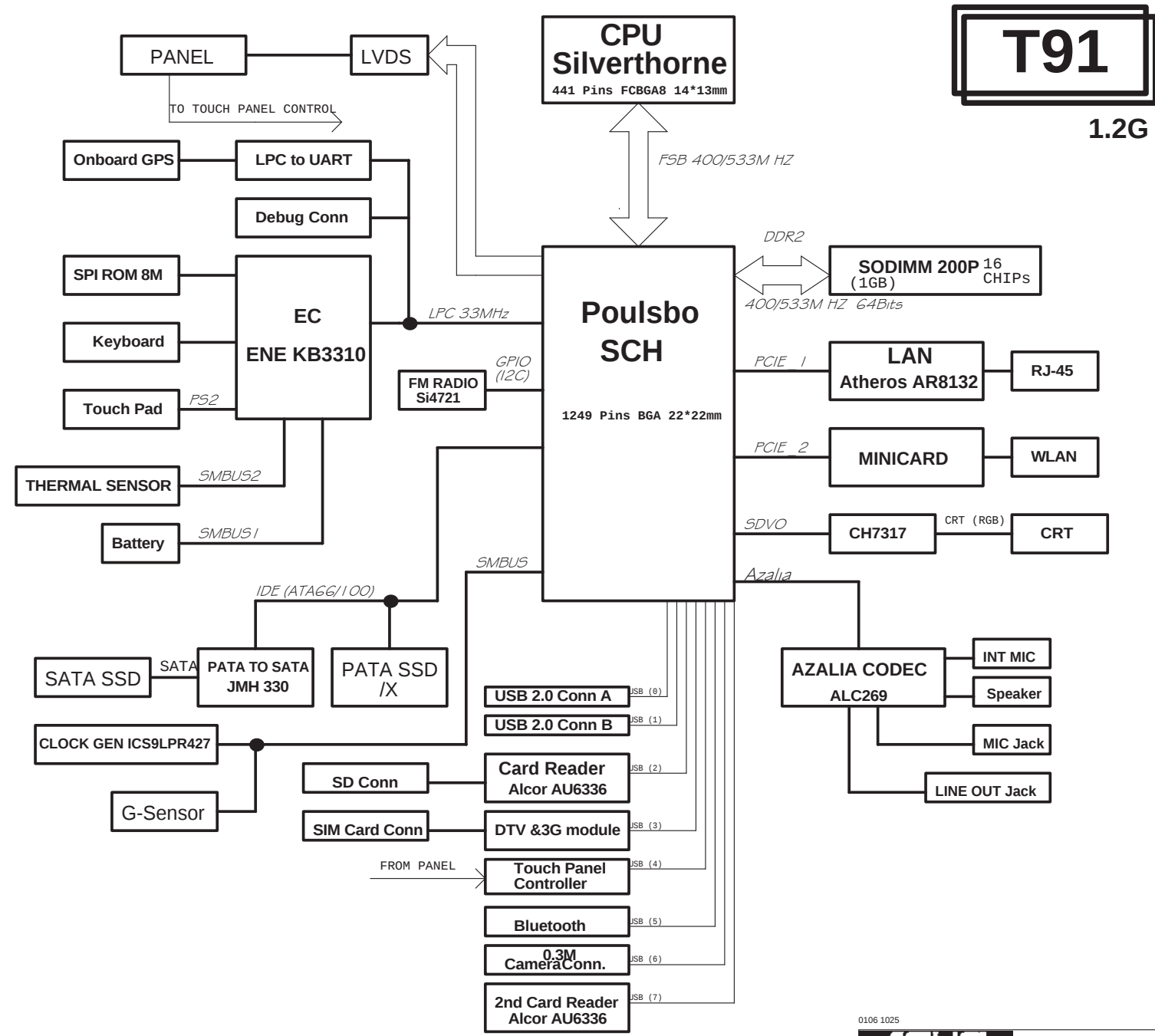


01_BLOCK DIAGRAM
02_SCH GPIO Setting
03_EC Pin Define
04_Power Sequrnse DC
05_Power Sequence AC
06_Power Sequence Description
07_Clock Gen_ICS9LPR427
08_CPU-SILVERTHORNE (1)
09_CPU-SILVERTHORNE (2)
10_CPU-SILVERTHORNE (3)
11_SCH_Poulsbo_HOST (1)
12_SCH_Poulsbo_DDR2 (2)
13_SCH_Poulsbo_LVDS/SDVO (3)
14_SCH_Poulsbo_PM/USB/IDE/AZ (4)
15_SCH_Poulsbo_STRAP(5)
16_SCH_Poulsbo_POWER (6)
17_SCH_Poulsbo_GND (7)
18_DDR2_SODIMM
19_DDR2_Termination
20_CH7317_SDVO_CRT
21_Onboard VGA
22_LCD Conn_LID
23_PCIEx 3.5G & Ext. Antenna
24_Mini WIFI / BT
25_Bluetooth_BT253
26_FM_RADIO_Si4721
27_Onboard GPS
28_LAN_Atheros AR8113/AR8132
29_RJ45
30_Flash Conn
31_PATA_TO_SATA
32_USB Port
33_Card Reader_AU6336C52
34_Camera Conn
35_Codec_ALC269
36_Audio Amp Jack
37_EC_ENE KB3310
38_EC_UART Contoller
39_SPI ROM_Debug Conn
40_Reset Map
41_KB_Touch Pad
42_Thermal Sensor
43_Small_Board_Conn
44_G-Sensor
45_Discharge
46_PWR Jack
47_SCREW HOLE
48_EMI
49_Power Flow
50_Vcore
51_Power System
52_Power_+1.8V & VTTDDR
53_Power_VCCP
54_Power_+1.5VS & +2.5VS
55_Power_Charger
56_Power_Load Switch
57_Power Latch



SCH GPIO SETTING

Pin	Pin Name	Connect to	Type	Power Well	S3	S4/ S5	Input/Output Set
U41	GPIO_SUS0	PM_LEVELDOWN#	I/O CMOS3.3	Sus	VIX-unknown	OFF	Output
N43	GPIO_SUS1	CPU_LEVELDOWN	I/O CMOS3.3	Sus	VIX-unknown	OFF	Input
N45	GPIO_SUS2	PM_PWRBTN#	I/O CMOS3.3	Sus	VIX-unknown	OFF	Input
R41	GPIO_SUS3/ USBCC	Test Point	I/O CMOS3.3	Sus	VIX-unknown	OFF	Input
G29	GPIO0	Strap CMC/ BT_Disable	I/O CMOS3.3	Core	OFF	OFF	Input
K30	GPIO1	PCB ID	I/O CMOS3.3	Core	OFF	OFF	Input
F34	GPIO2	GPS_EN	I/O CMOS3.3	Core	OFF	OFF	Output
G33	GPIO3	Strap CMC	I/O CMOS3.3	Core	OFF	OFF	Input
K36	GPIO4	3GLAN_OFF	I/O CMOS3.3	Core	OFF	OFF	Output
H36	GPIO5	MINICARD_EN#	I/O CMOS3.3	Core	OFF	OFF	Output
F36	GPIO6	DDR_MEM_CONFIG	I/O CMOS3.3	Core	OFF	OFF	Input
J31	GPIO7/ SLPI_OVR#	SLPI_OVR#	I/O CMOS3.3	Core	OFF	OFF	Output
H34	GPIO8/ PROCHOT#	CAMERA_EN	I/O CMOS3.3/ OD	Core	OFF	OFF	Output
K28	GPIO9/ EXTTS1#	WLAN_LED	I/O CMOS3.3	Core	OFF	OFF	Output

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ASUS		Title : SCH GPIO Setting	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size	Project Name		Rev
A3	T91		1.2G
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EC KB3310 GPIO SETTING

Pin	Pin Name	Signal Name	Type	Note
1	GPIO00/GA20	A20GATE	O	
2	GPIO01/KBRST#	RC_IN#	O	
6	GPIO04	HOTKEY_SW0#	I	Internal pull high
13	GPIO05/PCIRST#	BUF_RST#	I	
14	GPIO07	HOTKEY_SW1#	I	Battery over temperature
15	GPIO08	EXT_SM#	OD	10K pull high to +3VSB
16	GPIO0A	LID_EC#	I	Internal pull high
17	GPIO0B/ESB_CLK	NC	O	Reserved for GPIO extender
18	GPIO0C/ESB_DAT	NC	O	Reserved for GPIO extender
19	GPIO0D	LID_EC_R#	I	Internal pull high
20	GPIO0E/SCI#	KBC_SC#	O	10K pull high to +3VSB
21	GPIO0F/PWM0	BL_PWM_DA	O	
23	GPIO10/PWM1	BATSEL#	I	Battery critical capacity
25	GPIO11/PWM2	PM_PWRBTN#	OD	Internal pull high in ICH
26	GPIO12/FANPWM1	FAN0_PWM	O	CPU Fan
27	GPIO13/FANPWM2	FAN1_PWM	O	VGA Fan
28	GPIO14/FANFB1	FAN0_TACH	I	CPU FanTach
29	GPIO15/FANFB2	FAN1_TACH	I	VGA FanTach
30	GPIO16/E51_TX	E51_TX	O	RS232 debug port
31	GPIO17/E51_RX	E51_RX	I	RS232 debug port
32	GPIO18	PWR_SW#	I	Internal pull high
34	GPIO19/PWM3	PS-ON	O	latch power
36	GPIO1A/NUMLED	NUM_LED#	O	
38	GPIO1D/CLKRUN#	LPC_CLKRUN#	O	
39	GPIO20/KSO0/TP_TEST	KSO0	O	
40	GPIO21/KSO1/TP_PLL	KSO1	O	
41	GPIO22/KSO2	KSO2	O	
42	GPIO23/KSO3	KSO3	O	
43	GPIO24/KSO4	KSO4	O	
44	GPIO25/KSO5	KSO5	O	
45	GPIO26/KSO6	KSO6	O	
46	GPIO27/KSO7	KSO7	O	
47	GPIO28/KSO8	KSO8	O	
48	GPIO29/KSO9	KSO9	O	
49	GPIO2A/KSO10	KSO10	O	
50	GPIO2B/KSO11	KSO11	O	
51	GPIO2C/KSO12	KSO12	O	
52	GPIO2D/KSO13	KSO13	O	
53	GPIO2E/KSO14	KSO14	O	
54	GPIO2F/KSO15	KSO15	O	
55	GPIO30/KSI0	KSI0	I	Internal pull high
56	GPIO31/KSI1	KSI1	I	Internal pull high
57	GPIO32/KSI2	KSI2	I	Internal pull high
58	GPIO33/KSI3	KSI3	I	Internal pull high
59	GPIO34/KSI4	KSI4	I	Internal pull high
60	GPIO35/KSI5	KSI5	I	Internal pull high
61	GPIO36/KSI6	KSI6	I	Internal pull high
62	GPIO37/KSI7	KSI7	I	Internal pull high
63	GP138/AD0	BAT_A	I	
64	GP139/AD1	BAT_B	I	
65	GPIO3A/AD2	BAT_C	I	
66	GPIO3B/AD3	BAT_D	I	
68	GPO3C/DA0	CHG_EN#	O	battery charger enabled

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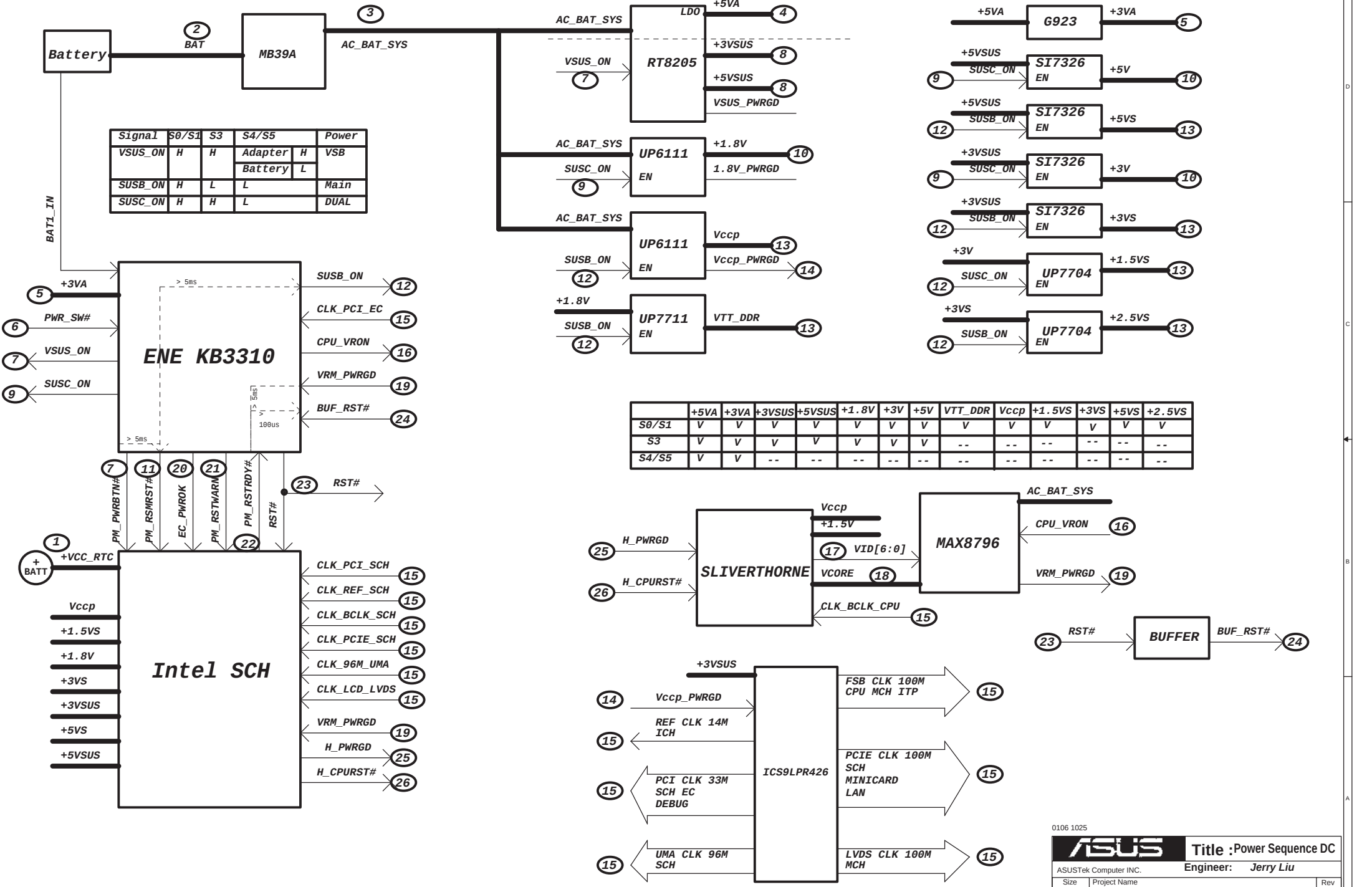
Pin	Pin Name	Signal Name	Type	Note
70	GPO3D/DA1	LCD_BACKOFF#	O	
71	GPO3E/DA2	THRO_CPU_VOLT#	O	
72	GPO3F/DA3	BAT_LL#	O	Battery Low Low
73	GPIO40	AC_OK	I	AC Adaptor Plug in
74	GPIO41	PM_RSMRST#	O	10K pull down to GND
75	GP142	BAT_IN	I	Batt1 (Small/Internal): 1-present, 0-absent
76	GP143	BAT2_IN	I	Batt2 (Small/Internal): 1-present, 0-absent
77	GPIO44/SCL1	SMB0_CLK	I/OD	4.7K pull high to +3VA_EC
78	GPIO45/SDA1	SMB0_DAT	I/OD	4.7K pull high to +3VA_EC
79	GPIO46/SCL2	SMB1_CLK	I/OD	10K pull high to +3V
80	GPIO47/SDA2	SMB1_DAT	I/OD	10K pull high to +3V
81	GPIO48/KSO16	KB_ID0	I	for KB type detection
82	GPIO49/KSO17	KB_ID1	I	for KB type detection
83	GPIO4A/PSCLK1	N.C.	O	
84	GPIO4B/PSDAT1	N.C.	O	
85	GPIO4C/PSCLK2	N.C.	O	
86	GPIO4D/PSDAT2	GS2_INT2	O	
87	GPIO4E/PSCLK3	TP_CLK	I/OD	10K pull high to +3V
88	GPIO4F/PSDAT3	TP_DAT	I/OD	10K pull high to +3V
89	GPIO50/SELIO#	CHG_LED_GREEN#	O	Green charger LED
90	GPIO52/E51_CS#	CHG_LED_UP#	O	Orange charger LED
91	GPIO53/CAPLED	CAP_LED#	O	
92	GPIO54	PWR_LED_UP	O	
93	GPIO55/SCRLLED	SCRL_LED#	O	
95	GPIO56	GS1_INT1	I	Internal pull high
97	GPXOA00/SDICS#	SPI_MODE#	O	4.7K pull down to GND
98	GPXOA01/SDICLK	SUSC_ON	O	
99	GPXOA02/SDIDO	VSUS_ON	O	
100	GPXOA03	CPU_VRON	O	
101	GPXOA04	SUSB_ON	O	
102	GPXOA05	CNT1_CHG#	O	batt1 (Big/External) charging enabled. Batt1 is discharging priority in AC mode.
103	GPXOA06	CNT1_DIS#	O	batt1 discharging enabled
104	GPXOA07	CNT2_CHG#	O	batt2 (Small/Internal) charging enabled. Batt2 is charging priority in AC mode.
105	GPXOA08	CNT2_CHG#	O	batt2 discharging enabled
106	GPXOA09	SPI_WP#	O	
107	GPX0A10	OP_SD#	O	Audio OP
108	GPXOA11	BAT_LEARN	O	
109	GPXID0/SDIDI	PM_PWROK	O	Battery parallel, H:1P, L:2P-3P
110	GPXID1	RST#	O	
112	GPXID2	THRO_CPU	O	Active if CPU temperature over spec
114	GPXID3	PM_SLPRDY#	I	SLPRDY#,100K pull down to GND
115	GPXID4	SLPMODE	I	SUSC#,100K pull down to GND
116	GPXID5	VRM_PWRGD	I	Pull high to +3V
117	GPXID6	PM_RSTRDY#	I	
118	GPXID7	RSTWARN	O	
121	GPIO57	GS1_INT2	I	Internal pull high
126	GPIO57/SPICLK	SPI_CLK	O	
127	GPIO59/TEST_CLK	GS2_INT1	O	

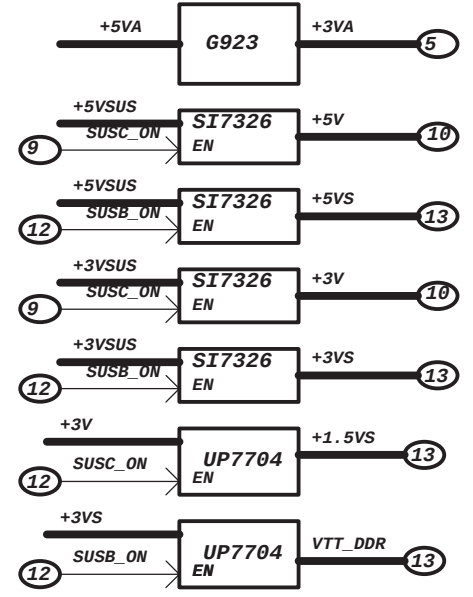
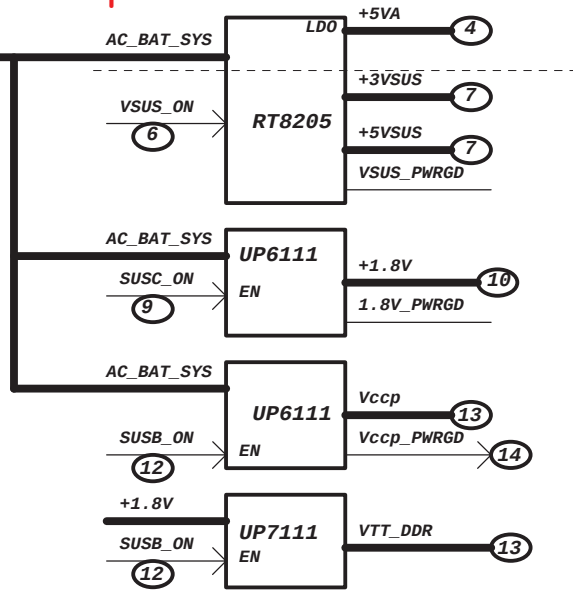
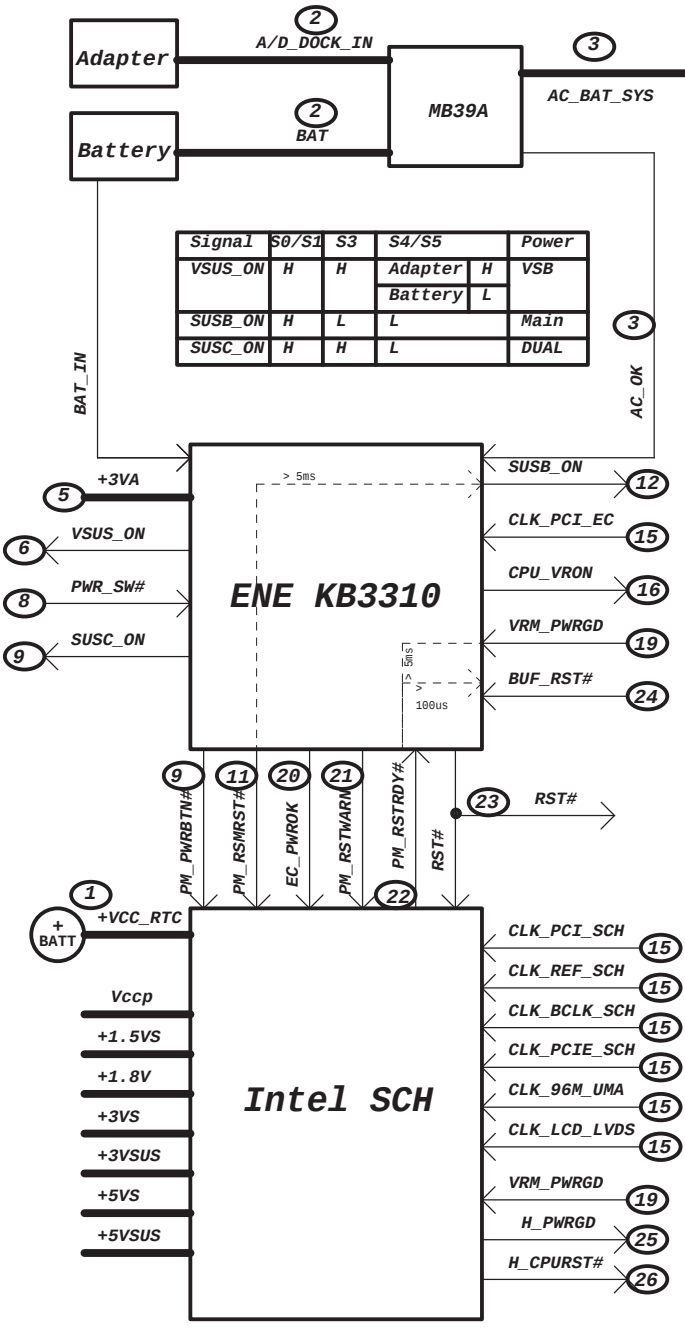
EC KB3310 Other Pin SETTING

Pin	Pin Name	Signal Name	Type	Note
3	SERIRQ	INT_SERIRQ	I/OD	10K pull high to +3V
4	LFRAME#	LPC_FRAME#	I	
5	LAD3	LPC_AD3	I/O	
7	LAD2	LPC_AD2	I/O	
8	LAD1	LPC_AD1	I/O	
9	VCC	+3VA	P	
10	LAD0	LPC_AD0	I/O	
11	GND	GND	P	
12	PCICLK	CLK_PCI_EC	I	
22	VCC	+3VA	P	
24	GND	GND	P	
33	VCC	+3VA	P	
35	GND	GND	P	
37	ECRST#	EC_RST#	I	100K pull high to +3VA_EC
67	AVCC	+3VA_AEC	P	
69	AGND	AGND	P	
94	GND	GND	P	
96	VCC	+3VA	P	
111	VCC	+3VA	P	
113	GND	GND	P	
119	RD#/SPIDI	SPI_SO	I	
120	WR#/SPIDO	SPI_SI	O	
122	XCLKI	K_XCLKI	I	
123	XCLKO	K_XCLKO	O	
124	V18R	V18R	P	Reserved 1uF to GND
125	VCC	+3VA	P	
128	SPICS#/SELMEM#	SPI_CS#	O	

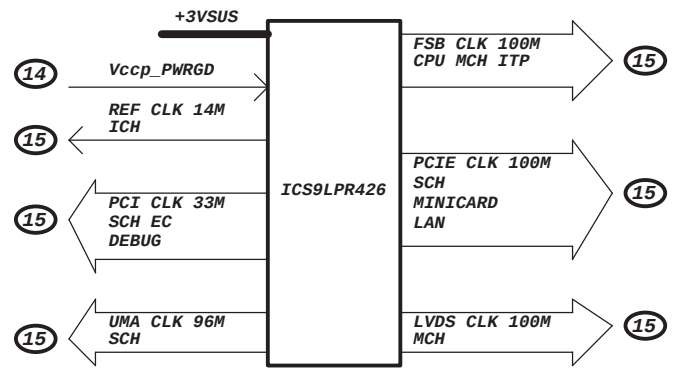
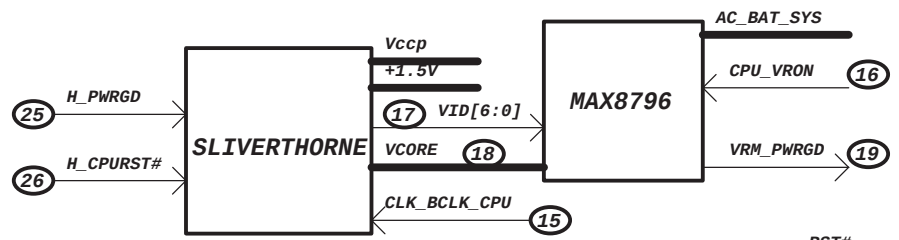
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ASUS		Title : EC Pin Define	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size A3	Project Name T91	Rev 1.2G	
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	+5VA	+3VA	+3VSUS	+5VSUS	+1.8V	+3V	+5V	VTT_DDR	Vccp	+1.5VS	+3VS	+5VS	+2.5VS
S0/S1	V	V	V	V	V	V	V	V	V	V	V	V	V
S3	V	V	V	V	V	V	V	--	--	--	--	--	--
S4/S5	V	V	V	V	--	--	--	--	--	--	--	--	--



S4/S5 to S0(Adapter Mode)

This sequence will occur whenever the system is in S4/S5 and the EC initiates a sleep exit sequence from S4/S5 to S0.

Initial EC state: VSUS_ON=0, SUSB_ON=0, SUSC_ON=0, A20GA=X, KBRST=X, CPU_VRON=0, ICH_PWROK=0, RSTWARN=0, and PM_RSMRST#=0, RESET#=0.

- 1.Waiting for AC_OK until adaptor power is good, then
- 2.At least **5mS** after AC_OK is asserted, EC asserts VSUS_ON to enable VSUS power.
- 3.At least **20mS** after VSUS power is stable, waiting for PWR_SW# until user is pressed. (Or waiting for SCH deasserted SLPRDY#, too?)
- 4.EC asserts RSTWARN.
- 5.SUSC_ON is asserted at least 20mS (de-bounce) after receiving PWR_SW#.
- 6.PM_RSMRST# is deasserted at least **5mS** after SUSC power is stable.
- 7.At least **5mS** after PM_RSMRST# is deasserted, SUSB_ON is enabled.
- 8.CPU_VRON is deasserted at least **100mS** after SUSB power is stable.
- 9.Waiting for CPUPWR_GD (VRM_PWRGD) until CPU_VRON power is stable.
- 10.At least **10mS** after receiving CPUPWR_GD, PM_PWROK is asserted, and then deasserts RSTWARN.
- 11.Waiting for RSTRDY# until deasserted by SCH.
- 12.RESET# can be deasserted at lease **100uS** after PM_PWROK is asserted.

Power Sequence Description: S3 to S0

This sequence will occur in S3, and wake event is detected by EC or SCH.

Initial EC state: SUSB_ON=0, CPU_VRON=0, ICH_PWROK=0, PM_RSMRST#=1, PM_PWRBTN#=1, and VSUS_ON=1, RSTWARN=1, SUSC_ON=1, RESET#=0.

- 1.For internal wake event, SCH deasserts SLPRDY# to EC, than 4.
- 2.For external wake event (PWR_SW#, keyboard wake up), then
- 3.EC asserts PM_PWRBTN# at least 50mS to wake SCH, and waiting for SLPRDY# until SCH deasserted.
- 4.EC asserts SUSB_ON to enable SUSB power.
- 5.CPU_VRON is deasserted at least **100mS** after SUSB power is stable.
- 6.Waiting for CPUPWR_GD (VRM_PWRGD) until CPU_VRON power is stable.
- 7.At least **5mS** after receiving CPUPWR_GD, ICH_PWROK is asserted.
- 8.Deasserts RSTWARN after ICH_PWROK is asserted.
- 9.RESET# can be deasserted **100uS** after RSTWARN is deasserted.

S4/S5 to S0(Battery Mode)

This sequence will occur whenever the system is in S4/S5 and the EC initiates a sleep exit sequence from S4/S5 to S0.

Initial EC state: VSUS_ON=0, SUSB_ON=0, SUSC_ON=0, A20GA=X, KBRST=X, CPU_VRON=0, ICH_PWROK=0, RSTWARN=0, and PM_RSMRST#=0, RESET#=0.

- 1.Waiting for BAT_IN until battery power is good, then
- 2.Waiting for PWR_SW# until user is pressed.
- 3.EC asserts VSUS_ON to enable VSUS power.
- 4.At least **20mS** after VSUS power is stable.
- 5.EC asserts RSTWARN.
- 6.SUSC_ON is asserted at least 20mS (de-bounce) after receiving PWR_SW#.
- 7.PM_RSMRST# is deasserted at least 5mS after SUSC power is stable.
- 8.At least 5mS after PM_RSMRST# is deasserted, SUSB_ON is enabled.
- 9.CPU_VRON is deasserted at least 10mS after SUSB power is stable.
- 10.Waiting for CPUPWR_GD (VRM_PWRGD) until CPU_VRON power is stable.
- 11.At least 10mS after receiving CPUPWR_GD, PM_PWROK is asserted, and then deasserts RSTWARN.
- 12.Waiting for RSTRDY# until deasserted by SCH.
- 13.RESET# can be deasserted at lease 100uS after ICH_PWROK is asserted.

Warm Reset (SLPMODE=1)

The warm reset sequence results in reset without remove any power supplies.

Initial EC state: SUSB_ON=1, CPU_VRON=1, ICH_PWROK=1, PM_RSMRST#=1, PM_PWRBTN#=1, and VSUS_ON=1, RSTWARN=1, SUSC_ON=1, RESET#=1.

- 1.SCH asserts RSTRDY# at the same time as driving SLPMODE=1 to EC.
- 2.EC asserts RSTWARN to SCH.
- 3.EC asserts RESET# for **1200uS** to SCH after asserts RSTWARN.
- 4.EC deasserts RSTWARN.
- 5.EC deasserts RESET# after at least **100uS** delay from RSTWARN.

S0 to S3/S4/S5

This sequence will occur when system entry to sleep states, or all power planes are shut down.

Initial EC state: VSUS_ON=1, SUSB_ON=1, SUSC_ON=1, CPU_VRON=1, ICH_PWROK=1, and PM_RSMRST#=1, RESET#=1, RSTWARN=0, PM_PWRBTN#=1.

- 1.Waiting for PWR_SW# until user is pressed (go to 2), or waiting for SLPRDY# is asserted (go to 3).
 - 2.At least 20mS after PWR_SW# is asserted, EC asserts PM_PWRBTN# (50mS width) to SCH.
 - 3.Waiting for SLPRDY# until has been asserted.
 - 4.EC asserts RSTWARN to SCH to begin internal sequence.
 - 5.SCH asserts RSTRDY# to EC to indicate all outstanding transactions are completed.
 - 6.EC asserts RESET# after detecting RSTRDY# asserted.
 - 7.EC deasserts ICH_PWROK.
 - 8.EC deasserts SUSB_ON and CPU_VRON to turn off power planes.
- This completes the entry to S3 (SLPMODE=1).**
- If SLPMODE=0, this indicates S4/S5 was the desired state, EC takes additional actions:
- 9.EC asserts PM_RSMRST#.
 - 10.EC deasserts SUSC_ON to turn off the other power planes.
 - 11.EC deasserts VSUS_ON if in battery mode.
 - 12.EC deasserts RSTWARN to save more power.

Cold Reset (SLPMODE=0)

The cold reset sequence results in a power cycling of all but the RTC power well.

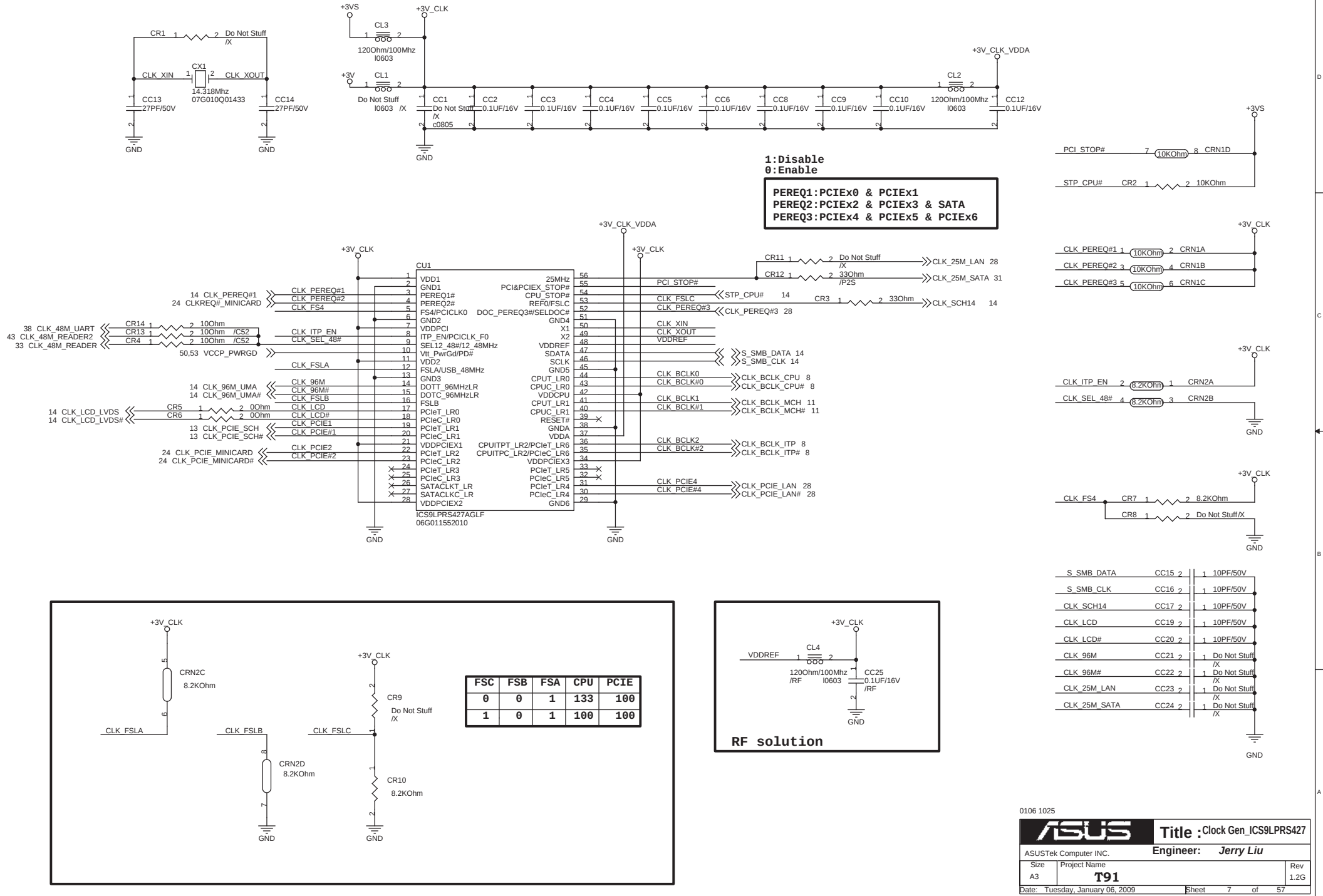
Initial EC state: SUSB_ON=1, CPU_VRON=1, ICH_PWROK=1, PM_RSMRST#=1, PM_PWRBTN#=1, and VSUS_ON=1, RSTWARN=1, SUSC_ON=1, RESET#=1.

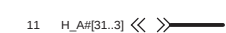
- 1.SCH asserts RSTRDY# at the same time as driving SLPMODE=0 to EC.
- 2.EC asserts RSTWARN to SCH.
- 3.EC asserts RESET# to SCH after asserts RSTWARN.
- 4.EC deasserts PM_PWROK and disables SUSB_ON and CPU_VRON power.
- 5.EC asserts PM_RSMRST# after CPU_VRON power is off.
- 6.EC disables SUSC_ON power for 3~5 seconds.
- 7.S4/S5 to S0 sequence is automatically followed to bring the system back to S0 when SUSC_ON power is enable.

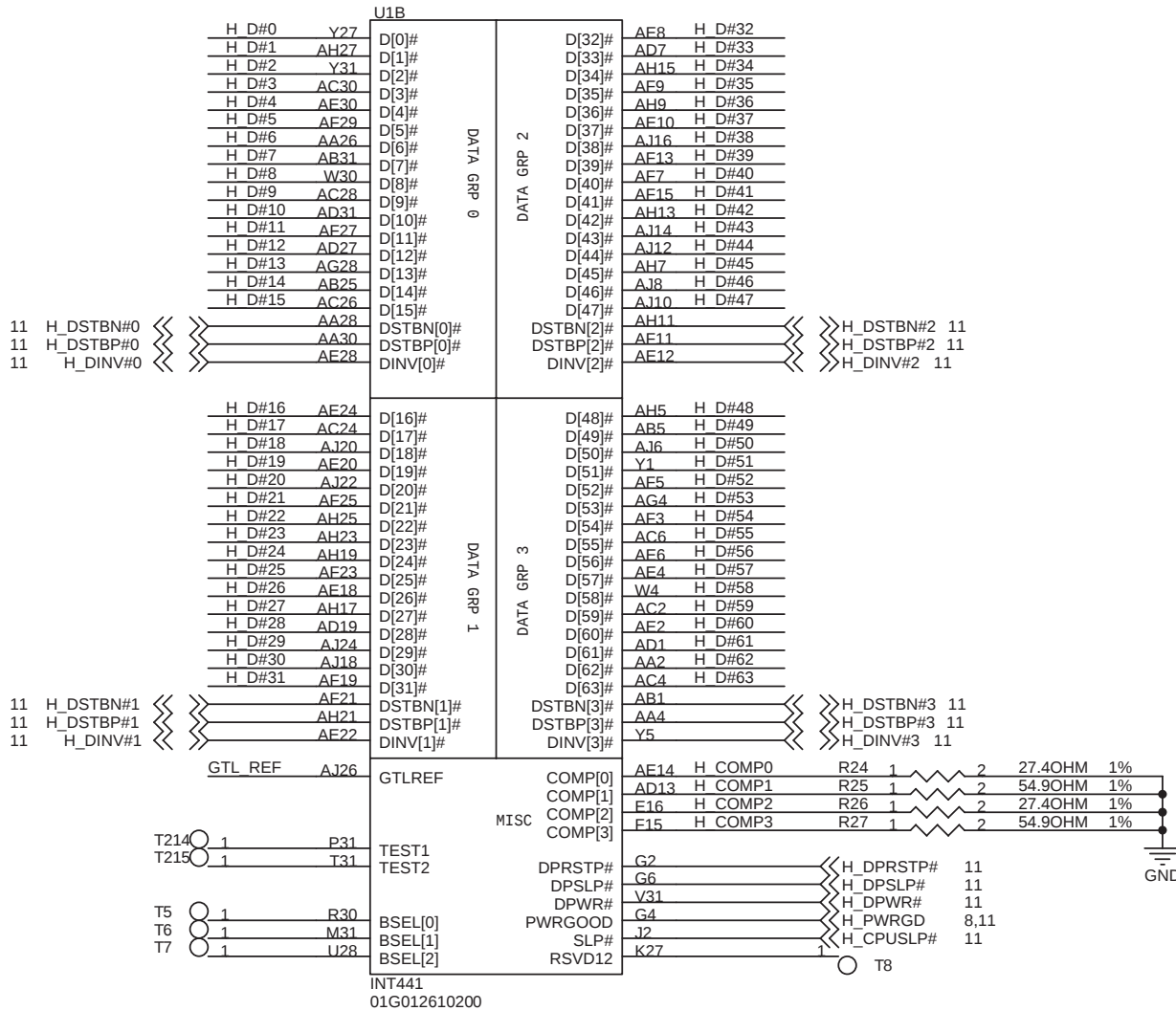
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Power Sequence Description

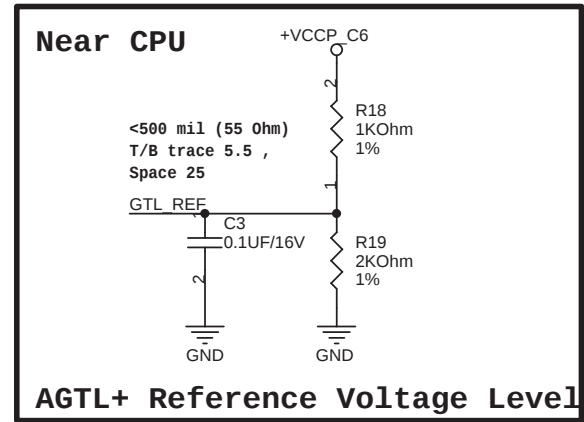
ASUS		Title :	
ASUSTek COMPUTER INC		Engineer: Jerry Liu	
Size	Project Name		Rev
Custom	T91		1.2G
Date: Tuesday, January 06, 2009		Sheet	6 of 57







H_D#[63:0] << >> H_D#[63:0] 11



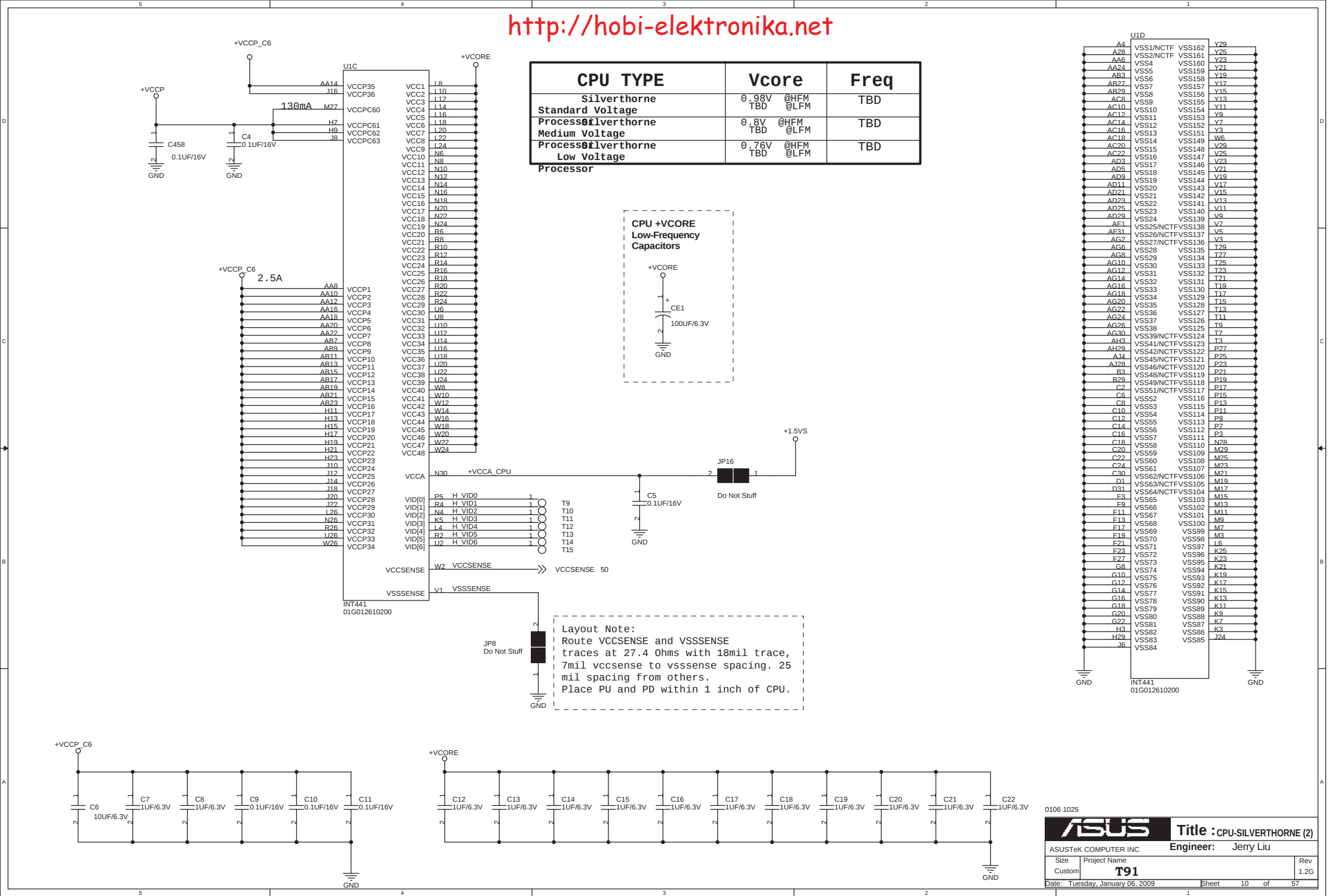
Layout Note

COMP 0 2 connect with Z0=27.4 ohm, L<0.5"

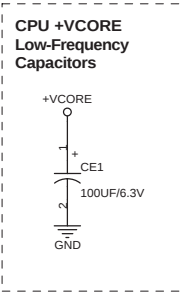
COMP 1 3 connect with Z0=55 ohm, L<0.5"

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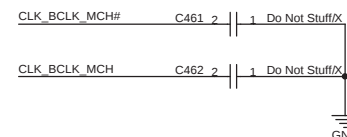
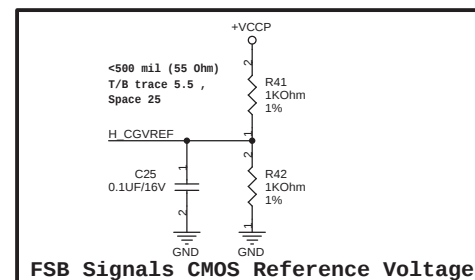
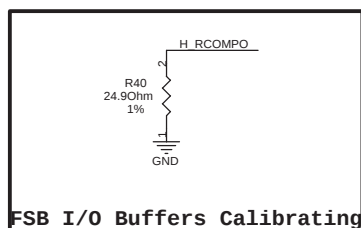
ASUS		Title : CPU-SLIVERTHORNE(1)	
ASUSTeK COMPUTER INC		Engineer: Jerry Liu	
Size A4	Project Name T91	Rev 1.2G	
Date: Tuesday, January 06, 2009		Sheet 9 of 57	



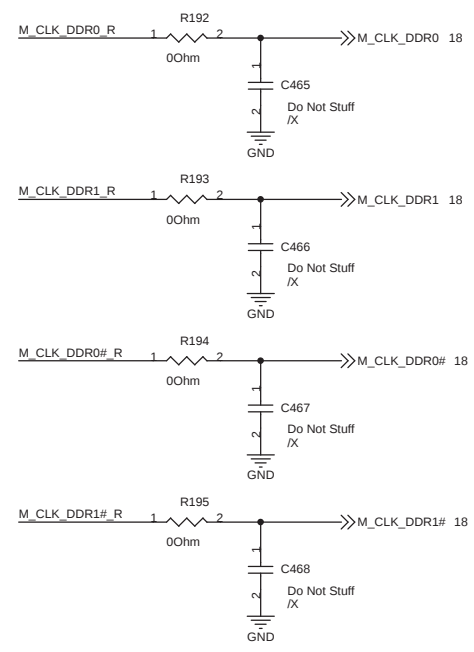
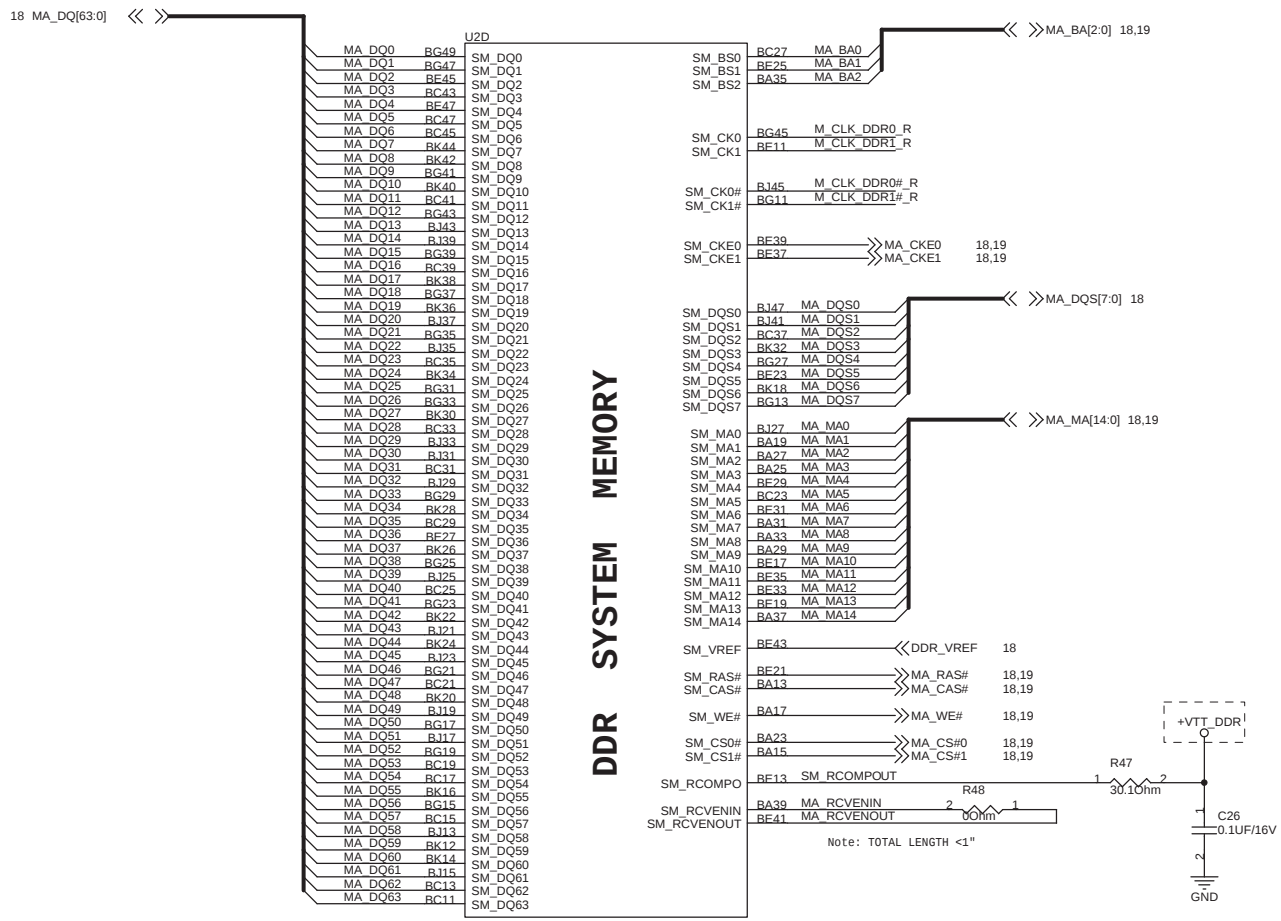
CPU TYPE	Vcore	Freq
Silverthorne	0.98V	TBD
Standard Voltage	TBD	TBD
Processor	0.8V	TBD
Medium Voltage	TBD	TBD
Processor	0.76V	TBD
Low Voltage	TBD	TBD



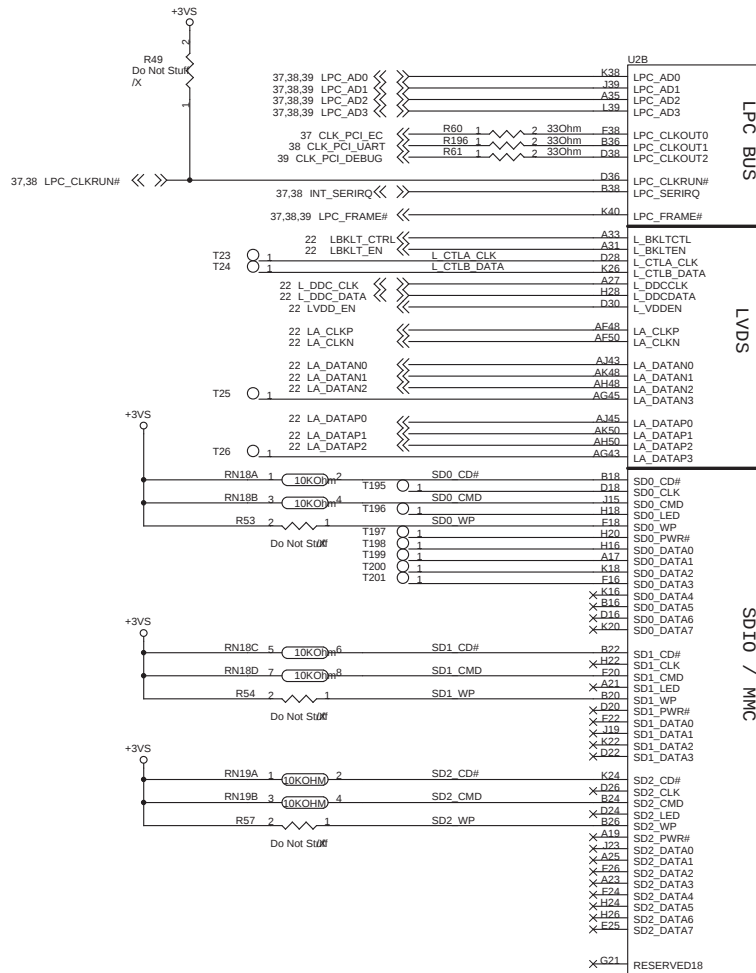
Layout Note:
Route VCCSENSE and VSSSENSE
traces at 27.4 Ohms with 18mil trace,
7mil vccsense to vssense spacing. 25
mil spacing from others.
Place PU and PD within 1 inch of CPU.



0106 1025				Title : Poulsbo_HOST (1)	
ASUSTeK COMPUTER INC		Engineer: Jerry Liu			
Size Custom	Project Name T91				Rev 1.2
Date: Tuesday, January 06, 2009		Sheet 11 of 57			



02G010018704



LPC BUS

LVDS

SDIO / MMC

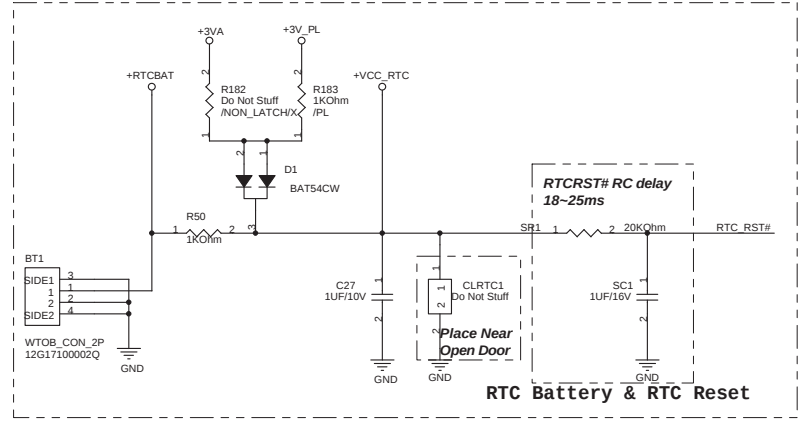
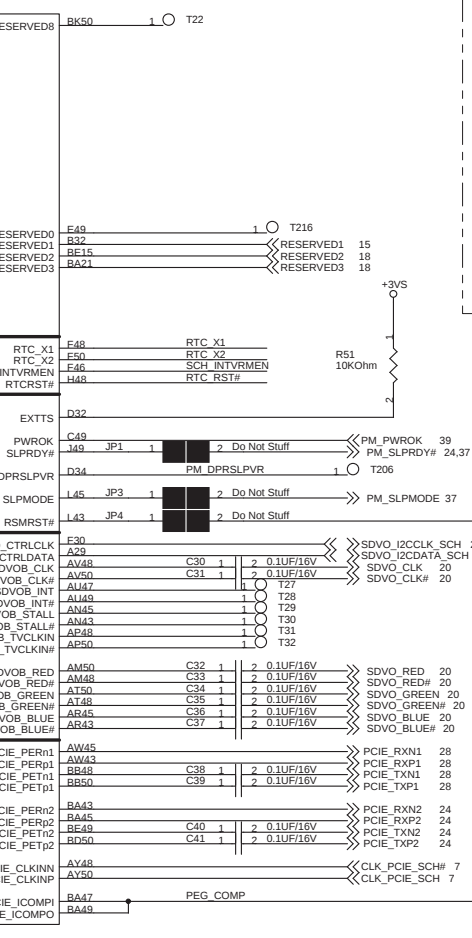
PCIE

MISC SIGNALS

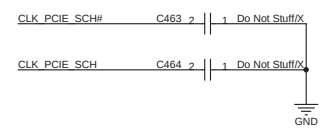
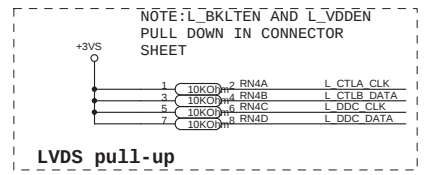
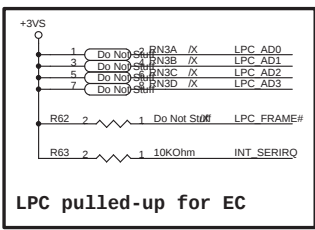
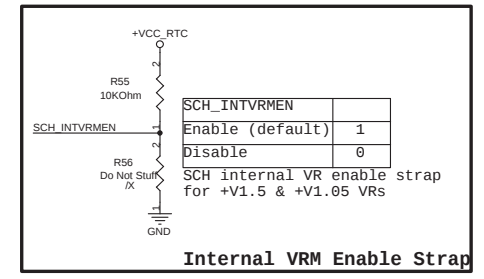
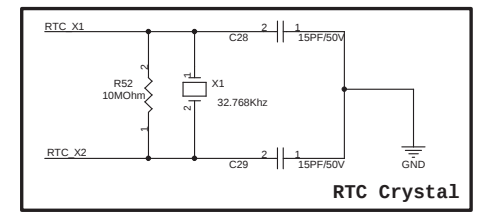
RTC

SYSTEM MGMT

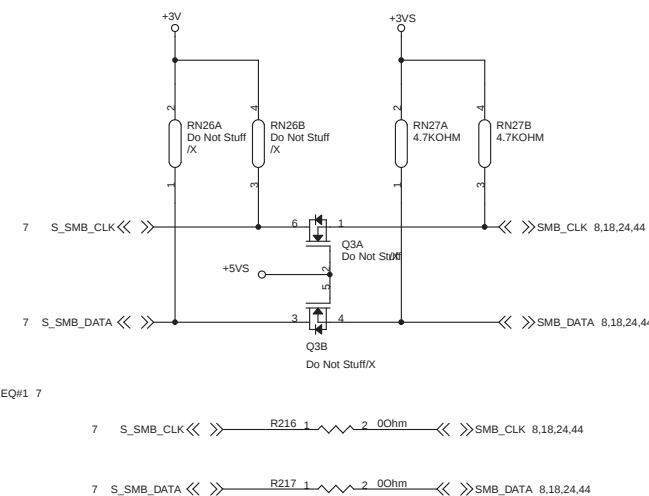
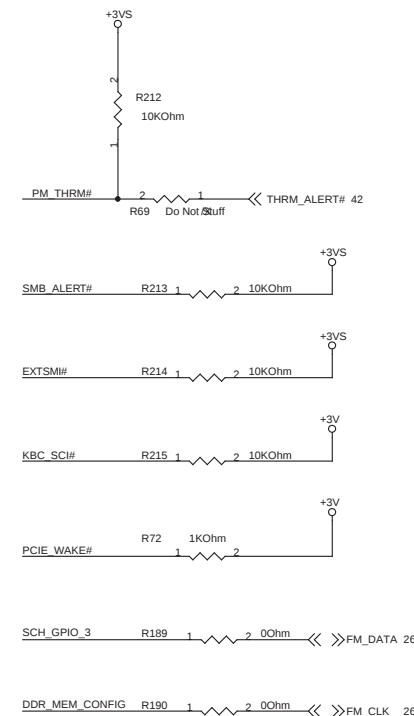
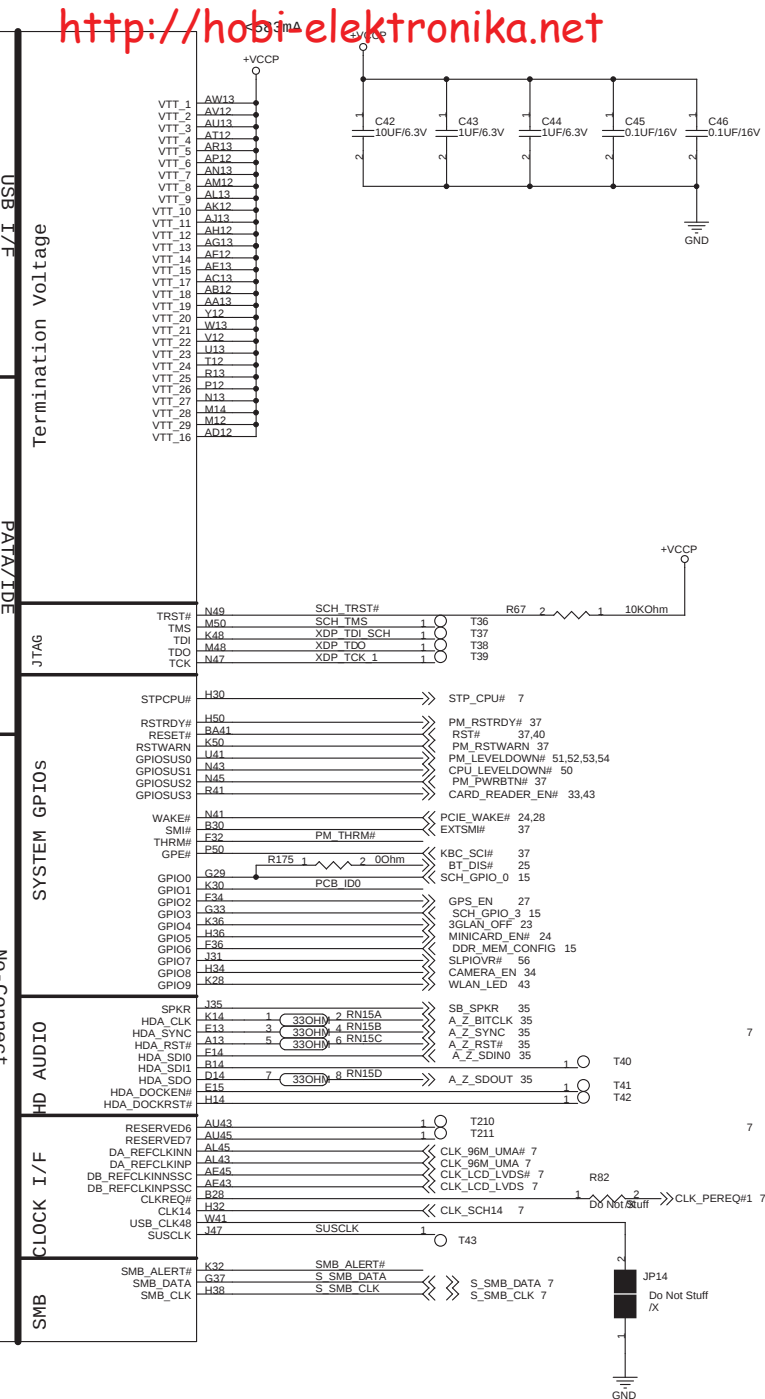
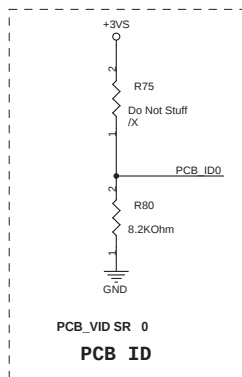
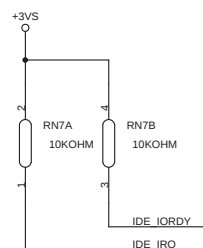
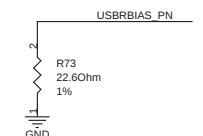
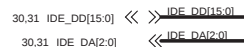
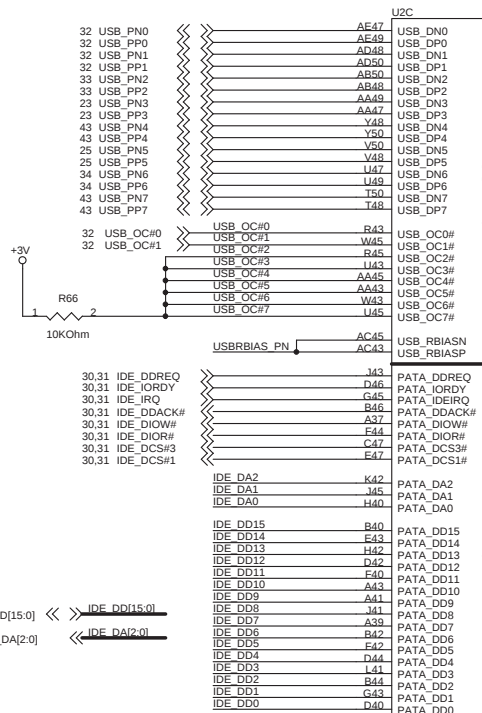
SDVO

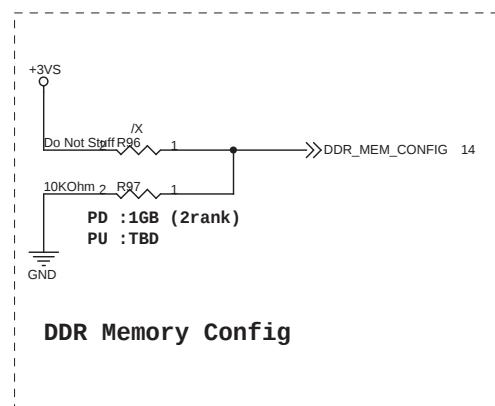
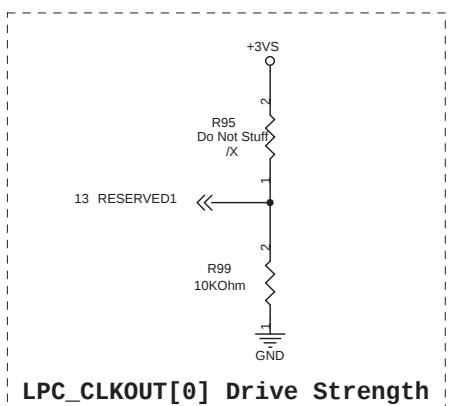
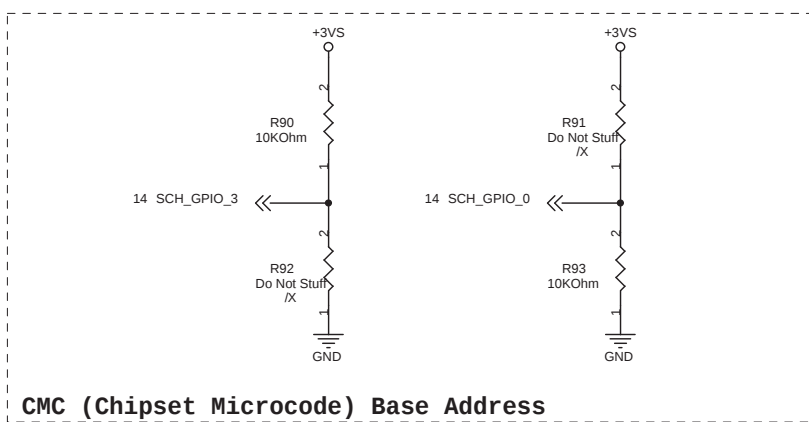
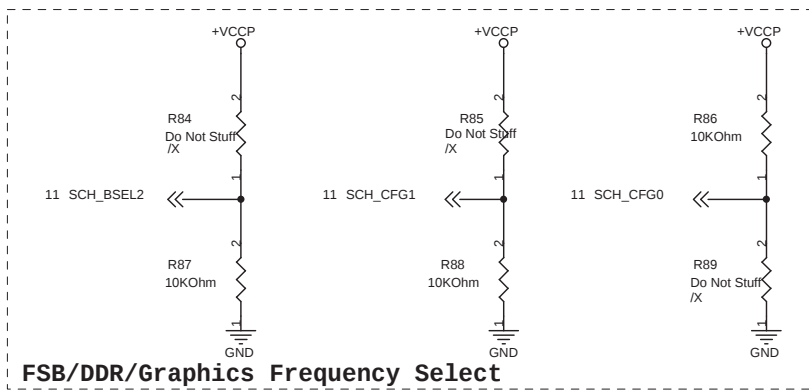


PM_SLPDLY#	PM_SLPMODE	System Behavior
0	1	SCH ready to enter S3
0	0	SCH ready to enter S4/S5



USB 0	USB PORT
USB 1	USB PORT
USB 2	Card Reader
USB 3	3.5G
USB 4	Touch Panel
USB 5	Bluetooth
USB 6	Camera
USB 7	2'nd Card Reader





Strap Function	Singal Name			Strap		Comment
FSB/DDR Frequency Select Graphics Frequency Select	SCH_BSEL2	SCH_CFG1	SCH_CFG0	Gfx_Freq	FSB	Note: Clock Frequencies are in Mhz Default Frequency determined by FSB speed
	0	0	0	200	400	
	0	0	1	200	533	
CMC (Chipset Microcode) Base Address	GPIO3		GPIO0	Address		Selects the starting address that the CMC will use to start fetching code. (GPIO3 is the most significant)
	0		0	0xFFFFB0000		
	0		1	0xFFFFC0000		
	1		0	0xFFFFD0000 (default)		
	1		1	0xFFFFE0000		
LPC_CLKOUT[0] Buffer Strength	RESERVED1			Value		Selects the drive strength of the LPC_CLKOUT[0] clock.
	0			Reserved		
	0			1 Load (Default)		
	1			Reserved		
	1			2 Loads		

0106 1025

Title :POULSBO_STRAP(5)

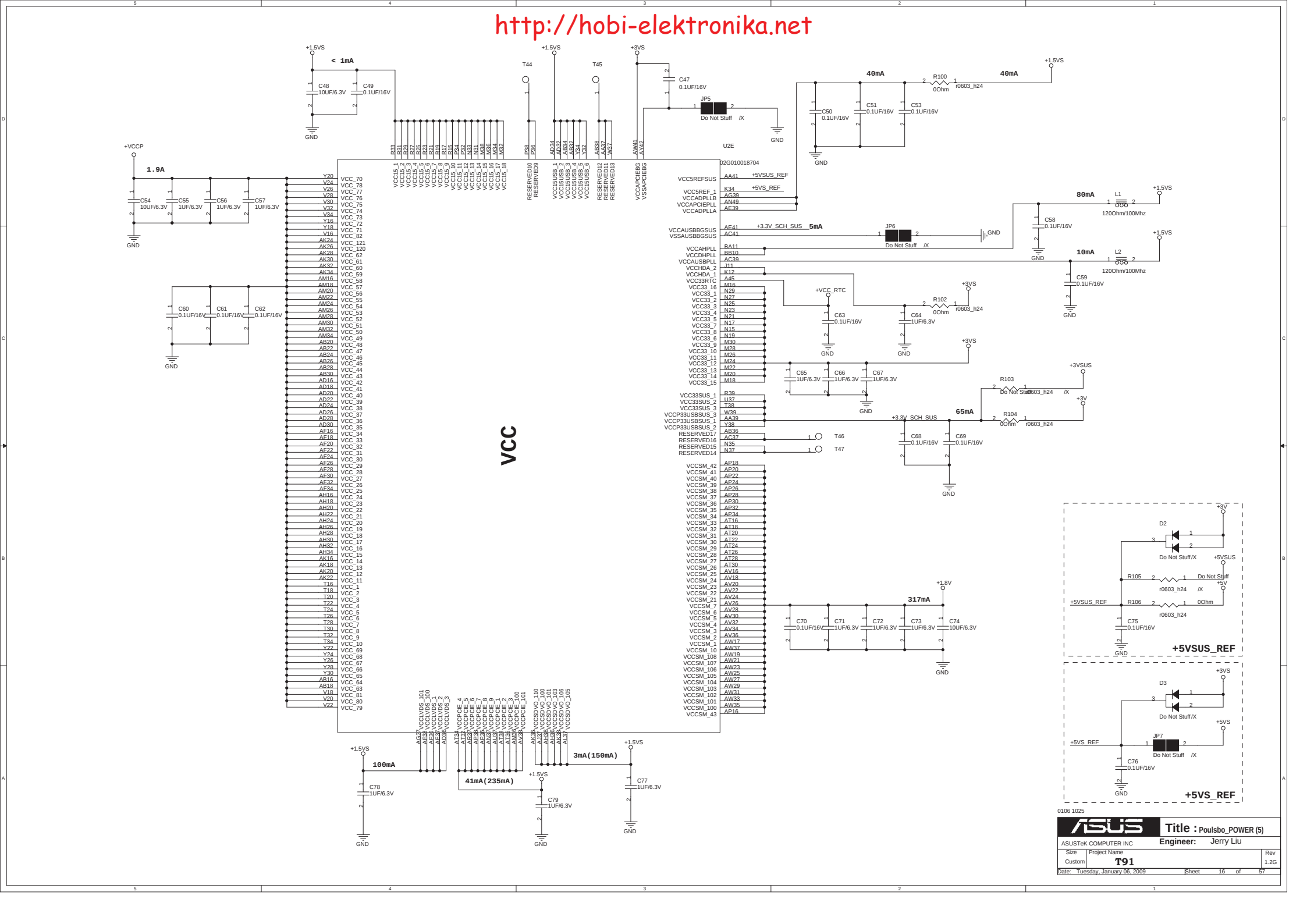
ASUSTek Computer INC.

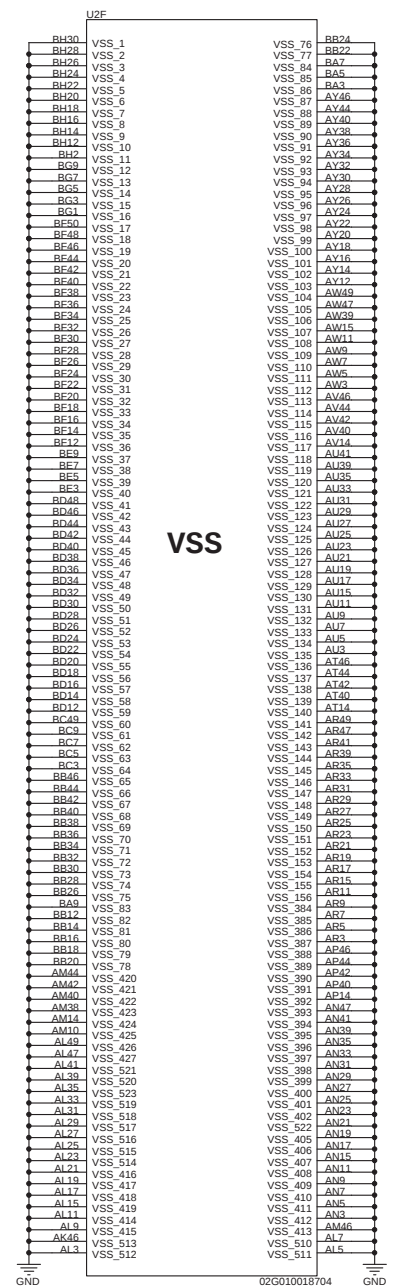
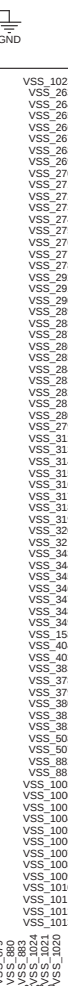
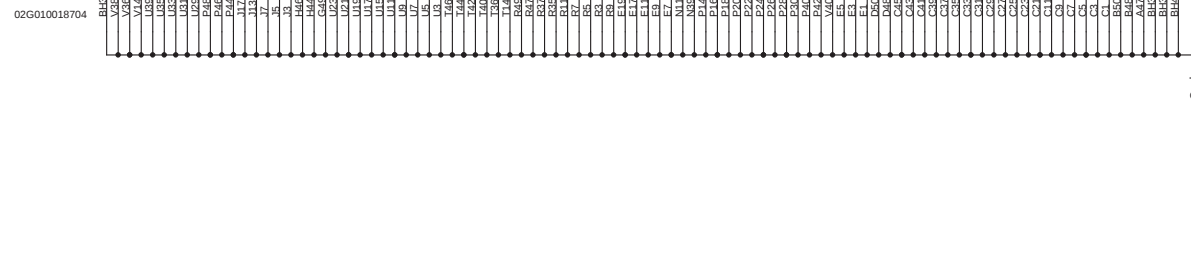
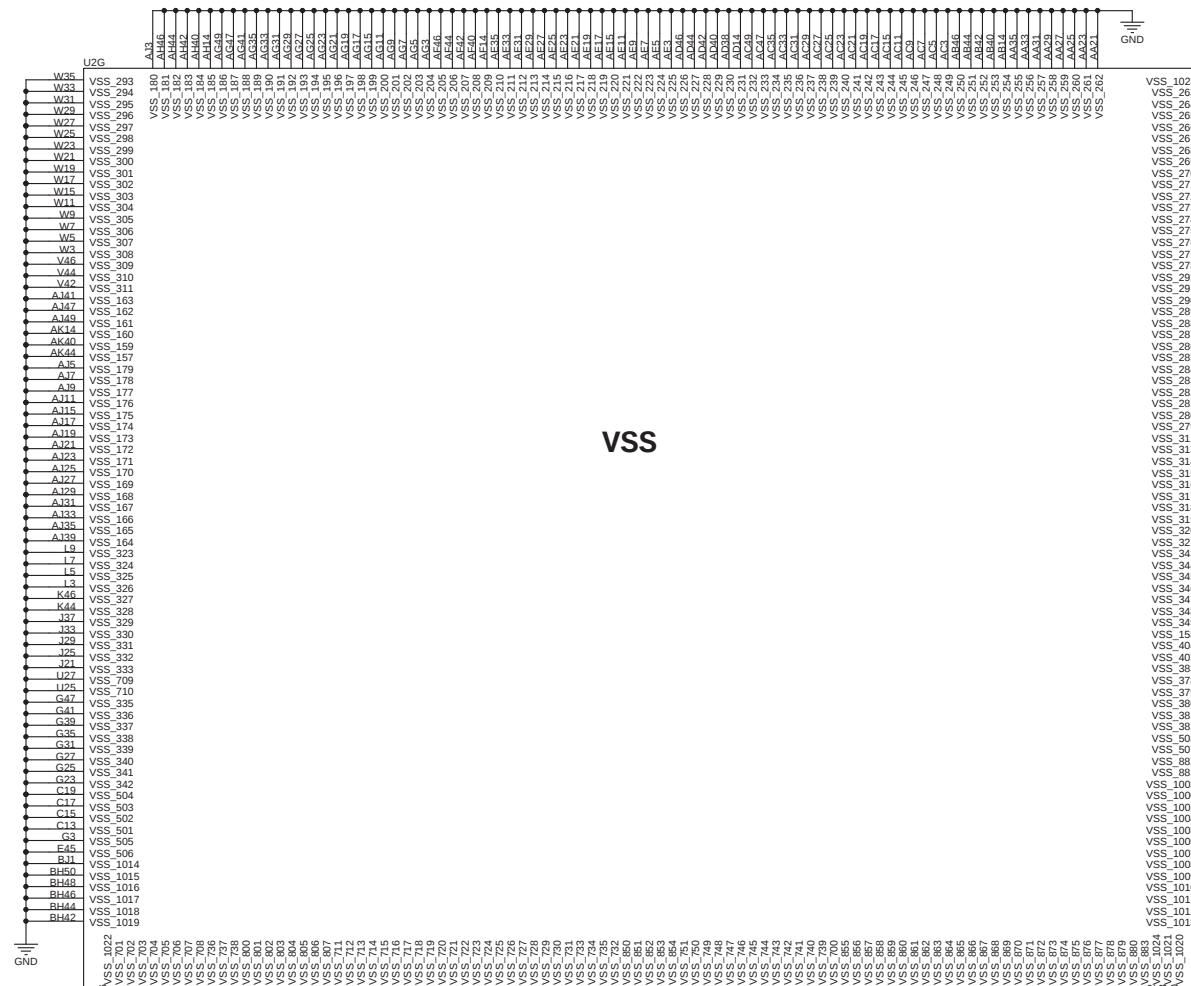
Engineer: Jerry Liu

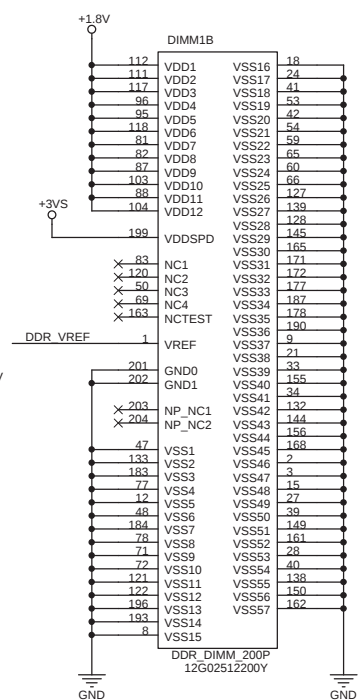
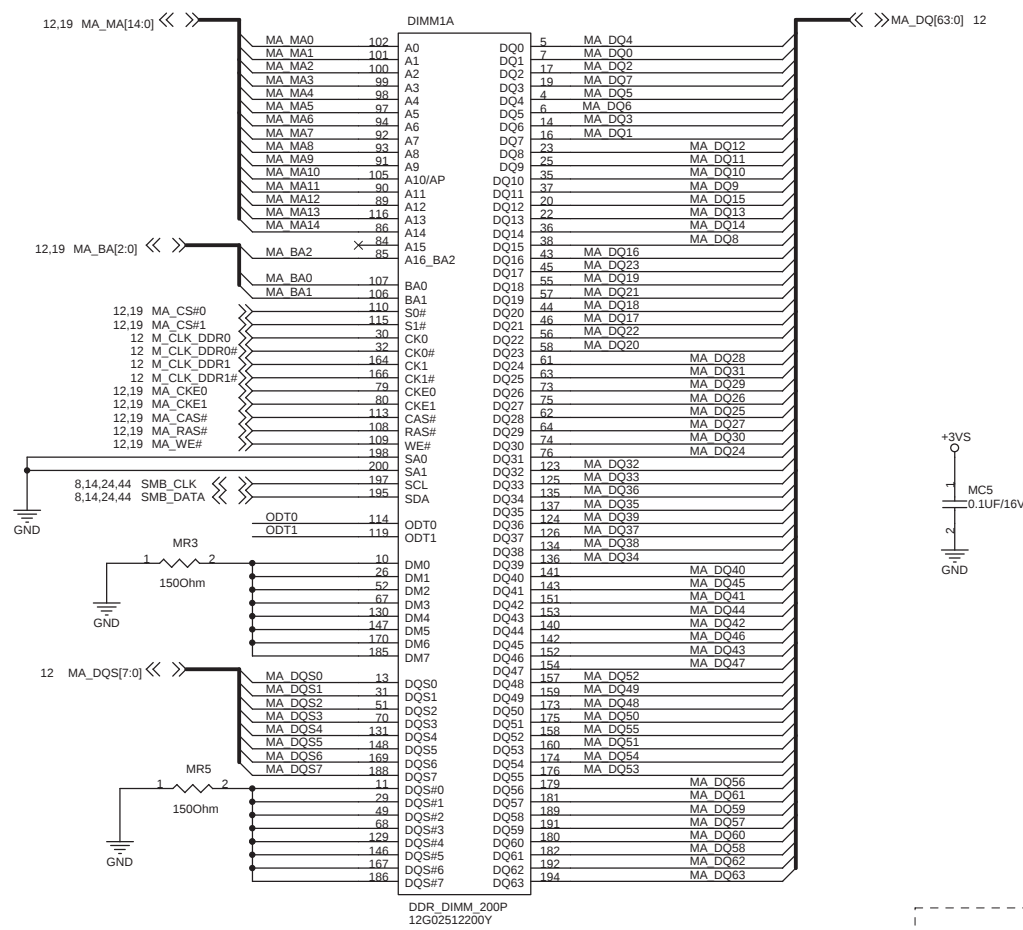
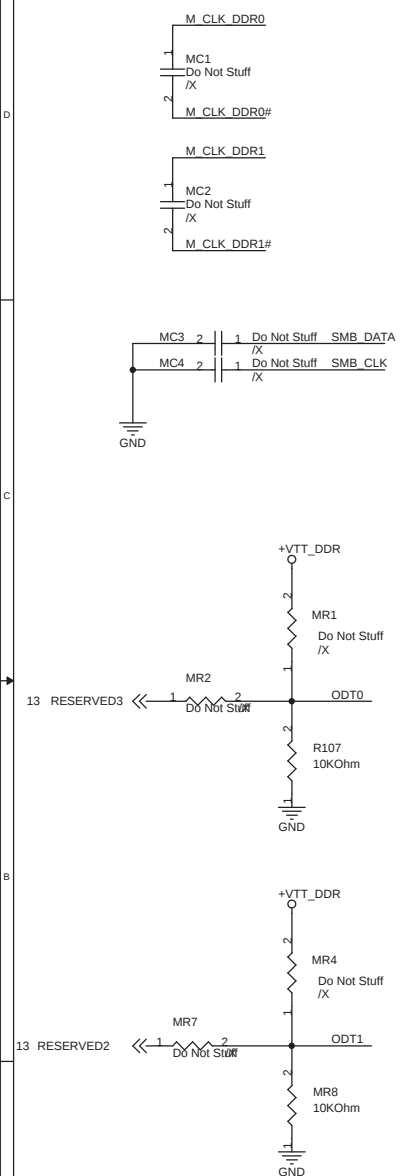
Size	Project Name	Rev
B	T91	1.2G

Date: Tuesday, January 06, 2009

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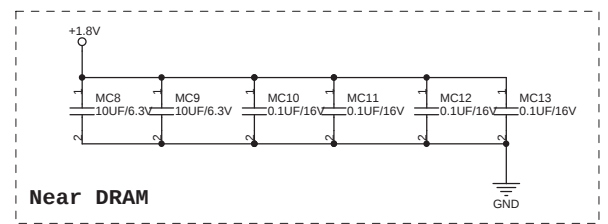
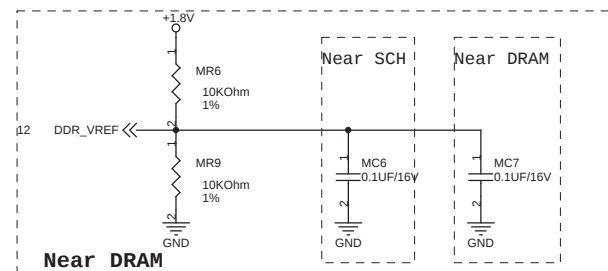


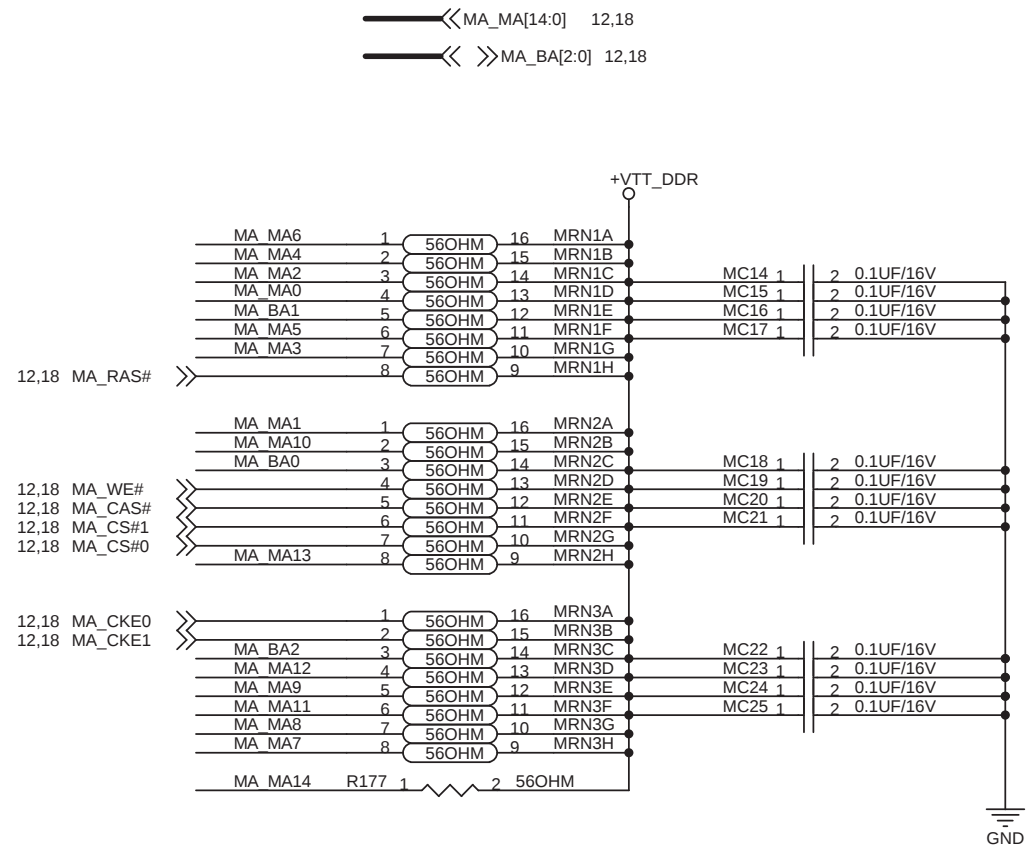




DDR II slot Symbol use 12G025122007

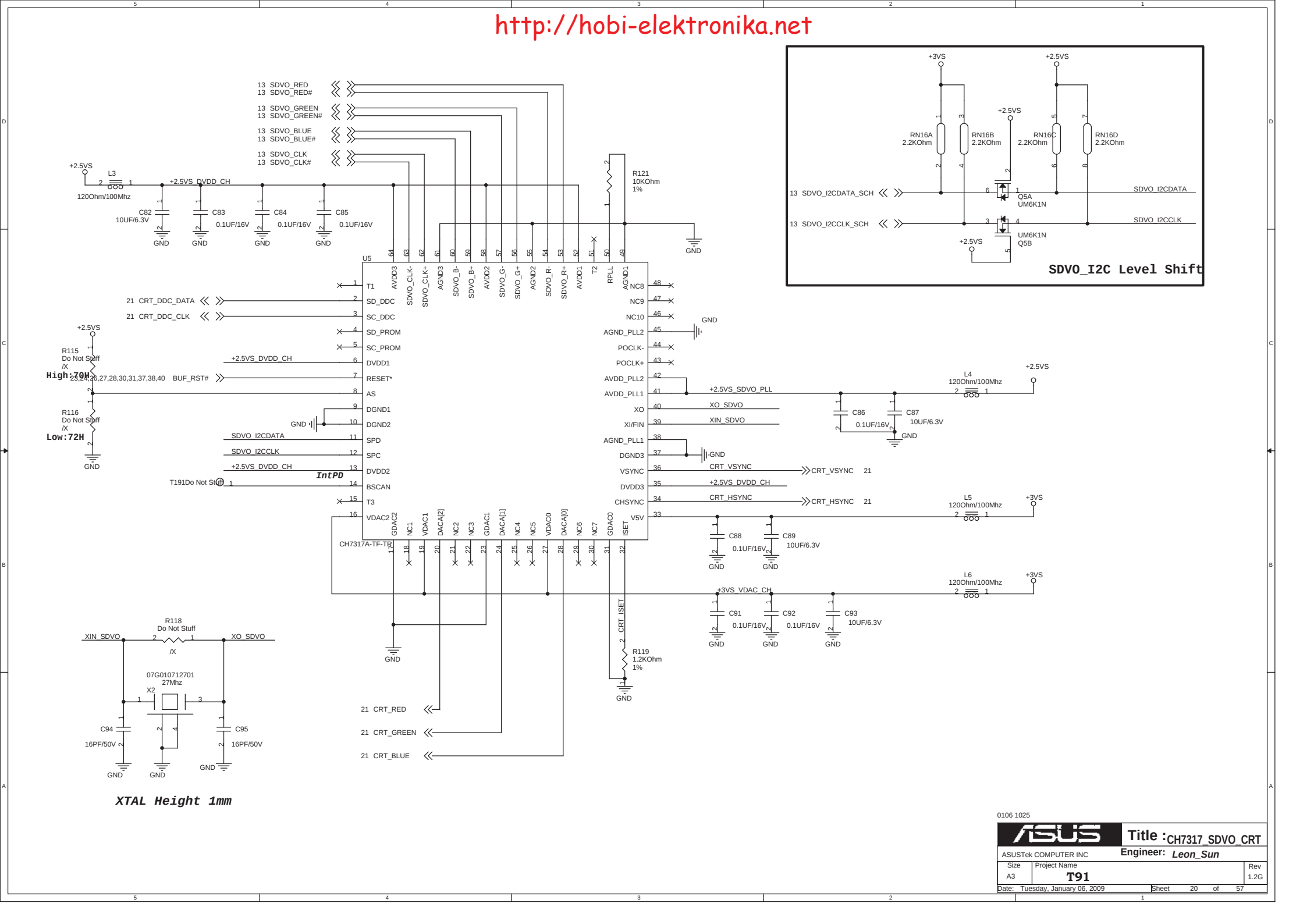
BOM use 12G02512200Y





0106 1025

ASUS		Title : DDR2_Termination	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size A4	Project Name T91		Rev 1.2G
Date: Tuesday, January 06, 2009		Sheet	19 of 57

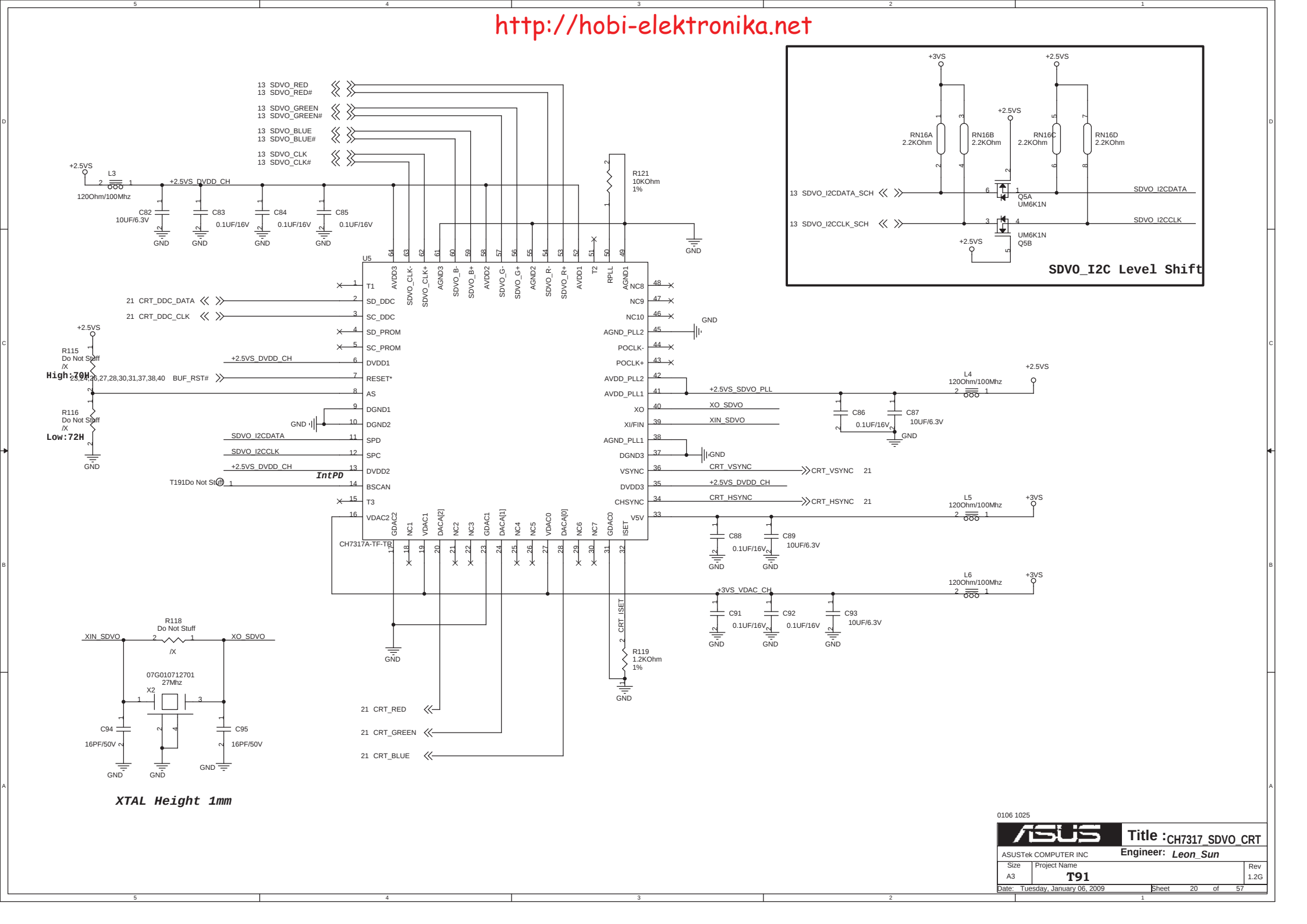


http://hobi-elektronika.net

SDVO_I2C Level Shift

0106 1025

ASUS		Title :CH7317 SDVO CRT	
ASUSTek COMPUTER INC		Engineer: Leon_Sun	
Size A3	Project Name T91		Rev 1.2G
Date: Tuesday, January 06, 2009		Sheet	20 of 57

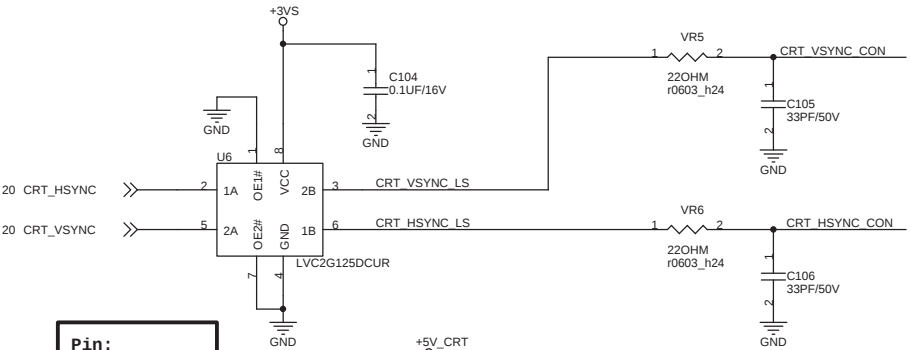
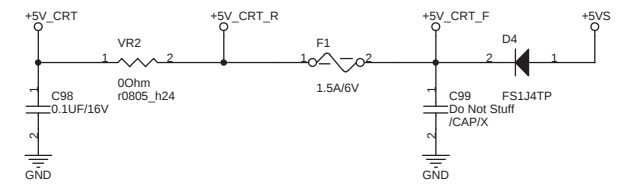
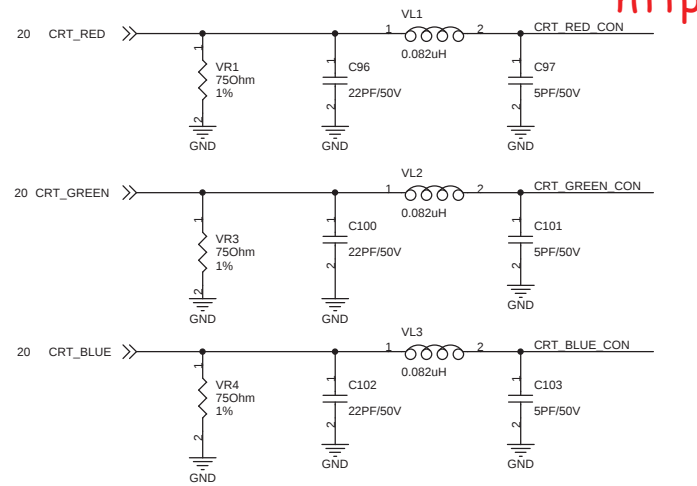


http://hobi-elektronika.net

SDVO_I2C Level Shift

0106 1025

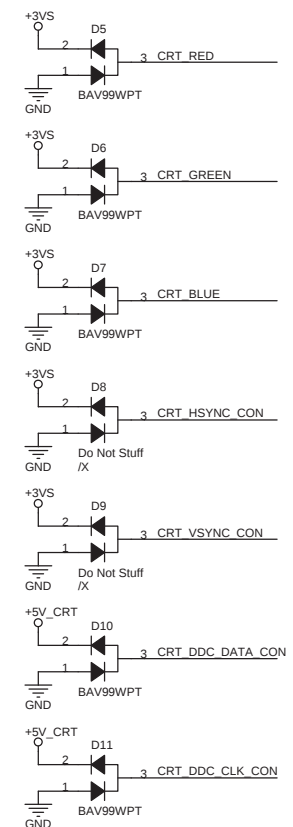
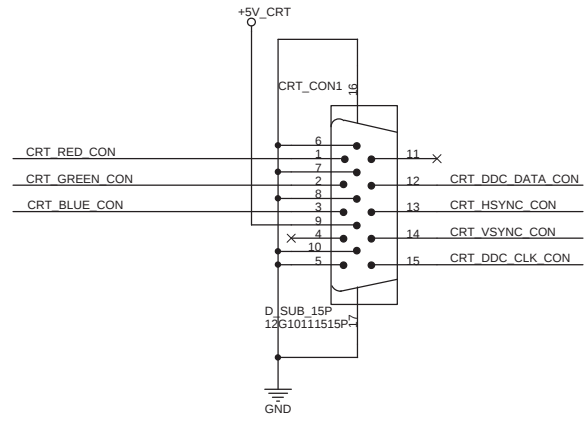
ASUS		Title :CH7317 SDVO CRT	
ASUSTek COMPUTER INC		Engineer: Leon_Sun	
Size A3	Project Name T91		Rev 1.2G
Date: Tuesday, January 06, 2009		Sheet	20 of 57

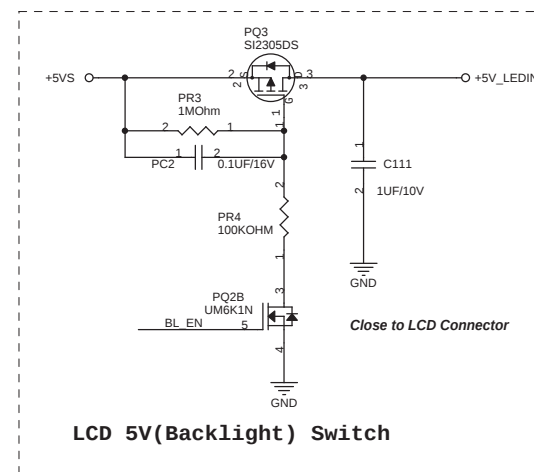
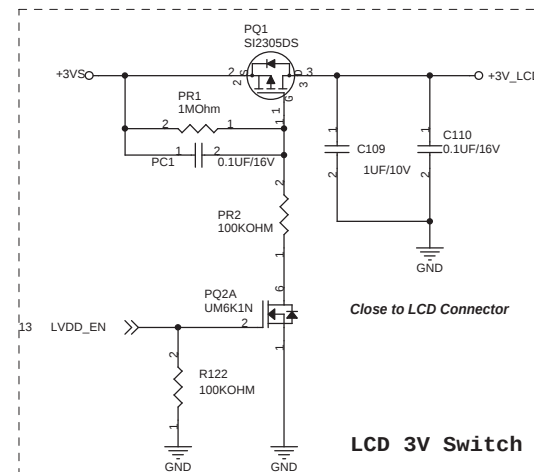
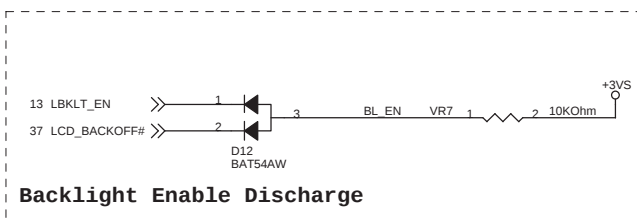
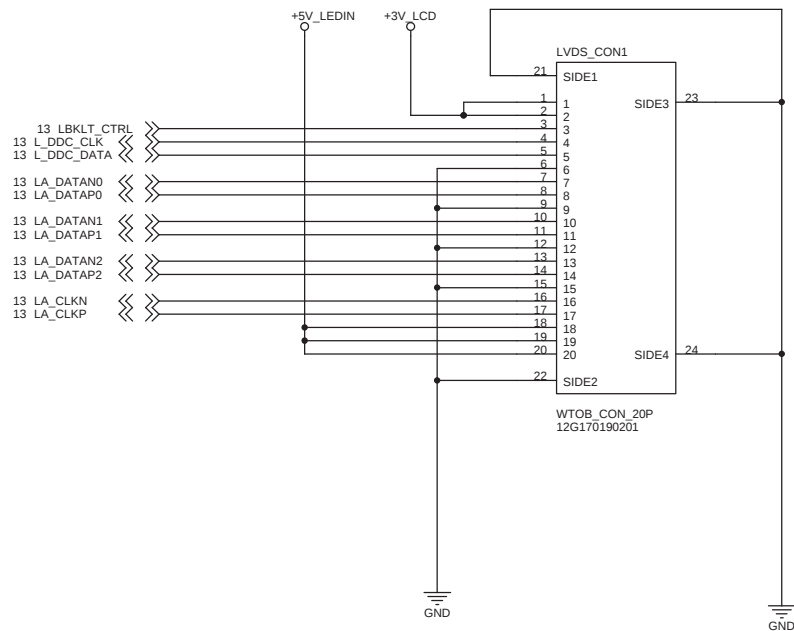
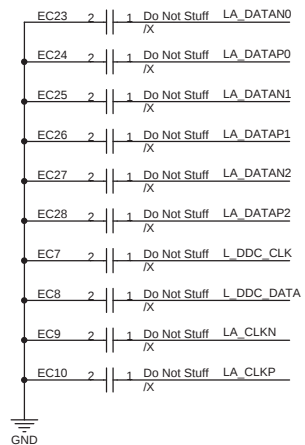


Pin:
2->6: (1A->1B)
5->3: (2A->2B)

C105 C106 for EA measurement
U6上:VR5 & VR6-->22 OHM
U6 /X :VR5 & VR6 -->0 OHM

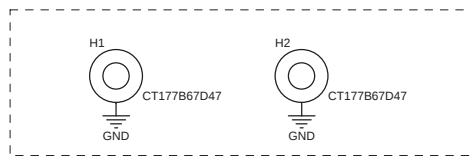
BUS BUFFER:
Unidirectional buffers (high impedance buffers) are required on both HSYNC and VSYNC to prevent potential electrical overstress and illegal operation of the GMCH, since some display monitors may attempt to drive HSYNC and VSYNC signals back to GMCH.





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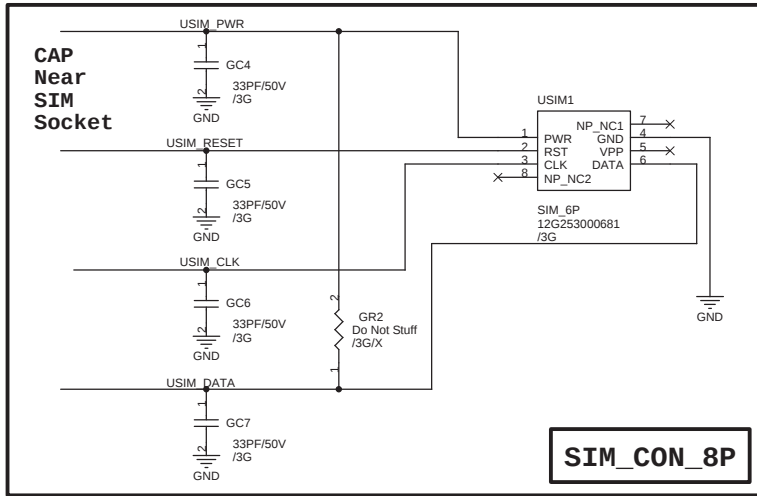
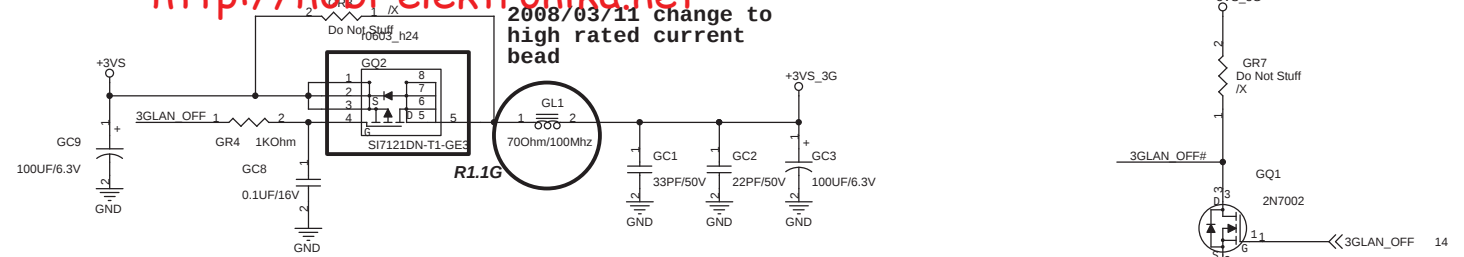
ASUS		Title : LVDS Conn	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size	Project Name		Rev
A3	T91		1.2G
Date: Tuesday, January 06, 2009		Sheet 22 of 57	



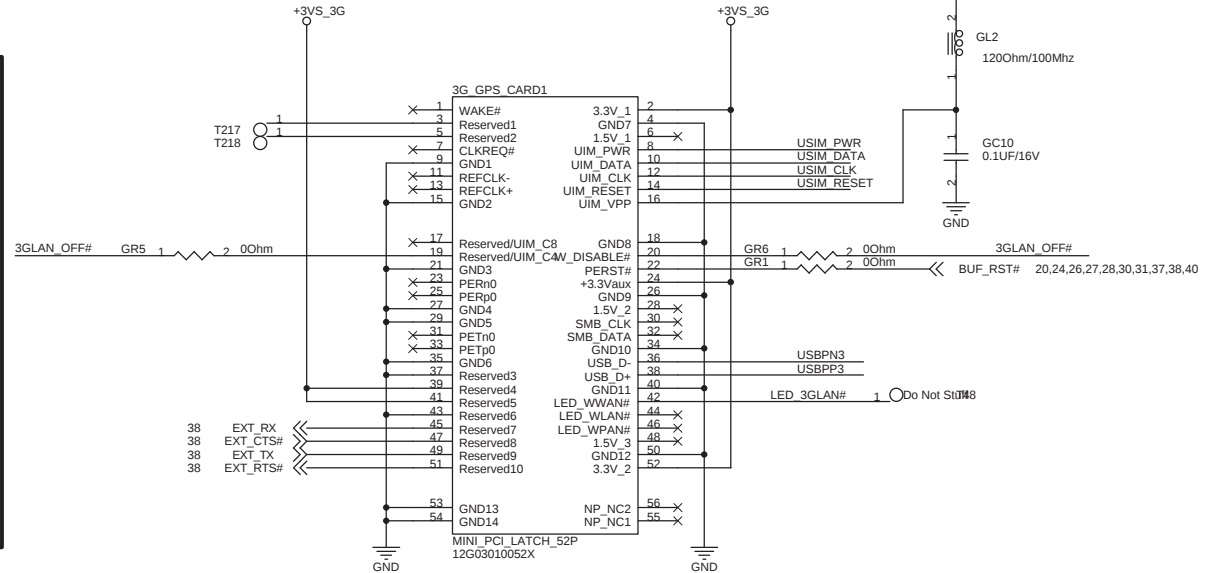
MINI CARD NUT(2.8mm) *2

<http://hobi-elektronika.net>

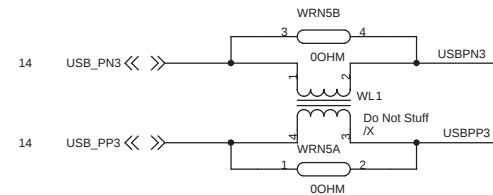
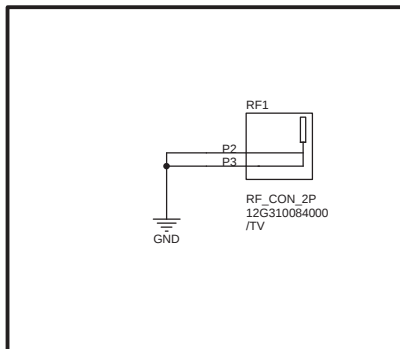
2008/03/11 change to
high rated current
bead



SIM_CON_8P



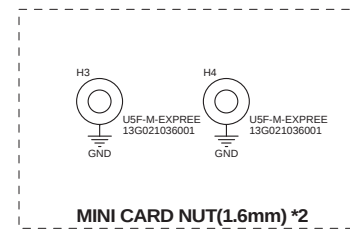
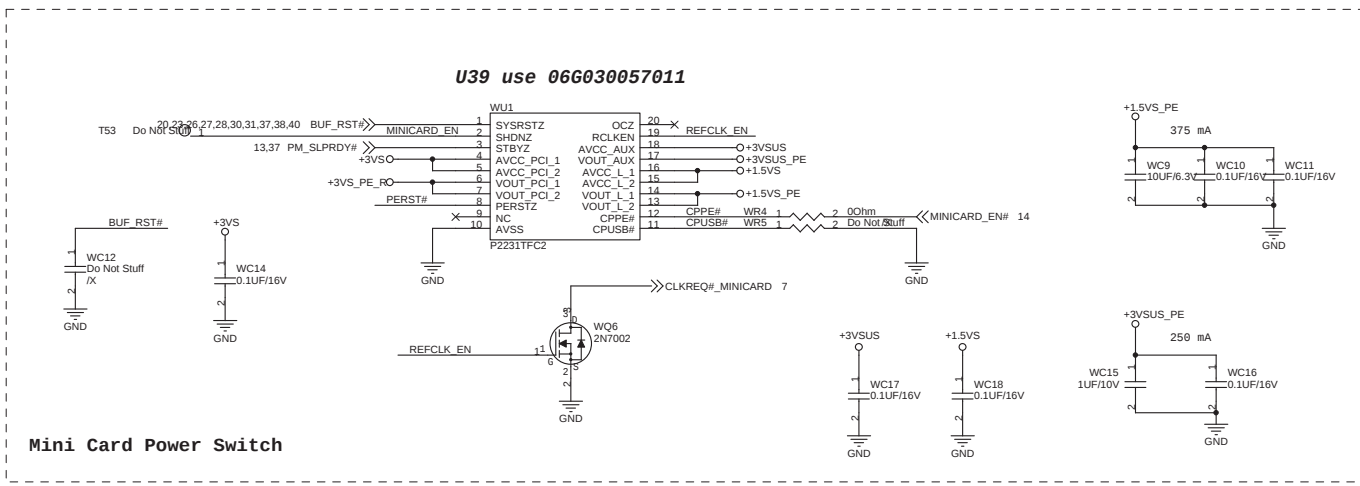
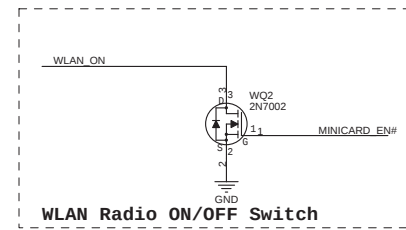
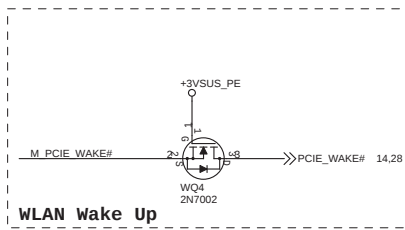
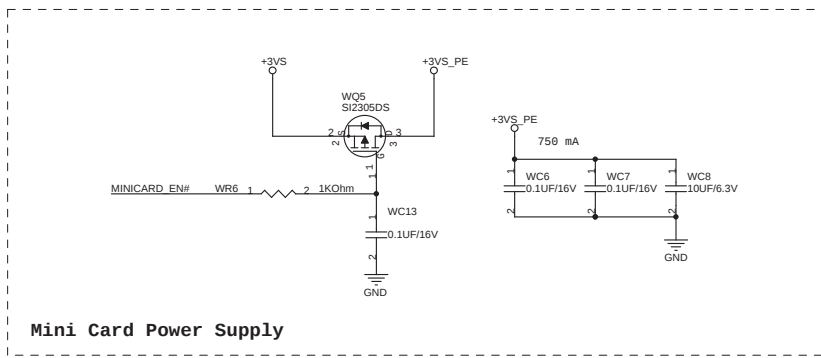
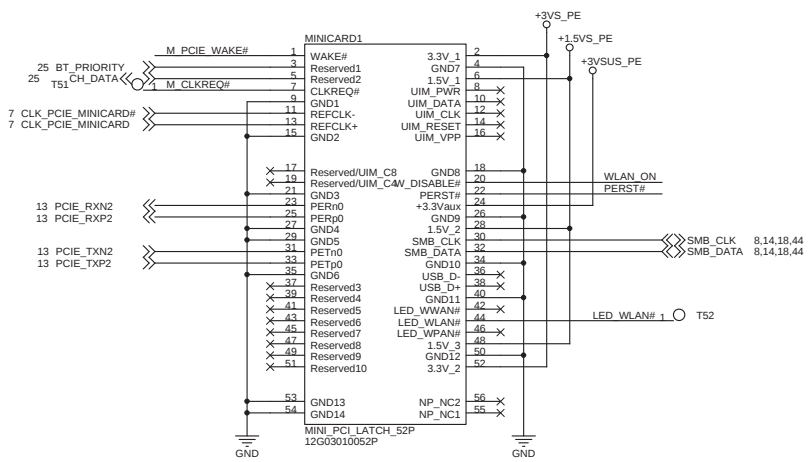
GPS/DTV Antenna

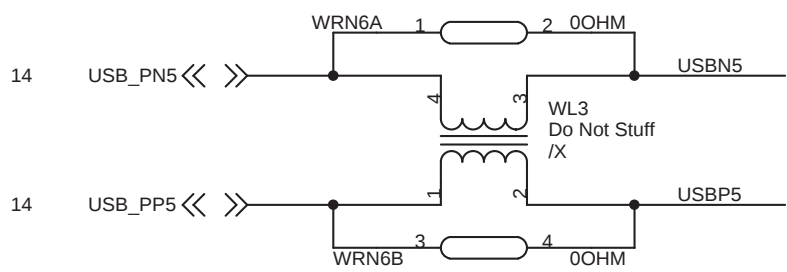


0106 1025

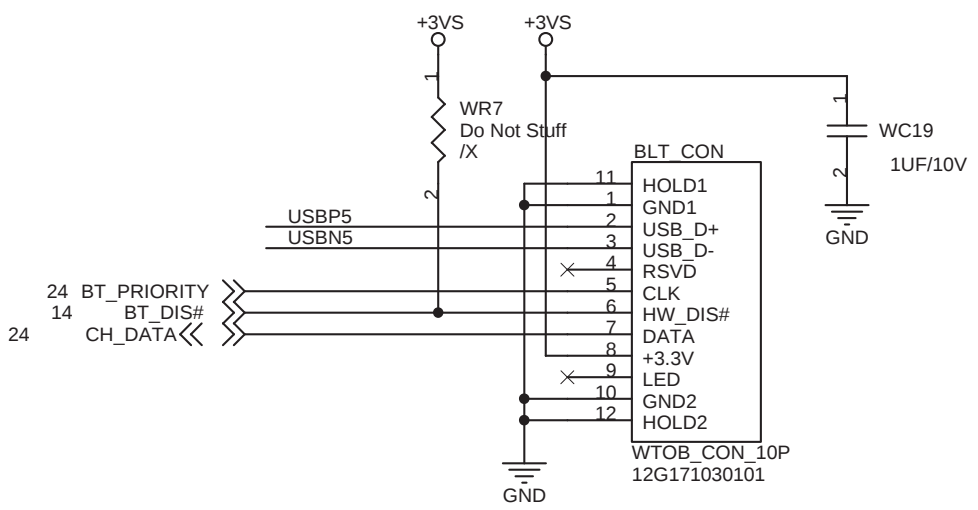
3.5G Module & External Antenna

ASUS		Title :	
ASUSTek Computer INC.		Engineer: Leon Sun	
Size	Project Name	Rev	
A3	T91	1.2G	
Date: Tuesday, January 06, 2009		Sheet	23 of 57





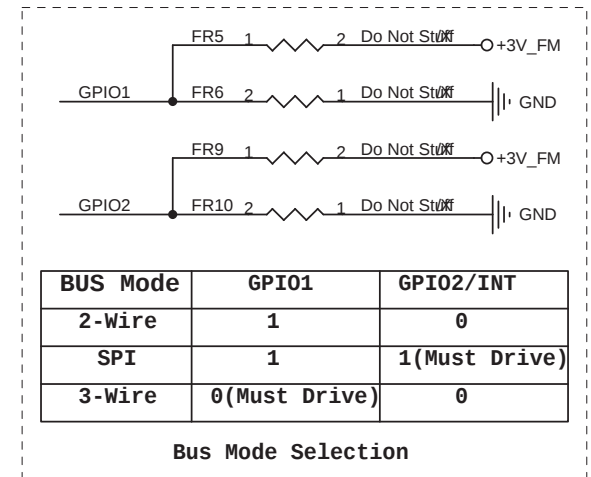
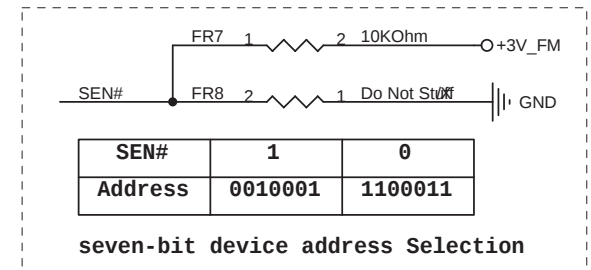
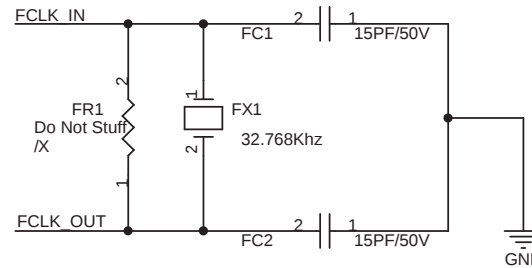
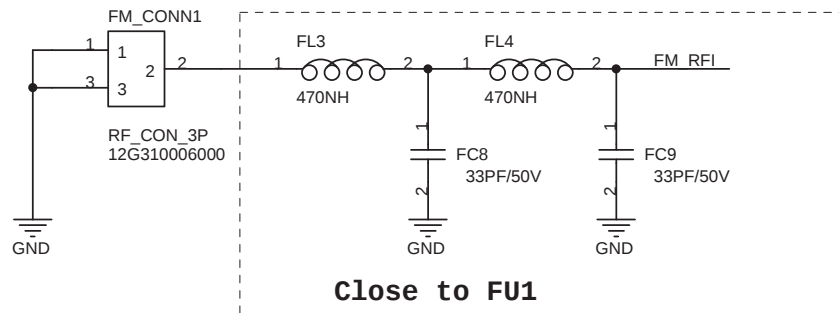
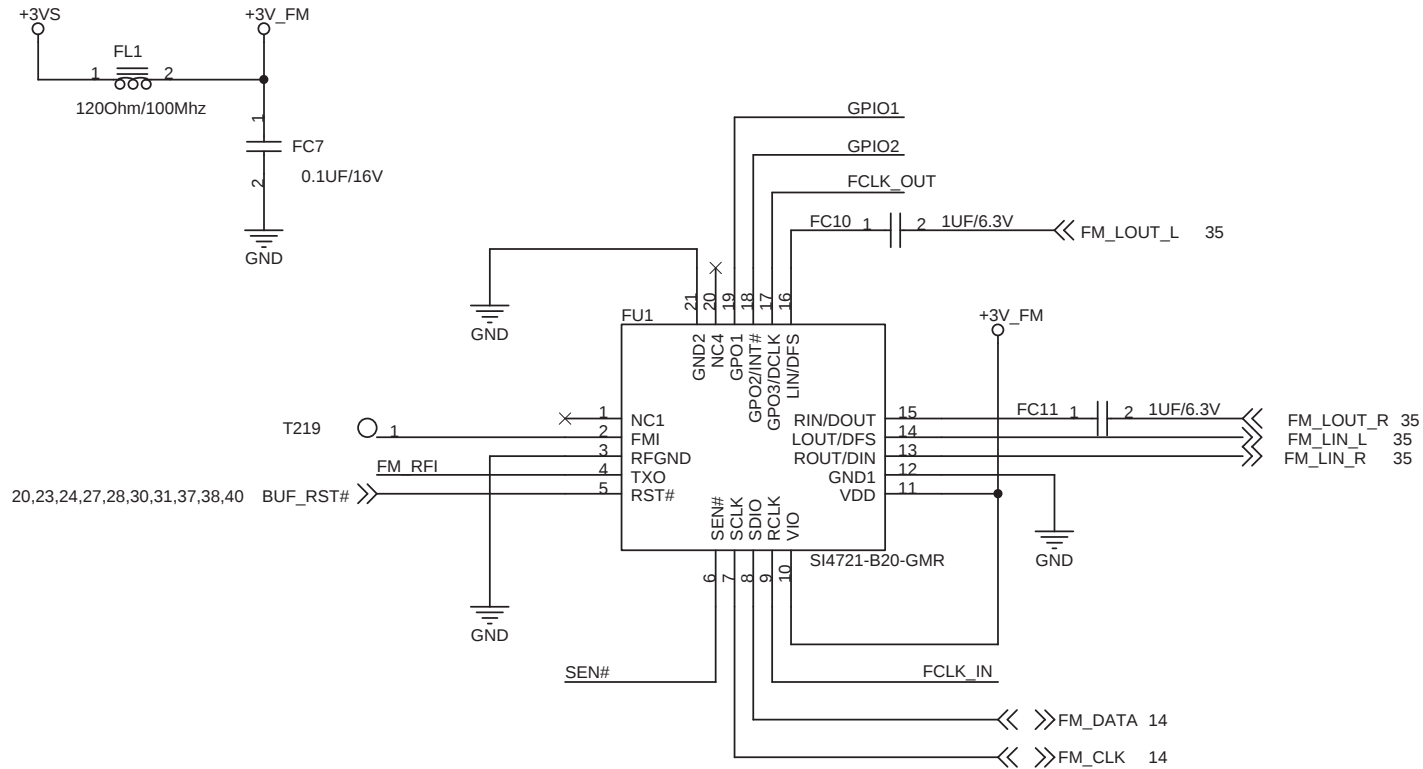
BT USB Port Common Choke



BT Conn

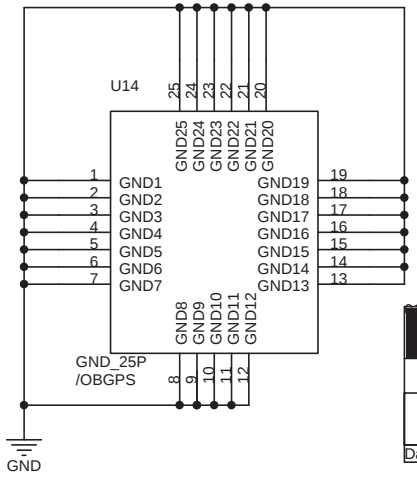
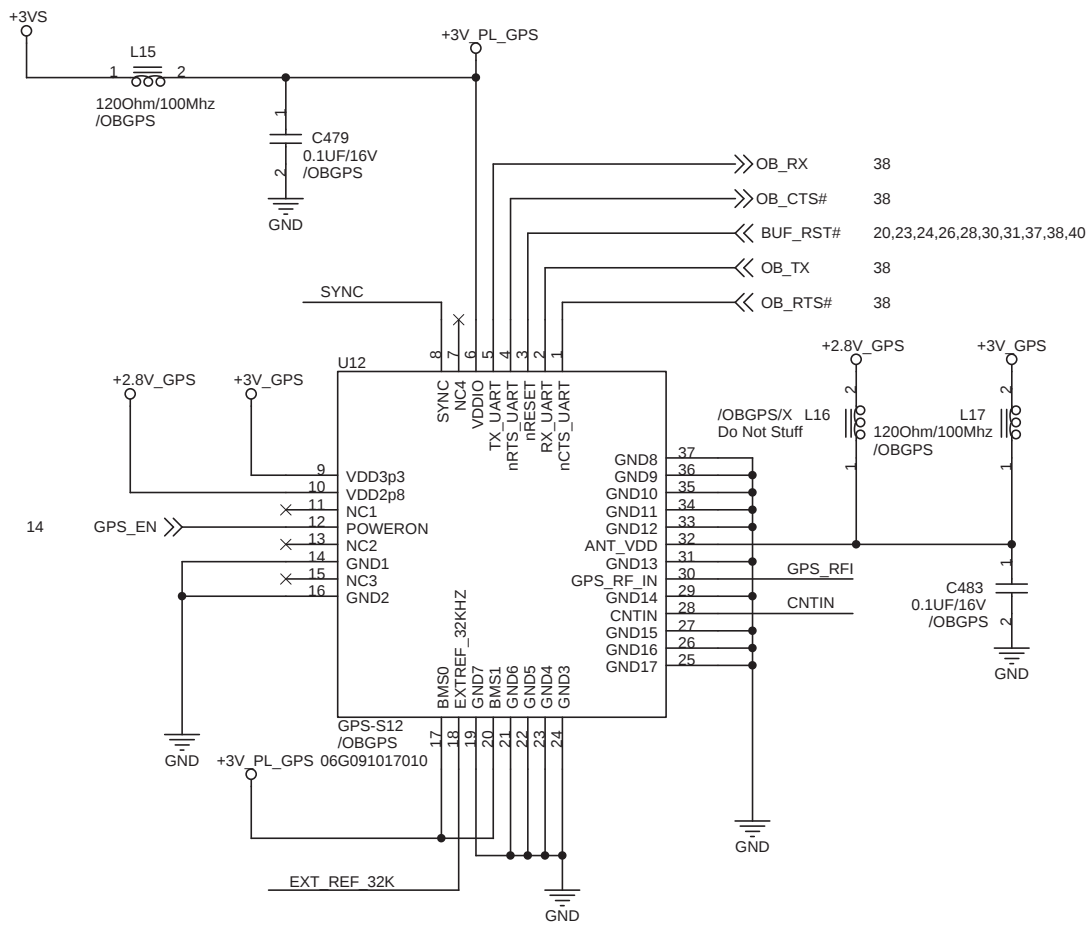
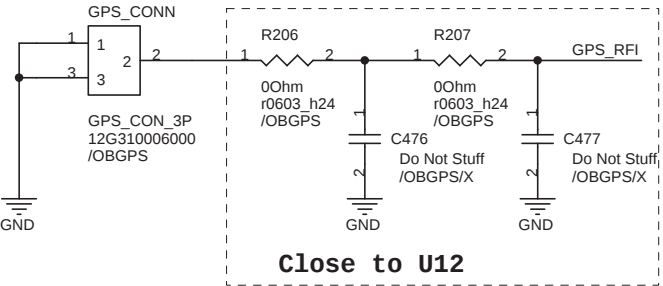
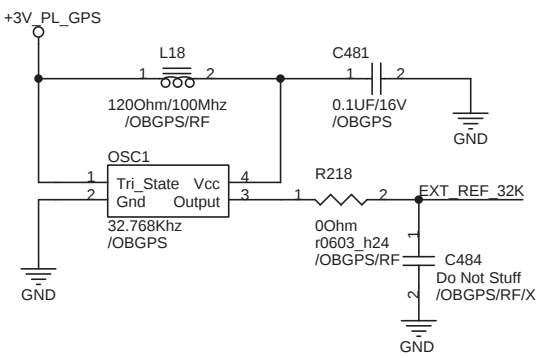
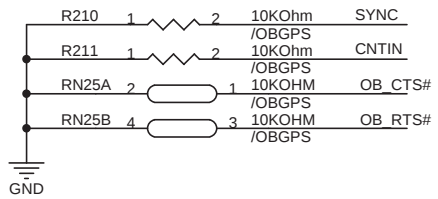
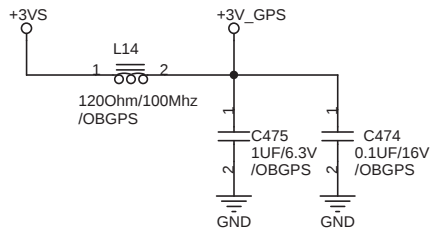
0106 1025

		Title : Bluetooth	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size A	Project Name T91		Rev 1.2G
Date: Tuesday, January 06, 2009		Sheet 25	of 57



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		Title : FM RADIO	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size A4	Project Name T91		Rev 1.2G
Date: Tuesday, January 06, 2009		Sheet 26 of 57	





Title : Onboard GPS

ASUSTek Computer INC.

Engineer: Jerry Liu

Size

Project Name

Rev

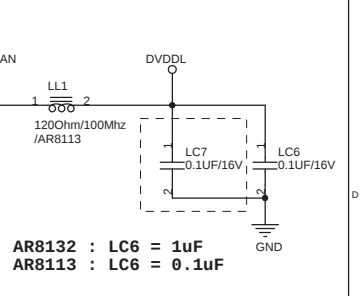
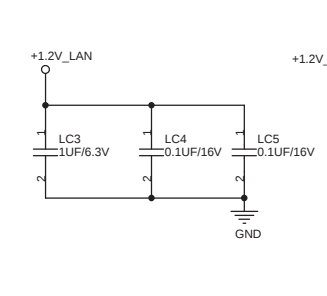
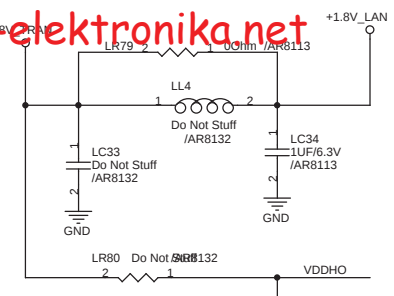
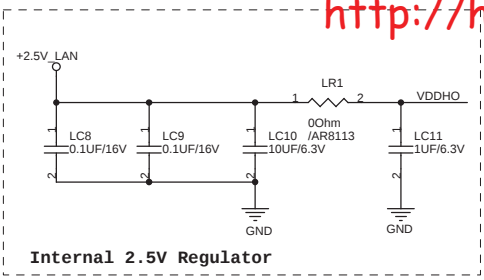
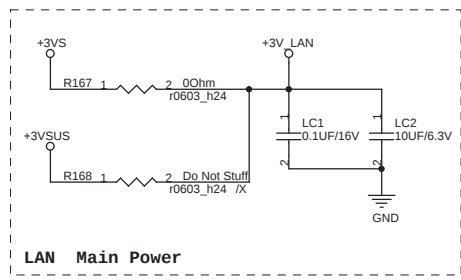
Custom

T91

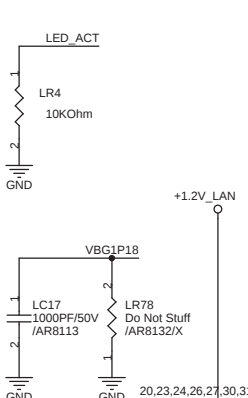
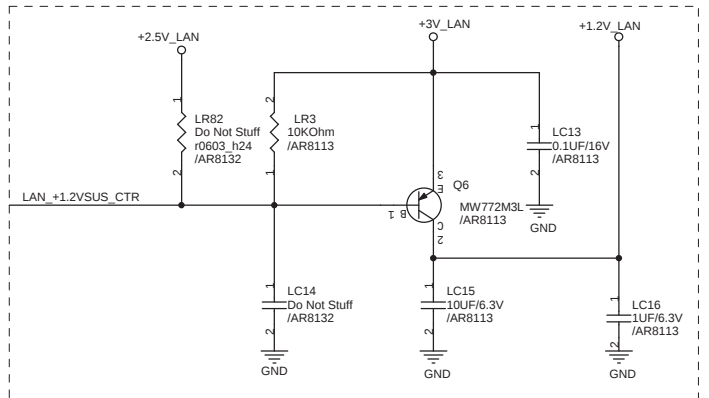
1.2G

Date: Tuesday, January 06, 2009

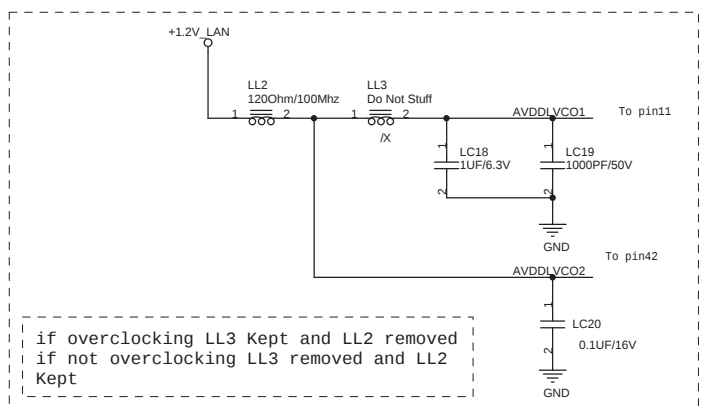
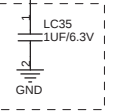
Sheet 27 of 57



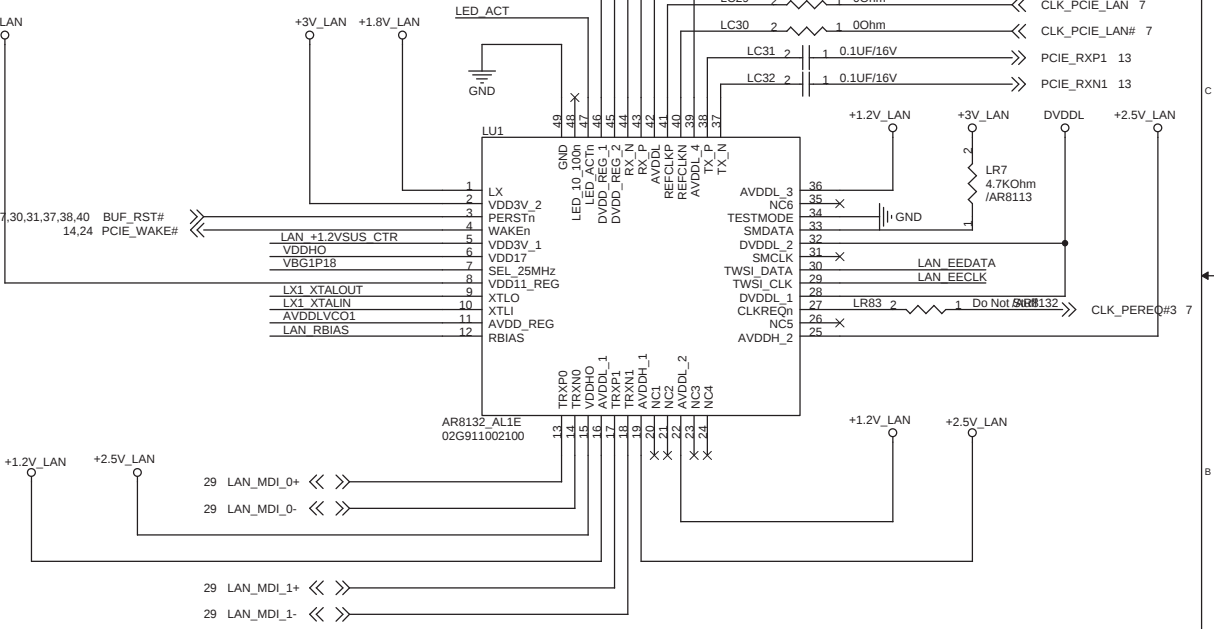
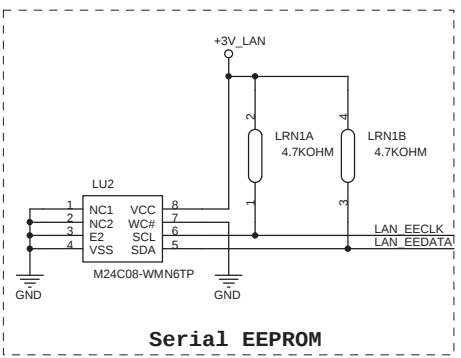
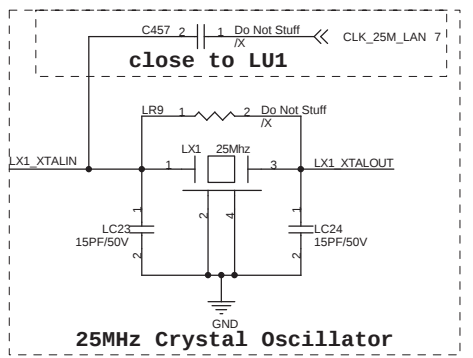
AR8132 : LC6 = 1uF
AR8113 : LC6 = 0.1uF



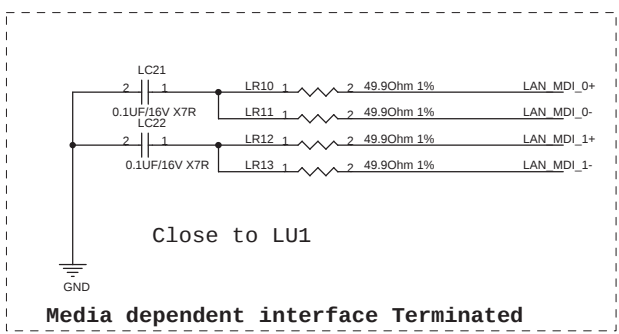
AR8132 : LC35 = 0.1uF
AR8113 : LC35 = 1uF

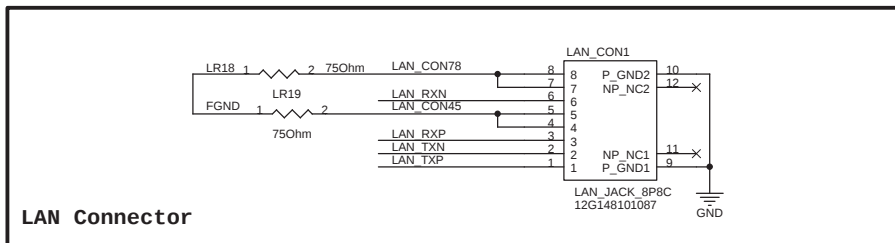
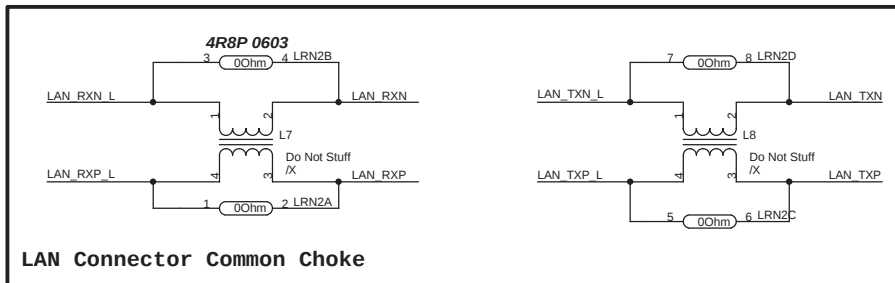
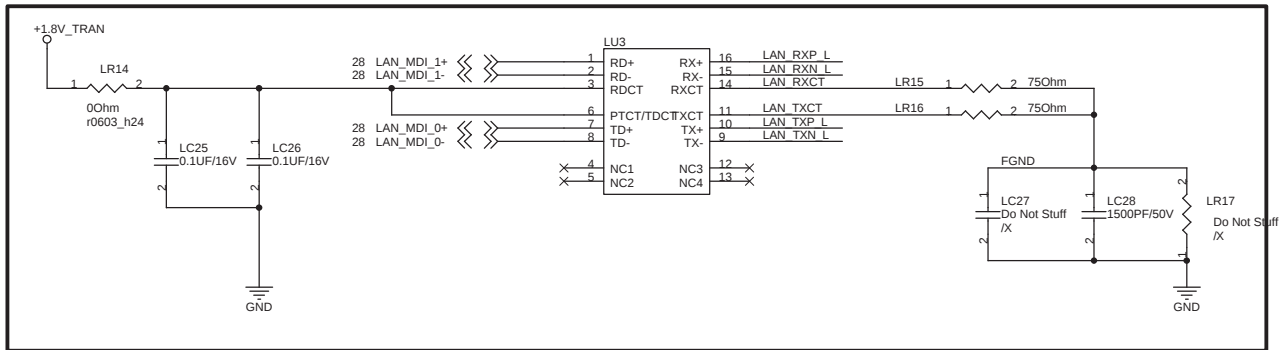


if overclocking LL3 Kept and LL2 removed
if not overclocking LL3 removed and LL2 Kept



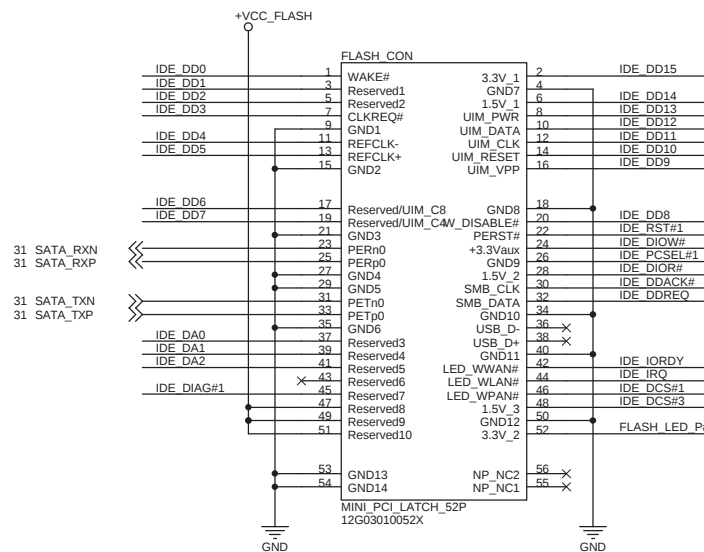
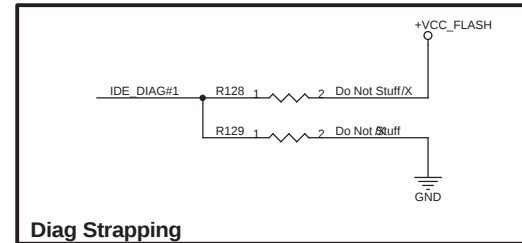
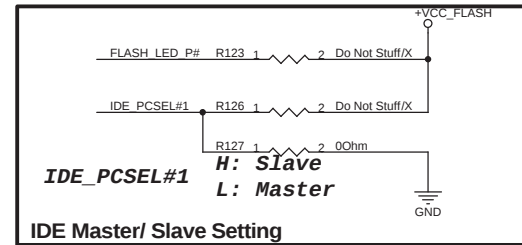
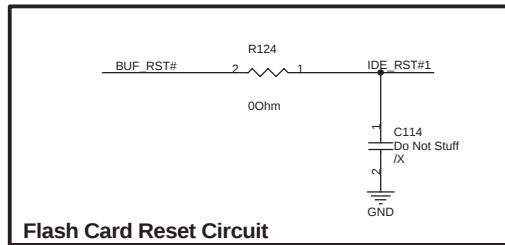
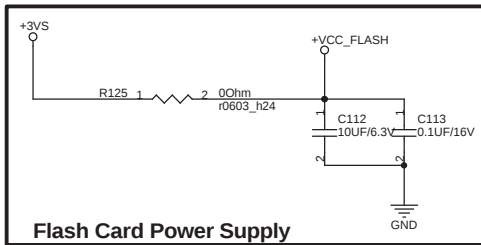
AR8113 : 02G911002100
AR8132 : 02G911002600 (Default)



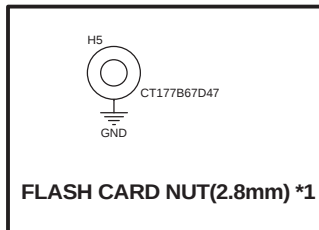


0106 1025

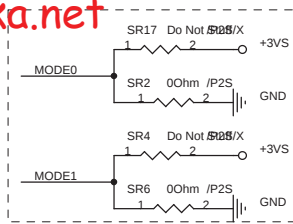
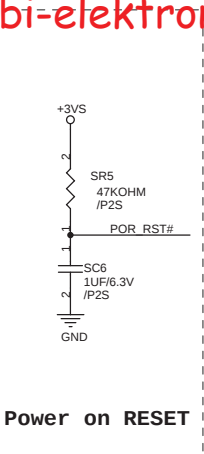
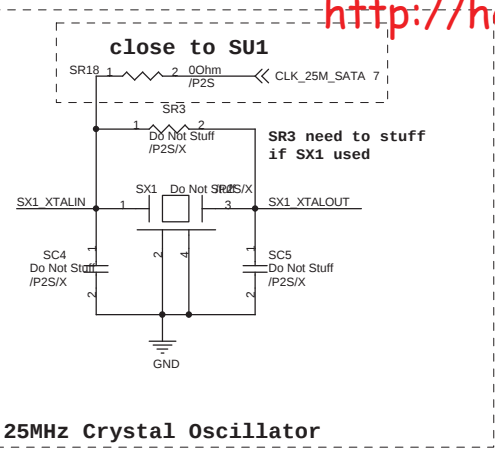
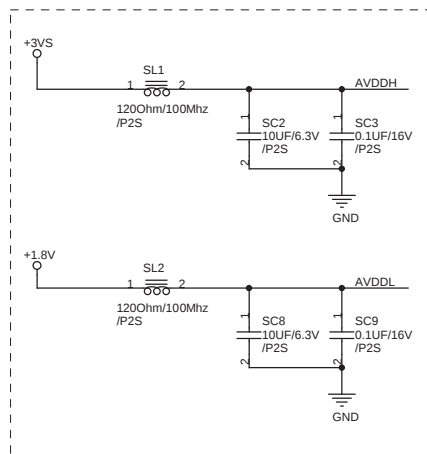
ASUS		Title : RJ45	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size	Project Name		Rev
A3	T91		1.2G
Date: Tuesday, January 06, 2009		Sheet	29 of 57



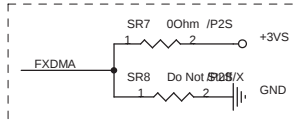
- IDE_DD[15:0] 14,31
- IDE_DA[2:0] 14,31
- IDE_DDACK# 14,31
- IDE_DDREQ 14,31
- IDE_DIOR# 14,31
- IDE_DIO# 14,31
- IDE_IORDY 14,31
- IDE_DCS#1 14,31
- IDE_DCS#3 14,31
- IDE_IRQ 14,31
- BUF_RST# 20,23,24,26,27,28,31,37,38,40
- FLASH_LED_P# 31,43
- IDE_DIAG#1 31



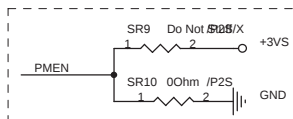
0106 1025



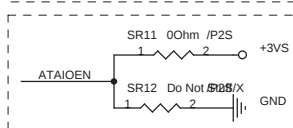
1.MODE[1:0]=Select UDMA speed when FXDMA is set
00:100MB/s ; 01:133MB/s
10:150MB/s ; 11:Reserved



2.FXDMA=0,Auto adjustable speed rate according set Feature Command
FXDMA=1,speed rate depend on Mode[1:0] setting

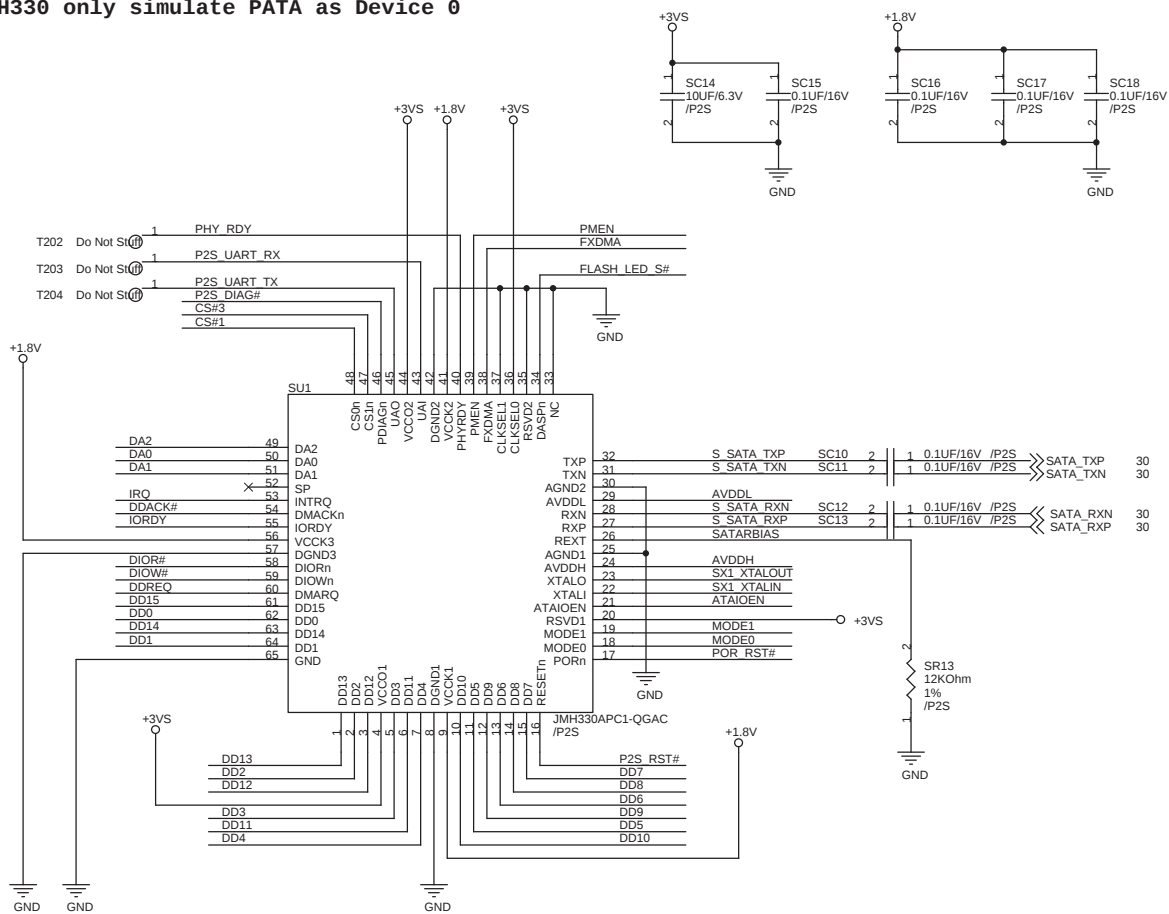


3.PMEN=0 power management function Disable
PMEN=1 power management function Enable



4.ATAIOEN=0,Disable the ATA output pins, ATA I/O output pins are Hi-Z.
ATAIOEN=1,Enable ATA output

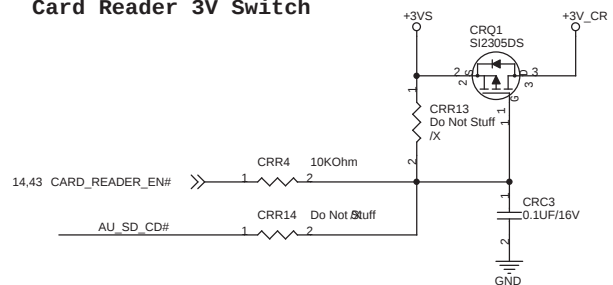
JMH330 only simulate PATA as Device 0



DD0	1	00hm	2 SRN1A /P2S	IDE DD0	
DD1	3	00hm	4 SRN1B /P2S	IDE DD1	
DD2	5	00hm	6 SRN1C /P2S	IDE DD2	
DD3	7	00hm	8 SRN1D /P2S	IDE DD3	
DD4	1	00hm	2 SRN2A /P2S	IDE DD4	
DD5	3	00hm	4 SRN2B /P2S	IDE DD5	
DD6	5	00hm	6 SRN2C /P2S	IDE DD6	
DD7	7	00hm	8 SRN2D /P2S	IDE DD7	
DD8	1	00hm	2 SRN3A /P2S	IDE DD8	
DD9	3	00hm	4 SRN3B /P2S	IDE DD9	
DD10	5	00hm	6 SRN3C /P2S	IDE DD10	
DD11	7	00hm	8 SRN3D /P2S	IDE DD11	
DD12	1	00hm	2 SRN4A /P2S	IDE DD12	
DD13	3	00hm	4 SRN4B /P2S	IDE DD13	
DD14	5	00hm	6 SRN4C /P2S	IDE DD14	
DD15	7	00hm	8 SRN4D /P2S	IDE DD15	
DA0	1	00hm	2 SRN5A /P2S	IDE DA0	
DA1	3	00hm	4 SRN5B /P2S	IDE DA1	
DA2	5	00hm	6 SRN5C /P2S	IDE DA2	
	7	00hm	8 SRN5D /P2S	IDE DA2	
DDREQ	1	00hm	2 SRN6A /P2S	IDE DDREQ	
DIOW#	3	00hm	4 SRN6B /P2S	IDE DIOW#	
DIO#	5	00hm	6 SRN6C /P2S	IDE DIO#	
IORDY	7	00hm	8 SRN6D /P2S	IDE IORDY	
CS#3	1	00hm	2 SRN7A /P2S	IDE DCS#3	
CS#1	3	00hm	4 SRN7B /P2S	IDE DCS#1	
DDACK#	5	00hm	6 SRN7C /P2S	IDE DDACK#	
IRQ	7	00hm	8 SRN7D /P2S	IDE IRQ	
P2S_DIAG#	SR14	Do Not Stuff	IDE DIAG#1		
P2S_RST#	SR15	00hm /P2S	BUF_RST#		
FLASH_LED_S#	SR16	00hm /P2S	FLASH_LED_P#		

0106 1025

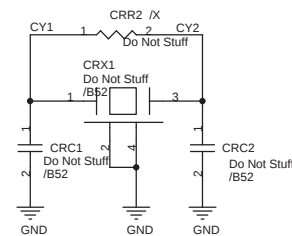
Card Reader 3V Switch



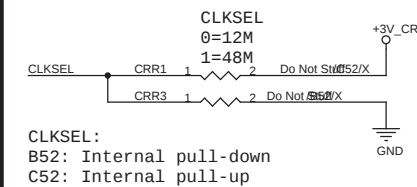
GPIO Power down : CRR4 + CRR15
(remove CRR13 + CRR14 + CRR16)

SD card Power down : CRR13 + CRR14 + CRR16
(remove CRR4 + CRR15)

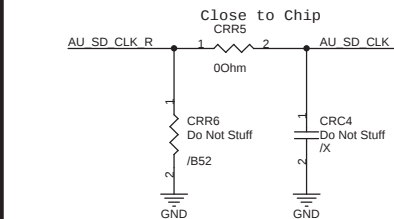
12MHz Crystal Oscillator



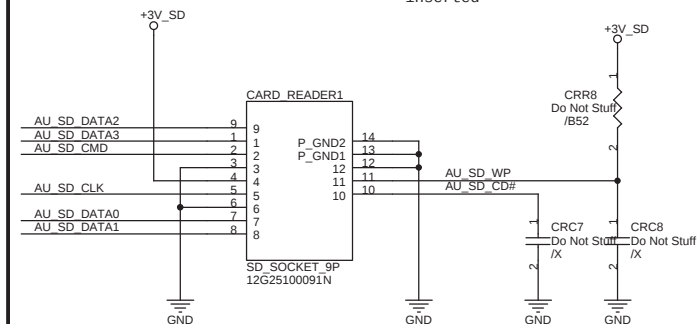
Clock Setting



CLKSEL:
B52: Internal pull-down
C52: Internal pull-up



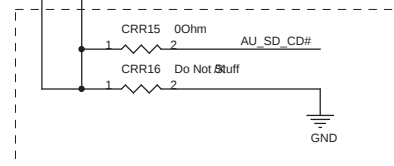
SDWP: Internal Pull-up
SDWP = 1 Write protect
SDWP = 0 Write-able
SDCDN: Internal Pull-up
SDCDN = 1 No card
SDCDN = 0 Card inserted



Card Insert: Pin.10 and Pin.12 are Shorted.
Card not Insert: Pin.10 and Pin.12 are Opened.
Write Protect: Pin.11 and Pin.12 are Opened.
Write Enable: Pin.11 and Pin.12 are Shorted.

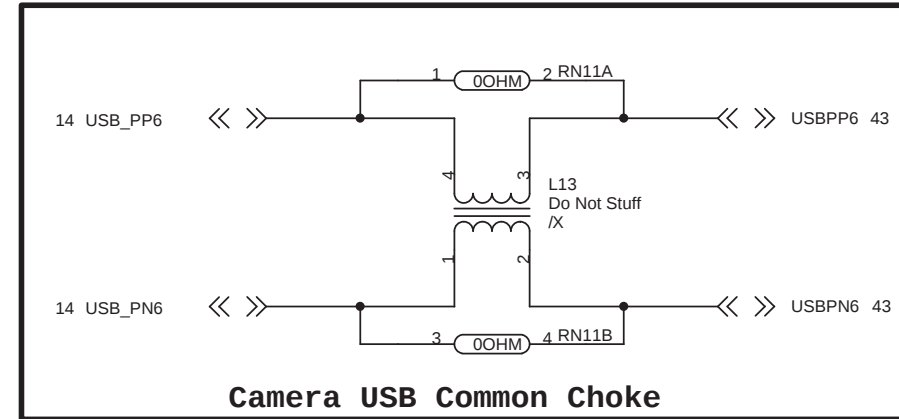
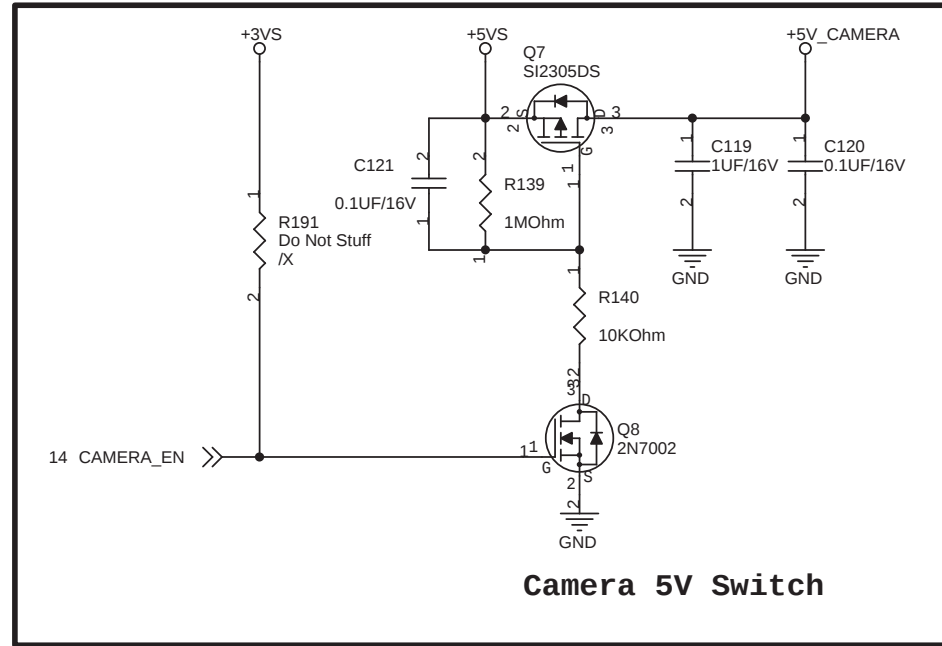
Card Reader Connector

02G630000601 = AU6336-B52
02G630000600 = AU6336-C52 (Default)



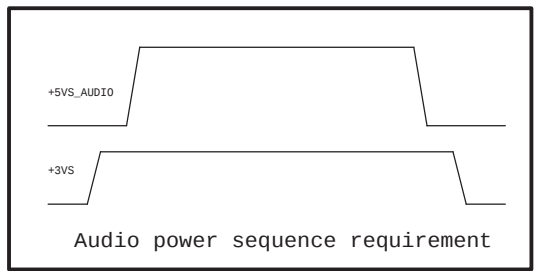
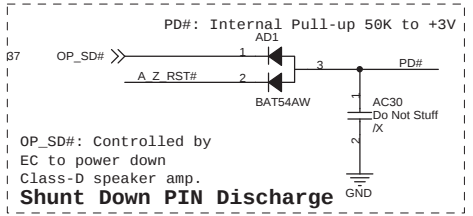
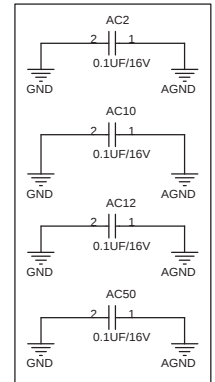
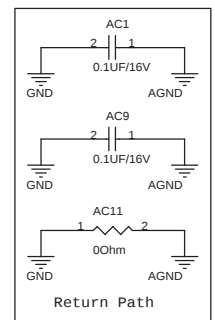
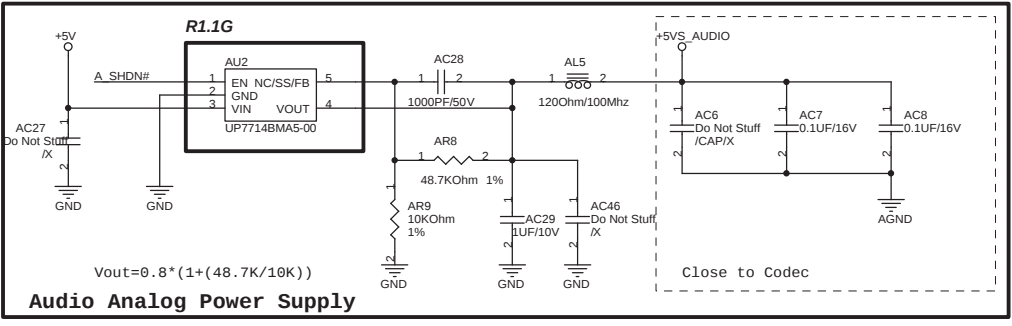
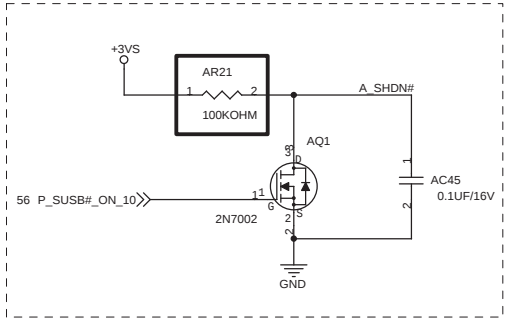
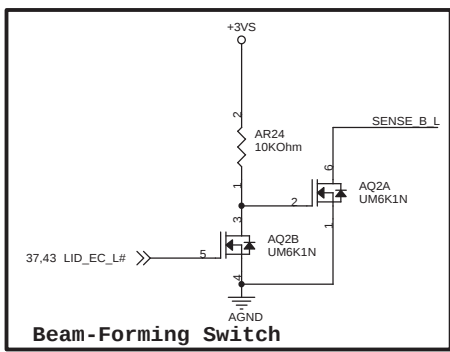
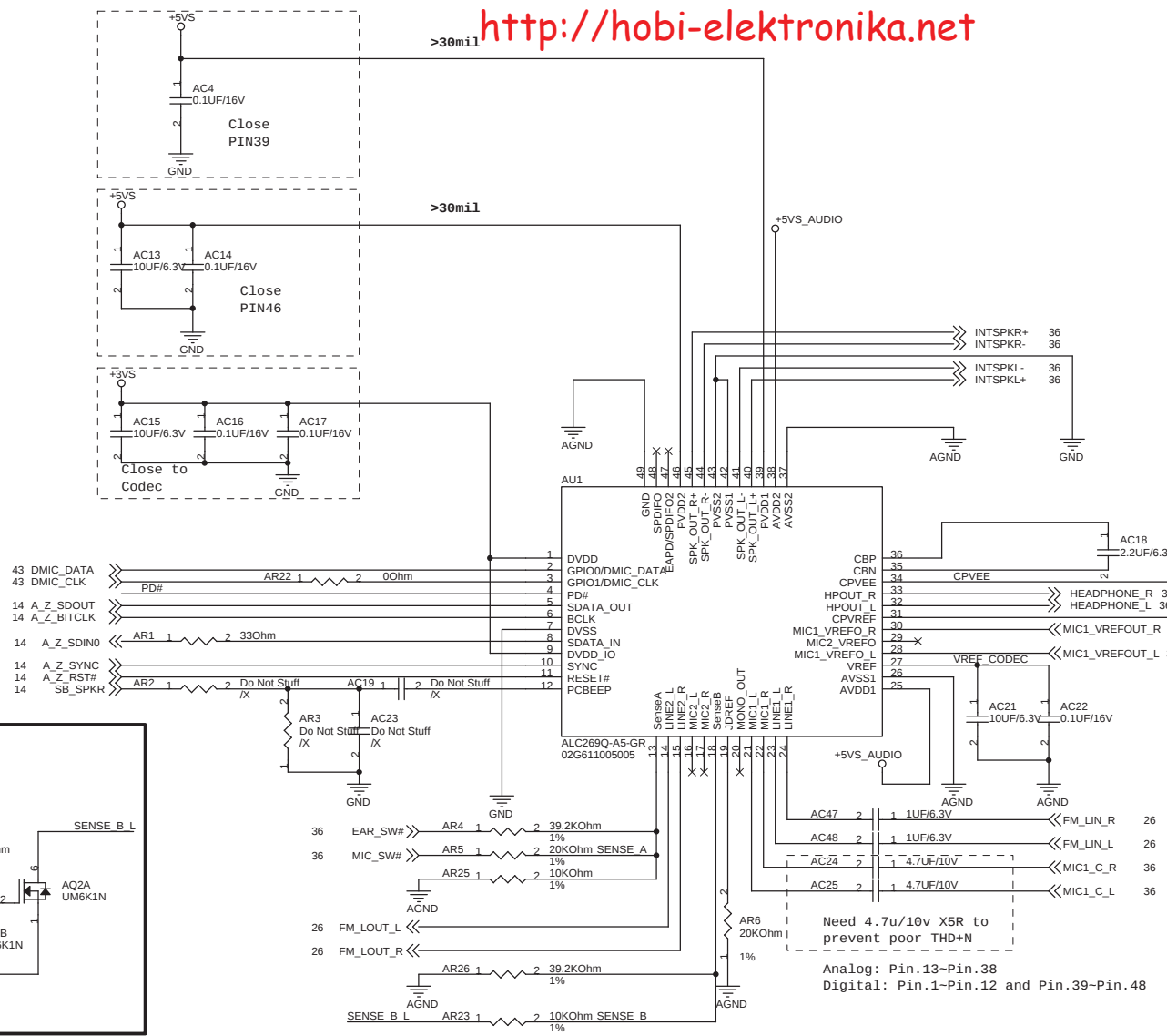
0106 1025

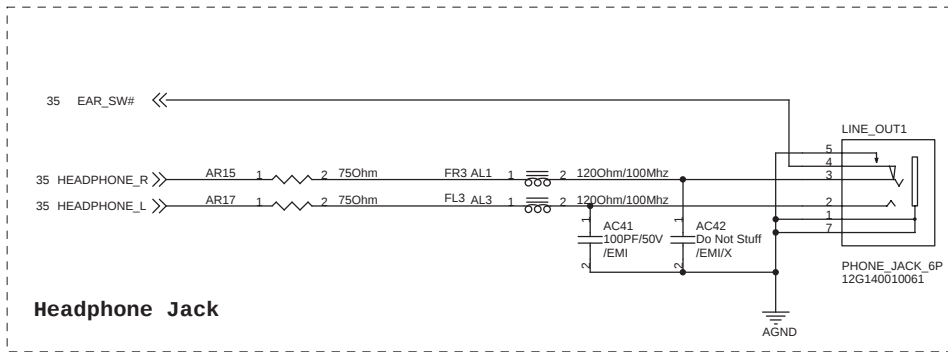
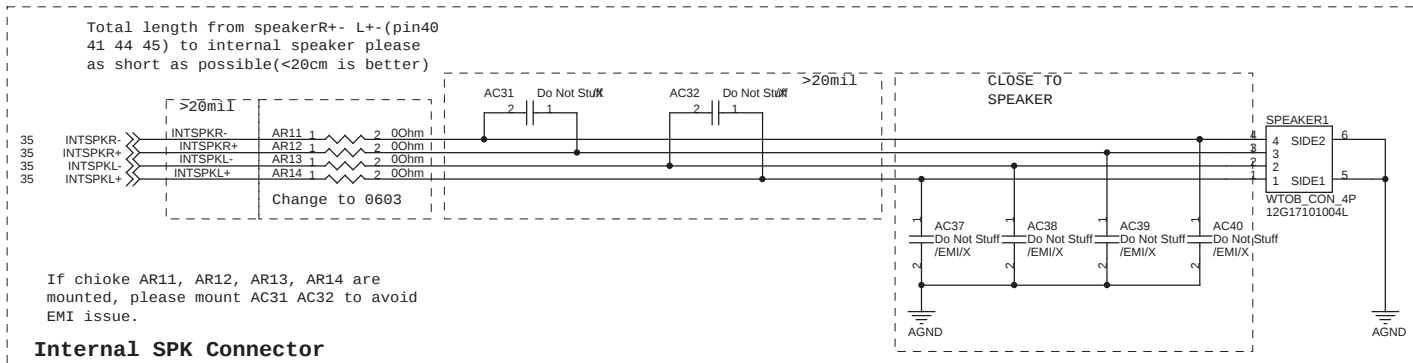
ASUS		Title : AU6336-C52	
ASUSTek Computer Inc.		Engineer: Jerry Liu	
Size A3	Project Name T91	Rev 1.2G	
Date: Tuesday, January 06, 2009		Sheet	33 of 57



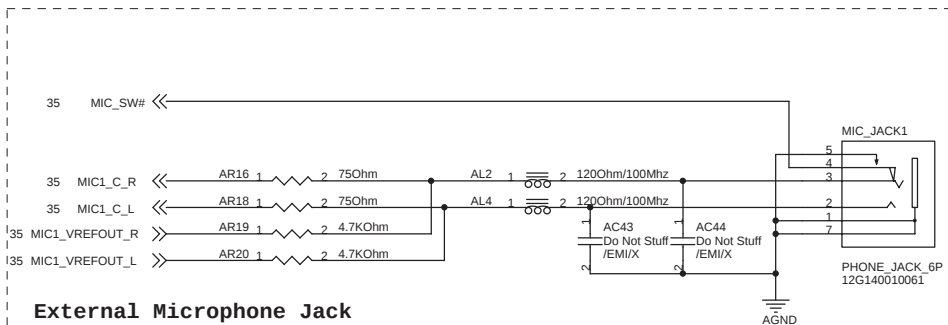
0106 1025

ASUS		Title : Camera Conn	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size A4	Project Name T91		Rev 1.2G
Date: Tuesday, January 06, 2009		Sheet	34 of 57



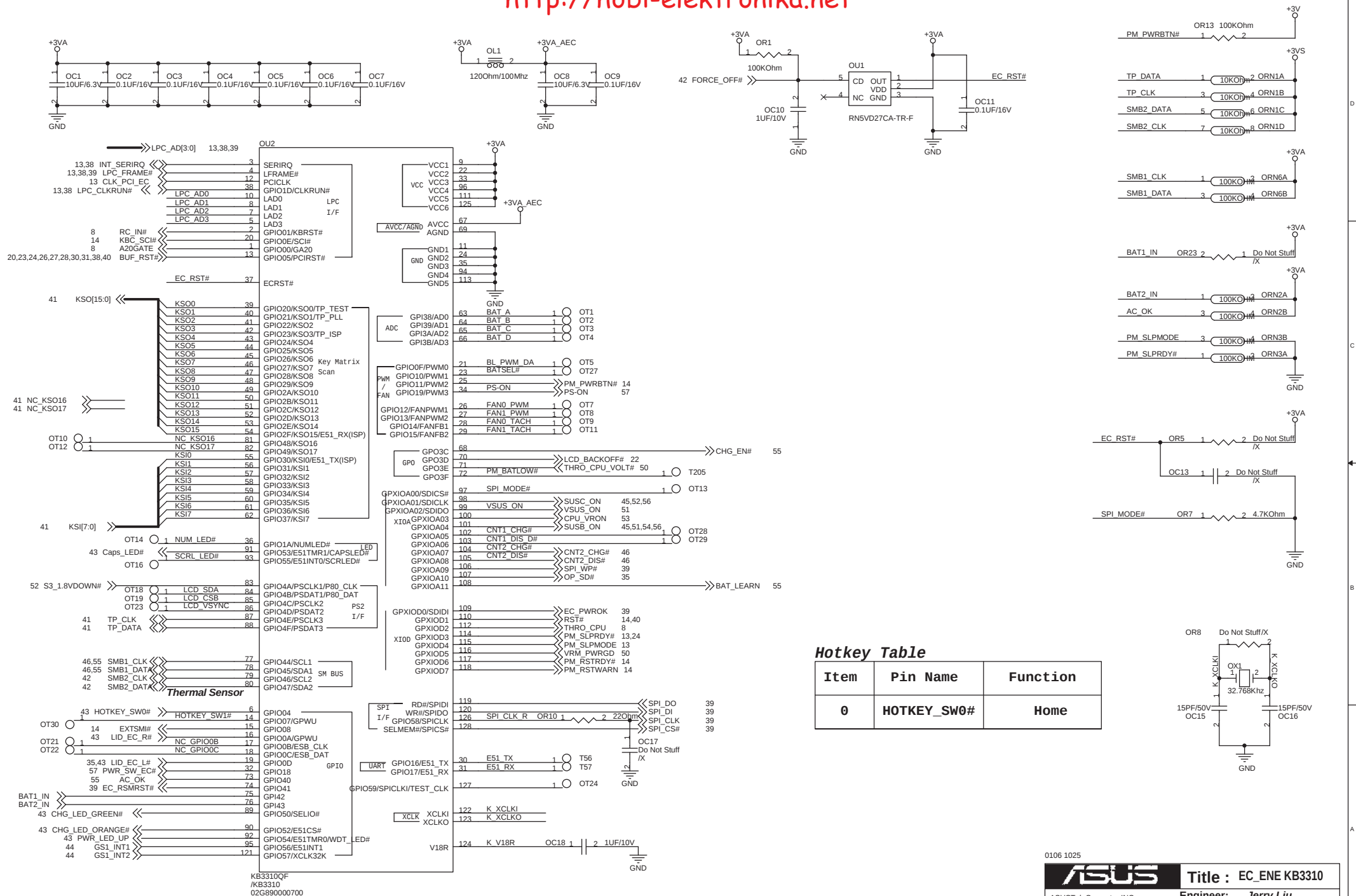


Symbol use 12G140010060
BOM use 12G140010061



0106 1025

ASUS		Title : ALC269-2	
ASUSTek Computer Inc.		Engineer: Jerry Liu	
Size A3	Project Name T91	Rev 1.2G	
Date: Tuesday, January 06, 2009		Sheet 36 of 57	



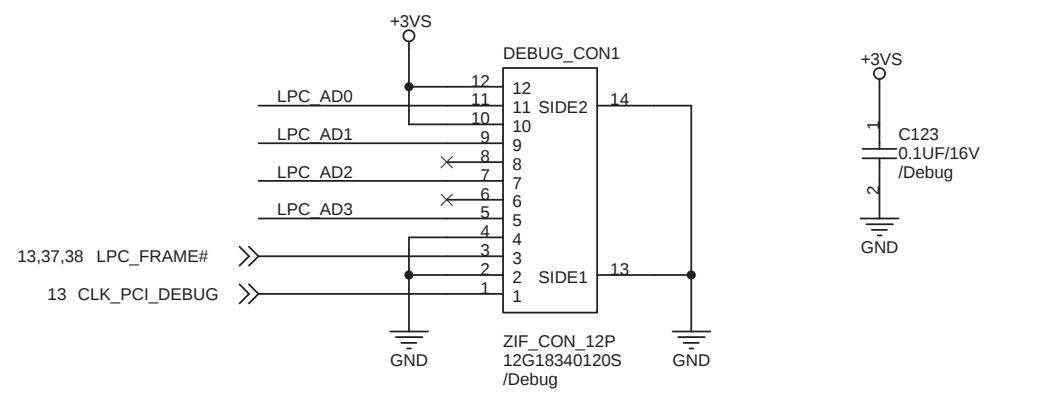
0106 1025

ASUS		Title : EC_ENE KB3310	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size A3	Project Name T91	Rev 1.2G	
Date: Tuesday, January 06, 2009	Sheet	37	of 57

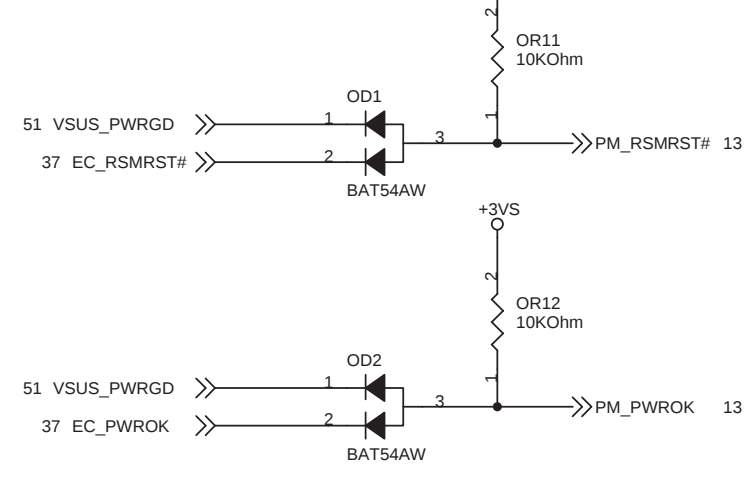
HOTKEY_SW0# - HOTKEY_SW3# internal PU



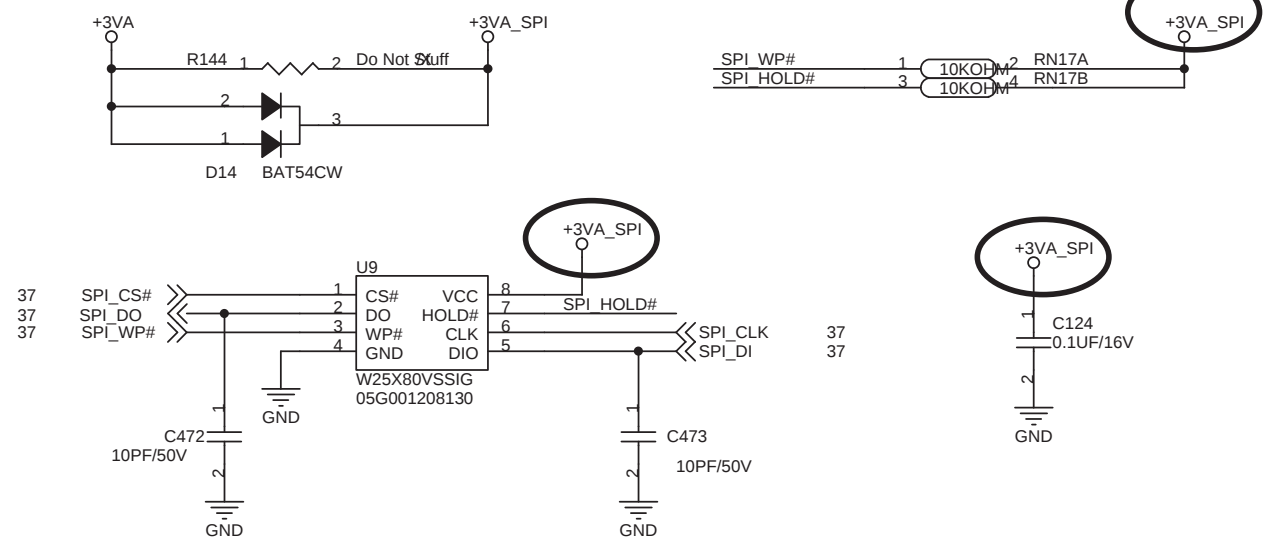
For Debug



Resolve auto-boot issue

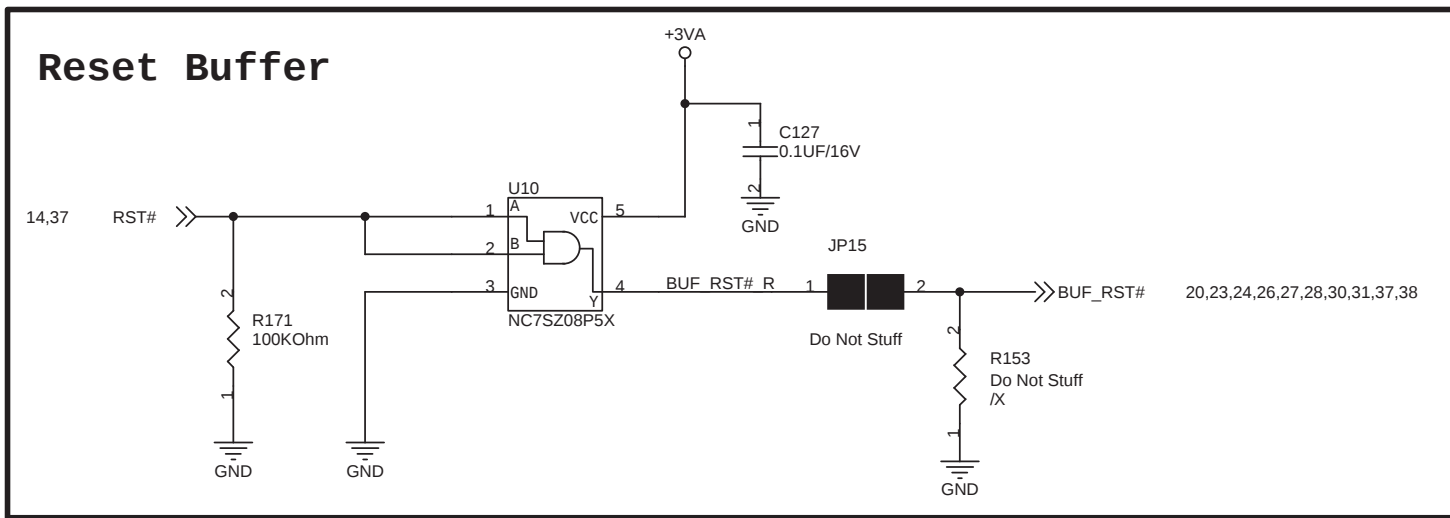
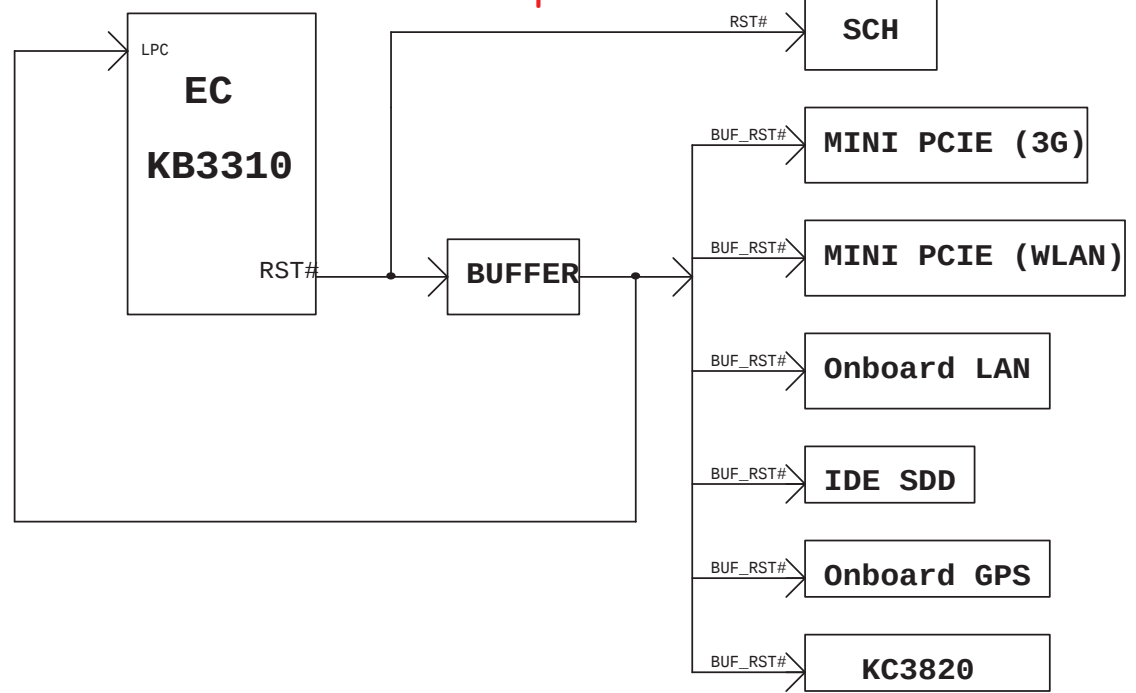


SPI ROM

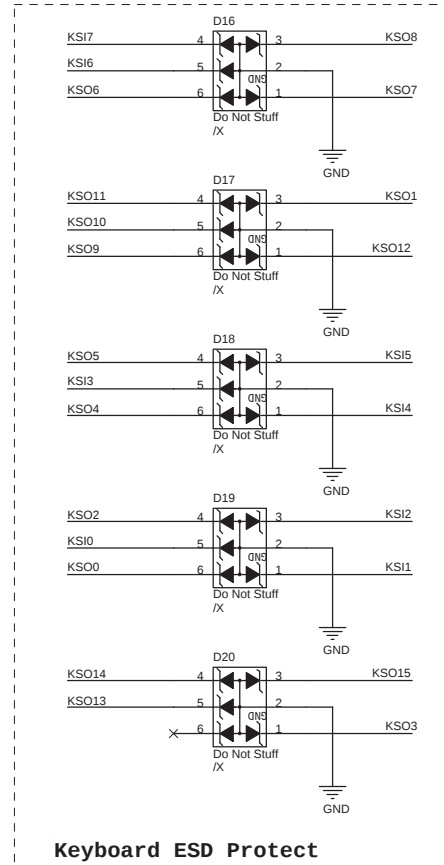
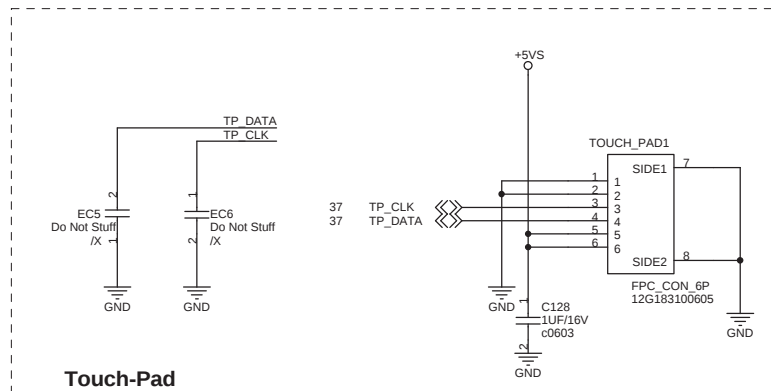
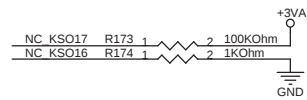
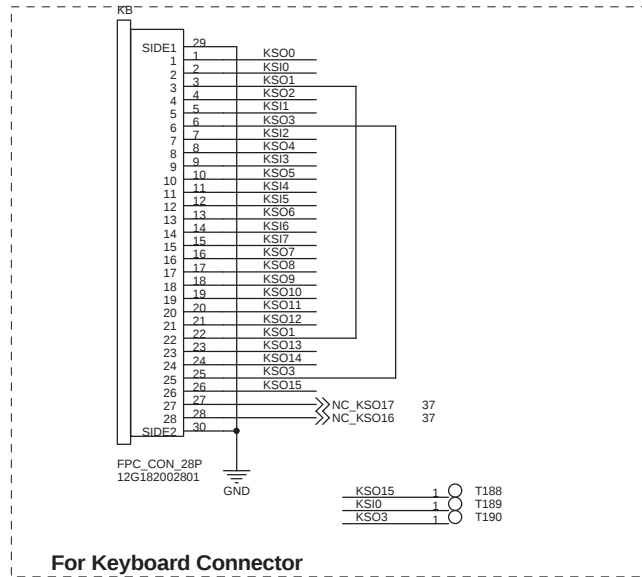


0106 1025

ASUS		Title : SPI ROM/ Debug	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size A4	Project Name T91		Rev 1.2G
Date: Tuesday, January 06, 2009		Sheet	39 of 57

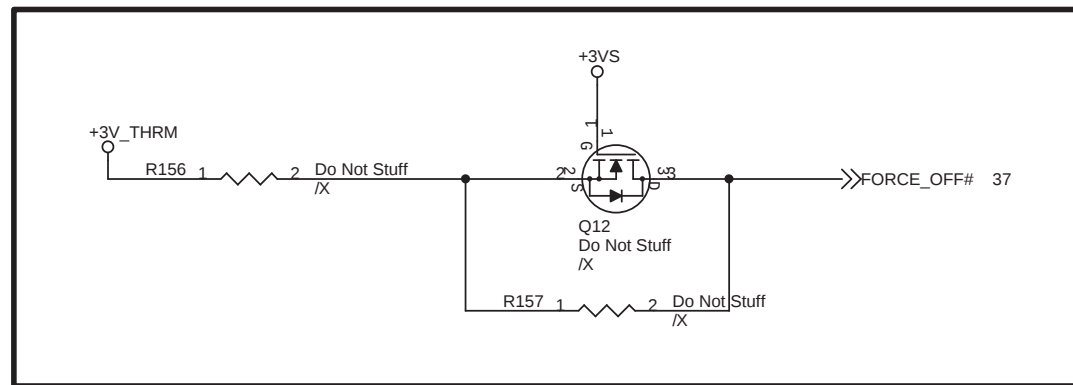
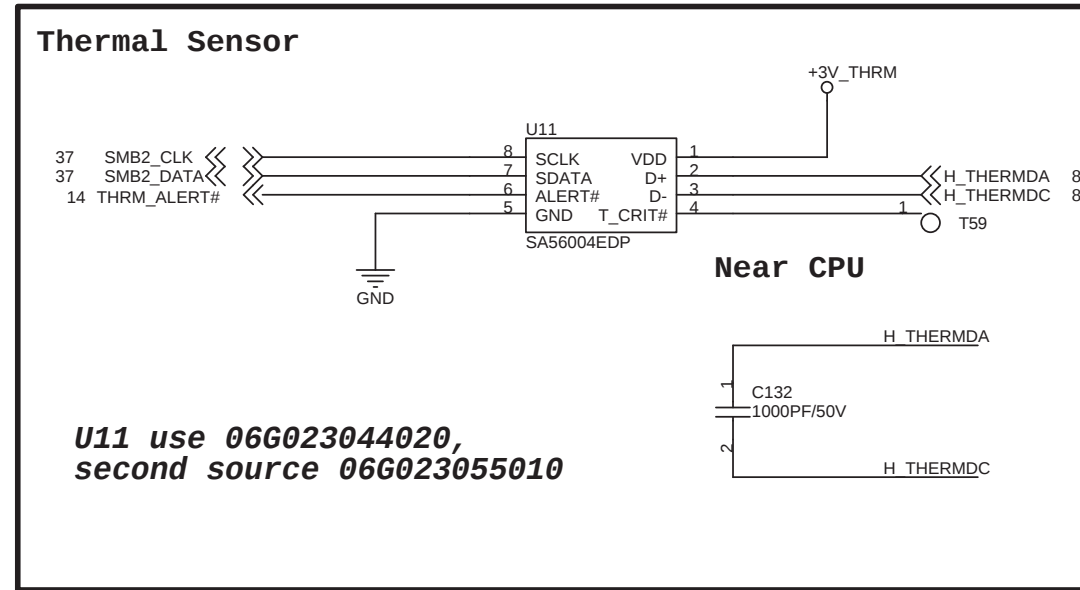
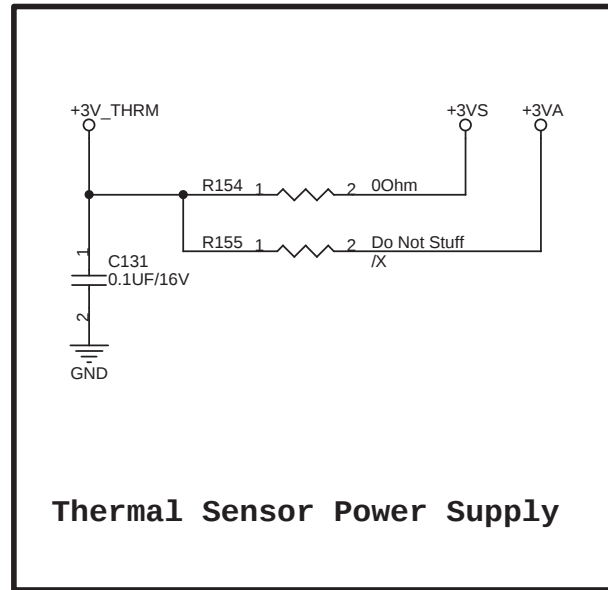


0106 1025



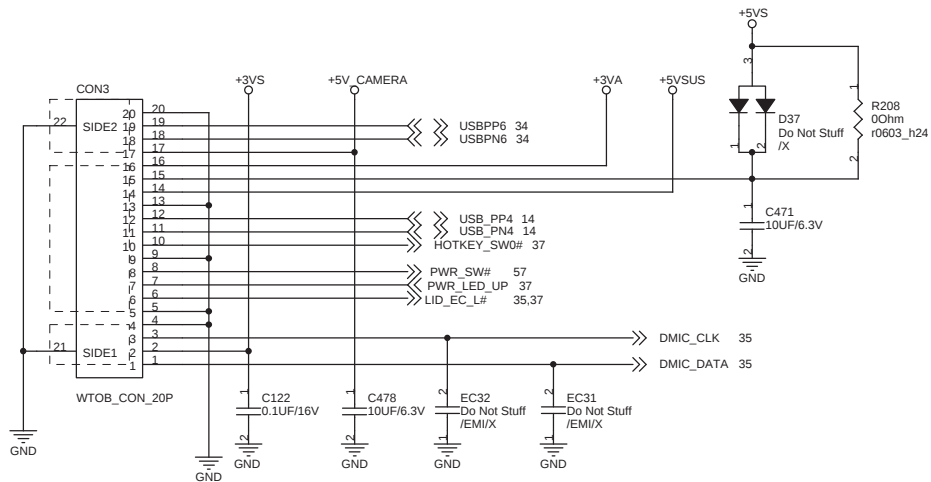
0106 1025

ASUS		Title : KB_Touch Pad	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size	Project Name	Rev	
A3	T91	1.2G	
Date: Tuesday, January 06, 2009		Sheet	41 of 57

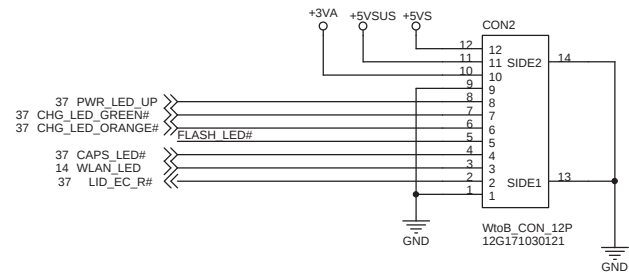


0106 1025

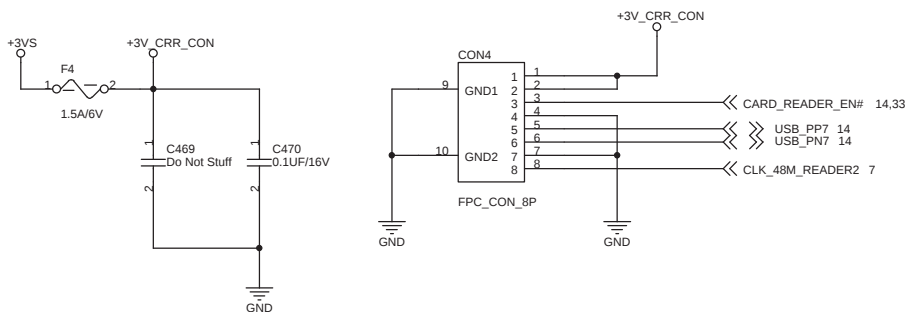
ASUS		Title : Thermal Sensor	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size A4	Project Name T91		Rev 1.2G
Date: Tuesday, January 06, 2009		Sheet	42 of 57



Left Small Board

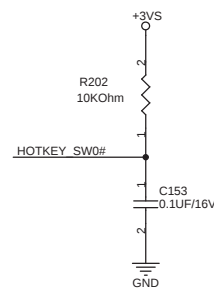


Right Small Board



2nd SD Card Reader

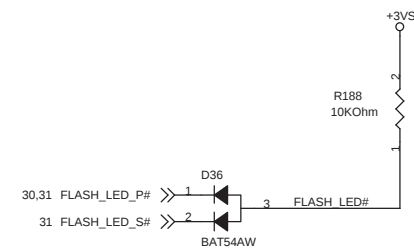
Home Key



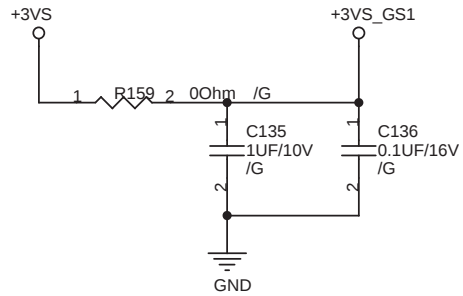
Hotkey Table

Item	Pin Name	Function
0	HOTKEY_SW0#	HOME

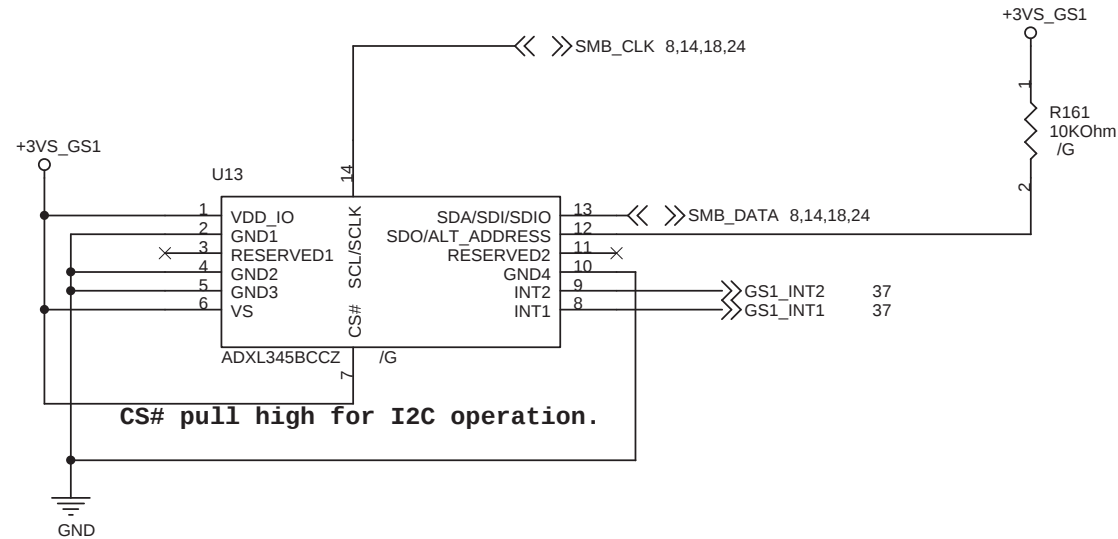
Flash LED



0106 1025

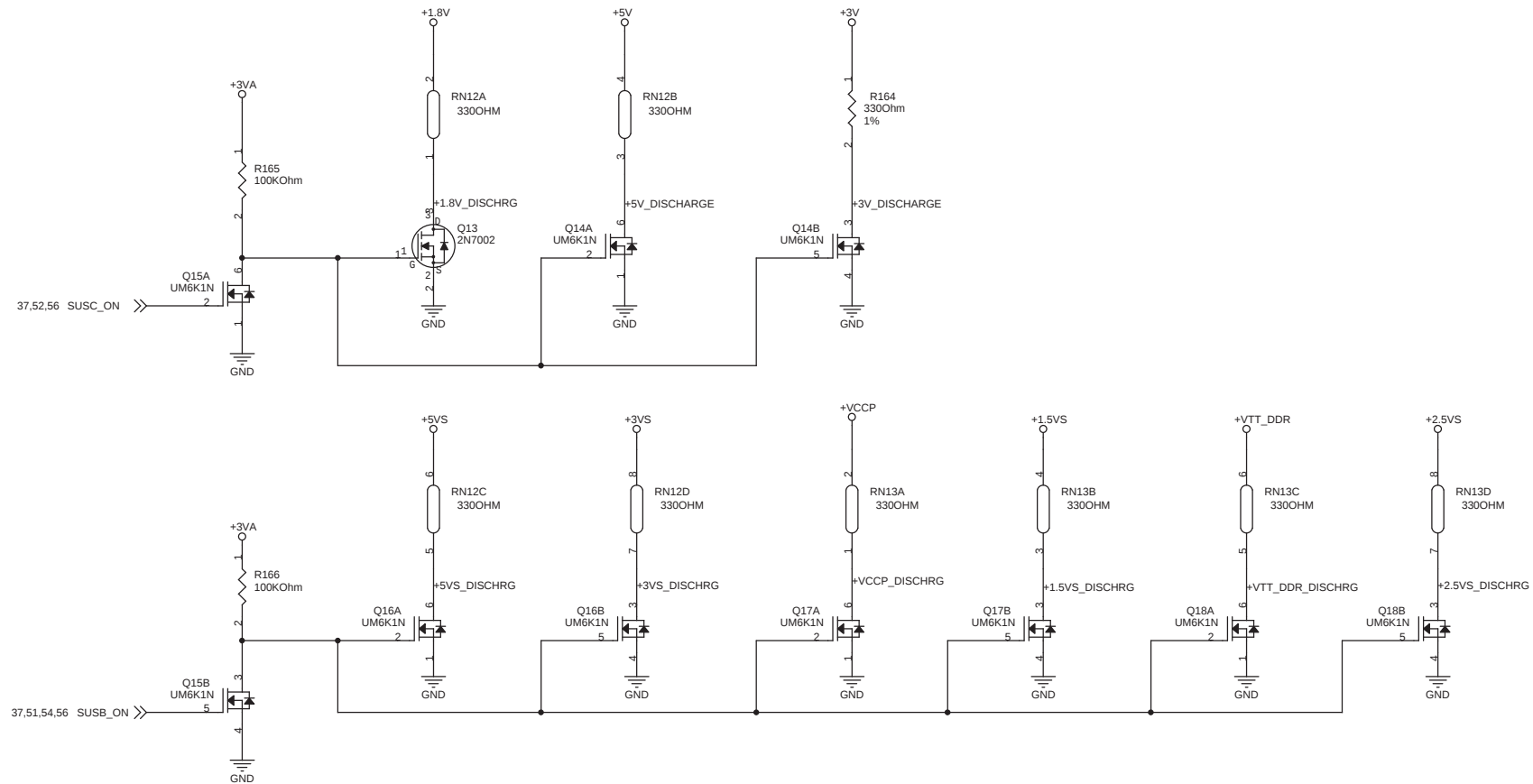


SMBUS Address: 0X1D



0106 1025

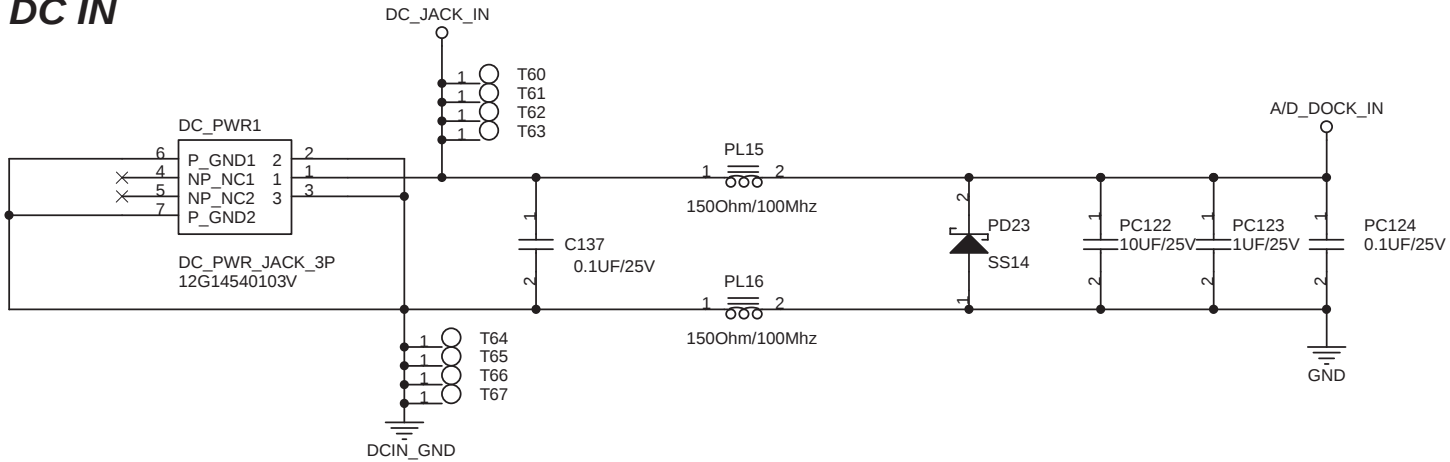
ASUS		Title : G-Sensor	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size A4	Project Name T91	Rev 1.2G	
Date: Tuesday, January 06, 2009		Sheet	44 of 57



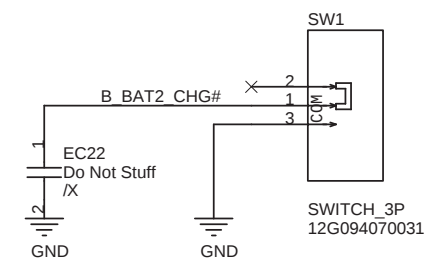
0106 1025

ASUS		Title : Discharge	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size A3	Project Name T91	Rev 1.2G	
Date: Tuesday, January 06, 2009		Sheet 45 of 57	

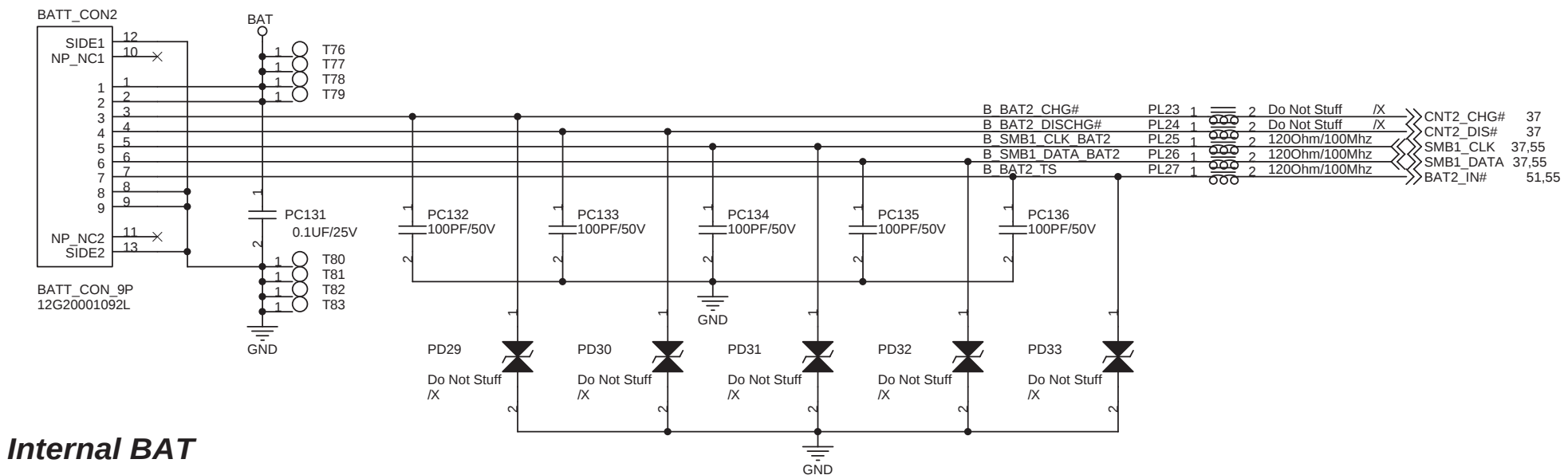
DC IN



Battery Switch



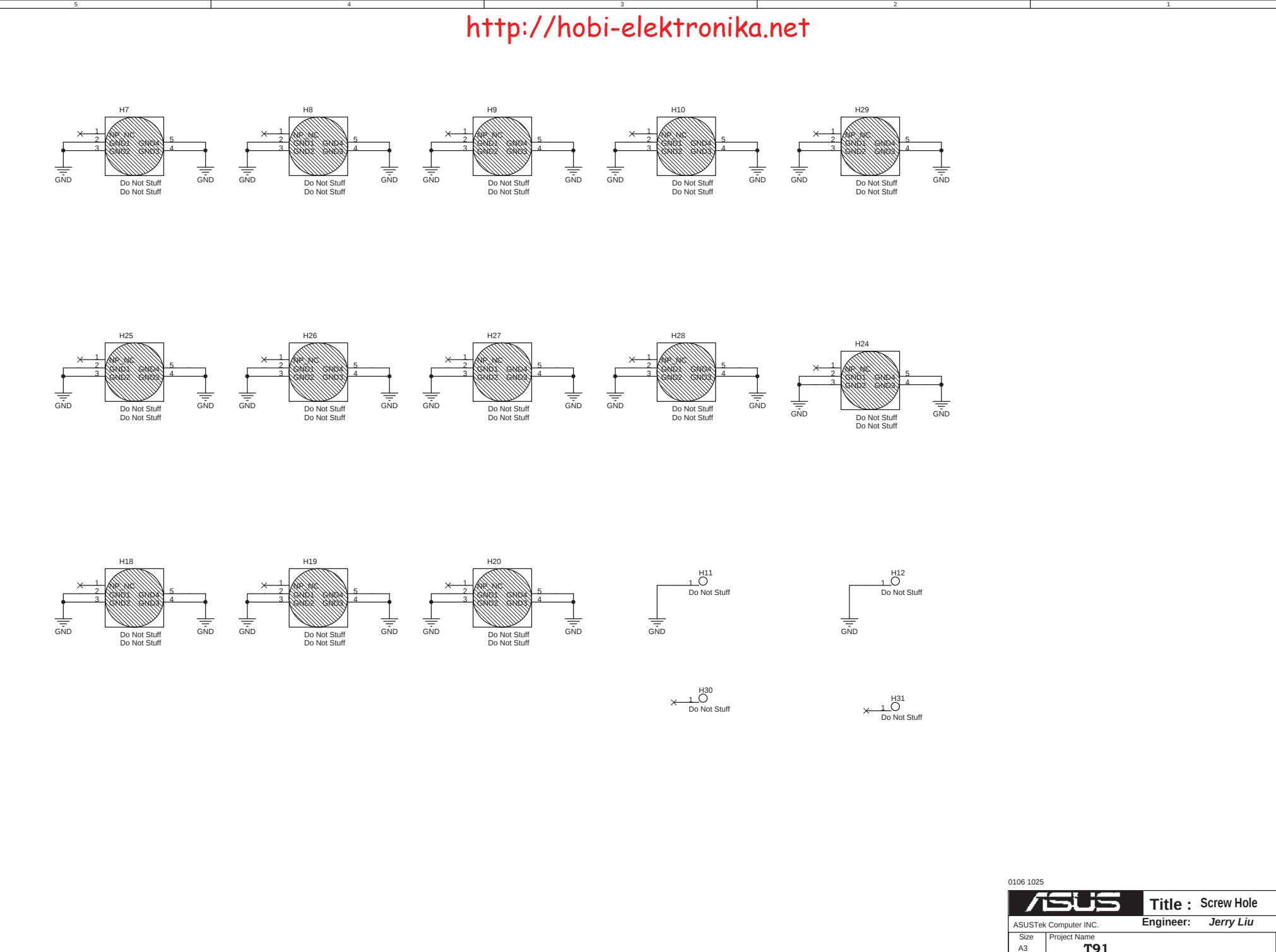
CNT2_CHG# : Low : Battery ON
CNT2_CHG# : open : Battery OFF

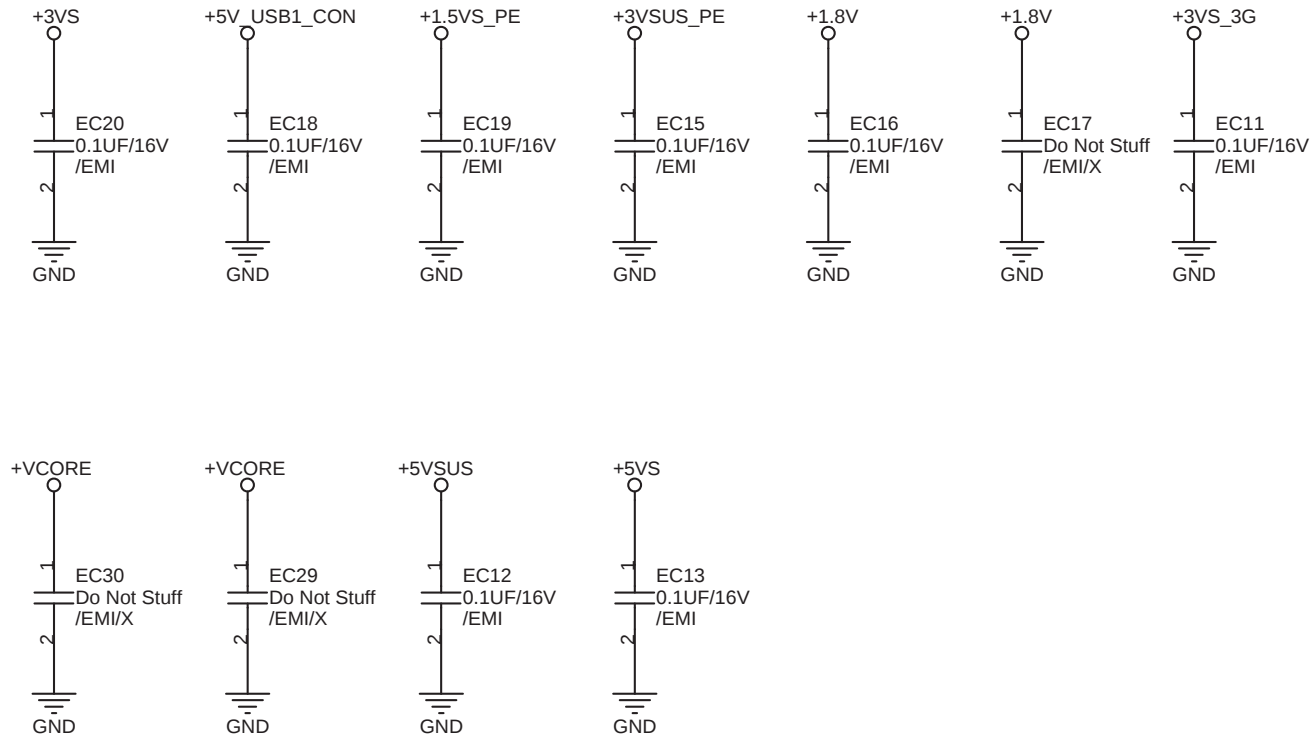


Internal BAT

0106 1025

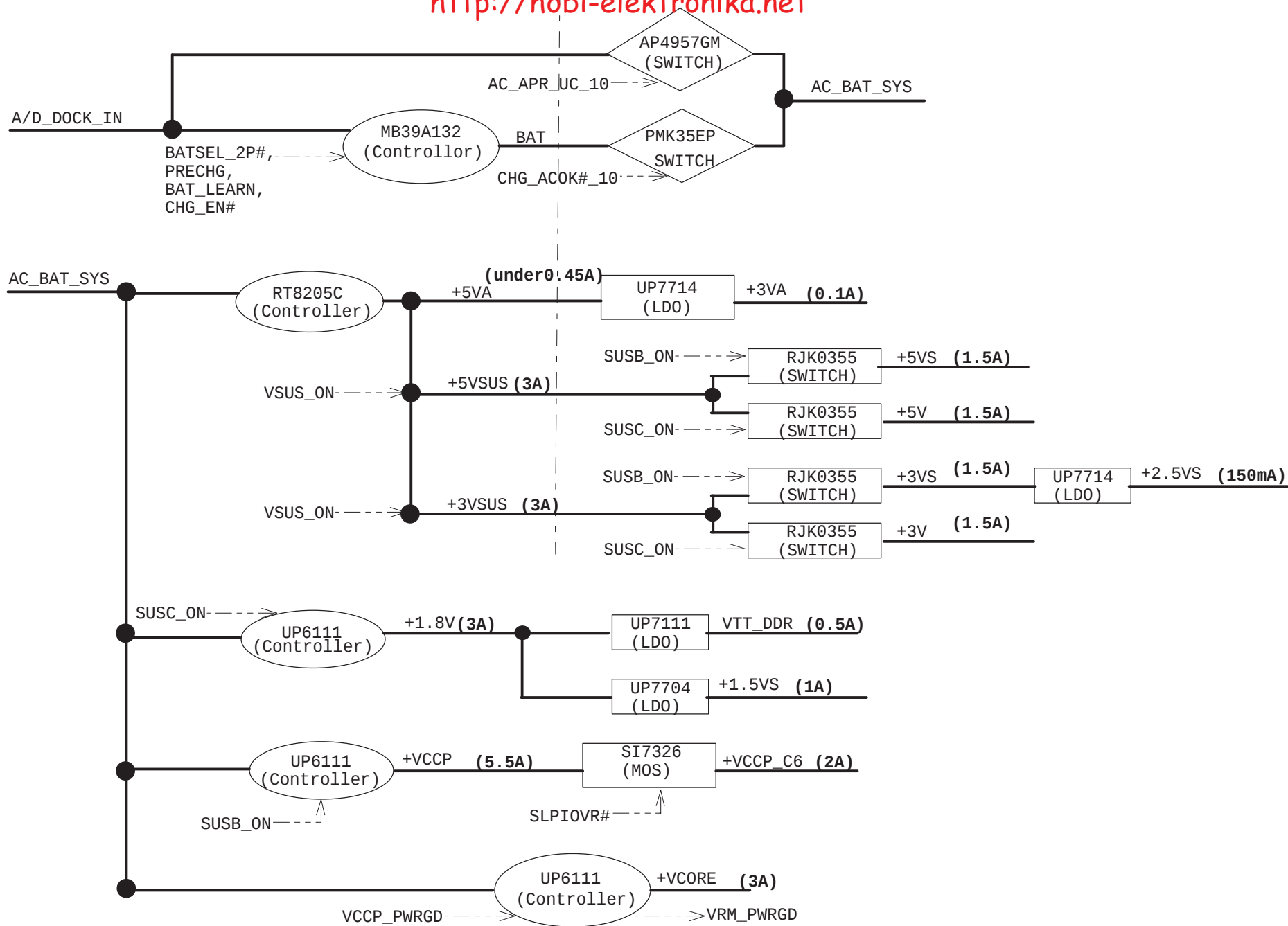
ASUS		Title : PWR Jack	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size A4	Project Name T91		Rev 1.2G
Date: Tuesday, January 06, 2009		Sheet 46 of 57	





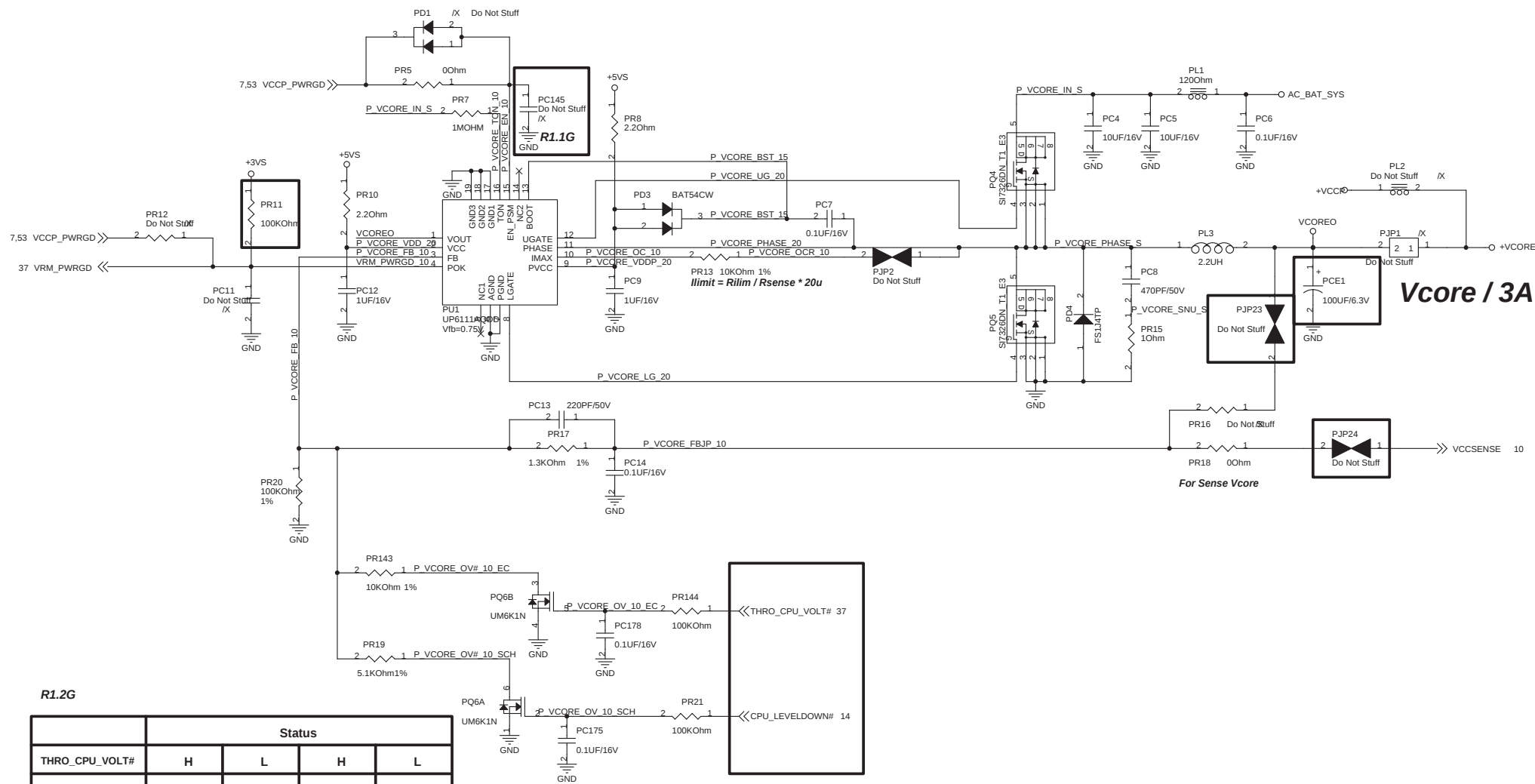
0106 1025

		Title : EMI	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size A	Project Name T91		Rev 1.2G
Date: Tuesday, January 06, 2009		Sheet	48 of 57



0106 1025

ASUS		Title : Power Flow	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size A3	Project Name T91		Rev 1.2G
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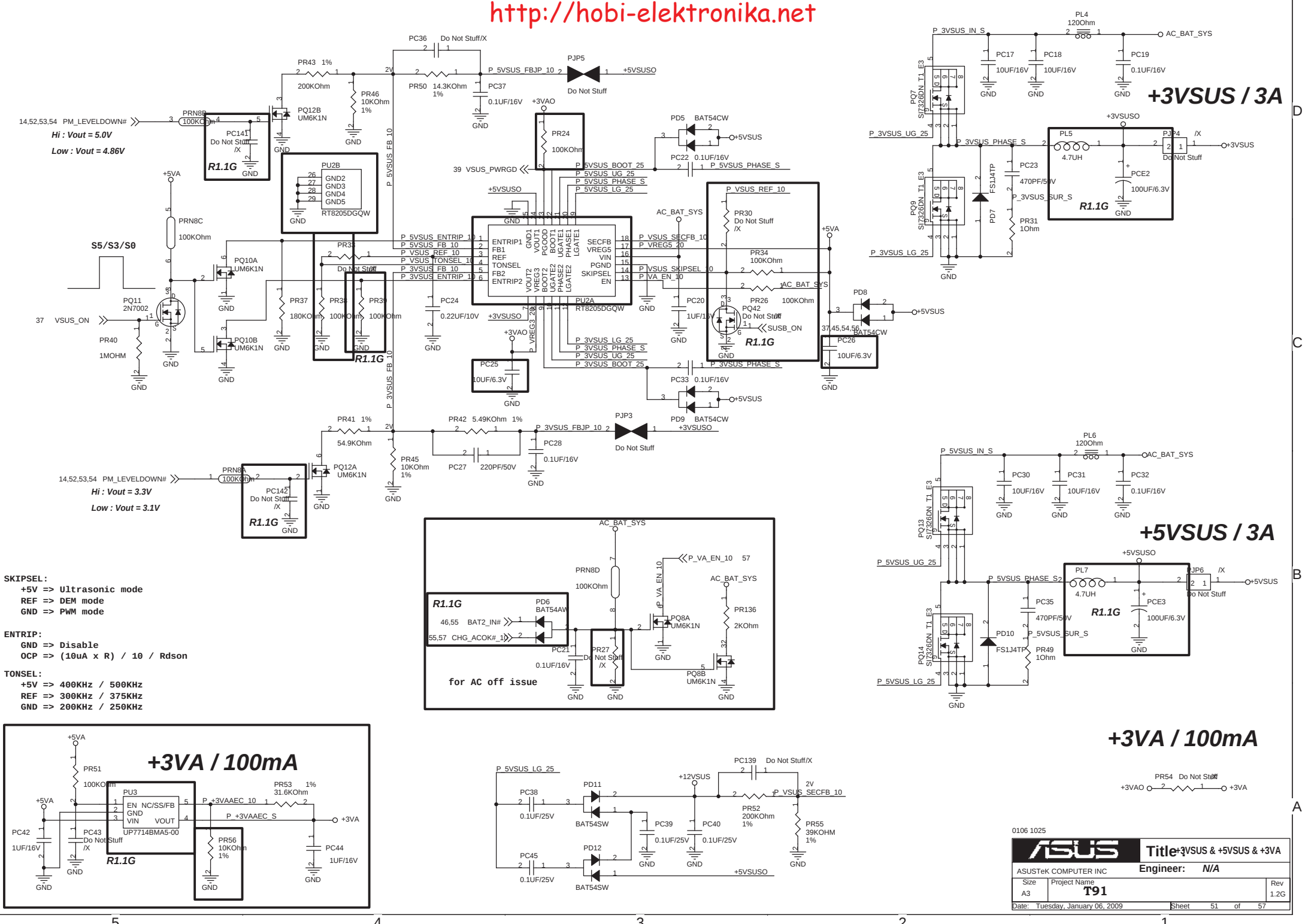


R1.2G

	Status			
	H	L	H	L
THRO_CPU_VOLT#	H	L	H	L
CPU_LEVELDOWN#	H	H	L	L
Voltage	1.0484V	0.9509V	0.8573V	0.7598V
	Normal	Normal + Throttle	Power Saving	Power Saving + Throttle

0106 1025

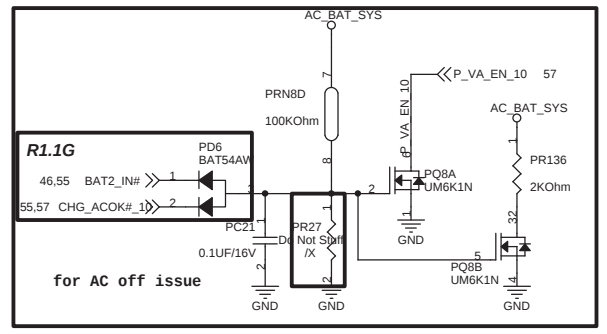
ASUS		Title : Vcore	
ASUSTek Computer INC.		Engineer: Joy Zhou	
Size	Project Name	Rev	
Custom	T91	1.2G	
Date: Tuesday, January 06, 2009		Sheet 50 of 57	

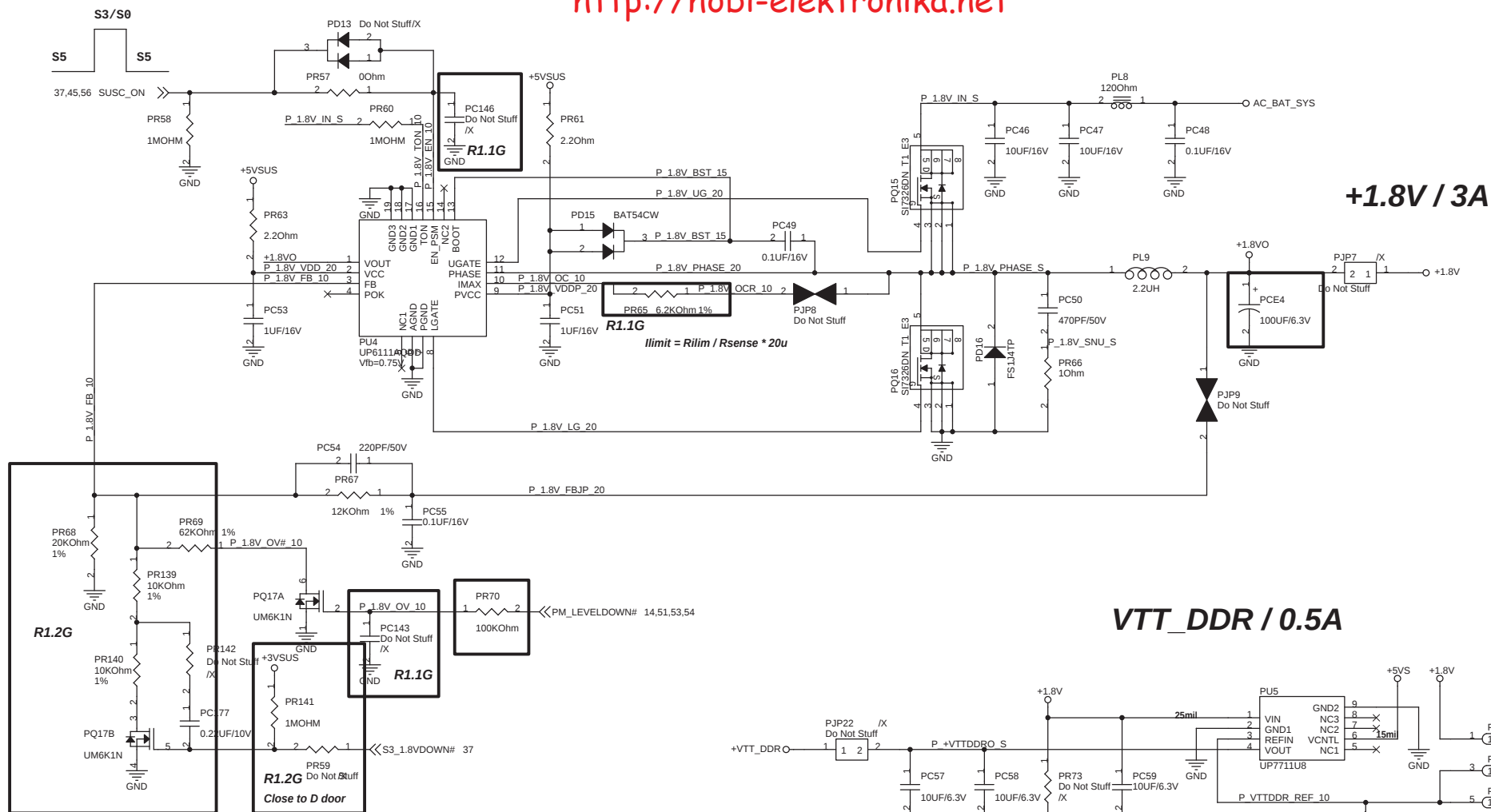


SKIPSEL:
+5V => Ultrasonic mode
REF => DEM mode
GND => PWM mode

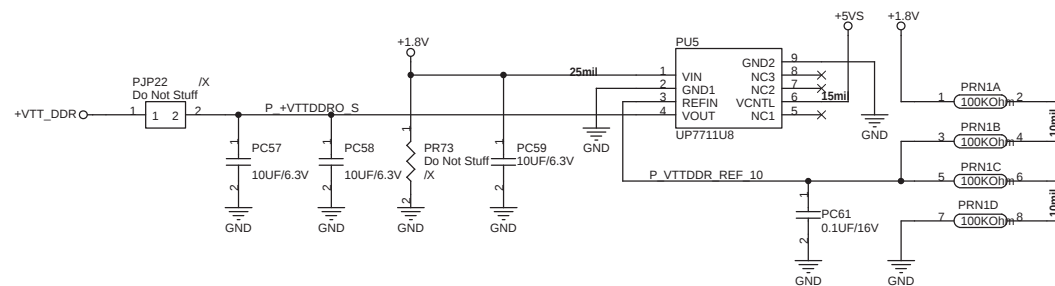
ENTRIP:
GND => Disable
OCP => (10uA x R) / 10 / Rdson

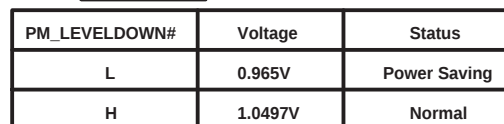
TONSEL:
+5V => 400KHz / 500KHz
REF => 300KHz / 375KHz
GND => 200KHz / 250KHz

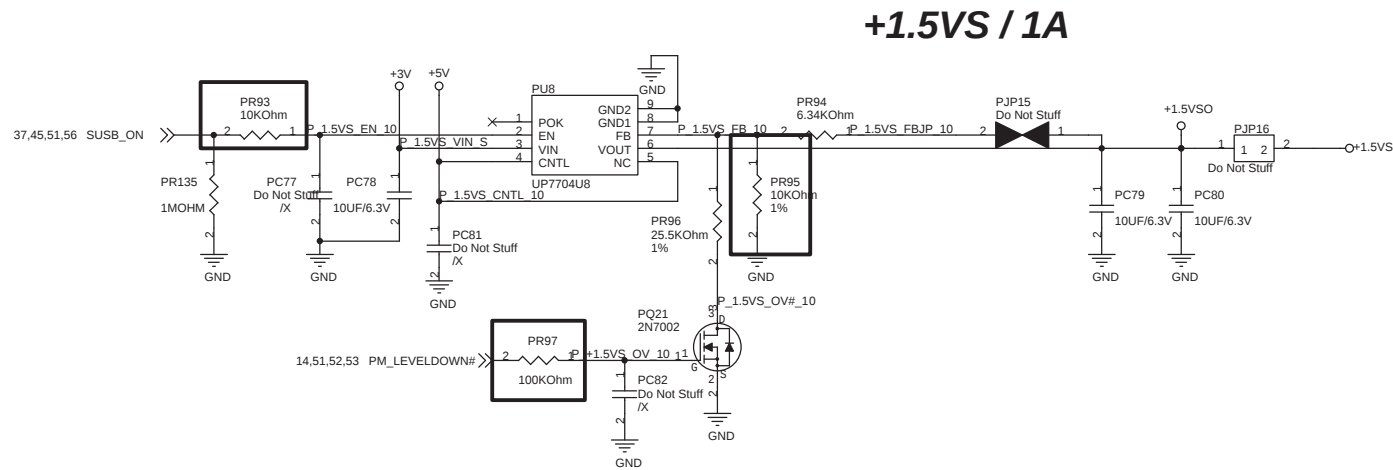
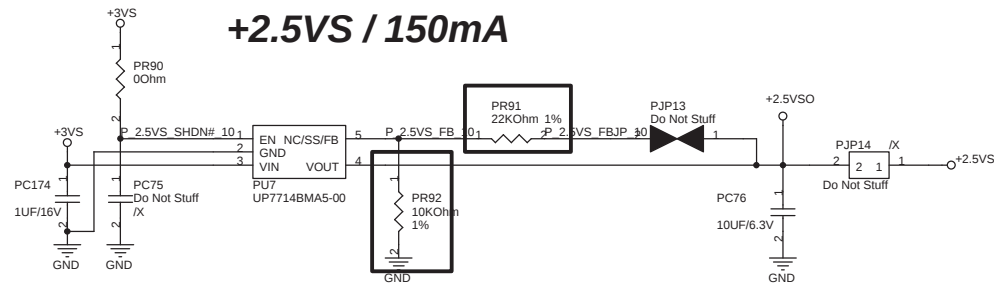




PM_LEVELDOWN#	Voltage	Status
L	1.65V	Power Saving
H	1.795V	Normal

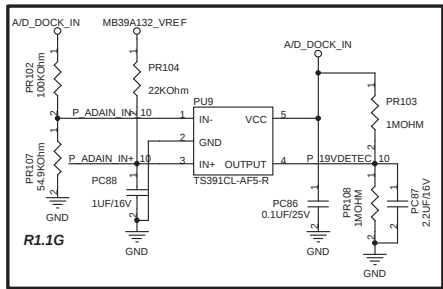






0106 1025

ASUS		Title : +1.5VS & +2.5VS	
ASUSTek Computer INC.		Engineer: Joy Zhou	
Size	Project Name		Rev
A3	T91		1.2G
Date: Tuesday, January 06, 2009		Sheet	54 of 57



Prevent Input from 19V :
 Adaptor > 14.2V, PQ603B Turn-off
 Adaptor < 14.2V, PQ603B Turn-on

$V_{REF} = 5.0V$
 $f_{osc}(KHz) = 17000 / RT (KOhm)$
 Soft start: $t_s(s) = 0.13 * CS (uF)$
 $V_{TH} of -IN1: 5V / 62 * (100+62) = 13.06V$
 $V_{TH} of ACIN: 1.25V / 25 * (185+25) = 10.5V$
 Change PR607 and PR608 value

Prevent Input from 19V :
 Adaptor > 13.06V, PQ603B Turn-off
 Adaptor < 13.06V, PQ603B Turn-on

Battery Cell Selection :
 $BAT_LEARN = 1$, Battery discharges
 $BAT_ID = 1$, 2 Cells; $V_{adj2} = 0.998V$
 $\Rightarrow I_{charge} = 1.477A$
 $BAT_ID = 0$, 4/6 Cells; $V_{adj2} = 1.648V$
 $\Rightarrow I_{charge} = 2.517A$

Pre-Charging Mode :
 Precharging current = 150mA
 $V_{adj2} = 168.75mV$

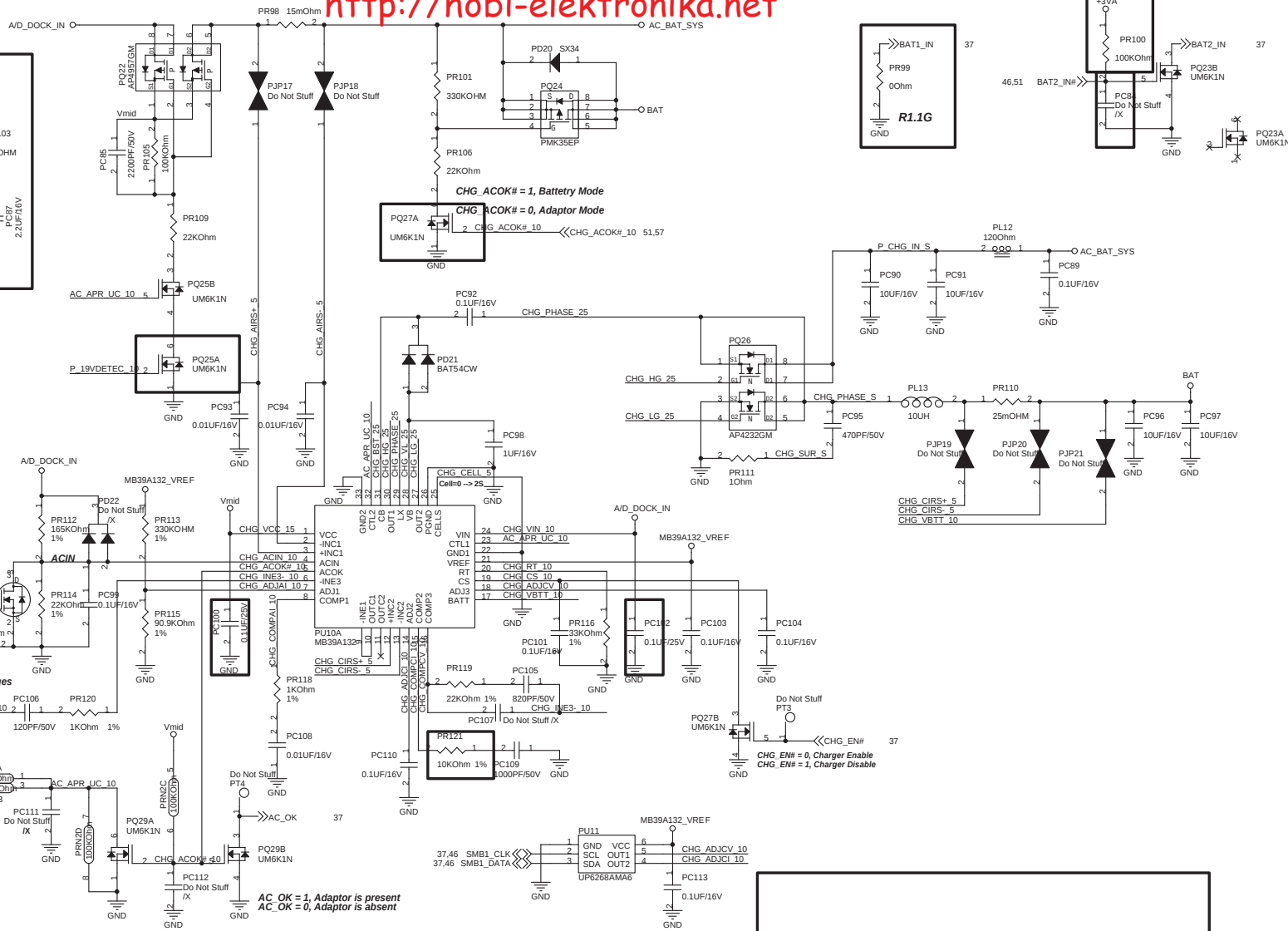
Adaptor Max. Current :
 $PR600=235.8K$; $I_{limit} = 2.170A$; 20.615W (9.5V/22W)
 $PR600=185.3K$; $I_{limit} = 2.677A$; 32.124W (12V/36W)

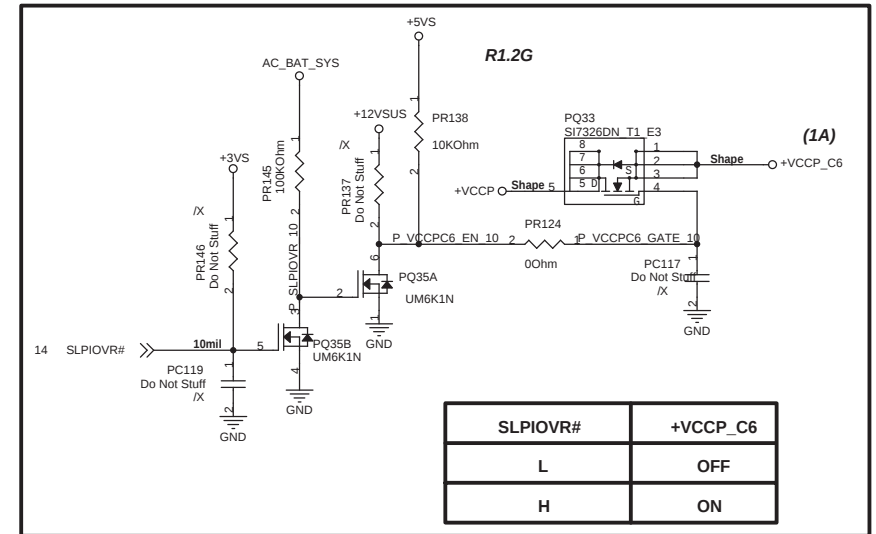
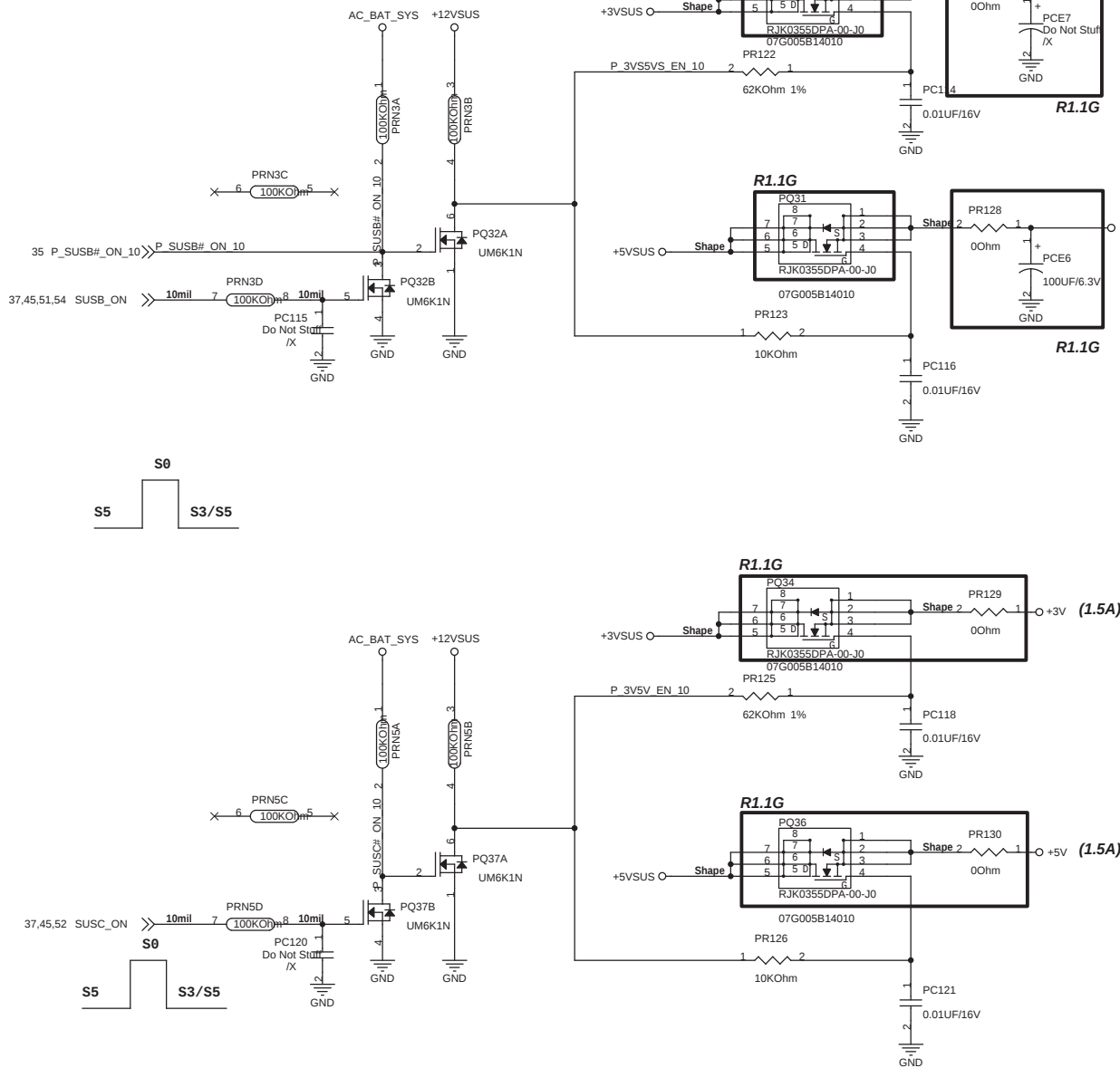
ACIN Threshold = 1.25V
 Adaptor > 10.5V, System Powered by Adaptor
 Adaptor < 10.5V, System Powered by Battery

Battery Charging Voltage :
 $V_{adj3} > 4.1V \Rightarrow V_{bat} = 4.2V / cell$
 $2.2V > V_{adj3} > 1.1V \Rightarrow V_{bat} = 2 * V_{adj3} / cell$

Battery Charging Current :
 $4.4V > V_{adj2} \geq 0V \Rightarrow$
 $I_{chg} = (V_{adj2} - 0.075) / (25 * R_s)$

Input Adaptor Max. Current Limit :
 $I_{limit_current} = (V_{adj1} - 0.075) / (25 * R_s)$

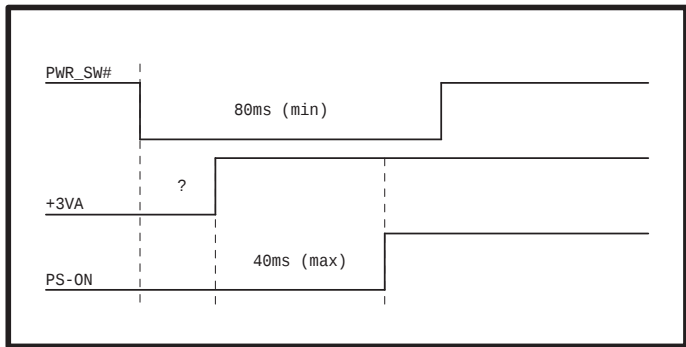
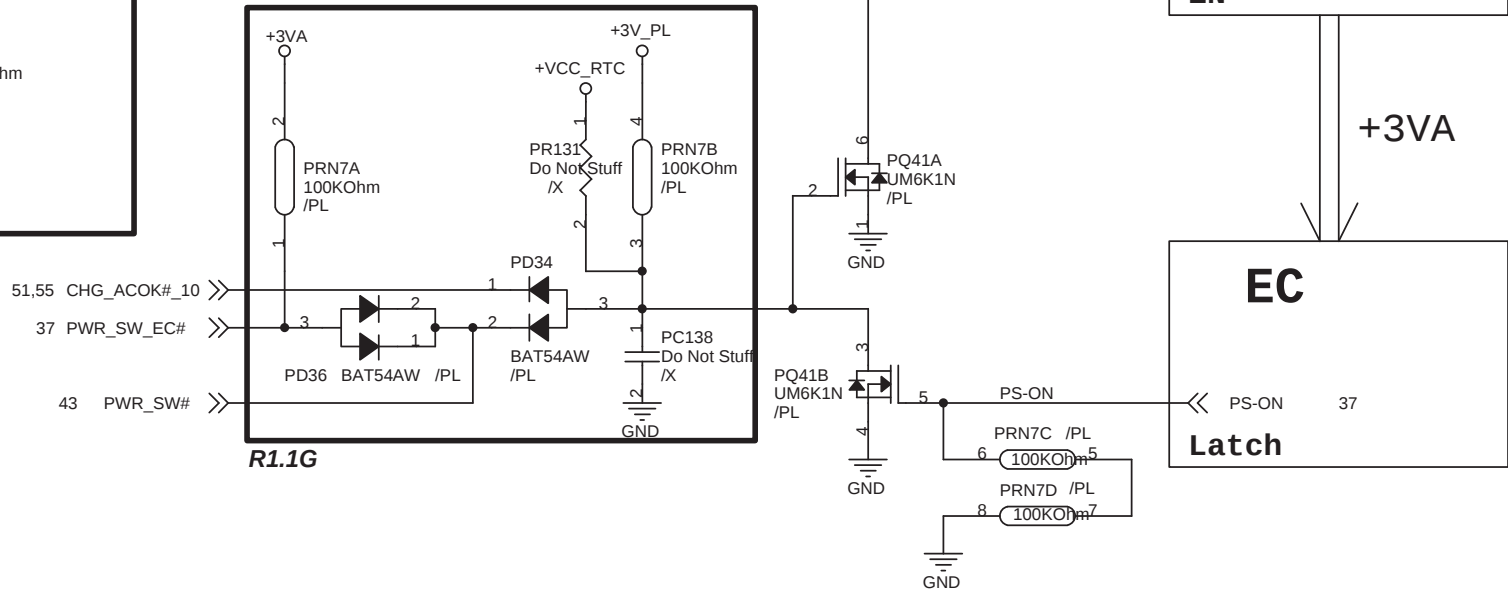
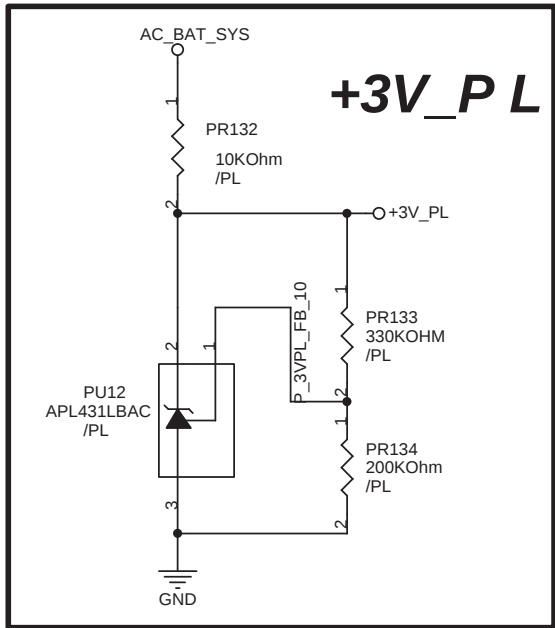




SLPIOV#	+VCCP_C6
L	OFF
H	ON

0106 1025

Title		<Title>	
Size	A3	Document Number	<Doc>
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0106 1025

ASUS		Title : Power Latch	
ASUSTek Computer INC.		Engineer: Jerry Liu	
Size A4	Project Name T91		Rev 1.2G
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