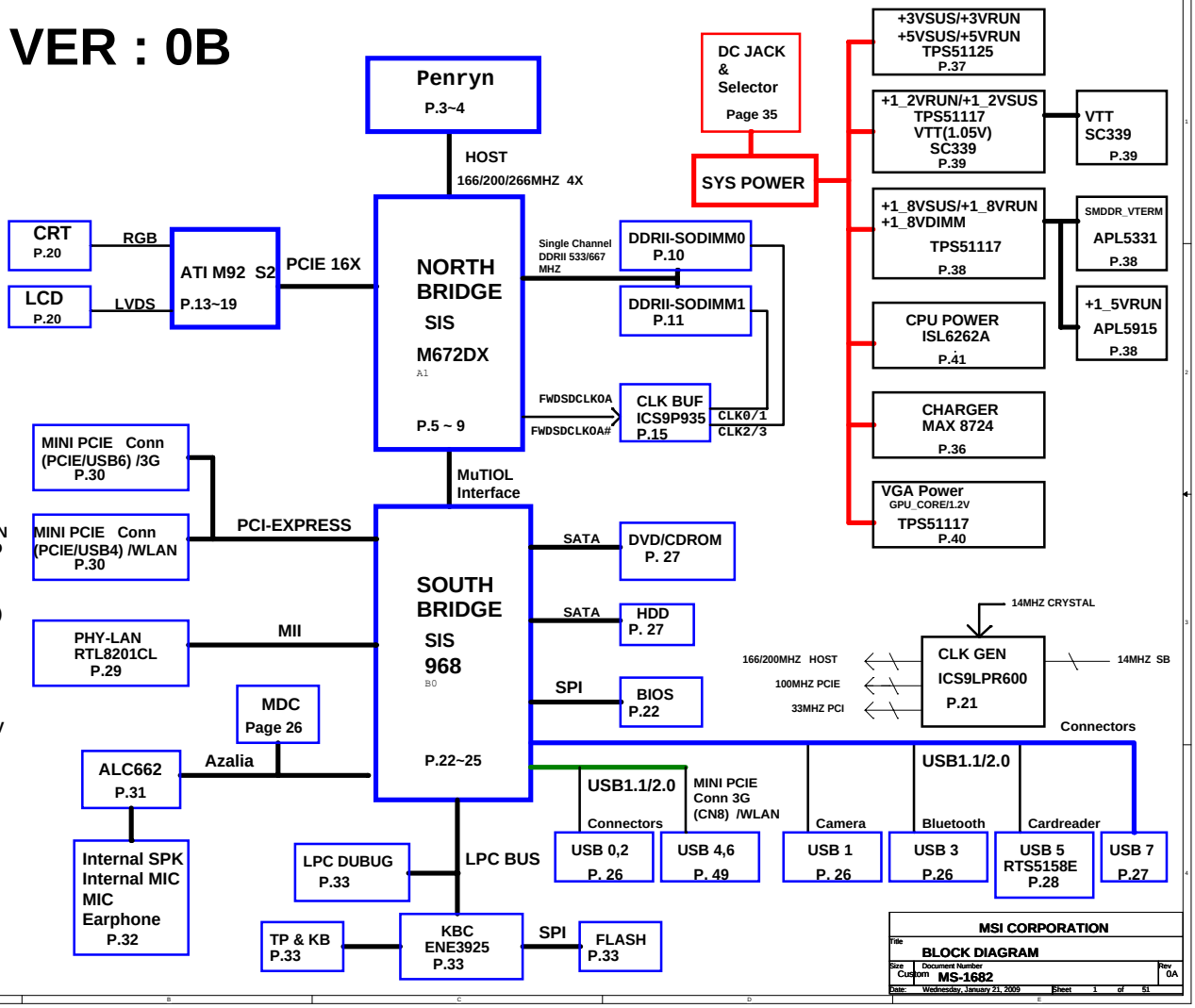
MS-1682 VER : 0B

01_BLOCK DIAGRAM
02_PLATFORM
03_PENRYN-1 (HOST BUS)
04_PENRYN-2 (POWER/GND)
05_M672DX-1 (HOST BUS & PCIE)
06_M672DX-2 (MutiIO)
07_M672DX-3 (DDR2)
08_M672DX-4 (POWER)
09_M672DX-5 (VSS)
10_DDR2 SODIMM 0
11_DDR2 SODIMM 1
12_DDR2 TREMINATION
13_M92M-host-lvds
14_M92M-IO
15_M92M-power
16_M92M-power-straps
17_M92M_MEM_Interface
18_M92M_DDR2_A0
19_M92M_DDR2_A1
20_CRT & LVDS CONN
21_CLOCK GEN & Dimm BUF
22_SIS968-1 (PCI/IDE/SPI/MutIO)
23_SIS968-2 (USB/SATA)
24_SIS968-3 (CPU/HD/PCIE/GPIO)
25_SIS968-4 (POWER/GND)
26_USBX2&Camera&MDC&BT CONN
27_HDD & ODD CONN & NEW CARD
28_RTS5158E_CARD READER
29_PHY LAN (RTL8201CL)
30_MINI_PCIECARD & LED & SW
31_AUDIO(ALC662) / AMP(APA2031)
32_SPK & HP & MIC
33_KBC/EC/uP (ENE3925)
34_PWRGD & FAN & C3/C4
35_Battery select
36_Battery Charger
37_M_System Power
38_M_1_8V &SMDDR_VTERM &1_5V
39_M_1_2V &VTT power
40_VGA power
41_CPU power
42_Screw
43_EMI
44_Power Sequency-1
45_Power Sequency-2
46_Power Sequency_3
47_Launch Board
48_TP Board
49_USBx2 & RJ45 & RJ11 Board



Voltage Rails

Voltage	Description	Control Signal
PWR_SRC	AC ADAPTER OR BATTERY IN	
V_CORE	Core Voltage for Processor	VR_ON
+VTT	1.05 rail for Processor & SIS968 GTL IO	+1_5VM_PG
+1_5VRUN	1.5V switched power rail(off in S3-S5)	+5VRUN
+1_2VRUN	1.2V power rail SISM672FX Analog (off in S3-S5)	RUND (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)	RUN_ON
+1_8VDIMM	1.8V power rail DDRII (off in S4-S5)	DIMM_ON
+1_8VRUN	1.8V power for SIS968 MuTIOL IO and core logic (off in S3-S5)	RUND (RUN_ON)
+1_8VSUS	1.8V power rail for SB core logic (off in S4-S5)	SUS_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_2VSUS	1.2V power rail SISM672FX Digital (off in S4-S5)	SUS_ON

POWER STATES

STATE \ SIGNAL	SLP_S3#	SLP_S5#	+V*ALWAYS	+V*SUS	+V*RUN	Clocks	+1_8VDIMM
Full ON	HIGH	HIGH	ON	ON	ON	ON	ON
S1(Power On Suspend)	HIGH	HIGH	ON	ON	ON	LOW	ON
S3(Suspend to RAM)	LOW	HIGH	ON	ON	OFF	OFF	ON
S4(Suspend to Disk)	LOW	LOW	ON	OFF	OFF	OFF	OFF
S5 / Soft OFF	LOW	LOW	ON	OFF	OFF	OFF	OFF

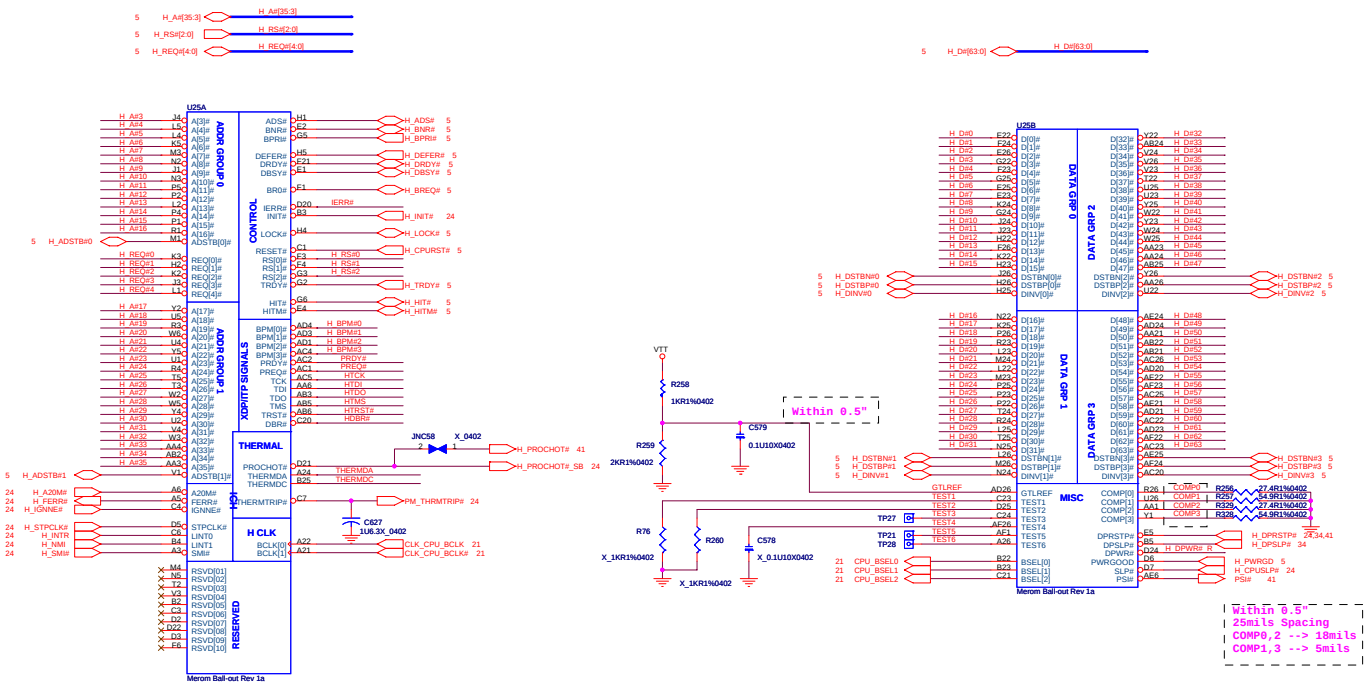
*Note : WHEN AC MODE , System turn on then +V*SUS will always keep high*

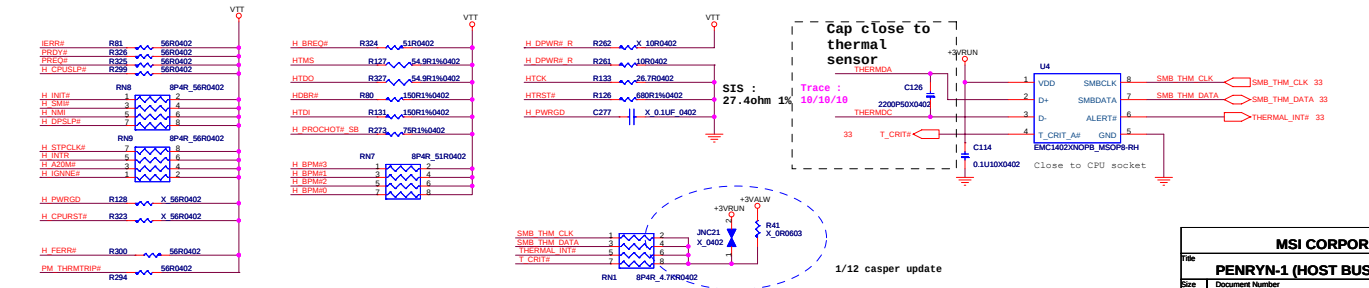
MSI CORPORATION

Title: PLATFORM

Size: Custom | Document Number: MS-1682 | Rev: 0A

Date: Wednesday, January 21, 2009 | Sheet 2 of 51

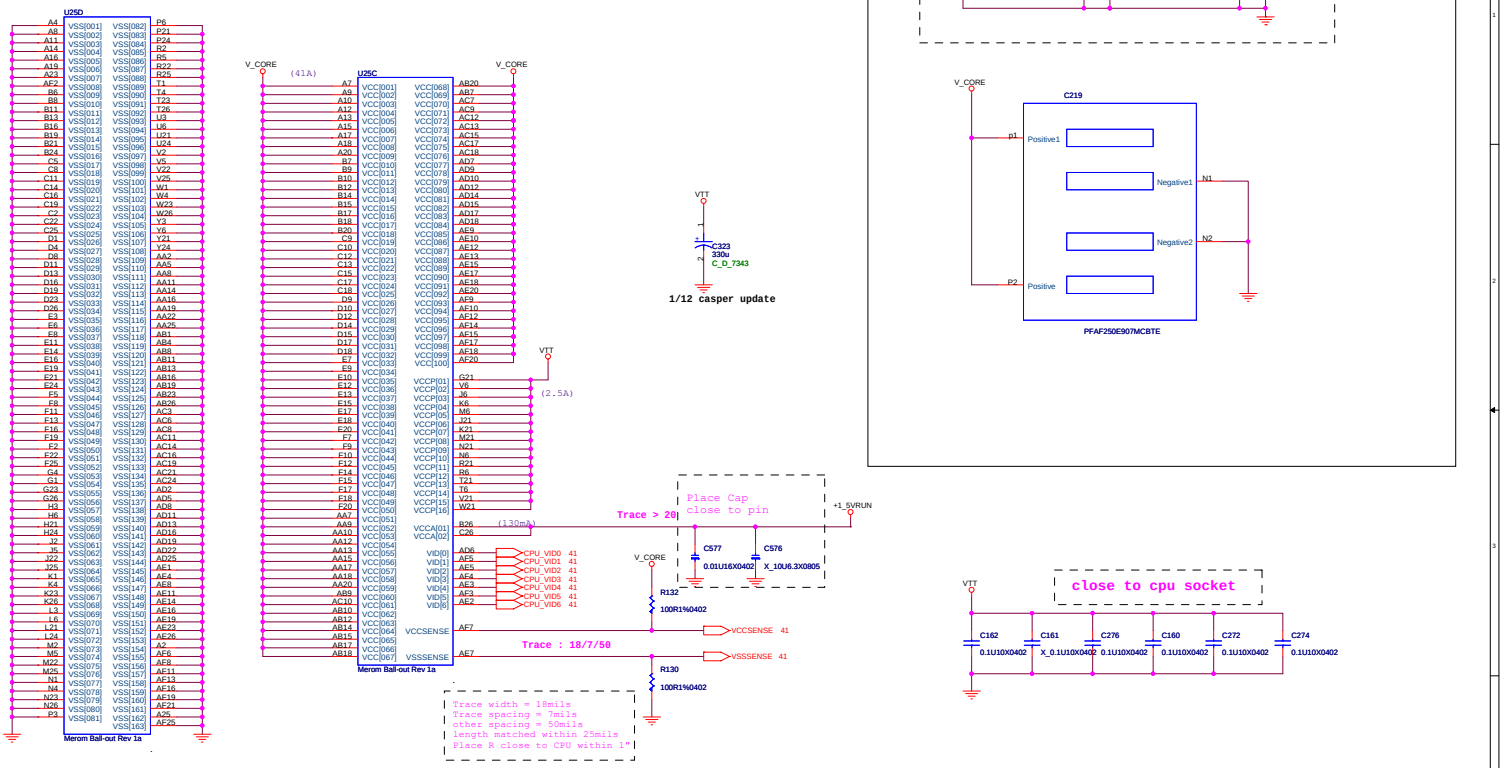




1/12 casper update

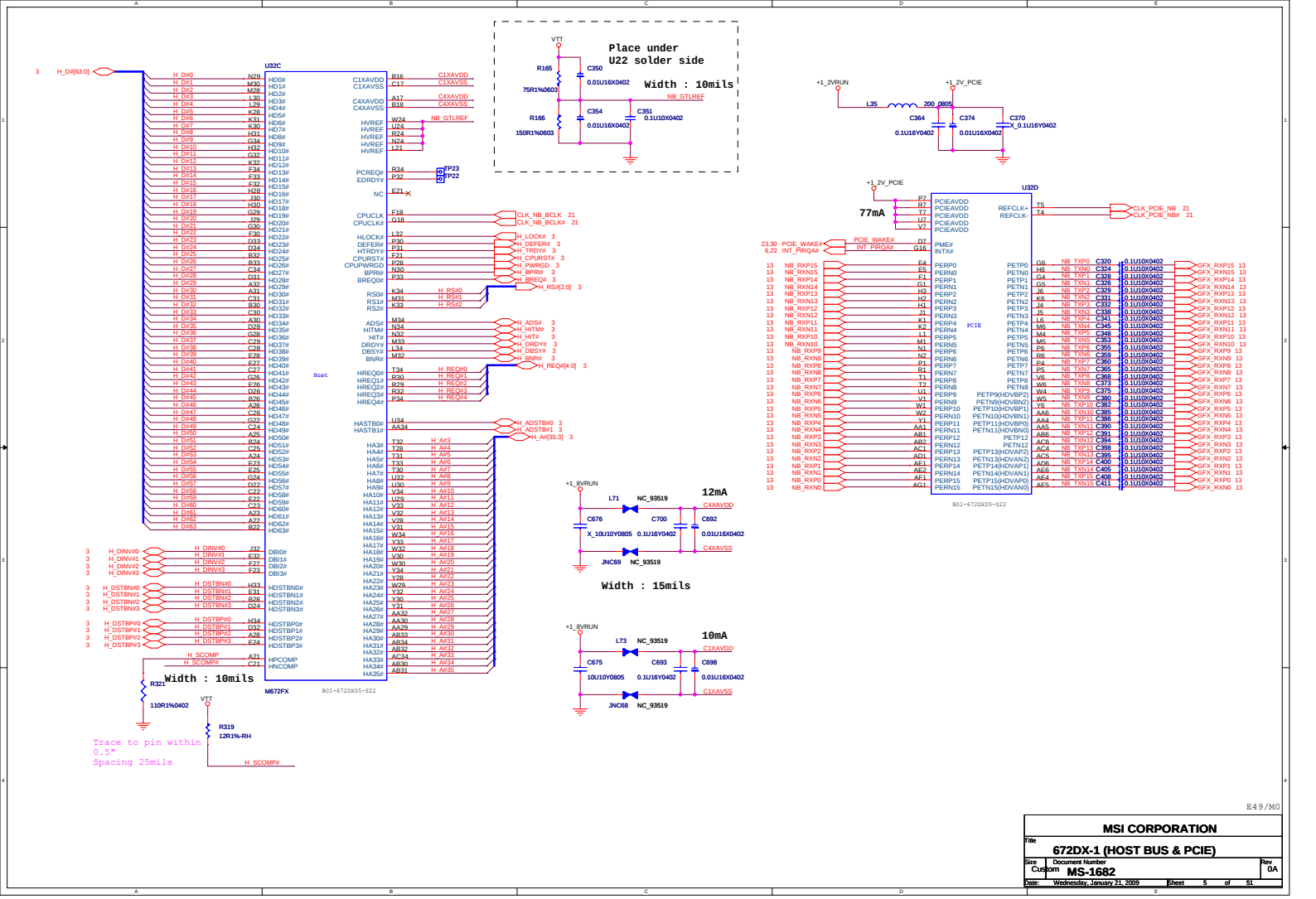
E31/M0

MSI CORPORATION			
Title: PENRYN-1 (HOST BUS)			
Size: Custom	Document Number: MS-1682	Rev: 0A	
Date: Wednesday, January 21, 2009	Sheet 3 of 51		



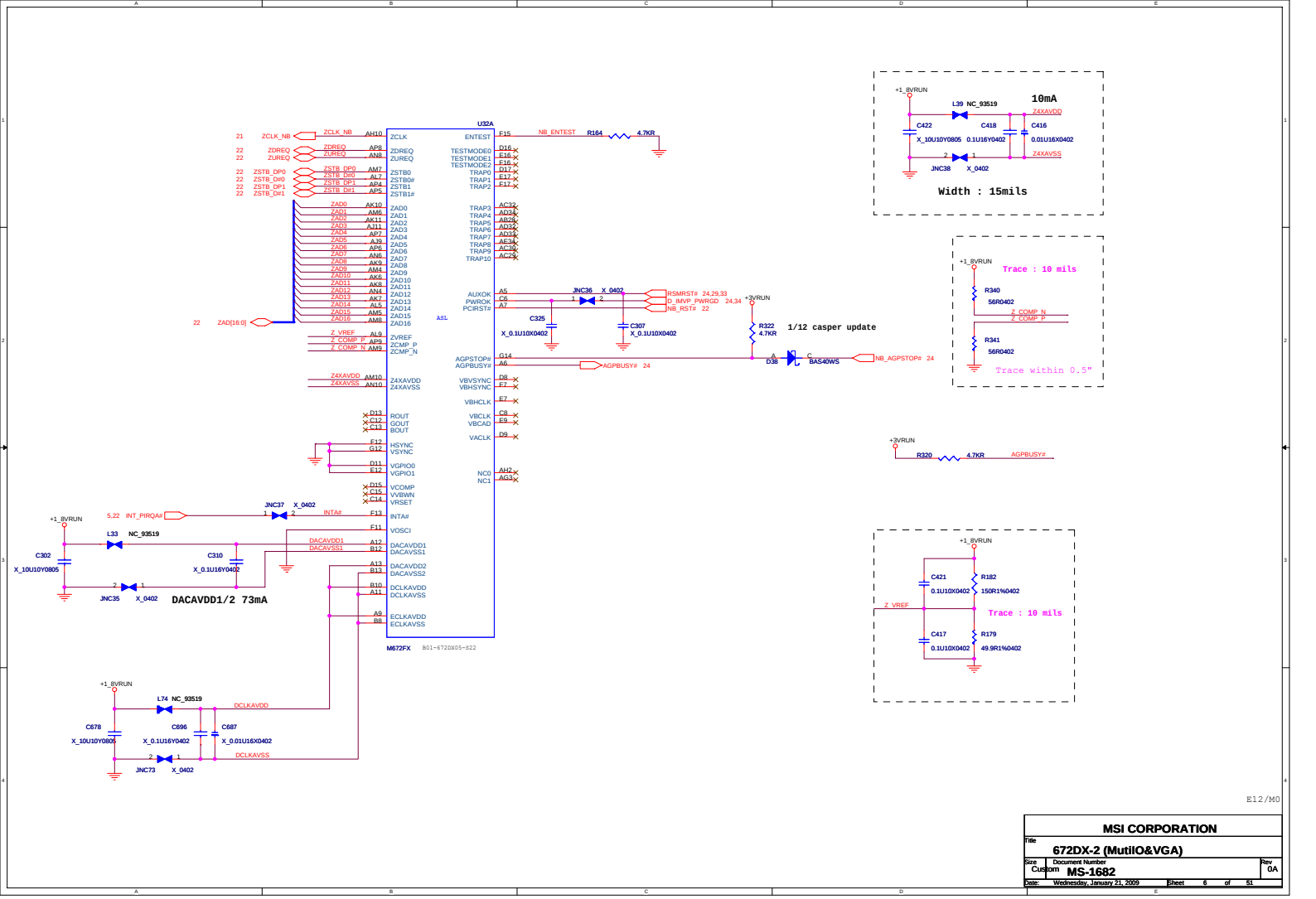
E12/M0

MSI CORPORATION		
Title: PENRYN-2 (POWER/GND)		
Size: Custom	Document Number: MS-1682	Rev: 0A
Date: Wednesday, January 21, 2009	Sheet 4 of 51	



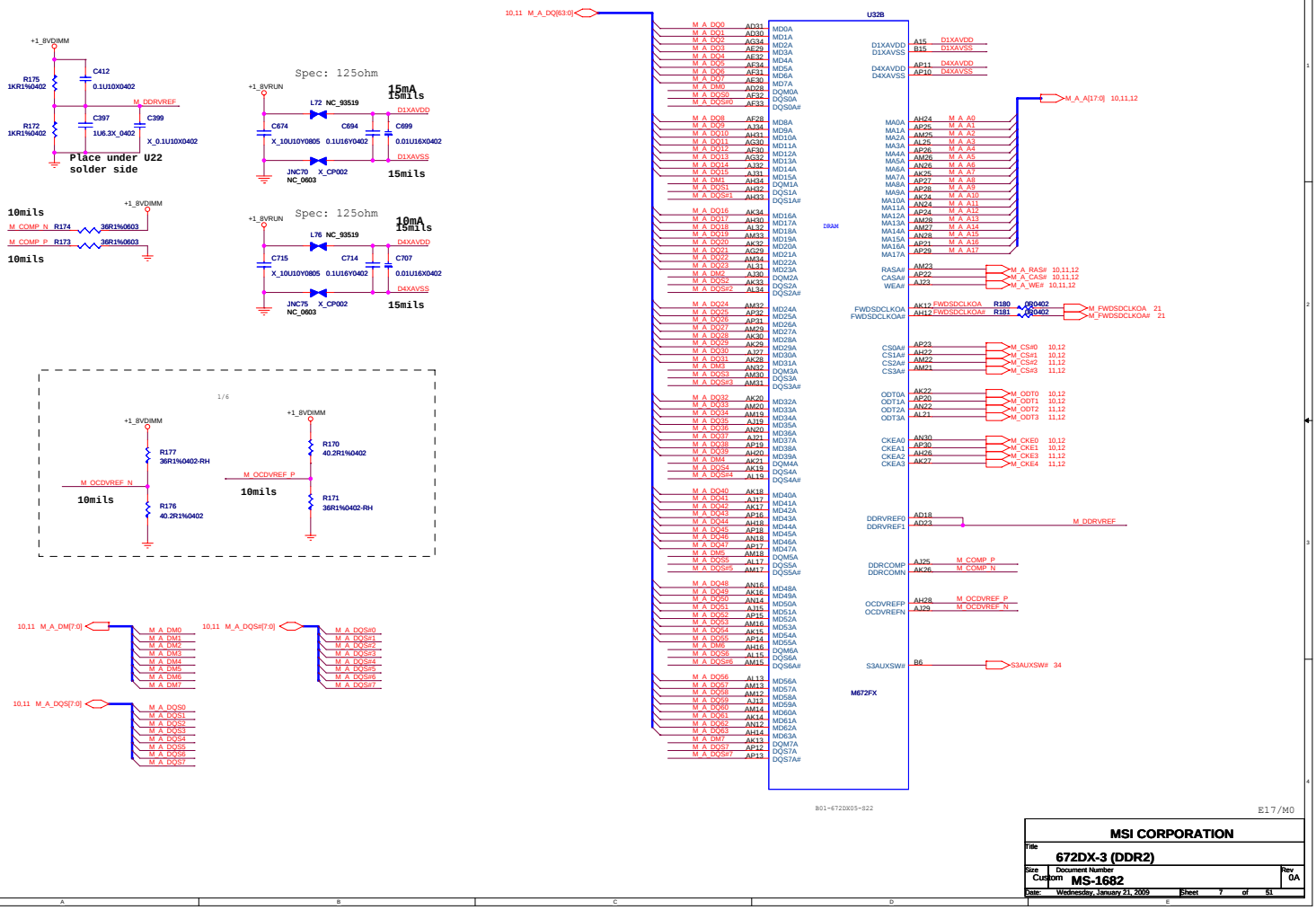
E49/M0

MSI CORPORATION			
Title: 672DX-1 (HOST BUS & PCIE)			
Size: Custom	Document Number: MS-1682	Rev: 0A	
Date: Wednesday, January 21, 2009	Sheet 5 of 51		



E12/M0

MSI CORPORATION		
Title: 672DX-2 (MutiIO&VGA)		
Size: Custom	Document Number: MS-1682	Rev: 0A
Date: Wednesday, January 21, 2009	Sheet 6 of 51	


+1_8VDIMM
C412
0.1U10X0402
R175
1KR1%0402
M_DDRVREF
R172
1KR1%0402
C397
1U6.3X_0402
C399
X_0.1U10X0402
Place under U22
solder side
Spec: 125ohm
15mA
15mils
+1_8VRUN
L72 NC_93519
D1XAVDD
C674
C694
C699
X_10U10Y0805
0.1U16Y0402
0.01U16X0402
D1XAVSS
JNC70 X_CP002
NC_0603
15mils
10mils
M_COMP_N R174 36R1%0603
M_COMP_P R173 36R1%0603
10mils
Spec: 125ohm
10mA
15mils
L76 NC_93519
D4XAVDD
C715
C714
C707
X_10U10Y0805
0.1U16Y0402
0.01U16X0402
D4XAVSS
JNC75 X_CP002
NC_0603
15mils
1/6
+1_8VDIMM
R177
36R1%0402-RH
M_OCDVREF_N
10mils
R176
40.2R1%0402
+1_8VDIMM
R170
40.2R1%0402
M_OCDVREF_P
10mils
R171
36R1%0402-RH
10,11 M_A_DQ[63:0]
U32B
M_A_DQ0 AD31 MD0A
M_A_DQ1 AD30 MD1A
M_A_DQ2 AG34 MD2A
M_A_DQ3 AE29 MD3A
M_A_DQ4 AE32 MD4A
M_A_DQ5 AF34 MD5A
M_A_DQ6 AF31 MD6A
M_A_DQ7 AE30 MD7A
M_A_DM0 AD28 DQM0A
M_A_DQS0 AF32 DQS0A
M_A_DQS#0 AF33 DQS0A#
M_A_DQ8 AF28 MD8A
M_A_DQ9 AJ34 MD9A
M_A_DQ10 AH31 MD10A
M_A_DQ11 AG30 MD11A
M_A_DQ12 AF30 MD12A
M_A_DQ13 AG32 MD13A
M_A_DQ14 AJ32 MD14A
M_A_DQ15 AJ31 MD15A
M_A_DM1 AH34 DQM1A
M_A_DQS1 AH32 DQS1A
M_A_DQS#1 AH33 DQS1A#
M_A_DQ16 AK34 MD16A
M_A_DQ17 AH30 MD17A
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M_A_DQS2 AK33 DQS2A
M_A_DQS#2 AL34 DQS2A#
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M_A_DQ25 AP32 MD25A
M_A_DQ26 AP31 MD26A
M_A_DQ27 AM29 MD27A
M_A_DQ28 AK30 MD28A
M_A_DQ29 AK29 MD29A
M_A_DQ30 AJ27 MD30A
M_A_DQ31 AK28 MD31A
M_A_DM3 AN32 DQM3A
M_A_DQS3 AM30 DQS3A
M_A_DQS#3 AM31 DQS3A#
M_A_DQ32 AK20 MD32A
M_A_DQ33 AM20 MD33A
M_A_DQ34 AM19 MD34A
M_A_DQ35 AJ19 MD35A
M_A_DQ36 AN20 MD36A
M_A_DQ37 AJ21 MD37A
M_A_DQ38 AP19 MD38A
M_A_DQ39 AH20 MD39A
M_A_DM4 AK21 DQM4A
M_A_DQS4 AK19 DQS4A
M_A_DQS#4 AL19 DQS4A#
M_A_DQ40 AK18 MD40A
M_A_DQ41 AJ17 MD41A
M_A_DQ42 AK17 MD42A
M_A_DQ43 AP16 MD43A
M_A_DQ44 AH18 MD44A
M_A_DQ45 AP18 MD45A
M_A_DQ46 AN18 MD46A
M_A_DQ47 AP17 MD47A
M_A_DM5 AM18 DQM5A
M_A_DQS5 AL17 DQS5A
M_A_DQS#5 AM17 DQS5A#
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M_A_DQ51 AJ15 MD51A
M_A_DQ52 AP15 MD52A
M_A_DQ53 AN16 MD53A
M_A_DQ54 AK15 MD54A
M_A_DQ55 AP14 MD55A
M_A_DM6 AH16 DQM6A
M_A_DQS6 AL15 DQS6A
M_A_DQS#6 AM15 DQS6A#
M_A_DQ56 AL13 MD56A
M_A_DQ57 AM13 MD57A
M_A_DQ58 AM12 MD58A
M_A_DQ59 AJ13 MD59A
M_A_DQ60 AM14 MD60A
M_A_DQ61 AK14 MD61A
M_A_DQ62 AN12 MD62A
M_A_DQ63 AH14 MD63A
M_A_DM7 AK13 DQM7A
M_A_DQS7 AP12 DQS7A
M_A_DQS#7 AP13 DQS7A#
DRAM
M672FX
D1XAVDD A15 D1XAVDD
D1XAVSS B15 D1XAVSS
D4XAVDD AP11 D4XAVDD
D4XAVSS AP10 D4XAVSS
M_A_A[17:0] 10,11,12
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 AK26 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
RASA# AM23 M_A_RAS# 10,11,12
CASA# AP22 M_A_CAS# 10,11,12
WEA# AJ23 M_A_WE# 10,11,12
FWDSDCLKOA AK12 FWDSDCLKOA R180 0R0402 M_FWDSDCLKOA 21
FWDSDCLKOA# AH12 FWDSDCLKOA# R181 0R0402 M_FWDSDCLKOA# 21
CS0A# AP23 M_CS#0 10,12
CS1A# AH22 M_CS#1 10,12
CS2A# AM22 M_CS#2 11,12
CS3A# AM21 M_CS#3 11,12
ODT0A AK22 M_ODT0 10,12
ODT1A AP20 M_ODT1 10,12
ODT2A AN22 M_ODT2 11,12
ODT3A AL21 M_ODT3 11,12
CKEA0 AN30 M_CKE0 10,12
CKEA1 AP30 M_CKE1 10,12
CKEA2 AH26 M_CKE3 11,12
CKEA3 AK27 M_CKE4 11,12
DDRVREF0 AD18
DDRVREF1 AD23
M_DDRVREF
DDRCOMP AJ25 M_COMP_P
DDRCOMN AK26 M_COMP_N
OCDVREFP AH28 M_OCDVREF_P
OCDVREFN A29 M_OCDVREF_N
S3AUXSW# B6 S3AUXSW# 34
B01-672DX05-822
10,11 M_A_DM[7:0]
M_A_DM0
M_A_DM1
M_A_DM2
M_A_DM3
M_A_DM4
M_A_DM5
M_A_DM6
M_A_DM7
10,11 M_A_DQS#[7:0]
M_A_DQS#0
M_A_DQS#1
M_A_DQS#2
M_A_DQS#3
M_A_DQS#4
M_A_DQS#5
M_A_DQS#6
M_A_DQS#7
10,11 M_A_DQS[7:0]
M_A_DQS0
M_A_DQS1
M_A_DQS2
M_A_DQS3
M_A_DQS4
M_A_DQS5
M_A_DQS6
M_A_DQS7
E17/M0
MSI CORPORATION
Title
672DX-3 (DDR2)
Size Custom
Document Number MS-1682
Rev 0A
Date: Wednesday, January 21, 2009
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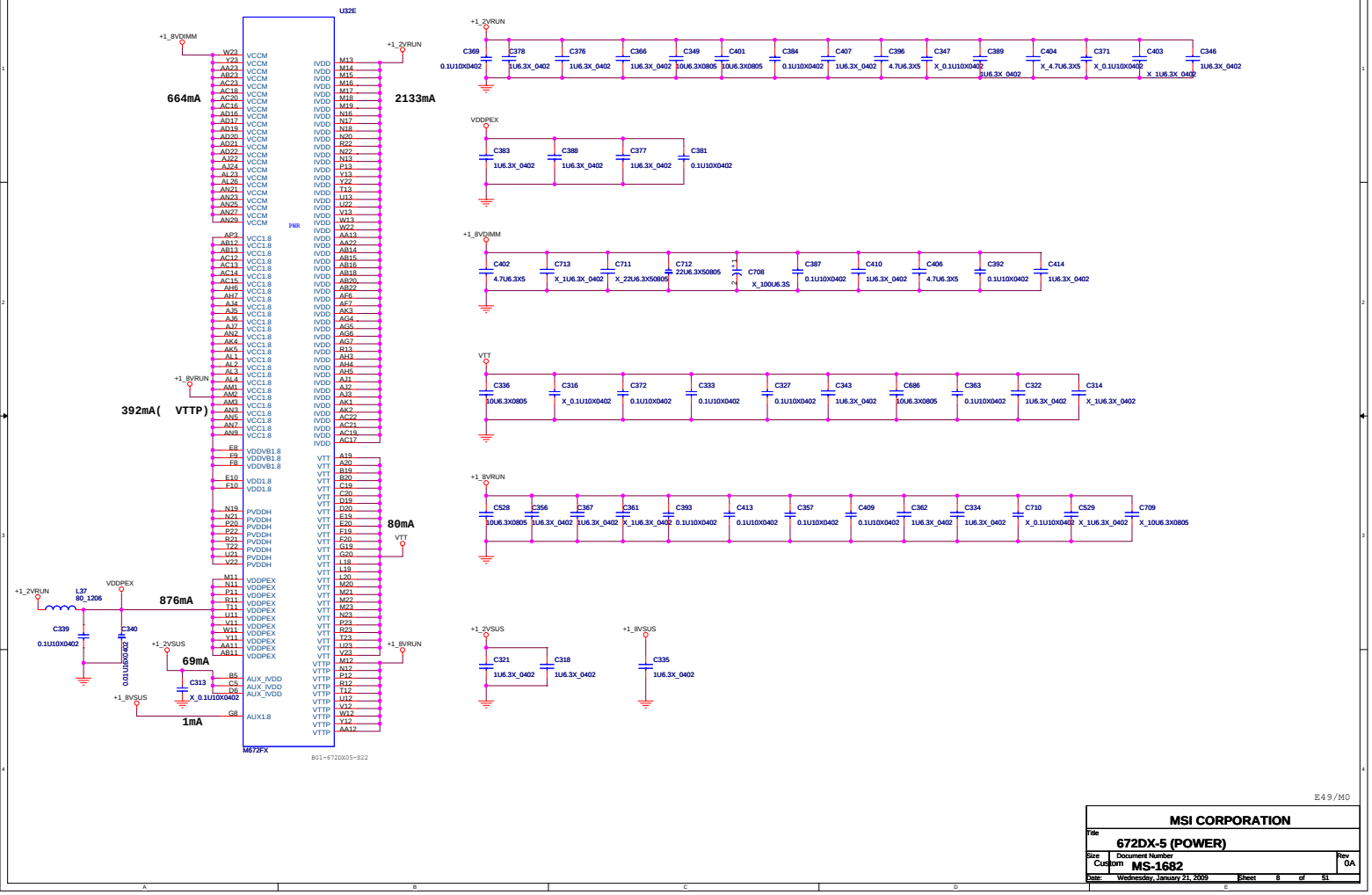
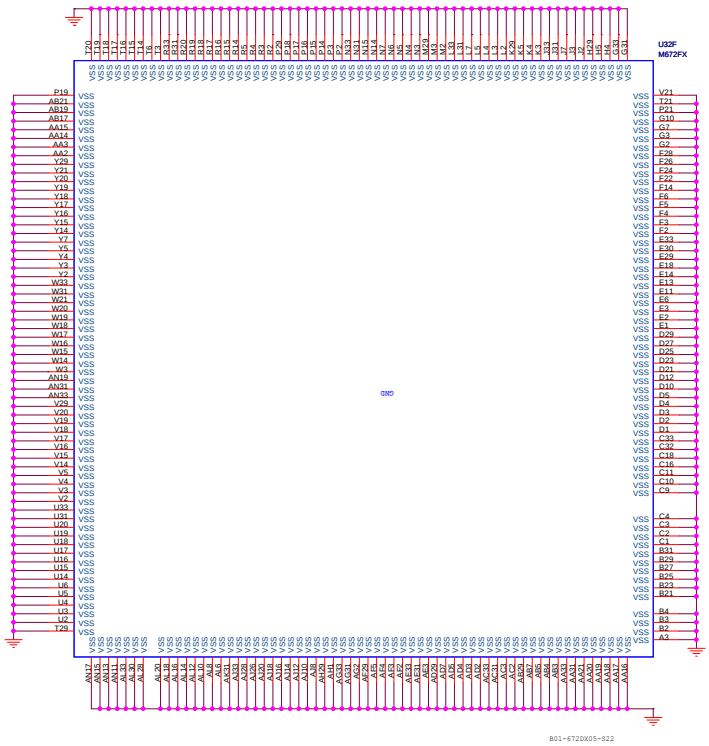
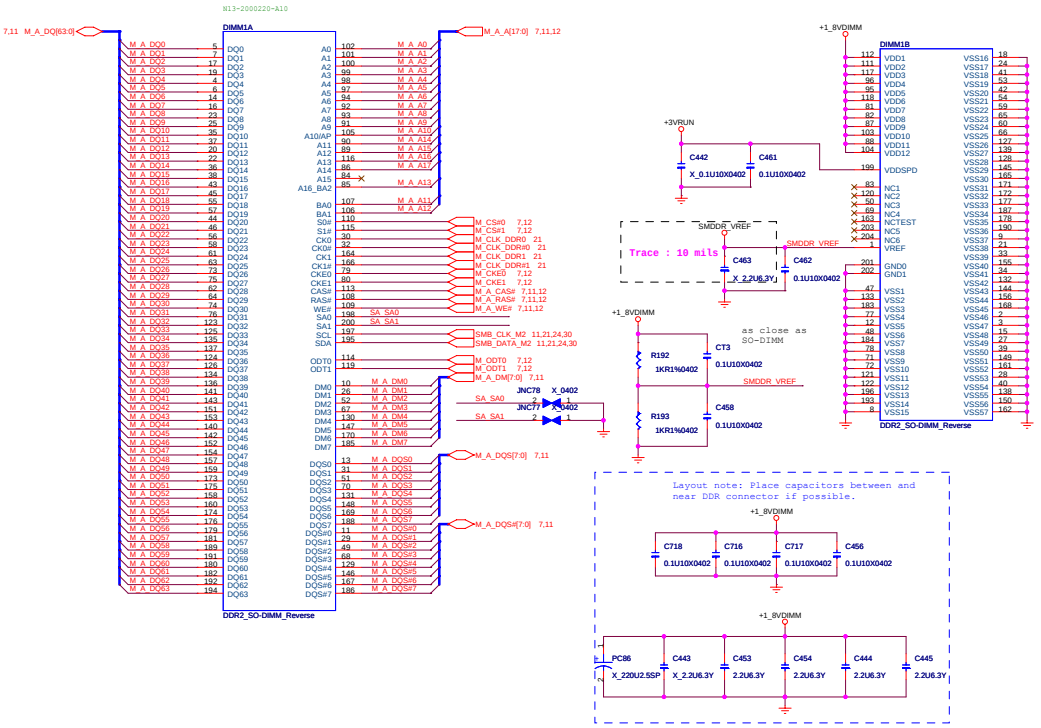


E49/M0

MSI CORPORATION		
Title: 672DX-5 (POWER)		
Size: Custom	Document Number: MS-1682	Rev: 0A
Date: Wednesday, January 21, 2009	Sheet 8 of 51	

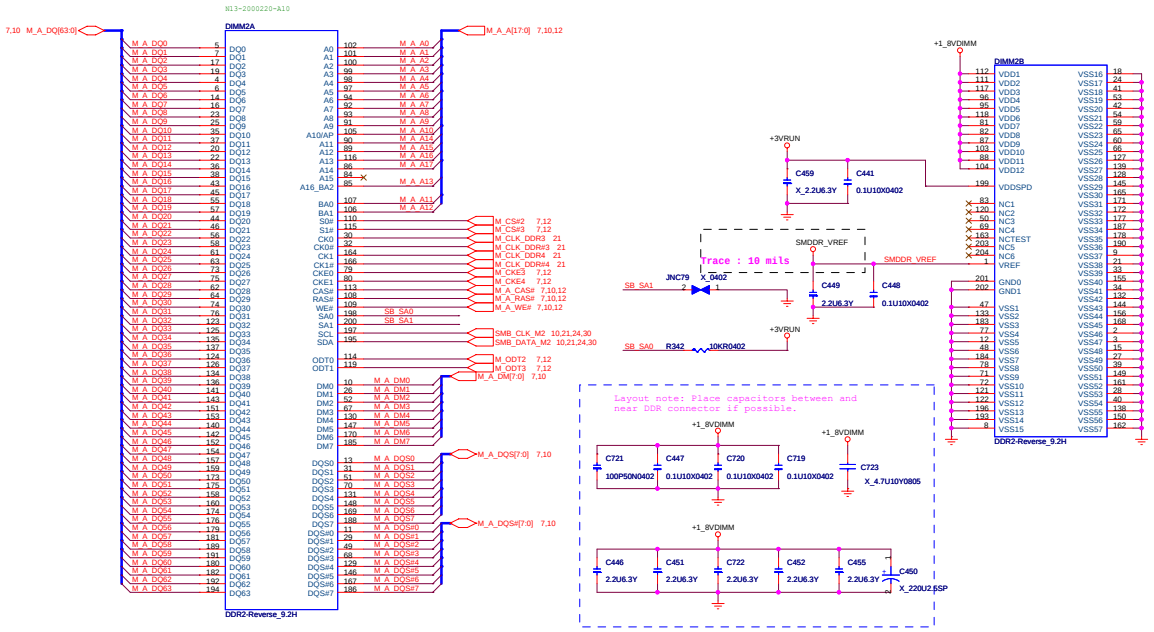


MSI CORPORATION			
Title: 672DX-6 (VSS)			E1/M0
Size: Custom	Document Number: MS-1682		Rev: 0A
Date: Wednesday, January 21, 2009	Sheet 9 of 51		



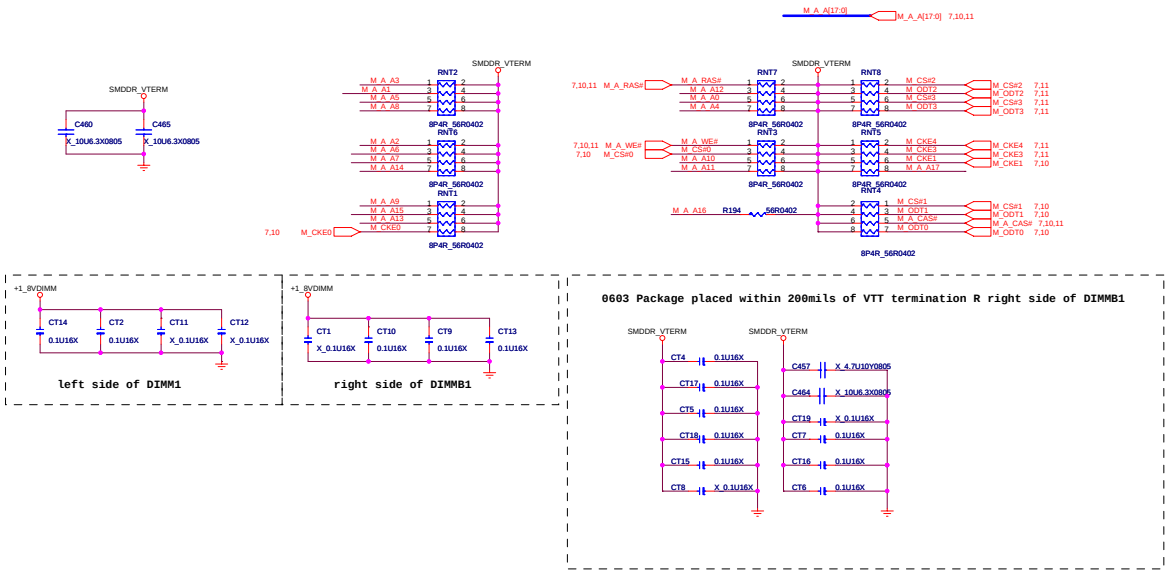
E16/M0

MSI CORPORATION		
Title: DDR2 SODIMM 0		
Size: Custom	Document Number: MS-1682	Rev: 0A
Date: Wednesday, January 21, 2009	Sheet 10 of 51	



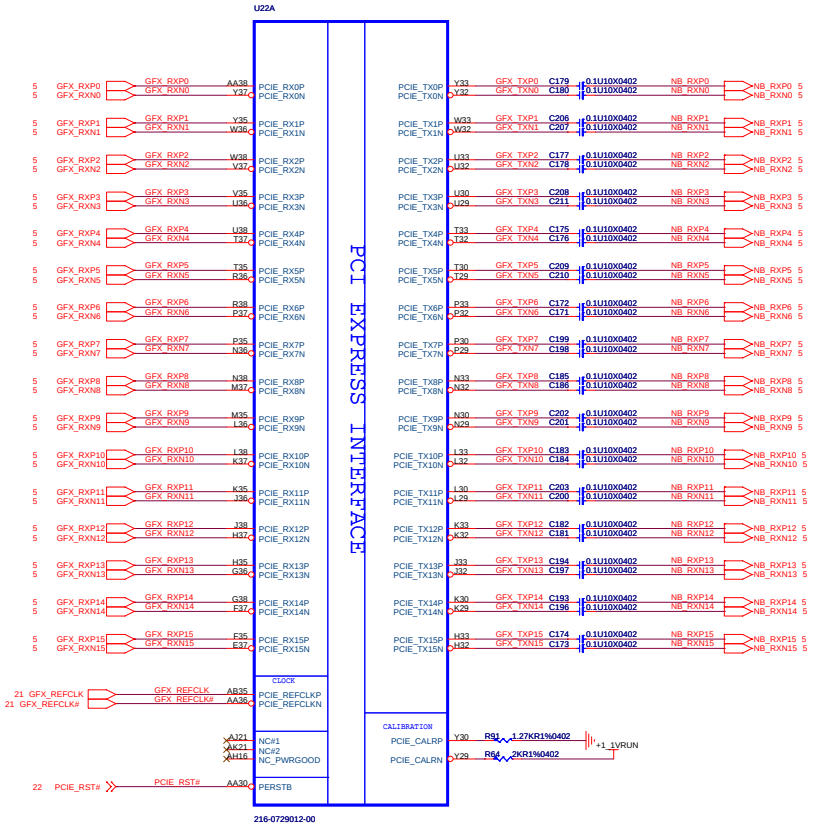
E12/M0

MSI CORPORATION			
Title: DDR2 SODIMM 1			
Size: Custom	Document Number: MS-1682		Rev: 0A
Date: Wednesday, January 21, 2009	Sheet 11 of 51		

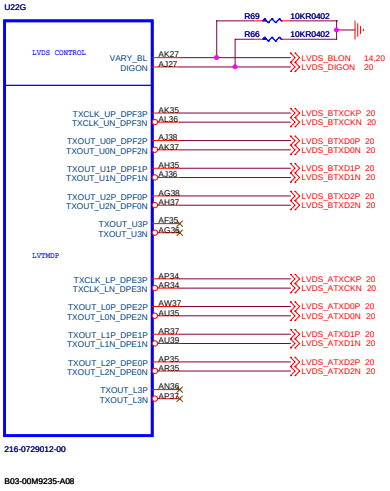


E22/M0

MSI CORPORATION		
Title: DDR2 TREMINATION		
Size: Custom	Document Number: MS-1682	Rev: 0A
Date: Wednesday, January 21, 2009	Sheet 12 of 51	



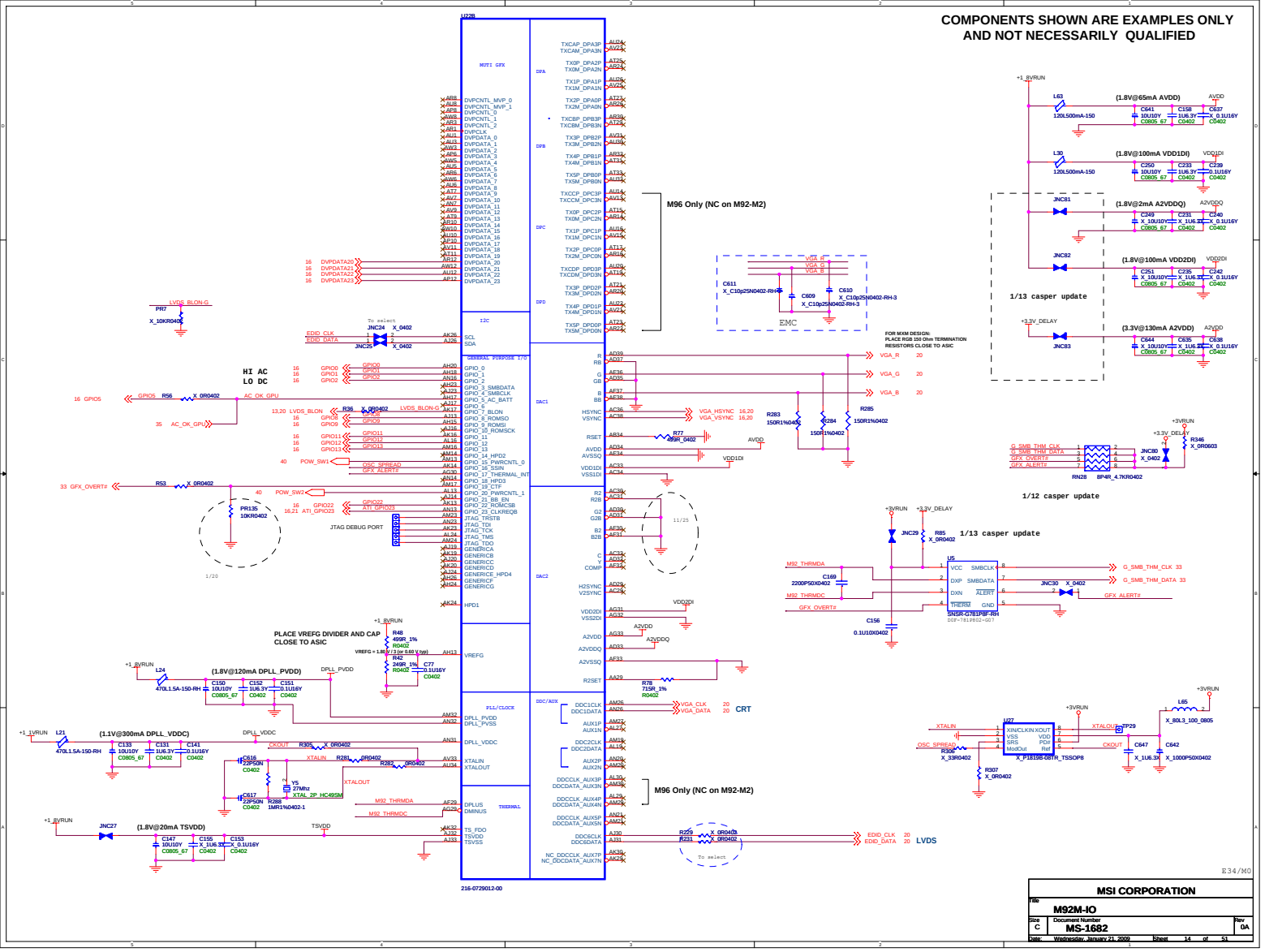
LVDS Interface

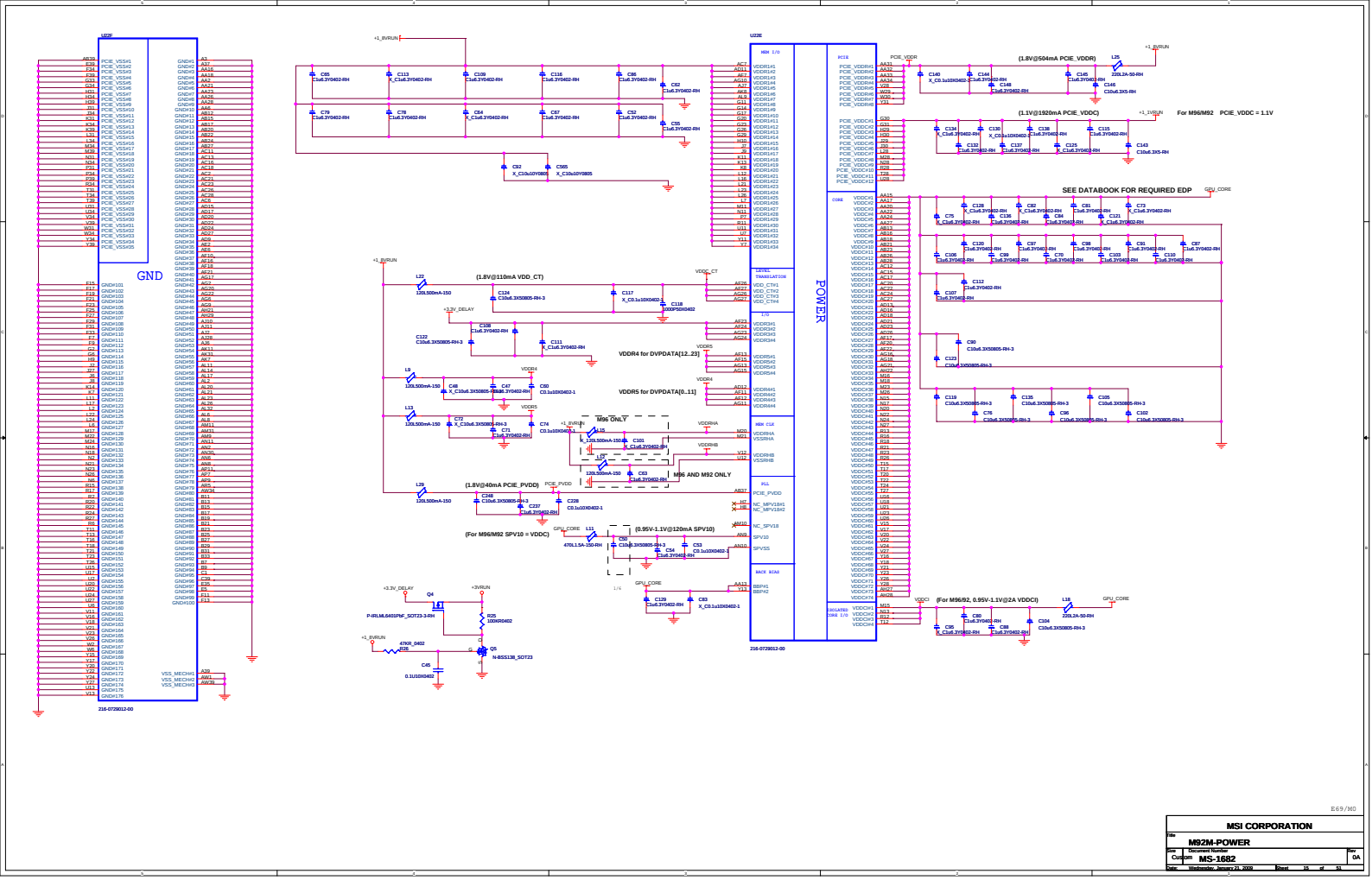


DisplayPort E Configuration

E43/M0

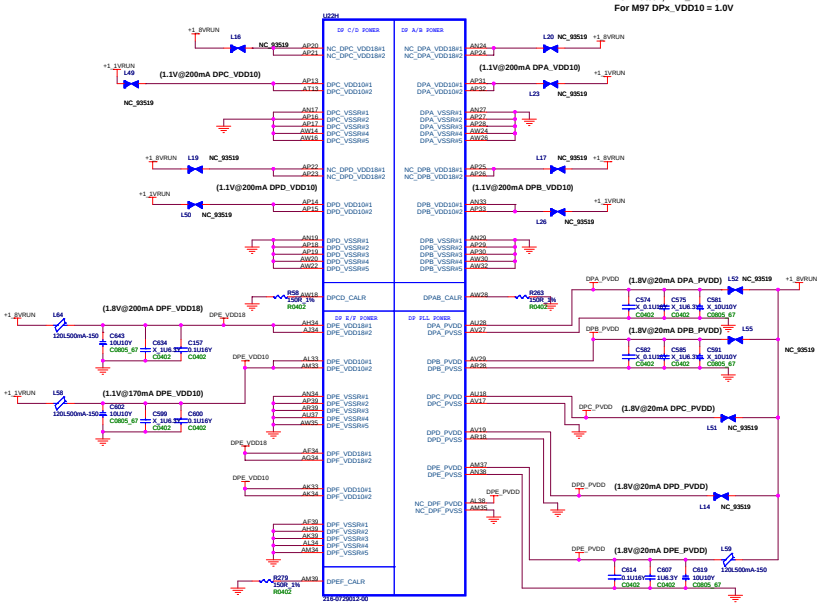
MSI CORPORATION		
Title: M92M-HOST/LVDS		
Size: Custom	Document Number: MS-1682	Rev: 0A
Date: Wednesday, January 21, 2009	Sheet 13 of 51	


COMPONENTS SHOWN ARE EXAMPLES ONLY
AND NOT NECESSARILY QUALIFIED
U29B
M96 Only (NC on M92-M2)
M96 Only (NC on M92-M2)
EMC
FOR MXM DESIGN:
PLACE RGB 150 Ohm TERMINATION
RESISTORS CLOSE TO ASIC
1/13 casper update
1/12 casper update
HI AC
LO DC
PLACE VREFG DIVIDER AND CAP
CLOSE TO ASIC
(1.8V@120mA DPLL_PVDD)
(1.1V@300mA DPLL_VDDC)
(1.8V@20mA TSVDD)
(1.8V@65mA AVDD)
(1.8V@100mA VDD1DI)
(1.8V@2mA A2VDDQ)
(1.8V@100mA VDD2DI)
(3.3V@130mA A2VDD)
CRT
LVDS
JTAG DEBUG PORT
216-0729012-00
MSI CORPORATION
M92M-IO
MS-1682
Wednesday, January 21, 2009

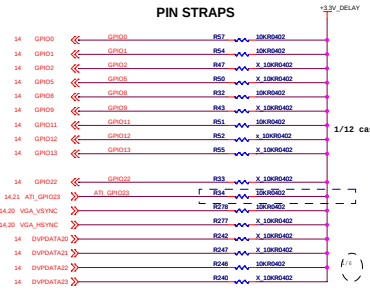


MSI CORPORATION			
Title: M92M-POWER			
Size: Custom	Document Number: MS-1682		Rev: 0A
Date: Wednesday, January 21, 2009		Sheet 15 of 51	

For M96/92, DPx_VDD10 = 1.1V
For M97 DPx_VDD10 = 1.0V



PIN STRAPS



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CONFIGURATION STRAPS

ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOS ARE USED, THEY MUST NOT CONFLICT DURING RESET

STRAPS	PIN	DESCRIPTION OF DEFAULT SETTINGS	
			RECOMMENDED SETTINGS 0= DO NOT INSTALL RESISTOR 1 = INSTALL 10K RESISTOR X = DESIGN DEPENDENT NA = NOT APPLICABLE
TX_PWRS_ENB	GPIO0	Transmitter Power Savings Enable 0:50% Tx output swing for mobile mode 1:full Tx output swing (defuat setting for desktop)	1
TX_DEEMPH_EN	GPIO1	PCI Express Transmitter De-emphasis Enable 0:Tx de-emphasis disabled for mobile mode 1:Tx de-emphasis enable (defuat setting for desktop)	1
BIF_GEN2_EN	GPIO2	0 = Advertises the PCI-E device as 2.5 GT/s capatile at power-on 1 = Advertises the PCI-E device as 5.0 GT/s capatile at power-on 5.0 GT/s Capability will be controlled by	0
STRAP_BIF_CLK_PM_EN	GPIO8	Enable CLKREQ# Power Mangement 0- CLKREQ# Power Mangement capability is disable 1- CLKREQ# Power Mangement capability is ebable	0
BIF_VGA DIS	GPIO9	VGA ENABLED	0
BIF_RX_PLL_CALIB_BP	GPIO21	BIF_RX_PLL_CALIB_BP	0
BIOS_ROM_EN	GPIO_22_ROMCSB	Enable extrnal BIOS ROM device 0- disable extrnal BIOS ROM device 1-enable extrnal BIOS ROM device	0
config[2: 1: 0]	GPIO[13: 12: 11]	GPIO 9,13,12,11(CONFIG 3,2,1,0) a> if BIOS_ROM_EN =1 ,then Config [3:0] defines the rom type b> if BIOS_ROM_EN =0 ,then Config [3:0] defines the Aperture size	0 0 1 256MB
Mem type	DVDATA[20,21,22]	if VIP_DEVICE_STRAP_ENA is set to '1',then this pin is used to sense whether a VIP slave device is connected to the VIP Host interface.if VIP_DEVICE_STRAP_ENA is set to '0' then this pin is not used as a strap at all (i.e. its value during reset is unimportant), and it can be used as a regular GPIO	0 0 0 vendor
VIP_DEVICE_STRAP_ENA	V2SYNC		0
RSVD RSVD AUD[1] AUD[0]	H2SYNC GENERICC HSYNC VSYNC		0 0 1 1

1/12 casper update

DV_DATA	23	22	21	20	
SAMSUNG	0	0	0	0	32*16
Hynix	0	0	0	1	32*16
SAMSUNG	0	0	1	0	64*16
Hynix	0	1	0	0	**64*16**

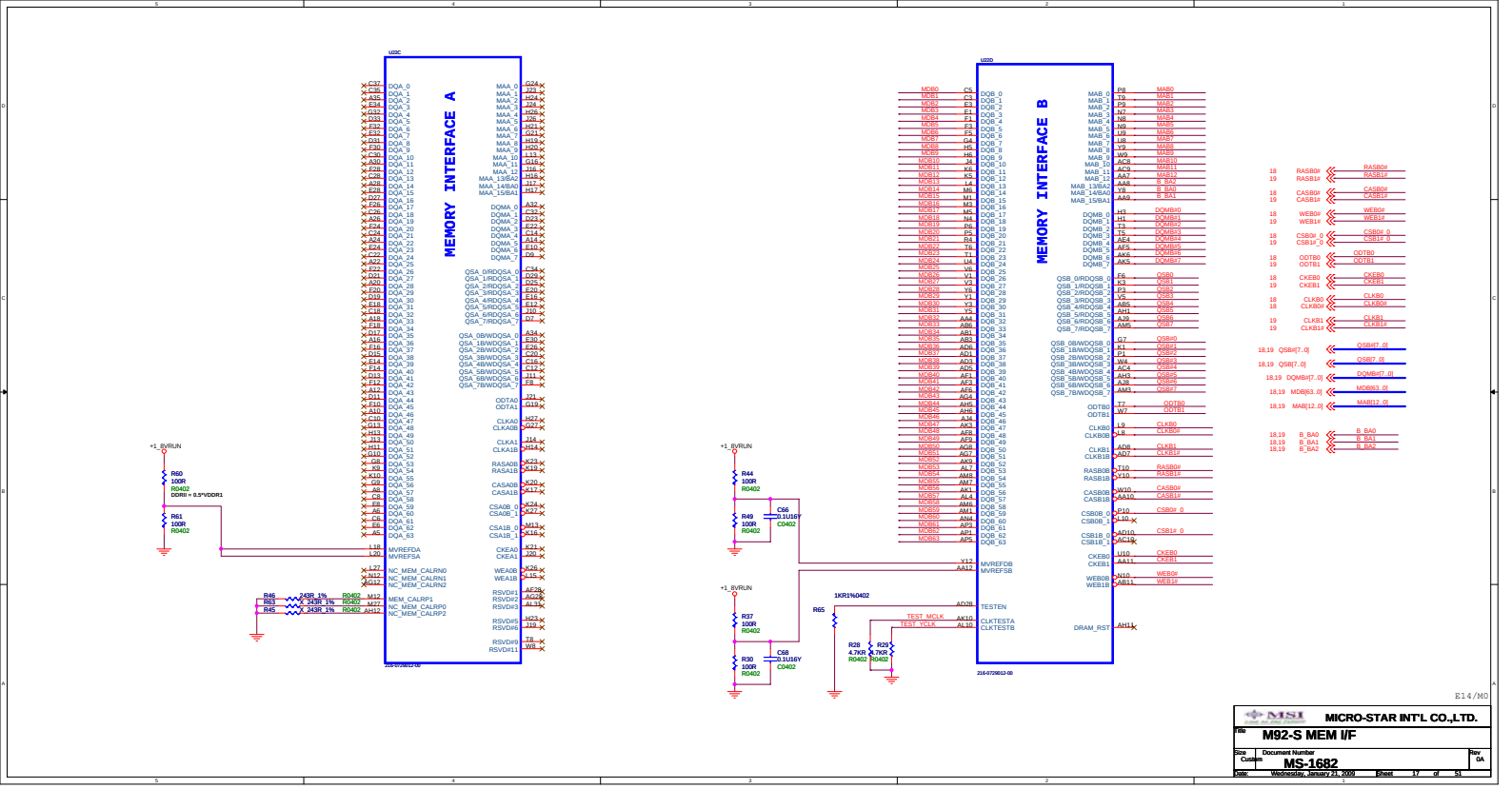
E23/M0

MSI CORPORATION

Title: **M92M-power straps**

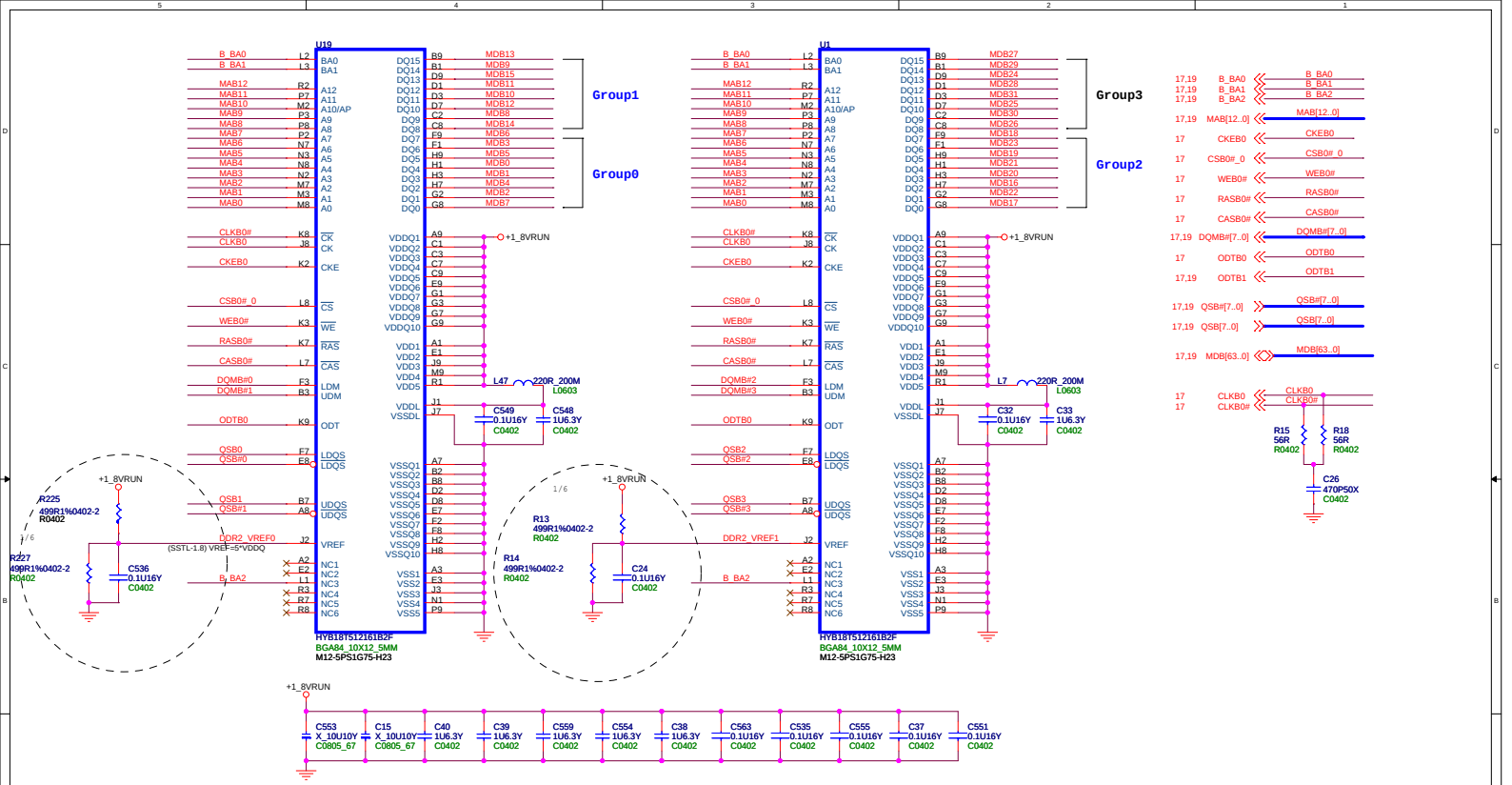
Size: Custom | Document Number: **MS-1682** | Rev: 0A

Date: Wednesday, January 21, 2009 | Sheet 16 of 53



E14/M0

MSI	MICRO-STAR INT'L CO.,LTD.		
Title	M92-S MEM I/F		
Size: Custom	Document Number: MS-1682		Rev: 0A
Date: Wednesday, January 21, 2009	Sheet 17 of 51		



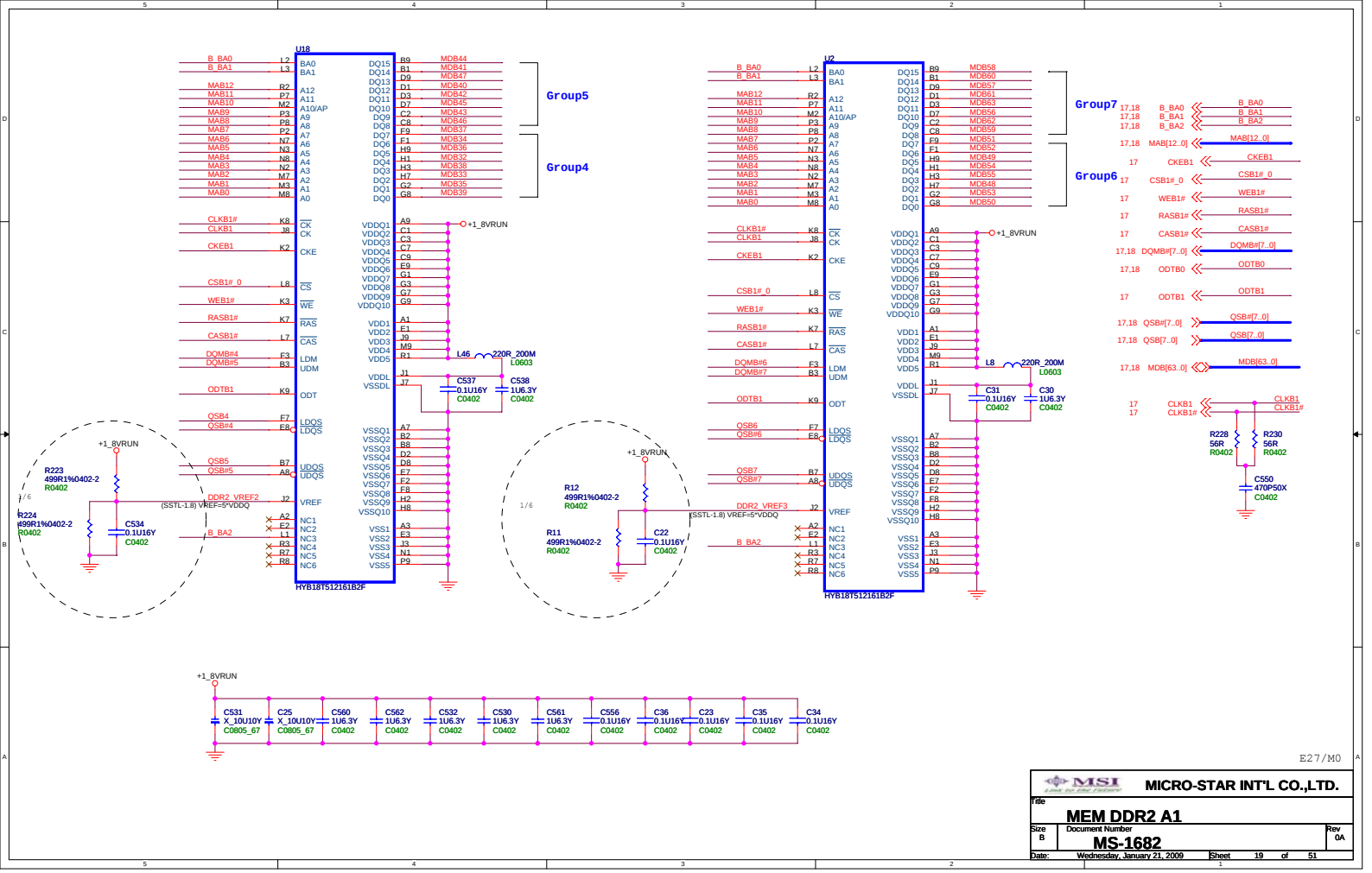
E27/M0

MICRO-STAR INT'L CO.,LTD.

Title: MEM DDR2 A0

Size: B | Document Number: MS-1682 | Rev: 0A

Date: Wednesday, January 21, 2009 | Sheet 18 of 51



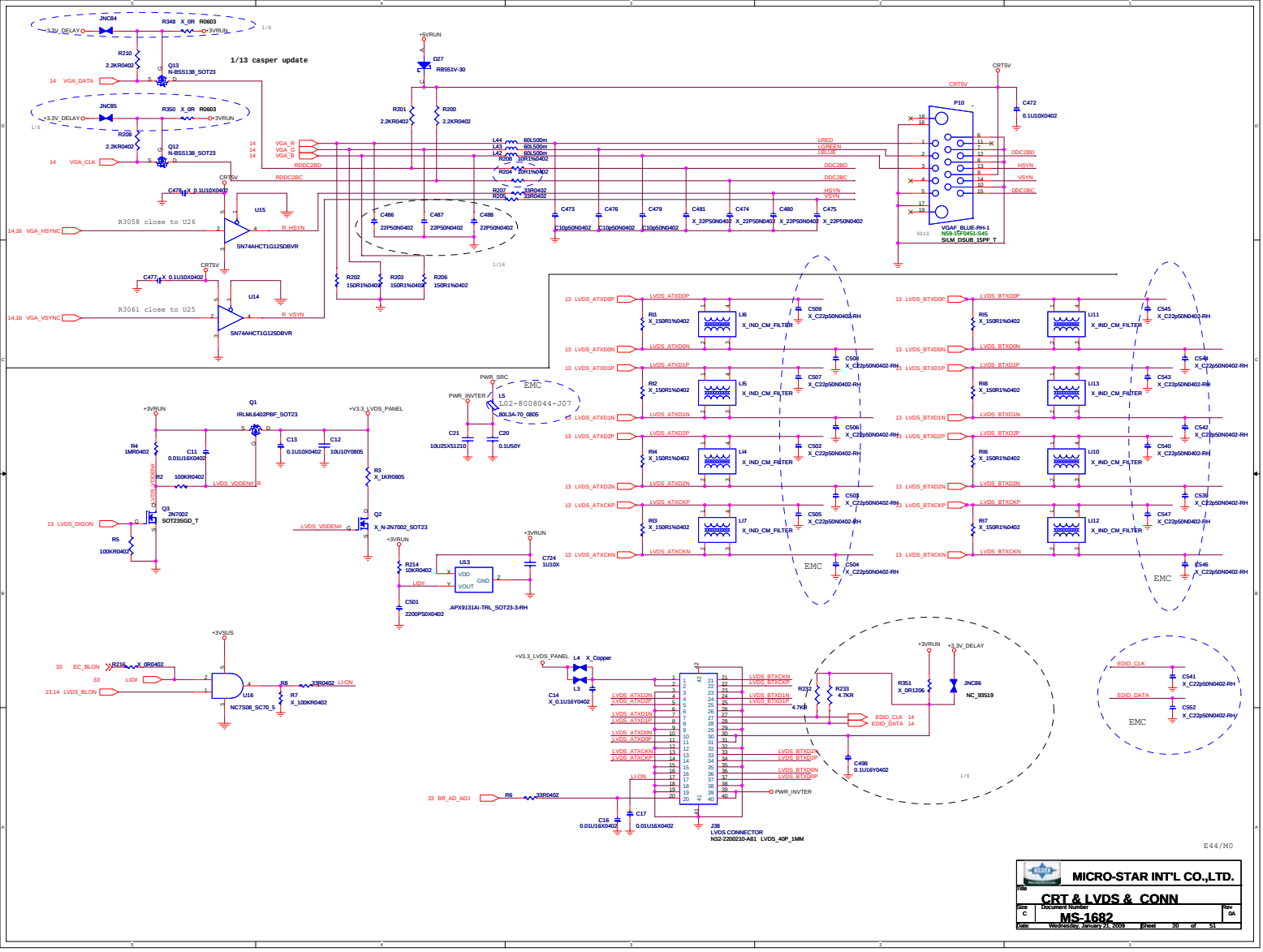
E27/M0

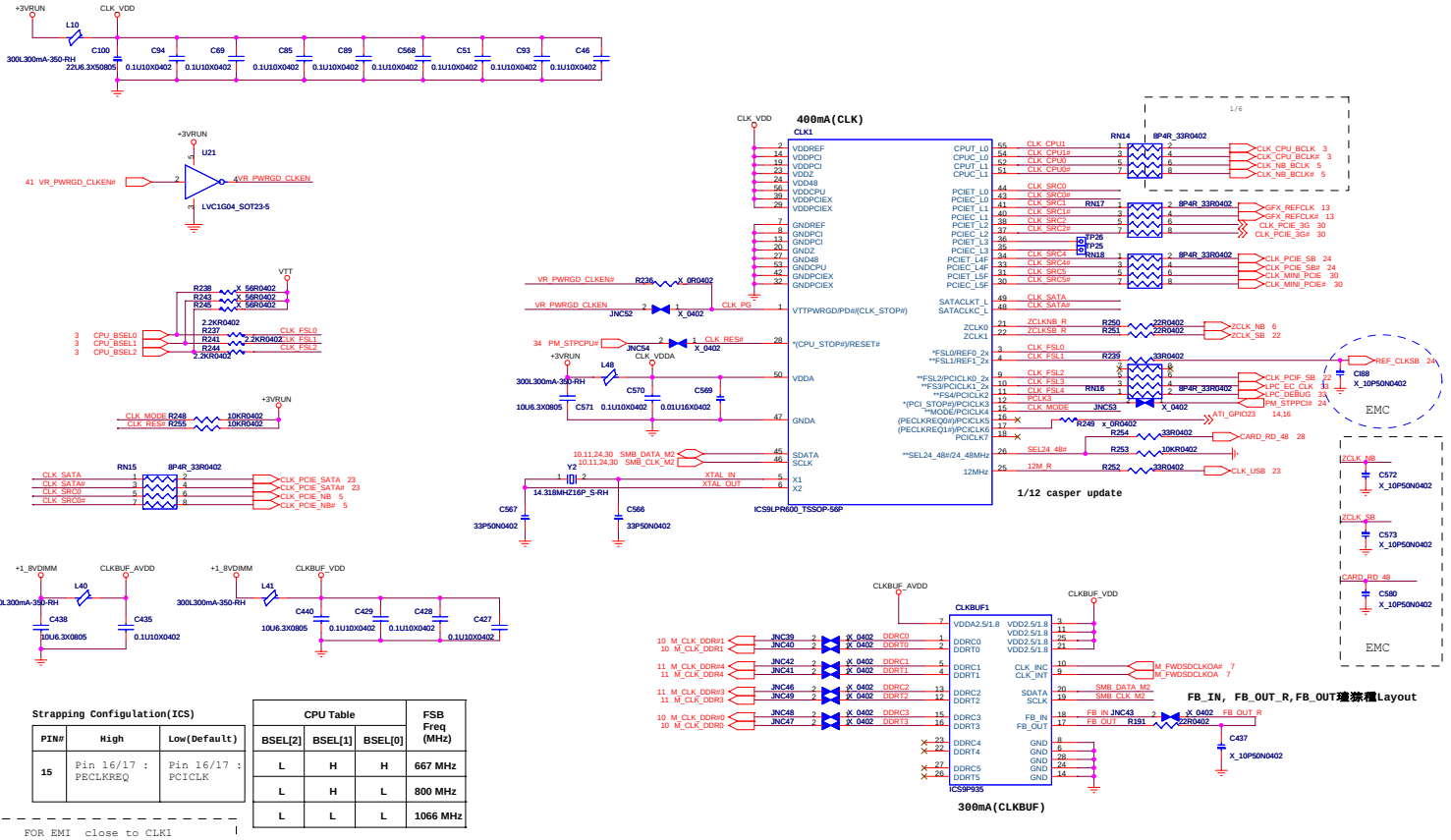
MICRO-STAR INT'L CO.,LTD.

Title: MEM DDR2 A1

Size: B | Document Number: MS-1682 | Rev: 0A

Date: Wednesday, January 21, 2009 | Sheet 19 of 51

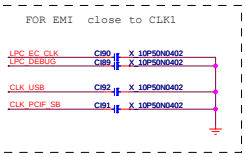

1/13 casper update
SN74AHCT1G125DBVR
SN74AHCT1G125DBVR
R3058 close to U26
R3061 close to U25
VGAF_BLUE-RH-1
N59-15F0451-S45
SILM_DSUB_15PF_T
LVDS CONNECTOR
N33-2200210-AB1 LVDS_40P_1MM
MICRO-STAR INT'L CO.,LTD.
CRT & LVDS & CONN
MS-1682
Wednesday, January 21, 2009
Sheet 20 of 51



Strapping Configulation(ICS)

PIN#	High	Low(Default)
15	Pin 16/17 : PECLKREQ	Pin 16/17 : PCICLK

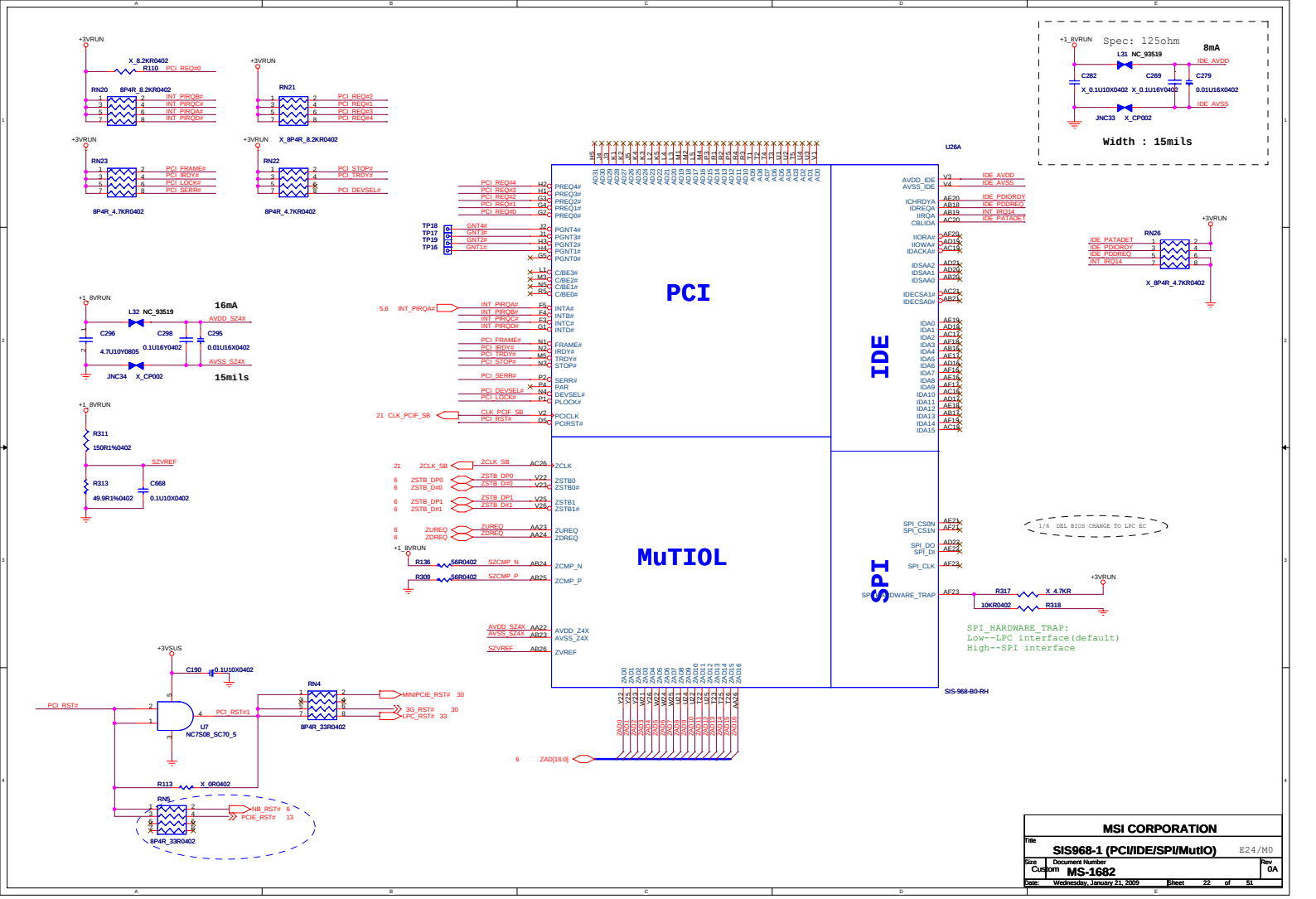
CPU Table			FSB Freq (MHz)
BSEL[2]	BSEL[1]	BSEL[0]	
L	H	H	667 MHz
L	H	L	800 MHz
L	L	L	1066 MHz

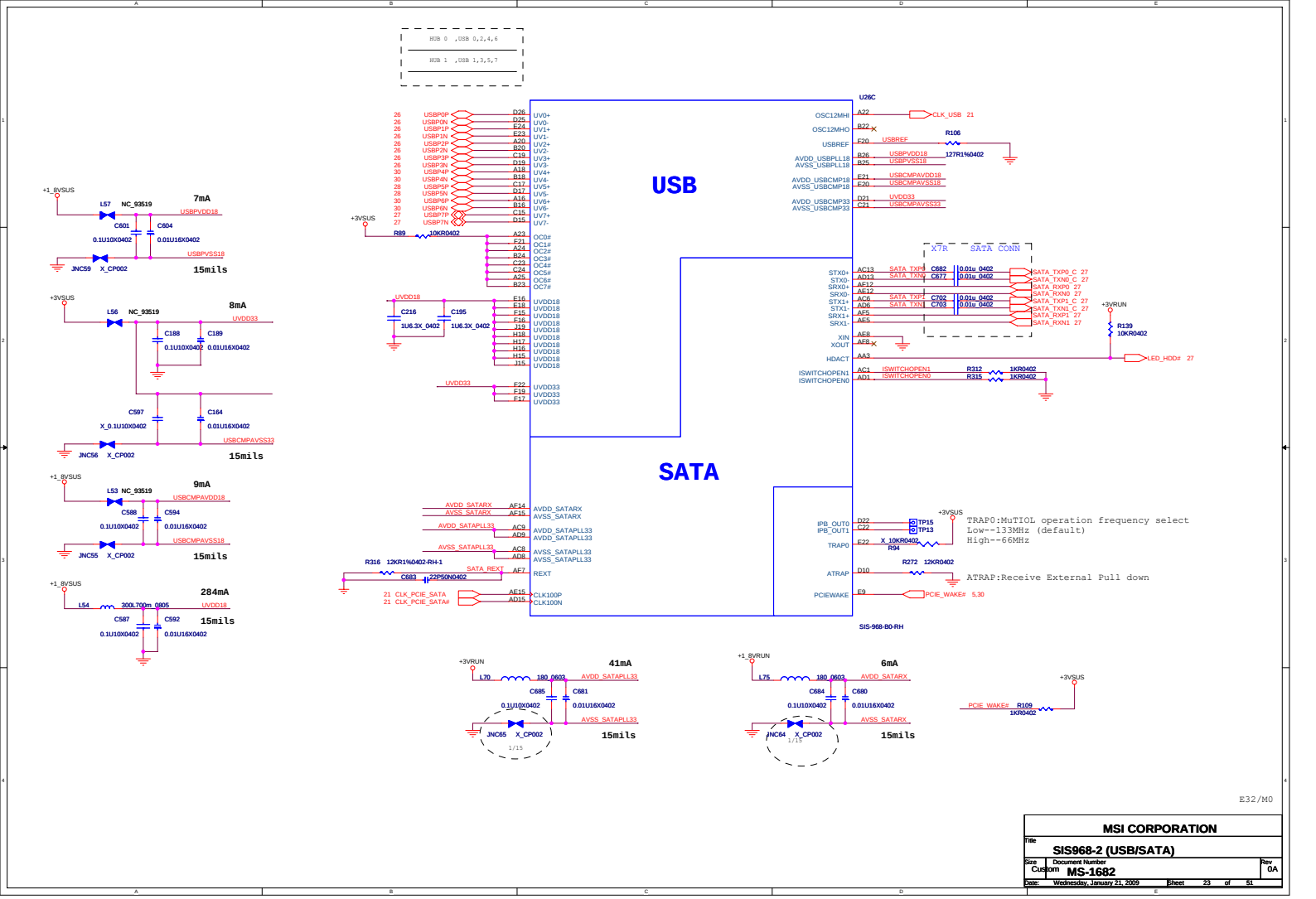


1/16 JNC39,40,41,42 +1.5" AND JNC43 +2"FOR 3D MARK 06 BUG ,

E45/M0

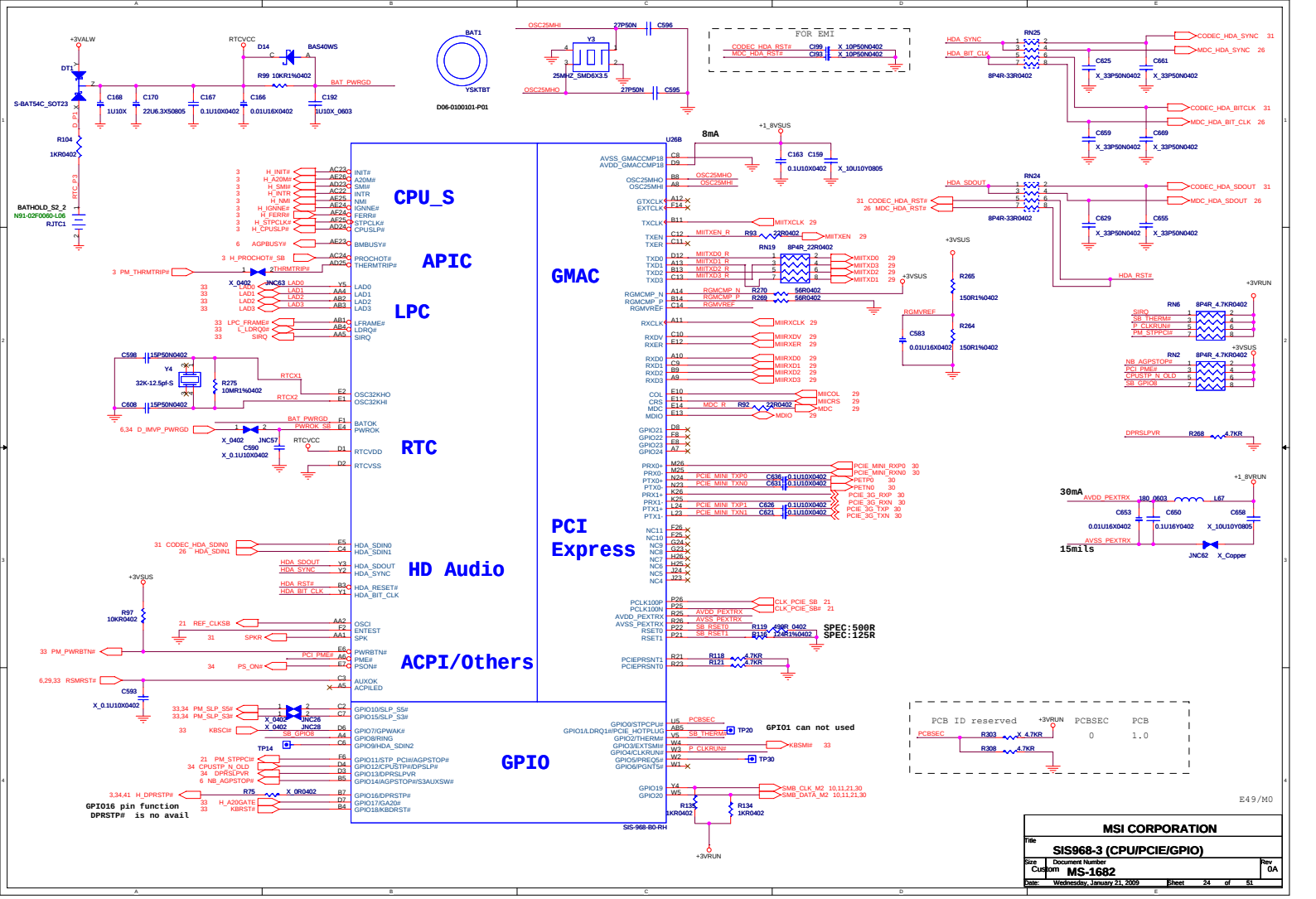
MSI CORPORATION		
Title: CLOCK Generator ' Dimm BUF		
Size: Custom	Document Number: MS-1682	Rev: 0A
Date: Wednesday, January 21, 2009	Sheet 21 of 51	

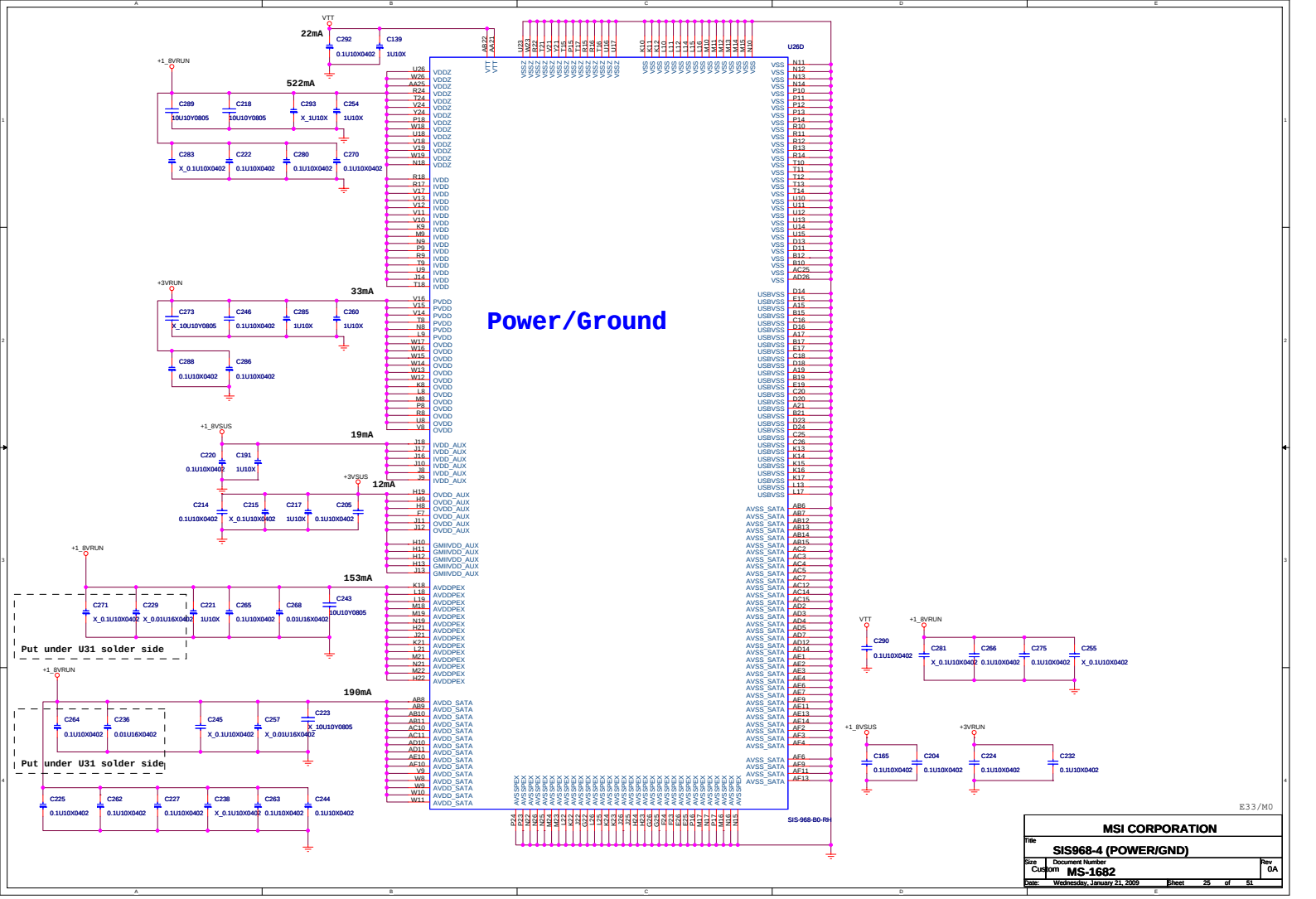

PCI
IDE
MuTIOL
SPI
U26A
SIS-968-80-RH
Spec: 125ohm
8mA
Width : 15mils
16mA
15mils
SPI_HARDWARE_TRAP:
Low--LPC interface(default)
High--SPI interface
1/6 DEL BIOS CHANGE TO LPC EC
MSI CORPORATION
SIS968-1 (PCI/IDE/SPI/MutIO)
E24/M0
MS-1682
Wednesday, January 21, 2009
22 of 51



E32/M0

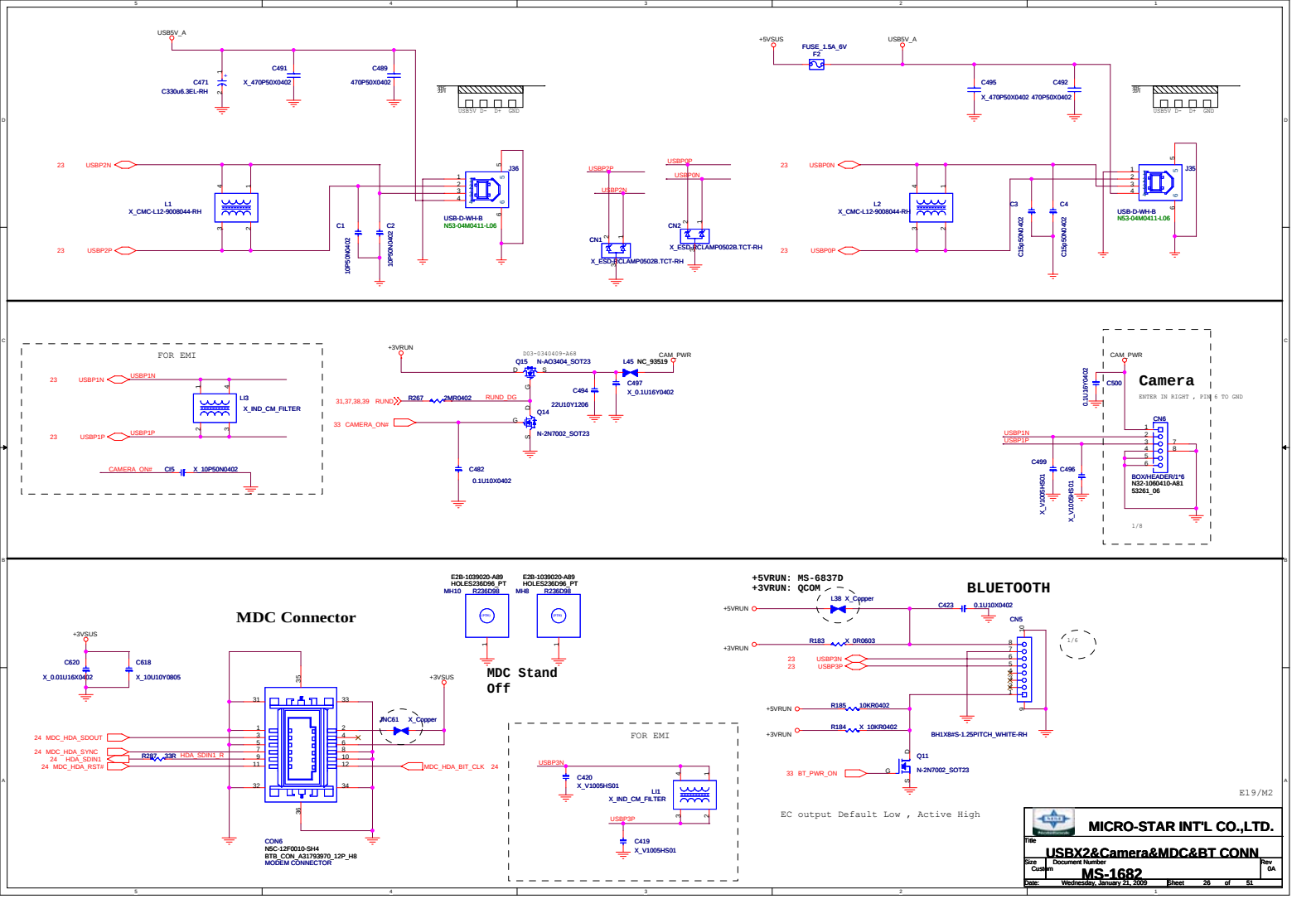
MSI CORPORATION			
Title: SIS968-2 (USB/SATA)			
Size: Custom	Document Number: MS-1682	Rev: 0A	
Date: Wednesday, January 21, 2009	Sheet 23 of 51		


CPU_S
APIC
LPC
RTC
GMAC
PCI Express
HD Audio
ACPI/Others
GPIO
SIS-968-B0-RH
GPIO16 pin function DPRSTP# is no avail
GPIO1 can not used
SPEC:500R
SPEC:125R
8mA
30mA
15mils
FOR EMI
PCB ID reserved
PCBSEC
PCB
0
1.0
MSI CORPORATION
SIS968-3 (CPU/PCIE/GPIO)
MS-1682
Custom
Wednesday, January 21, 2009
Sheet 24 of 51
E49/M0



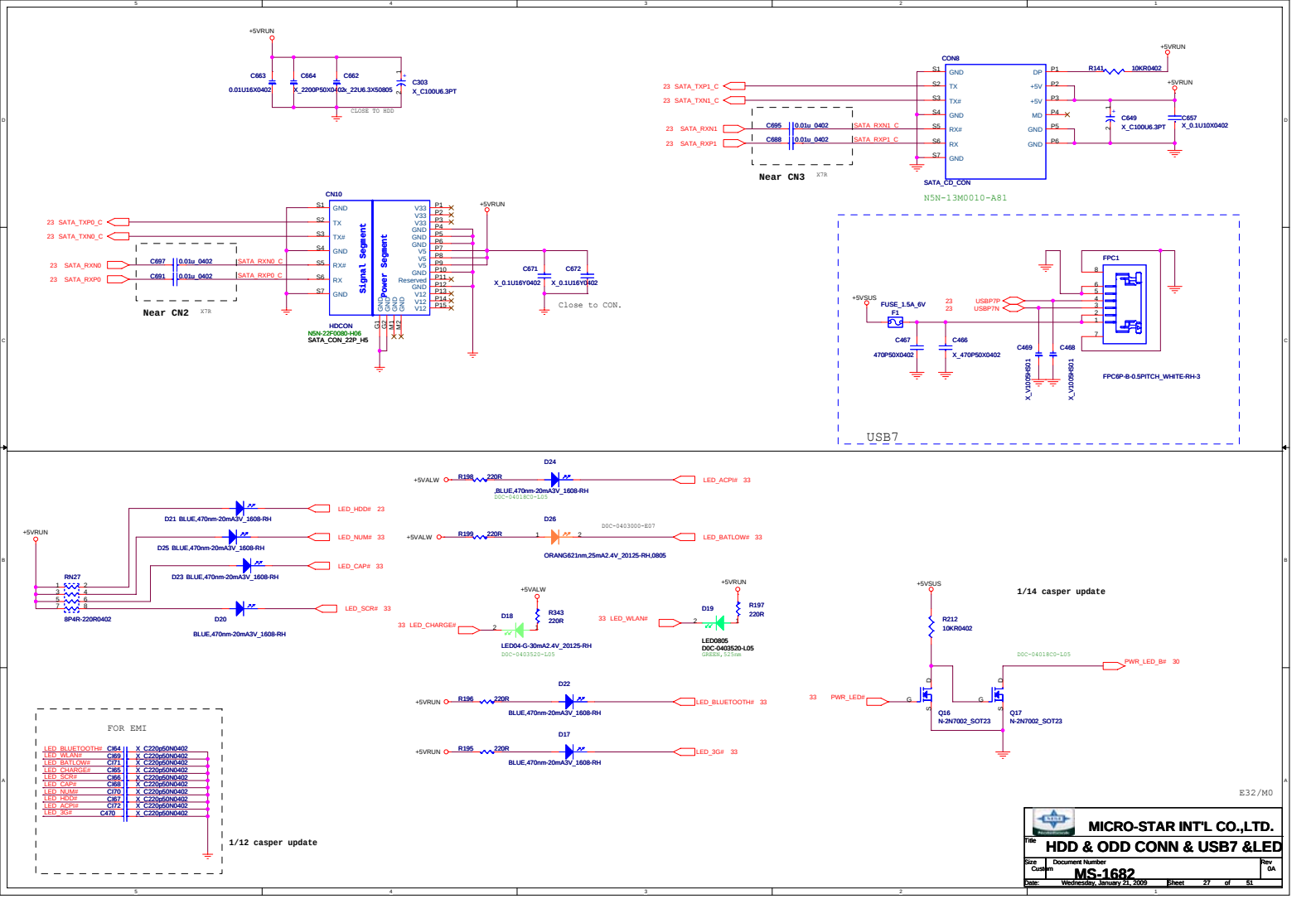
E33/M0

MSI CORPORATION		
Title: SIS968-4 (POWER/GND)		
Size: Custom	Document Number: MS-1682	Rev: 0A
Date: Wednesday, January 21, 2009	Sheet 25 of 51	


USB5V_A
C471
C330u6.3EL-RH
C491
X_470P50X0402
C489
470P50X0402
USB5V D- D+ GND
23 USBP2N
L1
X_CMC-L12-9008044-RH
23 USBP2P
C1
10P50X0402
C2
10P50X0402
J36
USB-D-WH-B
N53-04M0411-L06
+5VSUS
FUSE_1.5A_6V
F2
C495
X_470P50X0402
C492
470P50X0402
USBP2P
USBP2N
CN1
X_ESD_XCLAMP0502B.TCT-RH
USBP0P
USBP0N
CN2
X_ESD_XCLAMP0502B.TCT-RH
23 USBP0N
L2
X_CMC-L12-9008044-RH
23 USBP0P
C3
C15p50X0402
C4
C15p50X0402
J35
USB-D-WH-B
N53-04M0411-L06

FOR EMI
23 USBP1N
USBP1N
LI3
X_IND_CM_FILTER
23 USBP1P
USBP1P
CAMERA_ON#
CI5
X_10P50N0402
+3VRUN
D03-0340409-A68
Q15
N-AO3404_SOT23
L45 NC_93519
CAM_PWR
C497
X_0.1U16Y0402
31,37,38,39 RUND
R267
2MR0402
RUND_DG
C494
22U10Y1206
33 CAMERA_ON#
Q14
N-2N7002_SOT23
C482
0.1U10X0402
CAM_PWR
C500
0.1U16Y0402
Camera
ENTER IN RIGHT , PIN 6 TO GND
CN6
USBP1N
USBP1P
C499
X_V005HS01
C496
X_V005HS01
BOX/HEADER/1*6
N32-1060410-A81
53261_06
1/8

MDC Connector
E2B-1039020-A89
HOLES236D96_PT
MH10
R236D98
MH8
MDC Stand Off
+3VSUS
C620
X_0.01U16X0402
C618
X_10U10Y0805
24 MDC_HDA_SDOUT
24 MDC_HDA_SYNC
24 HDA_SDIN1
24 MDC_HDA_RST#
R287
33R
HDA_SDIN1_R
JNC61
X_Copper
MDC_HDA_BIT_CLK
24
CON6
N5C-12F0010-SH4
BTB_CON_A31793970_12P_H8
MODEM CONNECTOR
FOR EMI
USBP3N
C420
X_V005HS01
LI1
X_IND_CM_FILTER
USBP3P
C419
X_V005HS01
+5VRUN: MS-6837D
+3VRUN: QCOM
BLUETOOTH
+5VRUN
L38 X_Copper
C423
0.1U10X0402
+3VRUN
R183
X_0R0603
23 USBP3N
23 USBP3P
CN5
1/6
+5VRUN
R185
10KR0402
+3VRUN
R184
X_10KR0402
BH1X8#S-1.25PITCH_WHITE-RH
33 BT_PWR_ON
Q11
N-2N7002_SOT23
EC output Default Low , Active High
E19/M2
MICRO-STAR INT'L CO.,LTD.
Title
USBX2&Camera&MDC&BT CONN
Size
Custom
Document Number
MS-1682
Rev
0A
Date:
Wednesday, January 21, 2009
Sheet
26
of
51



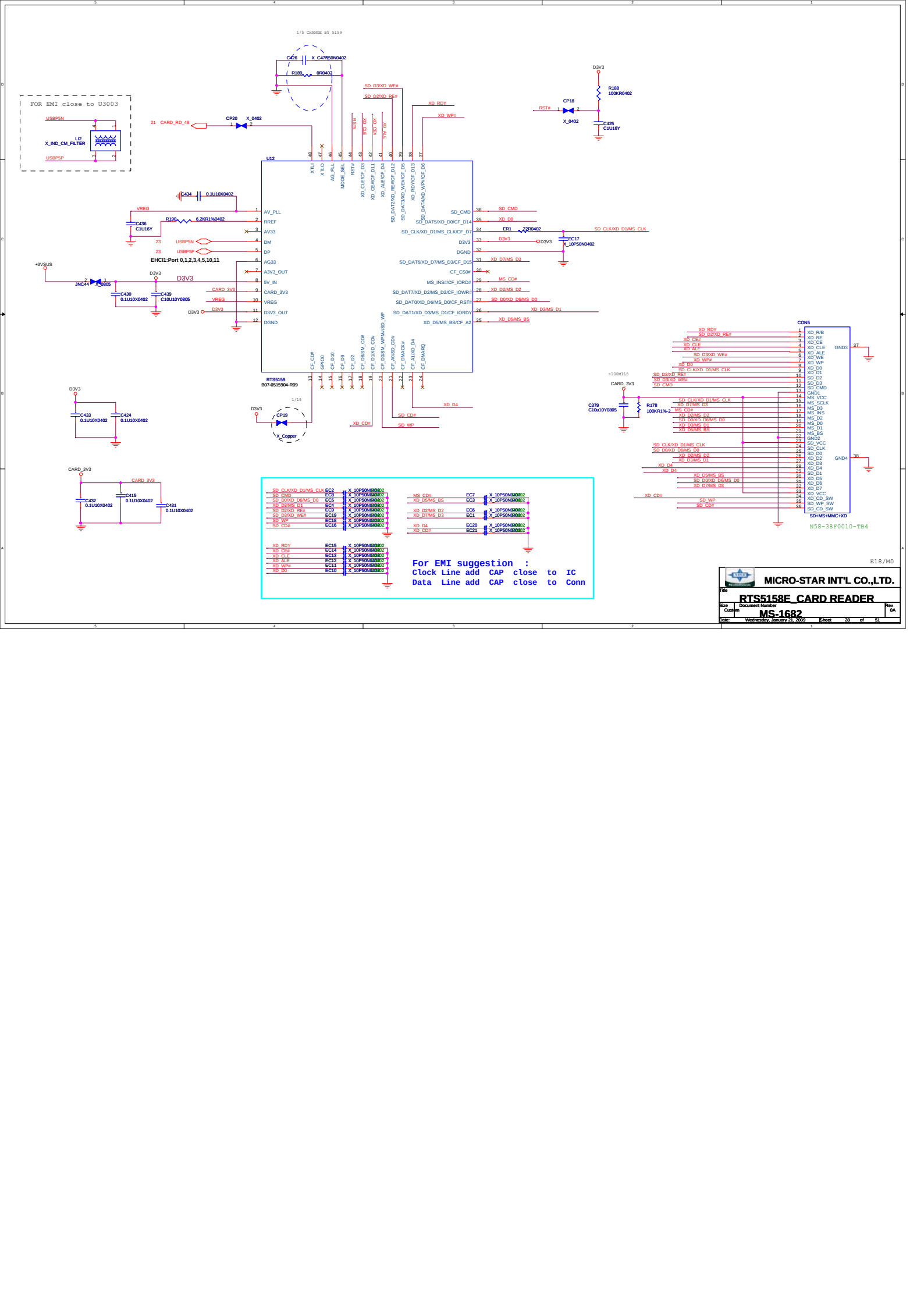
E32/M0

MICRO-STAR INT'L CO.,LTD.

Title: HDD & ODD CONN & USB7 &LED

Size: Custom | Document Number: MS-1682 | Rev: 0A

Date: Wednesday, January 21, 2009 | Sheet 27 of 51


1/5 CHANGE BY 5159
FOR EMI close to U3003
USBP5N
USBP5P
LI2
X_IND_CM_FILTER
C426
X_C47P50N0402
R189
0R0402
CP20
X_0402
21 CARD_RD_48
SD_D3/XD_WE#
SD_D2/XD_RE#
XD_RDY
XD_WP#
CP18
X_0402
D3V3
R188
100KR0402
C425
C1U16Y
U12
C434
0.1U10X0402
VREG
C436
C1U16Y
R190
6.2KR1%0402
AV_PLL
RREF
AV33
DM
DP
AG33
A3V3_OUT
5V_IN
CARD_3V3
VREG
D3V3_OUT
DGND
EHCI1:Port 0,1,2,3,4,5,10,11
+3VSUS
JNC44
X_0805
C430
0.1U10X0402
C439
C10U10Y0805
SD_CMD
SD_DAT5/XD_D0/CF_D14
SD_CLK/XD_D1/MS_CLK/CF_D7
DGND
SD_DAT6/XD_D7/MS_D3/CF_D15
CF_CS0#
MS_INS#/CF_IORD#
SD_DAT7/XD_D2/MS_D2/CF_IOWR#
SD_DAT0/XD_D6/MS_D0/CF_RST#
SD_DAT1/XD_D3/MS_D1/CF_IORDY
XD_D5/MS_BS/CF_A2
ER1
22R0402
SD_CLK/XD_D1/MS_CLK
EC17
X_10P50N0402
RTS5159
B07-0515904-R09
CP19
X_Copper
1/15
XD_D4
SD_CD#
SD_WP
C433
0.1U10X0402
C424
0.1U10X0402
C432
0.1U10X0402
C415
0.1U10X0402
C431
0.1U10X0402
CON5
SD+MS+MMC+XD
GND3
GND4
C379
C10u10Y0805
R178
100KR1%-2
>100MILS
N58-38F0010-TB4
For EMI suggestion :
Clock Line add CAP close to IC
Data Line add CAP close to Conn
E18/M0
MICRO-STAR INT'L CO.,LTD.
RTS5158E_CARD READER
MS-1682
Wednesday, January 21, 2009
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LAN MAGNETICS

1/12 casper update

1/14 casper update

1/16

U11 RTL8201CL

U23 NS00138 LF-RH

Y1 25MHZ18p_S-RH

C330 20P50N LAN_XIN

C344 20P50N LAN_XOUT

C312 0.1U10X0402

C311 0.1U10X0402

R167X_5.1KR0402

RN11 8P4R-5.1KR

R165.1KR0402

R166X_4.7KR0402

RN12 8P4R_4.7KR0402

R334 4.7KR

R332 4.7KR

R161X_5.1KR0402

R159 X_5.1KR0402

R168 22R0402 MIITXCLK_R

RN10 8P4R_22R0402

R155 0R0603 V_DAC

R270 49.9R1%0402

R274 49.9R1%0402

R271 49.9R1%0402

R269 49.9R1%0402

C586 0.01U16X0402

C605 0.01U16X0402

C304 0.01U16X0402

C305 0.01U16X0402

CONN1 LAN-RJ45S-RH-4

MEC1&MEC2 IS NON -PLATE

FOR EMI close to U3007

C129 X_10P50N0402

C126 X_10P50N0402

PWFBOUT L34 80L0.7A PWFBIN

C308 22U6.3X50805

C309 0.1U10X0402

C358 0.1U10X0402

please C3088,C3089,L3007 close to PWFBOUT(U3007.52) and C3090 close to PWFBIN (U3007.8)

L36 NC_93519

C352 22U6.3X50805

C337 0.1U10X0402

C342 0.1U10X0402

C319 0.1U10X0402

RN3 8P4R-75R0402C127

R72 0R_0805

X_1000P2000X1808

EMC

CP8 X_NC LGND

EMC 1/16

C603 C3.3p50X0402

C606 C3.3p50X0402

C584 C3.3p50X0402

C589 C3.3p50X0402

MICRO-STAR INT'L CO.,LTD.

Title: PHY LAN (RTL8201CL) E37/M0

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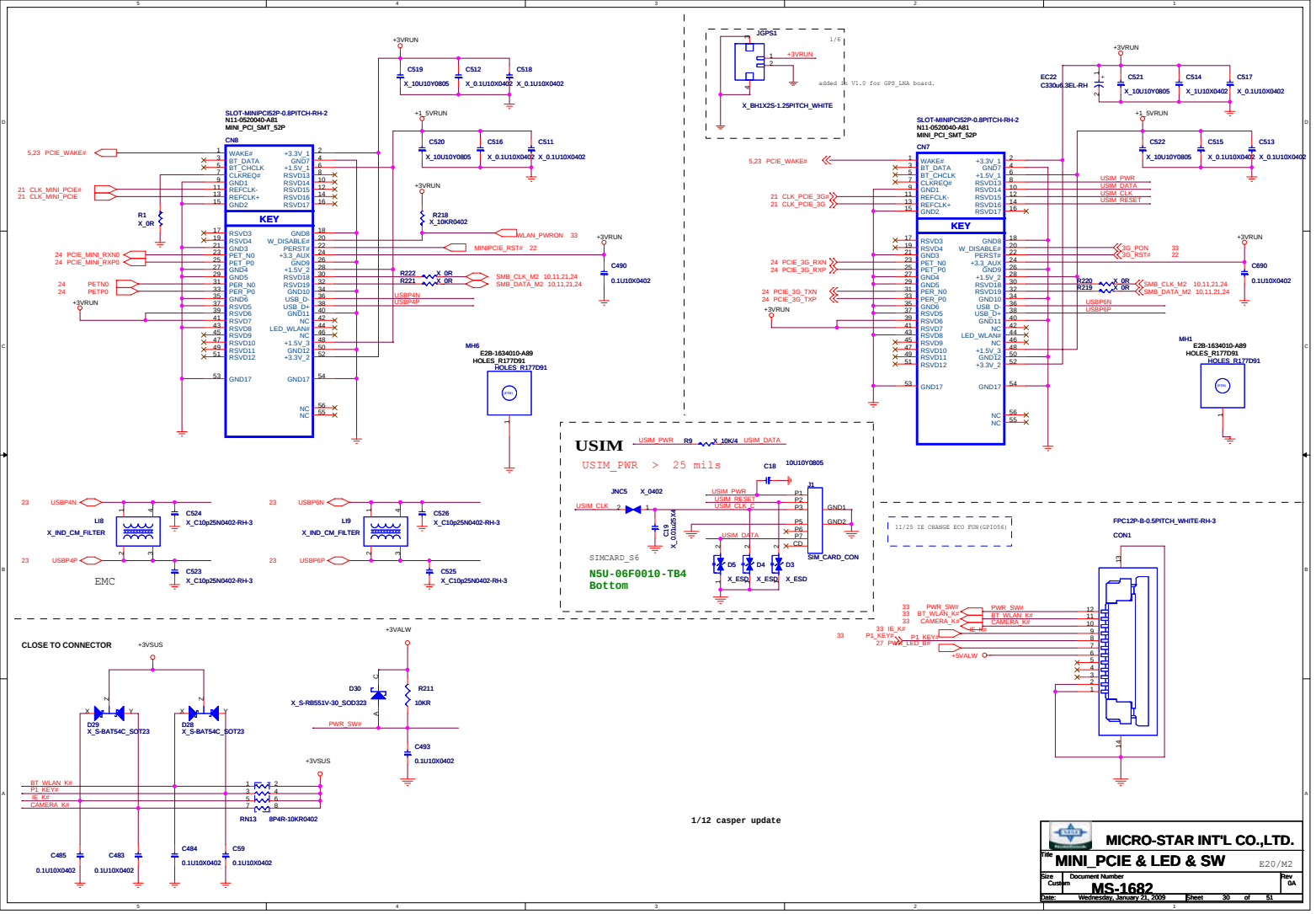
Date: Wednesday, January 21, 2009 | Sheet 29 of 51


SLOT-MINIPCI52P-0.8PITCH-RH-2
N11-0520040-A81
MINI_PCI_SMT_52P
CN8
KEY
C519 X_10U10Y0805
C512 X_0.1U10X0402
C518 X_0.1U10X0402
C520 X_10U10Y0805
C516 X_0.1U10X0402
C511 X_0.1U10X0402
R1 X_0R
R218 X_10KR0402
R222 X_0R
R221 X_0R
C490 0.1U10X0402
MH6 E2B-1634010-A89 HOLES_R177D91
JGPS1
X_BH1X2S-1.25PITCH_WHITE
added in V1.0 for GPS_LNA board.
EC22 C330u6.3EL-RH
C521 X_10U10Y0805
C514 X_1U10X0402
C517 X_0.1U10X0402
C522 X_10U10Y0805
C515 X_0.1U10X0402
C513 X_0.1U10X0402
CN7
R220 X_0R
R219 X_0R
C690 0.1U10X0402
MH1 E2B-1634010-A89 HOLES_R177D91
USIM
USIM_PWR > 25 mils
R9 X_10K/4
C18 10U10Y0805
JNC5 X_0402
C19 X_C0.01/25X4
SIMCARD_S6
N5U-06F0010-TB4
Bottom
D5 X_ESD
D4 X_ESD
D3 X_ESD
SIM_CARD_CON
11/25 IE CHANGE ECO FUN(GPIO56)
FPC12P-B-0.5PITCH_WHITE-RH-3
CON1
LI8 X_IND_CM_FILTER
LI9 X_IND_CM_FILTER
C524 X_C10p25N0402-RH-3
C523 X_C10p25N0402-RH-3
C526 X_C10p25N0402-RH-3
C525 X_C10p25N0402-RH-3
EMC
CLOSE TO CONNECTOR
D29 X_S-BAT54C_SOT23
D28 X_S-BAT54C_SOT23
D30 X_S-RB551V-30_SOD323
R211 10KR
C493 0.1U10X0402
RN13 8P4R-10KR0402
C485 0.1U10X0402
C483 0.1U10X0402
C484 0.1U10X0402
C59 0.1U10X0402
1/12 casper update
MICRO-STAR INT'L CO.,LTD.
MINI_PCIE & LED & SW
E20/M2
MS-1682
Wednesday, January 21, 2009
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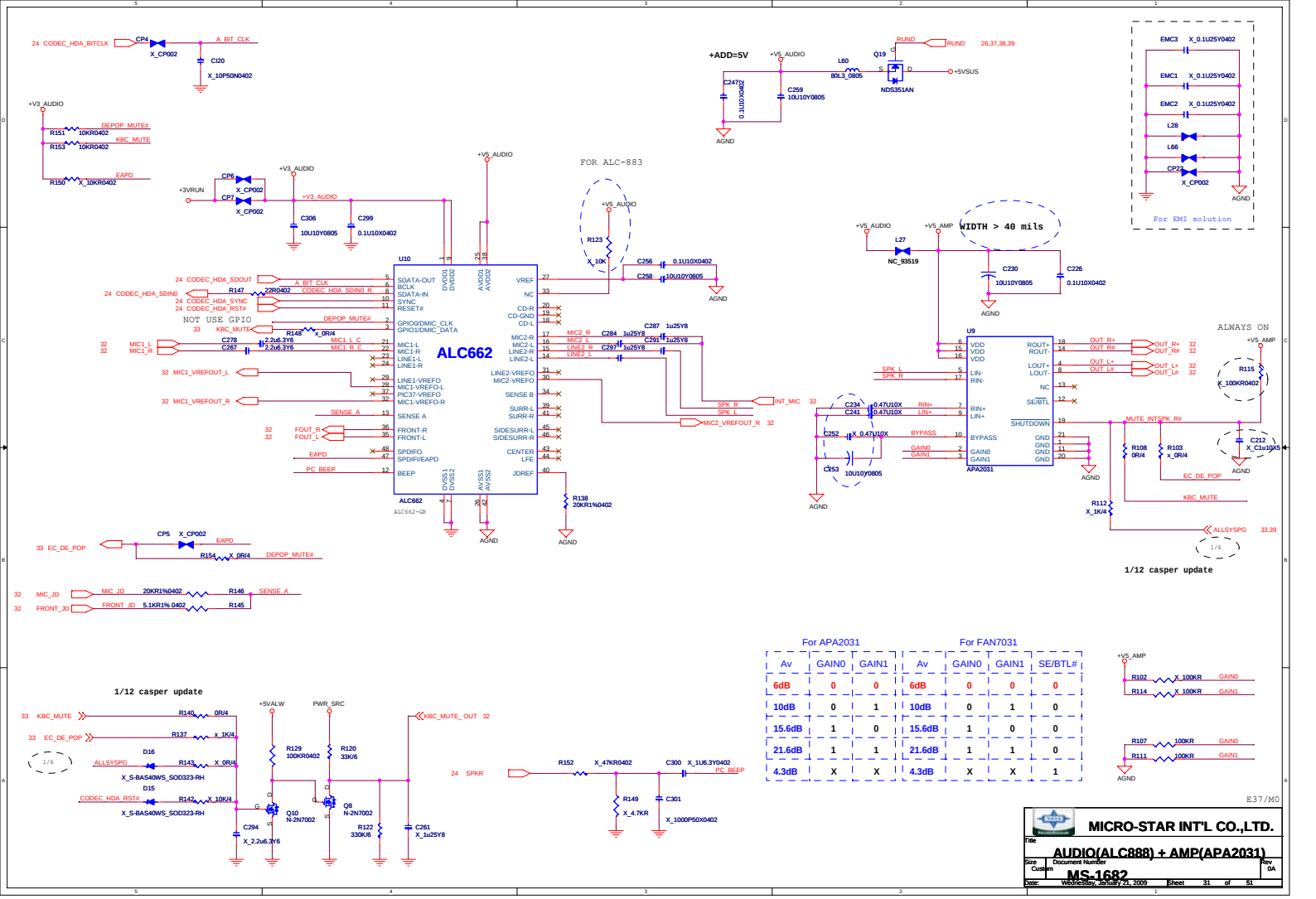
ALC662
ALC662-GR
U10
U9
APA2031
NDS351AN
NC_93519
FOR ALC-883
NOT USE GPIO
ALWAYS ON
WIDTH > 40 mils
For EMI solution
1/12 casper update
1/6
SDATA-OUT
BCLK
SDATA-IN
SYNC
RESET#
GPIO0/DMIC_CLK
GPIO1/DMIC_DATA
MIC1-L
MIC1-R
LINE1-L
LINE1-R
LINE1-VREFO
MIC1-VREFO-L
PIC37-VREFO
MIC1-VREFO-R
SENSE A
FRONT-R
FRONT-L
SPDIFO
SPDIFI/EAPD
BEEP
VREF
NC
CD-R
CD-GND
CD-L
MIC2-R
MIC2-L
LINE2-R
LINE2-L
LINE2-VREFO
MIC2-VREFO
SENSE B
SURR-L
SURR-R
SIDESURR-L
SIDESURR-R
CENTER
LFE
JDREF
VDD
LIN-
RIN-
RIN+
LIN+
BYPASS
GAIN0
GAIN1
SHUTDOWN
ROUT+
ROUT-
LOUT+
LOUT-
SE/BTL
GND
+ADD=5V
+V5_AUDIO
+V3_AUDIO
+V5_AMP
+3VRUN
+5VALW
+5VSUS
AGND
PWR_SRC
A_BIT_CLK
MUTE_INT
EC_DE_POP
KBC_MUTE
EAPD
DEPOP_MUTE#
ALLSYSPG
CODEC_HDA_RST#
SPK_R
SPK_L
INT_MIC
MIC2_VREFOUT_R
MIC1_VREFOUT_L
MIC1_VREFOUT_R
MIC_JD
FRONT_JD
PC_BEEP
SPKR
KBC_MUTE_OUT
OUT_R+
OUT_R#
OUT_L+
OUT_L#
EMC3
EMC1
EMC2
L28
L66
L60
L27
Q19
Q10
N-2N7002
Q8
N-2N7002
D15
D16
X_S-BAS40WS_SOD323-RH
For APA2031
For FAN7031
Av
GAIN0
GAIN1
SE/BTL#
6dB
10dB
15.6dB
21.6dB
4.3dB
MICRO-STAR INT'L CO.,LTD.
AUDIO(ALC888) + AMP(APA2031)
MS-1682
E37/M0
Wednesday, January 21, 2009
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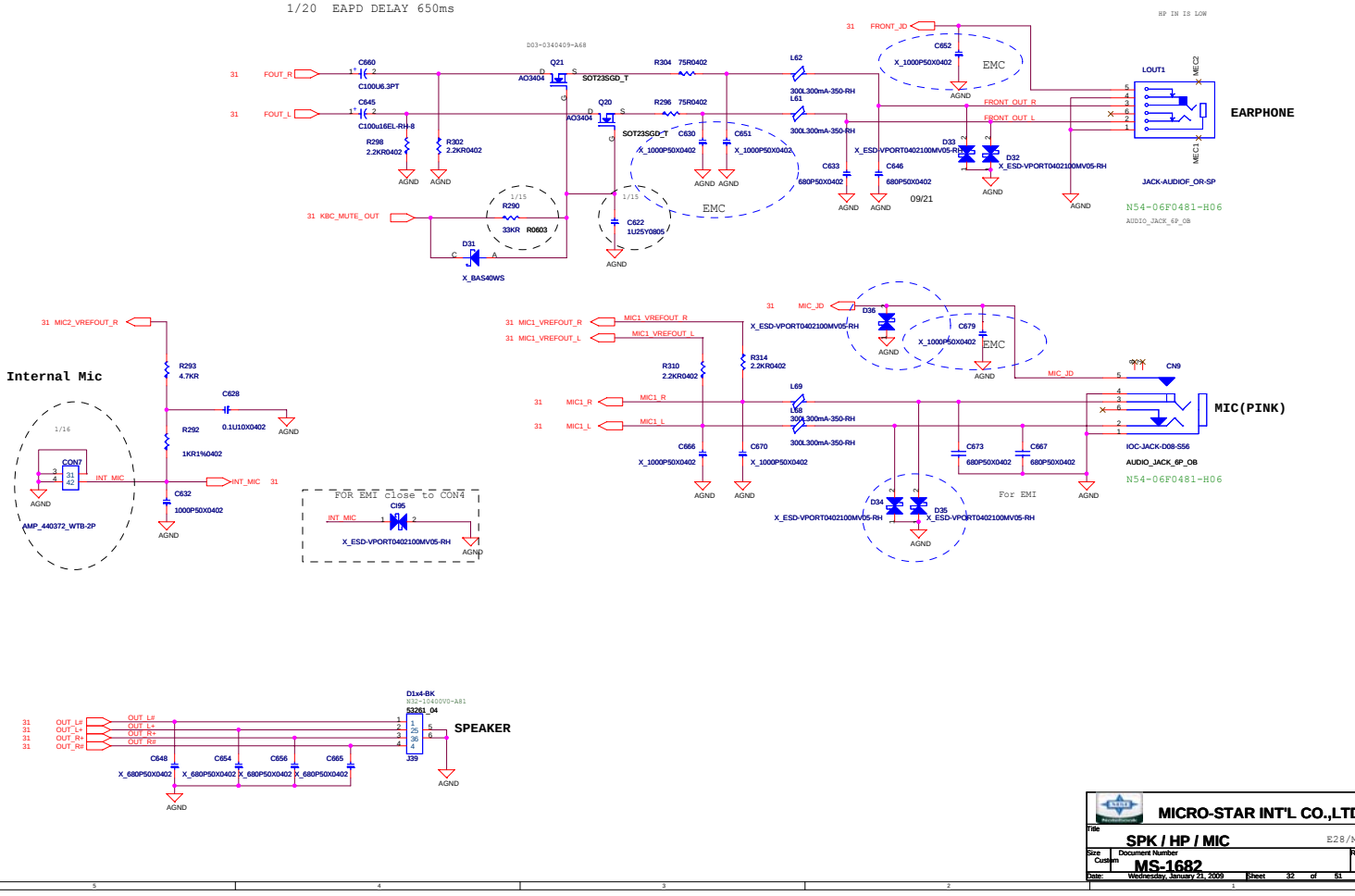
1/20 EAPD DELAY 650ms
HP IN IS LOW
EARPHONE
Internal Mic
MIC(PINK)
SPEAKER
EMC
FOR EMI close to CON4
For EMI
09/21
N54-06F0481-H06
MICRO-STAR INT'L CO.,LTD.
SPK / HP / MIC
E28/M0
MS-1682
Wednesday, January 21, 2009
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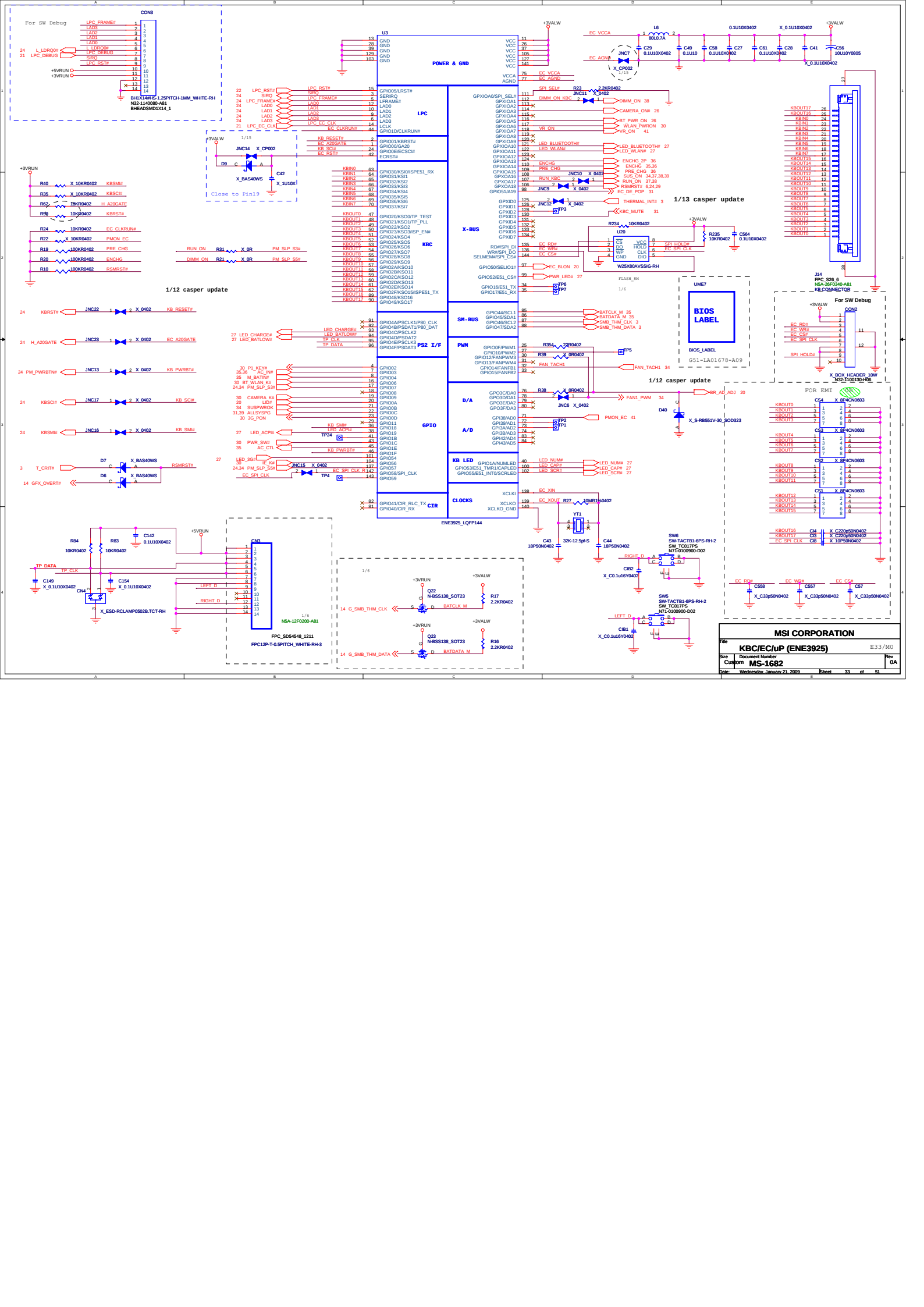
CON3
For SW Debug
LPC_FRAME#
LAD3
LAD2
LAD1
LAD0
L_LDRQ0#
LPC_DEBUG
SIRQ
LPC_RST#
+5VRUN
+3VRUN
BH12X14H-C-1.25PITCH-1MM_WHITE-RH
N32-1140080-A81
BHEADSMD1X14_1
U3
POWER & GND
GND
VCC
LPC
PS2 I/F
SM-BUS
PWM
D/A
A/D
KB LED
GPIO
CIR
CLOCKS
X-BUS
KBC
ENE3925_LQFP144
1/12 casper update
1/13 casper update
1/15
Close to Pin19
JNC14
X_CP002
D9
X_BAS40WS
C42
X_1U10X
KB_RESET#
EC_A20GATE
KB_SCI#
EC_RST#
KBIN0
KBIN1
KBIN2
KBIN3
KBIN4
KBIN5
KBIN6
KBIN7
KBOUT0
KBOUT1
KBOUT2
KBOUT3
KBOUT4
KBOUT5
KBOUT6
KBOUT7
KBOUT8
KBOUT9
KBOUT10
KBOUT11
KBOUT12
KBOUT13
KBOUT14
KBOUT15
KBOUT16
KBOUT17
R40
R35
R62
R59
R24
R22
R19
R20
R10
X_10KR0402
X_100KR0402
KBSMI#
KBSCI#
H_A20GATE
KBRST#
EC_CLKRUN#
PMON_EC
PRE_CHG
ENCHG
RSMRST#
RUN_ON
DIMM_ON
R31
R21
X_0R
PM_SLP_S3#
PM_SLP_S5#
JNC22
JNC23
JNC13
JNC17
JNC16
X_0402
KB_RESET#
EC_A20GATE
KB_PWRBT#
KB_SCI#
KB_SMI#
KBRST#
H_A20GATE
PM_PWRBTN#
KBSCI#
KBSMI#
30_P1_KEY#
AC_IN#
M_BATIN#
BT_WLAN_K#
PM_SLP_S3#
CAMERA_K#
LID#
SUSPWROK
ALLSYSPG
3G_PON
LED_ACPI#
PWR_SW#
AC_CTL
KB_PWRBT#
LED_3G#
IE_K#
PM_SLP_S5#
EC_SPI_CLK_R
EC_SPI_CLK
LED_CHARGE#
LED_BATLOW#
TP_DATA
KB_SMI#
D7
D6
X_BAS40WS
T_CRIT#
GFX_OVERT#
RSMRST#
TP24
TP4
JNC15
LED_CHARGE#
LED_BATLOW#
GPIO02
GPIO03
GPIO04
GPIO06
GPIO07
GPIO08
GPIO09
GPIO0A
GPIO0B
GPIO0C
GPIO0D
GPIO11
GPIO18
GPIO19
GPIO1B
GPIO1C
GPIO1E
GPIO1F
GPIO54
GPIO56
GPIO57
GPIO58/SPI_CLK
GPIO59
GPIO41/CIR_RLC_TX
GPIO40/CIR_RX
GPIO05/LRST#
SERIRQ
LFRAME#
LAD0
LAD1
LAD2
LAD3
LCLK
GPIO1D/CLKRUN#
GPIO01/KBRST#
GPIO00/GA20
GPIO0E/ECSC#
ECRST#
GPIO30/KSI0/ISPE51_RX
GPIO31/KSI1
GPIO32/KSI2
GPIO33/KSI3
GPIO34/KSI4
GPIO35/KSI5
GPIO36/KSI6
GPIO37/KSI7
GPIO20/KSO0/TP_TEST
GPIO21/KSO1/TP_PLL
GPIO22/KSO2
GPIO23/KSO3/ISP_EN#
GPIO24/KSO4
GPIO25/KSO5
GPIO26/KSO6
GPIO27/KSO7
GPIO28/KSO8
GPIO29/KSO9
GPIO2A/KSO10
GPIO2B/KSO11
GPIO2C/KSO12
GPIO2D/KSO13
GPIO2E/KSO14
GPIO2F/KSO15/ISPE51_TX
GPIO48/KSO16
GPIO49/KSO17
GPIO04A/PSCLK1/P80_CLK
GPIO04B/PSDAT1/P80_DAT
GPIO4C/PSCLK2
GPIO4D/PSDAT2
GPIO4E/PSCLK3
GPIO4F/PSDAT3
GPIO0F/PWM1
GPIO10/PWM2
GPIO12/FANPWM3
GPIO13/FANPWM4
GPIO14/FANFB1
GPIO15/FANFB2
GPIO3C/DA0
GPIO3D/DA1
GPIO3E/DA2
GPIO3F/DA3
GPI38/AD0
GPI39/AD1
GPI3A/AD2
GPI3B/AD3
GPI42/AD4
GPI43/AD5
GPIO1A/NUMLED
GPIO53/E51_TMR1/CAPLED
GPIO55/E51_INT0/SCRLED
XCLKI
XCLKO
XCLKO_GND
EC_XIN
EC_XOUT
R27
10MR1%0402
YT1
32K-12.5pf-S
C43
18P50N0402
C44
18P50N0402
GPIOXIOA0/SPI_SEL#
GPIXIOA1
GPIXIOA2
GPIXIOA3
GPIXIOA4
GPIXIOA5
GPIXIOA6
GPIXIOA7
GPIXIOA8
GPIXIOA9
GPIXIOA10
GPIXIOA11
GPIXIOA12
GPIXIOA13
GPIXIOA14
GPIXIOA15
GPIXIOA16
GPIXIOA17
GPIXIOA18
GPIOI51/A19
GPIXID0
GPIXID1
GPIXID2
GPIXID3
GPIXID4
GPIXID5
GPIXID6
GPIXID7
RD#/SPI_DI
WR#/SPI_DO
SELMEM#/SPI_CS#
GPIO50/SELIO1#
GPIO52/E51_CS#
GPIO16/E51_TX
GPIO17/E51_RX
SPI_SEL#
DIMM_ON_KBC
VR_ON
LED_BLUETOOTH#
LED_WLAN#
ENCHG
PRE_CHG
RUN_KBC
EC_RD#
EC_WR#
EC_CS#
EC_BLON
PWR_LED#
TP6
TP7
TP3
R23
2.2KR0402
JNC11
JNC10
JNC9
JNC12
DIMM_ON
CAMERA_ON#
BT_PWR_ON
WLAN_PWRON
VR_ON
LED_BLUETOOTH#
LED_WLAN#
ENCHG_2P
ENCHG_35,36
PRE_CHG
PRE_CHG_36
SUS_ON
RUN_ON
RSMRST#
EC_DE_POP
THERMAL_INT#
KBC_MUTE
R234
10KR0402
U20
W25X80AVSSIG-RH
R235
10KR0402
C564
0.1U10X0402
SPI_HOLD#
SPI_CLK
FLASH_8M
UME7
BIOS LABEL
BIOS_LABEL
G51-LA01678-A09
J14
FPC_S26_6
N5A-26F040-A81
KB CONNECTOR
For SW Debug
CON2
X_BOX_HEADER_10W
N32-1100130-HD6
BATCLK_M
BATDATA_M
SMB_THM_CLK
SMB_THM_DATA
R354
22R0402
R39
X_0R0402
FAN_TACH1
FAN_TACH1
FAN1_PWM
R38
X_0R0402
JNC6
X_0402
BR_AD_ADJ
D40
X_S-RB551V-30_SOD323
TP1
TP2
TP5
PMON_EC
LED_NUM#
LED_CAP#
LED_SCR#
EC_RD#
EC_WR#
EC_CS#
EC_SPI_CLK
FOR EMI
CS4
CS3
CS2
CS1
X_8P4CN0603
C24
C23
C8
X_C220p50N0402
X_10P50N0402
C558
C557
C57
X_C33p50N0402
SW6
SW-TACTB1-6PS-RH-2
SW_TC017PS
N71-0100900-D02
SW5
SW-TACTB1-6PS-RH-2
SW_TC017PS
N71-0100900-D02
CIB2
X_C0.1u16Y0402
CIB1
X_C0.1u16Y0402
R84
R83
10KR0402
C142
0.1U10X0402
C149
C154
X_0.1U10X0402
CN4
X_ESD-RCLAMP0502B.TCT-RH
CN3
FPC_SD54548_1211
FPC12P-T-0.5PITCH_WHITE-RH-3
N5A-12F0200-A81
LEFT_D
RIGHT_D
Q22
Q23
N-BSS138_SOT23
R17
R16
2.2KR0402
BATCLK_M
BATDATA_M
G_SMB_THM_CLK
G_SMB_THM_DATA
MSI CORPORATION
KBC/EC/uP (ENE3925)
E33/M0
MS-1682
Custom
0A
Wednesday, January 21, 2009
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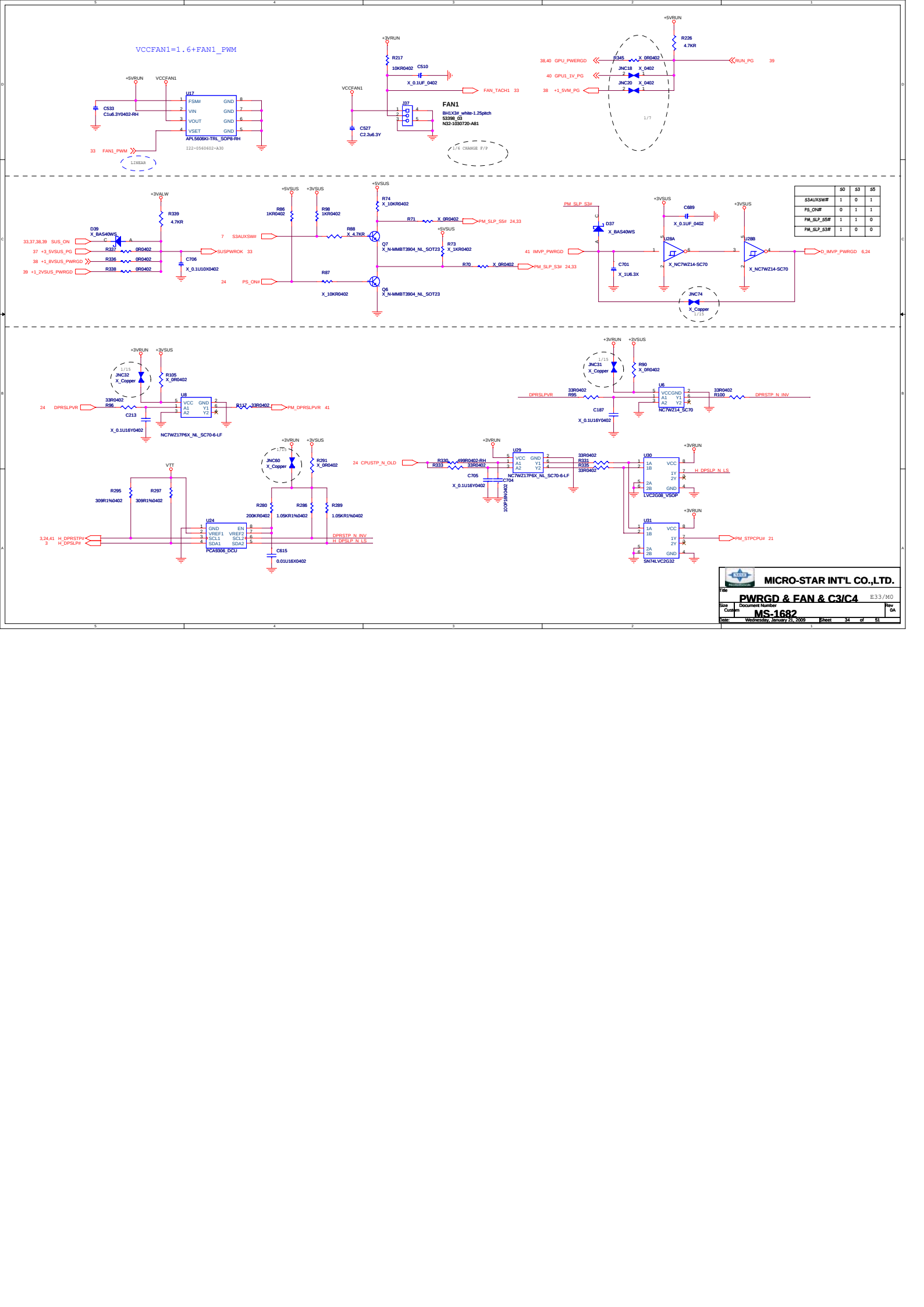
51



Title	MICRO-STAR INT'L CO.,LTD.
	PWRGD & FAN & C3/C4 E33/M0
Size: Custom	Document Number: MS-1682
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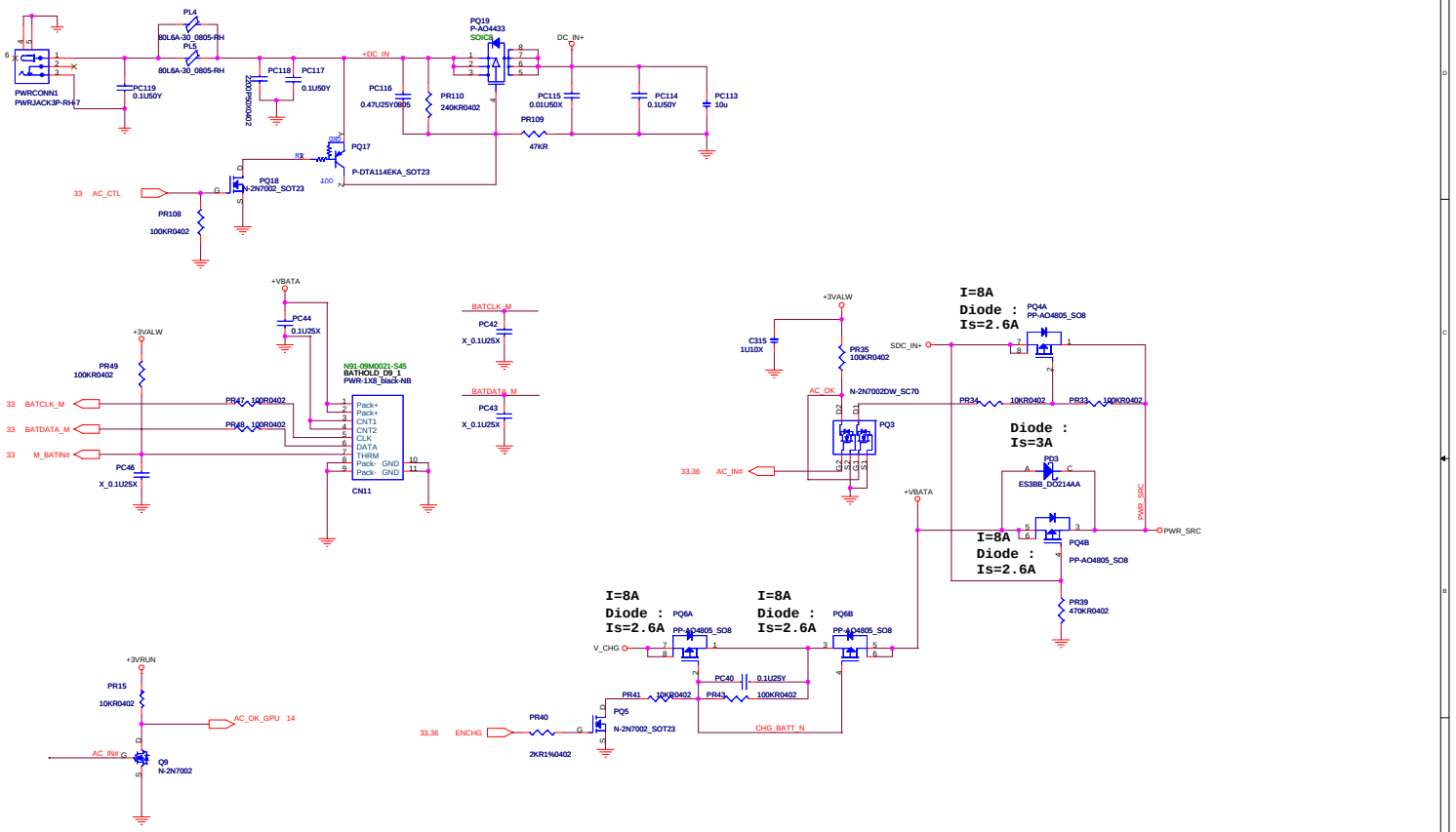
Date: Wednesday, January 21, 2009	Sheet 34 of 51

N92-03M0351-AF2



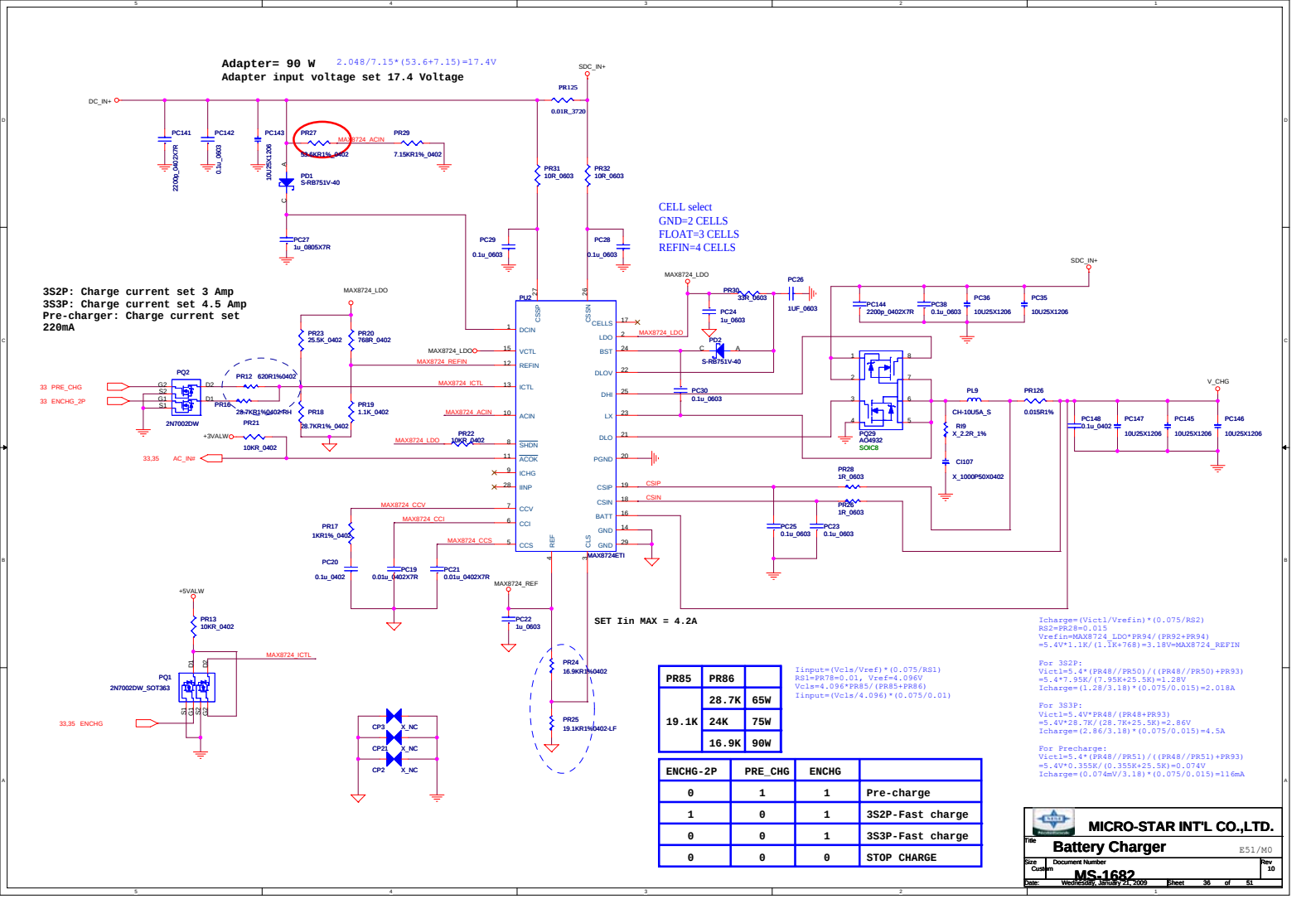
MICRO-STAR INT'L CO.,LTD.

Title: Battery select

E39/M0

Size: Custom | Document Number: MS-1682 | Rev: 10

Date: Wednesday, January 21, 2009 | Sheet 35 of 51



PR85	PR86	
19.1K	28.7K	65W
	24K	75W
	16.9K	90W

Iinput=(Vcls/Vref)*(0.075/RS1)
RS1=PR78=0.01, Vref=4.096V
Vcls=4.096*PR85/(PR85+PR86)
Iinput=(Vcls/4.096)*(0.075/0.01)

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

Icharge=(Victl/Vrefin)*(0.075/RS2)
RS2=PR28=0.015
Vrefin=MAX8724_LDO*PR94/(PR92+PR94)
=5.4V*1.1K/(1.1K+768)=3.18V=MAX8724_REFIN

For 3S2P:
Victl=5.4*(PR48//PR50)/((PR48//PR50)+PR93)
=5.4*7.95K/(7.95K+25.5K)=1.28V
Icharge=(1.28/3.18)*(0.075/0.015)=2.018A

For 3S3P:
Victl=5.4V*PR48/(PR48+PR93)
=5.4V*28.7K/(28.7K+25.5K)=2.86V
Icharge=(2.86/3.18)*(0.075/0.015)=4.5A

For Precharge:
Victl=5.4*(PR48//PR51)/((PR48//PR51)+PR93)
=5.4V*0.355K/(0.355K+25.5K)=0.074V
Icharge=(0.074mV/3.18)*(0.075/0.015)=116mA

Title	Battery Charger		E51/M0
Size: Custom	Document Number: MS-1682		Rev: 10
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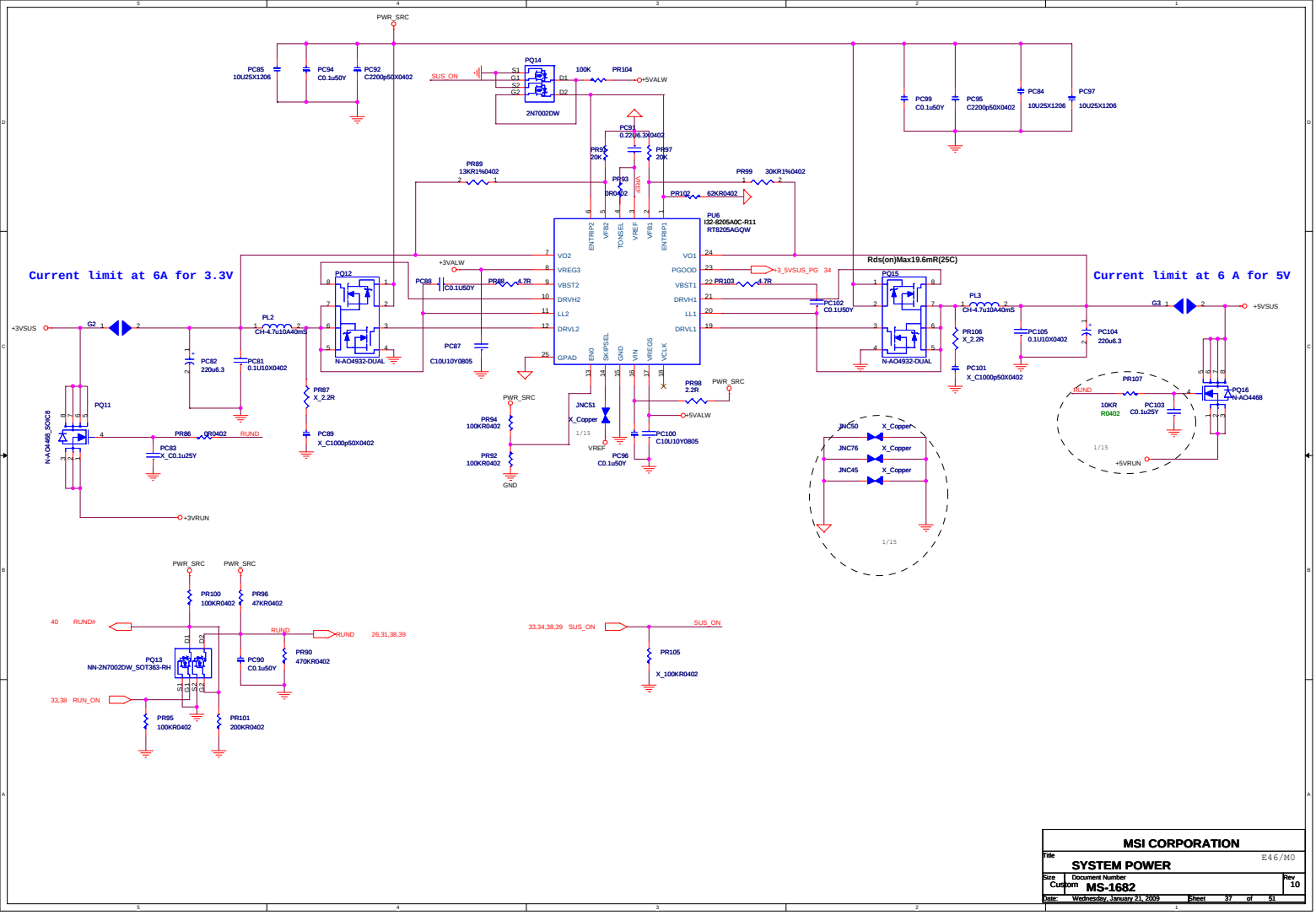
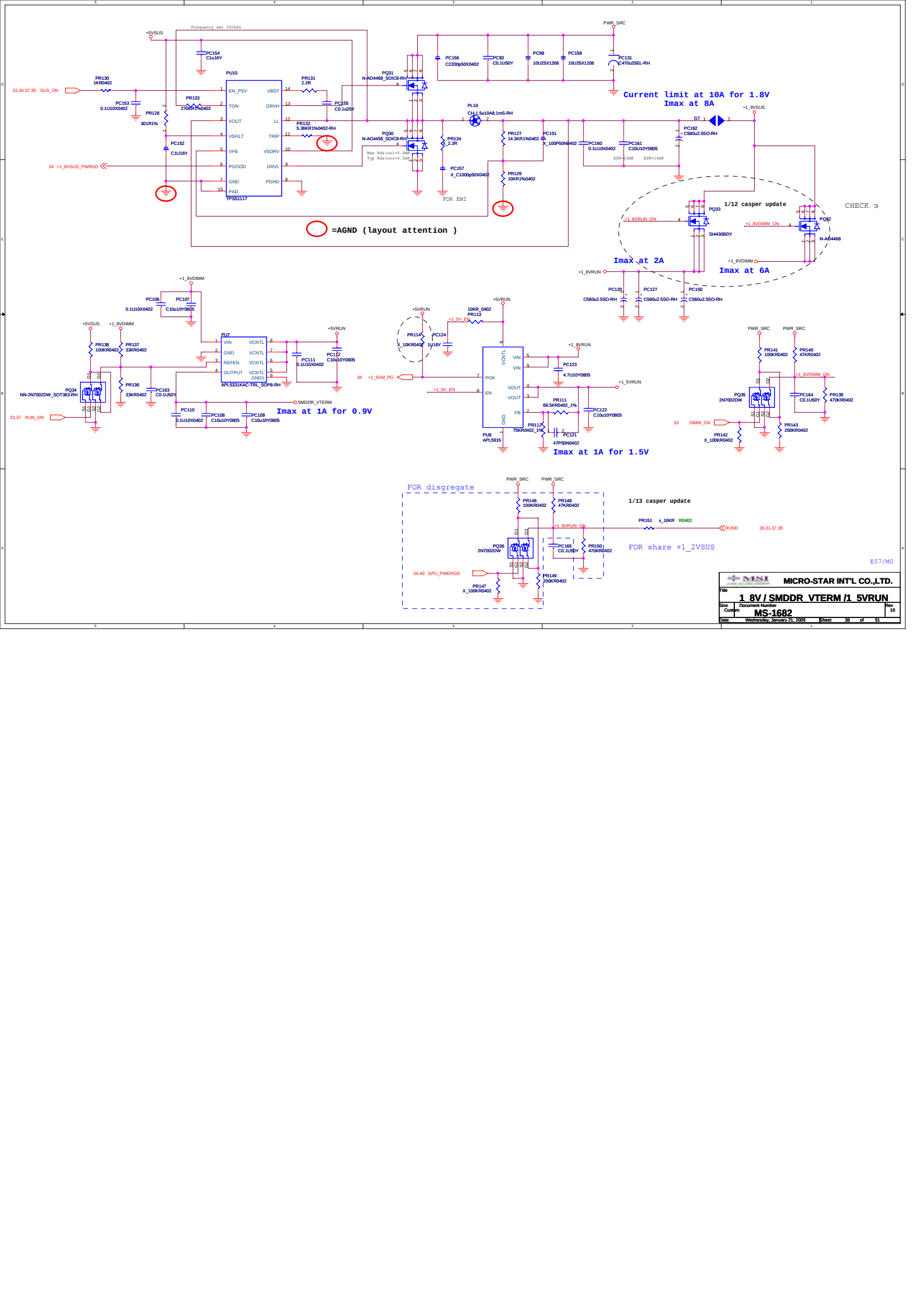


MSI CORPORATION			
Title: **SYSTEM POWER**			E46/M0
Size: Custom	Document Number: **MS-1682**		Rev: 10
Date: Wednesday, January 21, 2009	Sheet 37 of 51		


Frequency set 300kHz
+5VSUS
PC154 C1u16Y
PU10
TPS51117
EN_PSV
TON
VOUT
V5FILT
VFB
PGOOD
GND
PAD
VBST
DRVH
LL
TRIP
V5DRV
DRVL
PGND
PR130 1KR0402
33,34,37,39 SUS_ON
PC153 0.1U10X0402
PR128 301R1%
PR133 270KR1%0402
PC152 C1U16Y
34 +1_8VSUS_PWRGD
PR131 2.2R
PC155 C0.1u25V
PR132 5.36KR1%0402-RH
PQ31 N-AO4468_SOIC8-RH
PQ30 N-AO4456_SOIC8-RH
Max Rds(on)=5.6mR
Typ Rds(on)=4.5mR
PC156 C2200p50X0402
PC99 C0.1U50Y
PC98 10U25X1206
PC158 10U25X1206
PWR_SRC
PC131 C470u25EL-RH
PL10 CH-1.5u10A8.1mS-RH
PR134 2.2R
PC157 X_C1000p50X0402
FOR EMI
PR127 14.3KR1%0402
PC151 X_100P50N0402
PR129 10KR1%0402
PC160 0.1U10X0402
PC161 C10U10Y0805
ESR=0.6mR
ESR=1mR
Current limit at 10A for 1.8V
Imax at 8A
+1_8VSUS
G7
PC162 C560u2.5SO-RH
=AGND (layout attention)
1/12 casper update
CHECK
PQ33
SI4430BDY
PQ32
N-AO4468
+1_8VRUN_ON
+1_8VDIMM_ON
+1_8VDIMM
Imax at 2A
Imax at 6A
+1_8VRUN
PC120 C560u2.5SO-RH
PC127 C560u2.5SO-RH
PC150 C560u2.5SO-RH
+1_8VDIMM
PC106 0.1U10X0402
PC107 C10u10Y0805
+5VSUS
+1_8VDIMM
PR138 100KR0402
PR137 33KR0402
PQ34 NN-2N7002DW_SOT363-RH
PR136 33KR0402
PC163 C0.1U50Y
PU7 APL5331KAC-TRL_SOP8-RH
VIN
GND
REFEN
OUTPUT
VCNTL
GND1
+5VRUN
PC111 0.1U10X0402
PC112 C10u10Y0805
PC110 0.1U10X0402
PC108 C10u10Y0805
PC109 C10u10Y0805
SMDDR_VTERM
Imax at 1A for 0.9V
33,37 RUN_ON
+5VRUN
10KR_0402 PR113
+1_5V_EN
PR114 X_10KR0402
PC124 1U16Y
34 +1_5VM_PG
PU8 APL5915
VCNTL
VIN
POK
EN
VOUT
FB
GND
+1_8VRUN
PC123 4.7U10Y0805
+1_5VRUN
PR111 66.5KR0402_1%
PC122 C10u10Y0805
PR112 75KR0402_1%
PC121 47P50N0402
Imax at 1A for 1.5V
PWR_SRC
PR141 100KR0402
PR140 47KR0402
+1_8VDIMM_ON
PQ35 2N7002DW
PC164 C0.1U50Y
PR139 470KR0402
33 DIMM_ON
PR142 X_100KR0402
PR143 200KR0402
FOR disgregate
PR146 100KR0402
PR148 47KR0402
1/13 casper update
PR151 x_10KR R0402
+1_8VRUN_ON
RUND
26,31,37,39
PQ36 2N7002DW
PC165 C0.1U50Y
PR150 470KR0402
FOR share +1_2VSUS
34,40 GPU_PWERGD
PR147 X_100KR0402
PR149 200KR0402
E57/M0
MSI
MICRO-STAR INT'L CO.,LTD.
Title
1_8V / SMDDR_VTERM /1_5VRUN
Size
Custom
Document Number
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Rev
10
Date:
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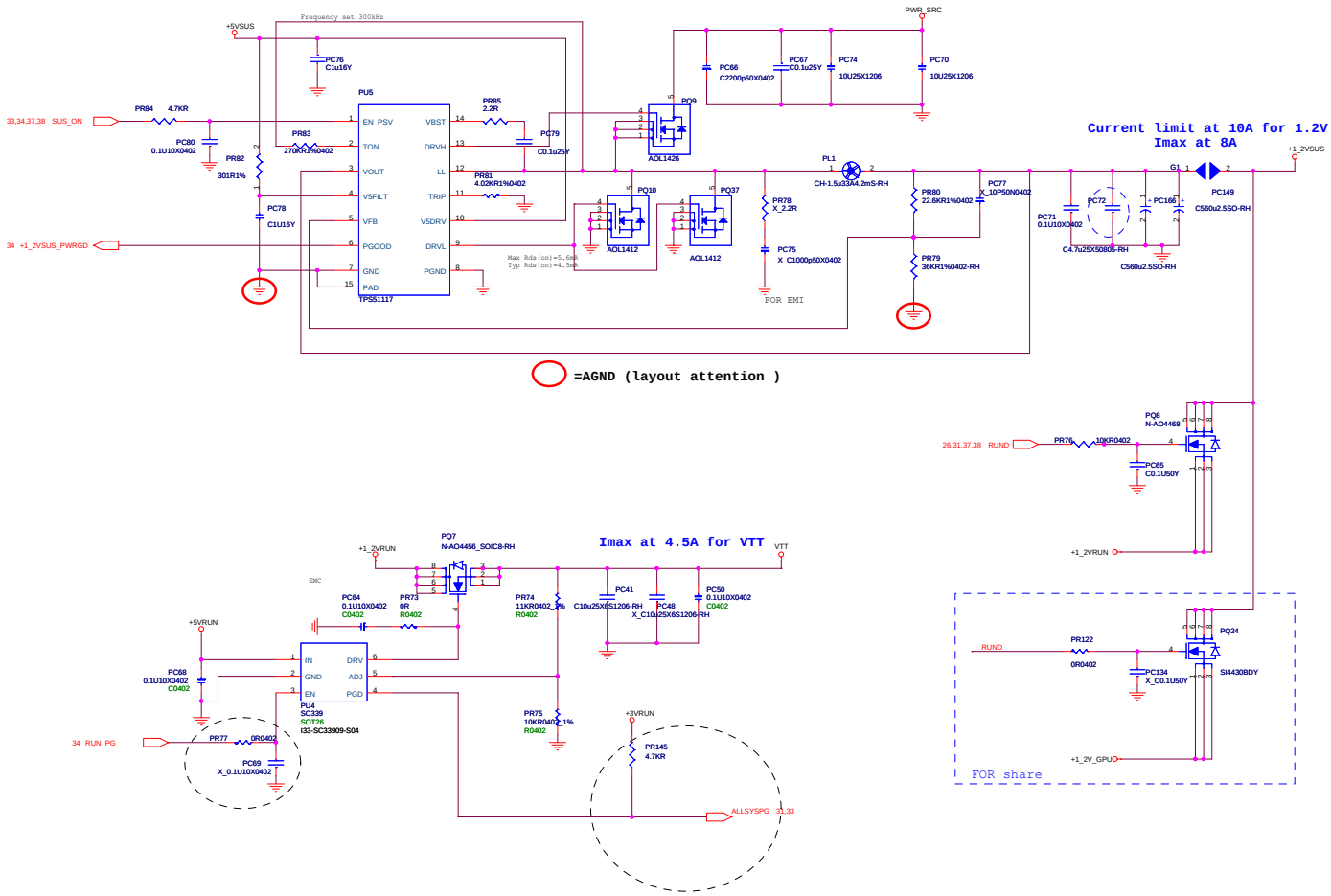

MSI Stand For Your Passion	MICRO-STAR INT'L CO.,LTD.		
Title: 1.2V & VTT		E38/M0	
Size: Custom	Document Number: MS-1682		Rev: 10
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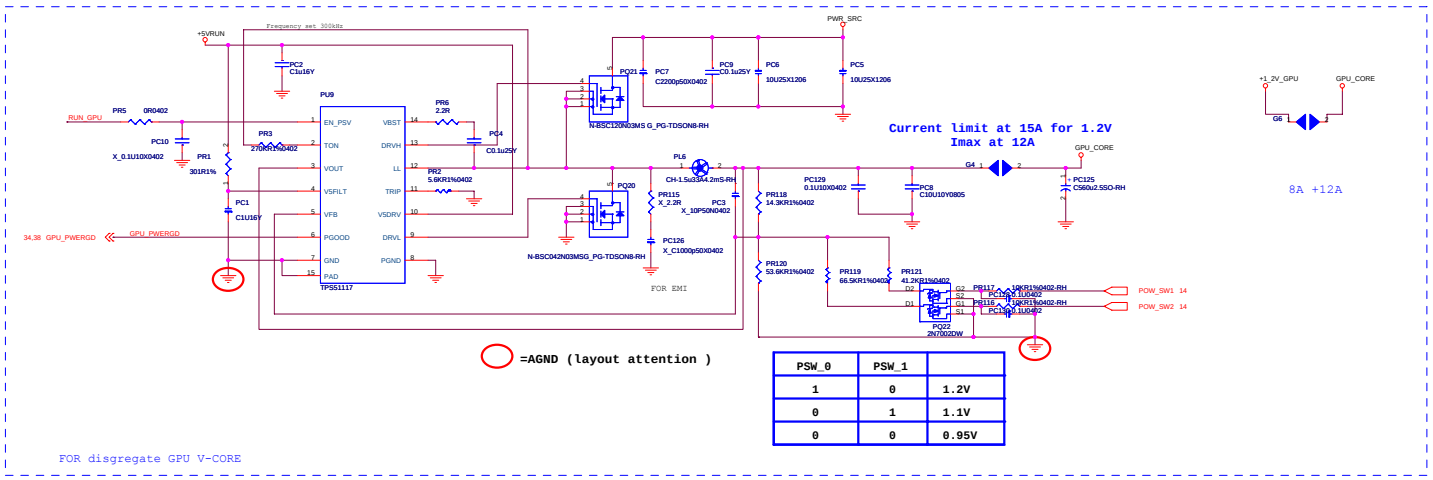
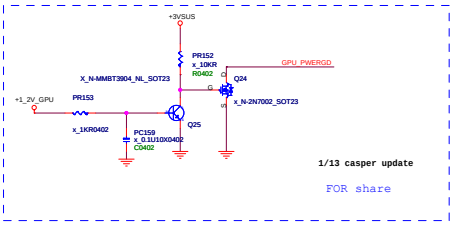
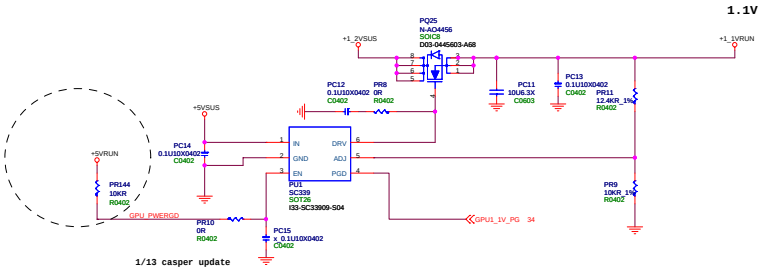


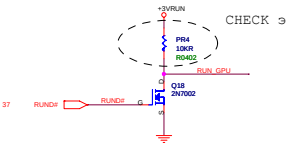
PSW_0	PSW_1	
1	0	1.2V
0	1	1.1V
0	0	0.95V

FOR disgregate GPU V-CORE

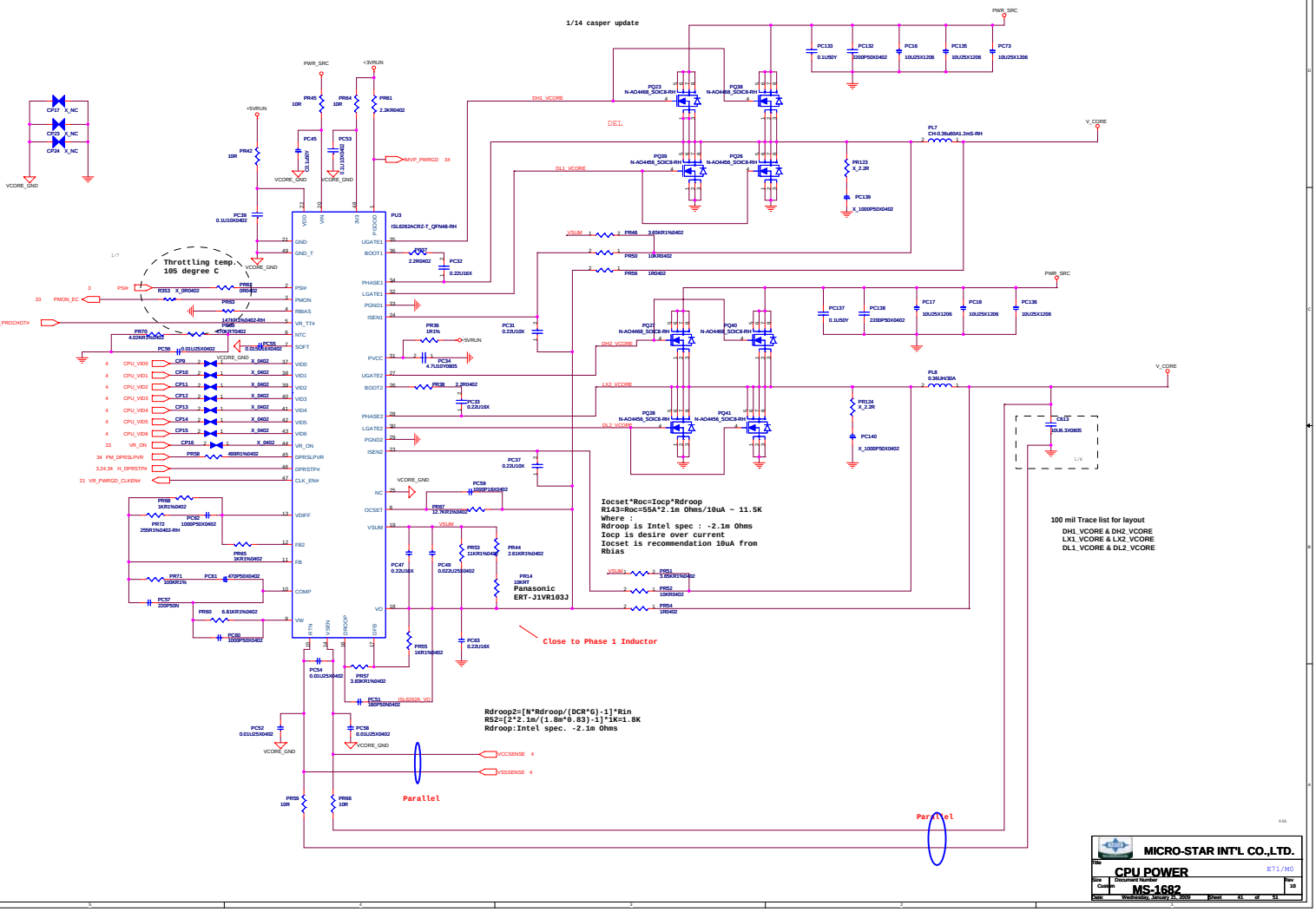


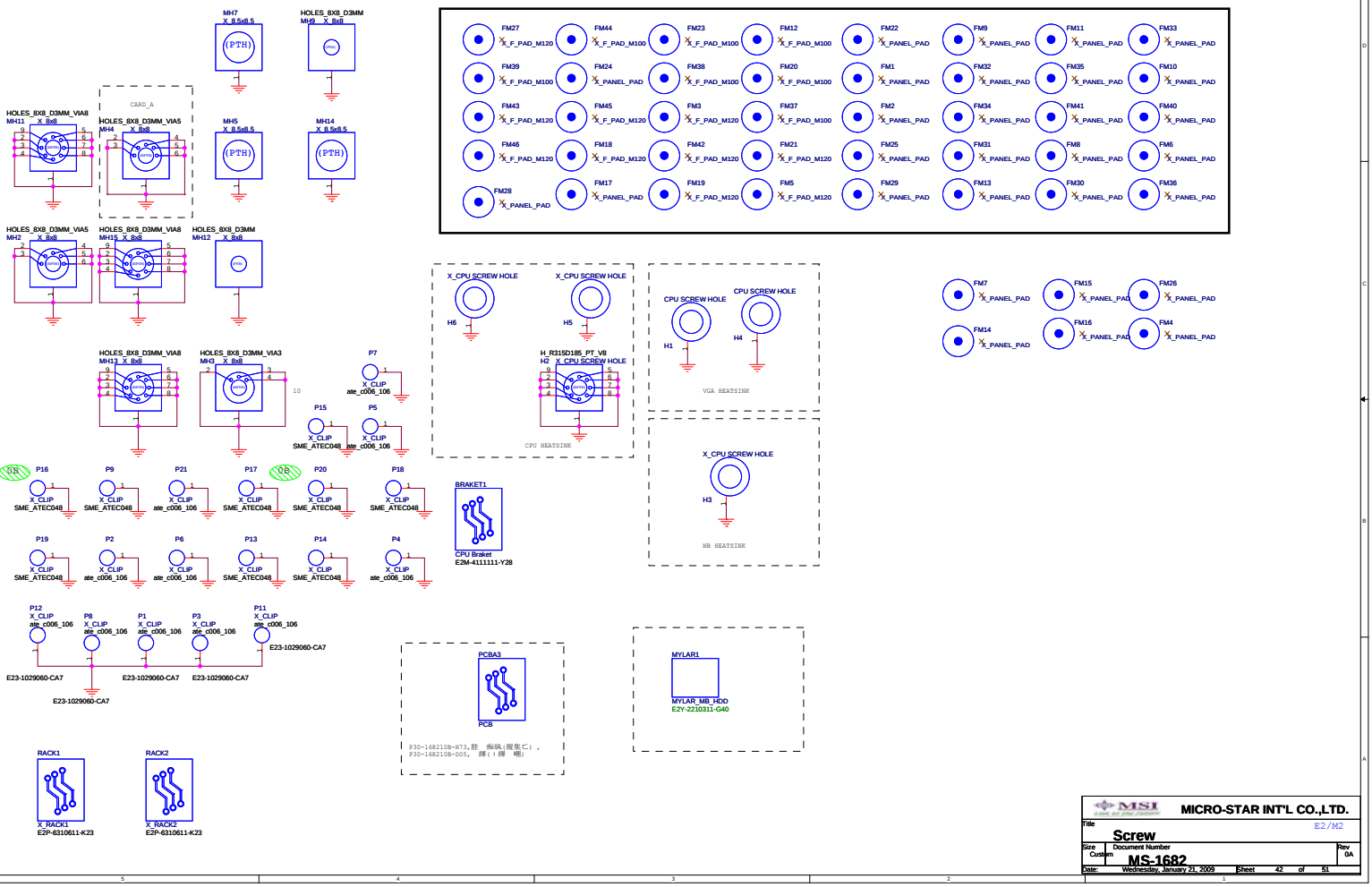
1.1V





Title	<Title>	E41/M0
Size C	Document Number MS-1682	Rev <RevCode>
Date: Wednesday, January 21, 2009	Sheet 40 of 51	


1/14 casper update
Throttling temp.
105 degree C
ISL6262ACR2-T_QFN48-RH
Iocset*Roc=Iocp*Rdroop
R143=Roc=55A*2.1m Ohms/10uA ~ 11.5K
Where :
Rdroop is Intel spec : -2.1m Ohms
Iocp is desire over current
Iocset is recommendation 10uA from Rbias
100 mil Trace list for layout
DH1_VCORE & DH2_VCORE
LX1_VCORE & LX2_VCORE
DL1_VCORE & DL2_VCORE
Panasonic
ERT-J1VR103J
Close to Phase 1 Inductor
Rdroop2=[N*Rdroop/(DCR*G)-1]*Rin
RS2=[2*2.1m/(1.0m*0.83)-1]*1K=1.8K
Rdroop:Intel spec. -2.1m Ohms
Parallel
Parallel
MICRO-STAR INT'L CO.,LTD.
CPU POWER
MS-1682



MICRO-STAR INT'L CO.,LTD.

Title: Screw

E2/M2

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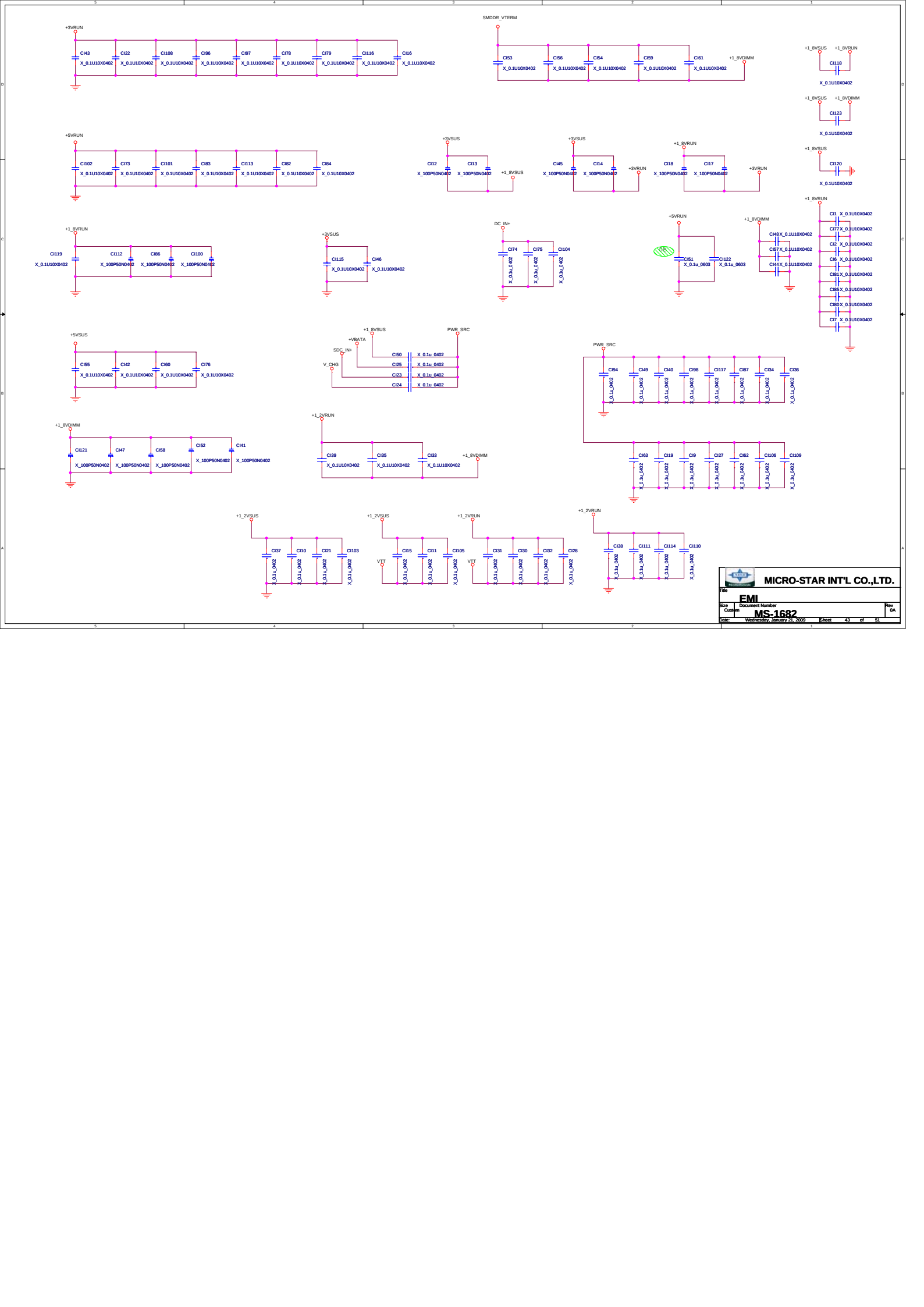
+3VRUN
C143 X_0.1U10X0402
C122 X_0.1U10X0402
C1108 X_0.1U10X0402
C196 X_0.1U10X0402
C197 X_0.1U10X0402
C178 X_0.1U10X0402
C179 X_0.1U10X0402
C1116 X_0.1U10X0402
C116 X_0.1U10X0402
SMDDR_VTERM
C153 X_0.1U10X0402
C156 X_0.1U10X0402
C154 X_0.1U10X0402
C159 X_0.1U10X0402
C161 X_0.1U10X0402
+1_8VDIMM
+1_8VSUS
+1_8VRUN
C1118 X_0.1U10X0402
+1_8VDIMM
C1123 X_0.1U10X0402
+5VRUN
C1102 X_0.1U10X0402
C173 X_0.1U10X0402
C1101 X_0.1U10X0402
C183 X_0.1U10X0402
C1113 X_0.1U10X0402
C182 X_0.1U10X0402
C184 X_0.1U10X0402
+3VSUS
C112 X_100P50N0402
C113 X_100P50N0402
+1_8VSUS
+3VSUS
C145 X_100P50N0402
C114 X_100P50N0402
+3VRUN
+1_8VRUN
C118 X_100P50N0402
C117 X_100P50N0402
+3VRUN
+1_8VSUS
C1120 X_0.1U10X0402
+1_8VRUN
C1119 X_0.1U10X0402
C1112 X_100P50N0402
C186 X_100P50N0402
C1100 X_100P50N0402
+3VSUS
C1115 X_0.1U10X0402
C146 X_0.1U10X0402
DC_IN+
C174 X_0.1u_0402
C175 X_0.1u_0402
C1104 X_0.1u_0402
+5VRUN
C151 X_0.1u_0603
C1122 X_0.1u_0603
+1_8VDIMM
C148 X_0.1U10X0402
C157 X_0.1U10X0402
C144 X_0.1U10X0402
+1_8VRUN
C1 X_0.1U10X0402
C177 X_0.1U10X0402
C2 X_0.1U10X0402
C6 X_0.1U10X0402
C181 X_0.1U10X0402
C185 X_0.1U10X0402
C180 X_0.1U10X0402
C7 X_0.1U10X0402
+5VSUS
C155 X_0.1U10X0402
C142 X_0.1U10X0402
C160 X_0.1U10X0402
C176 X_0.1U10X0402
+1_8VSUS
+VBATA
SDC_IN+
V_CHG
C150 X_0.1u_0402
C125 X_0.1u_0402
C123 X_0.1u_0402
C124 X_0.1u_0402
PWR_SRC
PWR_SRC
C194 X_0.1u_0402
C149 X_0.1u_0402
C140 X_0.1u_0402
C198 X_0.1u_0402
C1117 X_0.1u_0402
C187 X_0.1u_0402
C134 X_0.1u_0402
C136 X_0.1u_0402
C163 X_0.1u_0402
C119 X_0.1u_0402
C9 X_0.1u_0402
C127 X_0.1u_0402
C162 X_0.1u_0402
C1106 X_0.1u_0402
C1109 X_0.1u_0402
+1_8VDIMM
C1121 X_100P50N0402
C147 X_100P50N0402
C158 X_100P50N0402
C152 X_100P50N0402
C141 X_100P50N0402
+1_2VRUN
C139 X_0.1U10X0402
C135 X_0.1U10X0402
C133 X_0.1U10X0402
+1_8VDIMM
+1_2VSUS
C137 X_0.1u_0402
C110 X_0.1u_0402
C121 X_0.1u_0402
C1103 X_0.1u_0402
+1_2VSUS
VTT
C115 X_0.1u_0402
C111 X_0.1u_0402
C1105 X_0.1u_0402
+1_2VRUN
VTT
C131 X_0.1u_0402
C130 X_0.1u_0402
C132 X_0.1u_0402
C128 X_0.1u_0402
+1_2VRUN
C138 X_0.1u_0402
C1111 X_0.1u_0402
C1114 X_0.1u_0402
C1110 X_0.1u_0402
MICRO-STAR INT'L CO.,LTD.
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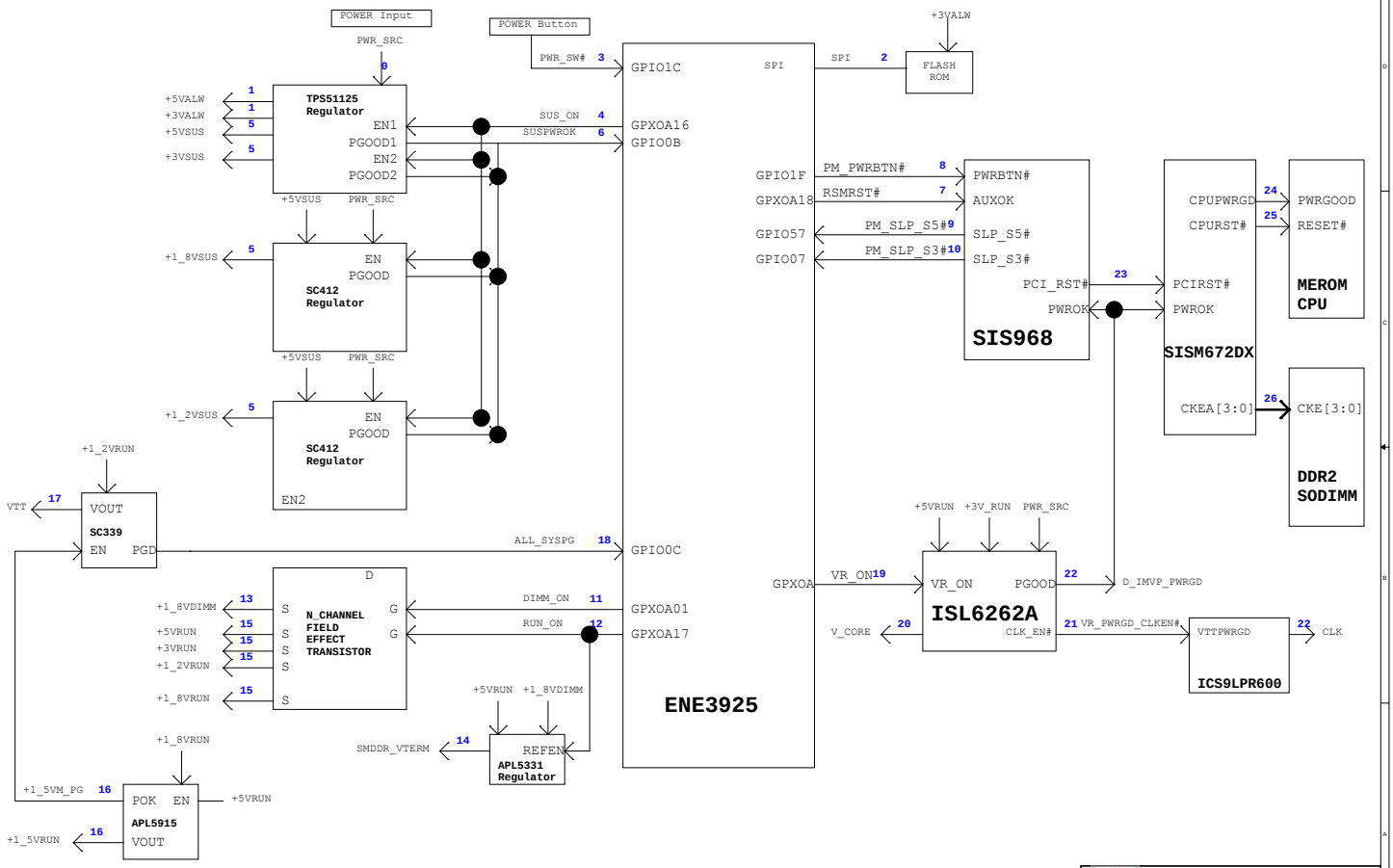
51



MICRO-STAR INT'L CO.,LTD.

Title: Power Sequency-1

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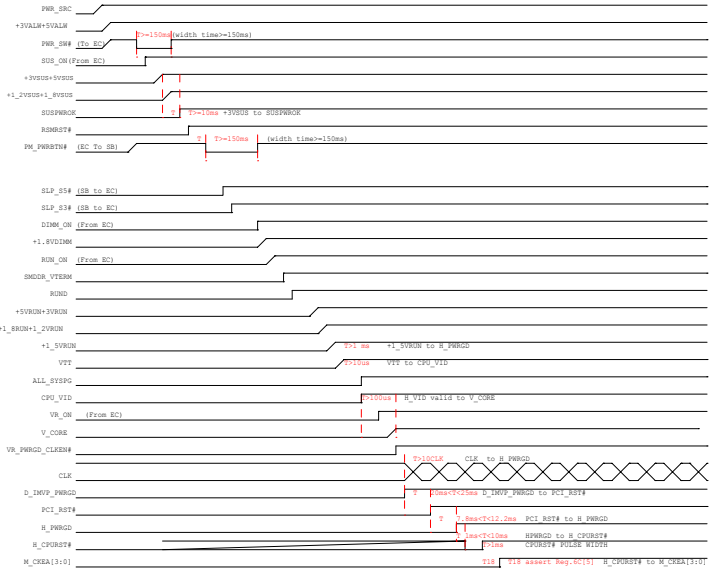
AC S5-S0

EC programming timing

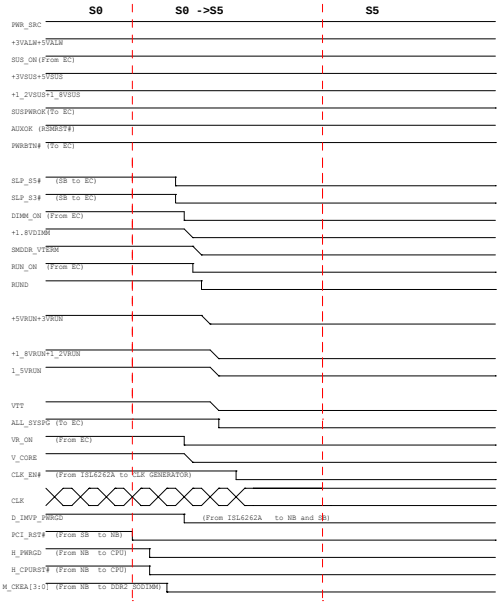
SiSM672FX + 968 timing SPEC



AC S0-S5

EC programming timing

SiSM672FX + 968 timing SPEC



MICRO-STAR INT'L CO.,LTD.

Title: Power Sequency-2

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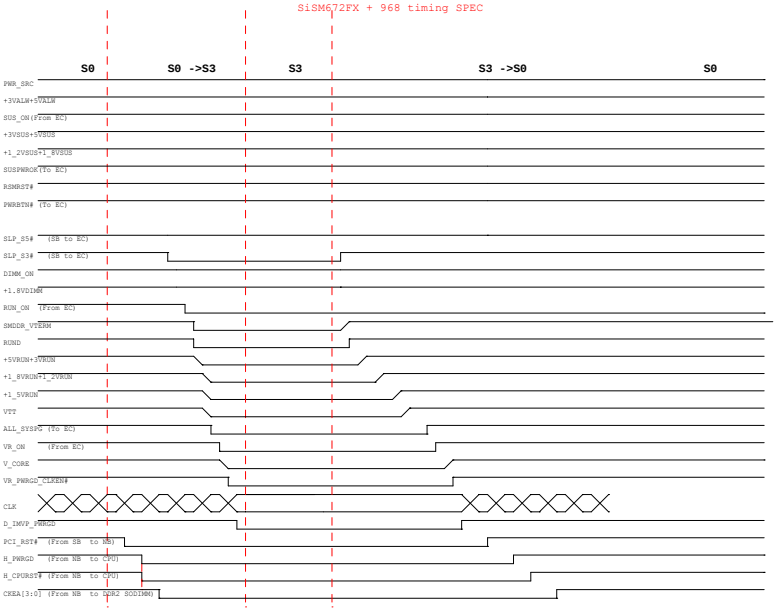
AC S0-S3-S0

EC programming timing

SiSM672FX + 968 timing SPEC



MICRO-STAR INT'L CO.,LTD.

Title: Power Sequency-2

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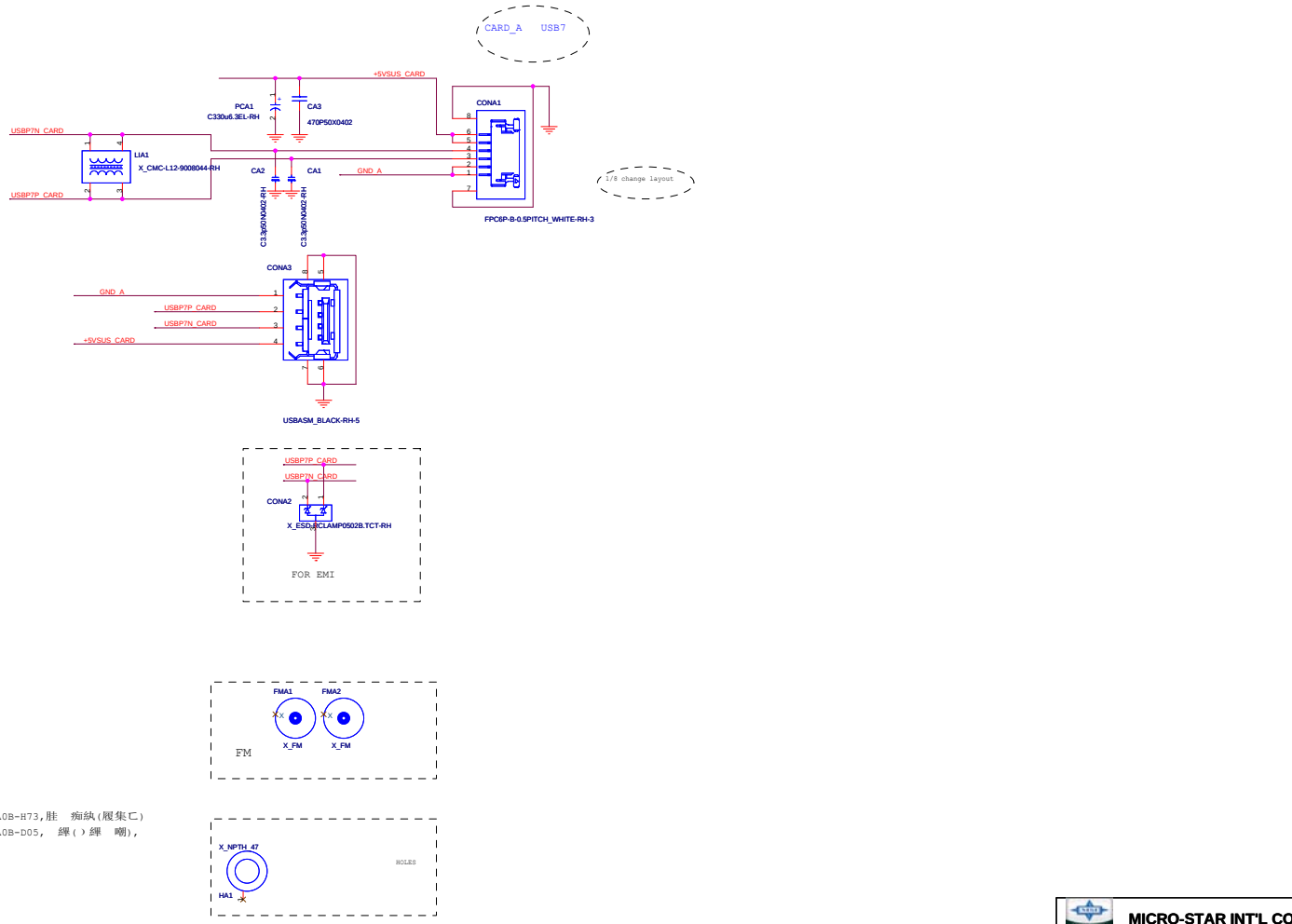

P30-1682A0B-H73,胜 痂纳(履集匚)
P30-1682A0B-D05, 缂(〉缂 嘲),

MICRO-STAR INT'L CO.,LTD.

Title: USB Board E5/M0

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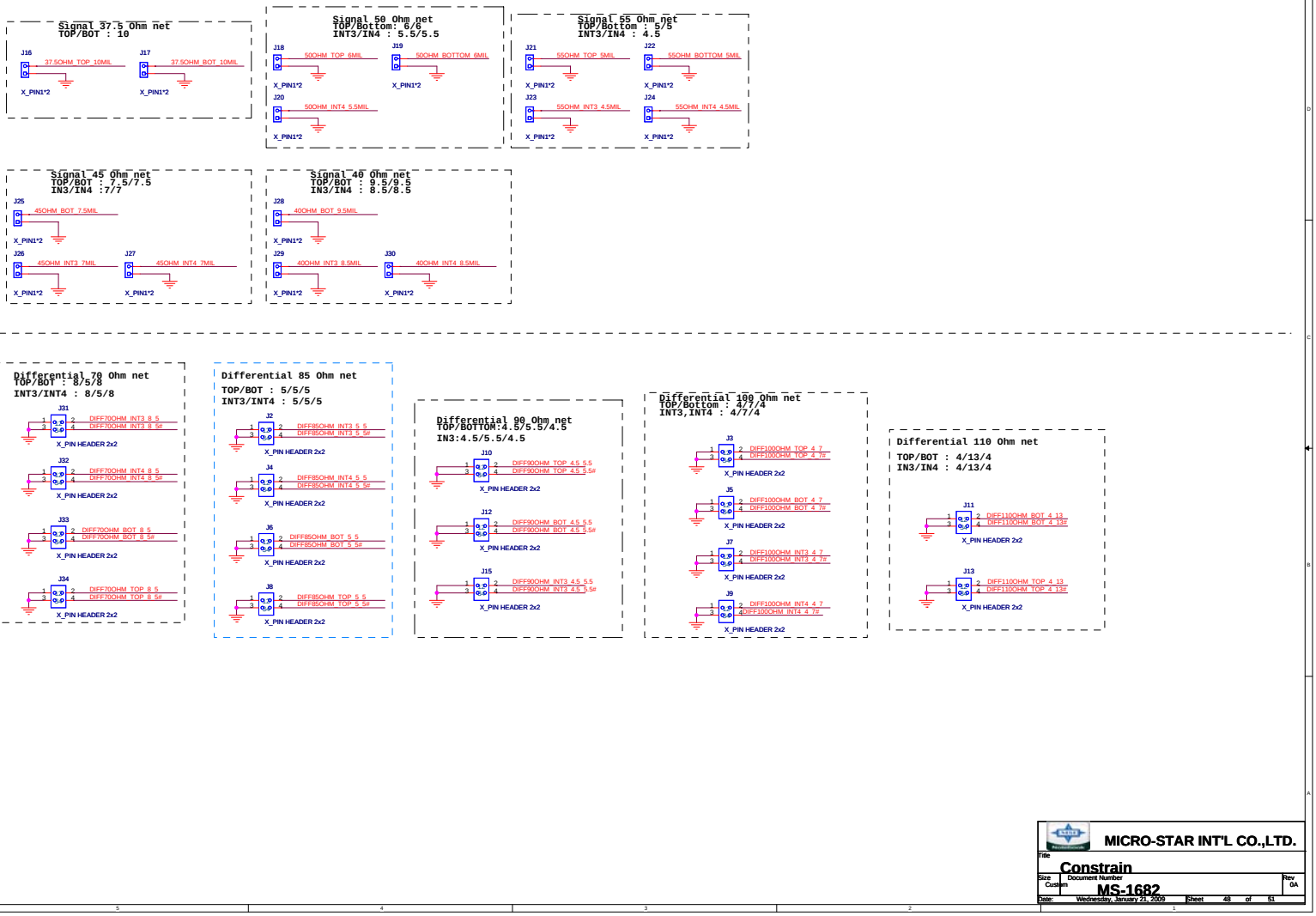

MICRO-STAR INT'L CO.,LTD.

Title: Constrain

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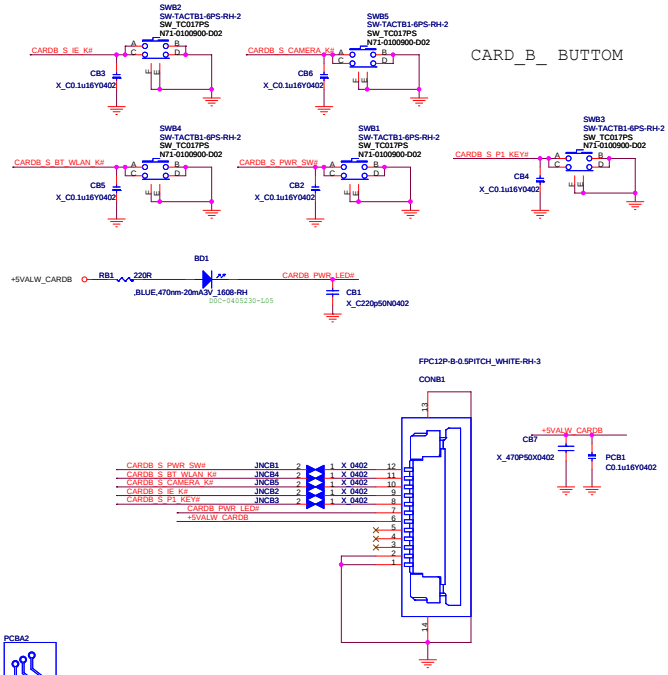
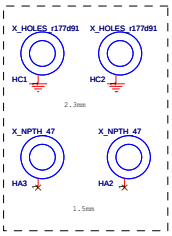


P30-1682B0B-H73,胜　痴纨(履集匚)
P30-1682B0B-D05,　绎(）绎　嗍),



MICRO-STAR INT'L CO.,LTD.

Title: Buttom Board — E10/M0

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0A -- 0B Note

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P03, C579 INSTALL by SA BUG ,R41 CHANGE F/P TO R0603
P04, C639,C623,C612,C640,C624 INSTALL X5R
P06, R322 INSTALL
P07, R177,R171 CHANGE 36R , R170,R176 CHANGE 40.2R ,JNC70,JNC75 CHANGE F/P TO NC_0603
P14, R124,R125,R301 CHANG JNC81,JNC82,JNC83 AND INSTALL , R67,R68 DEL ,ADD PR135,RN28,JNC80,R346 ,R346 CHANGE F/P TO R0603, U5 PIN 8 ,7 CHANGE NET NAME ,JNC29 &R85 CHANGE
P15, C50 INSTALL
P16, R52,R246 INSTALL ,R51,R242 DON'T INSTALL
P18, R225,R227,R13,R14 CHANGE 499R
P19, R223,R224,R12,R11 CHANGE 499R
P20, CHANGE U15 FOOTPRINT TO " SOT23_5_NPC30X " , VGA_DATA AND VGA_CLK AND "J38 : PIN 30 "CHANGE TO +3.3V_DELAY , R232,R233 ,C486,C487,C488 INSTALL
P21, RN14 PIN 2,4 SWAP PIN 6,8
P22, DEL SPI_SKET1,JNC66,JNC67,JNC71,JNC72,CON4 , R318 INSTALL, R317 DON'T INSTALL ,JNC34 ,JNC33 CHANGE F/P TO NC_0603
P23, JNC65,JNC64,JNC59,JNC56,JNC55 INSTALL by SA BUG ,R41 CHANGE F/P TO R0603
P26, CN5 CHANGE CAD, CN6 CHANGE LAYOUT AND PIN 6 TO GND
P27, DEL D1,D2, R212 CHANGE TO +5VSUS
P28, R189 CHANGE 0 Ohm AND INSTALL , CHANGE CON5 PIN 29,20,27 NET NAME, DEL R187,R186 , U12 CHANGE 5159 "B07-0515904-R09 "
P29, Y1 CHANGE F/P, U23 NET CHANGE
P30, JGPS1 DON'T INSTALL, USIM_PWR > 25 mils, DEL SW1,SW2,SW3,SW4,JNC1,2,3,4
P31, R112,D16 TO ALLSYSPG, R115,C212 NOT INSTALL, R108 INSTALL
P32, R290 CHANG TO 33K ,C622 CHANGE TO 4.7U,CON7 SWAP PIN 1 &PIN 2
P33, U20 CHANGE FOOTPRINT SIC8_SST_S2A , CN3 CHANGE NEW PN , DEL R346 TO RUN_PG, U3 PIN 113 CHANGE TO PIN 23 , U3 PIN 98 & PIN 130 SWAP,JNC8 CGANGE R38 , ADD R354 22OHM , SW5,SW6 SWAP LAYOUT, YT1 MOVE
P34, JNC19 CHANGE R345 DON'T INSTALL ,J37 CHANGE FOOT PRINT
P36, PR12 360 CHANGE 620 (R11-0621T12-R01) (ɜpre-charge current), PR16 9.31K CHANGE 28.7K(R11-2872T12-W08) (ɜ6-CELL charge current)
P37, PR107 CHANGE 10K ,INSTALL PC103
P38, ADD PQ36 TO DELAY +1_8VRUN, DEL PR135,PC159 , DON'T INSTALL PR114
P39, PU4 PIN4 TO ALLSYSPG ,PR77 CHANGE 0 Ohm, PC69 DON'T INSTALL ,PC72 10uF CHANGE 4.7uF(C11-4753014-W08) (ɜjitter)
P40, PR4 CHANGE TO 10K Ohm ,PR63 147 CHANGE 147K(R11-1473T12-Y01) ,ADD GPU_PWERGD NET WAY
P41, PR63 CHANGE TO 147K Ohm , ADD R353 DON'T INSTALL ,C613 INSTALL
P42 , H1:P30 , MH1:CHANGE TO 5020
P47 , CONA1 CHANGE LAYOUT

JNC21, JNC80 ㄛ扯
ADD PR144 TO +5VRUN 上check
ADD PR145 TO +3VRUN 上check

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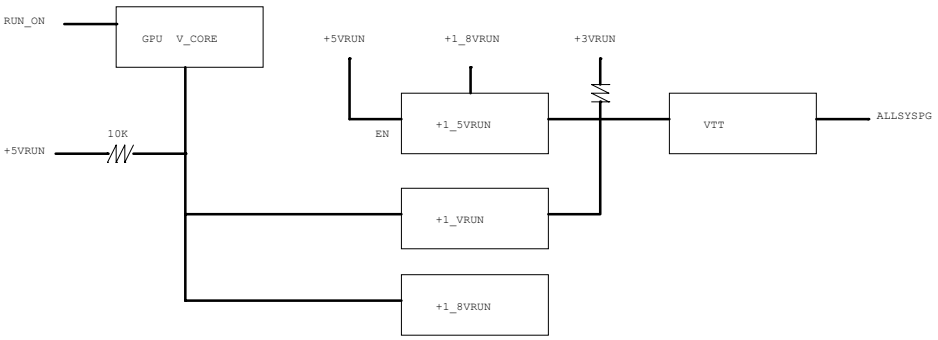

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