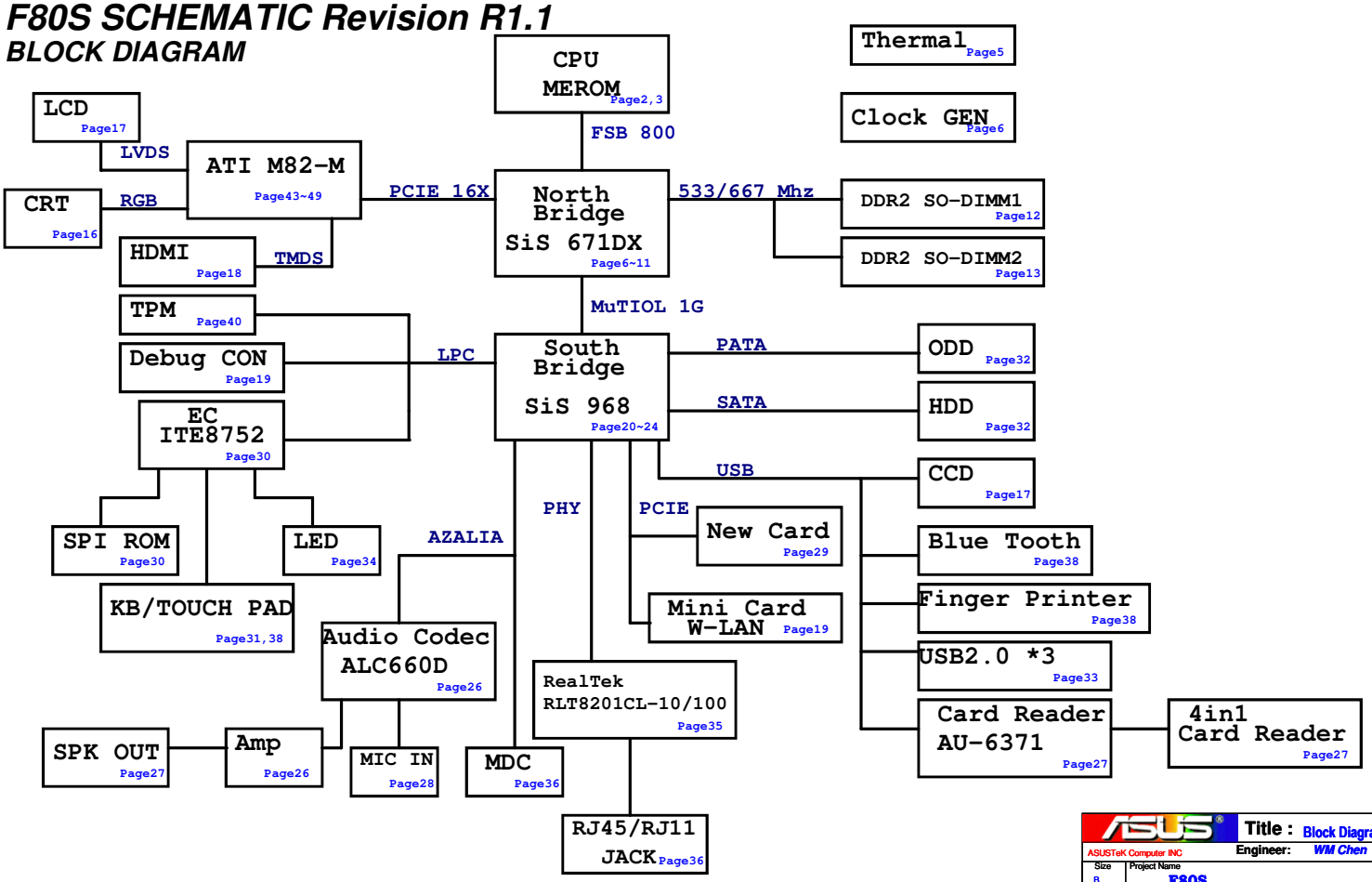
F80S SCHEMATIC Revision R1.1

BLOCK DIAGRAM



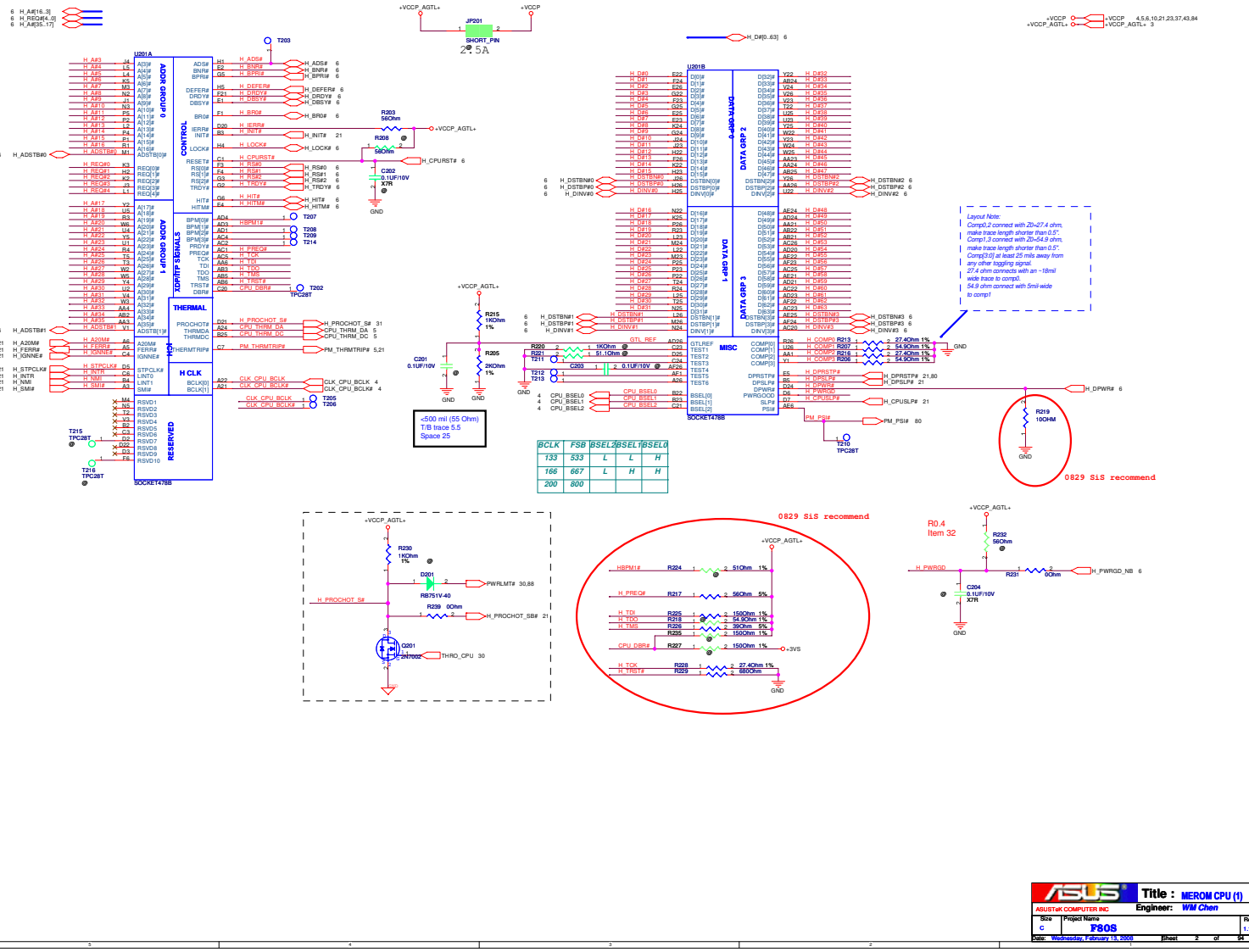
ASUSTeK Computer INC

Title : Block Diagram

Engineer: WM Chen

Size	Project Name	Rev
B	F80S	1.1

Date: Friday, February 15, 2008 Sheet 1 of 94

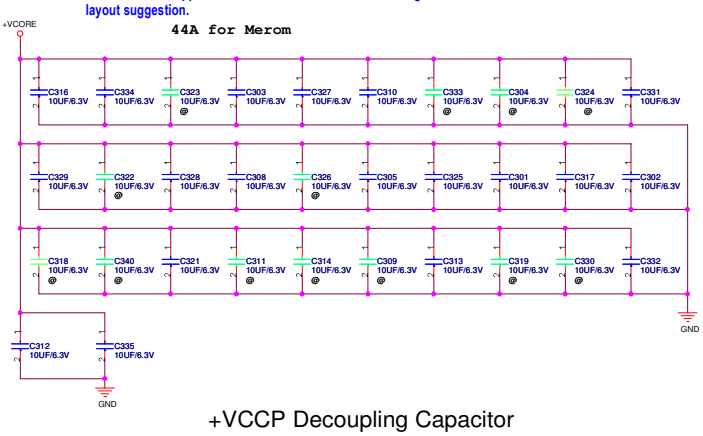


Title :	MEROM CPU (1)		
ASUSTeK COMPUTER INC	Engineer:	WM Chen	
Size: C	Project Name: F8OS		Rev: 1.1
Date: Wednesday, February 15, 2006	Sheet 2 of 94		

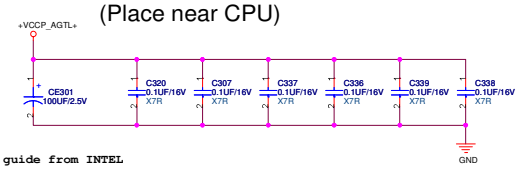
MEROM FSB 800			
	Min	Typ	Max
VCCP	1.00V	1.05V	1.10V
	Min	Typ	Max
ICCP			2.5A

Place on L1/L8, upper/lower side of inside socket. according intel layout suggestion.

44A for Merom

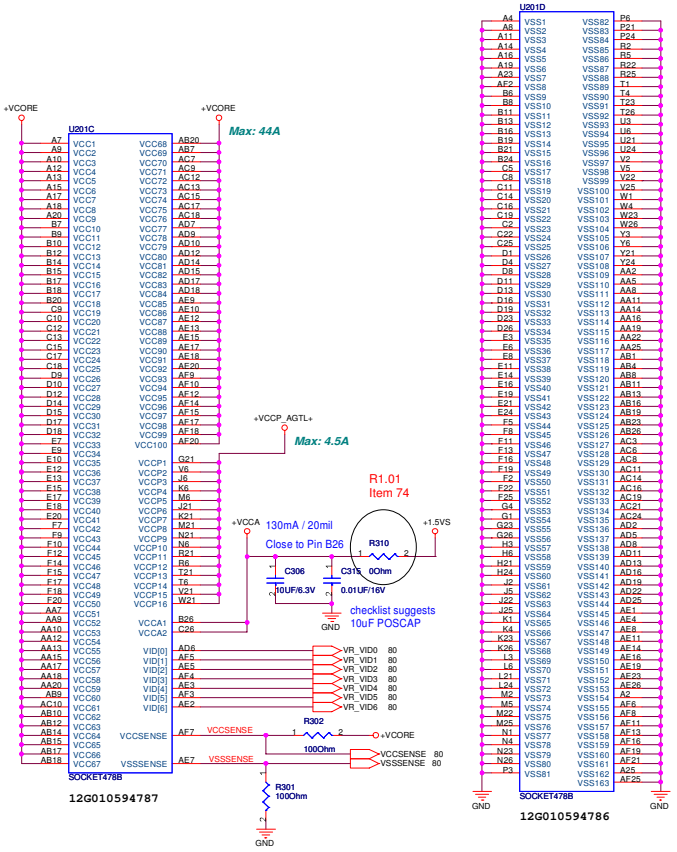


+VCCP Decoupling Capacitor (Place near CPU)



Decoupling guide from INTEL

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



Layout Note:
VCCSENSE/VSSSENSE lines between the CPU and the VR should have a trace width of 18 mils on 7 mils spacing, with trace impedance of Zo=27.4 Ohm.
The VCCSENSE/VSSSENSE should be length matched to within 25 mils.
These resistors should be placed within 2 inch of the CPU.

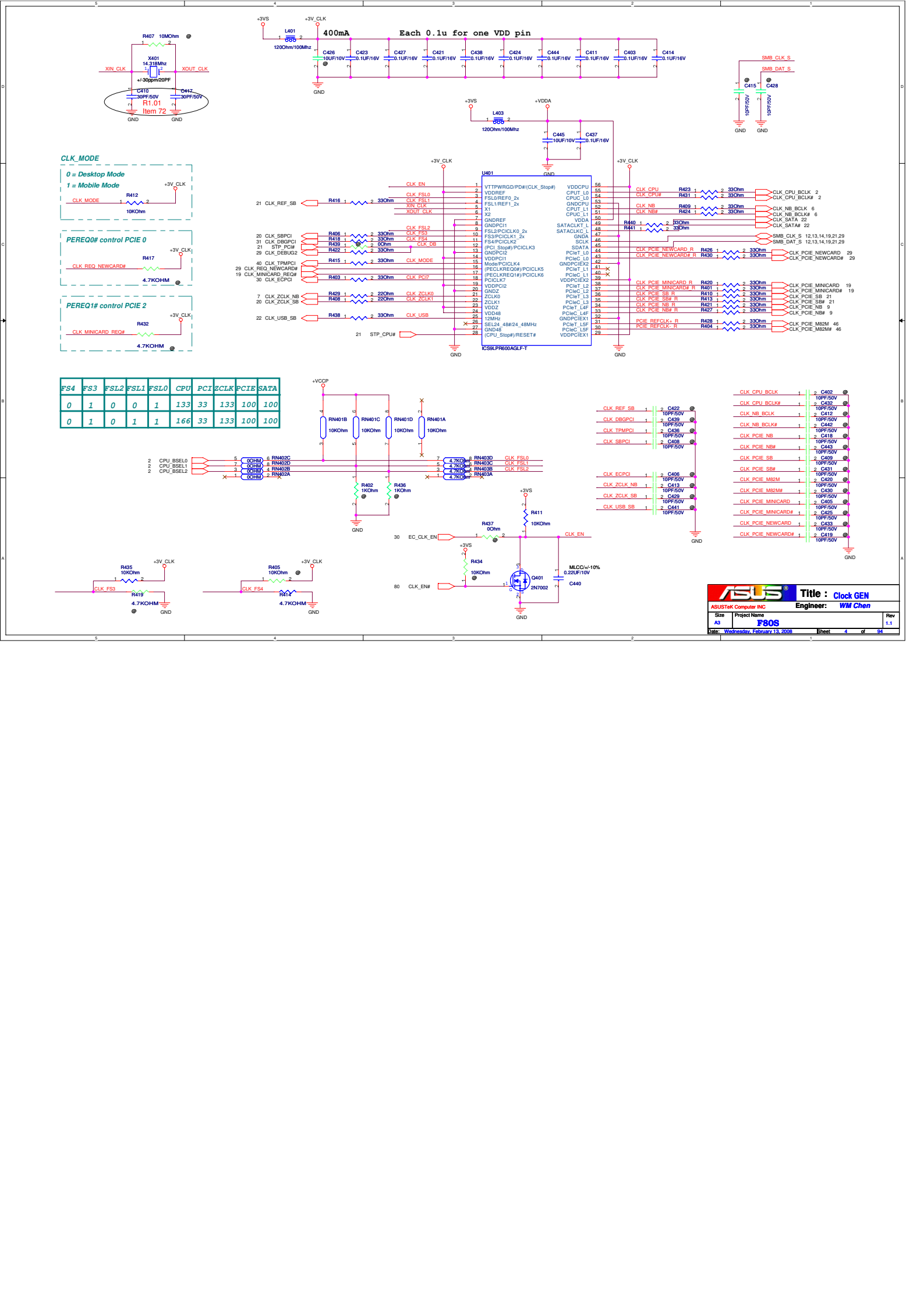
ASUSTeK COMPUTER INC

Title : MEROM CPU (2)

Engineer: WM Chen

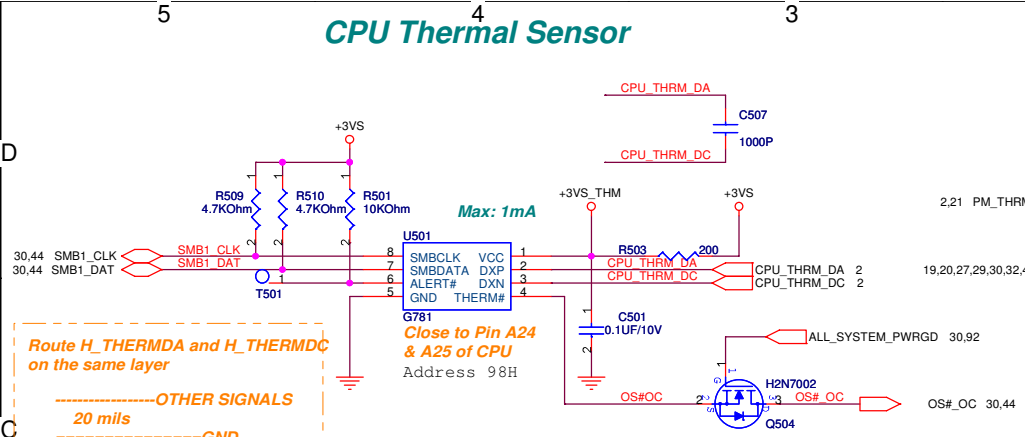
Size	Project Name	Rev
A3	F80S	1.1

Date: Wednesday, February 13, 2008 Sheet 3 of 94



FS4	FS3	FSL2	FSL1	FSL0	CPU	PCI	ZCLK	PCIE	SATA
0	1	0	0	1	133	33	133	100	100
0	1	0	1	1	166	33	133	100	100

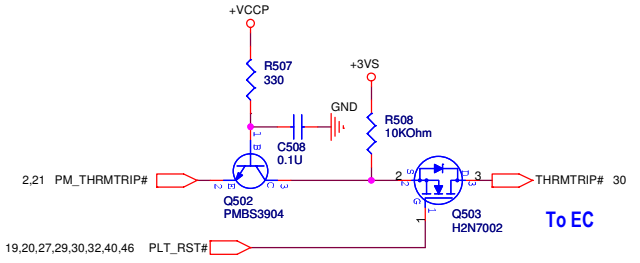
CPU Thermal Sensor



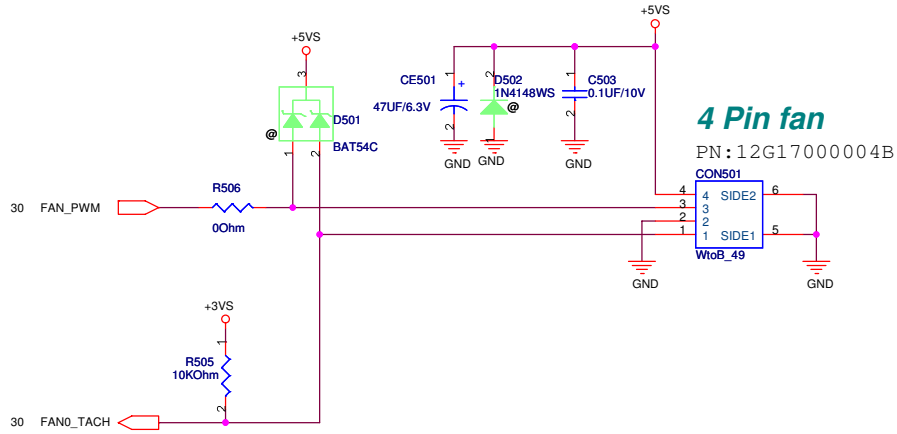
Route H_THERMDA and H_THERMDC on the same layer

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

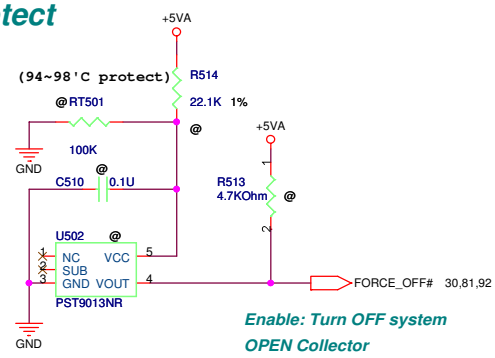
Avoid FSB,Power



DC FAN Control



H/W Thermal Protect



Enable: Turn OFF system
OPEN Collector

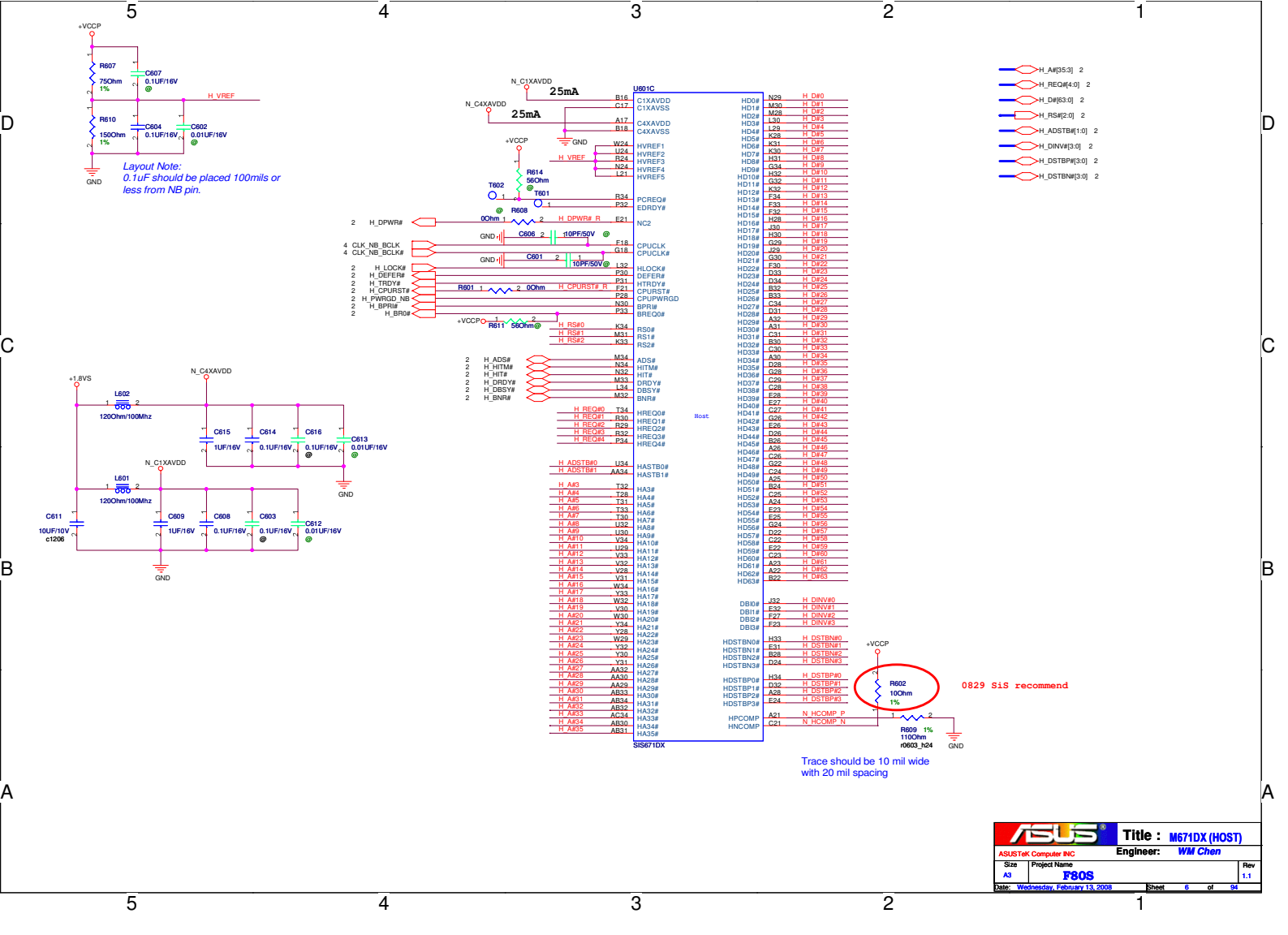
ASUSTeK Computer INC

Title : Thermal Sensor

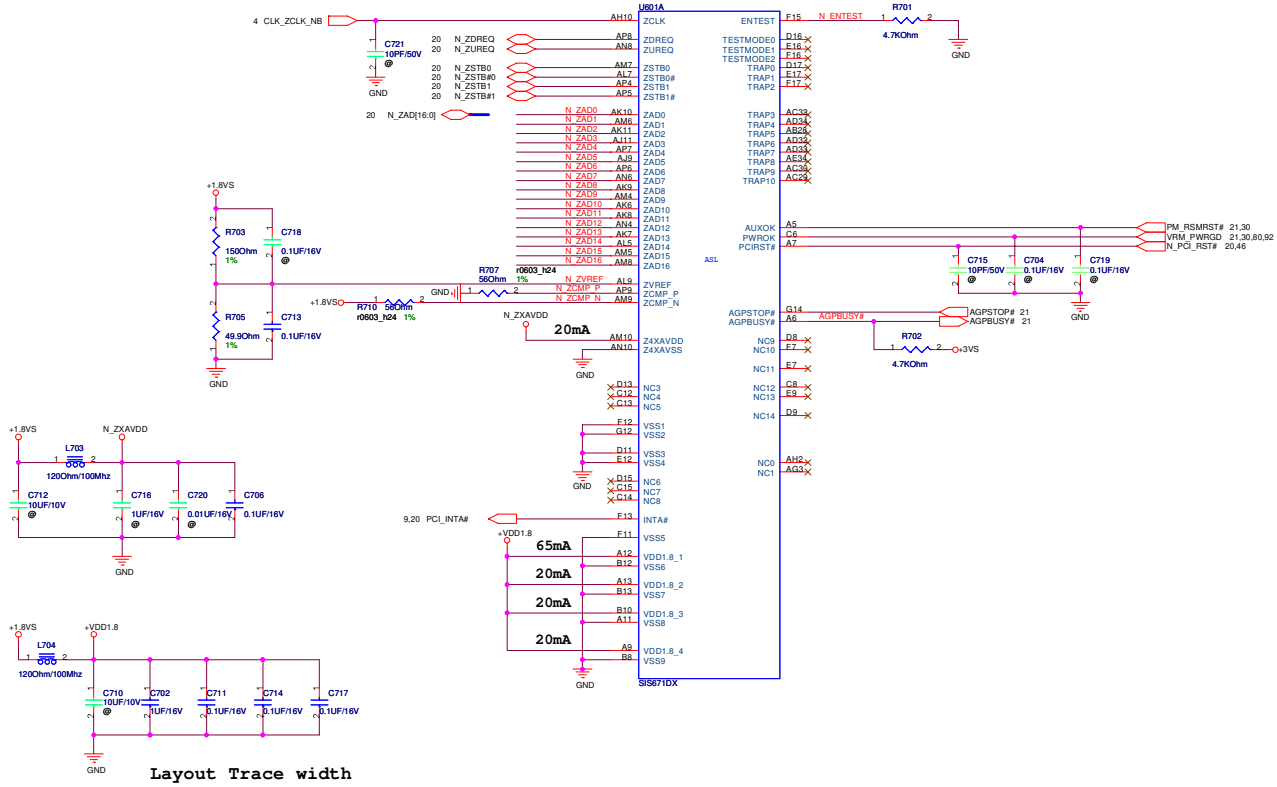
Engineer: WM Chen

Size	Project Name	Rev
A4	F80S	1.1

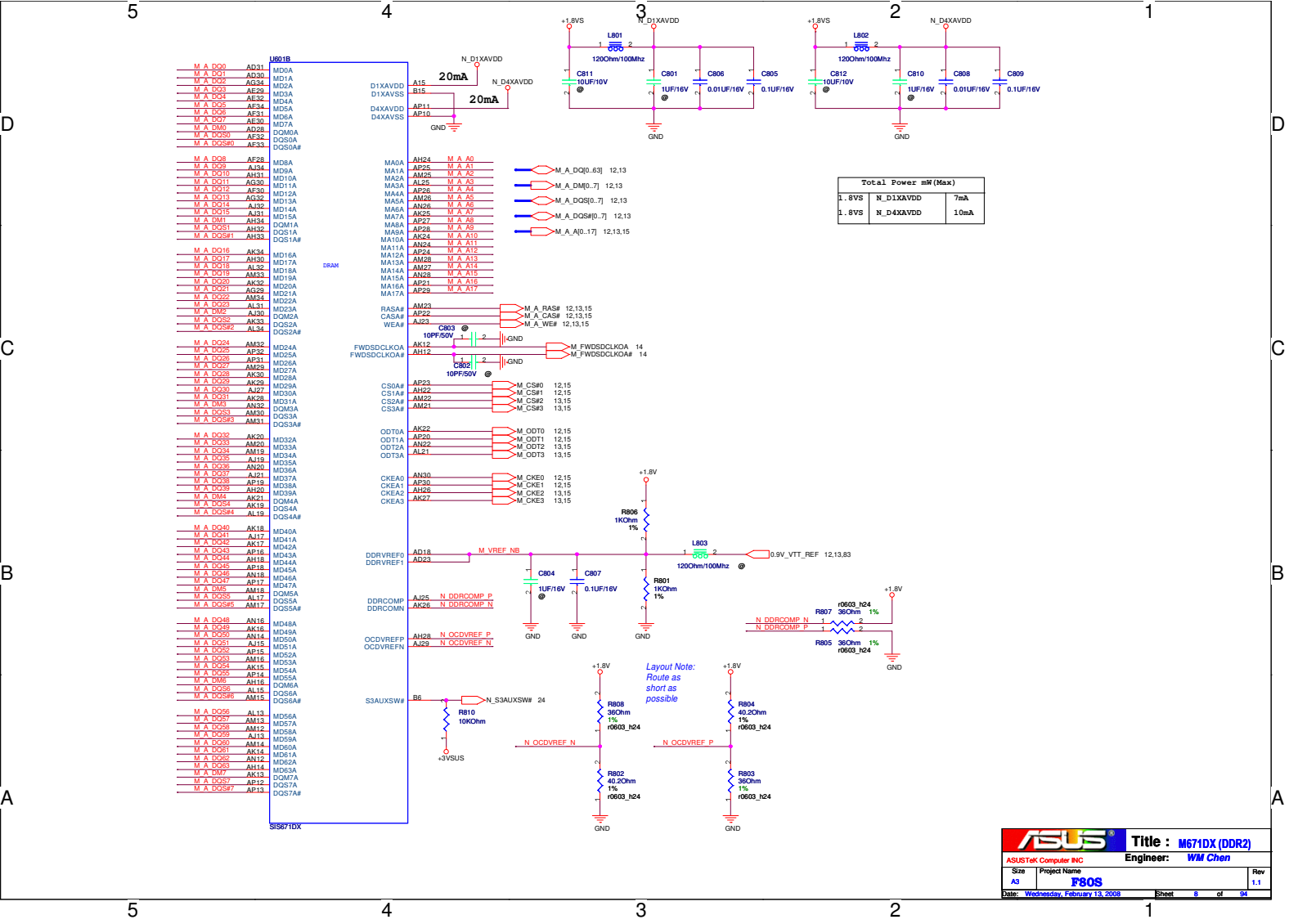
Date: Wednesday, February 13, 2008 Sheet 5 of 94

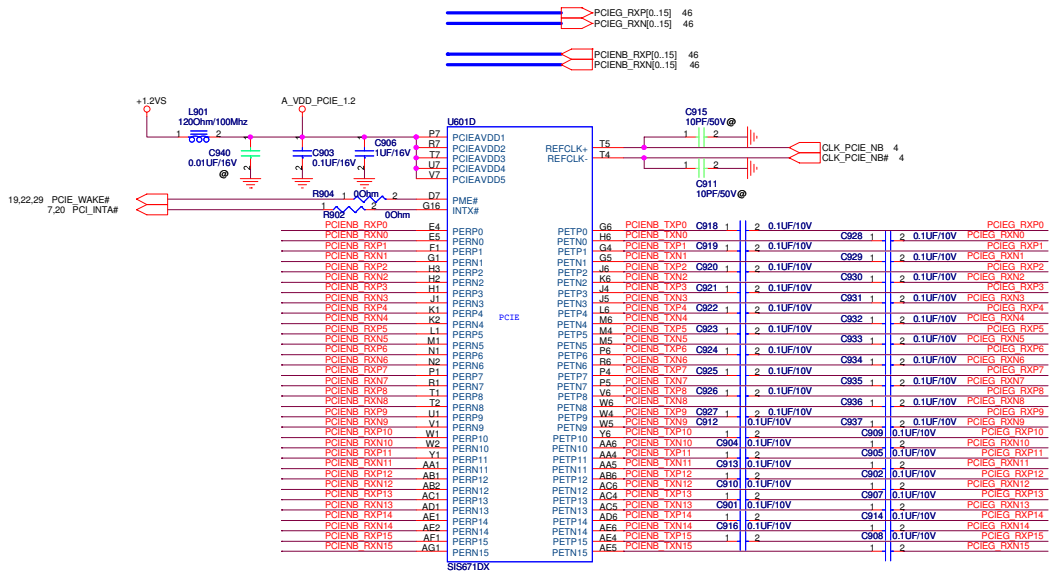


ASUSTeK Computer INC	Title : M671DX (HOST)		
	Engineer: WM Chen		
Size: A3	Project Name: F8OS		Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 6 of 94		



ASUSTeK Computer INC	Title: M671DX(MuTIOL&VGA)		
	Engineer: WM Chen		
Size: A3	Project Name: F80S		Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 7 of 94		


U601B
SIS671DX
DRAM
M_A_DQ0 AD31
M_A_DQ1 AD30
M_A_DQ2 AG34
M_A_DQ3 AE29
M_A_DQ4 AE32
M_A_DQ5 AF34
M_A_DQ6 AF31
M_A_DQ7 AE30
M_A_DM0 AD28
M_A_DQS0 AF32
M_A_DQS#0 AF33
M_A_DQ8 AF28
M_A_DQ9 AJ34
M_A_DQ10 AH31
M_A_DQ11 AG30
M_A_DQ12 AF30
M_A_DQ13 AG32
M_A_DQ14 AJ32
M_A_DQ15 AJ31
M_A_DM1 AH34
M_A_DQS1 AH32
M_A_DQS#1 AH33
M_A_DQ16 AK34
M_A_DQ17 AH30
M_A_DQ18 AL32
M_A_DQ19 AM33
M_A_DQ20 AK32
M_A_DQ21 AG29
M_A_DQ22 AM34
M_A_DQ23 AL31
M_A_DM2 AJ30
M_A_DQS2 AK33
M_A_DQS#2 AL34
M_A_DQ24 AM32
M_A_DQ25 AP32
M_A_DQ26 AP31
M_A_DQ27 AM29
M_A_DQ28 AK30
M_A_DQ29 AK29
M_A_DQ30 AJ27
M_A_DQ31 AK28
M_A_DM3 AN32
M_A_DQS3 AM30
M_A_DQS#3 AM31
M_A_DQ32 AK20
M_A_DQ33 AM20
M_A_DQ34 AM19
M_A_DQ35 AJ19
M_A_DQ36 AN20
M_A_DQ37 AJ21
M_A_DQ38 AP19
M_A_DQ39 AH20
M_A_DM4 AK21
M_A_DQS4 AK19
M_A_DQS#4 AL19
M_A_DQ40 AK18
M_A_DQ41 AJ17
M_A_DQ42 AK17
M_A_DQ43 AP16
M_A_DQ44 AH18
M_A_DQ45 AP18
M_A_DQ46 AN18
M_A_DQ47 AP17
M_A_DM5 AM18
M_A_DQS5 AL17
M_A_DQS#5 AM17
M_A_DQ48 AN16
M_A_DQ49 AK16
M_A_DQ50 AN14
M_A_DQ51 AJ15
M_A_DQ52 AP15
M_A_DQ53 AM16
M_A_DQ54 AK15
M_A_DQ55 AP14
M_A_DM6 AH16
M_A_DQS6 AL15
M_A_DQS#6 AM15
M_A_DQ56 AL13
M_A_DQ57 AM13
M_A_DQ58 AM12
M_A_DQ59 AJ13
M_A_DQ60 AM14
M_A_DQ61 AK14
M_A_DQ62 AN12
M_A_DQ63 AH14
M_A_DM7 AK13
M_A_DQS7 AP12
M_A_DQS#7 AP13
MD0A MD1A MD2A MD3A MD4A MD5A MD6A MD7A DQM0A DQS0A DQS0A#
MD8A MD9A MD10A MD11A MD12A MD13A MD14A MD15A DQM1A DQS1A DQS1A#
MD16A MD17A MD18A MD19A MD20A MD21A MD22A MD23A DQM2A DQS2A DQS2A#
MD24A MD25A MD26A MD27A MD28A MD29A MD30A MD31A DQM3A DQS3A DQS3A#
MD32A MD33A MD34A MD35A MD36A MD37A MD38A MD39A DQM4A DQS4A DQS4A#
MD40A MD41A MD42A MD43A MD44A MD45A MD46A MD47A DQM5A DQS5A DQS5A#
MD48A MD49A MD50A MD51A MD52A MD53A MD54A MD55A DQM6A DQS6A DQS6A#
MD56A MD57A MD58A MD59A MD60A MD61A MD62A MD63A DQM7A DQS7A DQS7A#
D1XAVDD A15
D1XAVSS B15
D4XAVDD AP11
D4XAVSS AP10
N_D1XAVDD
N_D4XAVDD
20mA
20mA
GND
MA0A AH24 M_A_A0
MA1A AP25 M_A_A1
MA2A AM25 M_A_A2
MA3A AL25 M_A_A3
MA4A AP26 M_A_A4
MA5A AM26 M_A_A5
MA6A AN26 M_A_A6
MA7A AK25 M_A_A7
MA8A AP27 M_A_A8
MA9A AP28 M_A_A9
MA10A AK24 M_A_A10
MA11A AN24 M_A_A11
MA12A AP24 M_A_A12
MA13A AM28 M_A_A13
MA14A AM27 M_A_A14
MA15A AN28 M_A_A15
MA16A AP21 M_A_A16
MA17A AP29 M_A_A17
M_A_DQ[0..63] 12,13
M_A_DM[0..7] 12,13
M_A_DQS[0..7] 12,13
M_A_DQS#[0..7] 12,13
M_A_A[0..17] 12,13,15
RASA# AM23 M_A_RAS# 12,13,15
CASA# AP22 M_A_CAS# 12,13,15
WEA# AJ23 M_A_WE# 12,13,15
C803 @ 10PF/50V
C802 @ 10PF/50V
FWDSDCLKOA AK12 M_FWDSDCLKOA 14
FWDSDCLKOA# AH12 M_FWDSDCLKOA# 14
CS0A# AP23 M_CS#0 12,15
CS1A# AH22 M_CS#1 12,15
CS2A# AM22 M_CS#2 13,15
CS3A# AM21 M_CS#3 13,15
ODT0A AK22 M_ODT0 12,15
ODT1A AP20 M_ODT1 12,15
ODT2A AN22 M_ODT2 13,15
ODT3A AL21 M_ODT3 13,15
CKEA0 AN30 M_CKE0 12,15
CKEA1 AP30 M_CKE1 12,15
CKEA2 AH26 M_CKE2 13,15
CKEA3 AK27 M_CKE3 13,15
DDRVREF0 AD18
DDRVREF1 AD23
M_VREF_NB
DDRCOMP AJ25 N_DDRCOMP_P
DDRCOMN AK26 N_DDRCOMP_N
OCDVREFP AH28 N_OCDVREF_P
OCDVREFN AJ29 N_OCDVREF_N
S3AUXSW# B6 N_S3AUXSW# 24
R810 10KOhm
+3VSUS
+1.8VS
L801 120Ohm/100Mhz
C811 10UF/10V @
C801 1UF/16V @
C806 0.01UF/16V
C805 0.1UF/16V
L802 120Ohm/100Mhz
C812 10UF/10V @
C810 1UF/16V @
C808 0.01UF/16V
C809 0.1UF/16V
Total Power mW(Max)
1.8VS N_D1XAVDD 7mA
1.8VS N_D4XAVDD 10mA
+1.8V
R806 1KOhm 1%
L803 120Ohm/100Mhz @
0.9V_VTT_REF 12,13,83
C804 1UF/16V @
C807 0.1UF/16V
R801 1KOhm 1%
R807 r0603_h24 36Ohm 1%
R805 36Ohm 1% r0603_h24
N_DDRCOMP_N
N_DDRCOMP_P
Layout Note: Route as short as possible
R808 36Ohm 1% r0603_h24
R802 40.2Ohm 1% r0603_h24
R804 40.2Ohm 1% r0603_h24
R803 36Ohm 1% r0603_h24
N_OCDVREF_N
N_OCDVREF_P
Title : M671DX (DDR2)
ASUSTeK Computer INC
Engineer: WM Chen
Size A3
Project Name F80S
Rev 1.1
Date: Wednesday, February 13, 2008
Sheet 8 of 94



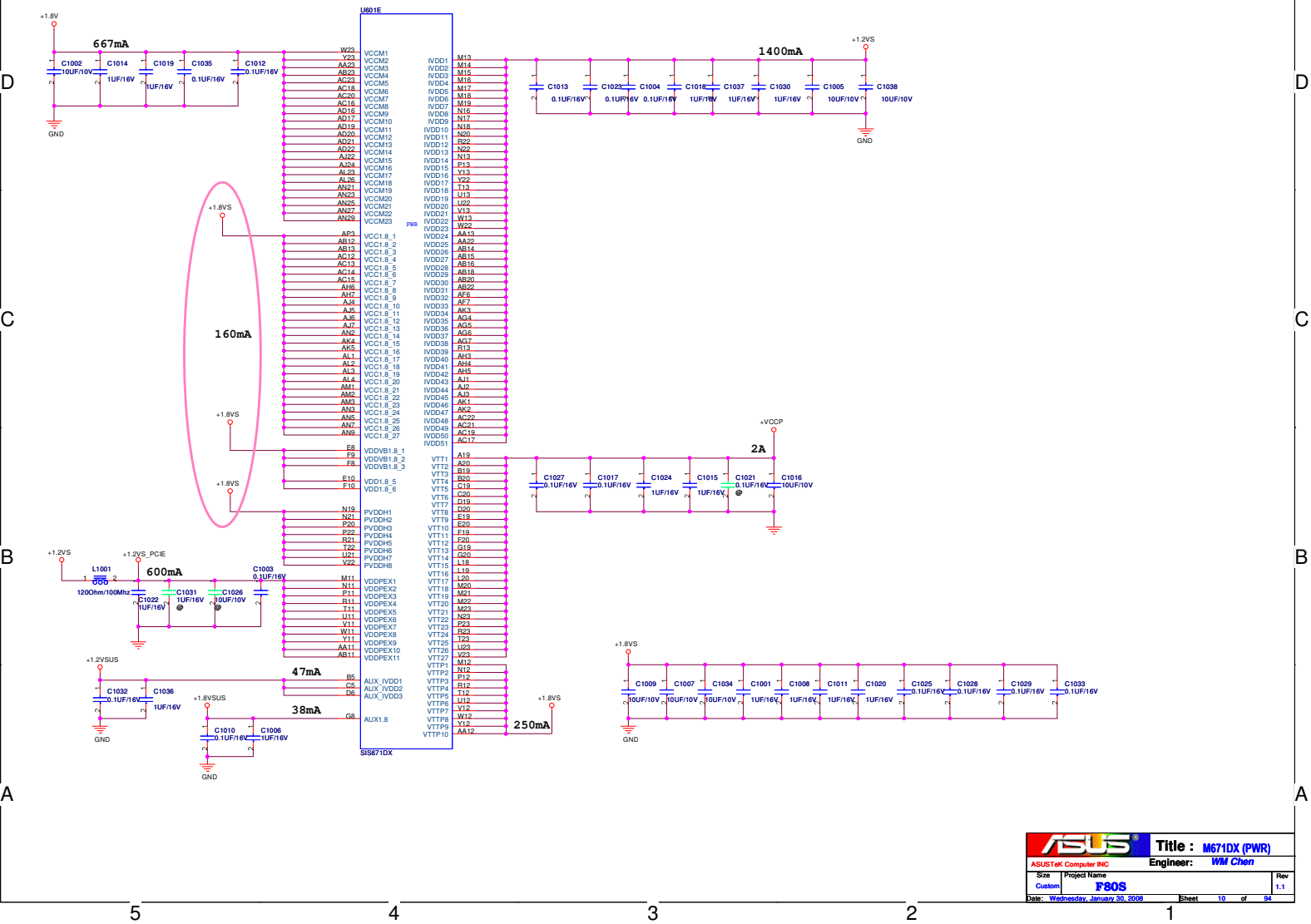
ASUSTeK Computer INC

Title : M671DX (PCI-E)

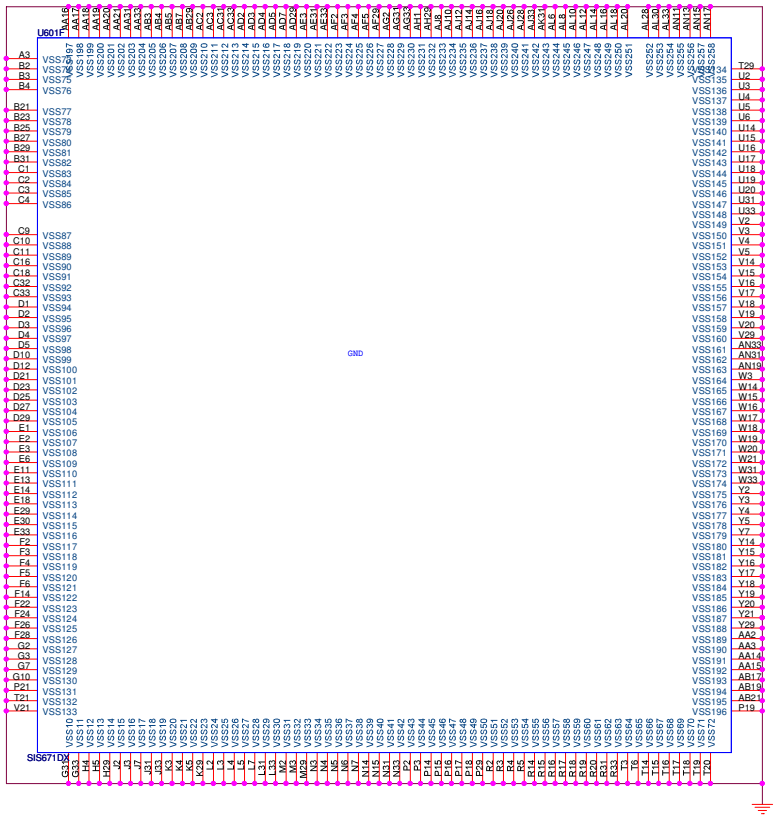
Engineer: WM Chen

Size	Project Name	Rev
Custom	F80S	1.1

Date: Wednesday, February 13, 2008 Sheet 9 of 94



ASUSTeK Computer INC	Title : M671DX (PWR)		
	Engineer: WM Chen		
Size: Custom	Project Name: F80S		Rev: 1.1
Date: Wednesday, January 30, 2008	Sheet 10 of 94		

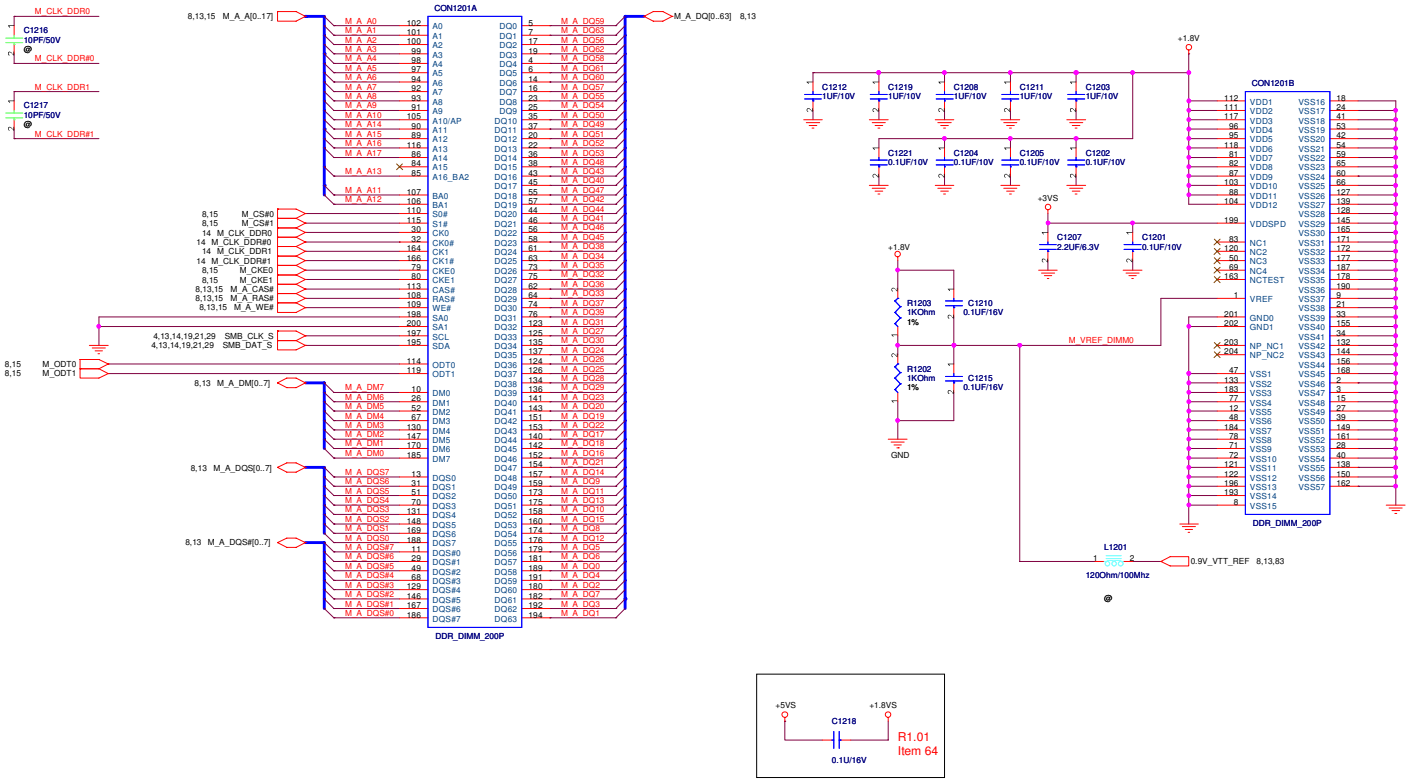


ASUSTeK Computer INC	Title : M671DX (GND)			
	Engineer: WM Chen			
Size: Custom	Project Name: F80S			Rev: 1.1
Date: Wednesday, January 30, 2008		Sheet 11 of 94		

Reverse Type

R0.4
Item 30

P/N : 12G025122006 H:5.2mm

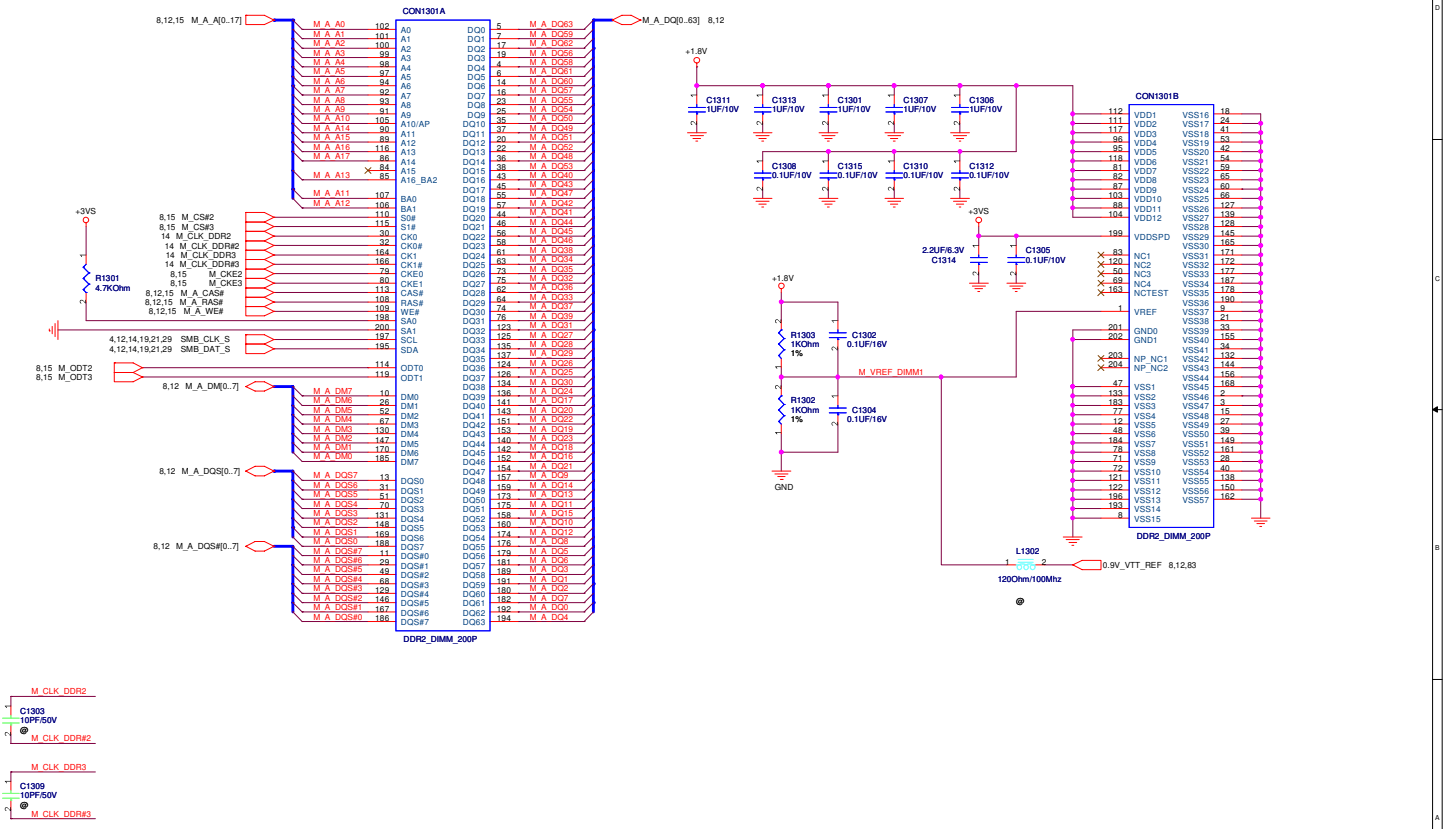


ASUSTeK Computer INC	Title : DDR2 SO-DIMM1		
	Engineer: WM Chen		
Size: A3	Project Name: F80S		Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 12 of 94		

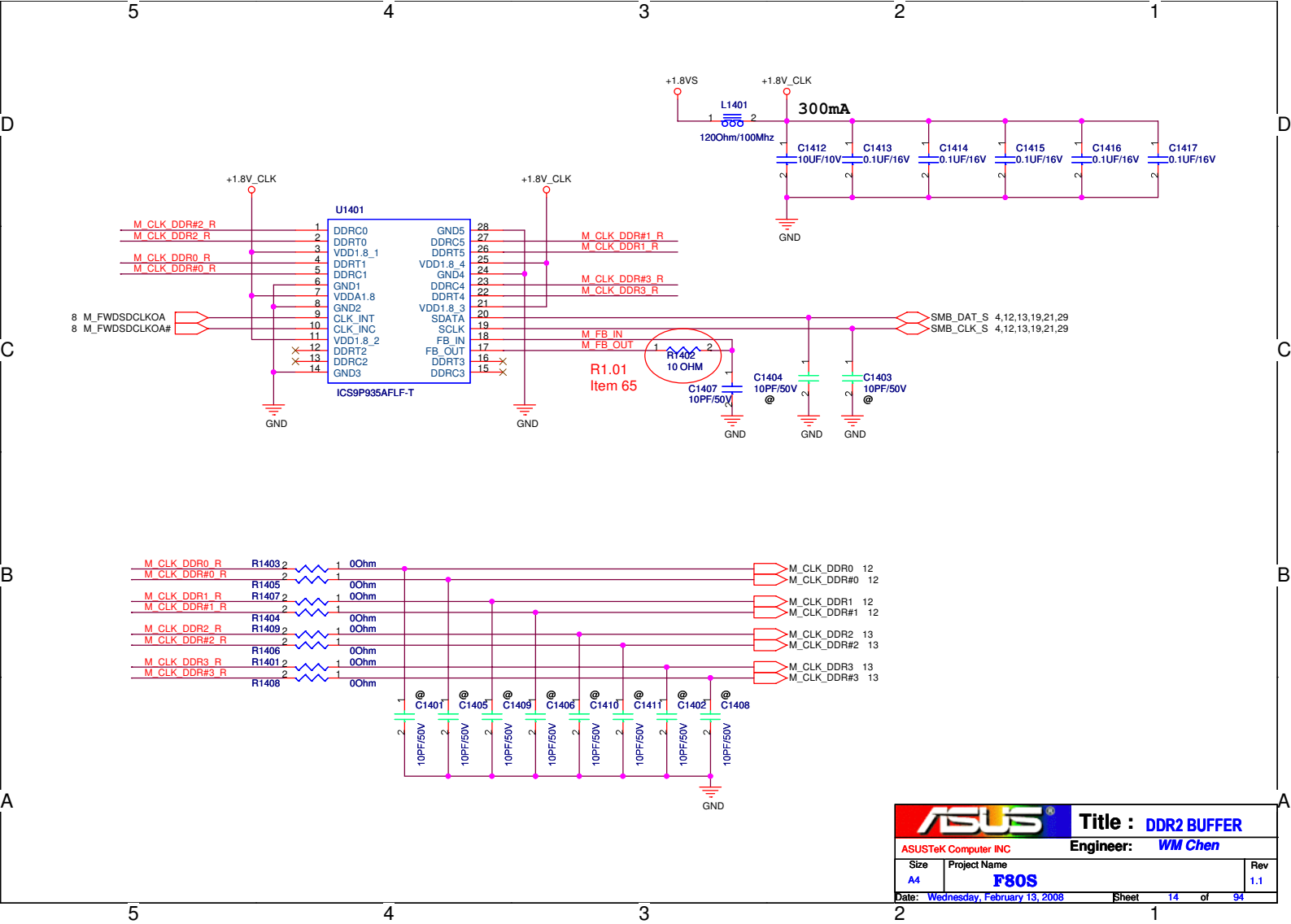
Reverse Type

R0.4
Item 30

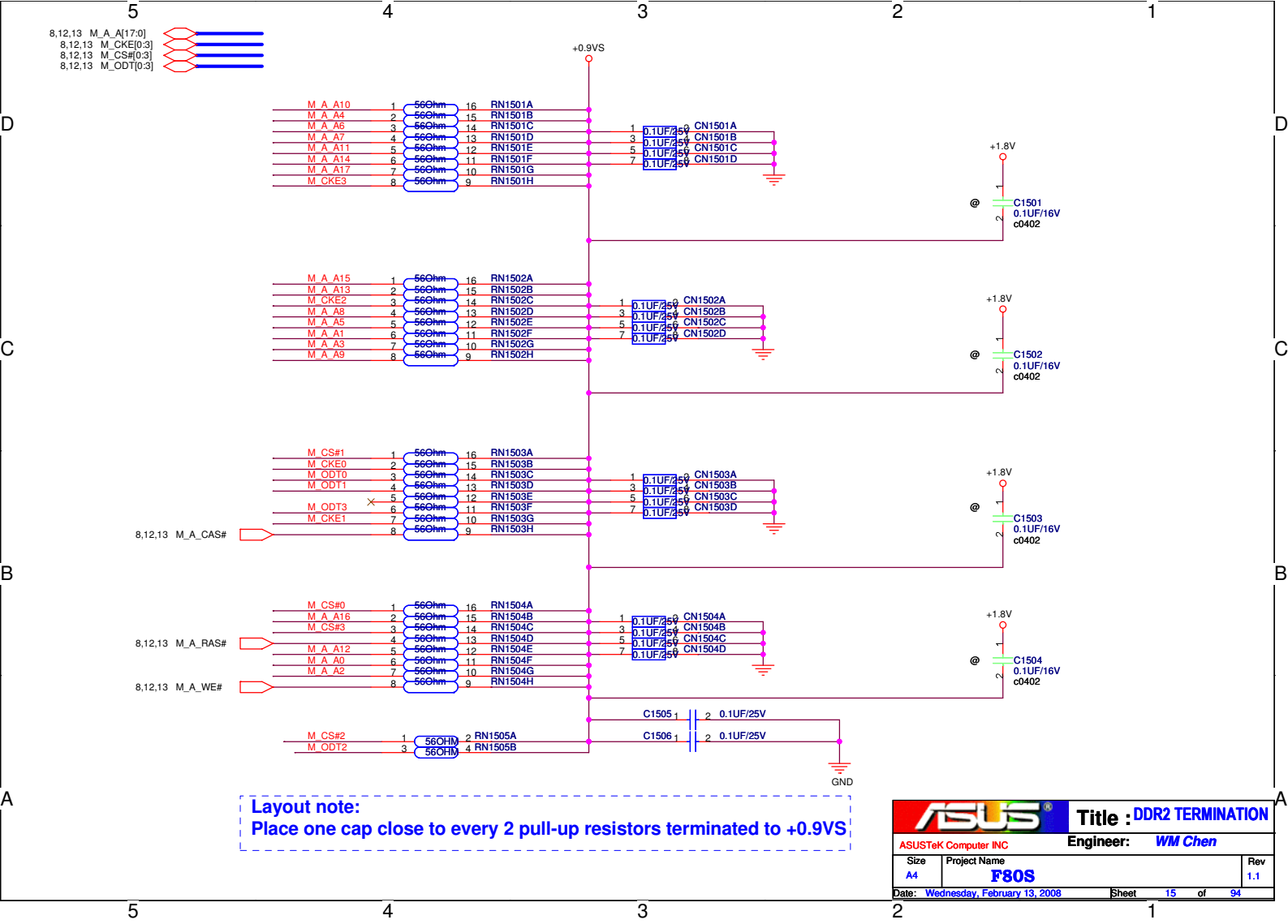
P/N : 12G025C22002 H:9.2mm



ASUSTeK Computer INC	Title : DDR2 SO-DIMM2		
	Engineer: WM Chen		
Size: A3	Project Name: F80S		Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 13 of 94		

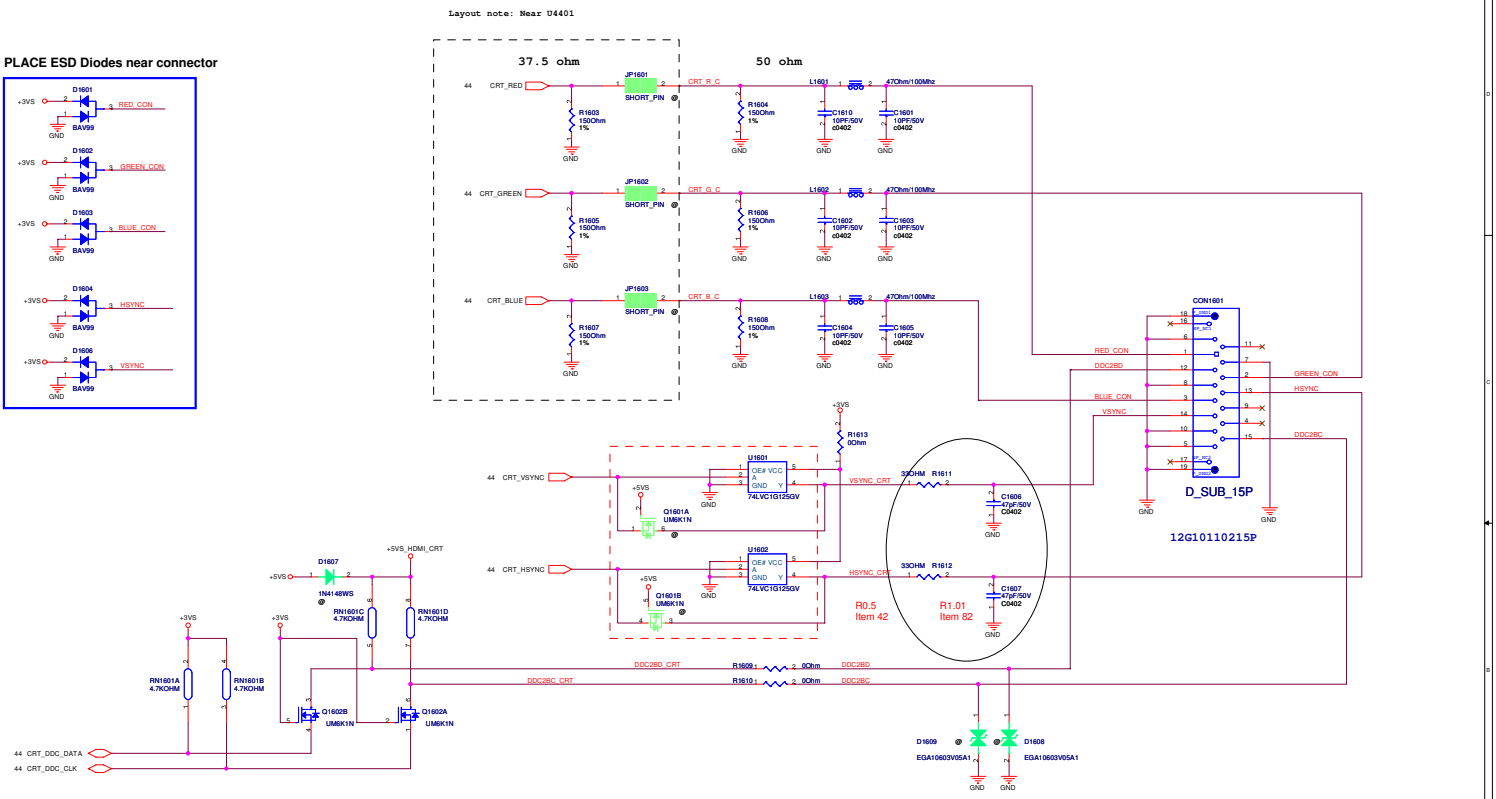


ASUSTeK Computer INC	Title : DDR2 BUFFER	
	Engineer: WM Chen	
Size: A4	Project Name: F80S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 14 of 94	

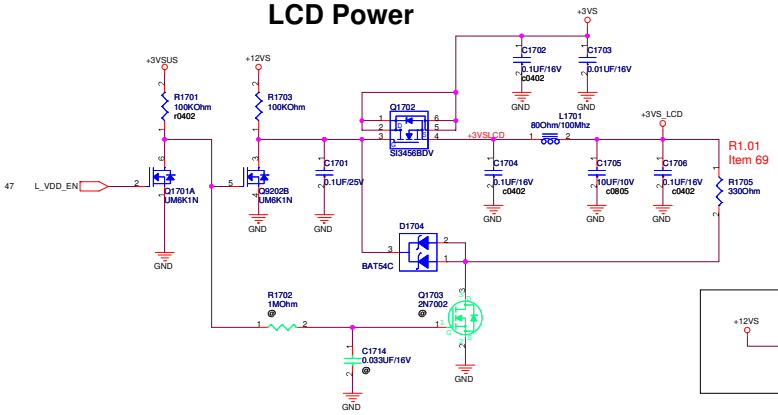


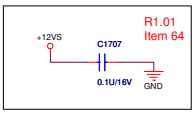
Layout note:
Place one cap close to every 2 pull-up resistors terminated to +0.9VS

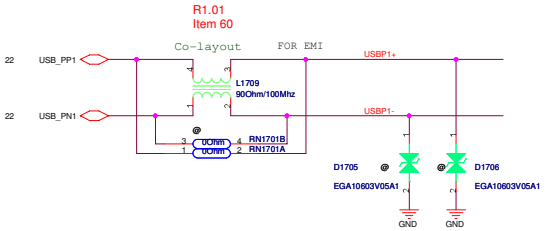
ASUSTeK Computer INC	Title : DDR2 TERMINATION	
	Engineer: WM Chen	
Size: A4	Project Name: F80S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 15 of 94	


Layout note: Near U4401
PLACE ESD Diodes near connector
37.5 ohm
50 ohm
D1601
D1602
D1603
D1604
D1606
BAV99
RED_CON
GREEN_CON
BLUE_CON
HSYNC
VSYNC
JP1601
JP1602
JP1603
SHORT_PIN
CRT_RED
CRT_GREEN
CRT_BLUE
CRT_R_C
CRT_G_C
CRT_B_C
R1603 150Ohm 1%
R1604 150Ohm 1%
R1605 150Ohm 1%
R1606 150Ohm 1%
R1607 150Ohm 1%
R1608 150Ohm 1%
L1601
L1602
L1603
47Ohm/100Mhz
C1610 10PF/50V c0402
C1601 10PF/50V c0402
C1602 10PF/50V c0402
C1603 10PF/50V c0402
C1604 10PF/50V c0402
C1605 10PF/50V c0402
CON1601
D_SUB_15P
12G10110215P
R1613 0Ohm
U1601
U1602
74LVC1G125GV
CRT_VSYNC
CRT_HSYNC
VSYNC_CRT
HSYNC_CRT
33OHM R1611
33OHM R1612
C1606 47pF/50V C0402
C1607 47pF/50V C0402
R0.5 Item 42
R1.01 Item 82
Q1601A UM6K1N
Q1601B UM6K1N
D1607 1N4148WS
RN1601A 4.7KOHM
RN1601B 4.7KOHM
RN1601C 4.7KOHM
RN1601D 4.7KOHM
Q1602B UM6K1N
Q1602A UM6K1N
+5VS_HDMI_CRT
DDC2BD_CRT
DDC2BC_CRT
R1609 0Ohm
R1610 0Ohm
DDC2BD
DDC2BC
D1609 EGA10603V05A1
D1608 EGA10603V05A1
CRT_DDC_DATA
CRT_DDC_CLK
Title : CRT
ASUSTeK COMPUTER INC
Engineer: WM Chen
Size C
Project Name F80S
Rev 1.1
Date: Wednesday, February 13, 2008
Sheet 18 of 94

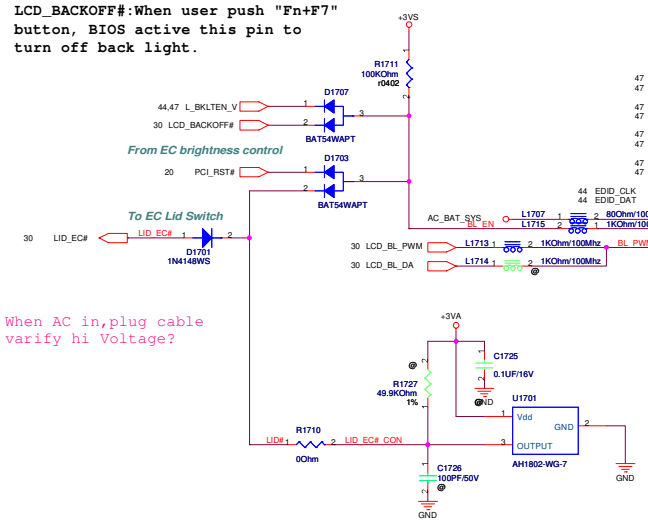
LCD Power







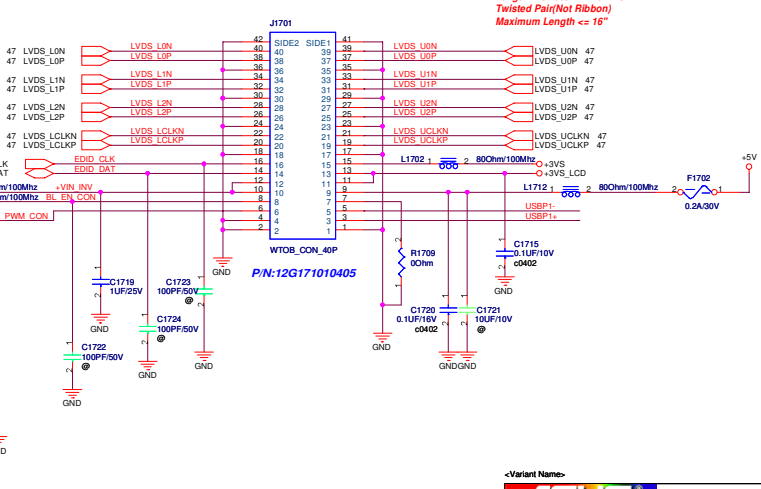
BIOS
LCD_BACKOFF#:When user push "Fn+F7" button, BIOS active this pin to turn off back light.



When AC in,plug cable varify hi Voltage?

LCD LVDS/Inverter/CCD conn.

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

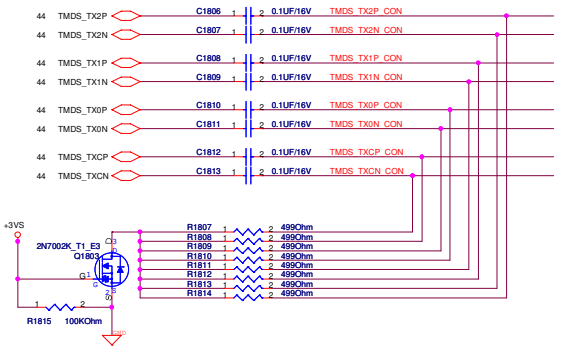


<Variant Name>

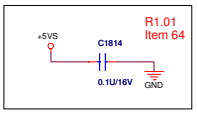
ASUSTeK COMPUTER INC	Title : LVDS & INVERTER	
	Engineer: WM Chen	
Size: Custom	Project Name: F8OS	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 17 of 94	

HDMI

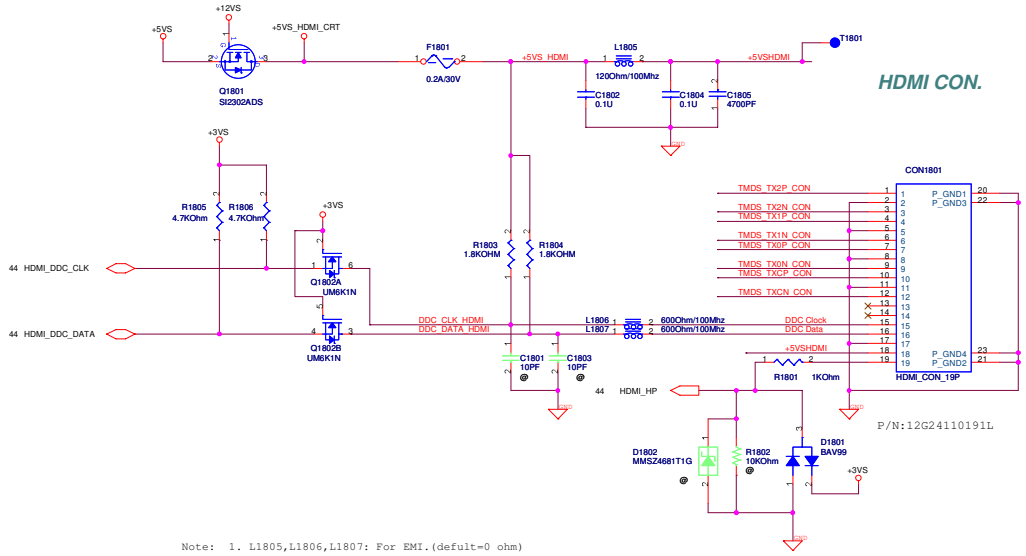
near the HDMI connector



Reference should be +5VS, but AYI answer that +3VS is fine. As long as it can turn the MOSFET on.



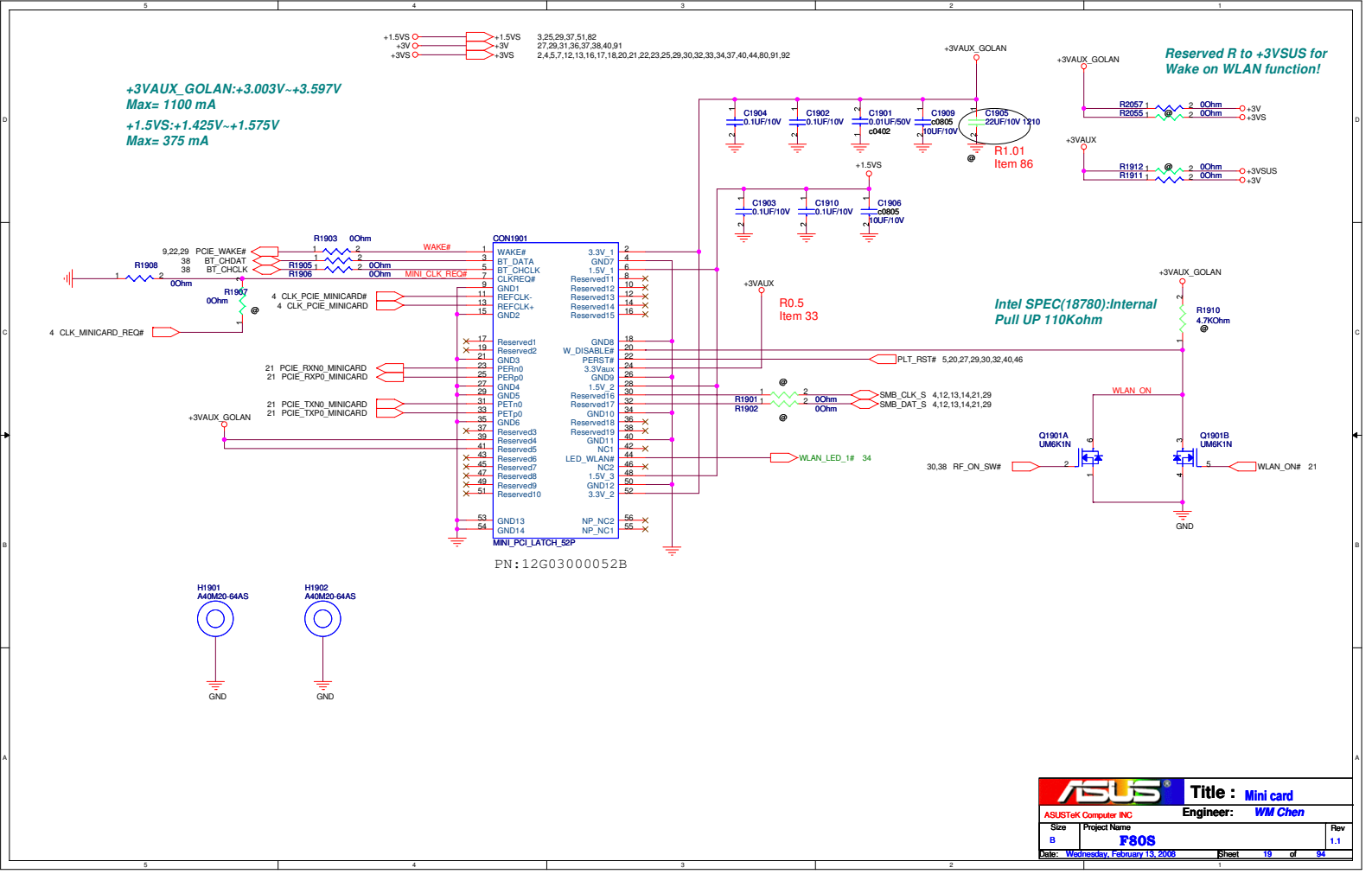
HDMI CON.



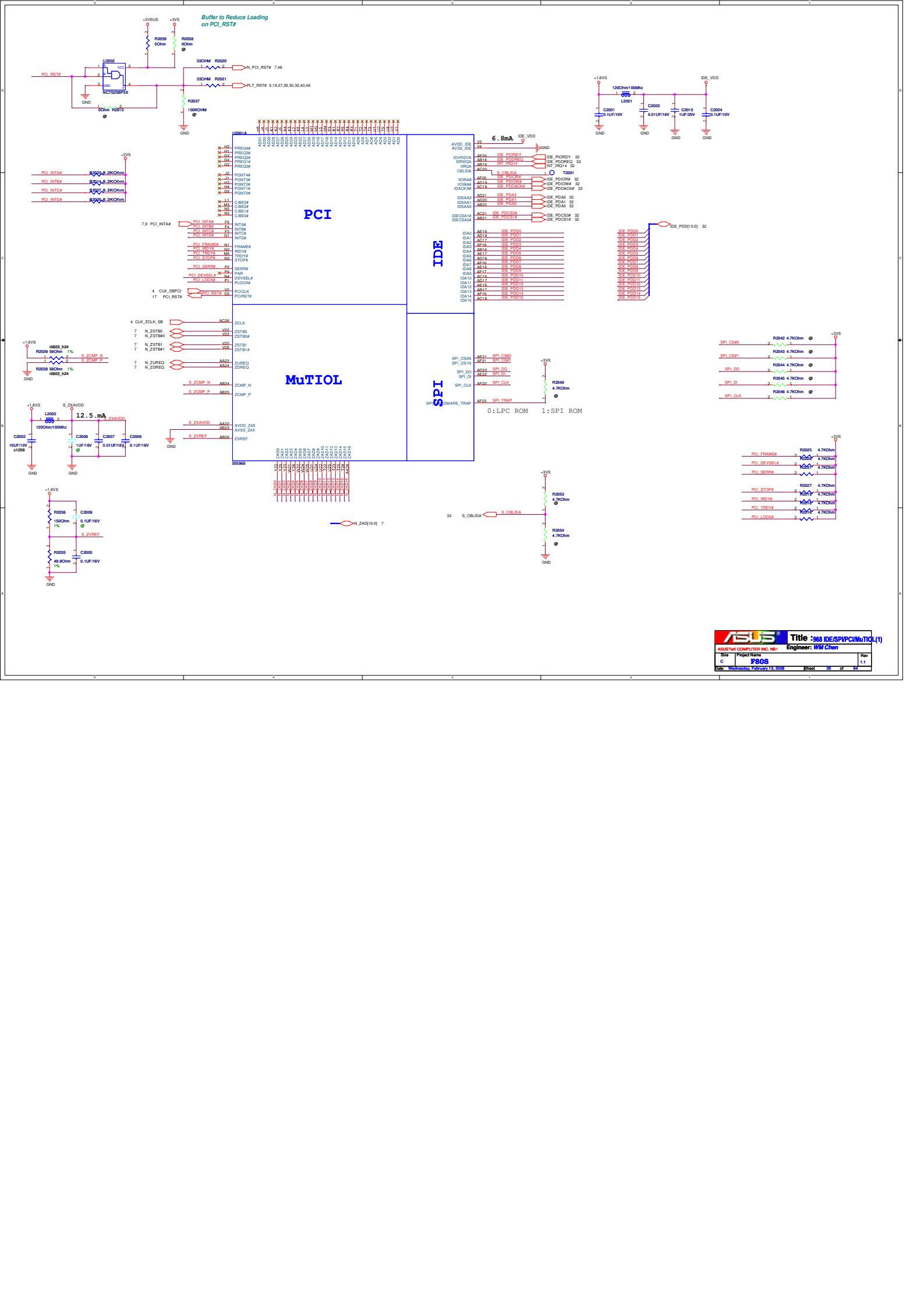
P/N:12G24110191L

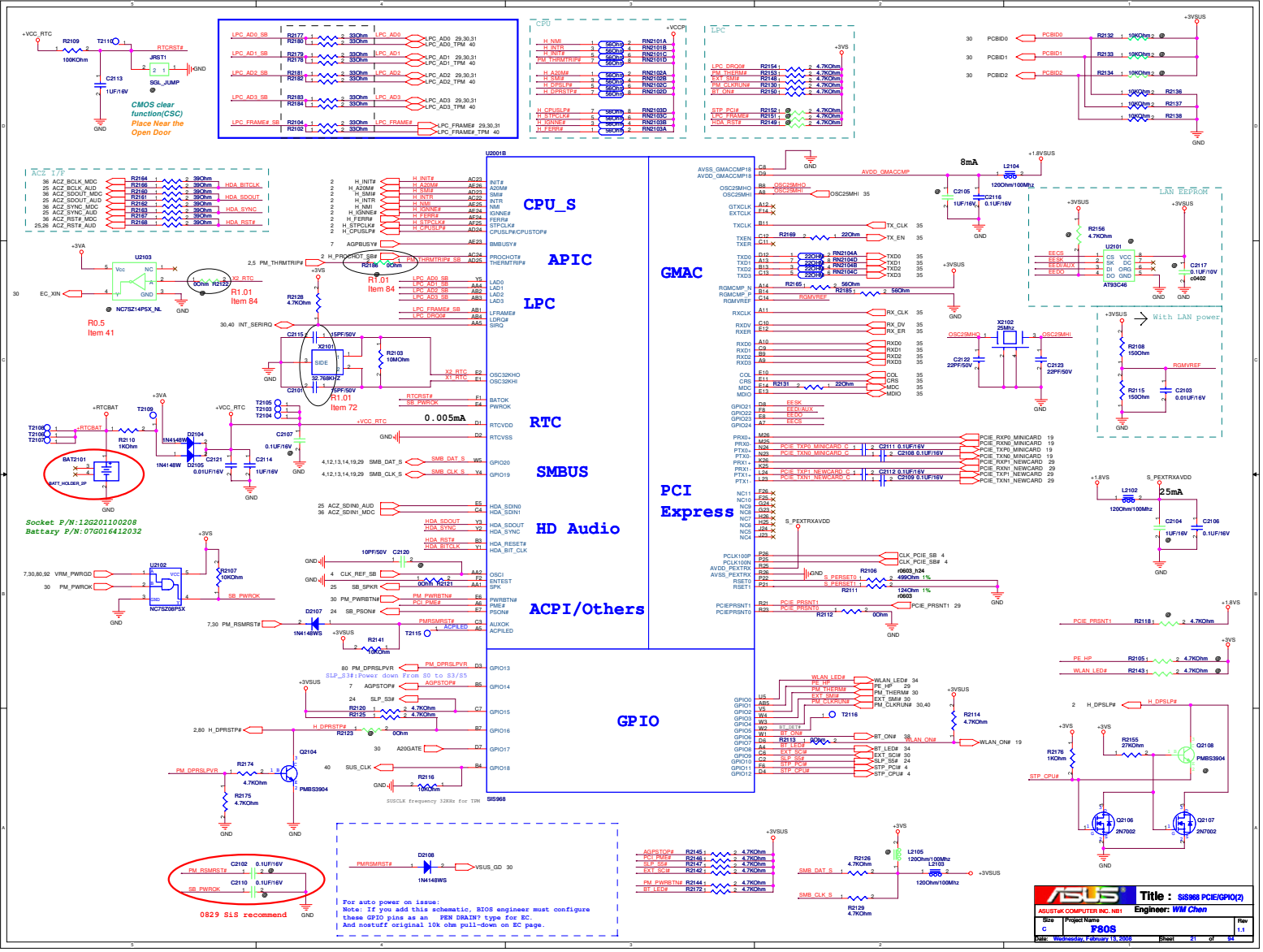
Note: 1. L1805,L1806,L1807: For EMI.(defult=0 ohm)
2. DDC_CLK_HDMI,DDC_DATA_HDMI: +5V tolerant

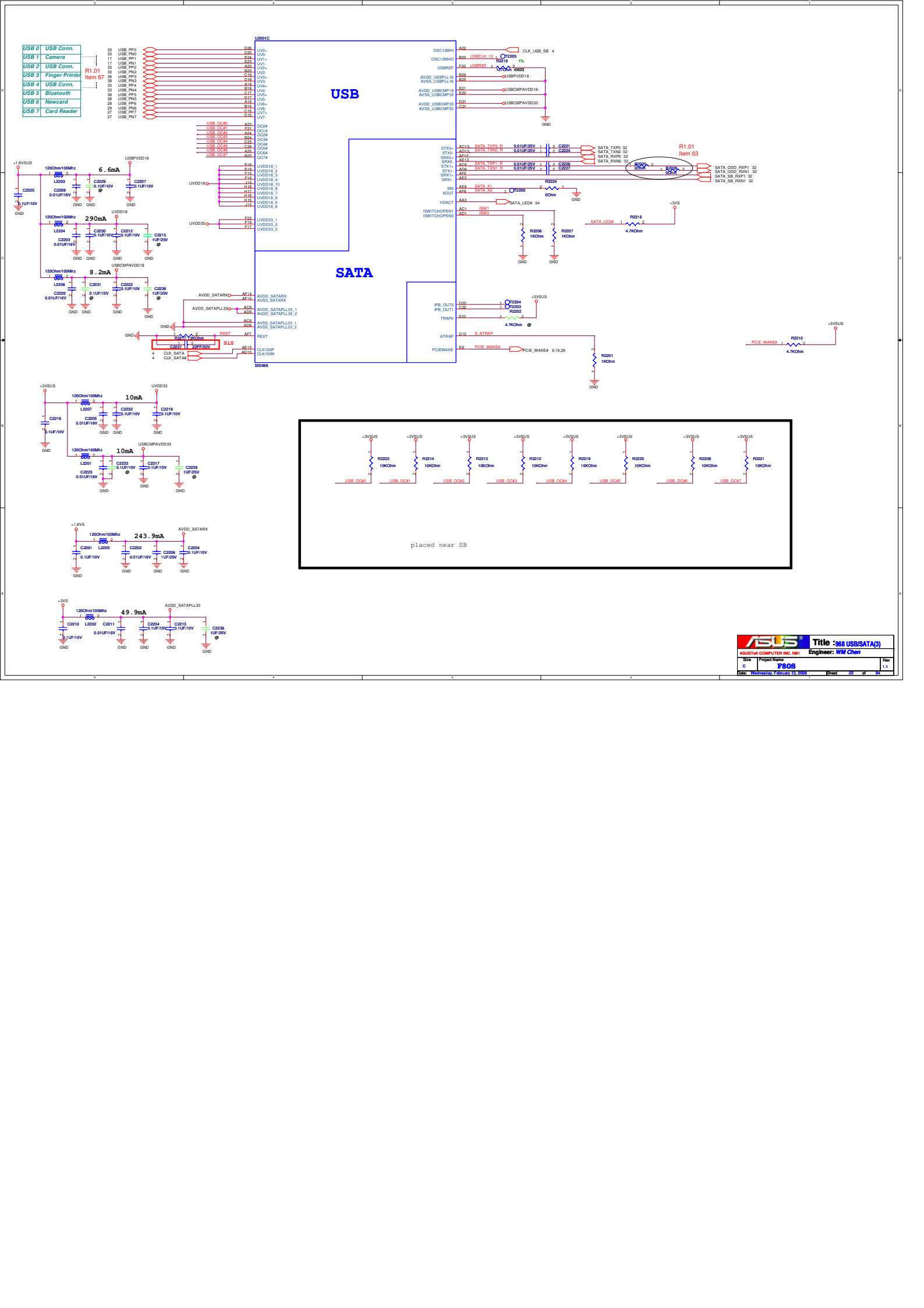
ASUSTeK COMPUTER INC	Title : TV & HDMI		
	Engineer: WM Chen		
Size: Custom	Project Name: F80S		Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 18 of 94		

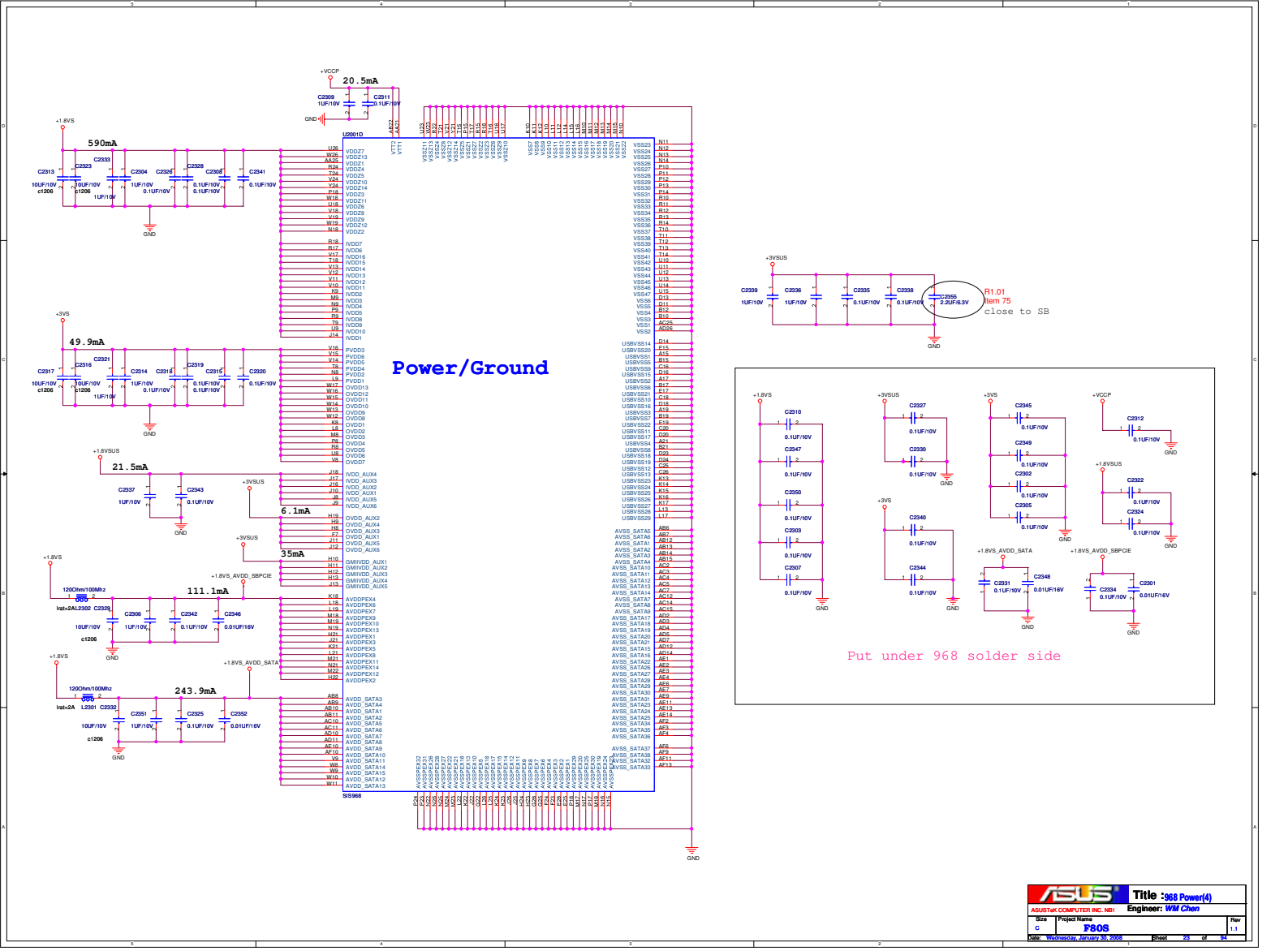


ASUSTeK Computer INC	Title : Mini card	
	Engineer: WM Chen	
Size: B	Project Name: F80S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 19 of 94	


Buffer to Reduce Loading on PCI_RST#
PCI
IDE
MuTIOL
SPI
SIS968
6.8mA
12.5.mA
0:LPC ROM 1:SPI ROM
Title :968 IDE/SPI/PCI/MuTICL(1)
ASUSTeK COMPUTER INC. NB1
Engineer: WM Chen
Size C
Project Name F80S
Rev 1.1
Date: Wednesday, February 13, 2008
Sheet 26 of 94

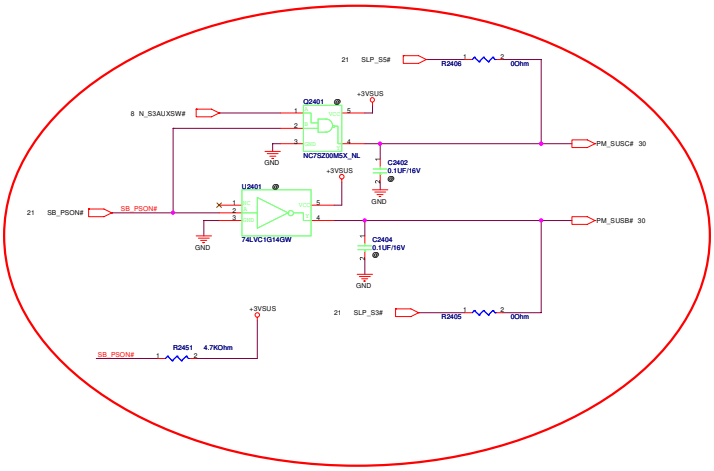

CPU_S
APIC
LPC
GMAC
RTC
SMBUS
PCI Express
HD Audio
ACPI/Others
GPIO
U2001B
SIS968
CMOS clear function(CSC)
Place Near the Open Door
Socket P/N:12G201100208
Battary P/N:07G016412032
0829 SiS recommend
For auto power on issue:
Note: If you add this schematic, BIOS engineer must configure these GPIO pins as an PEN DRAIN? type for EC.
And nostuff original 10k ohm pull-down on EC page.
LAN EEPROM
With LAN power
ASUSTeK COMPUTER INC. NB1
Engineer: WM Chen
Title : SIS968 PCIE/GPIO(2)
Size C
Project Name F8OS
Rev 1.1
Date: Wednesday, February 13, 2008
Sheet 21 of 94


USB 0 USB Conn.
USB 1 Camera
USB 2 USB Conn.
USB 3 Finger Printer
USB 4 USB Conn.
USB 5 Bluetooth
USB 6 Newcard
USB 7 Card Reader
R1.01 Item 67
USB
SATA
SIS968
R1.01 Item 63
6.6mA
290mA
8.2mA
10mA
10mA
243.9mA
49.9mA
placed near SB
ASUSTeK COMPUTER INC. NB1
Title : 968 USB/SATA(3)
Engineer: WM Chen
Project Name F80S
Wednesday, February 18, 2008
Sheet 22 of 84

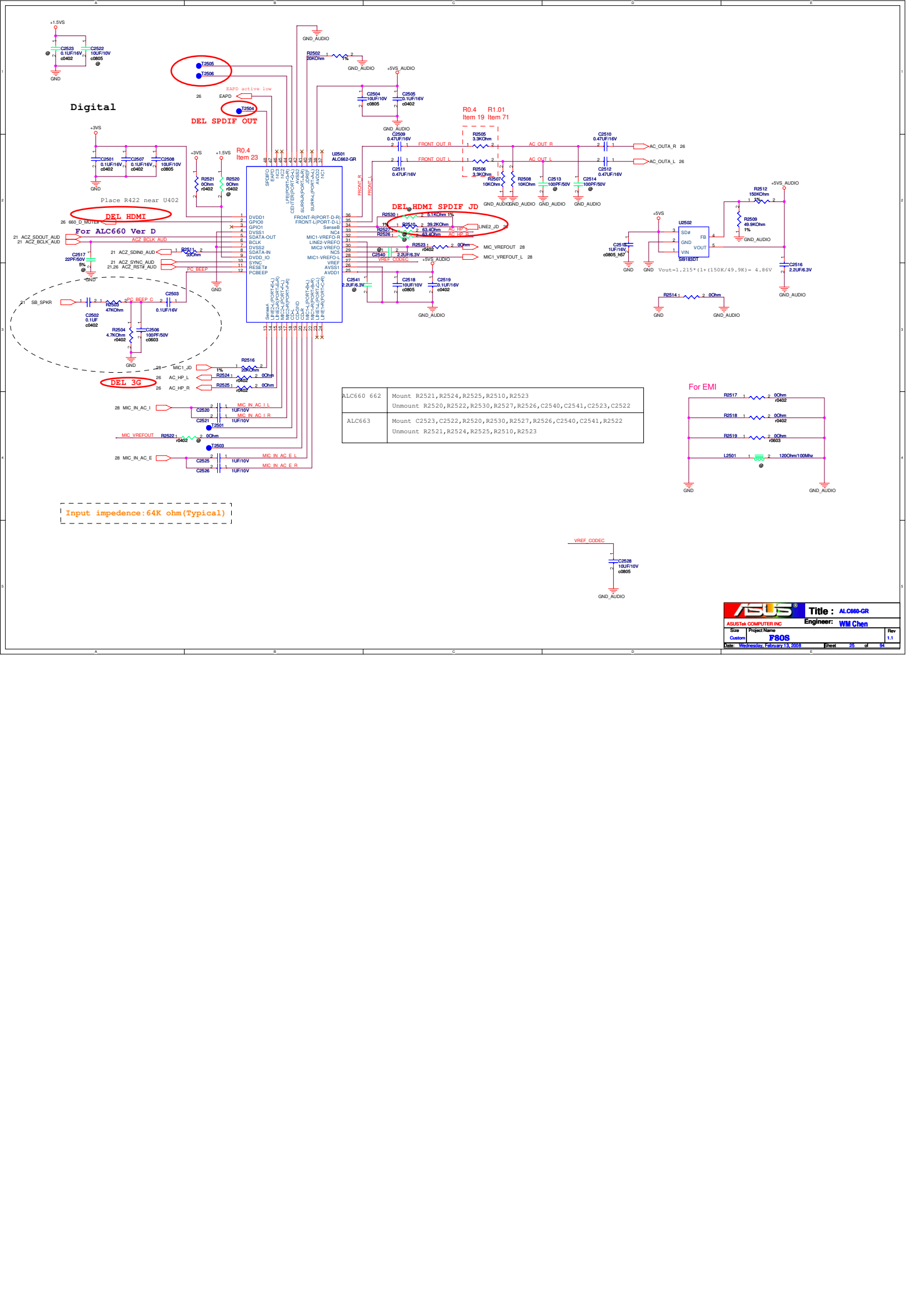


ASUSTeK COMPUTER INC. NB1		Title : 968 Power(4)	
		Engineer: WM Chen	
Size: C	Project Name: F80S		Rev: 1.1
Date: Wednesday, January 30, 2008	Sheet 23 of 94		

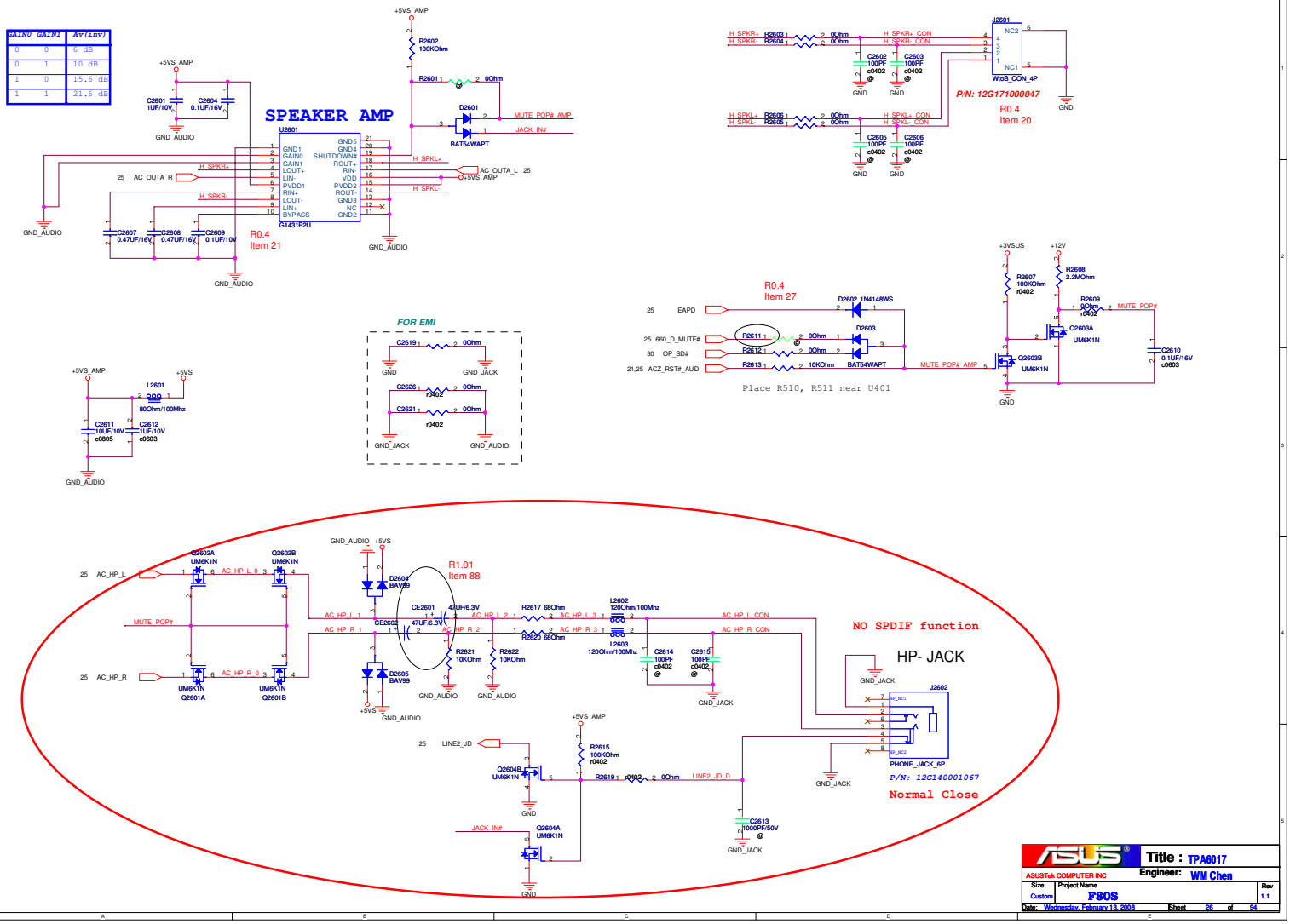
0829 SiS recommend



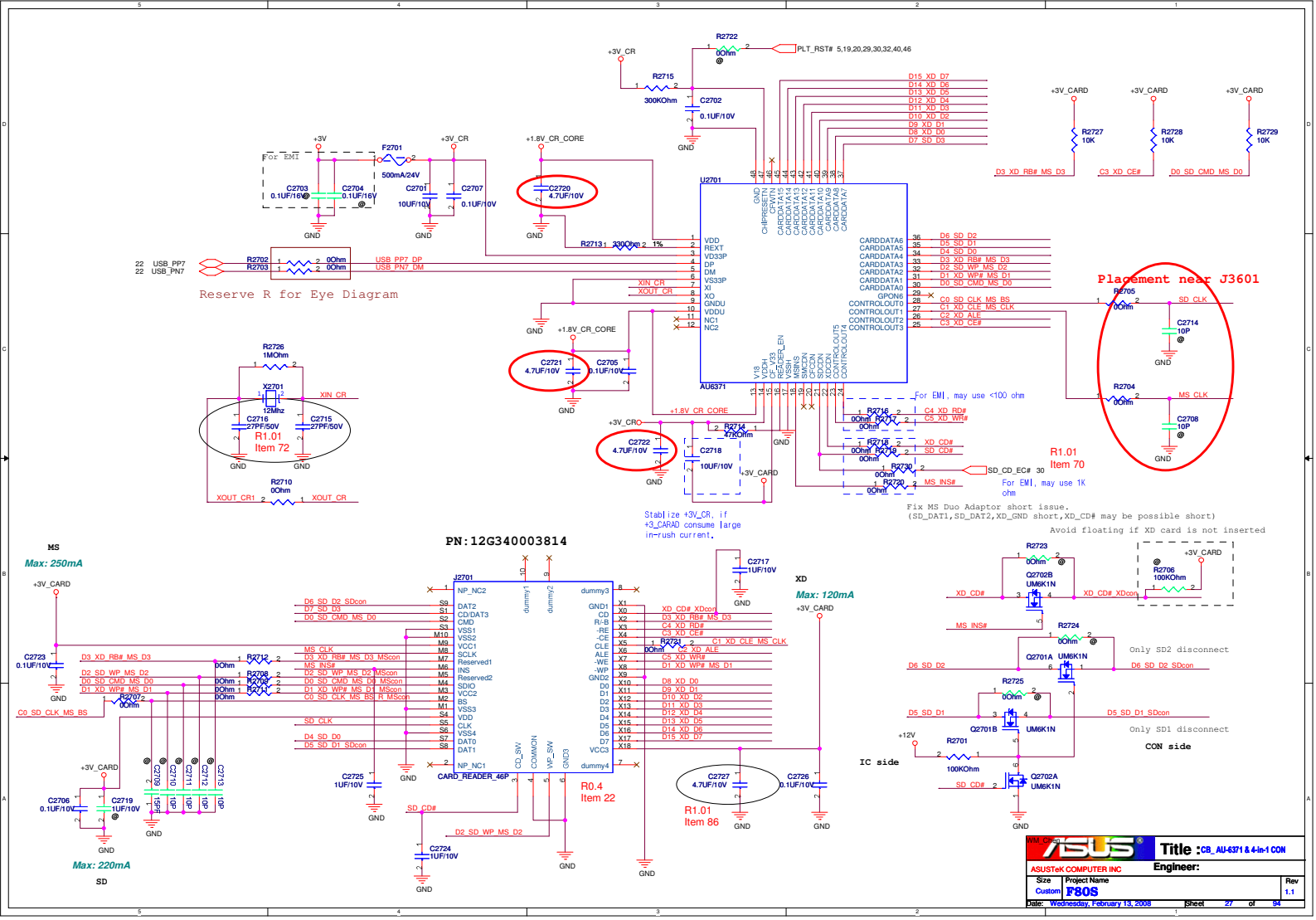
ASUSTeK COMPUTER INC. NB1	Title : 968 Strap(5)	
	Engineer: WM Chan	
Size: C	Project Name: F80S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 24 of 94	


Digital
DEL SPDIF OUT
DEL HDMI
For ALC660 Ver D
DEL 3G
DEL HDMI SPDIF JD
Place R422 near U402
R0.4 Item 23
R0.4 Item 19 R1.01 Item 71
U2501 ALC662-GR
U2502 S9183DT
Vout=1.215*(1+(150K/49.9K)= 4.86V
Input impedence:64K ohm(Typical)
For EMI
ALC660 662
Mount R2521,R2524,R2525,R2510,R2523
Unmount R2520,R2522,R2530,R2527,R2526,C2540,C2541,C2523,C2522
ALC663
Mount C2523,C2522,R2520,R2530,R2527,R2526,C2540,C2541,R2522
Unmount R2521,R2524,R2525,R2510,R2523
Title : ALC660-GR
ASUSTek COMPUTER INC
Engineer: WM Chen
Project Name F80S
Rev 1.1
Date: Wednesday, February 13, 2008
Sheet 25 of 94

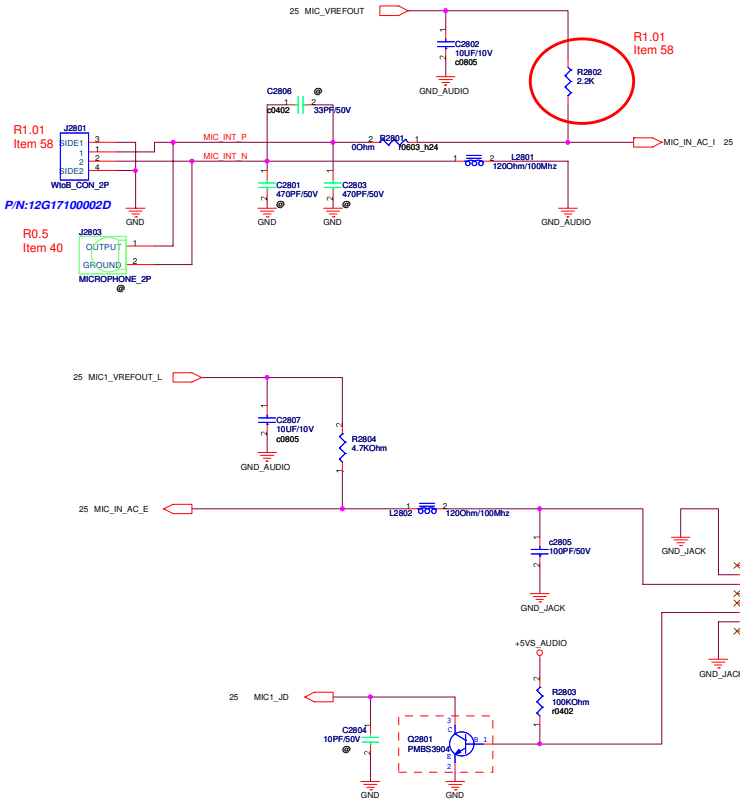
GAIN0	GAIN1	Av(inv)
0	0	6 dB
0	1	10 dB
1	0	15.6 dB
1	1	21.6 dB



ASUSTek COMPUTER INC	Title : TPA6017
Size: Custom	Project Name: F80S
Rev: 1.1	Engineer: WM Chen
Date: Wednesday, February 13, 2008	Sheet 26 of 94


Reserve R for Eye Diagram
Placement near J3601
R1.01 Item 72
R1.01 Item 70
R1.01 Item 86
R0.4 Item 22
For EMI, may use <100 ohm
For EMI, may use 1K ohm
Stablize +3V_CR, if +3_CARAD consume large in-rush current.
Fix MS Duo Adaptor short issue.
(SD_DAT1,SD_DAT2,XD_GND short,XD_CD# may be possible short)
Avoid floating if XD card is not inserted
PN:12G340003814
MS
Max: 250mA
SD
Max: 220mA
XD
Max: 120mA
IC side
CON side
Only SD2 disconnect
Only SD1 disconnect
U2701
AU6371
J2701
CARD_READER_46P
Q2701A UM6K1N
Q2701B UM6K1N
Q2702A UM6K1N
Q2702B UM6K1N
ASUSTeK COMPUTER INC
Title : CB_AU-6371 & 4-in-1 CON
Engineer:
Project Name F80S
Rev 1.1
Date: Wednesday, February 13, 2008
Sheet 27 of 94

Internal MIC Pre-Amplifier



<Variant Name>

ASUSTeK COMPUTER INC

Title : MICROPHONE

Engineer: WM Chen

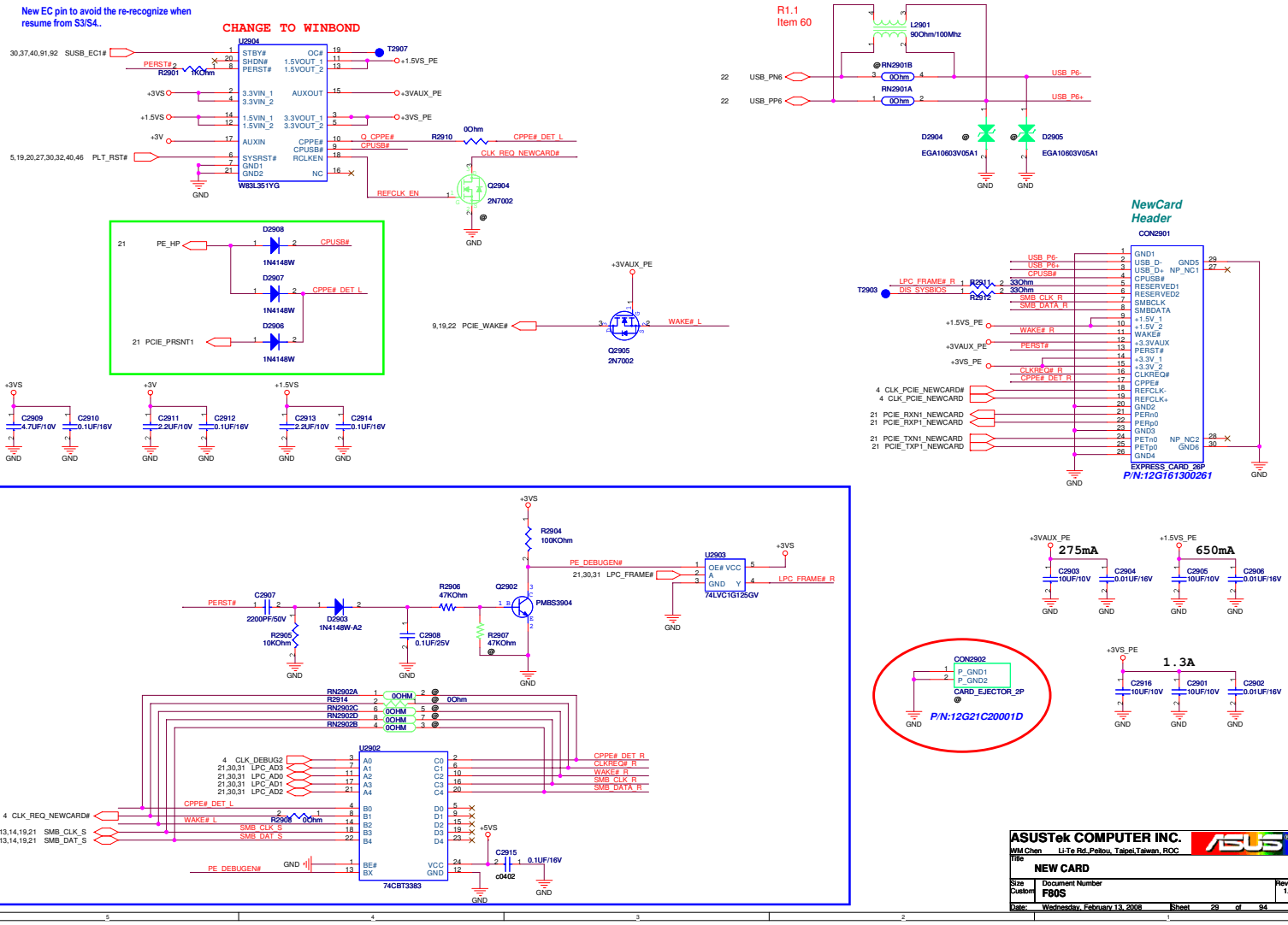
Size	Project Name	Rev
Custom	F80S	1.1

Date: Wednesday, February 13, 2008 Sheet 28 of 94

New EC pin to avoid the re-recognize when resume from S3/S4..

CHANGE TO WINBOND

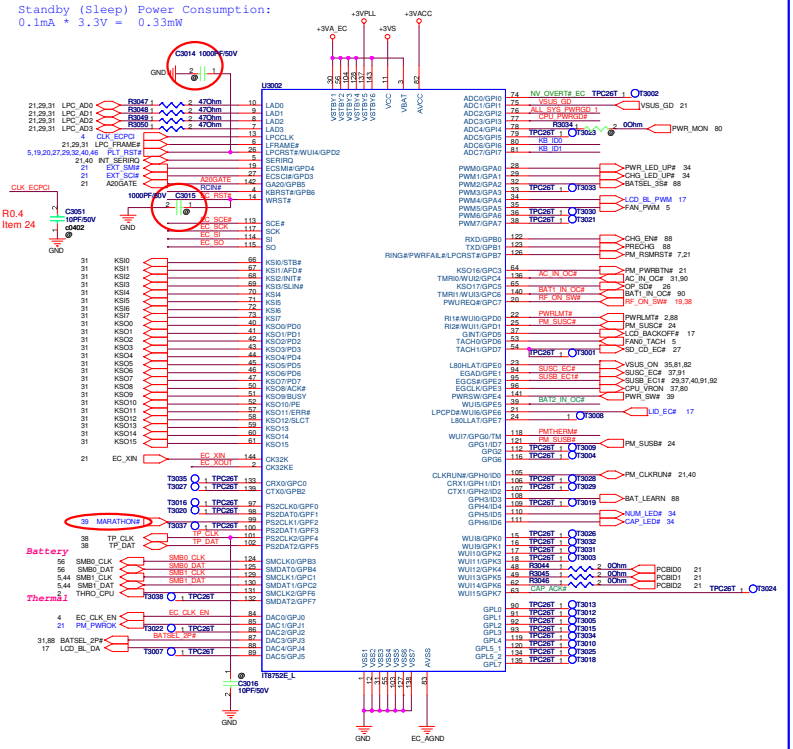
R1.1
Item 60



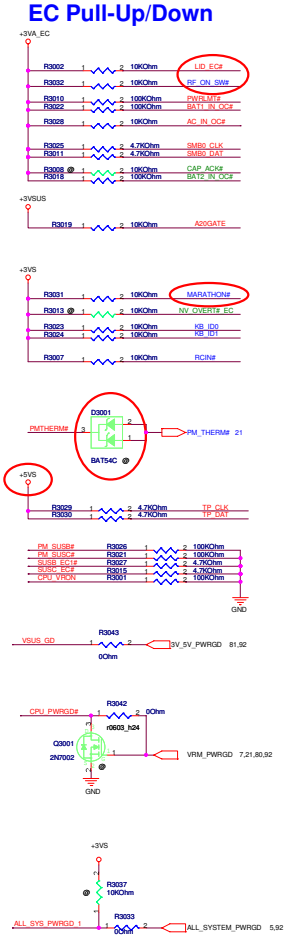
ASUSTek COMPUTER INC.			
WM Chen	Li-Te Rd.,Peitou, Taipei,Taiwan, ROC		
Title: NEW CARD			
Size: Custom	Document Number: F80S		Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 29 of 94		

IT8752 Core Chip

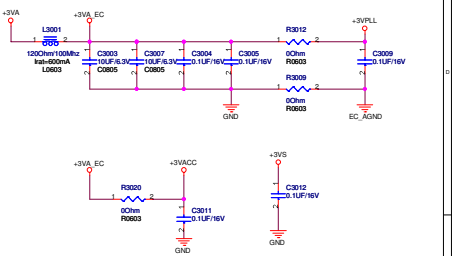
Standby (Sleep) Power Consumption:
0.1mA * 3.3V = 0.33mW



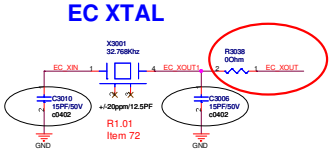
EC Pull-Up/Down



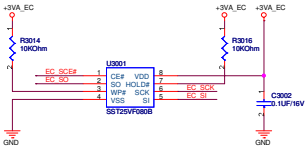
EC Power



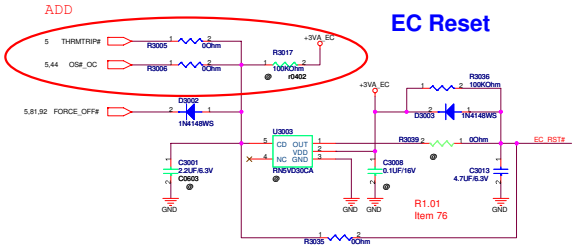
EC XTAL



SPI ROM



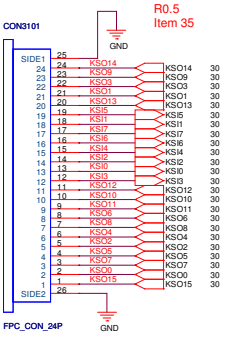
EC Reset



<Variant Name>

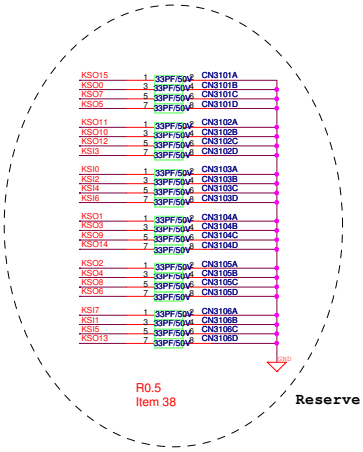
ASUSTeK COMPUTER INC	Title : EC-ITE8752		
	Engineer:		
Size: Custom	Project Name: F80S		Rev: 1.1
Date: Wednesday, February 13, 2008		Sheet 30 of 94	

For Keyboard



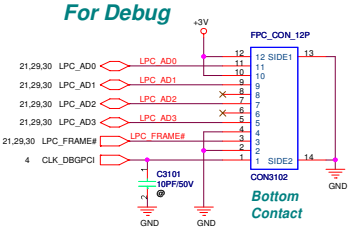
P/N:12G182002402

T53 KB MATRIX

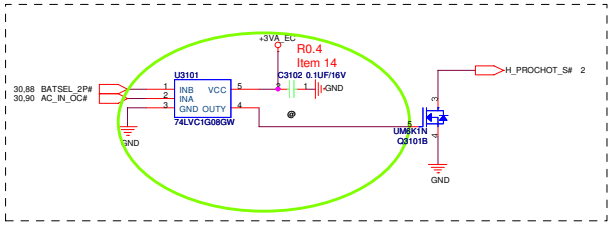


Reserve for EMI

For Debug



PWRLMT Circuit: For 65W adaptor.



<Variant Name>

ASUSTeK COMPUTER INC

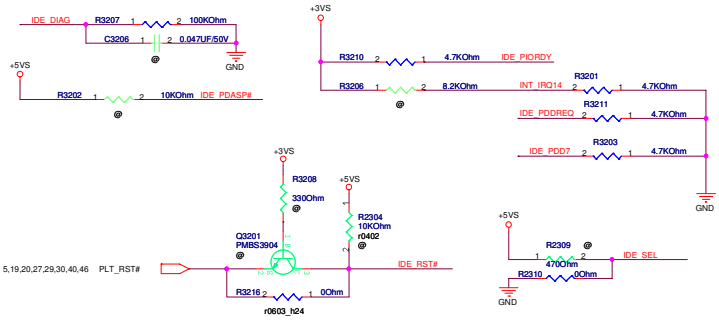
Title : KB conn

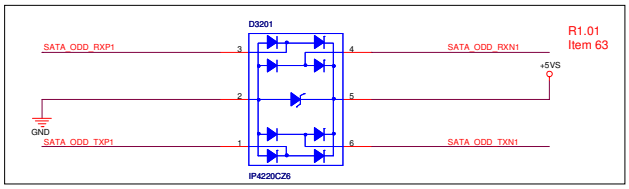
Engineer: WM Chen

Size	Project Name	Rev
Custom	F80S	1.1

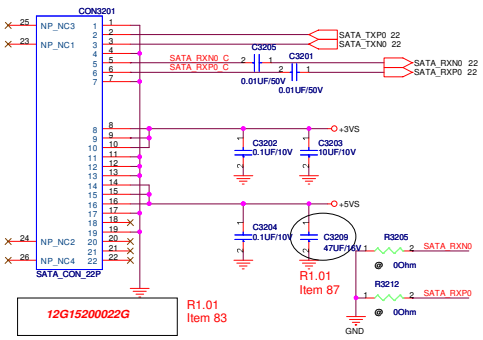
Date: Wednesday, February 13, 2008 Sheet 31 of 94

GND GND



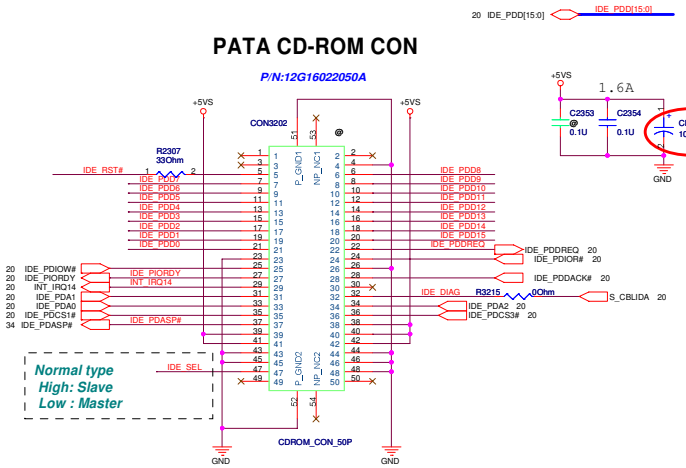


SATA HDD con.

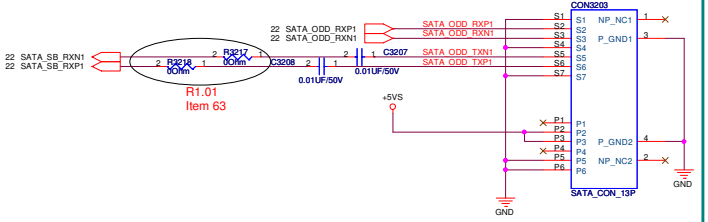


CD-ROM

PATA CD-ROM CON



SATA CD-ROM con.



<Variant Name>

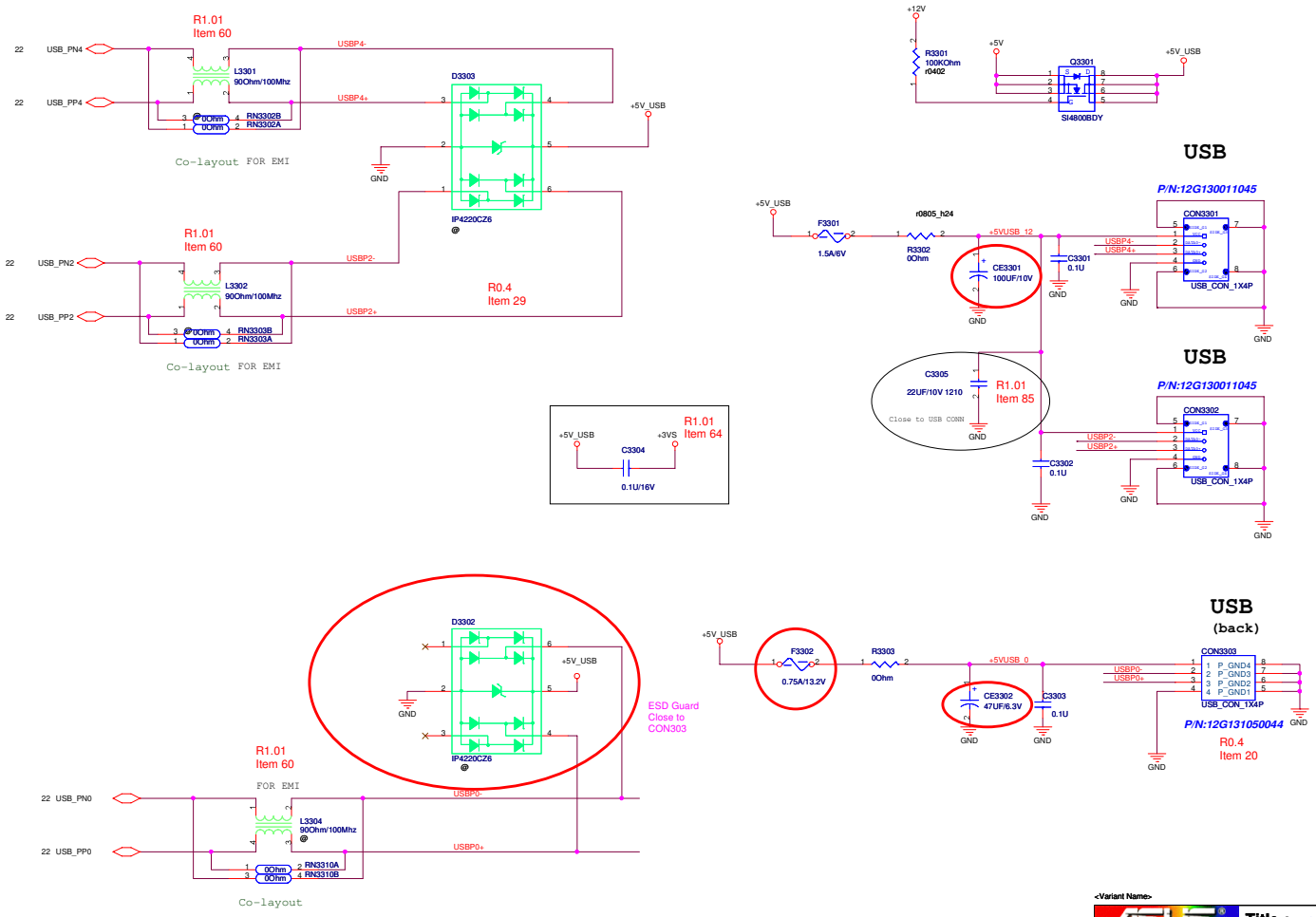
ASUSTeK COMPUTER INC

Title : HDD & CD-ROM

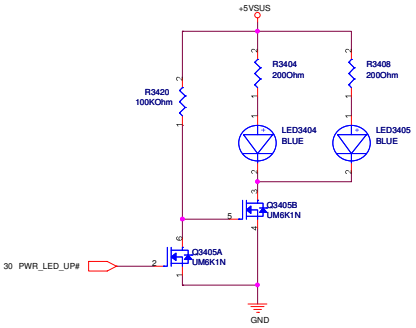
Engineer: WM Chen

Size	Project Name	Rev
Custom	F80S	1.1

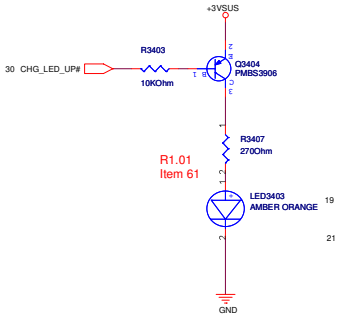
Date: Wednesday, February 13, 2008 Sheet 32 of 94


R1.01
Item 60
22 USB_PN4
22 USB_PP4
L3301
90Ohm/100Mhz
USBP4-
USBP4+
RN3302B
RN3302A
D3303
IP4220CZ6
+5V_USB
GND
Co-layout FOR EMI
R1.01
Item 60
22 USB_PN2
22 USB_PP2
L3302
90Ohm/100Mhz
USBP2-
USBP2+
RN3303B
RN3303A
R0.4
Item 29
Co-layout FOR EMI
+12V
R3301
100KOhm
r0402
+5V
Q3301
SI4800BDY
+5V_USB
USB
P/N:12G130011045
+5V_USB
F3301
1.5A/6V
r0805_h24
R3302
0Ohm
+5VUSB_12
CE3301
100UF/10V
C3301
0.1U
CON3301
USB_CON_1X4P
GND
C3305
22UF/10V 1210
Close to USB CONN
R1.01
Item 85
USB
P/N:12G130011045
CON3302
USB_CON_1X4P
C3302
0.1U
+5V_USB
+3VS
C3304
0.1U/16V
R1.01
Item 64
D3302
IP4220CZ6
ESD Guard
Close to
CON303
R1.01
Item 60
FOR EMI
22 USB_PN0
22 USB_PP0
L3304
90Ohm/100Mhz
USBP0-
USBP0+
RN3310A
RN3310B
Co-layout
+5V_USB
F3302
0.75A/13.2V
R3303
0Ohm
+5VUSB_0
CE3302
47UF/6.3V
C3303
0.1U
USB
(back)
CON3303
P_GND4
P_GND3
P_GND2
P_GND1
USB_CON_1X4P
P/N:12G131050044
R0.4
Item 20
<Variant Name>
Title : USB PORTS
ASUSTeK COMPUTER INC
Engineer: WM Chen
Size: Custom
Project Name: F80S
Rev: 1.1
Date: Wednesday, February 13, 2008
Sheet 33 of 94

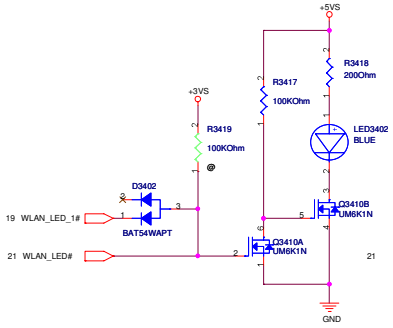
PWR LED



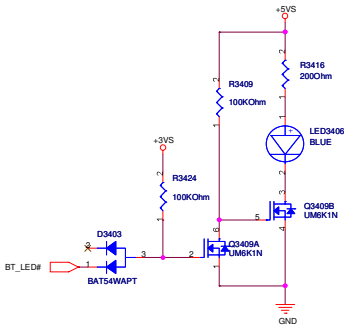
For BATTERY LED



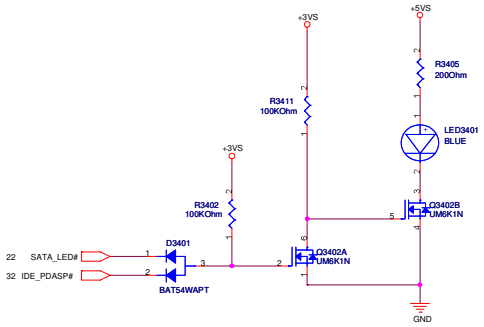
WireLess LED



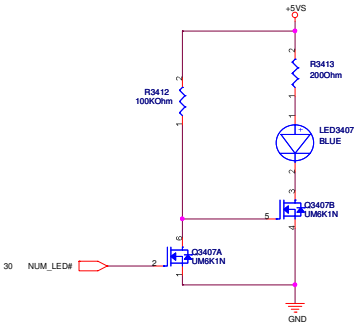
BT LED



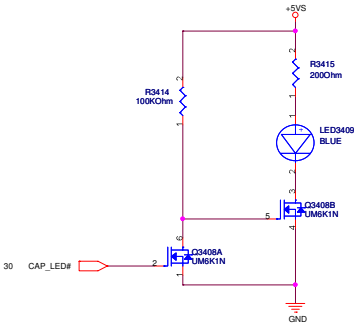
SATA/IDE LED



Num Lock

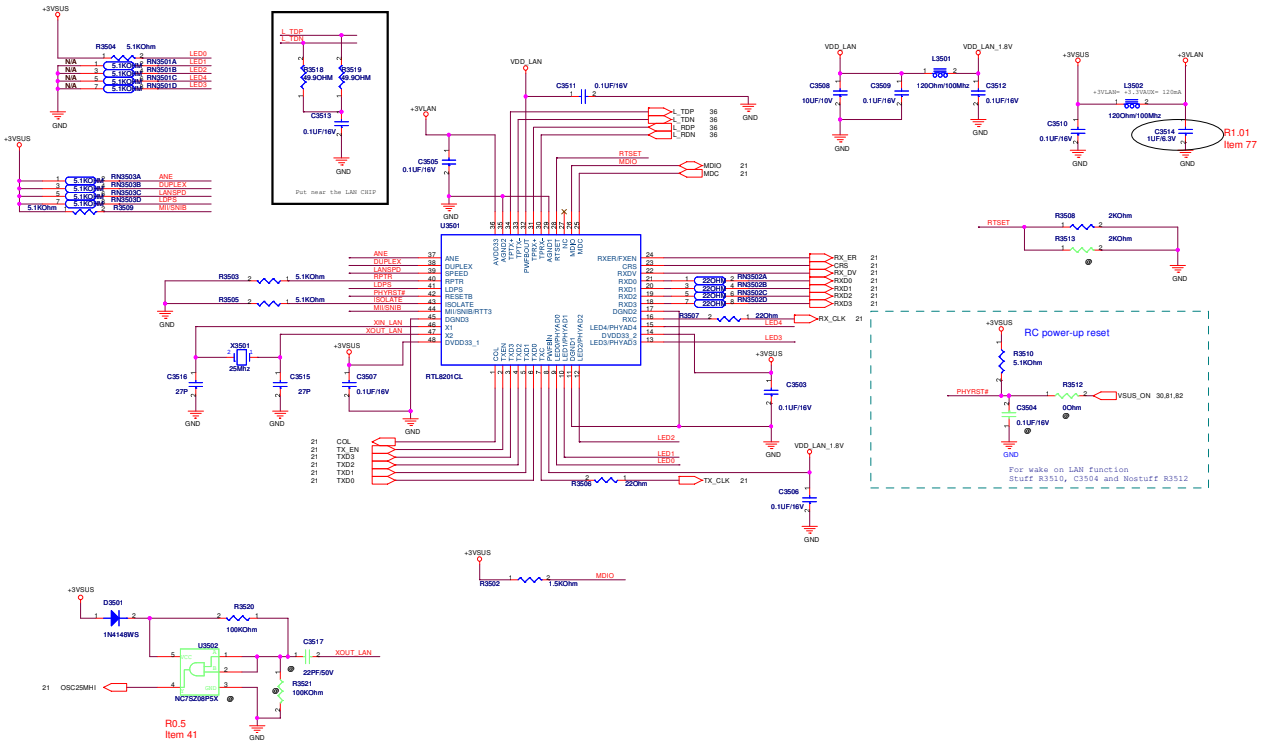


Cap. Lock

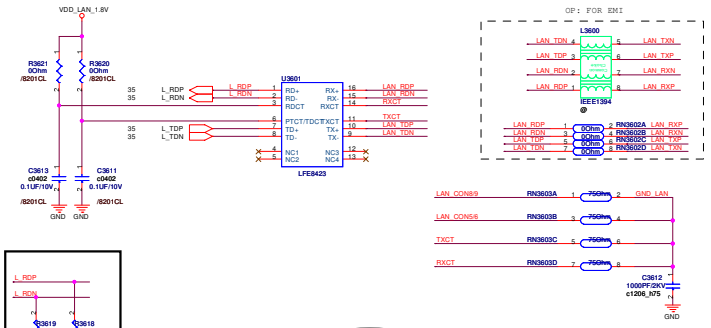


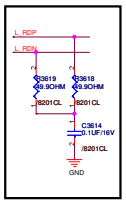
<Variant Name>

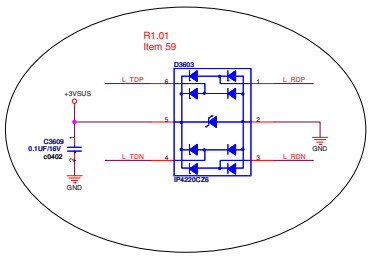
ASUSTeK COMPUTER INC	Title : LED	
	Engineer: WM Chen	
Size: Custom	Project Name: F80S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 34 of 94	



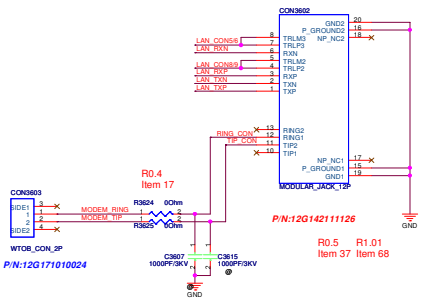
ASUSTeK COMPUTER INC. NB1	Title : LAN 10/100 PHY		
	Engineer: WM Chen		
Size: C	Project Name: F80S		Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 35 of 94		



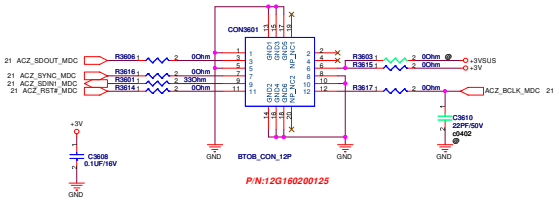


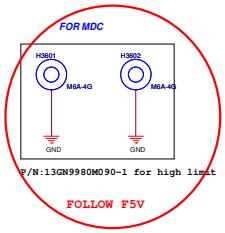


LAN / MODEM PORT

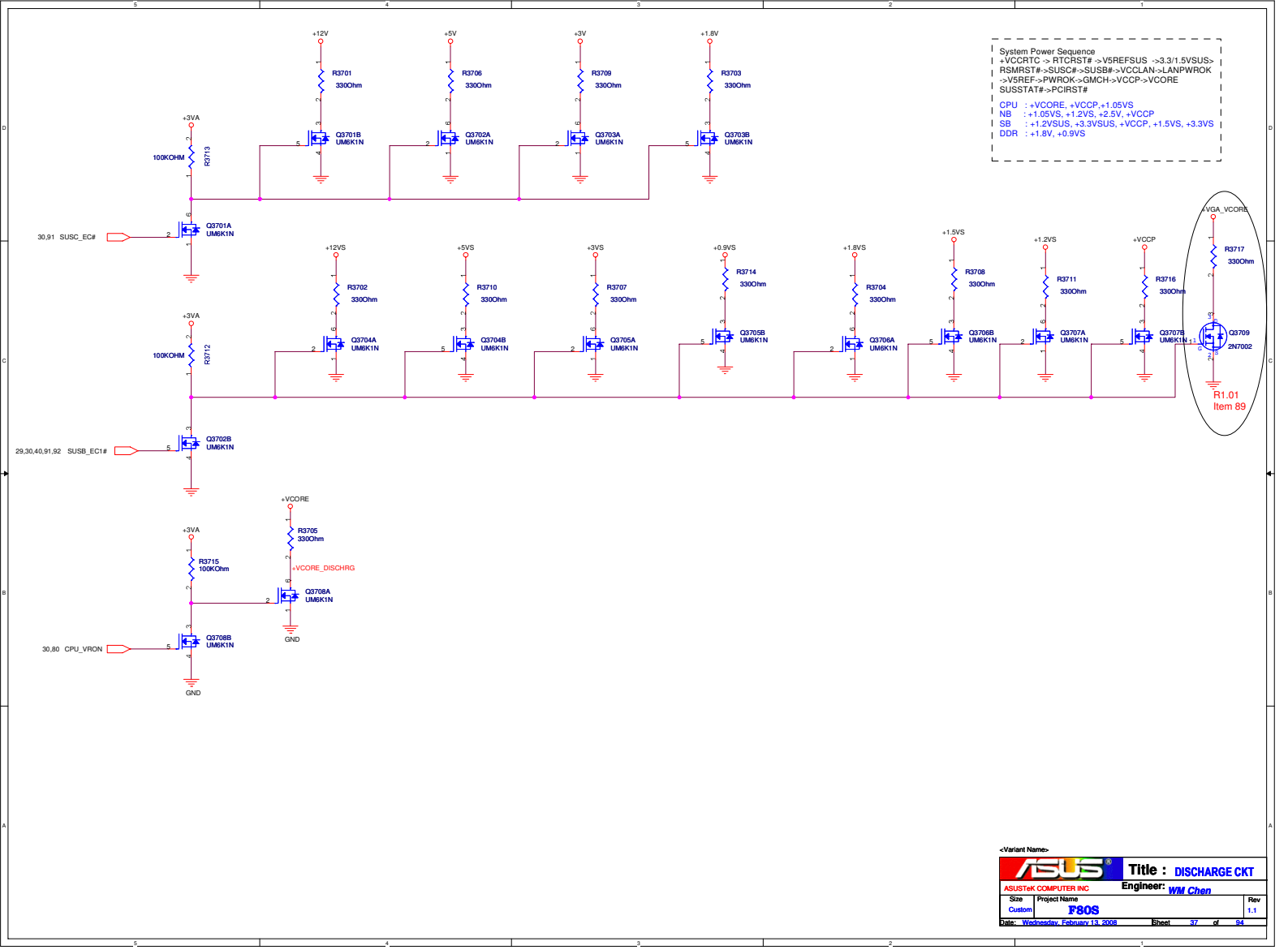


MDC

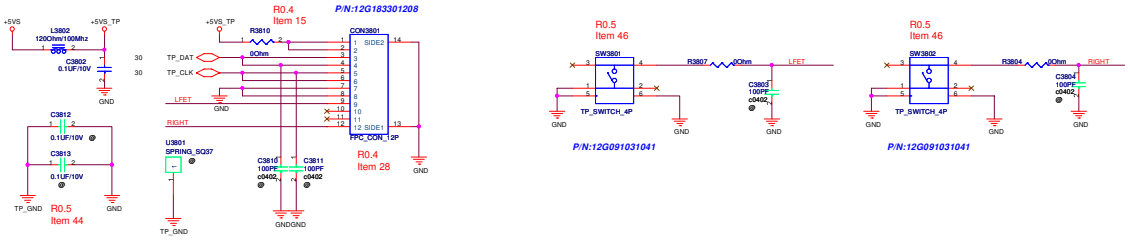




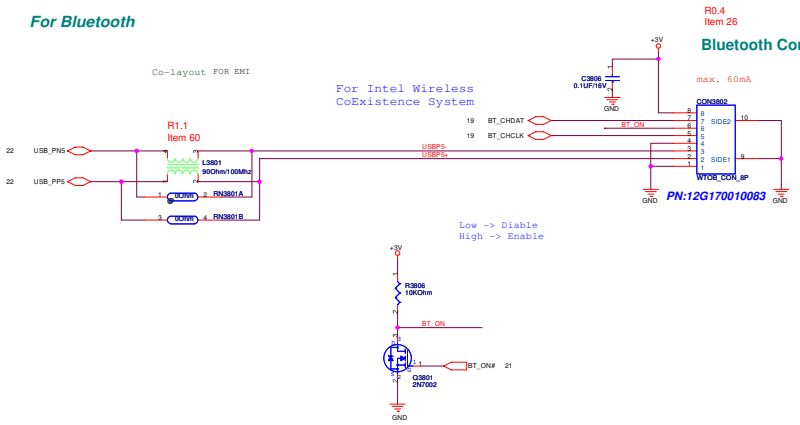
ASUSTeK COMPUTER INC	Title : RJ11+4S & MDC	
	Engineer: WM Chen	
Size: C	Project Name: F80S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 38 of 94	


System Power Sequence
+VCCRTC -> RTCRST# ->V5REFSUS ->3.3/1.5VSUS>
RSMRST#->SUSC#->SUSB#->VCCLAN->LANPWROK
->V5REF->PWROK->GMCH->VCCP->VCORE
SUSSTAT#->PCIRST#
CPU : +VCORE, +VCCP,+1.05VS
NB : +1.05VS, +1.2VS, +2.5V, +VCCP
SB : +1.2VSUS, +3.3VSUS, +VCCP, +1.5VS, +3.3VS
DDR : +1.8V, +0.9VS
+12V
+5V
+3V
+1.8V
R3701 330Ohm
R3706 330Ohm
R3709 330Ohm
R3703 330Ohm
Q3701B UM6K1N
Q3702A UM6K1N
Q3703A UM6K1N
Q3703B UM6K1N
+3VA
100KOHM
R3713
30,91 SUSC_EC#
Q3701A UM6K1N
+12VS
+5VS
+3VS
+0.9VS
+1.8VS
+1.5VS
+1.2VS
+VCCP
R3702 330Ohm
R3710 330Ohm
R3707 330Ohm
R3714 330Ohm
R3704 330Ohm
R3708 330Ohm
R3711 330Ohm
R3716 330Ohm
Q3704A UM6K1N
Q3704B UM6K1N
Q3705A UM6K1N
Q3705B UM6K1N
Q3706A UM6K1N
Q3706B UM6K1N
Q3707A UM6K1N
Q3707B UM6K1N
+VGA_VCORE
R3717 330Ohm
Q3709 2N7002
R1.01 Item 89
100KOHM
R3712
Q3702B UM6K1N
29,30,40,91,92 SUSB_EC1#
+VCORE
R3705 330Ohm
+VCORE_DISCHRG
Q3708A UM6K1N
R3715 100KOhm
Q3708B UM6K1N
30,80 CPU_VRON
GND
<Variant Name>
Title : DISCHARGE CKT
ASUSTeK COMPUTER INC
Engineer: WM Chen
Size Custom
Project Name F80S
Rev 1.1
Date: Wednesday, February 13, 2008
Sheet 37 of 94

Touch-Pad



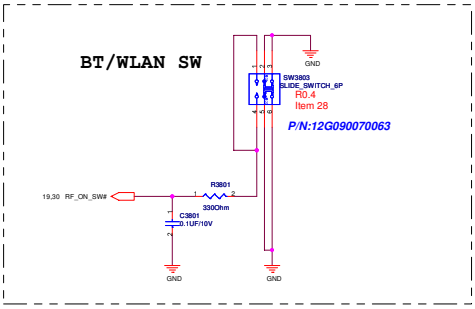
For Bluetooth



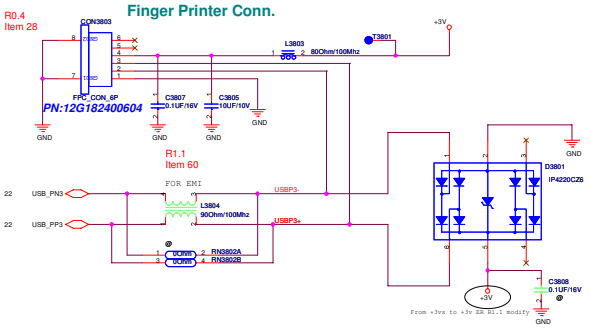
R0.4
Item 26

Bluetooth Conn.

BT/WLAN SW



Finger Printer Conn.



<Variant Name>

ASUSTeK COMPUTER INC. NB1

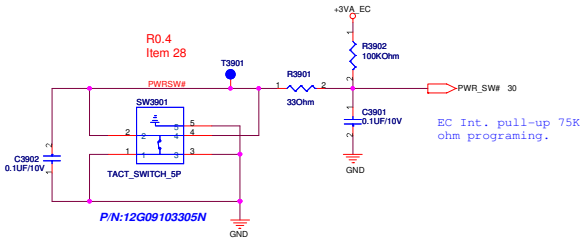
Title : BT&TP&FP

Engineer: WM Chen

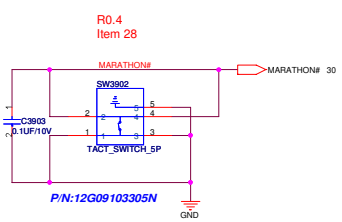
Size	Project Name	Rev
C	F8OS	1.1

Date: Wednesday, February 13, 2008 Sheet 38 of 94

Power Button

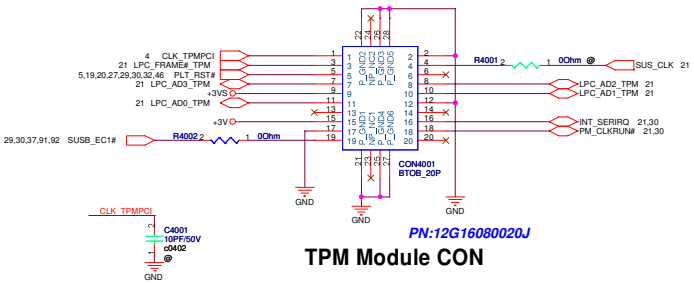


MARATHON#



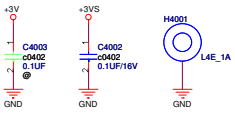
<Variant Name>

ASUSTeK COMPUTER INC	Title : SWITCH	
	Engineer: WM Chen	
Size: Custom	Project Name: F80S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 39 of 94	



PN:12G16080020J

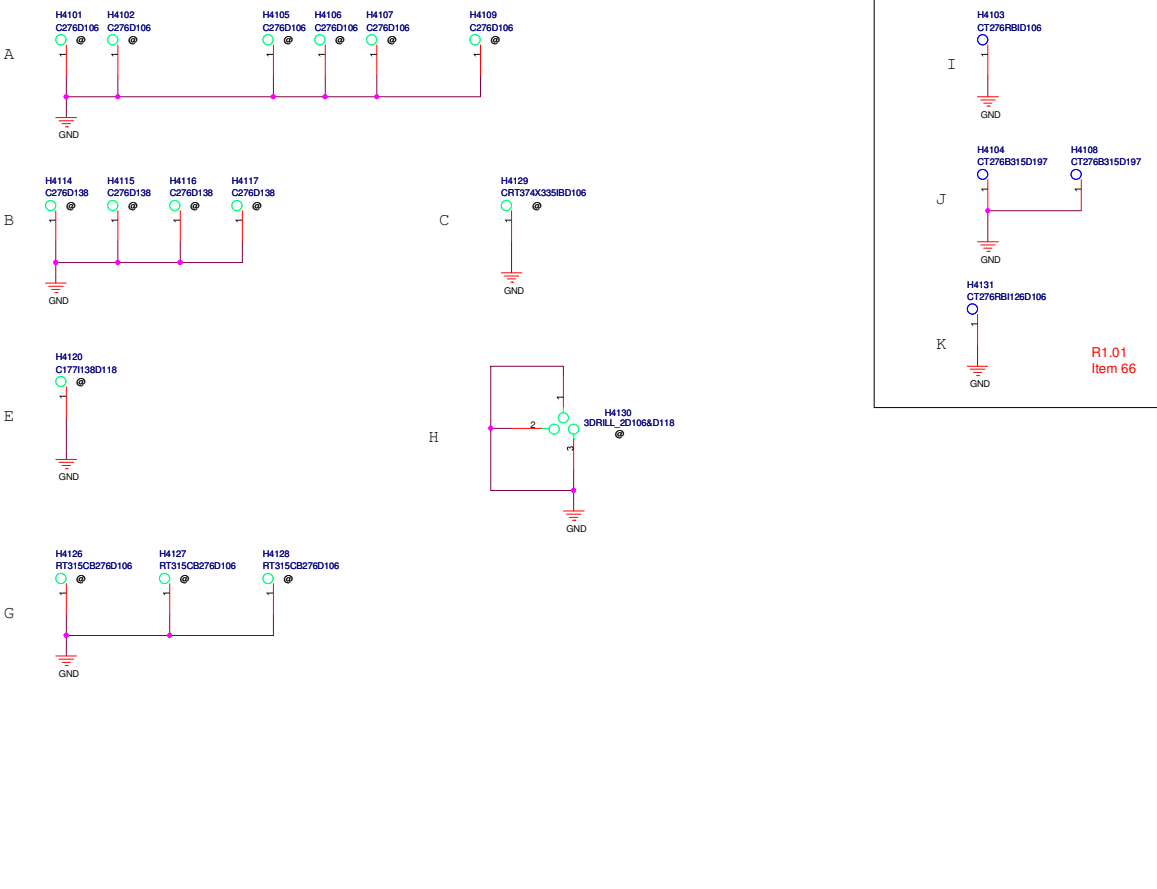
TPM Module CON



<Variant Name>

ASUSTeK COMPUTER INC. NB1	Title : TPM	
	Engineer: WM Chen	
Size: Custom	Project Name: FS0S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 40 of 94	

R0.5
Item 36



R1.01
Item 66

ASUSTeK COMPUTER INC. NB1	Title : Screw hole		
	Engineer: WM Chen		
Size: B	Project Name: F80S		Rev: 1.1
Date: Wednesday, January 30, 2008	Sheet 41 of 94		

Title : BLANK

ASUSTeK COMPUTER INC

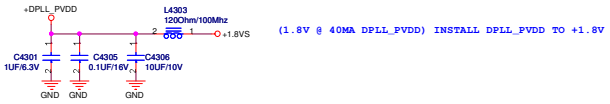
Engineer: WM Chen

Size	Project Name	Rev
Custom	F80S	1.1

Date: Wednesday, February 13, 2008 Sheet 42 of 94

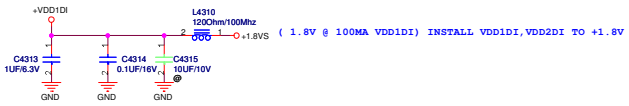
M8x Power

PLACE ALL DECOUPLING AS CLOSE TO ASIC AS POSSIBLE

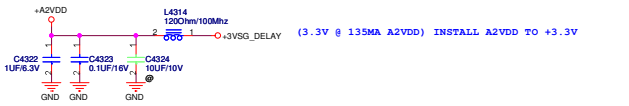


(1.8V @ 40MA DPLL_PVDD) INSTALL DPLL_PVDD TO +1.8V

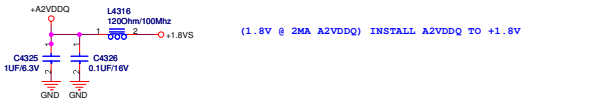
(1.8V @ 40MA PCIE_PVDD)



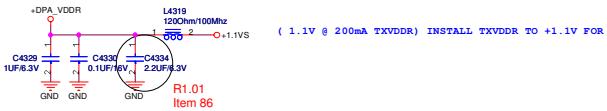
(1.8V @ 100MA VDD1DI) INSTALL VDD1DI,VDD2DI TO +1.8V



(3.3V @ 135MA A2VDD) INSTALL A2VDD TO +3.3V

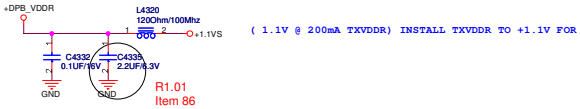


(1.8V @ 2MA A2VDDQ) INSTALL A2VDDQ TO +1.8V



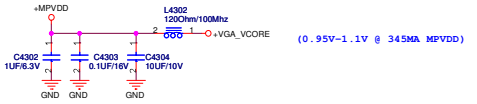
(1.1V @ 200mA TXVDDR) INSTALL TXVDDR TO +1.1V FOR M8x

R1.01
Item 86

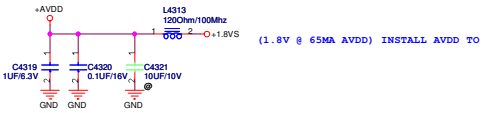


(1.1V @ 200mA TXVDDR) INSTALL TXVDDR TO +1.1V FOR M8x

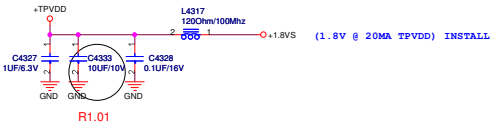
R1.01
Item 86



(0.95V~1.1V @ 345MA MPVDD)

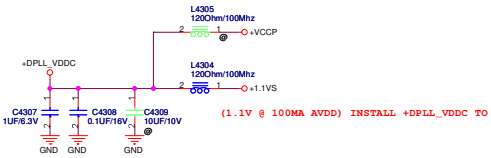


(1.8V @ 65MA AVDD) INSTALL AVDD TO +1.8V



(1.8V @ 20MA TPVDD) INSTALL TPVDD TO +1.8V

R1.01
Item 86



(1.1V @ 100MA AVDD) INSTALL +DPLL_VDDC TO +1.1V

<Variant Name>

ASUSTeK COMPUTER INC	Title : VGA M8x-M POWER	
	Engineer: WM Chen	
Size: Custom	Project Name: F80S	Rev: 1.1
Date: Wednesday, January 30, 2008	Sheet 43 of 94	

Thermal

R1.01
Item 54

+3VSG
RN4401A VGA_OVERT#
RN4401B THRM_ALERT# VGA
RN4401C EDID_CLK
RN4401D EDID_DAT
4.7KOhm
R4428 0
OS#_OC 5,30

+3VS_VGTM
R4439 200 +3VSG
C4402 0.1U
Max: 1mA
U4403 G781-1
VCC SCLK
DXP SDA
DXN ALERT#
OVERT# GND
SMB1_CLK 5,30
SMB1_DAT 5,30
THRM_ALERT# VGA
VGA_D+
VGA_D-
C4403 2200PF/50V
R4438 0
PWR_OK_VGA
Slave Address:9A
Q4401 2N7002
GPIO19
GND

ROM Strap

+3VSG
R4446 10KOhm
R4420 10KOhm
R4422 10KOhm
GPIO13
GPIO15
GPIO11

If BIOS_ROM_EN=0,then Config[2:0]=GPIO[13:11]
defines the primary memoru apeture size.
128MB---x000 32MB---x011 2GB---x110
256MB---x001(default) 512MB-x100 4GB---x111
64MB-----x010 1GB-----x101

Memory ID

+VDDR45
R4407 10KOhm
R4408 10KOhm
R4409 10KOhm
R4410 10KOhm
MEM_ID0
MEM_ID1
MEM_ID2
MEM_ID3
R4414 10KOhm
R4415 10KOhm
R4416 10KOhm
R4417 10KOhm
GND

MEM ID[3:0]=0000

Qimonda
0000 - 32M*16 (256MB) A
0001 - 32M*16 (512MB) 2-AB
0010 - 64M*16 (512MB) A
0011 - 64M*16 (1GB) 2-AB
0100 - 16M*16 (128MB) A
0101 - 16M*16 (256MB) 2-AB
0110 - TBD
0111 - TBD
1000 - 32M*16 (256MB) A
1001 - 32M*16 (512MB) 2-AB
1010 - 64M*16 (512MB) A
1011 - 64M*16 (1GB) 2-AB
1100 - 16M*16 (128MB) A
1101 - 16M*16 (256MB) 2-AB
1110 - TBD
1111 - TBD

Hynix

+3VSG
R4404 10KOhm GPIO0
R4406 10KOhm GPIO1
R4423 10KOhm GPIO4
R4421 10KOhm GPIO5
R4424 10KOhm GPIO6
R4427 10KOhm GPIO8
R4425 10KOhm GPIO10
R4431 10KOhm GPIO23
R4432 10KOhm GPIO7
GND

GPIO[0]: Tx Power Savings Enable
0: 50% Tx output swing (INT PD)
1: full Tx output swing

GPIO[1]: Tx De-emphasis Enable
0: Tx de-emphasis disbale(INT PD)
1: Tx de-emphasis enable.

GPIO4 for debug access
GPIO5 for PCIE 2.5G/5G select (L: 2.5G default)
GPIO6 for debug I2C enable

GPIO8 for HDA enable(H:Enable)

Enable HD Audio(VIP_3)
(for M76/M86)

+3VSG_DELAY
10KOhm R4447
10KOhm R4455
10KOhm R4453
10KOhm R4454
10KOhm R4480
10KOhm R4481
10KOhm R4442
10KOhm R4456
10KOhm R4458
10KOhm R4463
T4424 TPC26T
T4423 TPC26T
T4404 TPC26T
T4443 TPC26T
T4409 TPC26T
VID_0
VID_1
VID_2
VID_3
VID_4
VID_5
VID_6
VID_7
VIP / I2C
VHAD_0
VHAD_1
VPHCTL
VPCLK0
VIPCLK
PSYNC
DVALID
SDA
SCL
EDID_DAT
EDID_CLK
+3VSG
R4468 4.7KOhm
R4469 4.7KOhm
NC_1
DVPCNTL_MVP_0
DVPCNTL_MVP_1
DVPCNTL_0
DVPCNTL_1
DVPCNTL_2
DVPCLK
DVPDATA_0
DVPDATA_1
DVPDATA_2
DVPDATA_3
DVPDATA_4
DVPDATA_5
DVPDATA_6
DVPDATA_7
DVPDATA_8
DVPDATA_9
DVPDATA_10
DVPDATA_11
DVPDATA_12
DVPDATA_13
DVPDATA_14
DVPDATA_15
DVPDATA_16
DVPDATA_17
DVPDATA_18
DVPDATA_19
DVPDATA_20
DVPDATA_21
DVPDATA_22
DVPDATA_23
MULTI_GFX EXTERNAL TMDS
MEM_ID0
MEM_ID1
MEM_ID2
MEM_ID3
T4448 TPC26T
T4403 TPC26T
T4419 TPC26T PANEL_ID0
T4432 TPC26T PANEL_ID1
T4410 TPC26T
T4431 TPC26T
T4413 TPC26T
T4428 TPC26T
GPIO_0
GPIO_1
GPIO_2
GPIO_3
GPIO_4
GPIO_5
GPIO_6
GPIO_7_BLON
GPIO_8_ROMSO
GPIO_9_ROMSI
GPIO_10_ROMSCK
GPIO_11
GPIO_12
GPIO_13
GPIO_14_HPD2
GPIO_15_PWRCNTL_0
GPIO_16_SSIN
GPIO_17_THERMAL_INT
GPIO_18_HPD3
GPIO_19_CTFB
GPIO_20_PWRCNTL_1
GPIO_21_BB_EN
GPIO_22_ROMCSB
GPIO_23_CLKREQB
GPIO_24_MODE
GPIO_25_TDI
GPIO_26_TCK
GPIO_27_TMS
GPIO_28_TDO
GENERICA
GENERICB
GENERICC
GENERAL PURPOSE I/O
GPIO0 INT_PD
GPIO1 INT_PD
GPIO4 INT_PD
GPIO5 INT_PD
GPIO6 INT_PD
GPIO7 INT_PD
GPIO8 INT_PD
GPIO10 INT_PD
GPIO11 INT_PD
GPIO13 INT_PD
GPIO17 INT_PD
GPIO19
GPIO23 TRST
VGA_VREFG
VREFG
17,47 L_BKLTEN_V
R4429 0Ohm
47,85,92 PWR_OK_VGA
R4439 0Ohm
85 GPU_VID_0#
50 OSC_SPREAD
THRM_ALERT# VGA
R4427 0Ohm
T4401 TPC26T
85 GPU_VID_1#
51 ATI_GPIO21
ATI_GPIO21
GPIO19 VGA Thermtrip out(110 degree active)
R4418 1KOhm
+1.8VS
R4436 499Ohm
R4457 249Ohm
C4405 0.1UF/16V
T4441 TPC26T
T4426 TPC26T
FOR M8x
VREFG VOLTAGE DIVIDER
IS VREFG = 0.6V
+PCIE_PVDD
+MPVDD
+DPLL_PVDD
+DPLL_VDDC
DPLL_PVDD
DPLL_PVSS
PCIE_PVDD
PCIE_PVSS
MPVDD
MPVSS
PLL CLOCKS
XTALIN
XTALOUT
DPLL_VDDC
TS_FDO
THERMAL
DMINUS
DPLUS
HPD1
VGA_D-
VGA_D+
18 HDMI_HP
M76-M

50 OSC_IN
50 OSC3.3_OUT
R4434 121Ohm
R4449 22Ohm
OPTIONAL OSC
27MHZ
U4404
C 121Ohm
R4464
R4435 150Ohm 1%
C4401 0.1UF/16V
R4465 1KOhm
R1.01
Item 55

INTEGRATED TMDS
TXCAM AN9
TXCAP AN10
TXOM AR10
TXOP AP10
TX1M AR11
TX1P AP11
TX2M AR12
TX2P AP12
TXCBM AR14
TXCBP AP14
TX3M AR15
TX3P AP15
TX4M AR16
TX4P AP16
TX5M AR17
TX5P AP17
NC_10 AR13
NC_9 AP13
TMDS_TXCN 18
TMDS_TXCP 18
TMDS_TX0N 18
TMDS_TX0P 18
TMDS_TX1N 18
TMDS_TX1P 18
TMDS_TX2N 18
TMDS_TX2P 18

TPVDD AN14
TPVSS AL14
+TPVDD
TXVDDR_1 AN19
TXVDDR_2 AN20
TXVDDR_3 AP19
TXVDDR_4 AR19
+DPB_VDDR
+DPA_VDDR
TXVSSR_1 AN18
TXVSSR_2 AP18
TXVSSR_3 AR18
TXVSSR_4 AN15
TXVSSR_5 AP17
TXVSSR_6 AN17
TXVSSR_7 AN11
TXVSSR_8 AN12
TXVSSR_9 AN13
TXVSSR_10 AN14
NC_2 AR18
NC_3 AG16
NC_4 AH17
NC_5 AG17
NC_6 AP9
NC_7 AR9
NC_8 AG15
R4466 130Ohm 1%

DAC1
R AR31
RB AP31
RB_DAC1
G AR30
GB AP30
GB_DAC1
B AR29
BB AP29
BB_DAC1
HSYNC AN29
VSYNC AN30
RSET AN31
AVDD AR32
AVSSQ AP32
VDD1DI AR28
VSS1DI AP28
C4404 5PF/50V
C4406 5PF/50V
C4407 5PF/50V
CRT_RED 16
CRT_GREEN 16
CRT_BLUE 16
CRT_HSYNC 16
CRT_VSYNC 16
R4462 10KOhm
+3VSG
HDMI_EN
M8X_RSET
499Ohm
R4426
+AVDD
+VDD1DI

DAC2
R2 AM19
R2B AL19
G2 AM18
G2B AL18
B2 AM17
B2B AL17
C AK19
Y AK18
COMP AK17
V2SYNC AL15
H2SYNC AM15
A2VDD AM21
+A2VDD
A2VDDQ AL21
+A2VDDQ
A2VSSQ AK21
VDD2DI AH22
VSS2DI AG22
+VDD1DI
R2SET AL21
R4433 715Ohm

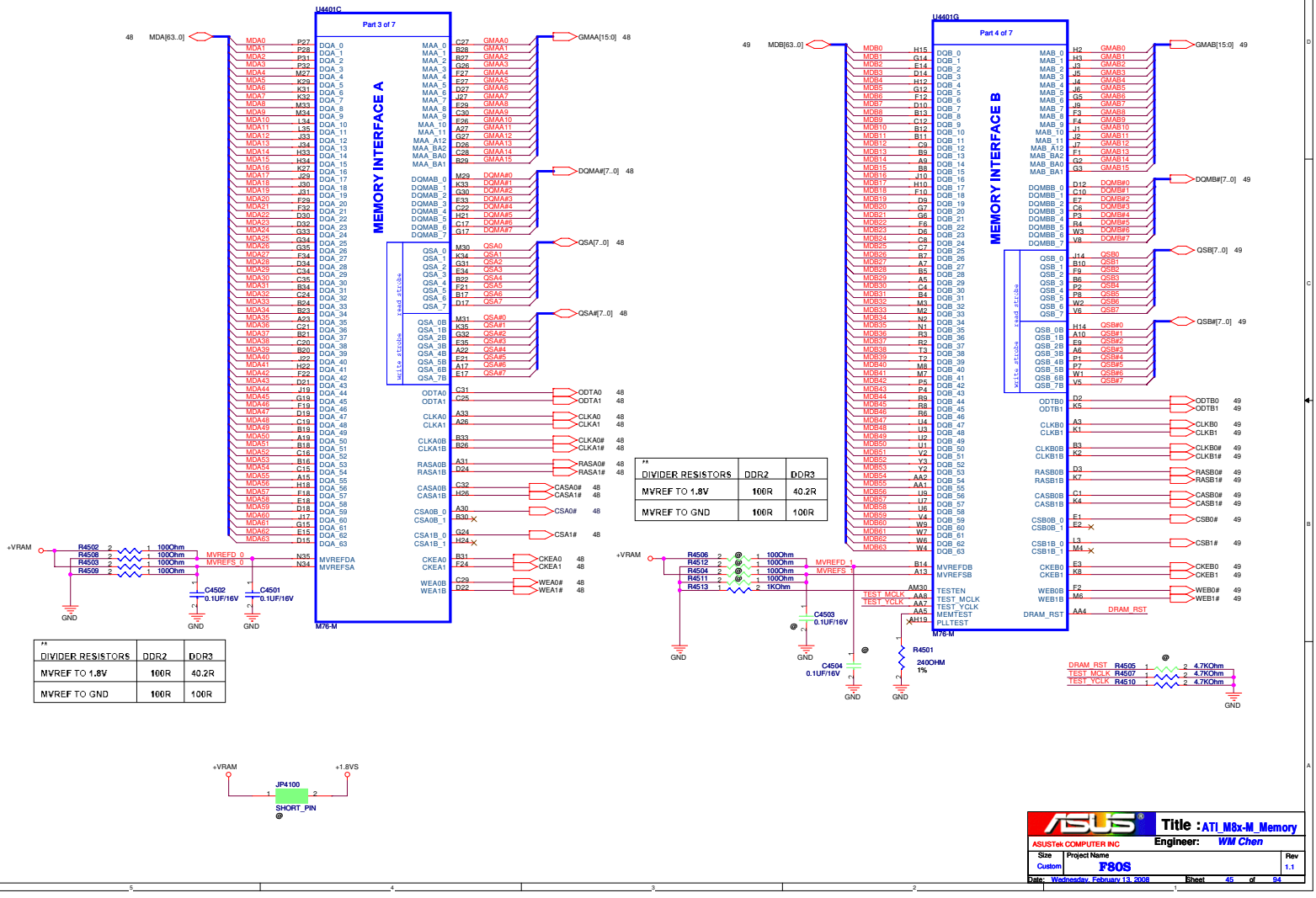
DDC
DDC1DATA AM29
DDC1CLK AL29
CRT_DDC_DATA 16
CRT_DDC_CLK 16
DDC2DATA AL15
DDC2CLK AH15
DDC3DATA AJ5
DDC3CLK AJ4
HDMI_DDC_DATA 18
HDMI_DDC_CLK 18
DDC4DATA AH14
DDC4CLK AG14

Close to GPU
RB_DAC1
GB_DAC1
BB_DAC1
R4440 37.4Ohm
R4443 37.4Ohm
R4441 37.4Ohm
R1.01
Item 56

R1.01
Item 89
+3VS
D4401 1SS355
R4411 100KOhm 0402
+12VS
R4459 0805 0Ohm
+3VSG
R1.01
Item 78
Q4405 PMN45EN
C4466 0.033UF/16V MLCC/+/-10%

H4401 USF-M-EXPREE
H4402 USF-M-EXPREE
GND
VGA NUT
R1.01
Item 62

ASUSTeK COMPUTER INC
Title : ATI M8x-M MAIN
Engineer: Will Chen
Size C
Project Name F8OS
Rev 1.1
Date: Wednesday, February 13, 2008
Sheet 44 of 94



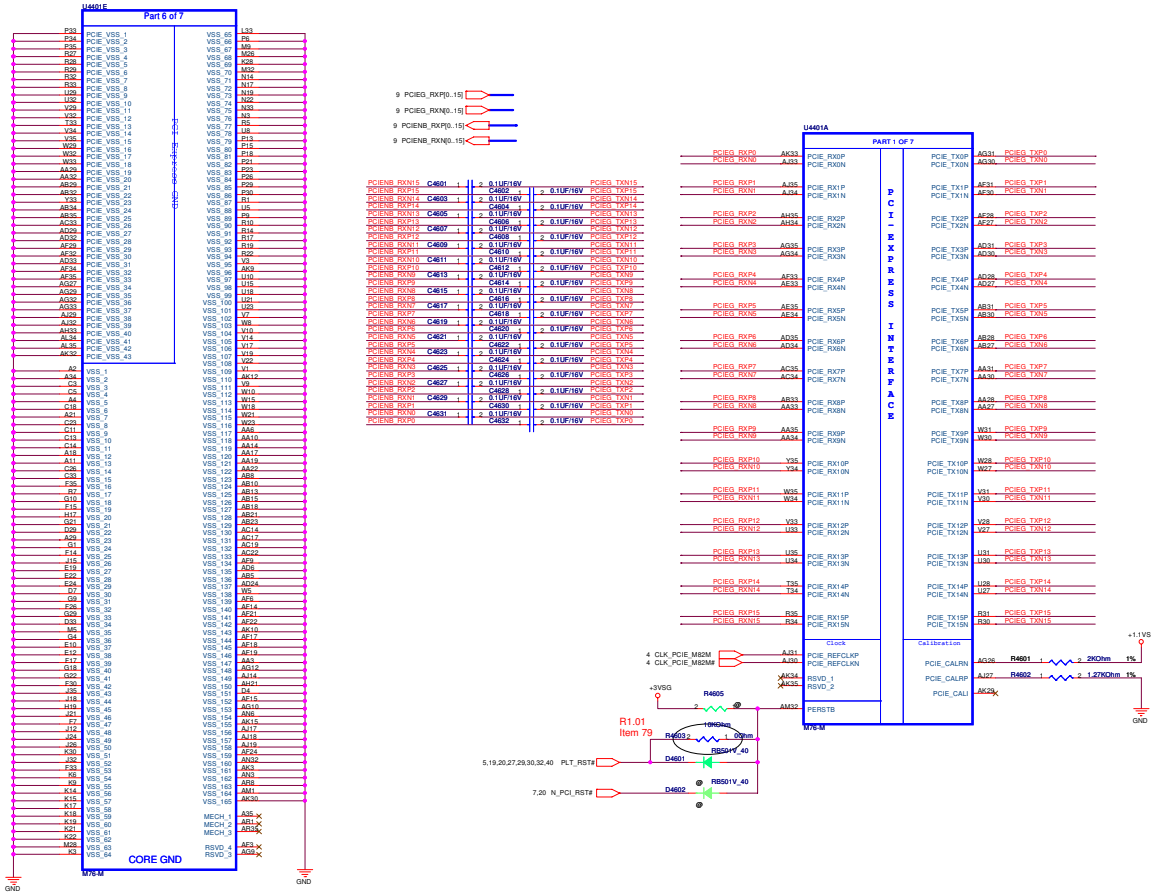
ASUSTeK COMPUTER INC

Title : ATI_M8x-M_Memory

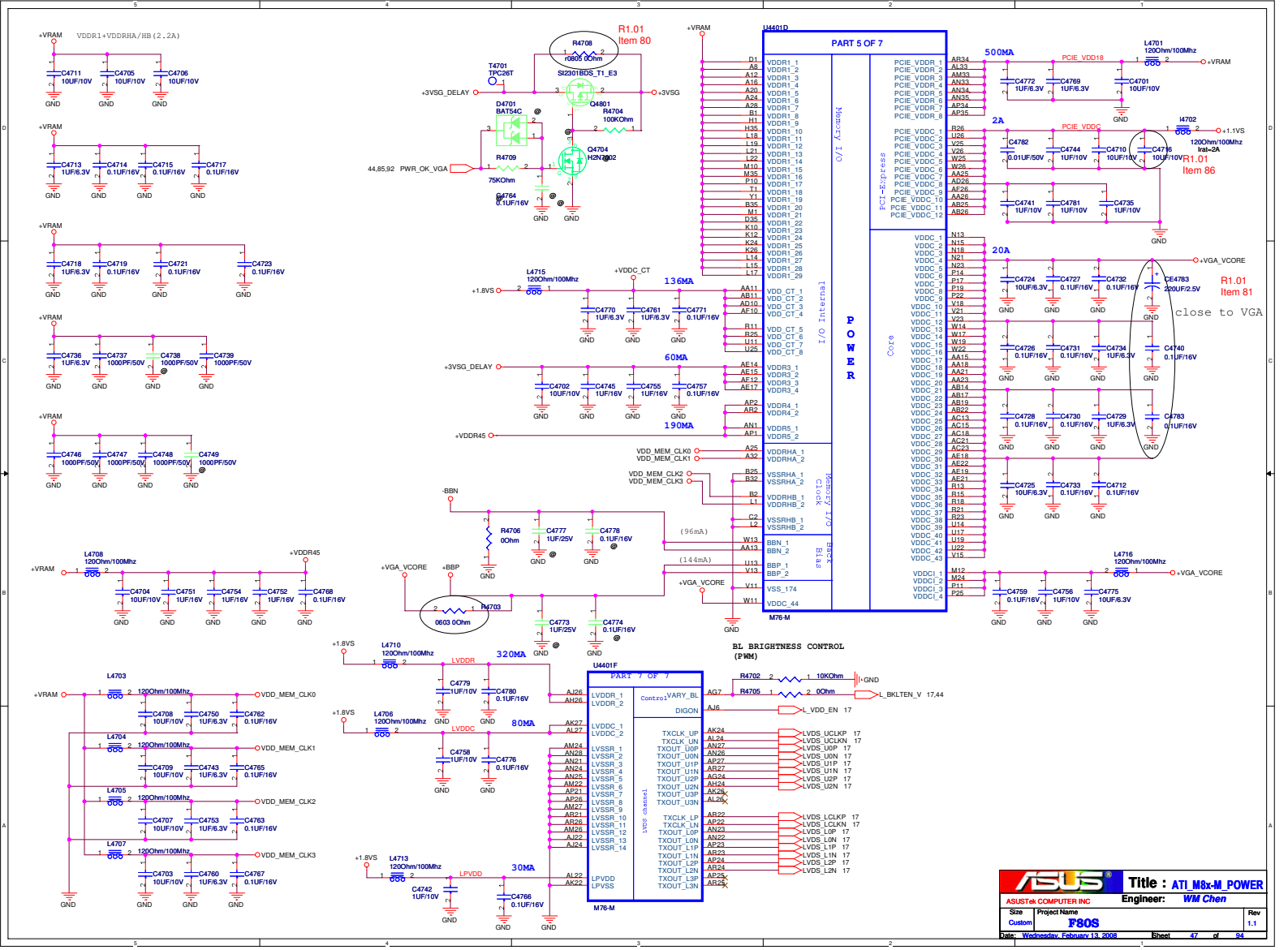
Engineer: WM Chen

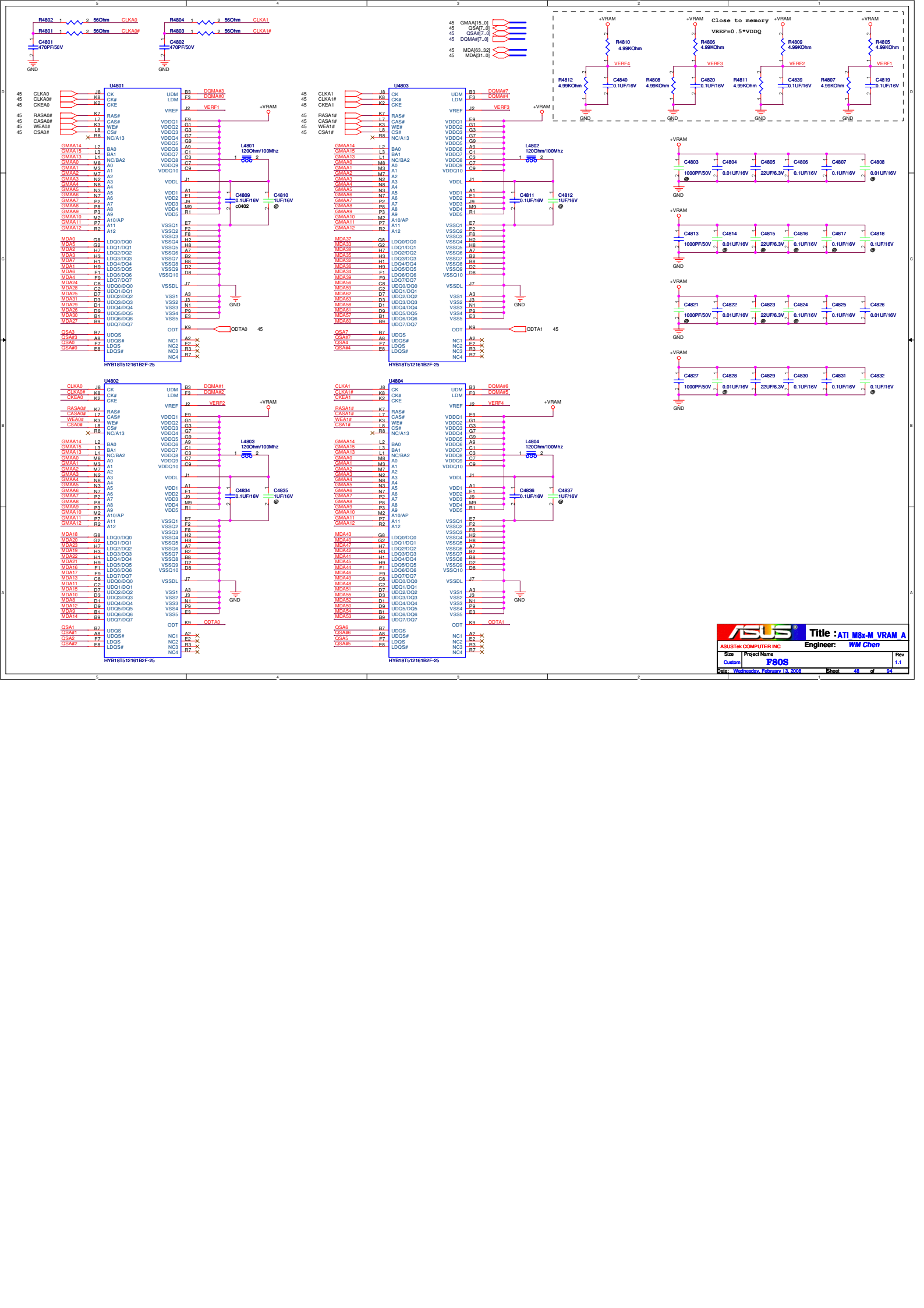
Size	Project Name	Rev
Custom	F8OS	1.1

Date: Wednesday, February 13, 2008 Sheet 45 of 94

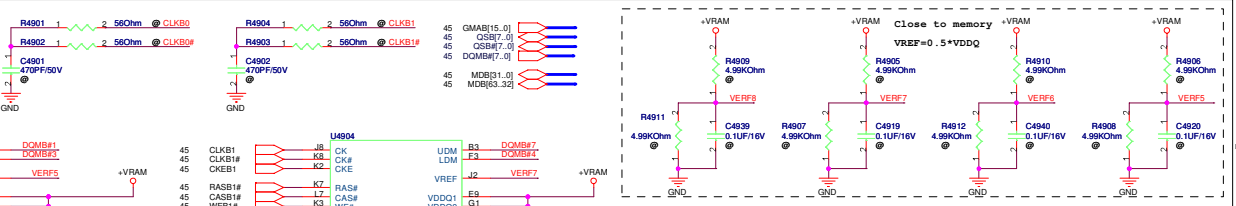


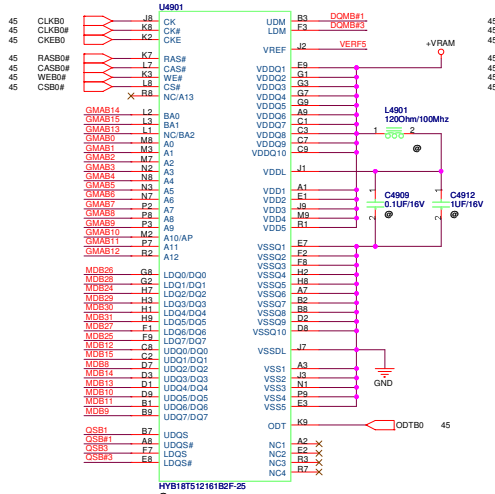
ASUSTeK COMPUTER INC	Title : ATI_M8x-M_PCI-E	
	Engineer: WM Chen	
Size: C	Project Name: F8OS	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 48 of 94	

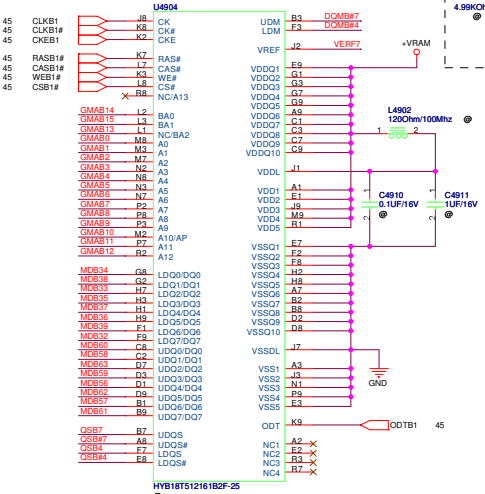

VDDR1+VDDRHA/HB(2.2A)
R1.01
Item 80
R4708
r0805 0Ohm
T4701
TPC26T
SI2301BDS_T1_E3
Q4801
R4704
100KOhm
D4701
BAT54C
Q4704
H2N7002
R4709
75KOhm
C4764
0.1UF/16V
44,85,92 PWR_OK_VGA
+3VSG_DELAY
+3VSG
+VRAM
U4401D
PART 5 OF 7
Memory I/O
I/O Internal
POWER
Core
PCI-Express
500MA
2A
20A
136MA
60MA
190MA
PCIE_VDD18
PCIE_VDDC
L4701
120Ohm/100Mhz
I4702
120Ohm/100Mhz
Irat=2A
R1.01
Item 86
+1.1VS
+VGA_VCORE
CE4783
220UF/2.5V
R1.01
Item 81
close to VGA
L4715
120Ohm/100Mhz
+1.8VS
+VDDC_CT
+VDDR45
VDD_MEM_CLK0
VDD_MEM_CLK1
VDD_MEM_CLK2
VDD_MEM_CLK3
Memory I/O
Back
-BBN
+BBP
R4706
0Ohm
C4777
1UF/25V
C4778
0.1UF/16V
(96mA)
(144mA)
R4703
0603 0Ohm
C4773
1UF/25V
C4774
0.1UF/16V
L4708
120Ohm/100Mhz
L4703
L4704
L4705
L4707
L4710
120Ohm/100Mhz
L4706
120Ohm/100Mhz
L4713
120Ohm/100Mhz
L4716
120Ohm/100Mhz
LVDDR
LVDDC
LPVDD
320MA
80MA
30MA
U4401F
PART 7 OF 7
M76-M
BL BRIGHTNESS CONTROL
(PWM)
R4702
10KOhm
R4705
0Ohm
L_BKLTEN_V 17,44
L_VDD_EN 17
LVDS channel
LVDS_UCLKP 17
LVDS_UCLKN 17
LVDS_U0P 17
LVDS_U0N 17
LVDS_U1P 17
LVDS_U1N 17
LVDS_U2P 17
LVDS_U2N 17
LVDS_LCLKP 17
LVDS_LCLKN 17
LVDS_L0P 17
LVDS_L0N 17
LVDS_L1P 17
LVDS_L1N 17
LVDS_L2P 17
LVDS_L2N 17
Title : ATI M8x-M_POWER
ASUSTek COMPUTER INC
Engineer: WM Chen
Size Custom
Project Name F8OS
Rev 1.1
Date: Wednesday, February 13, 2008
Sheet 47 of 94

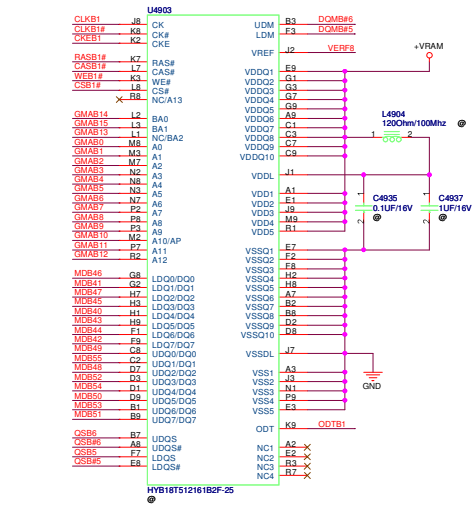

R4802 56Ohm CLKA0
R4801 56Ohm CLKA0#
C4801 470PF/50V
R4804 56Ohm CLKA1
R4803 56Ohm CLKA1#
C4802 470PF/50V
GND
45 GMAA[15..0]
45 QSA[7..0]
45 QSA#[7..0]
45 DQMA[7..0]
45 MDA[63..32]
45 MDA[31..0]
Close to memory
VREF=0.5*VDDQ
+VRAM
R4810 4.99KOhm
R4806 4.99KOhm
R4809 4.99KOhm
R4805 4.99KOhm
VERF4
VERF3
VERF2
VERF1
R4812 4.99KOhm
R4808 4.99KOhm
R4811 4.99KOhm
R4807 4.99KOhm
C4840 0.1UF/16V
C4820 0.1UF/16V
C4839 0.1UF/16V
C4819 0.1UF/16V
U4801
U4803
U4802
U4804
HYB18T512161B2F-25
L4801 120Ohm/100Mhz
L4802 120Ohm/100Mhz
L4803 120Ohm/100Mhz
L4804 120Ohm/100Mhz
C4809 0.1UF/16V c0402
C4810 1UF/16V @
C4811 0.1UF/16V
C4812 1UF/16V @
C4834 0.1UF/16V
C4835 1UF/16V @
C4836 0.1UF/16V
C4837 1UF/16V @
ODTA0
ODTA1
C4803 1000PF/50V @
C4804 0.01UF/16V @
C4805 22UF/6.3V @
C4806 0.1UF/16V @
C4807 0.1UF/16V @
C4808 0.01UF/16V @
C4813 1000PF/50V @
C4814 0.01UF/16V @
C4815 22UF/6.3V @
C4816 0.1UF/16V @
C4817 0.1UF/16V @
C4818 0.01UF/16V @
C4821 1000PF/50V @
C4822 0.01UF/16V @
C4823 22UF/6.3V @
C4824 0.1UF/16V @
C4825 0.1UF/16V @
C4826 0.01UF/16V @
C4827 1000PF/50V @
C4828 0.01UF/16V @
C4829 22UF/6.3V @
C4830 0.1UF/16V @
C4831 0.1UF/16V @
C4832 0.01UF/16V @
Title : ATI M8x-M_VRAM_A
ASUSTeK COMPUTER INC
Engineer: WM Chen
Size Custom
Project Name F8OS
Rev 1.1
Date: Wednesday, February 13, 2008
Sheet 48 of 94

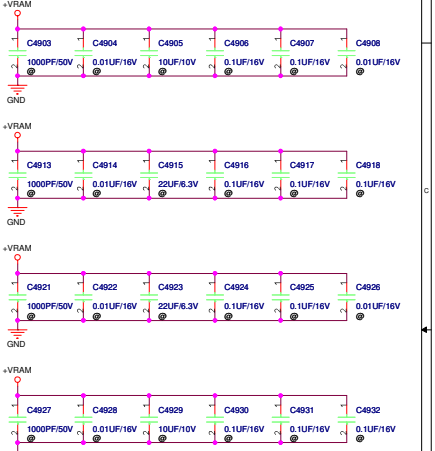
DO NOT INSTALL CHANNEL B
WITH M82M











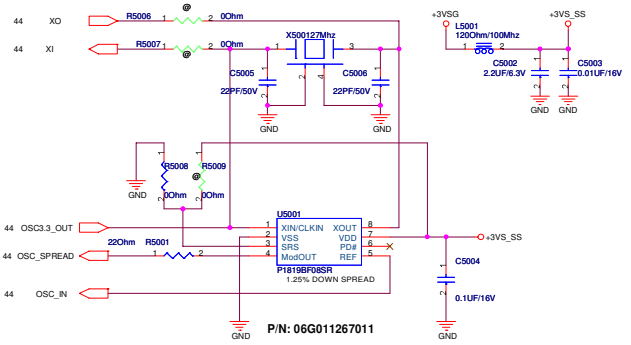
ASUSTeK COMPUTER INC

Title : ATI_M8x-M_VRAM_B

Engineer: WM Chen

Size	Project Name	Rev
Custom	F8OS	1.1

Date: Wednesday, February 13, 2008 Sheet 49 of 94



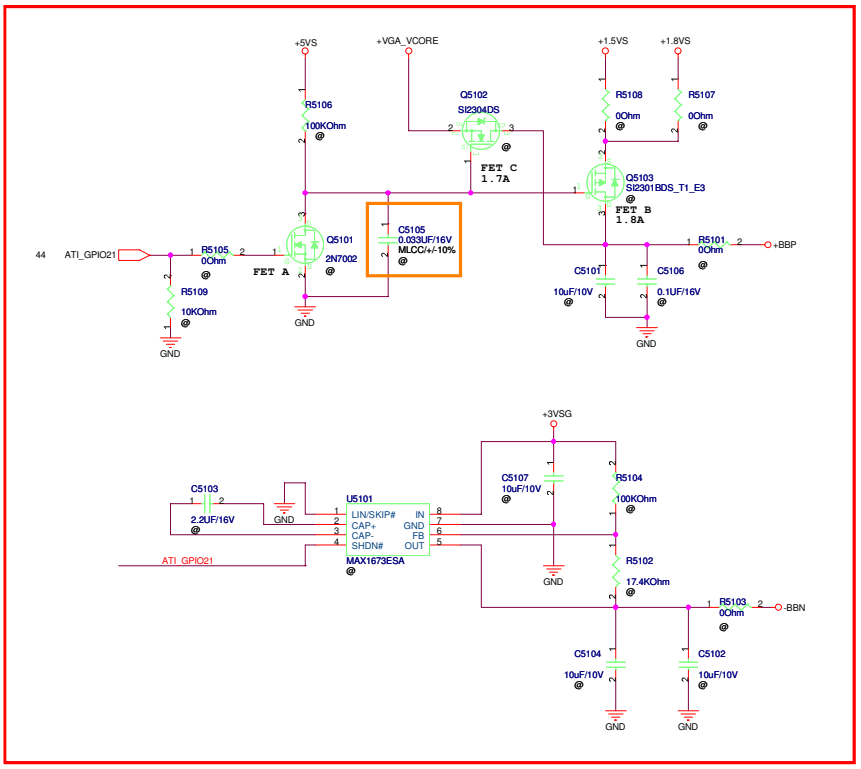
P/N: 06G011267011

OPTIONAL SPREAD SPECTRUM

ASUSTeK COMPUTER INC		Title : Blank Page	
		Engineer: WM Chen	
Size: Custom	Project Name: F80S		Rev: 1.1
Date: Wednesday, February 13, 2008		Sheet 50 of 94	

COMPONENTS SHOWN ARE EXAMPLES ONLY
AND NOT NECESSARILY QUALIFIED

R0.4
Item 30



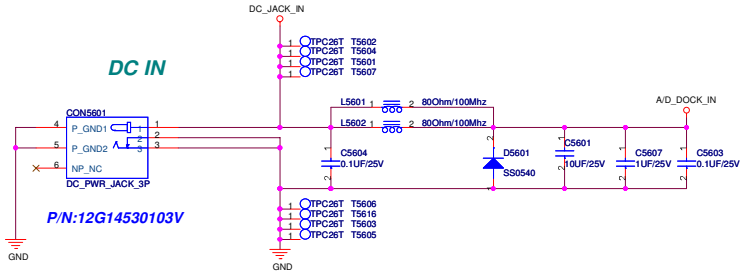
BB_ENA = 0V FOR BACK BIASING DISABLED
MAX1673 SHUTDOWN
-BBN = 0V VIA MAX1673 INTERNAL 1 OHM TO GROUND
N FET A = OFF, P FET B = OFF, N FET C = ON
+BBP = +VGA_CORE

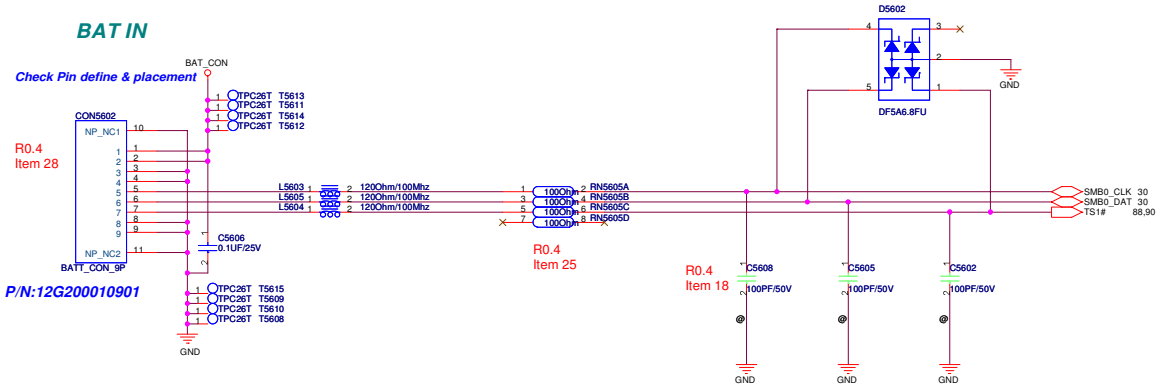
BB_ENA = +3.3V FOR BACK BIASING ENABLED
MAX1673 ENABLED
-BBN = -.5V
N FET A = ON, P FET B = ON, N FET C = OFF
+BBP = +1.5V

GPIO_21_BB_EN	+BBP
0	1.1V
1	1.5V

GPIO_21_BB_EN	-BBN
0	GND
1	-0.5V

ASUSTeK COMPUTER INC. NB1	Title : BACK BIAS	
	Engineer: WM Chen	
Size: B	Project Name: F80S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 51 of 94	





ASUSTeK COMPUTER INC. NB1	Title : AC/BAT JACK	
	Engineer: WM Chen	
Size: Custom	Project Name: F80S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 56 of 94	

R0.4
Item 31

ASUSTeK COMPUTER INC. NB1	Title : Empty		
	Engineer: WM Chen		
Size: A	Project Name: F80S		Rev: 1.1
Date: Wednesday, January 30, 2008	Sheet 57 of 94		

Title :	BLANK
ASUSTeK COMPUTER INC. NB1	Engineer: WM Chen
Size: A	Project Name: F80S
Rev: 1.1	
Date: Wednesday, January 30, 2008	Sheet 58 of 94

R0.4 revision history:

1. Delete R511,R515,D503,C503,C509,Q505,R506 from 100K change to 0ohm for better signal quality .
2. Change D3302,D3303,D2107 from 1SS355 to 1N4148WS-L for cost down.
3. Change D3401,D3402,D2601,D2603 to BAT54WAPT for cost down and common part.
4. Change D2106 to BAT54C for cost down.
5. Change U1701 to AH180-WG-7 for cost down.
6. Delete RN301,RN302 for not use on board CPU cost down.
7. Add R3047~R3050 for newcard debug card.
8. Change CAP_ACK# from pin24 to pin63 for EC(page30) pin assignment R0.06.
9. Add R3028 for net:AC_IN_OC# pull hi.
10. Change C3002 from 1uF to 0.1uF for cost down.
11. Change Q4203 from 2N7002 to PMBS3904 for cost down and MIC jack.
12. Unmount R1727 for pull hi in p34.Change L1716 to R1710 for U1701 on MB.
13. Change USB connector J2401~ J2403.
14. Unmount C3102 for cost down.
15. Reserve R3810 for prevent power short cause large current.
16. Change R3404,R3403,R3412,R3414 from 4.7K to 10K for power saving.
17. Change L3601,L3605 to R3622,R3623 for EMI fine tune cost down.
18. Unmount C5608,C5605,C5602 for EMI fine tune cost down.
19. Change R2505,R2506 from 680ohm to 2.7Kohm for 1W speaker.
20. Change CON3303,J2601 part number for ME request.
21. Change U2601 from TI to GMT,C2609 to 0.1uF for cost down.
22. Change card reader connector J2701 part number for connector in bottom side.
23. Change U2501 from 660 to 662 for the logo request codec need 2-ADC after 2008/6.
24. Reserve C3051 for fine tune CLK_ECPCI.
25. Add RN5605 for protect EC to prevent voltage damage.
26. Change CON3802 pin assignment for use W7 BT cable.
27. Unmount R2611 for ALC662 not need.
28. Change SW3901,SW3902,SW3801,SW3802,SW3803,J2801,CON5602,BAT2101,CON3801,CON3803 part number for ME request.
29. Delete D3301 for cost down.
30. Add VGA Back Bias on page51 for power play function
31. +1.2VSUS from page57 change to page82 for power circuit
32. Delete H_PWRGD_EC (Q202,R233) because it's not necessary.

R0.5 revision history:

33. Reserve CON1901 pin24 to +3VAUX for Azurewave's Wireless-Lan Card.
34. Modify p25,p26 for colay ALC662 and ALC663 for sales recommand.
35. Change KB connector CON3101 part number for ME request.
36. Change Screw hole for ME request.
37. Change CON3602 part number for ME request.
38. Cap. Array CN3101~CN3106 from 0805 change to 1206 size.
39. Add H4401,H4402 VGA NUT
40. Reserve internal mic J2803 for experiment.
41. Reserve U3502,U2103 circuit for experiment.
42. Add U1601,U1602 for NB output 3.3V level cost down.
43. Change page34 LED schematic for use Blue LED.
44. Reserve C3812,C3813 for EMI request TP_GND.
45. Modify Page 22,32 for sales require SATA ODD.
46. Change SW3801,SW3802 part number for ME request.
47. Change U3001 part number for cost down.
48. Reserve R208,C202 for H_CPURST#.
49. Add U3801 for EMI request.
50. Add RN1801~RN1804 for EMI request.
51. Delete VRAM termination
52. Add Q4405,R4411,C4466 for +3VSG
53. Change Hall-sensor U1701 part number for ME request.

R1.01 revision history:

54. Unmount R4428 for leakage current issue.
55. Change R4435 from 71.5 to 150 for SIS request.
56. Mount R4440,R4441,R4443 37.4 ohm for VGA issue.
57. Change SATA ODD Connector CON3203 part number for ME request.
58. Change J2801 connector for Wire-MIC,change R2802 from 4.7K to 2.2K after test internal mic performance.
59. ADD D3603,C3609 for LAN ESD solution.
60. Change L1709,L3801,L3804,L3301,L3302,L3304,L2901 part number for colay footprint.
61. Change R3407,LED3403 value for meet factory LED spec.
62. Change VGA NUT H4401,H4402 to 13G021036001 for Thermal request.
63. Add D3201 IP4220CZ6 and R2225, R2226, R3217, R3218 0 ohm for EMI request.
64. Add C1218, C1707, C1814, C3304 0.1UF for EMI request.
65. Change R1402 from 22 to 10 for DDR Feedback quality.
66. Change Screw hole H4103, H4104, H4108 and Add H4131 for ME request.
67. Change USB external ports for controller.
68. Change CON3602 RJ11+45 part number for ME request.
69. Change R1705 from 100ohm to 330ohm for meet panel spec.
70. Add R2730 for factory recovery AU6371 driver CD.
71. Change R2505,R2506 from 2.7K to 3.3K for HDD-Speaker resonance issue.
72. Change C410,C417,C2101,C2115,C2715,C2716,C3006,C3010 value for TXC report suggest.
73. Del R1816,R1817 for SMT colay request.
74. Add R310 for +VCCA_CPU voltage ripple.
75. Add C2355 2.2uf for SB issue.
76. Unmount R3017,C3001,U3003,C3008,mount R3036,D3003,C3013,R3035,Add R3039 for cost down.
77. Add C3514 for Lan issue.
78. Mount R4459 and unmount Q4405, R4411,C4466 for cost down.
79. Add R4603 and unmount D4601 for cost down.
80. Mount R4708 and unmount Q4801,Q4704,R4709,R4704 for cost down.
81. ADD CE4783 220UF,C4740,C4783 0.1UF for VGA issue.
82. Mount R1611,R1612 from 0 ohm to 33 ohm and mount C1606,C1607 for meet spec.
83. Change CON3201 part number for ME request.
84. Add R2122,R2186 for SB issue.
85. Add C3305 22UF for meet spec.
86. Add C1905,C2727,C4333,C4334,C4335,C4716,Del C4331 for meet spec.
87. Del CE3202 100UF and Add C3209 47UF for ME request.
88. Change CE2601,CE2602 from 27uF to 47uF for better Low frequency response.
89. Add D4401,R3717,Q3709 for meet VGA spec.

ASUSTeK COMPUTER INC. NB1	Title :	
	Engineer: WM Chen	
Size: Custom	Project Name: F80S	Rev: 1.1
Date: Wednesday, January 30, 2008	Sheet 59 of 94	

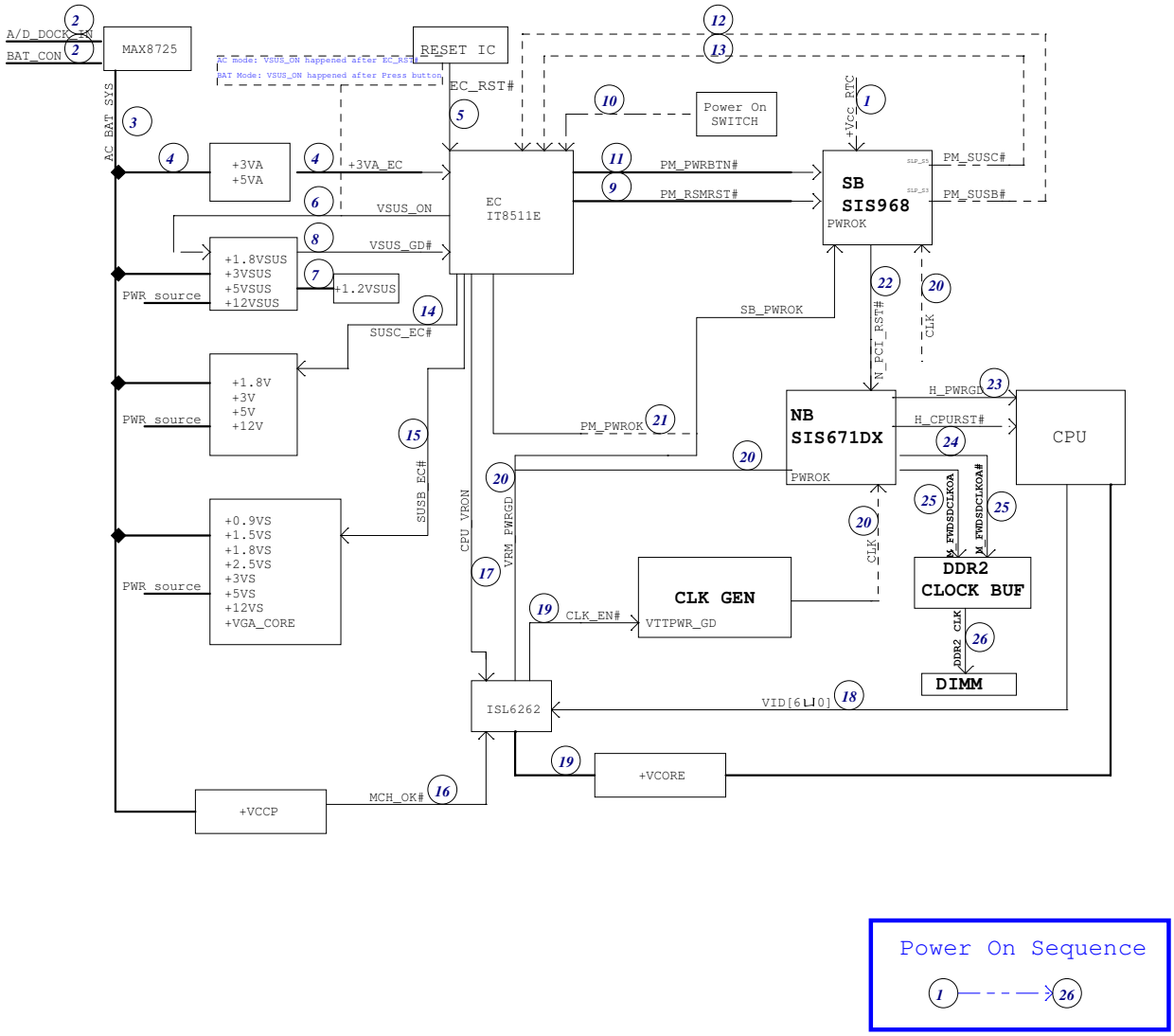
Title : BLANK

ASUSTeK COMPUTER INC. NB1

Engineer: WM Chen

Size	Project Name	Rev
Custom	F80S	1.1

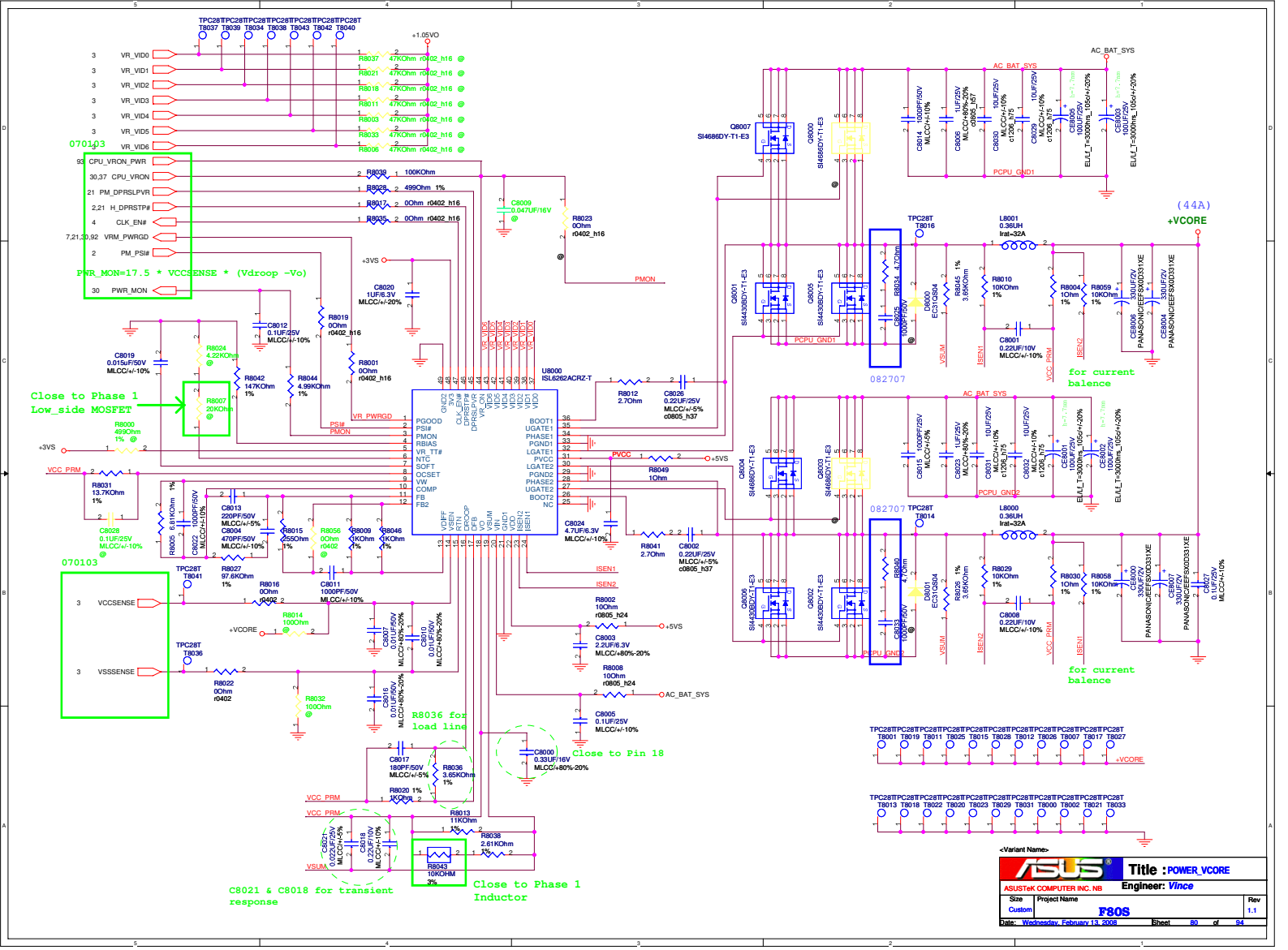
Date: Wednesday, January 30, 2008 Sheet 60 of 94

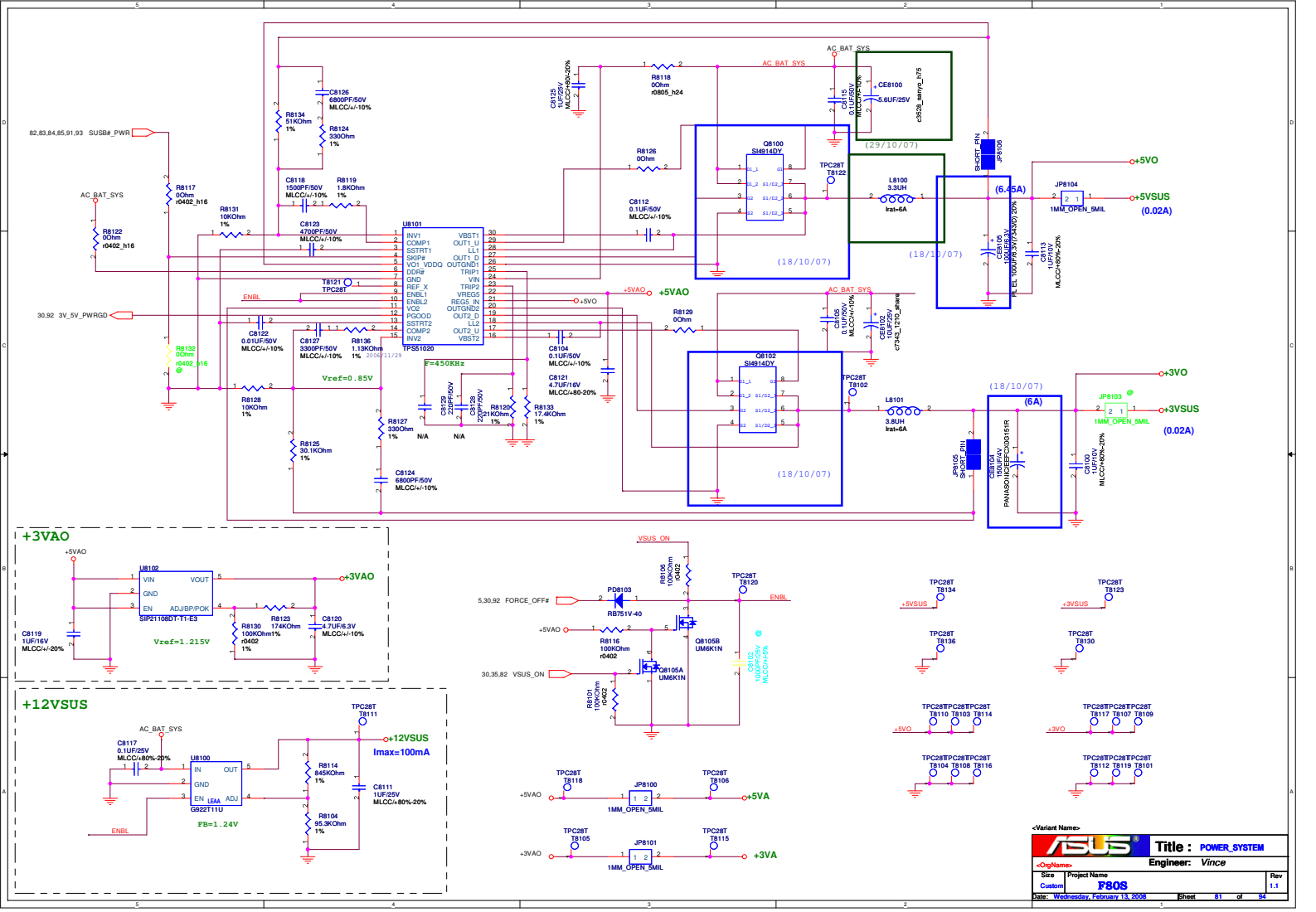


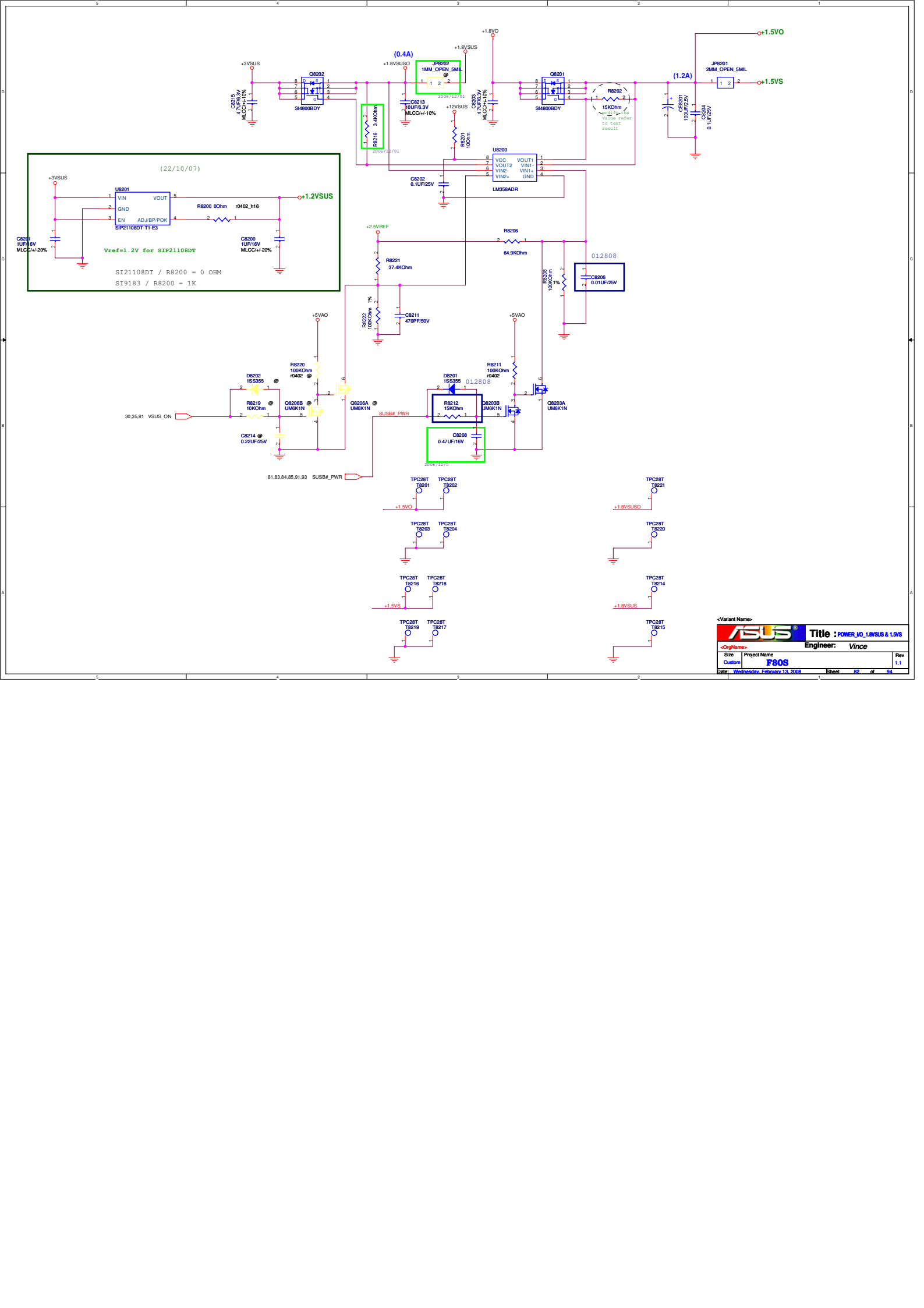
Power On Sequence

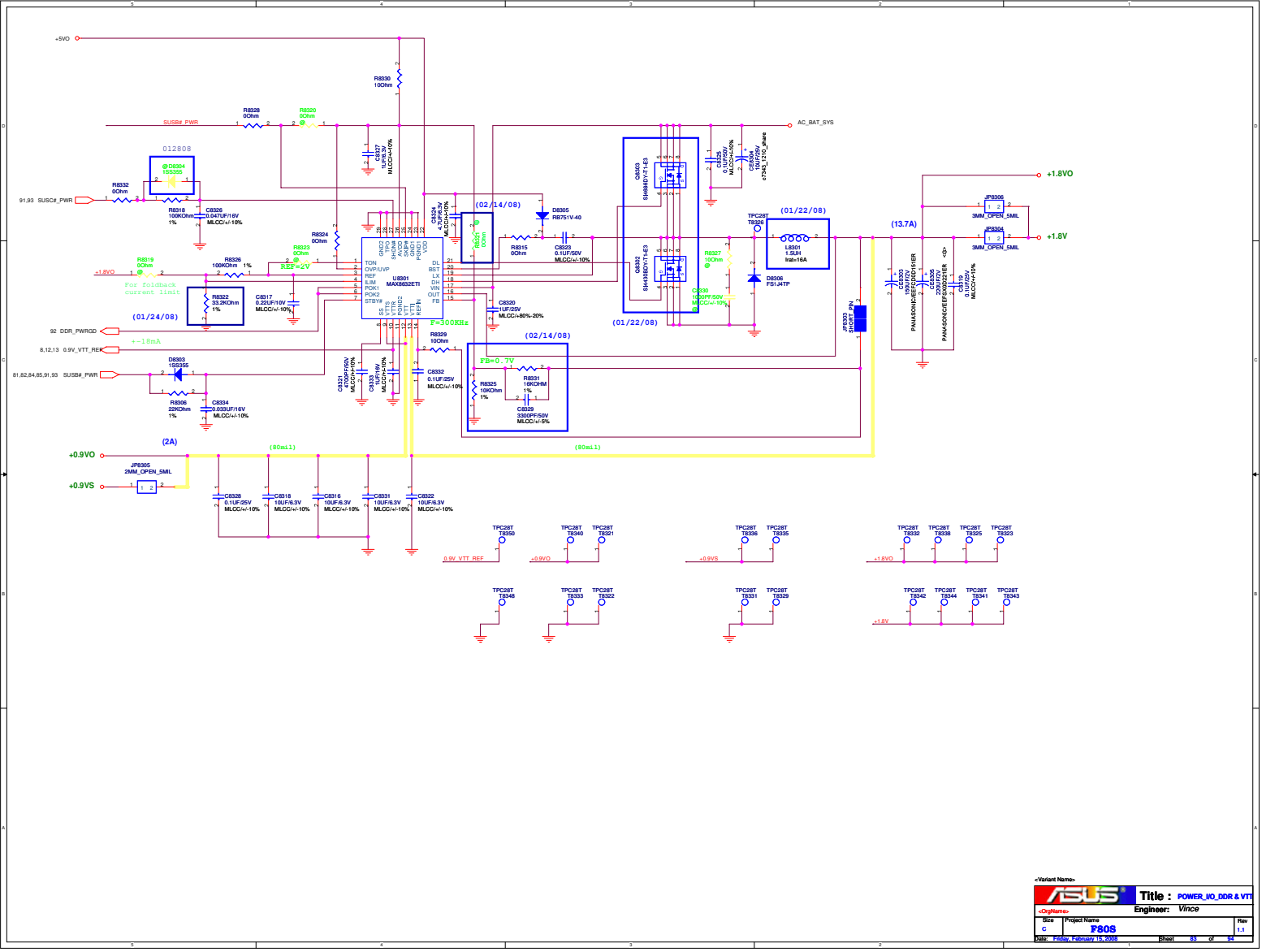
1 ---- 26

ASUSTeK COMPUTER INC. NB1		Title : Power sequence	
		Engineer: WM Chen	
Size: C	Project Name: F8OS		Rev: 1.1
Date: Wednesday, January 30, 2008		Sheet 79 of 94	


PWR_MON=17.5 * VCCSENSE * (Vdroop -Vo)
Close to Phase 1
Low_side MOSFET
R8036 for
load line
Close to Pin 18
C8021 & C8018 for transient
response
Close to Phase 1
Inductor
for current
balence
for current
balence
U8000
ISL6262ACRZ-T
Q8007
SI4686DY-T1-E3
Q8000
SI4686DY-T1-E3
Q8001
SI4436BDY-T1-E3
Q8005
SI4436BDY-T1-E3
Q8004
SI4686DY-T1-E3
Q8003
SI4686DY-T1-E3
Q8006
SI4436BDY-T1-E3
Q8002
SI4436BDY-T1-E3
+VCORE
(44A)
AC_BAT_SYS
PCPU_GND1
PCPU_GND2
VCC_PRM
VSUM
ISEN1
ISEN2
082707
082707
ASUSTeK COMPUTER INC. NB
Title : POWER_VCORE
Engineer: Vince
Project Name
F80S
Rev
1.1
Size
Custom
Date: Wednesday, February 13, 2008
Sheet 80 of 94


AC_BAT_SYS
82,83,84,85,91,93 SUSB#_PWR
30,92 3V_5V_PWRGD
ENBL
Vref=0.85V
F=450KHz
U8101
TPS51020
+5VAO
+3VO
+3VSUS
(0.02A)
(6.45A)
(6A)
(18/10/07)
(29/10/07)
+3VAO
U8102
SIP21108DT-T1-E3
Vref=1.215V
+12VSUS
Imax=100mA
U8100
G922T11U
FB=1.24V
VSUS_ON
5,30,92 FORCE_OFF#
30,35,82 VSUS_ON
PD8103
RB751V-40
Q8105B UM6K1N
Q8105A UM6K1N
JP8100
JP8101
1MM_OPEN_5MIL
+5VA
+3VA
<Variant Name>
Title : POWER_SYSTEM
Engineer: Vince
<OrgName>
Size Custom
Project Name F80S
Rev 1.1
Date: Wednesday, February 13, 2008
Sheet 81 of 94


(22/10/07)
+3VSUS
U8201
VIN
VOUT
GND
EN
ADJ/BP/POK
SIP21108DT-T1-E3
+1.2VSUS
R8200 0Ohm r0402_h16
C8201 1UF/16V MLCC/+/-20%
C8200 1UF/16V MLCC/+/-20%
Vref=1.2V for SIP21108DT
SI21108DT / R8200 = 0 OHM
SI9183 / R8200 = 1K
+3VSUS
Q8202
SI4800BDY
C8215 4.7UF/6.3V MLCC/+/-10%
+1.8VSUSO
(0.4A)
JP8202 1MM_OPEN_5MIL
2006/12/01
C8213 10UF/6.3V MLCC/+/-10%
R8218 3.4KOhm
2006/12/01
+1.8VSUS
+12VSUS
R8201 10Ohm
+1.8VO
C8203 4.7UF/6.3V MLCC/+/-10%
Q8201
SI4800BDY
R8202 15KOhm
Vendor Use Value refer to test result
(1.2A)
JP8201 2MM_OPEN_5MIL
+1.5VO
+1.5VS
CE8201 100UF/2.5V
C8204 0.1UF/25V
U8200
VCC
VOUT1
VOUT2
VIN1-
VIN2-
VIN1+
VIN2+
GND
LM358ADR
C8202 0.1UF/25V
+2.5VREF
R8206 64.9KOhm
012808
C8206 0.01UF/25V
R8208 100KOhm 1%
R8221 37.4KOhm
R8222 100KOhm 1%
C8211 470PF/50V
+5VAO
R8220 100KOhm r0402 @
D8202 1SS355 @
R8219 @ 10KOhm
Q8206B @ UM6K1N
C8214 @ 0.22UF/25V
30,35,81 VSUS_ON
Q8206A @ UM6K1N
SUSB#_PWR
R8211 100KOhm r0402
D8201 1SS355
012808
R8212 15KOhm
Q8203B UM6K1N
Q8203A UM6K1N
C8208 0.47UF/16V
2006/12/5
81,83,84,85,91,93 SUSB#_PWR
TPC28T T8201
TPC28T T8202
+1.5VO
TPC28T T8203
TPC28T T8204
TPC28T T8216
TPC28T T8218
+1.5VS
TPC28T T8219
TPC28T T8217
TPC28T T8221
+1.8VSUSO
TPC28T T8220
TPC28T T8214
+1.8VSUS
TPC28T T8215
<Variant Name>
Title : POWER_I/O_1.8VSUS & 1.5VS
<OrgName>
Engineer: Vince
Size Custom
Project Name F80S
Rev 1.1
Date: Wednesday, February 13, 2008
Sheet 82 of 94



<Variant Name>

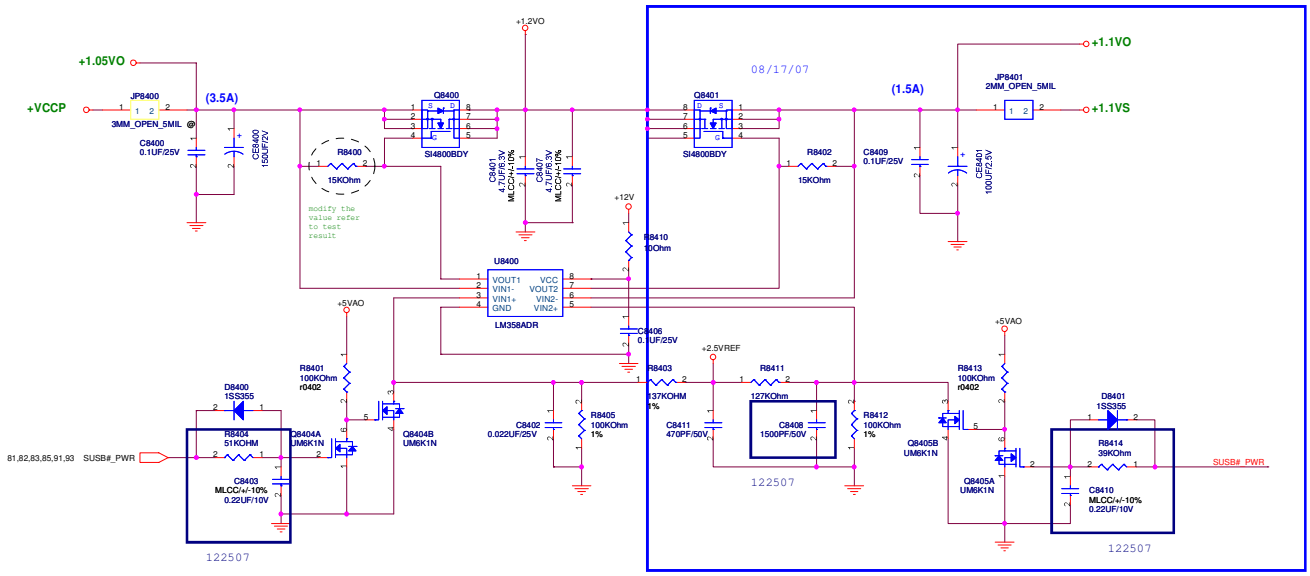
<OrgName>

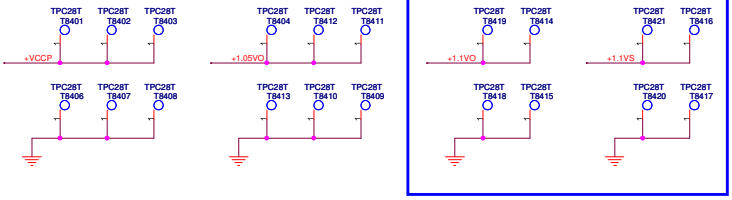
Title : POWER_I/O_DDR & VTT

Engineer: Vince

Size	Project Name	Rev
C	F8OS	1.1

Date: Friday, February 15, 2008 Sheet 83 of 94

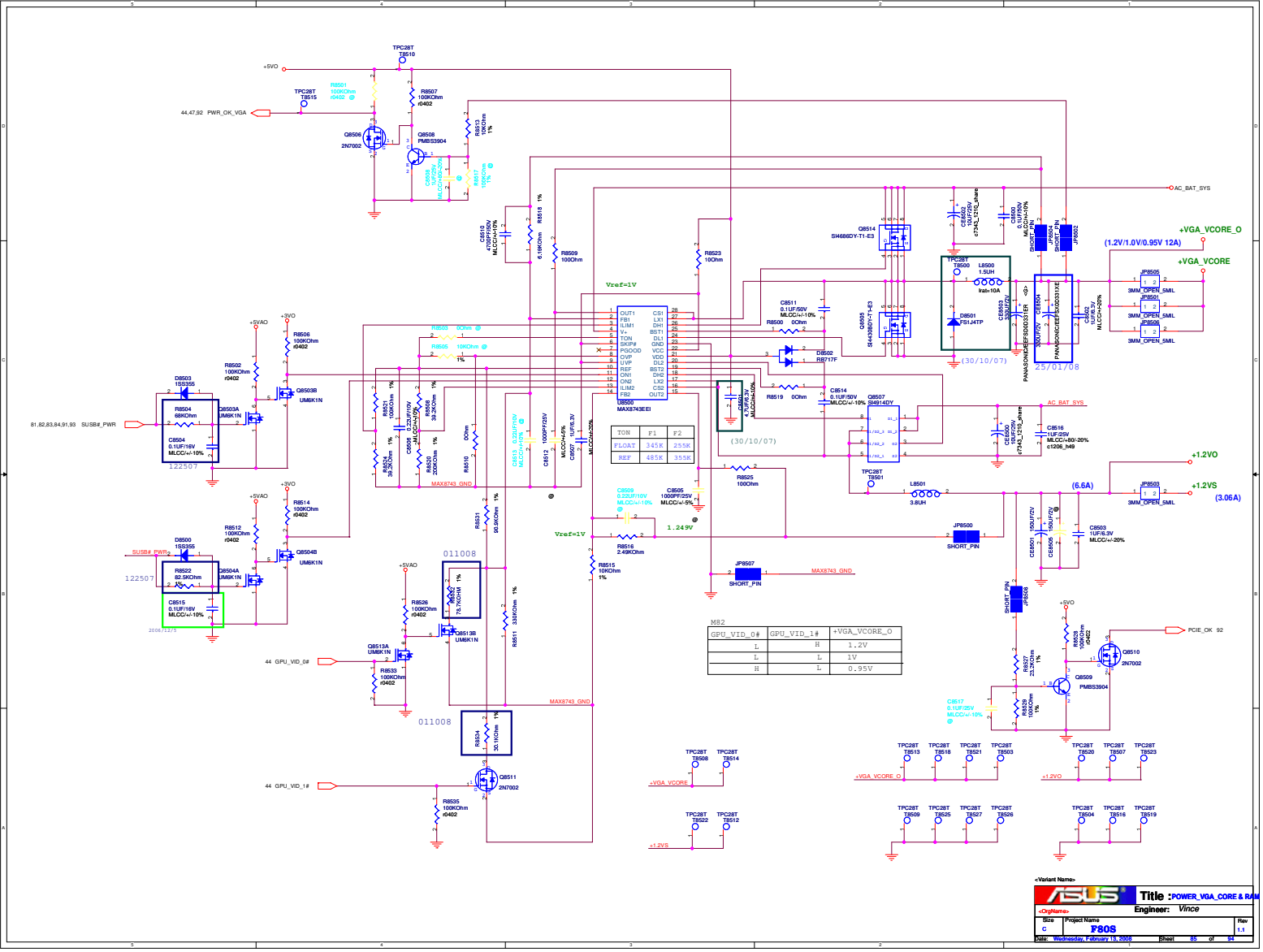




<Variant Name>

<OrgName>	Engineer: Vince	
Size: Custom	Project Name: F80S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 84 of 94	

Title : POWER_I/O_VCCP & 1.1VS


MAX8743EEI
Vref=1V
1.249V
MAX8743_GND
AC_BAT_SYS
+VGA_VCORE_O
(1.2V/1.0V/0.95V 12A)
+VGA_VCORE
+1.2VO
+1.2VS
(3.06A)
(6.6A)
PCIE_OK 92
SUSB#_PWR
81,82,83,84,91,93 SUSB#_PWR
44,47,92 PWR_OK_VGA
44 GPU_VID_0#
44 GPU_VID_1#
M82
GPU_VID_0# | GPU_VID_1# | +VGA_VCORE_O
L | H | 1.2V
L | L | 1V
H | L | 0.95V
TON | F1 | F2
FLOAT | 345K | 255K
REF | 685K | 355K
<Variant Name>
Title : POWER_VGA_CORE & RAM
Engineer: Vince
F80S
Wednesday, February 13, 2008

<Variant Name>

Title : N/A

<OrgName>

Engineer: Vince

Size	Project Name	Rev
B	F80S	1.1

Date: Wednesday, January 30, 2008 Sheet 86 of 94

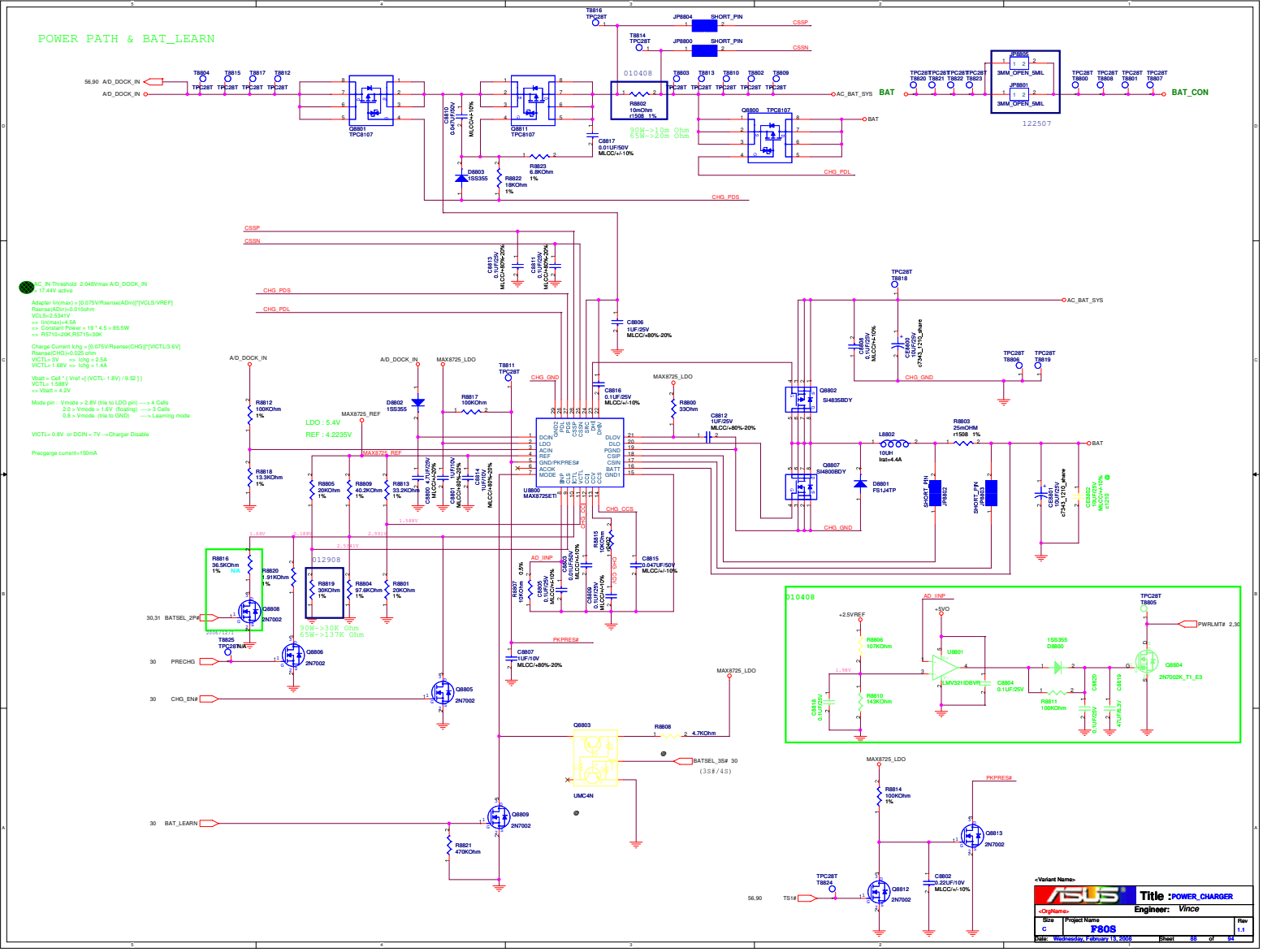
<Variant Name>

Title : N/A

<OrgName> Engineer: Vince

Size	Project Name	Rev
Custom	F80S	1.1

Date: Wednesday, January 30, 2008 Sheet 87 of 94


POWER PATH & BAT_LEARN
AC_IN Threshold 2.048Vmax A/D_DOCK_IN
: 17.44V active
Adapter Iin(max) = [0.075V/Rsense(ADin)]*[VCLS/VREF]
Rsense(ADin)=0.010ohm
VCLS=2.534V
=> Iin(max)=4.5A
=> Constant Power = 19 * 4.5 = 85.5W
=> R5710=20K,R5715=30K
Charge Current Ichg = [0.075V/Rsense(CHG)]*[VICTL/3.6V]
Rsense(CHG)=0.025 ohm
VICTL= 3V => Ichg = 2.5A
VICTL= 1.68V => Ichg = 1.4A
Vbatt = Cell * [Vref +[(VCTL - 1.8V) / 9.52]]
VCTL= 1.588V
=> Vbatt = 4.2V
Mode pin : Vmode > 2.8V (tie to LDO pin) ----> 4 Cells
2.0 > Vmode > 1.6V (floating) ----> 3 Cells
0.8 > Vmode (tie to GND) ----> Learning mode
VICTL< 0.8V or DCIN < 7V ->Charger Disable
Precgarge current=150mA
LDO : 5.4V
REF : 4.2235V
90W->10m Ohm
65W->20m Ohm
90W->30K Ohm
65W->137K Ohm
010408
012908
122507
A/D_DOCK_IN
AC_BAT_SYS
BAT
BAT_CON
CHG_PDL
CHG_PDS
CSSP
CSSN
MAX8725_REF
MAX8725_LDO
CHG_GND
CHG_CCS
PKPRES#
AD_IINP
BATSEL_2P#
PRECHG
CHG_EN#
BAT_LEARN
BATSEL_3S# 30
(3S#/4S)
TS1#
PWRLMT# 2,30
+2.5VREF
+5VO
<Variant Name>
Title : POWER_CHARGER
Engineer: Vince
<OrgName>
Size C
Project Name F80S
Rev 1.1
Date: Wednesday, February 13, 2008
Sheet 88 of 94

<Variant Name>

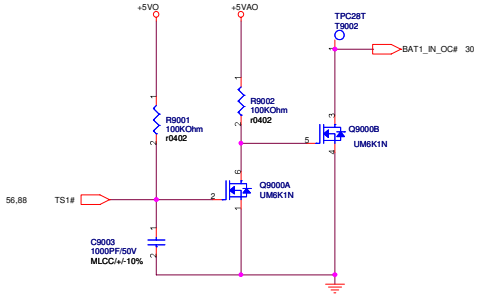
Title : N/A

<OrgName> Engineer: Vince

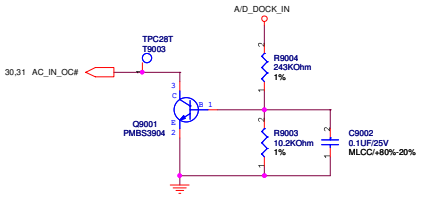
Size	Project Name	Rev
Custom	F80S	1.1

Date: Wednesday, January 30, 2008 Sheet 89 of 94

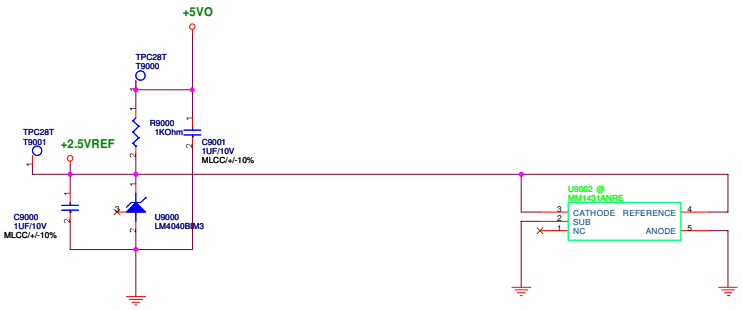
BATTERY IN DETECT



ADAPTER IN DETECT



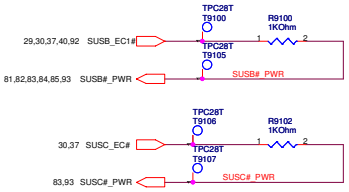
+2.5VREF

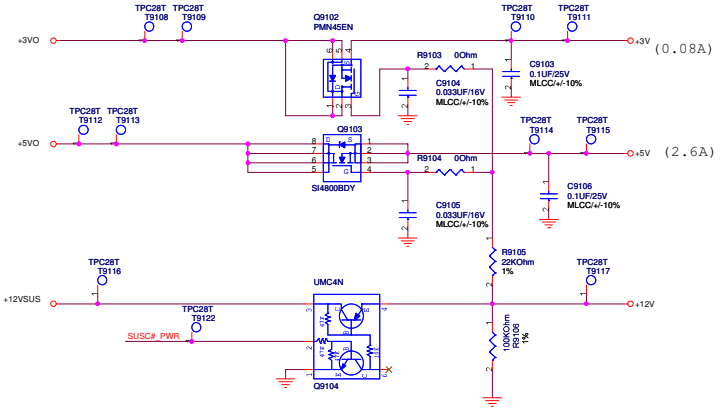


<Variant Name>

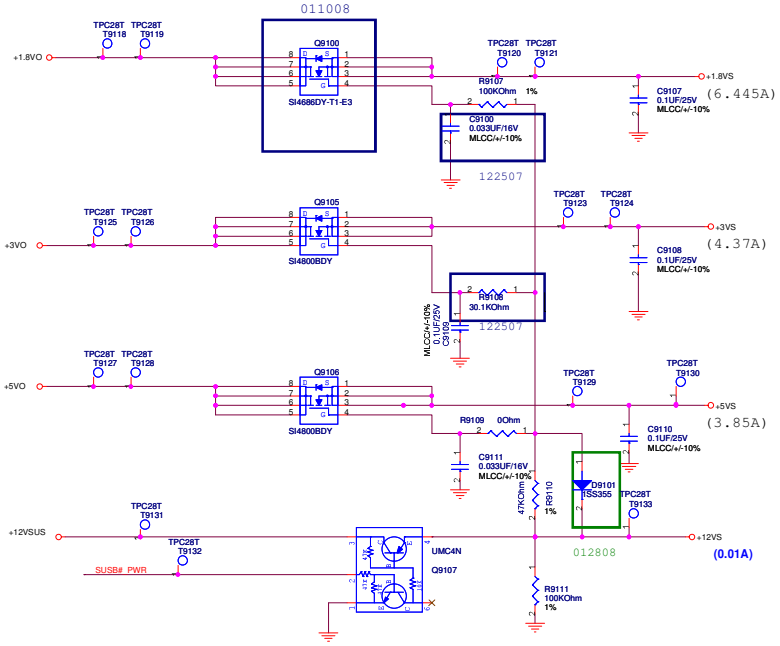
Title : POWER_DETECT		
<OrgName>	Engineer: Vince	
Size: Custom	Project Name: F80S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 90 of 94	

SUSC#_STAGE POWER





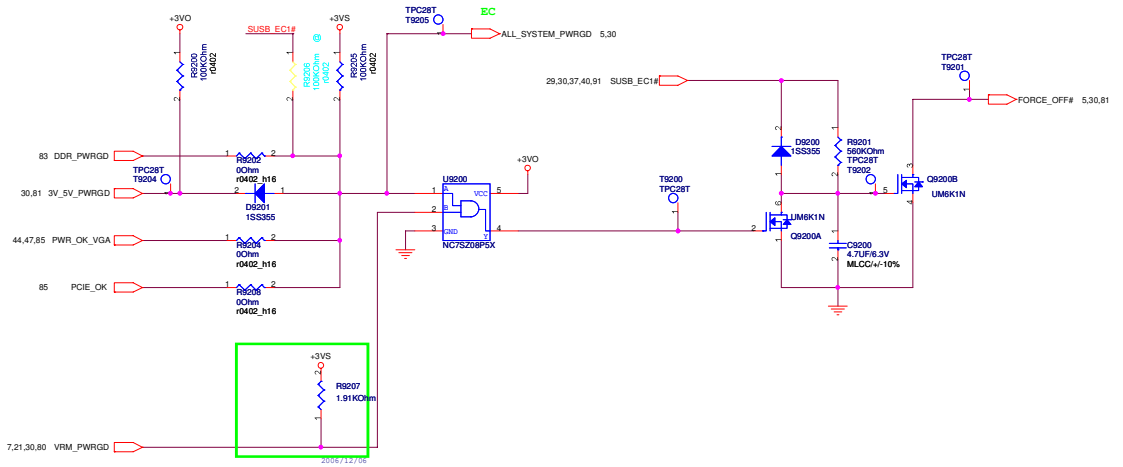
SUSB#_PWR POWER



<Variant Name>

<OrgName>	Title : POWER_LOAD SWITCH	
	Engineer: Vince	
Size: Custom	Project Name: F80S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 91 of 94	

POWER GOOD DETECTER



<Variant Name>

<OrgName>	Title : POWER_PROTECT	
	Engineer: Vince	
Size: Custom	Project Name: F80S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 82 of 94	

AC_BAT_SYS → AC_BAT_SYS 17,80,81,83,85,88

+3VA → +3VA 17,21,30,37,81

+5VA → +5VA 5,81

+5VO → +5VO 81,83,85,88,90,91

+3VO → +3VO 81,85,91,92

+3VSUS → +3VSUS 8,17,19,20,21,22,23,24,26,30,34,35,36,81,82

+5VSUS → +5VSUS 34,81

+3VO → +3V 19,27,29,31,36,37,38,40,91

+3VS → +3VS 2,4,5,7,12,13,16,17,18,19,20,21,22,23,25,29,30,32,33,34,37,40,44,80,91,92

+12VSUS → +12VSUS 81,82,91

+12V → +12V 26,27,33,37,84,91

+12VS → +12VS 17,18,37,44,91

+5V → +5V 17,33,37,91

+5VS → +5VS 5,12,16,18,25,26,29,30,32,34,37,38,51,80,91

+1.8VO → +1.8VO 82,83,91

+1.8VSUS → +1.8VSUS 10,21,22,23,82

+1.8V → +1.8V 8,10,12,13,15,37,83

+1.8VS → +1.8VS 6,7,8,10,12,14,20,21,22,23,37,43,44,45,47,51,91

+1.5VS → +1.5VS 3,19,25,29,37,51,82

+VCCP → +VCCP 2,4,5,6,10,21,23,37,43,84

+0.9VS → +0.9VS 15,37,83

BAT → BAT 88

+2.5VREF → +2.5VREF 82,84,88,90

+VCORE → +VCORE 3,37,80

+VGA_VCORE → +VGA_VCORE 37,43,47,51,85

+1.2VO → +1.2VO 84,85

+1.2VS → +1.2VS 9,10,37,85

BAT_CON → BAT_CON 56,88

FOR POWER TEST

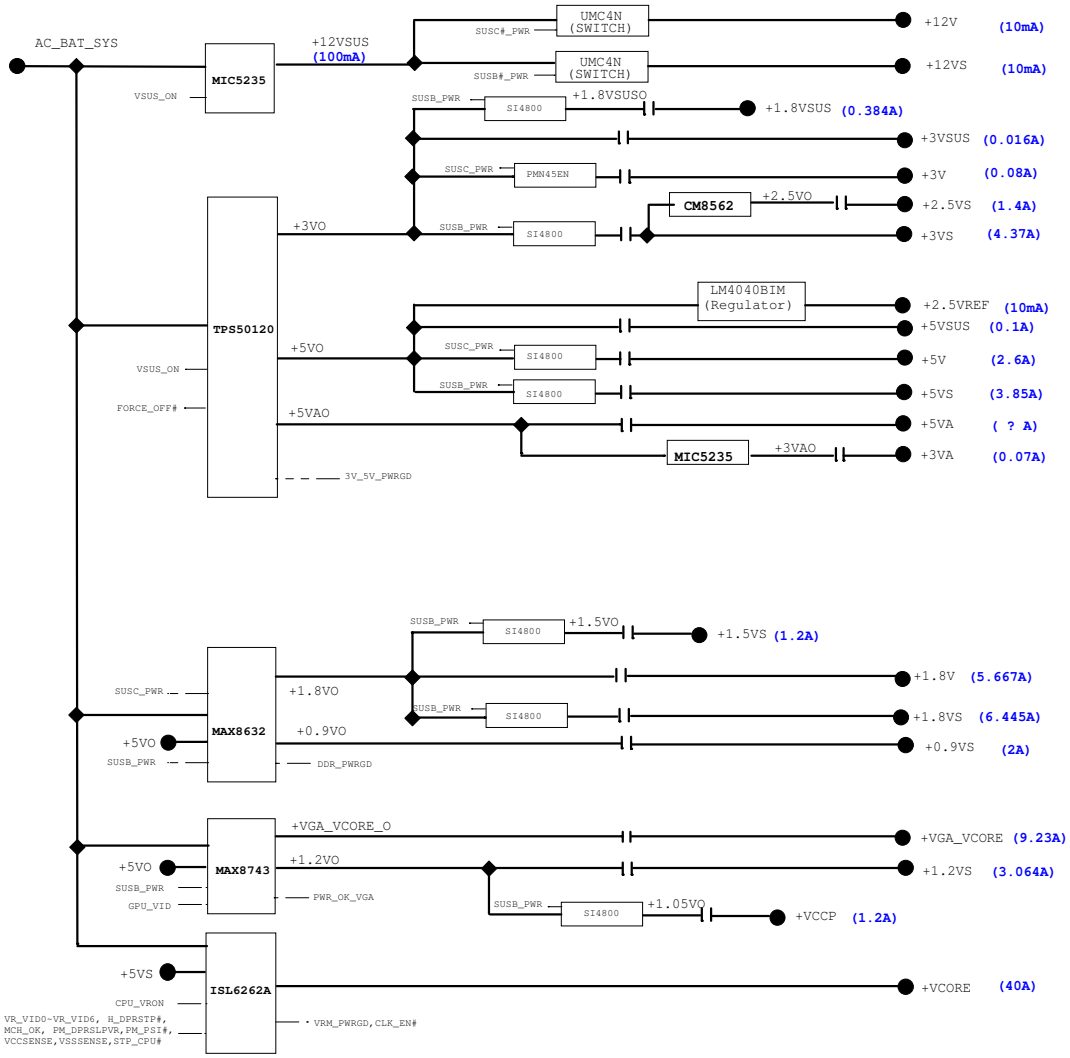
+3VO → JP9300 @ (SGL_JUMP) → CPU_VRON_PWR 80

+3VO → JP9301 @ (SGL_JUMP) → SUSB#_PWR → SUSB#_PWR 81,82,83,84,85,91

+3VO → JP9302 @ (SGL_JUMP) → SUSC#_PWR → SUSC#_PWR 83,91

<Variant Name>

<OrgName>	Title : POWER_SIGNAL	
	Engineer: Vince	
Size: Custom	Project Name: F80S	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 93 of 94	



<Variant Name>

ASUS Title : POWER_FLOWCHART

<OrgName> Engineer: Vince

Size	Project Name	Rev
Custom	F8OS	1.1

Date: Wednesday, January 30, 2008 Sheet 84 of 84