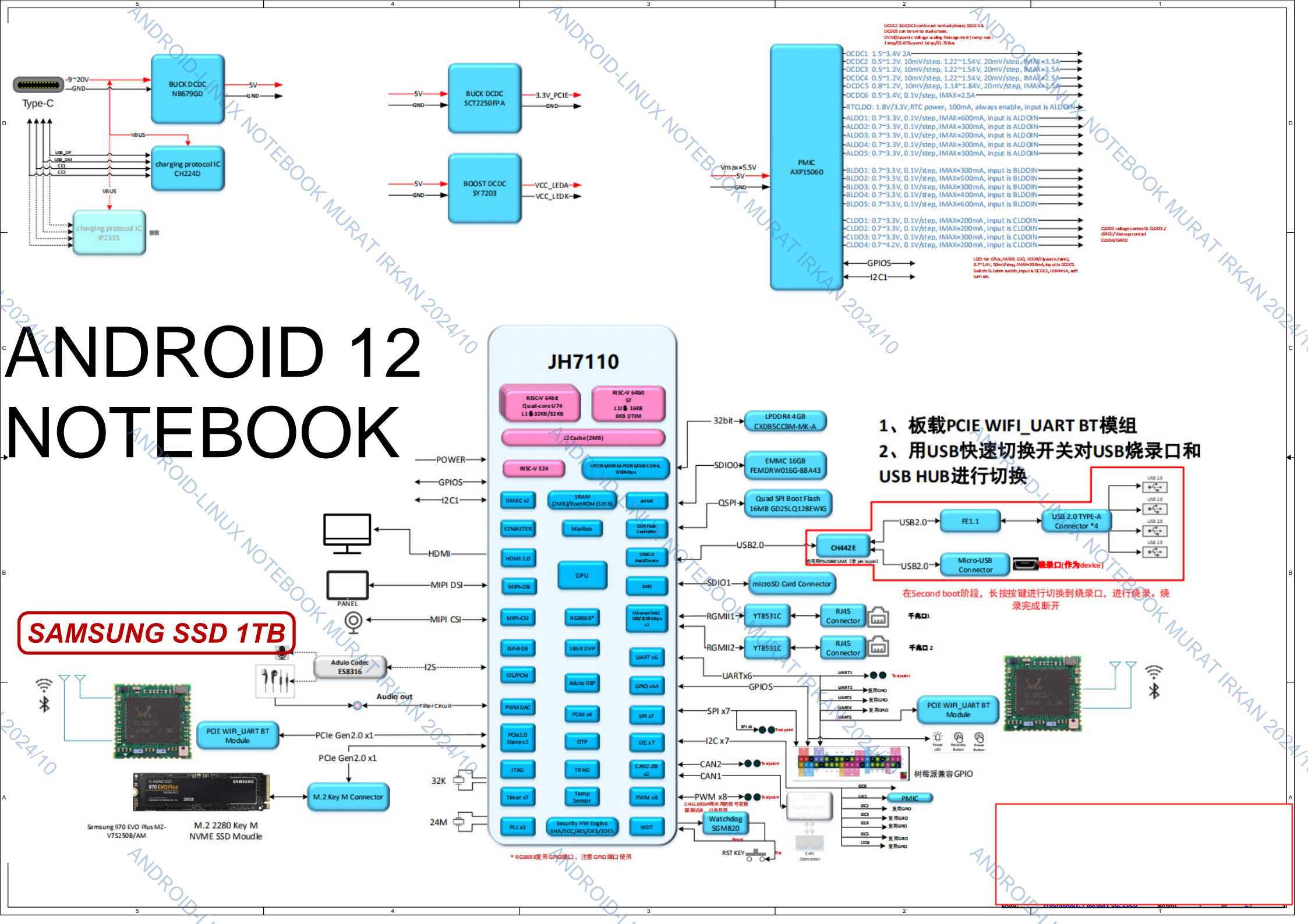
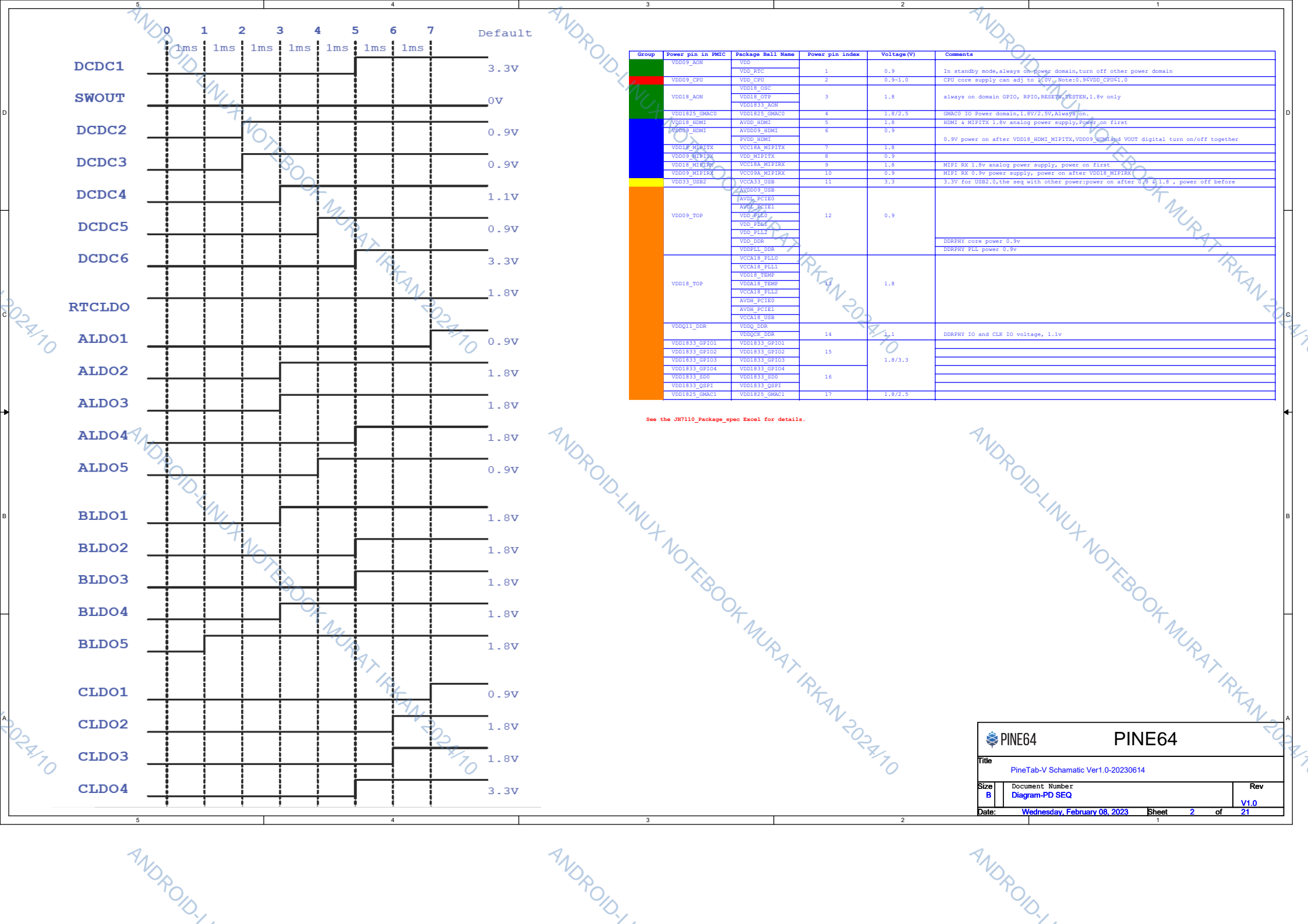
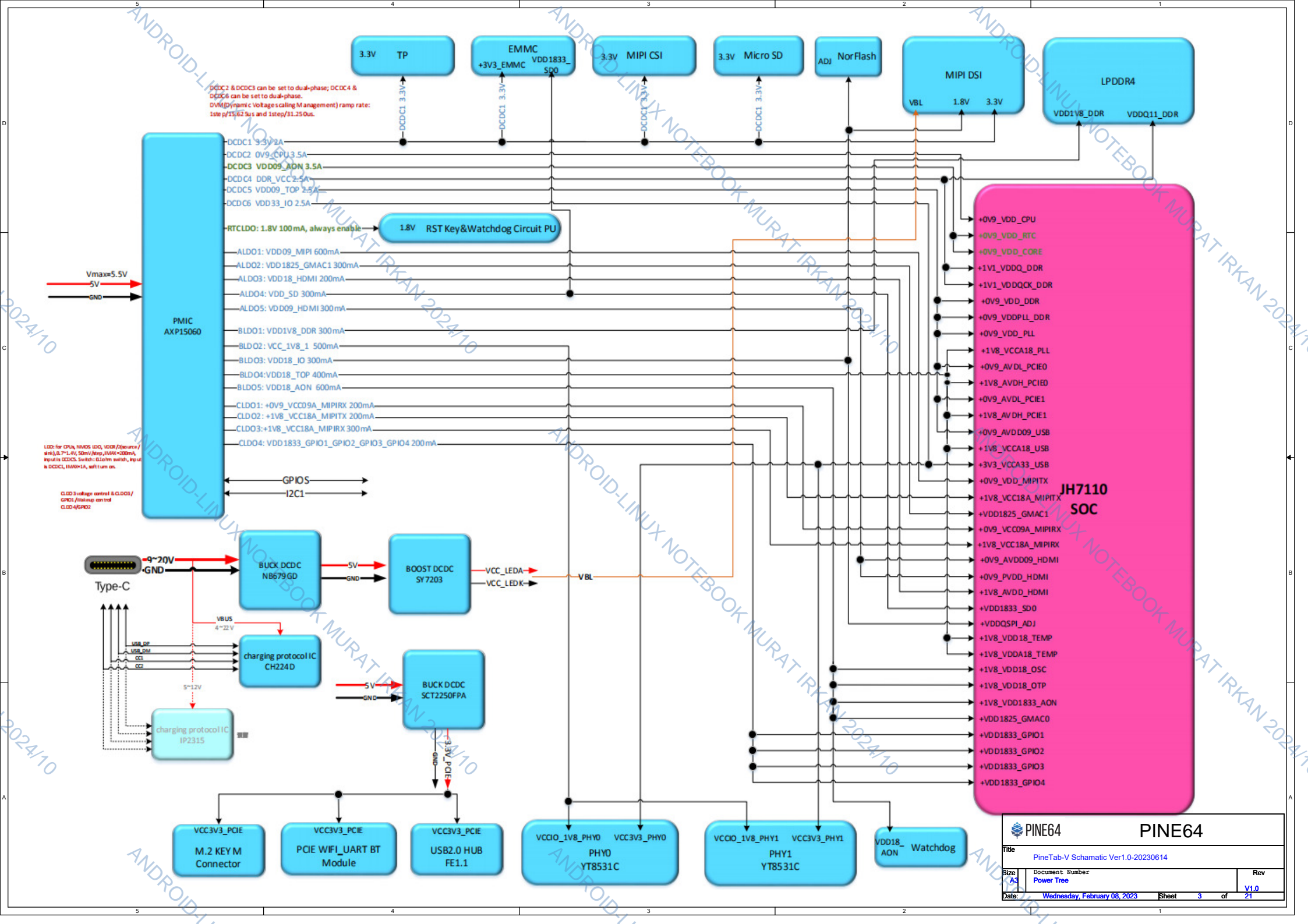


SAMSUNG SSD 1TB







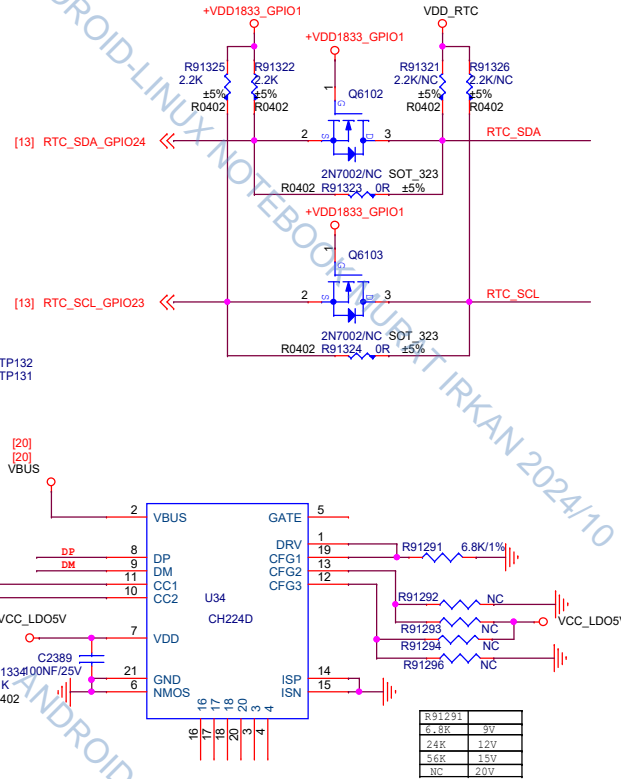
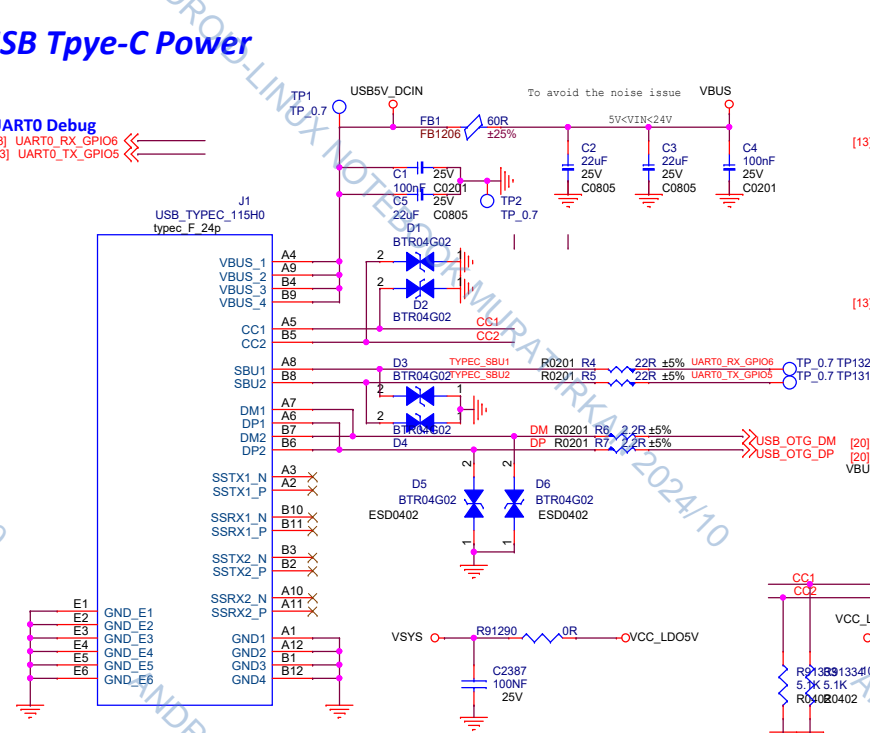
PAGE LIST
PAGE00: Diagram-SYSTEM
PAGE01: Diagram-PD SEQ
PAGE02: Power Tree
PAGE03:GPIOs or Connectors List
PAGE04: Power IN
PAGE05: PMIC_AXP15060
PAGE06: PWR MUX & SYS RESET
PAGE07: JH7110 Power
PAGE08: JH7110 DDR Ctrl
PAGE09: LPDDR4 RAM
PAGE10: JH7110 EMMC&QSPI&MicroSD
PAGE11: JH7110 GMAC & SYS
PAGE12: JH7110 GPIOs
PAGE13: JH7110_HDMI_PCIE_MIPI_USB
PAGE14: Ethernet_0
PAGE15: Ethernet_1
PAGE16: MIPI_TX_RX
PAGE17: M.2 KEY M&WIFI_BT MODULE
PAGE18: MIPI_LCD&Digital Video
PAGE19: USB2.0 HUB_Programming
PAGE20: IO ConnectorUART Debug
PAGE21: Audio ES8316

GPIO or Connector Lists				
Power Group	GPIO Name	Default FUN	Connector or EXT Jumper	Function
VDD1833_GPIO3	GPIO00	HDMI I2C_SCL	J1	USB Tpye-C Power IN Connector
	GPIO01	HDMI I2C_SDA		
	GPIO02	DSI I2C_SDA		
	GPIO03	DSI I2C_SCL	J2	Micro SD Card Connector
	GPIO04	I2S_MCLK		
	GPIO05	UART0_TX		
VDD1833_GPIO4	GPIO06	UART0_RX	J3	Giga PHY0 RJ45 Connector
	GPIO07	SD_SDIO1_D2		
	GPIO08	SD_SDIO1_D3		
	GPIO09	SD_SDIO1_CMD	J4	Ext POE Connector
	GPIO10	SD_SDIO1_CLK		
	GPIO11	SD_SDIO1_D0		
	GPIO12	SD_SDIO1_D1	J5	Giga PHY1 RJ45 Connector
	GPIO13	GMAC_PHYRSTN		
	GPIO14	HDMI_CEC_GPIO		
	GPIO15	HDMI_HPDIN	J6	MIPI DSI IC2L 30PIN Connector
	GPIO16	CSI_I2C_SCL		
	GPIO17	CSI_I2C_SDA		
	GPIO18	CSI_PWDN0	J7	MIPI CSI IC2L 30PIN Connector
	GPIO19	I2C_SCL		
	GPIO20	I2C_SDA		
VDD1833_GPIO1	GPIO21	PCIE1_PWREN_H	J8	WL0 ANT :IPEX MHF1 Connector Receptacle, Male Pin 500hm Surface Mount Solder
	GPIO22	MIPI_PWR_EN		
	GPIO23	LCD_RESET		
	GPIO24	MIPI_LCD_BL	J9	WL1 ANT :IPEX MHF1 Connector Receptacle, Male Pin 500hm Surface Mount Solder
	GPIO25	TP_DET		
	GPIO26	PCIE0_PERSTN		
	GPIO27	PCIE0_PRSN	J10	PCIE1 M.2 KEY M screw Connector
	GPIO28	PCIE1_PERSTN		
	GPIO29	PCIE1_PRSN		
	GPIO30	TP_INT	J11	BT ANT :IPEX MHF1 Connector Receptacle, Male Pin 500hm Surface Mount Solder
	GPIO31	TP_RST		
	GPIO32	PCIE0_PWREN_H		
	GPIO33	GPIO33 --> J16	J12	HDMI Connector
	GPIO34	GPIO34 --> J16		
	GPIO35	GPIO_RST		
VDD1833_GPIO2	GPIO36	GPIO36 --> J16	J13	USB2.0 TYPE-A x2 Connector
	GPIO37	GPIO37 --> J16		
	GPIO38	GPIO38 --> J16		
	GPIO39	GPIO39 --> J16	J14	USB2.0 TYPE-A x2 Connector
	GPIO40	HP_IRQ		
	GPIO41	SD_SDIO0_CD		
	GPIO42	QTS_PWR	J15	MicroUSB SYS Programming Connector
	GPIO43	GPIO43 --> J16		
	GPIO44	SOC_UART_RX		
	GPIO45	SOC_UART_TX	J16	20PIN GPIO6 Header2x10-2_54mm Connector
	GPIO46	SOC_UART_RTS		
	GPIO47	SOC_UART_CTS		
	GPIO48	I2S_DSDIN	J17	3PIN UART0 HDR1X3-2p54-DIP-V Connector
	GPIO49	GPIO49 --> J16		
	GPIO50	PCIE0_WL_ON		
	GPIO51	I2S_ASDOUT	J18	MicroUSB UART0 Debug Connector
	GPIO52	GPIO52 --> J16		
	GPIO53	I2S_LRCK		
	GPIO54	I2S_SCLK		
	GPIO55	SOC_PCM_OUT		
	GPIO56	PCIE0_BT_ON		
	GPIO57	GPIO57 --> J16		
	GPIO58	GPIO58 --> J16		
	GPIO59	GPIO59 --> J16		
	GPIO60	SOC_PCM_SYNC		
	GPIO61	SOC_PCM_CLK		
	GPIO62	SDIO0_RSTN		
	GPIO63	SOC_PCM_IN		
VDD18_AON	RGPIO0	Boot_Mode		
	RGPIO1	Boot_Mode		
	RGPIO2	Boot_Mode		

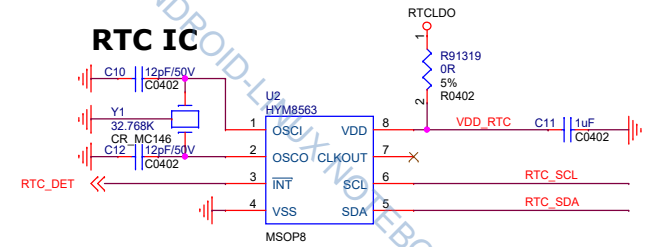
USB Tpye-C Power

UART0 Debug

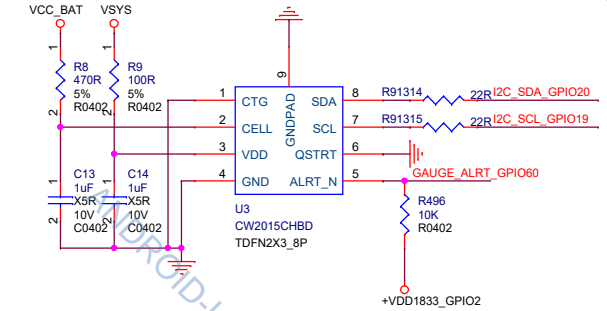
[13] UART0_RX_GPIO6
[13] UART0_TX_GPIO5



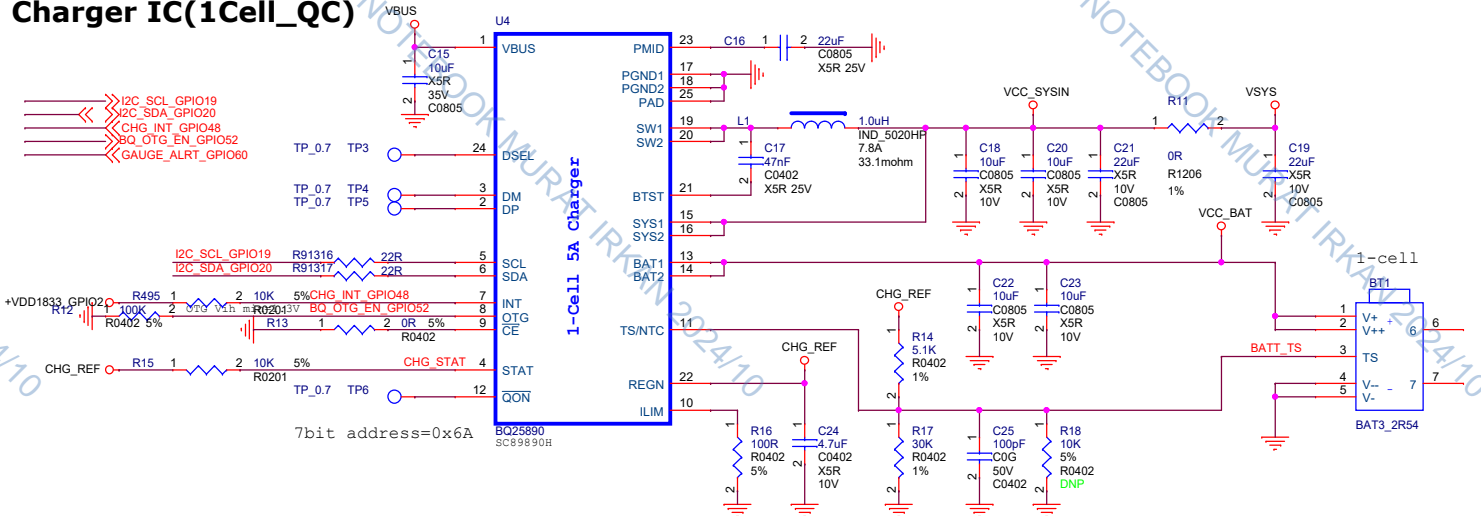
RTC IC

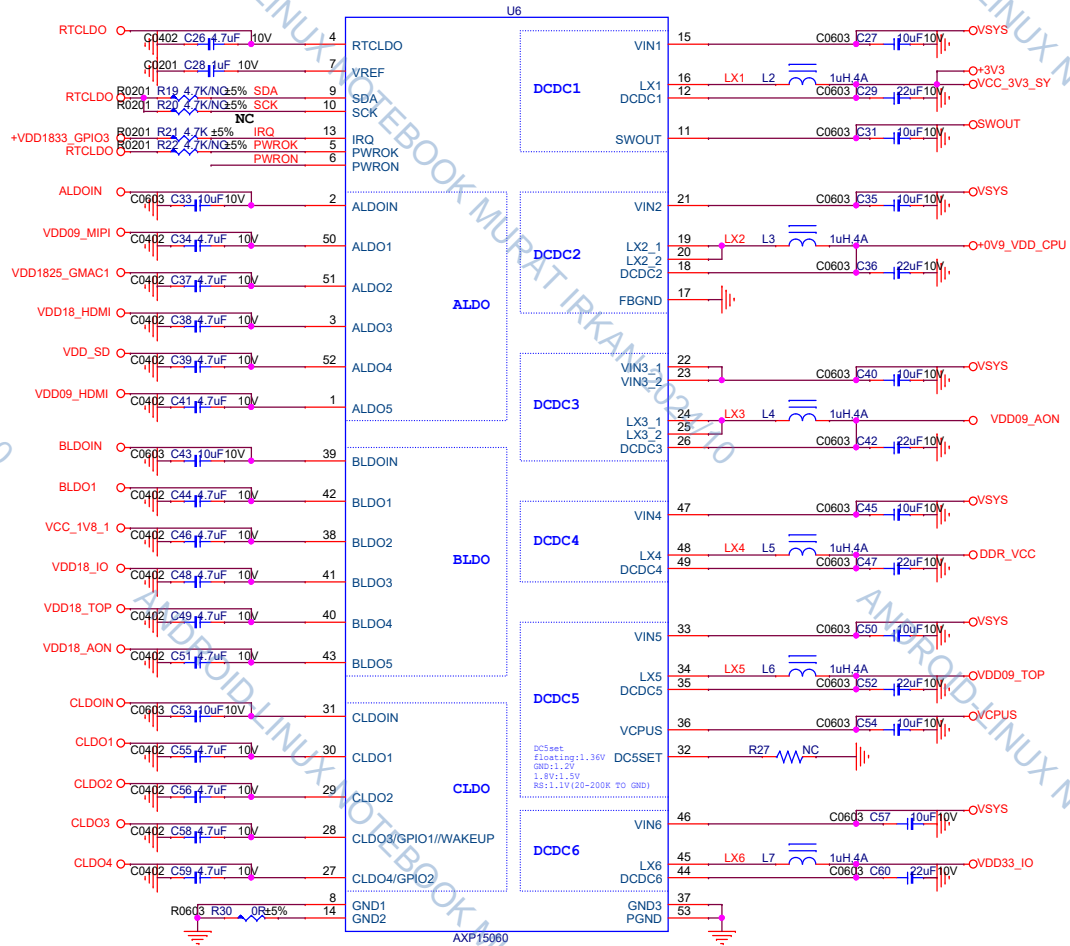


Gas Gauge

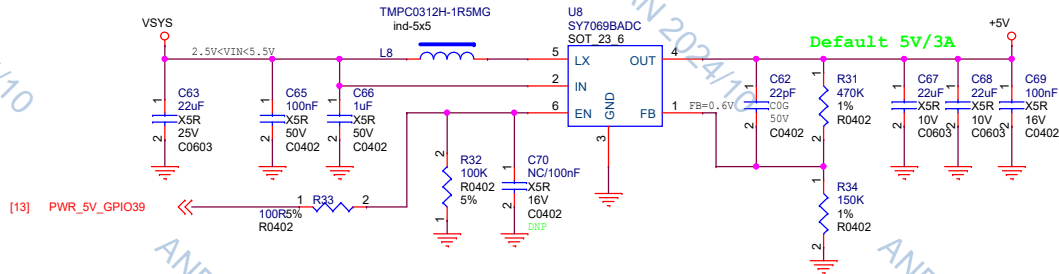


Charger IC(1Cell_QC)

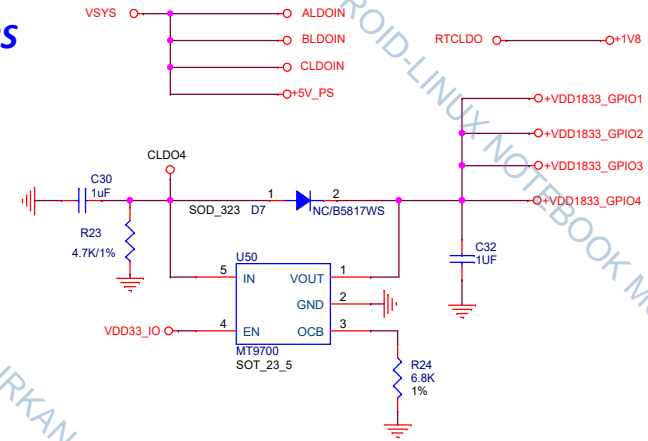


PMIC

VCC_5V0



PWRS

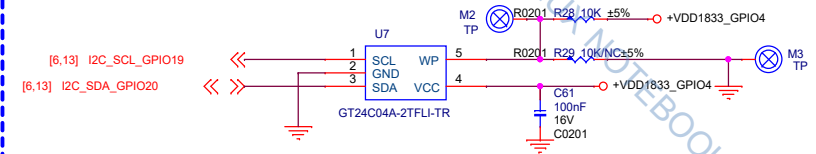


I2C_GPIOS

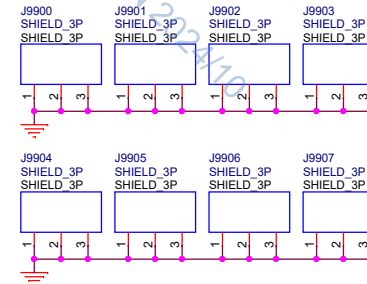


E2PROM

Stores information such as serial numbers and MAC addresses, etc



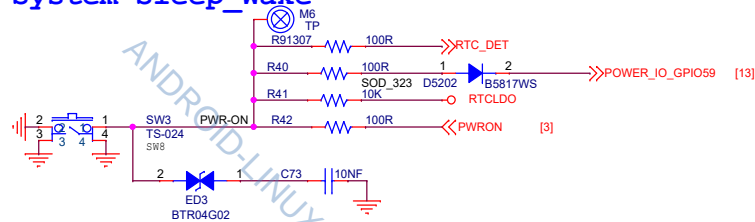
Shield



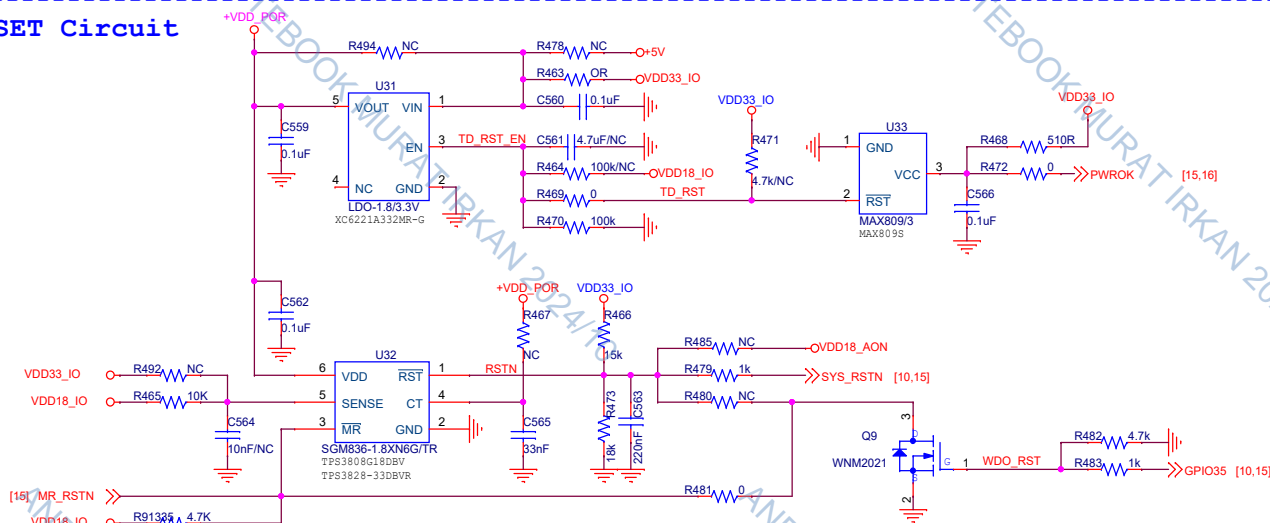
AON POWER



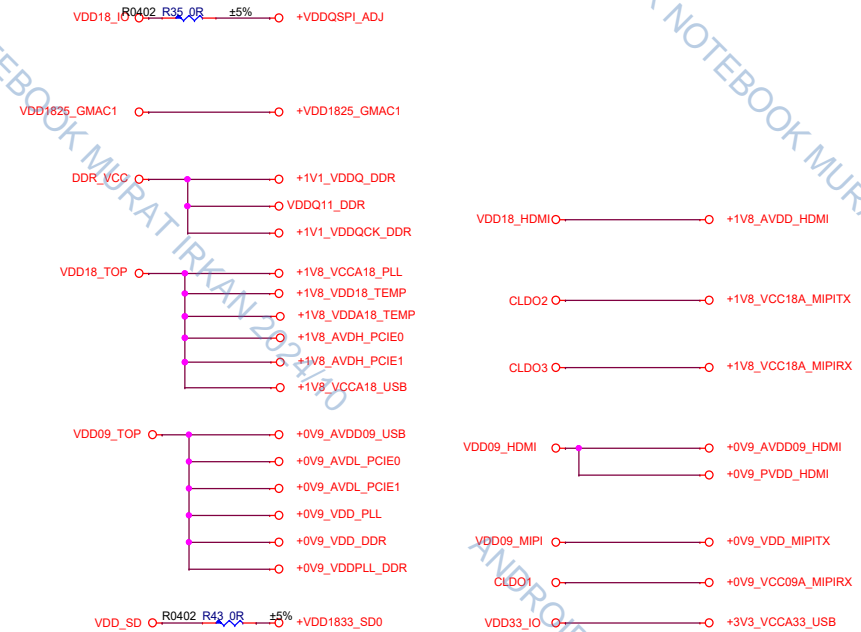
System Sleep_Wake



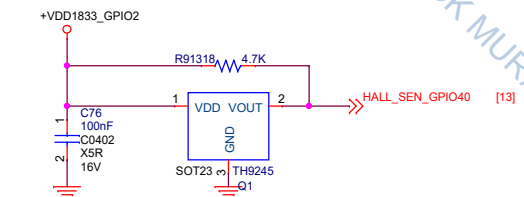
SYS RESET Circuit



JH7110 Power MUX



Hall Sensor



SOC POWER

U10A

VDD_CORE

Always on

VDD00	G9
VDD01	G10
VDD02	G11
VDD03	H8
VDD04	H9
VDD05	H11
VDD06	H16
VDD07	H17
VDD08	H18
VDD09	H19
VDD10	H20
VDD11	J6
VDD12	J7
VDD13	J16
VDD14	J18
VDD15	J20
VDD16	J21
VDD17	K7
VDD18	K18
VDD19	K20
VDD20	K21
VDD21	L7
VDD22	L8
VDD23	L16
VDD24	L17
VDD25	L18
VDD26	L20
VDD27	M8
VDD28	M18
VDD29	N8
VDD30	N9
VDD31	N14
VDD32	N15
VDD33	N16
VDD34	N17
VDD35	N18
VDD36	P9
VDD37	P10
VDD38	P11
VDD39	P12
VDD40	P14
VDD41	P15
VDD42	P17
VDD43	R9
VDD44	

VDD_CPU

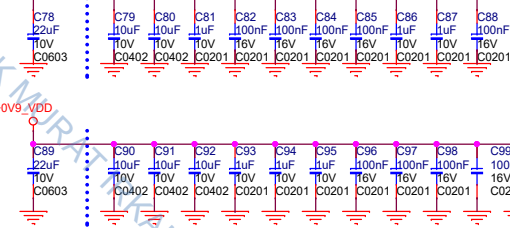
VDD_CPU00	J11
VDD_CPU01	J12
VDD_CPU02	J13
VDD_CPU03	K10
VDD_CPU04	K12
VDD_CPU05	K13
VDD_CPU06	L10
VDD_CPU07	L12
VDD_CPU08	L13
VDD_CPU09	M10
VDD_CPU10	M12
VDD_CPU11	M13
VDD_CPU12	

JH7110_SOCKET

+0V9_VDD

+0V9_VDD_CPU

+0V9_VDD



U10B

A1	VSS000	VSS047	J8
B17	VSS001	VSS048	J9
C2	VSS002	VSS049	J10
C16	VSS003	VSS050	J15
C20	VSS004	VSS051	J17
D4	VSS005	VSS052	J19
D19	VSS006	VSS053	J22
E3	VSS007	VSS054	J23
E7	VSS008	VSS055	K6
E9	VSS009	VSS056	K8
E10	VSS010	VSS057	K9
E12	VSS011	VSS058	K11
E17	VSS012	VSS059	K14
E20	VSS013	VSS060	K15
F8	VSS014	VSS061	K17
F10	VSS015	VSS062	K19
F11	VSS016	VSS063	K22
F12	VSS017	VSS064	L2
F13	VSS018	VSS065	L4
F23	VSS019	VSS066	L5
F24	VSS020	VSS067	L6
G7	VSS021	VSS068	L11
G8	VSS022	VSS069	L14
G12	VSS023	VSS070	L15
G13	VSS024	VSS071	L19
G14	VSS025	VSS072	L21
G15	VSS026	VSS073	L23
G16	VSS027	VSS074	M6
G17	VSS028	VSS075	M7
G18	VSS029	VSS076	M9
G19	VSS030	VSS077	M14
G20	VSS031	VSS078	M15
G22	VSS032	VSS079	M16
G23	VSS033	VSS080	M17
H4	VSS034	VSS081	M19
H7	VSS035	VSS082	M20
H10	VSS036	VSS083	M21
H12	VSS037	VSS084	M22
H13	VSS038	VSS085	N5
H14	VSS039	VSS086	N6
H15	VSS040	VSS087	N7
H21	VSS041	VSS088	N10
H22	VSS042	VSS089	N11
H23	VSS043	VSS090	N12
J2	VSS044	VSS091	N13
J5	VSS045	VSS092	
J5	VSS046	VSS093	

JH7110_SOCKET

U10C

N19	VSS094	VSS141	Y4
N20	VSS095	VSS142	Y6
N21	VSS096	VSS143	Y9
P2	VSS097	VSS144	Y10
P4	VSS098	VSS145	Y14
P8	VSS099	VSS146	Y18
P13	VSS100	VSS147	Y19
P16	VSS101	VSS148	Y22
P18	VSS102	VSS149	Y24
P20	VSS103	VSS150	AA4
P21	VSS104	VSS151	AA5
R3	VSS105	VSS152	AA6
R8	VSS106	VSS153	AA8
R10	VSS107	VSS154	AA9
R11	VSS108	VSS155	AA16
R12	VSS109	VSS156	AA19
R13	VSS110	VSS157	AA20
R14	VSS111	VSS158	AB3
R15	VSS112	VSS159	AB6
R16	VSS113	VSS160	AB7
R17	VSS114	VSS161	AB10
R18	VSS115	VSS162	AB13
T4	VSS116	VSS163	AB19
T8	VSS117	VSS164	AB22
T11	VSS118	VSS165	AB24
T18	VSS119	VSS166	AC1
U1	VSS120	VSS167	AC2
U8	VSS121	VSS168	AC4
U11	VSS122	VSS169	AC6
U18	VSS123	VSS170	AC8
U19	VSS124	VSS171	AC17
V8	VSS125	VSS172	AC21
V11	VSS126	VSS173	AC23
V17	VSS127	VSS174	AD5
V18	VSS128	VSS175	AD10
V20	VSS129	VSS176	AD14
V22	VSS130	VSS177	AD25
W3	VSS131	VSS178	AE1
W7	VSS132	VSS179	AE2
W10	VSS133	VSS180	AE8
W11	VSS134	VSS181	AE13
W12	VSS135	VSS182	AE16
W13	VSS136	VSS183	AE18
W15	VSS137	VSS184	AE21
W16	VSS138	VSS185	AE23
W17	VSS139	VSS186	AE25
W18	VSS140	VSS187	

JH7110_SOCKET

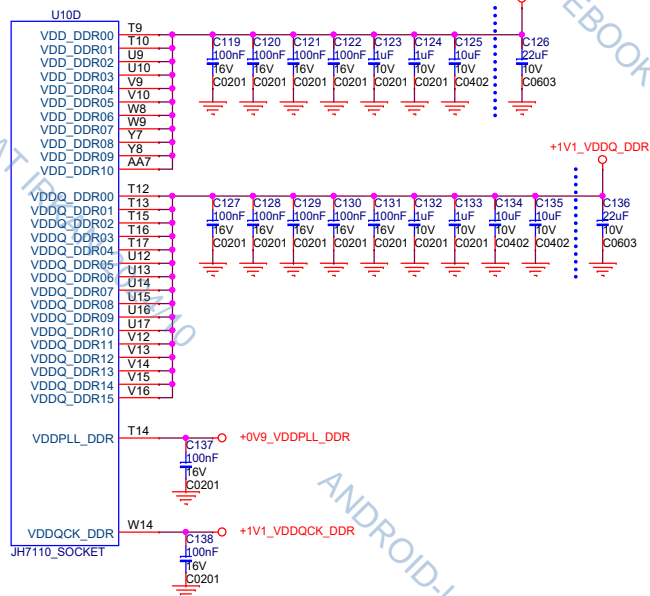
PINE64

PINE64

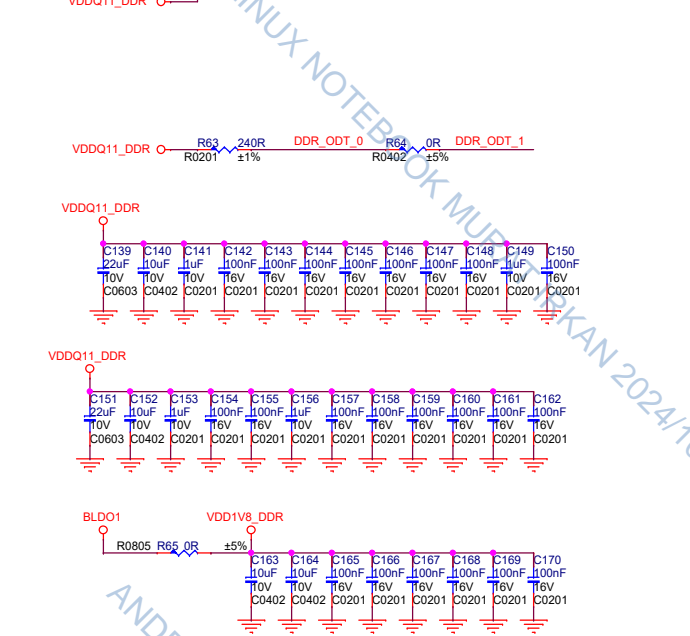
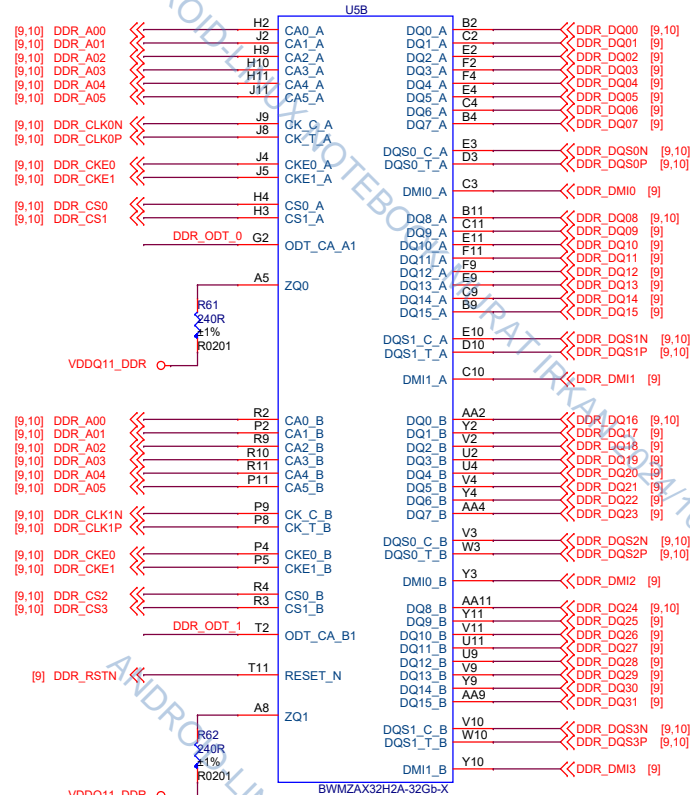
Title PineTab-V Schematic Ver1.0-20230614

Size 1A Document Number JH7110 Power Rev V1.0 Date: Wednesday, February 08, 2023 Sheet 8 of 21

U10F



LPDDR4



Test Points



SOC

QSPI Domain

Operating Voltage=1.8V/3.3V

B3 QSPI CSN0
A3 QSPI SCLK
A2 QSPI D0
B2 QSPI D1
B1 QSPI D2
C1 QSPI D3

VDD1833_QSPI

D3 C173 100nF 16V C0201

D3 C173 100nF 16V C0201

SDIO0 Domain

Operating Voltage=1.8V/3.3V

SD0_CLK [11]
SD0_CMD [11]
SD0_DATA0 [11]
SD0_DATA1 [11]
SD0_DATA2 [11]
SD0_DATA3 [11]
SD0_DATA4 [11]
SD0_DATA5 [11]
SD0_DATA6 [11]
SD0_DATA7 [11]
SD0_STRB [11]

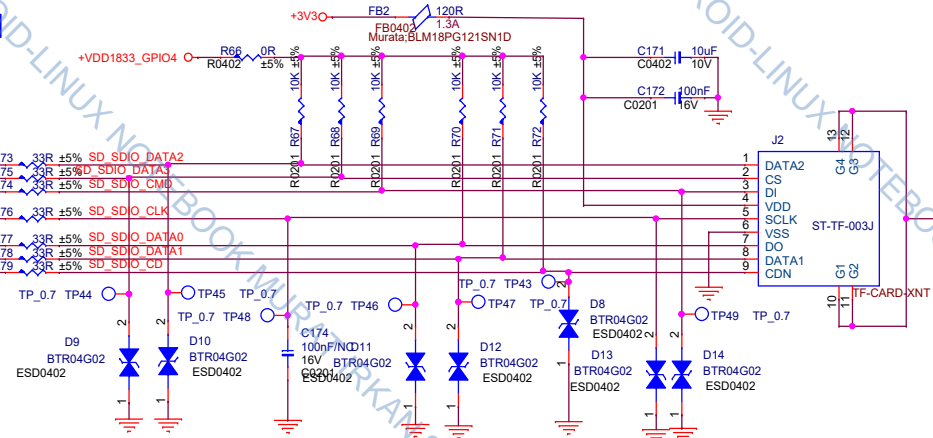
VDD1833_SD0

F9 C175 100nF 16V C0201

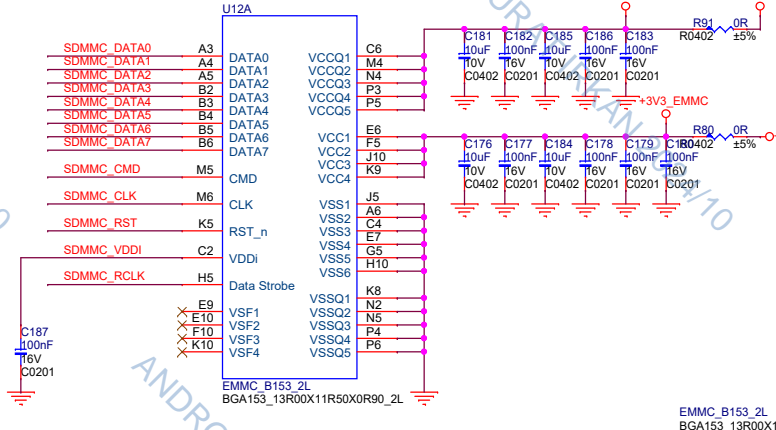
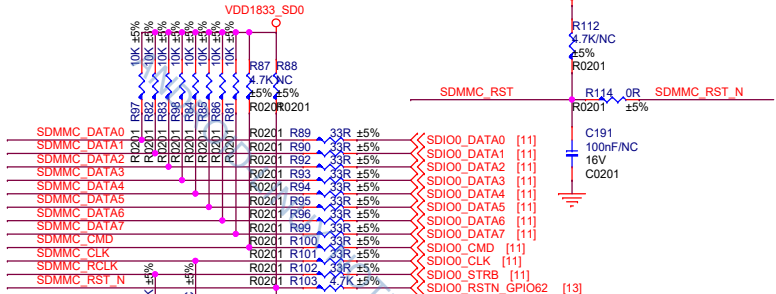
F9 C175 100nF 16V C0201

Micro SD Card

[13] SD_SDIO1_D2_GPIO7 R2021 R73 33R ±5% SD_SDIO_DATA2
[13] SD_SDIO1_D3_GPIO8 R2021 R75 33R ±5% SD_SDIO_DATA3
[13] SD_SDIO1_CMD_GPIO9 R2021 R74 33R ±5% SD_SDIO_CMD
[13] SD_SDIO1_CLK_GPIO10 R2021 R76 33R ±5% SD_SDIO_CLK
[13] SD_SDIO1_D0_GPIO11 R2021 R77 33R ±5% SD_SDIO_DATA0
[13] SD_SDIO1_D1_GPIO12 R2021 R78 33R ±5% SD_SDIO_DATA1
[13] SD_SDIO1_CD_GPIO13 R2021 R79 33R ±5% SD_SDIO_CD



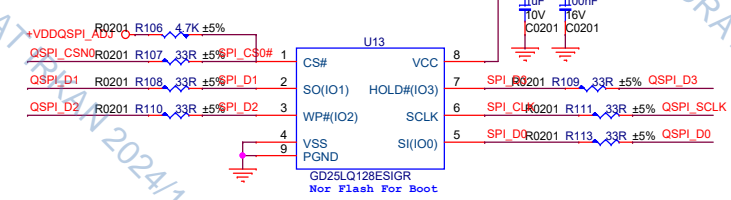
eMMC




EMMC B153_2L BGA153_13R00X11R50X0R90_2L

EMMC B153_2L BGA153_13R00X11R50X0R90_2L

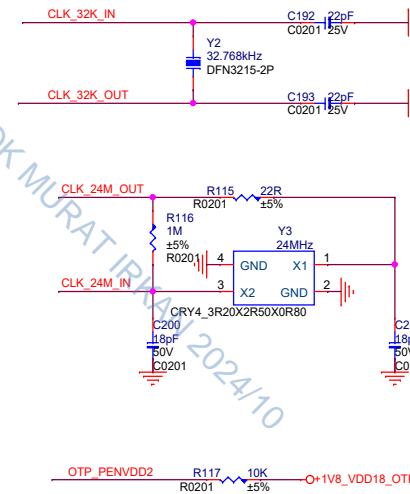
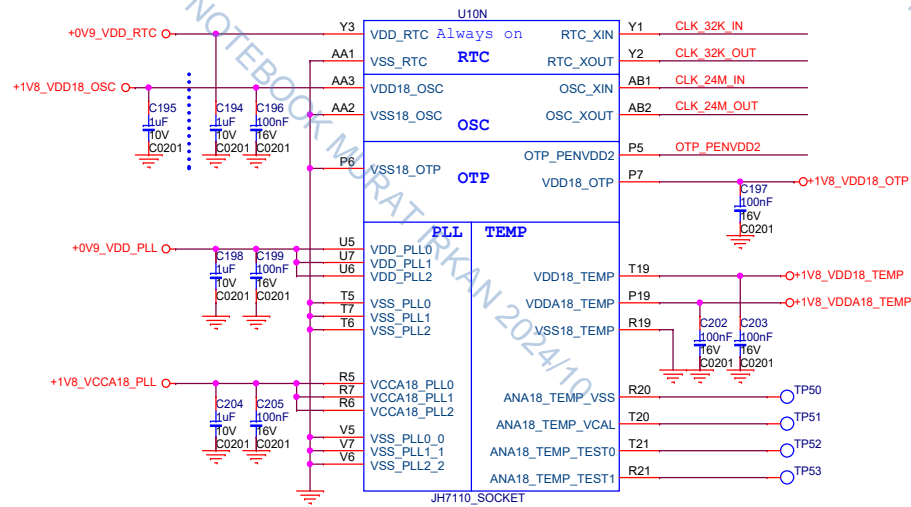
Nor Flash



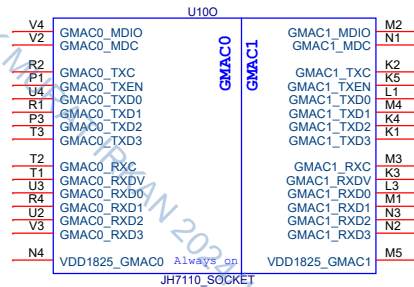
GD25LQ128ESIGR Nor Flash For Boot

 PINE64		PINE64	
Title			
PineTab-V Schematic Ver1.0-20230614			
Size	Document Number	Rev	
A3	EMMC&QSPI&MicroSD	V1.0	
Date:	Thursday, June 08, 2023	Sheet	11 of 21

SOC SYS_RTC



SOC GMAC

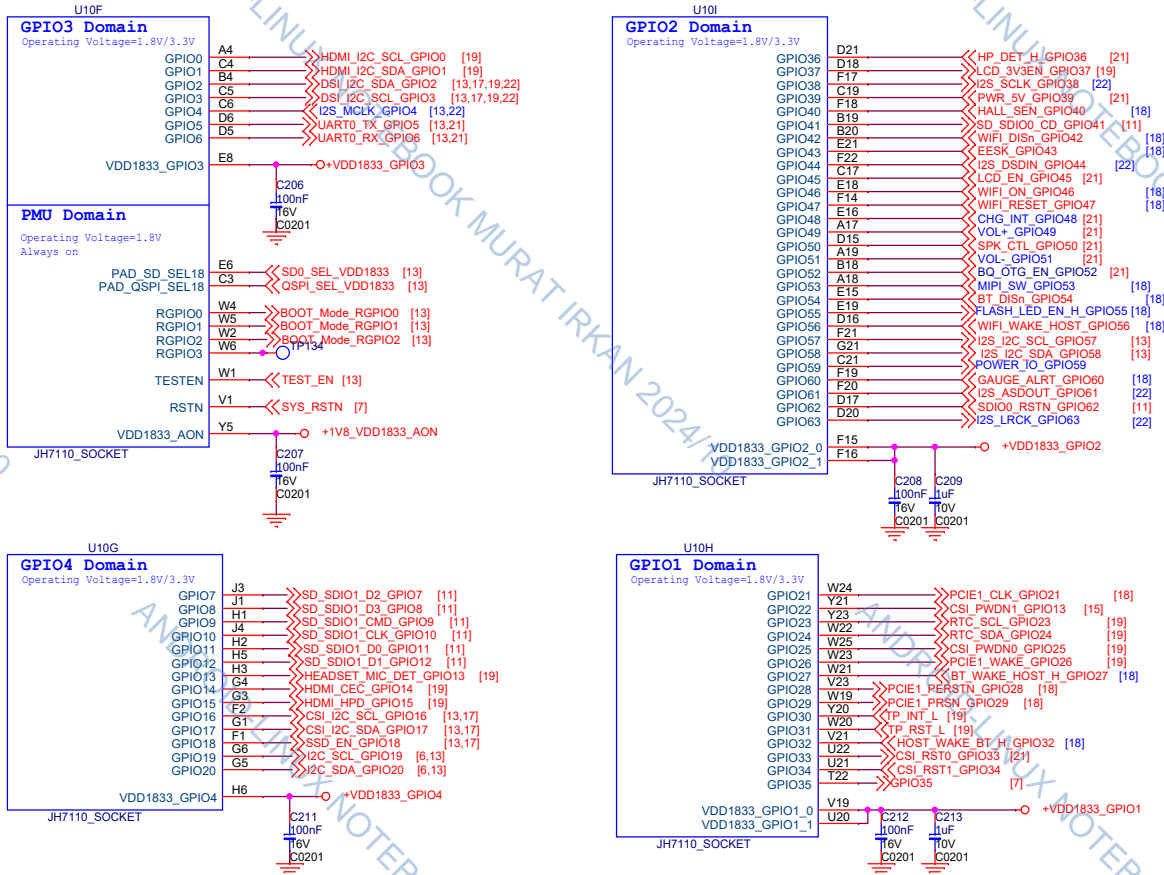


PINE64

PINE64

Title		
PineTab-V Schematic Ver1.0-20230614		
Size	Document Number	Rev
A5	JH7110 GMAC & SYS	V1.0
Date:	Wednesday, February 08, 2023	Sheet 12 of 21

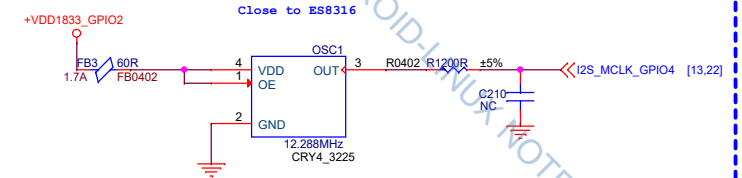
SOC GPIOs



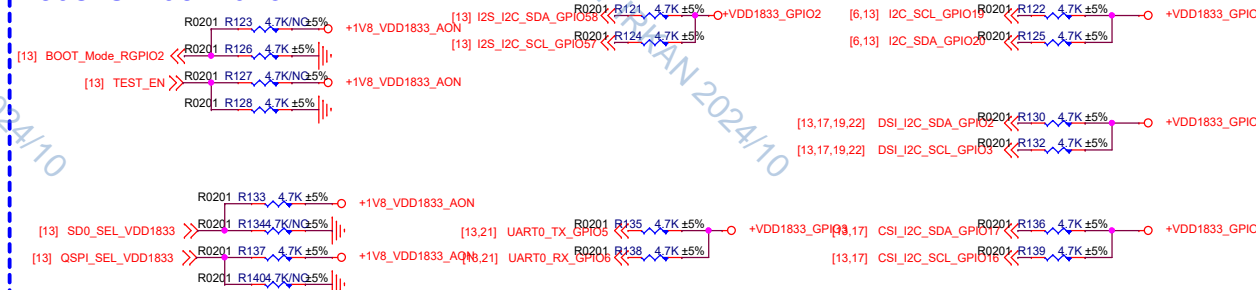
BOOT MODE

BOOT MODE (RGPI02)	Boot Vector	Boot Selection (RGPI01,0)	Note
0x1	0x00_2100_0000	XIP Flash	can not boot from XIP Flash, if disabled thru OTP Configuration.
0x0	0x00_2A00_0000	0x0: 1Bit QSPI Nor Flash 0x1: SDIO3.0 0x2: eMMC5.0 0x3: UART	on-chip boot ROM(32KB)

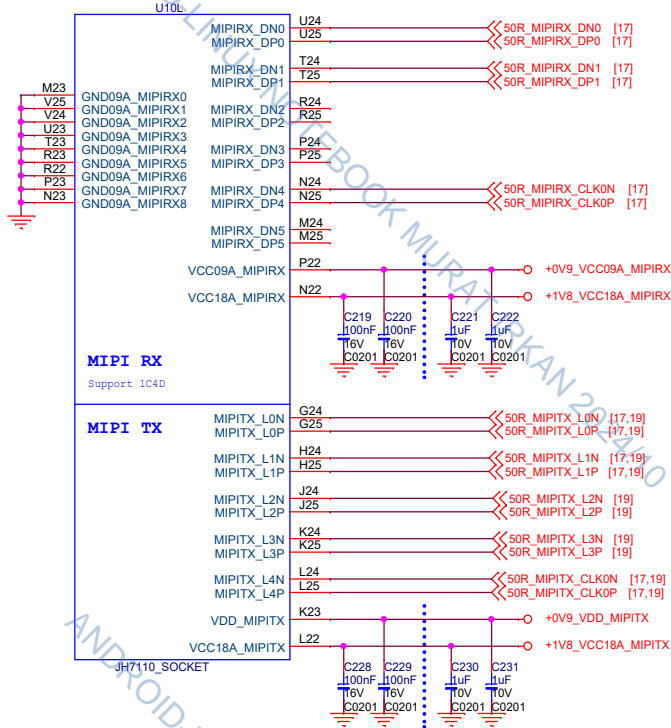
I2S MCLK OSC



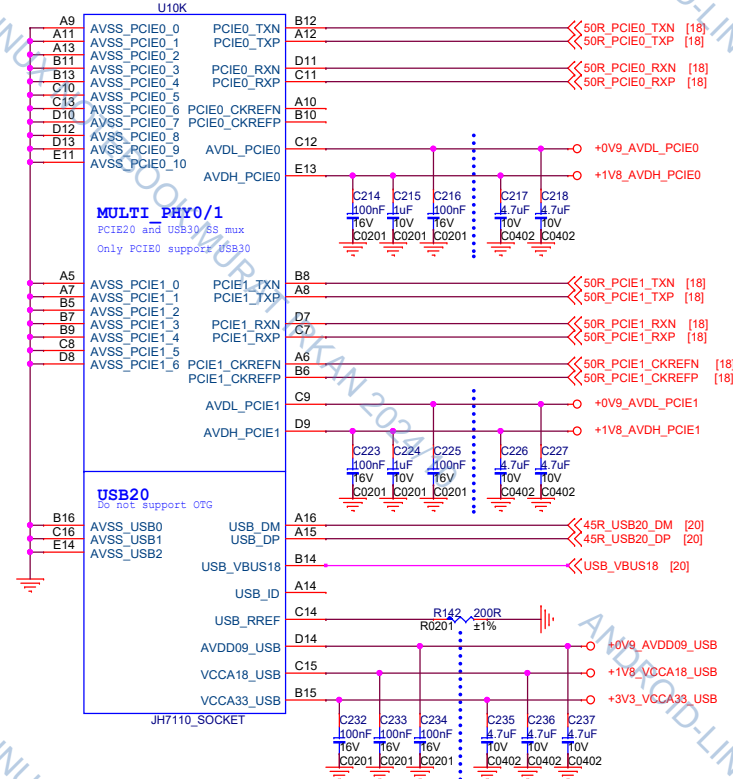
SOC GPIOs PU or PD



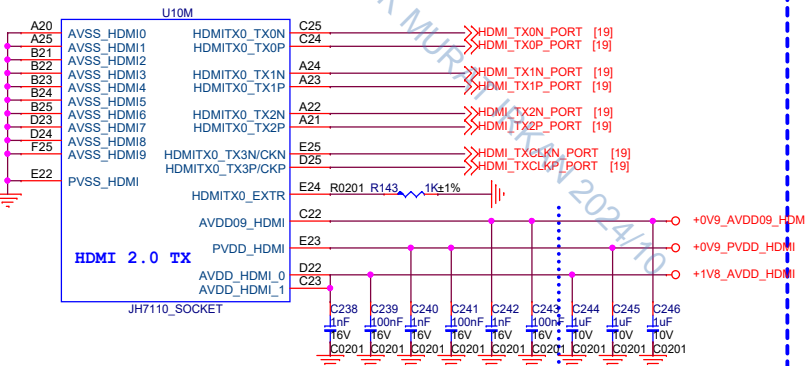
SOC MIPI



SOC PCIE



SOC HDMI



PINE64

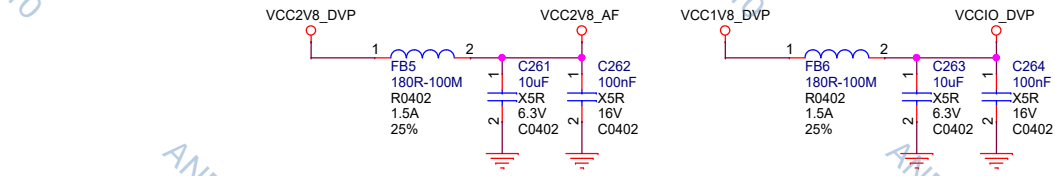
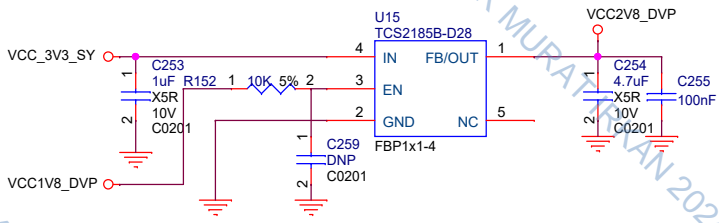
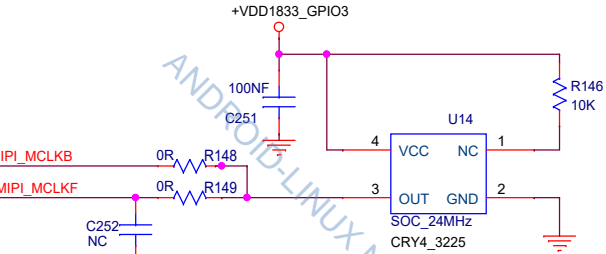
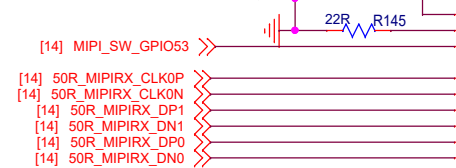
PINE64

Title		
PineTab-V Schematic Ver1.0-20230614		
Size	Document Number	Rev
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Date:	Thursday, June 08, 2023	Sheet 14 of 21

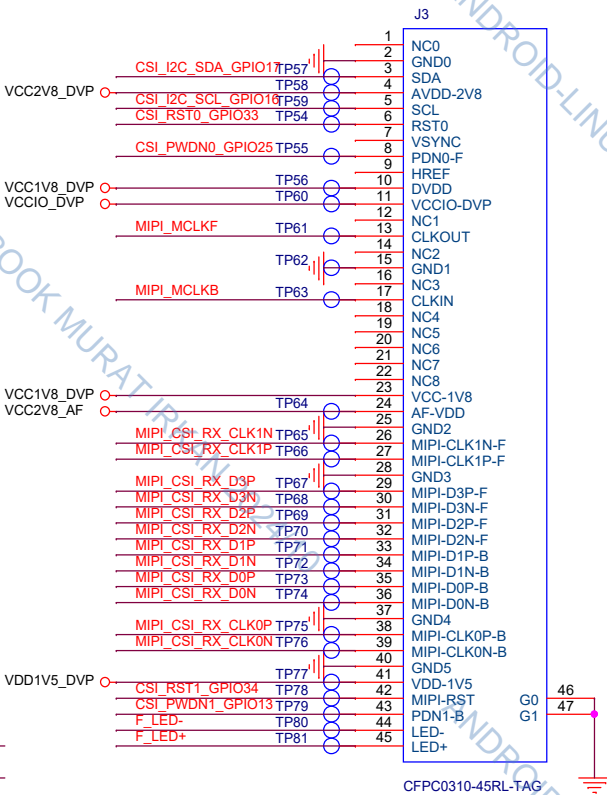
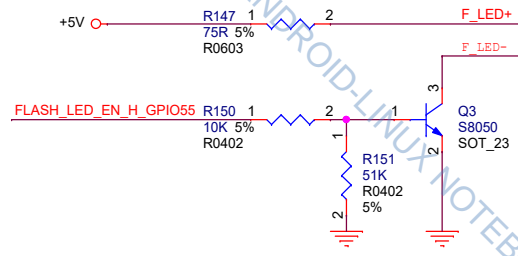
MIPI CSI 1C2L

- [13] CSI_I2C_SCL_GPIO16
- [13] CSI_I2C_SDA_GPIO17
- [13] CSI_PWDN0_GPIO25
- [13] CSI_RST0_GPIO33
- [13] CSI_PWDN1_GPIO13
- [13] CSI_RST1_GPIO34
- [13] FLASH_LED_EN_H_GPIO55

SEL	/OE	Function
0	0	DA1, DA2, CLKA
1	0	DB1, DB2, CLKB



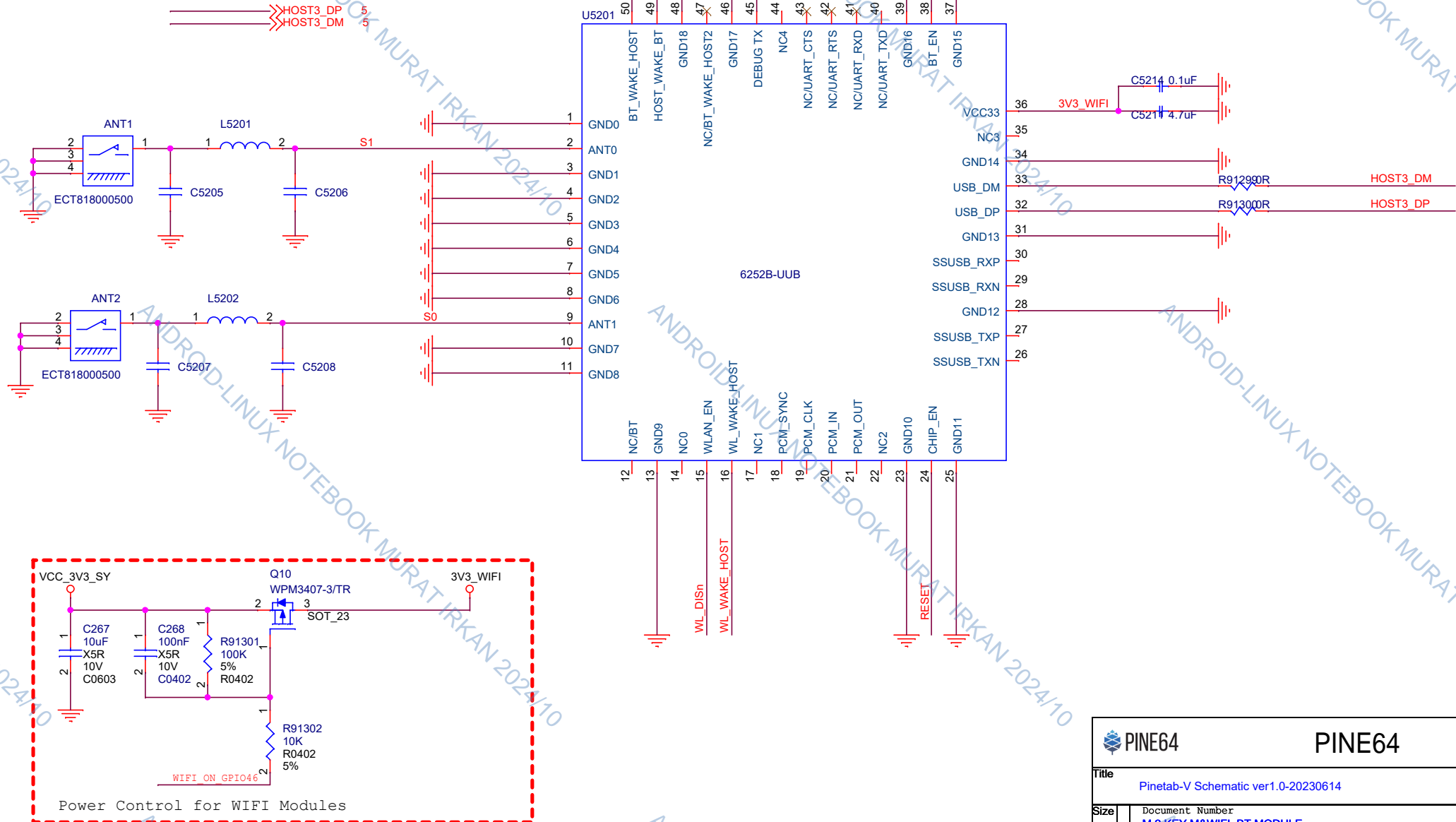
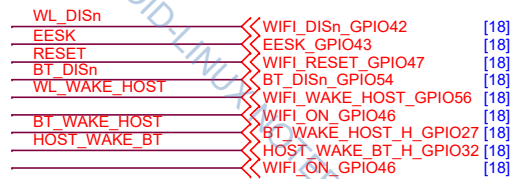
FLASH LED



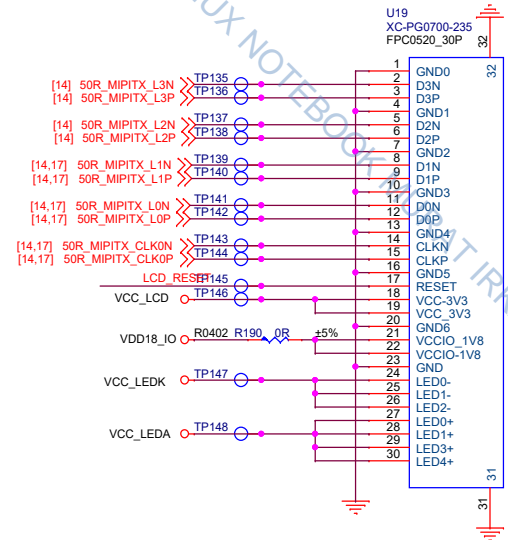
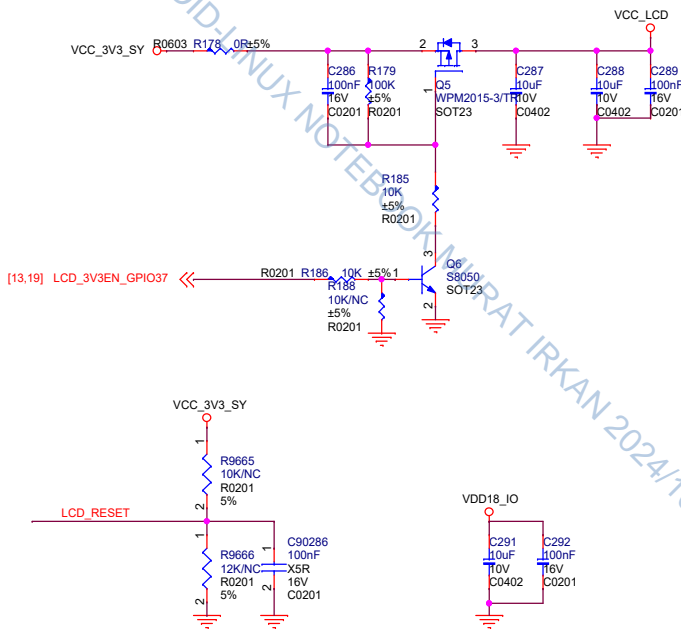
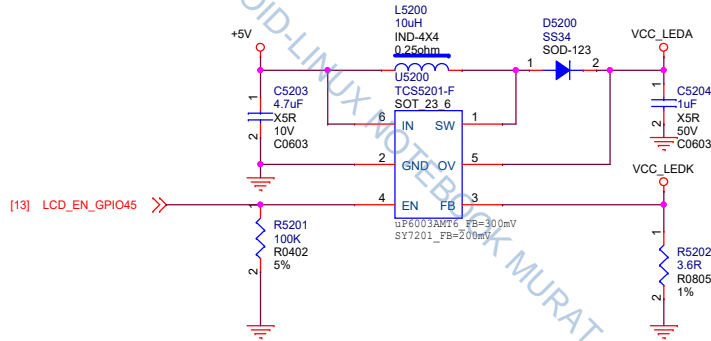
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	MIPI TX_RX	V1.0
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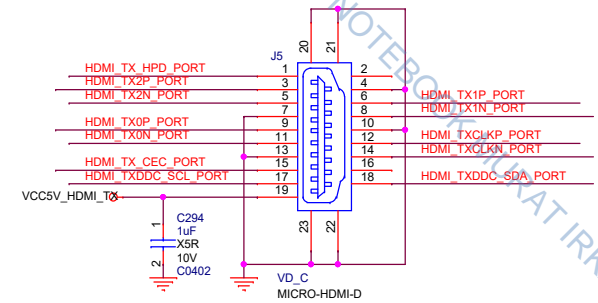
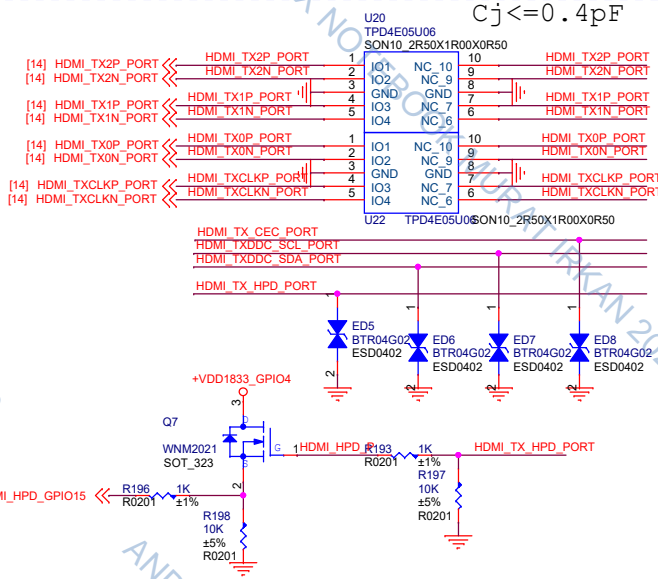
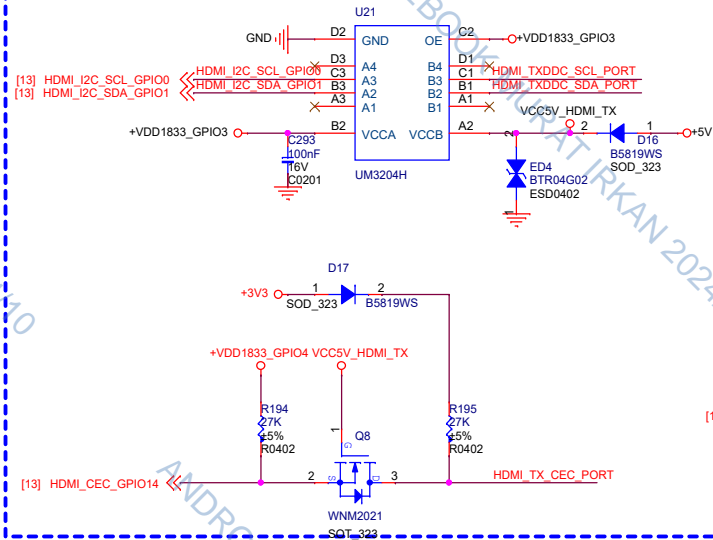
PCIE1 WIFI_BT Module



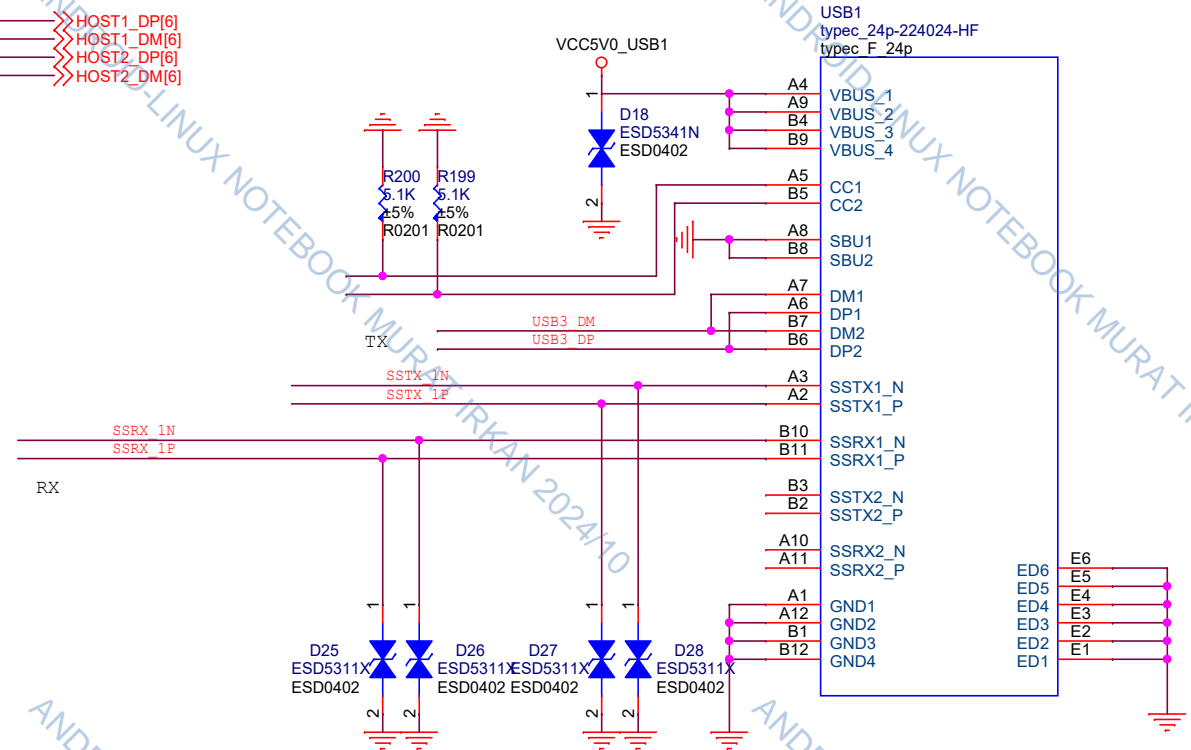
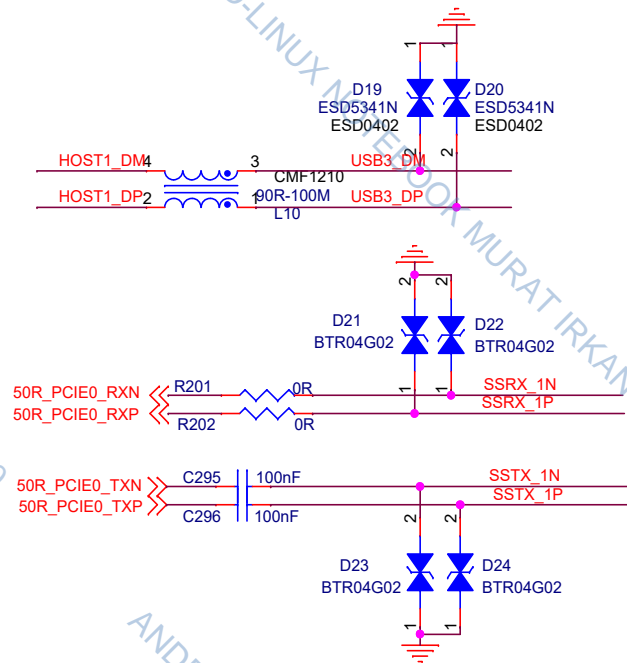
MIPI_LCD_TX1



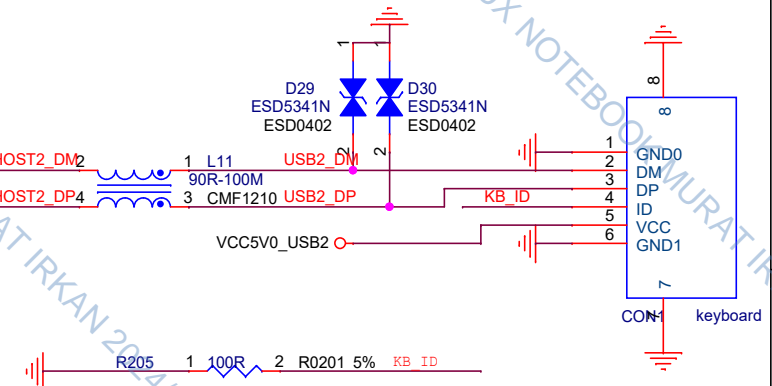
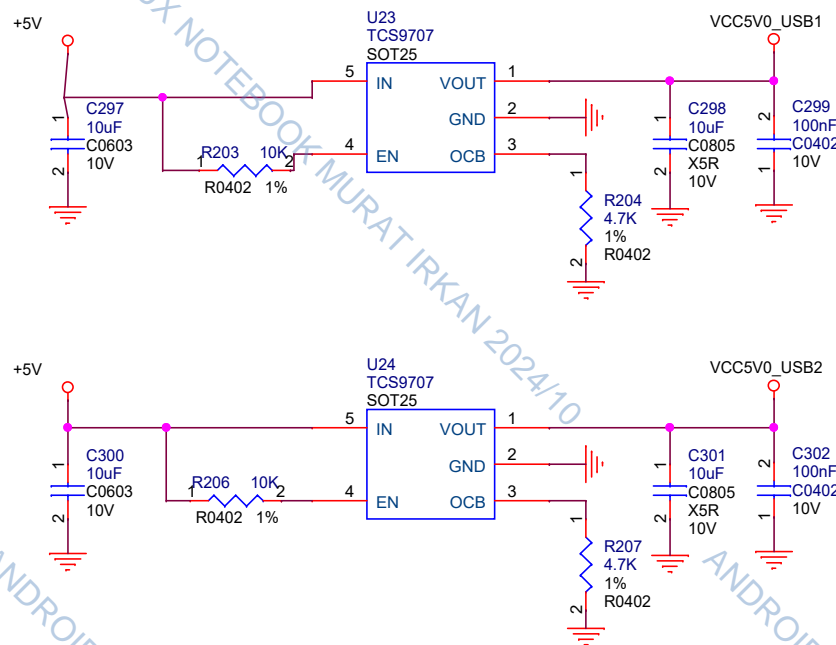
DIGITAL VIDEO



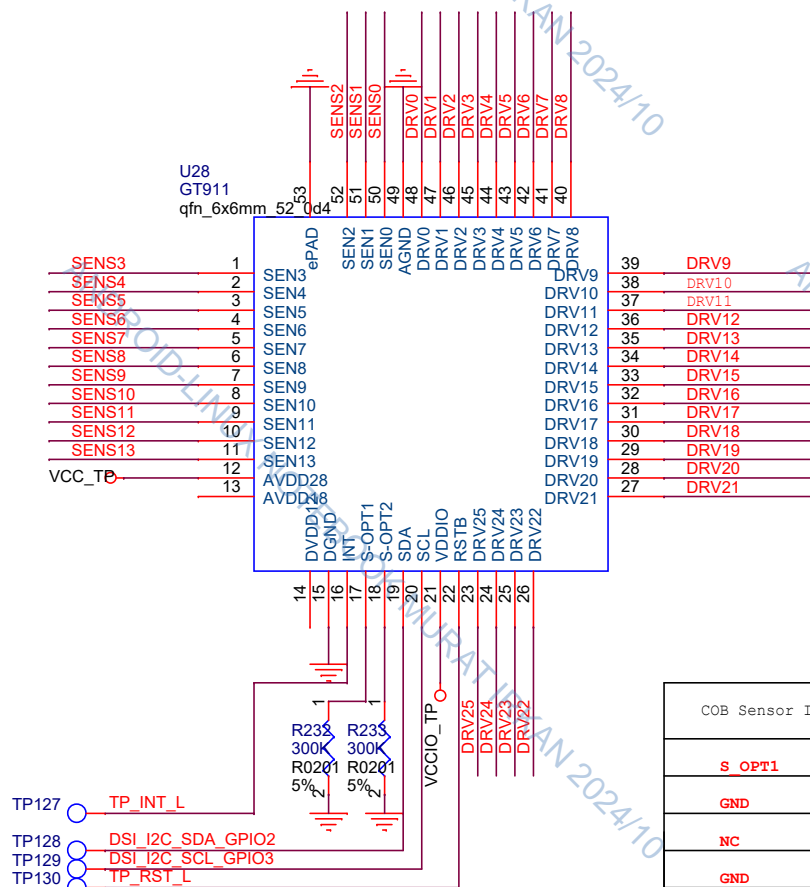
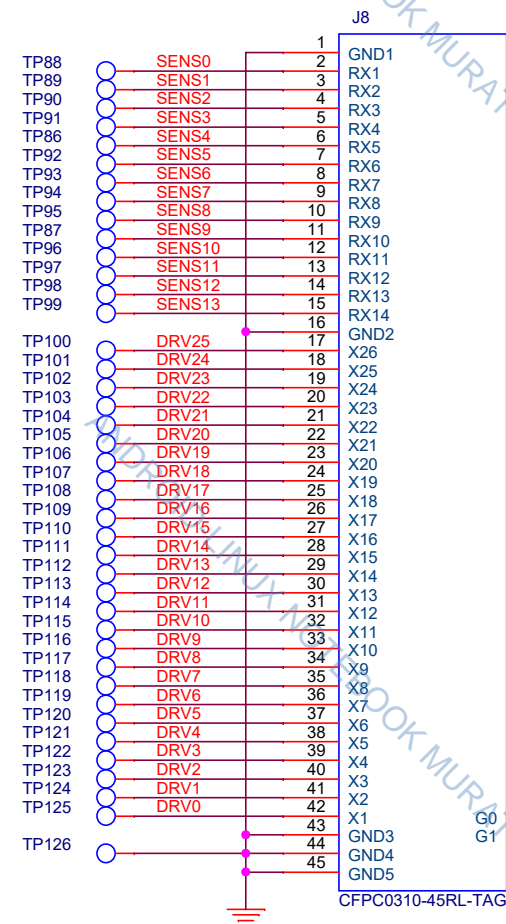
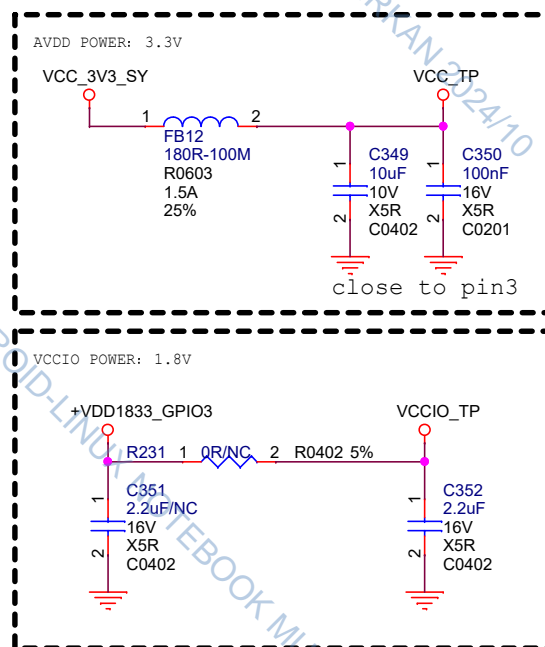
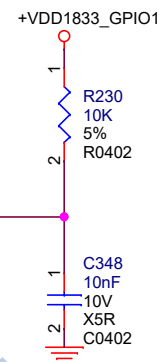
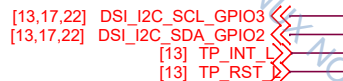
USB3.0 HOST TYPE-C



USB2.0 HOST KeyBoard



Note: 26x14 channel,
suit for Touch Panel size ≤ 12"



COB Sensor ID连接方法		
S OPT1	S OPT1	模组ID
GND	GND	模组1 (默认)
NC	GND	模组3
GND	NC	模组4
NC	NC	模组6

```
default VCCIO=1.8V
```



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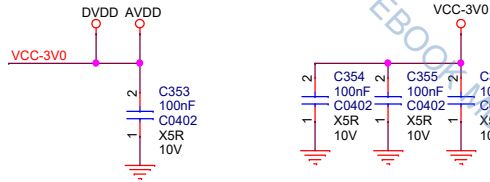
Rev

V1.0

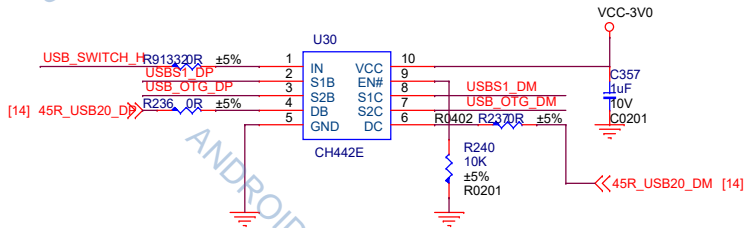
Date: Wednesday, February 08, 2023

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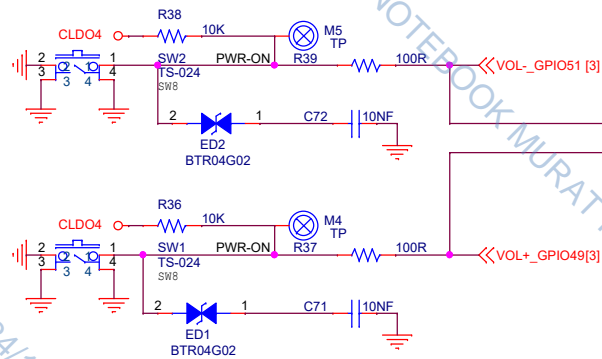
[20] USB_OTG_DM
[20] USB_OTG_DP



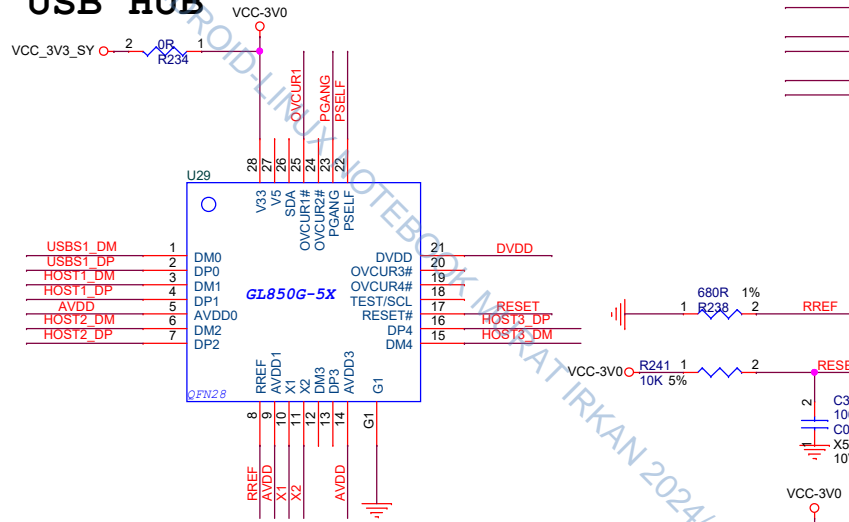
USB2.0 PROGRAMMING



USB2.0 OTG HUB switch



USB HUB



HOST1_DP 5
HOST1_DM 5
HOST2_DP 5
HOST2_DM 5
HOST3_DP 5
HOST3_DM 5

PGANG R243 1 10K 5% 2 R0402
OVCUR1 R245 1 10K 5% 2 R0402
PSELF R246 1 10K 5% 2 R0402

GPIO	GPIO 0	
0	0	Flash
1	1	UART

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USB2.0 HUB_Programming		
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NVMe PCIe 2.0

- [14] 50R_PCIE1_RXN

[14] 50R_PCIE1_RXP

[14] 50R_PCIE1_TXN

[14] 50R_PCIE1_TXP

[14] 50R_PCIE1_CKREFN

[14] 50R_PCIE1_CKREFP

[14] PCIE1_PRSN_GPIO29

[14] SSD_EN_GPIO18
- PCIE20_RXN

PCIE20_RXP

PCIE20_TXN

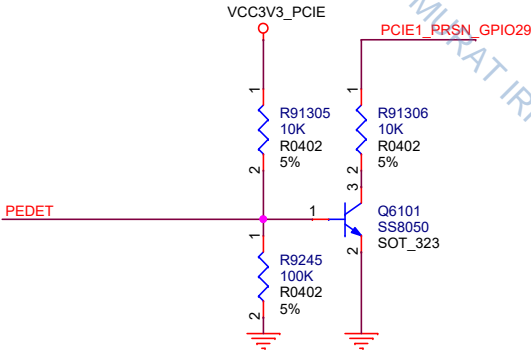
PCIE20_TXP

PCIE20_REFCLKN

PCIE20_REFCLKP

PCIE20_PRSN_GPIO29

SSD_EN_GPIO18



- [14] PCIE1_WAKE_GPIO26

[14] PCIE1_PERSTN_GPIO28

[14] PCIE1_CLK_GPIO21
- R0201 R91304 22R ±5%

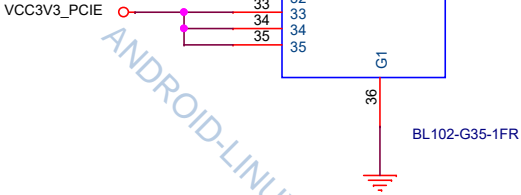
R0201 R91303 22R ±5%

R0201 R282 22R ±5%
- MINIPCI20_WAKEn_3V3_L

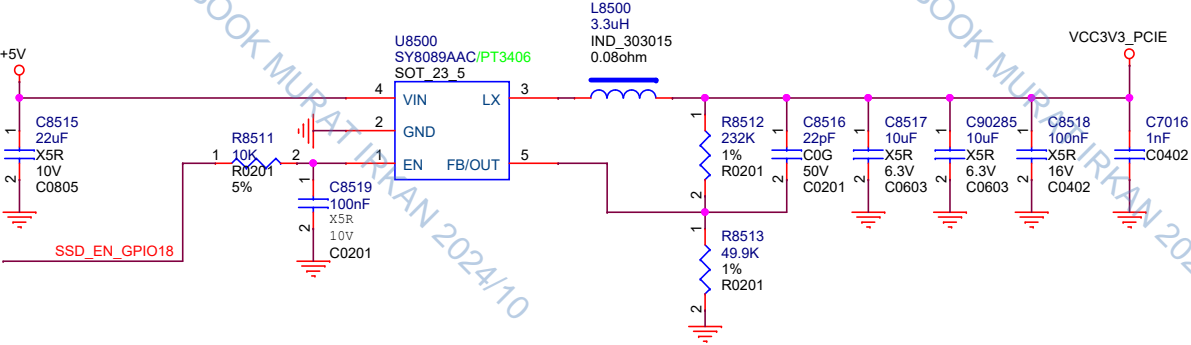
MINIPCI20_PERSTn_3V3_L

MINIPCI20_CLKREqn_3V3_L

PEDET



VCC3V3_PCIE



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