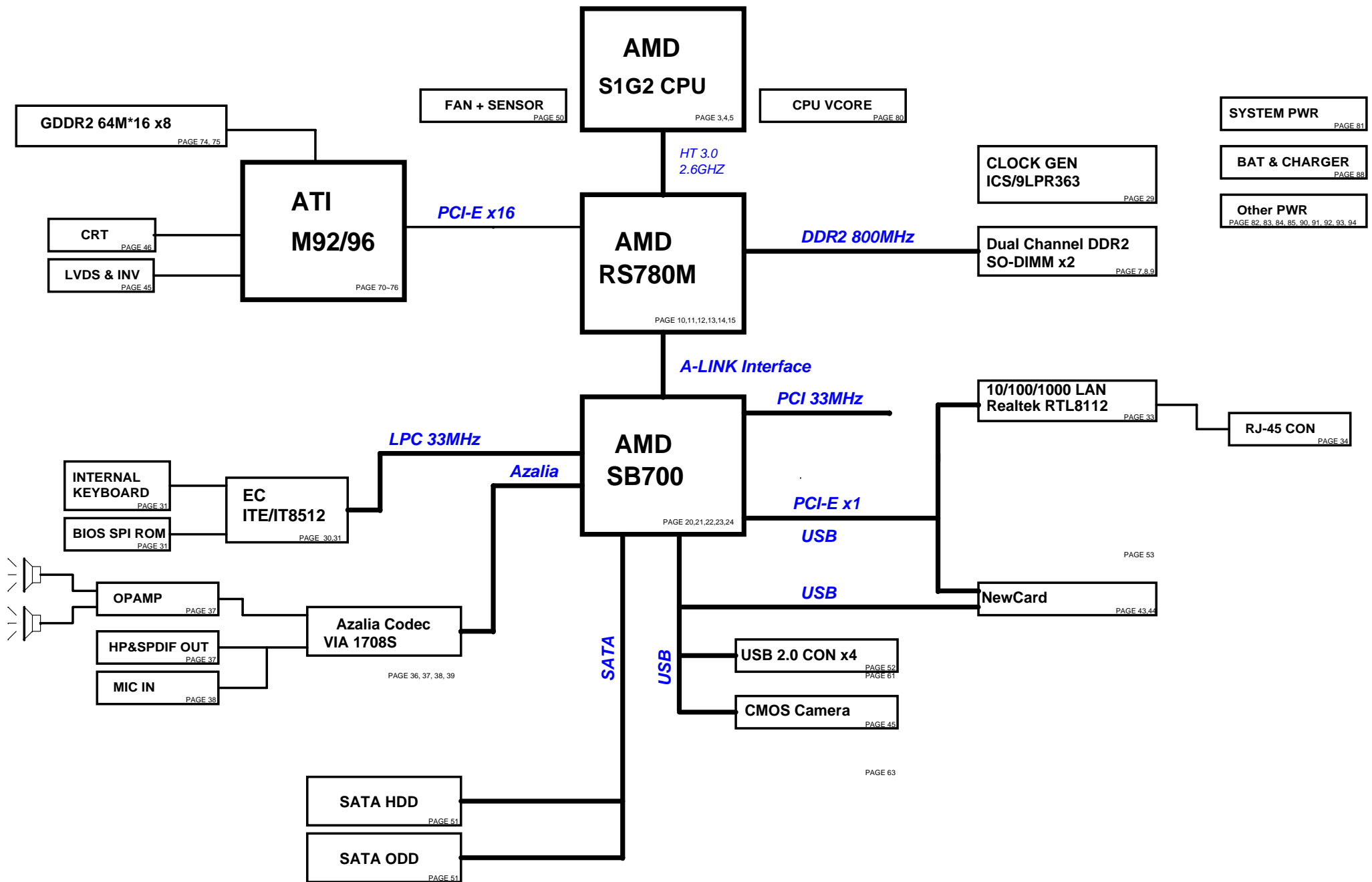
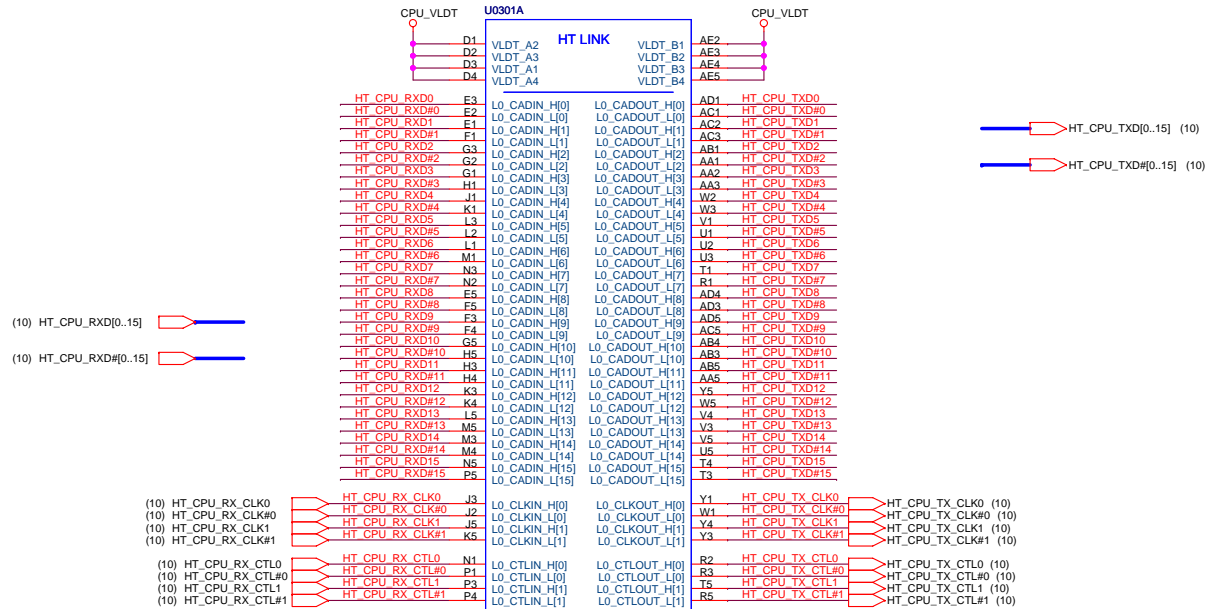


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Size Custom	Project Name K40AA		Rev 1.00
Date: Wednesday, April 08, 2009	Sheet 1 of 94		

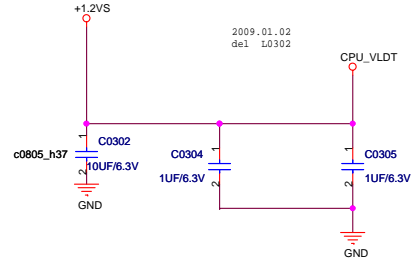


1.5A



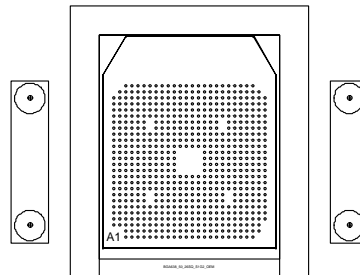
Change P/N to 12G011306380
071113

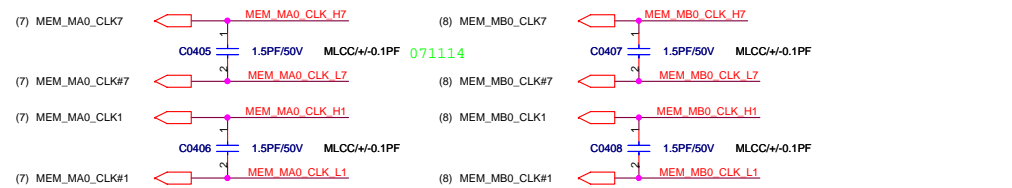
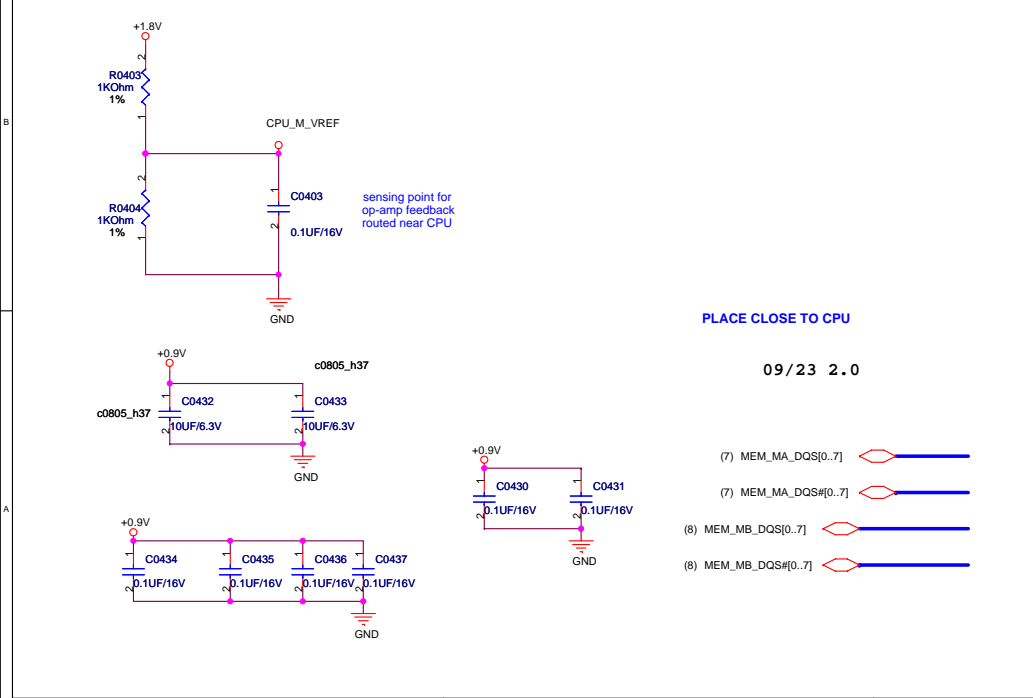
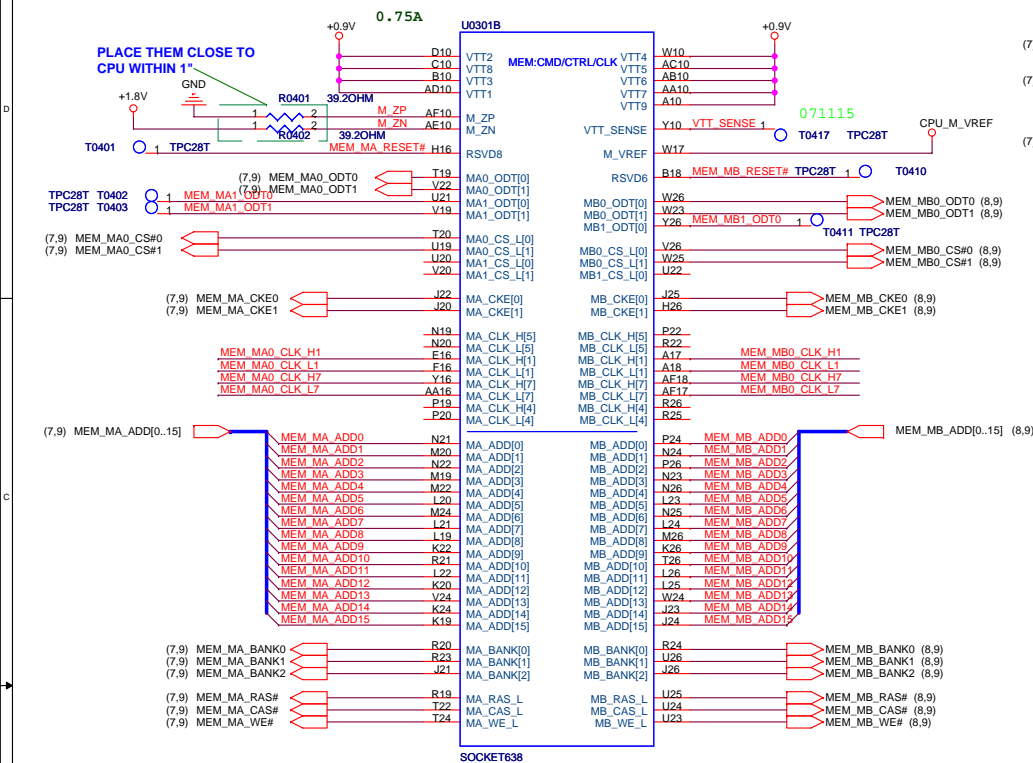
Do not cross plane.



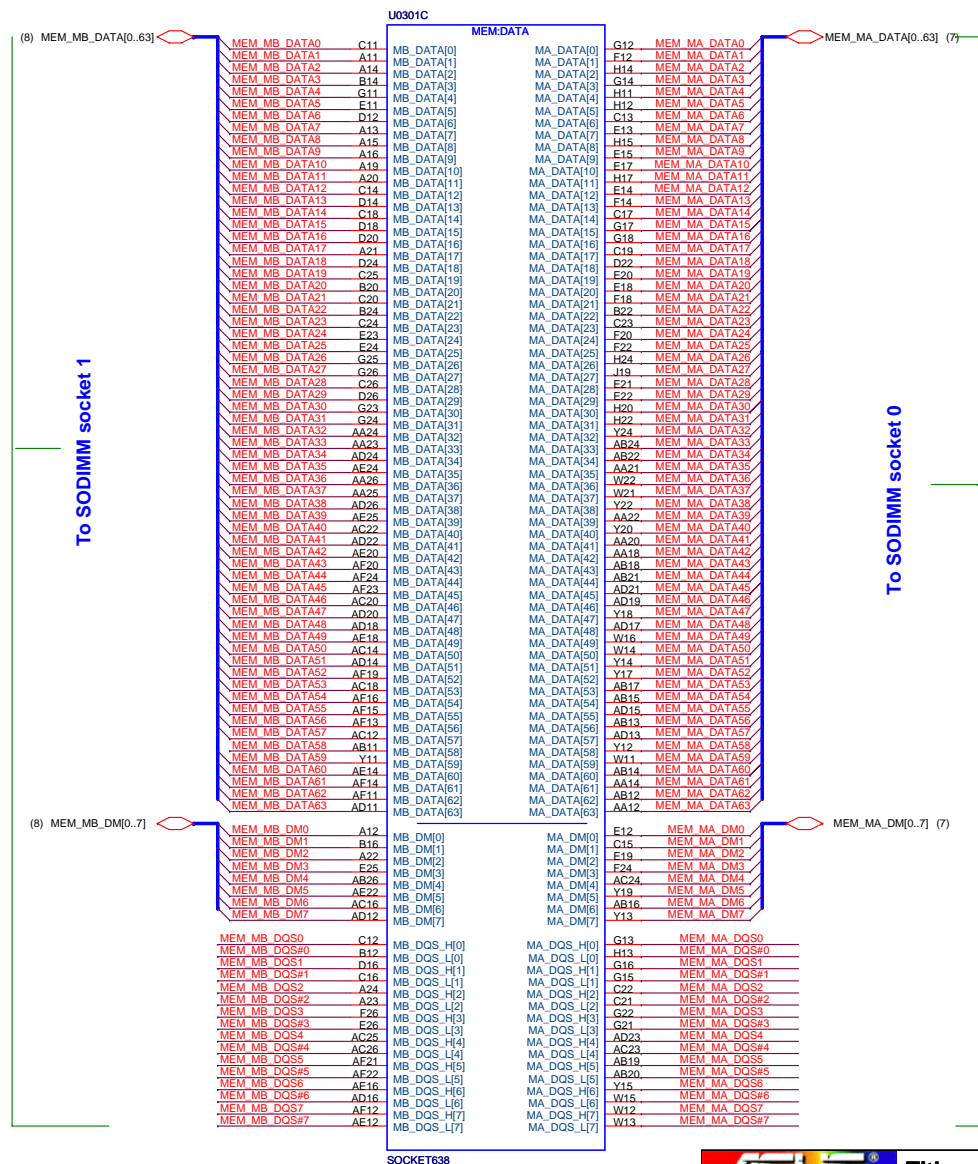
Place close to socket

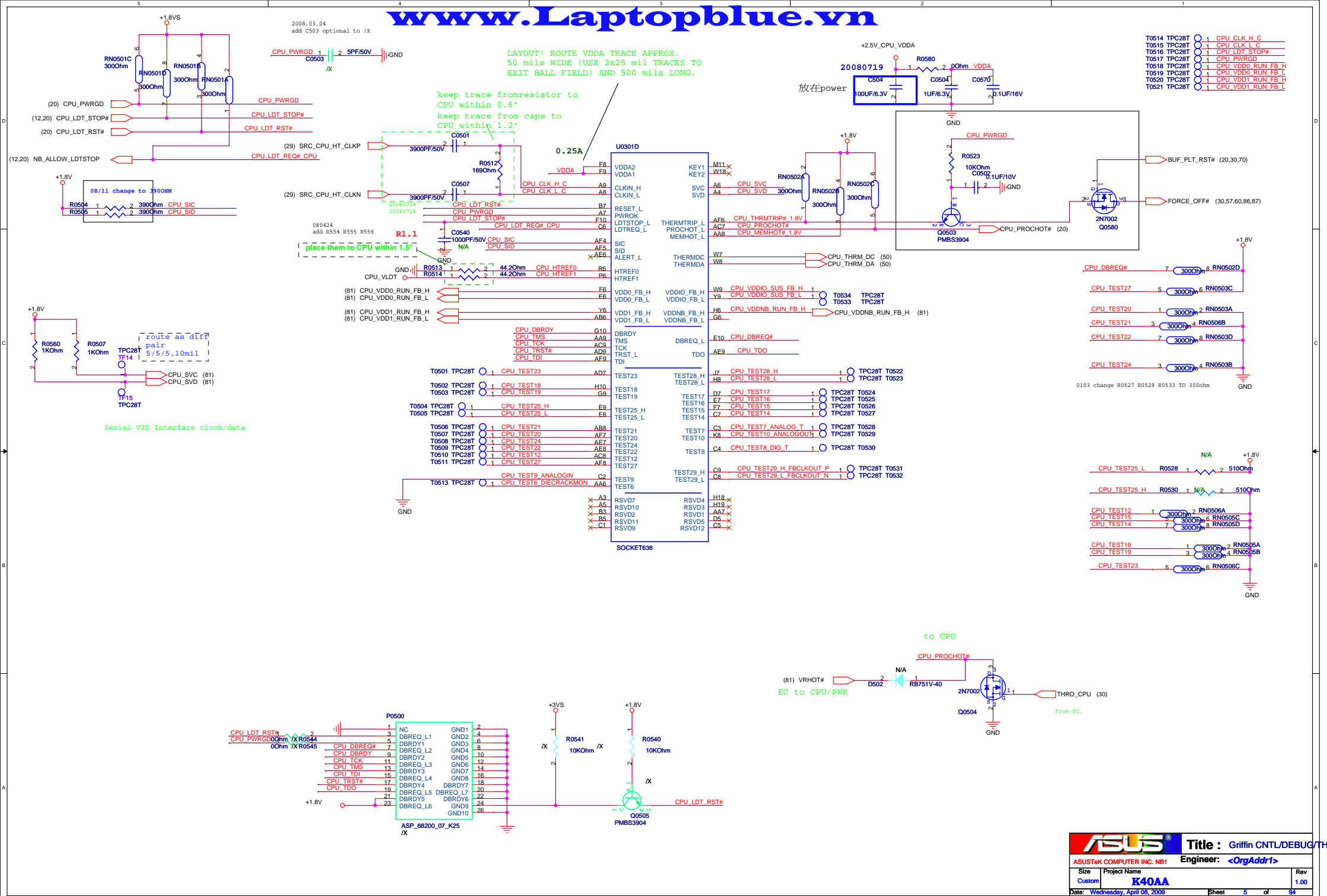
* If VLDLT is connected only on one side,
one 4.7uF cap should be added to
the island side

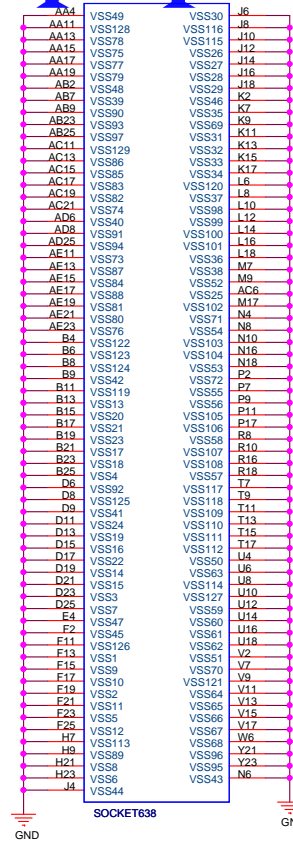
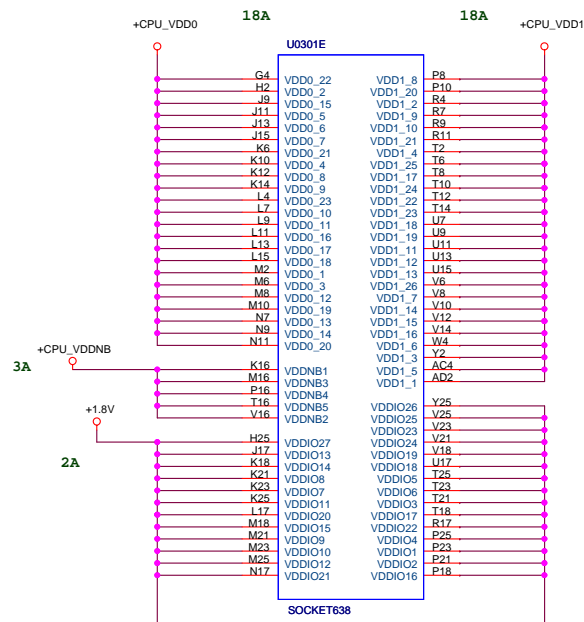




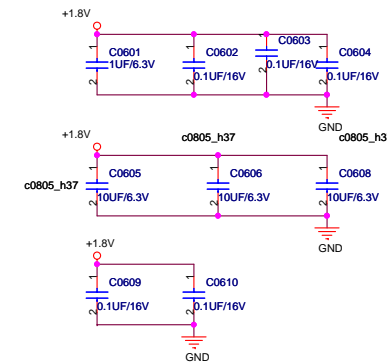
Processor Memory Interface



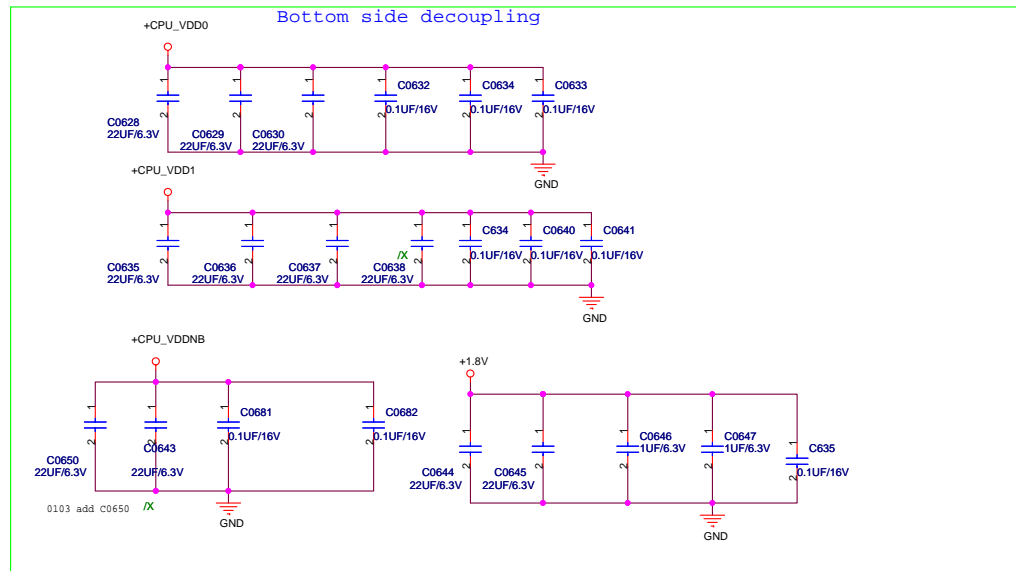




Decoupling between Processor and DIMMs, Place close to Porcessor as possible

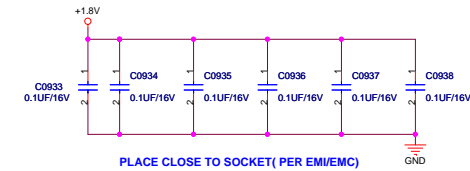
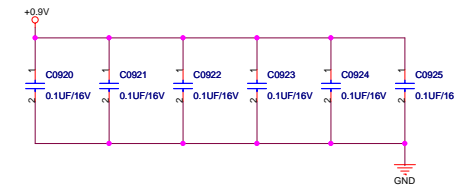
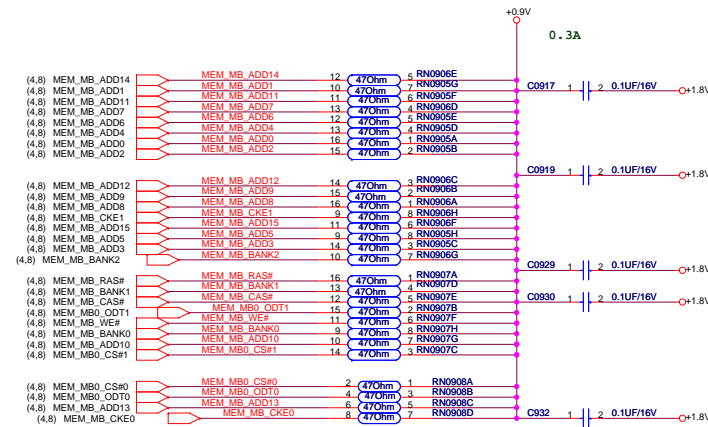
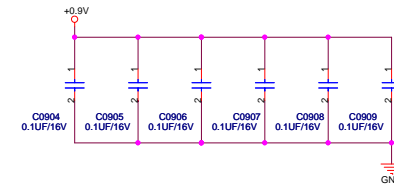
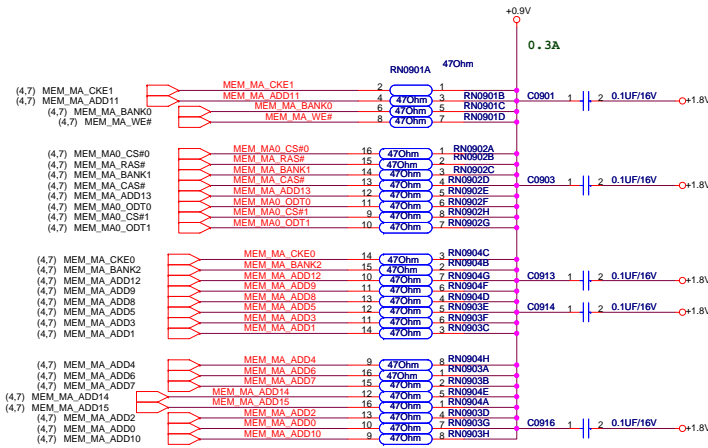


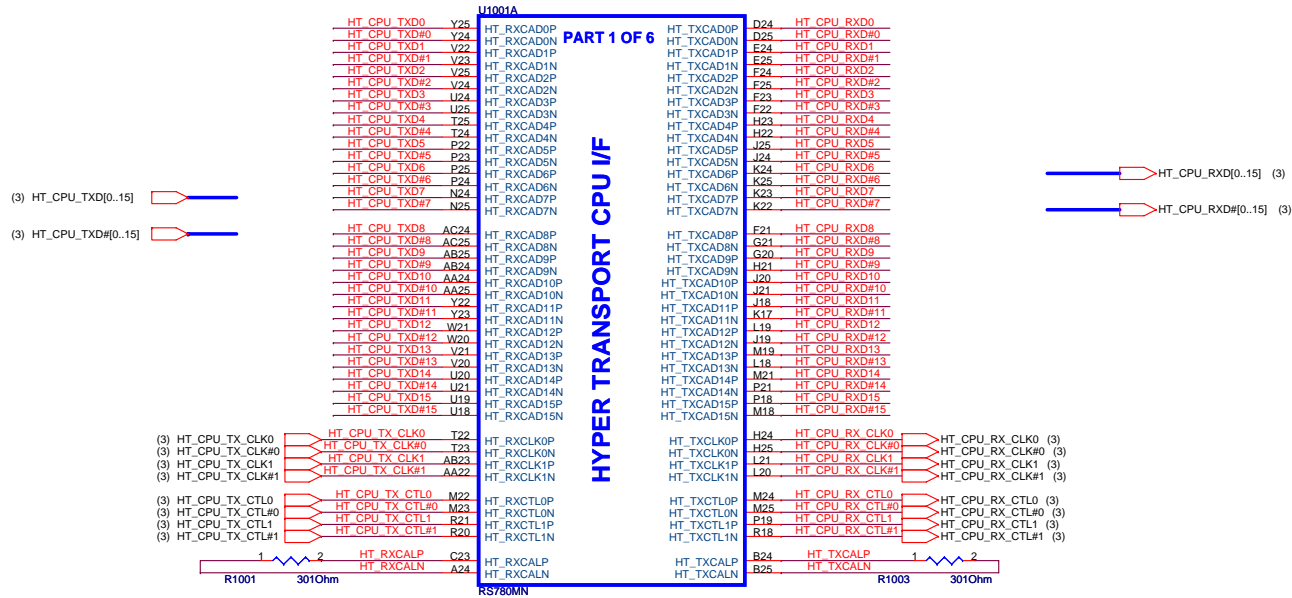
place close to socket



20080716 Change to 12G025C22004



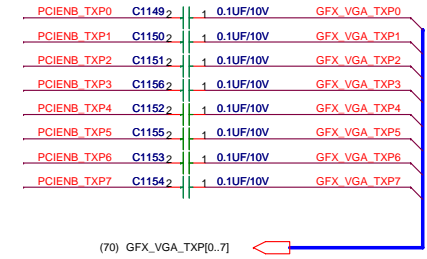
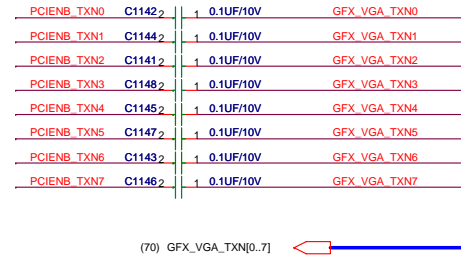
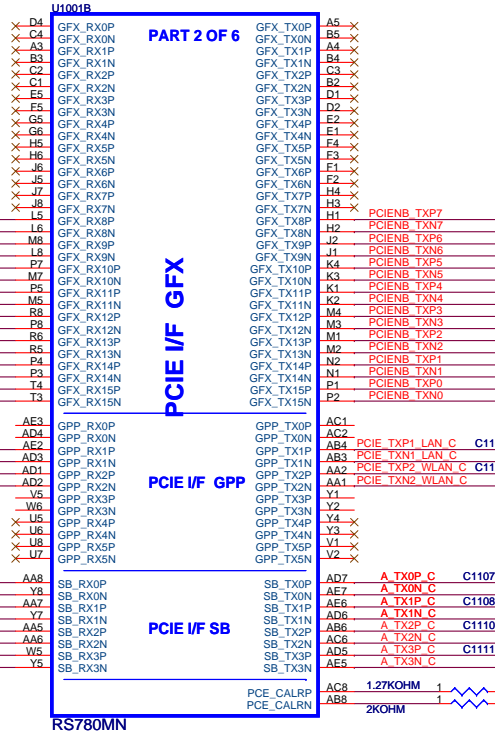




02G050001122

(70) GFX_VGA_RXP[0..7]
(70) GFX_VGA_RXN[0..7]

PCI-E:
0-3 HDMI@ RS780M
4~7 NC
8-15 VGA8x

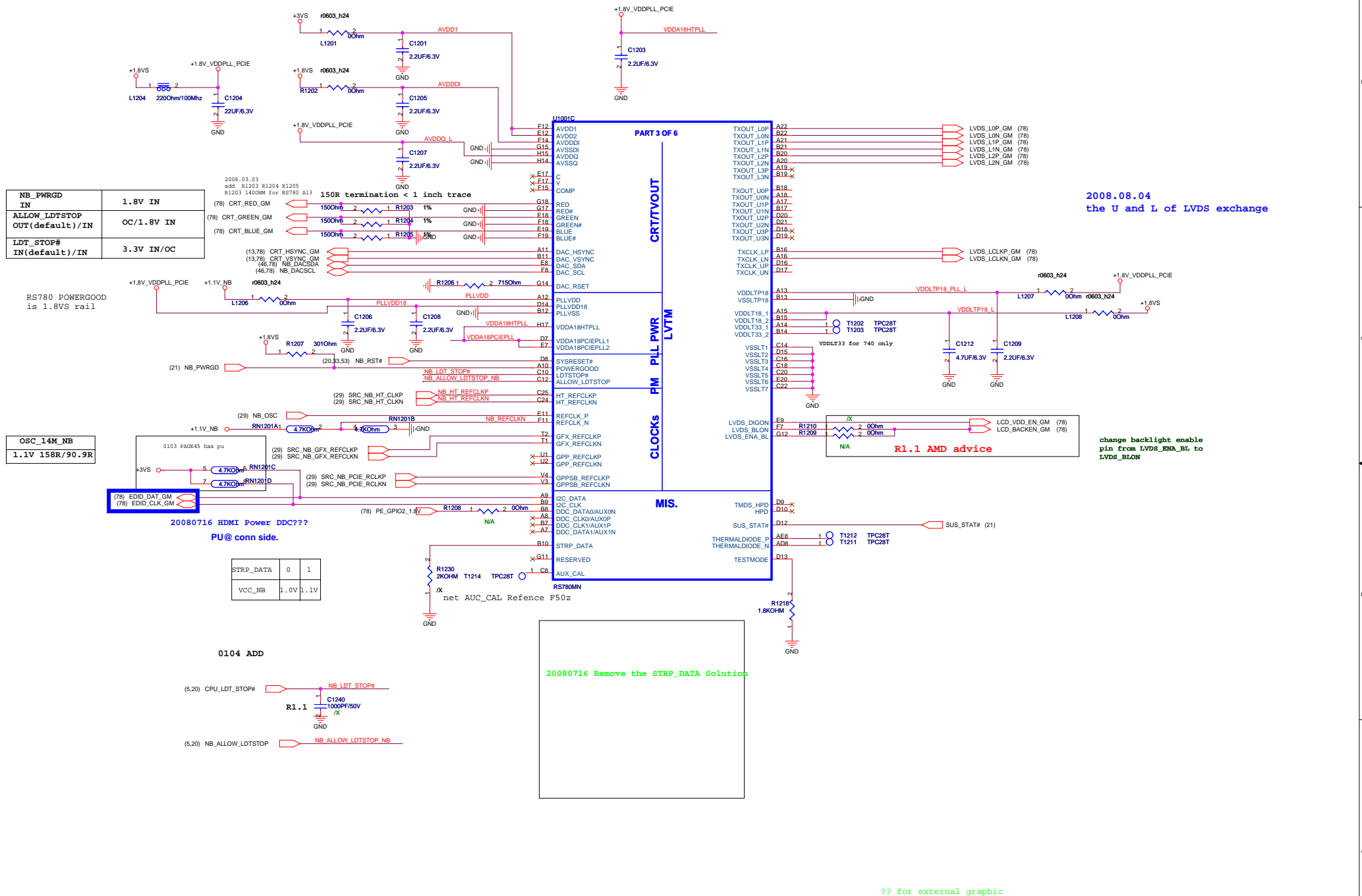



(33) PCIE_RXP1_LAN
(33) PCIE_RXN1_LAN
(53) PCIE_RXP2_WLAN
(53) PCIE_RXN2_WLAN

PCIE_TXP1_LAN (33)
PCIE_TXN1_LAN (33)
PCIE_TXP2_WLAN (53)
PCIE_TXN2_WLAN (53)


(20) PCIE_SB_NB_RX0P
(20) PCIE_SB_NB_RX0N
(20) PCIE_SB_NB_RX1P
(20) PCIE_SB_NB_RX1N
(20) PCIE_SB_NB_RX2P
(20) PCIE_SB_NB_RX2N
(20) PCIE_SB_NB_RX3P
(20) PCIE_SB_NB_RX3N

PCIE_NB_SB_TX0P (20)
PCIE_NB_SB_TX0N (20)
PCIE_NB_SB_TX1P (20)
PCIE_NB_SB_TX1N (20)
PCIE_NB_SB_TX2P (20)
PCIE_NB_SB_TX2N (20)
PCIE_NB_SB_TX3P (20)
PCIE_NB_SB_TX3N (20)



		Title : BLANK	
ASUSTeK COMPUTER INC		Engineer:	
Size A	Project Name K40AA		Rev 1.00
Date: Wednesday, April 08, 2009		Sheet 16 of 94	

5					4					3					2					1				
www.Laptopblue.vn																								

		Title : BLANK	
ASUSTeK COMPUTER INC		Engineer:	
Size A	Project Name K40AA		Rev 1.00
Date: Wednesday, April 08, 2009		Sheet	18 of 94

D

D

C


C

B

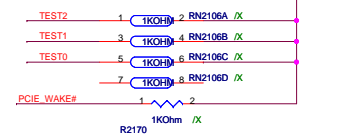
B

A

A

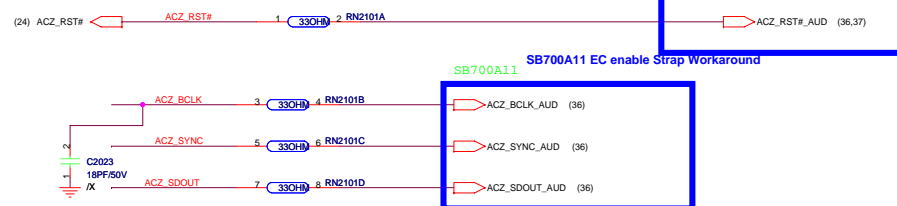
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ASUSTeK COMPUTER INC		Engineer:	
Size A	Project Name K40AA		Rev 1.00
Date: Wednesday, April 08, 2009		Sheet	19 of 94





2008 04 18
ADD R2138 R2139 IS /X

SB700A11 EC enable Strap Workaround

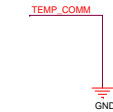
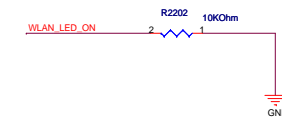
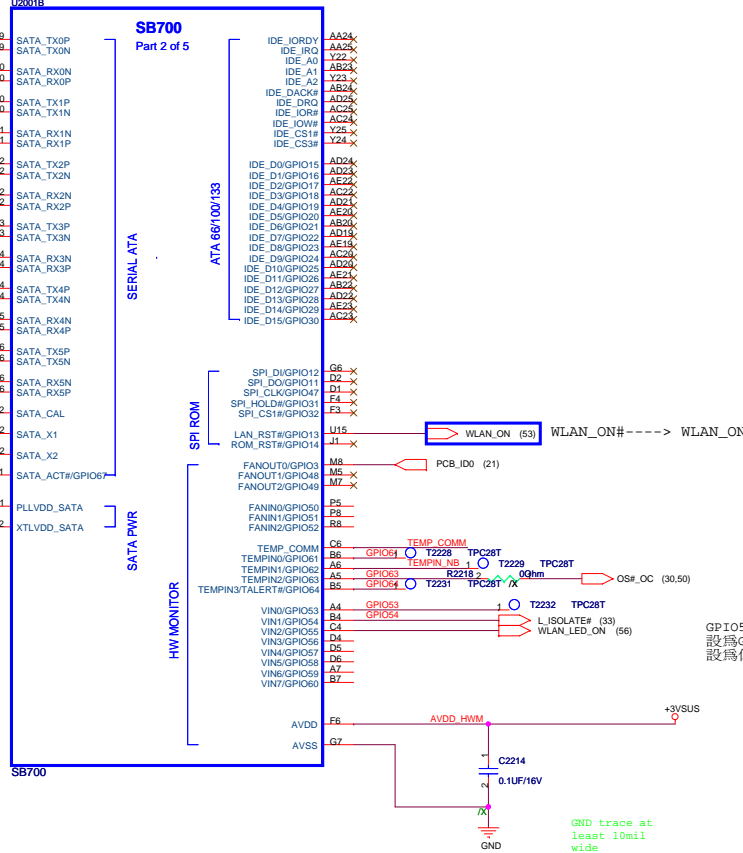
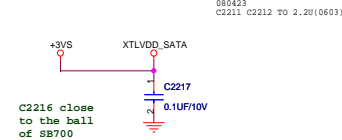
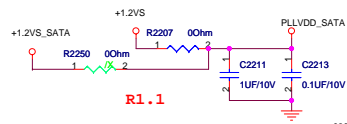
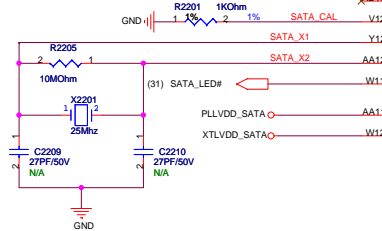
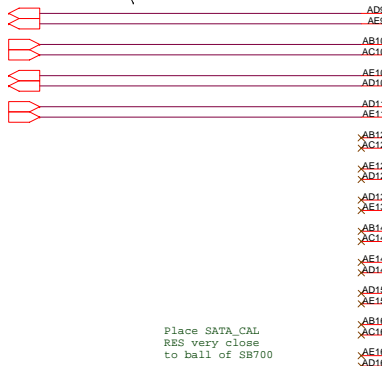


2008/08/11 Remove R2208/R2209/R2210/R2211/R2212/R2213
U2001B

```

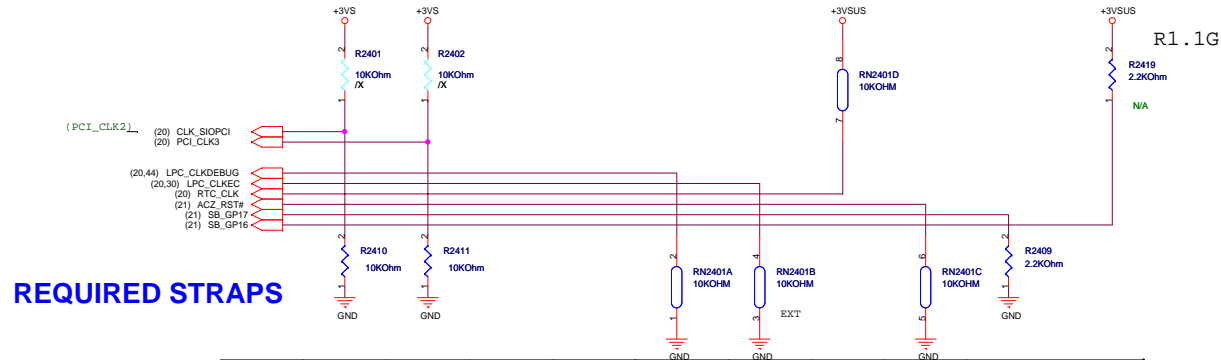
(51) SATA_TXP0_HDD
for SATA HDD (51) SATA_TXN0_HDD
(51) SATA_RXN0_HDD
(51) SATA_RXP0_HDD
(51) SATA_TXP1
for SATA ODD (51) SATA_TXN1
(51) SATA_RXN1
(51) SATA_RXP1

```




GPIO54:BIOS default
設為GPI,disable LAN
設為低電平！


NOTE: SB700 HAS INTERNAL 15K PULL UP RESISTOR FOR RTC_CLK





	PCI_CLK2	PCI_CLK3	PCI_CLK4	PCI_CLK5	LPC_CLKDEBUG	LPC_CLKEC	RTC_CLK	ACZ_RST#	GP17	GP16
PULL HIGH	BOOTFAIL TIMER ENABLED	USE DEBUG STRAPS	RESERVED	RESERVED	ENABLE PCI MEM BOOT	32-kHz clock ENABLED	INTERNAL RTC DEFAULT	Integrated Microcontroller ENABLED	H,H = Reserved H,L = SPI ROM	
PULL LOW	BOOTFAIL TIMER DISABLED DEFAULT	IGNORE DEBUG STRAPS DEFAULT			DISABLE PCI MEM BOOT DEFAULT	32-kHz clock DISABLED DEFAULT	EXT. RTC (PD on X1, apply 32KHz to RTC_CLK)	Integrated Microcontroller DISABLED DEFAULT	L,H = LPC ROM (Default) L,L = FWH ROM	

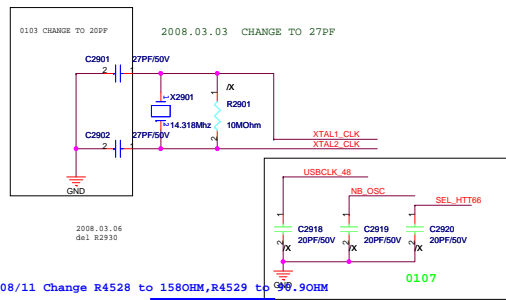
WITH A12 SB700, STRAP PIN FOR MEM BOOT AND EC ENABLE SWAPED.
I.E. LPC_CLK0 FOR EC ENABLE, AZ_RST# FOR MEM BOOT ENABLE.

		Title : BLANK	
ASUSTeK COMPUTER INC		Engineer:	
Size A	Project Name K40AA		Rev 1.00
Date: Wednesday, April 08, 2009		Sheet	25 of 94

			Title : BLANK		
ASUSTeK COMPUTER INC			Engineer:		
Size	Project Name				Rev
A	K40AA				1.00
Date: Wednesday, April 08, 2009		Sheet 26		of 94	

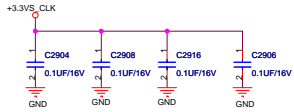
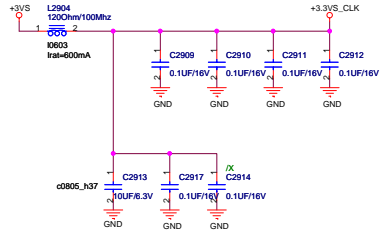
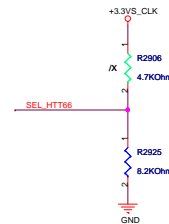
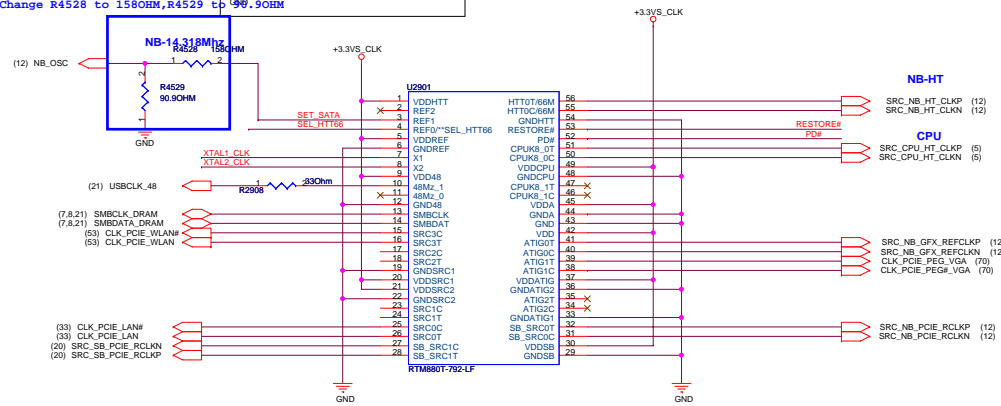
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ASUSTeK COMPUTER INC		Engineer:
Size A	Project Name K40AA	Rev 1.00
Date: Wednesday, April 08, 2009		Sheet 27 of 94

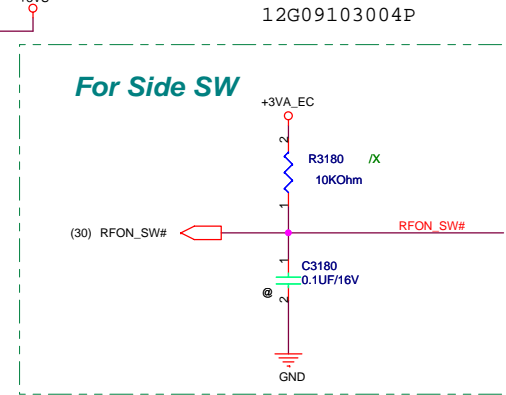
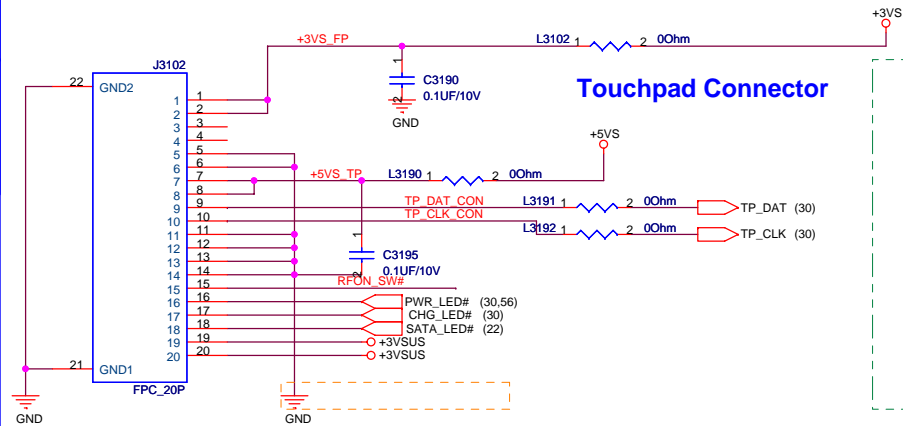
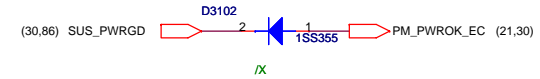
		Title : BLANK	
ASUSTeK COMPUTER INC		Engineer:	
Size A	Project Name K40AA		Rev 1.00
Date: Wednesday, April 08, 2009		Sheet 28	of 94



SEL_27	0	100 MHz differential Spread SRC clock
	1	27MHz 3.3V 27MHz spread clock

SEL_HTT66	0	100 MHz differential HTT clock
	1	66MHz 3.3V single ended HTT clock

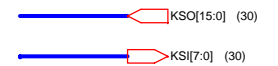




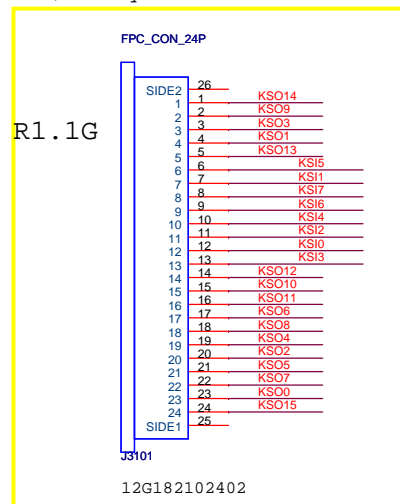
close to connector

Note:
LID_SW# is easy to cause high voltage damage when
plugging inverter board connector to M/B with AC present.
Need to add bidirectional diode to protect this pin.

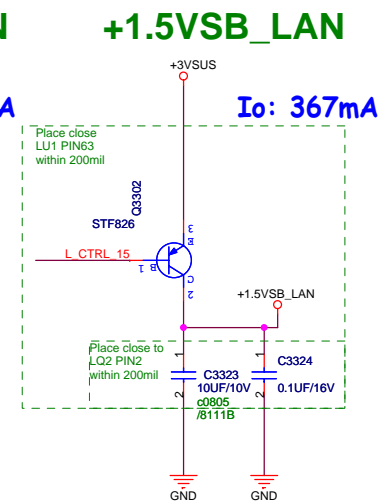
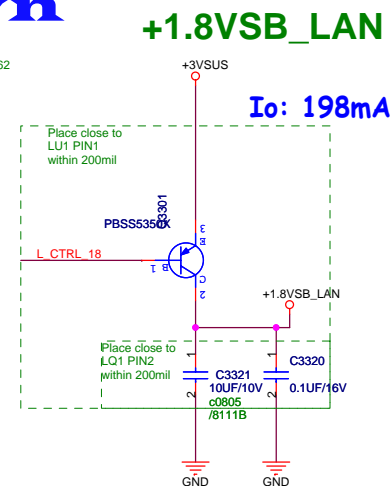
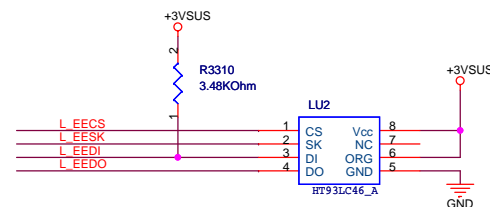
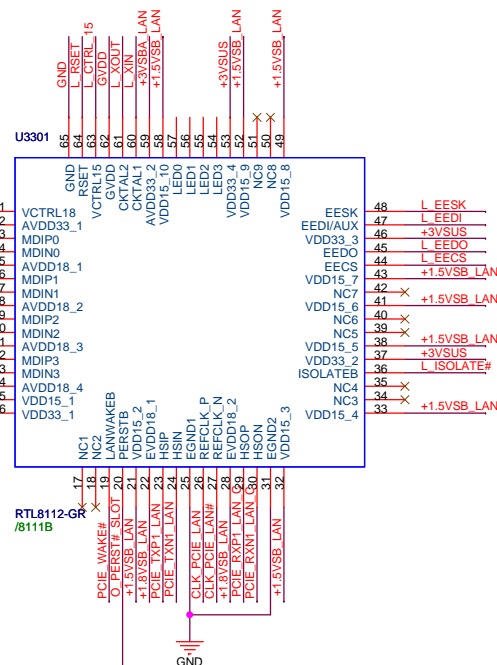
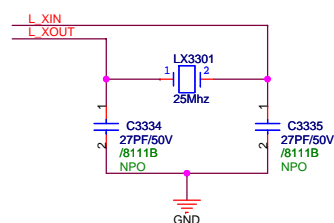
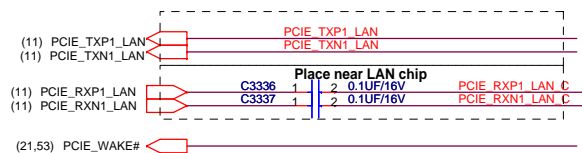
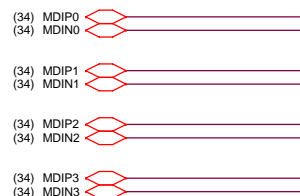
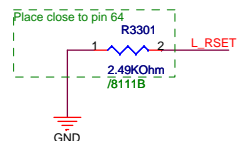
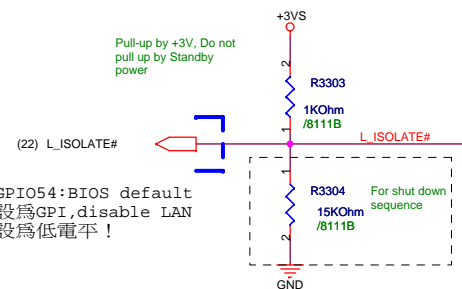
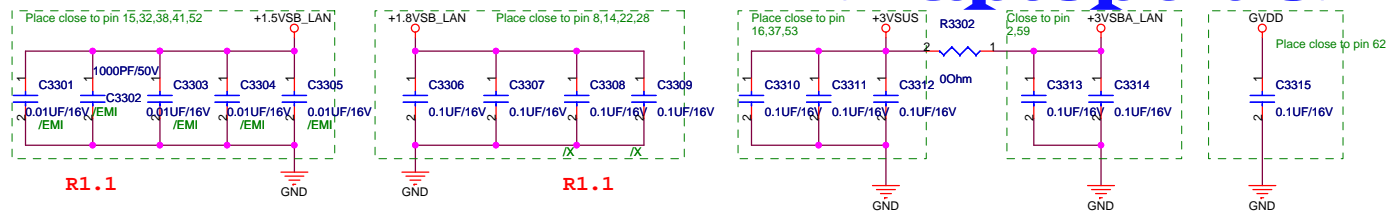
Keyboard Connector

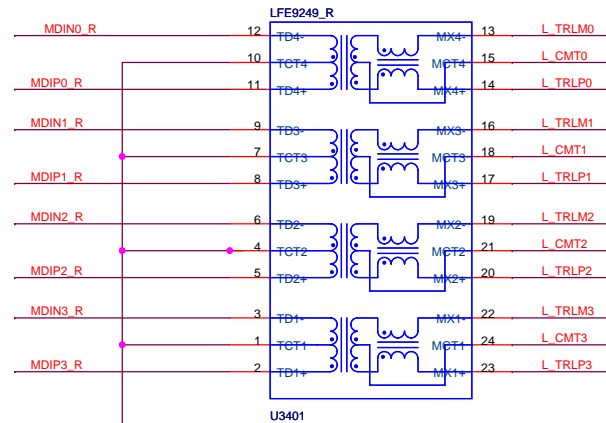


F7/N1 Keyboard

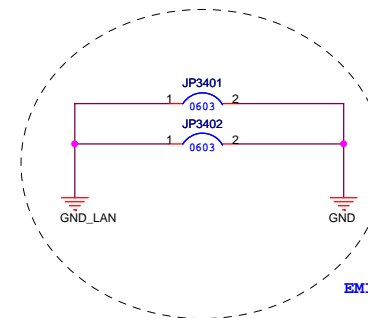
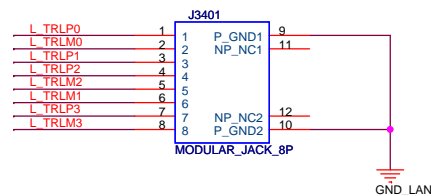
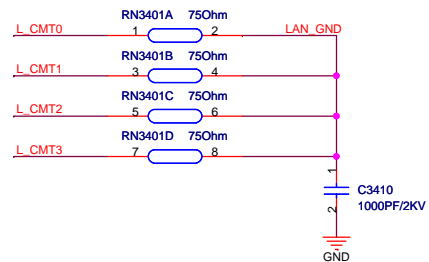
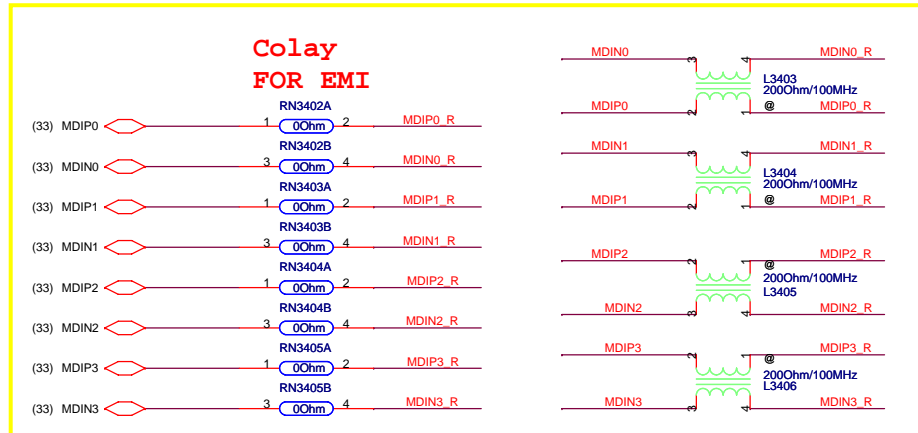


11 / 02



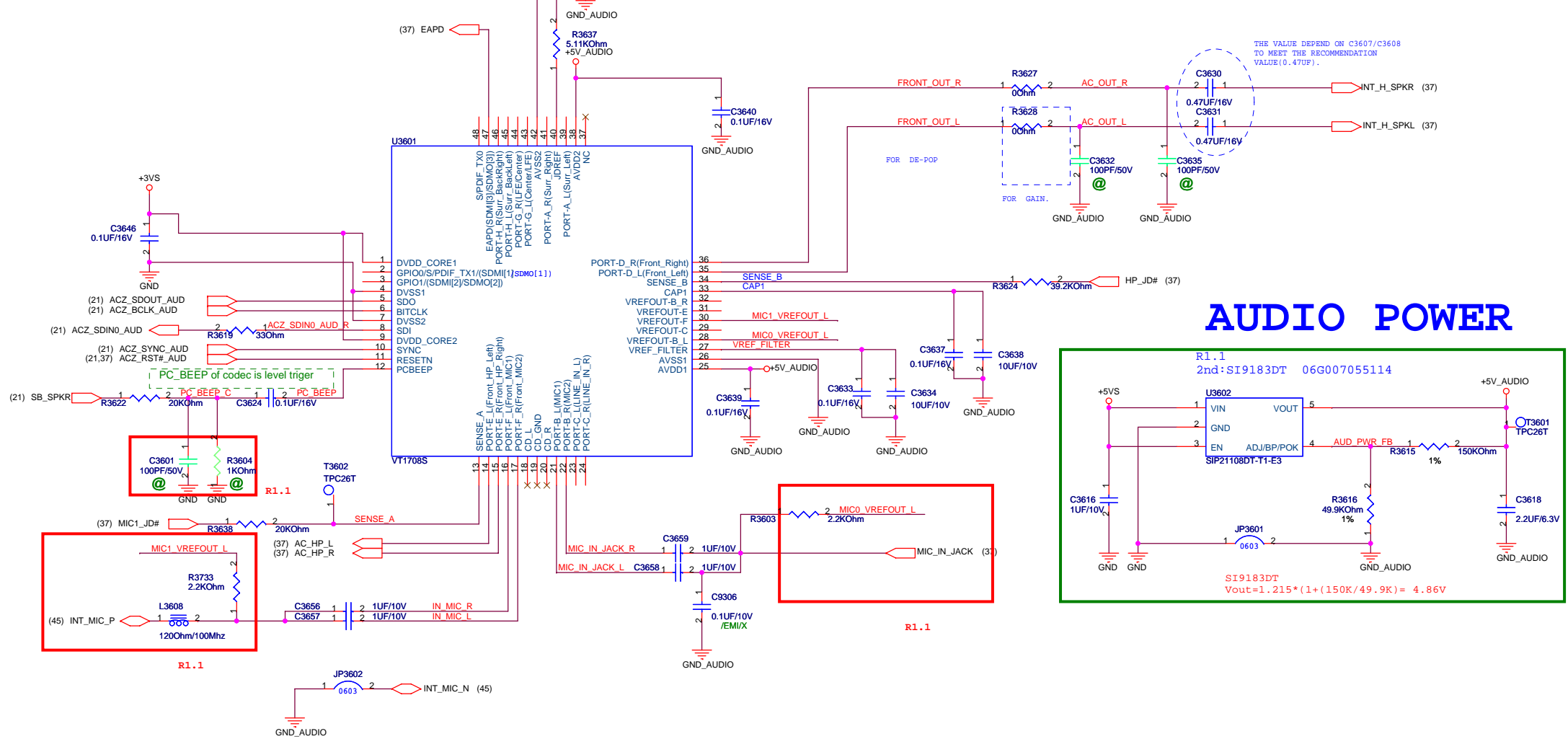


R1.1

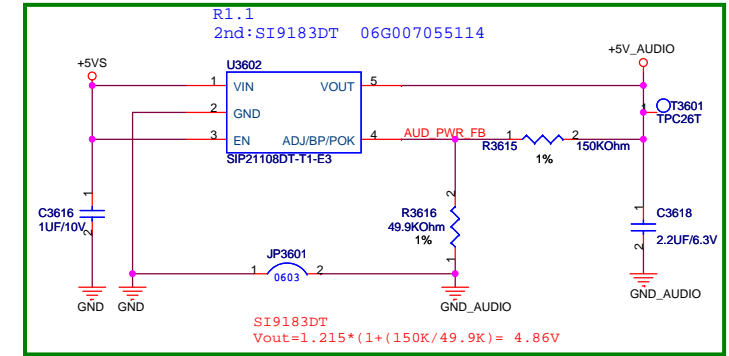


EMI



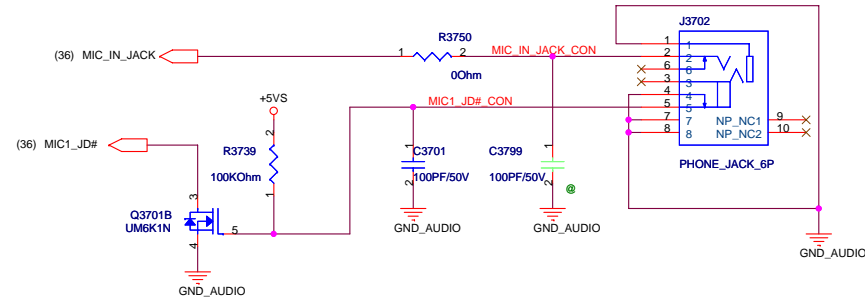


AUDIO POWER



<Variant Name>

ASUS		Title : CONEXANT CX20582	
ASUSTeK COMPUTER INC		Engineer: N/A	
Size	Project Name	Rev	
Custom	K40AA	1.0	
Date: Tuesday, April 14, 2009	Sheet	36	of 94



(36) AC_HP_R

AC HP_R

Q3702A

UMG6K1N

Q3704A

UMG6K1N

CE3703

100UF/10V

MUTE_POP#

(36) AC_HP_L

AC HP_L

Q3702B

UMG6K1N

Q3704B

UMG6K1N

CE3704

100UF/10V

AC HP_R 2

AC HP_L 2

R3717

330hm

R3718

330hm

R3719

r0603_h24

AC HP_R 3

AC HP_L 3

R3720

00hm

HP_R_CON

HP_L_CON

R3715

10KOhm

R3716

10KOhm

GND_AUDIO

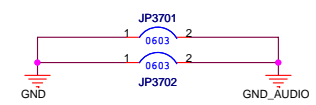
GND_AUDIO

FOR EMI BEAD

H SPKL+ L3705 1 200 Ohm/100Mhz INTSPKL+ CON
 H SPKL- L3706 1 200 Ohm/100Mhz INTSPKL- CON
 H SPKR- L3703 1 200 Ohm/100Mhz INTSPKR- CON
 H SPKR+ L3704 1 200 Ohm/100Mhz INTSPKR+ CON

J3704
 4 SIDE2
 3
 2
 5 SIDE1
 WTB0_CON_4P

C3780 C3781 C3782 C3783
 33PF/50V 33PF/50V 33PF/50V 33PF/50V
 GND



FOR ESD	SE/BTL#	LINE2_JD
HP Mode	H	L
SPK Mode	L	X

Gain Settings Table:

AIN0	GAIN1	Av (inv)
0	0	6 dB
0	1	10 dB
1	0	15.6 dB
1	1	21.6 dB

HP Mode Output Settings Table:

FOR ESD	SE/BTL#	LINE2_JD
HP Mode	H	L
SPK Mode	L	X

Component Values:

- R3735: 10KOhm
- R3740: 10KOhm
- C3720: 1uF/10V
- C3721: 0.1uF/16V
- C3723: 0.47uF/16V

Pin Connections:

- U3701 Pin 1: GND1
- U3701 Pin 2: GND1
- U3701 Pin 3: GAIN1
- U3701 Pin 4: LOU+
- U3701 Pin 5: LIN-
- U3701 Pin 6: PVDD1
- U3701 Pin 7: RIN+
- U3701 Pin 8: LOU-
- U3701 Pin 9: LIN+
- U3701 Pin 10: BYPASS
- U3701 Pin 11: GND2
- U3701 Pin 12: NC
- U3701 Pin 13: GND3
- U3701 Pin 14: VDD
- U3701 Pin 15: PVDD2
- U3701 Pin 16: RIN-
- U3701 Pin 17: ROUT-
- U3701 Pin 18: SHUTDOWN#
- U3701 Pin 19: GND4
- U3701 Pin 20: GND5
- U3701 Pin 21: SE/BTL#
- U3701 Pin 22: H_SPKR+
- U3701 Pin 23: AC OUTA_R
- U3701 Pin 24: H_SPKR-
- U3701 Pin 25: INT_H_SPKR

Power and Ground Connections:

- +5VS
- GND_AUDIO
- GND2
- GND3
- GND4
- GND5

Output Connections:

- HP SPKR+ (Pin 22)
- HP SPKR- (Pin 24)
- INT_H_SPKR (Pin 25)

Component Values:

- R3735: 10KOhm
- R3740: 10KOhm
- C3720: 1uF/10V
- C3721: 0.1uF/16V
- C3723: 0.47uF/16V

Pin Connections:

- U3701 Pin 1: GND1
- U3701 Pin 2: GND1
- U3701 Pin 3: GAIN1
- U3701 Pin 4: LOU+
- U3701 Pin 5: LIN-
- U3701 Pin 6: PVDD1
- U3701 Pin 7: RIN+
- U3701 Pin 8: LOU-
- U3701 Pin 9: LIN+
- U3701 Pin 10: BYPASS
- U3701 Pin 11: GND2
- U3701 Pin 12: NC
- U3701 Pin 13: GND3
- U3701 Pin 14: VDD
- U3701 Pin 15: PVDD2
- U3701 Pin 16: RIN-
- U3701 Pin 17: ROUT-
- U3701 Pin 18: SHUTDOWN#
- U3701 Pin 19: GND4
- U3701 Pin 20: GND5
- U3701 Pin 21: SE/BTL#
- U3701 Pin 22: H_SPKR+
- U3701 Pin 23: AC OUTA_R
- U3701 Pin 24: H_SPKR-
- U3701 Pin 25: INT_H_SPKR

Power and Ground Connections:

- +5VS
- GND_AUDIO
- GND2
- GND3
- GND4
- GND5

Output Connections:

- HP SPKR+ (Pin 22)
- HP SPKR- (Pin 24)
- INT_H_SPKR (Pin 25)

Component Values:

- R3735: 10KOhm
- R3740: 10KOhm
- C3720: 1uF/10V
- C3721: 0.1uF/16V
- C3723: 0.47uF/16V

Pin Connections:

- U3701 Pin 1: GND1
- U3701 Pin 2: GND1
- U3701 Pin 3: GAIN1
- U3701 Pin 4: LOU+
- U3701 Pin 5: LIN-
- U3701 Pin 6: PVDD1
- U3701 Pin 7: RIN+
- U3701 Pin 8: LOU-
- U3701 Pin 9: LIN+
- U3701 Pin 10: BYPASS
- U3701 Pin 11: GND2
- U3701 Pin 12: NC
- U3701 Pin 13: GND3
- U3701 Pin 14: VDD
- U3701 Pin 15: PVDD2
- U3701 Pin 16: RIN-
- U3701 Pin 17: ROUT-
- U3701 Pin 18: SHUTDOWN#
- U3701 Pin 19: GND4
- U3701 Pin 20: GND5
- U3701 Pin 21: SE/BTL#
- U3701 Pin 22: H_SPKR+
- U3701 Pin 23: AC OUTA_R
- U3701 Pin 24: H_SPKR-
- U3701 Pin 25: INT_H_SPKR

Power and Ground Connections:

- +5VS
- GND_AUDIO
- GND2
- GND3
- GND4
- GND5

Output Connections:

- HP SPKR+ (Pin 22)
- HP SPKR- (Pin 24)
- INT_H_SPKR (Pin 25)

Component Values:

- R3735: 10KOhm
- R3740: 10KOhm
- C3720: 1uF/10V
- C3721: 0.1uF/16V
- C3723: 0.47uF/16V

Pin Connections:

- U3701 Pin 1: GND1
- U3701 Pin 2: GND1
- U3701 Pin 3: GAIN1
- U3701 Pin 4: LOU+
- U3701 Pin 5: LIN-
- U3701 Pin 6: PVDD1
- U3701 Pin 7: RIN+
- U3701 Pin 8: LOU-
- U3701 Pin 9: LIN+
- U3701 Pin 10: BYPASS
- U3701 Pin 11: GND2
- U3701 Pin 12: NC
- U3701 Pin 13: GND3
- U3701 Pin 14: VDD
- U3701 Pin 15: PVDD2
- U3701 Pin 16: RIN-
- U3701 Pin 17: ROUT-
- U3701 Pin 18: SHUTDOWN#
- U3701 Pin 19: GND4
- U3701 Pin 20: GND5
- U3701 Pin 21: SE/BTL#
- U3701 Pin 22: H_SPKR+
- U3701 Pin 23: AC OUTA_R
- U3701 Pin 24: H_SPKR-
- U3701 Pin 25: INT_H_SPKR

Power and Ground Connections:

- +5VS
- GND_AUDIO
- GND2
- GND3
- GND4
- GND5

Output Connections:

- HP SPKR+ (Pin 22)
- HP SPKR- (Pin 24)
- INT_H_SPKR (Pin 25)

Component Values:

- R3735: 10KOhm
- R3740: 10KOhm
- C3720: 1uF/10V
- C3721: 0.1uF/16V
- C3723: 0.47uF/16V

Pin Connections:

- U3701 Pin 1: GND1
- U3701 Pin 2: GND1
- U3701 Pin 3: GAIN1
- U3701 Pin 4: LOU+
- U3701 Pin 5: LIN-
- U3701 Pin 6: PVDD1
- U3701 Pin 7: RIN+
- U3701 Pin 8: LOU-
- U3701 Pin 9: LIN+
- U3701 Pin 10: BYPASS
- U3701 Pin 11: GND2
- U3701 Pin 12: NC
- U3701 Pin 13: GND3
- U3701 Pin 14: VDD
- U3701 Pin 15: PVDD2
- U3701 Pin 16: RIN-
- U3701 Pin 17: ROUT-
- U3701 Pin 18: SHUTDOWN#
- U3701 Pin 19: GND4
- U3701 Pin 20: GND5
- U3701 Pin 21: SE/BTL#
- U3701 Pin 22: H_SPKR+
- U3701 Pin 23: AC OUTA_R
- U3701 Pin 24: H_SPKR-
- U3701 Pin 25: INT_H_SPKR

Power and Ground Connections:

- +5VS
- GND_AUDIO
- GND2
- GND3
- GND4
- GND5

Output Connections:

- HP SPKR+ (Pin 22)
- HP SPKR- (Pin 24)
- INT_H_SPKR (Pin 25)

Component Values:

- R3735: 10KOhm
- R3740: 10KOhm
- C3720:

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		Title : BLANK	
ASUSTeK COMPUTER INC		Engineer:	
Size A	Project Name K40AA		Rev 1.00
Date: Wednesday, April 08, 2009		Sheet 39 of 94	

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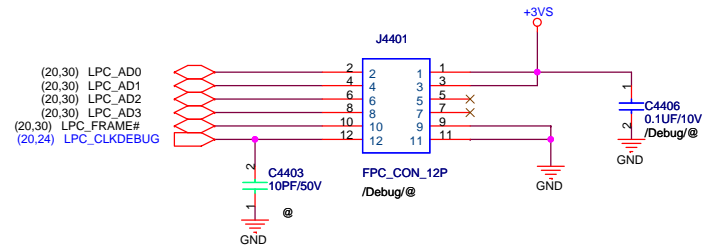
B

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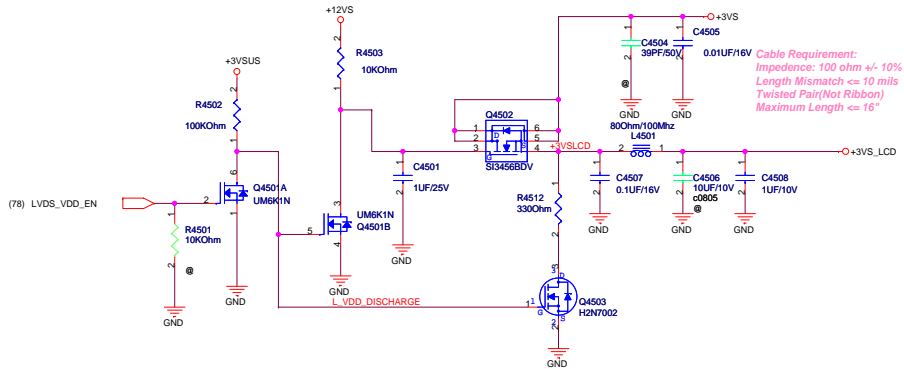
If don't support NewCard Debug Card,Pls do
 (a) DNI all components of block A
 (b) Mount Block C (RN5401,R6975)

For PCMCIA Debug Card

If support NewCard Debug Card,
 Pls don't mount all components.

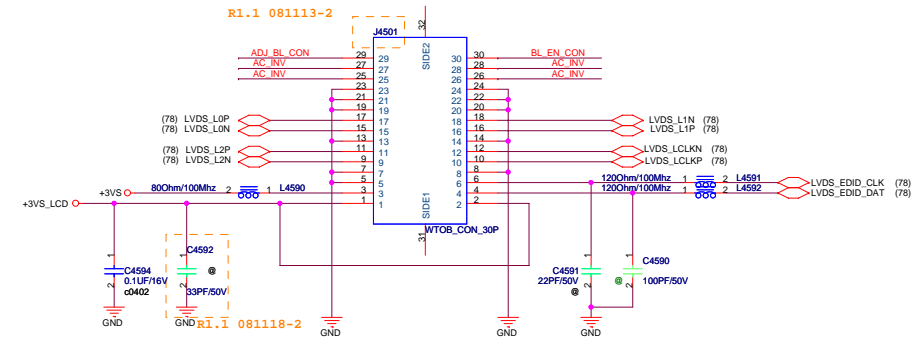
LCD Backlight Control

LCD Power

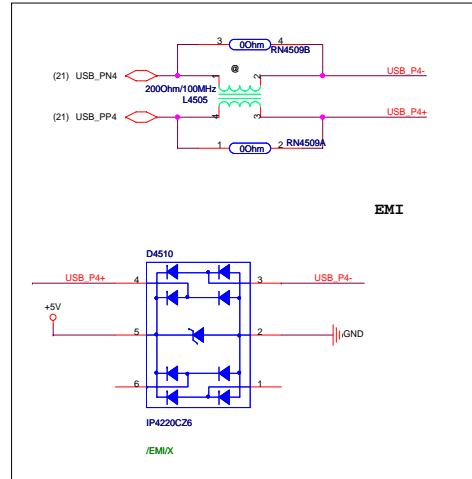
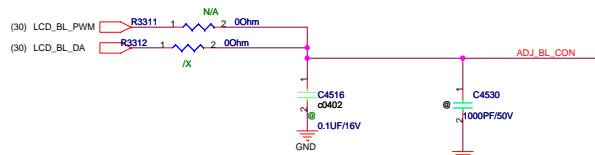
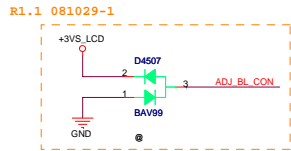


LED PANEL LVDS Interface

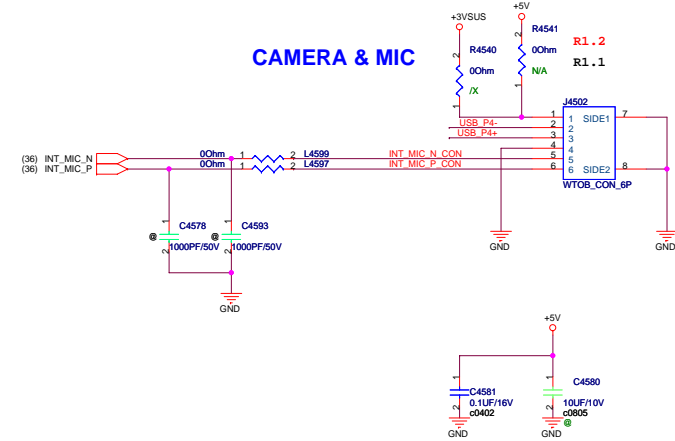
check



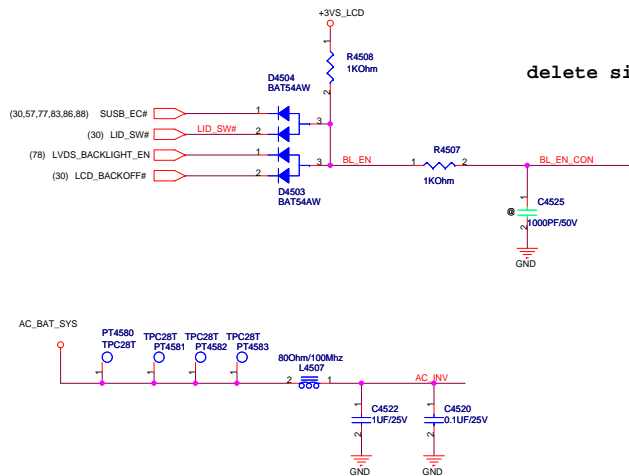
INVERTER Interface/Speaker CONN.



CAMERA & MIC

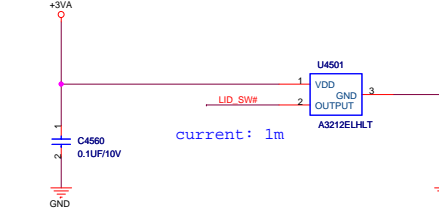


delete sim card function 20080804



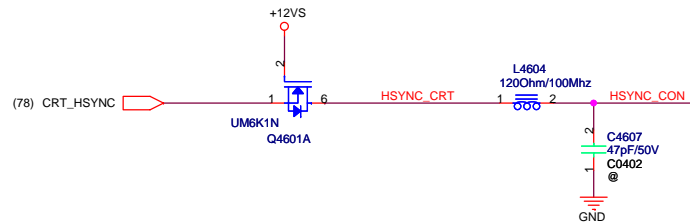
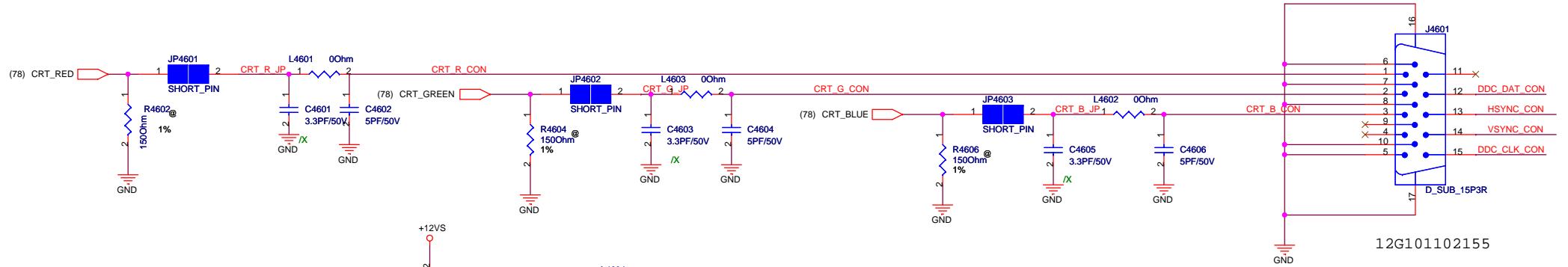
Hall effect switch

current: 2m

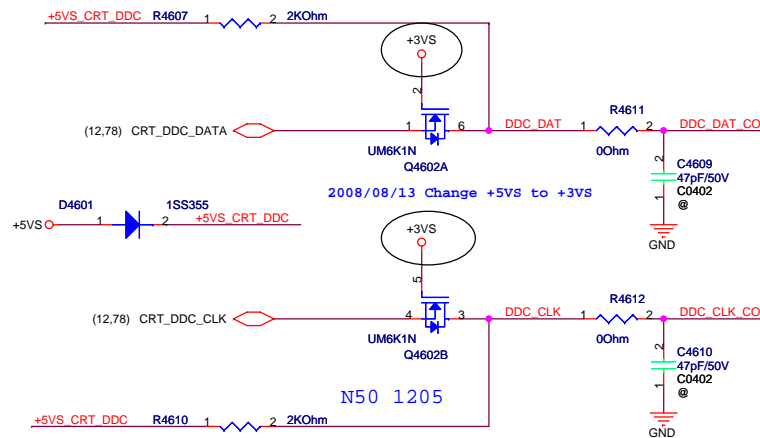
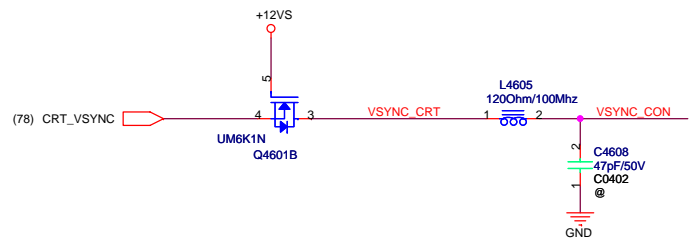


current: 1m

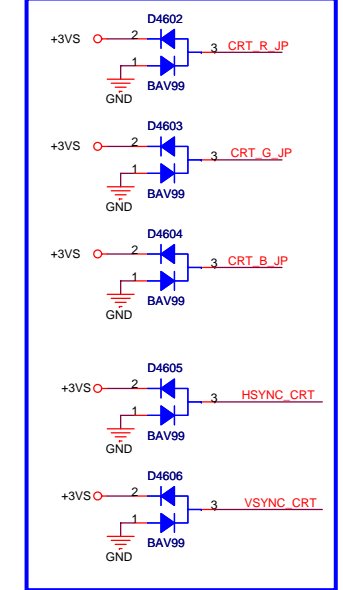
R1.1 VGA部分調整：L4601、L4602、L4603調成0 ohm，C4601、C4603、C4605改爲"/X"，C4602、C4604、C4606改成5PF。



2008/0807 Remove U4601/U4602



PLACE ESD Diodes near VGA port



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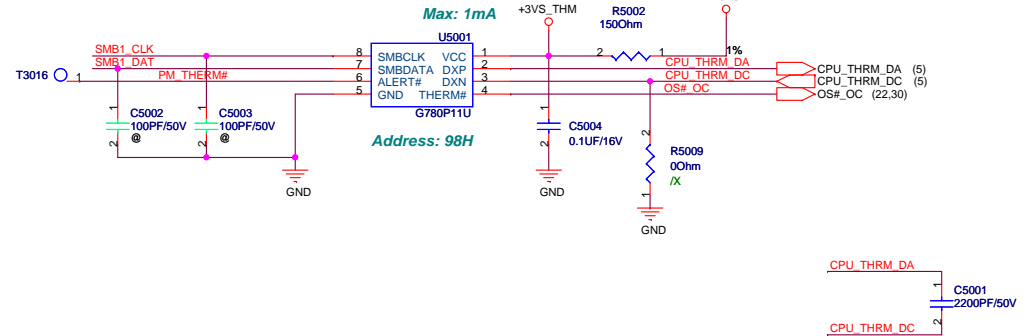
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ASUSTeK COMPUTER INC		Engineer:	
Size A	Project Name K40AA		Rev 1.00
Date: Wednesday, April 08, 2009		Sheet	47 of 94

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www.Laptopblue.vn																																		
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Size					Project Name															Rev														
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Date: Wednesday, April 08, 2009										Sheet 49 of 94																								
5					4					3					2					1														

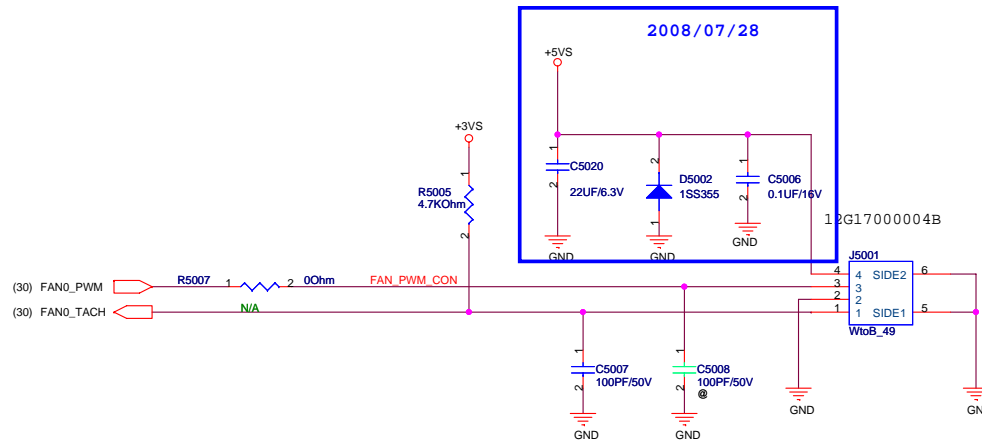
Thermal Sensor

(30,75) SMB1_CLK < SMB1_CLK 1st source: 06G023096010
(30,75) SMB1_DAT < SMB1_DAT 2nd source: 06G023026012

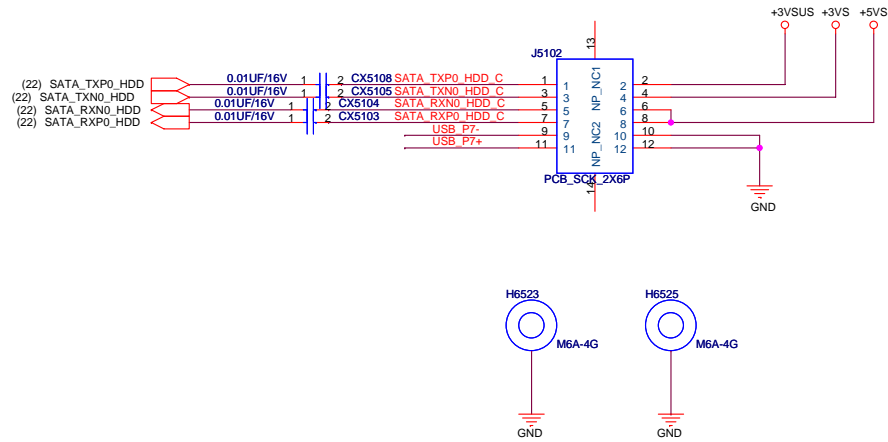
TEMP.SENSOR G780P11U SOP-8 GMT
TEMP SENSOR MAX6657YMS+ SOP-8 MAXIM



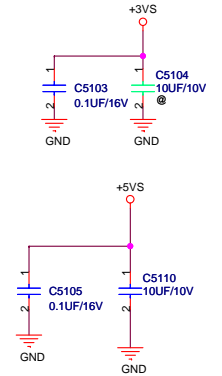
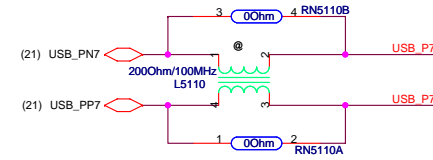
DC FAN Control



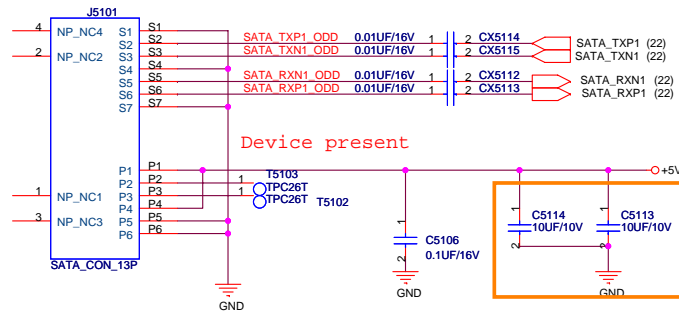
SATA HDD



USB Cardreader

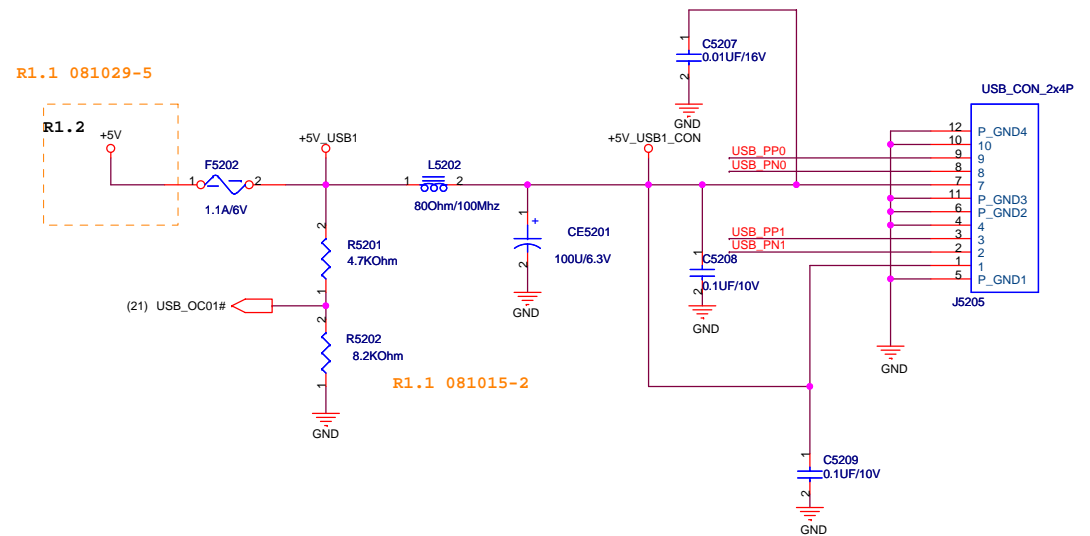
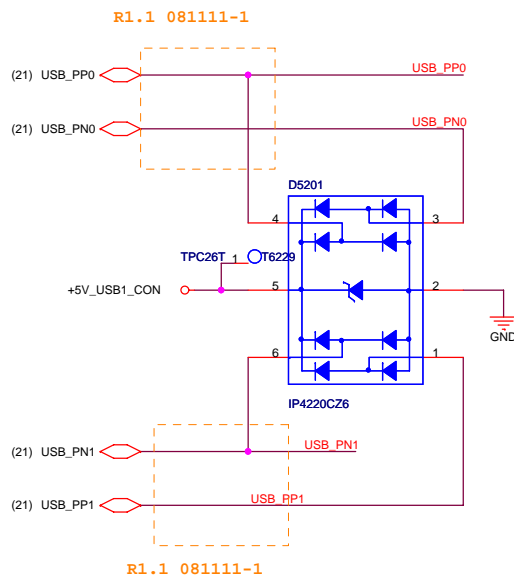
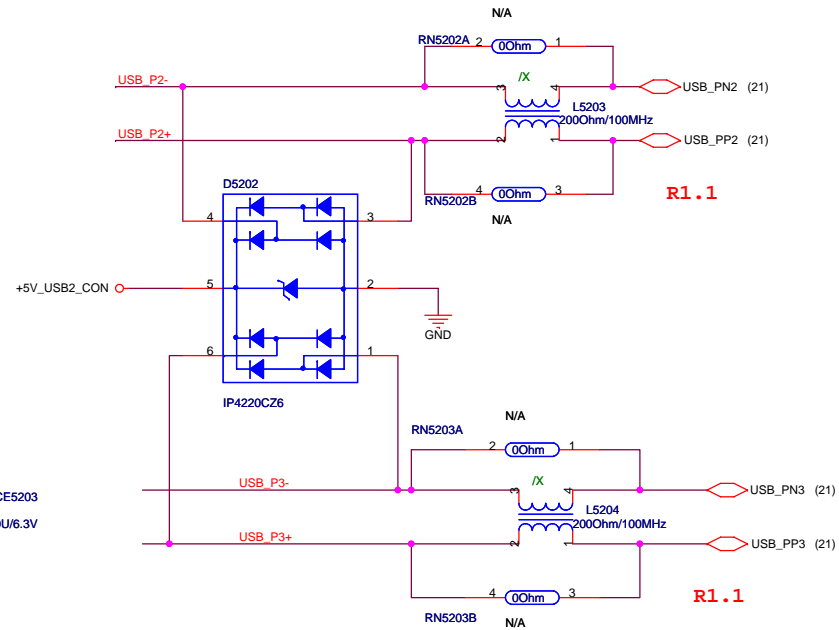
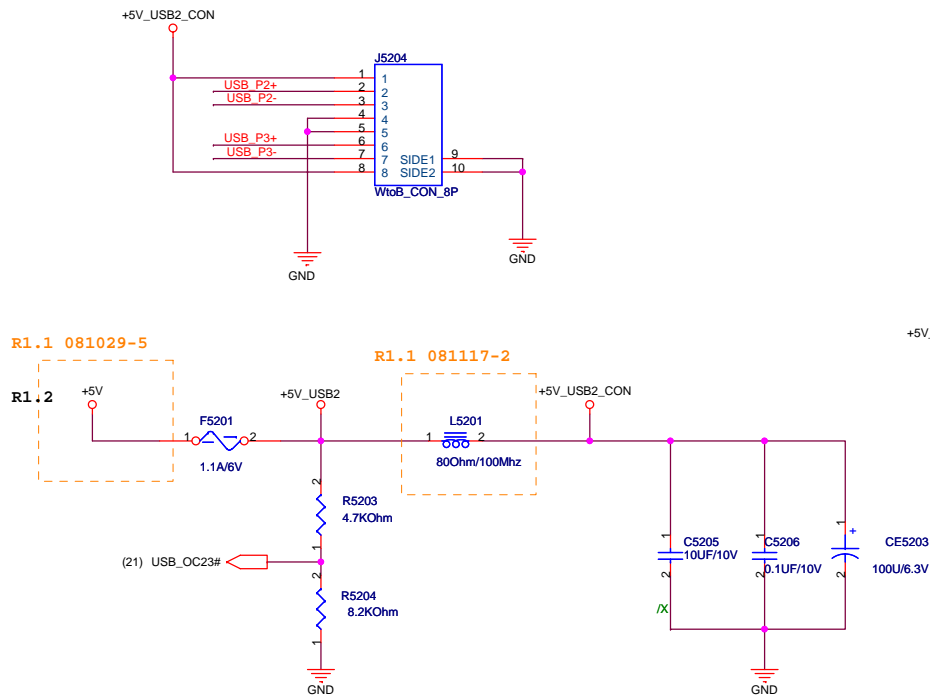


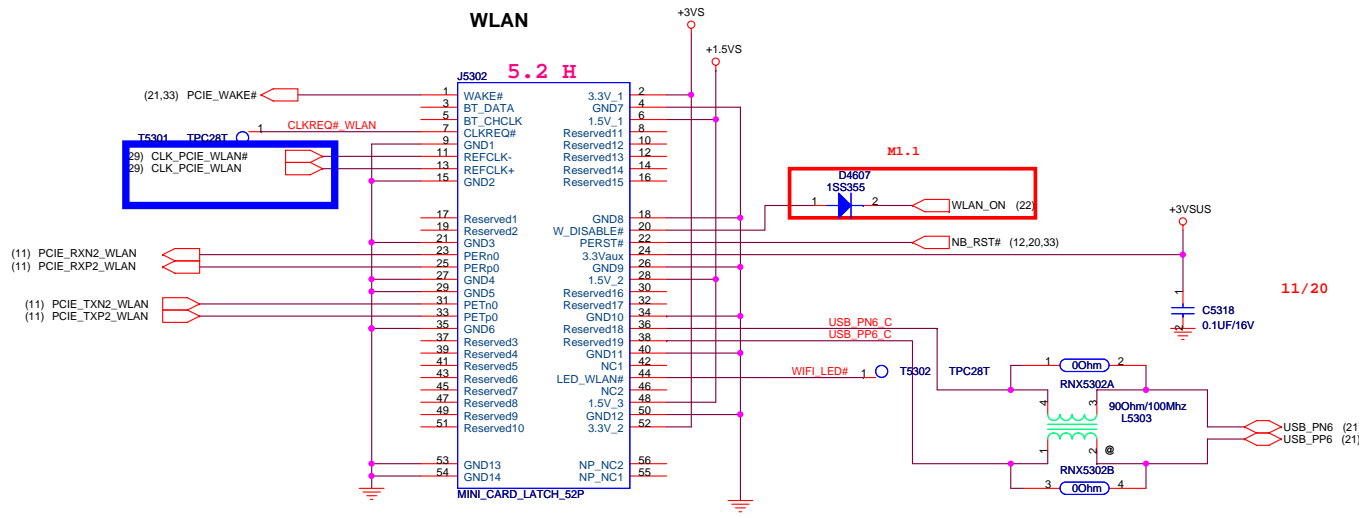
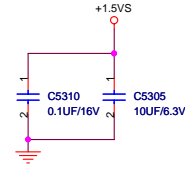
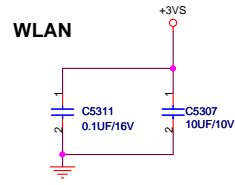
ODD



R2.0 06/11

USB IO Board





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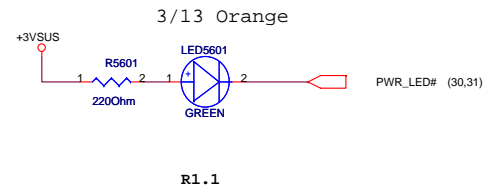
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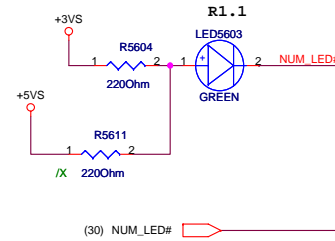
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ASUSTeK COMPUTER INC		Engineer:	
Size A	Project Name K40AA		Rev 1.00
Date: Wednesday, April 08, 2009		Sheet	54 of 94

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ASUSTeK COMPUTER INC		Engineer:	
Size A	Project Name K40AA		Rev 1.00
Date: Wednesday, April 08, 2009		Sheet 55 of 94	

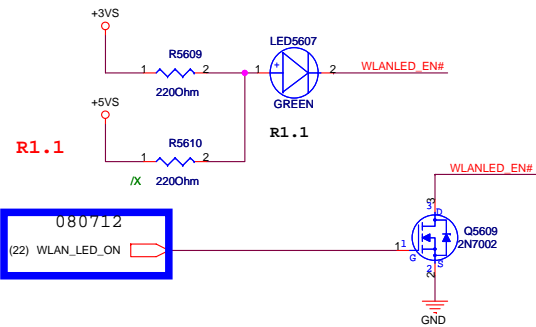
For Power LED



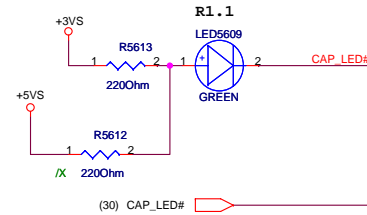
For Number Lock



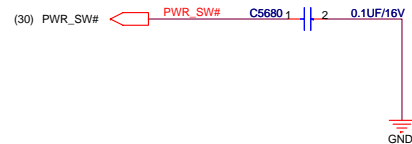
For WireLess LED



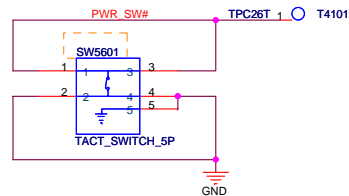
For Caps. Lock

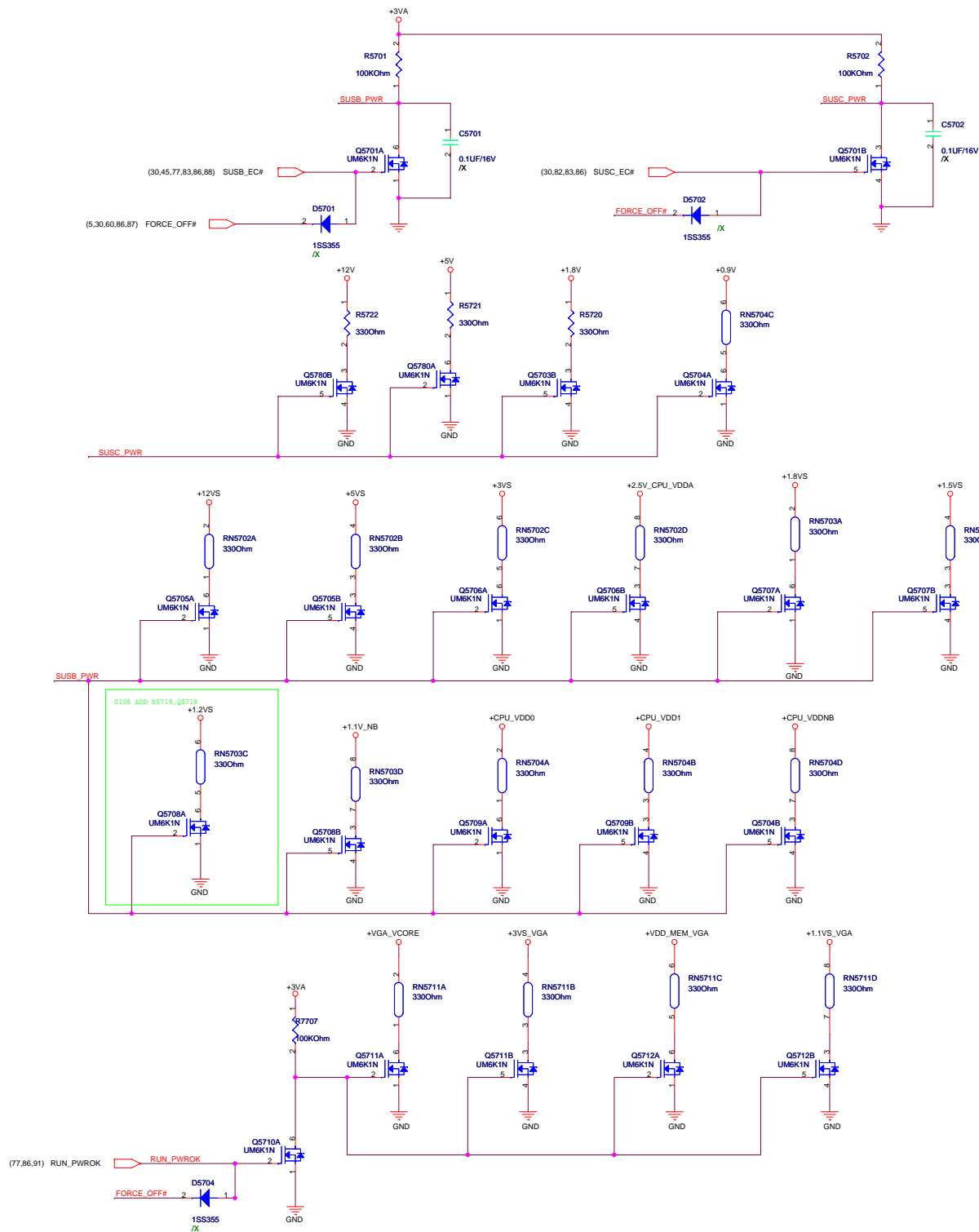


SW



SHUT_DOWN#





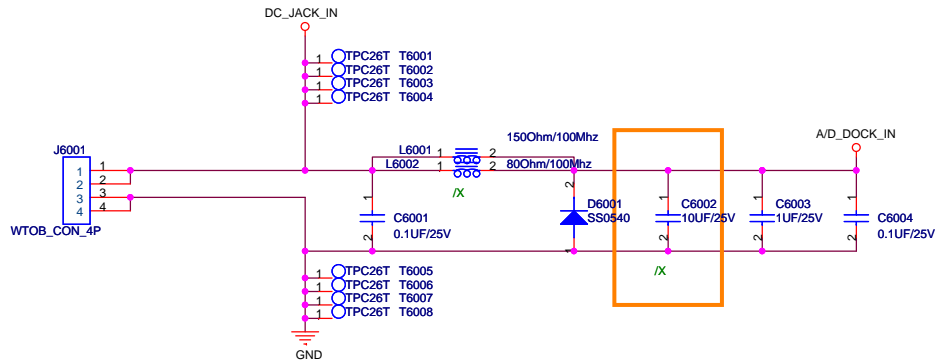


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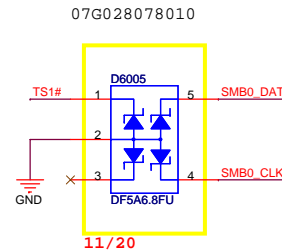
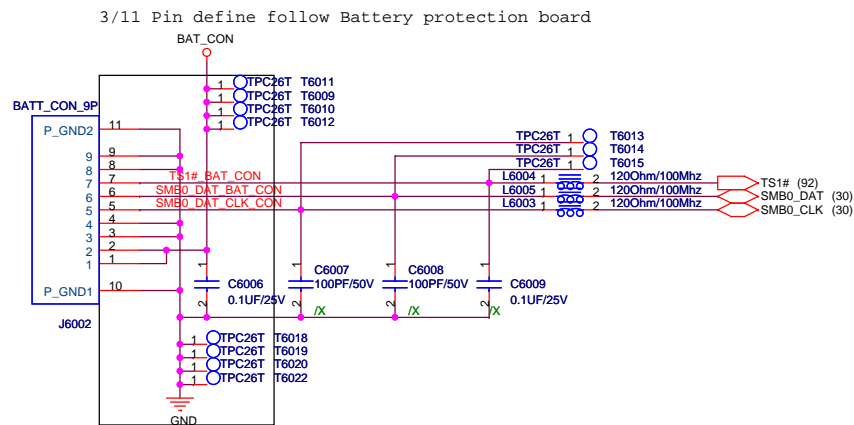
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ASUSTeK COMPUTER INC		Engineer:	
Size	Project Name		Rev
A	K40AA		1.00
Date:	Wednesday, April 08, 2009	Sheet	59 of 94

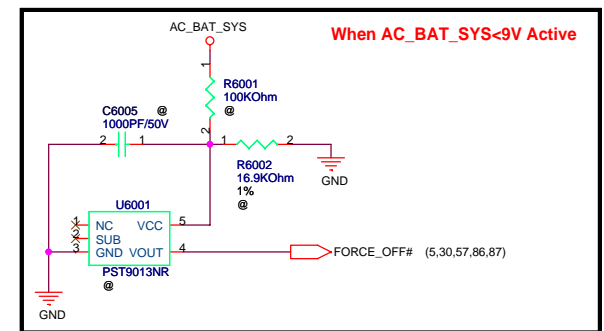
DC IN



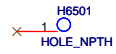
BAT IN



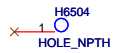
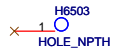
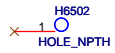
Without Battery & Pull out Adapter



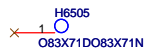
Hole-A



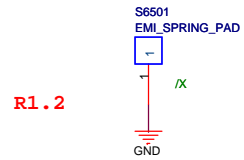
Hole-B



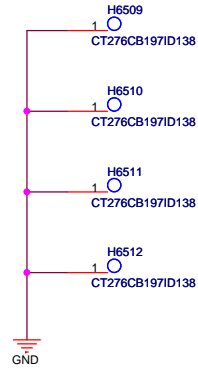
Hole-C



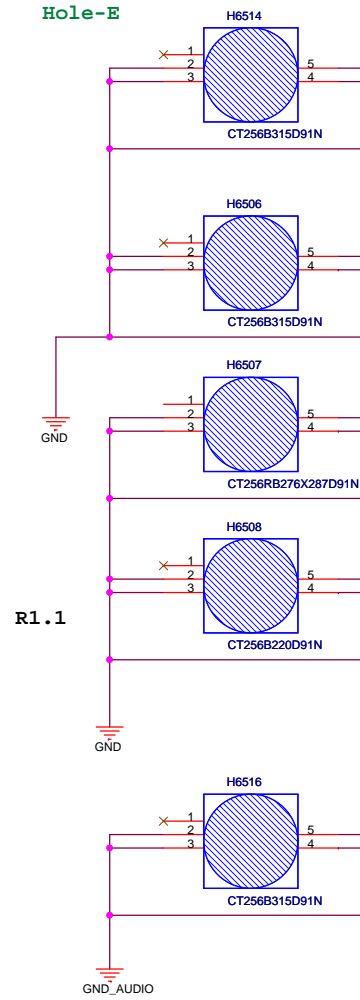
Spring



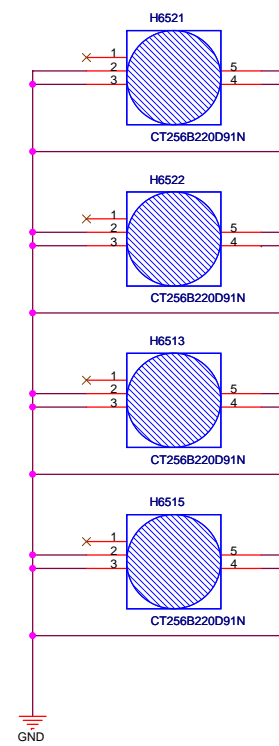
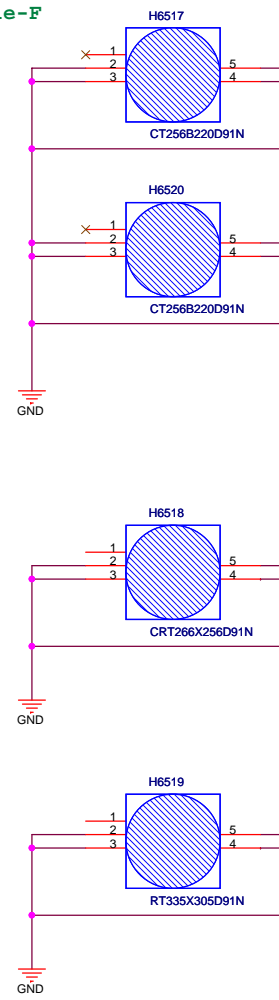
Hole-D

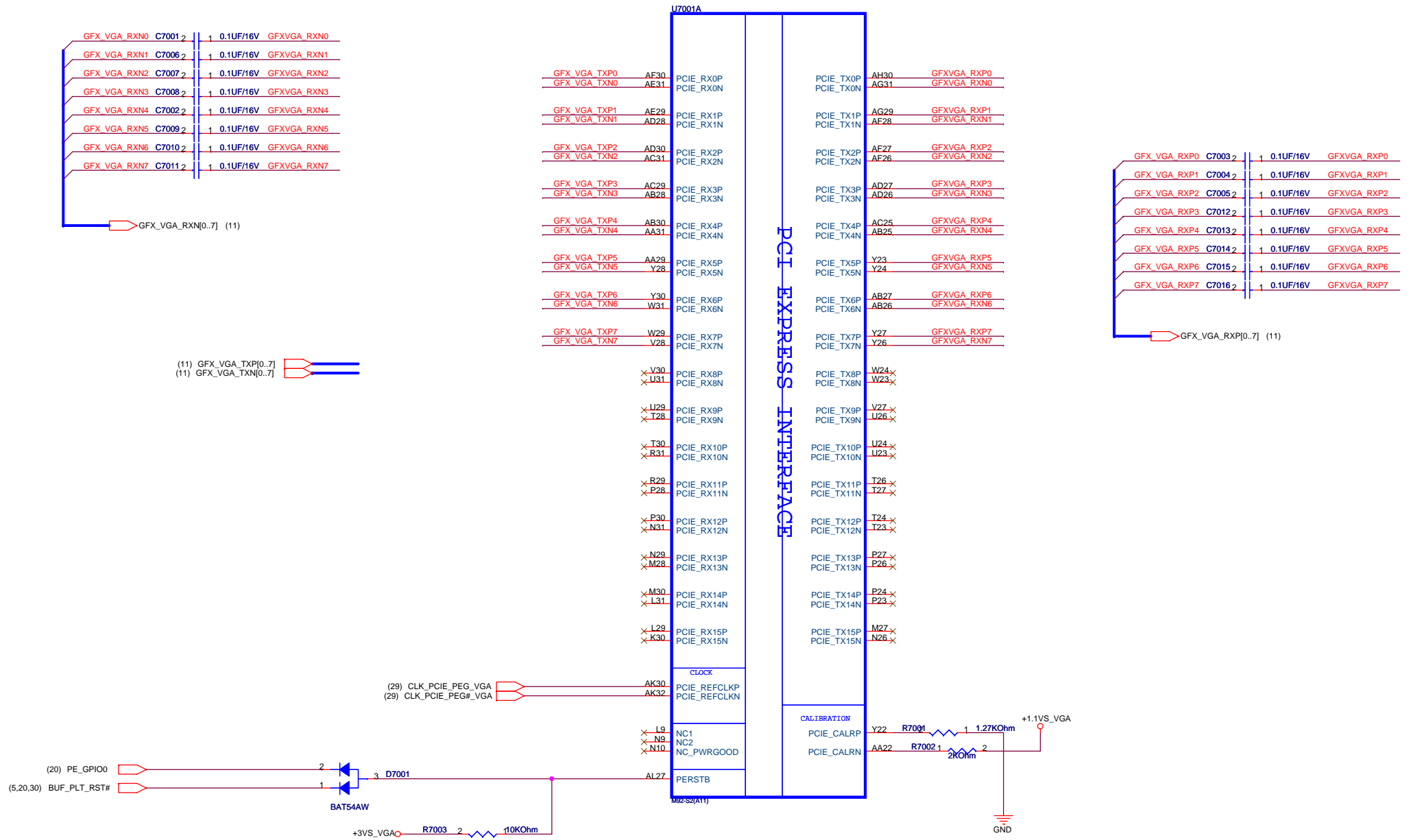


Hole-E



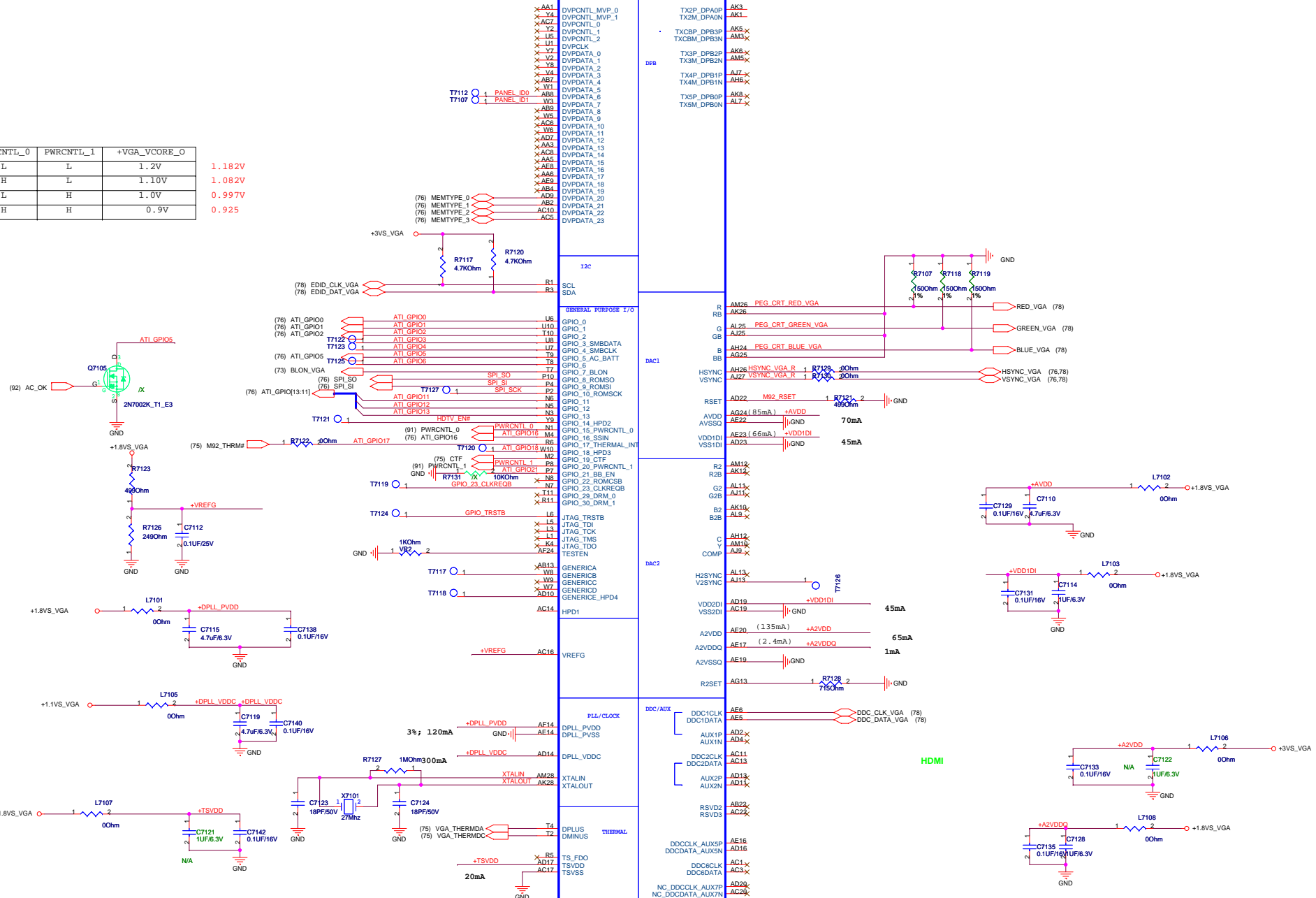
Hole-F

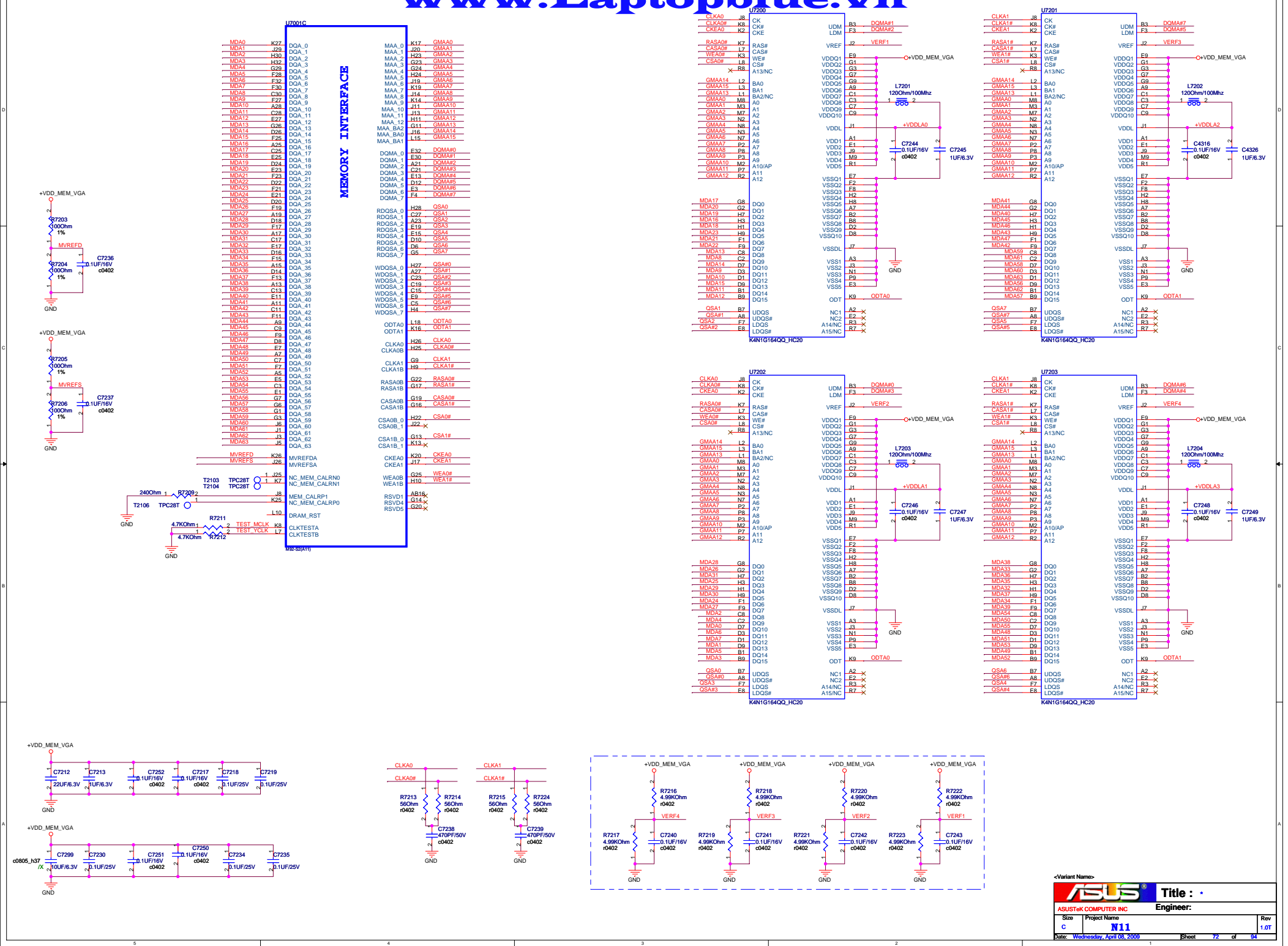




<Variant Name>

PWRCNTL_0	PWRCNTL_1	+VGA_VCORE_O	
L	L	1.2V	1.182V
H	L	1.10V	1.082V
L	H	1.0V	0.997V
H	H	0.9V	0.925





<Variant Name>



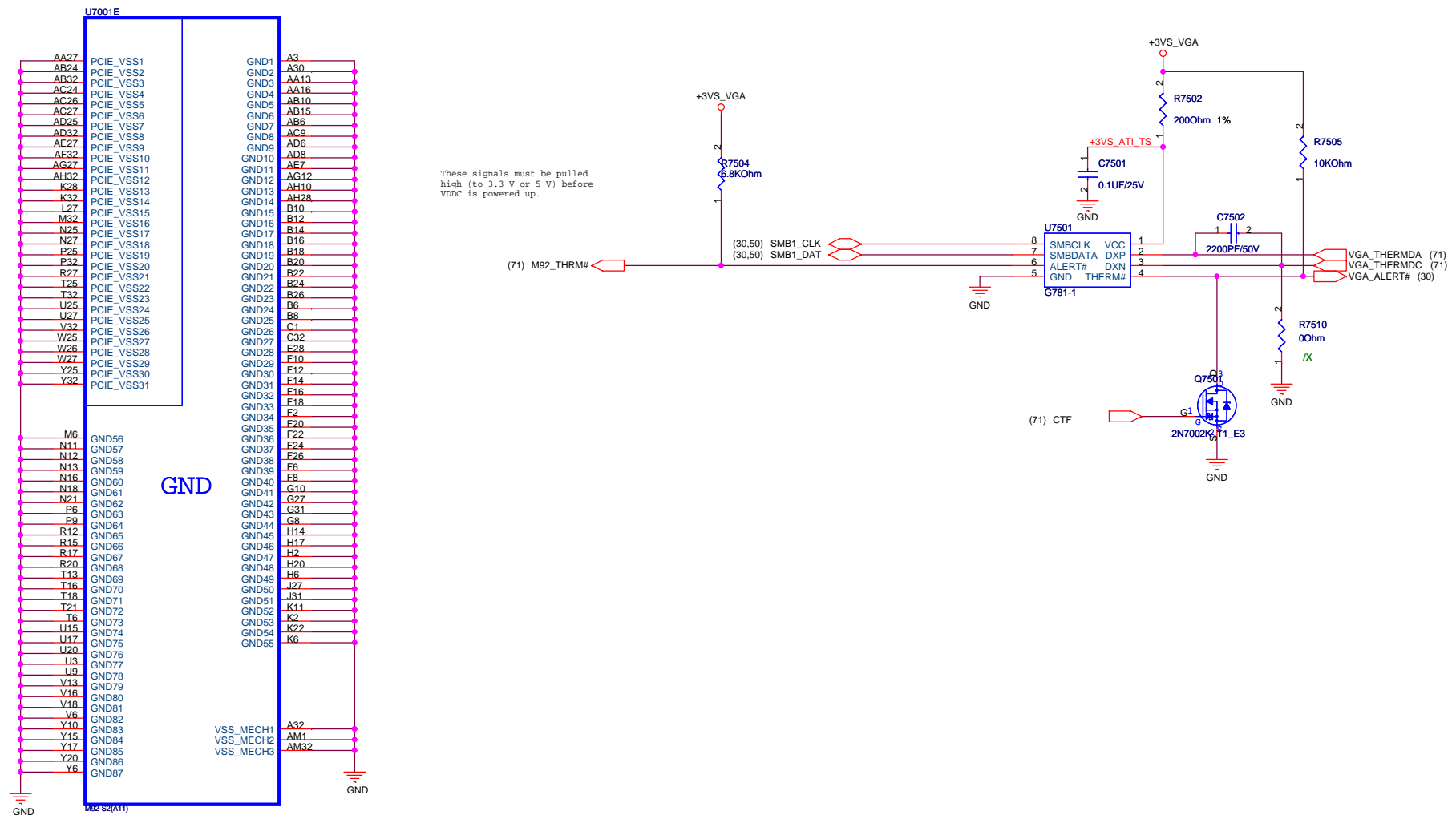
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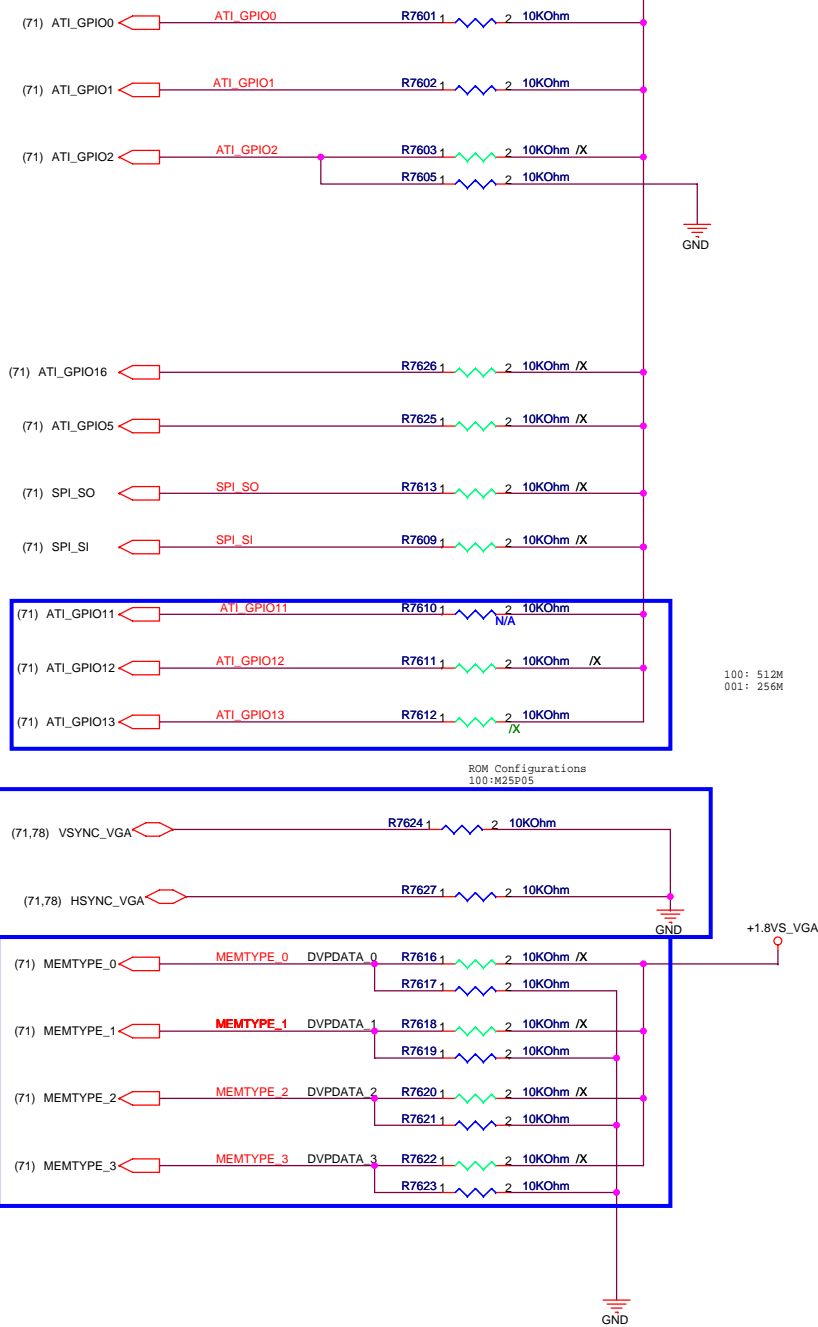
Engineer:

<Variant Name>



Title : ★





GPIO(0) - TX_PWRS_BNB (Transmitter Power Savings Enable)
0: 50% Tx output swing for mobile mode
1: full Tx output swing (Default setting for Desktop)

GPIO_1 - TX_DEEMPH_EN (Transmitter De-emphasis Enable)
0: Tx de-emphasis disabled for mobile mode
1: Tx de-emphasis enabled (Default setting for Desktop)

GPIO_2 - BIF_GEN2_EN (5.0 GT/s Enable)
0: Default. (Driver Controlled Gen2)
1: Strap Controlled Gen2

GPIO(11,13,12) - CONFIG[2..0]
100 - 512Kbit M25P05A (ST)
101 - 1Mbit M25P10A (ST)
101 - 2Mbit M25P20 (ST)
101 - 4Mbit M25P40 (ST)
101 - 8Mbit M25P80 (ST)
100 - 512Kbit Pm25LV512 (Chingis)
101 - 1Mbit Pm25LV010 (Chingis)

CONFIG[2]
CONFIG[1]
CONFIG[0]

GPIO_8 - BIF_CLK_PM_EN
0 - Disable CLKREQ# power management capability
1 - Enable CLKREQ# power management capability

GPIO_5 - AMD BOARD FEATURES I
0: 1 RANK OF MEMORY 1: 2 RANKS OF MEMORY
BANK SELECT;

GPIO_16 - AMD BOARD FEATURES II
BANK SELECT;

GPIO_7 - TV OUT STANDARD
0 - PAL TVO
1 - NTSC TVO

V2SYNC - VIP_DEVICE_STRAP_EN
0: Driver would ignore the value sampled on VHAD_0 during reset
1: Driver would use the value sampled at reset from VHAD_0 to determine whether or not a VIP slave device (e.g. Theater chip) is connected (i.e. 0 indicates yes, 1 indicates no).

GPIO_9 - VGA DISABLE : 1 for disable (set to 0 for normal operation)

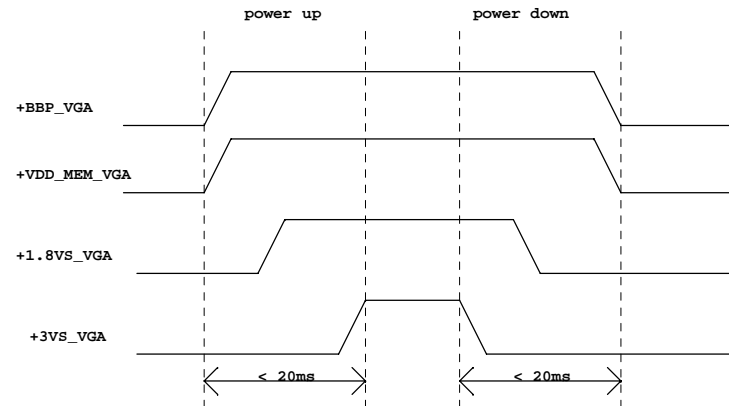
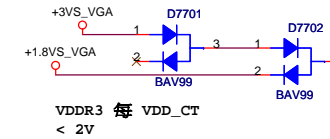
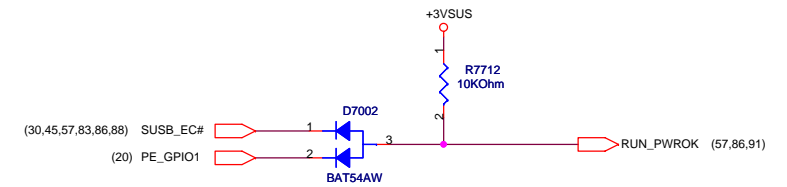
HSYNC_VSYNC - AUD[1:0]
00 - No audio function
01 - Audio for DisplayPort and HDMI if adapter is detected
10 - Audio for DisplayPort only
11 - Audio for both DisplayPort and HDMI.

Memory ID Board Straps

Vendor	DVPDATA(3,2,1,0)	ID	DDR2 Memory Type	Channel Size
Infineon (Qimonda)	0000	0	64M*16	
Samsung	0001	1	64M*16	
Hynix				
Micron				

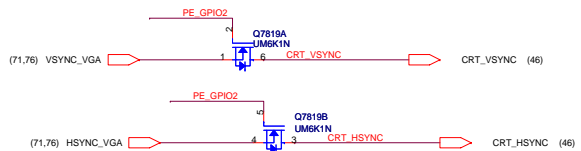
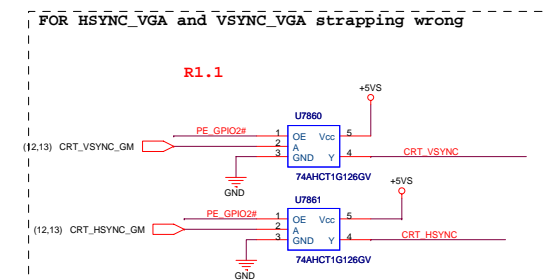
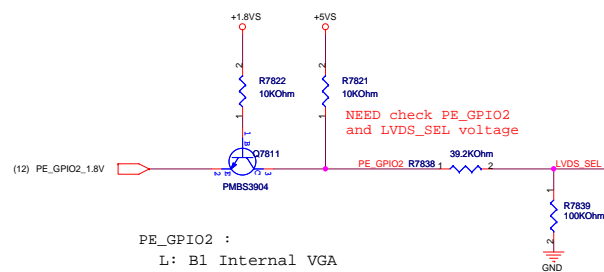
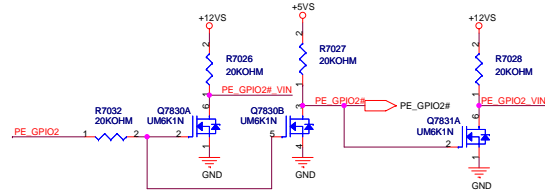
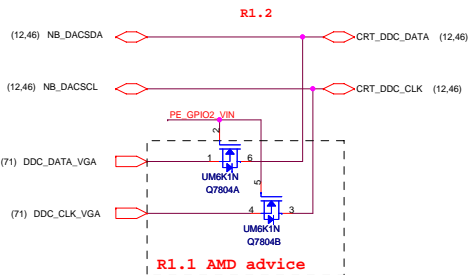
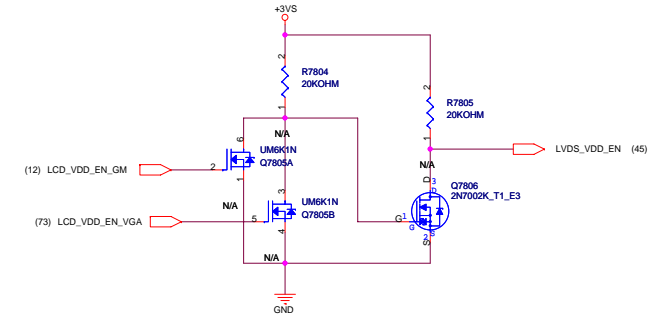
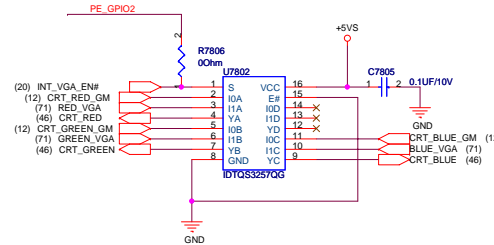
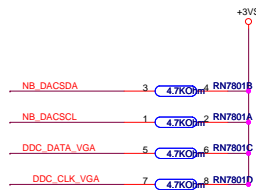
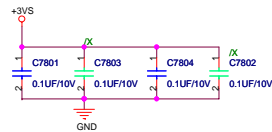
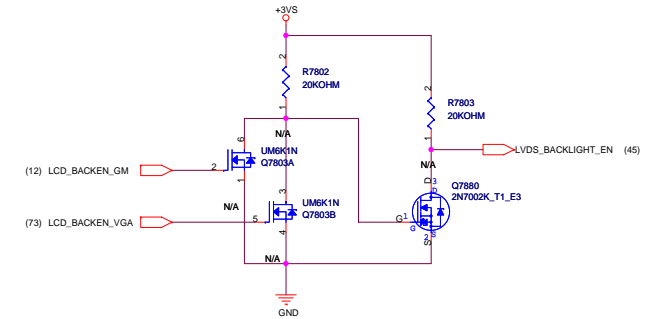
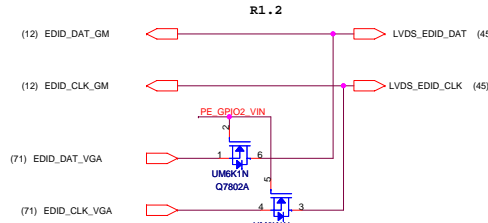
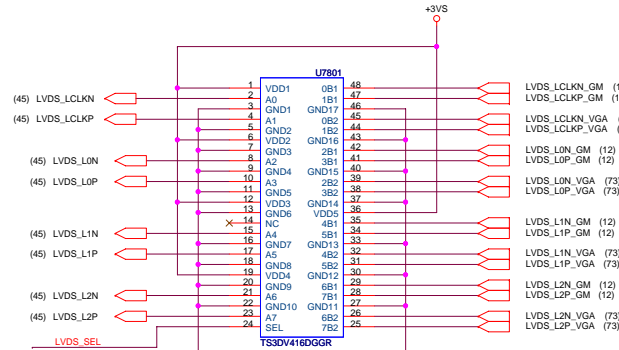
<Variant Name>

GPIO_21_BB_EN	+BBP
0	1.1V
1	1.5V



1.1-V rails should ramp before, or together with the 1.8-V rails.
The 1.1-V nominal voltage rails should never lag the 1.8-V nominal
voltage rails by more than 1.1 V within a 1 ms window.

<Variant Name>



POWER EXPRESS SUPPORT

PE_GPIO0 MXM RESET H: Enable

PE_GPIO1 MXM POWER ENABLE H: Enable

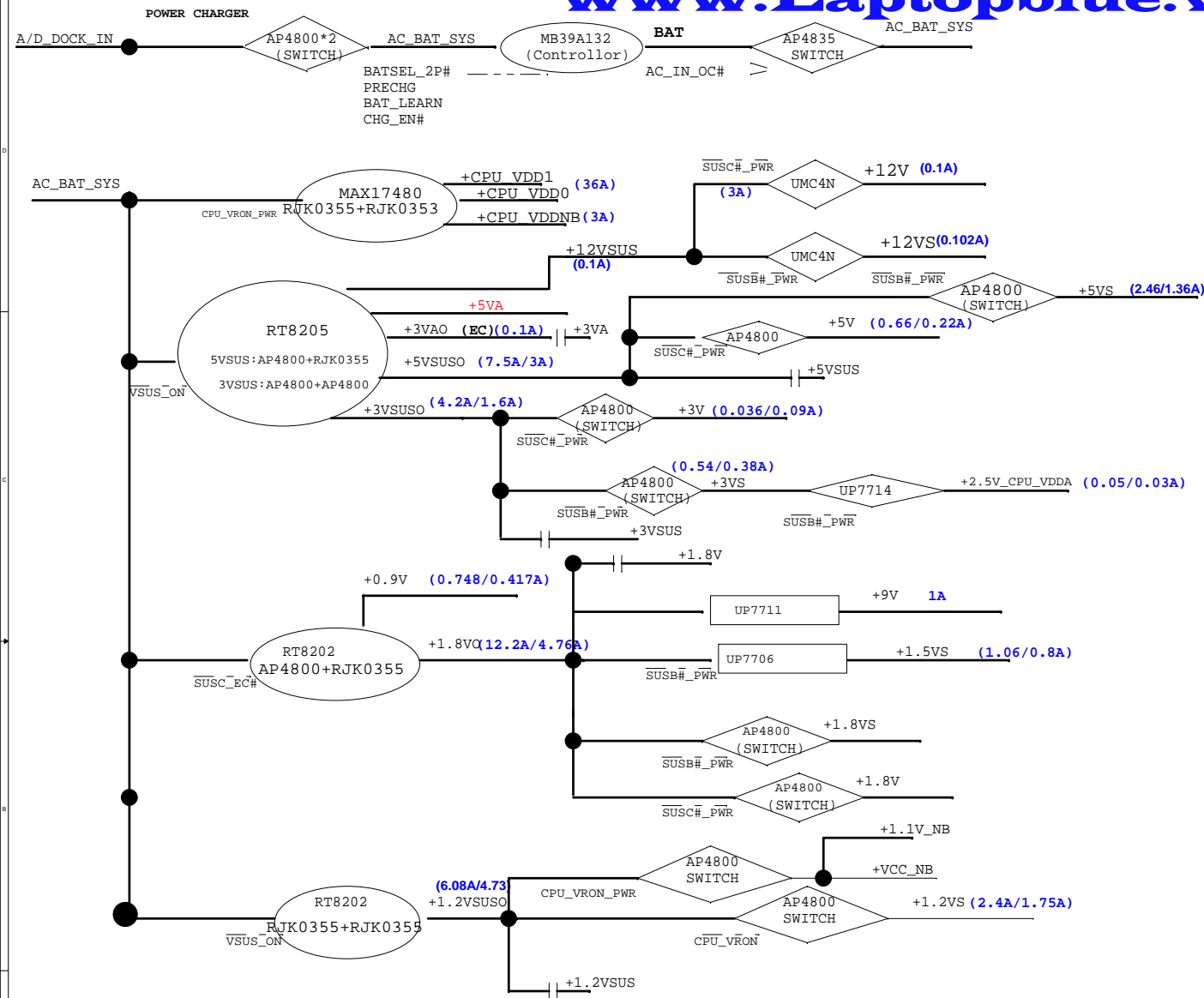
PE_GPIO2 MODE SWITCH

TMDS HPD0 MXM HOT PLUG

PE_GPIO2 :

L: B1 Internal VGA

H: B2 External VGA



<Variant Name>



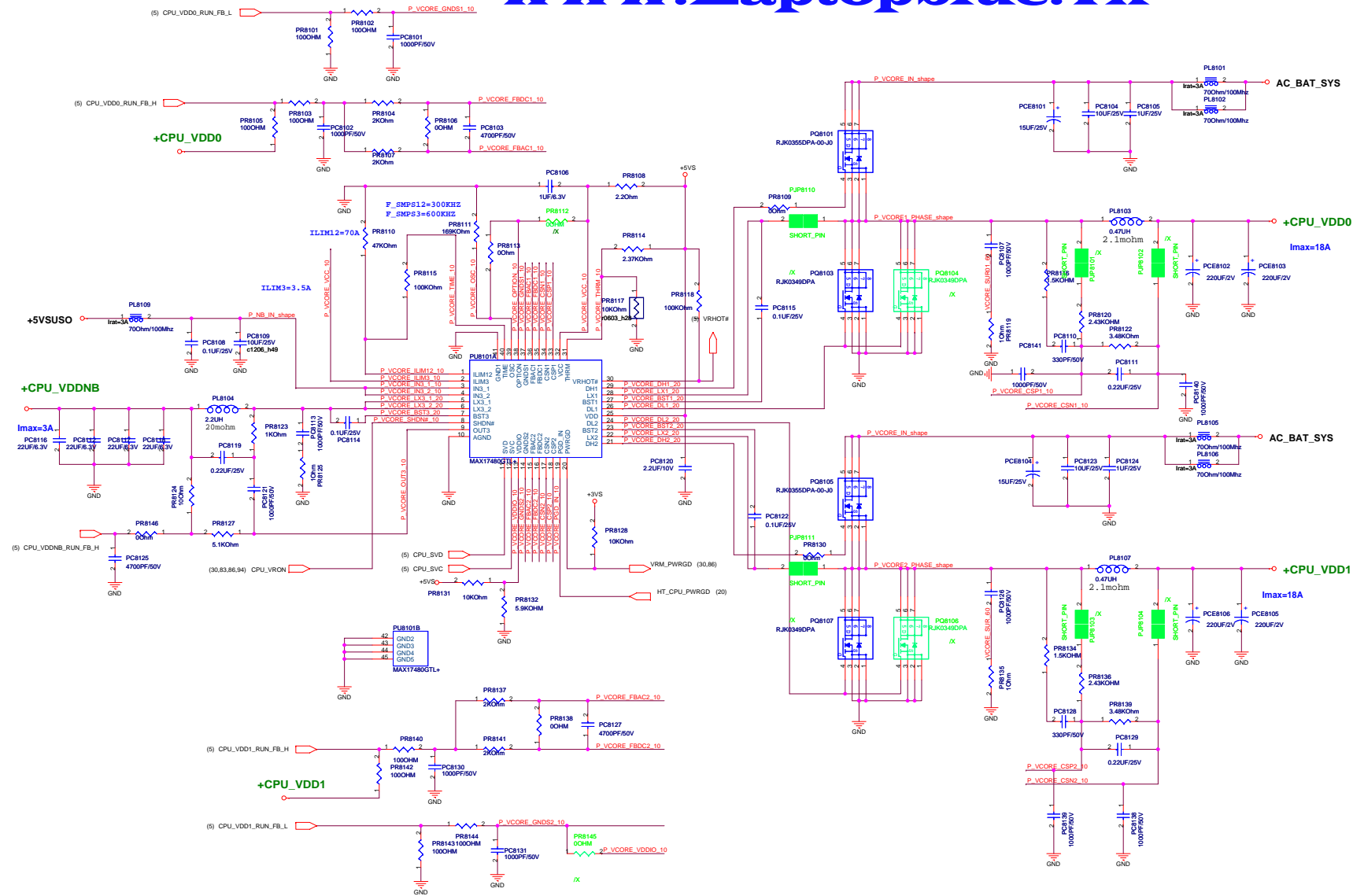
Title : Power_FLOW

ASUSTeK COMPUTER INC

Engineer: N/A

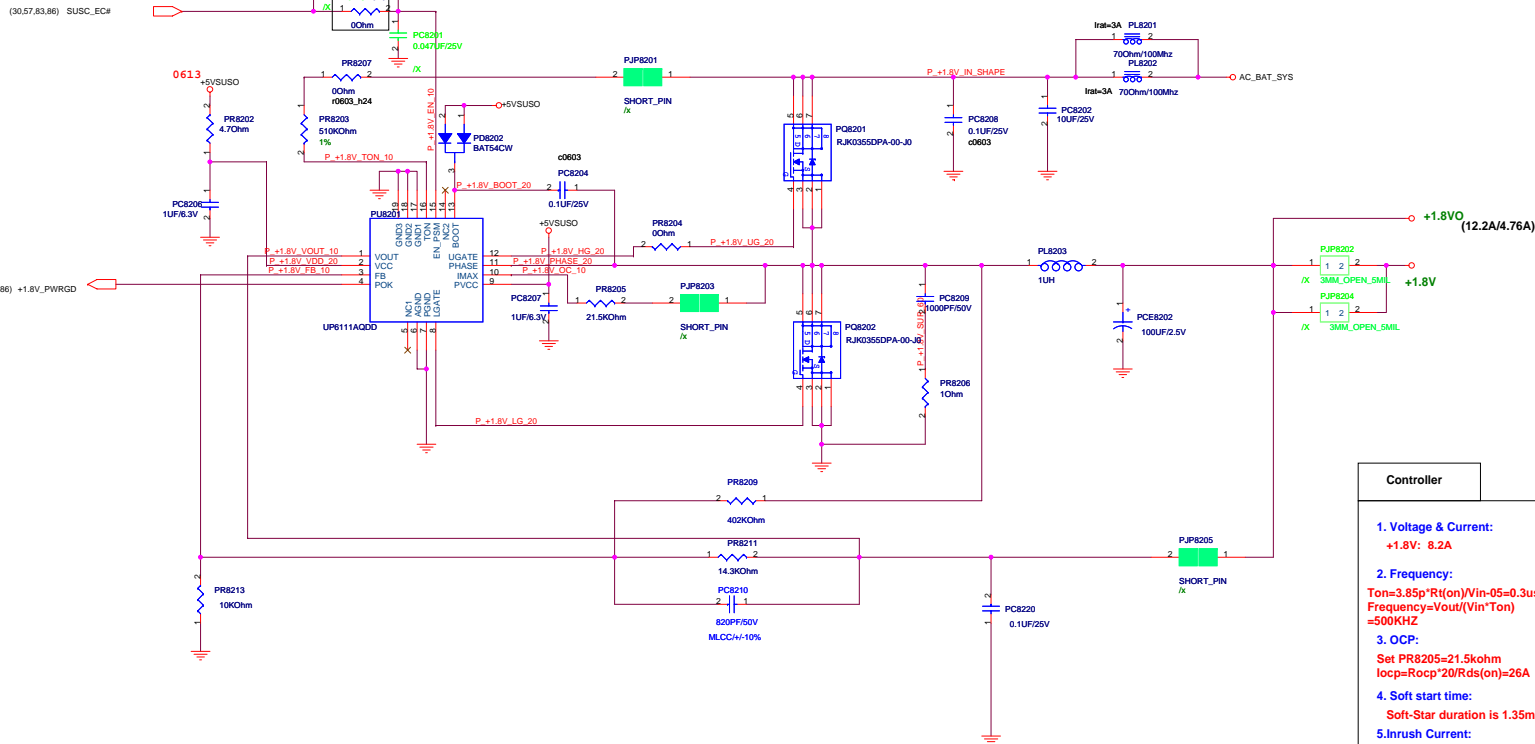
Size	Project Name	Rev
A	Oemga	1.0

Date: Wednesday, April 08, 2009 Sheet 80 of 94



<Variant Name>

ASUS		Title: +VCORE	
ASUSTeK COMPUTER INC.		Engineer:	
Size	Project Name	Rev	1.0
Custom	Omega	Date: Wednesday, April 08, 2009	Sheet 81 of 84

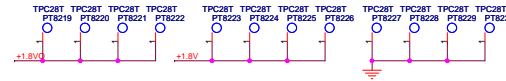


Controller

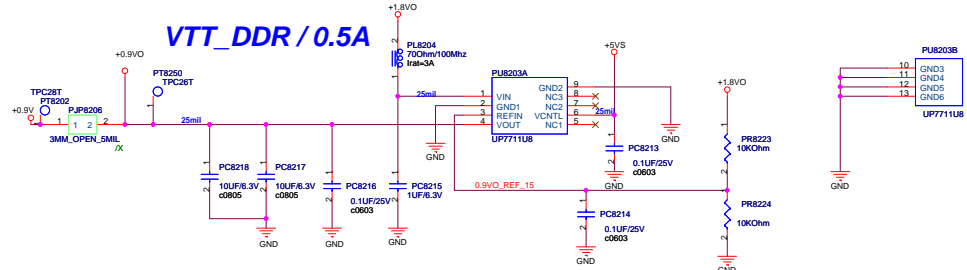
- 1. Voltage & Current:**
+1.8V: 8.2A
- 2. Frequency:**
 $T_{on} = 3.85 \mu s \cdot R_t(ON) / V_{in} - 0.3 \mu s$
 $F_{frequency} = V_{out} / (V_{in} \cdot T_{on}) = 500KHZ$
- 3. OCP:**
Set PR8205=21.5kohm
 $I_{OCP} = R_{OCP} \cdot 20 / R_{ds(ON)} = 26A$
- 4. Soft start time:**
Soft-Star duration is 1.35ms
- 5. Inrush Current:**
C total =220uF
I inrush=0.163A

Power stage

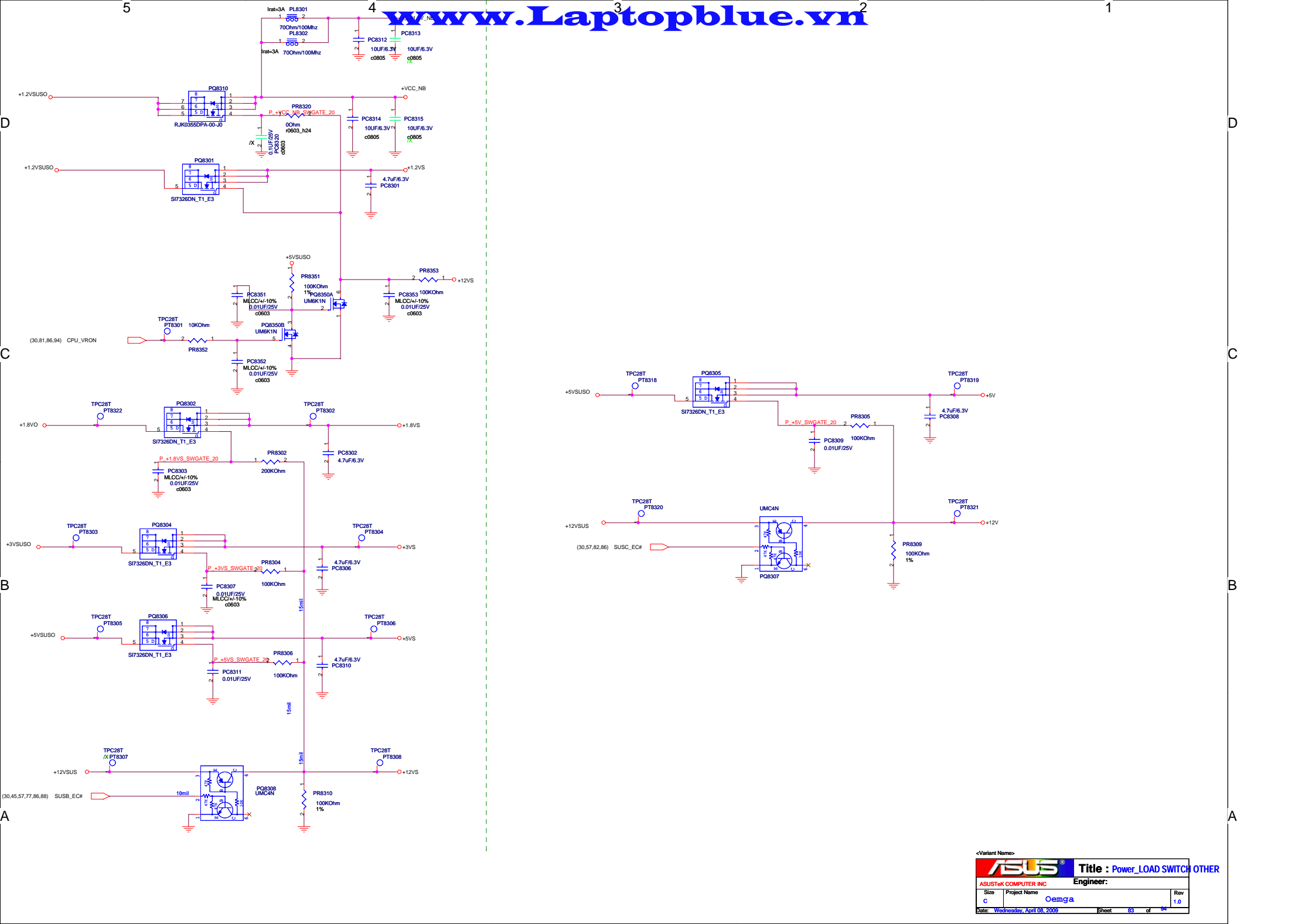
- 1. IP Current:**
 $I_{in} = V_o \cdot I_o / (0.75 \cdot V_{in}) = 1.035A$
- 2. Ripple Current:**
Iripple=2.4A
- 3. Dynamic:**
 $I_{peak} = 9.5A$
 $ESR/2 = 4.5mohm$
 $V = 42.75mV$
- 4. Inductor Spec:**
 $I_{sat} = 25A$
 $I_{dc} = 15.5A$
 $DCR = 5.5mohm$
- 5. MOSFET Spec:**
H-side and L-side MOSFET:
 $R_{ds(ON)} = 16.5mOhm$ ($V_{gs} = 4.5V$)
 $I_{cont} = 30A$ ($T = 25$)
 $I_{peak} = 120A$ (Pause<10us)




VTT_DDR / 0.5A

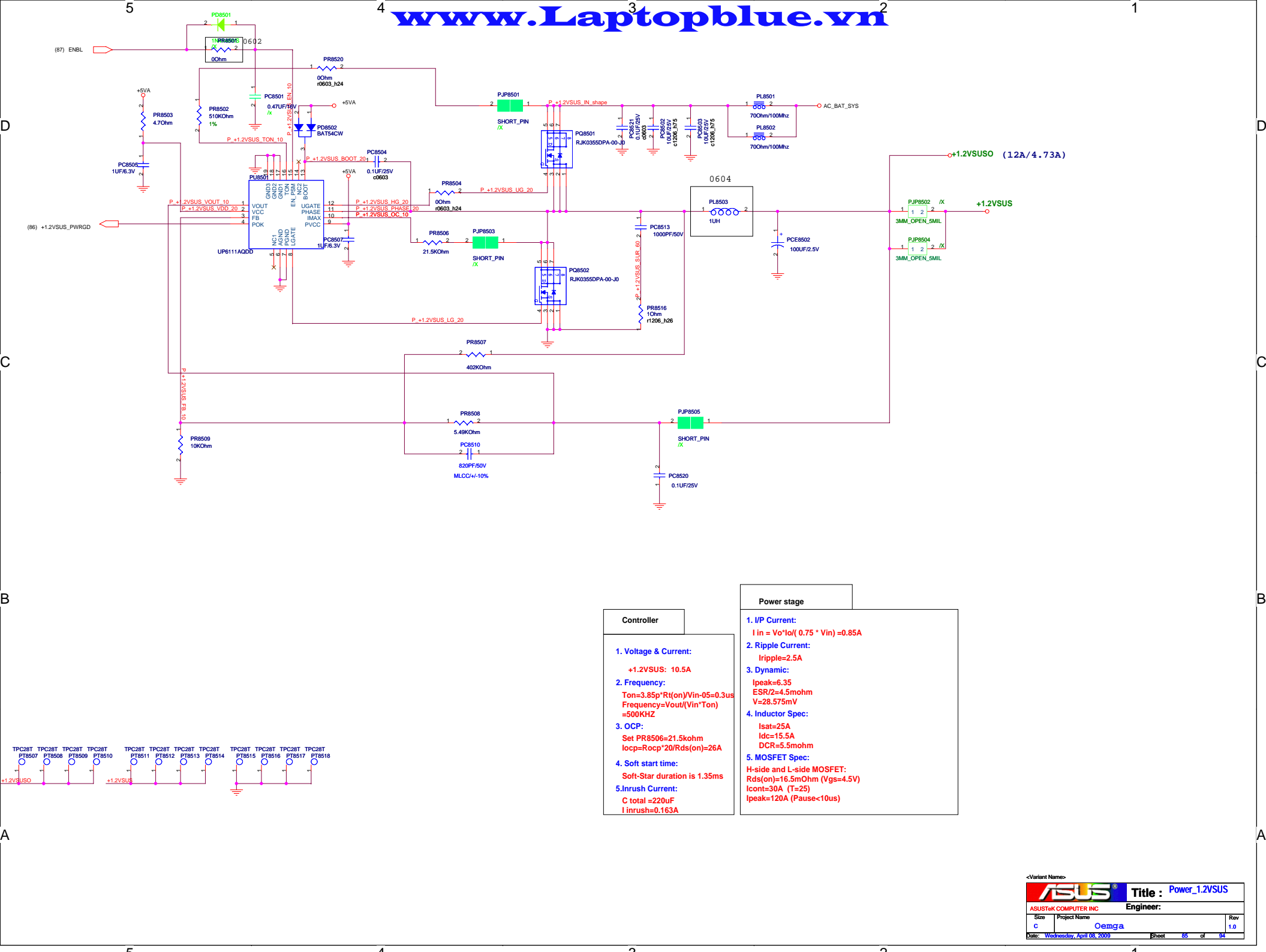


<Variant Name>



<Variant Name>

		Title : Power_Charger	
ASUSTek Computer INC.		Engineer:	
Size	Project Name		Rev
Custom			1.0
Date: Wednesday, April 08, 2009		Sheet	84 of 94



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POWER GOOD DETECTOR

The schematic diagram illustrates the Power Good Detector circuit. It features a +3VSUSO voltage source connected to a network of resistors (PR8601, PR8602, PR8603, PR8604, PR8605, PR8606, PR8607, PR8608, PR8609, PR8610, PR8611, PR8612, PR8615) and diodes (PD8601, PD8602, PD8603, PD8604, PD8605, PD8606, PD8607, PD8608, PD8609, PD8610, PD8611, PD8612). The circuit is connected to various power rails including +5VSUS, +1.2VSUS, SUS, +1.8V, +1.5V, VRM, +3VAO, and FORCE_OFF. A red box highlights the +3VSUSO source and the PR8601 resistor.

Legend:

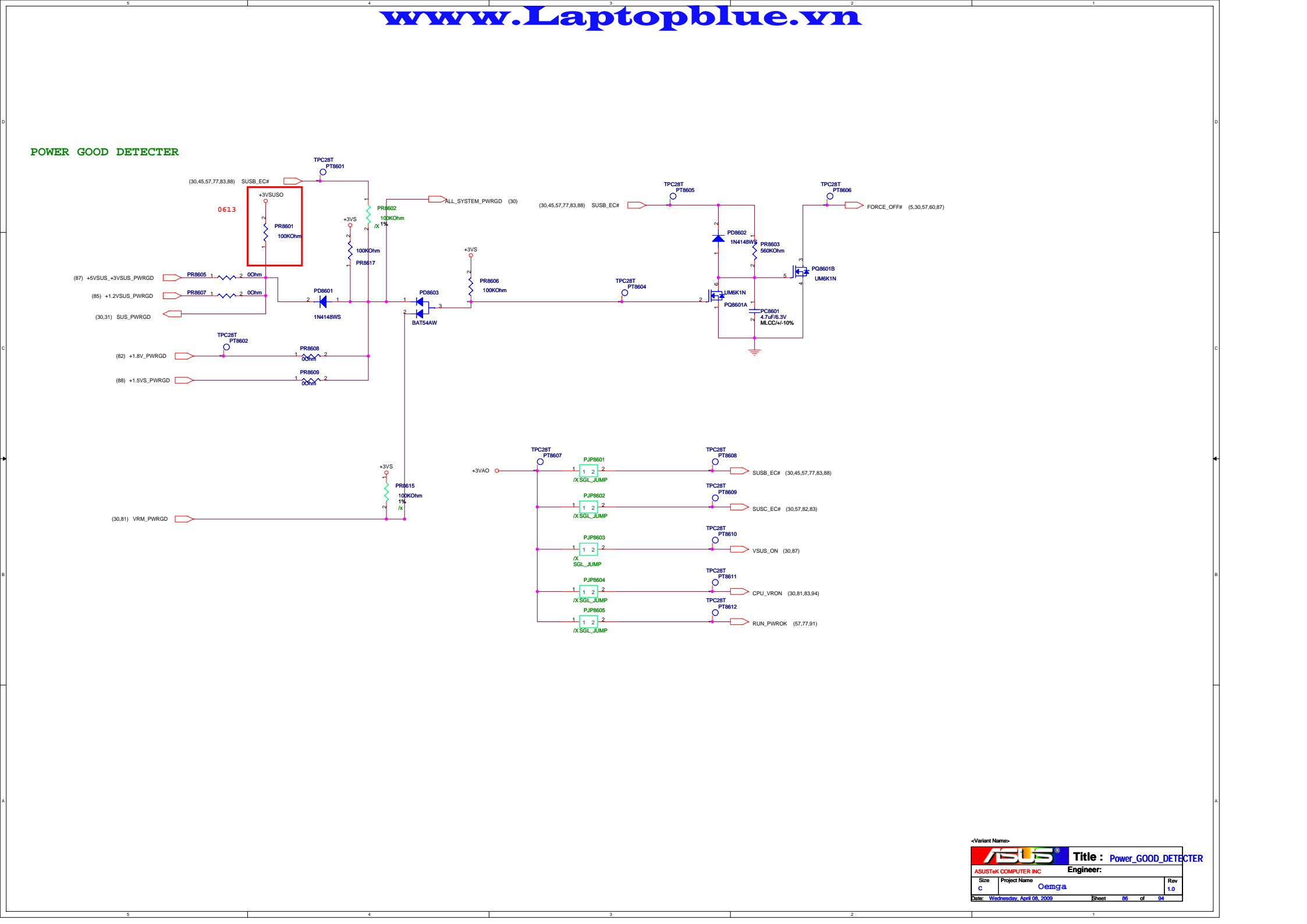
- TPC28T PT8601: TPC28T PT8601
- TPC28T PT8602: TPC28T PT8602
- TPC28T PT8603: TPC28T PT8603
- TPC28T PT8604: TPC28T PT8604
- TPC28T PT8605: TPC28T PT8605
- TPC28T PT8606: TPC28T PT8606
- TPC28T PT8607: TPC28T PT8607
- TPC28T PT8608: TPC28T PT8608
- TPC28T PT8609: TPC28T PT8609
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- TPC28T PT8611: TPC28T PT8611
- TPC28T PT8612: TPC28T PT8612

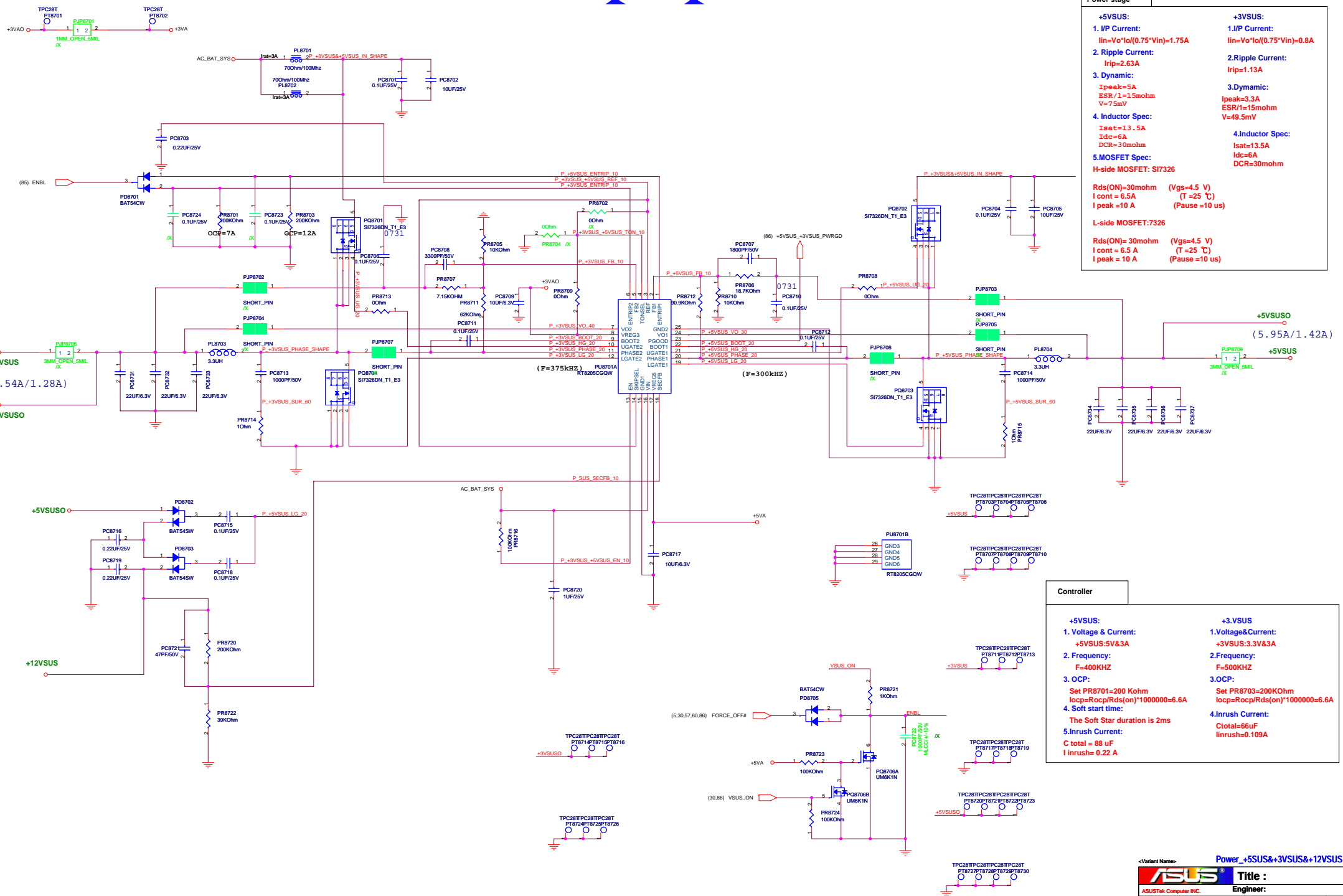
ASUS Logo

ASUSTeK COMPUTER INC

Project Name **Engineer:** **Rev**

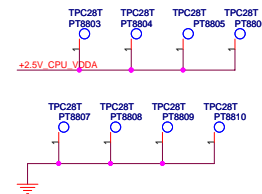
Date: Wednesday, April 08, 2009 **Sheet** 86 **of** 94





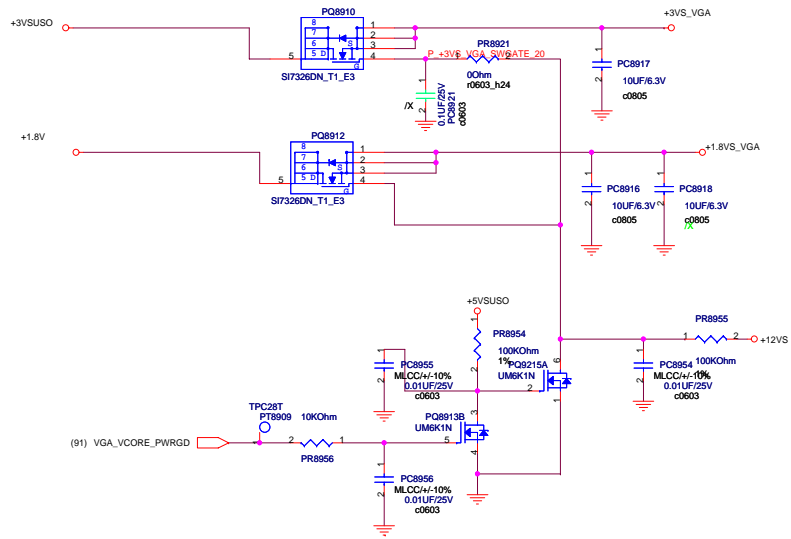
Power stage	
+5VSUS:	+3VSUS:
1. I/P Current: $I_{in} = V_o \cdot I_o / (0.75 \cdot V_{in}) = 1.75A$	1. I/P Current: $I_{in} = V_o \cdot I_o / (0.75 \cdot V_{in}) = 0.8A$
2. Ripple Current: $I_{rip} = 2.63A$	2. Ripple Current: $I_{rip} = 1.13A$
3. Dynamic: $I_{peak} = 5A$ $ESR / 1 = 1.5mohm$ $V = 75mV$	3. Dynamic: $I_{peak} = 3.3A$ $ESR / 1 = 15mohm$ $V = 49.5mV$
4. Inductor Spec: $I_{sat} = 13.5A$ $I_{dc} = 6A$ $DCR = 30mohm$	4. Inductor Spec: $I_{sat} = 13.5A$ $I_{dc} = 6A$ $DCR = 30mohm$
5. MOSFET Spec: H-side MOSFET: SI7326	
$R_{ds(ON)} = 30mohm$ ($V_{gs} = 4.5V$) $I_{cont} = 6.5A$ ($T = 25^\circ C$) $I_{peak} = 10A$ (Pause = 10 us)	
L-side MOSFET: 7326	
$R_{ds(ON)} = 30mohm$ ($V_{gs} = 4.5V$) $I_{cont} = 6.5A$ ($T = 25^\circ C$) $I_{peak} = 10A$ (Pause = 10 us)	

Controller	
+5VSUS:	+3VSUS:
1. Voltage & Current: +5VSUS: 5V83A	1. Voltage & Current: +3VSUS: 3.3V83A
2. Frequency: F = 400KHZ	2. Frequency: F = 500KHZ
3. OCP: Set PR8701 = 200 Kohm $I_{ocp} = R_{ocp} / R_{ds(on)} \cdot 1000000 = 6.6A$	3. OCP: Set PR8703 = 200 Kohm $I_{ocp} = R_{ocp} / R_{ds(on)} \cdot 1000000 = 6.6A$
4. Soft start time: The Soft Star duration is 2ms	4. Inrush Current: $C_{total} = 66uF$ $I_{inrush} = 0.109A$
5. Inrush Current: C total = 88 uF I inrush = 0.22 A	




1. Dropout Voltage:
 $\Delta V = 0.21V$ ($I_o = 0.3A$)
2. Current Limit:
 $I_{limit} = 320mA$
3. Continue Current:
 $I_{cont} = 300mA$
4. Power Dissipation:
 $R_{thjc} = 250^\circ C/W$
 $P_d = 0.4W$
5. EN Voltage:
 $V_{rising} = 2V$
 $V_{falling} = 0.8V$
6. Supply Voltage:
 $V_{cc} = 3V$
7. Inrush current:
 $T_{ss} = 400\mu s$
 $C_{total} = 10\mu F$
 $I_{inrush} = 0.063A$

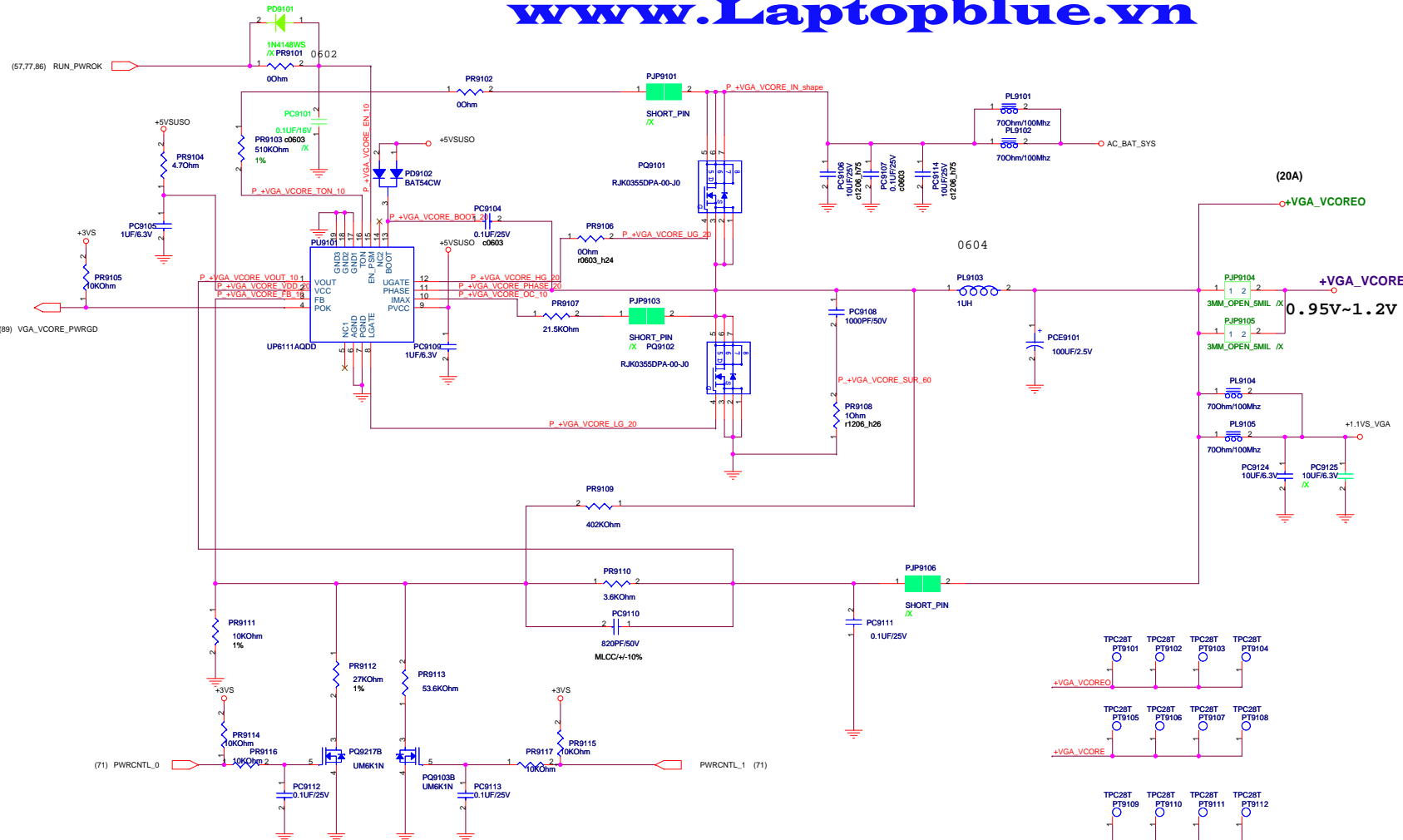
1. Dropout Voltage:
 $\Delta V = 0.3V$ ($I_o = 2A$)
2. Current Limit:
 $I_{limit} = 4A$
3. Continue Current:
 $I_{cont} = 2A$
4. Power Dissipation:
 $R_{thjc} = 52^{\circ}C/W$
 $P_d = 1.9W$
5. EN Voltage:
 $V_{rising} = 1.4V$
 $V_{falling} = 0.8V$
6. Supply Voltage:
 $V_{cc} = 5V$
7. Inrush current:
 $T_{ss} = 400\mu s$
 $C_{total} = 10\mu F$
 $I_{inrush} = 0.063A$



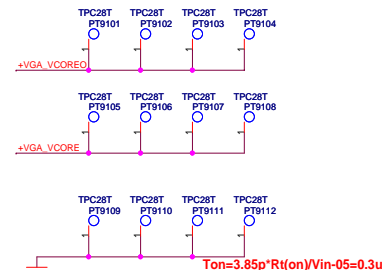
<Variant Name>

ASUS		Title :	
ASUSTeK COMPUTER INC		Engineer: N/A	
Size	Project Name		Rev
C	Oemga		1.0
Date: Wednesday, April 08, 2009	Sheet	89	of 94

		Title :	
ASUSTek Computer INC.		Engineer:	
Size Custom	Project Name Oemga		Rev 1.0
Date: Wednesday, April 08, 2009		Sheet 90 of 94	



PWRCTRL_0	PWRCTRL_1	VGA_VCORE	
0	0	1.02	-5%
0	1	1.071	Normal
1	0	1.12	+5%
1	1	1.171	+10%



$T_{on} = 3.85p \cdot R_t(ON) / V_{in} - 0.5 = 0.3us$
 $Frequency = V_{out} / (V_{in} \cdot T_{on})$
~500KHZ

Controller

1. Voltage & Current:
 +1.2VSUS: 16A

2. Frequency:

3. OCP:
 Set PR8506=21.5kohm
 $I_{ocp} = R_{ocp} \cdot 20 / R_{ds(on)} = 26A$

4. Soft start time:
 Soft-Star duration is 1.35ms

5. Inrush Current:
 C total = 220uF
 $I_{inrush} = 0.163A$

Power stage

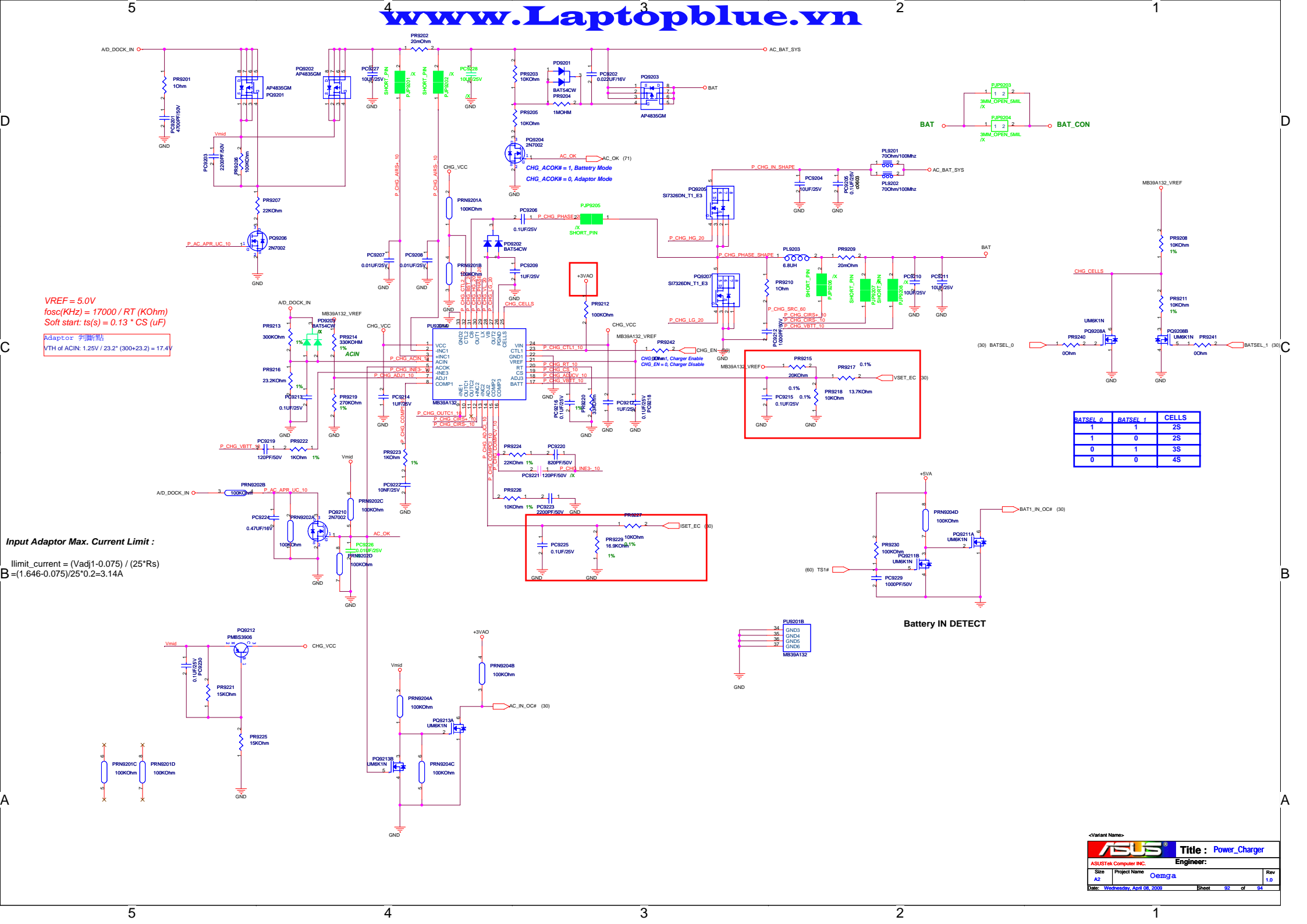
1. IP Current:
 $I_{in} = V_o \cdot I_o / (0.75 \cdot V_{in}) = 0.85A$

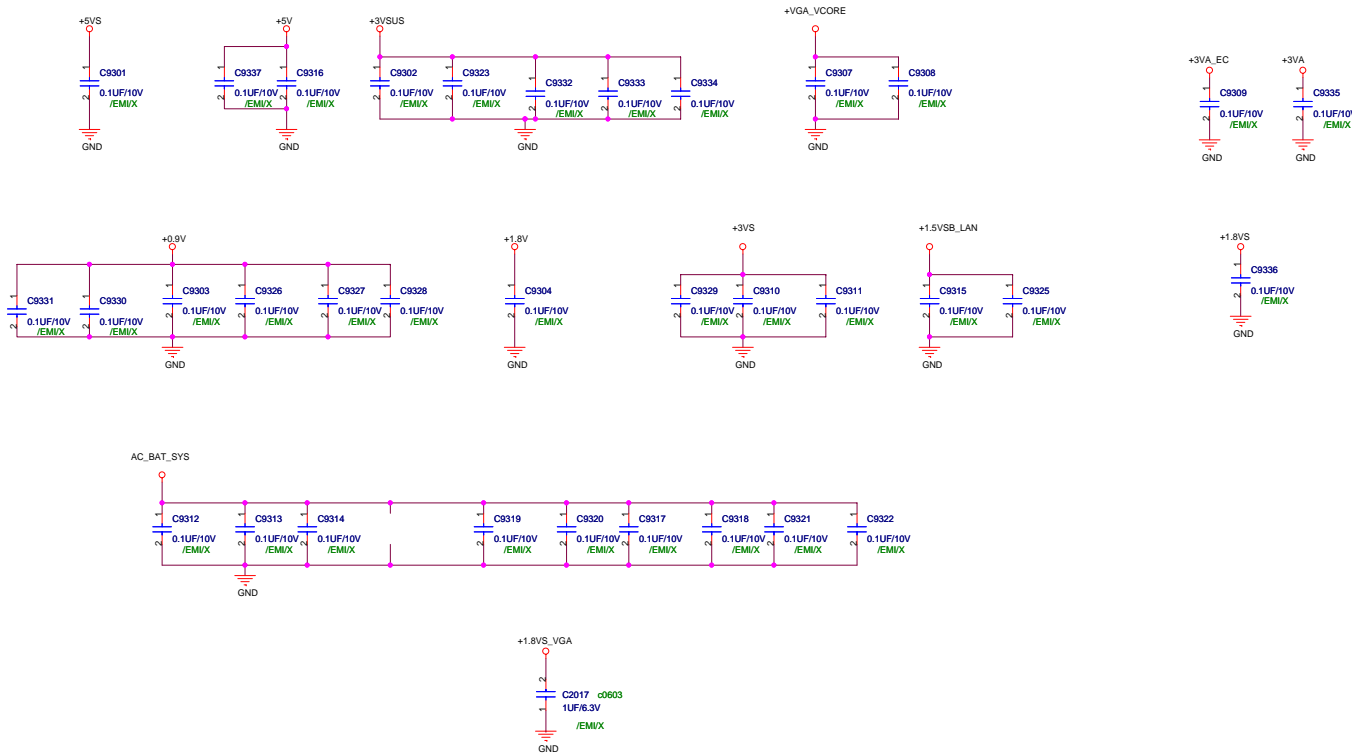
2. Ripple Current:
 $I_{ripple} = 3.74A$

3. Dynamic:
 $I_{peak} = 6.1A$
 $ESR/2 = 4.5mohm$
 $V = 27.5mohm$

4. Inductor Spec:
 $I_{sat} = 25A$
 $I_{dc} = 15.5A$
 $DCR = 5.5mohm$

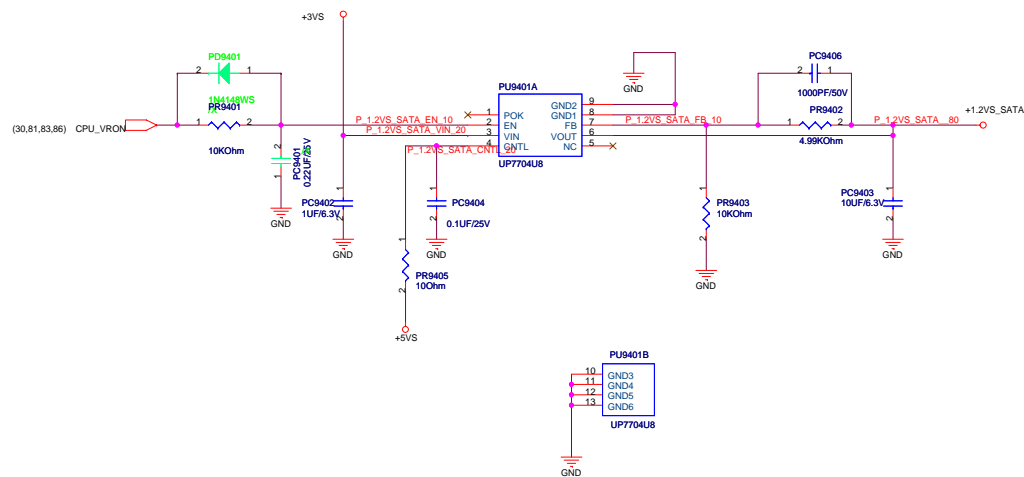
5. MOSFET Spec:
 H-side and L-side MOSFET:
 $R_{ds(on)} = 16.5mOhm$ ($V_{gs} = 4.5V$)
 $I_{cont} = 30A$ ($T = 25$)
 $I_{peak} = 120A$ (Pause < 10us)





<Variant Name>

ASUS		Title :	
ASUSTeK COMPUTER INC		Engineer:	
Size	Project Name	Rev	
C	K40AA	1.0	
Date: Wednesday, April 08, 2009		Sheet	93 of 94



**+1.2VS_SATA /
220mA/350mA**

1.2V @ 0.1A

1. Dropout Voltage:
 $\Delta V = 0.3V$ ($I_o \approx 2A$)

2. Current Limit:
 $I_{limit} \approx 2.5A$

3. Continue Current:
 $I_{cont} = 2A$

4. Power Dissipation:
 $R_{thjc} = 52^\circ C/W$
 $P_d = 1.8W$

5. EN Voltage:
 $V_{rising} = 2V$
 $V_{falling} = 0.8V$

6. Supply Voltage:
 $V_{cc} \approx 3V$

7. Inrush current:
 $T_{ss} = 400\mu s$
 $C_{total} = 10\mu F$
 $I_{inrush} = 0.063A$

<Variant Name>

ASUS		Title :	
ASUSTeK COMPUTER INC.		Engineer:	
Size	Project Name	Rev	
C	K40AA	1.0	
Date: Wednesday, April 08, 2009	Sheet	94	of 94