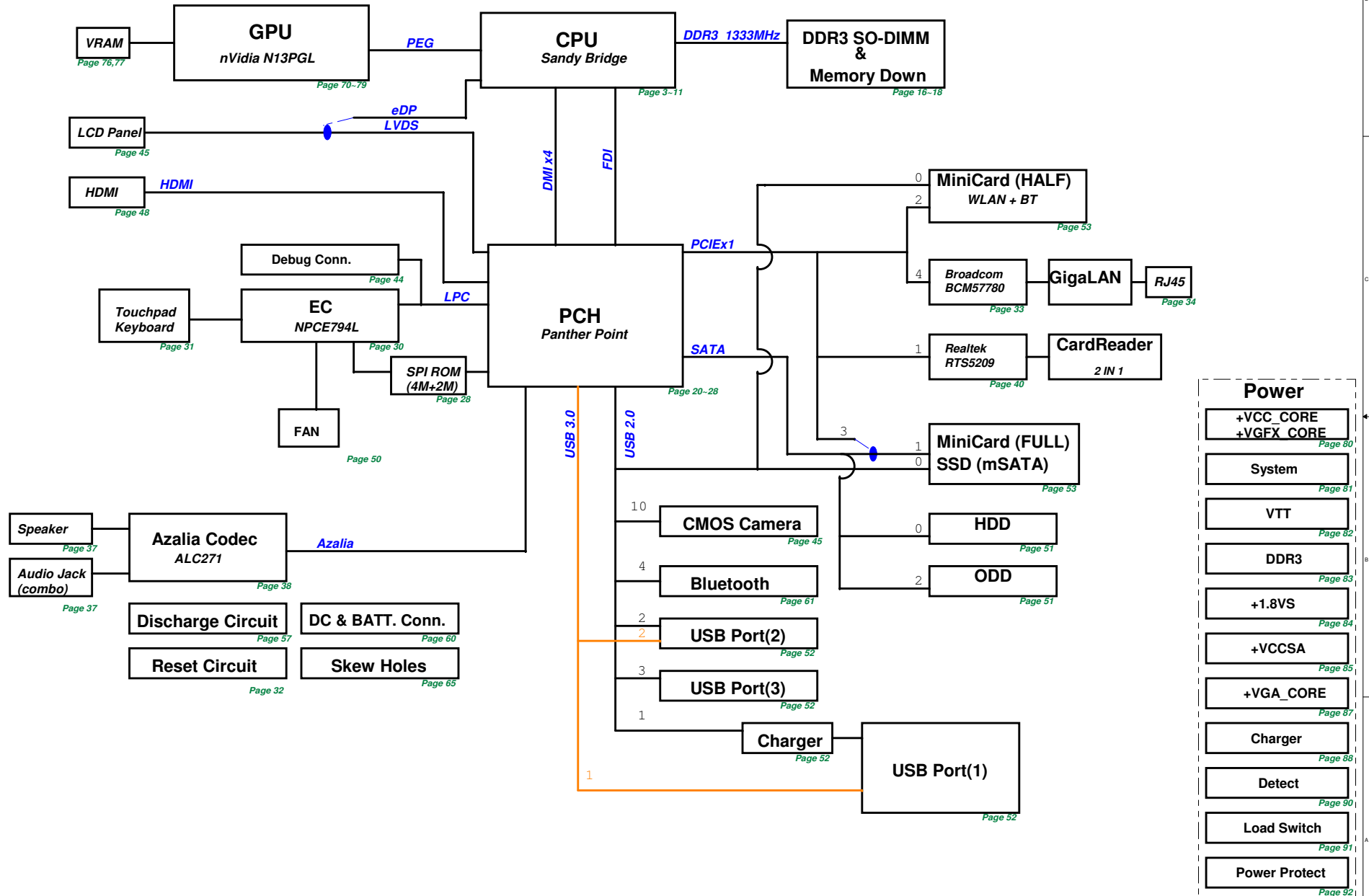


MA50 Ultrabook Block Diagram Rev 1.0



PCH_CPT
GPIO

PCH_CPT GPIO	Use As	Signal Name	Internal & External Pull-up/down	Power
GPIO 00				
GPIO 01				
GPIO [2:5]				
GPIO 06				
GPIO 07				
GPIO 08				
GPIO 09				
GPIO 10				
GPIO 11				
GPIO 12				
GPIO 13				
GPIO 14				
GPIO 15				
GPIO 16				
GPIO 17				
GPIO 18				
GPIO 19				
GPIO 20				
GPIO 21				
GPIO 22				
GPIO 23				
GPIO 24				
GPIO 25				
GPIO 26				
GPIO 27				
GPIO 28				
GPIO 29				
GPIO 30				
GPIO 31				
GPIO 32				
GPIO 33				
GPIO 34				
GPIO 35				
GPIO 36				
GPIO 37				
GPIO 38				
GPIO 39				
GPIO 40				
GPIO 41				
GPIO 42				
GPIO 43				
GPIO 44				
GPIO 45				
GPIO 46				
GPIO 47				
GPIO 48				
GPIO 49				
GPIO 50				
GPIO 51				
GPIO 52				
GPIO 53				
GPIO 54				
GPIO 55				
GPIO 56				
GPIO 57				
GPIO 58				
GPIO 59				
GPIO 60				
GPIO 61				
GPIO 62				
GPIO 63				
GPIO 64				
GPIO 65				
GPIO 66				
GPIO 67				
GPIO 72				
GPIO 73				
GPIO 74				
GPIO 75				

EC
NPCE795L

EC GPIO	Use As	Signal Name
GPA0		
GPA1		
GPA2		
GPA3		
GPA4		
GPA5		
GPA6		
GPA7		
GPB0		
GPB1		
GPB2		
GPB3		
GPB4		
GPB5		
GPB6		
GPB7		
GPC0		
GPC1		
GPC2		
GPC3		
GPC4		
GPC5		
GPC6		
GPC7		
GPD0		
GPD1		
GPD2		
GPD3		
GPD4		
GPD5		
GPD6		
GPD7		
GPE0		
GPE1		
GPE2		
GPE3		
GPE4		
GPE5		
GPE6		
GPE7		
GPF0		
GPF1		
GPF2		
GPF3		
GPF4		
GPF5		
GPF6		
GPF7		
GPB0		
GPG1		
GPG2		
GPG6		
GPH0		
GPH1		
GPH2		
GPH3		
GPH4		
GPH5		
GPH6		
GPI0		
GPI1		
GPI2		
GPI3		
GPI4		
GPI5		
GPI6		
GPI7		
GPJ0		
GPJ1		
GPJ2		
GPJ3		
GPJ4		
GPJ5		

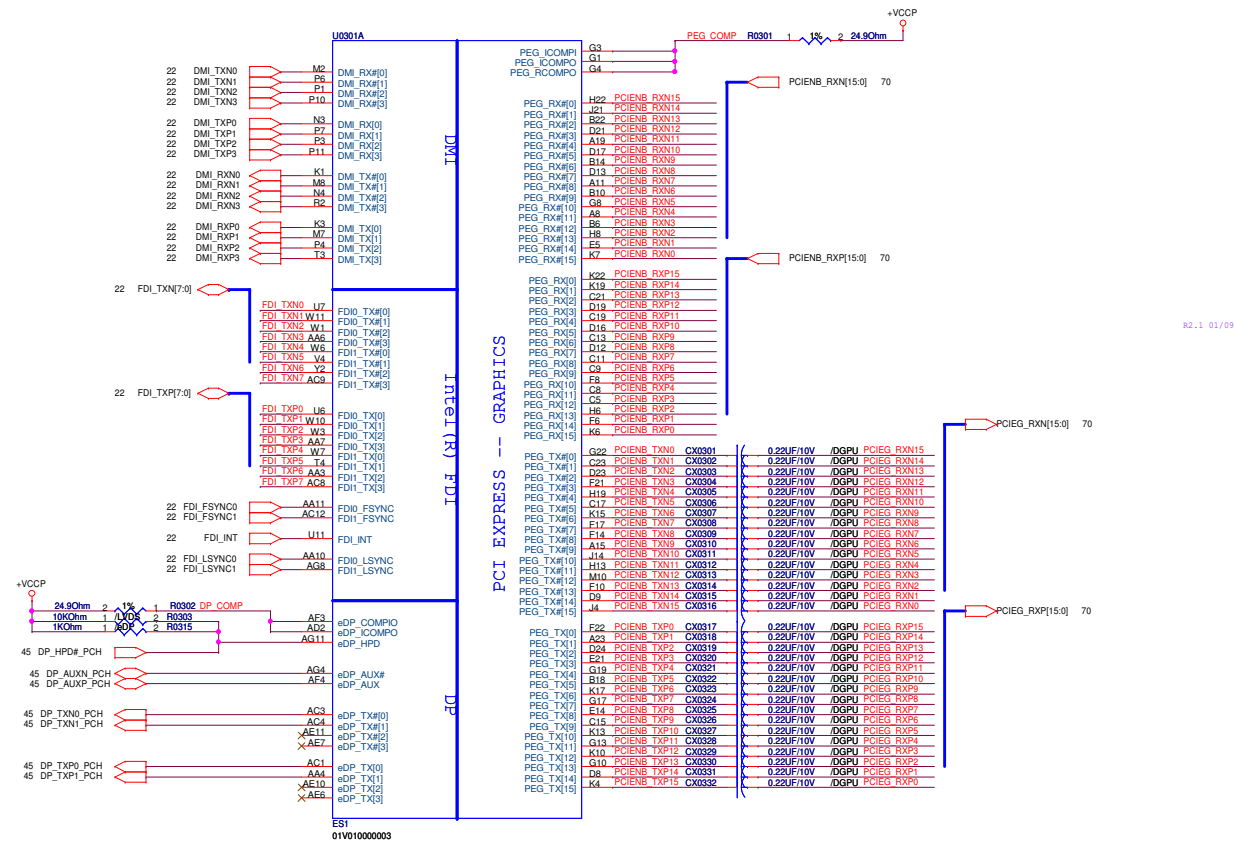
SM_BUS ADDRESS :

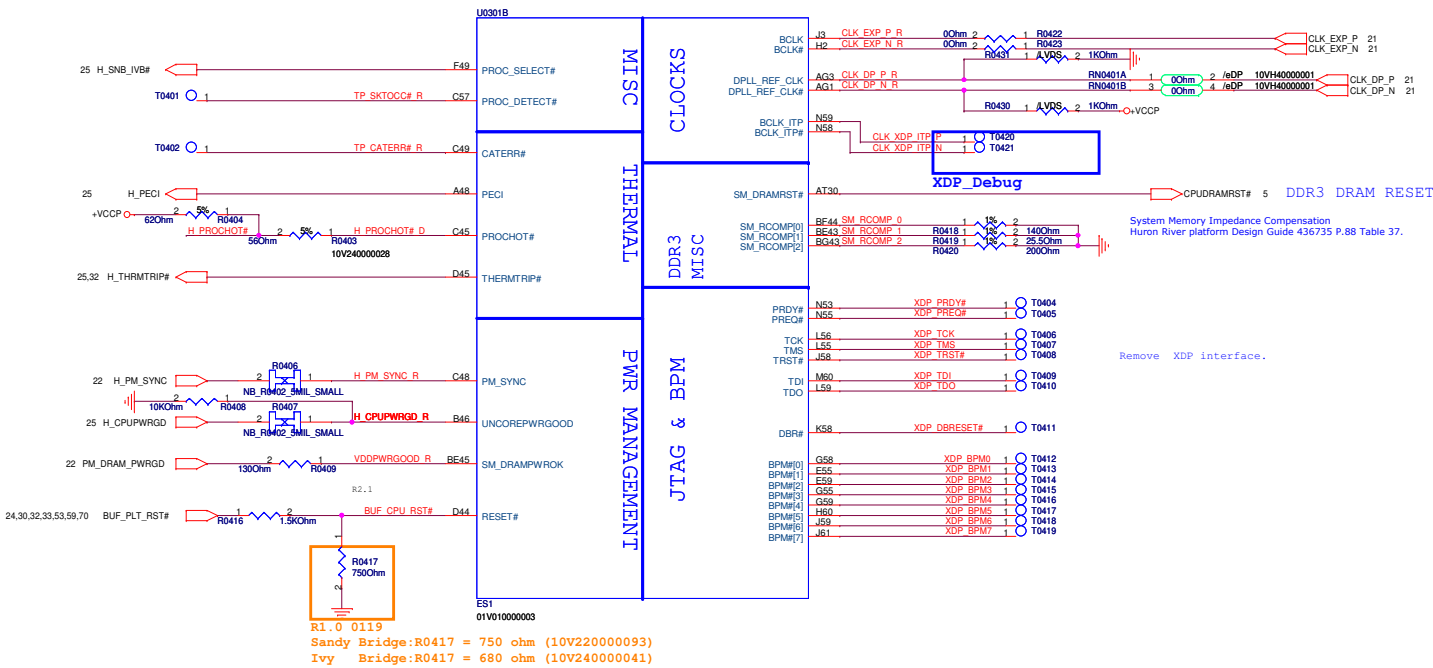
SM-Bus Device	SM-Bus Address
SO-DIMM 0	1010000x (A0h)
SO-DIMM 1	1010001x (A4h)

PCIE 1	N/A
PCIE 2	Minicard WLAN
PCIE 3	N/A
PCIE 4	USB3.0
PCIE 5	N/A
PCIE 6	GLAN
PCIE 7	N/A
PCIE 8	N/A

SATA0	SATA HDD
SATA1	N/A
SATA2	SATA ODD
SATA3	N/A
SATA4	N/A
SATA5	N/A

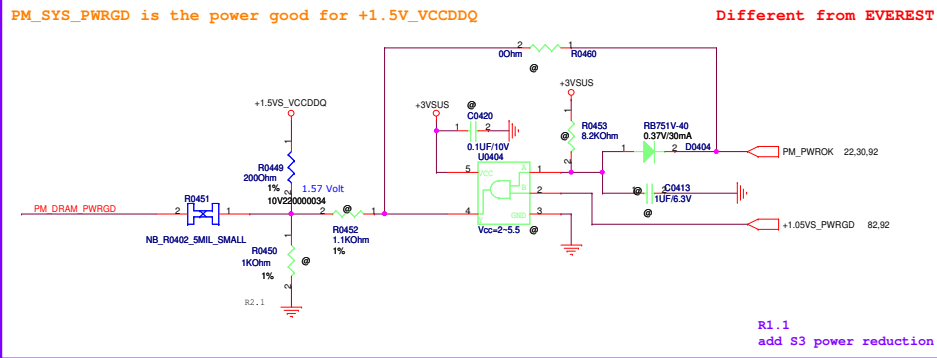
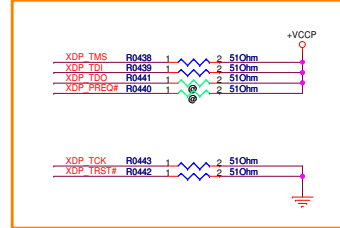
USB 0	USB Port (1)
USB 1	USB Port (2)
USB 2	USB 3.0 Port (3)
USB 3	USB Port (4)
USB 4	N/A
USB 5	N/A
USB 6	N/A
USB 7	N/A
USB 8	CMOS Camera
USB 9	WLAN
USB 10	Card Reader
USB 11	N/A
USB 12	N/A
USB 13	N/A



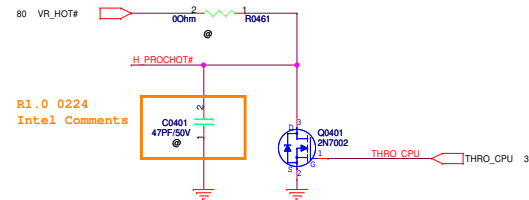


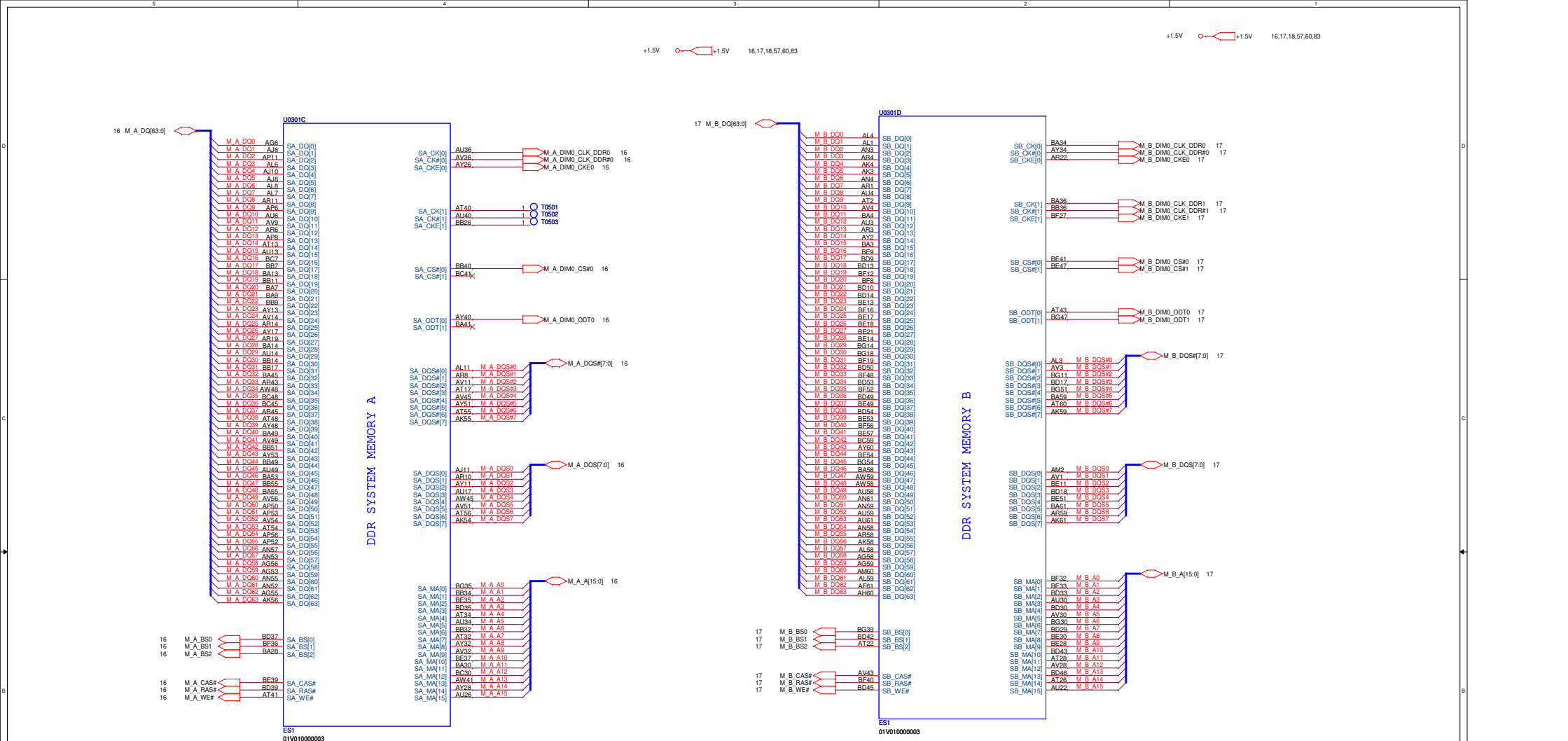
+1.5VS_VCCDDQ	+1.5VS_VCCDDQ	7
+3VS	+3VS	17,20,21,22,23,24,25,26,27,28,30,32,33,36,37,44,45,48,50,51,53,57,59,61,80,91,92
+3VSUS	+3VSUS	22,24,28,30,60,81,92
+VCCP	+VCCP	3,6,7,30,32,57,82
+3V	+3V	24,45,57,59,61,91

R.10 PU/PD for JTAG signals

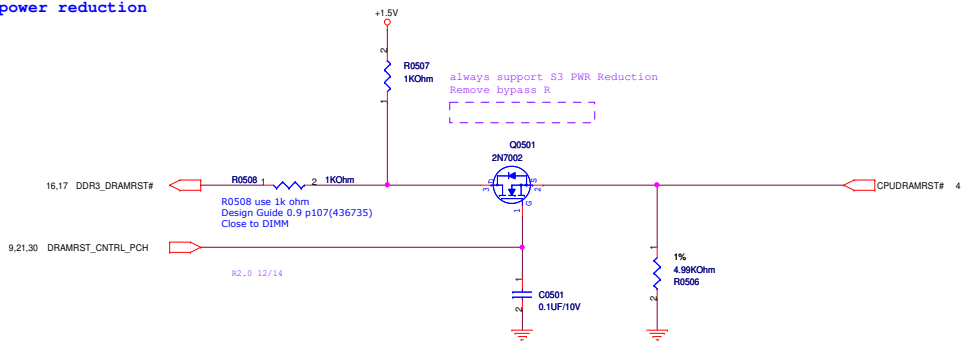


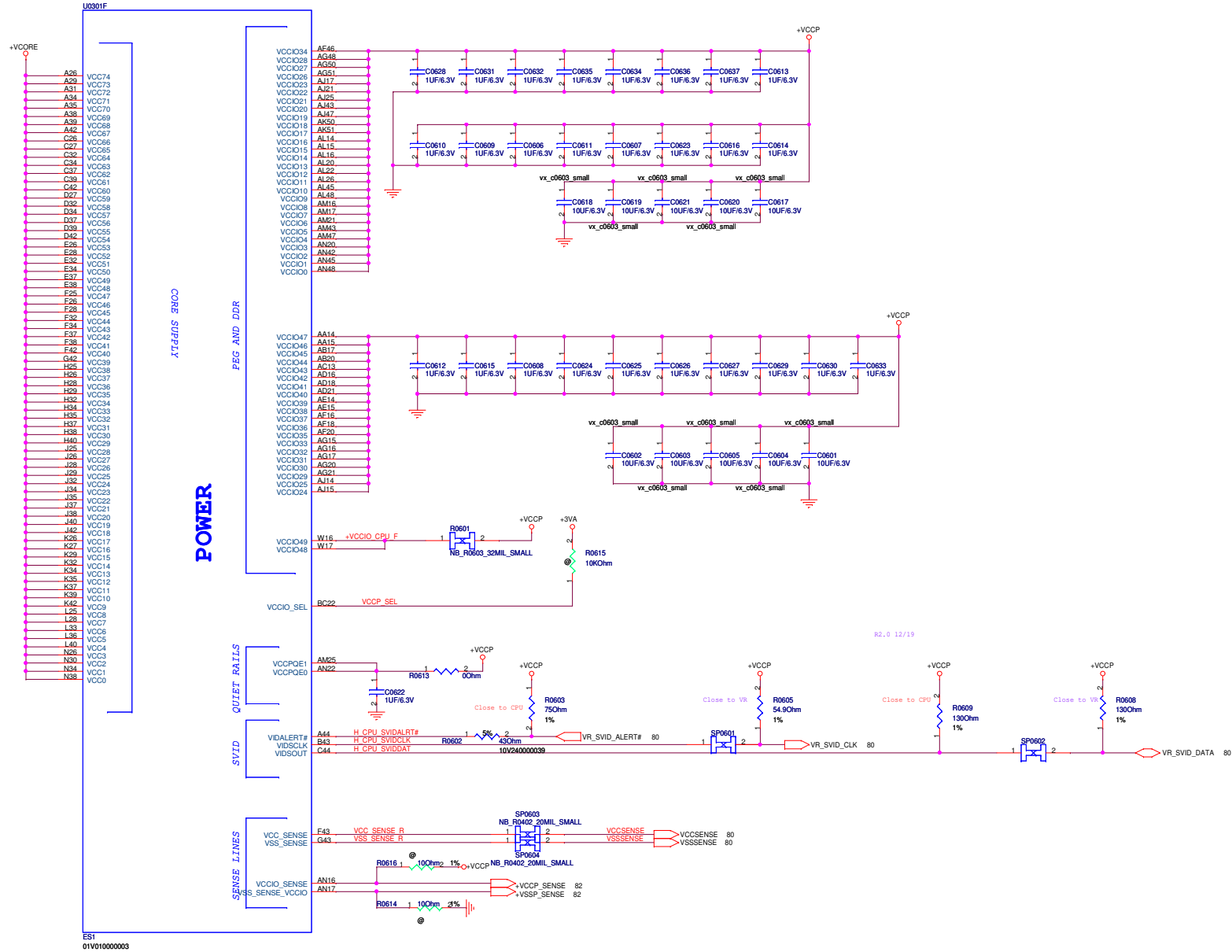
- If support S3 power reduction with power good.
1. Mount U0404, D0404, C0413, C0420, R0450, R0452, R0453, Unmount R0460
 2. Change R0449 to 1kohm from 200ohm, change R0409 to 0ohm from 130ohm - Design Guide 1.0 page 106





R1.0 S3 circuit: DRAM_RST# to memory should be high during S3
 R1.1 add S3 power reduction



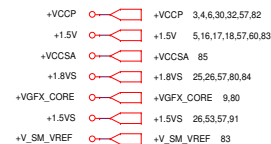
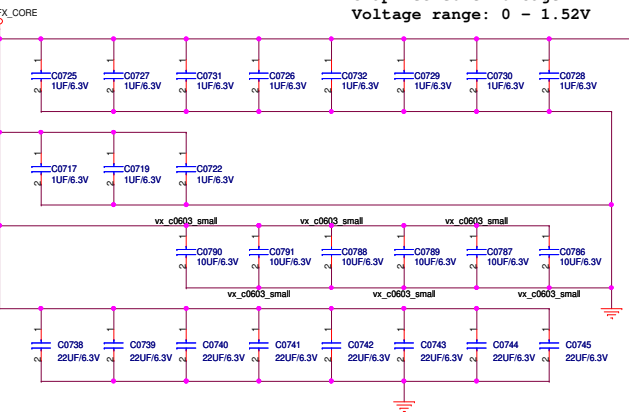


Decoupling guide from Intel PDDG R0.8

+VGFX_CORE
1uF * 11pcs
10uF * 6pcs
22uF * 6pcs

+VGFX_CORE
1uF * 11pcs
10uF * 6pcs
22uF * 8pcs(power request)

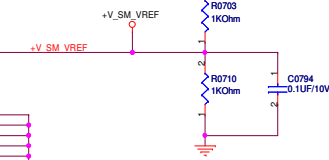
Graphics core voltage
Voltage range: 0 - 1.52V



DDR3 Reference Voltage

+1.5VS_VCCDDQ R1.1 add S3 power reduction

+V_SM_VREF 10mV



Processor I/O supply
voltage for DDR3
(DC + AC specification)

ICCMAX_VDDQ 5A

DDR3 - 1.5V RAILS

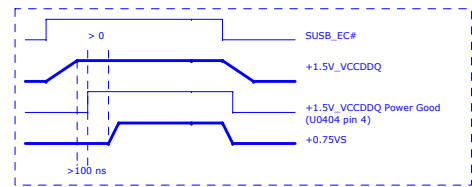
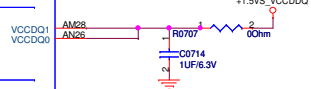
POWER

GRAPHICS

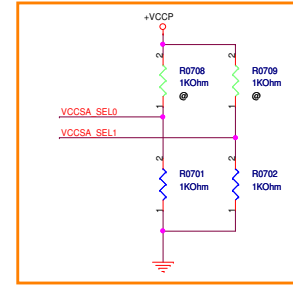
Chief River

Decoupling guide from Intel (EE)
+1.5VS_VCCDDQ
1uF * 10pcs
10uF * 8pcs
330uF * 1pcs

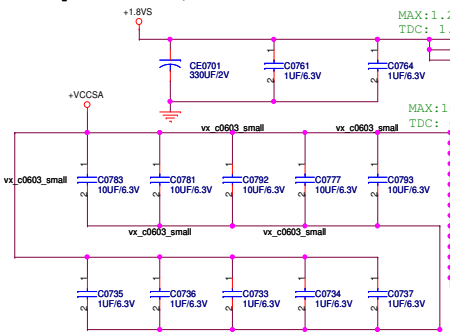
Filtered (BGA Only)



R1.0 0209
Intel Comments



PLL supply voltage
(DC + AC specification)



Decoupling guide for A14 (EE)
+VCCSA
1uF * 5pcs
10uF * 5pcs

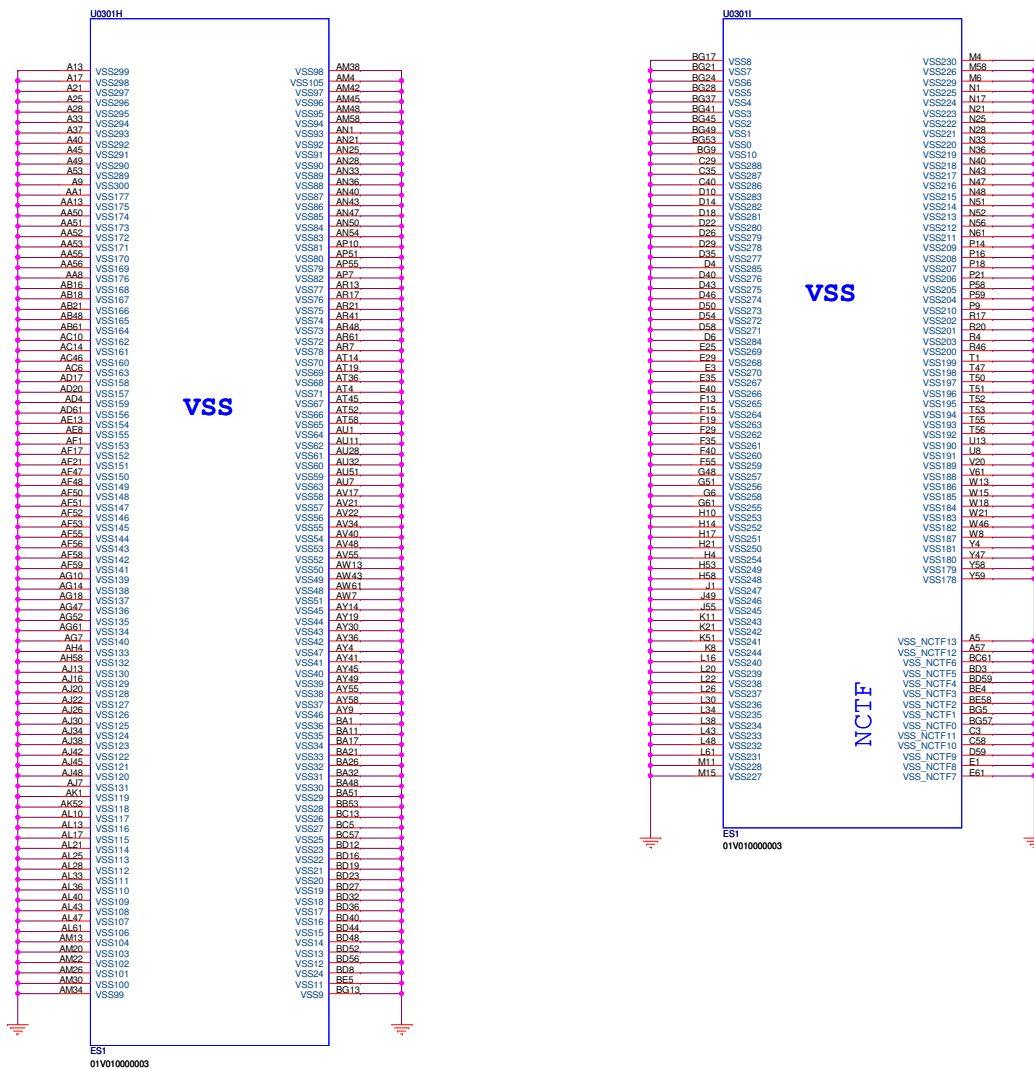
ES1
01V010000003

Chief River

+VCCSA_SEL0	+VCCSA_SEL1	VCCSA
L	L	0.9V
L	H	0.85V
H	L	0.725V
H	H	0.675V

PEGATRON Title : CPU(5).GFX_PWR
BG1-HW RD Dw.2-NB RD Dept.5 Engineer: Joyoung Chianhg

Size	Project Name	Rev
C	MA50	1.0
Date: Monday, February 13, 2012	Sheet 7 of 83	



CFG strapping information:

CFG[2]: PCIE Static Numbering Lane Reversal- CFG[2] is for the 16x

- 1: (Default) Normal Operation, Lane # definition matches socket pin map definition
- 0: Lane Numbers Reversed

CFG[4]: Embedded DisplayPort Detection

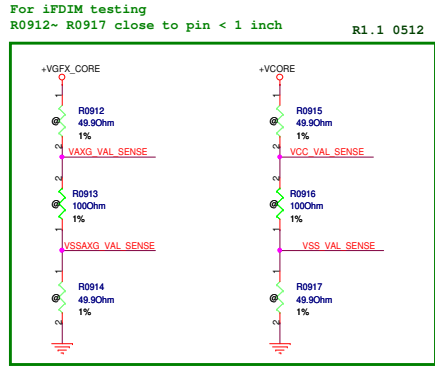
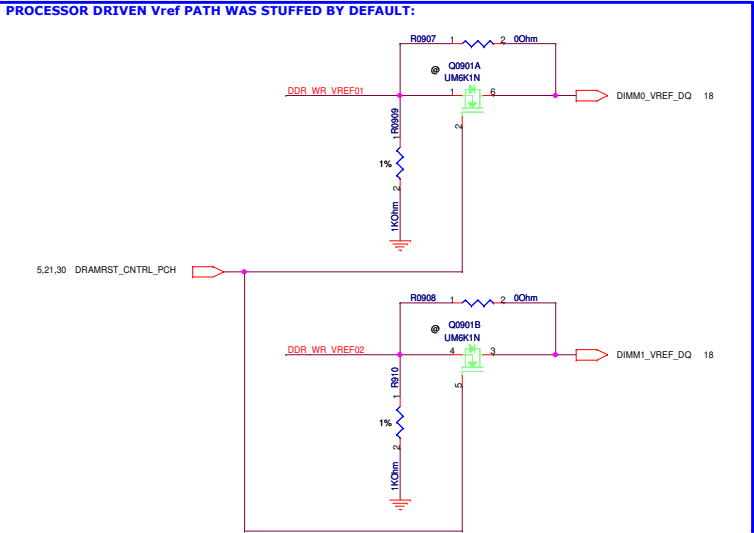
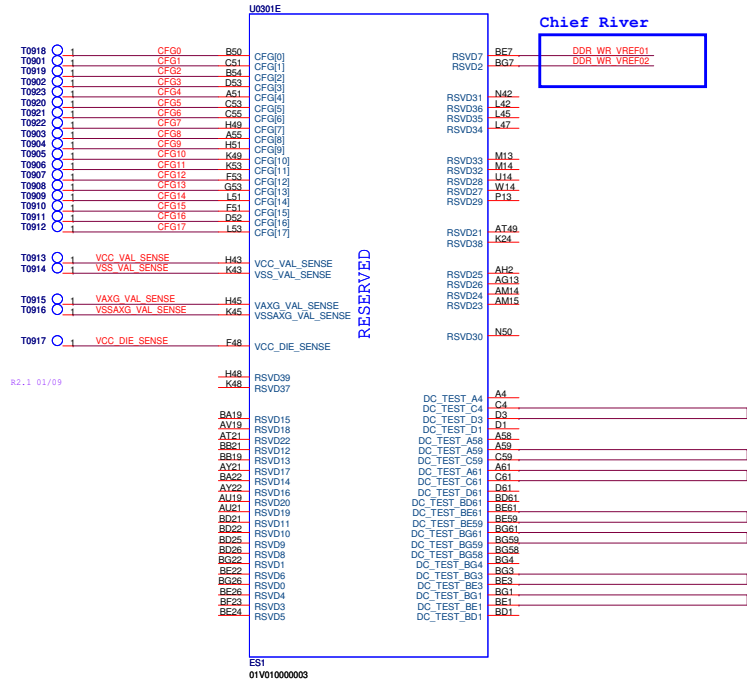
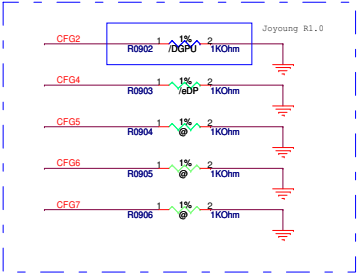
- 1: (Default) Disabled ; No Physical Display Port attached to Embedded DisplayPort
- 0: Enabled ; An external Display Port device is connected to the Embedded Display Port

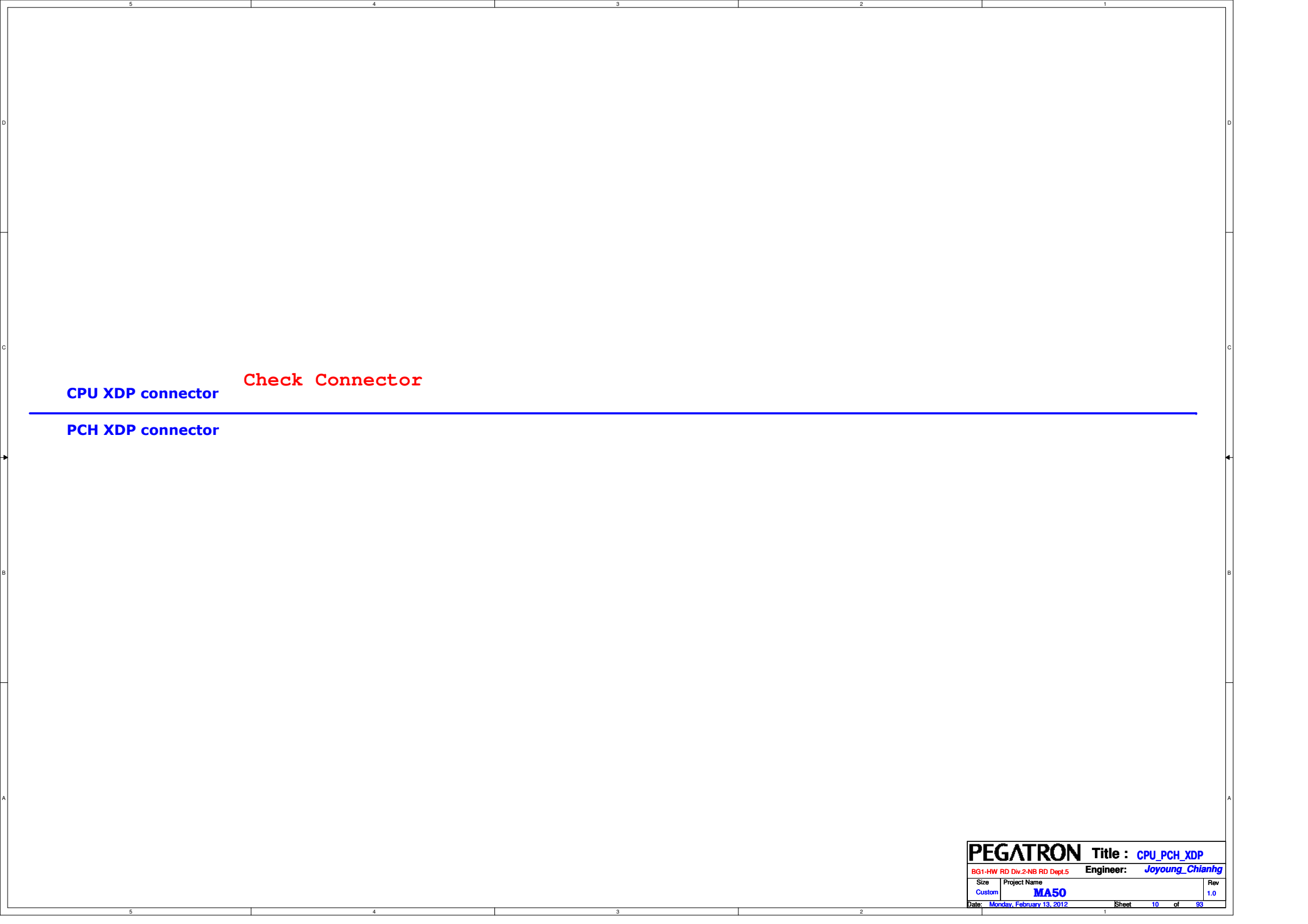
CFG[6:5]: PCI Express Port Bifurcation Straps

- 11 : (Default) x 1 6
- 10 : x 8 , x 8
- 01 : Reserved
- 00 : x 8 , x 4 , x 4

CFG[7]: PEG DEFER TRAINING

- 1: (Default) PEG Train immediately following xxRESETB de assertion
- 0: PEG Wait for BIOS training





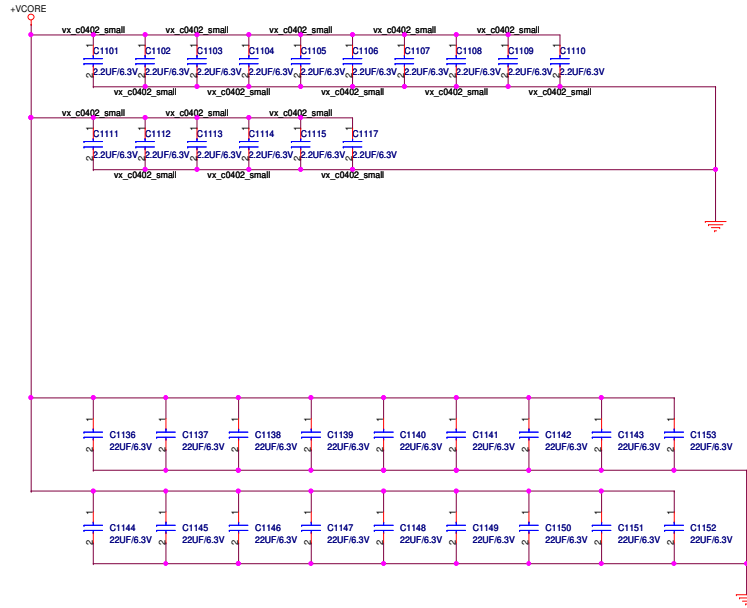
CPU XDP connector

Check Connector

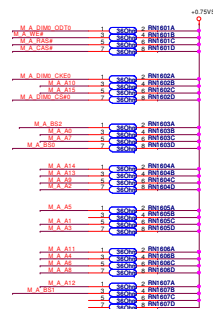
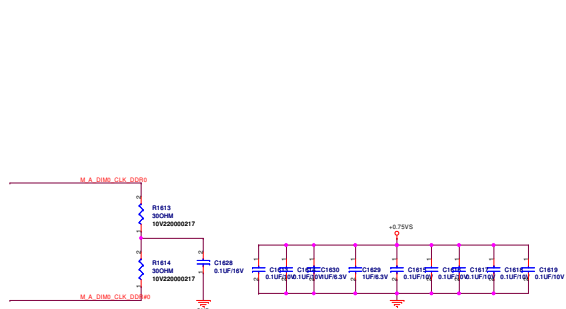
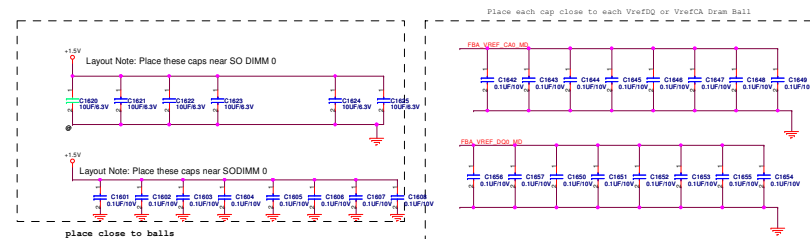
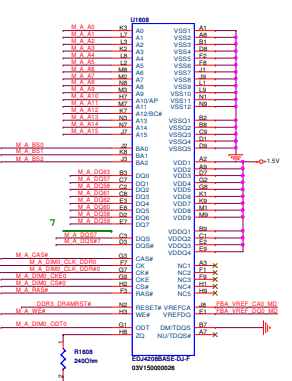
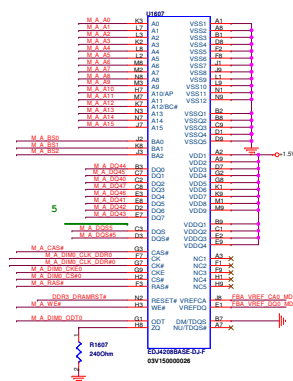
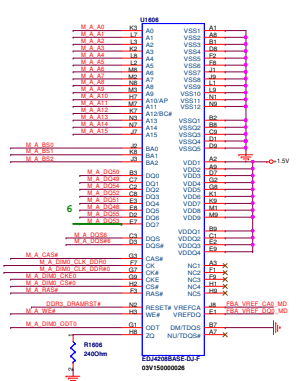
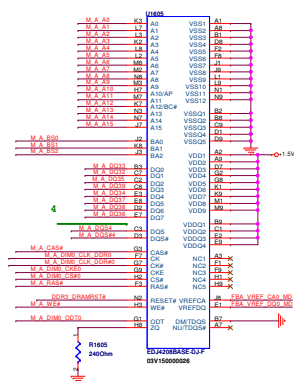
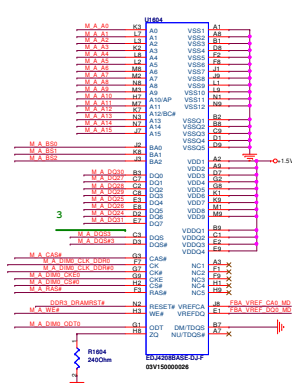
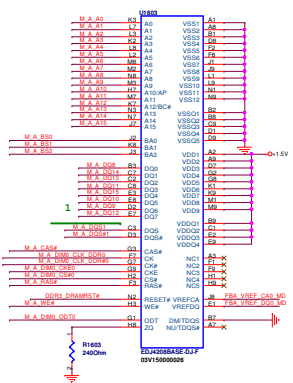
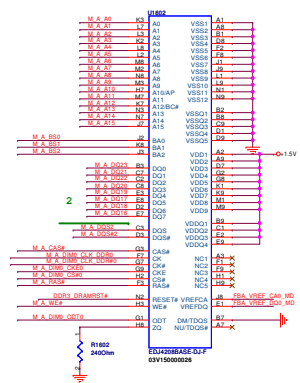
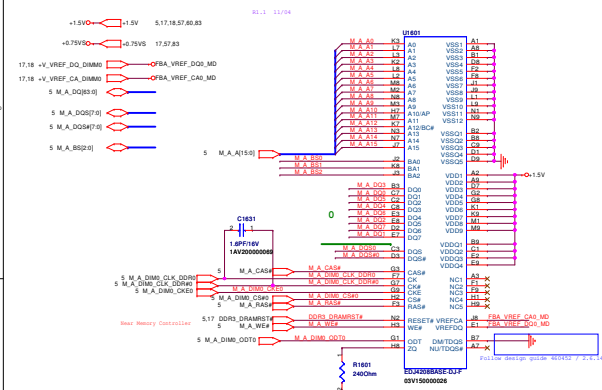
PCH XDP connector

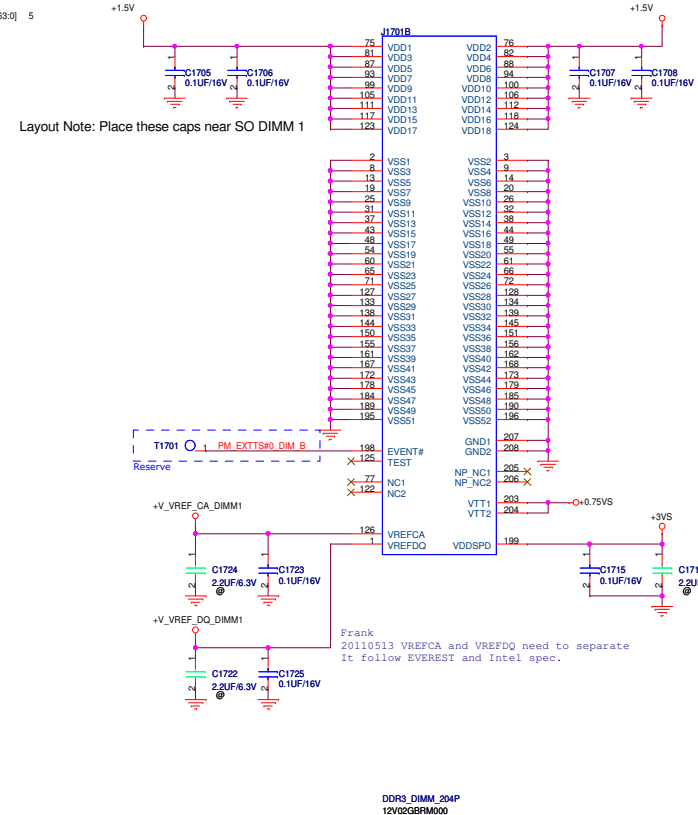
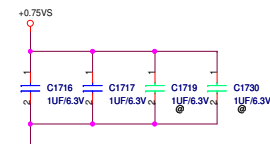
Chief River
Decoupling guide from Intel PDDG R0.8
+VCORE 2.2uF * 16 pcs
22uF * 12 pcs

Chief River
+VCORE 2.2uF * 16 pcs
22uF * 18 pcs (power request)



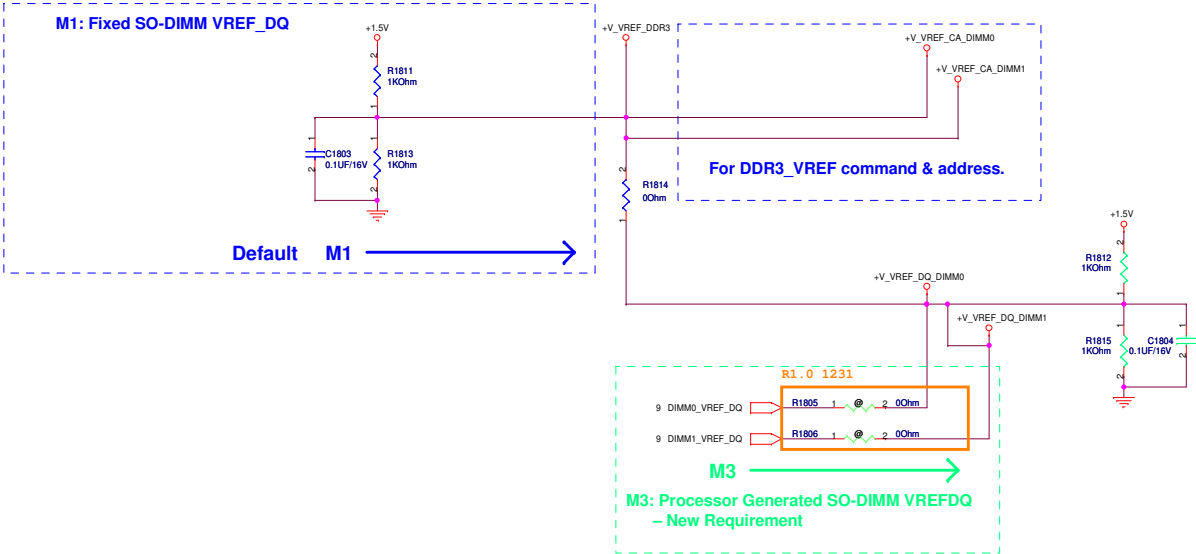
Memory Down CH A





PEGATRON		Title : DDR3(2)_SO-DIMM	
PEGATRON COMPUTER INC		Engineer: Jyoung_Chianh	
Size	Project Name	Rev	
C	MA50	1.0	
Date: Monday, February 13, 2012		Sheet	17 of 93

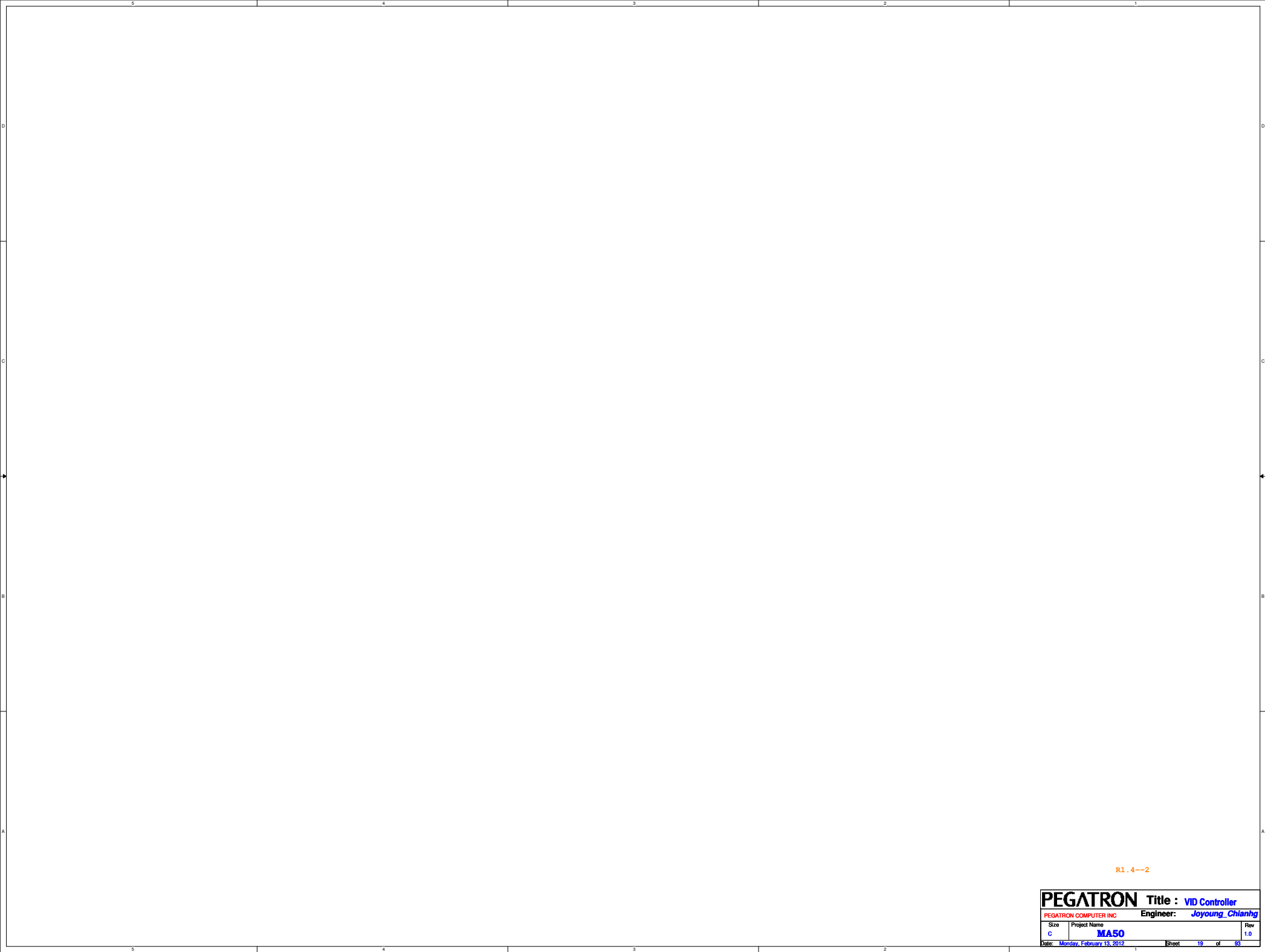
DDR3 Vref



If support M3 :
1. Mount R1802,R1803,R1805,R1806,R1810,R1811,C1802
2. Un mount R1801,R1804

+1.5V	+1.5V	5,16,17,57,60,83
+V_VREF_CA_DIMM0	+V_VREF_CA_DIMM0	16,17
+V_VREF_DQ_DIMM0	+V_VREF_DQ_DIMM0	16,17

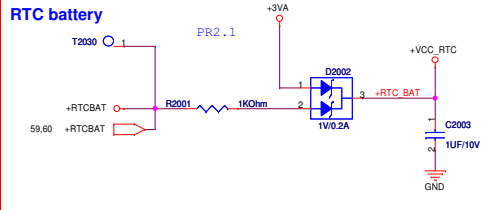
+3V	+3V	24,45,57,59,61,91
+5VSUS	+5VSUS	51,57,59,91
+5VA	+5VA	37,60,81,91



R1.4--2

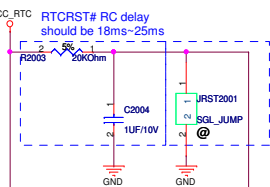
PEGATRON		Title : VID Controller	
PEGATRON COMPUTER INC		Engineer: Joyoung Chianhg	
Size	Project Name		Rev
C	MASO		1.0
Date: Monday, February 13, 2012		Sheet	19 of 83

RTC battery



Request by CSC
for CMOS clear
function

CMOS Settings	JRST2001
Clear CMOS	Shunt
Keep CMOS	Open (Default)



INTVRMEN: Integrated SUS 1.05V VRM Enables
Low: Enable External VRs
High: Enable Internal VRs

PCCH INTRVRMEN R2030 1 2 200KOhm

TPM Settings	JRST2002
Clear ME RTC Registers	Shunt
Keep ME RTC Registers	Open (Default)

Intel I:5 Design Guide, page 260

isolate schematic for ACZ_SYNC and SDOUT follow EIH31

R1.0
For JTAG to pull high and low.

Remove JTAG schematic

Strap information:

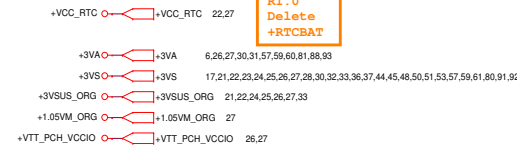
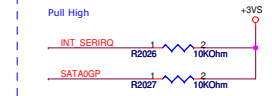
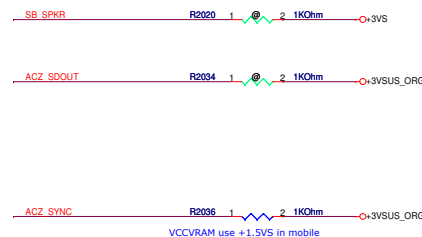
SB_SPKR: No reboot strap
Low: Disable (Default)
High: Enable

ACZ_SDOUT:

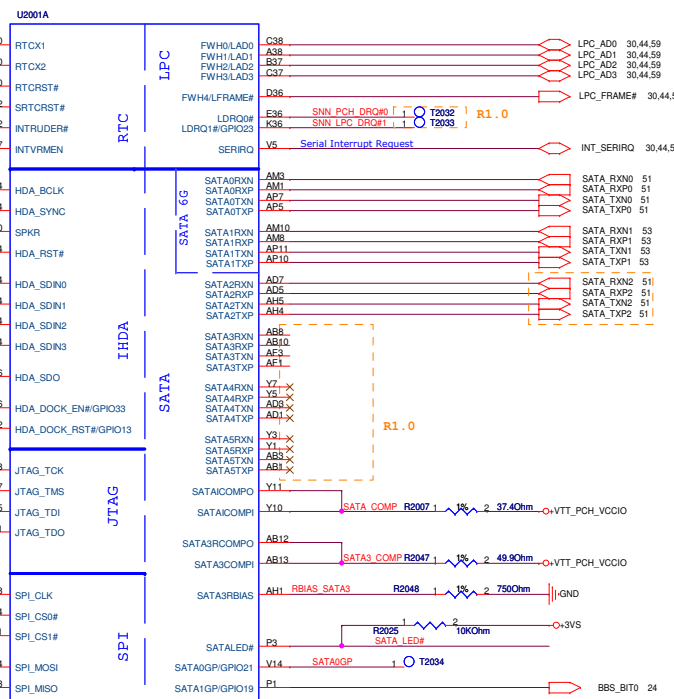
1. Flash descriptor security:
Sampled Low: in effect.
Sampled High: override
2. ACZ_SDOUT which sample high on the rising edge of PWROK
Will also disable Intel ME.

ACZ_SYNC: On Die PLL VR voltage selector

Low: 1.8V (Default)
High: 1.5V
note : CRB has no strap
Hiron River Platform Schematic Design Checklist
(438390 page 48)



R1.0
Delete
+RTCBAT



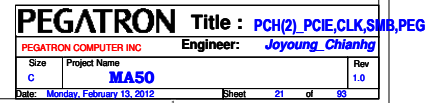
COUGAR POINT ES1
02V000000001

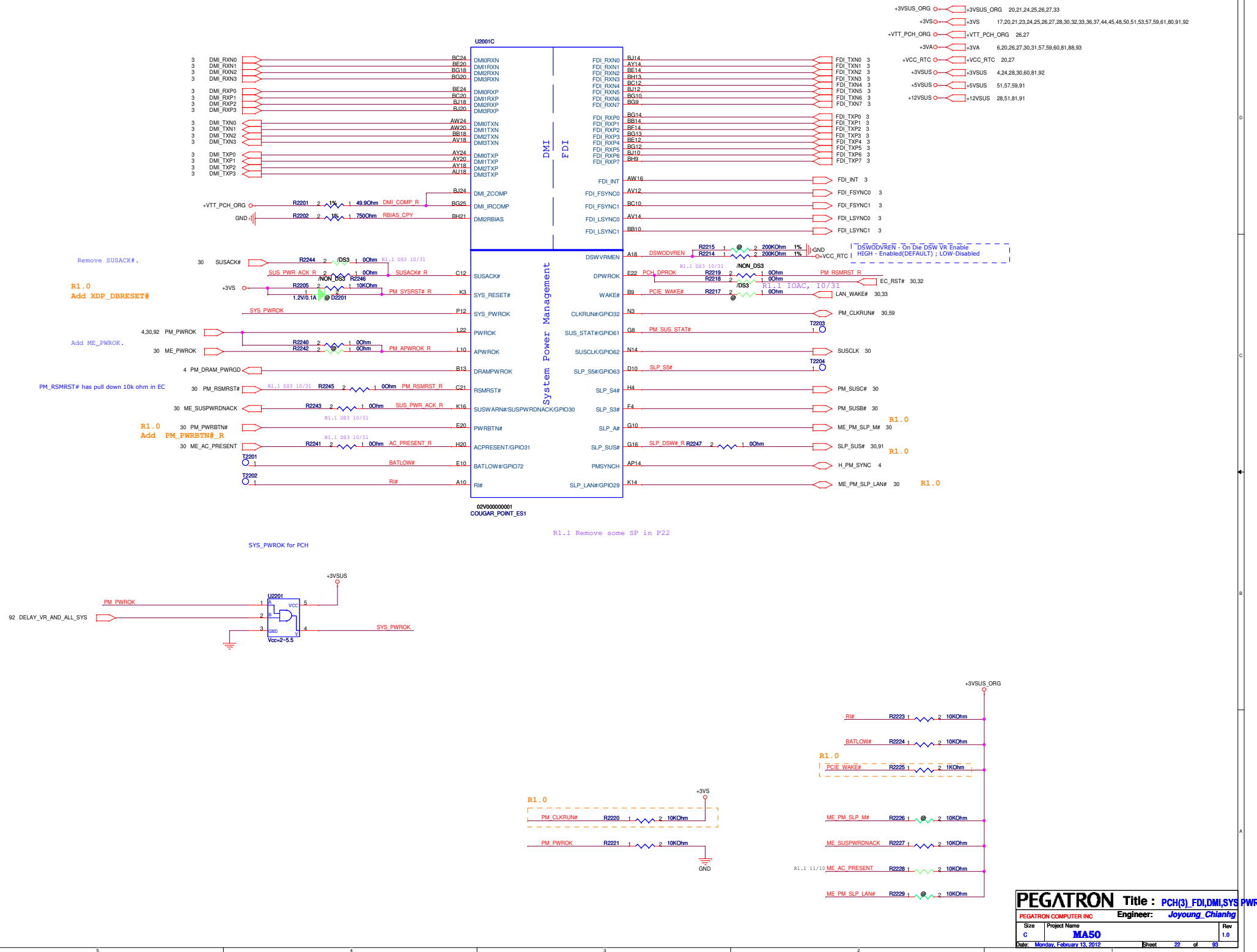
PEGATRON Title : PCH(1)_SATA,IHDA,RTC,LPC

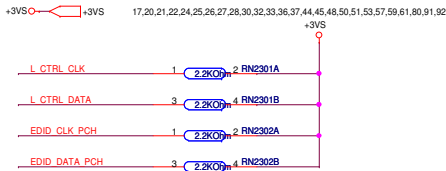
PEGATRON COMPUTER INC Engineer: Joyoung Chianhg

Size	Project Name	Rev
C	MA50	1.0
Date: Monday, February 13, 2012	Sheet 20 of 83	

Frank
0517_Add 3G PCIE and CLKRQ in Port3.

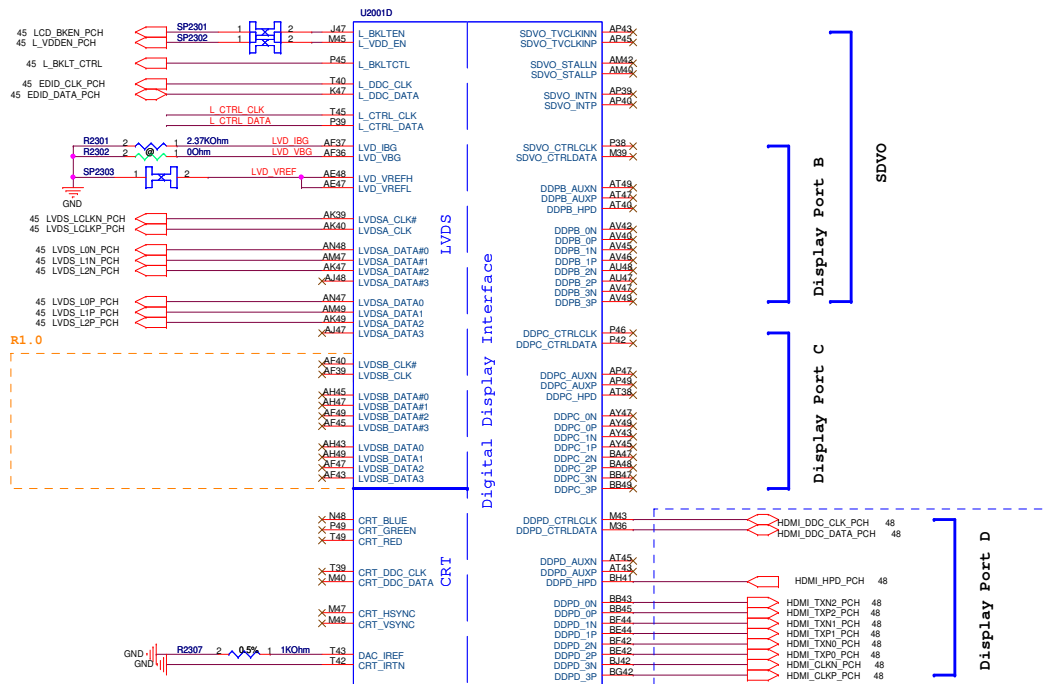






Pull up 2.2k ohm in DDC bus for LVDS .

Remove LVDS net name and add port B.



COUGAR_POINT_ES1
02V000000001

CRT Disable: (For discrete graphic)

1. NC:
CRT_RED,CRT_GREEN,CRT_BLUE
CRT_HSYNC,CRT_VSYNC
2. 1-k Ω $\pm$ 0.5% pull-down to GND:
DAC_IREF
3. Connected to GND:
CRT_ITRN
4. Connect to +V3.3:
VCCADAC

DisPlay Port Disable: (For discrete graphic)

1. NC:
ALL

LVDS Disable: (For discrete graphic)

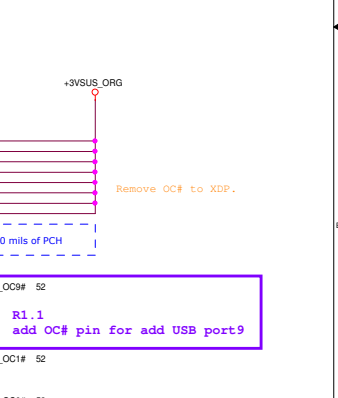
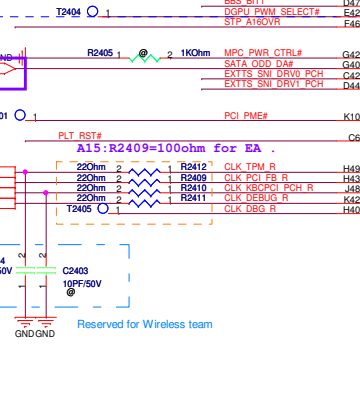
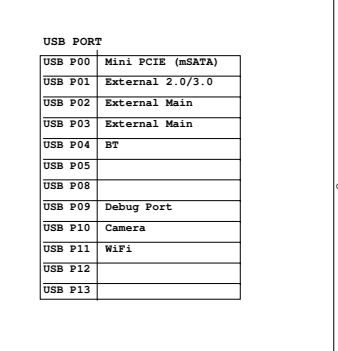
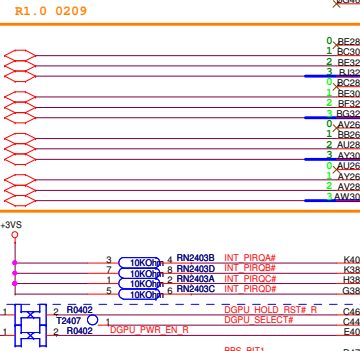
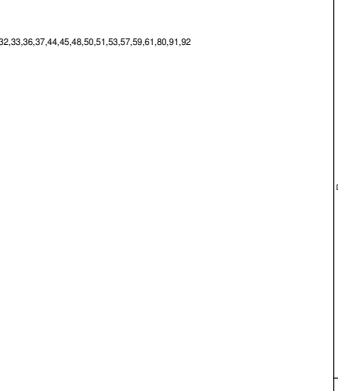
1. NC:
LVDSA_DATA [3:0], LVDSA_DATA# [3:0],
LVDSA_CLK, LVDSA_CLK#, LVDSB_DATA [3:0],
LVDSB_DATA# [3:0], LVDSB_CLK, LVDSB_CLK#
L_VDD_EN, L_BKLTEN, L_BKLCTL, LVD_VREFH
LVD_VREFL, LVD_IBG, LVD_VBG
2. Connected to GND:
VccALVDS,VccTX_LVDS

PEGATRON Title : PCH(4)_DP,LVDS,CRT

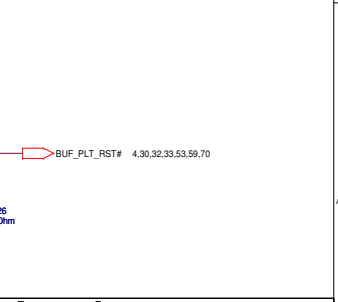
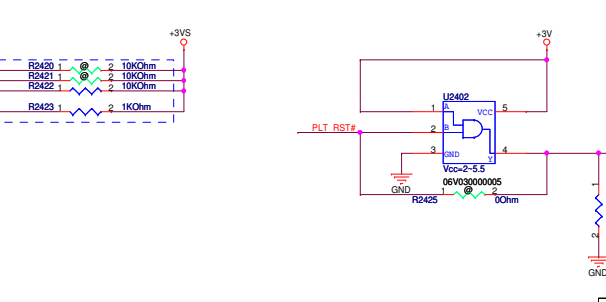
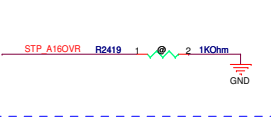
PEGATRON COMPUTER INC Engineer: Joyoung.Chianhg

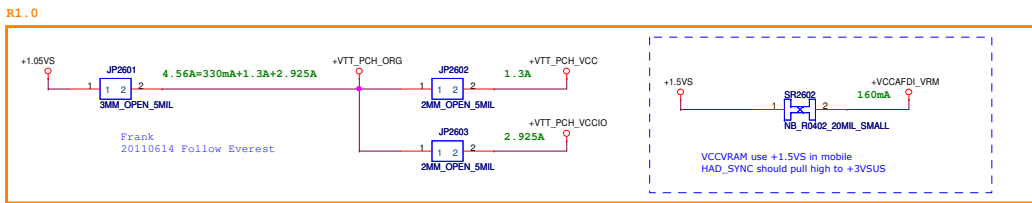
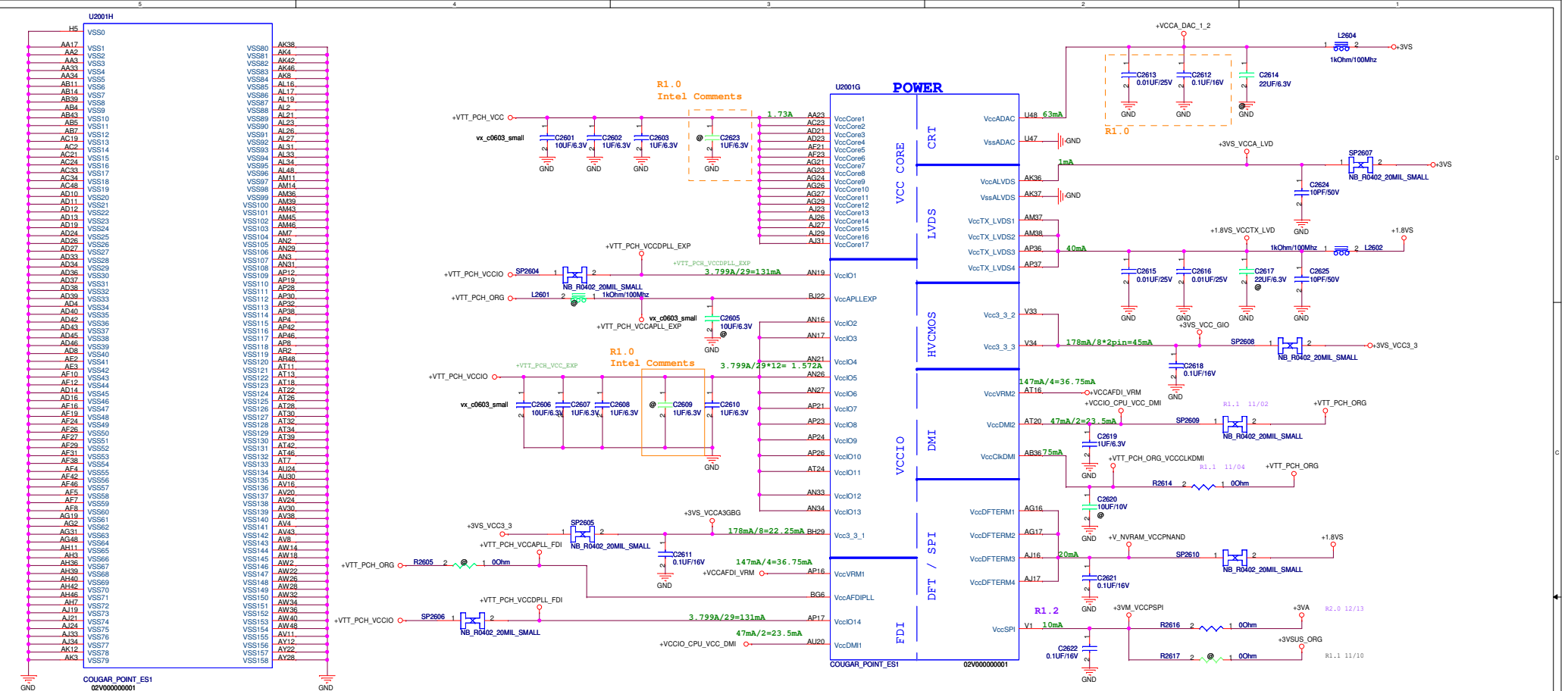
Size Project Name MA50 Rev

Date: Monday, February 13, 2012 Sheet 25 of 83



STP_A16OVR: A16 swap override Strap/ Top-Block swap override jumper
Low=Enabled A16 swap override/ Top-Block swap override
High=Default





Frank
20110608 EVERST remove 1.8VS and +VTT_PCH_ORG

+VTT_PCH_VCCIO	20.27
+VTT_PCH_ORG	22.27
+1.05VS	27.57,82.87
+1.5VS	7.53,57.91
+VCCA_FDI_VRM	27
+VCCA_FDI_VRM	27
+3VS	17.20,21.22,23.24,25.27,28.30,32.33,36.37,44.45,48.50,51.53,57.59,61.80,91.92
+3VS_VCC3_3	27
+3VM_SPI	28
+1.8VS	7.25,57.80.84
+VCCP	3.4,6.7,30,32,57.82

R1.0

Delete

+VTT_PCH_VCC

+VTT_PCH_VCCDPLL_EXP

+VTT_PCH_VCCAPLL_EXP

+VTT_PCH_VCCDPLL_FDI

+VTT_PCH_VCCAPLL_FDI

+3VS_VCCA3GBG

+3VS_VCC_GIO

+VCCA_DAC_1_2

+3VS_VCCA_LVDS

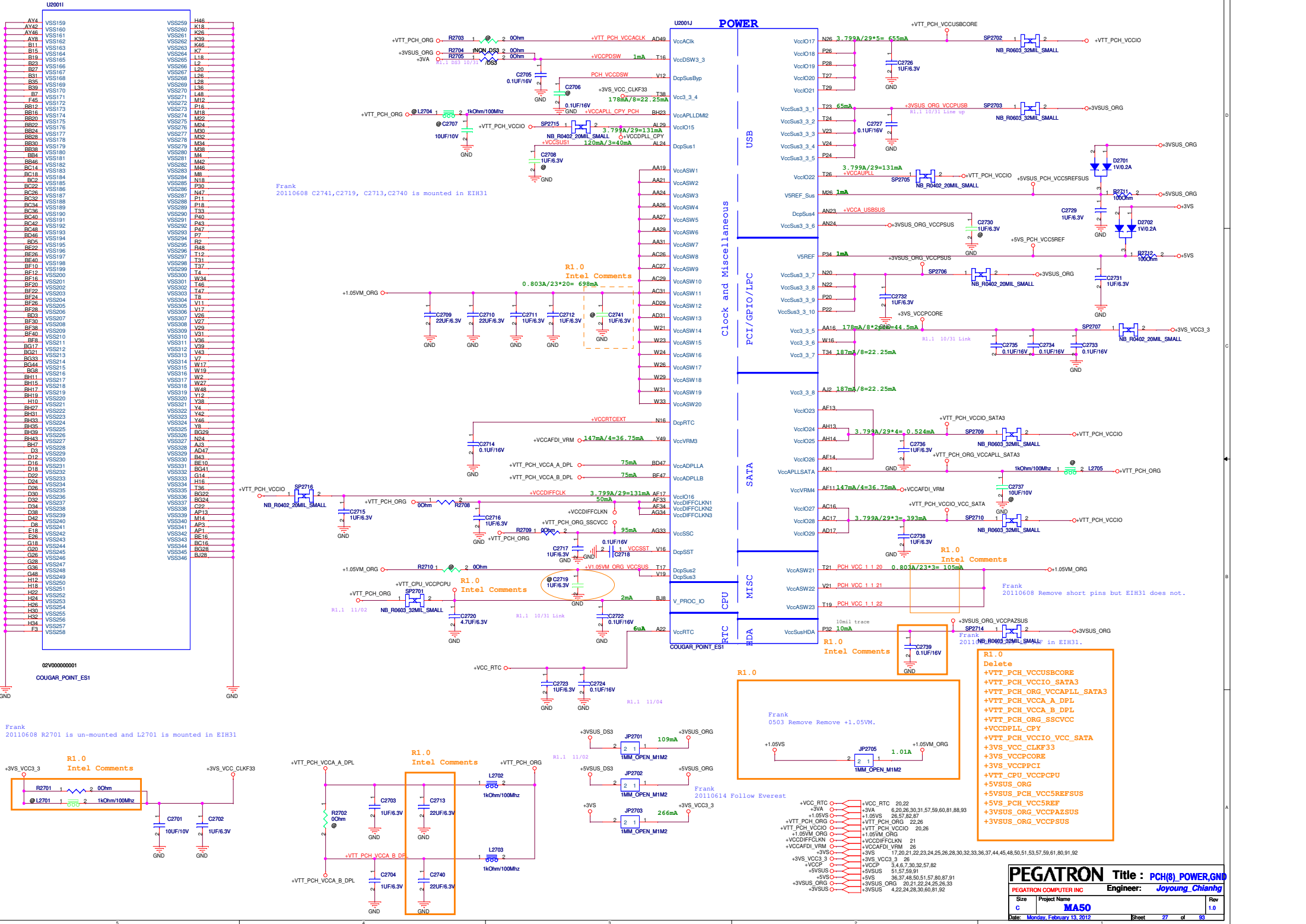
+3VM_VCCPSPI

+V_NVRAM_VCCPNAND

+1.8VS_VCCCTX_LVD

+VCCIO_CPU_VCC_DMI

+VTT_PCH_ORG_VCCCLKDMI



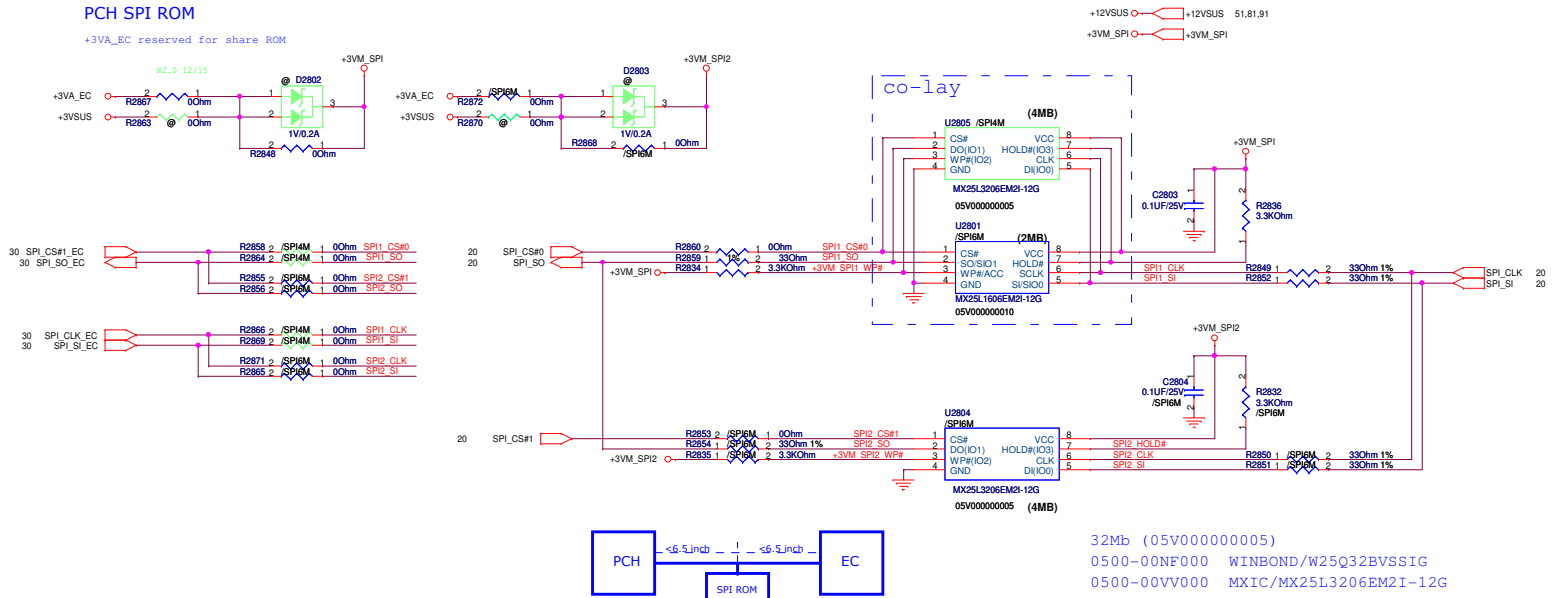
PCH SPI ROM

SHARE ROM CONFIG1

U2801	@	
U2802	@	
U2803	ME+BIOS+EC	4MB
ummount: R2855, R2856, R2864, R2865, R2853, R2852, R2834, R2850, R2851, R2832, C2803, U2802, R2869, R2870, R2868, D2802, U2801		

SHARE ROM CONFIG2

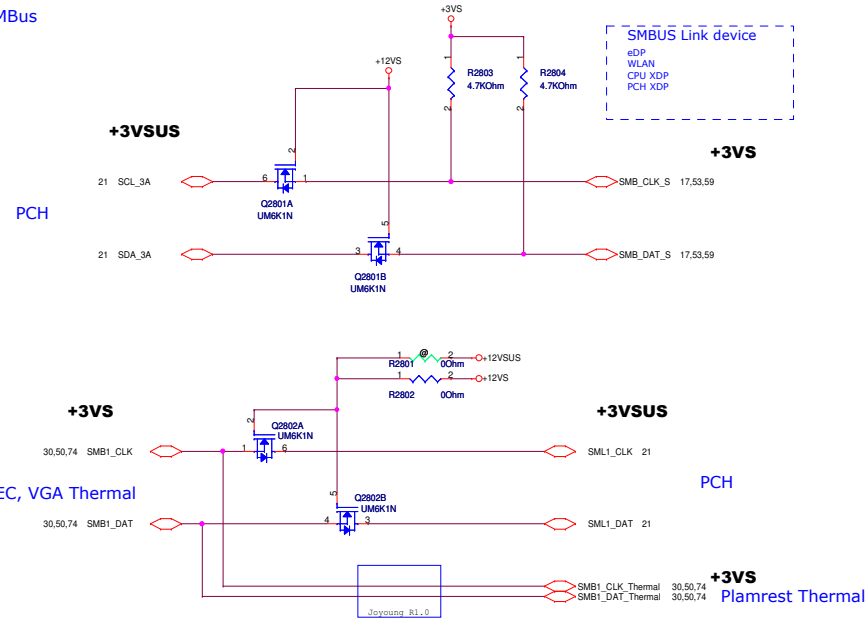
U2801	ME Firmware	2MB
U2802	EC+BIOS	4MB
ummount: R2858, R2862, R2866, R2867, U2803		

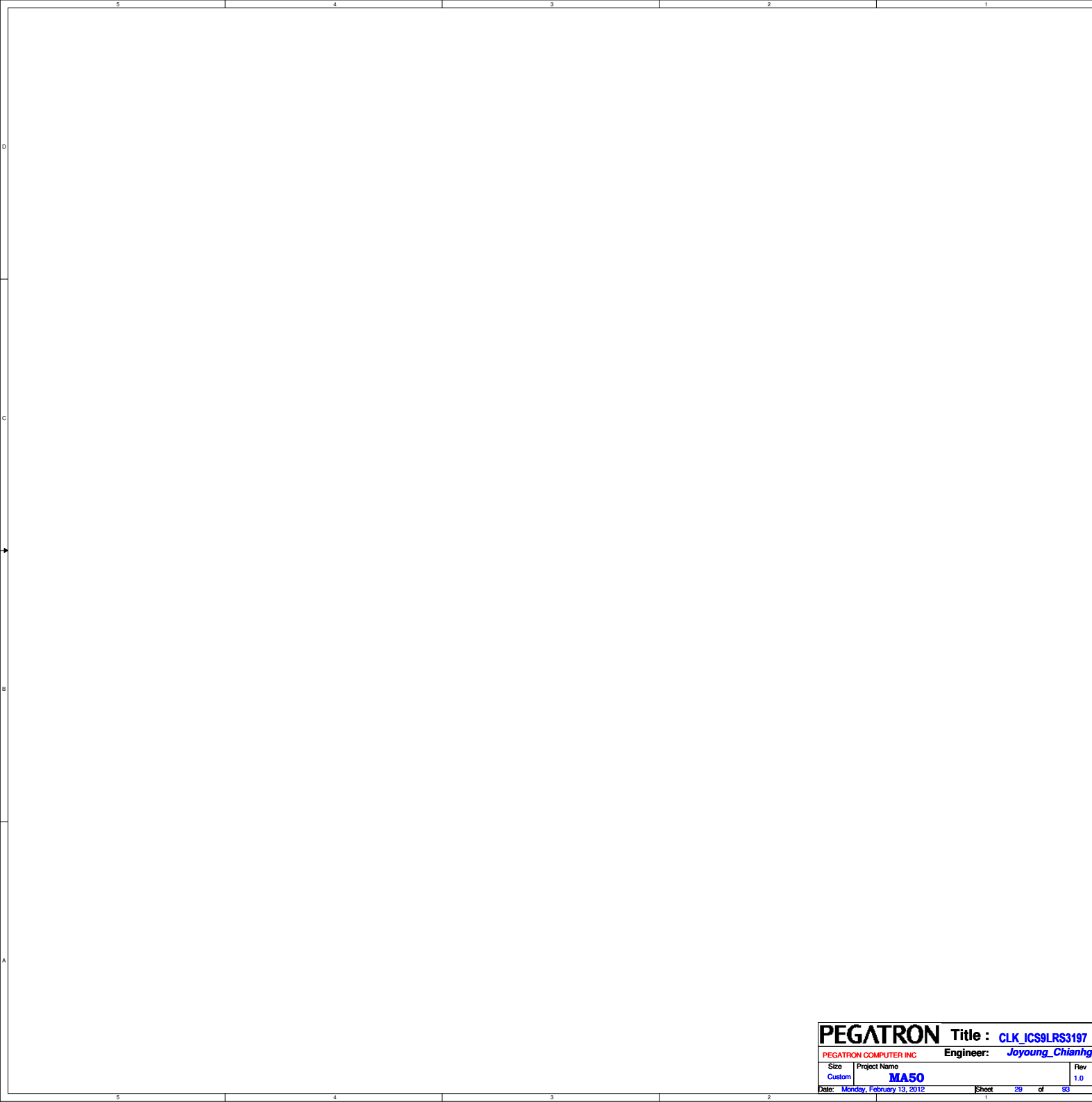


SPI Debug Connector

layout space issue, so remove J2801.

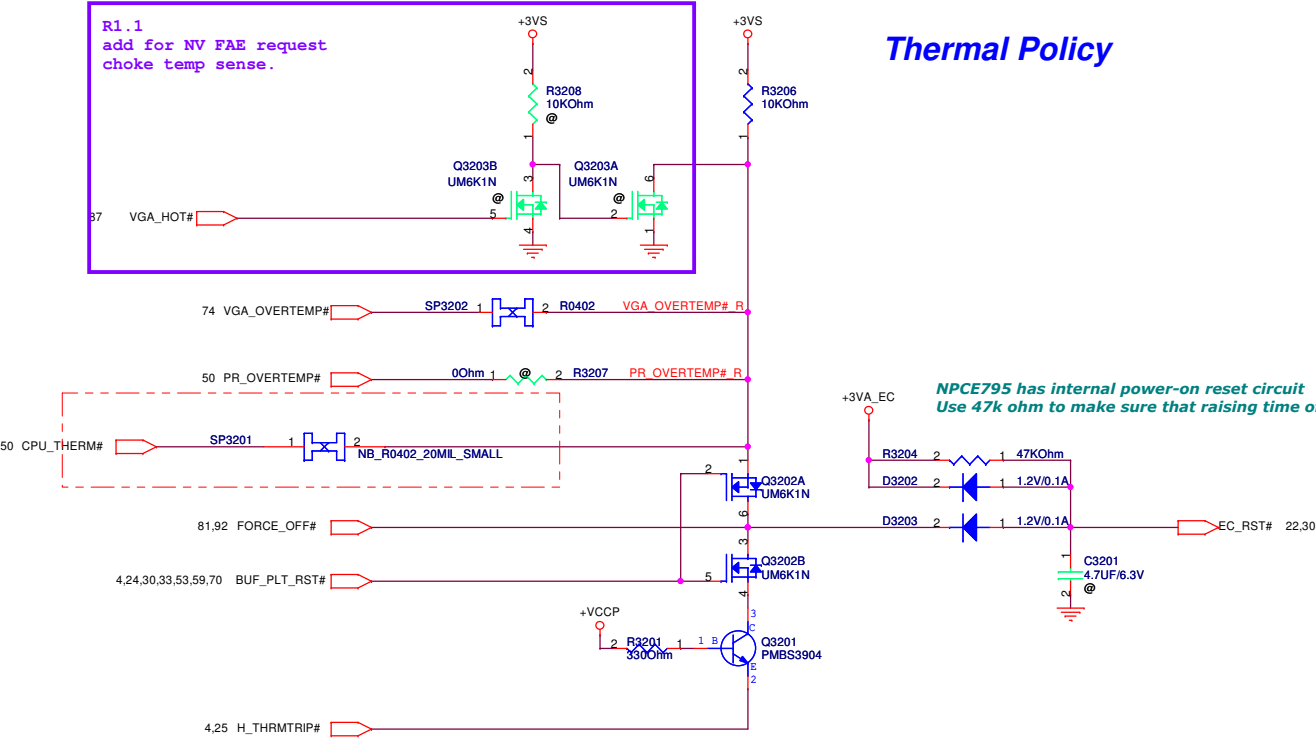
PCH SMBus

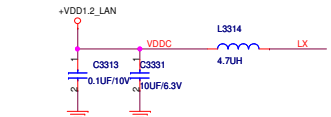
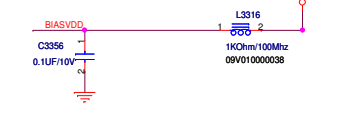
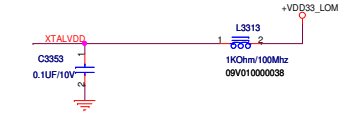
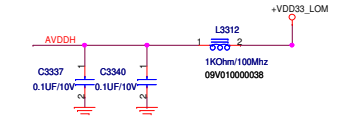
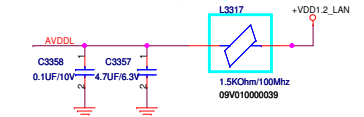
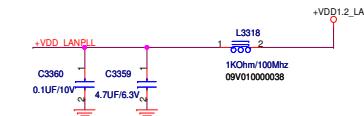
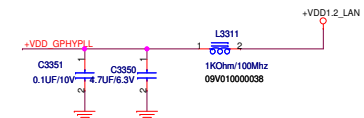
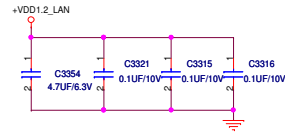
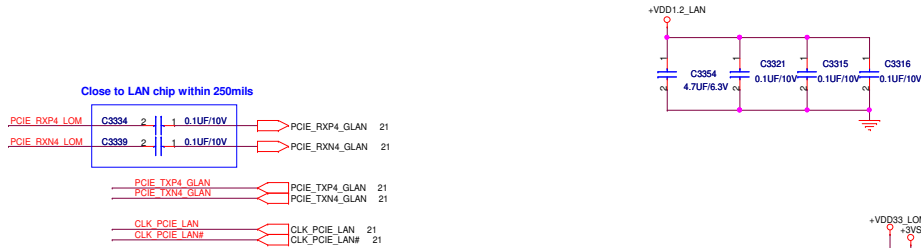




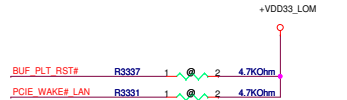


+VCCP +VCCP 3,4,6,7,30,57,82
+3VA_EC +3VA_EC 28,30
+3VS +3VS 17,20,21,22,23,24,25,26,27,28,30,33,36,37,44,45,48,50,51,53,57,59,61,80,91,92

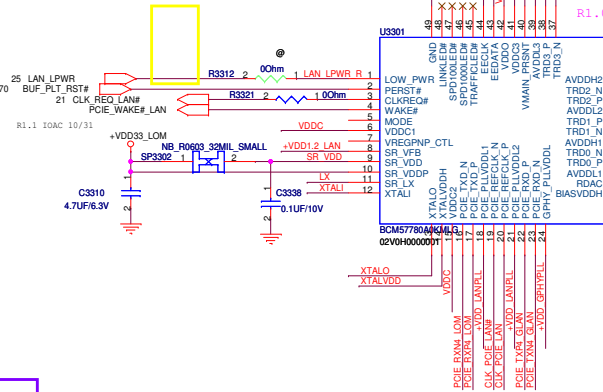




Frank
0503 LAN_LPWR is not defined GPIO in PCH.

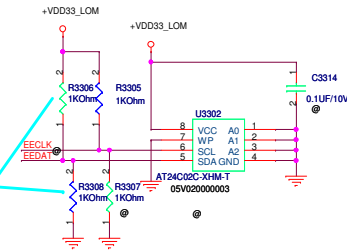


R1.0 Remove PU R for FAB suggestion.

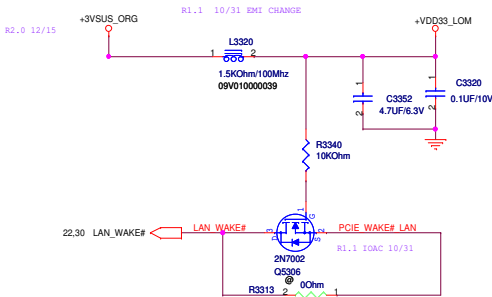


R1.0 chnge VFRI.1.
Delete R5308 for unused.

R1.0
OTP mode



R1.1
change value for -R test report



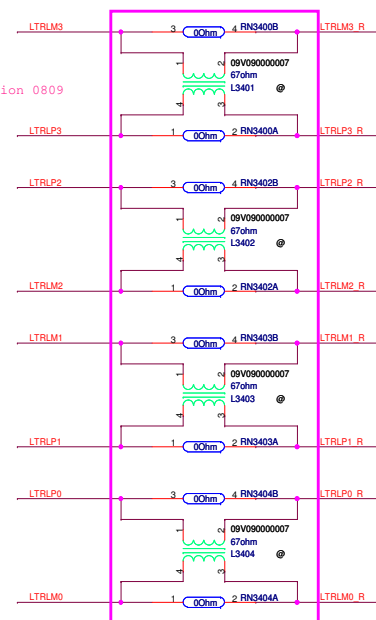
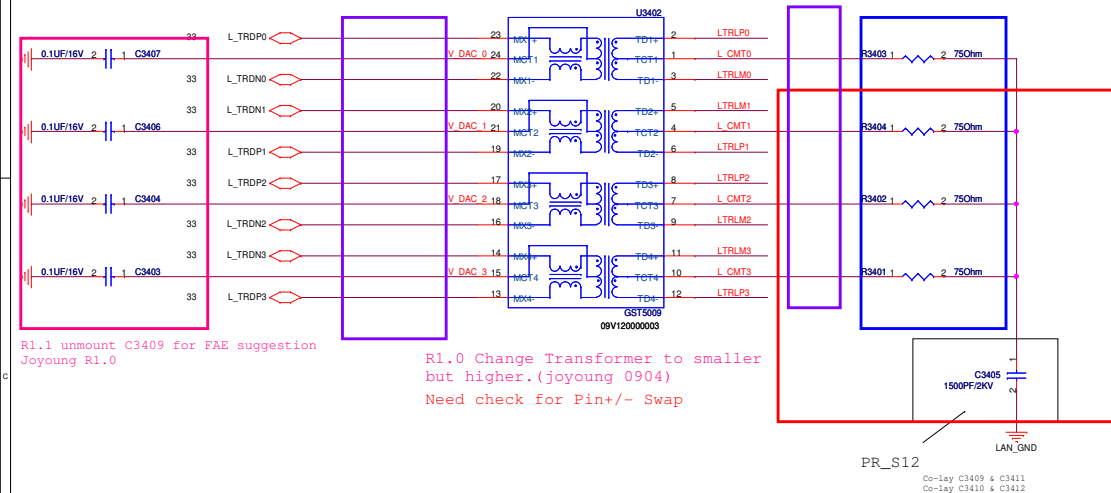
Joyoung R1.0
FAE suggest common mode choke is on chip side.

R1.1 Swap L_TRDP3 L_TRDN3 & L_TRDP1 L_TRDN1

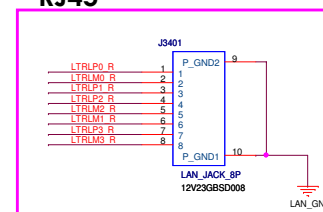
R1.1 Add 0 OHM for FAE suggestion 0809
JM50: FAE suggest remove

R1.1 Remove R3405~R3407 & C3409

R1.1 Mount R3401~R3403 for FAE suggestion 0809

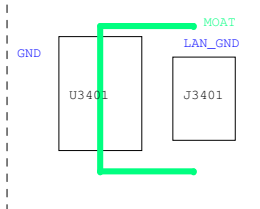


RJ45

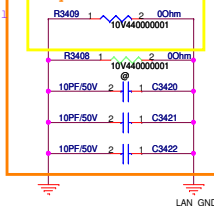


Change RJ45 CON3401

| LAN layout note:

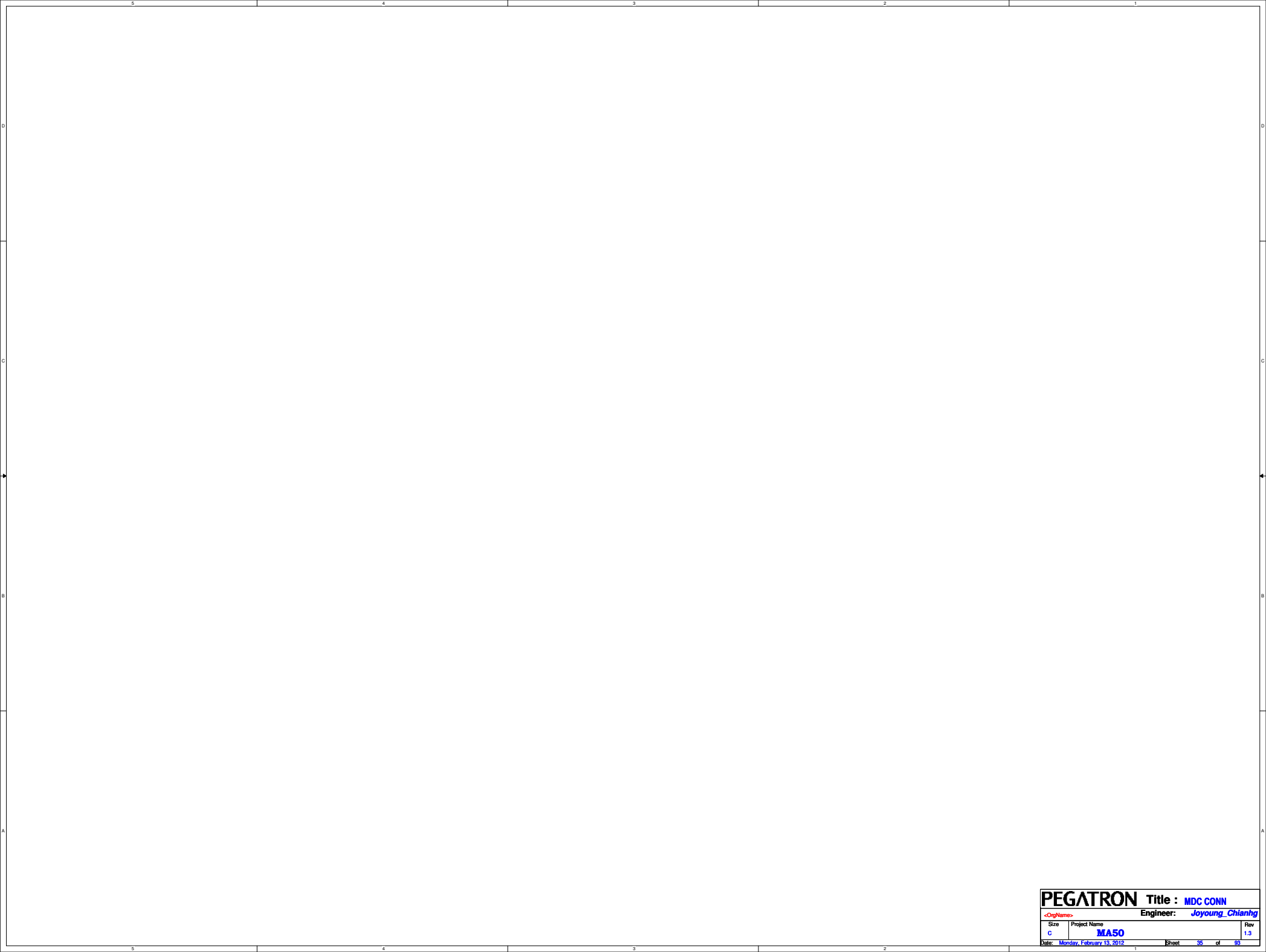


EMI Req

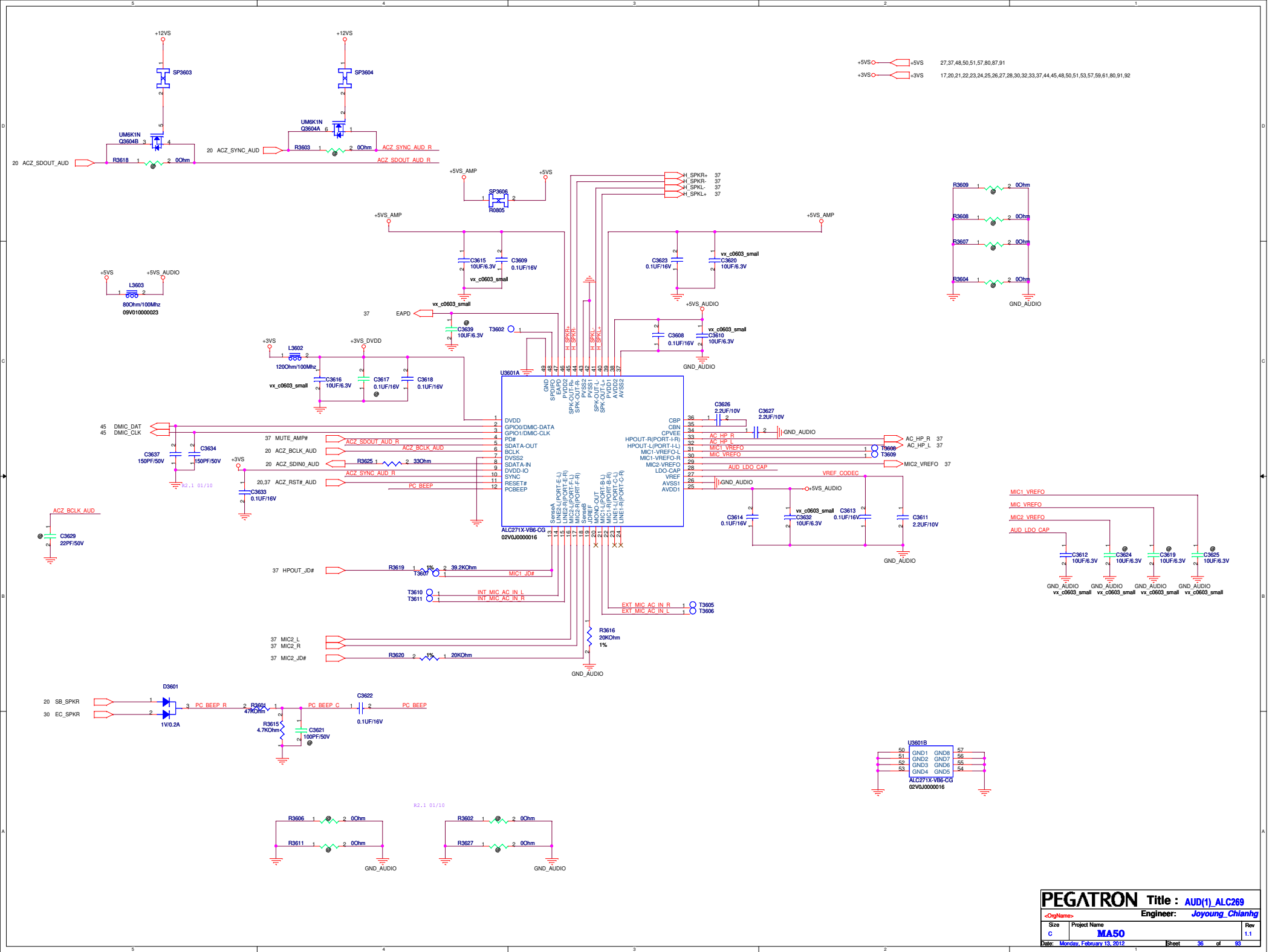


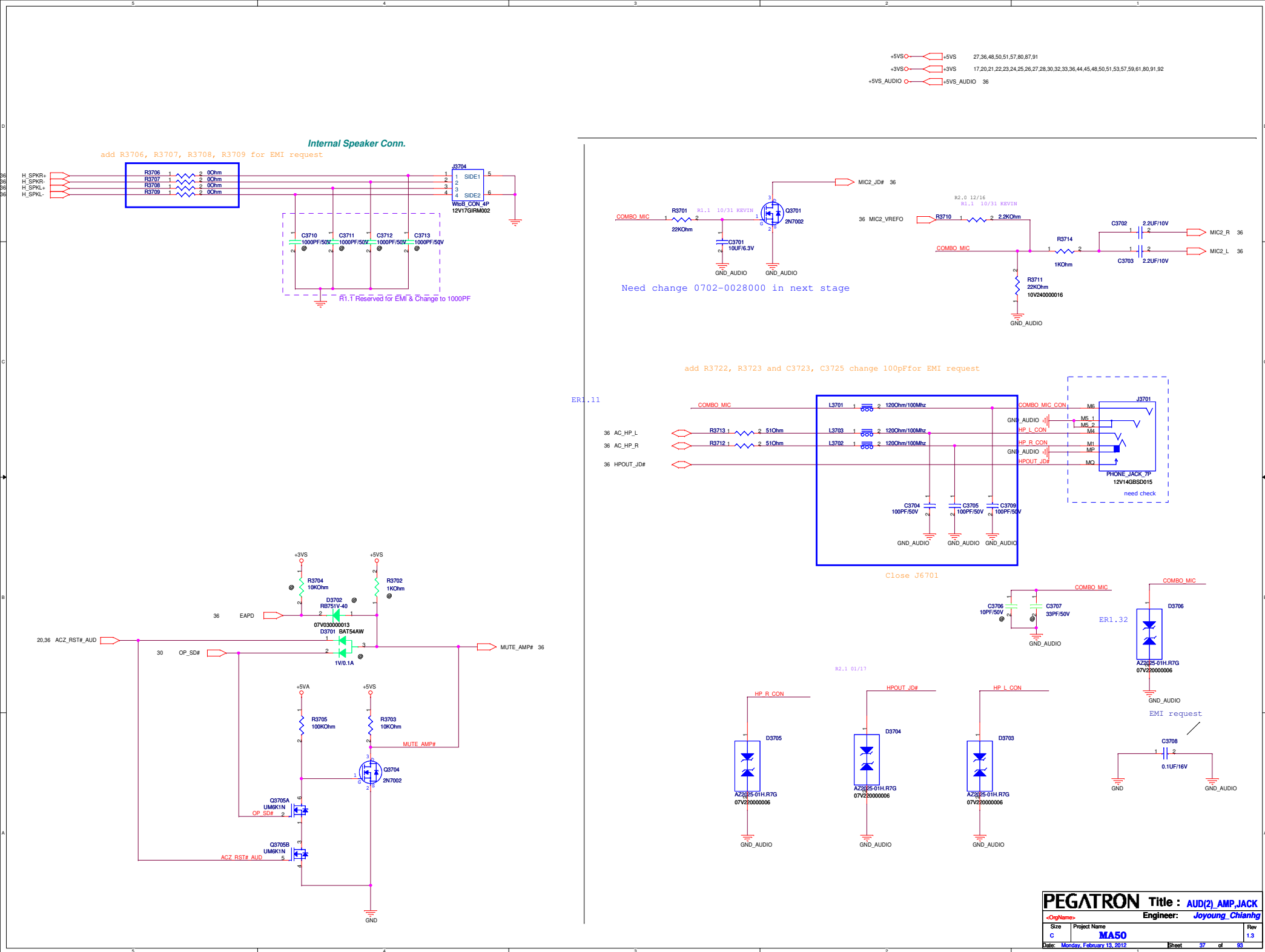
R1.0 Reserve D3401 for EMI.

R1.0 Mount R3408 for FAE suggestion



PEGATRON		Title : MDC CONN	
<OrigName>		Engineer: Joyoung Chianhg	
Size	Project Name		Rev
C	MA50		1.3
Date: Monday, February 13, 2012		Sheet	35 of 83

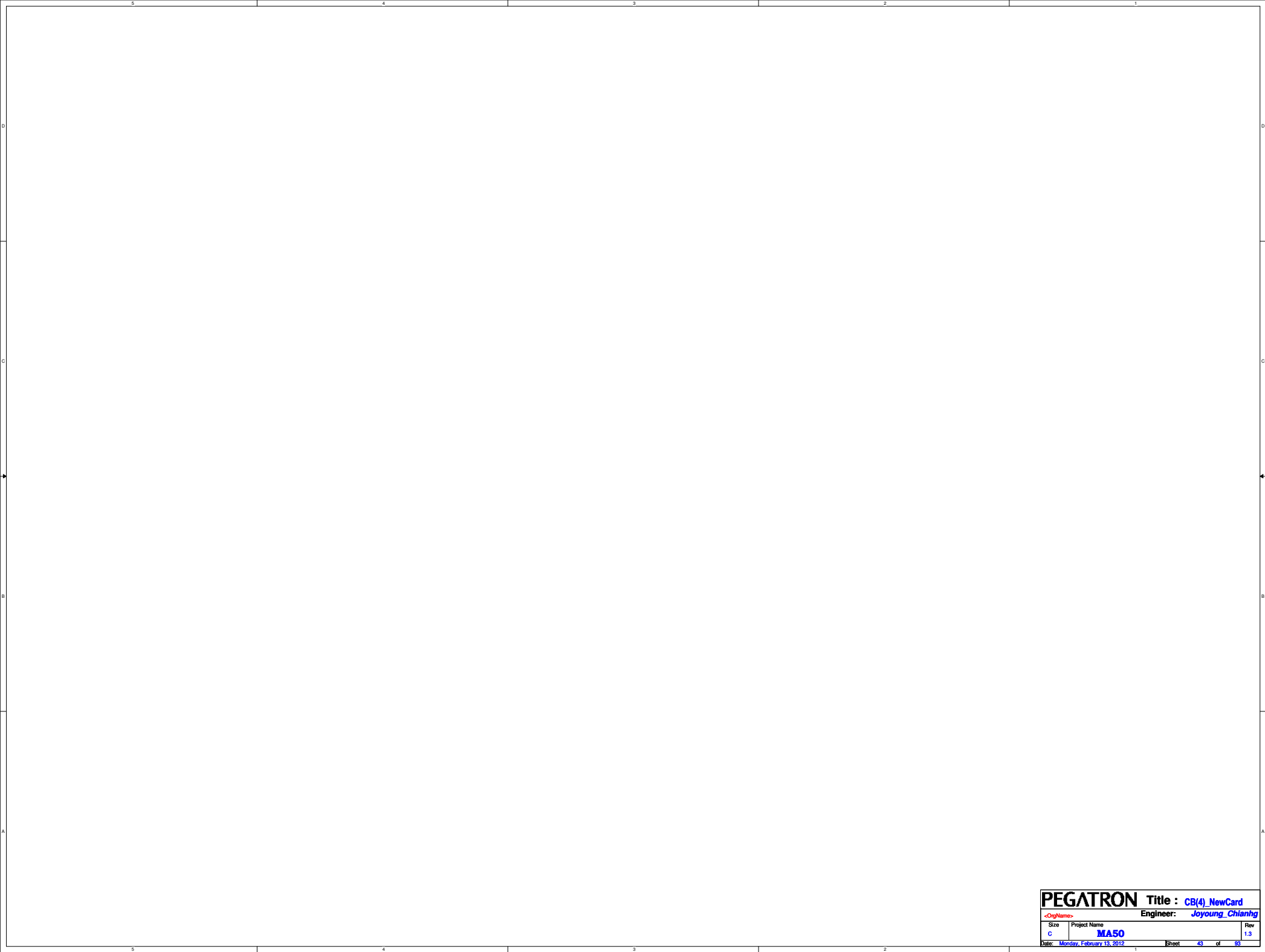




	5	4	3	2	1
D					
C					
B					
A					
	5	4	3	2	1

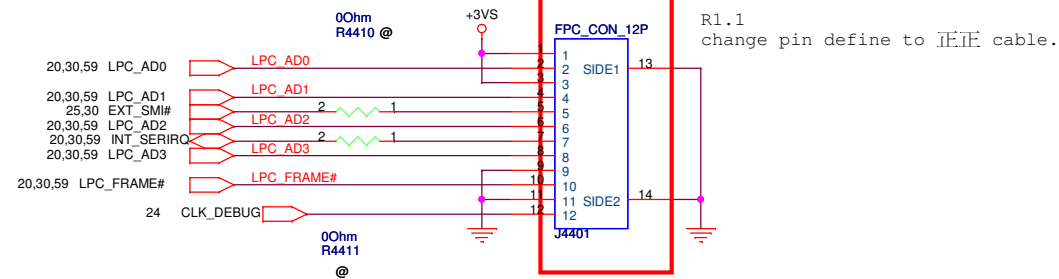
PEGATRON		Title : AUD(4)_****	
<OrgName>		Engineer: Joyoung_Chianhg	
Size	Project Name		Rev
Custom	MA50		1.3
Date: Monday, February 13, 2012	Sheet	39	of 93

+3VS  +3VS 17,20,21,22,23,24,25,26,27,28,30,32,33,36,37,44,45,48,50,51,53,57,59,61,80,91,92
+12V  +12V 60,91



+3VS  +3VS 17,20,21,22,23,24,25,26,27,28,30,32,33,36,37,45,48,50,51,53,57,59,61,80,91,92

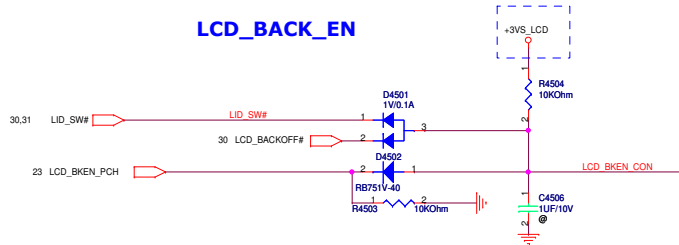
LPC Debug Port



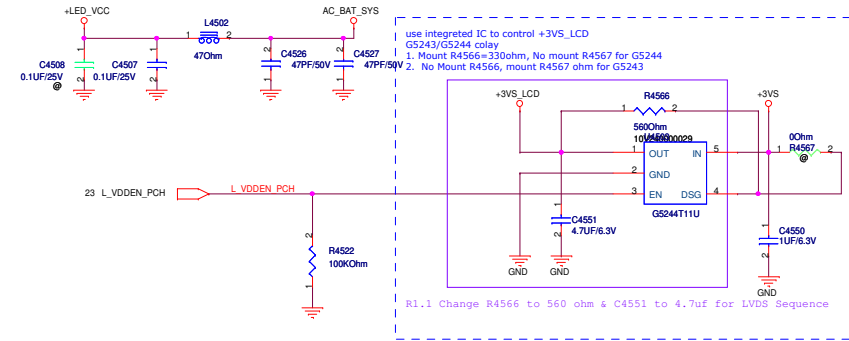
PEGATRON		Title : BUG_Debug	
<OrgName>		Engineer: Joyoung_Chianhg	
Size	Project Name		Rev
B	MA50		1.3
Date: Monday, February 13, 2012		Sheet	44 of 93

+3VS	17,20,21,22,23,24,25,26,27,28,30,32,33,36,37,44,48,50,51,53,57,59,61,80,91,92
+5VS	27,36,37,48,50,51,57,80,87,91
+12VS	28,36,48,91
+VCCP	3,4,6,7,30,32,57,82
AC_BAT_SYS	53,81,87,88

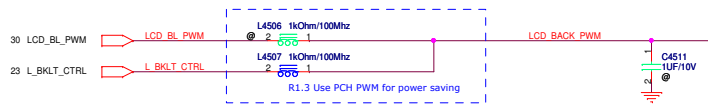
LCD_BACK_EN



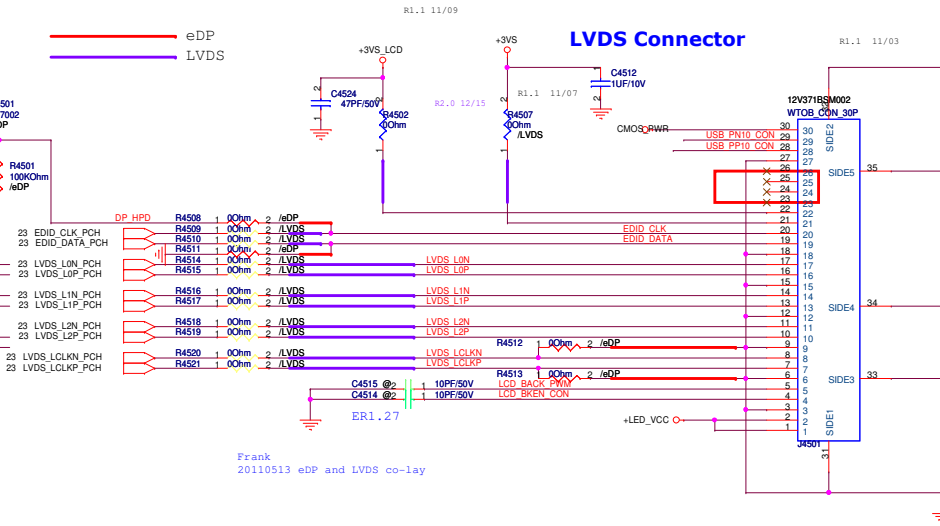
LCD VDDEN / +LED_VCC



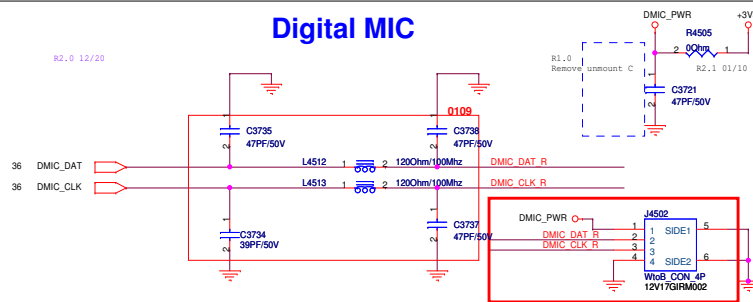
LCD_BL_PWM



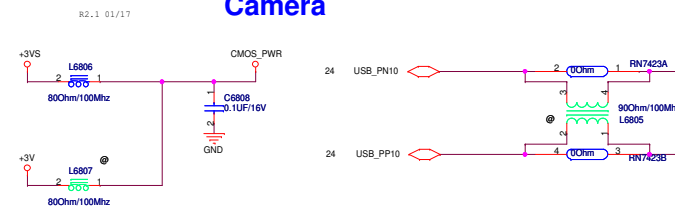
eDP
LVDS



Digital MIC

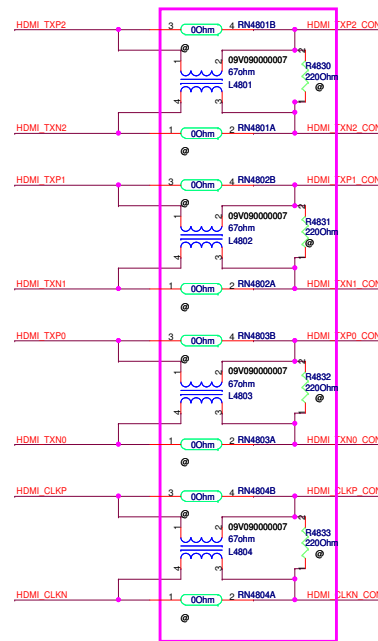
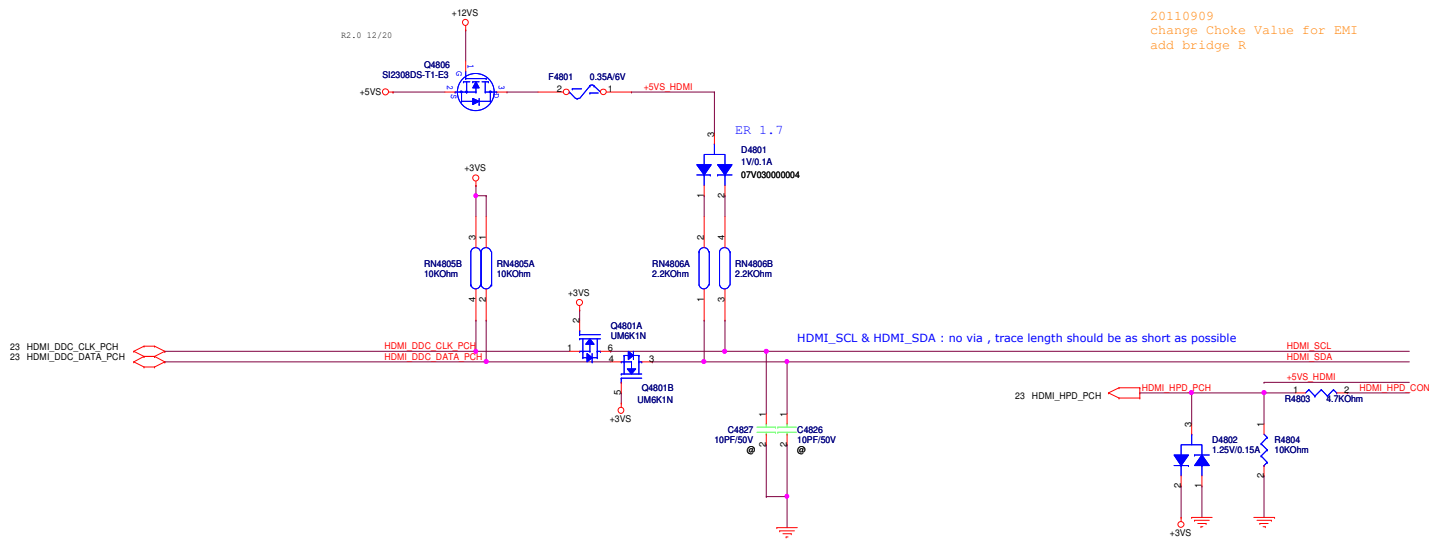
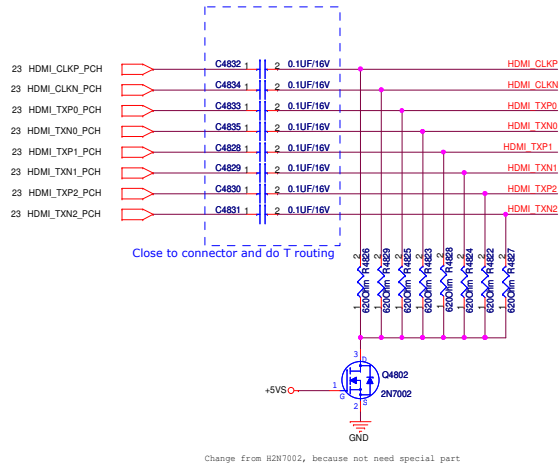


Camera

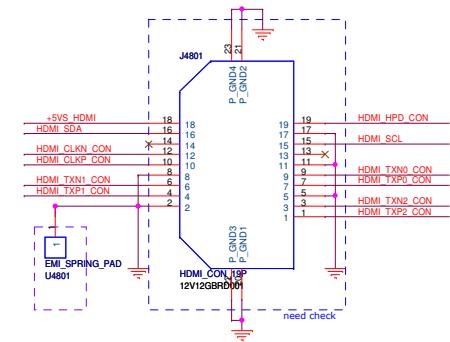




PEGATRON		Title : CRT	
BU1-RD Div.1+HW RD Dept.1		Engineer: Joyoung_Chianhg	
Size	Project Name		Rev
Custom	MA50		1.0
Date: Monday, February 13, 2012		Sheet	46 of 93



20110909
change Choke Value for EMI
add bridge R

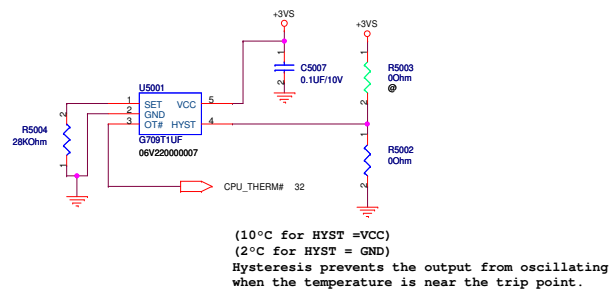


R1.1 EMI Request for Spring PAD(close to HDMI conn)

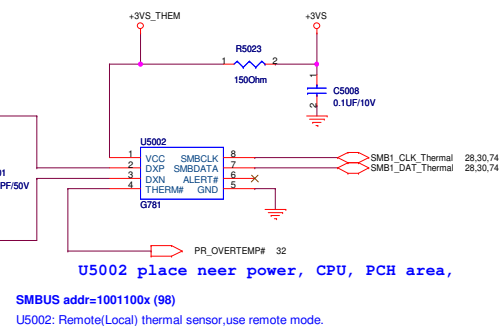
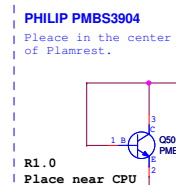
+12VS	28,36,91
+3VS	17,20,21,22,23,24,25,26,27,28,30,32,33,36,37,44,45,50,51,53,57,59,61,80,91,92
+5VS	27,36,37,50,51,57,80,87,91

+3VS 17,20,21,22,23,24,25,26,27,28,30,32,33,36,37,44,45,48,51,53,57,59,61,80,91,92
+5VS 27,36,37,48,51,57,80,87,91

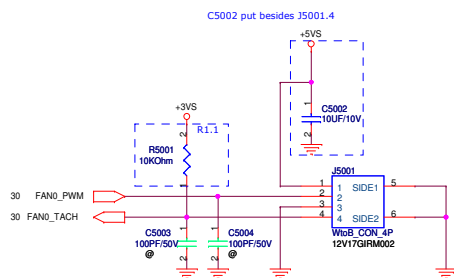
CPU Thermal Sensor

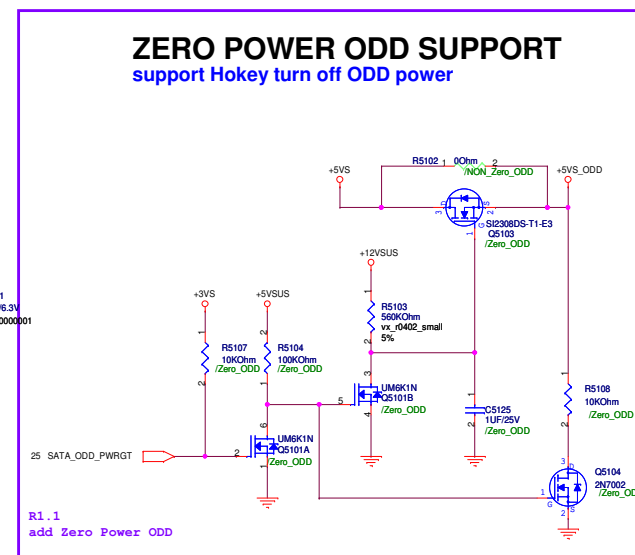


DIMM Thermal Sensor

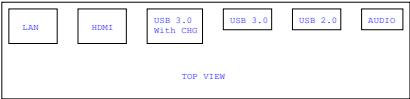


PWM Fan





PEGATRON		Title : <u>XDD_HDD,ODD</u>	
<OrigName>		Engineer: <u>Joyoung_Chianhg</u>	
Size C	Project Name MA50	Rev 1.3	
Date: <u>Monday, February 13, 2012</u>		Sheet	51 of 93



PEGATRON		Title : <u>USB_USB Port</u>	
<OrigName>		Engineer: <u>Joyoung_Chanhg</u>	
Size D	Project Name MA50	Rev 1.3	
Date: <u>Monday, February 13, 2012</u>		Sheet <u>52</u> of <u>93</u>	



+3VA 6,20,26,27,30,31,57,59,60,81,88,93
+3VS 17,20,21,22,23,24,25,26,27,28,30,32,33,36,37,44,45,48,50,51,53,57,59,61,80,91,92
+5VSUS 51,57,59,91
+5VA 37,60,81,91
+5V 57,59,60,91
+5VS 27,36,37,48,50,51,57,80,87,91
AC_BAT_SYS AC_BAT_SYS 45,53,81,87,88
+3V 24,45,57,59,61,91

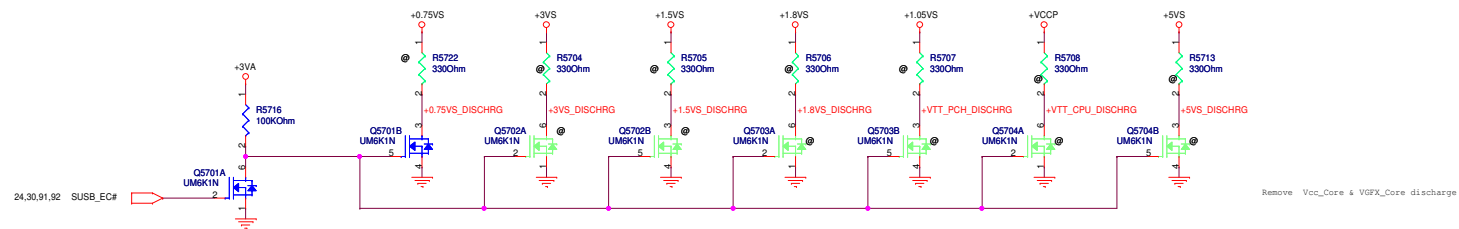
30.59 PWR_LED#

30.59 PWR_LED_standby#

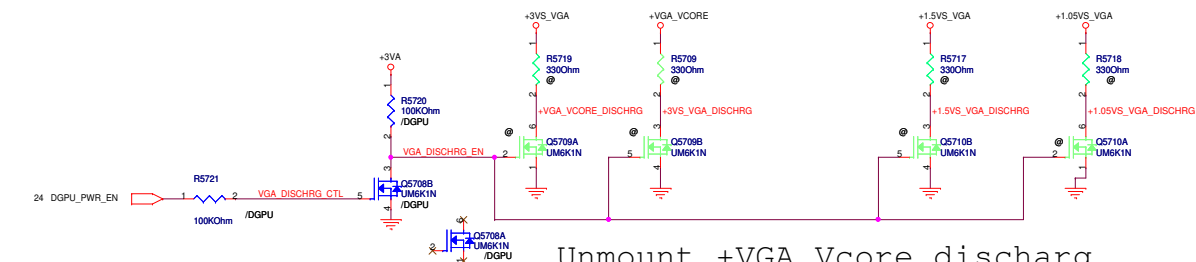
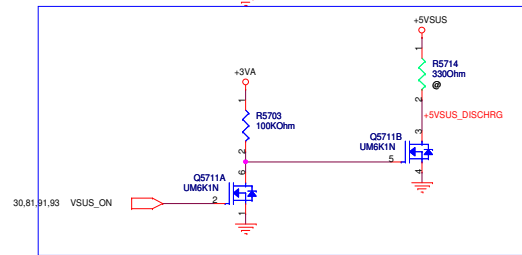
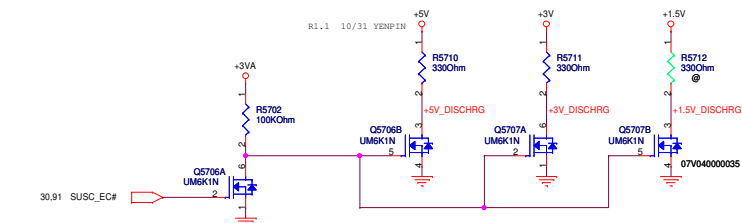
30.59 CHG_LED_BLUE#

30.59 CHG_LED_ORANGE#

+3VA	6,20,26,27,30,31,59,60,81,88,93
+VOCORE	6,9,11,80
+VGFX_CORE	7,9,80
+VCCP	3,4,6,7,30,32,82
+0.75VS	16,17,83
+1.05VS	26,27,82,87
+1.5VS	7,26,53,91
+1.8VS	7,25,26,80,84
+3VS	17,20,21,22,23,24,25,26,27,28,30,32,33,36,37,44,45,48,50,51,53,59,61,80,91,92
+5VS	27,36,37,48,50,51,80,87,91
+1.5V	5,16,17,18,60,83
+3V	24,45,59,61,91
+5V	59,60,91



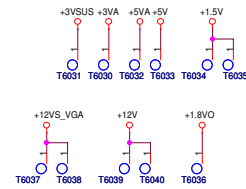
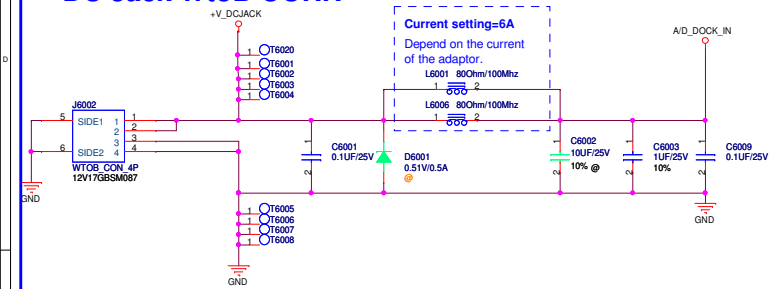
Remove Vcc_Core & VGFX_Core discharge



Unmount +VGA_Vcore discharg

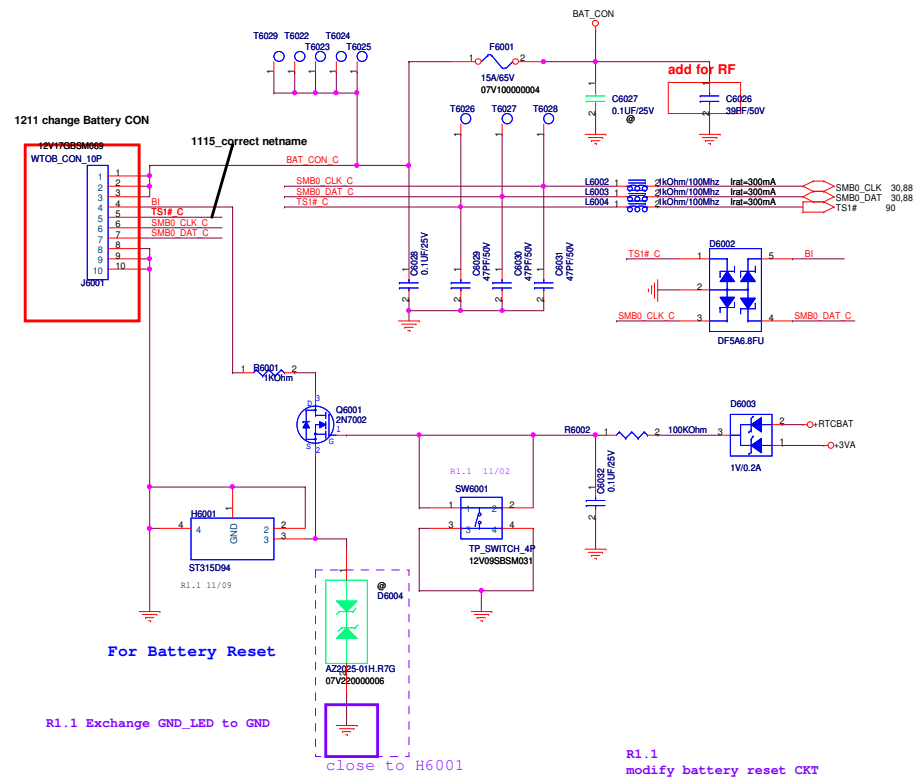
PEGATRON		Title : DSG_Discharge	
<OrgName>		Engineer: Joyoung Chianhg	
Size	Project Name	Rev	
C	MA50	1.3	
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DC Jack WtoB CONN

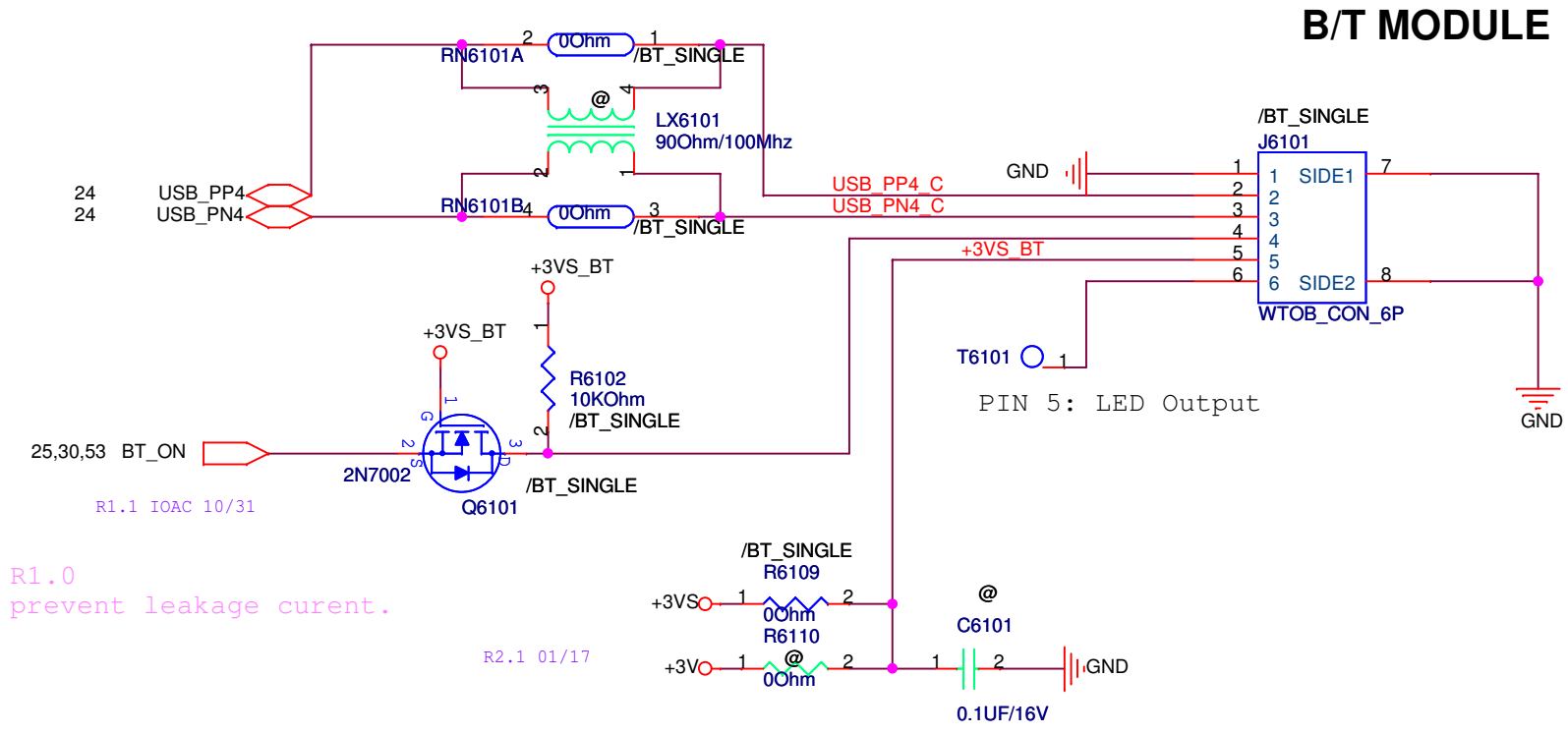


+VCC_RTC		+VCC_RTC	20,22,27
+3VA_EC		+3VA_EC	28,30,32
+3VA		+3VA	6,20,26,27,30,31,57,59,81,88,93
+5VA		+5VA	37,81,91
+3VSUS		+3VSUS	4,22,24,28,30,81,92
+5VSUS		+5VSUS	51,57,59,91
+12VSUS		+12VSUS	28,51,81,91
+1.5V		+1.5V	5,16,17,18,57,83
+3V		+3V	24,45,57,59,61,91
+5V		+5V	57,59,91
+12V		+12V	91
+0.75VS		+0.75VS	16,17,57,83
+1.05VS		+1.05VS	26,27,57,82,87
+1.5VS		+1.5VS	7,26,53,57,91
+1.8VS		+1.8VS	7,26,56,57,80,84
+3VS		+3VS	17,20,21,22,23,24,25,26,27,28,30,32,33,36,37,44,45,48,50,51,53,57,59,61,80,91,92
+5VS		+5VS	27,36,50,51,57,80,87,91
+12VS		+12VS	28,36,48,91

Battery Connector

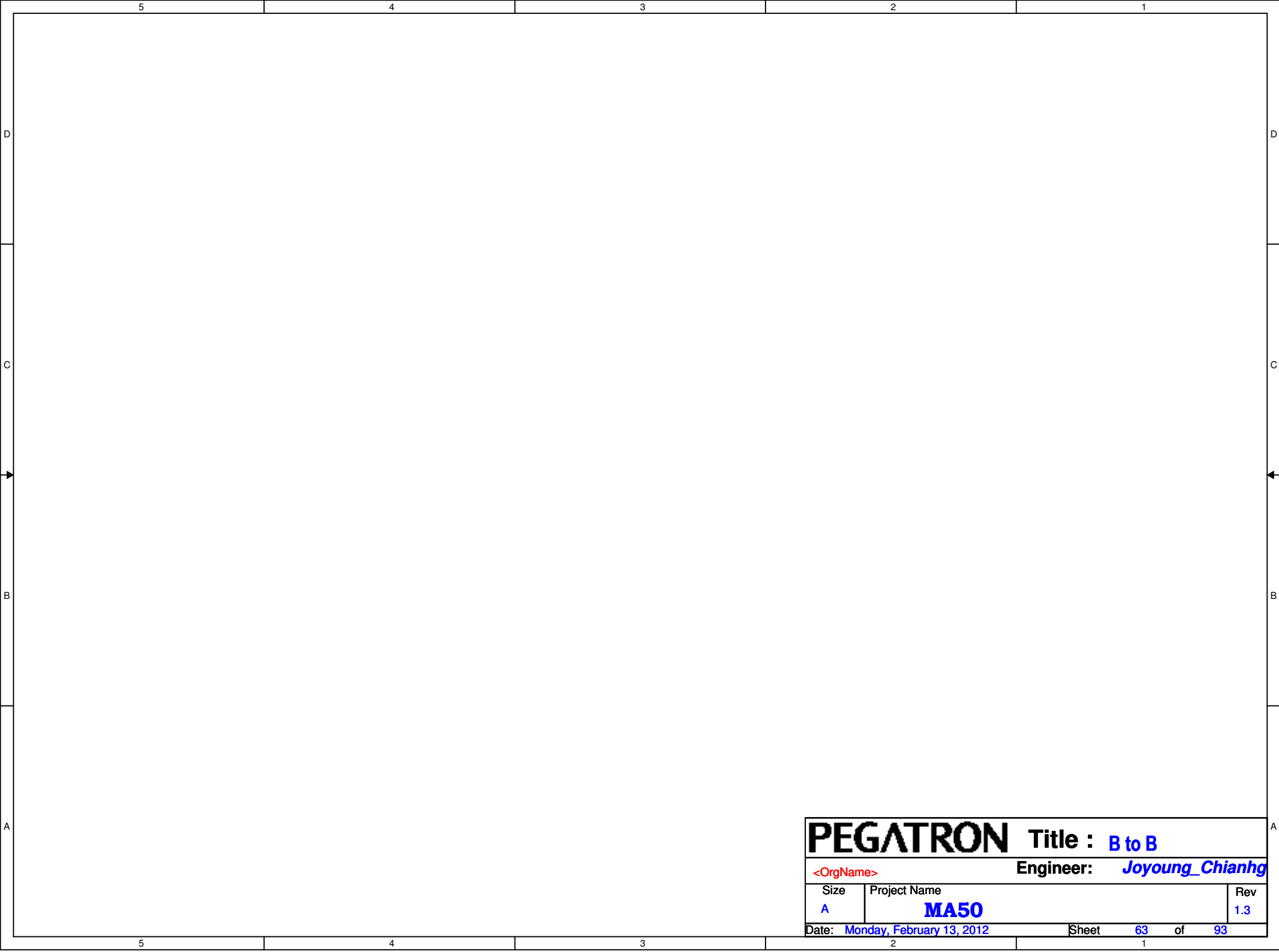


AC_BAT_SYS		AC_BAT_SYS	45,53,81,87,88
A/D_DOCK_IN		A/D_DOCK_IN	88
BAT_CON		BAT_CON	88
+VCCP		+VCCP	3,4,6,7,30,32,57,82
+VCORE		+VCORE	6,9,11,80
+VGFX_CORE		+VGFX_CORE	7,9,80
+VTT_PCH_ORG		+VTT_PCH_ORG	22,26,27
+VTT_PCH_VCCIO		+VTT_PCH_VCCIO	20,26,27
+1.05VM_ORG		+1.05VM_ORG	27
+V_VREF_DDR3		+V_VREF_DDR3	16,17,18

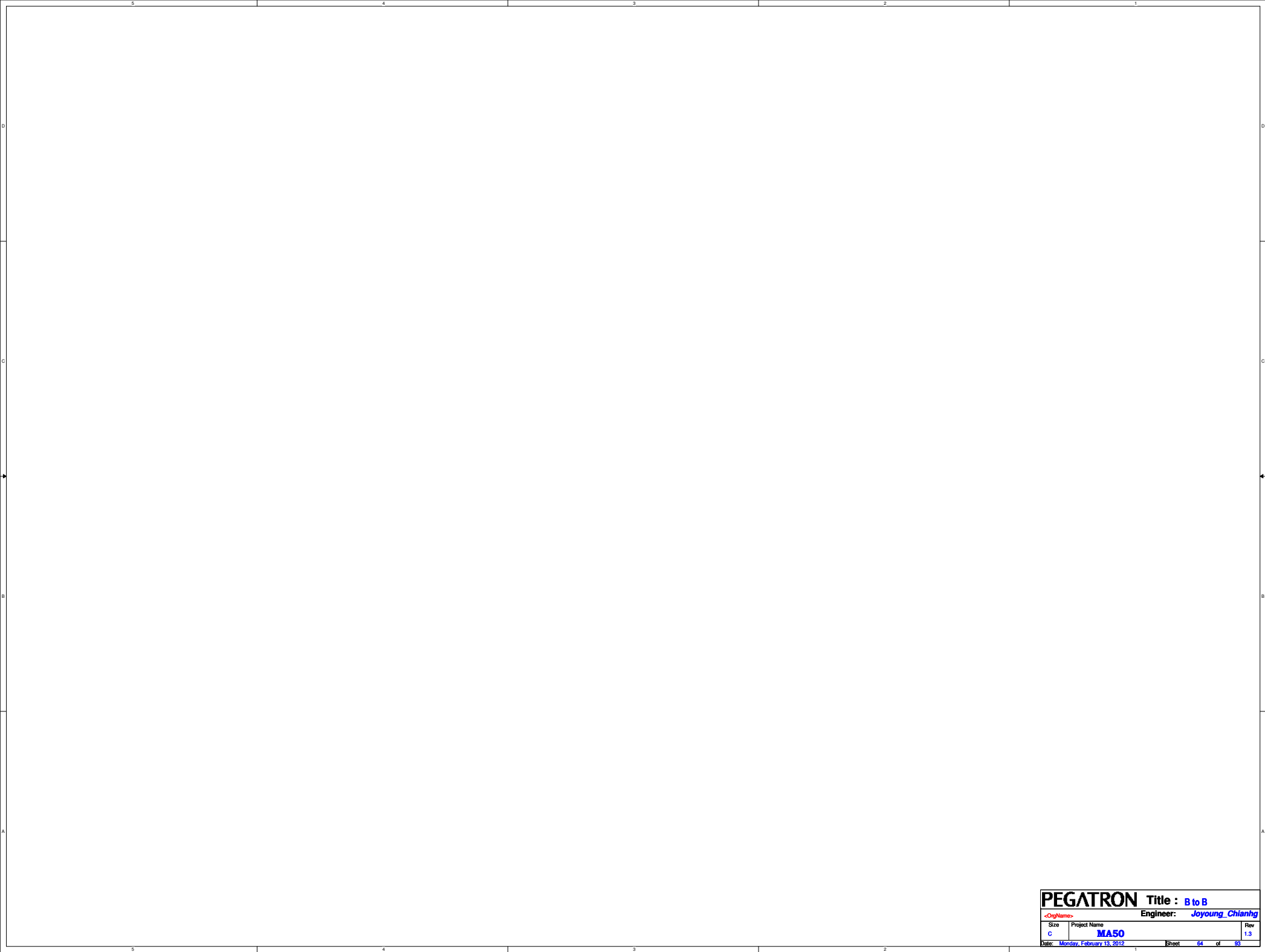


R1.0
prevent leakage curent.

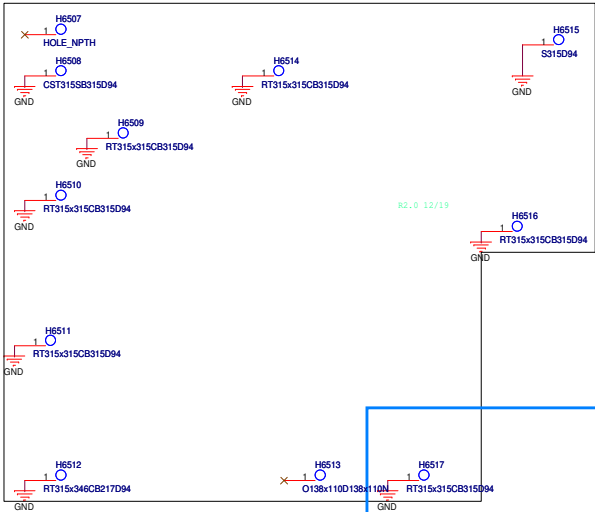
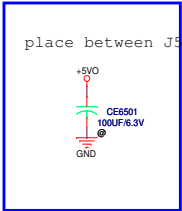
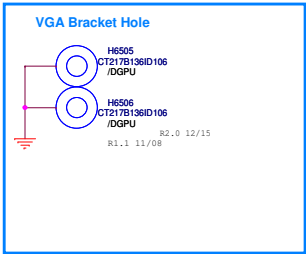
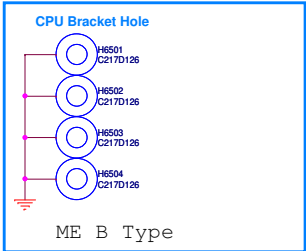
R2.1 01/17



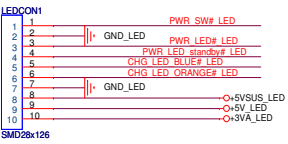
PEGATRON			Title : B to B		
<OrgName>			Engineer: Joyoung_Chianhg		
Size	Project Name				Rev
A	MA50				1.3
Date: Monday, February 13, 2012			Sheet	63	of 93



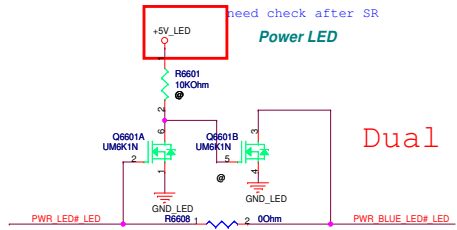
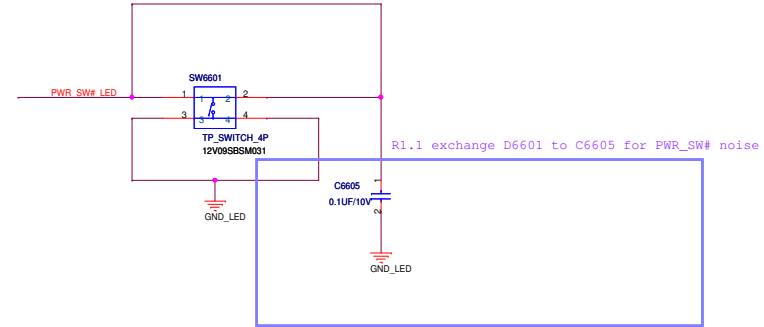
PEGATRON		Title : B to B	
<OrgName>		Engineer: Joyoung Chianhg	
Size	Project Name		Rev
C	MA50		1.3
Date: Monday, February 13, 2012		Sheet	64 of 83



This screw hole should be Upside down(TOP and BOTTOM) .

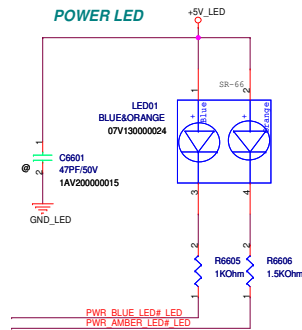


Power Button

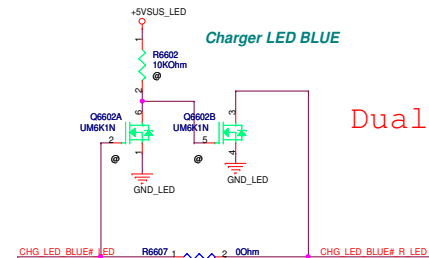


Power LED

Dual Color

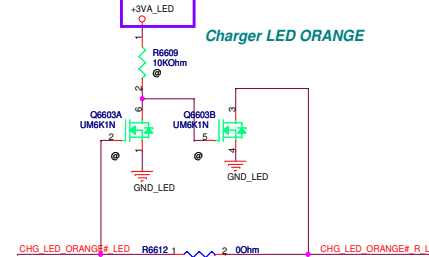


POWER LED

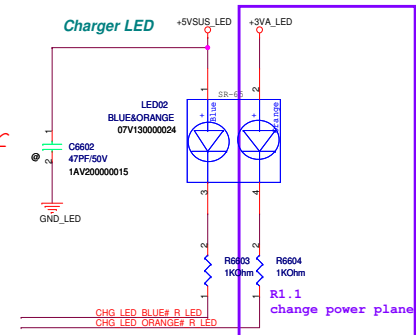


Charger LED BLUE

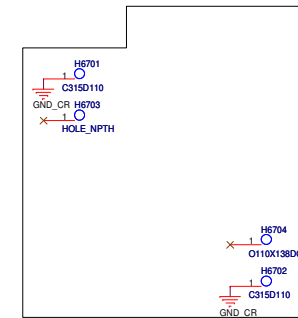
Dual Color



Charger LED ORANGE



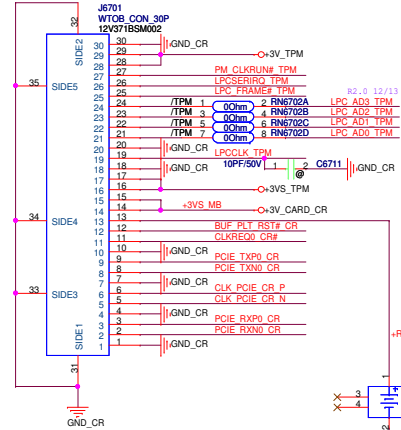
Charger LED



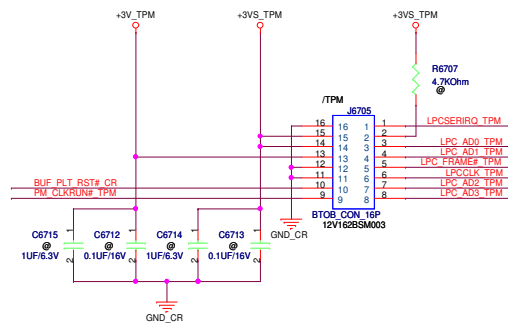
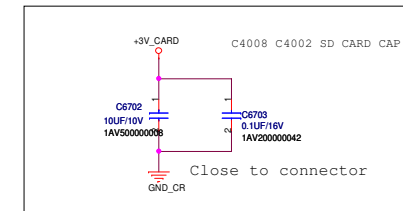
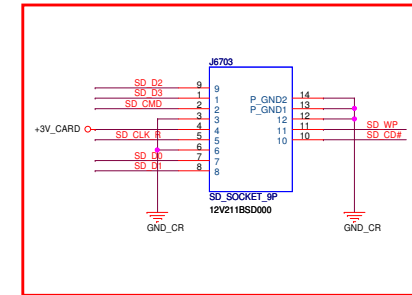
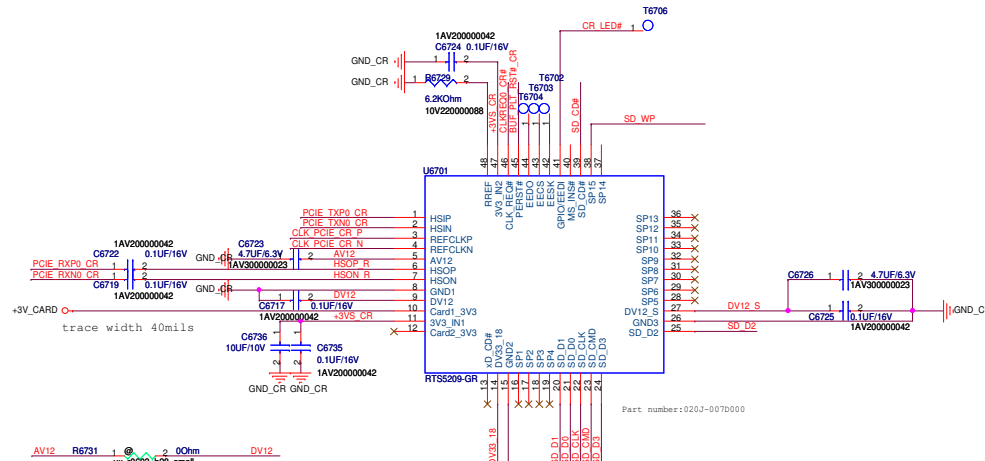
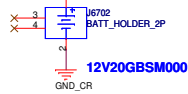
SDCLK trace length shorter, surround with GND.

From System's PCIE interface

R1.1 change to 30P



RTC



Remove Serial Flash

```
| Reserve for BIOS boot function
```

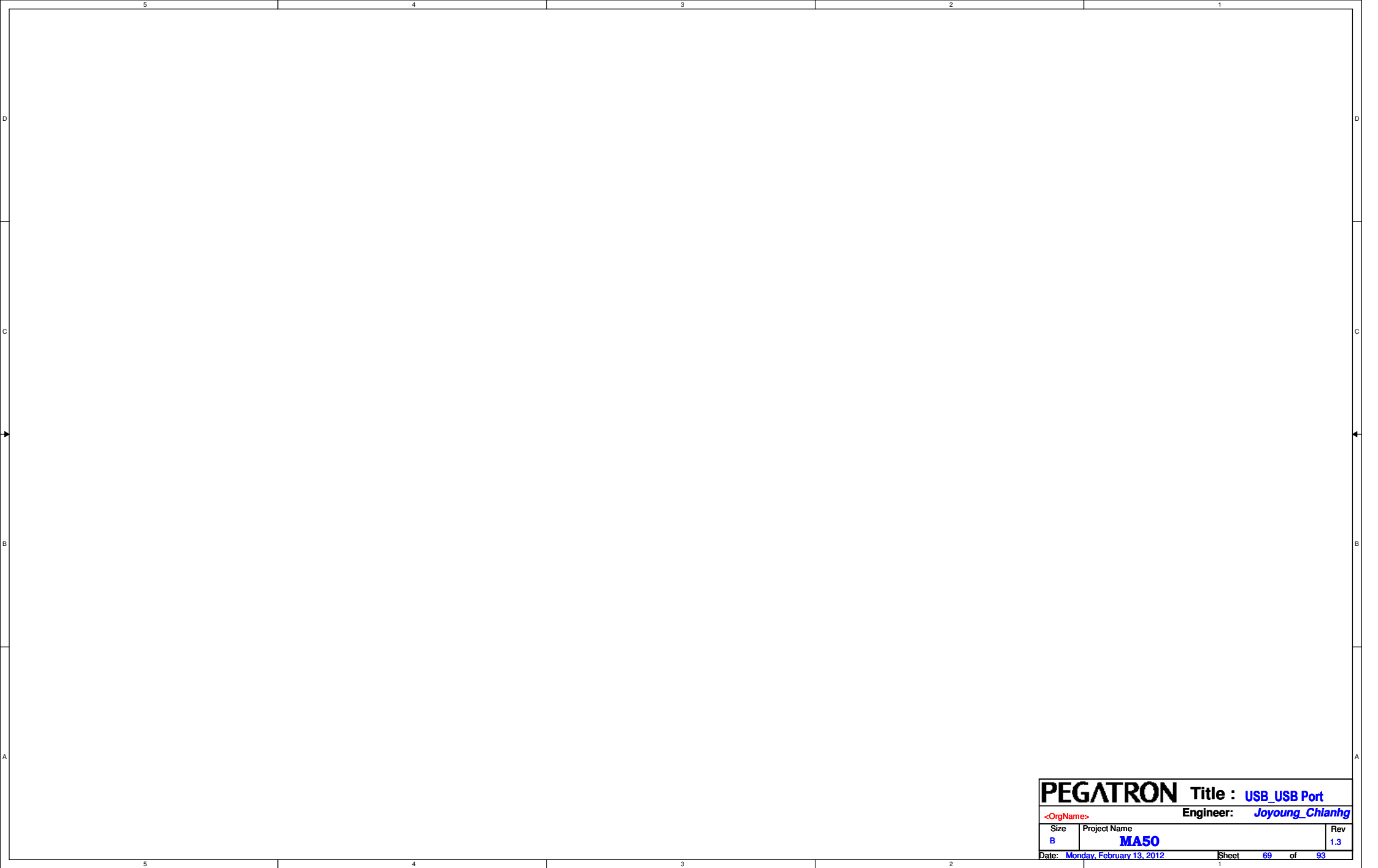
When EECS switch to be D3-Delink sideband signal, Serial Flash function is disabled.

Pin Name	Description
SP1	SD_D7/XD_RDY
SP2	SD_D6/XD_RE#
SP3	SD_D5/XD_CE#
SP4	SD_D4/XD_WE#
SP5	MS_BS/XD_CLE
SP6	MS_D5/XD_ALE
SP7	MS_D1/XD_WP#
SP8	MS_D4/XD_D0
SP9	MS_D0/XD_D1
SP10	MS_D2/XD_D2
SP11	MS_D6/XD_D3
SP12	MS_D3/XD_D4
SP13	MS_D7/XD_D5
SP14	MS_CLK/XD_D6
SP15	SD_WP/XD_D7

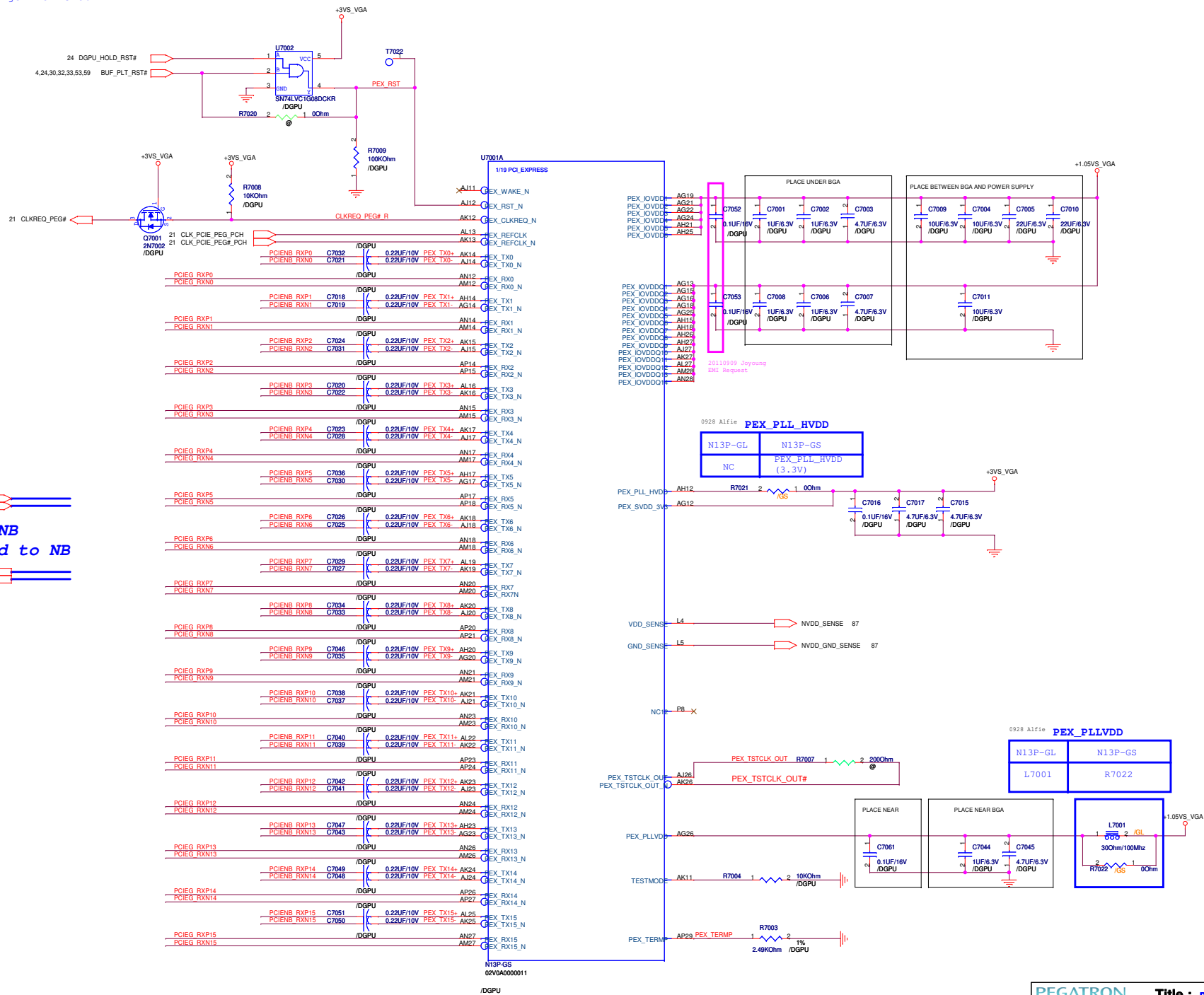
PEGATRON Title : **RTS5209**

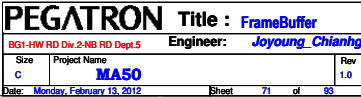
Engineer: **JAY TSAI**

Size C	Project Name MA50	Rev 1.0
Date: Monday, February 13, 2012		Sheet 67 of 93

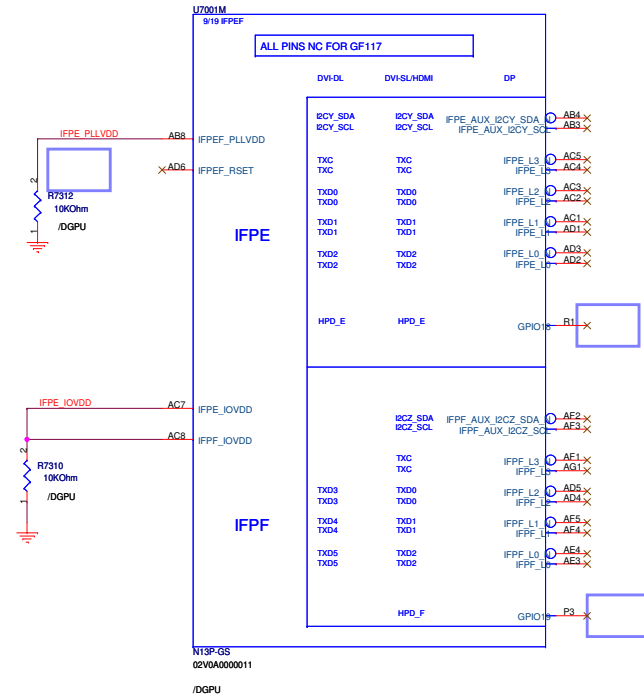
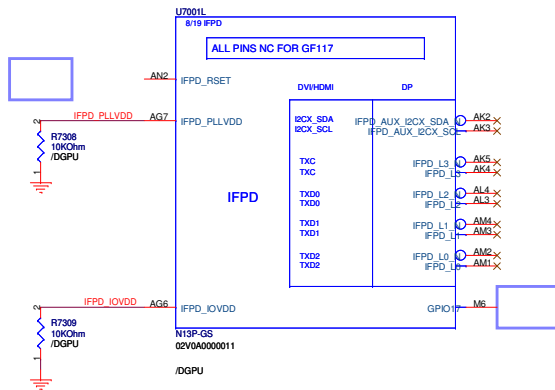
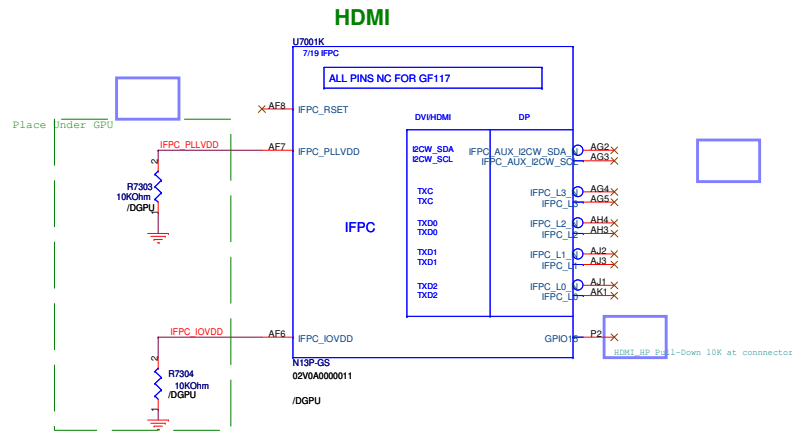
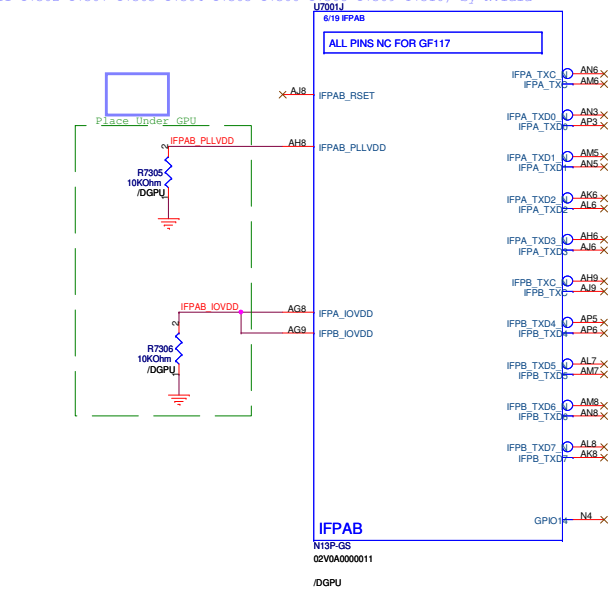


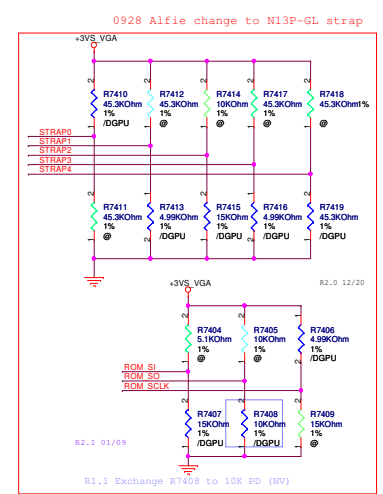
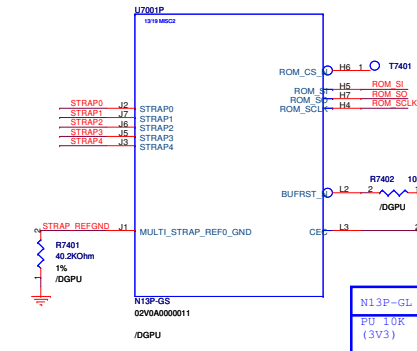
Frank
20110513 Change N13P GPU.



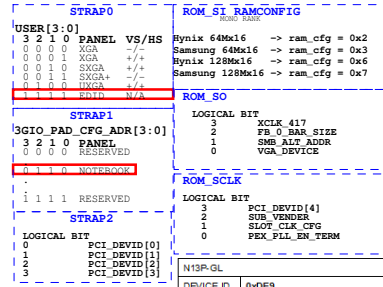


LVDS
R1.1 Remove the TP (T7301 T7311 T7302 T7307 T7303 T7304 T7305 T7306 T7308 T7309 T7310) by Nvidia



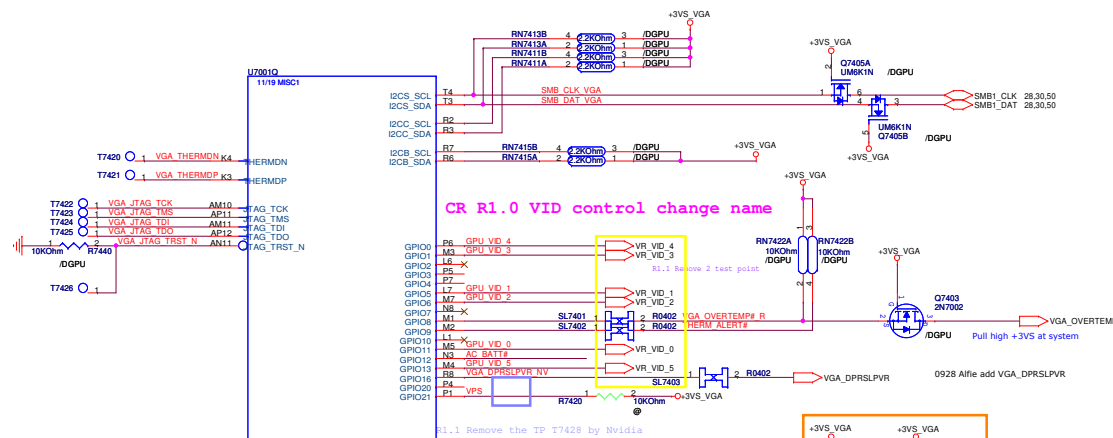


TERMINATION RESISTANCE	TERMINATION VOLTAGE	
	3V3 [3:0]	GND [3:0]
5K	1000 8	0000 0
10K	1001 9	0001 1
15K	1010 A	0010 2
20K	1011 B	0011 3
25K	1100 C	0100 4
30K	1101 D	0101 5
35K	1110 E	0110 6
45K	1111 F	0111 7

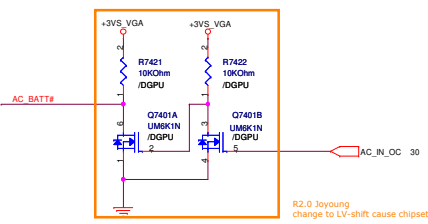
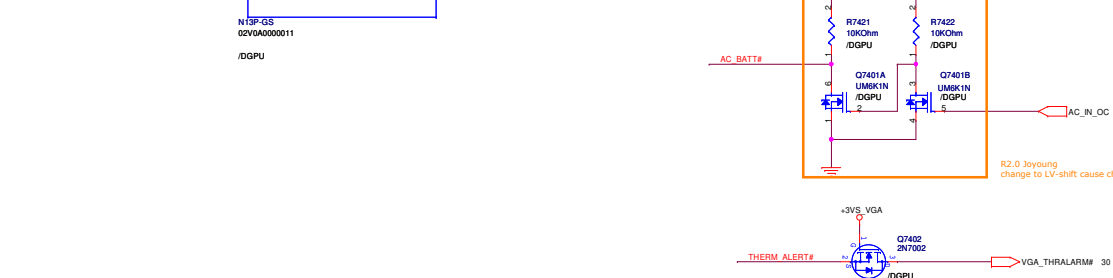


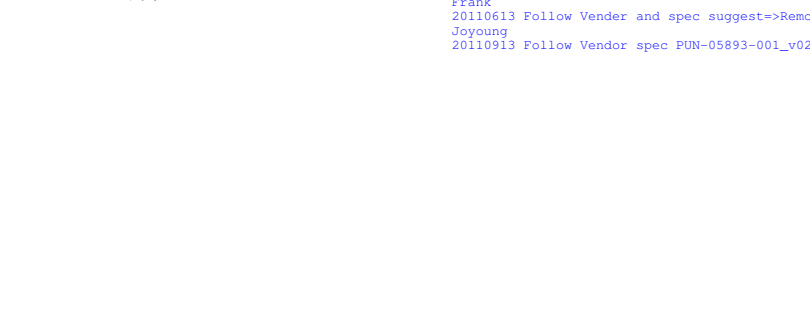
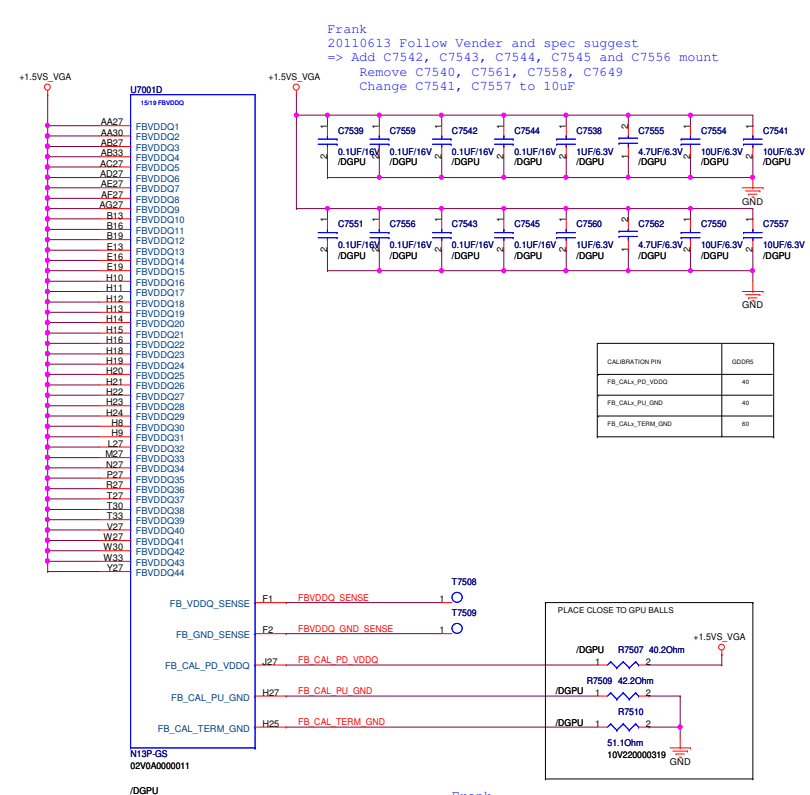
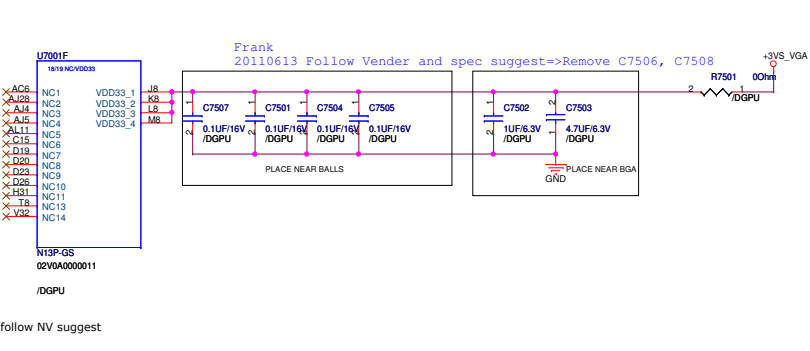
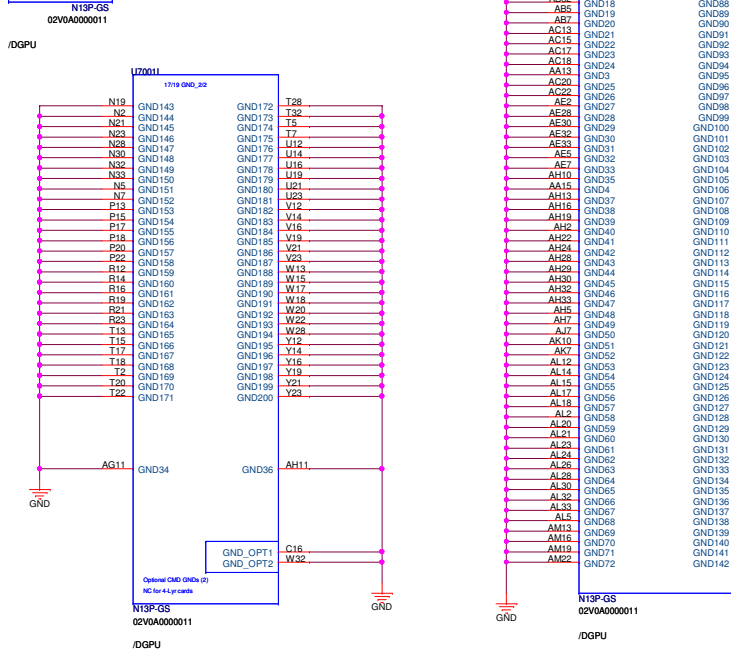
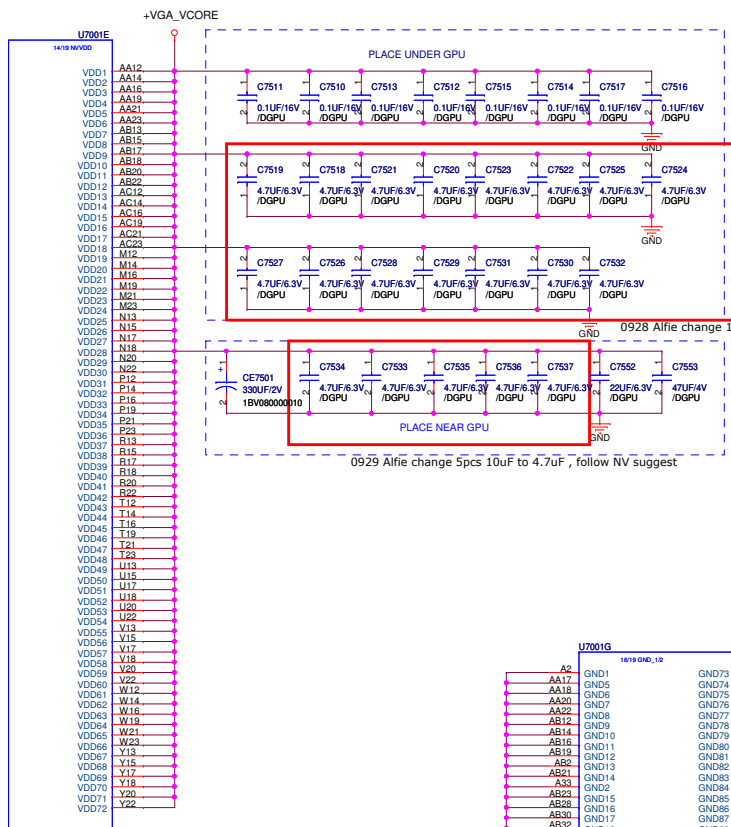
N13P-GL	
DEVICE ID	0x0E9
STRAP0	45K PU ROM_SCLK 15K PD
STRAP1	45K PD ROM_SI 64x16
STRAP2	10K PU 128X16 Hynix 15KPD
STRAP3	NC 35KPD
STRAP4	NC
ROM_SO	30K PD

VRAM need change BOM



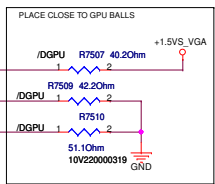
R1.1 Remove LVDDEN_VGA & LCD_BKEN_VGA signals, No function request on the pin (NV)





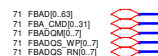
Frank
20110613 Follow Vender and spec suggest=>Remove C7506, C7508
=> Add C7542, C7543, C7544, C7545 and C7556 mount
Remove C7540, C7561, C7558, C7649
Change C7541, C7557 to 10uF

CALIBRATION PIN	QDQPS
FB_CALx_PD_VDDQ	40
FB_CALx_PLU_GND	40
FB_CALx_TERM_GND	80



Frank
20110613 Follow Vender and spec suggest=>Remove R7509 change 42.2 ohm
Jyouyoung
20110913 Follow Vendor spec PUN-05893-001_v02=>Change R7510 to 51.1 ohm

TOP SIDE



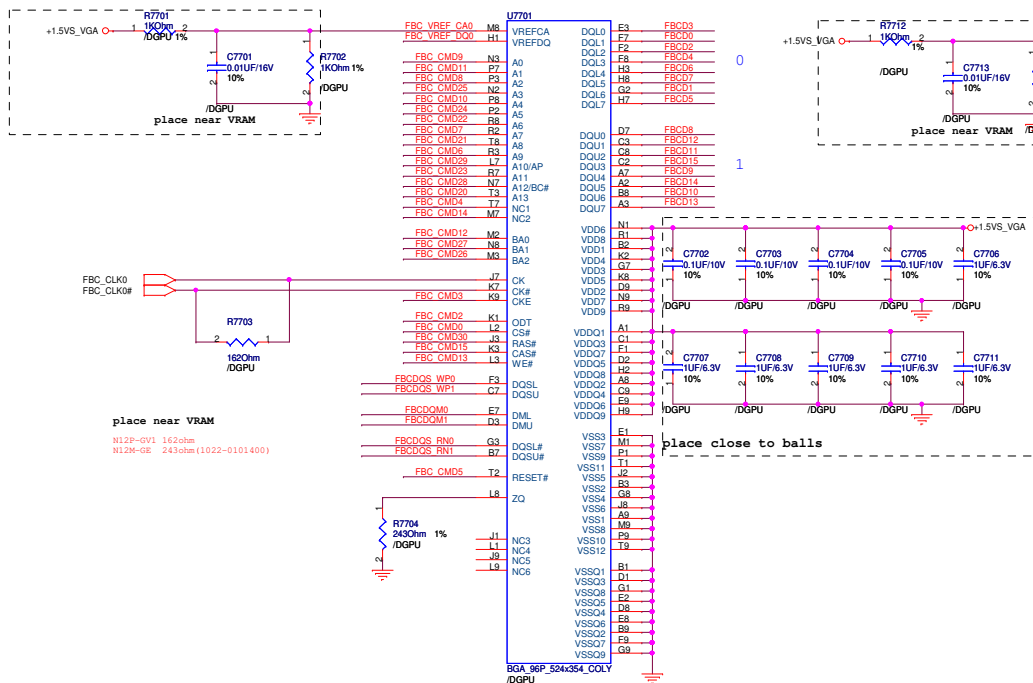
BOT SIDE

TOP SIDE

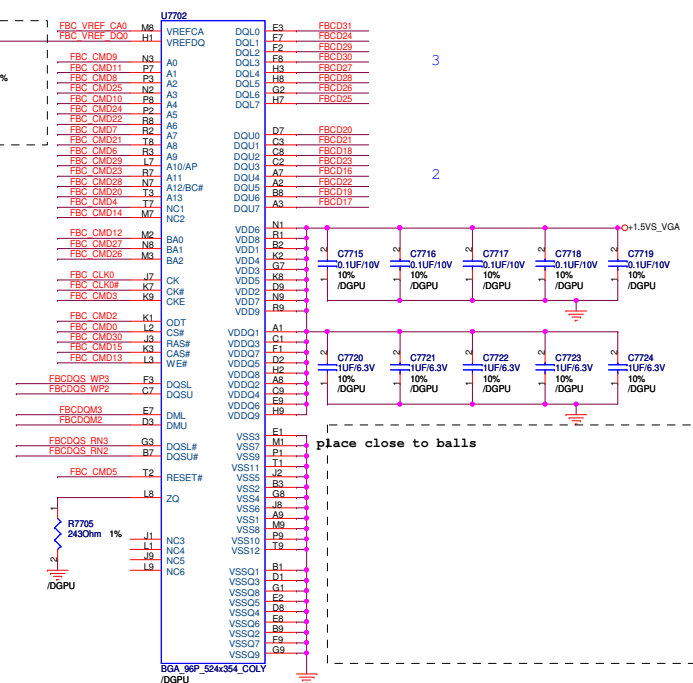
BOT SIDE

VRAM CH C

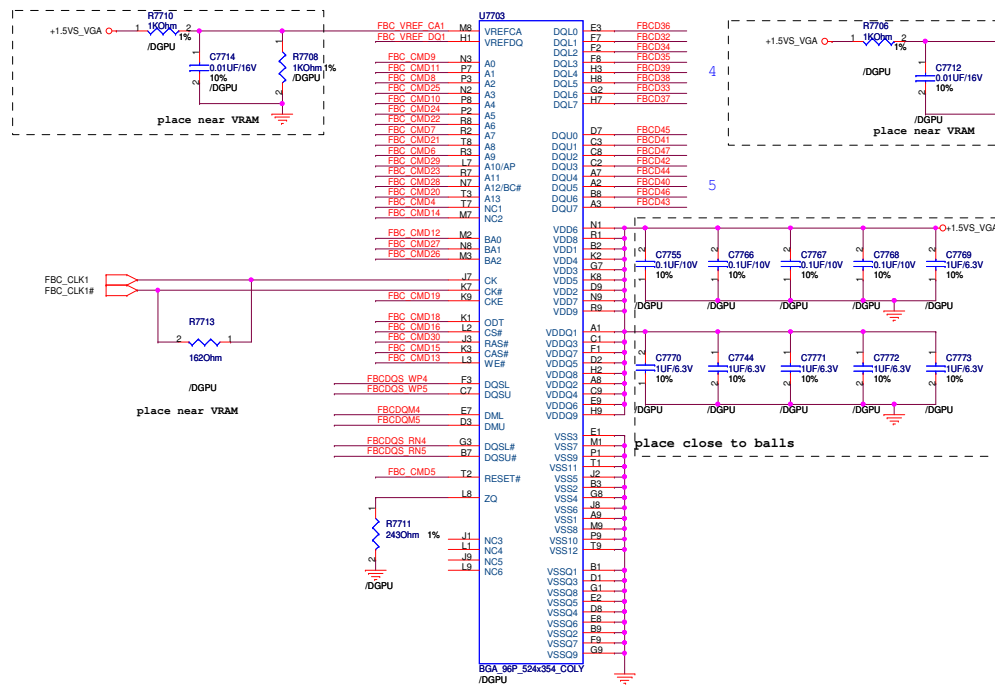
TOP SIDE



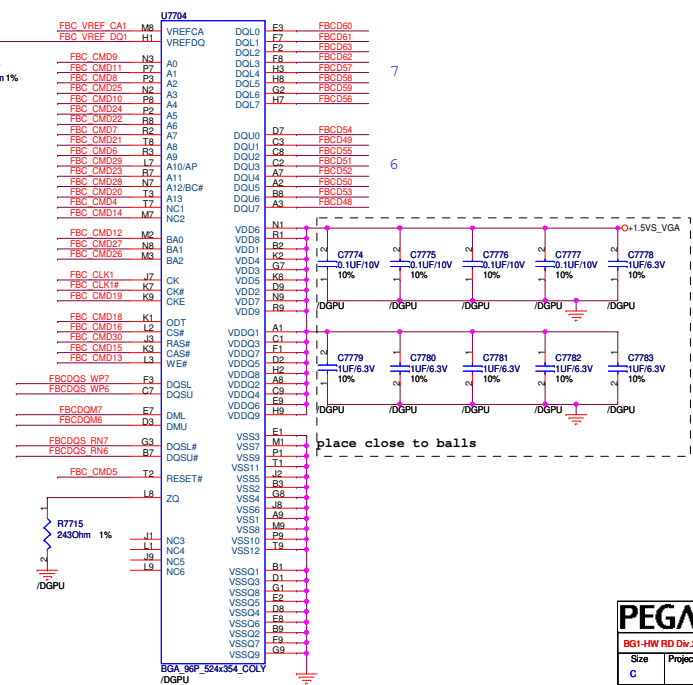
BOT SIDE



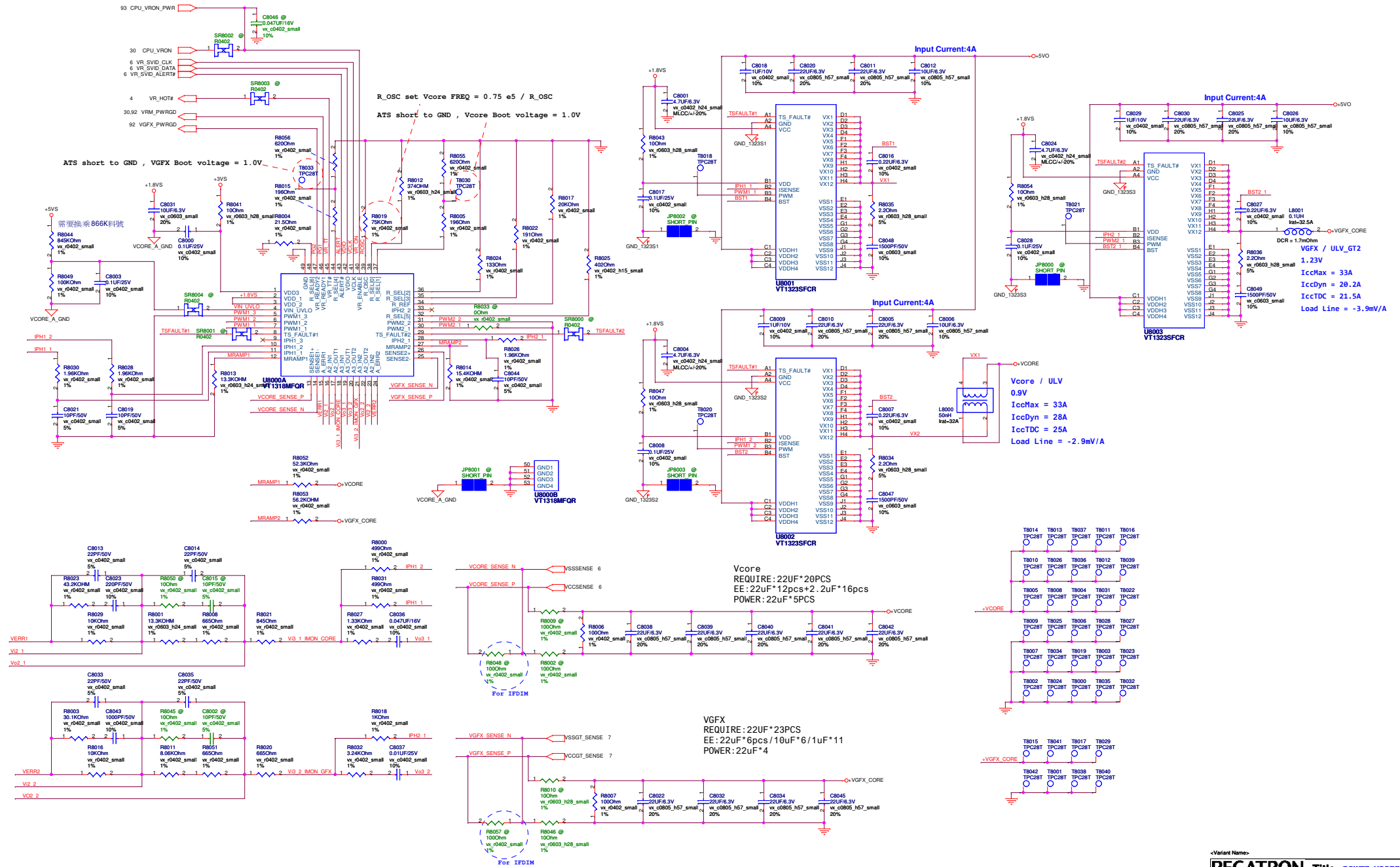
TOP SIDE



BOT SIDE



+VCORE & +VGFX POWER SUPPLY Huron River



Variant Name:

PEGATRON Title : POWER_VCORE&VGFX

Engineer: Clark Liang

Size: Project Name: MA50

Date: Monday, February 13, 2012

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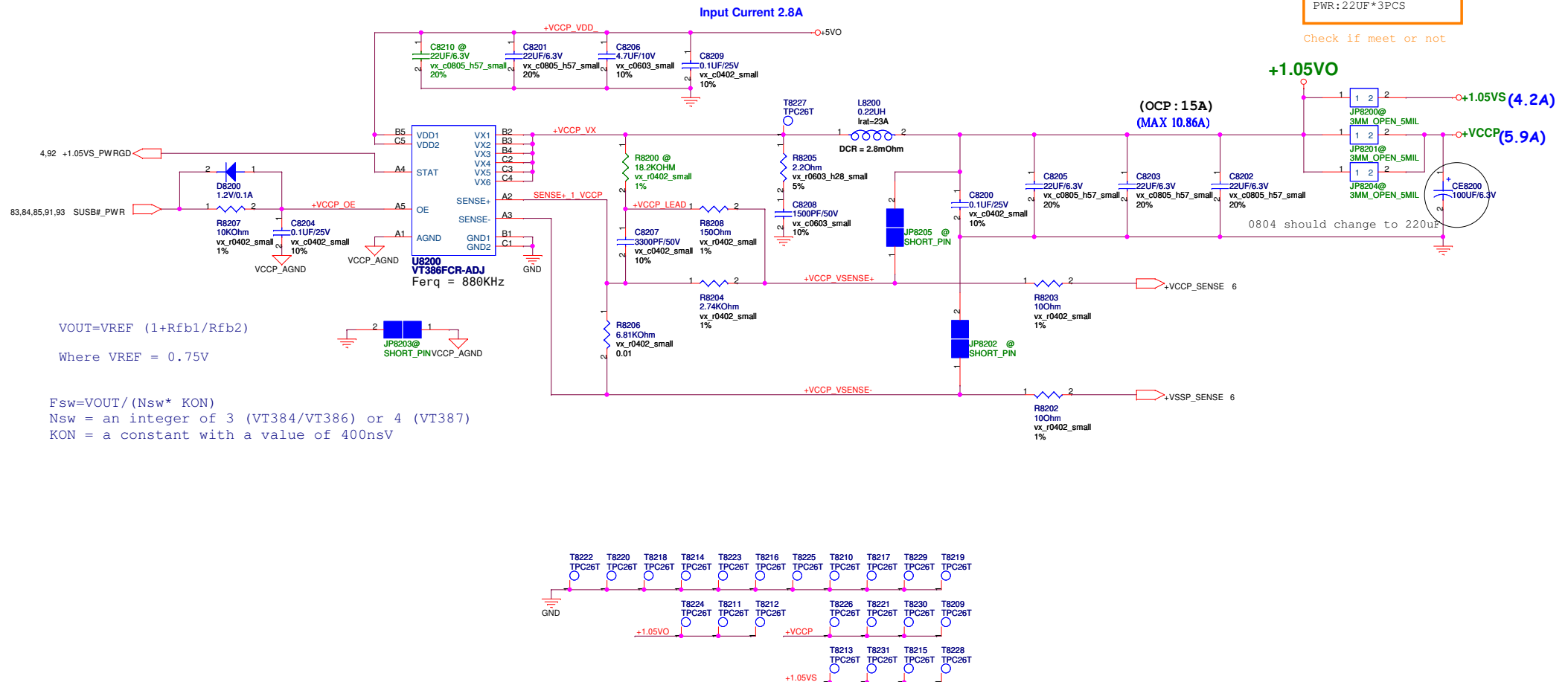
+5VO & +3VO POWER SUPPLY

PEGATRON Title : POWER_SYSTEM

Size	Project Name	Rev
------	--------------	-----

Date: Monday, February 13, 2012 Sheet 81 of 94

11/07/21
+1.05VS & +VCCP
REQUIRE:22UF*18PCS
EE:10UF*10PCS/1uF*26
PWR:22UF*3PCS

+1.05V_O
$$V_{OUT} = V_{REF} (1 + R_{fb1}/R_{fb2})$$

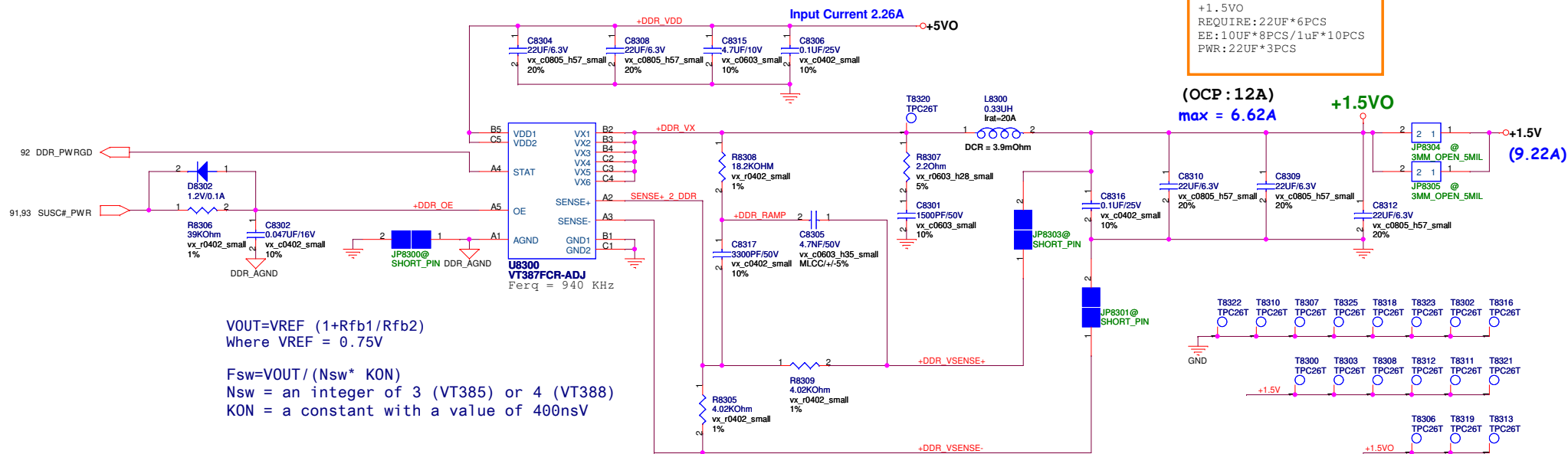
Where $V_{REF} = 0.75V$

$$F_{sw} = V_{OUT} / (N_{sw} * K_{ON})$$

Nsw = an integer of 3 (VT384/VT386) or 4 (VT387)

KON = a constant with a value of 400nsV

11/07/21
+1.5VO
REQUIRE:22UF*6PCS
EE:10UF*8PCS/1uF*10PCS
PWR:22UF*3PCS

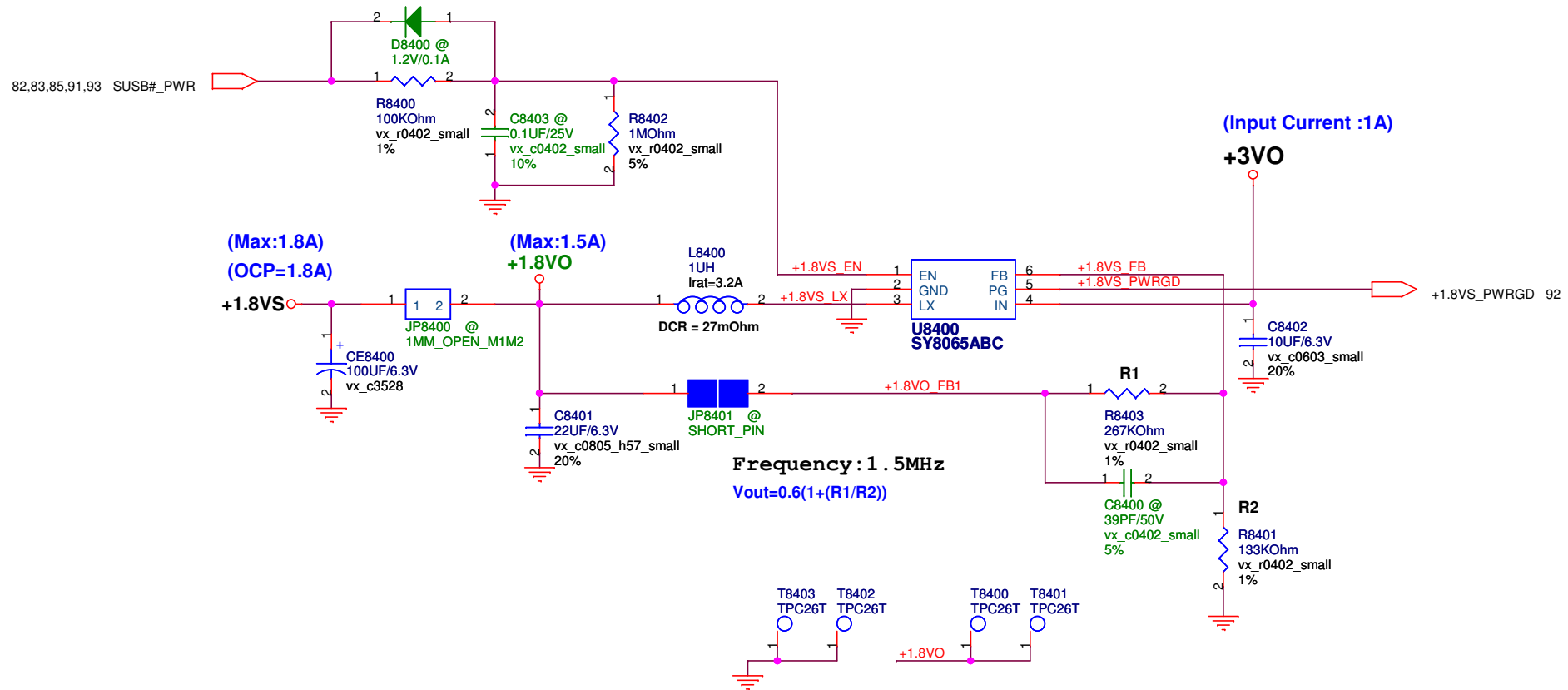


PEGATRON Title : POWER_DDR & VTT

Engineer: **Clark Liang**

Size Custom	Project Name MA50	Rev 1.0
Date: Monday, February 13, 2012		Sheet 83 of 94

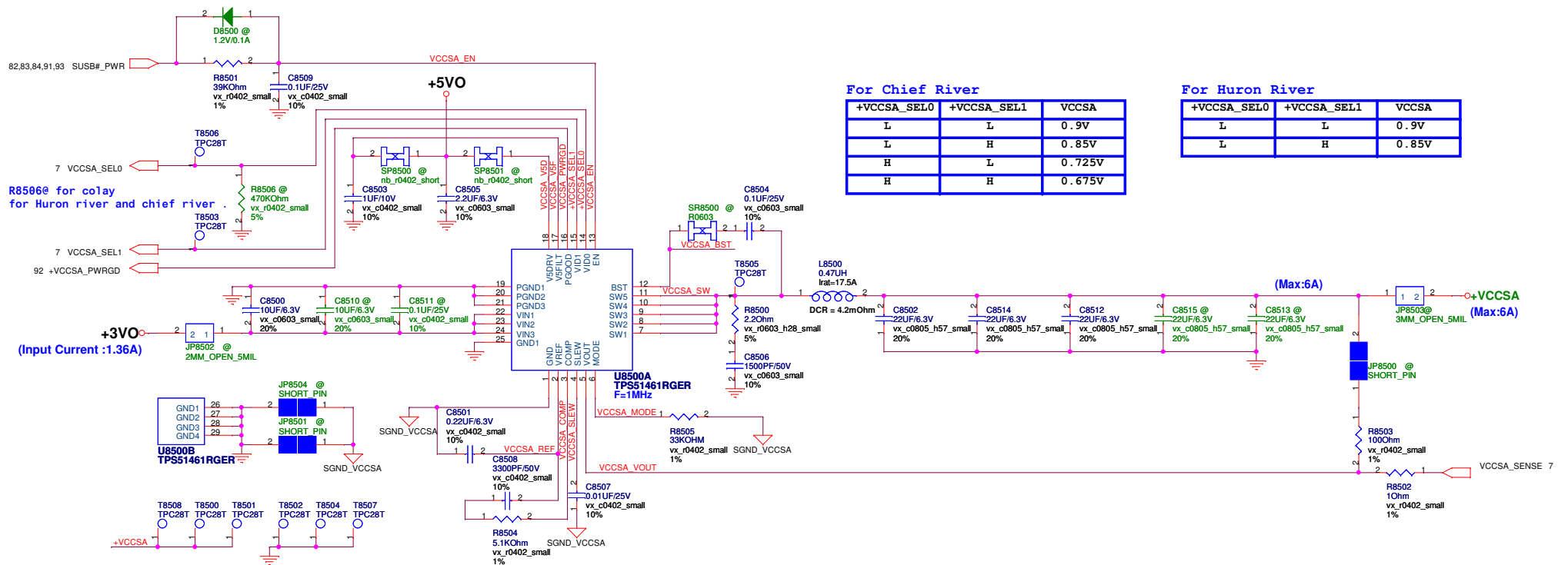
+1.8VS POWER SUPPLY



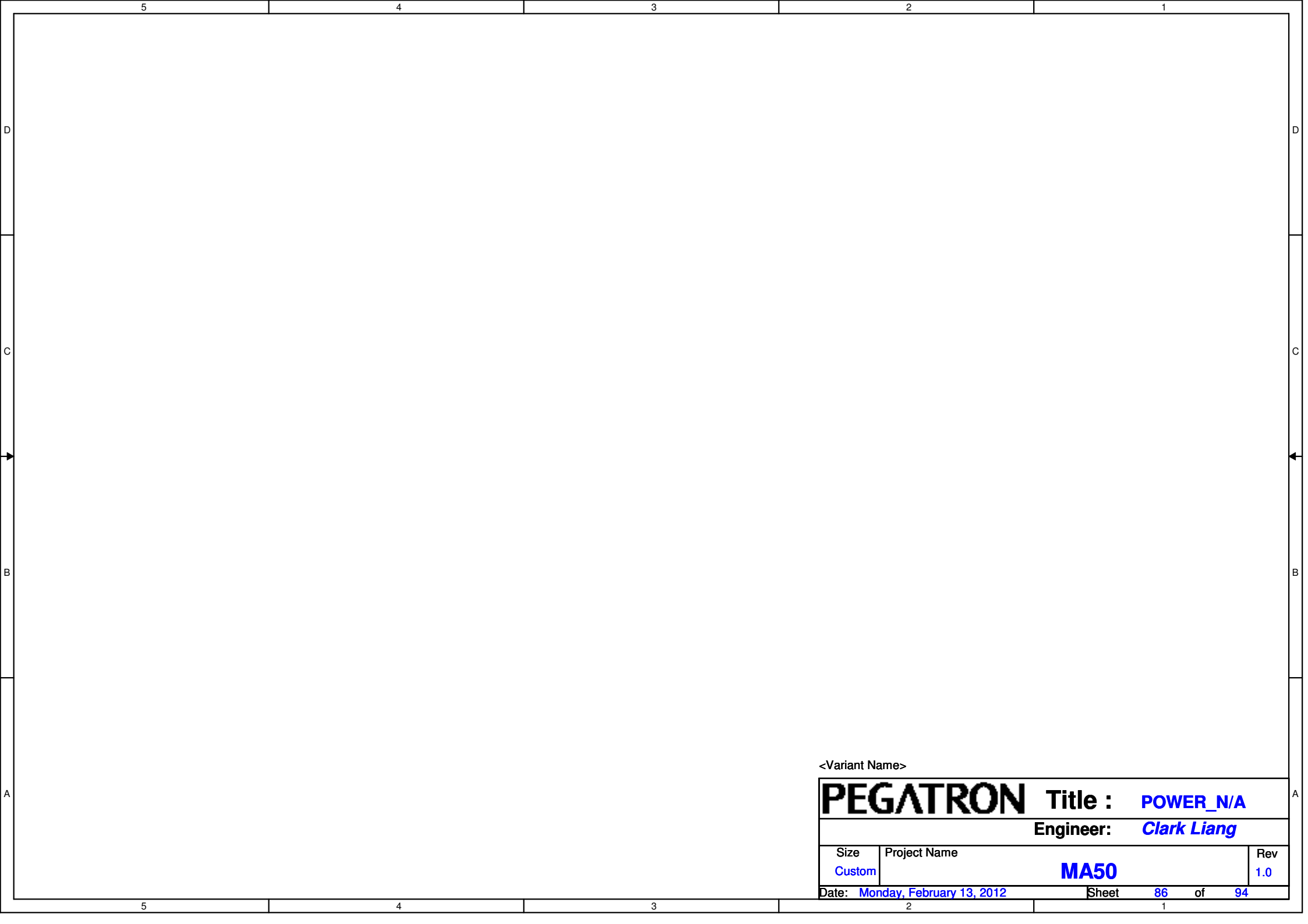
<Variant Name>

PEGATRON		Title :	POWER_+1.8VS
		Engineer:	Clark Liang
Size Custom	Project Name	MA50	
Date: Monday, February 13, 2012	Sheet	84	of 94
		Rev	1.0

IVB VCCSA POWER SUPPLY



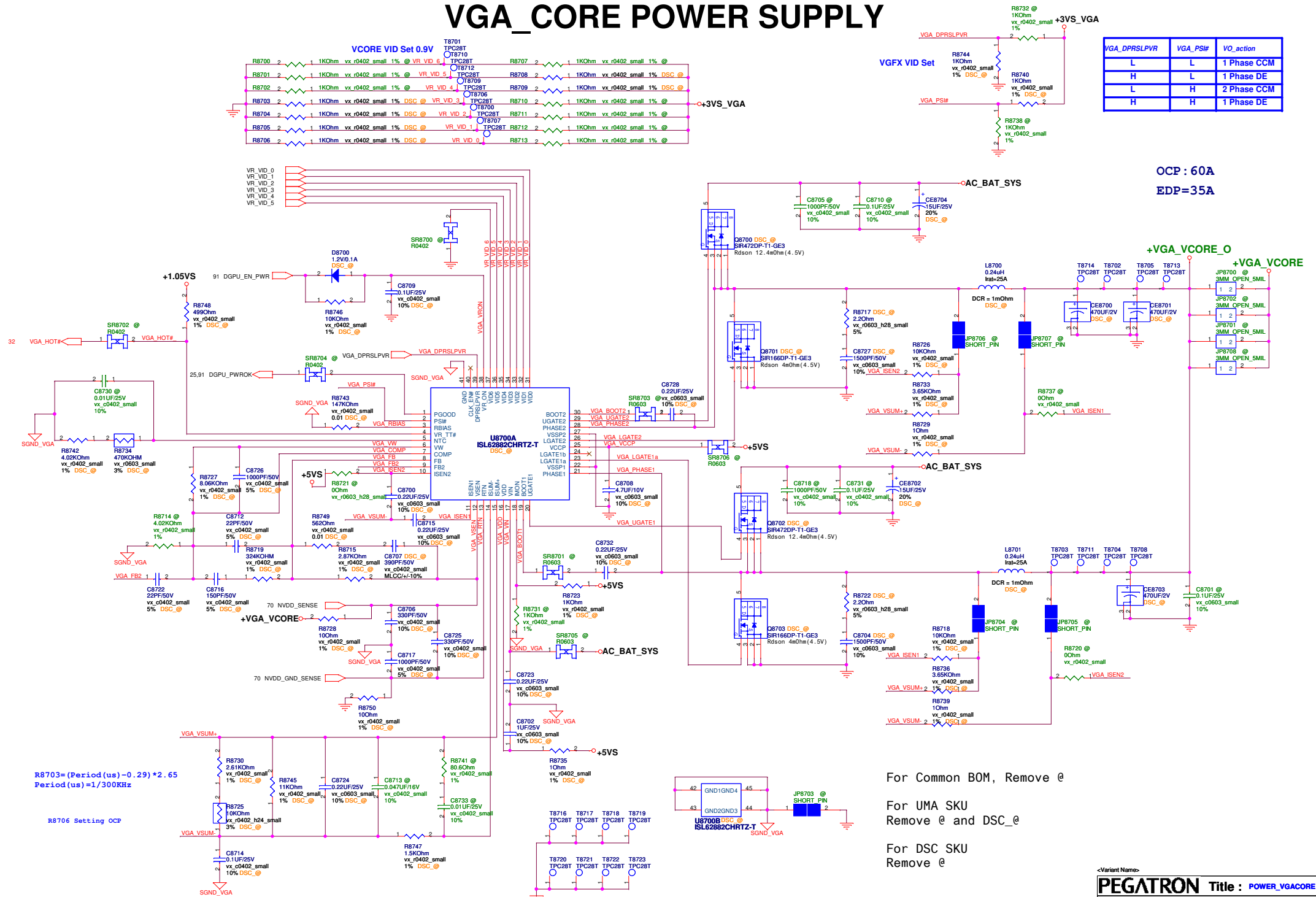
<Variant Name>



<Variant Name>

PEGATRON		Title : POWER_N/A	
		Engineer: Clark Liang	
Size	Project Name		Rev
Custom	MA50		1.0
Date: Monday, February 13, 2012		Sheet	86 of 94

VGA_CORE POWER SUPPLY



For Common BOM, Remove @

For UMA SKU
Remove @ and DSC_@

For DSC SKU
Remove @

<Variant Name>

PEGATRON Title : POWER_VGACORE

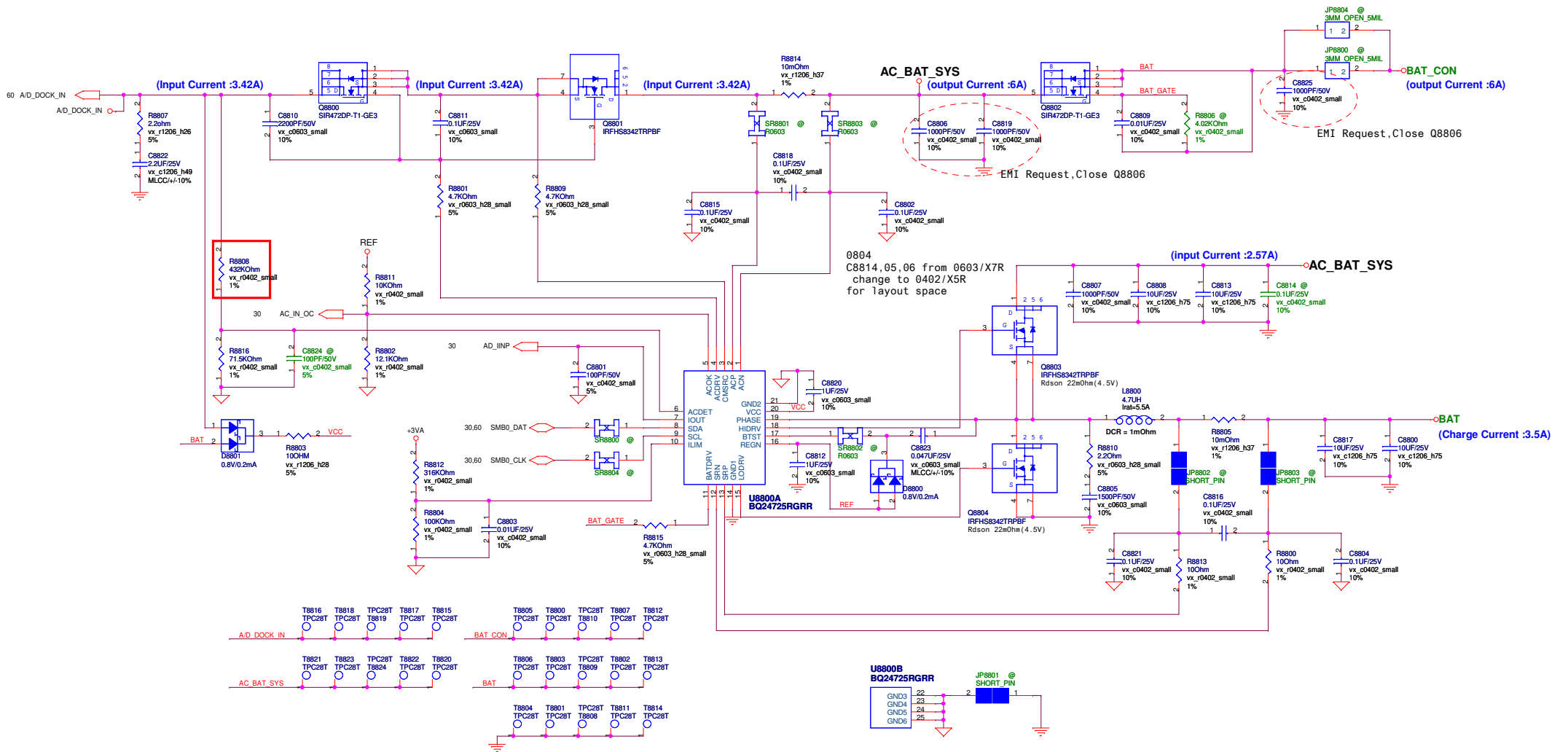
Engineer: *Clark Liang*

Size	Project Name	Rev
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Custom	MA50	1.0
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Date: Monday, February 13, 2012 Sheet 87 of 94

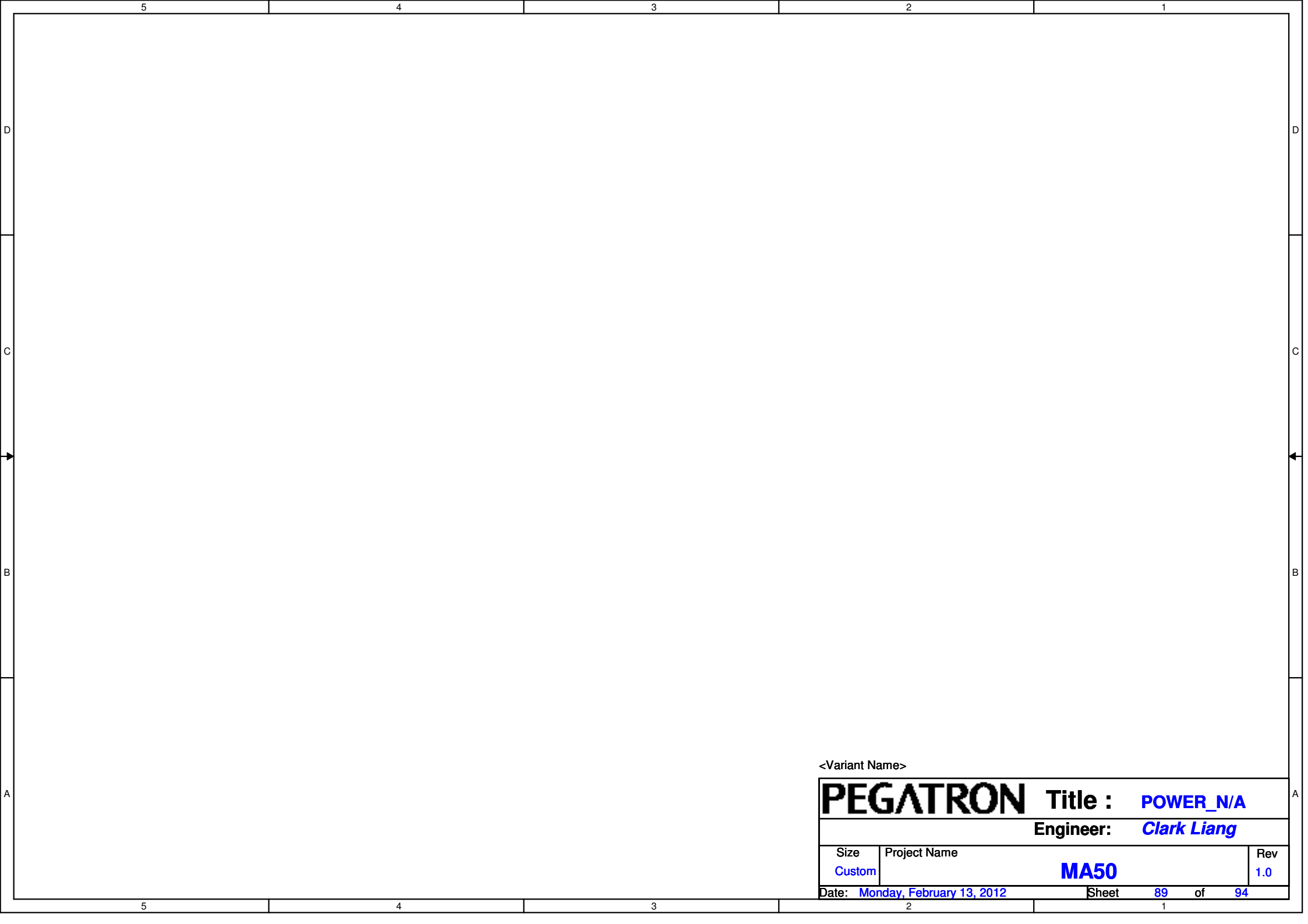
BATTERY CHARGER



<Variant Name>

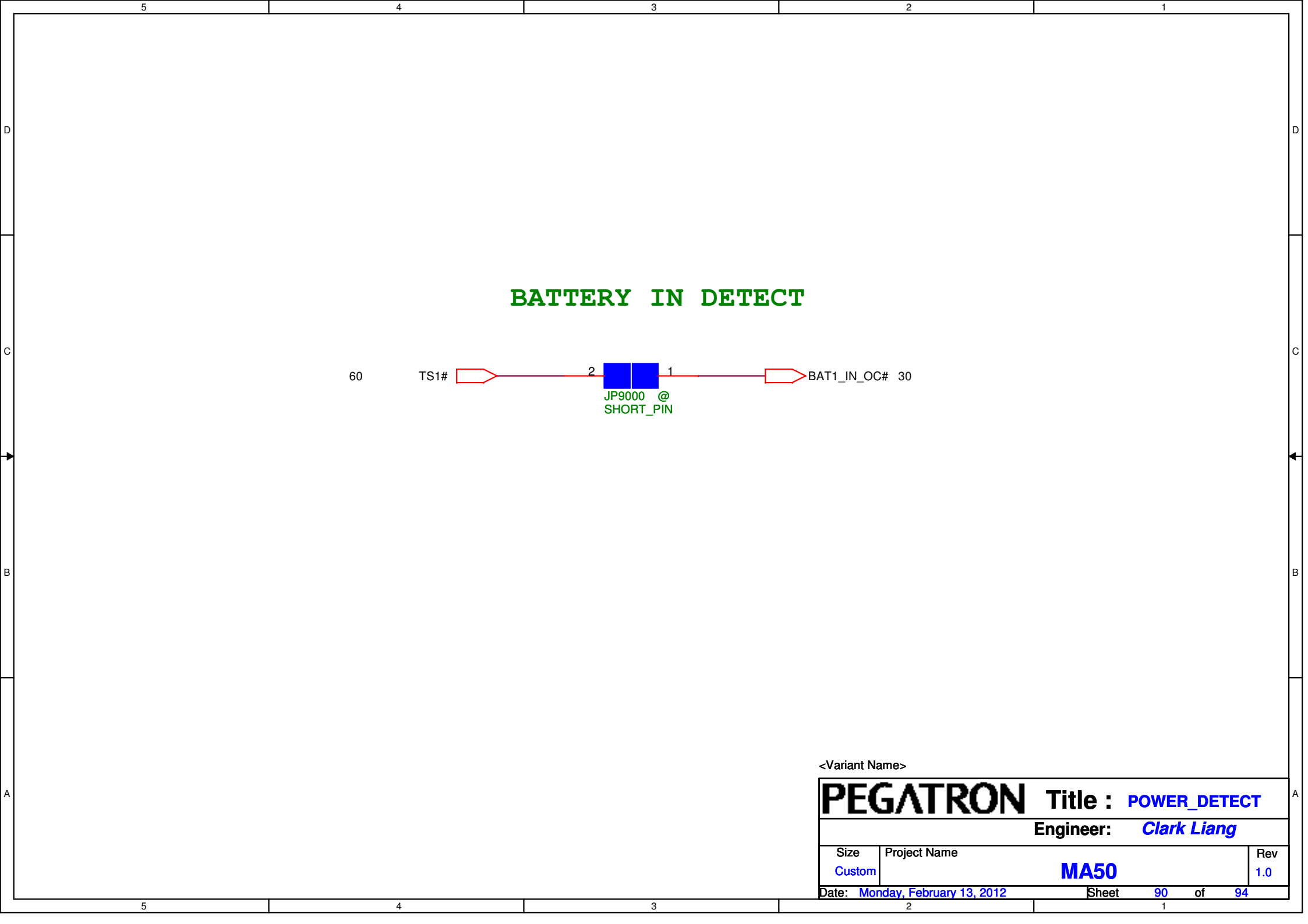
PEGATRON Title : POWER_CHARGER

Size Custom		Project Name MA50	Rev 1.0
Date: Monday, February 13, 2012		Sheet	88 of 94

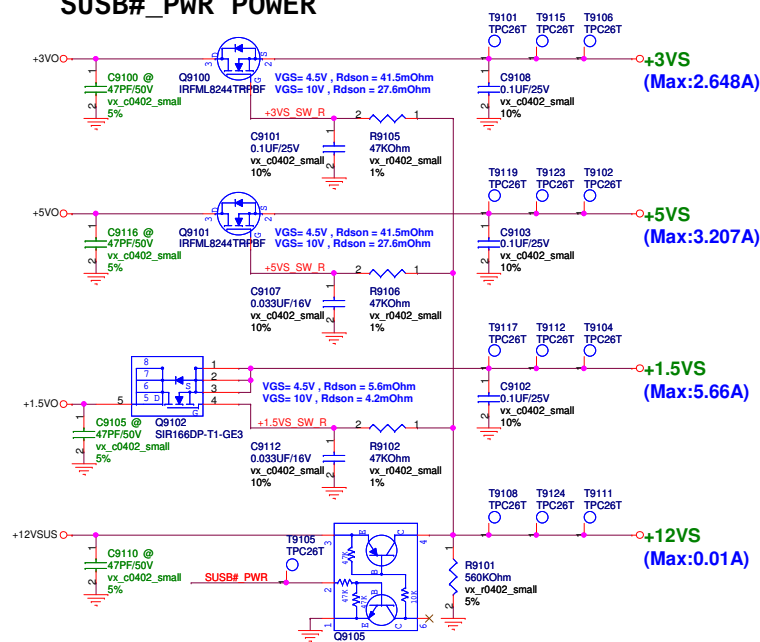


<Variant Name>

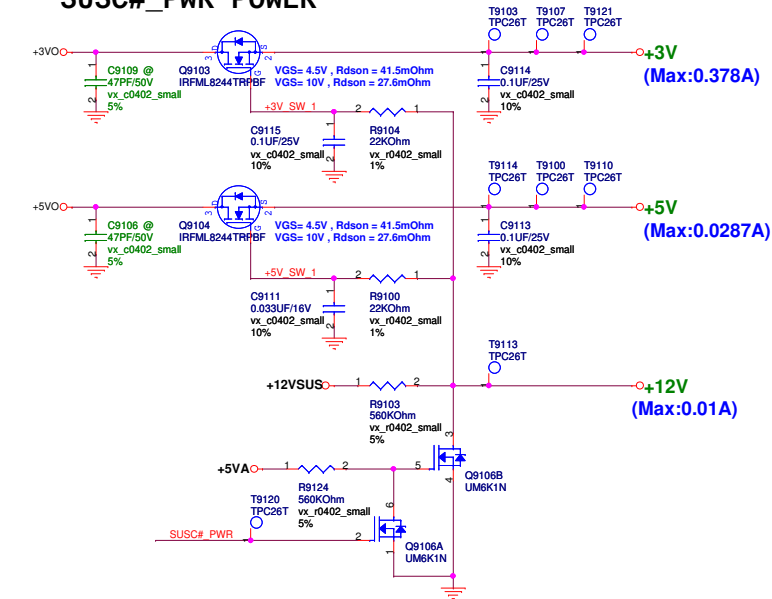
PEGATRON		Title : POWER_N/A	
		Engineer: Clark Liang	
Size	Project Name		Rev
Custom	MA50		1.0
Date: Monday, February 13, 2012		Sheet	89 of 94



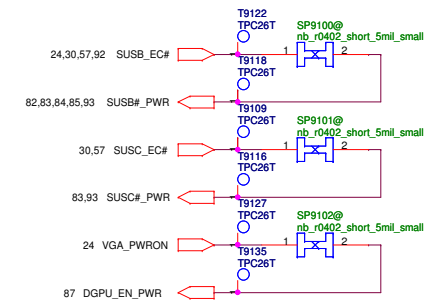
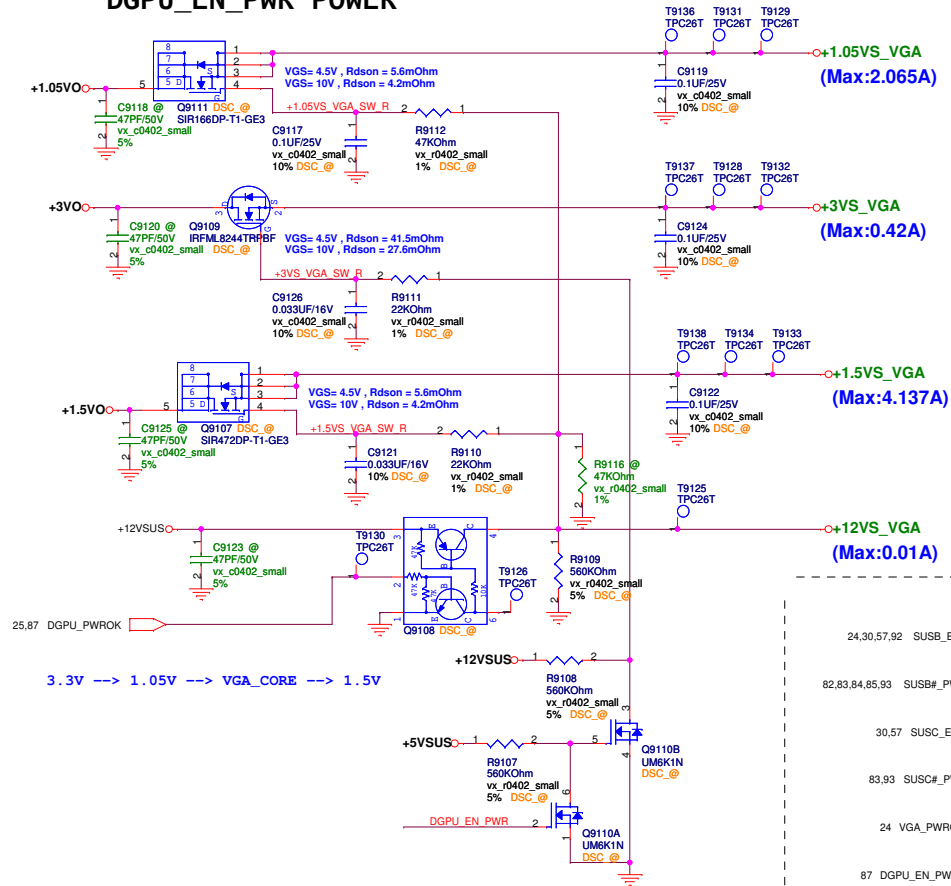
SUSB#_PWR POWER



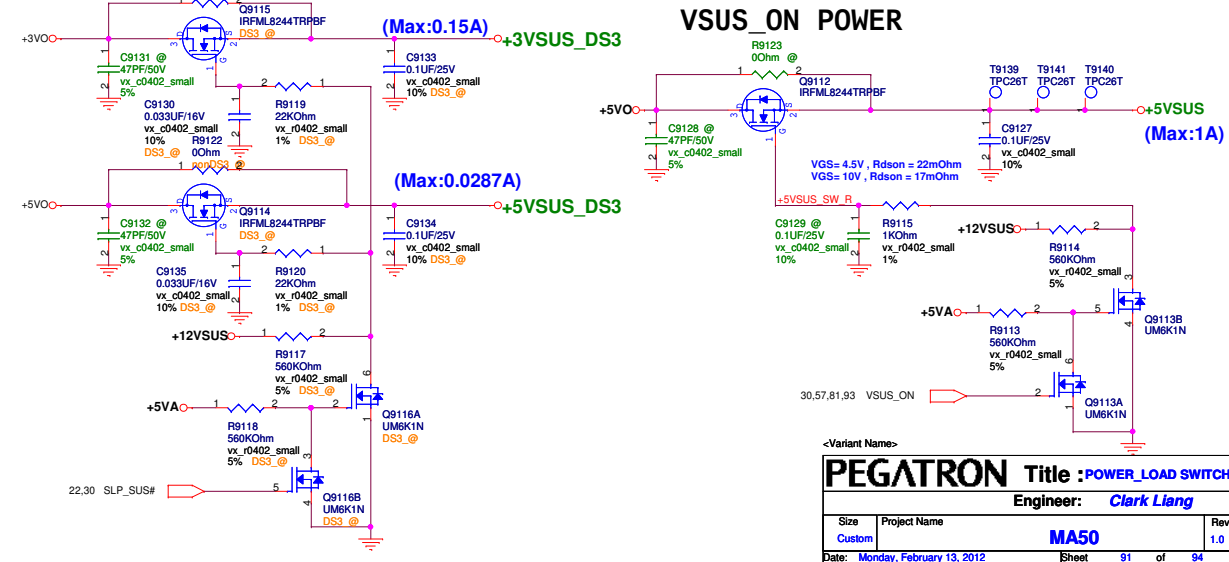
SUSC#_PWR POWER



DGPU_EN_PWR POWER



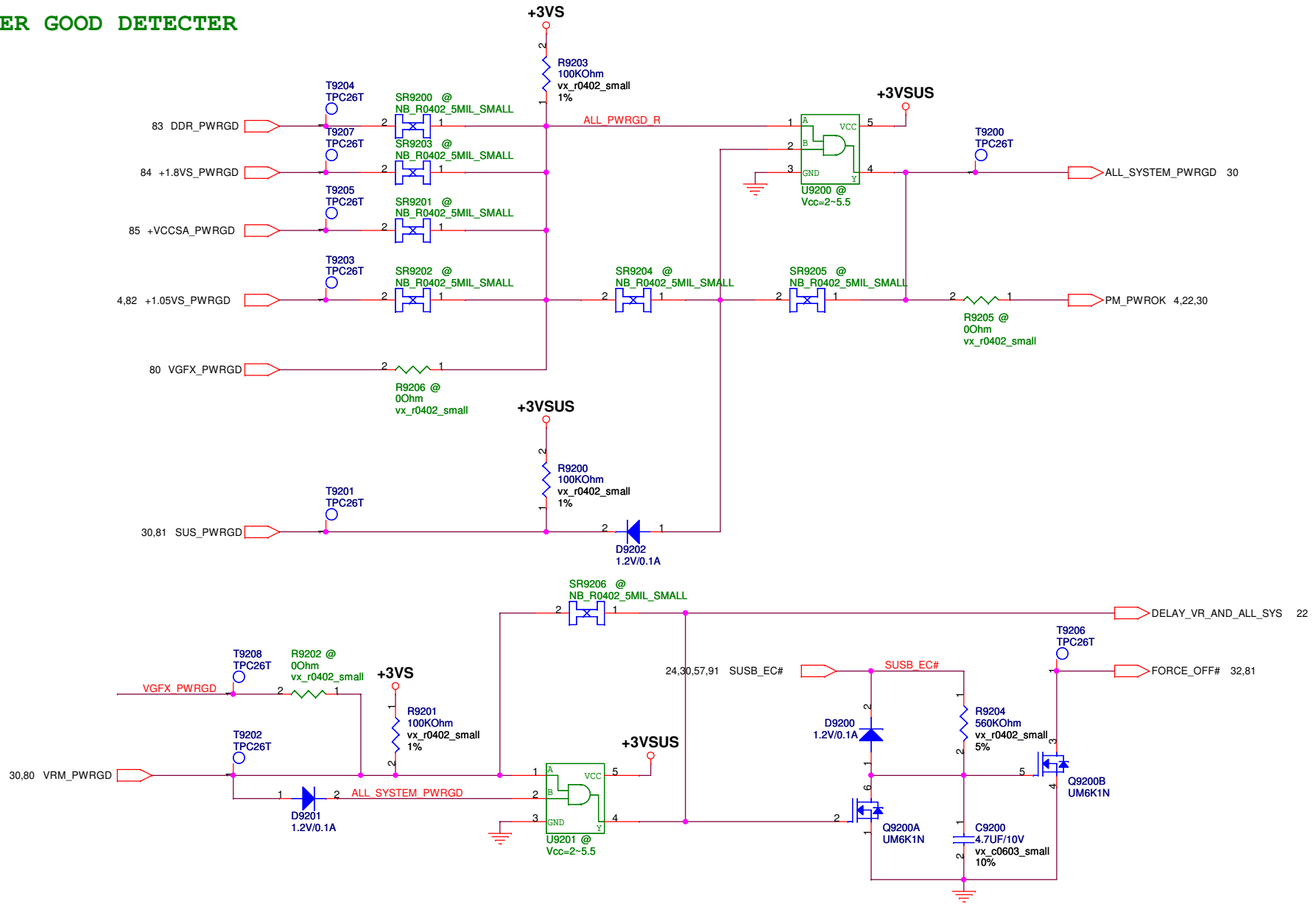
VSUS_ON POWER



<Variant Name>

PEGATRON Title :POWER_LOAD SWITCH			
Engineer: Clark Liang		Rev	
Size	Project Name	MA50	
Custom		1.0	
Date: Monday, February 13, 2012		Sheet 91 of 94	

POWER GOOD DETECTOR

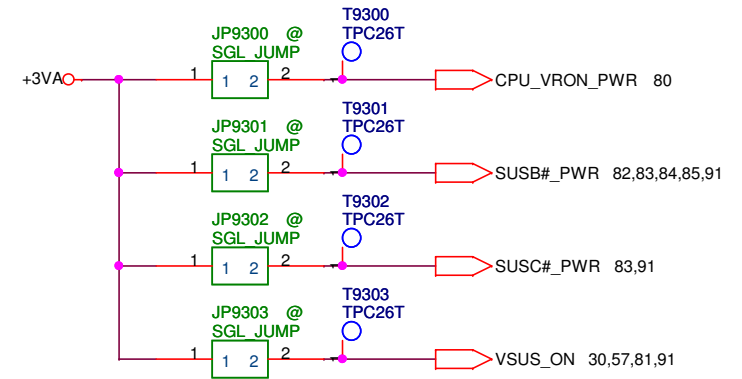


<Variant Name>

PEGATRON		Title : POWER_PROTECT	
		Engineer: Clark Liang	
Size Custom	Project Name	MA50	Rev 1.0
Date: Monday, February 13, 2012		Sheet 92	of 94

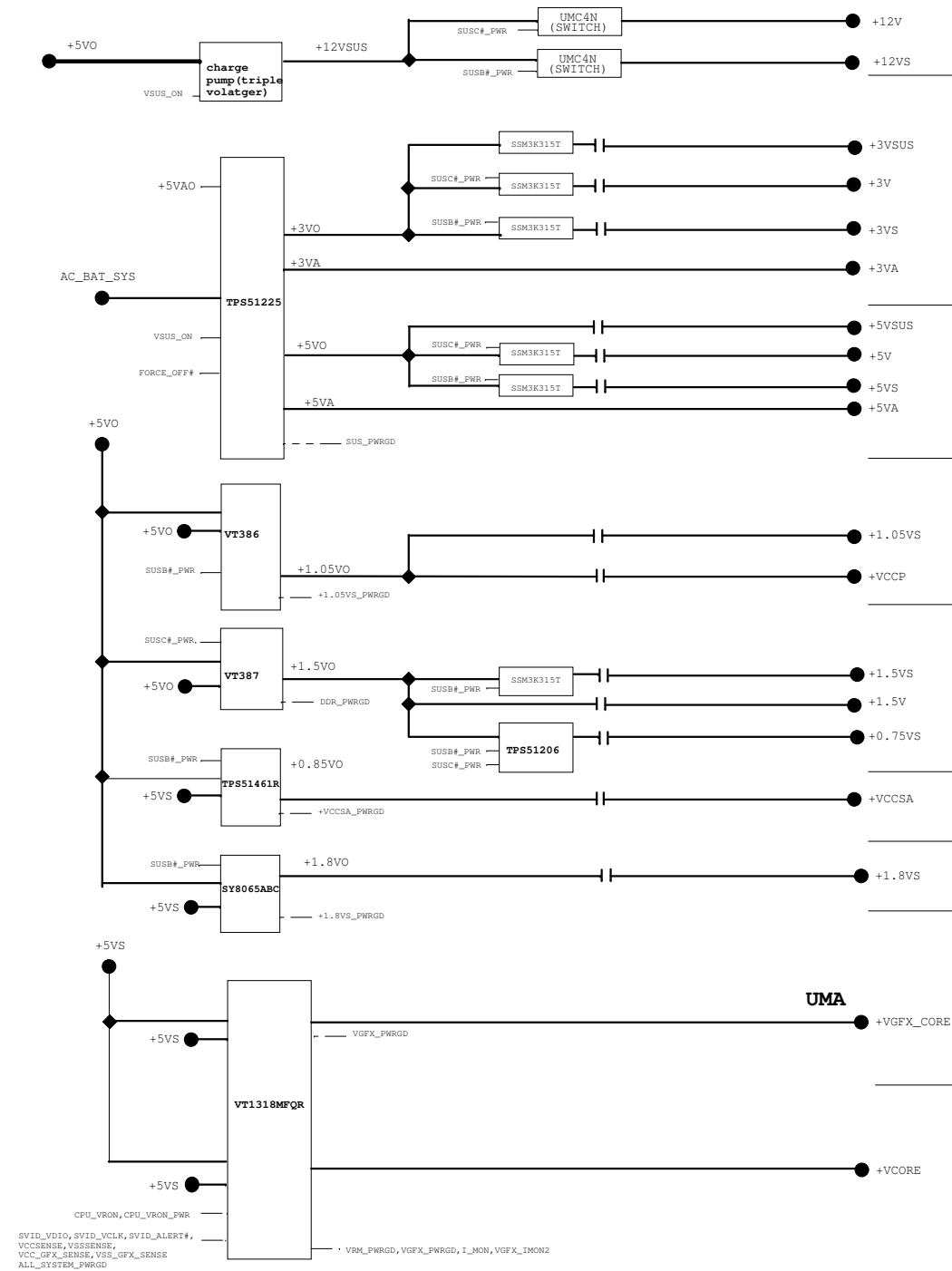
AC_BAT_SYS	AC_BAT_SYS	45,53,81,87,88
BAT	BAT	88
BAT_CON	BAT_CON	60,88
+5VA	+5VA	37,60,81,91
+3VA	+3VA	6,20,26,27,30,31,57,59,60,81,88
+5VO	+5VO	52,65,80,81,82,83,85,91
+3VO	+3VO	53,81,84,85,91
+1.8VO	+1.8VO	60,84
+1.5VO	+1.5VO	83,91
+1.05VO	+1.05VO	82,91
+0.75VO	+0.75VO	83
+12VSUS	+12VSUS	28,51,81,91
+5VSUS	+5VSUS	51,57,59,91
+3VSUS	+3VSUS	4,22,24,28,30,60,81,92
+12V	+12V	60,91
+5V	+5V	57,59,60,91
+3V	+3V	24,45,57,59,61,91
+1.5V	+1.5V	5,16,17,18,57,60,83
+12VS	+12VS	28,36,48,91
+5VS	+5VS	27,36,37,48,50,51,57,80,87,91
+3VS	+3VS	17,20,21,22,23,24,25,26,27,28,30,32,33,36,37,44,45,48,50,51,53,57,59,61,80,91,92
+1.8VS	+1.8VS	7,25,26,57,80,84
+1.5VS	+1.5VS	7,26,53,57,91
+1.05VS	+1.05VS	26,27,57,82,87
+VCCSA	+VCCSA	7,85
+0.75VS	+0.75VS	16,17,57,83
+VCORE	+VCORE	6,9,11,80
+VGFX_CORE	+VGFX_CORE	7,9,80
+12VS_VGA	+12VS_VGA	60,91
+3VS_VGA	+3VS_VGA	57,70,72,74,75,87,91
+1.5VS_VGA	+1.5VS_VGA	57,71,75,76,77,91
+1.05VS_VGA	+1.05VS_VGA	57,70,71,72,91

FOR POWER TEST



<Variant Name>

PEGATRON		Title : POWER_SIGNAL	
		Engineer: Clark Liang	
Size	Project Name		Rev
Custom	MA50		1.0
Date: Monday, February 13, 2012		Sheet	93 of 94



SPEC rating	
(10mA)	
(10mA)	
(0.319A)	
(0.278A)	
(1.809A)	
(0.07A)	
(0.021A)	
(1.615A)	
(1.783A)	
(0.1A)	
(3.37A)	
(5.95A)	
(0.009A)	
(9.688A)	
(1A)	
(4.8A)	
(1.002A)	
(12A)	
(21.5A)	

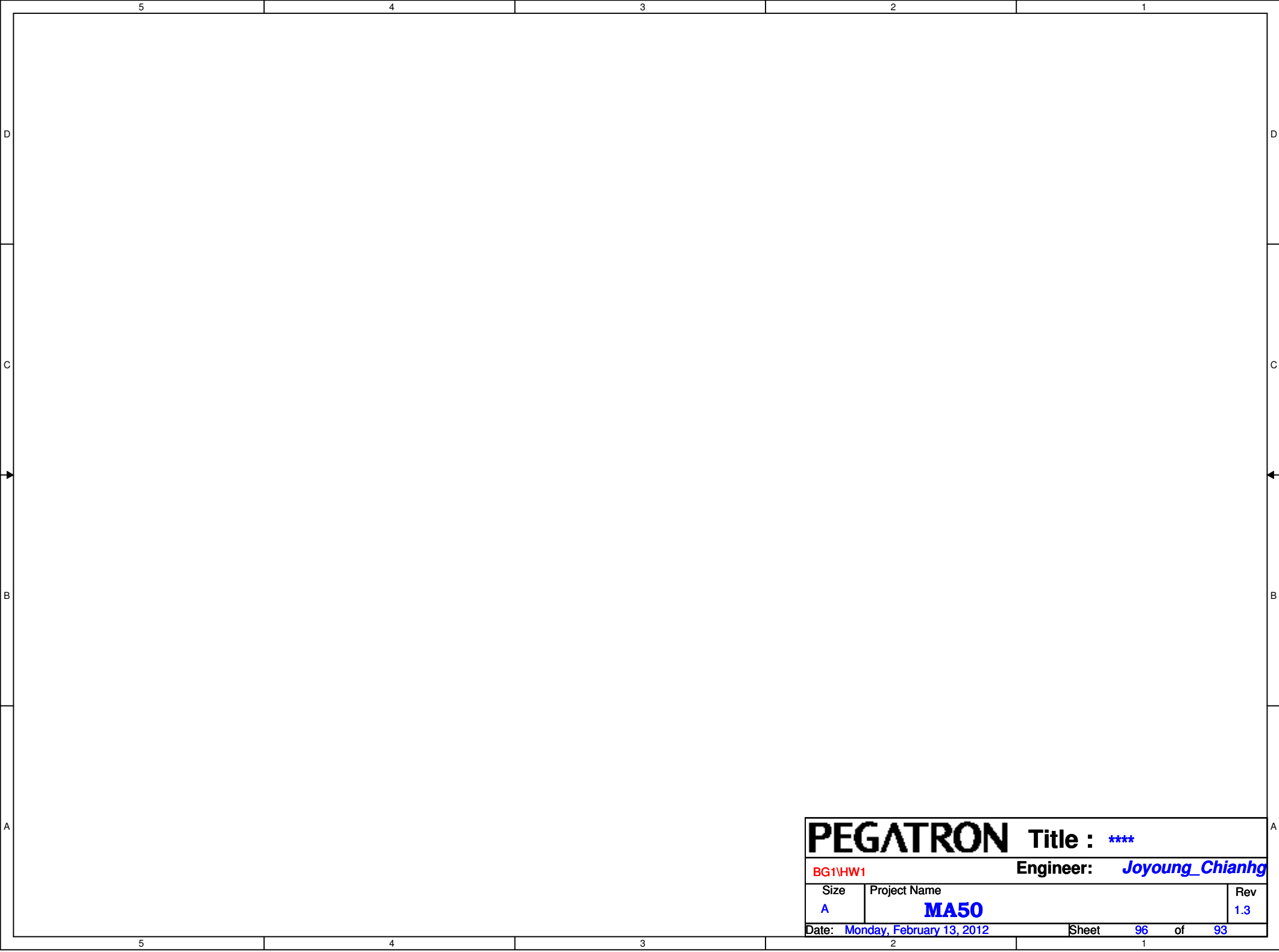
<Variant Name>

PEGATRON

Title : POWER_FLOWCHART

Engineer: Clark Liang

Size	Project Name	Rev
Custom	MA50	1.0
Date: Monday, February 13, 2017		
Sheet	04	of 04



PEGATRON			Title : ****		
BG1\HW1			Engineer: Joyoung_Chianhg		
Size	Project Name				Rev
A	MA50				1.3
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SR BOM change

- SR1.1 Un-mount Q5602, Q5601 and mount R5323 and R5310
- SR1.2 CE5001 un-mount
- SR1.3 L3602 mount
- SR1.4 R7005 un-mount
- SR1.5 R7410 change 10K ohm
- SR1.6 R4504 change 10K ohm for LVDS backlight
- SR1.7 R7430, R7432, R7433 un-mount
- SR1.8 R7608, R7611 change 162 ohm

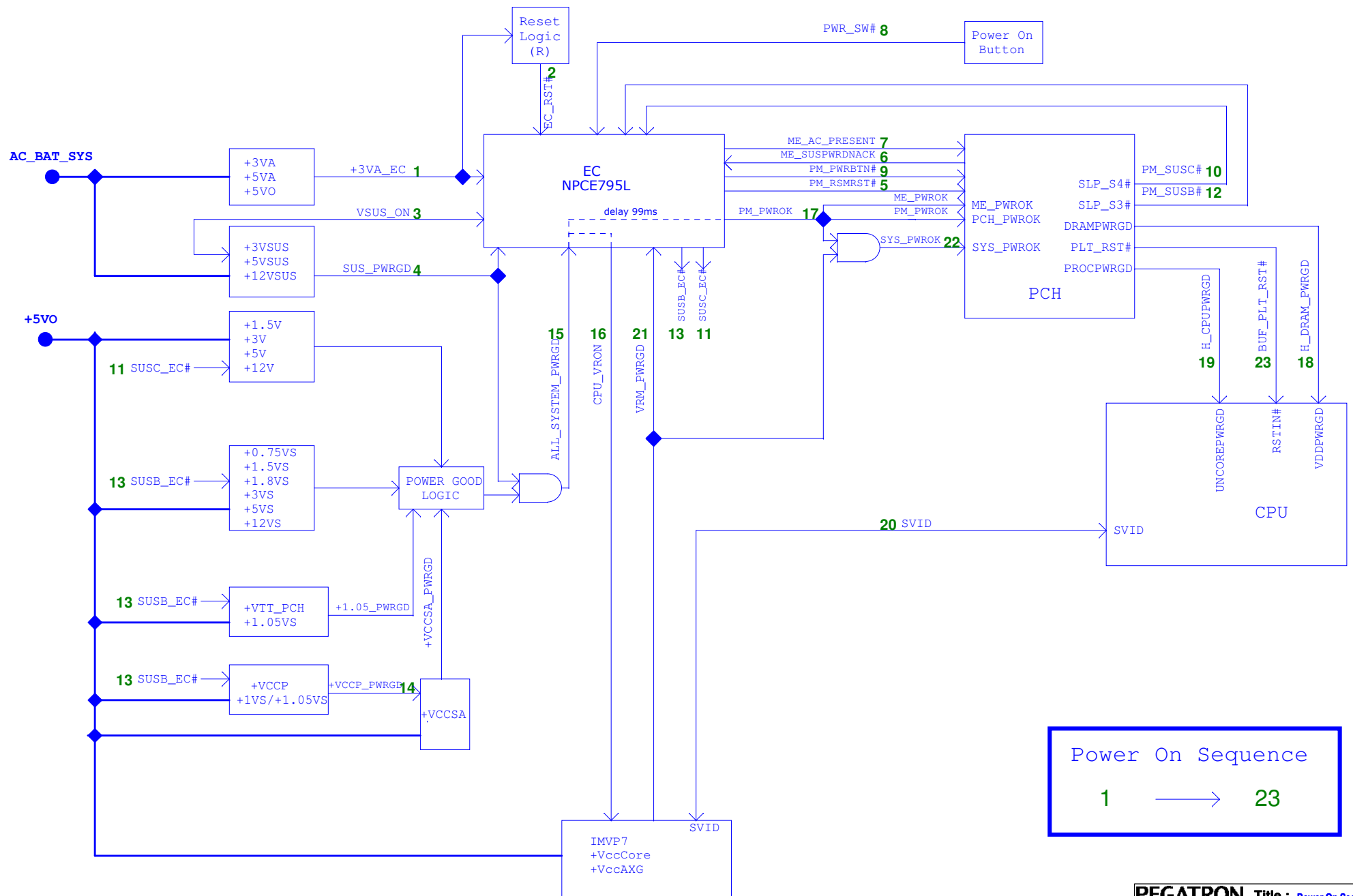
ER

- ER1.1 PI pin connect to ESD and VDD pin reserve 0.1 uF cap
- ER1.2 Add diode and reserve 0 ohm for AC adapter plug in /out voice
- ER1.3 U5201 change G547G1P81U for Desing IP
- ER1.4 Add Card Reader LED
- ER1.5 J3701, J3702, J4601, J5201, J5304,J5001 chang connector
- ER1.6 R6505~R6508 change 0603 size
- ER1.7 D4801 contact to 2.2K ohm for EA solution in HDMI issue
- ER1.8 CPU_THERM# contact to FORCE_OFF#
- ER1.9 RTC battery connector (J2001)Pin1, Pin2 swap
- ER1.10 D3707, D4618, D5201, D5301, D6502, D6503, D6802 VDD pin reserve 0.1 uF cap
- ER1.11 R3720 R3721 change 51ohm for consumer spec in HP
- ER1.12 L4601, L4602, L4603 change 27nH and add C4622, C4623, C4624 for EA solution in CRT
- ER1.13 L5301, L5302, L5306 change 0 ohm and L5305 change short pin, C5321, C5327,C5307, C5322, C5315, C5305, C5313 change umount
- ER1.14 Change R4566 from 300(0603) to 150(0402) for LVDS power sequence solution
- ER1.15 USB port 0 and port 1 swap
- ER1.16 Vcore_add CE8002&CE8006 to replace CE0601&CE0602
- ER1.17 VGF_X_CORE(IGPU) add CE8007 to replace CE0705
- ER1.18 reserve M_VREF schematic
- ER1.19 Reserve C2623, C2624, C4514, C4515 for WLAN solution
- ER1.20 Reserve C4510, C4512, C4513 for 3G and L6002~L6004, L4502 change 47 ohm Bead
- ER1.21 C6007, C6006 mount for WLAN
- ER1.22 RN3002 change 2R4P
- ER1.23 LED and BT schematic change to LED board
- ER1.24 LED power change 5VSUS, so R5618, R5616, R5623 change 560 ohm
- ER1.25 VRAM change co-lay footprint
- ER1.26 Reserve C5601, C5602, C5603, C6356, C6357 to 47pF for RF request
- ER1.27 Reserve C4516, C4517 to 10pF for RF request
- ER1.28 U6504,U6505 change AZ3028 for EMI request
- ER1.29 D6401, D6501, D6502 change ESD AZ5023 in for EMI request in LAN function
- ER1.30 Add C6010 C6011 for EMI request
- ER1.31 Merge Q6704 and remove U6704
- ER1.32 D3720 change to mount for EMI request
- ER1.34 Reserve C6913(47PF), C6902(0.1uF), C6623(47PF), C6606(22uF) for 3G
- ER1.35 L6601=>0901-00HI000 FERRITE BEAD(1206)390 OHM/2A

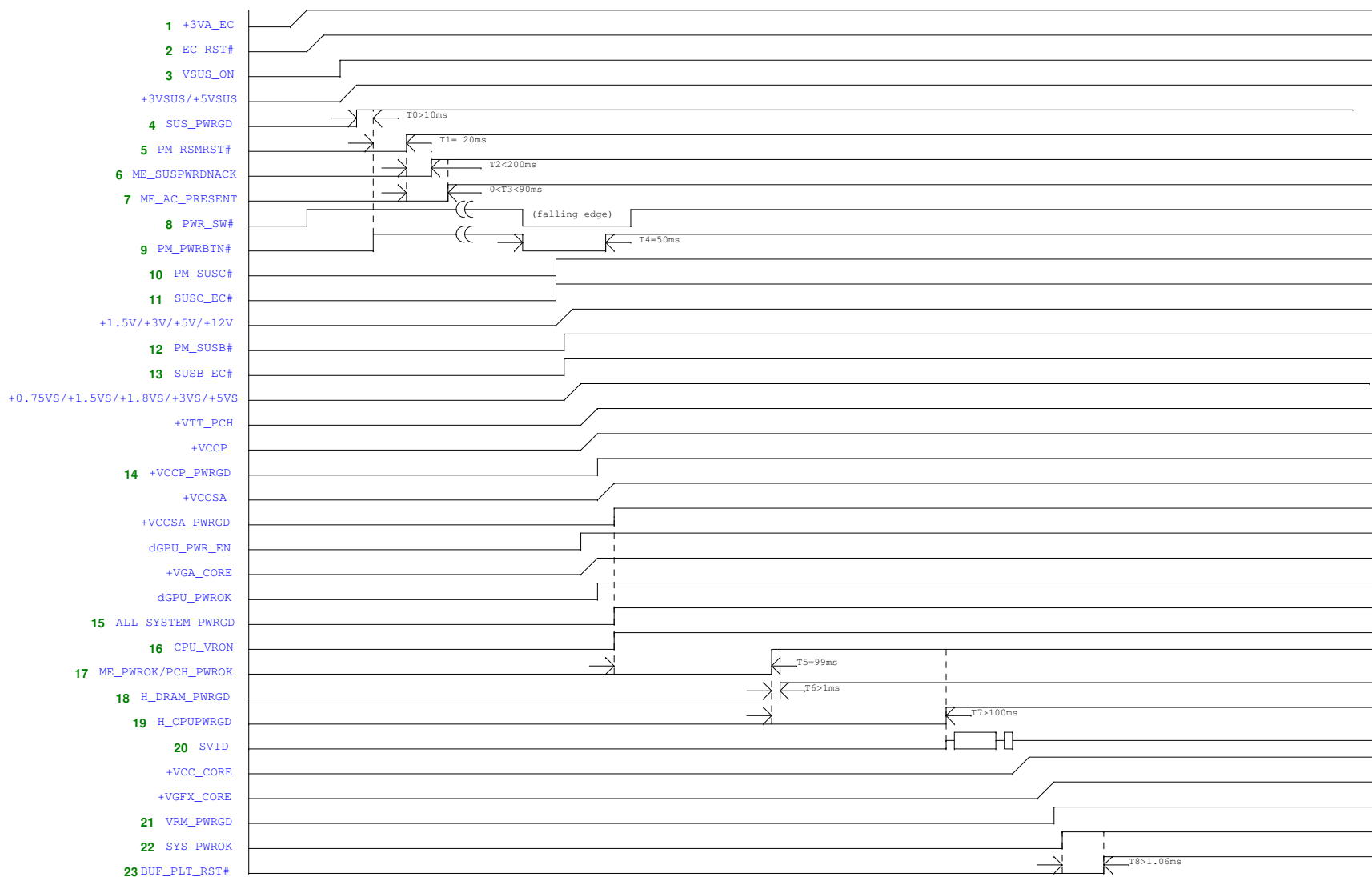
PR

- PR2.1 RTC pin define swap
- PR_S01:Change C3627,C3626 from X5R to Y5V
- PR_S02:According with INTEL datasheet suggest.(Power circuit mount)
- PR_S03:To prevent 誤動作 PCIE Wake.
- PR_S04:To change WLAN LED control by MODULE then gate control by 3G LED.
- PR_S05:To change 3G LED control by MODULE.
- PR_S06:To prevent leakage current and mount R for cost down.
- PR_S07:RF reserve.
- PR_S08:Move P.U 10K near 3G connector.
- PR_S09:Change LED POWER rail from +5VSUS_LEDDDB(+5VSUS) to +5VA_LEDDDB(+5VA) .(To resolve Battery LL issue)
- PR_S10:Change LED POWER rail from +5VSUS_LEDDDB(+5VSUS) to +5V_LEDDDB(+5V)
- PR_S11:Del JP, +3VS_CR change Net name to +3VS
- PR_S12:ESD change solution ,Add U6512 ,Del C6509,D6501~3,U6502,U6503,D6401
- PR_S13:Change NET name to +3VS
- PR_S14:Change 10uF to 22uF for wave of CRT display.
- PR_S15:Add 10uF (C6803)for USB droop test.
- PR_S16:D5201 PIN Swap
- PR_S17:ME modify.(H6532,8,1,9,4,3,5,H6945),DEL H6944
- PR_S18:EMI add.
- PR_S19:Change to unmount for ME
- PR_S20:RF request.
- PR_S21:LED light fine-tune.
- PR_S22:BIOS request for UMA and DSC platform identifying.

Power On Sequence Diagram G3-S0 R0.3 (non-iAMT,non-Deep Sx)



Power On Sequence Diagram G3-S0 R0.3 (non-iAMT, non-Deep Sx)



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