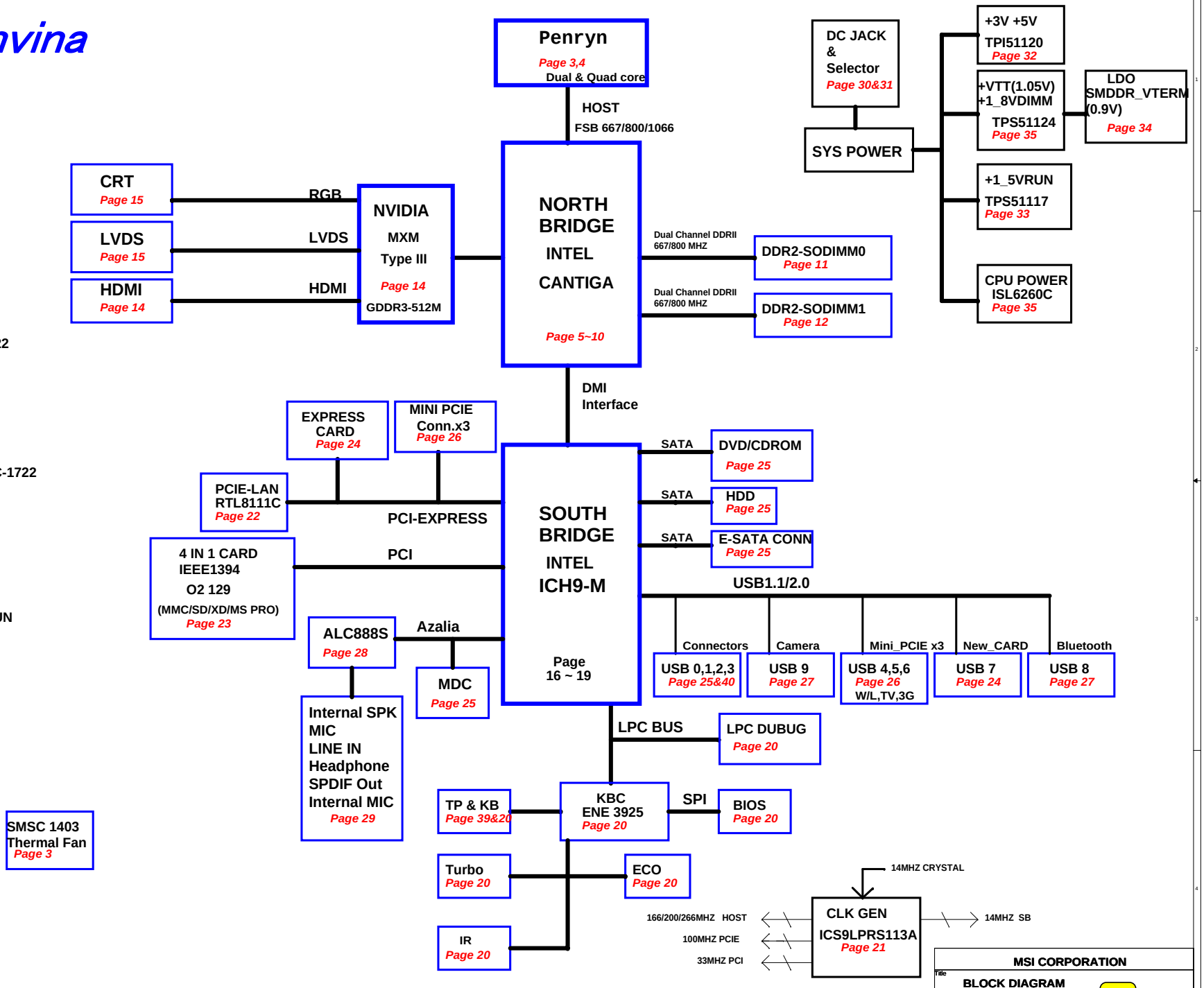
1722 VER : 1.0

Montenvina



MSI CORPORATION

Title: BLOCK DIAGRAM

Size: C | Document Number: MS-1722 | Rev: 1.0

Date: Friday, April 18, 2008 | Sheet 1 of 43

Voltage Rails

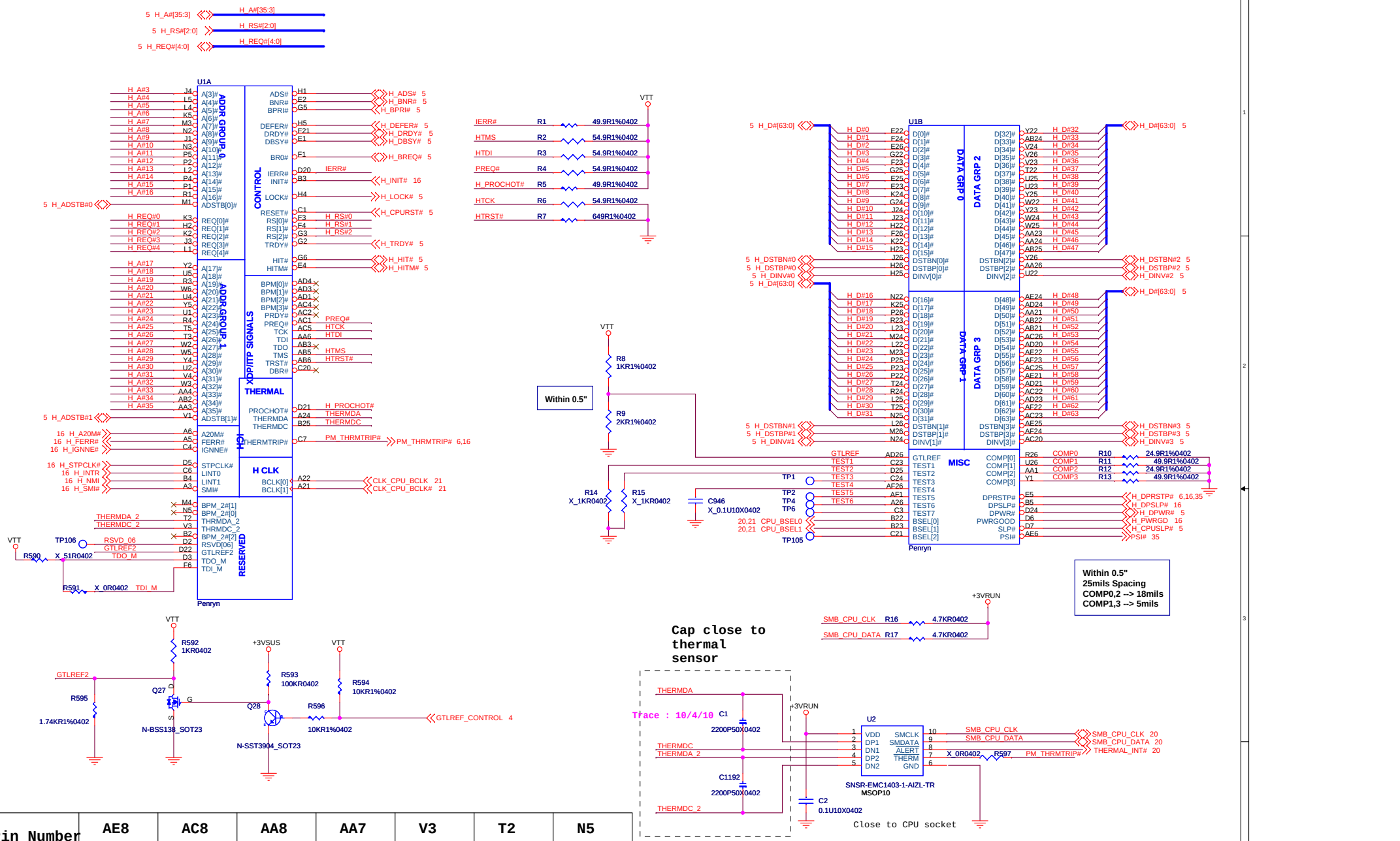
Voltage	Description	Control Signal
PWR_SRC	AC ADAPTER OR BATTERY IN	
VHCORE	Core Voltage for Processor	VR_ON
+VTT	1.05 rail for Processor & 945GM I/O	PM_SLP_S3# (RUN_ON)
+1_5VRUN	1.5V switched power rail(off in S3-S5)	PM_SLP_S3# (RUN_ON)
+3VRUN	3.3V switched power rail(off in S3-S5)	RUND (RUN_ON)
+5VRUN	5.0V switched power rail(off in S3-S5)	RUND (RUN_ON)
SMDDR_VTERM	0.9V DDR Termination voltage (off in S4-S5)	PM_SLP_S3# (RUN_ON)
+1_8VDIMM	1.8V power rail DDR (off in S4-S5)	PM_SLP_S4# (DIMM_ON)
+3VSUS	3.3V power rail (off in S4-S5)	SUS_ON
+5VSUS	5.0V power rail (off in S4-S5)	SUS_ON
+3VALW	3.3V always on power rail	PWR_SRC
+5VALW	5.0V always on power rail	PWR_SRC
+V5_AUDIO	5.0V Power rail Audio codec(off in S3-S5)	RUND
+1_8VRUN	OZ129 and MXM card	RUND

POWER STATES

STATE \ SIGNAL	SLP_S3#	SLP_S4#	SLP_S5#	+V*ALWAYS	+V*SUS	+V*RUN	Clocks
Full ON	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1(Power On Suspend)	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3(Suspend to RAM)	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4(Suspend to Disk)	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 / Soft OFF	LOW	LOW	LOW	ON	OFF	OFF	OFF

Note : WHEN AC MODE , System turn on then +V*SUS will always keep high

MSI CORPORATION		
Title: PLATFORM		
Size: Custom	Document Number: MS-1722	Rev: 1.0
Date: Friday, April 18, 2008	Sheet 2 of 43	



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-1722		Rev: 1.0
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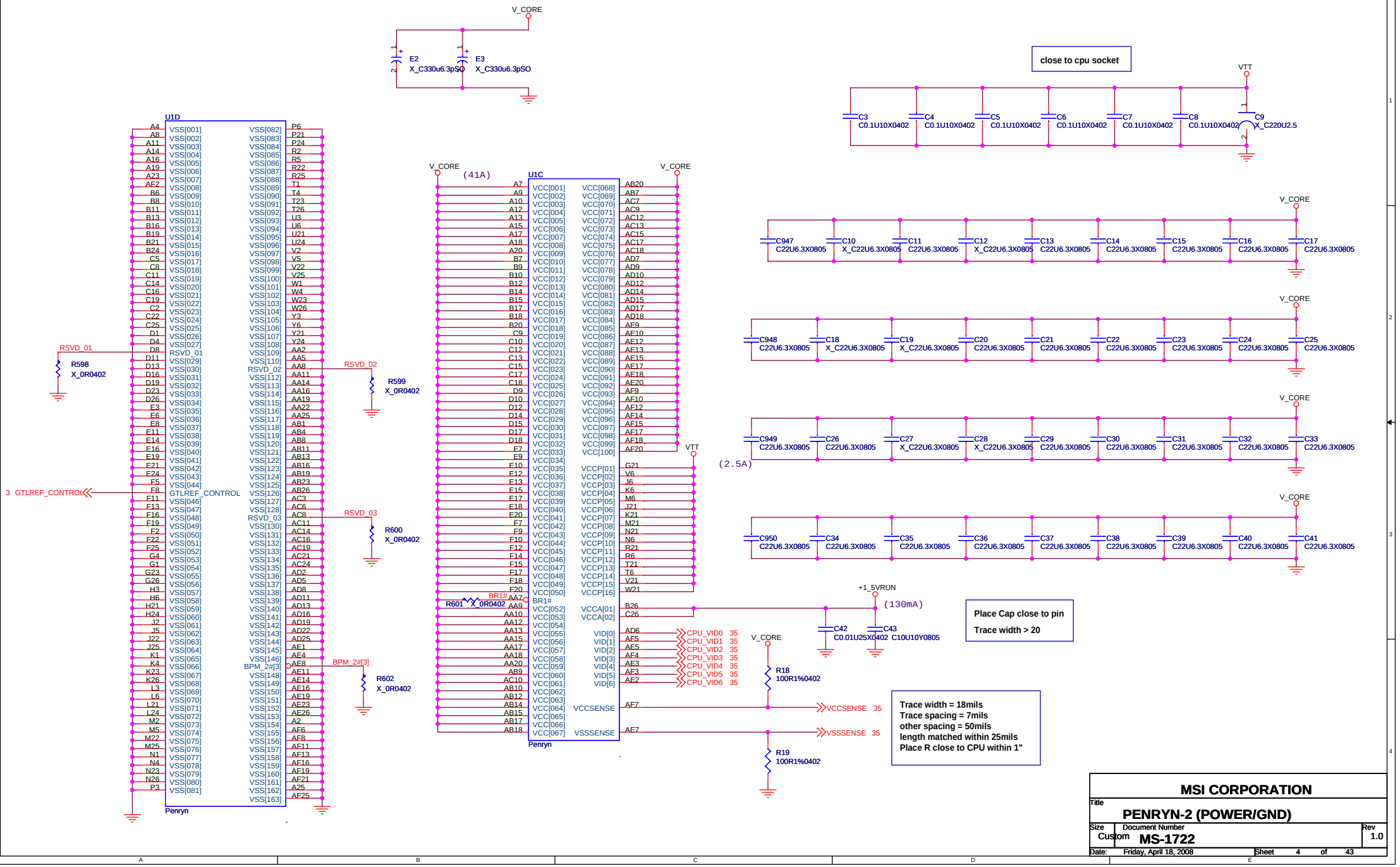
V_CORE
E2
X_C330u6.3pSO
E3
X_C330u6.3pSO
close to cpu socket
VTT
C3 C0.1U10X0402
C4 C0.1U10X0402
C5 C0.1U10X0402
C6 C0.1U10X0402
C7 C0.1U10X0402
C8 C0.1U10X0402
C9 X_C220U2.5
U1D
VSS[001] A4
VSS[002] A8
VSS[003] A11
VSS[004] A14
VSS[005] A16
VSS[006] A19
VSS[007] A23
VSS[008] AF2
VSS[009] B6
VSS[010] B8
VSS[011] B11
VSS[012] B13
VSS[013] B16
VSS[014] B19
VSS[015] B21
VSS[016] B24
VSS[017] C5
VSS[018] C8
VSS[019] C11
VSS[020] C14
VSS[021] C16
VSS[022] C19
VSS[023] C2
VSS[024] C22
VSS[025] C25
VSS[026] D1
VSS[027] D4
RSVD_01 D8
VSS[029] D11
VSS[030] D13
RSVD_02 D16
VSS[031] D19
VSS[032] D23
VSS[033] D26
VSS[034] E3
VSS[035] E6
VSS[036] E8
VSS[037] E11
VSS[038] E14
VSS[039] E16
VSS[040] E19
VSS[041] E21
VSS[042] E24
VSS[043] E5
VSS[044] E8
GTLREF_CONTROL
VSS[046] F11
VSS[047] F13
VSS[048] F16
VSS[049] F19
VSS[050] F2
VSS[051] F22
VSS[052] F25
VSS[053] G4
VSS[054] G1
VSS[055] G23
VSS[056] G26
VSS[057] H3
VSS[058] H6
VSS[059] H21
VSS[060] H24
VSS[061] J2
VSS[062] J5
VSS[063] J22
VSS[064] J25
VSS[065] K1
VSS[066] K4
VSS[067] K23
VSS[068] K26
VSS[069] L3
VSS[070] L6
VSS[071] L21
VSS[072] L24
VSS[073] M2
VSS[074] M5
VSS[075] M22
VSS[076] M25
VSS[077] N1
VSS[078] N4
VSS[079] N23
VSS[080] N26
VSS[081] P3
VSS[082] P6
VSS[083] P21
VSS[084] P24
VSS[085] R2
VSS[086] R5
VSS[087] R22
VSS[088] R25
VSS[089] T1
VSS[090] T4
VSS[091] T23
VSS[092] T26
VSS[093] U3
VSS[094] U6
VSS[095] U21
VSS[096] U24
VSS[097] V2
VSS[098] V5
VSS[099] V22
VSS[100] V25
VSS[101] W1
VSS[102] W4
VSS[103] W23
VSS[104] W26
VSS[105] Y3
VSS[106] Y6
VSS[107] Y21
VSS[108] Y24
VSS[109] AA2
VSS[110] AA5
RSVD_02 AA8
VSS[112] AA11
VSS[113] AA14
VSS[114] AA16
VSS[115] AA19
VSS[116] AA22
VSS[117] AA25
VSS[118] AB1
VSS[119] AB4
VSS[120] AB8
VSS[121] AB11
VSS[122] AB13
VSS[123] AB16
VSS[124] AB19
VSS[125] AB23
VSS[126] AB26
VSS[127] AC3
VSS[128] AC6
RSVD_03 AC8
VSS[130] AC11
VSS[131] AC14
VSS[132] AC16
VSS[133] AC19
VSS[134] AC21
VSS[135] AC24
VSS[136] AD2
VSS[137] AD5
VSS[138] AD8
VSS[139] AD11
VSS[140] AD13
VSS[141] AD16
VSS[142] AD19
VSS[143] AD22
VSS[144] AD25
VSS[145] AE1
VSS[146] AE4
BPM_2#[3] AE8
VSS[148] AE11
VSS[149] AE14
VSS[150] AE16
VSS[151] AE19
VSS[152] AE23
VSS[153] AE26
VSS[154] A2
VSS[155] AF6
VSS[156] AF8
VSS[157] AF11
VSS[158] AF13
VSS[159] AF16
VSS[160] AF19
VSS[161] AF21
VSS[162] A25
VSS[163] AF25
Penryn
RSVD_01
R598 X_0R0402
RSVD_02
R599 X_0R0402
RSVD_03
R600 X_0R0402
BPM_2#[3]
R602 X_0R0402
3 GTLREF_CONTROL
V_CORE
(41A)
U1C
A7 A9 A10 A12 A13 A15 A17 A18 A20 B7 B9 B10 B12 B14 B15 B17 B18 B20 C9 C10 C12 C13 C15 C17 C18 D9 D10 D12 D14 D15 D17 D18 E7 E9 E10 E12 E13 E15 E17 E18 E20 F7 F9 F10 F12 F14 F15 F17 F18 F20
BR1# AA7
R601 X_0R0402
AA9 AA10 AA12 AA13 AA15 AA17 AA18 AA20 AB9 AC10 AB10 AB12 AB14 AB15 AB17 AB18
VCC[001] VCC[002] VCC[003] VCC[004] VCC[005] VCC[006] VCC[007] VCC[008] VCC[009] VCC[010] VCC[011] VCC[012] VCC[013] VCC[014] VCC[015] VCC[016] VCC[017] VCC[018] VCC[019] VCC[020] VCC[021] VCC[022] VCC[023] VCC[024] VCC[025] VCC[026] VCC[027] VCC[028] VCC[029] VCC[030] VCC[031] VCC[032] VCC[033] VCC[034] VCC[035] VCC[036] VCC[037] VCC[038] VCC[039] VCC[040] VCC[041] VCC[042] VCC[043] VCC[044] VCC[045] VCC[046] VCC[047] VCC[048] VCC[049] VCC[050]
BR1#
VCC[052] VCC[053] VCC[054] VCC[055] VCC[056] VCC[057] VCC[058] VCC[059] VCC[060] VCC[061] VCC[062] VCC[063] VCC[064] VCC[065] VCC[066] VCC[067]
VCC[068] VCC[069] VCC[070] VCC[071] VCC[072] VCC[073] VCC[074] VCC[075] VCC[076] VCC[077] VCC[078] VCC[079] VCC[080] VCC[081] VCC[082] VCC[083] VCC[084] VCC[085] VCC[086] VCC[087] VCC[088] VCC[089] VCC[090] VCC[091] VCC[092] VCC[093] VCC[094] VCC[095] VCC[096] VCC[097] VCC[098] VCC[099] VCC[100]
AB20 AB7 AC7 AC9 AC12 AC13 AC15 AC17 AC18 AD7 AD9 AD10 AD12 AD14 AD15 AD17 AD18 AE9 AE10 AE12 AE13 AE15 AE17 AE18 AE20 AF9 AE10 AE12 AE14 AE15 AE17 AE18 AE20
VCCP[01] VCCP[02] VCCP[03] VCCP[04] VCCP[05] VCCP[06] VCCP[07] VCCP[08] VCCP[09] VCCP[10] VCCP[11] VCCP[12] VCCP[13] VCCP[14] VCCP[15] VCCP[16]
G21 V6 J6 K6 M6 J21 K21 M21 N21 N6 R21 R6 T21 T6 V21 W21
VCCA[01] VCCA[02]
B26 C26
VID[0] VID[1] VID[2] VID[3] VID[4] VID[5] VID[6]
AD6 AF5 AE5 AF4 AE3 AF3 AE2
CPU_VID0 35
CPU_VID1 35
CPU_VID2 35
CPU_VID3 35
CPU_VID4 35
CPU_VID5 35
CPU_VID6 35
VCCSENSE AF7
VSSSENSE AE7
Penryn
VTT
(2.5A)
C947 C22U6.3X0805
C10 X_C22U6.3X0805
C11 C22U6.3X0805
C12 X_C22U6.3X0805
C13 C22U6.3X0805
C14 C22U6.3X0805
C15 C22U6.3X0805
C16 C22U6.3X0805
C17 C22U6.3X0805
C948 C22U6.3X0805
C18 X_C22U6.3X0805
C19 X_C22U6.3X0805
C20 C22U6.3X0805
C21 C22U6.3X0805
C22 C22U6.3X0805
C23 C22U6.3X0805
C24 C22U6.3X0805
C25 C22U6.3X0805
C949 C22U6.3X0805
C26 C22U6.3X0805
C27 X_C22U6.3X0805
C28 X_C22U6.3X0805
C29 C22U6.3X0805
C30 C22U6.3X0805
C31 C22U6.3X0805
C32 C22U6.3X0805
C33 C22U6.3X0805
C950 C22U6.3X0805
C34 C22U6.3X0805
C35 C22U6.3X0805
C36 C22U6.3X0805
C37 C22U6.3X0805
C38 C22U6.3X0805
C39 C22U6.3X0805
C40 C22U6.3X0805
C41 C22U6.3X0805
+1_5VRUN
(130mA)
C42 C0.01U25X0402
C43 C10U10Y0805
Place Cap close to pin
Trace width > 20
R18 100R1%0402
R19 100R1%0402
VCCSENSE 35
VSSSENSE 35
Trace width = 18mils
Trace spacing = 7mils
other spacing = 50mils
length matched within 25mils
Place R close to CPU within 1"
MSI CORPORATION
Title
PENRYN-2 (POWER/GND)
Size Custom
Document Number MS-1722
Rev 1.0
Date: Friday, April 18, 2008
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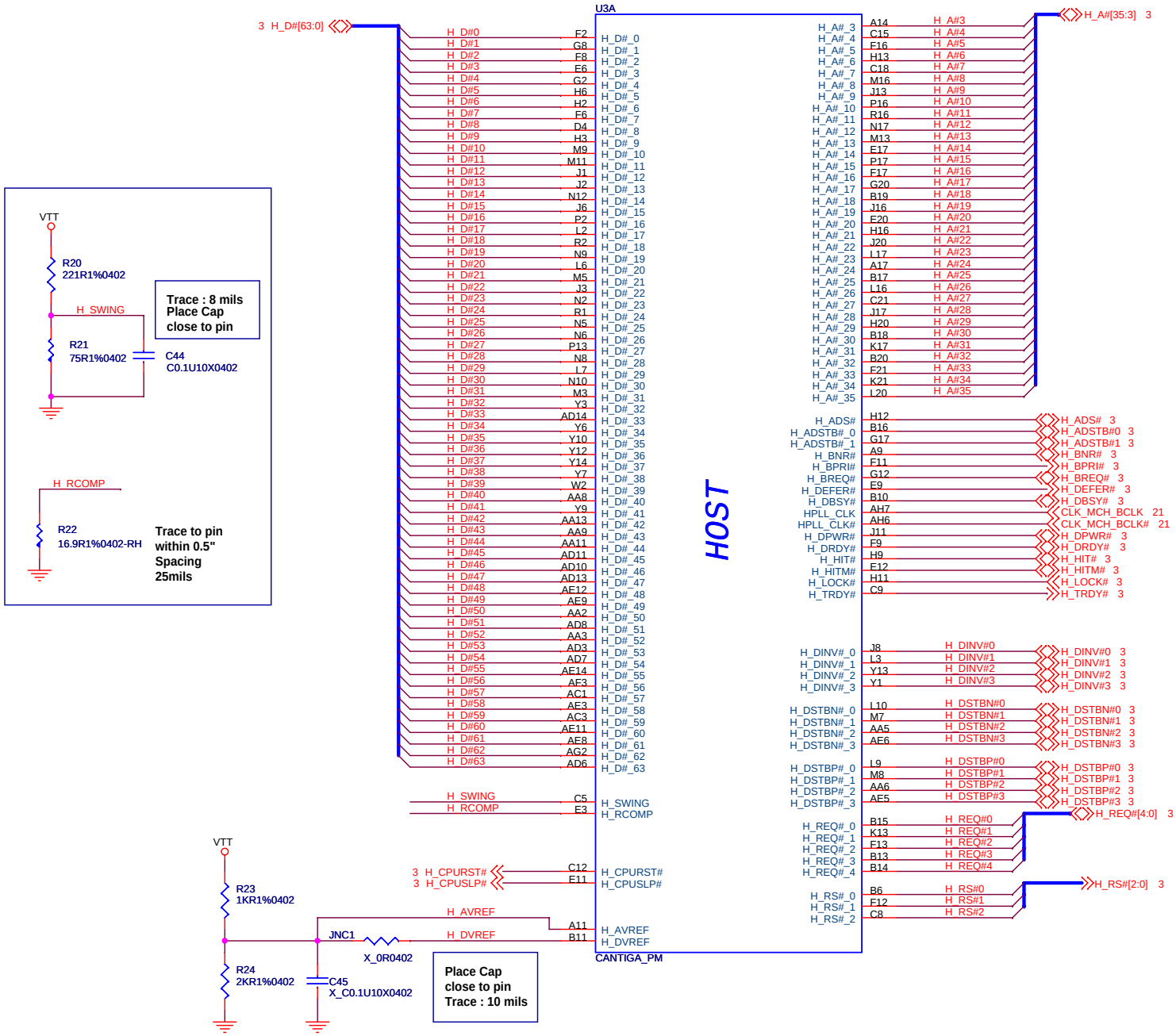
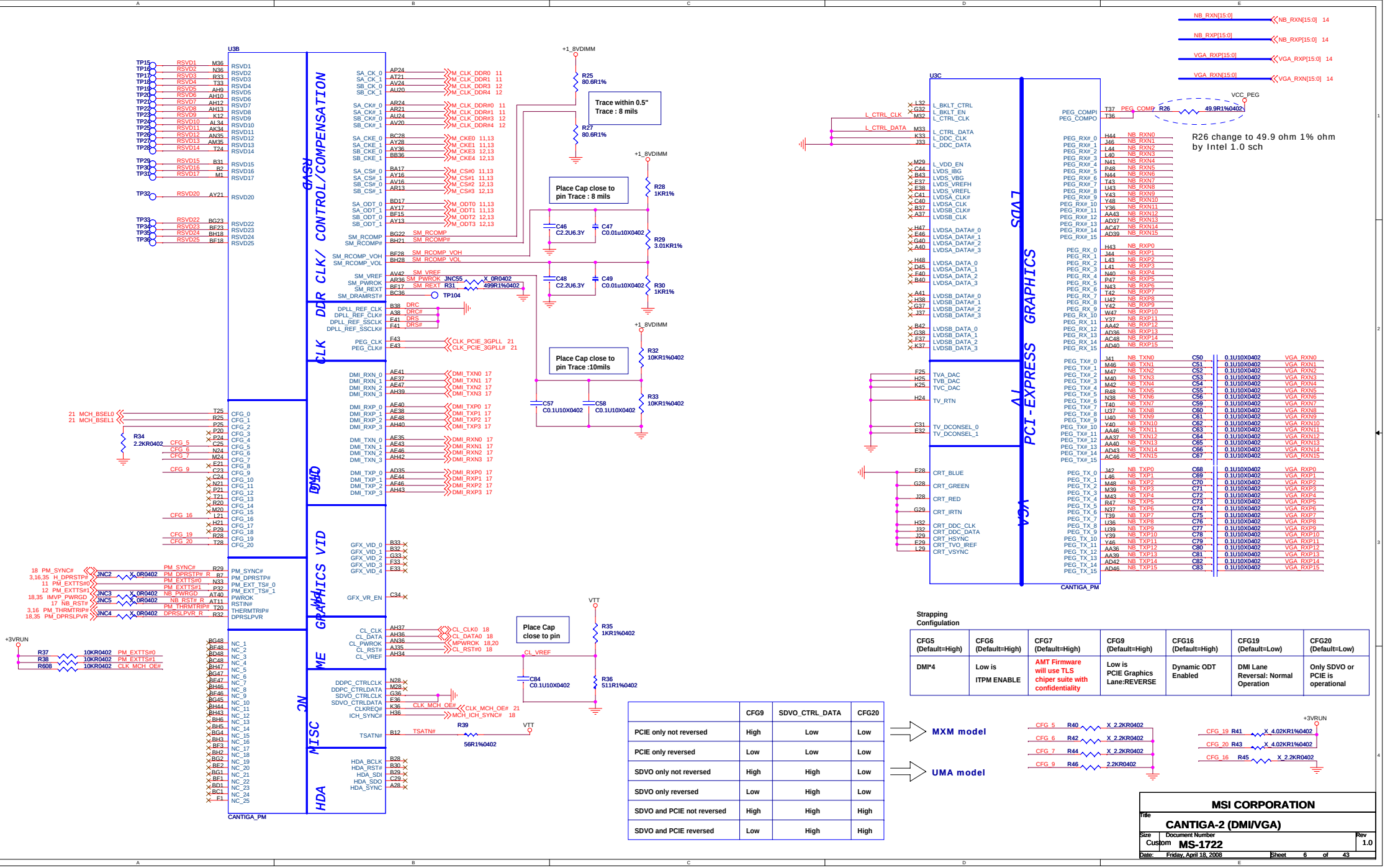


Title	MSI CORPORATION
	CANTIGA-1 (HOST BUS)
Size	B
Document Number	MS-1722
Rev	1.0
Date:	Friday, April 18, 2008
Sheet	5 of 43


U3B
RSVD
DDR CLK/ CONTROL/COMPENSATION
CLK
DDR
GRAPHICS VID
GRAPHICS
ME
MISC
NC
HDA
CANTIGA_PM
U3C
LVDS
PCI-EXPRESS GRAPHICS
VGA
CANTIGA_PM
Place Cap close to pin Trace : 8 mils
Place Cap close to pin Trace :10mils
Place Cap close to pin
Trace within 0.5" Trace : 8 mils
R26 change to 49.9 ohm 1% ohm by Intel 1.0 sch
Strapping Configulation
CFG5 (Default=High)
CFG6 (Default=High)
CFG7 (Default=High)
CFG9 (Default=High)
CFG16 (Default=High)
CFG19 (Default=Low)
CFG20 (Default=Low)
DMI*4
Low is ITPM ENABLE
AMT Firmware will use TLS chiper suite with confidentiality
Low is PCIE Graphics Lane:REVERSE
Dynamic ODT Enabled
DMI Lane Reversal: Normal Operation
Only SDVO or PCIE is operational
CFG9
SDVO_CTRL_DATA
CFG20
PCIE only not reversed
PCIE only reversed
SDVO only not reversed
SDVO only reversed
SDVO and PCIE not reversed
SDVO and PCIE reversed
MXM model
UMA model
MSI CORPORATION
CANTIGA-2 (DMI/VGA)
Size Custom
Document Number MS-1722
Rev 1.0
Date: Friday, April 18, 2008
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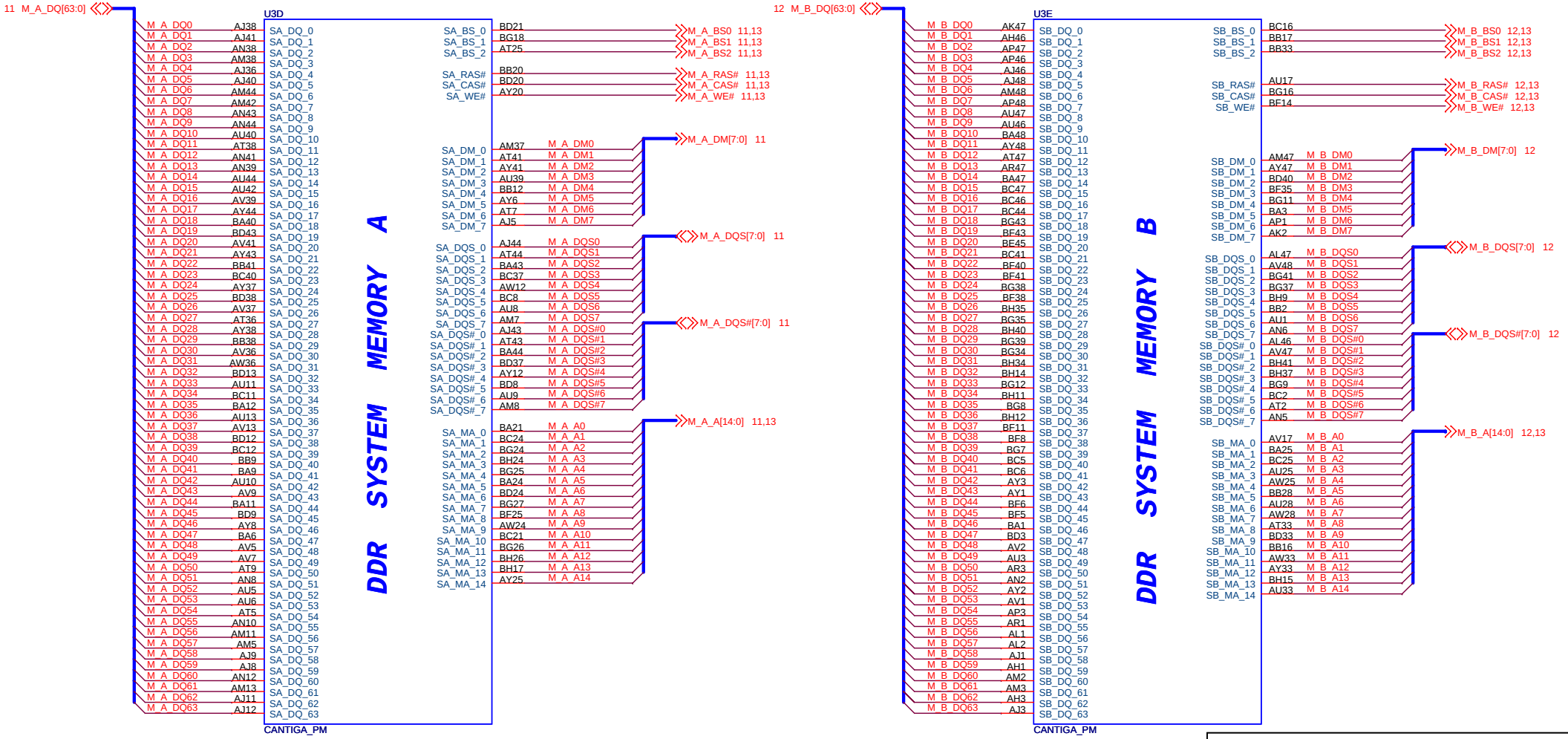
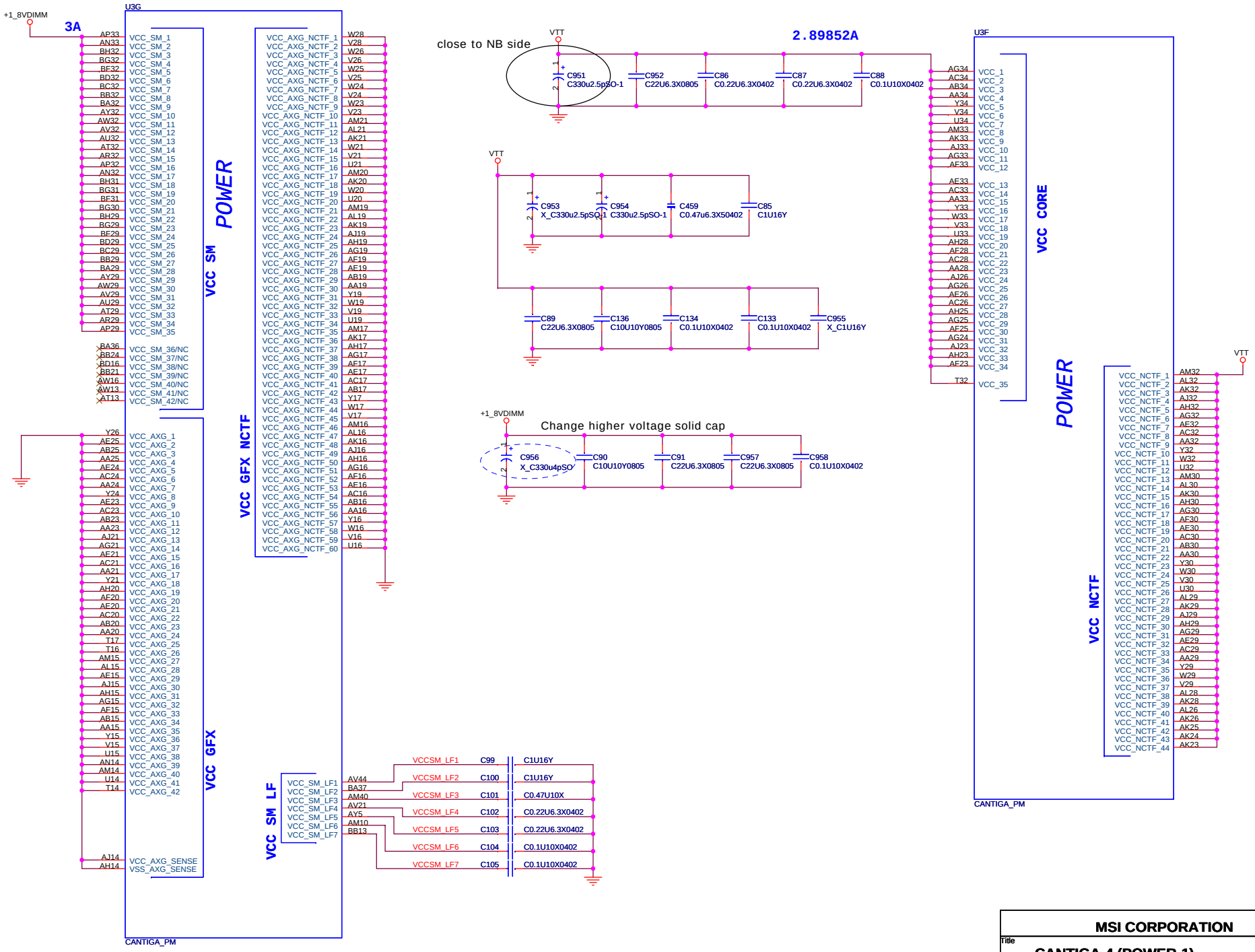
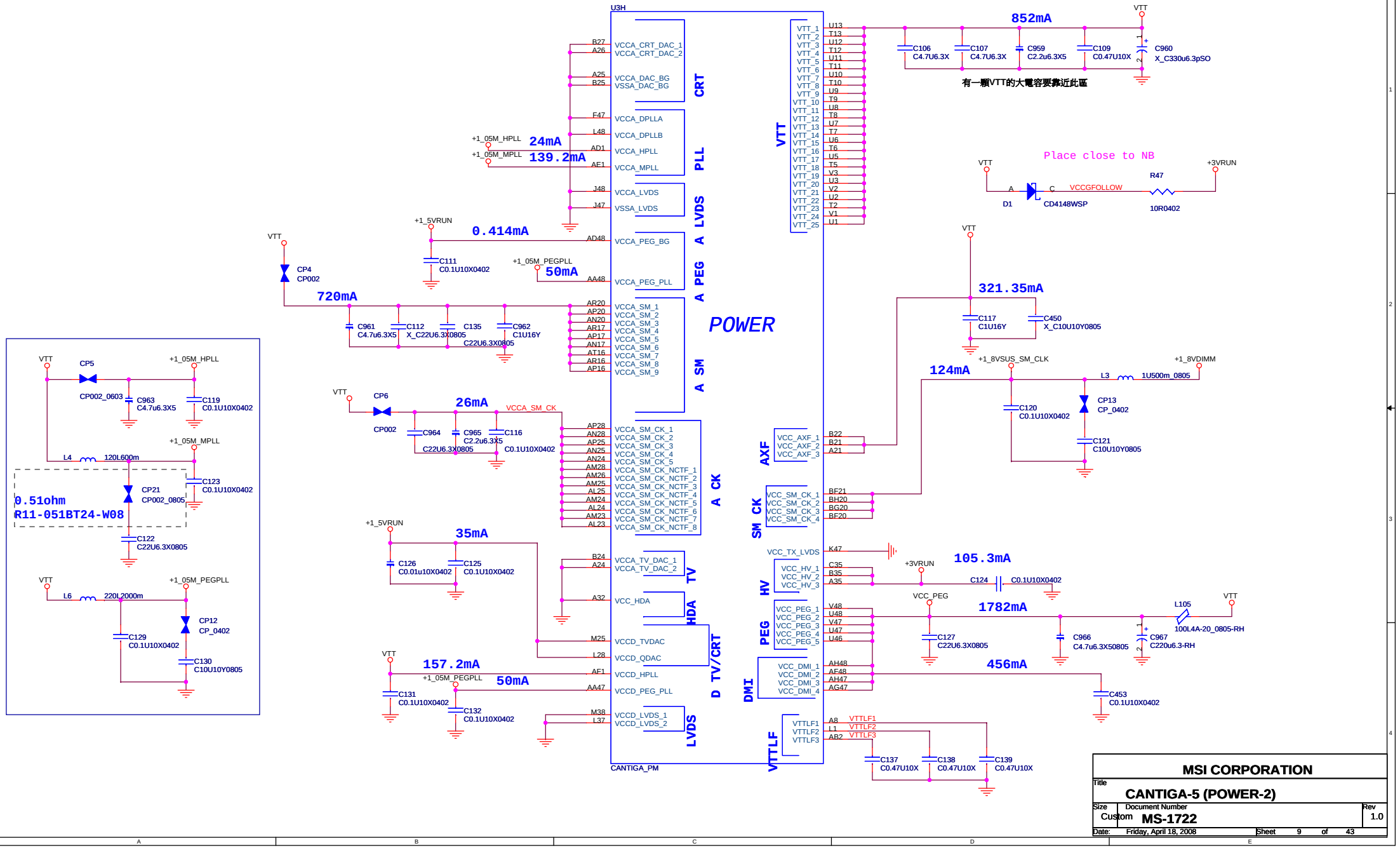


MSI CORPORATION			
Title: CANTIGA-3 (DDR2)			
Size: Custom	Document Number: MS-1722		Rev: 1.0
Date: Friday, April 18, 2008	Sheet 7 of 43		



MSI CORPORATION			
Title: CANTIGA-4 (POWER-1)			
Size: Custom	Document Number: MS-1722		Rev: 1.0
Date: Friday, April 18, 2008		Sheet 8 of 43	


U3H
POWER
CRT
PLL
LVDS
A PEG
A SM
A CK
TV
HDA
D TV/CRT
LVDS
VTT
AXF
SM CK
HV
PEG
DMI
VTTLF
CANTIGA_PM
852mA
有一顆VTT的大電容要靠近此區
Place close to NB
VCCGFOLLOW
CD4148WSP
10R0402
24mA
139.2mA
0.414mA
50mA
720mA
321.35mA
124mA
26mA
35mA
157.2mA
105.3mA
1782mA
456mA
0.51ohm
R11-051BT24-W08
MSI CORPORATION
CANTIGA-5 (POWER-2)
MS-1722
Custom
1.0
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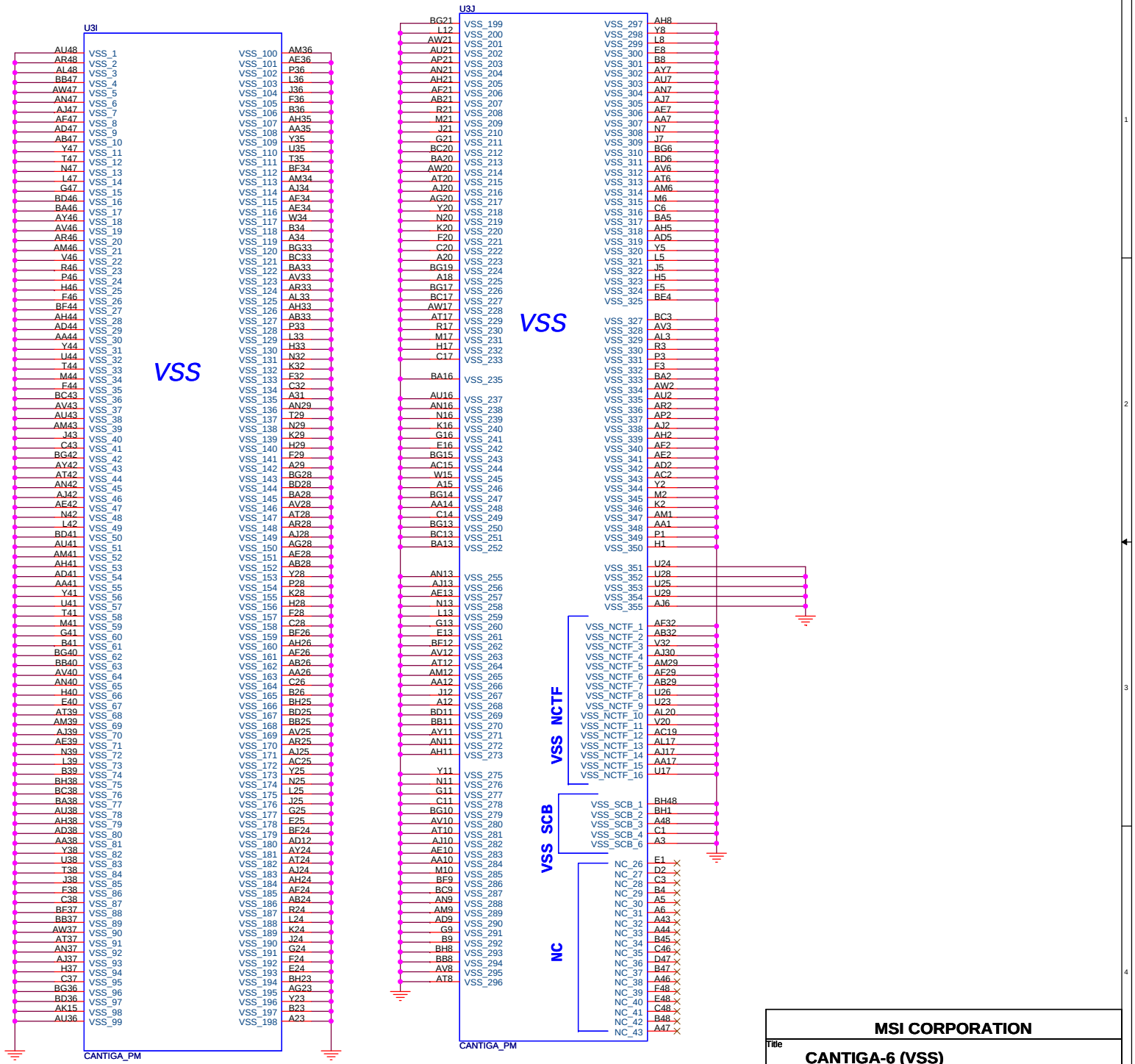
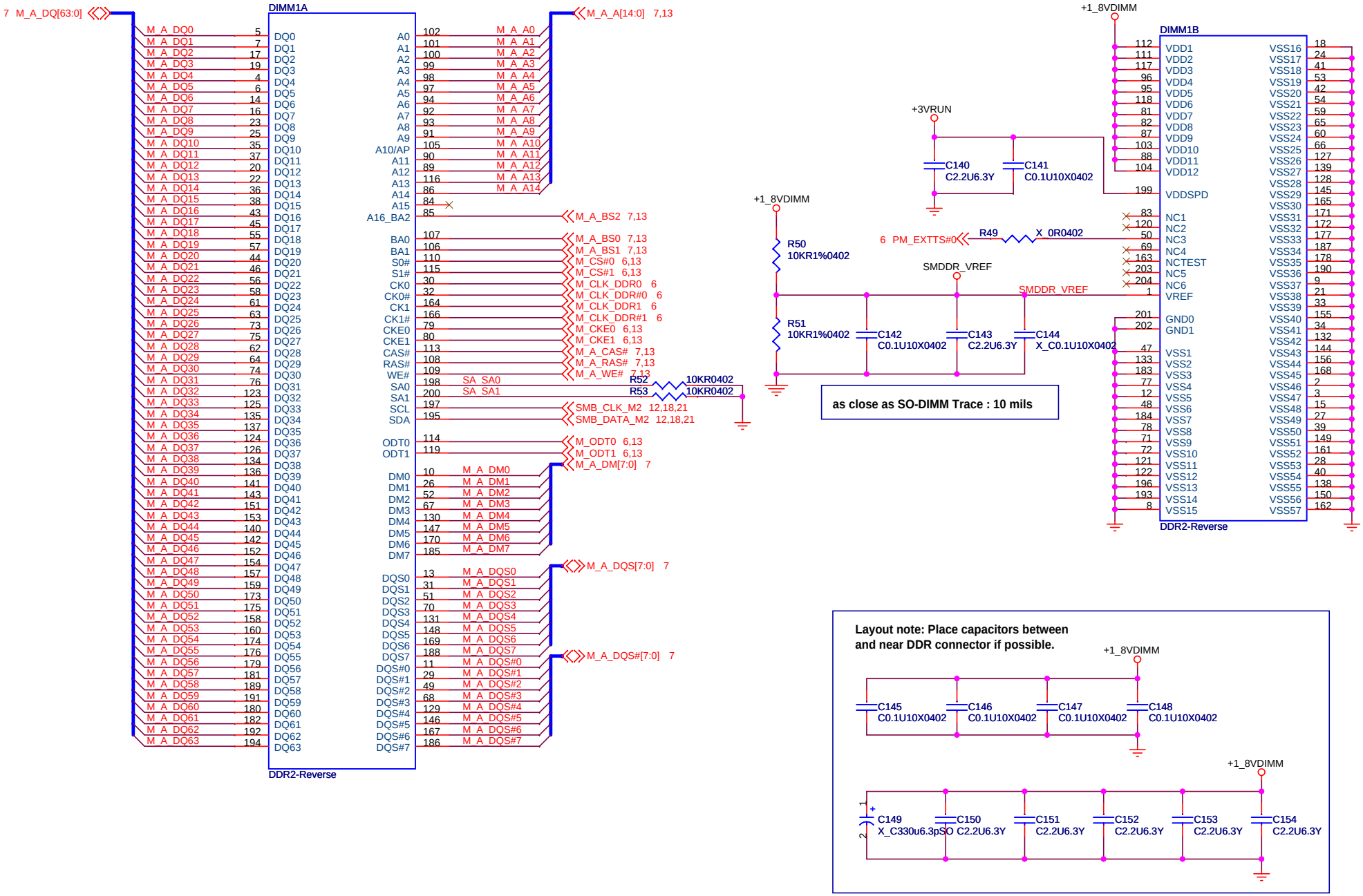


MSI CORPORATION		
Title: CANTIGA-6 (VSS)		
Size: Custom	Document Number: MS-1722	Rev: 1.0
Date: Friday, April 18, 2008	Sheet 10 of 43	



Title	DDR2 SODIMM 0
Size	Custom
Document Number	MS-1722
Rev	1.0
Date:	Friday, April 18, 2008
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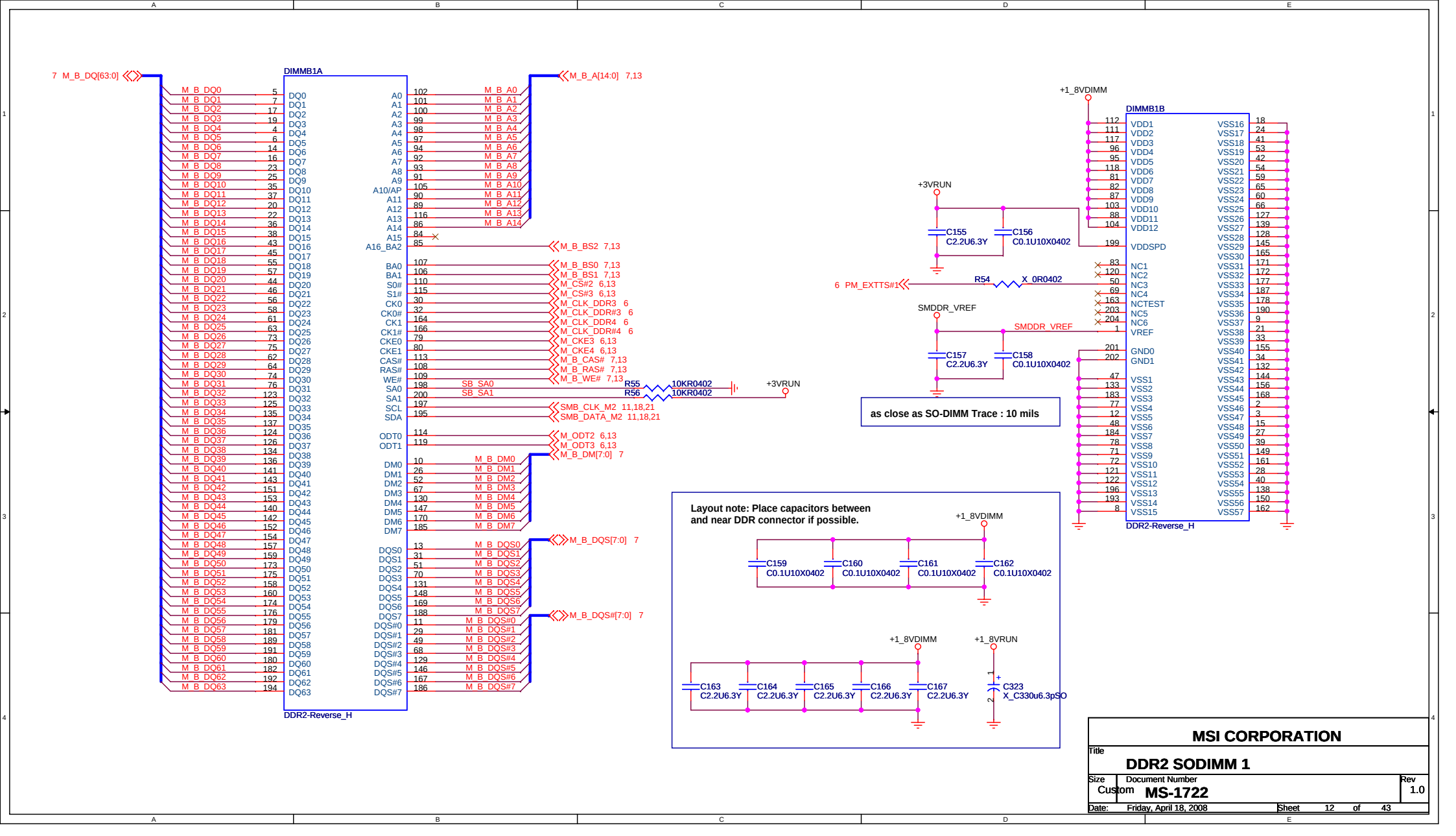
MSI CORPORATION



Title	DDR2 SODIMM 1
Size	Custom
Document Number	MS-1722
Rev	1.0
Date:	Friday, April 18, 2008
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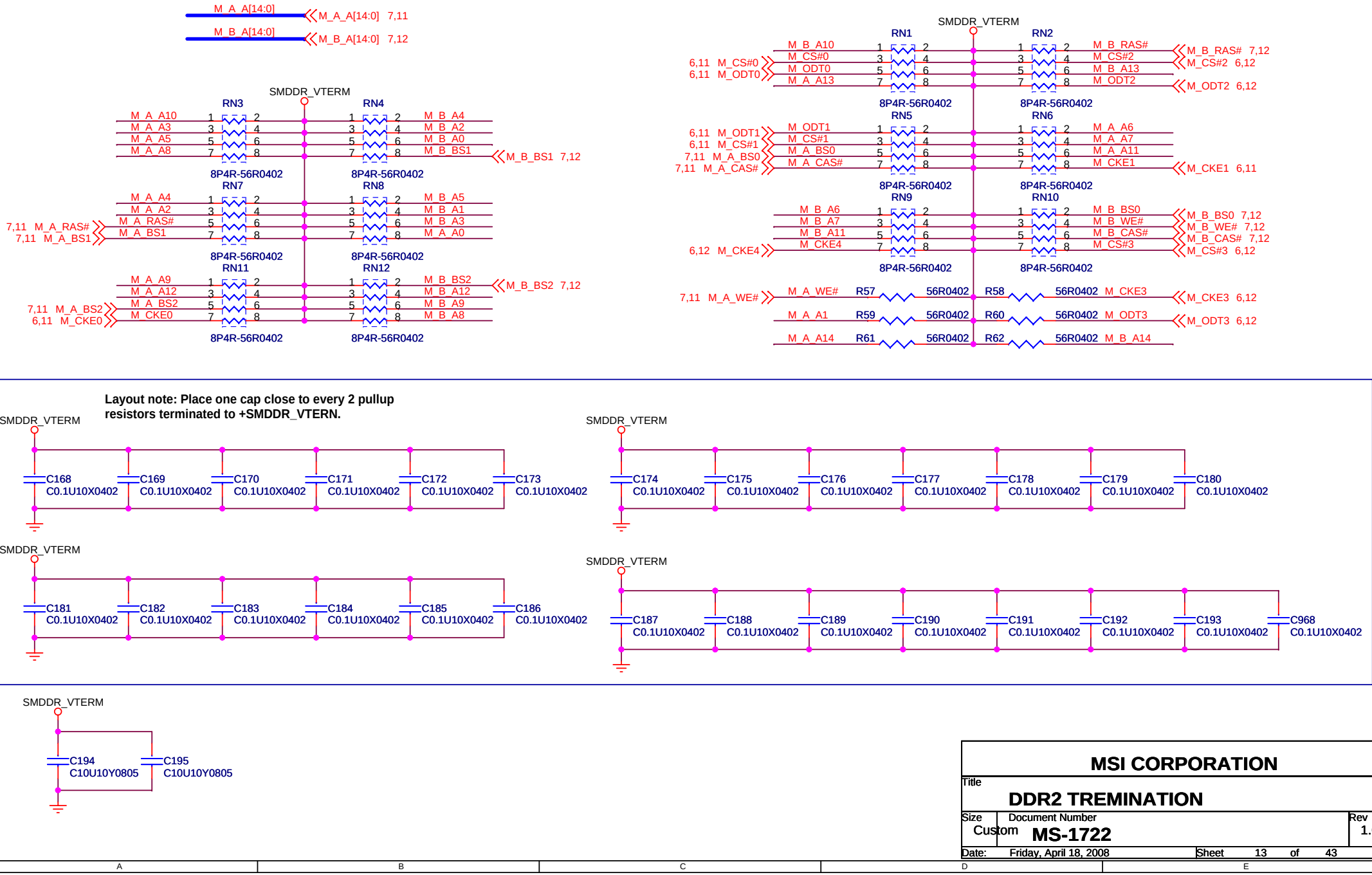
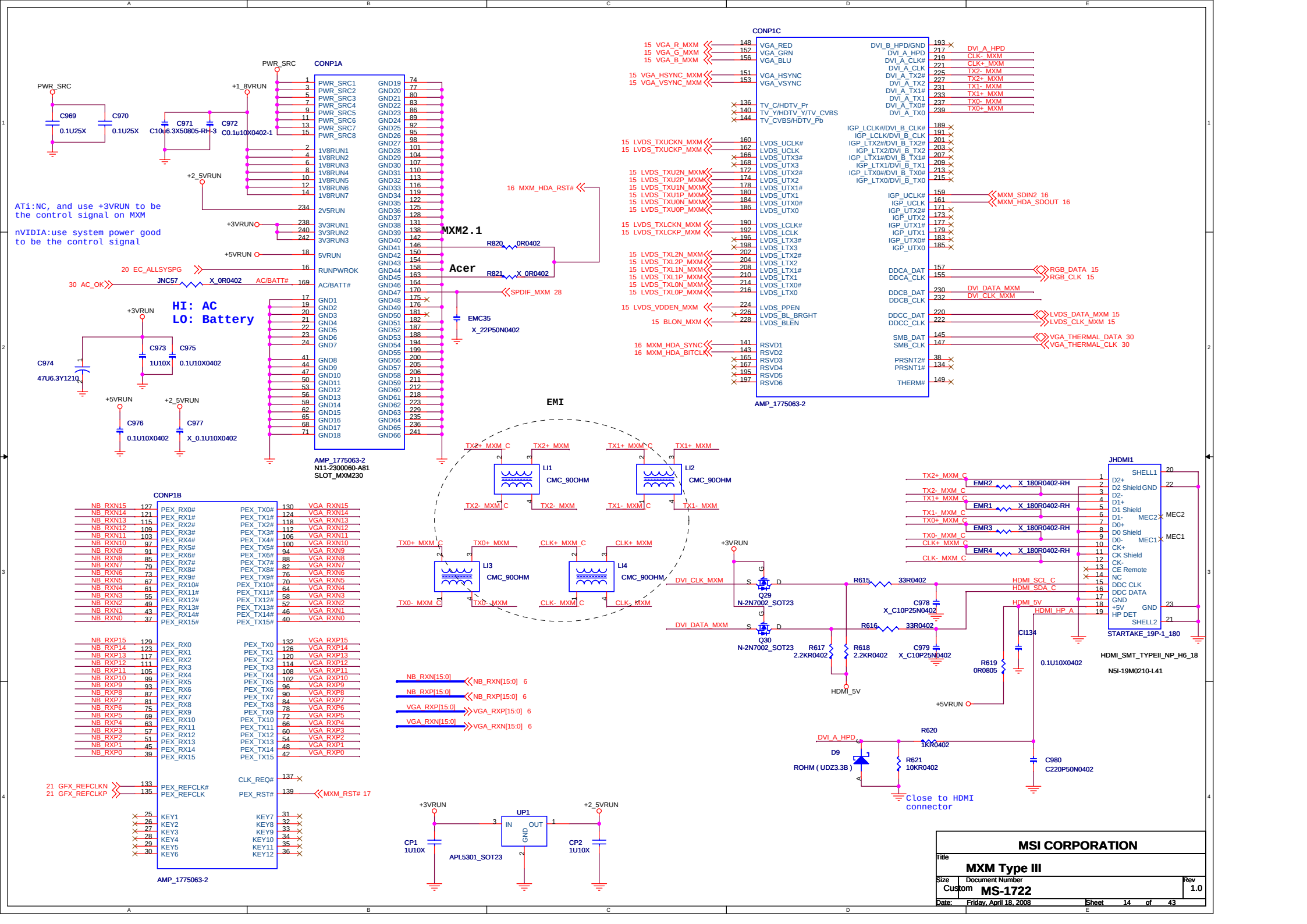
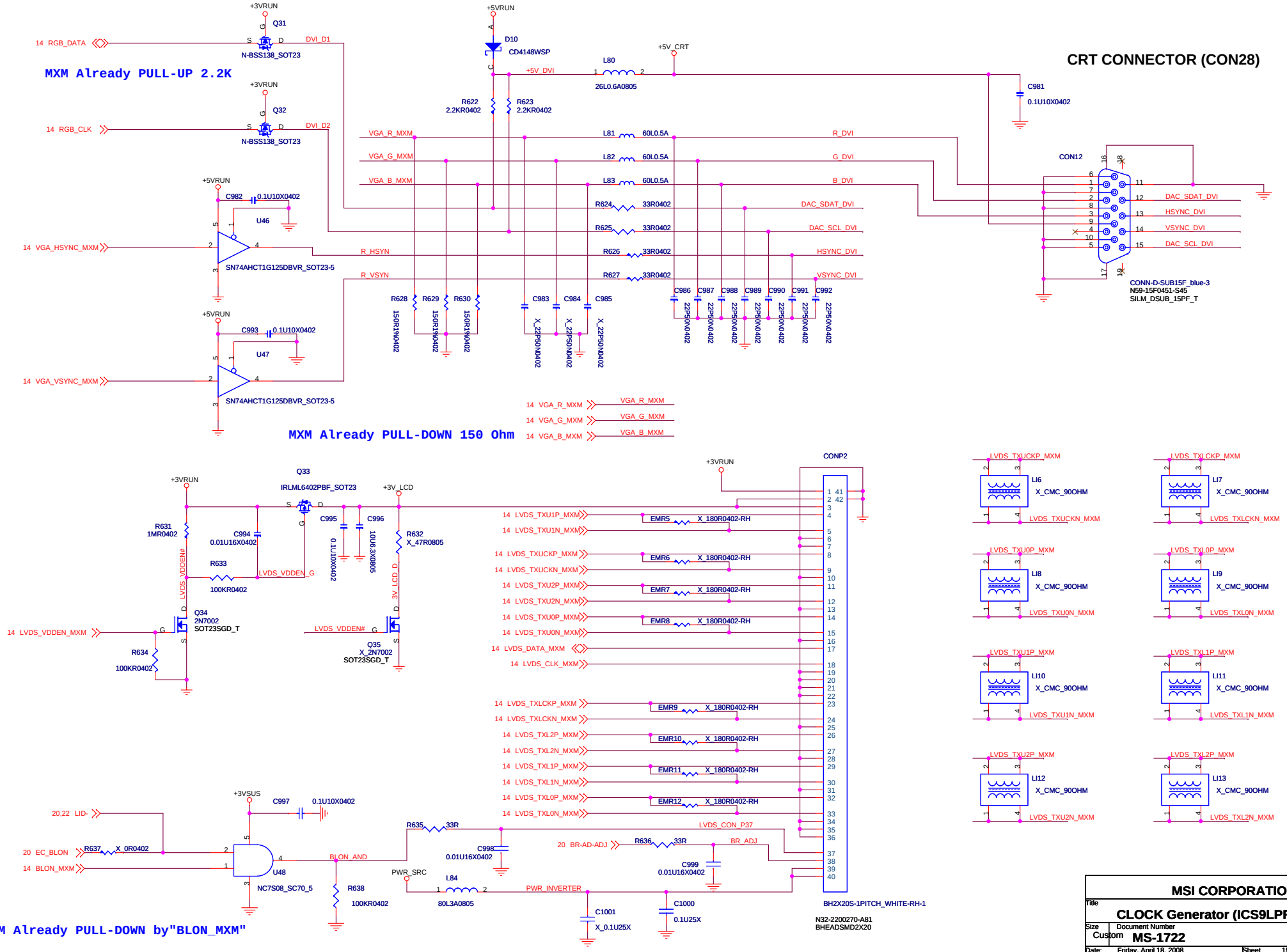
MSI CORPORATION



	MSI CORPORATION	
Title	DDR2 TREMINATION	
Size: Custom	Document Number: MS-1722	Rev: 1.0
Date: Friday, April 18, 2008	Sheet 13 of 43	


CONP1A
PWR_SRC
+1_8VRUN
+2_5VRUN
+3VRUN
+5VRUN
ATi:NC, and use +3VRUN to be the control signal on MXM
nVIDIA:use system power good to be the control signal
HI: AC
LO: Battery
MXM2.1
Acer
AMP_1775063-2
N11-2300060-A81
SLOT_MXM230
CONP1C
AMP_1775063-2
EMI
CONP1B
AMP_1775063-2
JHDMI1
STARTAKE_19P-1_180
HDMI_SMT_TYPEII_NP_H6_18
N5I-19M0210-L41
Close to HDMI connector
MSI CORPORATION
MXM Type III
MS-1722
Custom
1.0
Friday, April 18, 2008
Sheet 14 of 43


MXM Already PULL-UP 2.2K
MXM Already PULL-DOWN 150 Ohm
MXM Already PULL-DOWN by"BLON_MXM"
CRT CONNECTOR (CON28)
CONN-D-SUB15F_blue-3
N59-15F0451-S45
SILM_DSUB_15PF_T
CONP2
BH2X20S-1PITCH_WHITE-RH-1
N32-2200270-A81
BHEADSMD2X20
MSI CORPORATION
CLOCK Generator (ICS9LPR906)
Custom
MS-1722
1.0
Friday, April 18, 2008
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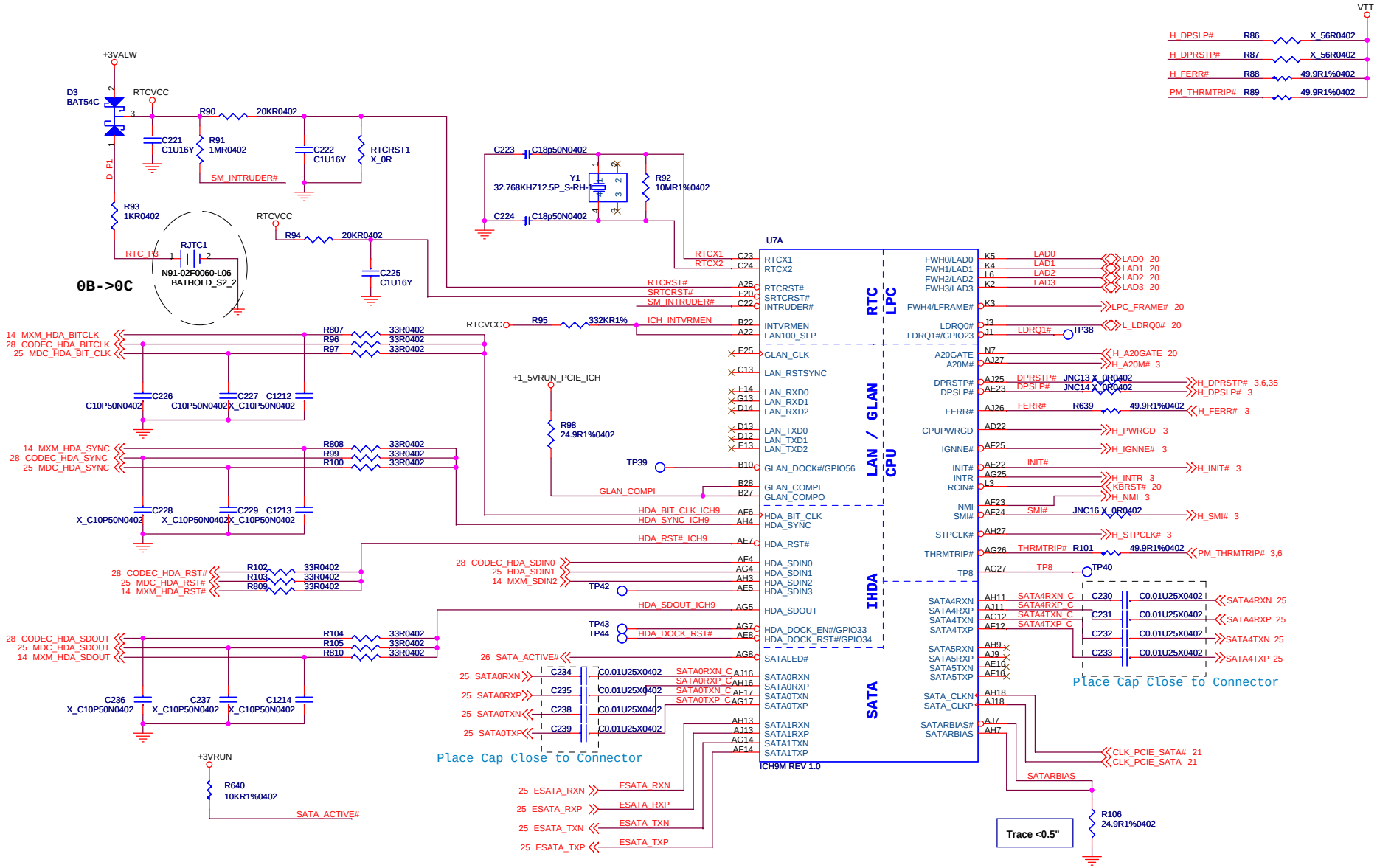


XOR Chain Entrance Strap		
ICH_TP3	HDA_SDOUT	Description
0	0	RSVD
0	1	Enter XOR Chain
1	0	Normal Operation(Default)
1	1	Set PCIE port config bit 1

MSI CORPORATION		
Title: ICH9M-1 (CPU/IDE/Azalia)		
Size: Custom	Document Number: MS-1722	Rev: 1.0
Date: Friday, April 18, 2008	Sheet 16 of 43	

place Cap close to ICH8
within 250mils

U7D

PCI-Express
Direct Media Interface
SPI
USB

ICH9M REV 1.0

Trace within
0.5" with
8mils

Trace <0.5"

U7B

PCI
Interrupt I/F

ICH9M REV 1.0

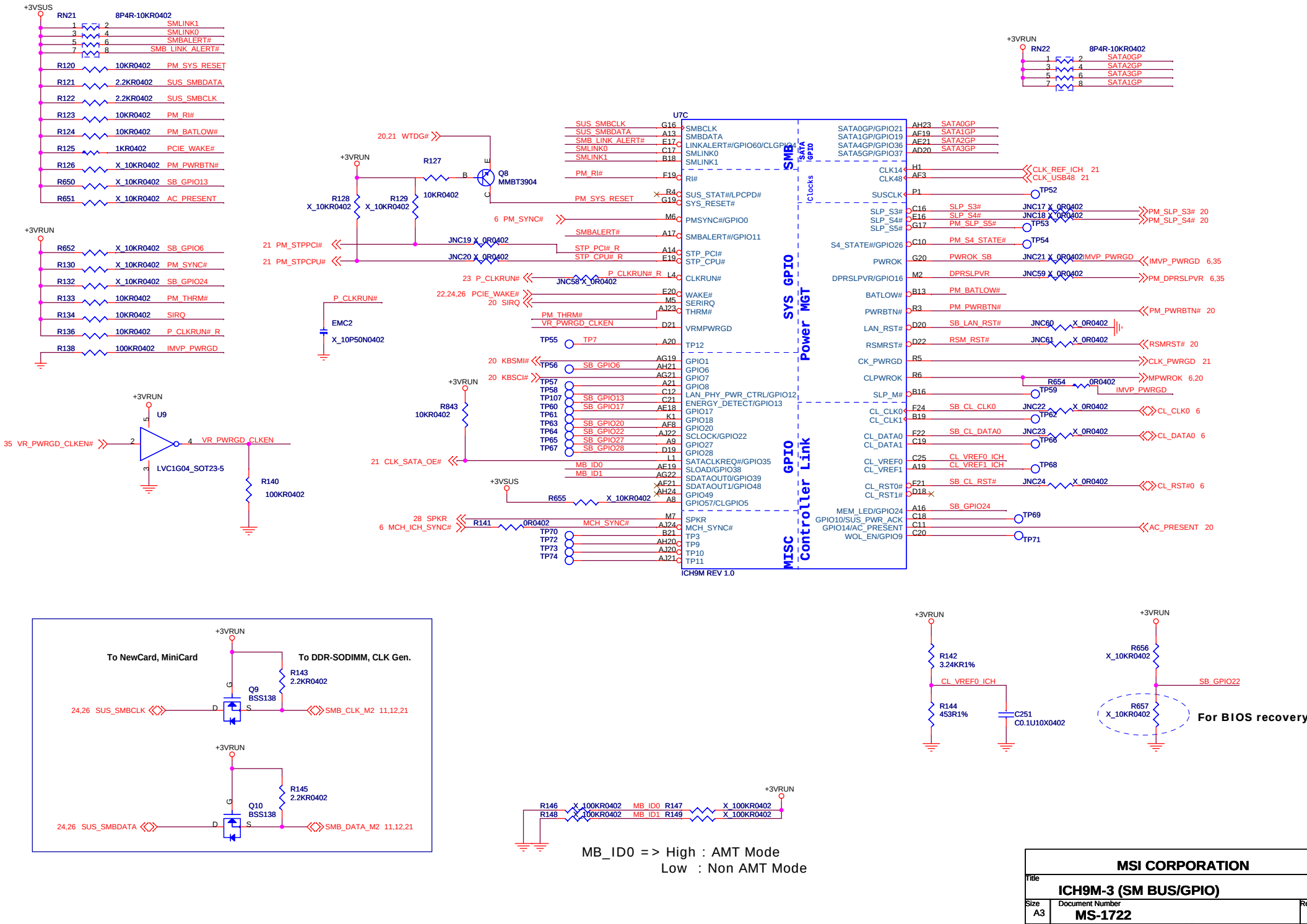
TP?

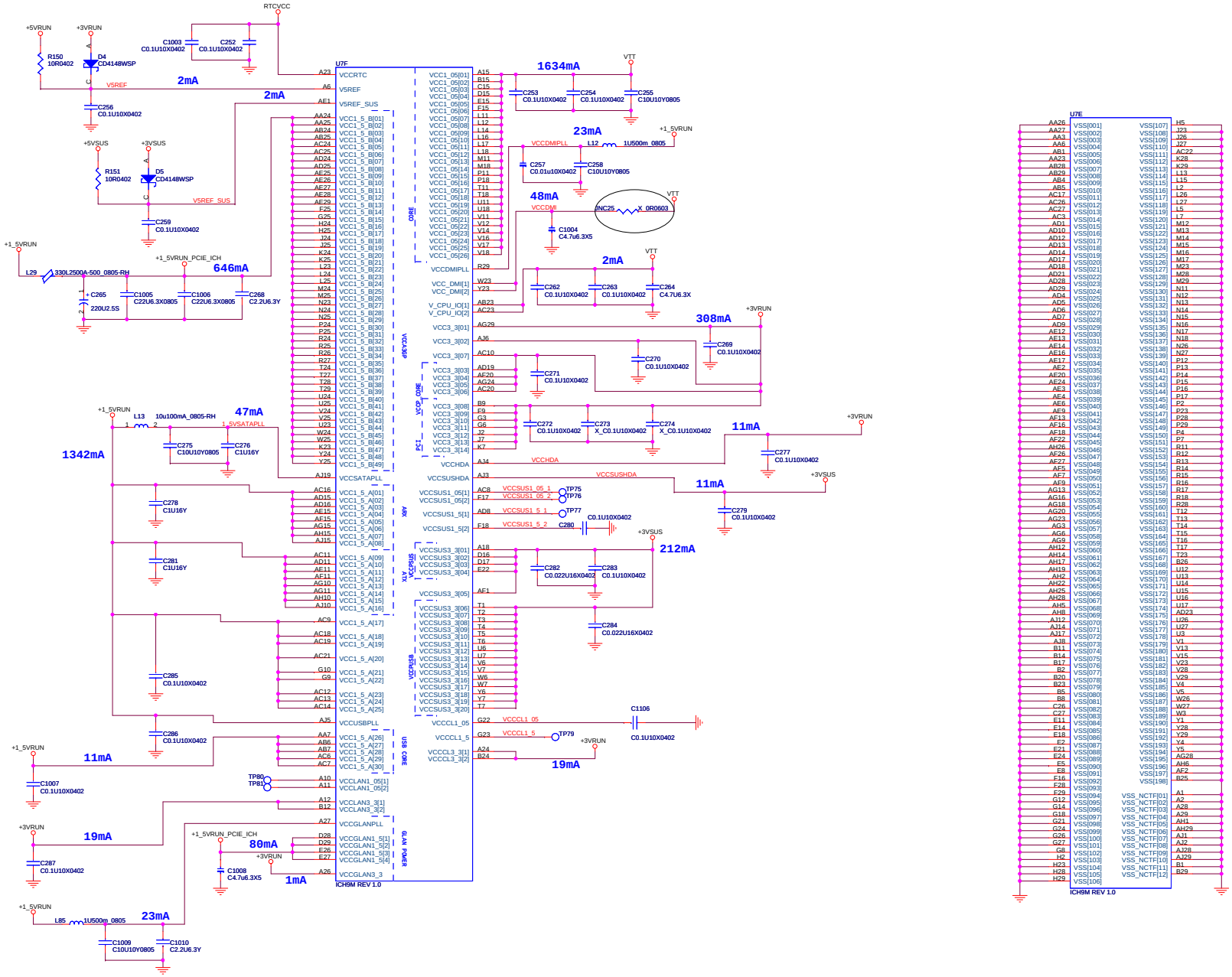
GNT#0 and SPI_CS#1 have
a weak internal pull up

Boot BIOS Strap		
PCI GNT#0	SPI_CS#1	Boot BIOS Location
0	1	SPI (Default)
1	0	PCI
1	1	LPC

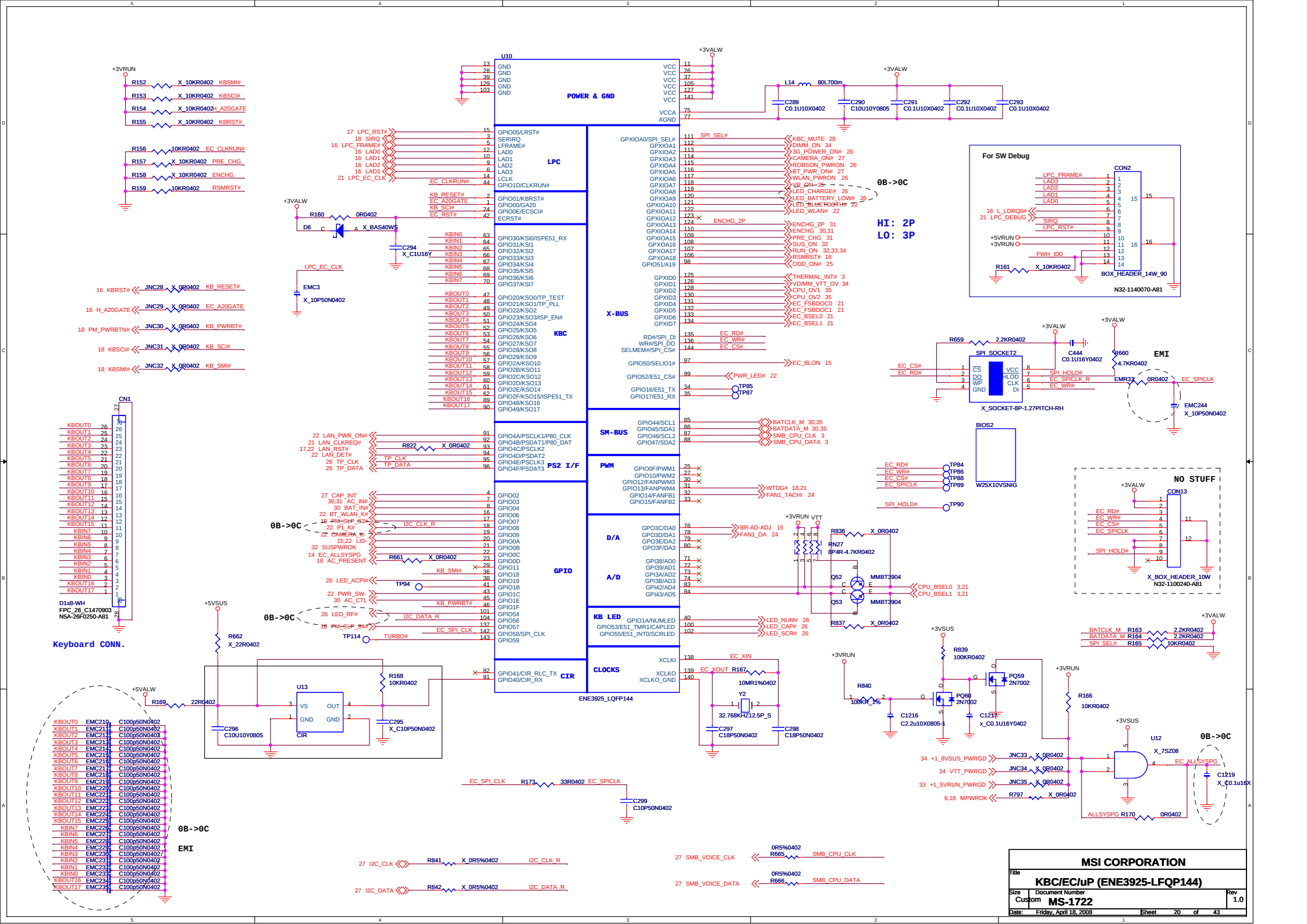
Title	ICH9M-2 (PCI/USB/PCIE/DMI)
Size	A3
Document Number	MS-1722
Rev	1.0
Date:	Friday, April 18, 2008
Sheet	17 of 43

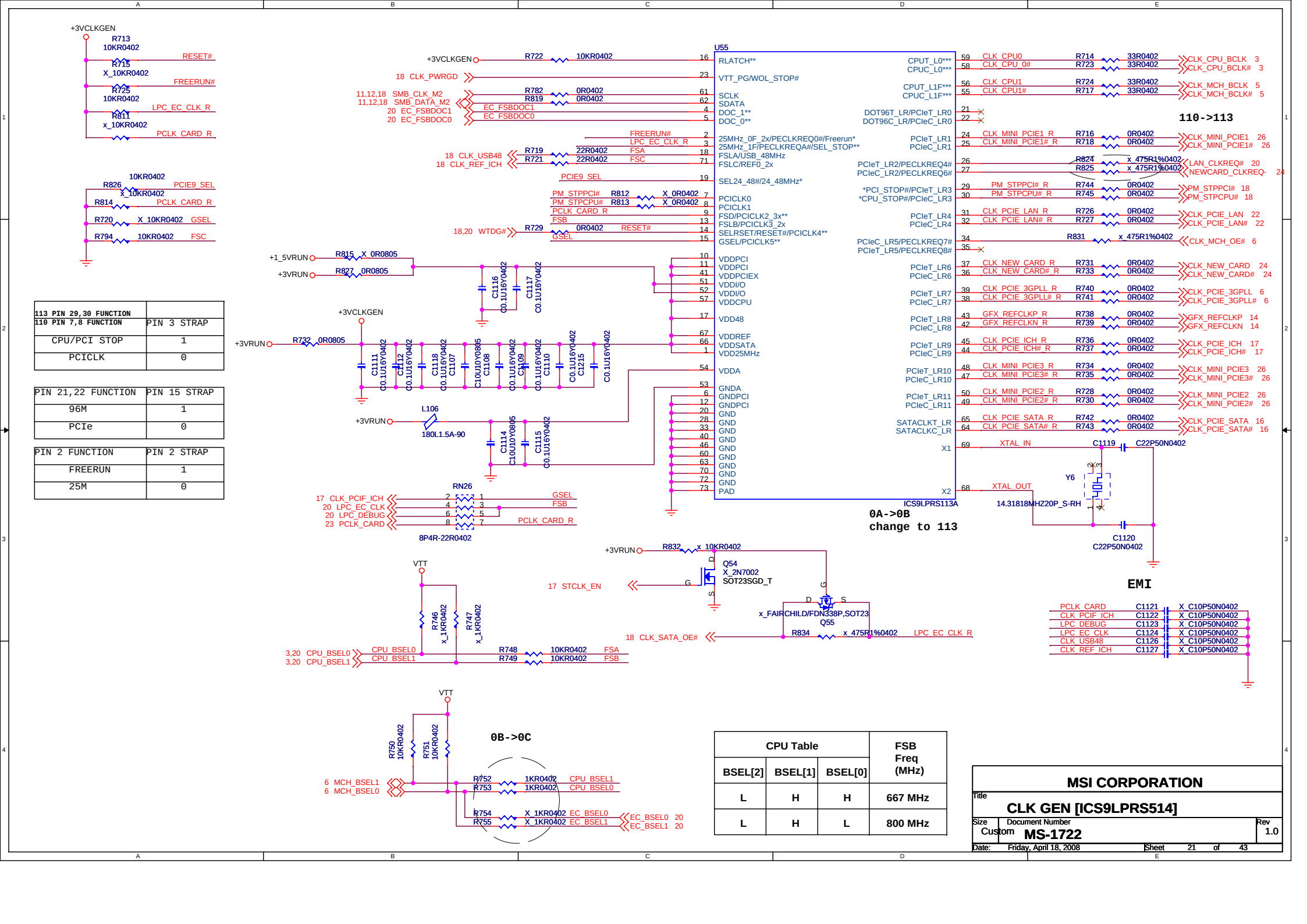
MSI CORPORATION


+3VSUS
RN21
8P4R-10KR0402
SMLINK1
SMLINK0
SMBALERT#
SMB_LINK_ALERT#
R120 10KR0402 PM_SYS_RESET
R121 2.2KR0402 SUS_SMBDATA
R122 2.2KR0402 SUS_SMBCLK
R123 10KR0402 PM_RI#
R124 10KR0402 PM_BATLOW#
R125 1KR0402 PCIE_WAKE#
R126 X_10KR0402 PM_PWRBTN#
R650 X_10KR0402 SB_GPIO13
R651 X_10KR0402 AC_PRESENT
+3VRUN
R652 X_10KR0402 SB_GPIO6
R130 X_10KR0402 PM_SYNC#
R132 X_10KR0402 SB_GPIO24
R133 10KR0402 PM_THRM#
R134 10KR0402 SIRQ
R136 10KR0402 P_CLKRUN# R
R138 100KR0402 IMVP_PWRGD
+3VRUN
RN22
8P4R-10KR0402
SATA0GP
SATA2GP
SATA3GP
SATA1GP
U7C
SUS_SMBCLK G16
SUS_SMBDATA A13
SMB_LINK_ALERT# E17
SMLINK0 C17
SMLINK1 B18
PM_RI# F19
R4
PM_SYS_RESET G19
6 PM_SYNC# M6
SMBALERT# A17
21 PM_STPPCI# JNC19 X_0R0402 STP_PCI#_R A14
21 PM_STPCPU# JNC20 X_0R0402 STP_CPU#_R E19
23 P_CLKRUN# JNC58 X_0R0402 P_CLKRUN#_R L4
22,24,26 PCIE_WAKE# E20
20 SIRQ M5
PM_THRM# AJ23
VR_PWRGD_CLKEN D21
TP55 TP7 A20
20 KBSMI# AG19
TP56 SB_GPIO6 AH21
20 KBSCI# AG21
TP57 A21
TP58 C12
TP107 SB_GPIO13 C21
TP60 SB_GPIO17 AE18
TP61 K1
TP63 SB_GPIO20 AF8
TP64 SB_GPIO22 AJ22
TP65 SB_GPIO27 A9
TP67 SB_GPIO28 D19
21 CLK_SATA_OE# L1
MB_ID0 AE19
MB_ID1 AG22
AF21
AH24
R655 X_10KR0402 A8
28 SPKR M7
6 MCH_ICH_SYNC# R141 0R0402 MCH_SYNC# AJ24
TP70 B21
TP72 AH20
TP73 AJ20
TP74 AJ21
SMB
SATA GPIO
Clocks
SYS GPIO
Power MGT
GPIO
Controller Link
MISC
SMBCLK
SMBDATA
LINKALERT#/GPIO60/CLGPIO4
SMLINK0
SMLINK1
RI#
SUS_STAT#/LPCPD#
SYS_RESET#
PMSYNC#/GPIO0
SMBALERT#/GPIO11
STP_PCI#
STP_CPU#
CLKRUN#
WAKE#
SERIRQ
THRM#
VRMPWRGD
TP12
GPIO1
GPIO6
GPIO7
GPIO8
LAN_PHY_PWR_CTRL/GPIO12
ENERGY_DETECT/GPIO13
GPIO17
GPIO18
GPIO20
SCLOCK/GPIO22
GPIO27
GPIO28
SATACLKREQ#/GPIO35
SLOAD/GPIO38
SDATAOUT0/GPIO39
SDATAOUT1/GPIO48
GPIO49
GPIO57/CLGPIO5
SPKR
MCH_SYNC#
TP3
TP9
TP10
TP11
ICH9M REV 1.0
SATA0GP/GPIO21 AH23 SATA0GP
SATA1GP/GPIO19 AF19 SATA1GP
SATA4GP/GPIO36 AE21 SATA2GP
SATA5GP/GPIO37 AD20 SATA3GP
CLK14 H1 CLK_REF_ICH 21
CLK48 AF3 CLK_USB48 21
SUSCLK P1 TP52
SLP_S3# C16 SLP_S3# JNC17 X_0R0402 PM_SLP_S3# 20
SLP_S4# E16 SLP_S4# JNC18 X_0R0402 PM_SLP_S4# 20
SLP_S5# G17 PM_SLP_S5# TP53
S4_STATE#/GPIO26 C10 PM_S4_STATE# TP54
PWROK G20 PWROK_SB JNC21 X_0R0402 IMVP_PWRGD IMVP_PWRGD 6,35
DPRSLPVR/GPIO16 M2 DPRSLPVR JNC59 X_0R0402 PM_DPRSLPVR 6,35
BATLOW# B13 PM_BATLOW#
PWRBTN# R3 PM_PWRBTN# PM_PWRBTN# 20
LAN_RST# D20 SB_LAN_RST# JNC60 X_0R0402
RSMRST# D22 RSM_RST# JNC61 X_0R0402 RSMRST# 20
CK_PWRGD R5 CLK_PWRGD 21
CLPWROK R6 R654 0R0402 MPWROK 6,20
SLP_M# B16 TP59 IMVP_PWRGD
CL_CLK0 F24 SB_CL_CLK0 JNC22 X_0R0402 CL_CLK0 6
CL_CLK1 B19 TP62
CL_DATA0 F22 SB_CL_DATA0 JNC23 X_0R0402 CL_DATA0 6
CL_DATA1 C19 TP66
CL_VREF0 C25 CL_VREF0_ICH
CL_VREF1 A19 CL_VREF1_ICH TP68
CL_RST0# F21 SB_CL_RST# JNC24 X_0R0402 CL_RST#0 6
CL_RST1# D18
MEM_LED/GPIO24 A16 SB_GPIO24
GPIO10/SUS_PWR_ACK C18 TP69
GPIO14/AC_PRESENT C11 AC_PRESENT 20
WOL_EN/GPIO9 C20 TP71
+3VRUN
R127
Q8 MMBT3904
R128 X_10KR0402
R129 X_10KR0402
10KR0402
EMC2
X_10P50N0402
+3VRUN
U9
35 VR_PWRGD_CLKEN#
VR_PWRGD_CLKEN
LVC1G04_SOT23-5
R140 100KR0402
+3VRUN
R843 10KR0402
+3VSUS
+3VRUN
To NewCard, MiniCard
To DDR-SODIMM, CLK Gen.
R143 2.2KR0402
Q9 BSS138
24,26 SUS_SMBCLK
SMB_CLK_M2 11,12,21
R145 2.2KR0402
Q10 BSS138
24,26 SUS_SMBDATA
SMB_DATA_M2 11,12,21
+3VRUN
R142 3.24KR1%
CL_VREF0_ICH
R144 453R1%
C251 C0.1U10X0402
+3VRUN
R656 X_10KR0402
SB_GPIO22
R657 X_10KR0402
For BIOS recovery
+3VRUN
R146 X_100KR0402
R148 X_100KR0402
MB_ID0
MB_ID1
R147 X_100KR0402
R149 X_100KR0402
MB_ID0 => High : AMT Mode
Low : Non AMT Mode
MSI CORPORATION
Title
ICH9M-3 (SM BUS/GPIO)
Size A3
Document Number MS-1722
Rev 1.0
Date: Friday, April 18, 2008
Sheet 18 of 43



MSI CORPORATION		
Title: ICH9M-4 (POWER/GND)		
Size: A2	Document Number: MS-1722	Rev: 1.0
Date: Friday, April 18, 2008	Sheet 19 of 43	


U10
POWER & GND
LPC
KBC
X-BUS
SM-BUS
PWM
PS2 I/F
GPIO
D/A
A/D
KB LED
CLOCKS
CIR
ENE3925_LQFP144
0B->0C
HI: 2P
LO: 3P
For SW Debug
CON2
BOX_HEADER_14W_90
N32-1140070-A81
EMI
SPI_SOCKET2
X_SOCKET-8P-1.27PITCH-RH
BIOS2
W25X10VSNIG
NO STUFF
CON13
X_BOX_HEADER_10W
N32-1100240-A81
CN1
D1x8-WH
FPC_26_C1470903
N5A-26F0250-A81
Keyboard CONN.
U13
CIR
U12
X_7SZ08
MSI CORPORATION
KBC/EC/uP (ENE3925-LFQP144)
MS-1722
Friday, April 18, 2008
Sheet 20 of 43
1.0


+3VCLKGEN
R713 10KR0402
RESET#
R715 X_10KR0402
FREERUN#
R725 10KR0402
LPC_EC_CLK_R
R811 x_10KR0402
PCLK_CARD_R
10KR0402
R826 X_10KR0402
PCIE9_SEL
R814
PCLK_CARD_R
R720 X_10KR0402 GSEL
R794 10KR0402 FSC
113 PIN 29,30 FUNCTION
110 PIN 7,8 FUNCTION
PIN 3 STRAP
CPU/PCI STOP 1
PCICLK 0
PIN 21,22 FUNCTION
PIN 15 STRAP
96M 1
PCIe 0
PIN 2 FUNCTION
PIN 2 STRAP
FREERUN 1
25M 0
U55
ICS9LPRS113A
RLATCH**
VTT_PG/WOL_STOP#
SCLK
SDATA
DOC_1**
DOC_0**
25MHz_0F_2x/PECLKREQ0#/Freerun*
25MHz_1F/PECLKREQA#/SEL_STOP**
FSLA/USB_48MHz
FSLC/REF0_2x
SEL24_48#/24_48MHz*
PCICLK0
PCICLK1
FSD/PCICLK2_3x**
FSLB/PCICLK3_2x
SELRSET/RESET#/PCICLK4**
GSEL/PCICLK5**
VDDPCI
VDDPCI
VDDPCIEX
VDDI/O
VDDI/O
VDDCPU
VDD48
VDDREF
VDDSATA
VDD25MHz
VDDA
GNDA
GNDPCI
GNDPCI
GND
PAD
CPUT_L0***
CPUC_L0***
CPUT_L1F***
CPUC_L1F***
DOT96T_LR/PCIeT_LR0
DOT96C_LR/PCIeC_LR0
PCIeT_LR1
PCIeC_LR1
PCIeT_LR2/PECLKREQ4#
PCIeC_LR2/PECLKREQ6#
*PCI_STOP#/PCIeT_LR3
*CPU_STOP#/PCIeC_LR3
PCIeT_LR4
PCIeC_LR4
PCIeC_LR5/PECLKREQ7#
PCIeT_LR5/PECLKREQ8#
PCIeT_LR6
PCIeC_LR6
PCIeT_LR7
PCIeC_LR7
PCIeT_LR8
PCIeC_LR8
PCIeT_LR9
PCIeC_LR9
PCIeT_LR10
PCIeC_LR10
PCIeT_LR11
PCIeC_LR11
SATACLKT_LR
SATACLKC_LR
X1
X2
CLK_CPU0
CLK_CPU_0#
CLK_CPU1
CLK_CPU1#
CLK_MINI_PCIE1_R
CLK_MINI_PCIE1#_R
CLK_PCIE_LAN_R
CLK_PCIE_LAN#_R
CLK_NEW_CARD_R
CLK_NEW_CARD#_R
CLK_PCIE_3GPLL_R
CLK_PCIE_3GPLL#_R
GFX_REFCLKP_R
GFX_REFCLKN_R
CLK_PCIE_ICH_R
CLK_PCIE_ICH#_R
CLK_MINI_PCIE3_R
CLK_MINI_PCIE3#_R
CLK_MINI_PCIE2_R
CLK_MINI_PCIE2#_R
CLK_PCIE_SATA_R
CLK_PCIE_SATA#_R
XTAL_IN
XTAL_OUT
14.31818MHZ20P_S-RH
Y6
C1119 C22P50N0402
C1120 C22P50N0402
110->113
0A->0B
change to 113
EMI
PCLK_CARD C1121 X_C10P50N0402
CLK_PCIF_ICH C1122 X_C10P50N0402
LPC_DEBUG C1123 X_C10P50N0402
LPC_EC_CLK C1124 X_C10P50N0402
CLK_USB48 C1126 X_C10P50N0402
CLK_REF_ICH C1127 X_C10P50N0402
+1_5VRUN
+3VRUN
R815 X_0R0805
R827 0R0805
R732 0R0805
L106
180L1.5A-90
C1111 C0.1U16Y0402
C1112 C0.1U16Y0402
C1118 C0.1U16Y0402
C1107 C0.1U16Y0402
C1108 C10U10Y0805
C1109 C0.1U16Y0402
C1110 C0.1U16Y0402
C1215 C0.1U16Y0402
C1116 C0.1U16Y0402
C1117 C0.1U16Y0402
C1114 C10U10Y0805
C1115 C0.1U16Y0402
RN26
8P4R-22R0402
17 CLK_PCIF_ICH
20 LPC_EC_CLK
20 LPC_DEBUG
23 PCLK_CARD
GSEL
FSB
PCLK_CARD_R
R722 10KR0402
18 CLK_PWRGD
11,12,18 SMB_CLK_M2
11,12,18 SMB_DATA_M2
20 EC_FSBDOC1
20 EC_FSBDOC0
R782 0R0402
R819 0R0402
EC_FSBDOC1
EC_FSBDOC0
FREERUN#
LPC_EC_CLK_R
18 CLK_USB48
18 CLK_REF_ICH
R719 22R0402 FSA
R721 22R0402 FSC
PCIE9_SEL
PM_STPPCI# R812 X_0R0402
PM_STPCPU# R813 X_0R0402
PCLK_CARD_R
FSB
18,20 WTDG#
R729 0R0402 RESET#
GSEL
+3VCLKGEN
+3VRUN
R832 x_10KR0402
Q54
X_2N7002
SOT23SGD_T
17 STCLK_EN
x_FAIRCHILD/FDN338P,SOT23
Q55
R834 x_475R1%0402
LPC_EC_CLK_R
18 CLK_SATA_OE#
VTT
R746 x_1KR0402
R747 x_1KR0402
3,20 CPU_BSEL0
3,20 CPU_BSEL1
R748 10KR0402 FSA
R749 10KR0402 FSB
0B->0C
R750 10KR0402
R751 10KR0402
6 MCH_BSEL1
6 MCH_BSEL0
R752 1KR0402 CPU_BSEL1
R753 1KR0402 CPU_BSEL0
R754 X_1KR0402 EC_BSEL0
R755 X_1KR0402 EC_BSEL1
EC_BSEL0 20
EC_BSEL1 20
R714 33R0402 CLK_CPU_BCLK 3
R723 33R0402 CLK_CPU_BCLK# 3
R724 33R0402 CLK_MCH_BCLK 5
R717 33R0402 CLK_MCH_BCLK# 5
R716 0R0402 CLK_MINI_PCIE1 26
R718 0R0402 CLK_MINI_PCIE1# 26
R824 x_475R1%0402 LAN_CLKREQ# 20
R825 x_475R1%0402 NEWCARD_CLKREQ- 24
R744 0R0402 PM_STPPCI# 18
R745 0R0402 PM_STPCPU# 18
R726 0R0402 CLK_PCIE_LAN 22
R727 0R0402 CLK_PCIE_LAN# 22
R831 x_475R1%0402 CLK_MCH_OE# 6
R731 0R0402 CLK_NEW_CARD 24
R733 0R0402 CLK_NEW_CARD# 24
R740 0R0402 CLK_PCIE_3GPLL 6
R741 0R0402 CLK_PCIE_3GPLL# 6
R738 0R0402 GFX_REFCLKP 14
R739 0R0402 GFX_REFCLKN 14
R736 0R0402 CLK_PCIE_ICH 17
R737 0R0402 CLK_PCIE_ICH# 17
R734 0R0402 CLK_MINI_PCIE3 26
R735 0R0402 CLK_MINI_PCIE3# 26
R728 0R0402 CLK_MINI_PCIE2 26
R730 0R0402 CLK_MINI_PCIE2# 26
R742 0R0402 CLK_PCIE_SATA 16
R743 0R0402 CLK_PCIE_SATA# 16
CPU Table
BSEL[2] BSEL[1] BSEL[0] FSB Freq (MHz)
L H H 667 MHz
L H L 800 MHz
MSI CORPORATION
Title
CLK GEN [ICS9LPRS514]
Size Custom
Document Number MS-1722
Rev 1.0
Date: Friday, April 18, 2008
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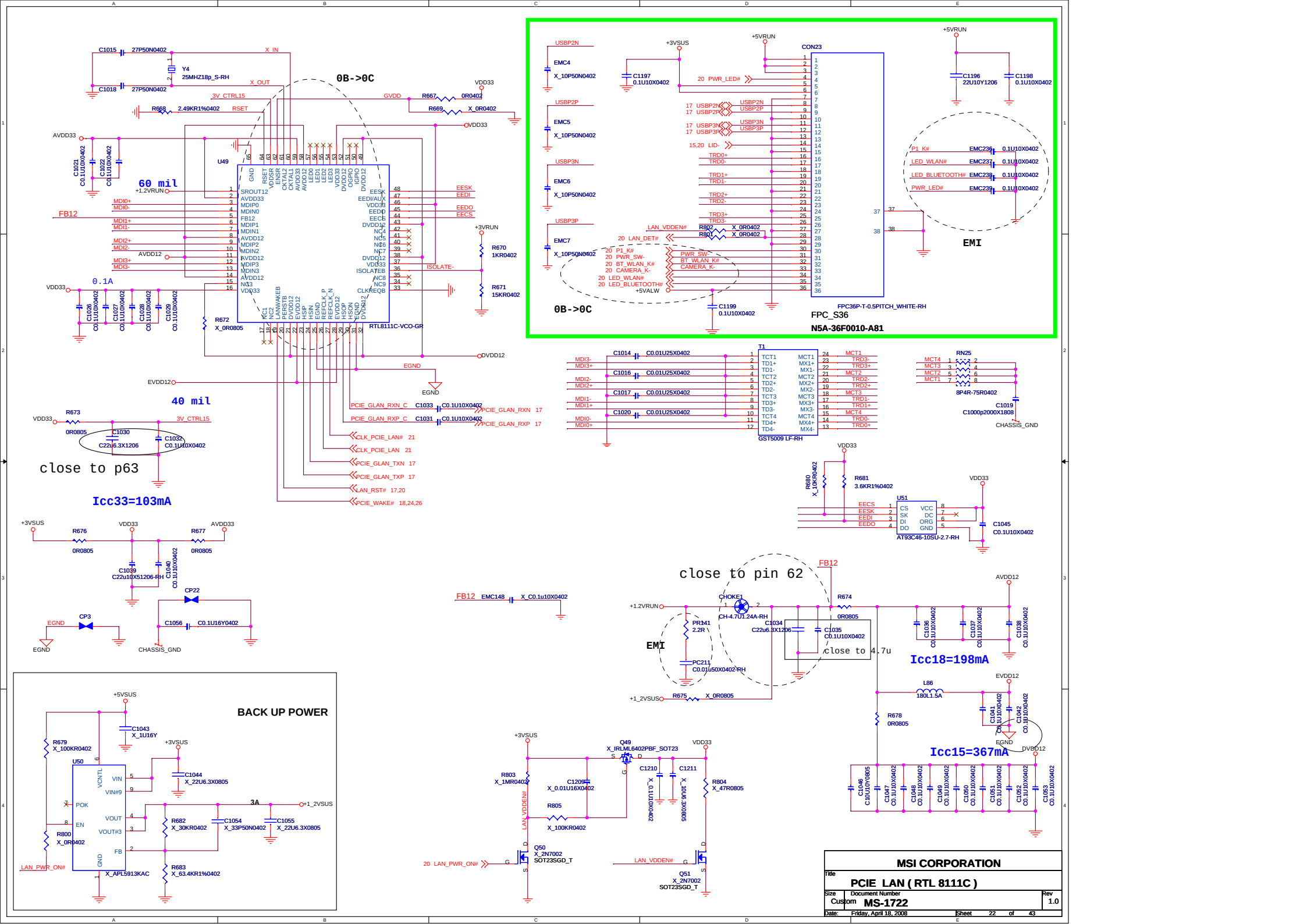
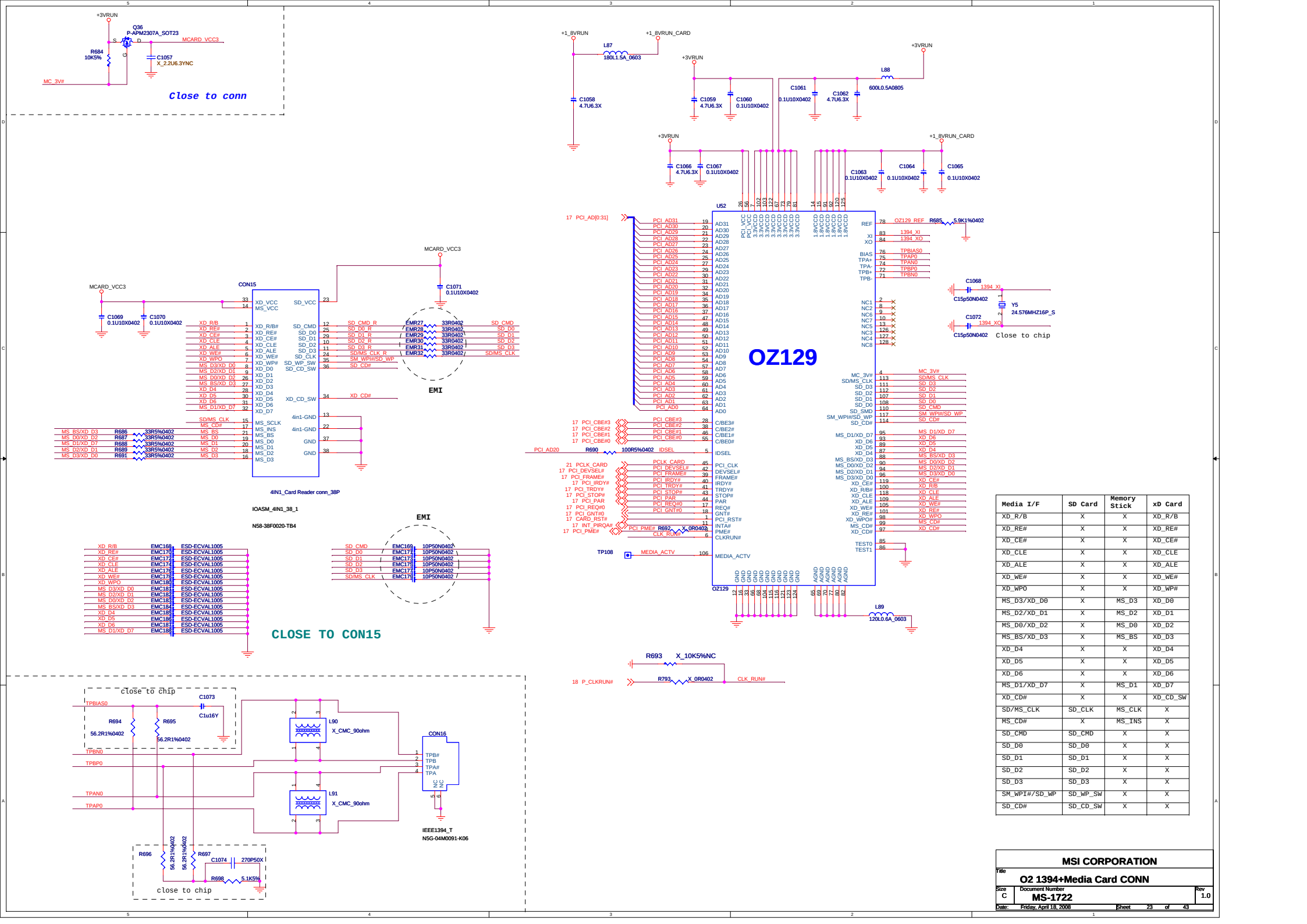
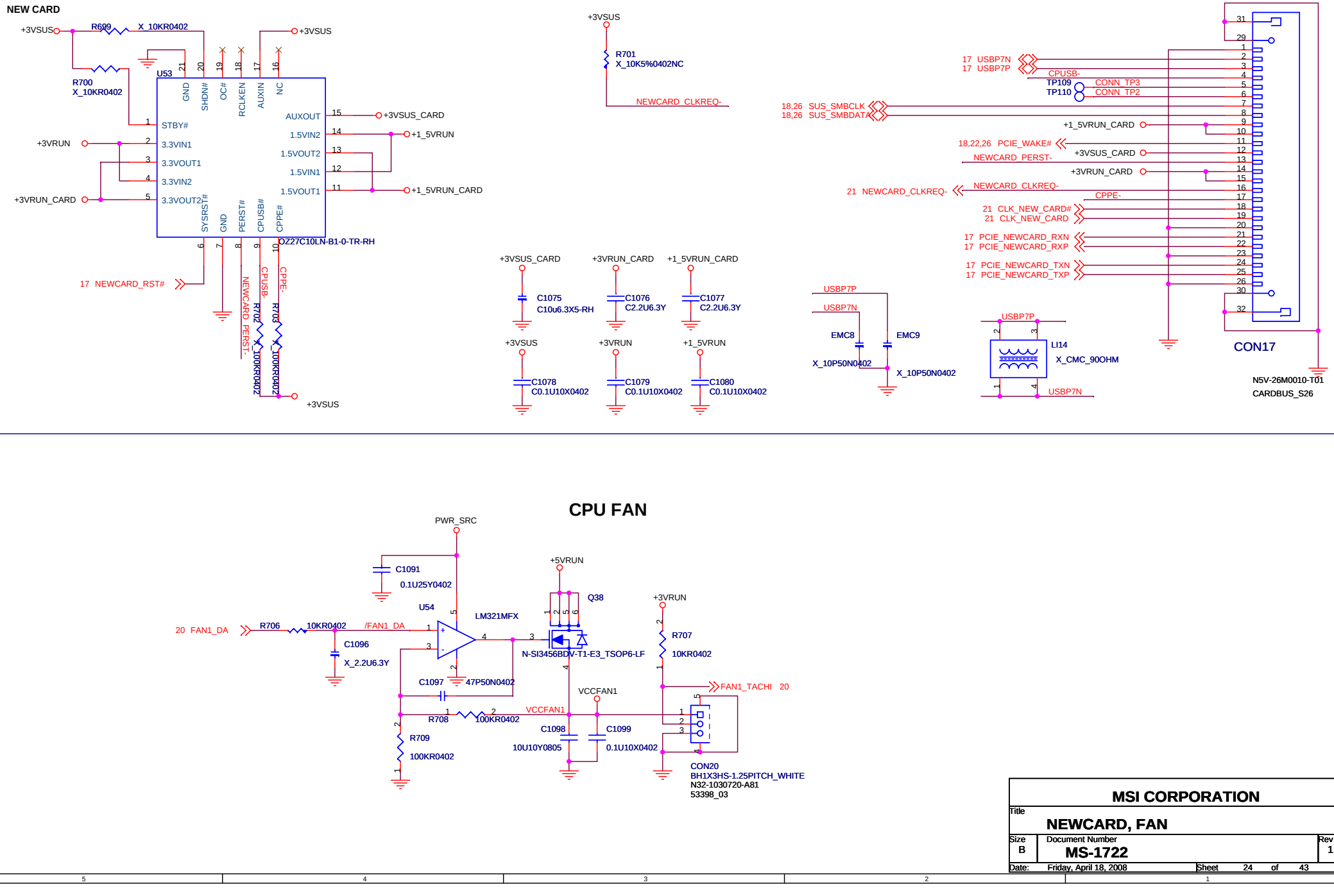
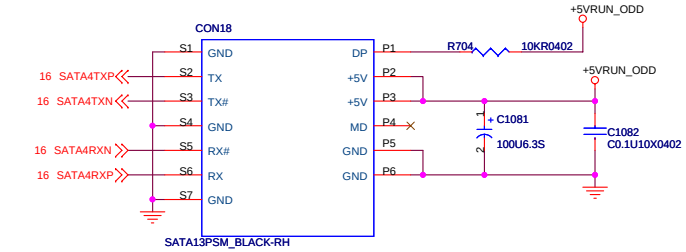

C1015 27P50N0402
C1018 27P50N0402
Y4 25MHZ18p_S-RH
X_IN
X_OUT
0B->0C
3V_CTRL15
GVDD
R667 0R0402
R669 X_0R0402
R668 2.49KR1%0402
RSET
VDD33
AVDD33
U49
RTL8111C-VCO-GR
60 mil
+1.2VRUN
FB12
AVDD12
0.1A
R672 X_0R0805
R670 1KR0402
R671 15KR0402
+3VRUN
ISOLATE-
DVDD12
EGND
EVDD12
40 mil
R673 0R0805
C1030 C22u6.3X1206
C1032 C0.1U10X0402
close to p63
Icc33=103mA
PCIE_GLAN_RXN_C C1033 C0.1U10X0402
PCIE_GLAN_RXP_C C1031 C0.1U10X0402
PCIE_GLAN_RXN 17
PCIE_GLAN_RXP 17
CLK_PCIE_LAN# 21
CLK_PCIE_LAN 21
PCIE_GLAN_TXN 17
PCIE_GLAN_TXP 17
LAN_RST# 17,20
PCIE_WAKE# 18,24,26
EESK
EEDI
EEDO
EECS
USBP2N
USBP2P
USBP3N
USBP3P
EMC4 X_10P50N0402
EMC5 X_10P50N0402
EMC6 X_10P50N0402
EMC7 X_10P50N0402
C1197 0.1U10X0402
+3VSUS
+5VRUN
CON23
FPC36P-T-0.5PITCH_WHITE-RH
FPC_S36
N5A-36F0010-A81
0B->0C
20 PWR_LED#
17 USBP2N
17 USBP2P
17 USBP3N
17 USBP3P
15,20 LID-
TRD0+
TRD0-
TRD1+
TRD1-
TRD2+
TRD2-
TRD3+
TRD3-
LAN_VDDEN#
R802 X_0R0402
R801 X_0R0402
20 LAN_DET#
20 P1_K#
20 PWR_SW-
20 BT_WLAN_K#
20 CAMERA_K-
20 LED_WLAN#
20 LED_BLUETOOTH#
+5VALW
C1199 0.1U10X0402
C1196 22U10Y1206
C1198 0.1U10X0402
P1_K# EMC236 0.1U10X0402
LED_WLAN# EMC237 0.1U10X0402
LED_BLUETOOTH# EMC238 0.1U10X0402
PWR_LED# EMC239 0.1U10X0402
EMI
T1
GST5009 LF-RH
MDI0+ MDI0-
MDI1+ MDI1-
MDI2+ MDI2-
MDI3+ MDI3-
C1014 C0.01U25X0402
C1016 C0.01U25X0402
C1017 C0.01U25X0402
C1020 C0.01U25X0402
MCT1 TRD3-
MCT2 TRD2-
MCT3 TRD1-
MCT4 TRD0-
RN25
8P4R-75R0402
C1019 C1000p2000X1808
CHASSIS_GND
R680 X_10KR0402
R681 3.6KR1%0402
U51
AT93C46-10SU-2.7-RH
C1045 C0.1U10X0402
R676 0R0805
R677 0R0805
C1039 C22u10X5S1206-RH
C1040 C0.1U10X0402
CP22
CP3
C1056 C0.1U16Y0402
EGND
CHASSIS_GND
FB12 EMC148 X_C0.1u10X0402
close to pin 62
CHOKE1 CH-4.7U1.24A-RH
R674 0R0805
+1.2VRUN
PR141 2.2R
PC211 C0.01U50X0402-RH
C1034 C22u6.3X1206
C1035 C0.1U10X0402
close to 4.7u
EMI
C1036 C0.1U10X0402
C1037 C0.1U10X0402
C1038 C0.1U10X0402
Icc18=198mA
+1_2VSUS
R675 X_0R0805
L86 180L1.5A
R678 0R0805
C1041 C0.1U10X0402
C1042 C0.1U10X0402
Icc15=367mA
C1046 C10U10X0805
C1047 C0.1U10X0402
C1048 C0.1U10X0402
C1049 C0.1U10X0402
C1050 C0.1U10X0402
C1051 C0.1U10X0402
C1052 C0.1U10X0402
C1053 C0.1U10X0402
BACK UP POWER
+5VSUS
C1043 X_1U16Y
U50
APL5913KAC
R679 X_100KR0402
R800 X_0R0402
LAN_PWR_ON#
C1044 X_22U6.3X0805
C1054 X_33P50N0402
C1055 X_22U6.3X0805
3A
+1_2VSUS
R682 X_30KR0402
R683 X_63.4KR1%0402
Q49 X_IRLML6402PBF_SOT23
Q50 X_2N7002 SOT23SGD_T
Q51 X_2N7002 SOT23SGD_T
R803 X_1MR0402
R805 X_100KR0402
R804 X_47R0805
C1209 X_0.01U16X0402
C1210 X_0.1U10X0402
C1211 X_10U6.3X0805
20 LAN_PWR_ON#
LAN_VDDEN#
MSI CORPORATION
PCIE LAN (RTL 8111C)
Custom
MS-1722
1.0
Friday, April 18, 2008
Sheet 22 of 43

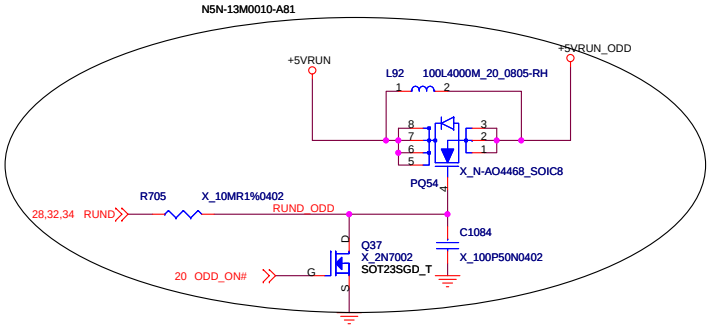


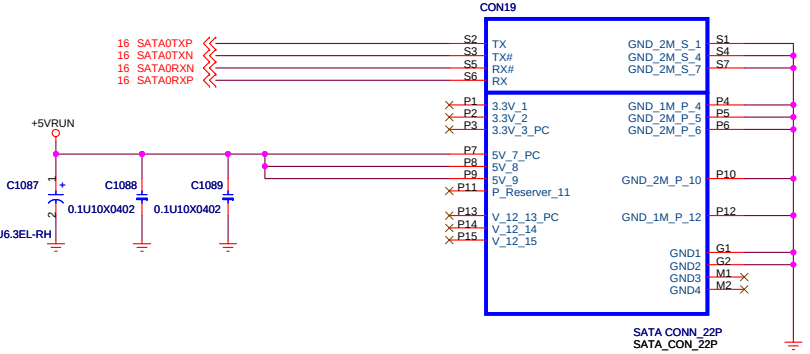
Media I/F	SD Card	Memory Stick	xD Card
XD_R/B	X	X	XD_R/B
XD_RE#	X	X	XD_RE#
XD_CE#	X	X	XD_CE#
XD_CLE	X	X	XD_CLE
XD_ALE	X	X	XD_ALE
XD_WE#	X	X	XD_WE#
XD_WP0	X	X	XD_WP#
MS_D3/XD_D0	X	MS_D3	XD_D0
MS_D2/XD_D1	X	MS_D2	XD_D1
MS_D0/XD_D2	X	MS_D0	XD_D2
MS_BS/XD_D3	X	MS_BS	XD_D3
XD_D4	X	X	XD_D4
XD_D5	X	X	XD_D5
XD_D6	X	X	XD_D6
MS_D1/XD_D7	X	MS_D1	XD_D7
XD_CD#	X	X	XD_CD_SW
SD/MS_CLK	SD_CLK	MS_CLK	X
MS_CD#	X	MS_INS	X
SD_CMD	SD_CMD	X	X
SD_D0	SD_D0	X	X
SD_D1	SD_D1	X	X
SD_D2	SD_D2	X	X
SD_D3	SD_D3	X	X
SM_WPI#/SD_WP	SD_WP_SW	X	X
SD_CD#	SD_CD_SW	X	X

MSI CORPORATION			
Title: O2 1394+Media Card CONN			
Size: C	Document Number: MS-1722		Rev: 1.0
Date: Friday, April 18, 2008		Sheet 23 of 43	

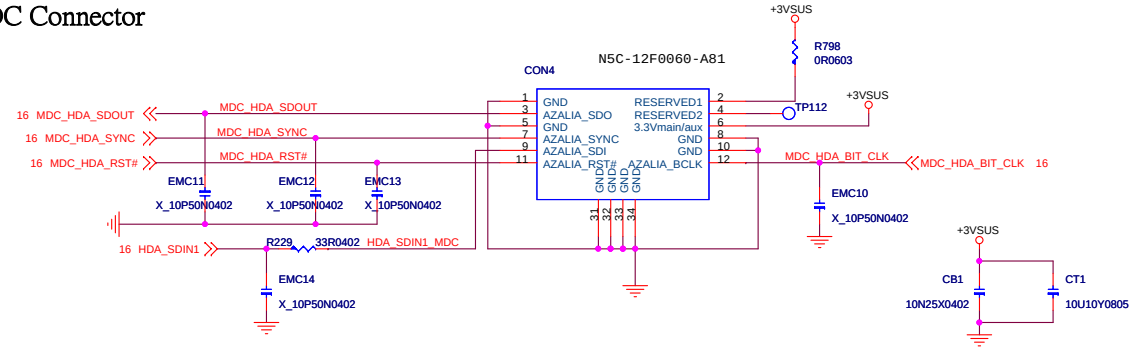

NEW CARD
+3VSUS
R699
X_10KR0402
R700
X_10KR0402
U53
GND
SHDN#
OC#
RCLKEN
AUXIN
NC
+3VSUS
AUXOUT
+3VSUS_CARD
STBY#
+3VRUN
3.3VIN1
1.5VIN2
+1_5VRUN
3.3VOUT1
1.5VOUT2
3.3VIN2
1.5VIN1
+3VRUN_CARD
3.3VOUT2
1.5VOUT1
+1_5VRUN_CARD
SYSRST#
GND
PERST#
CPUSB#
CPPE#
OZ27C10LN-B1-0-TR-RH
17 NEWCARD_RST#
NEWCARD_PERST-
CPUSB-
CPPE-
R702
X_100KR0402
R703
X_100KR0402
+3VSUS
+3VSUS
R701
X_10K5%0402NC
NEWCARD_CLKREQ-
+3VSUS_CARD
+3VRUN_CARD
+1_5VRUN_CARD
C1075
C10u6.3X5-RH
C1076
C2.2U6.3Y
C1077
C2.2U6.3Y
+3VSUS
+3VRUN
+1_5VRUN
C1078
C0.1U10X0402
C1079
C0.1U10X0402
C1080
C0.1U10X0402
17 USBP7N
17 USBP7P
CPUSB-
TP109
TP110
CONN_TP3
CONN_TP2
18,26 SUS_SMBCLK
18,26 SUS_SMBDATA
+1_5VRUN_CARD
18,22,26 PCIE_WAKE#
+3VSUS_CARD
NEWCARD_PERST-
+3VRUN_CARD
21 NEWCARD_CLKREQ-
NEWCARD_CLKREQ-
CPPE-
21 CLK_NEW_CARD#
21 CLK_NEW_CARD
17 PCIE_NEWCARD_RXN
17 PCIE_NEWCARD_RXP
17 PCIE_NEWCARD_TXN
17 PCIE_NEWCARD_TXP
CON17
N5V-26M0010-T01
CARDBUS_S26
USBP7P
USBP7N
EMC8
EMC9
X_10P50N0402
X_10P50N0402
USBP7P
LI14
X_CMC_90OHM
USBP7N
CPU FAN
PWR_SRC
C1091
0.1U25Y0402
+5VRUN
Q38
+3VRUN
U54
LM321MFX
20 FAN1_DA
R706
10KR0402
/FAN1_DA
C1096
X_2.2U6.3Y
N-SI3456BDV-T1-E3_TSOP6-LF
R707
10KR0402
C1097
47P50N0402
VCCFAN1
FAN1_TACHI 20
R708
100KR0402
VCCFAN1
C1098
10U10Y0805
C1099
0.1U10X0402
R709
100KR0402
CON20
BH1X3HS-1.25PITCH_WHITE
N32-1030720-A81
53398_03
MSI CORPORATION
Title
NEWCARD, FAN
Size
B
Document Number
MS-1722
Rev
1.0
Date:
Friday, April 18, 2008
Sheet
24
of
43

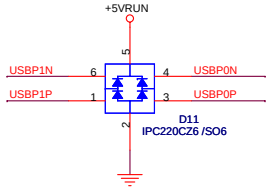


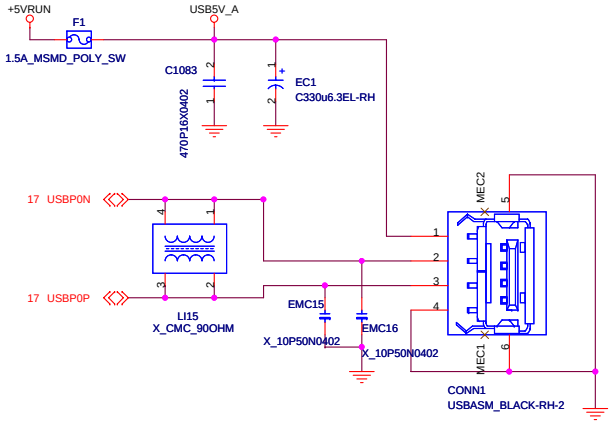




MDC Connector

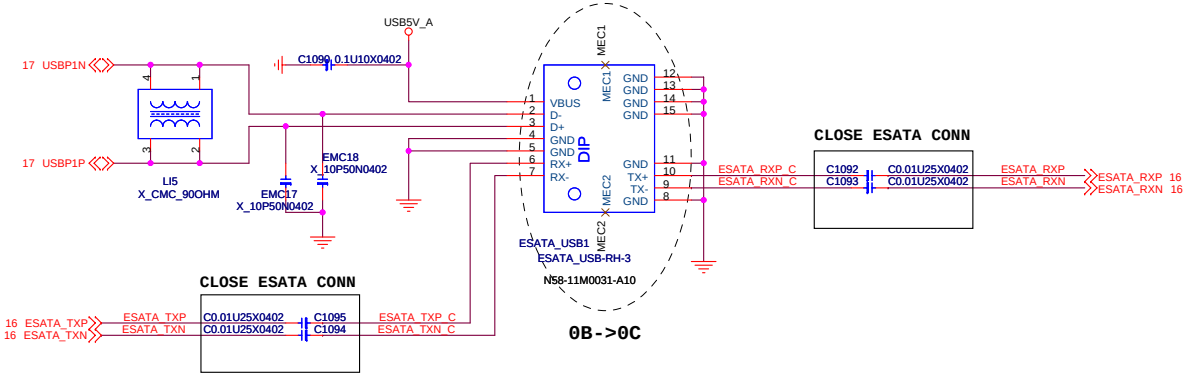




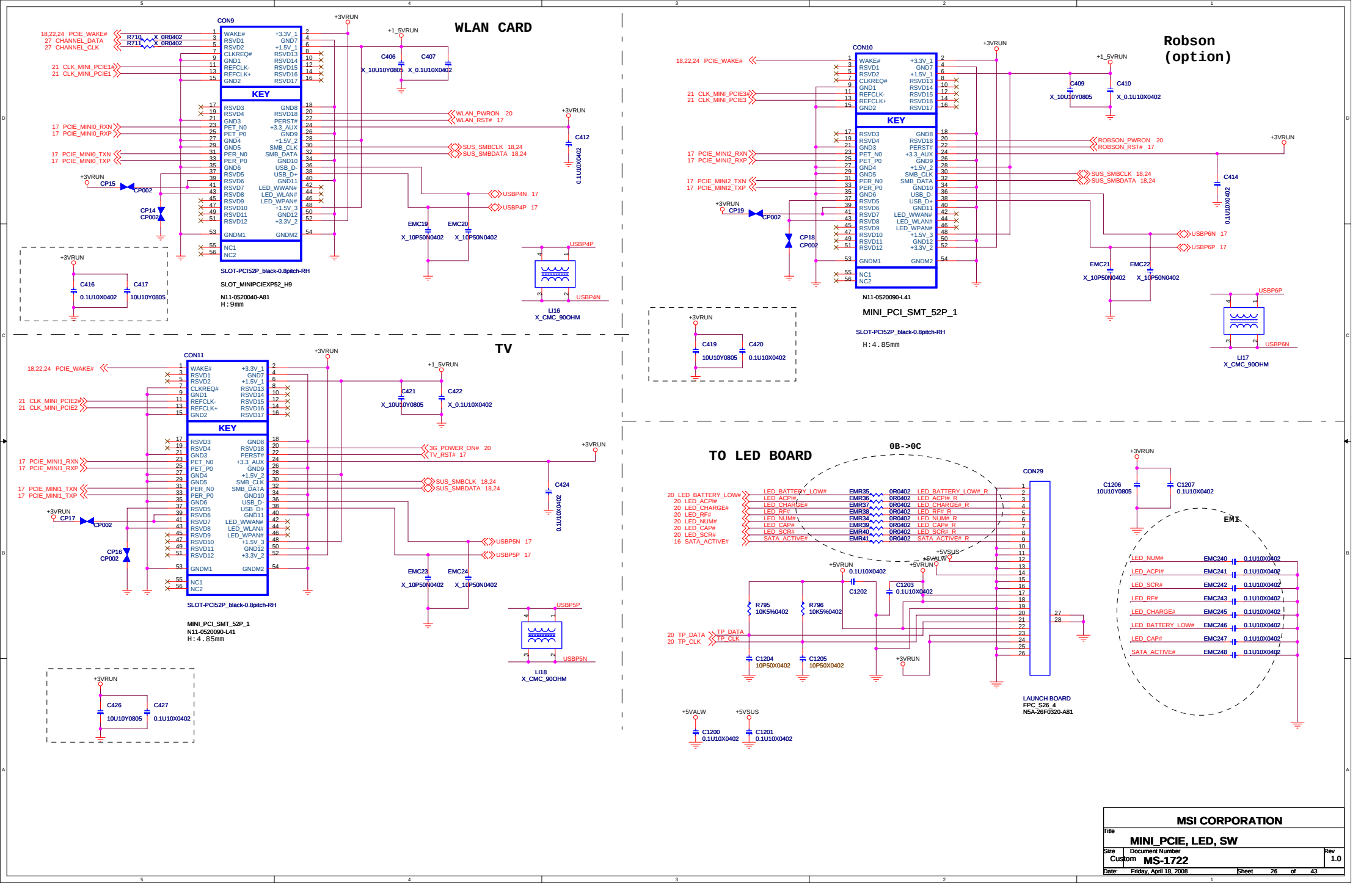


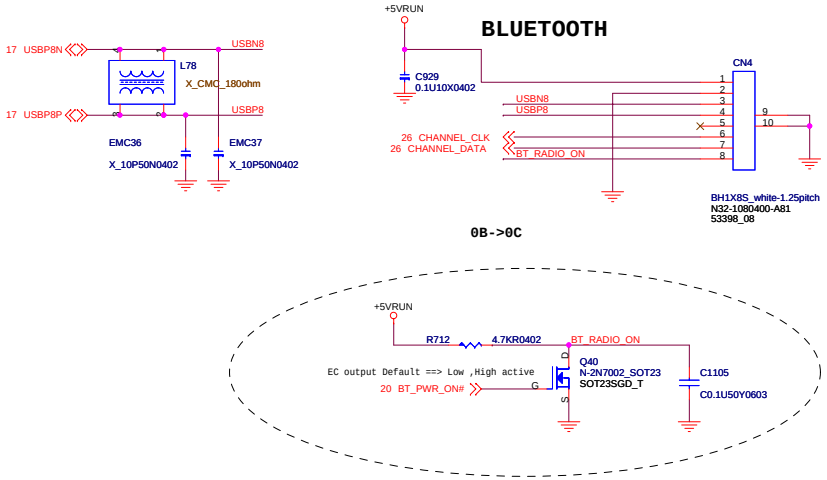
USB_A1_4

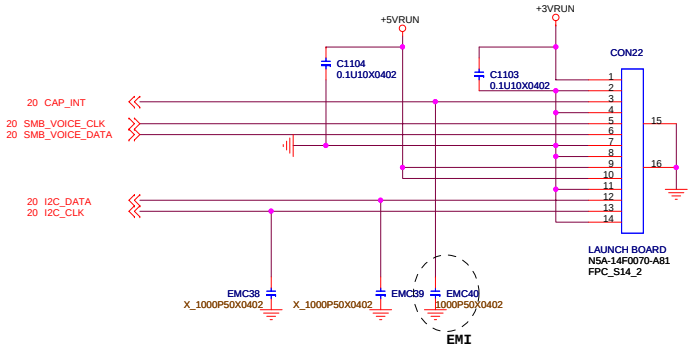
N53-04M0530-A10

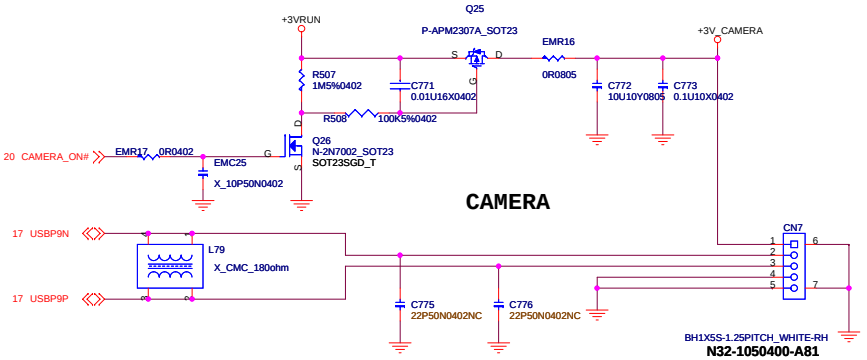


MSI CORPORATION		
Title: HDD,CDROM,USB,MDC,ESATA		
Size: Custom	Document Number: MS-1722	Rev: 1.0
Date: Friday, April 18, 2008	Sheet 25 of 43	


WLAN CARD
CON9
KEY
SLOT-PCI52P_black-0.8pitch-RH
SLOT_MINIPCIEXP52_H9
N11-0520040-A81
H:9mm
Robson (option)
CON10
N11-0520090-L41
MINI_PCI_SMT_52P_1
SLOT-PCI52P_black-0.8pitch-RH
H:4.85mm
TV
CON11
SLOT-PCI52P_black-0.8pitch-RH
MINI_PCI_SMT_52P_1
N11-0520090-L41
H:4.85mm
TO LED BOARD
0B->0C
CON29
LAUNCH BOARD
FPC_S26_4
N5A-26F0320-A81
EMI
MSI CORPORATION
MINI_PCIE, LED, SW
Custom
MS-1722
1.0
Friday, April 18, 2008
Sheet 26 of 43

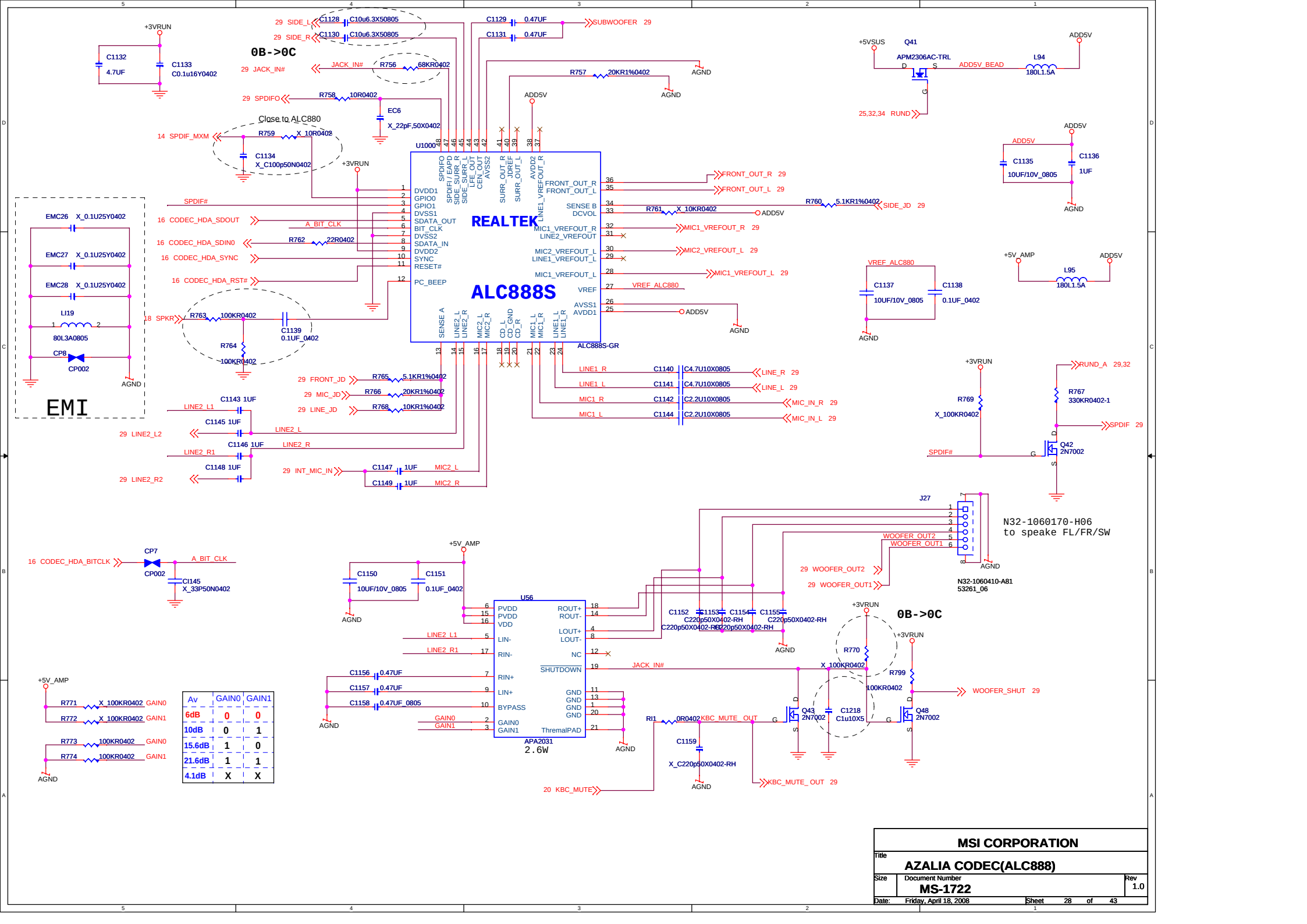






N32-1050400-A81
footprint 用53261_05

MSI CORPORATION		
Title: BT,CAMERA&LED CONN		
Size: Custom	Document Number: MS-1722	Rev: 1.0
Date: Friday, April 18, 2008	Sheet 27 of 43	


ALC888S
REALTEK
ALC888S-GR
U1000
EMI
U56
APA2031
2.6W
0B->0C
0B->0C
Close to ALC880
N32-1060170-H06
to speake FL/FR/SW
N32-1060410-A81
53261_06
MSI CORPORATION
AZALIA CODEC(ALC888)
MS-1722
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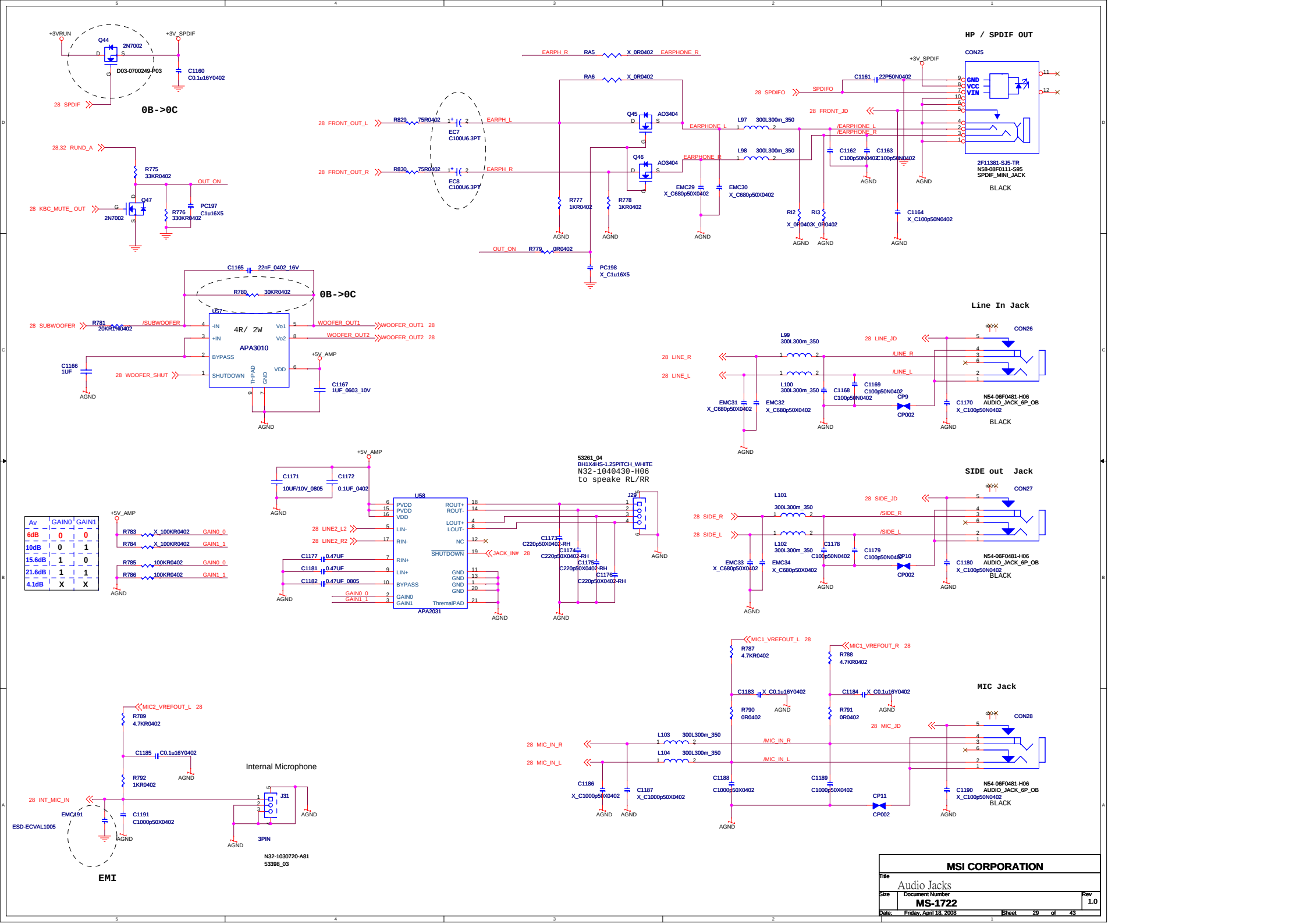
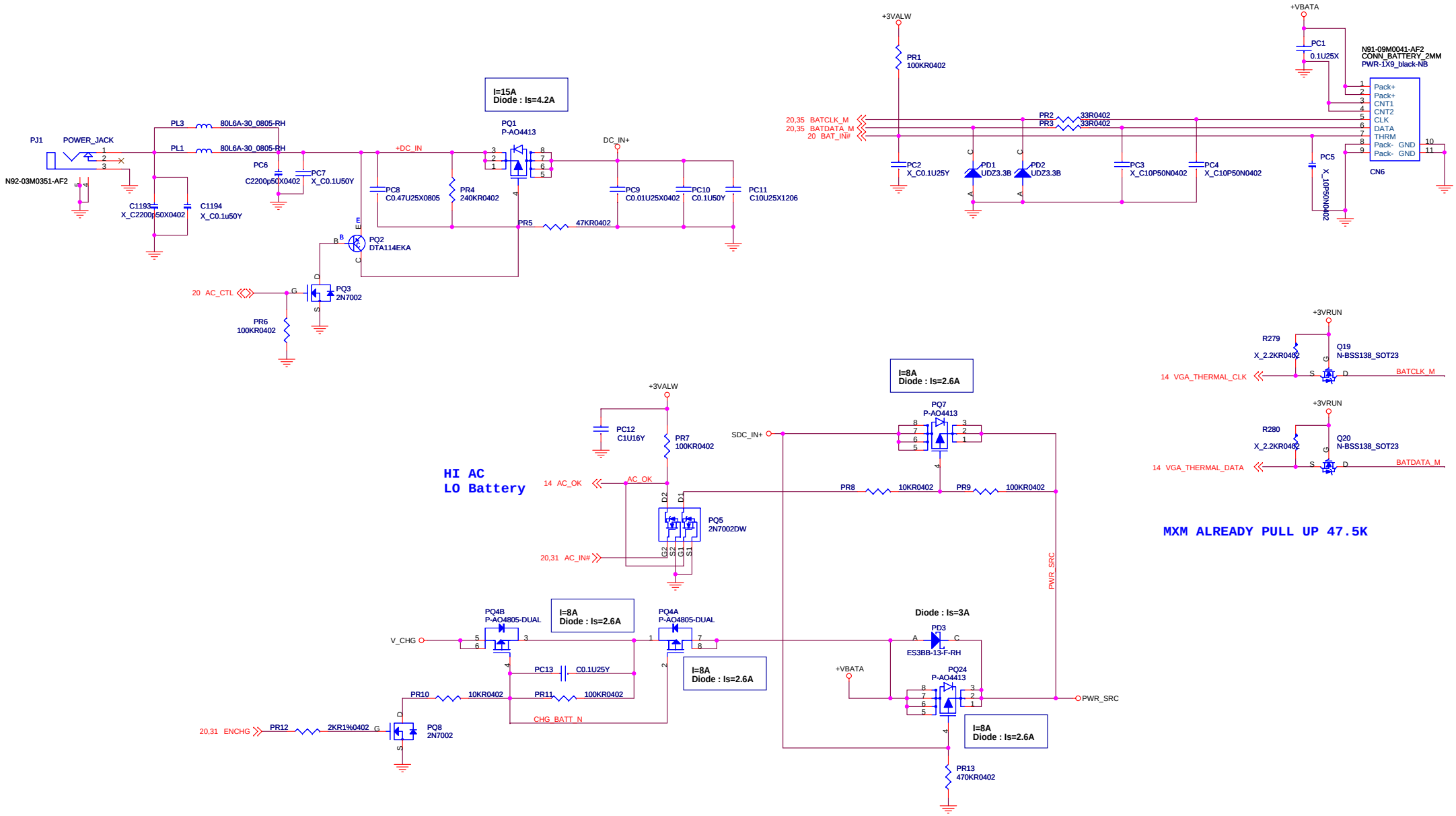

HP / SPDIF OUT
0B->0C
0B->0C
Line In Jack
SIDE out Jack
MIC Jack
Internal Microphone
EMI
APA3010
APA2031
CON25
CON26
CON27
CON28
BLACK
MSI CORPORATION
Audio Jacks
MS-1722
Friday, April 18, 2008



MSI CORPORATION		
Title: Battery Select		
Size: Custom	Document Number: MS-1722	Rev: 1.0
Date: Friday, April 18, 2008	Sheet 30 of 43	

Adapter= 120 W 2.048/7.15*(53.6+7.15)=17.4V

Adapter input voltage set 17.4 Voltage

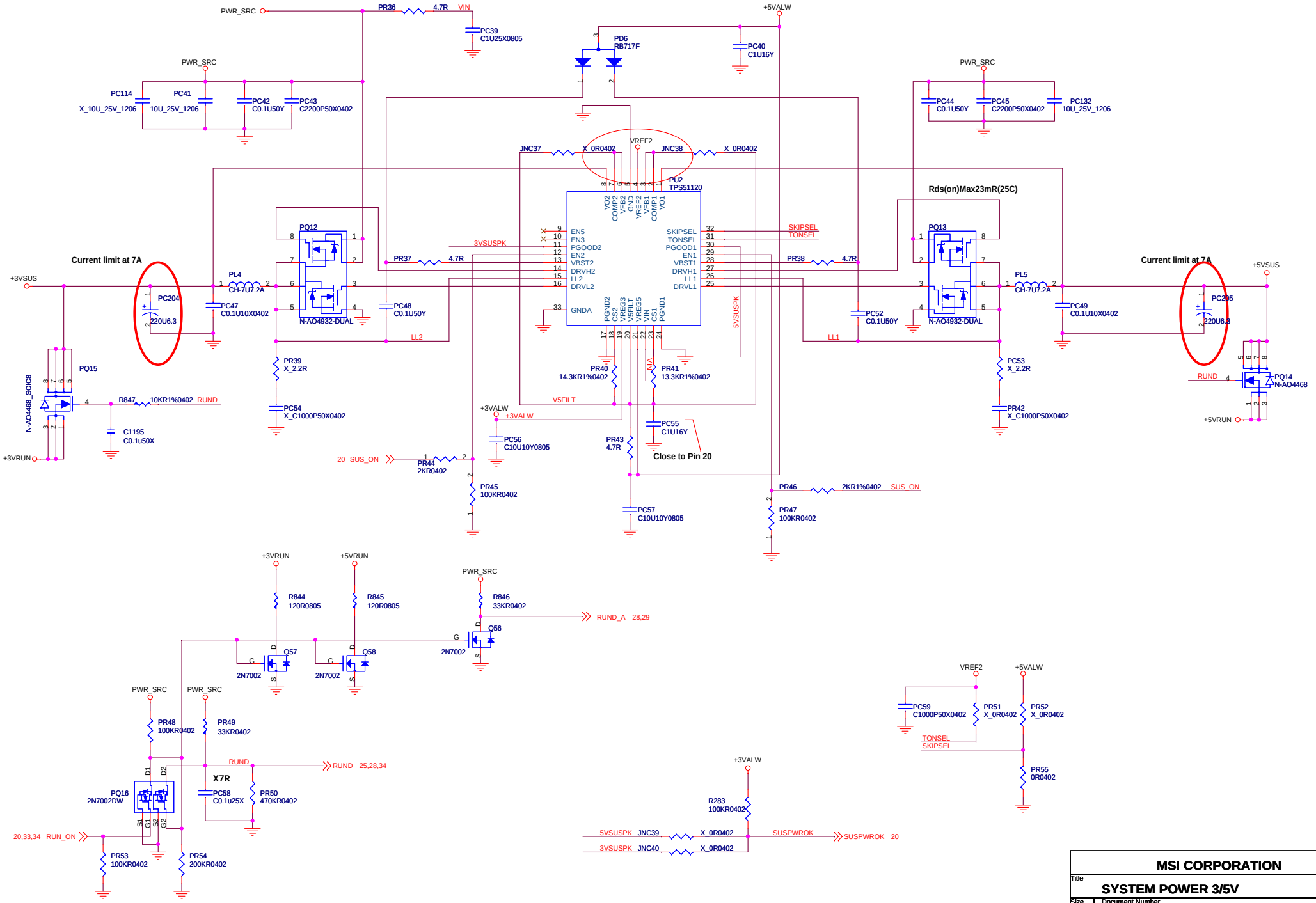
ENCHG-2P	PRE_CHG	ENCHG	
0	1	1	Pre-charge
1	0	1	3S2P-Fast charge
0	0	1	3S3P-Fast charge
0	0	0	STOP CHARGE

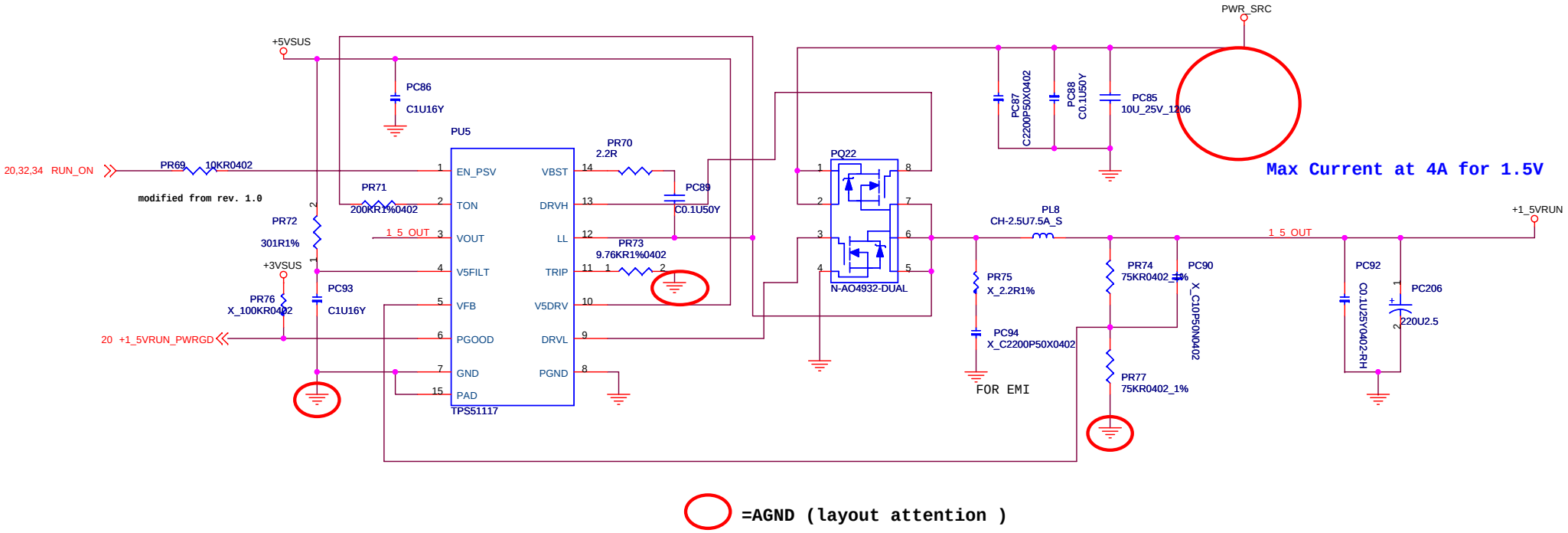
CELL GND=2 CELLS
FLOAT=3 CELLS
REFIN=4 CELLS

3S2P: Charge current set 3 Amp
3S3P: Charge current set 4.5 Amp
Pre-charger: Charge current set 220mA

DC_IN+ PC14 C2200P50X0402 PC15 C0.1U25Y PC16 C10U25X1206 PR15 53.6KR1% MAX8724_ACIN PR16 7.15KR1%0402 PD4 RB751V-40 PR14 0.01R1%3720W SDC_IN+ PR17 10R PR18 10R PC17 C0.1U50Y PC18 C0.1U50Y +5VALW PR19 10KR0402 PC19 C1U25X0805 PQ9 2N7002DW 20,30 ENCHG MAX8724_LDO PR21 25.5K_0402 PR22 768R1%0402 PR23 360R_0402 PQ10 2N7002DW 20 PRE_CHG 20 ENCHG_2P PR24 28.7KR1%_0402 PR25 28.7KR1%0402 PR26 1.1KR1%0402 +3VALW PR28 10KR0402 20,30 AC_IN# PR30 10KR0402 PU1 DCIN VCTL REFIN ICTL ACIN SHDN ACOK ICHG IINP CCV CCI CCS CSSP CSSN CELLS LDO BST DLOV DHI LX DLO PGND CSIP CSIN BATT GND GND REF CLS MAX8724ETI MAX8724_REFIN MAX8724_ICTL MAX8724_ACIN MAX8724_CCV MAX8724_CCI MAX8724_CCS MAX8724_REF PR33 1KR1%0402 PC35 C0.01U25X0402 PC36 C0.01U25X0402 PC37 C0.1u25Y0402-RH PC38 C1U16Y PR34 28.7KR1%0402 PR35 86.6K_0402 1% 0A->0B SET Iin MAX = 5.6A PC21 C1U16Y PR20 33R0402 PC20 C0.1U25Y PD5 RB751V-40 PC26 C0.1U25Y EMR42 0R EMR43 0R EMI PQ11 N-AO4932-DUAL PL2 CH-10U5A_S PR29 2.2R PR27 0.015R1%3720W PR31 10R PR32 10R PC33 C0.1U25Y PC34 C0.1U25Y EMC195 X_0.1U25Y0402 PC32 C10000P50X0402 EMC194 X_0.1U25Y0402 PC22 C2200P50X0402 PC23 C0.1U25Y PC24 10U_25V_1206 PC25 10U_25V_1206 PC27 C0.1U25Y PC28 C10U25X1206 PC29 C10U25X1206 PC30 C10U25X1206 PC31 X_C10U25X1206 V_CHG EMR23 X_0R0402 EMR24 X_0R0402 J1 COPPER

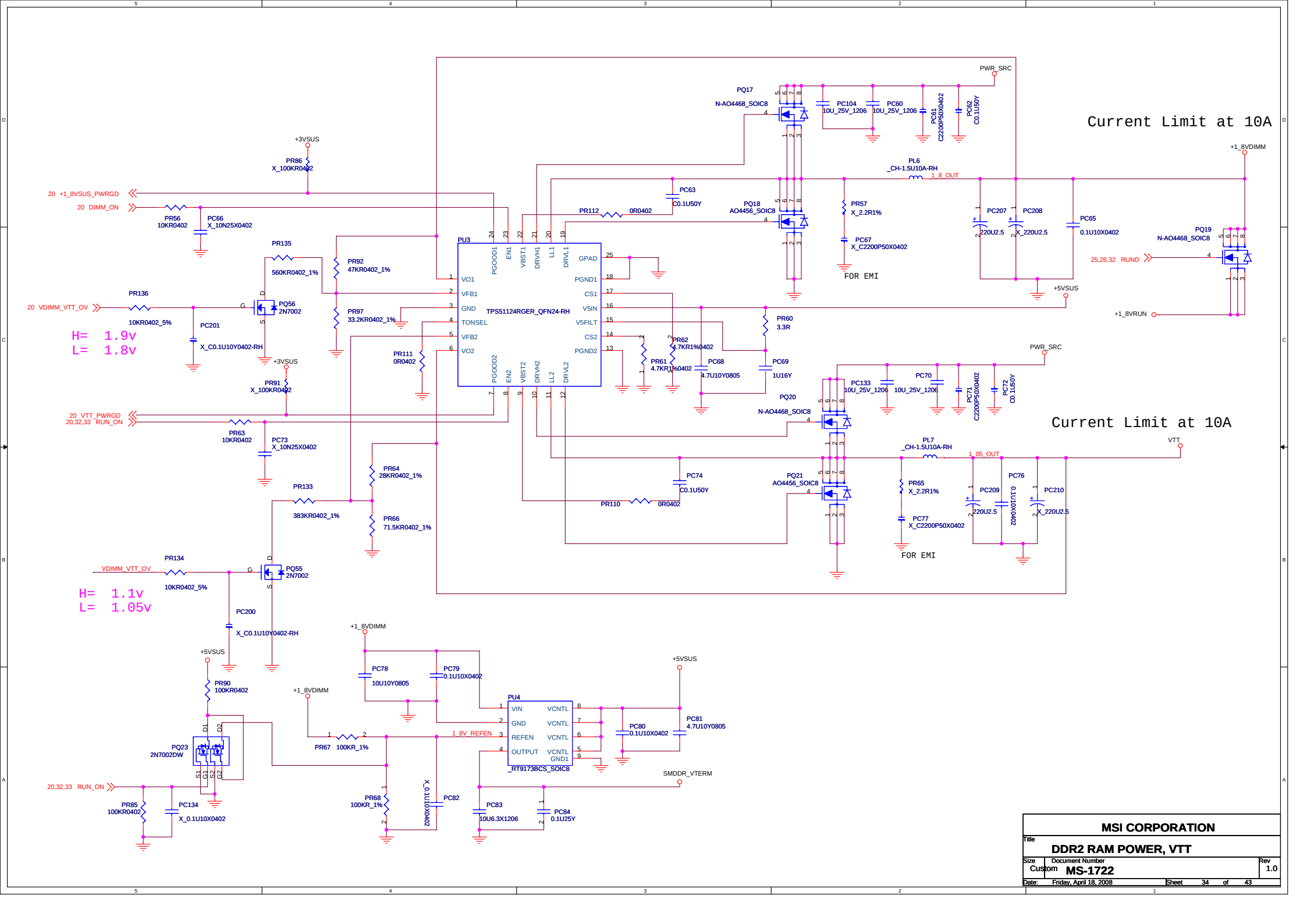
MSI CORPORATION			
Title: Battery Charger			
Size: Custom	Document Number: MS-1722		Rev: 1.0
Date: Friday, April 18, 2008	Sheet 31 of 43		


PWR_SRC
PR36 4.7R VIN
PC39 C1U25X0805
PC114 X_10U_25V_1206
PC41 10U_25V_1206
PC42 C0.1U50Y
PC43 C2200P50X0402
PD6 RB717F
+5VALW
PC40 C1U16Y
PC44 C0.1U50Y
PC45 C2200P50X0402
PC132 10U_25V_1206
JNC37 X_0R0402
VREF2
JNC38 X_0R0402
PU2 TPS51120
Rds(on)Max23mR(25C)
Current limit at 7A
+3VSUS
PC204 220U6.3
PC47 C0.1U10X0402
PL4 CH-7U7.2A
PQ12
N-AO4932-DUAL
PR37 4.7R
3VSUSPK
PC48 C0.1U50Y
LL2
PR39 X_2.2R
PC54 X_C1000P50X0402
PQ15
N-AO4468_SOIC8
R847 10KR1%0402 RUND
C1195 C0.1u50X
+3VRUN
PR40 14.3KR1%0402
PR41 13.3KR1%0402
V5FILT
+3VALW
PC56 C10U10Y0805
PR43 4.7R
PC55 C1U16Y
Close to Pin 20
20 SUS_ON
PR44 2KR0402
PR45 100KR0402
PC57 C10U10Y0805
PR46 2KR1%0402 SUS_ON
PR47 100KR0402
SKIPSEL
TONSEL
PR38 4.7R
PQ13
PL5 CH-7U7.2A
PC52 C0.1U50Y
PC49 C0.1U10X0402
PR53 X_2.2R
PR42 X_C1000P50X0402
LL1
5VSUSPK
Current limit at 7A
+5VSUS
PC205 220U6.3
RUND
PQ14 N-AO4468
+5VRUN
+3VRUN
+5VRUN
R844 120R0805
R845 120R0805
R846 33KR0402
RUND_A 28,29
Q56
Q57
Q58
2N7002
PR48 100KR0402
PR49 33KR0402
RUND
RUND 25,28,34
PQ16 2N7002DW
X7R
PC58 C0.1u25X
PR50 470KR0402
20,33,34 RUN_ON
PR53 100KR0402
PR54 200KR0402
VREF2
+5VALW
PC59 C1000P50X0402
PR51 X_0R0402
PR52 X_0R0402
TONSEL
SKIPSEL
PR55 0R0402
R283 100KR0402
5VSUSPK JNC39 X_0R0402
3VSUSPK JNC40 X_0R0402
SUSPWROK
SUSPWROK 20
MSI CORPORATION
SYSTEM POWER 3/5V
Custom
MS-1722
1.0
Friday, April 18, 2008
Sheet 32 of 43

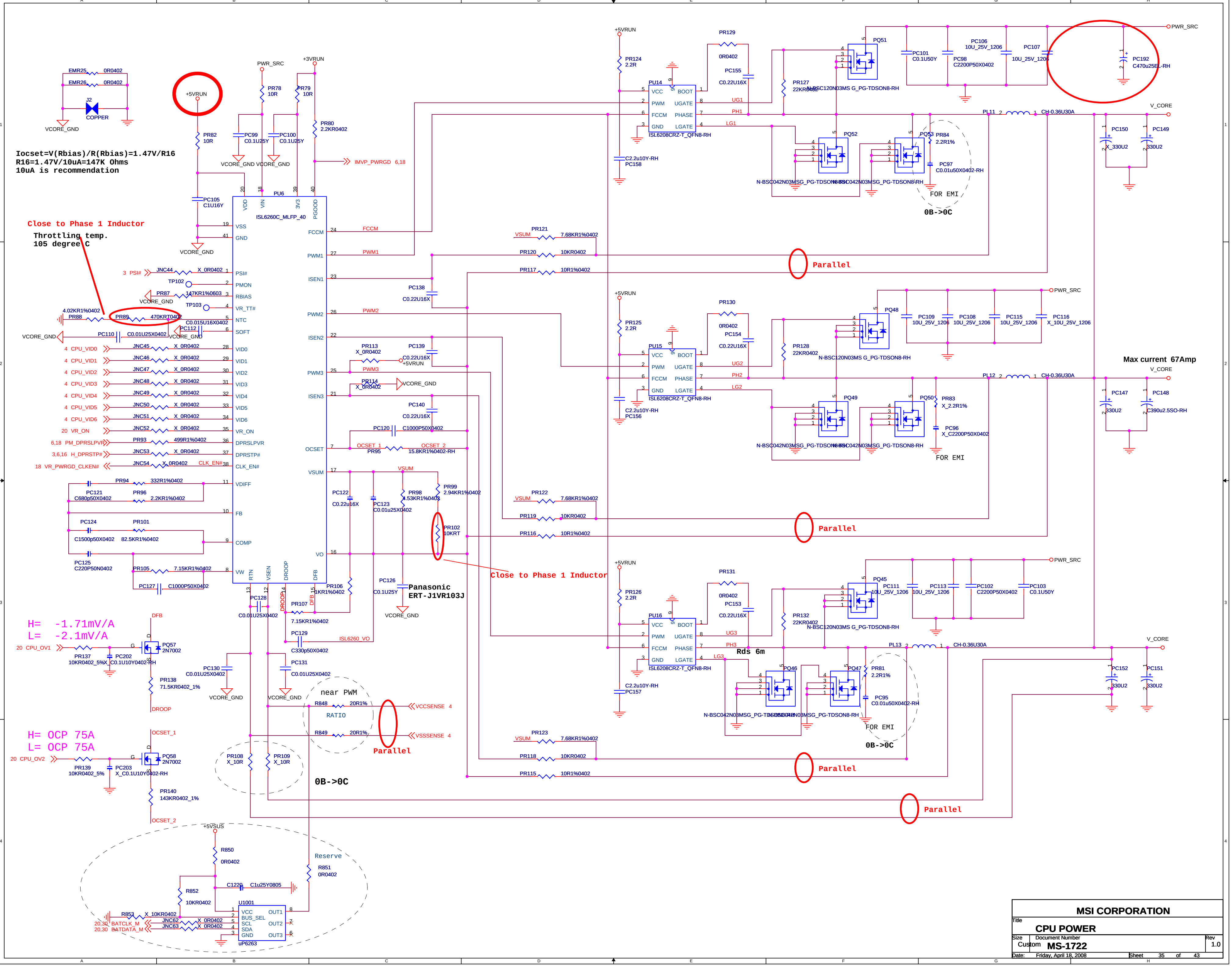


=AGND (layout attention)

MSI CORPORATION		
Title: +1.5VRUN		
Size: B	Document Number: MS-1722	Rev: 1.0
Date: Friday, April 18, 2008	Sheet 33 of 43	



MSI CORPORATION	
Title	DDR2 RAM POWER, VTT
Size: Custom	Document Number: MS-1722
Rev	1.0
Date: Friday, April 18, 2008	Sheet 34 of 43


Iocset=V(Rbias)/R(Rbias)=1.47V/R16
R16=1.47V/10uA=147K Ohms
10uA is recommendation
Close to Phase 1 Inductor
Throttling temp.
105 degree C
ISL6260C_MLFP_40
PU6
PU14
PU15
PU16
ISL6208CRZ-T_QFN8-RH
Parallel
FOR EMI
0B->0C
Max current 67Amp
V_CORE
PWR_SRC
+5VRUN
VCORE_GND
Rds 6m
Panasonic
ERT-J1VR103J
H= -1.71mV/A
L= -2.1mV/A
H= OCP 75A
L= OCP 75A
near PWM
RATIO
Reserve
uP6263
VCCSENSE 4
VSSSENSE 4
IMVP_PWRGD 6,18
MSI CORPORATION
Title
CPU POWER
Size
Custom
Document Number
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1.0
Date: Friday, April 18, 2008
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H1 HOLES_S276D118T148_VIA8
H2 HOLES_S276D118T148_VIA8
H3 HOLES_S276D118T148_VIA8
H4 HOLES_R276D185P_VIA
AGND
0B->0C
H11 HOLES_7X8_D3MM X_7x8
H12 HOLES_S276D118T148_VIA8
H13 HOLES_S276D118T148_VIA8
H14 HOLES_S276D118T148_VIA8
H15 HOLES_S276D118T148_VIA8
H16 HOLES_7X8_D3MM X_7x8
H17 HOLES_S276D118T148_VIA8
H18 HOLES_S276D118T148_VIA8
H_SB1 HOLES_R276D185P_VIA
H19 HOLES_S276D118T148_VIA8
PCB1
P30-1722110-D05
BAT1
YSKTBT
D06-0100101-P01
holes_r276d185p_VIA
H_CPU1
holes_r276d185p_VIA
H_CPU2
holes_r276d185p_VIA
H_CPU3
CPU Thermal Module
PAD1 X_ES-MS15211-RH
PAD2 X_ES-MS15211-RH
PAD4 X_ES-MS15211-RH
PAD5 X_ES-MS15211-RH
PAD6 X_ES-MS15211-RH
PAD7 X_ES-MS15211-RH
PAD8 X_ES-MS15211-RH
PAD9 X_ES-MS15211-RH
PAD10 X_ES-MS15211-RH
PAD13 X_ES-MS15211-RH
PAD14 X_ES-MS15211-RH
PAD16 X_ES-MS15211-RH
PAD19 X_ES-MS15211-RH
PAD20 X_ES-MS15211-RH
PAD3 E23-1029060-RH
PAD15 E23-1029060-RH
PAD11 E23-1029050-RH
PAD18 E23-1029050-RH
0B->0C
EMI
FM1 F_PAD_M100
FM2 F_PAD_M100
FM3 F_PAD_M100
FM8 F_PAD_M100
FM9 F_PAD_M100
FM10 F_PAD_M100
FM5 F_PAD_M100
FM6 F_PAD_M100
FM7 F_PAD_M100
FM11 F_PAD_M100
FM12 F_PAD_M100
FM13 F_PAD_M100
FM14 F_PAD_M100
FM15 F_PAD_M100
FM18 FM F_PAD_M120
FM19 FM F_PAD_M120
FM20 FM F_PAD_M120
FM21 FM F_PAD_M120
FM22 FM F_PAD_M120
FM23 FM F_PAD_M120
FM24 FM F_PAD_M120
FM25 FM F_PAD_M120
FM26 FM F_PAD_M120
FM27 FM F_PAD_M120
FM28 FM F_PAD_M120
FM29 FM F_PAD_M120
FM30 FM F_PAD_M120
FM31 FM F_PAD_M120
FM32 FM F_PAD_M120
FM33 FM F_PAD_M120
FM34 FM F_PAD_M120
FM35 FM F_PAD_M120
FM36 FM F_PAD_M120
FM37 FM F_PAD_M120
FM38 FM F_PAD_M120
FM39 FM F_PAD_M120
FM40 FM F_PAD_M120
FM41 FM F_PAD_M120
HT1 H_NR276D276
HT2 H_NR276D276
H32 X_NPTH118
H33 X_NPTH118
H31 HOLES_R268D142
H30 HOLES_R268D142
H_MXM1 HOLES_R276D185P_VIA
H_MXM2 HOLES_R276D185P_VIA
ROBSON STAND OFF
(FOR H:4.85mm)
H26 HOLES_R177D91
H27 HOLES_R177D91
H_NB1 HOLES_R256D91B97H20
H_FAN1 HOLES_R295D181
MDC Stand off
H_MDC1 STAND OFF M2H3
H_MDC2 STAND OFF M2H3
SH1
E2M-721J211-T01
New Card Screw x2
SC3
E43-1203003-H29
SCREW M2X3L
SC4
E43-1203003-H29
SCREW M2X3L
MYLAR1 E2P-7211211-G40
MYLAR2 E2P-7210911-G40
MYLAR_MDC E2P-7211011-G40
MYLAR_PCIE E2P-7211111-G40
MYLAR_DDR E26-1004050-G40
MYLAR_BAT E2P-7212211-G40
MYLAR_DCIN E2P-7212611-G40

MSI CORPORATION

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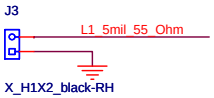

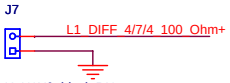

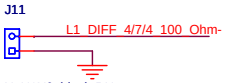

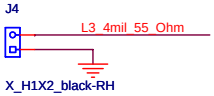

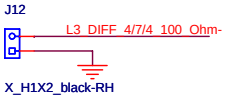

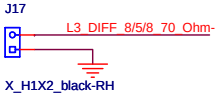

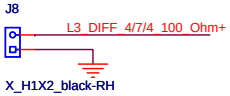

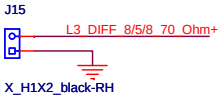

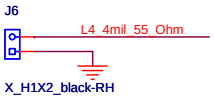

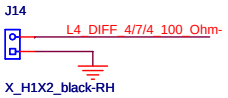

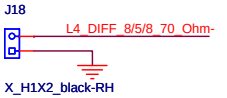

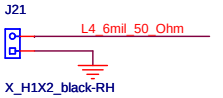

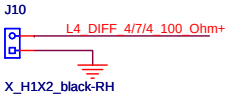

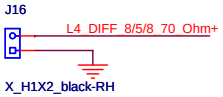

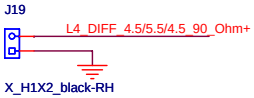

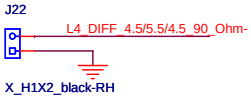

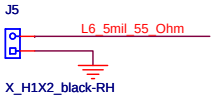

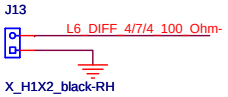

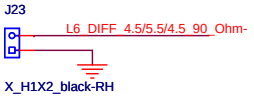

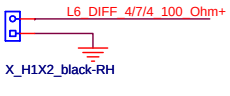

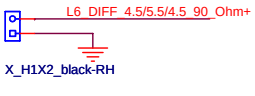

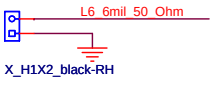

Impedence Trace

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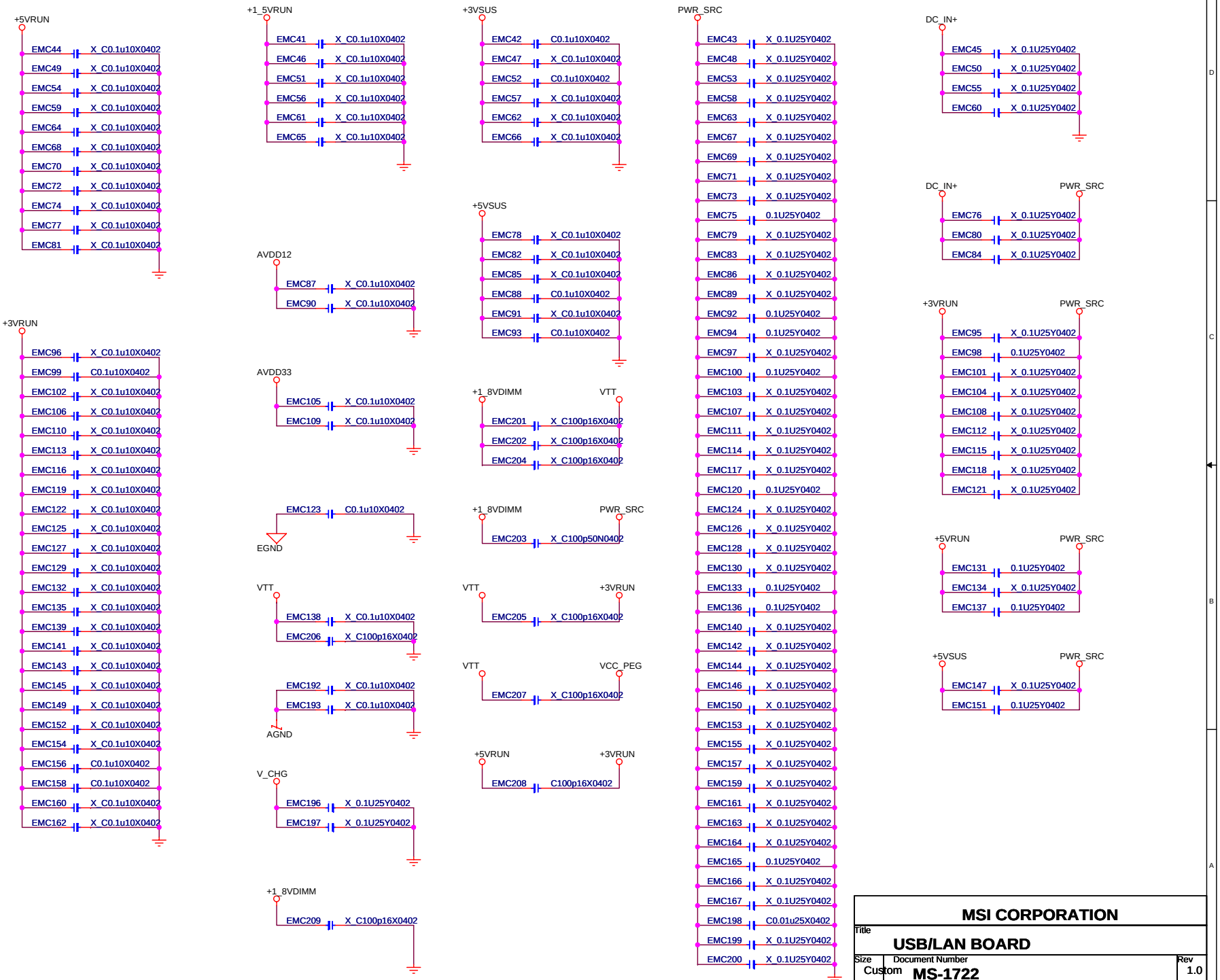

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0A->0B Note

MS-17221

1.P20 Delay EC_ALLSYSPG timing for NB9M-MXM card.
2.P14 Change "+1_5VRUN_PWRGD" netname to "EC_ALLSYSPG".
3.P22 Change "LAN_GND" netname to "EGND".
4.P22 Change CP3 & CP22 footprint to "NC_0402".
5.P27 Change CN7 footprint to "53261_05".
6.P20 Change CN1 pin define.
7.P29 change CON26 ,CON27,CON28Pin define.
8.P26 change CON29.24 to 3VRUN, CON29.22 to 5VRUN.
9.P25 change CONN1 Pin define.
10.P17 change CON14 to vertical.
11.P17 change R643 to no stuff.
12.P20 Add "LED_WIMAX-3G#" , "WIMAX-3G#" net, modify "LED_CHARGE#" TO "LED_BATTERY#" , modify "LED_BATLOW#" TO "LED_RF#".
13.P22 Change CON23 TO 36PIN.
14.P28 Modify "SPDIF" , "KBC_MUTE_OUT" turn on circuit from "RUND" to "RUND_A" .
15.P28 change CON26 , CON27 , CON28 Pin define.
16.P32 Add one timing control "RUND_A".
17.P32 change PR49 to 33Kohm.
18.P33 change PR76 to no stuff.
19.P34 change PR86 , PR91 to no stuff.
20.P35 change PR107 to 7.15Kohm.
21.P3 change R16 , R17 to 4.7Kohm.
22.P5 change ES2 CANTIGA VERSION.
23.P6 No stuff R42 for ITPM Disable.
24.P9 U3H.L28 from GND to +1_5VRUN.
25.P16 "ESATA_RXP" , "ESATA_RXN" correct.
26.P18 Add "CLK_SATA_OE#" PU 10K to +3VRUN.
27.P18 R655 No stuff for disable ITPM.
28.P21 ICS110->ICS113 , no stuff R812,R813, stuff R744,R745.
29.P21 for EC over clock, no stuff R752,R753, stuff R754,R755.
30.P28 for audio precision, no stuff C1183,C1184, change R790,R791 to 0ohm.
31.P32 Add "+3VRUN" , "+5VRUN" discharge circute.
32.P16 change BAT CONN to Desktop type.
33.P36 change MDC Stand off to "E2B-1221010-L63".
33.P36 Add Stand off for "H_FAN1".
34.P22 change Y4 to 49S type.
35.P23 change Y5 to 49S type.
36.P35 change high & low side MOS footprint from "ULTRA_SO8"to "PG_TDSON8".
37.P32 Add RUND delay circute for 3VRUN.

MS-1722A

MS-1722B

1.P40 Change CONC1 to 36Pin & Pin define.
2.P40 Change USBC1 , USBC2 footprint to "USB_CONN_0517".
3.P40 Change CC1 to EL Cap.
4.P40 Change Switch "PWR_SAVING" to "WIMAX-3G"
5.P40 Add 3 LED of "LED_WIMAX-3G" , "LED_WLAN" , "LED_BLUETOOTH".

MS-1722C

1.P39 Change LED define.

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0B->0C Note

MS-17221

1.P22 Change Lan chip version to RTL8111C-VCO-GR.
2.P28 Modify R758 to 68K and add 1u to GND for pop noise.
3.P28 Modify C1128,C1130 to 10u for audio precition.
4.P29 Modify Q44 Vgs to 30V.
5.P14 EMI chock stuff.
6.P20 Reserve one C to Gnd in "EC_ALLSYSPG" .
7.P21 Change "EC_BSEL" to "CPU_BSEL".
8.P22 Change 8111C-0B version to 8111C-0C.
9.P25 Change ESATA_USB CONN & footprint from N58-11M0020-A10 to N58-11M0031-A10.
10.P20 Change EC Pin 101 "LED_WIMAX-3G#" to "LED_RF#".
11.P20 Add EMI solution in Keyboard.
12.P22 Change CON23 Pin define.
13.P20 Change EC Pin 18 "WIMAX-3G_K#" to "P1_K#".
14.P23 Add 33 ohm in SD control signal for EMI solution.
15.P20 Add R , C in "EC_SPICLK" for EMI solution.
16.P35 Add Up6263 controller to control CPU voltage for overclock solution.
17.P28 Change gain ratio to 1.5 for subwoofer AMP.
18.P26 Reserve R & C in LED board control signal for EMI solution.
19.P27 Change control method for bluetooth on/off.
20.P28 Enable PC_BEEP function.
21.P28 Disenable SPDIF_MXM audio interface.

MS-1722A

1.Change LED "DD2" color to blue.
2.Change net "SD0_BTN_WIMAX-3G" to "SD0_BTN_P1".

MS-1722B

1.Change CONC1 Pin define.
2.Change SWC3 function to P1_K.
3.Change SWC1 ~SWC4 switch.
4.Change LED display.

MS-1722C

1.Add "CHARGE" , "BATTERY_LOW" function for ID change.
2.Add "CHARGE"---(blue) , "BATTERY_LOW" ---(amber) function for ID change.

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