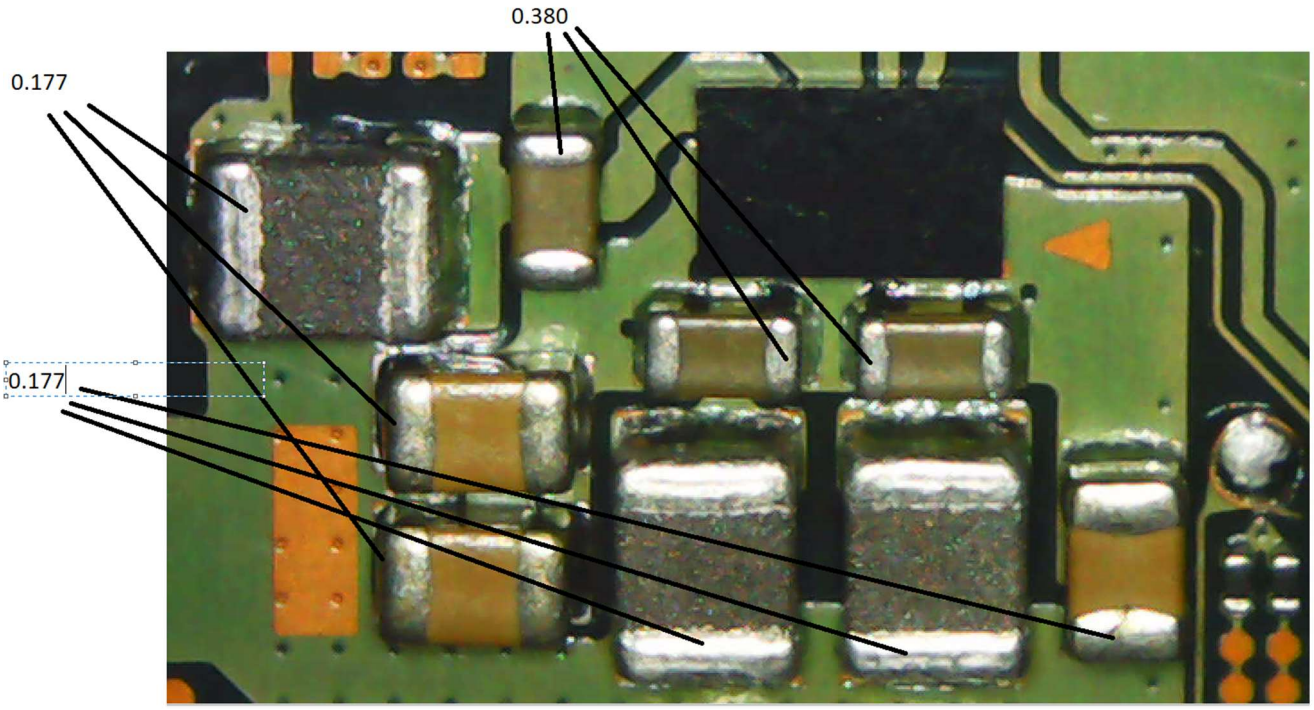
Attention the values in the picture are measured in circuit,
can only be used for comparison of the values on board, so must by removed and tested again.

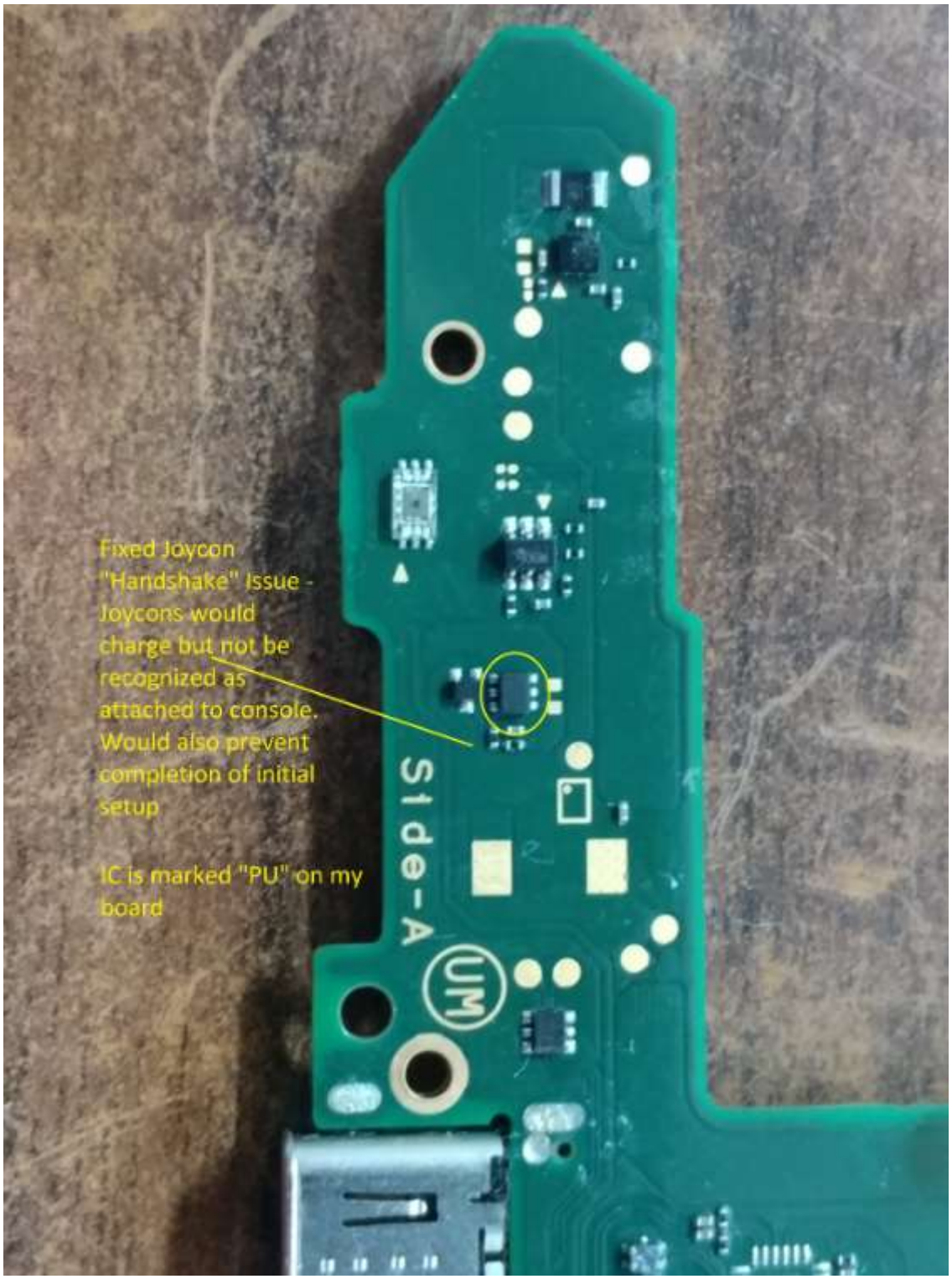
For example if you replace the 5.6kohm resistor with 10k ,bq 24193 will not charge the battery because the temp set for charghing will bee out of range.

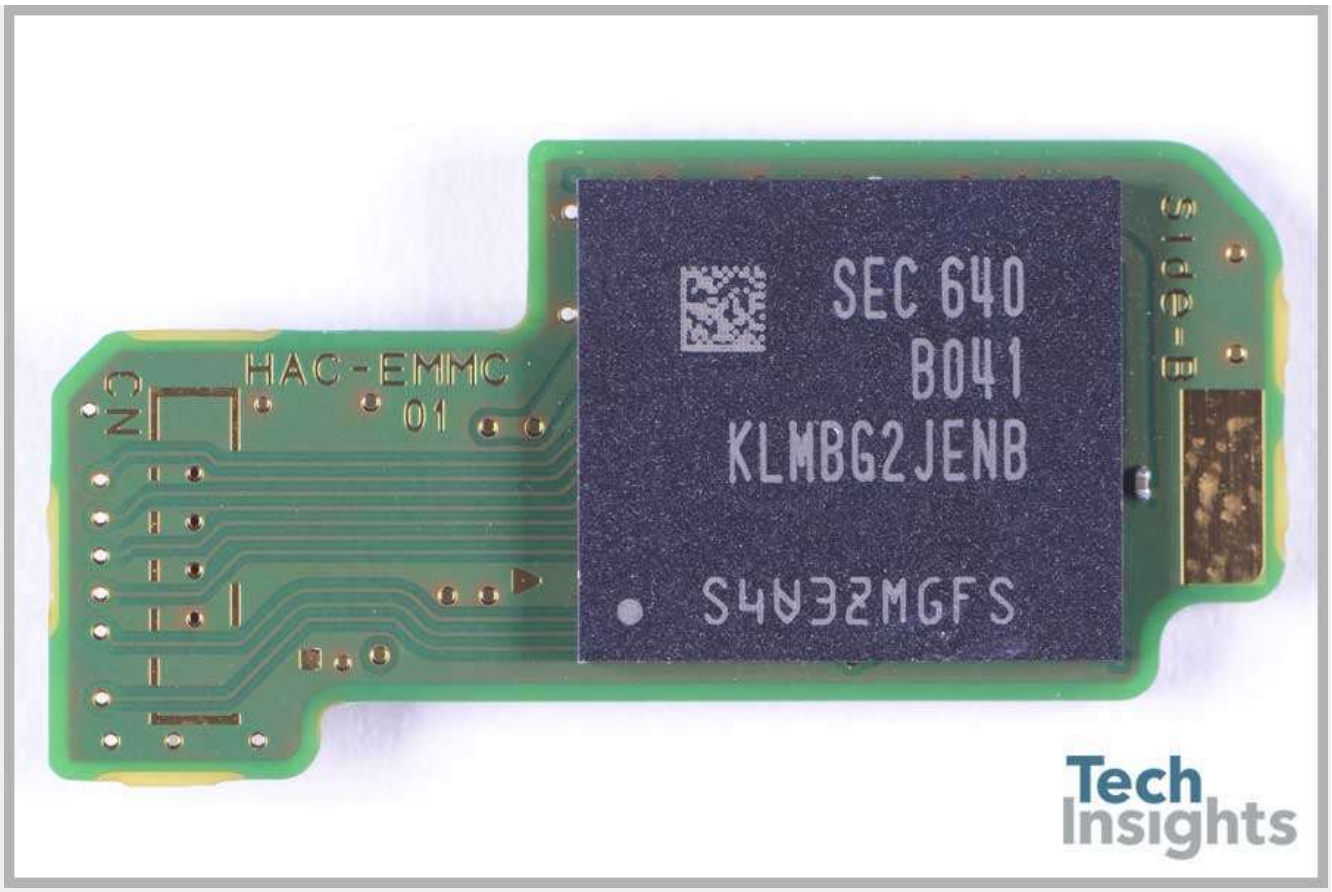
So the 3.8 k and 5.6 k values are critical and its used to set the charghing related to temperature of the battery. (bq 24193 tipical aplication recommend 2.2 k and 6.86k for ts1 and ts2 pins)



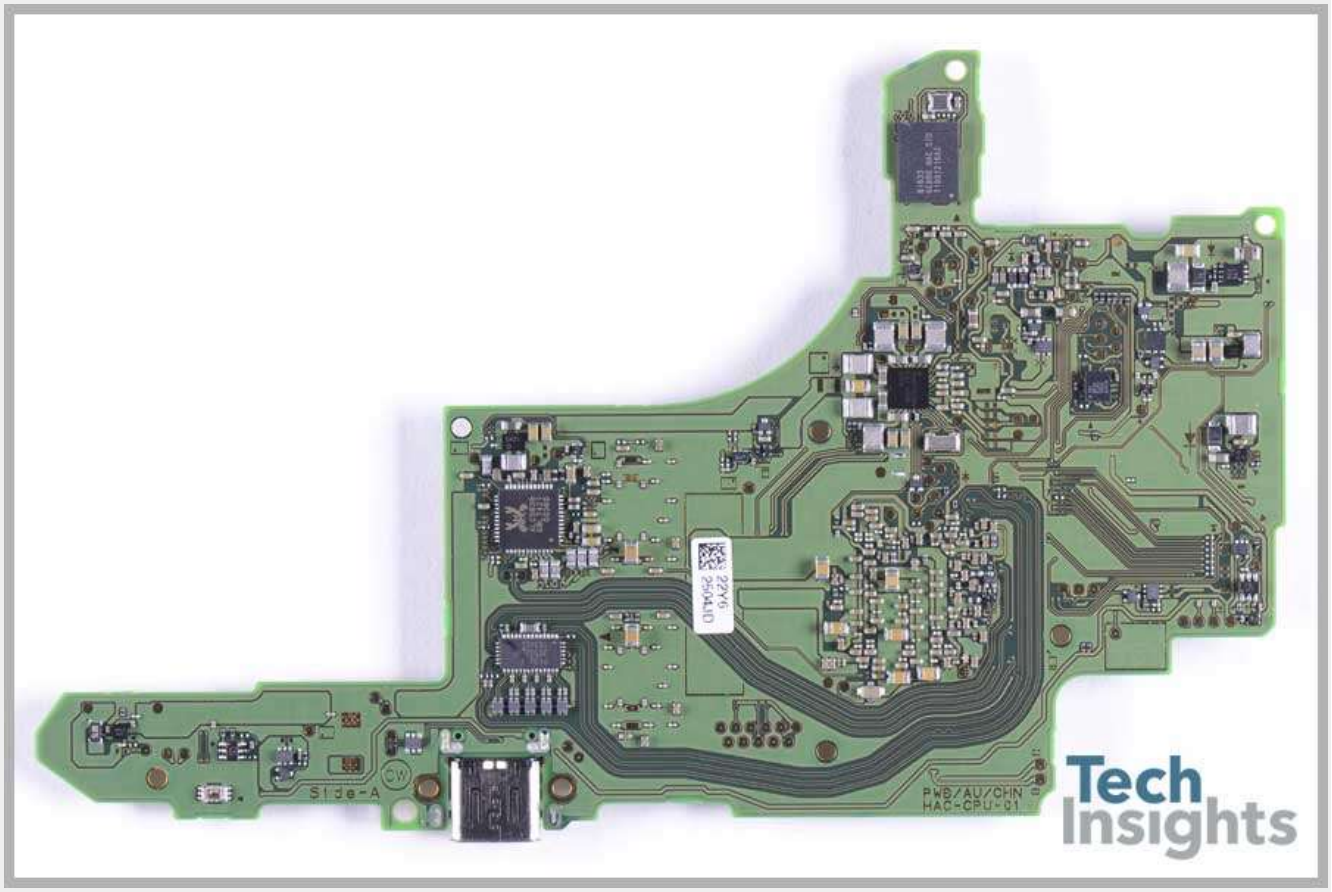

0.399
0.397
0.380
0.085
0.086
0.380
0.380
0.093
0.093
0.092
0.086


0.380
0.177
0.177


Fixed Joycon "Handshake" Issue - Joycons would charge but not be recognized as attached to console. Would also prevent completion of initial setup
IC is marked "PU" on my board
Side-A



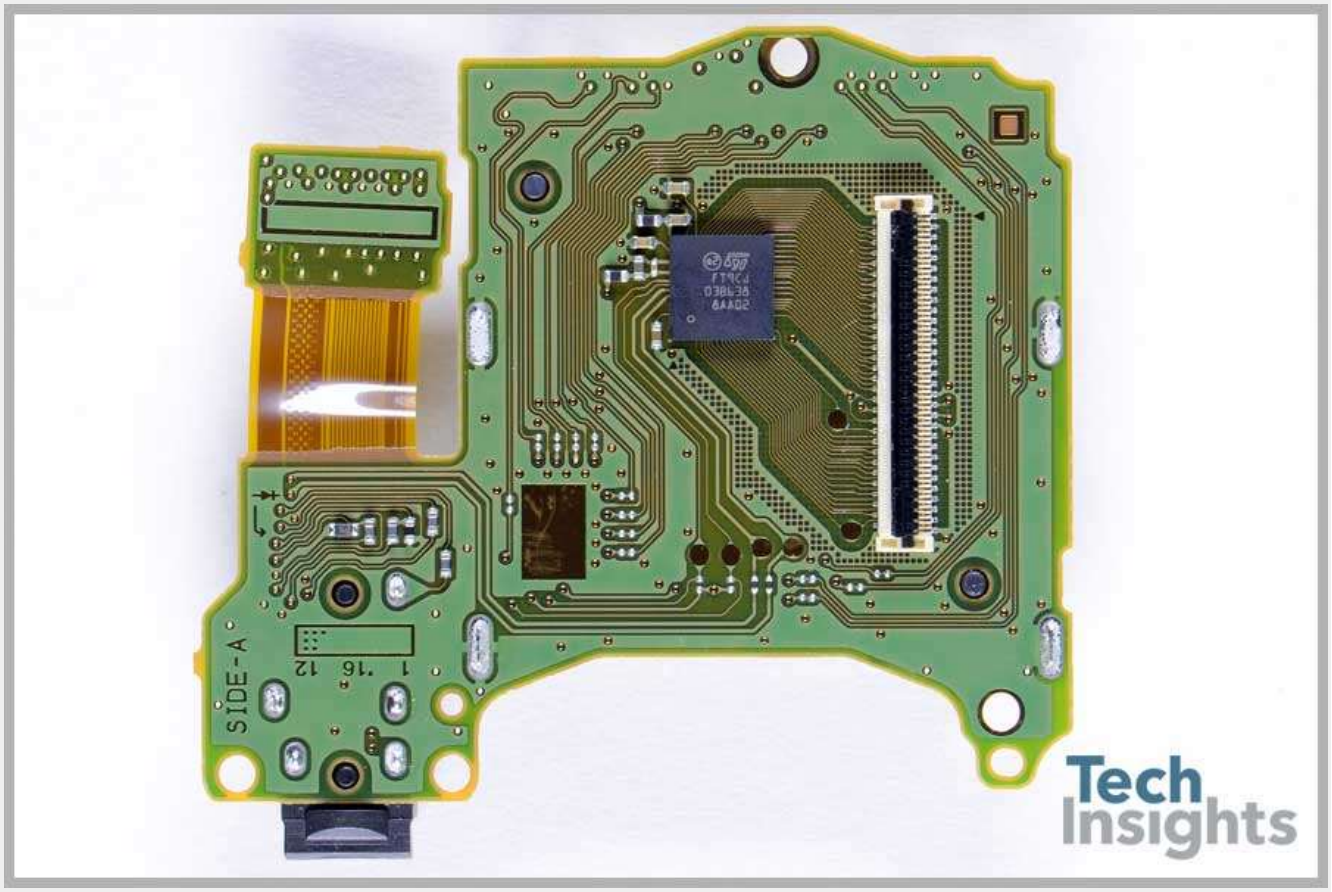
Samsung KLMBG2JENB 32 GB eMMC



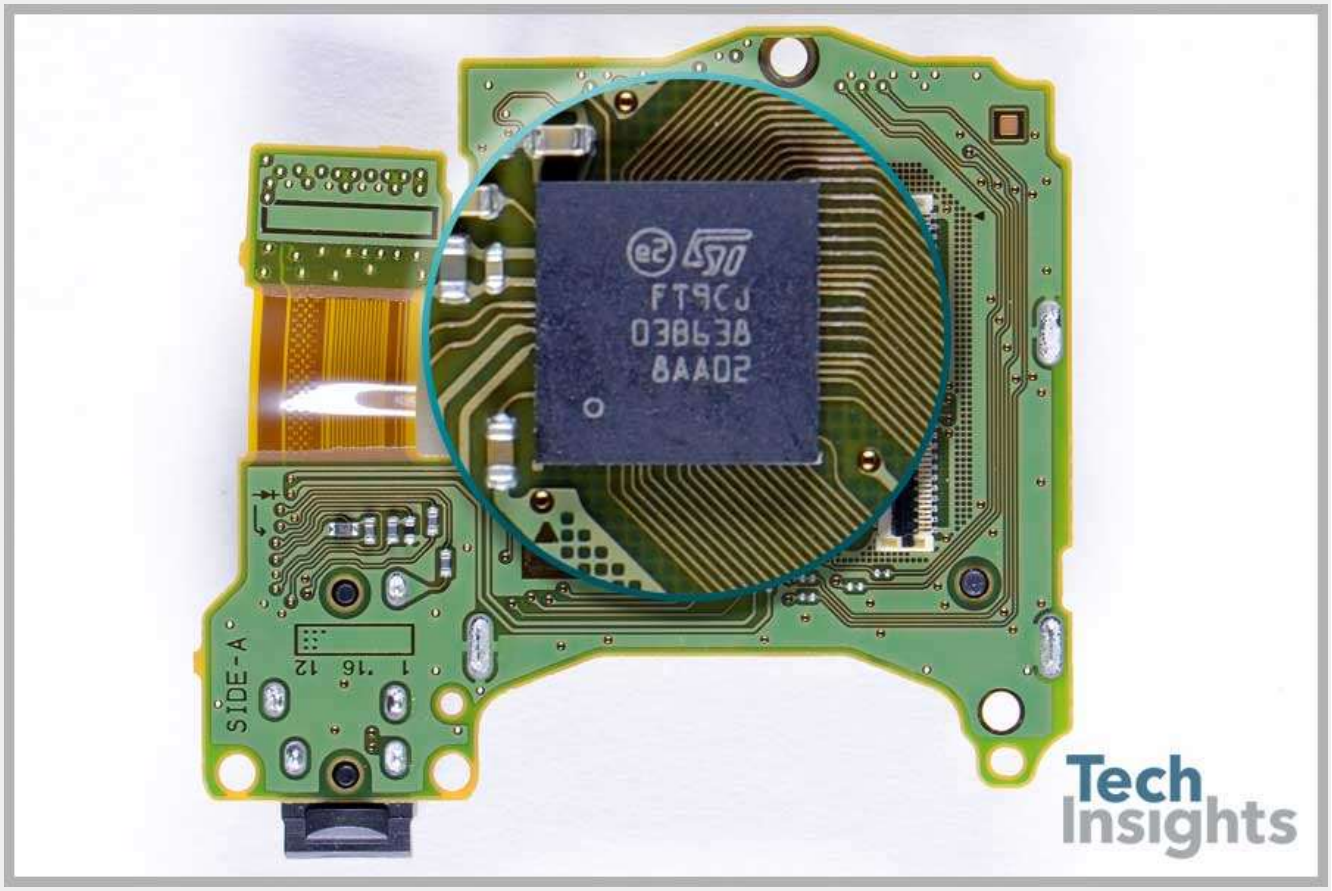
PCB Reverse Side

On a separate storage board was a Samsung KLMBG2JENB 32 GB eMMC. Interestingly, iFixit found a Toshiba THGBMHG8C2LBAIL 32 GB eMMC NAND Flash IC here. Does this independent storage board indicate plans for a future model update with expanded storage, as some have speculated, or is it simply to accommodate these variations in memory manufacturers?

The reverse side of the PCB included a Maxim MAX77621 DC/DC converter, a Realtek ALC5639 audio codec, and a Pericom PI3USB30532 USB 3.0/DP1.2 3:2 matrix switch.



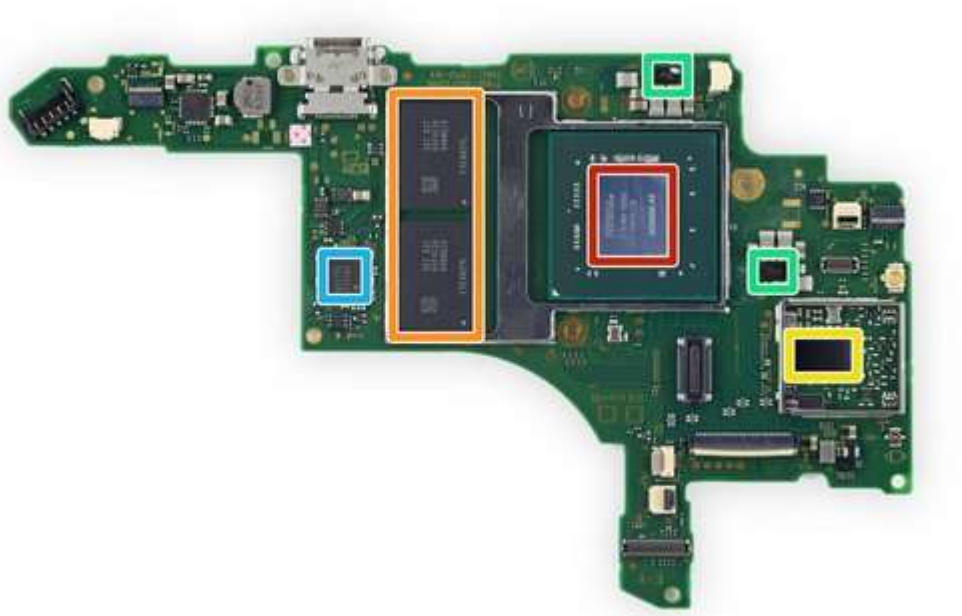
STMicroelectronics FT9CJ touchscreen controller on board



STMicroelectronics FT9CJ touchscreen controller

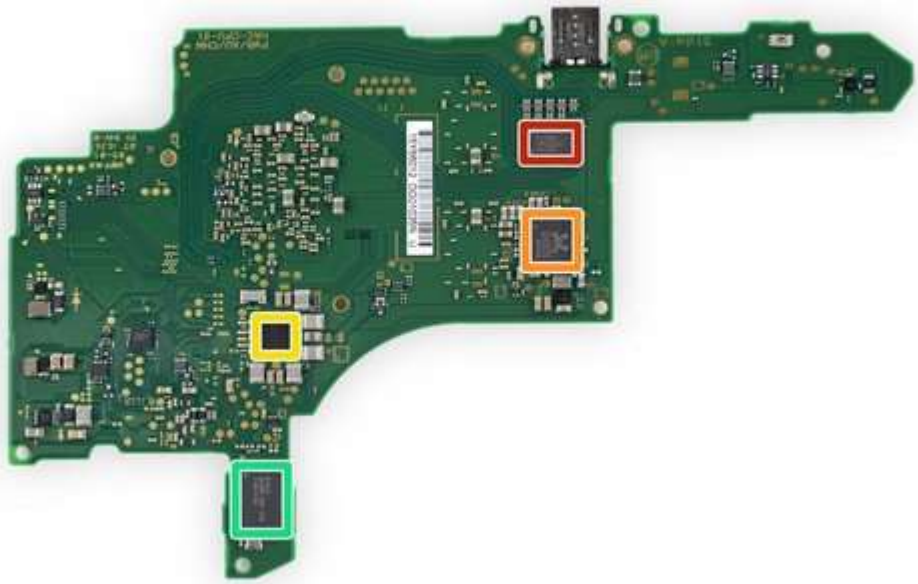
Also on a separate display board, we found the STMicroelectronics FT9CJ touchscreen controller. The FT9CJ is from the STM FingerTip multi-touch ultra-low power touchscreen controller product line.

Based upon observations of the pinout and the flex connector, this touch solution may have up to 60 channels. This device is not on the STMicroelectronics website and must clearly be a unique design by STM for Nintendo. STMicroelectronics has had great success with their touchscreen solutions in the mobile phone industry. In fact, they are branching out even further into automotive and industrial as described in this recent article.



A small gathering of ~~Miis~~ ICs populates the front side of the motherboard:

- NVIDIA ODNX02-A2 (presumably the Tegra X1-based SoC)
- Samsung K4F6E304HB-MGCH 2 GB LPDDR4 DRAM (x2 for a total of 4 GB)
- Broadcom/Cypress BCM4356 802.11ac 2×2 + Bluetooth 4.1 SoC
- Maxim Integrated MAX77621AEWI+T three phase buck regulator (x2)
- M92T36 630380 Power management IC



And on the back of the motherboard:

- Pericom Semiconductor PI3USB30532 USB 3.0/DP1.2 matrix switch
- Realtek ALC5639 audio codec
- Maxim Integrated MAX77620AEWJ+T PMIC
- B1633 GCBRG H