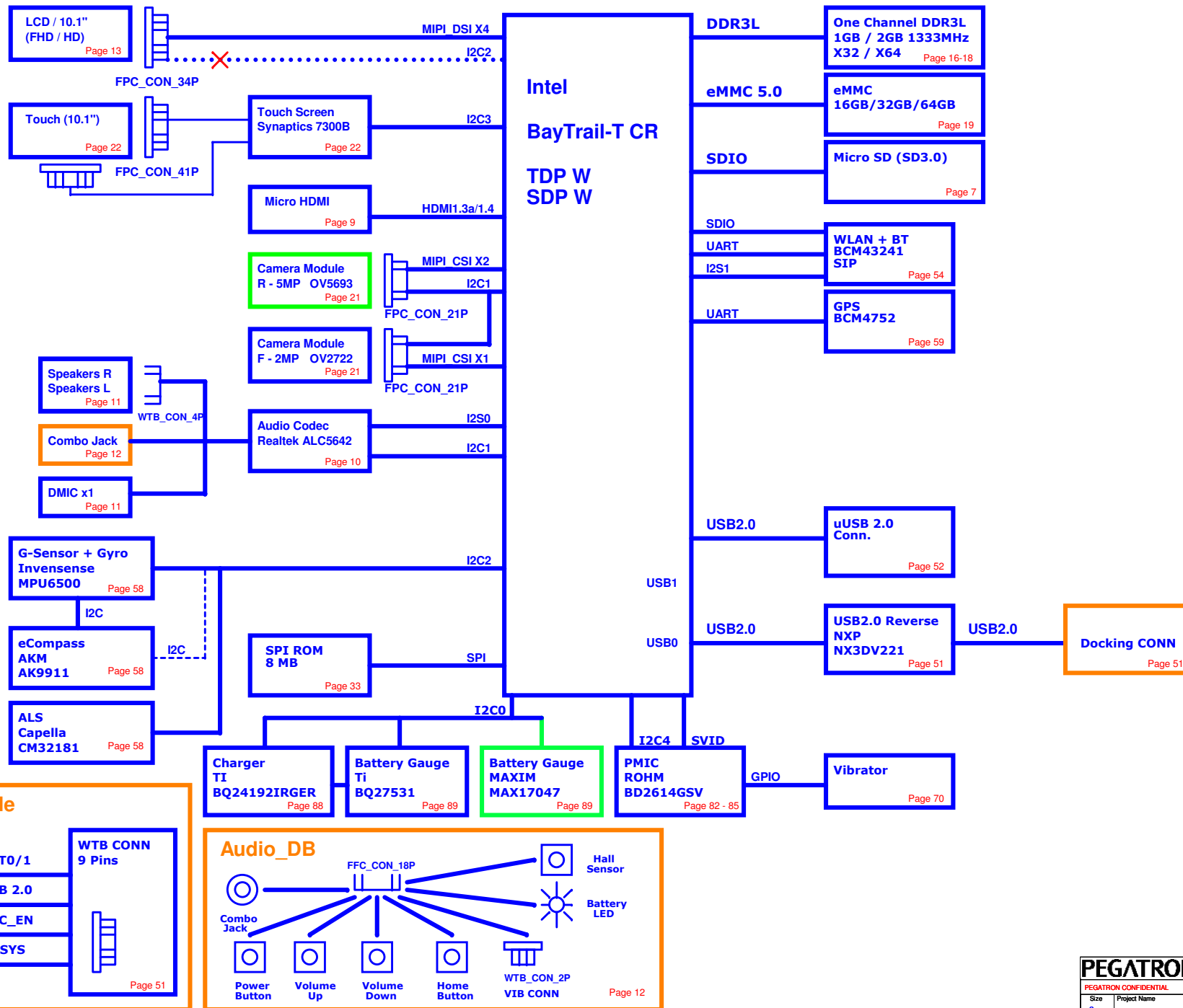


P0JAC2 Block Diagram



PAGE	PDF PAGE	TITLE
01	01	BLOCK DIAGRAM
02	02	REF PAGE
03	03	Port Assignment
04	04	Power Tree
05		****
06	05	Power Sequence
07	06	Micro SD
08		***
09	07	HDMI
10	08	Audio Codec
11	09	Audio SPK/DMIC
12	10	Audio BDCONN
13	11	MIPI Panel
14		***
15		***
16	12	DDR3L(1)
17	13	DDR3L(2)
18	14	DDR3L(3)
19	15	eMMC
20		***
21	16	Camera 5M/2M
22	17	Touch Screen
23	18	FHD DB CONN
24	19	CPU 1/6 MEMORY
25	20	CPU 2/6 DISPLAY, STORAGE, AUD
26	21	CPU 3/6 USB, I2C, CLK, DB, MISC
27	22	CPU 4/6 Power
28	23	CPU 5/6 Core Power
29	24	CPU 6/6 GND
30		***
31		***
32		***
33	25	BIOS ROM
34		***
35		***
36		***
37		***
38	26	Debug Circuit
39		***
40		***
41		***
42		***
43		***
44		***
45		***

PAGE	PDF PAGE	TITLE
46		***
47		***
48		***
49		***
50		***
51	27	USB Docking
52	28	Micro USB
53		***
54	29	WIFI/BT Foxconn T77H462.03
55		***
56		***
57		***
58	30	Sensor
59	31	GPS
60		***
61		***
62		***
63		***
64		***
65		***
66		***
67		***
68		***
69		***
70	32	VIBRATOR
71	33	Reset
72		***
73		***
74		***
75		***
76		***
77		***
78		***
79	34	ME parts & TP
80	35	DC/BATT CONN & MB ID
81	36	5V DCDC POWER
82	37	PMIC-1
83	38	PMIC-2
84	39	PMIC-3
85	40	PMIC-4
86		***
87		***
88	41	Charger IC
89	42	Gas Gauge
90		***

PAGE	PDF PAGE	TITLE
91		***
92		***
93	43	Audio FFC CONN
94	44	Audio Combo Jack
95	45	Button
96	46	VIBRATOR
97	47	LID Switch
98	48	LED
99	49	AUD Screw / TP

FENDI2

Optional	Stage				Remark
	SR	ER	PR	MP	
N/A	POP	POP	POP		
@	NC	NC	NC		
/LED	NC	NC	NC		Have LED function
/HOMEKEY	POP	POP	POP		Have HOMEKEY function
/NON_HOMEKEY	NC	NC	NC		None HOMEKEY function
/DDR3L_X64	POP	POP	POP		Have 2G 64 bits function
/DEBUG	POP	POP	POP		Have Debug port function
/NONDEBUG	NC	NC	NC		No Debug port function
/USBCHG	NC	NC	NC		Have USB charger function
/NONUSBCHG	POP	POP	POP		None USB charger function
/ALS	POP	POP	POP		Have Light Sensor function
/GPS	NC	NC	NC		Have GPS function
/THERMAL	NC	NC	NC		Have THERMAL RESET function
/MAX	NC	NC	NC		Have Maxim gas function
/BQ	POP	POP	POP		Have TI gas function
/GASG	POP	POP	POP		Have GAS function
/VIB	NC	NC	NC		Have VIBRATOR function
/WINDOWS	POP	POP	POP		Have Volume function for WINDOWS
/ANDROID	NC	NC	NC		Have Volume function for ANDROID
/5M	NC	NC	NC		Have 5M CAMERA function
/HD	POP	POP	POP		Have HD panel
/FHD	NC	NC	POP		Have FHD panel

03 Port Assignment

I2C Table

I2C Port	Device	7-bit Addr	Power Rail	Pull High
NFC_I2C	Debug CONN	Check Intel	+V1P8S	PU +V1P8S
I2C_0	Charger	6BH	+V1P8S	
	Fuel Gauge Maxim MAX17047	0x6C for write 0x6D for read	+V1P8S	
	Fuel Gauge TI BQ27531	0xAA for write 0xAB for read	+VSYS	
	USB MUX	68H	+VUSB_CONN	PU +V1P8S
I2C_1	Rear CAM (5M)	0x20 for write 0x21 for read	+V1P8SX	
	Front CAM (2M)	0x6C for write 0x6D for read	+V1P8SX	
	Audio Codec	38H	+V1P8S	PU +V1P8S
	Debug Port	Check Intel	+V1P8S	
I2C_2	Gyro	68H	+V1P8S	
	E-Com	0CH	+V1P8S	PU +V1P8S
	Light sensor	0x10	+V3P3S	
I2C_3	Touch Screen	20H	+V1P8S	PU +V1P8S
I2C_4	PMIC	Device 1 5EH Device 2 6EH	+V1P8S	PU +V1P8S

DDI Table

Gen	Module
DDI0	HDMI
DDI1	NC

MIPI DSI Table

Gen	Module
MDSI_A	MIPI Panel

MIPI CSI Table

Gen	Module
MCSI_1	Rear Camera
MCSI_2	Front Camera

HSUART Table

Gen	Module
UART_1	WIFI/BT
UART_2	GPS

eMMC Table

Gen	Module
MMC1	eMMC

SDIO Table

Gen	Module
SD2	WIFI/BT
SD3	Micro SD Card

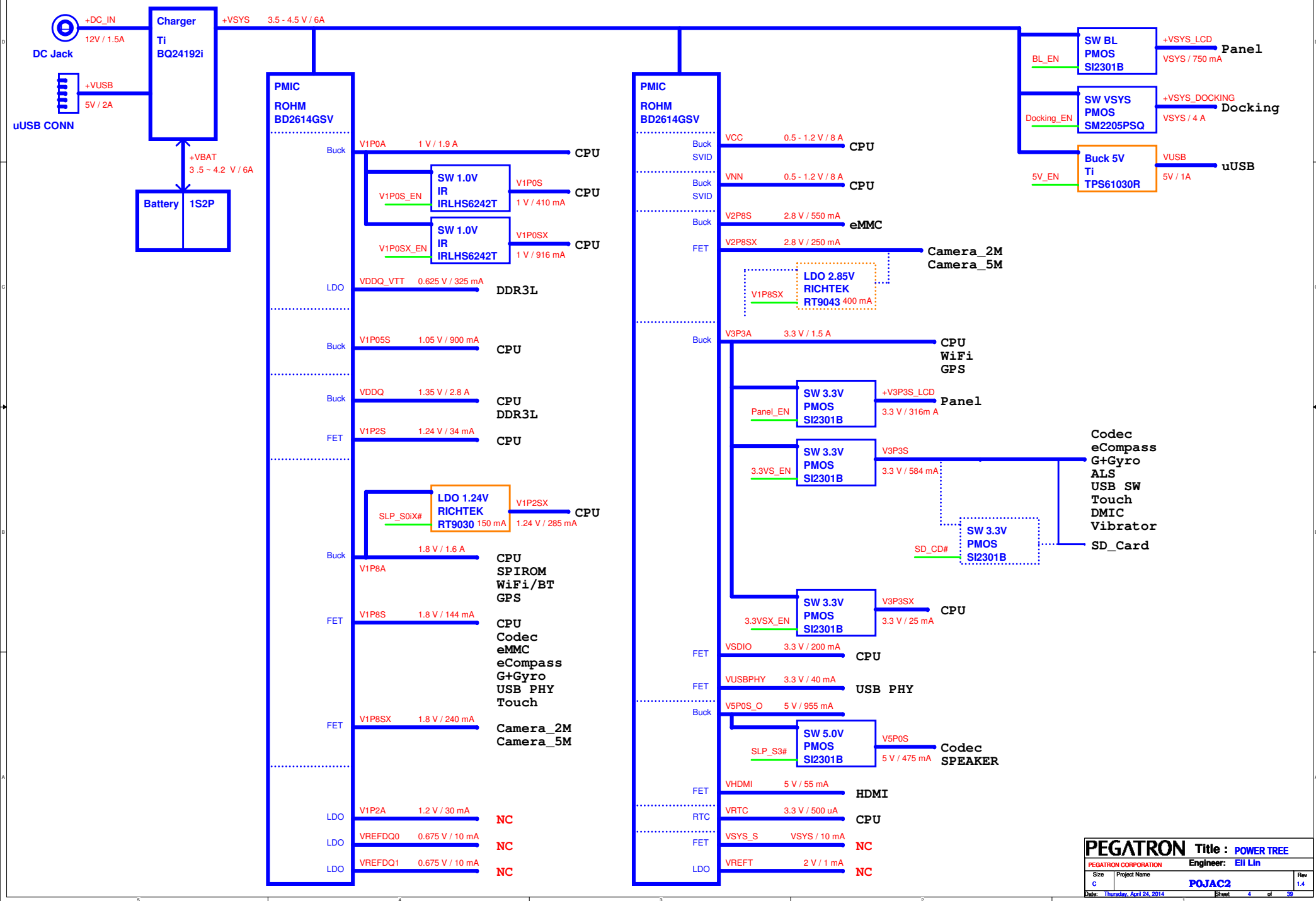
USB 2.0 Table

Gen	Module
USB_0	USB Docking
USB_1	Micro USB
USB_ULPI	USB PHY

I2S Table

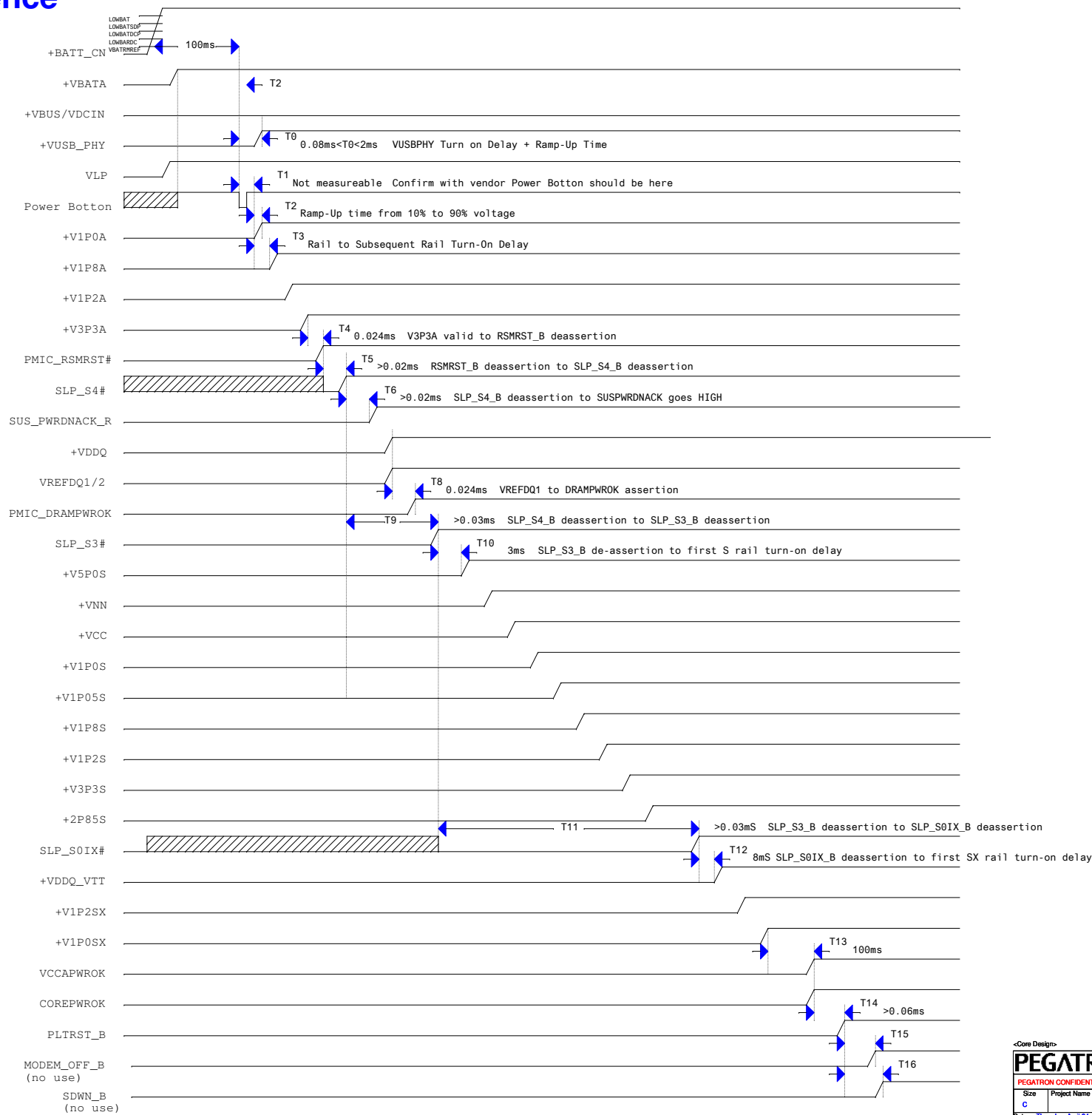
I2S Port	Module
I2S_0	Audio Codec
I2S_1	WLAN

Power Tree

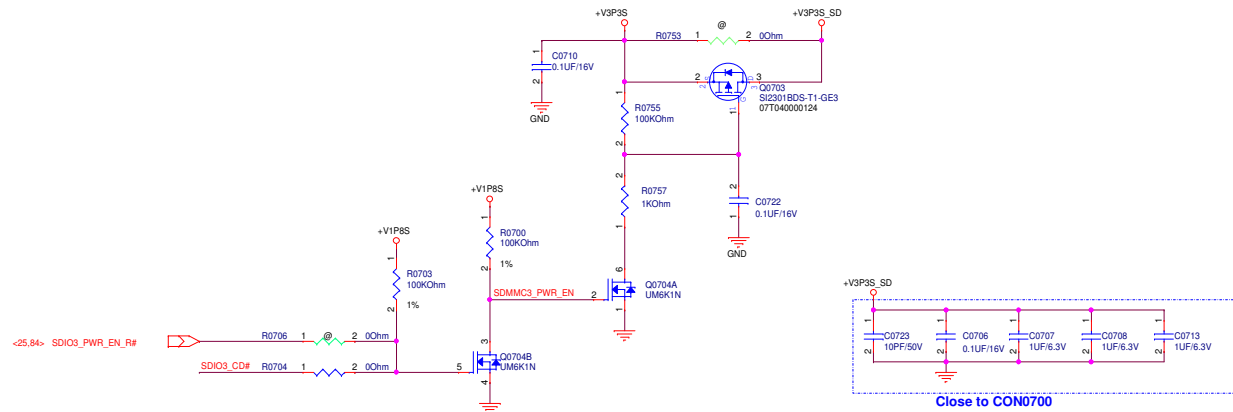


06 Power Sequence

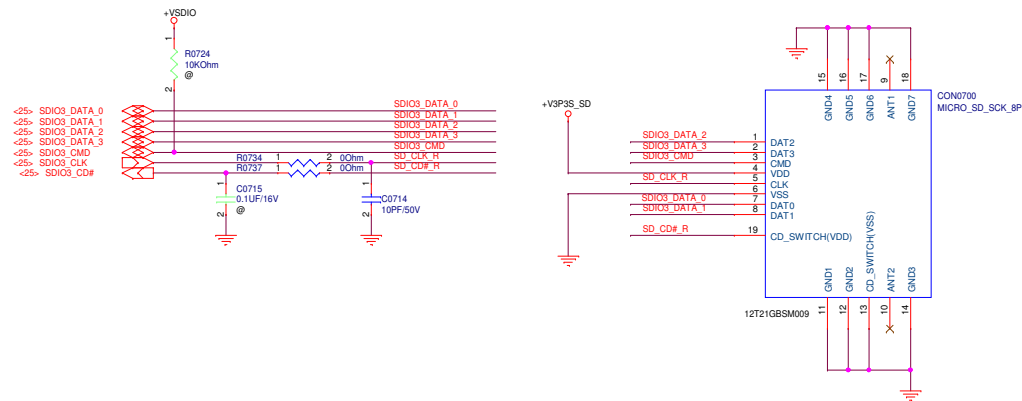
Cold Boost Power Sequenc Diagram



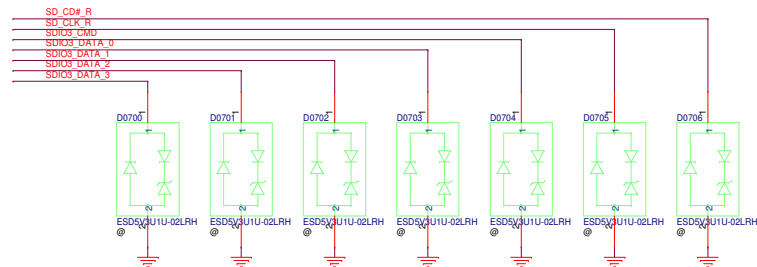
Micro SD Power



Micro SD Socket

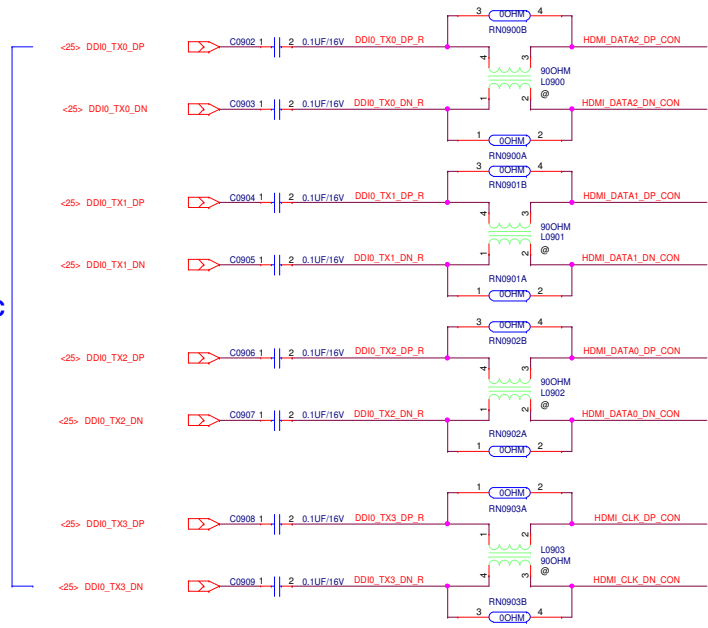


ESD

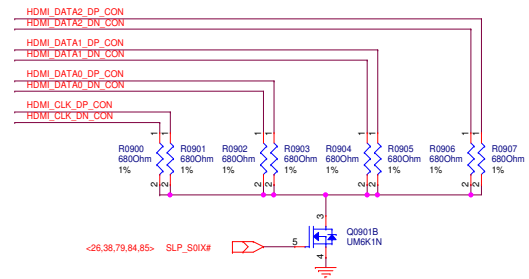


HDMI DATA

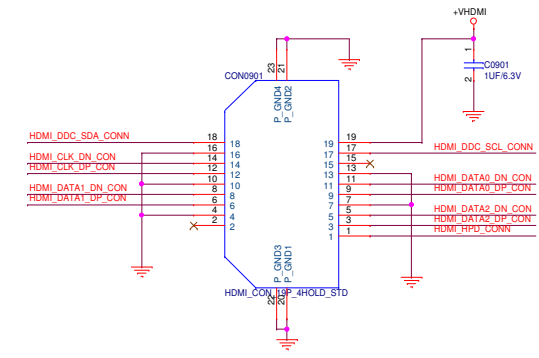
From SOC



Level Shift



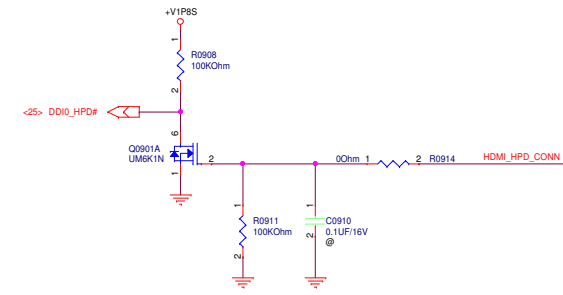
HDMI CONN



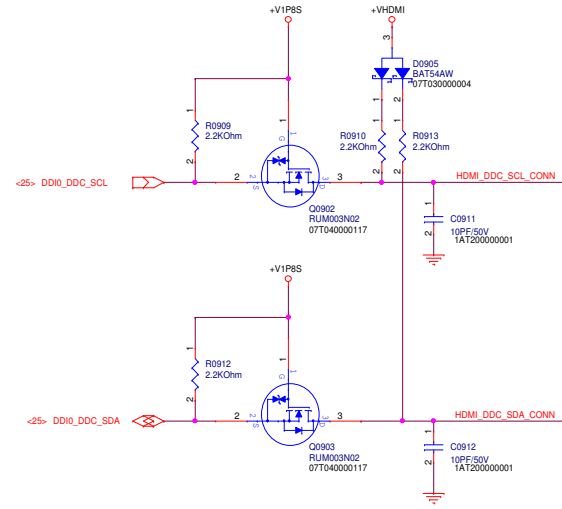
Micro HDMI CONN Pin Definition Type-D

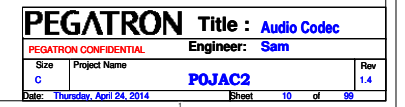
- 1 : Hot Plug Detect
- 2 : Utility(NC)
- 3 : TMDS Data2+
- 4 : TMDS Data2- Shield
- 5 : TMDS Data2-
- 6 : TMDS Data1+
- 7 : TMDS Data1- Shield
- 8 : TMDS Data1-
- 9 : TMDS Data0+
- 10 : TMDS Data0- Shield
- 11 : TMDS Data0-
- 12 : TMDS Clock+
- 13 : TMDS Clock- Shield
- 14 : TMDS Clock-
- 15 : CEC(NC)
- 16 : DDC/CEC Ground
- 17 : SCL
- 18 : SDA
- 19 : +5V Power

HDMI HPD

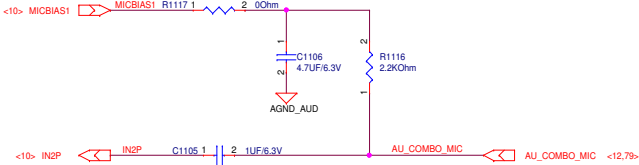
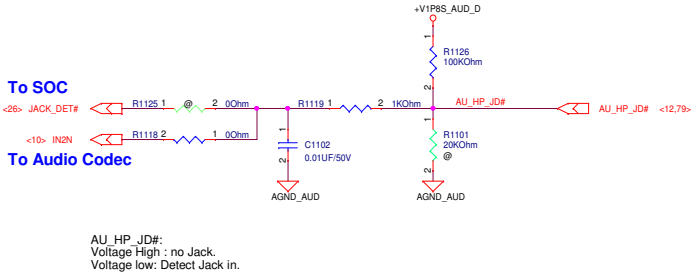


HDMI DDC

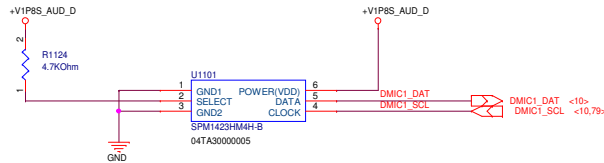




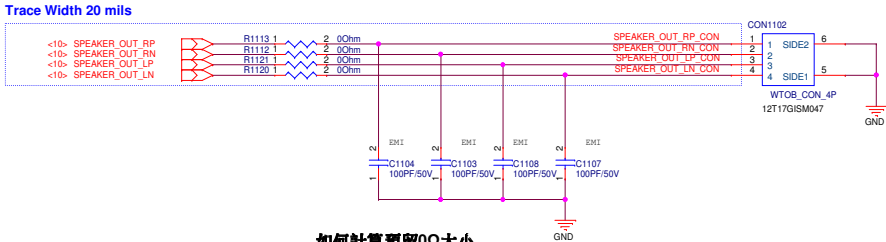
Combo JACK



D-MIC



SPK CONN



如何計算預留0Ω大小

Speaker Spec.
P=1W
R=8Ω

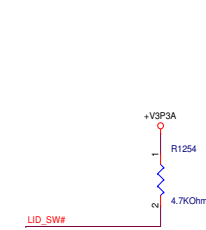
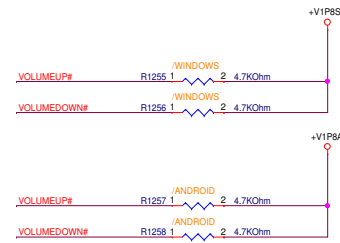
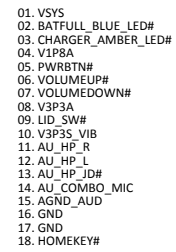
$P=I^2 \cdot R$
 $I=I_p^2 \cdot R$
 $I_{rms}=0.354A$
 $I_p=0.354 \cdot 1.414$
 $I_p=0.501A$

0Ω通常用50mΩ來計算耐壓
 $P=I_p^2 \cdot R$
 $P=0.7515^2 \cdot 0.05$
 $=0.028W$

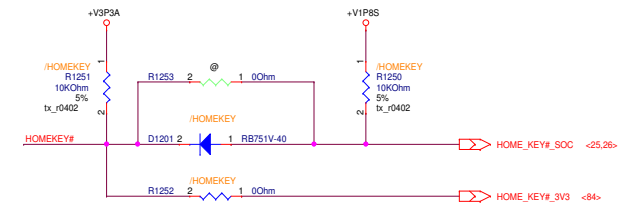
Vendor 建議電流估1.5倍
 $I_p=0.501 \cdot 1.5$
 $=0.7515A$

Size	阻值	功率
0805	1/8W	0.125W
0603	1/10W	0.1W
0402	1/16W	0.0625W
0201	1/20W	0.05W

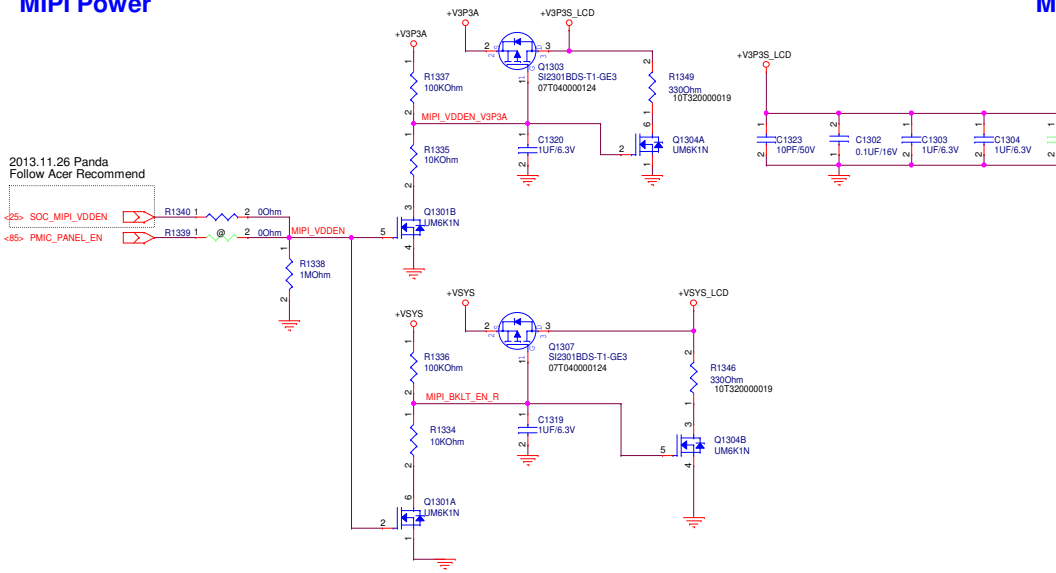
Audio CONN Pin Definition



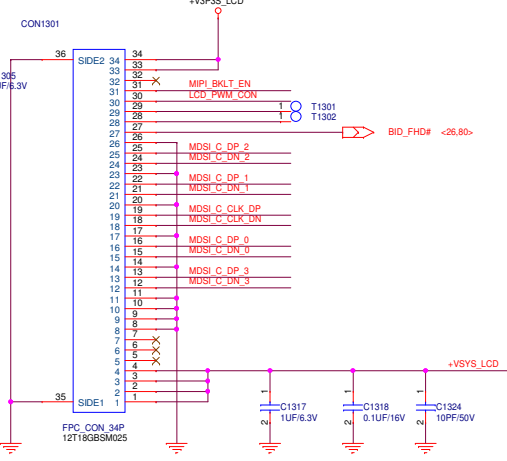
Win8 Home Key



MIPI Power



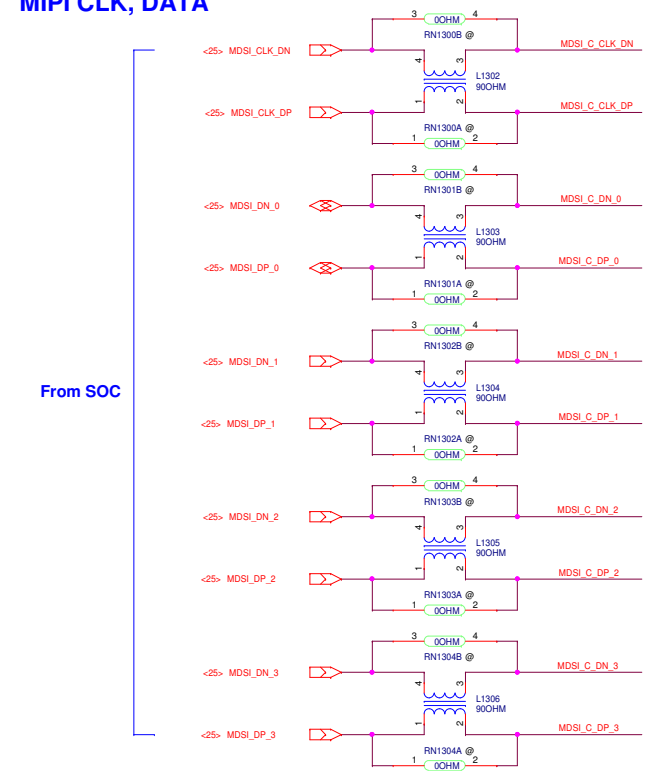
MIPI CONN



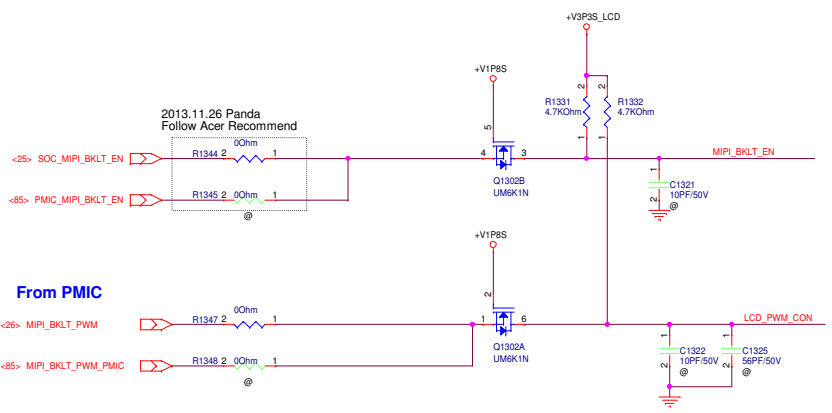
MIPI CONN
Pin Definition

- 34. VDD(3.3V)
- 33. VDD(3.3V)
- 32. NC
- 31. LED_EN(1.8V)
- 30. LED_PWM
- 29. EDID_SDA
- 28. EDID_SCL
- 27. BID_FHD#
- 26. GND
- 25. MIPI_DSI_D2P
- 24. MIPI_DSI_D2N
- 23. GND
- 22. MIPI_DSI_D1P
- 21. MIPI_DSI_D1N
- 20. GND
- 19. MIPI_DSI_CLKP
- 18. MIPI_DSI_CLKN
- 17. GND
- 16. MIPI_DSI_D0P
- 15. MIPI_DSI_D0N
- 14. GND
- 13. MIPI_DSI_D3P
- 12. MIPI_DSI_D3N
- 11. GND
- 10. GND
- 09. GND
- 08. GND
- 07. NC
- 06. Aging mode power(AUO only)
- 05. NC
- 04. LED+
- 03. LED+
- 02. LED+
- 01. LED+

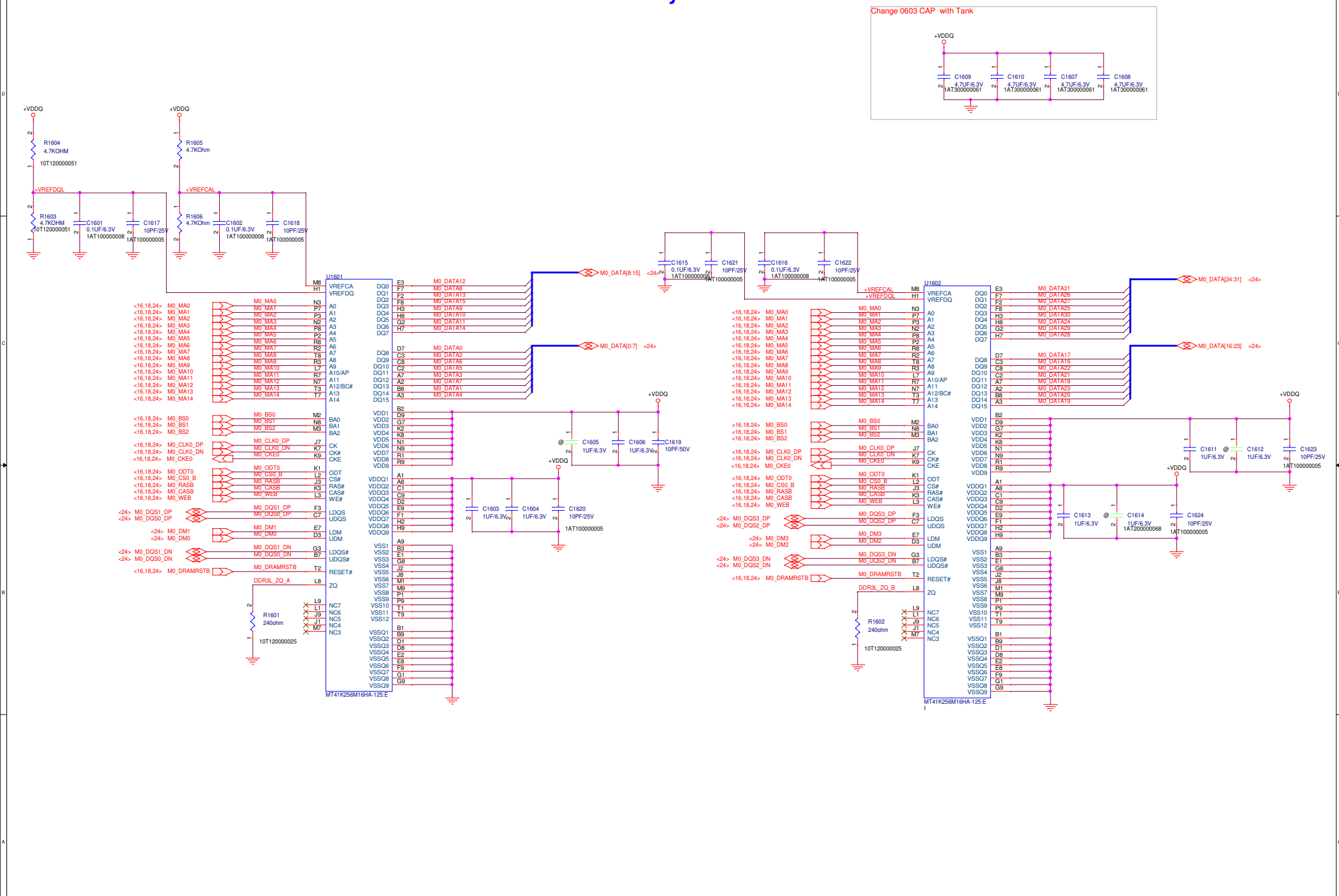
MIPI CLK, DATA

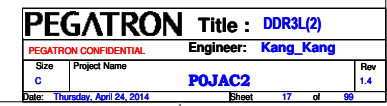


MIPI PWM

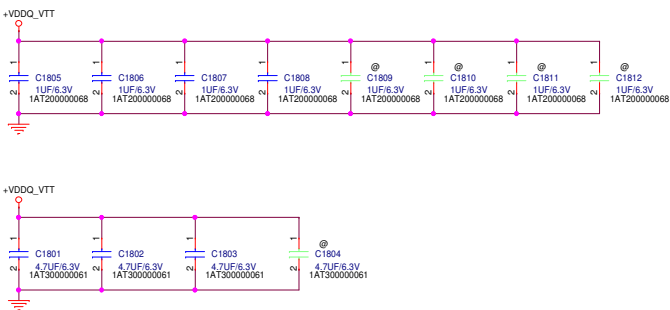
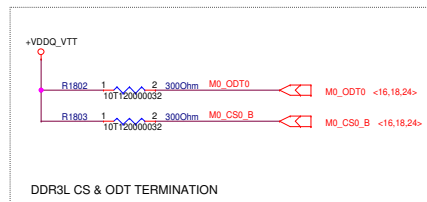
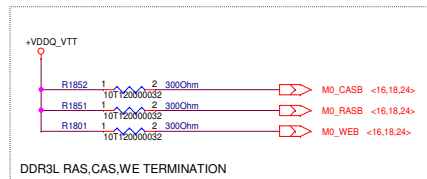
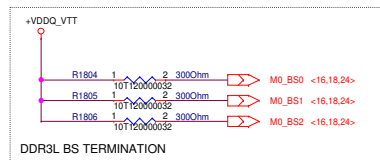
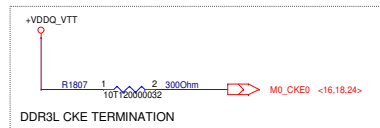
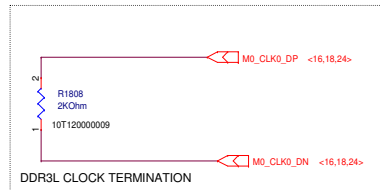
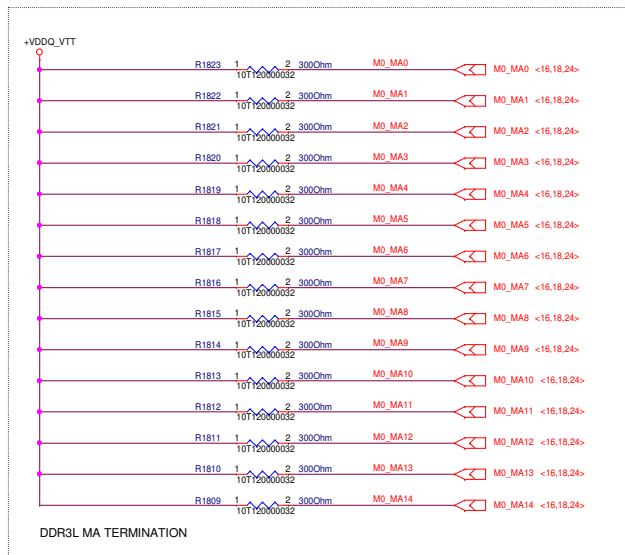


Memory DRAM 1/2





Memory DRAM Termination Resistor



Average placed close to +VDDQ_VTT power plane

<16,18,24> M0_DRAMRSTB	R1849	/DDR3L_X64	1	2	00hm	M0_DRAMRSTB_R	M0_DRAMRSTB_R <17>
<16,18,24> M0_CLK0_DP	R1848	/DDR3L_X64	1	2	00hm	M0_CLK0_DP_R	M0_CLK0_DP_R <17>
<16,18,24> M0_CLK0_DN	R1824	/DDR3L_X64	1	2	00hm	M0_CLK0_DN_R	M0_CLK0_DN_R <17>
<16,18,24> M0_CKE0	R1847	/DDR3L_X64	1	2	00hm	M0_CKE0_R	M0_CKE0_R <17>
<16,18,24> M0_CS0_B	R1825	/DDR3L_X64	1	2	00hm	M0_CS0_B_R	M0_CS0_B_R <17>
<16,18,24> M0_CASB	R1826	/DDR3L_X64	1	2	00hm	M0_CASB_R	M0_CASB_R <17>
<16,18,24> M0_RASB	R1827	/DDR3L_X64	1	2	00hm	M0_RASB_R	M0_RASB_R <17>
<16,18,24> M0_WEB	R1828	/DDR3L_X64	1	2	00hm	M0_WEB_R	M0_WEB_R <17>
<16,18,24> M0_MA0	R1829	/DDR3L_X64	1	2	00hm	M0_MA0_R	M0_MA0_R <17>
<16,18,24> M0_MA1	R1830	/DDR3L_X64	1	2	00hm	M0_MA1_R	M0_MA1_R <17>
<16,18,24> M0_MA2	R1831	/DDR3L_X64	1	2	00hm	M0_MA2_R	M0_MA2_R <17>
<16,18,24> M0_MA3	R1832	/DDR3L_X64	1	2	00hm	M0_MA3_R	M0_MA3_R <17>
<16,18,24> M0_MA4	R1833	/DDR3L_X64	1	2	00hm	M0_MA4_R	M0_MA4_R <17>
<16,18,24> M0_MA5	R1834	/DDR3L_X64	1	2	00hm	M0_MA5_R	M0_MA5_R <17>
<16,18,24> M0_MA6	R1835	/DDR3L_X64	1	2	00hm	M0_MA6_R	M0_MA6_R <17>
<16,18,24> M0_MA7	R1836	/DDR3L_X64	1	2	00hm	M0_MA7_R	M0_MA7_R <17>
<16,18,24> M0_MA8	R1837	/DDR3L_X64	1	2	00hm	M0_MA8_R	M0_MA8_R <17>
<16,18,24> M0_MA9	R1838	/DDR3L_X64	1	2	00hm	M0_MA9_R	M0_MA9_R <17>
<16,18,24> M0_MA10	R1839	/DDR3L_X64	1	2	00hm	M0_MA10_R	M0_MA10_R <17>
<16,18,24> M0_MA11	R1840	/DDR3L_X64	1	2	00hm	M0_MA11_R	M0_MA11_R <17>
<16,18,24> M0_MA12	R1841	/DDR3L_X64	1	2	00hm	M0_MA12_R	M0_MA12_R <17>
<16,18,24> M0_MA13	R1842	/DDR3L_X64	1	2	00hm	M0_MA13_R	M0_MA13_R <17>
<16,18,24> M0_MA14	R1843	/DDR3L_X64	1	2	00hm	M0_MA14_R	M0_MA14_R <17>
<16,18,24> M0_BS0	R1844	/DDR3L_X64	1	2	00hm	M0_BS0_R	M0_BS0_R <17>
<16,18,24> M0_BS1	R1845	/DDR3L_X64	1	2	00hm	M0_BS1_R	M0_BS1_R <17>
<16,18,24> M0_BS2	R1846	/DDR3L_X64	1	2	00hm	M0_BS2_R	M0_BS2_R <17>
<16,18,24> M0_ODT0	R1850	/DDR3L_X64	1	2	00hm	M0_ODT0_R	M0_ODT0_R <17>

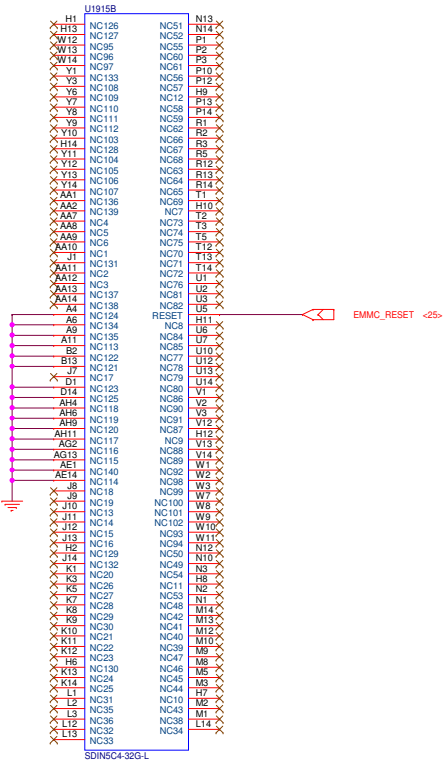
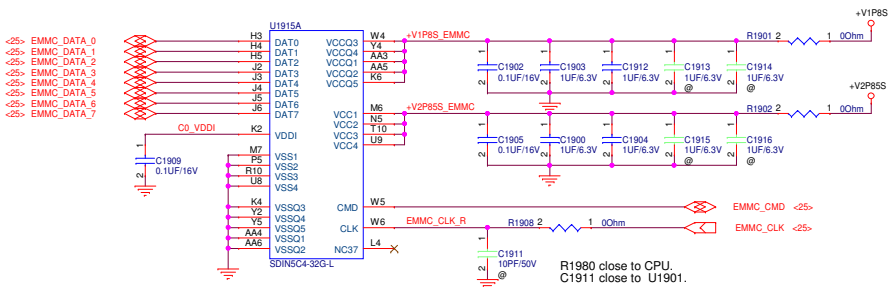
X32/64 RESISTOR OPTIONS

T1901 1 EMMC_DATA_0
T1902 1 EMMC_RESET
T1903 1 EMMC_CMD

Table 16. Storage Control Cluster (eMMC, SDIO, SD) Interface Signals (Sheet 1 of 2)

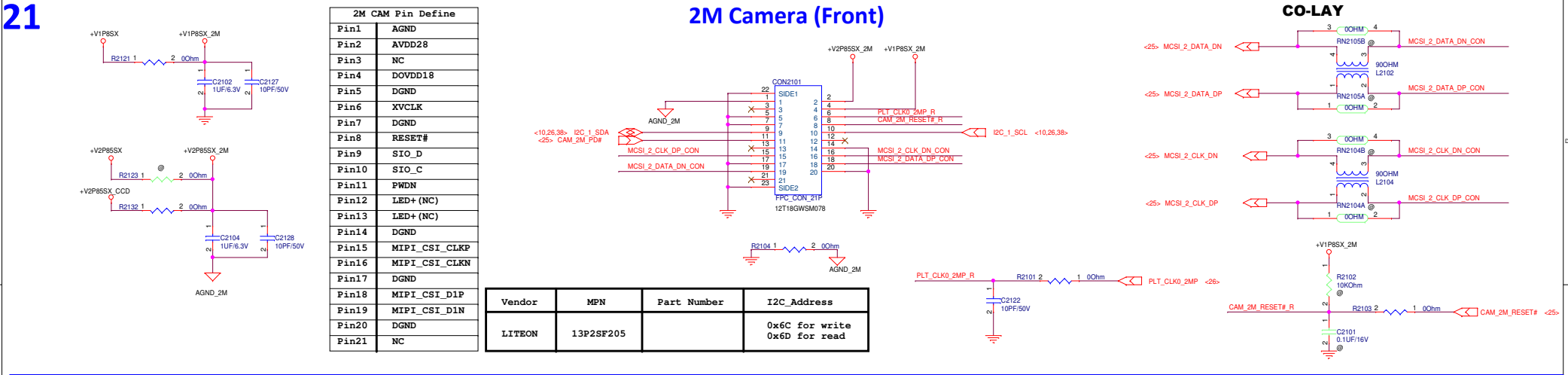
Signal Name	Dir	Term	Plat. Power	Default Buffer State			
				S4/S5	Reset	Enter S0	S0ix
MMC1_D[7:0]†	I/O	20k(H)	V1P8S	Off	Pull-up	Pull-up	
MMC1_CMD†	I/O	20k(H)	V1P8S	Off	Pull-up	Pull-up	
MMC1_CLK†	I/O	20k(L)	V1P8S	Off	Pull-down	Pull-down	
MMC1_RST#†	I/O	20k(L)	V1P8S	Off	Pull-down	Pull-down	
MMC1_RCOMP	-	-	V1P8S				
SD2_D[3:0]†	I/O	20k(H)	V1P8S	Off	Pull-up	Pull-up	
SD2_CMD†	I/O	20k(H)	V1P8S	Off	Pull-up	Pull-up	

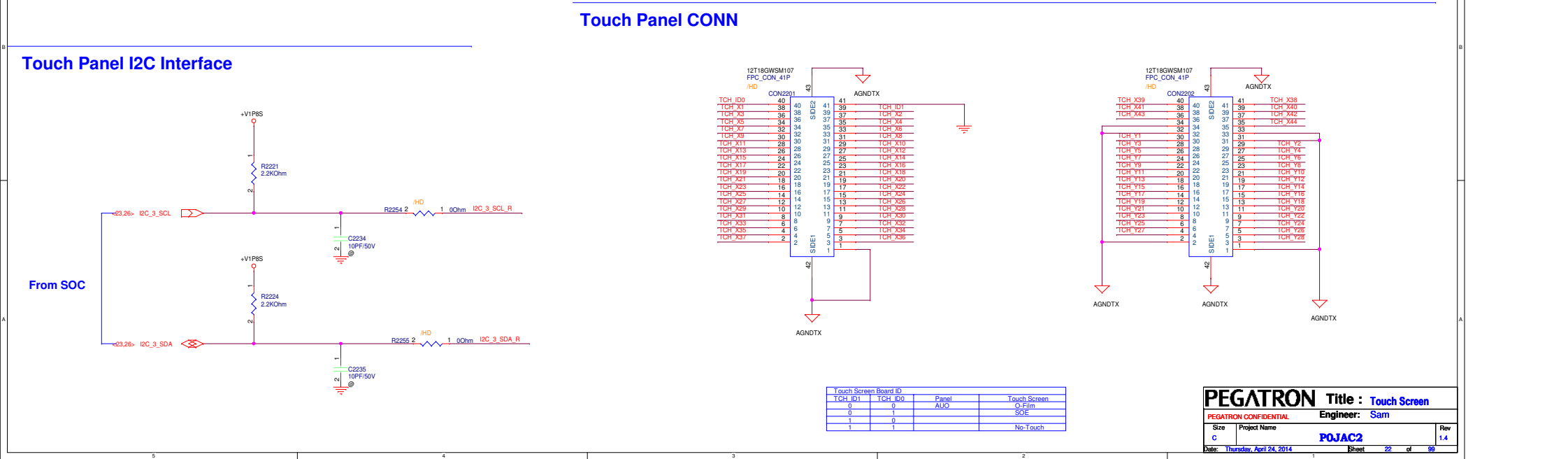
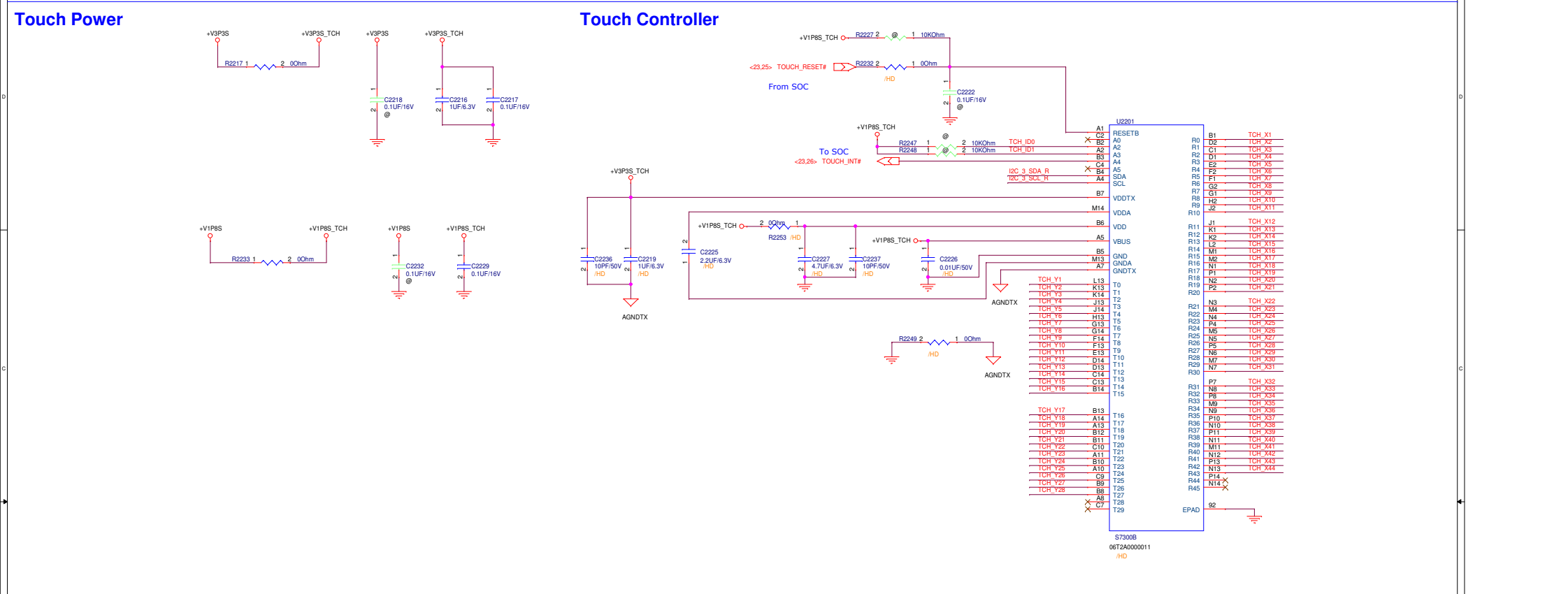
eMMC



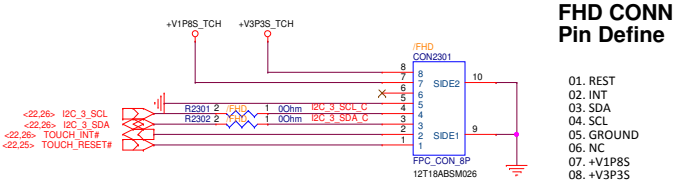
eMMC Table			
Priority	eMMC Description	Part Number	TX Part Number
Main Source	SANDISK / FLASH EMMC 32GB FBGA-153	0500-01L10DE	*****
Second Source	HYUNIX / FLASH EMMC 32GB FBGA-153	0500-01K500S	*****
Second Source	SAMSUNG / FLASH EMMC 32GB FBGA-153	0500-01L20DE	*****

153 BALL / 169 BALL



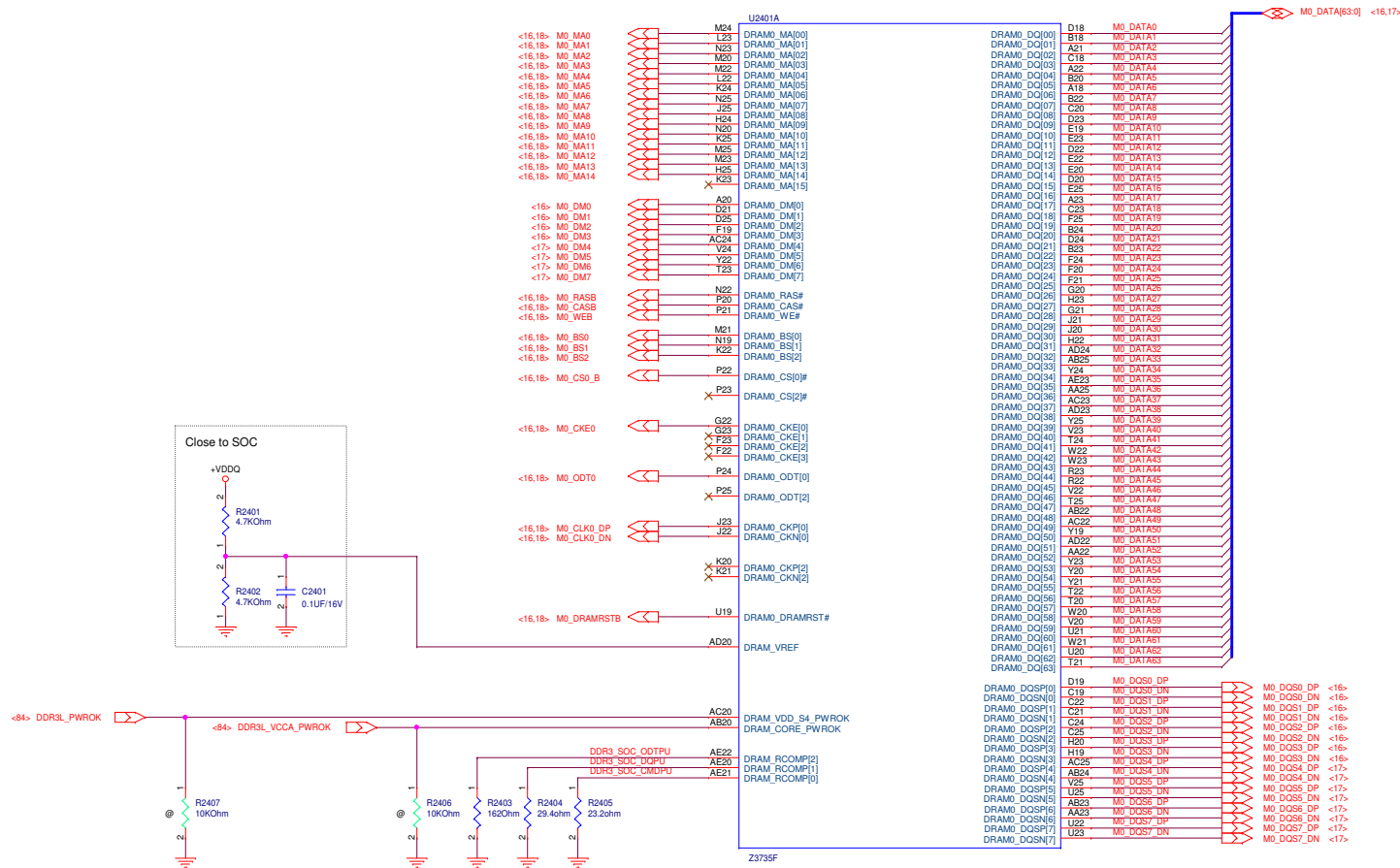


Touch Screen Board IO			
TCH ID1	TCH ID0	Panel	Touch Screen
0	0	AUJO	O-Film
1	0	SOE	SOE
1	1		No-Touch

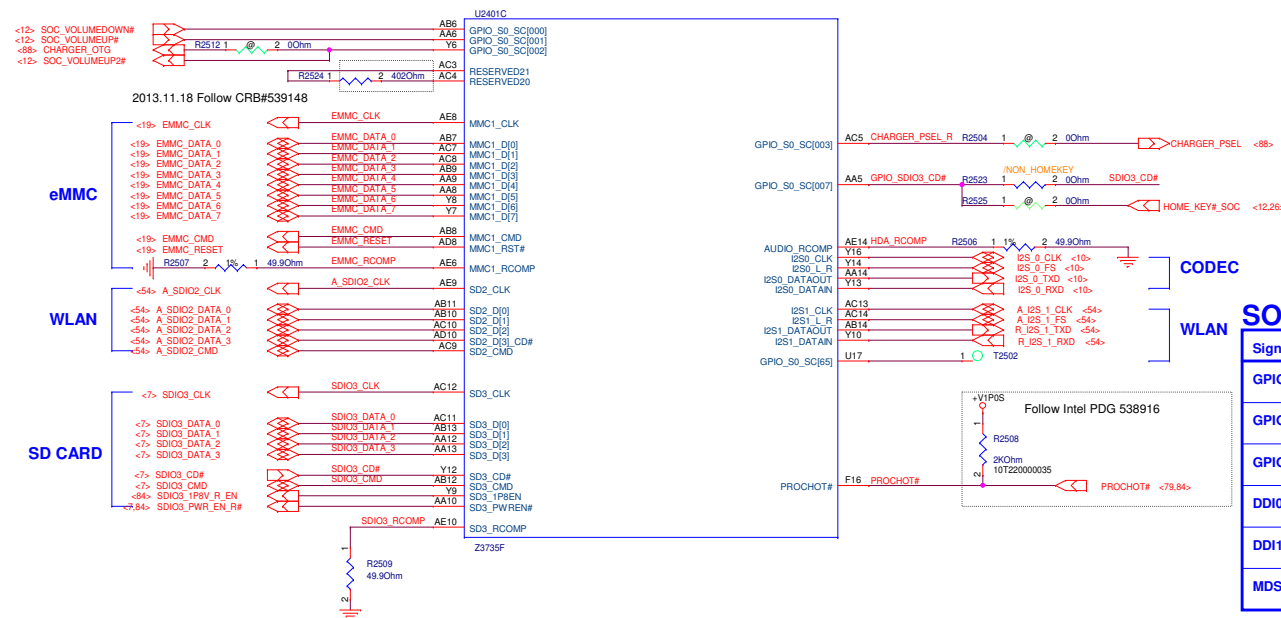
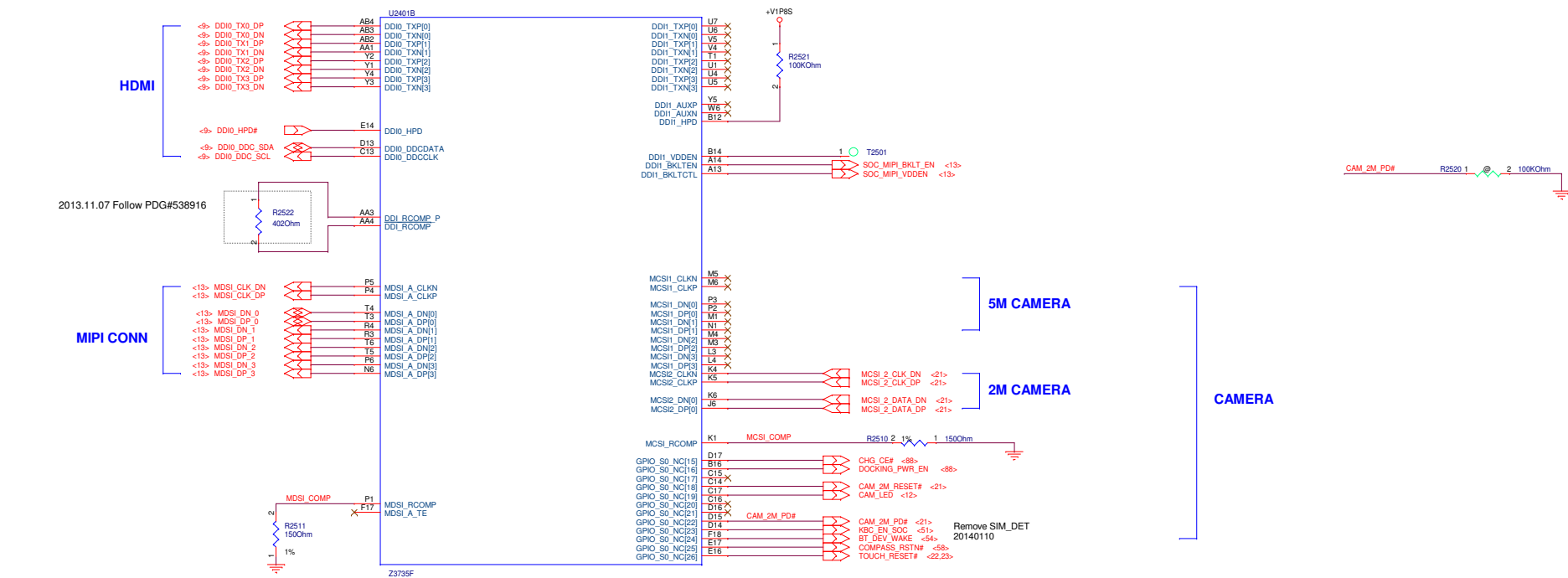


- FHD CONN**
Pin Define
- 01. REST
 - 02. INT
 - 03. SDA
 - 04. SCL
 - 05. GROUND
 - 06. NC
 - 07. +V1P85
 - 08. +V3P35

SOC Memory

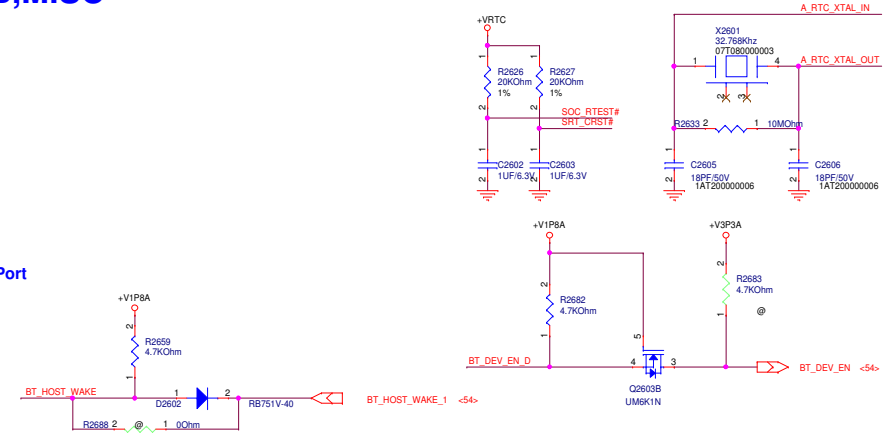
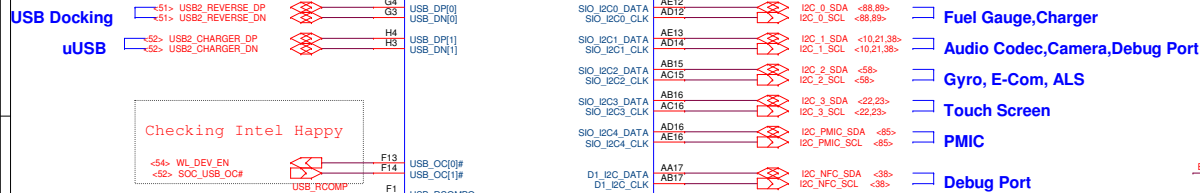


SOC DISPLAY, STORAGE, AUD

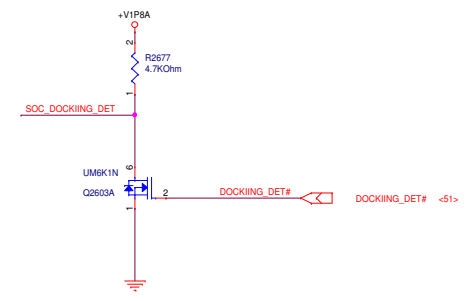


SOC Strapping

Signal Name	Pin No.	Default	Strap Exit	Strap Description	Circuitry
GPIO_S0_56	BU11	1b	PMC_CORE_PWROK de-asserted	Top Swap (A16 Override) 0 = Top address bit is unchanged ☆1 = Top address bit is inverted	No external PU/PD
GPIO_S0_63	BT36	1b	PMC_CORE_PWROK de-asserted	BIOS Boot Selection 0 = LPC ☆1 = SPI	No external PU/PD
GPIO_S0_65	BK36	1b	PMC_CORE_PWROK de-asserted	Security Flash Descriptors 0 = Override ☆1 = Normal Operation	No external PU Has a @ 4.7KOhm PD
DDI0_DDC_SDA	H32	0b	PMC_CORE_PWROK de-asserted	DDI0 Detect 0 = DDI0 not detected ☆1 = DDI0 detected	PU to +V1P8S by 2.2KOhm
DDI1_DDC_SDA	F36	0b	PMC_CORE_PWROK de-asserted	DDI1 Detect ☆0 = DDI1 not detected ☆1 = DDI1 detected	Connect to GND
MDSI_DDC_SDA	B34	0b	PMC_CORE_PWROK de-asserted	MIPSI DSI Detect ☆0 = DSI not detected ☆1 = DSI detected	NC

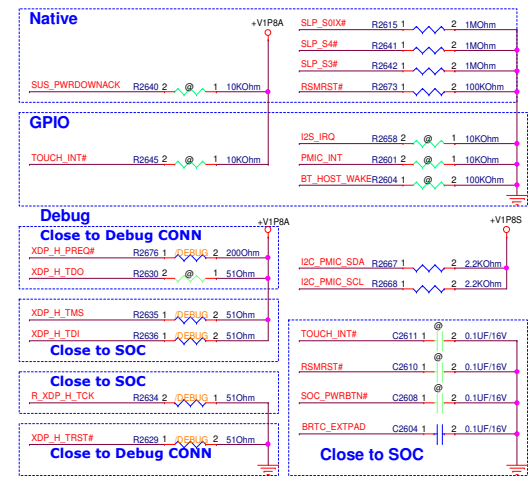
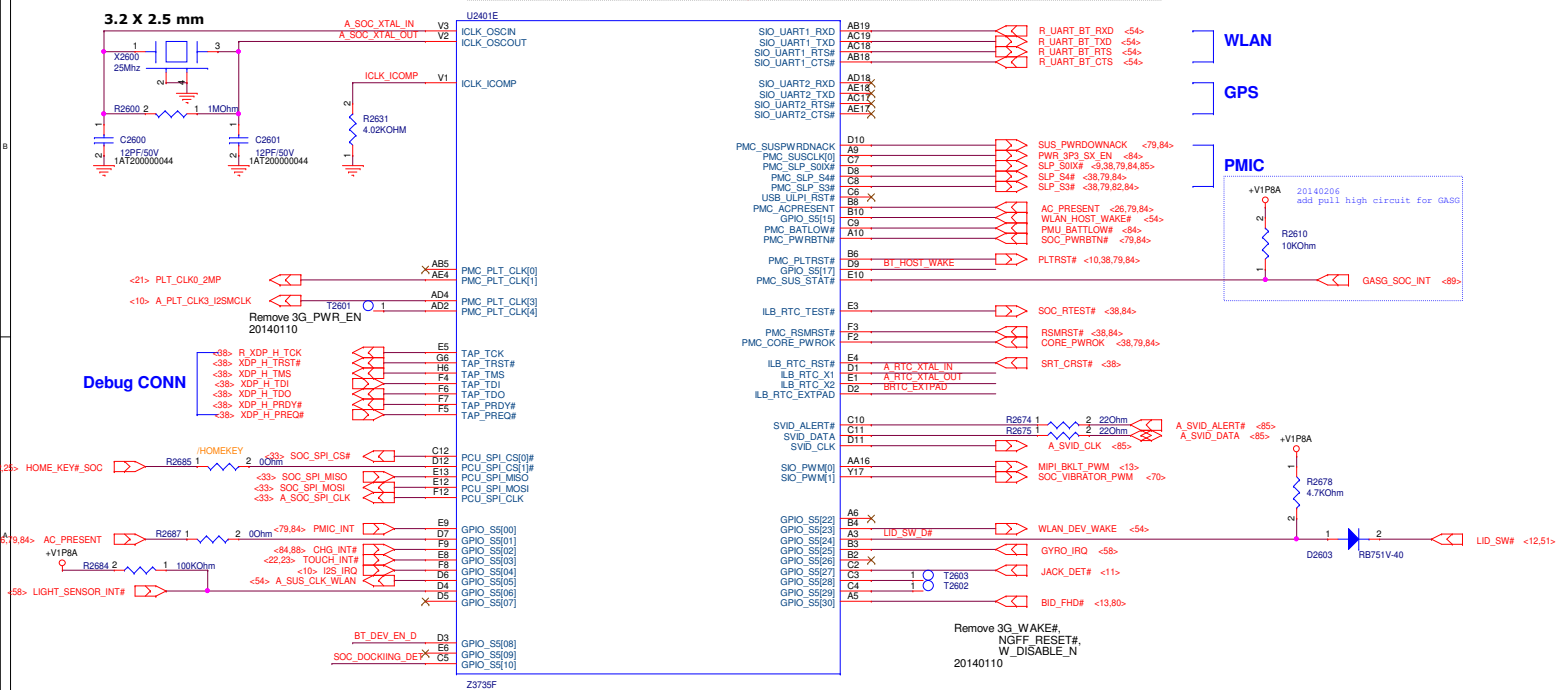
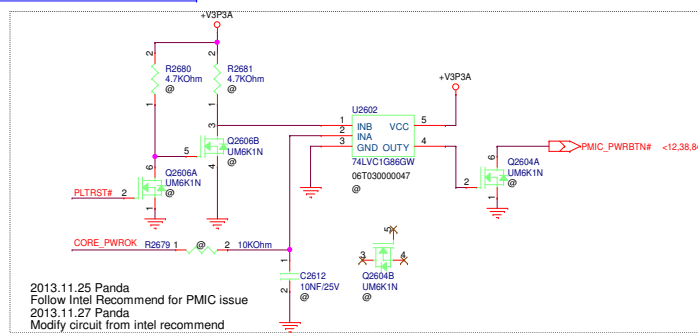


2013.11.28
Remove level shift circuit
Follow MPU736 vendor recommend

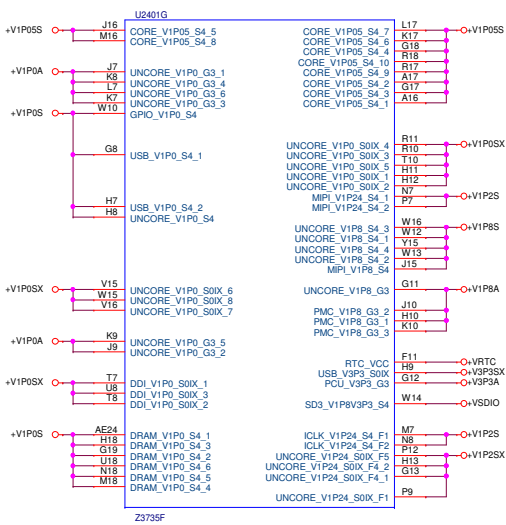


$$\text{Cloud} = \frac{[(C1 + \text{Cin1} + \text{Ctrace1}) * (C2 + \text{Cin2} + \text{Ctrace2})]}{(C1 + \text{Cin1} + \text{Ctrace1} + C2 + \text{Cin2} + \text{Ctrace2})}$$

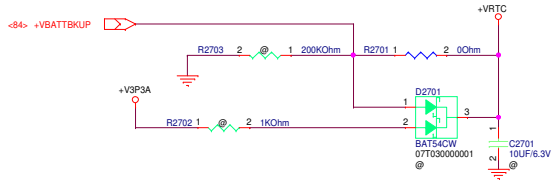
C1 = C2 = 18pF
Cin1 = Cin2 = 3pF (Refer to Chief River)
Ctrace = trace length * 2pF/inch 200 mil Ctrace = 0.2pF
Load = 10pF



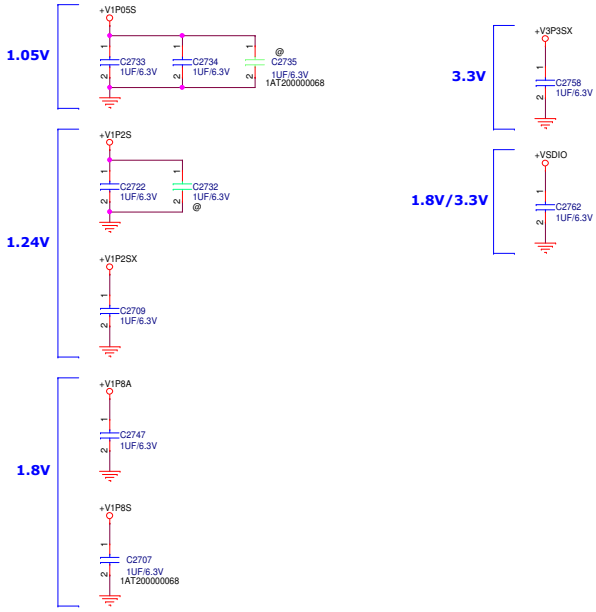
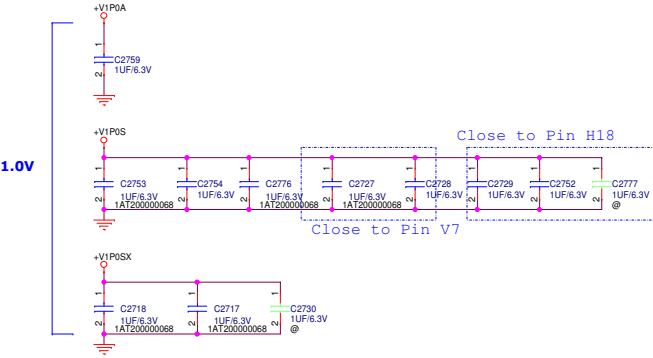
SOC POWER



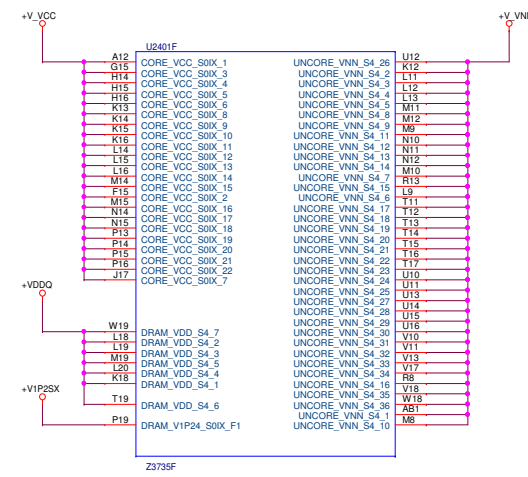
RTC Circuit



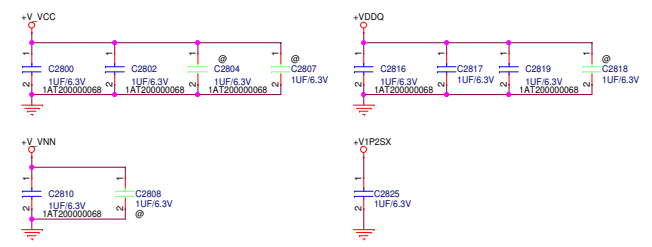
SOC DECOUPLING



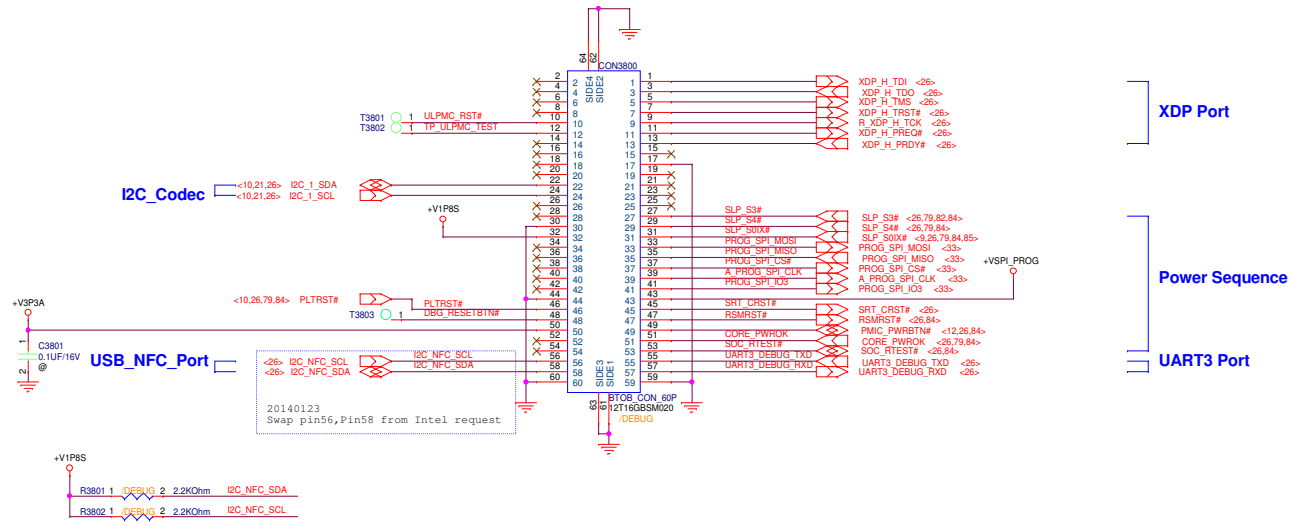
SOC Core Power



SOC DECOUPLING



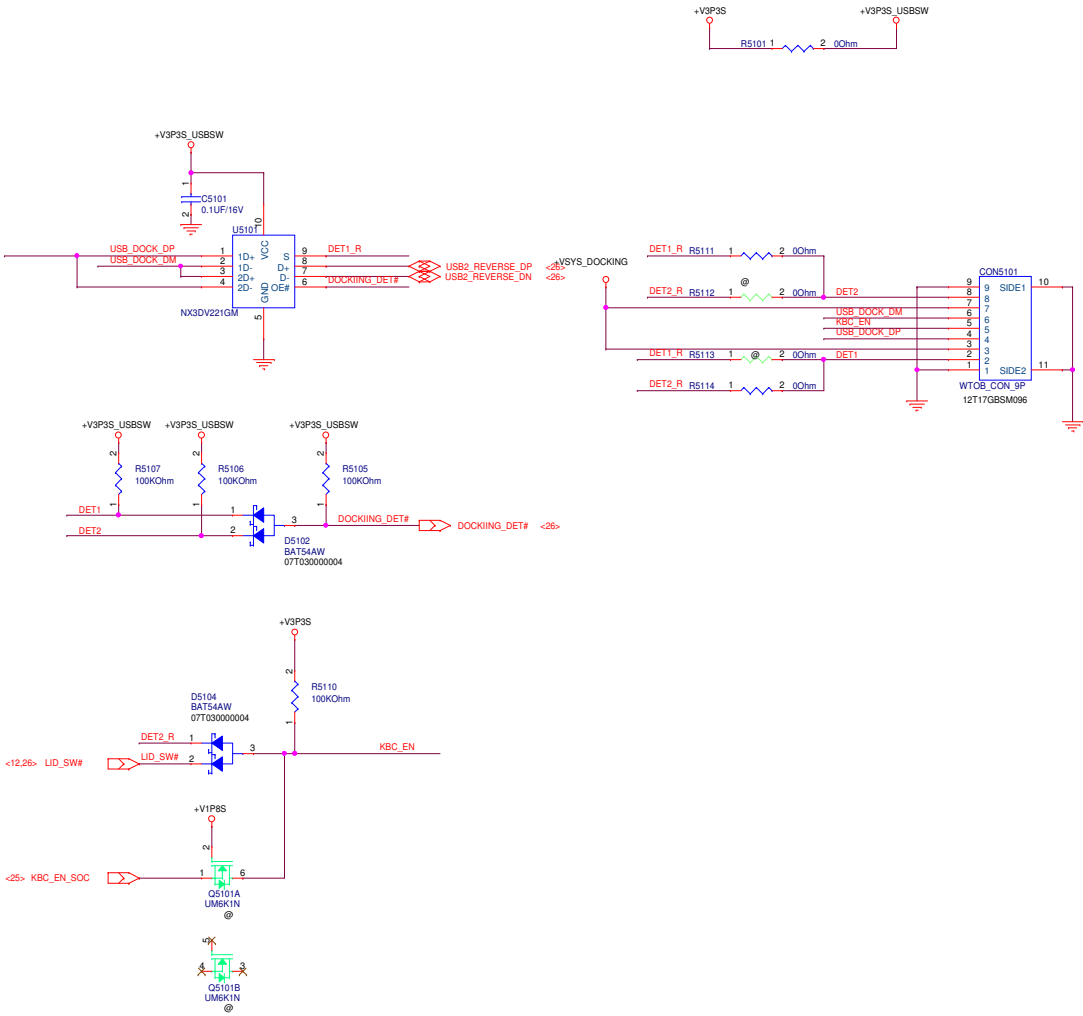
Debug Port



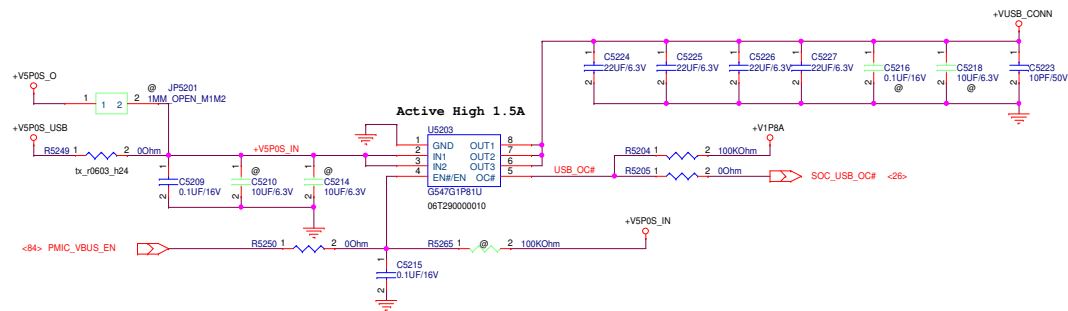
UART Debug Switch

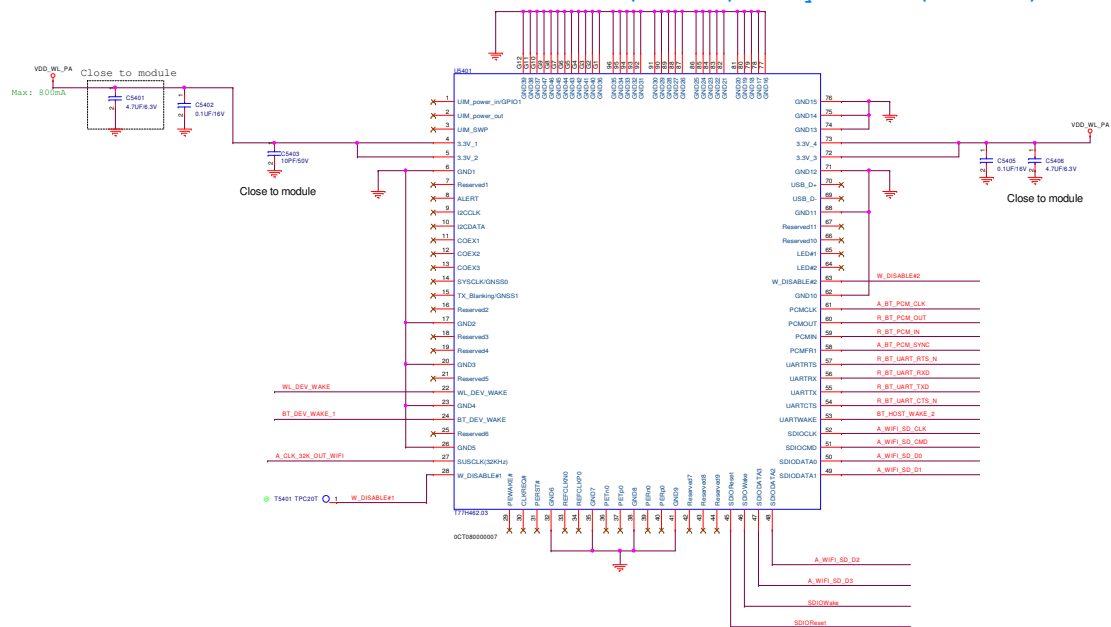
POGO Docking

DOCKING Function Table				
DET1	DET2	OE#	S	
1	1	1	X	OFF
0	1	0	L	PORT1
1	0	0	H	PORT2

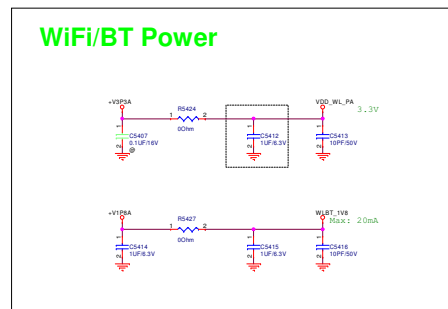


- MB to POGO Pin Definition**
1. GND
 2. Detect1
 3. PWR
 4. USB D+
 5. KBC_EN
 6. USB D-
 7. PWR
 8. Detect2
 9. GND

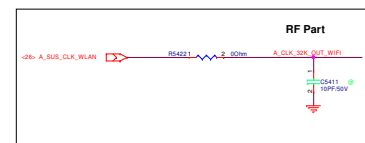




WiFi/BT Power

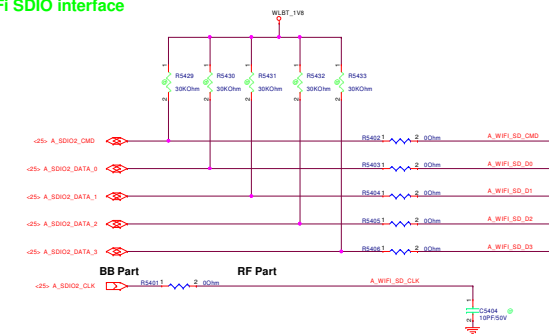


WiFi clock interface

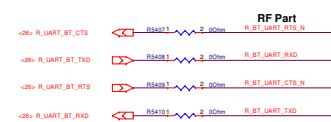


WiFi/BT Interface

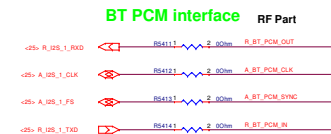
WiFi SDIO interface



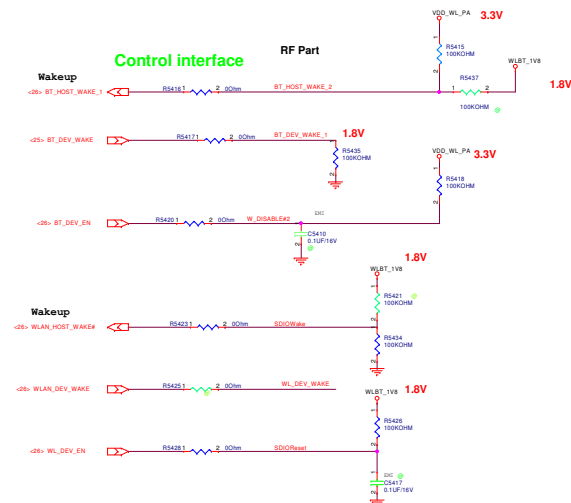
BT UART interface



BT PCM interface

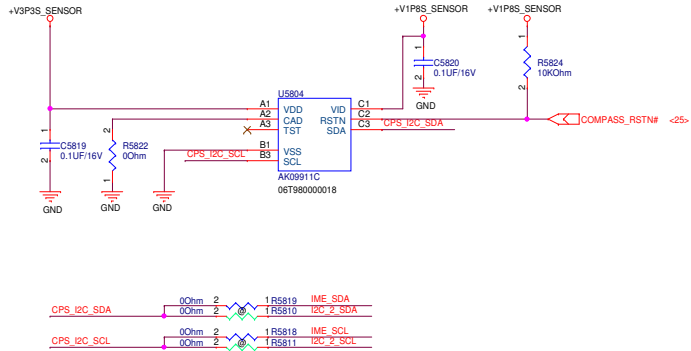


Control interface



e-Compass

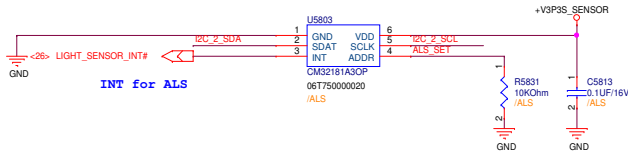
e-Compass I2C Address Table (Pin A2)		
1	0xD	PU 10K
0	0xC	R5822 (default)



Sensor Power



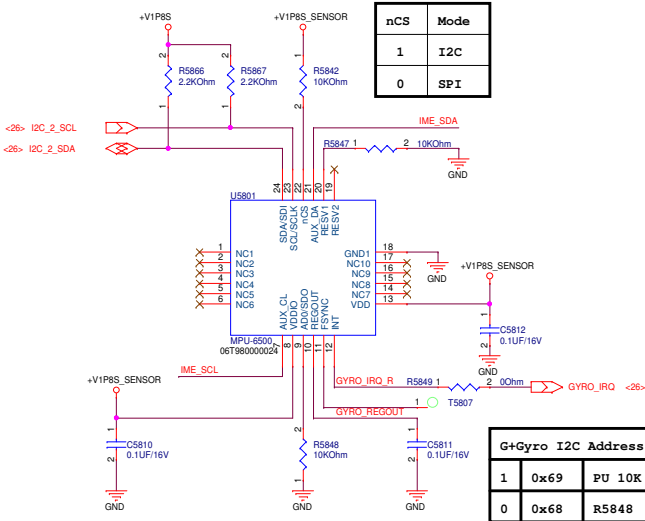
Light Sensor



ALS I2C Address Table (Pin4)		
1	0x48	PU 10K
0	0x10	R5831 (default)

G-Sensor + Gyro

Remove P Sensor 2014.01.09



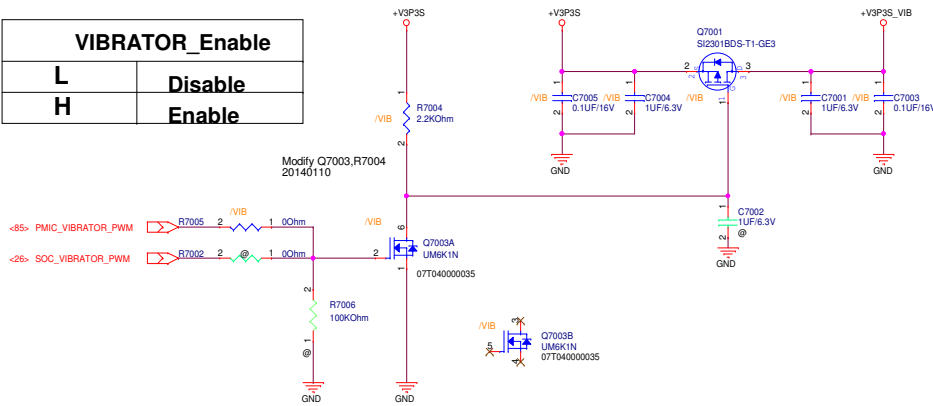
nCS	Mode
1	I2C
0	SPI

G+Gyro I2C Address Table (Pin9)		
1	0x69	PU 10K
0	0x68	R5848 (default)



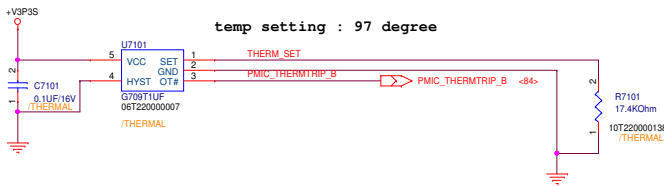
VIBRATOR

VIBRATOR_Enable	
L	Disable
H	Enable



Thermal Trip

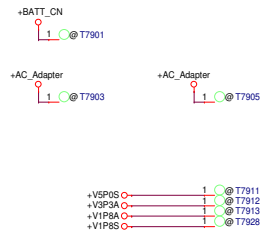
Location check Thermal



Test Point

測點全部放TOP面

POWER



Memory POWER

GND



Battery



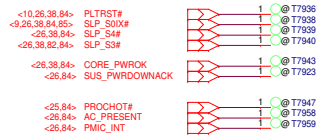
AUDIO



Button

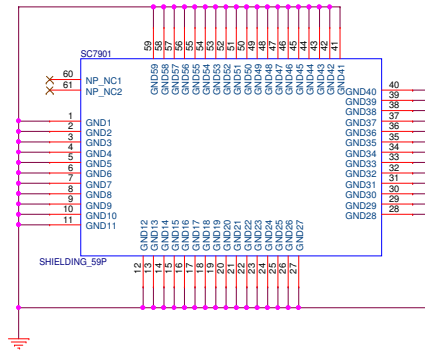


PWR STATE

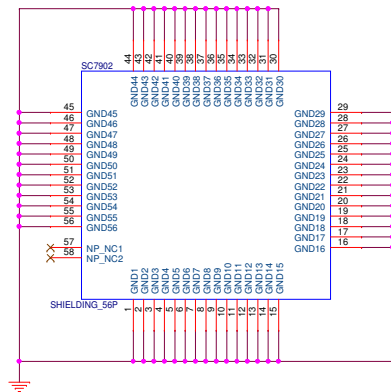


SHIELDING FRAME

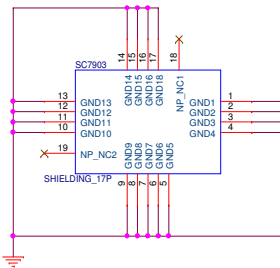
CPU SHIELDING FRAME



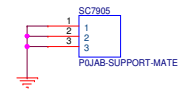
POWER SHIELDING FRAME



TOUCH IC SHIELDING FRAME

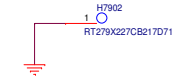


SUPPORT MATEL

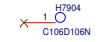
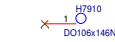


ME Screw

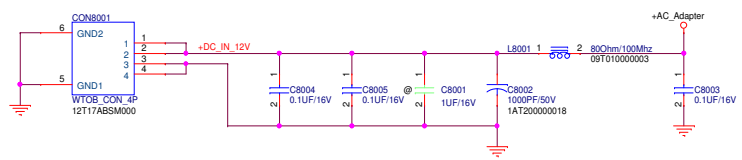
Screw A ,E



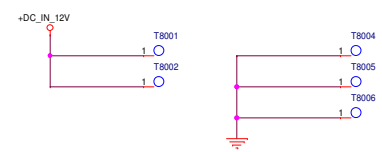
Screw B

Screw F
None PTHScrew G
None PTH

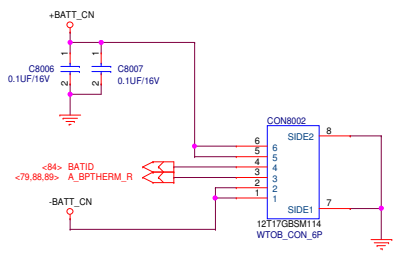
DC JACK



Test Point



BATT CONN



ID Definition

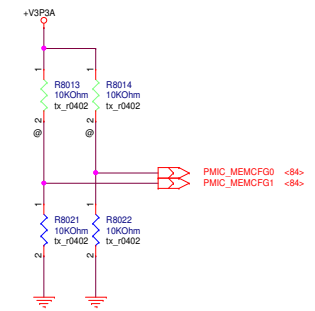
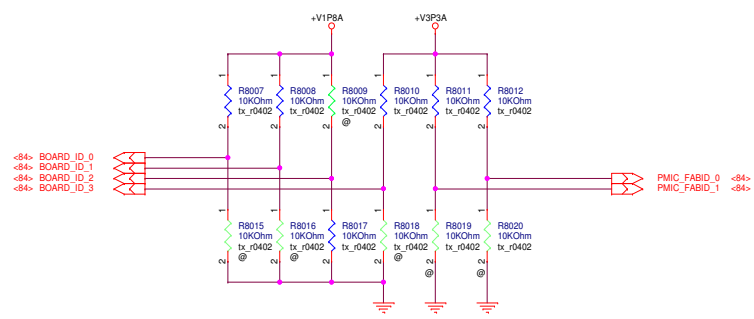
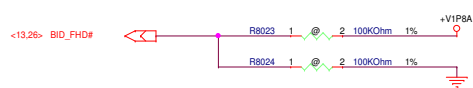
Function	WIFI
Pin#	F8
Net name	BOARD_ID_3
N/A	0
WIFI	1

Function	HD/FHD LCM
Pin#	F9
Net name	BID_FHD#
FHD	0
HD	1

At FHD FPC, BID_FHD# will connected to GND directly.

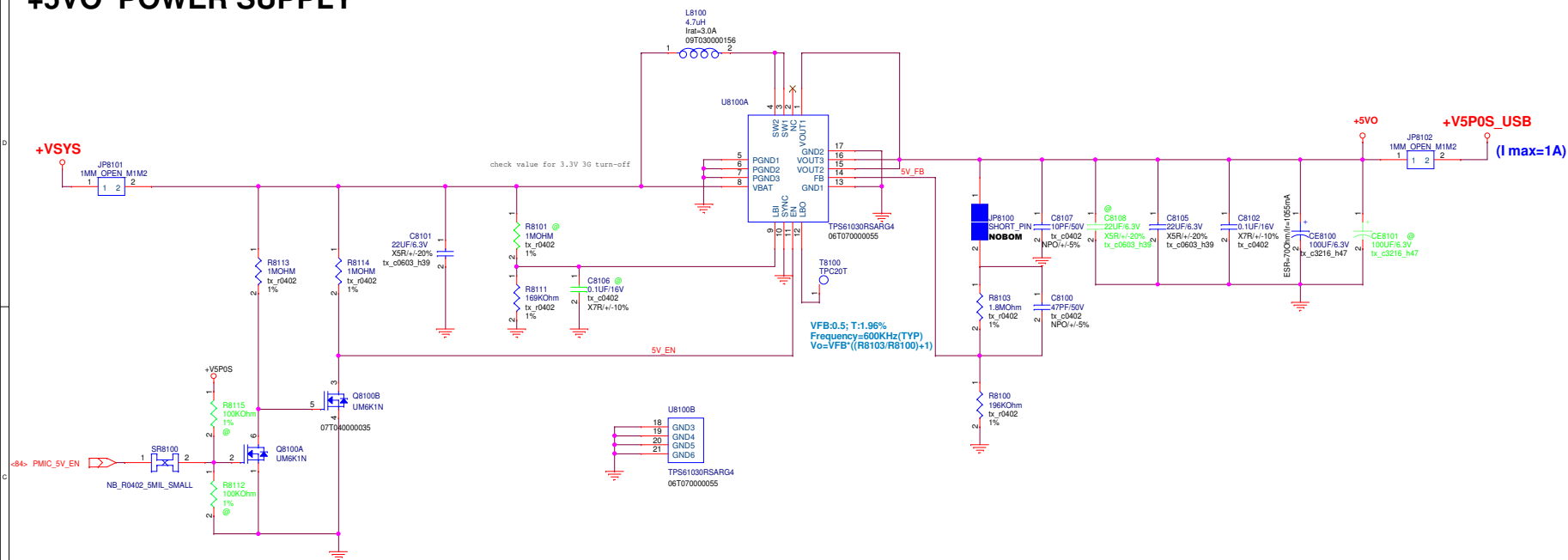
Function	PCB Version			Project Stage
Pin#	J9	J10	J11	
Net name	BOARD_ID_2	BOARD_ID_1	BOARD_ID_0	
Bit	bit2	bit1	bit0	
Rev 1.0	0	0	0	SR
Rev 1.2	0	0	1	
Rev 1.3	0	1	0	ER
Rev 1.4	0	1	1	PR

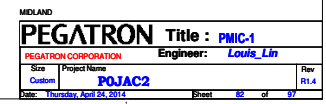
MB ID

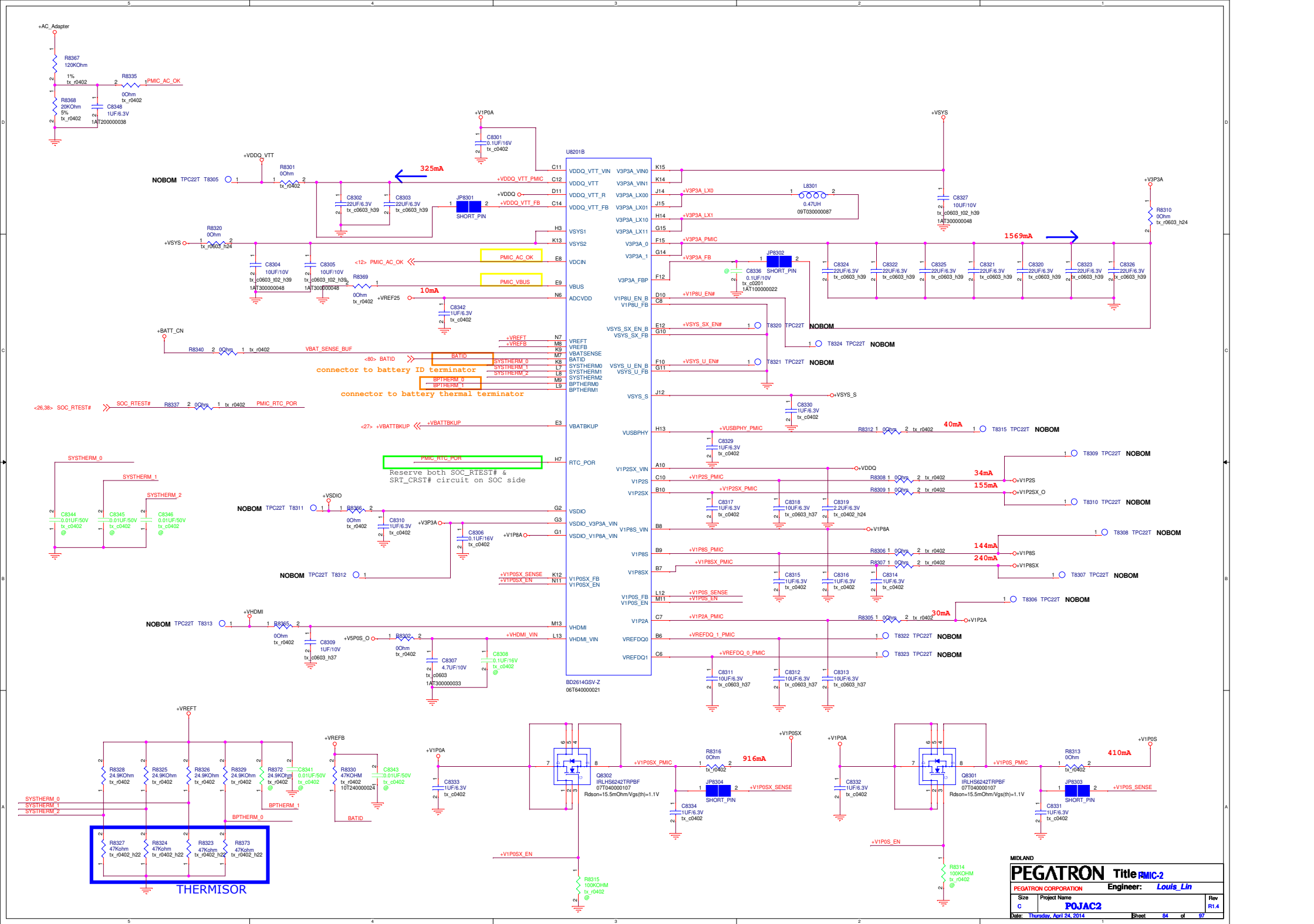


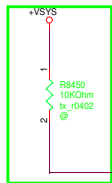
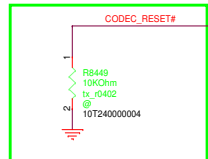
Function		Memory				Note
Pin#		G9	E10	G8	E11	
Net name		PMIC_MEMCFG0	PMIC_MEMCFG1	PMIC_FABID_0	PMIC_FABID_1	
Bit		bit3	bit2	bit1	bit0	
Micron	1G (X32)	0	0	0	0	MT41K256M16HA-125 M:E
	2G (X64)	0	0	0	1	
Hynix	1G (X32)	0	0	1	0	H5TC4G63AFR-PBA
	2G (X64)	0	0	1	1	

+5V0 POWER SUPPLY

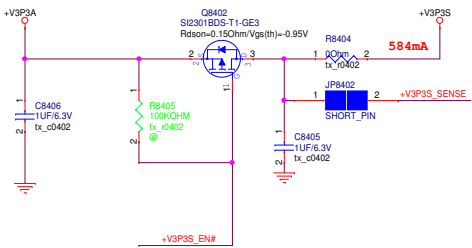
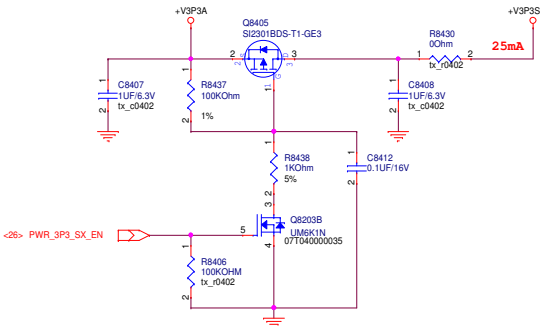
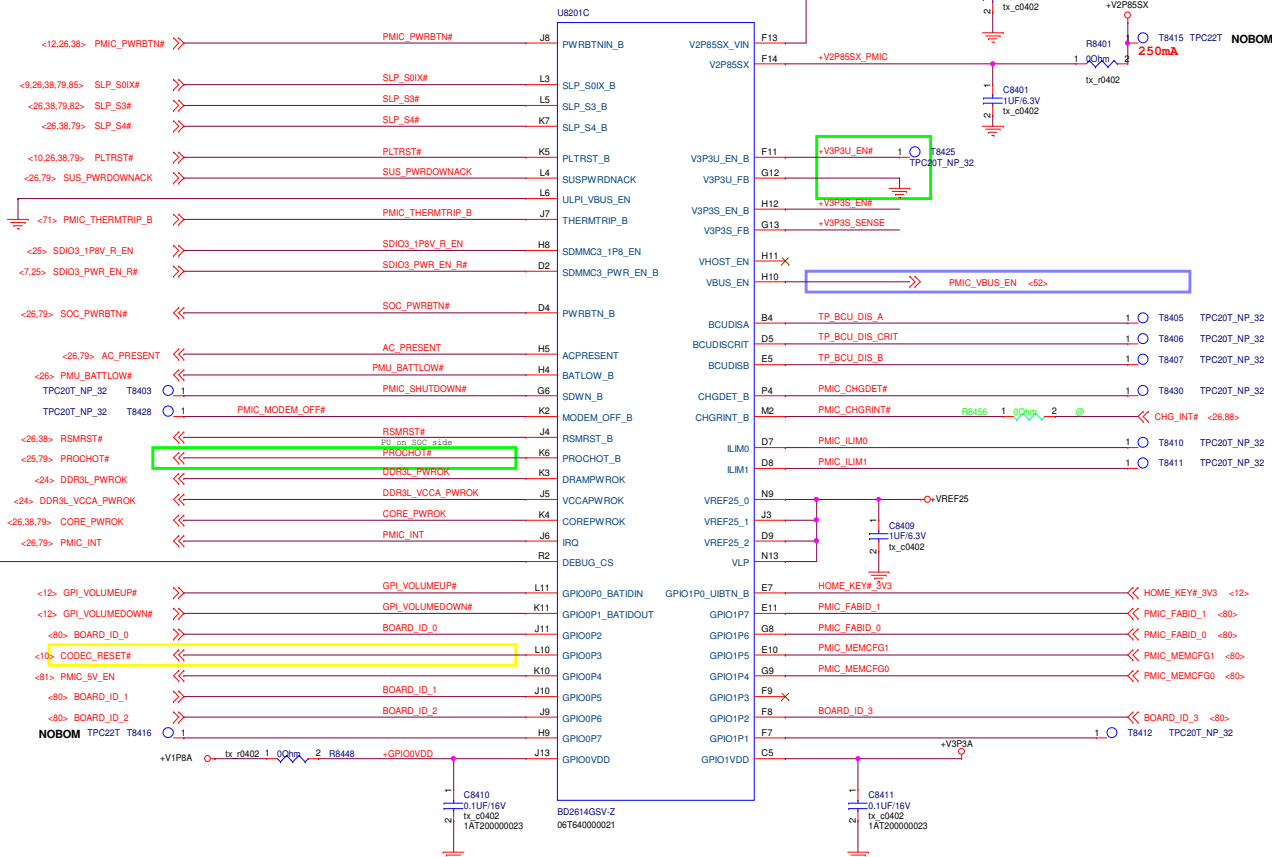


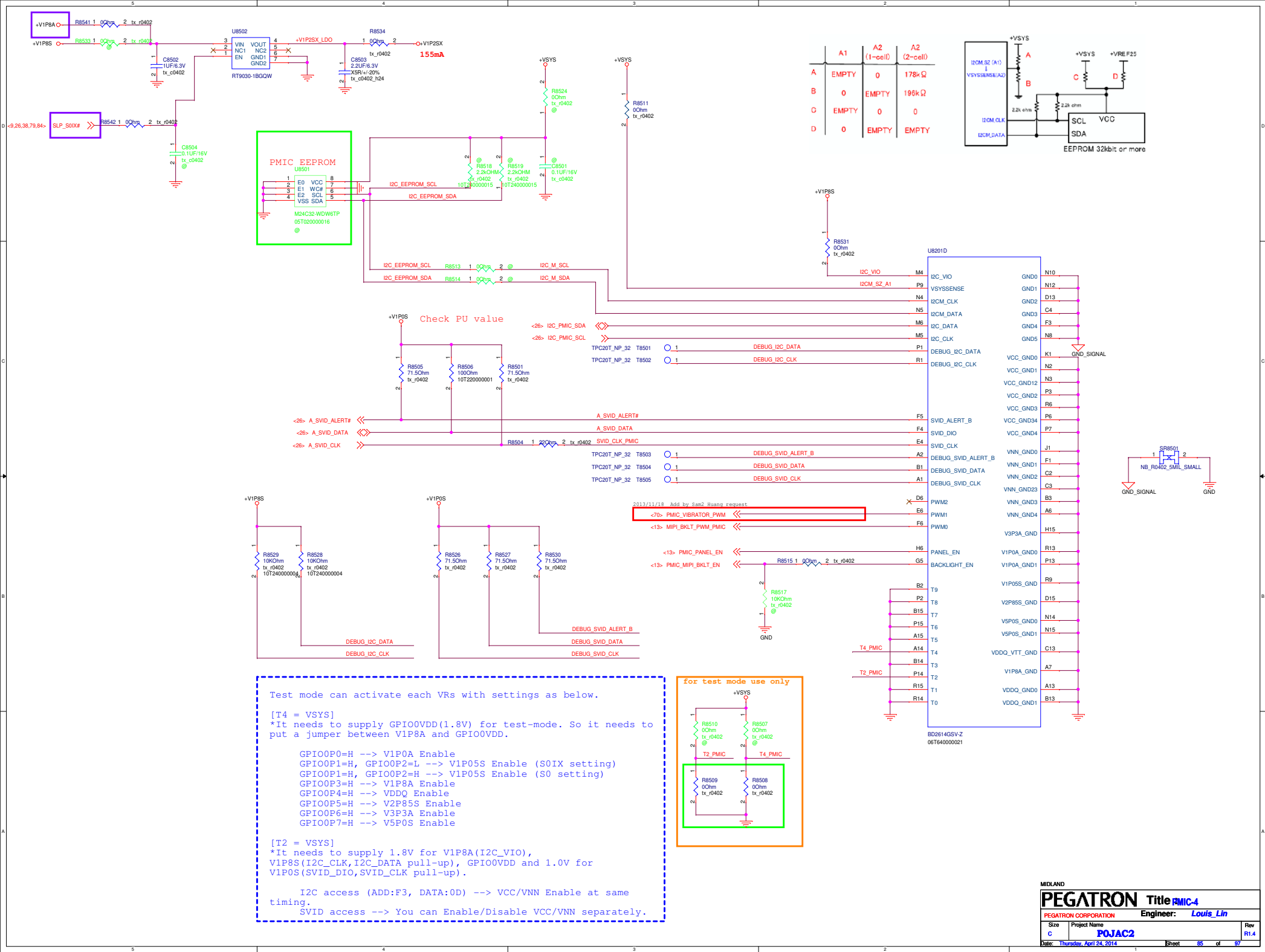






Pull high to VSYS for enabling DEBUG SVID transmission.
No stuff by default.

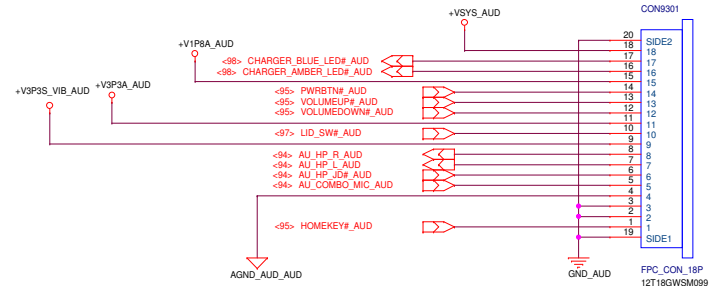




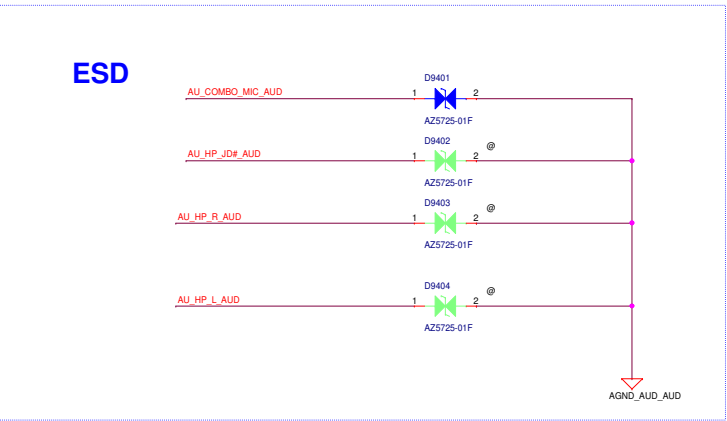
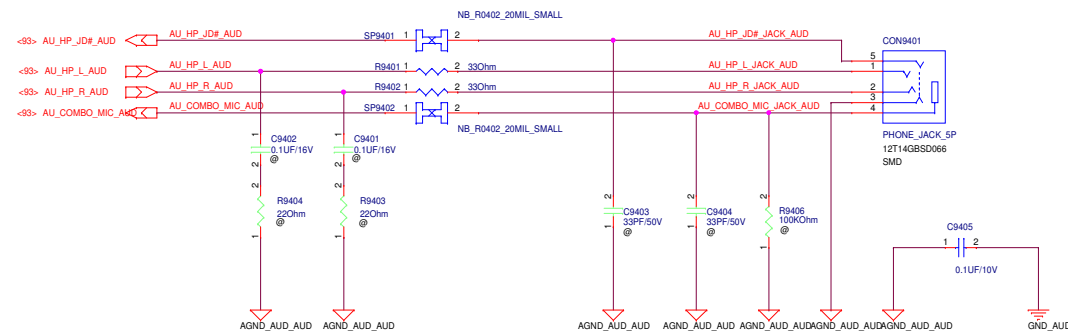
FFC CONN

FFC CONN Pin Definition

- 18. +VSYS
- 17. CHARGER_BLUE_LED#
- 16. CHARGER_AMBER_LED#
- 15. V1P8A
- 14. PWRBTN#
- 13. VOLUMEUP#
- 12. VOLUMEDOWN#
- 11. V3P3A
- 10. LID_SW#
- 09. V3P3S_VIB
- 08. AU_HP_R
- 07. AU_HP_L
- 06. AU_HP_COMB
- 05. AU_COMB_MIC
- 04. AGND_AUD
- 03. GND
- 02. GND
- 01. HOMEKEY#

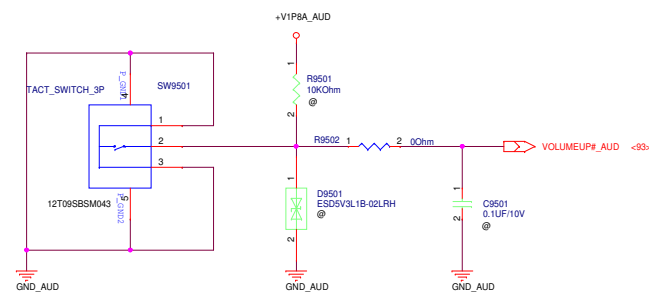


Audio Combo Jack

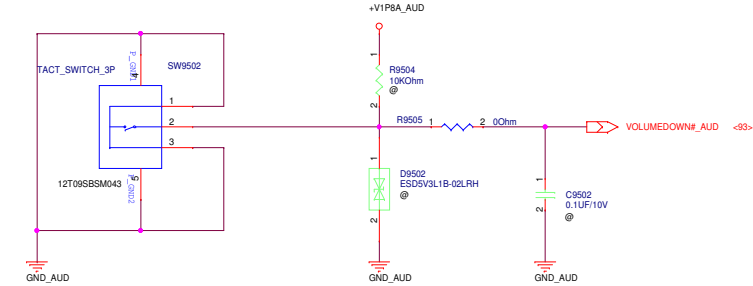


Button

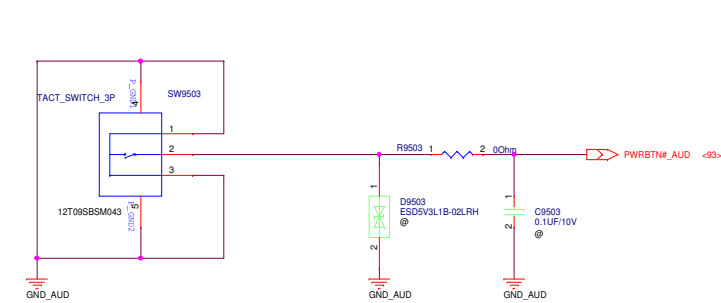
Volume Up



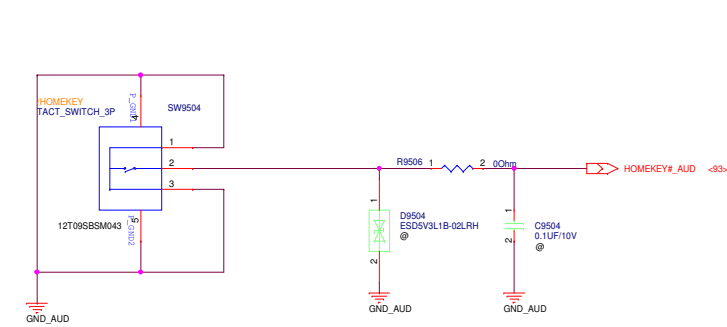
Volume Down



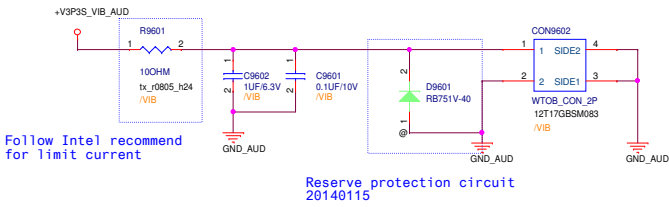
Power Key



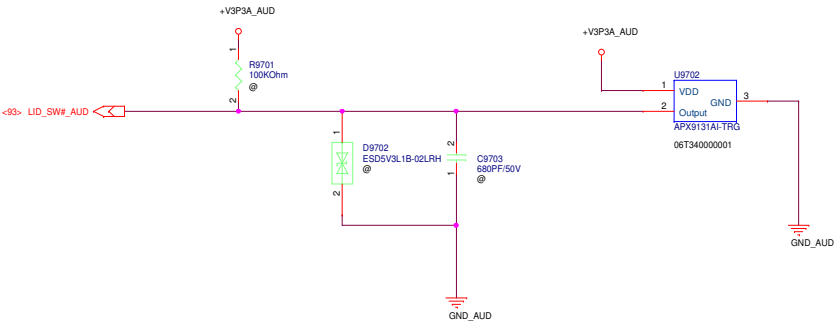
HOME KEY



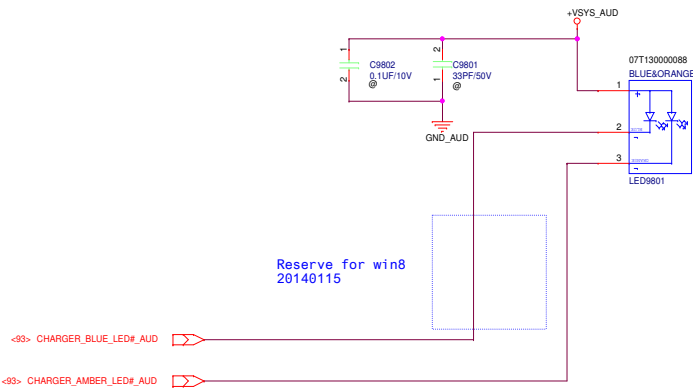
VIBRATOR



LID Switch



LED



Test Point

Screw Hole

