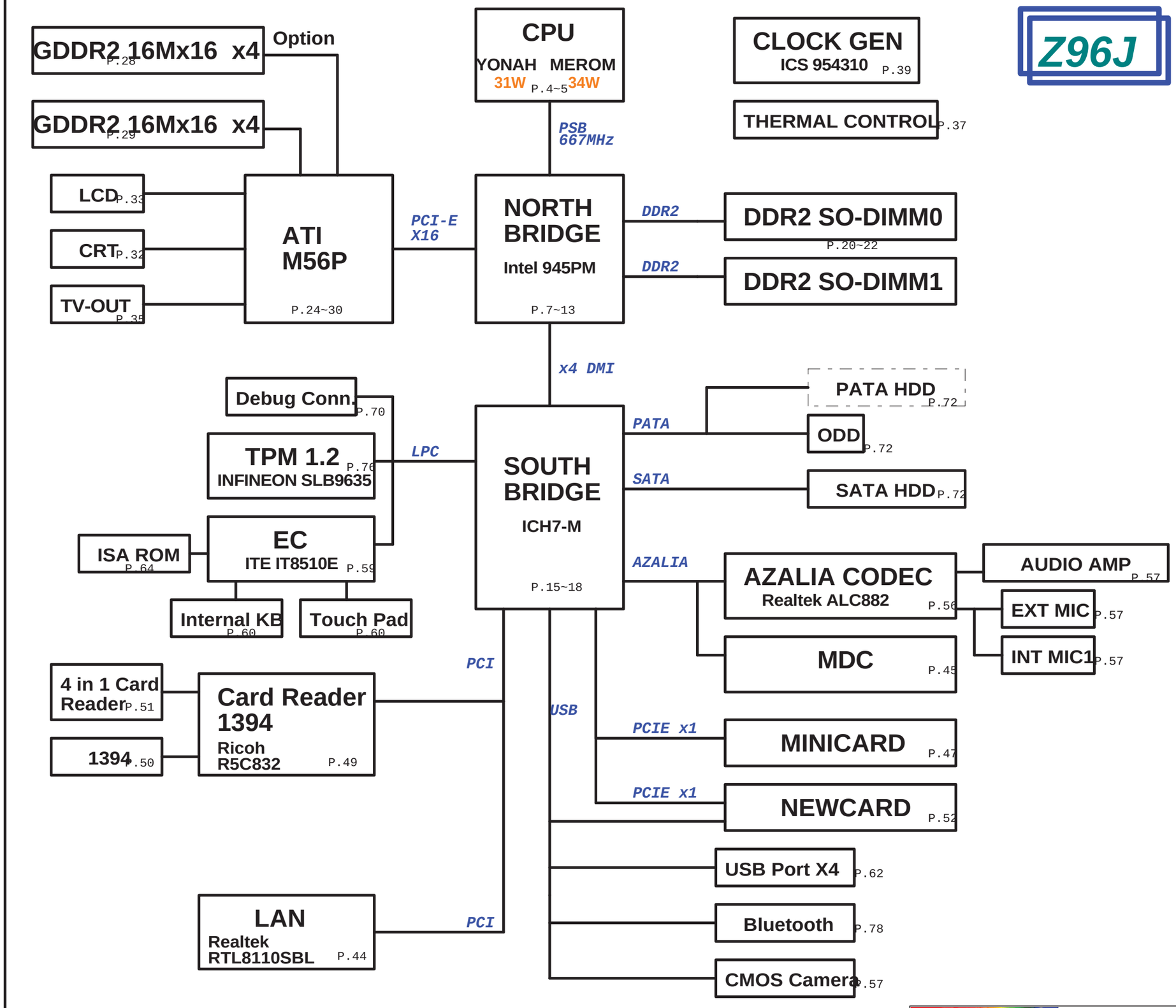

ASUSTek Computer INC.

Title : Block Diagram

Engineer: Alan Chu

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 1 of 92

EC GPIO SETTING

Pin	Pin Name	Signal Name	Type	Z96J Default	EC Default
32	PWM0/GPA0	/			GPI
33	PWM1/GPA1	FAN_PWM	O	H	GPI
36	PWM2/GPA2	CLK_PWRSAVE#	O		GPI
37	PWM3/GPA3	/			GPI
38	PWM4/GPA4	CHG_LED_UP#	O	H	GPI
39	PWM5/GPA5	PWR_LED_UP#	O	H	GPI
40	PWM6/GPA6	/	O		GPI
43	PWM7/GPA7	LCD_BACKOFF#	O	H	GPI
153	RXD/GPB0	NUM_LED	O	L	GPI
154	TXD/GPB1	CAP_LED	O	L	GPI
162	GPB2	SCRL_LED	O	L	GPI
163	SMCLK0/GPB3	SMB0_CLK	SMCLK0		GPI
164	SMDAT0GPB4	SMB0_DAT	SMDAT0		GPI
5	GA20/GPB5	A20GATE	GA20		GPO
6	KBRST#/GPB6	RC_IN#	KBRST#		KBRST#
165	GPB7	/	I		GPI
47	CLKOUT/GPC0	/	O		GPI
169	SMCLK1/GPC1	SMB1_CLK	SMCLK1		GPI
170	SMDAT1/GPC2	SMB1_DAT	SMDAT1		GPI
171	GPC3	MAIL_LED	O	L	GPI
172	TMRI0/WUI2/GPC4	/	I		GPI
175	GPC5	OP_SD#	O	H	GPI
176	TMRI1/WUI3/GPC6	BAT_IN_OC#	I	H	GPI
1	CK32KOUT/GPC7	/			GPI
26	RI1#/WUI0/GPD0	SUSB#	I		GPI
29	RI2#/WUI1/GPD1	SUSC#	I		GPI
30	LPCRST#/WUI4//GPD2	PLT_RST#	LPCRST		LPCRST
31	ECSCI#/GPD3	EXT_SCI#	ECSCI#	H	GPI
41	GPD4	RF_ON_SW#	O	H	GPI
42	GINT/GPD5	/			GPI
62	TACH0/GPD6	FAN0_TACH	TACH0		GPI
63	TACH1/GPD7	/			GPI
87	ADC4/GPE0	DISTP_SW#	I		GPI
88	ADC5/GPE1	/			GPI
89	ADC6/GPE2	EMAIL_SW#	I		GPI
90	ADC7/GPE3	EXPLORE_SW#	I		GPI
2	PWRSW/GPE4	PWR_SW#	PWRSW		GPI
44	WUI5/GPE5	/			GPI
24	LPCPD#/WUI6/GPE6	LID_EC#	I		GPI
25	CLKRUN#/WUI7/GPE7	/			GPI
110	PS2CLK0/GPF0	/			GPI
111	PS2DAT0/GPF1	/			GPI
114	PS2CLK1/GPF2	/			GPI
115	PS2DAT1/GPF3	/			GPI
116	PS2CLK2/GPF4	TP_CLK	PS2CLK2		GPI
117	PS2DAT2/GPF5	TP_DAT	PS2DAT2		GPI
118	PS2CLK3/GPF6	/			GPI
119	PS2DAT3/GPF7	INTERNET#	I		GPI
113	FA16/GPG0	FA16	FA16		GPI
112	FA17/GPG1	FA17	FA17		GPI
104	FA18/GPG2	FA18	FA18		GPI
103	FA19/GPG3	/			GPI
3	FA20/GPG4	THRM_CPU#	I	H	GPI
4	FA21/GPG5	/			GPI
27	LPC80HL/GPG6	PMTHERM#	O	H	GPI
28	LPC80LL/GPG7	AC_APR_UC#	I	H	GPI

Pin	Pin Name	Signal Name	Type	Default	
48	GPH0	VSUS_ON	O	L	GPI
54	GPH1	VSUS_GD#	I	H	GPI
55	GPH2	CPUPWR_GD#	I	H	GPI
69	GPH3	PM_PWRBTN#	O	H	GPI
70	GPH4	SUSC_ON	O	L	GPI
75	GPH5	SUSB_ON	O	L	GPI
76	GPH6	CPU_VRON	O	L	GPI
105	GPH7	PM_RSMRST#	O	L	GPI
148	GPI0	ICH7_PWROK	O	L	GPI
149	GPI1	/	O		GPI
152	GPI2	MCHOK	I	L	GPI
155	GPI3	CHG_EN#	O	H	GPI
156	GPI4	PRECHG	O	L	GPI
168	GPI5	BAT_LL#	O	H	GPI
174	GPI6	BAT_LEARN	O	L	GPI
93	ADC8	KID0	I		
94	ADC9	KID1	I		
101	DAC2	BL_PWM_DA	O		
102	DAC3	BATSEL_2P#	O		

SM-Bus Device	SM-Bus Address
Clock Generator	1101001x (D2)
SO-DIMM 0	1010000x (A0)
SO-DIMM 1	1010001x (A2)
Thermal Sensor	0100110X (98)

ICH7-M GPIO SETTING

Pin	Pin Name	Signal Name	Type	Power_Well	Default
AB18	GPIO00/BM_BUSY#	PM_BMBUSY#	I	Core(To:3.3V)	GPI
C8	GPIO01/REQ5#	PCI_REQ#5	I/O	Core(To:5V)	GPI
G8	GPIO02/PIRQE#	PCI_INTE#	I(OD)	Core(To:5V)	GPI
F7	GPIO03/PIRQF#	PCI_INTF#	I(OD)	Core(To:5V)	GPI
F8	GPIO04/PIRQG#	PCI_INTG#	I(OD)	Core(To:5V)	GPI
G7	GPIO05/PIRQH#	PCI_INTH#	I(OD)	Core(To:5V)	GPI
AC21	GPIO06	NC	I/O	Core(To:3.3V)	GPI
AC18	GPIO07	WLAN_BT_LED_EN#	O	Core(To:3.3V)	GPI
E21	GPIO08	EXTSMI#	I	SUS(To:3.3V)	GPI
E20	GPIO09	SATA_DET#0	I/O	SUS(To:3.3V)	GPI
A20	GPIO10	WLAN_ON#	O	SUS(To:3.3V)	GPI
B23	SMBALERT#/GPIO11	SMB_ALERT#	I/O	SUS(To:3.3V)	Native
F19	GPIO12	KBC_SCI#	I	SUS(To:3.3V)	GPI
E19	GPIO13	TP	I/O	SUS(To:3.3V)	GPI
R4	GPIO14	NC	I/O	SUS(To:3.3V)	GPI
E22	GPIO15	CB_SD#	I/O	SUS(To:3.3V)	GPI
AC22	GPIO16/DPRSLPVR	PM_DPRSLPVR	O	Core(To:3.3V)	Native
D8	GPIO17/GNT5#	PCI_GNT#5	I/O	Core(To:3.3V)	GPO
AC20	GPIO18/STP_PCI#	STP_PCI#	O	Core(To:3.3V)	GPO
AH18	GPIO19/SATA1GP	NC	O	Core(To:3.3V)	GPI
AF21	GPIO20/STP_CPU#	STP_CPU#	O	Core(To:3.3V)	GPO
AE19	GPIO21/SATA0GP	NC	I/O	Core(To:3.3V)	GPI
A13	GPIO22/REQ4#	PCI_REQ#4	I/O	Core(To:3.3V)	Native
AA5	LDRQ1#/GPIO23	TP	I/O	Core(To:3.3V)	Native
R3	GPIO24	NC	I/O	SUS(To:3.3V)	GPO
D20	GPIO25	NC	I/O	SUS(To:3.3V)	GPO
A21	GPIO26/EL_RSVD	NC	I/O	SUS(To:3.3V)	GPO
B21	GPIO27/EL_STATE0	PD_DET#	I/O	SUS(To:3.3V)	GPO
E23	GPIO28/EL_STATE1	NC	I/O	SUS(To:3.3V)	GPO
C3	GPIO29/OC#5	USB_OC#5	I/O	SUS(To:3.3V)	Native
A2	GPIO30/OC#6	NEWCARD_OC#	I	SUS(To:3.3V)	Native
B3	GPIO31/OC#7	USB_OC#7	I/O	SUS(To:3.3V)	Native
AG18	GPIO32/CLKRUN#	PM_CLKRUN#	O	Core(To:3.3V)	GPO
AC19	GPIO33/AZ_DOCK_EN#	BT_ON#	O	Core(To:3.3V)	GPO
U2	GPIO34/AZ_DOCK_RST#	NC	I/O	Core(To:3.3V)	GPO
AD21	GPIO35	NC	I/O	Core(To:3.3V)	GPO
AH19	GPIO36/SATA2GP	NC	I/O	Core(To:3.3V)	GPI
AE19	GPIO37/SATA3GP	PCB_ID0	I	Core(To:3.3V)	GPI
AD20	GPIO38	PCB_ID1	I	Core(To:3.3V)	GPI
AE20	GPIO39	PCB_ID2	I	Core(To:3.3V)	GPI
A14	GNT4#/GPIO48	PCI_GNT#4	I/O	Core(To:3.3V)	Native
AG24	GPIO49/CPUPWRGD	H_PWRGD	O	V_CPU_IO	Native

PCI Device	IDSEL#	REQ/GNT#	Interrupts
CARD READER	AD17	0	B
1394	AD17	0	A
LAN	AD23	2	C

ASUSTek Computer INC.

Title : <Title>

Engineer: Alan Chu

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 2 of 92

ASUSTeK COMPUTER INC	Title : Schematic page name			
	Engineer: *Alan Chu*			
Size: Custom	Project Name: Z96J			Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 3 of 92			

U1A

ADDR GROUP 0
A[3]# A[4]# A[5]# A[6]# A[7]# A[8]# A[9]# A[10]# A[11]# A[12]# A[13]# A[14]# A[15]# A[16]#
ADSTB[0]#
REQ[0]# REQ[1]# REQ[2]# REQ[3]# REQ[4]#

ADDR GROUP 1
A[17]# A[18]# A[19]# A[20]# A[21]# A[22]# A[23]# A[24]# A[25]# A[26]# A[27]# A[28]# A[29]# A[30]# A[31]#
ADSTB[1]#

THERM
A20M# FERR# IGNNE#

HCLK
STPCLK# LINT0 LINT1 SMI#

RESERVED
RSVD[1] RSVD[2] RSVD[3] RSVD[4] RSVD[5] RSVD[6] RSVD[7] RSVD[8] RSVD[9] RSVD[10] RSVD[11] RSVD[12] RSVD[13] RSVD[14] RSVD[15] RSVD[16] RSVD[17] RSVD[18] RSVD[19] RSVD[20]

CONTROL
ADS# BNR# BPRI# DEFER# DRDY# DBSY# BR0# IERR# INIT# LOCK# RESET# RS[0]# RS[1]# RS[2]# TRDY# HIT# HITM#

XDP/ITP SIGNALS
BPM[0]# BPM[1]# BPM[2]# BPM[3]# PRDY# PREQ# TCK TDI TDO TMS TRST# DBR#

H_A#[16:3] → H_A#3 J4 … H_A#16 R1
H_ADSTB#0 → L2
H_REQ#[4:0] → H_REQ#0 K3 … H_REQ#4 L5
H_A#[31:17] → H_A#17 Y2 … H_A#31 Y1
H_ADSTB#1 → V4
H_A20M# → A6
H_FERR# → A5
H_IGNNE# → C4
H_STPCLK# → D5
H_INTR → C6
H_NMI → B4
H_SMI# → A3

H_ADS# 7 → H1
H_BNR# 7 → E2
H_BPRI# 7 → G5
H_DEFER# 7 → H5
H_DRDY# 7 → F21
H_DBSY# 7 → E1
H_BR0# 7 → F1
H_IERR# → D20
H_INIT# 15 → B3
H_LOCK# 7 → H4
H_CPURST# 7 → B1
H_RS#0 7 → F3
H_RS#1 7 → F4
H_RS#2 7 → G3
H_TRDY# 7 → G2
H_HIT# 7 → G6
H_HITM# 7 → E4

HBPM0# HBPM1# HBPM2# HBPM3# HBPM4# H_PREQ# H_TCK H_TDI H_TDO H_TMS H_TRST#

+VCCP → R1 56Ohm → H_IERR#
+VCCP → R2 56Ohm → H_PROCHOT

TPC26T 1 T2

R1.01

H_PROCHOT
H_THERMDA 37
H_THERMDC 37
PM_THRMTRIP# 8,15

CLK_CPU_BCLK 39
CLK_CPU_BCLK# 39

SOCKET478P

CPU Debug Port

Default Strapping When Not Used

H_PREQ# R7 56Ohm /X
H_TDO R8 56Ohm /X
H_TMS H_TDI H_TCK H_TRST# → RN1A RN1B RN1C RN1D (56Ohm)
+VCCP
GND

AGTL+ I/O Voltage Reference

+VCCP
R3 1KOhm 1%
R4 2KOhm 1%
GND

U1B

DATA GRP 0
D[0]# D[1]# D[2]# D[3]# D[4]# D[5]# D[6]# D[7]# D[8]# D[9]# D[10]# D[11]# D[12]# D[13]# D[14]# D[15]#
DSTBN[0]# DSTBP[0]# DINV[0]#

DATA GRP 1
D[16]# D[17]# D[18]# D[19]# D[20]# D[21]# D[22]# D[23]# D[24]# D[25]# D[26]# D[27]# D[28]# D[29]# D[30]# D[31]#
DSTBN[1]# DSTBP[1]# DINV[1]#

DATA GRP 2
D[32]# D[33]# D[34]# D[35]# D[36]# D[37]# D[38]# D[39]# D[40]# D[41]# D[42]# D[43]# D[44]# D[45]# D[46]# D[47]#
DSTBN[2]# DSTBP[2]# DINV[2]#

DATA GRP 3
D[48]# D[49]# D[50]# D[51]# D[52]# D[53]# D[54]# D[55]# D[56]# D[57]# D[58]# D[59]# D[60]# D[61]# D[62]# D[63]#
DSTBN[3]# DSTBP[3]# DINV[3]#

MISC
GTLREF TEST1 TEST2 BSEL[0] BSEL[1] BSEL[2]
COMP[0] COMP[1] COMP[2] COMP[3]
DPRSTP# DPSLP# DPWR# PWRGOOD SLP# PSI#

H_D#[15:0] → H_D#0 E22 … H_D#15 H25
H_DSTBN#0 → H23
H_DSTBP#0 → G22
H_DINV#0 → J26
H_D#[31:16] → H_D#16 N22 … H_D#31 N24
H_DSTBN#1 → M24
H_DSTBP#1 → N25
H_DINV#1 → M26
H_D#[47:32] 7 → H_D#32 AA23 … H_D#47 AA24
H_DSTBN#2 7 → W24
H_DSTBP#2 7 → Y25
H_DINV#2 7 → V23
H_D#[63:48] 7 → H_D#48 AC22 … H_D#63 AD24
H_DSTBN#3 7 → AD23
H_DSTBP#3 7 → AE24
H_DINV#3 7 → AC20

GTL_REF → AD26
R5 2KOhm /X → C26
R6 51.1Ohm → D25
CPU_BSEL0 → B22
CPU_BSEL1 → B23
CPU_BSEL2 → C21
39 CPU_BSEL0 39 CPU_BSEL1 39 CPU_BSEL2

H_COMP0 H_COMP1 H_COMP2 H_COMP3 → R26 U26 U1 V1

H_DPRSTP# 15
H_DPSLP# 15
H_DPWR# 7
H_PWRGD 15
H_CPUSLP# 7,15
PM_PSI# 80

SOCKET478P

BCLK	FSB	BSEL2	BSEL1	BSEL0
133	533	L	L	H
166	667	L	H	H

AGTL+ I/O Buffer Compensation

R9 1% 27.4Ohm H_COMP0 → GND
R10 1% 27.4Ohm H_COMP2 → GND
R11 1% 54.9Ohm H_COMP1 → GND
R12 1% 54.9Ohm H_COMP3 → GND

AGTL+ I/O Buffer Compensation

+VCCP +VCCP
ITP
H_PREQ# HBPM4# HBPM3# HBPM2# HBPM1# HBPM0#
ITP_CON_60P /X
NP_NC1 NP_NC2
GND GND

+VCCP
R5752 1.5KOhm /X
R5751 1.5KOhm /X
H_PWRGD
R5755 0Ohm /X
ITP_PWRGD
ITP_TESTIN#
17,20,21,39,47,52 SMB_DAT_S
17,20,21,39,47,52 SMB_CLK_S
H_TCK

CLK_CPU_BCLK → R5750 0Ohm /X → ITP_CLK
CLK_CPU_BCLK# → R5753 0Ohm /X → ITP_CLK#
H_CPURST# → R5756 0Ohm /X → ITP_CPURST#

ITP_CLK
ITP_CLK#
ITP_CPURST#
RSTCON#
H_TDO
H_TRST#
H_TDI
H_TMS

+3VS → R5754 1.5KOhm /X

ASUSTeK COMPUTER INC.

Title : CPU-YONAH(HOST)
Engineer: Alan Chu

Size	Project Name	Rev
Custom	Z96J	1.0

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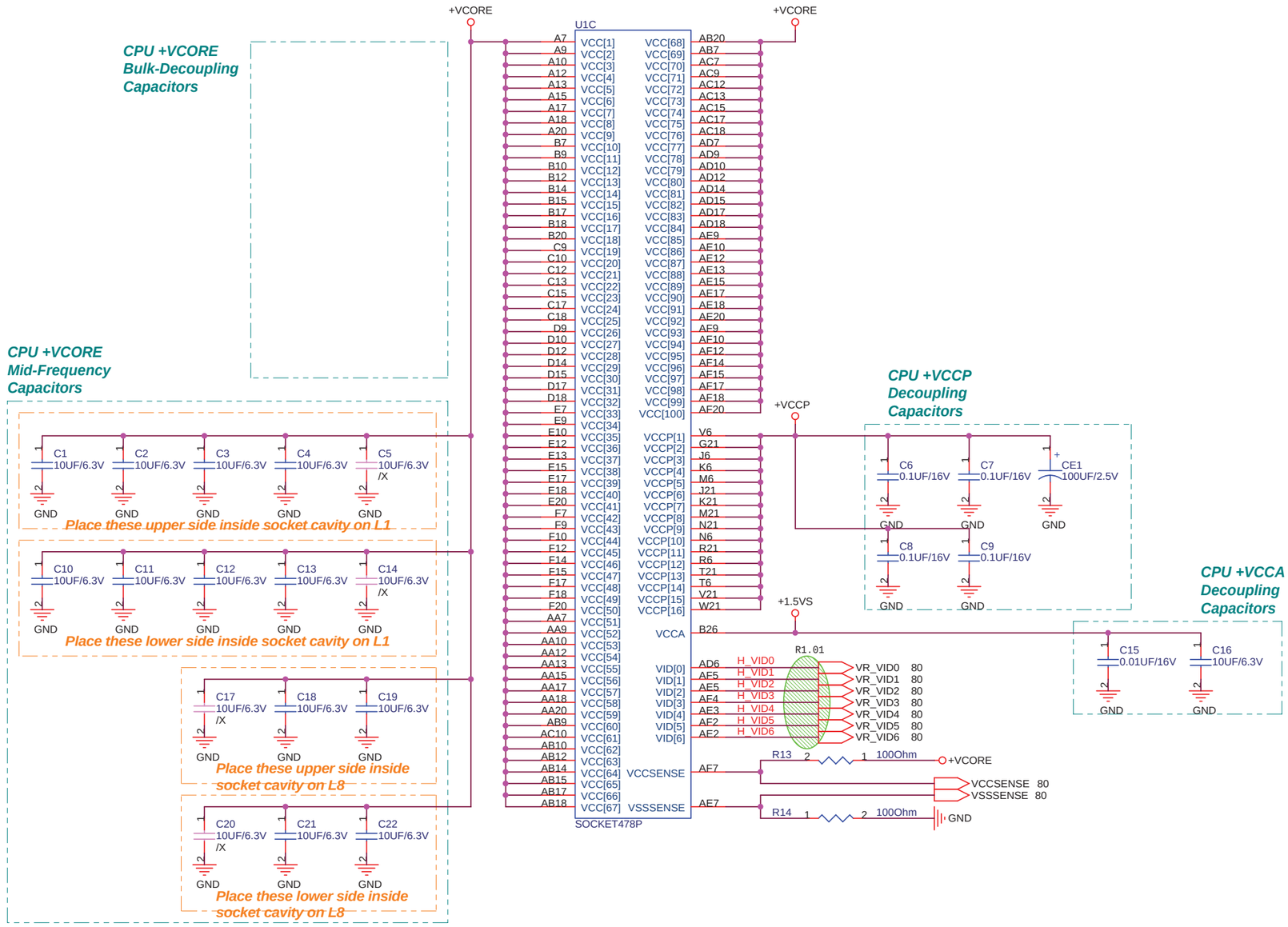


+VCORE Mid-Frequency Capacitor
*Intel: 22UF *32*
*R1F: 10UF *16*
+VCCP Decoupling Capacitor
*Intel: 270UF *1, 0.1UF *6*
*R1F: 220UF *1, 0.1UF *4*

ASUSTeK COMPUTER INC. NB1

Title : CPU_YONAH(PWR)

Engineer: Alan Chu

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 5 of 92

ASUSTeK COMPUTER INC	Title : Schematic page name	
	Engineer: *Frank Wang*	
Size: Custom	Project Name: F3J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 6 of 92	

RCOMP

For Calibrating the FSB I/O Buffer

H_XRCOMP — R15 24.9Ohm 1% — GND

H_YRCOMP — R16 24.9Ohm 1% — GND

SCOMP

For Slew Rate Compenssation on the FSB

+VCCP — R19 54.9Ohm 1% — H_XSCOMP

+VCCP — R20 54.9Ohm 1% — H_YSCOMP

Voltage Swing

For Providing a Reference Voltage to The FSB RCOMP circuits

+VCCP — R21 221Ohm 1% — H_XSWING — R23 100Ohm 1% — GND; H_XSWING — C24 0.1UF/16V — GND

+VCCP — R22 221Ohm 1% — H_YSWING — R24 100Ohm 1% — GND; H_YSWING — C25 0.1UF/16V — GND

AGTL+ I/O Voltage Reference

+VCCP — R17 100Ohm 1% — H_VREF — R18 200Ohm 1% — GND

H_VREF — C23 0.1UF/16V — GND

U2A

HOST

4 H_D#[63:0]

H_D#0	F1	H_D#_0
H_D#1	J1	H_D#_1
H_D#2	H1	H_D#_2
H_D#3	J6	H_D#_3
H_D#4	H3	H_D#_4
H_D#5	K2	H_D#_5
H_D#6	G1	H_D#_6
H_D#7	G2	H_D#_7
H_D#8	K9	H_D#_8
H_D#9	K1	H_D#_9
H_D#10	K7	H_D#_10
H_D#11	J8	H_D#_11
H_D#12	H4	H_D#_12
H_D#13	J3	H_D#_13
H_D#14	K11	H_D#_14
H_D#15	G4	H_D#_15
H_D#16	T10	H_D#_16
H_D#17	W11	H_D#_17
H_D#18	T3	H_D#_18
H_D#19	U7	H_D#_19
H_D#20	U9	H_D#_20
H_D#21	U11	H_D#_21
H_D#22	T11	H_D#_22
H_D#23	W9	H_D#_23
H_D#24	T1	H_D#_24
H_D#25	T8	H_D#_25
H_D#26	T4	H_D#_26
H_D#27	W7	H_D#_27
H_D#28	U5	H_D#_28
H_D#29	T9	H_D#_29
H_D#30	W6	H_D#_30
H_D#31	T5	H_D#_31
H_D#32	AB7	H_D#_32
H_D#33	AA9	H_D#_33
H_D#34	W4	H_D#_34
H_D#35	W3	H_D#_35
H_D#36	Y3	H_D#_36
H_D#37	Y7	H_D#_37
H_D#38	W5	H_D#_38
H_D#39	Y10	H_D#_39
H_D#40	AB8	H_D#_40
H_D#41	W2	H_D#_41
H_D#42	AA4	H_D#_42
H_D#43	AA7	H_D#_43
H_D#44	AA2	H_D#_44
H_D#45	AA6	H_D#_45
H_D#46	AA10	H_D#_46
H_D#47	Y8	H_D#_47
H_D#48	AA1	H_D#_48
H_D#49	AB4	H_D#_49
H_D#50	AC9	H_D#_50
H_D#51	AB11	H_D#_51
H_D#52	AC11	H_D#_52
H_D#53	AB3	H_D#_53
H_D#54	AC2	H_D#_54
H_D#55	AD1	H_D#_55
H_D#56	AD9	H_D#_56
H_D#57	AC1	H_D#_57
H_D#58	AD7	H_D#_58
H_D#59	AC6	H_D#_59
H_D#60	AB5	H_D#_60
H_D#61	AD10	H_D#_61
H_D#62	AD4	H_D#_62
H_D#63	AC8	H_D#_63

H_XRCOMP	E1	H_XRCOMP
H_XSCOMP	E2	H_XSCOMP
H_XSWING	E4	H_XSWING
H_YRCOMP	Y1	H_YRCOMP
H_YSCOMP	U1	H_YSCOMP
H_YSWING	W1	H_YSWING
	AG2	H_CLKIN
	AG1	H_CLKIN#

39 CLK_MCH_BCLK
39 CLK_MCH_BCLK#

H_A#3	H9	H_A#_3
H_A#4	C9	H_A#_4
H_A#5	E11	H_A#_5
H_A#6	G11	H_A#_6
H_A#7	F11	H_A#_7
H_A#8	G12	H_A#_8
H_A#9	F9	H_A#_9
H_A#10	H11	H_A#_10
H_A#11	J12	H_A#_11
H_A#12	G14	H_A#_12
H_A#13	D9	H_A#_13
H_A#14	J14	H_A#_14
H_A#15	H13	H_A#_15
H_A#16	J15	H_A#_16
H_A#17	F14	H_A#_17
H_A#18	D12	H_A#_18
H_A#19	A11	H_A#_19
H_A#20	C11	H_A#_20
H_A#21	A12	H_A#_21
H_A#22	A13	H_A#_22
H_A#23	E13	H_A#_23
H_A#24	G13	H_A#_24
H_A#25	F12	H_A#_25
H_A#26	B12	H_A#_26
H_A#27	B14	H_A#_27
H_A#28	C12	H_A#_28
H_A#29	A14	H_A#_29
H_A#30	C14	H_A#_30
H_A#31	D14	H_A#_31

H_A#[31:3] 4

H_ADS#	E8	H_ADS# 4
H_ADSTB#_0	B9	H_ADSTB#0 4
H_ADSTB#_1	C13	H_ADSTB#1 4
H_AVREF	J13	H_VREF
H_BNR#	C6	H_BNR# 4
H_BPRI#	F6	H_BPRI# 4
H_BREQ#0	C7	H_BR0# 4
H_CPURST#	B7	H_CPURST# 4
H_DBSY#	A7	H_DBSY# 4
H_DEFER#	C3	H_DEFER# 4
H_DPWR#	J9	H_DPWR# 4
H_DRDY#	H8	H_DRDY# 4
H_DVREF	K13	

H_DINV#_0	J7	H_DINV#0 4
H_DINV#_1	W8	H_DINV#1 4
H_DINV#_2	U3	H_DINV#2 4
H_DINV#_3	AB10	H_DINV#3 4
H_DSTBN#_0	K4	H_DSTBN#0 4
H_DSTBN#_1	T7	H_DSTBN#1 4
H_DSTBN#_2	Y5	H_DSTBN#2 4
H_DSTBN#_3	AC4	H_DSTBN#3 4
H_DSTBP#_0	K3	H_DSTBP#0 4
H_DSTBP#_1	T6	H_DSTBP#1 4
H_DSTBP#_2	AA5	H_DSTBP#2 4
H_DSTBP#_3	AC5	H_DSTBP#3 4
H_HIT#	D3	H_HIT# 4
H_HITM#	D4	H_HITM# 4
H_LOCK#	B3	H_LOCK# 4

H_REQ#_0	D8	H_REQ#0
H_REQ#_1	G8	H_REQ#1
H_REQ#_2	B8	H_REQ#2
H_REQ#_3	F8	H_REQ#3
H_REQ#_4	A8	H_REQ#4

H_REQ#[4:0] 4

H_RS#_0	B4	H_RS#0 4
H_RS#_1	E6	H_RS#1 4
H_RS#_2	D6	H_RS#2 4
H_SLPCPU#	E3	H_CPUSLP# 4,15
H_TRDY#	E7	H_TRDY# 4

CALISTOGA_Q137

ASUSTeK COMPUTER INC.

Title : NB-945PM(HOST)

Engineer: Alan Chu

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 7 of 92

GMCH Strapping

CFG5 : DMI Strap

0 = DMI x2

1 = DMI x4 (D)

MCH_CFG_5 — R25 /X 1KOhm — GND

CFG[13:12] : GMCH Test Mode

00= Partial CLK Gating Disable

01 = XOR Mode Enable

10 = All Z Mode Enable

11 = Normal Operation (D)

CFG7 : CPU Strap

0 = DT/Transpotable CPU

1 = Mobile CPU (D)

MCH_CFG_7 — R26 /X 1KOhm — GND

CFG15 : ICH RESET Disable

0 = ICH Reset Disable

1 = Normal Operation (D)

MCH_CFG_15 — R27 /X 1KOhm — GND

CFG9 : PCIE Graphic Lane

0 = Reverse Lane

1 = Normal Operation (D)

MCH_CFG_9 — R30 1KOhm — GND

CFG16 : FSB Dynamic ODT

0 = Dynamic ODT Disable

1 = Dynamic ODT Enable (D)

MCH_CFG_16 — R31 /X 1KOhm — GND

CFG10 : HOST PLL VCO Select

0 = Reserved

1 = Mobility (D)

MCH_CFG_10 — R34 /X 1KOhm — GND

CFG18 : VCC Select

0 = 1.05V (D)

1 = 1.5V

+2.5VS — MCH_CFG_18 — R35 /X 1KOhm — GND

CFG11 : PSB 4x CLK Enable

0 = 4x Enable

1 = 8x Enable (D)

MCH_CFG_11 — R37 /X 1KOhm — GND

CFG19 : DMI Lane Reversed

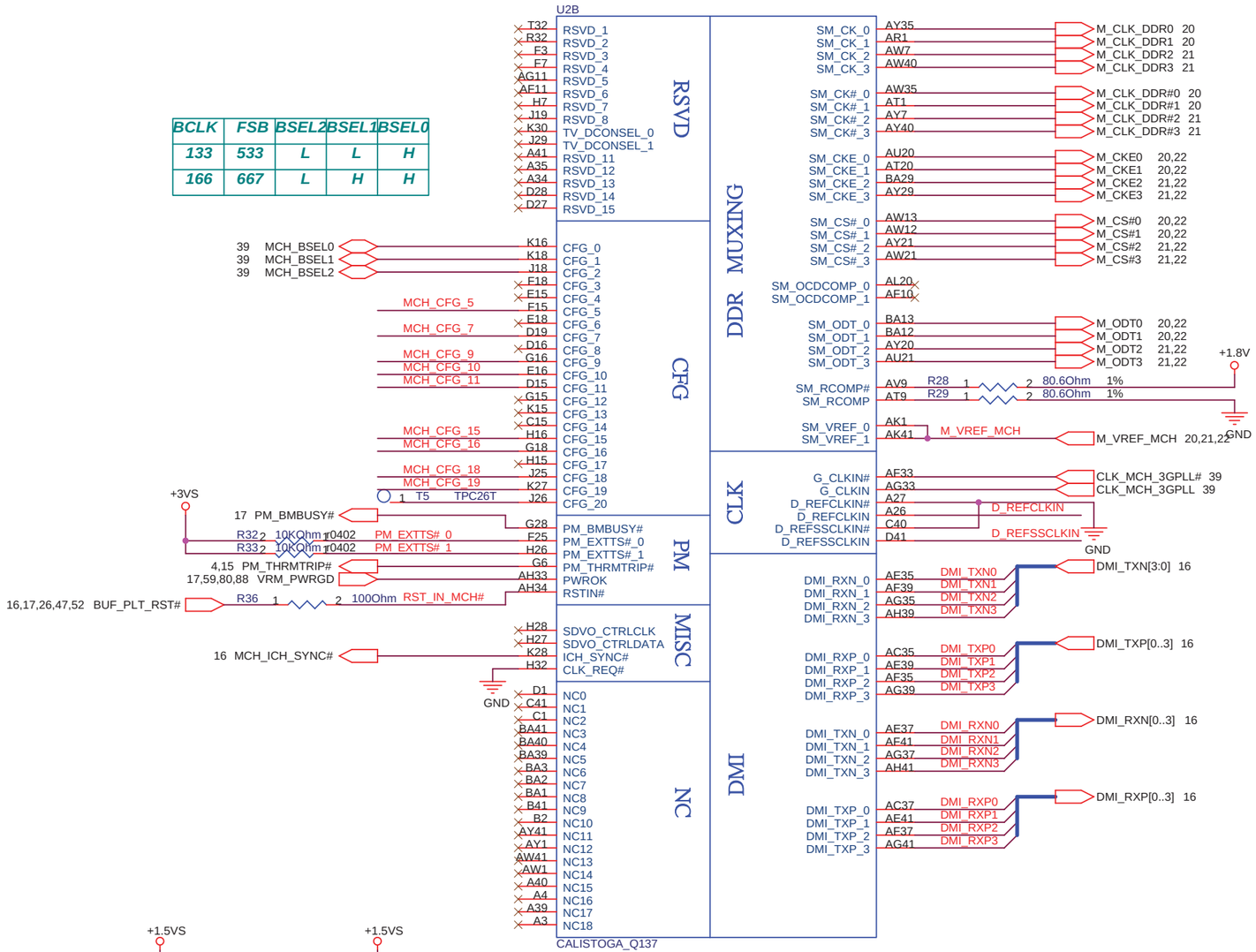
0 = Normal Operation (D)

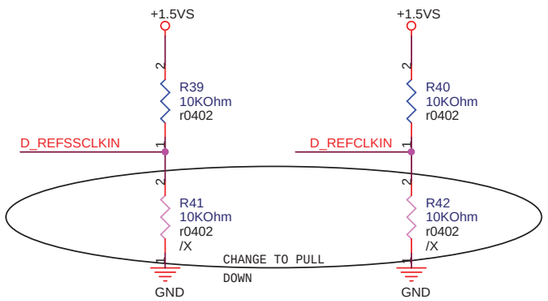
1 = Lanes Reversed

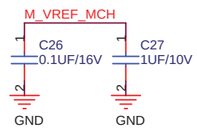
+2.5VS — MCH_CFG_19 — R38 /X 1KOhm — GND

Note: CFG[17:3] have internal pull-up while CFG[20:18] have internal pull-down.

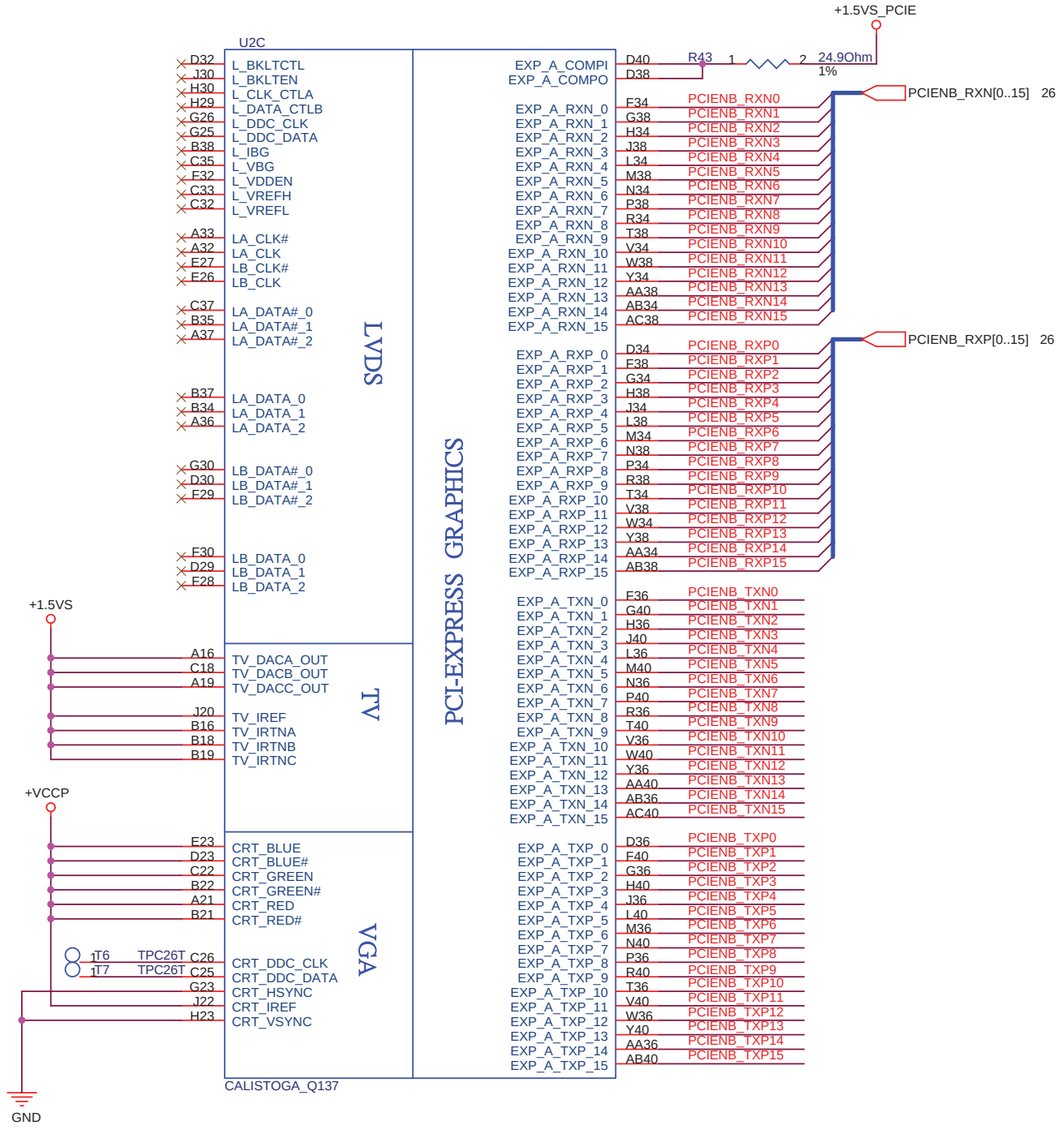
BCLK	FSB	BSEL2	BSEL1	BSEL0
133	533	L	L	H
166	667	L	H	H

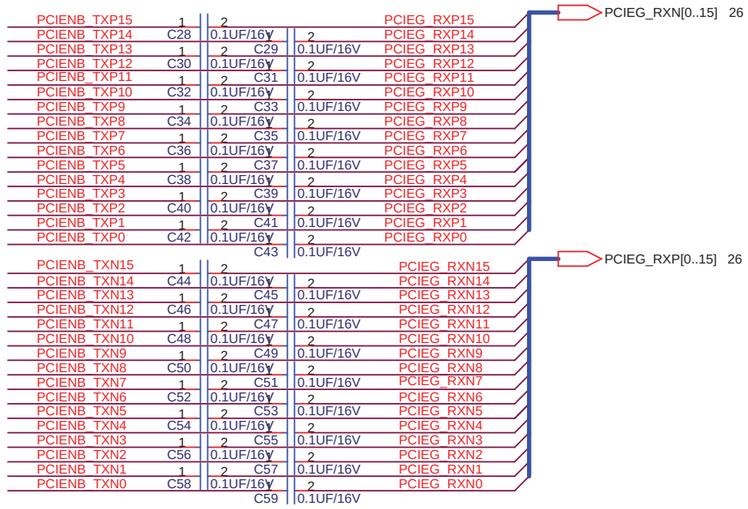




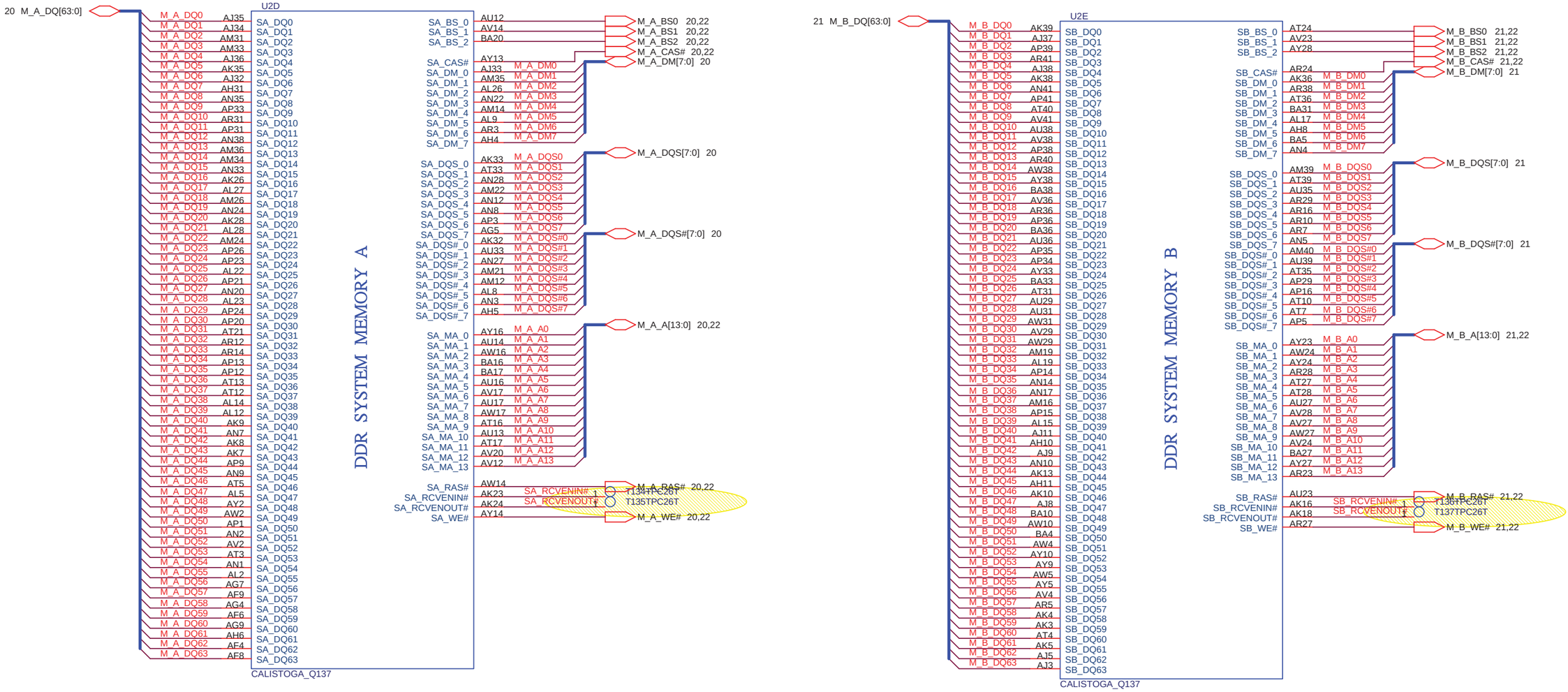


ASUSTeK COMPUTER INC.	Title : NB-945PM(DMI & CFG)	
	Engineer: Alan Chu	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 8 of 92	





ASUSTeK COMPUTER INC.	Title : NB_945PM(GRAPHIC)	
	Engineer: Alan Chu	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 9 of 92	



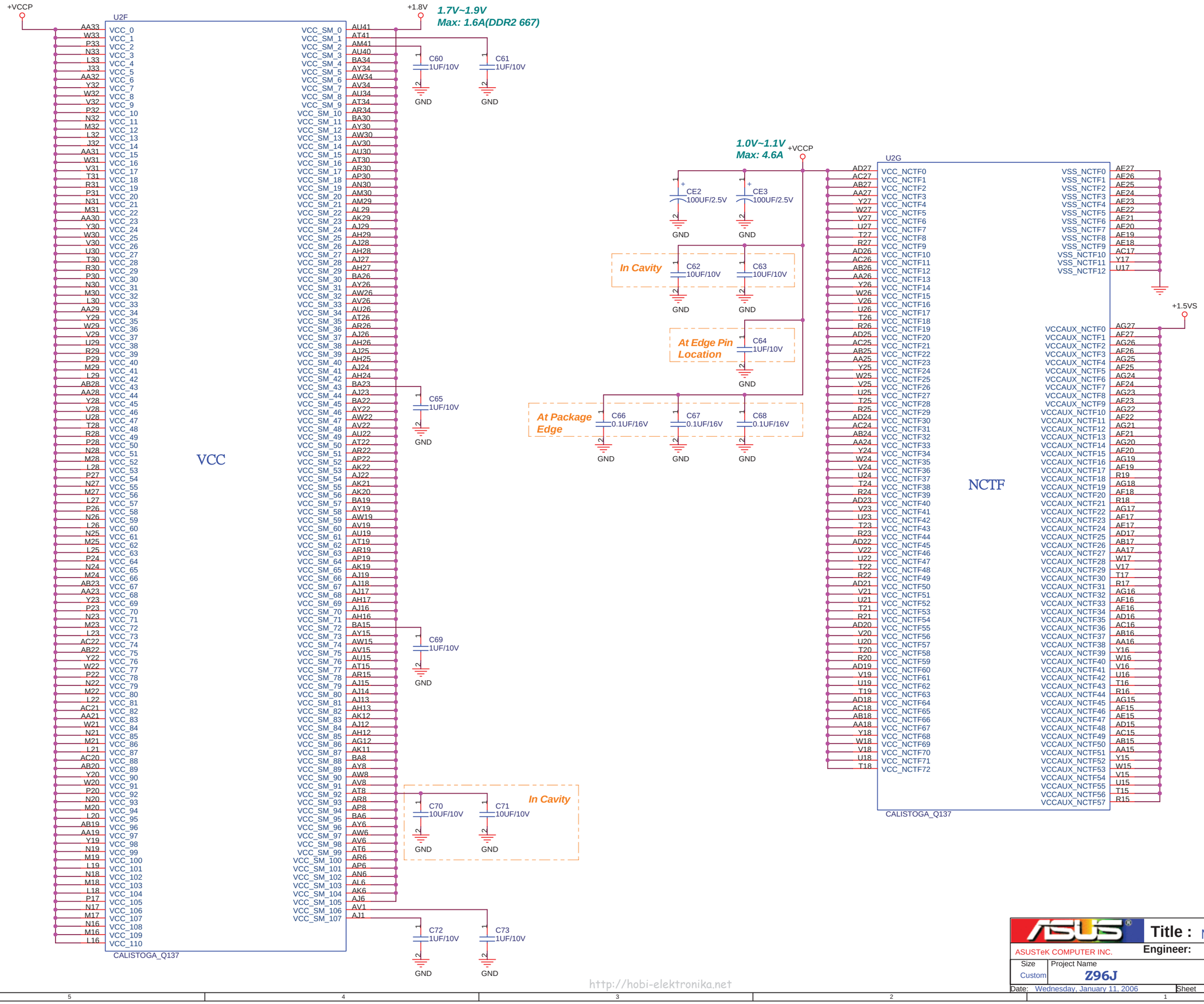
ASUSTeK COMPUTER INC.

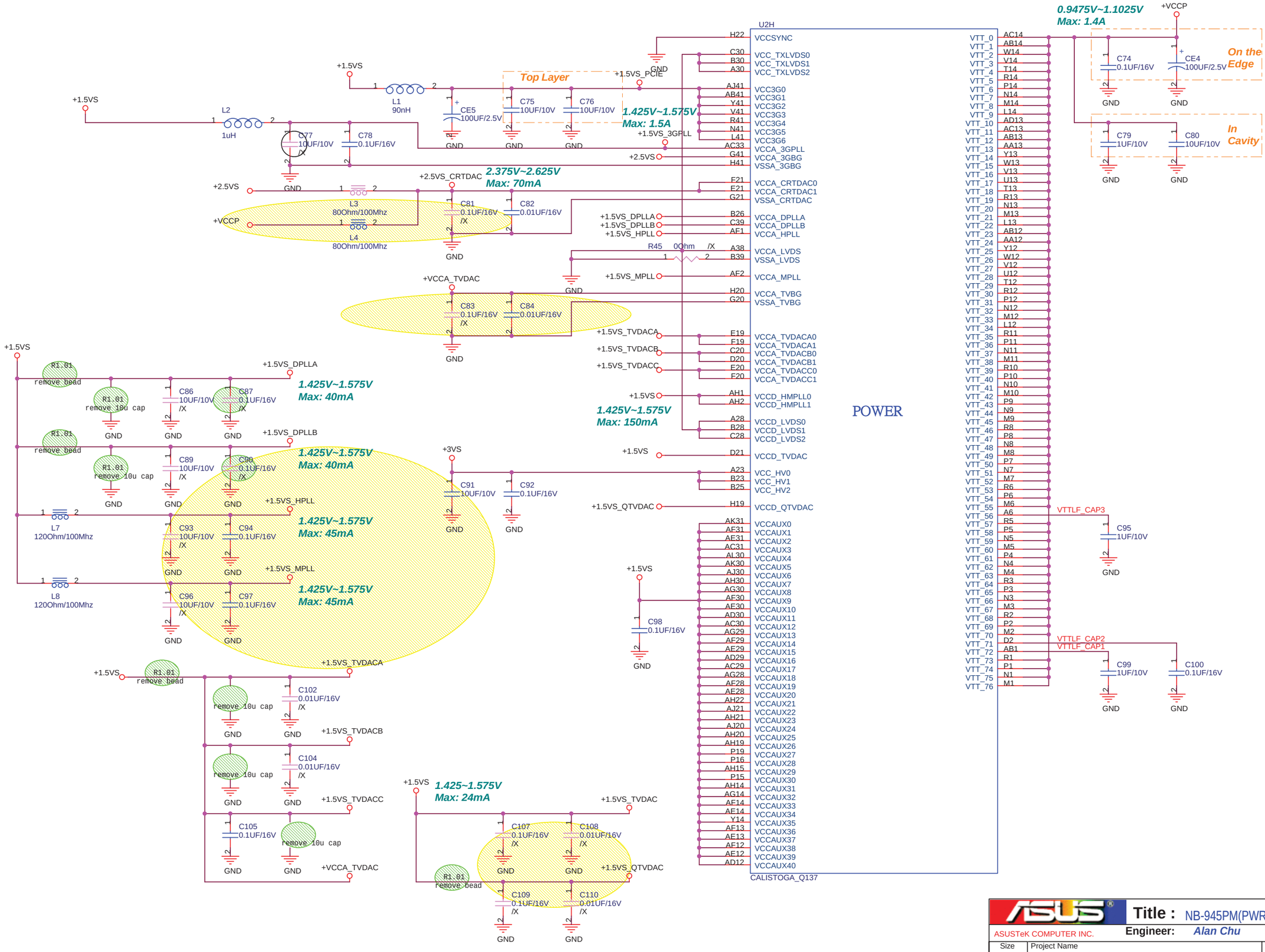
Title : NB-945PM(DDR2)

Engineer: Alan Chu

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 10 of 92





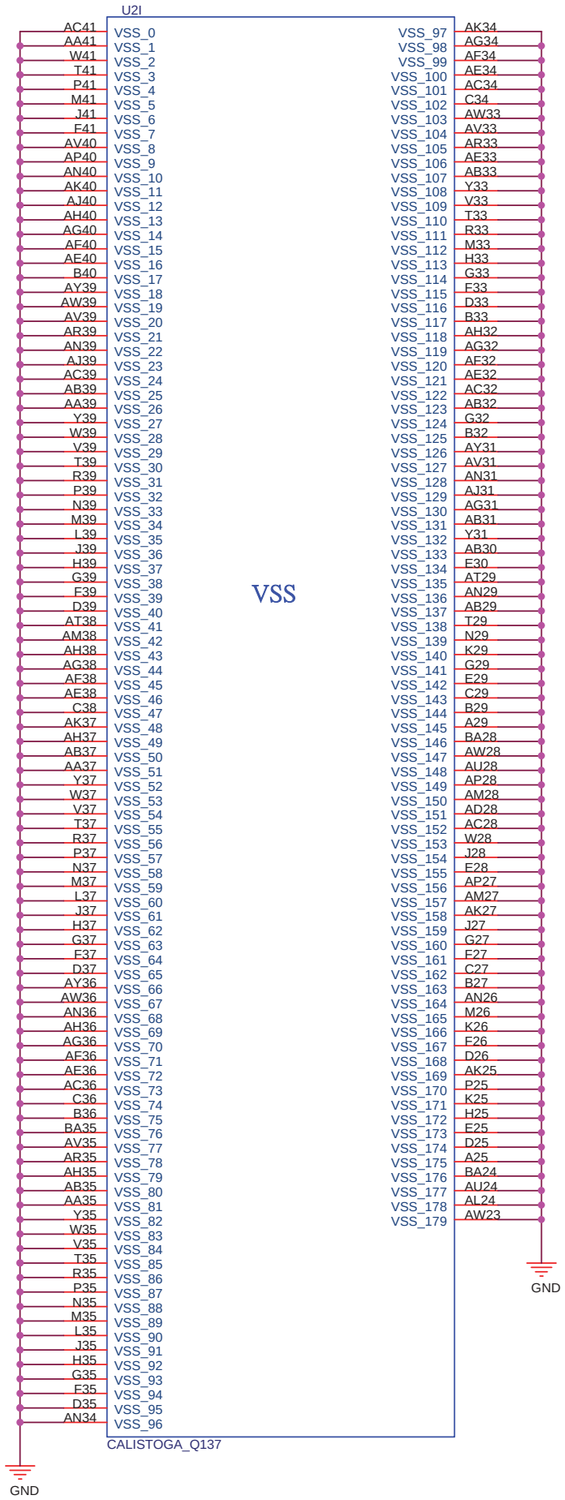
ASUSTeK COMPUTER INC.

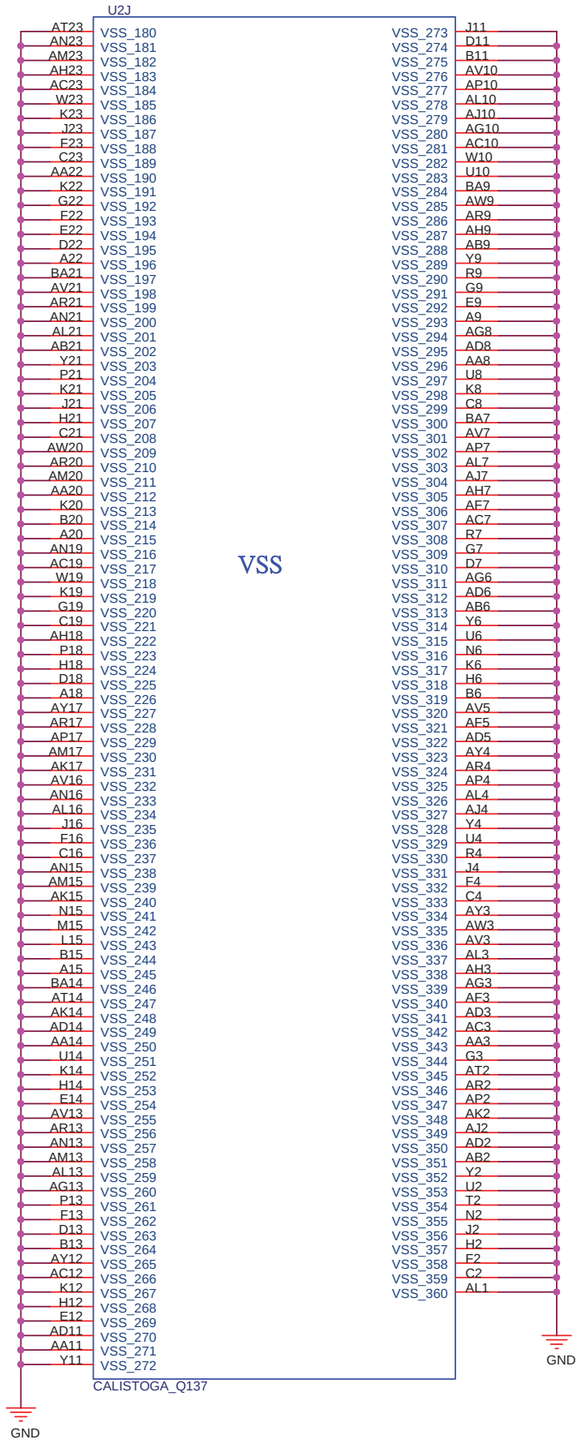
Title : NB-945PM(PWR2)

Engineer: Alan Chu

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 12 of 92





ASUSTeK COMPUTER INC.

Title : NB-945PM(GND)

Engineer: Alan Chu

Size	Project Name	Rev
Custom	Z96J	1.0

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ASUSTeK COMPUTER INC	Title : Schematic page name			
	Engineer: *Alan Chu*			
Size: Custom	Project Name: Z96J			Rev: 1.0
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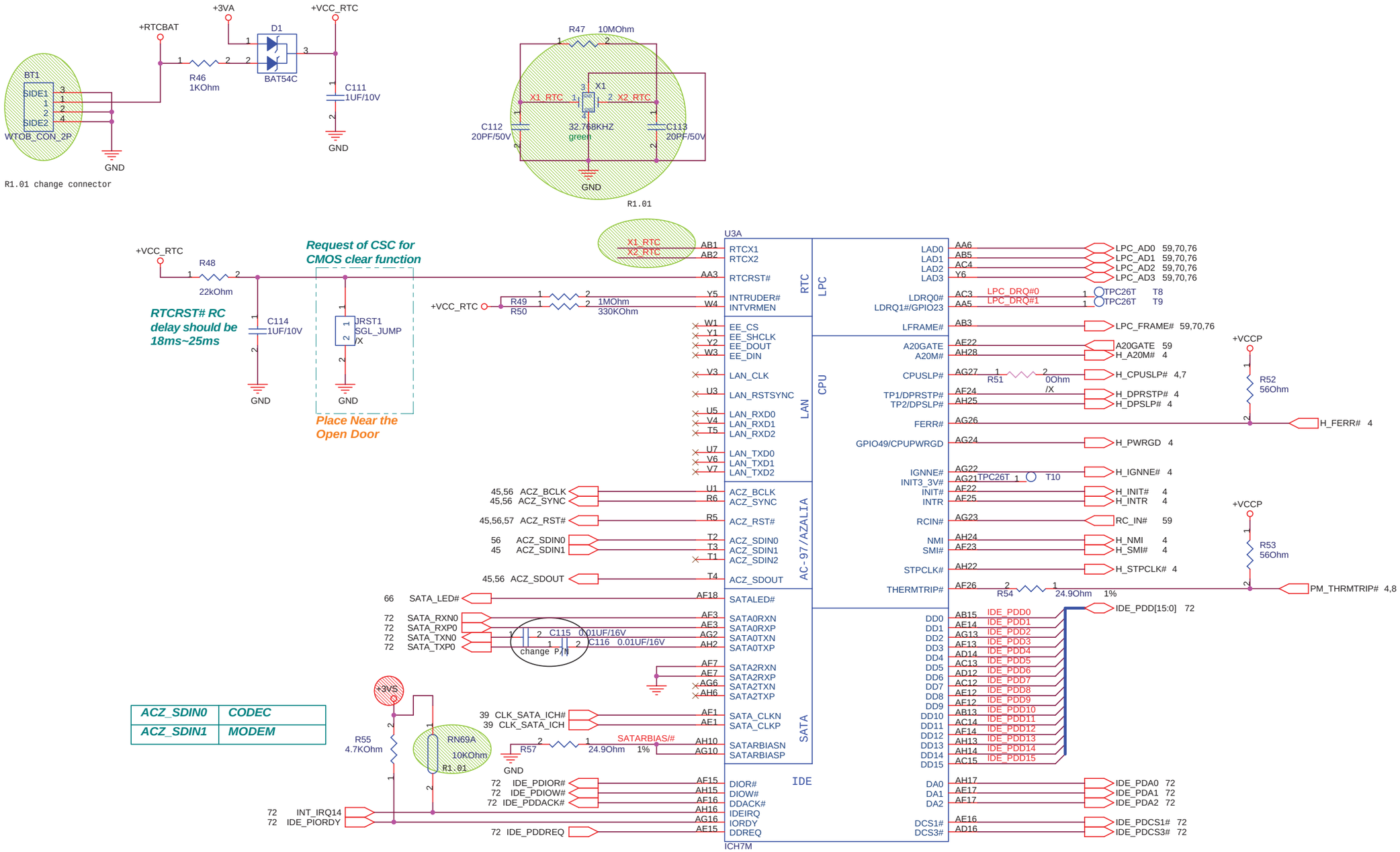


ACZ_SDIN0	CODEC
ACZ_SDIN1	MODEM

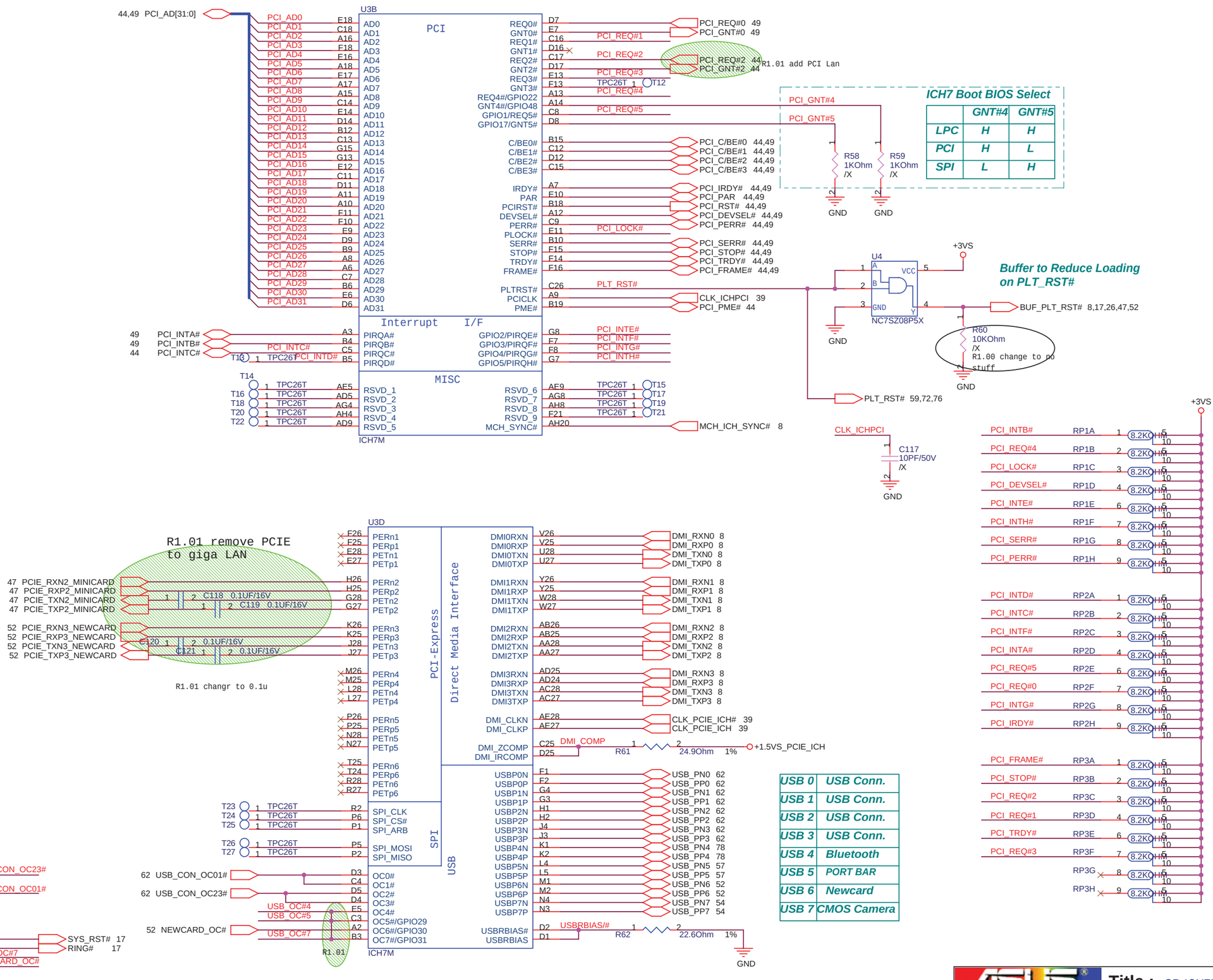
ASUSTeK COMPUTER INC.

Title : SB-ICH7-M(1)

Engineer: Alan Chu

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 15 of 92



ASUSTeK COMPUTER INC.

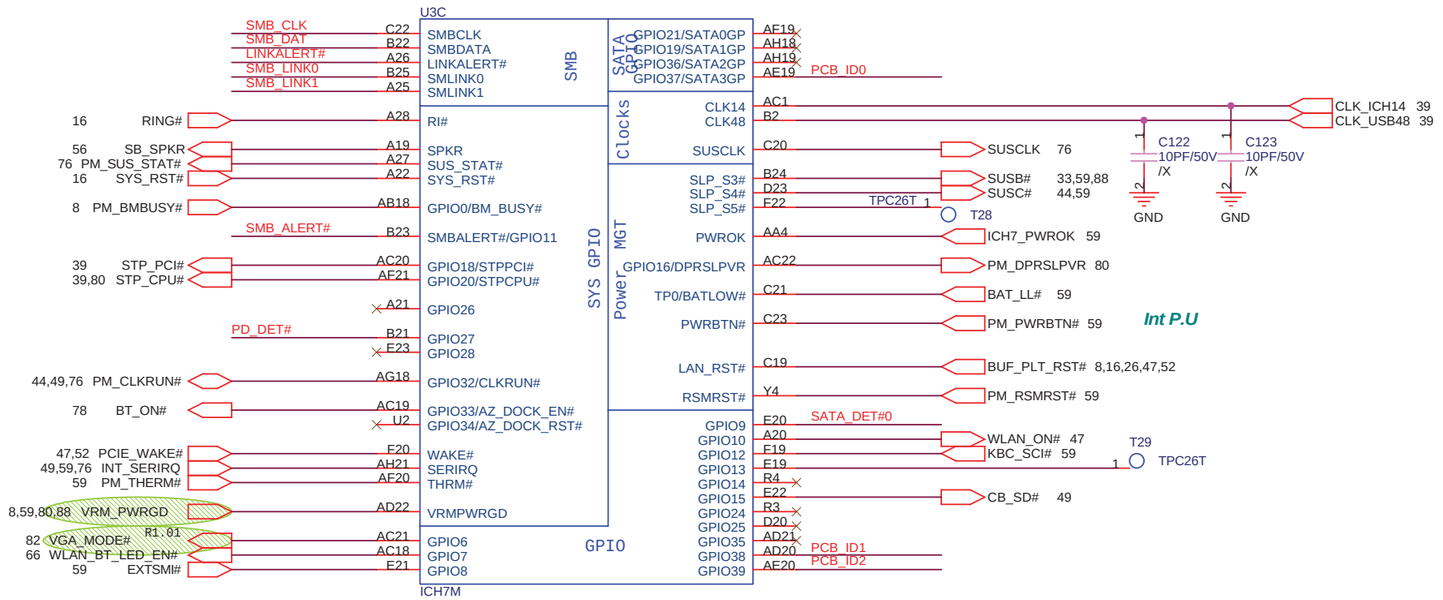
Title : SB-ICH7M(2)

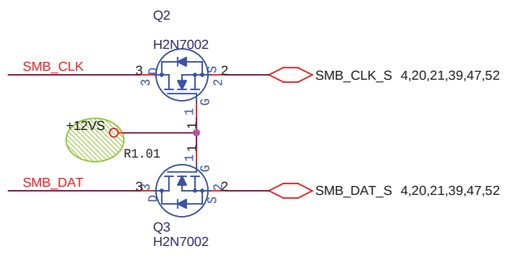
Engineer: Alan Chu

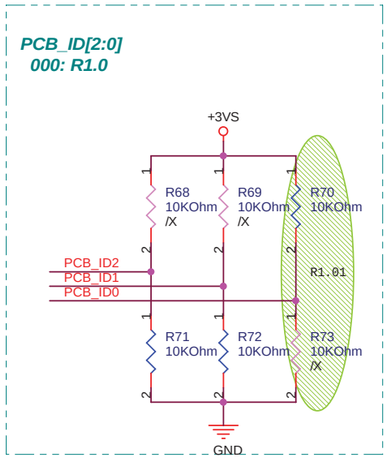
Size	Project Name	Rev
Custom	Z96J	1.0

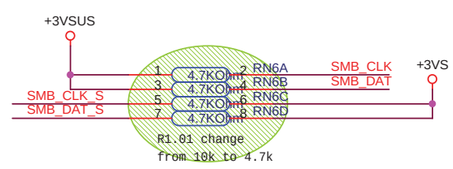
Date: Wednesday, January 11, 2006 Sheet 16 of 92

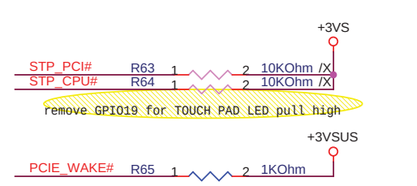
R1.01 add VGA mode select
GPU_VID = 1; Battery Mode ; +1.15VO = 1.055V
GPU_VID = 0; Performance Mode ; +1.15VO = 1.158V

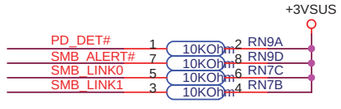


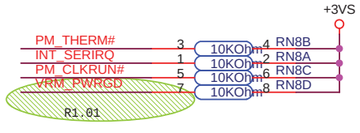


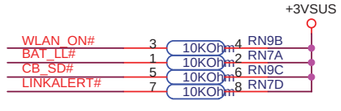


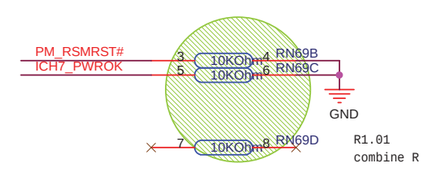


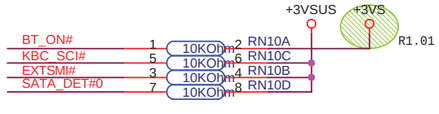












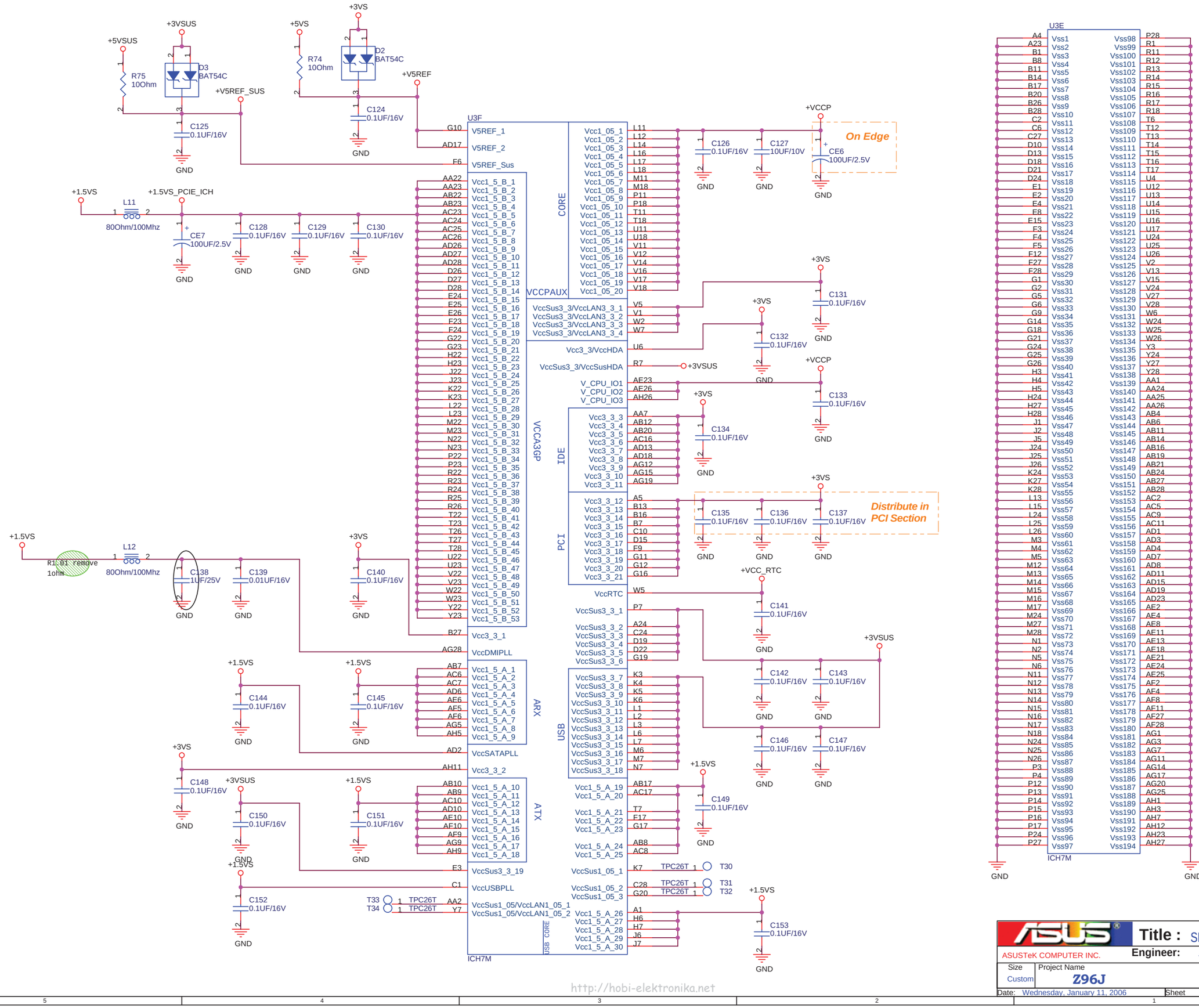
ASUSTeK COMPUTER INC

Title : SB-ICH7M(3)

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 17 of 92


+5VSUS
+3VSUS
+5VS
+3VS
+V5REF
+V5REF_SUS
R75 10Ohm
D3 BAT54C
R74 10Ohm
D2 BAT54C
C124 0.1UF/16V
C125 0.1UF/16V
GND
U3F
V5REF_1
V5REF_2
V5REF_Sus
+1.5VS
+1.5VS_PCIE_ICH
L11
80Ohm/100Mhz
CE7 100UF/2.5V
C128 0.1UF/16V
C129 0.1UF/16V
C130 0.1UF/16V
CORE
VCCPAUX
IDE
VCCA3GP
USB
ARX
ATX
PCI
USB CORE
ICH7M
+VCCP
On Edge
C126 0.1UF/16V
C127 10UF/10V
CE6 100UF/2.5V
C131 0.1UF/16V
C132 0.1UF/16V
C133 0.1UF/16V
C134 0.1UF/16V
C135 0.1UF/16V
C136 0.1UF/16V
C137 0.1UF/16V
Distribute in PCI Section
+VCC_RTC
C141 0.1UF/16V
C142 0.1UF/16V
C143 0.1UF/16V
C146 0.1UF/16V
C147 0.1UF/16V
C149 0.1UF/16V
C153 0.1UF/16V
+3VSUS
R7
L12
R1.01 remove 1ohm
80Ohm/100Mhz
C138 1UF/25V
C139 0.01UF/16V
C140 0.1UF/16V
C144 0.1UF/16V
C145 0.1UF/16V
C148 0.1UF/16V
C150 0.1UF/16V
C151 0.1UF/16V
C152 0.1UF/16V
T33 TPC26T
T34 TPC26T
T30
T31
T32
U3E
ICH7M
http://hobi-elektronika.net
ASUSTeK COMPUTER INC.
Title : SB-ICH7M(PWR)
Engineer: Alan Chu
Size Custom
Project Name Z96J
Rev 1.0
Date: Wednesday, January 11, 2006
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ASUSTeK COMPUTER INC

Title : Schematic page name

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

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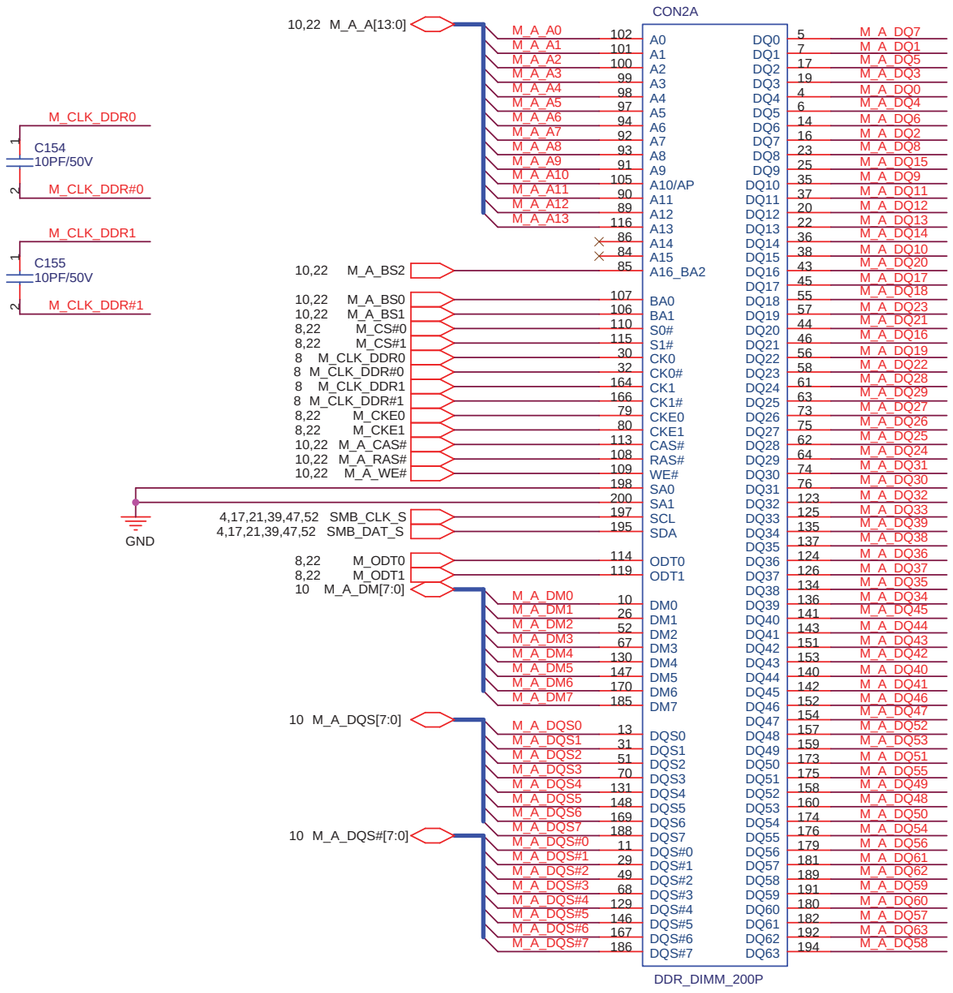
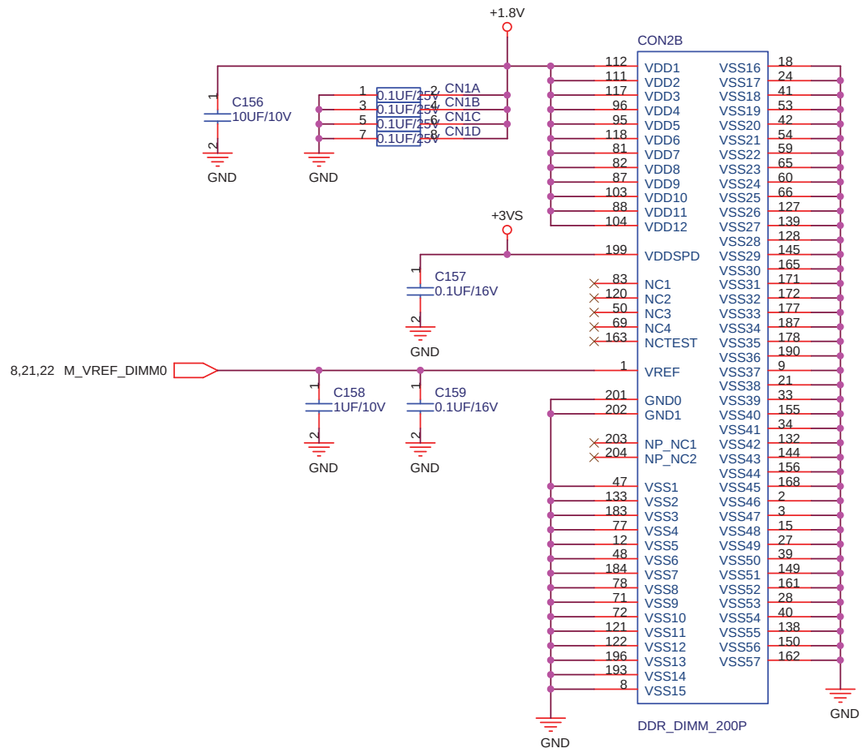
M_A_DQ[63:0] 10

REV Type

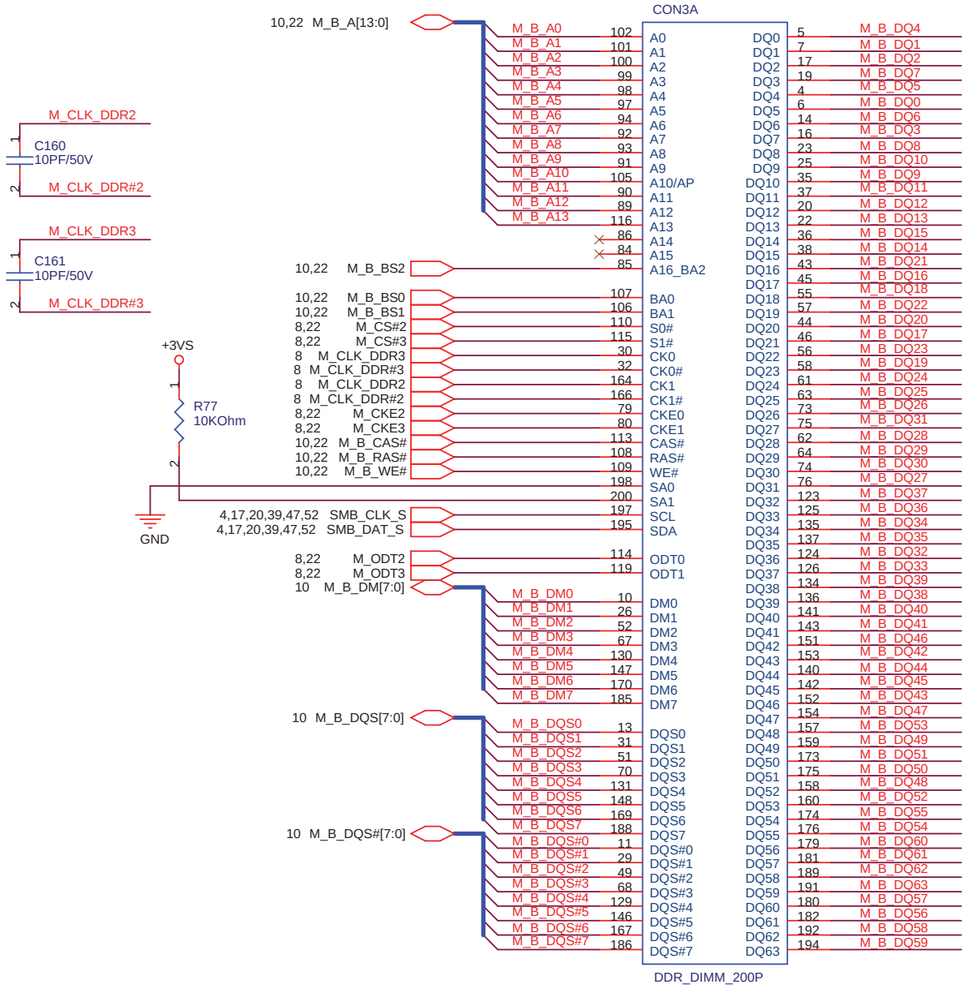


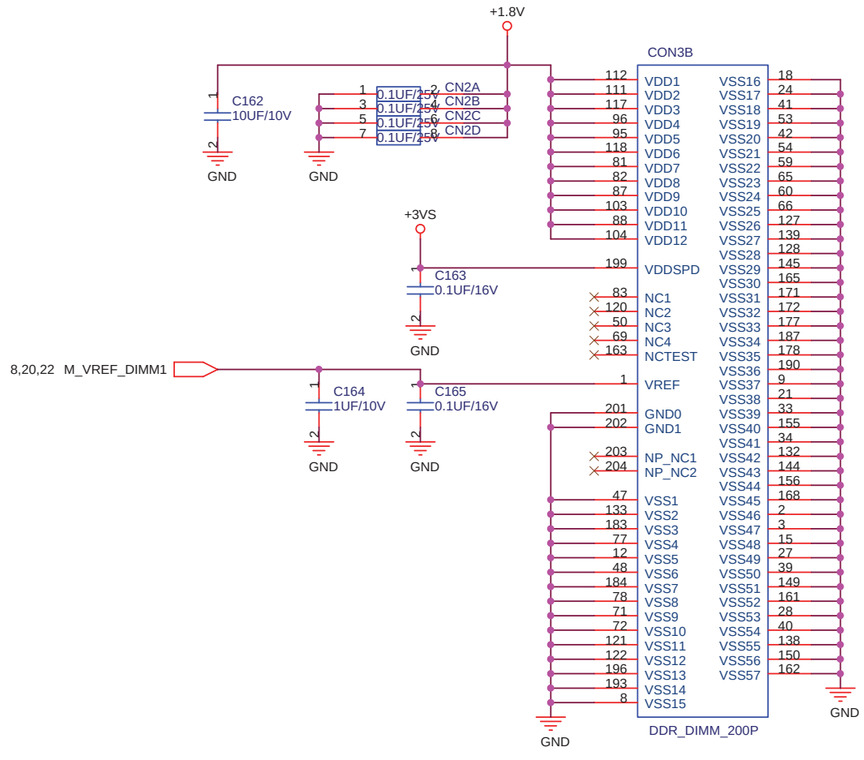


ASUSTeK COMPUTER INC.	Title : DDR2 SO-DIMM0		
	Engineer: Alan Chu		
Size: Custom	Project Name: Z96J		Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 20 of 92		

M_B_DQ[63:0] 10

STD Type





ASUSTeK COMPUTER INC. NB1	Title : DDR2 SO-DIMM1	
	Engineer: Alan Chu	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 21 of 92	

+0.9VS

Follow A5 & W1 Design

L13
120Ohm/100Mhz

M_VREF_MCH 8,20,21

M_VREF_DIMM0 8,20,21

M_VREF_DIMM1 8,20,21

10,20 M_A_A[13:0]
10,21 M_B_A[13:0]

+0.9VS

8,20 M_CS#0
10,20 M_A_RAS#
8,20 M_ODT1
8,20 M_CS#1
10,20 M_A_WE#

M_A_A13 — 56Ohm — RN11A
M_CS#0 — 56Ohm — RN11B
M_A_RAS# — 56Ohm — RN11C
M_ODT1 — 56Ohm — RN11D
M_CS#1 — 56Ohm — RN11E
M_A_WE# — 56Ohm — RN11F
M_A_A0 — 56Ohm — RN11G
M_A_A2 — 56Ohm — RN11H

0.1UF/25V CN3A
0.1UF/25V CN3B
0.1UF/25V CN3C
0.1UF/25V CN3D

GND

10,20 M_A_BS1
10,20 M_A_BS0
8,20 M_CKE1

M_A_BS1 — 56Ohm — RN12A
M_A_A4 — 56Ohm — RN12B
M_A_BS0 — 56Ohm — RN12C
M_A_A10 — 56Ohm — RN12D
M_A_A6 — 56Ohm — RN12E
M_A_A7 — 56Ohm — RN12F
M_A_A11 — 56Ohm — RN12G
M_CKE1 — 56Ohm — RN12H

0.1UF/25V CN4A
0.1UF/25V CN4B
0.1UF/25V CN4C
0.1UF/25V CN4D

GND

10,20 M_A_BS2
8,20 M_CKE0

M_A_A1 — 56Ohm — RN13A
M_A_A3 — 56Ohm — RN13B
M_A_A5 — 56Ohm — RN13C
M_A_A8 — 56Ohm — RN13D
M_A_A9 — 56Ohm — RN13E
M_A_A12 — 56Ohm — RN13F
M_A_BS2 — 56Ohm — RN13G
M_CKE0 — 56Ohm — RN13H

0.1UF/25V CN5A
0.1UF/25V CN5B
0.1UF/25V CN5C
0.1UF/25V CN5D

GND

10,20 M_A_CAS#
8,20 M_ODT0

M_A_CAS# — 56Ohm — R78
M_ODT0 — 56Ohm — R79

0.1UF/16V C166

GND

10,21 M_B_BS1
10,21 M_B_BS0

M_B_A4 — 56Ohm — RN14A
M_B_A3 — 56Ohm — RN14B
M_B_A5 — 56Ohm — RN14C
M_B_A8 — 56Ohm — RN14D
M_B_BS1 — 56Ohm — RN14E
M_B_A0 — 56Ohm — RN14F
M_B_BS0 — 56Ohm — RN14G
M_B_A1 — 56Ohm — RN14H

0.1UF/25V CN6A
0.1UF/25V CN6B
0.1UF/25V CN6C
0.1UF/25V CN6D

GND

8,21 M_CKE3
10,21 M_B_BS2
8,21 M_CKE2

M_CKE3 — 56Ohm — RN15A
M_B_BS2 — 56Ohm — RN15B
M_CKE2 — 56Ohm — RN15C
M_B_A11 — 56Ohm — RN15D
M_B_A7 — 56Ohm — RN15E
M_B_A6 — 56Ohm — RN15F
M_B_A9 — 56Ohm — RN15G
M_B_A12 — 56Ohm — RN15H

0.1UF/25V CN7A
0.1UF/25V CN7B
0.1UF/25V CN7C
0.1UF/25V CN7D

GND

8,21 M_CS#2
8,21 M_ODT2
10,21 M_B_CAS#
10,21 M_B_WE#
10,21 M_B_RAS#

M_B_A10 — 56Ohm — RN16A
M_B_A2 — 56Ohm — RN16B
M_CS#2 — 56Ohm — RN16C
M_ODT2 — 56Ohm — RN16D
M_B_CAS# — 56Ohm — RN16E
M_B_WE# — 56Ohm — RN16F
M_B_RAS# — 56Ohm — RN16G
M_B_A13 — 56Ohm — RN16H

0.1UF/25V CN8A
0.1UF/25V CN8B
0.1UF/25V CN8C
0.1UF/25V CN8D

GND

8,21 M_ODT3
8,21 M_CS#3

M_ODT3 — 56Ohm — R80
M_CS#3 — 56Ohm — R81

0.1UF/16V C167

GND

ASUSTeK COMPUTER INC. NB1

Title : DDR2 TERMINATION

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 22 of 92

ASUSTeK COMPUTER INC

Title : Schematic page name

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 23 of 92

GPIO[0]: Tx Power Savings Enable
0: 50% Tx output swing
1: full Tx output swing (recommended)
(default 0, internal pull-down)

+VGA_3V
R85 1 2 10KOhm VGA_GPIO0
R87 1 2 10KOhm VGA_GPIO1

GPIO[1]: Tx De-emphasis Enable
0: Tx de-emphasis disbale
1: Tx de-emphasis enable
(default 0, internal pull-down)

SMB1_CLK 0OHM RN74C VGA_R_SCL
SMB1_DAT 0OHM RN74D VGA_R_SDA
THRM_ALERT# 0OHM RN74B VGA_R_ALARM
0OHM RN74A
VGA_R_SCL 0OHM RN75C VGA_SCL
VGA_R_SDA 0OHM RN75D VGA_SDA
VGA_R_ALARM 0OHM RN75B VGA_ALARM
0OHM RN75A
/X
R1.01 add thermal detect from EC
SMB1_CLK 37,59
SMB1_DAT 37,59
THRM_ALERT# 37,59

+VGA_3V
4.7KOhm RN17B VGA_ALARM
4.7KOhm RN17A HPDEC R1.01
4.7KOhm RN17C EDID_DAT
4.7KOhm RN17D EDID_CLK

U6
VGA_R_SCL SCLK VDD VGA_D+
VGA_R_SDA SDATA D+ VGA_D-
VGA_R_ALARM ALERT# D- R1.01
GND THERM#
GND ADM1032ARMZ-2

Spread Spectrum

+VGA_3V +3VS_SS
L17 /X 120Ohm/100MHz
C176 2.2UF/6.3V /X
C177 0.01UF/16V /X
GND GND
Down Spread Spectrum for EMI Attenuation

-----SRS :	0	/ 1 /	NC.
P1819B :	-1.25	-1.75	x.
MK1726 :	-1.8	-2.5	-0.6.

R110 0Ohm /X
VGA_SRS
R112 0Ohm /X
+3VS_SS
GND

R113 0Ohm /X
ATI27M_NOSSC
VGA_SRS
ATI27M_SSC
R114 22Ohm /X
U7
XIN XOUT
VSS VDD
SRS PD#
ModOUT REF
P1819B_08SR /X
+3VS_SS
R115 121Ohm /X
ATI_27M
YAGEO/RC0603FR-07121RL <G>

39 ATI27M_NOSSC
R117 121Ohm YAGEO/RC0603FR-07121RL <G>
ATI_27M
R118 71.5Ohm YAGEO/RC0603FR-0771R5
GND

R122 0Ohm /X
85,88 PWR_OK_VGA
VGA_GPIO14

+2.5VS L21 120Ohm/100Mhz 140mA +PVDD
C187 10UF/10V
C188 0.1UF/16V
C189 1000PF/50V /X
GND GND GND

+VGA_VCORE L22 120Ohm/100Mhz 192mA +MPVDD
C190 10UF/10V
C191 0.1UF/16V
C192 1000PF/50V /X
GND GND GND

MID / Vendor /SIZE	3	2	1	0
Samsung 128M	0	0	0	0
Samsung 256M	0	0	0	1
Hynix 128M	0	0	1	0
Hynix 256M	0	0	1	1
Infineon 128M	0	1	0	0
Infineon 256M	0	1	0	1
	0	1	1	0
	0	1	1	1

+VGA_3V
R88 10KOhm
R89 10KOhm /HYN
MEM_ID0
MEM_ID1
R95 10KOhm /X
R96 10KOhm /SAM/INF
GND GND

+VGA_3V
R90 10KOhm /INF
R91 10KOhm /X
MEM_ID2
MEM_ID3
R97 10KOhm /SAM/HYN
R98 10KOhm
GND GND

PANEL ID1 = 1 : WSXGA+ 1680x1050
PANEL ID1 = 0 : WXGA 1280x800
PANEL ID0 RESERVE FOR VENDOR
R99 1KOhm
GND

+VGA_3V
R103 10KOhm
R104 10KOhm /X
R105 10KOhm /X
GPIO12
GPIO13
GPIO4
R106 10KOhm /X
R107 10KOhm
R108 10KOhm
33
33
GND GND GND

PANEL_ID
TPC26T T138 PANEL_ID0
TPC26T T139 PANEL_ID1
R1.01

GPIO[13:12] = 00: 128M memory aperture, same as ROM strap 00
GPIO[13:12] = 01: 256M memory aperture, same as ROM strap 01

EDID_DAT
EDID_CLK
MEM_ID3
MEM_ID2
MEM_ID1
MEM_ID0
VGA_GPIO0
VGA_GPIO1
GPIO4
GPIO12
GPIO13
VGA_GPIO14
GPU_VID
ATI27M_SSC
VGA_ALARM

+VGA_3V
R111 10KOhm
VGA_GPIO9
R517 10KOhm
GND

27,33 L_BKLTEN_V
30 VGA_SOUT
30 VGA_SIN
30 VGA_SCK
R497 0Ohm /X
VGA_GPIO9

PWR_CTRL: HIGH(1.0V) / LOW(1.08V)
PULL DOWN IF USED FOR POWER PLAY

+VGA_3V
R119 499Ohm
VGA_VREFG
R121 499Ohm
C186 0.1UF/16V
GND GND

1.65V VREF Divider close to M56

U5B
PART 2 OF 7

AG8	GPIO_34	Expand GPIO	
AH7	GPIO_33		
AG9	GPIO_32		
AH8	GPIO_31		
AJ8	GPIO_30		
AH9	GPIO_29		
AG10	GPIO_28		
AF10	GPIO_27		
AH6	GPIO_26		
AE8	GPIO_25		
AF7	GPIO_24		
AE9	GPIO_23		
AE10	GPIO_22		
AG7	GPIO_21		
AF9	GPIO_20		
AF13	GPIO_19		
AE13	GPIO_18		
AK4	NC_DVOVMODE_0	VIDEO & MULTIMEDIA	
AL4	NC_DVOVMODE_1		
AF2	DVPCNTL_0		
AE1	DVPCNTL_1		
AF3	DVPCNTL_2		
AG1	DVPCLK		
AG2	DVPDATA_0		
AG3	DVPDATA_1		
AH2	DVPDATA_2		
AH3	DVPDATA_3		
AJ2	DVPDATA_4		
AJ1	DVPDATA_5		
AK2	DVPDATA_6		
AK1	DVPDATA_7		
AK3	DVPDATA_8		
AL2	DVPDATA_9		
AL3	DVPDATA_10		
AM3	DVPDATA_11		
AE6	DVPDATA_12		
AE4	DVPDATA_13		
AE5	DVPDATA_14		
AG4	DVPDATA_15		
AJ3	DVPDATA_16		
AH4	DVPDATA_17		
AJ4	DVPDATA_18		
AG5	DVPDATA_19		
AH5	DVPDATA_20		
AF6	DVPDATA_21		
AE7	DVPDATA_22		
AG6	DVPDATA_23		
AD4	GPIO_0	General Purpose I/O	
AD2	GPIO_1		
AD1	GPIO_2		
AD3	GPIO_3		
AC1	GPIO_4		
AC2	GPIO_5		
AC3	GPIO_6		
AB2	GPIO_7_BLON		
AC6	GPIO_8		
AC5	GPIO_9		
AC4	GPIO_10		
AB3	GPIO_11		
AB4	GPIO_12		
AB5	GPIO_13		
AD5	GPIO_14		
AB8	GPIO_15		
AA8	GPIO_16		
AB7	GPIO_17		
AB6	NC		
AC8	VREFG		
AG12	DPLUS	Thermal Diode	
AH12	DMINUS		
AJ14	PVDD	PLL & XTAL	
AH14	PVSS		
A6	MPVDD		
A5	MPVSS		
AL26	XTALIN		
AM26	XTALOUT		
AG14	PLLTEST		
AG22	TESTEN	Test	
AC7	ROMCSb	ROM	
AK17	LVSSR1	LVDS PLL and I/O GND	External SSC
AJ19	LVSSR2		GENERICC
AF18	LVSSR3		LPVSS
AH17	LVSSR4		
AG17	LVSSR5		
AG19	LVSSR6		
AH19	LVSSR7		
		LVDS PLL and I/O GND	LVSSR8
			LVSSR9
			LVSSR10

Can be left unconnect if not used.
Can be unconnect if not used.
VIP Host/External TMDS

M56_P

Integrated TMDS

TXCM	AL9	
TXCP	AM9	
TX0M	AK10	
TX0P	AL10	
TX1M	AL11	
TX1P	AM11	
TX2M	AL12	
TX2P	AM12	
TX3M	AK9	
TX3P	AJ9	
TX4M	AK11	
TX4P	AJ11	
TX5M	AK12	
TX5P	AJ12	
TPVDD	AM8	+TPVDD
TPVSS	AL8	GND
TXVDDR1	AJ6	
TXVDDR2	AK6	
TXVDDR3	AL6	
TXVDDR4	AM6	
TXVSSR1	AJ7	
TXVSSR2	AK7	
TXVSSR3	AL7	
TXVSSR4	AM7	
TXVSSR5	AK8	

0.02A
+TXVDDR
0.15A
GND
remove DVI

R5711 ATI27M_SSC_LVDS 1KOhm GND

DAC / CRT

R	AK24	CRT_RED 32
G	AM24	CRT_GREEN 32
B	AL24	CRT_BLUE 32
HSYNC	AJ23	CRT_HSYNC 32
VSYNC	AJ22	CRT_VSYNC 32
GENERICA	AK22	TPC26T 1 T35
GENERICB	AF23	ATI27M_SSC_LVDS 39
RSET	AL22	R109 499Ohm GND
AVDD1	AL25	+AVDD
AVDD2	AM25	YAGEO/RC0402FR-07499RL <G>
AVSSQ	AK23	
AVSSN1	AK25	
AVSSN2	AJ24	GND
VDD1DI	AM23	+VDD1DI
VSS1DI	AL23	0.02A GND

DAC2 (TV/CRT)

R2	AK15	TPC26T 1 T41
G2	AM15	TPC26T 1 T42
B2	AL15	TPC26T 1 T43
H2SYNC	AF15	TPC26T 1 T45
V2SYNC	AG15	TPC26T 1 T47
Y	AJ15	TV_Y 35
C	AJ13	TV_C 35
COMP	AH15	TV_CVBS 35
R2SET	AK14	R116 715Ohm GND
A2VDD1	AM16	+A2VDD
A2VDD2	AL16	0.13A
A2VSSN1	AM17	GND
A2VSSN2	AL17	
NC_A2VDDQ	AL14	
A2VSSQ	AK13	
VDD2DI	AJ16	+VDD2DI
VSS2DI	AJ17	0.02A GND

Monitor Interface

HPD1	AF11	HPDEC R1.01 combine R
DDC1DATA	AH22	CRT_DDC_DATA 32
DDC1CLK	AH23	CRT_DDC_CLK 32
DDC2DATA	AH13	
DDC2CLK	AG13	
DDC3DATA	AE12	VGA_SDA
DDC3CLK	AE12	VGA_SCL

AE23 TPC26T 1 T52
AE18
AE22
AE17
AE21
GND

+2.5VS L14 120Ohm/100MHz +TPVDD
C168 10UF/10V
C169 0.1UF/16V
GND GND

+2.5VS L15 120Ohm/100MHz +TXVDDR
C170 10UF/10V
C171 0.1UF/16V
C172 1000PF/50V /X
GND GND GND

CRT_BLUE
CRT_GREEN
CRT_RED
R100 75Ohm
R101 75Ohm
R102 75Ohm
GND

+2.5VS L16 120Ohm/100MHz +AVDD
C173 10UF/10V
C174 0.1UF/16V
C175 1000PF/50V /X
GND GND GND

+2.5VS L18 120Ohm/100MHz +VDD1DI
C178 10UF/10V
C179 0.1UF/16V
GND GND

+2.5VS L19 120Ohm/100MHz +A2VDD
C180 10UF/10V
C181 0.1UF/16V
C182 1000PF/50V /X
GND GND GND

+2.5VS L20 120Ohm/100MHz +VDD2DI
C183 10UF/10V
C184 0.1UF/16V
C185 1000PF/50V /X
GND GND GND

TV_CVBS
TV_C
TV_Y
R123 75Ohm
R124 75Ohm
R125 75Ohm
GND

VGA_SDA 4.7KOhm RN73A
VGA_SCL 4.7KOhm RN73B
4.7KOhm RN73D
4.7KOhm RN73C
/X
R1.01
+VGA_3V
GND

ASUSTek COMPUTER INC
Title : ATI_M56P_MAIN(2)
Engineer: Alan Chu
Size: Custom
Project Name: Z96J
Rev: 1.0
Date: Wednesday, January 11, 2006
Sheet 24 of 92

U5C

Part 3 of 7

MEMORY INTERFACE A

28 MDA[63..0]

MDA0 M31 DQA_0
MDA1 M30 DQA_1
MDA2 L31 DQA_2
MDA3 L30 DQA_3
MDA4 H30 DQA_4
MDA5 G31 DQA_5
MDA6 G30 DQA_6
MDA7 F31 DQA_7
MDA8 M27 DQA_8
MDA9 M29 DQA_9
MDA10 L28 DQA_10
MDA11 L27 DQA_11
MDA12 J27 DQA_12
MDA13 H29 DQA_13
MDA14 G29 DQA_14
MDA15 G27 DQA_15
MDA16 M26 DQA_16
MDA17 L26 DQA_17
MDA18 M25 DQA_18
MDA19 L25 DQA_19
MDA20 J25 DQA_20
MDA21 G28 DQA_21
MDA22 H27 DQA_22
MDA23 H26 DQA_23
MDA24 F26 DQA_24
MDA25 G26 DQA_25
MDA26 H25 DQA_26
MDA27 H24 DQA_27
MDA28 H23 DQA_28
MDA29 H22 DQA_29
MDA30 J23 DQA_30
MDA31 J22 DQA_31
MDA32 E23 DQA_32
MDA33 D22 DQA_33
MDA34 D23 DQA_34
MDA35 E22 DQA_35
MDA36 E20 DQA_36
MDA37 F20 DQA_37
MDA38 D19 DQA_38
MDA39 D18 DQA_39
MDA40 B19 DQA_40
MDA41 B18 DQA_41
MDA42 C17 DQA_42
MDA43 B17 DQA_43
MDA44 C14 DQA_44
MDA45 B14 DQA_45
MDA46 C13 DQA_46
MDA47 B13 DQA_47
MDA48 D17 DQA_48
MDA49 E18 DQA_49
MDA50 E17 DQA_50
MDA51 F17 DQA_51
MDA52 E15 DQA_52
MDA53 E14 DQA_53
MDA54 F14 DQA_54
MDA55 D13 DQA_55
MDA56 H18 DQA_56
MDA57 H17 DQA_57
MDA58 G18 DQA_58
MDA59 G17 DQA_59
MDA60 G15 DQA_60
MDA61 G14 DQA_61
MDA62 H14 DQA_62
MDA63 J14 DQA_63

MVREFD_0 C31 MVREFD_0
MVREFS_0 C30 MVREFS_0

DDR1: 0.5*VDDR1
DDR2: 0.5*VDDR1
GDDR3: 0.7*VDDR1

MAA_0 D26 GMAA0
MAA_1 F28 GMAA1
MAA_2 D28 GMAA2
MAA_3 D25 GMAA3
MAA_4 E24 GMAA4
MAA_5 E26 GMAA5
MAA_6 D27 GMAA6
MAA_7 F25 GMAA7
MAA_8 C26 GMAA8
MAA_9 B26 GMAA9
MAA_10 D29 GMAA10
MAA_11 B27 GMAA11
MAA_12 E27 GMAA12
MAA_13 E29 GMAA13
MAA_14 B25 GMAA14
MAA_15 C25 GMAA15

GMAA[15:0] 28

TPC26T 1 T130

DQMAb_0 H31 DQMA#0
DQMAb_1 J29 DQMA#1
DQMAb_2 J26 DQMA#2
DQMAb_3 G23 DQMA#3
DQMAb_4 E21 DQMA#4
DQMAb_5 B15 DQMA#5
DQMAb_6 D14 DQMA#6
DQMAb_7 J17 DQMA#7

DQMA#[7..0] 28

read strobe

QSA_0 J31 QSA0
QSA_1 K29 QSA1
QSA_2 K25 QSA2
QSA_3 F23 QSA3
QSA_4 D20 QSA4
QSA_5 B16 QSA5
QSA_6 D16 QSA6
QSA_7 H15 QSA7

QSA[7..0] 28

Read-QS & Write-QS for GDDR3 memory.

write strobe

QSA_0B K31 QSA#0
QSA_1B K28 QSA#1
QSA_2B K26 QSA#2
QSA_3B G24 QSA#3
QSA_4B D21 QSA#4
QSA_5B C16 QSA#5
QSA_6B D15 QSA#6
QSA_7B J15 QSA#7

QSA#[7..0] 28

ODTA0 F29 ODTA0 28
ODTA1 D24 ODTA1 28

CLKA0 D31 CLKA0 28
CLKA0b E31 CLKA0# 28

CKEA0 B30 CKEA0 28

RASA0b B28 RASA0# 28

CASA0b C29 CASA0# 28

WEA0b B31 WEA0# 28

CSA0b_0 B29
CSA0b_1 C28 TPC26T 1 T53 CSA0# 28

CLKA1 B20 CLKA1 28
CLKA1b C19 CLKA1# 28

CKEA1 C22 CKEA1 28

RASA1b B24 RASA1# 28

CASA1b B22 CASA1# 28

WEA1b B21 WEA1# 28

CSA1b_0 B23
CSA1b_1 C23 TPC26T 1 T56 CSA1# 28

M56_P

U5D

Part 4 of 7

MEMORY INTERFACE B

29 MDB[63..0]

MDB0 B12 DQB_0
MDB1 C12 DQB_1
MDB2 B11 DQB_2
MDB3 C11 DQB_3
MDB4 C8 DQB_4
MDB5 B7 DQB_5
MDB6 C7 DQB_6
MDB7 B6 DQB_7
MDB8 F12 DQB_8
MDB9 D12 DQB_9
MDB10 E11 DQB_10
MDB11 F11 DQB_11
MDB12 F9 DQB_12
MDB13 D8 DQB_13
MDB14 D7 DQB_14
MDB15 F7 DQB_15
MDB16 G12 DQB_16
MDB17 G11 DQB_17
MDB18 H12 DQB_18
MDB19 H11 DQB_19
MDB20 H9 DQB_20
MDB21 E7 DQB_21
MDB22 F8 DQB_22
MDB23 G8 DQB_23
MDB24 G6 DQB_24
MDB25 G7 DQB_25
MDB26 H8 DQB_26
MDB27 J8 DQB_27
MDB28 K8 DQB_28
MDB29 L8 DQB_29
MDB30 K9 DQB_30
MDB31 L9 DQB_31
MDB32 K5 DQB_32
MDB33 L4 DQB_33
MDB34 K4 DQB_34
MDB35 L5 DQB_35
MDB36 N5 DQB_36
MDB37 N6 DQB_37
MDB38 P4 DQB_38
MDB39 R4 DQB_39
MDB40 P2 DQB_40
MDB41 R2 DQB_41
MDB42 T3 DQB_42
MDB43 T2 DQB_43
MDB44 W3 DQB_44
MDB45 W2 DQB_45
MDB46 Y3 DQB_46
MDB47 Y2 DQB_47
MDB48 T4 DQB_48
MDB49 R5 DQB_49
MDB50 T5 DQB_50
MDB51 T6 DQB_51
MDB52 V5 DQB_52
MDB53 W5 DQB_53
MDB54 W6 DQB_54
MDB55 Y4 DQB_55
MDB56 R8 DQB_56
MDB57 T8 DQB_57
MDB58 R7 DQB_58
MDB59 T7 DQB_59
MDB60 V7 DQB_60
MDB61 W7 DQB_61
MDB62 W8 DQB_62
MDB63 W9 DQB_63

MVREFD_1 B3 MVREFD_1
MVREFS_1 C3 MVREFS_1

DDR1: 0.5*VDDR1
DDR2: 0.5*VDDR1
GDDR3: 0.7*VDDR1

T55 TPC26T 1 DRAM_RST AA3 DRAM_RST
TEST_MCLK AA5 TEST_MCLK
TEST_YCLK AA2 TEST_YCLK
AA7 MEMTEST

For GDDR3, can be left NC for DDR1/2

MAB_0 G4 GMAB0
MAB_1 E6 GMAB1
MAB_2 E4 GMAB2
MAB_3 H4 GMAB3
MAB_4 J5 GMAB4
MAB_5 G5 GMAB5
MAB_6 F4 GMAB6
MAB_7 H6 GMAB7
MAB_8 G3 GMAB8
MAB_9 G2 GMAB9
MAB_10 D4 GMAB10
MAB_11 F2 GMAB11
MAB_12 F5 GMAB12
MAB_13 D5 GMAB13
MAB_14 H2 GMAB14
MAB_15 H3 GMAB15

GMAB[15:0] 29

TPC26T 1 T131

DQMBb_0 B8 DQMB#0
DQMBb_1 D9 DQMB#1
DQMBb_2 G9 DQMB#2
DQMBb_3 K7 DQMB#3
DQMBb_4 M5 DQMB#4
DQMBb_5 V2 DQMB#5
DQMBb_6 W4 DQMB#6
DQMBb_7 T9 DQMB#7

DQMB#[7..0] 29

read strobe

QSB_0 B9 QSB0
QSB_1 D10 QSB1
QSB_2 H10 QSB2
QSB_3 K6 QSB3
QSB_4 N4 QSB4
QSB_5 U2 QSB5
QSB_6 U4 QSB6
QSB_7 V8 QSB7

QSB[7..0] 29

Read-QS & Write-QS for GDDR3 memory.

write strobe

QSB_0B B10 QSB#0
QSB_1B E10 QSB#1
QSB_2B G10 QSB#2
QSB_3B J7 QSB#3
QSB_4B M4 QSB#4
QSB_5B U3 QSB#5
QSB_6B V4 QSB#6
QSB_7B V9 QSB#7

QSB#[7..0] 29

ODTB0 D6 ODTB0 29
ODTB1 J4 ODTB1 29

CLKB0 B4 CLKB0 29
CLKB0b B5 CLKB0# 29

CKEB0 C2 CKEB0 29

RASB0b E2 RASB0# 29

CASB0b D3 CASB0# 29

WEB0b B2 WEB0# 29

CSB0b_0 D2
CSB0b_1 E3 TPC26T 1 T54 CSB0# 29

CLKB1 N2 CLKB1 29
CLKB1b P3 CLKB1# 29

CKEB1 L3 CKEB1 29

RASB1b J2 RASB1# 29

CASB1b L2 CASB1# 29

WEB1b M2 WEB1# 29

CSB1b_0 K2
CSB1b_1 K3 TPC26T 1 T57 CSB1# 29

M56_P

R127 240Ohm
Change to 1%
GND

MEMORY CHANNEL A

+VRAM
RN65A 75Ohm
MVREFD_0
C193 0.1UF/16V
RN65B 75Ohm
R1.01
GND

2.37K/5.49K
GDDR3: 0.7 * VDDR1
DDR1/2: 0.5 * VDDR1

+VRAM
RN65C 75Ohm
MVREFS_0
C194 0.1UF/16V
RN65D 75Ohm
R1.01
GND

DRAM_RST
TEST_MCLK
TEST_YCLK
RN61A 4.7KOhm
RN61B 4.7KOhm
RN61C 4.7KOhm
RN61D 4.7KOhm
R1.01
GND

GDDR3: 0.7 * VDDR1
DDR1/2: 0.5 * VDDR1

MEMORY CHANNEL B

+VRAM
RN66A 75Ohm
MVREFD_1
C196 0.1UF/16V
RN66B 75Ohm
R1.01
GND

+VRAM
RN66C 75Ohm
MVREFS_1
C195 0.1UF/16V
RN66D 75Ohm
R1.01
GND

<Variant Name>

ASUSTek COMPUTER INC

Title : ATI_M56P_Memory(3)

Engineer: Alan Chu

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 25 of 92

U5F

Part 6 of 7

AH27	PCIE_VSS1	VSS38	AD16
AC23	PCIE_VSS2	VSS39	AA6
AL27	PCIE_VSS3	VSS40	P7
R23	PCIE_VSS4	VSS41	P5
P25	PCIE_VSS5	VSS42	M3
R25	PCIE_VSS6	VSS43	M9
T26	PCIE_VSS7	VSS44	L7
U26	PCIE_VSS8	VSS45	M7
W26	PCIE_VSS9	VSS46	AD17
Y26	PCIE_VSS10	VSS47	AH11
AB26	PCIE_VSS11	VSS48	A8
AC26	PCIE_VSS12	VSS49	U7
AD25	PCIE_VSS13	VSS50	C10
AE26	PCIE_VSS14	VSS51	E9
AF26	PCIE_VSS15	VSS52	E3
AD26	PCIE_VSS16	VSS53	J9
AG25	PCIE_VSS17	VSS54	N7
AH26	PCIE_VSS18	VSS55	N3
AC28	PCIE_VSS19	VSS56	Y5
Y28	PCIE_VSS20	VSS57	AM13
U28	PCIE_VSS21	VSS58	AC10
P28	PCIE_VSS22	VSS59	Y6
AH29	PCIE_VSS23	VSS60	U6
AF28	PCIE_VSS24	VSS61	E5
V29	PCIE_VSS25	VSS62	AL13
AC29	PCIE_VSS26	VSS63	A11
W27	PCIE_VSS27	VSS64	U8
AB27	PCIE_VSS28	VSS65	U9
V26	PCIE_VSS29	VSS66	U10
AJ26	PCIE_VSS30	VSS67	R6
AJ32	PCIE_VSS31	VSS68	AD6
AK29	PCIE_VSS32	VSS69	V6
P26	PCIE_VSS33	VSS70	AD14
P29	PCIE_VSS34	VSS71	AD13
R29	PCIE_VSS35	VSS72	D11
T29	PCIE_VSS36	VSS73	J12
U29	PCIE_VSS37	VSS74	K12
W29	PCIE_VSS38	VSS75	A13
Y29	PCIE_VSS39	VSS76	F13
AA29	PCIE_VSS40	VSS77	E13
AB29	PCIE_VSS41	VSS78	F15
AD29	PCIE_VSS42	VSS79	K16
AE29	PCIE_VSS43	VSS80	J21
AF29	PCIE_VSS44	VSS81	H16
AG29	PCIE_VSS45	VSS82	T15
AJ29	PCIE_VSS46	VSS83	V17
AK26	PCIE_VSS47	VSS84	C15
AK30	PCIE_VSS48	VSS85	C4
AG26	PCIE_VSS49	VSS86	U14
N30	PCIE_VSS50	VSS87	P15
R31	PCIE_VSS51	VSS88	A16
AF30	PCIE_VSS52	VSS89	E16
AC30	PCIE_VSS53	VSS90	G13
V31	PCIE_VSS54	VSS91	G16
P30	PCIE_VSS55	VSS92	P17
AA31	PCIE_VSS56	VSS93	R16
U30	PCIE_VSS57	VSS94	R14
AD31	PCIE_VSS58	VSS95	W16
AK32	PCIE_VSS59	VSS96	C18
AJ28	PCIE_VSS60	VSS97	E16
Y30	PCIE_VSS61	VSS98	W18
AJ30	PCIE_VSS62	VSS99	U18
AK31	PCIE_VSS63	VSS100	AE16
AA23	PCIE_VSS64	VSS101	AE17
AG31	PCIE_VSS65	VSS102	A19
N24	PCIE_VSS66	VSS103	H32
AB23	PCIE_VSS67	VSS104	E19
P24	PCIE_VSS68	VSS105	G19
R24	PCIE_VSS69	VSS106	N8
T24	PCIE_VSS70	VSS107	Y7
U24	PCIE_VSS71	VSS108	T19
V24	PCIE_VSS72	VSS109	V19
W24	PCIE_VSS73	VSS110	G21
Y24	PCIE_VSS74	VSS111	C21
AC24	PCIE_VSS75	VSS112	F21
AH24	PCIE_VSS76	VSS113	AE14
V25	PCIE_VSS77	VSS114	AK16
AA25	PCIE_VSS78	VSS115	U5
R26	PCIE_VSS79	VSS116	F22
AA26	PCIE_VSS80	VSS117	F18
T27	PCIE_VSS81	VSS118	K30
AE27	PCIE_VSS82	VSS119	C24
		VSS120	F24
W23	PCIE_PVSS	VSS121	M24
		VSS122	A25
B1	VSS1	VSS123	D30
H1	VSS2	VSS124	E25
L1	VSS3	VSS125	G25
P1	VSS4	VSS126	G20
U1	VSS5	VSS127	G22
V1	VSS6	VSS128	F27
AD7	VSS7	VSS129	F28
AE8	VSS8	VSS130	H21
AL1	VSS9	VSS131	C27
A2	VSS10	VSS132	E32
AM2	VSS11	VSS133	H28
AD10	VSS12	VSS134	J30
E8	VSS13	VSS135	K17
H5	VSS14	VSS136	K27
K10	VSS15	VSS137	M32
M8	VSS16	VSS138	A22
T10	VSS17	VSS139	C20
E12	VSS18	VSS140	E19
AC9	VSS19	VSS141	H20
AF14	VSS20	VSS142	J24
AD8	VSS21	VSS143	M28
C5	VSS22	VSS144	J28
F10	VSS23	VSS145	J16
J3	VSS24	VSS146	F30
L6	VSS25	VSS147	L29
M6	VSS26	VSS148	A31
P6	VSS27	VSS149	B32
AA4	VSS28	VSS150	E30
AG11	VSS29	VSS151	AE15
V3	VSS30	VSS152	AG23
AG16	VSS31	VSS153	AD9
R3	VSS32	VSS154	AF16
C6	VSS33	VSS155	AH10
C9	VSS34	VSS156	AJ10
F6	VSS35	VSS157	AD15
H7	VSS36	VSS158	AH16
J6	VSS37		
		VSS159	K23

PCI-Express GND

L23 600 120Ohm/100Mhz

GND

CORE GND

M56_P

GND

9 PCIEG_RXP[0..15]
9 PCIEG_RXN[0..15]
9 PCIENB_RXP[0..15]
9 PCIENB_RXN[0..15]

PCIENB_RXN15	1	2		PCIEG_TXN15	
PCIENB_RXP15	C197	0.1UF/16V	2	PCIEG_TXP15	C198 0.1UF/16V
PCIENB_RXN14	1	2		PCIEG_TXN14	
PCIENB_RXP14	C199	0.1UF/16V	2	PCIEG_TXP14	C200 0.1UF/16V
PCIENB_RXN13	1	2		PCIEG_TXN13	
PCIENB_RXP13	C201	0.1UF/16V	2	PCIEG_TXP13	C202 0.1UF/16V
PCIENB_RXN12	1	2		PCIEG_TXN12	
PCIENB_RXP12	C203	0.1UF/16V	2	PCIEG_TXP12	C204 0.1UF/16V
PCIENB_RXN11	1	2		PCIEG_TXN11	
PCIENB_RXP11	C205	0.1UF/16V	2	PCIEG_TXP11	C206 0.1UF/16V
PCIENB_RXN10	1	2		PCIEG_TXN10	
PCIENB_RXP10	C207	0.1UF/16V	2	PCIEG_TXP10	C208 0.1UF/16V
PCIENB_RXN9	1	2		PCIEG_TXN9	
PCIENB_RXP9	C209	0.1UF/16V	2	PCIEG_TXP9	C210 0.1UF/16V
PCIENB_RXN8	1	2		PCIEG_TXN8	
PCIENB_RXP8	C211	0.1UF/16V	2	PCIEG_TXP8	C212 0.1UF/16V
PCIENB_RXN7	1	2		PCIEG_TXN7	
PCIENB_RXP7	C213	0.1UF/16V	2	PCIEG_TXP7	C214 0.1UF/16V
PCIENB_RXN6	1	2		PCIEG_TXN6	
PCIENB_RXP6	C215	0.1UF/16V	2	PCIEG_TXP6	C216 0.1UF/16V
PCIENB_RXN5	1	2		PCIEG_TXN5	
PCIENB_RXP5	C217	0.1UF/16V	2	PCIEG_TXP5	C218 0.1UF/16V
PCIENB_RXN4	1	2		PCIEG_TXN4	
PCIENB_RXP4	C219	0.1UF/16V	2	PCIEG_TXP4	C220 0.1UF/16V
PCIENB_RXN3	1	2		PCIEG_TXN3	
PCIENB_RXP3	C221	0.1UF/16V	2	PCIEG_TXP3	C222 0.1UF/16V
PCIENB_RXN2	1	2		PCIEG_TXN2	
PCIENB_RXP2	C223	0.1UF/16V	2	PCIEG_TXP2	C224 0.1UF/16V
PCIENB_RXN1	1	2		PCIEG_TXN1	
PCIENB_RXP1	C225	0.1UF/16V	2	PCIEG_TXP1	C226 0.1UF/16V
PCIENB_RXN0	1	2		PCIEG_TXN0	
PCIENB_RXP0	C227	0.1UF/16V	2	PCIEG_TXP0	C228 0.1UF/16V

U5A

PART 1 OF 7

PCIEG_RXN15	AJ31	PCIE_RX0P	PCIE_TX0P	AK27	PCIEG_TXN15
PCIEG_RXP15	AH31	PCIE_RX0N	PCIE_TX0N	AJ27	PCIEG_TXP15
PCIEG_RXN14	AH30	PCIE_RX1P	PCIE_TX1P	AJ25	PCIEG_TXN14
PCIEG_RXP14	AG30	PCIE_RX1N	PCIE_TX1N	AH25	PCIEG_TXP14
PCIEG_RXN13	AG32	PCIE_RX2P	PCIE_TX2P	AH28	PCIEG_TXN13
PCIEG_RXP13	AF32	PCIE_RX2N	PCIE_TX2N	AG28	PCIEG_TXP13
PCIEG_RXN12	AF31	PCIE_RX3P	PCIE_TX3P	AG27	PCIEG_TXN12
PCIEG_RXP12	AE31	PCIE_RX3N	PCIE_TX3N	AF27	PCIEG_TXP12
PCIEG_RXN11	AE30	PCIE_RX4P	PCIE_TX4P	AE25	PCIEG_TXN11
PCIEG_RXP11	AD30	PCIE_RX4N	PCIE_TX4N	AE25	PCIEG_TXP11
PCIEG_RXN10	AD32	PCIE_RX5P	PCIE_TX5P	AE28	PCIEG_TXN10
PCIEG_RXP10	AC32	PCIE_RX5N	PCIE_TX5N	AD28	PCIEG_TXP10
PCIEG_RXN9	AC31	PCIE_RX6P	PCIE_TX6P	AD27	PCIEG_TXN9
PCIEG_RXP9	AB31	PCIE_RX6N	PCIE_TX6N	AC27	PCIEG_TXP9
PCIEG_RXN8	AB30	PCIE_RX7P	PCIE_TX7P	AC25	PCIEG_TXN8
PCIEG_RXP8	AA30	PCIE_RX7N	PCIE_TX7N	AB25	PCIEG_TXP8
PCIEG_RXN7	AA32	PCIE_RX8P	PCIE_TX8P	AB28	PCIEG_TXN7
PCIEG_RXP7	Y32	PCIE_RX8N	PCIE_TX8N	AA28	PCIEG_TXP7
PCIEG_RXN6	Y31	PCIE_RX9P	PCIE_TX9P	AA27	PCIEG_TXN6
PCIEG_RXP6	W31	PCIE_RX9N	PCIE_TX9N	Y27	PCIEG_TXP6
PCIEG_RXN5	W30	PCIE_RX10P	PCIE_TX10P	Y25	PCIEG_TXN5
PCIEG_RXP5	V30	PCIE_RX10N	PCIE_TX10N	W25	PCIEG_TXP5
PCIEG_RXN4	V32	PCIE_RX11P	PCIE_TX11P	W28	PCIEG_TXN4
PCIEG_RXP4	U32	PCIE_RX11N	PCIE_TX11N	V28	PCIEG_TXP4
PCIEG_RXN3	U31	PCIE_RX12P	PCIE_TX12P	V27	PCIEG_TXN3
PCIEG_RXP3	T31	PCIE_RX12N	PCIE_TX12N	U27	PCIEG_TXP3
PCIEG_RXN2	T30	PCIE_RX13P	PCIE_TX13P	U25	PCIEG_TXN2
PCIEG_RXP2	R30	PCIE_RX13N	PCIE_TX13N	T25	PCIEG_TXP2
PCIEG_RXN1	R32	PCIE_RX14P	PCIE_TX14P	T28	PCIEG_TXN1
PCIEG_RXP1	P32	PCIE_RX14N	PCIE_TX14N	R28	PCIEG_TXP1
PCIEG_RXN0	P31	PCIE_RX15P	PCIE_TX15P	R27	PCIEG_TXN0
PCIEG_RXP0	N31	PCIE_RX15N	PCIE_TX15N	P27	PCIEG_TXP0

PCI-EXPRESS INTERFACE

Clock

39 CLK_PCIE_M56
39 CLK_PCIE_M56#

PCIE_REFCLKP	AL28	
PCIE_REFCLKN	AK28	

8,16,17,47,52 BUF_PLT_RST#

R141 0Ohm

T58 TPC26T

PERSTB	AG24	
PCIE_TEST	AA24	

R143 r0402 10KOhm

GND

Tie To VSS

PERSTB_MASK	AF24

It can be tied directly to GND.

Calibration

PCIE_CALRN	AE24	R139 2KOhm
PCIE_CALRP	AD24	R140 562Ohm
PCIE_CALI	AB24	R142 1.47KOhm

+1.2VSP

GND

M56_P

ASUSTek COMPUTER INC

Title : ATI_M56P_PCI-E(1)

Engineer: Alan Chu

Size	Project Name	Rev
C	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 26 of 92

GDDR3/DDR1: 1.8V
DDR2: 1.8 ~ 2 V

GDDR3: 2A
DDR1: 0.8A

+VRAM
C229 10UF/10V
C230 10UF/10V /X
C231 10UF/10V
GND

+VRAM
C235 C236 C237 C238 C239 C240 0.1UF/16V
GND

+VRAM
C248 C249 C250 C251 C252 C253 0.1UF/16V
GND

+VRAM
C268 C270 C271 C272 C273 C274 1000PF/50V /X
GND
no stuff

+VRAM
C280 C281 C282 C283 C284 C285 1000PF/50V /X
GND

+VGA_3V
L28 120Ohm/100Mhz
C291 1UF/10V
C292 1UF/10V
C293 C294 C295 C296 0.1UF/16V
C297 1000PF/50V
VDDR3 < 322 mA
VDDR4 + VDDR5 < 50 mA
+VDDR3

+VRAM
L32 120Ohm/100Mhz
C306 1UF/25V
C307 0.1UF/16V
C308 1000PF/50V /X
+VDDRH0

+VRAM
L33 120Ohm/100Mhz
C309 1UF/25V
C310 0.1UF/16V
C311 1000PF/50V /X
+VDDRH1

+2.5VS
C312 10UF/10V
C313 0.1UF/16V
C314 1000PF/50V /X

U5E
PART 5 OF 7

+VRAM
VDDR1_1 VDDR1_2 VDDR1_3 VDDR1_4 VDDR1_5 VDDR1_6 VDDR1_7 VDDR1_8 VDDR1_9 VDDR1_10 VDDR1_11 VDDR1_12 VDDR1_13 VDDR1_14 VDDR1_15 VDDR1_16 VDDR1_17 VDDR1_18 VDDR1_19 VDDR1_20 VDDR1_21 VDDR1_22 VDDR1_23 VDDR1_24 VDDR1_25 VDDR1_26 VDDR1_27 VDDR1_28 VDDR1_29 VDDR1_30 VDDR1_31 VDDR1_32 VDDR1_33 VDDR1_34 VDDR1_35 VDDR1_36 VDDR1_37 VDDR1_38 VDDR1_39 VDDR1_40 VDDR1_41 VDDR1_42 VDDR1_43 VDDR1_44
Memory I/O

+VDDR3
VDDR3_1 VDDR3_2 VDDR3_3 VDDR3_4 VDDR3_5 VDDR3_6 VDDR3_7 VDDR3_8
VDDR4_1 VDDR4_2 VDDR4_3 VDDR4_4
VDDR5_1 VDDR5_2 VDDR5_3 VDDR5_4
I/O

+VDDRH0 +VDDRH1
VDDRH0 VDDRH1
Memory I/O Clock

VSSRH0 VSSRH1
M56_P

+PCIE_PVDD_12 0.1A
PCIE_PVDD_12_1 PCIE_PVDD_12_2 PCIE_PVDD_12_3 PCIE_PVDD_12_4
+PCIE_VDDR_12
PCIE_VDDR_12_1 PCIE_VDDR_12_2 PCIE_VDDR_12_3 PCIE_VDDR_12_4 PCIE_VDDR_12_5
PCIE_VDDR_12_6 PCIE_VDDR_12_7 PCIE_VDDR_12_8 PCIE_VDDR_12_9 PCIE_VDDR_12_10 PCIE_VDDR_12_11 PCIE_VDDR_12_12 PCIE_VDDR_12_13 PCIE_VDDR_12_14
PCI-Express

+VGA_VCORE 14.2A
VDDC1 VDDC2 VDDC3 VDDC4 VDDC5 VDDC6 VDDC7 VDDC8 VDDC9 VDDC10 VDDC11 VDDC12 VDDC13 VDDC14 VDDC15 VDDC16 VDDC17 VDDC18 VDDC19 VDDC20 VDDC21 VDDC22 VDDC23
Core

+VDD25
VDD25_1 VDD25_2 VDD25_3
+VDDPLL
VDDPLL
+VDDCI
VDDCI1 VDDCI2 VDDCI3 VDDCI4 VDDCI5 VDDCI6 VDDCI7
I/O Internal

+LPVDD
LPVDD
LPVDD = 20 mA (max)
+LVDDR_18
LVDDR_18_1 LVDDR_18_2 LVDDR_18_3
+LVDDR_25 232mA
LVDDR_25_4 LVDDR_25_5 LVDDR_25_6 LVDDR_25_7 LVDDR_25_8 LVDDR_25_9
LVDS PLL, I/O

+1.2VSP
L24 120Ohm/100Mhz
0.1A
C232 10UF/10V
C233 0.1UF/16V
C234 1000PF/50V /X
+PCIE_PVDD_12

+1.2VSP
L25 80Ohm/100Mhz Irat=2A
1.28A
C241 10UF/10V
C242 0.1UF/16V
C243 0.1UF/16V
C244 1000PF/50V /X
C245 10UF/10V
C246 0.1UF/16V
C247 1000PF/50V /X
+PCIE_VDDR_12

+VGA_VCORE
C254 10UF/10V
C255 10UF/10V
C256 C257 C258 C259 C260 C261 C262 C263 C264 C265 C266 C267 C268 0.1UF/16V

DEMO SCHEMATIC:
1.5/1.8/2.5 V

+2.5VS
L26 120Ohm/100Mhz
88mA
C275 1UF/10V
C276 0.1UF/16V
C277 1000PF/50V /X
+VDD25

+1.2VSP
L27 120Ohm/100Mhz
52mA
C278 1UF/10V
C279 0.1UF/16V
+VDDPLL

+VGA_VCORE
R144 0Ohm
C286 10UF/10V
C287 C288 C289 C290 0.1UF/16V
+VDDCI

+2.5VS
L29 120Ohm/100Mhz
LPVDD = 20 mA (max)
C298 10UF/10V
C299 0.1UF/16V
+LPVDD

+2.5VS
L30 120Ohm/100Mhz
C300 10UF/10V /X
C301 0.1UF/16V
C302 1000PF/50V
+LVDDR_18

+2.5VS
L31 120Ohm/100Mhz
232mA
C303 10UF/10V /X
C304 0.1UF/16V
C305 1000PF/50V
+LVDDR_25

+BBP
100mA
R502 0Ohm /X
C666 1UF/25V
C667 0.1UF/16V
C668 1000PF/50V /X
Q37 SI2304BDS
SI2301BDS_T1_E3
+VGA_VCORE
R503 0Ohm /X +1.8VS
R499 0Ohm +1.5VS
R496 100KOhm +12VS
Q39 H2N7002
BB_EN

U5G
PART 7 OF 7
Forward Compatibility
BACK BIAS DISABLE
BBN1 BBN2 BBN3 BBN4 BBP1 BBP2 BBP3 BBP4
VDD25_4 VDD25_5 VDD25_6
0.07A
100mA max

Control and External SSC
VARY_BL DIGON GENERICD
Odd channel
Single channel /Even channel
LVDS channel
TXCLK_UP TXCLK_UN TXOUT_U3P TXOUT_U3N TXOUT_U2P TXOUT_U2N TXOUT_U1P TXOUT_U1N TXOUT_U0P TXOUT_U0N
TXOUT_L0N TXOUT_L0P TXOUT_L1N TXOUT_L1P TXOUT_L2N TXOUT_L2P TXCLK_LN TXCLK_LP

AD12 AE11 AD23 BB_EN
R498 0Ohm
L_VDD_EN 33
L_BKLTEN_V 24,33

BL BRIGHTNESS CONTROL (PWM)
L_BKLTEN_V R145 10KOhm
BB_EN R146 10KOhm
BACK BIAS DISABLE

LVDS_UCLKP 33 LVDS_UCLKN 33
LVDS_U2P 33 LVDS_U2N 33 LVDS_U1P 33 LVDS_U1N 33 LVDS_U0P 33 LVDS_U0N 33
LVDS_L0N 33 LVDS_L0P 33 LVDS_L1N 33 LVDS_L1P 33 LVDS_L2N 33 LVDS_L2P 33
LVDS_LCLKN 33 LVDS_LCLKP 33

<Variant Name>
ASUSTek COMPUTER INC
Title : ATI_M56P_POWER(4)
Engineer: Alan Chu
Size: Custom
Project Name: Z96J
Rev: 1.0
Date: Wednesday, January 11, 2006
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25 GMAA[15..0]
25 QSA[7..0]
25 QSA#[7..0]
25 DQMA#[7..0]
MDA[63..32] 25
MDA[31..0] 25

U8
CLKA0 CLKA0# CKEA0
RASA0# CASA0# WEA0# CSA0#
GMAA14 GMAA15 GMAA0 GMAA1 GMAA2 GMAA3 GMAA4 GMAA5 GMAA6 GMAA7 GMAA8 GMAA9 GMAA10 GMAA11 GMAA12
MDA25 MDA29 MDA27 MDA30 MDA31 MDA24 MDA28 MDA26 MDA2 MDA6 MDA1 MDA4 MDA7 MDA0 MDA5 MDA3
QSA0 QSA#0 QSA3 QSA#3
CK CK# CKE RAS# CAS# WE# CS# NC/A13 BA0 BA1 NC/BA2 A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10/AP A11 A12
LDQ0/DQ0 LDQ1/DQ1 LDQ2/DQ2 LDQ3/DQ3 LDQ4/DQ4 LDQ5/DQ5 LDQ6/DQ6 LDQ7/DQ7 UDQ0/DQ0 UDQ1/DQ1 UDQ2/DQ2 UDQ3/DQ3 UDQ4/DQ4 UDQ5/DQ5 UDQ6/DQ6 UDQ7/DQ7
UDQS UDQS# LDQS LDQS#
UDM LDM VREF VDDQ1 VDDQ2 VDDQ3 VDDQ4 VDDQ5 VDDQ6 VDDQ7 VDDQ8 VDDQ9 VDDQ10 VDDL VDD1 VDD2 VDD3 VDD4 VDD5 VSSQ1 VSSQ2 VSSQ3 VSSQ4 VSSQ5 VSSQ6 VSSQ7 VSSQ8 VSSQ9 VSSQ10 VSSDL VSS1 VSS2 VSS3 VSS4 VSS5 ODT NC1 NC2 NC3 NC4
DQMA#0 DQMA#3 VERF1 DQMA#1
K4N56163QF-ZC25

+VRAM
L34 120Ohm/100Mhz
C323 0.1UF/16V c0402
C324 1UF/16V /X
GND
R151 4.99KOhm VERF1
R153 4.99KOhm C333 0.1UF/16V

U9
CLKA1 CLKA1# CKEA1
RASA1# CASA1# WEA1# CSA1#
GMAA14 GMAA15 GMAA0 GMAA1 GMAA2 GMAA3 GMAA4 GMAA5 GMAA6 GMAA7 GMAA8 GMAA9 GMAA10 GMAA11 GMAA12
MDA35 MDA37 MDA32 MDA39 MDA36 MDA34 MDA38 MDA33 MDA42 MDA45 MDA41 MDA44 MDA47 MDA40 MDA46 MDA43
QSA5 QSA#5 QSA4 QSA#4
CK CK# CKE RAS# CAS# WE# CS# NC/A13 BA0 BA1 NC/BA2 A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10/AP A11 A12
LDQ0/DQ0 LDQ1/DQ1 LDQ2/DQ2 LDQ3/DQ3 LDQ4/DQ4 LDQ5/DQ5 LDQ6/DQ6 LDQ7/DQ7 UDQ0/DQ0 UDQ1/DQ1 UDQ2/DQ2 UDQ3/DQ3 UDQ4/DQ4 UDQ5/DQ5 UDQ6/DQ6 UDQ7/DQ7
UDQS UDQS# LDQS LDQS#
UDM LDM VREF VDDQ1 VDDQ2 VDDQ3 VDDQ4 VDDQ5 VDDQ6 VDDQ7 VDDQ8 VDDQ9 VDDQ10 VDDL VDD1 VDD2 VDD3 VDD4 VDD5 VSSQ1 VSSQ2 VSSQ3 VSSQ4 VSSQ5 VSSQ6 VSSQ7 VSSQ8 VSSQ9 VSSQ10 VSSDL VSS1 VSS2 VSS3 VSS4 VSS5 ODT NC1 NC2 NC3 NC4
DQMA#5 DQMA#4 VERF3
K4N56163QF-ZC25

+VRAM
L35 120Ohm/100Mhz
C325 0.1UF/16V
C326 1UF/16V /X
GND
ODTA1 25
R152 4.99KOhm VERF3
R154 4.99KOhm C334 0.1UF/16V

CLKA0 CLKA0#
R147 56Ohm R148 56Ohm
C315 470PF/50V
GND
CLKA1 CLKA1#
R149 56Ohm R150 56Ohm
C316 470PF/50V
GND

+VRAM
C317 1000PF/50V C318 0.01UF/16V C319 10UF/10V C320 0.1UF/16V C321 0.1UF/16V C322 0.01UF/16V
GND
+VRAM
C327 1000PF/50V C328 0.01UF/16V C329 10UF/10V C330 0.1UF/16V C331 0.1UF/16V C332 0.1UF/16V
GND
+VRAM
C335 1000PF/50V C336 0.01UF/16V C337 10UF/10V /X C338 0.1UF/16V C339 0.1UF/16V C340 0.01UF/16V
GND

U10
CLKA0 CLKA0# CKEA0
RASA0# CASA0# WEA0# CSA0#
GMAA14 GMAA15 GMAA0 GMAA1 GMAA2 GMAA3 GMAA4 GMAA5 GMAA6 GMAA7 GMAA8 GMAA9 GMAA10 GMAA11 GMAA12
MDA15 MDA10 MDA13 MDA11 MDA9 MDA12 MDA8 MDA14 MDA19 MDA21 MDA16 MDA22 MDA17 MDA18 MDA23 MDA20
QSA2 QSA#2 QSA1 QSA#1
CK CK# CKE RAS# CAS# WE# CS# NC/A13 BA0 BA1 NC/BA2 A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10/AP A11 A12
LDQ0/DQ0 LDQ1/DQ1 LDQ2/DQ2 LDQ3/DQ3 LDQ4/DQ4 LDQ5/DQ5 LDQ6/DQ6 LDQ7/DQ7 UDQ0/DQ0 UDQ1/DQ1 UDQ2/DQ2 UDQ3/DQ3 UDQ4/DQ4 UDQ5/DQ5 UDQ6/DQ6 UDQ7/DQ7
UDQS UDQS# LDQS LDQS#
UDM LDM VREF VDDQ1 VDDQ2 VDDQ3 VDDQ4 VDDQ5 VDDQ6 VDDQ7 VDDQ8 VDDQ9 VDDQ10 VDDL VDD1 VDD2 VDD3 VDD4 VDD5 VSSQ1 VSSQ2 VSSQ3 VSSQ4 VSSQ5 VSSQ6 VSSQ7 VSSQ8 VSSQ9 VSSQ10 VSSDL VSS1 VSS2 VSS3 VSS4 VSS5 ODT NC1 NC2 NC3 NC4
DQMA#2 DQMA#1 VERF2 ODTA0
K4N56163QF-ZC25

+VRAM
L36 120Ohm/100Mhz
C347 0.1UF/16V
C348 1UF/16V /X
GND
R167 4.99KOhm VERF2
R175 4.99KOhm C351 0.1UF/16V

U11
CLKA1 CLKA1# CKEA1
RASA1# CASA1# WEA1# CSA1#
GMAA14 GMAA15 GMAA0 GMAA1 GMAA2 GMAA3 GMAA4 GMAA5 GMAA6 GMAA7 GMAA8 GMAA9 GMAA10 GMAA11 GMAA12
MDA51 MDA53 MDA54 MDA55 MDA49 MDA52 MDA48 MDA50 MDA60 MDA56 MDA62 MDA57 MDA59 MDA63 MDA58 MDA61
QSA7 QSA#7 QSA6 QSA#6
CK CK# CKE RAS# CAS# WE# CS# NC/A13 BA0 BA1 NC/BA2 A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10/AP A11 A12
LDQ0/DQ0 LDQ1/DQ1 LDQ2/DQ2 LDQ3/DQ3 LDQ4/DQ4 LDQ5/DQ5 LDQ6/DQ6 LDQ7/DQ7 UDQ0/DQ0 UDQ1/DQ1 UDQ2/DQ2 UDQ3/DQ3 UDQ4/DQ4 UDQ5/DQ5 UDQ6/DQ6 UDQ7/DQ7
UDQS UDQS# LDQS LDQS#
UDM LDM VREF VDDQ1 VDDQ2 VDDQ3 VDDQ4 VDDQ5 VDDQ6 VDDQ7 VDDQ8 VDDQ9 VDDQ10 VDDL VDD1 VDD2 VDD3 VDD4 VDD5 VSSQ1 VSSQ2 VSSQ3 VSSQ4 VSSQ5 VSSQ6 VSSQ7 VSSQ8 VSSQ9 VSSQ10 VSSDL VSS1 VSS2 VSS3 VSS4 VSS5 ODT NC1 NC2 NC3 NC4
DQMA#7 DQMA#6 VERF4 ODTA1
K4N56163QF-ZC25

+VRAM
L37 120Ohm/100Mhz
C349 0.1UF/16V
C350 1UF/16V /X
GND
R169 4.99KOhm VERF4
R177 4.99KOhm C352 0.1UF/16V

+VRAM
C341 1000PF/50V C342 0.01UF/16V C343 10UF/10V /X C344 0.1UF/16V C345 0.1UF/16V C346 0.1UF/16V
GND

+0.9VS
RN45A GMAA8 16 56Ohm
RN45B GMAA6 15 56Ohm
RN45C GMAA0 14 56Ohm
RN45D GMAA11 13 56Ohm
RN45E GMAA4 12 56Ohm
RN45F GMAA7 11 56Ohm
RN45G GMAA12 10 56Ohm
RN45H GMAA9 9 56Ohm
C712 0.1UF/16V
GND
RN46A CASA0# 16 56Ohm
RN46B RASA0# 15 56Ohm
RN46C WEA0# 14 56Ohm
RN46D CSA0# 13 56Ohm
RN46E GMAA1 12 56Ohm
RN46F GMAA2 11 56Ohm
RN46G GMAA5 10 56Ohm
RN46H GMAA15 9 56Ohm
C713 0.1UF/16V
GND
RN47A ODTA1 16 56Ohm
RN47B GMAA3 15 56Ohm
RN47C GMAA10 14 56Ohm
RN47D GMAA14 13 56Ohm
RN47E CASA1# 12 56Ohm
RN47F WEA1# 11 56Ohm
RN47G RASA1# 10 56Ohm
RN47H CSA1# 9 56Ohm
C719 10UF/10V
GND
CKEA1 56Ohm R183
ODTA0 56Ohm R184
CKEA0 56Ohm R185

ASUSTek COMPUTER INC
Title : ATI_M56P_VRAM_A(5)
Engineer: Alan Chu
Size: Custom
Project Name: Z96J
Rev: 1.0
Date: Wednesday, January 11, 2006
Sheet 28 of 92

25 GMAB[15..0]
25 QSB[7..0]
25 QSB#[7..0]
25 DQMB#[7..0]

MDB[31..0] 25

MDB[63..32] 25

25 CLKB0
25 CLKB0#
25 CKEB0

25 RASB0#
25 CASB0#
25 WEB0#
25 CSB0#

U12

CK J8
CK# K8
CKE K2

RAS# K7
CAS# L7
WE# K3
CS# L8
NC/A13 R8

BA0 L2
BA1 L3
NC/BA2 L1
A0 M8
A1 M3
A2 M7
A3 N2
A4 N8
A5 N3
A6 N7
A7 P2
A8 P8
A9 P3
A10/AP M2
A11 P7
A12 R2

LDQ0/DQ0 G8
LDQ1/DQ1 G2
LDQ2/DQ2 H7
LDQ3/DQ3 H3
LDQ4/DQ4 H1
LDQ5/DQ5 H9
LDQ6/DQ6 F1
LDQ7/DQ7 F9
UDQ0/DQ0 C8
UDQ1/DQ1 C2
UDQ2/DQ2 D7
UDQ3/DQ3 D3
UDQ4/DQ4 D1
UDQ5/DQ5 D9
UDQ6/DQ6 B1
UDQ7/DQ7 B9

UDQS B7
UDQS# A8
LDQS E7
LDQS# E8

UDM B3
LDM F3
VREF J2

VDDQ1 E9
VDDQ2 G1
VDDQ3 G3
VDDQ4 G7
VDDQ5 G9
VDDQ6 A9
VDDQ7 C1
VDDQ8 C3
VDDQ9 C7
VDDQ10 C9

VDDL J1

VDD1 A1
VDD2 E1
VDD3 J9
VDD4 M9
VDD5 R1

VSSQ1 E7
VSSQ2 F2
VSSQ3 F8
VSSQ4 H2
VSSQ5 H8
VSSQ6 A7
VSSQ7 B2
VSSQ8 B8
VSSQ9 D2
VSSQ10 D8

VSSDL J7

VSS1 A3
VSS2 J3
VSS3 N1
VSS4 P9
VSS5 E3

ODT K9

NC1 A2
NC2 E2
NC3 R3
NC4 R7

K4N56163QF-ZC25

GMAB14 GMAB15 GMAB0 GMAB1 GMAB2 GMAB3 GMAB4 GMAB5 GMAB6 GMAB7 GMAB8 GMAB9 GMAB10 GMAB11 GMAB12

MDB31 MDB27 MDB30 MDB26 MDB24 MDB29 MDB25 MDB28 MDB5 MDB1 MDB7 MDB3 MDB0 MDB6 MDB2 MDB4

QSB0 QSB#0 QSB3 QSB#3

DQMB#0 DQMB#3

VERF5

+VRAM

L38 120Ohm/100Mhz

C361 0.1UF/16V c0402

C362 1UF/16V c0805 /X

ODTB0 25

GND

+VRAM
R191 4.99KOhm
VERF5
R193 4.99KOhm
C372 0.1UF/16V c0402
GND

25 CLKB1
25 CLKB1#
25 CKEB1

25 RASB1#
25 CASB1#
25 WEB1#
25 CSB1#

U13

CK J8
CK# K8
CKE K2

RAS# K7
CAS# L7
WE# K3
CS# L8
NC/A13 R8

BA0 L2
BA1 L3
NC/BA2 L1
A0 M8
A1 M3
A2 M7
A3 N2
A4 N8
A5 N3
A6 N7
A7 P2
A8 P8
A9 P3
A10/AP M2
A11 P7
A12 R2

LDQ0/DQ0 G8
LDQ1/DQ1 G2
LDQ2/DQ2 H7
LDQ3/DQ3 H3
LDQ4/DQ4 H1
LDQ5/DQ5 H9
LDQ6/DQ6 F1
LDQ7/DQ7 F9
UDQ0/DQ0 C8
UDQ1/DQ1 C2
UDQ2/DQ2 D7
UDQ3/DQ3 D3
UDQ4/DQ4 D1
UDQ5/DQ5 D9
UDQ6/DQ6 B1
UDQ7/DQ7 B9

UDQS B7
UDQS# A8
LDQS E7
LDQS# E8

UDM B3
LDM F3
VREF J2

VDDQ1 E9
VDDQ2 G1
VDDQ3 G3
VDDQ4 G7
VDDQ5 G9
VDDQ6 A9
VDDQ7 C1
VDDQ8 C3
VDDQ9 C7
VDDQ10 C9

VDDL J1

VDD1 A1
VDD2 E1
VDD3 J9
VDD4 M9
VDD5 R1

VSSQ1 E7
VSSQ2 F2
VSSQ3 F8
VSSQ4 H2
VSSQ5 H8
VSSQ6 A7
VSSQ7 B2
VSSQ8 B8
VSSQ9 D2
VSSQ10 D8

VSSDL J7

VSS1 A3
VSS2 J3
VSS3 N1
VSS4 P9
VSS5 E3

ODT K9

NC1 A2
NC2 E2
NC3 R3
NC4 R7

K4N56163QF-ZC25

GMAB14 GMAB15 GMAB0 GMAB1 GMAB2 GMAB3 GMAB4 GMAB5 GMAB6 GMAB7 GMAB8 GMAB9 GMAB10 GMAB11 GMAB12

MDB62 MDB58 MDB60 MDB63 MDB56 MDB57 MDB59 MDB61 MDB35 MDB38 MDB33 MDB36 MDB39 MDB34 MDB37 MDB32

QSB4 QSB#4 QSB7 QSB#7

DQMB#4 DQMB#7

VERF7

+VRAM

L39 120Ohm/100Mhz

C363 0.1UF/16V c0402

C364 1UF/16V c0805 /X

ODTB1 25

GND

+VRAM
R190 4.99KOhm
VERF7
R192 4.99KOhm
C371 0.1UF/16V c0402
GND

CLKB0
CLKB0#
R186 56Ohm
R187 56Ohm
C353 470PF/50V
GND

CLKB1
CLKB1#
R188 56Ohm
R189 56Ohm
C354 470PF/50V
GND

+VRAM
C355 1000PF/50V
C356 0.01UF/16V
C357 10UF/10V
C360 0.1UF/16V
C358 0.1UF/16V
C359 0.01UF/16V
GND

+VRAM
C365 1000PF/50V
C366 0.01UF/16V
C367 10UF/10V
C368 0.1UF/16V
C369 0.1UF/16V
C370 0.1UF/16V
GND

+VRAM
C373 1000PF/50V
C374 0.01UF/16V
C375 10UF/10V /X
C376 0.1UF/16V
C377 0.1UF/16V
C378 0.01UF/16V
GND

U14

CK J8
CK# K8
CKE K2

RAS# K7
CAS# L7
WE# K3
CS# L8
NC/A13 R8

BA0 L2
BA1 L3
NC/BA2 L1
A0 M8
A1 M3
A2 M7
A3 N2
A4 N8
A5 N3
A6 N7
A7 P2
A8 P8
A9 P3
A10/AP M2
A11 P7
A12 R2

LDQ0/DQ0 G8
LDQ1/DQ1 G2
LDQ2/DQ2 H7
LDQ3/DQ3 H3
LDQ4/DQ4 H1
LDQ5/DQ5 H9
LDQ6/DQ6 F1
LDQ7/DQ7 F9
UDQ0/DQ0 C8
UDQ1/DQ1 C2
UDQ2/DQ2 D7
UDQ3/DQ3 D3
UDQ4/DQ4 D1
UDQ5/DQ5 D9
UDQ6/DQ6 B1
UDQ7/DQ7 B9

UDQS B7
UDQS# A8
LDQS E7
LDQS# E8

UDM B3
LDM F3
VREF J2

VDDQ1 E9
VDDQ2 G1
VDDQ3 G3
VDDQ4 G7
VDDQ5 G9
VDDQ6 A9
VDDQ7 C1
VDDQ8 C3
VDDQ9 C7
VDDQ10 C9

VDDL J1

VDD1 A1
VDD2 E1
VDD3 J9
VDD4 M9
VDD5 R1

VSSQ1 E7
VSSQ2 F2
VSSQ3 F8
VSSQ4 H2
VSSQ5 H8
VSSQ6 A7
VSSQ7 B2
VSSQ8 B8
VSSQ9 D2
VSSQ10 D8

VSSDL J7

VSS1 A3
VSS2 J3
VSS3 N1
VSS4 P9
VSS5 E3

ODT K9

NC1 A2
NC2 E2
NC3 R3
NC4 R7

K4N56163QF-ZC25

CLKB0 CKEB0 RASB0# CASB0# WEB0# CSB0# GMAB14 GMAB15 GMAB0 GMAB1 GMAB2 GMAB3 GMAB4 GMAB5 GMAB6 GMAB7 GMAB8 GMAB9 GMAB10 GMAB11 GMAB12

MDB22 MDB19 MDB23 MDB18 MDB16 MDB21 MDB20 MDB17 MDB10 MDB13 MDB11 MDB14 MDB15 MDB8 MDB12 MDB9

QSB1 QSB#1 QSB2 QSB#2

DQMB#1 DQMB#2

VERF6

+VRAM

L40 120Ohm/100Mhz

C385 0.1UF/16V c0402

C386 1UF/16V c0805 /X

ODTB0

GND

+VRAM
R211 4.99KOhm
VERF6
R219 4.99KOhm
C390 0.1UF/16V c0402
GND

U15

CK J8
CK# K8
CKE K2

RAS# K7
CAS# L7
WE# K3
CS# L8
NC/A13 R8

BA0 L2
BA1 L3
NC/BA2 L1
A0 M8
A1 M3
A2 M7
A3 N2
A4 N8
A5 N3
A6 N7
A7 P2
A8 P8
A9 P3
A10/AP M2
A11 P7
A12 R2

LDQ0/DQ0 G8
LDQ1/DQ1 G2
LDQ2/DQ2 H7
LDQ3/DQ3 H3
LDQ4/DQ4 H1
LDQ5/DQ5 H9
LDQ6/DQ6 F1
LDQ7/DQ7 F9
UDQ0/DQ0 C8
UDQ1/DQ1 C2
UDQ2/DQ2 D7
UDQ3/DQ3 D3
UDQ4/DQ4 D1
UDQ5/DQ5 D9
UDQ6/DQ6 B1
UDQ7/DQ7 B9

UDQS B7
UDQS# A8
LDQS E7
LDQS# E8

UDM B3
LDM F3
VREF J2

VDDQ1 E9
VDDQ2 G1
VDDQ3 G3
VDDQ4 G7
VDDQ5 G9
VDDQ6 A9
VDDQ7 C1
VDDQ8 C3
VDDQ9 C7
VDDQ10 C9

VDDL J1

VDD1 A1
VDD2 E1
VDD3 J9
VDD4 M9
VDD5 R1

VSSQ1 E7
VSSQ2 F2
VSSQ3 F8
VSSQ4 H2
VSSQ5 H8
VSSQ6 A7
VSSQ7 B2
VSSQ8 B8
VSSQ9 D2
VSSQ10 D8

VSSDL J7

VSS1 A3
VSS2 J3
VSS3 N1
VSS4 P9
VSS5 E3

ODT K9

NC1 A2
NC2 E2
NC3 R3
NC4 R7

K4N56163QF-ZC25

CLKB1 CKEB1 RASB1# CASB1# WEB1# CSB1# GMAB14 GMAB15 GMAB0 GMAB1 GMAB2 GMAB3 GMAB4 GMAB5 GMAB6 GMAB7 GMAB8 GMAB9 GMAB10 GMAB11 GMAB12

MDB55 MDB48 MDB52 MDB49 MDB50 MDB54 MDB51 MDB53 MDB45 MDB41 MDB47 MDB43 MDB40 MDB46 MDB42 MDB44

QSB5 QSB#5 QSB6 QSB#6

DQMB#5 DQMB#6

VERF8

+VRAM

L41 120Ohm/100Mhz

C387 0.1UF/16V c0402

C388 1UF/16V c0805 /X

ODTB1

GND

+VRAM
R209 4.99KOhm
VERF8
R217 4.99KOhm
C389 0.1UF/16V c0402
GND

+VRAM
C379 1000PF/50V
C380 0.01UF/16V
C381 10UF/10V /X
C382 0.1UF/16V
C383 0.1UF/16V
C384 0.1UF/16V
GND

+0.9VS

CASB0# RN48A 1 16 56Ohm
RASB0# RN48B 2 15 56Ohm
ODTB0 RN48C 3 14 56Ohm
CSB0# RN48D 4 13 56Ohm
GMAB10 RN48E 5 12 56Ohm
GMAB1 RN48F 6 11 56Ohm
GMAB2 RN48G 7 10 56Ohm
CKEB1 RN48H 8 9 56Ohm

C714 0.1UF/16V
GND

WEB1# RN49A 1 16 56Ohm
GMAB11 RN49B 2 15 56Ohm
GMAB6 RN49C 3 14 56Ohm
GMAB9 RN49D 4 13 56Ohm
GMAB12 RN49E 5 12 56Ohm
GMAB14 RN49F 6 11 56Ohm
GMAB15 RN49G 7 10 56Ohm
GMAB8 RN49H 8 9 56Ohm

C715 0.1UF/16V
GND

RASB1# RN50A 1 16 56Ohm
CASB1# RN50B 2 15 56Ohm
CSB1# RN50C 3 14 56Ohm
GMAB0 RN50D 4 13 56Ohm
GMAB4 RN50E 5 12 56Ohm
GMAB7 RN50F 6 11 56Ohm
GMAB3 RN50G 7 10 56Ohm
GMAB5 RN50H 8 9 56Ohm

WEB0# 56Ohm R222
ODTB1 56Ohm R223
CKEB0 56Ohm R224

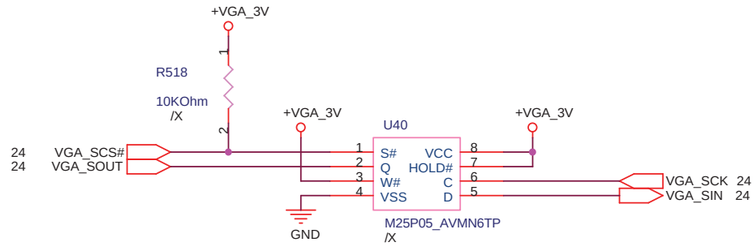
ASUSTek COMPUTER INC

Title : ATI_M56P_VRAM_B(6)

Engineer: Alan Chu

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 29 of 92



ASUSTeK COMPUTER INC

Title : Schematic page name

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 30 of 92

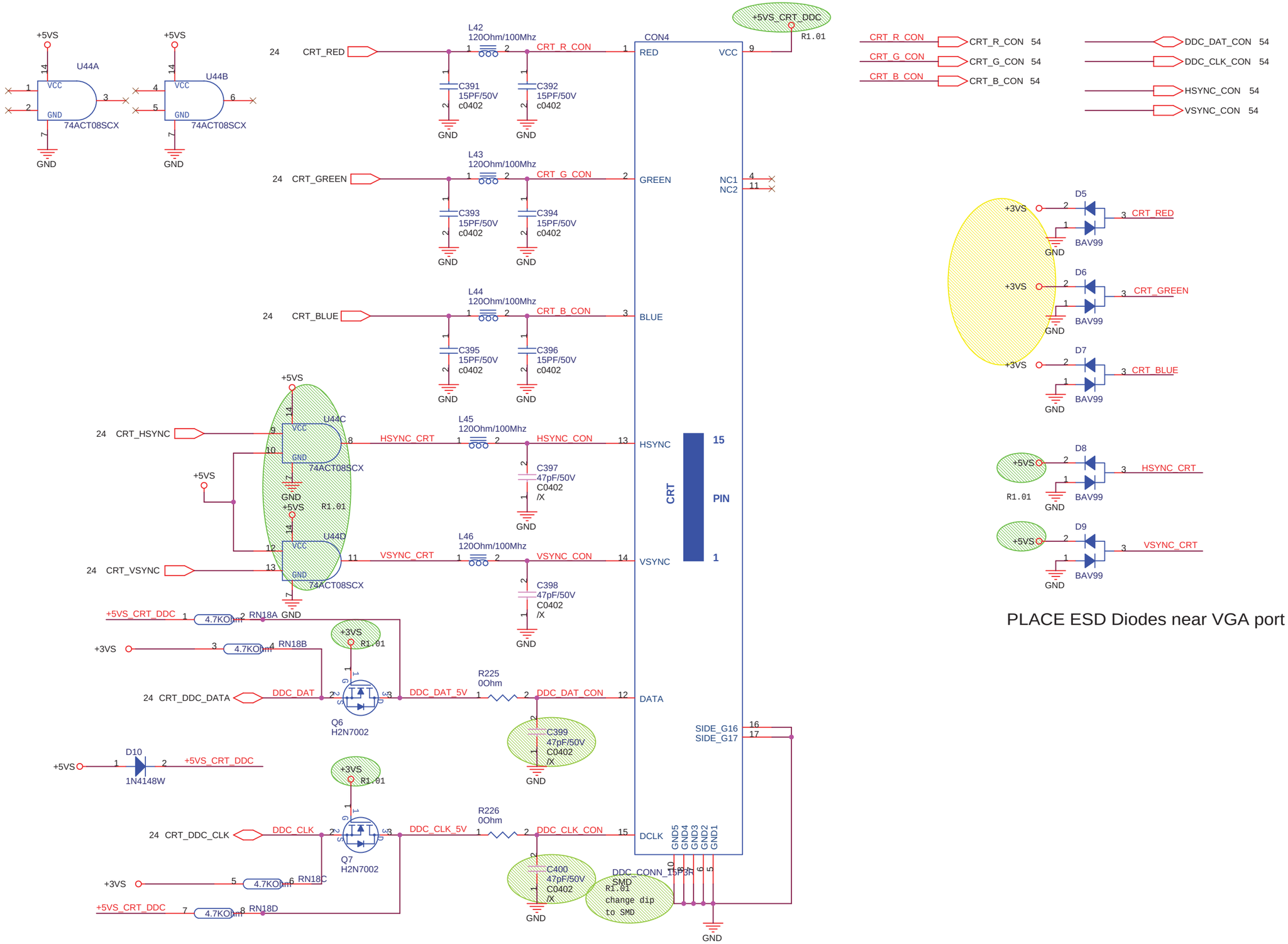
ASUSTeK COMPUTER INC

Title :

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 31 of 92

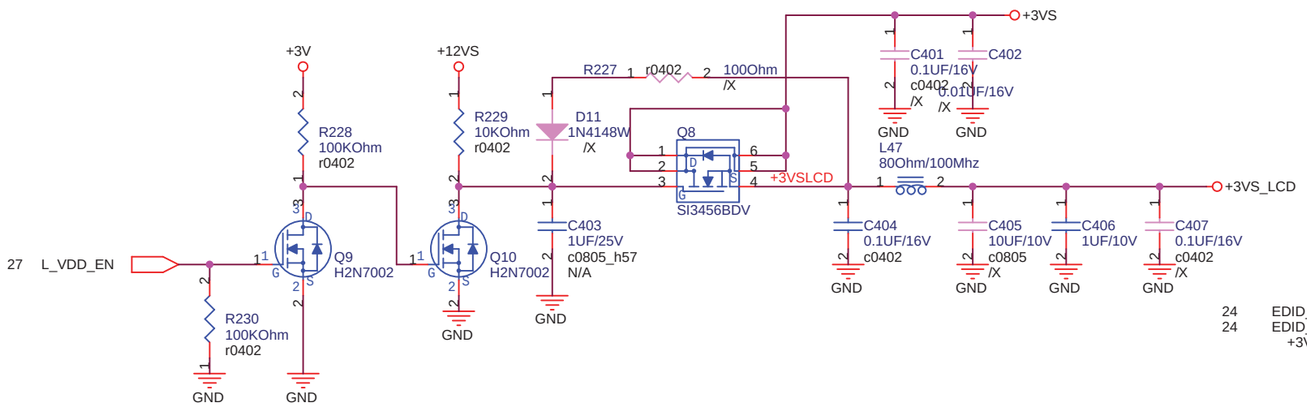


ASUSTeK COMPUTER INC	Title : CRT	
	Engineer: Alan Chu	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 32 of 92	

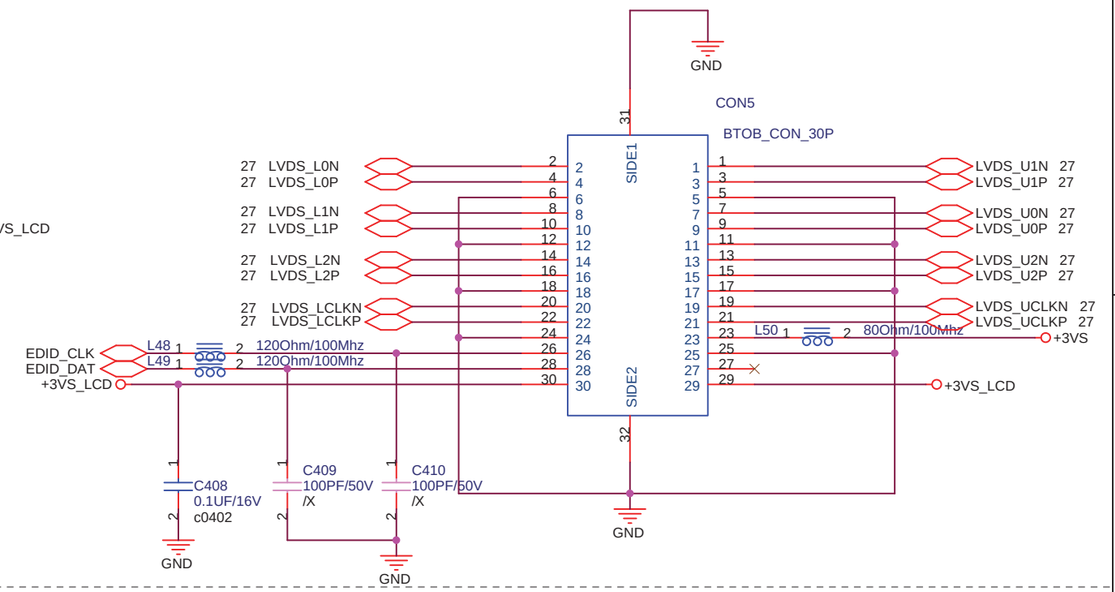
LCD Backlight Control

Cable Requirement:
Impedence: 100 ohm +/- 10%
Length Mismatch <= 10 mils
Twisted Pair(Not Ribbon)
Maximum Length <= 16"

LCD Power

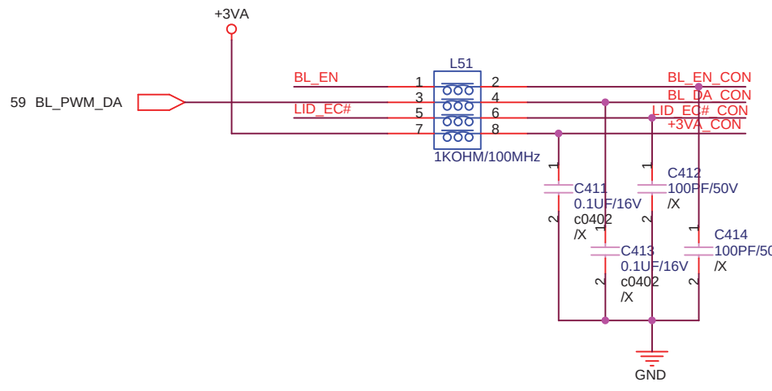


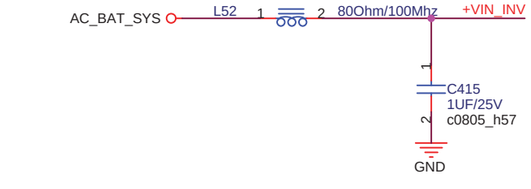
LCD LVDS Interface

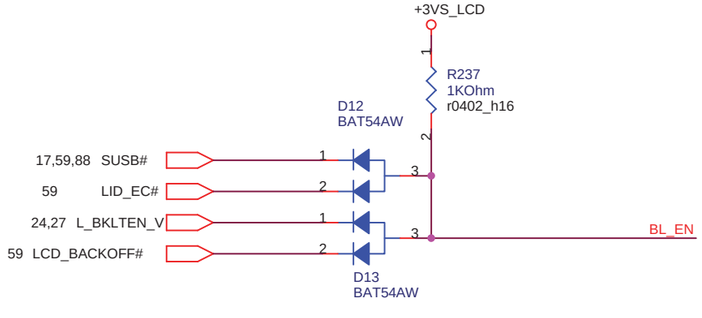


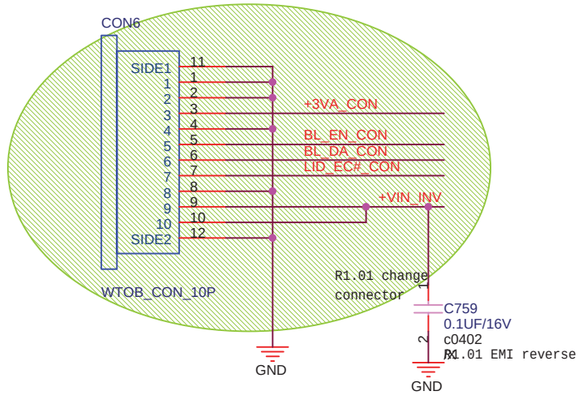
INVERTER Interface/Speaker CONN.

BIOS
BACK_OFF#:When user push "Fn+F7" button, BIOS active this pin to turn off back light.









R1.01 remove HW reserve pannel ID

ASUSTeK COMPUTER INC	Title : LVDS & INVERTER		
	Engineer: Alan Chu		
Size: Custom	Project Name: Z96J		Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 33 of 92		

ASUSTeK COMPUTER INC

Title : Schematic page name

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

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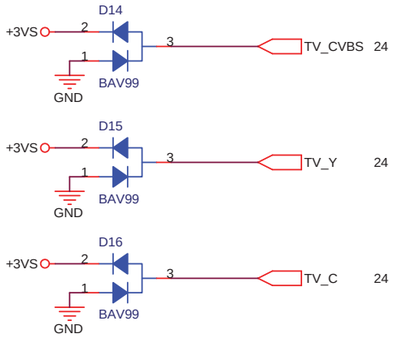
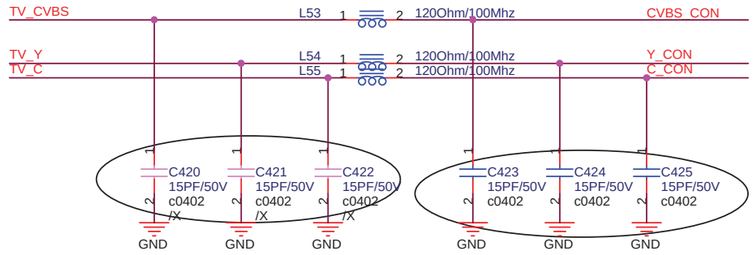
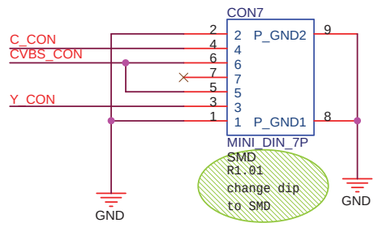
TV OUT



PLACE ESD
Diodes near
TV port





ASUSTeK COMPUTER INC

Title : TV OUT & DVI CON.

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 35 of 92

ASUSTeK COMPUTER INC

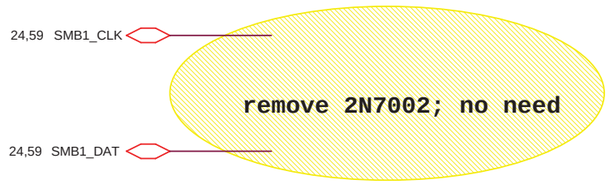
Title : Schematic page name

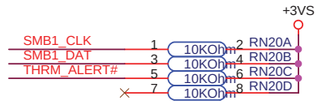
Engineer: *Alan Chu*

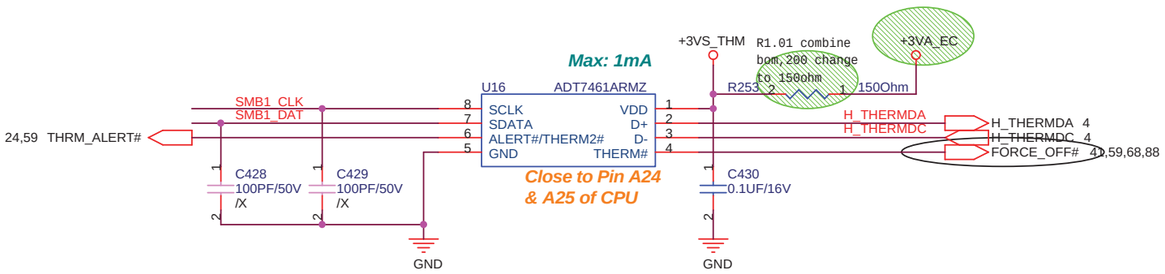
Size	Project Name	Rev
Custom	Z96J	1.0

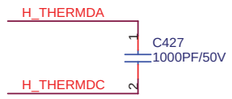
Date: Wednesday, January 11, 2006 Sheet 36 of 92

Thermal Sensor









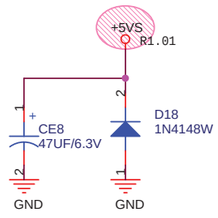
Route H_THERMDA and H_THERMDC on the same layer

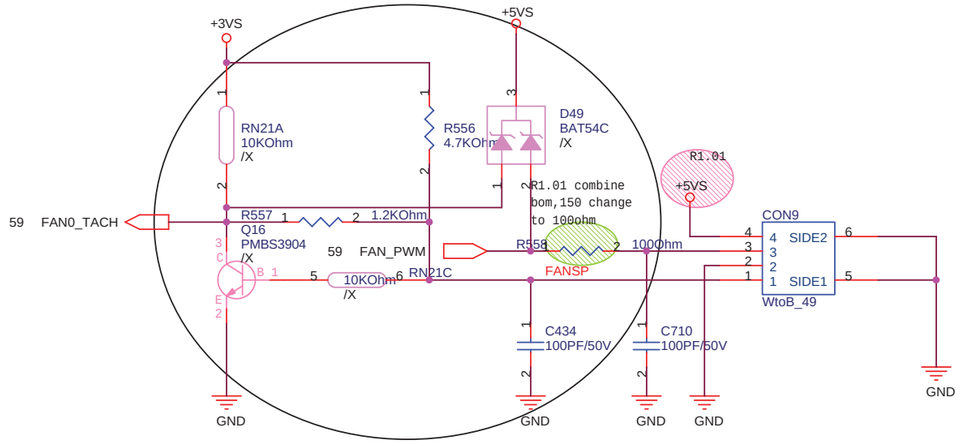
----------OTHER SIGNALS
15 mils
==========GND
10 mils
=========H_THERMDA(10 mils)
10 mils
=========H_THERMDC(10 mils)
10 mils
=========GND
15 mils
----------OTHER SIGNALS

Avoid FSB,Power

DC FAN Control

remove fan control circuit





CPU FAN will be forced on:
1) Thermal Sensor Over-temperture
2) WATCHDOG asserted by EC

ASUSTeK COMPUTER INC.	Title : THER SENSOR & FAN	
	Engineer: Alan Chu	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 37 of 92	

5 4 3 2 1

D C B A

ASUSTeK COMPUTER INC

Title : Schematic page name

Engineer:

Size	Project Name	Rev
Custom		1.0

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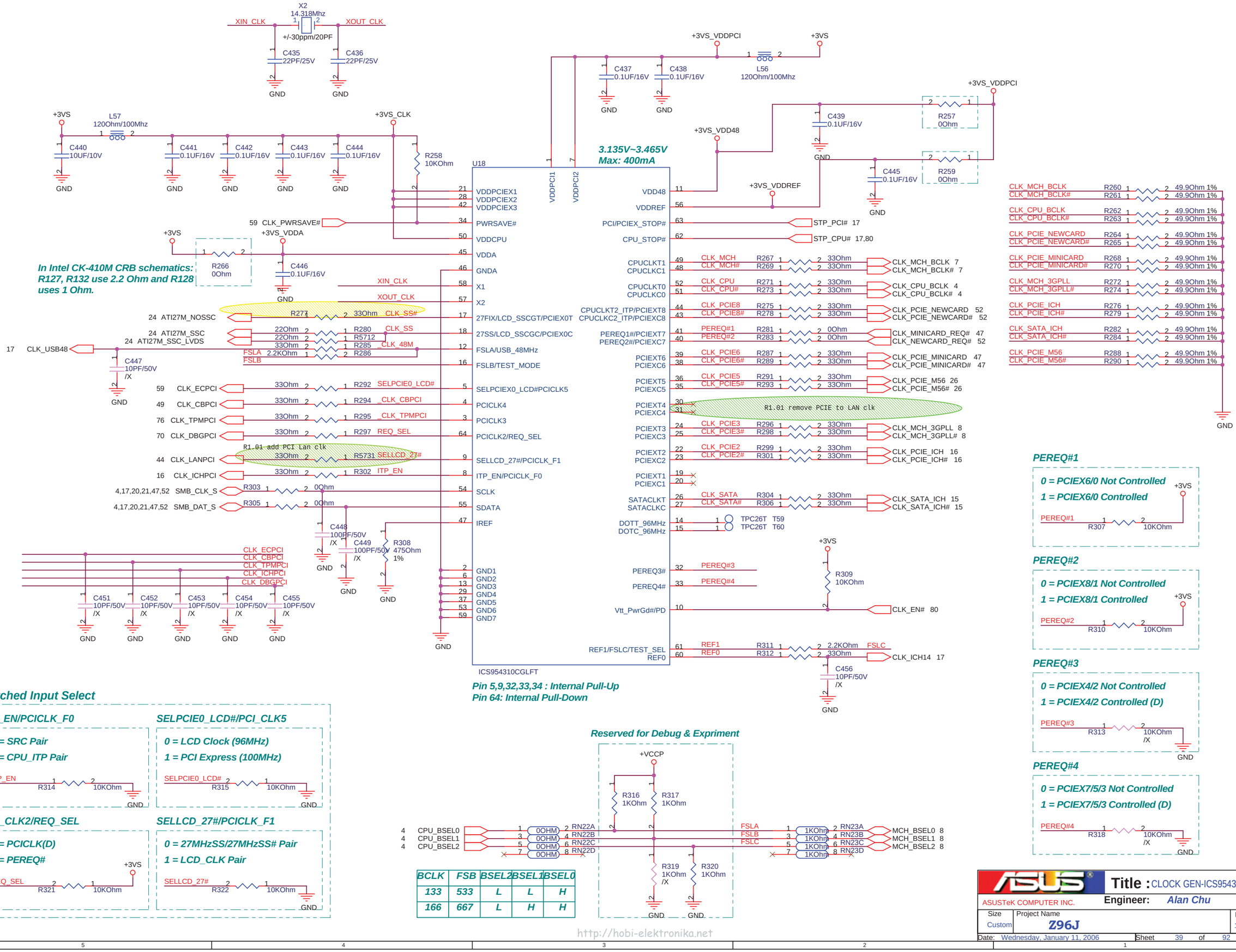
X2
14.318Mhz
XIN_CLK
XOUT_CLK
+/-30ppm/20PF
C435 22PF/25V
C436 22PF/25V
GND
+3VS
L57 120Ohm/100Mhz
C440 10UF/10V
C441 0.1UF/16V
C442 0.1UF/16V
C443 0.1UF/16V
C444 0.1UF/16V
+3VS_CLK
R258 10KOhm
+3VS_VDDPCI
C437 0.1UF/16V
C438 0.1UF/16V
L56 120Ohm/100Mhz
C439 0.1UF/16V
R257 0Ohm
R259 0Ohm
C445 0.1UF/16V
+3VS_VDD48
+3VS_VDDREF
U18
VDDPCI1
VDDPCI2
3.135V~3.465V
Max: 400mA
VDDPCIEX1
VDDPCIEX2
VDDPCIEX3
PWRSAVE#
VDDCPU
VDDA
GNDA
X1
X2
27FIX/LCD_SSCGT/PCIEX0T
27SS/LCD_SSCGC/PCIEX0C
FSLA/USB_48MHz
FSLB/TEST_MODE
SELPCIEX0_LCD#PCICLK5
PCICLK4
PCICLK3
PCICLK2/REQ_SEL
SELLCD_27#/PCICLK_F1
ITP_EN/PCICLK_F0
SCLK
SDATA
IREF
GND1
GND2
GND3
GND4
GND5
GND6
GND7
VDD48
VDDREF
PCI/PCIEX_STOP#
CPU_STOP#
CPUCLKT1
CPUCLKC1
CPUCLKT0
CPUCLKC0
CPUCLKT2_ITP/PCIEXT8
CPUCLKC2_ITP/PCIEXC8
PEREQ1#/PCIEXT7
PEREQ2#/PCIEXC7
PCIEXT6
PCIEXC6
PCIEXT5
PCIEXC5
PCIEXT4
PCIEXC4
PCIEXT3
PCIEXC3
PCIEXT2
PCIEXC2
PCIEXT1
PCIEXC1
SATACLKT
SATACLKC
DOTT_96MHz
DOTC_96MHz
PEREQ3#
PEREQ4#
Vtt_PwrGd#/PD
REF1/FSLC/TEST_SEL
REF0
ICS954310CGLFT
59 CLK_PWRSAVE#
+3VS_VDDA
R266 0Ohm
C446 0.1UF/16V
In Intel CK-410M CRB schematics:
R127, R132 use 2.2 Ohm and R128 uses 1 Ohm.
24 ATI27M_NOSSC
24 ATI27M_SSC
24 ATI27M_SSC_LVDS
17 CLK_USB48
C447 10PF/50V /X
R277 33Ohm CLK_SS#
22Ohm R280 CLK_SS
22Ohm R5712
33Ohm R285 CLK_48M
FSLA 2.2KOhm R286
59 CLK_ECPCI
49 CLK_CBPCI
76 CLK_TPMPCI
70 CLK_DBGPCI
44 CLK_LANPCI
16 CLK_ICHPCI
R292 SELPCIE0_LCD#
R294 _CLK_CBPCI
R295 _CLK_TPMPCI
R297 REQ_SEL
R1.01 add PCI Lan clk
R5731 SELLCD_27#
R302 ITP_EN
4,17,20,21,47,52 SMB_CLK_S
4,17,20,21,47,52 SMB_DAT_S
R303 0Ohm
R305 0Ohm
C448 100PF/50V /X
C449 100PF/50V /X
R308 475Ohm 1%
CLK_ECPCI
CLK_CBPCI
CLK_TPMPCI
CLK_ICHPCI
CLK_DBGPCI
C451 10PF/50V /X
C452 10PF/50V /X
C453 10PF/50V /X
C454 10PF/50V /X
C455 10PF/50V /X
R267 CLK_MCH
R269 CLK_MCH#
R271 CLK_CPU
R273 CLK_CPU#
R275 CLK_PCIE8
R278 CLK_PCIE8#
R281 PEREQ#1
R283 PEREQ#2
R287 CLK_PCIE6
R289 CLK_PCIE6#
R291 CLK_PCIE5
R293 CLK_PCIE5#
R1.01 remove PCIE to LAN clk
R296 CLK_PCIE3
R298 CLK_PCIE3#
R299 CLK_PCIE2
R301 CLK_PCIE2#
R304 CLK_SATA
R306 CLK_SATA#
33Ohm
0Ohm
CLK_MCH_BCLK 7
CLK_MCH_BCLK# 7
CLK_CPU_BCLK 4
CLK_CPU_BCLK# 4
CLK_PCIE_NEWCARD 52
CLK_PCIE_NEWCARD# 52
CLK_MINICARD_REQ# 47
CLK_NEWCARD_REQ# 52
CLK_PCIE_MINICARD 47
CLK_PCIE_MINICARD# 47
CLK_PCIE_M56 26
CLK_PCIE_M56# 26
CLK_MCH_3GPLL 8
CLK_MCH_3GPLL# 8
CLK_PCIE_ICH 16
CLK_PCIE_ICH# 16
CLK_SATA_ICH 15
CLK_SATA_ICH# 15
TPC26T T59
TPC26T T60
STP_PCI# 17
STP_CPU# 17,80
R309 10KOhm
CLK_EN# 80
REF1
REF0
R311 2.2KOhm FSLC
R312 33Ohm
CLK_ICH14 17
C456 10PF/50V /X
Pin 5,9,32,33,34 : Internal Pull-Up
Pin 64: Internal Pull-Down
CLK_MCH_BCLK R260 49.9Ohm 1%
CLK_MCH_BCLK# R261 49.9Ohm 1%
CLK_CPU_BCLK R262 49.9Ohm 1%
CLK_CPU_BCLK# R263 49.9Ohm 1%
CLK_PCIE_NEWCARD R264 49.9Ohm 1%
CLK_PCIE_NEWCARD# R265 49.9Ohm 1%
CLK_PCIE_MINICARD R268 49.9Ohm 1%
CLK_PCIE_MINICARD# R270 49.9Ohm 1%
CLK_MCH_3GPLL R272 49.9Ohm 1%
CLK_MCH_3GPLL# R274 49.9Ohm 1%
CLK_PCIE_ICH R276 49.9Ohm 1%
CLK_PCIE_ICH# R279 49.9Ohm 1%
CLK_SATA_ICH R282 49.9Ohm 1%
CLK_SATA_ICH# R284 49.9Ohm 1%
CLK_PCIE_M56 R288 49.9Ohm 1%
CLK_PCIE_M56# R290 49.9Ohm 1%
PEREQ#1
0 = PCIEX6/0 Not Controlled
1 = PCIEX6/0 Controlled
PEREQ#2
0 = PCIEX8/1 Not Controlled
1 = PCIEX8/1 Controlled
PEREQ#3
0 = PCIEX4/2 Not Controlled
1 = PCIEX4/2 Controlled (D)
PEREQ#4
0 = PCIEX7/5/3 Not Controlled
1 = PCIEX7/5/3 Controlled (D)
Latched Input Select
ITP_EN/PCICLK_F0
0 = SRC Pair
1 = CPU_ITP Pair
SELPCIE0_LCD#/PCI_CLK5
0 = LCD Clock (96MHz)
1 = PCI Express (100MHz)
PCI_CLK2/REQ_SEL
0 = PCICLK(D)
1 = PEREQ#
SELLCD_27#/PCICLK_F1
0 = 27MHzSS/27MHzSS# Pair
1 = LCD_CLK Pair
Reserved for Debug & Expriment
+VCCP
R316 1KOhm
R317 1KOhm
CPU_BSEL0
CPU_BSEL1
CPU_BSEL2
0OHM RN22A
0OHM RN22B
0OHM RN22C
0OHM RN22D
FSLA
FSLB
FSLC
1KOhm RN23A
1KOhm RN23B
1KOhm RN23C
1KOhm RN23D
MCH_BSEL0 8
MCH_BSEL1 8
MCH_BSEL2 8
R319 1KOhm /X
R320 1KOhm
BCLK FSB BSEL2 BSEL1 BSEL0
133 533 L L H
166 667 L H H
R1.01 add PCI Lan clk
http://hobi-elektronika.net
Title : CLOCK GEN-ICS954310
ASUSTeK COMPUTER INC.
Engineer: Alan Chu
Size Custom
Project Name Z96J
Rev 1.0
Date: Wednesday, January 11, 2006
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ASUSTeK COMPUTER INC

Title : Schematic page name

Engineer:

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PWRSW#

SW1

TP_SWITCH_4P

GND

EMAIL_SW#

SW2

TP_SWITCH_4P

GND

EXPLORE_SW#

SW3

TP_SWITCH_4P

GND

DISTP_SW#

SW4

TP_SWITCH_4P

GND

INTERNET#

SW6

TP_SWITCH_4P

GND

SHUT_DOWN#

FORCE_OFF#

SW7

TP_SWITCH_4P

/X

GND

FORCE_OFF# 37,59,68,88

PWRSW#

59 EXPLORE_SW#
59 DISTP_SW#
59 INTERNET#
59 EMAIL_SW#

CN9A
CN9B
CN9C
CN9D

0.1UF/25V
0.1UF/25V
0.1UF/25V
0.1UF/25V

C458 0.1UF/16V

GND

+3VA_EC

R324
100KOhm

PWRSW#

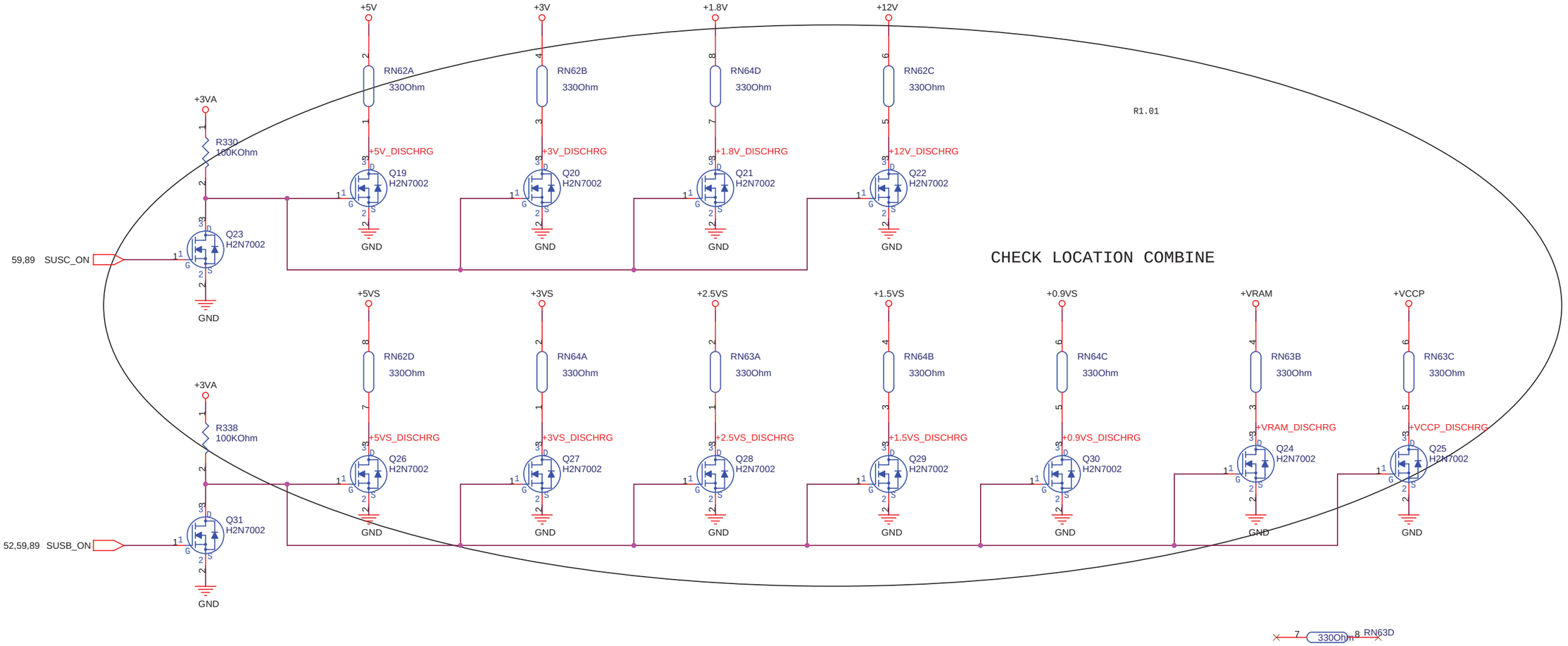
R325
33Ohm

C460
0.1UF/16V

PWR_SW# 59

GND

ASUSTeK COMPUTER INC	Title : Power on & Res Freq	
	Engineer: Alan Chu	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 41 of 92	



ASUSTeK COMPUTER INC. NB1	Title : DISCHARGE & EMI CAP	
	Engineer: Alan Chu	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 42 of 92	

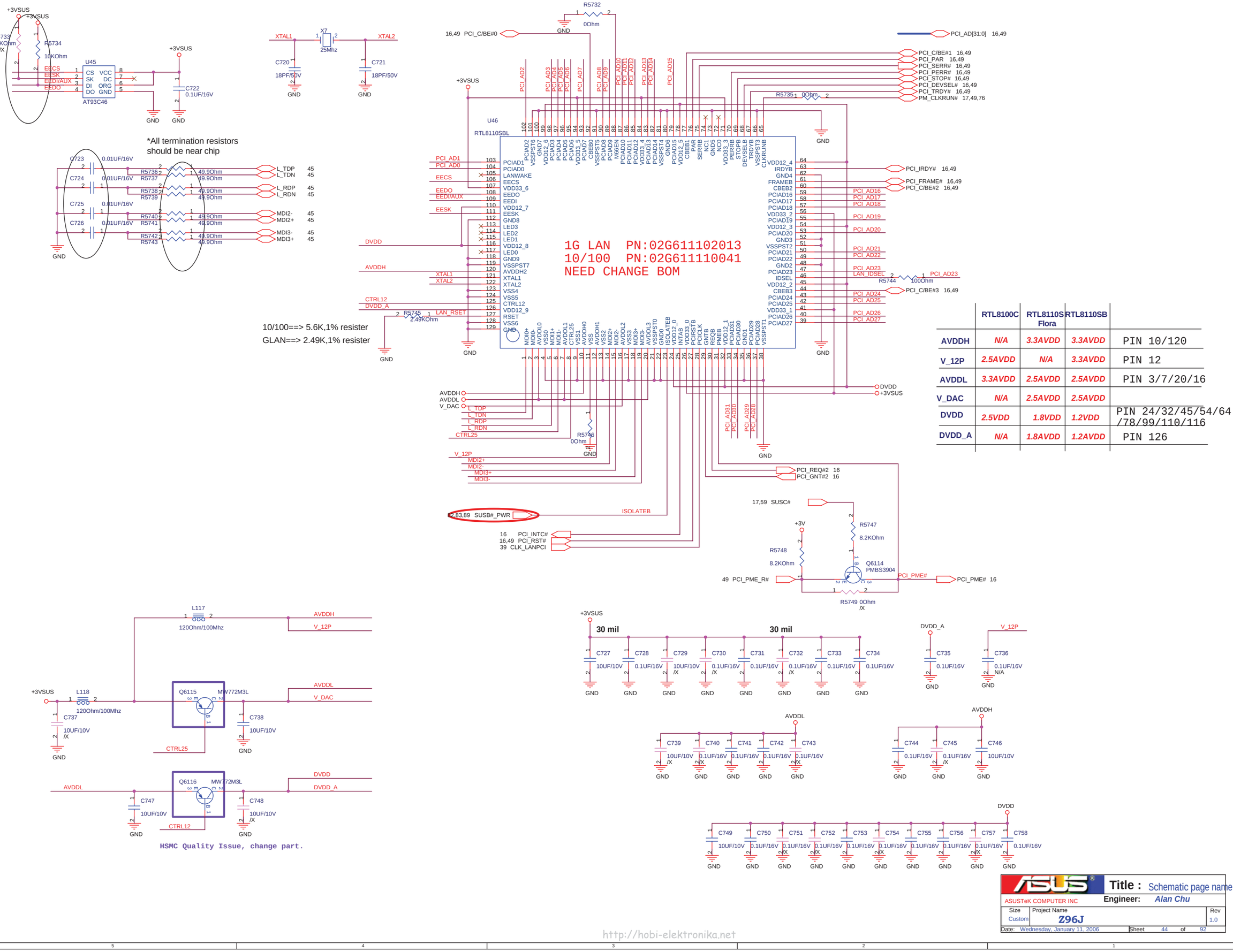
ASUSTeK COMPUTER INC

Title : Schematic page name

Engineer: *Alan Chu*

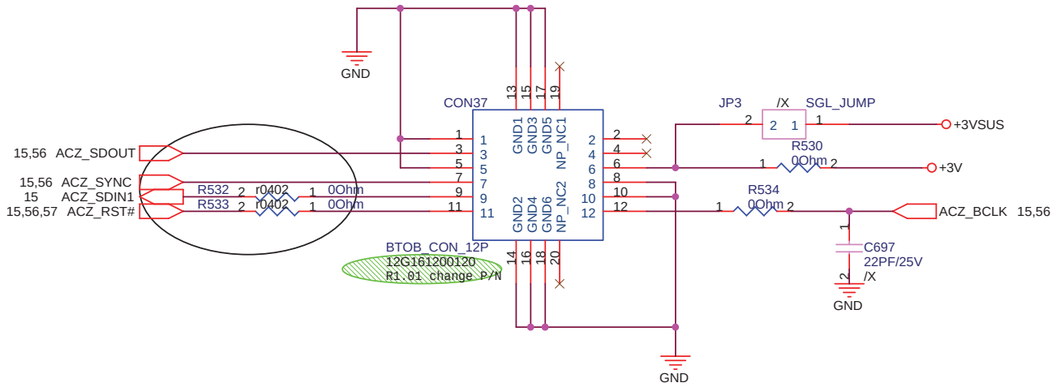
Size	Project Name	Rev
Custom	Z96J	1.0

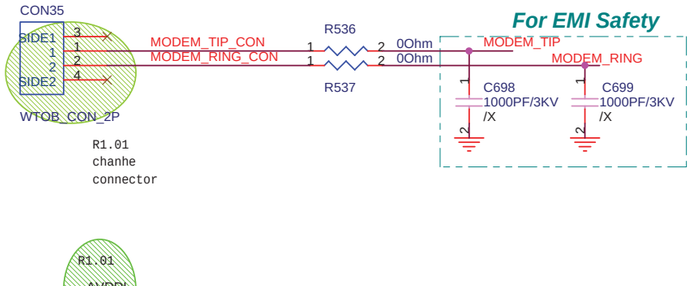
Date: Wednesday, January 11, 2006 Sheet 43 of 92

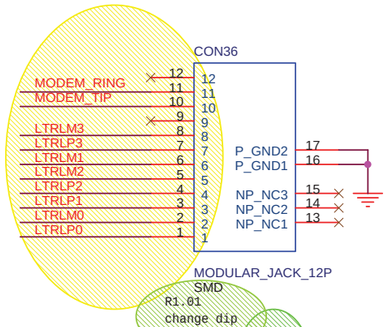


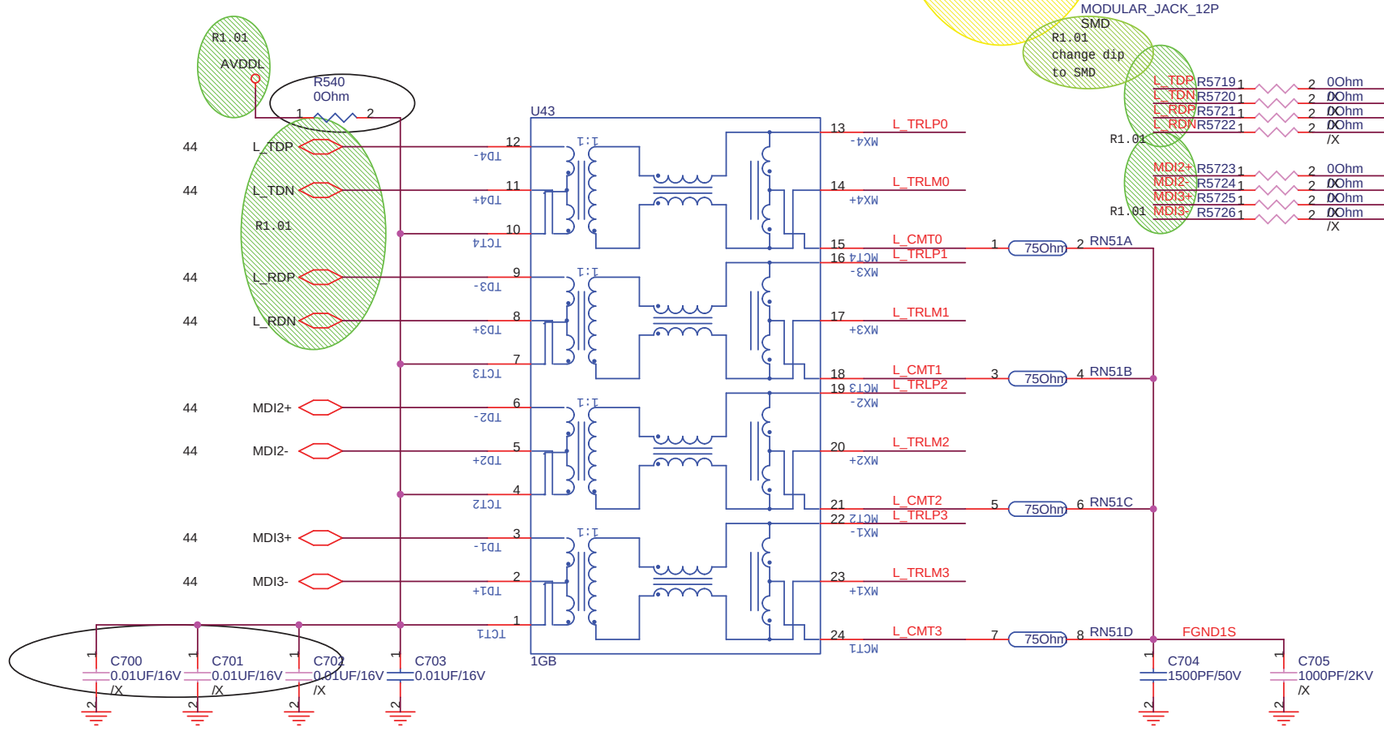
	RTL8100C	RTL8110S Flora	RTL8110SB	
AVDDH	N/A	3.3AVDD	3.3AVDD	PIN 10/120
V_12P	2.5AVDD	N/A	3.3AVDD	PIN 12
AVDDL	3.3AVDD	2.5AVDD	2.5AVDD	PIN 3/7/20/16
V_DAC	N/A	2.5AVDD	2.5AVDD	
DVDD	2.5VDD	1.8VDD	1.2VDD	PIN 24/32/45/54/64 /78/99/110/116
DVDD_A	N/A	1.8AVDD	1.2AVDD	PIN 126

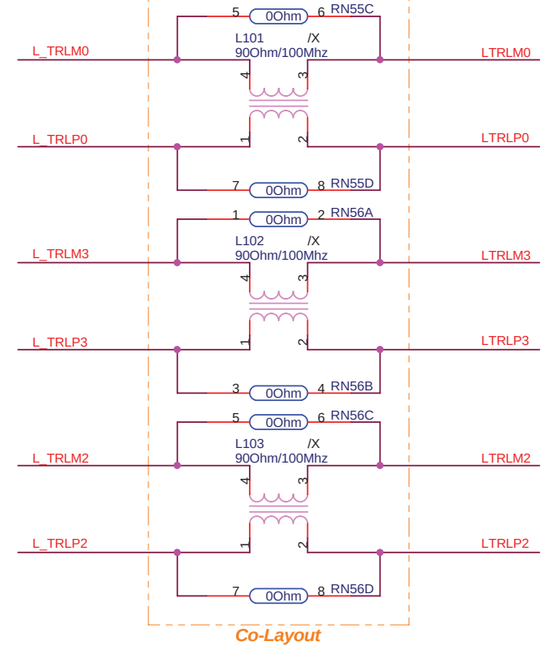
MDC CONN.





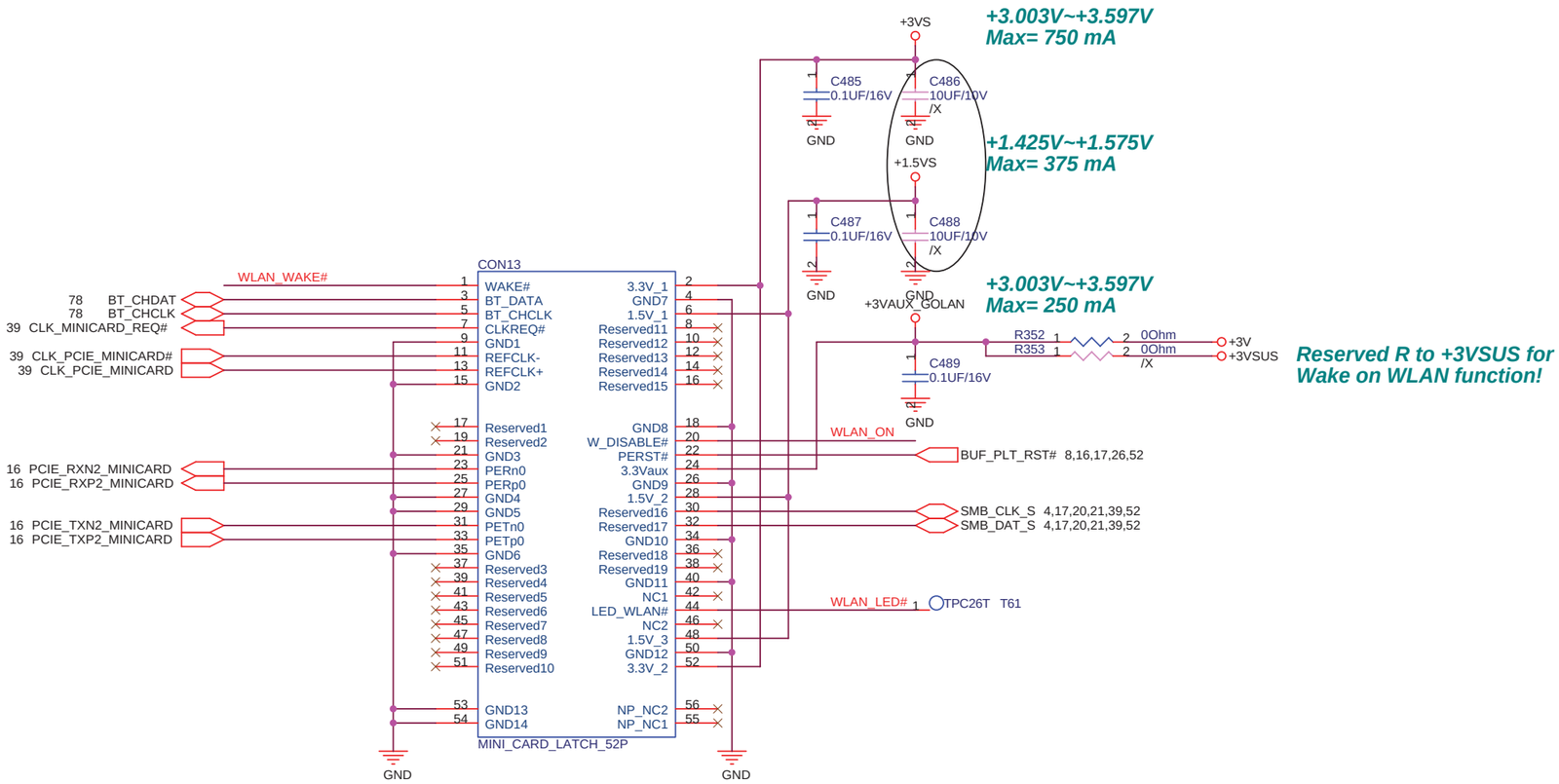






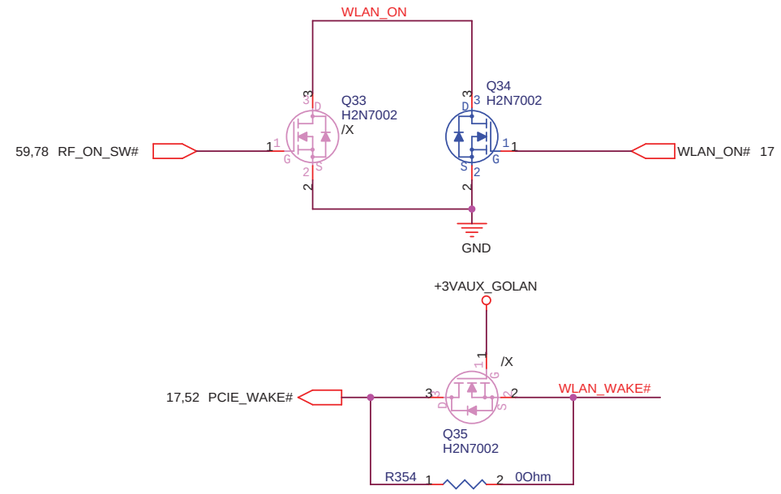
ASUSTeK COMPUTER INC.	Title : RJ45&RJ11	
	Engineer: Alan Chu	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 45 of 92	

ASUSTeK COMPUTER INC	Title : Schematic page name	
	Engineer: *Alan Chu*	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 46 of 92	



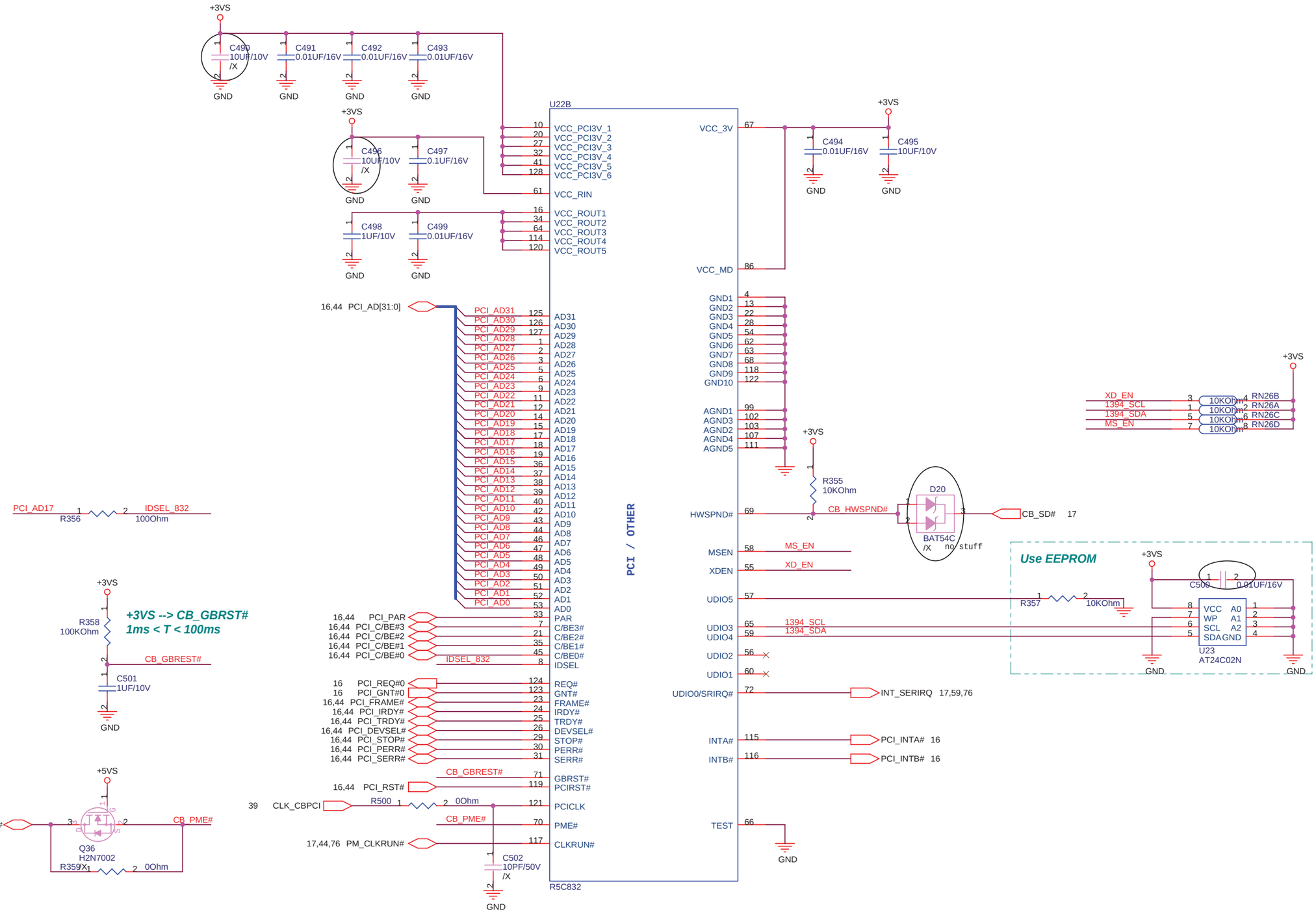
H54 & H56

R1.01 remove connector,change to screw

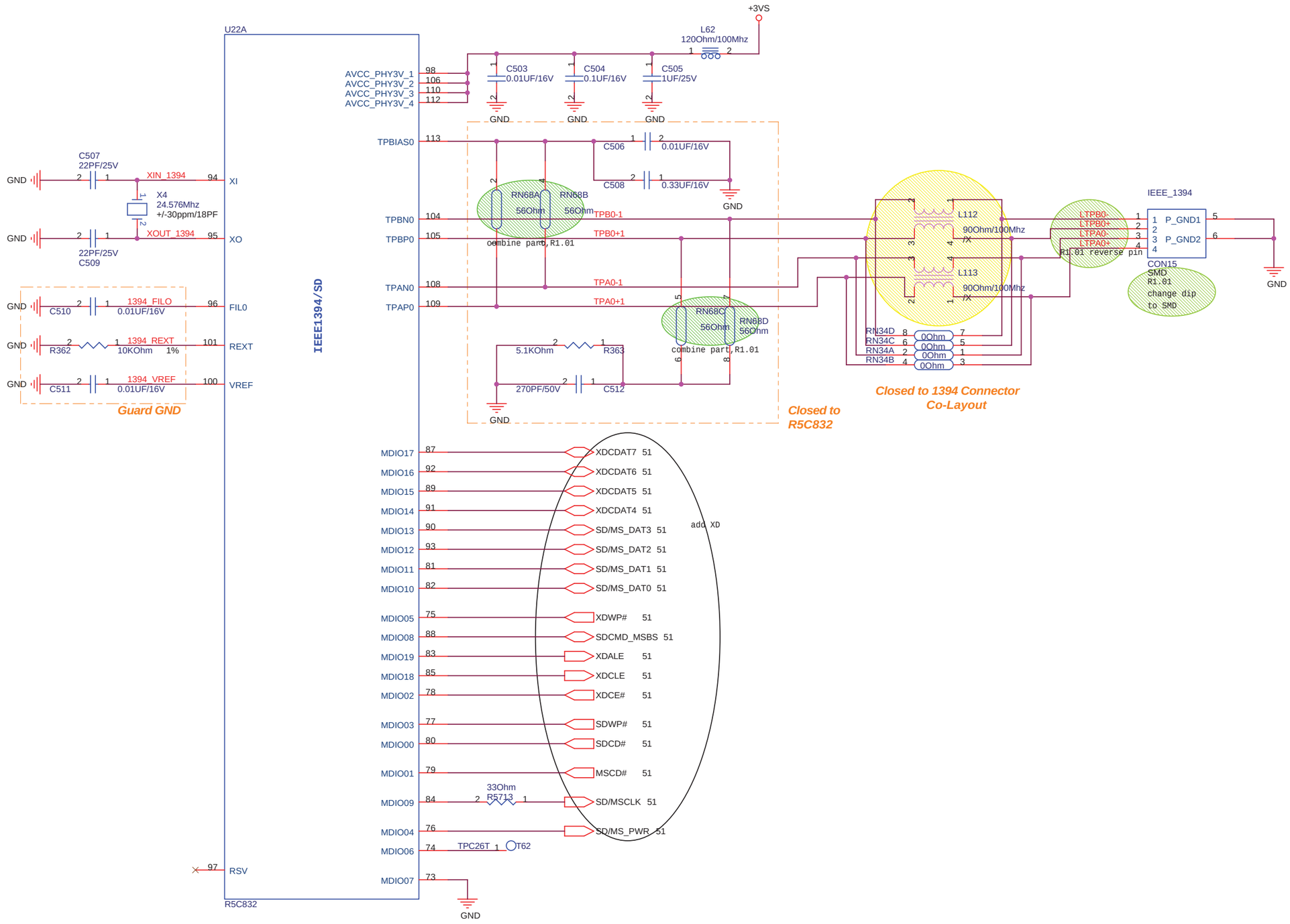


ASUSTeK COMPUTER INC.	Title : MINICARD	
	Engineer: Alan Chu	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 47 of 92	

ASUSTeK COMPUTER INC	Title : Schematic page name			
	Engineer: *Alan Chu*			
Size: Custom	Project Name: Z96J			Rev: 1.0
Date: Wednesday, January 11, 2006		Sheet 48 of 92		



ASUSTeK COMPUTER INC. MB6	Title : CARD1394-R5C832(1)	
	Engineer: ALAN CHU	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 49 of 92	



ASUSTeK COMPUTER INC. MB6	Title : CARD1394-R5C832(2)	
	Engineer: ALAN CHU	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 50 of 92	

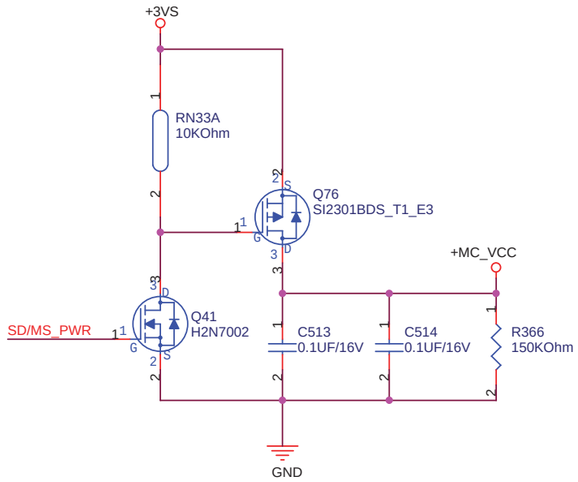
XDCDAT7 50
XDCDAT6 50
XDCDAT5 50
XDCDAT4 50
SD/MS_DAT3 50
SD/MS_DAT2 50
SD/MS_DAT1 50
SD/MS_DAT0 50

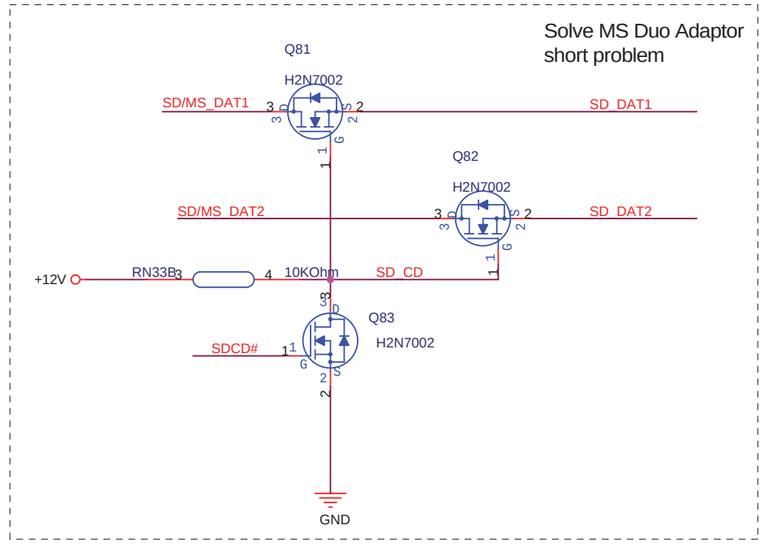
XDWP# 50
SDCMD_MSBS 50
XDALE 50
XDCLE 50
XDCE# 50

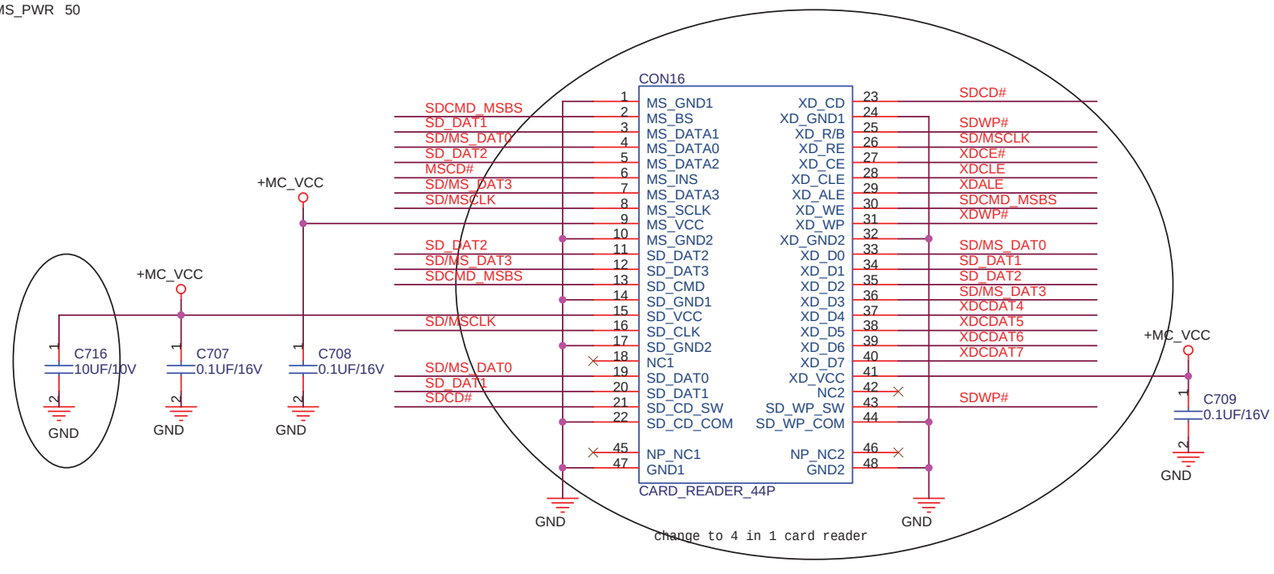
SDWP# 50
SDCD# 50

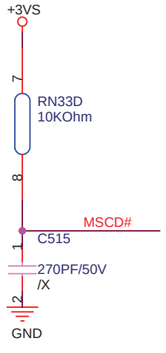
MSCD# 50

SD/MSCLK 50
SD/MS_PWR 50

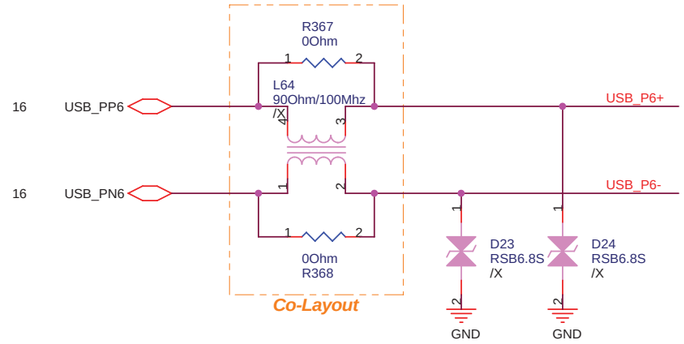


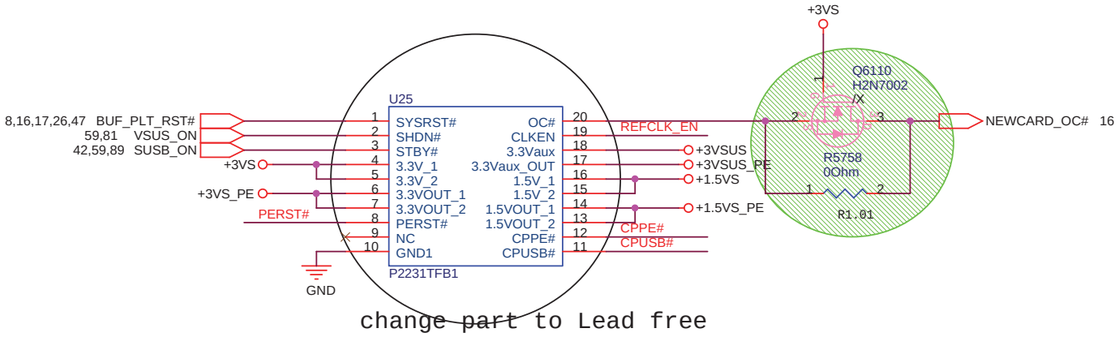


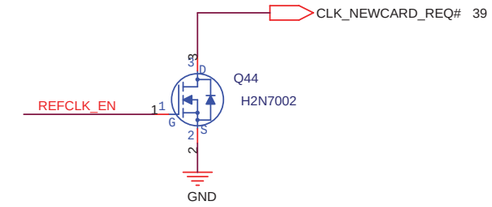


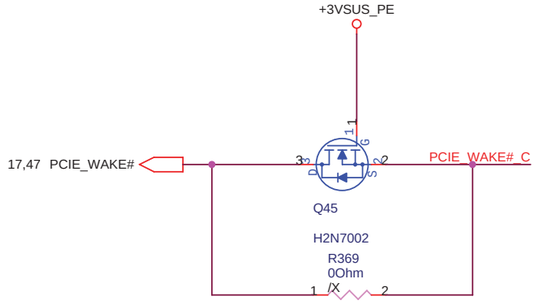


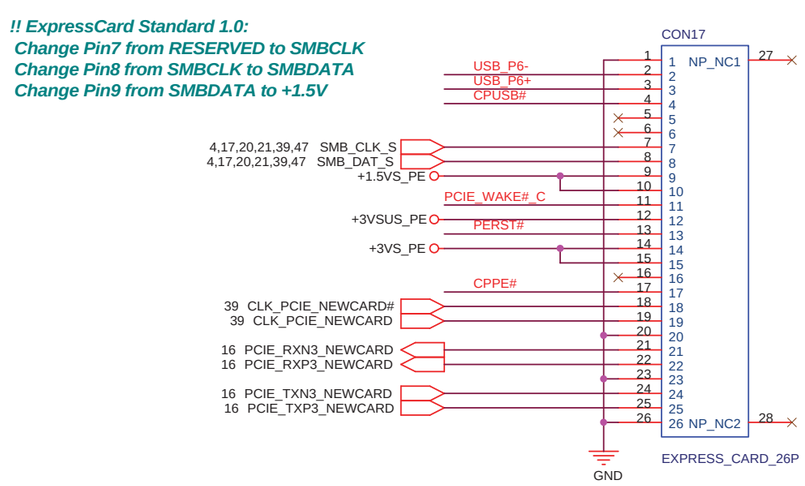
ASUSTeK COMPUTER INC	Title : 4 in 1 CARD READER	
	Engineer: ALAN CHU	
Size: A3	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 51 of 92	

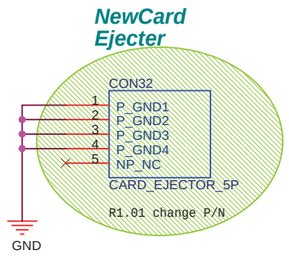








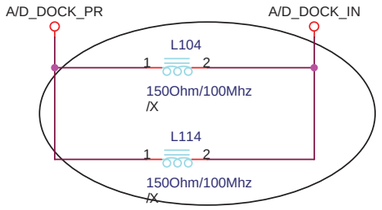


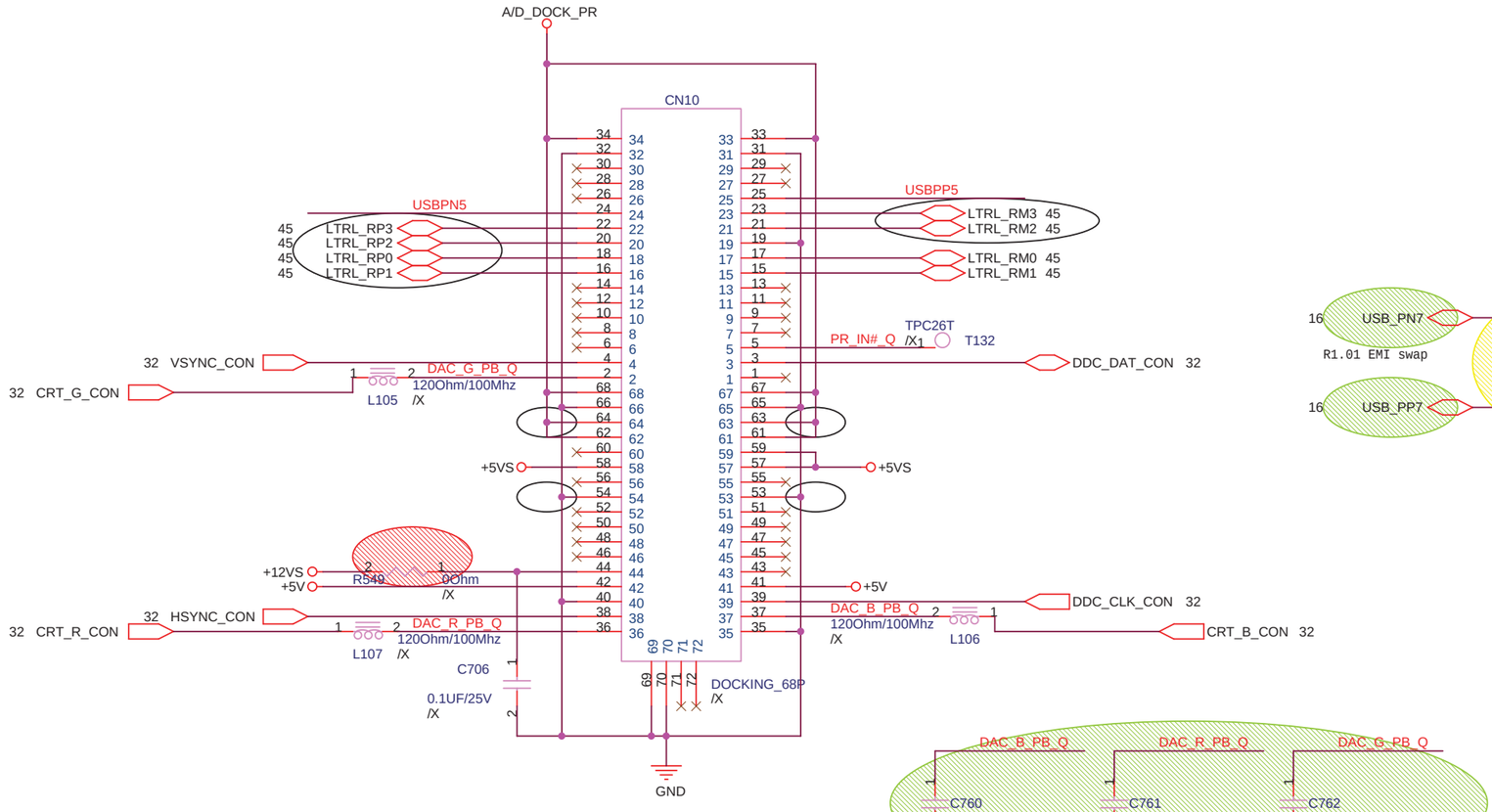


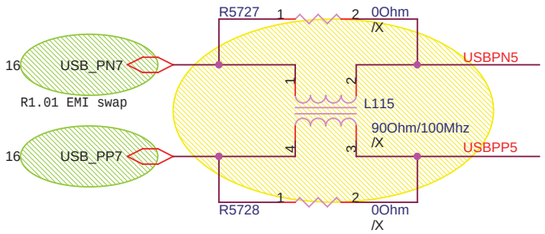
ASUSTeK COMPUTER INC. NB1	Title : NEWCARD	
	Engineer: Alan Chu	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 52 of 92	

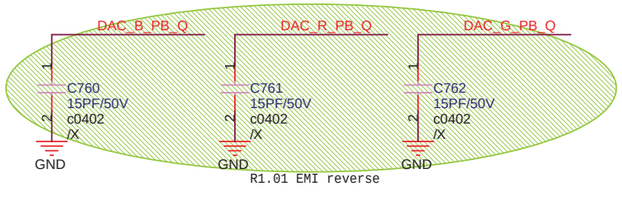
ASUSTeK COMPUTER INC	Title : <Title>			
	Engineer: *Alan Chu*			
Size: A	Project Name: **PROJECT NAME**			Rev: 1.00
Date: Wednesday, January 11, 2006		Sheet 53 of 92		

PORT BAR III









ASUSTeK COMPUTER INC	Title : <Title>	
	Engineer: Alan Chu	
Size: A3	Project Name: PROJECT NAME	Rev: 1.00
Date: Wednesday, January 11, 2006	Sheet 54 of 92	

ASUSTeK COMPUTER INC	Title : Z96J	
	Engineer: *Alan Chu*	
Size: Custom	Project Name: **Z96J**	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 55 of 92	

ACZ_BCLK
C575
22PF/25V
c0402
/X
GND
R1.01
+5V_AUDIO
RN67A
4.7KOhm
57 MIC_VREFOUT_L
57 MIC_VREFOUT_R
remove cap
VREF_CODEC
GND_AUDIO
57 REAR_L
57 REAR_R
C580
1UF/10V
C581
0.1UF/16V
c0402
/X
+5V_AUDIO
GND_AUDIO
GND_AUDIO
U30
ALC882
+5V_AUDIO
57 HEADPHONE_L
57 HEADPHONE_R
remove cap
R400
4.99KOhm
/X
GND_AUDIO
GND_AUDIO
REMOVE SPDIF
PIN37_VREFO
AVDD2
SURR_L
JDREF
SURR_R
AVSS2
CENTER
LFE
SIDESURR_L
SIDESURR_R
SPDIFI/EAPD
SPDIFO
FRONT_R
FRONT_L
SenseB
DCVOL
PIN32_VREFO
LINE2_VREFO
MIC2_VREFO
LINE1_VREFO
MIC1_VREFO
VREF
AVSS1
AVDD1
LINE1_R
LINE1_L
MIC1_R
MIC1_L
CD_R
CD_GND
CD_L
MIC2_R
MIC2_L
LINE2_R
LINE2_L
SenseA
DVDD1
GPIO0
GPIO1
DVSS1
SDATA_OUT
BCLK
DVSS2
SDATA_IN
DVDD2
SYNC
RESET#
BEEP
change to ALC882
C583 1UF/10V
C584 1UF/10V
C585 1UF/10V
C586 1UF/10V
C587 1UF/10V
C718 1UF/10V
C717 1UF/10V
add second mic in
CD_R
CD_G
CD_L
MIC_JACK_R 57
MIC_JACK_L 57
INTMIC2_P 57
INTMIC2_N 57
R1.01 swap P & N
17 SB_SPKR
C582
0.1UF/16V
c0402
remove PCMCIA beep
D27
1N4148W
C589
0.1UF/16V
c0402
PC_BEEP
R401
33KOhm
R402
33KOhm
GND
GND
57 DEPOP#
R1.01
+3VS_CODEC
15,45 ACZ_SDOUT
15,45 ACZ_BCLK
ACZ_SDOUT
ACZ_BCLK
R406 22Ohm
R407 22Ohm
15 ACZ_SDIN0
15,45 ACZ_SYNC
15,45,57 ACZ_RST#
ACZ_SDIN0
ACZ_SYNC
ACZ_RST#
R411 22Ohm
R412 0Ohm
R413 0Ohm
PC_BEEP
+3VS_CODEC
+3VS
L67 120Ohm/100Mhz
C590
0.1UF/16V
c0402
C591
0.1UF/16V
c0402
C592
1UF/10V
GND
GND
GND
72 CD_L_A
72 CD_GND_A
72 CD_R_A
RN70A 47KOhm
RN70B 47KOhm
RN70C 47KOhm
RN70D 47KOhm
CD_L
CD_G
CD_R
RN71C
47KOhm
RN71B
47KOhm
RN71A
47KOhm
GND_AUDIO
GND_AUDIO
GND_AUDIO
RN71D
47KOhm
Vout=1.25*(1+(100K/34K))
U31
MAX8863
SHDN#
GND
IN
OUT
SET
MAX8863TEUK
+5VS
C594
10UF/10V
/X
C595
0.1UF/16V
GND
GND
GND
C593 1000PF/50V
c0402
R416 100KOhm
R419
34KOhm
1%
C596
1UF/10V
GND
GND
L68 80Ohm/100Mhz
+5V_AUDIO
C597
10UF/10V
C598
0.1UF/16V
c0402
/X
C599
0.1UF/16V
c0402
GND_AUDIO
GND_AUDIO
GND_AUDIO
R414 0Ohm
R415 0Ohm
R417 0Ohm
R418 0Ohm
/X
GND
GND_AUDIO
http://hobi-elektronika.net
Title : CODEC-ALC660
Engineer: Alan Chu
ASUSTeK COMPUTER INC. NB1
Size: Custom
Project Name: Z96J
Rev: 1.0
Date: Wednesday, January 11, 2006
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GAIN1	GAIN0	
0	0	6db
0	1	10db
1	0	15.6db
1	1	21.6db

To Internal Speaker Connector

CON19 WTOB_CON_4P 12G171000047 R1.01 change P/N

U32 TPA6017A2PWP

change AMP

modify depop circuit

R1.01 EMI reverse

R1.01 EMI swap

R1.01 change connector

Default : L
Jack In : H

Microphone In Jack

J1 J2 PHONE_JACK_6P nb_phone_jack_6p_4hold_lf2 R1.01 change to NB footprint

change jack

CON40 WTOB_CON_10P

CON39 WtoB_CON_4P

00HM pls close to con39

Title :	AUDIO AMP & JACK
ASUSTeK COMPUTER INC. NB1	Engineer: Alan Chu
Size: Custom	Project Name: Z96J
Rev: 1.0	
Date: Wednesday, January 11, 2006	Sheet 57 of 92

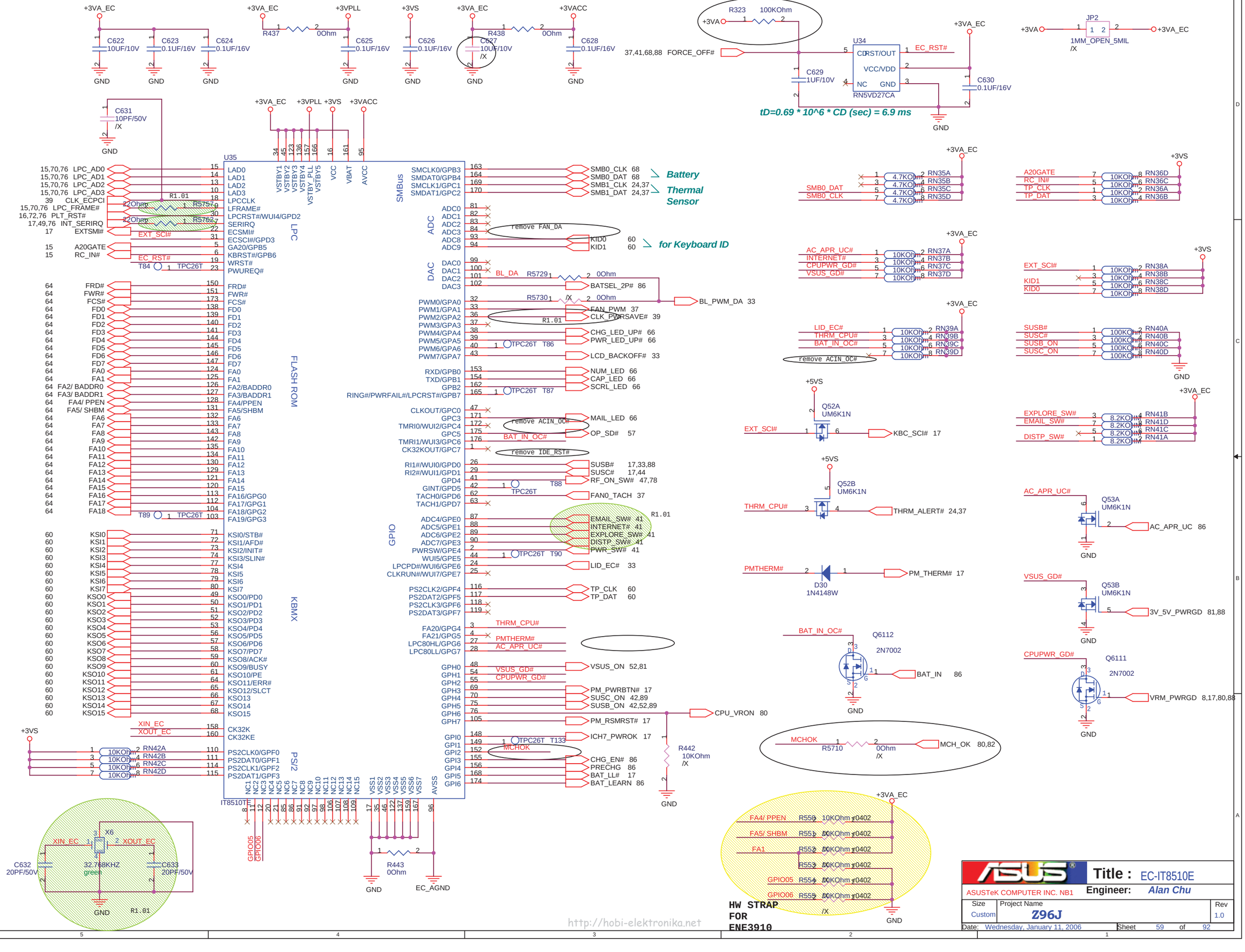
ASUSTeK COMPUTER INC

Title : Schematic page name

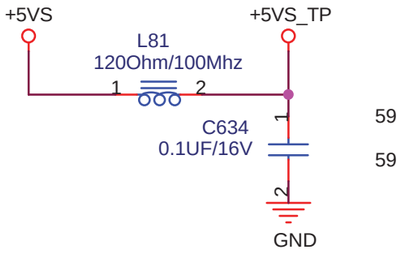
Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 58 of 92


+3VA_EC
C622 10UF/10V
C623 0.1UF/16V
C624 0.1UF/16V
GND
+3VPLL
R437 0Ohm
C625 0.1UF/16V
+3VS
C626 0.1UF/16V
+3VACC
R438 0Ohm
C627 10UF/10V /X
C628 0.1UF/16V
R323 100KOhm
37,41,68,88 FORCE_OFF#
U34
RST/OUT
VCC/VDD
NC GND
RN5VD27CA
EC_RST#
C629 1UF/10V
C630 0.1UF/16V
tD=0.69 * 10^6 * CD (sec) = 6.9 ms
JP2
1MM_OPEN_5MIL /X
C631 10PF/50V /X
U35
LAD0
LAD1
LAD2
LAD3
LPCCLK
LFRAME#
LPCRST#/WUI4/GPD2
SERIRQ
ECSMI#
ECSCI#/GPD3
GA20/GPB5
KBRST#/GPB6
WRST#
PWUREQ#
LPC
15,70,76 LPC_AD0
15,70,76 LPC_AD1
15,70,76 LPC_AD2
15,70,76 LPC_AD3
39 CLK_ECPCI
15,70,76 LPC_FRAME#
16,72,76 PLT_RST#
17,49,76 INT_SERIRQ
17 EXTSMI#
R1.01
22Ohm R5757
22Ohm R5762
EXT_SCI#
15 A20GATE
15 RC_IN#
EC_RST#
T84 TPC26T
VSTBY1
VSTBY2
VSTBY3
VSTBY4
VSTBY_PLL
VSTBY5
VCC
VBAT
AVCC
SMBus
SMCLK0/GPB3
SMDAT0/GPB4
SMCLK1/GPC1
SMDAT1/GPC2
SMB0_CLK 68
SMB0_DAT 68
SMB1_CLK 24,37
SMB1_DAT 24,37
Battery
Thermal Sensor
ADC
ADC0
ADC1
ADC2
ADC3
ADC8
ADC9
remove FAN_DA
KID0 60
KID1 60
for Keyboard ID
DAC
DAC0
DAC1
DAC2
DAC3
BL_DA
R5729 0Ohm
BATSEL_2P# 86
R5730 /X 0Ohm
BL_PWM_DA 33
PWM0/GPA0
PWM1/GPA1
PWM2/GPA2
PWM3/GPA3
PWM4/GPA4
PWM5/GPA5
PWM6/GPA6
PWM7/GPA7
FAN_PWM 37
CLK_PWRSAVE# 39
R1.01
CHG_LED_UP# 66
PWR_LED_UP# 66
TPC26T T86
LCD_BACKOFF# 33
RXD/GPB0
TXD/GPB1
GPB2
RING#/PWRFAIL#/LPCRST#/GPB7
NUM_LED 66
CAP_LED 66
SCRL_LED 66
TPC26T T87
CLKOUT/GPC0
GPC3
TMRI0/WUI2/GPC4
GPC5
TMRI1/WUI3/GPC6
CK32KOUT/GPC7
remove ACIN_OC#
MAIL_LED 66
BAT_IN_OC#
OP_SD# 57
remove IDE_RST#
RI1#/WUI0/GPD0
RI2#/WUI1/GPD1
GPD4
GINT/GPD5
TACH0/GPD6
TACH1/GPD7
SUSB# 17,33,88
SUSC# 17,44
RF_ON_SW# 47,78
TPC26T T88
FAN0_TACH 37
GPIO
ADC4/GPE0
ADC5/GPE1
ADC6/GPE2
ADC7/GPE3
PWRSW/GPE4
WUI5/GPE5
LPCPD#/WUI6/GPE6
CLKRUN#/WUI7/GPE7
EMAIL_SW# 41
INTERNET# 41
EXPLORE_SW# 41
DISTP_SW# 41
PWR_SW# 41
TPC26T T90
LID_EC# 33
PS2CLK2/GPF4
PS2DAT2/GPF5
PS2CLK3/GPF6
PS2DAT3/GPF7
TP_CLK 60
TP_DAT 60
THRM_CPU#
PMTHERM#
AC_APR_UC#
FA20/GPG4
FA21/GPG5
LPC80HL/GPG6
LPC80LL/GPG7
GPH0
GPH1
GPH2
GPH3
GPH4
GPH5
GPH6
GPH7
VSUS_GD#
CPUPWR_GD#
VSUS_ON 52,81
PM_PWRBTN# 17
SUSC_ON 42,89
SUSB_ON 42,52,89
PM_RSMRST# 17
CPU_VRON 80
R442 10KOhm /X
ICH7_PWROK 17
TPC26T T133
MCHOK
GPI0
GPI1
GPI2
GPI3
GPI4
GPI5
GPI6
CHG_EN# 86
PRECHG 86
BAT_LL# 17
BAT_LEARN 86
PS/2
PS2CLK0/GPF0
PS2DAT0/GPF1
PS2CLK1/GPF2
PS2DAT1/GPF3
FLASH ROM
FRD#
FWR#
FCS#
FD0
FD1
FD2
FD3
FD4
FD5
FD6
FD7
FA0
FA1
FA2/BADDR0
FA3/BADDR1
FA4/PPEN
FA5/SHBM
FA6
FA7
FA8
FA9
FA10
FA11
FA12
FA13
FA14
FA15
FA16/GPG0
FA17/GPG1
FA18/GPG2
FA19/GPG3
T89 TPC26T
KBMX
KSI0/STB#
KSI1/AFD#
KSI2/INIT#
KSI3/SLIN#
KSI4
KSI5
KSI6
KSI7
KSO0/PD0
KSO1/PD1
KSO2/PD2
KSO3/PD3
KSO4/PD4
KSO5/PD5
KSO6/PD6
KSO7/PD7
KSO8/ACK#
KSO9/BUSY
KSO10/PE
KSO11/ERR#
KSO12/SLCT
KSO13
KSO14
KSO15
XIN_EC
XOUT_EC
CK32K
CK32KE
RN42A 10KOhm
RN42B 10KOhm
RN42C 10KOhm
RN42D 10KOhm
IT8510TE
NC1 NC2 NC3 NC4 NC5 NC6 NC7 NC8 NC9 NC10 NC11 NC12 NC13 NC14 NC15
VSS1 VSS2 VSS3 VSS4 VSS5 VSS6 VSS7 AVSS
GPIO05
GPIO06
X6
32.768KHZ
green
C632 20PF/50V
C633 20PF/50V
R443 0Ohm
GND
EC_AGND
R1.01
http://hobi-elektronika.net
HW STRAP FOR ENE3910
+3VA_EC
FA4/ PPEN R559 10KOhm 0402
FA5/ SHBM R561 10KOhm 0402
FA1 R552 10KOhm 0402
R553 10KOhm 0402
GPIO05 R554 10KOhm 0402
GPIO06 R555 10KOhm 0402
/X
+3VS
SMB0_DAT
SMB0_CLK
4.7KOhm RN35A
4.7KOhm RN35B
4.7KOhm RN35C
4.7KOhm RN35D
A20GATE
RC_IN#
TP_CLK
TP_DAT
10KOhm RN36D
10KOhm RN36C
10KOhm RN36A
10KOhm RN36B
AC_APR_UC#
INTERNET#
CPUPWR_GD#
VSUS_GD#
10KOhm RN37A
10KOhm RN37B
10KOhm RN37C
10KOhm RN37D
EXT_SCI#
KID1
KID0
10KOhm RN38A
10KOhm RN38B
10KOhm RN38C
10KOhm RN38D
LID_EC#
THRM_CPU#
BAT_IN_OC#
remove ACIN_OC#
10KOhm RN39A
10KOhm RN39B
10KOhm RN39C
10KOhm RN39D
SUSB#
SUSC#
SUSB_ON
SUSC_ON
100KOhm RN40A
100KOhm RN40B
100KOhm RN40C
100KOhm RN40D
EXPLORE_SW#
EMAIL_SW#
DISTP_SW#
8.2KOhm RN41B
8.2KOhm RN41D
8.2KOhm RN41C
8.2KOhm RN41A
+5VS
Q52A UM6K1N
EXT_SCI#
KBC_SCI# 17
Q52B UM6K1N
THRM_CPU#
THRM_ALERT# 24,37
PMTHERM#
D30 1N4148W
PM_THERM# 17
Q53A UM6K1N
AC_APR_UC
AC_APR_UC 86
Q53B UM6K1N
VSUS_GD#
3V_5V_PWRGD 81,88
BAT_IN_OC#
Q6112 2N7002
BAT_IN 86
CPUPWR_GD#
Q6111 2N7002
VRM_PWRGD 8,17,80,88
MCHOK
R5710 0Ohm /X
MCH_OK 80,82
Title : EC-IT8510E
ASUSTeK COMPUTER INC. NB1
Engineer: Alan Chu
Size Custom
Project Name Z96J
Rev 1.0
Date: Wednesday, January 11, 2006
Sheet 59 of 92

For Touch-Pad



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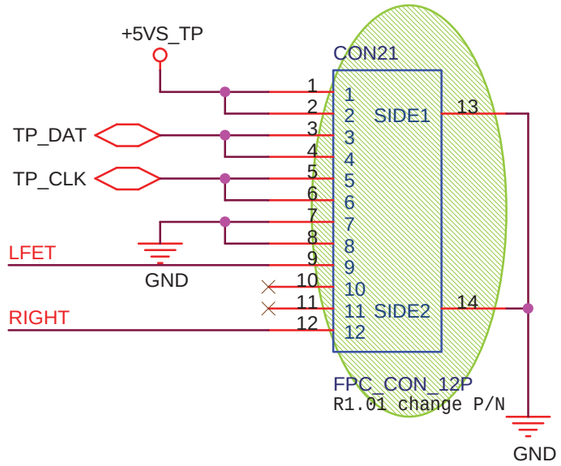
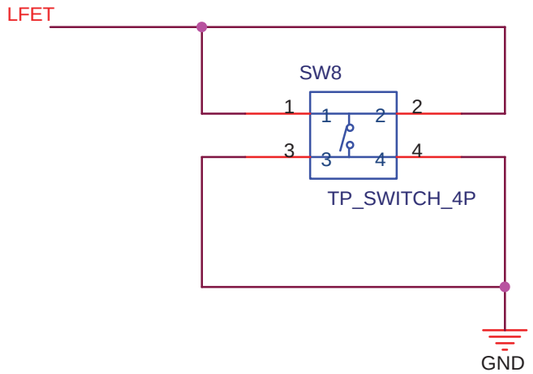
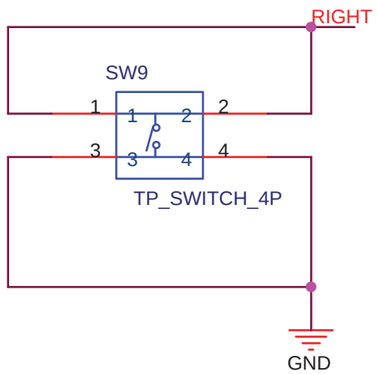
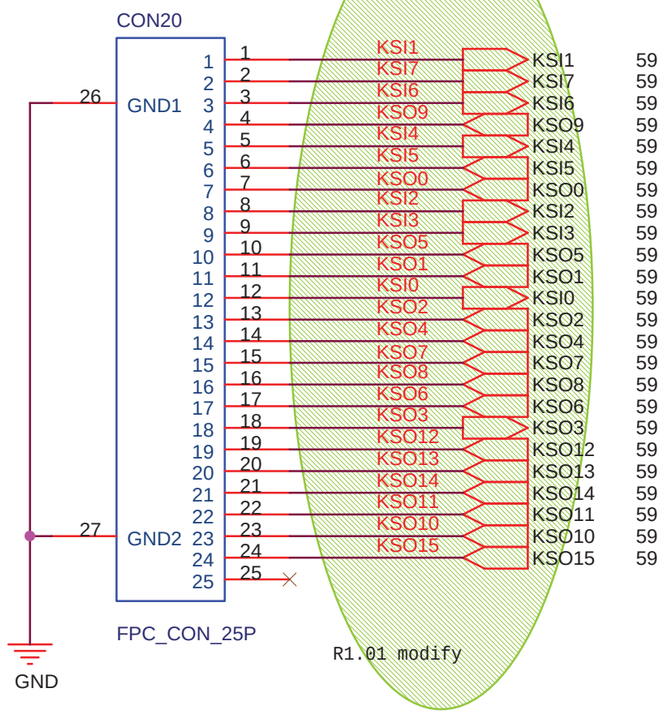
59







For Keyboard



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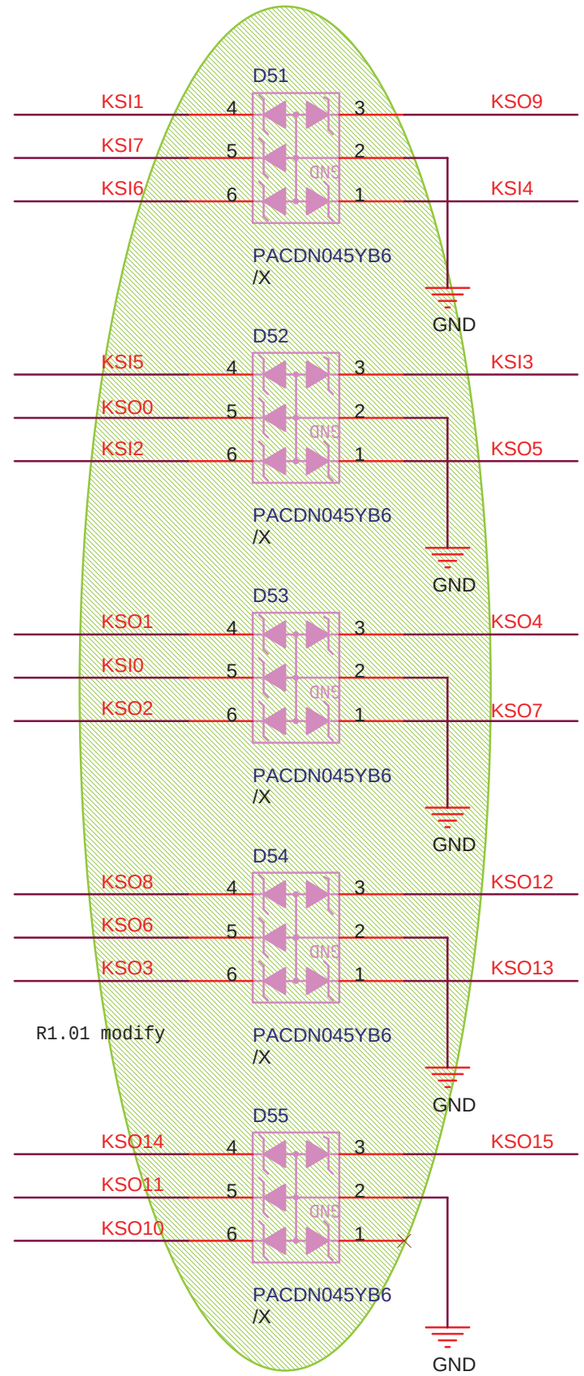
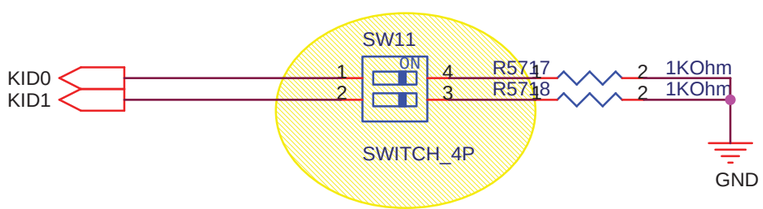


remove pull high,already pull high

59
59



ASUSTeK COMPUTER INC. MB6	Title : Touch Pad & KB	
	Engineer: ALAN CHU	
Size: A4	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 60 of 92	

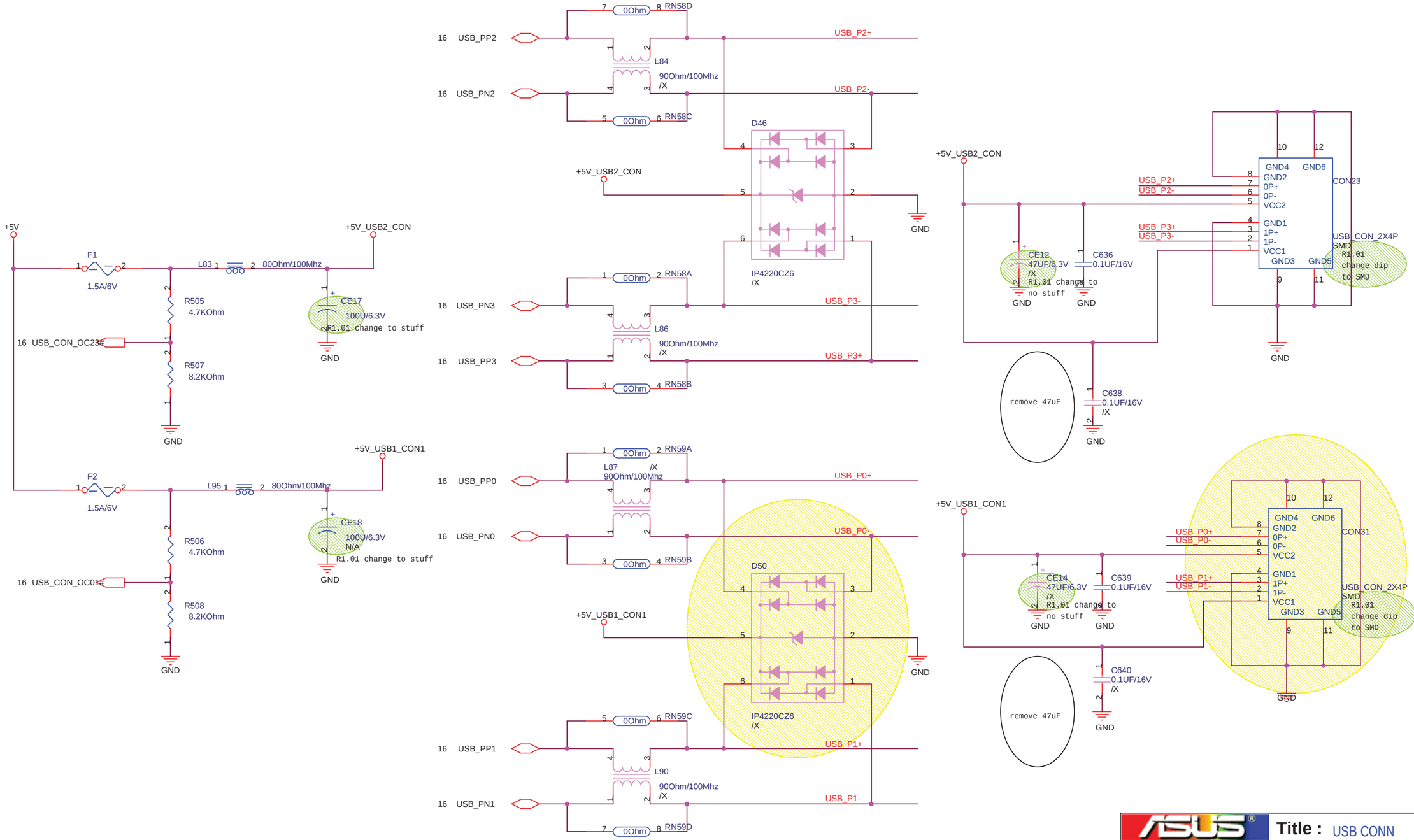
ASUSTeK COMPUTER INC

Title : Schematic page name

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 61 of 92



ASUSTeK COMPUTER INC

Title : USB CONN

Engineer: Alan Chu

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 62 of 92

ASUSTeK COMPUTER INC

Title : Schematic page name

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 63 of 92

ISA ROM

EC Hardware Strapping

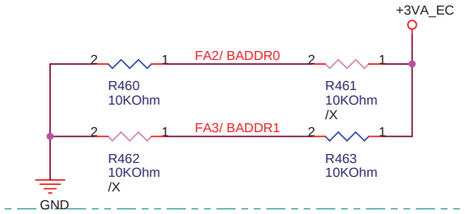
FA2/ BADDR0 & FA3/ BADDR1

00: PNPCNG Access Register Pair Are 002Eh and 002Fh

10: PNPCNG Access Register Pair Are 004Eh and 004Fh

01: PNPCNG Access Register Pair Are Determined by EC Domain Registers SWCBALR and SWCBAHR.

11: Reserved

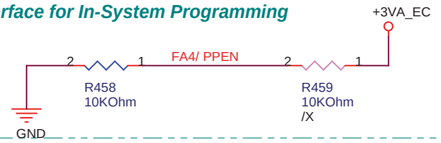


Note: Sampled at VSTBY Power Up Reset

FA4/ PPEN

0: Normal

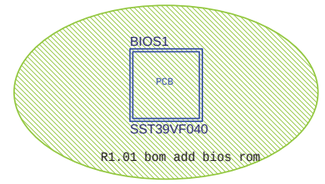
1: KBS Interface Pins Are Switched to Parallel Port Interface for In-System Programming

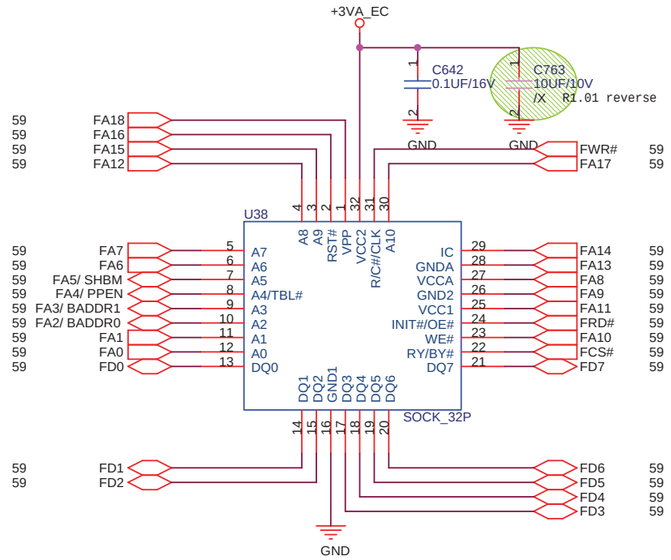


FA5/ SHBM

0: Disable Shared Memory with Host BIOS

1: Enable Shared Memory with Host BIOS





ASUSTeK COMPUTER INC. NB1	Title : ISA ROM		
	Engineer: Alan Chu		
Size: Custom	Project Name: Z96J		Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 64 of 92		

ASUSTeK COMPUTER INC

Title : Schematic page name

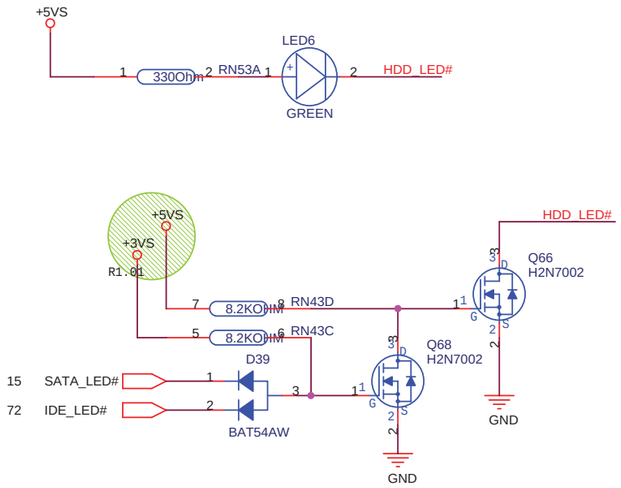
Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

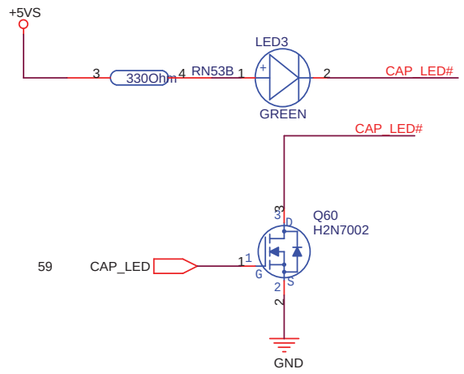
Date: Wednesday, January 11, 2006 Sheet 65 of 92

For LED

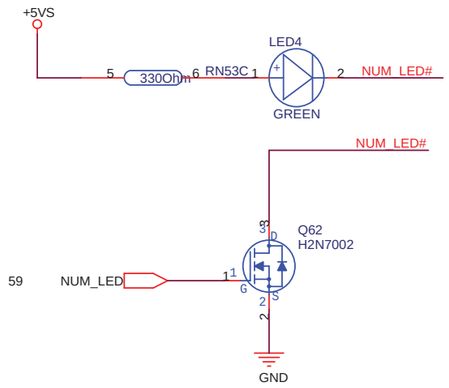
For SATA/IDE LED



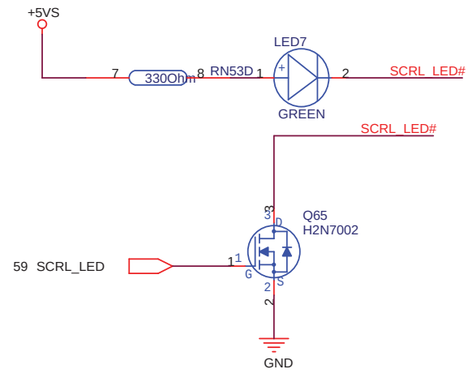
for Cap. Lock



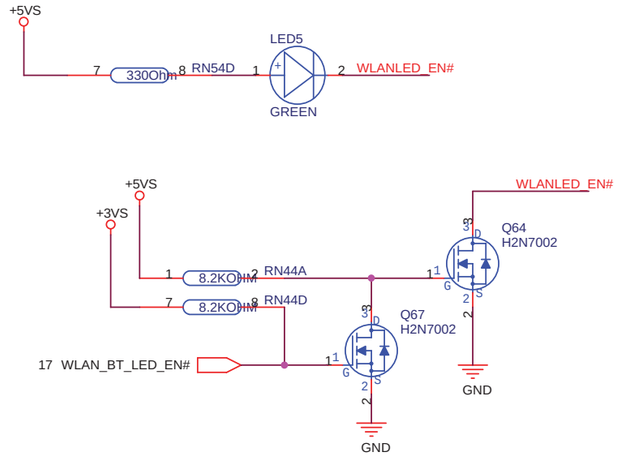
for Num Lock



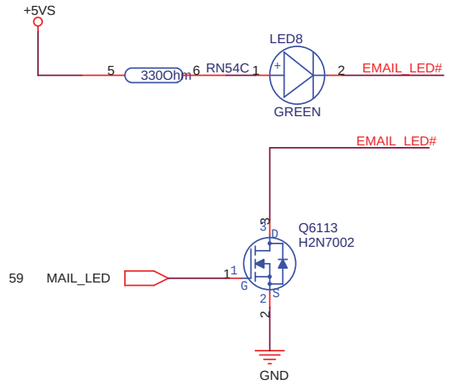
for Scroll Lock



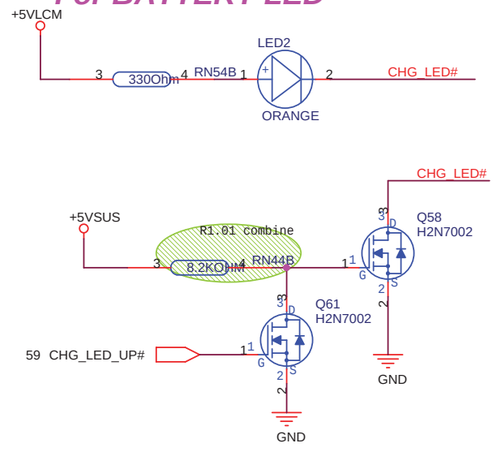
For WireLess LED



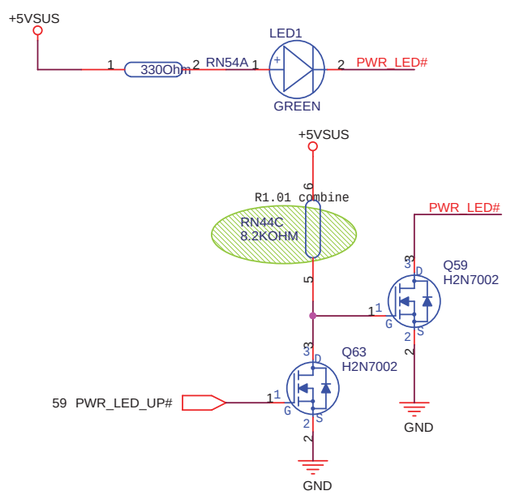
for email



For BATTERY LED



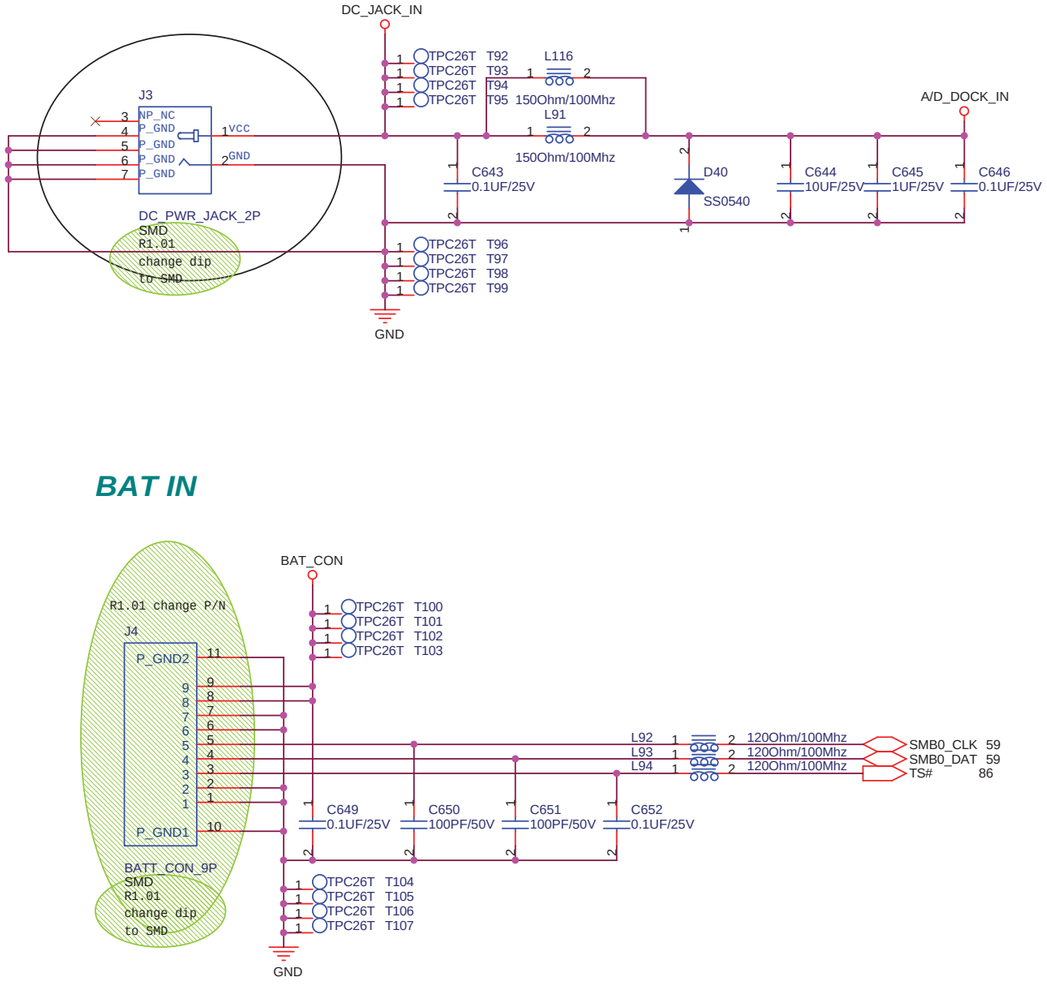
For POWER LED



ASUSTeK COMPUTER INC	Title : LED	
	Engineer: Alan Chu	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 66 of 92	

ASUSTeK COMPUTER INC	Title : Schematic page name	
	Engineer: *Alan Chu*	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 67 of 92	

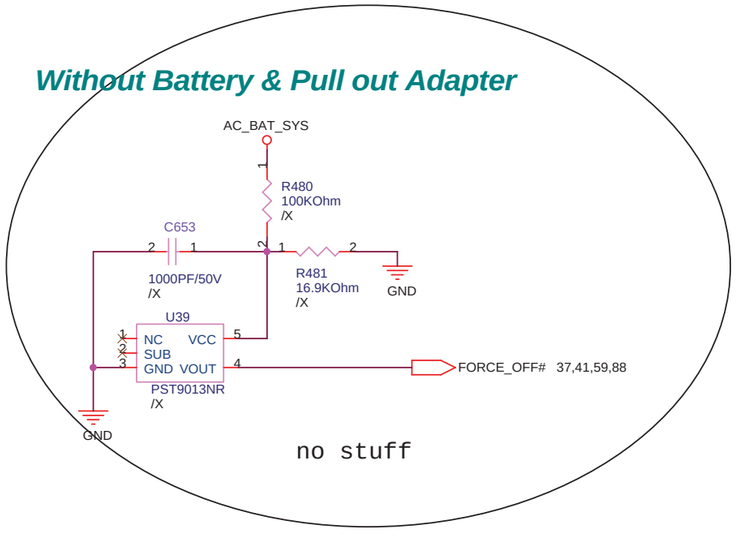
DC IN



remove AC DC detect; no need

BAT IN

Without Battery & Pull out Adapter



ASUSTeK COMPUTER INC. NB1	Title : DC & BAT IN	
	Engineer: Alan Chu	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 68 of 92	

ASUSTeK COMPUTER INC

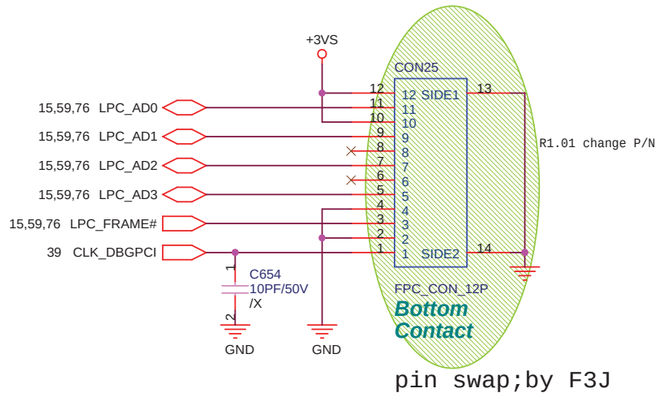
Title : Schematic page name

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 69 of 92

For Debug



pin swap;by F3J

ASUSTeK COMPUTER INC	Title : Debug CONN.	
	Engineer: *Alan Chu*	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 70 of 92	

ASUSTeK COMPUTER INC

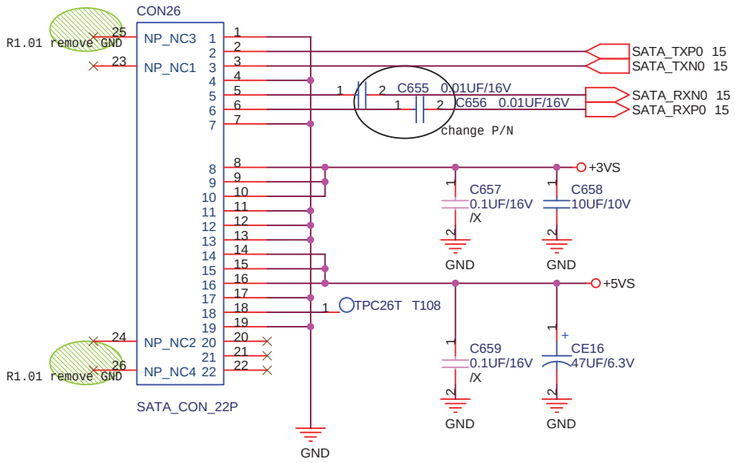
Title : Schematic page name

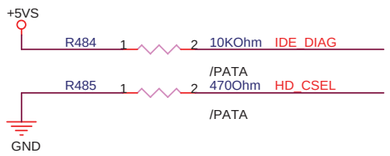
Engineer: *Alan Chu*

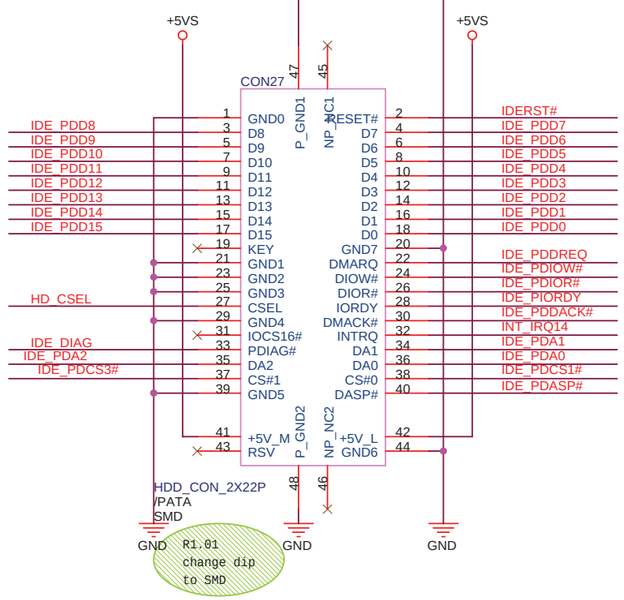
Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 71 of 92

HD_CSEL : Pull-Down, HDD as Master

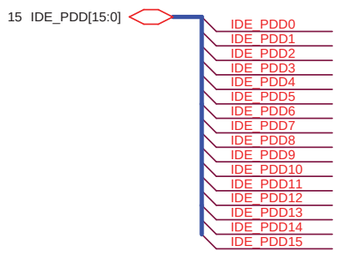






SATA HDD

ODD



ASUSTeK COMPUTER INC. NB1

Title : SATA-HDD & ODD

Engineer: Alan Chu

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 72 of 92

ASUSTeK COMPUTER INC

Title : Schematic page name

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 73 of 92

H1
2DRILL_D71N_D106N

H2
2DRILL_D71N_D106N

H3
ct217b47d47pt217
13GN7510M270
GND

H4
CT47CB79D47_NS
GND

H5
C354D106N

H6
C354D106N

H7
C354D106N

H8
C354D106N

PAD1
SMD394X197
GND

PAD2
SMD394X197
GND

PAD3
SMD394X197
GND

PAD4
SMD394X197
GND

PAD5
SMD394X197
GND

PAD6
SMD1248X197_PT
GND

H9 C354D106N
H10 C354D106N
H11 C354D106N
H12 C354D106N
H13 C354D106N
H14 C354D106N
H15 C354D106N
H16 C354D106N
H17 C354D106N
H18 C354D106N

PAD7
SMD1890X197_PT
GND

PAD8
SMD197X1803
GND

H19 C354D106N
H20 C354D106N
H21 C354D106N
H22 C354D106N
H23 C354D106N
H24 C354D106N
H25 C354D106N
H26 C354D106N
H27 C354D106N
H28 C354D106N

FOR SCREW HOLE

H29
ct217b47d47pt217
13GN7510M270
GND

H30
CT47CB79D47_NS
GND

H31
ct217b47d47pt217
13GN7510M270
GND

H32
CT47CB79D47_NS
GND

H34
CT47CB79D47_NS
GND

H33
ct217b47d47pt217
13GN7510M270
GND

FOR SCREW HOLE

H35 CT315B163I183D163
H36 CT315B163I183D163
H37 CT315B163I183D163
H38 CT315B163I183D163
H39 CT315B163I183D163
H40 CT315B163I183D163
H41 CT315B163I183D163
H42 CT315B163I183D163
H62 CT315B163I183D163
H63 CT315B163I183D163

H45 CT315B163I183D163
H46 CT315B163I183D163

H47_C236
GND

H48
2DRILL_D106N_D71N

H49
2DRILL_D71N_D106N

H43 CT315B163I183D163
H44 CT315B163I183D163

H50 2DRILL_D87N_D106N
H51 2DRILL_D87N_D106N
H52 2DRILL_D87N_D106N
H53 2DRILL_D87N_D106N

H54
ct217b47d47pt217
GND

H55
CT47CB79D47_NS
GND

H56
ct217b47d47pt217
GND

H57
CT47CB79D47_NS
GND

H61
CT256B126I146D126
GND

H60
CT256B126I146D126
GND

H59
CT256B126I146D126
GND

H58
CT256B126I146D126
GND

ASUSTeK COMPUTER INC	Title : SREW HOLE	
	Engineer: ALan Chu	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 74 of 92	

5 4 3 2 1

D C B A

ASUSTeK COMPUTER INC

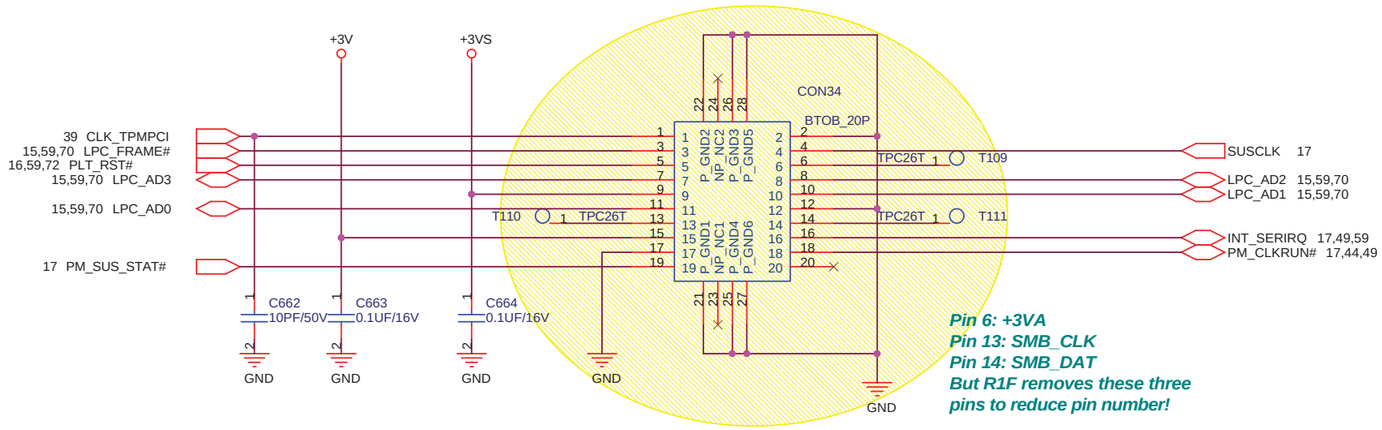
Title : Schematic page name

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	**Z96J**	1.0

Date: Wednesday, January 11, 2006 Sheet 75 of 92

For TPM Module

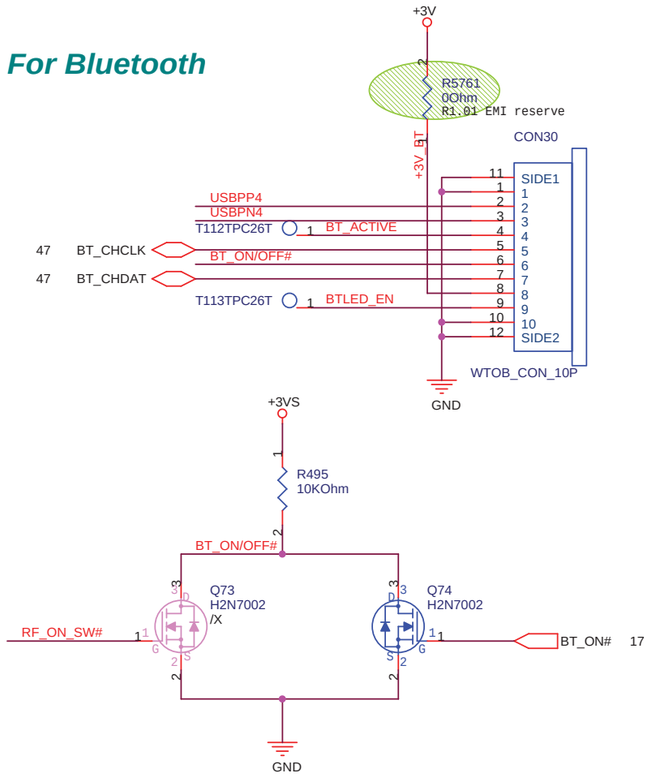


Pin 6: +3VA
Pin 13: SMB_CLK
Pin 14: SMB_DAT
But R1F removes these three pins to reduce pin number!

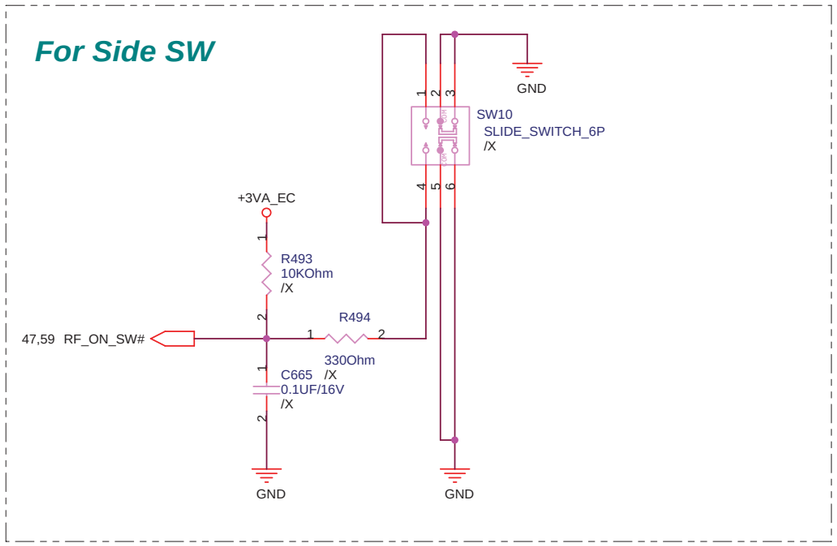
ASUSTeK COMPUTER INC	Title : TPM	
	Engineer: *Alan Chu*	
Size: Custom	Project Name: Z96J	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 76 of 92	

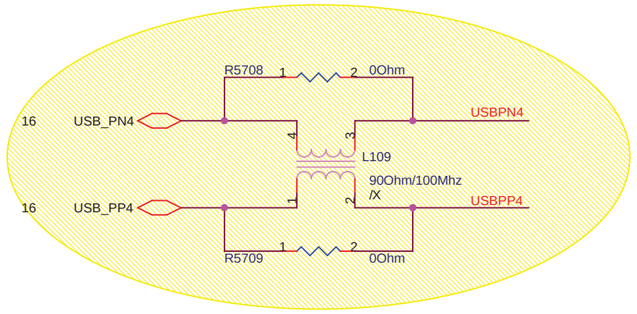
ASUSTeK COMPUTER INC	Title: Schematic page name			
	Engineer: Alan Chu			
Size: Custom	Project Name: Z96J			Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 77 of 92			

For Bluetooth



For Side SW





ASUSTeK COMPUTER INC

Title : Blue Tooth

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 78 of 92

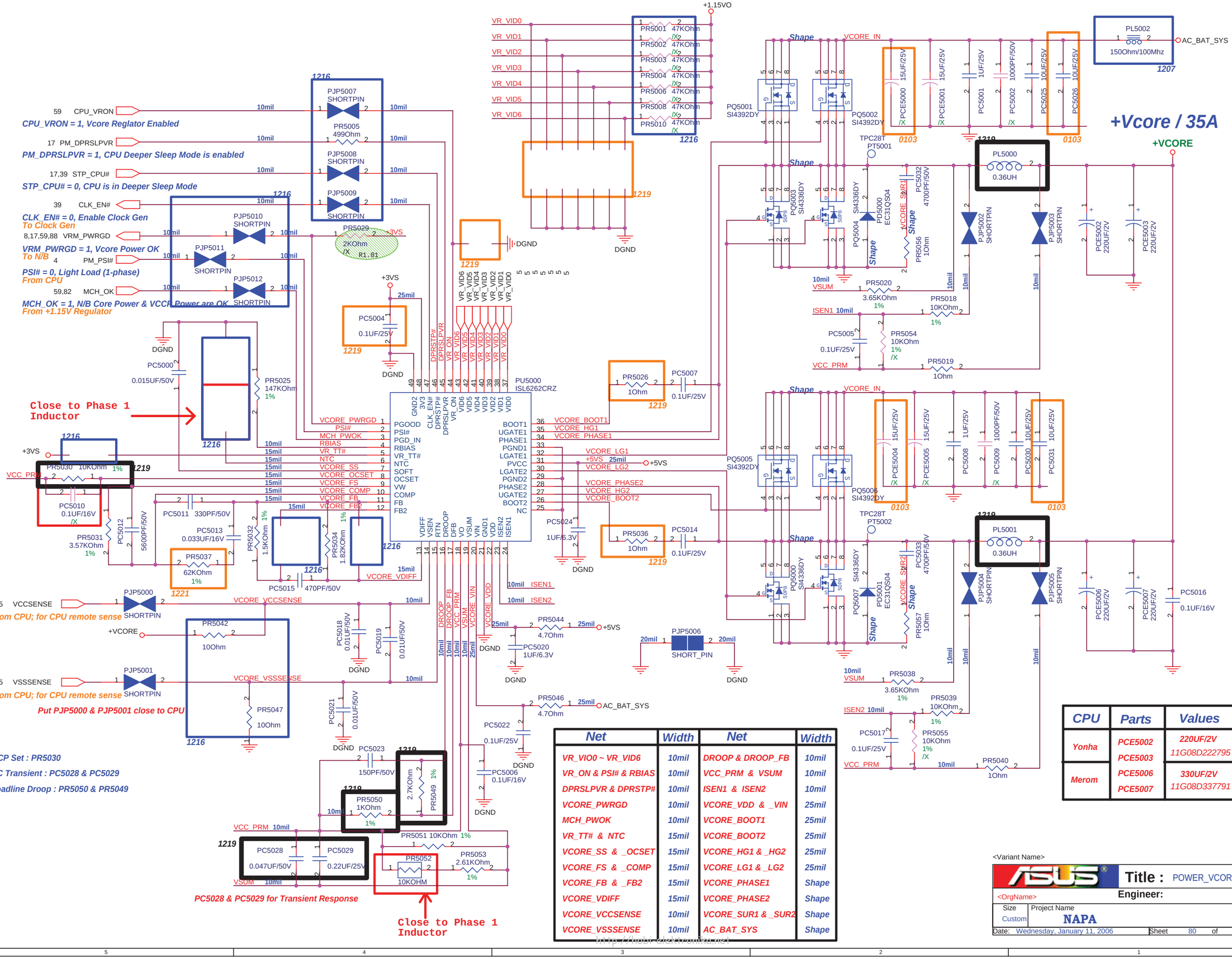
ASUSTeK COMPUTER INC

Title : Schematic page name

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	Z96J	1.0

Date: Wednesday, January 11, 2006 Sheet 79 of 92



Net	Width	Net	Width
VR_VIO0 ~ VR_VID6	10mil	DROOP & DROOP_FB	10mil
VR_ON & PSI# & RBIAS	10mil	VCC_PRM & VSUM	10mil
DPRSLPVR & DPRSTP#	10mil	ISEN1 & ISEN2	10mil
VCORE_PWRGD	10mil	VCORE_VDD & _VIN	25mil
MCH_PWOK	10mil	VCORE_BOOT1	25mil
VR_TT# & NTC	15mil	VCORE_BOOT2	25mil
VCORE_SS & _OCSET	15mil	VCORE_HG1 & _HG2	25mil
VCORE_FS & _COMP	15mil	VCORE_LG1 & _LG2	25mil
VCORE_FB & _FB2	15mil	VCORE_PHASE1	Shape
VCORE_VDIFF	15mil	VCORE_PHASE2	Shape
VCORE_VCCSENSE	10mil	VCORE_SUR1 & _SUR2	Shape
VCORE_VSSSENSE	10mil	AC_BAT_SYS	Shape

CPU	Parts	Values
Yonha	PCE5002	220UF/2V
	PCE5003	11G08D222795
Merom	PCE5006	330UF/2V
	PCE5007	11G08D337791

<Variant Name>

Title : POWER_VCORE

<OrgName>

Engineer:

Size	Project Name	Rev
Custom	NAPA	1.0

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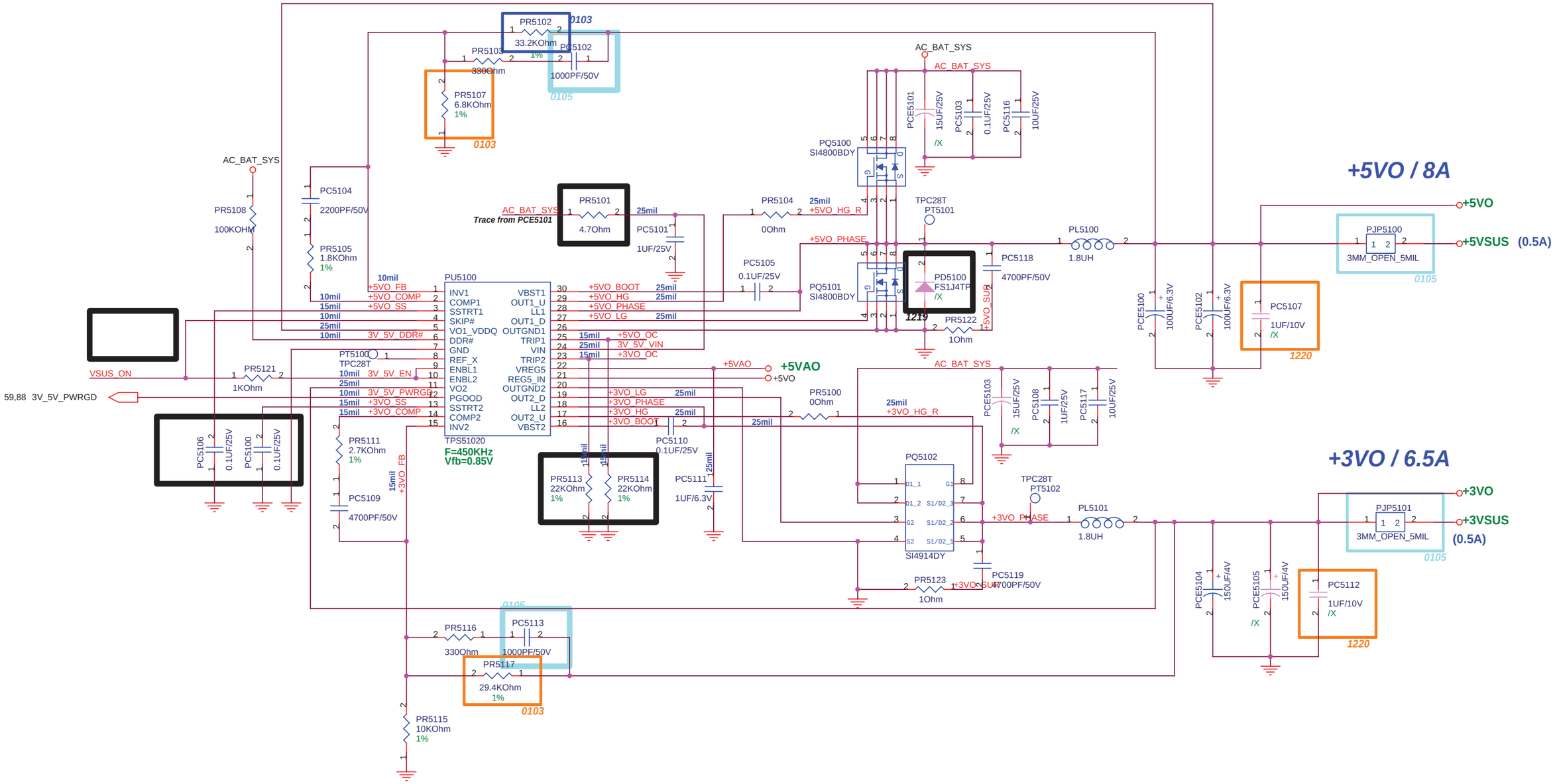
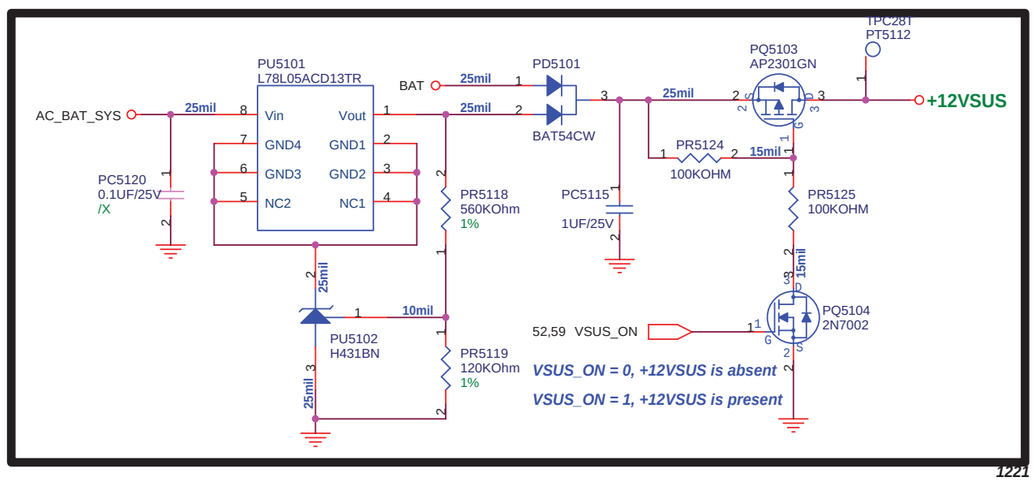
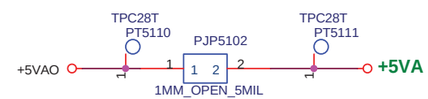
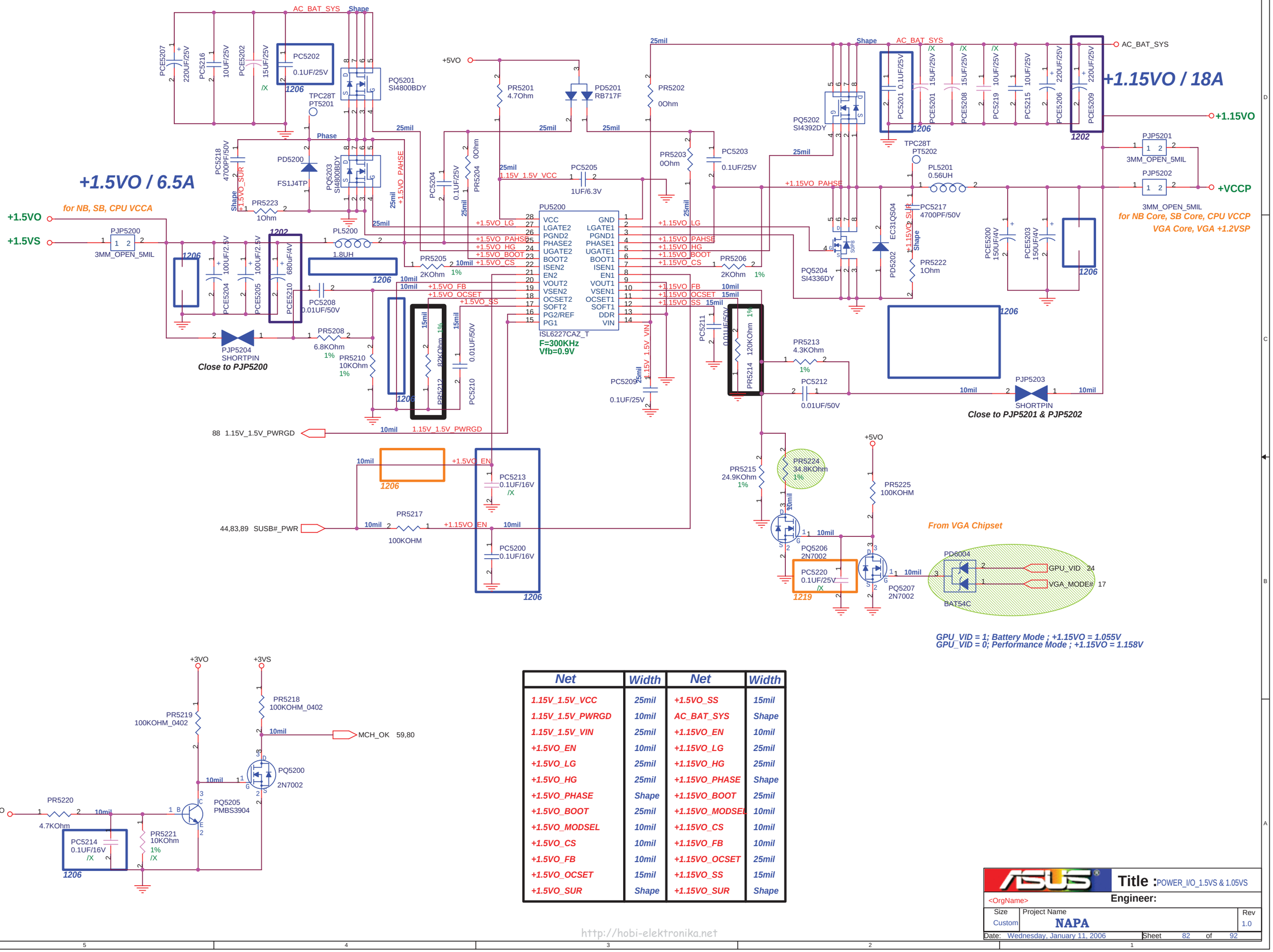


Net	Width	Net	Width
3V_5V_DDR#	10mil	AC_BAT_SYS	Shape
3V_5V_EN	10mil	+5VAO	25mil
3V_5V_PWRGD	10mil	+3VO_FB	10mil
3V_5V_VIN	25mil	+3VO_COMP	10mil
+5VO_FB	10mil	+3VO_SS	15mil
+5VO_COMP	10mil	+3VO_BOOT	25mil
+5VO_SS	15mil	+3VO_HG	25mil
+5VO_BOOT	25mil	+3VO_HG_R	25mil
+5VO_HG	25mil	+3VO_LG	25mil
+5VO_HG_R	25mil	+3VO_PHASE	Shape
+5VO_LG	25mil	+3VO_SUR	Shape
+5VO_PHASE	Shape	+3VO_OC	15mil
+5VO_SUR	Shape	+12VSUS_ADJ	10mil
+5VO_OC	15mil	+5VDRV	25mil





Title :	POWER_SYSTEM
<OrgName>	Engineer:
Size: Custom	Project Name: NAPA
Rev: 1.0	
Date: Wednesday, January 11, 2006	Sheet 81 of 92



Net	Width	Net	Width
1.15V_1.5V_VCC	25mil	+1.5VO_SS	15mil
1.15V_1.5V_PWRGD	10mil	AC_BAT_SYS	Shape
1.15V_1.5V_VIN	25mil	+1.15VO_EN	10mil
+1.5VO_EN	10mil	+1.15VO_LG	25mil
+1.5VO_LG	25mil	+1.15VO_HG	25mil
+1.5VO_HG	25mil	+1.15VO_PHASE	Shape
+1.5VO_PHASE	Shape	+1.15VO_BOOT	25mil
+1.5VO_BOOT	25mil	+1.15VO_MODSEL	10mil
+1.5VO_MODSEL	10mil	+1.15VO_CS	10mil
+1.5VO_CS	10mil	+1.15VO_FB	10mil
+1.5VO_FB	10mil	+1.15VO_OCSET	25mil
+1.5VO_OCSET	15mil	+1.15VO_SS	15mil
+1.5VO_SUR	Shape	+1.15VO_SUR	Shape

Title : POWER_I/O_1.5VS & 1.05VS

<OrgName>

Engineer:

Size: Custom | Project Name: NAPA | Rev: 1.0

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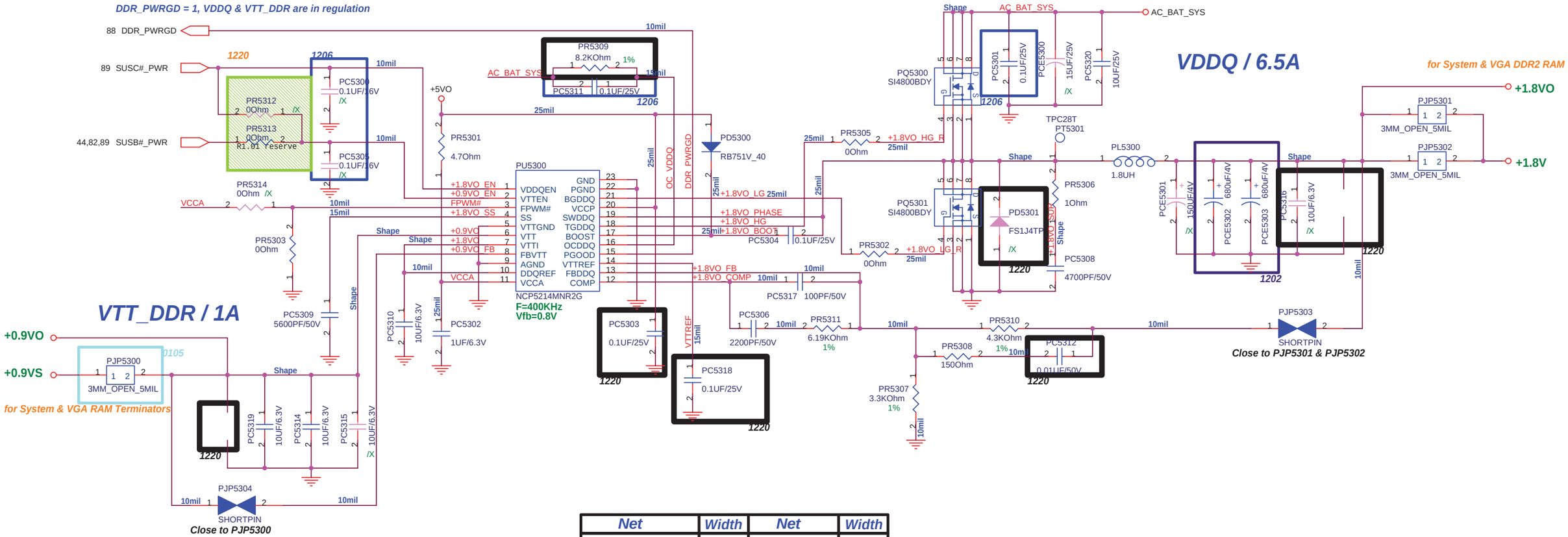

Net	Width	Net	Width
+1.8VO_EN	10mil	+1.8VO_BOOT	25mil
+1.8VO	Shape	+1.8VO_COMP	10mil
+0.9VO_EN	10mil	+1.8VO_HG_R	25mil
+0.9VO	Shape	+1.8VO_LG_R	25mil
+0.9VO_FB	10mil	+1.8VO_HG	25mil
+1.8VO --> DDQREF	10mil	+1.8VO_LG	25mil
VTTREF	15mil	+1.8VO_PHASE	Shape
FPWM#	10mil	+1.8VO_SUR	Shape
VCCA	10mil	+1.8VO_FB	10mil
DDR_PWRGD	10mil	+1.8VO_SS	15mil
OC_VDDQ	15mil	AC_BAT_SYS	Shape

Title : POWER_I/O_DDR & VTT

<OrgName>

Engineer:

Size	Project Name	Rev
Custom	NAPA	1.0

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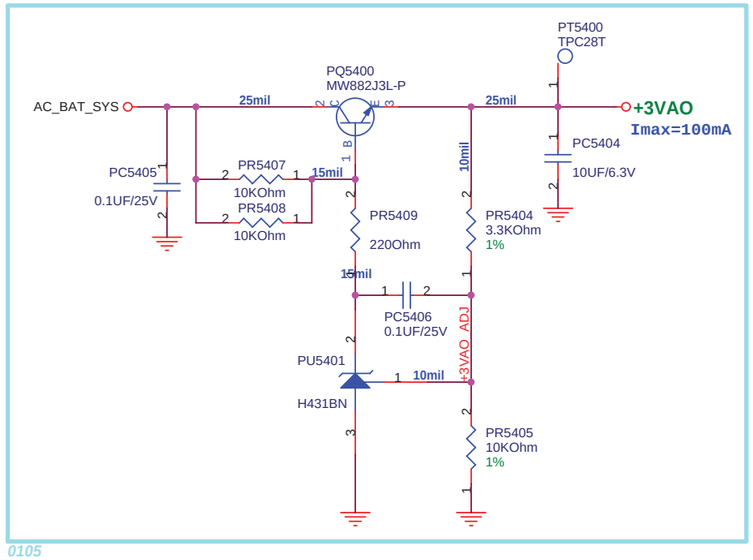
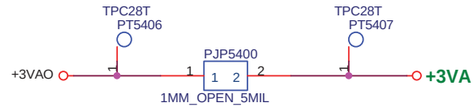
+3VAO / 100mA

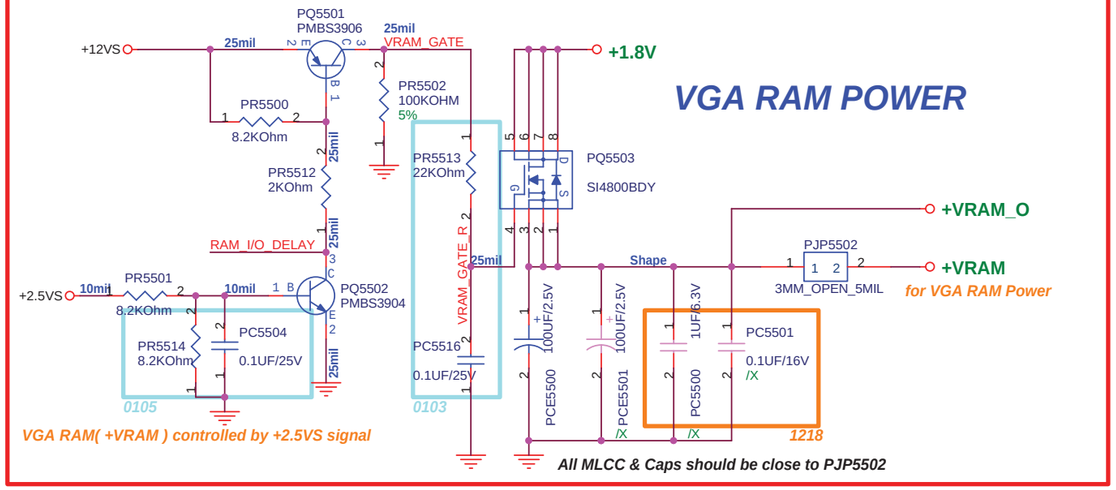


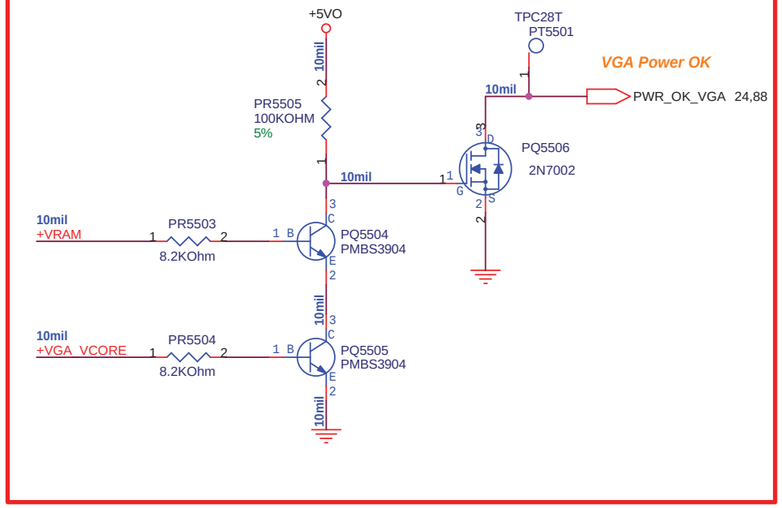


+2.5VS / 2A

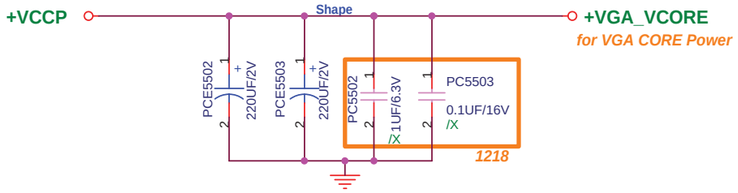
Title : POWER_I/O_+3VA & +2.5V		
<OrgName>	Engineer:	
Size: Custom	Project Name: NAPA	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 84 of 92	

VGA RAM POWER

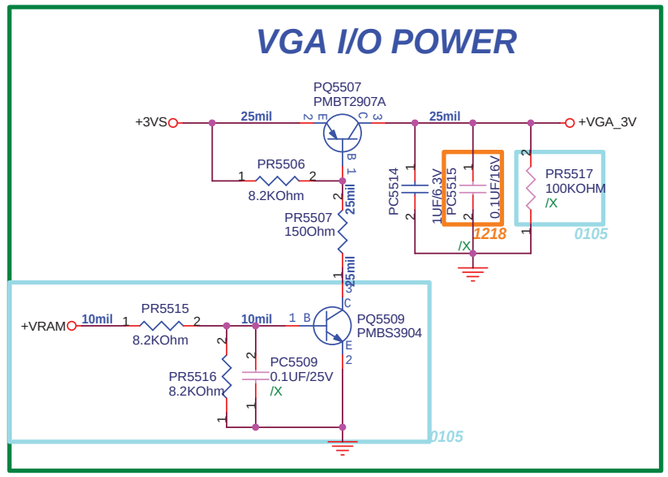




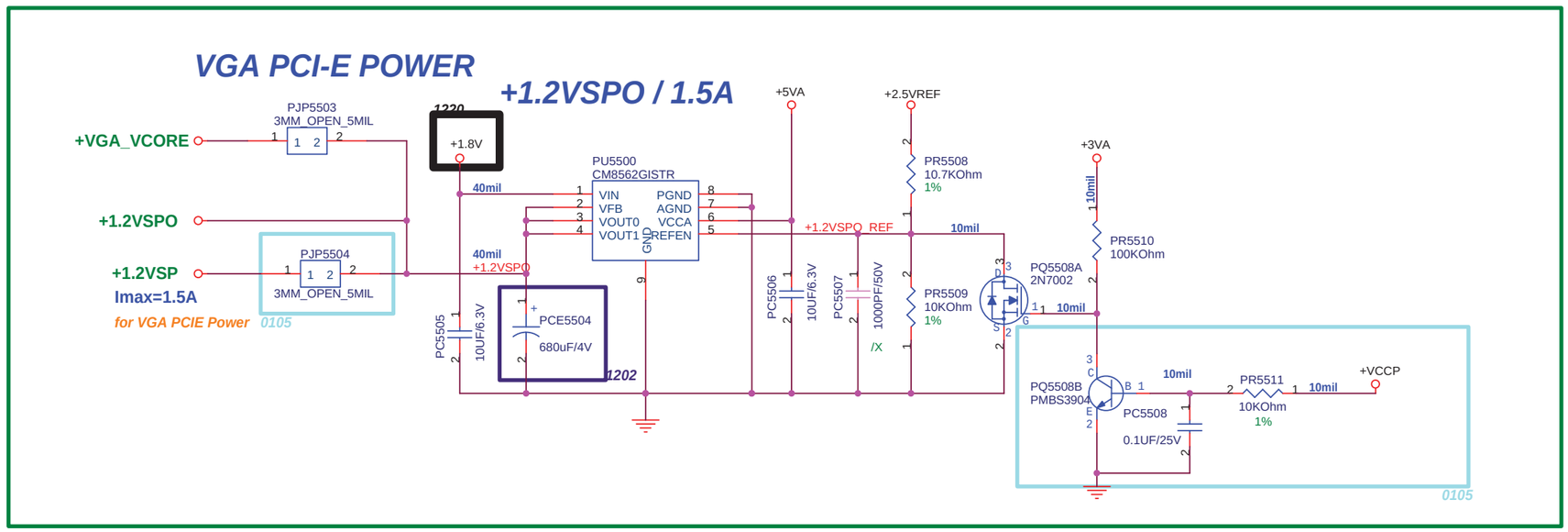
VGA CORE POWER



VGA I/O POWER



VGA PCI-E POWER



Title : POWER_VGA_CORE & RAM		
<OrgName>	Engineer:	
Size: Custom	Project Name: NAPA	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 85 of 92	

POWER PATH & BAT_LEARN

AC_IN Threshold 2.048Vmax A/D_DOCK_IN
> 17.44V active

Adapter Iin(max) = [0.075V/Rsense(ADin)]*[VCLS/VREF]
Rsense(ADin)=0.02 ohm
VCLS= 3.685V
=> Iin(max)=3.27A
=> Constant Power = 19 * 3.27 = 62.13W

=> R5710=20K,R5715=137K

Adapter Iin(max) = [0.075V/Rsense(ADin)]*[VCLS/VREF]
VCLS= 2.865V
=> Iin(max)=2.544A
=> Constant Power = 19 * 2.44 = 48.336W

=> R5710=20K,R5715=42.2K

Charge Current Ichg = [0.075V/Rsense(CHG)]*[VICTL/3.6V]
Rsense(CHG)= 25m Ohm
VICTL= 3V => Ichg = 2.5A
VICTL= 1.68V => Ichg = 1.4A

Vbatt = Cell * { Vref +[(VCTL- 1.8V) / 9.52] }
VCTL= 1.588V
=> Vbatt = 4.2V

VICTL< 0.8V or DCIN < 7V -->Charger Disable

MODE (Pin7)	Battery
High (>2.8V)	4-Cell
Low (<0.8V)	3-Cell
High Impedance (1.6V<Vmoce<2V)	Battery Learn

MAX8725_REF : 4.2235V
MAX8725_LDO : 5.4V

Battery Charging Voltage :
+V_BAT= 4 x [4.2235+(Vvctl-1.8)/9.52]

Battery Charging Current :
Icharge=(0.075/PR5706) x (Victl/3.6))

Input Adaptor Max. Current Limit :
Ilimit_current=(0.075/PR5701) x (Vcls/4.2235)

Pre-Charging Mode :
Precharging current = 163.9mA
Victl = 0.098V

Battery Cell Selection :
BATSEL_2P# = 1, 6 Cells; Victl = 1.678V
=> Icharge = 2.331A
BATSEL_2P# = 0, 9 Cells; Victl = 2.785V
=> Icharge = 3.868A

Adaptor Max. Current :
PR5714 = 178K; Ilimit = 4.5A; 90W
PR5714 = 47K; Ilimit = 3.5A; 65W

54,68,87 A/D_DOCK_IN
A/D_DOCK_IN
PQ5700 TPC8107
CHG_SRC
PR5700 22kOhm
PC5700 0.01UF/50V
PQ5701 TPC8107
PC5701 0.01UF/50V
PD5700 1SS355
PR5702 22kOhm 20mil CHG_PDS
PT5701 TPC28T
PJP5704 SHORTPIN
CSSP
PT5702 TPC28T
PJP5705 SHORTPIN
PC5717 1000PF/50V /X
CSSN
PR5701 15mOhm
AC_BAT_SYS
PQ5702 TPC8107
CHG_PDL 20mil
BAT
PJP5700 3MM_OPEN_5MIL
PL5702 150Ohm/100Mhz
BAT
BAT_CON

CSSP PC5702 0.1UF/25V GND_C
CSSN PC5703 0.1UF/25V GND_C
CHG_SRC
PC5706 0.1UF/25V
PC5704 0.22UF/25V
1217

A/D_DOCK_IN
PR5704 100KOhm 1%
PR5718 0Ohm /X
PD5701 BAT54AW
MAX8725_LDO
PR5705 100KOHM
PT5712 TPC28T
GND_C
MAX8725_REF
PR5707 24.9KOhm 1%
1217
PR5708 20KOhm 1%
PR5709 32KOhm 1%
PR5710 33.2KOhm 1%
PC5708 1UF/25V
PC5709 1UF/6.3V
PC5710 1UF/6.3V
VCTL
CTL
CLS
PR5712 62KOhm 1%
1213
PR5713 1.5KOhm 1%
1214
PR5714 178KOhm 1%
PR5715 120KOhm 1%
1213
PR5716 20KOhm 1%
PQ5705 2N7002
59 BATSEL_2P#
BATSEL_2P# = 1, 6 Cells
BATSEL_2P# = 0, 9 Cells
PQ5711 2N7002
59 PRECHG
PRECHG = 1, Pre-Charging Mode
Charging Current = 156mA
59 CHG_EN#
CHG_EN# = 1, Charger Disabled
CHG_EN# = 0, Charger Enabled
PQ5707 2N7002
+5VCHG
PR5722 22KOhm
PR5721 82KOhm
1221
59 AC_APR_UC
AC_APR_UC = 1, Adaptor is present
AC_APR_UC = 0, Adaptor is absent
59 BAT_LEARN
BAT_LEARN = 1, Battery discharges
BAT_LEARN = 0, charging voltage with 3 time VCTL (3 Cells)
PQ5709 2N7002
PR5720 100KOHM /X
1217

DCIN LDO ACIN REF GND/PKPRES# ACOK MODE
DLOV DLO PGND CSIP CSIN BATT GND1
PU5700 MAX8725ETI
Fsw : 450KHz
AD_IINP CHG_CCI CHG_CCV CHG_CCS
PC5707 0.1UF/25V
PC5711 0.01UF/50V
PR5711 10KOhm
PC5712 0.047UF/50V
PR5717 20KOhm
PC5713 0.1UF/25V
1206
PC5714 0.1UF/25V
PKPRES# 10mil TS#
PC5715 0.1UF/25V /X
VBAT_DLGV
VBAT_LG
CSIP
CSIN
BATT
CHG_CCS

AC_BAT_SYS
TPC28T PT5711
PC5705 0.1UF/25V
PCE5701 15UF/25V /X
PC5720 10UF/25V /X
PCE5702 220UF/25V
TPC28T PT5722
TPC28T PT5723
PQ5704 SI4835BDY
PQ5706 SI4800BDY
Shape VBAT_PHASE
PC5718 4700PF/50V /X
PD5702 FS1J4TP
VBAT_SNS
Shape
PR5723 10hm /X
PL5700 10UH Irat=4.4A
1213
PR5706 15mOhm 1%
PJP5702 SHORTPIN
PJP5703 SHORTPIN
PC5719 1000PF/50V /X
PCE5700 15UF/25V /X
PC5721 10UF/25V /X
PCE5703 220UF/25V
1219
BAT

PJP5701 SHORT_PIN

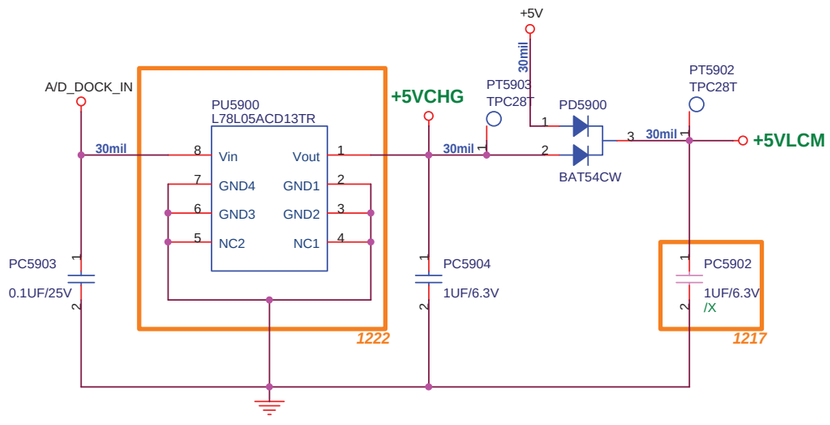
MAX8725_LDO
PR5724 100KOHM
BAT_IN_OC# = 1; Battery absence
BAT_IN_OC# = 0; Battery Plug-in
BAT_IN 59
68 TS#
TS# = 1; Battery absence
TS# = 0; Battery Plug-in
PQ5710 2N7002
PC5716 0.1UF/16V /X
1206

Battery Voltage

Title : POWER_CHARGER
<OrgName>
Engineer:
Size C | Project Name NAPA | Rev 1.0
Date: Wednesday, January 11, 2006 Sheet 86 of 92

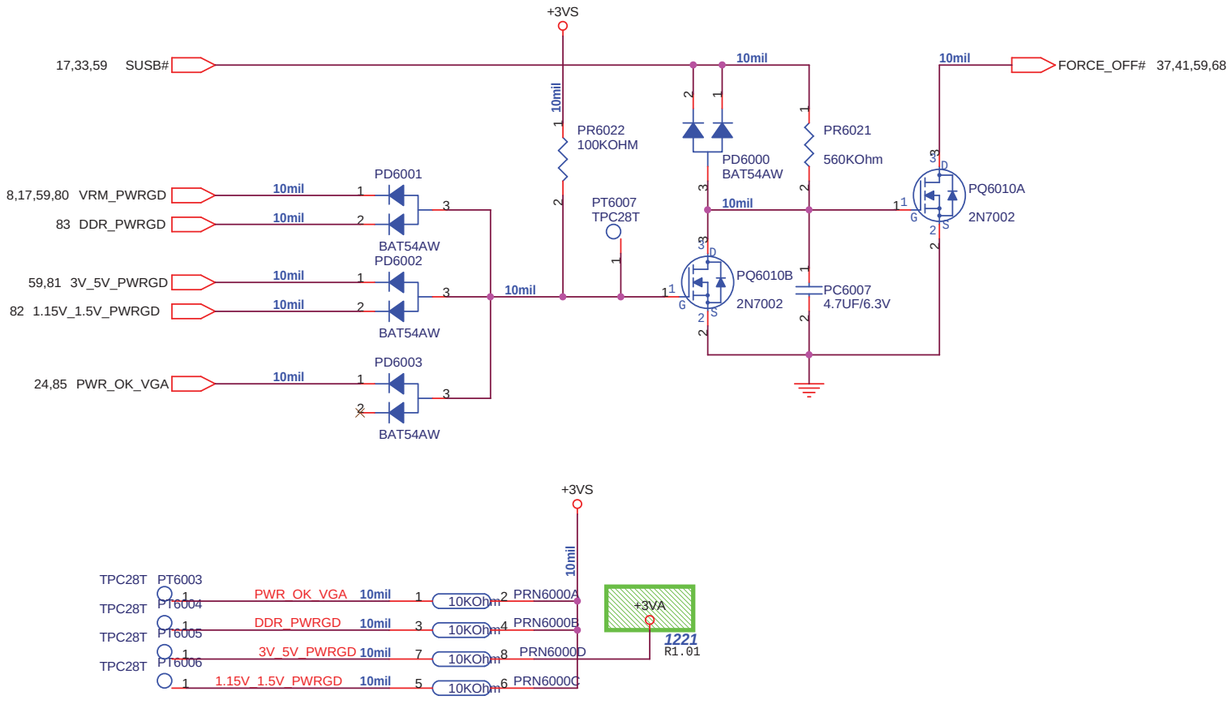
REMOVE BATTERY IN DETECT

+5VLCM / +5VCHG



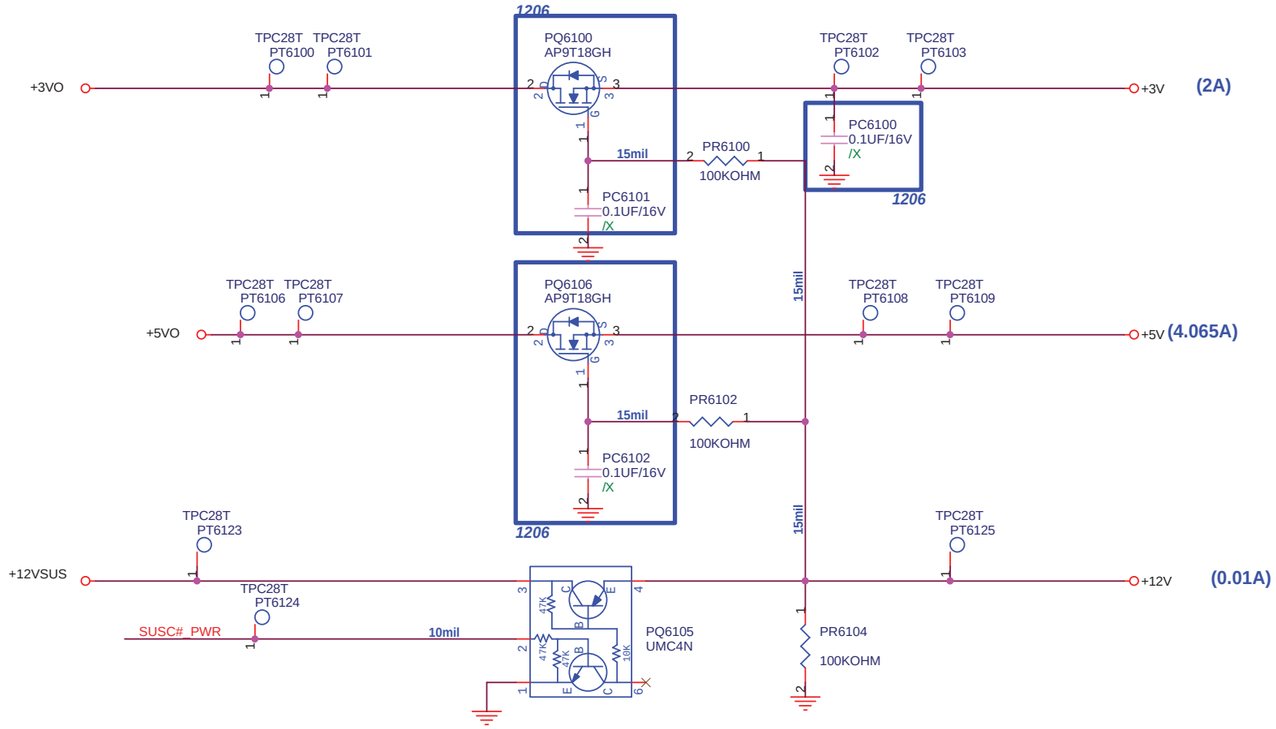
Title : POWER_DETECT		
<OrgName> Engineer:		
Size: Custom	Project Name: NAPA	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 87 of 92	

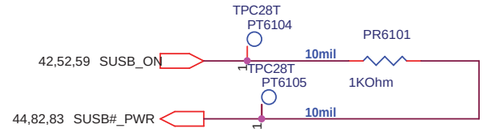
Power Good Detecter



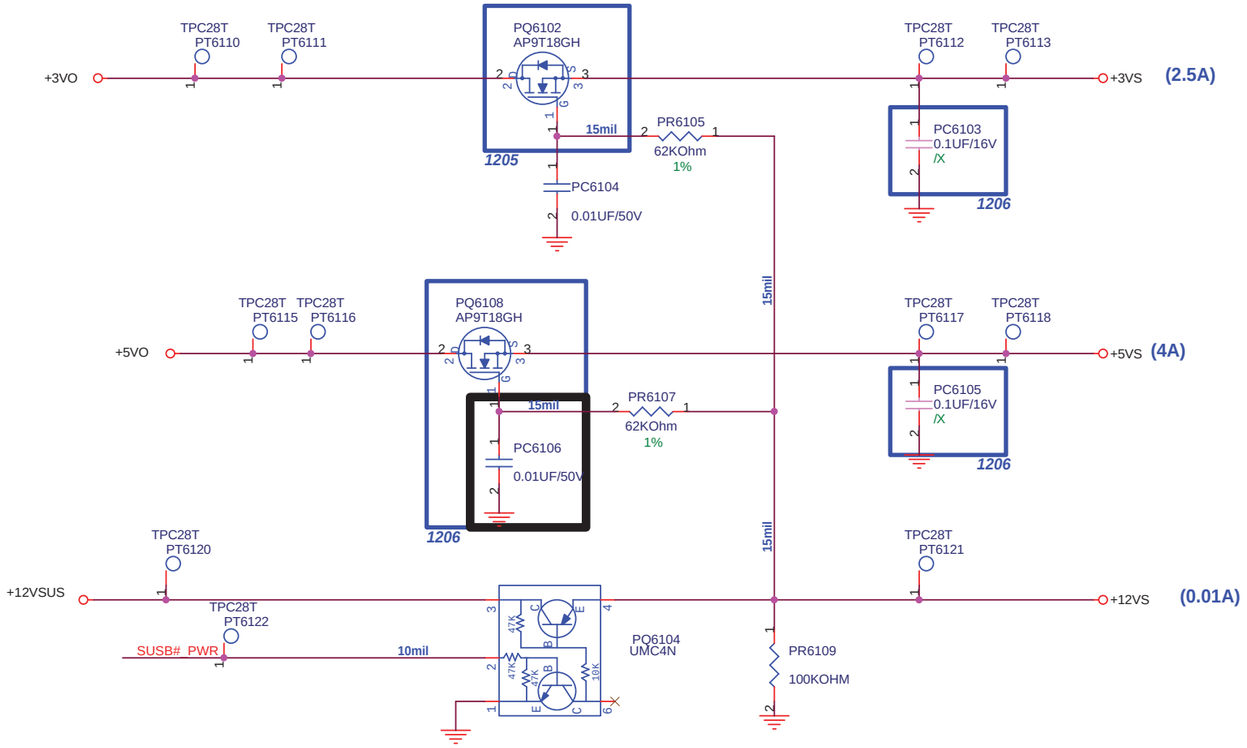
ASUS	Title : POWER_PROTECT	
<OrgName>	Engineer:	
Size: Custom	Project Name: NAPA	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 88 of 92	

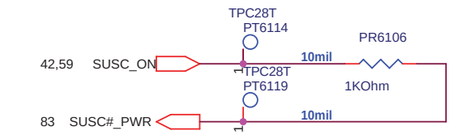
SUSC#_PWR POWER

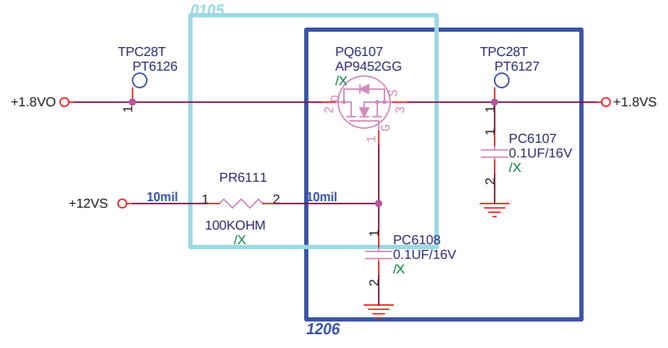




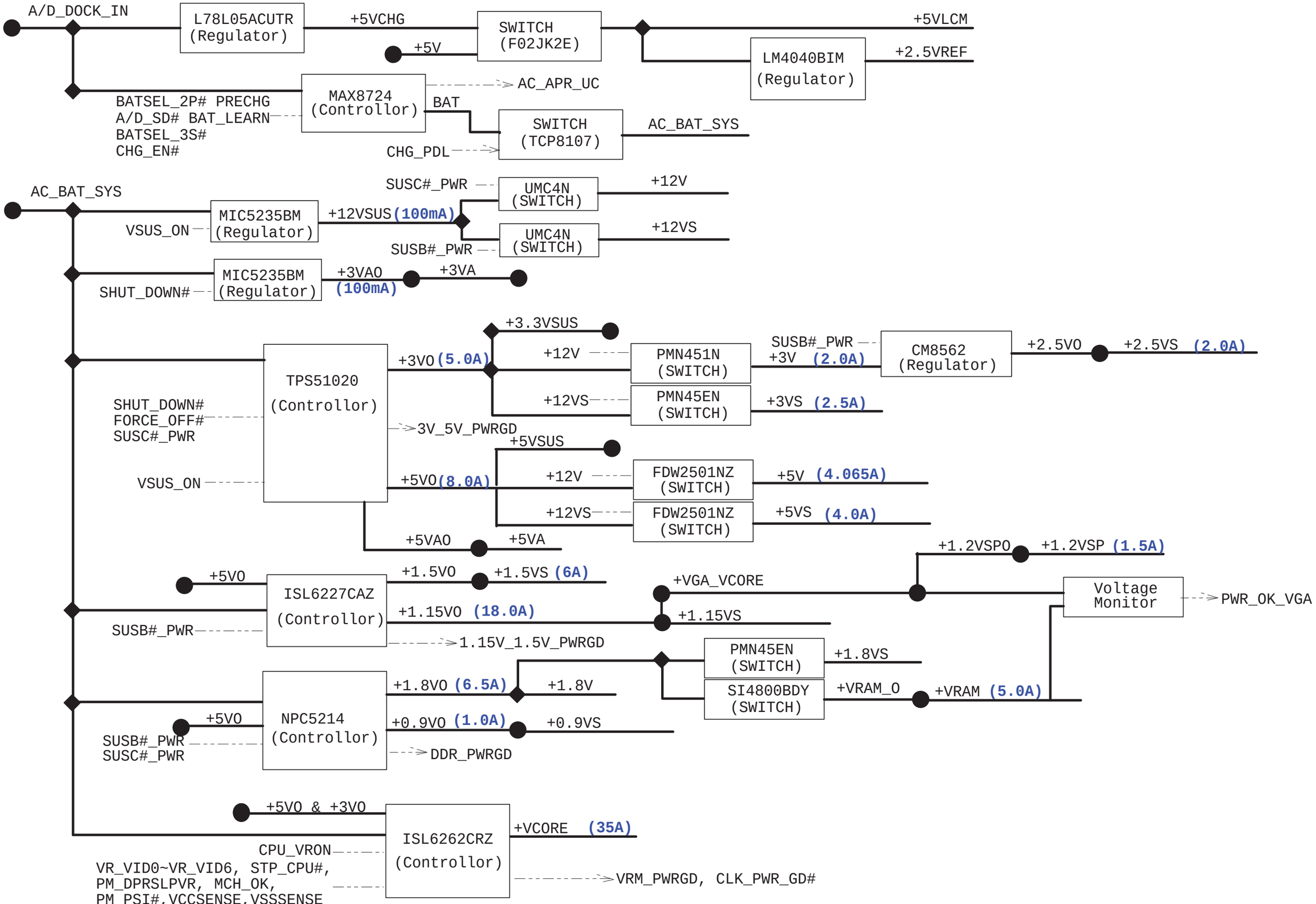
SUSB#_PWR POWER







ASUS	Title : POWER_LOAD SWITCH	
<OrgName>	Engineer:	
Size: Custom	Project Name: NAPA	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 89 of 92	



Title : POWER_FLOWCHART		
<OrgName>	Engineer:	
Size: Custom	Project Name: NAPA	Rev: 1.0
Date: Wednesday, January 11, 2006	Sheet 90 of 92	

AC_BAT_SYS	AC_BAT_SYS	AC_BAT_SYS	33,68,80,81,82,83,84,86
+3VA	+3VA	+3VA	15,33,42,59,84,85,88
+5VA	+5VA	+5VA	81,84,85
+5VO	+5VO	+5VO	81,82,83,85,89
+3VO	+3VO	+3VO	81,82,89
+3VSUS	+3VSUS	+3VSUS	16,17,18,44,45,47,52,81
+5VSUS	+5VSUS	+5VSUS	18,66,81
+3V	+3V	+3V	33,42,44,45,47,76,78,84,89
+3VS	+3VS	+3VS	4,8,12,15,16,17,18,20,21,32,33,35,37,39,42,47,49,50,51,52,56,57,59,66,70,72,76,78,80,82,84,85,88,89
+12VSUS	+12VSUS	+12VSUS	81,89
+12V	+12V	+12V	42,51,57,89
+12VS	+12VS	+12VS	17,27,33,54,57,85,89
+5V	+5V	+5V	42,54,57,62,87,89
+5VS	+5VS	+5VS	18,32,37,42,49,54,56,57,59,60,66,72,80,89
+2.5VO	+2.5VO	+2.5VO	84
+2.5VS	+2.5VS	+2.5VS	8,12,24,27,42,84,85
+1.8VO	+1.8VO	+1.8VO	83,89
+1.8V	+1.8V	+1.8V	8,11,20,21,42,83,85
+1.8VS	+1.8VS	+1.8VS	27,89
+VCCP	+VCCP	+VCCP	4,5,7,9,11,12,15,18,24,27,39,42,82,84,85
+0.9VS	+0.9VS	+0.9VS	22,28,29,42,83
BAT	BAT	BAT	81,86
+5VCHG	+5VCHG	+5VCHG	86,87
+5VLCM	+5VLCM	+5VLCM	66,87
+2.5VREF	+2.5VREF	+2.5VREF	84,85
+VCORE	+VCORE	+VCORE	5,80
+VGA_VCORE	+VGA_VCORE	+VGA_VCORE	4,5,7,9,11,12,15,18,24,27,39,42,82,84,85
+VRAM	+VRAM	+VRAM	25,27,28,29,42,85
+1.2VSP	+1.2VSP	+1.2VSP	26,27,85
BAT_CON	BAT_CON	BAT_CON	68,86
+1.2VSPO	+1.2VSPO	+1.2VSPO	85

Title : POWER_SIGNAL

<OrgName> Engineer:

Size	Project Name	Rev
Custom	NAPA	1.0

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Rev	Date	Description
1.0	10/04/05	1. Initial release.

Rev	Date	Description

ASUSTek COMPUTER INC

Title : History

Engineer: *Alan Chu*

Size	Project Name	Rev
Custom	**Z96J**	1.0

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