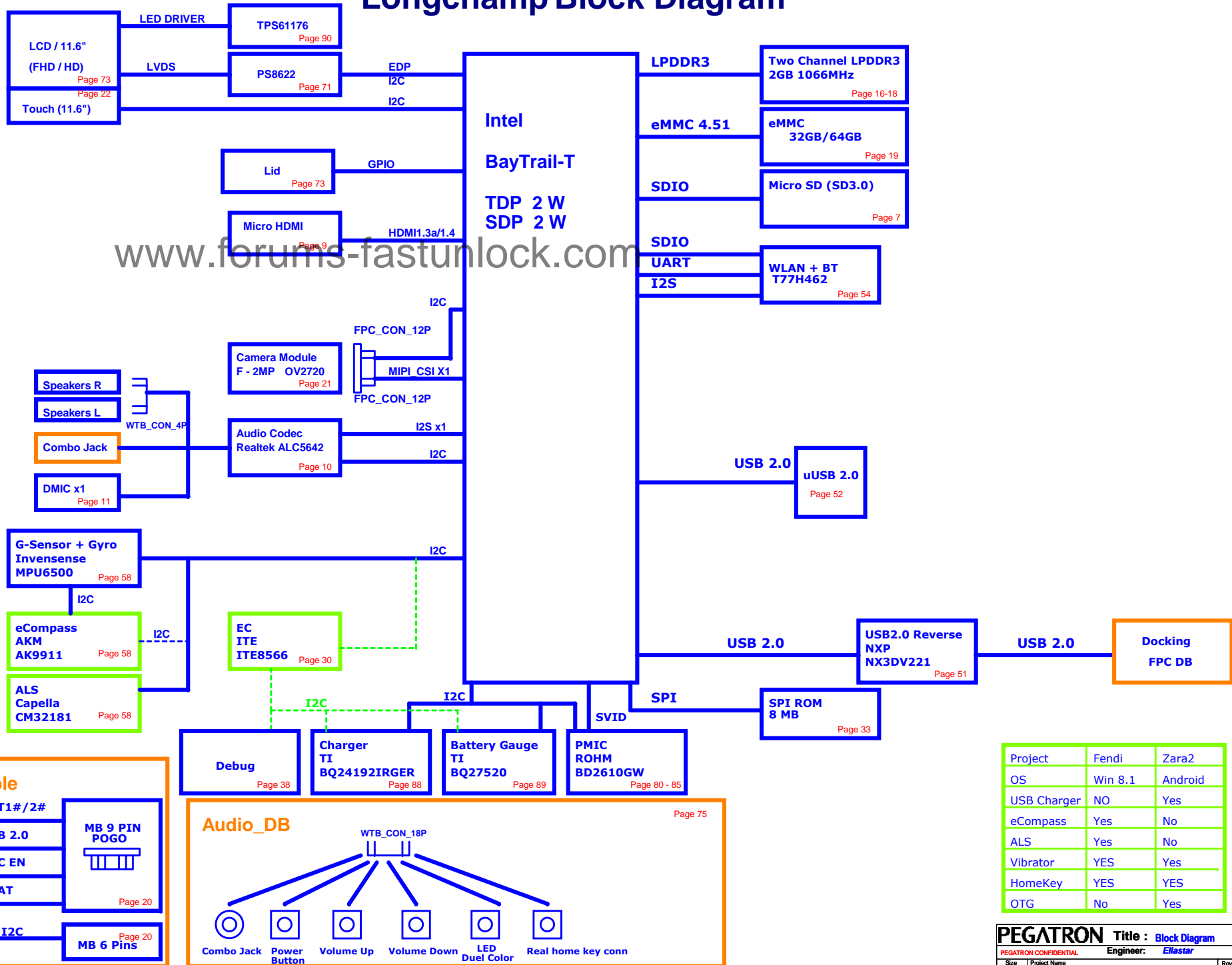


Longchamp Block Diagram



Project	Fendi	Zara2
OS	Win 8.1	Android
USB Charger	NO	Yes
eCompass	Yes	No
ALS	Yes	No
Vibrator	YES	Yes
HomeKey	YES	YES
OTG	No	Yes

PAGE	TITLE
01	BLOCK DIAGRAM
02	REF PAGE
03	Port Assignment
04	Power Tree
05	PCB ID
06	Power Sequence
07	Micro SD
08	***
09	HDMI
10	Audio Codec
11	Audio SPK / DMIC
12	***
13	***
14	***
15	***
16	LPDDR3 CH0
17	LPDDR3 CH1
18	***
19	eMMC
20	Home / Volume / Power Key
21	Camera 2M
22	***
23	***
24	CPU 1/6 MEMORY
25	CPU 2/6 DISPLAY,STORAGE,AUD
26	CPU 3/6 USB,I2C,CLK,DB,MISC
27	CPU 4/6 Power
28	CPU 5/6 Core Power
29	CPU 6/6 GND
30	EC IT8566E
31	EC debug
32	***
33	BIOS ROM
34	***
35	***
36	***
37	***
38	Debug Circuit
39	***
40	***
41	***
42	***
43	***
44	***
45	***

PAGE	TITLE
46	***
47	***
48	***
49	***
50	***
51	USB DOCKING
52	Micro USB
53	***
54	WIFI/BT Foxconn T77H462.03
55	***
56	***
57	***
58	Sensor
59	***
60	***
61	***
62	***
63	***
64	***
65	***
66	***
67	***
68	***
69	***
70	VIBRATOR CONTROLLER
71	DP eDP Host
72	***
73	LVDS Connector
74	***
75	Audio BD.
76	***
77	***
78	***
79	ME parts & TP
80	DC JACK
81	5V DCDC POWER & 3V3 EC 1V8 EC
82	PMIC-1 ROHM
83	PMIC-2 ROHM & RTC
84	PMIC-3 ROHM
85	PMIC-4 ROHM
86	***
87	***
88	Charger
89	GAS GAUGE
90	LED DRIVER
91	POWER SIGNAL

BOM Optional Table

Optional	Stage				Remark
	SR	ER	PR	PR	
/ALS	POP				
/DEBUG	POP				Have Debug port function
/EC	POP				
/NONDEBUG	NC				No Debug port function
/GASG	POP				Have Gas Gauge function
N/A	POP				
/@	NC				

<Core Design>

PEGATRON		Title : REF PAGE	
PEGATRON CONFIDENTIAL		Engineer: Ellastar	
Size C	Project Name Longchamp	Rev R1.1	
Date: Tuesday, May 27, 2014		Sheet 2 of 52	

03 Port Assignment

I2C Table

Gen	Module	7-bit Addr	8-bit Addr
NFC_I2C	N/A	N/A	N/A
I2C_0	Gas Gauge	55H	Write: AAH Read: ABH
	Charger	6BH	D6H
	EC	Update FW: 5BH Default: 68H	Update FW: B6H Default: D0H
I2C_1	Audio Codec	1CH	38H
I2C_2	Home Key	Slave : 20H Bootloader: 60H	Slave : 40H Bootloader: C0H L: 10H~1FH(Use) H: 90H~9FH
	LVDS		
I2C_3	Front CAM (2M)	36H	6CH
I2C_4	Gyro	PH: 69H PD: 68H(Default)	PH: D2H PD: D0H(Default)
	E-Com	PH: 0DH(Default) PD: 0CH	PH: 1AH(Default) PD: 18H
	ALS	48H	90H
I2C_5	Touch Screen	20H	40H
I2C_6	PMIC	Device 1 5EH Device 2 6EH	Device 1 BCH(Write) / BDH(Read) Device 2 DCH(Write) / DDH(Read)

I2S Table

Gen	Module
I2S_0 , I2S_2	Audio Codec
I2S_1	WLAN

DDI Table

Gen	Module
DDI0	HDMI
DDI1	eDP2LVDS

MIPI DSI Table

Gen	Module
MDSI_A	N/A

MIPI CSI Table

Gen	Module
MCSI_1	Rear Camera
MCSI_2	N/A

HSUART Table

Gen	Module
UART_1	WIFI/BT
UART_2	N/A

eMMC Table

Gen	Module
MMC1	eMMC

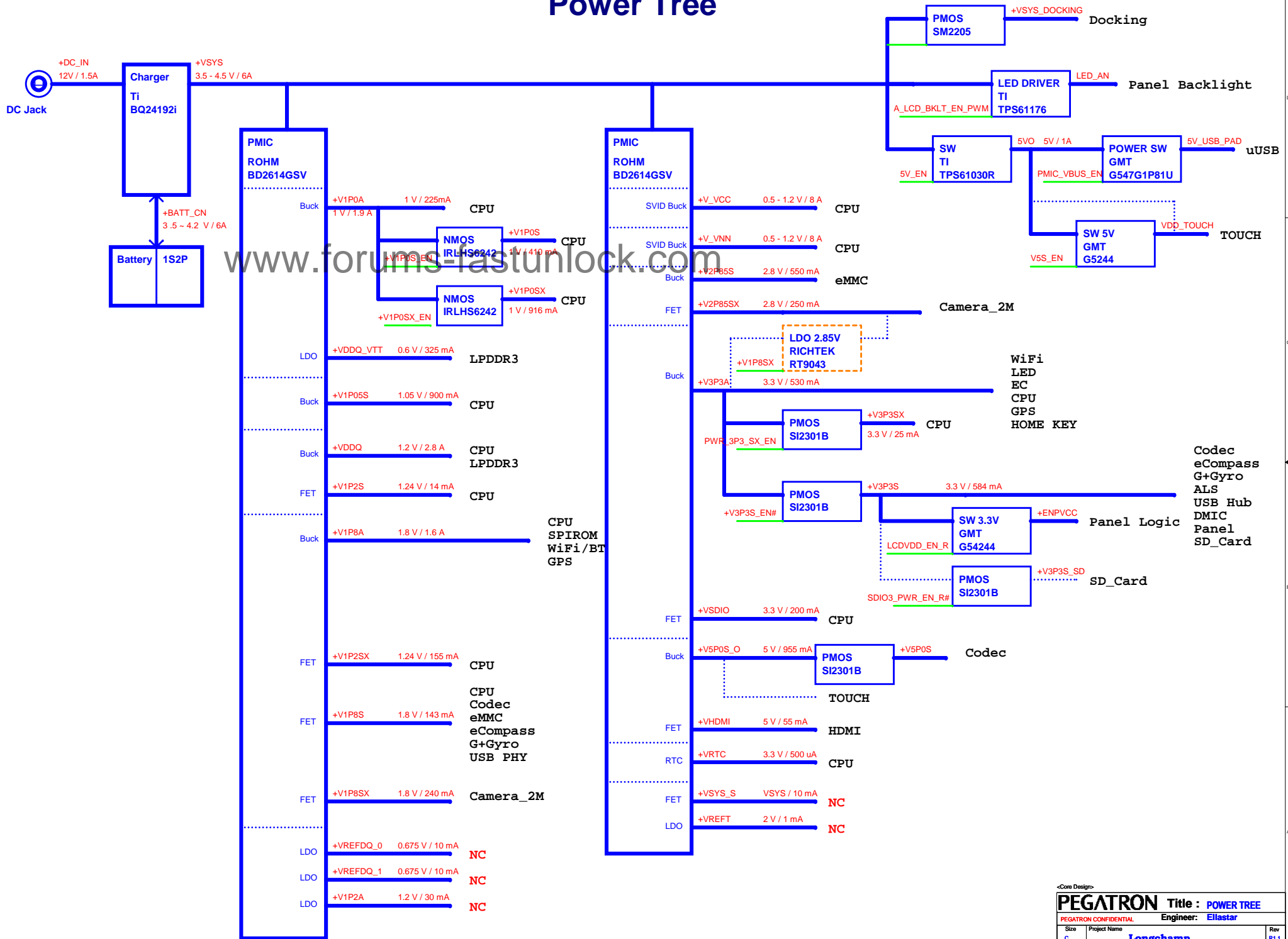
SDIO Table

Gen	Module
SD2	WIFI/BT
SD3	Micro SD Card

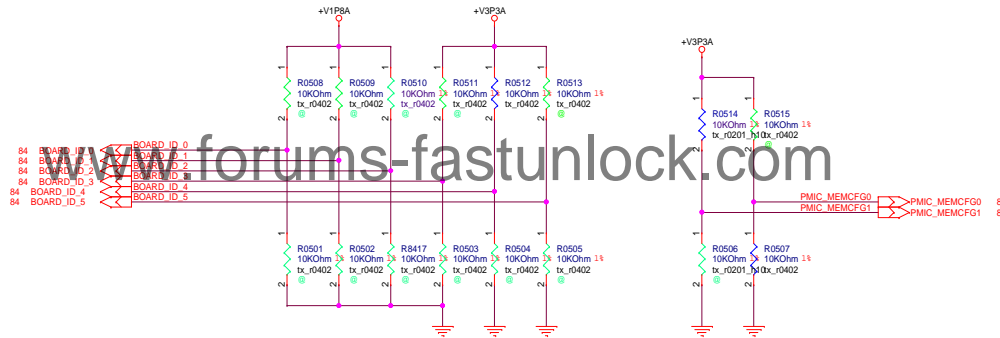
USB 2.0 Table

Gen	Module
USB_0	Docking / DEBUG
USB_1	Micro USB
USB_ULPI	N/A

Power Tree



05 PCB ID



ID Definition

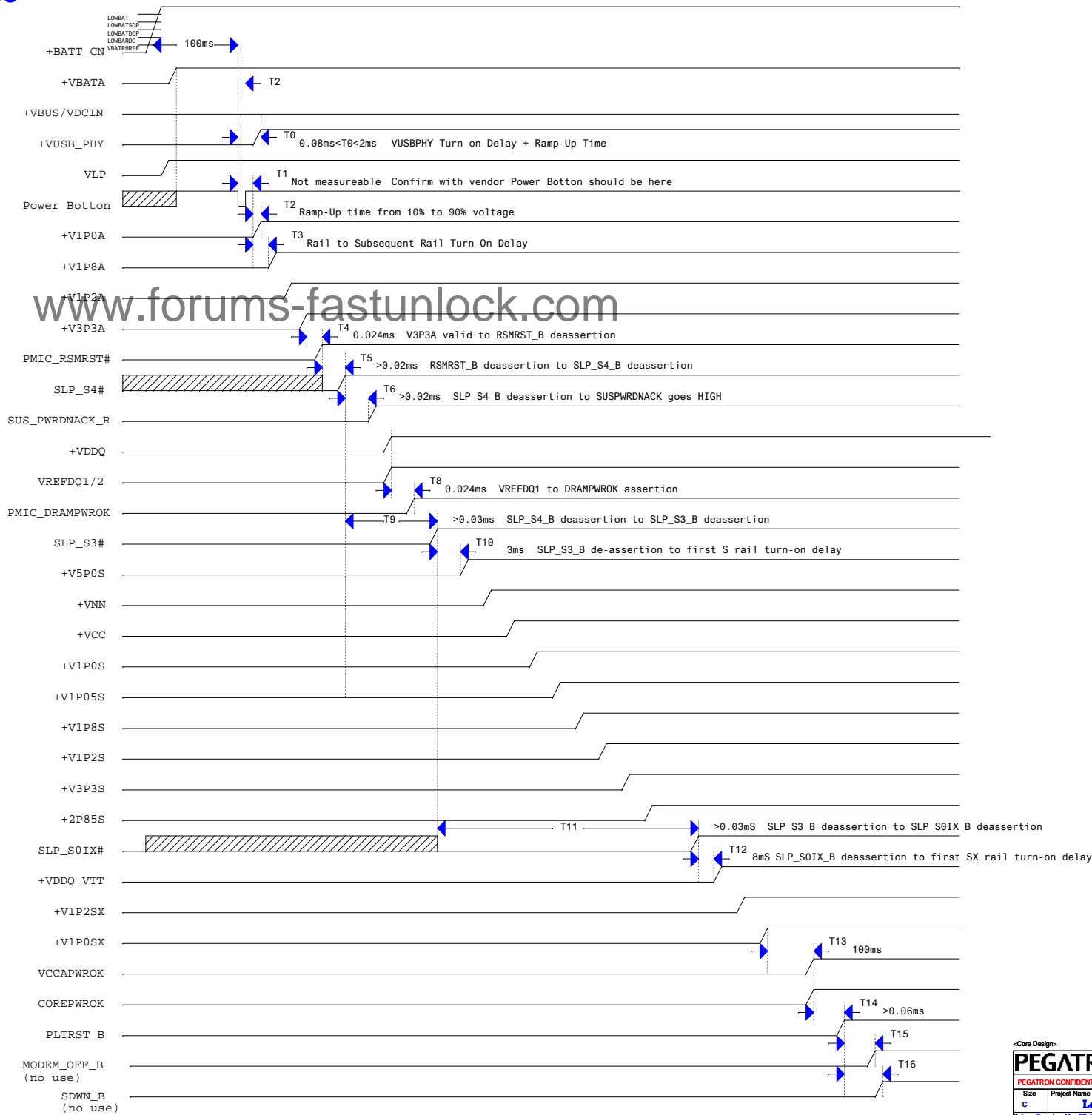
Function		Memory		Note
Pin name		E10	G9	
Bit		bit1	bit0	
		PMIC_MEMCFG_1	PMIC_MEMCFG_0	
SAMSUNG	8G	0	0	K3QF1F10DM-AGCE LF+HF
SK Hynix	8G	1	0	H9CCNNN8KTMLBR-NTM LF+HF
SK Hynix	8G	1	1	H9CCNNN8KTALBR-NTD LF+HF

Function		WLAN		Note
Pin name		G8	E11	
Bit		bit1	bit0	
Net name		BOARD_ID_4	BOARD_ID_5	
FOXCONN	1	X		T77H462.02 - BCM43241
AZUREWAVE	0	X		AW-NB177NF - RTL8723BS
LITEON	X	0		WCEN3603L-AA - RTL8723BS

Function	PCB Version						Note
Pin name	J11	J10	J9	F8	G8	E11	
Bit	bit2	bit1	bit0	unuse	unuse	unuse	
	BOARD_ID_0	BOARD_ID_1	BOARD_ID_2	BOARD_ID_3	BOARD_ID_4	BOARD_ID_5	
Rev 1.0	0	0	0	NA	NA	NA	
Rev 1.1	0	0	1	NA	NA	NA	
Rev 1.3	0	1	0	NA	NA	NA	
Rev 1.4	0	1	1	NA	NA	NA	
Rev 2.0	1	0	0	NA	NA	NA	

06 Power Sequence

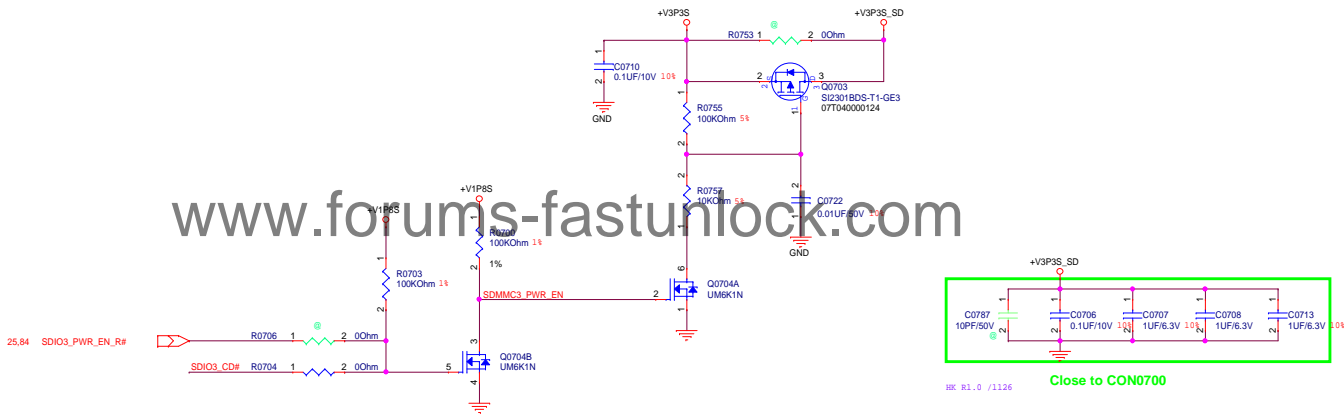
Cold Boost Power Sequenc Diagram



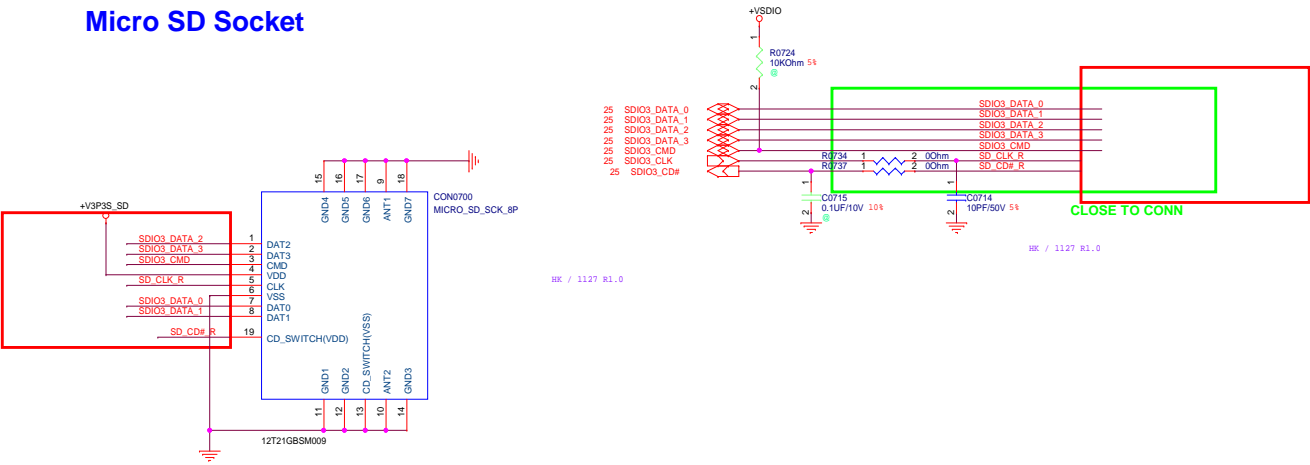
7 Micro SD

Micro SD

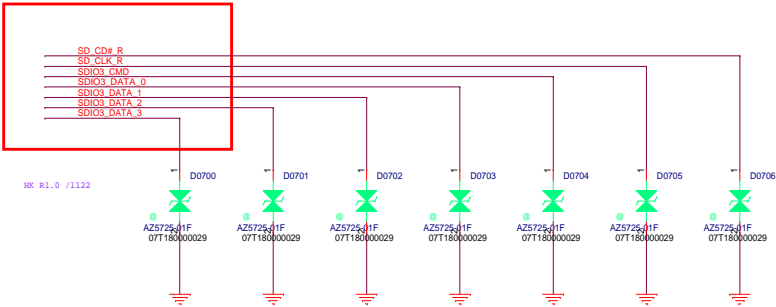
Micro SD Power



Micro SD Socket



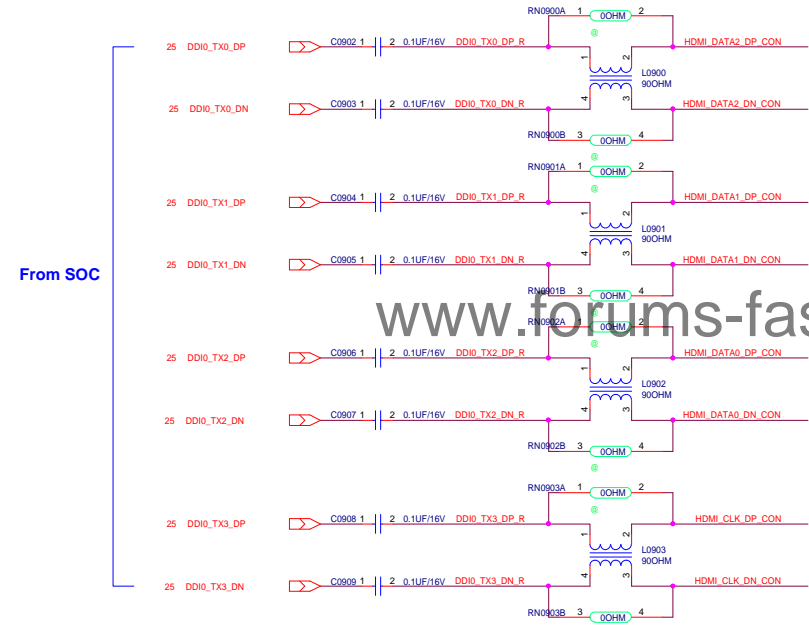
ESD



9 HDMI

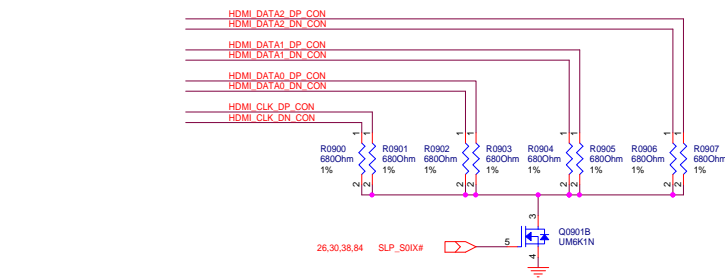
HDMI DATA

From SOC



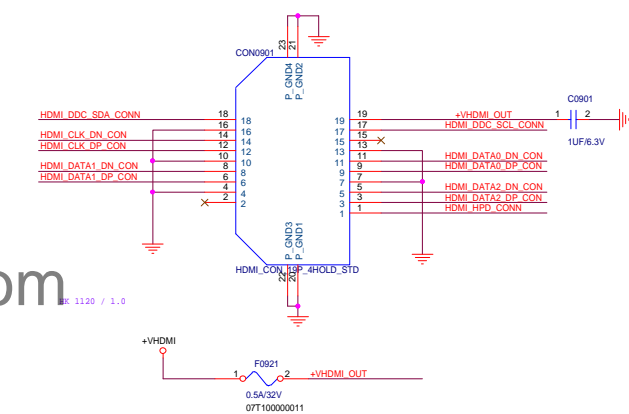
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Level Shift



HDMI

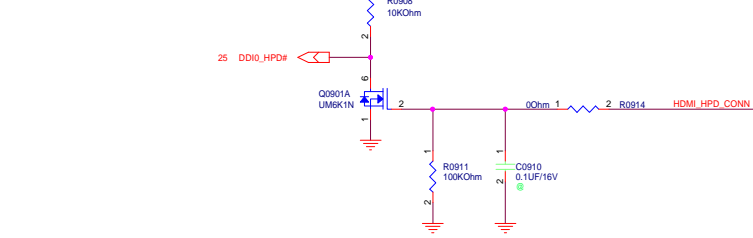
HDMI CONN



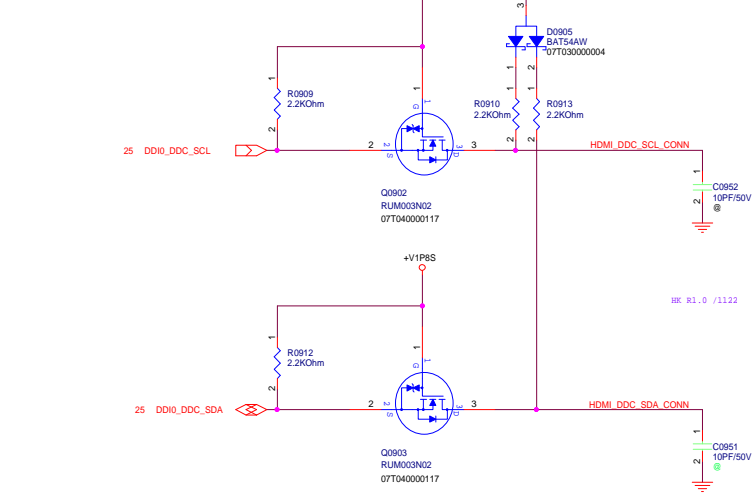
Micro HDMI CONN Pin Definition Type-D

- 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

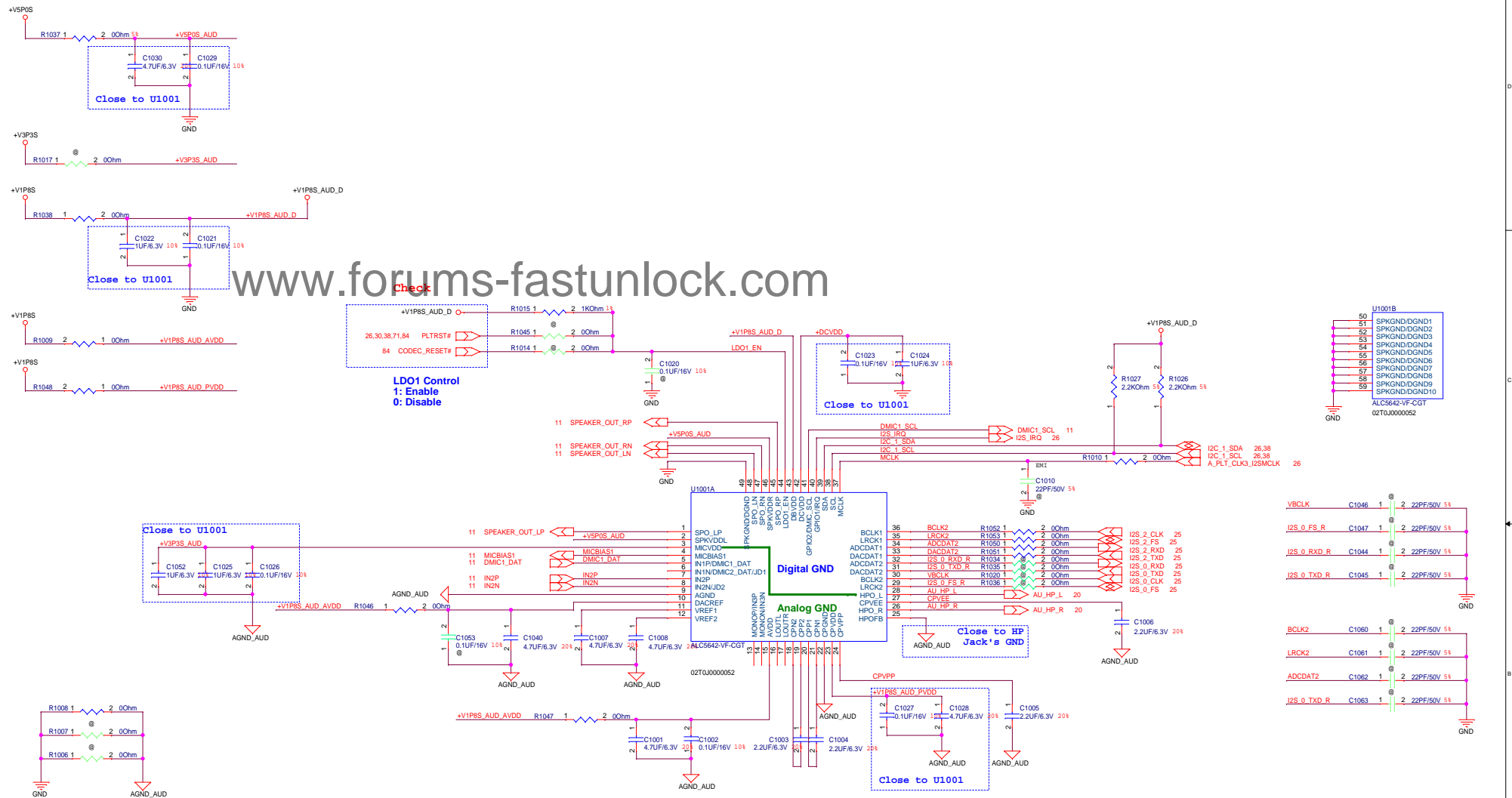
HDMI HPD



HDMI DDC

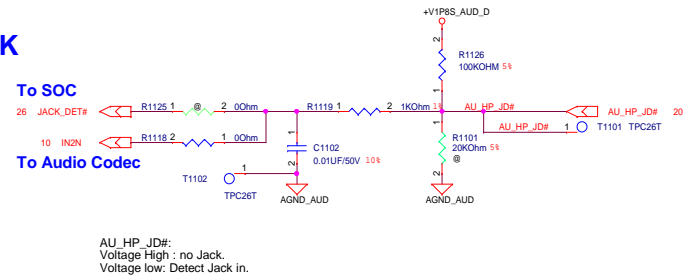


Audio Codec



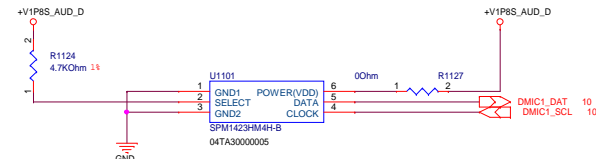
11 Audio SPK/DMIC

Combo JACK

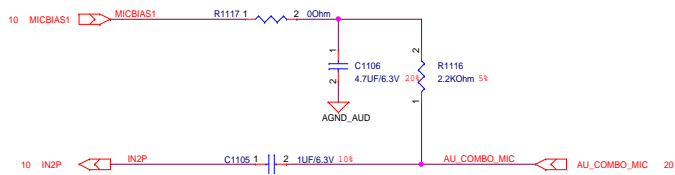


AU_HP_JD#:
Voltage High : no Jack.
Voltage low: Detect Jack in.

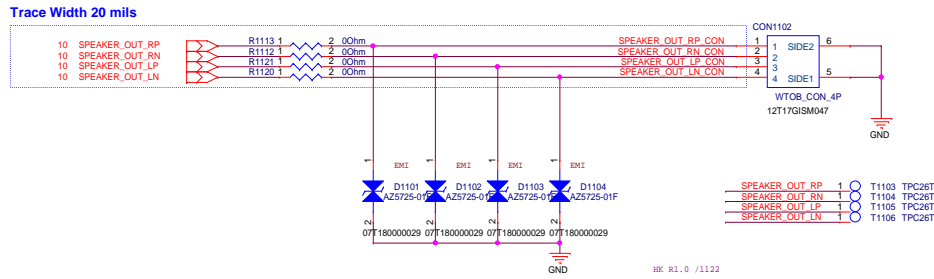
D-MIC



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SPK CONN



BEAD 09V010000014

Vendor 建議電流估1.5倍

如何計算預留0Ω大小
 $P=I^2 \cdot R$
 $0.5=I^2 \cdot 8$
 $I_{rms}=0.25A$
 $I_m=0.3535A$
 $I_m=0.3535 \cdot 1.5$
 $=0.53025A$

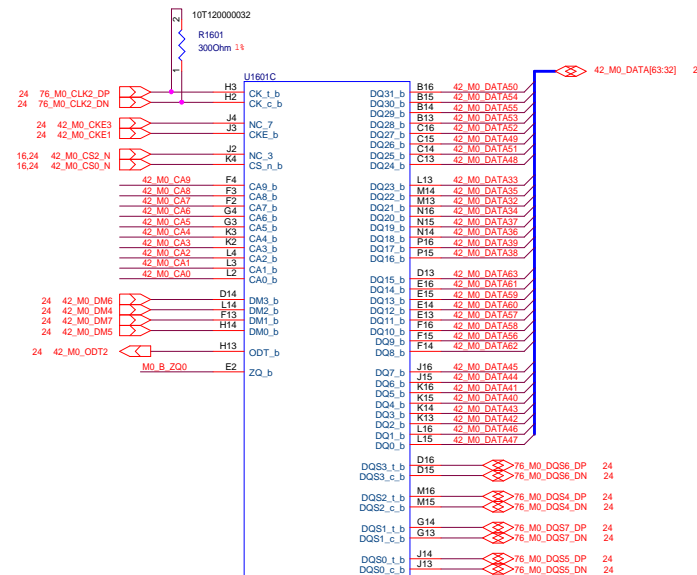
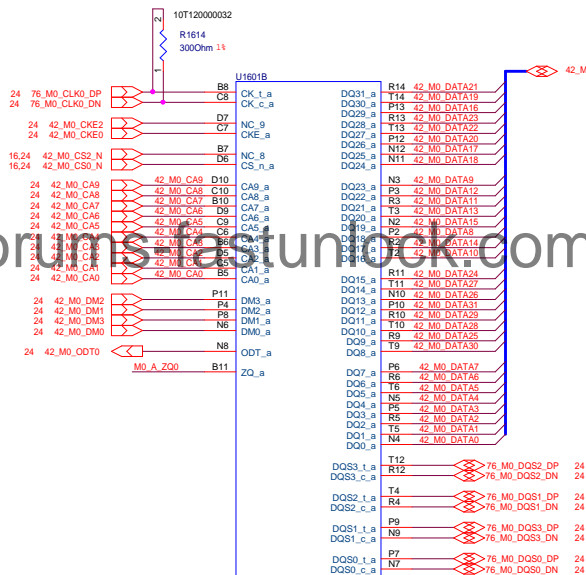
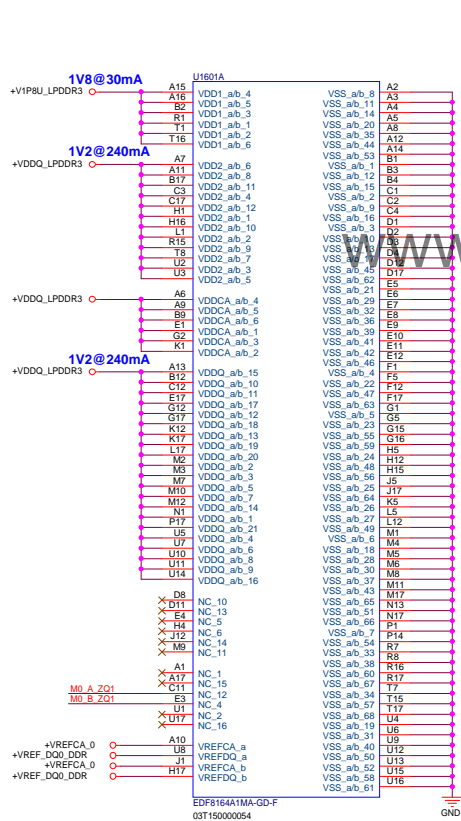
Size	Power	Temp. Coef.
0805	1/8W	0.125W
0603	1/10W	0.1W
0402	1/16W	0.0625W
0201	1/20W	0.03125W

13 MIPI CONN

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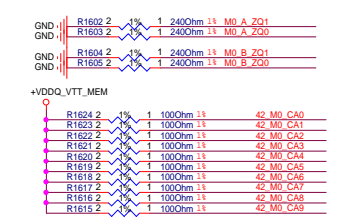
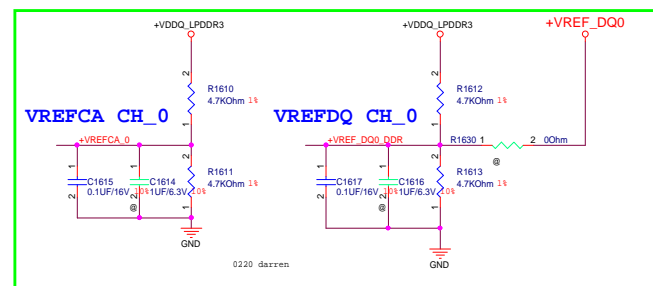
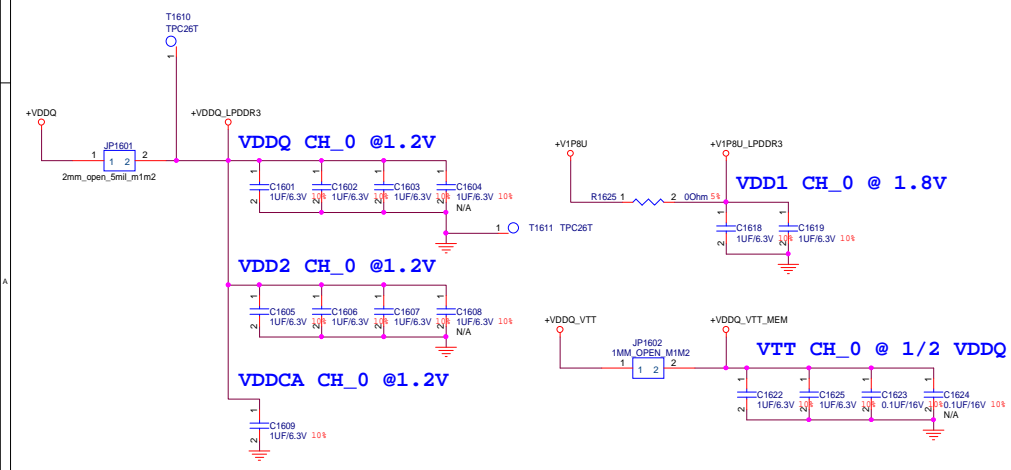
-Core Design-		
PEGATRON		Title : MIPI Panel
PEGATRON CONFIDENTIAL		Engineer: Ellastar
Size C	Project Name Longchamp	Rev R1.1
Date: Tuesday, May 27, 2014		
Sheet 13 of 52		

16 LPDDR3 CH0

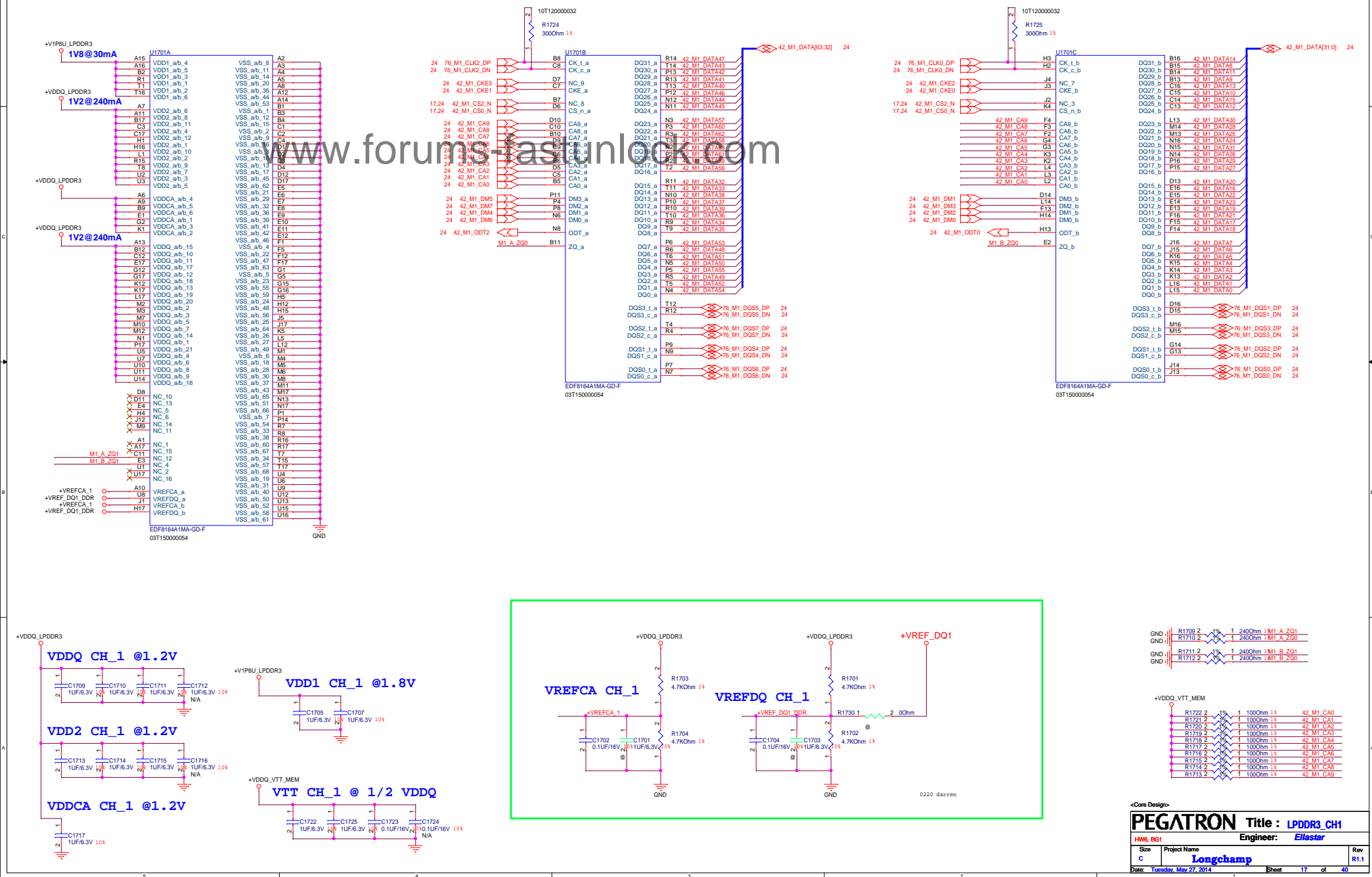


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Voltage division	R1610,R1611,R1612,R1613-->4.7K R1701,R1702,R1703,R1704-->4.7K Unmount C1614,C1616,R1630 Unmount C1701,C1703,R1730	Default
PMIC	R1610,R1611,R1703,R1704-->10K R1612(Unmount),R1701(Unmount)-->100K R1613,R1702-->100K Mount C1614,C1616,R1630 Mount C1701,C1703,R1730	



17 LPDDR3 CH1



11 eMMC

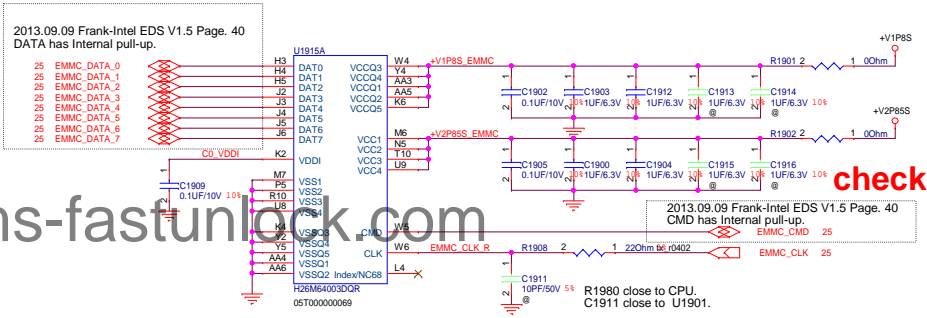
- TPC227
- T1901 ☐ 1 EMMC_DATA_0 TPC227
- T1902 ☐ 1 EMMC_RESET TPC227
- T1903 ☐ 1 EMMC_CMD TPC227
- T1904 ☐ 1 +V1P8S_EMMC TPC227
- T1905 ☐ 1 +V2P8S5_EMMC

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

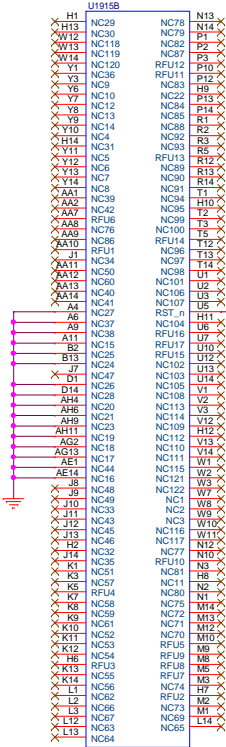
Signal Name	Dir	Term	Plat. Power	Default Buffer State		
				S4/S5	Reset	Enter S0
MMC1_D[7:0]†	I/O	20k(H)	V1P8S	Off	Pull-up	Pull-up
MMC1_CMD†	I/O	20k(H)	V1P8S	Off	Pull-up	Pull-up
MMC1_CLK†	I/O	20k(L)	V1P8S	Off	Pull-down	Pull-down
MMC1_RST#†	I/O	20k(L)	V1P8S	Off	Pull-down	Pull-down
MMC1_RCOMP	-	-	V1P8S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

check



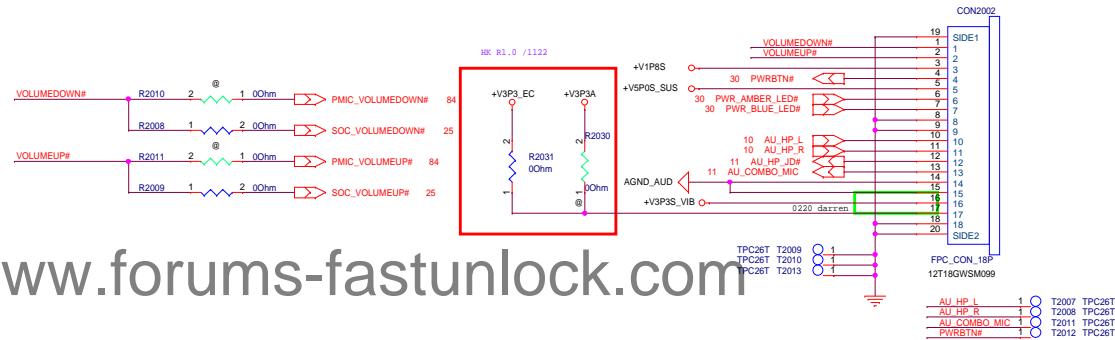
check



153 BALL / 169 BALL

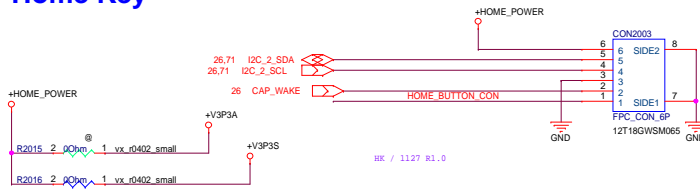
eMMC Table			
Priority	eMMC Description	Part Number	TX Part Number
Main Source	SANDISK / FLASH EMMC 32GB FBGA-153	0500-01L10DE	*****
Second Source	HYUNIX / FLASH EMMC 32GB FBGA-153	0500-01K500S	*****
Second Source	SAMSUNG / FLASH EMMC 32GB FBGA-153	0500-01L20DE	*****

Volume / AUD BD CONN



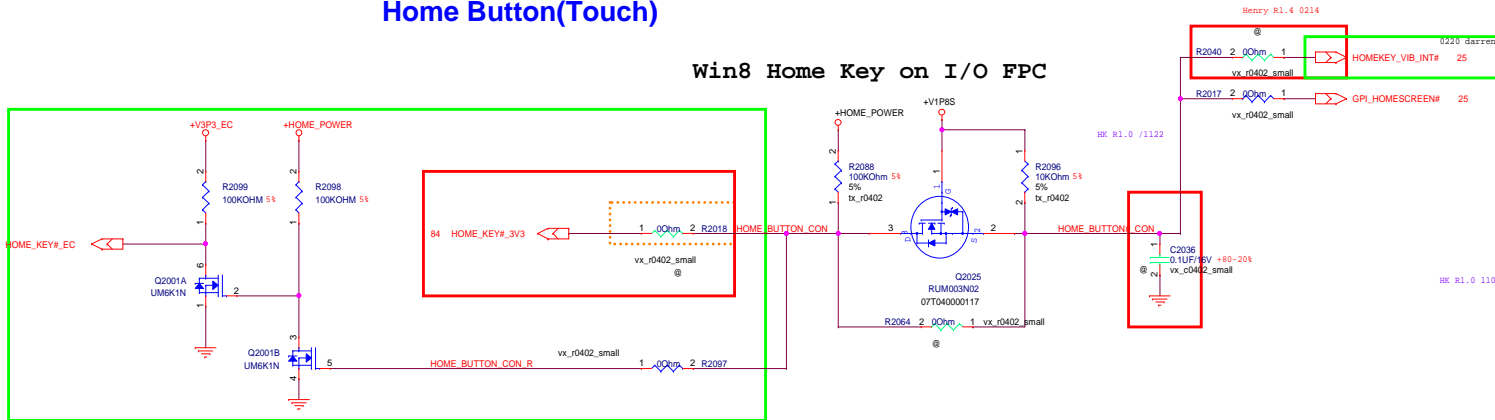
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Home Key

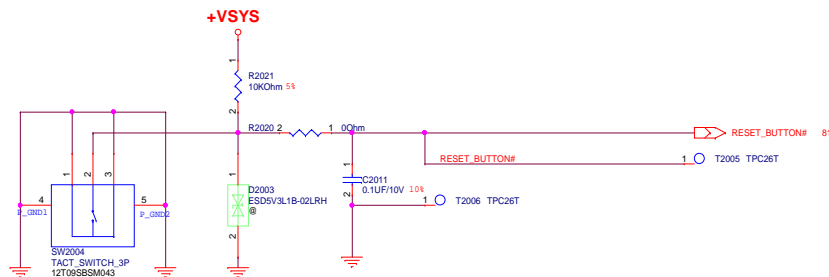


Home Button(Touch)

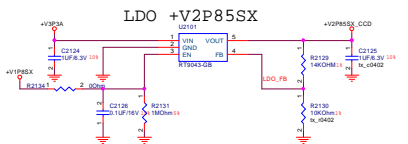
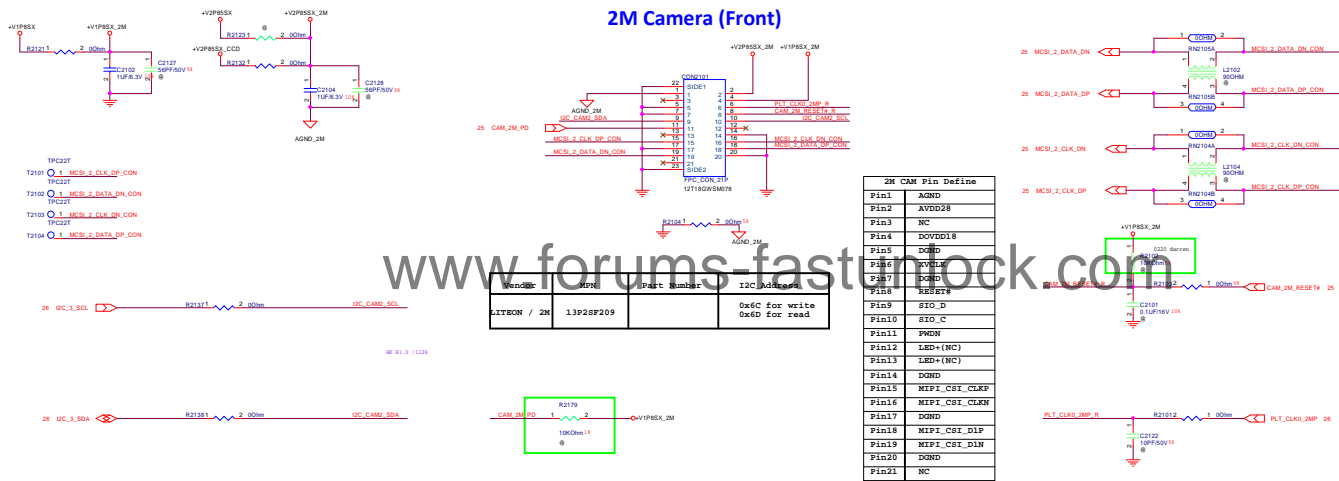
Win8 Home Key on I/O FPC



Reset Button



21 Camera



22

From SOC

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<Core Design>

PEGATRON

PEGATRON CONFIDENTIAL

Size

C

Title : Touch Screen

Engineer: Ellastar

Project Name

Longchamp

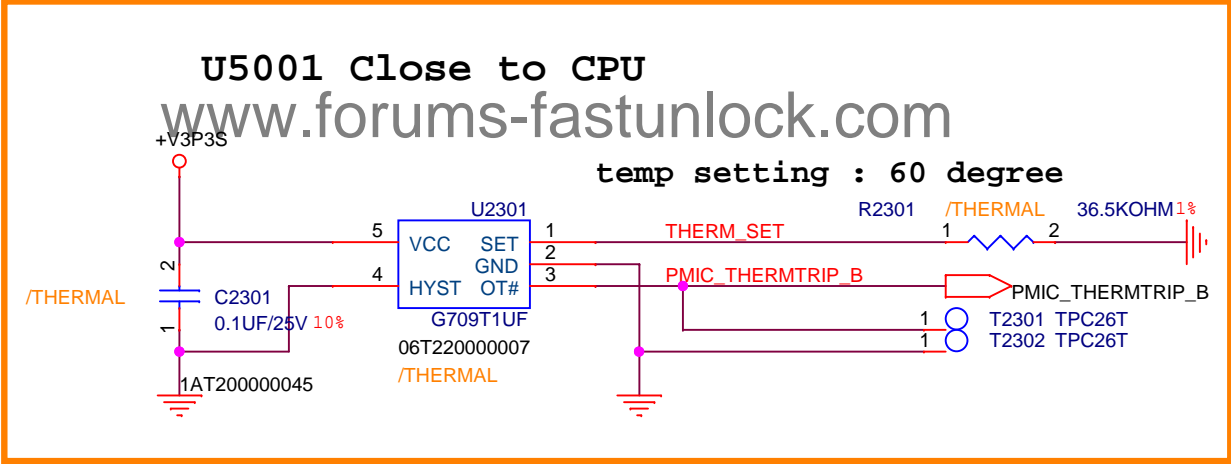
Date: Tuesday, May 27, 2014

Sheet 22 of 52

Rev

R1.1

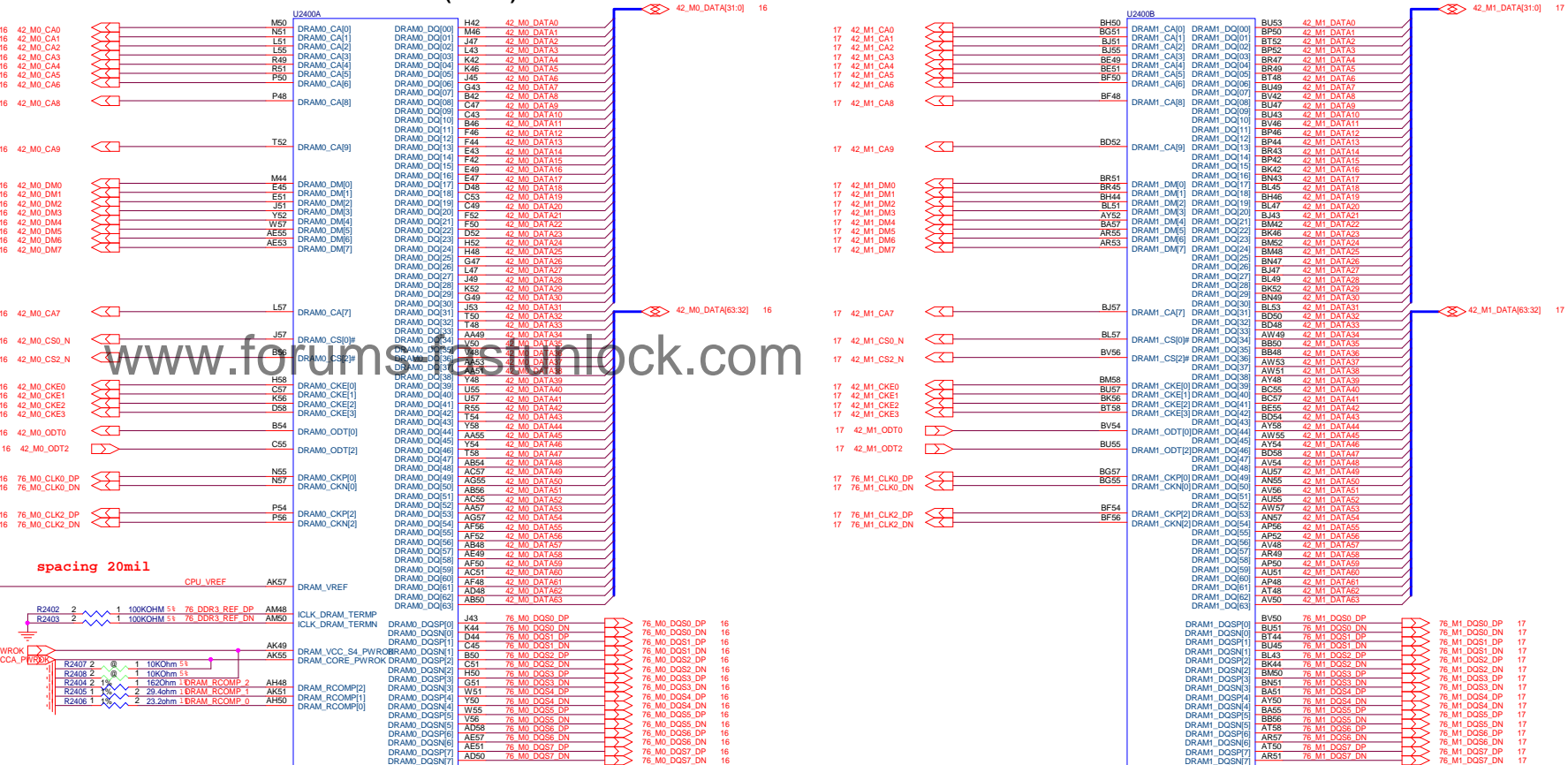
23 THERMAL



Title		
<Title>		
Size	Document Number	Rev
A	Longchamp	R1.1
Date:	Tuesday, May 27, 2014	Sheet 23 of 52

24 SOC-1

VALLEYVIEW-T(1 OF 6)



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26 SOC-3

VALLEYVIEW-T(3 OF 6)

Debug Port

MICRO USB

USB DOCKING

Debug Port

3.2 X 2.5 mm

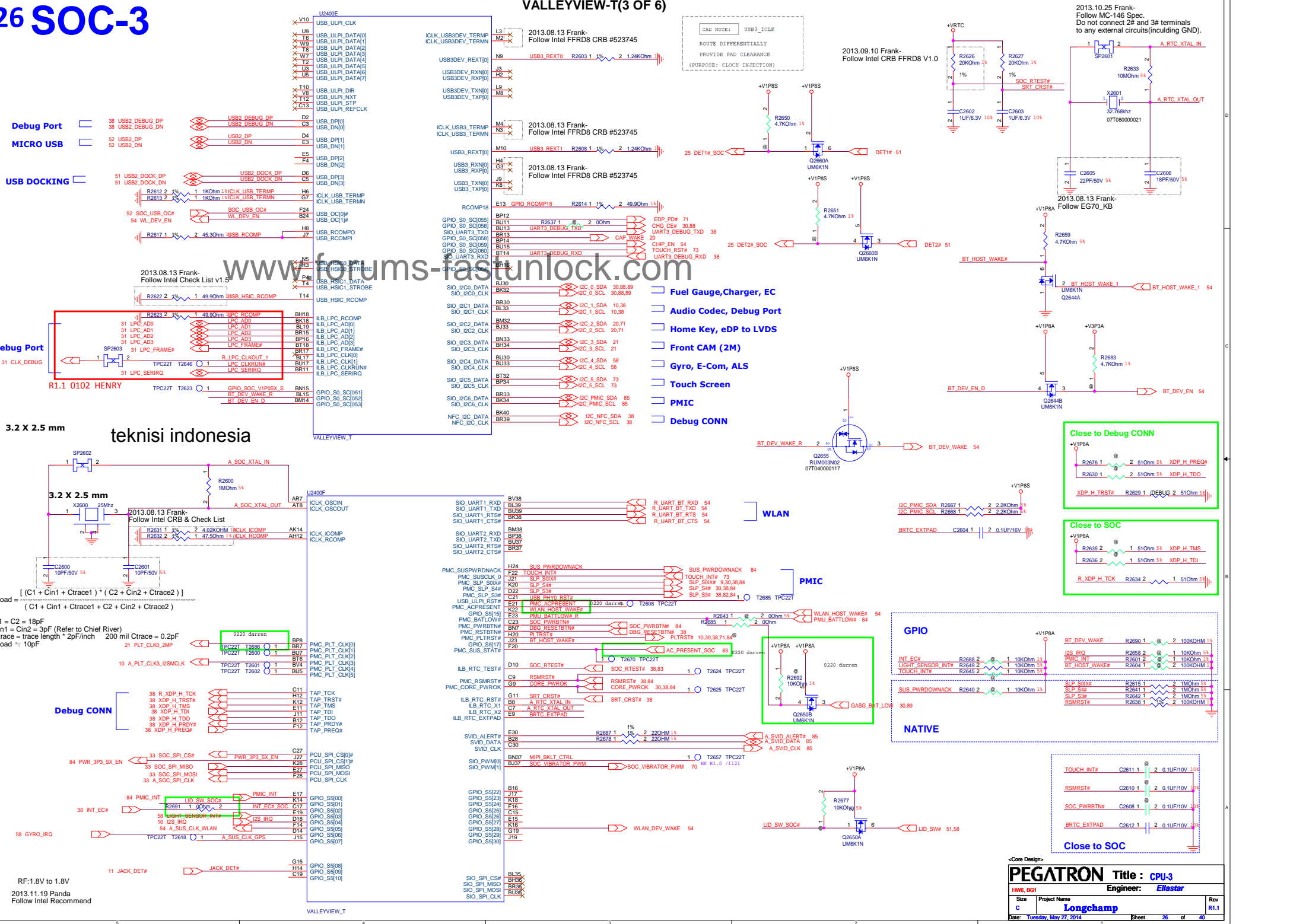
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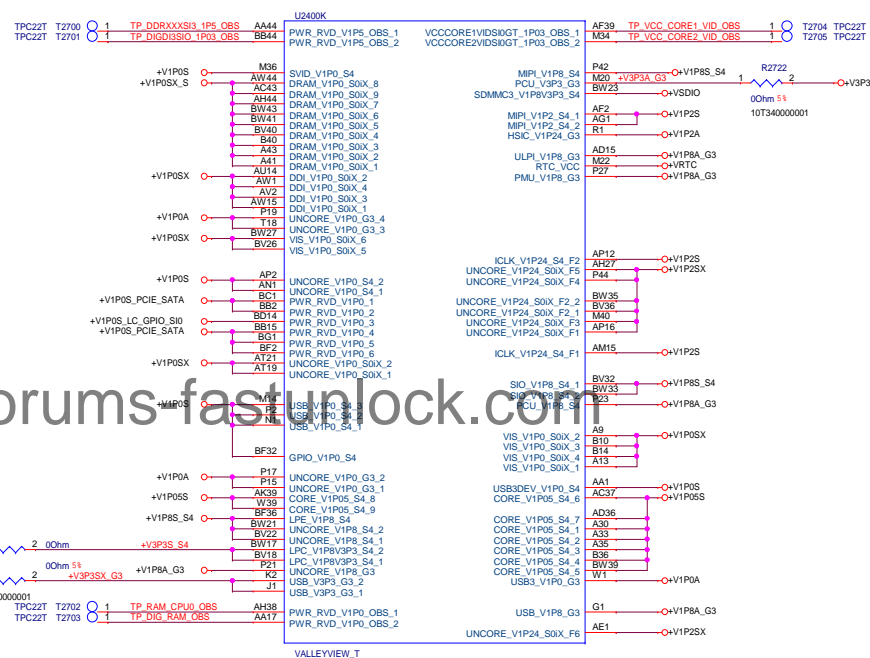
Debug CONN

RF:1.8V to 1.8V

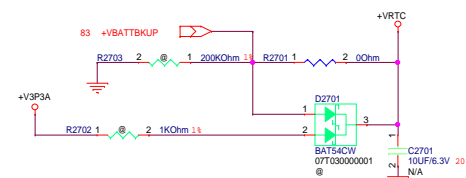
2013.11.19 Panda

Follow Intel Recommend

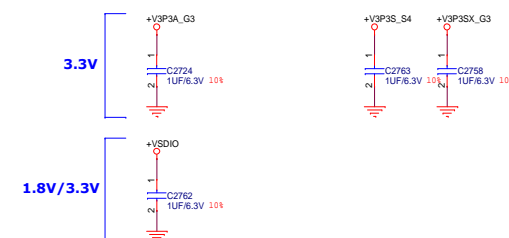
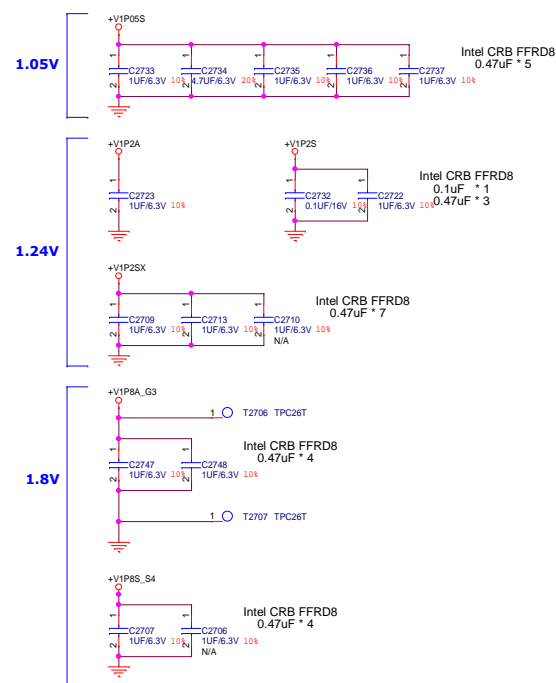
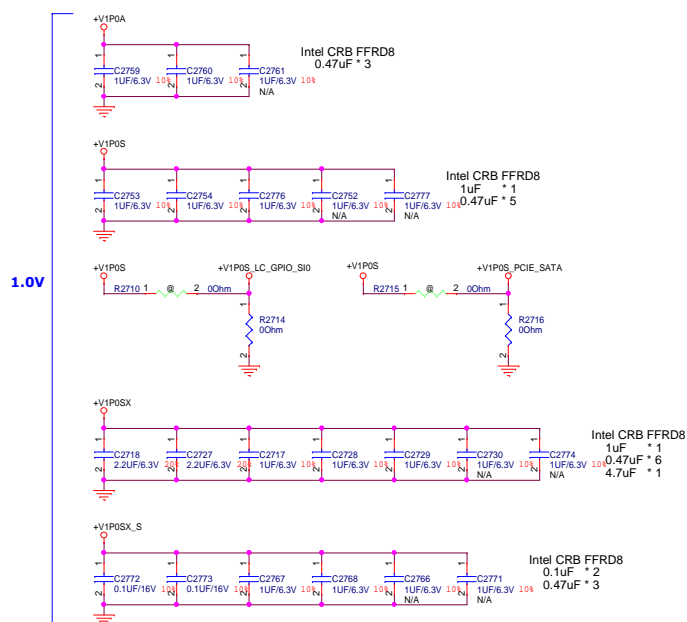




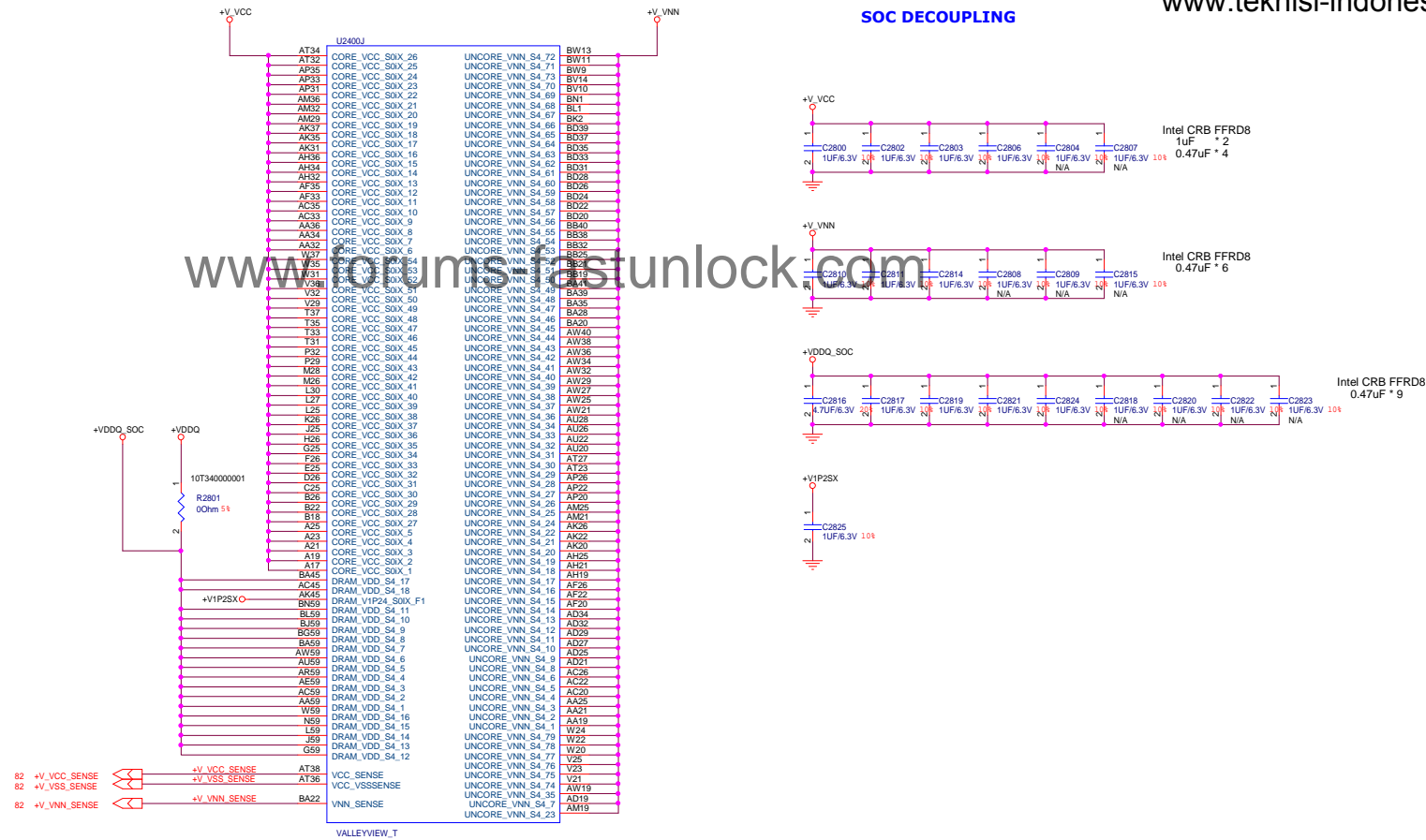
RTC Circuit

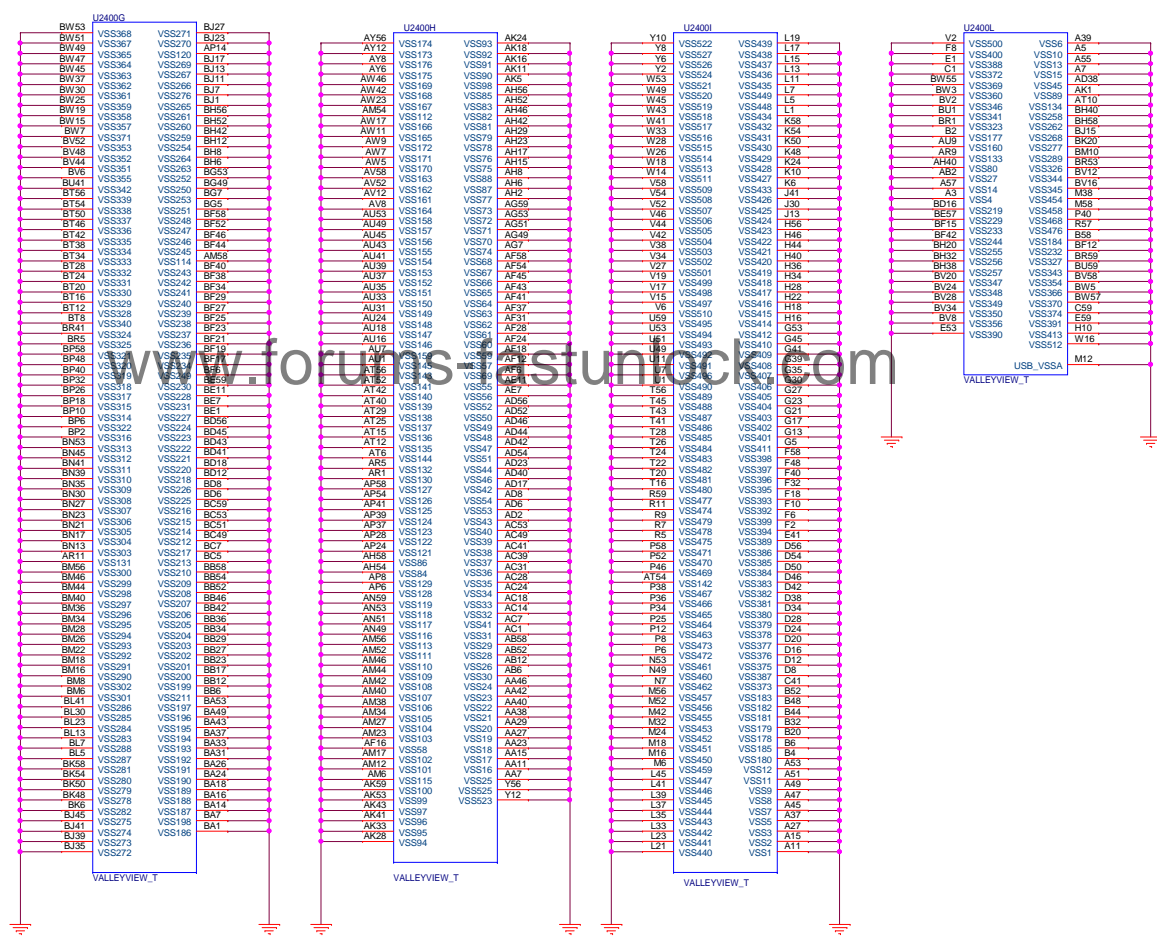


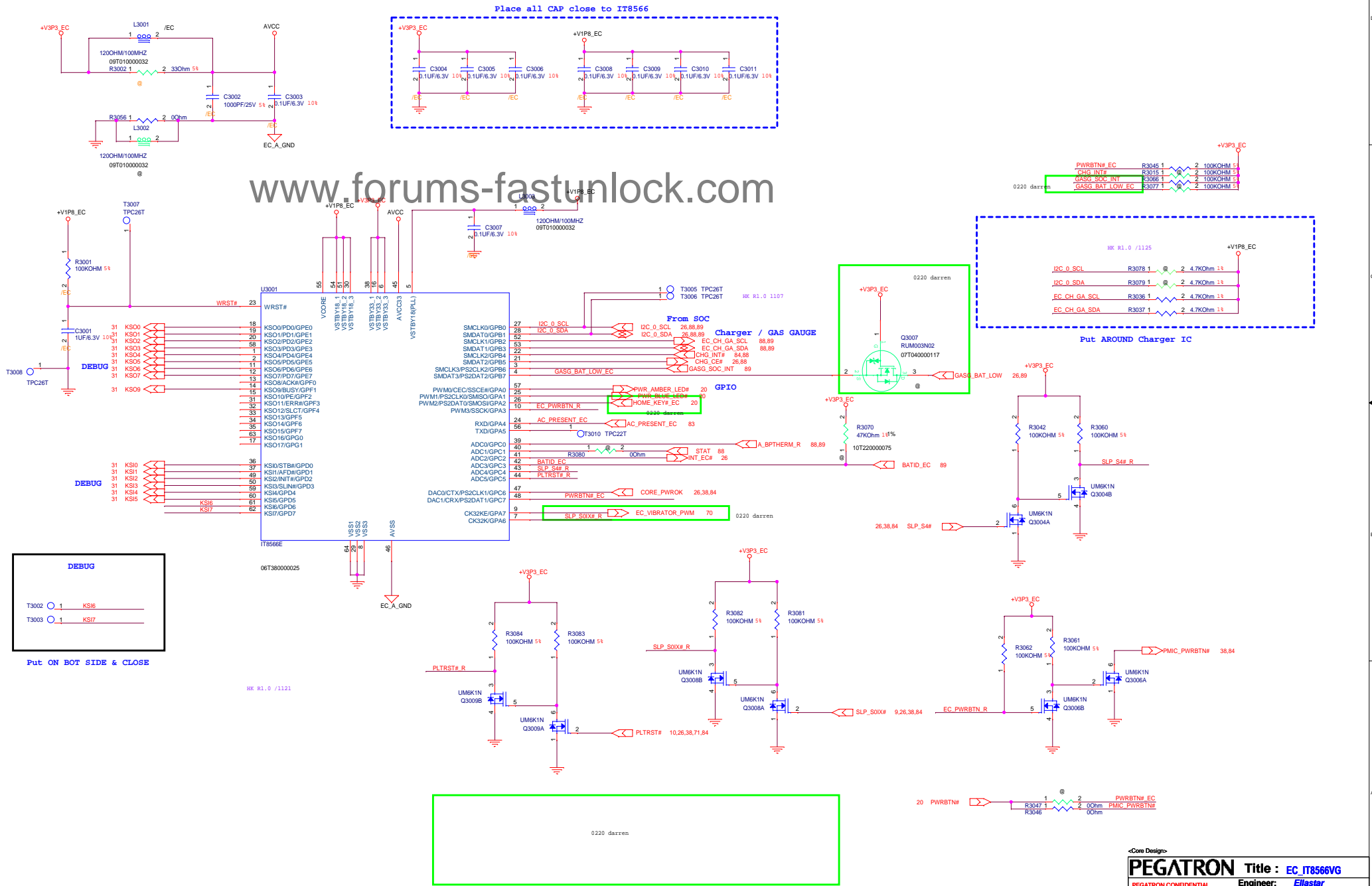
SOC DECOUPLING



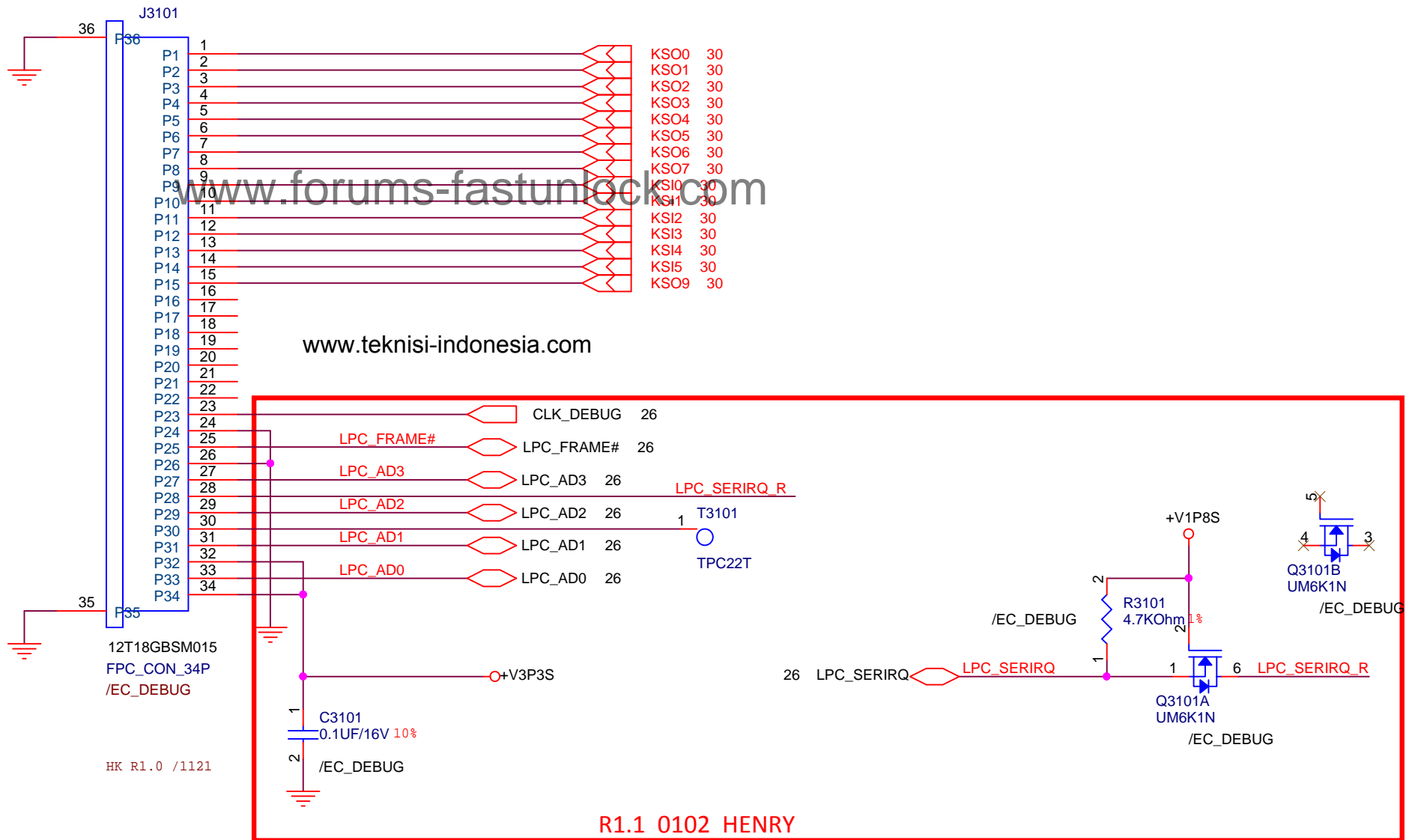
SOC DECOUPLING







30 EC_debug



PEGATRON Title : EC_debug

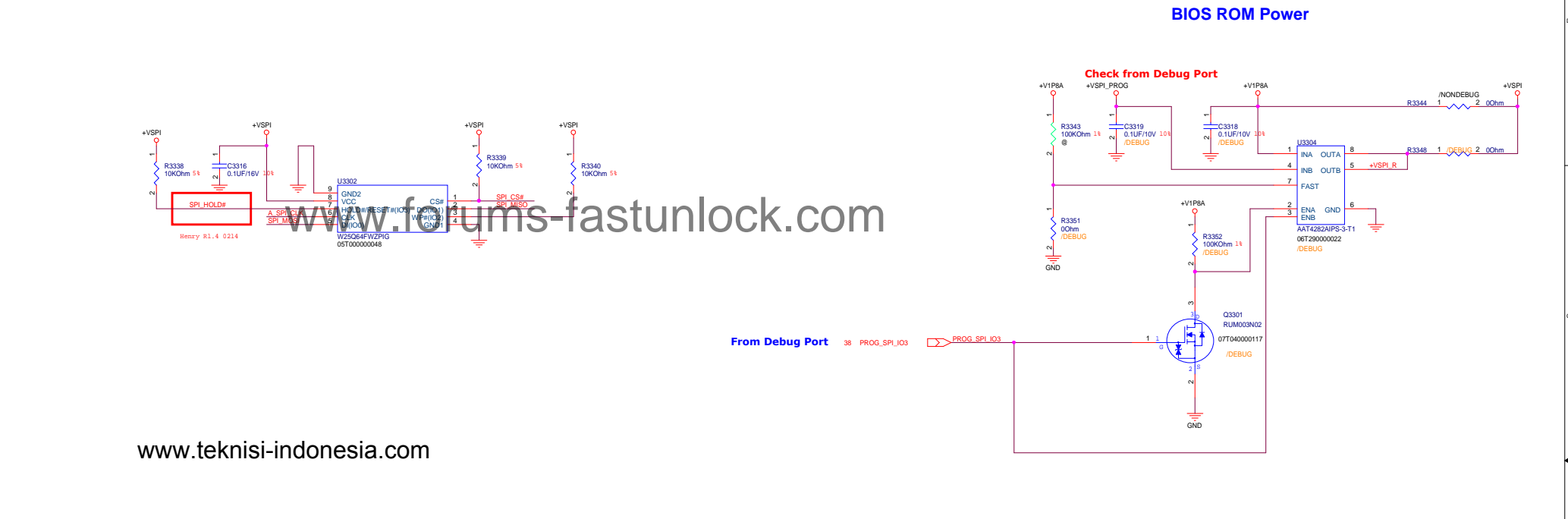
<OrgName> Engineer: **Ellastar**

Size A	Project Name Longchamp	Rev R1.1
------------------	----------------------------------	--------------------

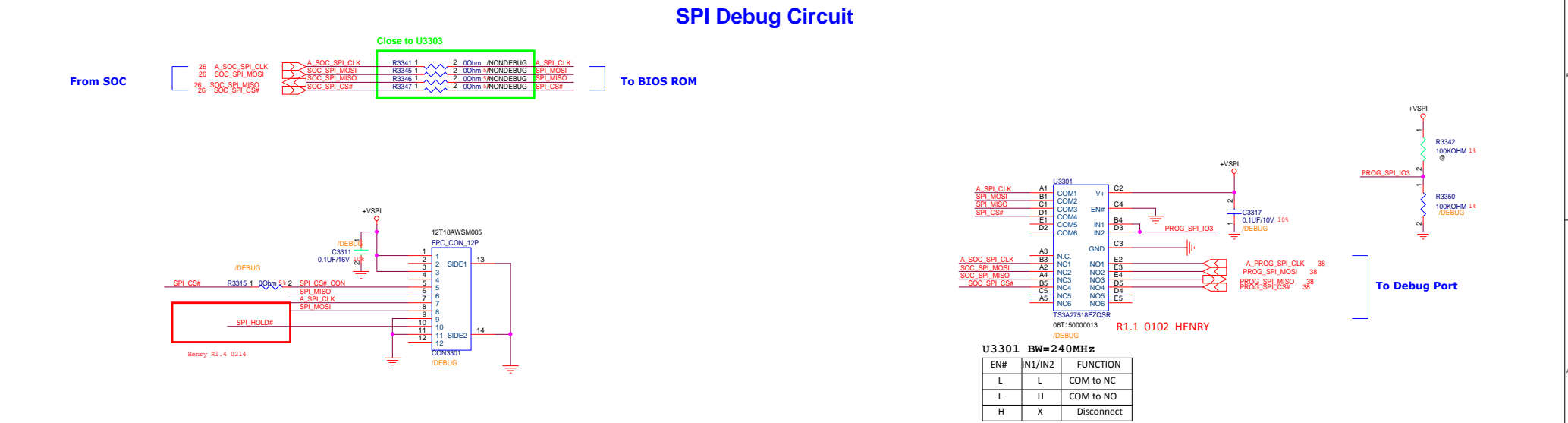
Date: Tuesday, May 27, 2014 Sheet 31 of 52

33 BIOS ROM

BIOS ROM



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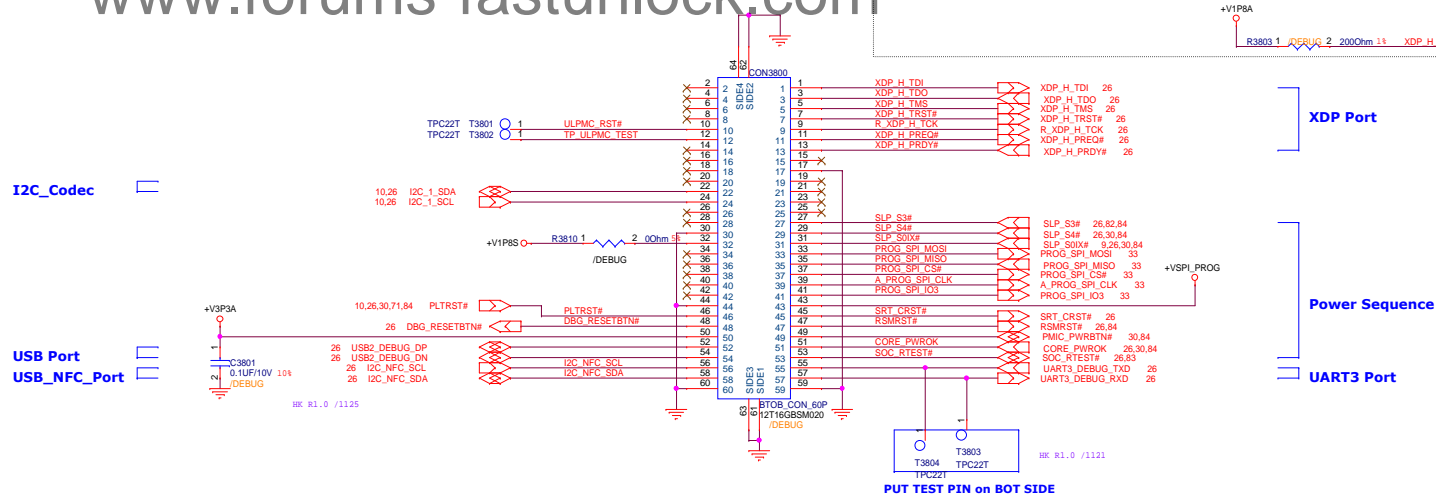


38 Debug Port

Debug Port

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2013.11.18 Check XDP PU/PD



USB HUB

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-Core Design-		Title : USB HUB	
PEGATRON CONFIDENTIAL		Engineer: Ellastar	
Size	Project Name	Rev	
C	Longchamp	R1.1	
Date: Tuesday, May 27, 2014		Sheet	50 of 52

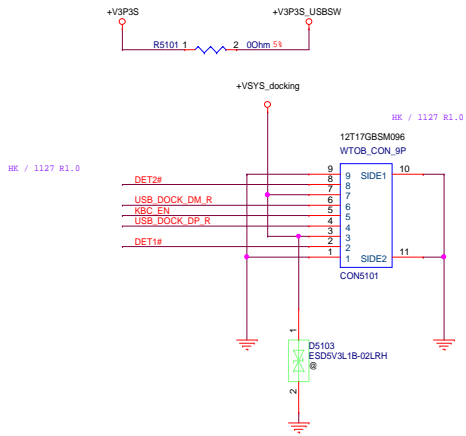
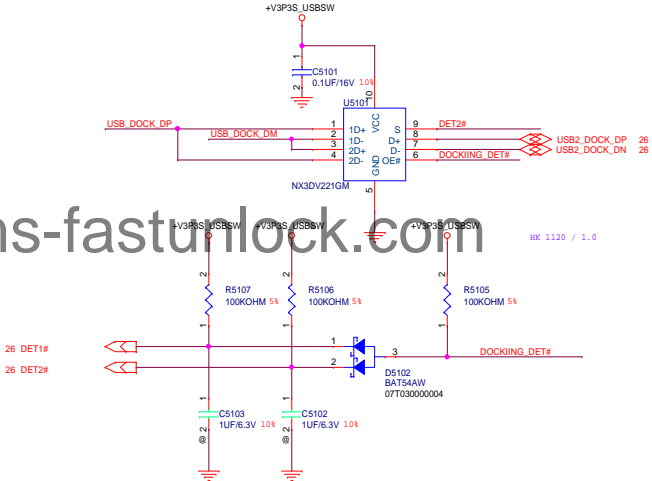
51 USB Docking

POGO Docking

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

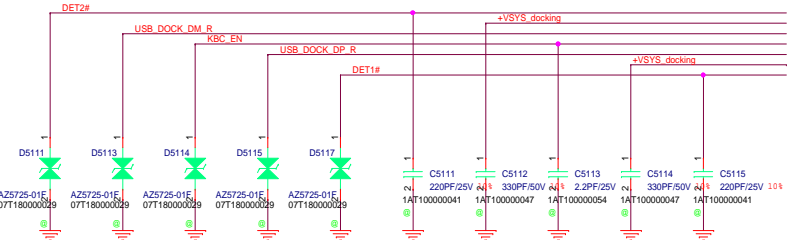
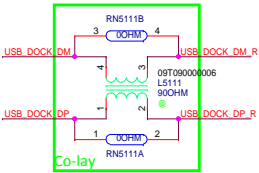
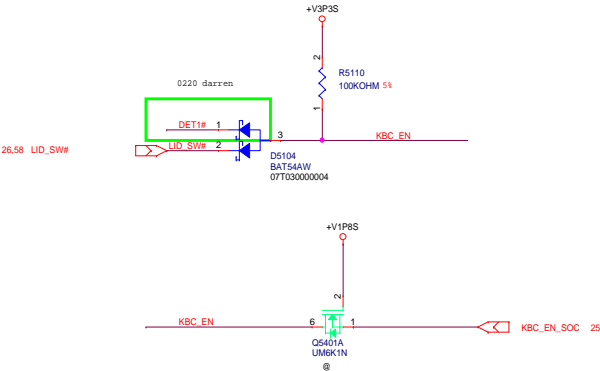
Tablet With Docking for User Mode Study

DOCK_PWR_EN	DT1 (POGO Pin2)	DT2 (POGO Pin8)	LID_SW#	KBC_EN (POGO Pin5)	Photo	Mode
H	H	L	H	H		Phone
H	L	H	H	L		Tablet W/ Dock
H	H	L	L	L		Tablet
L	H	H	H	H		Tablet W/O Dock

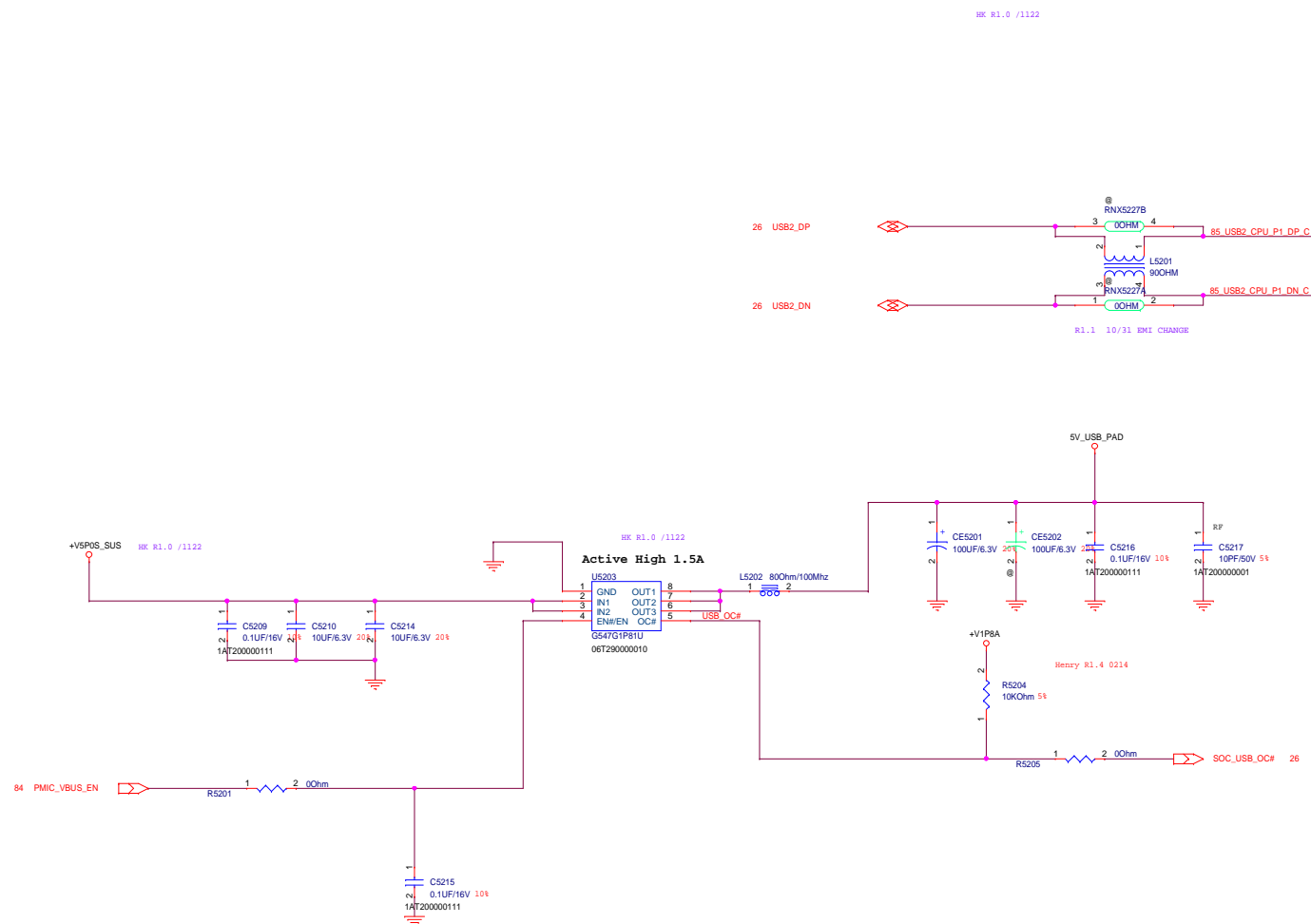


MB to POGO Pin Definition

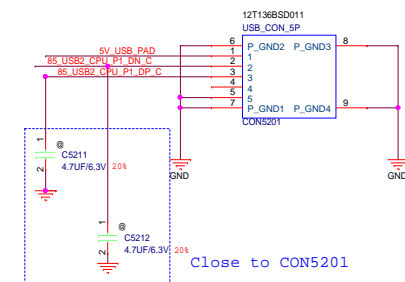
- 1. GND
- 2. DET
- 3. PWR
- 4. D-
- 5. CS
- 6. USB_D+
- 7. PWR
- 8. DET
- 9. GND



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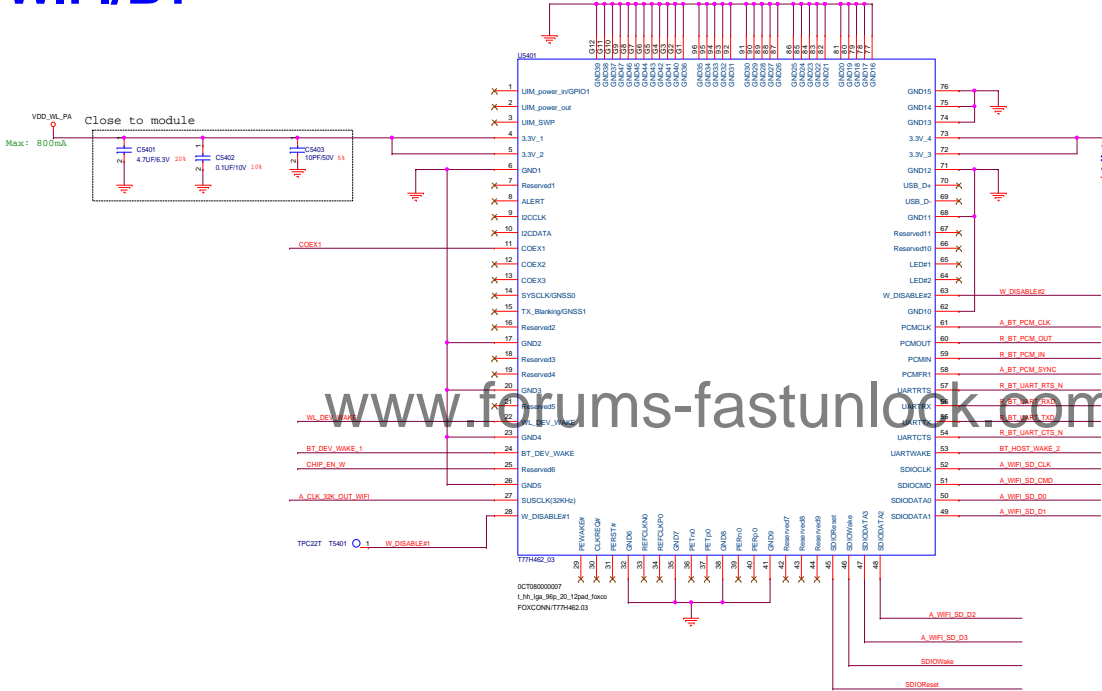
Micro USB CONN



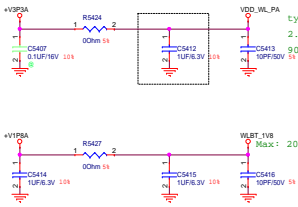
Micro USB (12T136BSD005) Pin Define

1. VBUS
2. D-
3. D+
4. ID
5. GND

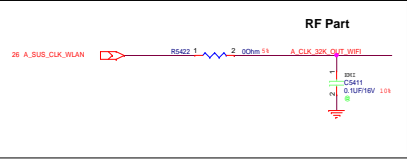
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WiFi/BT Power

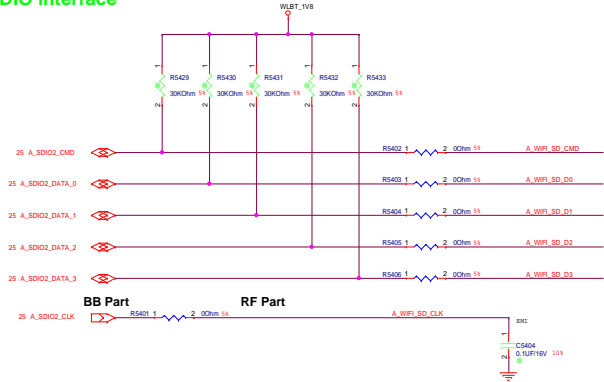


WiFi clock interface



WiFi/BT Interface

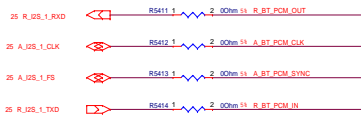
WiFi SDIO interface



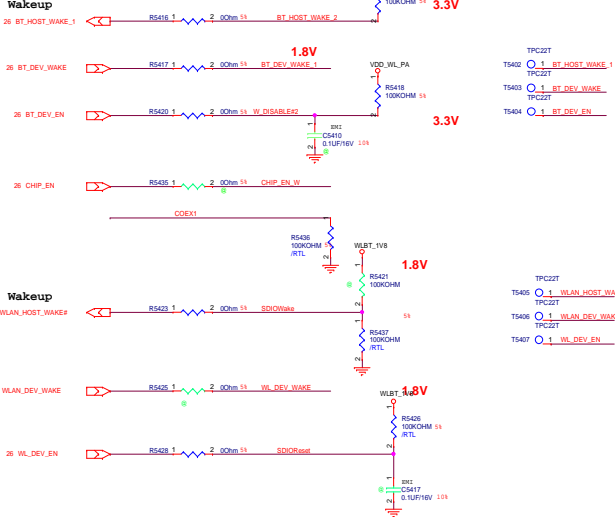
BT UART interface



BT PCM interface



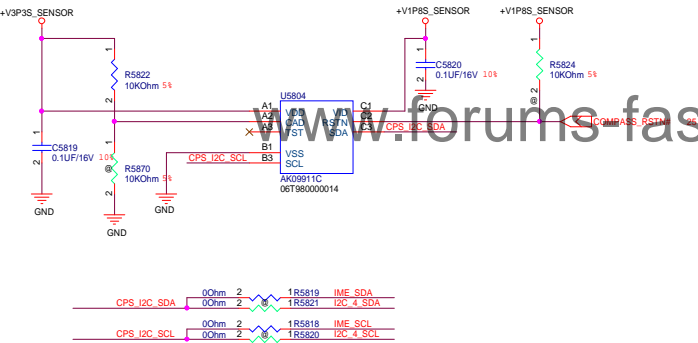
Control interface



58 Sensor

e-Compass

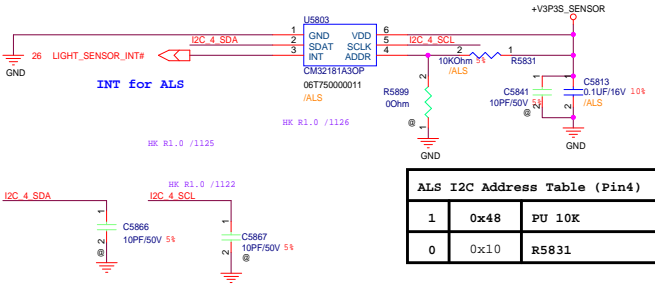
e-Compass I2C Address Table (Pin A2)		
1	0xD	R5822 (default)
0	0xC	R5870



Sensor Power



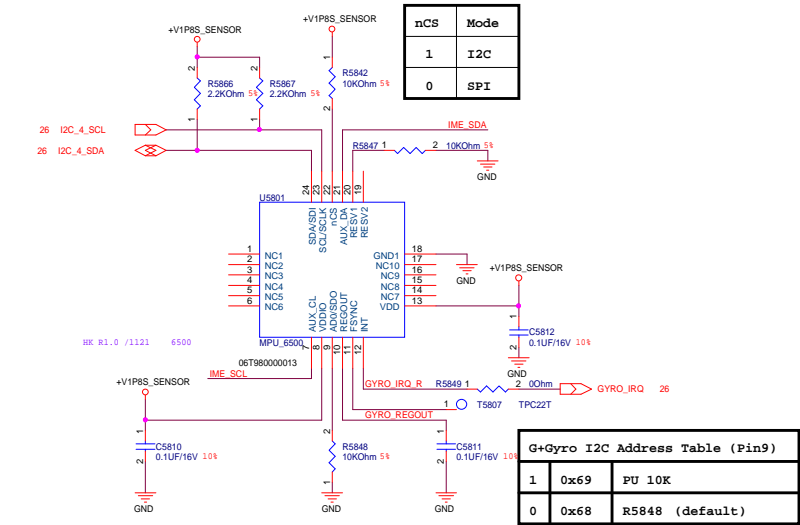
Light Sensor



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

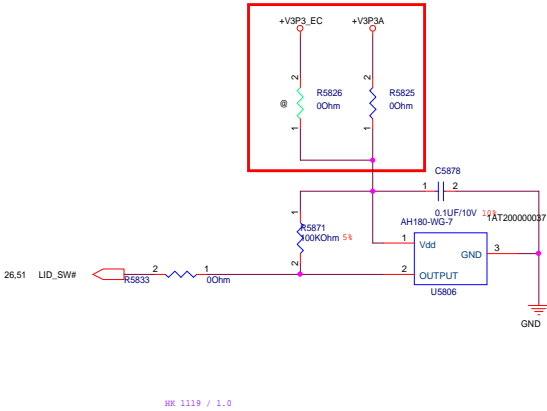
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G-Sensor + Gyro



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

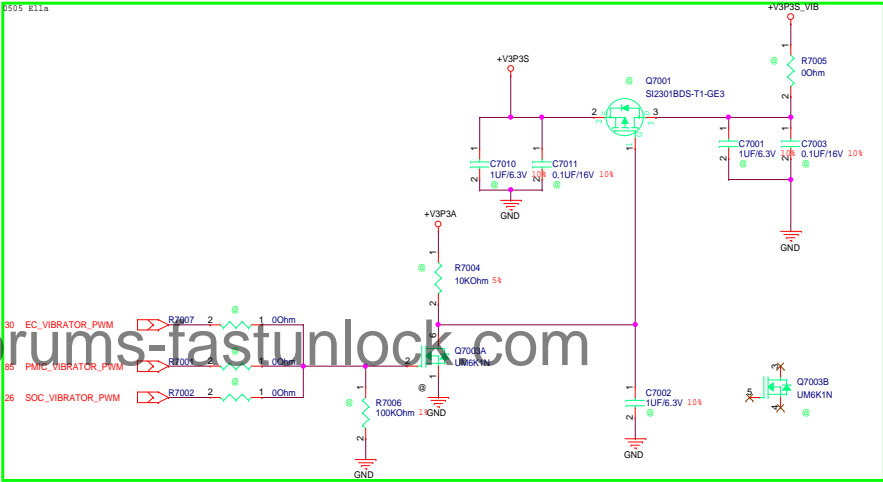
Lid Switch



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70 VIBRATOR

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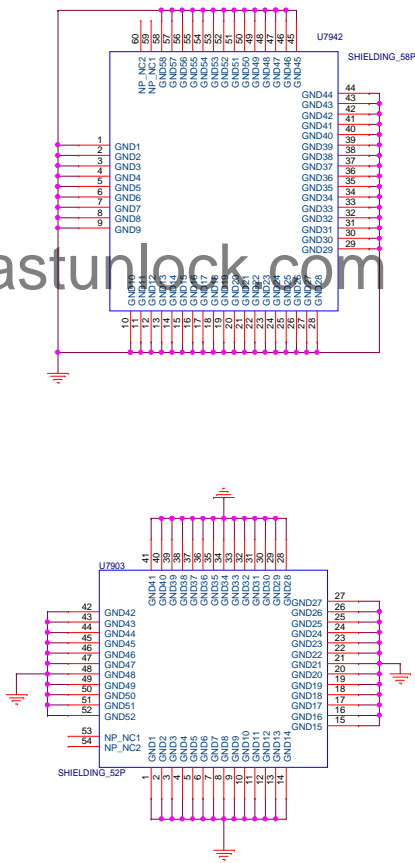
76 Home key Conn

IO BD CONN

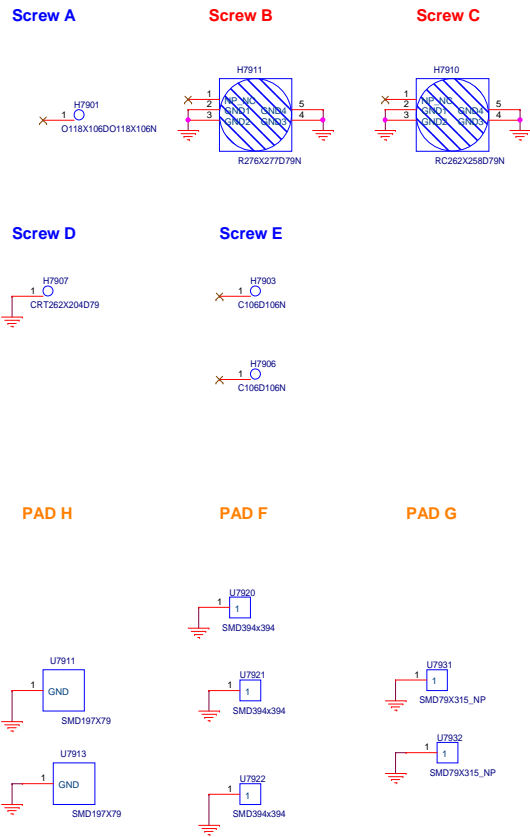
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-Core Design-			
PEGATRON		Title : ME/TP	
PEGATRON CONFIDENTIAL		Engineer: Ellastar	
Size	Project Name		Rev
C	Longchamp		R1.1
Date:	Tuesday, May 27, 2014	Sheet	76 of 52

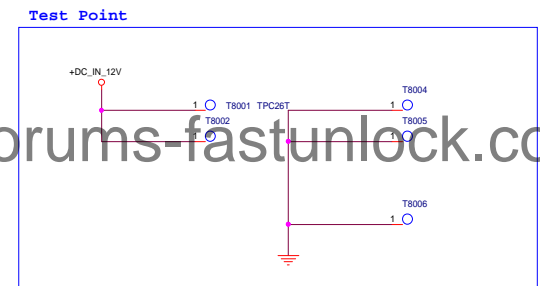
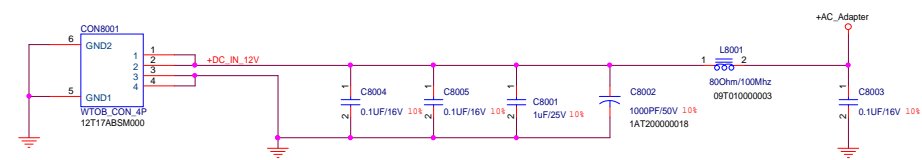
Shielding Case



ME Screw



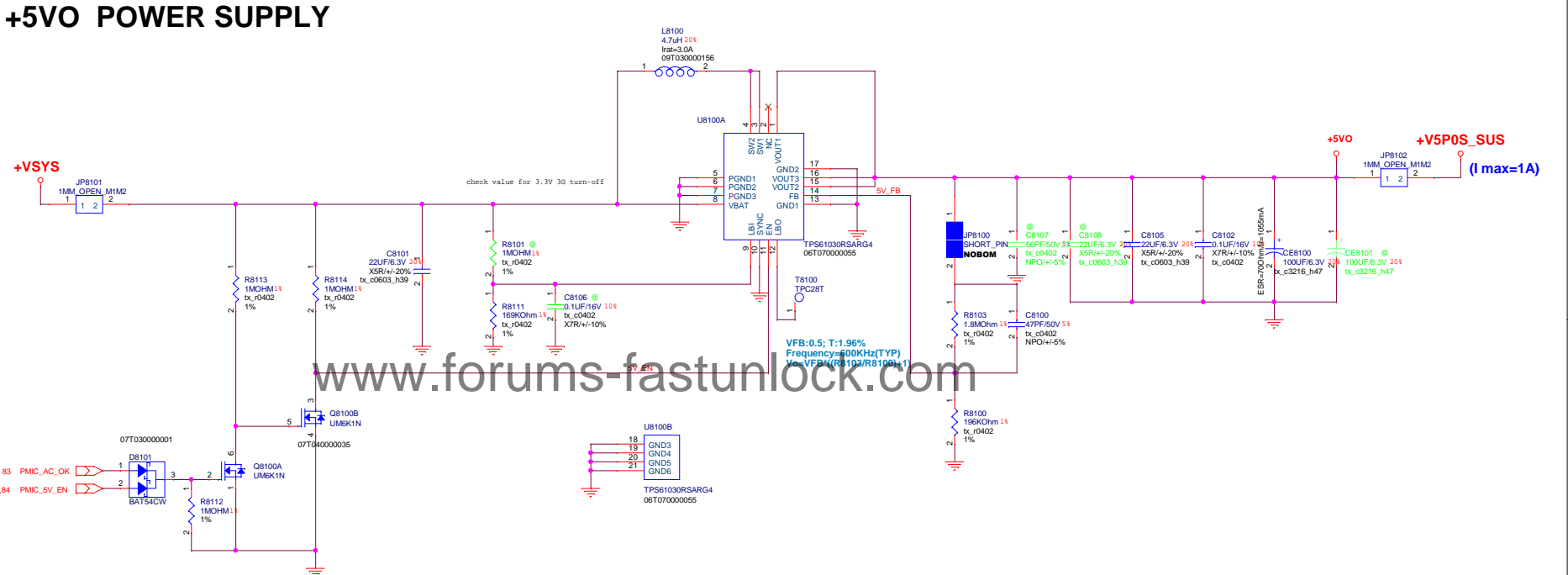
80 DC JACK



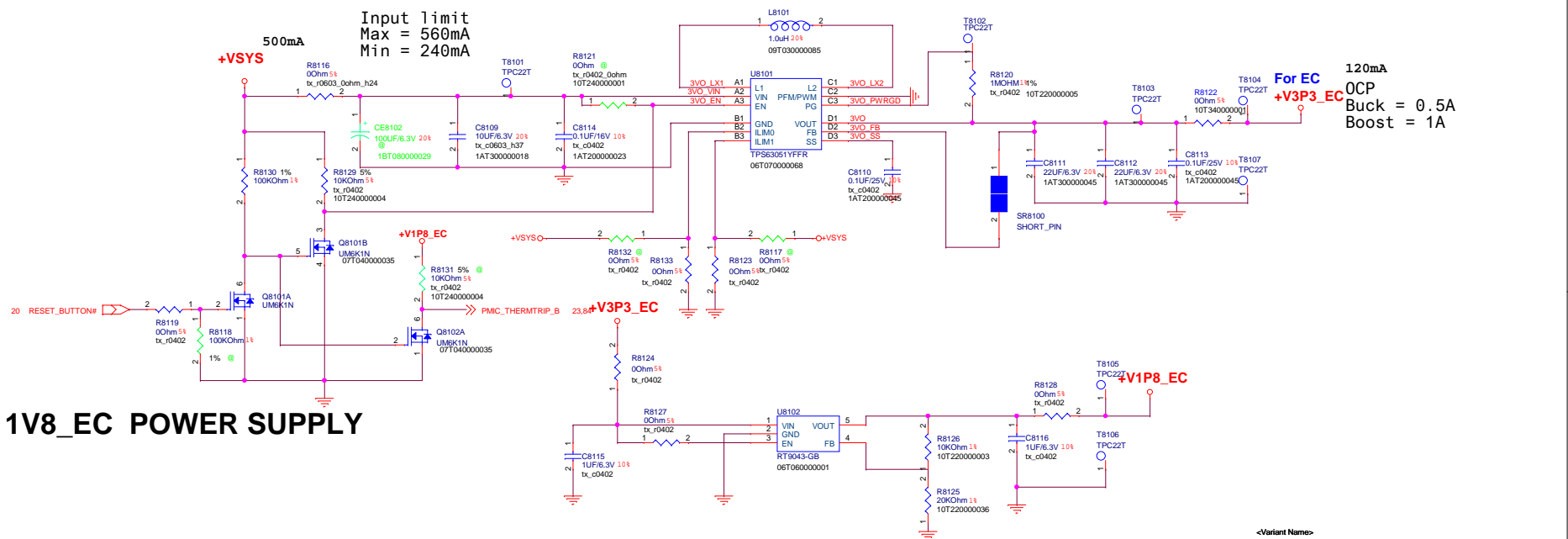
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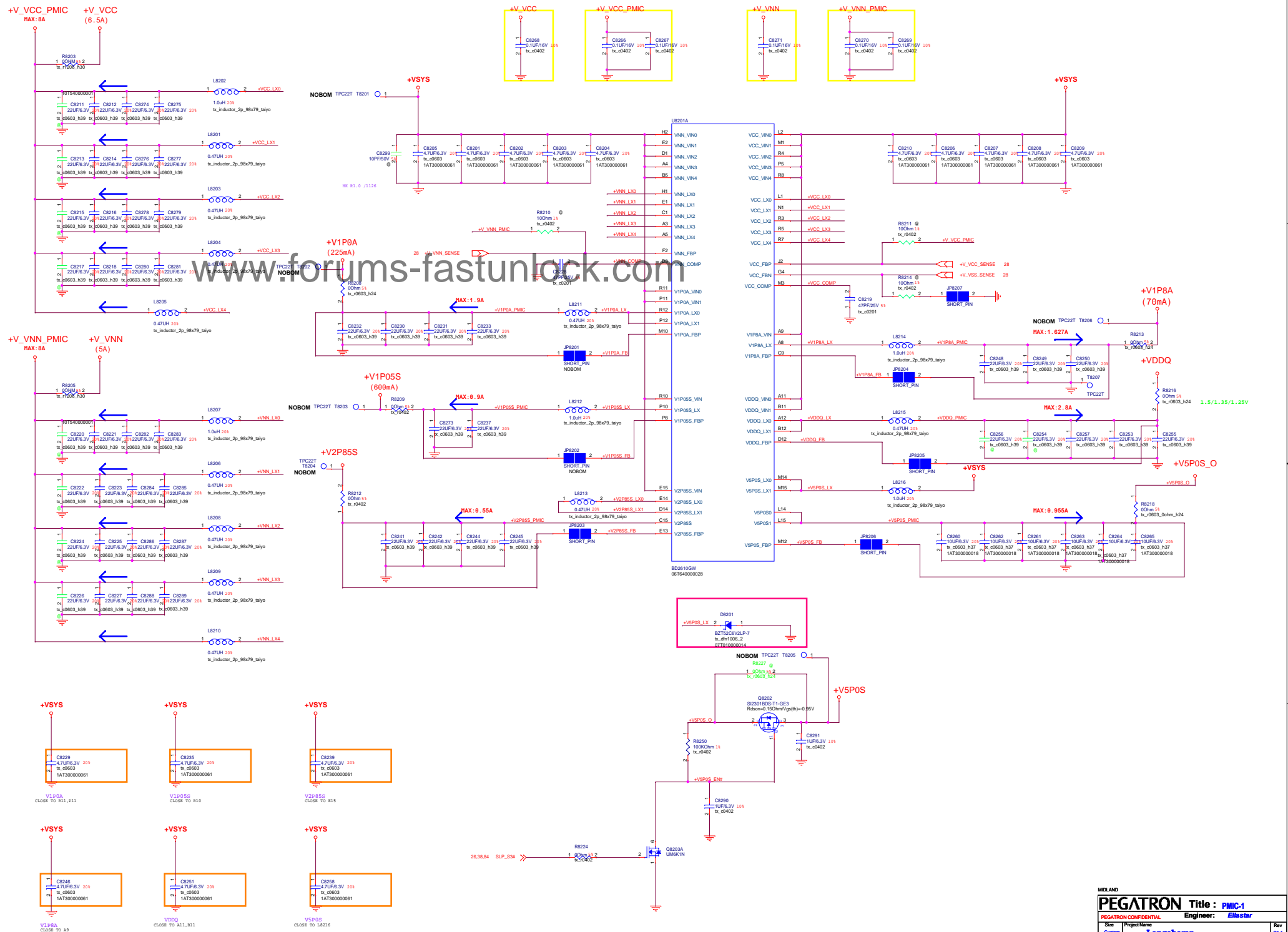
+5V0 POWER SUPPLY



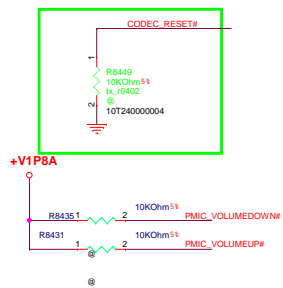
3V3_EC POWER SUPPLY



1V8_EC POWER SUPPLY

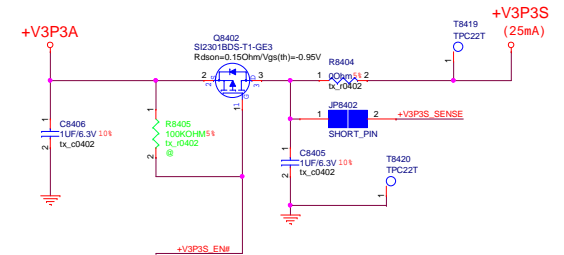
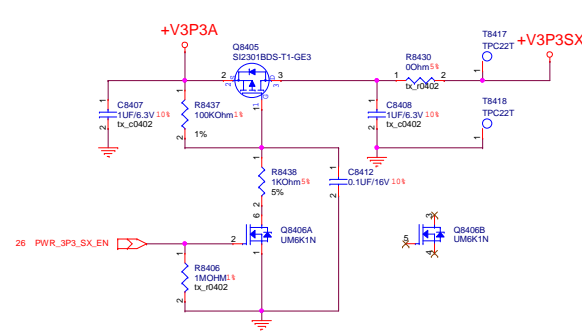
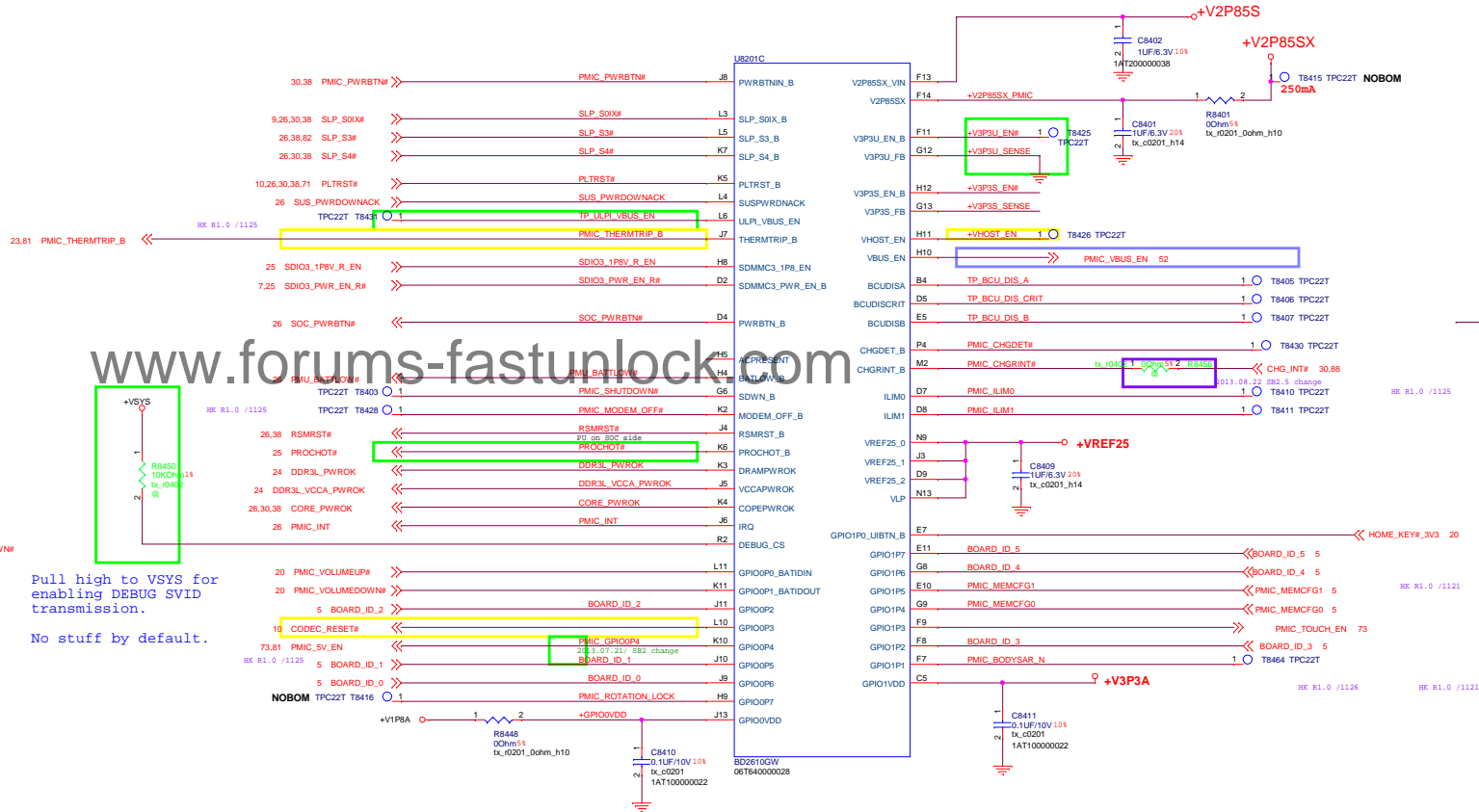






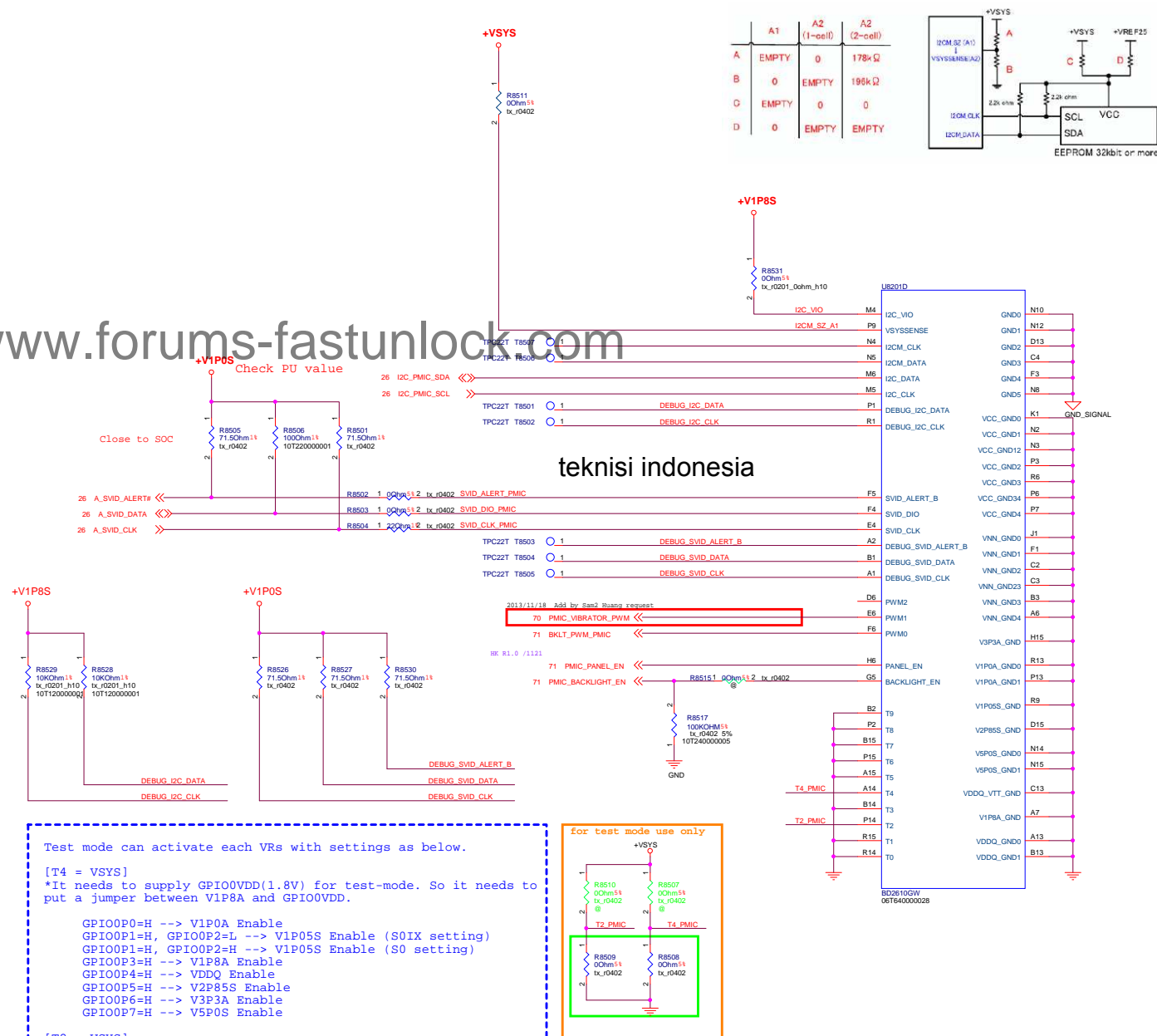
Pull high to VSYS for enabling DEBUG SVID transmission.
No stuff by default.

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Test mode can activate each VRs with settings as below.

[T4 = VSYS]

*It needs to supply GPIO0VDD(1.8V) for test-mode. So it needs to put a jumper between V1P8A and GPIO0VDD.

GPIO0P0=H --> V1P0A Enable
 GPIO0P1=H, GPIO0P2=L --> V1P0S Enable (S0IX setting)
 GPIO0P1=H, GPIO0P2=H --> V1P0S Enable (S0 setting)
 GPIO0P3=H --> V1P8A Enable
 GPIO0P4=H --> VDDQ Enable
 GPIO0P5=H --> V2P8S5 Enable
 GPIO0P6=H --> V3P3A Enable
 GPIO0P7=H --> V5P0S Enable

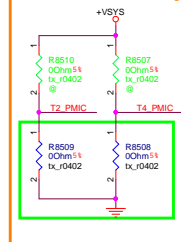
[T2 = VSYS]

*It needs to supply 1.8V for V1P8A(I2C_VIO), V1P8S(I2C_CLK, I2C_DATA pull-up), GPIO0VDD and 1.0V for V1P0S(SVID_DIO, SVID_CLK pull-up).

I2C access (ADD:F3, DATA:0D) --> VCC/VNN Enable at same timing.

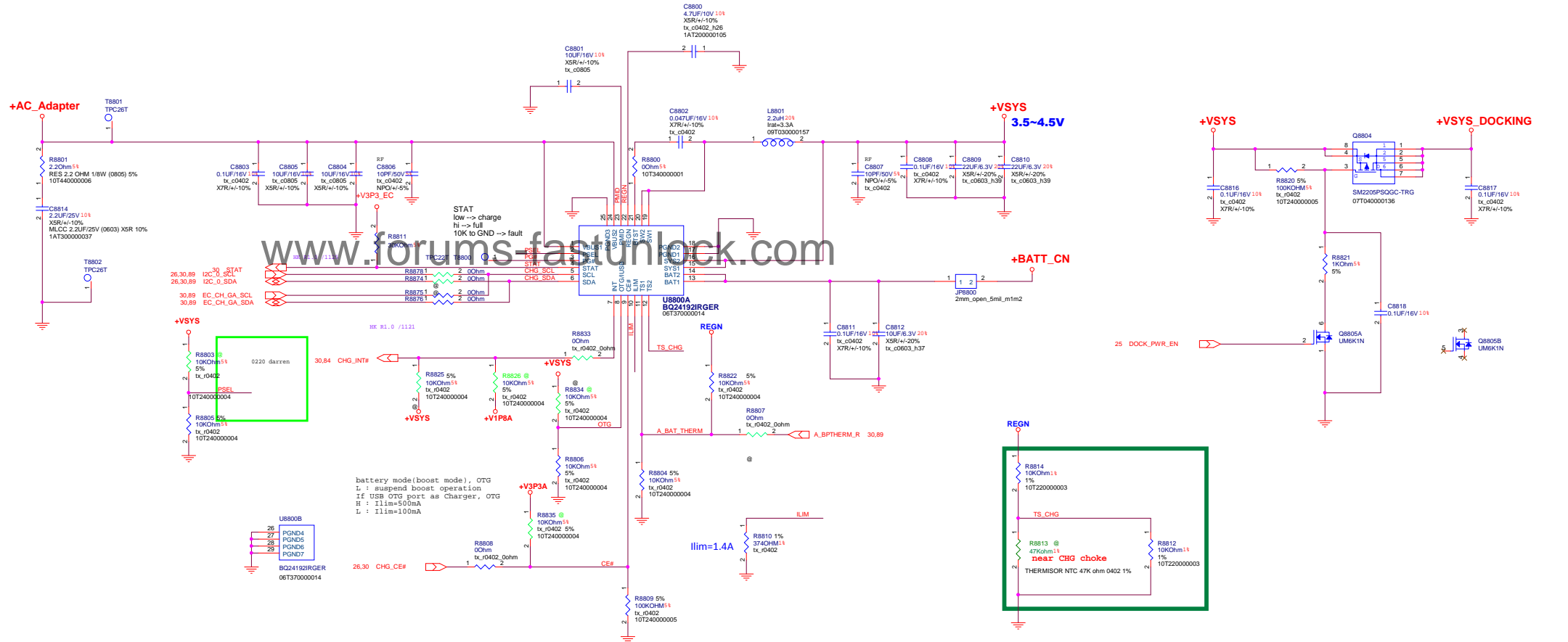
SVID access --> You can Enable/Disable VCC/VNN separately.

for test mode use only



MIDLAND

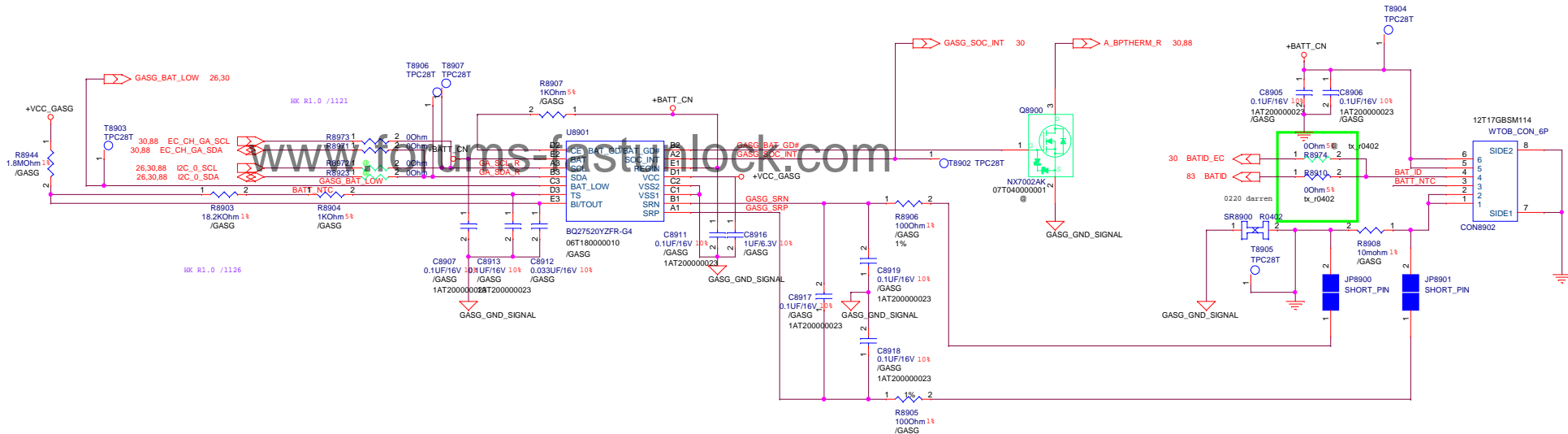
Battery Charger



<Core Design>

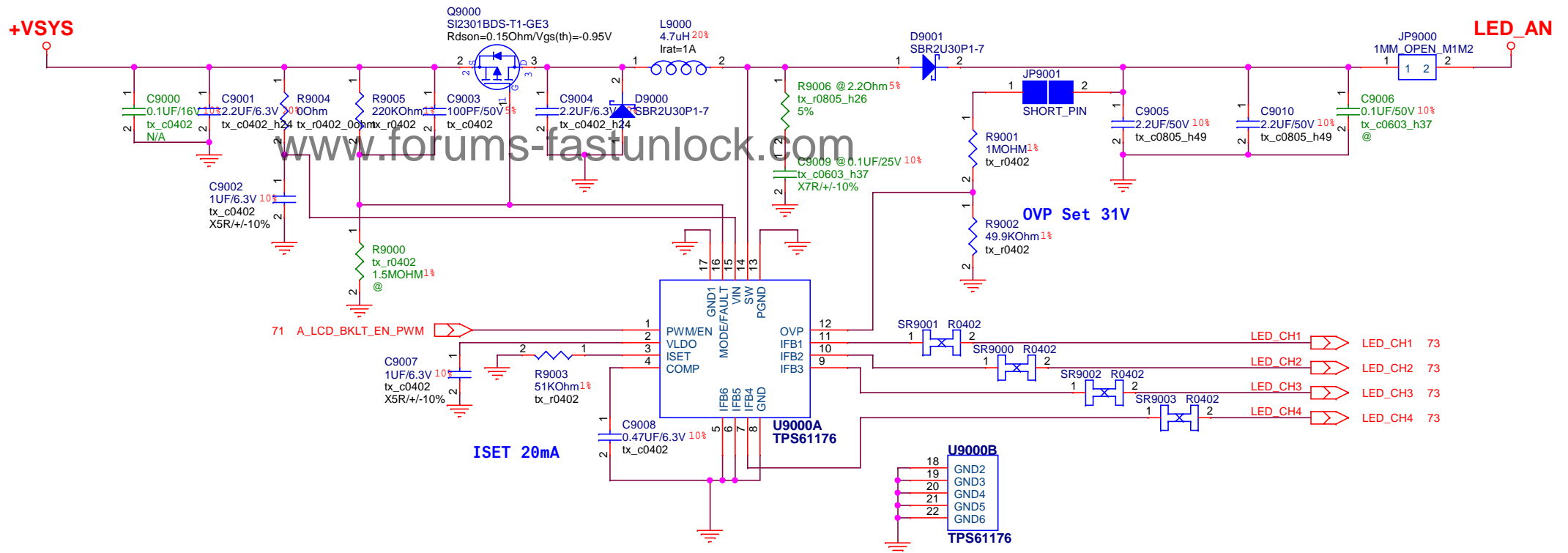
PEGATRON		Title :	Charger
PEGATRON CONFIDENTIAL		Engineer:	EliaStar
Size	Project Name		Rev
Custom	Longchamp		R1.1
Date: Tuesday, May 27, 2014		Sheet	88 of 97

Gas Gauge



<Core Design>			
PEGATRON		Title : Gas Gauge	
Size		Engineer: Ellastar	
Custom	Project Name	Rev	
Longchamp		R1.1	
Date: Tuesday, May 27, 2014		Sheet 89 of 97	

LED Driver



<Core Design>

PEGATRON Title : **LED Driver**

PEGATRON CONFIDENTIAL Engineer: *Ellastar*

Size	Project Name	Rev
Custom	Longchamp	R1.1

Date: Tuesday, May 27, 2014 Sheet 90 of 97

+VSYS_DOCKING ○ → +VSYS_DOCKING 51,88
+VSYS ○ → +VSYS 20,81,82,83,84,85,88,90
+AC_Adapter ○ → +AC_Adapter 80,83,88
+BATT_CN ○ → +BATT_CN 83,88,89
REGN ○ → REGN 88

+VCC_GASG ○ → +VCC_GASG 89
+V_VNN_PMIC ○ → +V_VNN_PMIC 82
+V_VNN ○ → +V_VNN 28,82
+V_VCC_PMIC ○ → +V_VCC_PMIC 82
+V_VCC ○ → +V_VCC 28,82
+VDDQ ○ → +VDDQ 16,24,28,82,83
+VDDQ_VTT ○ → +VDDQ_VTT 16,83
LED_AN ○ → LED_AN 73,90
+VREFB ○ → +VREFB 83
+VSDIO ○ → +VSDIO 7,27,83
+VHDMI ○ → +VHDMI 9,83

+VREFT ○ → +VREFT 83
+VREF25 ○ → +VREF25 83,84
+V5P0S_SUS ○ → +V5P0S_SUS 20,52,81
+5VO ○ → +5VO 81
+V5P0S_O ○ → +V5P0S_O 82,83
+V5P0S ○ → +V5P0S 10,73,82
+V3P3A ○ → +V3P3A 5,20,21,26,27,38,54,58,70,83,84,88
+V3P3SX ○ → +V3P3SX 27,73,84
+V3P3S ○ → +V3P3S 7,10,20,23,27,31,51,58,70,71,73,84
+V2P85SX_CCD ○ → +V2P85SX_CCD 21
+V2P85SX ○ → +V2P85SX 21,84
+V2P85S ○ → +V2P85S 19,82,84

+V1P8A ○ → +V1P8A 5,26,27,33,38,52,54,82,83,84,88
+V1P8SX ○ → +V1P8SX 21,83
+V1P8S ○ → +V1P8S 7,9,10,19,20,25,26,27,31,38,51,58,71,73,83,85
+V1P2A ○ → +V1P2A 27,83
+V1P2SX ○ → +V1P2SX 27,28,83
+V1P2S ○ → +V1P2S 27,83
+V1P05S ○ → +V1P05S 27,82
+V1P0A ○ → +V1P0A 27,82,83
+V1P0SX ○ → +V1P0SX 27,83
+V1P0S ○ → +V1P0S 25,27,83,85

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<Variant Name>

PEGATRON		Title : POWER_SIGNAL	
Engineer:		Ellastar	
Size Custom	Project Name Longchamp		Rev R1.1
Date: Tuesday, May 27, 2014		Sheet 91 of 97	