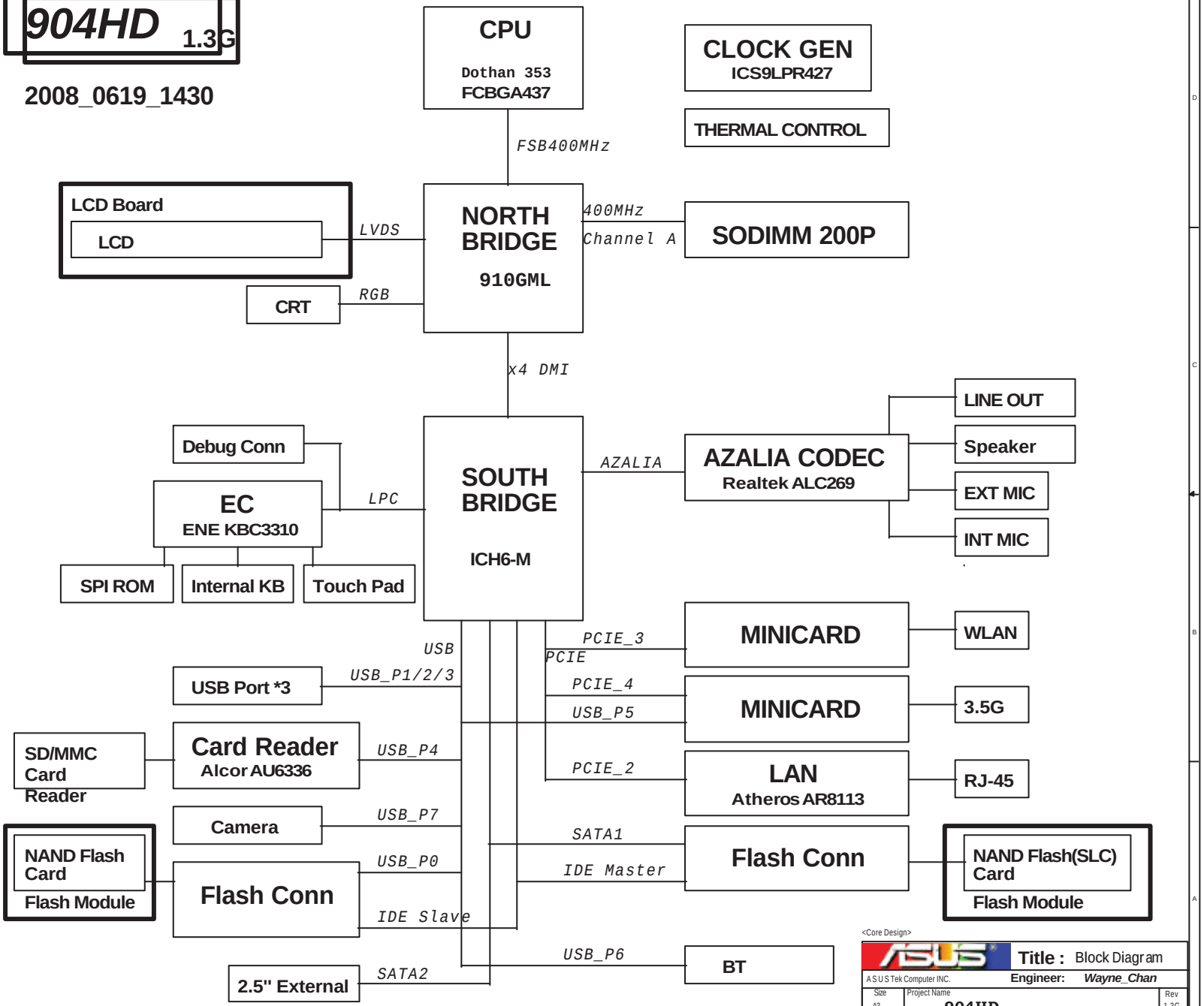
01_Block Diagram
02_System Setting
03_Power Sequence
04_EC Pin Define
05_History
06_*
07_Clock Gen_ICS9LPR427
08_Dothan_HOST
09_Dothan_PWR_GND
10_NB-910GML_HOST_DMI
11_NB-910GML_DRAM
12_NB-910GML_VGA_LVDS_TV
13_NB-910GML_PWR
14_NB-910GML_GND
15_SB-ICH6-M_Azalia_GPIO_PCI_LAN
16_SB-ICH6-M_USB_PCIE_DMI_IDE_SATA
17_SB-ICH6-M_PWR_GND
18_DDR2 SODIMM
19_DDR2_Termination
20_Onboard VGA
21_LCD Conn_LID
22_PCIEx 3.5G & Ext. Antenna
23_Mini WIFI+ BT
24_LAN_Atheros AR8113
25_MDC_RJ45
26_Flash Conn
27_SATA HDD
28_USB Port
29_Camera Power
30_Card Reader_AU6336C52
31_Codec_ALC269
32_Audio_AMP_Jack
33_EC_ENE KB3310
34_EC_UART controller
35_Switch_SPI ROM_Debug Conn
36_Thermal Sensor_FAN
37_KB_Touch Pad
38_LED
39_Discharge
40_PWR Jack
41_Srew Hole
42_EMI
43_POWER FLOW
44_Vcore
45_Power System
46_Power_+1.8V & VTTDDR
47_Power_VCCP
48_Power_+1.5VS & +2.5VS
49_Power_Charger

904HD 1.3G

2008_0619_1430



<Core Design>

Title : Block Diagram

A S U S Tek Computer INC. Engineer: Wayne_Chan

Size	Project Name	Rev
A3	904HD	1.3G

Date: Tuesday, July 01, 2008 Sheet 1 of 49

EEE PC 1000HD PCB version

GPI29	GPI31	PCB version
0	0	1.0G
0	1	
1	0	
1	1	

USB

USB 0	Flash Conn
USB 1	USB Conn
USB 2	USB Conn
USB 3	USB Conn
USB 4	Card Reader
USB 5	Minicard
USB 6	BT
USB 7	Camera

PCIE

PCIE1	NC
PCIE2	LAN
PCIE3	Minicard
PCIE4	Minicard

Azalia

ACZ_SDIN0	CODEC
ACZ_SDIN1	NC
ACZ_SDIN2	NC

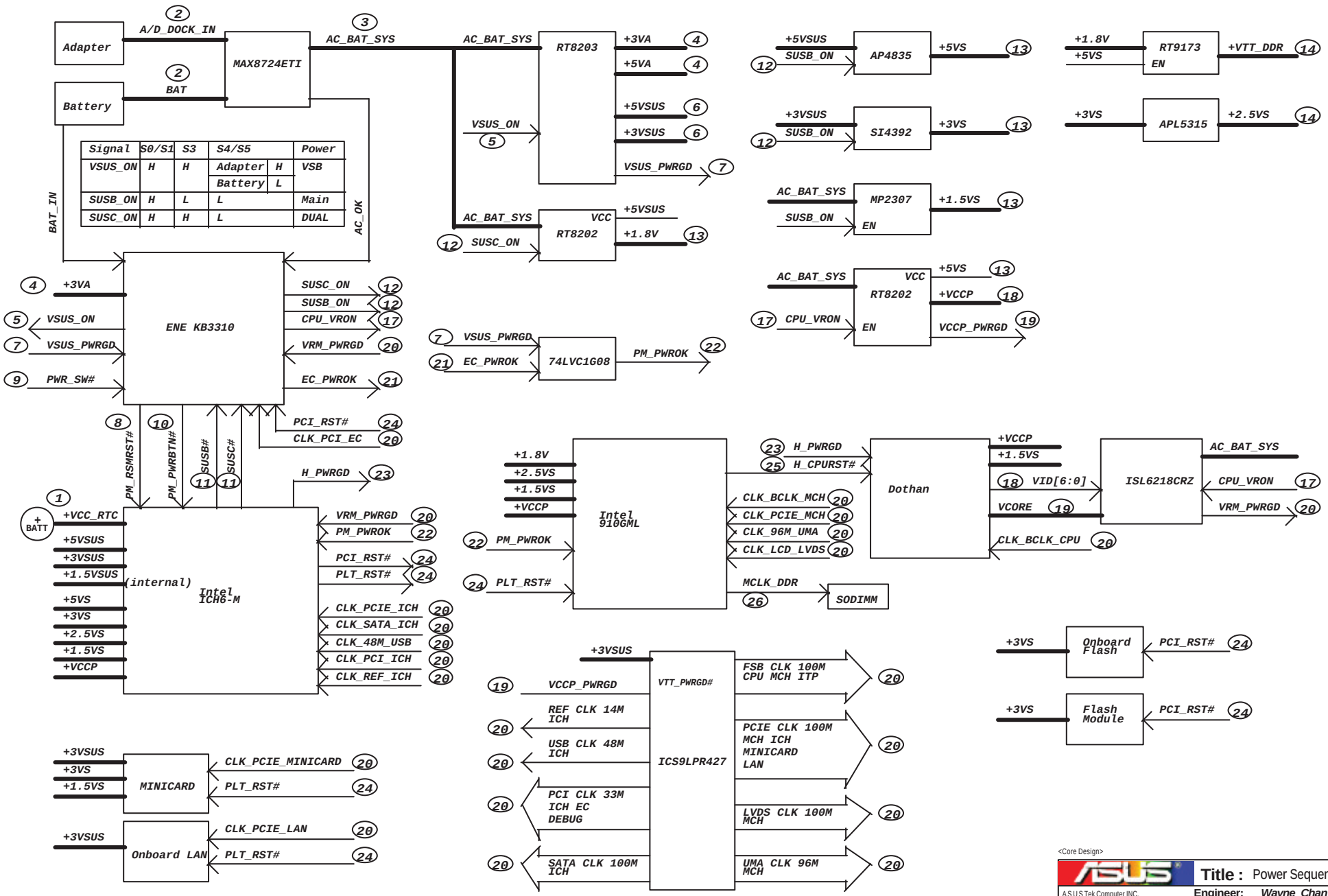
<Core Design>

Title : System Setting

A S U S Tek Computer INC. Engineer: Wayne_Chan

Size	Project Name	Rev
A3	904HD	1.3G

Date: Tuesday, July 01, 2008 Sheet 2 of 49



<Core Design>

Title : Power Sequence

A S U S Tek Computer INC. Engineer: Wayne_Chan

Size: A3 | Project Name: 904HD | Rev: 1.3G

Date: Tuesday, July 01, 2008 | Sheet 3 of 49

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 pullhigh
13	GPIO05/PCIRST#	PCI_RST#	I	
14	GPIO07	HOTKEY_SW1#	I	Internal pullhigh
15	GPIO08	EXTSMI#	OD	10K pull high to +3VSB
16	GPIO0A	LID_EC#	I	0-LidOff, 1-LidOn. Internal Pull Up
17	GPIO0B/ESB_CLK	NC	O	
18	GPIO0C/ESB_DAT	NC	O	
19	GPIO0D	HOTKEY_SW2#	I	Internal pullhigh
20	GPIO0E/SCI#	EXT_SCI#	O	10K pull high to +3VSB
21	GPIO0F/PWM0	BL_PWM_DA	O	
23	GPIO10/PWM1	BATSEL_4P#	I	battery charging current setting
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	power button, internel pull-up
34	GPIO19/PWM3	MAIL_LED#	O	
36	GPIO1A/NUMLED	NUM_LED#	O	
38	GPIO1D/CLKRUN#	CHG_LED_GREEN#	O	Green LED for charging
39	GPIO20/KSO0/ITP_TEST	KSO0	O	
40	GPIO21/KSO1/ITP_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 pullhigh
56	GPIO31/KSI1	KSI1	I	Internal pullhigh
57	GPIO32/KSI2	KSI2	I	Internal pullhigh
58	GPIO33/KSI3	KSI3	I	Internal pullhigh
59	GPIO34/KSI4	KSI4	I	Internal pullhigh
60	GPIO35/KSI5	KSI5	I	Internal pullhigh
61	GPIO36/KSI6	KSI6	I	Internal pullhigh
62	GPIO37/KSI7	KSI7	I	Internal pullhigh
63	GPI38/AD0	BAT_ICHG	I	
64	GPI39/AD1	BAT_CONFIG	I	Battery configureation
65	GPIO3A/AD2	BAT_SENSE	I	Battery Voltage Sensor
66	GPIO3B/AD3	BAT_TS	I	Battery Thermal Sensor
68	GPO3C/DA0	DOC	O	Trigger ClockGen

Pin	Pin Name	Signal Name	Type	Note
70	GPO3D/DA1	LCD_BACKOFF#	O	
71	GPO3E/DA2	CLK_PWRSAVE#	O	
72	GPO3F/DA3	BAT_LL#	O	Battery LowLow
73	GPIO40	AC_OK	I	AC Adaptor Plugin
74	GPIO41	EC_RSMRST#	O	10K pull down to GND
75	GPI42	BAT_IN	I	
76	GPI43	CLRTC_EC	I	
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	NC	I	for KB type detection
82	GPIO49/KSO17	NC	I	for KB type detection
83	GPIO4A/PSCLK1	NC	O	LCD_SCL
84	GPIO4B/PSDAT1	NC	O	LCD_SDA
85	GPIO4C/PSCLK2	NC	O	LCD_CSB
86	GPIO4D/PSDAT2	NC	O	LCD_VSYNC
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#	BATSEL_3S	O	Battery series, H:3S, L:4S
90	GPIO52/E51_CS#	CHG_LED_UP#	O	
91	GPIO53/CAPLED	CAP_LED#	O	
92	GPIO54	PWR_LED_UP	O	
93	GPIO55/SCRLED	SCRL_LED#	O	
95	GPIO56	HOTKEY_SW3#	I	Internal pullhigh
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	EC_PWROK	O	
103	GPXOA06	PM_LEVELDOWN#	O	
104	GPXOA07	CHG_EN#	O	Battery charging enabled
105	GPXOA08	PRECHG	O	
106	GPXOA09	SPI_WP#	O	
107	GPX0A10	OP_SD#	O	Audio OP
108	GPXOA11	BAT_LEARN	O	
109	GPXID0/SDIDI	BATSEL_2P#	O	Battery parallel, H:1P, L:2P~3P
110	GPXID1	CPU_LEVELDOWN#	O	
112	GPXID2	THRO_CPU	O	Active if CPU temperature over spec
114	GPXID3	PM_SUSB#	I	100K pull down to GND
115	GPXID4	PM_SUSC#	I	100K pull down to GND
116	GPXID5	VRM_PWRGD	I	Pull high to +3V
117	GPXID6	VSUS_PWRGD	I	
118	GPXID7	BATSEL_LiFe	O	
121	GPIO57	INTERNET#	I	Internal pullhigh
126	GPIO57/SPICLK	SPI_CLK	O	
127	GPIO59/TEST_CLK	NC	O	Internal pullhigh

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_EC	P	
10	LAD0	LPC_AD0	I/O	
11	GND	GND	P	
12	PCICLK	CLK_PCI_EC	I	
22	VCC	+3VA_EC	P	
24	GND	GND	P	
33	VCC	+3VA_EC	P	
35	GND	GND	P	
37	ECRST#	EC_RST#	I	100K pull high to +3VA_EC
67	AVCC	+3VACC	P	
69	AGND	AGND	P	
94	GND	GND	P	
96	VCC	+3VA_EC	P	
111	VCC	+3VA_EC	P	
113	GND	GND	P	
119	RD#/SPIDI	SPI_SO	I	
120	WR#/SPIDO	SPI_SI	O	
112	XCLKI	32KXCLKI	I	
123	XCLKO	32KXCLKO	O	
124	V18R	V18R	P	Reserved 1uF to GND
125	VCC	+3VA_EC	P	
128	SPICS#/SELMEM#	SPI_CE#	O	

<Core Design>

ASUS

ASUS Tek Computer INC.

Title : EC Pin Define

Engineer: Wayne_Chan

Size	Project Name	Rev
A3	904HD	1.3G

Date: Tuesday, July 01, 2008 Sheet 4 of 49

1.0G From 1000H 2008.3.31.2030 circuit

1.Change CPU to Dothan

2.Change NB to 910GML

3.Change SB to ICH6-M

4.VCORE control change to ISL6218CRZ

1.1G

1.Change Project name to 1000D

2.Support LiFe Battery

3.Add speaker connect

1.2G

1.Change Project name to 1000HD
2.Modify page 45.
3.Add and reserved CE1 CE5 CE6 for USB port
4.Modify schematic of LED
5.Remove Capacitor of Microphone from clock and data signal
6.Add page33 Hotkey de-bounced related schematic
7.Add page23 PERST#pull down 1M ohm

1.3G

1.Change net BAT_TS pull up to +3VA_AEC
2.Change SD1.2 pull up to +3VA_AEC
3.Add and reserved R287,R288,R289,R290 for USB power
4.Add PR670,PR671
5.Add PR483,PR42, PR230, PR231,remove PJP400

<Core Design>

ASUS	Title : History	
A S U S Tek Computer INC.	Engineer: *Wayne_Chan*	
Size: A3	Project Name: 904HD	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 5 of 49	

<Core Design>

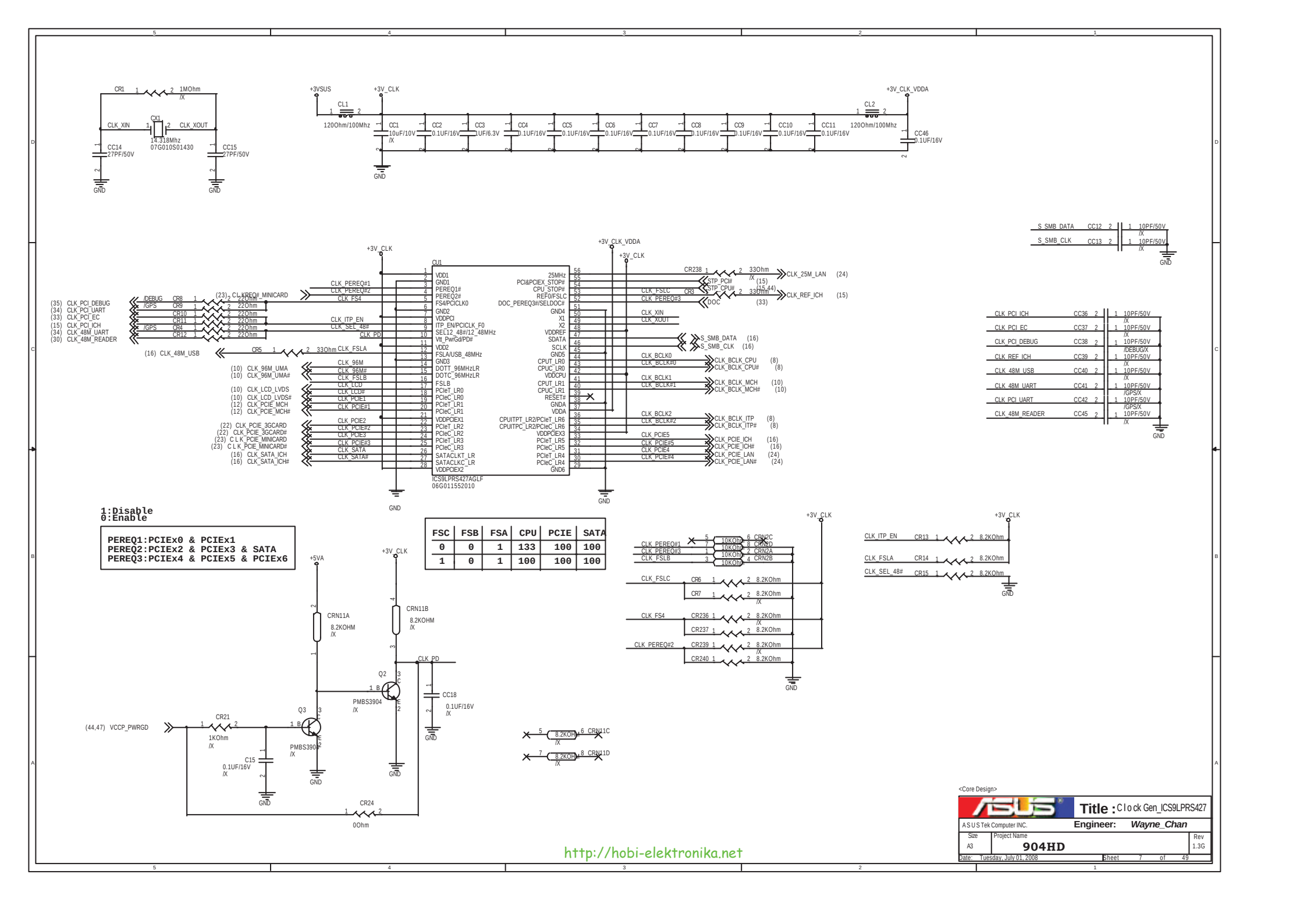
Title : Blank

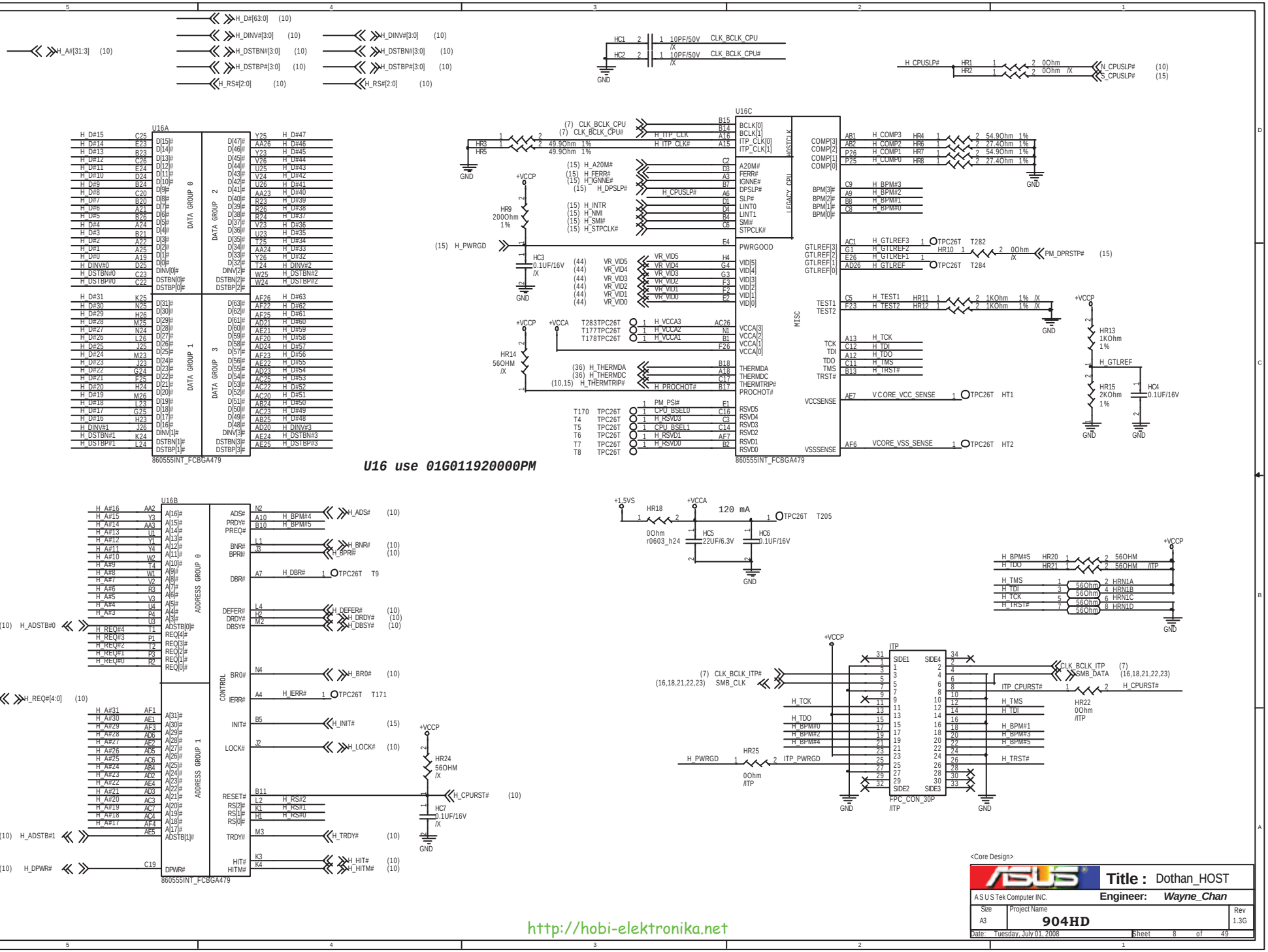
A S U S Tek Computer INC.

Engineer: *Wayne_Chan*

Size	Project Name	Rev
A3	904HD	1.3G

Date: Tuesday, July 01, 2008 Sheet 6 of 49





+VCCP 2.5 A

+VCORE

Celeron-M(Dothan) ULV max 7 A

U16D

VCC

860555INT_FCBGA479

+VCORE

HCE1 100U/2.5V /CAP/X

HCE2 100U/2.5V

GND

+VCCP

HCE3 100U/2.5V /CAP/X

HCE4 100U/2.5V /CAP

GND

U16 use 01G011920000PM

0.1U All X7R

+VCORE

HC23 0.1UF/16V /CAP/X

HC24 0.1UF/16V

HC26 0.1UF/16V /CAP/X

GND

+VCCP

HC27 10UF/6.3V

HC28 10UF/6.3V

HC29 10UF/6.3V /CAP/X

HC20 0.1UF/16V /CAP/X

HC21 0.1UF/16V

HC22 0.1UF/16V /CAP/X

HC25 0.1UF/16V

GND

+VCORE

HC10 10UF/6.3V

HC11 10UF/6.3V /CAP/X

HC12 10UF/6.3V

HC13 10UF/6.3V

HC14 10UF/6.3V /CAP/X

HC15 10UF/6.3V /CAP/X

HC16 10UF/6.3V /CAP/X

HC17 10UF/6.3V

HC18 10UF/6.3V /CAP/X

GND

U16E

GND

860555INT_FCBGA479

<Core Design>

ASUS Tek Computer INC.

Title : Dothan_PWR_GND

Engineer: Wayne_Chan

Size	Project Name	Rev
A3	904HD	1.3G

Date: Tuesday, July 01, 2008 Sheet 9 of 49

BCLK	FSB	BSEL2	BSEL1	BSEL0
100	400	H	L	H

U1 use 02G010007612

U1D — HOST — NQ82915PM

U1A — DMI / DDR MUXING / PM / CLK / NC — NQ82915PM

FSB fix 100MHz

<Core Design>

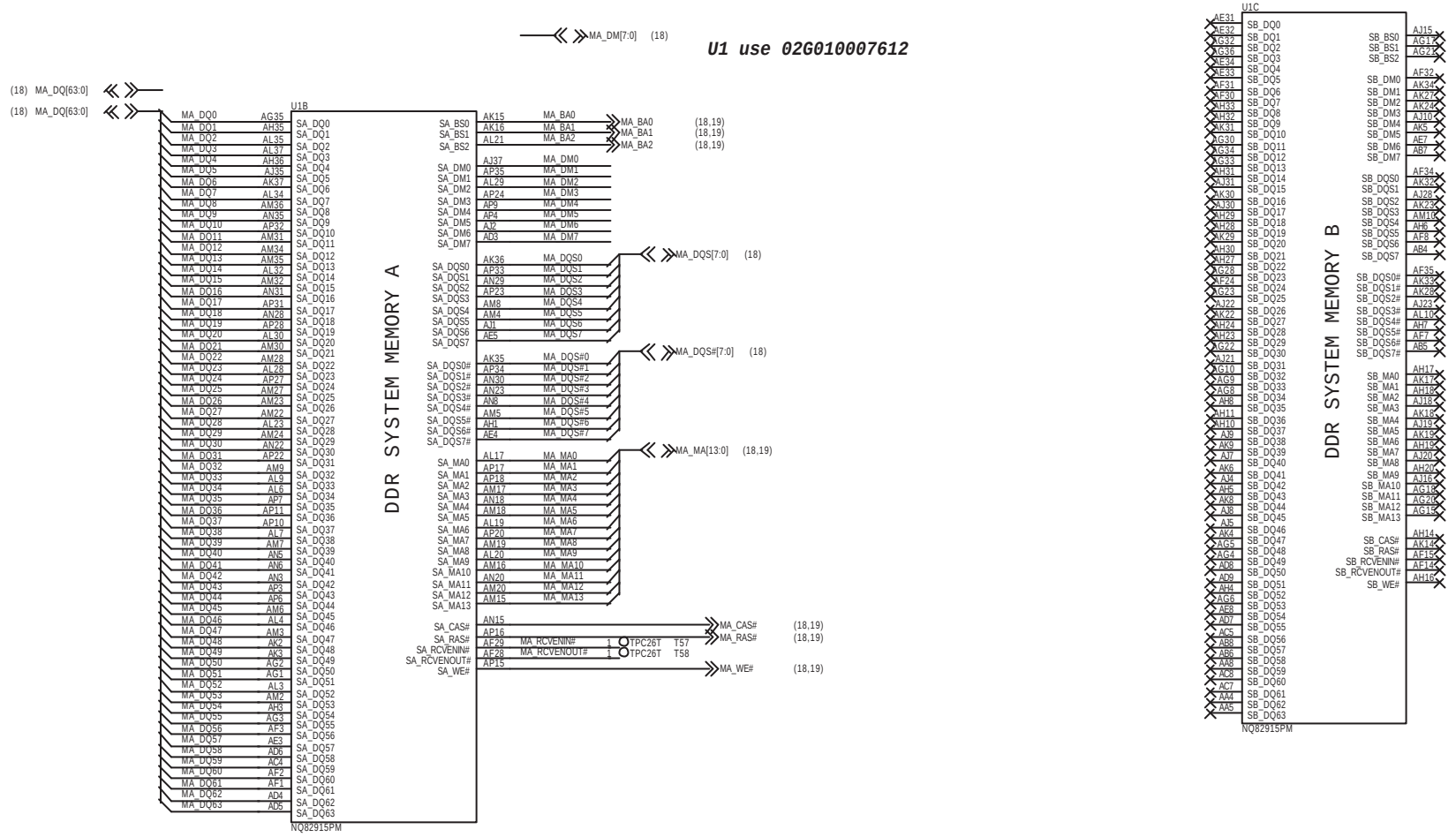
ASUS Tek Computer INC.

Title : 910GML_HOST_DMI

Engineer: Wayne_Chan

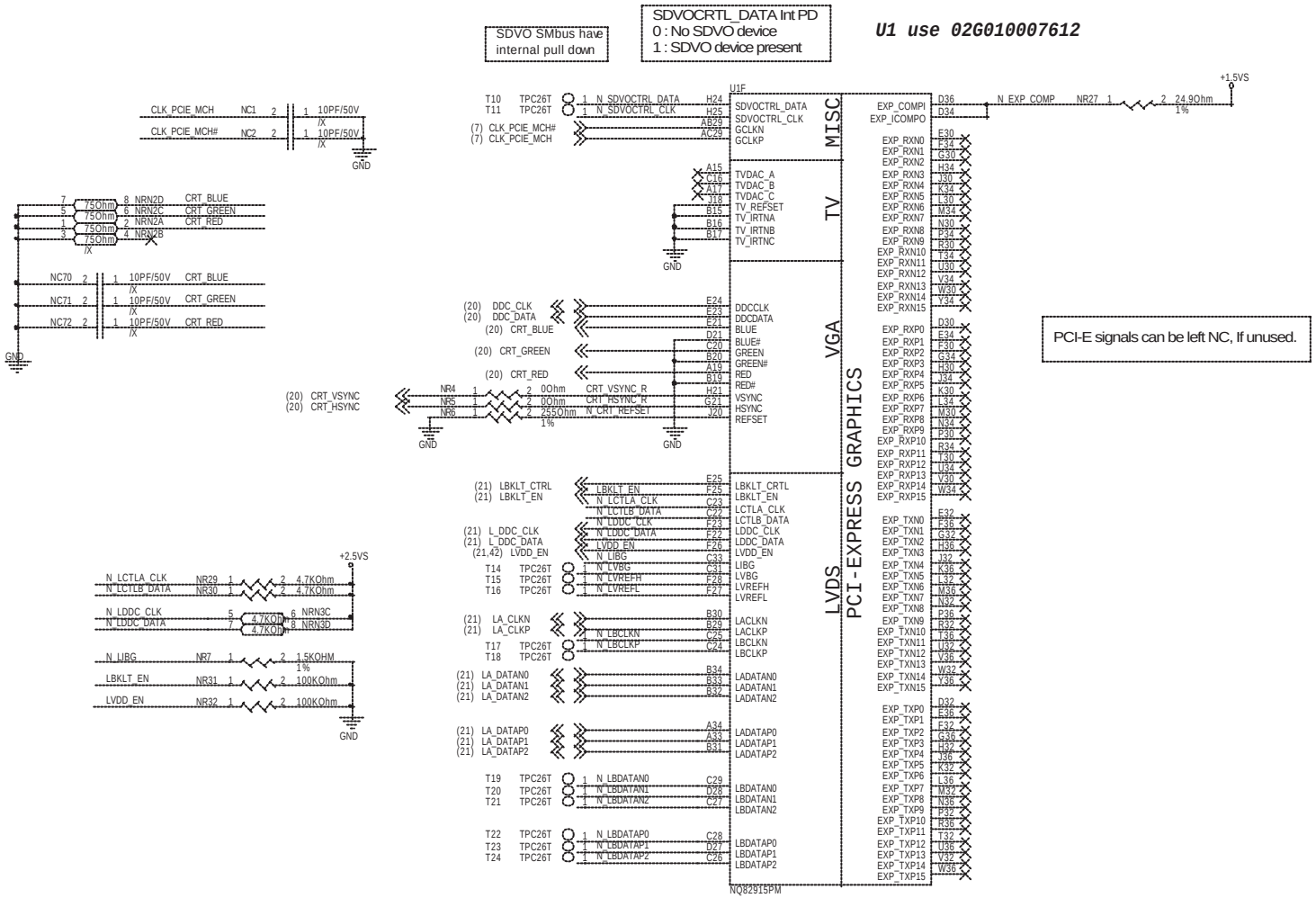
Size	Project Name	Rev
A3	904HD	1.3G

Date: Tuesday, July 01, 2008 Sheet 10 of 49



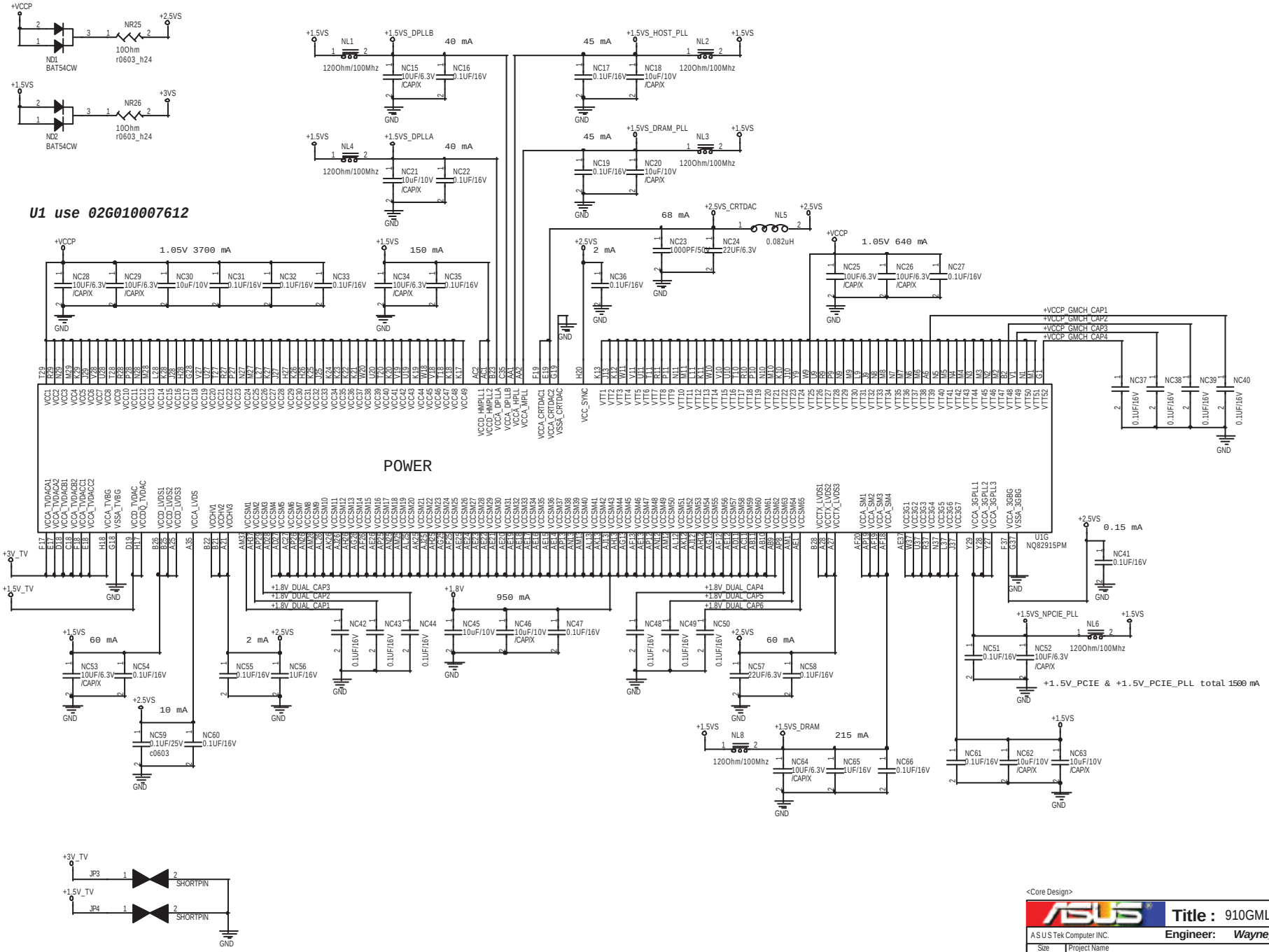
<Core Design>

ASUS	Title : 910GML_DRAM	
A S U S Tek Computer INC.	Engineer: *Wayne_Chan*	
Size: A3	Project Name: **904HD**	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 11 of 49	



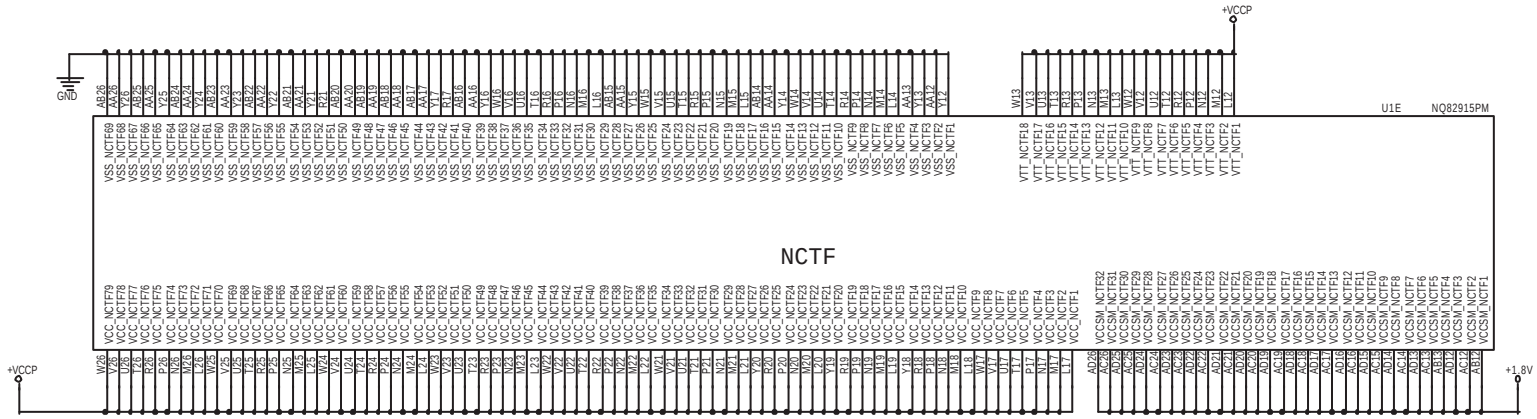
<Core Design>

ASUS Tek Computer INC.	Title : 910GML_VGA_LVDS	
	Engineer: Wayne_Chan	
Size: A3	Project Name: 904HD	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 12 of 49	

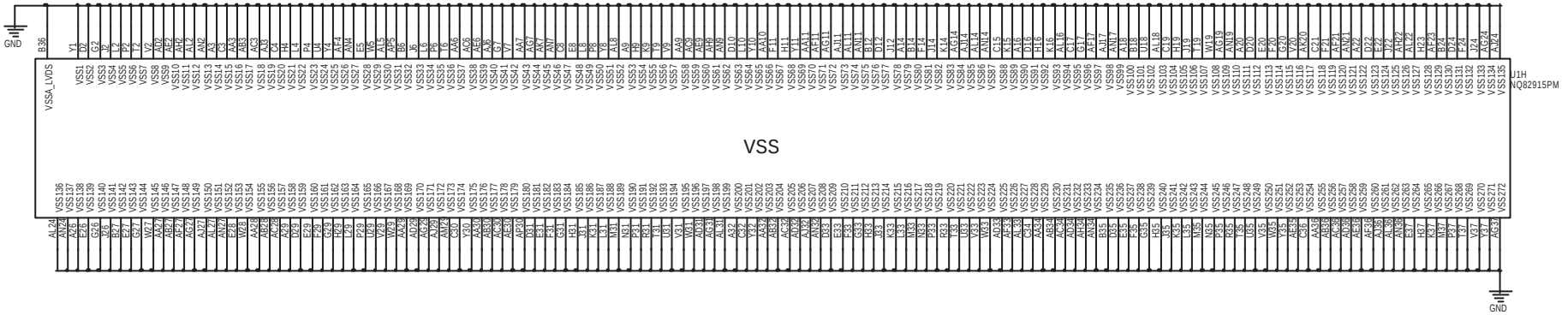


<Core Design>

ASUS	Title : 910GML_PWR	
A S U S Tek Computer INC.	Engineer: Wayne_Chan	
Size: A3	Project Name: 904HD	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 13 of 49	

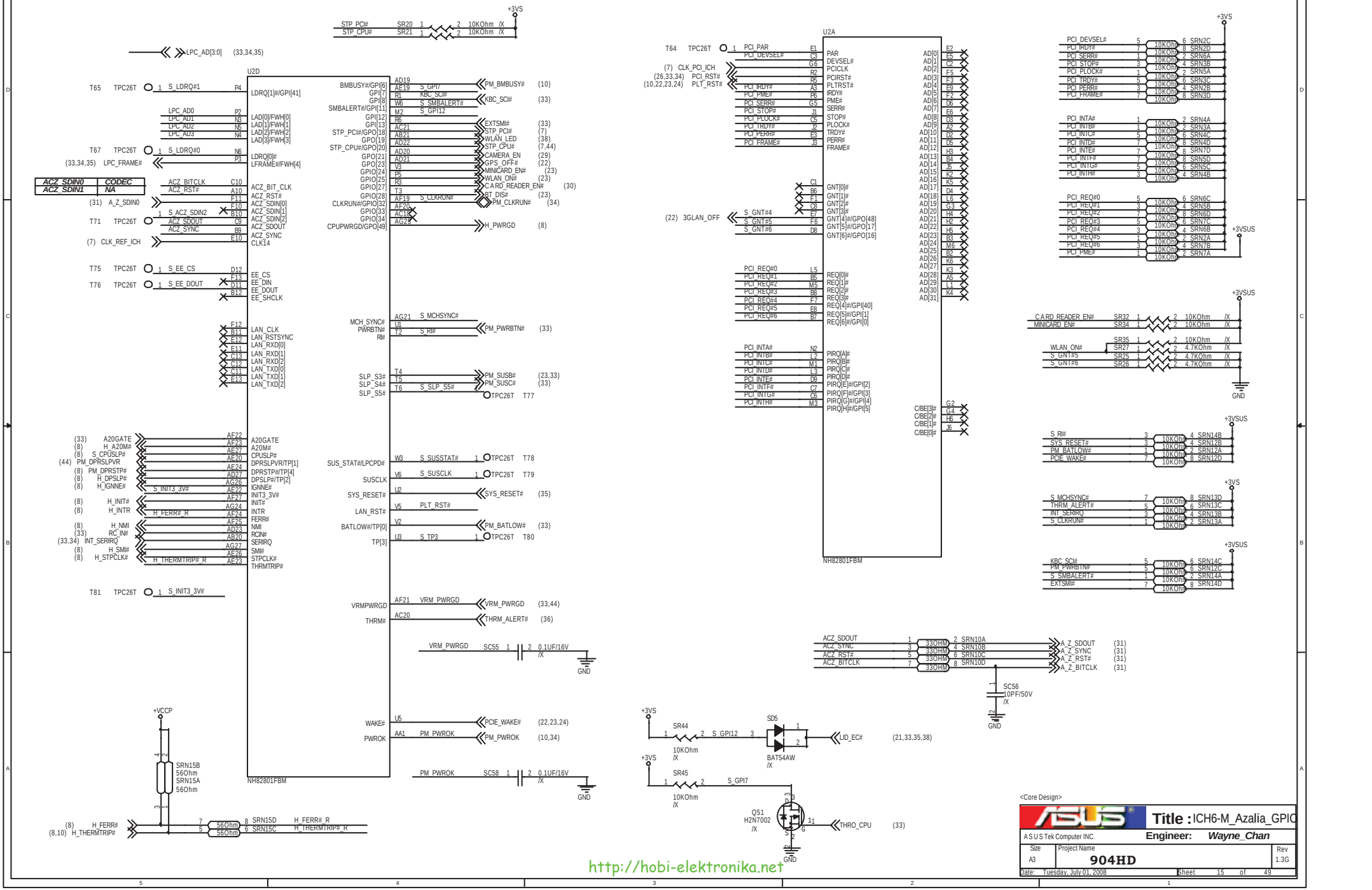


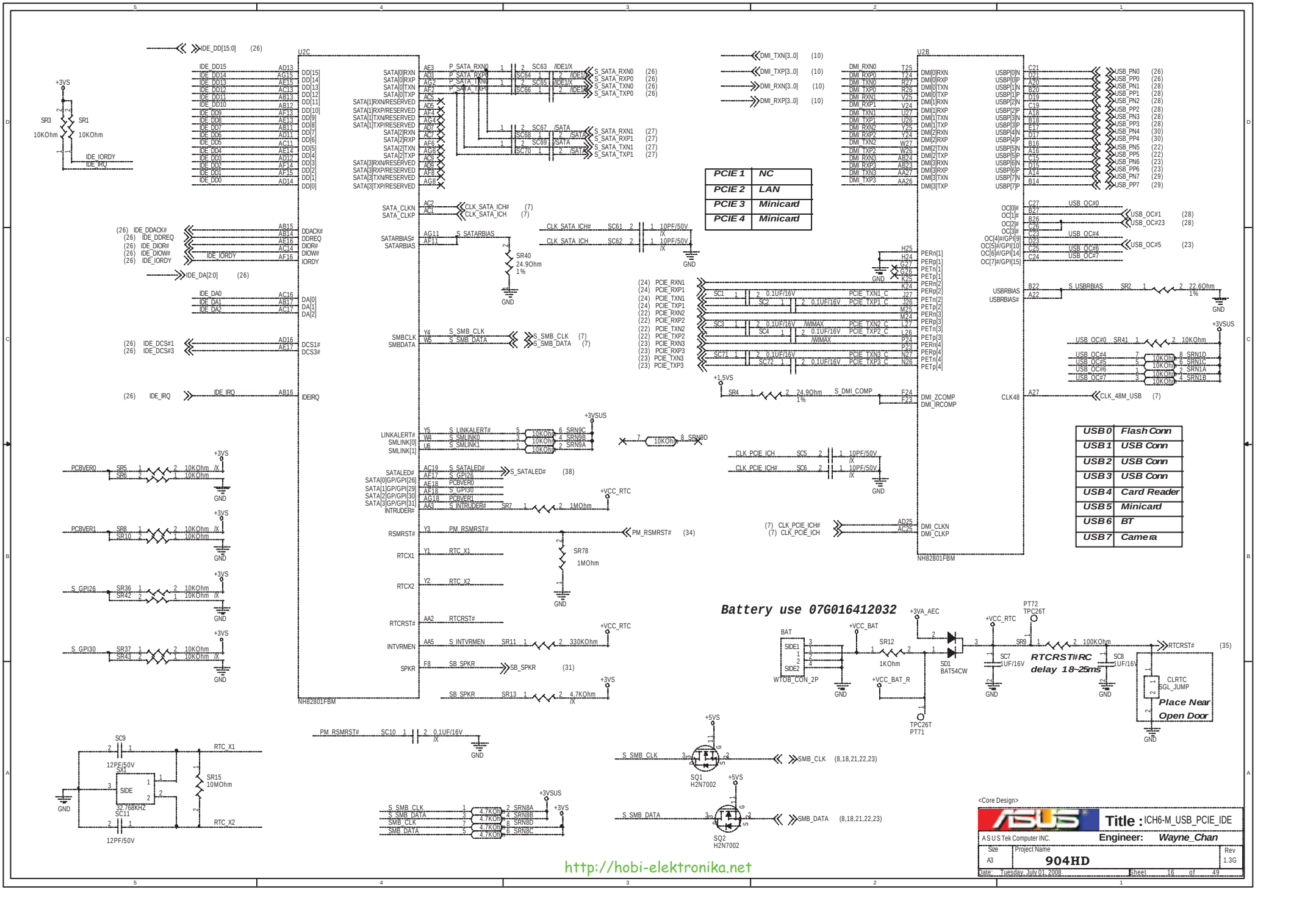
U1 use 02G010007612

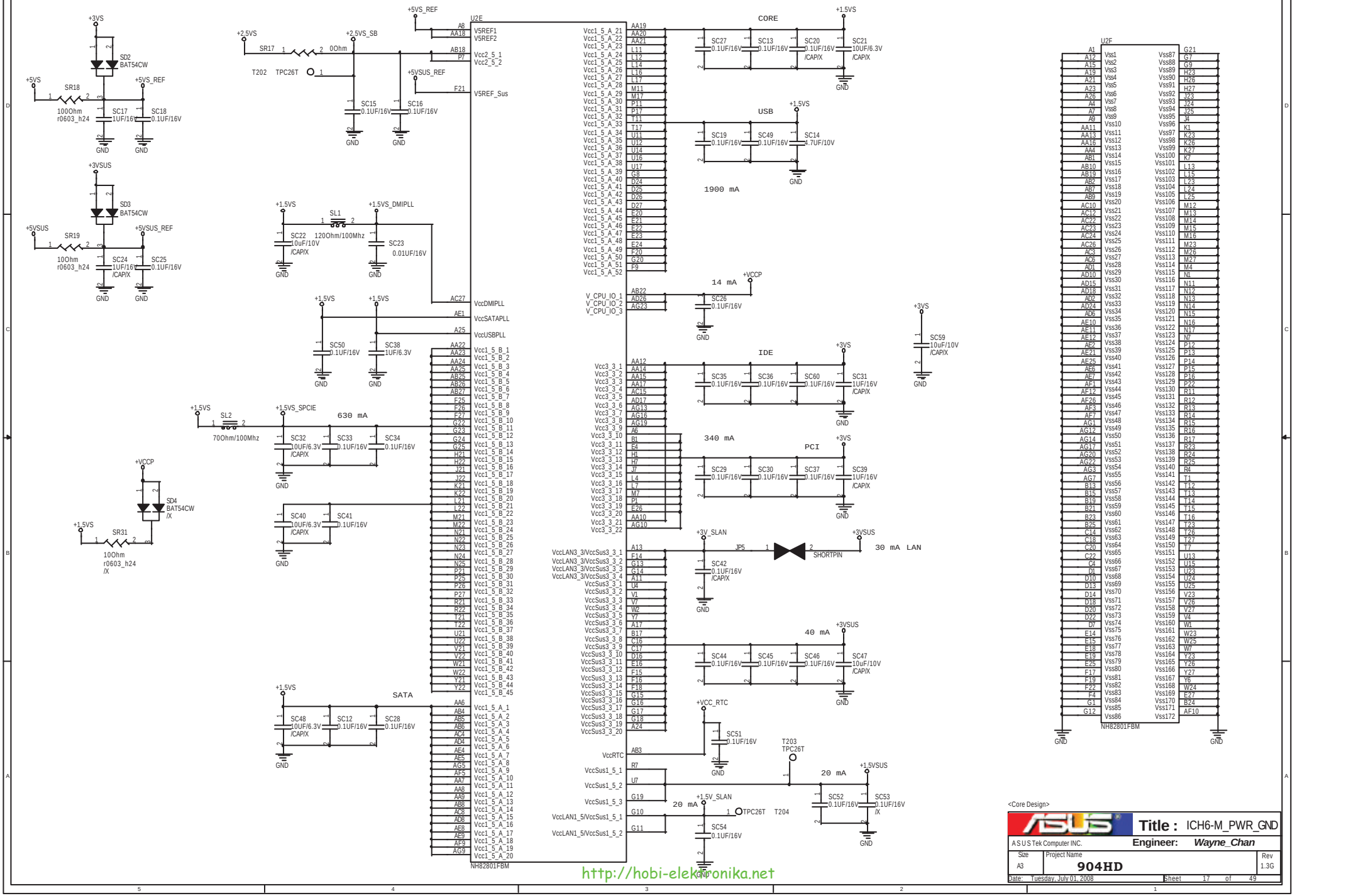


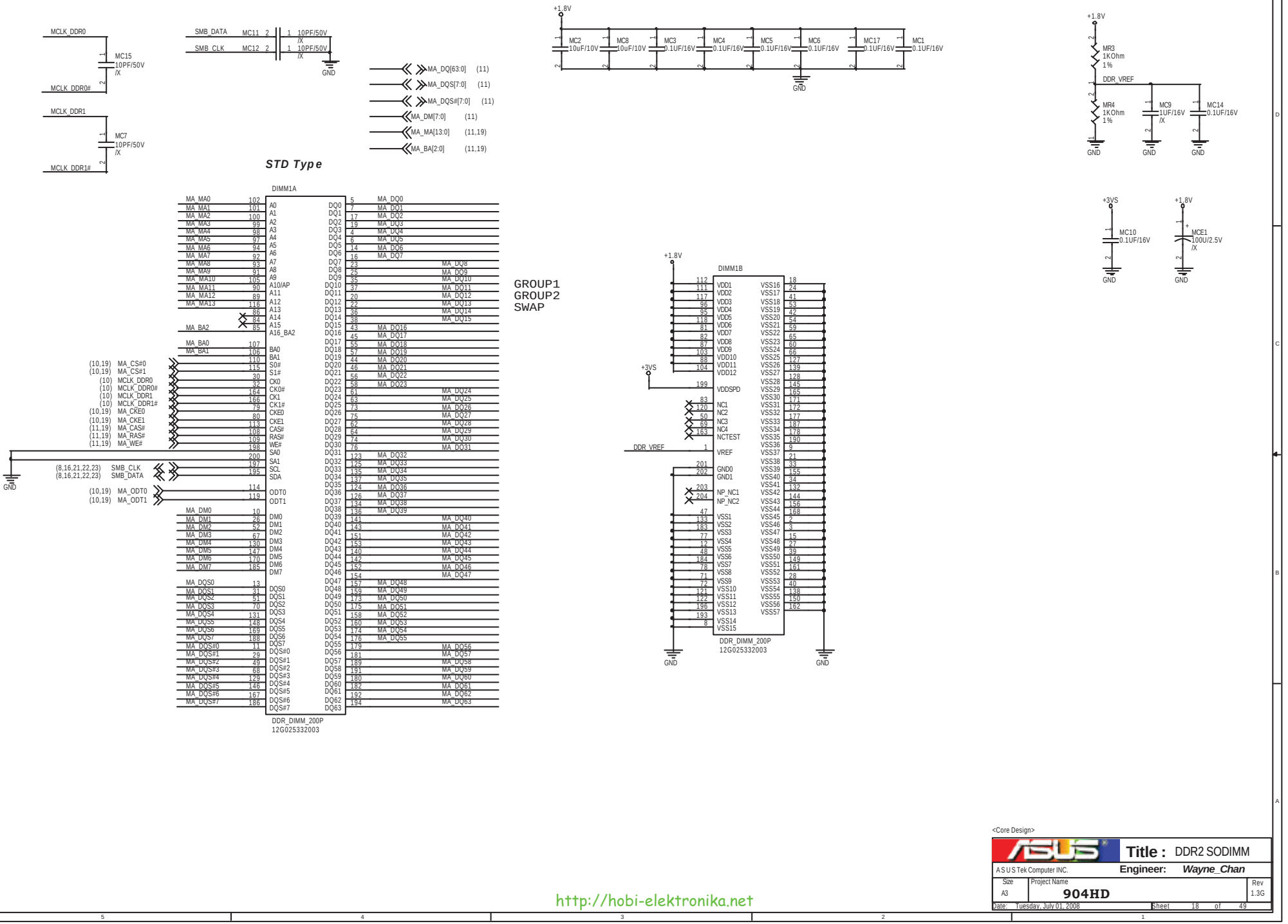
<Core Design>

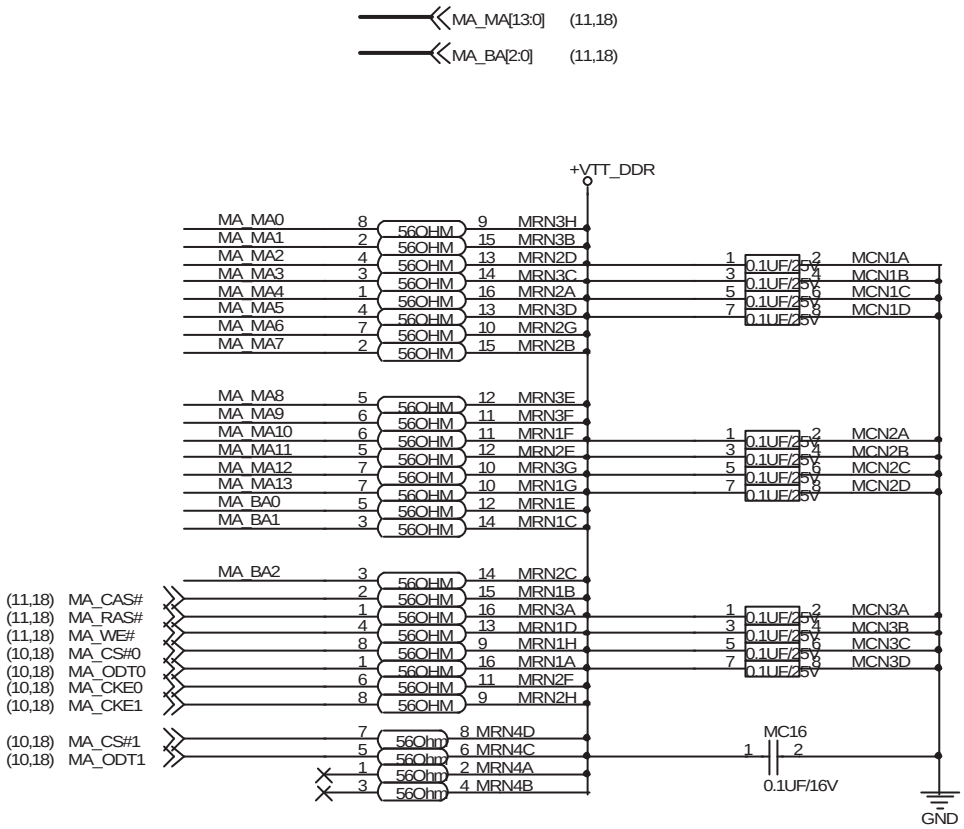
ASUS Tek Computer INC.	Title : 910GML_GND	
	Engineer: *Wayne_Chan*	
Size: A3	Project Name: **904HD**	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 14 of 49	


U2D
NH82801FBM
U2A
NH82801FBM
LPC_AD[3:0] (33,34,35)
LDRQ[1]#/GPI[41]
LAD[0]/FWH[0]
LAD[1]/FWH[1]
LAD[2]/FWH[2]
LAD[3]/FWH[3]
LDRQ[0]#
LFRAME#/FWH[4]
ACZ_BIT_CLK
ACZ_RST#
ACZ_SDIN[0]
ACZ_SDIN[1]
ACZ_SDIN[2]
ACZ_SDOUT
ACZ_SYNC
CLK14
EE_CS
EE_DIN
EE_DOUT
EE_SHCLK
LAN_CLK
LAN_RSTSYNC
LAN_RXD[0]
LAN_RXD[1]
LAN_RXD[2]
LAN_TXD[0]
LAN_TXD[1]
LAN_TXD[2]
A20GATE
A20M#
CPUSLP#
DPRSLPVR/TP[1]
DPRSTP#/TP[4]
DPSLP#/TP[2]
IGNNE#
INIT3_3V#
INIT#
INTR
FERR#
NMI
RCIN#
SERIRQ
SMI#
STPCLK#
THRMTRIP#
BMBUSY#/GPI[6]
GPI[7]
GPI[8]
SMBALERT#/GPI[11]
GPI[12]
GPI[13]
STP_PCI#/GPO[18]
GPO[19]
STP_CPU#/GPO[20]
GPO[21]
GPO[23]
GPO[24]
GPO[25]
GPO[27]
GPO[28]
CLKRUN#/GPIO[32]
GPIO[33]
GPIO[34]
CPUPWRGD/GPO[49]
MCH_SYNC#
PWRBTN#
RI#
SLP_S3#
SLP_S4#
SLP_S5#
SUS_STAT#/LPCPD#
SUSCLK
SYS_RESET#
LAN_RST#
BATLOW#/TP[0]
TP[3]
VRMPWRGD
THRM#
WAKE#
PWROK
PM_BMBUSY# (10)
KBC_SCI# (33)
EXTSMI# (33)
STP_PCI# (7)
WLAN_LED (38)
STP_CPU# (7,44)
CAMERA_EN (29)
GPS_OFF# (22)
MINICARD_EN# (23)
WLAN_ON# (23)
CARD_READER_EN# (30)
BT_DIS# (23)
PM_CLKRUN# (34)
H_PWRGD (8)
PM_PWRBTN# (33)
PM_SUSB# (23,33)
PM_SUSC# (33)
TPC26T T77
TPC26T T78
TPC26T T79
SYS_RESET# (35)
PLT_RST#
PM_BATLOW# (33)
TPC26T T80
VRM_PWRGD (33,44)
THRM_ALERT# (36)
PCIE_WAKE# (22,23,24)
PM_PWROK (10,34)
PCI_PAR
PCI_DEVSEL#
PCICLK
PCIRST#
PLTRST#
IRDY#
PME#
SERR#
STOP#
PLOCK#
TRDY#
PERR#
FRAME#
GNT[0]#
GNT[1]#
GNT[2]#
GNT[3]#
GNT[4]#/GPIO[48]
GNT[5]#/GPIO[17]
GNT[6]#/GPIO[16]
REQ[0]#
REQ[1]#
REQ[2]#
REQ[3]#
REQ[4]#/GPI[40]
REQ[5]#/GPI[1]
REQ[6]#/GPI[0]
PIRQ[A]#
PIRQ[B]#
PIRQ[C]#
PIRQ[D]#
PIRQ[E]#/GPI[2]
PIRQ[F]#/GPI[3]
PIRQ[G]#/GPI[4]
PIRQ[H]#/GPI[5]
AD[0]
AD[1]
AD[2]
AD[3]
AD[4]
AD[5]
AD[6]
AD[7]
AD[8]
AD[9]
AD[10]
AD[11]
AD[12]
AD[13]
AD[14]
AD[15]
AD[16]
AD[17]
AD[18]
AD[19]
AD[20]
AD[21]
AD[22]
AD[23]
AD[24]
AD[25]
AD[26]
AD[27]
AD[28]
AD[29]
AD[30]
AD[31]
C/BE[3]#
C/BE[2]#
C/BE[1]#
C/BE[0]#
ACZ_SDOUT
ACZ_SYNC
ACZ_RST#
ACZ_BITCLK
A_Z_SDOUT (31)
A_Z_SYNC (31)
A_Z_RST# (31)
A_Z_BITCLK (31)
SC56 10PF/50V /X
LID_EC# (21,33,35,38)
THRO_CPU (33)
SD5 BAT54AW /X
Q51 H2N7002 /X
SRN15B 56Ohm
SRN15A 56Ohm
SRN15D H_FERR#_R
SRN15C H_THERMTRIP#_R
SC55 0.1UF/16V /X
SC58 0.1UF/16V /X
PCI_DEVSEL#
PCI_IRDY#
PCI_SERR#
PCI_STOP#
PCI_PLOCK#
PCI_TRDY#
PCI_PERR#
PCI_FRAME#
PCI_INTA#
PCI_INTB#
PCI_INTC#
PCI_INTD#
PCI_INTE#
PCI_INTF#
PCI_INTG#
PCI_INTH#
PCI_REQ#0
PCI_REQ#1
PCI_REQ#2
PCI_REQ#3
PCI_REQ#4
PCI_REQ#5
PCI_REQ#6
PCI_PME#
CARD_READER_EN#
MINICARD_EN#
WLAN_ON#
S_GNT#5
S_GNT#6
S_RI#
SYS_RESET#
PM_BATLOW#
PCIE_WAKE#
S_MCHSYNC#
THRM_ALERT#
INT_SERIRQ
S_CLKRUN#
KBC_SCI#
PM_PWRBTN#
S_SMBALERT#
EXTSMI#
10KOhm /X
4.7KOhm /X
33OHM
GND
+3VS
+3VSUS
+VCCP
Title : ICH6-M_Azalia_GPIO
ASUS Tek Computer INC.
Engineer: Wayne_Chan
Size A3
Project Name 904HD
Rev 1.3G
Date: Tuesday, July 01, 2008
Sheet 15 of 49
<Core Design>
http://hobi-elektronika.net


U2C
U2B
NH82801FBM
PCIE 1 NC
PCIE 2 LAN
PCIE 3 Minicard
PCIE 4 Minicard
USB0 Flash Conn
USB1 USB Conn
USB2 USB Conn
USB3 USB Conn
USB4 Card Reader
USB5 Minicard
USB6 BT
USB7 Camera
Battery use 07G016412032
RTCRST#RC delay 18~25ms
Place Near Open Door
Title : ICH6-M_USB_PCIE_IDE
ASUS Tek Computer INC.
Engineer: Wayne_Chan
Project Name 904HD
Size A3
Rev 1.3G
Date: Tuesday, July 01, 2008
Sheet 16 of 49
http://hobi-elektronika.net

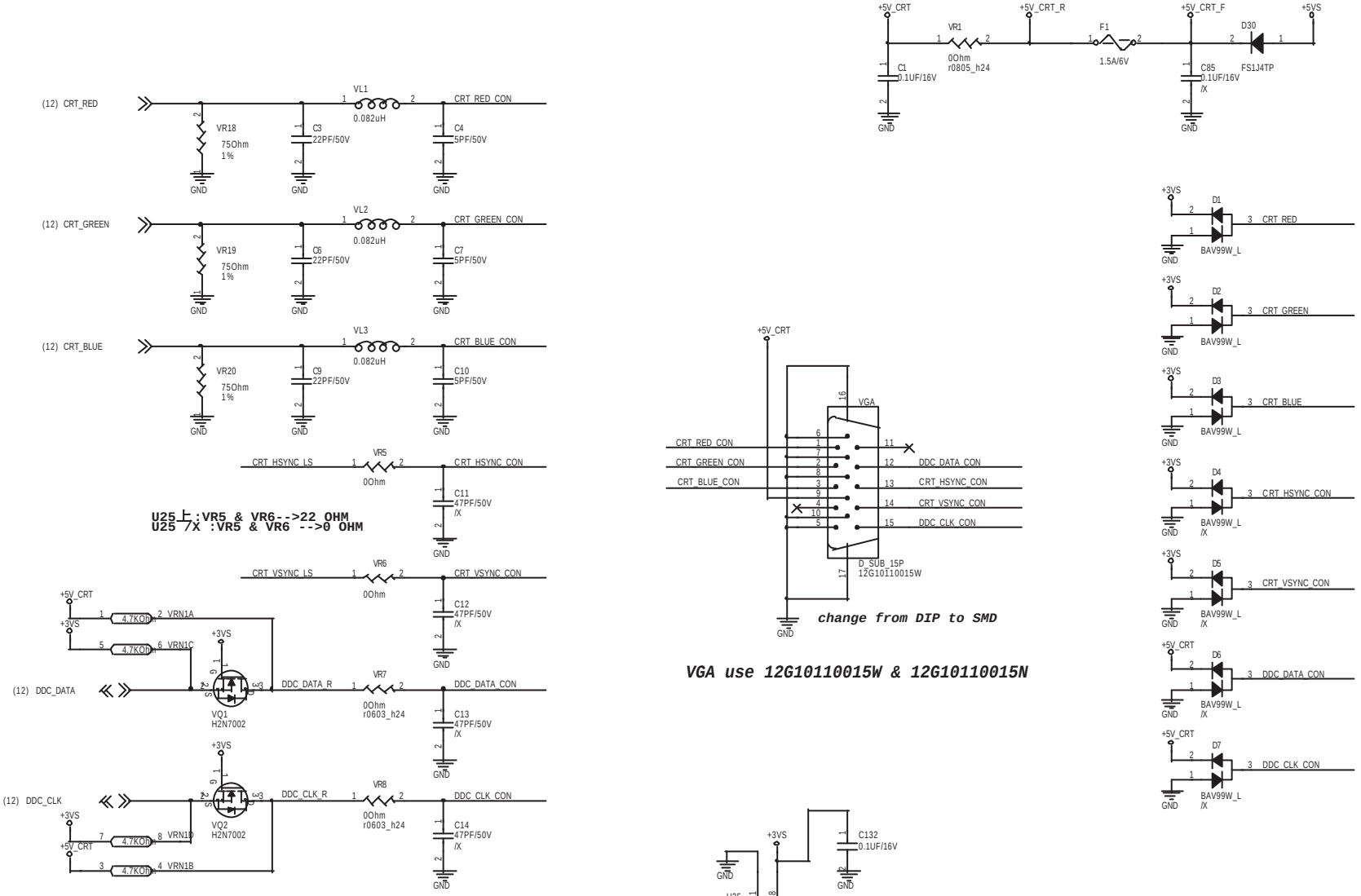

U2E
NH82801FBM
U2F
NH82801FBM
CORE
USB
1900 mA
14 mA
IDE
340 mA
PCI
630 mA
SATA
40 mA
20 mA
30 mA LAN
<Core Design>
Title : ICH6-M_PWR_GND
ASUS Tek Computer INC.
Engineer: Wayne_Chan
Size A3
Project Name 904HD
Rev 1.3G
Date: Tuesday, July 01, 2008
Sheet 17 of 49
http://hobi-elektronika.net


MCLK_DDR0
MC15 10PF/50V /X
MCLK_DDR0#
MCLK_DDR1
MC7 10PF/50V /X
MCLK_DDR1#
SMB_DATA
SMB_CLK
MC11 2 1 10PF/50V /X
MC12 2 1 10PF/50V /X
GND
MA_DQ[63:0] (11)
MA_DQS[7:0] (11)
MA_DQS#[7:0] (11)
MA_DM[7:0] (11)
MA_MA[13:0] (11,19)
MA_BA[2:0] (11,19)
+1.8V
MC2 10uF/10V
MC8 10uF/10V
MC3 0.1UF/16V
MC4 0.1UF/16V
MC5 0.1UF/16V
MC6 0.1UF/16V
MC17 0.1UF/16V
MC1 0.1UF/16V
MR3 1KOhm 1%
DDR_VREF
MR4 1KOhm 1%
MC9 1UF/16V /X
MC14 0.1UF/16V
+3VS
MC10 0.1UF/16V
MCE1 100U/2.5V /X
STD Type
DIMM1A
GROUP1
GROUP2
SWAP
DDR_DIMM_200P
12G025332003
DIMM1B
DDR_DIMM_200P
12G025332003
http://hobi-elektronika.net
<Core Design>
ASUS
Title : DDR2 SODIMM
A S U S Tek Computer INC.
Engineer: Wayne_Chan
Size A3
Project Name 904HD
Rev 1.3G
Date: Tuesday, July 01, 2008
Sheet 18 of 49



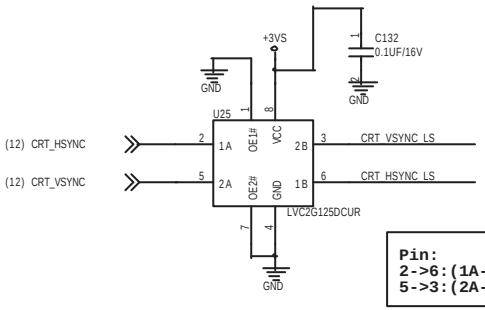
<Core Design>

ASUSTek Computer INC.	Title : DDR2_Termination	
	Engineer: Wayne_Chan	
Size: A4	Project Name: 904HD	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 19 of 49	



change from DIP to SMD

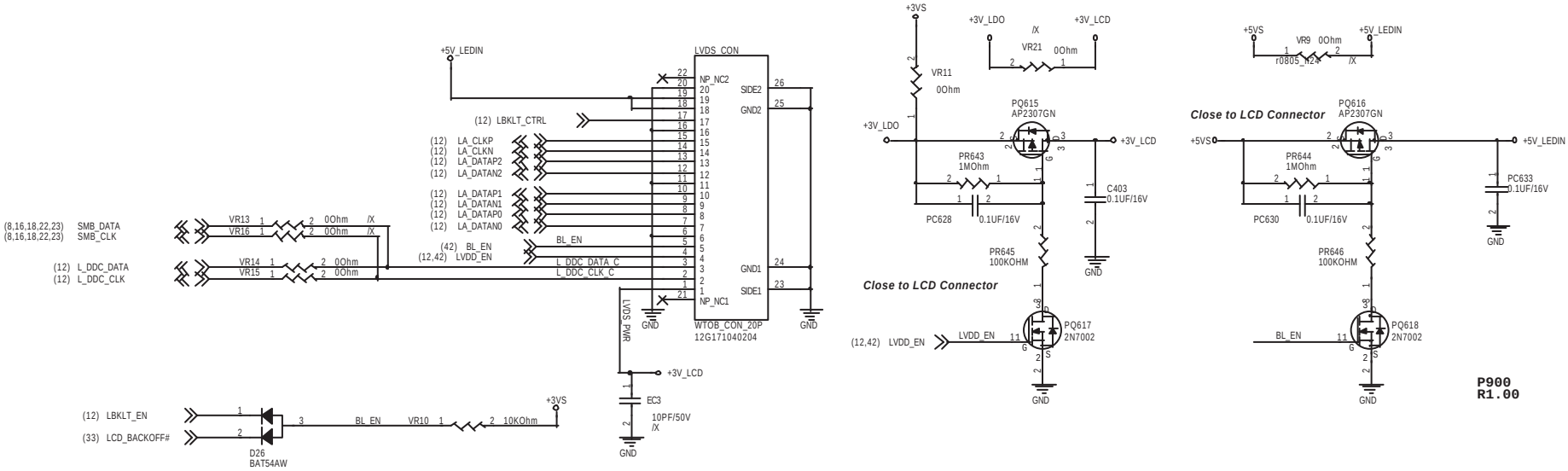
VGA use 12G10110015W & 12G10110015N

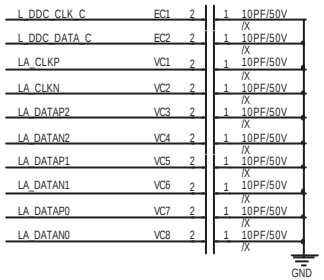


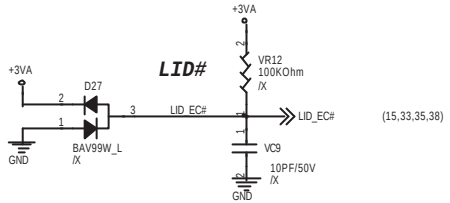
Pin:
2->6:(1A->1B)
5->3:(2A->2B)

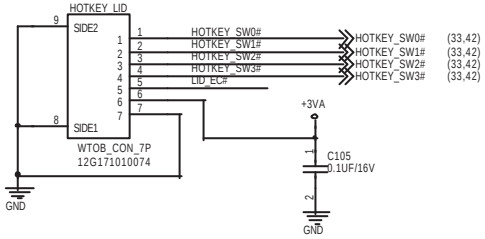
<Core Design>

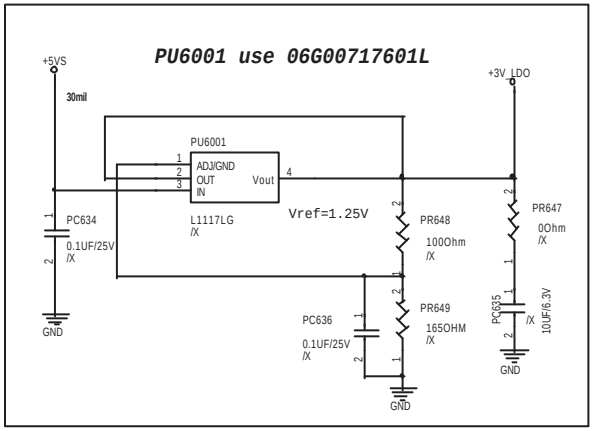
ASUS Tek Computer INC.	Title : Onboard VGA	
	Engineer: *Wayne_Chan*	
Size: A3	Project Name: **904HD**	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 20 of 49	







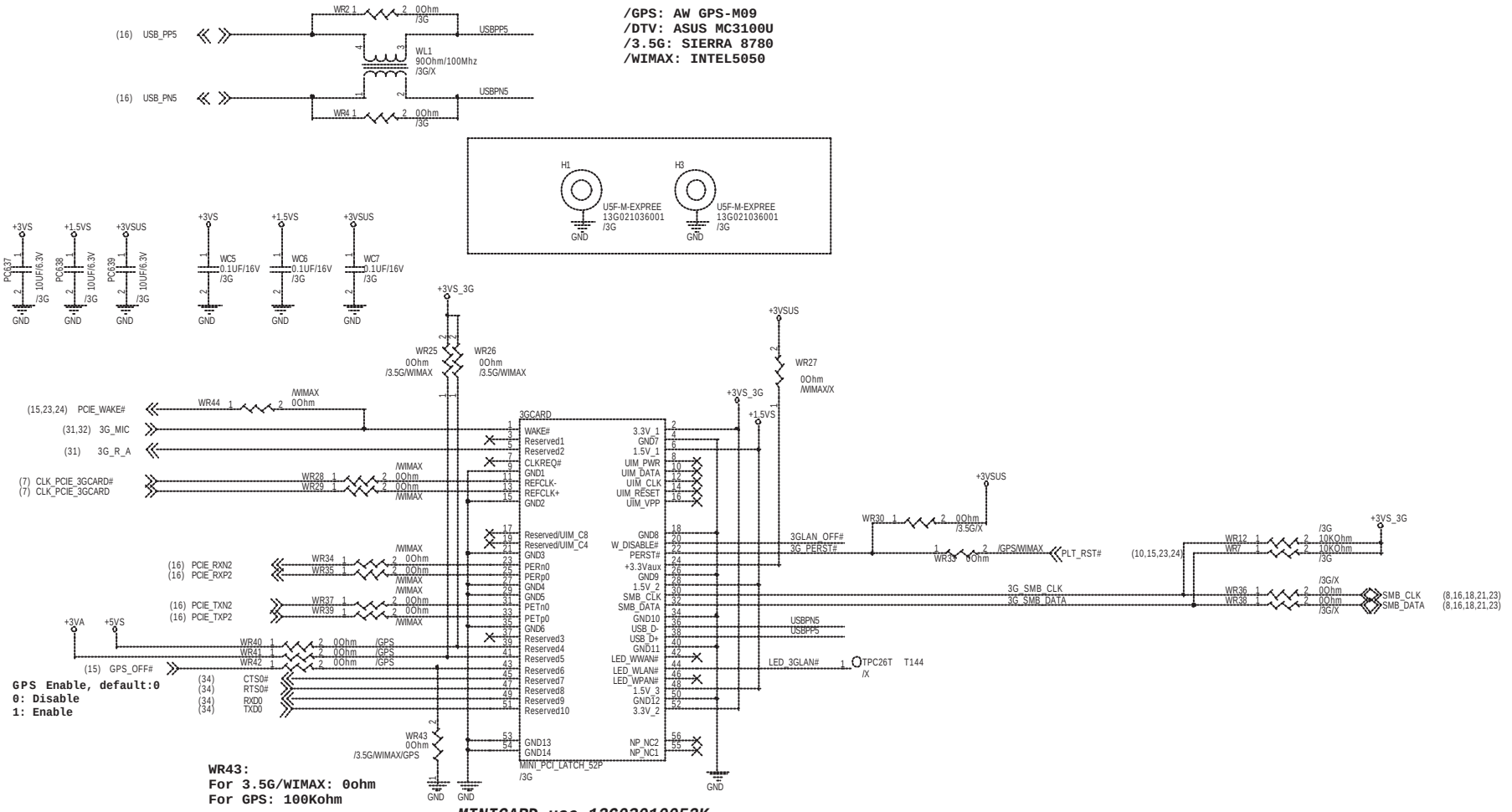




<Core Design>

ASUS	Title : LVDS Conn_LID	
A S U S Tek Computer INC.	Engineer: *Wayne_Chan*	
Size: A3	Project Name: **904HD**	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 21 of 49	

/GPS: AW GPS-M09
/DTV: ASUS MC3100U
/3.5G: SIERRA 8780
/WIMAX: INTEL5050

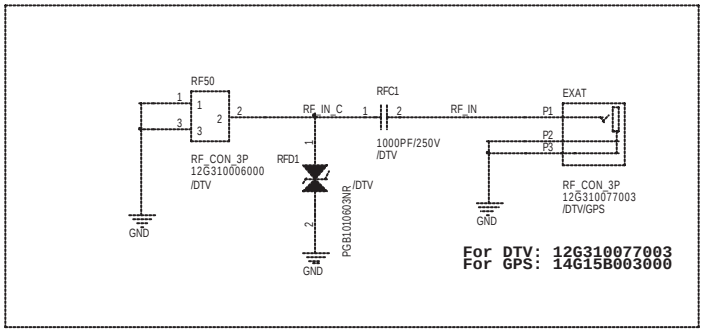


GPS Enable, default:0
0: Disable
1: Enable

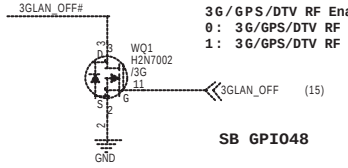
WR43:
For 3.5G/WIMAX: 0ohm
For GPS: 100Kohm

MINICARD use 12G03010052K

External Antenna

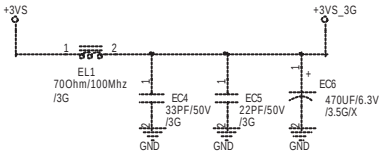


For DTV: 12G310077003
For GPS: 14G15B003000



3G/GPS/DTV RF Enable, default:1
0: 3G/GPS/DTV RF Enable
1: 3G/GPS/DTV RF Disable

SB GPIO48



<Core Design>
Title : 3.5G Module & External Antenna
A S U S Tek Computer INC.
Engineer: Wayne_Chan
Size: A3
Project Name: 904HD
Rev: 1.3G
Date: Tuesday, July 01, 2008
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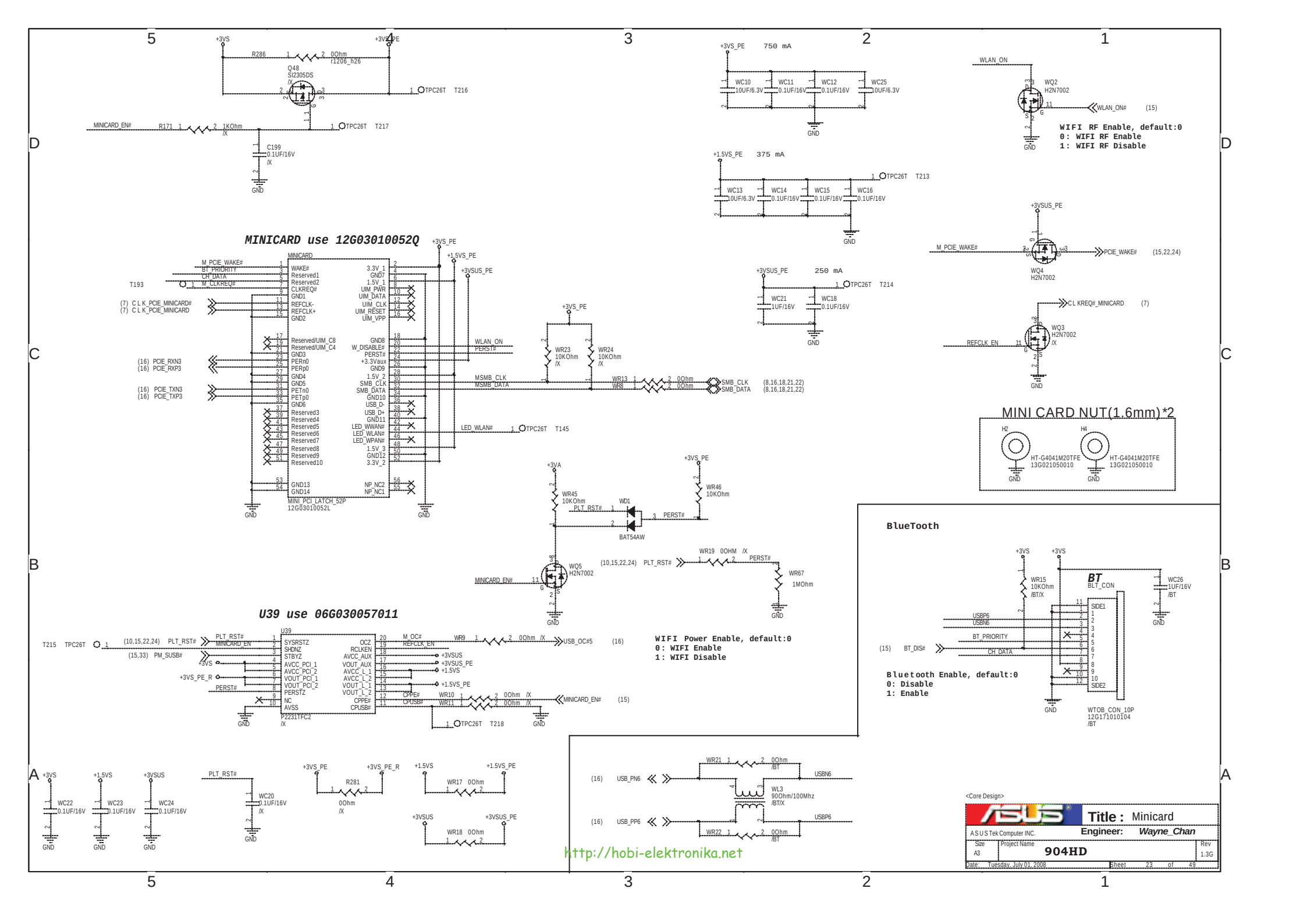
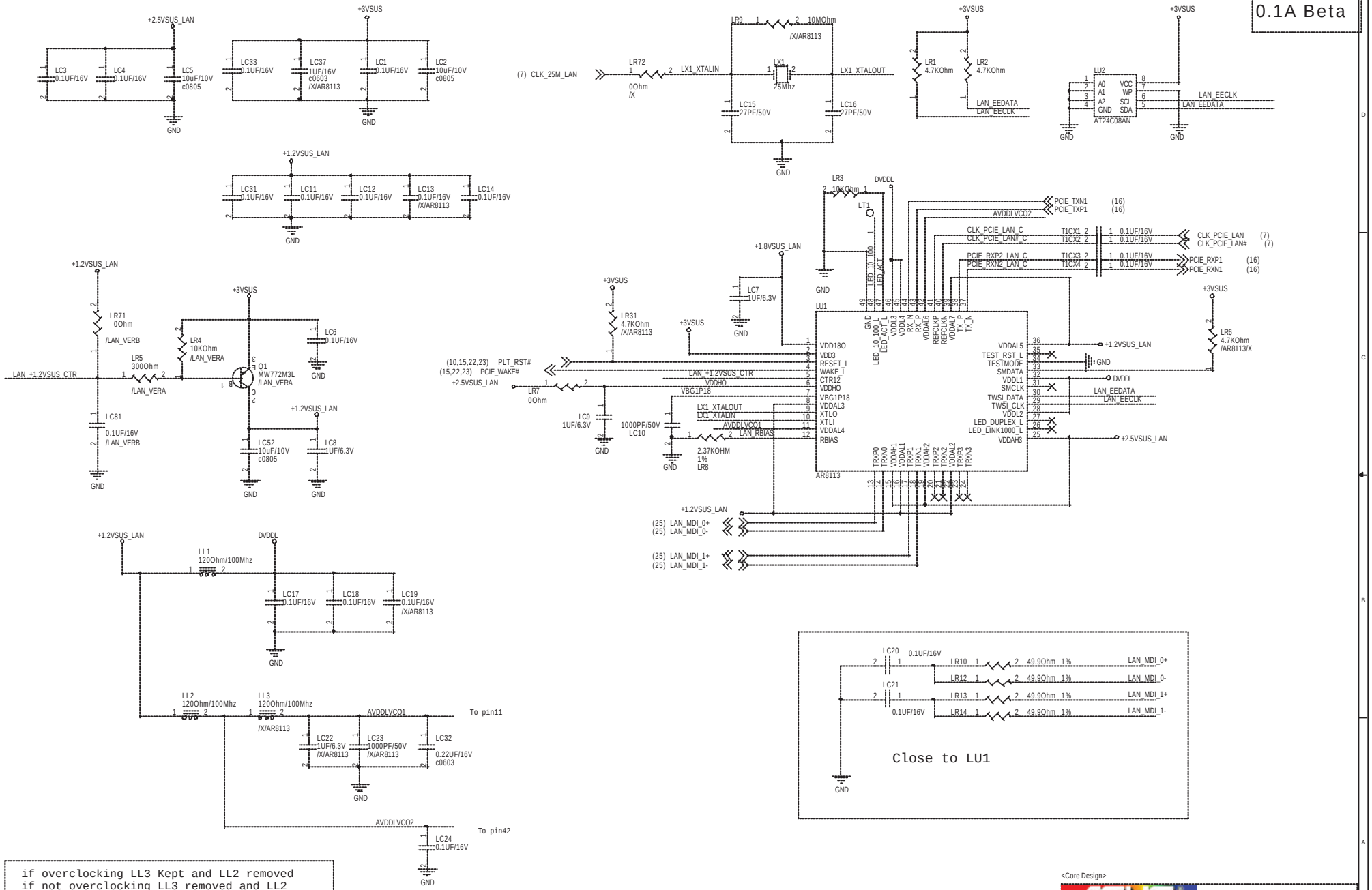
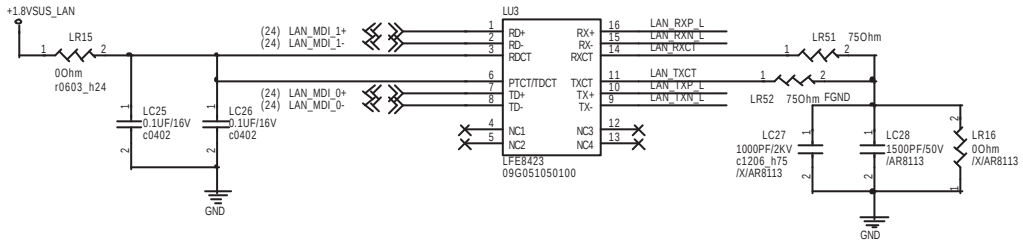
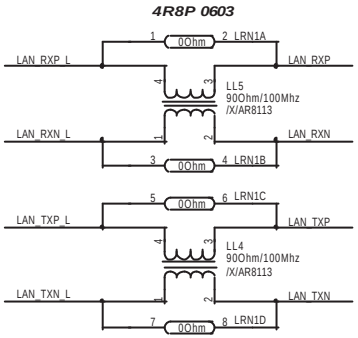
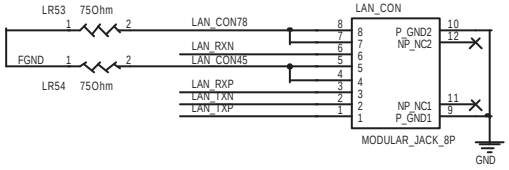

MINICARD use 12G030010052Q
U39 use 06G030057011
BlueTooth
MINI CARD NUT(1.6mm)*2
WIFI RF Enable, default:0
0: WIFI RF Enable
1: WIFI RF Disable
WIFI Power Enable, default:0
0: WIFI Enable
1: WIFI Disable
Bluetooth Enable, default:0
0: Disable
1: Enable
Title : Minicard
Engineer: Wayne_Chan
ASUS Tek Computer INC.
904HD
http://hobi-elektronika.net



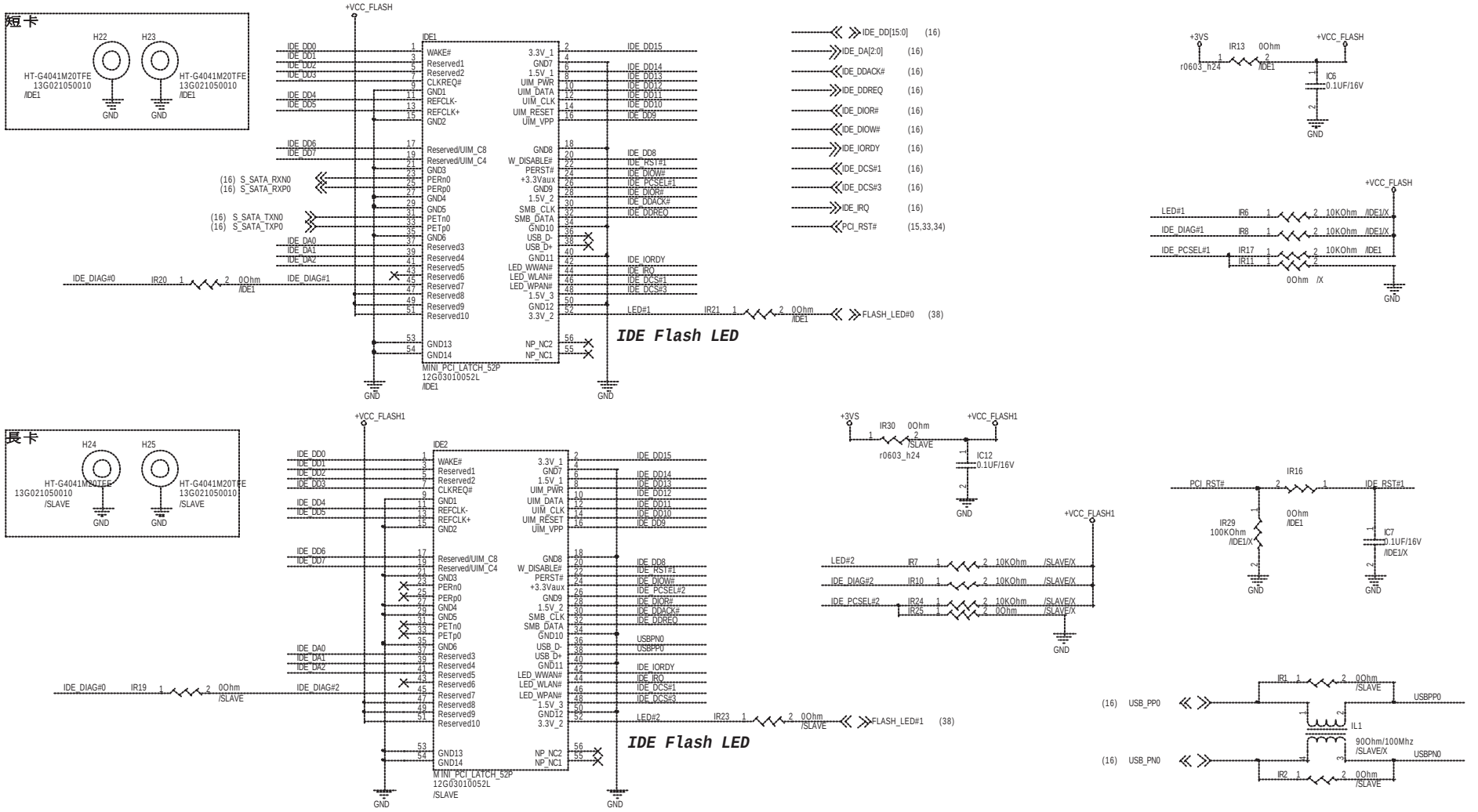






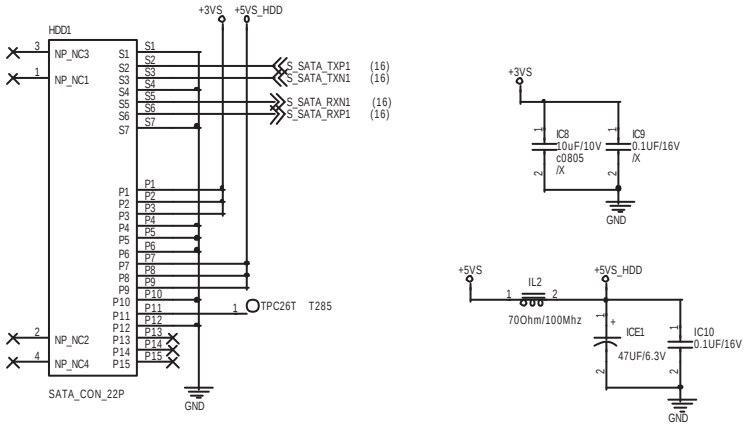
<Core Design>

ASUS	Title : MDC_RJ45	
A S U S Tek Computer INC.	Engineer: *Wayne_Chan*	
Size: A3	Project Name: **904HD**	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 25 of 49	



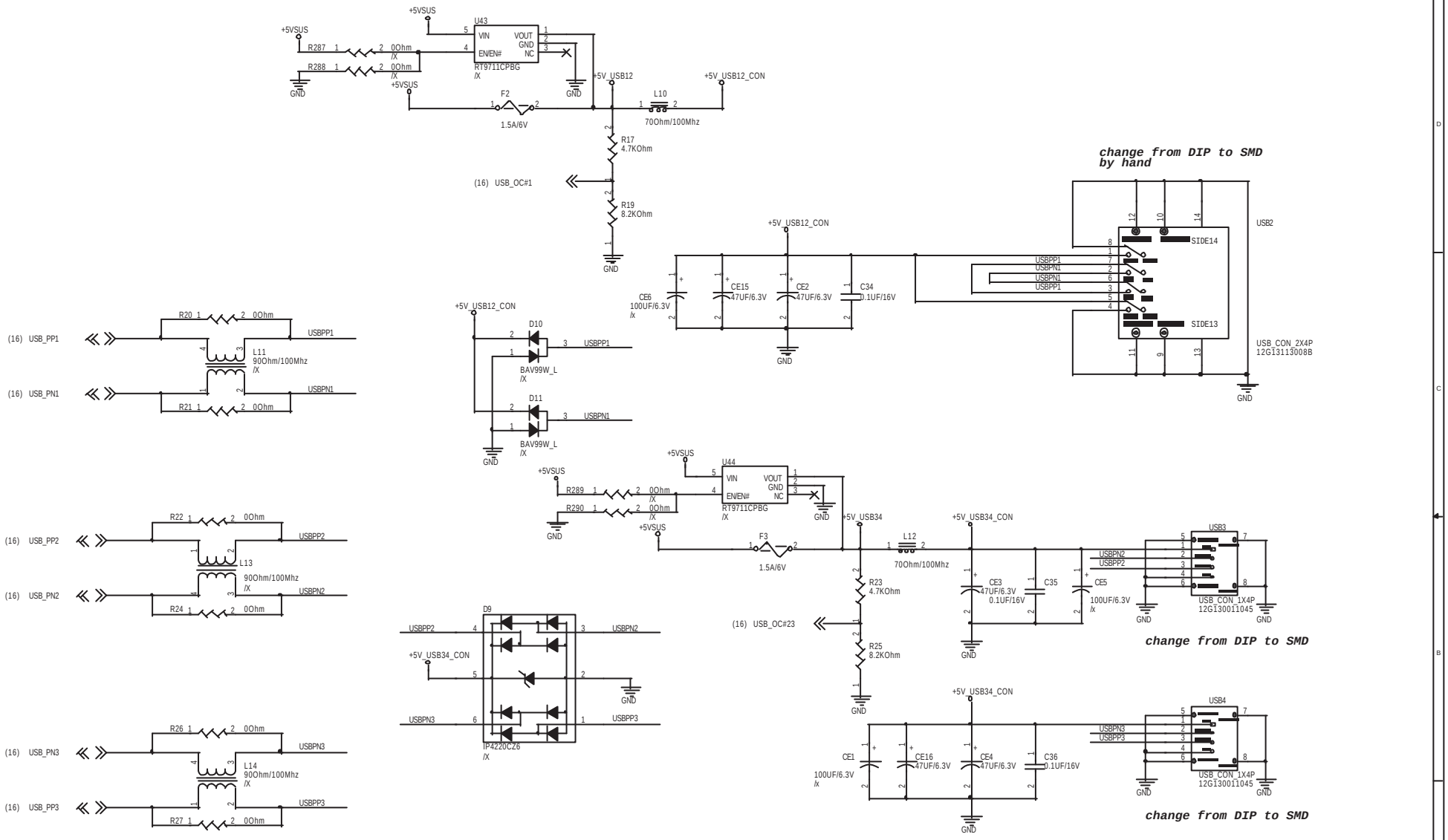
Change ODD to SATA IF

SATA HDD Connector



<Core Design>

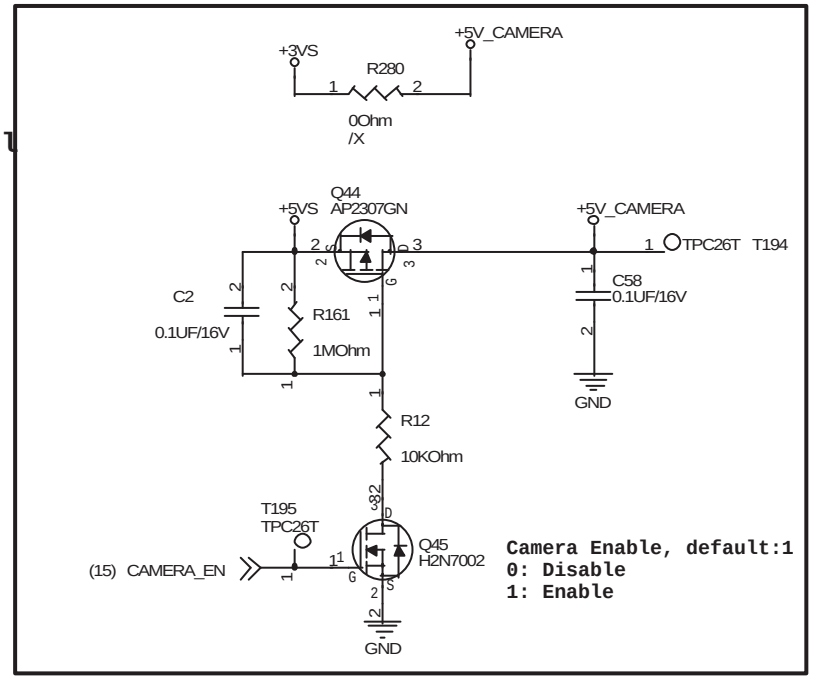
ASUSTek Computer INC.	Title : HD + Flash Conn	
	Engineer: *Wayne_Chan*	
Size: A3	Project Name: 904HD	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 27 of 49	

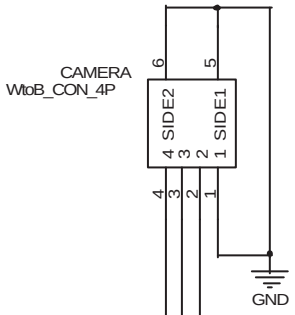


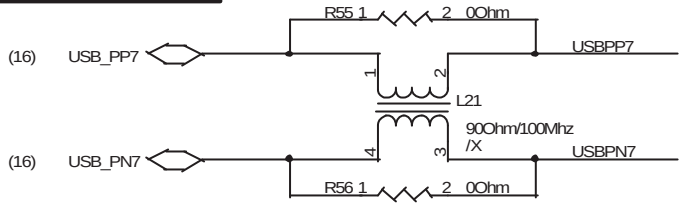
<Core Design>

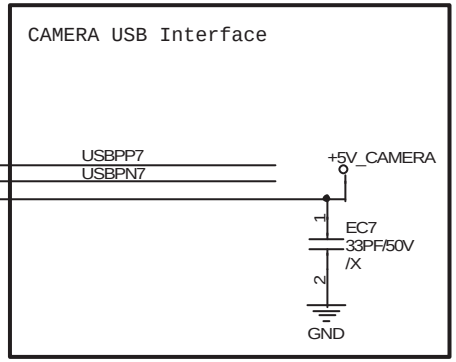
ASUS	Title : USB Port	
A S U S Tek Computer INC.	Engineer: Wayne_Chan	
Size: A3	Project Name: 904HD	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 28 of 49	

Power Control



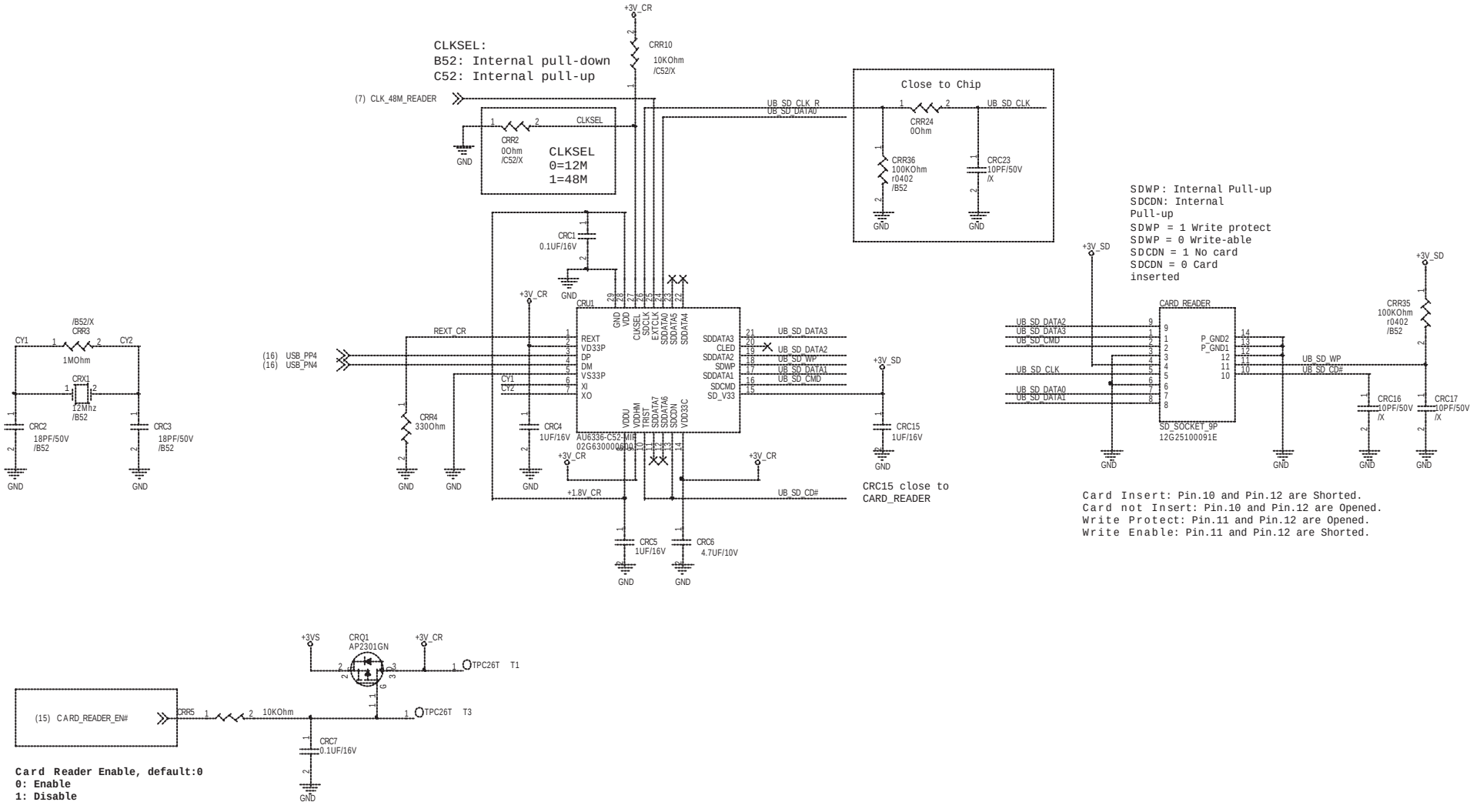






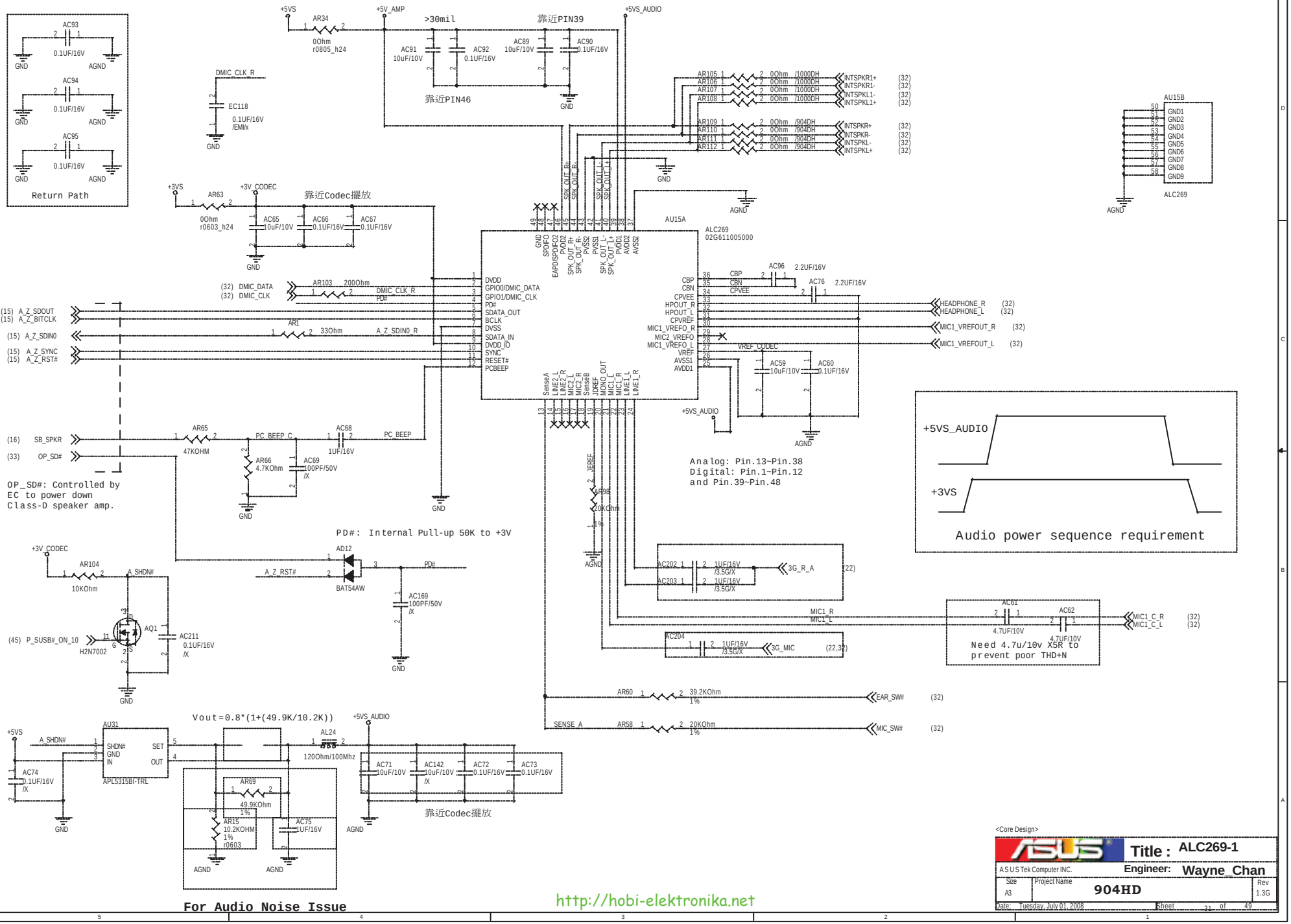
<Core Design>

ASUSTek Computer INC.	Title : Camera Power	
	Engineer: Wayne_Chan	
Size: A4	Project Name: 904HD	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 29 of 49	



<Core Design>

ASUS Tek Computer INC.	Title : AU6336-C52	
	Engineer: Wayne_Chan	
Size: A3	Project Name: 904HD	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 30 of 49	


Return Path
AC93 0.1UF/16V
AC94 0.1UF/16V
AC95 0.1UF/16V
GND
AGND
+5VS
AR34 0Ohm r0805_h24
+5V_AMP
>30mil
靠近PIN39
+5VS_AUDIO
AC91 10uF/10V
AC92 0.1UF/16V
AC89 10uF/10V
AC90 0.1UF/16V
靠近PIN46
DMIC_CLK_R
EC118 0.1UF/16V /EMI/x
AR105 AR106 AR107 AR108 0Ohm /1000DH
INTSPKR1+ INTSPKR1- INTSPKL1- INTSPKL1+ (32)
AR109 AR110 AR111 AR112 0Ohm /804DH
INTSPKR+ INTSPKR- INTSPKL- INTSPKL+ (32)
AU15B
GND1 GND2 GND3 GND4 GND5 GND6 GND7 GND8 GND9
ALC269
+3VS
AR63 0Ohm r0603_h24
+3V_CODEC
靠近Codec擺放
AC65 10uF/10V
AC66 0.1UF/16V
AC67 0.1UF/16V
AU15A
ALC269 02G611005000
SPK_OUT_R+ SPK_OUT_R- SPK_OUT_L+ SPK_OUT_L-
GND SPDIFO EAPD/SPDIFO2 PVDD2 SPK_OUT_R+ SPK_OUT_R- PVSS2 PVSS1 SPK_OUT_L- SPK_OUT_L+ PVDD1 AVDD2 AVSS2
(32) DMIC_DATA
(32) DMIC_CLK
AR103 200Ohm
DMIC_CLK_R
PD#
DVDD GPIO0/DMIC_DATA GPIO1/DMIC_CLK PD# SDATA_OUT BCLK DVSS SDATA_IN DVDD_IO SYNC RESET# PCBEEP
(15) A_Z_SDOUT
(15) A_Z_BITCLK
(15) A_Z_SDIN0
(15) A_Z_SYNC
(15) A_Z_RST#
AR1 33Ohm A_Z_SDIN0_R
CBP CBN CPVEE HPOUT_R HPOUT_L CPVREF MIC1_VREFO_R MIC2_VREFO MIC1_VREFO_L VREF AVSS1 AVDD1
AC96 2.2UF/16V
AC76 2.2UF/16V
HEADPHONE_R HEADPHONE_L (32)
MIC1_VREFOUT_R MIC1_VREFOUT_L (32)
VREF_CODEC
AC59 10uF/10V
AC60 0.1UF/16V
SenseA LINE2_L LINE2_R MIC2_L MIC2_R SenseB JDREF MONO_OUT MIC1_L MIC1_R LINE1_L LINE1_R
Analog: Pin.13~Pin.38
Digital: Pin.1~Pin.12
and Pin.39~Pin.48
(16) SB_SPKR
(33) OP_SD#
AR65 47KOHM
PC_BEEP_C
PC_BEEP
AR66 4.7KOhm
AC68 1UF/16V
AC69 100PF/50V /X
OP_SD#: Controlled by
EC to power down
Class-D speaker amp.
PD#: Internal Pull-up 50K to +3V
JDREF
AR98 20KOhm 1%
+5VS_AUDIO
+3VS
Audio power sequence requirement
+3V_CODEC
AR104 10KOhm
A_SHDN#
AD12 BAT54AW
A_Z_RST#
PD#
AC169 100PF/50V /X
(45) P_SUSB#_ON_10
H2N7002
AQ1
AC211 0.1UF/16V /X
AC202 AC203 1UF/16V /3.5G/X
3G_R_A (22)
AC204 1UF/16V /3.5G/X
3G_MIC (22,32)
MIC1_R
MIC1_L
AC61 4.7UF/10V
AC62 4.7UF/10V
MIC1_C_R MIC1_C_L (32)
Need 4.7u/10v X5R to
prevent poor THD+N
AR60 39.2KOhm 1%
EAR_SW# (32)
SENSE_A
AR58 20KOhm 1%
MIC_SW# (32)
Vout=0.8*(1+(49.9K/10.2K))
AU31
SHDN# GND IN SET OUT
APL5315BI-TRL
AL24 120Ohm/100Mhz
AC74 0.1UF/16V /X
AC71 10uF/10V
AC142 10uF/10V /X
AC72 0.1UF/16V
AC73 0.1UF/16V
AR69 49.9KOhm 1%
AR15 10.2KOHM 1% r0603
AC75 1UF/16V
靠近Codec擺放
For Audio Noise Issue
http://hobi-elektronika.net
<Core Design>
ASUS
Title : ALC269-1
A S U S Tek Computer INC.
Engineer: Wayne_Chan
Size A3
Project Name 904HD
Rev 1.3G
Date: Tuesday, July 01, 2008
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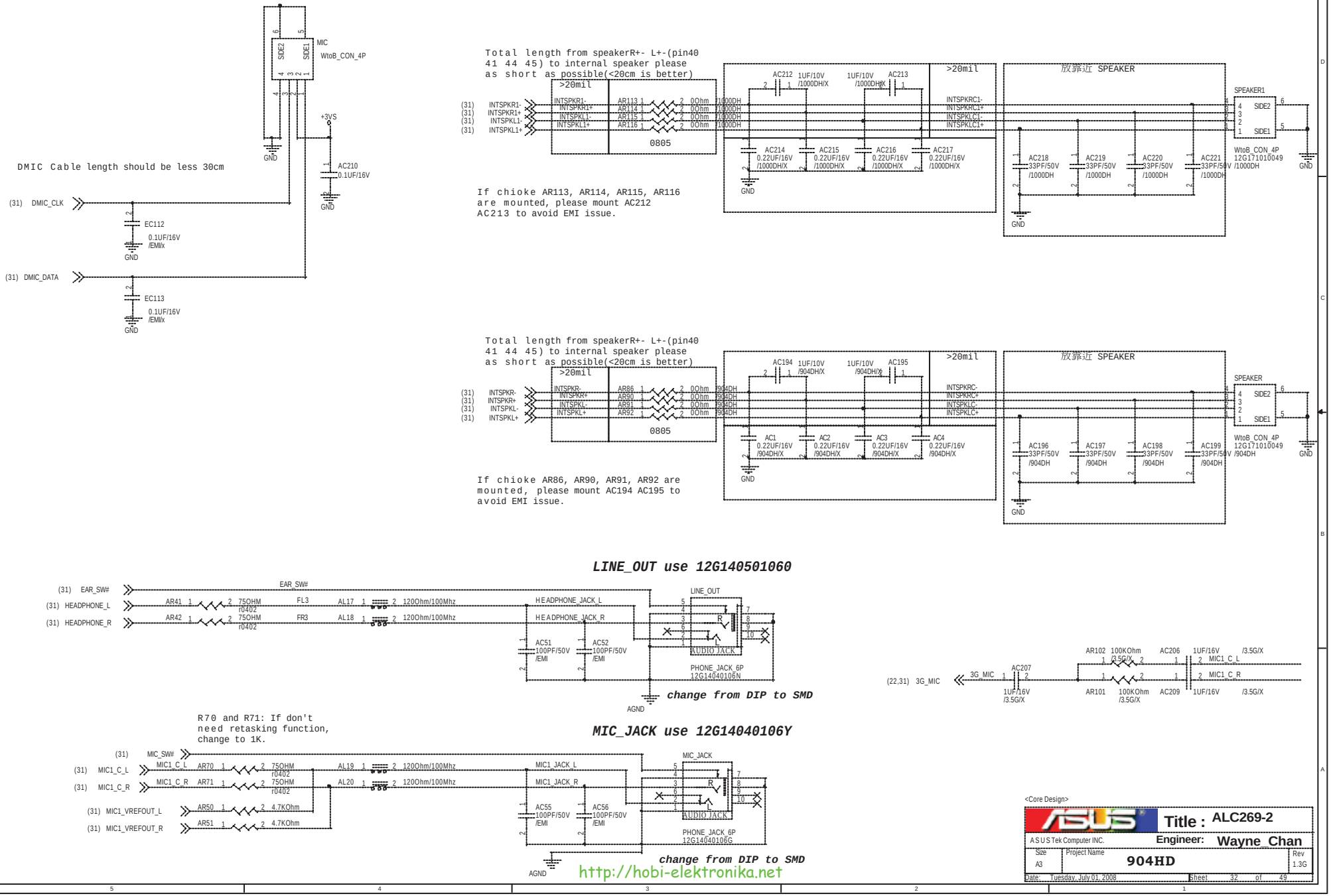
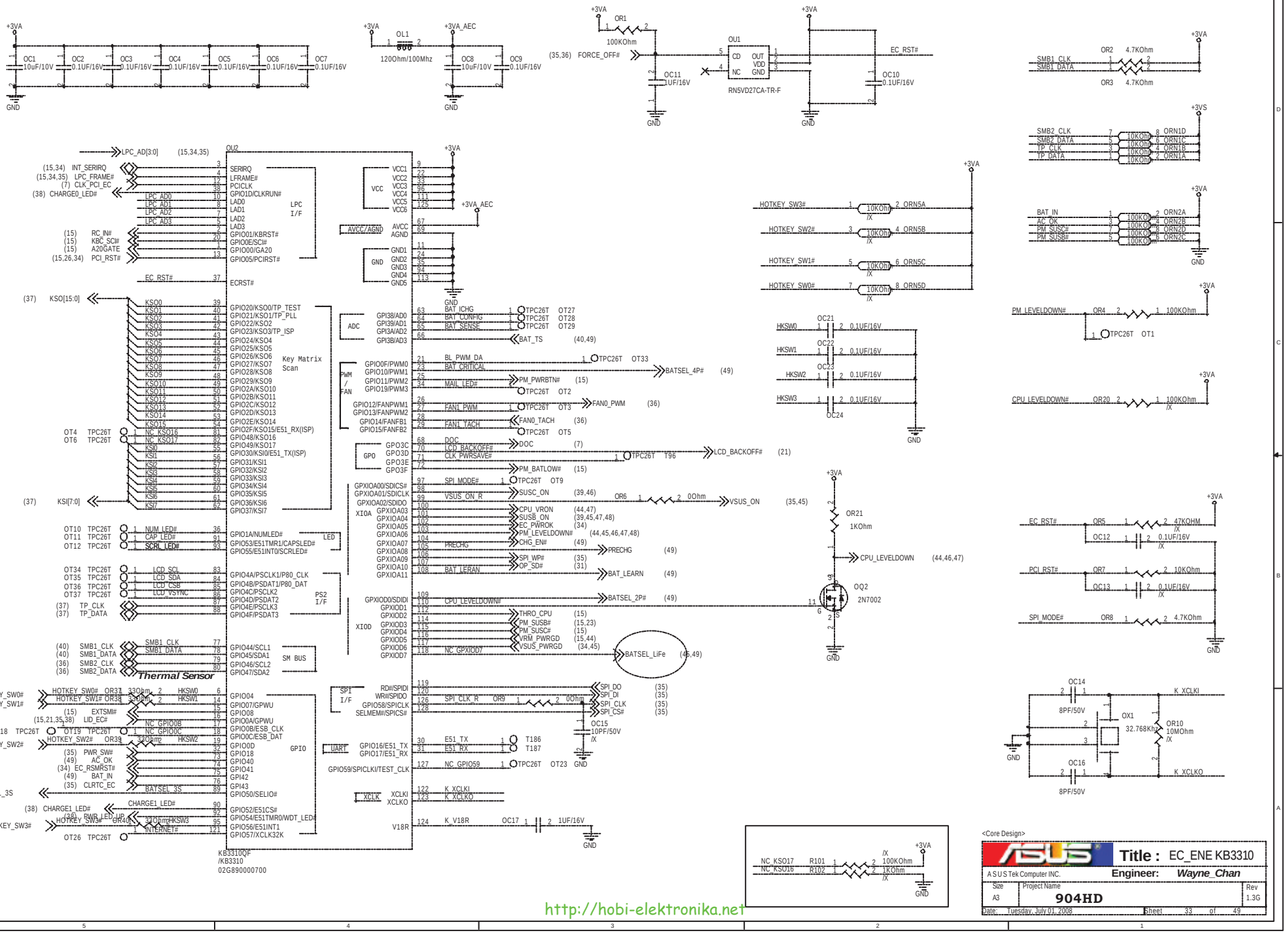
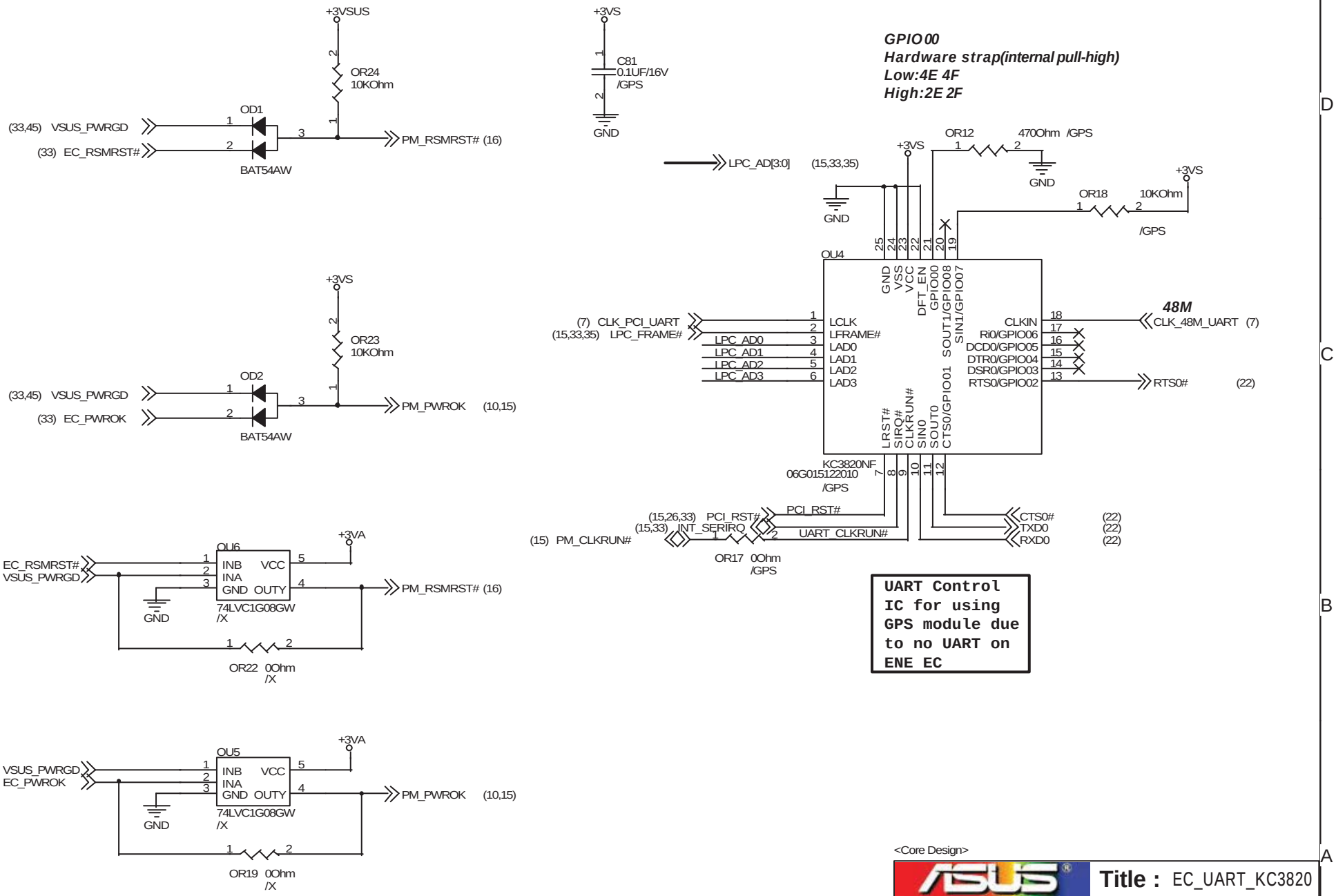
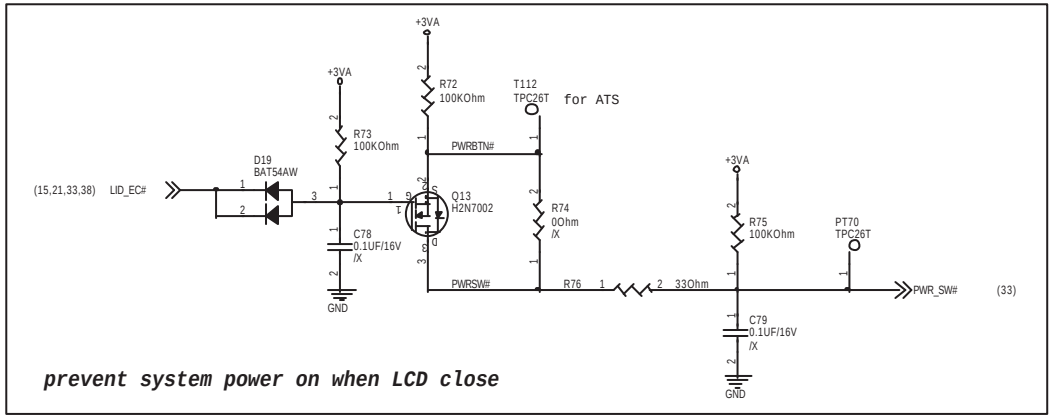
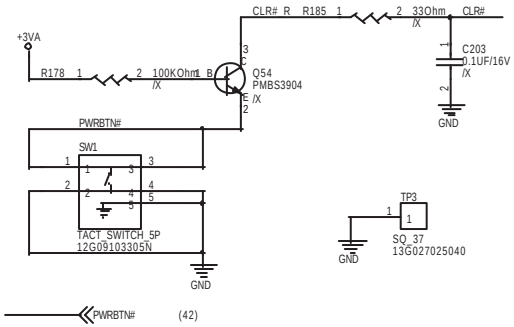
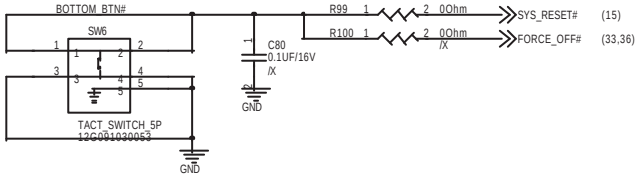

DMIC Cable length should be less 30cm
(31) DMIC_CLK
(31) DMIC_DATA
EC112
EC113
0.1UF/16V
/EMIx
GND
MIC
WtoB_CON_4P
SIDE1
SIDE2
+3VS
AC210
0.1UF/16V
Total length from speakerR+- L+-(pin40 41 44 45) to internal speaker please as short as possible(<20cm is better)
>20mil
INTSPKR1-
INTSPKR1+
INTSPKL1-
INTSPKL1+
AR113
AR114
AR115
AR116
0Ohm
0805
1000DH
AC212
AC213
1UF/10V
/1000DH/X
AC214
AC215
AC216
AC217
0.22UF/16V
/1000DH/X
INTSPKRC1-
INTSPKRC1+
INTSPKLC1-
INTSPKLC1+
放靠近 SPEAKER
AC218
AC219
AC220
AC221
33PF/50V
/1000DH
SPEAKER1
WtoB_CON_4P
12G171010049
If chioke AR113, AR114, AR115, AR116 are mounted, please mount AC212 AC213 to avoid EMI issue.
Total length from speakerR+- L+-(pin40 41 44 45) to internal speaker please as short as possible(<20cm is better)
INTSPKR-
INTSPKR+
INTSPKL-
INTSPKL+
AR86
AR90
AR91
AR92
904DH
AC194
AC195
/904DH/X
AC1
AC2
AC3
AC4
INTSPKRC-
INTSPKRC+
INTSPKLC-
INTSPKLC+
AC196
AC197
AC198
AC199
/904DH
If chioke AR86, AR90, AR91, AR92 are mounted, please mount AC194 AC195 to avoid EMI issue.
LINE_OUT use 12G140501060
EAR_SW#
HEADPHONE_L
HEADPHONE_R
AR41
AR42
75OHM
r0402
FL3
FR3
AL17
AL18
120Ohm/100Mhz
HEADPHONE_JACK_L
HEADPHONE_JACK_R
LINE_OUT
AC51
AC52
100PF/50V
/EMI
AUDIO JACK
PHONE_JACK_6P
12G140401O6N
AGND
change from DIP to SMD
3G_MIC
AC207
1UF/16V
/3.5G/X
AR102
AR101
100KOhm
AC206
AC209
MIC1_C_L
MIC1_C_R
R70 and R71: If don't need retasking function, change to 1K.
MIC_SW#
MIC1_C_L
MIC1_C_R
MIC1_VREFOUT_L
MIC1_VREFOUT_R
AR70
AR71
AR50
AR51
4.7KOhm
AL19
AL20
MIC1_JACK_L
MIC1_JACK_R
MIC_JACK
AC55
AC56
PHONE_JACK_6P
12G14040106G
change from DIP to SMD
http://hobi-elektronika.net
<Core Design>
Title : ALC269-2
A S U S Tek Computer INC.
Engineer: Wayne_Chan
Size
A3
Project Name
904HD
Rev
1.3G
Date: Tuesday, July 01, 2008
Sheet 32 of 49

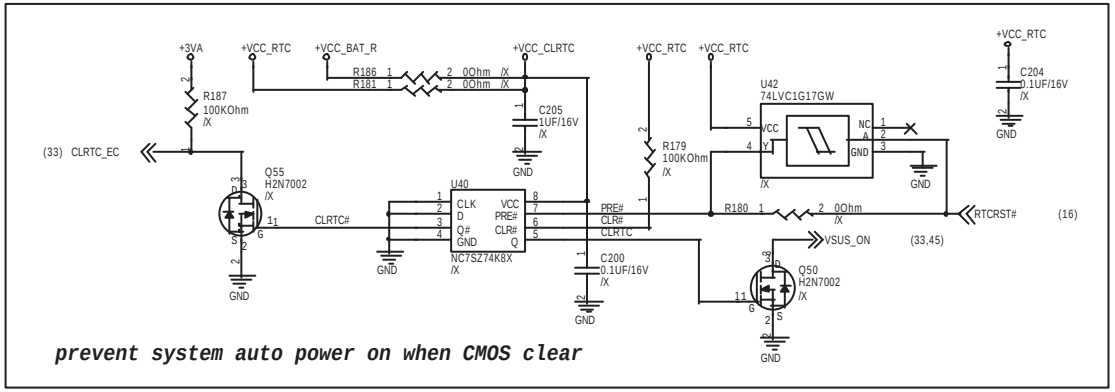

OU2
KB3310QF
/KB3310
02G890000700
Thermal Sensor
OU1
RN5VD27CA-TR-F
Key Matrix Scan
LPC I/F
PS2 I/F
SM BUS
LED
PWM / FAN
ADC
GPO
SPI I/F
UART
XCLK
XIOD
Core Design
ASUS Tek Computer INC.
Title : EC_ENE KB3310
Engineer: Wayne_Chan
Project Name 904HD
Size A3
Rev 1.3G
Date: Tuesday, July 01, 2008
Sheet 33 of 49
http://hobi-elektronika.net



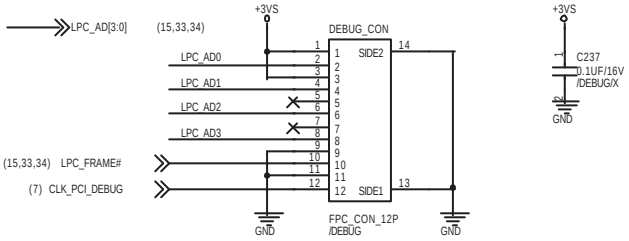




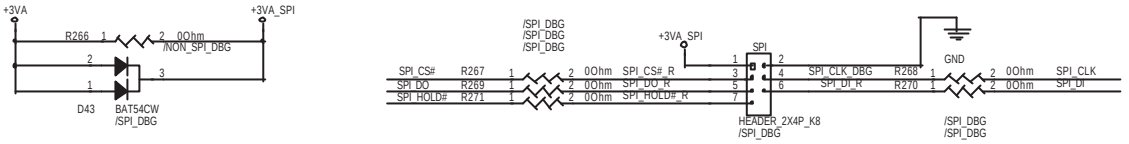


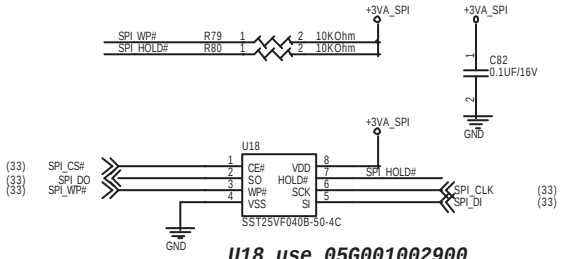


For Debug

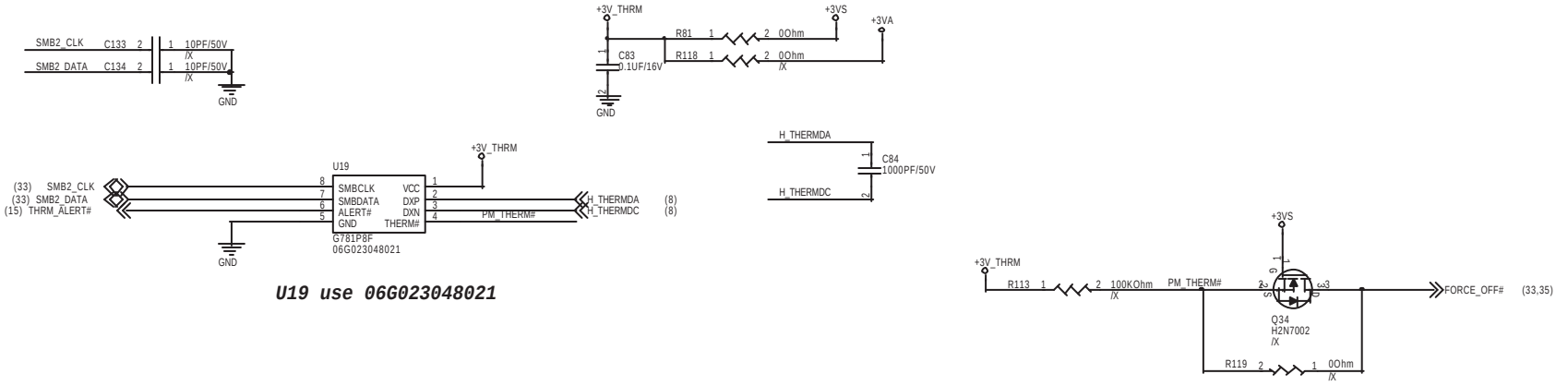


Debug Card cable use Z96 Touch Pad cable, P/N: 14G124110126, 14G124110120, 14G124110121 14G124110124, 14G124110125

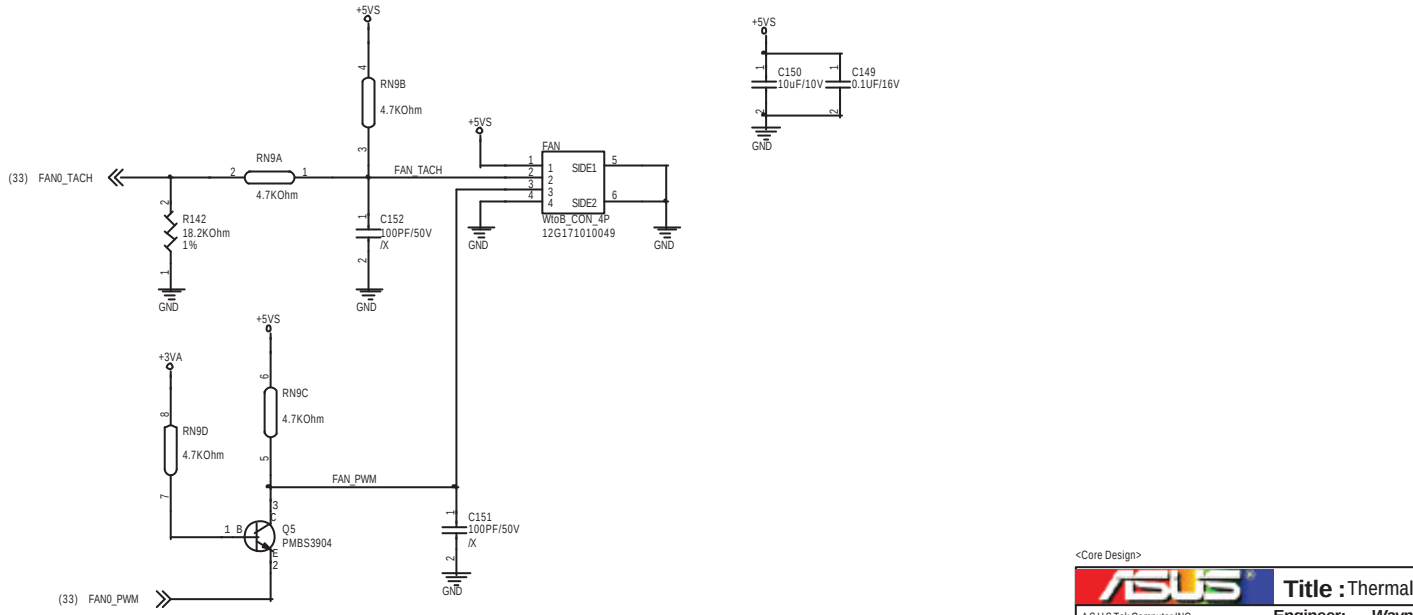




U18 use 05G001002900 & 05G00100F130



U19 use 06G023048021

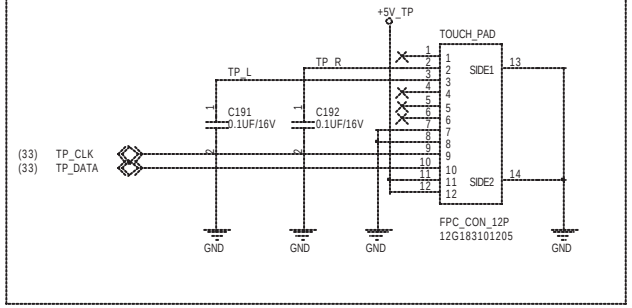


<Core Design>

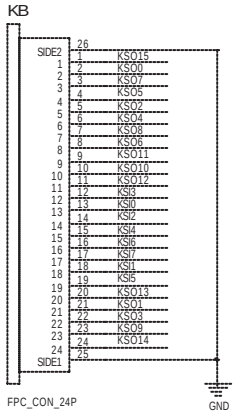
ASUS Tek Computer INC.	Title : Thermal Sensor_FAN	
	Engineer: *Wayne_Chan*	
Size: A3	Project Name: **904HD**	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 36 of 49	

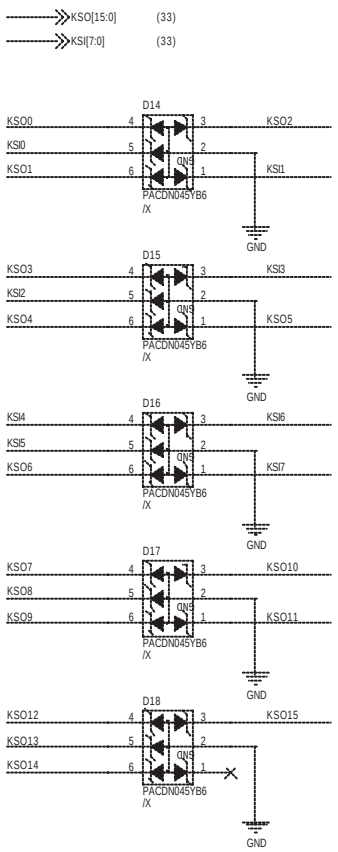
For Touch-Pad

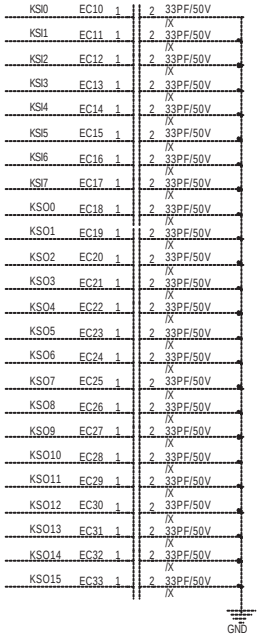
P900 R1.0G



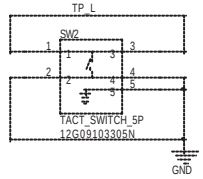
For Keyboard Connector

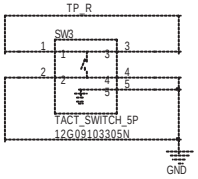


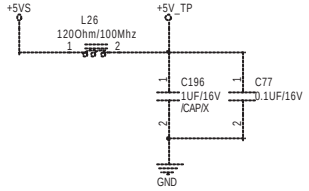


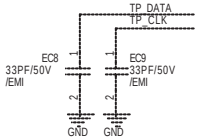


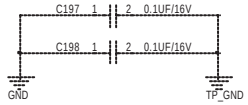
SW2, SW3 use 12G09103305N

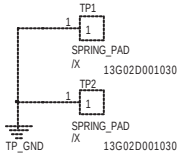








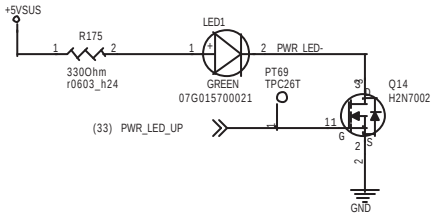




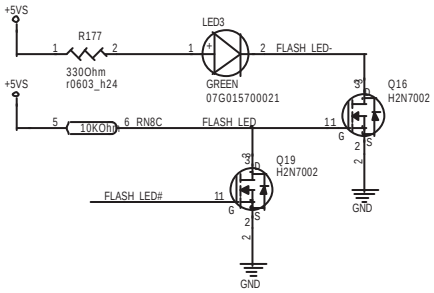
<Core Design>

ASUS Tek Computer INC.	Title : KB_Touch Pad	
	Engineer: Wayne_Chan	
Size: A3	Project Name: 904HD	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 37 of 49	

for POWER LED

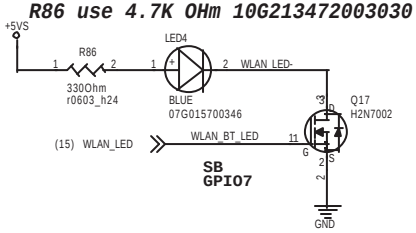


for FLASH LED



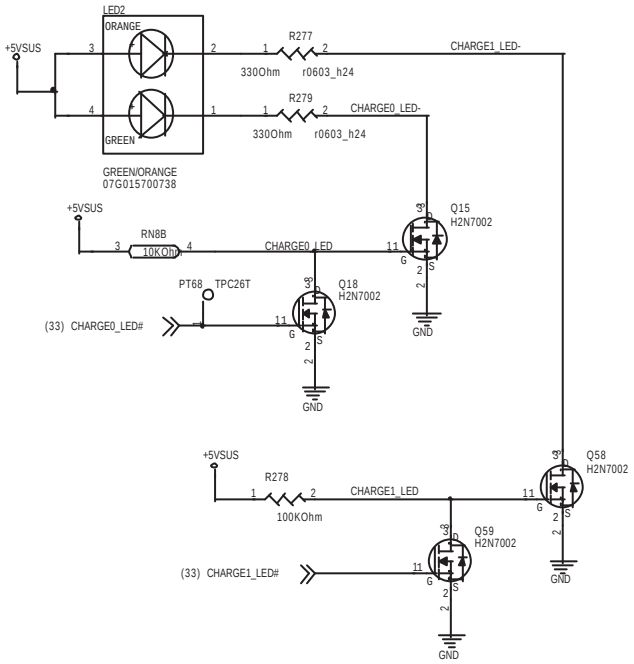
for WLAN/BlueTooth LED

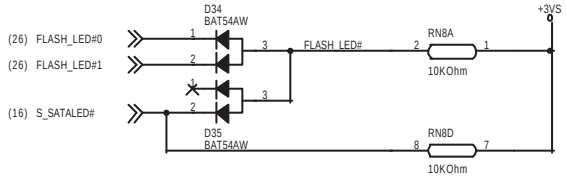
R86 use 4.7K OHm 10G213472003030



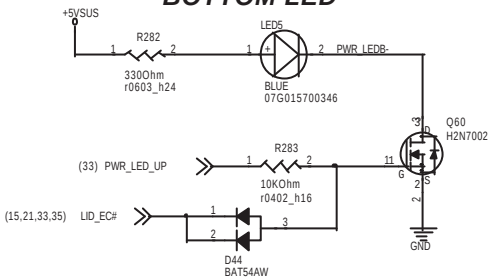
WIFI/BT LED Enable,default:1
0: WIFI and BT are both disabled
1: one of WIFI and BT is Enable or both are Enable

for CHARGE LED



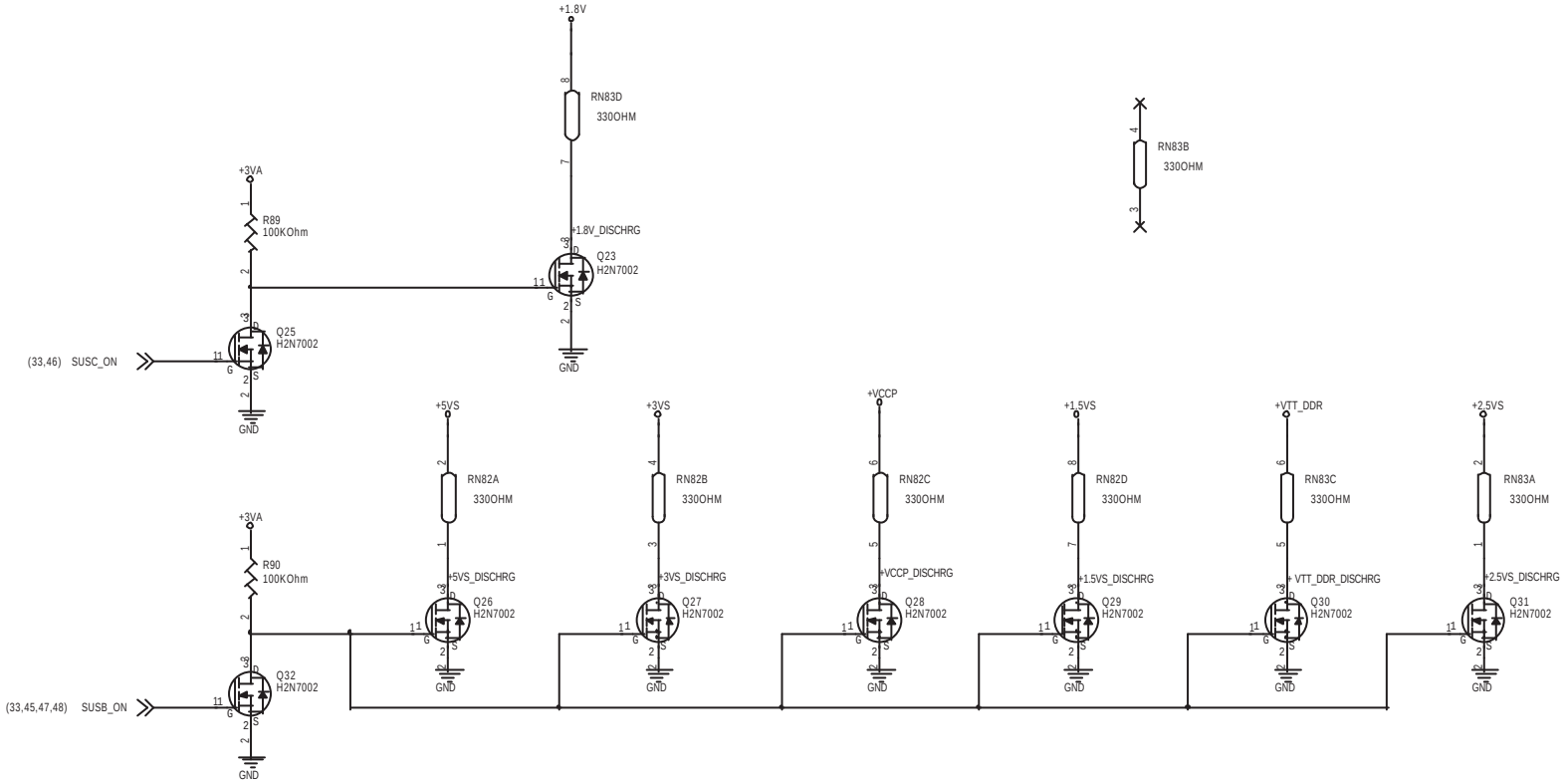


for POWER BOTTOM LED



<Core Design>

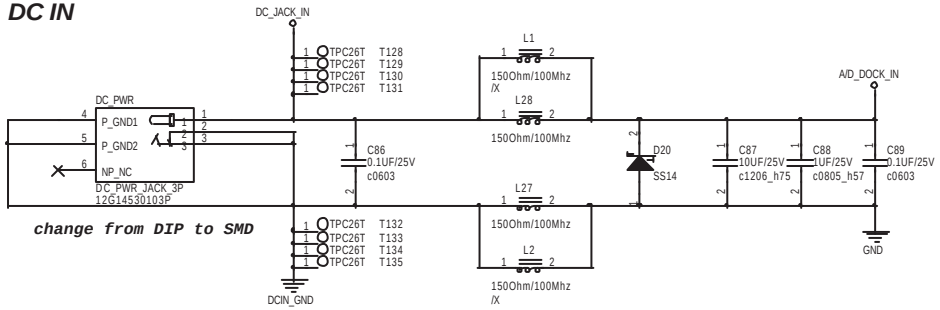
ASUS	Title : LED	
A S U S Tek Computer INC.	Engineer: Wayne_Chan	
Size: A3	Project Name: 904HD	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 38 of 49	



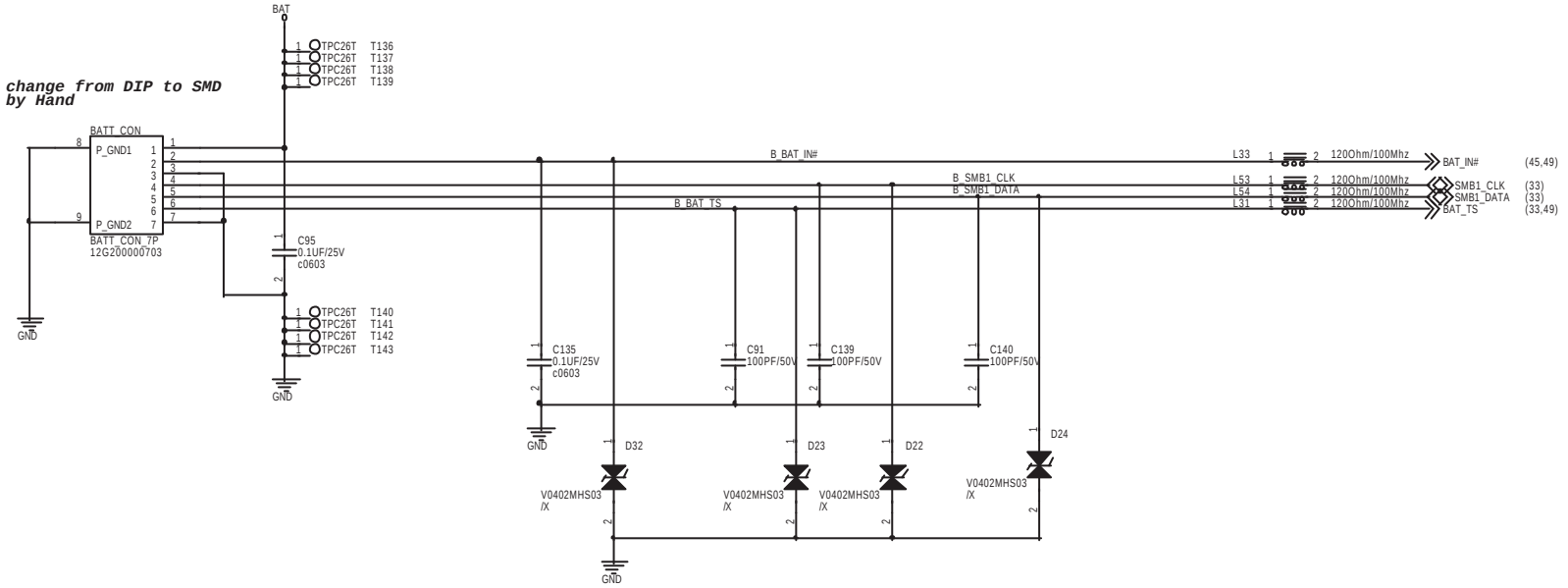
<Core Design>

ASUS Tek Computer INC.	Title : Discharge	
	Engineer: *Wayne_Chan*	
Size: A3	Project Name: 904HD	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 39 of 49	

DC IN

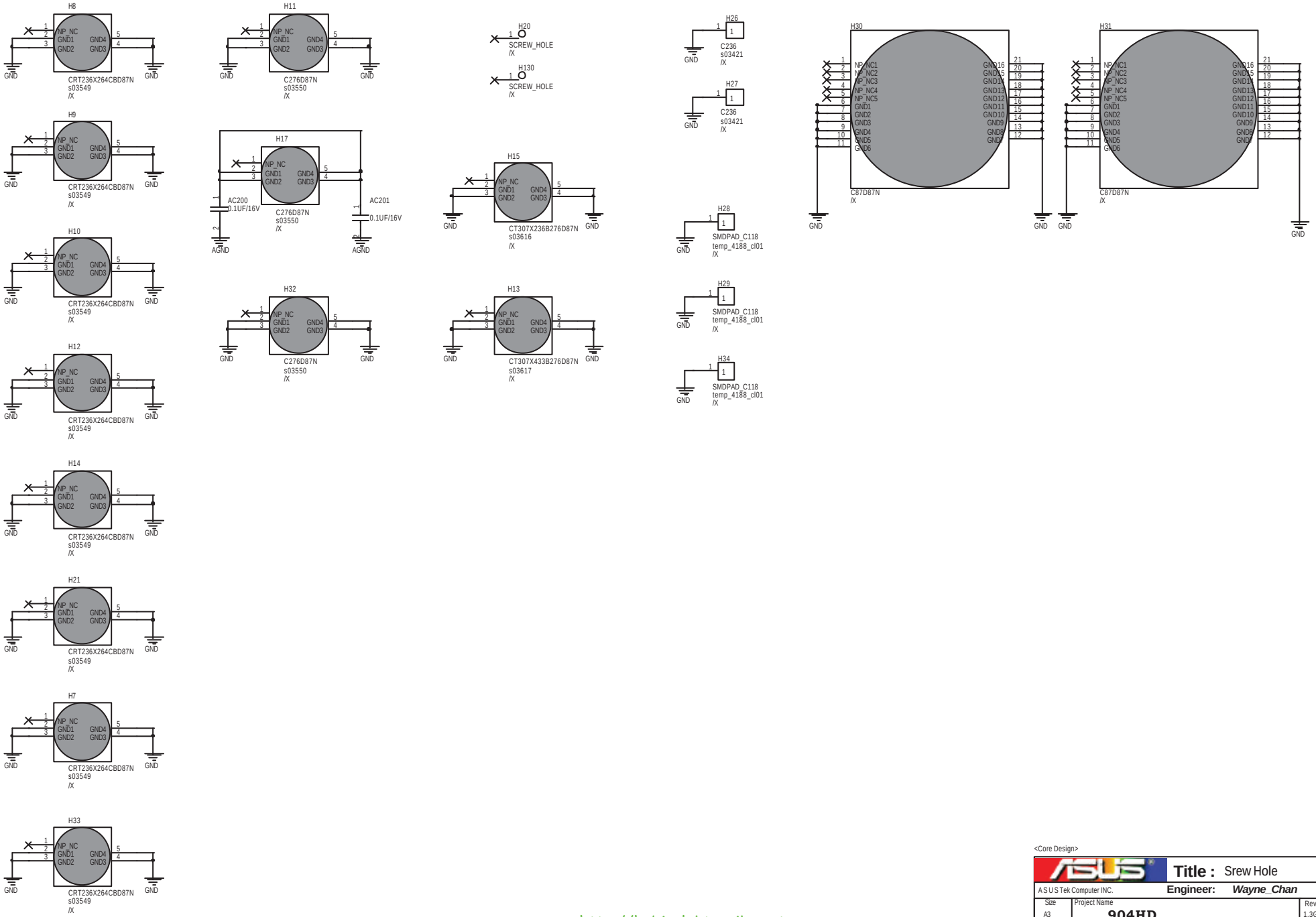


BAT IN



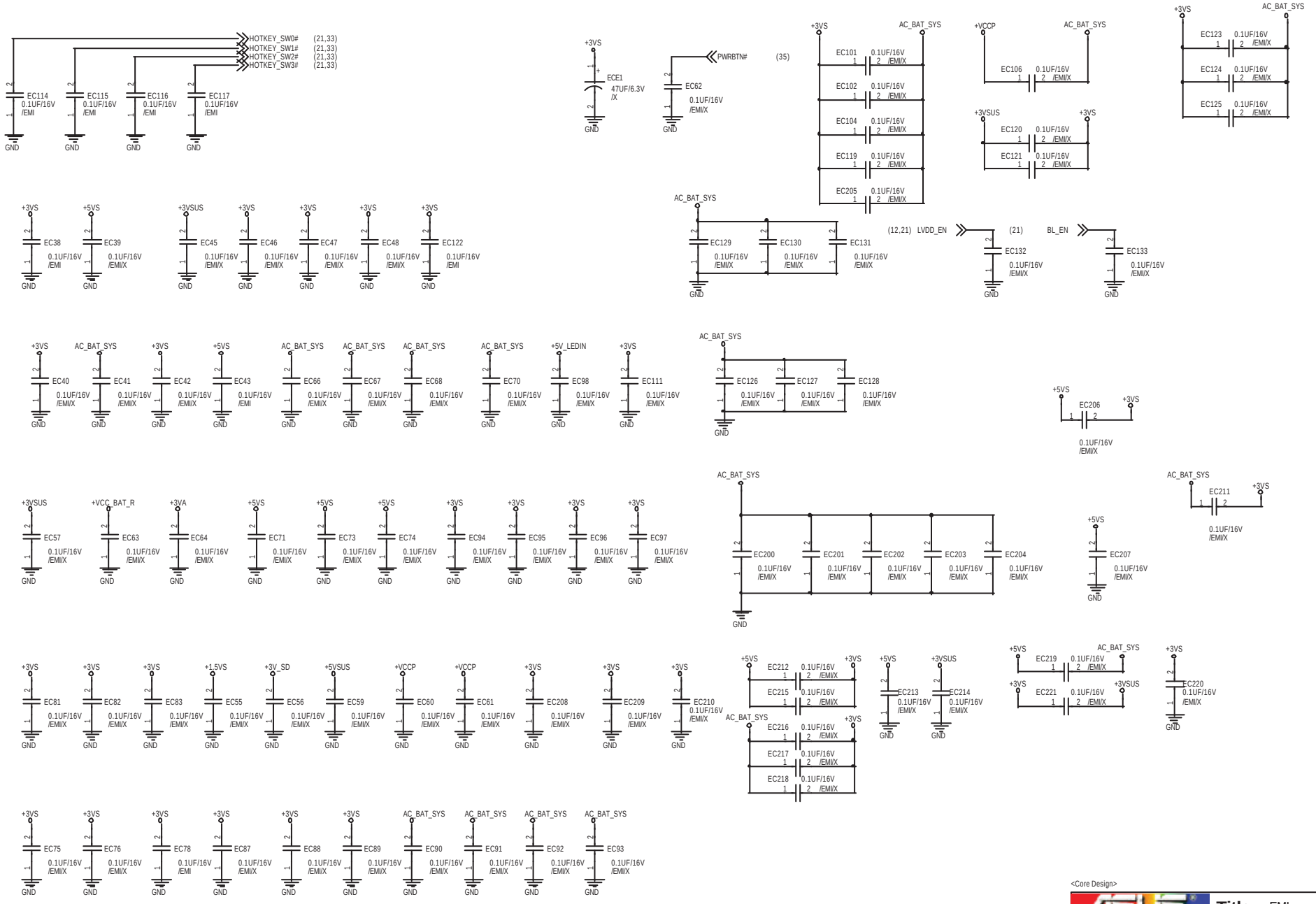
<Core Design>

ASUS	Title : PWR Jack	
A S U S Tek Computer INC.	Engineer: *Wayne_Chan*	
Size: A3	Project Name: 904HD	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 40 of 49	



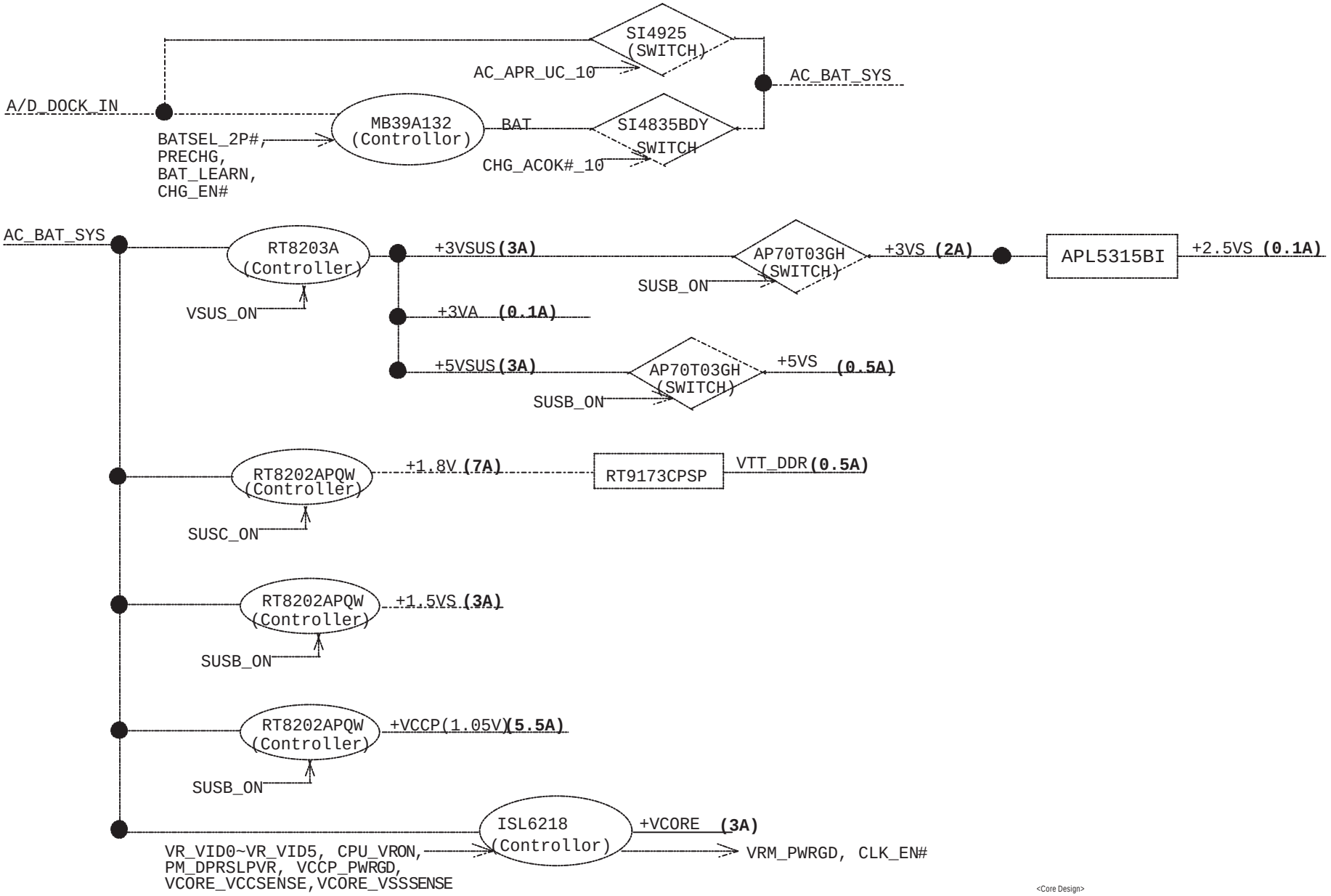
<Core Design>

ASUS	Title : Srew Hole	
A S U S Tek Computer INC.	Engineer: *Wayne_Chan*	
Size: A3	Project Name: **904HD**	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 41 of 49	



<Core Design>

ASUS Tek Computer INC.	Title : EMI	
	Engineer: Wayne_Chan	
Size: A3	Project Name: 904HD	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 42 of 49	



<Core Design>

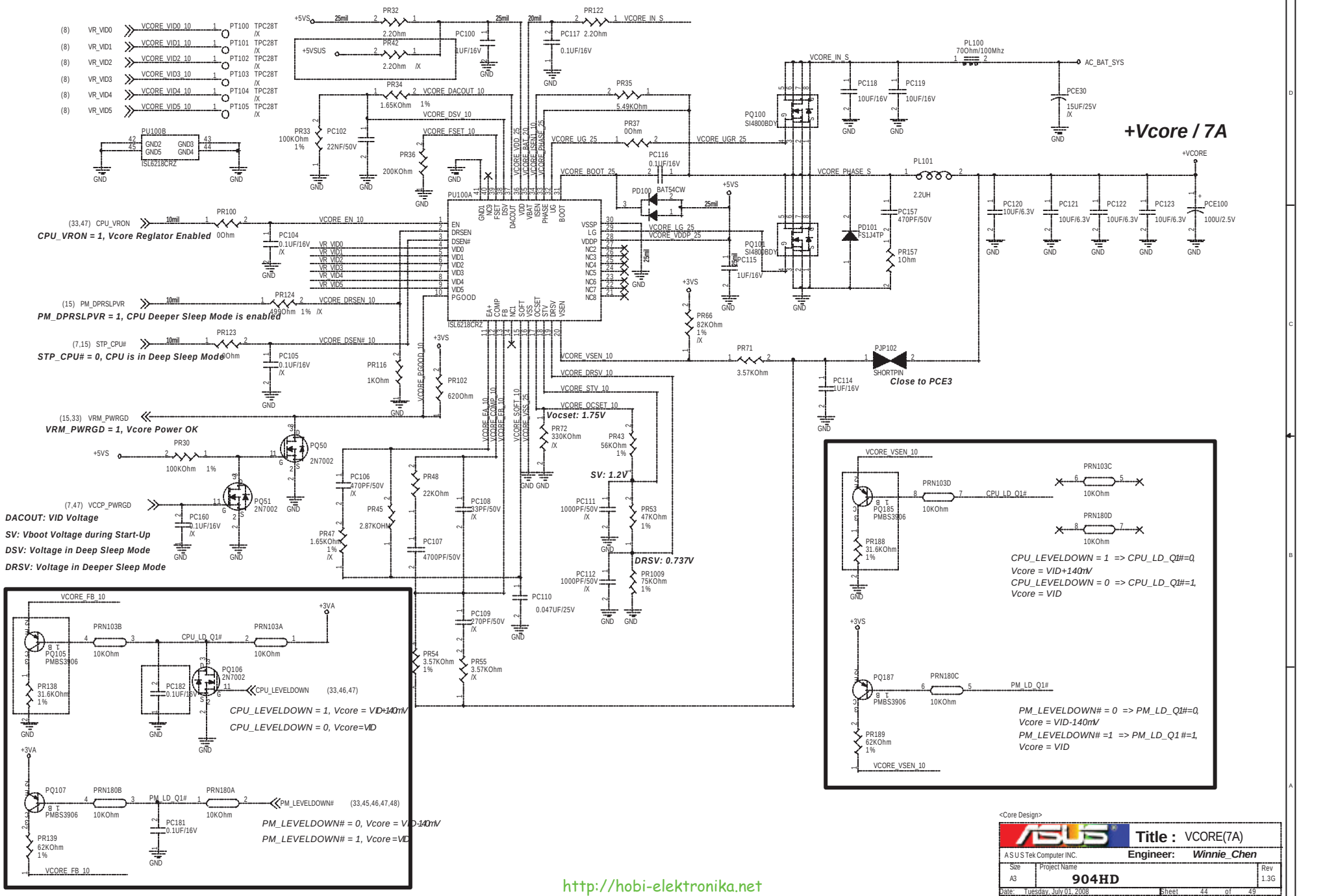
Title : Power Flow

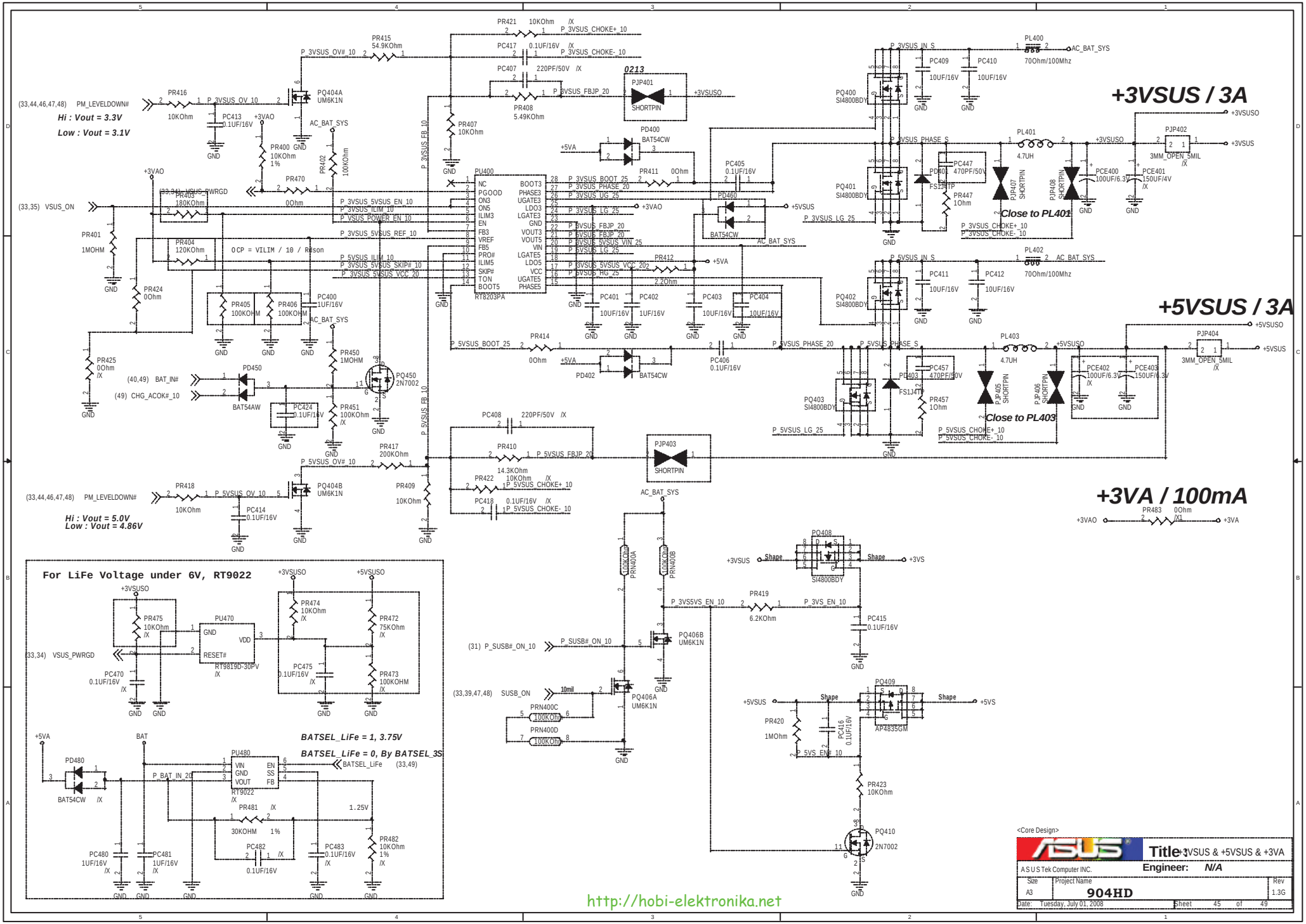
A S U S Tek Computer INC.

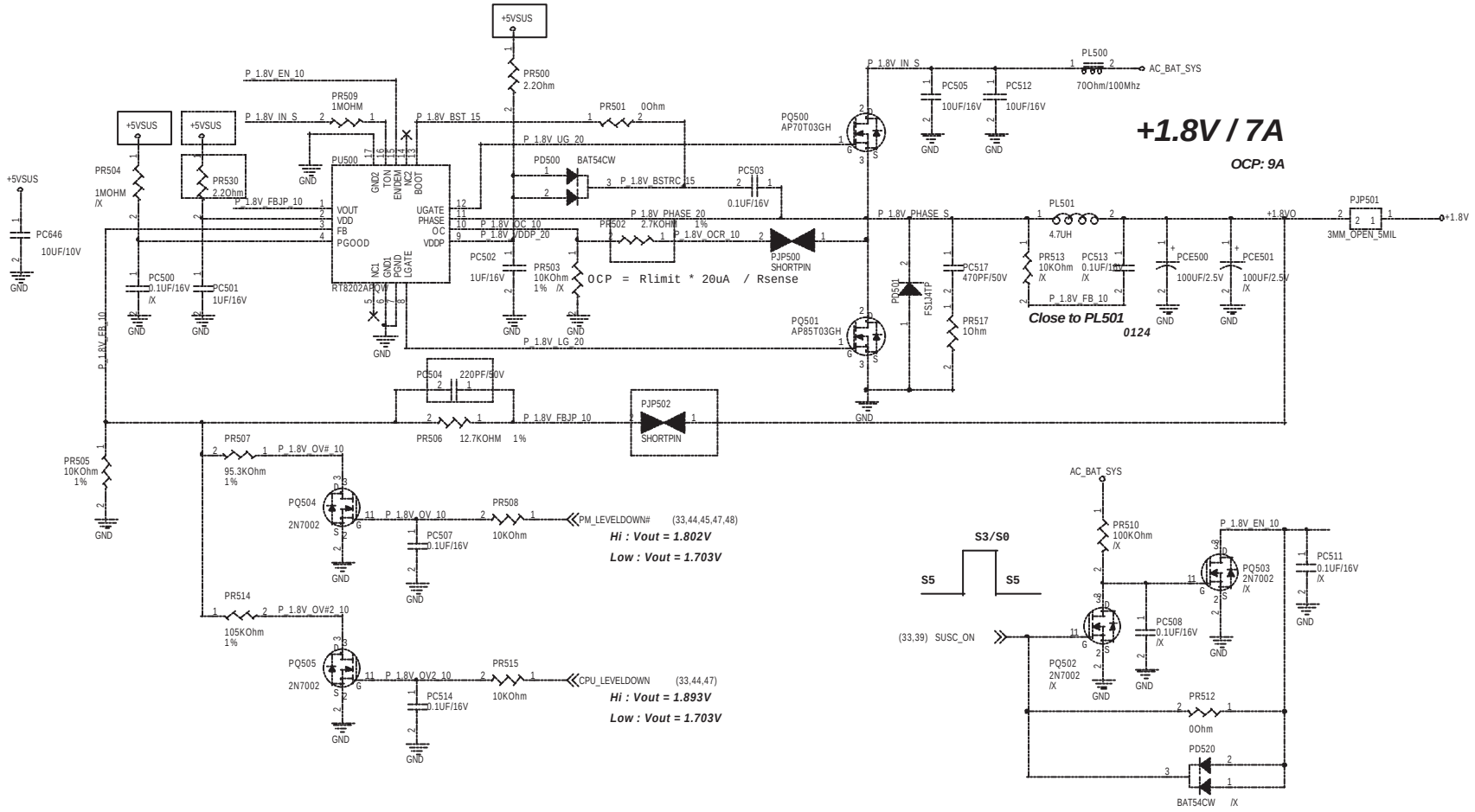
Engineer: Joy_Zhou

Size	Project Name	Rev
A3	904HD	1.3G

Date: Tuesday, July 01, 2008 Sheet 43 of 49




+3VSUS / 3A
+5VSUS / 3A
+3VA / 100mA
Close to PL401
Close to PL403
Hi : Vout = 3.3V
Low : Vout = 3.1V
Hi : Vout = 5.0V
Low : Vout = 4.86V
0CP = VILIM / 10 / Rsson
For LiFe Voltage under 6V, RT9022
BATSEL_LiFe = 1, 3.75V
BATSEL_LiFe = 0, By BATSEL_3S
PU400 RT8203PA
PU470 RT9819D-30PV
PU480 RT9022
PQ400 SI4800BDY
PQ401 SI4800BDY
PQ402 SI4800BDY
PQ403 SI4800BDY
PQ404A UM6K1N
PQ404B UM6K1N
PQ406A UM6K1N
PQ406B UM6K1N
PQ408 SI4800BDY
PQ409 AP4835GM
PQ410 2N7002
PQ450 2N7002
PJP401 SHORTPIN
PJP402 3MM_OPEN_5MIL
PJP403 SHORTPIN
PJP404 3MM_OPEN_5MIL
PJP405 SHORTPIN
PJP406 SHORTPIN
PJP407 SHORTPIN
PJP408 SHORTPIN
PL400 70Ohm/100Mhz
PL401 4.7UH
PL402 70Ohm/100Mhz
PL403 4.7UH
PD400 BAT54CW
PD401 FS1J4TP
PD402 BAT54CW
PD450 BAT54AW
PD460 BAT54CW
PD480 BAT54CW
PRN400A 100KOhm
PRN400B 100KOhm
PRN400C 100KOhm
PRN400D 100KOhm
P_3VSUS_OV# 10
P_3VSUS_OV_10
P_3VSUS_FBJP_20
P_3VSUS_CHOKE+_10
P_3VSUS_CHOKE-_10
P_3VSUS_IN_S
P_3VSUS_PHASE_S
P_3VSUS_LG_25
P_3VSUS_BOOT_25
P_3VSUS_PHASE_20
P_3VSUS_UG_25
P_3VSUS_5VSUS_EN_10
P_3VSUS_ILIM_10
P_3VSUS_POWER_EN_10
P_3VSUS_5VSUS_REF_10
P_3VSUS_5VSUS_SKIP#_10
P_3VSUS_5VSUS_VCC_20
P_3VSUS_FBJP_20
P_3VSUS_5VSUS_VIN_25
P_3VSUS_LG_25
P_5VSUS_OV# 10
P_5VSUS_OV_10
P_5VSUS_FBJP_20
P_5VSUS_CHOKE+_10
P_5VSUS_CHOKE-_10
P_5VSUS_IN_S
P_5VSUS_PHASE_S
P_5VSUS_LG_25
P_5VSUS_BOOT_25
P_5VSUS_PHASE_20
P_5VSUS_UG_25
P_5VSUS_ILIM_10
P_5VSUS_5VSUS_SKIP#_10
P_5VSUS_5VSUS_VCC_20
P_5VSUS_FB_10
P_5VS_EN_10
P_3VS5VS_EN_10
P_3VS_EN_10
P_SUSB#_ON_10
P_BAT_IN_20
BATSEL_LiFe
PM_LEVELDOWN#
VSUS_ON
VSUS_PWRGD
BAT_IN#
CHG_ACOK#_10
SUSB_ON
AC_BAT_SYS
+3VAO
+3VSUSO
+5VSUSO
+5VA
+3VS
+5VS
BAT
Shape
0213
0Ohm /X1
http://hobi-elektronika.net
<Core Design>
ASUS Tek Computer INC.
Title: +3VSUS & +5VSUS & +3VA
Engineer: N/A
Size A3
Project Name 904HD
Rev 1.3G
Date: Tuesday, July 01, 2008
Sheet 45 of 49



PM_LEVELDOWN#	CPU_LEVELDOWN	CPU_LEVELDOWN#	Voltage	Status
L	L	H	1.703V	Power Saving
H	L	H	1.802V	Normal
H	H	L	1.893V	Performance
H	L	H	1.802V	Performance DEFAULT

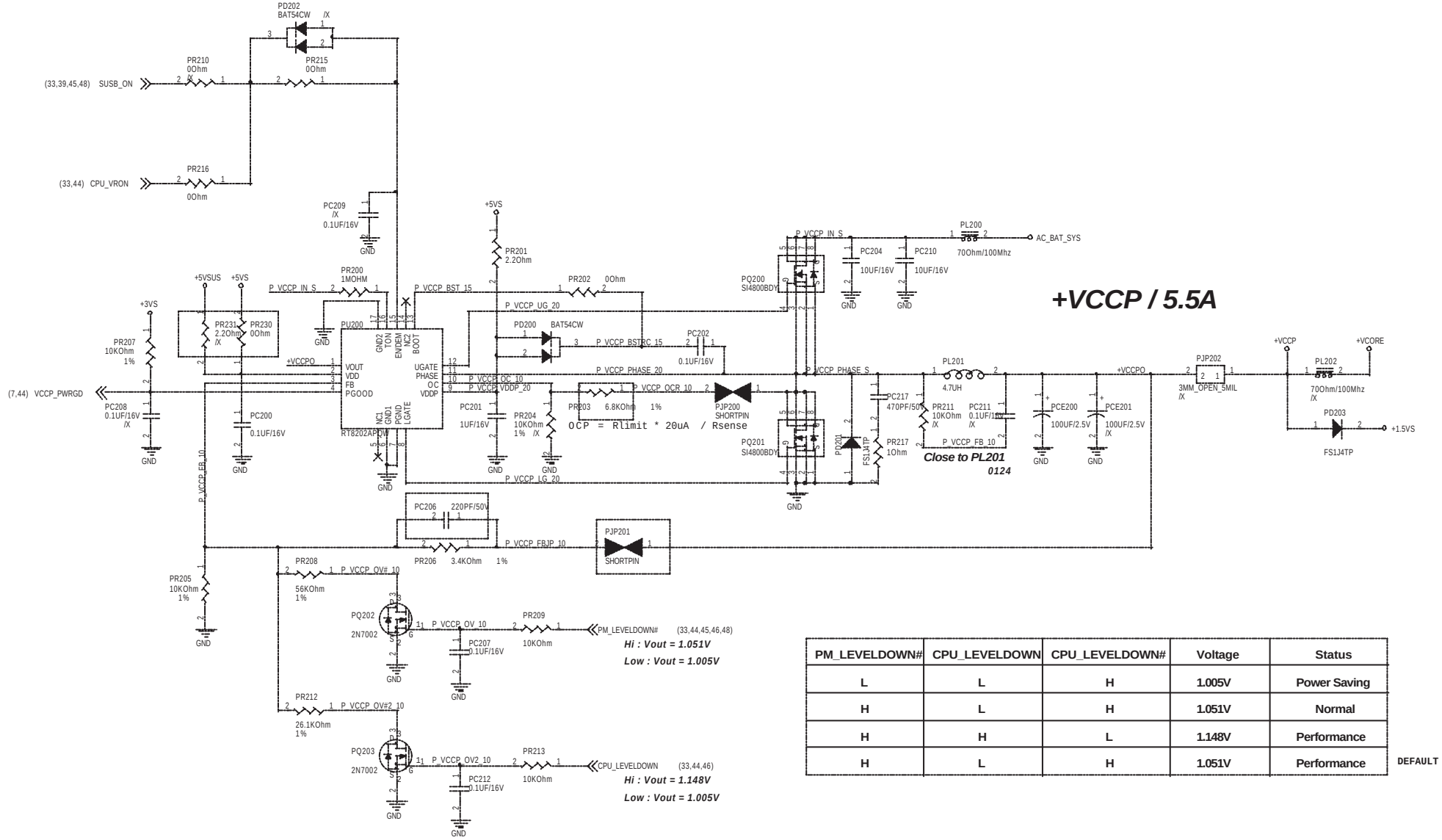
<Core Design>

Title : +1.8V & VTTDDR

A S U S Tek Computer INC. Engineer: Joy_Zhou

Size	Project Name	Rev
A3	904HD	1.3G

Date: Tuesday, July 01, 2008 Sheet 46 of 49



PM_LEVELDOWN#	CPU_LEVELDOWN	CPU_LEVELDOWN#	Voltage	Status
L	L	H	1.005V	Power Saving
H	L	H	1.051V	Normal
H	H	L	1.148V	Performance
H	L	H	1.051V	Performance

DEFAULT

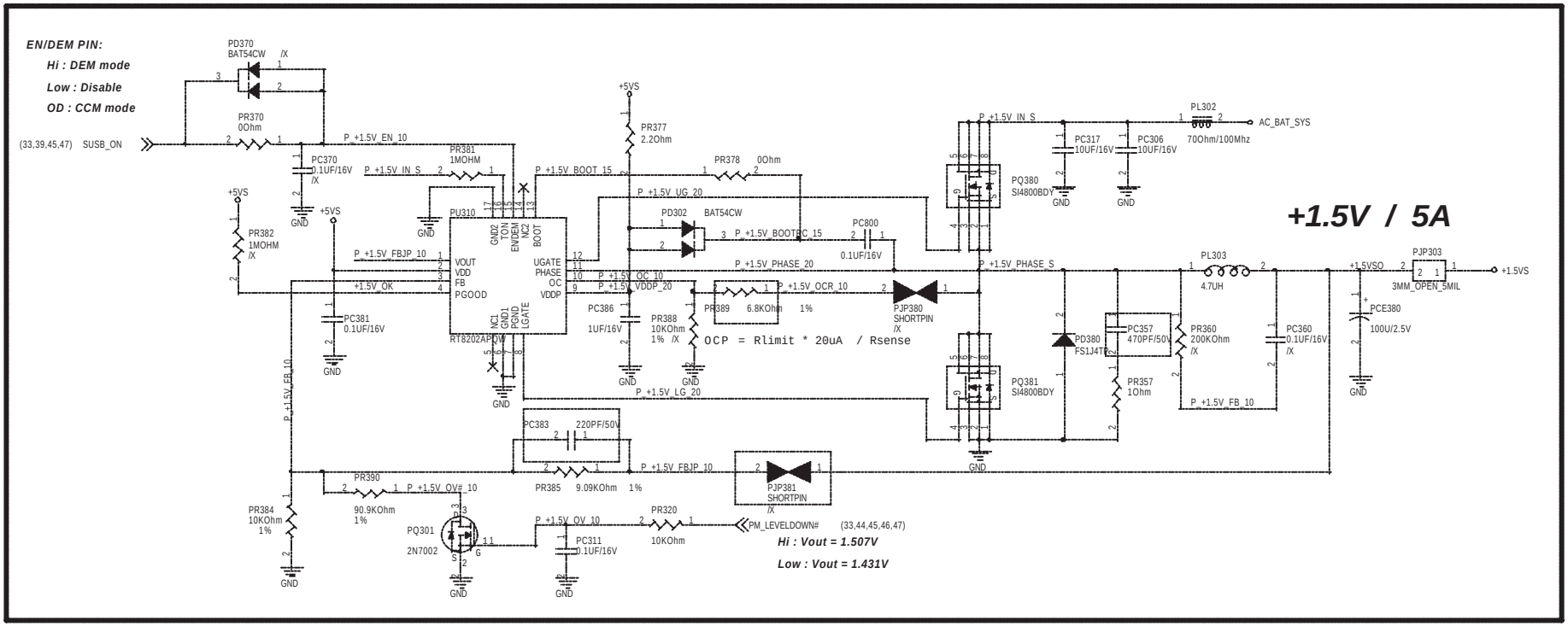
<Core Design>

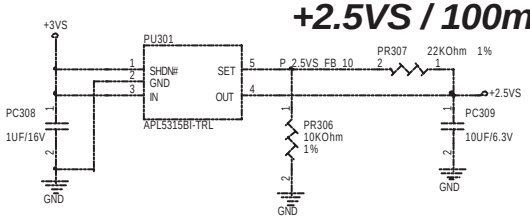
Title : VCCP

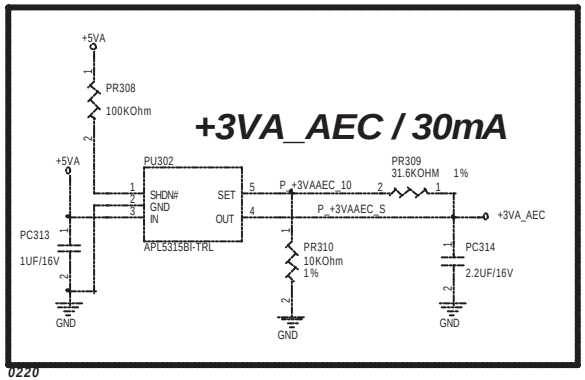
A S U S Tek Computer INC. Engineer: Joy_Zhou

Size	Project Name	Rev
A3	904HD	1.3G

Date: Tuesday, July 01, 2008 Sheet 47 of 49



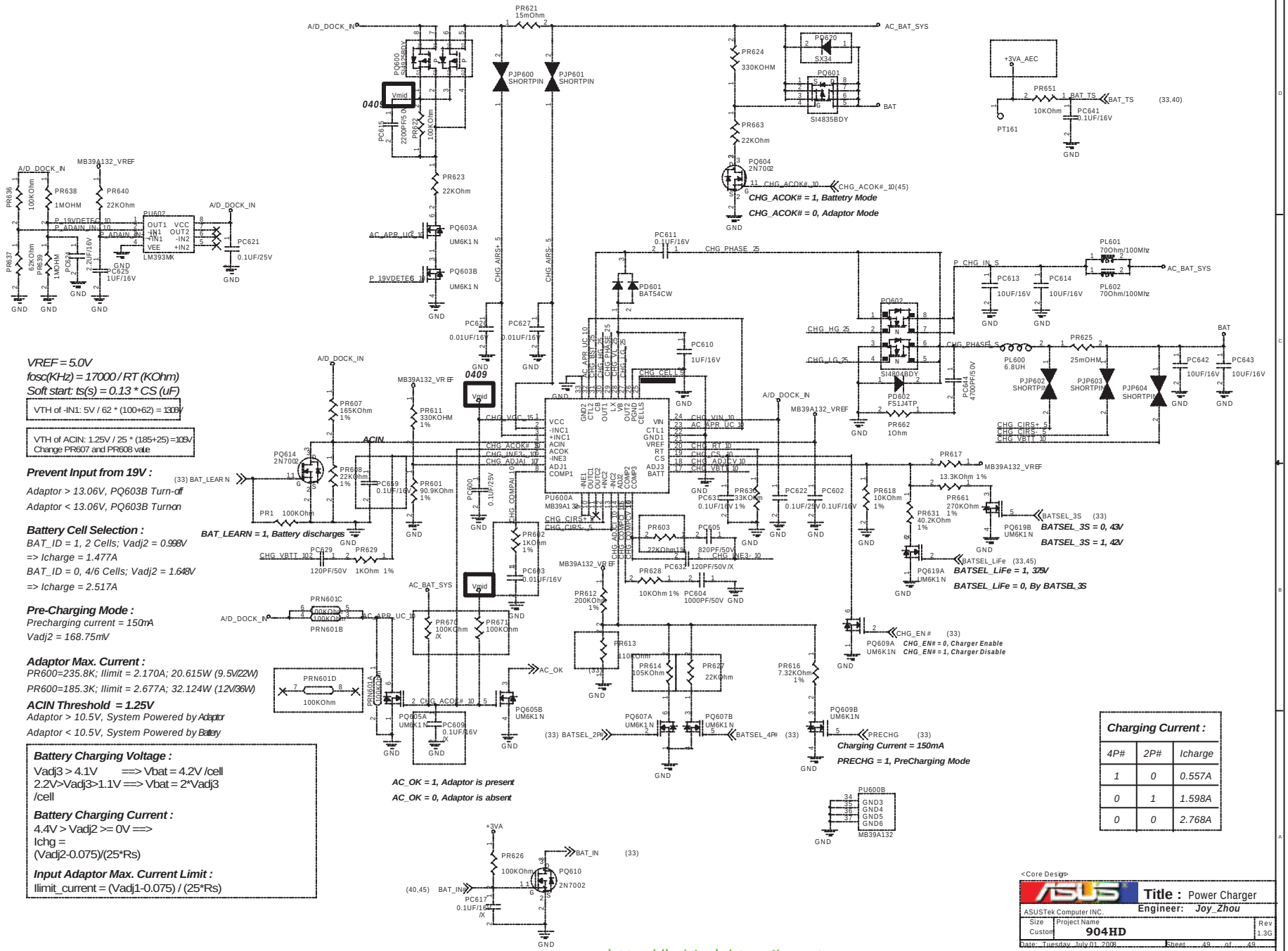




0220

<Core Design>

ASUS	Title : +1.5VS & +2.5VS	
A S U S Tek Computer INC.	Engineer: Joy_Zhou	
Size: A3	Project Name: 904HD	Rev: 1.3G
Date: Tuesday, July 01, 2008	Sheet 48 of 49	


VREF = 5.0V
fosc(KHz) = 17000 / RT (KOhm)
Soft start: ts(s) = 0.13 * CS (uF)
VTH of -IN1: 5V / 62 * (100+62) = 13.06V
VTH 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_ID = 1, 2 Cells; Vadj2 = 0.998V
=> Icharge = 1.477A
BAT_ID = 0, 4/6 Cells; Vadj2 = 1.648V
=> Icharge = 2.517A
Pre-Charging Mode :
Precharging current = 150mA
Vadj2 = 168.75mV
Adaptor Max. Current :
PR600=235.8K; Ilimit = 2.170A; 20.615W (9.5V/22W)
PR600=185.3K; Ilimit = 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 :
Vadj3 > 4.1V ==> Vbat = 4.2V /cell
2.2V>Vadj3>1.1V ==> Vbat = 2*Vadj3 /cell
Battery Charging Current :
4.4V > Vadj2 >= 0V ==>
Ichg =
(Vadj2-0.075)/(25*Rs)
Input Adaptor Max. Current Limit :
Ilimit_current = (Vadj1-0.075) / (25*Rs)
A/D_DOCK_IN
AC_BAT_SYS
BAT
MB39A132_VREF
ACIN
BAT_LEARN = 1, Battery discharges
CHG_ACOK# = 1, Battery Mode
CHG_ACOK# = 0, Adaptor Mode
AC_OK = 1, Adaptor is present
AC_OK = 0, Adaptor is absent
BATSEL_3S = 0, 4S
BATSEL_3S = 1, 2S
BATSEL_LiFe = 1, 3S
BATSEL_LiFe = 0, By BATSEL_3S
CHG_EN# = 0, Charger Enable
CHG_EN# = 1, Charger Disable
Charging Current = 150mA
PRECHG = 1, PreCharging Mode
Charging Current :
4P# 2P# Icharge
1 0 0.557A
0 1 1.598A
0 0 2.768A
Title : Power Charger
Engineer: Joy_Zhou
ASUSTek Computer INC.
Size Custom
Project Name 904HD
Rev 1.3G
Date: Tuesday, July 01, 2008
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