MS-96B9 Ver:1.0

CPU:

Intel Penryn
1066-MTs Source-Synchronous (FSB)

System Chipset:

Intel CANTIGA
Intel ICH9ME

On Board Chipset:

WINBOND Super I/O -- W83627DHG
LAN1 -- 82567LM Boazman
LAN2 -- Intel 82573LM
LAN3 -- Intel 82551QM(10/100M)
BIOS -- SPI ROM 4MBit

Main Memory:

DDRII * 2 DIMM (Max 4GB)

Expansion Slots:

PCI-EX16*1
PCI-EX4*1
PCI 2.2 Slot X 2

PWM:

Controller
Intersil ISL6262ACRZ-T 2 Phase

Clock Generator:

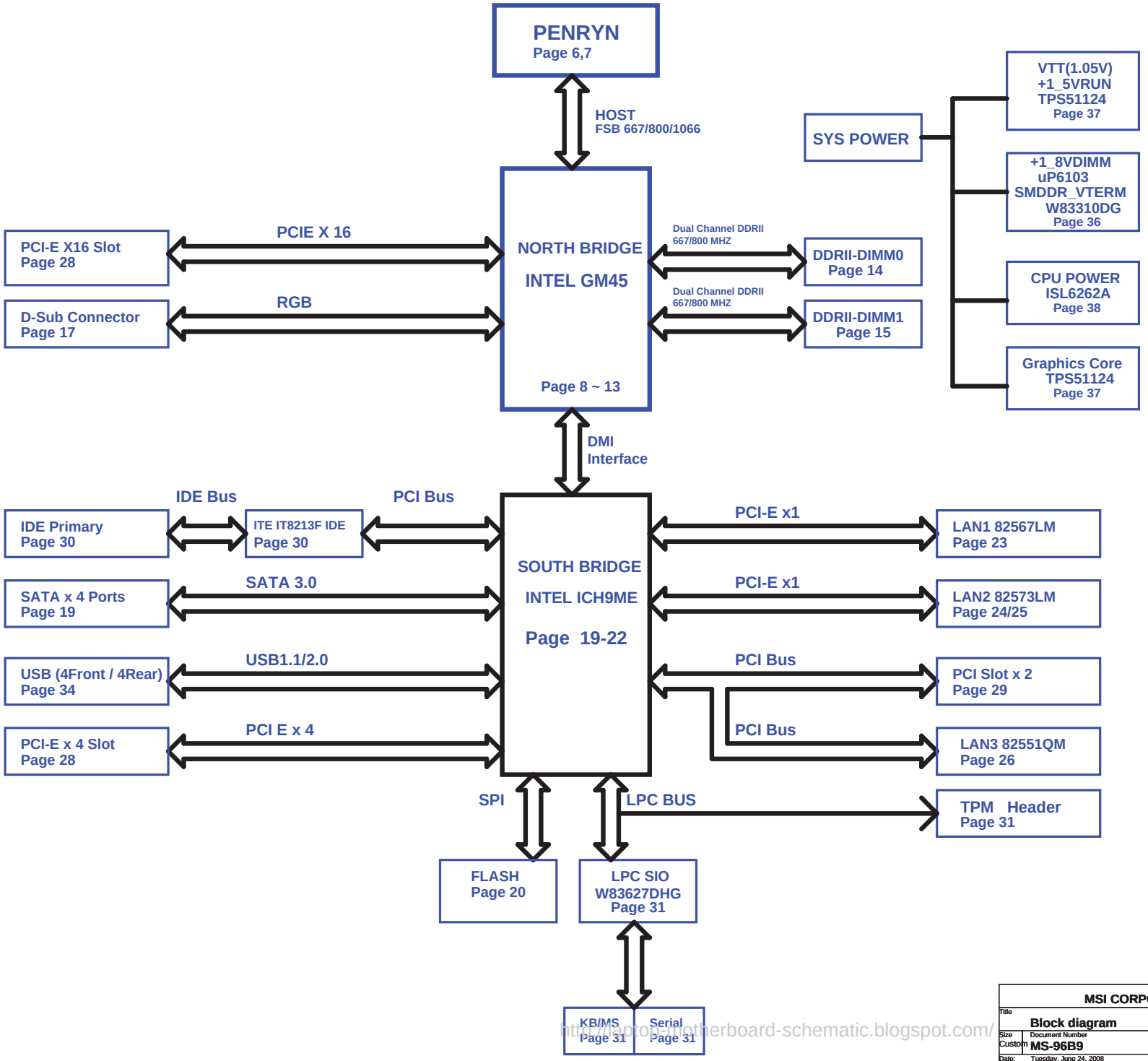
Controller--ICS9LPRS113

MSI CORPORATION

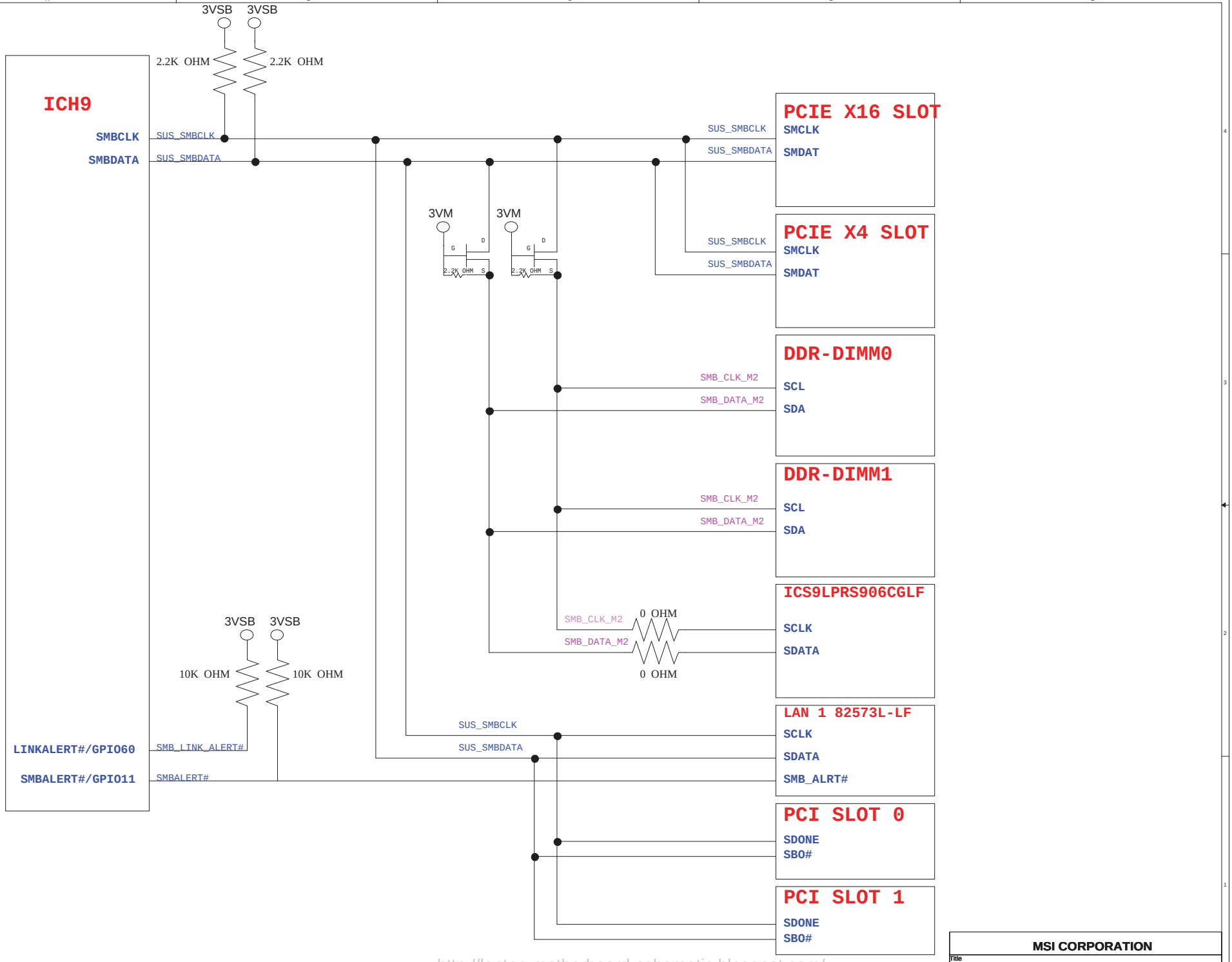
Title: Cover Sheet

Size: Coustom | Document Number: MS-96B9 | Rev: 1.0

Date: Tuesday, June 24, 2008 | Sheet 1 of 41



MSI CORPORATION		
Title: Block diagram		
Size: Custom	Document Number: MS-96B9	Rev: 1.0
Date: Tuesday, June 24, 2008	Sheet 2 of 41	



MSI CORPORATION

Title: System SMBus Block

Size: Custom | Document Number: MS-96B9 | Rev: 1.0

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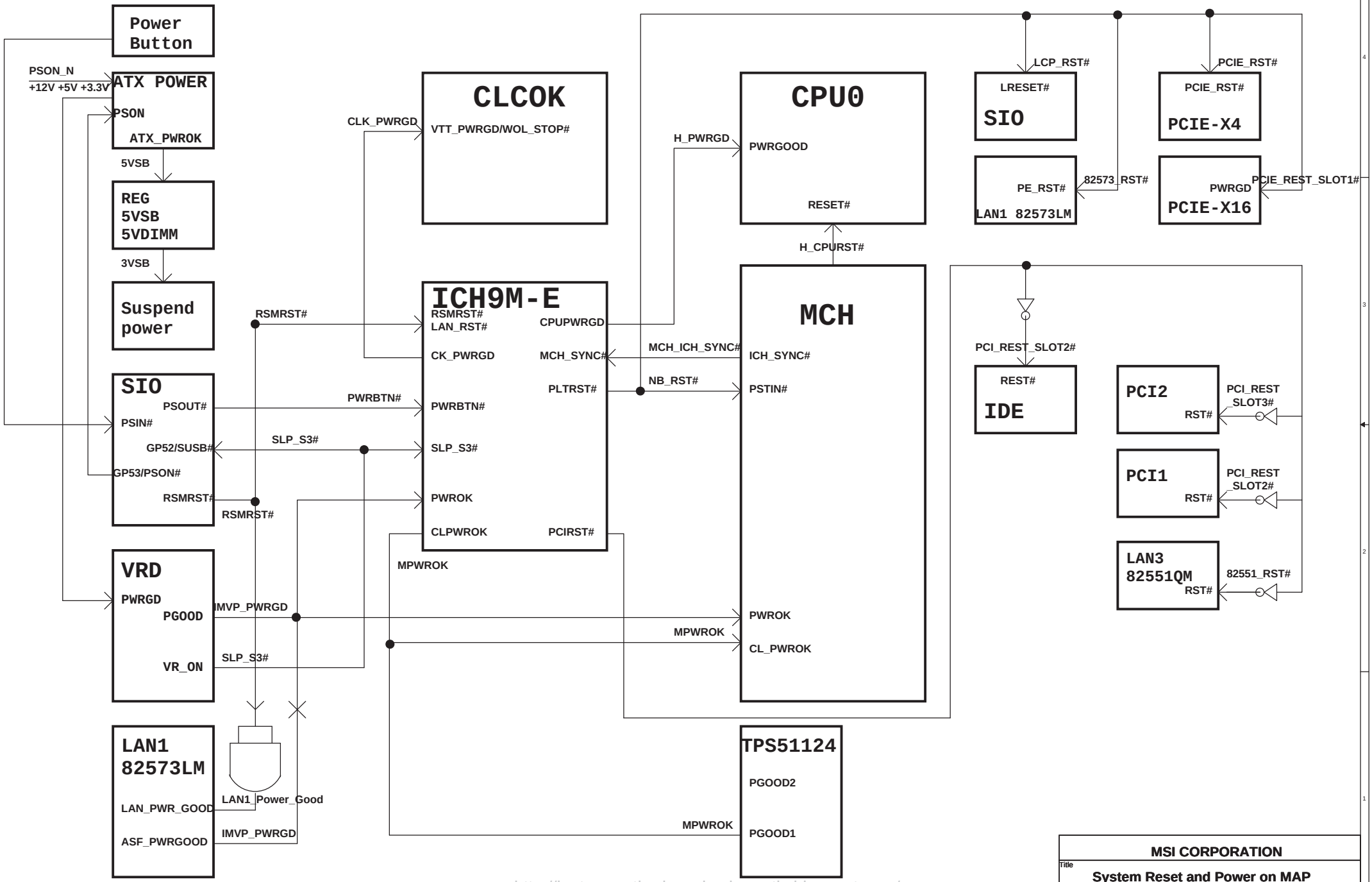
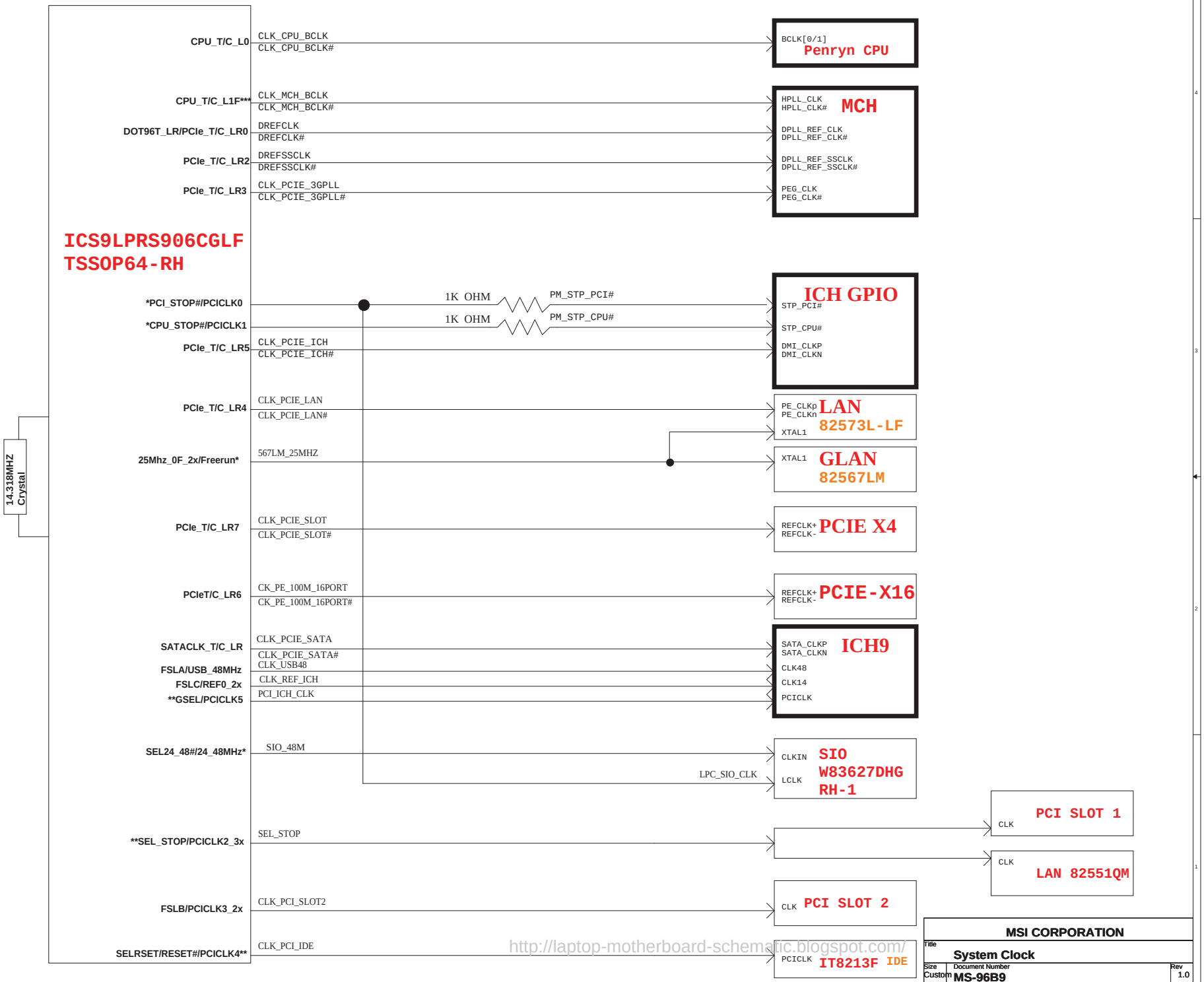
MS-96B4 SYSTEM RESET & POWER ON SEQUENCINGBLOCK DIAGRAM



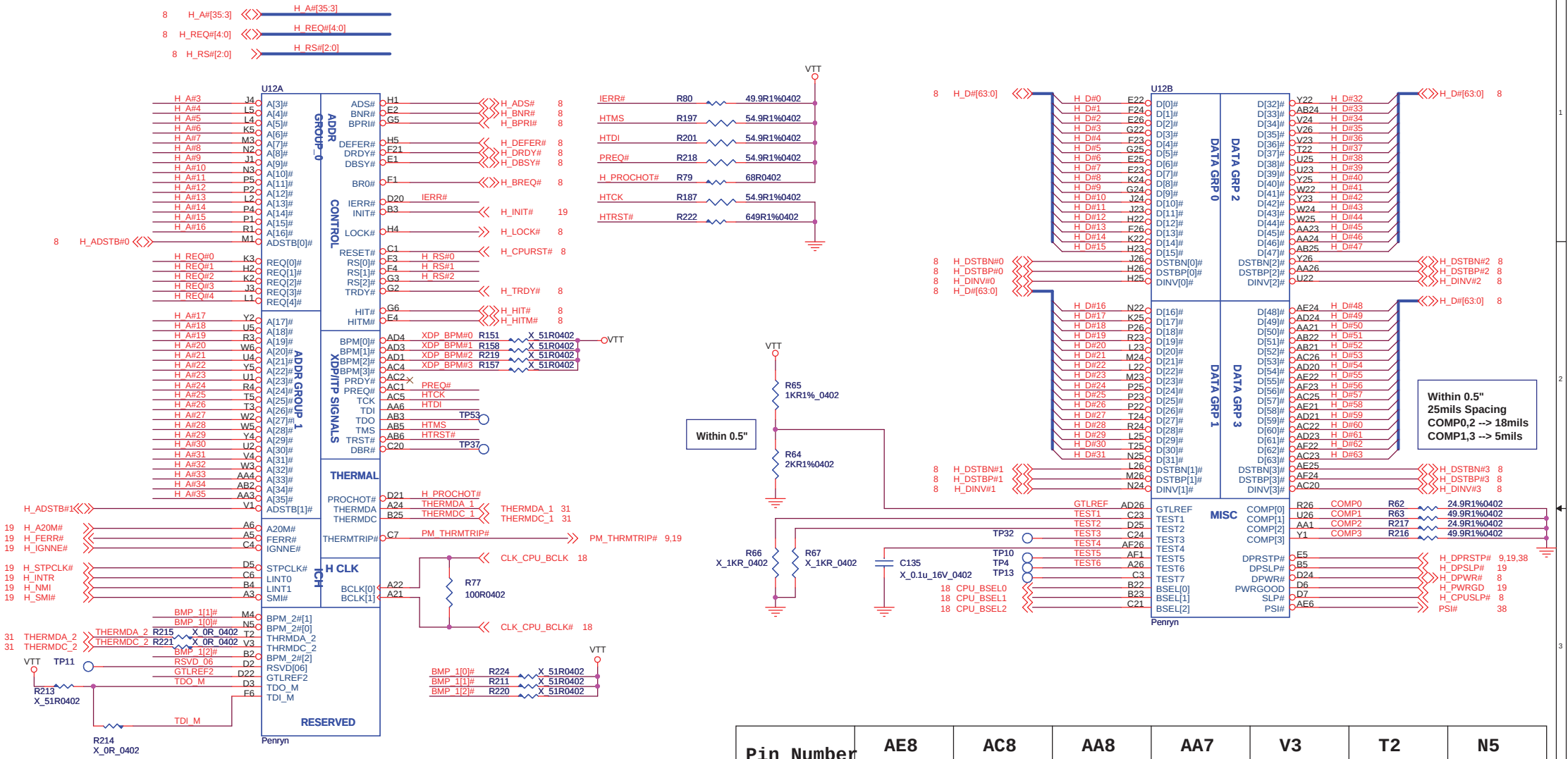
MSI CORPORATION		
Title: System Reset and Power on MAP		
Size: Custom	Document Number: MS-96B9	Rev: 1.0
Date: Tuesday, June 24, 2008	Sheet 4 of 41	

MS-96B4 CLOCK BLOCK DIAGRAM



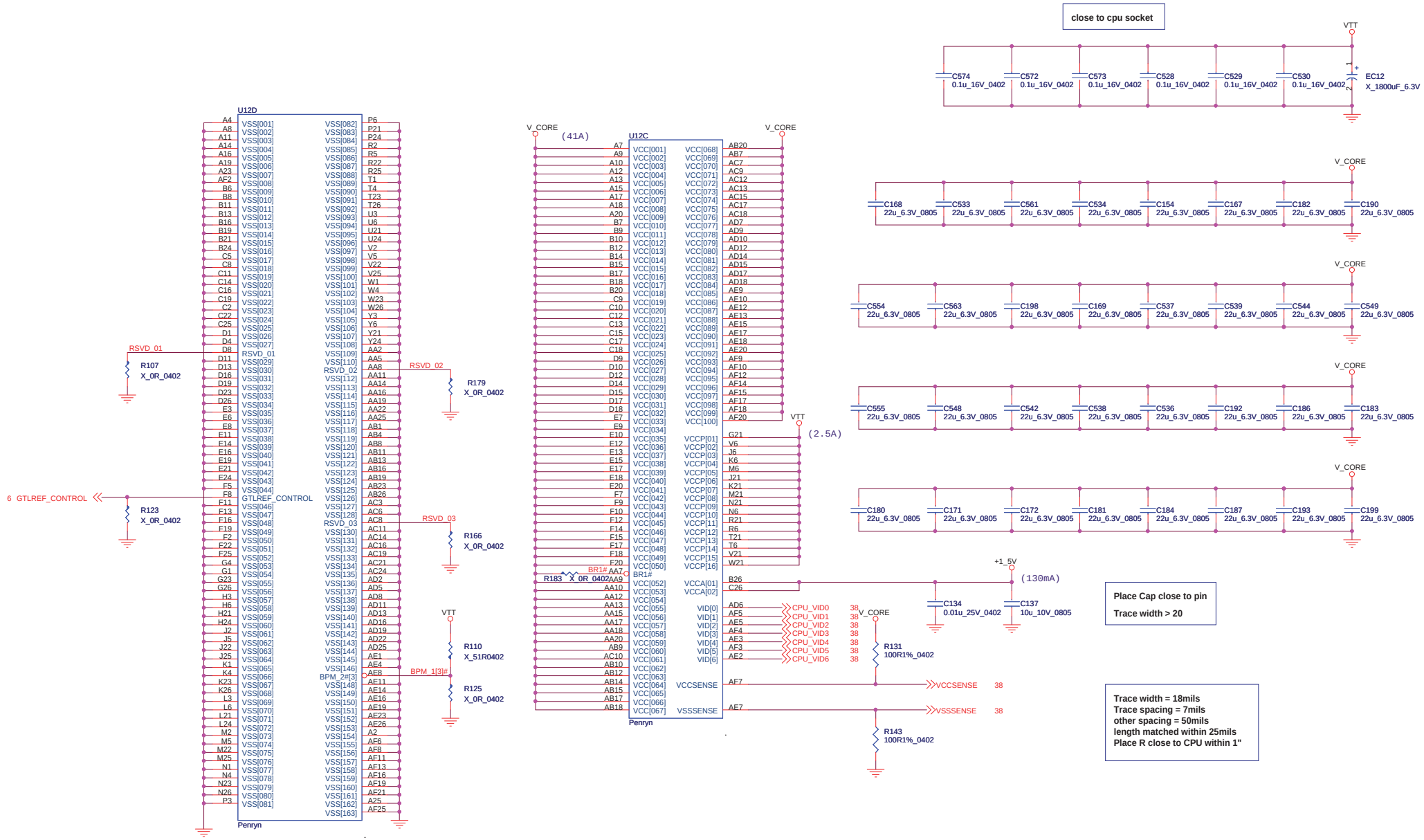
MSI CORPORATION

Title: System Clock		
Size: Custom	Document Number: MS-96B9	Rev: 1.0
Date: Tuesday, June 24, 2008	Sheet 5 of 41	

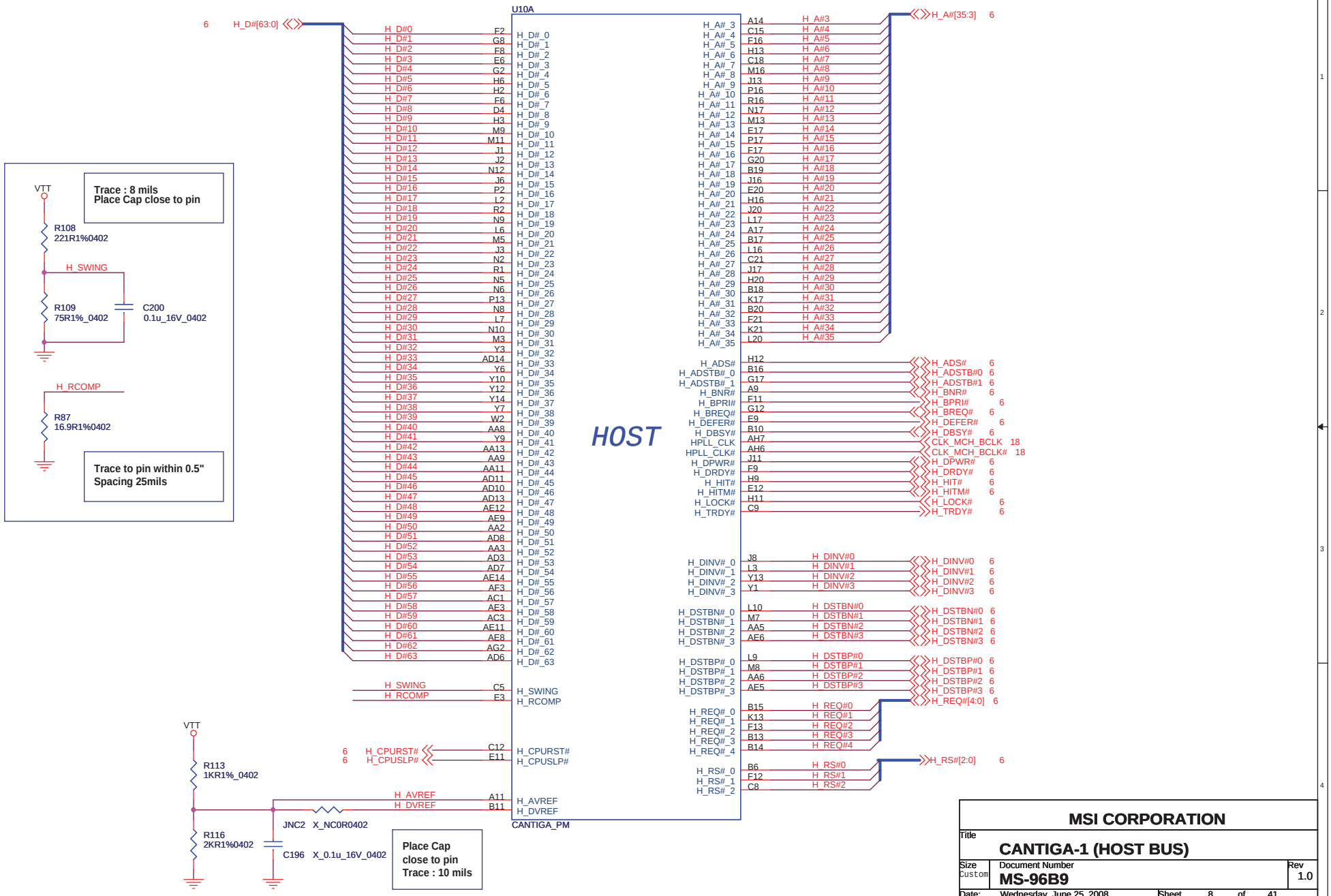


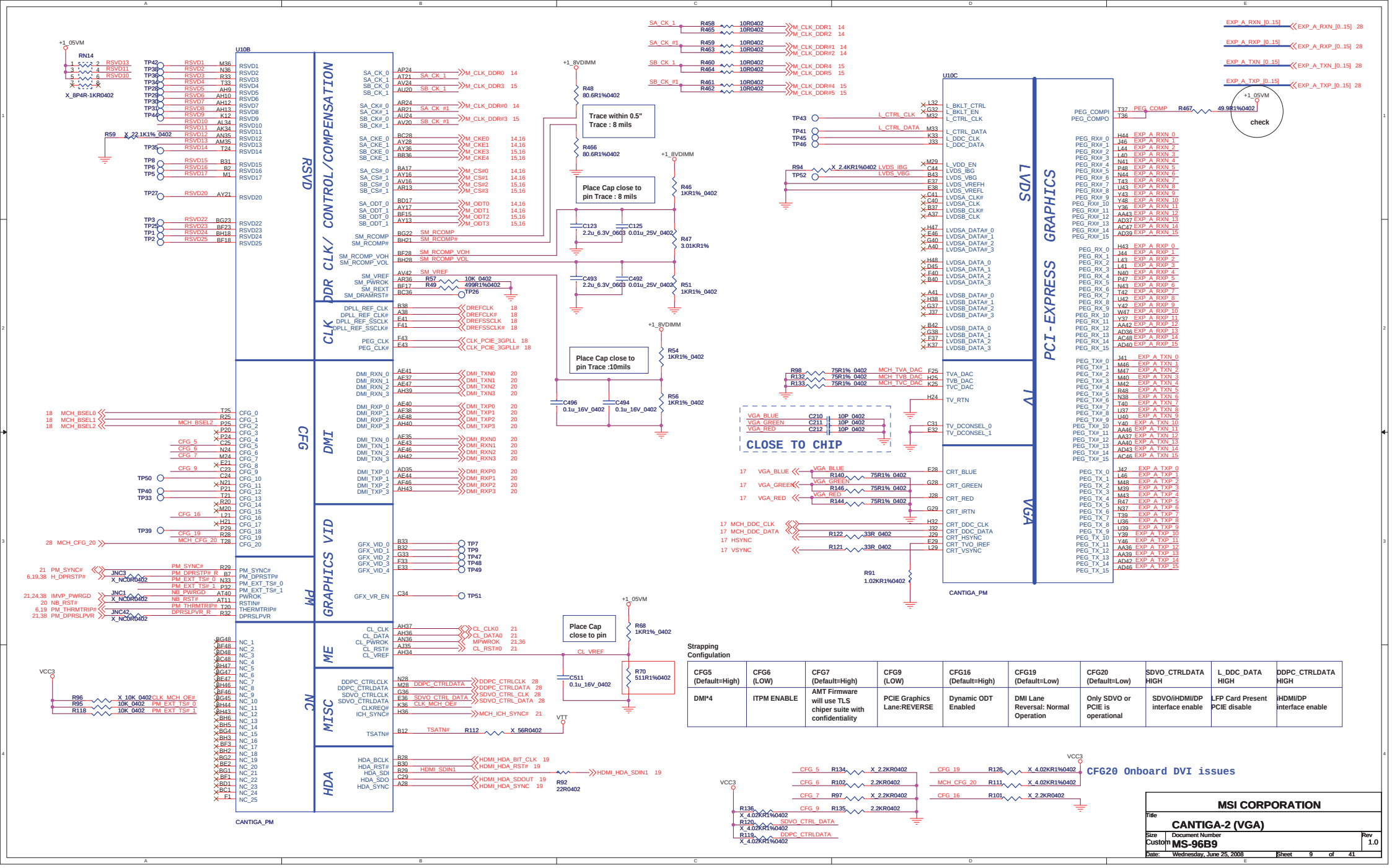
Pin Number	AE8	AC8	AA8	AA7	V3	T2	N5
Dual Core	Vss	Vss	Vss	Vcc	Rsvd	Rsvd	Rsvd
Qual Core	BPM_2#[3]	Rsvd	Rsvd	BR1#	THRMDC_2	THRMDA_2	BPM_2#[0]
Pin Number	**M4**	**F6**	**F8**	**D3**	**D8**	**B2**	**D22**
Dual Core	Rsvd	Rsvd	Vss	Rsvd	Vss	Rsvd	Rsvd
Qual Core	BPM_2#[1]	TDI_M	GTLREF_Control	TDO_M	Rsvd	BPM_2#[2]	GTLREF2

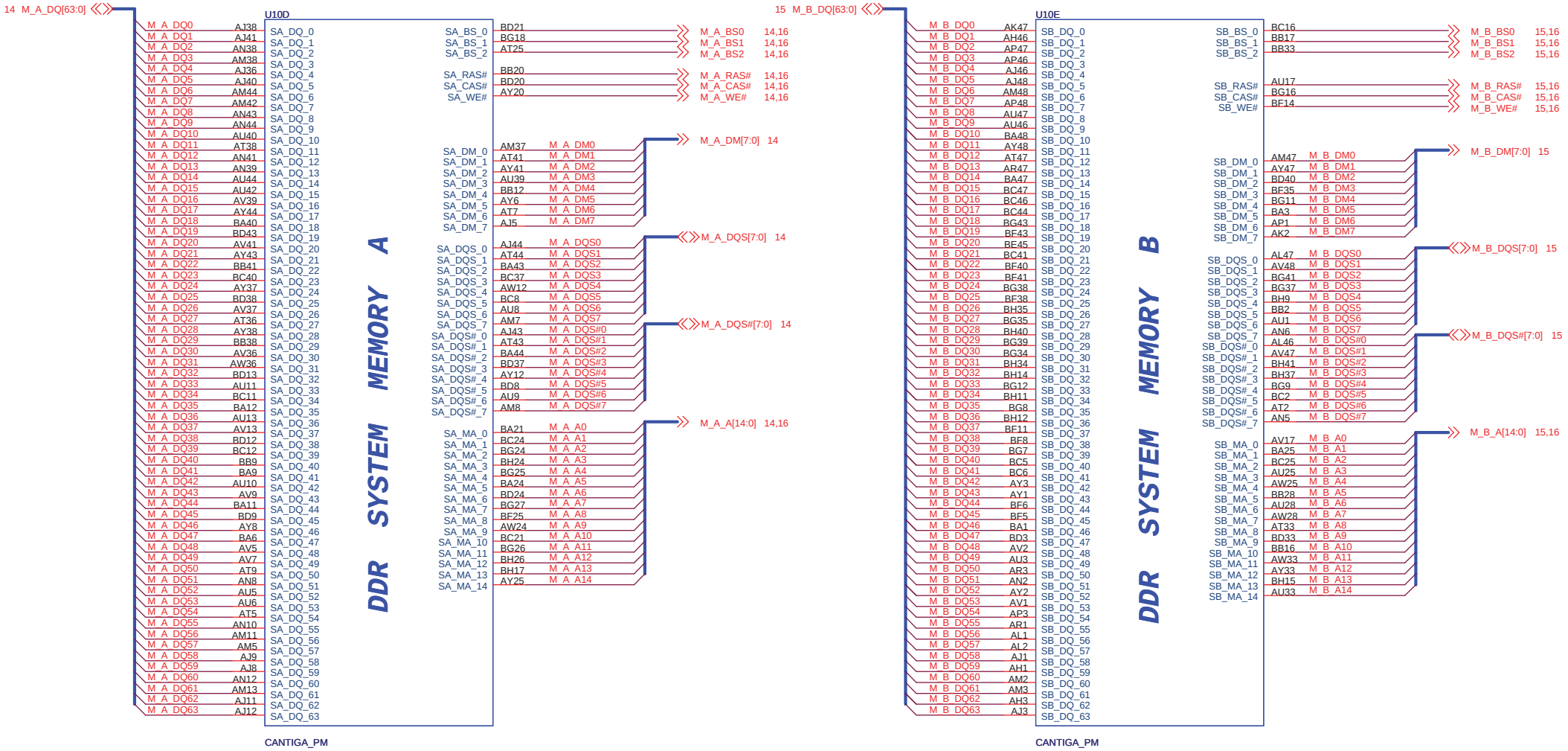
MSI CORPORATION			
Title: PENRYN-1 (HOST BUS)			
Size: Custom	Document Number: MS-96B9		Rev: 1.0
Date: Wednesday, June 25, 2008	Sheet 6 of 41		



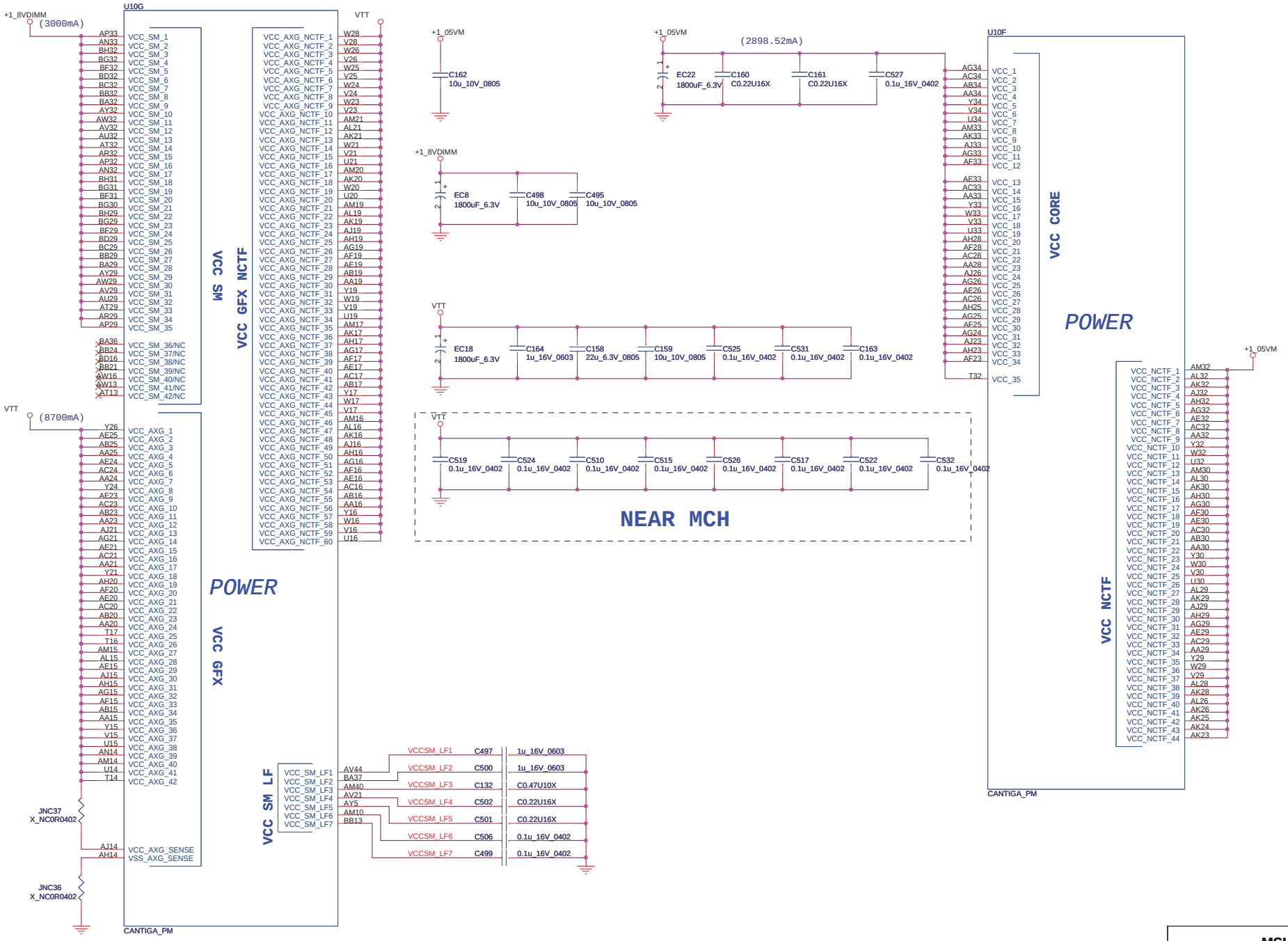
MSI CORPORATION		
Title: PENRYN-2 (POWER/GND)		
Size: Custom	Document Number: MS-96B9	Rev: 1.0
Date: Wednesday, June 25, 2008	Sheet 7 of 41	







MSI CORPORATION			
Title: CANTIGA-3 (DDRII)			
Size: Custom	Document Number: MS-96B9		Rev: 1.0
Date: Wednesday, June 25, 2008		Sheet 10 of 41	

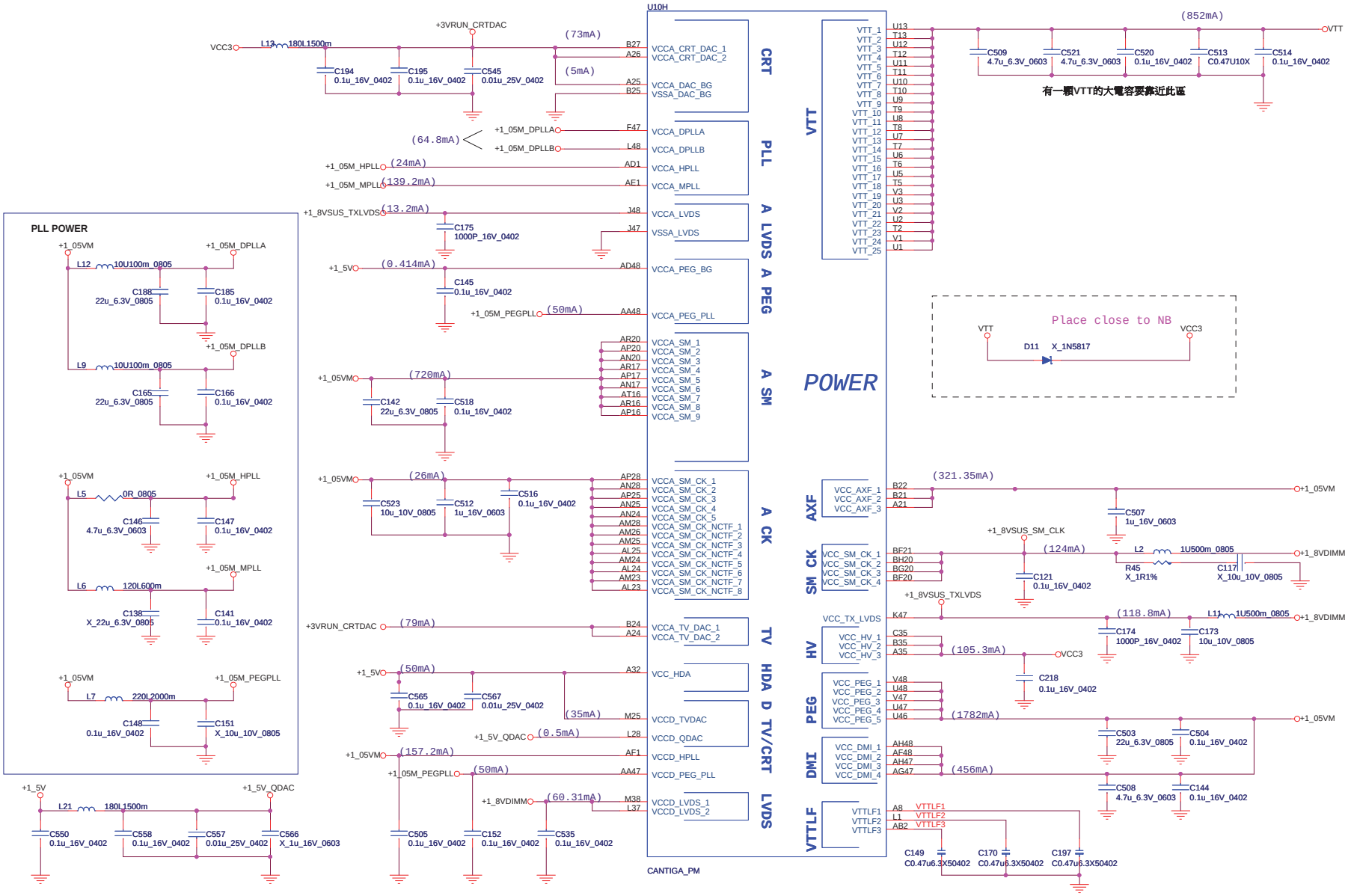


MSI CORPORATION

Title: CANTIGA-4 (POWER-1)

Size: Custom | Document Number: MS-96B9 | Rev: 1.0

Date: Wednesday, June 25, 2008 | Sheet 11 of 41

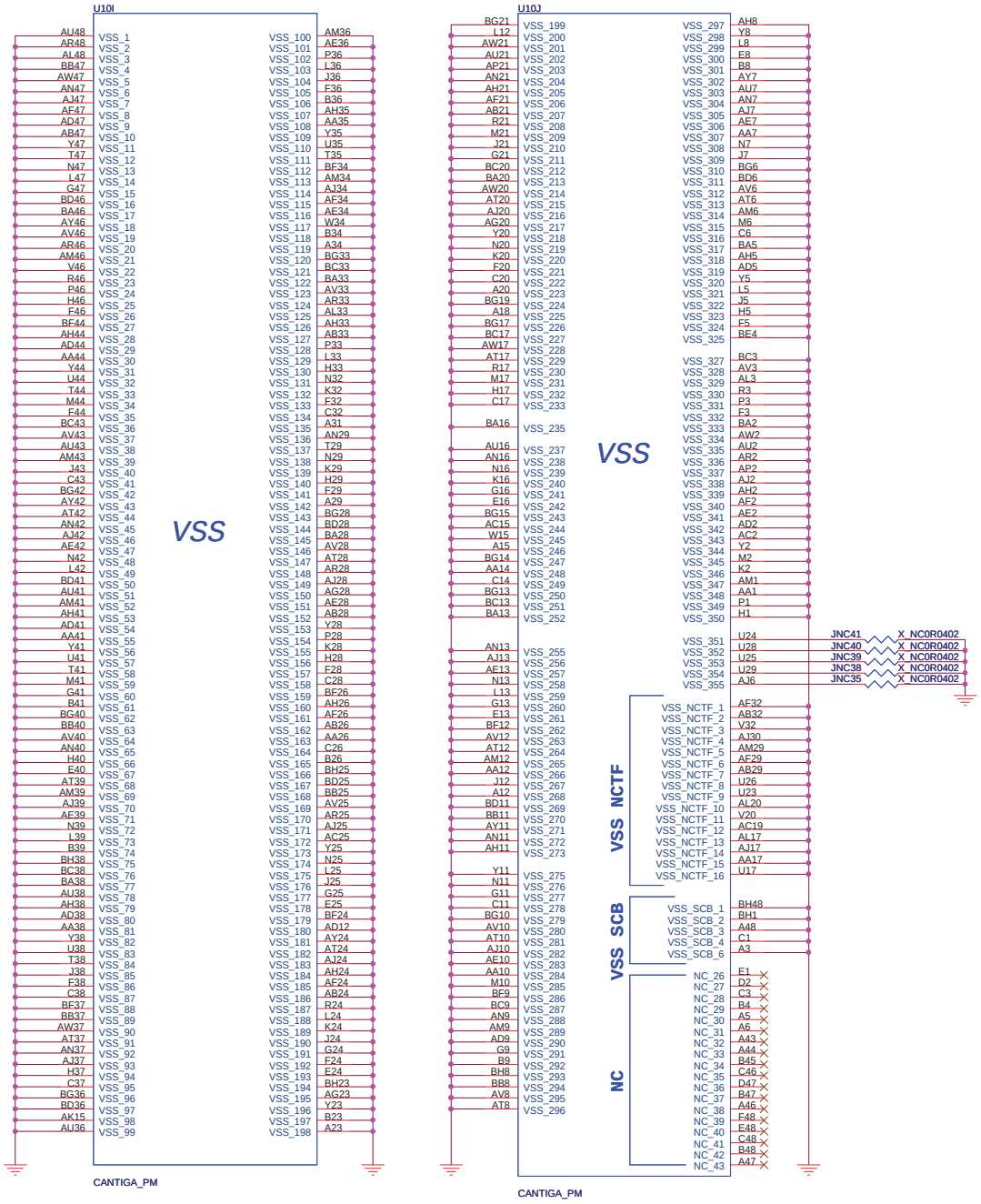


MSI CORPORATION

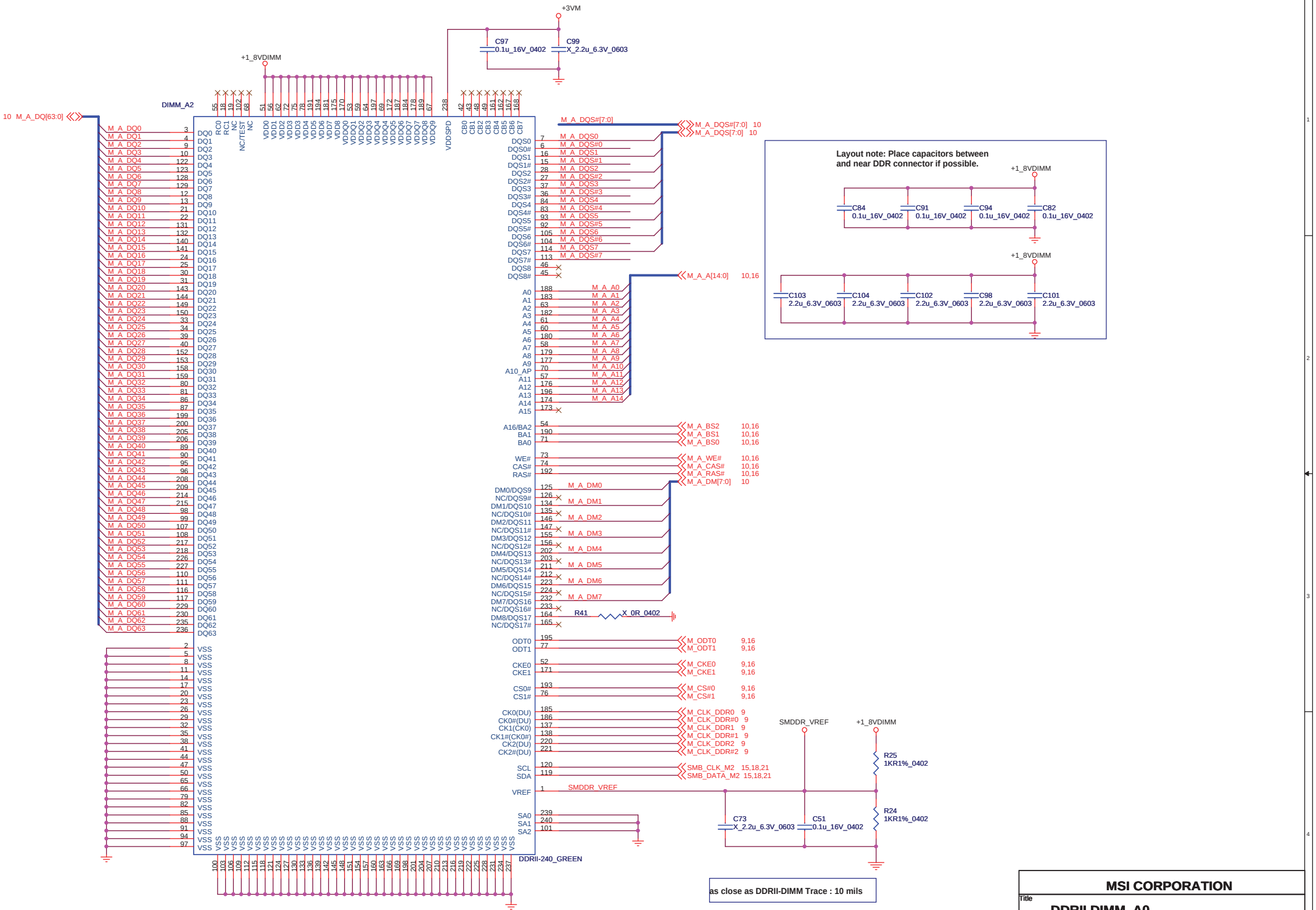
Title: CANTIGA-5 (POWER-2)

Size: Custom | Document Number: MS-96B9 | Rev: 1.0

Date: Tuesday, June 24, 2008 | Sheet 12 of 41

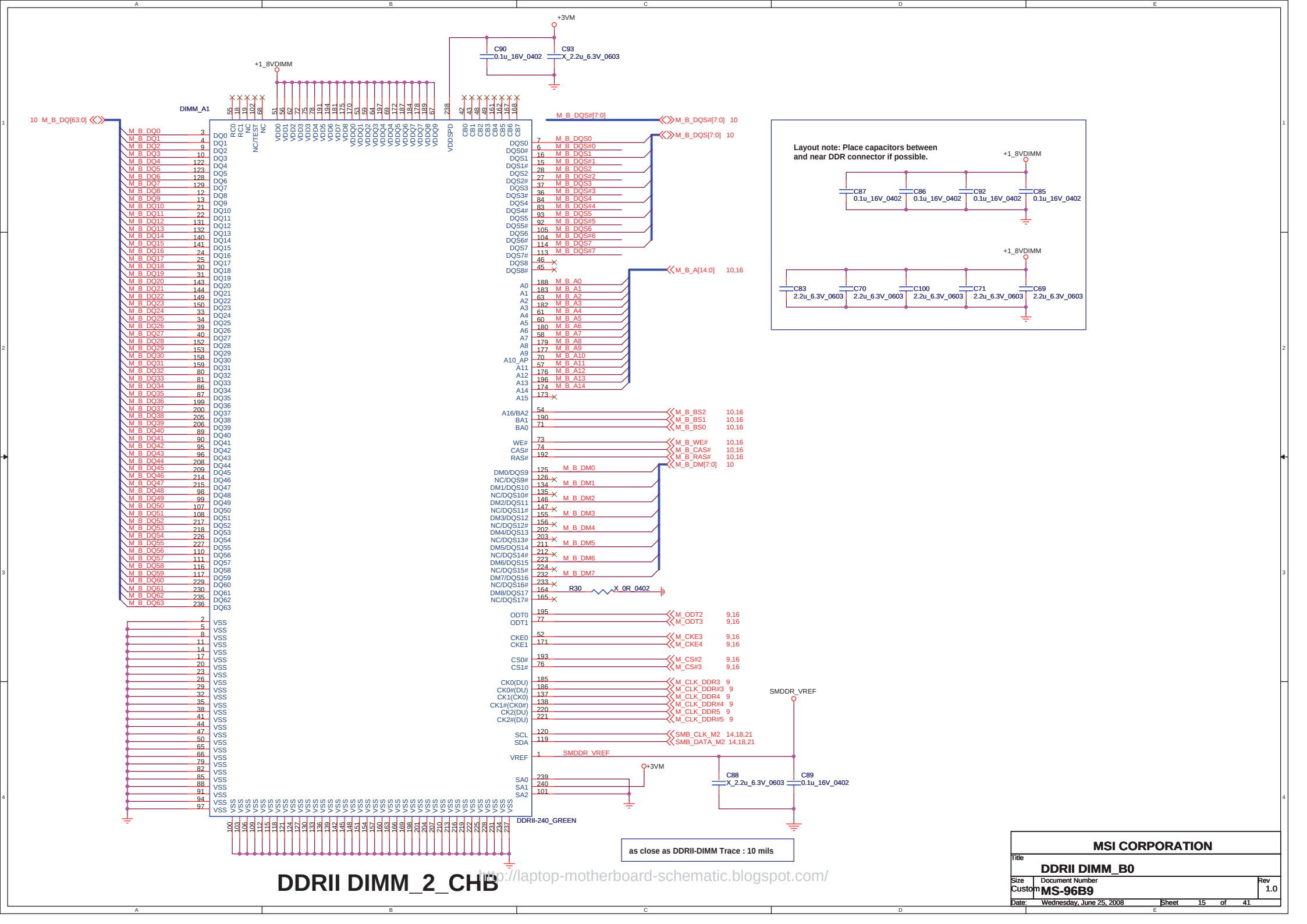


MSI CORPORATION		
Title: CANTIGA-6 (VSS)		
Size: Custom	Document Number: MS-96B9	Rev: 1.0
Date: Tuesday, June 24, 2008	Sheet 13 of 41	



DDRII DIMM_1_CHA

MSI CORPORATION			
Title: DDRII DIMM_A0			
Size: Custom	Document Number: MS-96B9		Rev: 1.0
Date: Wednesday, June 25, 2008	Sheet 14 of 41		



DDRII DIMM_2_CHB

Title	DDRII DIMM_B0
Size	Custom
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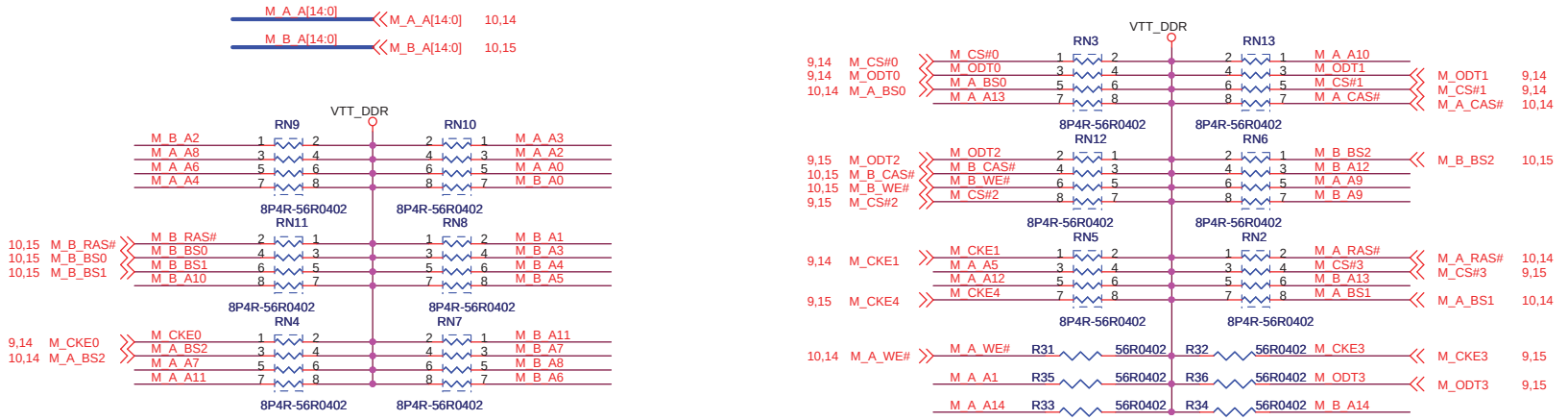
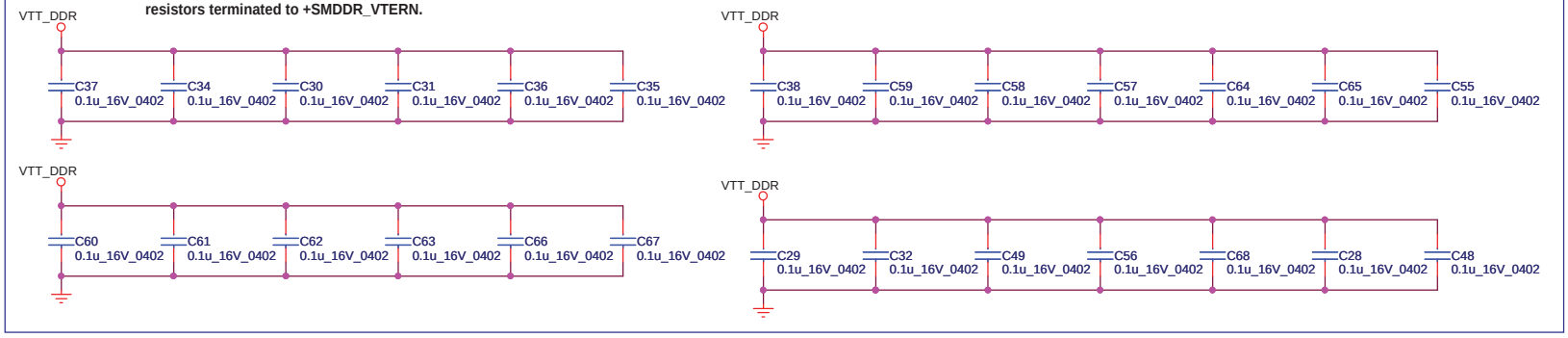
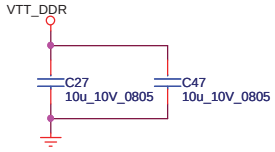
MSI CORPORATION



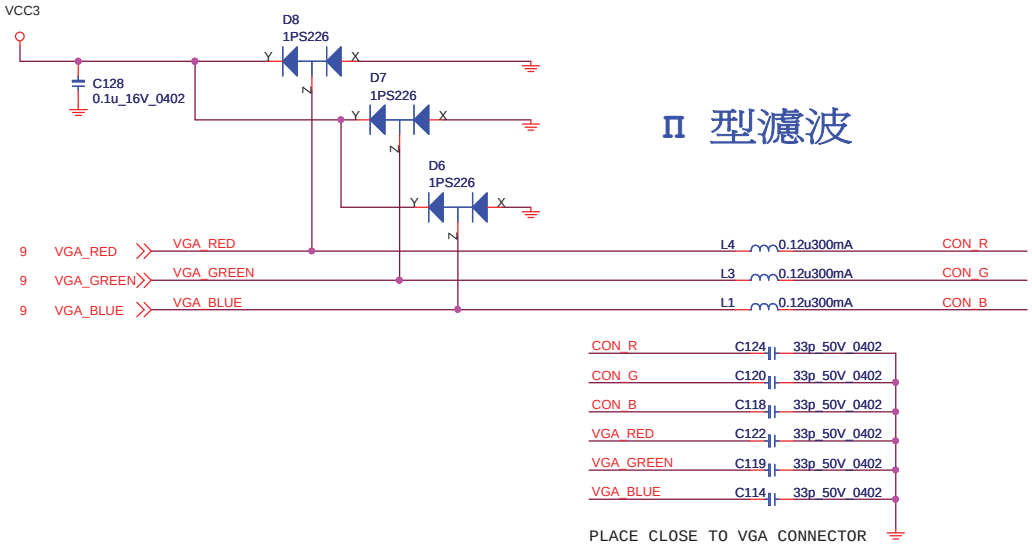
Layout note: Place one cap close to every 2 pullup resistors terminated to +SMDDR_VTERN.



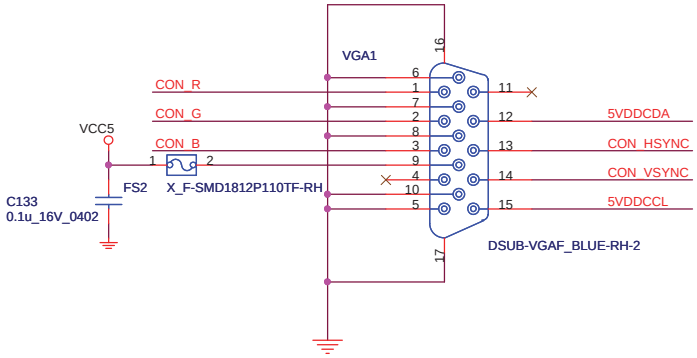


MSI CORPORATION		
Title: DDRII TREMINATION		
Size: Custom	Document Number: MS-96B9	Rev: 1.0
Date: Wednesday, June 25, 2008	Sheet 16 of 41	

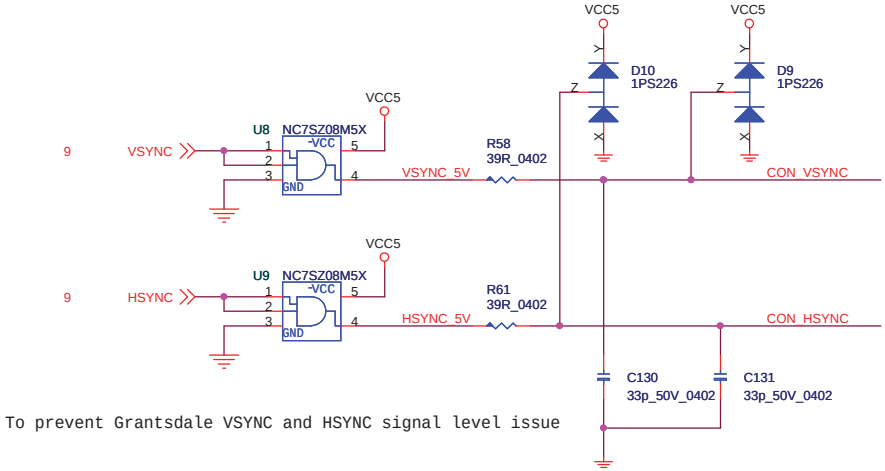
Video Connector



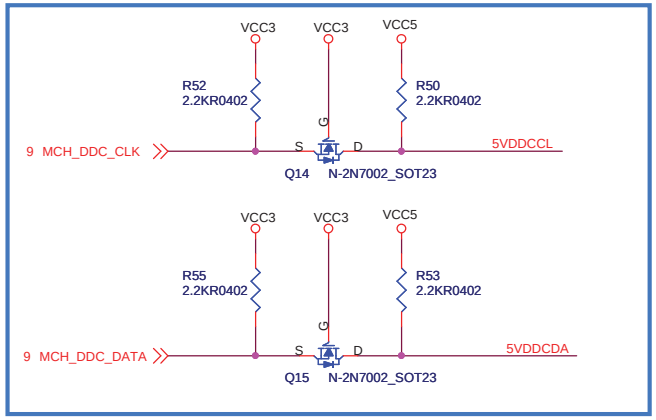
π 型濾波



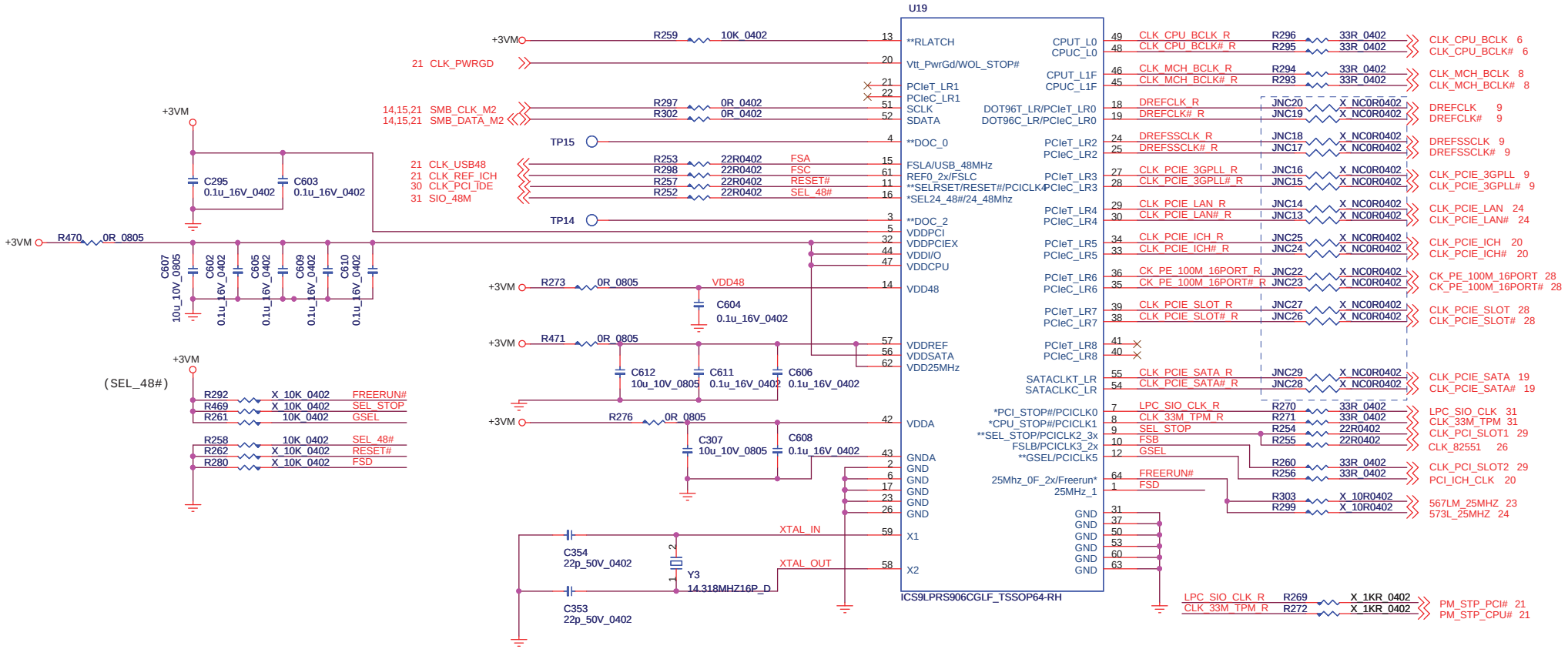
USE 9628 homology COM New P/N:N51-15F0391-A10



To prevent Grantsdale VSYNC and HSYNC signal level issue



MSI CORPORATION		
Title: D-Sub 15Pin Video Connector		
Size: Custom	Document Number: MS-96B9	Rev: 1.0
Date: Wednesday, June 25, 2008	Sheet 17 of 41	



CPU Table			FSB Freq (MHz)
BSEL[2]	BSEL[1]	BSEL[0]	
L	H	H	667 MHz
L	H	L	800 MHz

MSI CORPORATION

Title: **CLOCK Generator (ICS9LPR906)**

Size: Custom | Document Number: **MS-96B9** | Rev: 1.0

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0A CHANGE 1.0 PCIE-4 SLOT Detect
Pull up to VCC3

0A CHANGE 1.0 PCIE-4 SLOT Detect
Pull up to +1_5 Follow ICH9ME PIN : AJ14 (VCCHDA)

CLEAR_CMOS		
1	2	Normal *
2	3	Clear CMOS

XOR Chain Entrance Strap		
ICH_TP3	HDA_SDOUT	Description
0	0	RSVD
0	1	Enter XOR Chain
1	0	Normal Operation(Default)
1	1	Set PCIE port config bit 1

公板24.9 SA EYE Drivering too small
change 27.9 is condition pass

MSI CORPORATION

Title: ICH9ME-1 (CPU/IDE/Azalia)

Size: Custom | Document Number: MS-96B9 | Rev: 1.0

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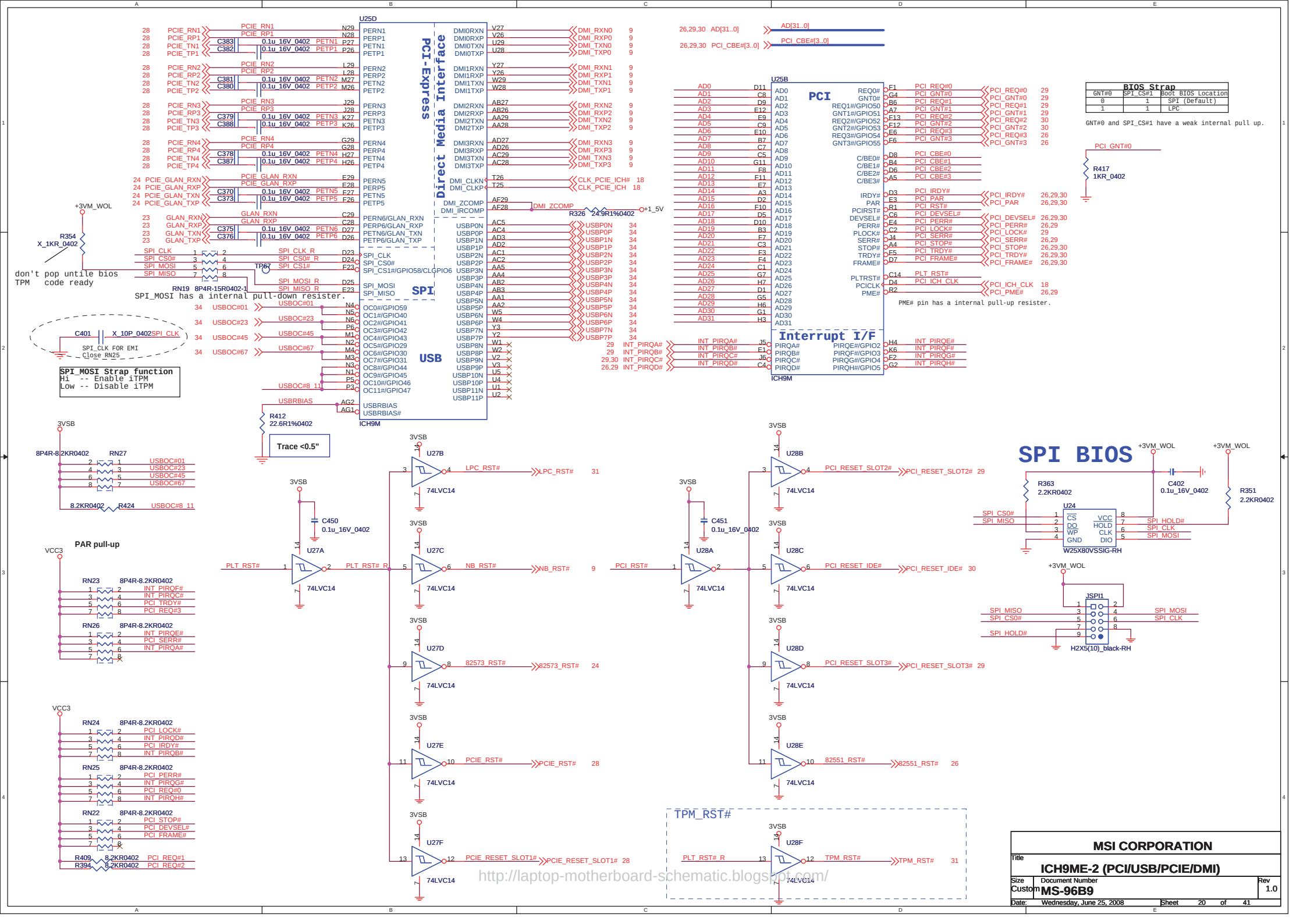
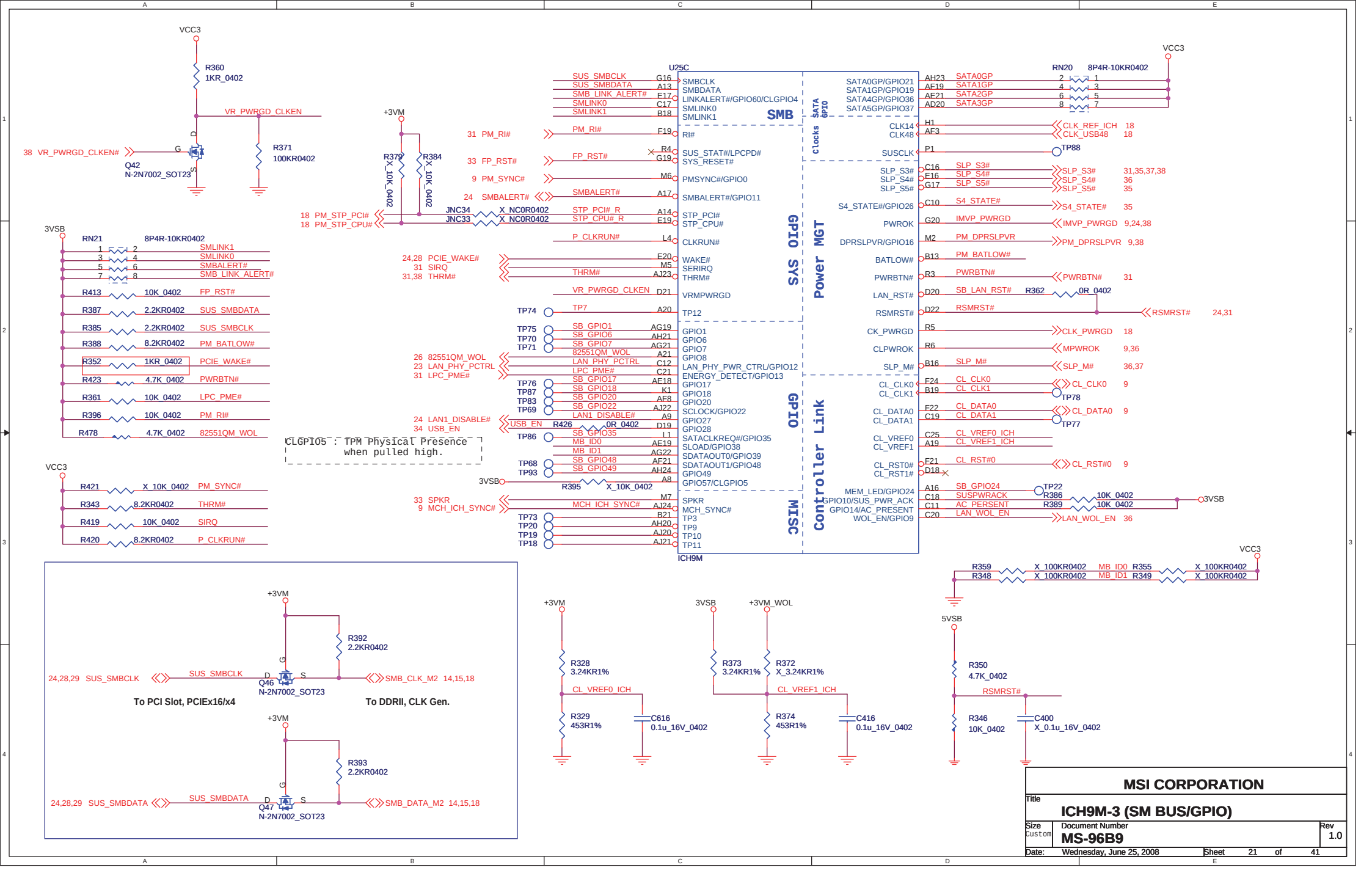

U25D
Direct Media Interface
PCI-Express
SPI
USB
ICH9M
U25B
PCI
Interrupt I/F
ICH9M
BIOS Strap
GNT#0 SPI_CS#1 Boot BIOS Location
0 1 SPI (Default)
1 1 LPC
GNT#0 and SPI_CS#1 have a weak internal pull up.
PME# pin has a internal pull-up resister.
SPI_MOSI has a internal pull-down resister.
don't pop untile bios TPM code ready
SPI_MOSI Strap function
Hi -- Enable iTPM
Low -- Disable iTPM
Trace <0.5"
PAR pull-up
SPI BIOS
W25X80VSSIG-RH
H2X5(10)_black-RH
TPM_RST#
MSI CORPORATION
ICH9ME-2 (PCI/USB/PCIE/DMI)
MS-96B9
Wednesday, June 25, 2008
http://laptop-motherboard-schematic.blogspot.com/



MSI CORPORATION

Title: ICH9M-3 (SM BUS/GPIO)

Size: Custom | Document Number: MS-96B9 | Rev: 1.0

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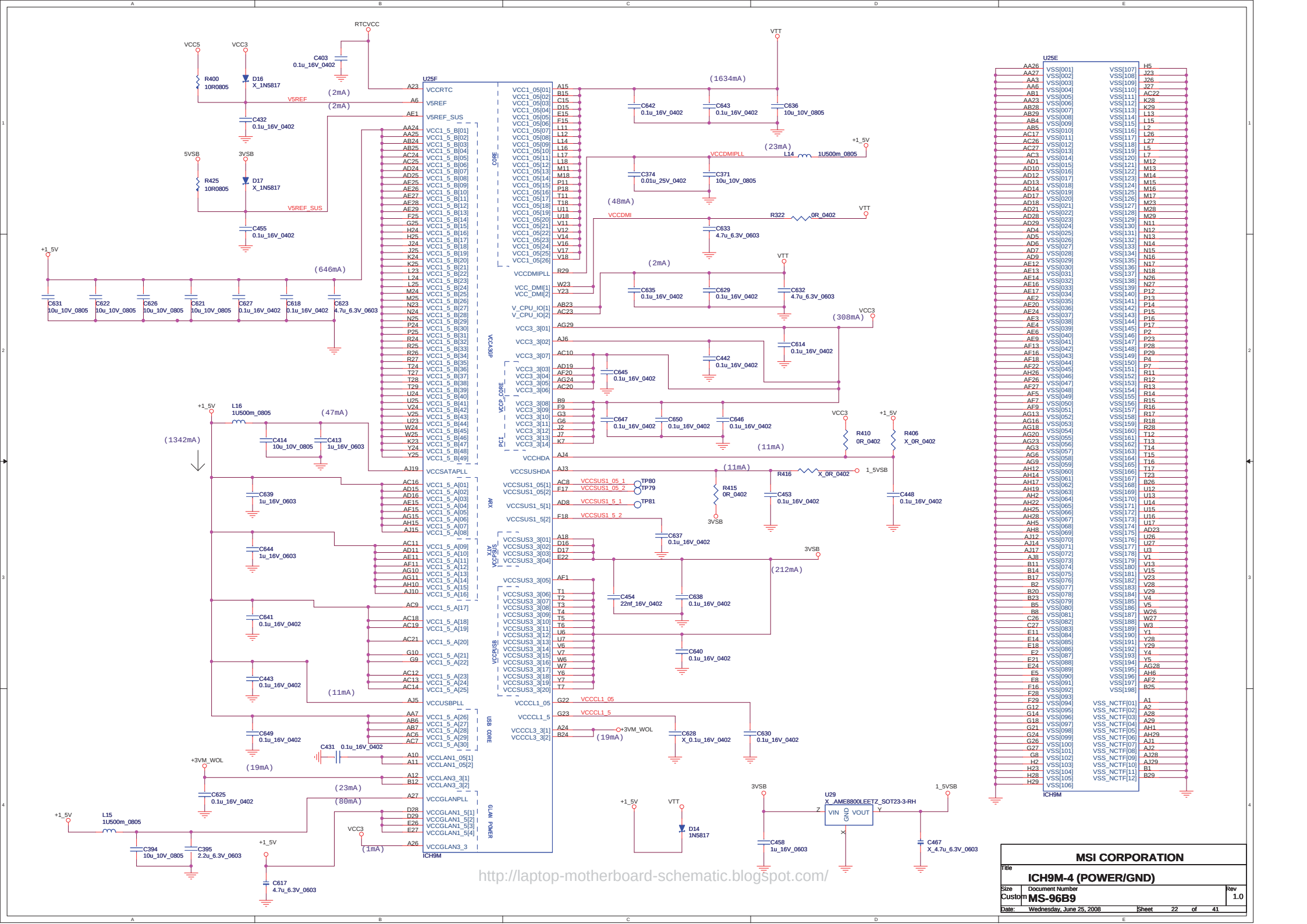
RTCVCC
VCC5
VCC3
R400
10R0805
D16
X_1N5817
V5REF
C403
0.1u_16V_0402
C432
0.1u_16V_0402
5VSB
3VSB
R425
10R0805
D17
X_1N5817
V5REF_SUS
C455
0.1u_16V_0402
+1_5V
C631
10u_10V_0805
C622
10u_10V_0805
C626
10u_10V_0805
C621
10u_10V_0805
C627
0.1u_16V_0402
C618
0.1u_16V_0402
C623
4.7u_6.3V_0603
(646mA)
U25F
VCCRTC
V5REF
V5REF_SUS
VCC1_5_B[01]
VCC1_5_B[02]
VCC1_5_B[03]
VCC1_5_B[04]
VCC1_5_B[05]
VCC1_5_B[06]
VCC1_5_B[07]
VCC1_5_B[08]
VCC1_5_B[09]
VCC1_5_B[10]
VCC1_5_B[11]
VCC1_5_B[12]
VCC1_5_B[13]
VCC1_5_B[14]
VCC1_5_B[15]
VCC1_5_B[16]
VCC1_5_B[17]
VCC1_5_B[18]
VCC1_5_B[19]
VCC1_5_B[20]
VCC1_5_B[21]
VCC1_5_B[22]
VCC1_5_B[23]
VCC1_5_B[24]
VCC1_5_B[25]
VCC1_5_B[26]
VCC1_5_B[27]
VCC1_5_B[28]
VCC1_5_B[29]
VCC1_5_B[30]
VCC1_5_B[31]
VCC1_5_B[32]
VCC1_5_B[33]
VCC1_5_B[34]
VCC1_5_B[35]
VCC1_5_B[36]
VCC1_5_B[37]
VCC1_5_B[38]
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VCC1_5_B[40]
VCC1_5_B[41]
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VCC1_5_B[44]
VCC1_5_B[45]
VCC1_5_B[46]
VCC1_5_B[47]
VCC1_5_B[48]
VCC1_5_B[49]
CORE
VCCSATAPLL
VCCSUSHDA
VCCSUS1_05[1]
VCCSUS1_05[2]
VCCSUS1_5[1]
VCCSUS1_5[2]
VCCSUS3_3[01]
VCCSUS3_3[02]
VCCSUS3_3[03]
VCCSUS3_3[04]
VCCSUS3_3[05]
VCCSUS3_3[06]
VCCSUS3_3[07]
VCCSUS3_3[08]
VCCSUS3_3[09]
VCCSUS3_3[10]
VCCSUS3_3[11]
VCCSUS3_3[12]
VCCSUS3_3[13]
VCCSUS3_3[14]
VCCSUS3_3[15]
VCCSUS3_3[16]
VCCSUS3_3[17]
VCCSUS3_3[18]
VCCSUS3_3[19]
VCCSUS3_3[20]
VCCCL1_05
VCCCL1_5
VCCCL3_3[1]
VCCCL3_3[2]
VCCUSBPLL
VCCLAN1_05[1]
VCCLAN1_05[2]
VCCLAN3_3[1]
VCCLAN3_3[2]
VCCGLANPLL
VCCGLAN1_5[1]
VCCGLAN1_5[2]
VCCGLAN1_5[3]
VCCGLAN1_5[4]
VCCGLAN3_3
ICH9M
L16
1U500m_0805
(47mA)
(1342mA)
C414
10u_10V_0805
C413
1u_16V_0603
C639
1u_16V_0603
C644
1u_16V_0603
C641
0.1u_16V_0402
C443
0.1u_16V_0402
(11mA)
C649
0.1u_16V_0402
C431
0.1u_16V_0402
+3VM_WOL
(19mA)
C625
0.1u_16V_0402
(23mA)
(80mA)
L15
1U500m_0805
C394
10u_10V_0805
C395
2.2u_6.3V_0603
(1mA)
C617
4.7u_6.3V_0603
VTT
(1634mA)
C642
0.1u_16V_0402
C643
0.1u_16V_0402
C636
10u_10V_0805
(23mA)
L14
1U500m_0805
VCCDMIPLL
C374
0.01u_25V_0402
C371
10u_10V_0805
(48mA)
VCCDMI
R322
0R_0402
C633
4.7u_6.3V_0603
(2mA)
C635
0.1u_16V_0402
C629
0.1u_16V_0402
C632
4.7u_6.3V_0603
VCC_DMI[1]
VCC_DMI[2]
V_CPU_IO[1]
V_CPU_IO[2]
VCCA_SM
VCCP_CORE
PCI
VCC3_3[01]
VCC3_3[02]
VCC3_3[07]
VCC3_3[03]
VCC3_3[04]
VCC3_3[05]
VCC3_3[06]
VCC3_3[08]
VCC3_3[09]
VCC3_3[10]
VCC3_3[11]
VCC3_3[12]
VCC3_3[13]
VCC3_3[14]
VCCHDA
(308mA)
C614
0.1u_16V_0402
C442
0.1u_16V_0402
C645
0.1u_16V_0402
C647
0.1u_16V_0402
C650
0.1u_16V_0402
C646
0.1u_16V_0402
R410
0R_0402
R406
X_0R_0402
(11mA)
R416
X_0R_0402
1_5VSB
R415
0R_0402
3VSB
C453
0.1u_16V_0402
C448
0.1u_16V_0402
VCCSUS1_05_1
VCCSUS1_05_2
VCCSUS1_5_1
VCCSUS1_5_2
TP80
TP79
TP81
C637
0.1u_16V_0402
VCCP_SUS
ATX
(212mA)
C454
22nf_16V_0402
C638
0.1u_16V_0402
C640
0.1u_16V_0402
VCCRSUS
USB CORE
C628
X_0.1u_16V_0402
C630
0.1u_16V_0402
+3VM_WOL
(19mA)
GLAN POWER
D14
1N5817
U29
X_AME8800LEETZ_SOT23-3-RH
VIN
GND
VOUT
C458
1u_16V_0603
C467
X_4.7u_6.3V_0603
U25E
VSS[001]
VSS[002]
VSS[003]
VSS[004]
VSS[005]
VSS[006]
VSS[007]
VSS[008]
VSS[009]
VSS[010]
VSS[011]
VSS[012]
VSS[013]
VSS[014]
VSS[015]
VSS[016]
VSS[017]
VSS[018]
VSS[019]
VSS[020]
VSS[021]
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VSS[047]
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ICH9M
http://laptop-motherboard-schematic.blogspot.com/
MSI CORPORATION
Title
ICH9M-4 (POWER/GND)
Size
Custom
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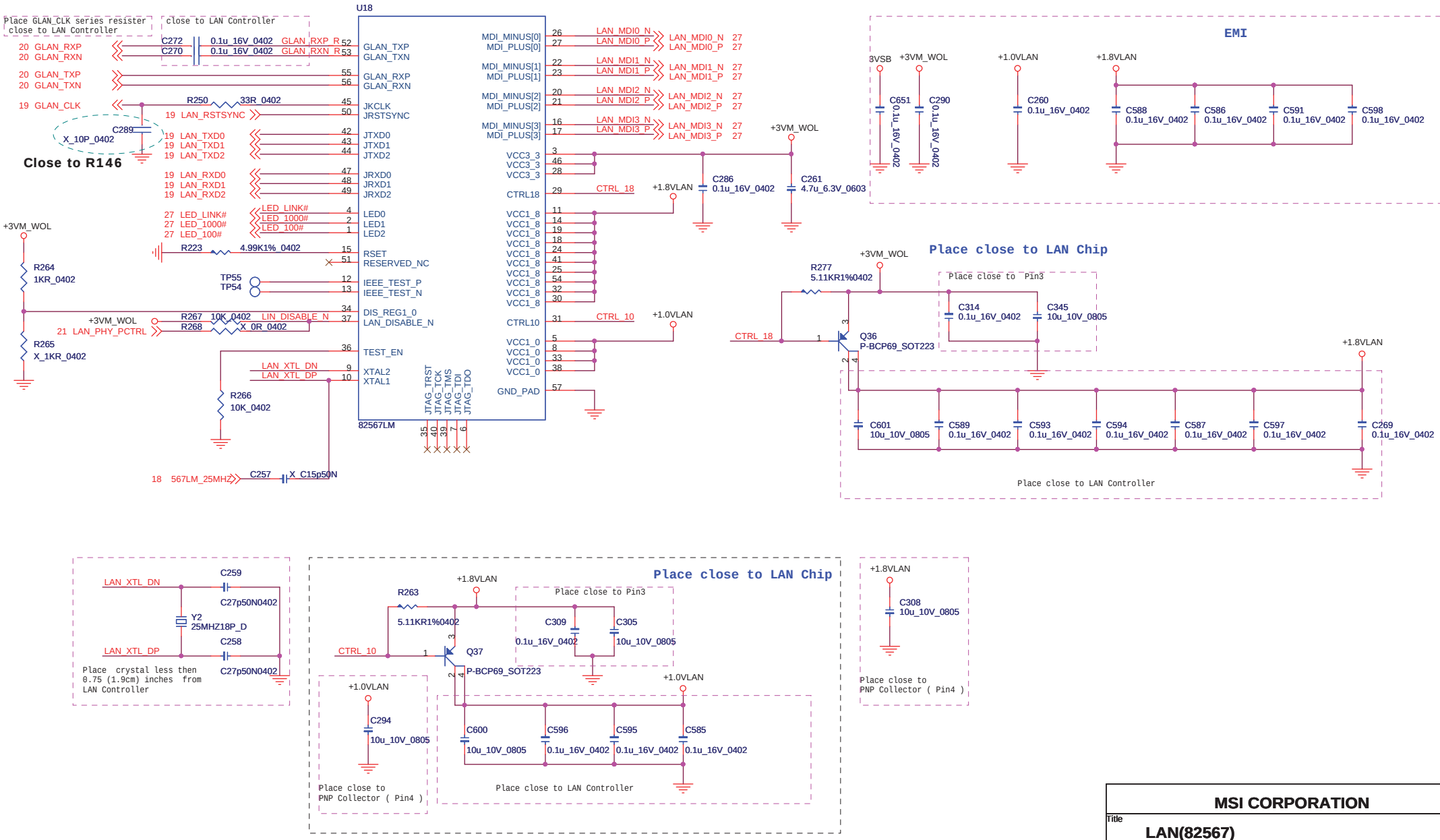

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	LAN(82567)
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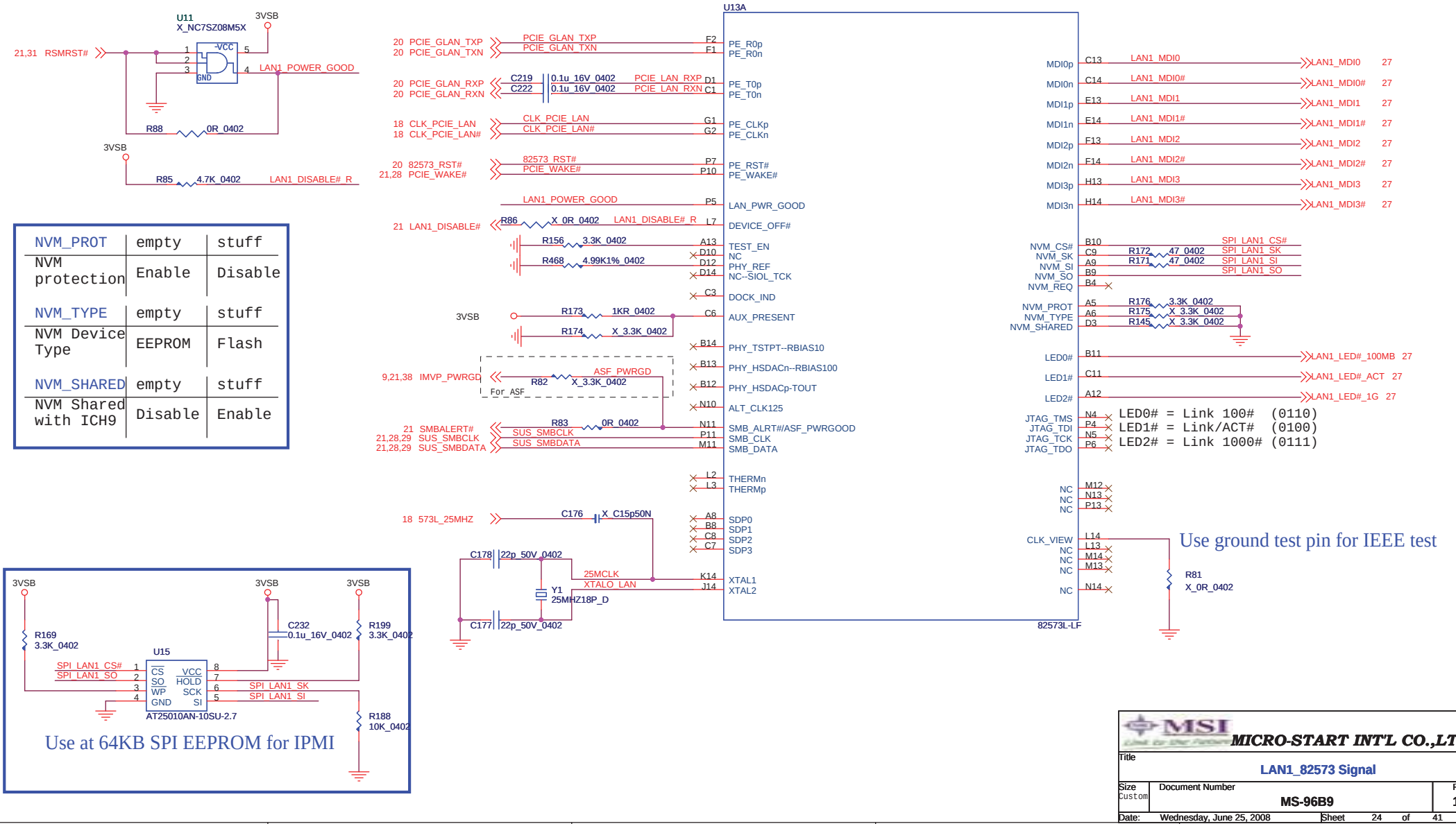

NVM_PROT	empty	stuff
NVM protection	Enable	Disable
NVM_TYPE	empty	stuff
NVM Device Type	EEPROM	Flash
NVM_SHARED	empty	stuff
NVM Shared with ICH9	Disable	Enable

MICRO-START INT'L CO.,LTD.

Title: LAN1_82573 Signal

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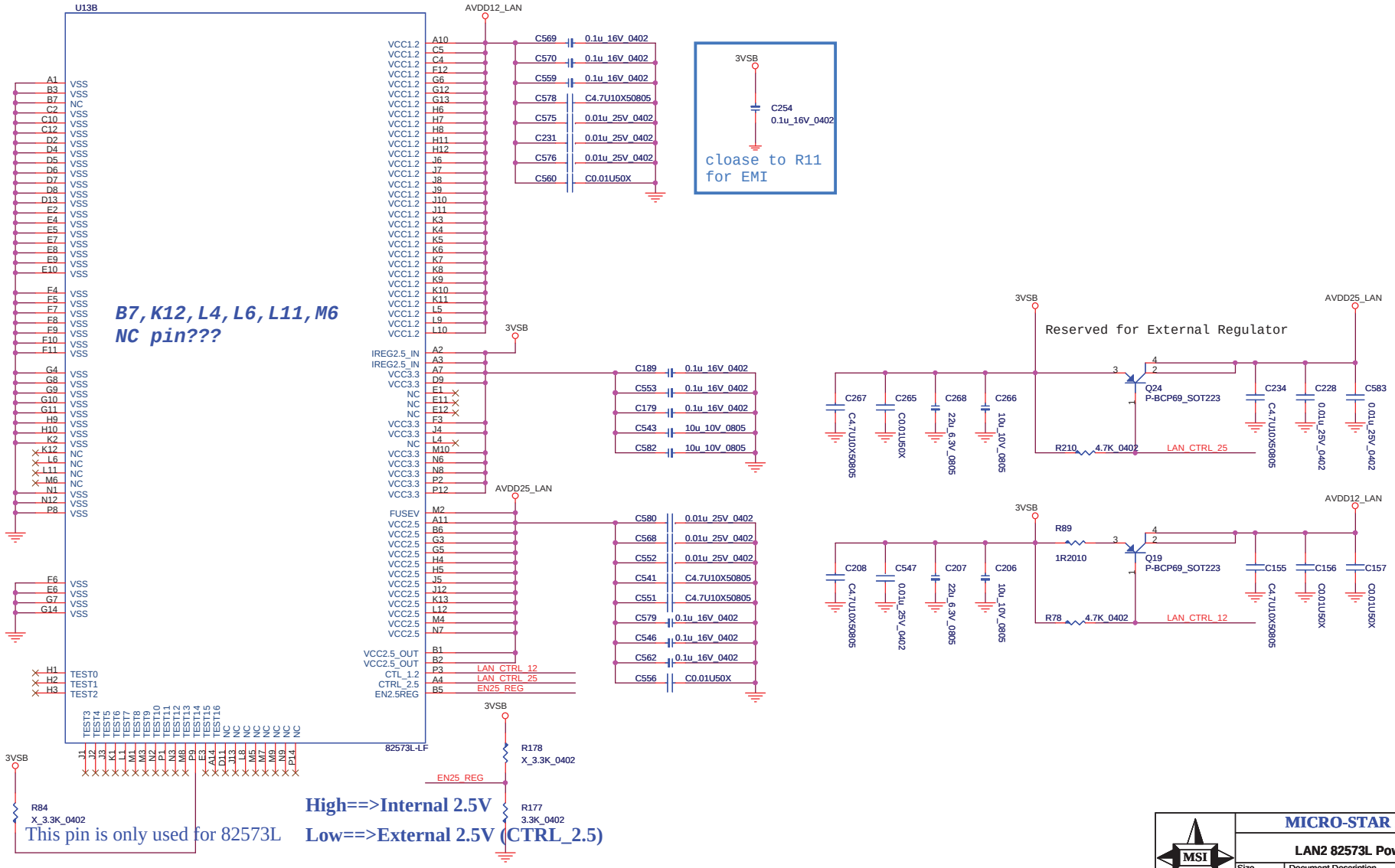

MICRO-STAR INT'L CO.,LTD	
LAN2 82573L Power	
Size: Custom	Document Description: MS-96B9
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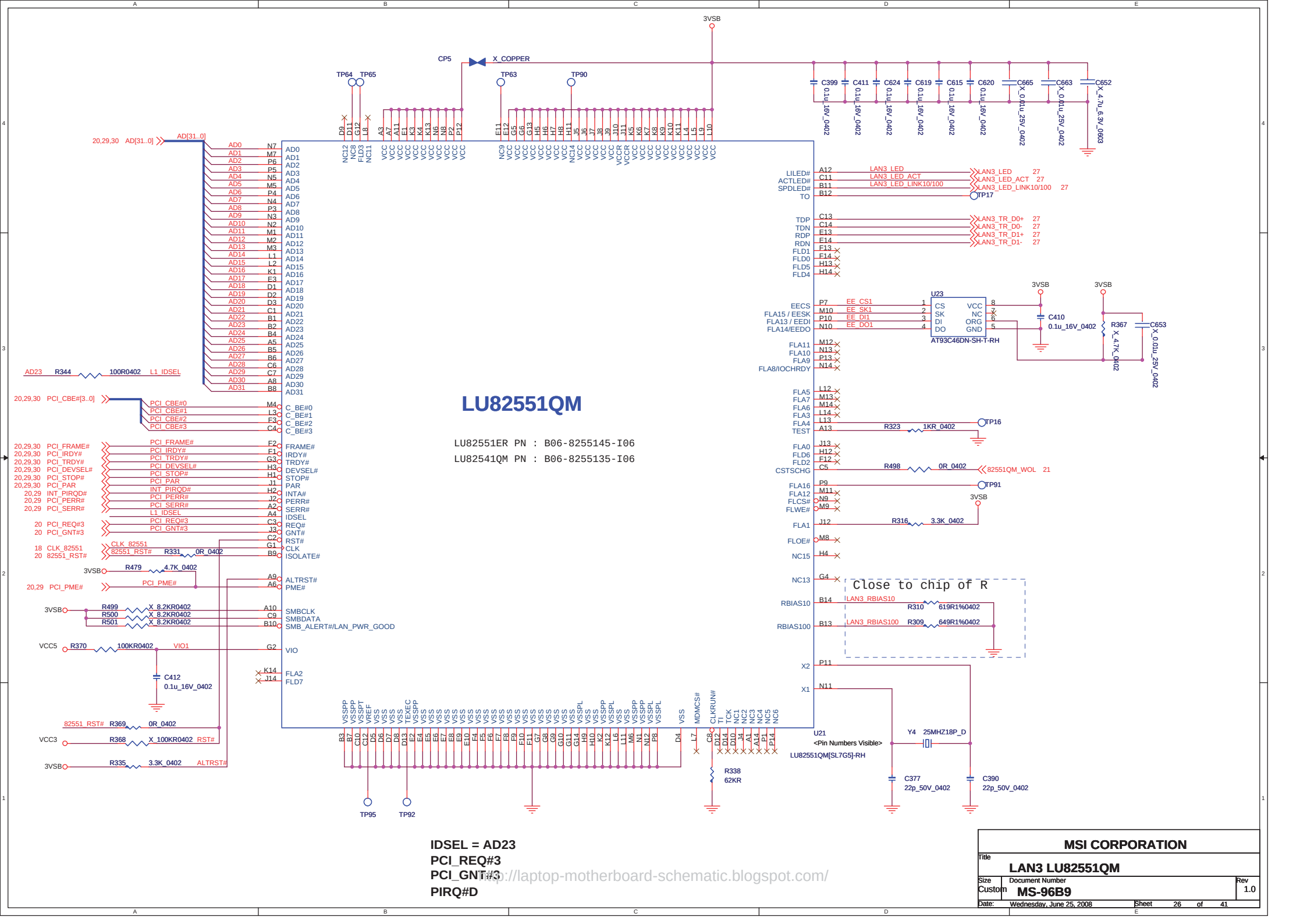
LU82551QM
LU82551ER PN : B06-8255145-I06
LU82541QM PN : B06-8255135-I06
3VSB
CP5
X_COPPER
TP64
TP65
TP63
TP90
C399 0.1u_16V_0402
C411 0.1u_16V_0402
C624 0.1u_16V_0402
C619 0.1u_16V_0402
C615 0.1u_16V_0402
C620 0.1u_16V_0402
C665 X_0.01u_25V_0402
C663 X_0.01u_25V_0402
C652 X_4.7u_6.3V_0603
AD[31..0]
PCI_CBE#[3..0]
PCI_FRAME#
PCI_IRDY#
PCI_TRDY#
PCI_DEVSEL#
PCI_STOP#
PCI_PAR
INT_PIRQD#
PCI_PERR#
PCI_SERR#
L1_IDSEL
PCI_REQ#3
PCI_GNT#3
CLK_82551
82551_RST#
PCI_PME#
SMBCLK
SMBDATA
SMB_ALERT#/LAN_PWR_GOOD
VIO
FLA2
FLD7
ALTRST#
PME#
LILED#
ACTLED#
SPDLED#
TO
LAN3_LED
LAN3_LED_ACT
LAN3_LED_LINK10/100
TP17
TDP
TDN
RDP
RDN
FLD1
FLD0
FLD5
FLD4
LAN3_TR_D0+
LAN3_TR_D0-
LAN3_TR_D1+
LAN3_TR_D1-
U23
EECS
FLA15 / EESK
FLA13 / EEDI
FLA14/EEDO
EE_CS1
EE_SK1
EE_DI1
EE_DO1
CS
SK
DI
DO
VCC
NC
ORG
GND
AT93C46DN-SH-T-RH
C410 0.1u_16V_0402
R367 X_4.7K_0402
C653 X_0.01u_25V_0402
FLA11
FLA10
FLA9
FLA8/IOCHRDY
FLA5
FLA7
FLA6
FLA3
FLA4
TEST
R323 1KR_0402
TP16
FLA0
FLD6
FLD2
CSTSCHG
R498 0R_0402
82551QM_WOL
TP91
FLA16
FLA12
FLCS#
FLWE#
FLA1
R316 3.3K_0402
FLOE#
NC15
NC13
Close to chip of R
RBIAS10
RBIAS100
LAN3_RBIAS10
LAN3_RBIAS100
R310 619R1%0402
R309 649R1%0402
X2
X1
U21
<Pin Numbers Visible>
LU82551QM[SL7G5]-RH
Y4 25MHZ18P_D
C377 22p_50V_0402
C390 22p_50V_0402
R338 62KR
R344 100R0402
R331 0R_0402
R479 4.7K_0402
R499 X_8.2KR0402
R500 X_8.2KR0402
R501 X_8.2KR0402
R370 100KR0402
C412 0.1u_16V_0402
R369 0R_0402
R368 X_100KR0402
R335 3.3K_0402
TP95
TP92
IDSEL = AD23
PCI_REQ#3
PCI_GNT#3
PIRQ#D
http://laptop-motherboard-schematic.blogspot.com/
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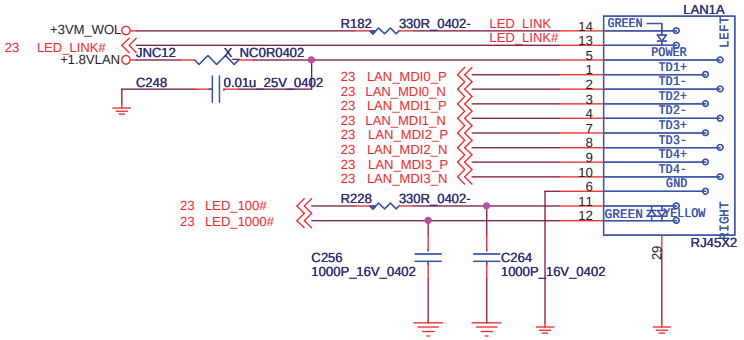
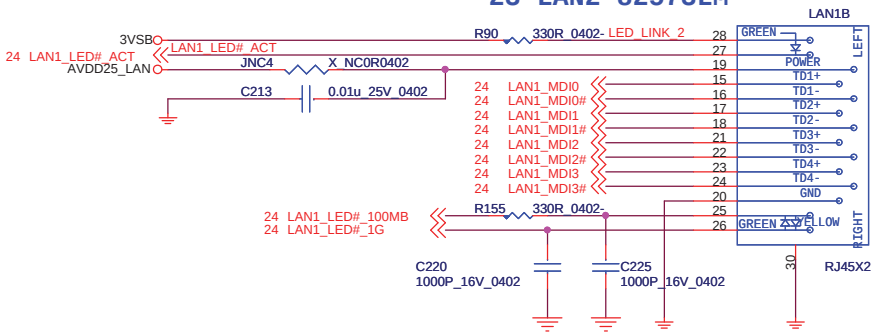
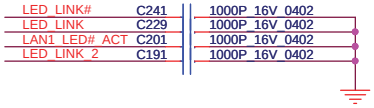
LAN1&2 82567&82573 GIGA LAN

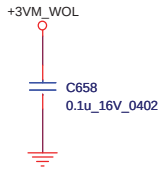
23 LAN1 82567LM

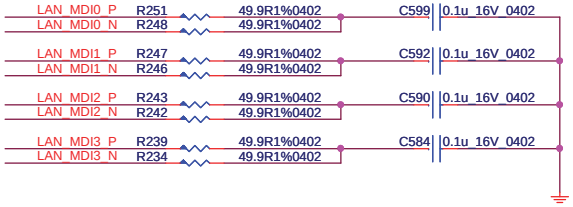


23 LAN2 82573LM

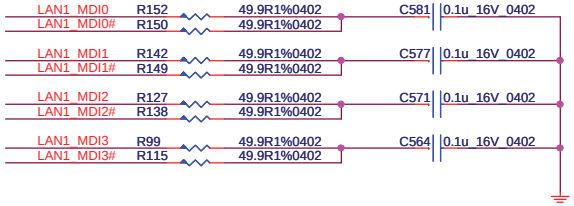








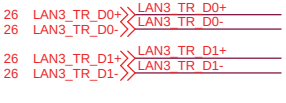
Place these components near 82567LM (LAN CHIPSET) forEMI

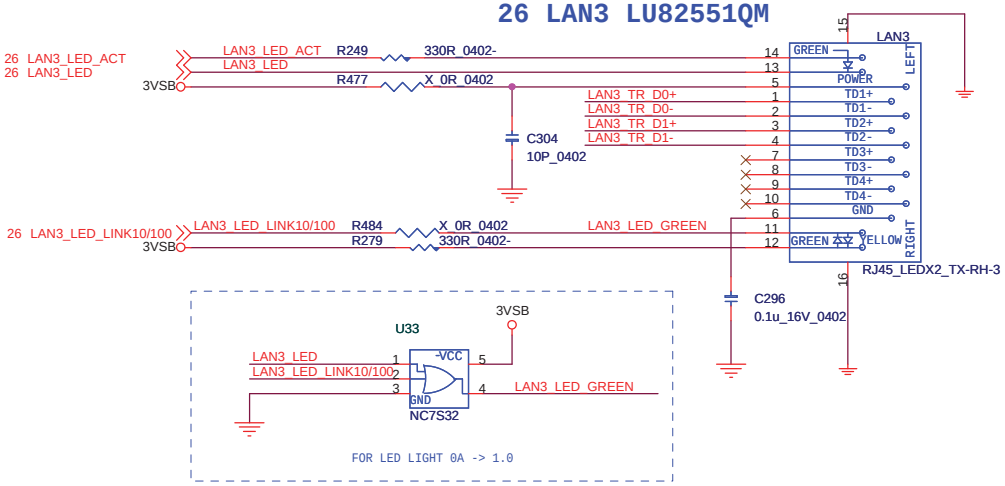


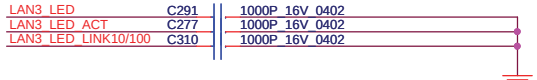
Place these components near 82573L(LAN CHIPSET) for EMI

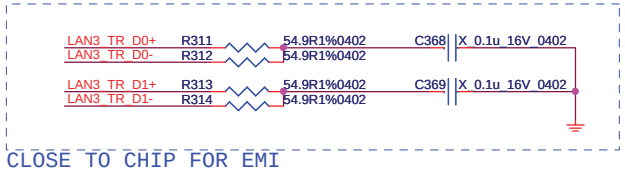
LAN3 82551QM 10/100M

26 LAN3 LU82551QM









CLOSE TO CHIP FOR EMI

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MICRO-STAR INT'L CO.,LTD

PCI -Express X 16/4 Port

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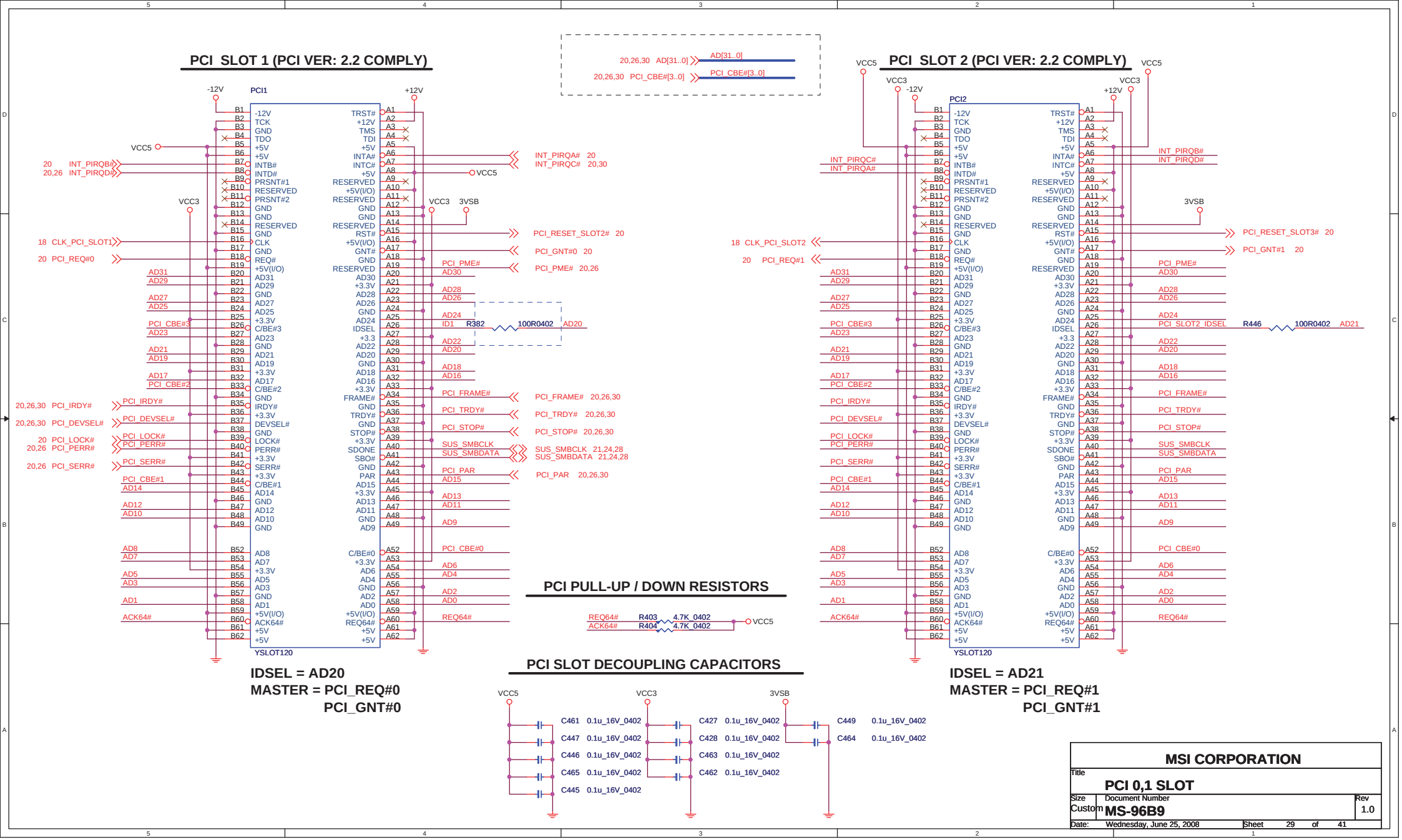

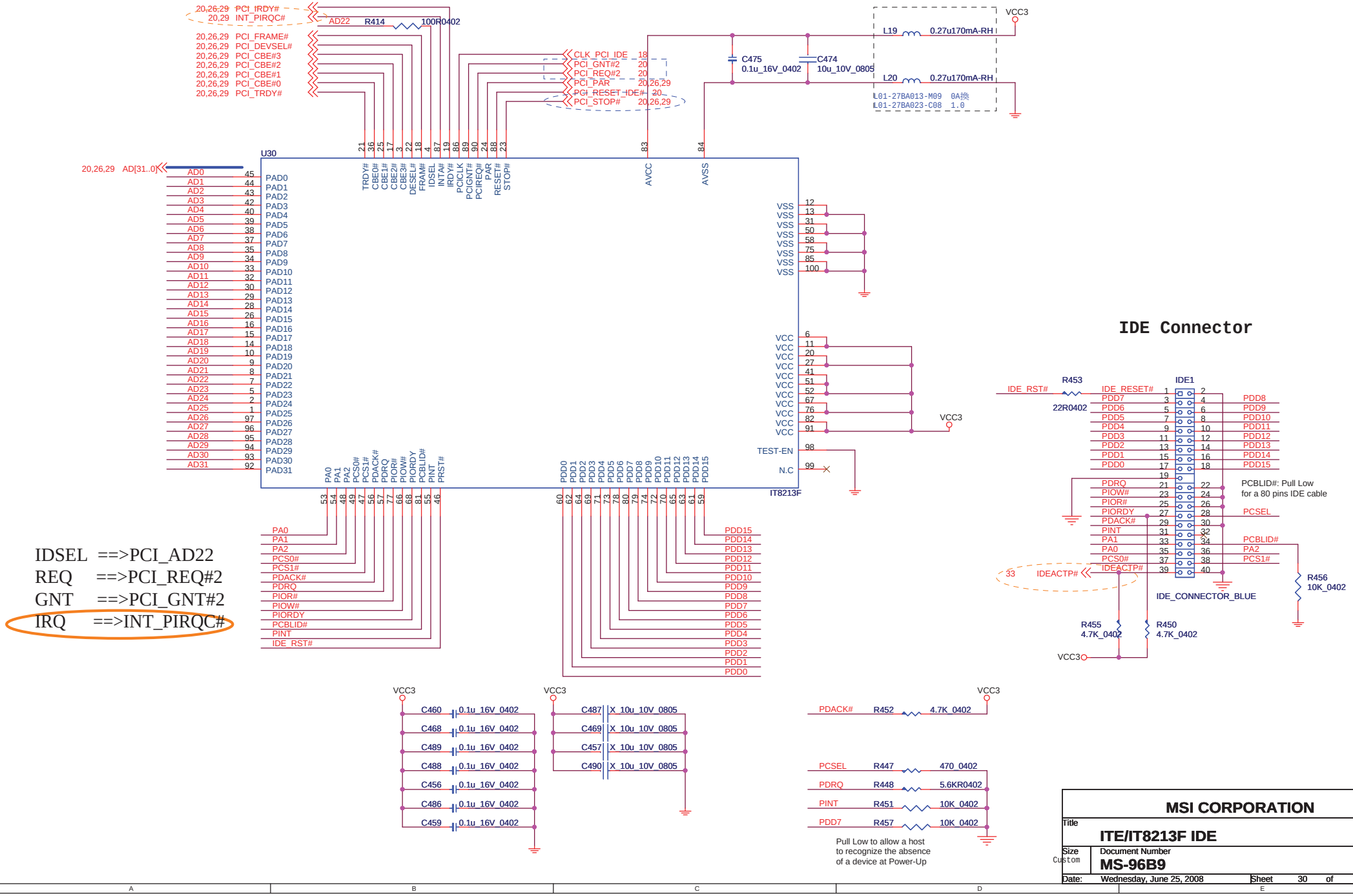

INDEX# must be pulled up to 5V oly for A version chip

U22

W83627DHG-RH-1

reserve for 657XHG

BIOS should set to GPO function

PS2 KEYBOARD & MOUSE CONNECTOR

JKBMSI MINIDINX2-12P

TPM

JTPM1

H2X7[10]M-2PITCH

CN1 8P4C-220P

CN2 8P4C-220P

COM

FOR EMI

GD75232_SSOP20

USE 96A8 COM New P/N:N51-09M0091-F02

LPC I/O STRAPPING RESISTOR

Hardware Monitor

RTSA#	L: CFAD=2E	H: CFAD=4E
GP50	L: TTL LEVEL	H: GTL LEVEL
SOUTA	L: KBC DISABLE	H: KBC ENABLE
DTRA#	L: DISABLE SPI	H: ENABLE SPI
FAN_SET	L: CPU1 PWM50%	H: CPU1 PWM100%

MSI CORPORATION

Title: SIO W83627DHG

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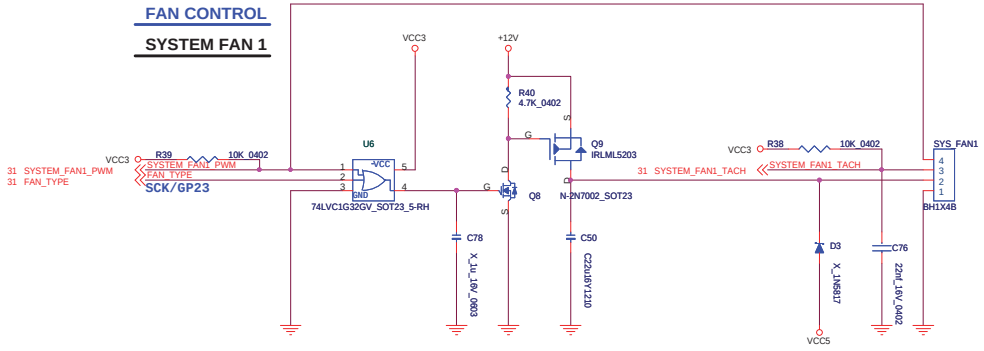
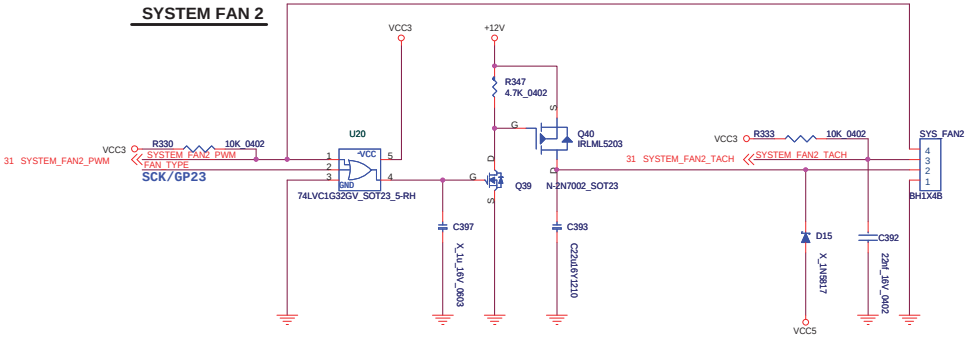
FAN CONTROL

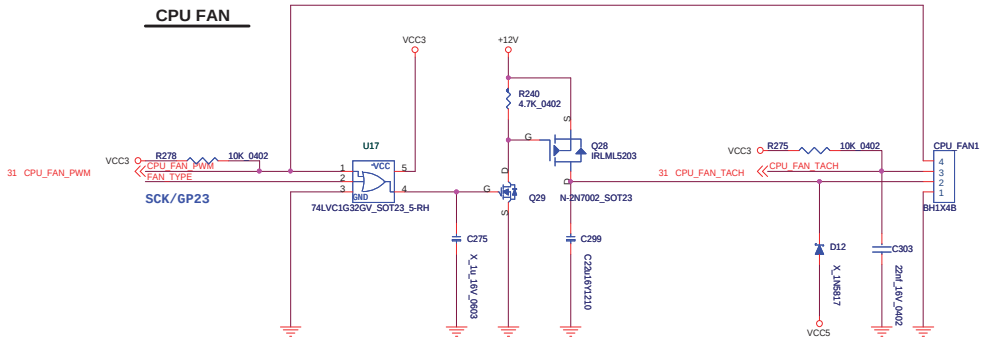
SYSTEM FAN 1



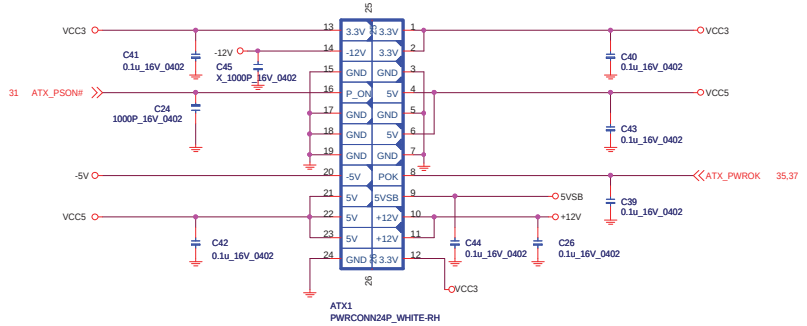
SYSTEM FAN 2

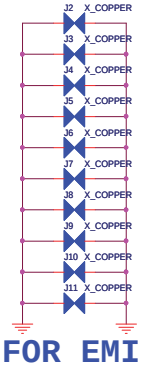


CPU FAN

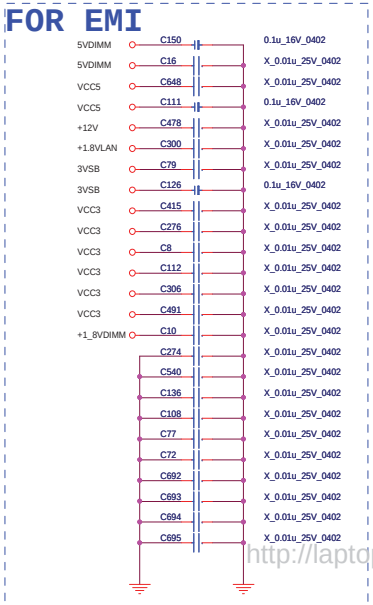


ATX Connector





FOR EMI



MSI CORPORATION		
Title: FAN,ATX		
Size: Custom	Document Number: MS-96B9	Rev: 1.0
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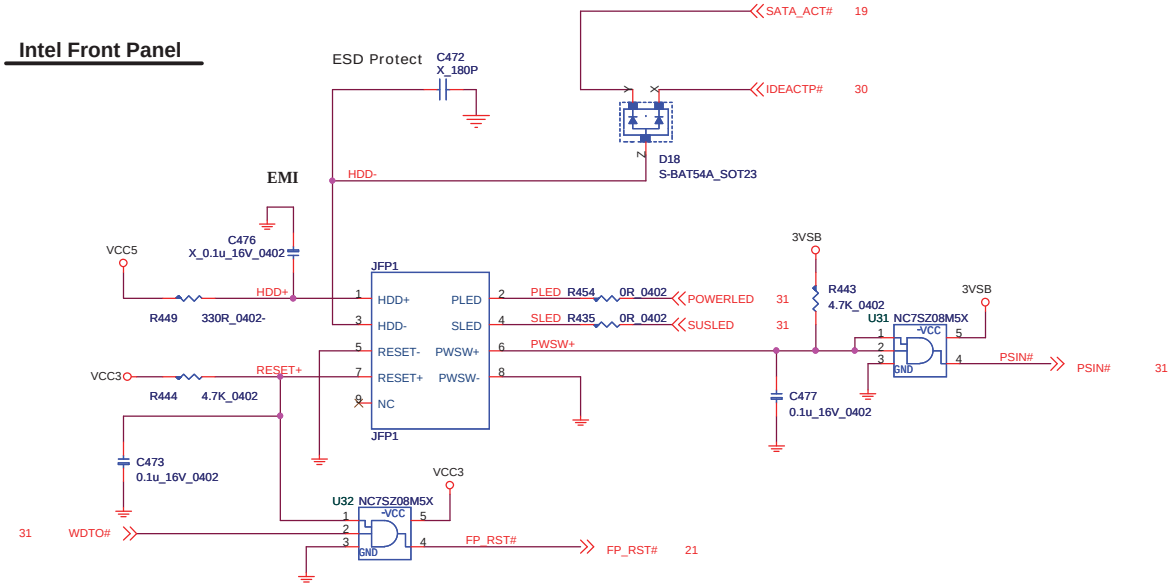
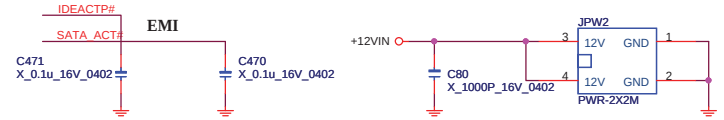
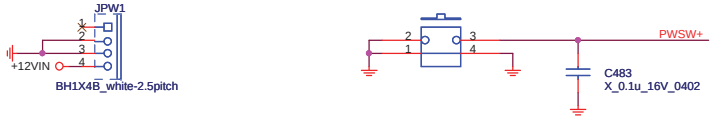
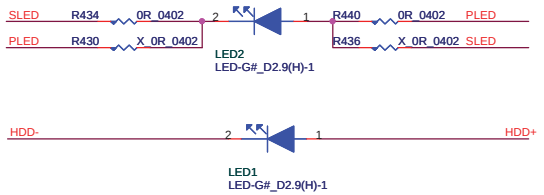
Intel Front Panel

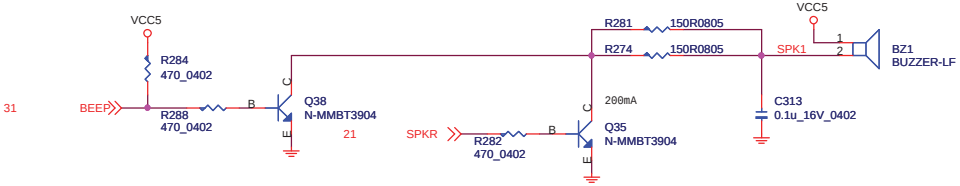


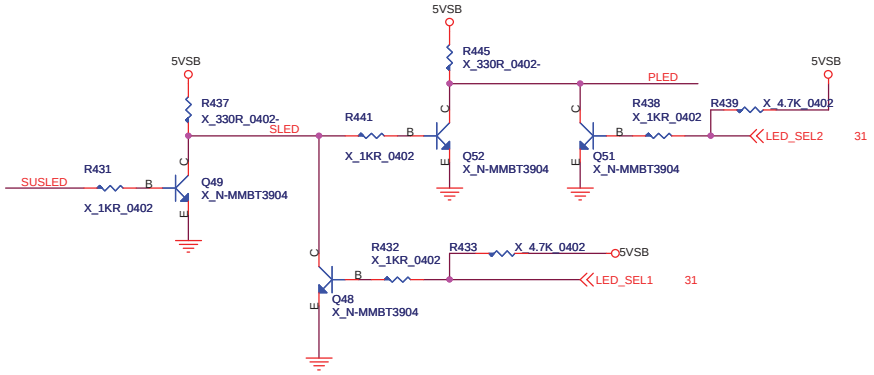


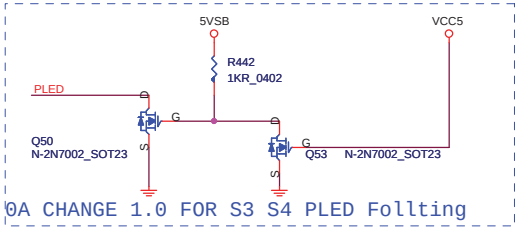




SUSLED	LED_SEL1	LED_SEL2	SLED	PLED	Single LED	Dual LED	
tri-state	1	1	0	0	X	X	for S5
tri-state	1	0	0	1	Green	Green	for S0
tri-state	0	1	1	0	X	Red	for S3
tri-state	0	0	1		X	Red	
1-0-1-0..	0	1	0-1-0-1..	0	X	Red blinking	for S3 blinking
1-0-1-0..	0	0	0-1-0-1..	1-0-1-0..	Green blinking	Green-Red blinking	for S3 blinking







MSI CORPORATION

Title: Front Panel

Size: Custom | Document Number: MS-96B9 | Rev: 1.0

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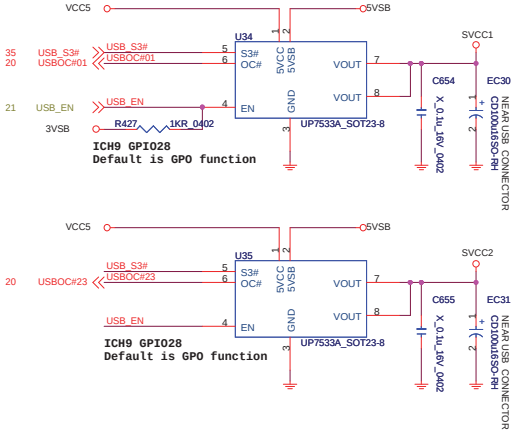
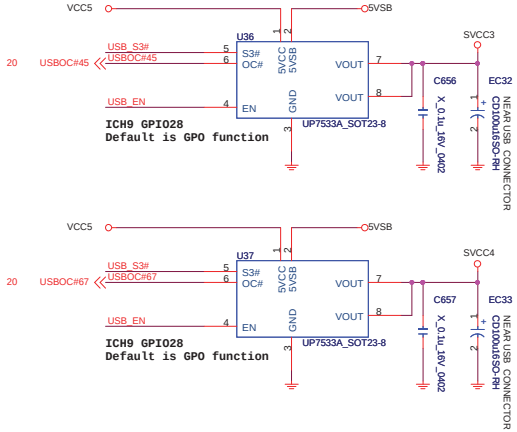
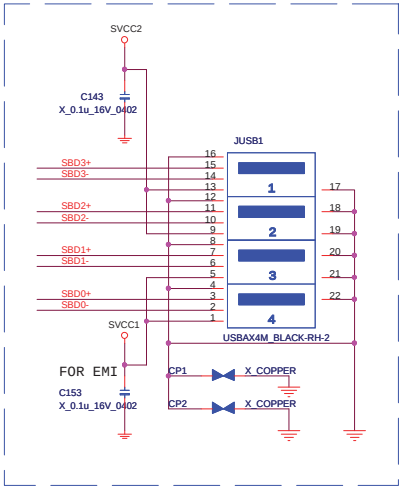
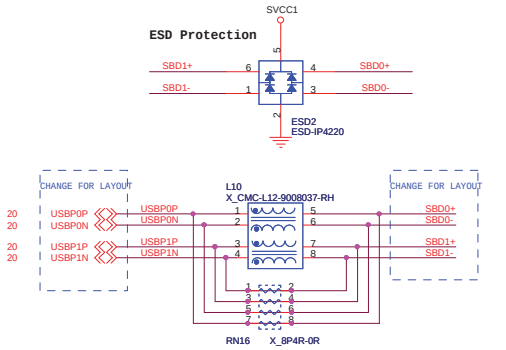
Change to USB x 2 ports for server
2 Port New PN: N53-08M0011-F02
4 Port New PN: N53-16M0041-F02

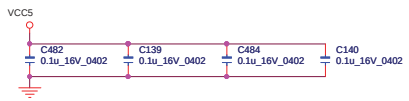


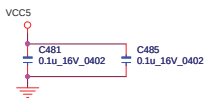




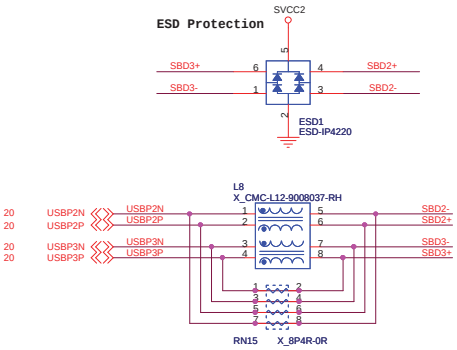
REAR PANEL USB CONNECTOR FOR USB PORT 0,1

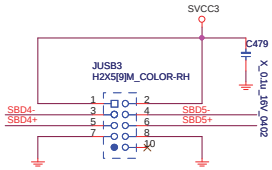




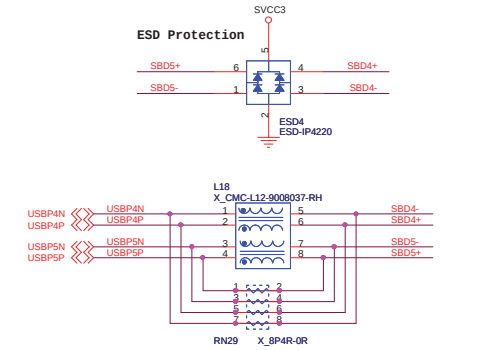


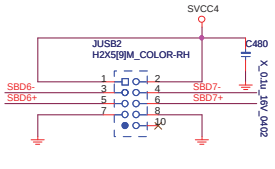
REAR PANEL USB CONNECTOR FOR USB PORT 2,3



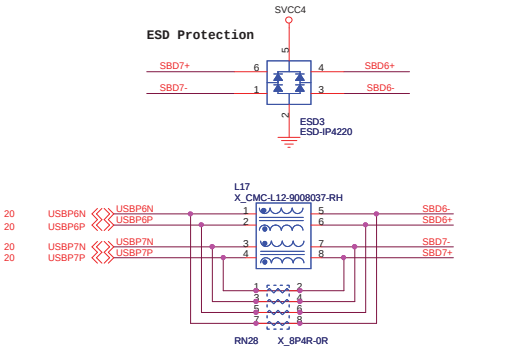


FRONT PANEL USB CONNECTOR FOR USB PORT 4,5

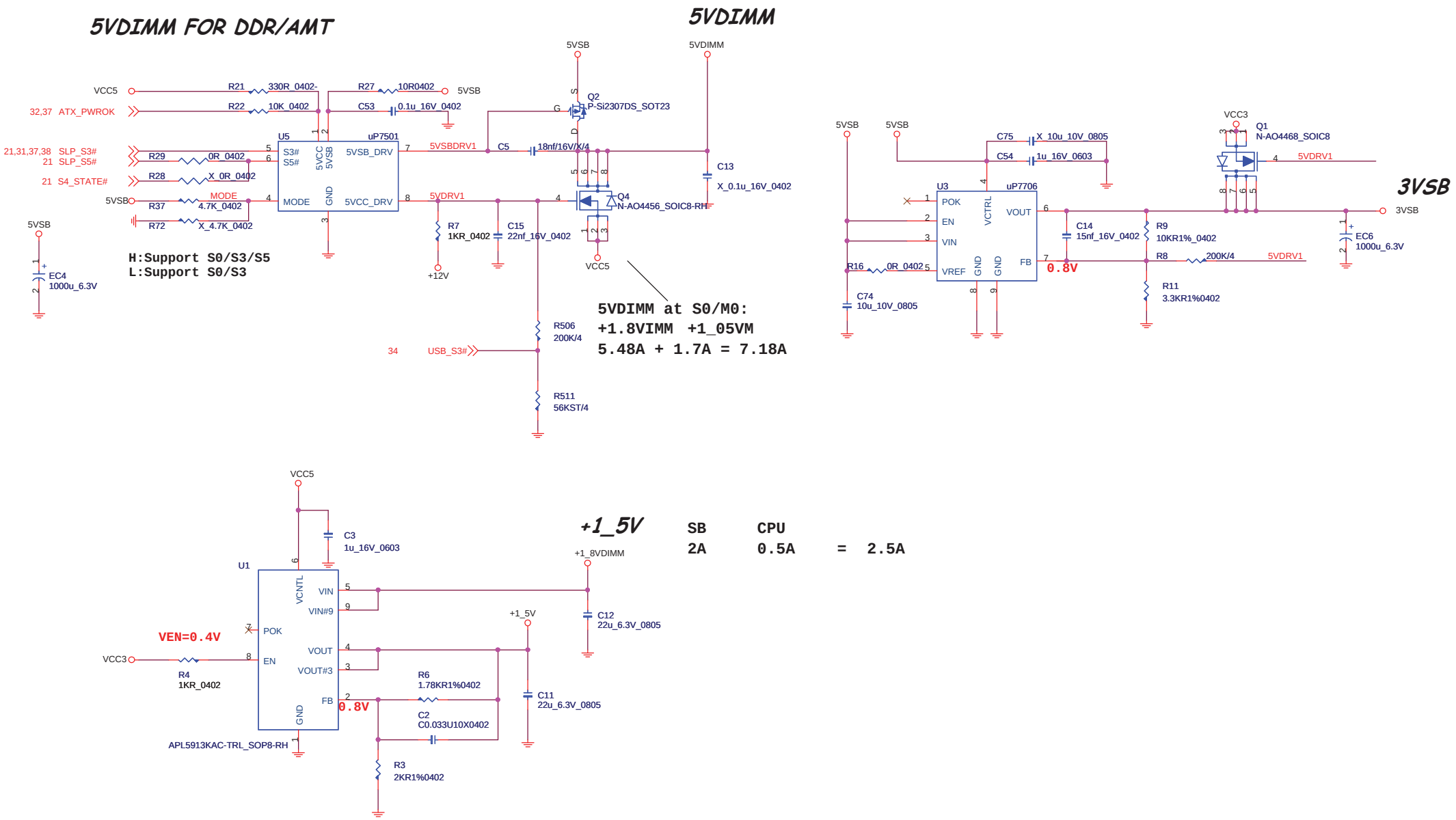




FRONT PANEL USB CONNECTOR FOR USB PORT 6,7

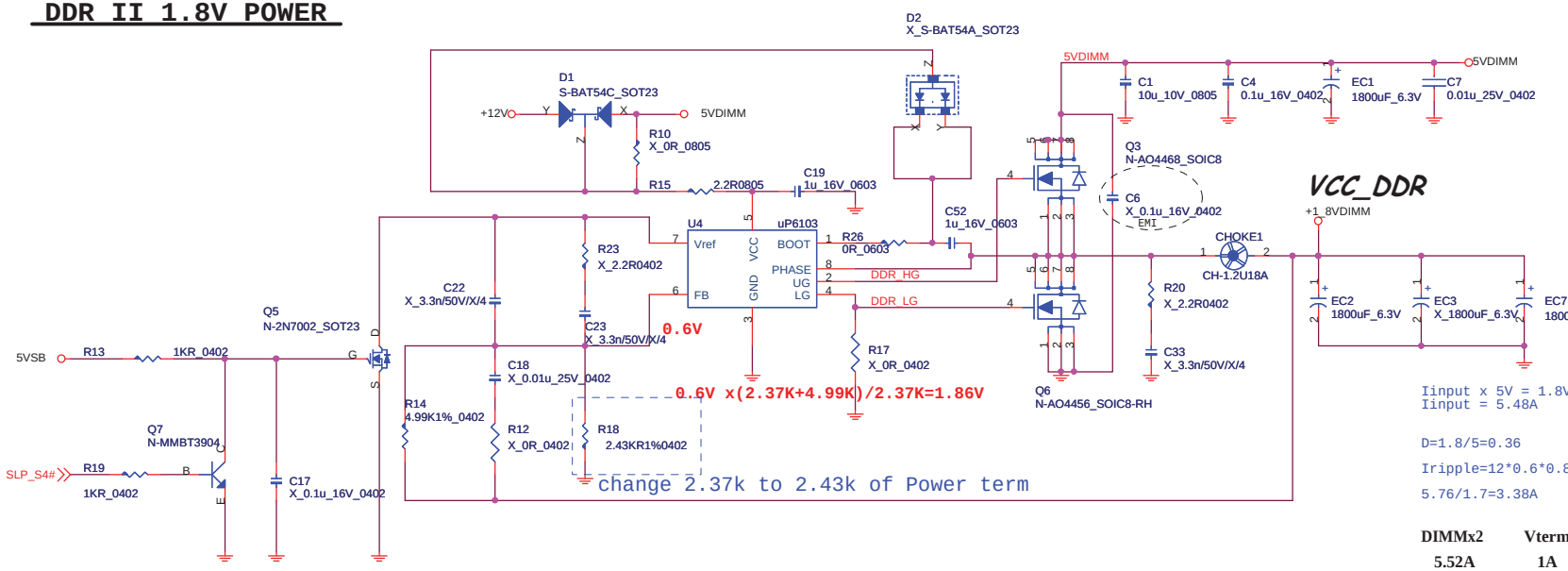


MSI CORPORATION		
Title: USB		
Size: Custom	Document Number: MS-96B9	Rev: 1.0
Date: Wednesday, June 25, 2008	Sheet 34 of 41	



MSI CORPORATION			
Title: POWER 5VDIMM/3VSB/+1.5V			
Size: Custom	Document Number: MS-96B9		Rev: 1.0
Date: Wednesday, June 25, 2008	Sheet 35 of 41		

DDR II 1.8V POWER



VCC_DDR

+1_8VDIMM

Iinput x 5V = 1.8V x12.17A /0.8
Iinput = 5.48A

D=1.8/5=0.36

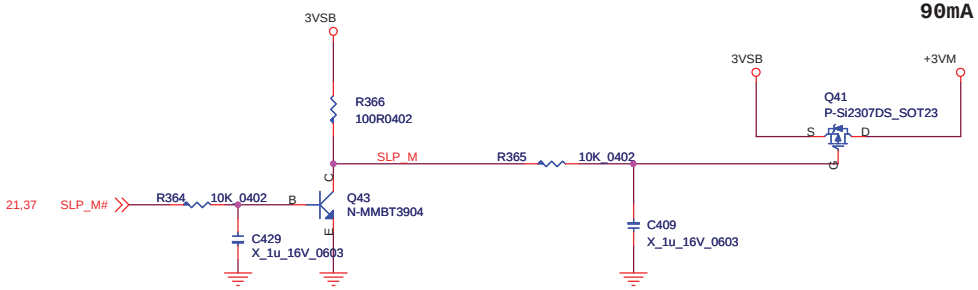
Iripple=12*0.6*0.8/1=5.76A

5.76/1.7=3.38A

DIMMx2	Vterm	NB	+1_5VRUN		
5.52A	1A	3A	2.65A	=	12.17A

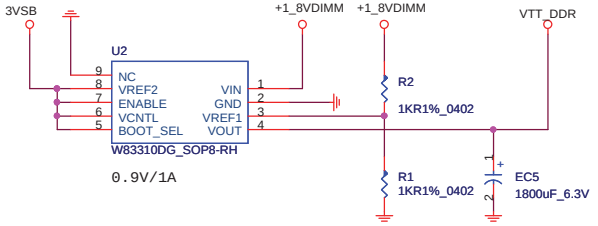
+3VM

90mA at AMT mode



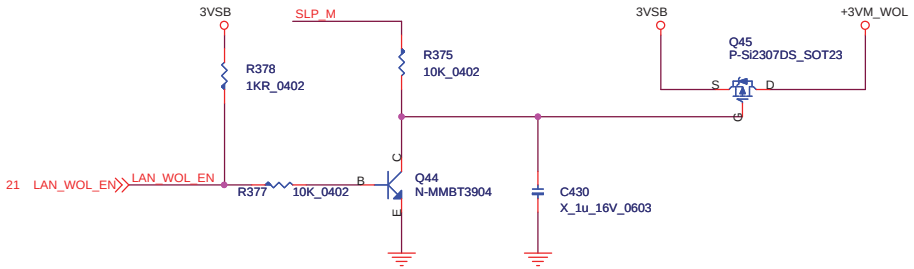
DDR VTT Power

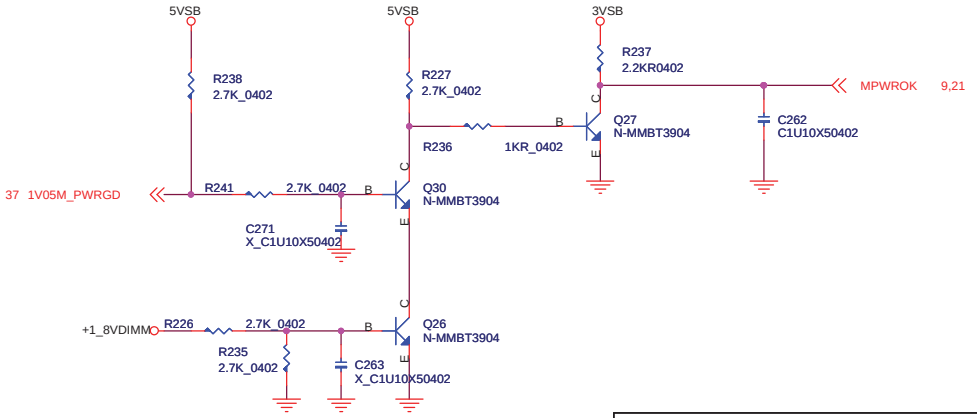
VTT_DDR



+3VM_WOL for ICH9
150mA at S3/S4/S5

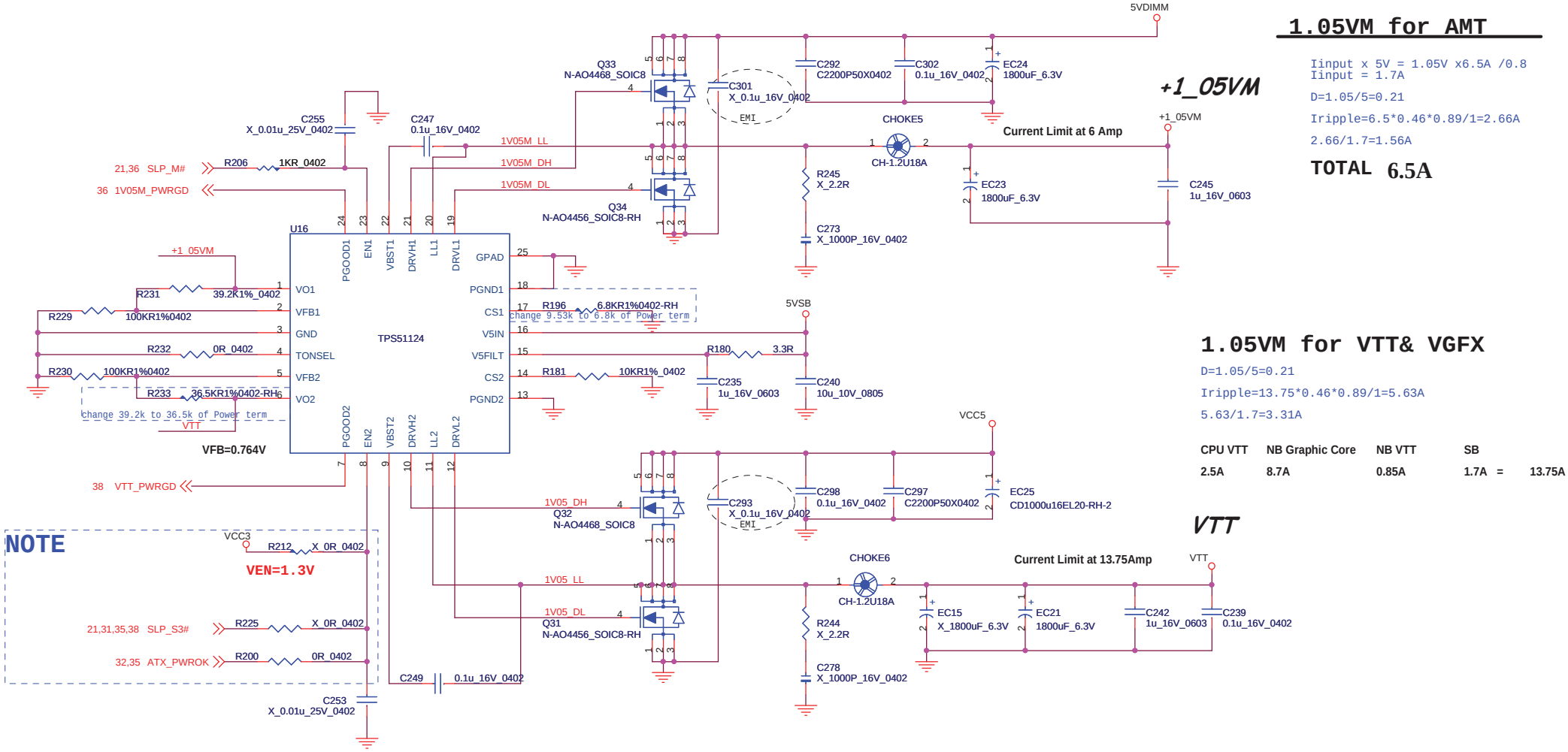
+3VM_WOL





Default Tri-State from ICH9
pull-up for default WOL after G3

MSI CORPORATION		
Title: POWER VTT_DDR/+3VM/+3VM_WOL/+1.8VDIMM		
Size: Custom	Document Number: MS-96B9	Rev: 1.0
Date: Wednesday, June 25, 2008	Sheet 36 of 41	



Title	M_Graphics Core +1.05VM/VTT
Size	Custom
Document Number	MS-96B9
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Date:	Wednesday, June 25, 2008
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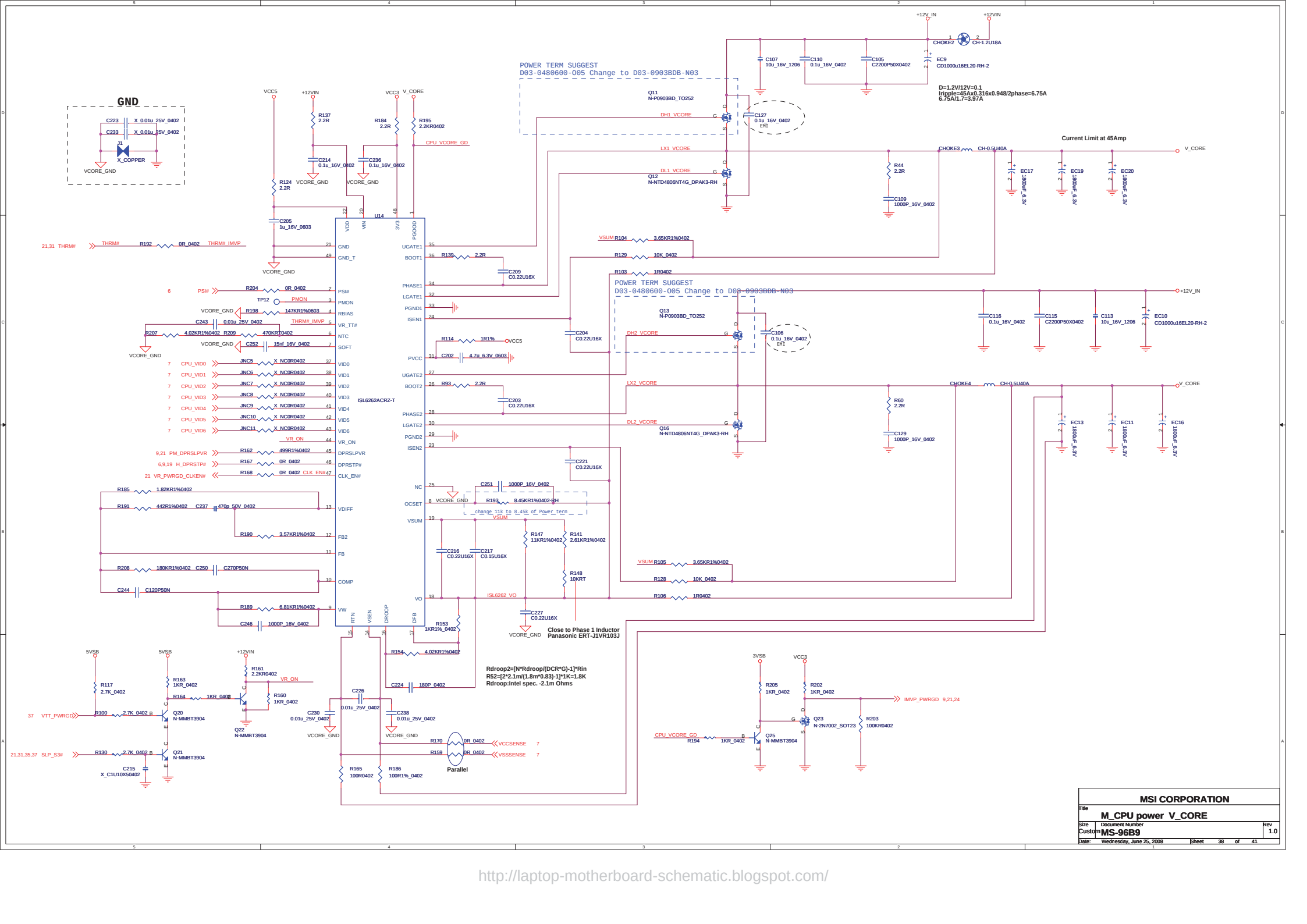
MSI CORPORATION



IMPEDANCE TRACE

TL16 — L1_DIFF_5/6/20_95_OHM- — X_D1x2 — Layer 1 — DIFF 95 ohm(5/6/20)

TL15 — L1_DIFF_5/6/20_95_OHM+ — X_D1x2 — Layer 1 — DIFF 95 ohm(5/6/20)

TL11 — L1_DIFF_4/6/20_100_OHM- — X_D1x2 — Layer 1 — DIFF 100 ohm(4/6/20)

TL12 — L1_DIFF_4/6/20_100_OHM+ — X_D1x2 — Layer 1 — DIFF 100 ohm(4/6/20)

TL10 — L3_DIFF_4/9/20_100_OHM- — X_D1x2 — Layer 3 — DIFF 100 ohm(4/9/20)

TL9 — L3_DIFF_4/9/20_100_OHM+ — X_D1x2 — Layer 3 — DIFF 100 ohm(4/9/20)

TL8 — L4_DIFF_4/9/20_100_OHM- — X_D1x2 — Layer 4 — DIFF 100 ohm(4/9/20)

TL7 — L4_DIFF_4/9/20_100_OHM+ — X_D1x2 — Layer 4 — DIFF 100 ohm(4/9/20)

TL2 — L3_DIFF_7/4/20_70_OHM- — X_D1x2 — Layer 3 — DIFF 70 ohm(7/4/20)

TL5 — L3_DIFF_7/4/20_70_OHM+ — X_D1x2 — Layer 3 — DIFF 70 ohm(7/4/20)

TL1 — L4_DIFF_5/6.5/20_85_OHM- — X_D1x2 — Layer 4 — DIFF 85 ohm(5/6.5/20)

TL4 — L4_DIFF_5/6.5/20_85_OHM+ — X_D1x2 — Layer 4 — DIFF 85 ohm(5/6.5/20)

TL13 — L6_DIFF_5/6/20_95_OHM- — X_D1x2 — Layer 6 — DIFF 95 ohm(5/6/20)

TL14 — L6_DIFF_5/6/20_95_OHM+ — X_D1x2 — Layer 6 — DIFF 95 ohm(5/6/20)

TL3 — L6_DIFF_7/4/20_70_OHM- — X_D1x2 — Layer 6 — DIFF 70 ohm(7/4/20)

TL6 — L6_DIFF_7/4/20_70_OHM+ — X_D1x2 — Layer 6 — DIFF 70 ohm(7/4/20)

Optics Orientation Holes

FM11 FM7 FM8 FM4 FM3 — X_FM

FM5 FM13 FM6 FM1 FM2 — X_FM

FM12 — X_FM

RTC Battery

BAT1_X1 — BATTERY — BAT-CR2032

PCB1 — MS-96B9-10

Mounting Holes

MH1 MH2 MH3 MH4 MH5 MH6 MH7 MH8

HOLES_4S_7_5

NB

U22_7 SIP3_NP2

U22_6 SIP3_NP2

U10_X1 — MCH Heatsink — GM965_heatsink

SB

U22_3 SIP3_NP2

U22_2 SIP3_NP2

ICH Heatsink

U26 — ICH Heatsink

CPU

CPU_RM — CPU RM — CPU_sink duck

MSI CORPORATION		
Title: Screw & EMI		
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ICH9 GPIO setting

GPIO	Alt Func	I/O/NC	Power	Tol	Default	Signal Name
GPIO[0]	PMSYNC#	I/O	Core	3.3V	GPI	PM_SYNC#
GPIO[1]	GPIO1	I/O	Core	3.3V	GPI	SB_GPIO1
GPIO[2]	PIRQE#	I/OD	Core	5V	GPI	INT_PIRQE#
GPIO[3]	PIRQF#	I/OD	Core	5V	GPI	INT_PIRQF#
GPIO[4]	PIRQG#	I/OD	Core	5V	GPI	INT_PIRQG#
GPIO[5]	PIRQH#	I/OD	Core	5V	GPI	INT_PIRQH#
GPIO[6]	GPIO6	I/O	Core	3.3V	GPI	SB_GPIO6
GPIO[7]	GPIO7	I/O	Core	3.3V	GPI	SB_GPIO7
GPIO[8]	82551QM_WOL	I/O	Resume	3.3V	GPI	82551QM_WOL
GPIO[9]	WOL_EN	I/O	Resume	3.3V	Native	LAN_WOL_EN
GPIO[10]	SUS_PWR_ACK	I/O	Resume	3.3V	GPI	SUSPWRACK
GPIO[11]	SMBALERT#	I/O	Resume	3.3V	Native	SMBALERT#
GPIO[12]	LAN_PHY_PWR_CTRL	I/O	Resume	3.3V	GPO	LAN_PHY_PCTRL
GPIO[13]	ENERGY_DETECT	I/O	Resume	3.3V	GPI	LPC_PME#
GPIO[14]	AC_PRESENT	I/O	Resume	3.3V	GPI	AC_PERSENT
GPIO[15]	UNUSED (DP)	I/O	Resume	3.3V	Native	UNUSED (DP)
GPIO[16]	DPRSLPVR	I/O	Core	3.3V	GPO	PM_DPRSLPVR
GPIO[17]	GPIO17	I/O	Core	3.3V	GPI	SB_GPIO17
GPIO[18]	GPIO18	I/O	Core	3.3V	GPO	SB_GPIO18
GPIO[19]	SATA1GP	I/O	Core	3.3V	GPI	SATA1GP
GPIO[20]	GPIO20	I/O	Core	3.3V	GPO	SB_GPIO20
GPIO[21]	SATA0GP	I/O	Core	3.3V	GPI	SATA0GP
GPIO[22]	SCLOCK	I/O	Core	3.3V	GPI	SB_GPIO22
GPIO[23]	LDRQ1#	I/O	Core	3.3V	Native	LDRQ1#
GPIO[24]	MEM_LED	I/O	Resume	3.3V	GPO	SB_GPIO24
GPIO[25]	UNUSED (DP)	I/O	Resume	3.3V	Native	UNUSED (DP)
GPIO[26]	S4_STATE#	I/O	Resume	3.3V	Native	S4_STATE#
GPIO[27]	GPIO27	I/O	Resume	3.3V	GPO	LAN1_DISABLE#
GPIO[28]	GPIO28	I/O	Resume	3.3V	GPO	USB_EN
GPIO[29]	OC5#	I/O	Resume	3.3V	Native	USBOC#45
GPIO[30]	OC6#	I/O	Resume	3.3V	Native	USBOC#67
GPIO[31]	OC7#	I/O	Resume	3.3V	Native	USBOC#67
GPIO[32]	UNUSED (DP)	I/O	Core	3.3V	GPO	UNUSED (DP)
GPIO[33]	HDA_DOCK_EN#	I/O	Core	3.3V	GPO	SB_GPIO33
GPIO[34]	HDA_DOCK_RST#	I/O	Core	3.3V	GPO	SB_GPIO34
GPIO[35]	SATACLKREQ#	I/O	Core	3.3V	GPO	SB_GPIO35
GPIO[36]	SATA4GP	I/O	Core	3.3V	GPI	SATA2GP
GPIO[37]	SATA5GP	I/O	Core	3.3V	GPI	SATA3GP
GPIO[38]	SLOAD	I/O	Core	3.3V	GPI	MB_ID0
GPIO[39]	SDATAOUT0	I/O	Core	3.3V	GPI	MB_ID1
GPIO[40]	OC1#	I/O	Resume	3.3V	Native	USBOC#01
GPIO[41]	OC2#	I/O	Resume	3.3V	Native	USBOC#23
GPIO[42]	OC3#	I/O	Resume	3.3V	Native	USBOC#23
GPIO[43]	OC4#	I/O	Resume	3.3V	Native	USBOC#45
GPIO[44]	OC8#	I/O	Resume	3.3V	Native	USBOC#8_11
GPIO[45]	OC9#	I/O	Resume	3.3V	Native	USBOC#8_11
GPIO[46]	OC10#	I/O	Resume	3.3V	Native	USBOC#8_11
GPIO[47]	OC11#	I/O	Resume	3.3V	Native	USBOC#8_11
GPIO[48]	SDATAOUT1	I/O	Core	3.3V	GPI	SB_GPIO48
GPIO[49]	GPIO49	I/O	Core	3.3V	GPO	SB_GPIO49
GPIO[50]	REQ1#	I/O	Core	5V	Native	PCI_REQ#1
GPIO[51]	GNT1#	I/O	Core	3.3V	Native	PCI_GNT#1
GPIO[52]	REQ2#	I/O	Core	5V	Native	PCI_REQ#2
GPIO[53]	GNT2#	I/O	Core	3.3V	Native	PCI_GNT#2
GPIO[54]	REQ3#	I/O	Core	5V	Native	PCI_REQ#3
GPIO[55]	GNT3#	I/O	Core	3.3V	Native	PCI_GNT#3
GPIO[56]	GLAN_DOCK#	I/O	Resume	3.3V	GPI	GLAN_DOCK#
GPIO[57]	CLGPIO5	I/O	Resume	3.3V	GPI	3VSB
GPIO[58]	SPI_CS1#	I/O	Resume	3.3V	GPI	SPI_CS1#
GPIO[59]	OC0#	I/O	Resume	3.3V	Native	USBOC#01
GPIO[60]	LINKALERT#	I/O	Resume	3.3V	Native	SMB_LINK_ALERT#

Super IO GPIO setting

GPIO	Alt Func	Power	Signal Name	I/O
GPIO[20]	CPUFANIN1	Core	CPU_FANPWM	Output
GPIO[21]	CPUFANOUT1	Core	CPUFANIN	Input
GPIO[22]	SCE#/PLED/WDTO#	Core	unused	
GPIO[23]	SCK	Core	FAN_TYPE	Output
GPIO[24]	MSDATA	Resume	MSDATA	
GPIO[25]	MSCLK	Resume	MSCLK	
GPIO[26]	KBDATA	Resume	KBDATA	
GPIO[27]	KBCLK	Resume	KBCLK	
GPIO[30]	GP30	Resume	unused	Output
GPIO[31]	GP31	Resume	unused	Output
GPIO[32]	RSTOUT2#/SCL	Resume	unused	
GPIO[33]	RSTOUT3#/SDA	Resume	unused	
GPIO[34]	RSTOUT4#	Resume	unused	Output
GPIO[35]	GP35	Resume	unused	Output
GPIO[36]	GP36	Resume	unused	Output
GPIO[37]	GP37	Resume	unused	Output
GPIO[40]	RIB#	Resume	unused	
GPIO[41]	DCDB#	Resume	LED_SEL1	
GPIO[42]	RTX/SOUTB	Resume	unused	
GPIO[43]	RRX/SINB	Resume	unused	
GPIO[44]	DTRB#	Resume	unused	
GPIO[45]	RTSB#	Resume	unused	
GPIO[46]	DSRB#	Resume	LED_SEL2	
GPIO[47]	CTSB#	Resume	unused	
GPIO[50]	EN_VRM10/WDTO#	Resume	WDTO#	Output
GPIO[51]	RSMRST#	Resume	RSMRST#	Output
GPIO[52]	SUSB#	Resume	SLP_S3#	Intput
GPIO[53]	PSON#	Resume	ATX_PSON#	Output
GPIO[54]	PWROK	Resume	unused	Output
GPIO[55]	SUSLED	Resume	SUSLED	Output
GPIO[56]	PSIN#	Resume	PSIN#	Input
GPIO[57]	PSOUT#	Resume	PWRBTN#	Output
GPIO[60]	RIA#	Core	RIA#	
GPIO[61]	DCDA#	Core	DCDA#	
GPIO[62]	SOUTA/PENKBC	Core	SOUTA	
GPIO[63]	SINA	Core	SINA	
GPIO[64]	DTRA#/PENROM	Core	DTRA#	
GPIO[65]	RTSA#/HEFRAS	Core	RTSA#	
GPIO[66]	DSRA#	Core	DSRA#	
GPIO[67]	CTSA#	Core	CTSA#	

PCI rounting

Device	Interrupt	ID select	REQ&GNT
PCI slot 1	INT_PIRQ#A INT_PIRQ#B INT_PIRQ#C INT_PIRQ#D	AD20	PCI_REQ#0 PCI_GNT#0
PCI slot 2	INT_PIRQ#B INT_PIRQ#C INT_PIRQ#D INT_PIRQ#A	AD21	PCI_REQ#1 PCI_GNT#1
ITE IT8213F	INT_PIRQC#	AD22	PCI_REQ#2 PCI_GNT#2
LAN 82551QM	INT_PIRQD#	AD23	PCI_REQ#3 PCI_GNT#3

MSI CORPORATION

Title: GPIO BUFFER

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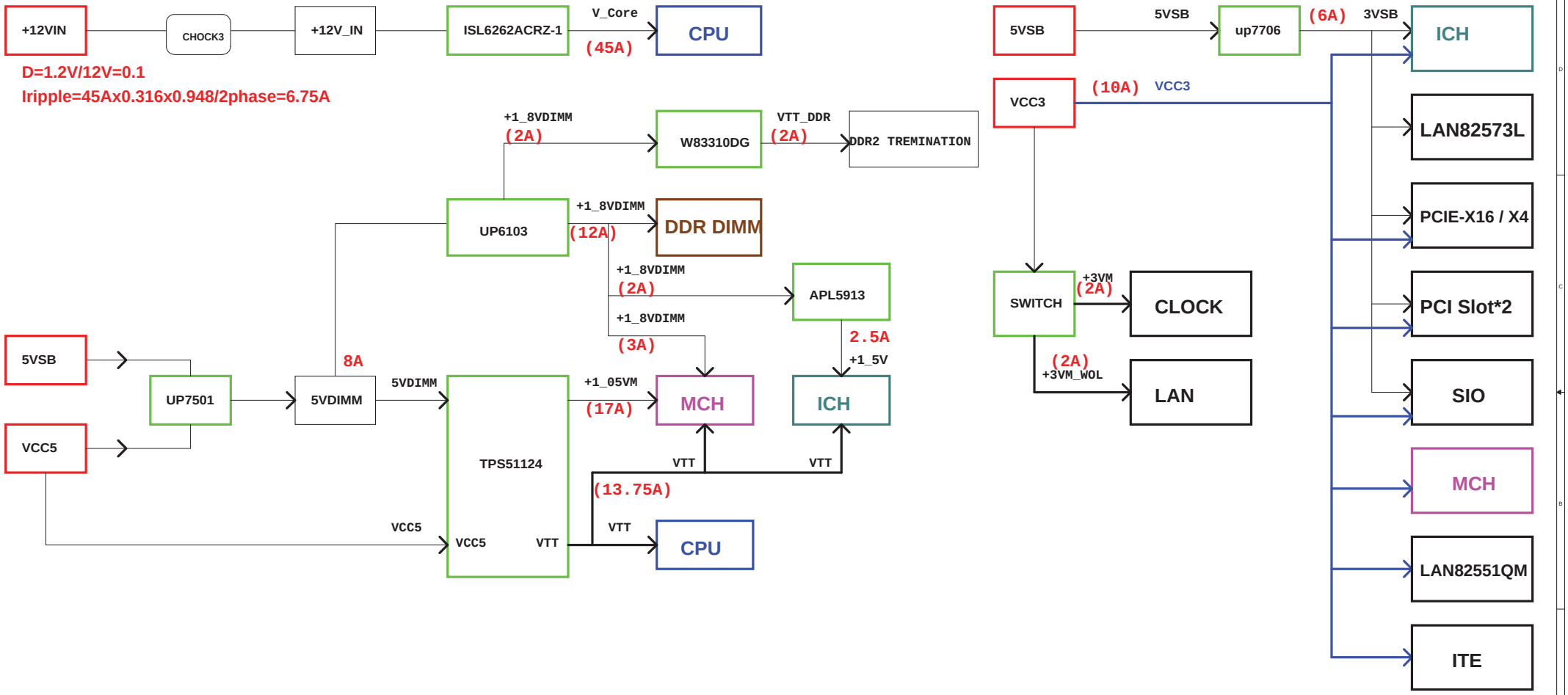

MICRO-STAR INT'L CO.,LTD.

Title: POWER MAP

Size: Custom | Document Number: MS-96B9 | Rev: 1.0

Date: Tuesday, June 24, 2008 | Sheet 41 of 41