Z97V

VER: 2.0G

CPU Penryn P3-5

FSB 1066MHz

ITP CONN. P42

CLOCK GEN ICS 9LPRS929 P22-23

THERMAL SENSOR MAX6657MSA P44

LCD P21 — LVDS

CRT P20 — Analog RGB

HDMI P26 — HDMI

MXM CONN. (Z97V ONLY) P19 — PCI-E X16

NORTH BRIDGE Cantiga PM45 (Z97V) / GM45 (Z97A) P6-11

DDR2 DDR2

DDR2 SO-DIMM *2 800MHz P17-18

DMI

Internal KB CBB P39

Touch Pad Synaptics P39

CIR Receiver P24

EC/BIOS SPI Flash P24

Debug Connector P42

TPM 1.2 INFINEON SLB9635 P43

EC ENE3925 P24

LPC

SPI

(SPI Flash) P47

SOUTH BRIDGE ICH9-M P12-16

SATA HDD P25

SATA ODD P25

AZALIA

AZALIA CODEC ALC663 P30

AUDIO AMP. P31

HP P32

MIC IN P32

MDC CONN. P38

2PIN CONN*2 P38

MIC AMP P33

INT MIC

CMOS Camera 2.0M Pixels P46

4 in 1 Card Reader P29

1394 CONN. P28

Card Reader / 1394 Ricoh R5C833 P27-28

PCI

ESATA

E-SATA CON P40

Giga LAN Realtek RTL8111C P37

RJ45 P38

PCIE x1

USB

MINICARD2 Slot for TV-Tuner P36

MINICARD1 Slot for WLAN P35

MINICARD3 Slot for Robson P36

NEWCARD P34

RJ11 P46

USB Port X2 P40

USB X2

Bluetooth CONN. P41

Fingerprint P40

0414_1209

ASUSTek Computer INC.

Title : Block Diagram

Engineer: Mike Lee

Size	Project Name	Rev
Custom	Z97V	2.0G

Date: Friday, May 09, 2008 Sheet 1 of 66

ICH9-M GPIO	Use As	Signal Name	Power
GPIO 00	Native	PM_SYNC#	+3VS
GPIO 01	GPI	GP_INT#	+3VS
GPIO [2:5]	GPO	Hybrid Graphic Ctrl.	+3VS
GPIO 06	GPI	HDMI_HPD	+3VS
GPIO 07	GPO	Hybrid Graphic Ctrl.	+3VS
GPIO 08	GPI	EXT_SMI#	+3VSUS
GPIO 09	Native	(PD GND)	+3VSUS
GPIO 10	Native	--	+3VSUS
GPIO 11	GPI	SMBALERT# (PU +3VSUS)	+3VSUS
GPIO 12	GPI	EXT_SCI#	+3VSUS
GPIO 13	GPO	--	+3VSUS
GPIO 14	Native	AC_OK	+3VSUS
GPIO 15	Native	STP_PCI#	+3VSUS
GPIO 16	Native	PM_DPRSLPVR	+3VS
GPIO 17	GPO	--	+3VS
GPIO 18	GPO	--	+3VS
GPIO 19	GPO	BT_LED	+3VS
GPIO 20	GPI	--	+3VS
GPIO 21	GPO	WLAN_LED	+3VS
GPIO 22	GPI	(PU +3VS)	+3VS
GPIO 23	Native	LPC_DRQ1#	+3VS
GPIO 24	GPO	MXMPWR_ON#	+3VSUS
GPIO 25	Native	STP_CPU#	+3VSUS
GPIO 26	Native	PM_S4_STATE#	+3VSUS
GPIO 27	GPO	--	+3VSUS
GPIO 28	GPO	--	+3VSUS
GPIO 29	Native	USB_OC5#	+3VSUS
GPIO 30	Native	USB_OC6#	+3VSUS
GPIO 31	Native	USB_OC7#	+3VSUS
GPIO 32	Native	PM_CLKRUN#	+3VS
GPIO 33	GPO	--	+3VS
GPIO 34	Native	--	+3VS
GPIO 35	Native	--	+3VS
GPIO 36	GPO	WLAN_ON	+3VS
GPIO 37	GPO	BT_ON	+3VS
GPIO 38	GPI	--	+3VS
GPIO 39	GPI	--	+3VS
GPIO 40	Native	USB_OC1#	+3VSUS
GPIO 41	Native	USB_OC2#	+3VSUS
GPIO 42	Native	USB_OC3#	+3VSUS
GPIO 43	Native	USB_OC4#	+3VSUS
GPIO 44	Native	USB_OC8#	+3VSUS
GPIO 45	Native	USB_OC9#	+3VSUS
GPIO 46	Native	USB_OC10#	+3VSUS
GPIO 47	Native	USB_OC11#	+3VSUS
GPIO 48	GPO	--	+3VS
GPIO 49	GPO	--	+3VS
GPIO 50	Native	PCI_REQ#1 (PU +3VS)	+3VS
GPIO 51	Native	PCI_GNT#1	+3VS
GPIO 52	Native	PCI_REQ#2 (PU +3VS)	+3VS
GPIO 53	Native	PCI_GNT#2	+3VS
GPIO 54	Native	PCI_REQ#3 (PU +3VS)	+3VS
GPIO 55	Native	PCI_GNT#3	+3VS
GPIO 56	GPI	(PU +3VSUS)	+3VSUS
GPIO 57	GPI	(PU +3VSUS)	+3VSUS
GPIO 58	Native	SPI_CS#1	+3VSUS
GPIO 59	Native	USB_OC0#	+3VSUS
GPIO 60	Native	LINKALERT# (PU +3VSUS)	+3VSUS

GPIO 02	GPO	MXMPWR_ON# (RESERVED)	
GPIO 24	GPO	MXMPWR_ON#	
GPIO 03	GPO	MXMRST#	
GPIO 04	GPO	dGPU_DDC_SEL#	For LCD/CRT Signal Switch
GPIO 05	GPO	dGPU_IMG_SEL#	
GPIO 06	GPI	HDMI_HPD	For HDMI DDC Signal Switch, HDMI Hot Plug Detection
GPIO 07	GPO	dGPU_DDC_ALT_SEL#	

2008/02/28

PCI Device	IDSEL#	REQ/GNT#	Interrupts
1394	AD17	0	INTA
CARD READER	AD17	0	INTB

SM-Bus Device	SM-Bus Address
Clock Generator	1101001x (D2)
SO-DIMM 0	1010000x (A0)
SO-DIMM 1	1010001x (A2)
CPU Thermal Sensor	1001110x (98)
MXM Thermal Sensor	(0x9A or 0x9E)
GPIO Extender (for OV)	0100110x (48)
HDMI DDC	

2008/01/14

GM45 QS(B2) 02G010021410

PM45 QS(B2) 02G010022500

ICH9M-B(A3) 02G010015340

0414_1209

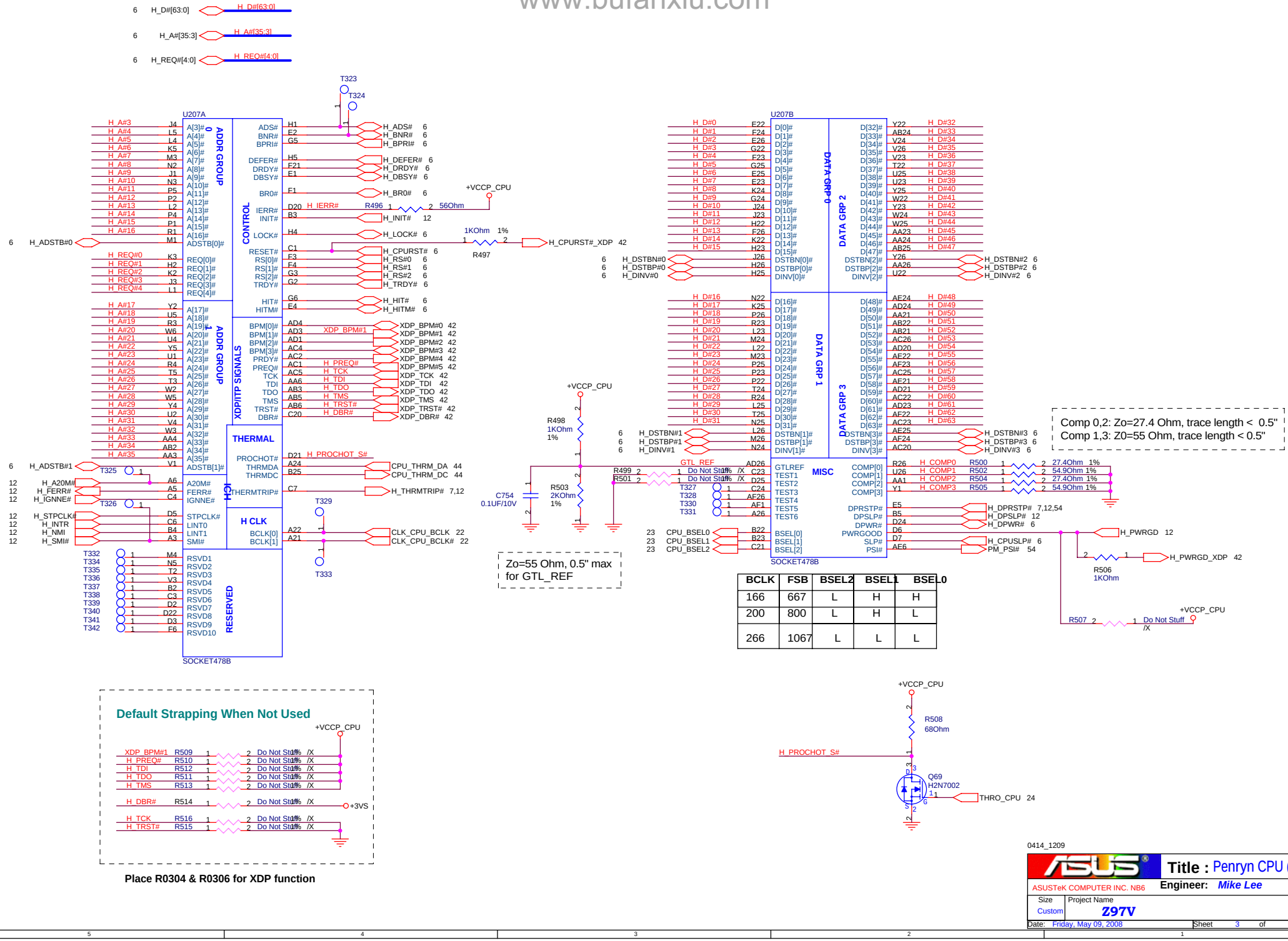
ASUSTek Computer INC.

Title : System Setting

Engineer: Mike Lee

Size	Project Name	Rev
Custom	Z97V	2.0G

Date: Friday, May 09, 2008 Sheet 2 of 66



BCLK	FSB	BSEL2	BSEL1	BSEL0
166	667	L	H	H
200	800	L	H	L
266	1067	L	L	L

Place R0304 & R0306 for XDP function

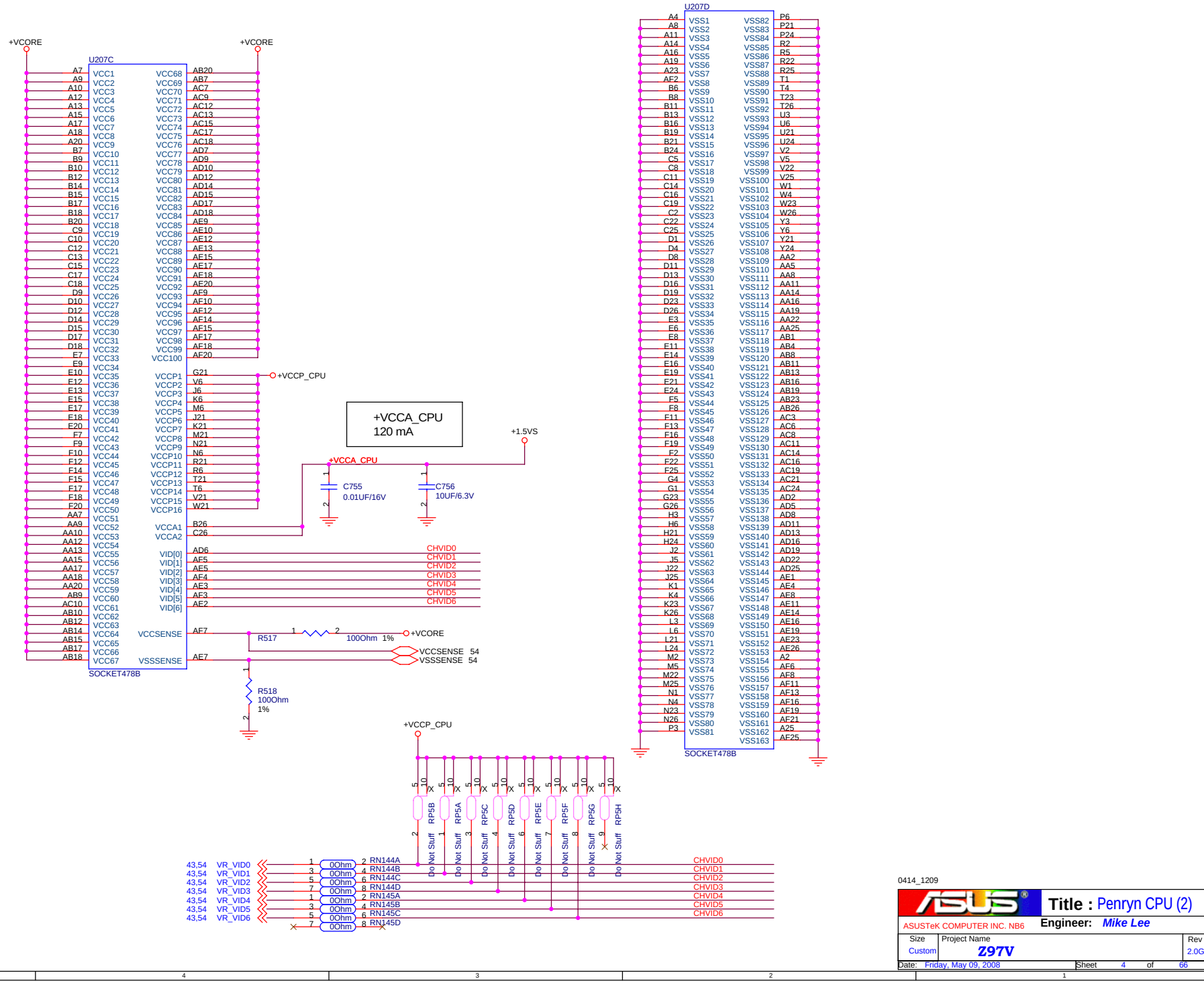
0414_1209

Title : Penryn CPU (1)

ASUSTeK COMPUTER INC. NB6 **Engineer: *Mike Lee***

Size	Project Name	Rev
Custom	**Z97V**	2.0G

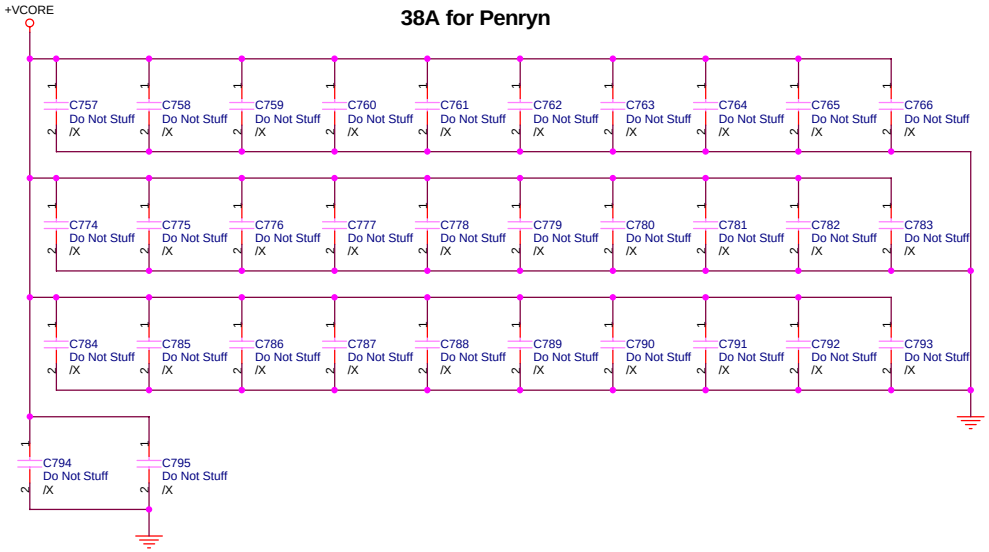
Date: Friday, May 09, 2008 Sheet 3 of 66



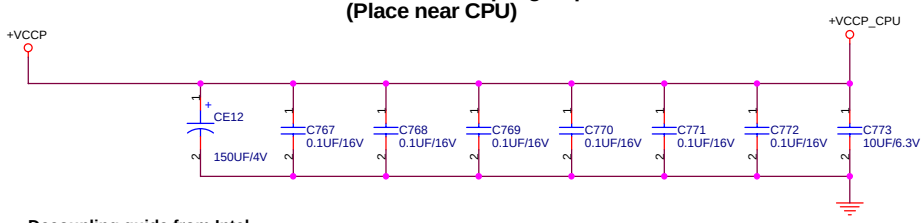
0414_1209

ASUSTeK COMPUTER INC. NB6	Title : Penryn CPU (2)	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 4 of 66	

38A for Penryn



+VCCP Decoupling Capacitor (Place near CPU)



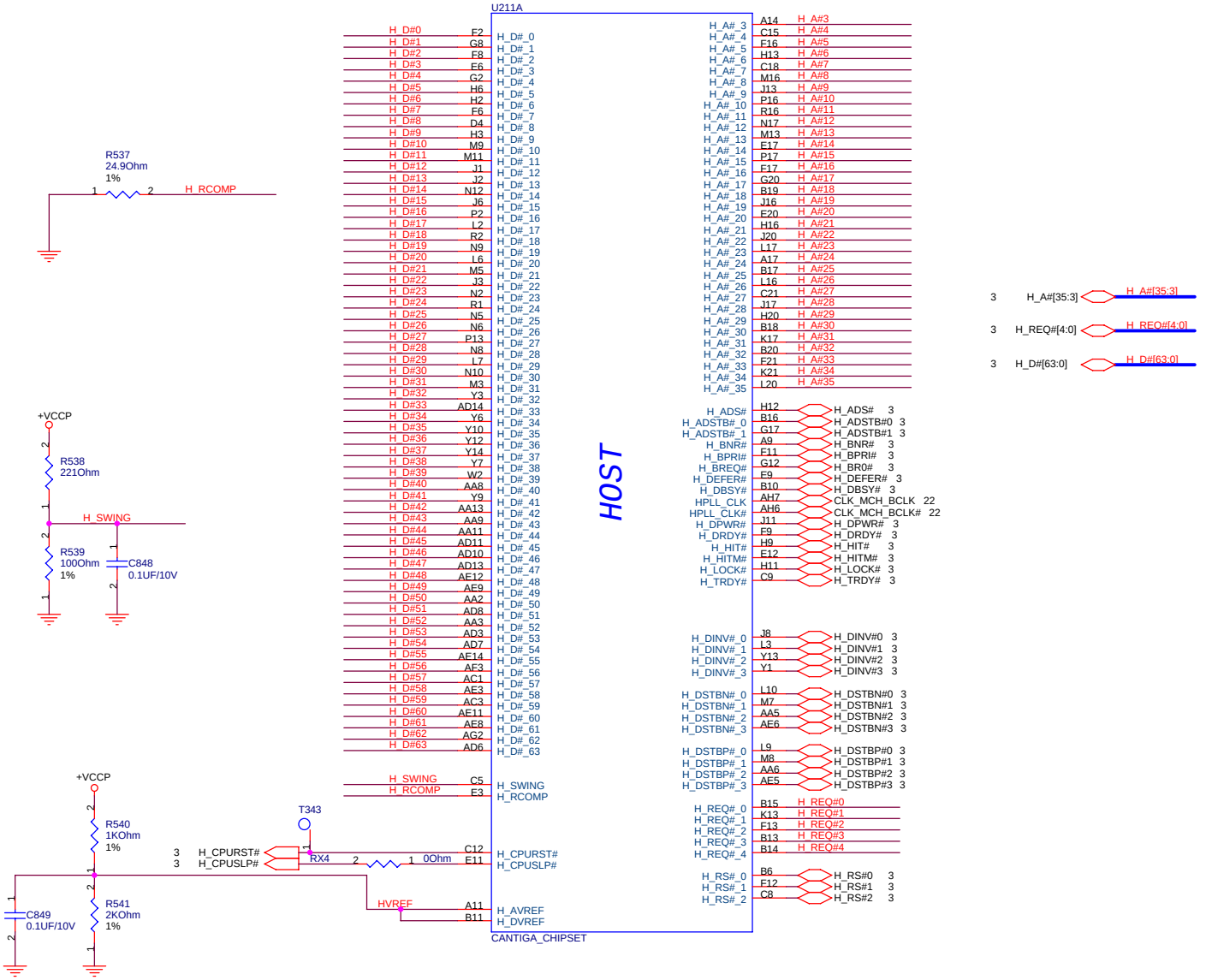
Decoupling guide from Intel

VCORE	22uF/10V r 10uF	* 32pcs
	330uF/2V	* 6pcs
VCCP	0.1uF	* 6pcs
	150uF	* 1pcs ?
	10uF	* 1pcs ?

+VCORE Mid-Frequency Capacitor
*Intel: 22UF *32*
*F3S: 10UF *16*
*A7S: 10UF *10 ....11/17*
V1V: ?
+VCCP Decoupling Capacitor
*Intel: 270UF *1, 0.1UF *6*
*F3S: 100UF *1, 0.1UF *4*
V1V: ?

0414_1209

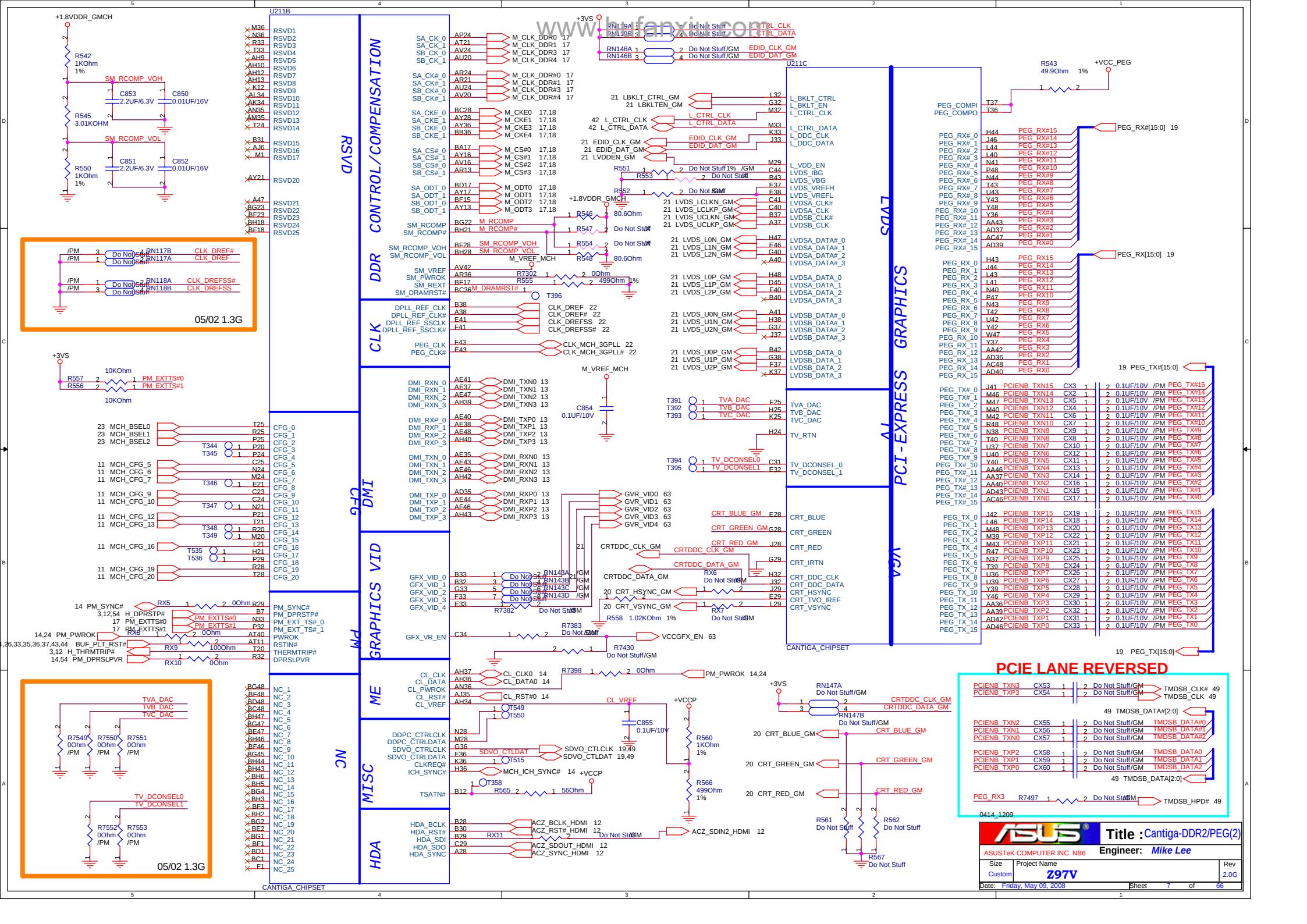
ASUSTeK COMPUTER INC. NB6	Title : CPU CAPS	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 5 of 66	

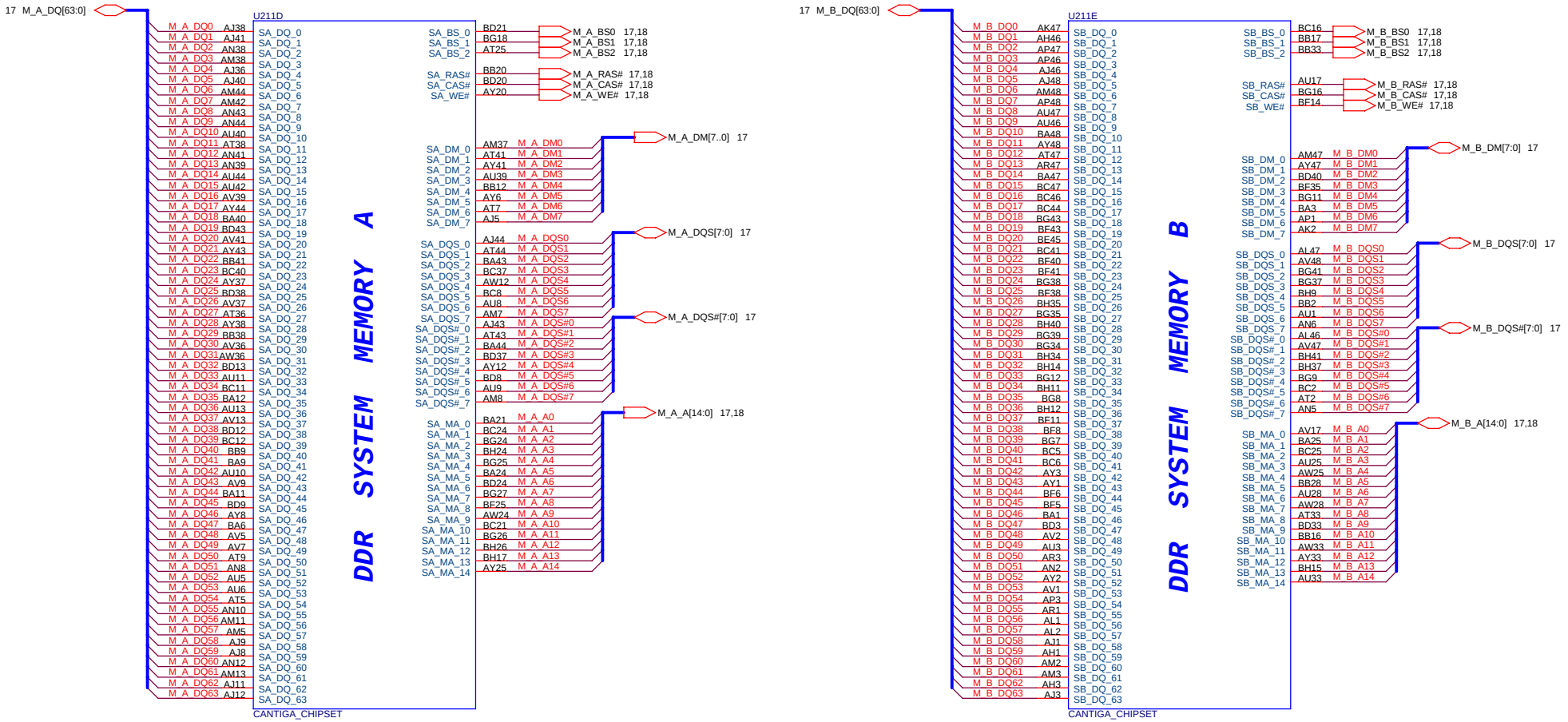


Cap 0.1uF within 100 mils from GMCH

0414_1209

ASUSTeK COMPUTER INC. NB6	Title : Cantiga -- CPU (1)	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 6 of 66	





0414_1209

ASUSTeK COMPUTER INC. NB6

Title : Cantiga--DDR2 bus (3)

Engineer: Mike Lee

Size	Project Name	Rev
Custom	Z97V	2.0G

Date: Friday, May 09, 2008 Sheet 8 of 66

U211G

+1.8VDDR_GMCH

AP33 AN33 BH32 BG32 BE32 BD32 BC32 BB32 BA32 AY32 AW32 AV32 AU32 AT32 AR32 AP32 AN32 BH31 BG31 BF31 BG30 BH29 BG29 BF29 BD29 BC29 BB29 BA29 AY29 AW29 AV29 AU29 AT29 AR29 AP29

VCC_SM_1 VCC_SM_2 VCC_SM_3 VCC_SM_4 VCC_SM_5 VCC_SM_6 VCC_SM_7 VCC_SM_8 VCC_SM_9 VCC_SM_10 VCC_SM_11 VCC_SM_12 VCC_SM_13 VCC_SM_14 VCC_SM_15 VCC_SM_16 VCC_SM_17 VCC_SM_18 VCC_SM_19 VCC_SM_20 VCC_SM_21 VCC_SM_22 VCC_SM_23 VCC_SM_24 VCC_SM_25 VCC_SM_26 VCC_SM_27 VCC_SM_28 VCC_SM_29 VCC_SM_30 VCC_SM_31 VCC_SM_32 VCC_SM_33 VCC_SM_34 VCC_SM_35

VCC SM POWER

T430 NBVCC_SM_36 BA36 VCC_SM_36/NC
T431 NBVCC_SM_37 BB24 VCC_SM_37/NC
T432 NBVCC_SM_38 BD16 VCC_SM_38/NC
T433 NBVCC_SM_39 BB21 VCC_SM_39/NC
T434 NBVCC_SM_40 AW16 VCC_SM_40/NC
T435 NBVCC_SM_41 AW13 VCC_SM_41/NC
T436 NBVCC_SM_42 AT13 VCC_SM_42/NC

+VCCGFX

6326mA

Y26 AE25 AB25 AA25 AE24 AC24 AA24 Y24 AE23 AC23 AB23 AA23 AJ21 AG21 AE21 AC21 AA21 Y21 AH20 AF20 AE20 AC20 AB20 AA20 T17 T16 AM15 AL15 AE15 AJ15 AH15 AG15 AF15 AB15 AA15 Y15 V15 U15 AN14 AM14 U14 T14

VCC_AXG_1 VCC_AXG_2 VCC_AXG_3 VCC_AXG_4 VCC_AXG_5 VCC_AXG_6 VCC_AXG_7 VCC_AXG_8 VCC_AXG_9 VCC_AXG_10 VCC_AXG_11 VCC_AXG_12 VCC_AXG_13 VCC_AXG_14 VCC_AXG_15 VCC_AXG_16 VCC_AXG_17 VCC_AXG_18 VCC_AXG_19 VCC_AXG_20 VCC_AXG_21 VCC_AXG_22 VCC_AXG_23 VCC_AXG_24 VCC_AXG_25 VCC_AXG_26 VCC_AXG_27 VCC_AXG_28 VCC_AXG_29 VCC_AXG_30 VCC_AXG_31 VCC_AXG_32 VCC_AXG_33 VCC_AXG_34 VCC_AXG_35 VCC_AXG_36 VCC_AXG_37 VCC_AXG_38 VCC_AXG_39 VCC_AXG_40 VCC_AXG_41 VCC_AXG_42

VCC GFX

Max: 6327mA

63 VGFX_VCCSENSE AJ14 VCC_AXG_SENSE
63 VGFX_VSSSENSE AH14 VSS_AXG_SENSE

Route VCC_AGX_SENSE and VSS_AGX_SENSE differentially.

+VCCGFX

VCC_AXG_NCTF_1 VCC_AXG_NCTF_2 VCC_AXG_NCTF_3 VCC_AXG_NCTF_4 VCC_AXG_NCTF_5 VCC_AXG_NCTF_6 VCC_AXG_NCTF_7 VCC_AXG_NCTF_8 VCC_AXG_NCTF_9 VCC_AXG_NCTF_10 VCC_AXG_NCTF_11 VCC_AXG_NCTF_12 VCC_AXG_NCTF_13 VCC_AXG_NCTF_14 VCC_AXG_NCTF_15 VCC_AXG_NCTF_16 VCC_AXG_NCTF_17 VCC_AXG_NCTF_18 VCC_AXG_NCTF_19 VCC_AXG_NCTF_20 VCC_AXG_NCTF_21 VCC_AXG_NCTF_22 VCC_AXG_NCTF_23 VCC_AXG_NCTF_24 VCC_AXG_NCTF_25 VCC_AXG_NCTF_26 VCC_AXG_NCTF_27 VCC_AXG_NCTF_28 VCC_AXG_NCTF_29 VCC_AXG_NCTF_30 VCC_AXG_NCTF_31 VCC_AXG_NCTF_32 VCC_AXG_NCTF_33 VCC_AXG_NCTF_34 VCC_AXG_NCTF_35 VCC_AXG_NCTF_36 VCC_AXG_NCTF_37 VCC_AXG_NCTF_38 VCC_AXG_NCTF_39 VCC_AXG_NCTF_40 VCC_AXG_NCTF_41 VCC_AXG_NCTF_42 VCC_AXG_NCTF_43 VCC_AXG_NCTF_44 VCC_AXG_NCTF_45 VCC_AXG_NCTF_46 VCC_AXG_NCTF_47 VCC_AXG_NCTF_48 VCC_AXG_NCTF_49 VCC_AXG_NCTF_50 VCC_AXG_NCTF_51 VCC_AXG_NCTF_52 VCC_AXG_NCTF_53 VCC_AXG_NCTF_54 VCC_AXG_NCTF_55 VCC_AXG_NCTF_56 VCC_AXG_NCTF_57 VCC_AXG_NCTF_58 VCC_AXG_NCTF_59 VCC_AXG_NCTF_60

W28 V28 W26 V26 W25 V25 W24 V24 W23 V23 AM21 AL21 AK21 W21 V21 U21 AM20 AK20 W20 U20 AM19 AL19 AK19 AJ19 AH19 AG19 AF19 AE19 AB19 AA19 Y19 W19 V19 U19 AM17 AK17 AH17 AG17 AF17 AE17 AC17 AB17 Y17 W17 V17 AM16 AL16 AK16 AJ16 AH16 AG16 AF16 AE16 AC16 AB16 AA16 Y16 W16 V16 U16

VCC GFX NCTF

VCC SM LF

VCC_SM_LF1 VCC_SM_LF2 VCC_SM_LF3 VCC_SM_LF4 VCC_SM_LF5 VCC_SM_LF6 VCC_SM_LF7

AV44 BA37 AM40 AV21 AY5 AM10 BB13

C874 0.1UF/10V C869 0.1UF/10V C870 0.22UF/6.3V C871 0.22UF/6.3V C875 0.47UF/6.3V C872 1UF/6.3V C873 1UF/6.3V

CANTIGA_CHIPSET

+VCCP

UMA: 1930mA

+VCC_GMCH

CE15 220UF/4V
C856 22UF/6.3V C864 0.22UF/6.3V C865 0.22UF/6.3V C857 0.1UF/10V

UMA: 7700mA

+VCCGFX

CE16 Do Not Stuff /GM
CE17 Do Not Stuff /GM
C858 Do Not Stuff /GM
C859 Do Not Stuff /GM
C860 Do Not Stuff /GM
C861 Do Not Stuff /GM
C862 Do Not Stuff /GM
C863 Do Not Stuff /GM
R7535 0Ohm /PM
R7536 0Ohm /PM

+1.8VDDR

DDR2: 3000mA

+1.8VDDR_GMCH

CE18 220UF/4V
C866 22UF/6.3V C867 22UF/6.3V C868 0.1UF/10V

U211F

AG34 AC34 AB34 AA34 Y34 V34 U34 AM33 AK33 AJ33 AG33 AF33 AE33 AC33 AA33 Y33 W33 V33 U33 AH28 AF28 AC28 AA28 AJ26 AG26 AE26 AC26 AH25 AG25 AF25 AG24 AJ23 AH23 AF23 T32

VCC_1 VCC_2 VCC_3 VCC_4 VCC_5 VCC_6 VCC_7 VCC_8 VCC_9 VCC_10 VCC_11 VCC_12 VCC_13 VCC_14 VCC_15 VCC_16 VCC_17 VCC_18 VCC_19 VCC_20 VCC_21 VCC_22 VCC_23 VCC_24 VCC_25 VCC_26 VCC_27 VCC_28 VCC_29 VCC_30 VCC_31 VCC_32 VCC_33 VCC_34 VCC_35

VCC CORE POWER

+VCC_GMCH

VCC_NCTF_1 VCC_NCTF_2 VCC_NCTF_3 VCC_NCTF_4 VCC_NCTF_5 VCC_NCTF_6 VCC_NCTF_7 VCC_NCTF_8 VCC_NCTF_9 VCC_NCTF_10 VCC_NCTF_11 VCC_NCTF_12 VCC_NCTF_13 VCC_NCTF_14 VCC_NCTF_15 VCC_NCTF_16 VCC_NCTF_17 VCC_NCTF_18 VCC_NCTF_19 VCC_NCTF_20 VCC_NCTF_21 VCC_NCTF_22 VCC_NCTF_23 VCC_NCTF_24 VCC_NCTF_25 VCC_NCTF_26 VCC_NCTF_27 VCC_NCTF_28 VCC_NCTF_29 VCC_NCTF_30 VCC_NCTF_31 VCC_NCTF_32 VCC_NCTF_33 VCC_NCTF_34 VCC_NCTF_35 VCC_NCTF_36 VCC_NCTF_37 VCC_NCTF_38 VCC_NCTF_39 VCC_NCTF_40 VCC_NCTF_41 VCC_NCTF_42 VCC_NCTF_43 VCC_NCTF_44

AM32 AL32 AK32 AJ32 AH32 AG32 AE32 AC32 AA32 Y32 W32 U32 AM30 AL30 AK30 AH30 AG30 AF30 AE30 AC30 AB30 AA30 Y30 W30 V30 U30 AL29 AK29 AJ29 AH29 AG29 AE29 AC29 AA29 Y29 W29 V29 AL28 AK28 AL26 AK26 AK25 AK24 AK23

VCC NCTF

CANTIGA_CHIPSET

0414_1209

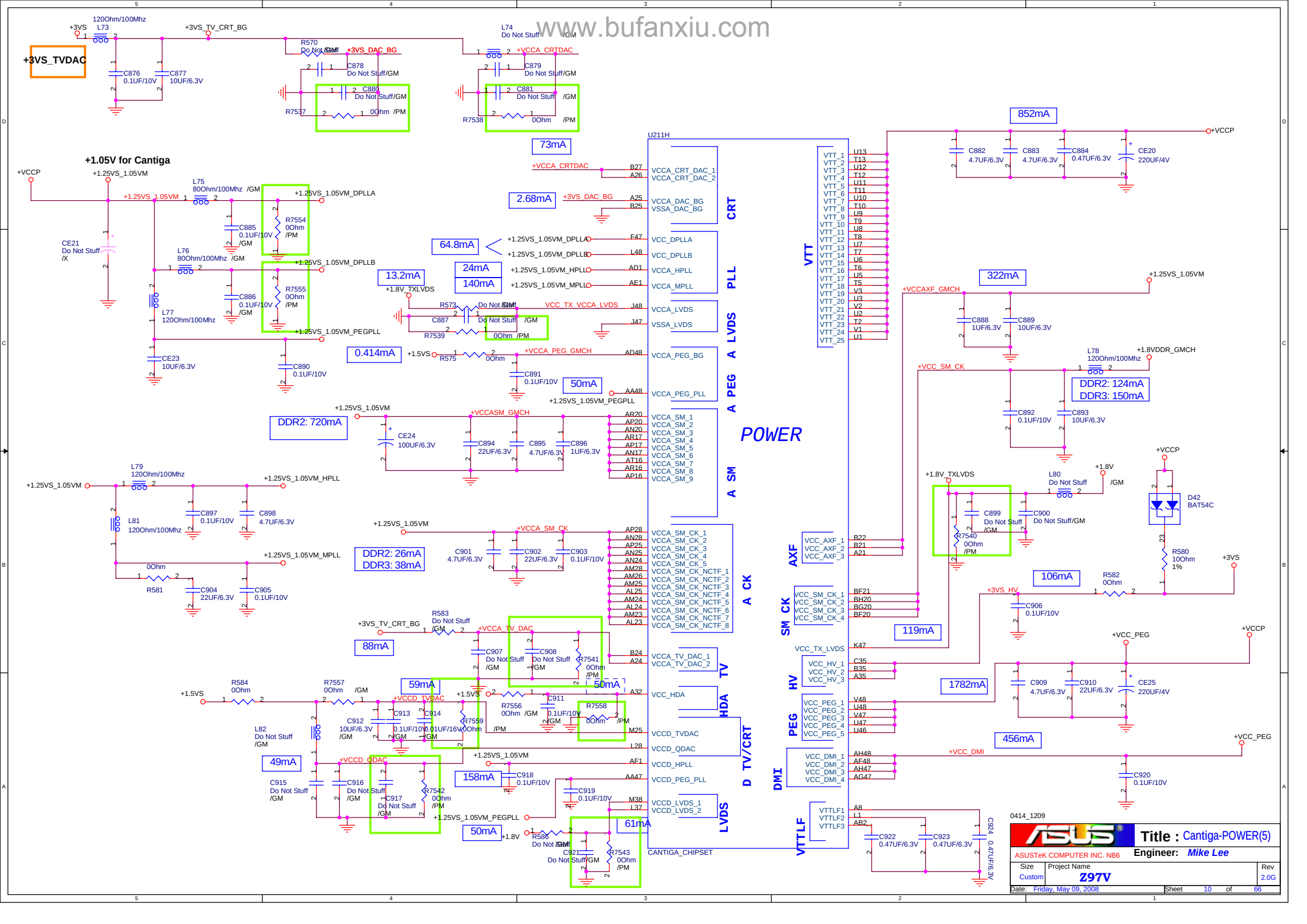
ASUSTeK COMPUTER INC. NB6

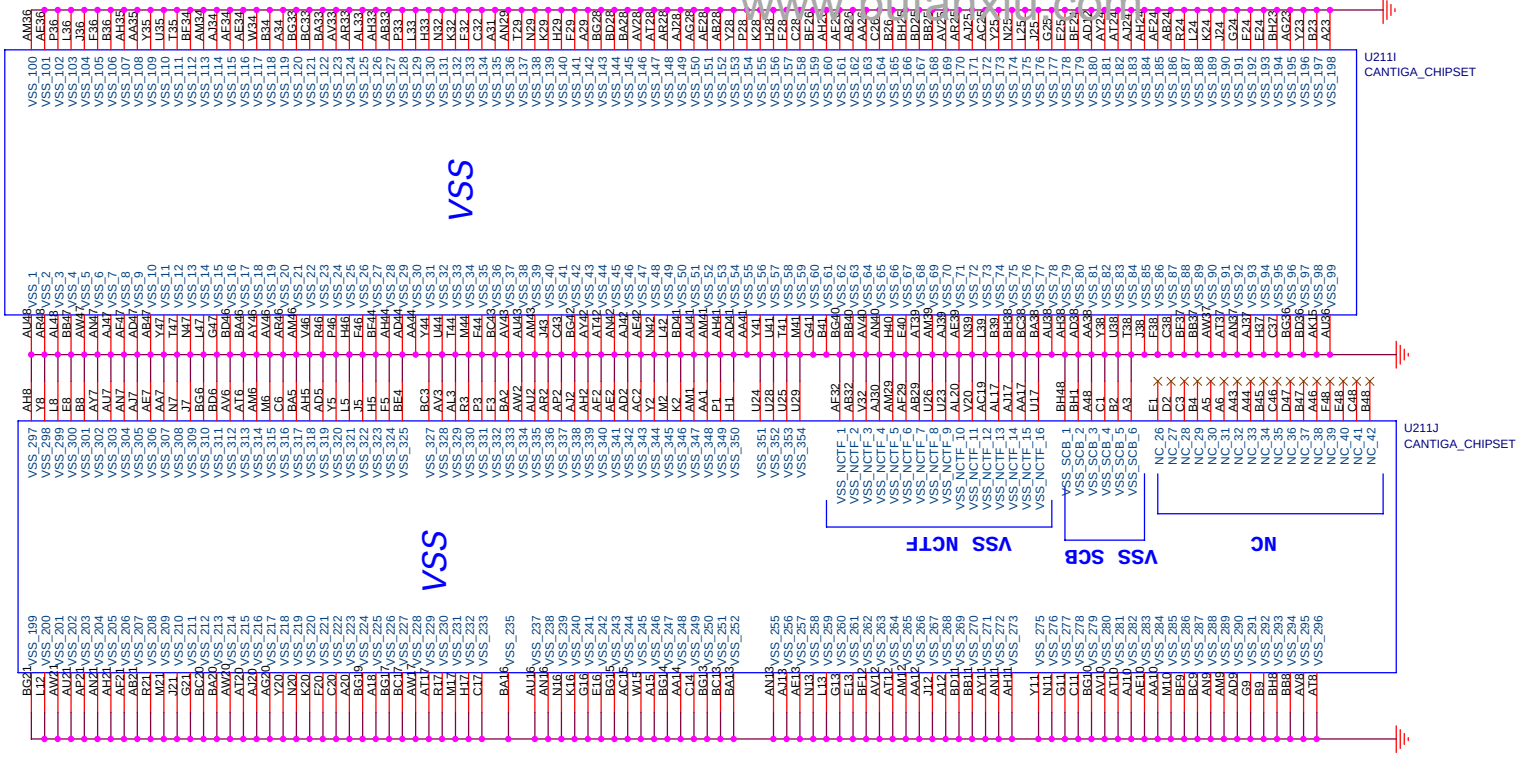
Title : Cantiga--POWER (4)

Engineer: Mike Lee

Size	Project Name	Rev
Custom	Z97V	2.0G

Date: Friday, May 09, 2008 Sheet 9 of 66





7 MCH_CFG_5

R587 Do Not Stuff /X

CFG5 : DMI STRAP

HIGH = DMI X 4 (Default)

LOW = DMI X 2

7 MCH_CFG_6

R590 Do Not Stuff /X

CFG6 : Integrated TPM Host Interface

HIGH = iTPM disable (Default)

LOW = iTPM enable

7 MCH_CFG_7

R592 Do Not Stuff /X

CFG7 : Intel ME Crypto Strap Transport Layer Security cipher suite

HIGH = With confidentiality (Default)

LOW = Without confidentiality

7 MCH_CFG_9

R595 2.21KOhm

CFG9 : PCIE GRAPHIC LANE

HIGH = Normal Operation (Default)

LOW = Reverse Lanes

PCIE LANE REVERSED

7 MCH_CFG_16

R596 Do Not Stuff /X

CFG16 : FSB Dynamic ODT

HIGH = Ensable (Default)

LOW = Disable

7 MCH_CFG_10

R589 Do Not Stuff /X

CFG10 : PCIe Loopback

HIGH = Disable (Default)

LOW = Enable

7 MCH_CFG_12

R591 Do Not Stuff /X

CFG [13:12] : XOR/ALL-Z

00 = Reserved

01= XOR Mode Enabled

10= All-Z Mode Enabled

11= Normal Operation (Default)

7 MCH_CFG_13

R594 Do Not Stuff /X

+3VS

R588 Do Not Stuff /X

7 MCH_CFG_19

CFG19 : DMI Lane Reversal

LOW = NORMAL (default)

HIGH = Reverse Lanes

+3VS

R593 Do Not Stuff /X

7 MCH_CFG_20

CFG20 : SDVO/PCIE CONCURRENT MODE

LOW = ONLY SDVO or PCIE is Operational (Default)

HIGH = SDVO and PCIE are operating simultaneously via the PEG port

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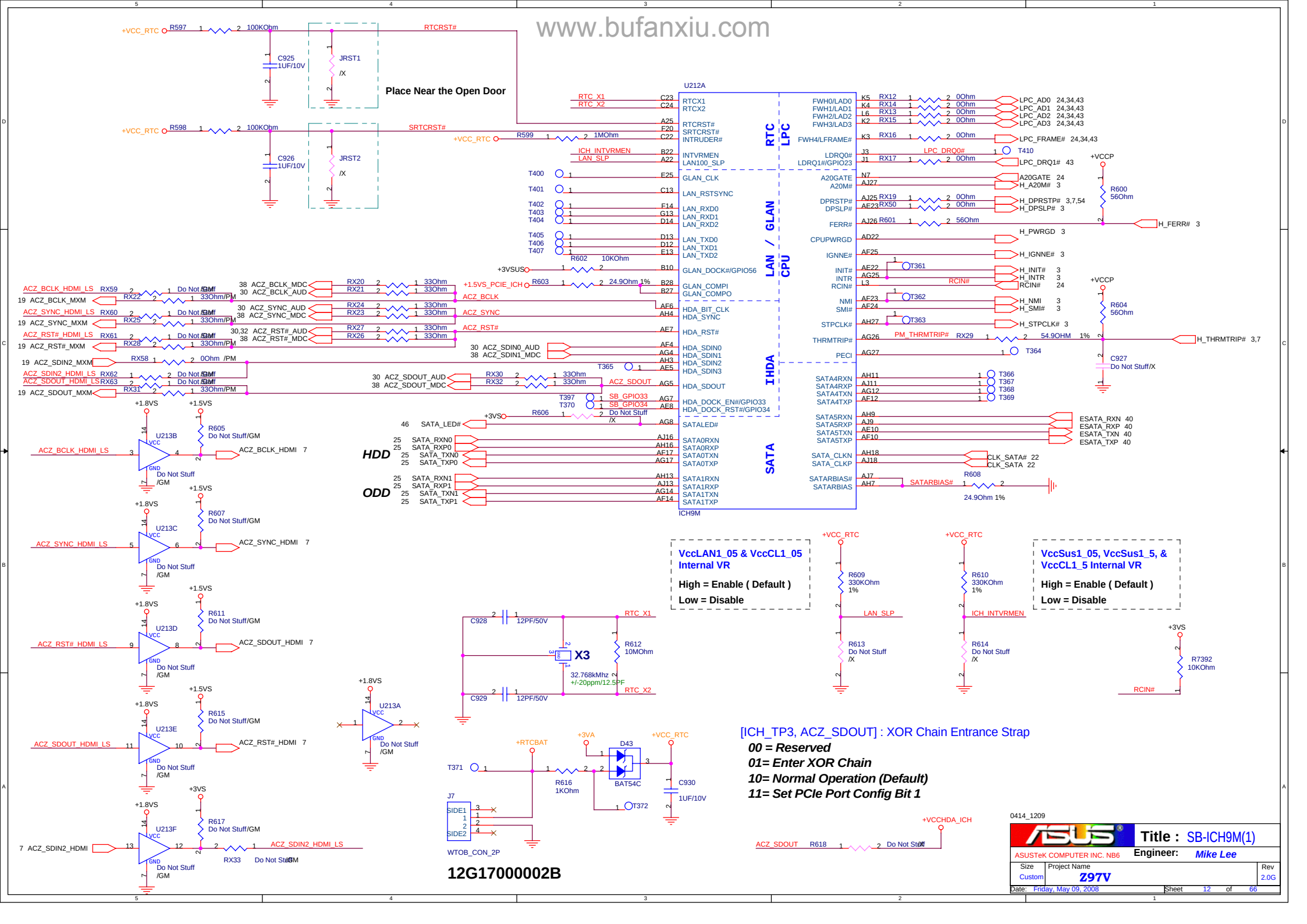
ASUSTeK COMPUTER INC. NB6

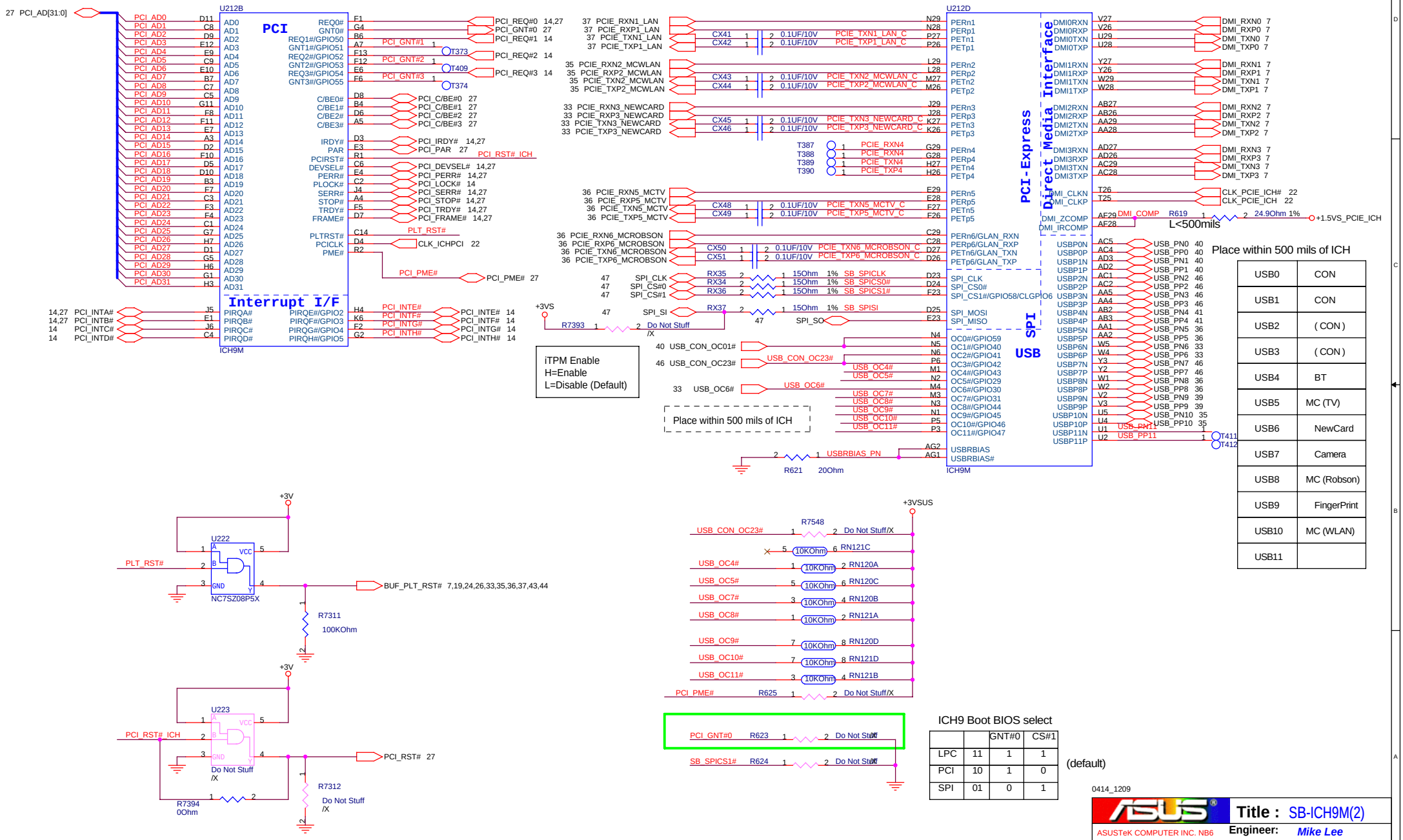
Title : Cantiga-GND

Engineer: *Mike Lee*

Size	Project Name	Rev
Custom	**Z97V**	2.0G

Date: Friday, May 09, 2008 Sheet 11 of 66





USB0	CON
USB1	CON
USB2	(CON)
USB3	(CON)
USB4	BT
USB5	MC (TV)
USB6	NewCard
USB7	Camera
USB8	MC (Robson)
USB9	FingerPrint
USB10	MC (WLAN)
USB11	

		GNT#0	CS#1
LPC	11	1	1
PCI	10	1	0
SPI	01	0	1

0414_1209

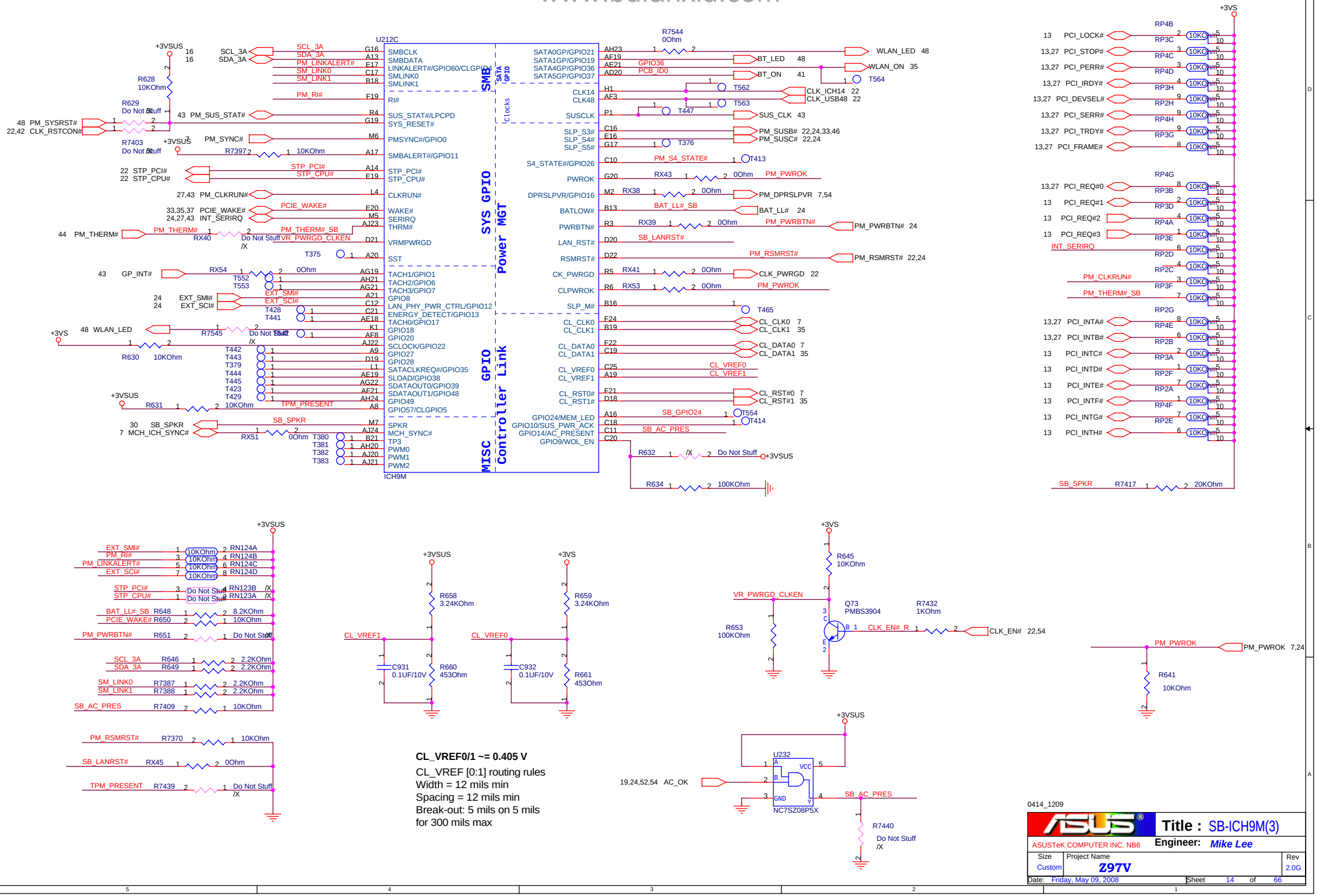
ASUSTeK COMPUTER INC. NB6

Title : SB-ICH9M(2)

Engineer: Mike Lee

Size	Project Name	Rev
Custom	Z97V	2.0G

Date: Friday, May 09, 2008 Sheet 13 of 66



0414_1209

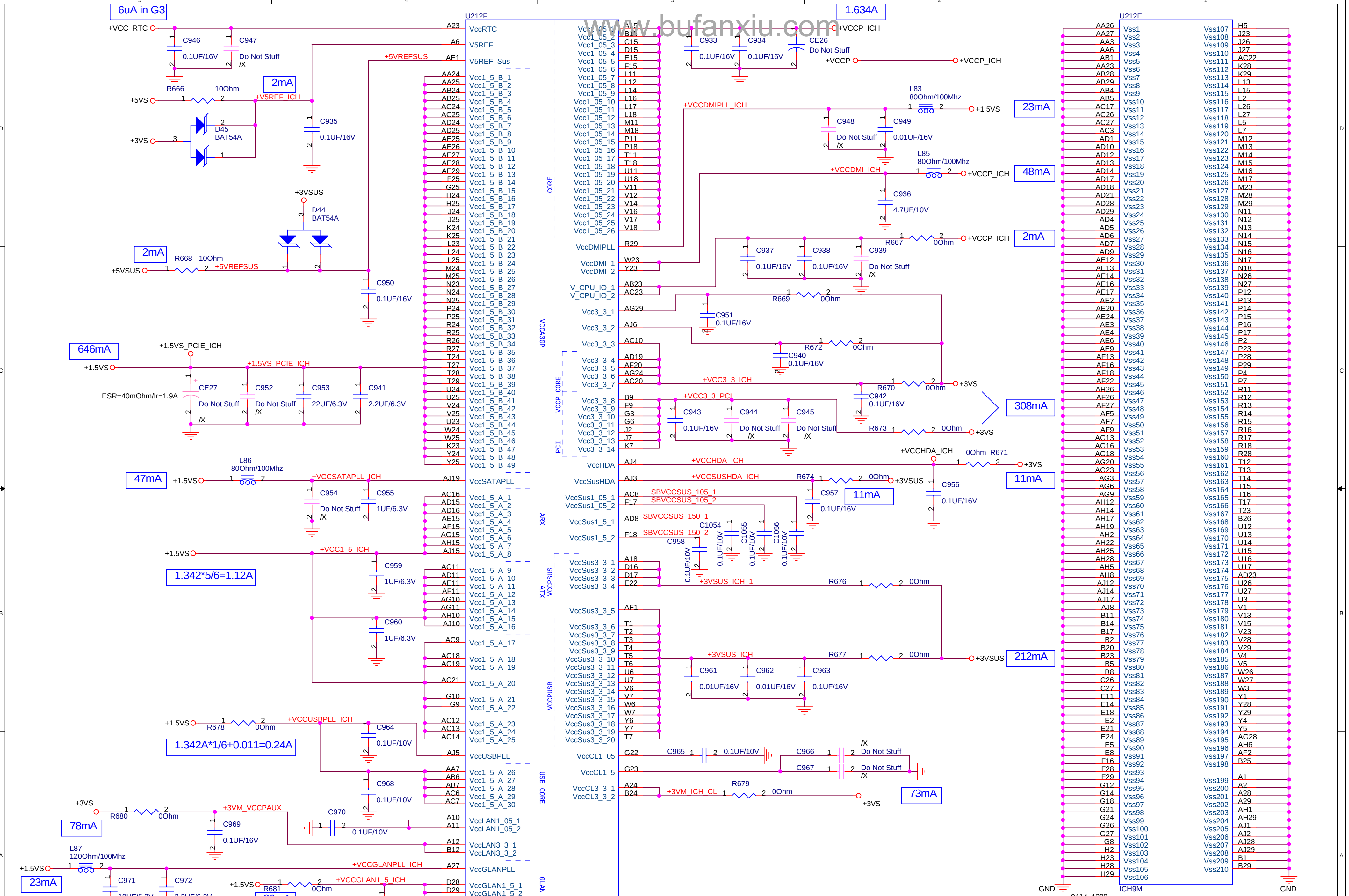
ASUSTeK COMPUTER INC. NB6

Title : SB-ICH9M(3)

Engineer: Mike Lee

Size	Project Name	Rev
Custom	Z97V	2.0G

Date: Friday, May 09, 2008 Sheet 14 of 66

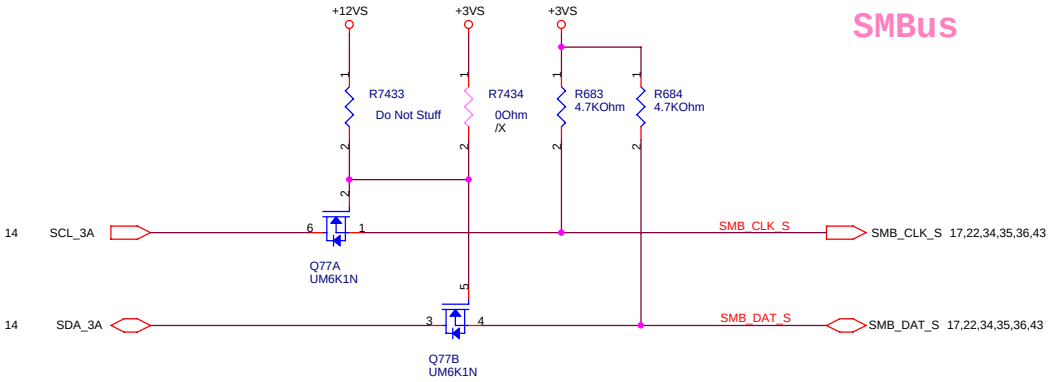


U212F
U212E
ICH9M
6uA in G3
1.634A
+VCC_RTC
+VCCP_ICH
+5VREFSUS
+V5REF_ICH
+VCCDMIPLL_ICH
+VCCDMI_ICH
+VCC3_3_ICH
+VCC3_3_PCI
+VCCHDA_ICH
+VCCSUSHDA_ICH
+VCCSATAPLL_ICH
+VCC1_5_ICH
+1.5VS_PCIE_ICH
+3VSUS_ICH
+3VSUS_ICH_1
+VCCUSBPLL_ICH
+3VM_VCCPAUX
+3VM_ICH_CL
+VCCGLANPLL_ICH
+VCCGLAN1_5_ICH
+VCCGLAN3_3_ICH
SBVCCSUS_105_1
SBVCCSUS_105_2
SBVCCSUS_150_1
SBVCCSUS_150_2
VccRTC
V5REF
V5REF_Sus
VccDMIPLL
VccDMI_1
VccDMI_2
V_CPU_IO_1
V_CPU_IO_2
VccHDA
VccSusHDA
VccSATAPLL
VccUSBPLL
VccCL1_05
VccCL1_5
VccCL3_3_1
VccCL3_3_2
VccLAN1_05_1
VccLAN1_05_2
VccLAN3_3_1
VccLAN3_3_2
VccGLANPLL
VccGLAN3_3
CORE
VCCA3GP
VCCP_CORE
PCI
ARX
ATX
VCCPSUS
VCCPUSB
USB CORE
GLAN POWER
2mA
23mA
48mA
2mA
646mA
308mA
47mA
11mA
11mA
1.342*5/6=1.12A
212mA
1.342A*1/6+0.011=0.24A
73mA
78mA
23mA
80mA
1mA
ESR=40mOhm/Ir=1.9A
L83 80Ohm/100Mhz
L85 80Ohm/100Mhz
L86 80Ohm/100Mhz
L87 120Ohm/100Mhz
D44 BAT54A
D45 BAT54A
+5VS
+3VS
+3VSUS
+5VSUS
+1.5VS
+VCCP
GND

ASUSTeK COMPUTER INC. NB6	Title : SB-ICH9M(PWR)	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 15 of 66	

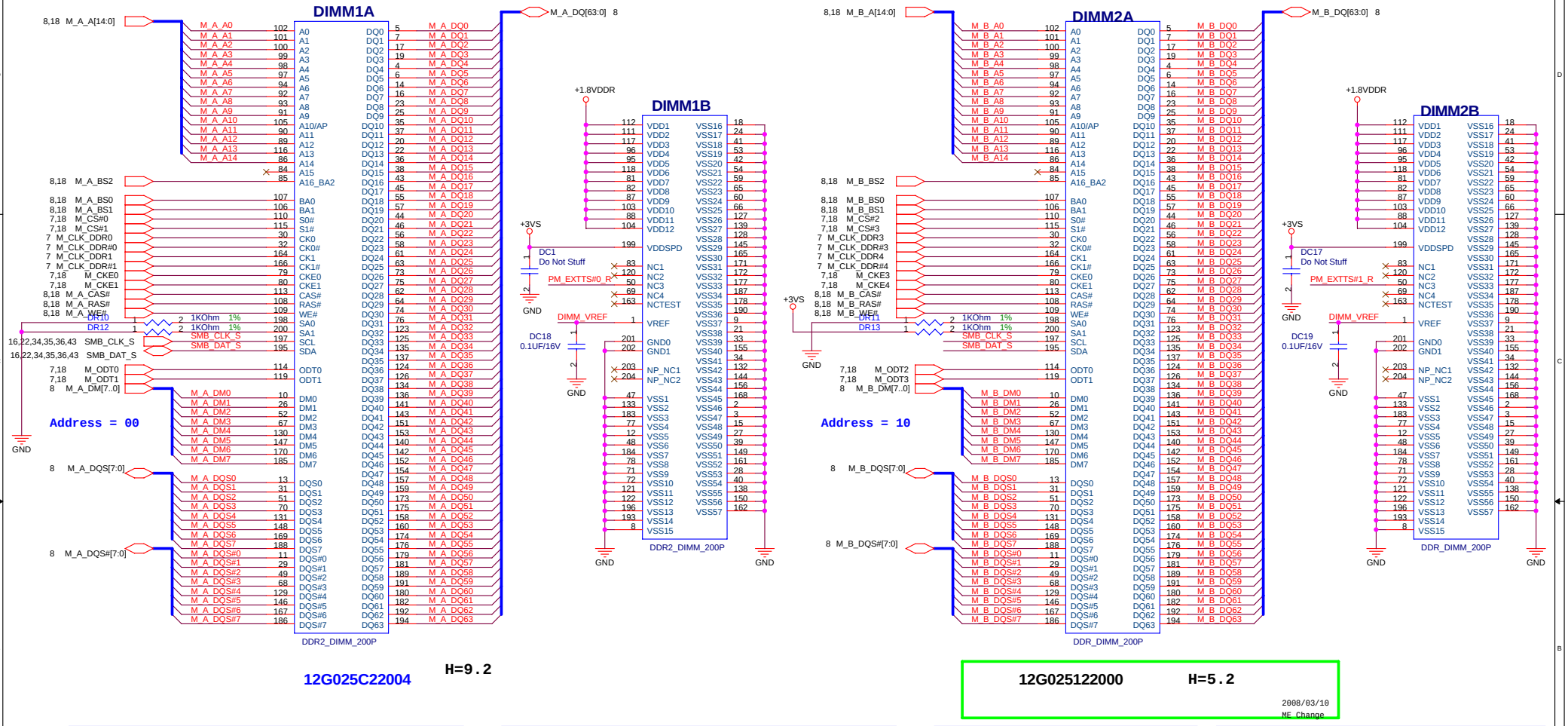
0414_1209

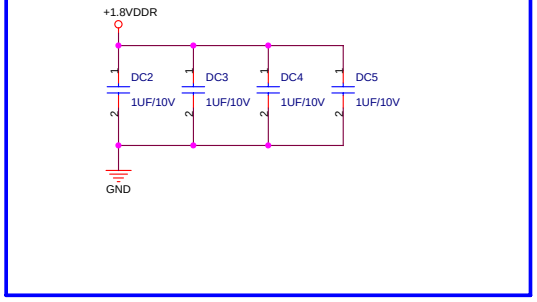
SMBus

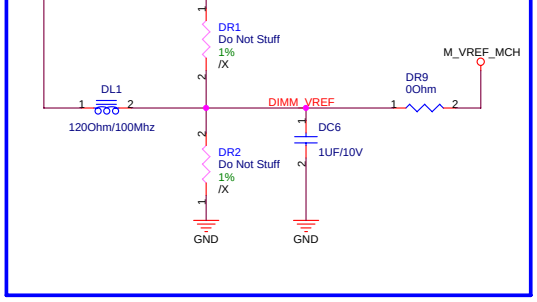


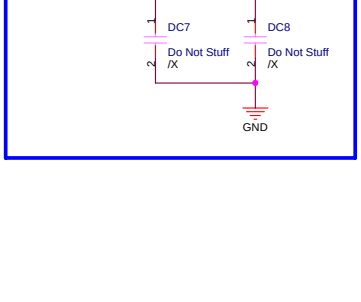
0414_1209

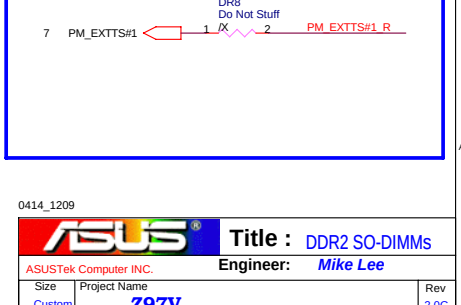
ASUSTeK COMPUTER INC. NB6	Title : ICH9M-Other	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 16 of 66	





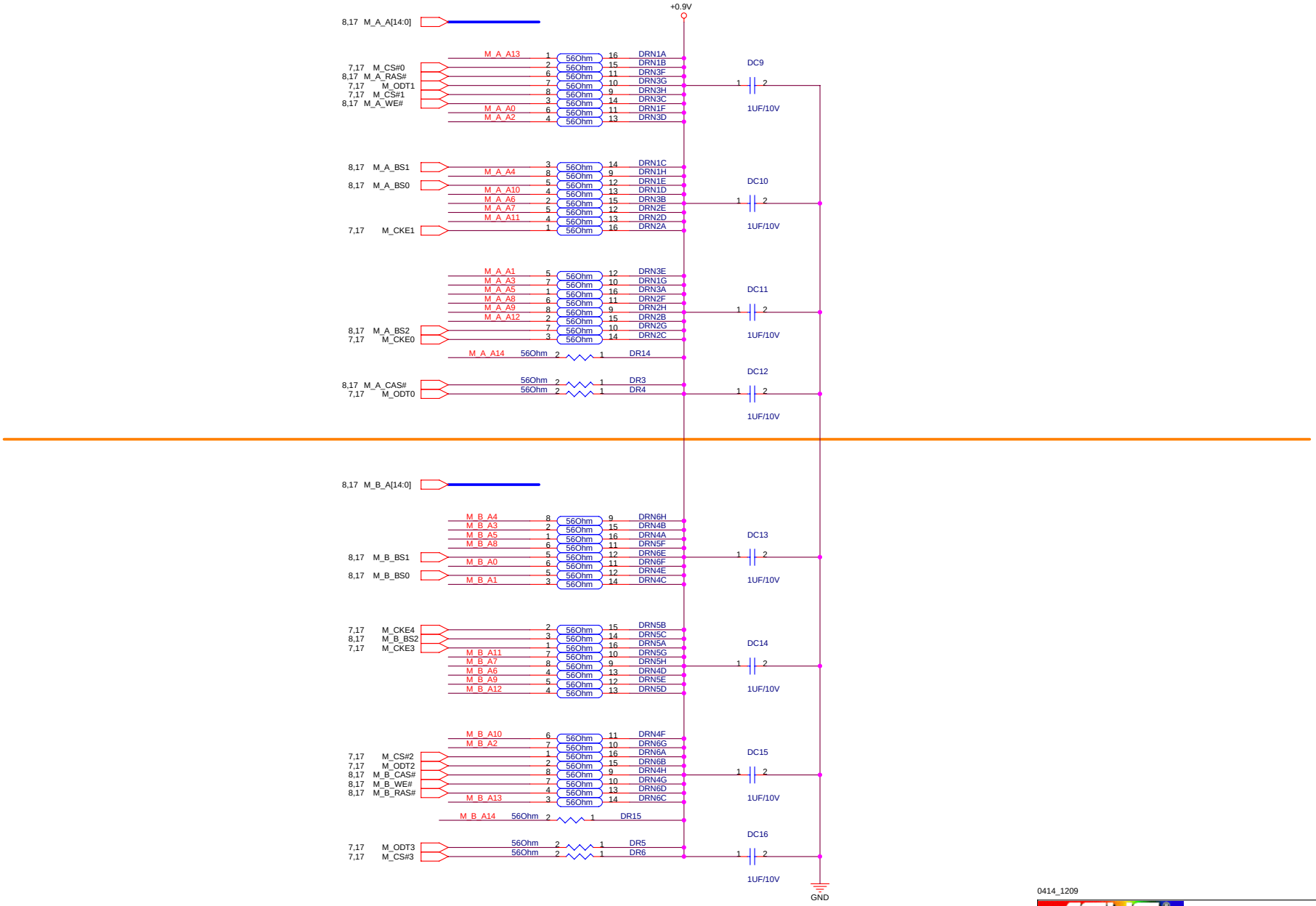






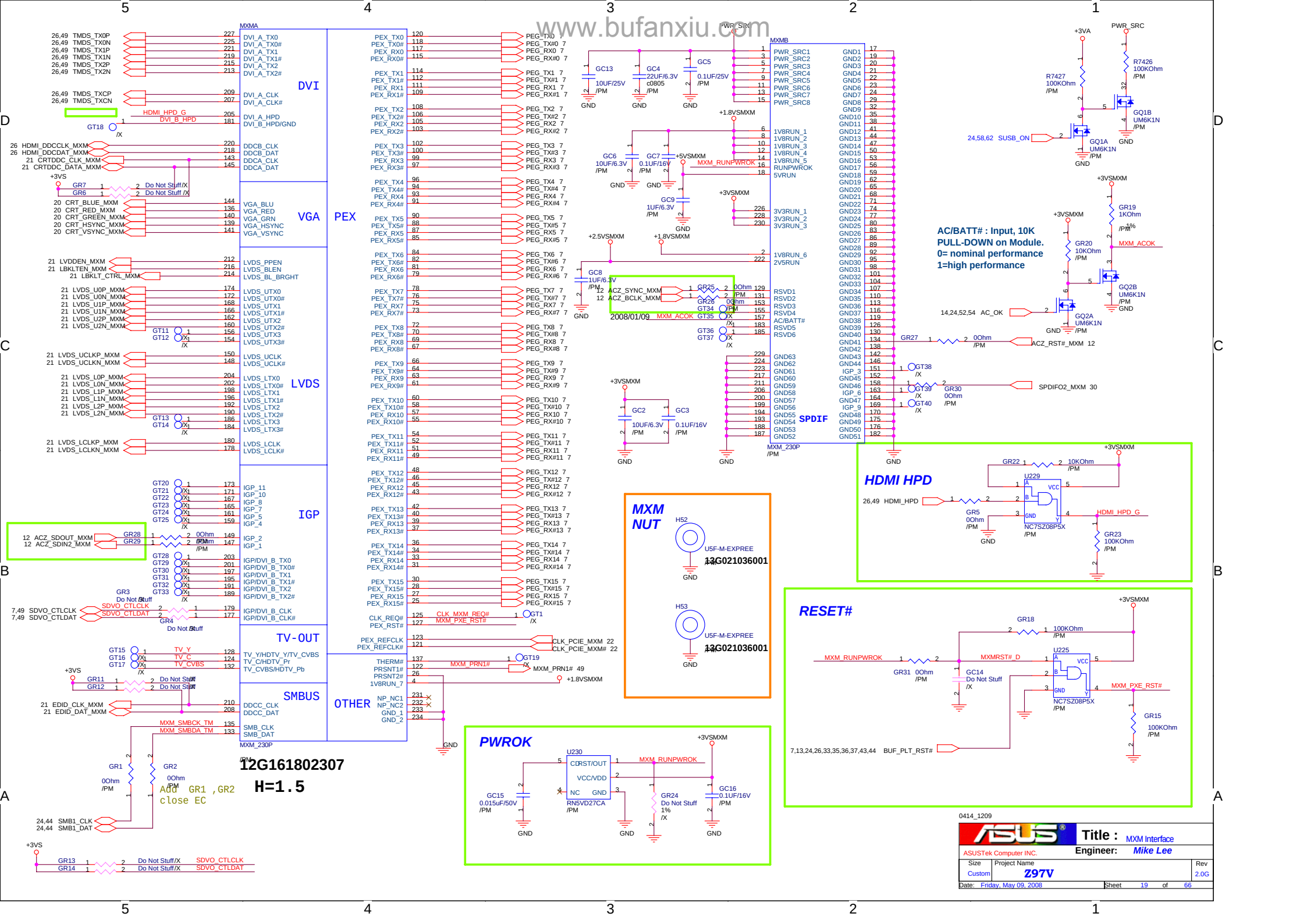
0414_1209

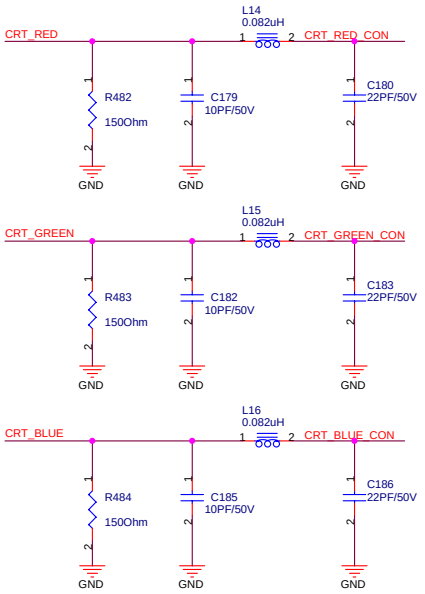
ASUSTek Computer INC.	Title : DDR2 SO-DIMMs		
	Engineer: Mike Lee		
Size: Custom	Project Name: Z97V		Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 17 of 66		

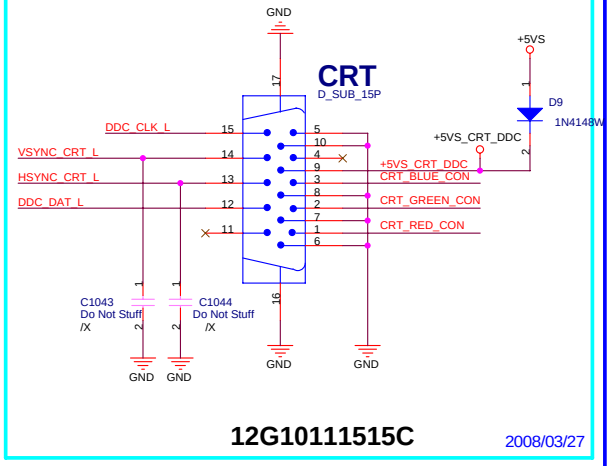


0414_1209

ASUSTek Computer INC.	Title : DDR2 TERMINATION	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 18 of 66	



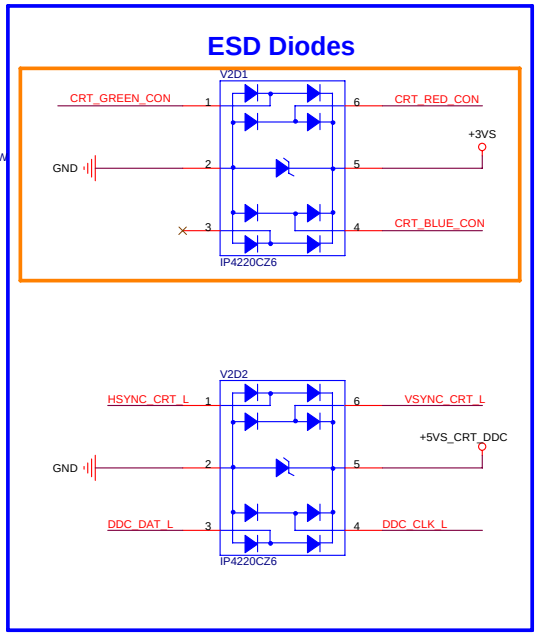


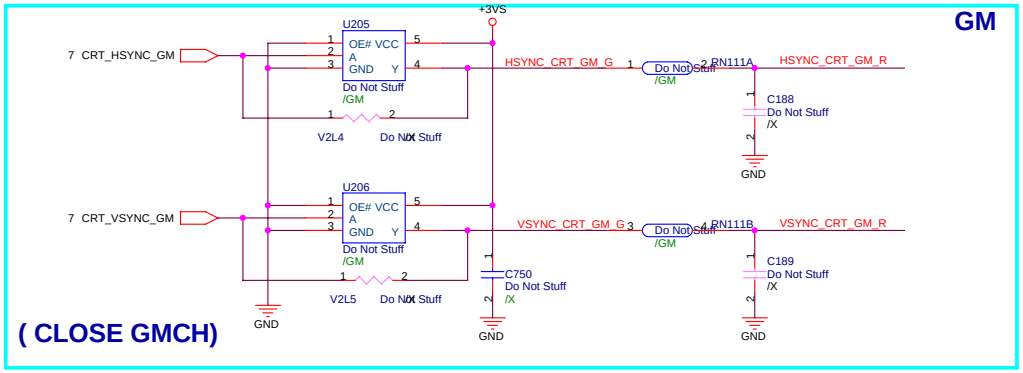


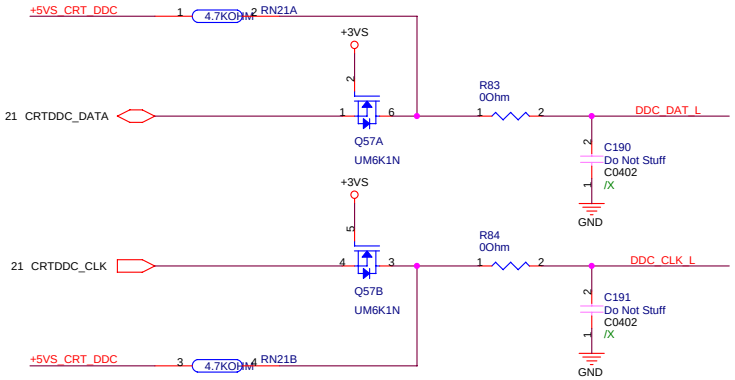
12G10111515C

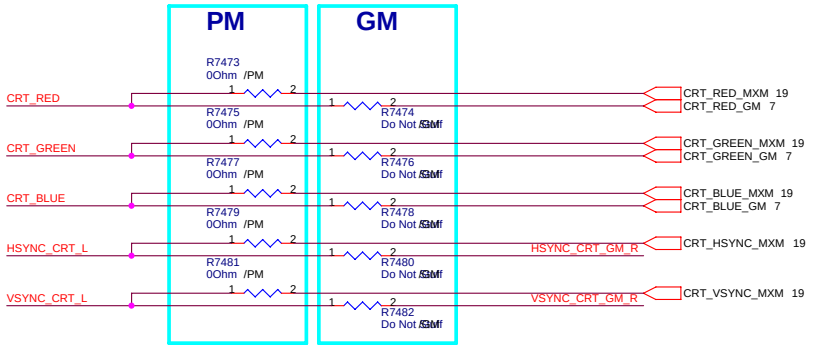
2008/03/27

CRT Connector









0414_1209

ASUSTek Computer INC.

Title : CRT Conn & MUX

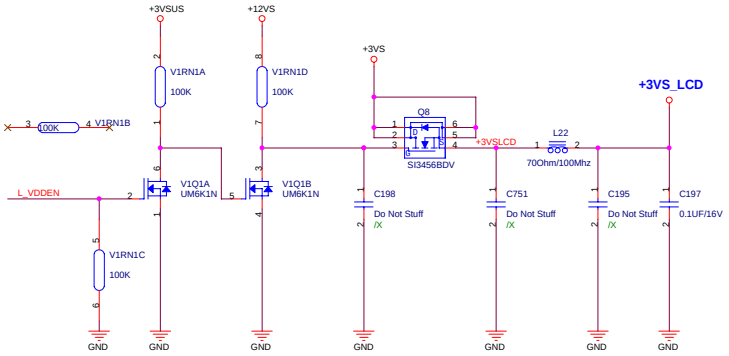
Engineer: Mike Lee

Size	Project Name	Rev
Custom	Z97V	2.0G

Date: Friday, May 09, 2008 Sheet 20 of 66

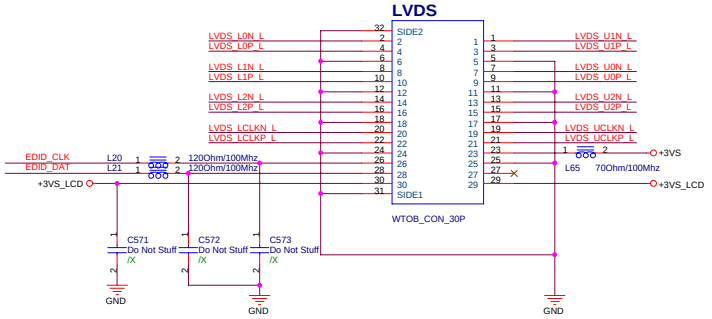
LCD Power

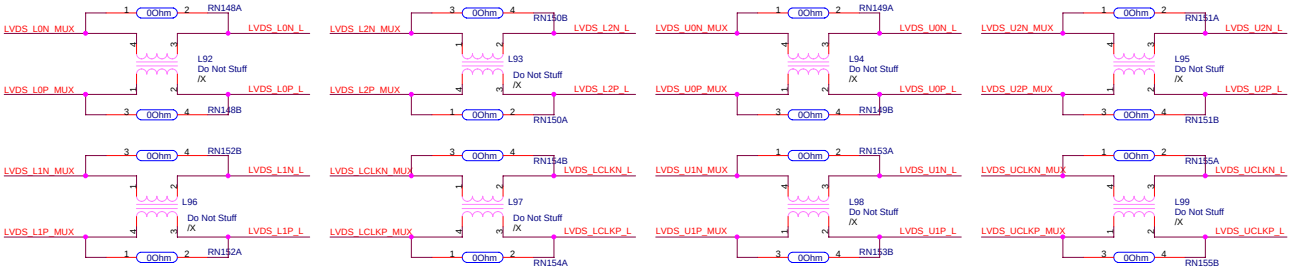
3-3.6V S0-S1M:410 mA(500 mA Max.)



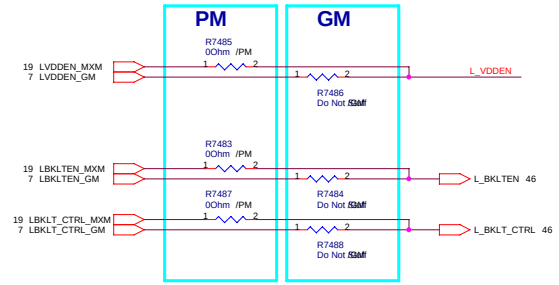
Cable Requirement:
Impedance = 90Ω +/- 10%
Length Mismatch <= 10 mils
Twisted Pair(Not Ribbon)
Maximum Length <= 16"

LCD LVDS Connector

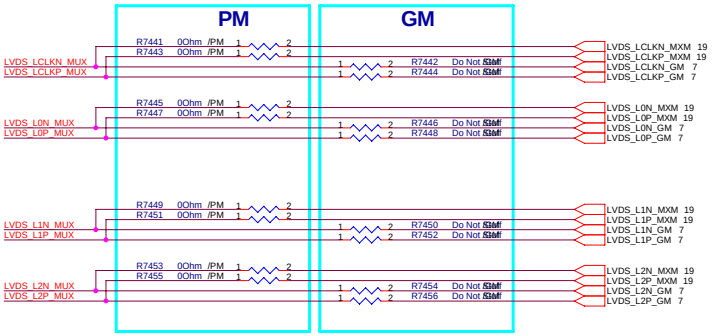


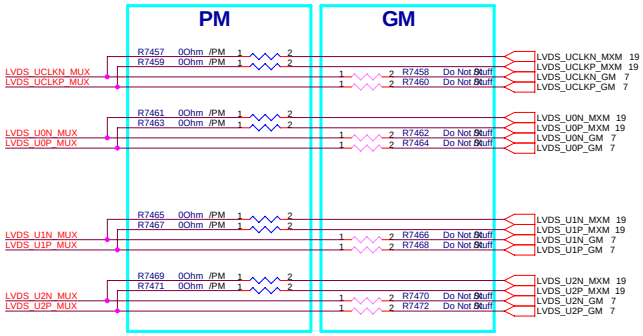


LCD VCC / BL SIGNAL

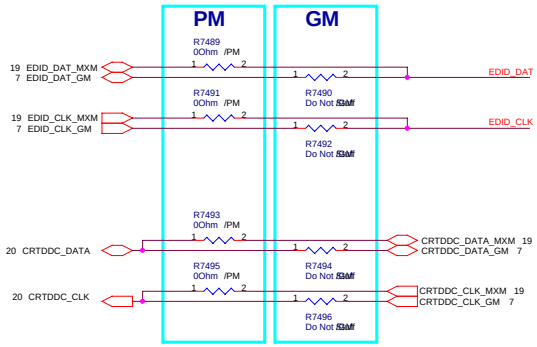


LCD IMAGE SIGNAL





LCD EDID / CRT DDC SIGNAL



LOWER CHANNEL

UPPER CHANNEL

0414_1209

ASUSTek Computer INC.	Title : LVDS Conn & MUX.	
	Engineer: Mike Lee	
Size: C	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 21 of 66	

* Internal PU
** Internal PD

ICS9LPRS929AKLFT

PCIE #	
00	DREFSS
01	LAN
02	MC_ROBSON
03	SB
04	NewCard
05	MC_TVCard
06	MC_WLAN
07	MXM
08	(CTRL. PIN)
09	NB
10	DREF(DOT96)

PCI #	
00	DEBUG CONN.
01	
02	EC
03	
04	SB
05	CardReader
06	TPM

STP_PCI_CPU#=1,
Pin39/40 to be
PCI_STP#/CPU_STP#

GSEL=1, DOT=96MHz

XDP
CPU
NB
USB
AUDIO
LAN

TPM PORT
PCI SB
EC PCI CLK
PCI RICOH
PCI DEBUG

CX52
14.318Mhz

For_control_N.B

TABLE 0_GPBSEL		333	266	200	133
GP_NBBSEL0	H_BSEL0_R	0	0	0	1
GP_NBBSEL1	H_BSEL1_R	0	0	1	0
GP_NBBSEL2	H_BSEL2_R	1	0	0	0

For_control_CLK.GEN

TABLE 0_GPBSEL		333	266	200	133
GP_CKBSEL0	BSEL for FSA	0	0	0	1
GP_CKBSEL1	BSEL for FSB	0	0	1	0
GP_CKBSEL2	BSEL for FSC	1	0	0	0

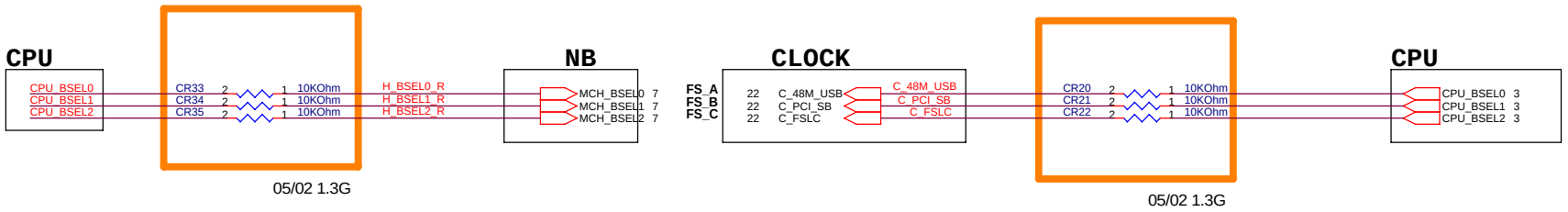
05/02 1.3G

DELETE
ROBSON'S CAPS

Place them closed to Destination for Measurement
Use Nonsolder Mask Part : c0402_nomask

0414_1209

Title : Main Clock-1
ASUSTek Computer Inc.
Engineer: Mike Lee
Size: A2
Project Name: Z97V
Rev: 2.0G
Date: Friday, May 09, 2008
Sheet 22 of 66



05/02 1.3G

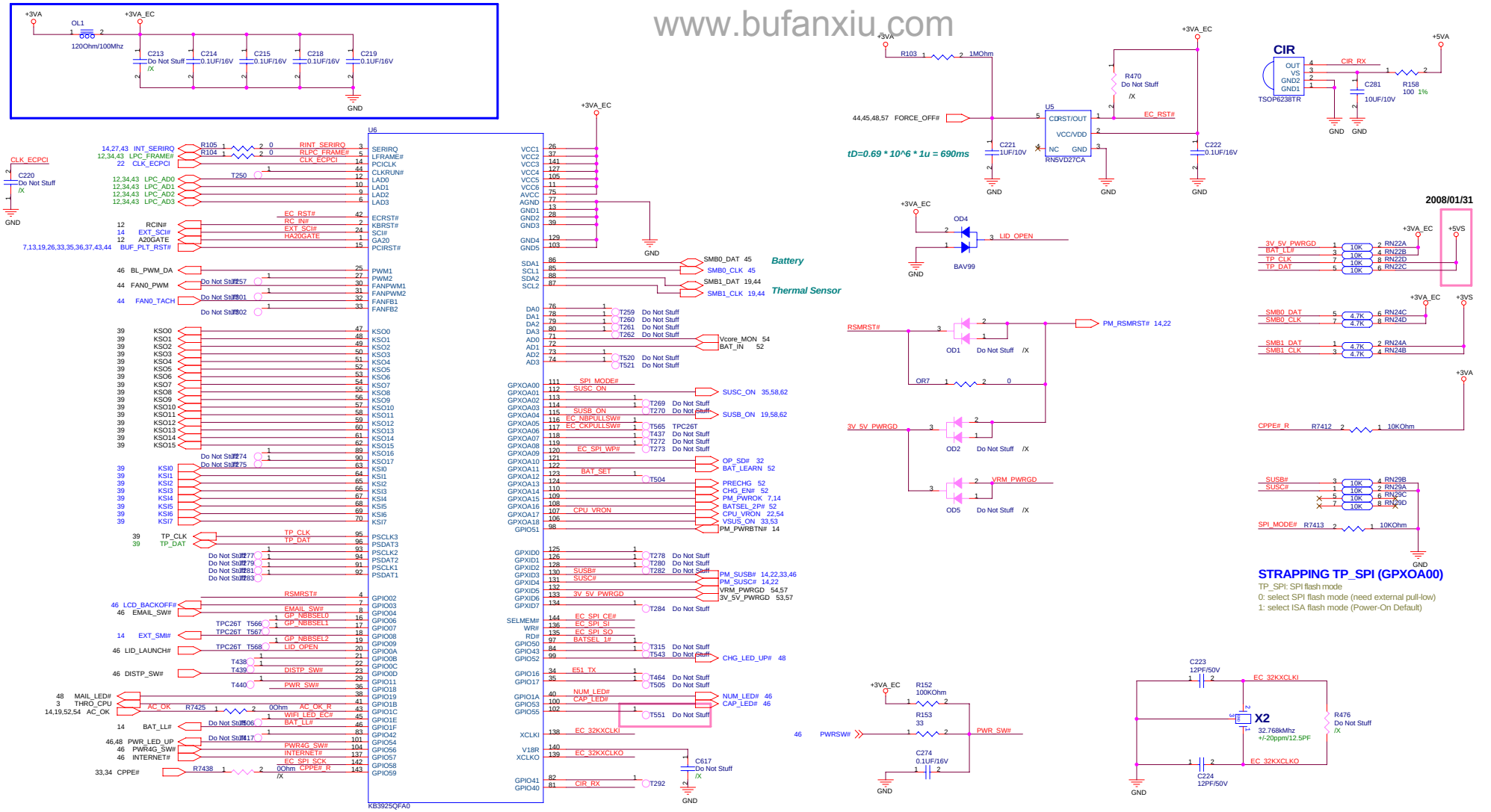
05/02 1.3G

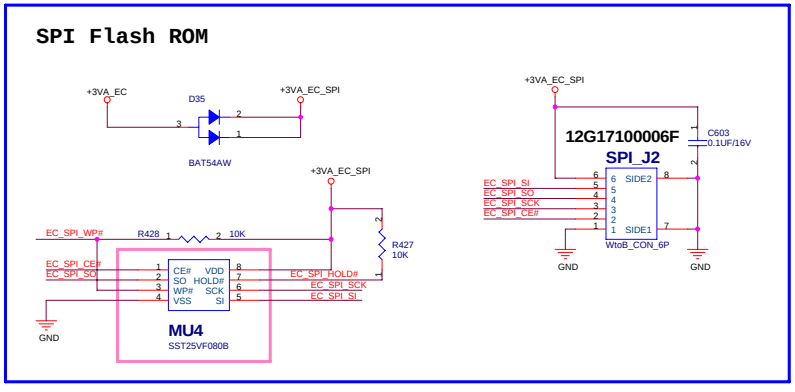
CLK Trapped by CPU's BSEL

HBSEL2	HBSEL1	HBSEL0	FSB
0	0	1	133MHz
0	1	0	200MHz
0	0	0	266MHz
1	0	0	333MHz

0414_1209

ASUSTek Computer Inc.	Title : Main Clock-2	
	Engineer: Mike Lee	
Size: A3	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 23 of 66	





0414_1209

ASUSTek Computer Inc.

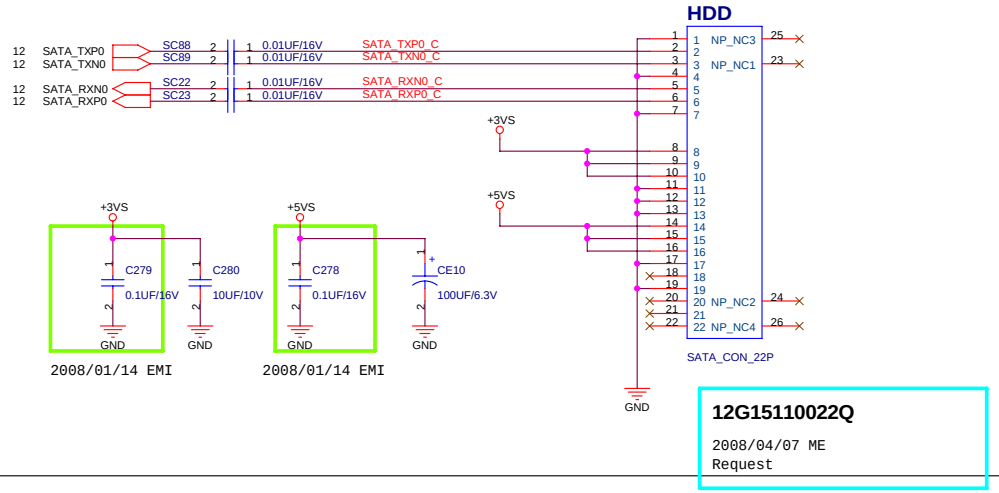
Title : EC-ENE3925

Engineer: Tony Kao

Size	Project Name	Rev
C	Z97V	2.0G

Date: Friday, May 09, 2008 Sheet 24 of 66

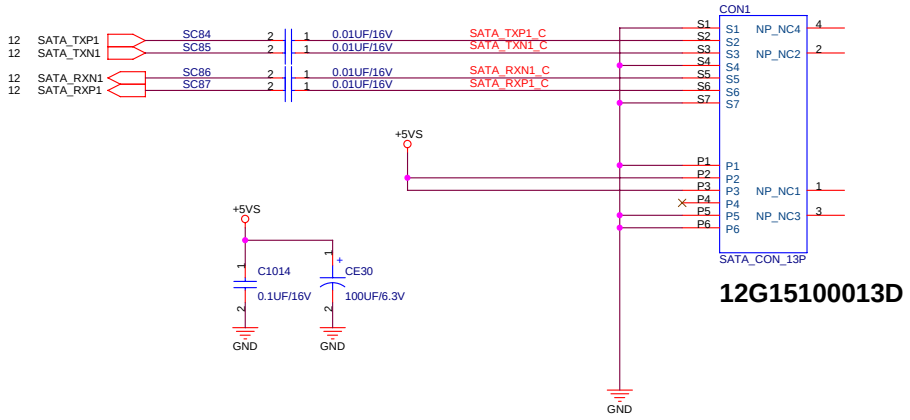
SATA HDD Connector



12G15110022Q

2008/04/07 ME
Request

SATA ODD Connector



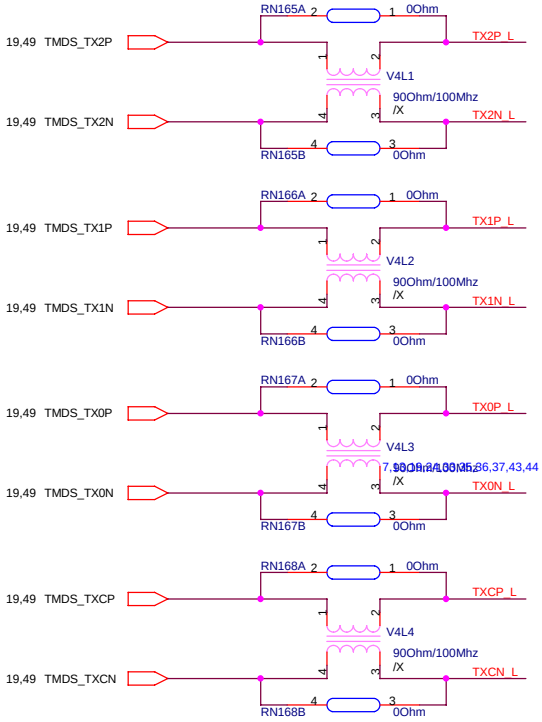
12G15100013D

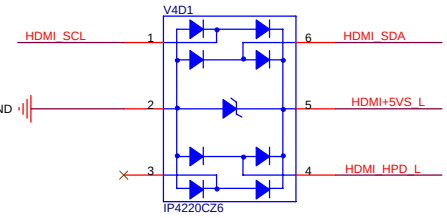
0414_1209

ASUSTek Computer INC.	Title : ODD Connector	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 25 of 66	

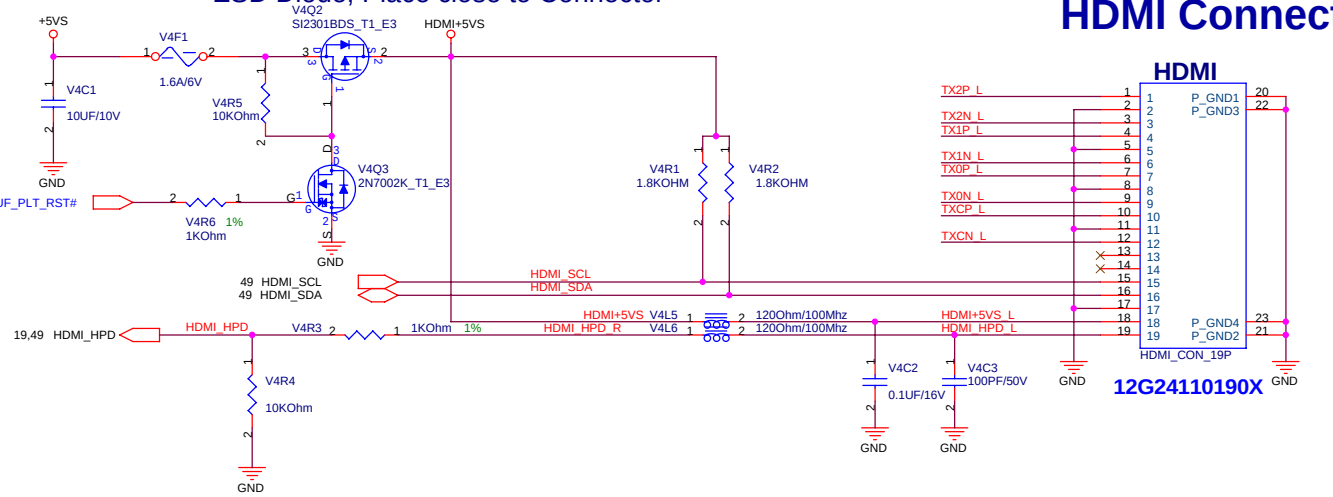
HDMI Connector

Choke : TDK ACM2012 prefered

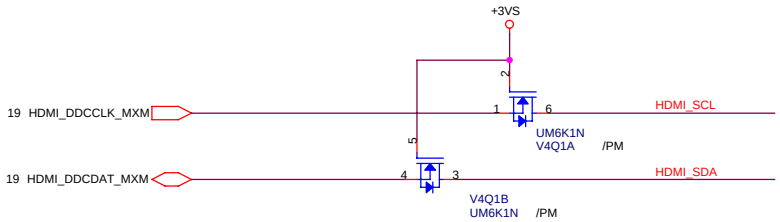




ESD Diode, Place close to Connector

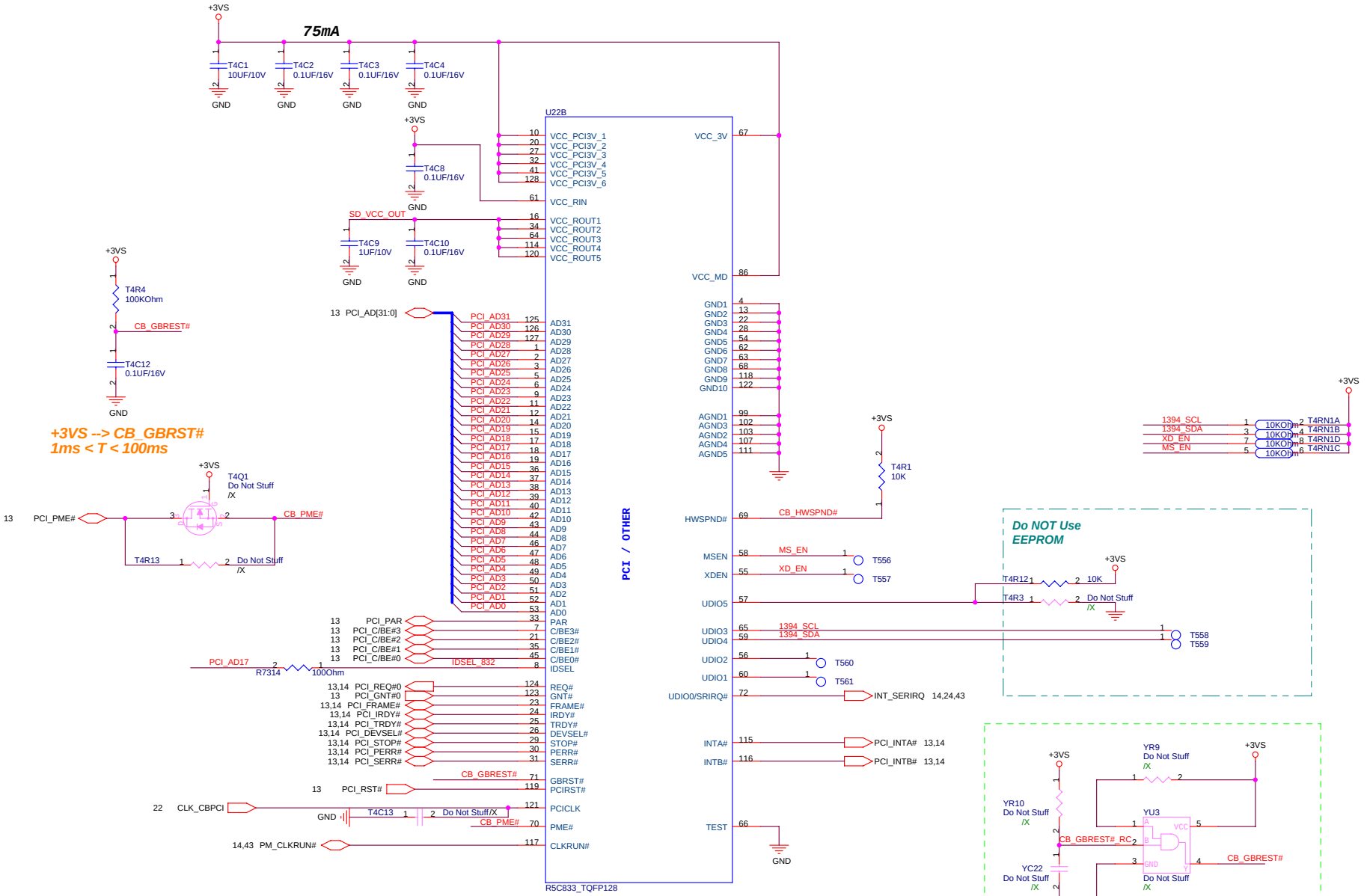


PM



0414_1209

ASUSTek Computer INC.	Title : HDMI Connector	
	Engineer: Mike Lee	
Size: A3	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 26 of 66	



0414_1209

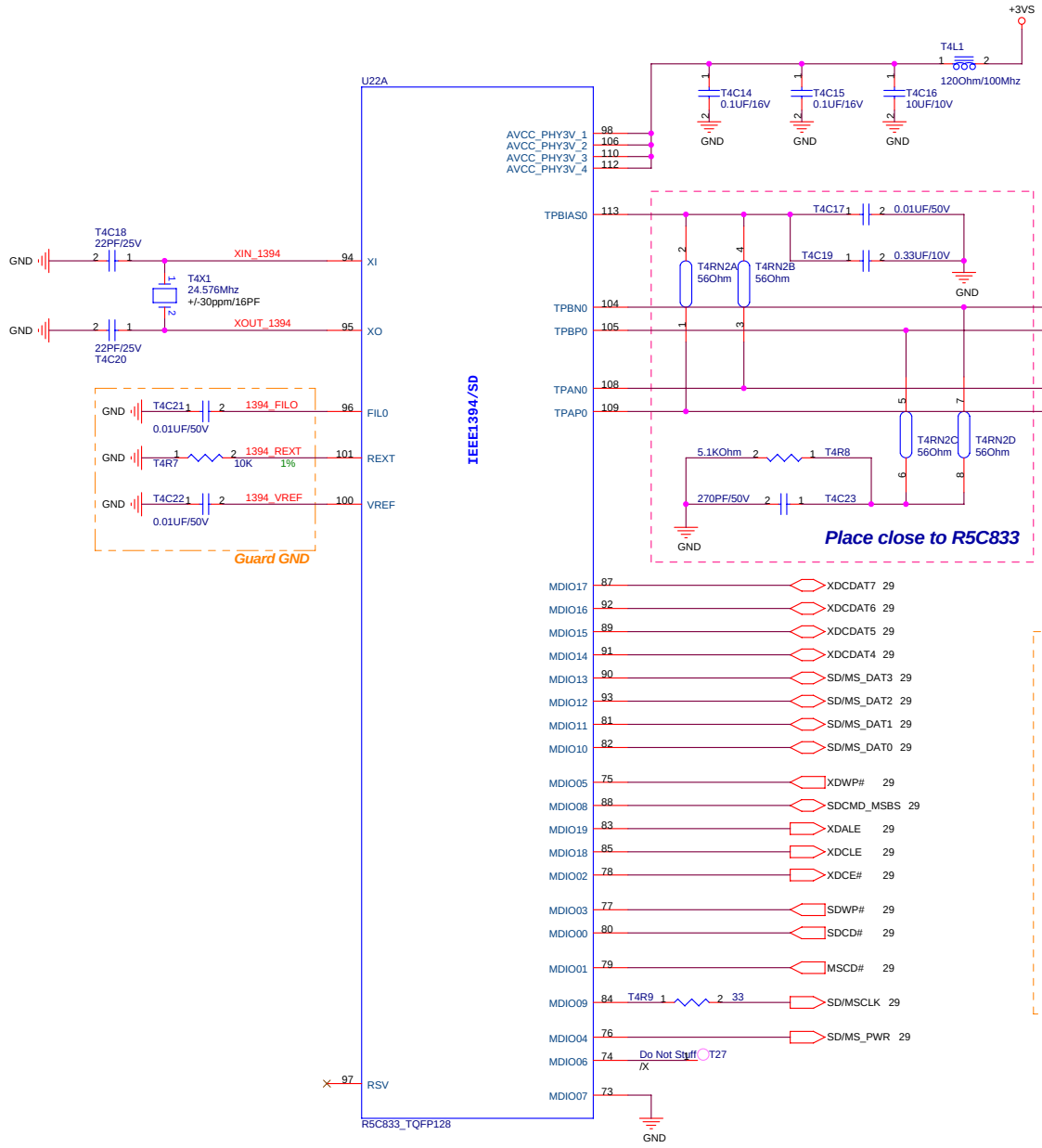
ASUSTek Computer INC.

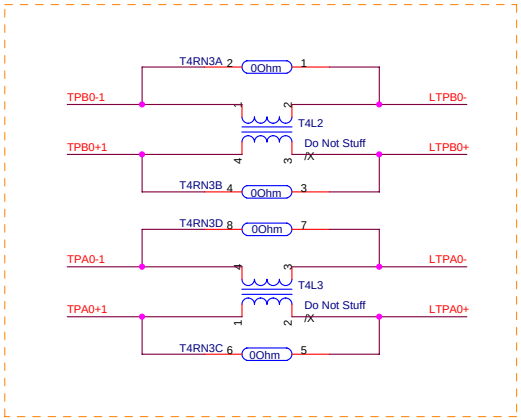
Title : R5C833_PCI

Engineer: Mike Lee

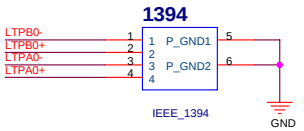
Size	Project Name	Rev
Custom	Z97V	2.0G

Date: Friday, May 09, 2008 Sheet 27 of 66



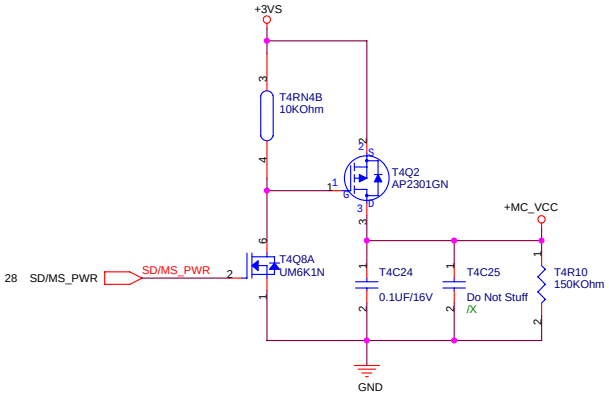


IEEE 1394 Connector

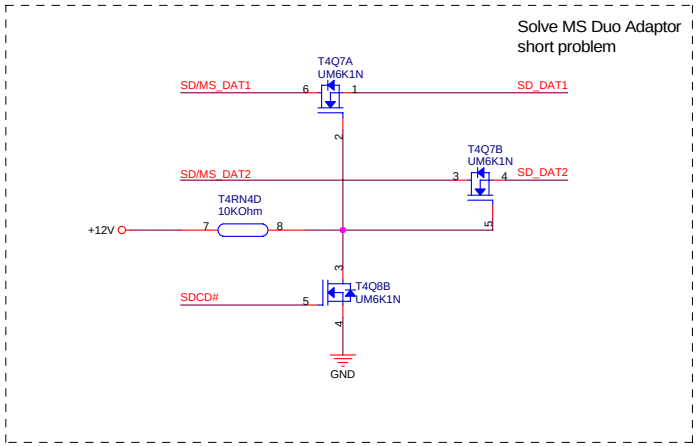


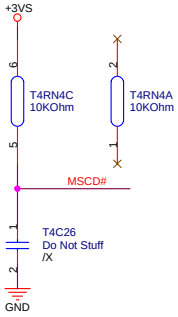
0414_1209

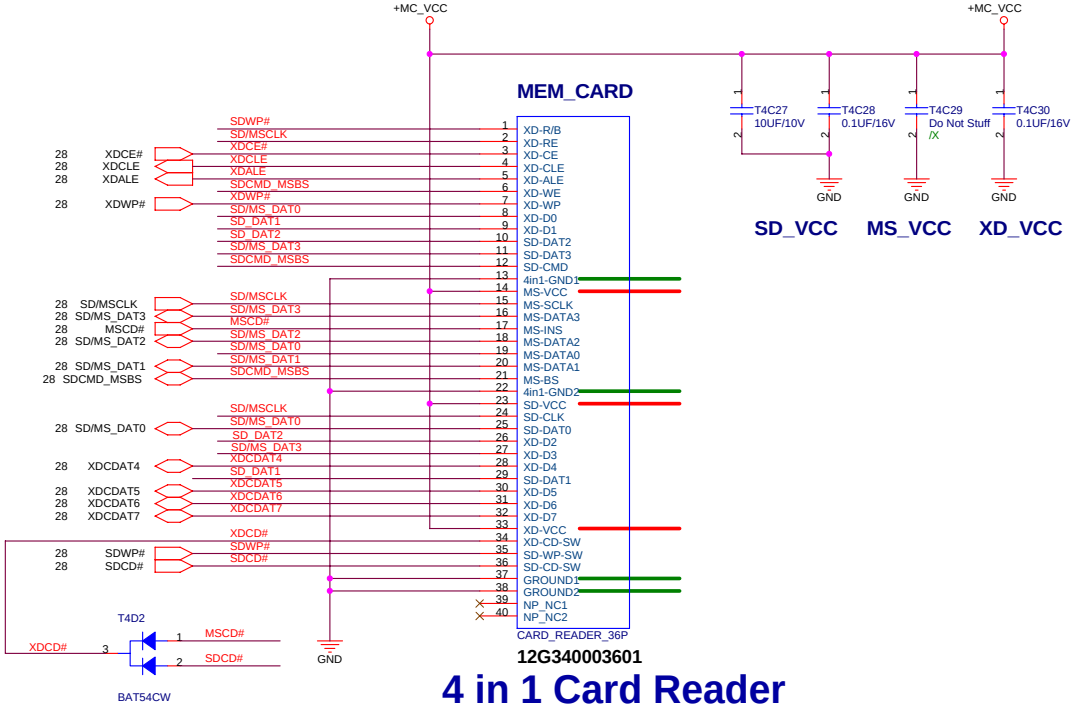
ASUSTek Computer INC.	Title : R5C832_1394/SD	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 28 of 66	



Card Reader Power Switcher





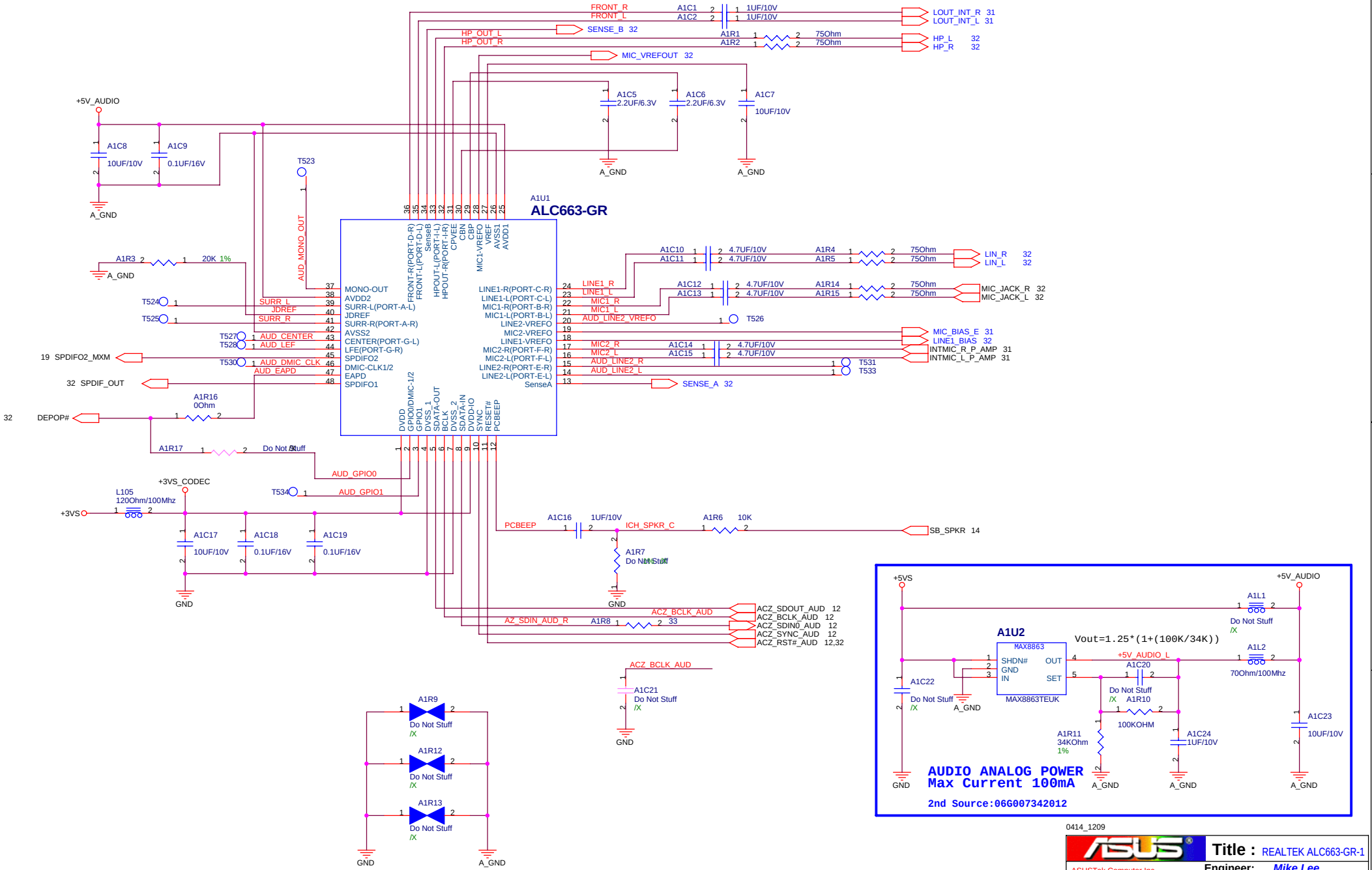


12G340003601

4 in 1 Card Reader

0414_1209

ASUSTek Computer INC.	Title : 4 in 1 Card Reader	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 29 of 66	



0414_1209

ASUSTek Computer Inc.

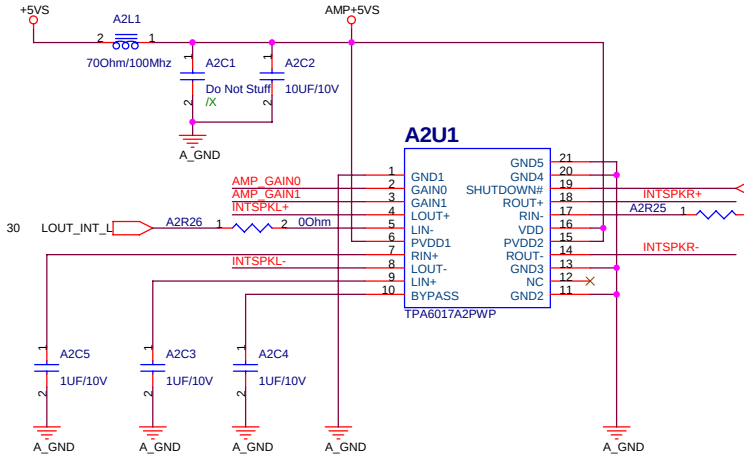
Title : REALTEK ALC663-GR-1

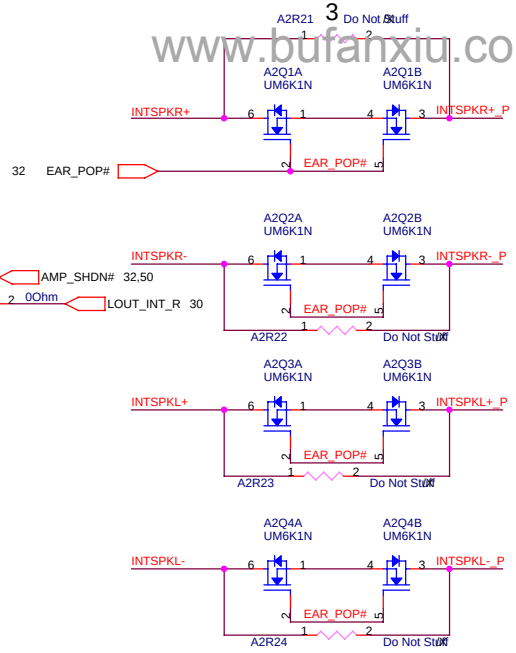
Engineer: Mike Lee

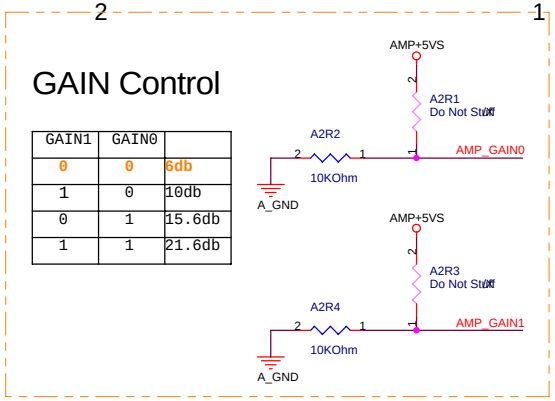
Size	Project Name	Rev
A3	Z97V	2.0G

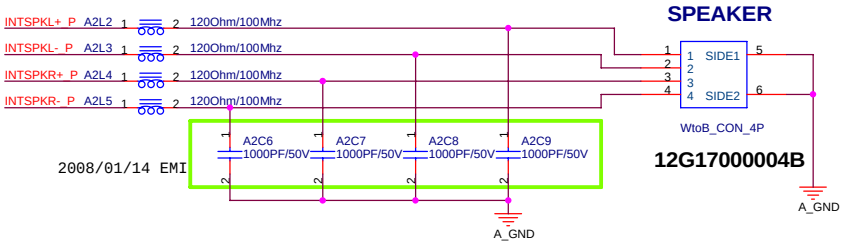
Date: Friday, May 09, 2008 Sheet 30 of 66

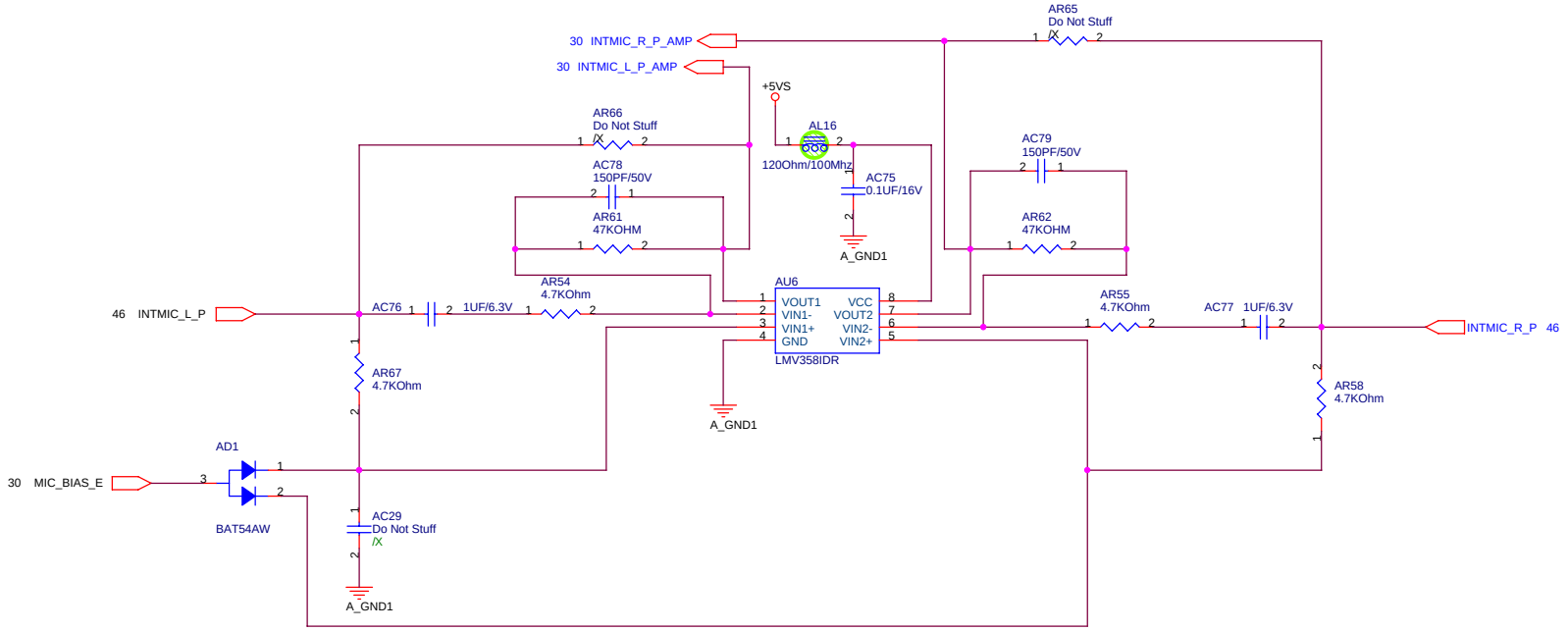
Audio Amp.

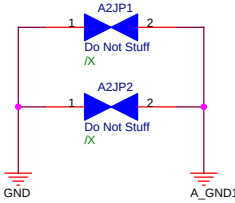












Internal MIC Amp.

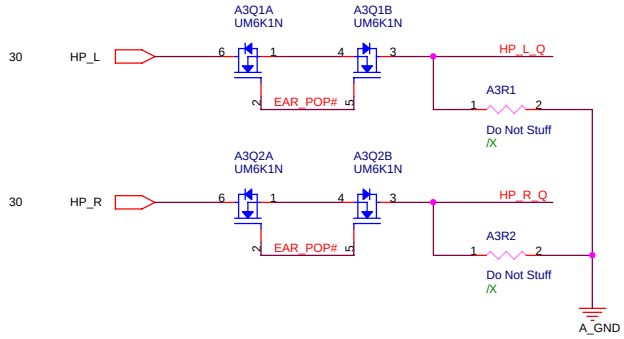
FL = 33.86kHz, FH = 22.5kHz

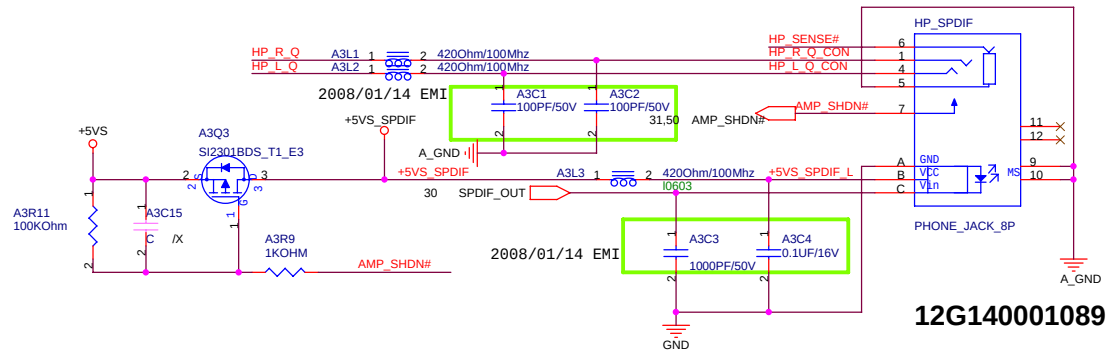
Place Near INTMIC Connector

0414_1209

ASUSTek Computer INC.	Title : Speaker / Mic PreAmp	
	Engineer: Mike Lee	
Size: A3	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 31 of 66	

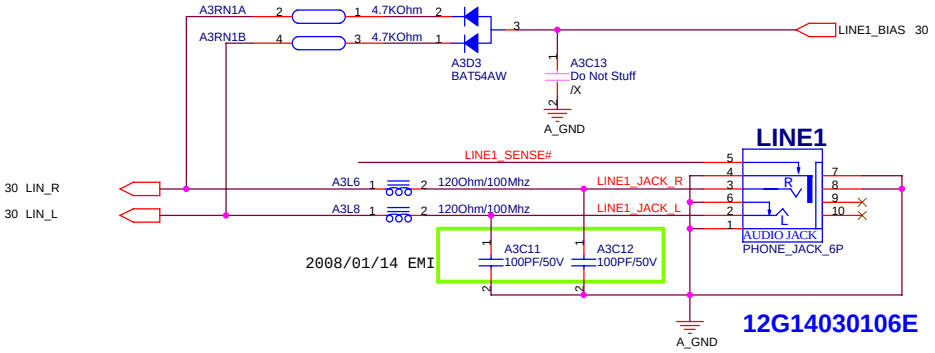
Headphone & S/PDIF Jack





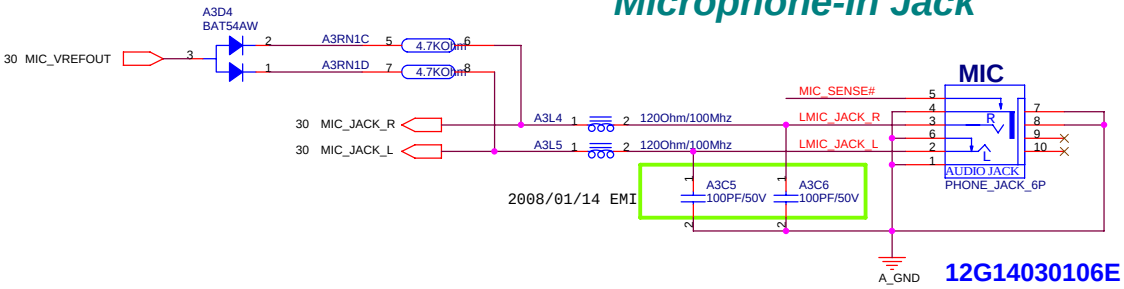
12G140001089

LINE1 Jack



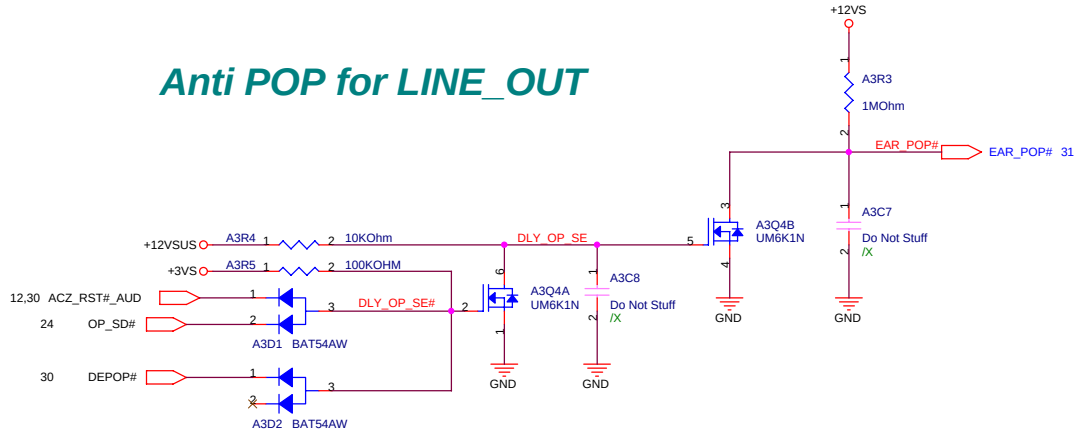
12G14030106E

Microphone-In Jack

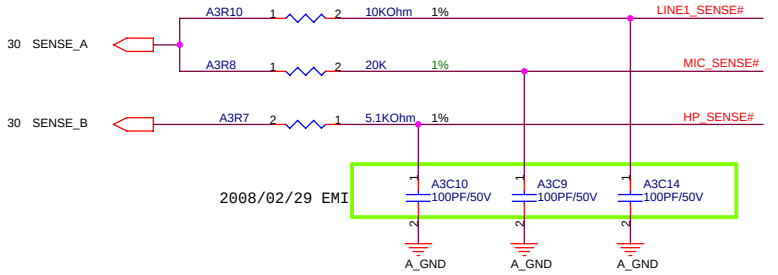


12G14030106E

Anti POP for LINE_OUT



Jack Plug-in Detection



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ASUSTek Computer INC.

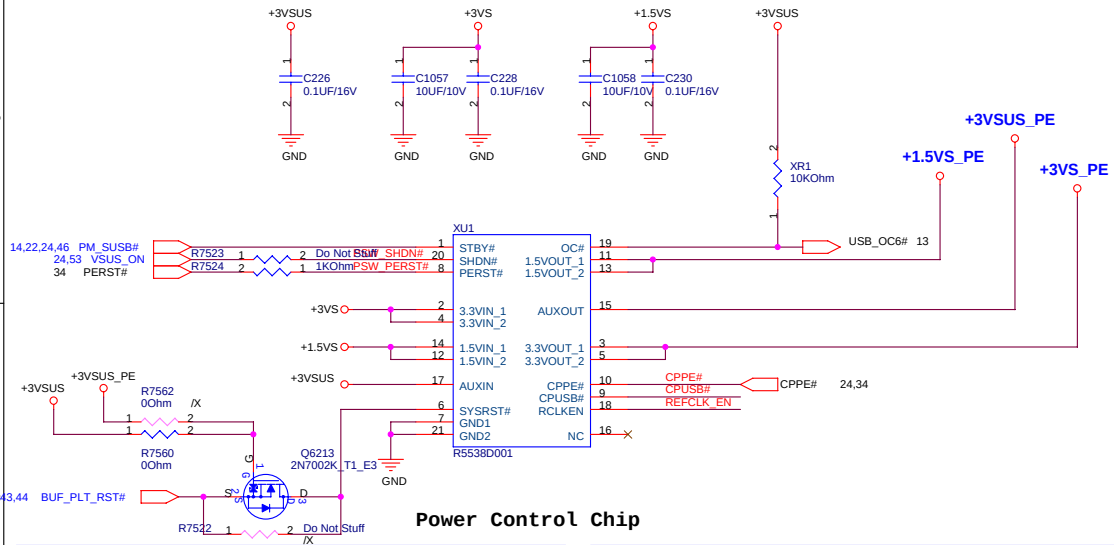
Title : Phone Jack

Engineer: Mike Lee

Size	Project Name	Rev
A3	Z97V	2.0G

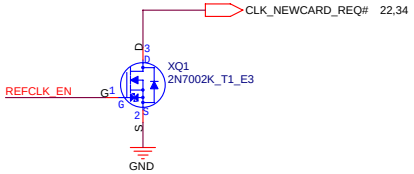
Date: Friday, May 09, 2008 Sheet 32 of 66

Decouple Cap. (Near XU1)

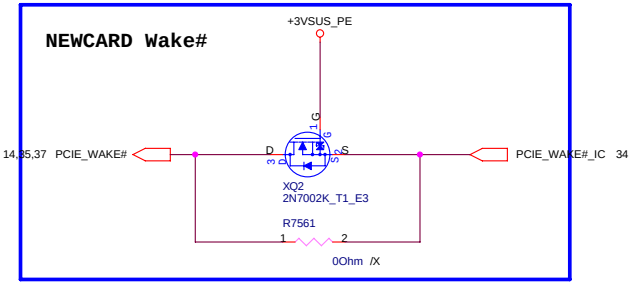


Power Control Chip

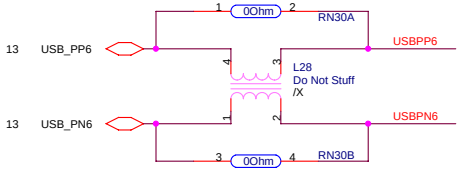
NEWCARD CLK Request



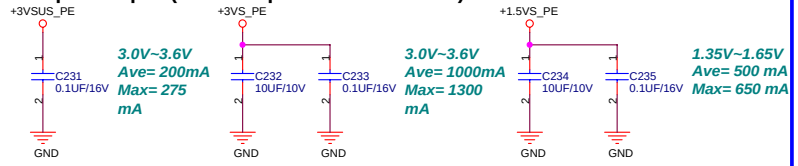
NEWCARD Wake#



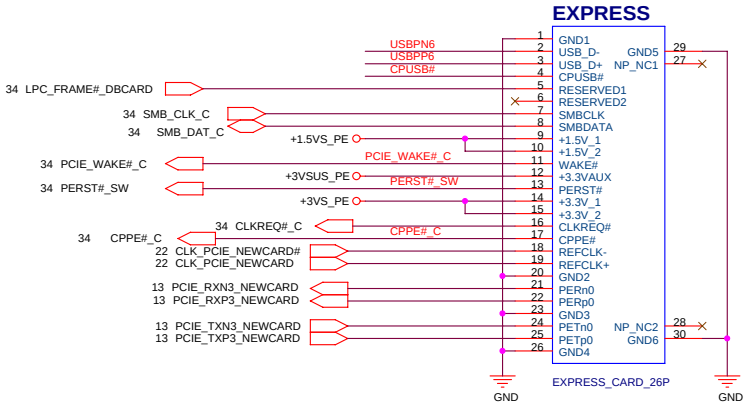
USB CHOKE FOR EMI



Decouple Cap. (Near Express connector)

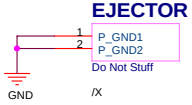


NewCard Header



!! ExpressCard Standard 1.0:
Change Pin7 from RESERVED to SMBCLK
Change Pin8 from SMBCLK to SMBDATA
Change Pin9 from SMBDATA to +1.5V

NewCard Ejector

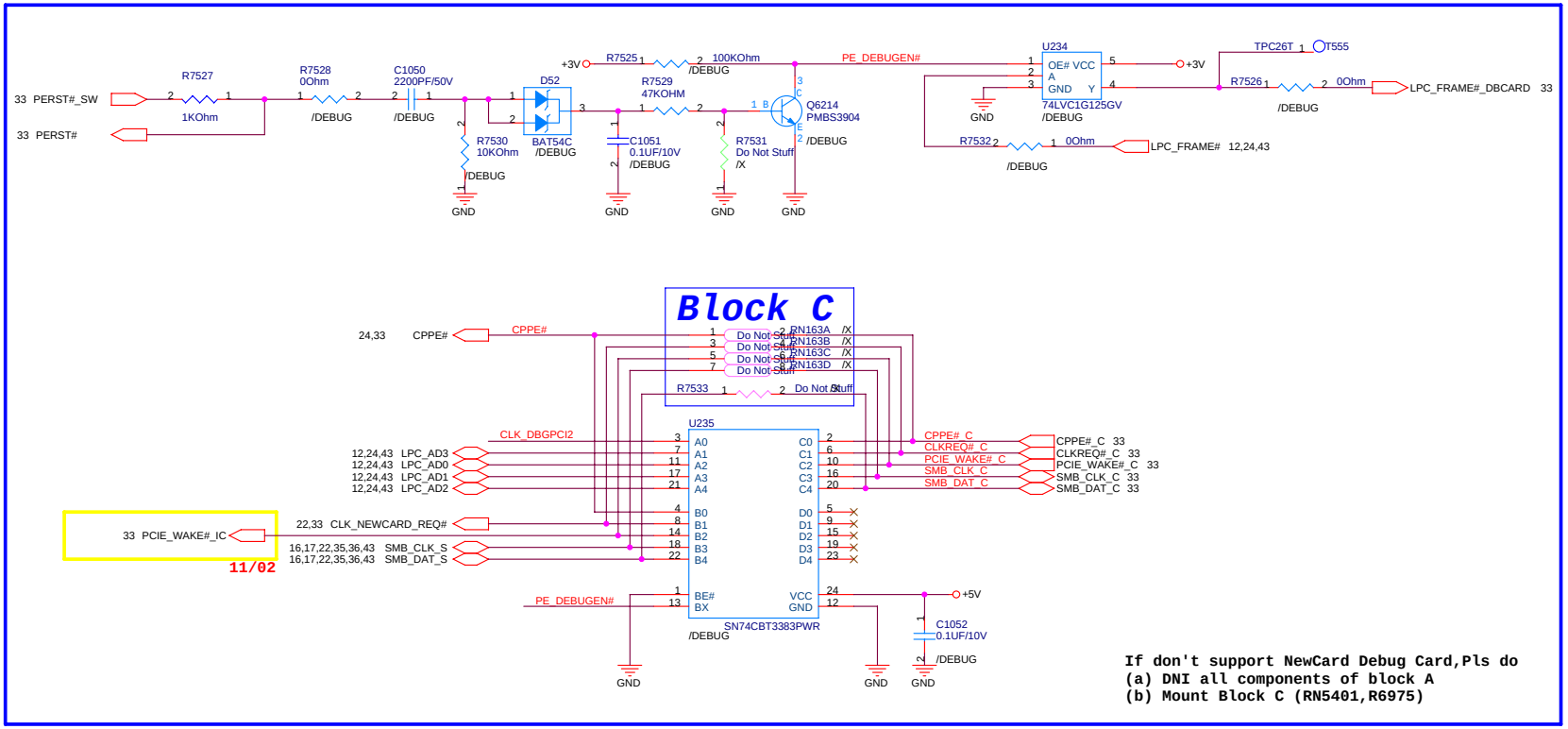


Do Not Stuff

0414_1209

ASUSTek Computer INC.	Title : EXPRESS CARD	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 33 of 66	

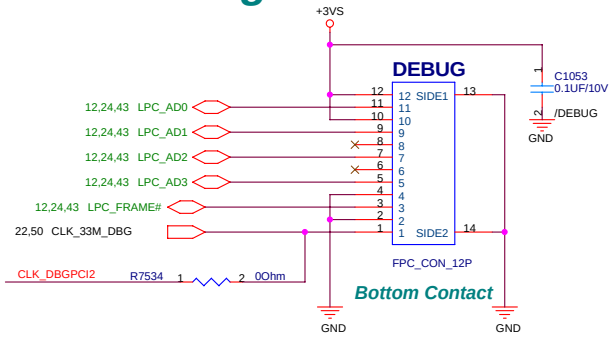
Block A

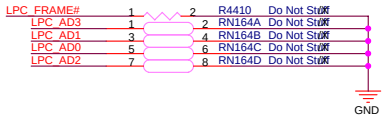


Debug Connector

For PCMCIA Debug Card

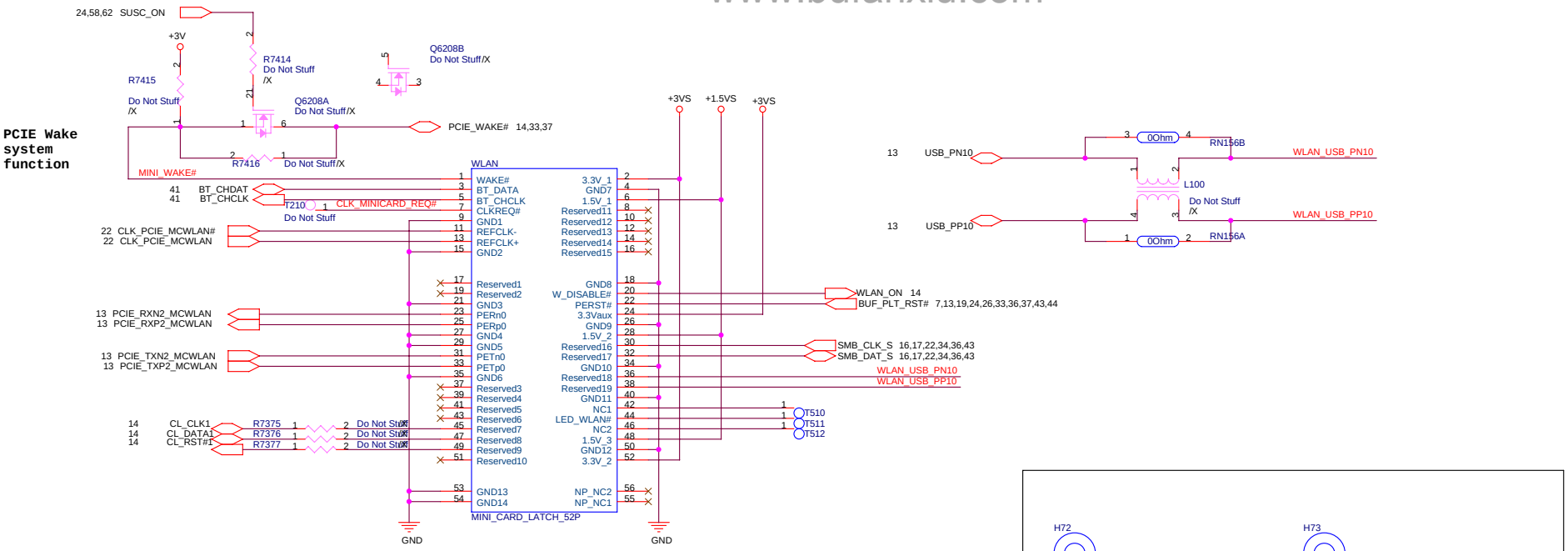
If support NewCard Debug Card, Pls don't mount all components.





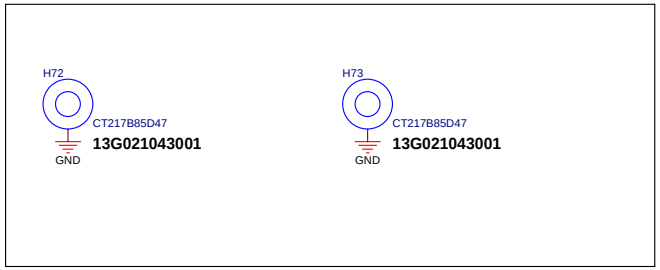
0414_1209

ASUSTek Computer INC.	Title : New Card Debug	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 34 of 66	

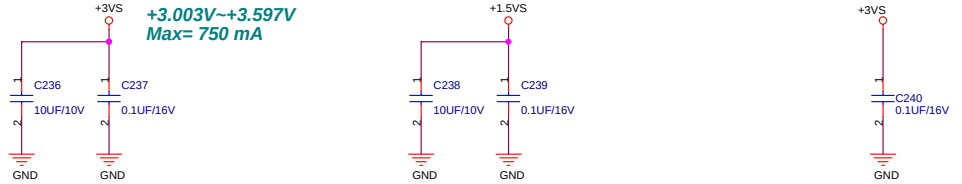


12G030000523

H = 5.75mm



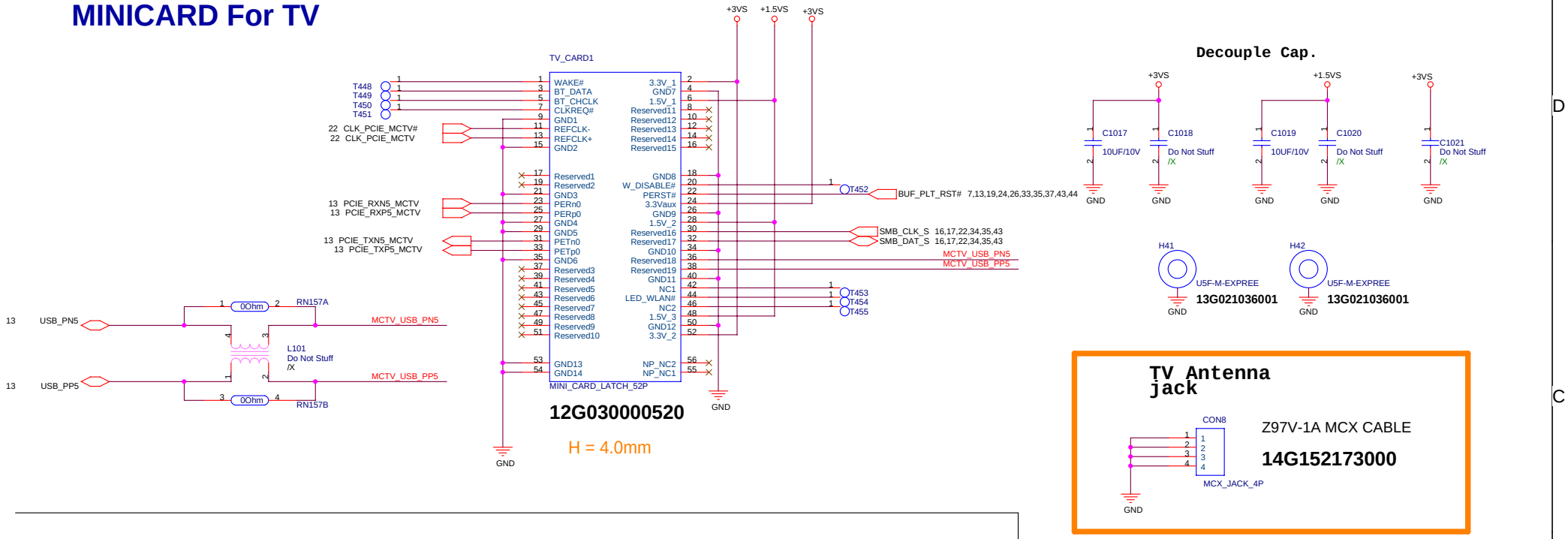
Decouple Cap. (Near WLAN)



0414_1209

ASUSTek Computer INC.	Title : MINICARD-1	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 35 of 66	

MINICARD For TV



12G030000520

H = 4.0mm

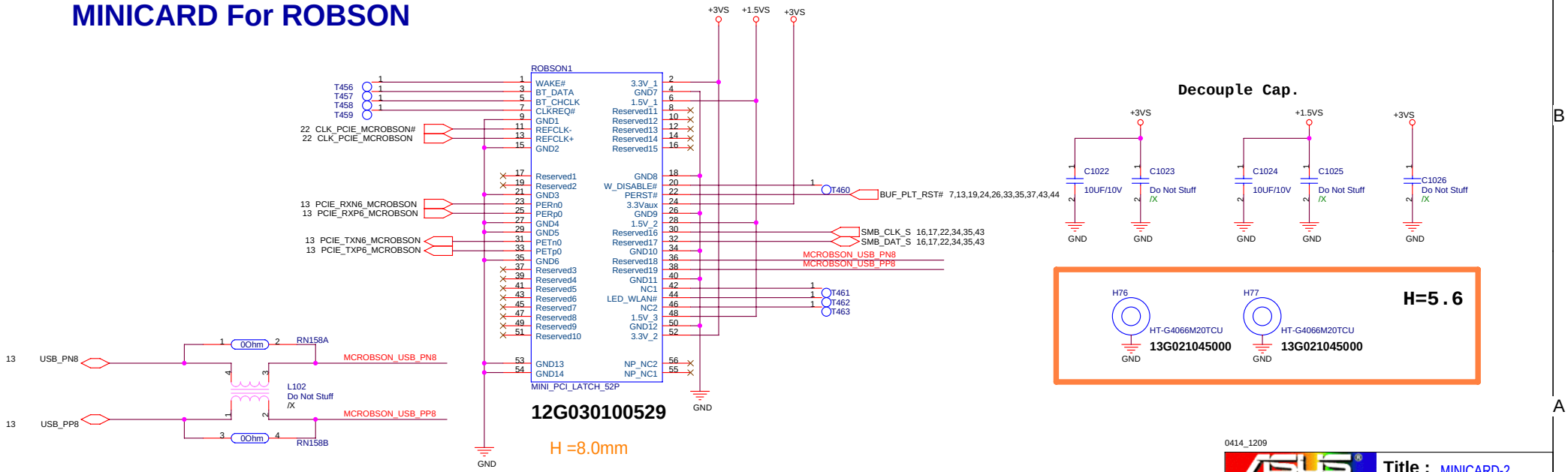
Decouple Cap.

TV Antenna jack

Z97V-1A MCX CABLE

14G152173000

MINICARD For ROBSON



12G030100529

H =8.0mm

Decouple Cap.

H=5.6

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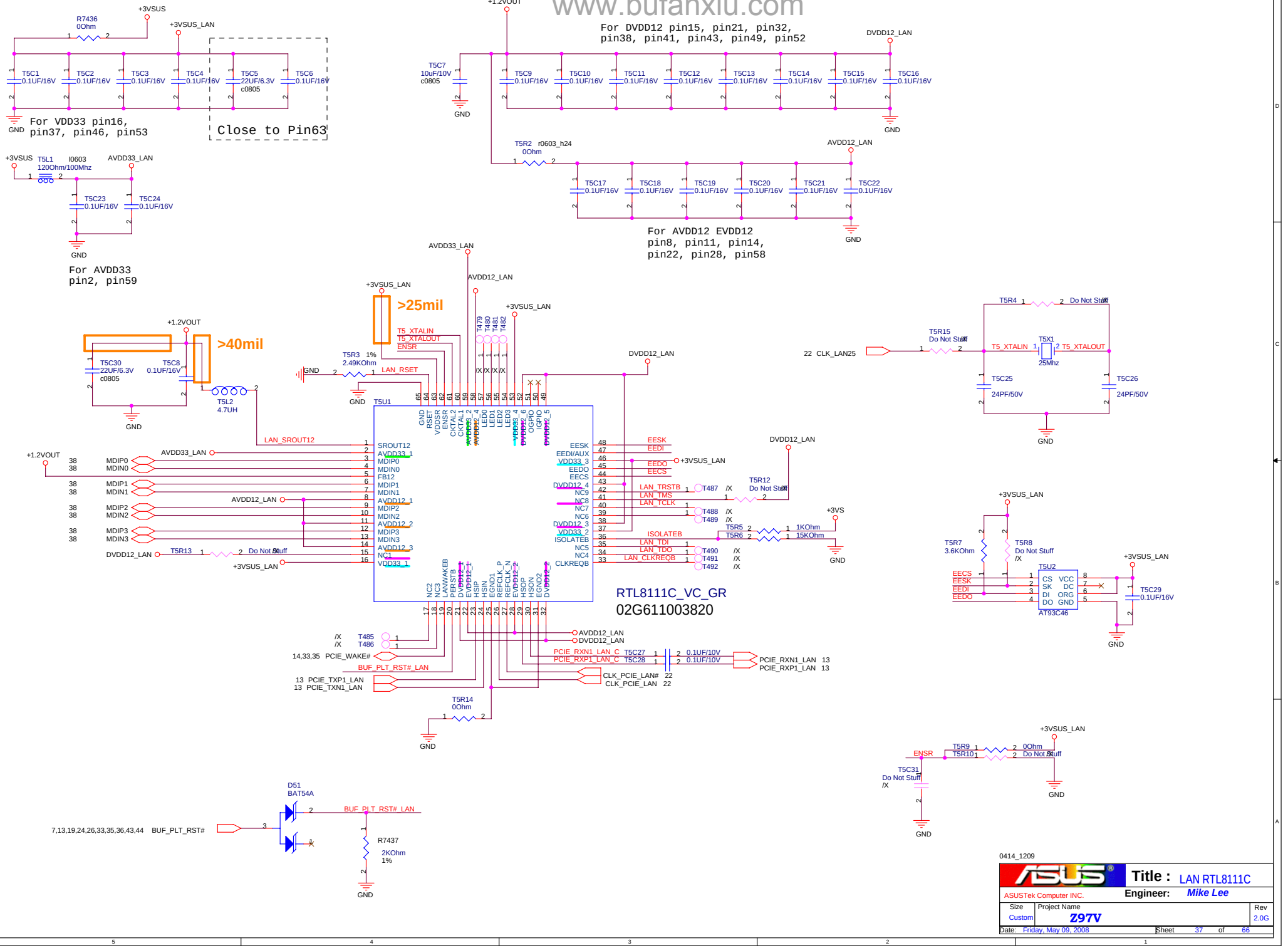
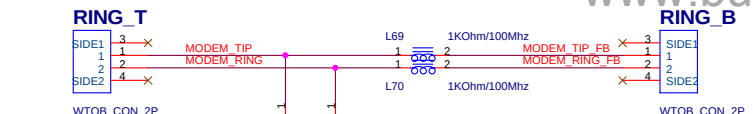
ASUSTek Computer INC.	Title : MINICARD-2	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 36 of 66	

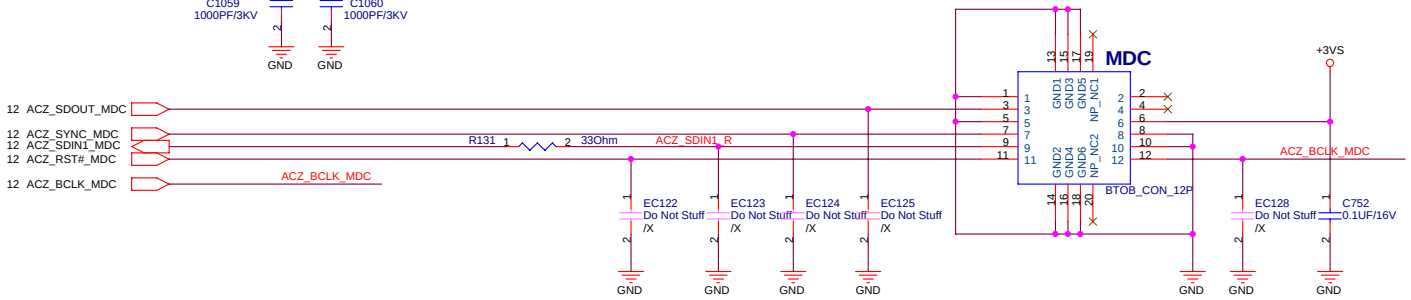


0414_1209

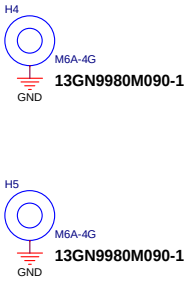
ASUSTek Computer INC.	Title : LAN RTL8111C	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 37 of 66	

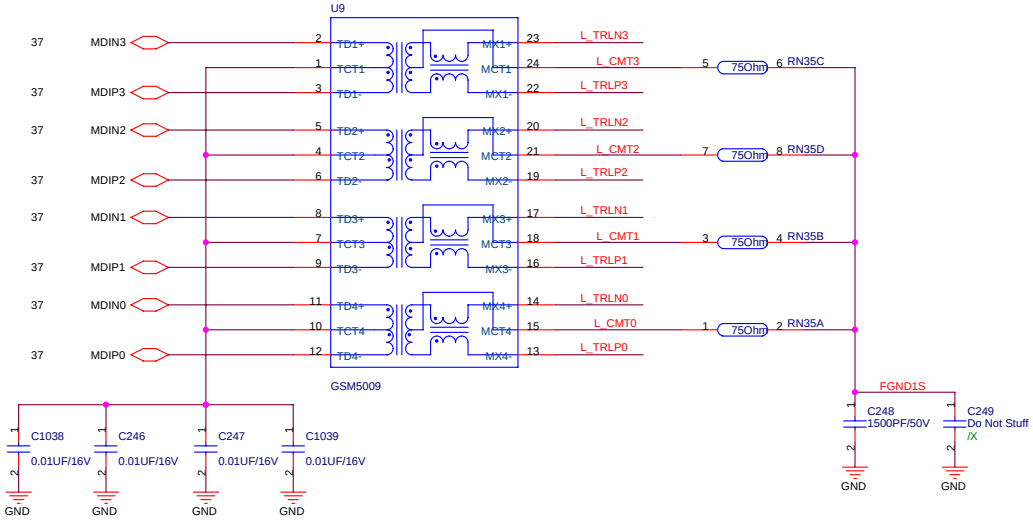


MDC Connector

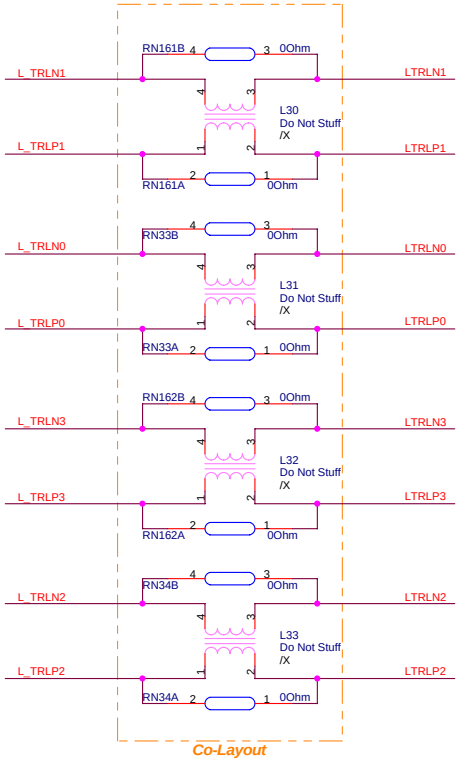


MDC Nut

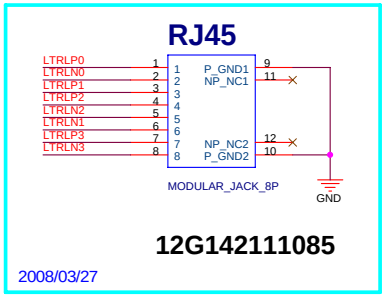




Giga LAN Transformer

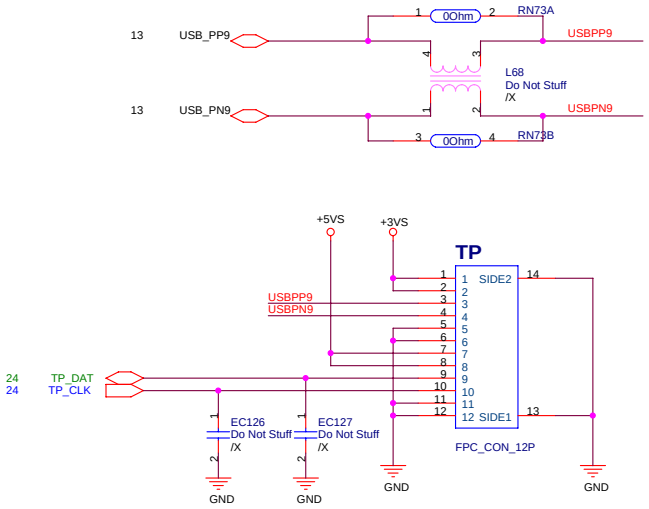


Co-Layout



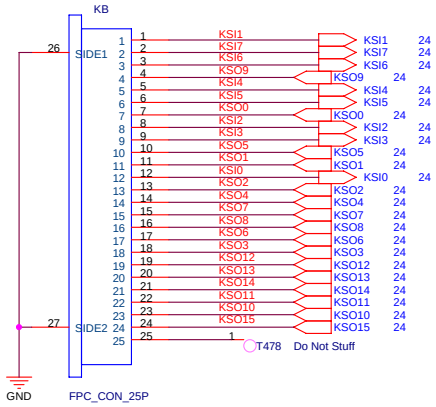
0414_1209

ASUSTek Computer INC.	Title : MDC / RJ45	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 38 of 66	



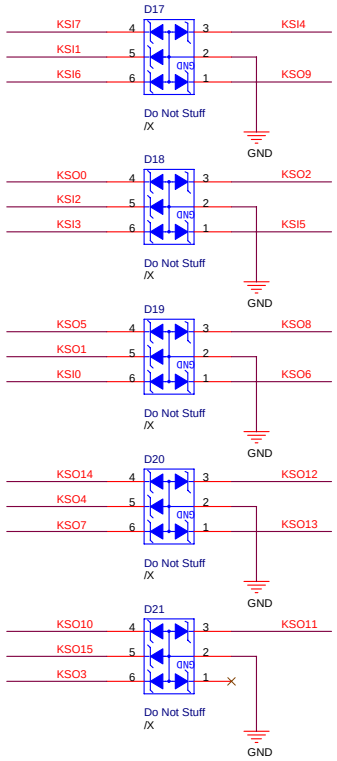
Fingerprint & TouchPad Connector

Keyboard Connector



12G182002502

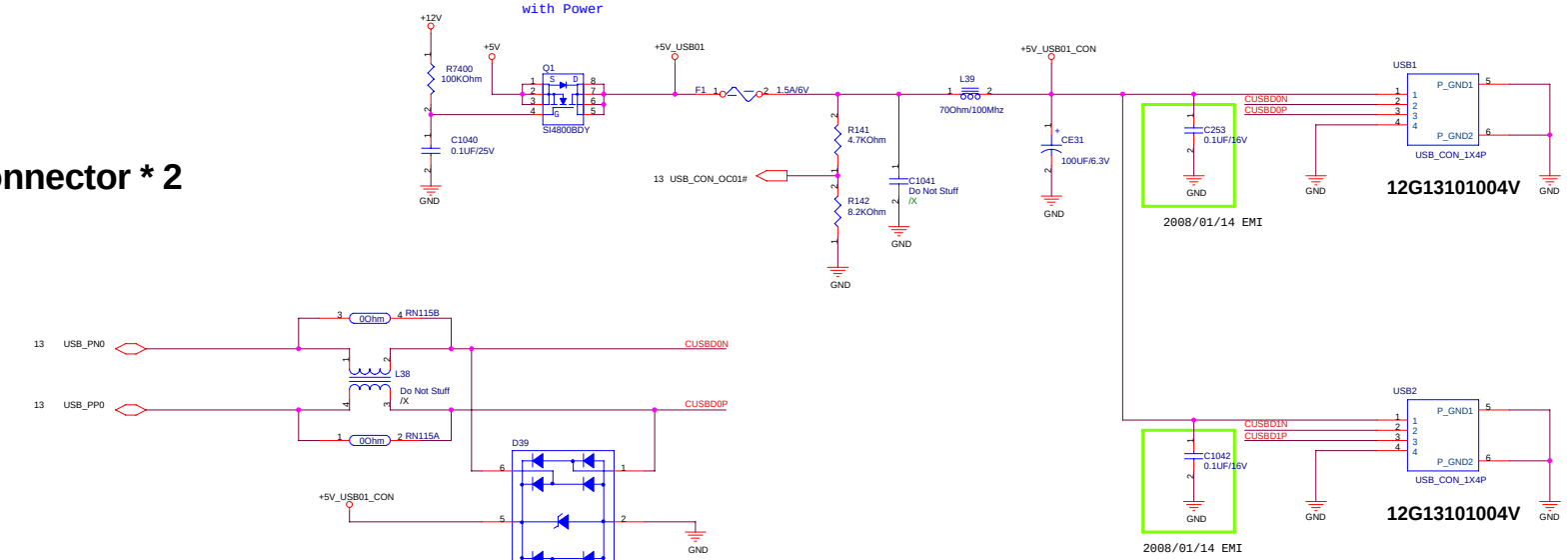
FOR EMI/ESD

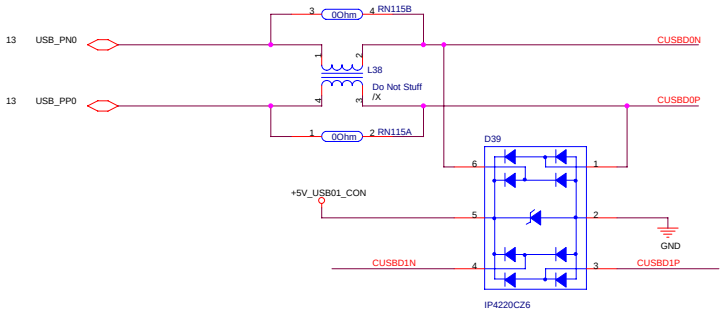


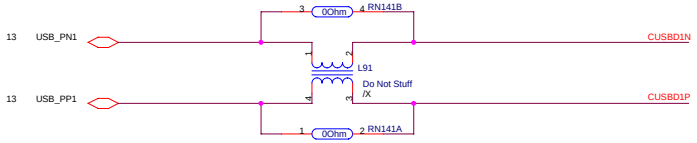
0414_1209

ASUSTek Computer INC.	Title : Touch Pad & KB	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 39 of 66	

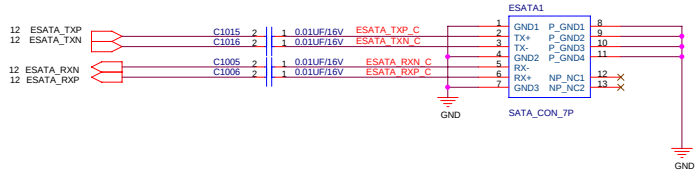
USB Connector * 2







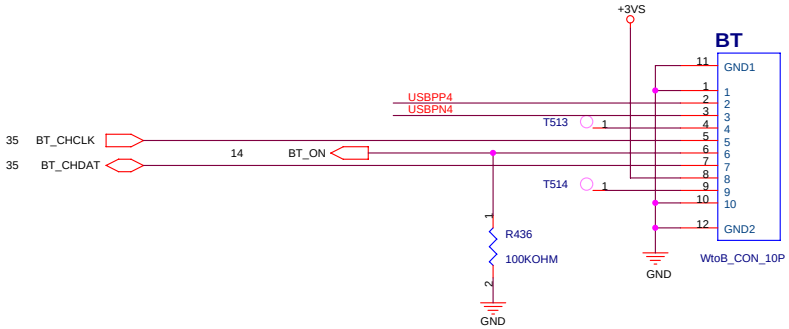
ESATA Connector



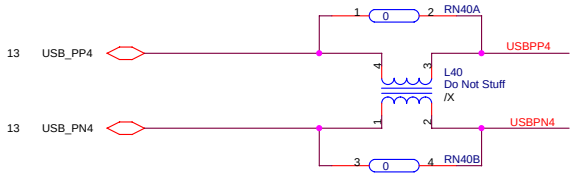
0414_1209

ASUSTek Computer INC.	Title:	USB / ESATA Connector
	Engineer:	Mike Lee
Size: C	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 40 of 66	

Bluetooth Connector



BT_OFF# : (connect to GPO, push-pull, default High)
0 => BT Disabled
1 => BT Enabled



0414_1209

ASUSTek Computer INC.

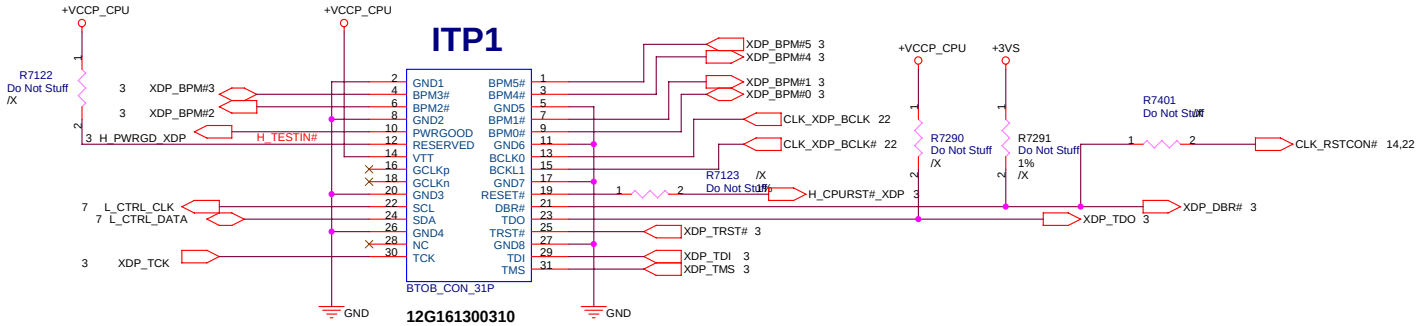
Title : Bluetooth Conn.

Engineer: Mike Lee

Size	Project Name	Rev
Custom	Z97V	2.0G

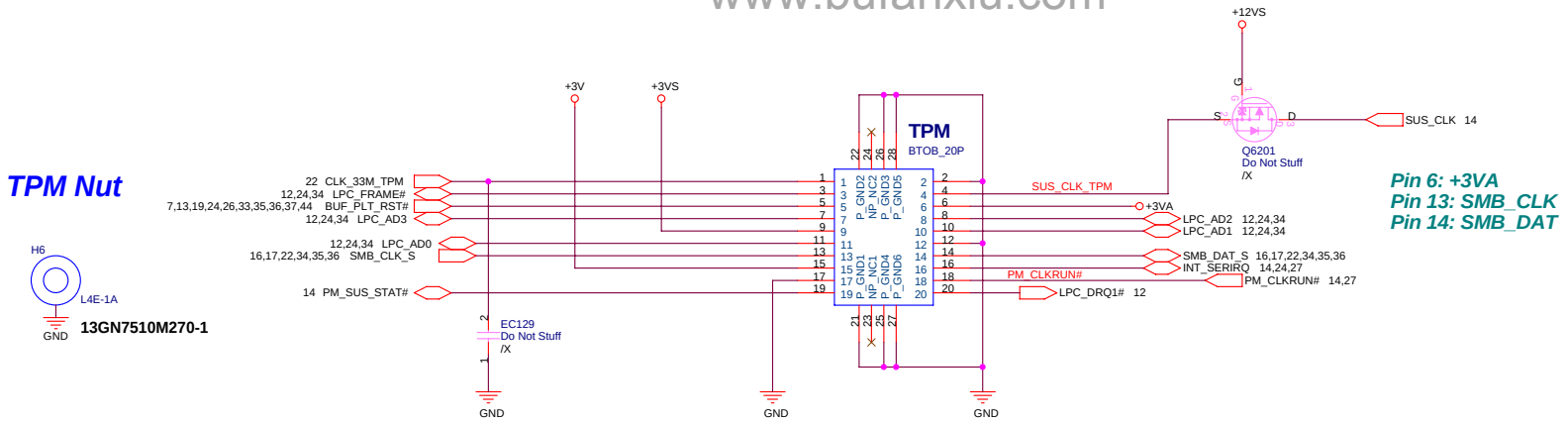
Date: Friday, May 09, 2008 Sheet 41 of 66

ITP



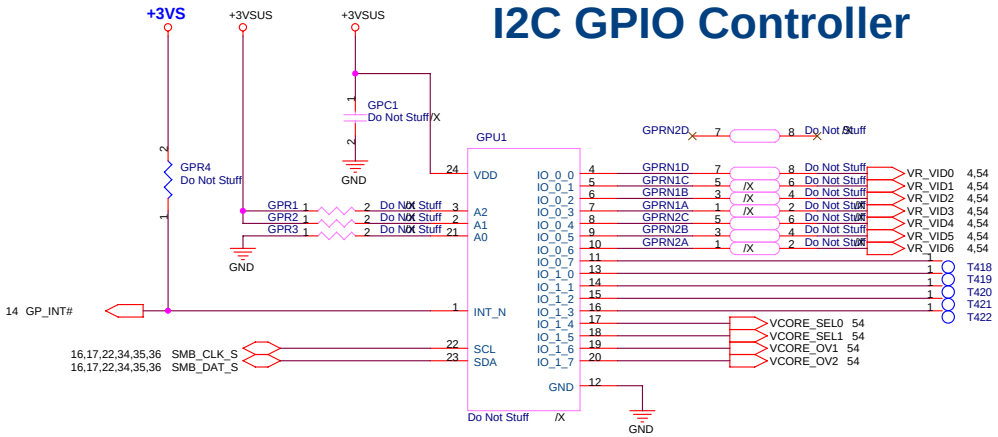
0414_1209

ASUSTek Computer INC.	Title : Debug Connector	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 42 of 66	



TPM Module Connector

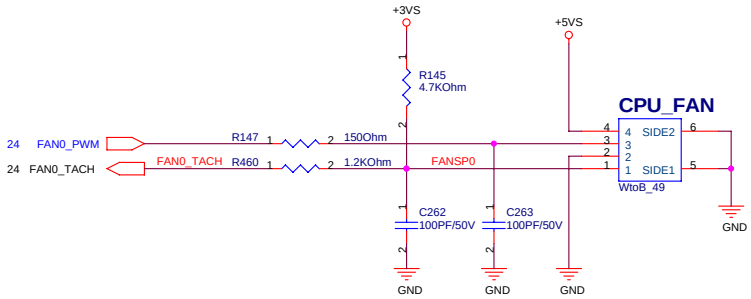
I2C GPIO Controller

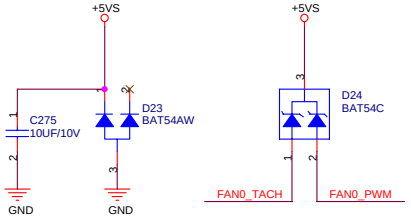


0414_1209

ASUSTek Computer INC.	Title : TPM Connector	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 43 of 66	

CPU Fan Connector

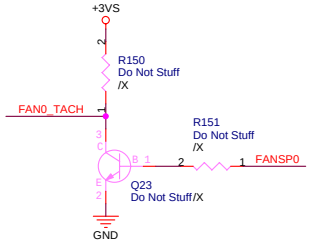




Route H_THERMDA and H_THERMDC in the same layer

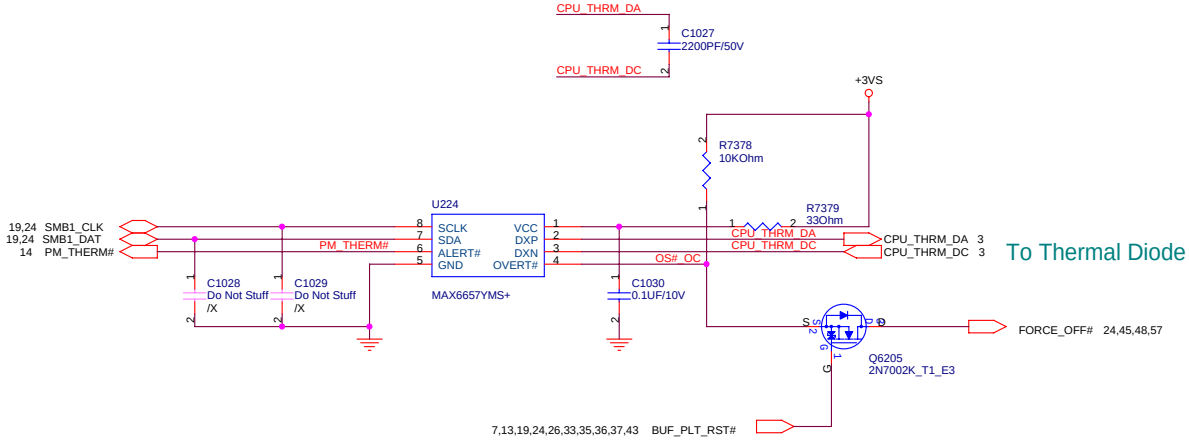
----------OTHER SIGNALS
15 mils
==========GND
10 mils
=========H_THERMDA(10 mils)
10 mils
=========H_THERMDC(10 mils)
10 mils
==========GND
15 mils
----------OTHER SIGNALS

Avoid FSB,Power



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

CPU Thermal Sensor

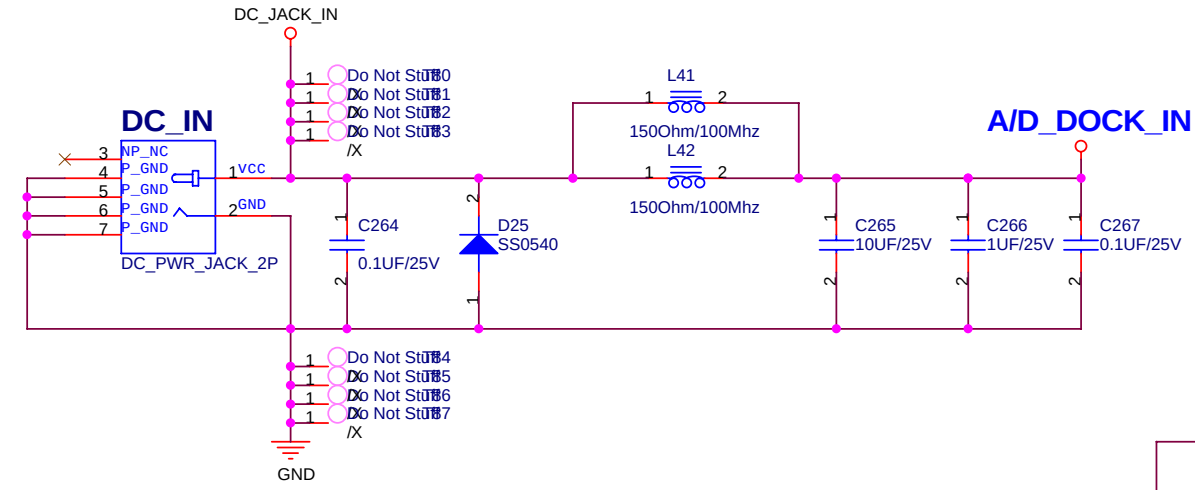


SM Bus Address fix at:
1001 100x (98), Resolution : +/- 1 degree

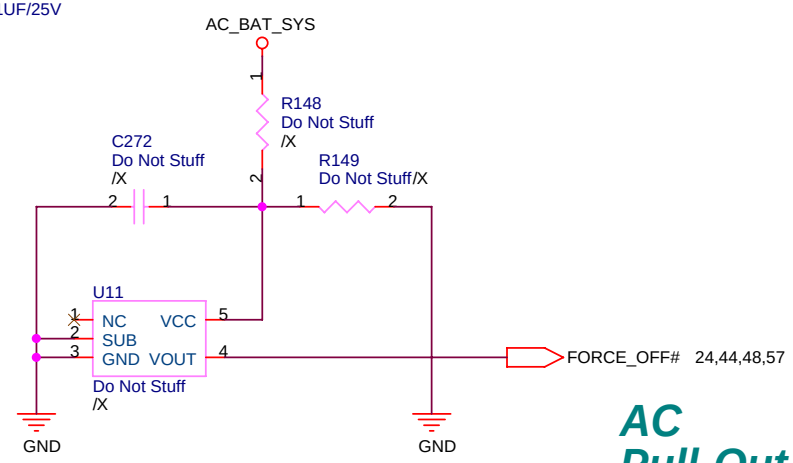
0414_1209

ASUSTek Computer INC.	Title : Thermal Sensor & Fan	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 44 of 66	

DC-IN Connector

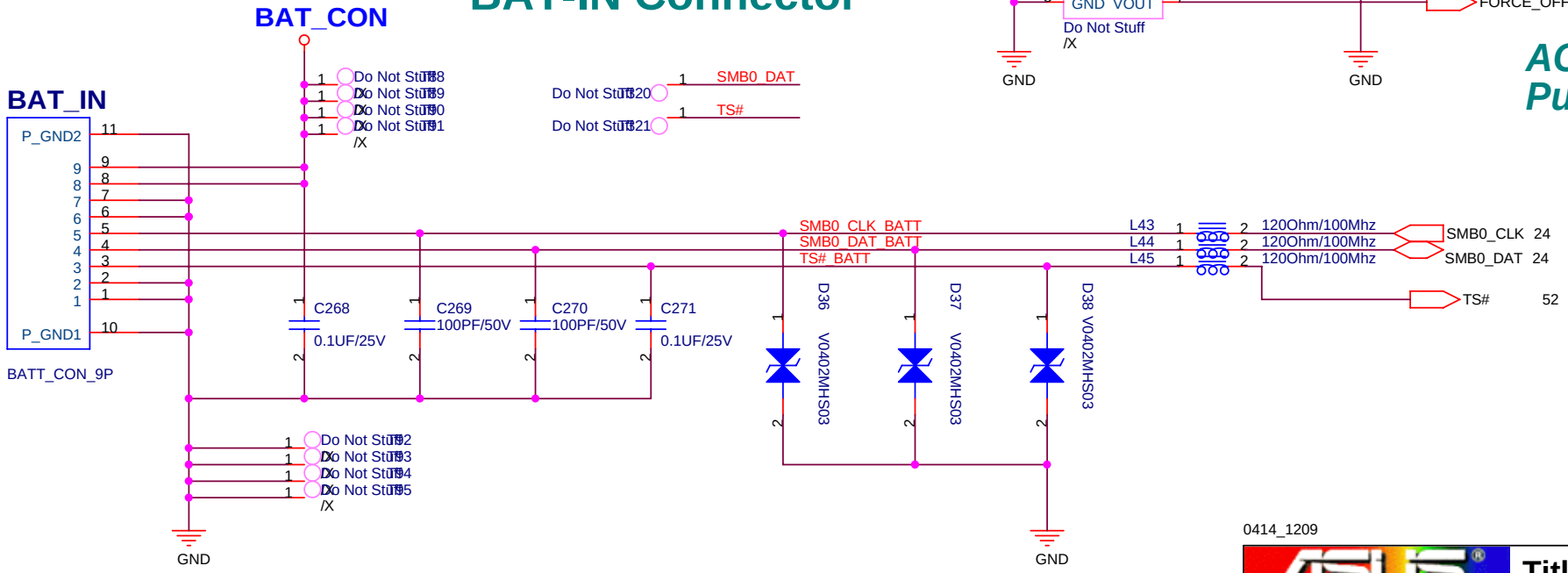


Without Battery & Pull out Adapter



BAT-IN Connector

AC Pull-Out

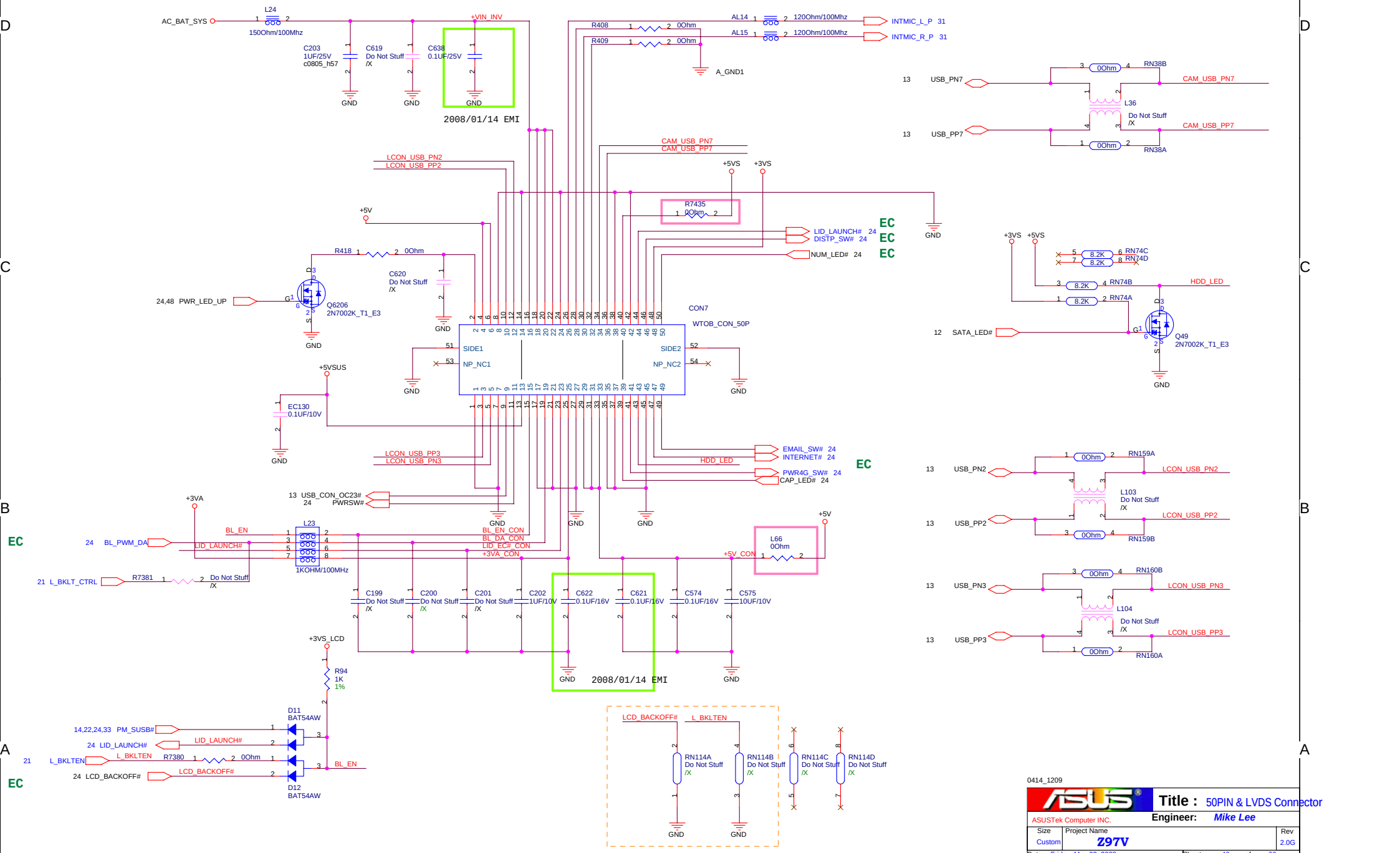


0414_1209

ASUSTek Computer INC.	Title : DC IN & BAT IN	
	Engineer: Tony Kao	
Size: A4	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 45 of 66	

LCD Backlight Control

INVERTER Connector



0414_1209

ASUSTek Computer INC.

Title : 50PIN & LVDS Connector

Engineer: Mike Lee

Size	Project Name	Rev
Custom	Z97V	2.0G

Date: Friday, May 09, 2008 Sheet 46 of 66

From SB

13 SPI_SI → Q50 2N7002K_T1_E3 → RSPI_MOSI

13 SPI_SO → Q51 2N7002K_T1_E3 → RSPI_MISO

13 SPI_CLK → Q52 2N7002K_T1_E3 → RSPI_CLK

13 SPI_CS#0 → Q6209 2N7002K_T1_E3 → RSPI_CS#0

13 SPI_CS#1 → Q6210 Do Not Stuff /X → RSPI_CS#1

PROGRAMMING SELECT	Stuff SW1 (R7428 NU)		Stuff R7428 (SW1 NU)
	P1	P2	
PROGRAM SPI 0	ON	OFF	V
PROGRAM SPI 1	OFF	ON	X

+3VSUS, +3VSUS_SPI

D34 Do Not Stuff /X

+3VS

D49 BAT54AW

R7428 0Ohm: RSPI_CS#1, RSPI_CS# CON, RSPI_CS#0 → SW1 (GND1, GND2, NP_NC1, NP_NC2) Do Not Stuff /X; GND

+3VSUS_SPI

12G17100006F SPI_J1 (WtoB_CON_6P)

RSPI_MOSI, RSPI_MISO, RSPI_CLK, RSPI_CS# CON; SIDE1, SIDE2; GND

C604 0.1UF/16V

SPI0

U216 SST25VF080B (8Mb)

R689 3.3KOhm, R690 3.3KOhm

RSPI_CS#0, RSPI_MISO → R692 15Ohm → +3VM_SPI0_WP#

+3VM_SPI0_HD#

R693 47Ohm, R694 47Ohm → RSPI_CLK, RSPI_MOSI

SPI1

U217 (16Mb) Do Not Stuff /X

R695 Do Not Stuff /X, R696 Do Not Stuff /X, C975 Do Not Stuff /X

RSPI_CS#1 → R697 Do Not Stuff /X → +3VM_SPI1_WP#

+3VM_SPI1_HD#

R698 Do Not Stuff /X, R699 Do Not Stuff /X

0414_1209

Title : SPI Flash

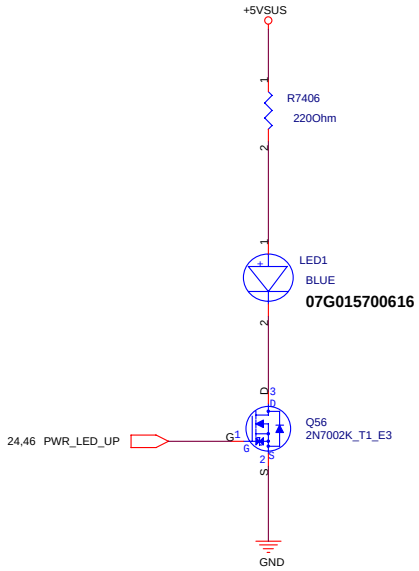
ASUSTek Computer INC. Engineer: Mike Lee

Size	Project Name	Rev
Custom	Z97V	2.0G

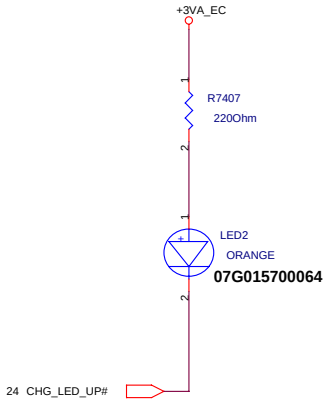
Date: Friday, May 09, 2008 Sheet 47 of 66

LED

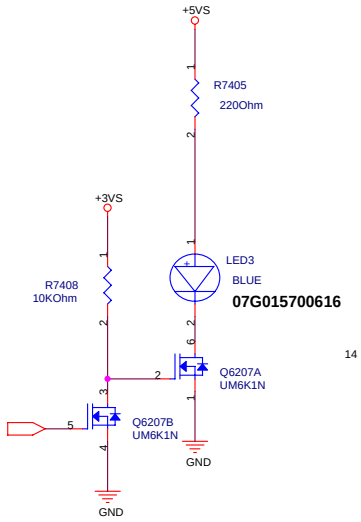
POWER LED



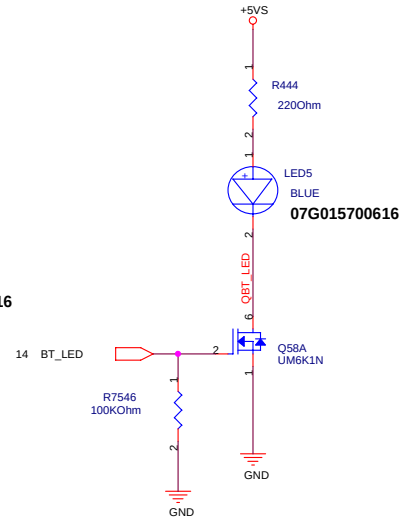
BATTERY LED



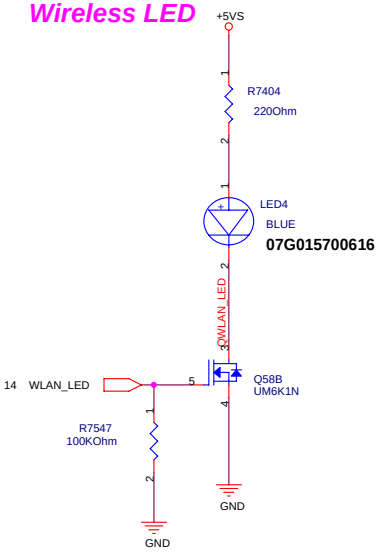
EMAIL LED



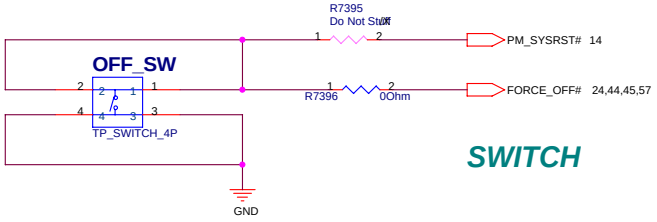
Bluetooth LED



Wireless LED

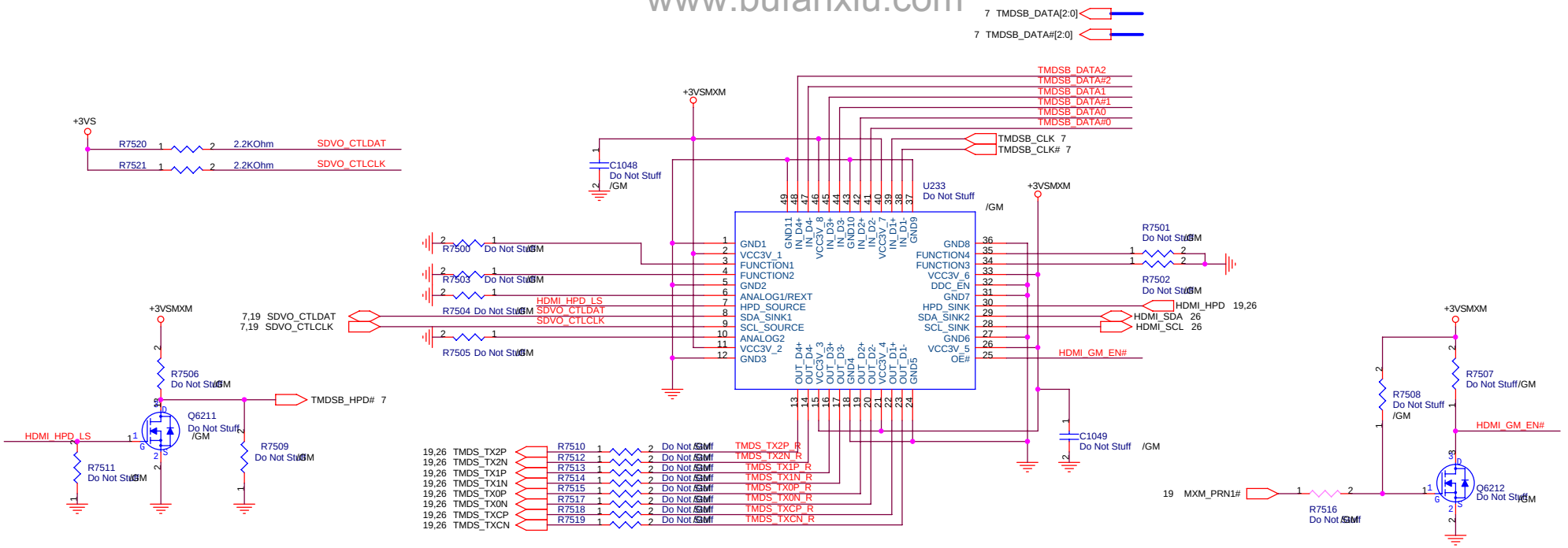


RESET SWITCH



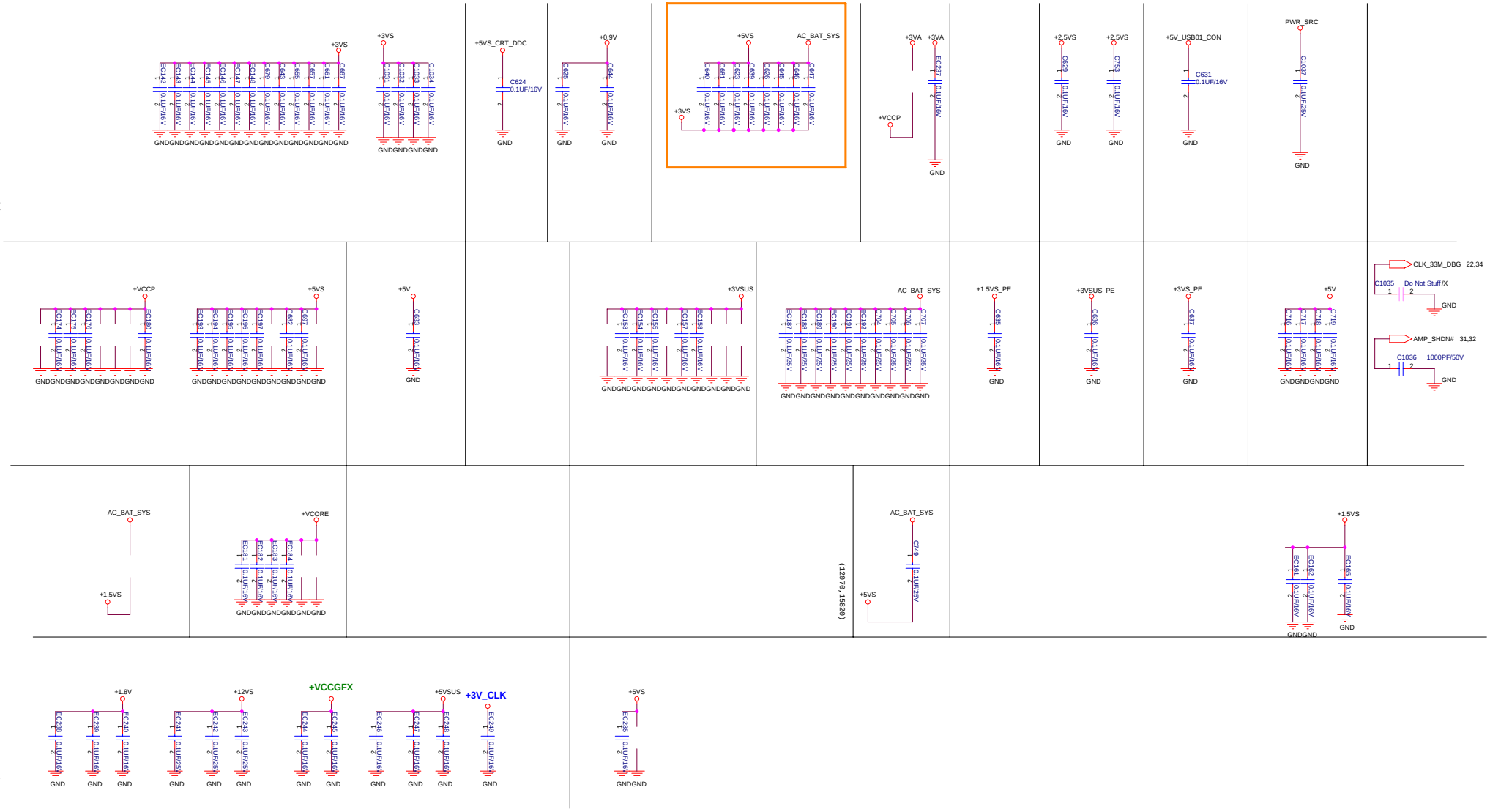
SWITCH

0414_1209			
ASUSTek Computer INC.	Title : RST SW / LED		
	Engineer: Mike Lee		
Size: Custom	Project Name: Z97V		Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 48 of 66		



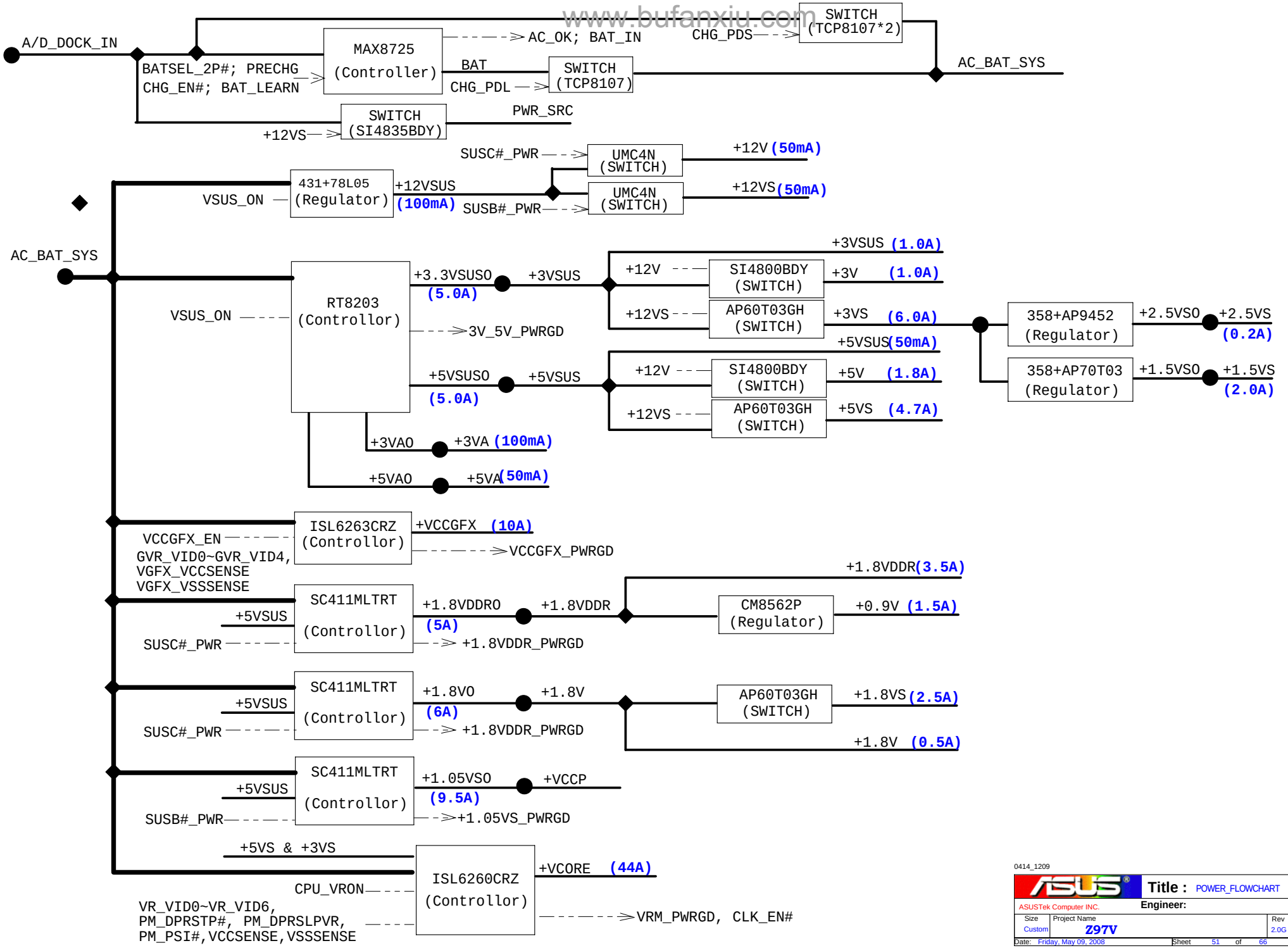
0414_1209

ASUSTeK COMPUTER INC. NB6	Title : HDMI LEVEL SHIFTERS	
	Engineer: Mike Lee	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 49 of 66	



0414_1209

ASUSTek Computer INC.	Title : EMI CAP	
	Engineer: Mike Lee	
Size: C	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 50 of 66	



0414_1209

ASUSTek Computer INC.

Title : POWER_FLOWCHART

Engineer:

Size	Project Name	Rev
Custom	Z97V	2.0G

Date: Friday, May 09, 2008 Sheet 51 of 66

AC_IN Threshold 2.048Vmax A/D_DOCK_IN > 12.27V active

Setting the Adapter Input Current Limit

Adapter Iin(max) = [0.075V/Rsense(ADin)]*[VCLS/VREF]
VCLS= 2.865V

Adaptor Max. Current :

PR807=20K PR812 = 178K; Ilimit = 4.5A; 90W
PR807=27K PR812 = 47K; Ilimit = 3.5A; 65W

Setting the Charge Voltage

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

Setting the Charge Current

Charge Current Ichg = [0.075V/Rsense(CHG)]*[VICTL/3.6V]
Rsense(CHG)= 15m Ohm

Pre-Charging Mode :

Precharging current = 126mA
Victl = 0.0909V

Battery Cell Selection :

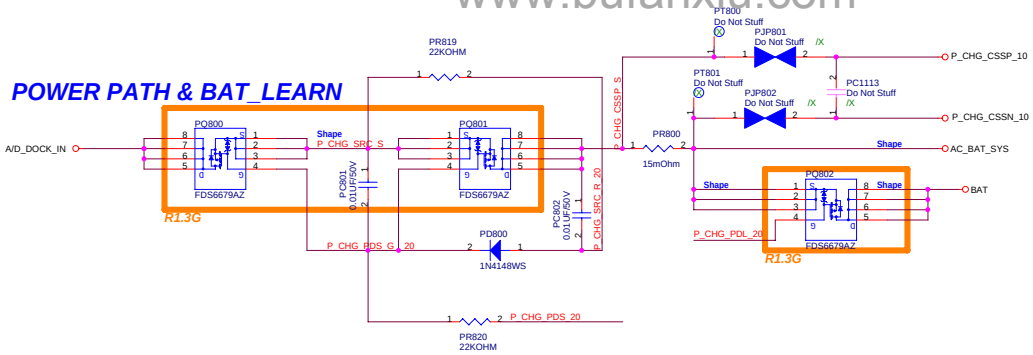
BATSEL_2P# = 1, 3 Cells; Victl = 2.084V
=> Icharge = 1.6933A
BATSEL_2P# = 0, 6 or 9 Cells; Victl = 2.111V
=> Icharge = 2.9329A

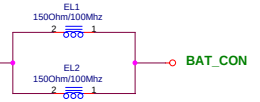
PR814=120K PR813 = 120K; Icharge = 2.9329A

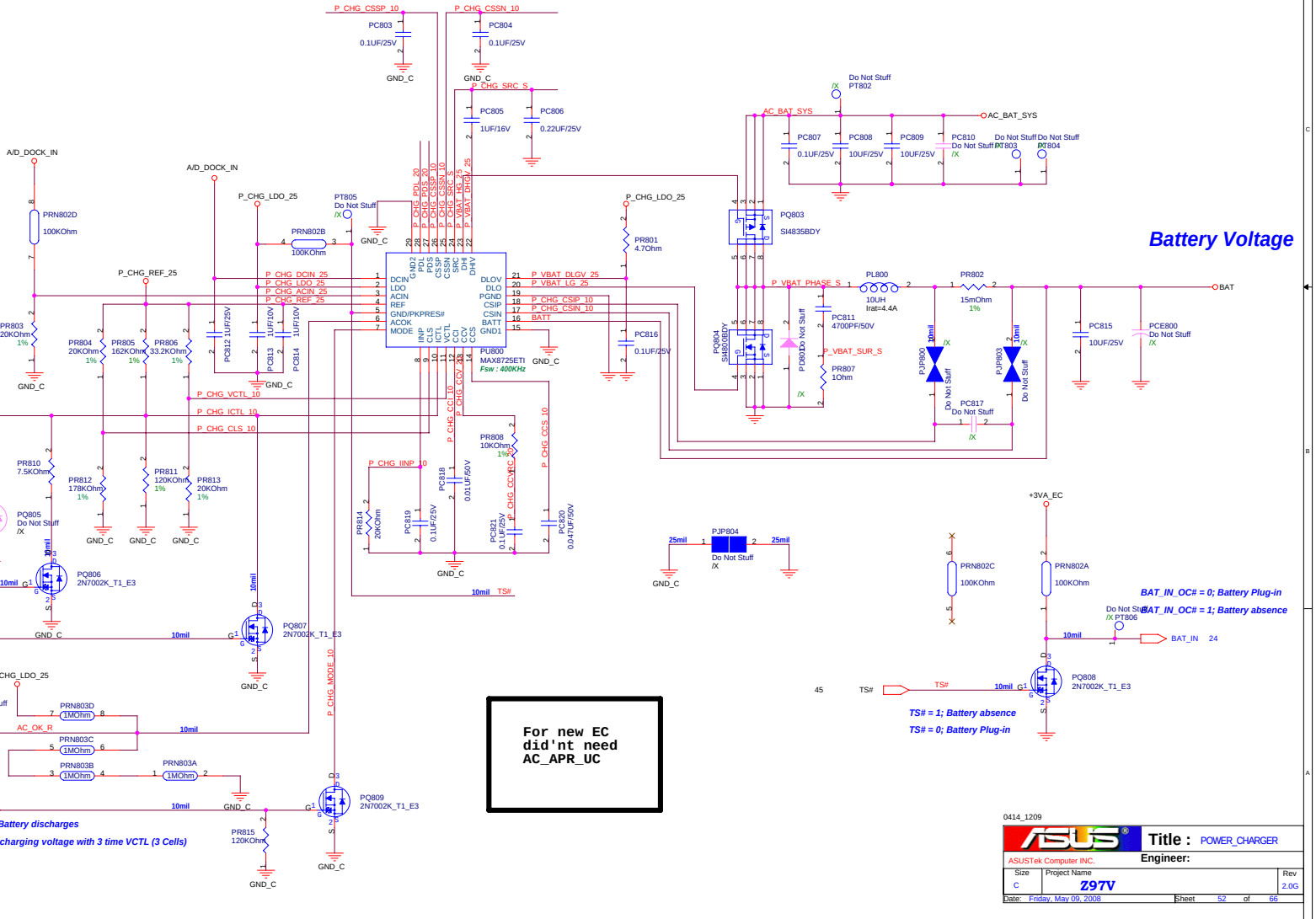
Mode pin : Vmode > 2.8V (trie to LDO pin) ----> 4 Cells
2.0 > Vmode > 1.6V (floating) ----> 3 Cells
0.8 > Vmode (trie to GND) ----> Learning mode
VICTL< 0.8V or DCIN < 7V -->Charger Disable

MAX8725_REF : 4.2235V
MAX8725_LDO : 5.4V

POWER PATH & BAT_LEARN





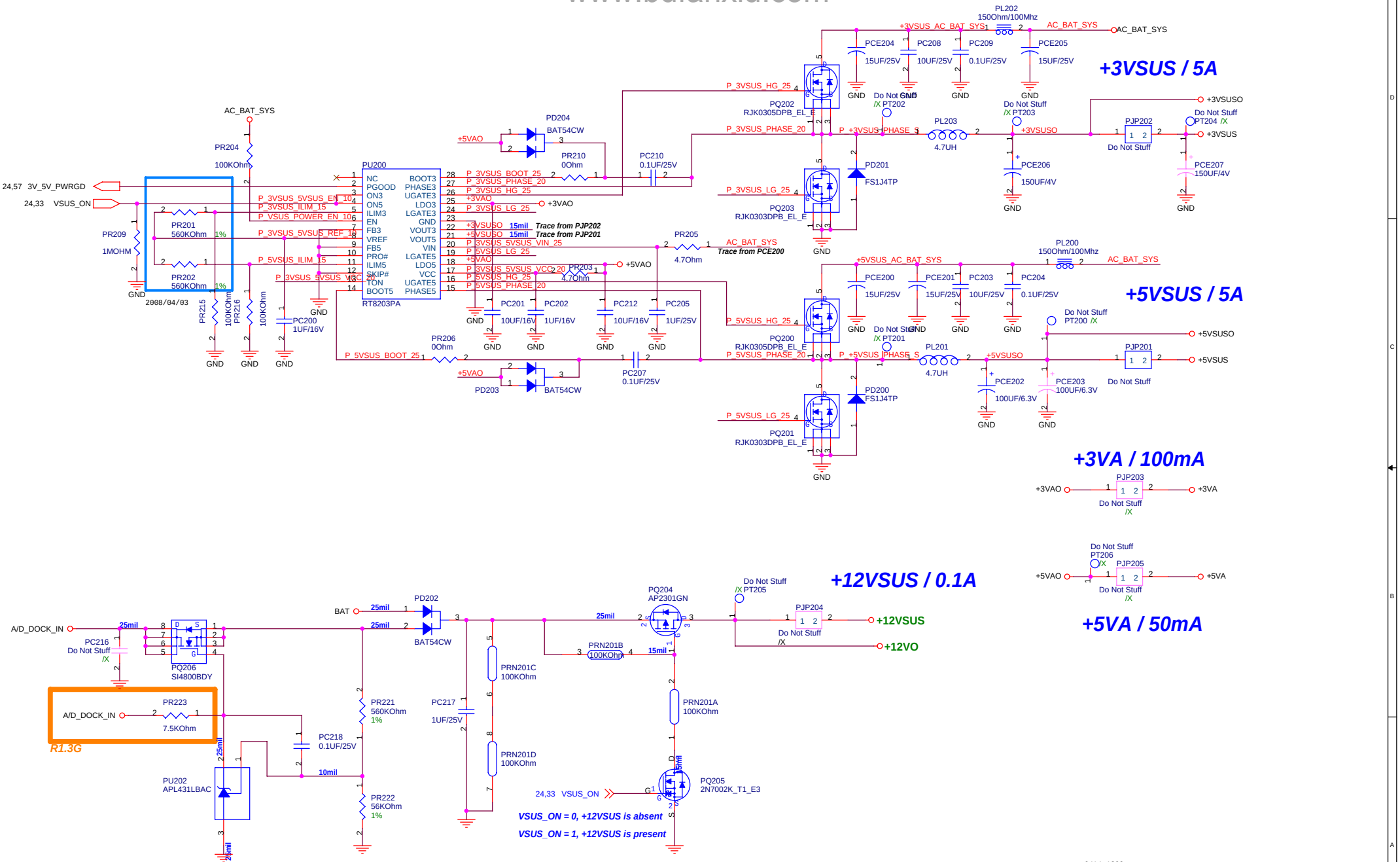


Battery Voltage

For new EC did'nt need AC_APR_UC

0414_1209

ASUSTek Computer INC.	Title : POWER_CHARGER	
	Engineer:	
Size: C	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 52 of 66	



0414_1209

ASUSTek Computer INC.	Title : POWER_SYSTEM	
	Engineer:	
Size: A3	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 53 of 66	

22,24 CPU_VRON

CPU_VRON = 1, Vcore Reglator Enabled

7,14 PM_DPRSLPVR

PM_DPRSLPVR = 1, CPU Deeper Sleep Mode is enabled

3,7,12 H_DPRSTP#

PM_DPRSTP# = 0, CPU is in Deeper Sleep Mode

14,22 CLK_EN#

CLK_EN# = 0, Clock is enabled

24,57 VRM_PWRGD

VRM_PWRGD = 1, Vcore Power OK

3 PM_PSI#

PSI# = 0, Light Load (2-phase)

AC_OK	LoadLine
L	1m Ohm
H	2.1m Ohm

AC_OK = 1, Adaptor is present

AC_OK = 0, Adaptor is absent

14,19,24,52 AC_OK

24 Vcore_MON

10/11

04/10

04/10

04/10

ISL6260CCRZ-T

PU101 ISL6208CRZ

PU102 ISL6208CRZ

PU103 Do Not Stuff /X

PU100

Part Refer	2-Phases	3-Phases
PR118	12K Ohm	7.5K Ohm
PR113	5.1K Ohm	7.5K Ohm
PR126	5.1K Ohm	7.5K Ohm

VCORE_OV1	VCORE_OV2	Voltage
L	L	VID+100mV
H	L	VID+66mV
L	H	VID+33mV
H	H	VID

VCORE_SEL0	VCORE_SEL1	Voltage
L	L	VID-150mV
H	L	VID-100mV
L	H	VID-50mV
H	H	VID

+VCORE

0414_1209

Title :

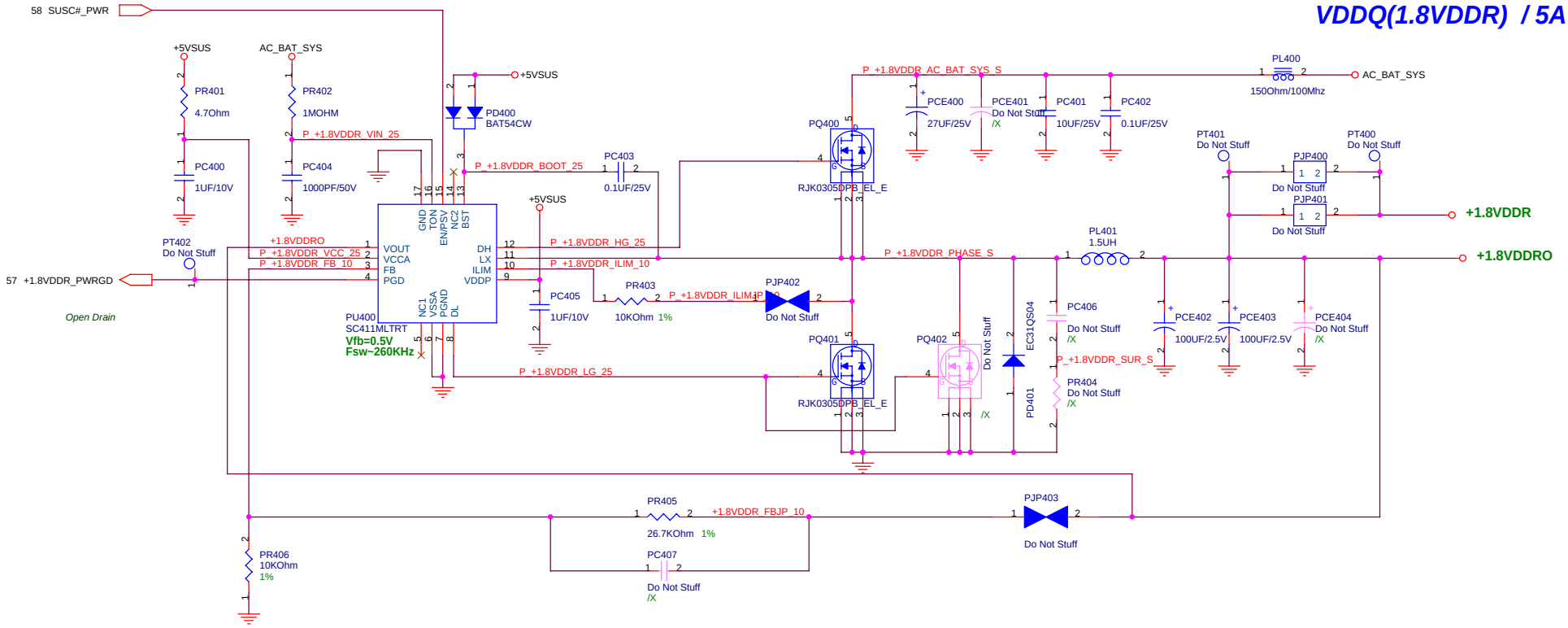
<OrgName>

Engineer:

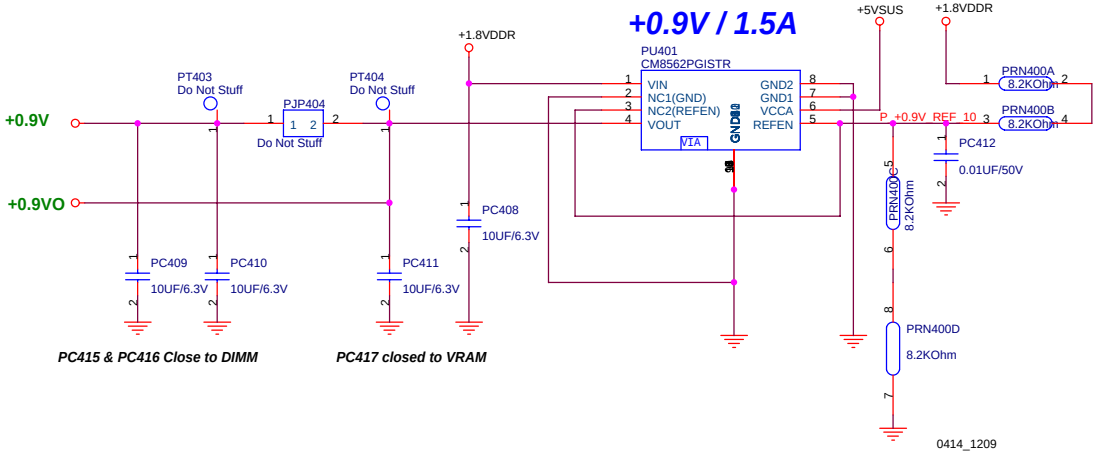
Size: Custom | Project Name | Rev: 2.0G

Date: Friday, May 09, 2008 | Sheet 54 of 66

VDDQ(1.8VDDR) / 5A



+0.9V / 1.5A



PC415 & PC416 Close to DIMM

PC417 closed to VRAM

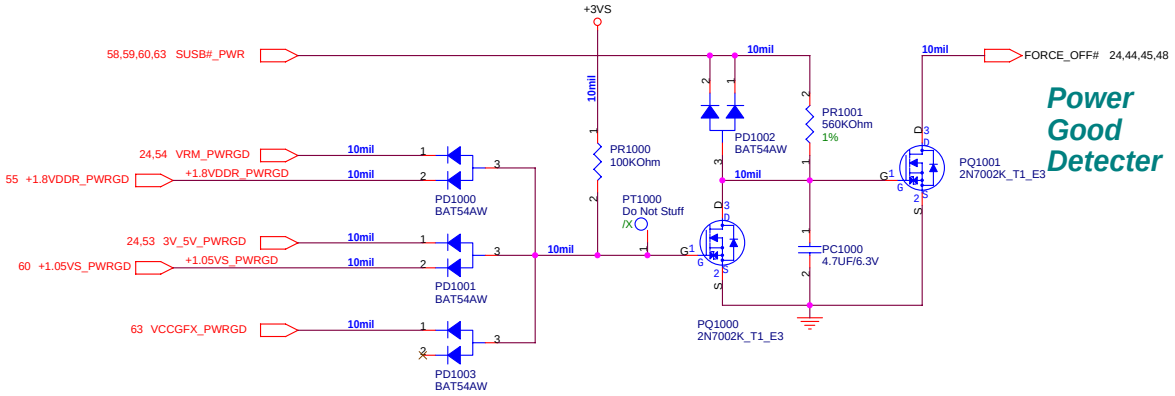
0414_1209

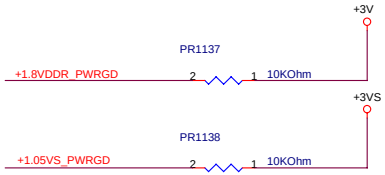
<OrgName>	Title :	
	Engineer:	
Size: A3	Project Name	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 55 of 66	

BLANK

0414_1209

ASUSTek Computer INC.	Title : POWER_I/O_+3VA & +2.5V	
	Engineer:	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 56 of 66	

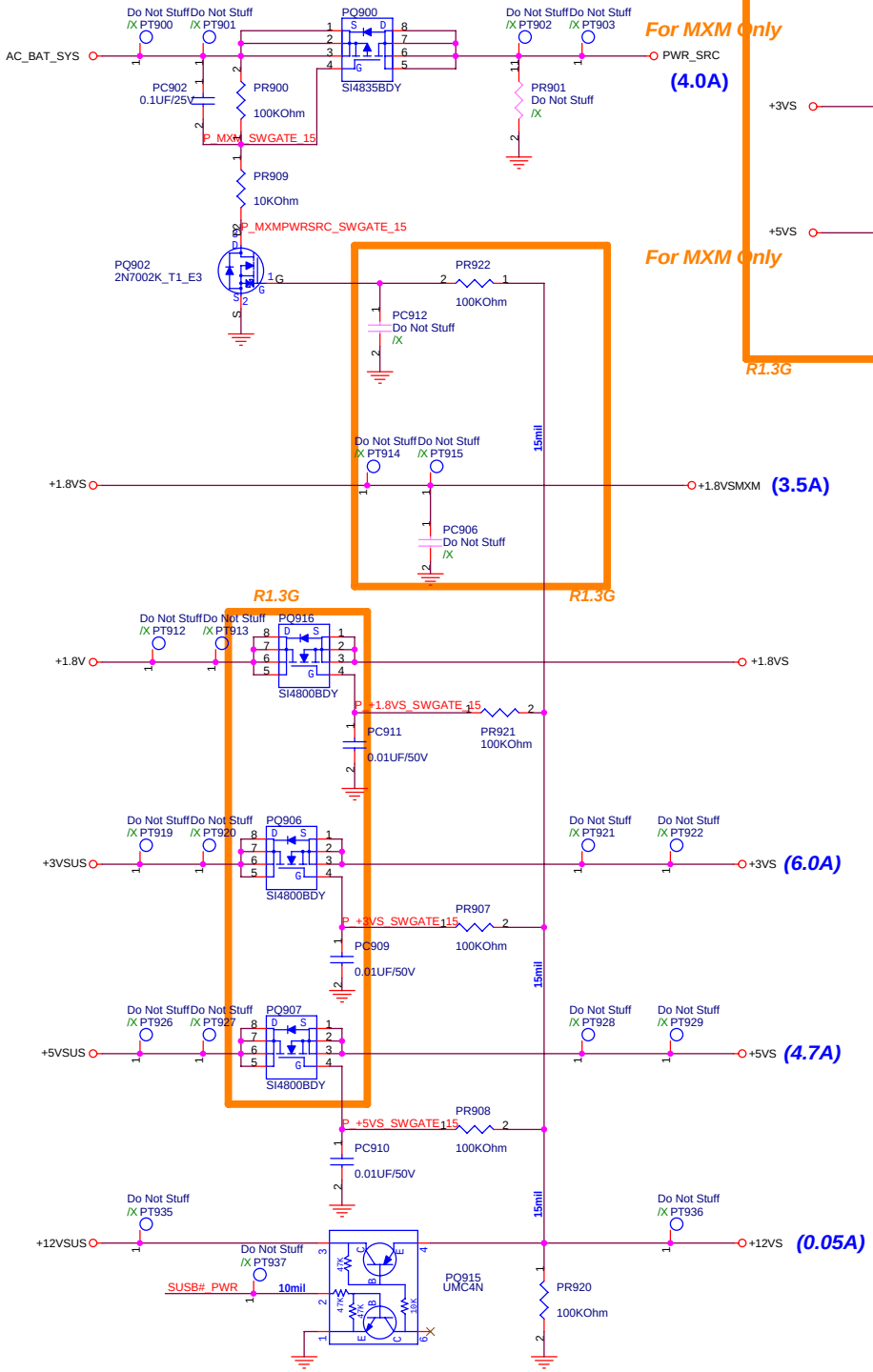


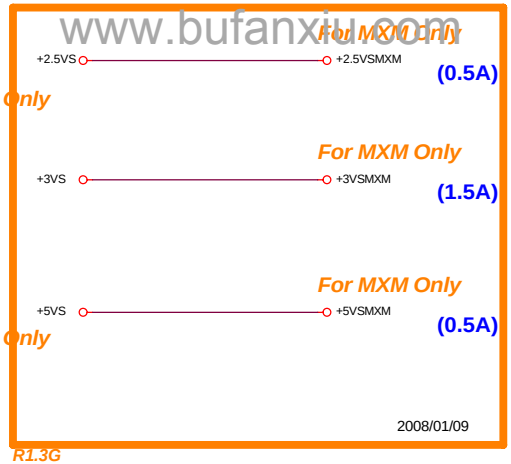


0414_1209

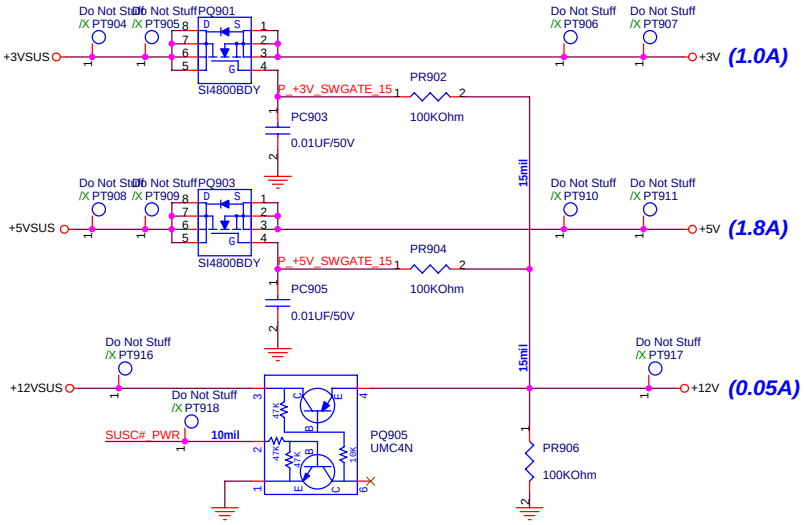
ASUSTek Computer INC.	Title : POWER_PROTECT	
	Engineer:	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 57 of 66	

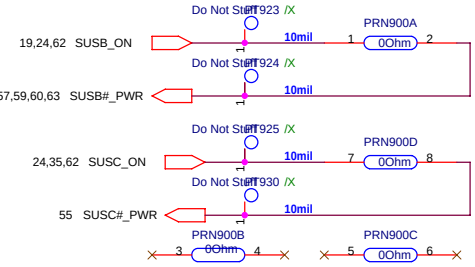
SUSB#_PWR POWER





SUSC#_PWR POWER





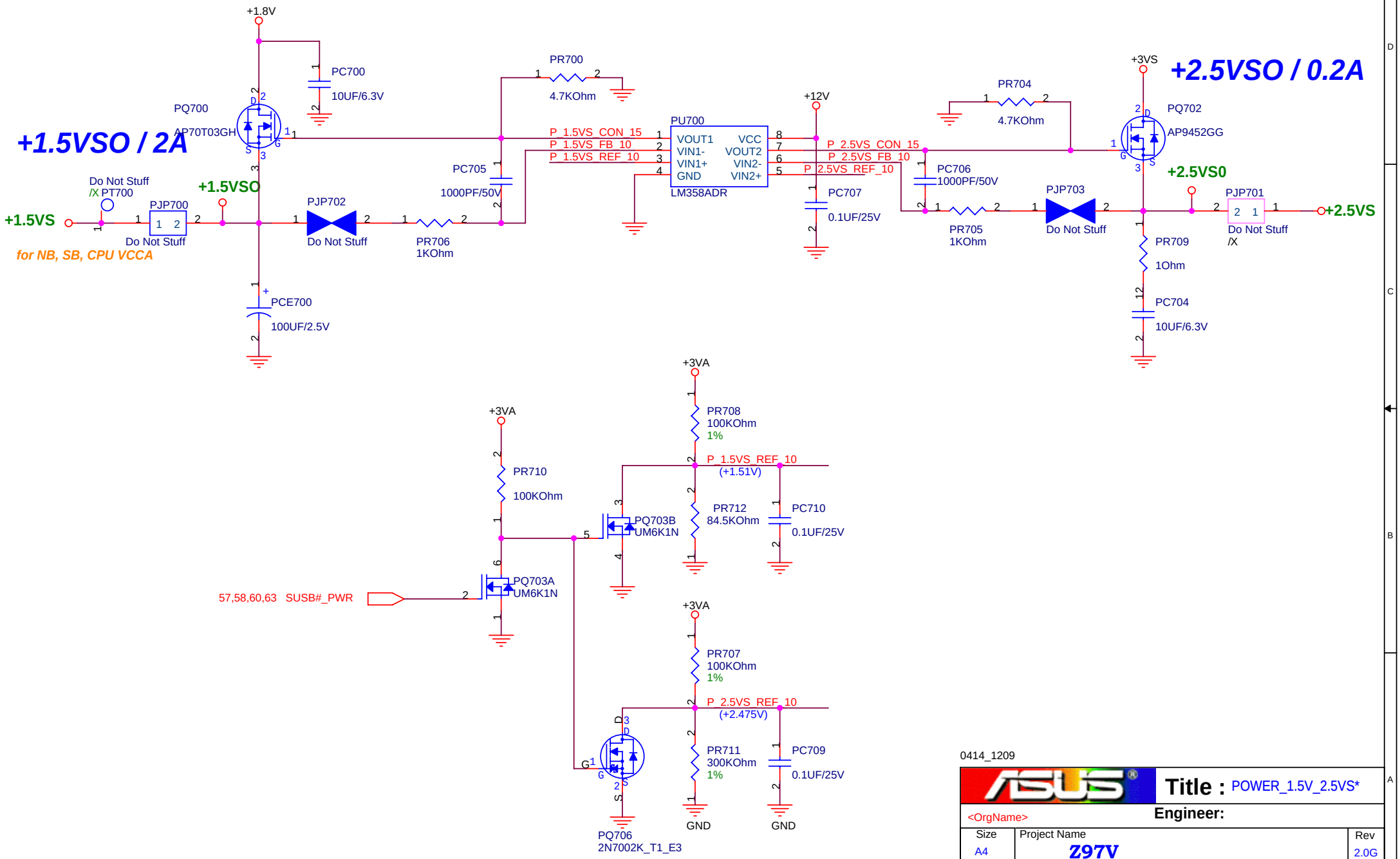
0414_1209

Title : POWER_LOAD SWITCH

ASUSTek Computer INC. Engineer:

Size	Project Name	Rev
A3	Z97V	2.0G

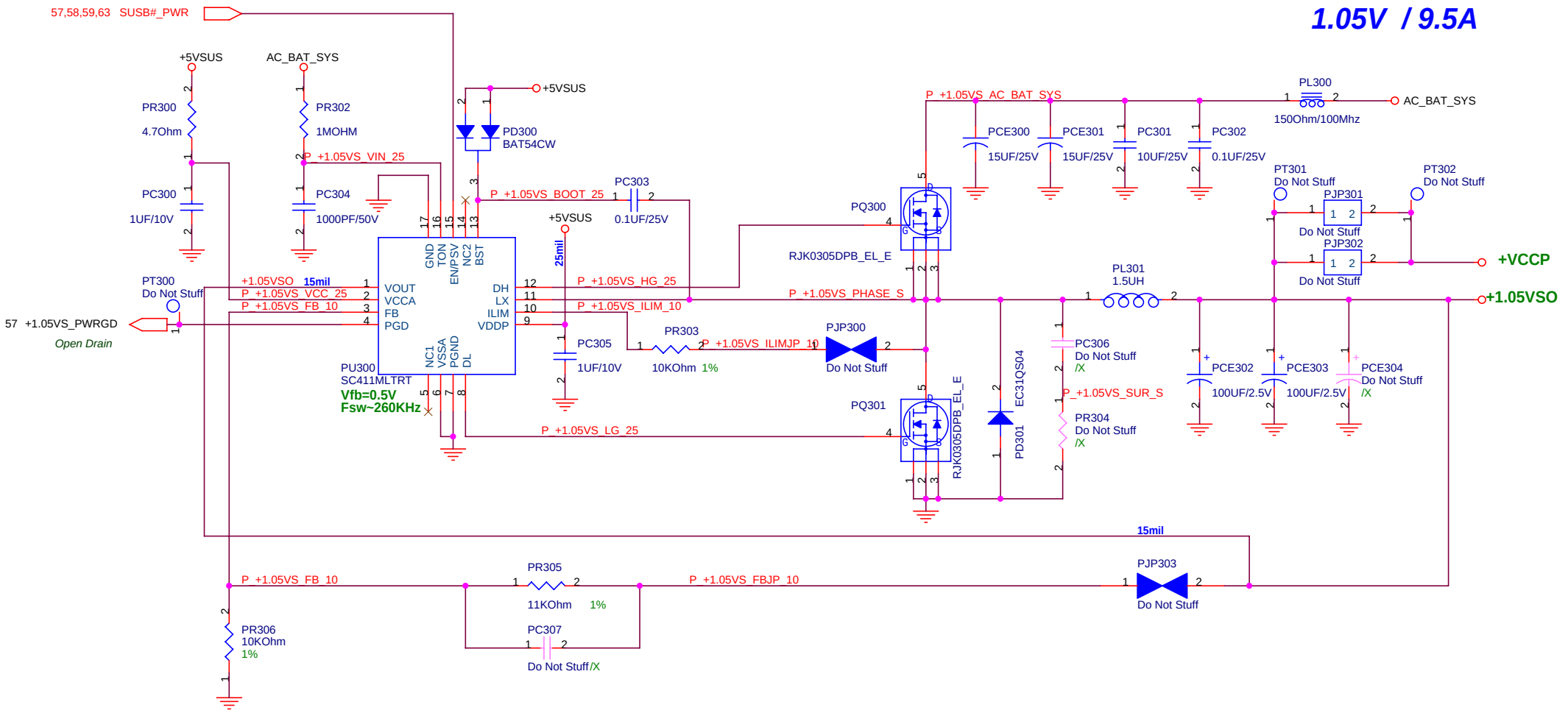
Date: Friday, May 09, 2008 Sheet 58 of 66



0414_1209

<OrgName>	Title : POWER_1.5V_2.5VS*	
	Engineer:	
Size: A4	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 59 of 66	

1.05V / 9.5A



0414_1209

Title : POWER_1.05VS

<OrgName>

Engineer:

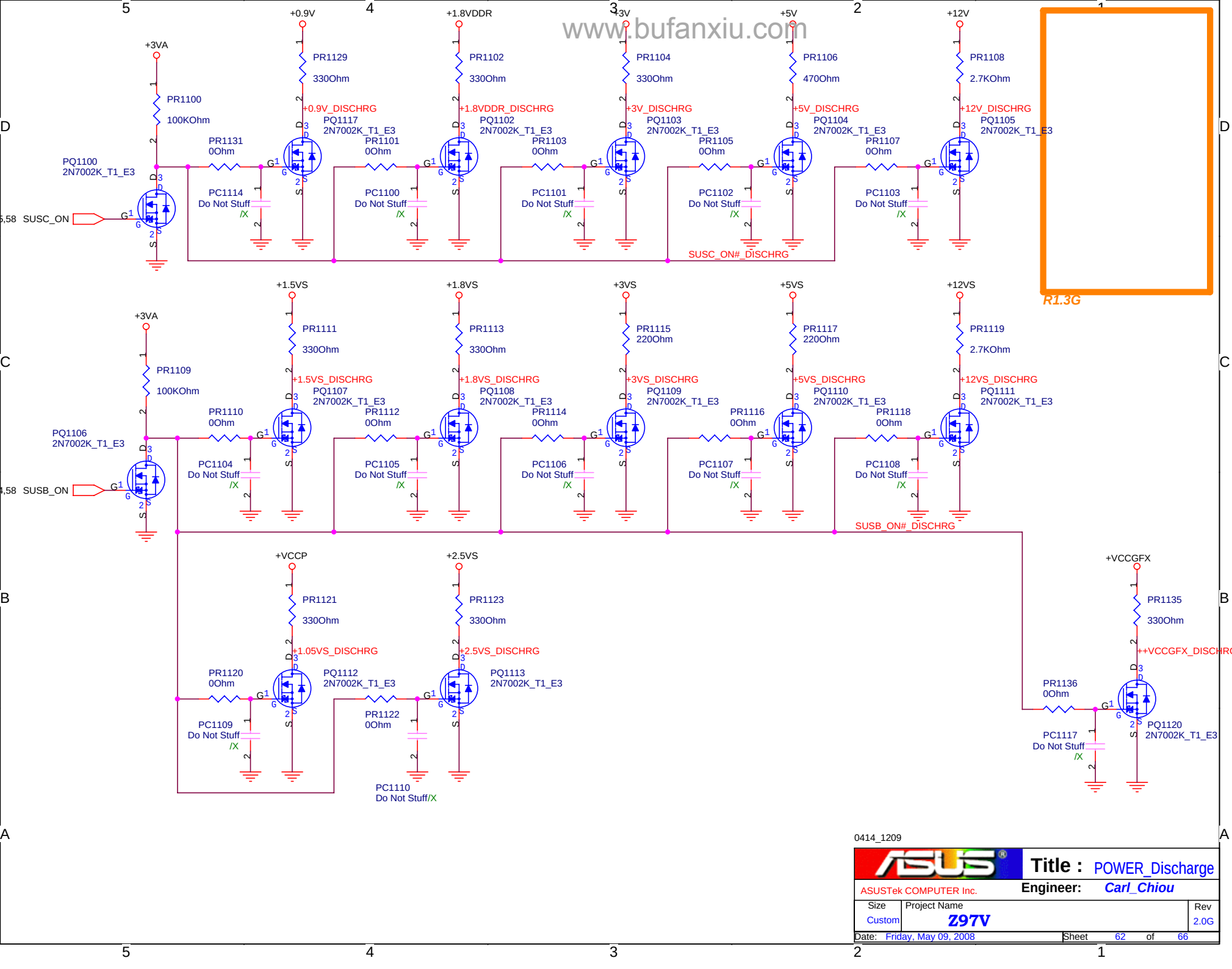
Size	Project Name	Rev
Custom		2.0G

Date: Friday, May 09, 2008 Sheet 60 of 66

R1.3G

0414_1209

ASUSTek Computer INC.	Title : POWER-ON SEQ.	
	Engineer: Mike Lee	
Size: A3	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 61 of 66	



0414_1209

ASUSTek COMPUTER Inc.	Title : POWER_Discharge	
	Engineer: Carl_Chiou	
Size: Custom	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 62 of 66	

+VCCGFX / 10A

PU500

PQ500

PQ501

PQ502

PJP513

PT505

PL500

PL501

PL502

PL503

PJP507

PJP508

PJP509

PJP510

PJP511

PJP512

PR533 /X Do Not Stuff

PR534 Do Not Stuff /GM

PR500 Do Not Stuff /GM

PR511 Do Not Stuff /GM

PR512 Do Not Stuff /X

PR514 2KOhm

PR515 Do Not Stuff 1% /GM

PR516 Do Not Stuff /GM

PR517 Do Not Stuff /GM

PR518 Do Not Stuff /GM

PR521 Do Not Stuff /GM

PR522 Do Not Stuff /GM

PR524 Do Not Stuff 1%

PR525 Do Not Stuff /GM

PR526 Do Not Stuff /GM

PR527 Do Not Stuff 1% /GM

PR528 Do Not Stuff 1% /GM

PR529 Do Not Stuff 1% /GM

PR530 1% /GM

PR531 Do Not Stuff /GM

PR532 Do Not Stuff /GM

PR540 Do Not Stuff

PR541 Do Not Stuff

PR542 Do Not Stuff

PR543 Do Not Stuff

PR544 Do Not Stuff

PR545 Do Not Stuff

PR546 Do Not Stuff

PR547 Do Not Stuff

PR548 Do Not Stuff

PR549 Do Not Stuff

PR579 Do Not Stuff /X VID - 150 mV

PR580 Do Not Stuff /X

PR581 Do Not Stuff 1% /X

PR501 Do Not Stuff /GM

PR502 Do Not Stuff /GM

PC500 Do Not Stuff /GM

PC501 Do Not Stuff /GM

PC502 Do Not Stuff /GM

PC503 Do Not Stuff /GM

PC504 Do Not Stuff /GM

PC505 Do Not Stuff /GM

PC506 Do Not Stuff /GM

PC507 Do Not Stuff /GM

PC508 Do Not Stuff /GM

PC509 Do Not Stuff /GM

PC510 Do Not Stuff /GM

PC511 Do Not Stuff /GM

PC512 Do Not Stuff /GM

PC513 Do Not Stuff /GM

PC514 Do Not Stuff /GM

PC515 Do Not Stuff /GM

PC516 Do Not Stuff /GM

PC517 Do Not Stuff /GM

PC518 Do Not Stuff /GM

PC519 Do Not Stuff /GM

PCE500 Do Not Stuff /GM

PCE501 Do Not Stuff /GM

PCE503 Do Not Stuff /GM

Shape

Close to PL501

+VCCGFXO

+VCCGFX

+VCCP

AC_BAT_SYS

+3VS

+5VS

+3VC

GFX_GND

GND

57,58,59,60 SUSB#_PWR

7 VCCGFX_EN

57 VCCGFX_PWRGD

9 VGFX_VCCSENSE

9 VGFX_VSSSENSE

VCCGFX_PMONITOR

VGFX_SEL0

P_VGFX_VID4_5

P_VGFX_VID3_5

P_VGFX_VID2_5

P_VGFX_VID1_5

P_VGFX_VID0_5

GVR_VID4 7

GVR_VID3 7

GVR_VID2 7

GVR_VID1 7

GVR_VID0 7

P_VGFX_VPRM_10

P_VGFX_RBIAS_10

P_VGFX_SOFT_10

P_VGFX_OCSET_10

P_VGFX_VW_10

P_VGFX_COMP_10

P_VGFX_FB_10

P_VGFX_VDIFF_RC_10

P_VGFX_VDIFF_10

P_VGFX_VCCSENSE_10

P_VGFX_VSSSENSE_10

P_VGFX_LG_25

P_VGFX_PHASE_S

P_VGFX_HG_25

P_VGFX_BOOT_25

P_VGFX_VDD_25

P_VGFX_VSUM_10

P_VGFX_DROOP_10

P_VGFX_DROOPFB_10

P_VGFX_VPRM_10

P_VGFX_VSUM_10

P_VGFX_SUR_S

VGFX_SYS_IN

P_VCCGFX_PWRGD_10

P_VCCGFX_AHEN_10

P_VCCGFX_VRON_10

P_VCCGFX_PMONITOR_10

RBIAS SOFT OCSET VW COMP FB VDIFF VSEN

RTN DROOP DFB VO VSUM VIN VSS VDD

GND FDE PGOOD AF_EN VR_ON PMON VID4 VID3 VID2

VID1 VID0 PVCC LGATE PGND PHASE UGATE BOOT

25mil

20mil

Do Not Stuff

/GM

/X

1%

VID - 150 mV

Close to PL501

0414_1209

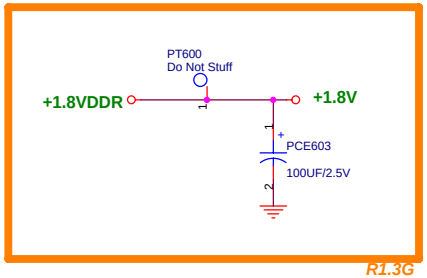
ASUSTek COMPUTER Inc.

Title : POWER_VCCGFX

Engineer: Carl_Chiou

Size	Project Name	Rev
A3	Z97V	2.0G

Date: Friday, May 09, 2008 Sheet 63 of 66

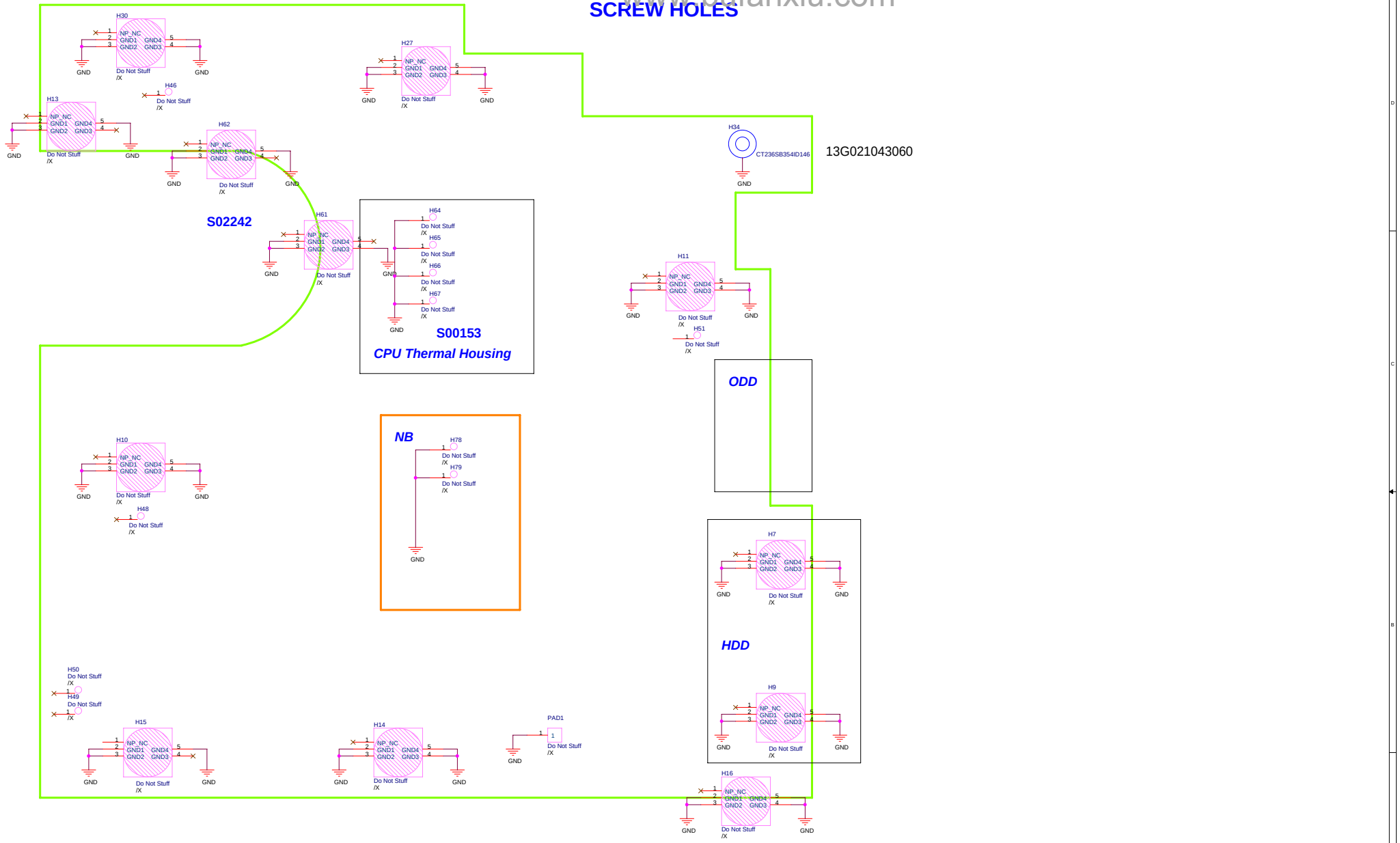


+1.8V / 6A

0414_1209

ASUSTek COMPUTER Inc.	Title : POWER_+1.8V	
	Engineer: Carl_Chiou	
Size: A3	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 64 of 66	

SCREW HOLES



0414_1209

ASUSTek Computer INC.	Title : Screw Hole	
	Engineer: Mike Lee	
Size: C	Project Name: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 65 of 66	

0414_1209

Title: History		
Size: C	Document Number: Z97V	Rev: 2.0G
Date: Friday, May 09, 2008	Sheet 66 of 66	