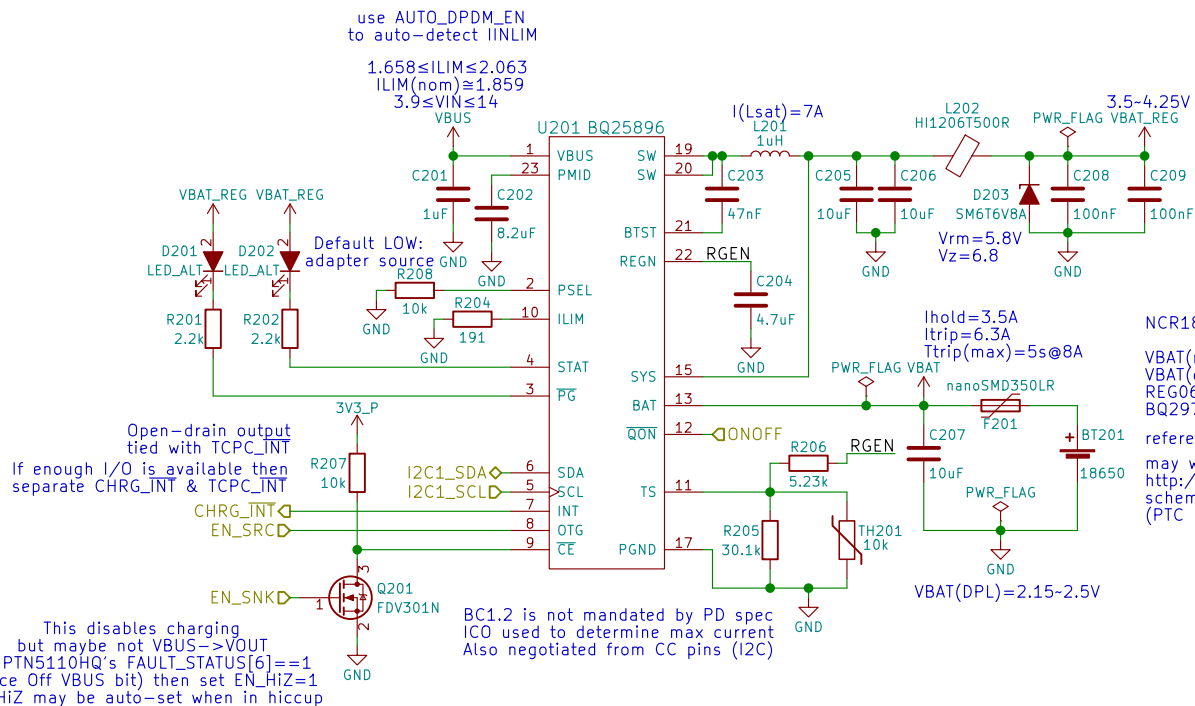


(interpret RSOC% based on this plot)



NCR18650BD is recommended

VBAT(nom)=REG06[7:2]
 VBAT(default_max_ovp)=(REG06[7:2]×1.005)×1.04=4.3982016V
 REG06[7:2]=010111⇒VBAT(max_ovp)=4.3814784
 BQ29705 provides 4.425V as OVP!!!

reference design: <http://www.ti.com/lit/ug/sluuba2b/sluuba2b.pdf>
 may want to include BQ29705 protection as in:
<http://www.ti.com/lit/ug/tiduc11/tiduc11.pdf>
 schematic: <http://www.ti.com/lit/df/tidrp70/tidrp70.pdf>
 (PTC may be good enough)

Reading PTN5110HQ's CC_STATUS and POWER_STATUS registers will tell TCPM (i.MX8M) when to set EN_HiZ

Also, reading PTN5110HQ's CC_STATUS and POWER_STATUS registers will tell TCPM (i.MX8M) when to set OTG_CONFIG=1 (this will also happen when PTN5110HQ sets EN_SRC HIGH)

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Purism SPC

Sheet: /Battery/

File: battery.sch

Title: Battery

Size: A4 Date: 2018-05-02

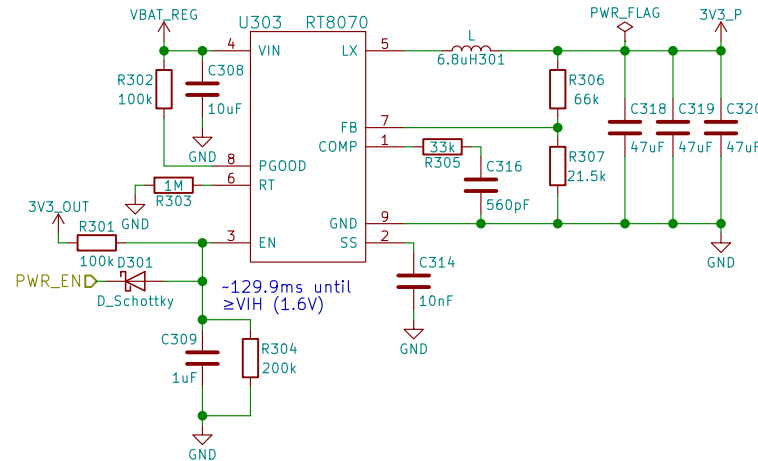
KiCad E.D.A. kicad 4.0.6

Rev: v0.1.0

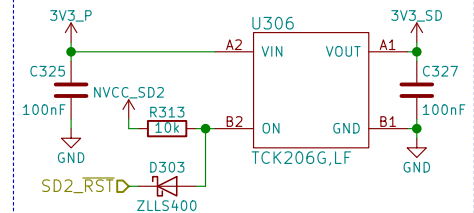
Id: 2/16

3.3V/3A

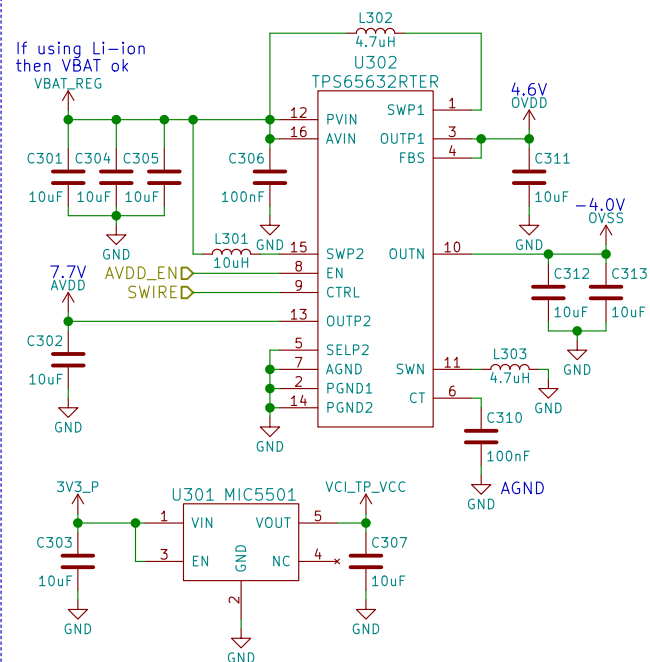
When VBAT can fall below 3.3V use TPS63020 instead!



SD POWER

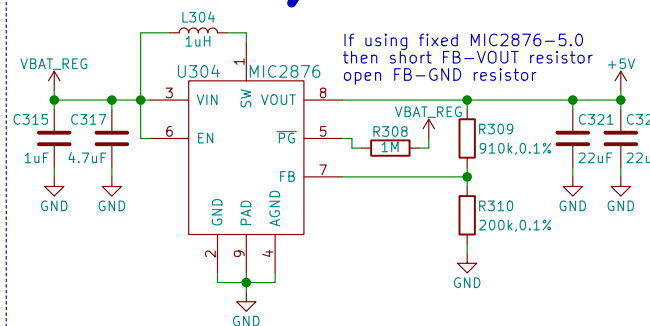


AMOLED POWER



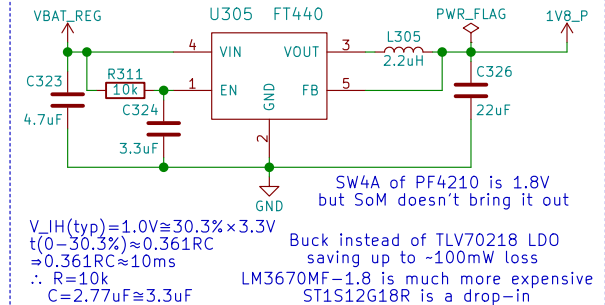
5.0V/3.8A

If using fixed MIC2876-5.0 then short FB-VOUT resistor open FB-GND resistor



Cheaper, more efficient, smaller, and simpler than RT6150A
Explicitly mentions USB/smartphone application

1.8V/600mA



SW4A of PF4210 is 1.8V but SoM doesn't bring it out
Buck instead of TLV70218 LDO saving up to ~100mW loss
LM3670MF-1.8 is much more expensive
ST1S12G18R is a drop-in

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Purism SPC

Sheet: /Power/
File: power.sch

Title: Power

Size: A4 Date: 2018-05-02

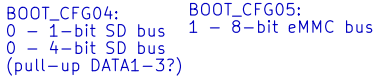
KiCad E.D.A. kicad 4.0.6

Rev: v0.1.0

Id: 3/16

BOOT_CFG[14:12]	Boot device
001	SD/eSD
010	MMC/eMMC
011	NAND

Fuse	Config	Definition	GPIO ¹	Shipped value	Settings
BOOT_CFG[11:10]	OEM	USDHC port selection	Yes	00	00 - USDHC-1 01 - USDHC-2 10 - USDHC-3 else - reserved



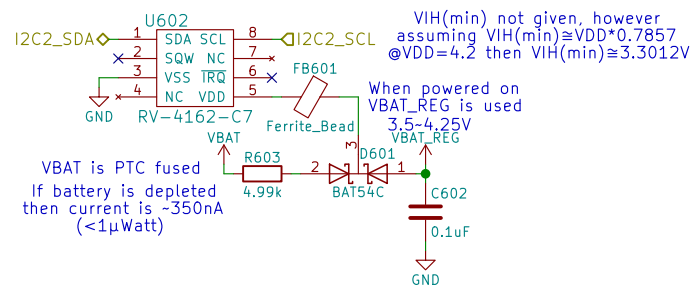
BOOT_MODE[1:0]	Boot Type
00	Boot From Fuses
01	Serial Downloader
10	Internal Boot
11	Reserved

Purism SPC

Title: Boot Configuration

Rev: v0.1.0

Id: 4/16



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Purism SPC

Sheet: /RTC Battery/
File: rtc.sch

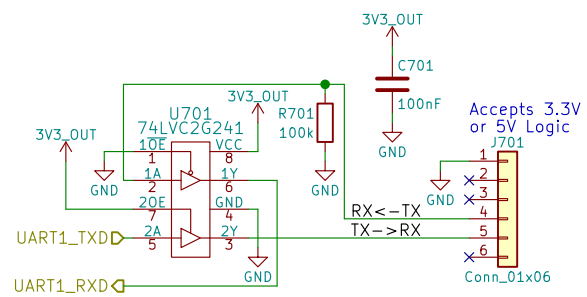
Title: RTC Battery

Size: A4 Date: 2018-05-02

KiCad E.D.A. kicad 4.0.6

Rev: v0.1.0

Id: 5/16



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Purism SPC

Sheet: /UART Debug/
File: uart.sch

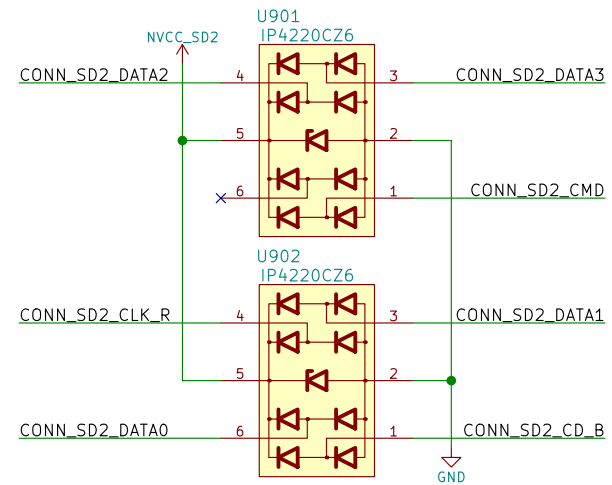
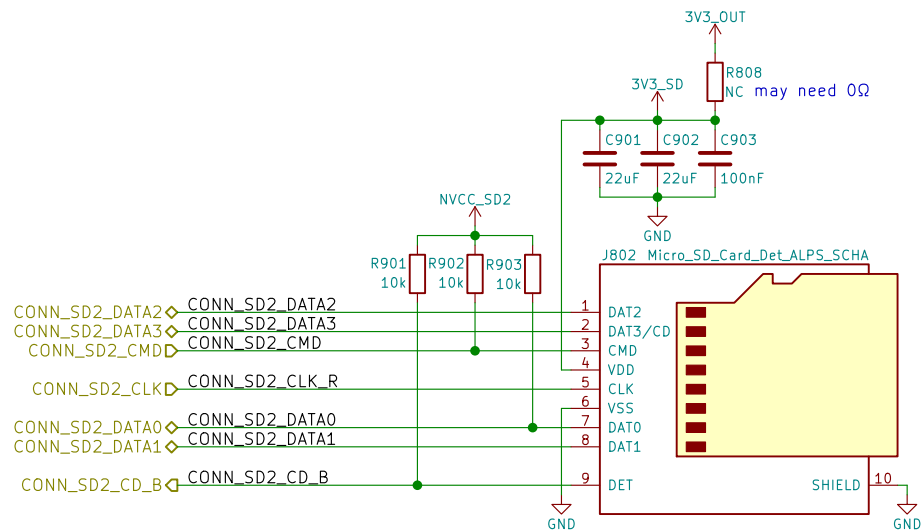
Title: UART Debug

Size: A4 Date: 2018-05-02

KiCad E.D.A. kicad 4.0.6

Rev: v0.1.0

Id: 6/16



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Purism SPC

Sheet: /uSD Card/

File: sd.sch

Title: uSD Card

Size: A4 Date: 2018-05-02

KiCad E.D.A. kicad 4.0.6

Rev: v0.1.0

Id: 8/16

USB-C Config Channel (CC) and PD Role Controller

8.1.1 vs 8.1.4 ?

fast role swap is optional (good!)
PTN5110 8.1.4 leaves it floating (good!)



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Purism SPC

Sheet: /USB-C/

File: usb-csch

Title: USB Type C

Size: A3

KiCad E

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466
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Date: 2018-05-02

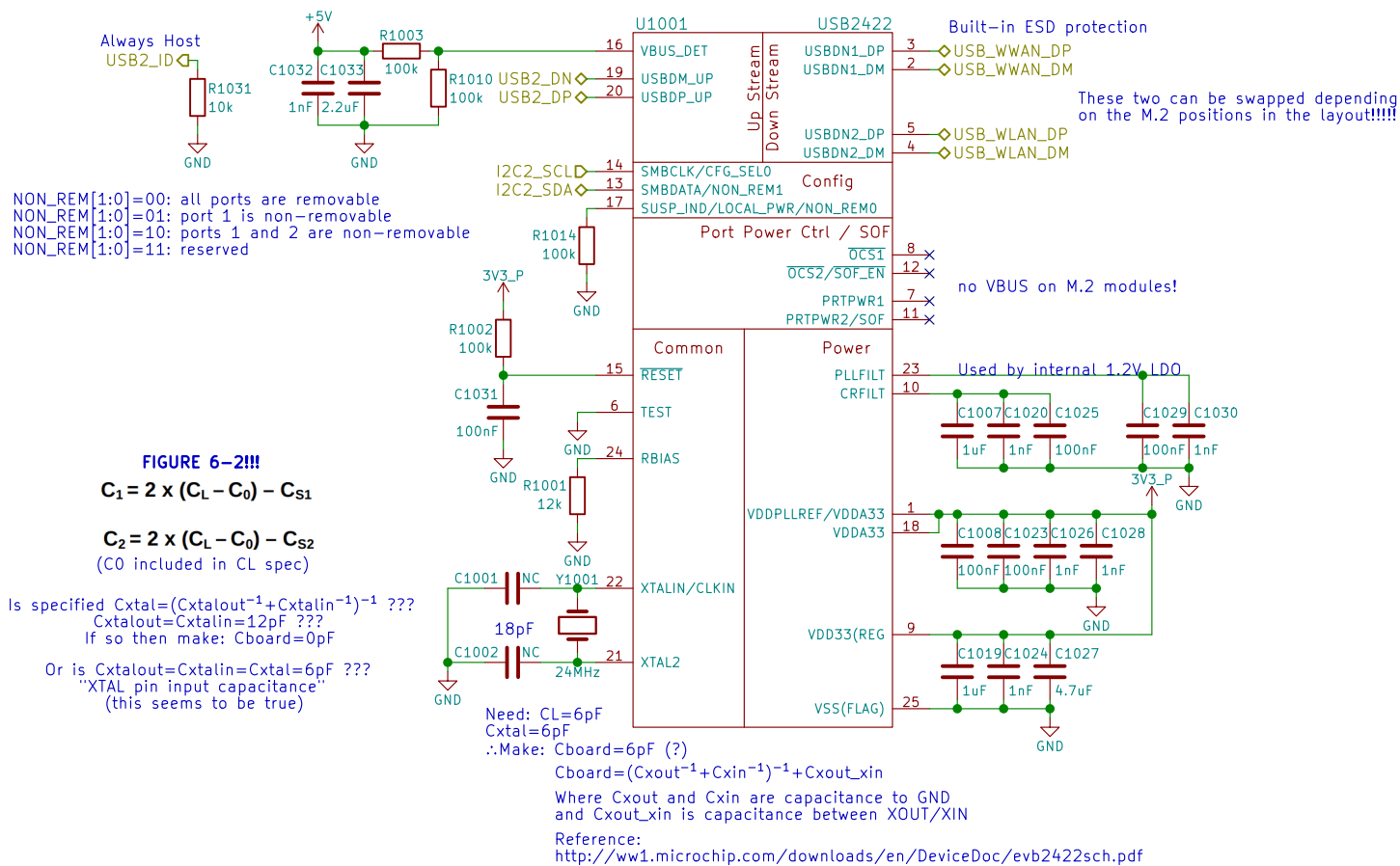
406

1.0.0

Rev: v0.1.0

Id. 9/16

10/10



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Sheet: /USB Hub/

File: usb_hub.sch

Title:

Size: A4

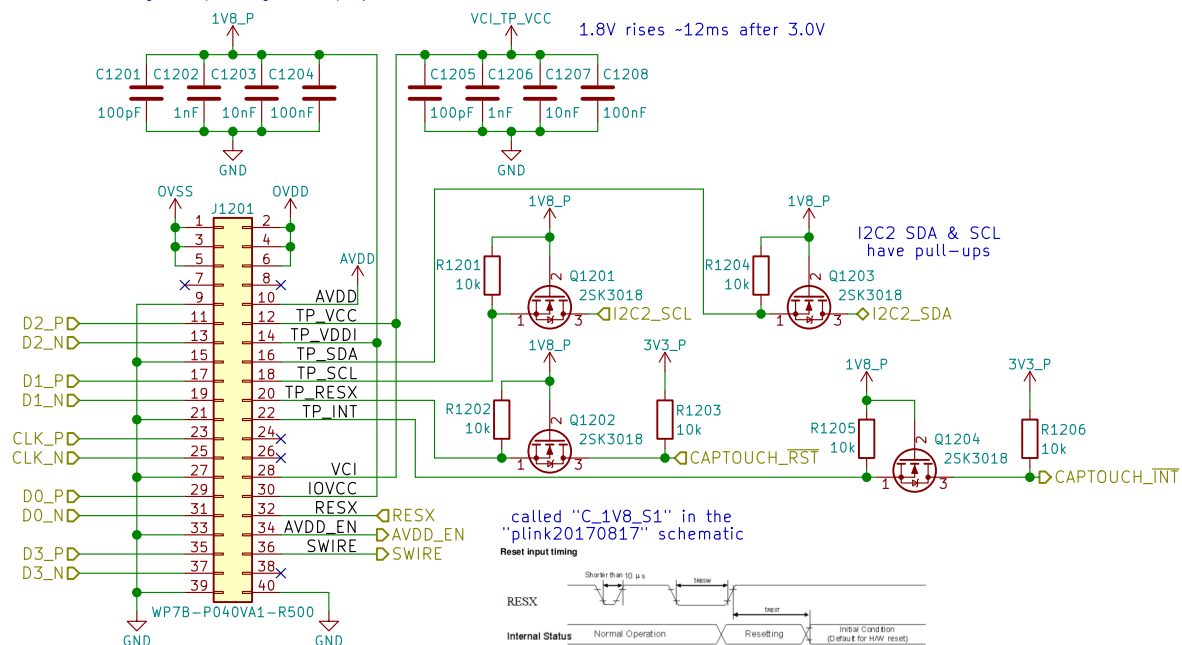
Date: 2018-05-02

Rev: v0.1.0

KiCad E.D.A. kicad 4.0.6

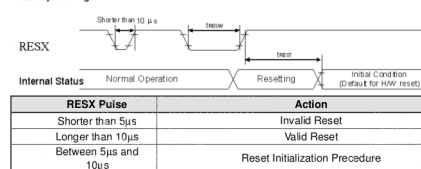
Id: 10/16

Using H546DLB01.1 pin assignment may need to be changed depending on display used



called "C_1V8_S1" in the "plink20170817" schematic

Reset input timing



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Sheet: /MIPI DSI/
File: mipi_dsi.sch

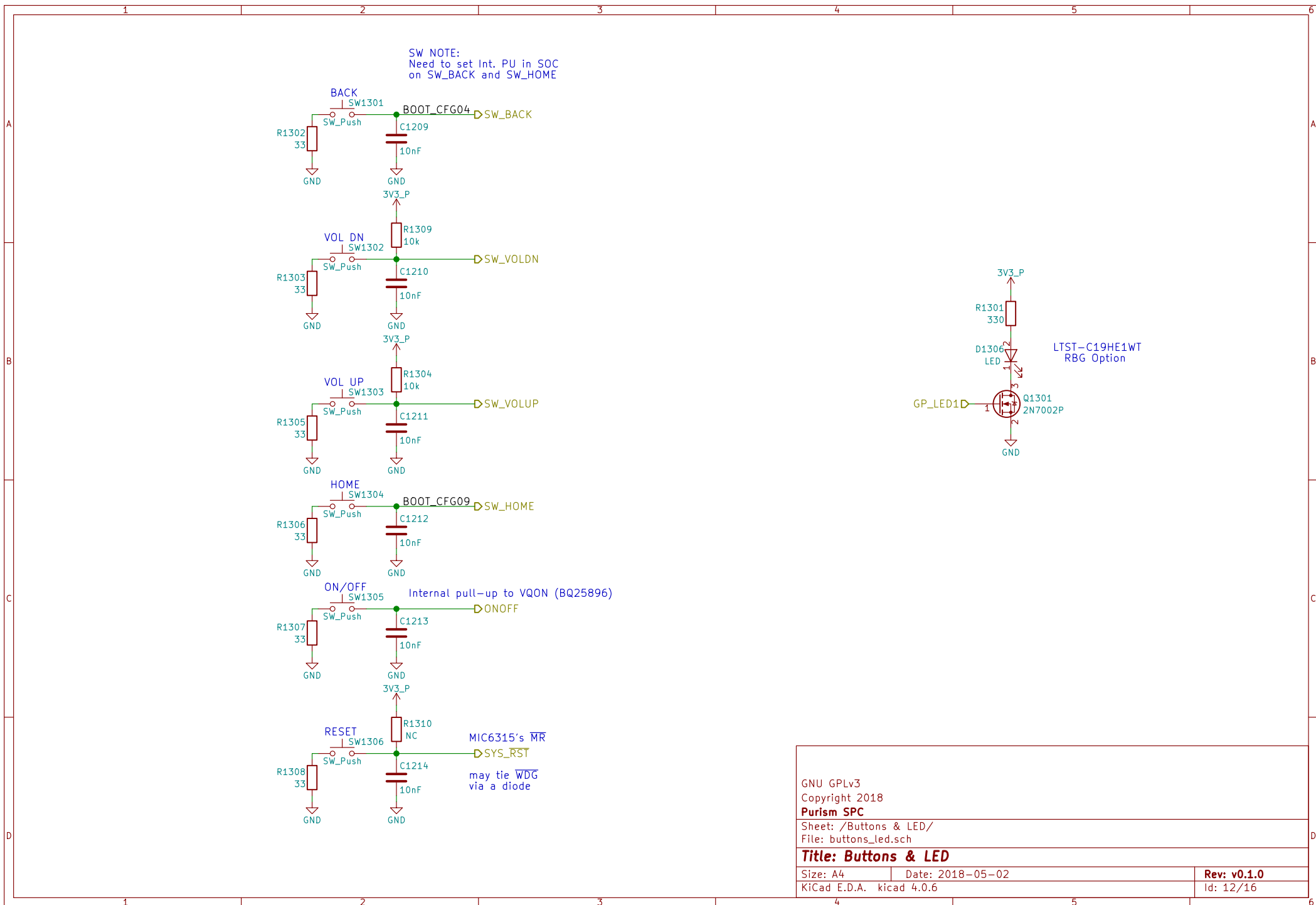
Title: MIPI DSI

Size: A4 Date: 2018-05-02

KiCad E.D.A. kicad 4.0.6

Rev: v0.1.0

Id: 11/16



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Sheet: /Buttons & LED/
File: buttons_led.sch

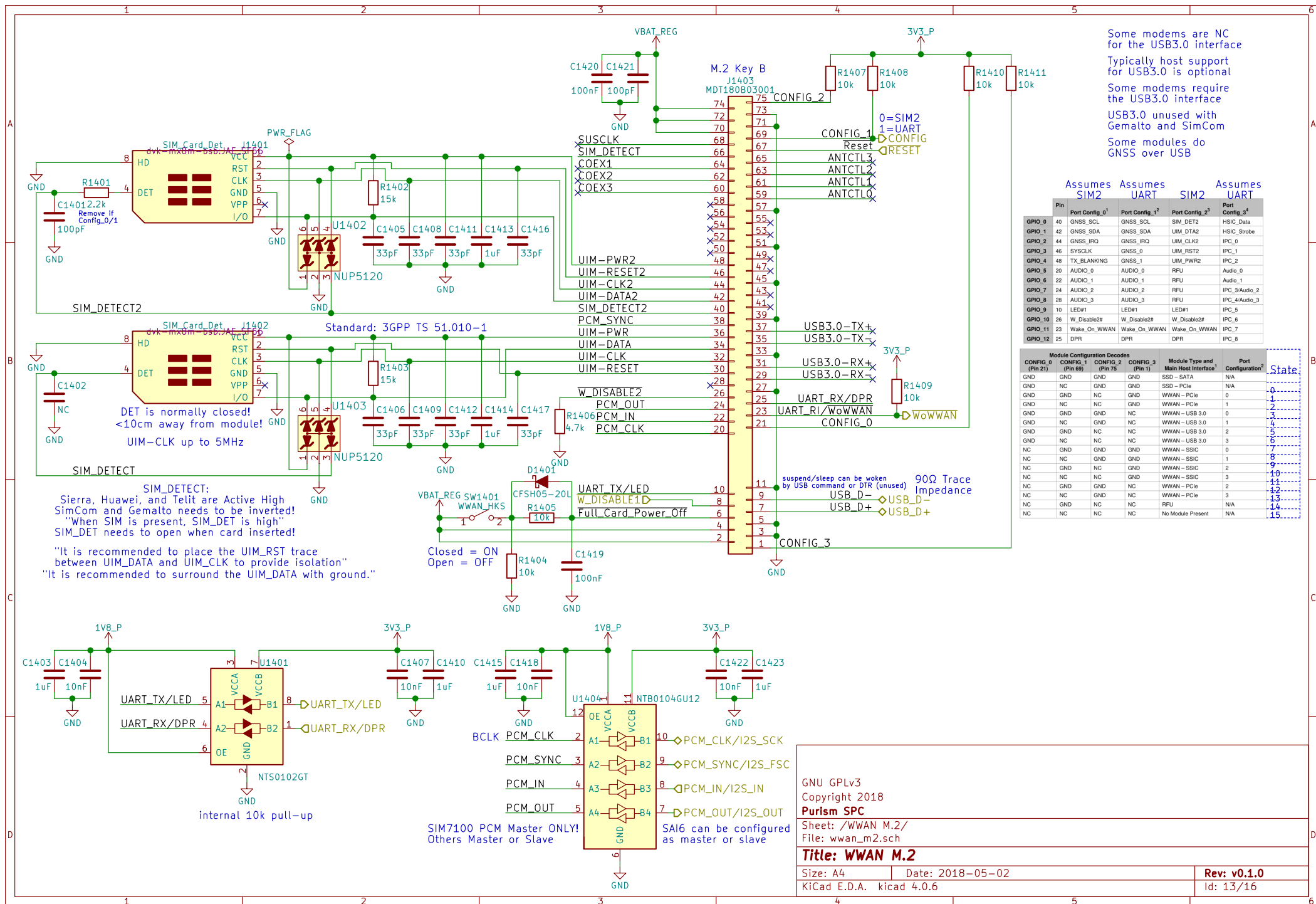
Title: Buttons & LED

Size: A4 Date: 2018-05-02

KiCad E.D.A. kicad 4.0.6

Rev: v0.1.0

Id: 12/16

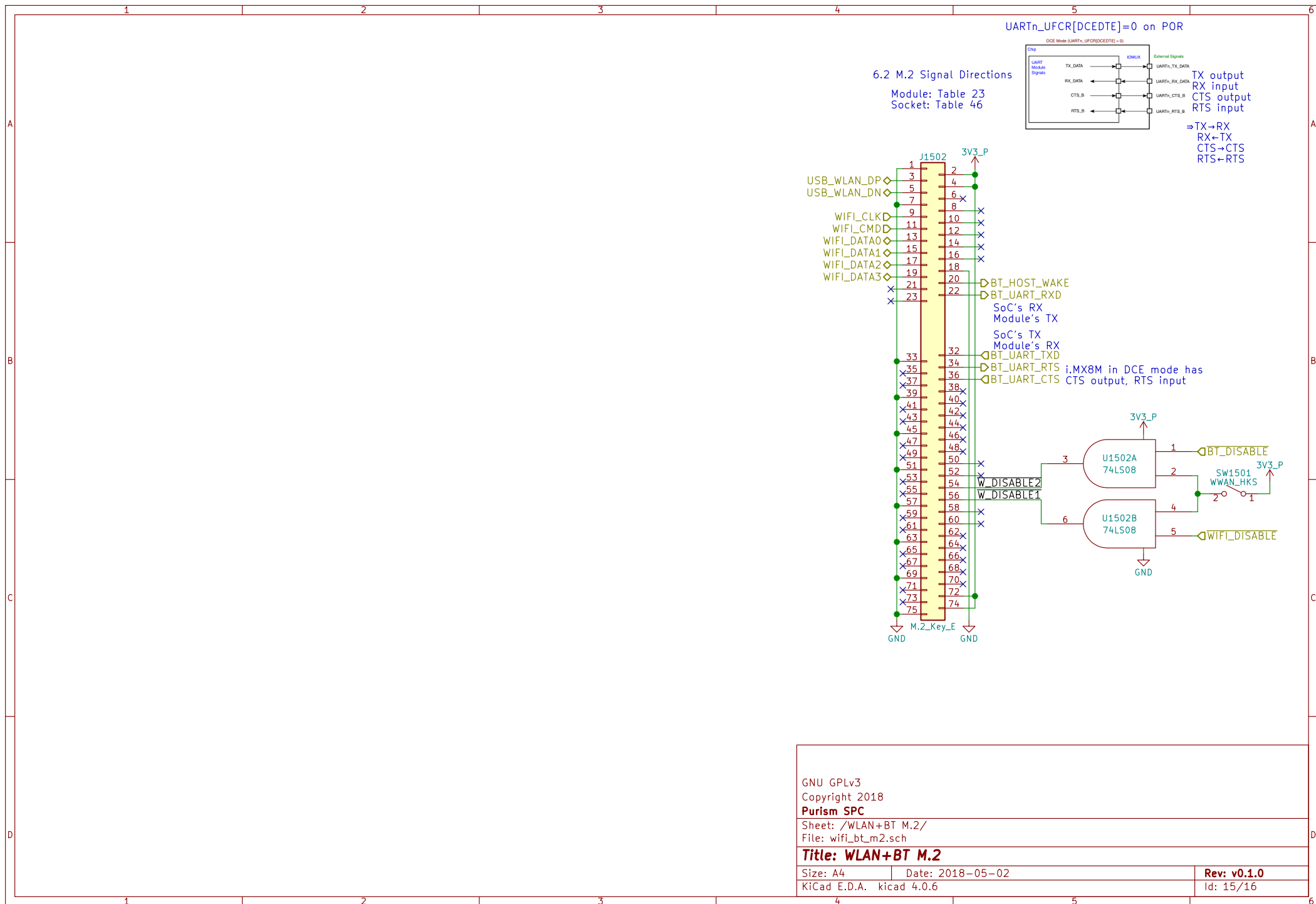


Some modems are NC for the USB3.0 interface
Typically host support for USB3.0 is optional
Some modems require the USB3.0 interface
USB3.0 unused with Gemalto and SimCom
Some modules do GNSS over USB

		Assumes SIM2	Assumes UART	Assumes SIM2	Assumes UART
Pin		Port Config. 0 ¹	Port Config. 1 ²	Port Config. 2 ³	Port Config. 3 ⁴
GPIO_0	40	GNSS_SCL	GNSS_SCL	SIM_DET2	HSIC_Data
GPIO_1	42	GNSS_SDA	GNSS_SDA	UIM_DTA2	HSIC_Strobe
GPIO_2	44	GNSS_IRQ	GNSS_IRQ	UIM_CLK2	IPC_0
GPIO_3	46	SYSClk	GNSS_0	UIM_RST2	IPC_1
GPIO_4	48	TX_BLANKING	GNSS_1	UIM_PWR2	IPC_2
GPIO_5	20	AUDIO_0	AUDIO_0	RFU	Audio_0
GPIO_6	22	AUDIO_1	AUDIO_1	RFU	Audio_1
GPIO_7	24	AUDIO_2	AUDIO_2	RFU	IPC_3/Audio_2
GPIO_8	28	AUDIO_3	AUDIO_3	RFU	IPC_4/Audio_3
GPIO_9	10	LED#1	LED#1	LED#1	IPC_5
GPIO_10	26	W_Disable2#	W_Disable2#	W_Disable2#	IPC_6
GPIO_11	23	Wake_On_WWAN	Wake_On_WWAN	Wake_On_WWAN	IPC_7
GPIO_12	25	DPR	DPR	DPR	IPC_8

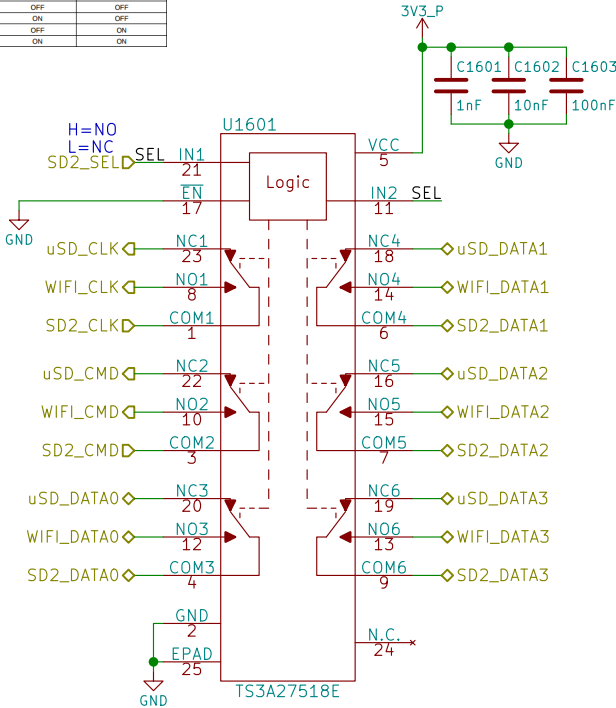
		Module Configuration Decodes	Module Type and Main Host Interface ¹	Port Configuration ²	State
CONFIG_0 (Pin 21)	CONFIG_1 (Pin 69)	CONFIG_2 (Pin 75)	CONFIG_3 (Pin 1)		
GND	GND	GND	GND	SSD - SATA	N/A
GND	NC	GND	GND	SSD - PCIe	N/A
GND	GND	NC	GND	WWAN - PCIe	0
GND	NC	NC	GND	WWAN - PCIe	1
GND	GND	GND	NC	WWAN - USB 3.0	2
GND	NC	GND	NC	WWAN - USB 3.0	3
GND	GND	NC	NC	WWAN - USB 3.0	4
GND	NC	NC	NC	WWAN - USB 3.0	5
NC	GND	GND	NC	WWAN - SSIC	6
NC	NC	GND	GND	WWAN - SSIC	7
NC	GND	NC	GND	WWAN - SSIC	8
NC	NC	GND	GND	WWAN - SSIC	9
NC	GND	NC	GND	WWAN - SSIC	10
NC	NC	NC	GND	WWAN - SSIC	11
NC	GND	NC	NC	WWAN - PCIe	12
NC	NC	GND	NC	WWAN - PCIe	13
NC	GND	NC	NC	RFU	14
NC	NC	NC	NC	No Module Present	15

Rev: v0.1.0
Id: 14/16



Can swap around signals in the layout:

EN	IN1	IN2	NC1023 TO COM1023, COM1023 TO NC1023	NC4056 TO COM4056, COM4056 TO NC4056	NC1023 TO COM1023, COM1023 TO NC1023	NC4056 TO COM4056, COM4056 TO NC4056
H	X	X	OFF	OFF	OFF	OFF
L	L	L	ON	ON	OFF	OFF
L	H	L	OFF	ON	ON	OFF
L	L	H	ON	OFF	OFF	ON
L	H	H	OFF	OFF	ON	ON



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Sheet: /SDIO DEMUX/
File: sdio_demux.sch

Title: SDIO Demultiplexer

Size: A4 Date: 2018-05-02
KiCad E.D.A. kicad 4.0.6

Rev: v0.1.0
Id: 16/16