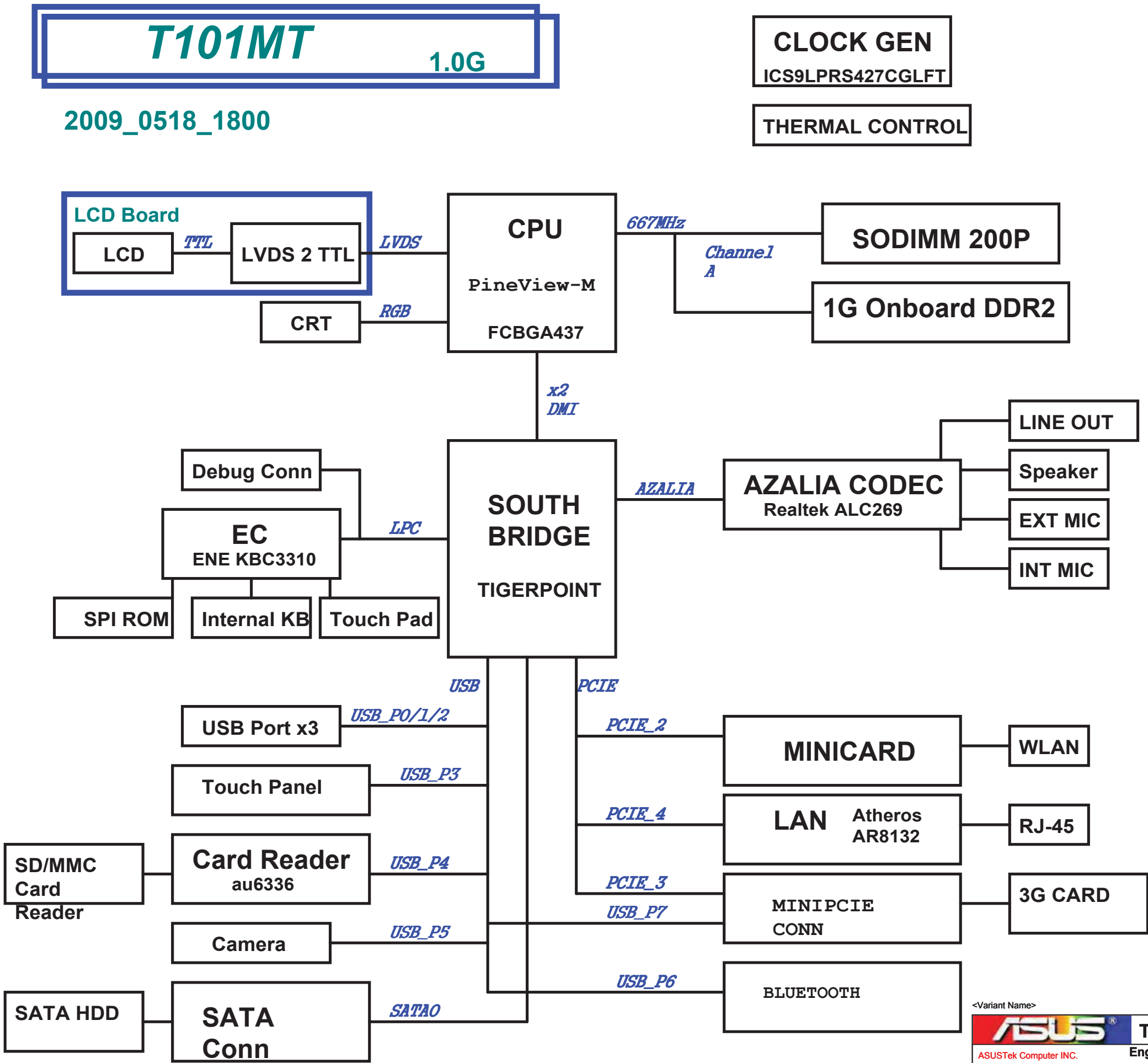
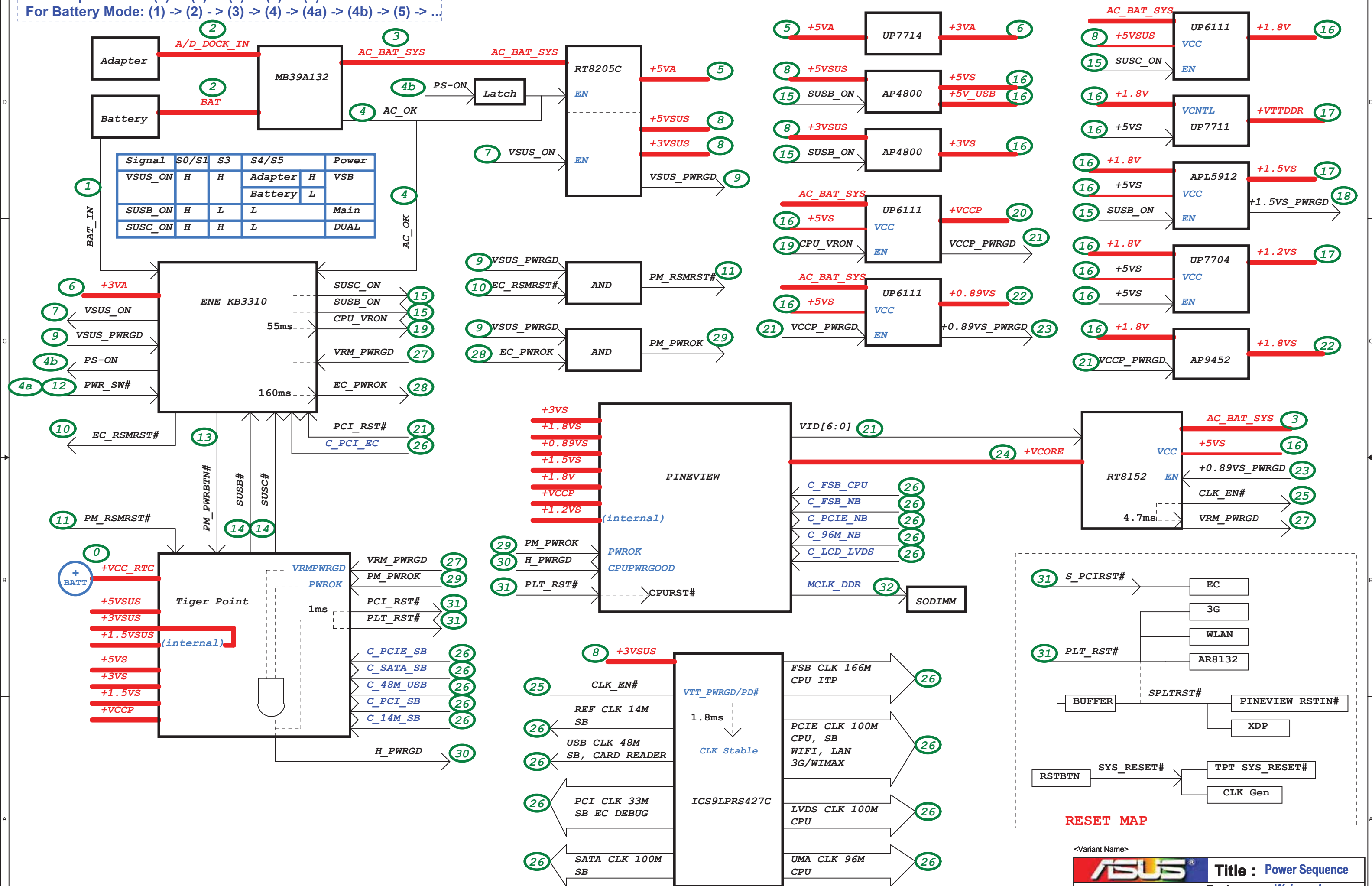


01_Block Diagram
02_Power Sequence
03_Clock Gen_ICS9LPRS427C
04.PineView-M_1 (LVDS_DMI_CPU)
05.PineView-M_2 (DDR2_XDP_CRT)
06.PineView-M_3 (PWR&GND)
07.XDP
08.Tigerpoint_DMI_USB
09.Tigerpoint_SYS
10.Tigerpoint_PWR
11.DDR2 SODIMM
12.Onboard DDR2
13.DDR2-Termination
14.Onboard VGA
15.LCD Conn_LID
16.LAN_AR8132
17.WLAN&3G
18.ALC269-1
19.ALC269-2(I/O)
20.Bluetooth
21.CAMERA CON
22.CardReader CON
23.HOTKEY CON
24.USB Port
25.KB_TP
26.EC_ENE KB3310
27.G_Senser
28.Fan_debug
29.HDD CON
30.SPI_ROM
31.PWR Jack
32.USB CON
33.Screw Hole
34.EMI
35_Power Flow
36_Charger_Support JEITA
37_VCORE_RT8152 Solution
38_Power System
39_Power_+1.8V&VTTDDR&+1.8VS
40_Power_VCCP_Converter
41_+0.89VS_Converter
42_Power_+1.5VS
43_Power Latch

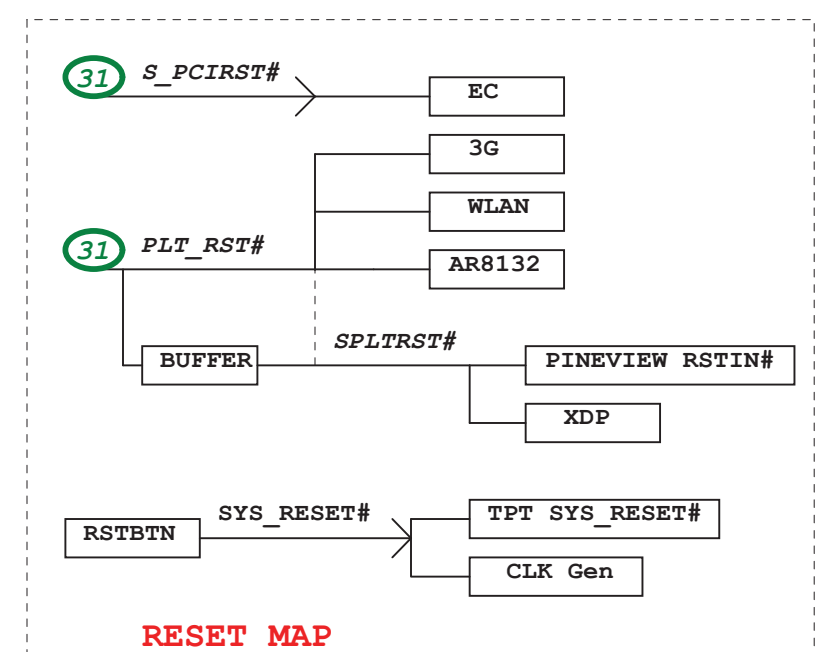


<Variant Name>		Title : Block Diagram	
ASUSTek Computer INC.		Engineer: Wabor_xie	
Size	Project Name	Rev	
Custom	T101MT	1.0G	
Date: Thursday, August 27, 2009		Sheet 1 of 42	

For Adapter Mode: (1) -> (2) -> (3) -> (4) -> (5) -> ...
For Battery Mode: (1) -> (2) -> (3) -> (4) -> (4a) -> (4b) -> (5) -> ...



RESET MAP

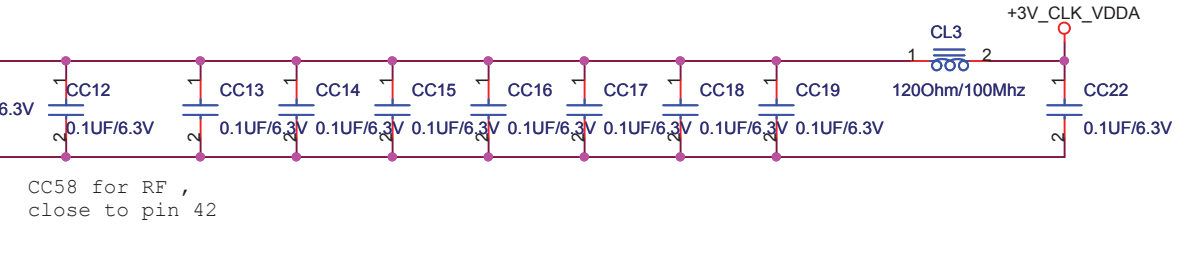
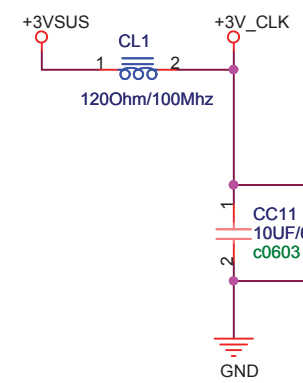
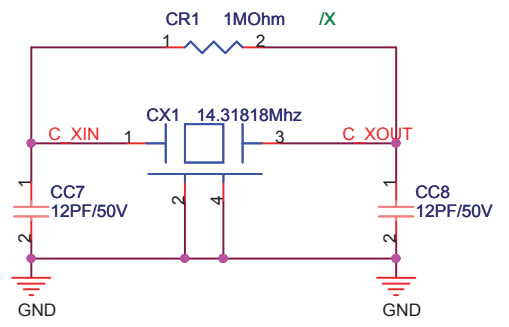


D

C

B

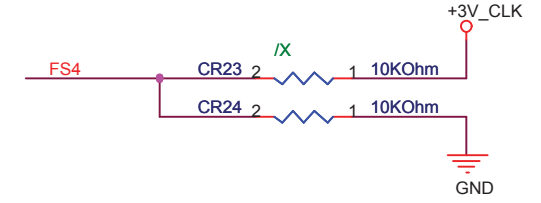
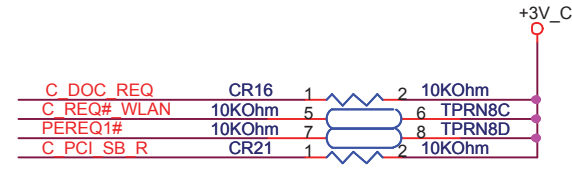
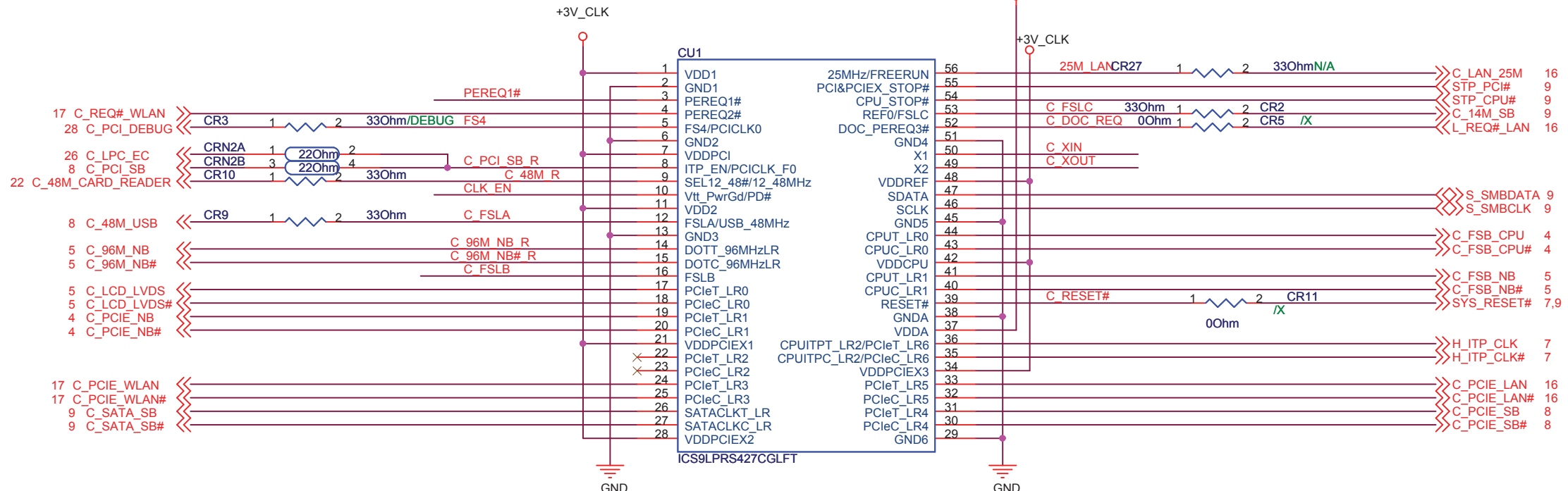
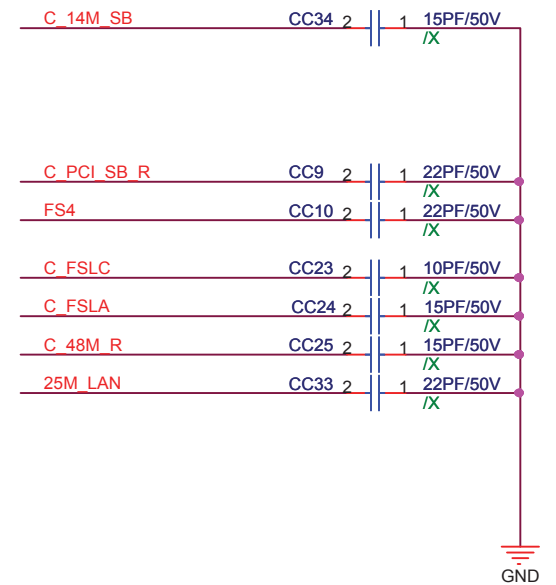
A



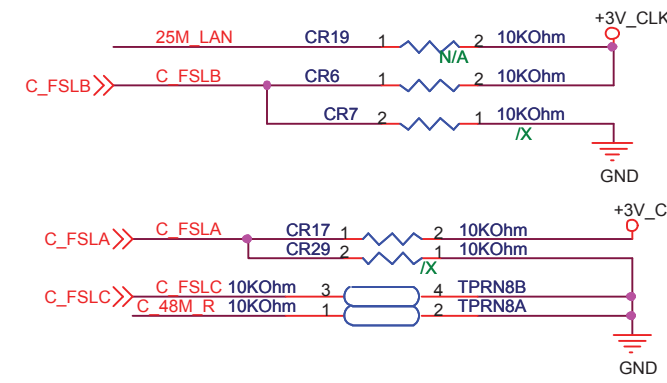
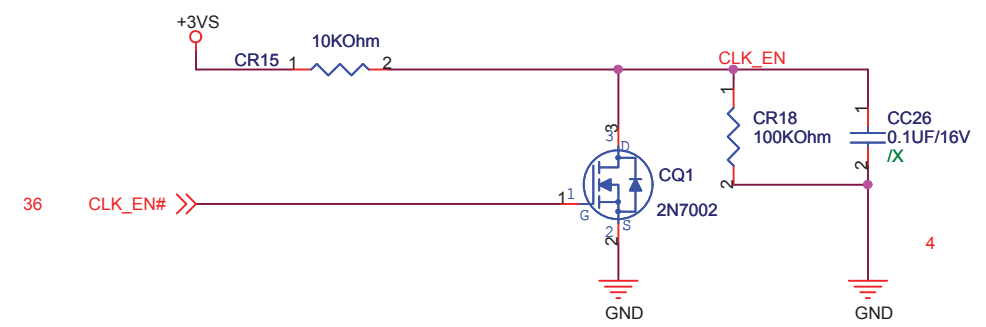
1:Disable
0:Enable

PEREQ1:PCIEx0 &
PCIEx1
PEREQ2:PCIEx2 &
PCIEx3 & SATA
PEREQ3:PCIEx4 &
PCIEx5 & PCIEx6

FS4	Function
H	FIXED PLL (Asynchronous)
L	PCI/PCIEX PLL(synchronize)

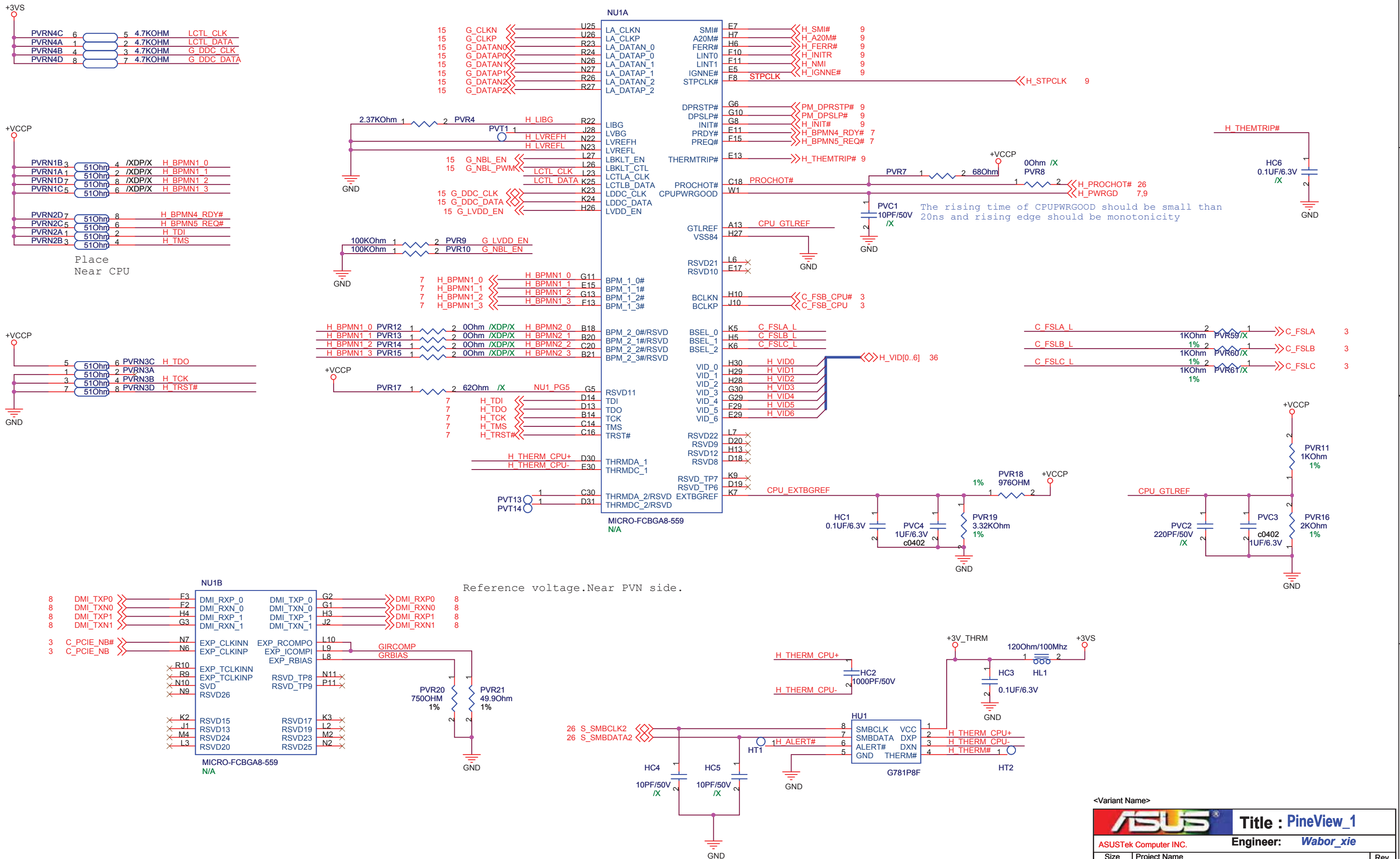


FSLC	FSLB	FSLA	CPU(MHZ)
0	1	1	166
0	0	1	133



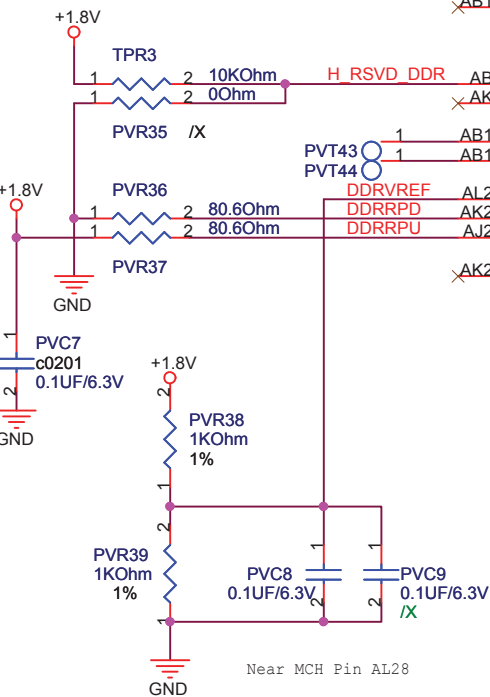
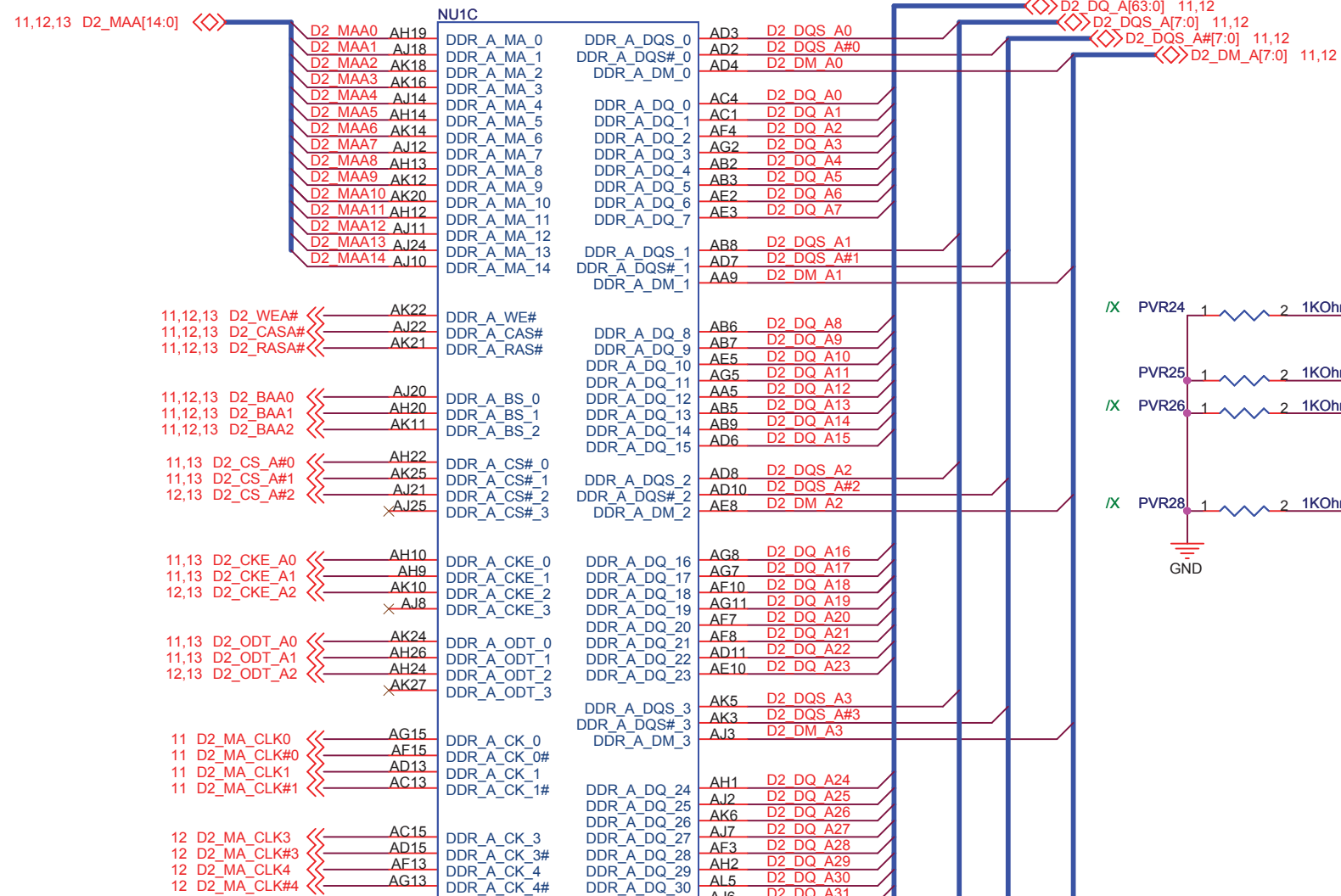
I2C to control LCD backlight, Type I/O.

Reserved for debug

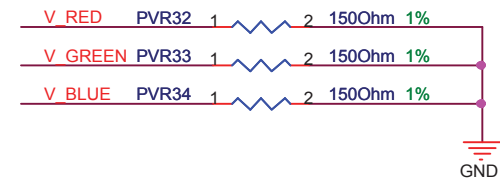
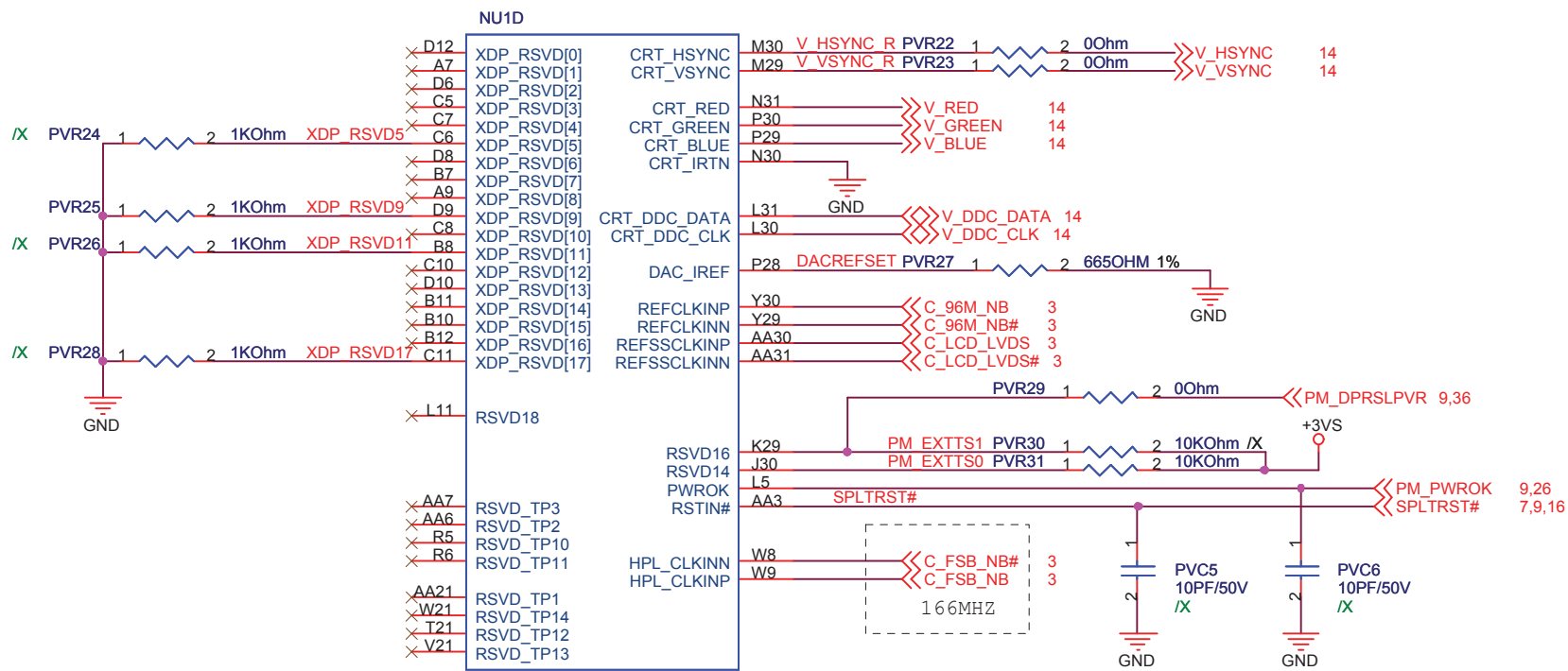


<http://hobi-elektronika.net>

<Variant Name>

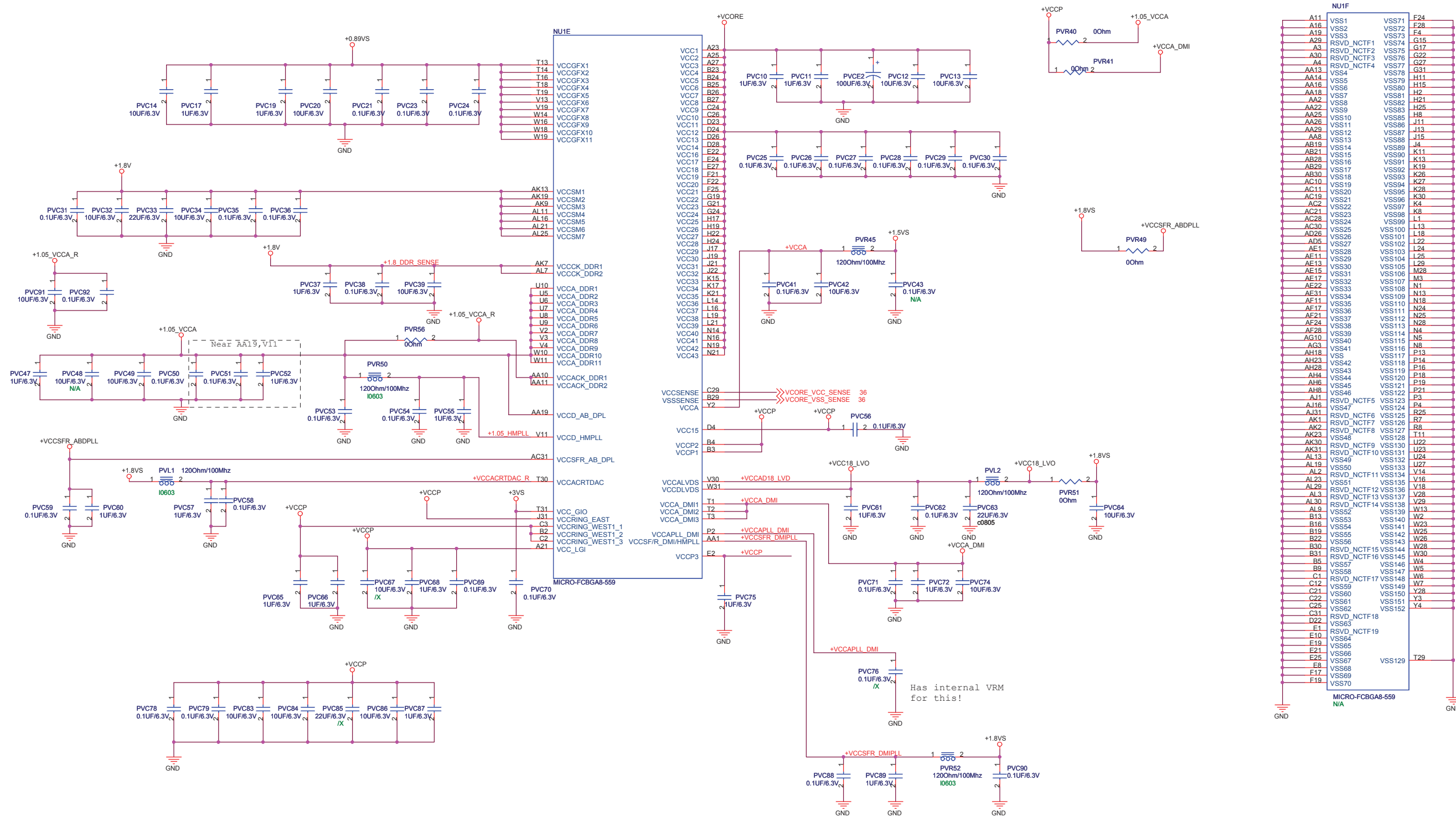


DDC CLK&DATA need 2.2K Pull up to +3VS(Or may we can use 4.7K);connector side has pull-up resistor.



Intel confirm only RSVD9 need stuff 1K resistor.

<Variant Name>

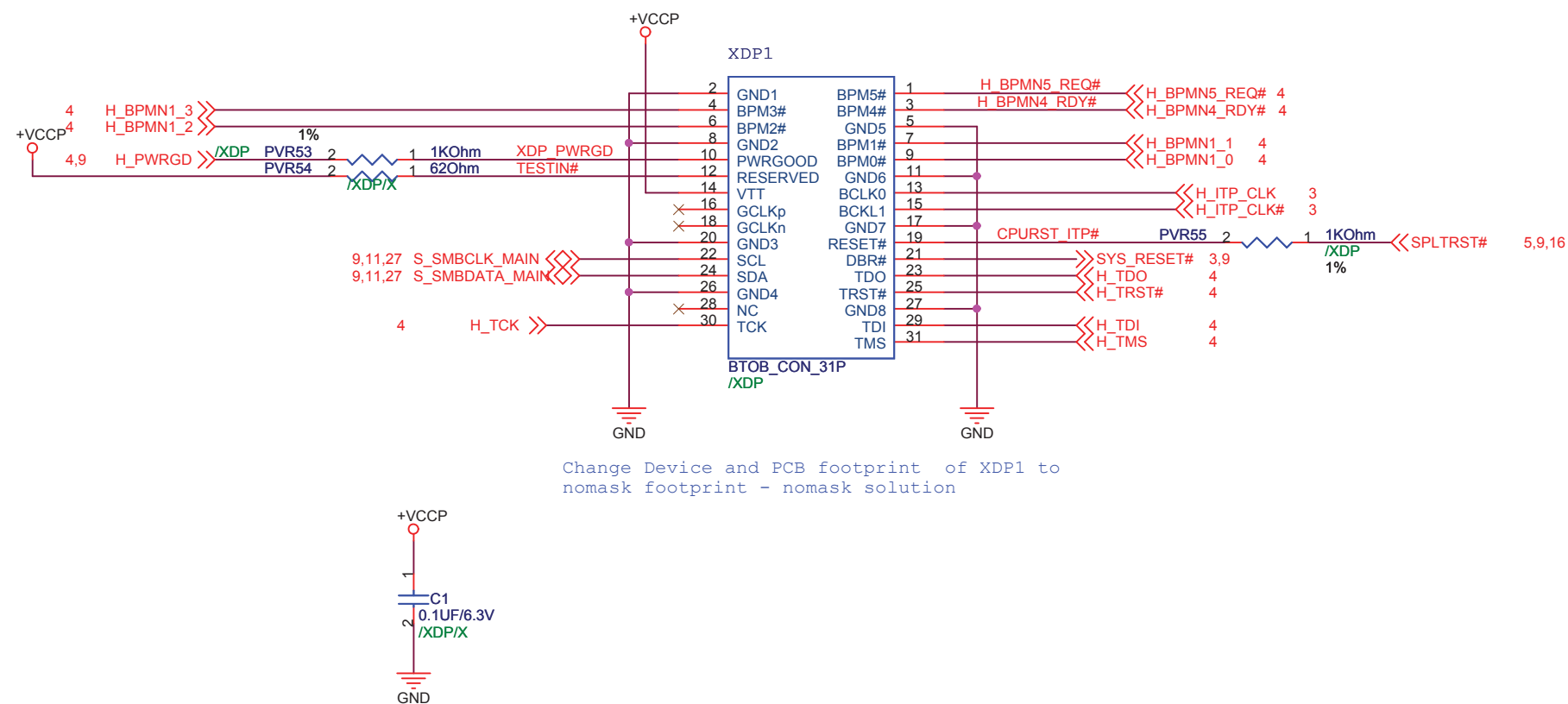


VCC = 3.5A
VCCA = 0.08A
VCCGFX = 1.38A
VCCALVDS , VCCDLVDS = 0.06A
VCCA_DMI = 0.48A
VCCSFR_DMIHMPPLL = 0.104A
VCCA_DDR and VCCACK_DDR = 1.32A
VCCSM and VCCCK_DDR = 2.27A
VCCRING_EAST , VCCRING_EAST_WEST , VCC_LGI , VCCD_AB_DPL , VCCD_HMPPLL = 0.33A
VCC_GIO = 0.006A
VCCSFR_AB_DPL , VCCACRTDAC = 0.154A

Current for PineView

Has internal VRM for this!

<Variant Name>



Change Device and PCB footprint of XDP1 to
nomask footprint - nomask solution

<Variant Name>

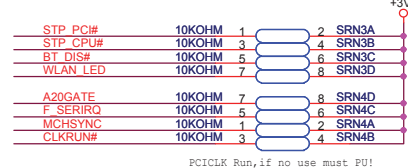
ASUS®		Title : XDP	
ASUSTek Computer INC.		Engineer: Wabor_xie	
Size A3	Project Name T101MT		Rev 1.0G
Date: Thursday, August 27, 2009		Sheet 7 of 42	



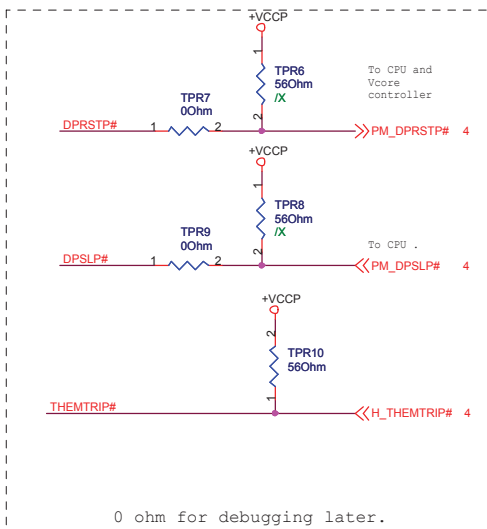
CLK 14MHZ has a 22ohm resistor near clk Gen.

LDRQ0/1 LPC DMA/master request, ICH7M has internal PU, but we need TPT datasheet

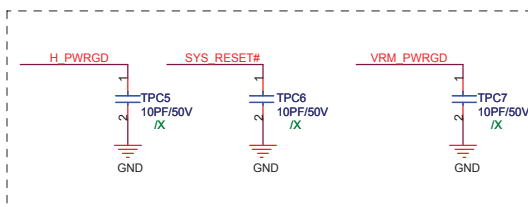
SATA RX,TX all need AC couple and place near Connector side for signal quality. And Traces to them should match length. ICH7M need pull down RX, if no use.



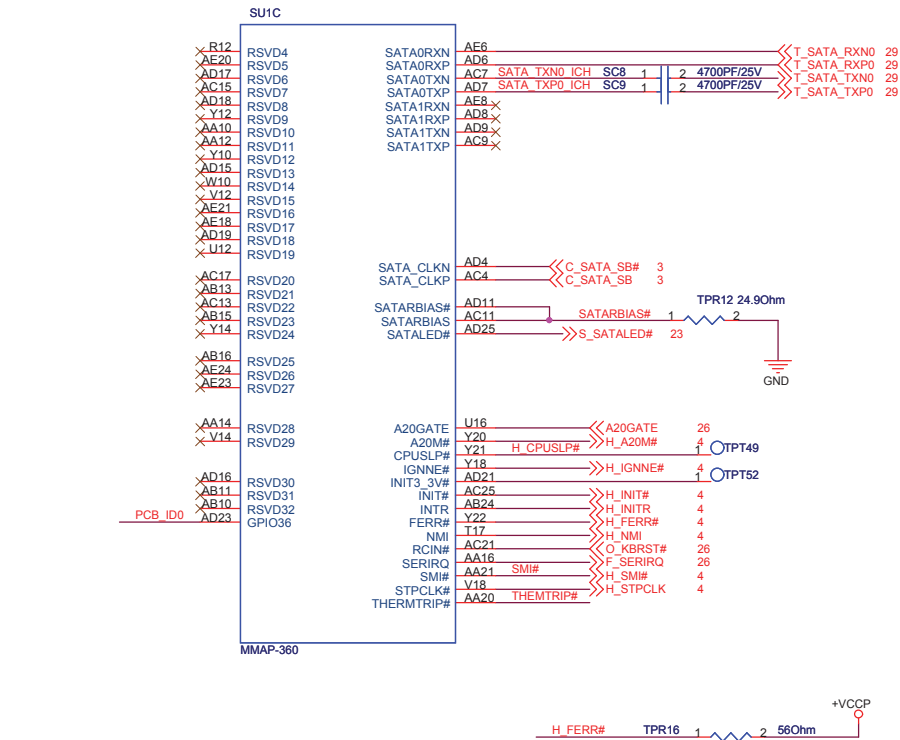
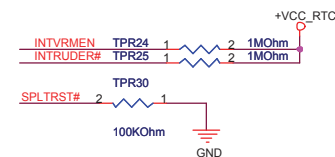
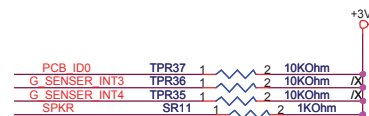
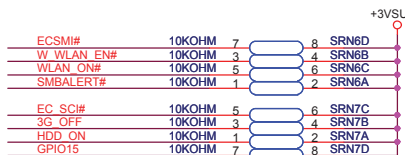
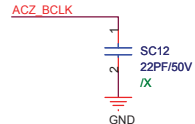
PCICLK Run, if no use must PU!



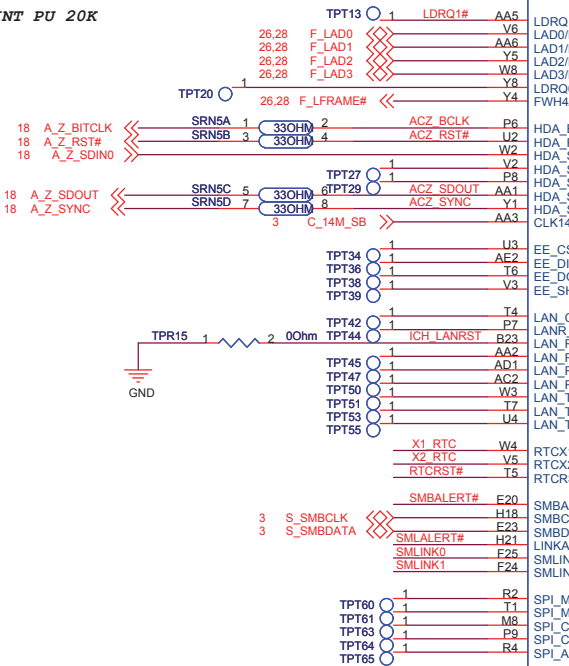
0 ohm for debugging later.



Reserved as intel demo sck.

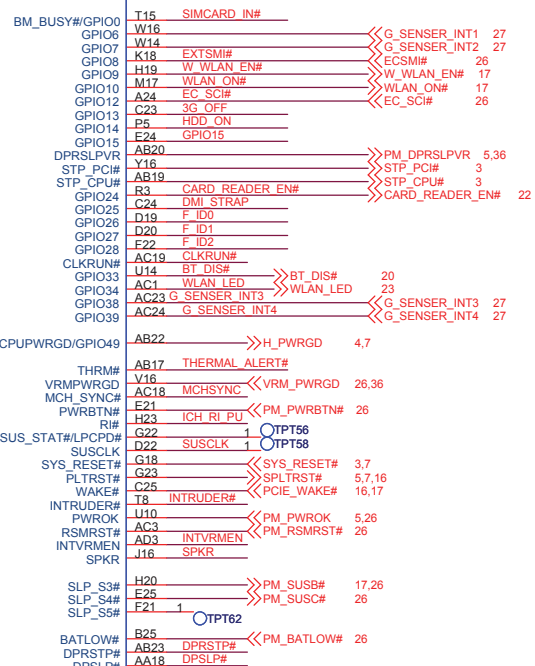


LAD[0:3] INT PU 20K

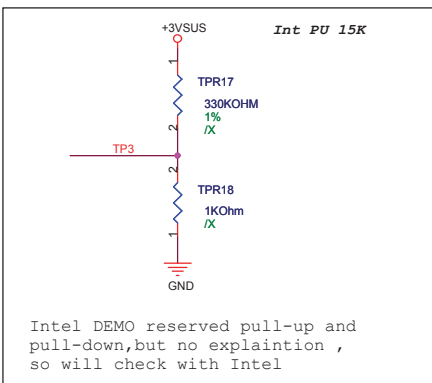
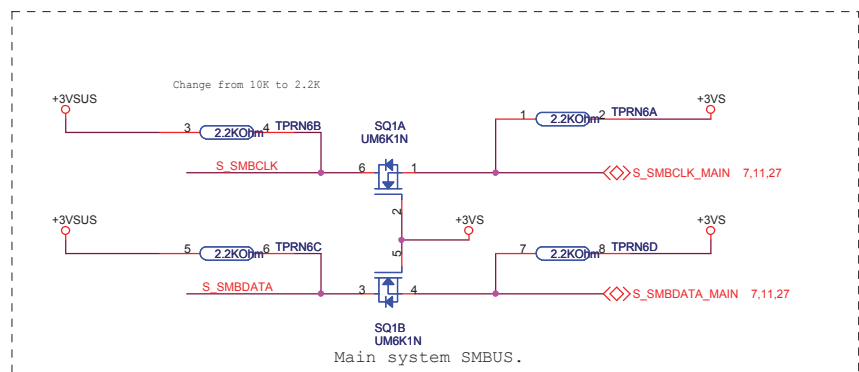


SU1D

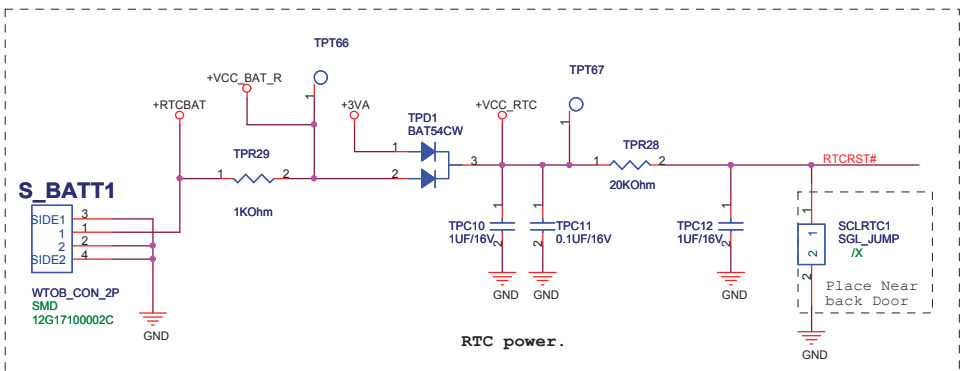
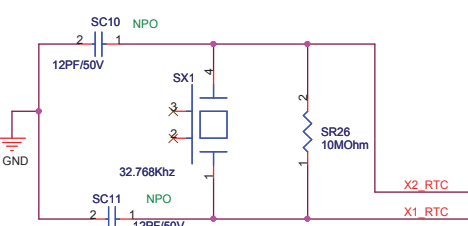
MMAP-360



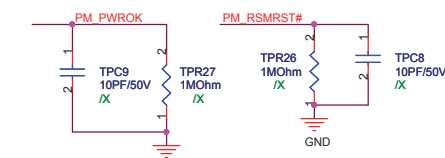
Already 10K pull up to +3VS in clk gen section.



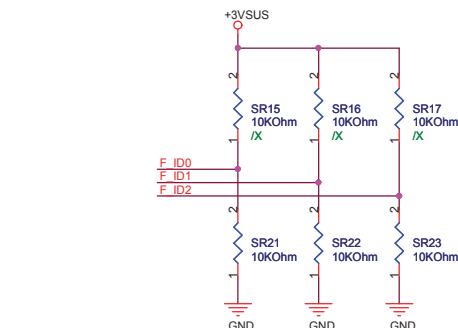
Intel DEMO reserved pull-up and pull-down, but no explanation, so will check with Intel



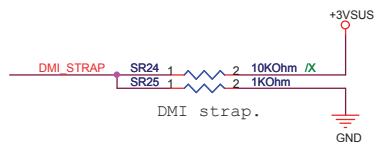
RTC power.



RTC well input requires pull down to reduce leakage from coin cell battery in G3. Can't float in G3.

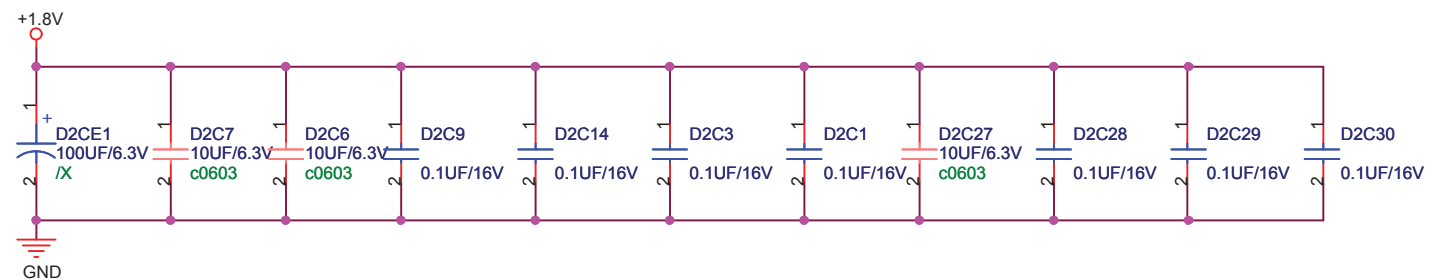
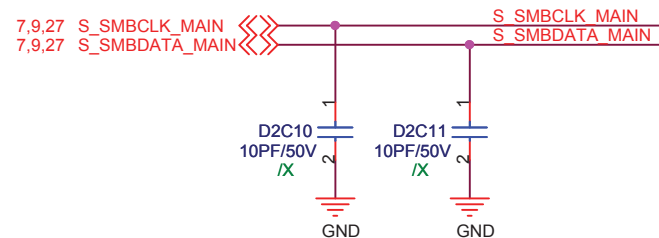
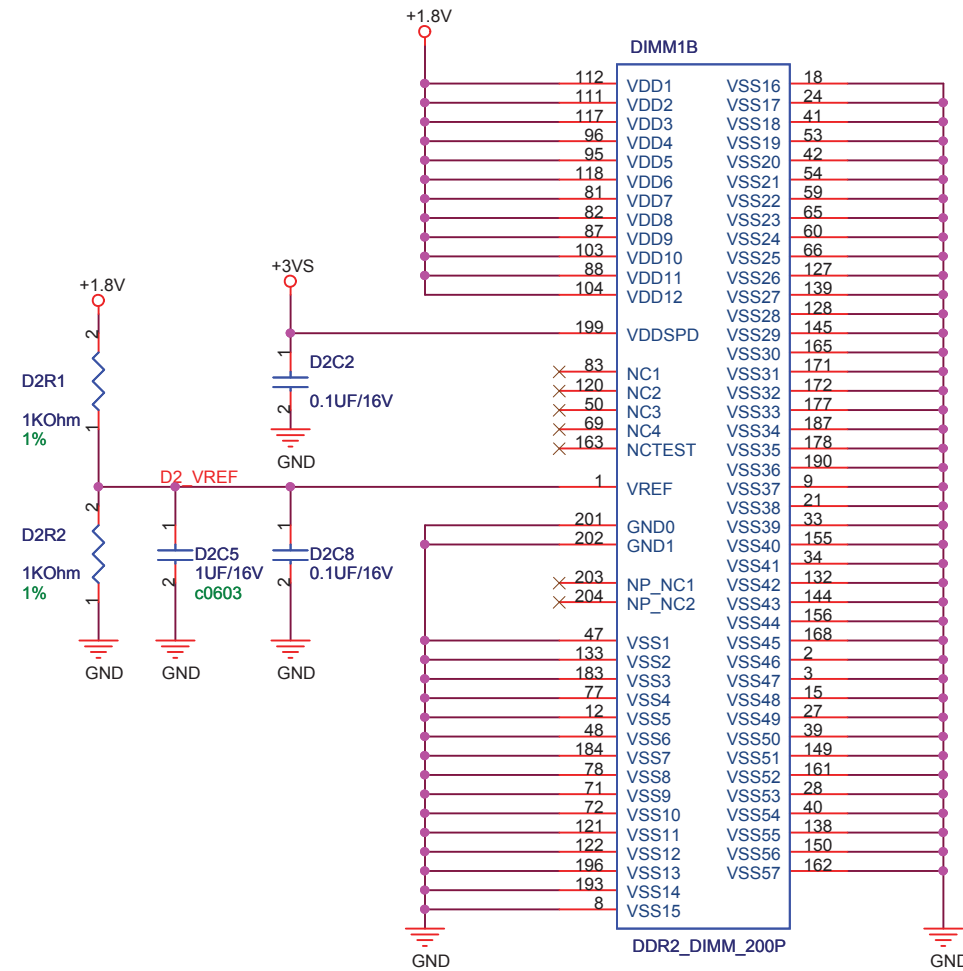
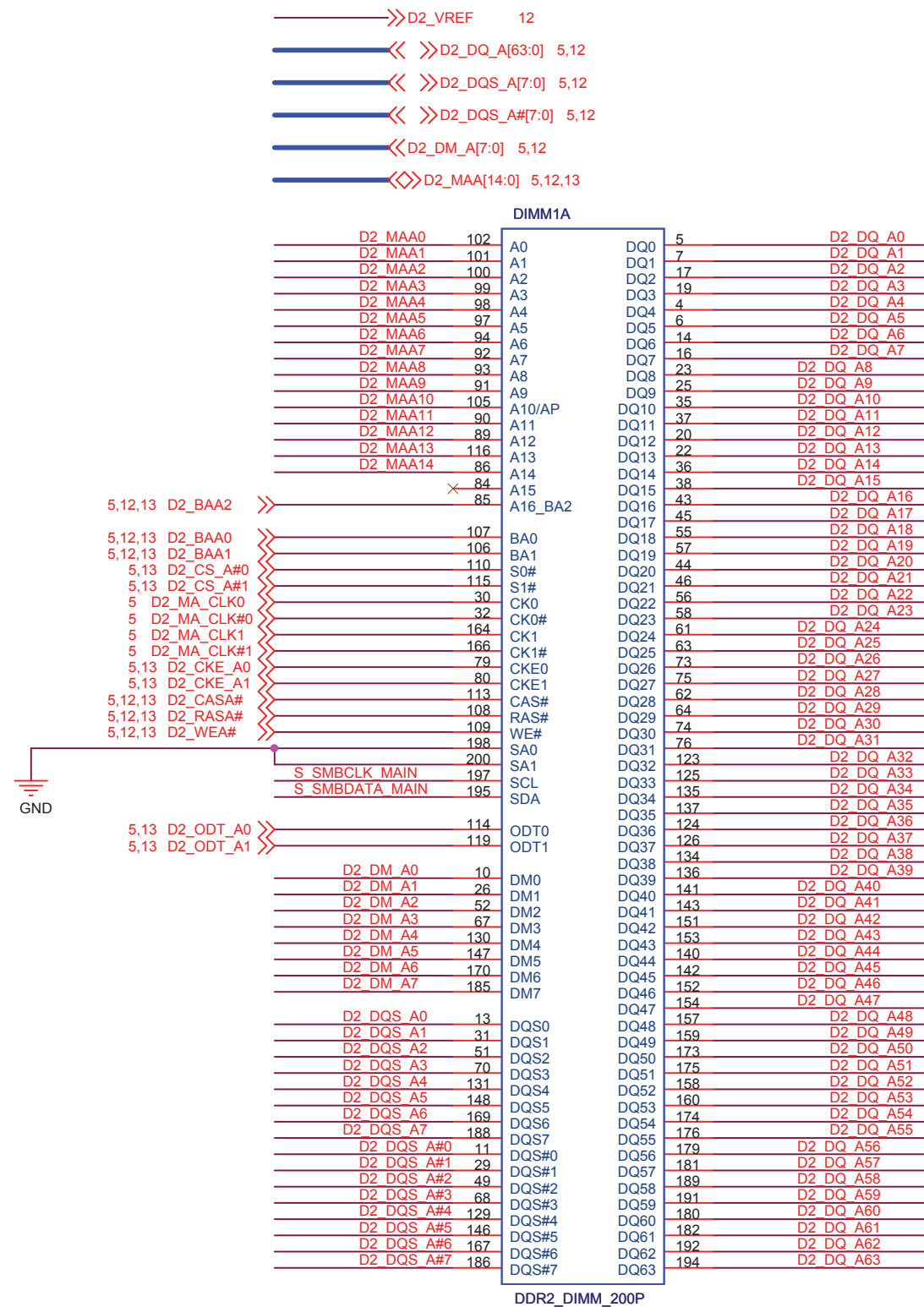


PCB ID.



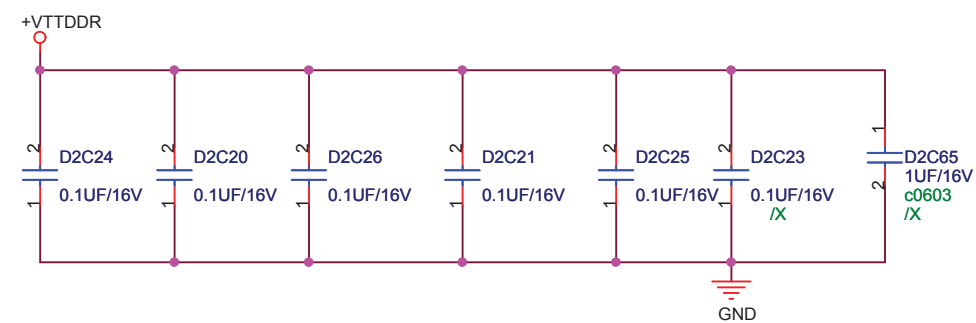
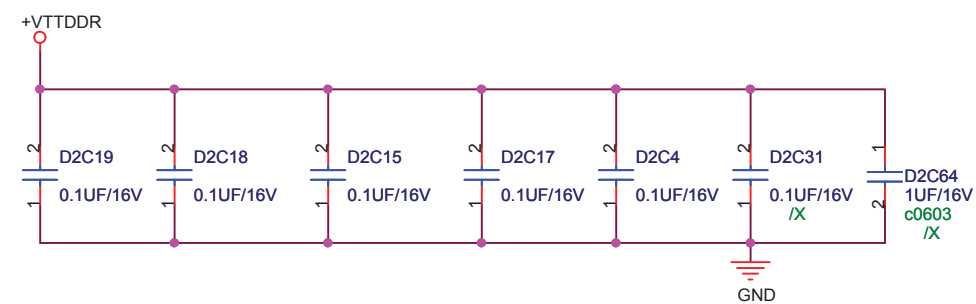
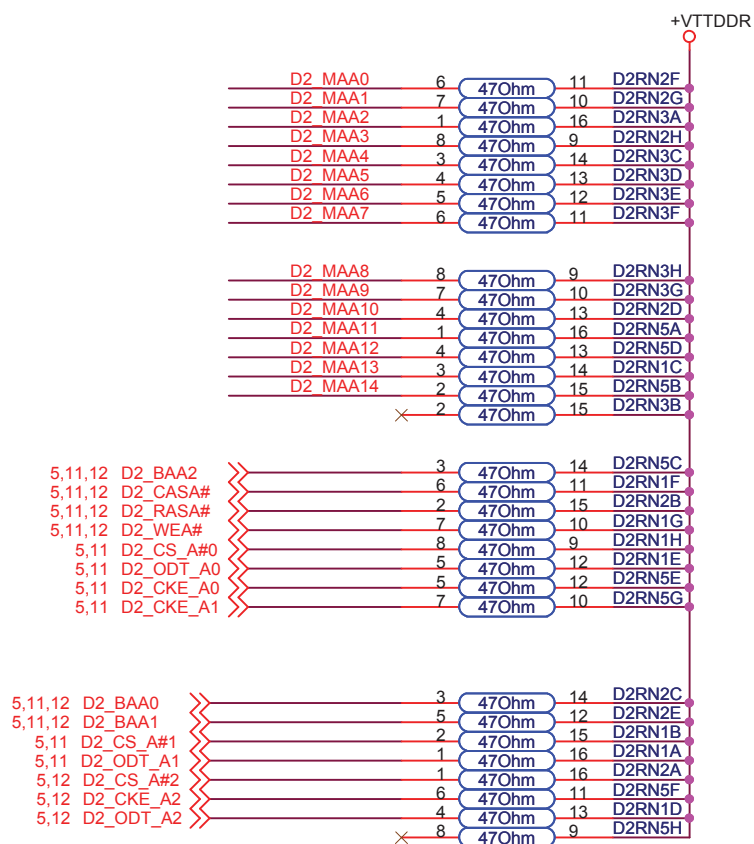
1=DMI interface is strapped to operate in DC coupled mode. 0=DMI interface is strapped to operate in AC coupled mode.

<Variant Name>

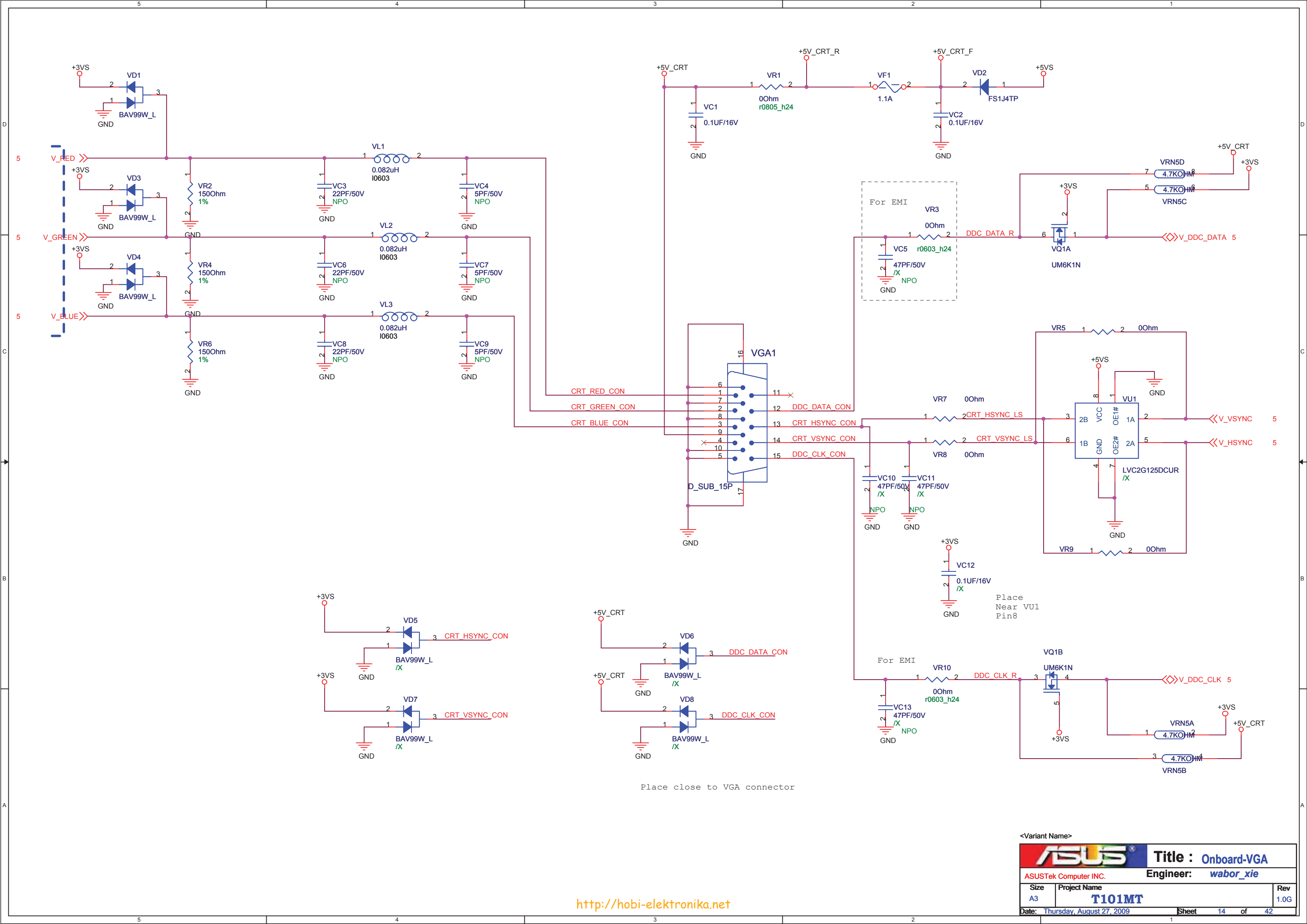




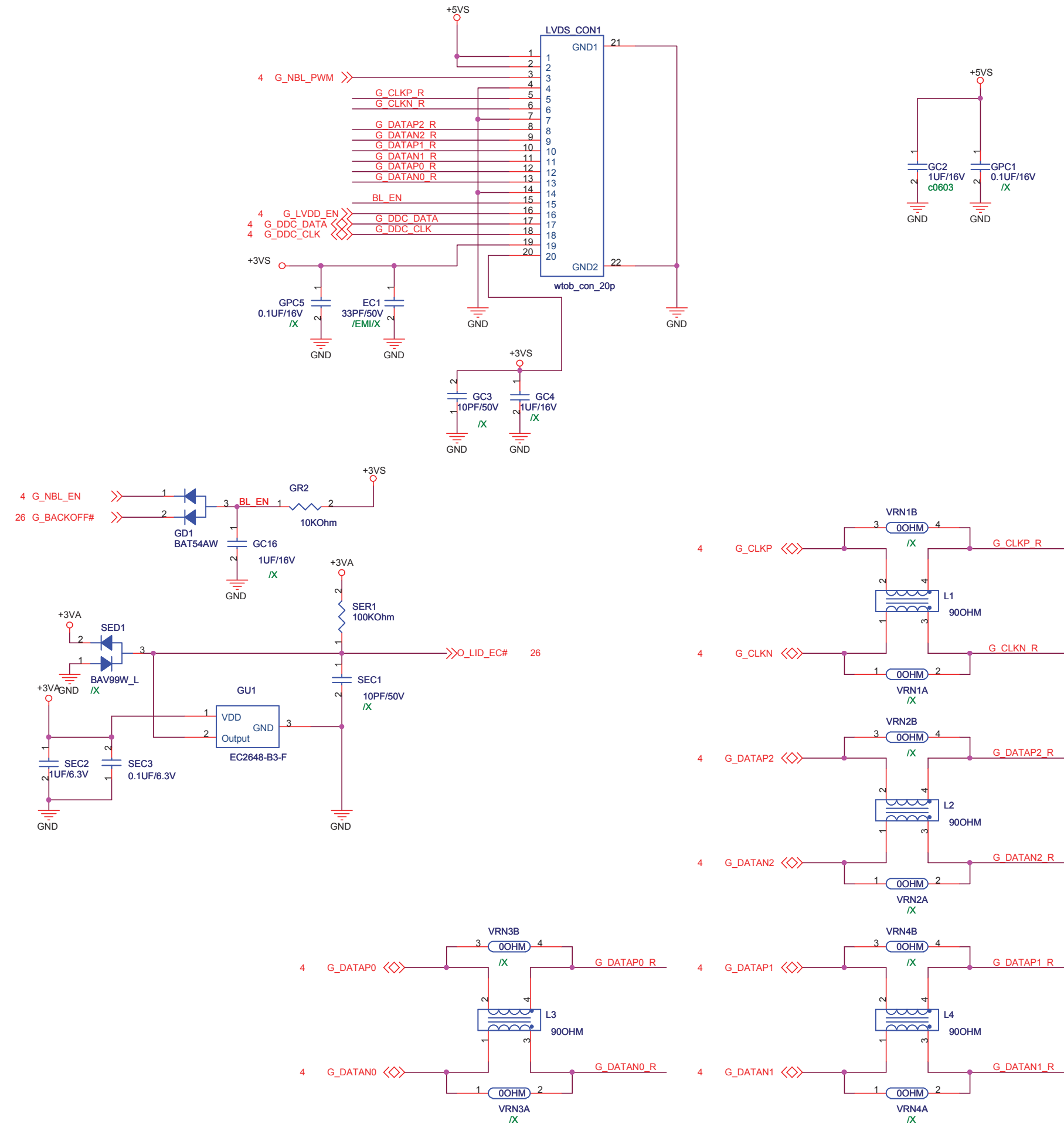
◇◇D2_MAA[14:0] 5,11,12



<Variant Name>

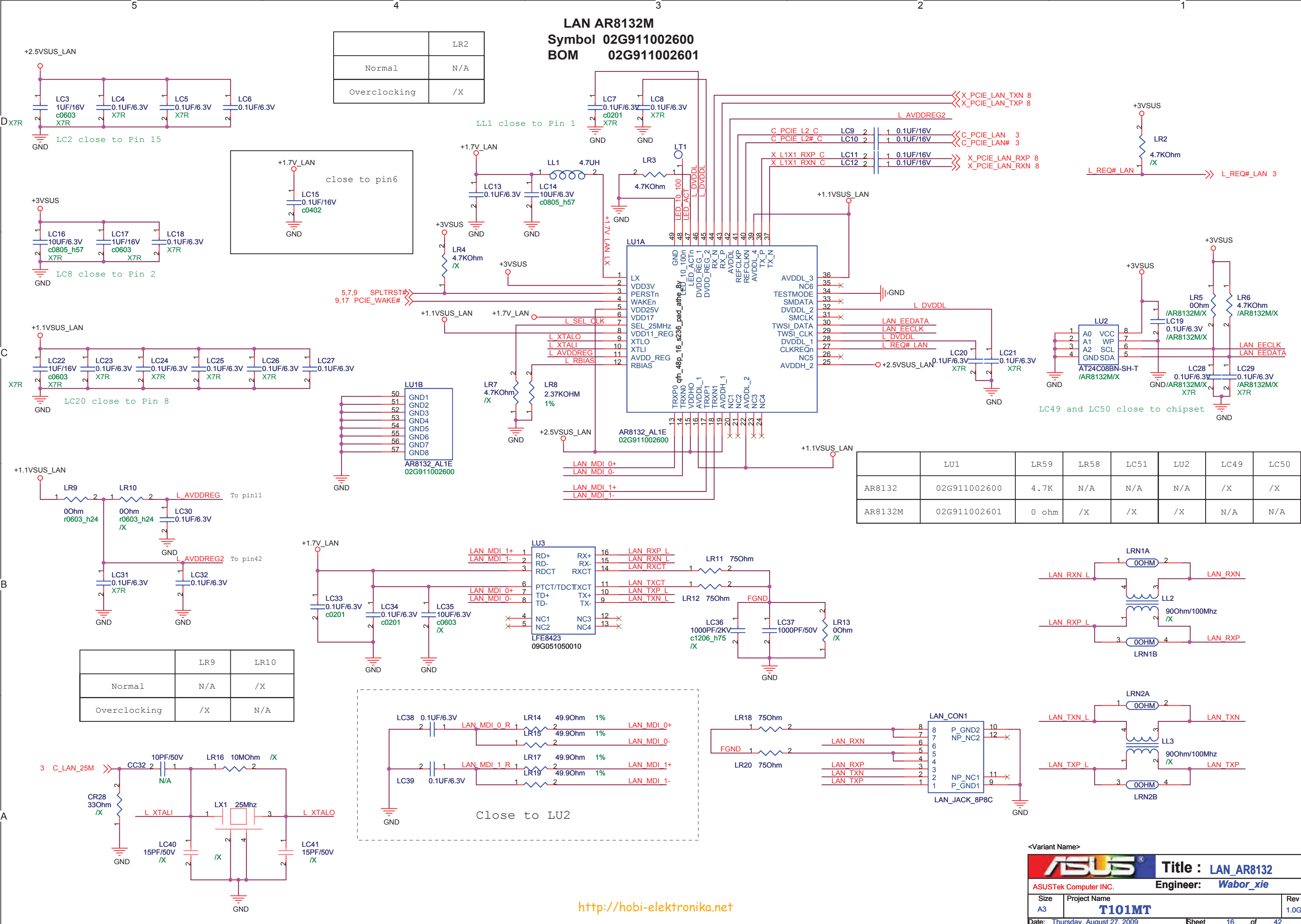


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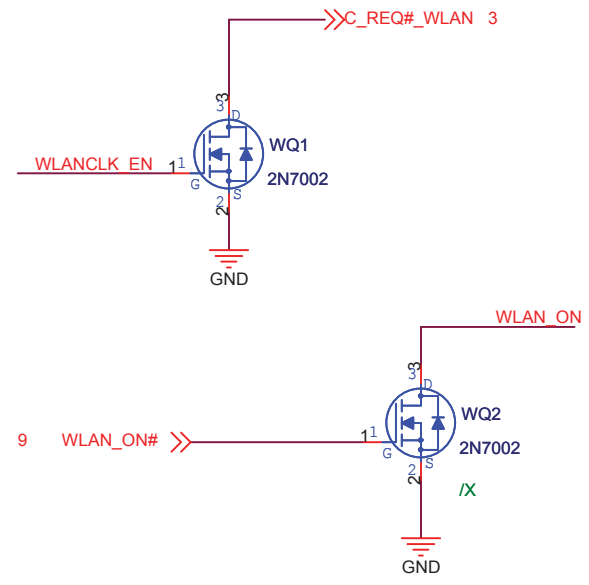
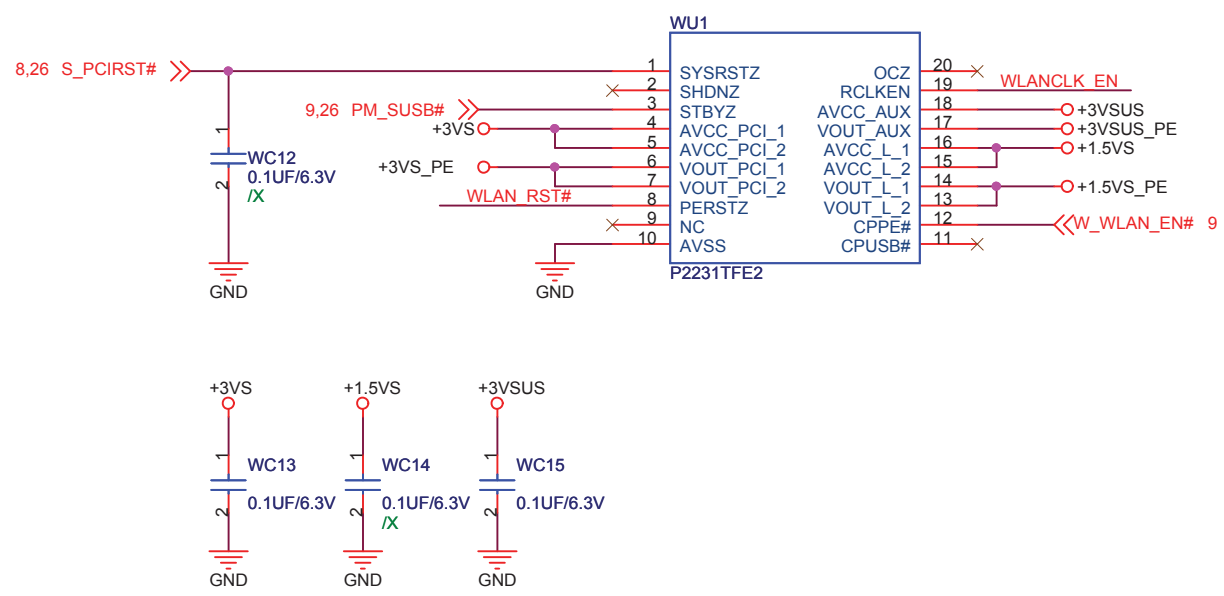
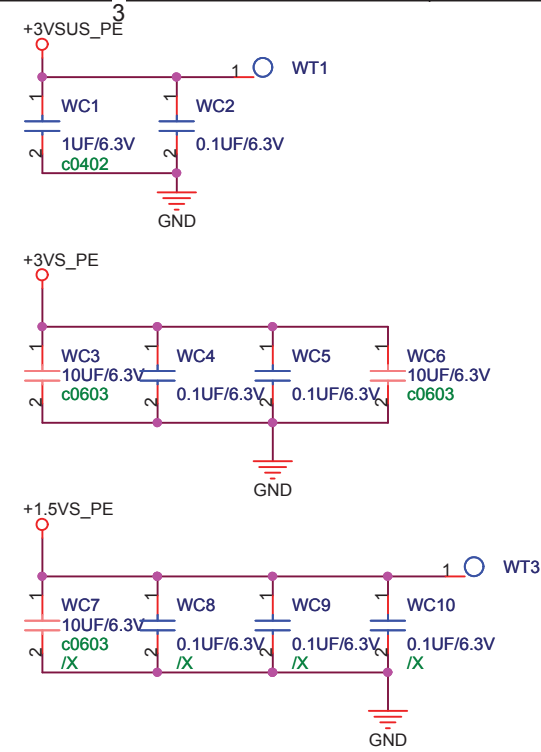
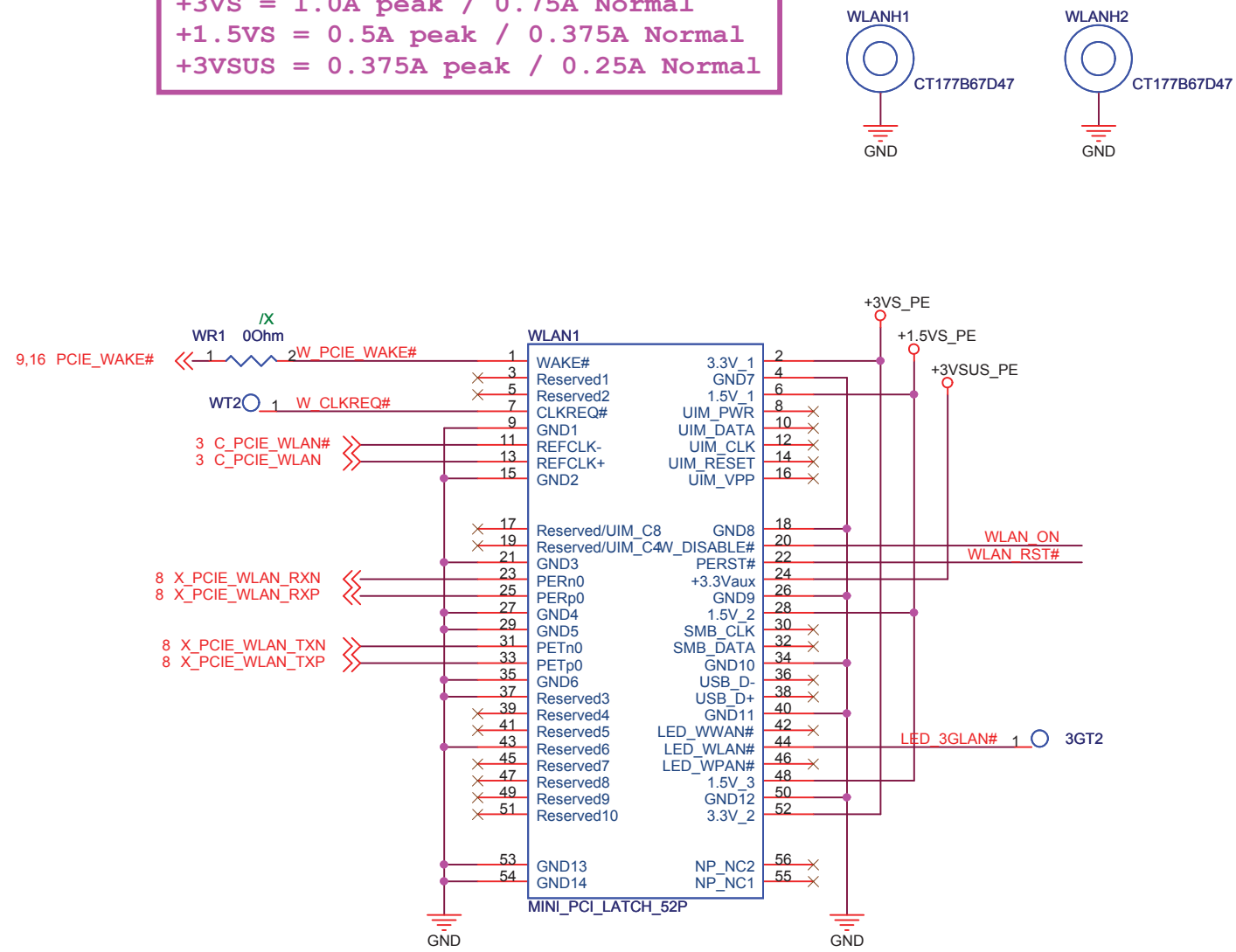


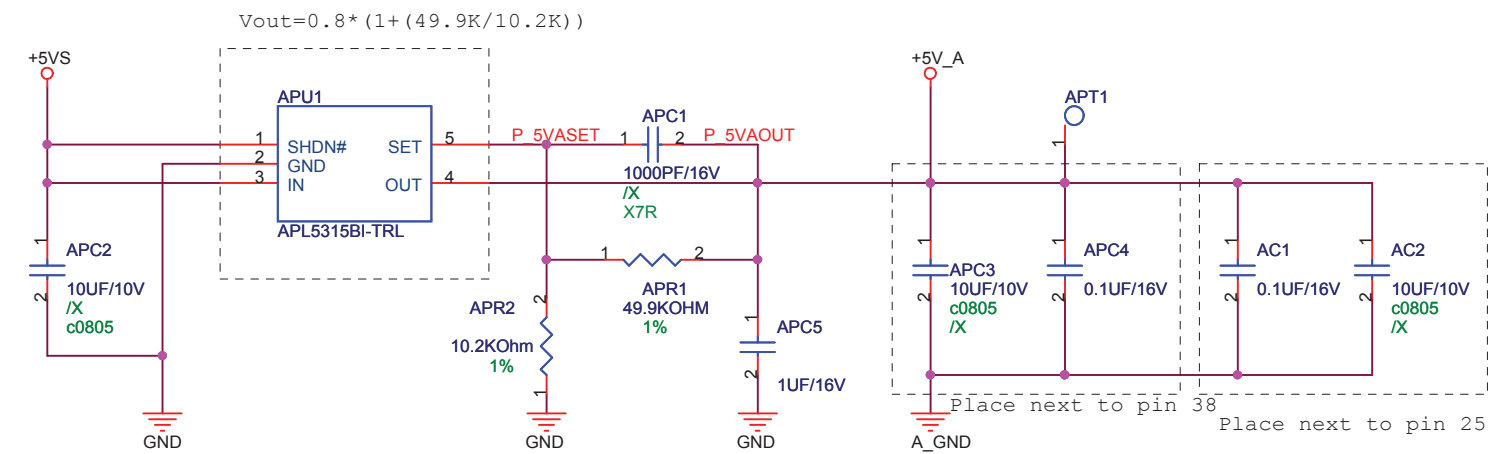
<Variant Name>

ASUS		Title : LVDS Conn_LID	
ASUSTek Computer INC.		Engineer: Wabor_xie	
Size Custom	Project Name T101MT		Rev 1.0G
Date: Thursday, August 27, 2009	Sheet	15 of 42	



WIFI use PCIE 1.1 Spec
+3VS = 1.0A peak / 0.75A Normal
+1.5VS = 0.5A peak / 0.375A Normal
+3VSUS = 0.375A peak / 0.25A Normal

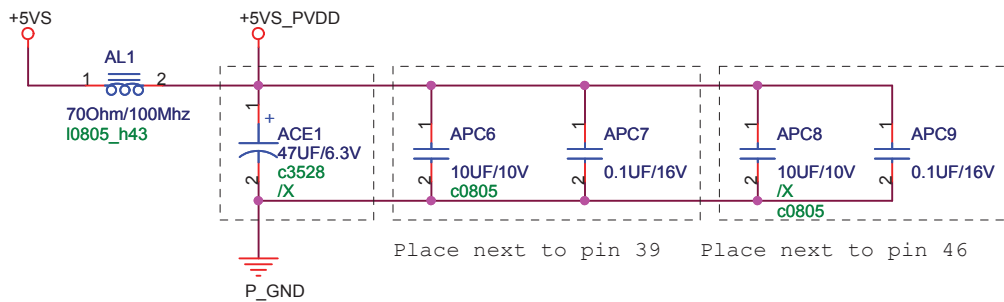




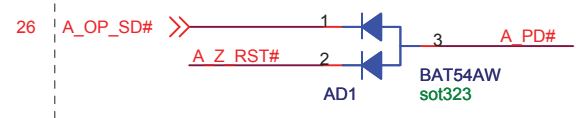
9 A_Z_SDOUT
9 A_Z_BITCLK
9 A_Z_SDIN0
9 A_Z_SYNC
9 A_Z_RST#

26 A_OP_SD#

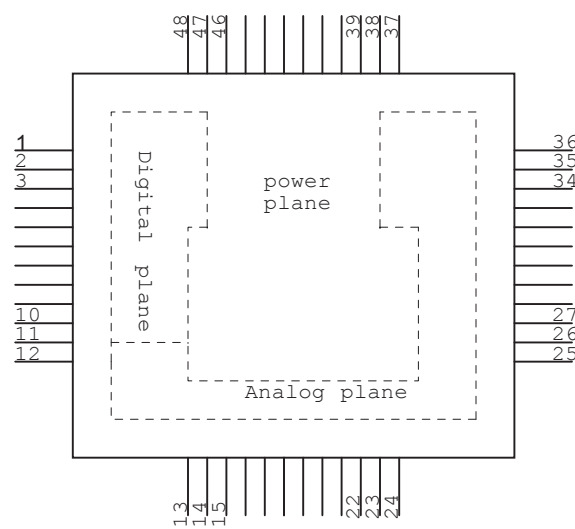
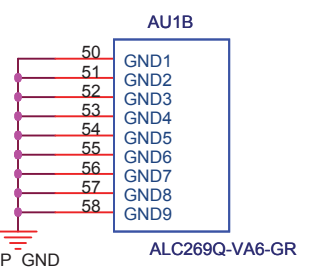
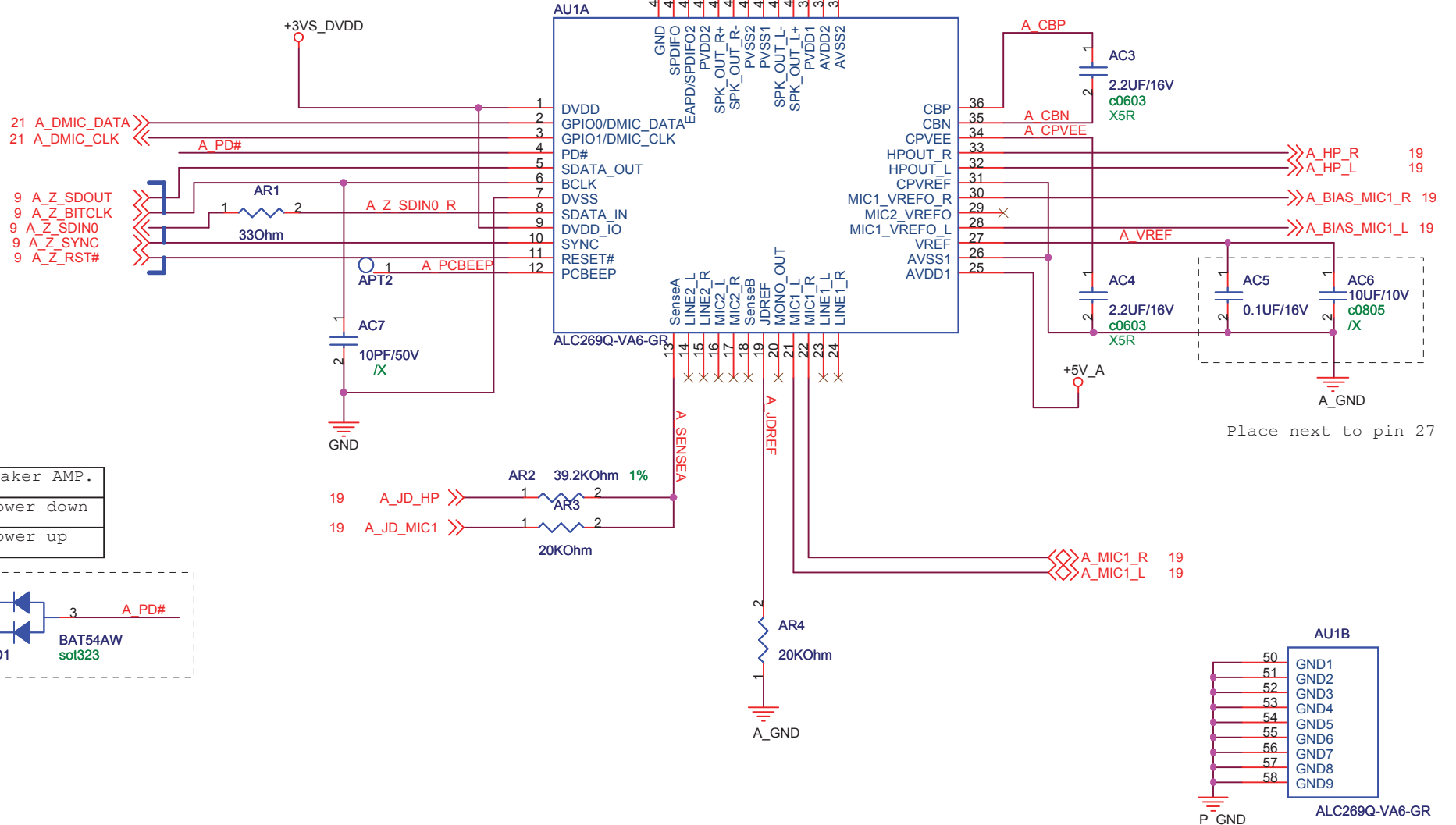
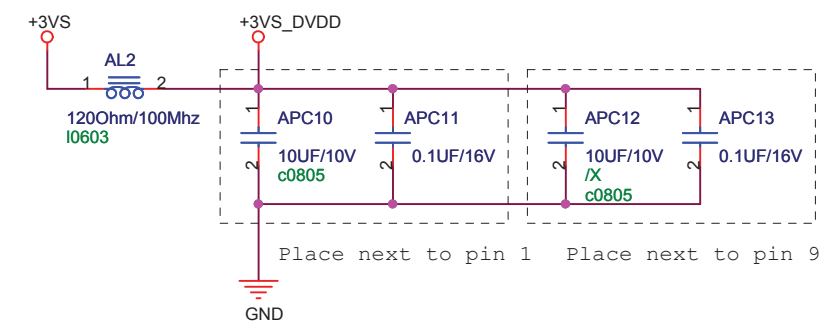
Surges of PVDD >7V duration 0.1ms when class D amplifier is working may damage the amplifier, 10uF tantalum capacitors are required at PVDD1 and PVDD2 to uppress the surge.



A_PD#	speaker AMP.
H	power down
L	power up



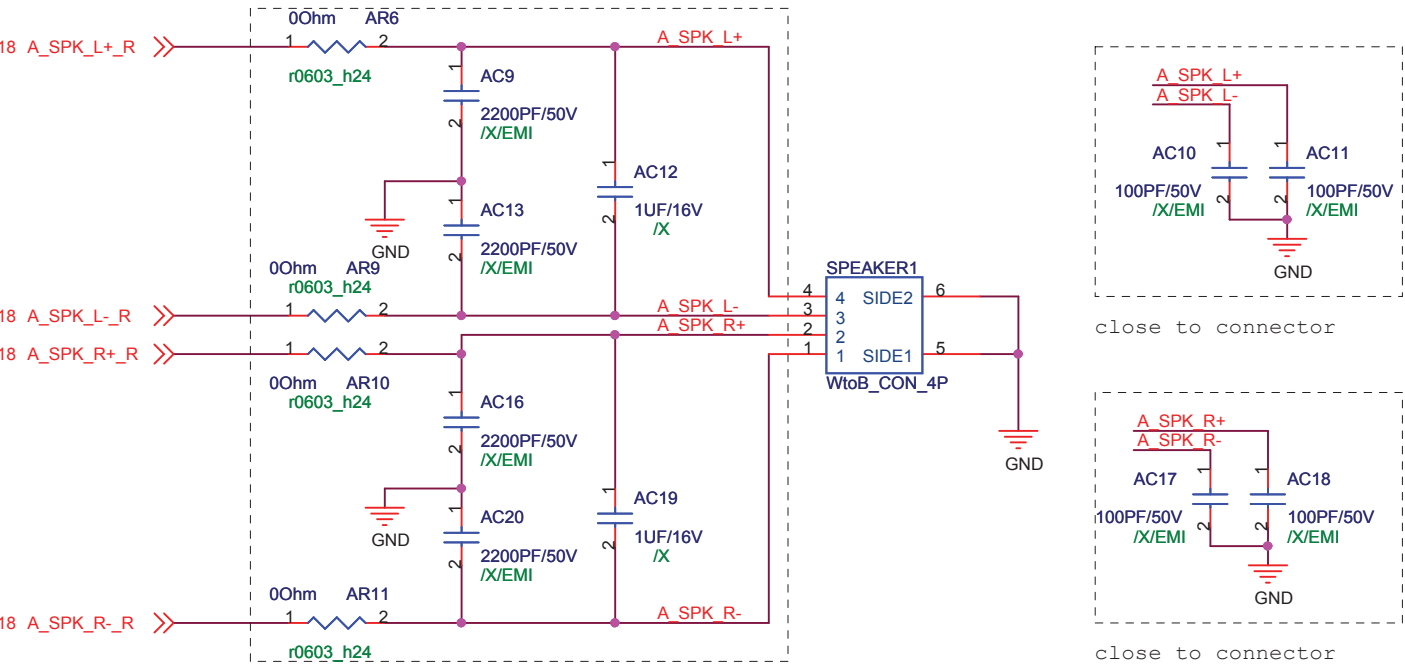
If not use pcbeep function, please left pin pcbeep (pin 12) NC.



SPEAKER

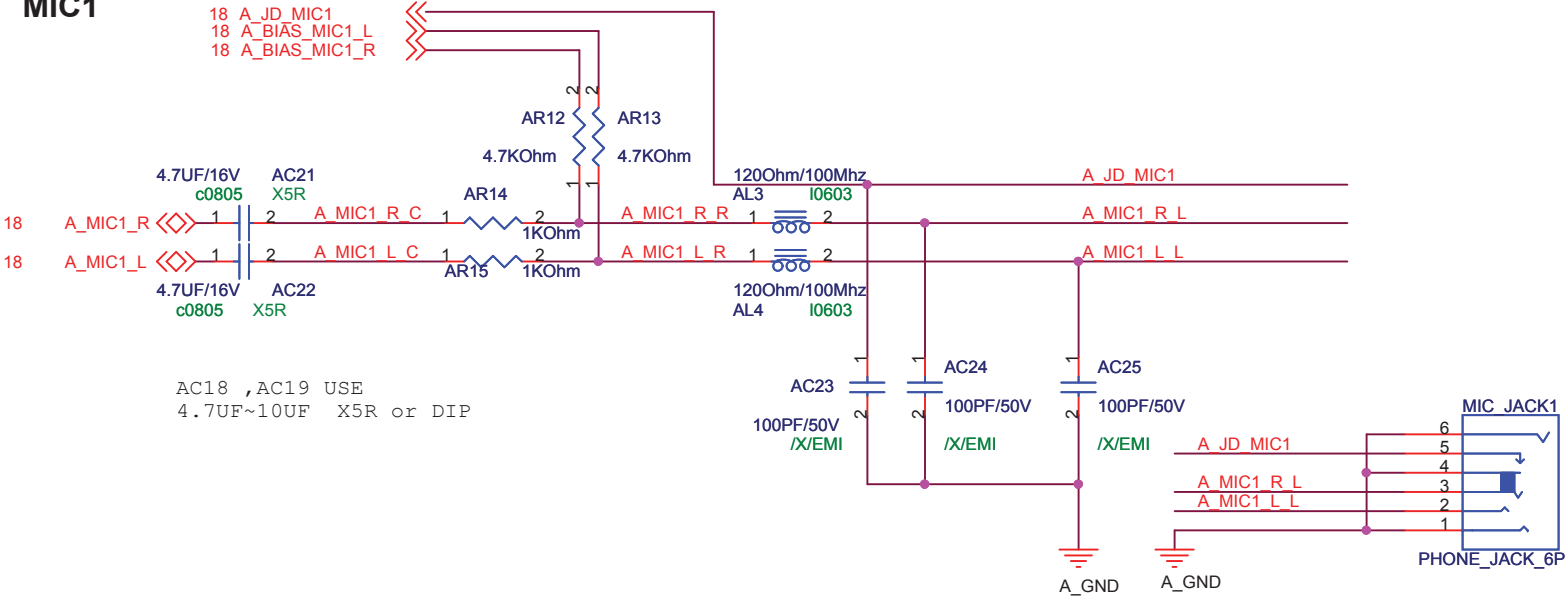
<<Attention>>
 you can use LC filter (AR9,AR14,AR15,AR16
 mount 8.2uH L ;and mount AC10,AC13) to
 eliminate the EMI (please don't use
 general beads,because they may influence
 the THD+N quality) , AC9/AC11/AC12/AC14
 are used for EMI fine-tune ; For EMI
 issue, All L and C should near to codec

Demodulation Filter
 Placement near
 Audio Codec



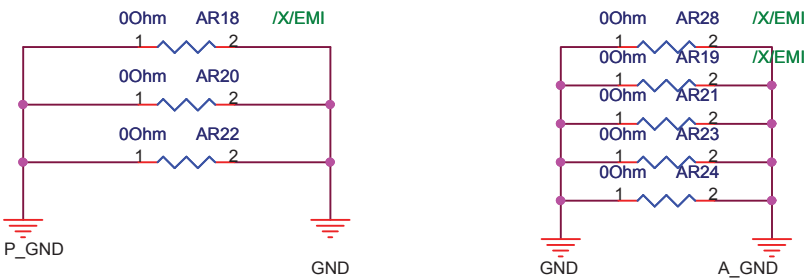
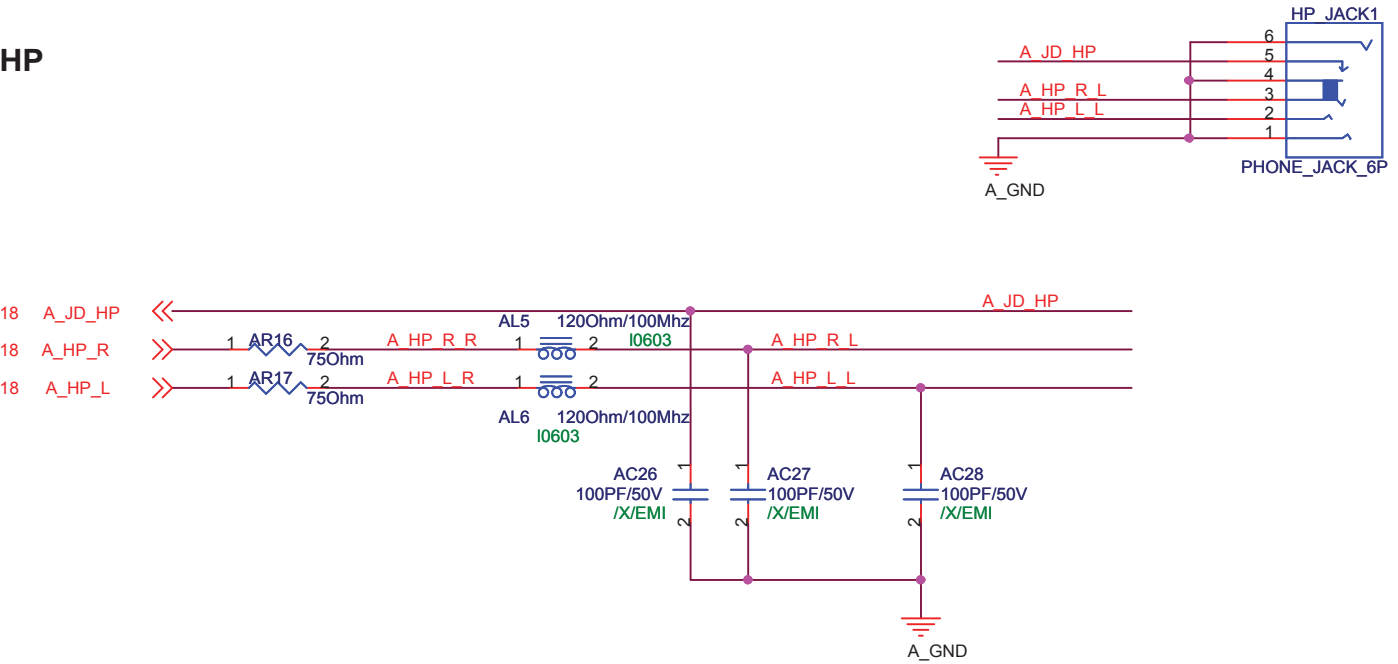
MIC1

18 A_JD_MIC1
 18 A_BIAS_MIC1_L
 18 A_BIAS_MIC1_R



AC18 ,AC19 USE
 4.7UF~10UF X5R or DIP

HP



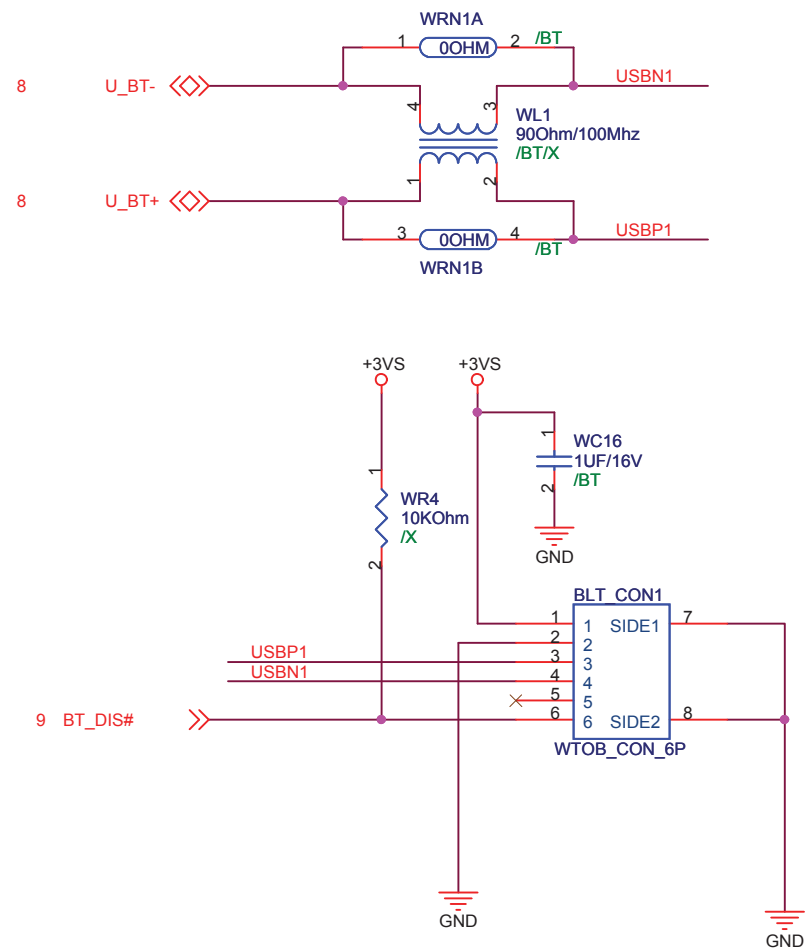
FOR EMI

D

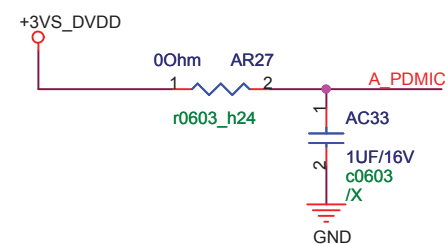
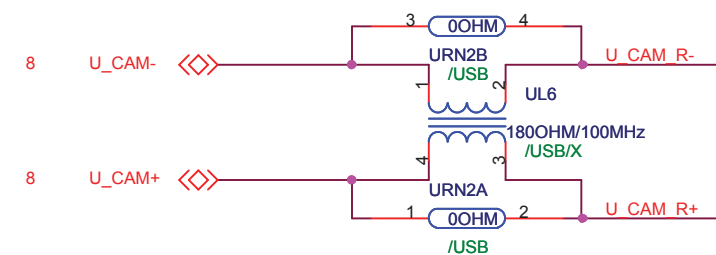
C

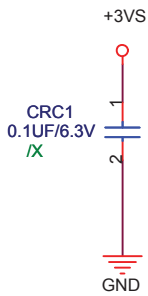
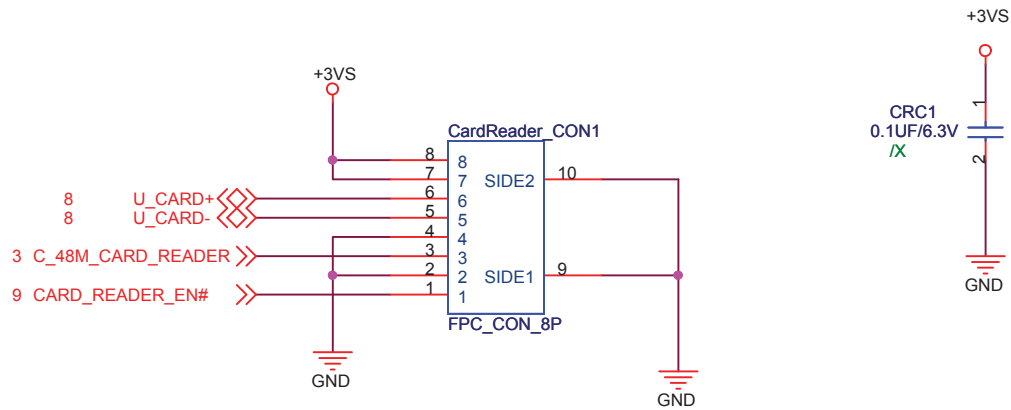
B

A

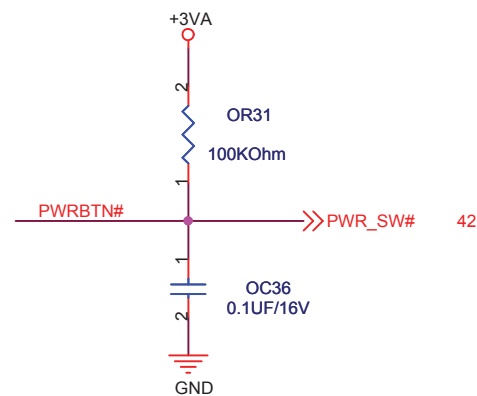


<Variant Name>

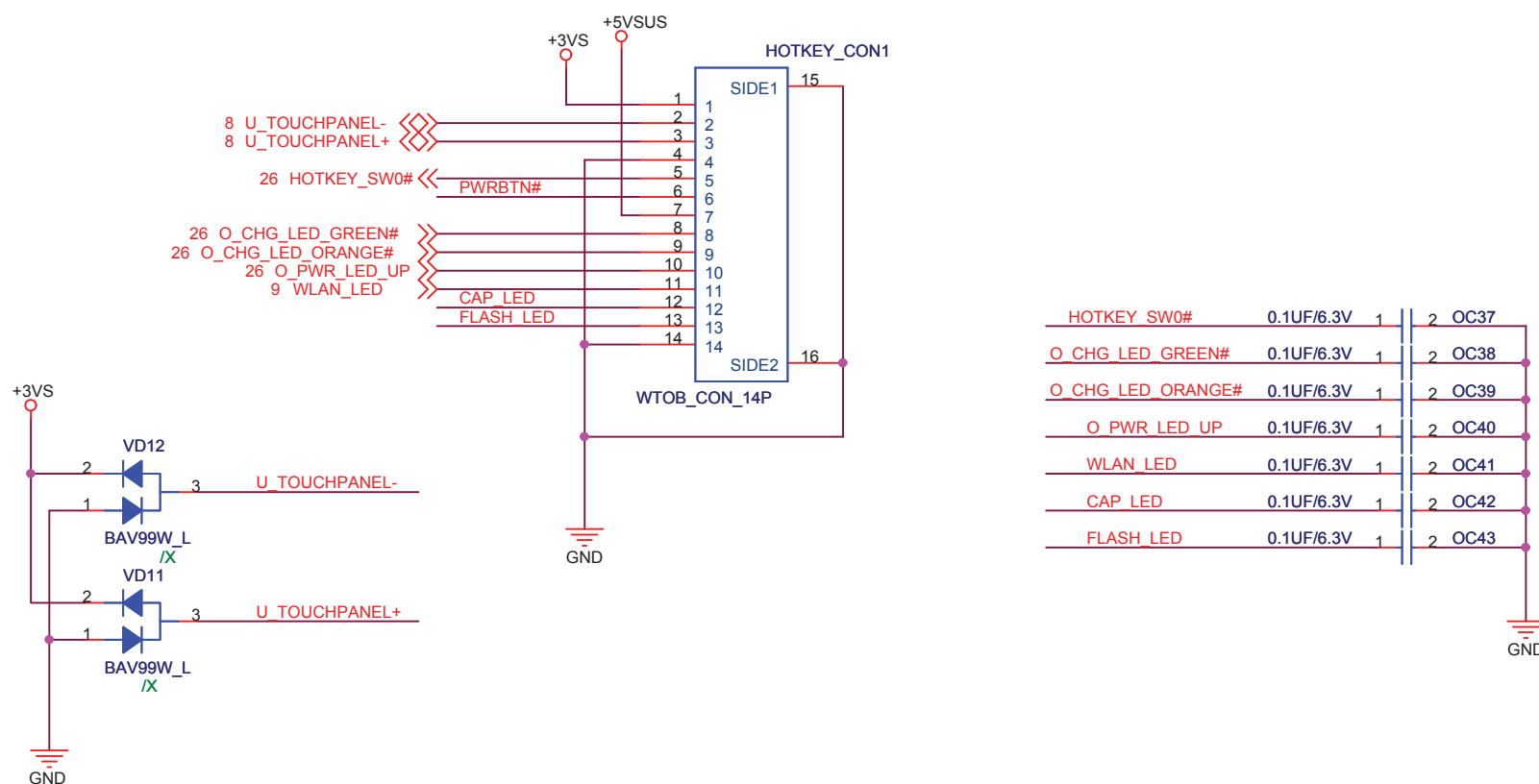
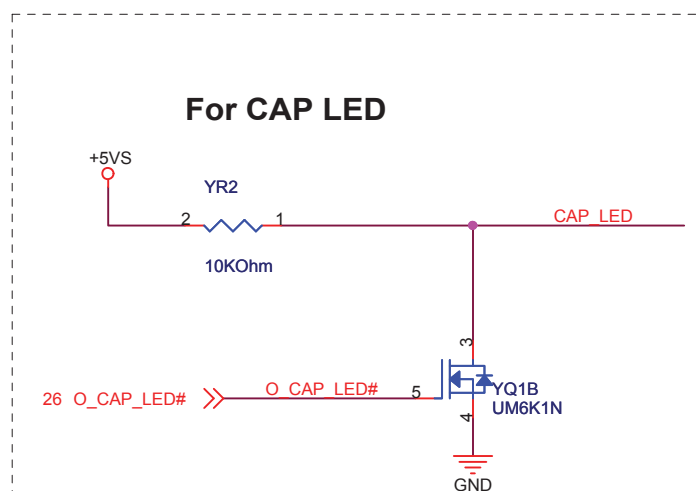
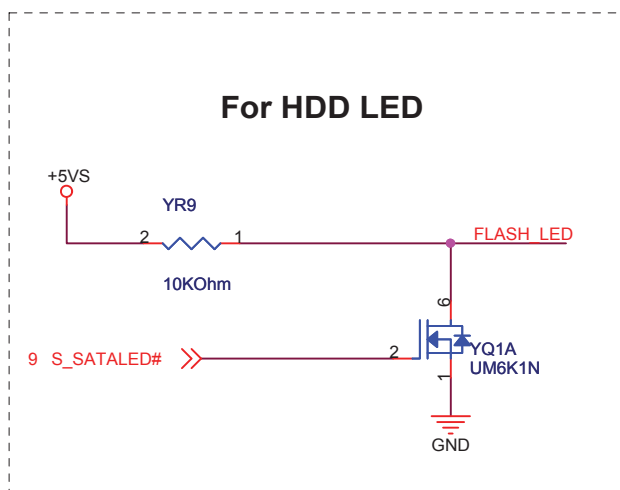




<Variant Name>



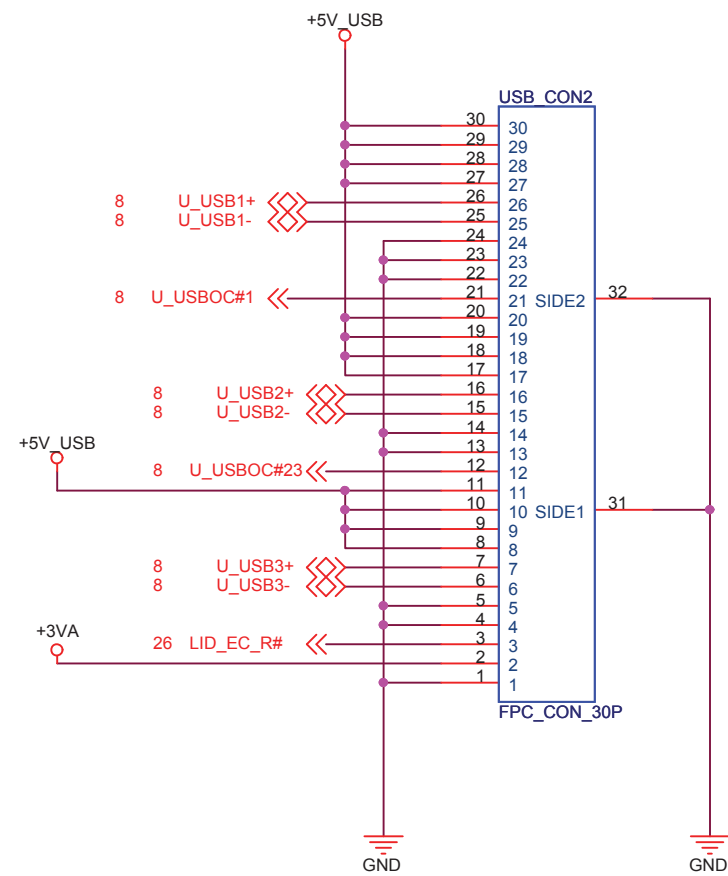
Mode Scenario	Adapater Mode	Battery Mode
Battery power is between 100%~40%	Orange ON	Green ON
Battery power is between 40%~10%	Orange Blinking Slowly	Green Blinking Slowly
Battery power is less than 10%	Orange Blinking Quickly	OFF
S3/S5 Mode	Scenario the same as above	



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<Variant Name>

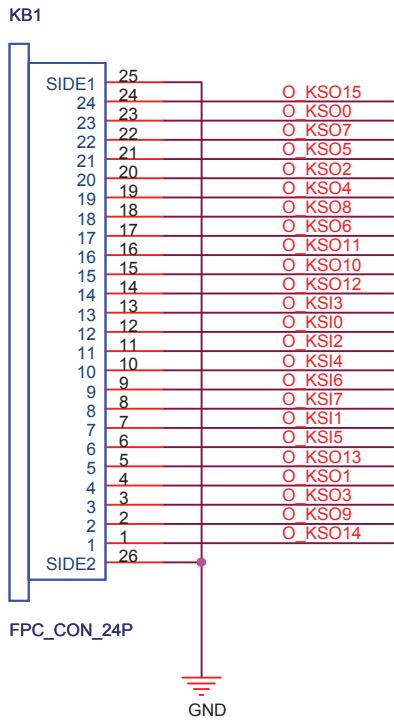
ASUS		Title : HOTKEY CON	
ASUSTek Computer INC.		Engineer: Wabor_Xie	
Size A3	Project Name T101MT		Rev 1.0
Date: Thursday, August 27, 2009		Sheet 23 of 42	



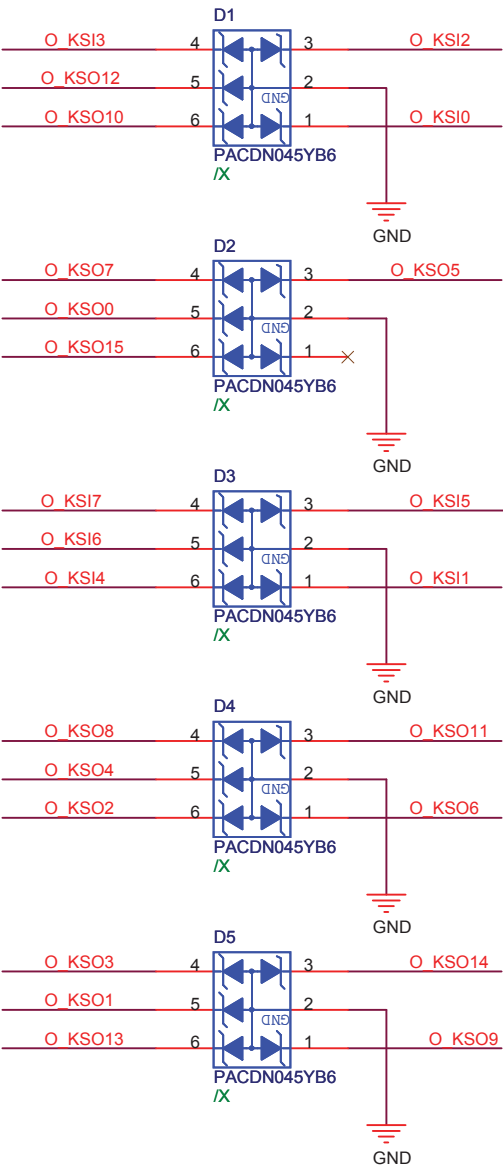
<Variant Name>

		Title : USB CON	
ASUSTek Computer INC.		Engineer: Wabor_Xie	
Size	Project Name		Rev
A3	T101MT		1.0G
Date: Thursday, August 27, 2009		Sheet	24 of 42

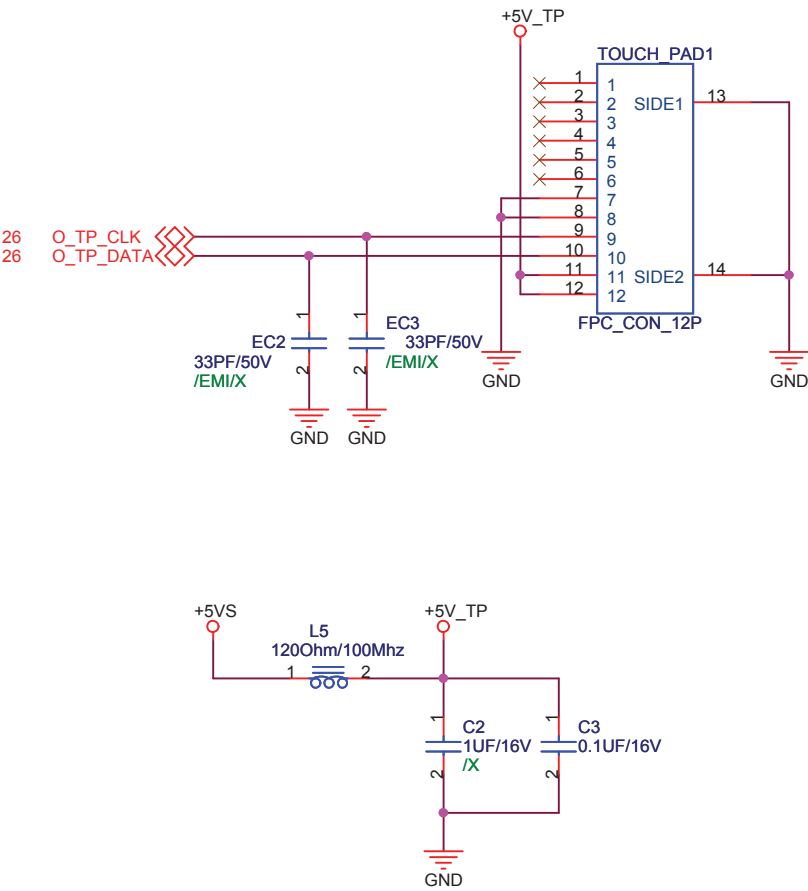
For Keyboard Connector



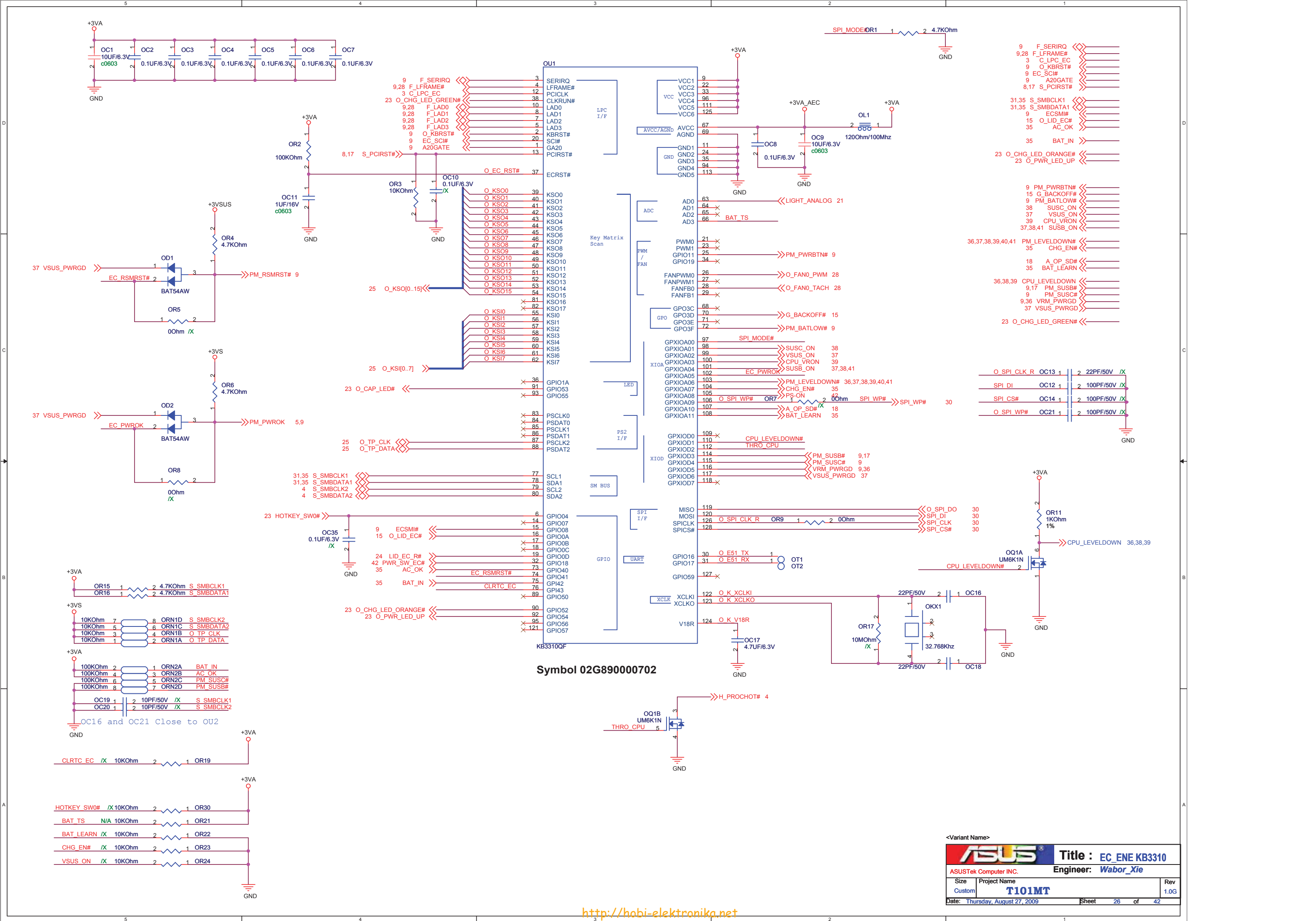
26 O_KSO[0..15] <<<
26 O_KSI[0..7] >>>

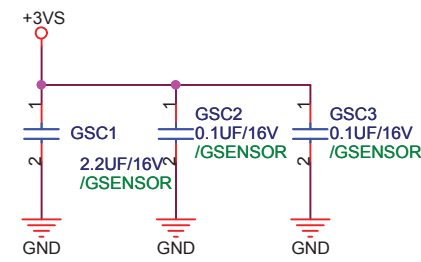
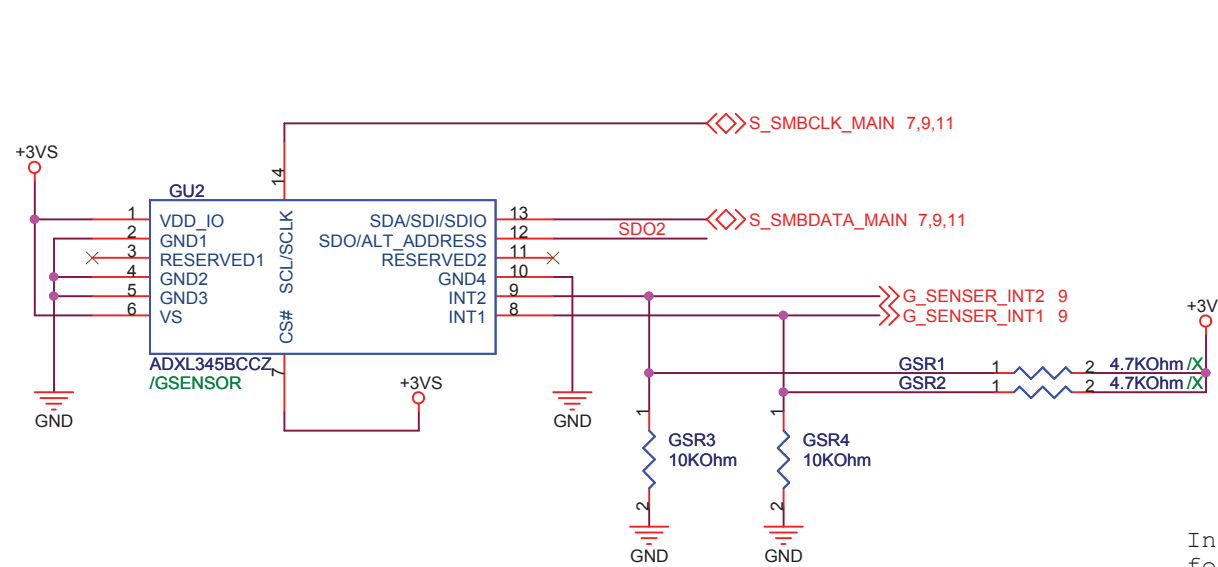


For Touch-Pad

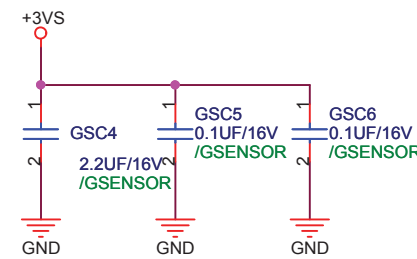
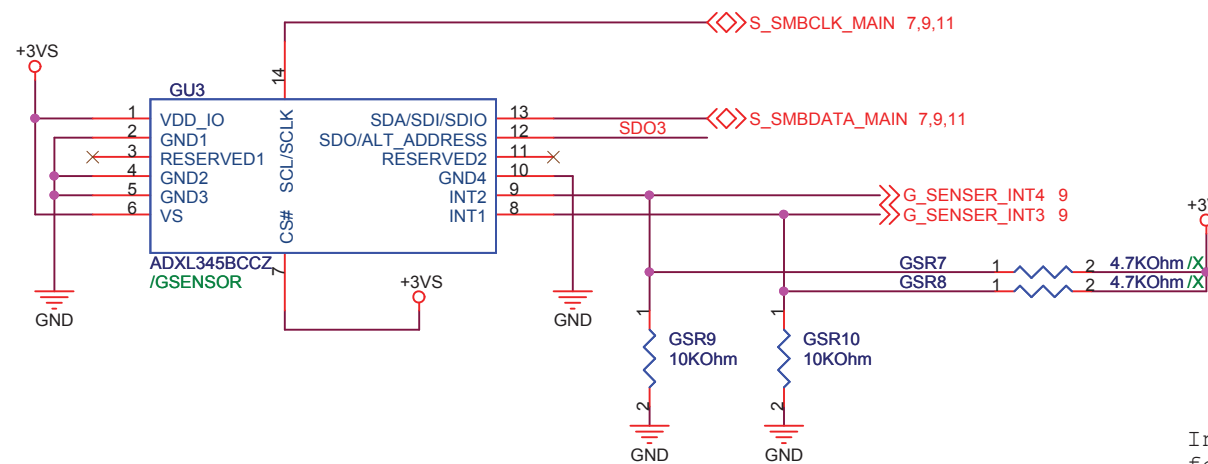
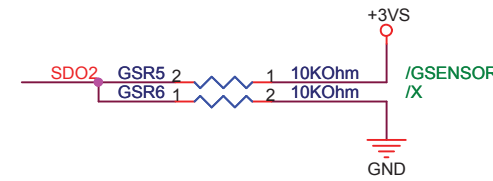


<Variant Name>

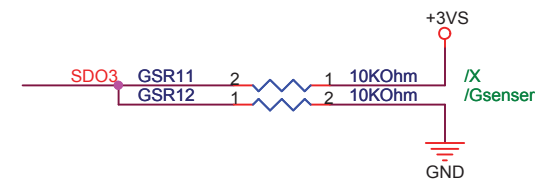




Install GR6 being slaveaddr "3A"
for ADI/Freescale/ST G-sensors

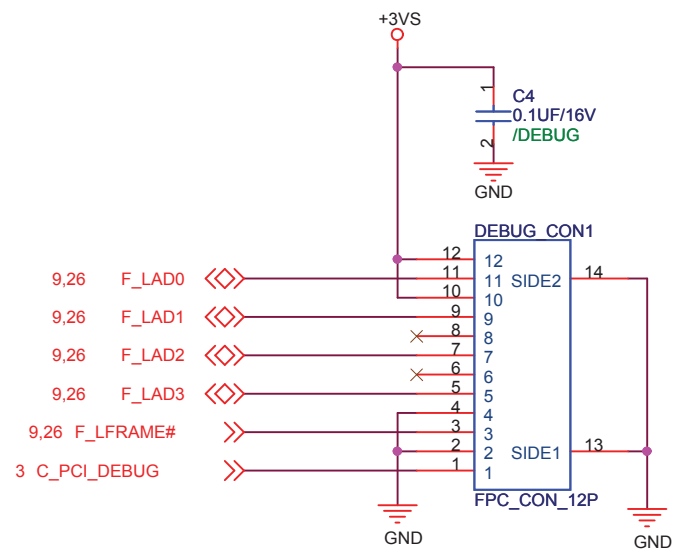
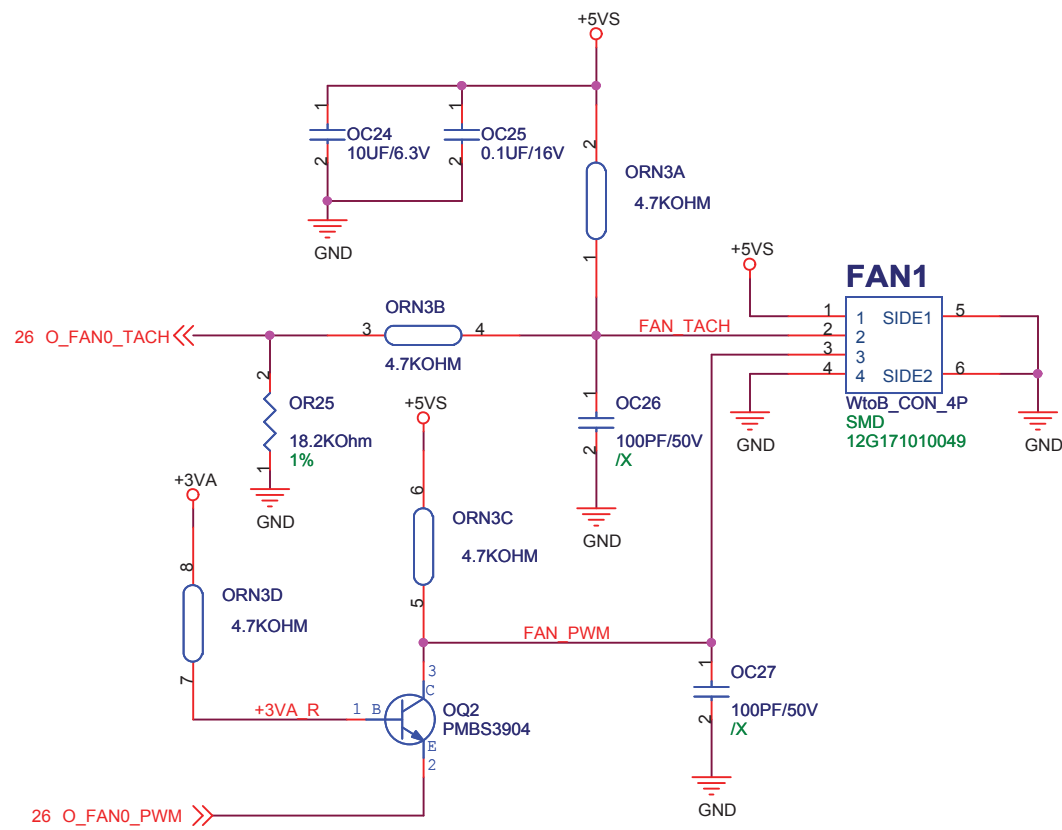


Install GR6 being slaveaddr "3A"
for ADI/Freescale/ST G-sensors



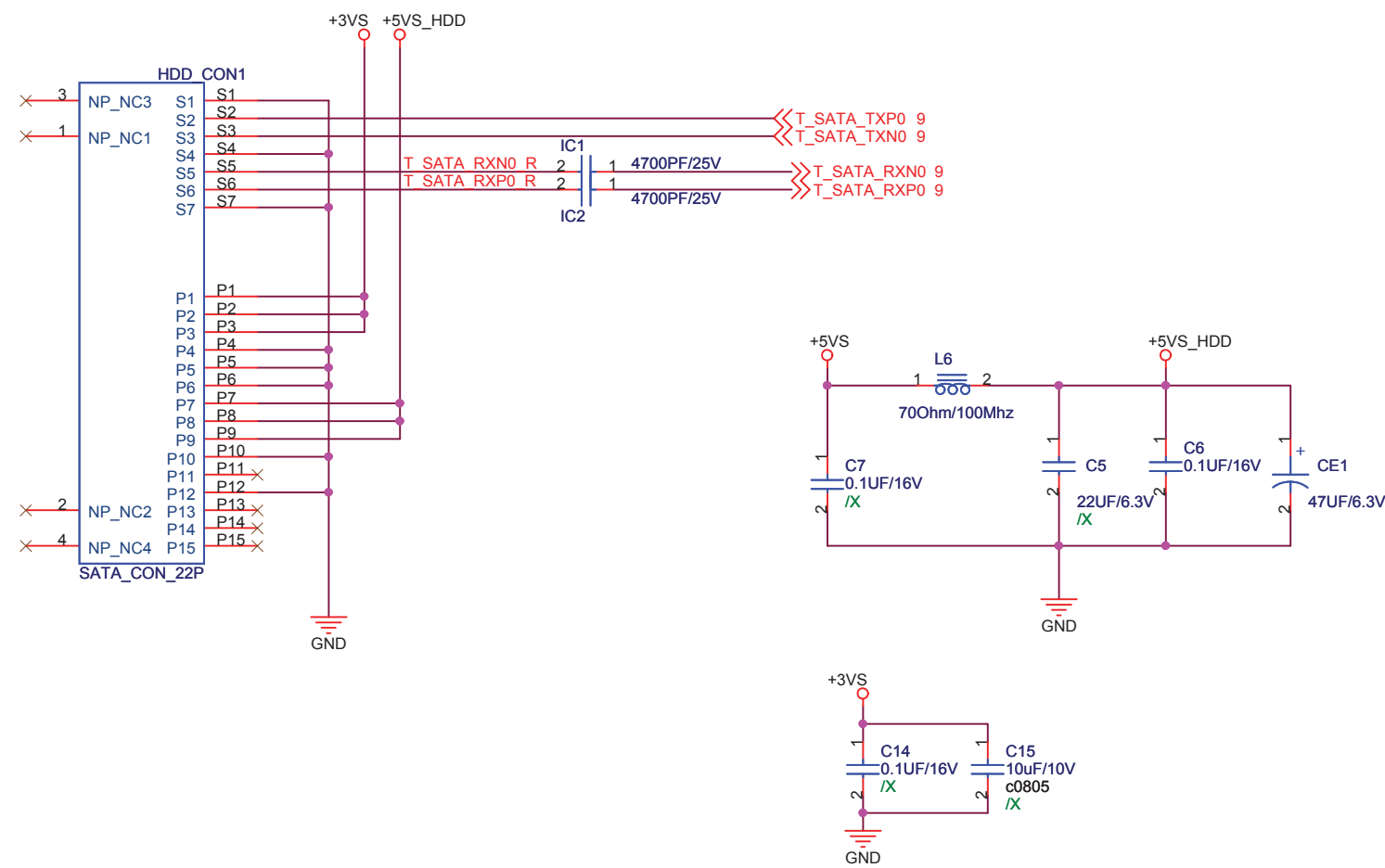
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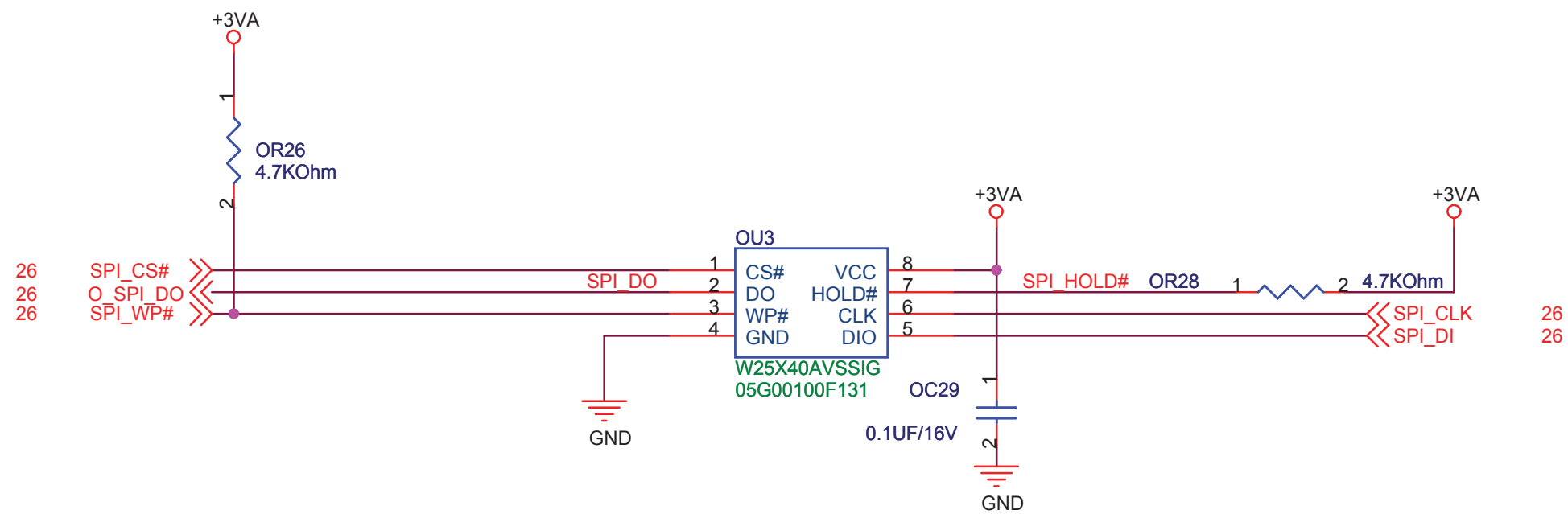
ASUS		Title : G_Sensor	
ASUSTek Computer INC.		Engineer: Wabor_Xie	
Size A3	Project Name T101MT		Rev 1.0G
Date: Thursday, August 27, 2009		Sheet	27 of 42



<Variant Name>

ASUS		Title : Fan_Debug	
ASUSTek Computer INC.		Engineer: Wabor_Xie	
Size A3	Project Name T101MT		Rev 1.0G
Date: Thursday, August 27, 2009		Sheet	28 of 42





<Variant Name>

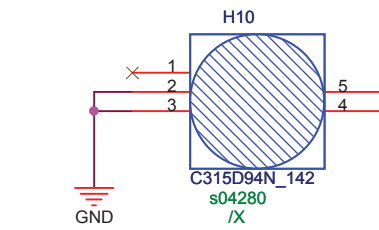
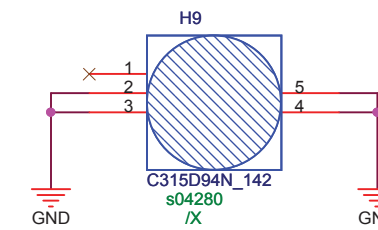
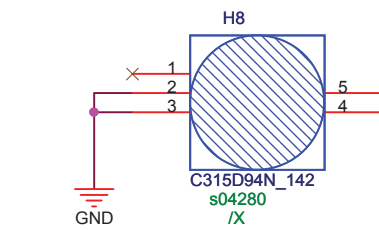
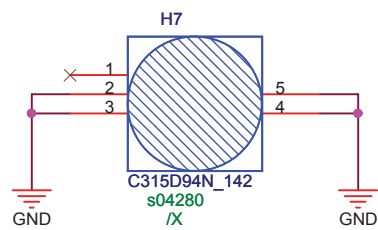
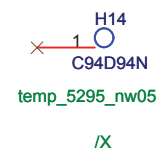
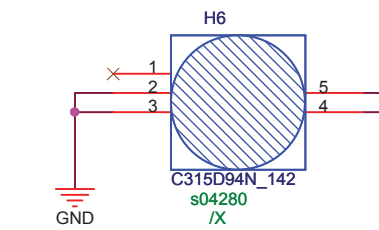
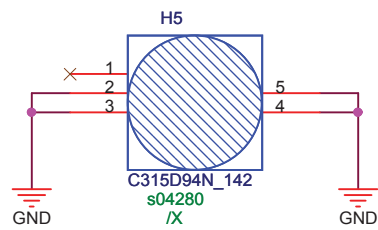
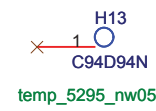
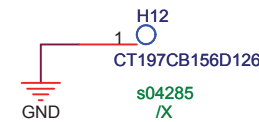
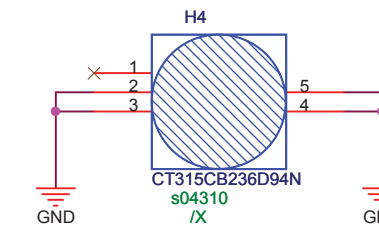
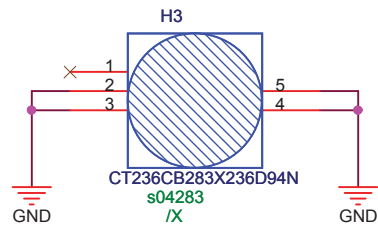
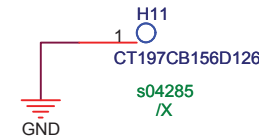
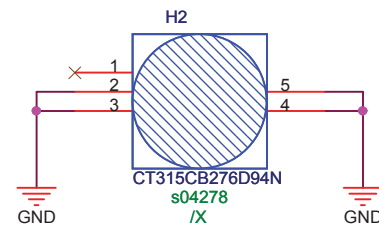
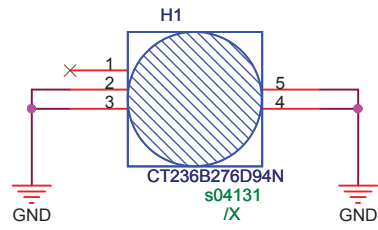
ASUS®		Title : SPI_ROM	
ASUSTek Computer INC.		Engineer: Wabor_Xie	
Size A4	Project Name T101MT		Rev 1.0G
Date: Thursday, August 27, 2009		Sheet 30	of 42

————>>BAT_IN# 35

————<<S_SMBCLK1 26,35

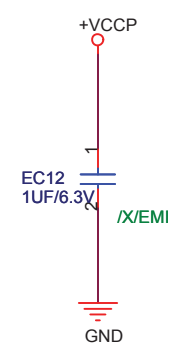
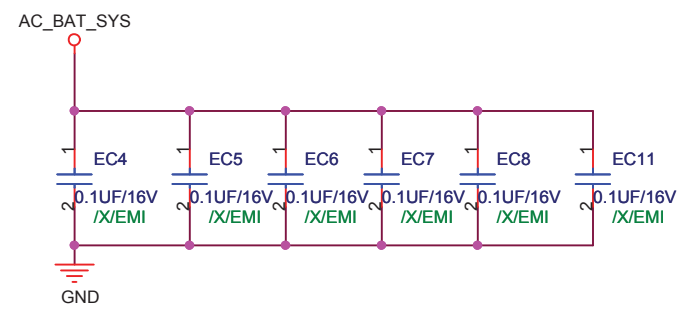
————<<S_SMBDATA1 26,35

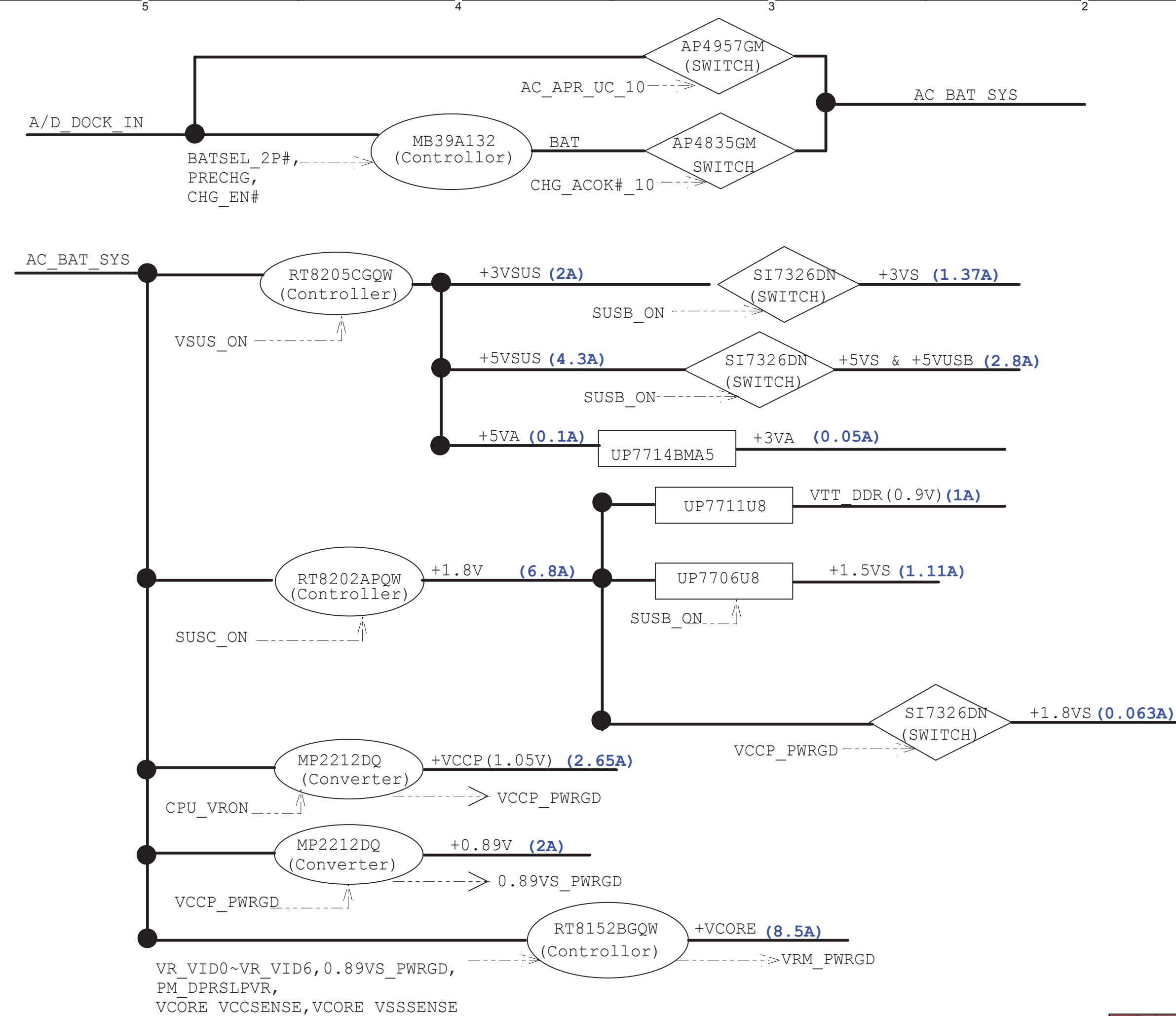


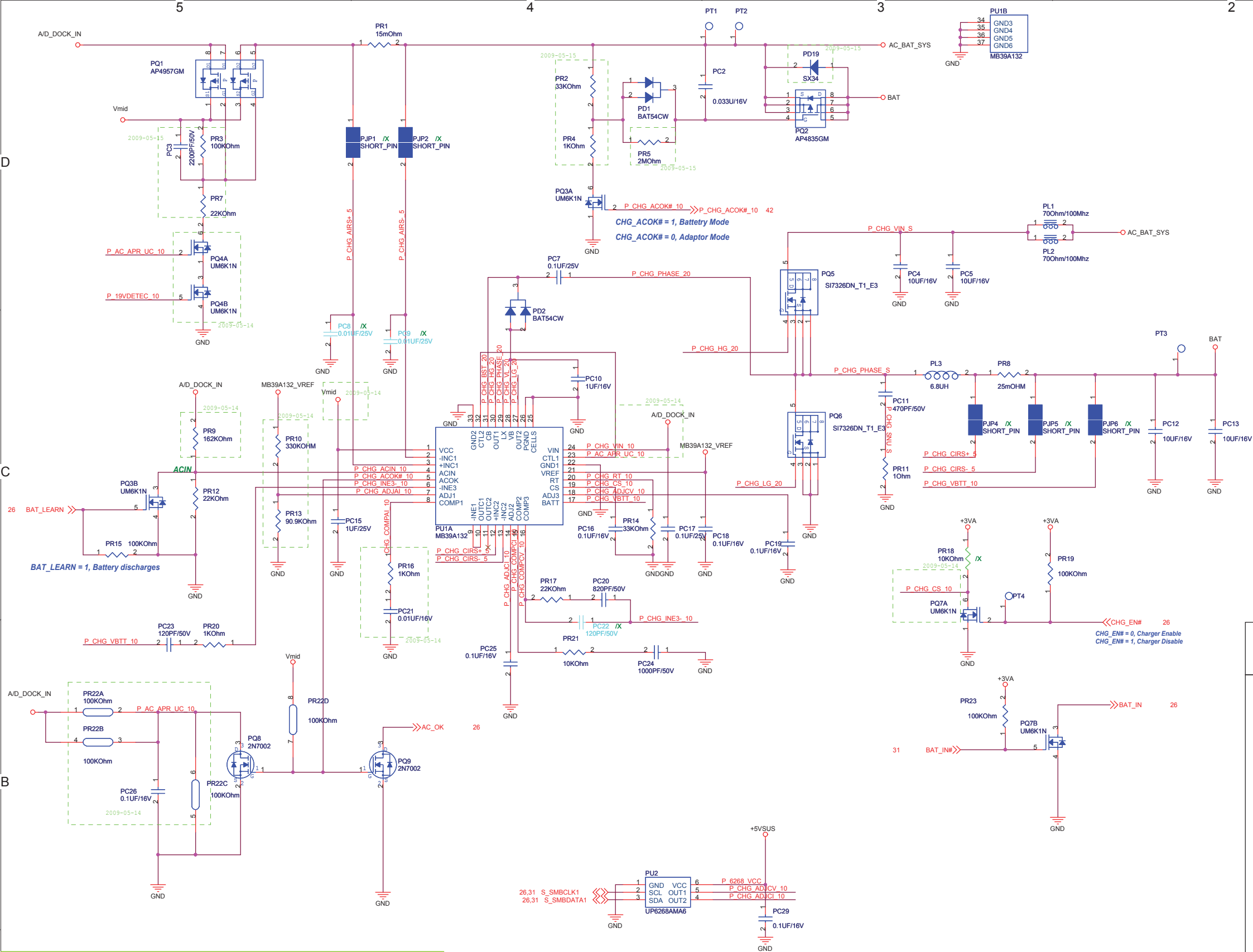


<Variant Name>

ASUS		Title : Srew Hole	
ASUSTek Computer INC.		Engineer: <i>Wabor_Xie</i>	
Size A3	Project Name T101MT		Rev 1.0G
Date: Thursday, August 27, 2009	Sheet	32 of 42	







Power stage

1. I/P Current:

$$I_{in} = V_o \cdot I_o / (0.8 \cdot V_{in}) = 1.64A$$

2. Ripple Current:

$$I_{rip} = 1.18A$$

$$I_{spec} = 2A \odot 1$$

$$pcs$$

3. Inductor Spec:

$$I_{sat} = 10A$$

$$I_{dc} = 5.5A$$

$$DCR = 37mohm$$

4. MOSFET Spec:

H-side MOSFET: SI7326DN_T1_E3

$$R_{ds(ON)} = 22mohm \quad (V_{gs} = 4.5V)$$

$$I_{cont} = 6.5A \quad (T = 25^\circ C)$$

$$I_{peak} = 40A \quad (Pause \geq 10\mu s)$$

L-side MOSFET: SI7326DN_T1_E3

$$R_{ds(ON)} = 22mohm \quad (V_{gs} = 4.5V)$$

$$I_{cont} = 6.5A \quad (T = 25^\circ C)$$

$$I_{peak} = 40A \quad (Pause \geq 10\mu s)$$

Controller

1. Voltage & Current:

$$+12.6V @ 2.5A$$

2. Frequency:

$$PR122 = 33KOHM,$$

$$F_{osc} = 515KHz$$

3. OCP:

4. POR:

$$POR \text{ Hysteresis} = 0.1V$$

$$V_{on} = 7.5V$$

5. Enable Voltage:

$$V = 2.9V$$

6. Soft start time:

$$T_{ss} = 23ms$$

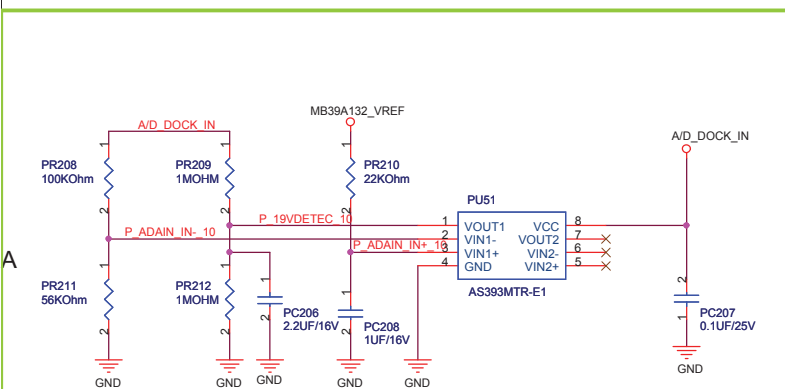
7. Phase selection:

N/A

8. Inrush Current:

$$C_{total} = 20\mu F$$

$$I_{inrush} = 0.01A$$



Battery Charging Current :

$$4.4V > V_{adj2} \geq 0V \Rightarrow$$

$$I_{chg} = (V_{adj2} - 0.075) / (25 \cdot R_s)$$

Input Max. Current Limit :

$$PR13 = 330KOHM;$$

$$PR16 = 90.9KOHM \Rightarrow$$

$$I_{limit} = 2.679A$$

Pre-Charging Mode :

$$\text{Precharging current} = 149.2mA$$

$$V_{adj2} = 168mV$$

ACIN Threshold = 1.25V

Adaptor > 10.45V, System Powered by Adaptor
Adaptor < 10.45V, System Powered by Battery

Battery Charging Voltage :

$$V_{adj3} : V_{REF} \Rightarrow V_{bat} = 4.2V / \text{cell}$$

$$3.9V > V_{adj3} > 2.4V \Rightarrow V_{bat} = 4.35V / \text{cell}$$

$$V_{adj3} : GND \Rightarrow V_{bat} = 4.0V / \text{cell}$$

$$2.2V > V_{adj3} > 1.1V \Rightarrow V_{bat} = 2 \cdot V_{adj3}$$

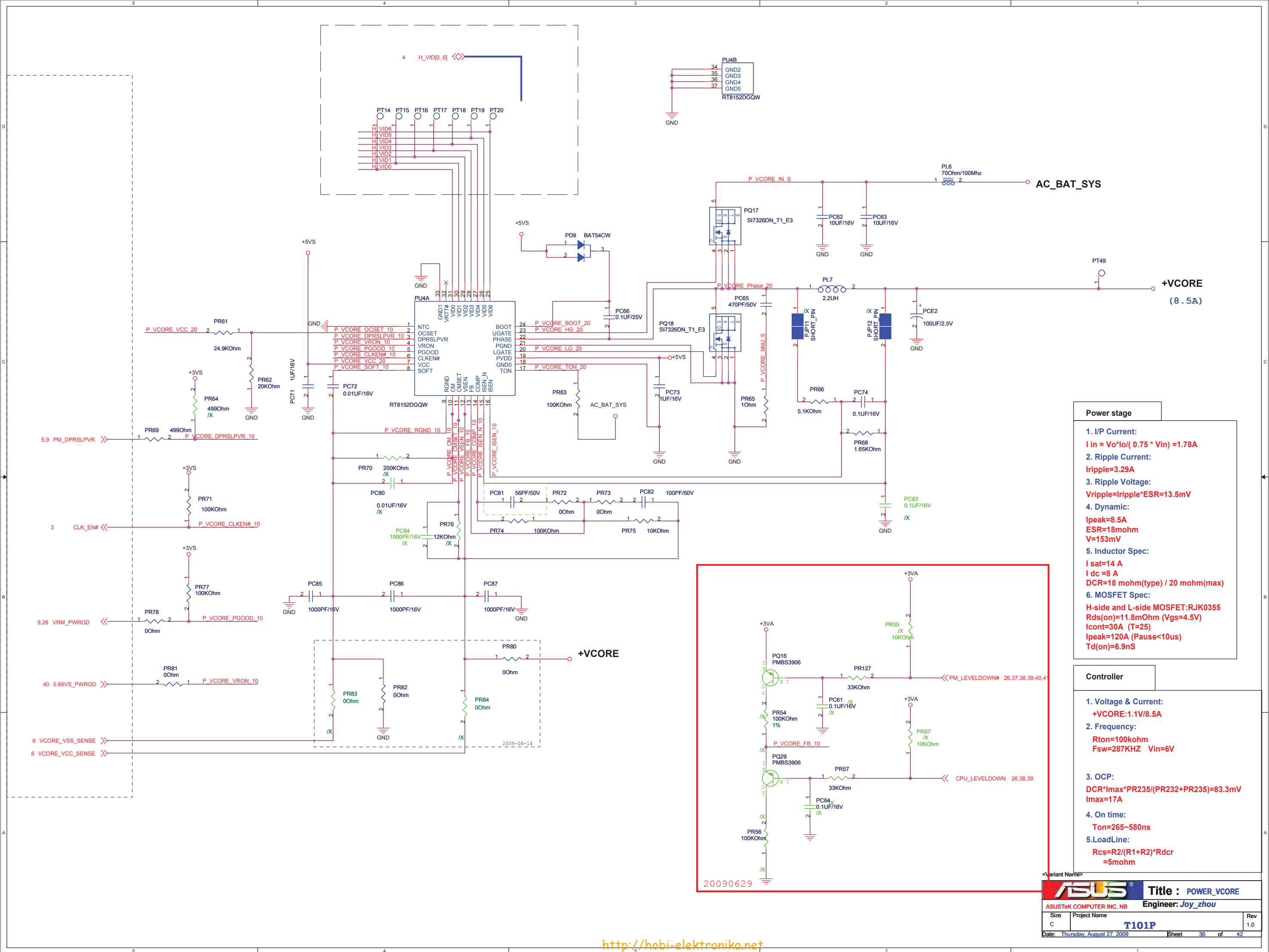
Battery Cell Selection :

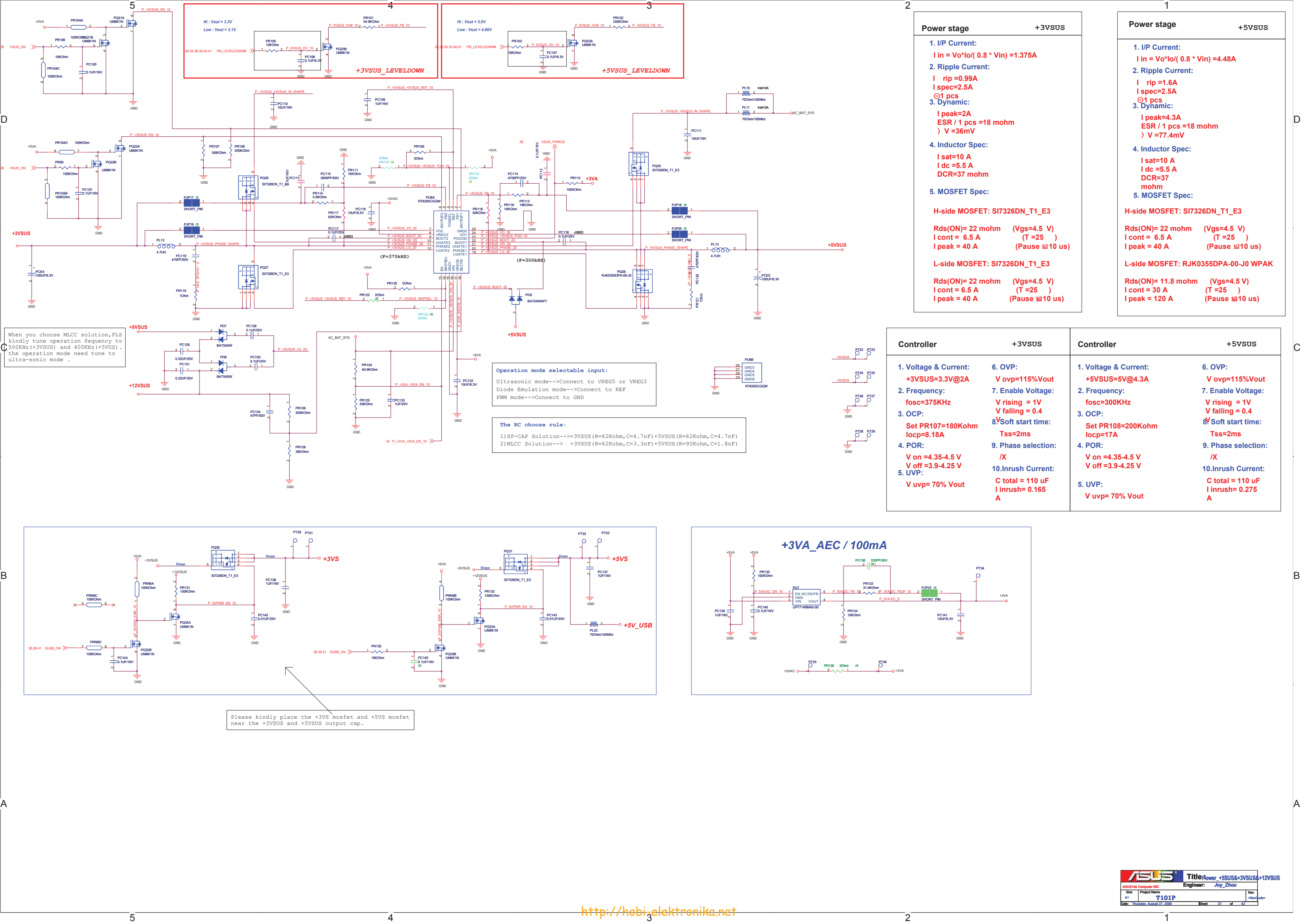
CELLS: VREF $\Rightarrow$ 4 Cells;
CELLS: OPEN $\Rightarrow$ 3 Cells;
CELLS: GND $\Rightarrow$ 2 Cells;

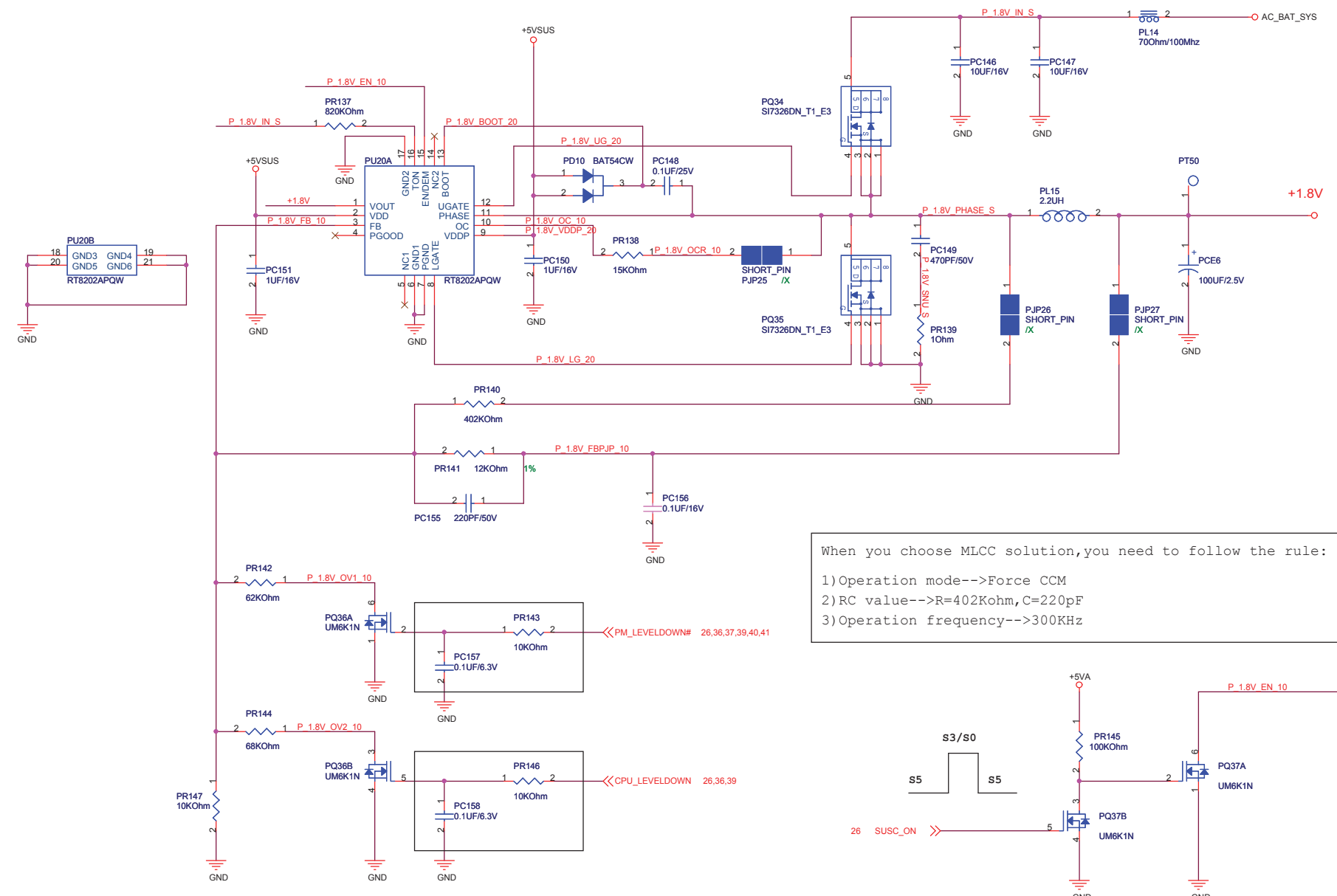
VREF = 5.0V

$$f_{osc}(KHz) = 17000 / RT (KOhm)$$

$$\text{Soft start: } t_s(s) = 0.13 \cdot CS (\mu F)$$







When you choose MLCC solution, you need to follow the rule:

- 1) Operation mode-->Force CCM
- 2) RC value-->R=402Kohm, C=220pF
- 3) Operation frequency-->300KHz

PM_LEVELDOWN#	CPU_LEVELDOWN	CPU_LEVELDOWN#	Voltage	Status
L	L	H	1.650V	Power Saving
H	L	H	1.803V	Normal
H	H	L	1.931V	Performance
L	H	L	1.778V	N/A

- 0.9VS@1A**
1. Dropout Voltage:
 $V = 0.3V$ ($I_o = 2A$)
 2. Current Limit:
 $I_{limit} = 4A$
 3. Continue Current:
 $I_{cont} = 3A$
 4. Power Dissipation:
 $R_{thjc} = 52 /W$
 $P_d = 1.9W$
 5. EN Voltage:
 $V_{en} = 1.4V$
 $V_{sd} = 0.8V$
 6. Supply Voltage:
 $V_{cc} = 5V$
 7. Inrush current:
 $T_{ss} = 5ms$
 $C_{total} = 10uF$
 $I_{inrush} = 3mA$

Power stage

1. I/P Current:
 $I_{in} = V_o * I_o / (0.8 * V_{in})$
 $= 2.55A$
2. Ripple Current:
 $I_{rip} = 3.12A$
 $I_{spec} = 2.5A$
 Q_{2pcs}
3. Dynamic:
 $I_{peak} = 6.8A$
 $ESR / 1 pcs = 18mohm$
 $V = 122.4mV$
4. Inductor Spec:
 $I_{sat} = 14A$
 $I_{dc} = 8A$
 $DCR = 18mohm$
5. MOSFET Spec:

H-side MOSFET: SI7326DN_T1_E3

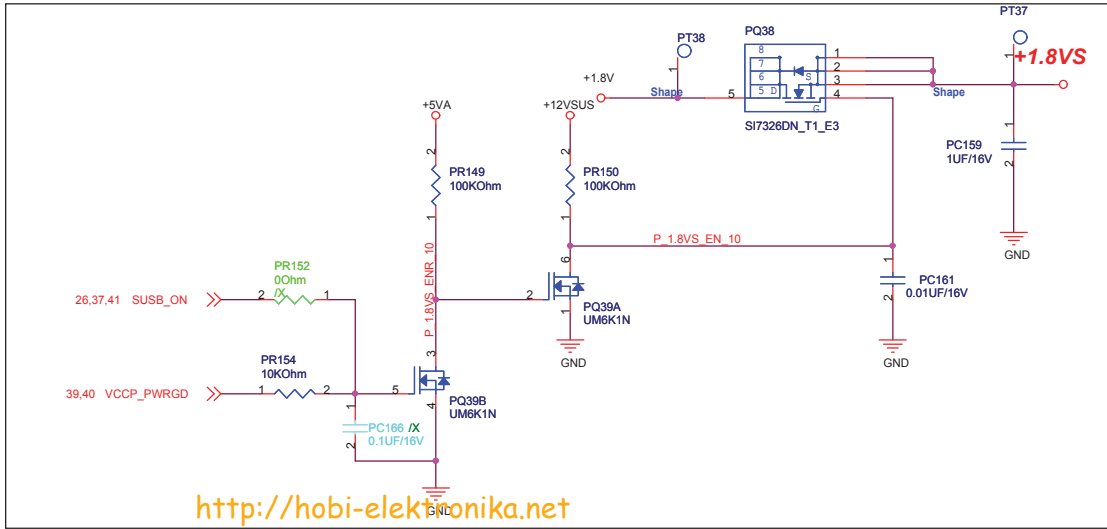
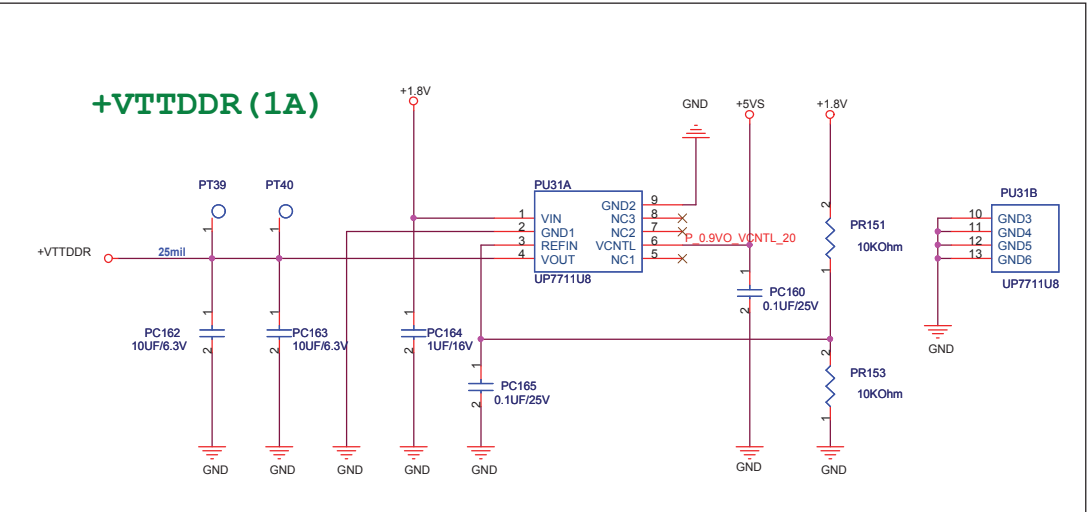
 $R_{ds(ON)} = 22mohm$ ($V_{gs} = 4.5V$)
 $I_{cont} = 6.5A$ ($T = 25$)
 $I_{peak} = 40A$ (Pause $\geq 10us$)

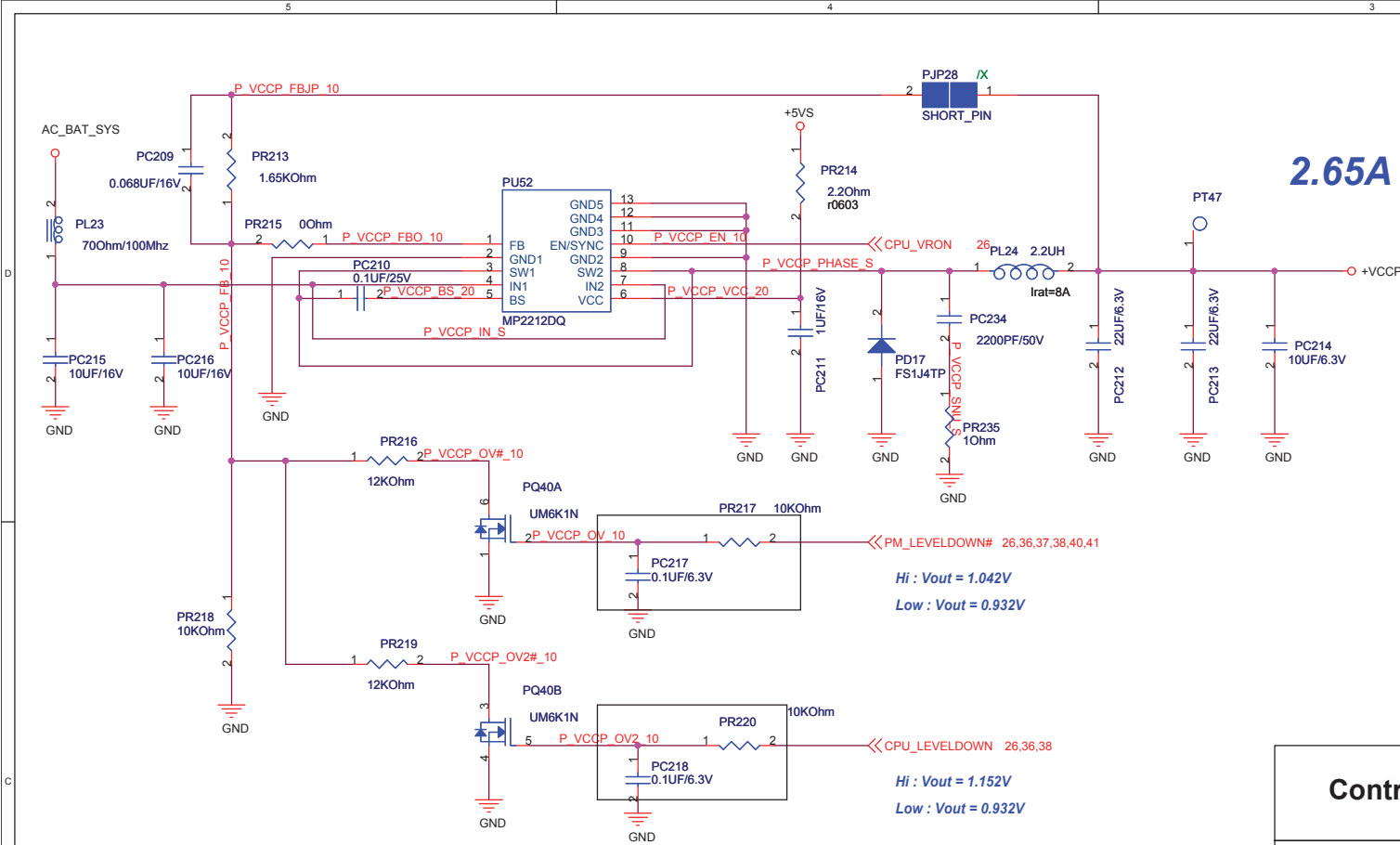
L-side MOSFET: SI7326DN_T1_E3

 $R_{ds(ON)} = 22mohm$ ($V_{gs} = 4.5V$)
 $I_{cont} = 6.5A$ ($T = 25$)
 $I_{peak} = 40A$ (Pause $\geq 10us$)

Controller

1. Voltage & Current:
 $+1.8V @ 6.8A$
2. Frequency:
 $F_{osc} = 300KHz$
3. OVP:
 $PR137 = 845Kohm$
 $PR138 = 15Kohm \rightarrow 13.6A$
4. POR:
 $V_{ccrth} = 3.7 \sim 4.1V$
 $V_{cchys} = 0.2V$
5. UVP:
 $V_{out} * 70\%$
6. OVP:
 $V_{out} * 115\%$
7. Enable Voltage:
 $V = 2.9V$
8. Soft start time:
 $T_{ss} = 1.2ms$
9. Phase selection:
 $/X$
10. Inrush Current:
 $C_{total} = 100uF$
 $I_{inrush} = 0.15A$



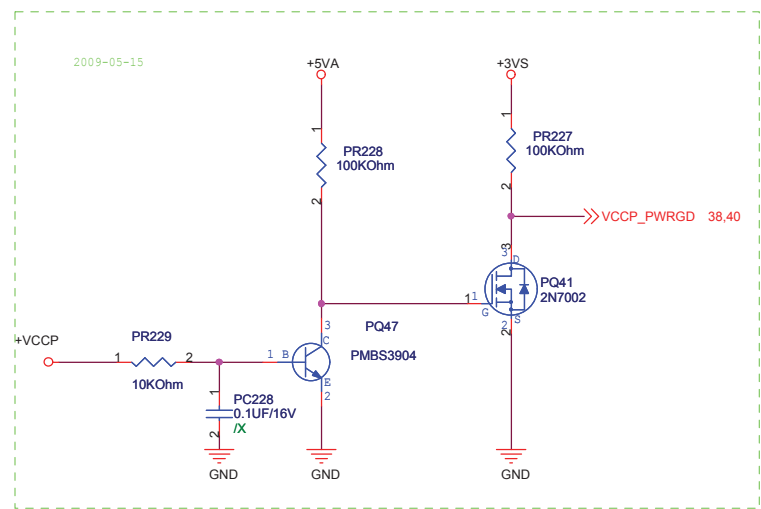


Power stage

1. I/P Current:
 $I_{in} = V_o \cdot I_o / (0.8 \cdot V_{in}) = 0.7A$

2. Ripple Current:
 $I_{rip} = 1.08A$
 $I_{spec} = 2.5A$
 $\odot 1\text{ pcs}$

3. Inductor Spec:
 $I_{sat} = 14A$
 $I_{dc} = 8A$
 $DCR = 18\text{ mohm}$



Controller

1. Voltage & Current:
+VCCP@2.65A

2. Frequency:
Fosc=600KHz

3. Current Limit:
6A

4.Continue Current:
3.75A

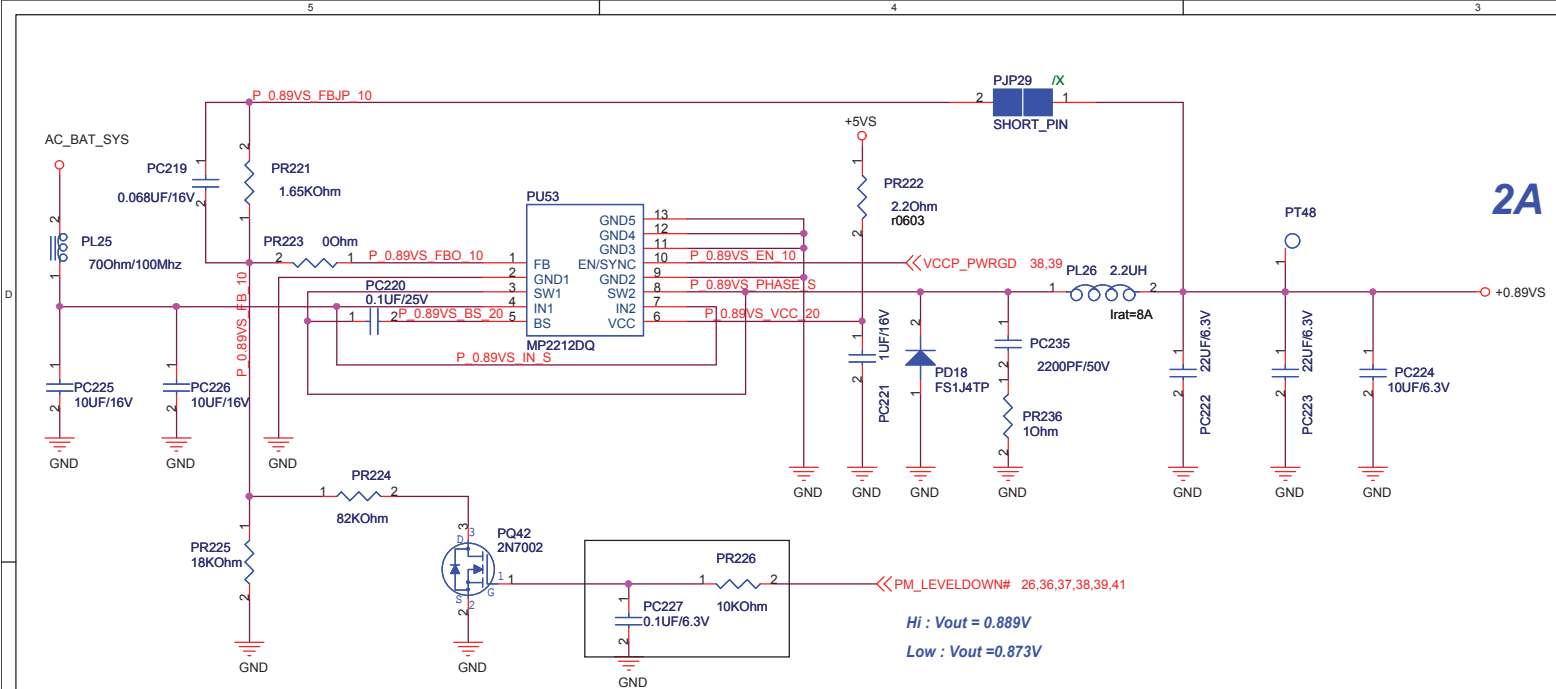
5. POR:
POR Hysteresis =0.2V
V on =2.8V

6. Enable Voltage:
V = 1.6V

7. Soft start time:
Tss=120us

8.Inrush Current:
C total = 54 uF
I inrush= 0.473A

PM_LEVELDOWN#	CPU_LEVELDOWN	CPU_LEVELDOWN#	Voltage	Status
L	L	H	0.932V	Power Saving
H	L	H	1.042V	Normal
H	H	L	1.152V	Performance
L	H	L	1.042V	N/A



Power stage

1. I/P Current:

$$I_{in} = \frac{V_o \cdot I_o}{0.8 \cdot V_{in}} = 0.445A$$

2. Ripple Current:

$$I_{rip} = 0.32A$$

$$I_{spec} = 2.5A$$

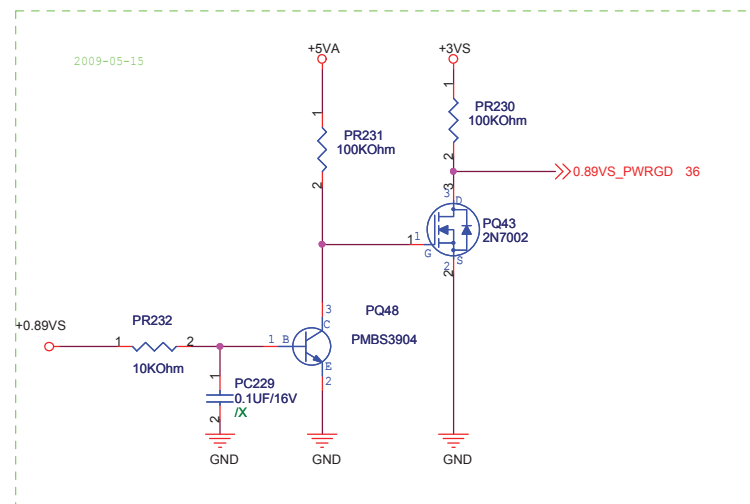
$$\odot 1 \text{ pcs}$$

3. Inductor Spec:

$$I_{sat} = 14A$$

$$I_{dc} = 8A$$

$$DCR = 18 \text{ mohm}$$



PM_LEVELDOWN#	Voltage	Status
L	0.873V	Power Saving
H	0.889V	Normal

Controller

1. Voltage & Current:

$$+0.89V@2A$$

2. Frequency:

$$F_{osc} = 600KHz$$

3. Current Limit:

$$6A$$

4. Continue Current:

$$3.75A$$

5. POR:

$$POR \text{ Hysteresis} = 0.2V$$

$$V_{on} = 2.8V$$

6. Enable Voltage:

$$V = 1.6V$$

7. Soft start time:

$$T_{ss} = 120\mu s$$

8. Inrush Current:

$$C_{total} = 54 \mu F$$

$$I_{inrush} = 0.4A$$

