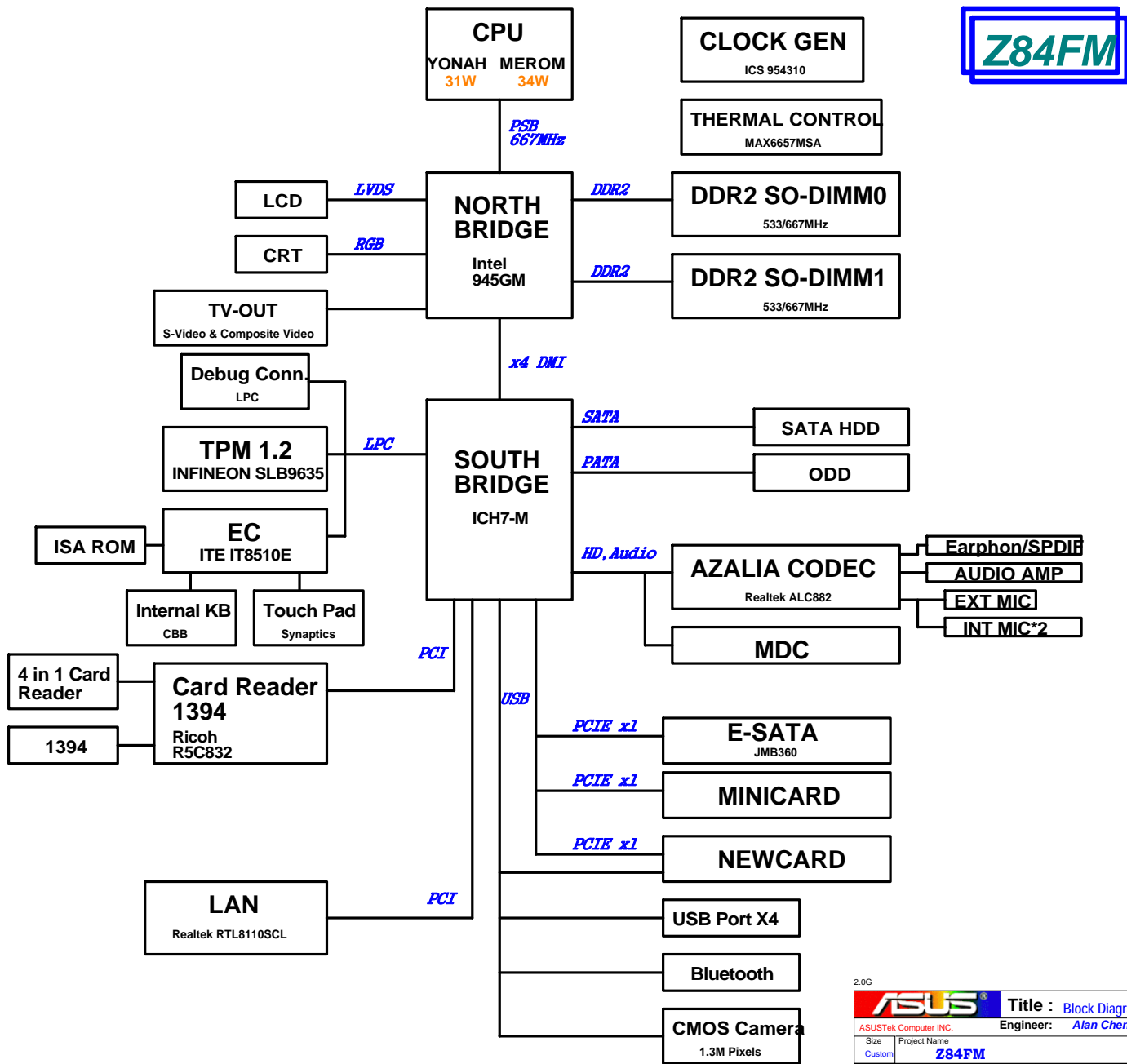


- 01_Block Diagram
- 02_System Setting
- 03_CPU-YONAH(HOST)
- 04_CPU-YONAH(PWR)
- 05_NB-945GM(HOST)
- 06_NB-945GM(DMI & CFG)
- 07_NB-945GM(GRAPHIC)
- 08_NB-945GM(DDR2)
- 09_NB-945GM(PWR)
- 10_NB-945GM(PWR2)
- 11_NB-945GM(GND)
- 12_SB-ICH7M(1)
- 13_SB-ICH7M(2)
- 14_SB-ICH7M(3)
- 15_SB-ICH7M(PWR)
- 16_DDR2 SO-DIMM0
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- 18_DDR2 TERMINATION
- 19_CRT
- 20_LVDS & INVERTER CONNECTOR
- 21_TV OUT CONN
- 22_THER SENSOR & FAN
- 23_CLOCK GEN-ICS954310
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- 27_MDC&R.J45&R.J11
- 28_MINI CARD
- 29_CARD1394-R5C832(1)
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- 31_4 in 1 CARD READER
- 32_NEWCARD
- 33_CODEC-ALC882
- 34_AUDIO AMP & JCAK
- 35_EC-IT8510E
- 36_Touch Pad & KB
- 37_USB CONN
- 38_ISA ROM
- 39_LED
- 40_DC & BAT IN
- 41_Debug CONN.
- 42_SATA-HDD & ODD & E-SATA
- 43_SREW HOLE
- 44_TPM
- 45_BT
- 46_POWER_FLOWCHART
- 47_POWER_CHARGER
- 48_POWER_SYSTEM_+3VO & +5VO
- 49_POWER_VCORE
- 50_POWER_I/O_DDR & VTT
- 51_POWER_I/O_1.5VS & 1.15VS
- 52_POWER_I/O_+3VAO & +2.5VS
- 53_POWER_LOAD SWITCH
- 54_POWER_GOOD_DETECTOR
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EC GPIO SETTING

Pin	Pin Name	Signal Name	Type
32	PWM0/GPA0	BL_PWM_DA	O
33	PWM1/GPA1	FAN_PWM	O
36	PWM2/GPA2	CLK_PWRSERVE#	O
37	PWM3/GPA3	/	
38	PWM4/GPA4	CHG_LED_UP#	O
39	PWM5/GPA5	PWR_LED_UP#	O
40	PWM6/GPA6	/	
43	PWM7/GPA7	LCD_BACKOFF#	O
153	RXD/GPB0	NUM_LED	O
154	TXD/GPB1	CAP_LED	O
162	GPB2	SCRLED	O
163	SMCLK0/GPB3	SMB0_CLK	I/O
164	SMDAT0/GPB4	SMB0_DAT	I/O
5	GA20/GPB5	A20GATE	O
6	KBRST#/GPB6	RC_IN#	O
165	GPB7	/	
47	CLKOUT/GPC0	/	
169	SMCLK1/GPC1	SMB1_CLK	I/O
170	SMDAT1/GPC2	SMB1_DAT	I/O
171	GPC3	Mail_LED	O
172	TMR10/WUI2/GPC4	AC_OK#	I
175	GPC5	OP_SD#	O
176	TMR11/WUI3/GPC6	BAT_IN_OC#	I
1	CK32KOUT/GPC7	/	
26	R11#/WUI0/GPD0	SUSB#	I
29	R2#/WUI1/GPD1	SUSC#	I
30	LPCRST#/WUI4/GPD2	PLT_RST#	I
31	ECSC#GPD3	EXT_SC#	O
41	GPD4	/	
42	GINT/GPD5	/	
62	TACH0/GPD6	FAN0_TACH	I
63	TACH1/GPD7	/	
87	ADC4/GPE0	EMAIL_SW#	I
88	ADC5/GPE1	INTERNET#	I
89	ADC6/GPE2	PWR4G_SW#	I
90	ADC7/GPE3	DISTP_SW#	I
2	PWRSW/GPE4	PWR_SW#	I
44	WUI5/GPE5	/	
24	LPCPD#/WUI6/GPE6	LID_EC#	I
25	CLKRUN#/WUI7/GPE7	/	
110	PS2CLK0/GPF0	/	
111	PS2DAT0/GPF1	/	
114	PS2CLK1/GPF2	/	
115	PS2DAT1/GPF3	/	
116	PS2CLK2/GPF4	TP_CLK	I/O
117	PS2DAT2/GPF5	TP_DAT	I/O
118	PS2CLK3/GPF6	/	
119	PS2DAT3/GPF7	/	
113	FA16/GPG0	FA16	O
112	FA17/GPG1	FA17	O
104	FA18/GPG2	FA18	O
103	FA19/GPG3	/	
3	FA20/GPG4	THRM_CPU#	I
4	FA21/GPG5	/	
27	LPC80HL/GPG6	PMTHERM#	O
28	LPC80LL/GPG7	AC_APR_UC#	I

Pin	Pin Name	Signal Name	Type
48	GPH0	VSUS_ON	O
54	GPH1	VSUS_GD#	I
55	GPH2	CPUPWR_GD#	I
69	GPH3	PM_PWRBTN#	O
70	GPH4	SUSC_ON	O
75	GPH5	SUSB_ON	O
76	GPH6	CPU_VRON	O
105	GPH7	PM_RSMRST#	O
148	GPI0	ICHT7_PWROK	O
149	GPI1	/	
152	GPI2	MCHOK	I
155	GPI3	CHG_EN#	O
156	GPI4	PRECHG	O
168	GPI5	BAT_LL#	O
174	GPI6	BAT_LEARN	O

ICHT7-M GPIO SETTING

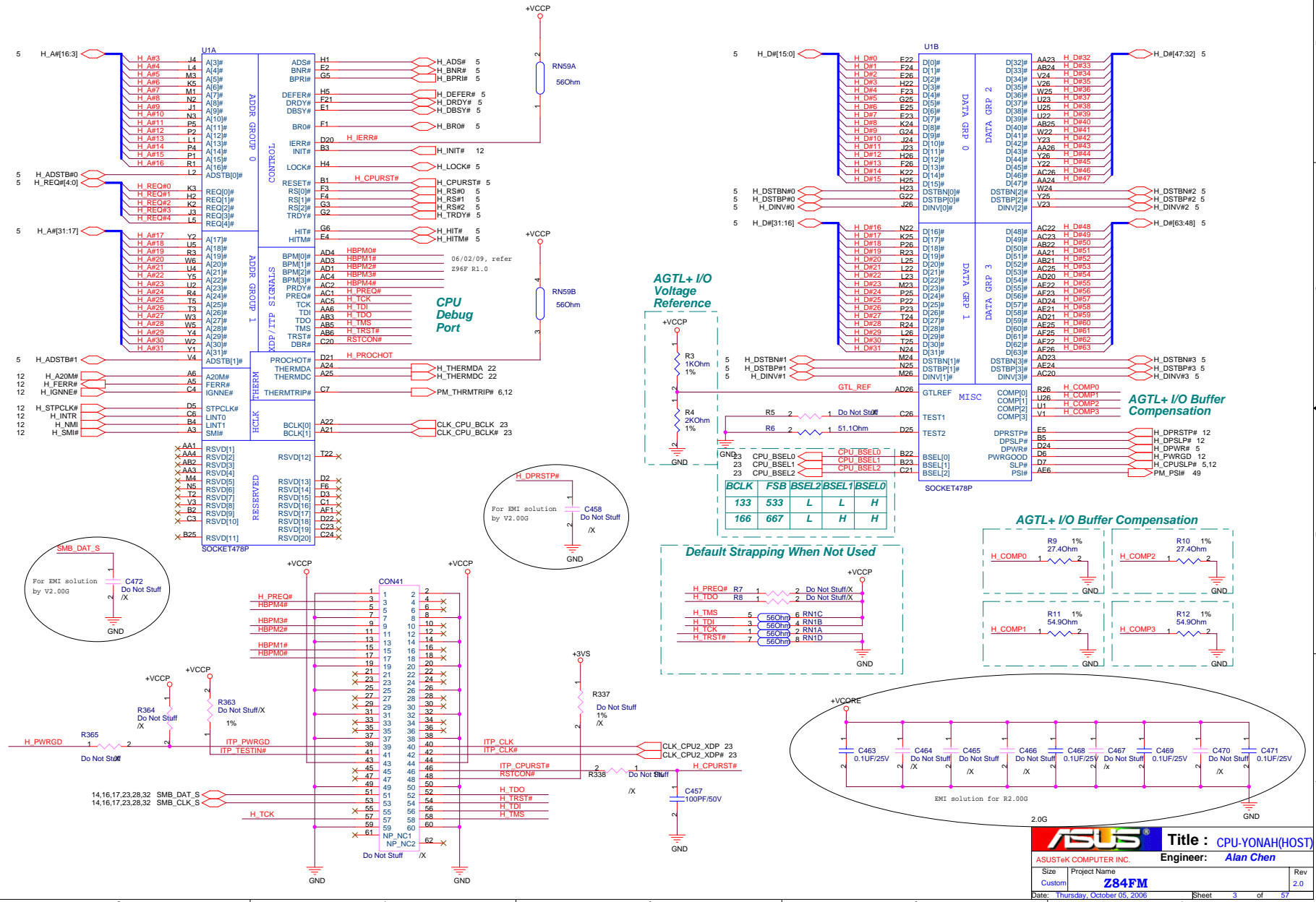
Pin	Pin Name	Signal Name	Type	Power_Well	Default
AB18	GPI000/BM_BUSY#	PM_BMBUSY#	I	Core(To:3.3V)	GPI
C8	GPI001/REQ5#	PCI_REQ#5	I/O	Core(To:5V)	GPI
G8	GPI002/PIRQE#	PCI_INTE#	I(OD)	Core(To:5V)	GPI
F7	GPI003/PIRF#	PCI_INTF#	I(OD)	Core(To:5V)	GPI
F8	GPI004/PIRQ#	PCI_INTG#	I(OD)	Core(To:5V)	GPI
G7	GPI005/PIRQH#	PCI_INTH#	I(OD)	Core(To:5V)	GPI
AC21	GPI006	NC	I/O	Core(To:3.3V)	GPI
AC18	GPI007	WLAN_BT_LED_EN#	I	Core(To:3.3V)	GPI
E21	GPI008	EXTSM#	I	SUS(To:3.3V)	GPI
E20	GPI009	SATA_DET#0	I/O	SUS(To:3.3V)	GPI
A20	GPI010	WLAN_ON#	O	SUS(To:3.3V)	GPI
B23	SMBALERT#/GPI011	SMB_ALERT#	I/O	SUS(To:3.3V)	Native
F19	GPI012	KBC_SC#	I	SUS(To:3.3V)	GPI
E19	GPI013	TP	I/O	SUS(To:3.3V)	GPI
R4	GPI014	NC	I/O	SUS(To:3.3V)	GPI
E22	GPI015	CB_SD#	I/O	SUS(To:3.3V)	GPI
AC22	GPI016	PM DPRSLPVR	O	Core(To:3.3V)	Native
D8	GPI017/GNT5#	PCI_GNT#5	I/O	Core(To:3.3V)	GPO
AC20	GPI018/STP_PC#	STP_PC#	O	Core(To:3.3V)	GPO
AH18	GPI019/SATA1GP	NC	O	Core(To:3.3V)	GPI
AF21	GPI020/STP_CPU#	STP_CPU#	O	Core(To:3.3V)	GPO
AE19	GPI021/SATA0GP	NC	I/O	Core(To:3.3V)	GPI
A13	GPI022/REQ4#	PCI_REQ#4	I/O	Core(To:3.3V)	Native
AA5	LDRQ1#/GPI023	TP	I/O	Core(To:3.3V)	Native
R3	GPI024	NC	I/O	SUS(To:3.3V)	GPO
D20	GPI025	NC	I/O	SUS(To:3.3V)	GPO
A21	GPI026/EL_RSVD	NC	I/O	SUS(To:3.3V)	GPO
B21	GPI027/EL_STATE0	PD_DET#	I/O	SUS(To:3.3V)	GPO
E23	GPI028/EL_STATE1	NC	I/O	SUS(To:3.3V)	GPO
C3	GPI029/OC#5	USB_OC#5	I/O	SUS(To:3.3V)	Native
A2	GPI030/OC#6	NEWCARD_OC#	I	SUS(To:3.3V)	Native
B3	GPI031/OC#7	USB_OC#7	I/O	SUS(To:3.3V)	Native
AG18	GPI032/CLKRUN#	PM_CLKRUN#	O	Core(To:3.3V)	GPO
AC19	GPI033/AZ_DOCK_EN#	BT_ON#	O	Core(To:3.3V)	GPO
U2	GPI034/AZ_DOCK_RST#	NC	I/O	Core(To:3.3V)	GPO
AD21	GPI035	NC	I/O	Core(To:3.3V)	GPO
AH19	GPI036/SATA2GP	NC	I/O	Core(To:3.3V)	GPI
AE19	GPI037/SATA3GP	PCB_ID0	I	Core(To:3.3V)	GPI
AD20	GPI038	PCB_ID1	I	Core(To:3.3V)	GPI
AE20	GPI039	PCB_ID2	I	Core(To:3.3V)	GPI
A14	GNT4#/GPI048	PCI_GNT#4	I/O	Core(To:3.3V)	Native
AG24	GPI049/CPUPWRGD	H_PWRGD	I	V_CPU_IO	Native

PCI Device	IDSEL#	REQ/GNT#	Interrupts
CARD READER	AD17	0	INTB-->INTB
1394	AD17	0	INTA-->INTA
LAN	AD16	2	INTA-->INTD

SM-Bus Device	SM-Bus Address
Clock Generator	1101001x (D2)
SO-DIMM 0	1010000x (A0)
SO-DIMM 1	1010001x (A2)
Thermal Sensor	0101110x (5C)

2.0G

		Title : <Title>
ASUSTek Computer INC.		Engineer: Alan Chen
Size	Project Name	Rev
Custom	Z84FM	2.0
Date: Thursday, October 05, 2006		Sheet 2 of 57

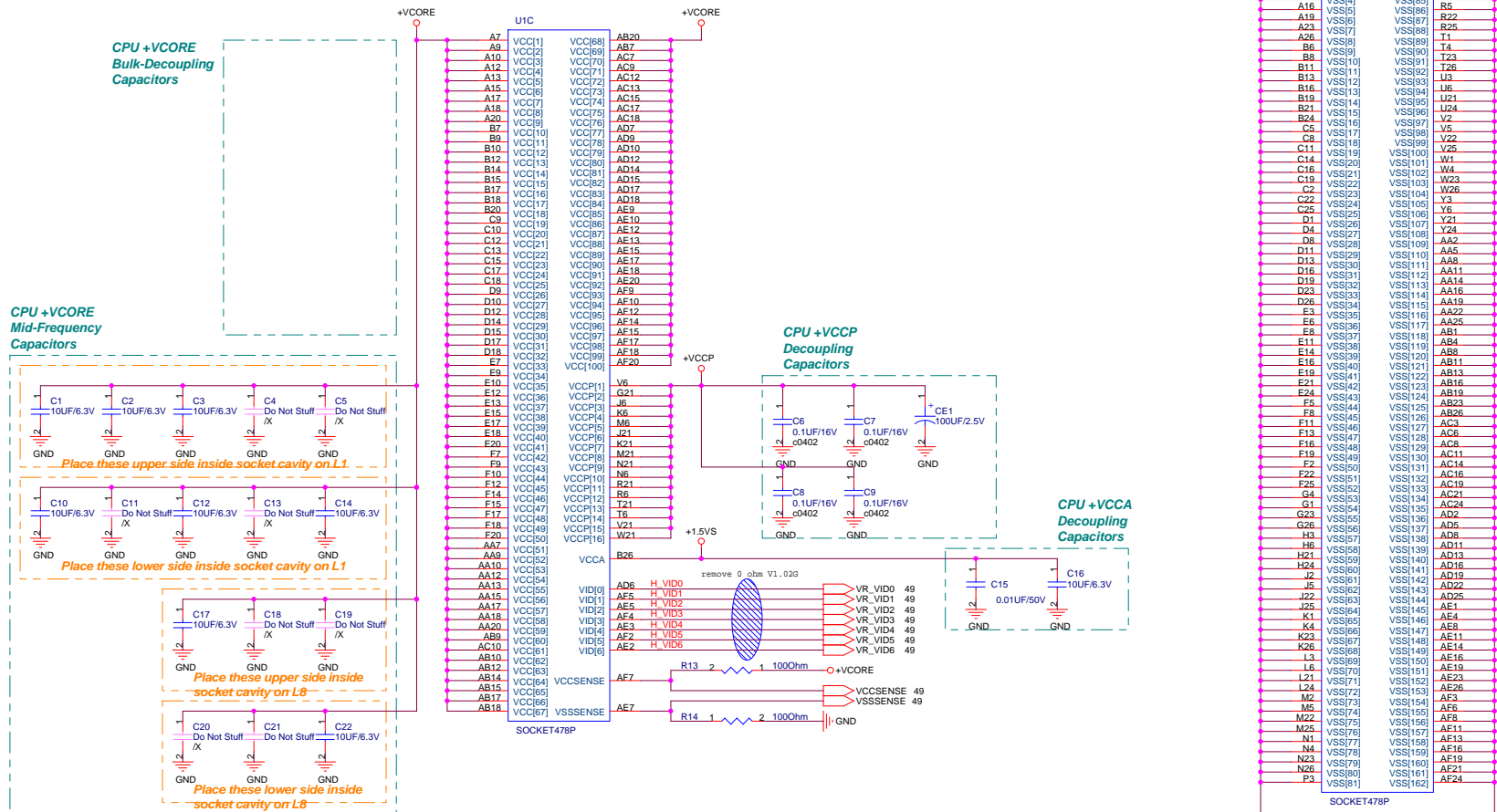


ASUS Title: CPU-YONAH(HOST)

ASUSTeK COMPUTER INC. Engineer: Alan Chen

Size	Project Name	Rev
Custom	Z84FM	2.0

Date: Thursday, October 05, 2006 Sheet 3 of 57



+VCCORE Mid-Frequency Capacitor
 Intel: 22UF *32
 R1F: 10UF *16

+VCCP Decoupling Capacitor
 Intel: 270UF *1, 0.1UF *6
 R1F: 220UF *1, 0.1UF *4

2.0G

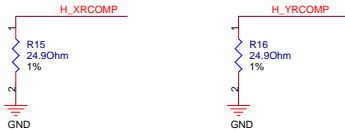
ASUS Title: CPU_YONAH(PWR)
 ASUSTeK COMPUTER INC. NB1 Engineer: Alan Chen

Size	Project Name	Rev
Custom	Z84FM	2.0

Date: Thursday, October 05, 2006 Sheet 4 of 57

RCOMP

For Calibrating the FSB I/O Buffer



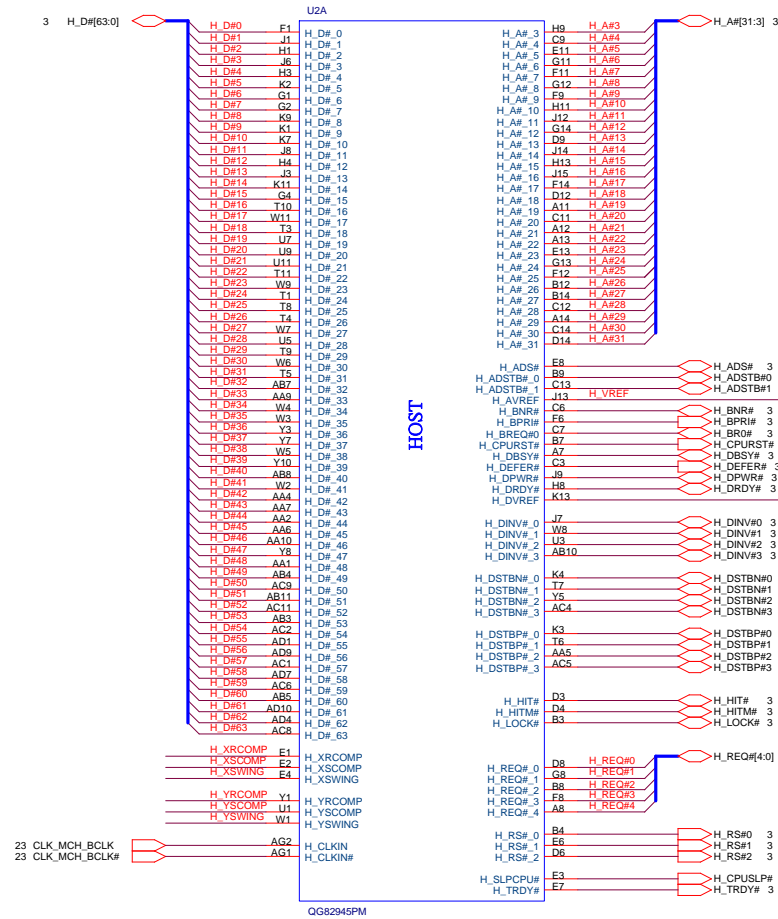
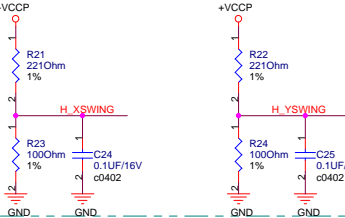
SCOMP

For Slew Rate Compensation on the FSB

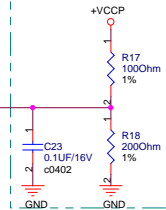


Voltage Swing

For Providing a Reference Voltage to The FSB RCOMP circuits



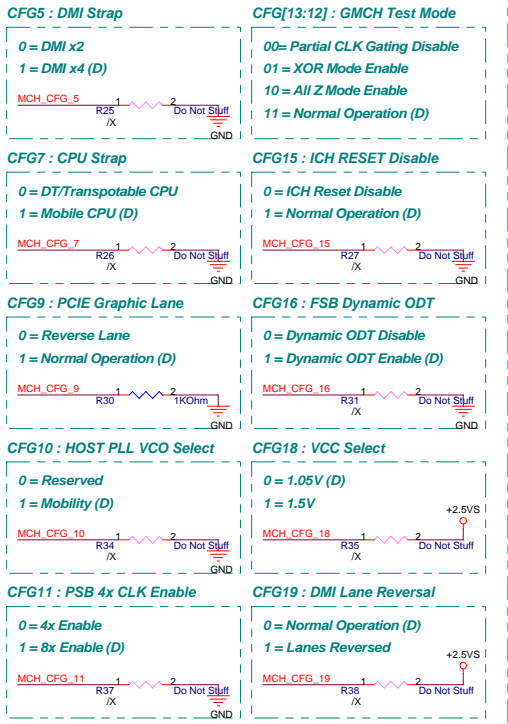
AGTL+ I/O Voltage Reference



2.0G

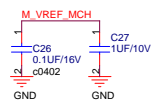
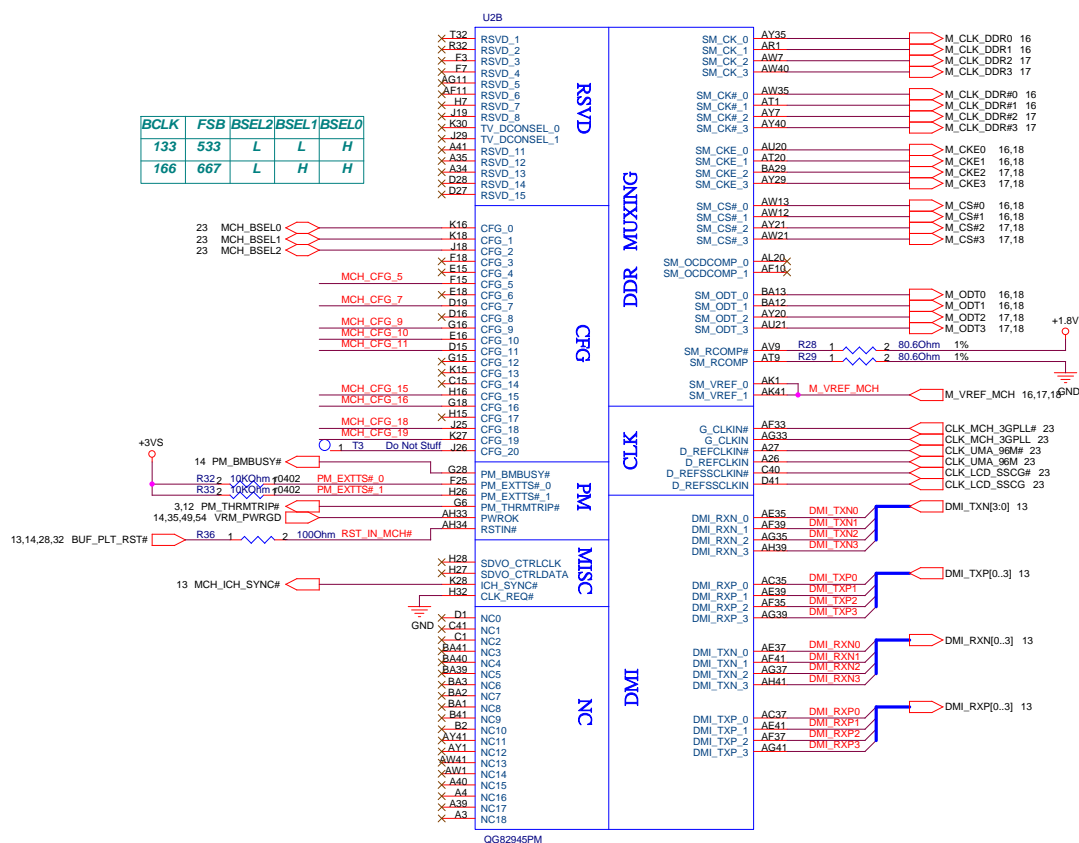
ASUS		Title : NB-945GM(HOST)
ASUSTeK COMPUTER INC.		Engineer: Alan Chen
Size	Project Name	Rev
Custom	Z84FM	2.0
Date: Thursday, October 05, 2006		Sheet 5 of 57

GMCH Strapping



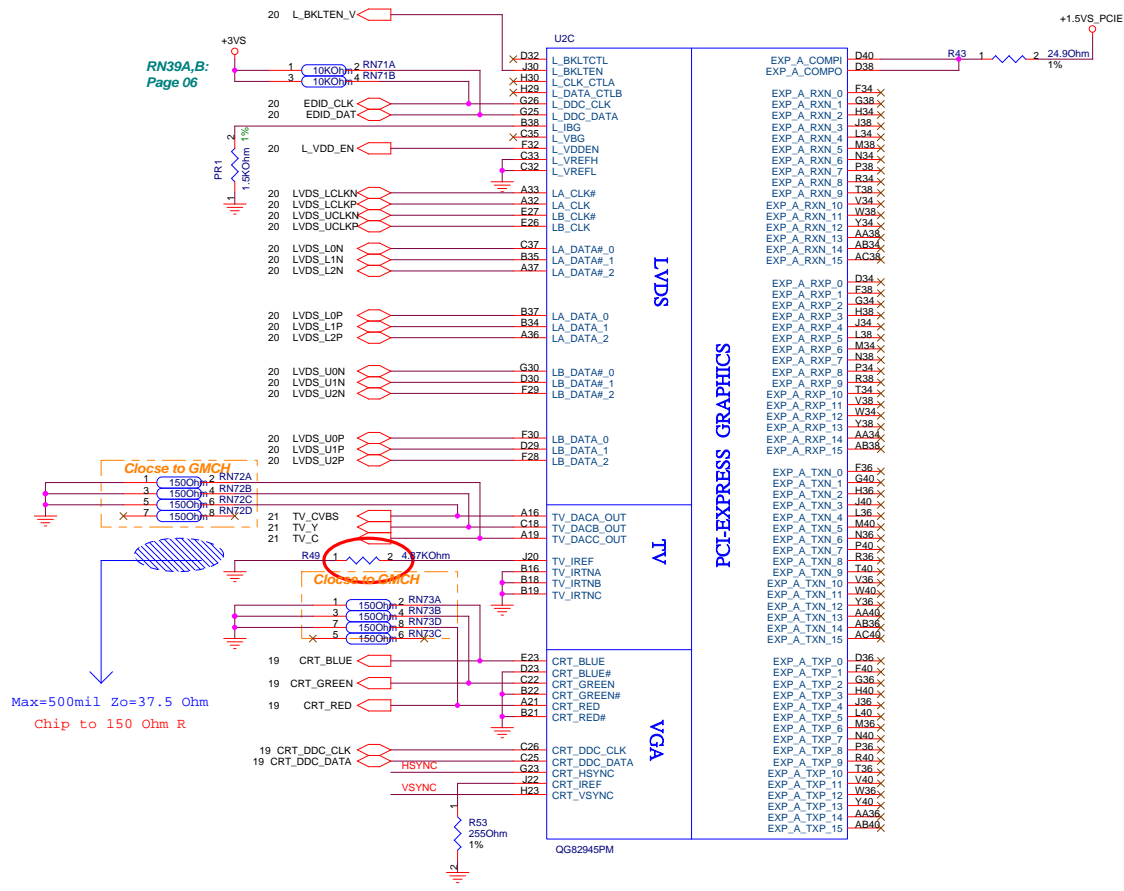
Note: CFG[17:3] have internal pull-up while CFG[20:18] have internal pull-down.

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



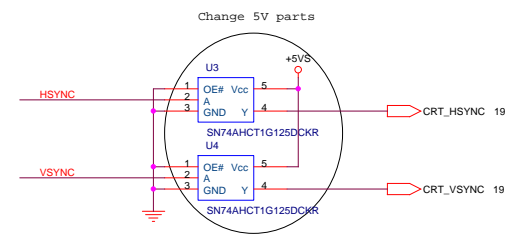
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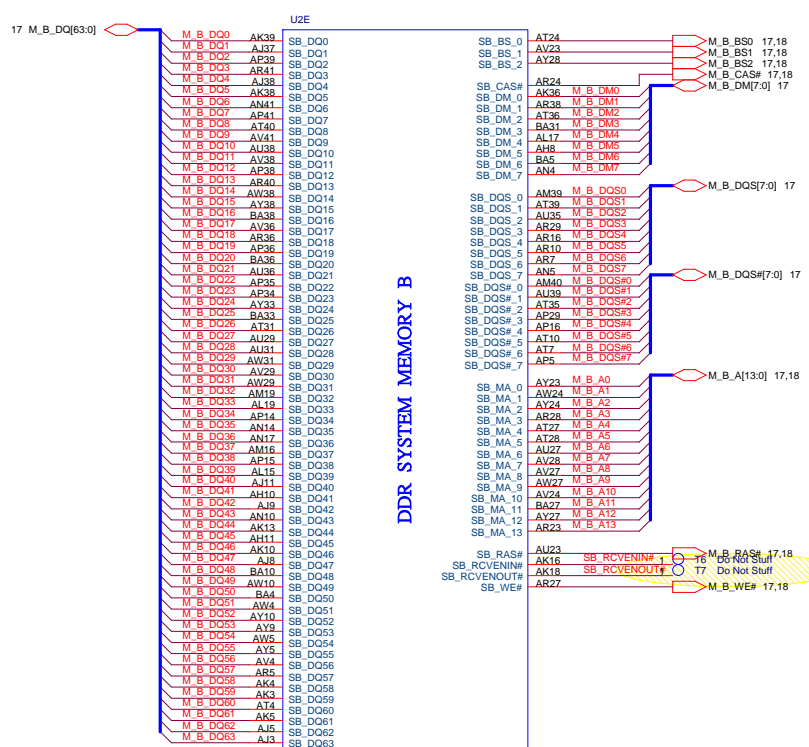
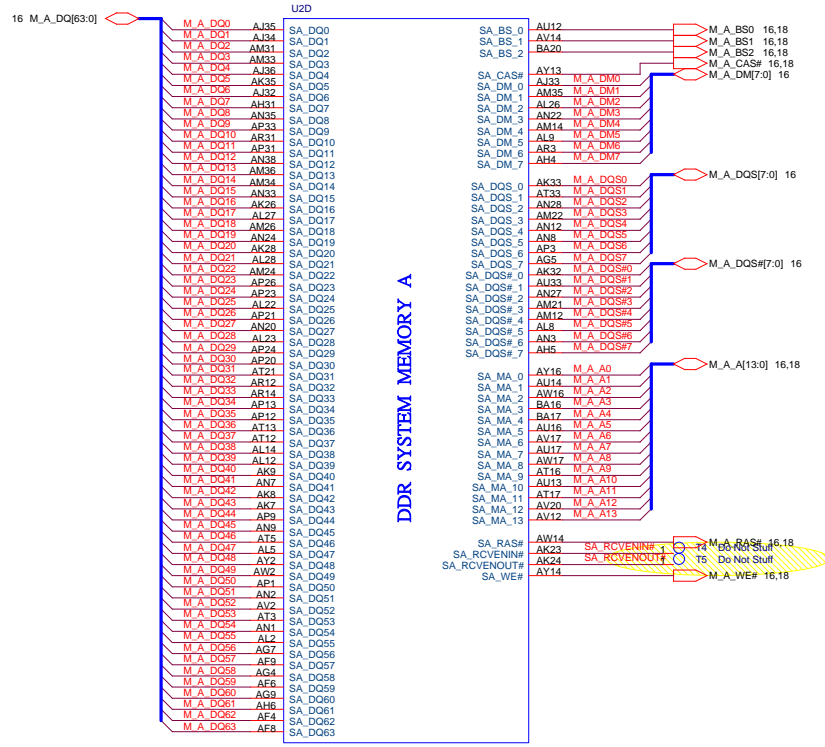
ASUS Title : NB-945GM(DMI & CFG)
 ASUSTeK COMPUTER INC. Engineer: Alan Chen
 Size Project Name
 Custom **Z84FM** Rev 2.0
 Date: Thursday, October 05, 2006 Sheet 6 of 57



PCI-EXPRESS GRAPHICS

Z84Fm V2.0 change R49 from 4.99K to 4.87K for Macro Vision issue





+VCCP

U2F

+1.8V
1.7V-1.9V
Max: 1.6A(DDR2 667)

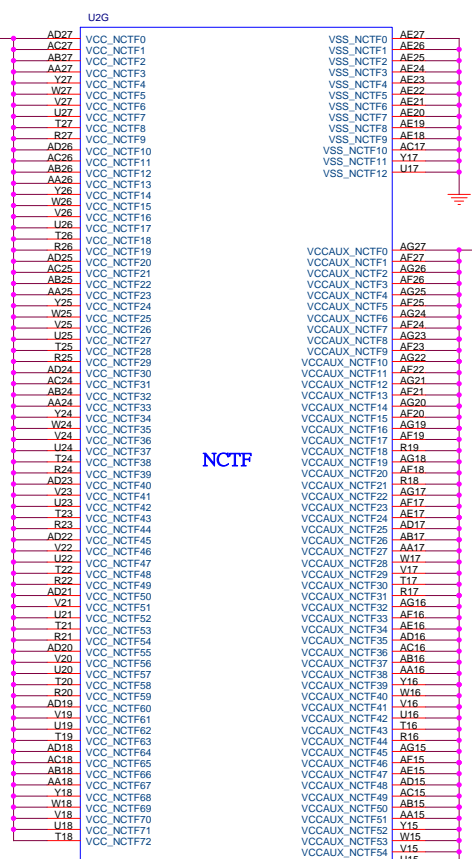
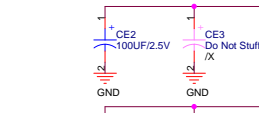
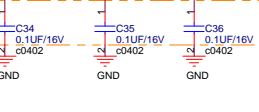
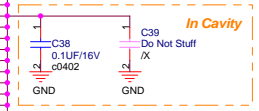
1.0V-1.1V +VCCP
Max: 4.6A

- AA33 VCC_0
- W33 VCC_1
- F33 VCC_2
- L33 VCC_3
- L33 VCC_4
- L33 VCC_5
- AA32 VCC_6
- Y32 VCC_7
- W32 VCC_8
- F32 VCC_9
- N32 VCC_10
- M32 VCC_11
- L32 VCC_12
- J32 VCC_13
- J32 VCC_14
- AA31 VCC_15
- V31 VCC_16
- T31 VCC_17
- R31 VCC_18
- P31 VCC_19
- VCC_20
- N31 VCC_21
- M31 VCC_22
- AA30 VCC_23
- Y30 VCC_24
- W30 VCC_25
- V30 VCC_26
- U30 VCC_27
- T30 VCC_28
- R30 VCC_29
- P30 VCC_30
- N30 VCC_31
- M30 VCC_32
- L30 VCC_33
- AA29 VCC_34
- Y29 VCC_35
- W29 VCC_36
- V29 VCC_37
- U29 VCC_38
- R29 VCC_39
- P29 VCC_40
- M29 VCC_41
- L29 VCC_42
- AA28 VCC_43
- Y28 VCC_44
- U28 VCC_45
- T28 VCC_46
- R28 VCC_47
- F28 VCC_48
- N28 VCC_49
- M28 VCC_50
- L28 VCC_51
- P27 VCC_52
- N27 VCC_53
- M27 VCC_54
- L27 VCC_55
- P26 VCC_56
- N26 VCC_57
- M26 VCC_58
- L26 VCC_59
- N25 VCC_60
- M25 VCC_61
- L25 VCC_62
- P24 VCC_63
- N24 VCC_64
- M24 VCC_65
- AA23 VCC_66
- Y23 VCC_67
- W23 VCC_68
- F23 VCC_69
- N23 VCC_70
- M23 VCC_71
- L23 VCC_72
- AC22 VCC_73
- Y22 VCC_74
- W22 VCC_75
- F22 VCC_76
- N22 VCC_77
- L22 VCC_78
- AC21 VCC_79
- W21 VCC_80
- M21 VCC_81
- L21 VCC_82
- AC20 VCC_83
- AB20 VCC_84
- W20 VCC_85
- F20 VCC_86
- M20 VCC_87
- L20 VCC_88
- AA19 VCC_89
- Y19 VCC_90
- W19 VCC_91
- F19 VCC_92
- M19 VCC_93
- L19 VCC_94
- P17 VCC_95
- M17 VCC_96
- N17 VCC_97
- M16 VCC_98
- N16 VCC_99
- M16 VCC_100
- N17 VCC_101
- M18 VCC_102
- L18 VCC_103
- P17 VCC_104
- M17 VCC_105
- N16 VCC_106
- M16 VCC_107
- N16 VCC_108
- M16 VCC_109
- L16 VCC_110

VCC

NCTF

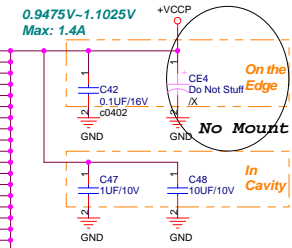
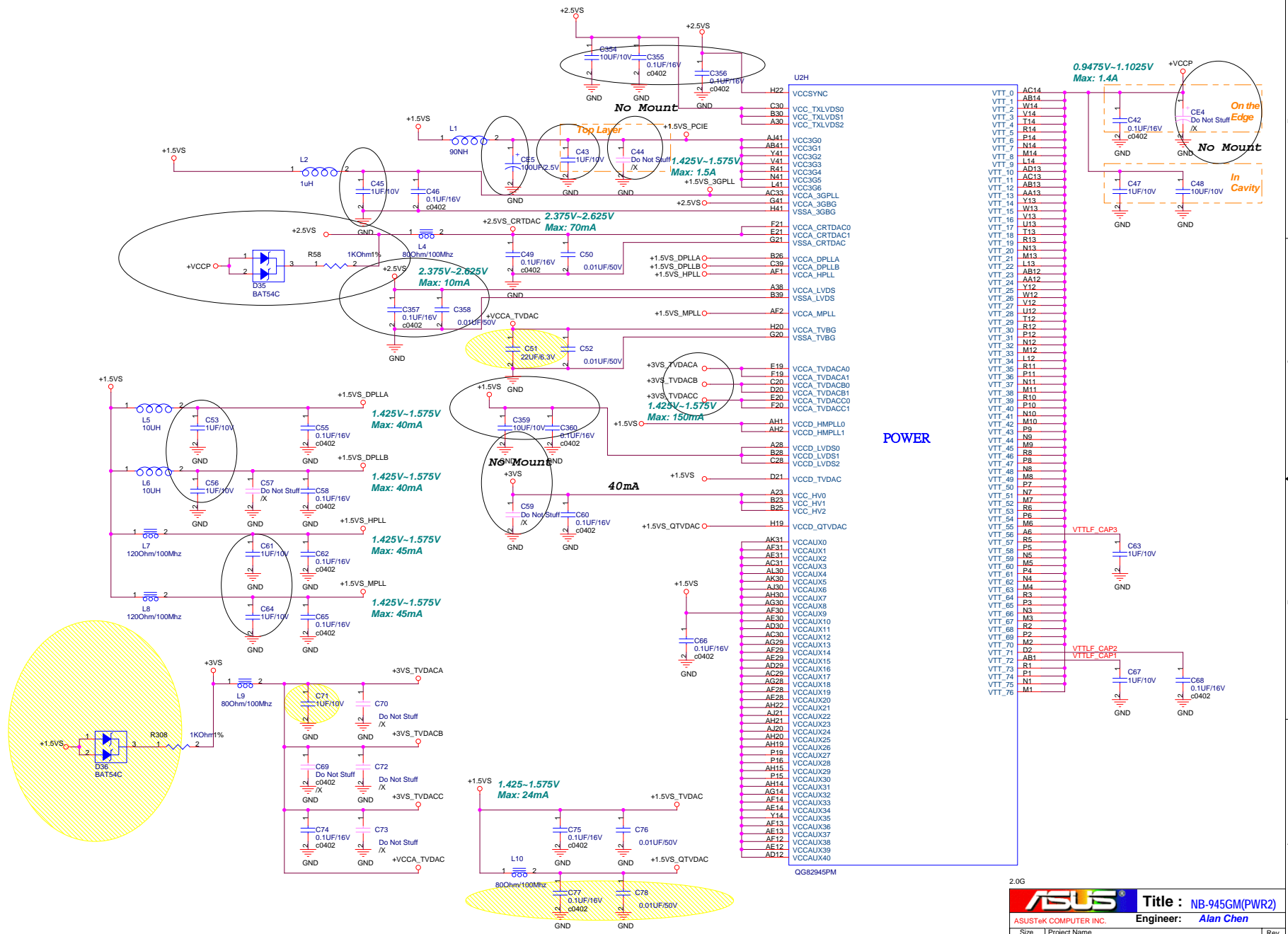
- AU41 VCC_SM_0
- AT41 VCC_SM_1
- AA41 VCC_SM_2
- AA40 VCC_SM_3
- BA34 VCC_SM_4
- AY34 VCC_SM_5
- AW34 VCC_SM_6
- AV34 VCC_SM_7
- AU34 VCC_SM_8
- AT34 VCC_SM_9
- AR34 VCC_SM_10
- BA30 VCC_SM_11
- AY30 VCC_SM_12
- AW30 VCC_SM_13
- AV30 VCC_SM_14
- AU30 VCC_SM_15
- AT30 VCC_SM_16
- AR30 VCC_SM_17
- AP30 VCC_SM_18
- AN30 VCC_SM_19
- AM30 VCC_SM_20
- AM29 VCC_SM_21
- AL29 VCC_SM_22
- AK29 VCC_SM_23
- AJ29 VCC_SM_24
- AH29 VCC_SM_25
- AJ28 VCC_SM_26
- AH28 VCC_SM_27
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- AH27 VCC_SM_29
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- AT26 VCC_SM_35
- AR26 VCC_SM_36
- AJ26 VCC_SM_37
- AH26 VCC_SM_38
- AJ25 VCC_SM_39
- AH25 VCC_SM_40
- AJ24 VCC_SM_41
- AH24 VCC_SM_42
- BA23 VCC_SM_43
- AJ23 VCC_SM_44
- BA22 VCC_SM_45
- AY22 VCC_SM_46
- AW22 VCC_SM_47
- AV22 VCC_SM_48
- AU22 VCC_SM_49
- AT22 VCC_SM_50
- AR22 VCC_SM_51
- AP22 VCC_SM_52
- AK22 VCC_SM_53
- AJ22 VCC_SM_54
- AK21 VCC_SM_55
- AK20 VCC_SM_56
- BA19 VCC_SM_57
- AY19 VCC_SM_58
- AW19 VCC_SM_59
- AV19 VCC_SM_60
- AU19 VCC_SM_61
- AT19 VCC_SM_62
- AR19 VCC_SM_63
- AP19 VCC_SM_64
- AK19 VCC_SM_65
- AJ19 VCC_SM_66
- AJ18 VCC_SM_67
- AJ17 VCC_SM_68
- AH17 VCC_SM_69
- AH16 VCC_SM_70
- AH16 VCC_SM_71
- VCC_SM_72
- AY15 VCC_SM_73
- AW15 VCC_SM_74
- AV15 VCC_SM_75
- AU15 VCC_SM_76
- AT15 VCC_SM_77
- AR15 VCC_SM_78
- AJ15 VCC_SM_79
- AJ14 VCC_SM_80
- AJ13 VCC_SM_81
- AH13 VCC_SM_82
- AK12 VCC_SM_83
- AJ12 VCC_SM_84
- AH12 VCC_SM_85
- AK11 VCC_SM_86
- AK11 VCC_SM_87
- BA8 VCC_SM_88
- AY8 VCC_SM_89
- AW8 VCC_SM_90
- AV8 VCC_SM_91
- AT8 VCC_SM_92
- AR8 VCC_SM_93
- AP8 VCC_SM_94
- BA6 VCC_SM_95
- AY6 VCC_SM_96
- AW6 VCC_SM_97
- AV6 VCC_SM_98
- AT6 VCC_SM_99
- AR6 VCC_SM_100
- AP6 VCC_SM_101
- AN6 VCC_SM_102
- AL6 VCC_SM_103
- AK6 VCC_SM_104
- AJ6 VCC_SM_105
- AV1 VCC_SM_106
- AJ1 VCC_SM_107



QG82945PM

2.0G

		Title : NB-945GM(PWR)	
ASUSTeK COMPUTER INC.		Engineer: Alan Chen	
Size	Project Name	Rev	
Custom	Z84FM	2.0	
Date: Thursday, October 05, 2006		Sheet	9 of 57



POWER

- VCCSYNC
- VCC_TLXVDS0
- VCC_TLXVDS1
- VCC_TLXVDS2
- VCC3G0
- VCC3G1
- VCC3G2
- VCC3G3
- VCC3G4
- VCC3G5
- VCC3G6
- VCCA_3GPLL
- VCCA_3GPG
- VSSA_3GPG
- VCCA_CRTDAC0
- VCCA_CRTDAC1
- VSSA_CRTDAC
- VCCA_DPLLA
- VCCA_DPLLB
- VCCA_HPLL
- VCCA_LVDS
- VSSA_LVDS
- VCCA_MPLL
- VCCA_TVBG
- VSSA_TVBG
- VCCA_TVDACA0
- VCCA_TVDACA1
- VCCA_TVDACB0
- VCCA_TVDACB1
- VCCA_TVDACC0
- VCCA_TVDACC1
- VCCD_HMPLL0
- VCCD_HMPLL1
- VCCD_LVDS0
- VCCD_LVDS1
- VCCD_LVDS2
- VCCD_TVDAC
- VCC_HV0
- VCC_HV1
- VCC_HV2
- VCCD_QTVDAC
- VCCAUX0
- VCCAUX1
- VCCAUX2
- VCCAUX3
- VCCAUX4
- VCCAUX5
- VCCAUX6
- VCCAUX7
- VCCAUX8
- VCCAUX9
- VCCAUX10
- VCCAUX11
- VCCAUX12
- VCCAUX13
- VCCAUX14
- VCCAUX15
- VCCAUX16
- VCCAUX17
- VCCAUX18
- VCCAUX19
- VCCAUX20
- VCCAUX21
- VCCAUX22
- VCCAUX23
- VCCAUX24
- VCCAUX25
- VCCAUX26
- VCCAUX27
- VCCAUX28
- VCCAUX29
- VCCAUX30
- VCCAUX31
- VCCAUX32
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- VCCAUX36
- VCCAUX37
- VCCAUX38
- VCCAUX39
- VCCAUX40

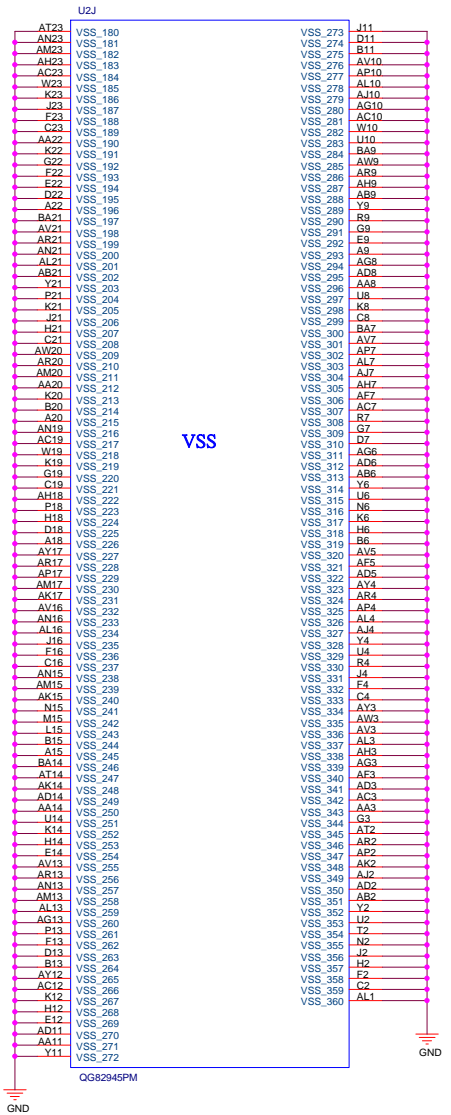
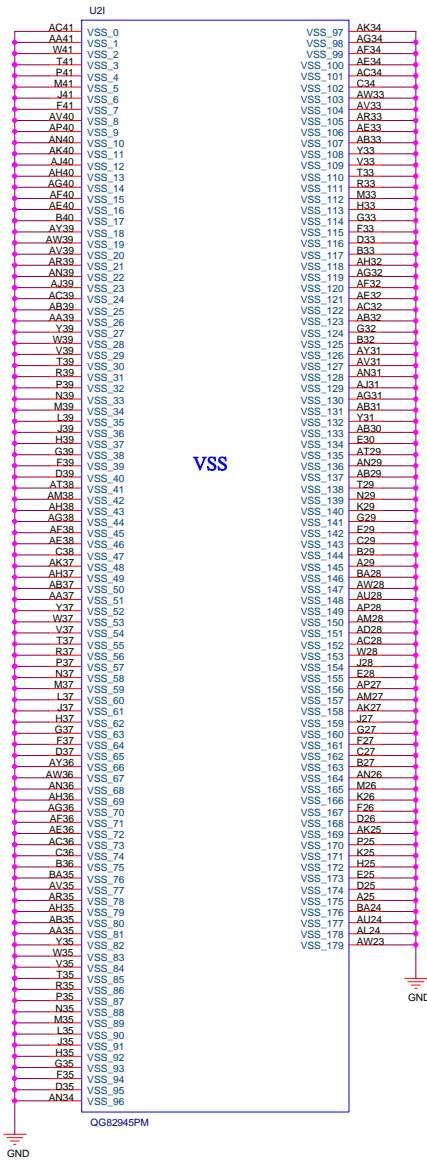
2.0G

ASUS Title : NB-945GM(PWR2)

ASUSTeK COMPUTER INC. Engineer: Alan Chen

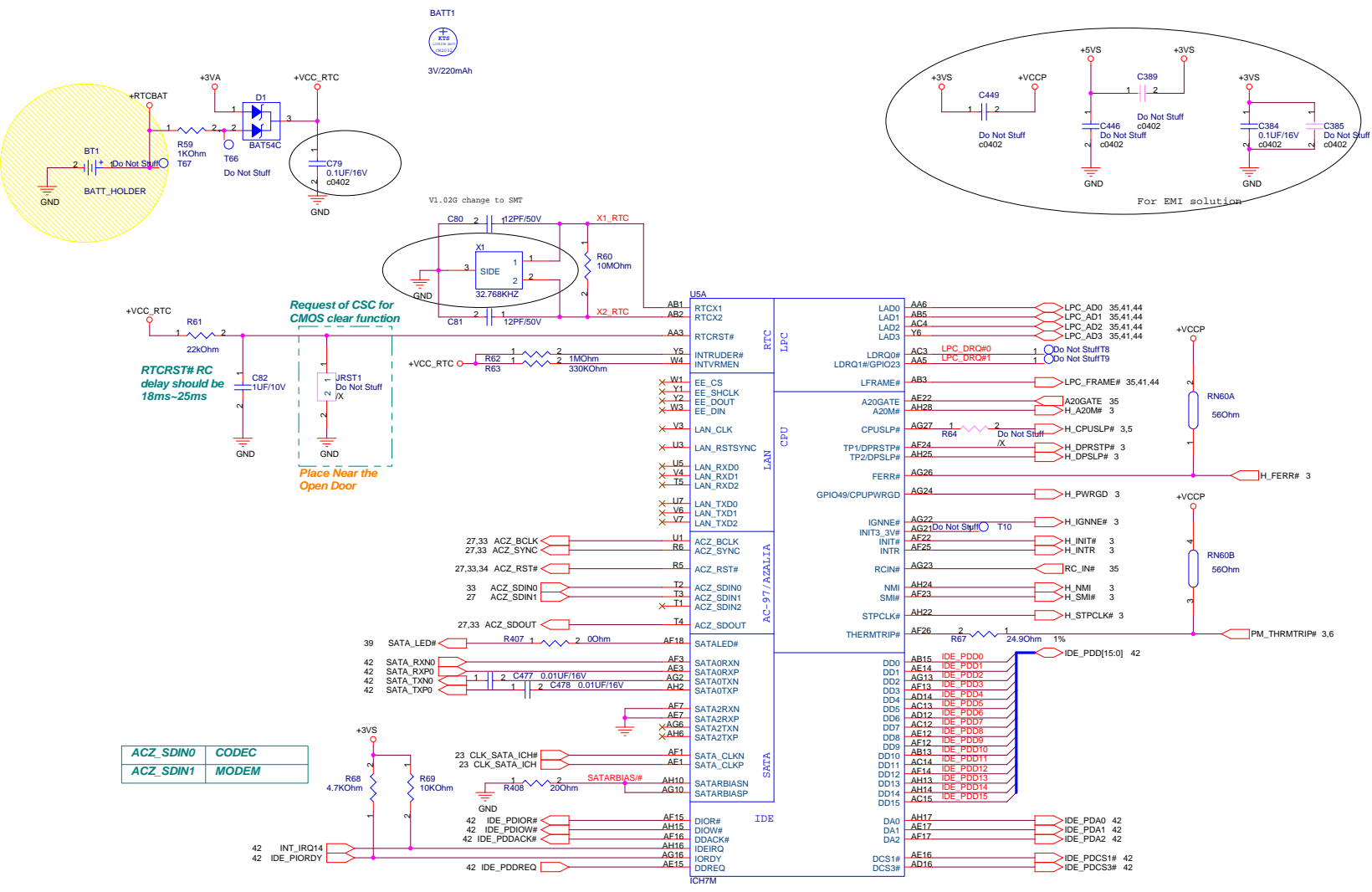
Size	Project Name	Rev
Custom	Z84FM	2.0

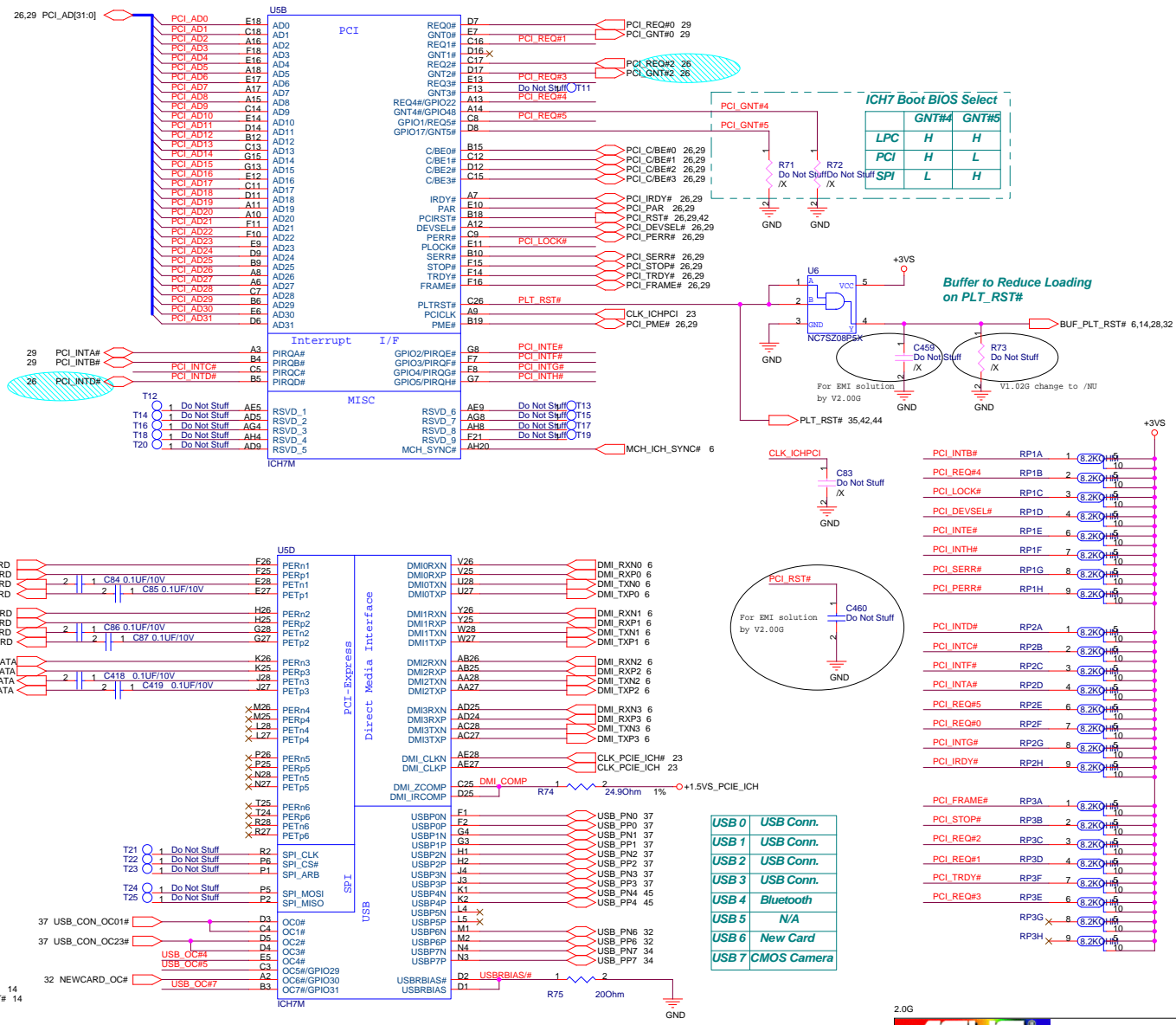
Date: Thursday, October 05, 2006 Sheet 10 of 57



2.0G

ASUS		Title : NB-945PM(GND)	
ASUSTeK COMPUTER INC.		Engineer: Alan Chen	
Size	Project Name	Rev	
Custom	Z84FM	2.0	
Date: Thursday, October 05, 2006		Sheet	11 of 57





ICH7 Boot BIOS Select

	GNT#4	GNT#5
LPC	H	H
PCI	H	L
SPI	L	H

Buffer to Reduce Loading on PLT_RST#

USB 0	USB Conn.
USB 1	USB Conn.
USB 2	USB Conn.
USB 3	USB Conn.
USB 4	Bluetooth
USB 5	N/A
USB 6	New Card
USB 7	CMOS Camera

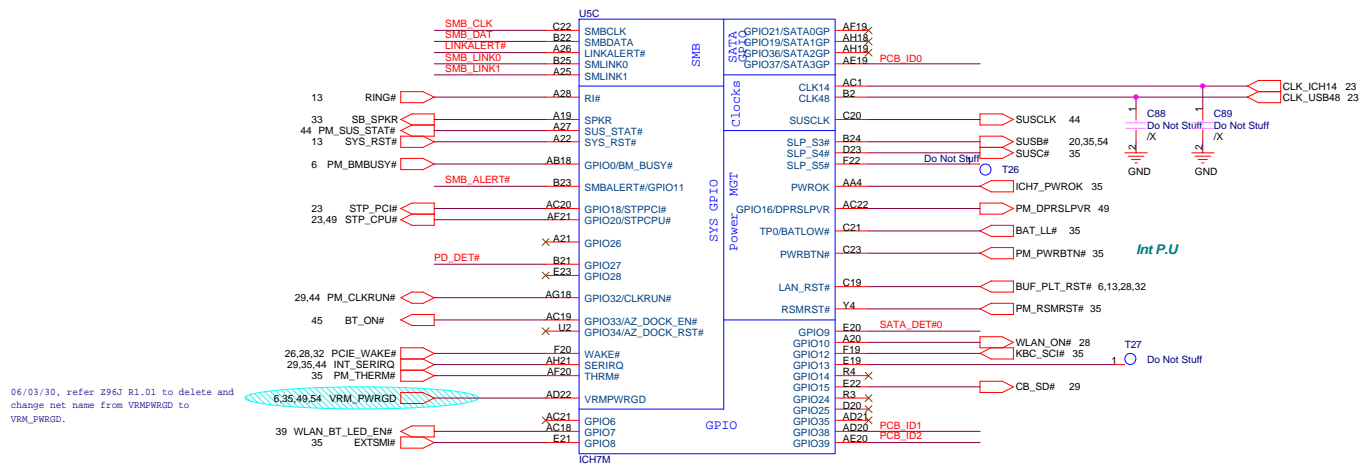
2.0G

ASUS Title : SB-ICH7M(2)

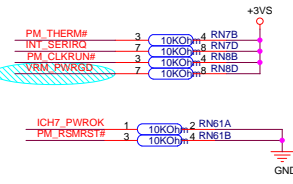
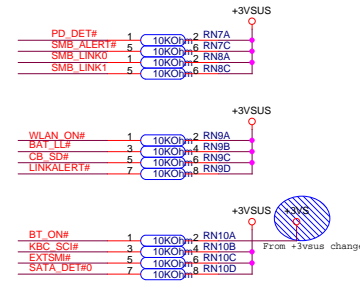
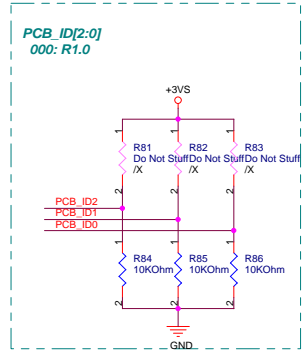
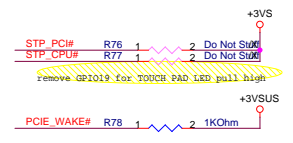
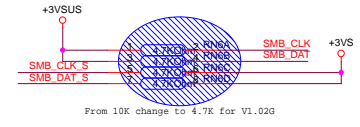
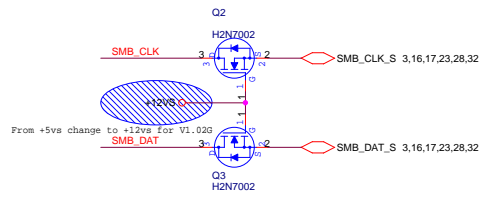
ASUSTeK COMPUTER INC. Engineer: Alan Chen

Size	Project Name	Rev
Custom	Z84FM	2.0

Date: Thursday, October 05, 2006 Sheet 13 of 57

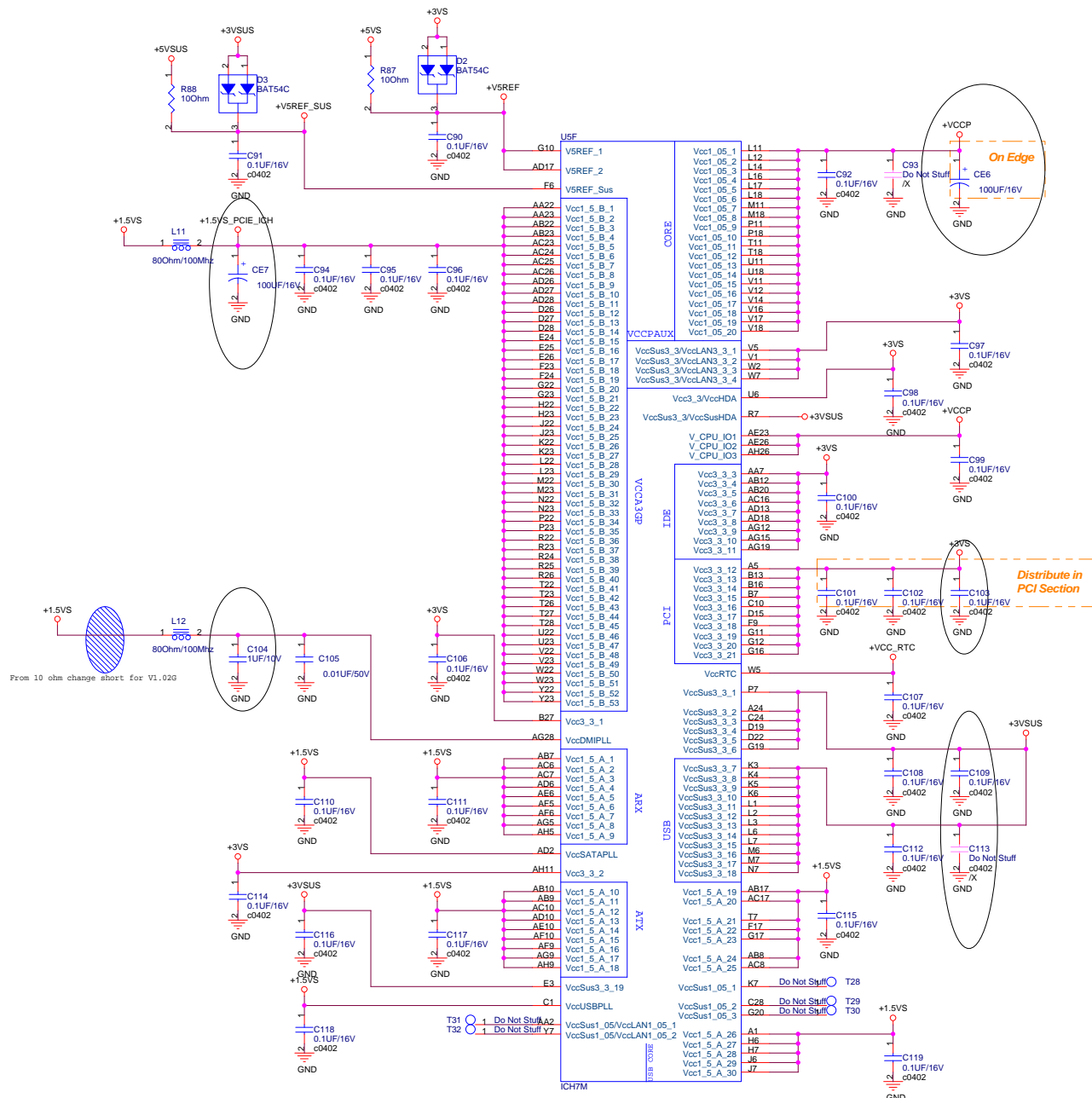


06/03/30, refer 2963 R1.01 to delete and change net name from VRMPWRGD to VRM_PWRGD.



2.0G

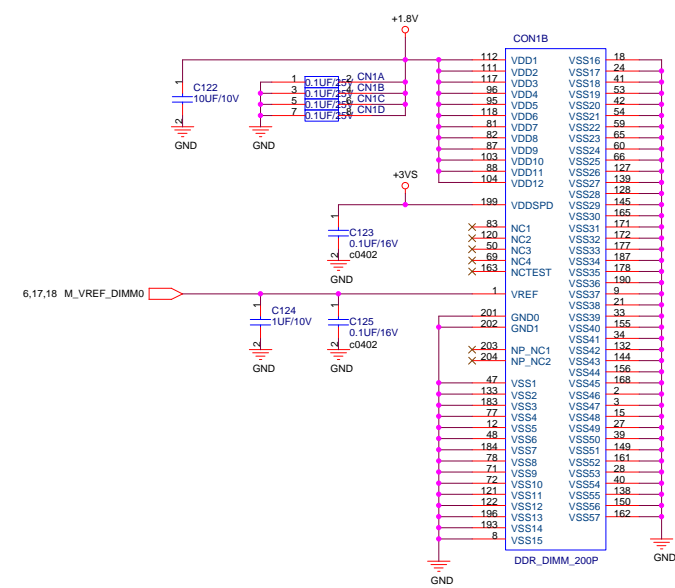
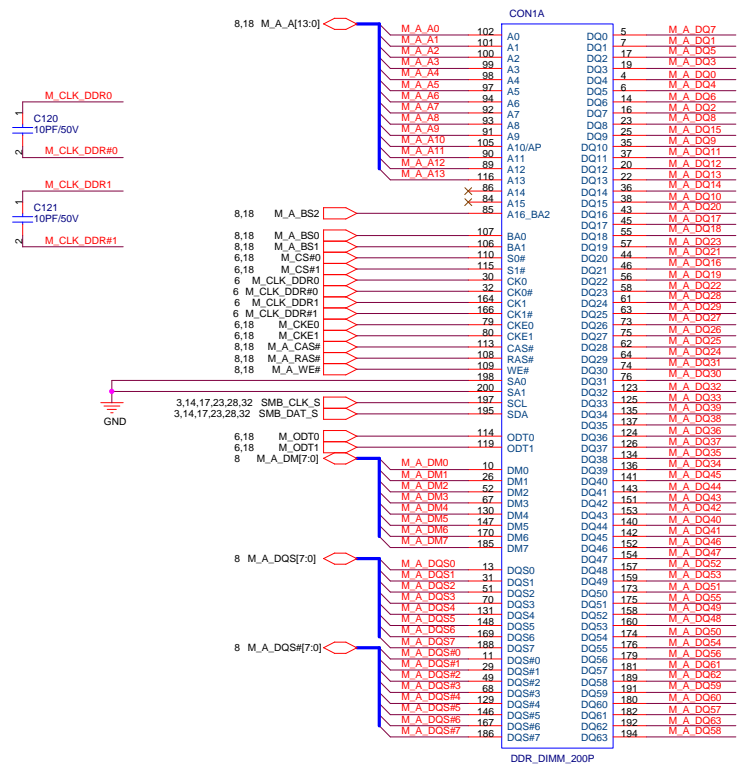
ASUS		Title : SB-ICH7M(3)
ASUSTeK COMPUTER INC	Engineer: Alan Chen	
Size	Project Name	Rev
Custom	Z84FM	2.0
Date: Thursday, October 05, 2006		Sheet 14 of 57



USE		
A4	Vss1	Vss98
A23	Vss2	Vss99
B1	Vss3	Vss100
B8	Vss4	Vss101
B11	Vss5	Vss102
B14	Vss6	Vss103
B17	Vss7	Vss104
B20	Vss8	Vss105
B26	Vss9	Vss106
B28	Vss10	Vss107
C2	Vss11	Vss108
C8	Vss12	Vss109
C27	Vss13	Vss110
D10	Vss14	Vss111
D13	Vss15	Vss112
D18	Vss16	Vss113
D21	Vss17	Vss114
D24	Vss18	Vss115
E1	Vss19	Vss116
E2	Vss20	Vss117
E4	Vss21	Vss118
E8	Vss22	Vss119
E15	Vss23	Vss120
F3	Vss24	Vss121
F5	Vss25	Vss122
F7	Vss26	Vss123
F12	Vss27	Vss124
F27	Vss28	Vss125
F28	Vss29	Vss126
G1	Vss30	Vss127
G2	Vss31	Vss128
G6	Vss32	Vss129
G8	Vss33	Vss130
G9	Vss34	Vss131
G18	Vss35	Vss132
G21	Vss36	Vss133
G24	Vss37	Vss134
G25	Vss38	Vss135
G26	Vss39	Vss136
H3	Vss40	Vss137
H4	Vss41	Vss138
H5	Vss42	Vss139
H4	Vss43	Vss140
H24	Vss44	Vss141
H27	Vss45	Vss142
H28	Vss46	Vss143
J1	Vss47	Vss144
J2	Vss48	Vss145
J4	Vss49	Vss146
J24	Vss50	Vss147
J25	Vss51	Vss148
J26	Vss52	Vss149
J28	Vss53	Vss150
K24	Vss54	Vss151
K27	Vss55	Vss152
K28	Vss56	Vss153
L13	Vss57	Vss154
L15	Vss58	Vss155
L24	Vss59	Vss156
L26	Vss60	Vss157
M3	Vss61	Vss158
M4	Vss62	Vss159
M5	Vss63	Vss160
M12	Vss64	Vss161
M13	Vss65	Vss162
M14	Vss66	Vss163
M15	Vss67	Vss164
M16	Vss68	Vss165
M17	Vss69	Vss166
M24	Vss70	Vss167
M27	Vss71	Vss168
N1	Vss72	Vss169
N2	Vss73	Vss170
N5	Vss74	Vss171
N6	Vss75	Vss172
N11	Vss76	Vss173
N12	Vss77	Vss174
N13	Vss78	Vss175
N14	Vss79	Vss176
N15	Vss80	Vss177
N16	Vss81	Vss178
N17	Vss82	Vss179
N18	Vss83	Vss180
N24	Vss84	Vss181
N25	Vss85	Vss182
N26	Vss86	Vss183
P3	Vss87	Vss184
P4	Vss88	Vss185
P12	Vss89	Vss186
P13	Vss90	Vss187
P14	Vss91	Vss188
P15	Vss92	Vss189
P16	Vss93	Vss190
P17	Vss94	Vss191
P24	Vss95	Vss192
P27	Vss96	Vss193
P27	Vss97	Vss194
CH7M		

M_A_DQ[63:0] 8

REV Type



2.0G

ASUS Title : DDR2 SO-DIMMO

ASUSTeK COMPUTER INC. Engineer: Alan Chen

Size Project Name

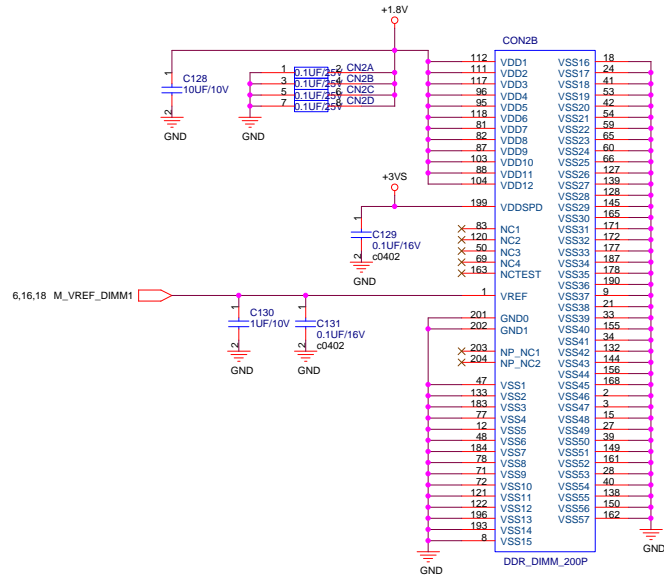
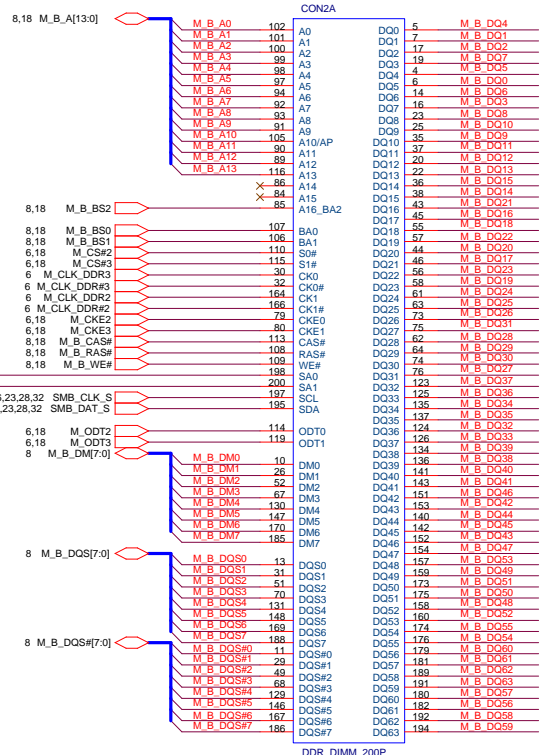
Custom Z84FM

Date: Thursday, October 05, 2006 Sheet 16 of 57

Rev 2.0

STD Type

M_B_DQ[63:0] 8



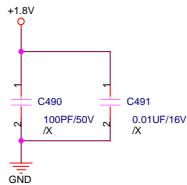
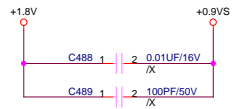
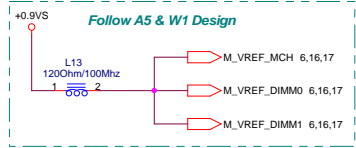
2.0G

ASUS Title : DDR2 SO-DIMM

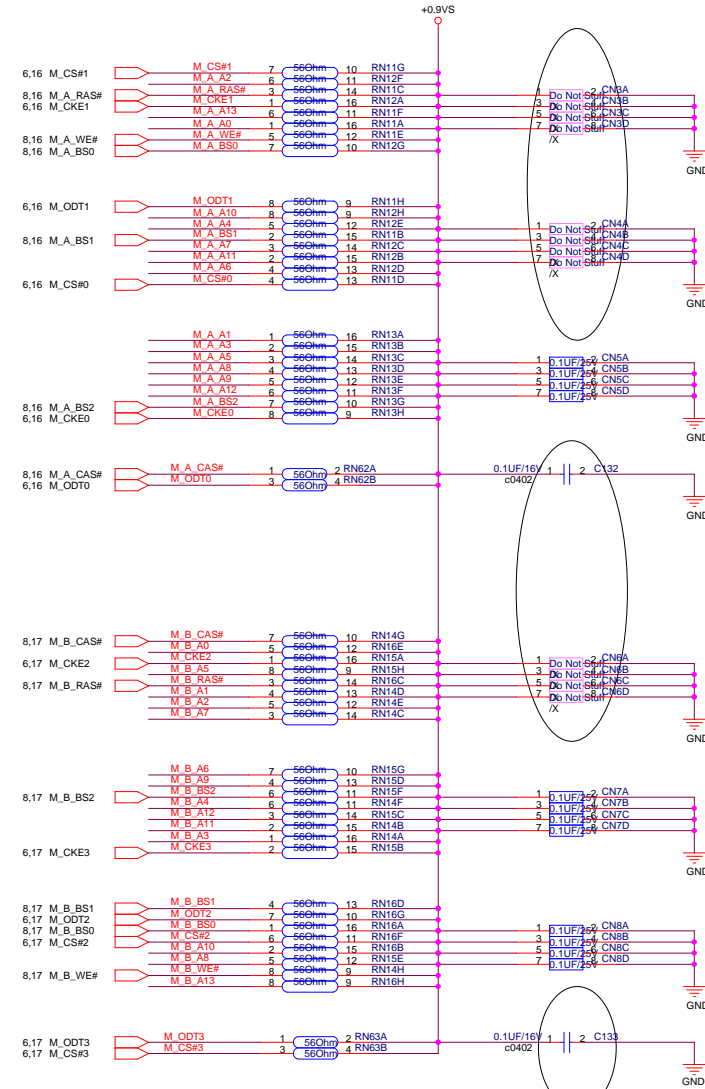
ASUSTeK COMPUTER INC. NB1 Engineer: Alan Chen

Size	Project Name	Rev
Custom	Z84FM	2.0

Date: Thursday, October 05, 2006 Sheet 17 of 57

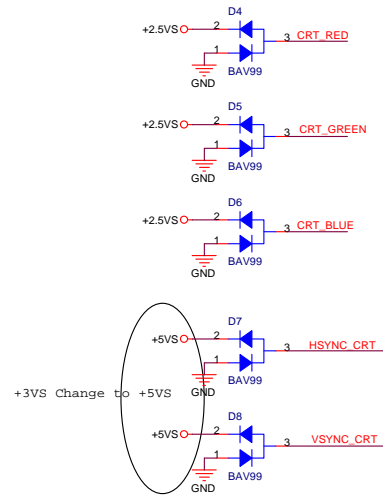
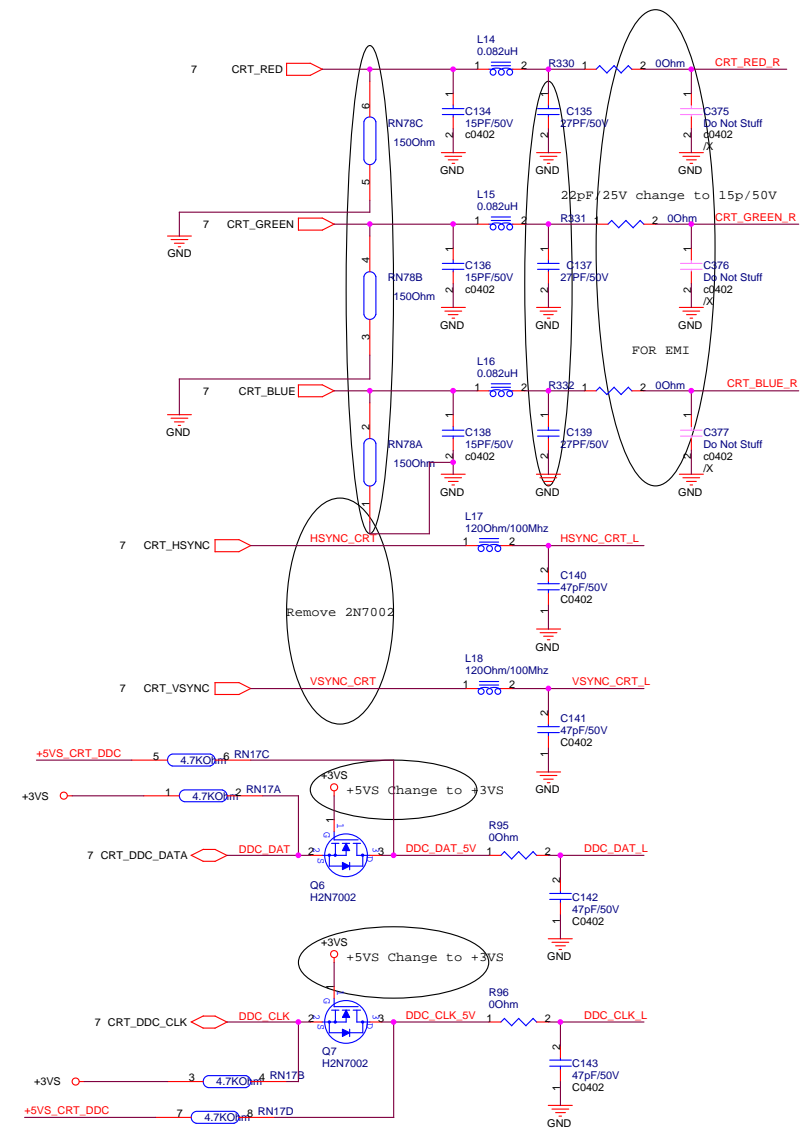


8,16 M_A_A[13:0]
8,17 M_B_A[13:0]

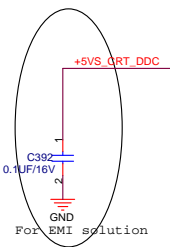
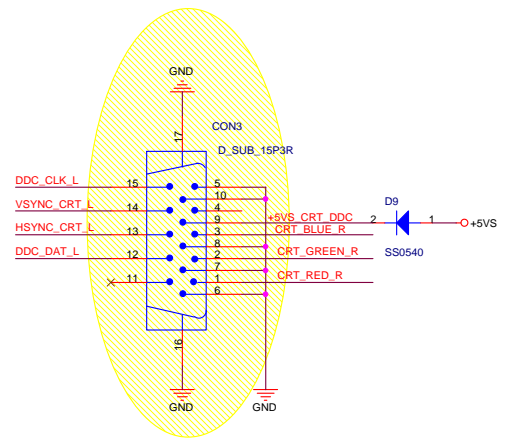


2.0G

ASUS		Title : DDR2 TERMINATION	
ASUSTeK COMPUTER INC. NB1		Engineer: Alan Chen	
Size	Project Name	Rev	
Custom	Z84FM	2.0	
Date: Thursday, October 05, 2006		Sheet	18 of 57



PLACE ESD Diodes near VGA port

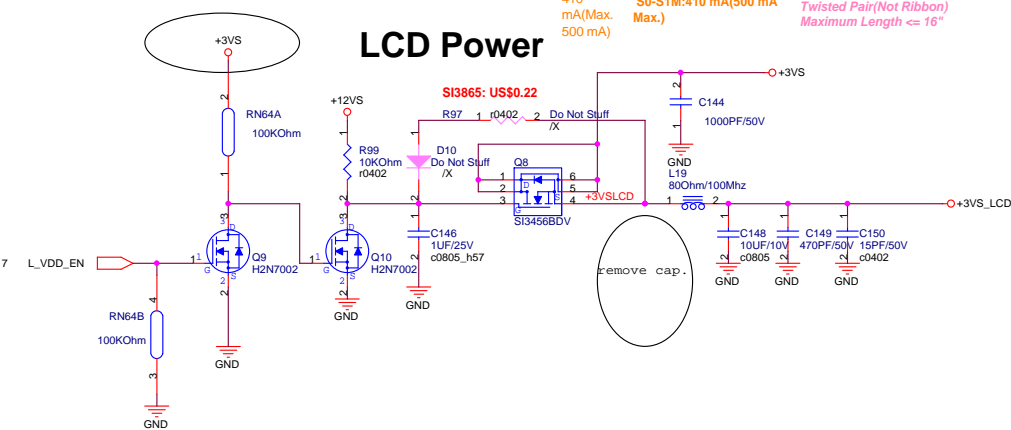


For EMI solution

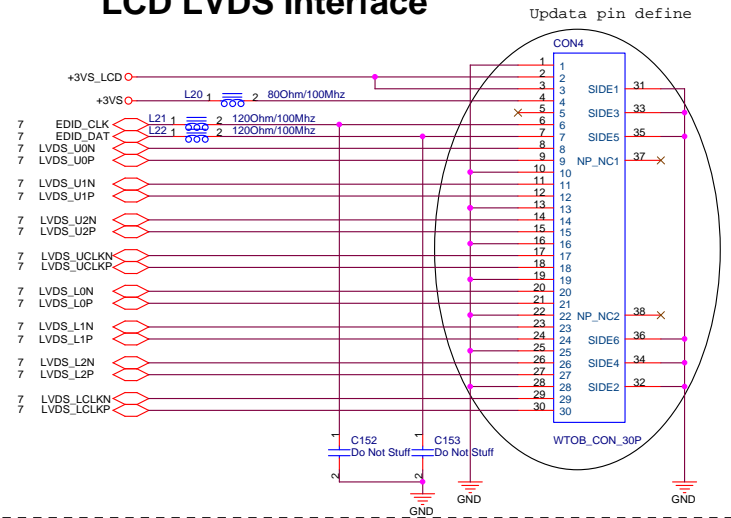
2.0G

ASUS		Title : CRT
ASUSTeK COMPUTER INC		Engineer: Alan Chen
Size	Project Name	Rev
Custom	Z84FM	2.0
Date: Thursday, October 05, 2006	Sheet	19 of 57

LCD Backlight Control



LCD LVDS Interface

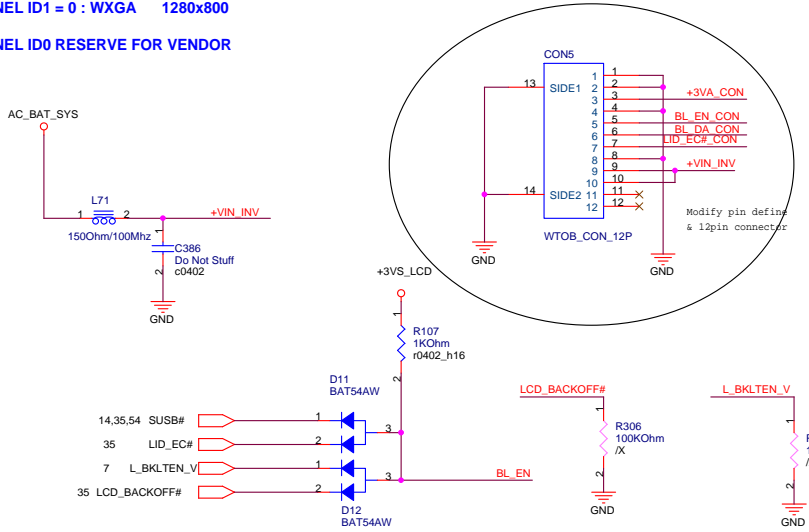
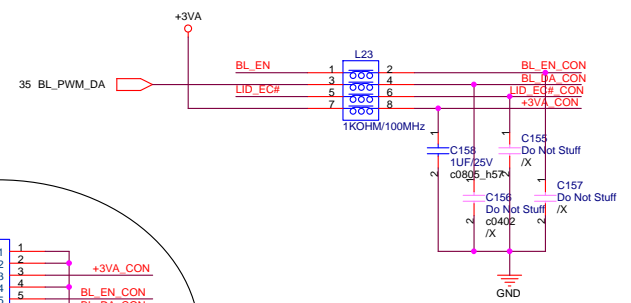


INVERTER Interface/Speaker CONN.

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

PANEL ID1 = 1 : WSXGA+ 1680x1050
PANEL ID1 = 0 : WXGA 1280x800

PANEL ID0 RESERVE FOR VENDOR



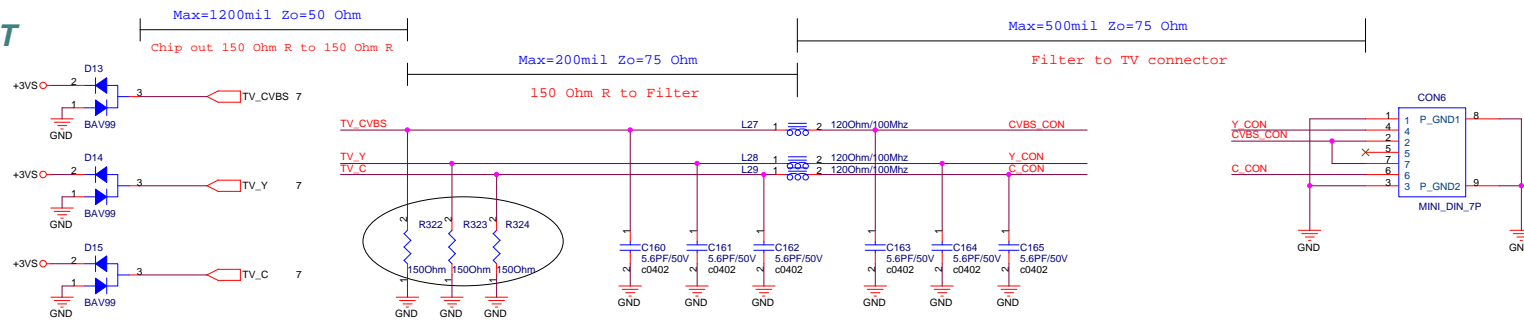
2.0G

ASUS Title :LVDS & INVERTER

ASUSTeK COMPUTER INC Engineer: Alan Chen

Size	Project Name	Rev
Custom	Z84FM	2.0
Date: Thursday, October 05, 2006	Sheet 20 of 57	

TV OUT

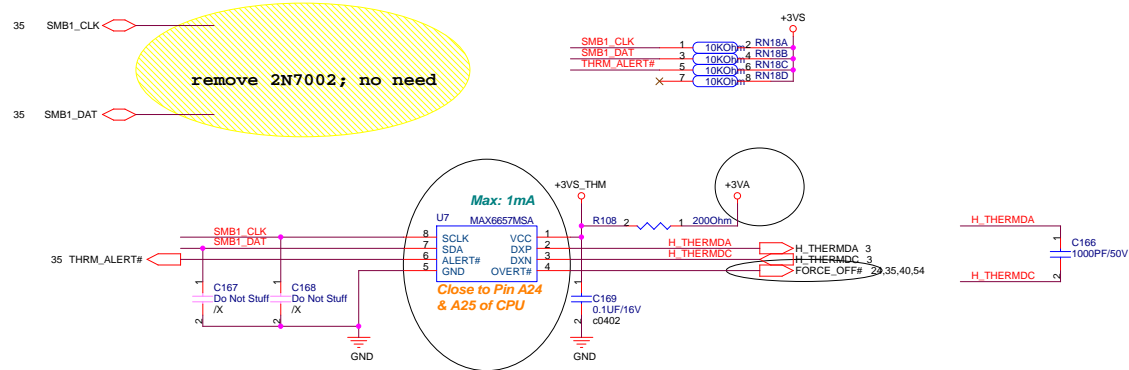


PLACE ESD
Diodes near
TV port

2.0G

ASUS		Title : TV OUT & DVI CON.	
ASUSTeK COMPUTER INC		Engineer: Alan Chen	
Size	Project Name	Rev	
Custom	Z84FM	2.0	
Date: Thursday, October 05, 2006		Sheet	21 of 57

Thermal Sensor

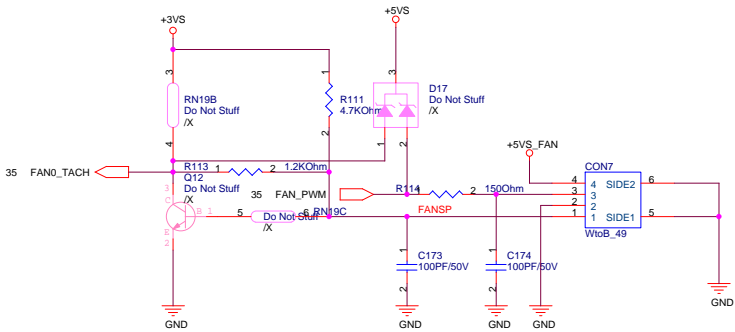
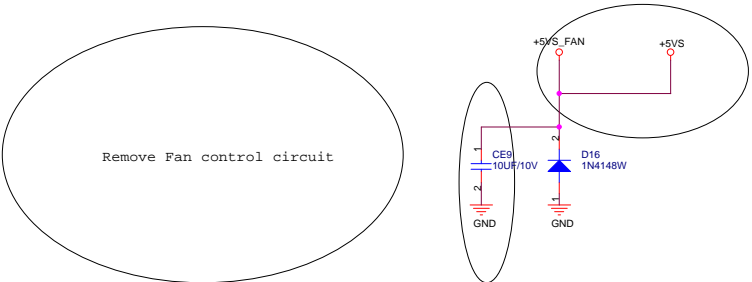


Route H_THERMDA and H_THERMDC on the same layer

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

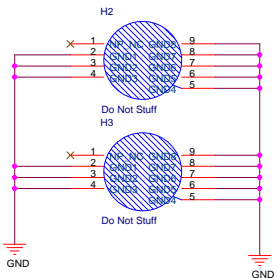
Avoid FSB,Power

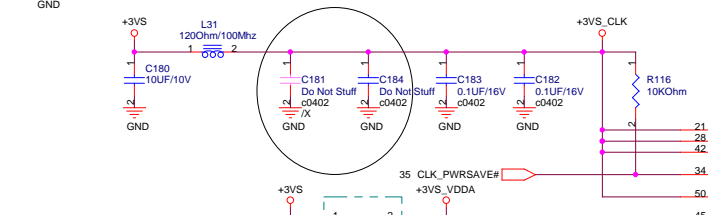
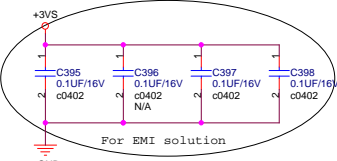
DC FAN Control



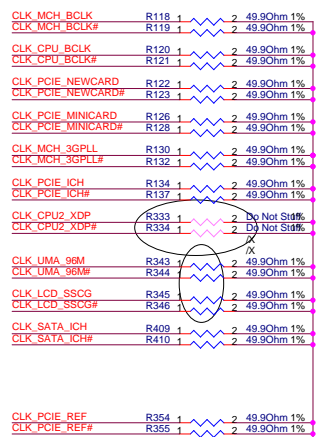
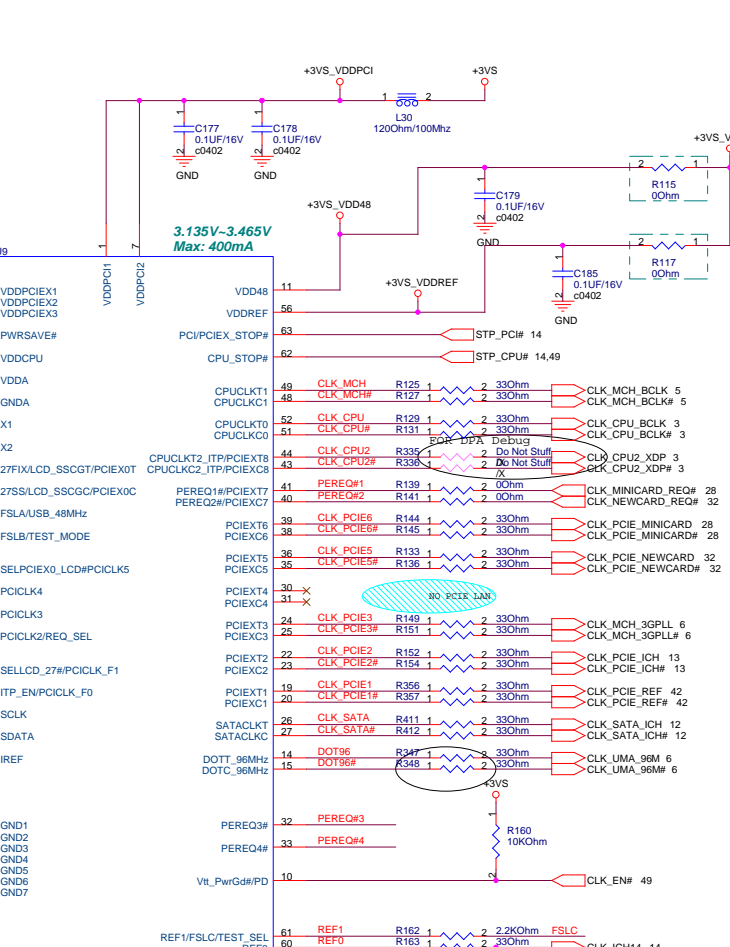
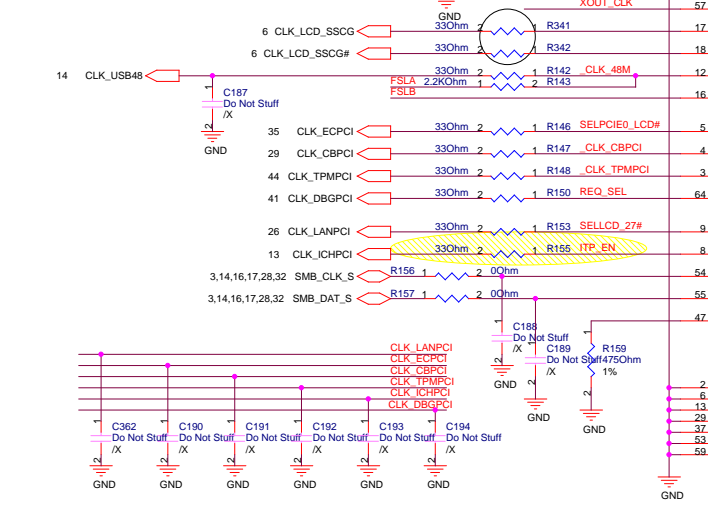
Remove Fan control circuit

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

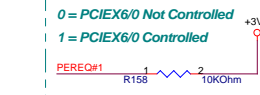




In Intel CK-410M CRB schematics: R127, R132 use 2.2 Ohm and R128 uses 1 Ohm.



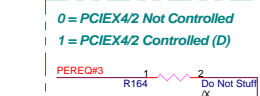
PEREQ#1



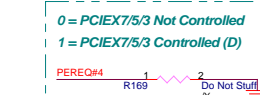
PEREQ#2



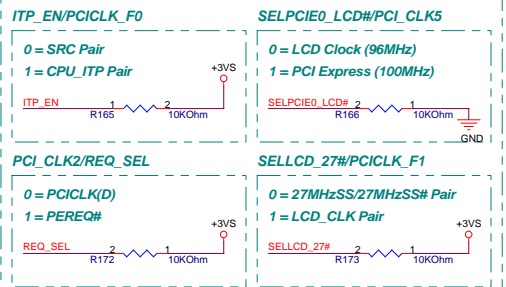
PEREQ#3



PEREQ#4

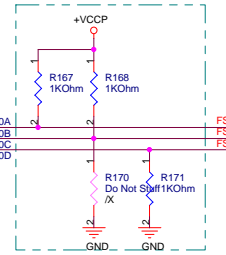


Latched Input Select



IC954310CGLFT
Pin 5,9,32,33,34 : Internal Pull-Up
Pin 64: Internal Pull-Down

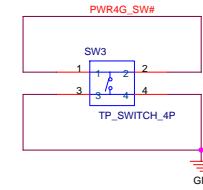
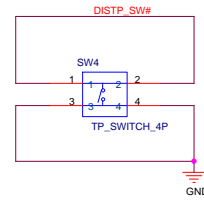
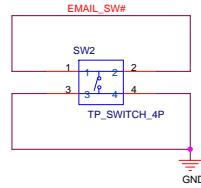
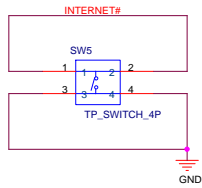
Reserved for Debug & Exprimt



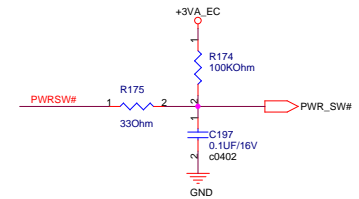
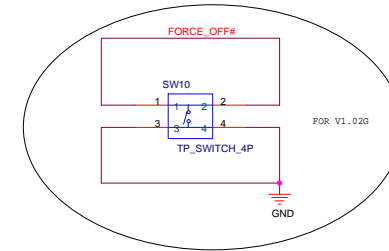
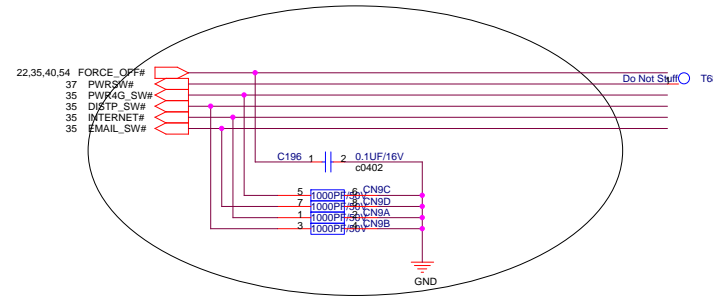
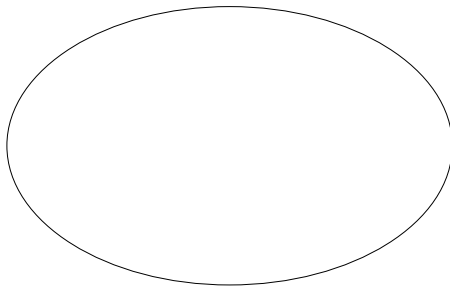
BCLK	FSB	BSEL2	BSEL1	BSEL0
133	533	L	L	H
166	667	L	H	H

2.0G

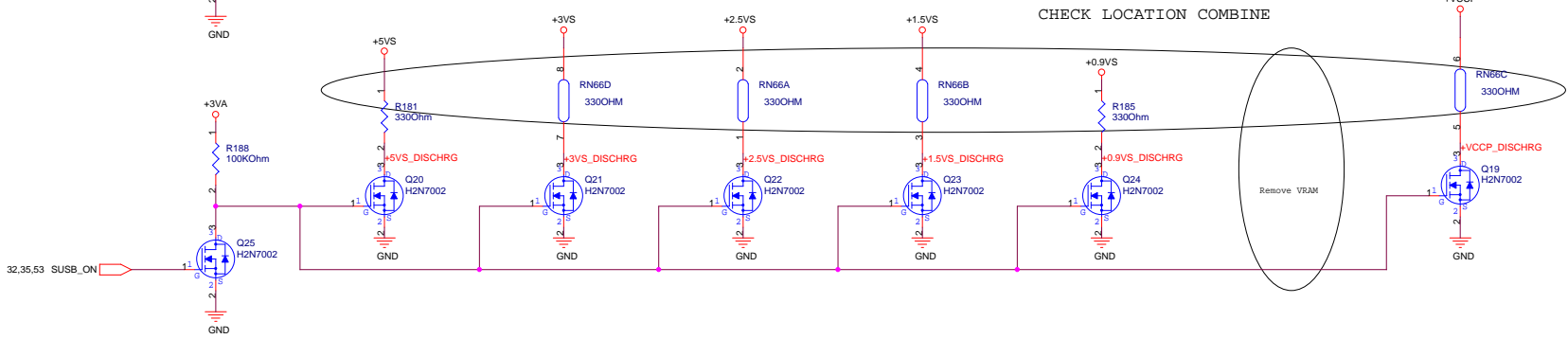
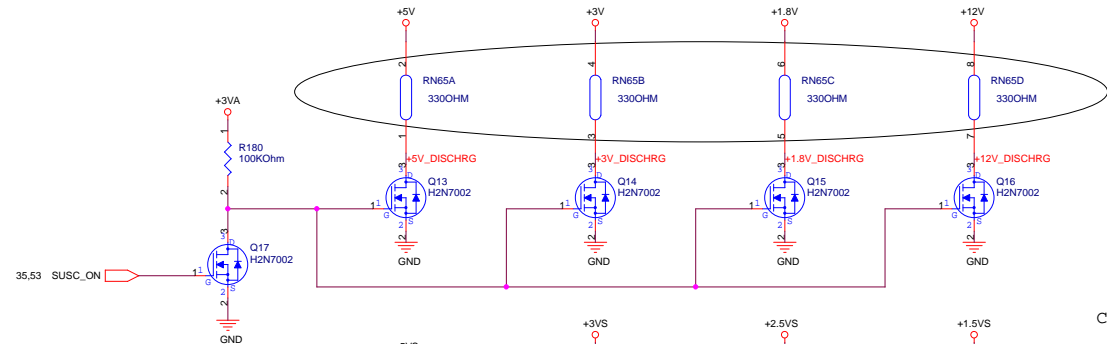
ASUS Title : **CLK GEN-IC954310**
 ASUSTek COMPUTER INC. Engineer: **Alan Chen**
 Size Project Name
 Custom **Z84FM** Rev 2.0
 Date: Thursday, October 05, 2006 Sheet 23 of 57



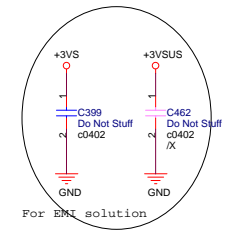
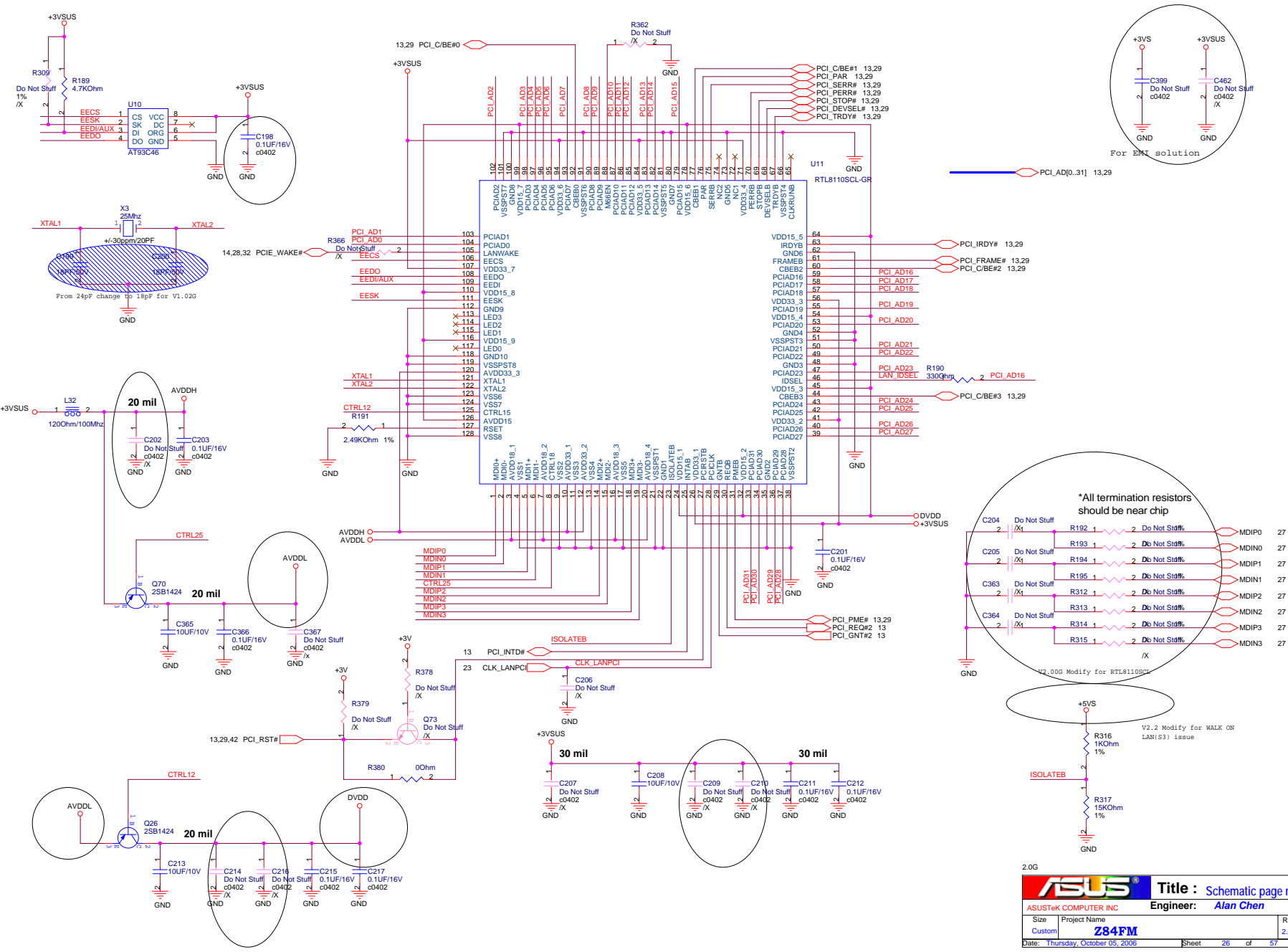
SHUT_DOWN#



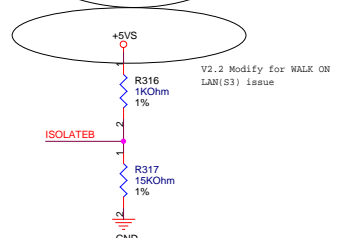
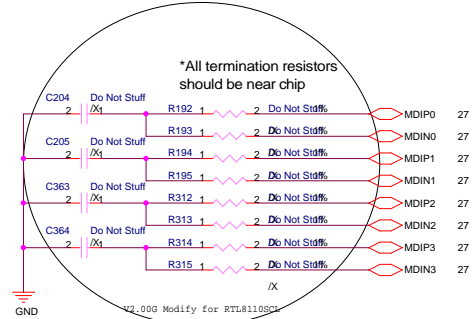
2.0G



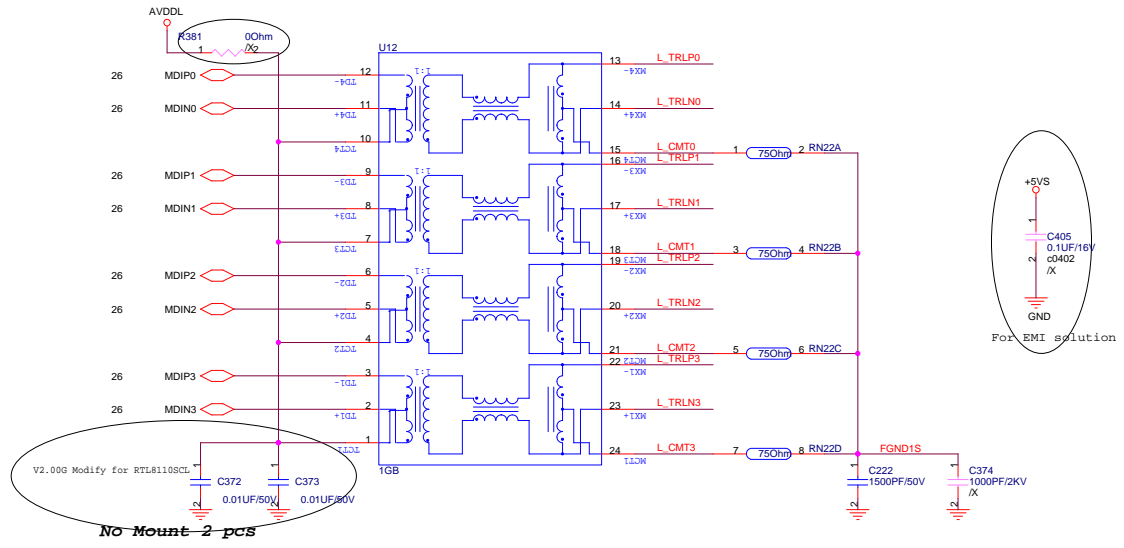
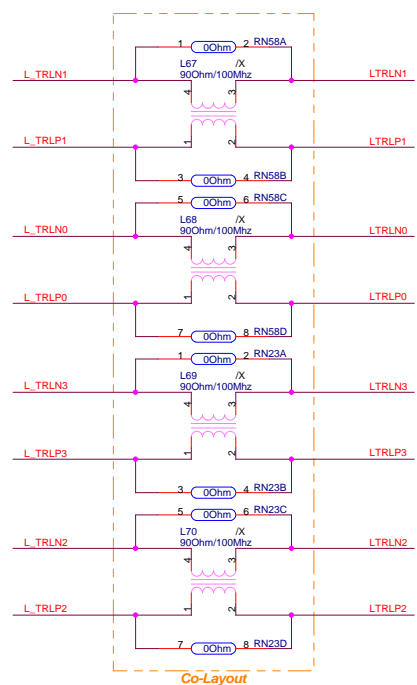
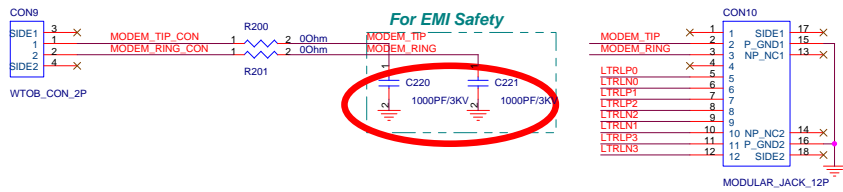
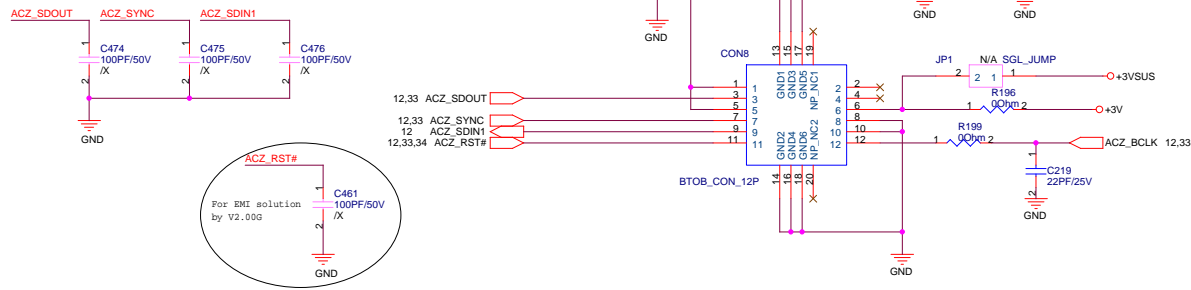
2.0G

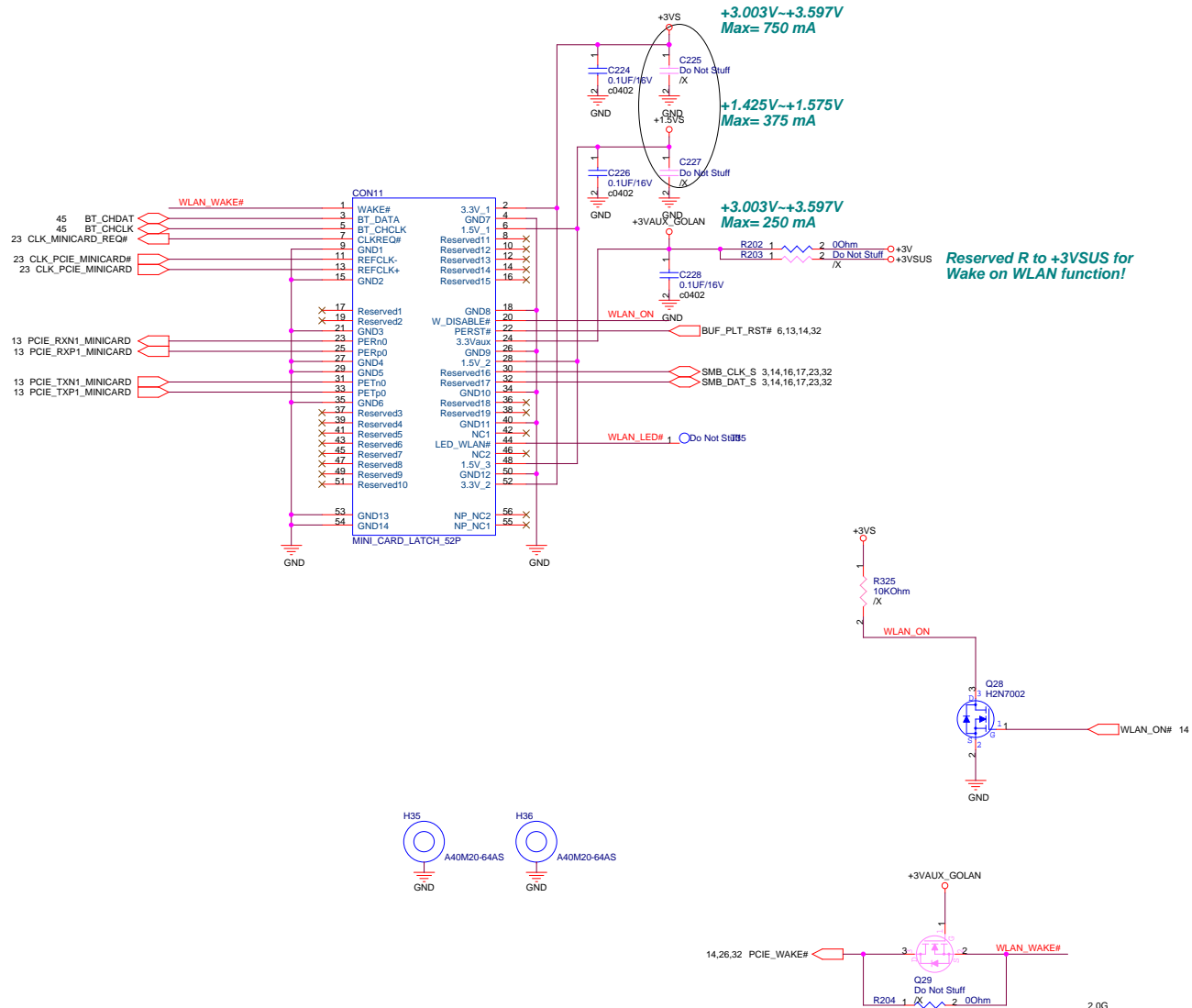


PCI_AD[0..31] 13,29



MDC CONN.

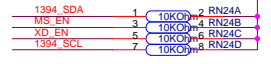
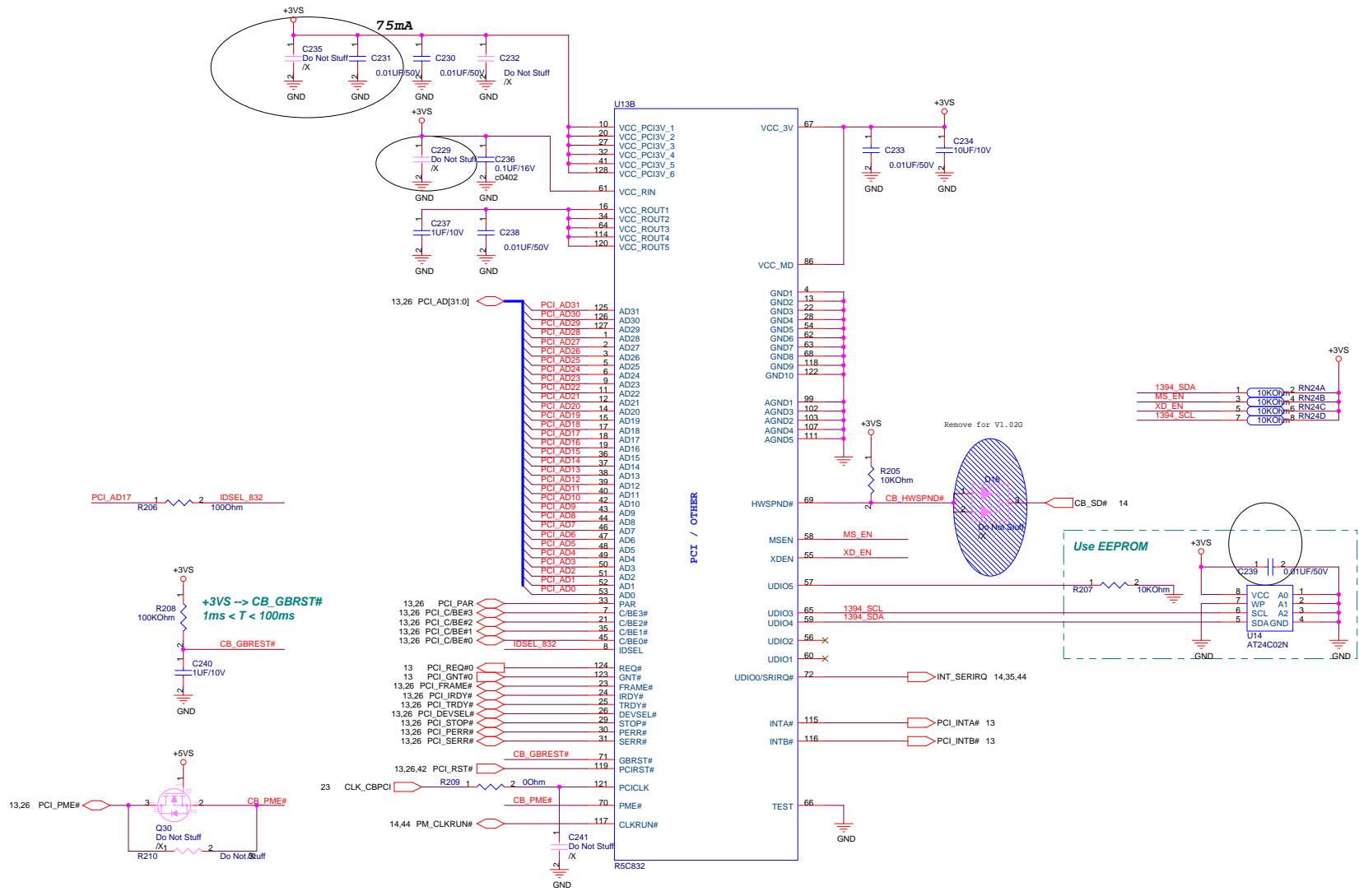


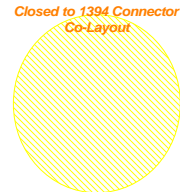
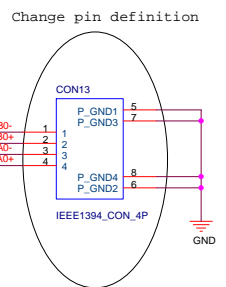
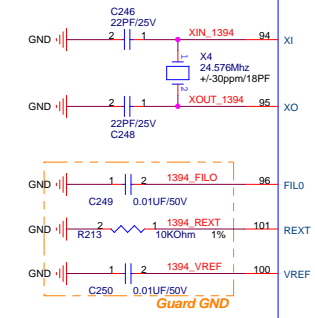
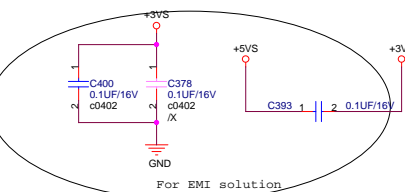
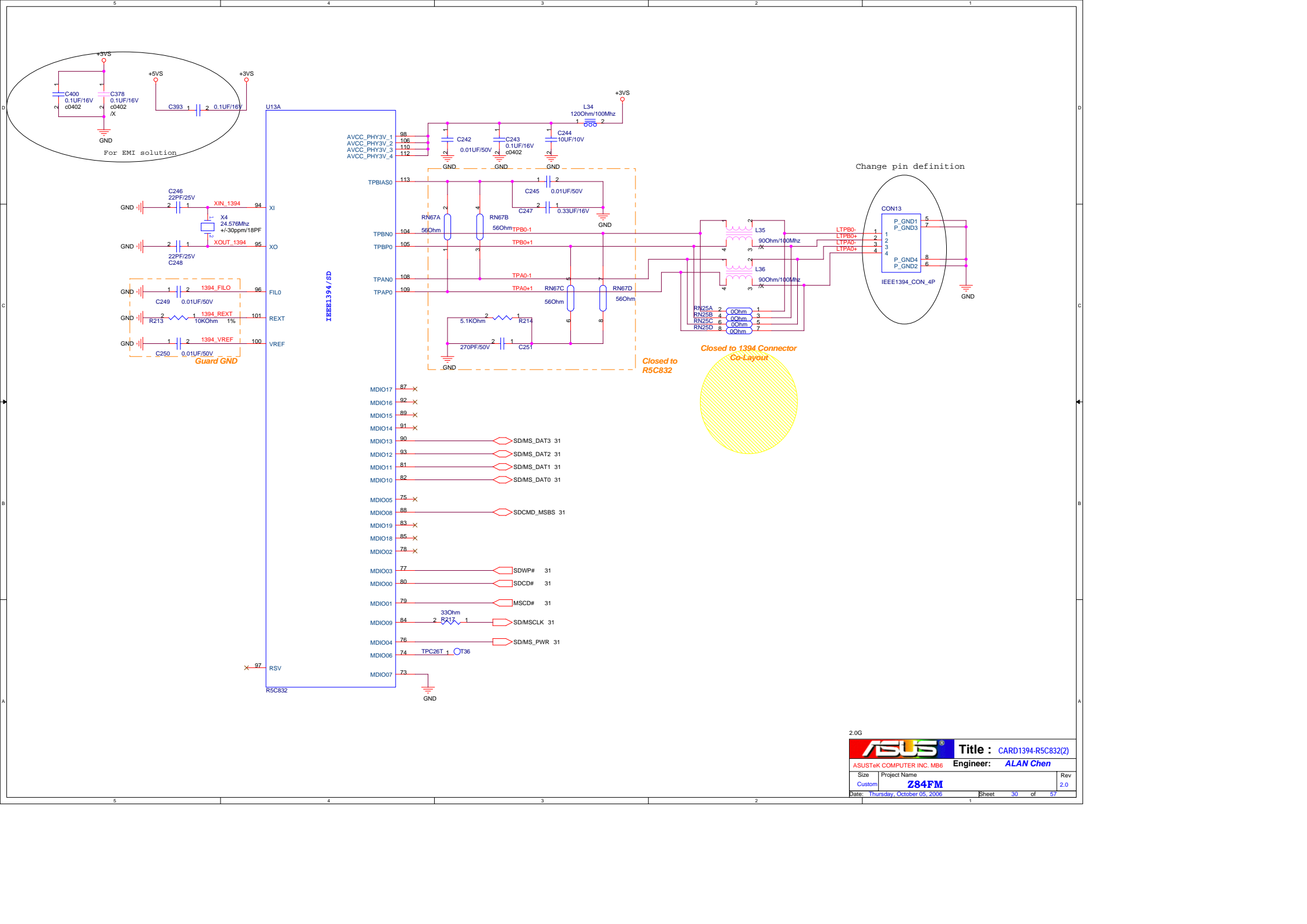


Reserved R to +3VSUS for Wake on WLAN function!

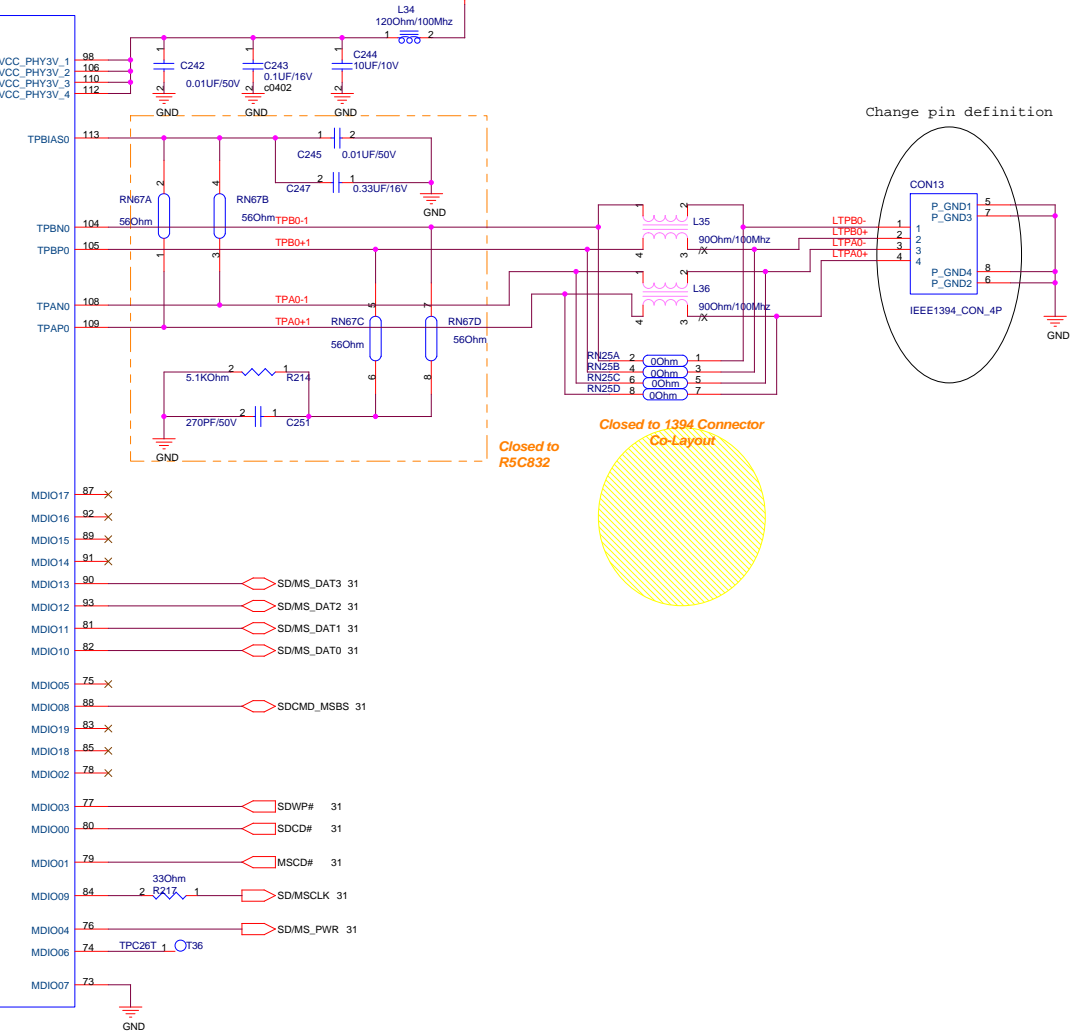
2.0G

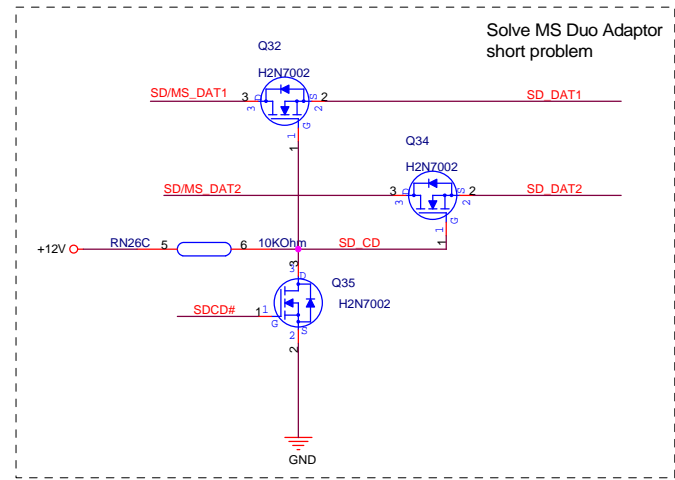
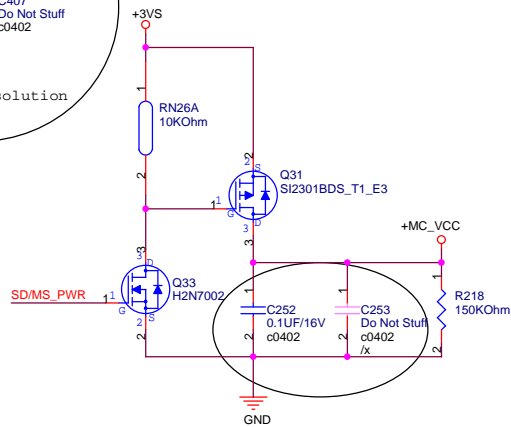
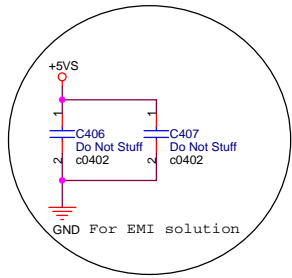
Title : MINICARD
ASUSTeK COMPUTER INC. Engineer: Alan Chen
 Size Project Name
 Custom **Z84FM** Rev 2.0
 Date: Thursday, October 05, 2006 Sheet 28 of 57



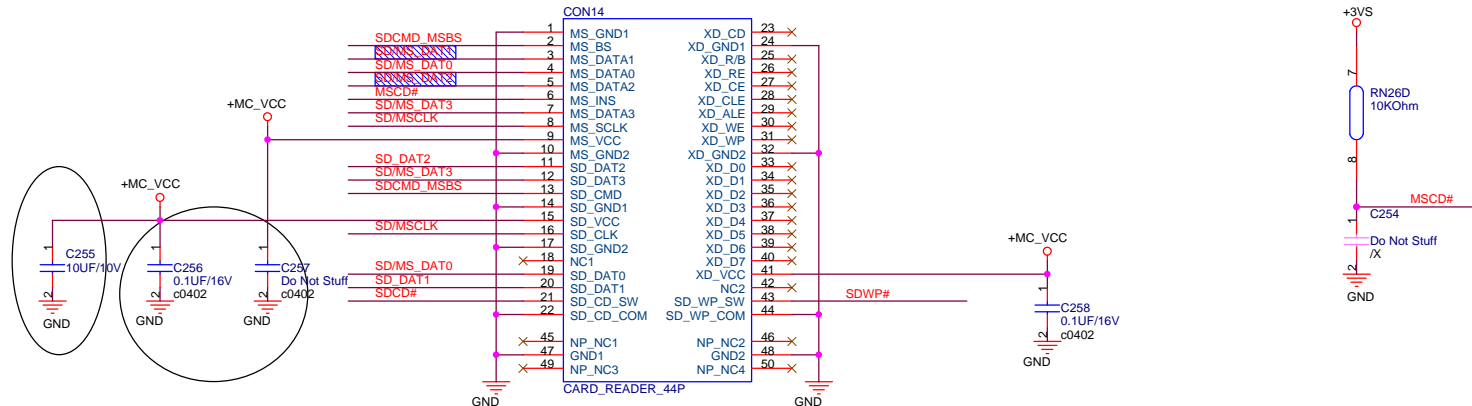


Closed to R5C832



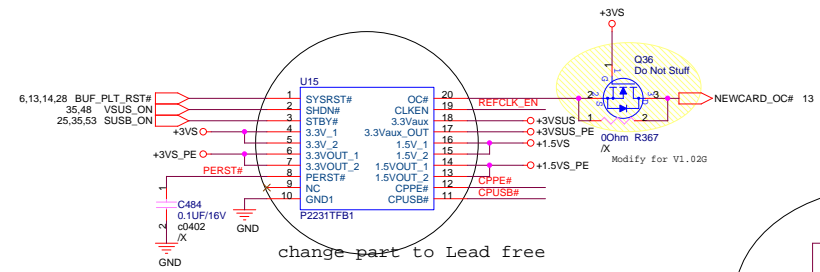
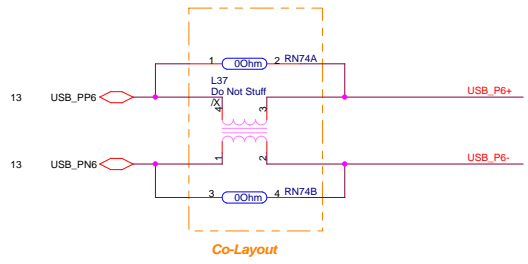


- SD/MS_DAT3 30
- SD/MS_DAT2 30
- SD/MS_DAT1 30
- SD/MS_DAT0 30
- SDCMD_MSBS 30
- SDWP# 30
- SDCD# 30
- MSCD# 30
- SD/MSCLK 30
- SD/MS_PWR 30



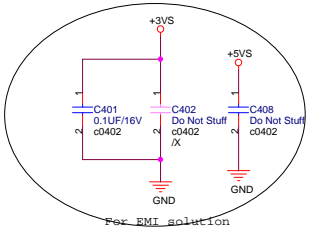
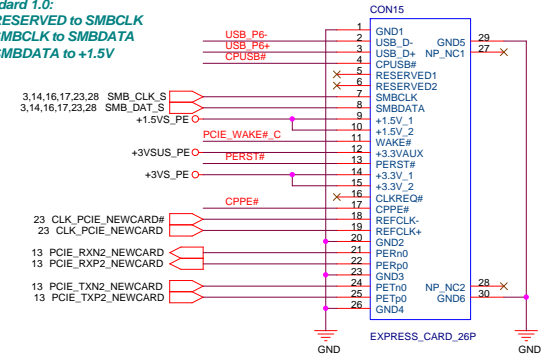
2.0G

ASUS		Title 4 in 1 CARD READER
ASUSTeK COMPUTER INC		Engineer: ALAN CHEN
Size A3	Project Name Z84FM	Rev 2.0
Date: Thursday, October 05, 2006		Sheet 31 of 57

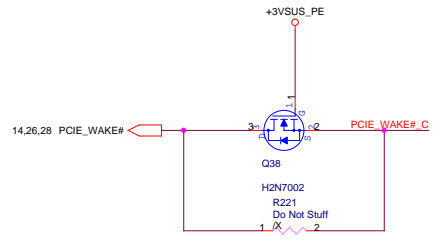
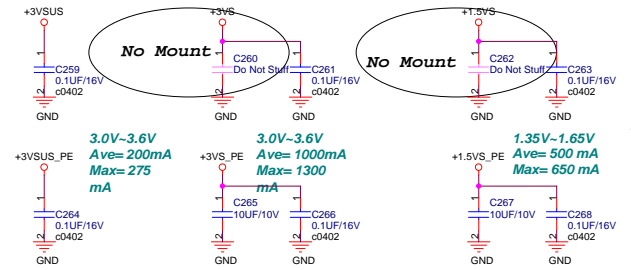
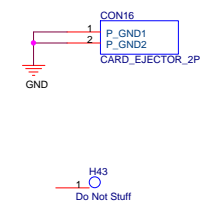


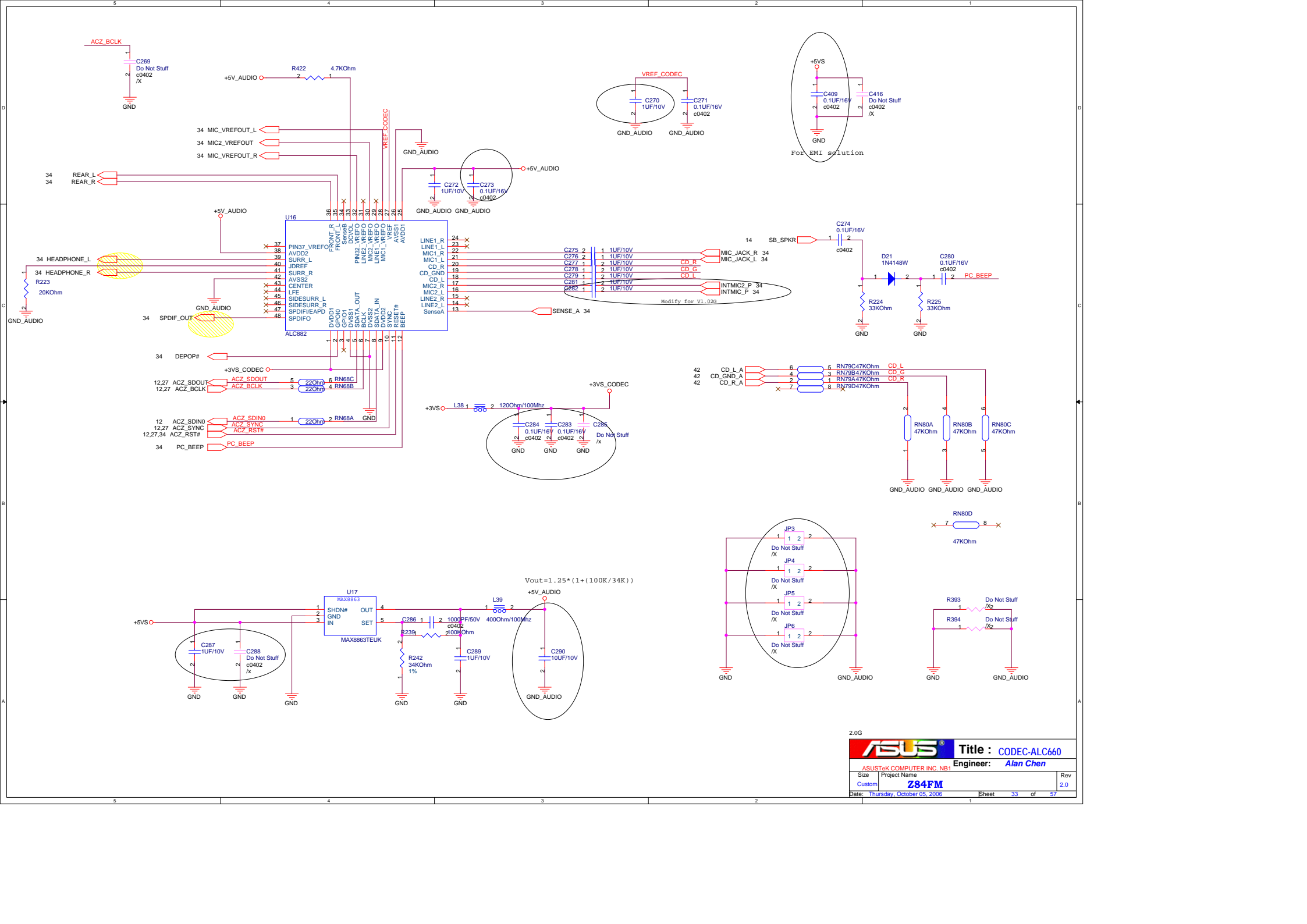
!! ExpressCard Standard 1.0:
 Change Pin7 from RESERVED to SMBCLK
 Change Pin8 from SMBCLK to SMBDATA
 Change Pin9 from SMBDATA to +1.5V

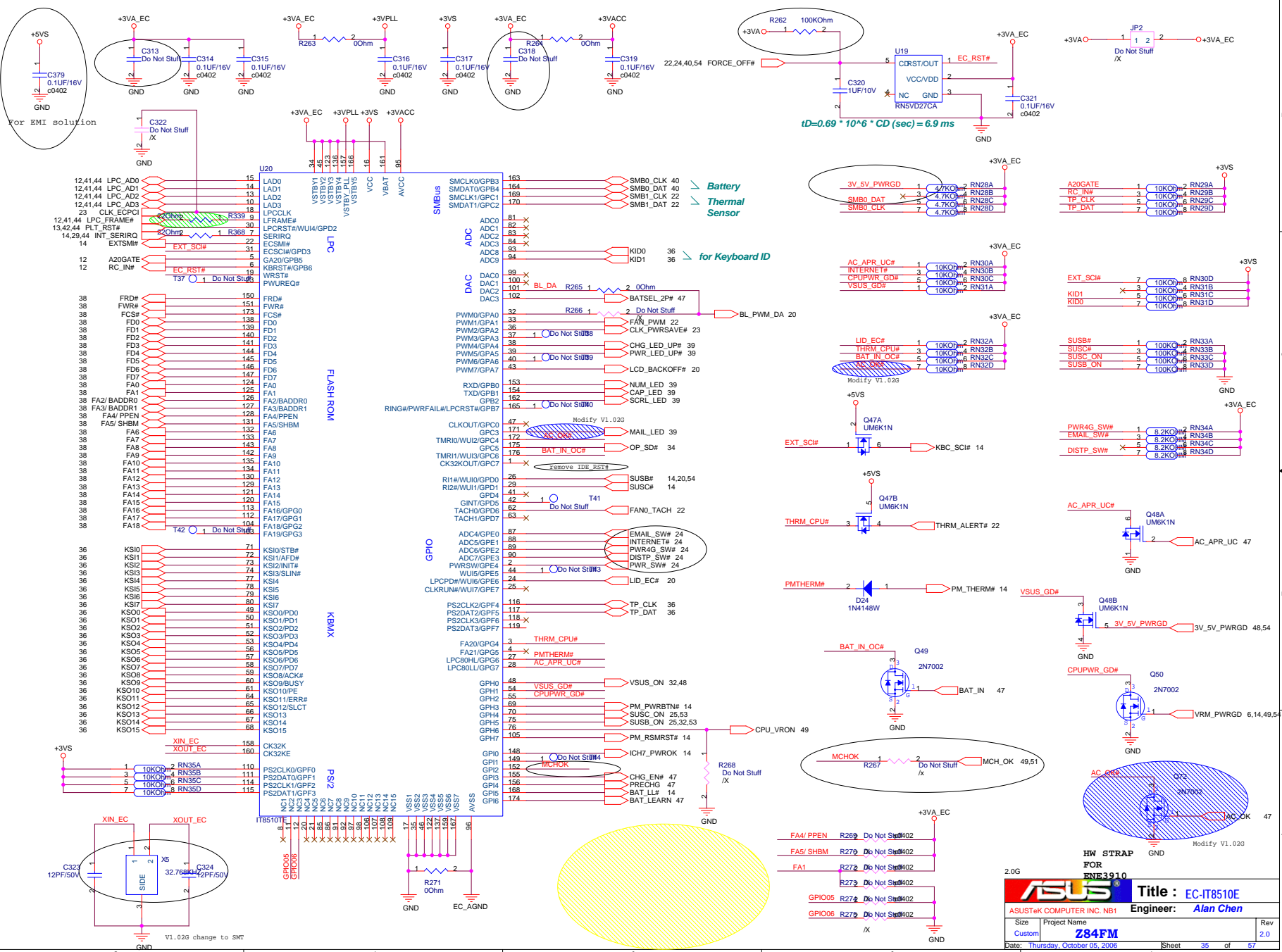
NewCard Header



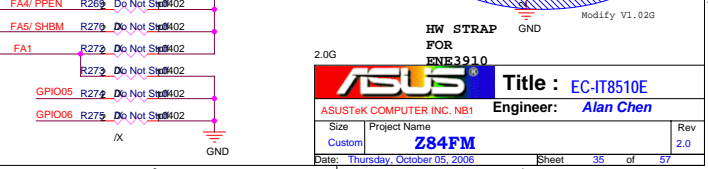
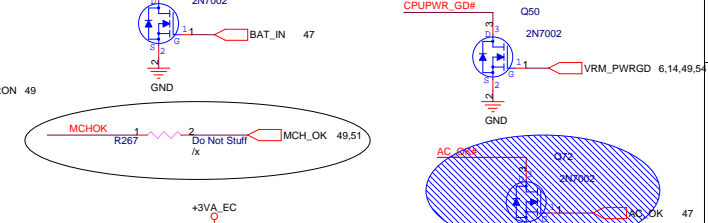
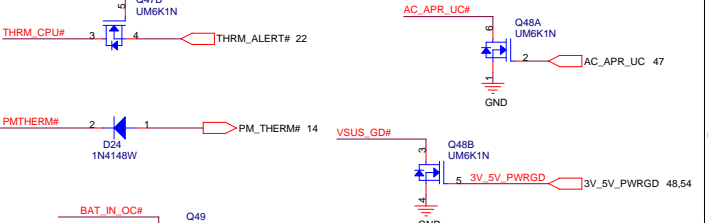
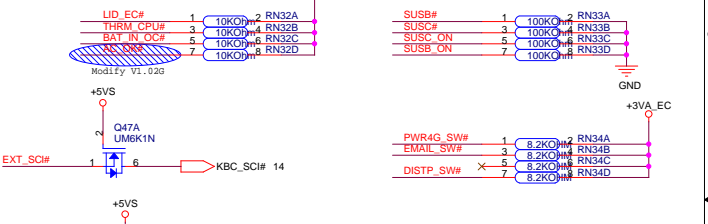
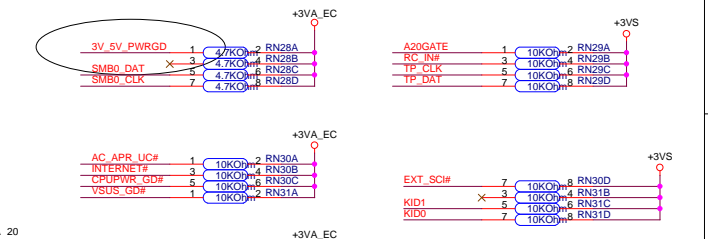
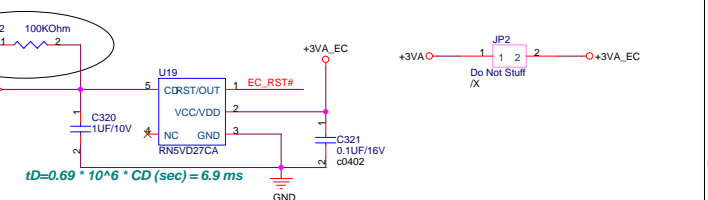
NewCard Ejecter







Battery
Thermal Sensor
for Keyboard ID



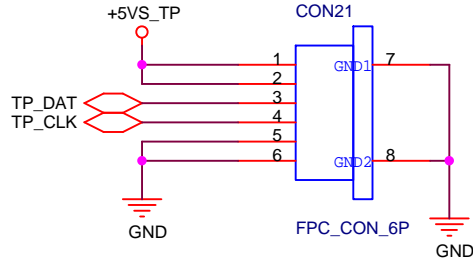
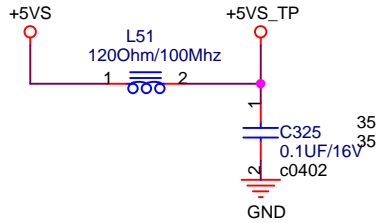
ASUS Title: EC-IT8510E
ASUSTeK COMPUTER INC. NB1 Engineer: Alan Chen
Size Project Name
Custom Z84FM
Date: Thursday, October 05, 2006 Sheet 35 of 57

For EMI solution

V1.02g change to SWT

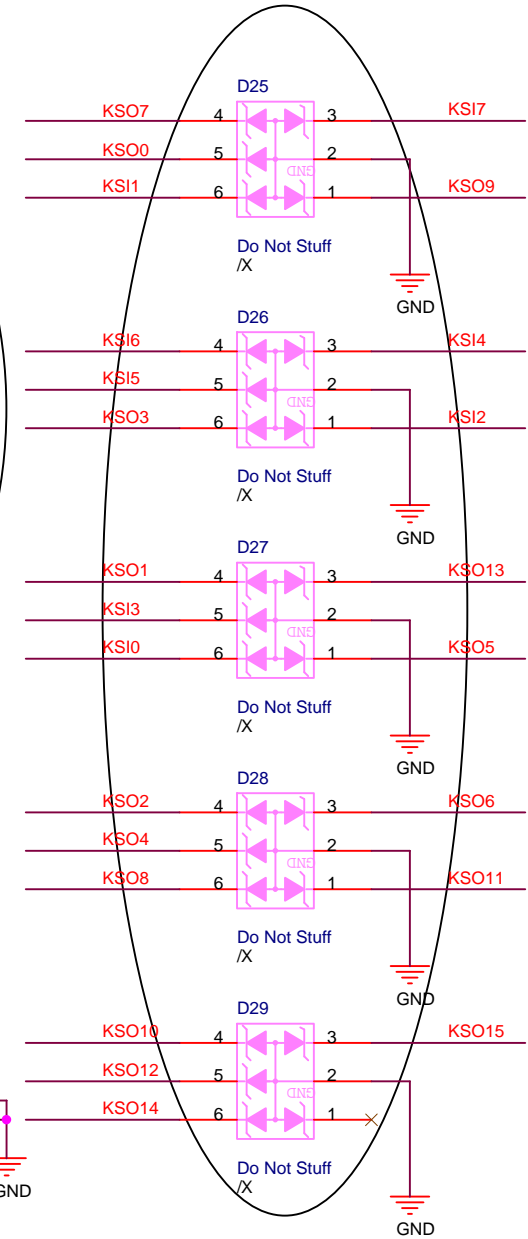
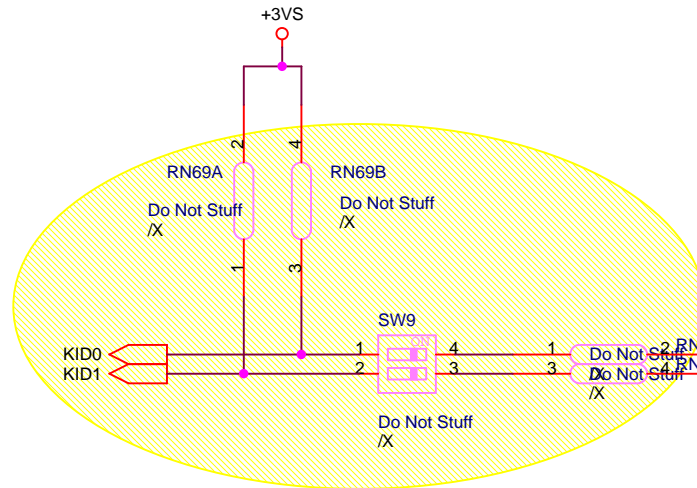
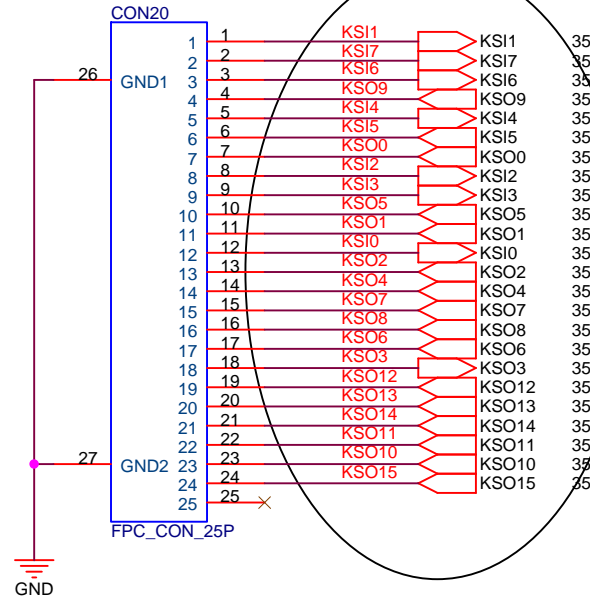
EXT_SCI#

For Touch-Pad



For Keyboard

For CBB -US- MATRIX



2.0G

ASUS		Title : Touch Pad & KB	
ASUSTeK COMPUTER INC. MB6		Engineer: ALAN CHEN	
Size A4	Project Name Z84FM	Rev 2.0	
Date: Thursday, October 05, 2006		Sheet	36 of 57



D

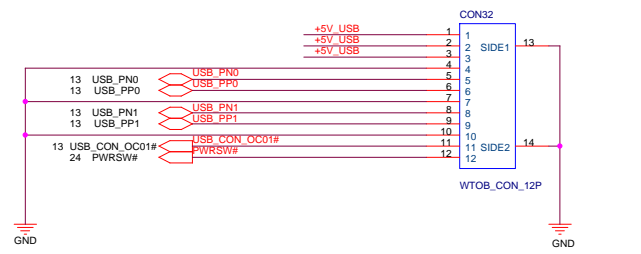
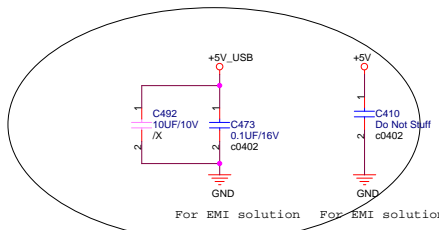
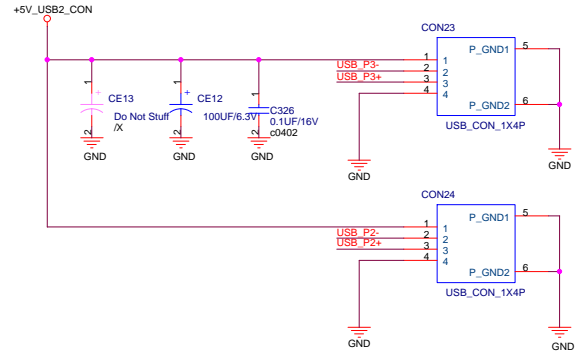
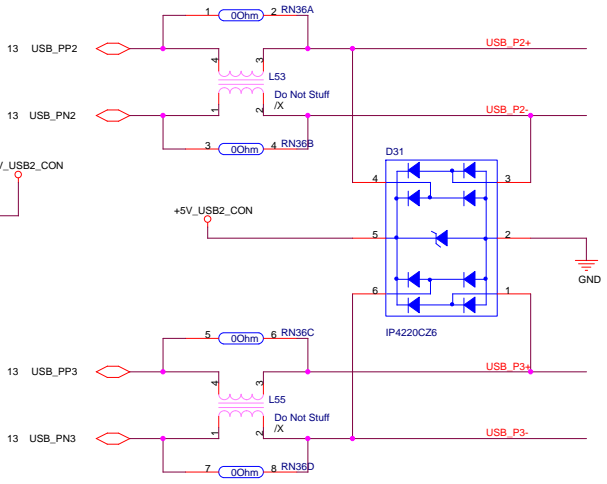
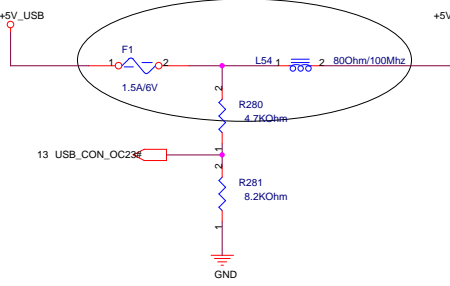
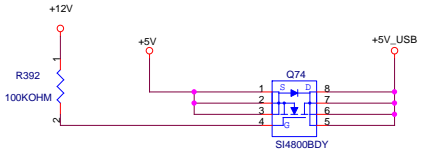
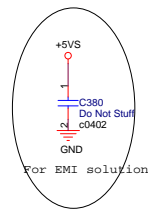
C

B

A

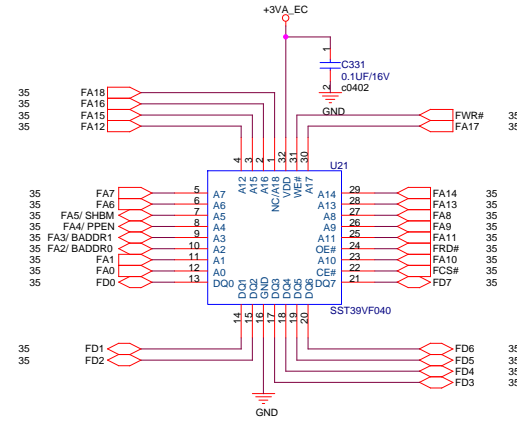
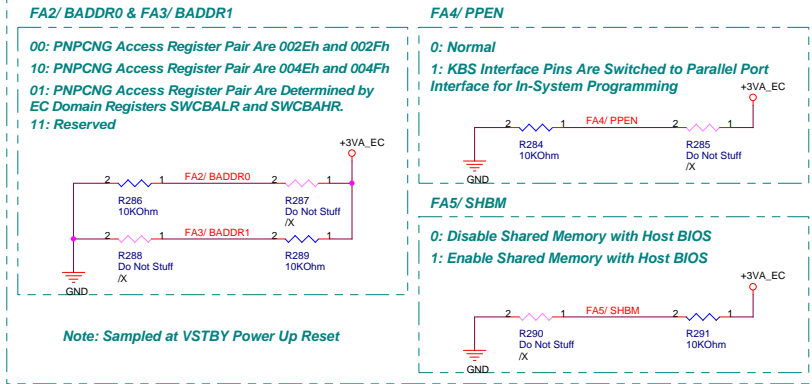
5	4	3	2	1
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ISA ROM

EC Hardware Strapping

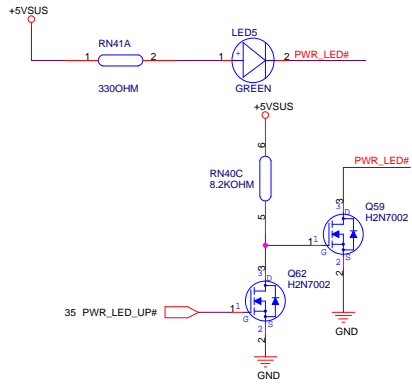


2.0G

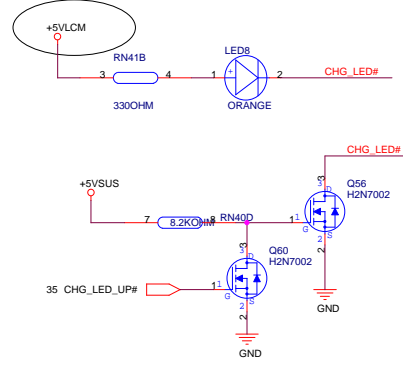
ASUS		Title :ISA ROM	
ASUSTeK COMPUTER INC. NB1		Engineer: Alan Chen	
Size	Project Name	Rev	
Custom	Z84FM	2.0	
Date: Thursday, October 05, 2006		Sheet	38 of 57

For LED

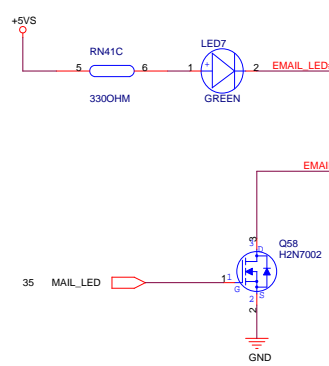
For POWER LED



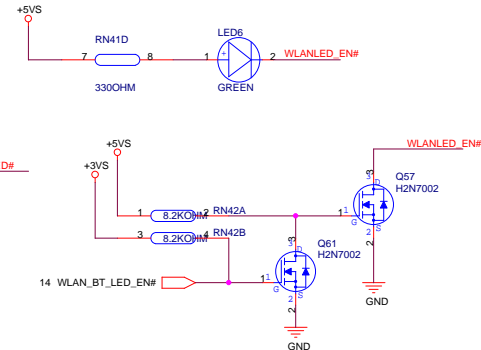
For BATTERY LED



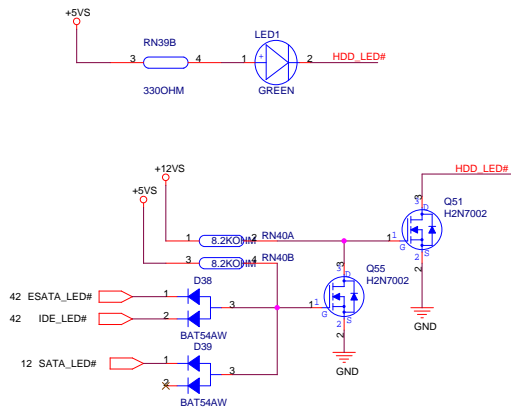
for EMIAL LED



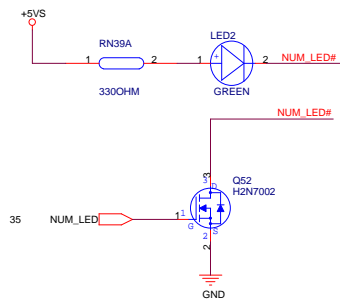
For WireLess LED



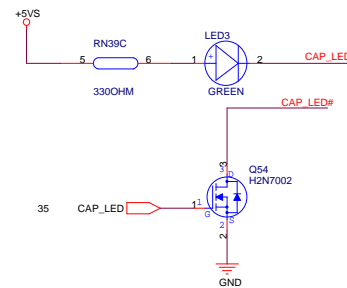
For ESATA/IDE LED



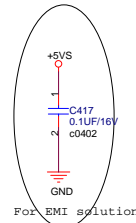
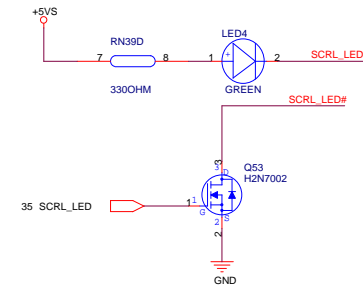
for Num Lock



for Cap. Lock



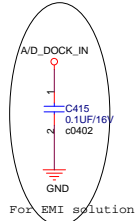
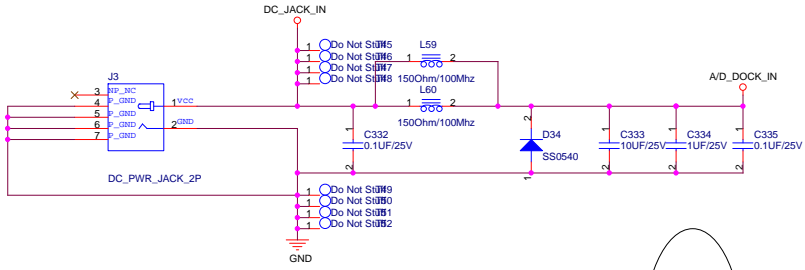
for Scroll Lock



2.0G

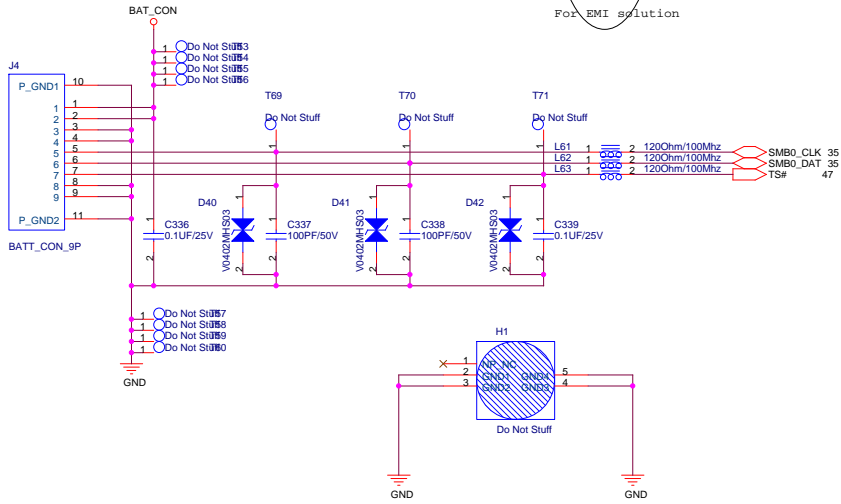
ASUS		Title : LED	
ASUSTeK COMPUTER INC		Engineer: Alan Chen	
Size	Project Name	Rev	
Custom	Z84FM	2.0	
Date: Thursday, October 05, 2006		Sheet	39 of 57

DC IN

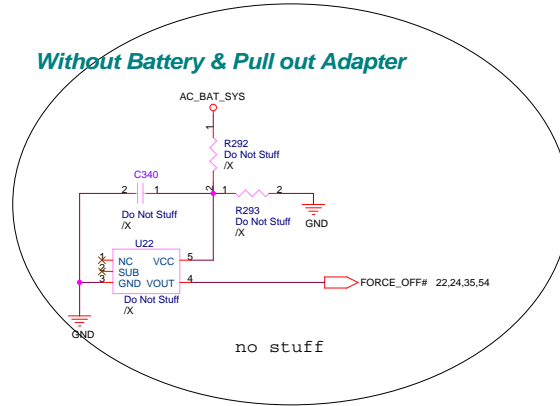


remove AC DC detect; no need

BAT IN

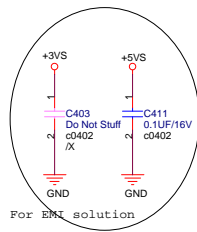


Without Battery & Pull out Adapter

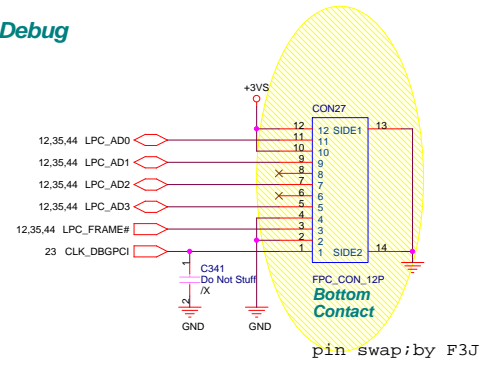


no stuff

2.0G



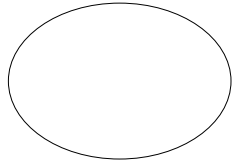
For Debug



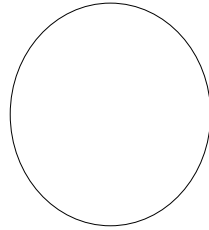
2.0G

ASUS		Title : Debug CONN.	
ASUSTeK COMPUTER INC		Engineer: Alan Chen	
Size	Project Name	Rev	
Custom	Z84FM	2.0	
Date: Thursday, October 05, 2006	Sheet	41	of 57

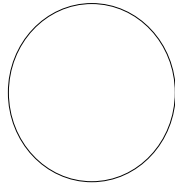
FOR LEFT UNDER



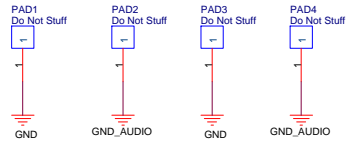
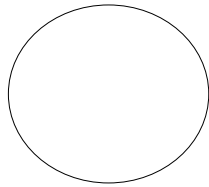
FOR FAN



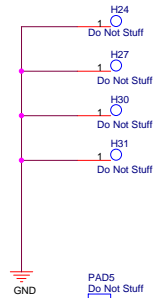
FOR RIGHT UP



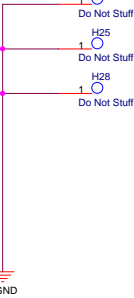
FOR FAN



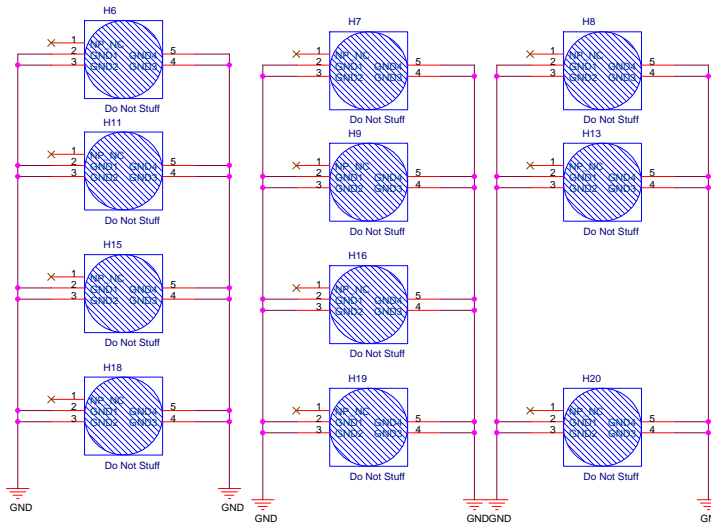
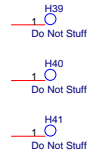
FOR CPU



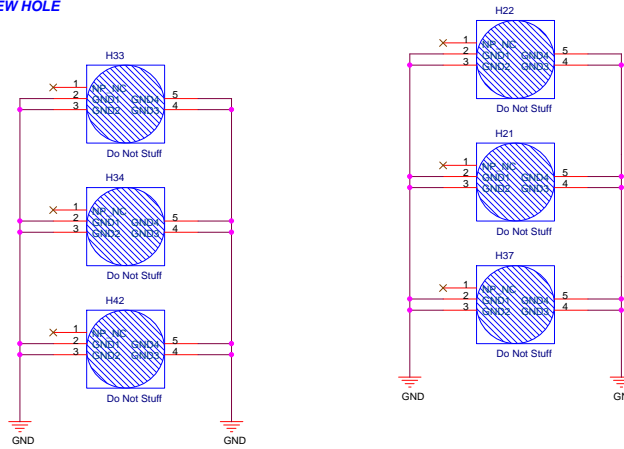
FOR VGA



Non pth hole



FOR SCREW HOLE



2.0G

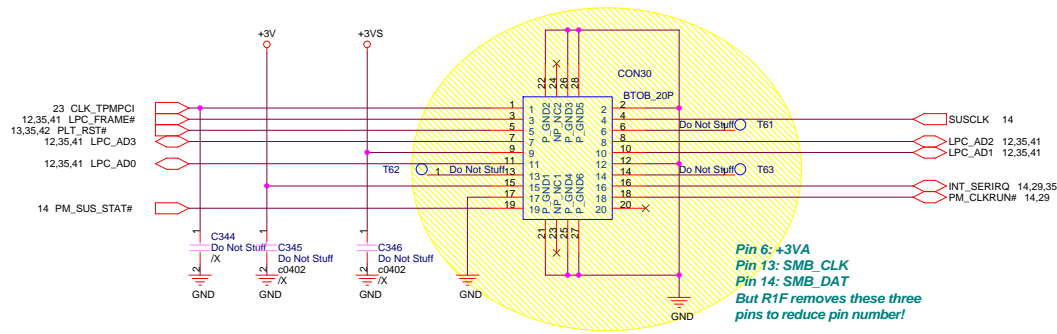
ASUS Title : SREW HOLE

ASUSTeK COMPUTER INC Engineer: Alan Chen

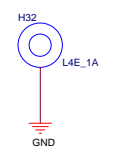
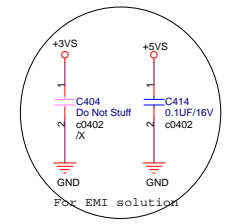
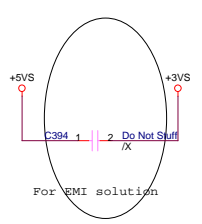
Size Project Name Rev
Custom Z84FM 2.0

Date: Thursday, October 05, 2006 Sheet 43 of 57

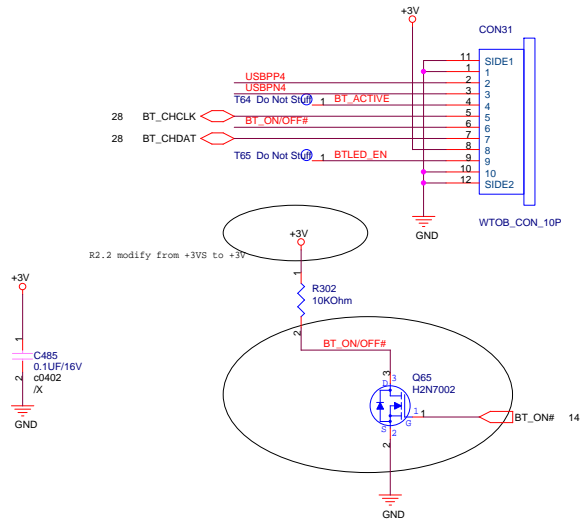
For TPM Module



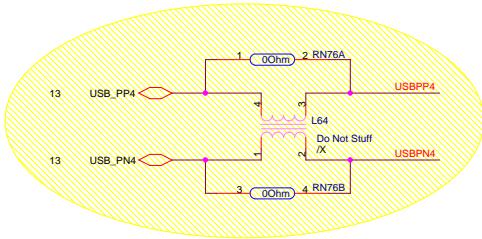
Pin 6: +3VA
 Pin 13: SMB_CLK
 Pin 14: SMB_DAT
 But R1F removes these three pins to reduce pin number!



For Bluetooth

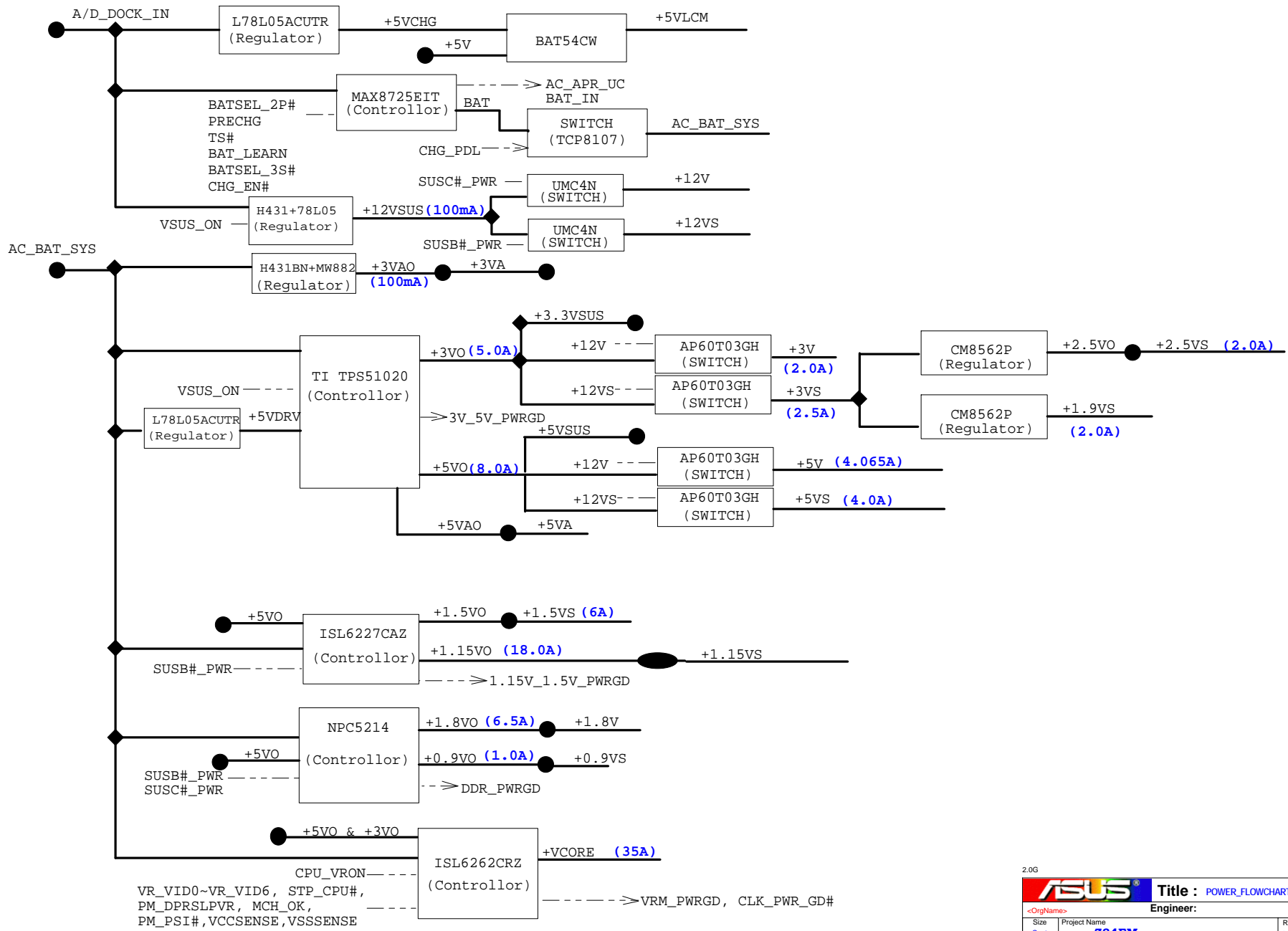


Remove Side SW



2.0G

ASUS		Title : Blue Tooth
ASUSTeK COMPUTER INC		Engineer: Alan Chen
Size	Project Name	Rev
Custom	Z84FM	2.0
Date: Thursday, October 05, 2006	Sheet	45 of 57



Setting the Adapter Input Current Limit

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

Adaptor Max. Current:
 PR5718=20K PR5714 = 178K; Ilimit = 4.5A; 90W
 PR5718=27K PR5714 = 47K; Ilimit = 3.175A; 60W

Setting the Charge Voltage

$V_{batt} = Cell * \{ Vref + (VCTL - 1.8V) / 9.52 \}$
 VCTL = 1.588V => Vbatt = 4.2V

Setting the Charge Current

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

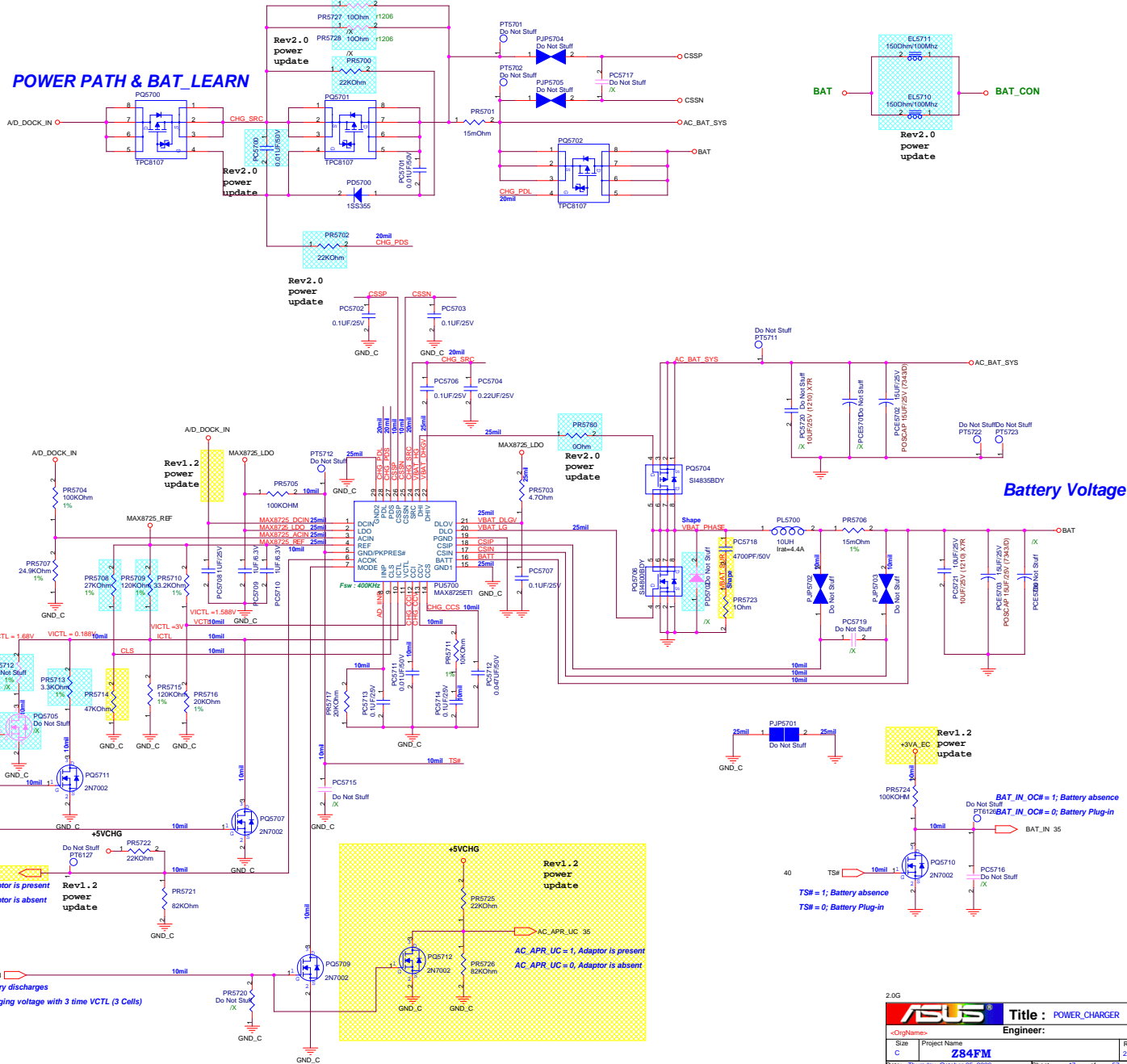
Pre-Charging Mode:
 Precharging current = 148 ~ 152mA
 Victl = 0.107V ~ 0.109V

Battery Cell Selection:
 BATSEL_2P# = 1, 3 Cells; Vctl = 2.084V
 => Icharge = 1.6933A
 BATSEL_2P# = 0, 6 or 9 Cells; Vctl = 2.111V
 => Icharge = 2.9329A

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

MAX8725_REF : 4.2235V
 MAX8725_LDO : 5.4V

POWER PATH & BAT_LEARN



35 BATSEL_2P#
 BATSEL_2P# = 1, 3 Cells
 BATSEL_2P# = 0, 6 or 9 Cells

35 PRECHG
 PRECHG = 1, Pre-Charging Mode
 Charging Current = 156mA

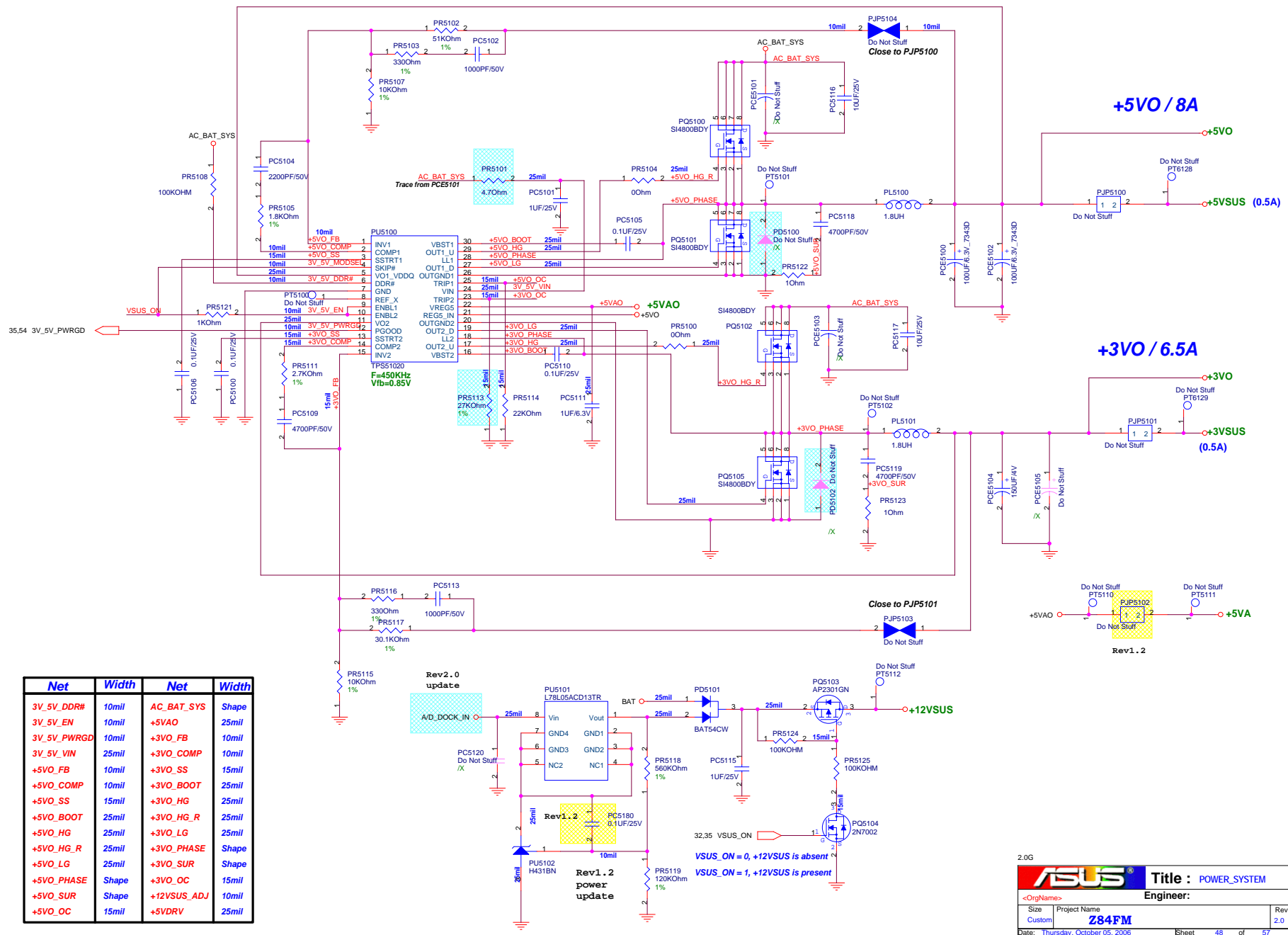
35 CHG_EN#
 CHG_EN# = 1, Charger Disabled
 CHG_EN# = 0, Charger Enabled

35 AC_OK
 AC_OK = 1, Adaptor is present
 AC_OK = 0, Adaptor is absent

35 BAT_LEARN#
 BAT_LEARN = 1, Battery discharges
 BAT_LEARN = 0, charging voltage with 3 time VCTL (3 Cells)

Rev1.2 power update

AC_APPR_UC_35
 AC_APPR_UC = 1, Adaptor is present
 AC_APPR_UC = 0, Adaptor is absent



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
+5VQ_COMP	10mil	+3VO_COMP	10mil
+5VQ_FB	10mil	+3VO_SS	15mil
+5VQ_SS	15mil	+3VO_BOOT	25mil
+5VQ_BOOT	25mil	+3VO_HG_R	25mil
+5VQ_HG	25mil	+3VO_LG	25mil
+5VQ_HG_R	25mil	+3VO_PHASE	Shape
+5VQ_LG	25mil	+3VO_SUR	Shape
+5VQ_PHASE	Shape	+3VO_OC	15mil
+5VQ_SUR	Shape	+12VSUS_ADJ	10mil
+5VQ_OC	15mil	+5VDRV	25mil

2.0G

ASUS Title : POWER_SYSTEM

Engineer:

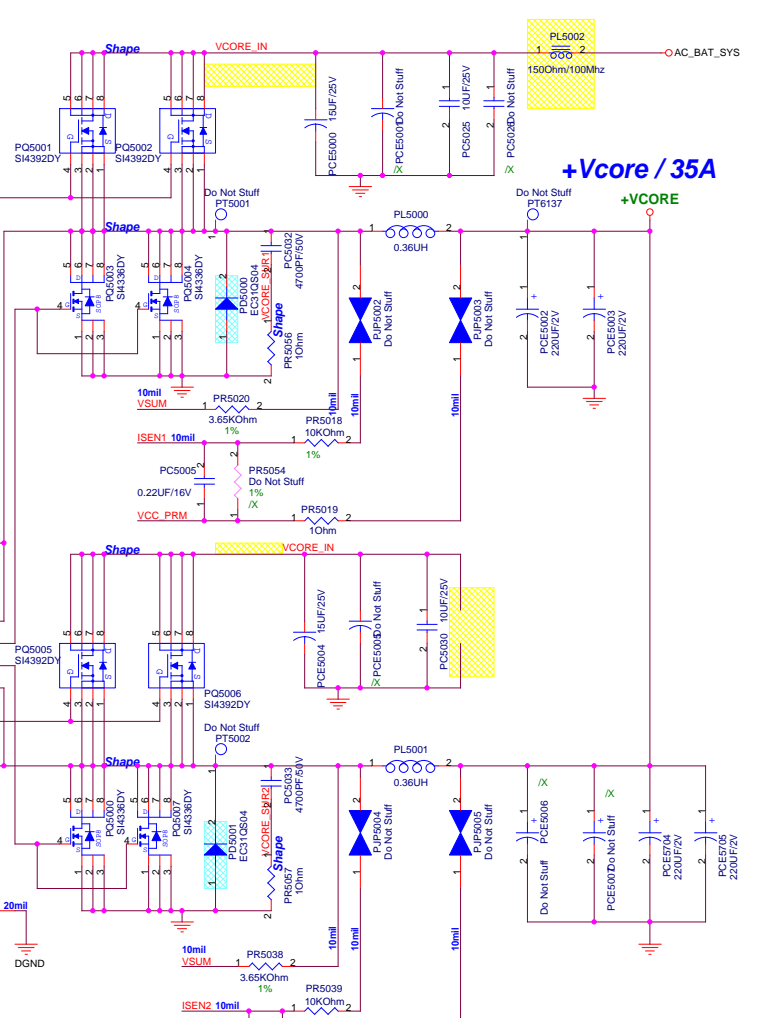
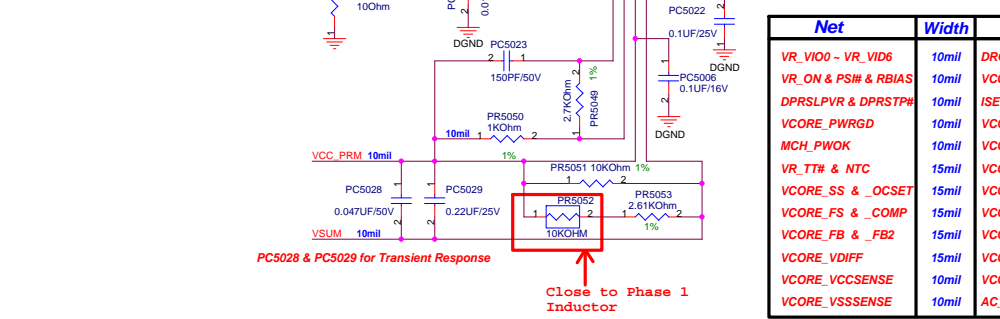
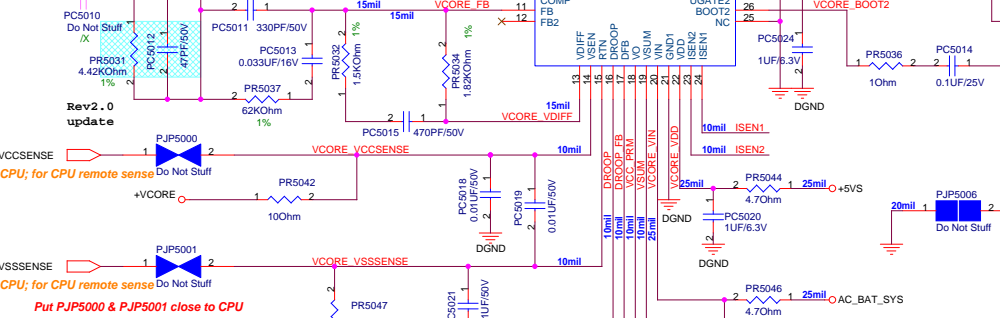
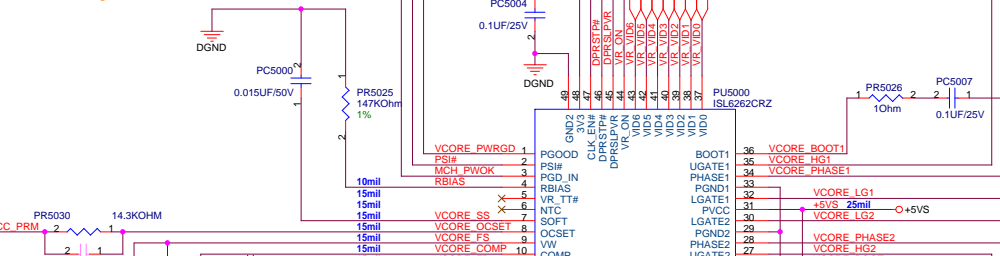
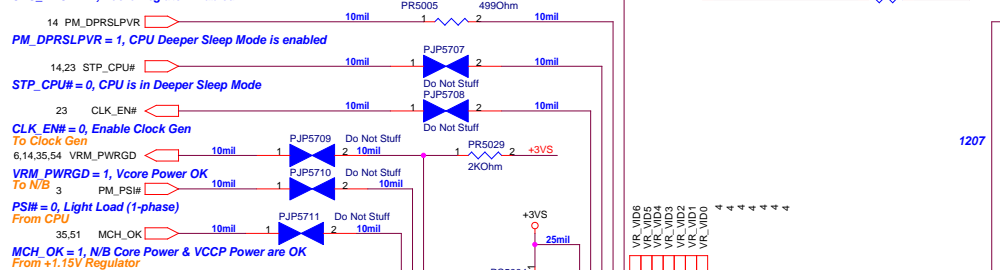
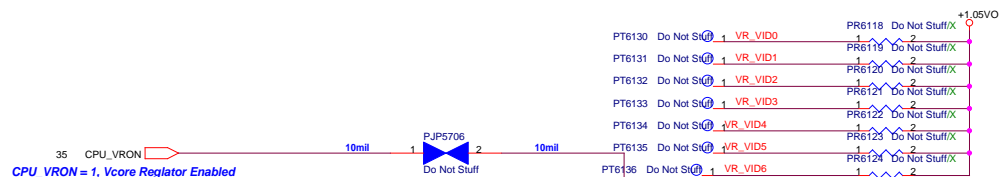
<OrgName>

Size Project Name

Custom **Z84FM**

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Rev 2.0



Net	Width	Net	Width
VR_VIO# - VR_VID#	10mil	DROOP & DROOP_FB	10mil
VR_ON & PSW# & RBIAS	10mil	VCC_PRM & VSUM	10mil
DPRSLPVR & DPRSTPH	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

PC5028 & PC5029 for Transient Response
Close to Phase 1 Inductor

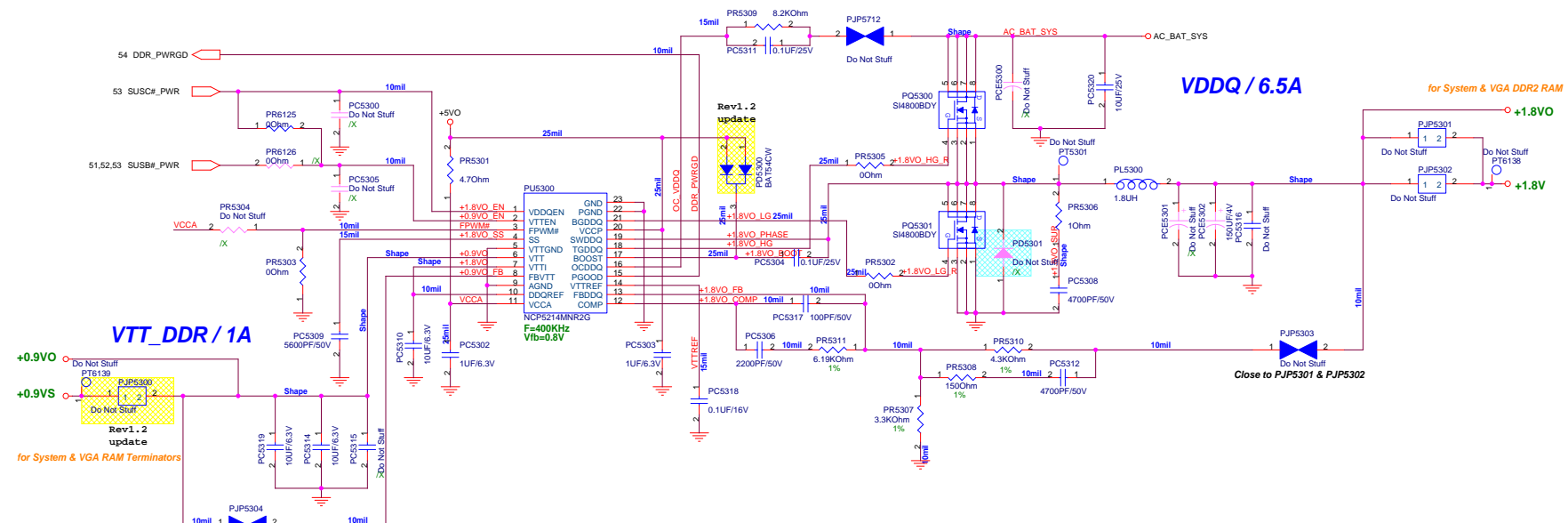
2.0G

ASUS Title : POWER_VCORE

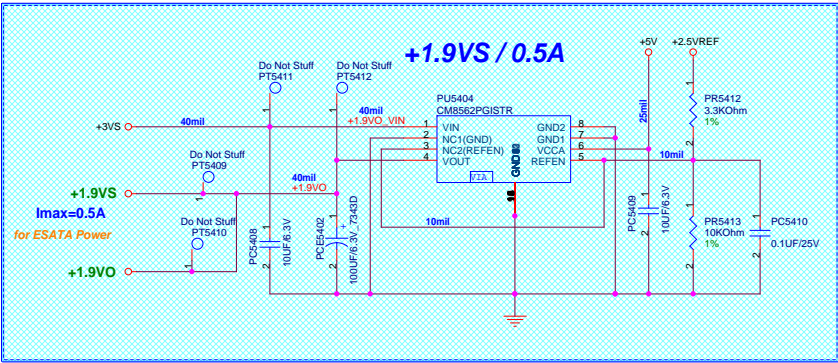
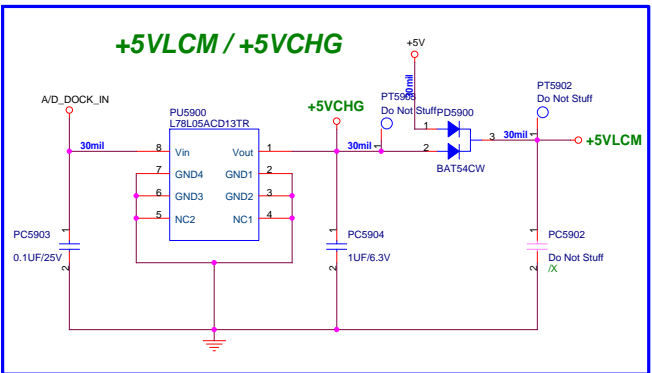
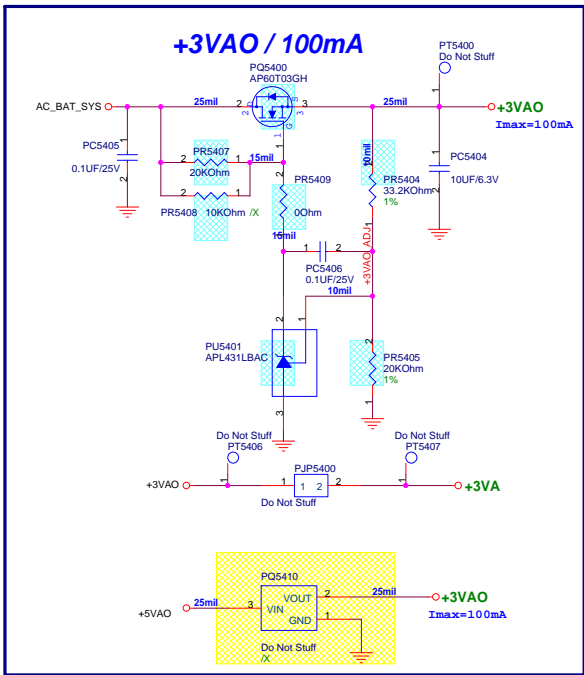
Engineer:

Size Project Name
Custom Z84FM

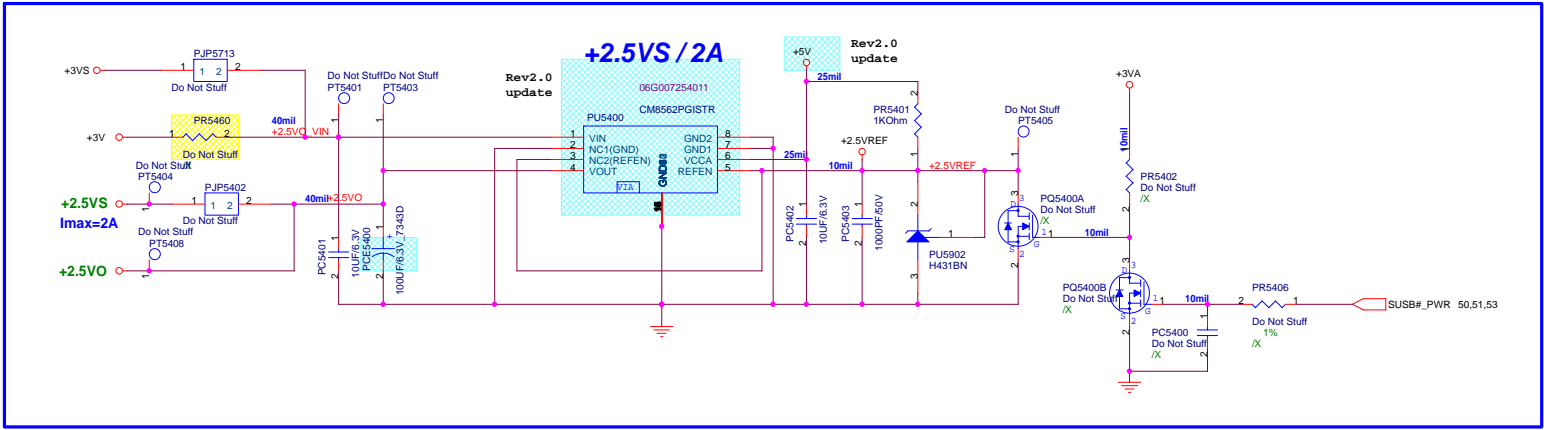
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Net	Width	Net	Width
+1.8V_EN	10mil	+1.8V_BOOT	25mil
+1.8V	Shape	+1.8V_COMP	10mil
+0.9V_EN	10mil	+1.8V_HG_R	25mil
+0.9V	Shape	+1.8V_LG_R	25mil
+0.9V_FB	10mil	+1.8V_HG	25mil
+1.8V -> DDQREF	10mil	+1.8V_LG	25mil
VTTREF	15mil	+1.8V_PHASE	Shape
FPWM#	10mil	+1.8V_SUR	Shape
VCCA	10mil	+1.8V_FB	10mil
DDR_PWRGD	10mil	+1.8V_SS	15mil
OC_VDDQ	15mil	AC_BAT_SYS	Shape



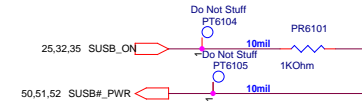
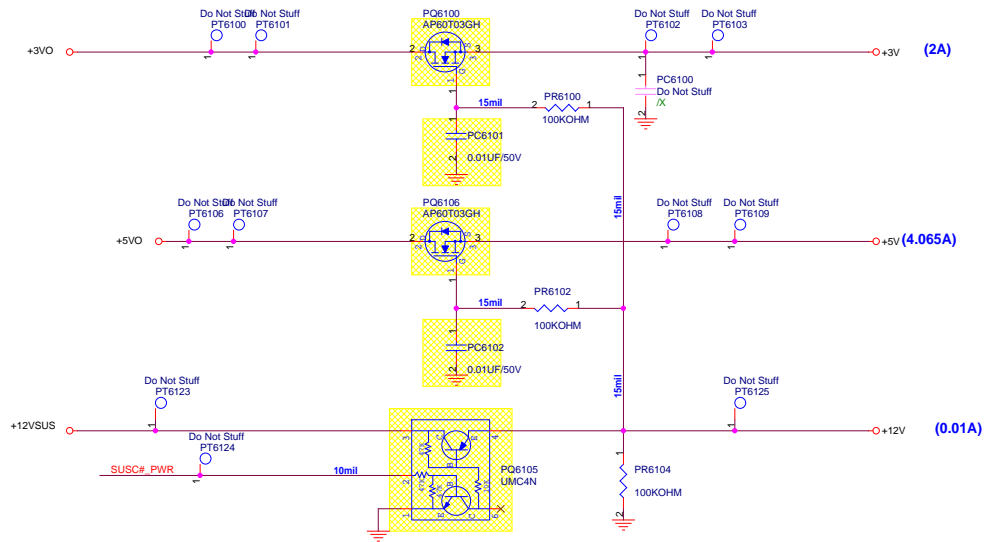
Rev2.0 update



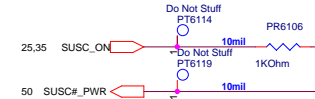
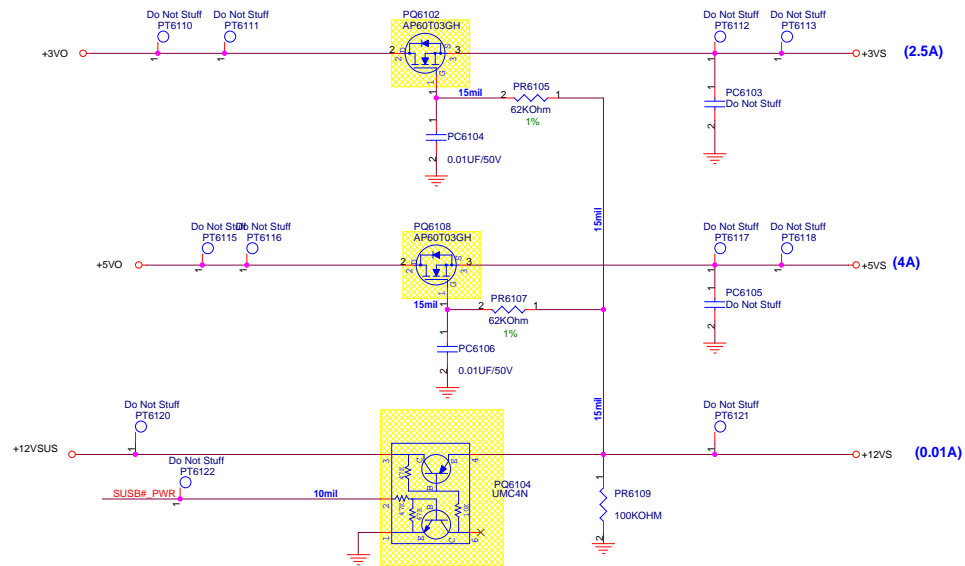
2.0G

ASUS		Title : POWER_IO_+3VA & +2.5V	
-OrgName-		Engineer:	
Size	Project Name		Rev
Custom	Z84FM		2.0
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SUSC#_PWR POWER



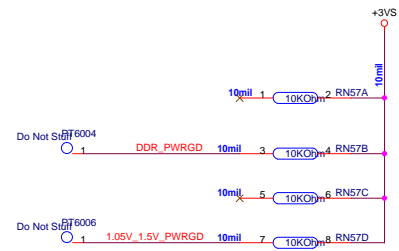
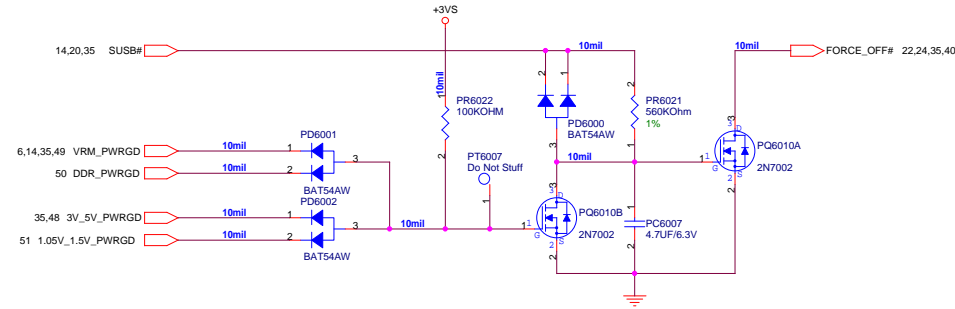
SUSB#_PWR POWER



2.0G

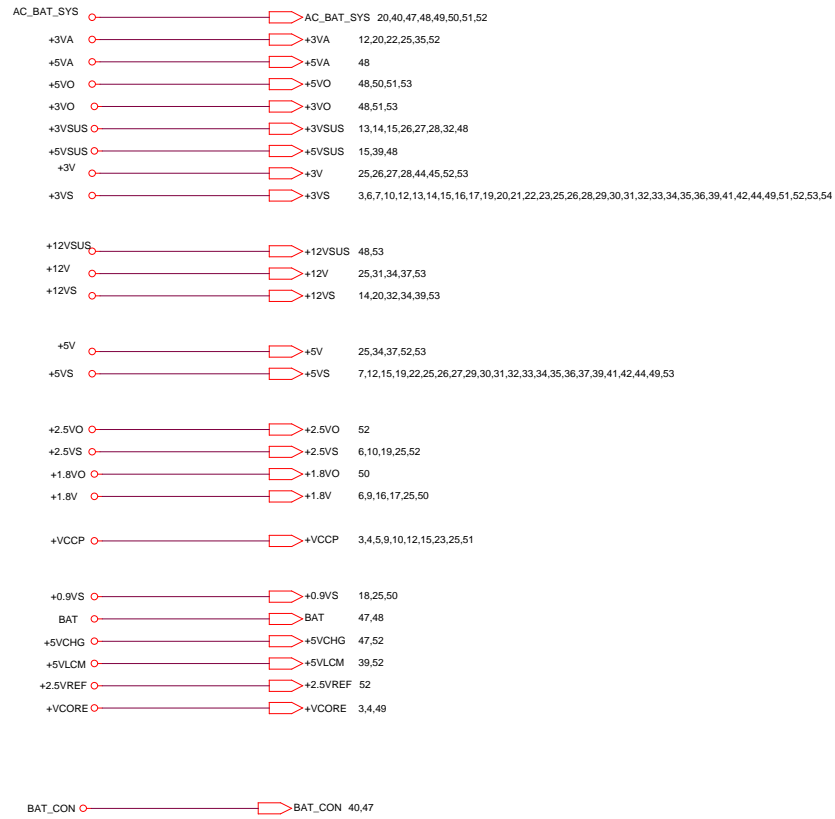
ASUS		Title : POWER_LOAD SWITCH	
<OrgName>		Engineer:	
Size	Project Name	Rev	
Custom	Z84FM	2.0	
Date: Thursday, October 05, 2006		Sheet	53 of 57

Power Good Detector



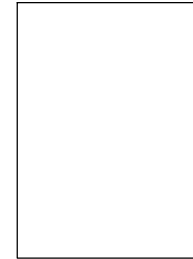
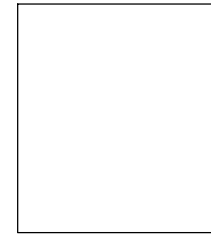
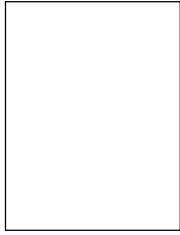
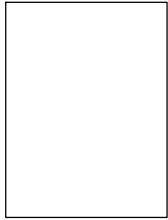
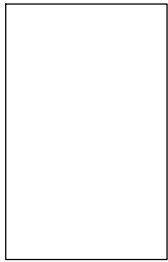
2.0G

ASUS		Title : POWER_PROTECT	
<OrgName>		Engineer:	
Size	Project Name		Rev
Custom	Z84FM		2.0
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		Title : POWER_SIGNAL	
<OrgName>		Engineer:	
Size	Project Name	Rev	
Custom	Z84FM	2.0	
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2.0G

		Title : <Title>	
ASUSTeK COMPUTER INC		Engineer: Alan Chu	
Size A3	Project Name Z84FM	Date: Thursday, October 05, 2006	Rev 2.0
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