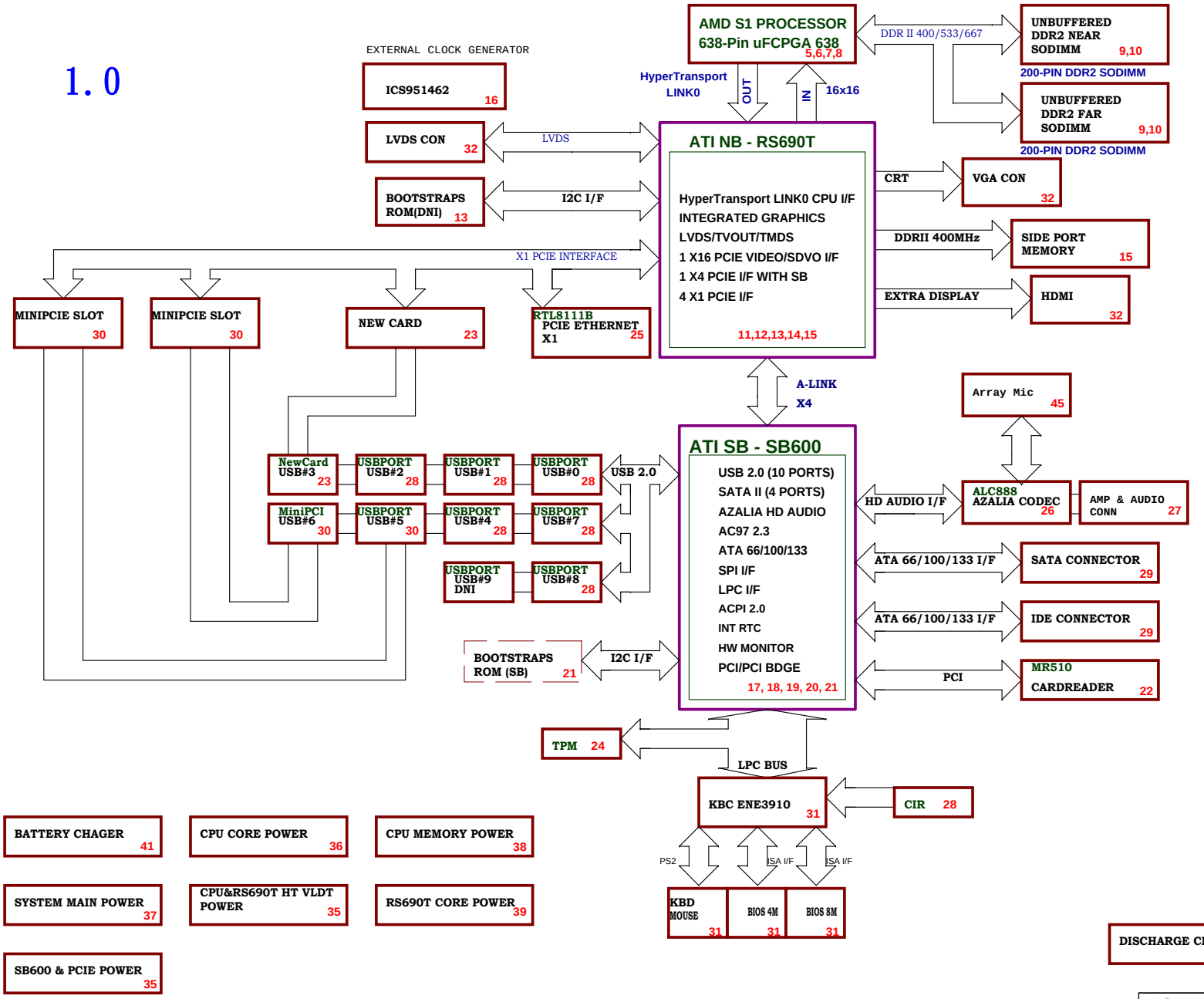
1.0

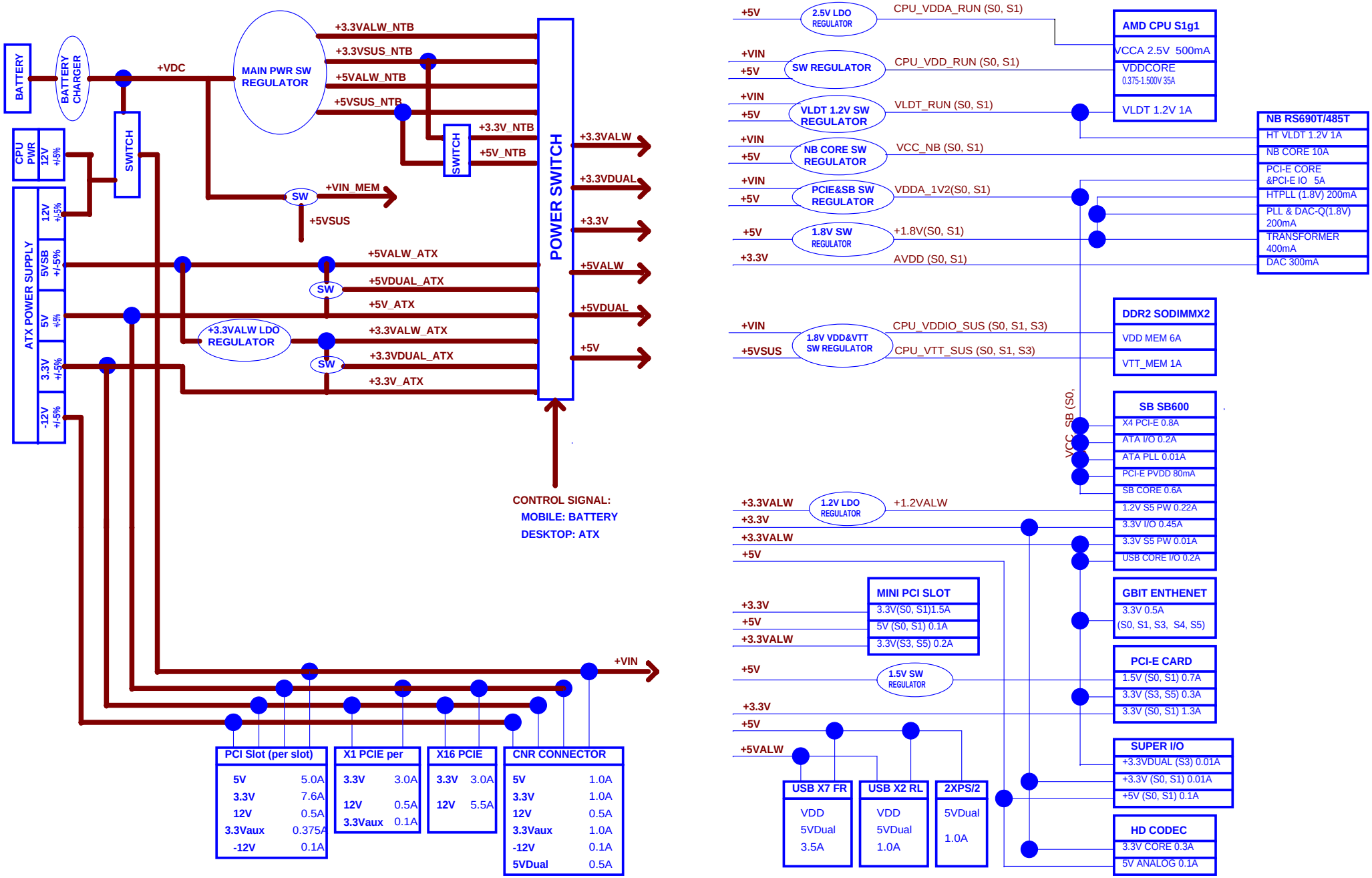


MICRO-STAR INT'L CO.,LTD.

Title: BLOCK DIAGRAM

Size: Custom | Document Number: MS-12221 | Rev: 1.0

Date: Thursday, February 01, 2007 | Sheet 1 of 45

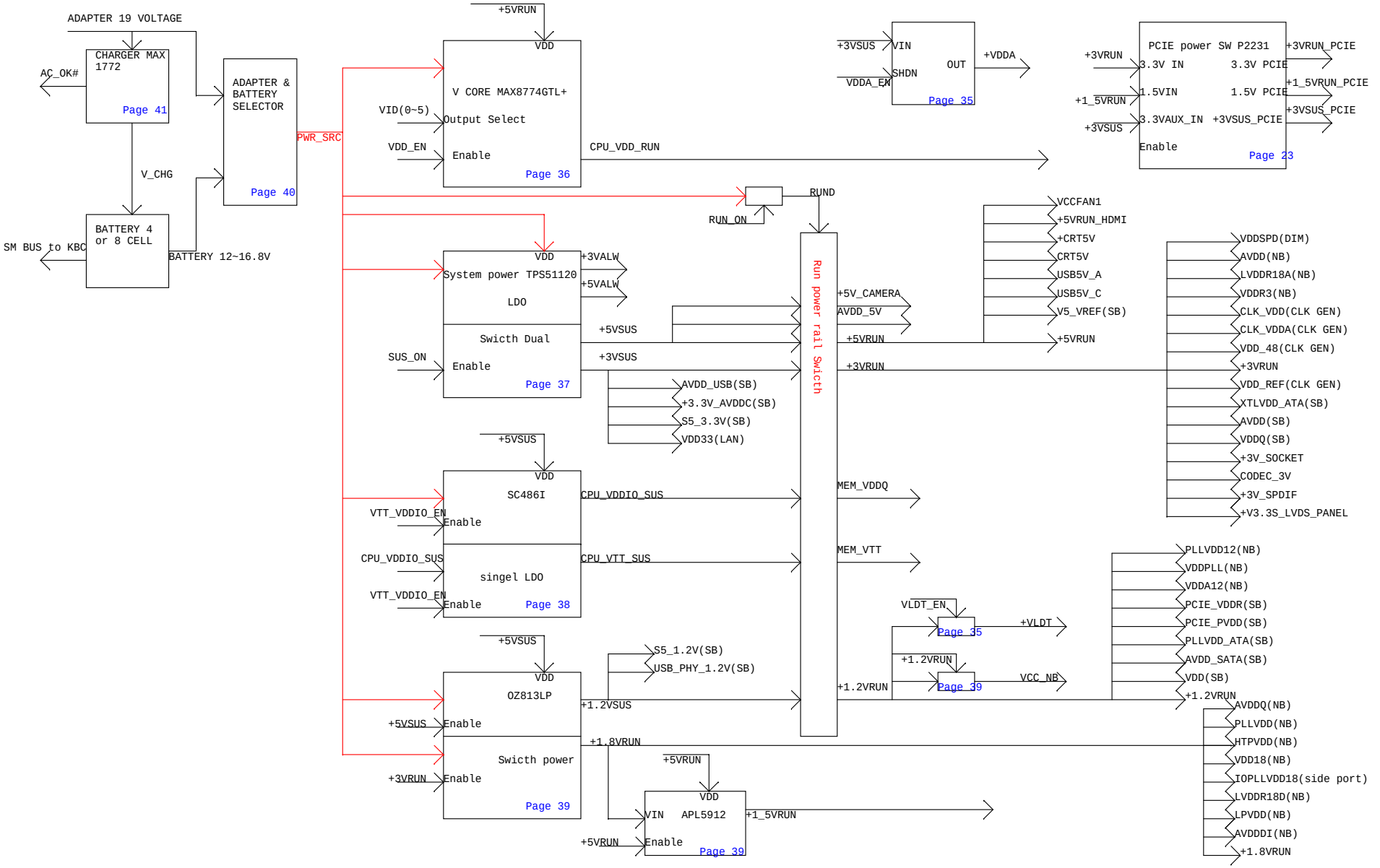


MICRO-STAR INT'L CO.,LTD.

Title: POWER DELIVERY CHART

Size: Custom | Document Number: MS-12221 | Rev: 1.0

Date: Thursday, February 01, 2007 | Sheet 2 of 45

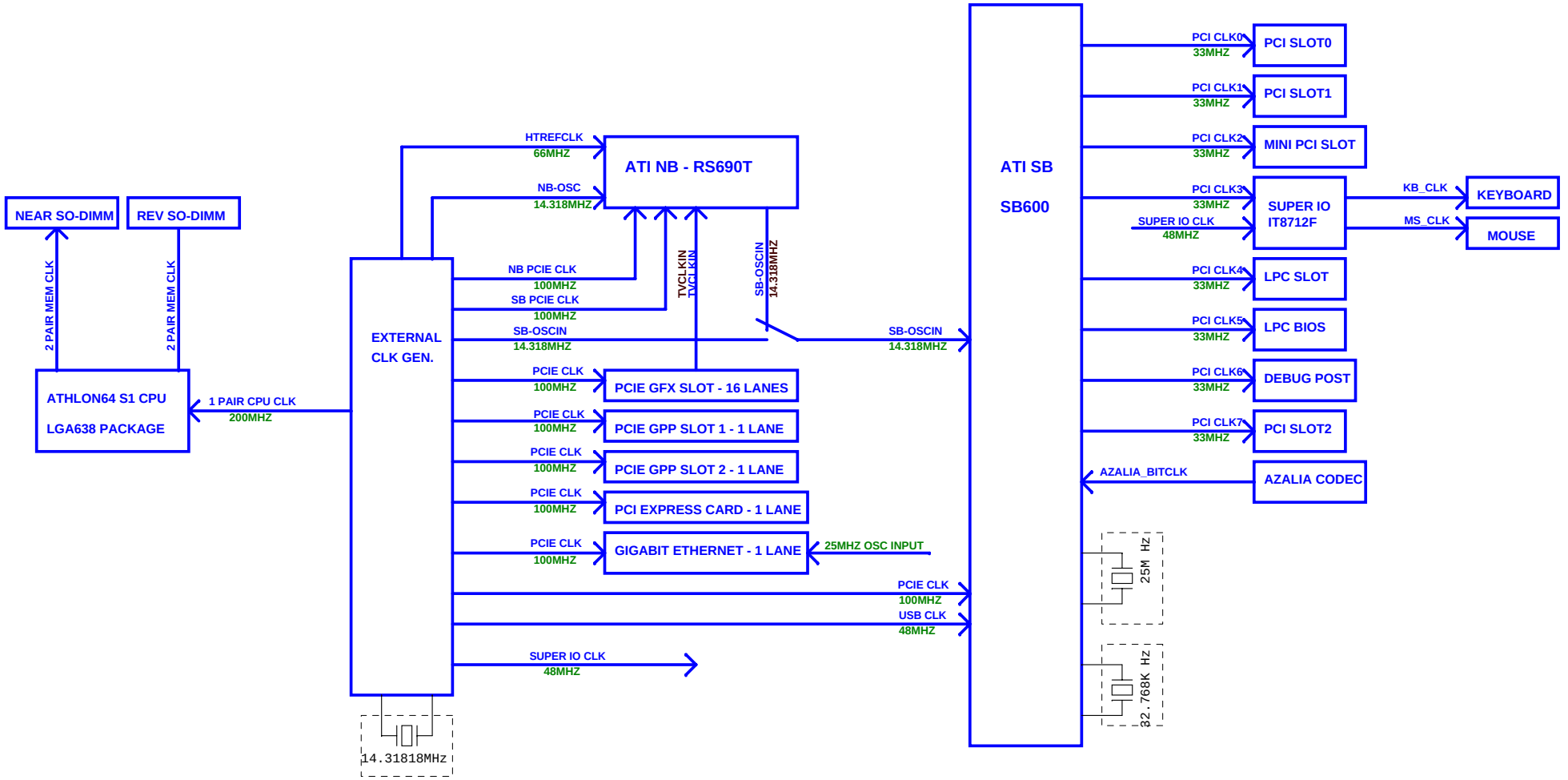


MICRO-STAR INT'L CO.,LTD.

Title: POWER DELIVERY CHART

Size: Custom | Document Number: MS-12221 | Rev: 1.0

Date: Thursday, February 01, 2007 | Sheet 3 of 45



MICRO-STAR INT'L CO.,LTD.

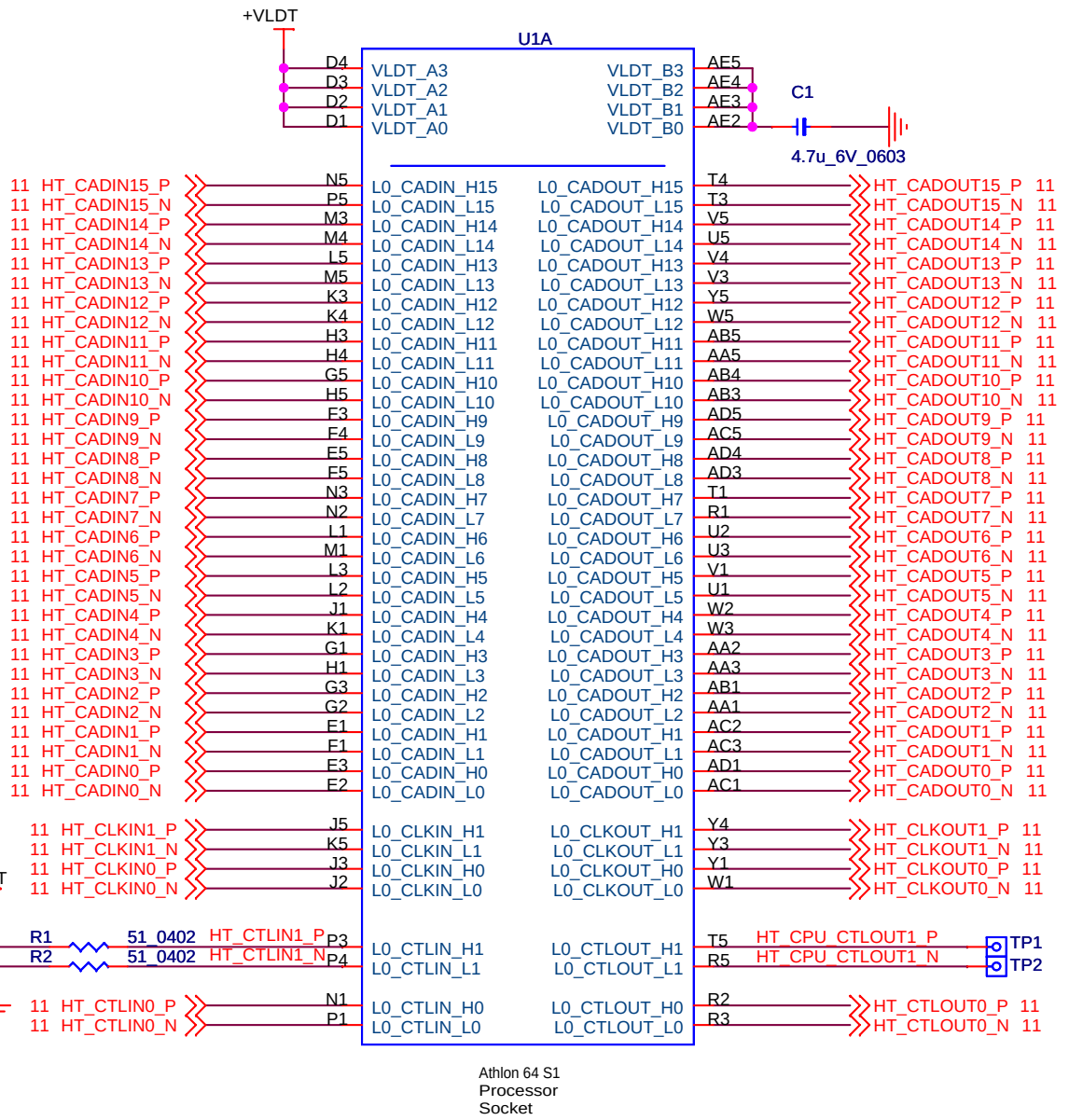
Title: CLOCK DISTRIBUTION

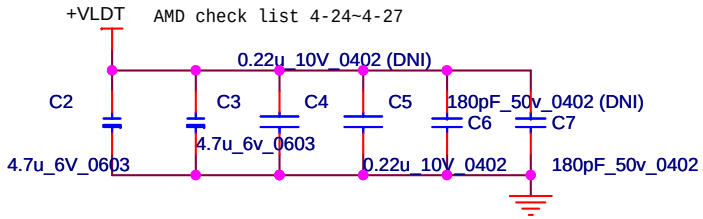
Size: Custom | Document Number: MS-12221 | Rev: 1.0

Date: Thursday, February 01, 2007 | Sheet 4 of 45

PROCESSOR HYPERTRANSPORT INTERFACE

VLDT_Ax AND VLDT_Bx ARE CONNECTED TO THE LDT_RUN POWER SUPPLY THROUGH THE PACKAGE OR ON THE DIE. IT IS ONLY CONNECTED ON THE BOARD TO DECOUPLING NEAR THE CPU PACKAGE





LAYOUT: Place bypass cap on topside of board

NEAR HT POWER PINS THAT ARE NOT CONNECTED DIRECTLY TO DOWNSTREAM HT DEVICE, BUT CONNECTED INTERNALLY TO OTHER HT POWER PINS
PLACE CLOSE TO VLDT0 POWER PINS

MICRO-STAR INT'L CO.,LTD.

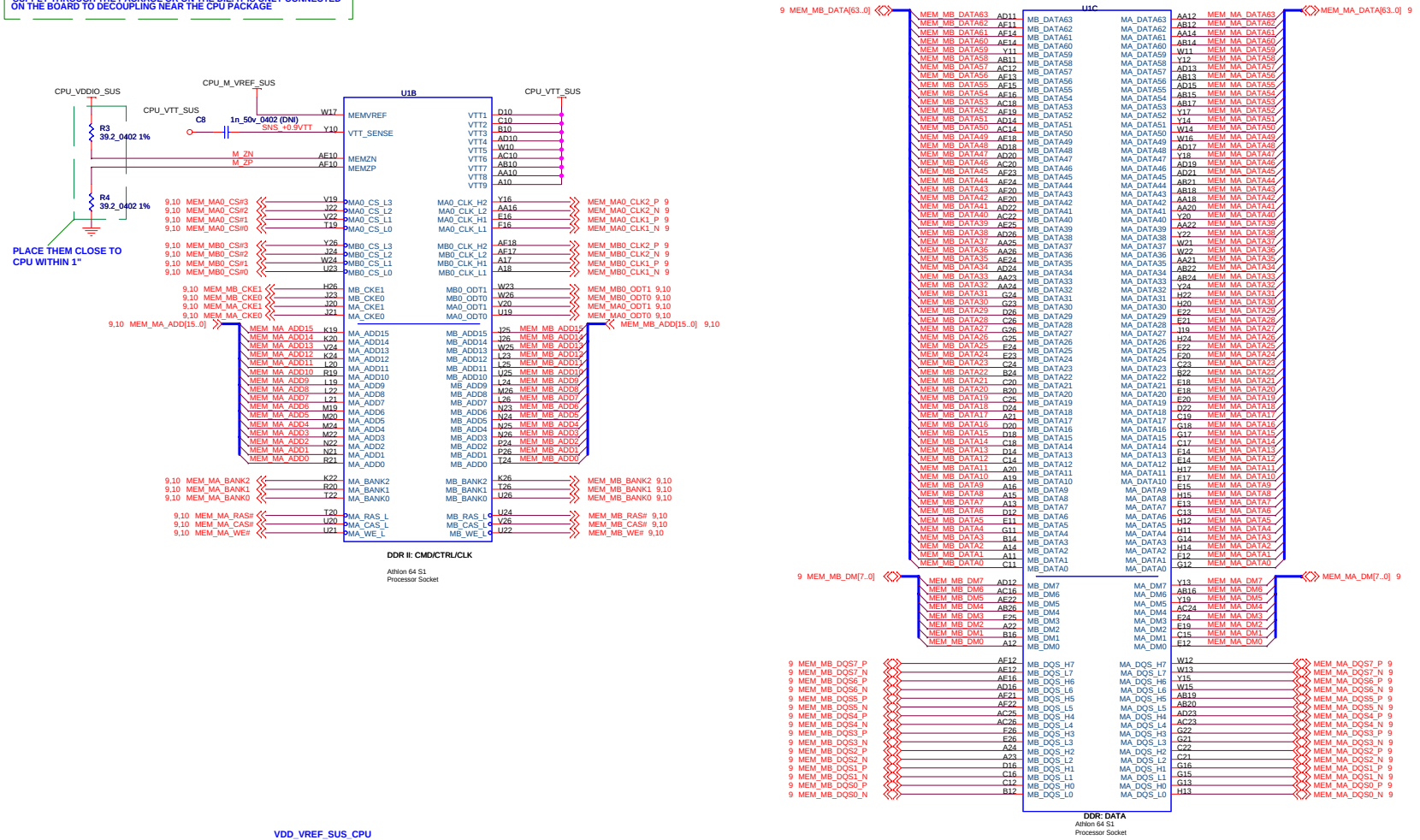
Title: SOCKET S1 HT I/F

Size	Document Number	Rev
Custom	MS-12221	1.0

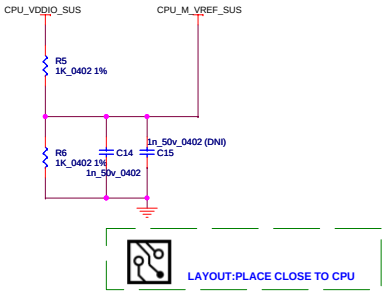
Date: Thursday, February 01, 2007 Sheet 5 of 45

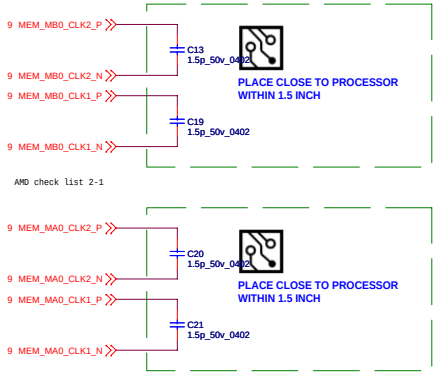
Processor DDR2 Memory Interface

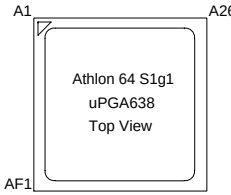
VDD_VTT_SUS_CPU IS CONNECTED TO THE VDD_VTT_SUS POWER SUPPLY THROUGH THE PACKAGE OR ON THE DIE. IT IS ONLY CONNECTED ON THE BOARD TO DECOUPLING NEAR THE CPU PACKAGE



VDD_VREF_SUS_CPU







MICRO-STAR INT'L CO.,LTD.			
Title: SOCKET S1 DDR2 MEMORY I/F			
Size: C	Document Number: MS-12221		Rev: 1.0
Date: Thursday, February 01, 2007	Sheet 6 of 45		

ATHLON Control and Debug

CPU_VDDA_2.5_RUN

LAYOUT: ROUTE VDDA TRACE APPROX. 50 mils WIDE (USE 2x25 mil TRACES TO EXIT BALL FIELD) AND 500 mils LONG.

maximun 40 ohm

+VDDA — AMD check list 4-22 — L1 10L1000m_50_0402 — C22 4.7u_6V_0603 — C23 3300p_50V_0402 — C24 0.22u_10V_0402

17 SB_CPUPWRGD — JNC2 0R_0402 (DNI) — CPU_ALL_PWROK — R471 715_0402

ATI Errata ER_RS690B2&PA_IPX600AD12 PN N/A

Harry 2007/01/18

+1.8VRUN — U51 SN74LVC1G17DBV (NC, A, GND, VCC, Y) — D27 S-BAT54C_SOT23 — 13,17 LDT_STOP# — R473 715_0402 — R631 8.2K_0402 — C984 47p_50V_0402 — CPU_LDTSTOP#

17 LDT_RST# — JNC6 0R_0402 (DNI) — CPU_HT_RESET# — R475 715_0402

CPU_VDDIO_SUS — R12 300_0402 (DNI) — R14 300_0402 (DNI) — R13 300_0402

ATI change at Herring 1.5 0C version on 10/26/2006

+VLDT — R15 44.2_0603 1% — R16 44.2_0603 1% — CPU_HTREF1 — CPU_HTREF0

place them to CPU within 1"

36 CPU_VDD_RUN_FB_H — 36 CPU_VDD_RUN_FB_L — TP3 — TP4 — CPU_VDDIO_SUS_FB_H — CPU_VDDIO_SUS_FB_L

OPUCLK — C26 3.9n_50V_0603 — CPU_CLKIN_SC_P — R20 169_0402 1% — CPU_CLKIN_SC_N — C27 3.9n_50V_0603 — 16 CPUCLK#

TP5 — CPU_DBRDY

CPU_TMS — CPU_TCK — CPU_TRST# — CPU_TDI

CPU_TEST25_H_BYPASSCLK_H — CPU_TEST25_L_BYPASSCLK_L — TEST19 — TEST18

TP7 TP9 TP11 TP13 TP14

CPU_VDDIO_SUS — R38 10K_0402 — +3VRUN — R42 4.7K_0402 — CPU_PH_G — CPU_PROCHOT# 1.8 — Q3 SMBT3904 — SB_TALERT# 19

CPU_TEST5_THERMDC — CPU_TEST4_THERMDA

RN1 8P4R-10K_RN0402 — +3VSUS — T_CRIT_CPU# — CPU_THRM_ALERT- — SMB_THRMCPU_DATA — SMB_THRMCPU_CLK

Cap close to thermal sensor

+3VSUS — U5 LM86CIMMXNOPB_MSOP8-RH (VDD, D+, D-, T_CRIT_A#, SMBCLK, SMBDATA, ALERT#, GND) — C30 2200p_50V_0402 — C31 0.1u_10V_0402 — Close to CPU socket

CPU_TEST4_THERMDA — CPU_TEST5_THERMDC — 33 T_CRIT_CPU#

SMB_THRMCPU_CLK — SMB_THRMCPU_DATA — CPU_THRM_ALERT-

U1D — MISC — AMD NPT S1 SOCKET Processor Socket

VDDA2 VDDA1 — PRESET_L PWROK LDTSTOP_L — SIC SID — HT_REF1 HT_REF0 — VDD_FB_H VDD_FB_L — VDDIO_FB_H VDDIO_FB_L — CLKIN_H CLKIN_L — DBRDY — TMS TCK TRST_L TDI — TEST25_H TEST25_L TEST19 TEST18 TEST13 TEST9 TEST17 TEST16 TEST15 TEST14 TEST12 — TEST7 TEST6 THERMDC THERMDA TEST3 TEST2 — RSVD0 RSVD1 RSVD2 RSVD3 — RSVD4 RSVD5 RSVD6 RSVD7

THERMTRIP_L PROCHOT_L — CPU_PRESENT_L PSI_L — DBREQ_L — TDO — TEST29_H TEST29_L — TEST24 TEST23 TEST22 TEST21 TEST20 — TEST28_H TEST28_L TEST27 TEST26 TEST10 TEST8 — RSVD8 RSVD9 — RSVD10 RSVD11 — RSVD12 RSVD13 RSVD14 — RSVD15 RSVD16 RSVD17 RSVD18 RSVD19 RSVD20

JTAG

CPU_VDDIO_SUS — R8 300_0402 — R9 300_0402 — R10 300_0402 — R7 10K_0402 — +3VSUS — R11 4.7K_0402 (DNI) — Q1 SMBT3904 — CPU_THERMTRIP# 18

AF6 CPU_THERMTRIP# R — AC7 CPU_PROCHOT# 1.8

VID5 VID4 VID3 VID2 VID1 VID0 — CPU_PRESENT# — CPU_PSI# — CPU_PSI# 36

E10 CPU_DBREQ# — AE9 CPU_TDO — TP6

C9 CPU_TEST29_H_FBCLKOUT_P — C8 CPU_TEST29_L_FBCLKOUT_N — R22 80.6_0402 1% — Trace impedance 80ohm

ROUTE AS 80 Ohm DIFFERENTIAL PAIR PLACE IT CLOSE TO CPU WITHIN 1"

TP8 TP10 TP12 TEST21 — TP15

AE7 AD7 AE8 AB8 AF7 — AE7 — AF8 — AE6 TEST26 — K8 C4 — H16 B18 — B3 C1 — H6 G6 D5 — R24 W18 R23 AA8 H18 H19

CPU_VDDIO_SUS — Harry 10/02 ERRATA#133

TEST26	R625	300_0402
CPU_DBREQ#	R28	510_0402 (DNI)
CPU_TMS	R29	510_0402 (DNI)
CPU_TCK	R30	510_0402 (DNI)
CPU_TRST#	R31	510_0402 (DNI)
CPU_TDI	R33	510_0402 (DNI)
CPU_PRESENT#	R35	1K_0402
CPU_TEST25_H_BYPASSCLK_H	R36	510_0402
CPU_TEST25_L_BYPASSCLK_L	R39	510_0402
TEST18	R626	300_0402
TEST19	R627	300_0402
TEST21	R628	300_0402

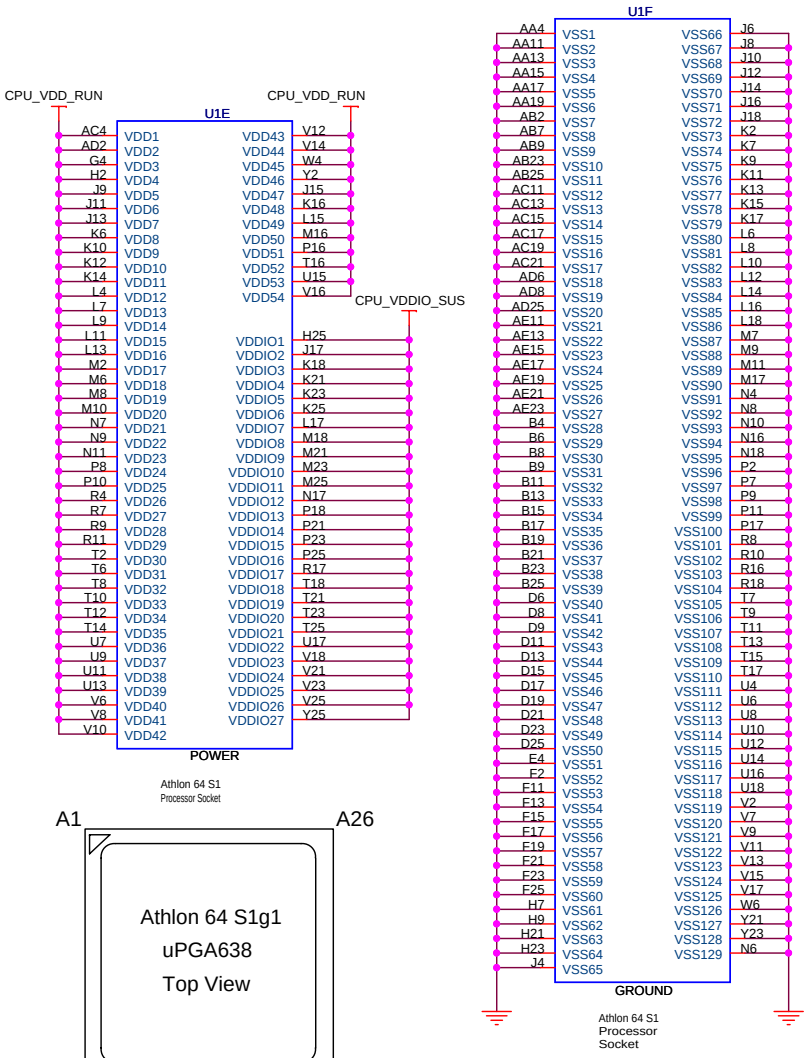
Harry 10/02 ERRATA#133

MICRO-STAR INT'L CO.,LTD.

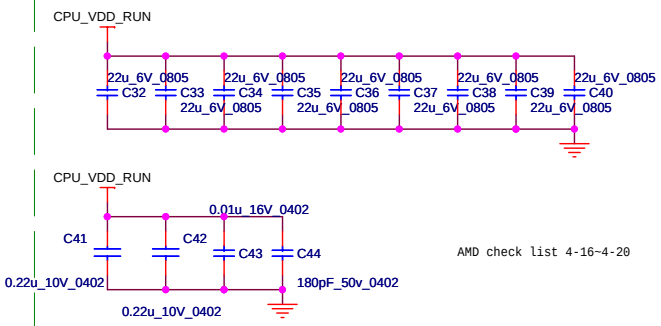
Title: SOCKET S1 CTRL

Size: B — Document Number: MS-12221 — Rev: 1.0

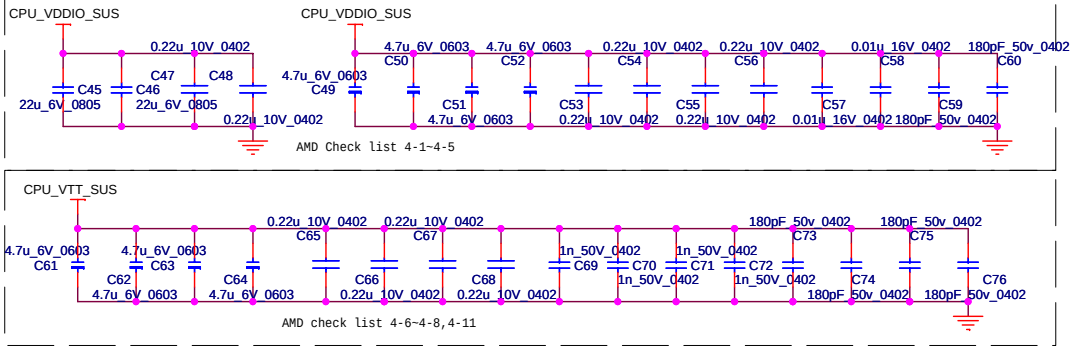
Date: Thursday, February 01, 2007 — Sheet 7 of 45



BOTTOMSIDE DECOUPLING

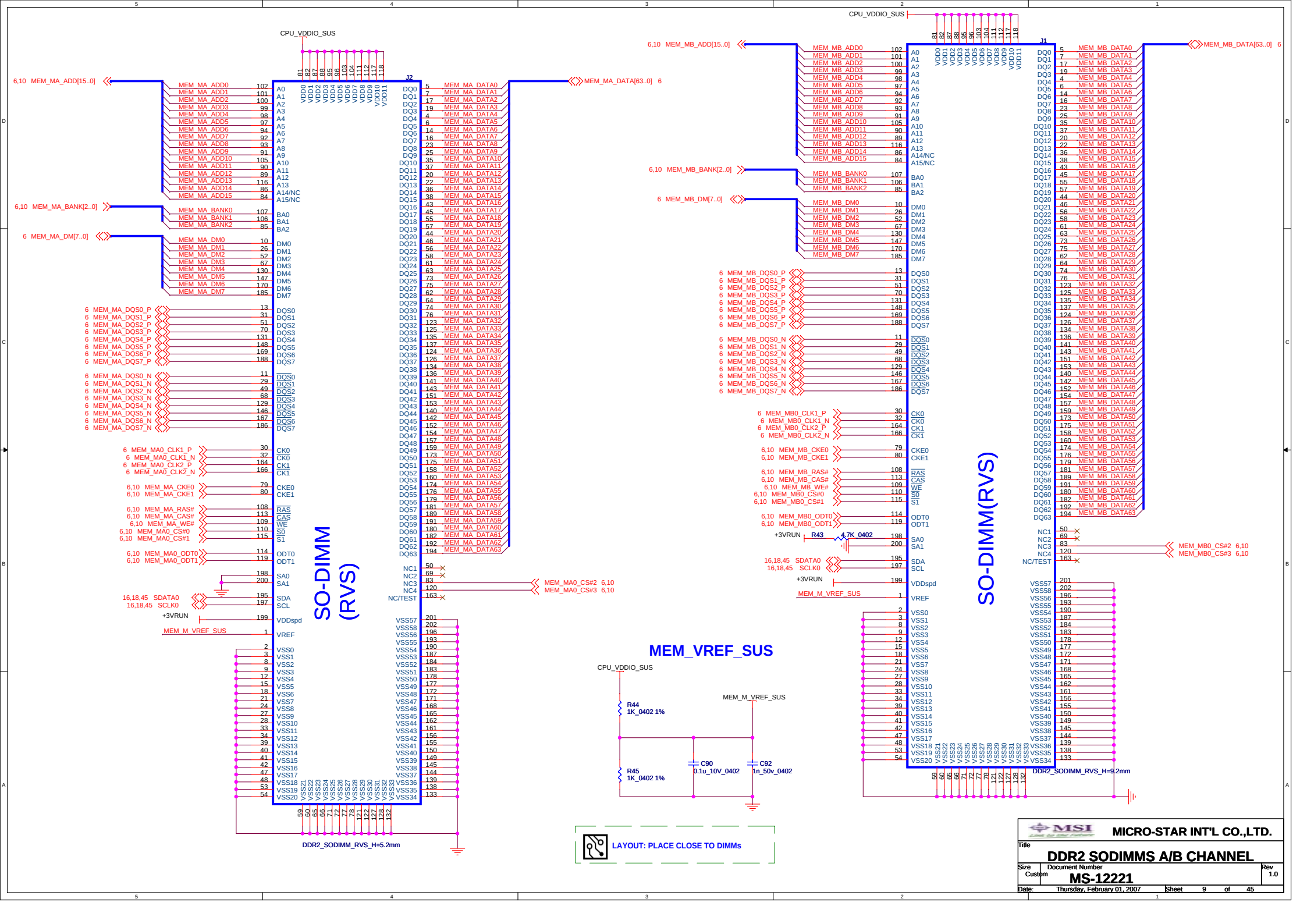


DECOUPLING BETWEEN PROCESSOR AND DIMMs
PLACE CLOSE TO PROCESSOR AS POSSIBLE



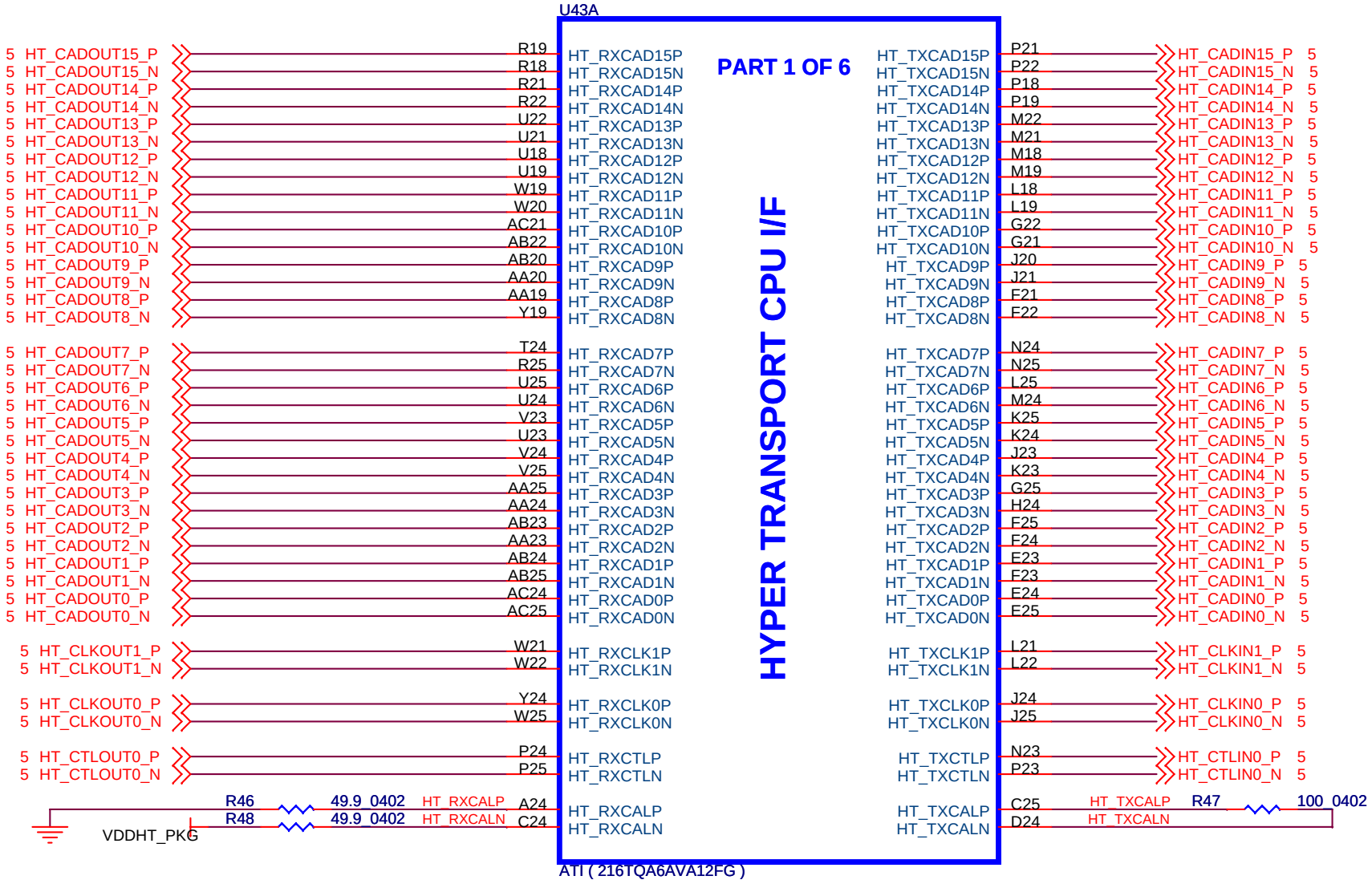
PROCESSOR POWER AND GROUND

MICRO-STAR INT'L CO.,LTD.		
Title: SOCKET S1 PWR & GND		
Size: B	Document Number: MS-12221	Rev: 1.0
Date: Thursday, February 01, 2007	Sheet 8 of 45	



MSI	MICRO-STAR INT'L CO.,LTD.	
Title	DDR2 SODIMMS A/B CHANNEL	
Size: Custom	Document Number: MS-12221	Rev: 1.0
Date: Thursday, February 01, 2007	Sheet 9 of 45	


8P4R-47_RN0402
CPU_VTT_SUS
6,9 MEM_MA_ADD[15..0]
MEM_MA_ADD[15..0]
MEM_MA_ADD15
MEM_MA_ADD14
MEM_MA_ADD13
MEM_MA_ADD12
MEM_MA_ADD11
MEM_MA_ADD10
MEM_MA_ADD9
MEM_MA_ADD8
MEM_MA_ADD7
MEM_MA_ADD6
MEM_MA_ADD5
MEM_MA_ADD4
MEM_MA_ADD3
MEM_MA_ADD2
MEM_MA_ADD1
MEM_MA_ADD0
6,9 MEM_MA_BANK[2..0]
MEM_MA_BANK[2..0]
MEM_MA_BANK2
MEM_MA_BANK1
MEM_MA_BANK0
6,9 MEM_MA_CAS#
6,9 MEM_MA_WE#
6,9 MEM_MA_RAS#
MEM_MA_CAS#
MEM_MA_WE#
MEM_MA_RAS#
6,9 MEM_MA0_CS#0
6,9 MEM_MA0_CS#1
6,9 MEM_MA0_CS#2
6,9 MEM_MA0_CS#3
MEM_MA0_CS#0
MEM_MA0_CS#1
MEM_MA0_CS#2
MEM_MA0_CS#3
6,9 MEM_MA0_ODT0
6,9 MEM_MA0_ODT1
MEM_MA0_ODT0
MEM_MA0_ODT1
6,9 MEM_MA_CKE1
6,9 MEM_MA_CKE0
MEM_MA_CKE1
MEM_MA_CKE0
MEM_MA_CKE0
MEM_MA_ADD12
MEM_MA_BANK2
MEM_MA_ADD8
MEM_MA_ADD9
MEM_MA_ADD3
MEM_MA_ADD5
MEM_MA_ADD2
MEM_MA_BANK0
MEM_MA_ADD10
MEM_MA_WE#
MEM_MA_CAS#
MEM_MA_ADD13
MEM_MA0_CS#3
MEM_MA0_ODT1
RN2
RN3
RN4
RN5
C93
C94
C95
C96
C97
C98
C106
C107
0.1u_10V_0402
CPU_VDDIO_SUS
MEM_MA_ADD15
MEM_MA_ADD14
MEM_MA_CKE1
MEM_MA0_CS#2
MEM_MA_ADD6
MEM_MA_ADD4
MEM_MA_ADD11
MEM_MA_ADD7
RN6
RN7
C108
C116
C117
C118
MEM_MA_RAS#
MEM_MA_BANK1
MEM_MA_ADD0
MEM_MA_ADD1
MEM_MA0_ODT0
MEM_MA0_CS#1
MEM_MA0_CS#0
RN8
RN9
C119
C127
C128
C129
8P4R-47_RN0402
6,9 MEM_MB_ADD[15..0]
MEM_MB_ADD[15..0]
MEM_MB_ADD15
MEM_MB_ADD14
MEM_MB_ADD13
MEM_MB_ADD12
MEM_MB_ADD11
MEM_MB_ADD10
MEM_MB_ADD9
MEM_MB_ADD8
MEM_MB_ADD7
MEM_MB_ADD6
MEM_MB_ADD5
MEM_MB_ADD4
MEM_MB_ADD3
MEM_MB_ADD2
MEM_MB_ADD1
MEM_MB_ADD0
6,9 MEM_MB_BANK[2..0]
MEM_MB_BANK[2..0]
MEM_MB_BANK2
MEM_MB_BANK1
MEM_MB_BANK0
6,9 MEM_MB_CAS#
6,9 MEM_MB_WE#
6,9 MEM_MB_RAS#
MEM_MB_CAS#
MEM_MB_WE#
MEM_MB_RAS#
6,9 MEM_MB0_CS#0
6,9 MEM_MB0_CS#1
6,9 MEM_MB0_CS#2
6,9 MEM_MB0_CS#3
MEM_MB0_CS#0
MEM_MB0_CS#1
MEM_MB0_CS#2
MEM_MB0_CS#3
6,9 MEM_MB0_ODT0
6,9 MEM_MB0_ODT1
MEM_MB0_ODT0
MEM_MB0_ODT1
6,9 MEM_MB_CKE1
6,9 MEM_MB_CKE0
MEM_MB_CKE1
MEM_MB_CKE0
MEM_MB_CKE0
MEM_MB0_CS#2
MEM_MB_BANK2
MEM_MB_ADD12
MEM_MB_ADD9
MEM_MB_ADD7
MEM_MB_ADD8
MEM_MB_ADD3
MEM_MB_ADD5
MEM_MB_ADD1
MEM_MB_BANK0
MEM_MB_WE#
MEM_MB0_CS#1
MEM_MB0_ODT1
MEM_MB_CAS#
MEM_MB_ADD11
MEM_MB_ADD14
MEM_MB_ADD15
MEM_MB_CKE1
MEM_MB_ADD0
MEM_MB_ADD2
MEM_MB_ADD6
MEM_MB_ADD4
MEM_MB0_CS#0
MEM_MB_RAS#
MEM_MB_ADD10
MEM_MB_BANK1
MEM_MB0_CS#3
MEM_MB_ADD13
MEM_MB0_ODT0
RN11
RN12
RN13
RN14
RN15
RN16
RN17
RN18
C144
C145
C153
C154
C155
C163
C164
C165
C173
C174
C175
C176
C181
C182
C183
C184
MICRO-STAR INT'L CO.,LTD.
Title
DDR2 SODIMMS TERMINATIONS
Size
Custom
Document Number
MS-12221
Rev
1.0
Date:
Thursday, February 01, 2007
Sheet
10
of
45



MICRO-STAR INT'L CO.,LTD.

Title

RS690T HT LINK I/F

Size	Document Number	Rev
A	MS-12221	1.0

Date: Thursday, February 01, 2007 Sheet 11 of 45

Errata PA_IGPGENF5

715_0402 N-2N7002_SOT23
715_0402
715_0402 N-2N7002_SOT23
715_0402
715_0402 N-2N7002_SOT23
715_0402
715_0402 N-2N7002_SOT23
715_0402

+3VRUN +3VRUN +3VRUN +3VRUN

Q53 Q54 Q55 Q56

R632 R633 R634 R635 R636 R637 R638 R639

Harry 2007/01/18

U43B

PART 2 OF 6

PCIE I/F GFX

G5	GFX_RX0P	GFX_TX0P	J1
G4	GFX_RX0N	GFX_TX0N	H2
J8	GFX_RX1P	GFX_TX1P	K2
J7	GFX_RX1N	GFX_TX1N	K1
J4	GFX_RX2P	GFX_TX2P	K3
J5	GFX_RX2N	GFX_TX2N	L3
L8	GFX_RX3P	GFX_TX3P	L1
L7	GFX_RX3N	GFX_TX3N	L2
L4	GFX_RX4P	GFX_TX4P	N2
L5	GFX_RX4N	GFX_TX4N	N1
M8	GFX_RX5P	GFX_TX5P	P2
M7	GFX_RX5N	GFX_TX5N	P1
M4	GFX_RX6P	GFX_TX6P	P3
M5	GFX_RX6N	GFX_TX6N	R3
P8	GFX_RX7P	GFX_TX7P	R1
P7	GFX_RX7N	GFX_TX7N	R2

HDMI_D2P C971 0.1u_10V_0402 → HDMI_DATA2P 32
HDMI_D2N C972 0.1u_10V_0402 → HDMI_DATA2N 32
HDMI_D1P C973 0.1u_10V_0402 → HDMI_DATA1P 32
HDMI_D1N C974 0.1u_10V_0402 → HDMI_DATA1N 32
HDMI_D0P C975 0.1u_10V_0402 → HDMI_DATA0P 32
HDMI_D0N C976 0.1u_10V_0402 → HDMI_DATA0N 32
HDMI_CP C977 0.1u_10V_0402 → HDMI_CLKP 32
HDMI_CN C978 0.1u_10V_0402 → HDMI_CLKN 32

Place these Caps close to HDMI connect HDMI I/F

17 A_RX2P	Y4	SB_RX2P(GPP_RX0P)	SB_TX2P(GPP_TX0P)
17 A_RX2N	Y5	SB_RX2N(GPP_RX0N)	SB_TX2N(GPP_TX0N)
17 A_RX3P	W4	SB_RX3P(GPP_RX1P)	SB_TX3P(GPP_TX1P)
17 A_RX3N	W5	SB_RX3N(GPP_RX1N)	SB_TX3N(GPP_TX1N)
23 GPP_RX2P	P4	GPP_RX2P	GPP_TX2P
23 GPP_RX2N	P5	GPP_RX2N	GPP_TX2N
25 GPP_RX3P	R4	GPP_RX3P	GPP_TX3P
25 GPP_RX3N	R5	GPP_RX3N	GPP_TX3N
30 GPP_RX0P	R7	GPP_RX0P(NC)	GPP_TX0P(NC)
30 GPP_RX0N	R8	GPP_RX0N(NC)	GPP_TX0N(NC)
30 GPP_RX1P	U4	GPP_RX1P(NC)	GPP_TX1P(NC)
30 GPP_RX1N	U5	GPP_RX1N(NC)	GPP_TX1N(NC)
17 A_RX0P	AB7	SB_RX0P	SB_TX0P
17 A_RX0N	AB6	SB_RX0N	SB_TX0N
17 A_RX1P	V9	SB_RX1P	SB_TX1P
17 A_RX1N	W9	SB_RX1N	SB_TX1N

PCIE I/F GPP

PCIE I/F SB

AC4	NC(PCE_ISET)	PCE_CALRP(PCE_PCAL)	AE4
AD4	NC(PCE_TXISET)	PCE_CALRN(PCE_NCAL)	AE3

ATI (216TQA6AVA12FG)

ATX2P C835 0.1u_10V_0402 → A_TX2P 17
ATX2N C836 0.1u_10V_0402 → A_TX2N 17
ATX3P C837 0.1u_10V_0402 → A_TX3P 17
ATX3N C838 0.1u_10V_0402 → A_TX3N 17
GPP_TX2P_C C185 0.1u_10V_0402 → GPP_TX2P 23
GPP_TX2N_C C186 0.1u_10V_0402 → GPP_TX2N 23
GPP_TX3P_C C187 0.1u_10V_0402 → GPP_TX3P 25
GPP_TX3N_C C188 0.1u_10V_0402 → GPP_TX3N 25
GPP_TX0P_C C839 0.1u_10V_0402 → GPP_TX0P 30
GPP_TX0N_C C840 0.1u_10V_0402 → GPP_TX0N 30
GPP_TX1P_C C841 0.1u_10V_0402 → GPP_TX1P 30
GPP_TX1N_C C842 0.1u_10V_0402 → GPP_TX1N 30
A_TX0P_C C189 0.1u_10V_0402 → A_TX0P 17
A_TX0N_C C190 0.1u_10V_0402 → A_TX0N 17
A_TX1P_C C191 0.1u_10V_0402 → A_TX1P 17
A_TX1N_C C192 0.1u_10V_0402 → A_TX1N 17

R50 562_0402 1%
R52 2K_1%_0402
VDDA12_PKG2

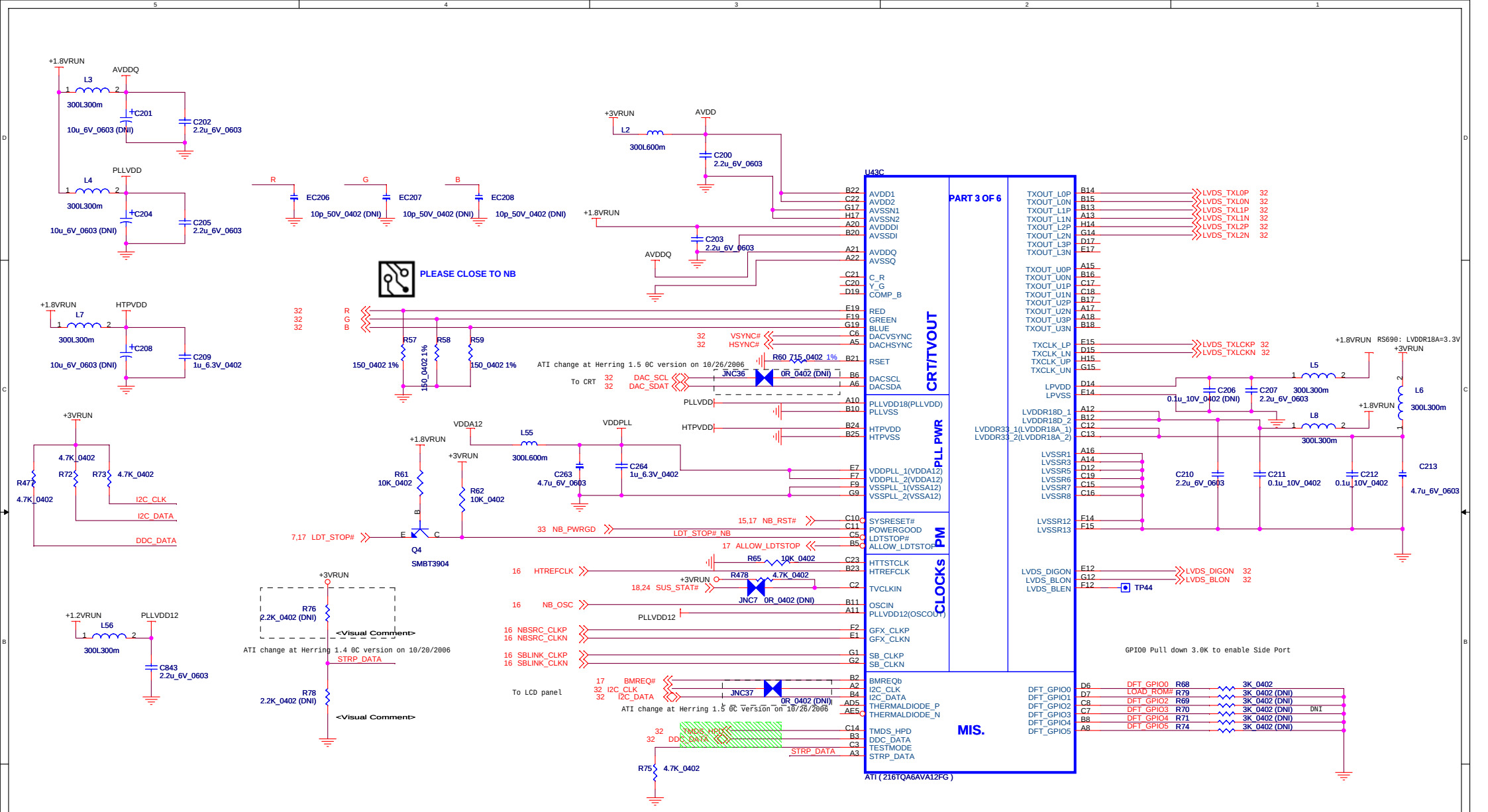
R50 562Ohm
R52 2KOhm

MICRO-STAR INT'L CO.,LTD.

Title: RS690T PCI-E LINK&HDMI I/F

Size	Document Number	Rev
A	MS-12221	1.0

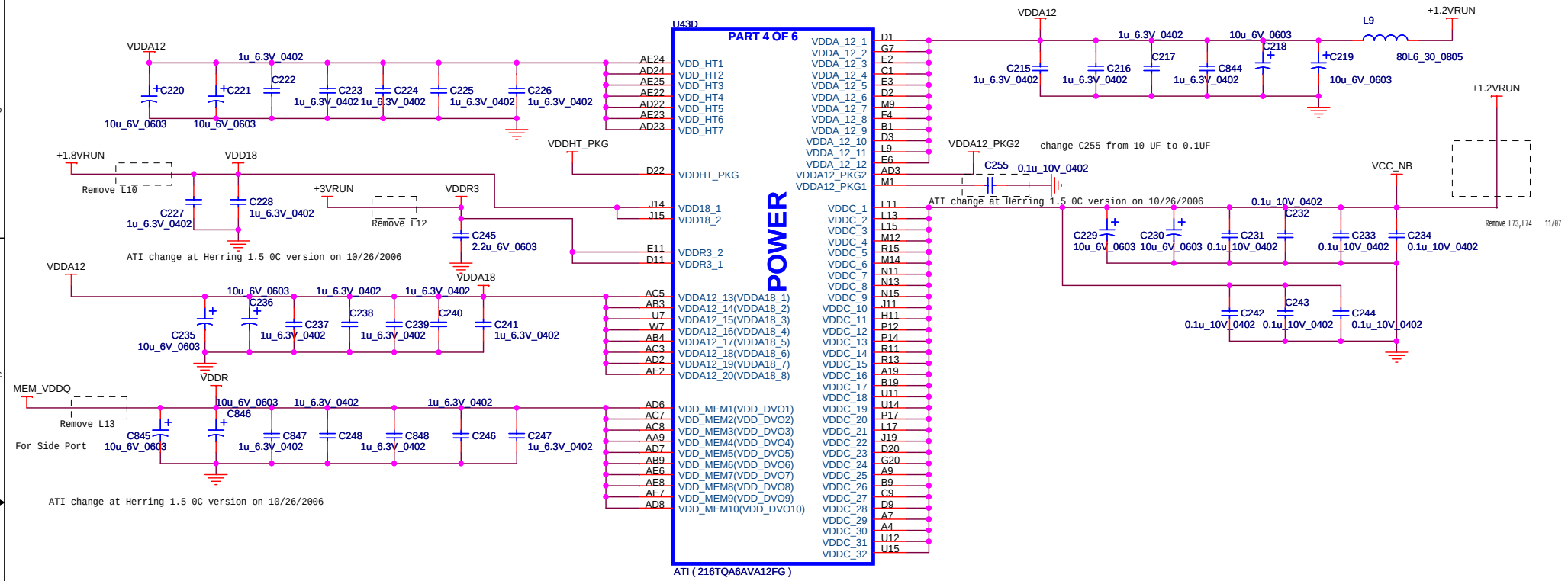
Date: Thursday, February 01, 2007 Sheet 12 of 45



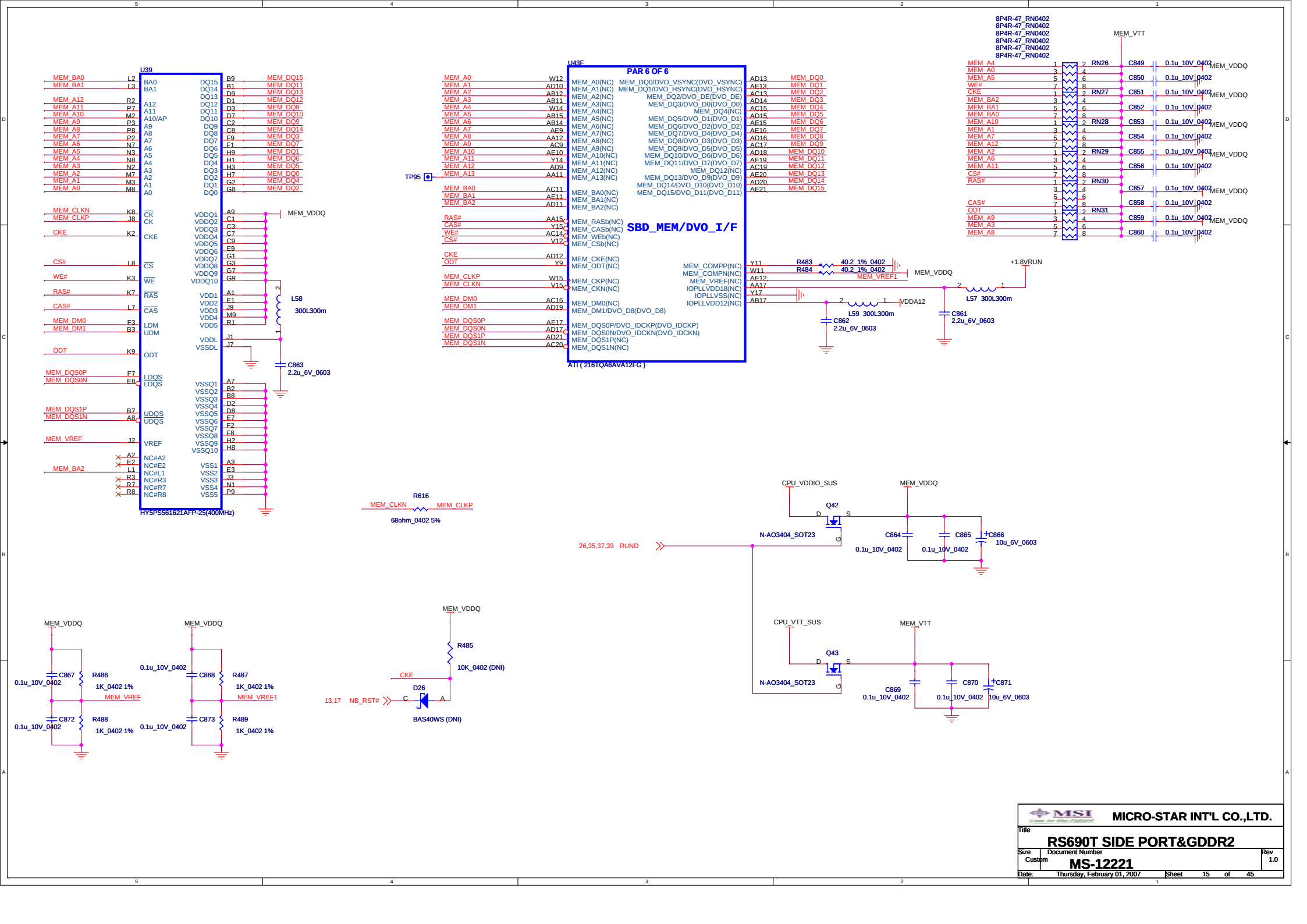
	RS485/RS690	RS690 only (NC for RS485)		
	DFT_GPIO1	DFT_GPIO0	DFT_GPIO[4:2]	DFT_GPIO5
PULL HIGH (internally pulled high)	Bypass the loading of EEPROM straps and use Hardware default values DEFAULT	Memory side port not available	These pin straps are used to configure PCI-E GPP mode: 111: register defined (register default to Config E) DEFAULT 110: 4-0-0-0-0 Config A 101: 4-4 Config B 100: 4-2-2 Config C 011: 4-2-1-1 Config D 010: 4-1-1-1-1 Config E others: register defined (register default to Config E)	Enable debug bus via the memory IO pads, if available in the package use default values DEFAULT
PULL LOW	I2C Master can load strap values from EEPROM if connected, or use default values if not connected	Memory side port available DEFAULT		use the memory data bus to output the debug bus

Title	RS690T SYSTEM I/F&CLK
Size	Custom
Document Number	MS-12221
Rev	1.0
Date:	Thursday, February 01, 2007
Sheet	13 of 45

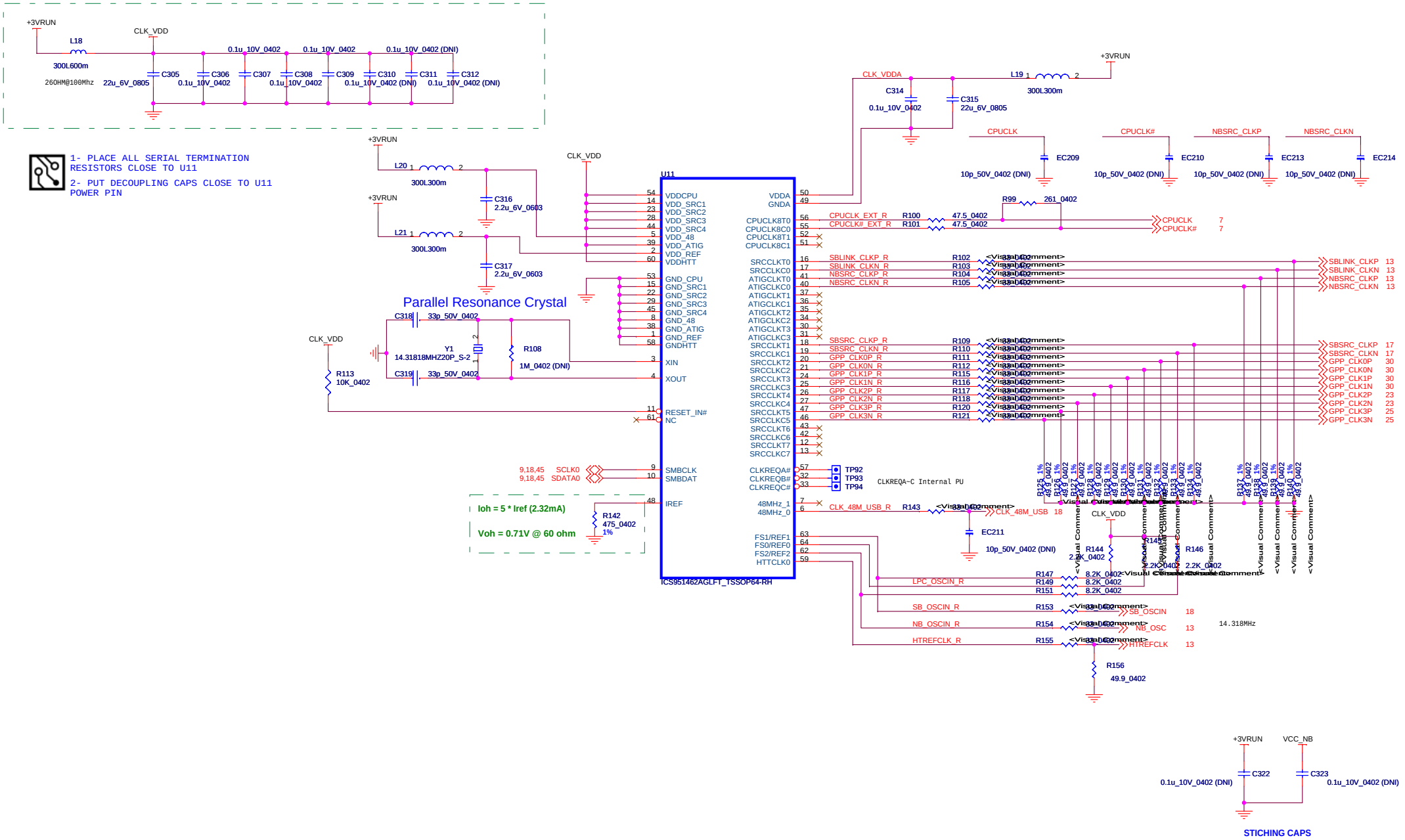
MICRO-STAR INT'L CO.,LTD.



MICRO-STAR INT'L CO.,LTD.			
Title: RS690T POWER & GND			
Size: B	Document Number: MS-12221		Rev: 1.0
Date: Thursday, February 01, 2007	Sheet 14 of 45		



MICRO-STAR INT'L CO.,LTD.	
Title	RS690T SIDE PORT&GDDR2
Size: Custom	Document Number: MS-12221
Rev	1.0
Date: Thursday, February 01, 2007	Sheet 15 of 45



MSI	MICRO-STAR INT'L CO.,LTD.	
Title	CLOCK GENERATOR	
Size: Custom	Document Number: MS-12221	Rev: 1.0
Date: Thursday, February 01, 2007	Sheet 16 of 45	

EVT will phase in A21

PLACE THESE PCIE AC COUPLING CAPS CLOSE TO SB600

	SB600
C325 to C332	0.1uF
R165	562 Ohm 1%
R166	2.05K 1%
R167	0 Ohm
R179	10K

PLEASE CLOSE TO SB600.U44

PLACE THESE COMPONENTS CLOSE TO SB600, AND USE GROUND GUARD FOR 32K_X1 AND 32K_X2

FOR SB600, CONNECT TO CPU_PG/LDT_PG

Change the footprint to R0402
ATI change at Herring 1.5 0C version on 10/26/2006

U44A
SB600 SB 23x23mm
Part 1 of 4
218S6ECLA21FG

PCI CLKS
PCI EXPRESS INTERFACE
PCI INTERFACE
XTAL
LPC
CPU
RTC

PHILIPS (74HCT14)

MICRO-STAR INT'L CO.,LTD.

Title: SB600 PCIE/PCI/CPU/LPC
Size: Custom
Document Number: MS-12221
Rev: 1.0
Date: Thursday, February 01, 2007
Sheet 17 of 45

EVT will phase in A21

U44D

SB600 SB 23x23mm Part 4 of 4

218S6ECLA21FG

ACPI / WAKE UP EVENTS

USB INTERFACE

OSC / RST

GPIO

USB OC

AZALIA

AC97

USB PWR

PLACE C370 AND C371 CLOSE TO SB600

Integrated 10K PD

MICRO-STAR INT'L CO.,LTD.

Title: SB600 ACPI/GPIO/USB/AUDIO

Size: Custom | Document Number: MS-12221 | Rev: 1.0

Date: Thursday, February 01, 2007 | Sheet 18 of 45

EVT will phase in A21

U44B

SB600 SB 23x23mm

Part 2 of 4

SERIAL ATA

ATA 66/100

SPI ROM

HW MONITOR

SERIAL ATA POWER

29 SATA_TX0+_C — SATA_TX0+_C — C812 0.01u_16V_0402 — SATA_TX0+ — AH21 SATA_TX0+

29 SATA_TX0-_C — SATA_TX0-_C — C813 0.01u_16V_0402 — SATA_TX0- — AJ21 SATA_TX0-

29 SATA_RX0-_C — SATA_RX0-_C — C814 0.01u_16V_0402 — SATA_RX0- — AH20 SATA_RX0-

29 SATA_RX0+_C — SATA_RX0+_C — C815 0.01u_16V_0402 — SATA_RX0+ — AJ20 SATA_RX0+

AH18 SATA_TX1+

AJ18 SATA_TX1-

AH17 SATA_RX1-

AJ17 SATA_RX1+

AH13 SATA_TX2+

AH14 SATA_TX2-

AH16 SATA_RX2-

AJ16 SATA_RX2+

AJ11 SATA_TX3+

AH11 SATA_TX3-

AH12 SATA_RX3-

AJ13 SATA_RX3+

SATA_X1 — R451 10M_1%0402 — SATA_X2

Y8 25MHZ20P_S-2

C817 10p_50V_0402 — C818 10p_50V_0402

R450 1K_0402 1% — SATA_CAL — AF12 SATA_CAL

SATA_X1 — AD16 SATA_X1

SATA_X2 — AD18 SATA_X2

29 SATA_ACT# — SATA_ACT# — AC12 SATA_ACT#/GPIO67

PLLVDD_ATA — AD14 PLLVDD_SATA_1

AJ10 PLLVDD_SATA_2

XTLVDD_ATA — AC16 XTLVDD_SATA

AVDD_SATA — AE14 AVDD_SATA_1

AE16 AVDD_SATA_2

AE18 AVDD_SATA_3

AE19 AVDD_SATA_4

AF19 AVDD_SATA_5

AF21 AVDD_SATA_6

AG22 AVDD_SATA_7

AG23 AVDD_SATA_8

AH22 AVDD_SATA_9

AH23 AVDD_SATA_10

AJ12 AVDD_SATA_11

AJ14 AVDD_SATA_12

AJ19 AVDD_SATA_13

AJ22 AVDD_SATA_14

AJ23 AVDD_SATA_15

AB14 AVSS_SATA_1

AB16 AVSS_SATA_2

AB18 AVSS_SATA_3

AC14 AVSS_SATA_4

AC18 AVSS_SATA_5

AC19 AVSS_SATA_6

AD12 AVSS_SATA_7

AD19 AVSS_SATA_8

AD21 AVSS_SATA_9

AE12 AVSS_SATA_10

AE21 AVSS_SATA_11

AF11 AVSS_SATA_12

AF14 AVSS_SATA_13

AF16 AVSS_SATA_14

AF18 AVSS_SATA_15

AG11 AVSS_SATA_16

AG12 AVSS_SATA_17

AG13 AVSS_SATA_18

AG14 AVSS_SATA_19

AG16 AVSS_SATA_20

AG17 AVSS_SATA_21

AG18 AVSS_SATA_22

AG19 AVSS_SATA_23

AG20 AVSS_SATA_24

AG21 AVSS_SATA_25

AH10 AVSS_SATA_26

AH19 AVSS_SATA_27

218S6ECLA21FG

IDE_IORDY — AB29 — IDE_IORDY# 29

IDE_IRQ — AA28 — SIRQI 29

IDE_A0 — AA29 — IDE_A0 29

IDE_A1 — AB27 — IDE_A1 29

IDE_A2 — Y28 — IDE_A2 29

IDE_DACK# — AB28 — IDE_DACK# 21,29

IDE_DRQ — AC27 — IDE_REQ 29

IDE_IOR# — AC29 — IDE_IOR# 29

IDE_IOW# — AC28 — IDE_IOW# 29

IDE_CS1# — W28 — IDE_CS1# 29

IDE_CS3# — W27 — IDE_CS3# 29

IDE_D0/GPIO15 — AD28 — IDE_D0

IDE_D1/GPIO16 — AD26 — IDE_D1

IDE_D2/GPIO17 — AE29 — IDE_D2

IDE_D3/GPIO18 — AF27 — IDE_D3

IDE_D4/GPIO19 — AG29 — IDE_D4

IDE_D5/GPIO20 — AH28 — IDE_D5

IDE_D6/GPIO21 — AJ28 — IDE_D6

IDE_D7/GPIO22 — AJ27 — IDE_D7

IDE_D8/GPIO23 — AH27 — IDE_D8

IDE_D9/GPIO24 — AG27 — IDE_D9

IDE_D10/GPIO25 — AG28 — IDE_D10

IDE_D11/GPIO26 — AF28 — IDE_D11

IDE_D12/GPIO27 — AF29 — IDE_D12

IDE_D13/GPIO28 — AE28 — IDE_D13

IDE_D14/GPIO29 — AD25 — IDE_D14

IDE_D15/GPIO30 — AD29 — IDE_D15

IDE_D[15..0] — IDE_D[15..0] 29

SPI_DI/GPIO12 — J3

SPI_DO/GPIO11 — J6

SPI_CLK/GPIO47 — G3

SPI_HOLD#/GPIO31 — G2

SPI_CS#/GPIO32 — G6

LAN_RST#/GPIO13 — C23

ROM_RST#/GPIO14 — G5

FANOUT0/GPIO3 — M4

FANOUT1/GPIO48 — T3

FANOUT2/GPIO49 — V4

FANIN0/GPIO50 — N3

FANIN1/GPIO51 — P2

FANIN2/GPIO52 — W4

TEMP_COMM — P5

TEMPIN0/GPIO61 — P7

TEMPIN1/GPIO62 — P8

TEMPIN2/GPIO63 — T8

TEMPIN3/TALERT#/GPIO64 — T7 — SB_TALERT# 7

GPIO 50,51,52,61,62,63.
BOIS need to programming to GPIO output or Pull Down

VIN0/GPIO53 — V5

VIN1/GPIO54 — L7

VIN2/GPIO55 — M8

VIN3/GPIO56 — V6

VIN4/GPIO57 — M6

VIN5/GPIO58 — P4

VIN6/GPIO59 — M7

VIN7/GPIO60 — V7

AVDD — N1 — 0.1u_10V_0402 C888 — 220R_200mA L61 — +3VRUN

AVSS — M1 — C889 2.2u_6V_0603 — HWM_AGND — 0R_0402 (DNI) — JNC19

+3VRUN — 220R_200mA L53 — XTLVDD_ATA

C821 1u_6.3V_0402

C821 CLOSE TO THE BALL OF U12

+1.2VRUN — L54 220L3A — HARRY 10/17 — 1u_6.3V_0402 C890 — AVDD_SATA

C822 22u_6V_0805 — C891 1u_6.3V_0402 — C825 0.1u_10V_0402 — C826 0.1u_10V_0402

+1.27VRUN — L71 220L3A (DNI)

+1.2VRUN — L52 220R_200mA — HARRY 10/17 — PLLVDD_ATA

C819 1u_6.3V_0402

+1.27VRUN — L72 220R_200mA (DNI)

+3VRUN

U49 AME8804 (DNI) <MSI-BOM> SOT23_5_NPC30X

Vout = 1.276V

1 IN — 2 GND — 3 EN — 4 ADJ — 5 VOUT — +1.27VRUN

C979 1n_50V_0402 (DNI) — C980 4.7u_6V_0603 (DNI)

MAX current 300mA

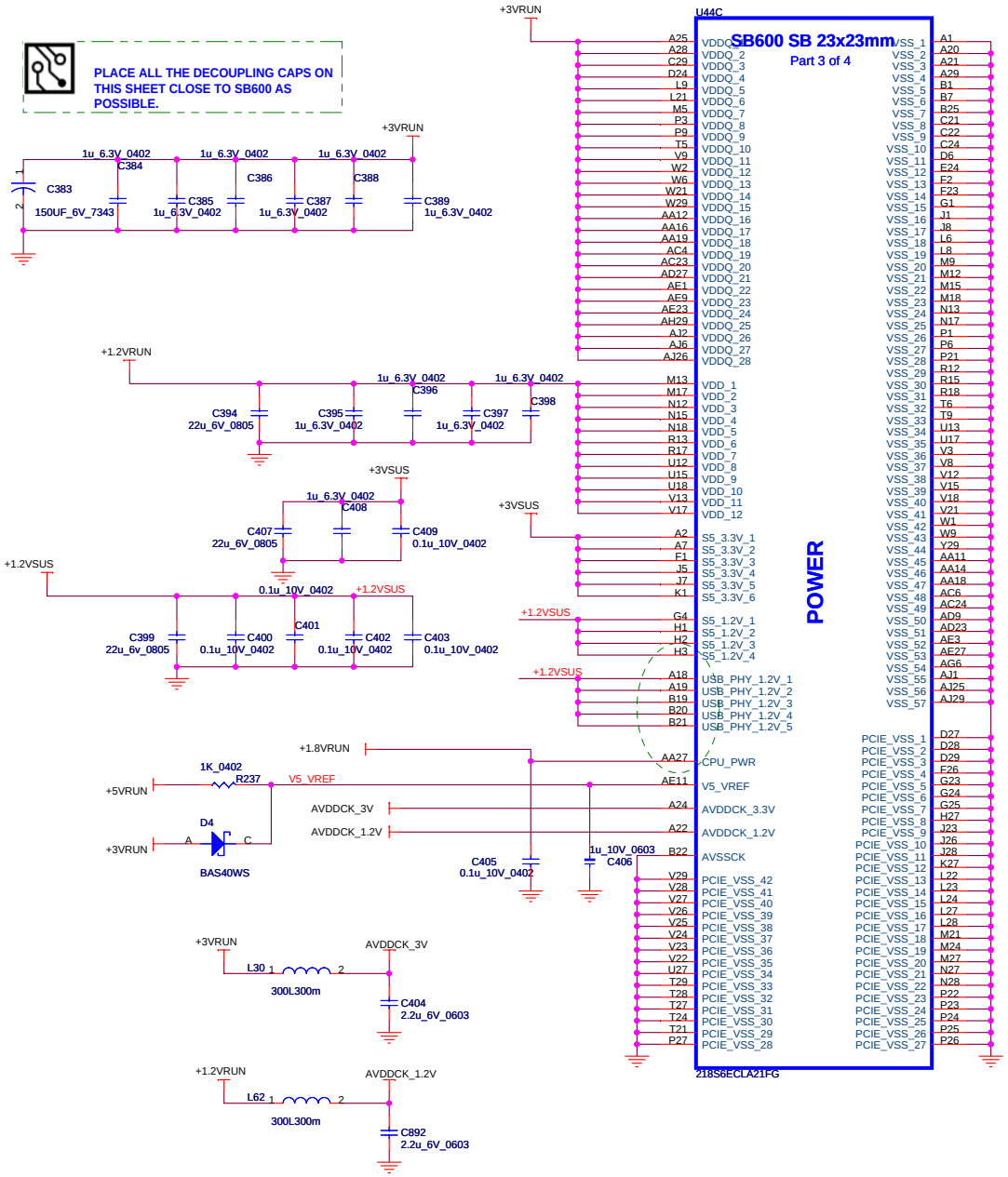
R623 510_0402 (DNI)

R624 10K_0402 1% (DNI)

HARRY 10/17

MICRO-STAR INT'L CO.,LTD.		
Title: SB600 SATA/IDE/HWM/SPI		
Size: B	Document Number: MS-12221	Rev: 1.0
Date: Thursday, February 01, 2007	Sheet 19 of 45	

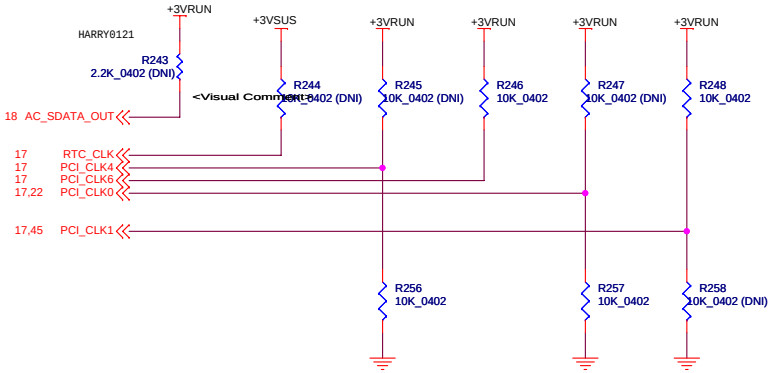
EVT will phase in A21



MSI	MICRO-STAR INT'L CO.,LTD.		
Title	SB600 POWER & GND		
Size: Custom	Document Number: MS-12221		Rev: 1.0
Date: Thursday, February 01, 2007	Sheet 20 of 45		

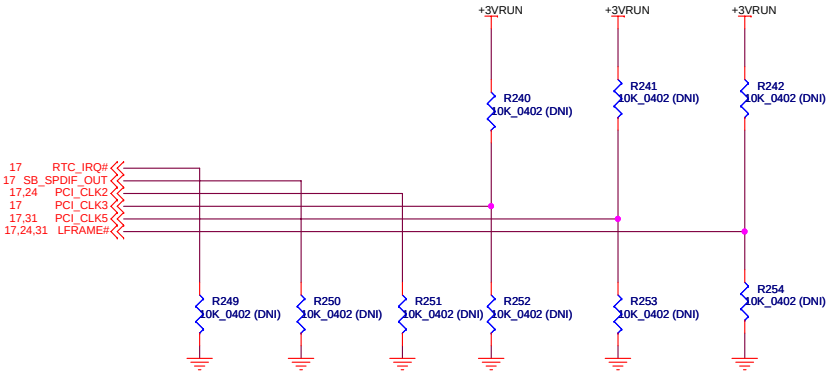
REQUIRED STRAPS

NPTE: FOR SB460, EXTERNAL PU/PD ARE REQUIRED



	SB600					
	AC_SDOUT	RTC_CLK	PCI_CLK4	PCI_CLK6	PCI_CLK0	PCI_CLK1
PULL HIGH	USE DEBUG STRAPS	INTERNAL RTC DEFAULT	USE INT. PLL48	CPU IF=K8 DEFAULT	ROM TYPE: H, H = PCI ROM; H, L = SPI ROM; L, H = LPC ROM DEFAULT; L, L = FWH ROM	
PULL LOW	IGNORE DEBUG STRAPS DEFAULT	EXTERNAL RTC	USE EXT. 48MHZ DEFAULT	CPU IF=P4		

SPDIF_OUT Integrated 10K PM2_Rg EAh. Default: PU/PD not enable BIOS must confirm with AMI/ATI.

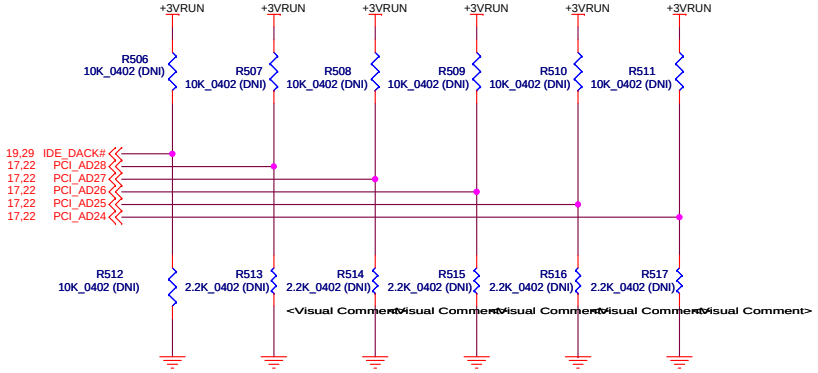


	ACPWRON	SPDIF_OUT	PCI_CLK2	PCI_CLK3	PCI_CLK5	LFRAME#
PULL HIGH	MANUAL PWR ON DEFAULT	SIO 24MHz	XTAL MODE NOT SUPPORTED	USB PHY POWERDOWN DISABLE DEFAULT	PCIE_CM_SET LOW DEFAULT	ENABLE THERMTRIP# DEFAULT
PULL LOW	AUTO PWR ON	SIO 48MHz DEFAULT	48MHZ OSC MODE DEFAULT	USB PHY POWERDOWN ENABLE	PCIE_CM_SET HIGH	DISABLE THERMTRIP#

OVERLAP COMMON PADS WHERE POSSIBLE FOR DUAL-OP RESISTORS.

DEBUG STRAPS

SB600 HAS 15K INTERNAL PU FOR PCI_AD[31:23]



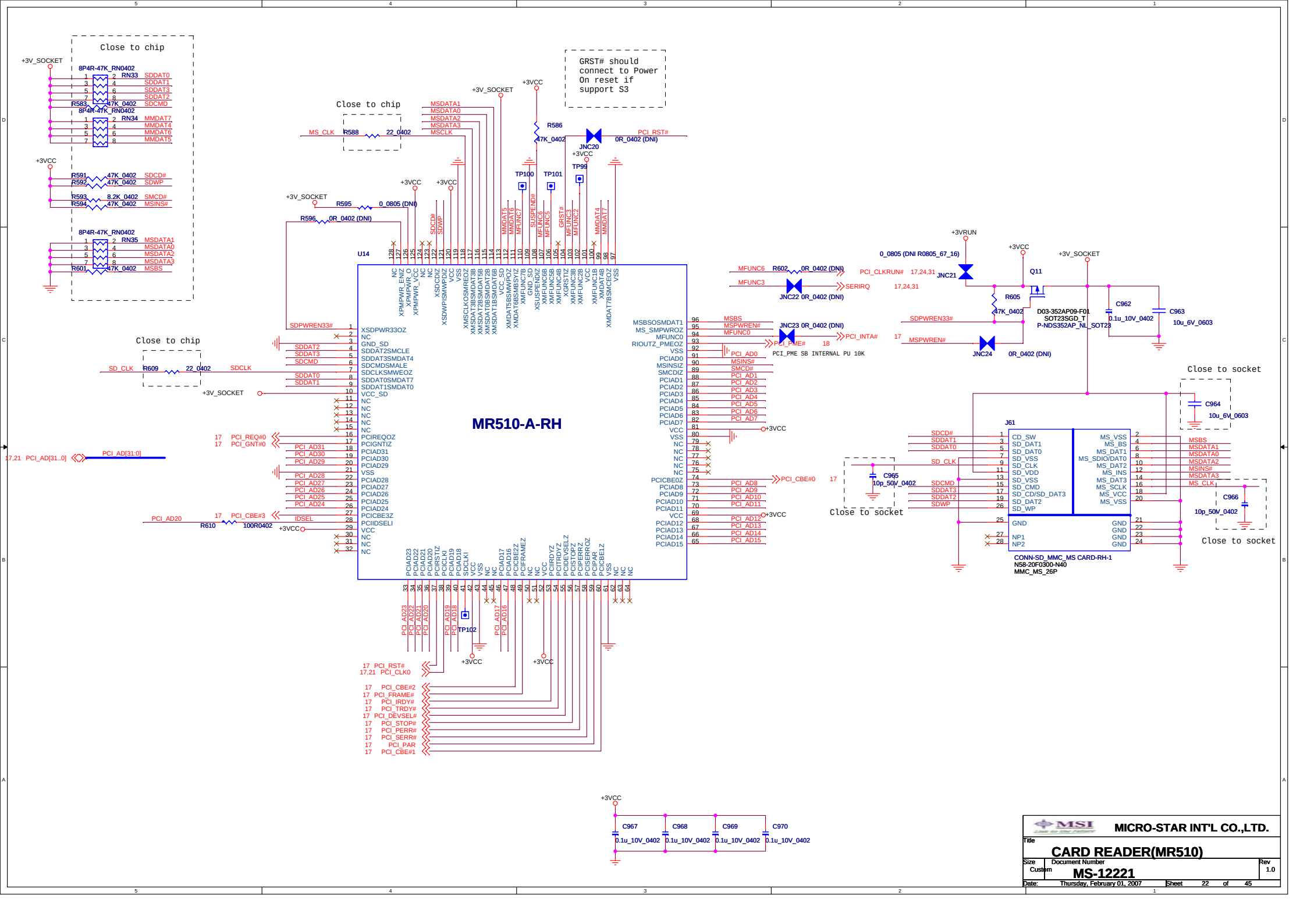
	PCI_AD28	PCI_AD27	PCI_AD26	PCI_AD25	PCI_AD24
PULL HIGH	USE LONG RESET DEFAULT	USE PCI PLL DEFAULT	USE ACPI BCLK DEFAULT	USE IDE PLL DEFAULT	USE DEFAULT PCIE STRAPS DEFAULT
PULL LOW	USE SHORT RESET	BYPASS PCI PLL	BYPASS ACPI BCLK	BYPASS IDE PLL	USE EEPROM PCIE STRAPS

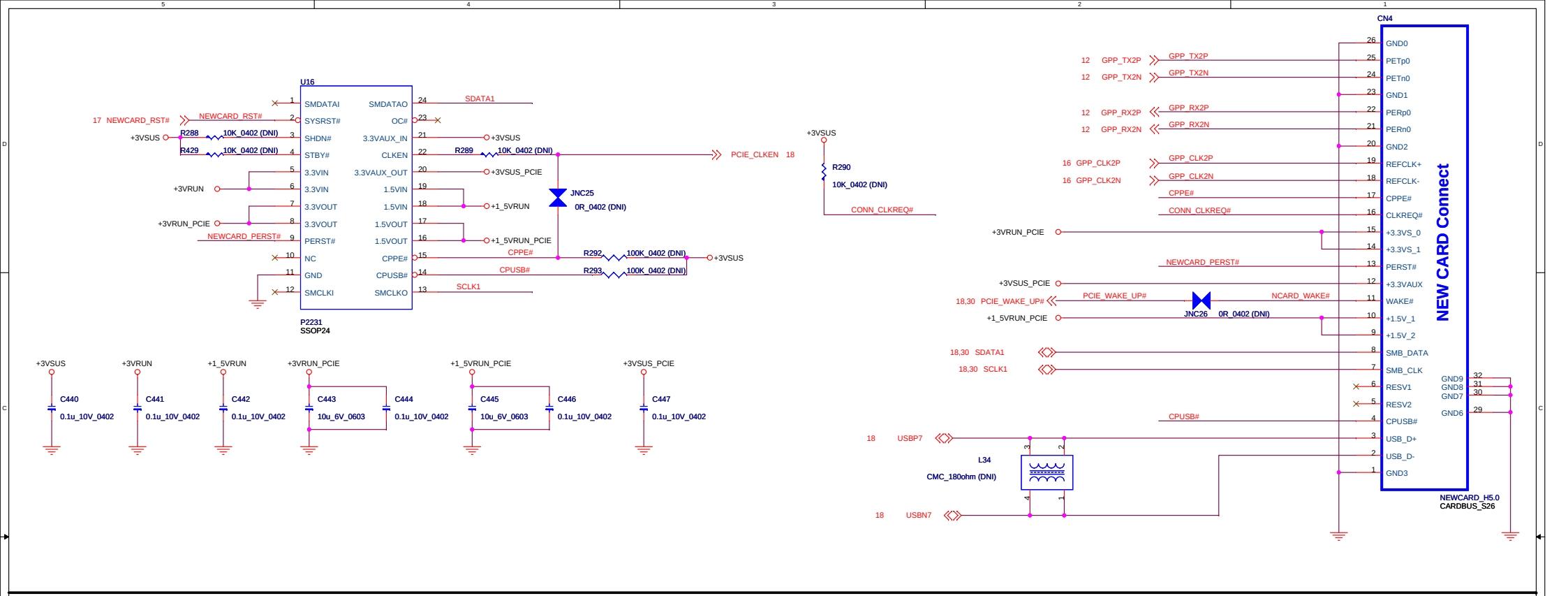
MICRO-STAR INT'L CO.,LTD.

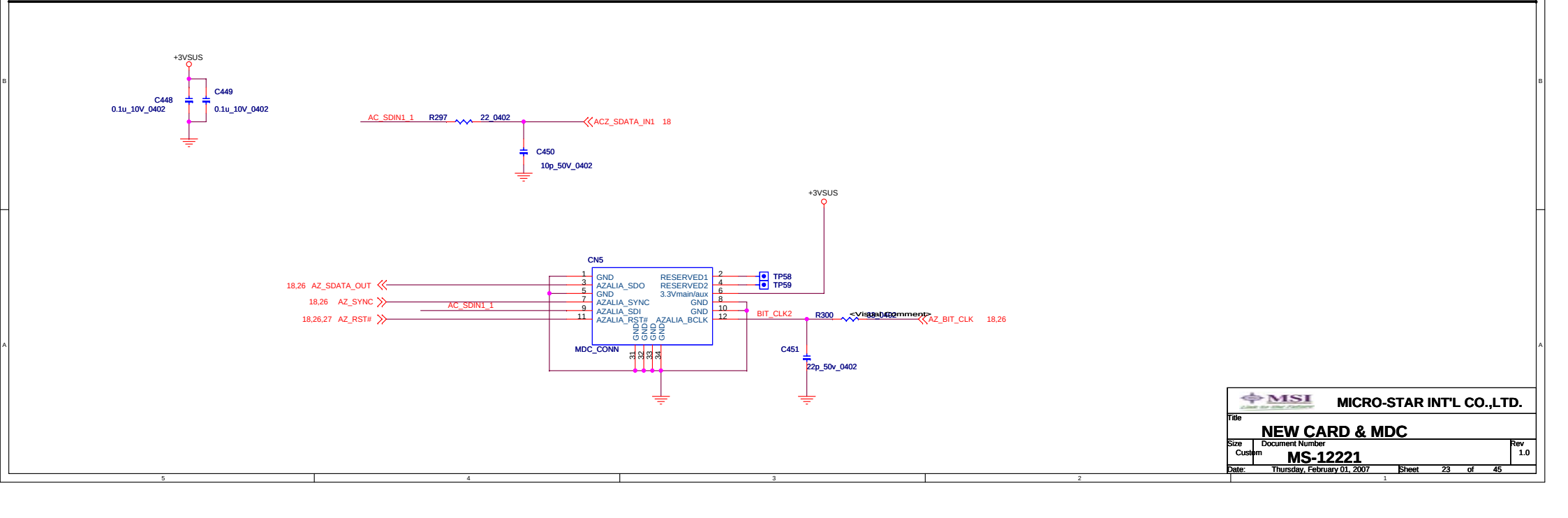
Title: SB600 STRAPS

Size: Custom | Document Number: MS-12221 | Rev: 1.0

Date: Thursday, February 01, 2007 | Sheet 21 of 45


MR510-A-RH
Close to chip
GRST# should connect to Power On reset if support S3
Close to socket
8P4R-47K_RN0402
RN33 SDDAT0 SDDAT1 SDDAT2 SDDAT3
RN34 MMDAT4 MMDAT5 MMDAT6 MMDAT7
RN35 MSDATA0 MSDATA1 MSDATA2 MSDATA3
R583 47K_0402 SDCMD
R591 47K_0402 SDCD#
R592 47K_0402 SDWP
R593 8.2K_0402 SMCD#
R594 47K_0402 MSINS#
R601 47K_0402 MSBS
R586 47K_0402
R588 22_0402 MS_CLK
R595 0_0805 (DNI)
R596 0R_0402 (DNI)
R609 22_0402 SDCLK
R610 100R0402 PCI_AD20
JNC20 0R_0402 (DNI) PCI_RST#
JNC21 0_0805 (DNI R0805_67_16)
JNC22 0R_0402 (DNI) SERIRQ
JNC23 0R_0402 (DNI) PCI_INTA#
JNC24 0R_0402 (DNI)
TP99 TP100 TP101 TP102
Q11 D03-352AP09-F01 SOT23SGD_T P-NDS352AP_NL_SOT23
R605 47K_0402
C962 0.1u_10V_0402
C963 10u_6V_0603
C964 10u_6V_0603
C965 10p_50V_0402
C966 10p_50V_0402
C967 0.1u_10V_0402
C968 0.1u_10V_0402
C969 0.1u_10V_0402
C970 0.1u_10V_0402
J61 CONN-SD_MMC_MS CARD-RH-1 N58-20F0300-N40 MMC_MS_26P
PCI_AD[31:0]
PCI_CBE#0
PCI_PME SB INTERNAL PU 10K
MICRO-STAR INT'L CO.,LTD.
CARD READER(MR510)
MS-12221
Thursday, February 01, 2007



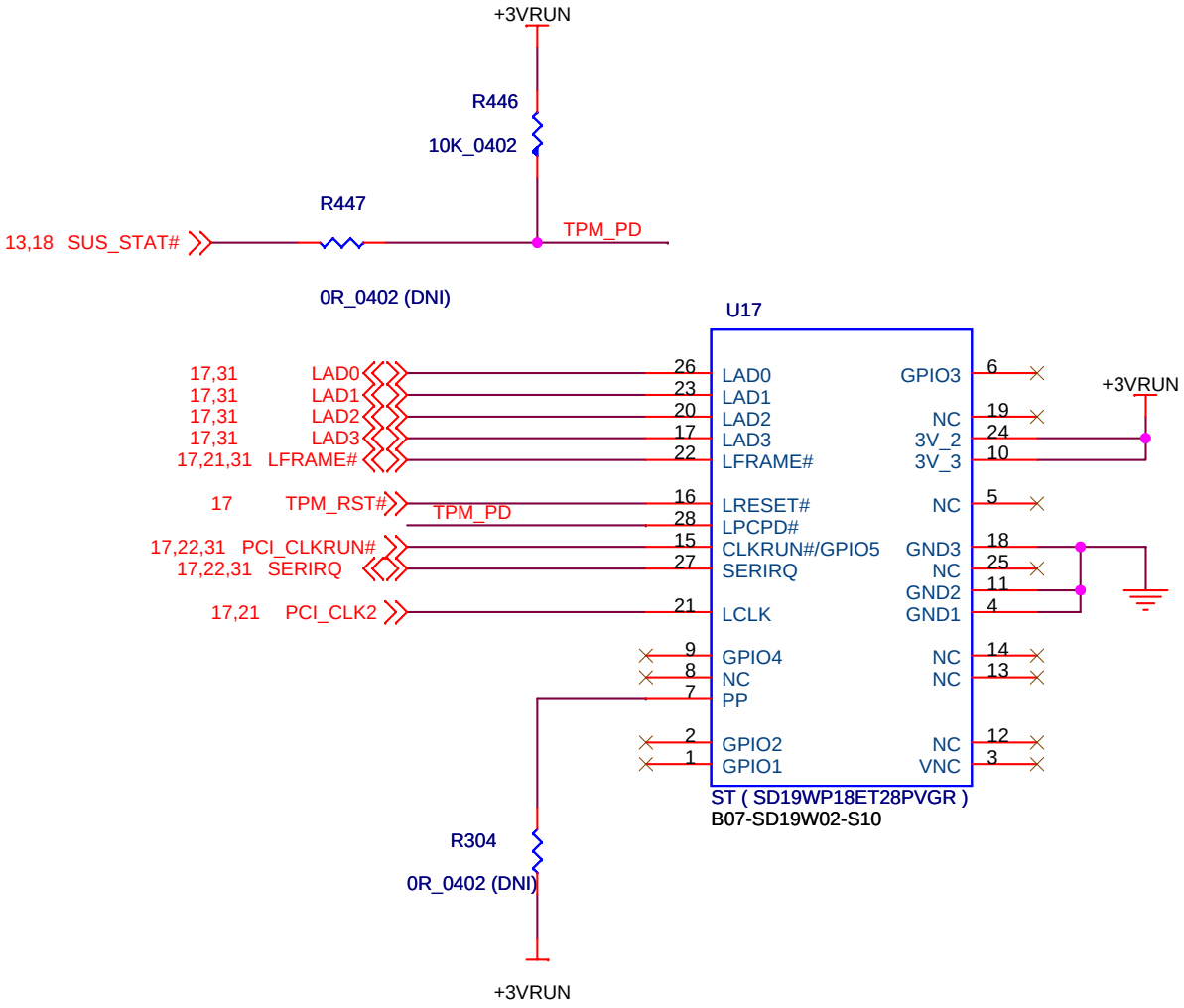


MICRO-STAR INT'L CO.,LTD.

Title: NEW CARD & MDC

Size: Custom | Document Number: MS-12221 | Rev: 1.0

Date: Thursday, February 01, 2007 | Sheet 23 of 45



MICRO-STAR INT'L CO.,LTD.

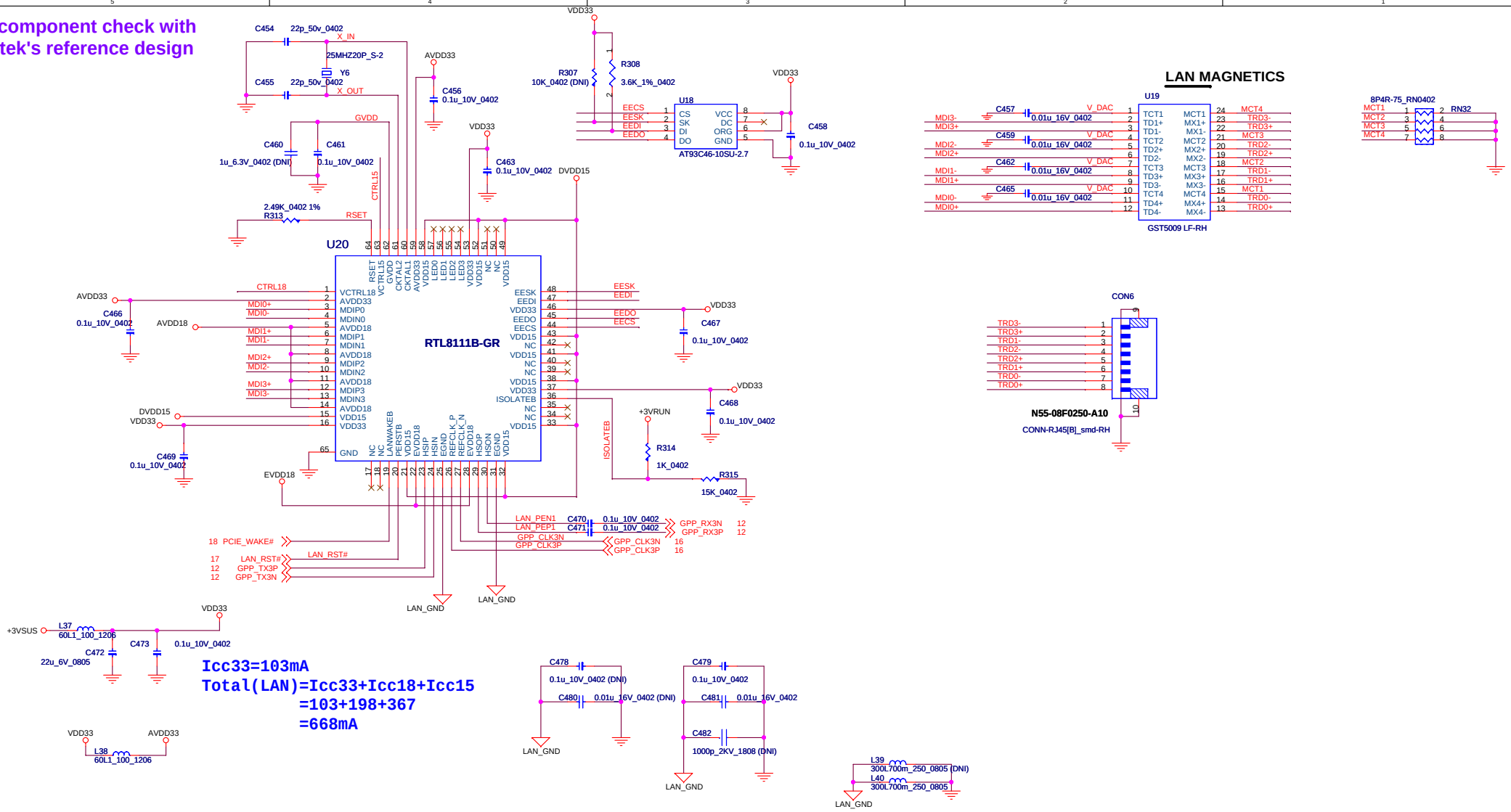
Title

TPM (ST19WP18-TPM-C)

Size	Document Number	Rev
A	MS-12221	1.0

Date: Thursday, February 01, 2007 Sheet 24 of 45

DNI component check with Realtek's reference design OK



Title	GIGA LAN (RTL8111B)
Size	Custom
Document Number	MS-12221
Rev	1.0
Date:	Thursday, February 01, 2007
Sheet	25 of 45

MICRO-STAR INT'L CO.,LTD.

060515 for Vista by Justin

	High (turn on)	Low (Mute)
DEPOP_MUTE#	Normal keep High	Power On/Down & S3
SPEAKER_MUTE#	Normal keep High	Line-out Jack IN

Close to ALC883

U21 REALTEK ALC888 ALC888-GR-A2-RH

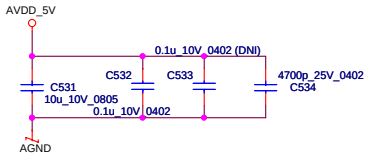
U22 SZ86P5X_NL_SC70-LF

whether can use two diode to cost down this circuit?

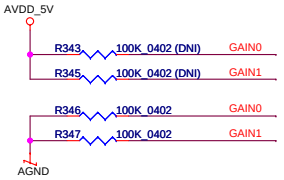
change to 5010

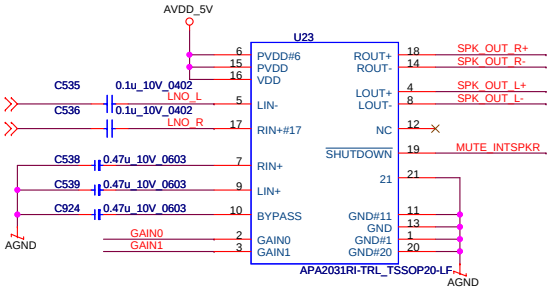
MSI	MICRO-STAR INT'L CO.,LTD.
Title	AUDIO(ALC883)
Size B	Document Number MS-12221 Rev 1.0
Date: Thursday, February 01, 2007	Sheet 26 of 45

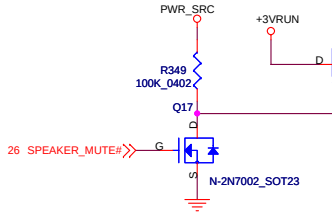
060515 for Vista by Justin

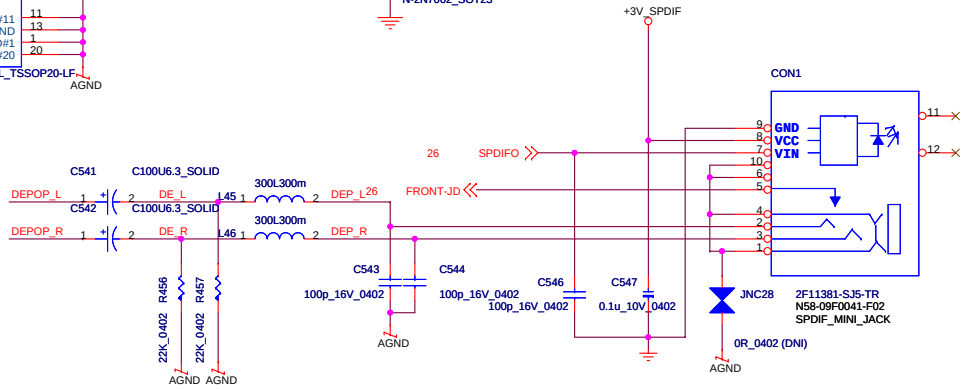


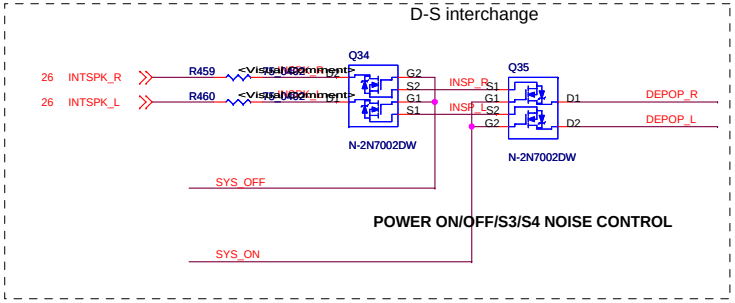
	GAIN0	GAIN1	SE/BTL#
6dB	0	0	0
10dB	0	1	0
15.6dB	1	0	0
21.6dB	1	1	0
4.3dB	X	X	1

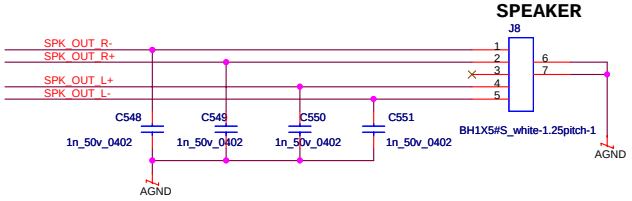


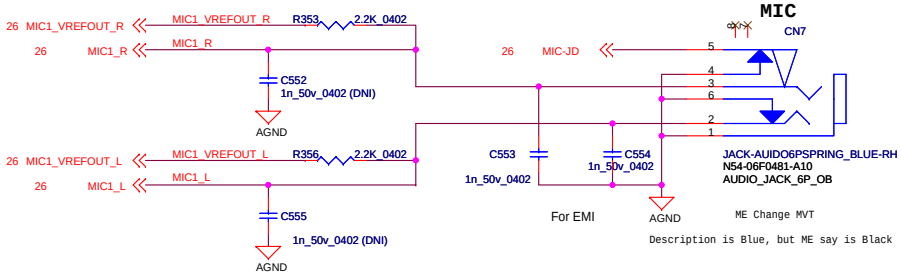


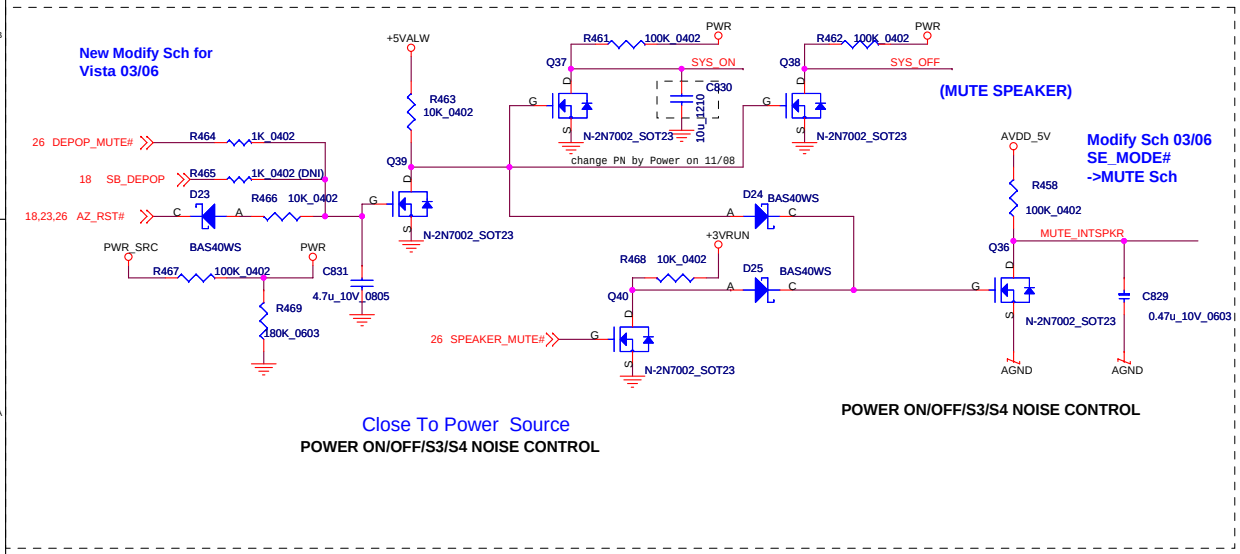












Mobile Configuation:

(3 external jacks, 1 internal Mic, 2 sets stereo internal speaker)

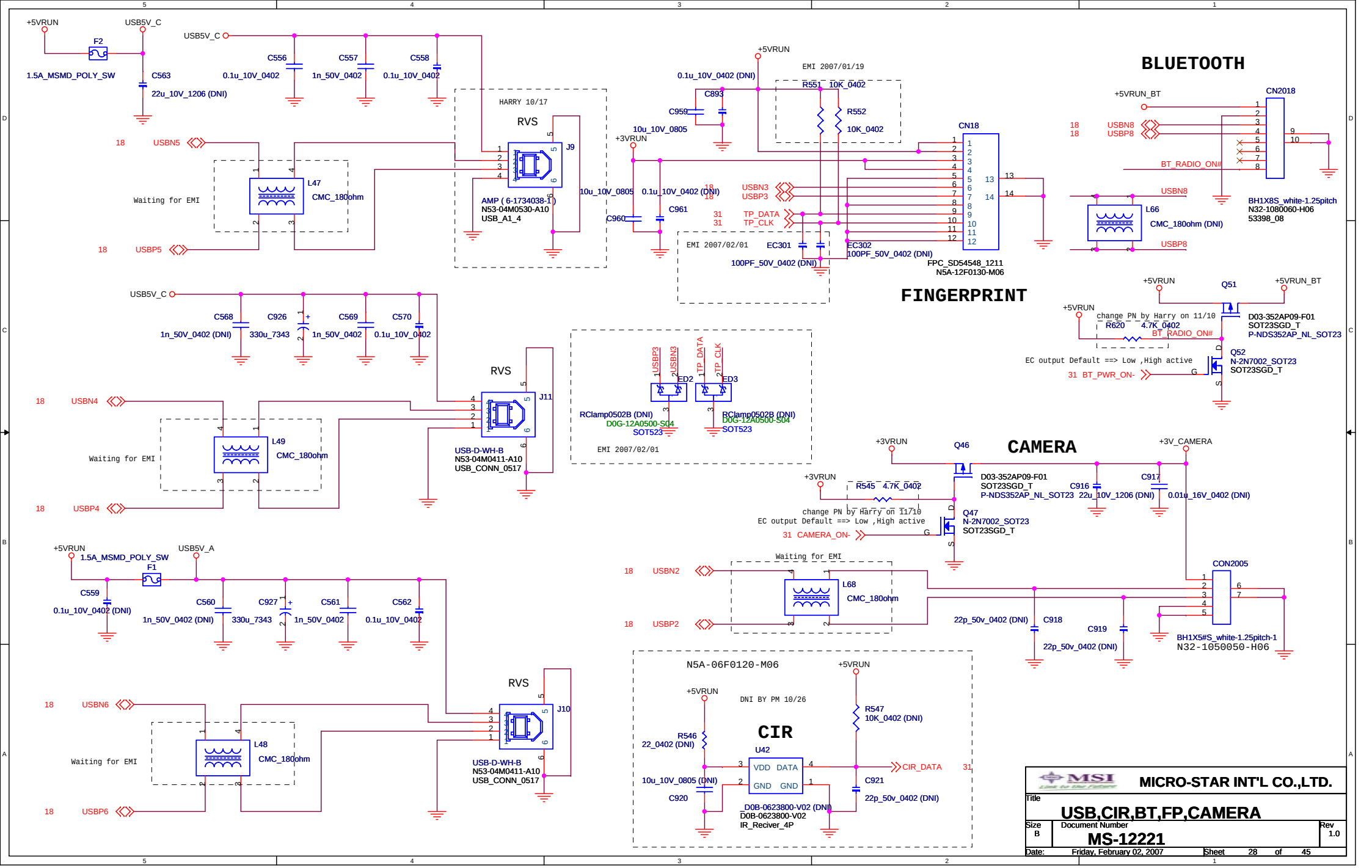
Pin Assignment	Location	Re-tasking
FRONT(pin-35/36)	SPDIF jack, AMP	SPDIF output, AMP output(Int.SPKR), ?
SURR (pin-39/41)	X	X
CEN/LFE (pin-43/44)	X	X
SIDESURR (pin-45/46)	X	X
LINE1 (pin-23/24)	Line-in jack	Line input, ?
MIC1 (pin-21/22)	MIC-in jack	Mic input, ?
MIC2 (pin-16/17)	Int.MIC	Int.Mic input

MICRO-STAR INT'L CO.,LTD.

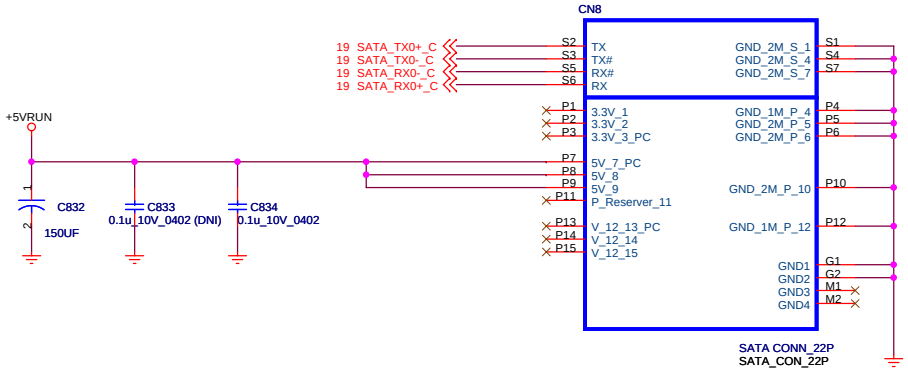
Title: AMP & SPK & MIC & SPK

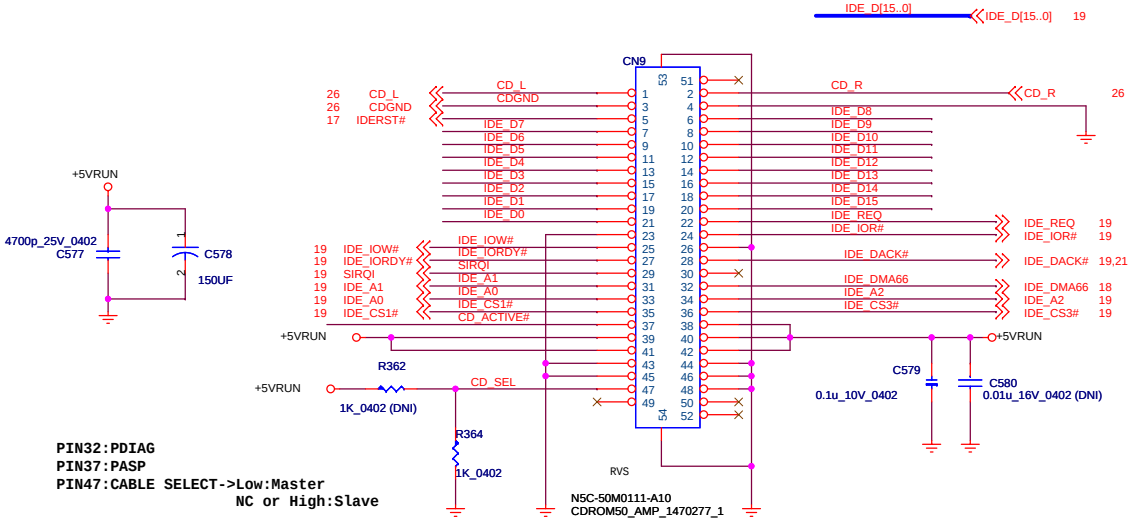
Size: Custom | Document Number: MS-12221 | Rev: 1.0

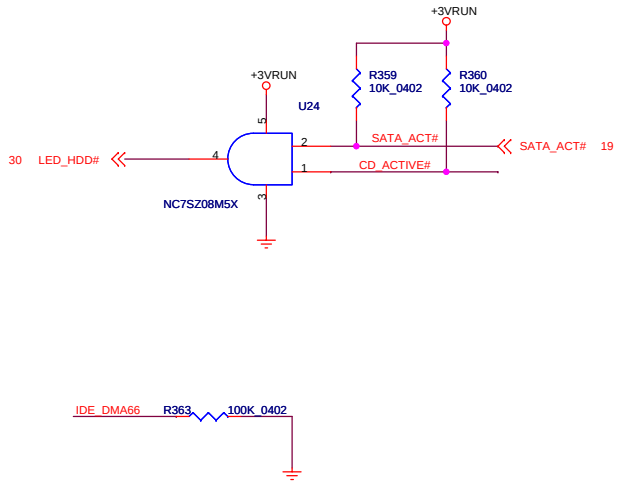
Date: Thursday, February 01, 2007 | Sheet 27 of 45


BLUETOOTH
FINGERPRINT
CAMERA
CIR
+5VRUN
USB5V_C
F2
1.5A_MSMD_POLY_SW
C563
22u_10V_1206 (DNI)
C556
C557
C558
0.1u_10V_0402
1n_50V_0402
HARRY 10/17
RVS
J9
AMP (6-1734038-1)
N53-04M0530-A10
USB_A1_4
USBN5
USBP5
L47
CMC_180ohm
Waiting for EMI
EMI 2007/01/19
R551 10K_0402
R552
10K_0402
C893
C959
10u_10V_0805
+3VRUN
C961
C960
0.1u_10V_0402 (DNI)
USBN3
USBP3
TP_DATA
TP_CLK
EMI 2007/02/01
EC301
EC302
100PF_50V_0402 (DNI)
CN18
FPC_SD54548_1211
N5A-12F0130-M06
+5VRUN_BT
CN2018
USBN8
USBP8
BT_RADIO_ON#
L66
CMC_180ohm (DNI)
BH1X8S_white-1.25pitch
N32-1080060-H06
53398_08
C568
C926
C569
C570
330u_7343
USBN4
USBP4
L49
RVS
J11
USB-D-WH-B
N53-04M0411-A10
USB_CONN_0517
RClamp0502B (DNI)
D0G-12A0500-S04
SOT523
ED2
ED3
change PN by Harry on 11/10
R620 4.7K_0402
Q51
D03-352AP09-F01
SOT23SGD_T
P-NDS352AP_NL_SOT23
Q52
N-2N7002_SOT23
EC output Default ==> Low ,High active
31 BT_PWR_ON-
+3V_CAMERA
Q46
Q47
R545 4.7K_0402
C916 22u_10V_1206 (DNI)
C917 0.01u_16V_0402 (DNI)
31 CAMERA_ON-
C559
C560
C927
C561
C562
USBN2
USBP2
L68
CON2005
C918
C919
22p_50v_0402 (DNI)
BH1X5#S_white-1.25pitch-1
N32-1050050-H06
USBN6
USBP6
L48
R546
22_0402 (DNI)
R547
10K_0402 (DNI)
DNI BY PM 10/26
U42
VDD DATA
GND GND
CIR_DATA
C920
C921
D0B-0623800-V02 (DNI)
D0B-0623800-V02
IR_Reciver_4P
MICRO-STAR INT'L CO.,LTD.
Title
USB,CIR,BT,FP,CAMERA
Size B
Document Number
MS-12221
Rev 1.0
Date: Friday, February 02, 2007
Sheet 28 of 45

2.5"HD DRIVE





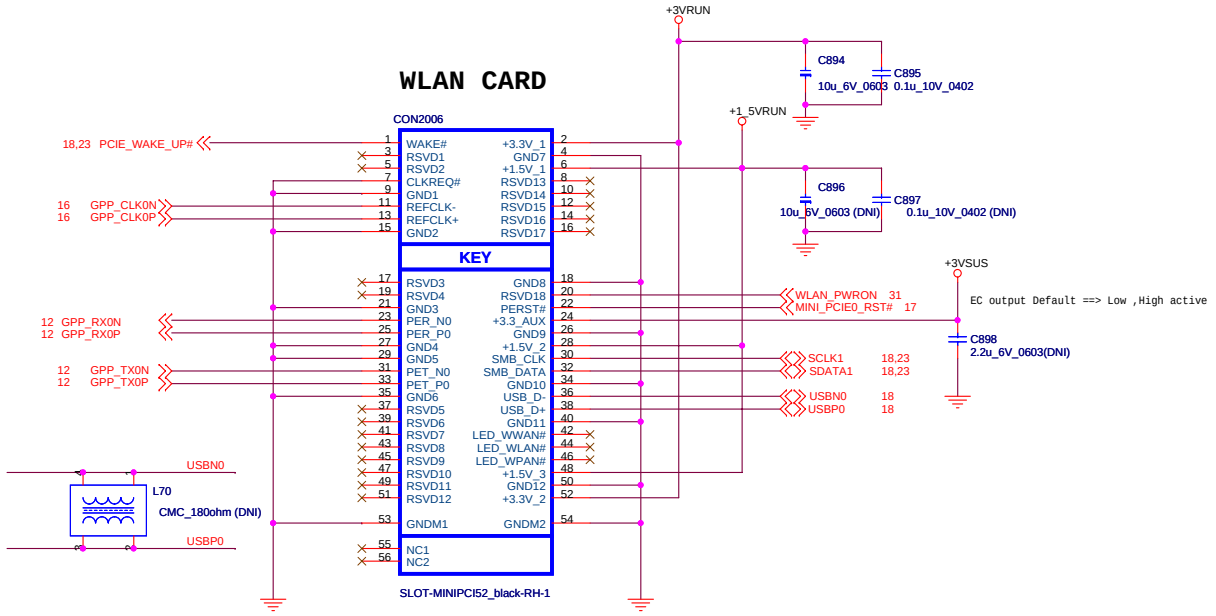


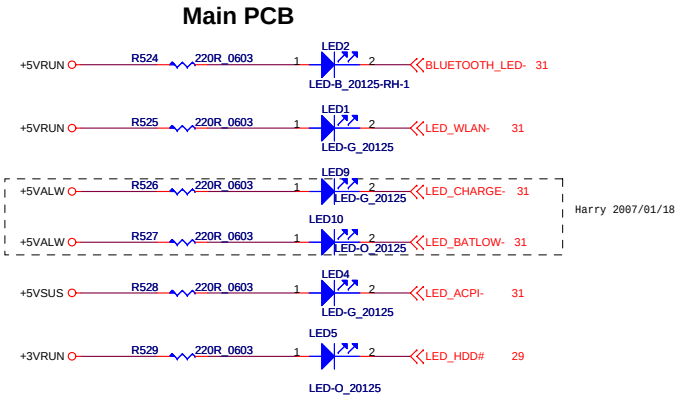
MICRO-STAR INT'L CO.,LTD.

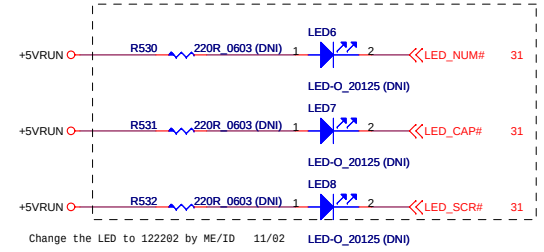
Title: SATA HDD/PATA CDROM CONN

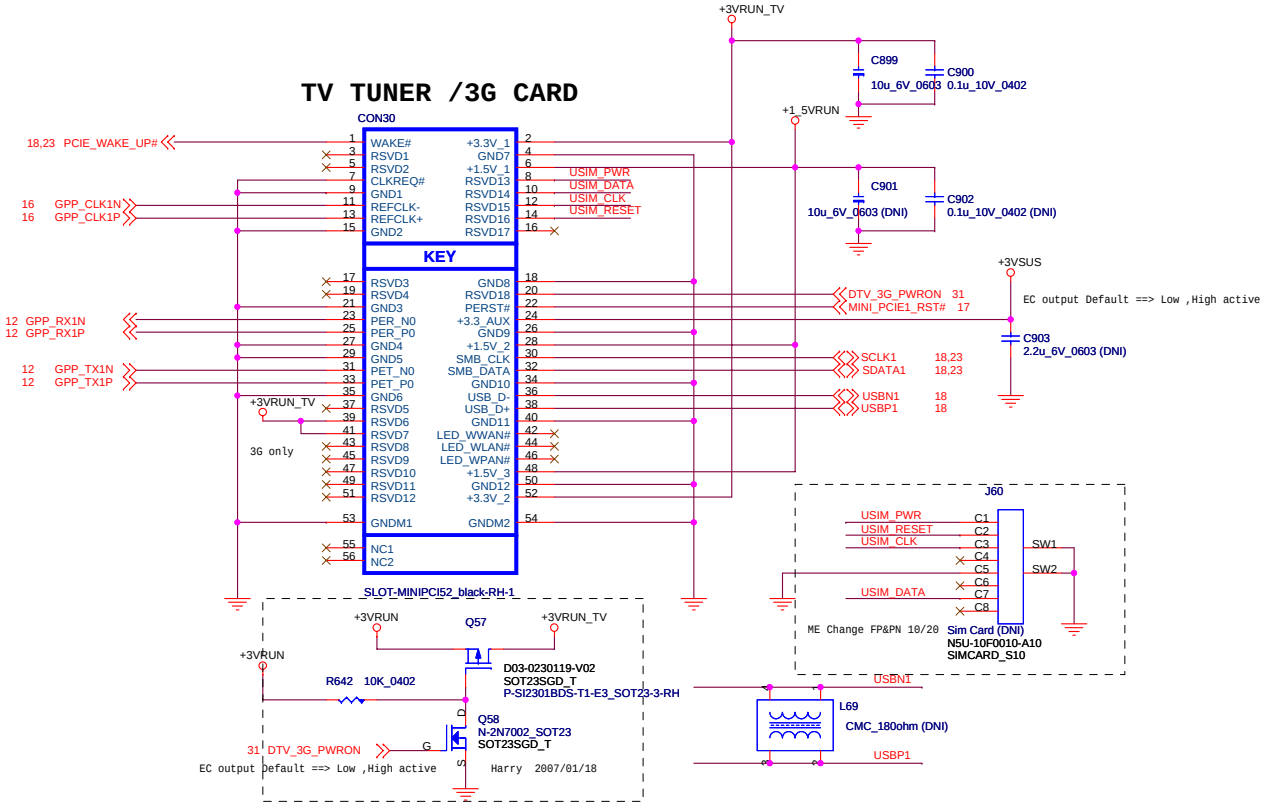
Size	Document Number	Rev
Custom	MS-12221	1.0

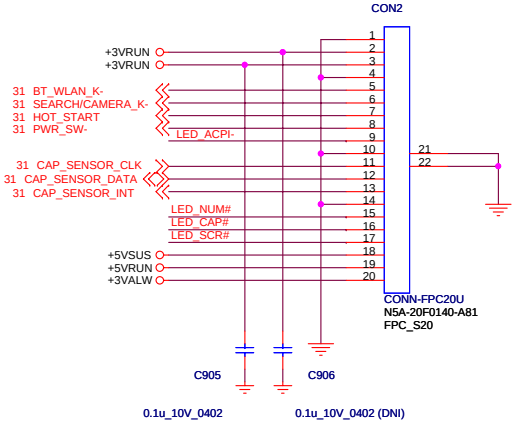
Date: Thursday, February 01, 2007 Sheet 29 of 45









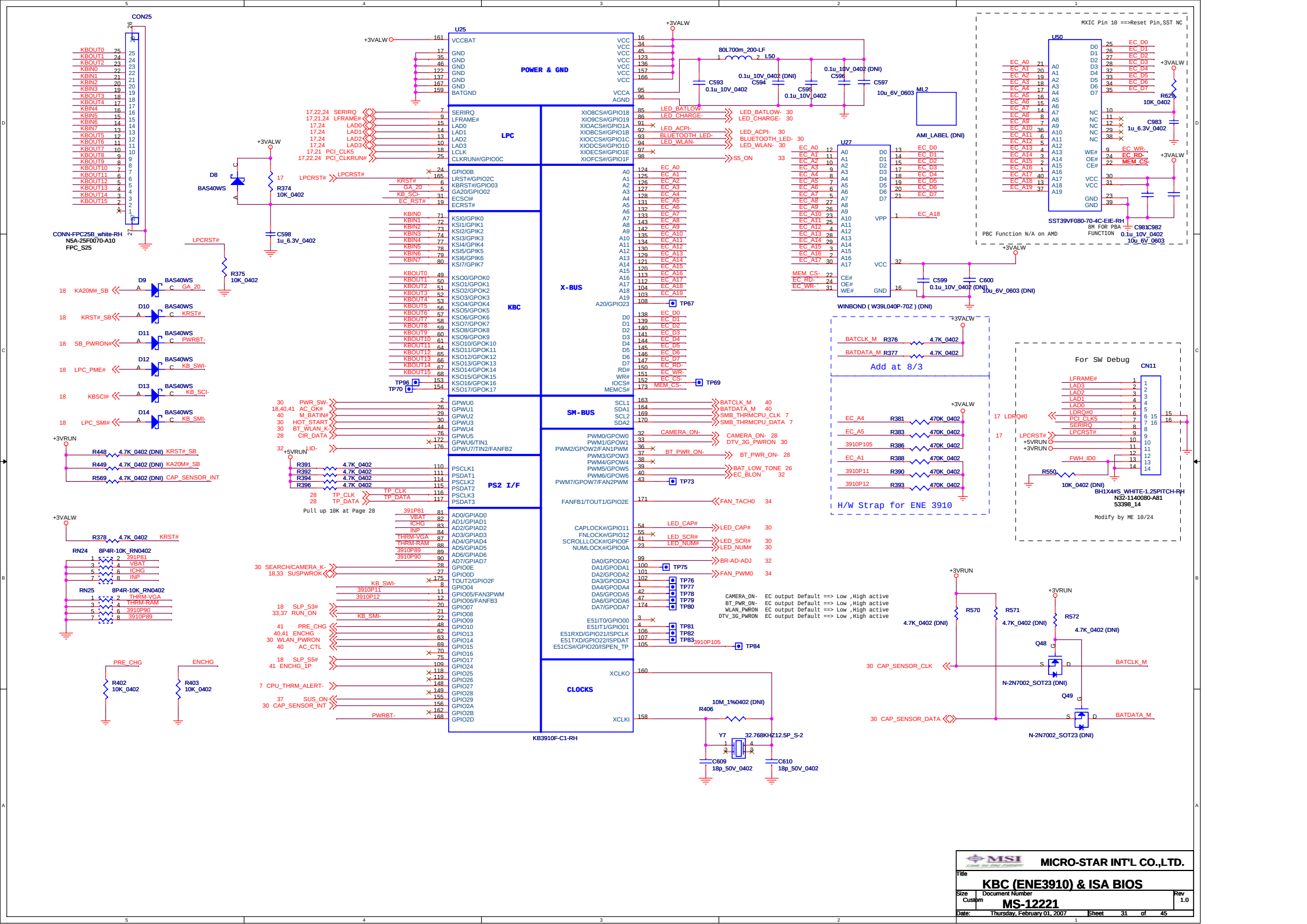


MICRO-STAR INT'L CO.,LTD.

Title: MINI-PCIE X2& LED &SW

Size: Custom | Document Number: MS-12221 | Rev: 1.0

Date: Thursday, February 01, 2007 | Sheet 30 of 45

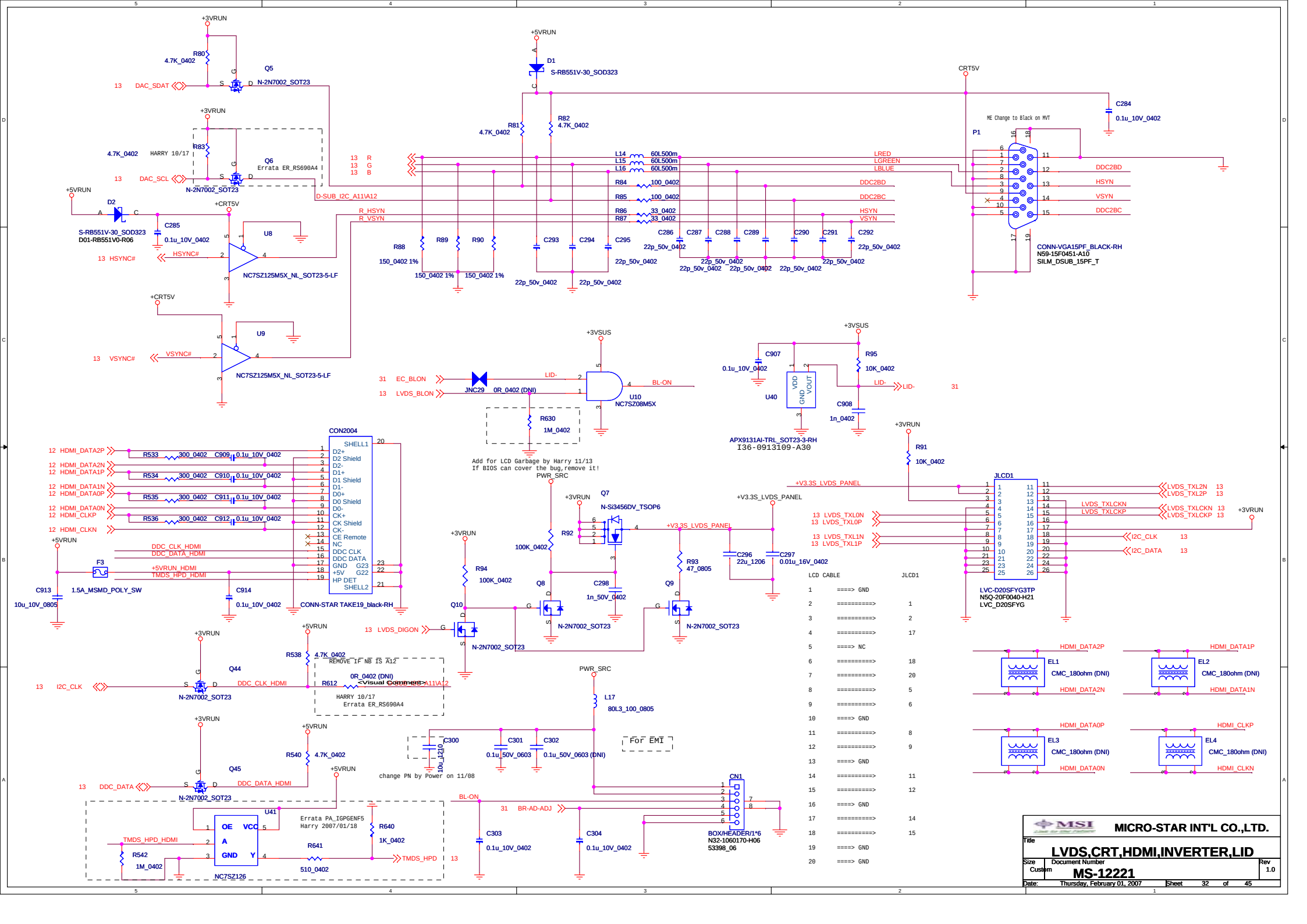


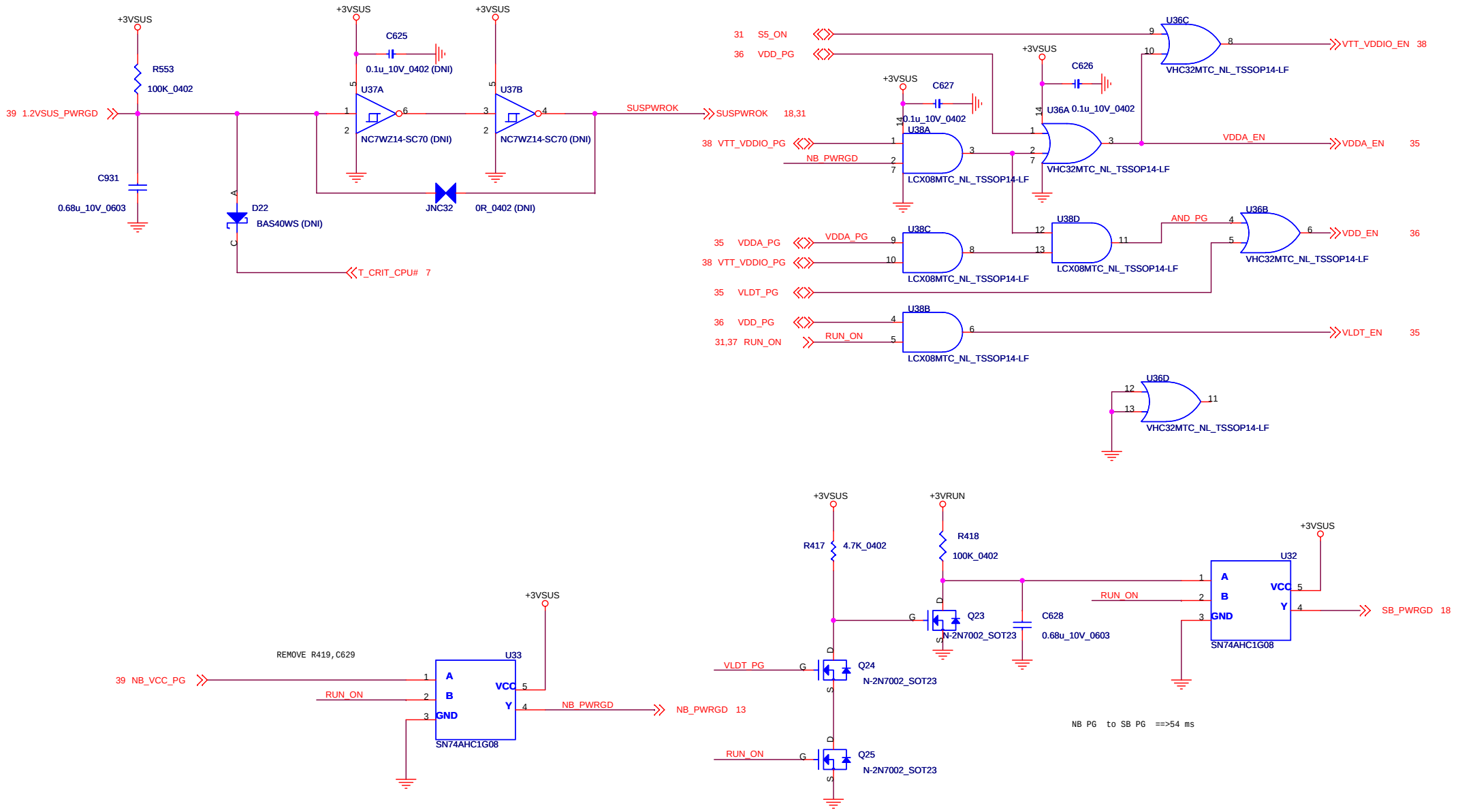
MICRO-STAR INT'L CO.,LTD.

Title: KBC (ENE3910) & ISA BIOS

Size: Custom | Document Number: MS-12221 | Rev: 1.0

Date: Thursday, February 01, 2007 | Sheet 31 of 45


+3VRUN
R80
4.7K_0402
Q5
13 DAC_SDAT
N-2N7002_SOT23
R83
4.7K_0402
HARRY 10/17
Q6
Errata ER_RS690A4
13 DAC_SCL
+5VRUN
D2
S-RB551V-30_SOD323
D01-RB551V0-R06
C285
0.1u_10V_0402
+CRT5V
U8
13 HSYNC#
HSYNC#
NC7SZ125M5X_NL_SOT23-5-LF
U9
13 VSYNC#
VSYNC#
D-SUB_I2C_A11\A12
R_HSYN
R_VSYN
D1
S-RB551V-30_SOD323
R81
4.7K_0402
R82
4.7K_0402
13 R
13 G
13 B
L14 60L500m
L15 60L500m
L16 60L500m
LRED
LGREEN
LBLUE
R84 100_0402
R85 100_0402
R86 33_0402
R87 33_0402
DDC2BD
DDC2BC
HSYN
VSYN
R88 150_0402 1%
R89 150_0402 1%
R90 150_0402 1%
C293 22p_50v_0402
C294 22p_50v_0402
C295 22p_50v_0402
C286 22p_50v_0402
C287 22p_50v_0402
C288 22p_50v_0402
C289 22p_50v_0402
C290 22p_50v_0402
C291 22p_50v_0402
C292 22p_50v_0402
CRT5V
C284
0.1u_10V_0402
ME Change to Black on MVT
P1
DDC2BD
HSYN
VSYN
DDC2BC
CONN-VGA15PF_BLACK-RH
N59-15F0451-A10
SILM_DSUB_15PF_T
+3VSUS
31 EC_BLON
13 LVDS_BLON
JNC29 0R_0402 (DNI)
LID-
BL-ON
U10
NC7SZ08M5X
R630
1M_0402
C907
0.1u_10V_0402
U40
VDD
GND
VOUT
APX9131AI-TRL_SOT23-3-RH
I36-0913109-A30
R95
10K_0402
C908
1n_0402
31
Add for LCD Garbage by Harry 11/13
If BIOS can cover the bug,remove it!
R91
10K_0402
+V3.3S_LVDS_PANEL
JLCD1
LVC-D20SFYG3TP
N5Q-20F0040-H21
LVC_D20SFYG
LVDS_TXL2N 13
LVDS_TXL2P 13
LVDS_TXLCKN
LVDS_TXLCKP
LVDS_TXLCKN 13
LVDS_TXLCKP 13
13 LVDS_TXL0N
13 LVDS_TXL0P
13 LVDS_TXL1N
13 LVDS_TXL1P
I2C_CLK 13
I2C_DATA 13
CON2004
CONN-STAR TAKE19_black-RH
12 HDMI_DATA2P
12 HDMI_DATA2N
12 HDMI_DATA1P
12 HDMI_DATA1N
12 HDMI_DATA0P
12 HDMI_DATA0N
12 HDMI_CLKP
12 HDMI_CLKN
R533 300_0402 C909 0.1u_10V_0402
R534 300_0402 C910 0.1u_10V_0402
R535 300_0402 C911 0.1u_10V_0402
R536 300_0402 C912 0.1u_10V_0402
DDC_CLK_HDMI
DDC_DATA_HDMI
+5VRUN_HDMI
TMDS_HPD_HDMI
F3
1.5A_MSMD_POLY_SW
C913 10u_10V_0805
C914 0.1u_10V_0402
PWR_SRC
Q7
N-Si3456DV_TSOP6
R92 100K_0402
R93 47_0805
C296 22u_1206
C297 0.01u_16V_0402
C298 1n_50V_0402
Q8
Q9
Q10
N-2N7002_SOT23
13 LVDS_DIGON
R94 100K_0402
Q44
13 I2C_CLK
DDC_CLK_HDMI
R538 4.7K_0402
REMOVE IF NB IS A12
R612 0R_0402 (DNI)
<Visual Comment>-A11\A12
HARRY 10/17
Errata ER_RS690A4
Q45
13 DDC_DATA
DDC_DATA_HDMI
R540 4.7K_0402
L17
80L3_100_0805
For EMI
C300 10u_1210
C301 0.1u_50V_0603
C302 0.1u_50V_0603 (DNI)
change PN by Power on 11/08
CN1
BOX/HEADER/1*6
N32-1060170-H06
53398_06
BL-ON
31 BR-AD-ADJ
C303 0.1u_10V_0402
C304 0.1u_10V_0402
U41
OE
VCC
A
GND
Y
NC7SZ126
Errata PA_IGPGENF5
Harry 2007/01/18
R640 1K_0402
R641 510_0402
R542 1M_0402
TMDS_HPD
13
LCD CABLE JLCD1
1 ====> GND
2 ==========> 1
3 ==========> 2
4 ==========> 17
5 ====> NC
6 ==========> 18
7 ==========> 20
8 ==========> 5
9 ==========> 6
10 ====> GND
11 ==========> 8
12 ==========> 9
13 ====> GND
14 ==========> 11
15 ==========> 12
16 ====> GND
17 ==========> 14
18 ==========> 15
19 ====> GND
20 ====> GND
HDMI_DATA2P
HDMI_DATA2N
EL1
CMC_180ohm (DNI)
HDMI_DATA1P
HDMI_DATA1N
EL2
CMC_180ohm (DNI)
HDMI_DATA0P
HDMI_DATA0N
EL3
CMC_180ohm (DNI)
HDMI_CLKP
HDMI_CLKN
EL4
CMC_180ohm (DNI)
MICRO-STAR INT'L CO.,LTD.
Title
LVDS,CRT,HDMI,INVERTER,LID
Size Custom
Document Number MS-12221
Rev 1.0
Date: Thursday, February 01, 2007
Sheet 32 of 45

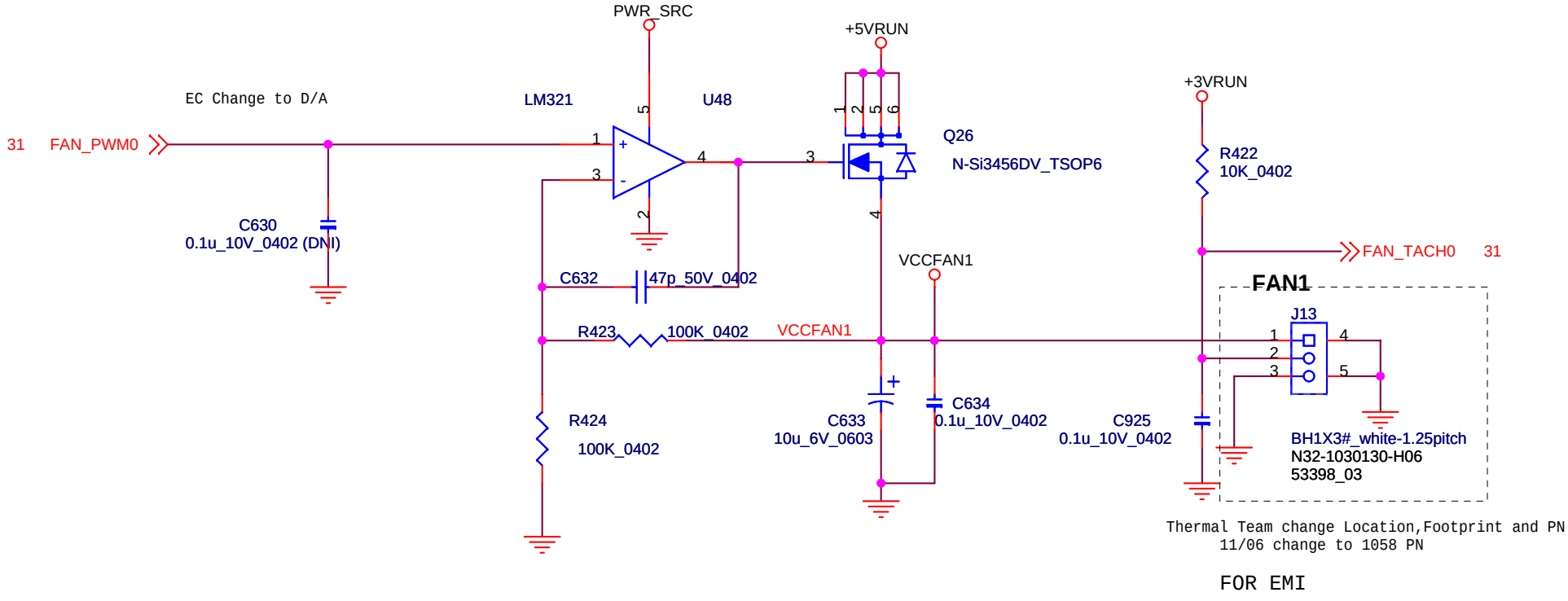


MICRO-STAR INT'L CO.,LTD.

Title: PWRGD

Size: B | Document Number: MS-12221 | Rev: 1.0

Date: Thursday, February 01, 2007 | Sheet 33 of 45

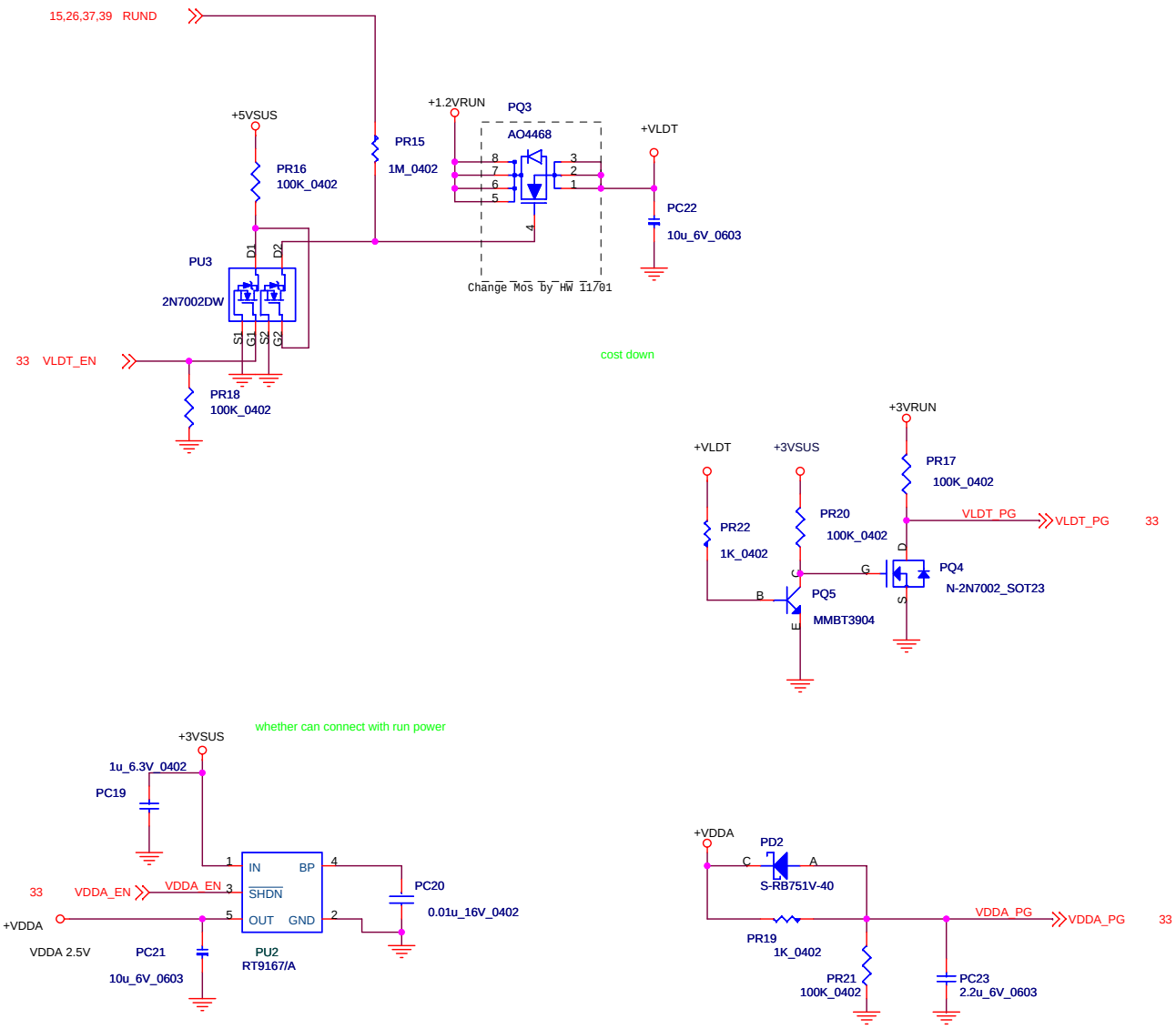


MICRO-STAR INT'L CO.,LTD.

Title: FAN

Size	Document Number	Rev
A	MS-12221	1.0

Date: Thursday, February 01, 2007 Sheet 34 of 45



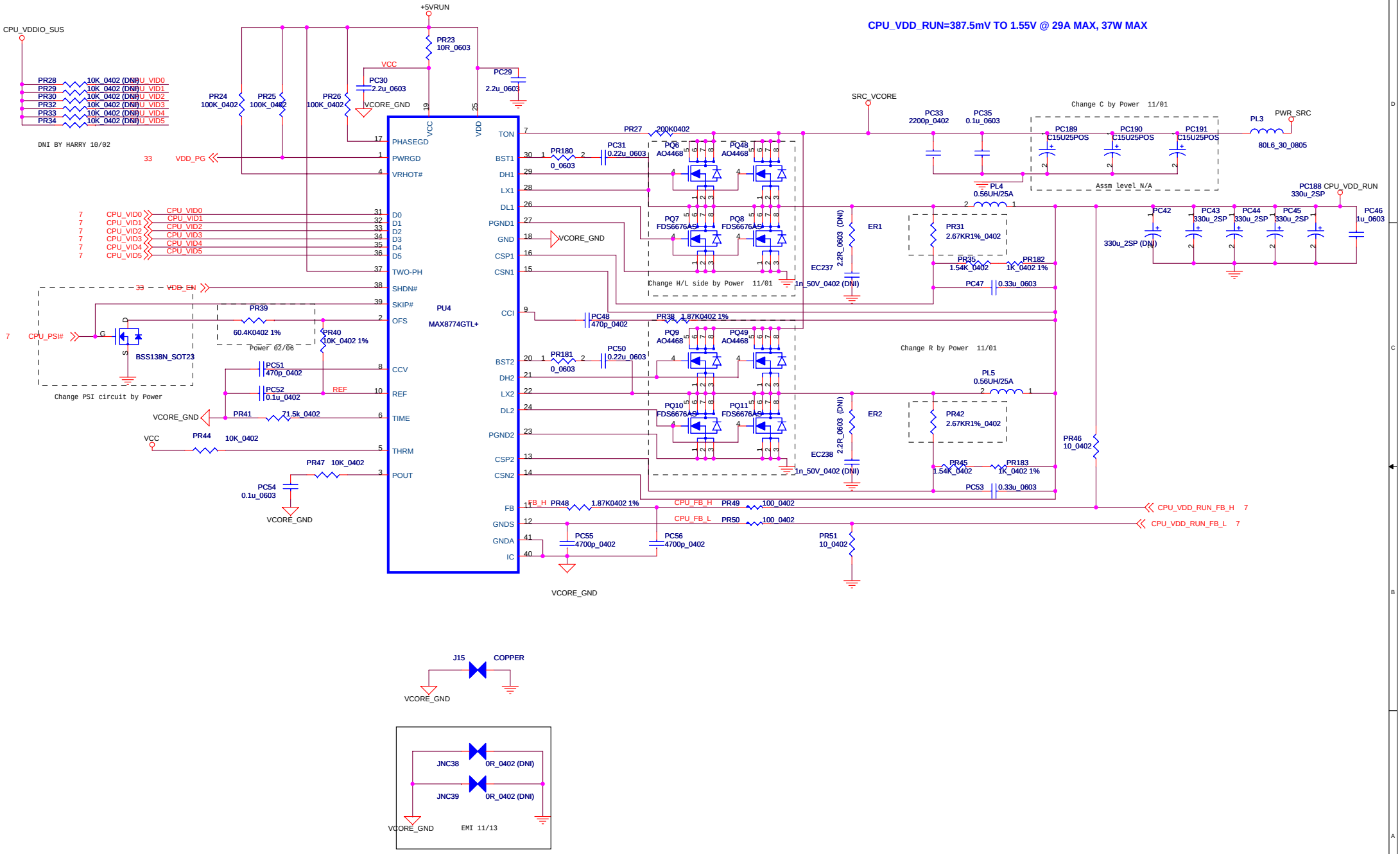
MICRO-STAR INT'L CO.,LTD.

Title

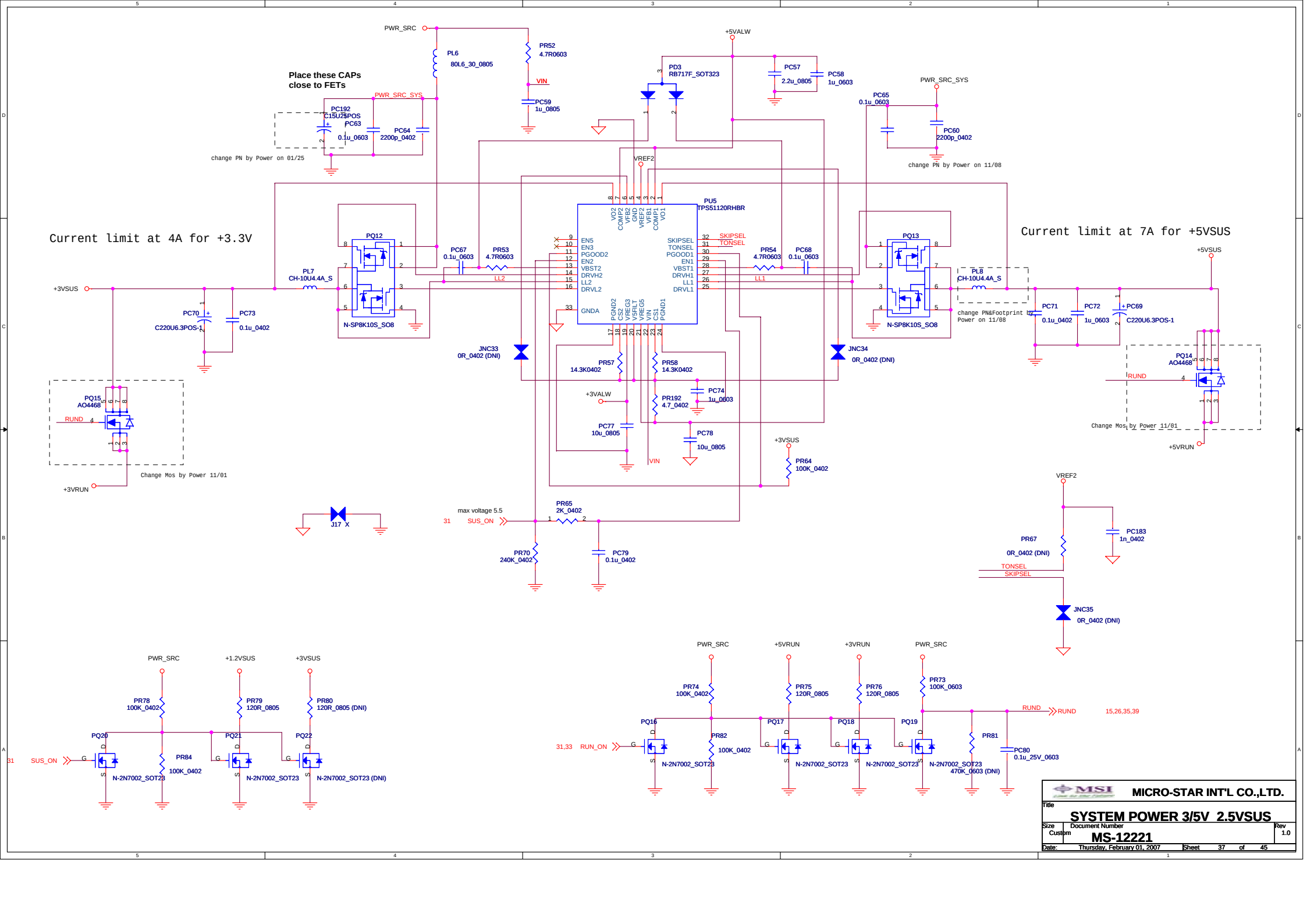
M 1.2V VDDA 2.5V VLDT

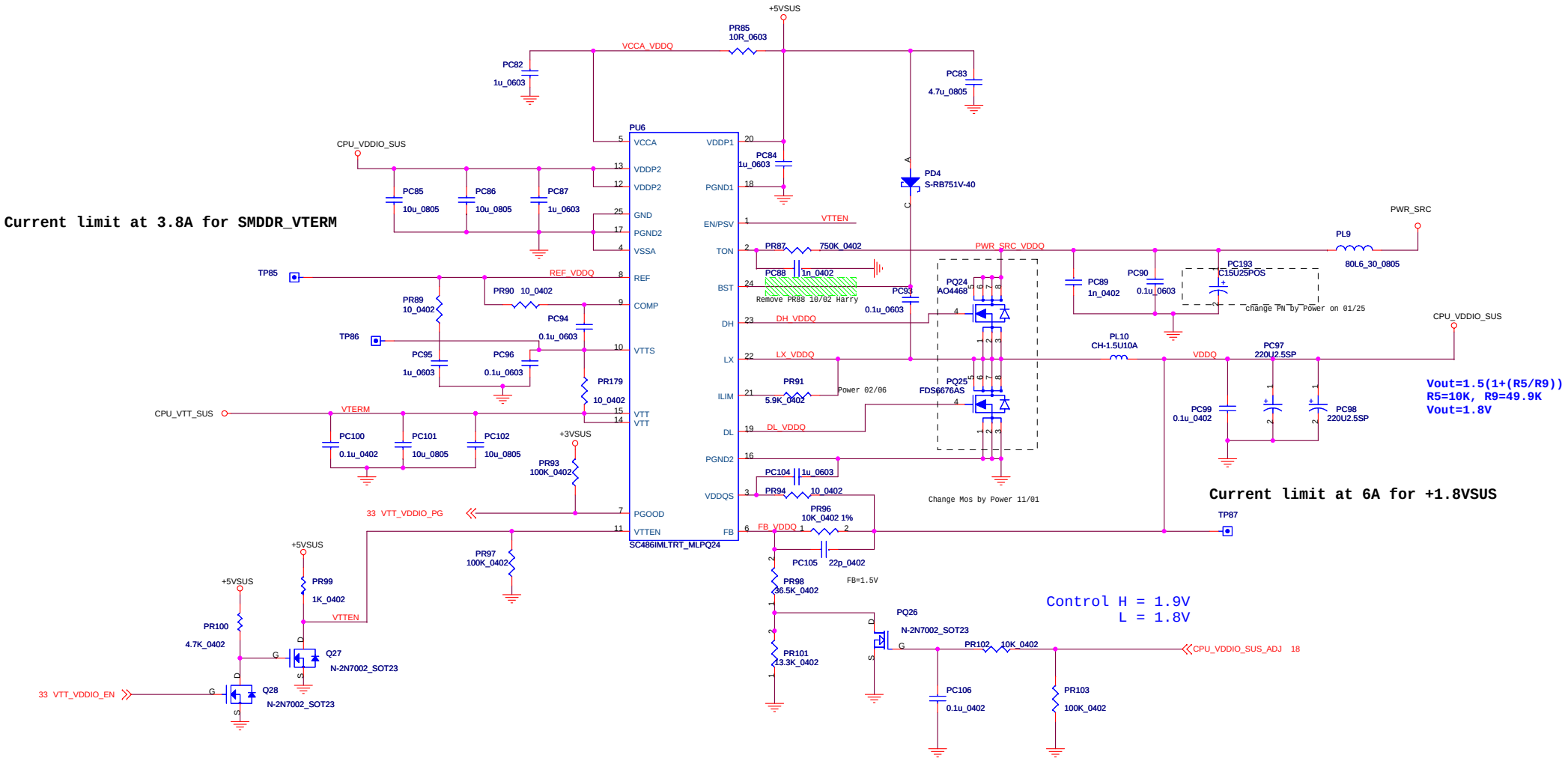
Size	Document Number	Rev
B	MS-12221	1.0

Date: Thursday, February 01, 2007 Sheet 35 of 45



Company	MICRO-STAR INT'L CO.,LTD.
Title	VCORE
Size	Custom
Document Number	MS-12221
Rev	1.0
Date:	Thursday, February 01, 2007
Sheet	36 of 45


Current limit at 4A for +3.3V
Current limit at 7A for +5VSUS
Place these CAPs close to FETs
PWR_SRC
PL6
80L6_30_0805
PR52
4.7R0603
VIN
PC59
1u_0805
PWR_SRC_SYS
PC192
C15U25POS
PC63
0.1u_0603
PC64
2200p_0402
change PN by Power on 01/25
+5VALW
PD3
RB717F_SOT323
PC57
2.2u_0805
PC58
1u_0603
PC65
0.1u_0603
PC60
2200p_0402
change PN by Power on 11/08
VREF2
PU5
TPS51120RHBR
VO2
COMP2
VFB2
GND
VREF2
VFB1
COMP1
VO1
EN5
EN3
PGOOD2
EN2
VBST2
DRVH2
LL2
DRVL2
GNDA
SKIPSEL
TONSEL
PGOOD1
EN1
VBST1
DRVH1
LL1
DRVL1
PGND2
CSE
VREG3
VSELT
VREG5
VIN
CS1
PGND1
PQ12
N-SP8K10S_SO8
PC67
0.1u_0603
PR53
4.7R0603
LL2
PR54
4.7R0603
PC68
0.1u_0603
LL1
PQ13
N-SP8K10S_SO8
PL7
CH-10U4.4A_S
PL8
CH-10U4.4A_S
change PN&Footprint by Power on 11/08
+3VSUS
PC70
C220U6.3POS-1
PC73
0.1u_0402
+5VSUS
PC71
0.1u_0402
PC72
1u_0603
PC69
C220U6.3POS-1
JNC33
0R_0402 (DNI)
JNC34
0R_0402 (DNI)
PR57
14.3K0402
PR58
14.3K0402
PC74
1u_0603
PR192
4.7_0402
PC77
10u_0805
PC78
10u_0805
PQ15
AO4468
RUND
Change Mos by Power 11/01
+3VRUN
PQ14
AO4468
Change Mos by Power 11/01
+5VRUN
PR64
100K_0402
J17 X
max voltage 5.5
31
SUS_ON
PR65
2K_0402
PR70
240K_0402
PC79
0.1u_0402
VREF2
PR67
0R_0402 (DNI)
TONSEL
SKIPSEL
PC183
1n_0402
JNC35
0R_0402 (DNI)
PWR_SRC
+1.2VSUS
+3VSUS
PR78
100K_0402
PR79
120R_0805
PR80
120R_0805 (DNI)
PQ20
PQ21
PQ22
PR84
100K_0402
N-2N7002_SOT23
N-2N7002_SOT23
N-2N7002_SOT23 (DNI)
+5VRUN
+3VRUN
PR74
100K_0402
PR75
120R_0805
PR76
120R_0805
PR73
100K_0603
PQ16
PQ17
PQ18
PQ19
31,33
RUN_ON
PR82
100K_0402
PR81
470K_0603 (DNI)
PC80
0.1u_25V_0603
RUND
15,26,35,39
N-2N7002_SOT23
N-2N7002_SOT23
N-2N7002_SOT23
N-2N7002_SOT23
MICRO-STAR INT'L CO.,LTD.
Title
SYSTEM POWER 3/5V 2.5VSUS
Size
Custom
Document Number
MS-12221
Rev
1.0
Date:
Thursday, February 01, 2007
Sheet
37
of
45

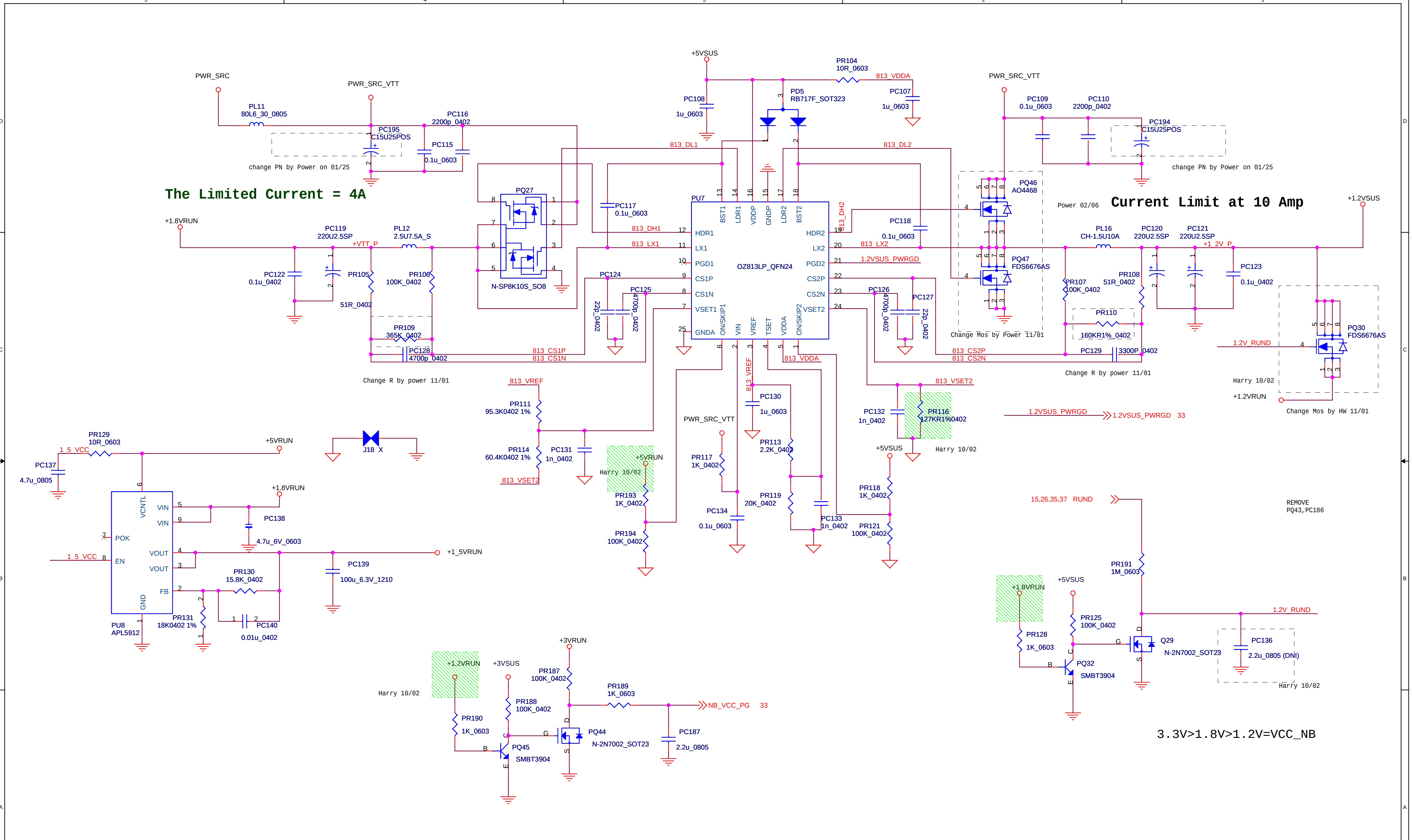


MICRO-STAR INT'L CO.,LTD.

Title: DDR2 1.8V VTT 0.9V

Size: Custom | Document Number: MS-12221 | Rev: 1.0

Date: Thursday, February 01, 2007 | Sheet 38 of 45

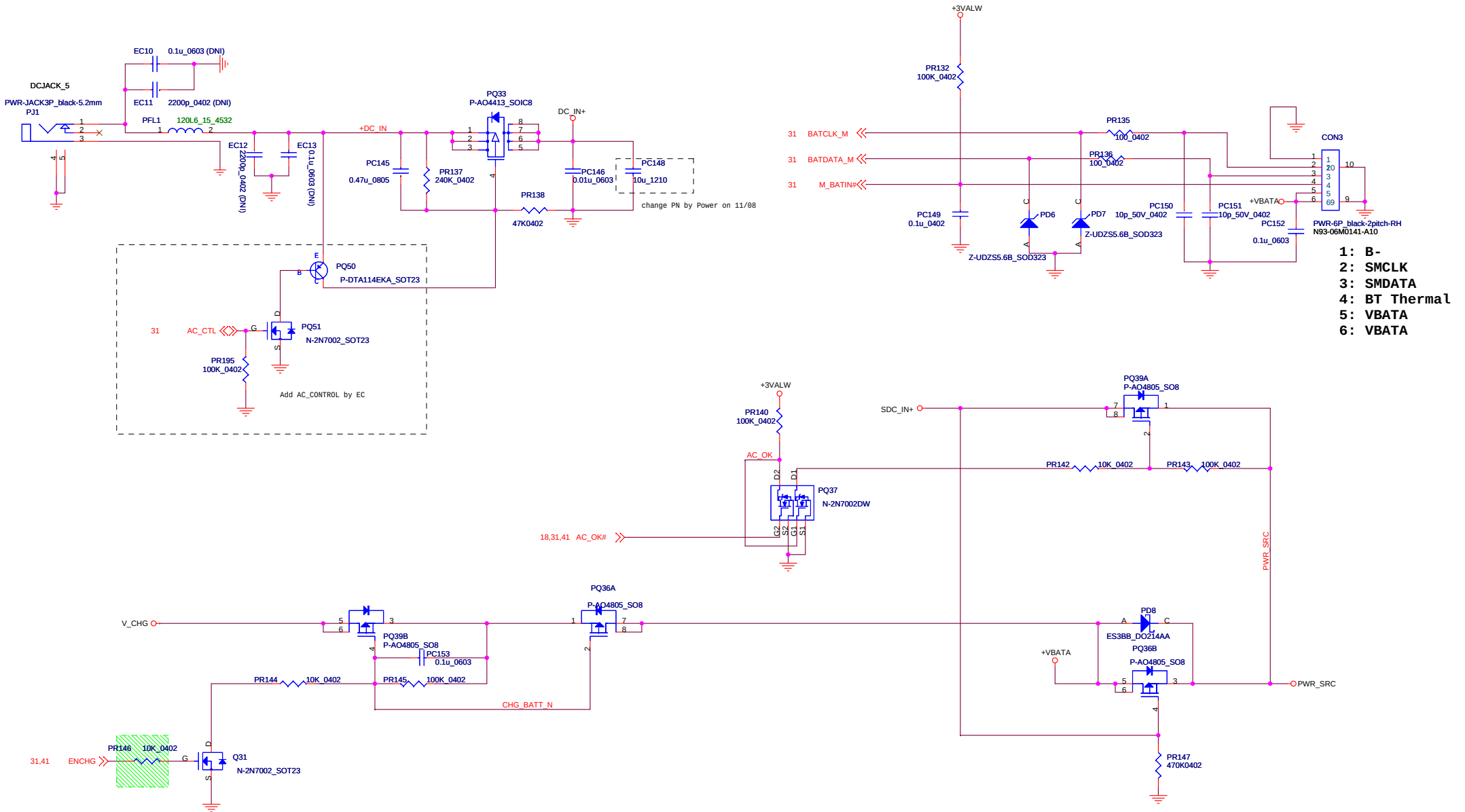


MICRO-STAR INT'L CO.,LTD.

Title: VCC_NB 1.2VSUS 1.5VRUN 1.8VRUN

Size: Custom | Document Number: MS-12221 | Rev 1.0

Date: Thursday, February 01, 2007 | Sheet 39 of 45



MICRO-STAR INT'L CO.,LTD.

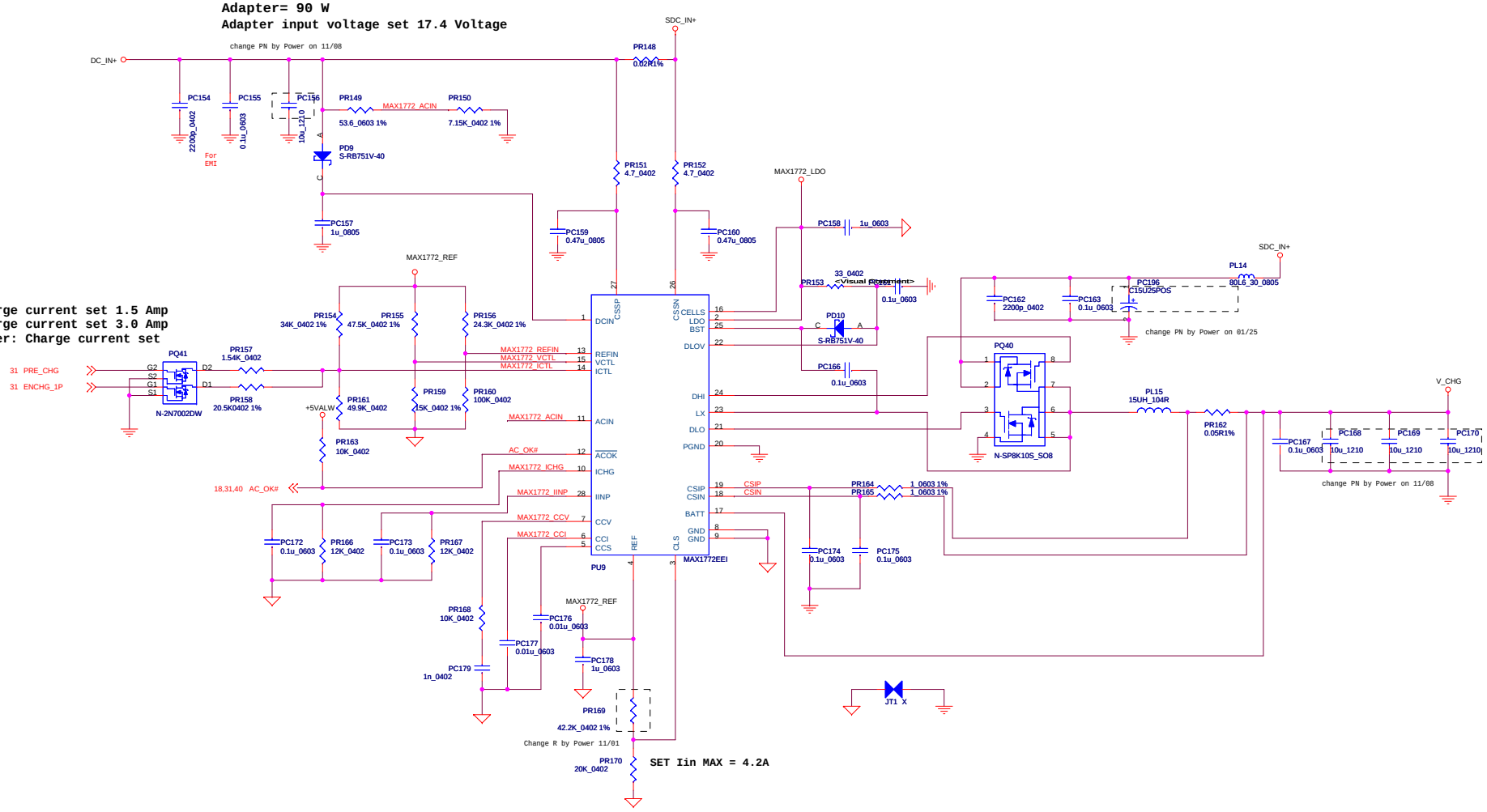
Title: **Battery Select**

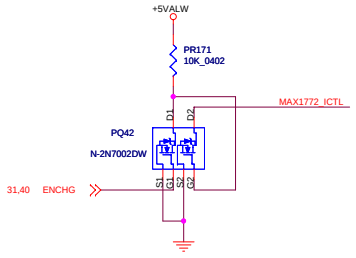
Size: Custom | Document Number: **MS-12221** | Rev: 1.0

Date: Thursday, February 01, 2007 | Sheet 40 of 45

Adapter= 90 W
Adapter input voltage set 17.4 Voltage

4S1P: Charge current set 1.5 Amp
4S2P: Charge current set 3.0 Amp
Pre-charger: Charge current set 200mA





ENCHG-1P	PRE_CHG	ENCHG	
0	1	1	Pre-charge
1	0	1	4S1P-Fast charge
X	X	0	STOP CHARGE

Define on 4S2P charge current

MICRO-STAR INT'L CO.,LTD.

Title: M_Battery Charger		
Size: C	Document Number: MS-12221	Rev: 1.0
Date: Thursday, February 01, 2007	Sheet 41 of 45	

H7
X_holes_p_r276d118

H1
X_holes_p_r276d118

H3
X_holes_p_r276d118

H20
X_holes_p_r276d118

H8
X_holes_p_r276d118

H15
X_holes_p_r276d118

H5
X_holes_p_r276d118

H28
X_holes_p_r276d118

H26
X_holes_p_r276d118

H19
X_RECT276X228D118_24

ME Change
Harry 2007/01/18

H6
X_holes236d118_PM

CPU HEATSINK

MYLAR1
mylar PCIE
E2Y-2210211-G40

MYLAR2
MYLAR hdd
E2Y-2210311-G40

MYLAR3
mylar fan
E2Y-2210411-G40

MYLAR4
mylar mb top 1
E2P-2211611-G40

MYLAR5
mylar mb top 2
E2P-2211711-G40

MYLAR6
mylar mb bot 1
E2P-2211511-G40

H2
X_holes_p_r276d118

H18
X_holes_p_r276d118

H22
X_HOLES_R177D91

H21
X_holes_p_r276d118

H4
X_holes_p_r276d118

Footprint wrong need to change

H23
X_HOLES_R177D91

H25
X_HOLES_R177D91

H29
X_HOLES_R177D91

H30
HOLES_R236d91_PT
E2B-1221010-L63

NB Stand off

ME Change
Harry 2007/01/18

H9
_E2B-1003010
E2B-1022020-A89

H24
_E2B-1003010
E2B-1022020-A89

MDC Stand off

SH1
NEW CARD SHIELDING
E2M-2210111-SH4

Modify by ME on 11/13

SC3
M2X4
E43-1203003-H29

SC4
M2X4
E43-1203003-H29

New Card Screw x2

H32
X_NPTH_80

H33
X_NPTH_80

Modify by ME 10/24

H31
X_HOLES_R177D91

New Card

H27
STANDOFF

Modify by ME 10/24

BAT1
RTC_BAT
D06-0100300-H04

MDC1
MODEM
S52-2801150-Q09

Harry 2007/01/18

FM1 X_F_PAD_M100
FM2 X_F_PAD_M100
FM3 X_F_PAD_M100
FM4 X_F_PAD_M100
FM5 X_F_PAD_M100
FM6 X_F_PAD_M100
FM7 X_F_PAD_M100
FM8 X_F_PAD_M100
FM9 X_F_PAD_M100
FM10 X_F_PAD_M100
FM11 X_F_PAD_M100
FM12 X_F_PAD_M100
FM13 X_F_PAD_M120
FM14 X_F_PAD_M120
FM15 X_F_PAD_M120
FM16 X_F_PAD_M120
FM17 X_F_PAD_M120
FM18 X_F_PAD_M120
FM19 X_F_PAD_M120
FM20 X_F_PAD_M120
FM21 X_F_PAD_M120
FM22 X_F_PAD_M120
FM23 X_F_PAD_M120
FM24 X_F_PAD_M120
FM25 X_F_PAD_M120
FM26 X_F_PAD_M120
FM27 X_F_PAD_M120
FM28 X_F_PAD_M120

HT1 HOLE157 (DNI)
HT2 HOLE157 (DNI)
HT3 HOLE157 (DNI)
HT4 HOLE157 (DNI)

FM29 X_F_PAD_M100
FM30 X_F_PAD_M100
FM31 X_F_PAD_M100
FM32 X_F_PAD_M100
FM33 X_F_PAD_M100
FM34 X_F_PAD_M100
FM35 X_F_PAD_M100
FM36 X_F_PAD_M100
FM38 X_F_PAD_M100
FM39 X_F_PAD_M100
FM40 X_F_PAD_M100
FM41 X_F_PAD_M100
FM43 X_F_PAD_M100
FM44 X_F_PAD_M100

FM37 X_PANEL_PAD
FM42 X_PANEL_PAD

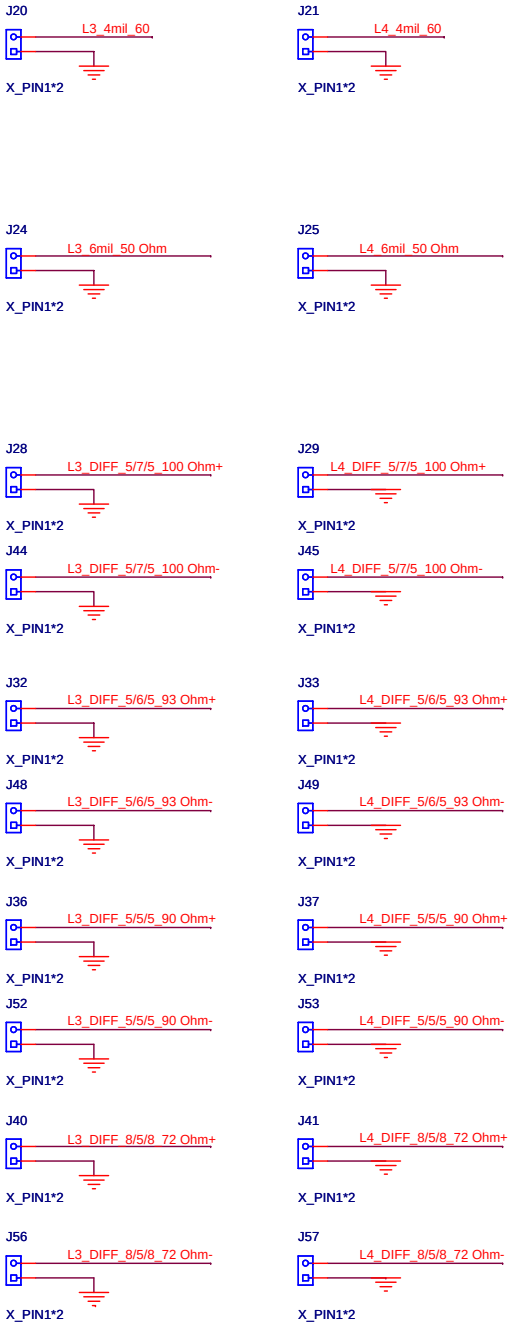
PCB1
PCB
P30-1222110-D05

MICRO-STAR INT'L CO.,LTD.

Title: ME Parts

Size: Custom | Document Number: MS-12221 | Rev: 1.0

Date: Friday, February 02, 2007 | Sheet 42 of 45



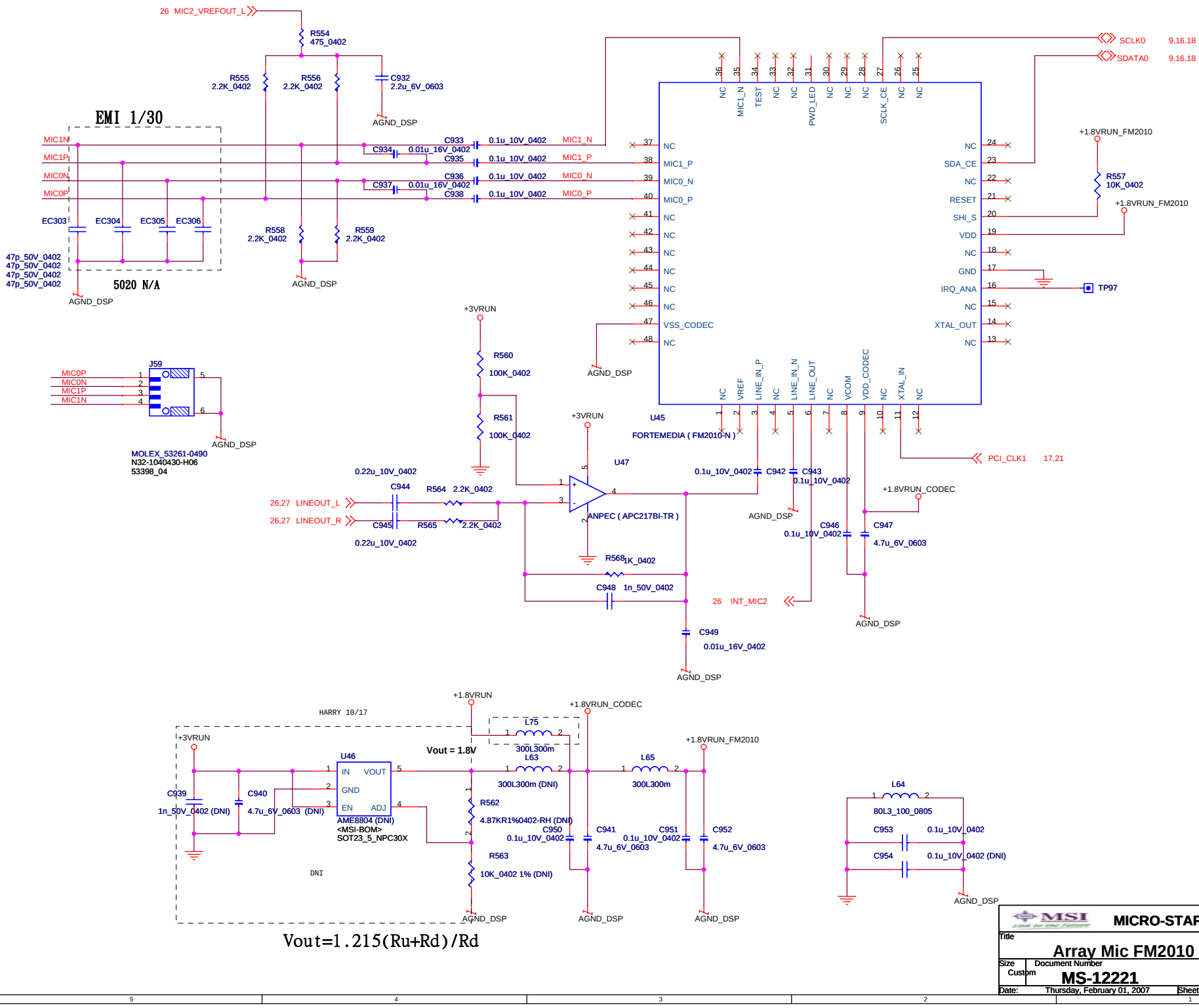
MICRO-STAR INT'L CO.,LTD.

Title: **IMPEDANCE**

Size	Document Number	Rev
B	MS-12221	1.0

Date: Thursday, February 01, 2007 Sheet 43 of 45


CPU_VDDIO_SUS
between the memorry slot to CPU
EC186 0.1u_10V_0402
EC183 0.1u_10V_0402
EC185 0.1u_10V_0402
EC188 0.1u_10V_0402
EC181 0.1u_10V_0402
EC191 0.1u_10V_0402
EC187 0.1u_10V_0402
EC182 0.1u_10V_0402
EC192 0.1u_10V_0402
EC190 0.1u_10V_0402
EC184 0.1u_10V_0402
EC193 0.1u_10V_0402
EC203 0.1u_10V_0402
VDDA12 x 7 near RS690T
EC108 0.1u_10V_0402
EC112 0.1u_10V_0402 (DNI)
EC194 0.1u_10V_0402
EC196 0.1u_10V_0402 (DNI)
EC201 0.1u_10V_0402
EC202 0.1u_10V_0402 (DNI)
EC239 0.1u_10V_0402
+VLDT x 3
EC82 0.1u_10V_0402
EC86 0.1u_10V_0402
EC91 0.1u_10V_0402
+1.2VRUN x 11
EC215 0.1u_10V_0402
EC216 0.1u_10V_0402
EC217 0.1u_10V_0402
EC218 0.1u_10V_0402 (DNI)
EC219 0.1u_10V_0402
EC220 0.1u_10V_0402 (DNI)
EC221 0.1u_10V_0402
EC222 0.1u_10V_0402
EC73 0.1u_10V_0402
EC77 0.1u_10V_0402
EC250 0.1u_10V_0402
+3VRUN x 28
EC71 0.1u_10V_0402 (DNI)
EC75 0.1u_10V_0402
EC79 0.1u_10V_0402
EC83 0.1u_10V_0402
EC87 0.1u_10V_0402 (DNI)
EC92 0.1u_10V_0402
EC96 0.1u_10V_0402
EC100 0.1u_10V_0402 (DNI)
EC104 0.1u_10V_0402
EC109 0.1u_10V_0402 (DNI)
EC113 0.1u_10V_0402
EC116 0.1u_10V_0402
EC117 0.1u_10V_0402
EC223 0.1u_10V_0402 (DNI)
EC224 0.1u_10V_0402
EC225 0.1u_10V_0402
EC226 0.1u_10V_0402 (DNI)
EC227 0.1u_10V_0402
EC228 0.1u_10V_0402
EC229 0.1u_10V_0402 (DNI)
EC230 0.1u_10V_0402
EC120 0.1u_10V_0402
EC123 0.1u_10V_0402 (DNI)
EC126 0.1u_10V_0402 (DNI)
EC130 0.1u_10V_0402
EC134 0.1u_10V_0402
EC137 0.1u_10V_0402 (DNI)
EC139 0.1u_10V_0402
CPU_VDDIO_SUS
memorry slot under to motherboard
EC15 0.1u_10V_0402
EC20 0.1u_10V_0402
EC25 0.1u_10V_0402
EC30 0.1u_10V_0402
EC35 0.1u_10V_0402
EC40 0.1u_10V_0402
EC45 0.1u_10V_0402
EC50 0.1u_10V_0402
EC54 0.1u_10V_0402
EC57 0.1u_10V_0402
EC60 0.1u_10V_0402
EC63 0.1u_10V_0402
EC65 0.1u_10V_0402
EC67 0.1u_10V_0402
EC70 0.1u_10V_0402
EC74 0.1u_10V_0402
EC78 0.1u_10V_0402
EC81 0.1u_10V_0402
EC85 0.1u_10V_0402
EC90 0.1u_10V_0402
EC95 0.1u_10V_0402
EC99 0.1u_10V_0402
EC103 0.1u_10V_0402
EC107 0.1u_10V_0402
EC111 0.1u_10V_0402
EC115 0.1u_10V_0402
CPU_VTT_SUS
EC16 0.1u_10V_0402
EC21 0.1u_10V_0402
EC26 0.1u_10V_0402
EC31 0.1u_10V_0402
EC36 0.1u_10V_0402
EC41 0.1u_10V_0402
EC46 0.1u_10V_0402
EC51 0.1u_10V_0402
EC55 0.1u_10V_0402
EC58 0.1u_10V_0402
EC61 0.1u_10V_0402
EC64 0.1u_10V_0402
EC66 0.1u_10V_0402
EC68 0.1u_10V_0402
EC275 0.1u_10V_0402
EC277 0.1u_10V_0402
EC278 0.1u_10V_0402
EC279 0.1u_10V_0402
EC280 0.1u_10V_0402
EC281 0.1u_10V_0402
EC309 0.1u_10V_0402
EC311 0.1u_10V_0402
EC313 0.1u_10V_0402
EC314 0.1u_10V_0402
EC315 0.1u_10V_0402
AGND_DSP
AGND_DSP
AGND
DC_IN+
EC285 0.1u_25V_0402
EC286 0.1u_25V_0402
EC287 0.1u_25V_0402
EC288 0.1u_25V_0402
PWR_SRC
EC290 0.1u_25V_0402
EC291 0.1u_25V_0402
EC292 0.1u_25V_0402
EC293 0.1u_25V_0402
+5VSUS
EC297 0.1u_10V_0402
EC298 0.1u_10V_0402
EC299 0.1u_10V_0402
EC300 0.1u_10V_0402
+1.2VRUN
+3VRUN
EC177 0.1u_10V_0402
EC180 0.1u_10V_0402
+3VRUN
PWR_SRC
PWR_SRC ==> OVER 19V
EC89 0.1u_25V_0402
CPU_VDD_RUN x 14
EC14 0.1u_10V_0402
EC19 0.1u_10V_0402
EC24 0.1u_10V_0402
EC29 0.1u_10V_0402 (DNI)
EC34 0.1u_10V_0402
EC241 0.1u_10V_0402
EC242 0.1u_10V_0402
EC243 0.1u_10V_0402
EC244 0.1u_10V_0402
EC245 0.1u_10V_0402 (DNI)
EC246 0.1u_10V_0402 (DNI)
EC247 0.1u_10V_0402
EC248 0.1u_10V_0402 (DNI)
EC249 0.1u_10V_0402
+1.8VRUN x 5 near RS690T and OZ813LP_QFN24
EC121 0.1u_10V_0402
EC124 0.1u_10V_0402
EC127 0.1u_10V_0402
EC131 0.1u_10V_0402
EC204 0.1u_10V_0402
+3VSUS x 19
EC231 0.1u_10V_0402 (DNI)
EC232 0.1u_10V_0402 (DNI)
EC233 0.1u_10V_0402
EC255 0.1u_10V_0402 (DNI)
EC256 0.1u_10V_0402 (DNI)
EC257 0.1u_10V_0402
EC258 0.1u_10V_0402 (DNI)
EC259 0.1u_10V_0402 (DNI)
EC260 0.1u_10V_0402
EC261 0.1u_10V_0402
EC262 0.1u_10V_0402
EC263 0.1u_10V_0402
EC264 0.1u_10V_0402 (DNI)
EC265 0.1u_10V_0402 (DNI)
EC266 0.1u_10V_0402
EC267 0.1u_10V_0402
EC268 0.1u_10V_0402
EC269 0.1u_10V_0402
EC270 0.1u_10V_0402
+5VRUN
EC294 0.1u_10V_0402
EC295 0.1u_10V_0402
EC296 0.1u_10V_0402
+1.2VSUS
EC234 0.1u_10V_0402
+1.2VSUS
+3VSUS
EC235 0.1u_10V_0402
+1.2VRUN
VDDA12
EC240 0.1u_10V_0402
SRC_VCORE
PWR_SRC ==> OVER 19V
EC167 0.1u_25V_0402
EC170 0.1u_25V_0402
EC172 0.1u_25V_0402
EC174 0.1u_25V_0402
EC283 0.1u_25V_0402
EC284 0.1u_25V_0402
VDD33
+3VSUS
EC251 0.1u_10V_0402
+5VRUN x 3
+3VSUS
EC252 0.1u_10V_0402
EC253 0.1u_10V_0402
EC254 0.1u_10V_0402
P2
P3
P4
P5
P6
P8
P10
P12
P14
P7
P9
P11
P13
P15
1
ME_PAD (DNI) ate_c006_106
PWR_SRC x 12
PWR_SRC ==> OVER 19V
EC128 0.1u_25V_0402
EC132 0.1u_25V_0402
EC135 0.1u_25V_0402 (DNI)
EC138 0.1u_25V_0402 (DNI)
EC140 0.1u_25V_0402
EC143 0.1u_25V_0402 (DNI)
EC147 0.1u_25V_0402
EC150 0.1u_25V_0402
EC153 0.1u_25V_0402
EC155 0.1u_25V_0402 (DNI)
EC157 0.1u_25V_0402 (DNI)
EC159 0.1u_25V_0402
+5VRUN x 14
EC18 0.1u_10V_0402
EC23 0.1u_10V_0402
EC28 0.1u_10V_0402
EC33 0.1u_10V_0402
EC38 0.1u_10V_0402
EC43 0.1u_10V_0402
EC48 0.1u_10V_0402
EC52 0.1u_10V_0402
EC69 0.1u_10V_0402
EC72 0.1u_10V_0402
EC76 0.1u_10V_0402
EC80 0.1u_10V_0402
EC84 0.1u_10V_0402
EC276 0.1u_10V_0402
+5VRUN x 4
+3VRUN
EC144 0.1u_10V_0402
EC148 0.1u_10V_0402
EC151 0.1u_10V_0402
EC154 0.1u_10V_0402
EC17 0.1u_10V_0402
EC22 0.1u_10V_0402
EC307 0.1u_10V_0402
EC308 0.1u_10V_0402
EC310 0.1u_10V_0402
EC312 0.1u_10V_0402
x 6
AGND
+3VALW x 4
EC271 0.1u_10V_0402
EC272 0.1u_10V_0402
EC273 0.1u_10V_0402
EC274 0.1u_10V_0402
MSI
MICRO-STAR INT'L CO.,LTD.
Title
EMI
Size B
Document Number
MS-12221
Rev 1.0
Date: Thursday, February 01, 2007
Sheet 44 of 45



MICRO-STAR INT'L CO.,LTD.		
Title: Array Mic FM2010		
Size: Custom	Document Number: MS-12221	Rev: 1.0
Date: Thursday, February 01, 2007	Sheet 45 of 45	