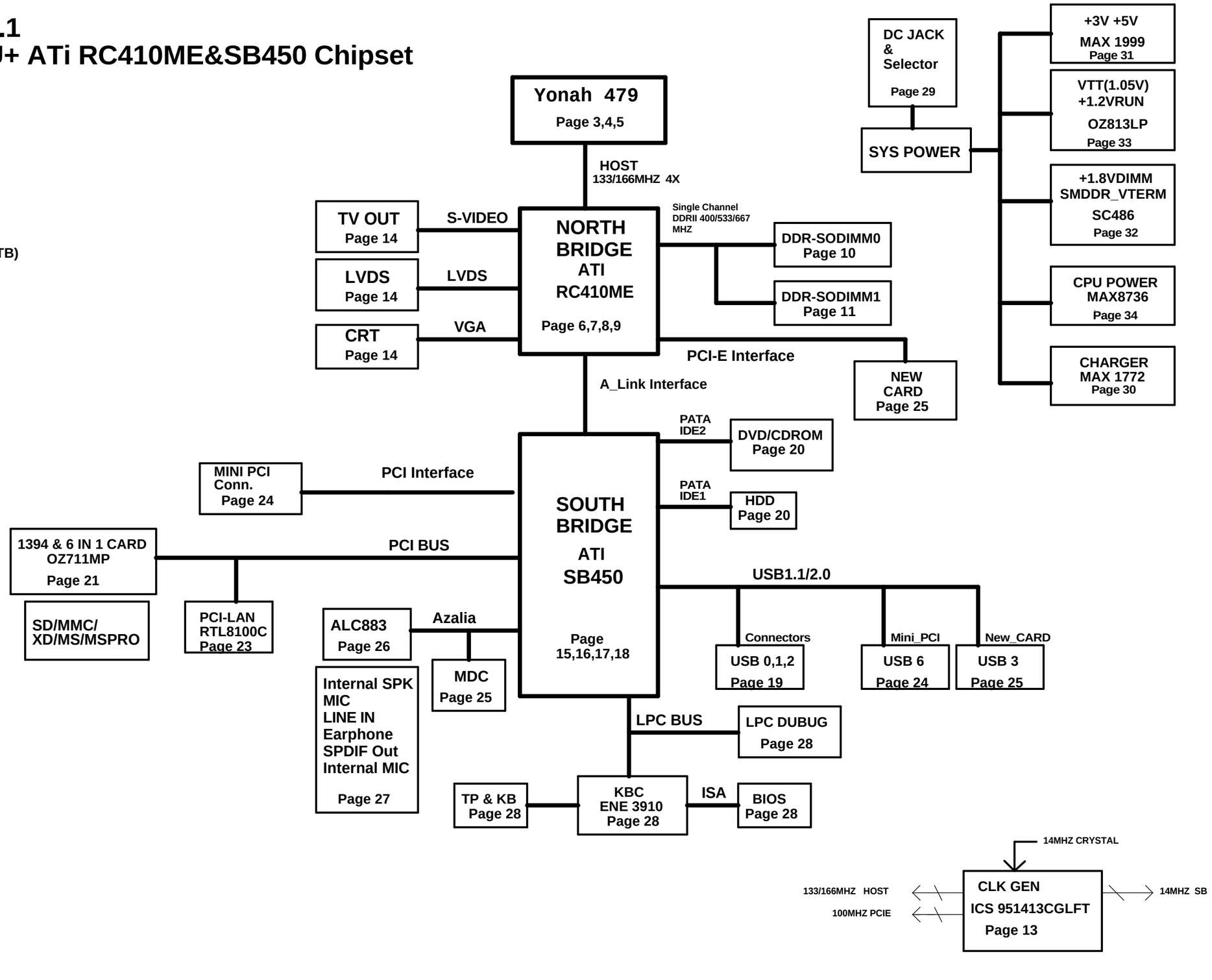
MS-1412 VER:1.1
Intel Yonha CPU+ ATi RC410ME&SB450 Chipset



MICRO-STAR INT'L CO.,LTD.

Title: BLOCK DIAGRAM

Size: C | Document Number: MS-1412 | Rev: 1.1

Date: Monday, May 29, 2006 | Sheet 1 of 40

Voltage Rails

Voltage	Description	Control Signal
PWR_SRC	AC ADAPTER OR BATTERY IN	
VHCORE	Core Voltage for Processor	RUNPWROK
VTT	1.05 rail for Processor & RC410ME I/O	RUND
+1.2VRUN	1.2V powe rail RC410ME, CRT AND LVDS (off in S3-S5)	RUND
+3VRUN	3.3V switched power rail(off in S3-S5)	RUND
+5VRUN	5.0V switched power rail(off in S3-S5)	RUND
+1.8VDIMM	1.8V power rail DDR2 (off in S4-S5)	DIMM_ON
SMDDR_VTERM	0.9V DDR Termination voltage (off in S4-S5)	RUN_ON
+1.8VSUS	1.8V power rail for SB450	+3VSUS
+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

Voltage	Description	Control Signal
ADD5V	5.0V Power rail Audio codec(off in S3-S5)	RUND

GND	DIGTIAL GROUD	
AGND	AUDIO GND	
PGND	POWER Analogy GND	

POWER STATES

STATE \ SIGNAL	SLP_S3#	SLP_S4#	SLP_S5#	+V*ALWAYS	+V*SUS	+V*RUN	Clocks
Full ON	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1M(Power On Suspend)	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3(Suspend to RAM)	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4(Suspend to Disk)	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 / Soft OFF	LOW	LOW	LOW	ON	OFF	OFF	OFF

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

MICRO-STAR INT'L CO.,LTD.

Title: PLATFORM

Size: Custom | Document Number: MS-1412 | Rev: 1.1

Date: Monday, May 29, 2006 | Sheet 2 of 40

BSEL[2]	BSEL[1]	BSEL[0]	BCLK
L	L	L	RESERVED
L	L	H	133MHZ
L	H	L	RESERVED
L	H	H	166MHZ

6 HA-[3..31] HA-[3..31]
6 RS-[0..2] RS-[0..2]
6 HREQ-[0..4] HREQ-[0..4]
6 HASTB-[0..1] HASTB-[0..1]

Cap close to thermal sensor

06'05'26 ABLE

+3V_LM86
THERMDA
C1 2200PF
THERMDC
THERMTRIP- R832 0R 0603 NC
C2 0.1UF_0402
U112 LM86_MSOP8
VDD SMBCLK → SMB_CPU_CLK → SMB_CPU_CLK 28
D+ SMBDATA → SMB_CPU_DATA → SMB_CPU_DATA 28
D- ALERT#
T_CRIT_A# GND
Close to CPU socket

6 HD-[0..63] HD-[0..63]
6 HDSTBP-[0..3] HDSTBP-[0..3]
6 HDSTBN-[0..3] HDSTBN-[0..3]
6 DBI-[0..3] DBI-[0..3]

U113A

ADDR GROUP 0
HA-3 J4 A[3]#
HA-4 L4 A[4]#
HA-5 M3 A[5]#
HA-6 K5 A[6]#
HA-7 M1 A[7]#
HA-8 N2 A[8]#
HA-9 J1 A[9]#
HA-10 N3 A[10]#
HA-11 P5 A[11]#
HA-12 P2 A[12]#
HA-13 L1 A[13]#
HA-14 P4 A[14]#
HA-15 P1 A[15]#
HA-16 R1 A[16]#
HASTB-0 L2 ADSTB[0]#
HREQ-0 K3 REQ[0]#
HREQ-1 H2 REQ[1]#
HREQ-2 K2 REQ[2]#
HREQ-3 J3 REQ[3]#
HREQ-4 L5 REQ[4]#

ADDR GROUP 1
HA-17 Y2 A[17]#
HA-18 U5 A[18]#
HA-19 R3 A[19]#
HA-20 W6 A[20]#
HA-21 U4 A[21]#
HA-22 Y5 A[22]#
HA-23 U2 A[23]#
HA-24 R4 A[24]#
HA-25 T5 A[25]#
HA-26 T3 A[26]#
HA-27 W3 A[27]#
HA-28 W5 A[28]#
HA-29 Y4 A[29]#
HA-30 W2 A[30]#
HA-31 Y1 A[31]#
HASTB-1 V4 ADSTB[1]#

CONTROL
ADS# H1 ADS- → ADS- 6
BNR# E2 BNR- → BNR- 6
BPRI# G5 BPRI- → BPRI- 6
DEFER# H5 DEFER- → DEFER- 6
DRDY# F21 DRDY- → DRDY- 6
DBSY# E1 DBSY- → DBSY- 6
BR0# E1 BREQ0- → BREQ0- 6
IERR# D20 IERR-
INIT# B3 CPU_INIT- → CPU_INIT- 16 (TP1)
LOCK# H4 HLOCK- → HLOCK- 6
RESET# B1 CPURST- → CPURST- 6
RS[0]# E3 RS-0
RS[1]# F4 RS-1
RS[2]# G3 RS-2
TRDY# G2 H_TRDY- → H_TRDY- 6
HIT# G6 HIT- → HIT- 6
HITM# E4 HITM- → HITM- 6

XDP/ITP SIGNALS
BPM[0]# AD4
BPM[1]# AD3
BPM[2]# AD1
BPM[3]# AC4
PRDY# AC2
PREQ# AC1
TCK AC5 HTCK
TDI AA6 HTDI
TDO AB3
TMS AB5 HTMS
TRST# AB6 HTRST-
DBR# C20
VTT R833 56 0402

THERM
PROCHOT# D21 PROCHOT- (TP130)
THERMDA A24 THERMDA
THERMDC A25 THERMDC
THERMTRIP# C7 THERMTRIP-

16 A20M- → A20M# A6
16 FERR- → FERR# A5
16 IGNNE- → IGNNE# C4
16 STPCLK- → STPCLK# D5
16 INTR → LINT0 C6
16 NMI → LINT1 B4
16 SMI- → SMI# A3

H CLK
BCLK[0] A22 CPUCLK0 → CPUCLK0 13
BCLK[1] A21 CPUCLK-0 → CPUCLK-0 13

RESERVED
RSVD[01] AA1
RSVD[02] AA4
RSVD[03] AB2
RSVD[04] AA3
RSVD[05] M4
RSVD[06] N5
RSVD[07] T2
RSVD[08] V3
RSVD[09] B2
RSVD[10] C3
RSVD[11] B25
RSVD[12] T22
RSVD[13] D2
RSVD[14] F6
RSVD[15] D3
RSVD[16] C1
RSVD[17] AF1
RSVD[18] D22
RSVD[19] C23
RSVD[20] C24

Yonah

+3V_LM86
SMB_CPU_CLK R315 10K 0402
SMB_CPU_DATA R316 10K 0402
+3V_LM86 R955 0R0402 +3VALW
R956 0R0402 NC +3VRUN
06'05'26 ABLE

U113B

DATA GRP0
HD-0 E22 D[0]#
HD-1 E24 D[1]#
HD-2 E26 D[2]#
HD-3 H22 D[3]#
HD-4 F23 D[4]#
HD-5 G25 D[5]#
HD-6 E25 D[6]#
HD-7 F23 D[7]#
HD-8 K24 D[8]#
HD-9 G24 D[9]#
HD-10 J24 D[10]#
HD-11 J23 D[11]#
HD-12 H26 D[12]#
HD-13 E26 D[13]#
HD-14 K22 D[14]#
HD-15 H25 D[15]#
HDSTBN-0 H23 DSTBN[0]#
HDSTBP-0 G22 DSTBP[0]#
DBI-0 J26 DINV[0]#

DATA GRP1
HD-16 N22 D[16]#
HD-17 K25 D[17]#
HD-18 P26 D[18]#
HD-19 R23 D[19]#
HD-20 L25 D[20]#
HD-21 L22 D[21]#
HD-22 L23 D[22]#
HD-23 M23 D[23]#
HD-24 P25 D[24]#
HD-25 P22 D[25]#
HD-26 P23 D[26]#
HD-27 T24 D[27]#
HD-28 R24 D[28]#
HD-29 L26 D[29]#
HD-30 T25 D[30]#
HD-31 N24 D[31]#
HDSTBN-1 M24 DSTBN[1]#
HDSTBP-1 N25 DSTBP[1]#
DBI-1 M26 DINV[1]#

DATA GRP2
D[32]# AA23 HD-32
D[33]# AB24 HD-33
D[34]# V24 HD-34
D[35]# V26 HD-35
D[36]# W25 HD-36
D[37]# U23 HD-37
D[38]# U25 HD-38
D[39]# U22 HD-39
D[40]# AB25 HD-40
D[41]# W22 HD-41
D[42]# Y23 HD-42
D[43]# AA26 HD-43
D[44]# Y26 HD-44
D[45]# Y22 HD-45
D[46]# AC26 HD-46
D[47]# AA24 HD-47
DSTBN[2]# W24 HDSTBN-2
DSTBP[2]# Y25 HDSTBP-2
DINV[2]# V23 DBI-2

DATA GRP3
D[48]# AC22 HD-48
D[49]# AC23 HD-49
D[50]# AB22 HD-50
D[51]# AA21 HD-51
D[52]# AB21 HD-52
D[53]# AC25 HD-53
D[54]# AD20 HD-54
D[55]# AE22 HD-55
D[56]# AF23 HD-56
D[57]# AD24 HD-57
D[58]# AE21 HD-58
D[59]# AD21 HD-59
D[60]# AE25 HD-60
D[61]# AE25 HD-61
D[62]# AF22 HD-62
D[63]# AF26 HD-63
DSTBN[3]# AD23 HDSTBN-3
DSTBP[3]# AE24 HDSTBP-3
DINV[3]# AC20 DBI-3

MISC
GTLREF AD26
TEST1 C26
TEST2 D25
BSEL[0] B22
BSEL[1] B23
BSEL[2] C21
COMP[0] R26 HCOMP0 R325 27.4 1%
COMP[1] U26 HCOMP1 R326 54.9 1% 0402
COMP[2] U1 HCOMP2 R327 27.4 1%
COMP[3] V1 HCOMP3 R329 54.9 1% 0402
DPRSTP# E5 H_DPRSTP-
DPSLP# B5 H_DPSLP- → H_DPSLP- 16
DPWR# D24 H_DPWR- → H_DPWR- 6
PWRGOOD D6 CPU_PWRGD → CPU_PWRGD 16
SLP# D7 CPUSLP- → CPUSLP- 16
PSI# AE6 PR1 0R0402 PSI- → PSI- 34

Yonah

0.5" max length
25 MIL AWAY FROM HIGH SPEED SIGNAL
HCOMP0,2==>18MIL
HCOMP1,3==>5MIL

VTT
R324 1K_1%_0402 **0.5" max length**
C3 0.1UF_0402
GTLREF
R328 2K_1%_0402
05'11'16 ABLE
R901 1K
R330 51R
TP11
8,13 BSEL0
8,13 BSEL1

HTCK R620 27
HTRST- R323 680

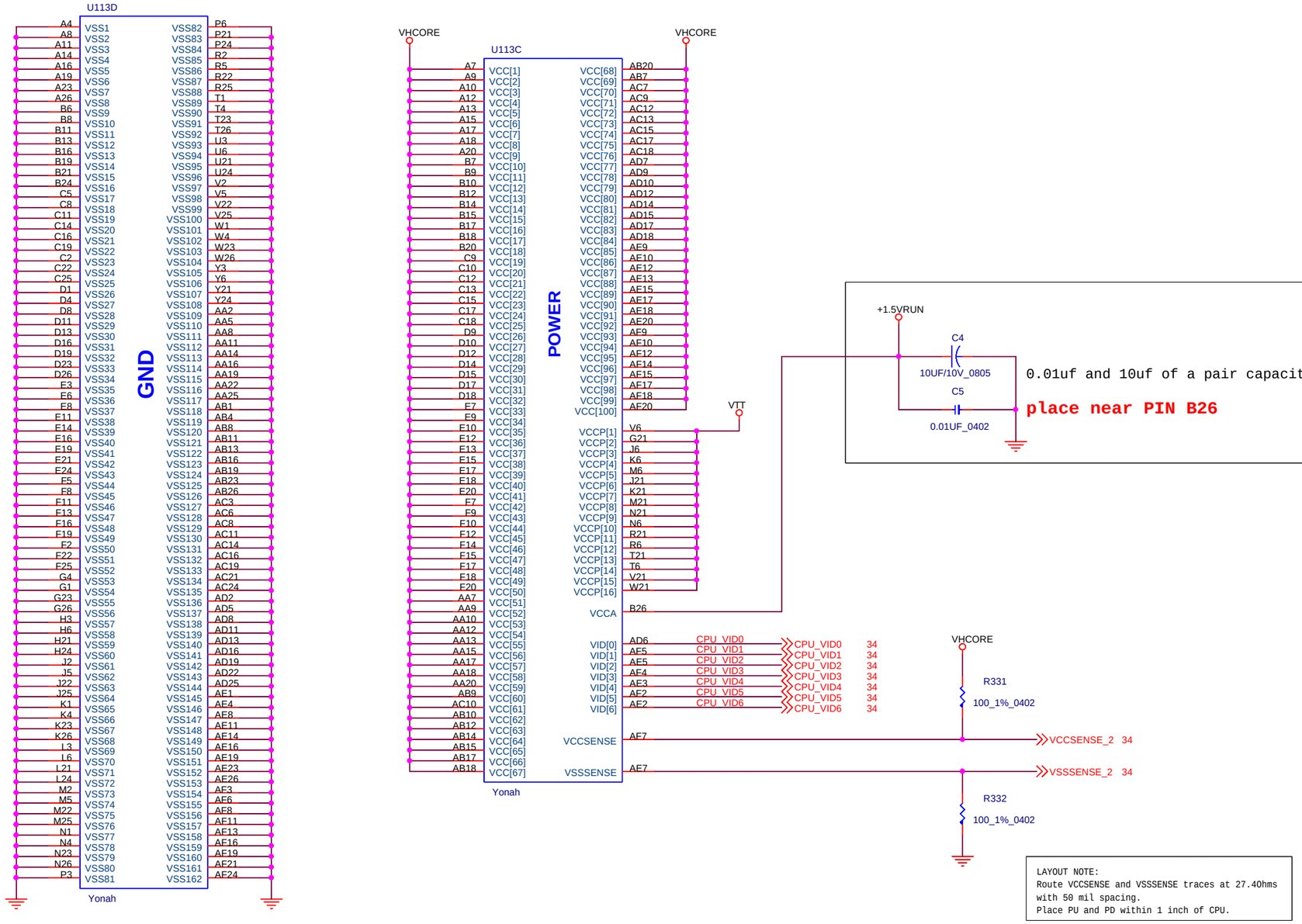
VTT
R857 1K_1%_0402
R858 62R_0402
R859 10K_0402
+3VRUN
THERMTRIP- E B C Q121 MMBT3904
THERMTRIPSB- 15

VTT
IERR- R317 56_0402
HTMS R318 39_0402
HTDI R319 150_1%_0402
PROCHOT- R321 62R_0402
FERR- R636 62R_0402
CPUSLP- R637 200_1%_0402
CPU_PWRGD R320 330_0402
H_DPSLP- R639 200_1%_0402
CPURST- R898 62R_0402
BREQ0- R899 200_1%_0402
05'10'28 ABLE

CPU_INIT- R885 390_1%_0402_NC
A20M- R886 390_1%_0402_NC
INTR R887 390_1%_0402_NC
NMI R888 390_1%_0402_NC
SMI- R889 390_1%_0402_NC
STPCLK- R890 390_1%_0402_NC
IGNNE- R891 390_1%_0402_NC
05'10'20 ABLE

VTT
R142 470R_0402
R140 0R_0603 H_DPRSTP-
16,34 DPRSLPVR R108 470R_0402
Q107 N-2N7002_SOT23
05'10'20 ABLE

MICRO-STAR INT'L CO.,LTD.
Title: Yonah-1 (HOST BUS)
Size: Custom
Document Number: MS-1412
Rev: 1.1
Date: Monday, May 29, 2006
Sheet 3 of 40

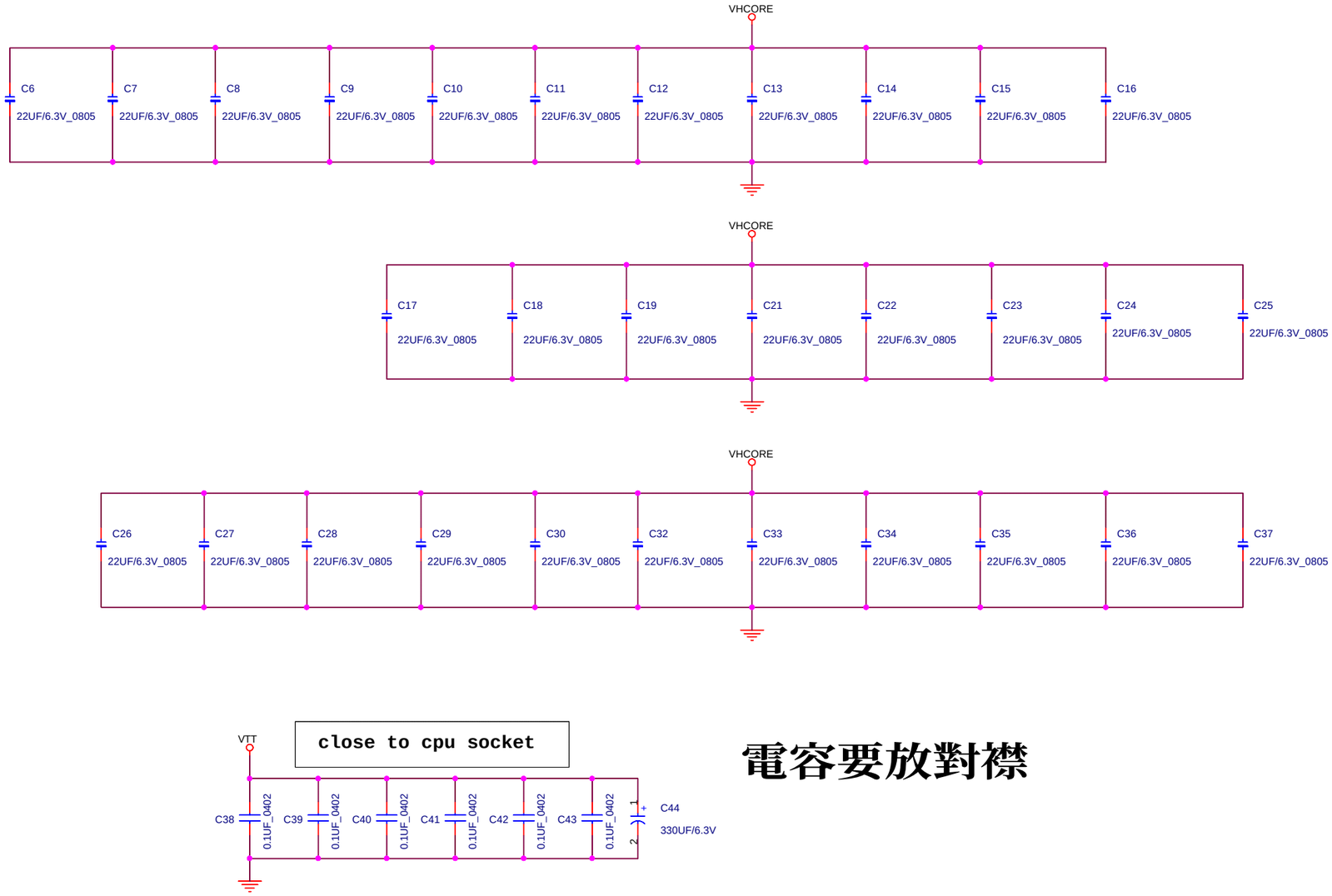


MICRO-STAR INT'L CO.,LTD.

Title: Yonah-2 (Power / GND)

Size	Document Number	Rev
Custom	MS-1412	1.1

Date: Monday, May 29, 2006 Sheet 4 of 40



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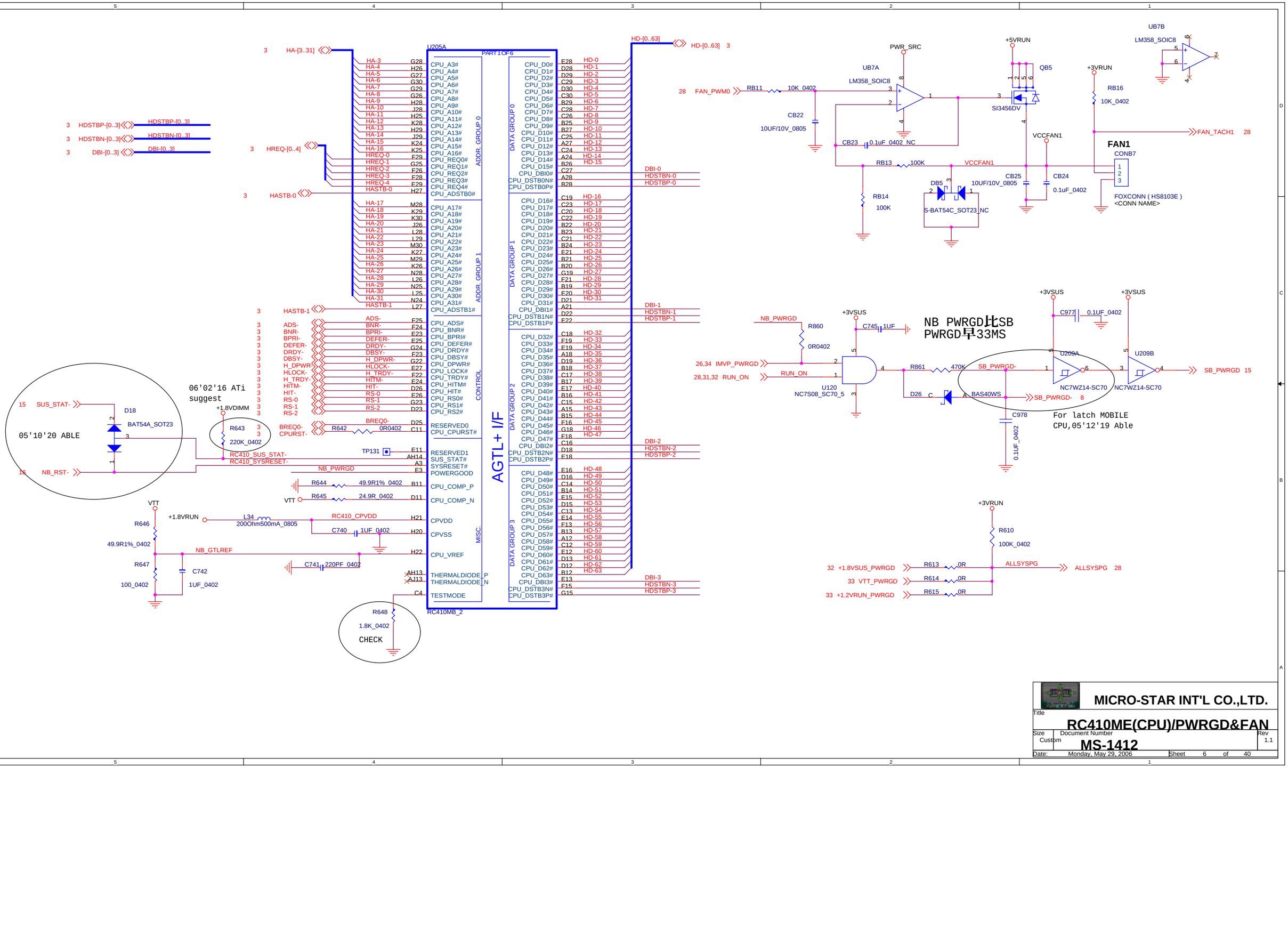
MICRO-STAR INT'L CO.,LTD.

Title: Yonah-3

Size: Custom | Document Number: MS-1412 | Rev: 1.1

Date: Monday, May 29, 2006 | Sheet 5 of 40



MICRO-STAR INT'L CO.,LTD.	
Title	RC410ME(CPU)/PWRGD&FAN
Size: Custom	Document Number: MS-1412
Rev: 1.1	
Date: Monday, May 29, 2006	Sheet 6 of 40


U205C
PART 3 OF 6
MEM_B I/F
RC410MB_2
SA_MA0
SA_MA1
SA_MA2
SA_MA3
SA_MA4
SA_MA5
SA_MA6
SA_MA7
SA_MA8
SA_MA9
SA_MA10
SA_MA11
SA_MA12
SA_MA13
SA_MA14
SA_BS-0
SA_BS-1
SA_BS-2
SA_DM0
SA_DM1
SA_DM2
SA_DM3
SA_DM4
SA_DM5
SA_DM6
SA_DM7
10,11,12 SA_RAS-
10,11,12 SA_CAS-
10,11,12 SA_WE-
SA_DQS0
SA_DQS1
SA_DQS2
SA_DQS3
SA_DQS4
SA_DQS5
SA_DQS6
SA_DQS7
SA_DQS-0
SA_DQS-1
SA_DQS-2
SA_DQS-3
SA_DQS-4
SA_DQS-5
SA_DQS-6
SA_DQS-7
10 CLK_SDRAM-0
10 CLK_SDRAM0
10 CLK_SDRAM-1
10 CLK_SDRAM1
11 CLK_SDRAM-2
11 CLK_SDRAM2
11 CLK_SDRAM-3
11 CLK_SDRAM3
10,12 CKE0
10,12 CKE1
11,12 CKE2
11,12 CKE3
10,12 SM_CS-0
10,12 SM_CS-1
11,12 SM_CS-2
11,12 SM_CS-3
10,12 SM_ODT0
11,12 SM_ODT1
10,12 SM_ODT2
11,12 SM_ODT3
MEM_DQ0
MEM_DQ1
MEM_DQ2
MEM_DQ3
MEM_DQ4
MEM_DQ5
MEM_DQ6
MEM_DQ7
MEM_DQ8
MEM_DQ9
MEM_DQ10
MEM_DQ11
MEM_DQ12
MEM_DQ13
MEM_DQ14
MEM_DQ15
MEM_DQ16
MEM_DQ17
MEM_DQ18
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MEM_DQ50
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MEM_DQ53
MEM_DQ54
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MEM_DQ60
MEM_DQ61
MEM_DQ62
MEM_DQ63
SA_MD0
SA_MD1
SA_MD2
SA_MD3
SA_MD4
SA_MD5
SA_MD6
SA_MD7
SA_MD8
SA_MD9
SA_MD10
SA_MD11
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SA_MD58
SA_MD59
SA_MD60
SA_MD61
SA_MD62
SA_MD63
SA_MD[0..63]
SA_MD[0..63] 10,11
SA_DM[0..7]
SA_DM[0..7] 10,11
SA_DQS[0..7]
SA_DQS[0..7] 10,11
SA_DQS-[0..7]
SA_DQS-[0..7] 10,11
SA_MA[0..14]
SA_MA[0..14] 10,11,12
SA_BS-[0..2]
SA_BS-[0..2] 10,11,12
MEM_COMPN
MEM_COMPP
MEM_CAP2
MEM_CAP1
MEM_VREF
MEM_VMODE
MPVDD
MPVSS
RC410_MEM_COMPN
RC410_MEM_COMPP
RC410_MEM_VREF
RC410_MEM_MPVDD
R651 61.9 1% 0402
R652 61.9 1% 0402
C750 470nF 0402 NC
C752 470nF 0402 NC
R654 1K 1% 0402
L35 200Ohm500mA_0805
C754 1UF_0402
+1.8VDIMM
+1.8VRUN
R653 1K_1%_0402
R655 1K_1%_0402
C751 100nF_0402
C753 100nF_0402
MPVSS need to connect to GND plane immediately through a dedicated VIA
MICRO-STAR INT'L CO.,LTD.
Title
RC410ME(DDR)
Size B
Document Number
MS-1412
Rev 1.1
Date: Monday, May 29, 2006
Sheet 7 of 40

PUT AVDD, AVDDDI, AVDDQ, PLVDD DECOUPLING CAPS ON THE BOTTOM SIDE, CLOSE TO BALLS

RSET resistor R246 need 10mils trace with at least 10mils spacing Also need to connect GND at AVSSQ HF cap.

AVDDQ L40 +1.8VRUN 200Ohm500mA_0.3Ohm
C778 1UF_0402 C779 10UF/10V_0805

L53 +3VRUN 200Ohm500mA_0.3Ohm
C763 100nF_0402 C764 1UF_0402

+3VRUN L37 28L900m_100_0805 RC410_AVDD
C767 10UF/10V_0805 C768 100nF_0402
+1.8VRUN C769 100nF_0402 JP1 SHORT
AVDDQ (1.8V) C770 100nF_0402 JP2 SHORT
PLVDD L41 +1.8VRUN 200Ohm500mA_0.3Ohm
C780 1UF_0402 C781 22UF/6.3V_0805 C1024 22UF/6.3V_0805
解CRT有水波汶 06'02'06 Able
PLVDD JP3 SHORT C773 100nF_0402 JP4 SHORT

U205D PART 4 OF 6

G5	VDDR3_1	
G4	VDDR3_2	
C9	AVDD	
C10	AVSSN	
D8	AVDDDI	
C8	AVSSDI	
B8	AVDDQ	
B9	AVSSQ	
H10	PLLVDD	
H9	PLLVSS	
J2	TMDS_HPD	
H3	DDC_DATA	
B3	DACVSYNC	CRT
C3	DACHSYNC	CRT
B10	RSET	CRT
F10	RED	CRT
E10	GREEN	CRT
D10	BLUE	CRT
G1	OSCIN	CLK. GEN.
J1	CPU_CLKP	CLK. GEN.
K1	CPU_CLKN	CLK. GEN.
G2	TVCLKIN	CLK. GEN.
F1	OSCOUT	CLK. GEN.
D2	I2C_CLK	SVID
C1	I2C_DATA	SVID

RC410MB_2

B4	TXOUT_U0N	
A4	TXOUT_U0P	
B5	TXOUT_U1N	
C6	TXOUT_U1P	
B6	TXOUT_U2N	
A6	TXOUT_U2P	
B7	TXOUT_U3N	
A7	TXOUT_U3P	
E5	TXOUT_L0N	TXL0- 14
F5	TXOUT_L0P	TXL0+ 14
D5	TXOUT_L1N	TXL1- 14
C5	TXOUT_L1P	TXL1+ 14
E6	TXOUT_L2N	TXL2- 14
D6	TXOUT_L2P	TXL2+ 14
E7	TXOUT_L3N	
E8	TXOUT_L3P	
J8	LPVDD	
J7	LPVSS	
H8	LVDDR18A_1	
H7	LVDDR18A_2	
G9	LVSSR_1	
G8	LVSSR_2	
G7	LVSSR_3	
C7	LVDDR18D	
F2	LVDS_DIGON	LVDS_VDDEN 14
G3	LVDS_BLON	ELON 14
F2	LVDS_BLEN	
F8	TXCLK_UP	
F7	TXCLK_UN	
F6	TXCLK_LP	TXL_CLK+ 14
G6	TXCLK_LN	TXL_CLK- 14
D9	C	SVIDEO_C 14
F9	Y	SVIDEO_Y 14
E9	COMP	TV_CVBS 14
B2	DACSCL	
C2	DACSDA	
D1	STRP_DATA	

+1.8VRUN L38 200Ohm500mA_0.3Ohm
RC410_LPVDD C771 100nF_0402 C772 1UF_0402
JP7 SHORT L39 200Ohm500mA_0.3Ohm
RC410_LVDDR18A C774 100nF_0402 C775 100nF_0402
JP8 SHORT C776 1UF_0402
C777 1UF_0402

14 VGA_RED LI2 60S/0603 VGA_RED_L
14 VGA_GRN LI3 60S/0603 VGA_GRN_L
14 VGA_BLU LI4 60S/0603 VGA_BLU_L
CI845 CI845 CI847 10PF
CI842 CI843 CI844 10PF
For EMI

VGA_VSYNC VGA_HSYNC R662 715_1%_0402
13 14M_ICH
13 NBCLK
13 NBCLK-
R883 4.7K_0402 TP175

14 LDDC_CLK CI848 10PF_0402
14 LDDC_DATA CI849 10PF_0402

EMI request 05'12'30

DAC_SCL: CPU VCC
DEFAULT:0
0: MOBILE CPU
1: DESKTOP CPU

DAC_SCL is totem-pole output
R663 0R_0402 VGA_CLK 14
R664 0R_0402 VGA_DATA 14
SCL_STRAP

Q127 N-2N7002_SOT23
G SB_PWRGD- SB_PWRGD- 6
For latch MOBILE CPU,05'12'19 Able

STRP_DATA R680 4.7K_0402 +3VRUN
R681 4.7K_0402_NC

STRP_DATA:Debug strap
DEFAULT:1
0: MEMORY CHANNEL STRAPING
1: E2PROM STRAPING

U205B PART 2 OF 6

J5	GFX_RX0P	GFX_TX0P N1
J4	GFX_RX0N	GFX_TX0N N2
K4	GFX_RX1P	GFX_TX1P P2
L4	GFX_RX1N	GFX_TX1N R2
L6	GFX_RX2P	GFX_TX2P R1
L5	GFX_RX2N	GFX_TX2N T1
M5	GFX_RX3P	GFX_TX3P T2
M4	GFX_RX3N	GFX_TX3N U2
N4	GFX_RX4P	GFX_TX4P V2
P4	GFX_RX4N	GFX_TX4N V1
P6	GFX_RX5P	GFX_TX5P W1
P5	GFX_RX5N	GFX_TX5N W2
R5	GFX_RX6P	GFX_TX6P Y2
R4	GFX_RX6N	GFX_TX6N AA2
T4	GFX_RX7P	GFX_TX7P AA1
T5	GFX_RX7N	GFX_TX7N AB1
U6	GFX_RX8P	GFX_TX8P AB2
U5	GFX_RX8N	GFX_TX8N AC2
V5	GFX_RX9P	GFX_TX9P AD2
V4	GFX_RX9N	GFX_TX9N AD1
W4	GFX_RX10P	GFX_TX10P AE1
W3	GFX_RX10N	GFX_TX10N AE2
Y6	GFX_RX11P	GFX_TX11P AF2
Y5	GFX_RX11N	GFX_TX11N AG2
AA5	GFX_RX12P	GFX_TX12P AG1
AA4	GFX_RX12N	GFX_TX12N AH1
AB4	GFX_RX13P	GFX_TX13P AH2
AB3	GFX_RX13N	GFX_TX13N AJ2
AC6	GFX_RX14P	GFX_TX14P AJ3
AC5	GFX_RX14N	GFX_TX14N AJ4
AD5	GFX_RX15P	GFX_TX15P AK4
AD4	GFX_RX15N	GFX_TX15N AJ5
AF8	GPP_RX0P	GPP_TX0P AJ8
AG8	GPP_RX0N	GPP_TX0N AJ9
AG6	GPP_RX1P	GPP_TX1P AF6
AG7	GPP_RX1N	GPP_TX1N AF6
AK7	GPP_RX2P	GPP_TX2P AJ6
AJ7	GPP_RX2N	GPP_TX2N AK6
AG4	GPP_RX3P	GPP_TX3P AE4
AH4	GPP_RX3N	GPP_TX3N AF4
AG9	SB_RX0P	SB_TX0P AJ10
AG10	SB_RX0N	SB_TX0N AJ11
AF9	SB_RX1P	SB_TX1P AK9
AF10	SB_RX1N	SB_TX1N AK10
K2	SB_CLKP	PCE_TXSET AK13
L2	SB_CLKN	PCE_ISET AJ12
M2	GFX_CLKP	PCE_PCAL AH12
M1	GFX_CLKN	PCE_NCAL AG12
H2	BMREQ#	

RC410MB_2

PCIE I/F TO SLOT
25 PCIE_RXP0 PCIE_TXP0_C C755 0.1UF_0402 PCIE_TXP0 25
25 PCIE_RXN0 PCIE_TXN0_C C756 0.1UF_0402 PCIE_TXN0 25

PCIE I/F TO SB
16 A_RX0P SB_TX0P_CC759 0.1UF_0402 A_TX0P 16
16 A_RX0N SB_TX0N_C C760 0.1UF_0402 A_TX0N 16
16 A_RX1P SB_TX1P_CC761 0.1UF_0402 A_TX1P 16
16 A_RX1N SB_TX1N_C C762 0.1UF_0402 A_TX1N 16

13 SBLINKCLK
13 SBLINKCLK-
13 NBSRCCLK
13 NBSRCCLK-
16 BMREQ-
R656 8.25K_0402_1%
R657 10K_0402
R658 150R_0402
R659 100R_0402
06'02'16 ATi suggest
+VDDA12

+3VRUN R665 4.7K_0402 R666 4.7K_0402
LDDC_CLK
LDDC_DATA

+3VRUN R668 4.7K_0402 VTT R669 4.7K_0402
14 VGA_HSYNC R670 4.7K_0402 Q108 MMBT3904 BSEL1 3,13
CI850 For EMI 10PF_0402_NC

+3VRUN R672 4.7K_0402 VTT R671 4.7K_0402
14 VGA_VSYNC R673 4.7K_0402 Q109 MMBT3904 BSEL0 3,13
CI851 For EMI 10PF_0402_NC

BMREQ#&HSYNC&VSYNC: FSB CLK SPEED

000: 100 MHZ
001: 133 MHZ (CK410)
010: --- MHZ
011: 166 MHZ (CK410)
100: 100 MHZ
101: 100 MHZ (CK410)
110: --- MHZ
111: --- MHZ

Note1: For A11, 100M and 133M need to strap at 101or 001 .

Note2: A12 changed 101 to be 100MHZ instead of 133MHZ in A11 ASIC.

R676 4.7K_0402_NC +3VRUN
16 BMREQ- R667 1K_0402
4.7k can't down to 0V, so change to 1k. 05'12'19 Able

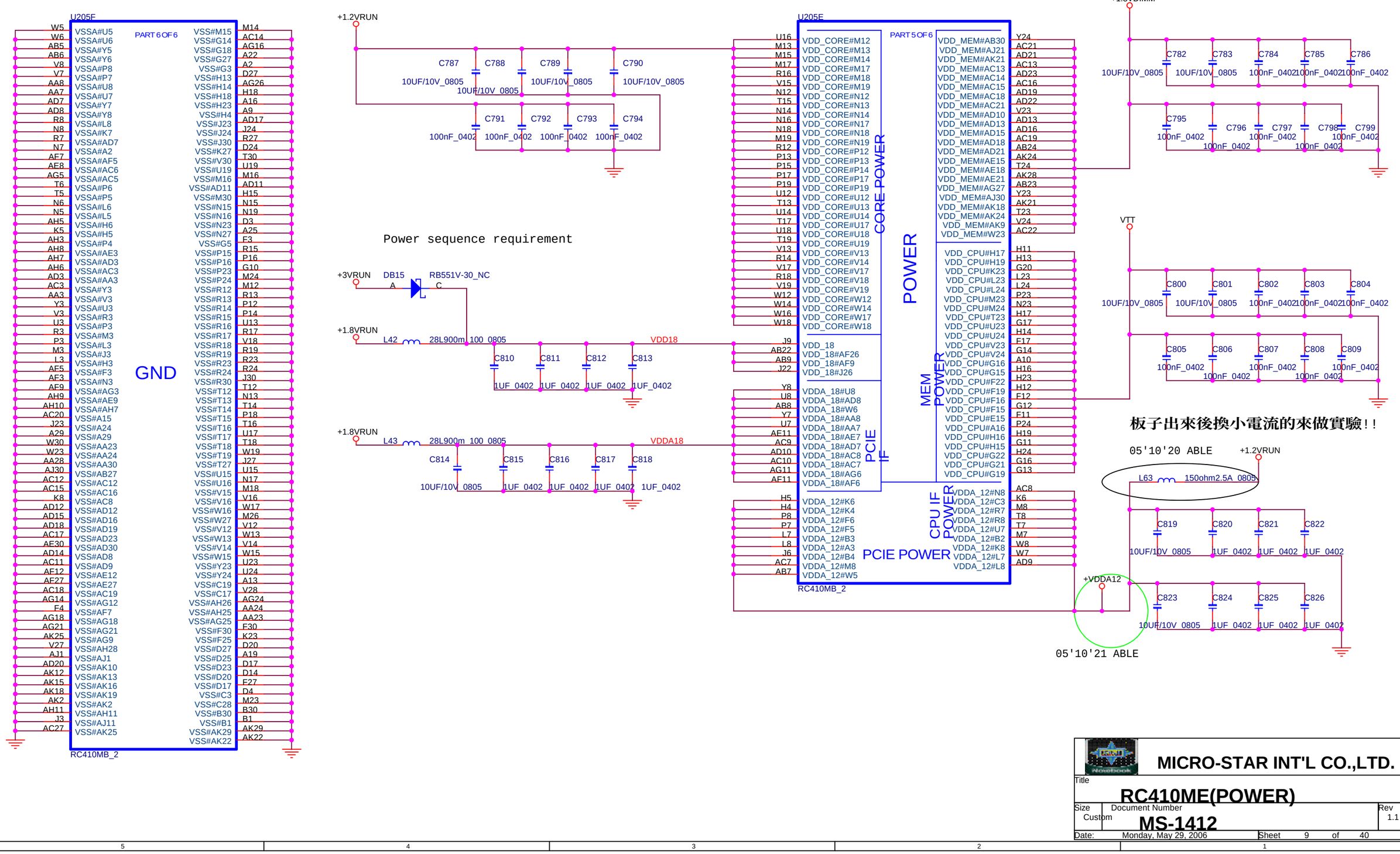
設定外頻3隻腳其中依之HSYNC#,VSYNC#為另外兩支,亦有接到南橋

MICRO-STAR INT'L CO.,LTD.

Title: RC410ME(VIDEO)&PCI-E

Size: Custom | Document Number: MS-1412 | Rev: 1.1

Date: Monday, May 29, 2006 | Sheet 8 of 40

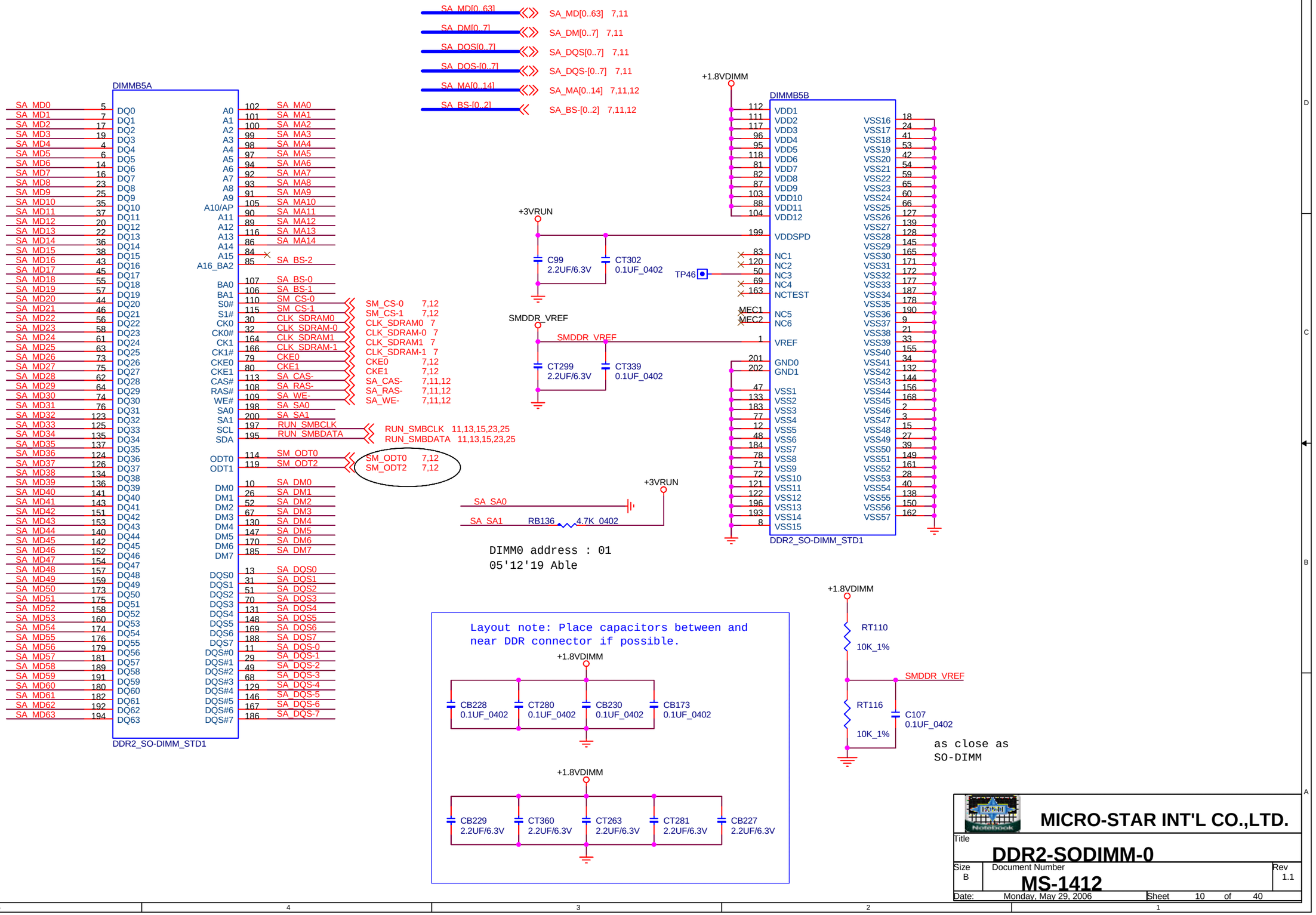


MICRO-STAR INT'L CO.,LTD.

Title: RC410ME(POWER)

Size: Custom | Document Number: MS-1412 | Rev: 1.1

Date: Monday, May 29, 2006 | Sheet 9 of 40

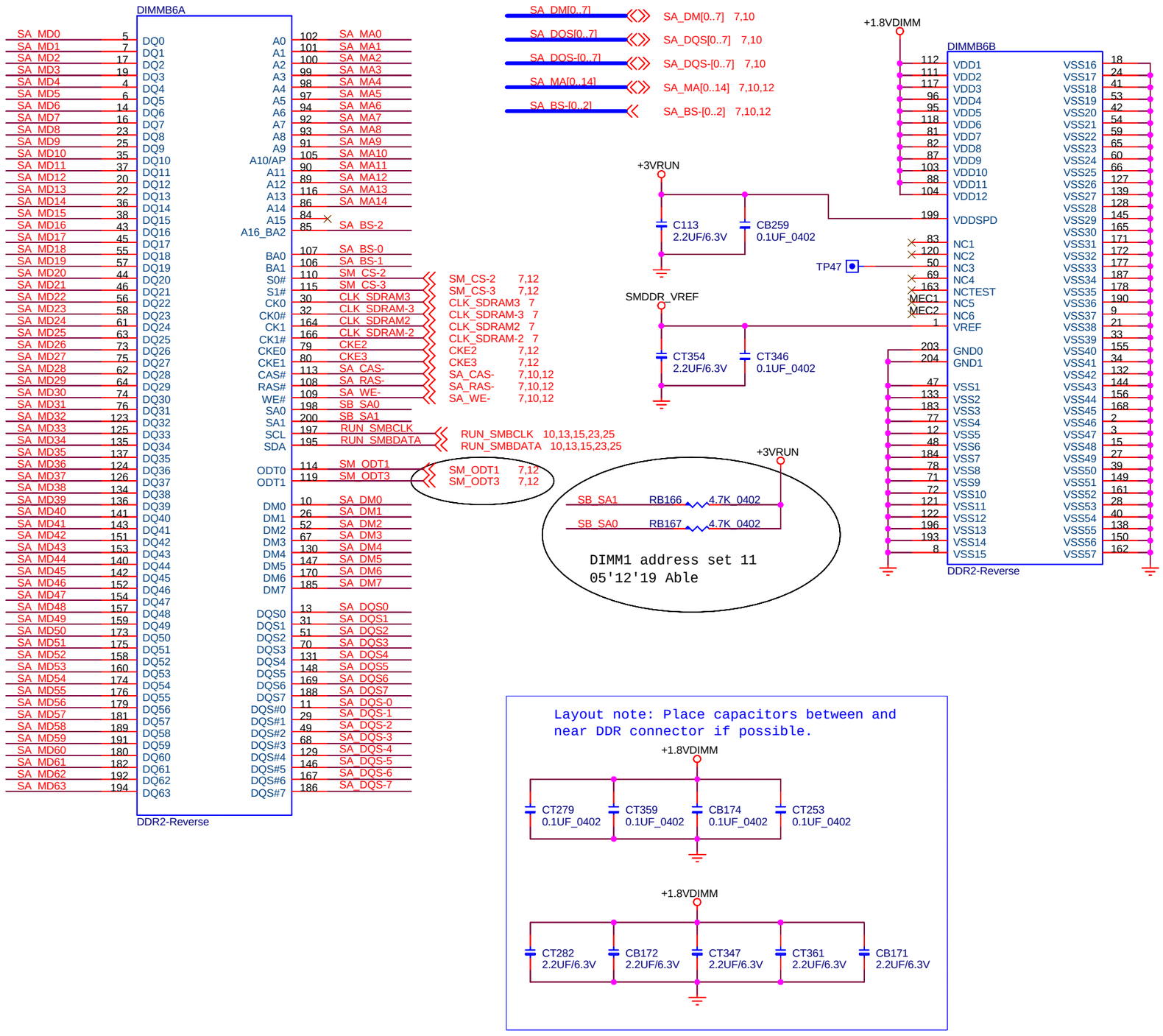


MICRO-STAR INT'L CO.,LTD.

Title: DDR2-SODIMM-0

Size	Document Number	Rev
B	MS-1412	1.1

Date: Monday, May 29, 2006 Sheet 10 of 40



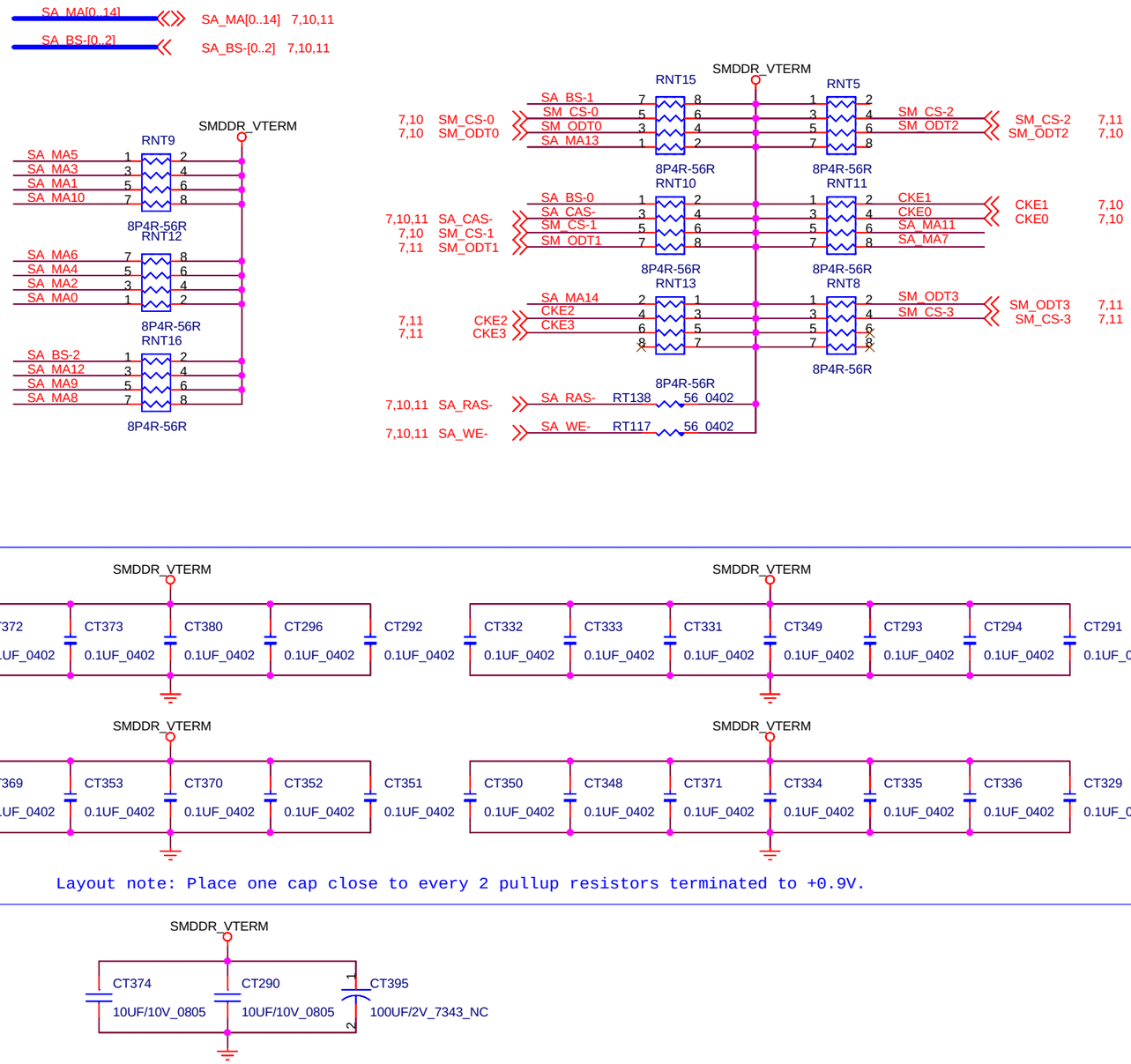
Layout note: Place capacitors between and near DDR connector if possible.

MICRO-STAR INT'L CO.,LTD.

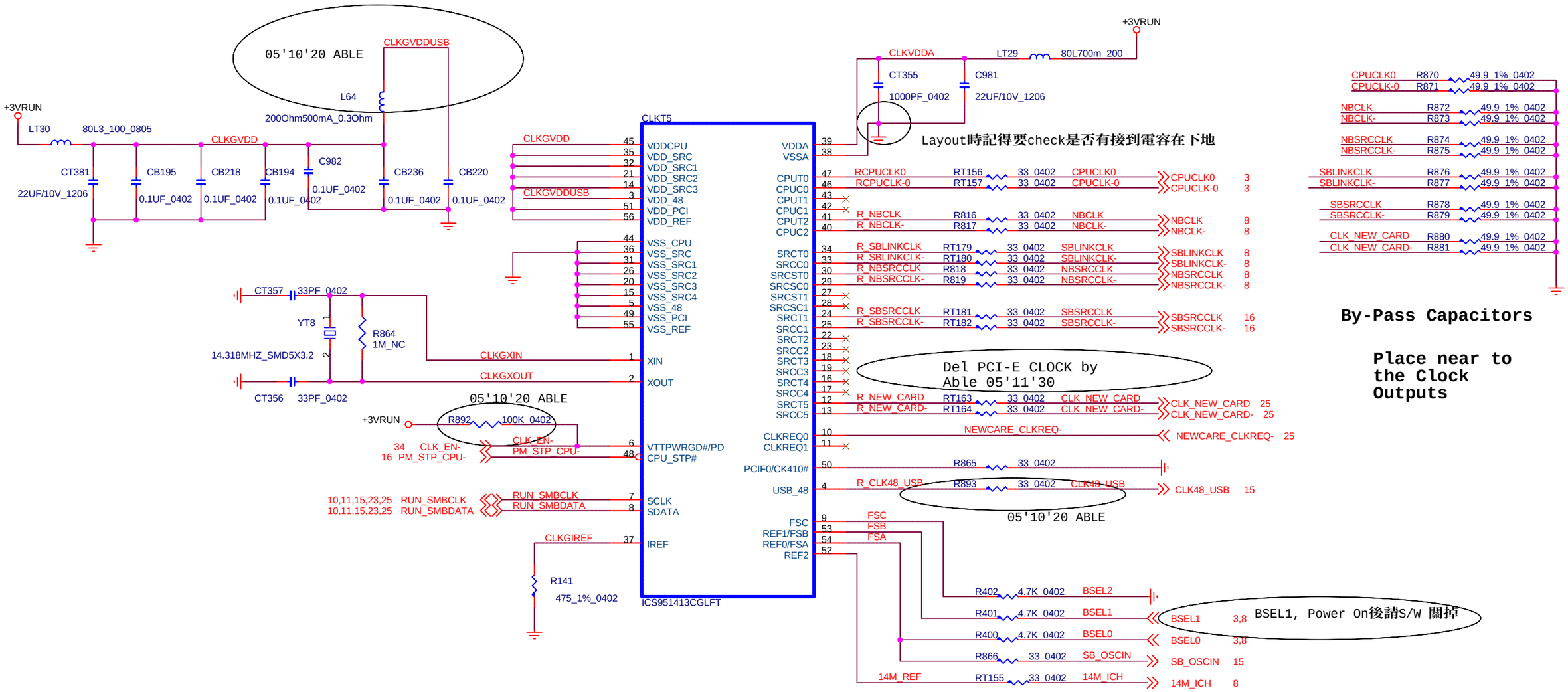
Title: DDR2-SODIMM-1

Size: B | Document Number: MS-1412 | Rev: 1.1

Date: Monday, May 29, 2006 | Sheet 11 of 40

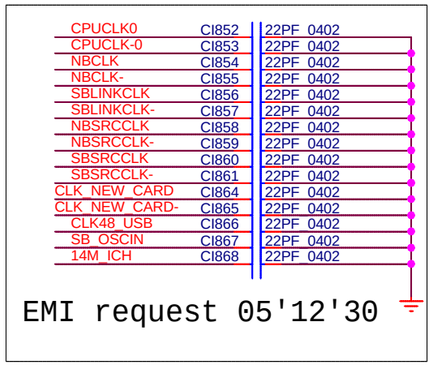


	MICRO-STAR INT'L CO.,LTD.	
Title: DDR2 Terminator		
Size: B	Document Number: MS-1412	Rev: 1.1
Date: Monday, May 29, 2006	Sheet 12 of 40	



CK410 FREQUENCY SELECT TABLE(MHZ)

FSC BSEL2	FSB BSEL1	FSA BSEL0	CPU	SRC	PCI	REF
1	0	1	100	100	33	14.31
0	0	1	133	100	33	14.31
0	1	1	166	100	33	14.31
0	1	0	200	100	33	14.31
0	0	0	266	100	33	14.31
1	0	0	333	100	33	14.31
1	1	0	400	100	33	14.31
1	1	1	Resv	100	33	14.31

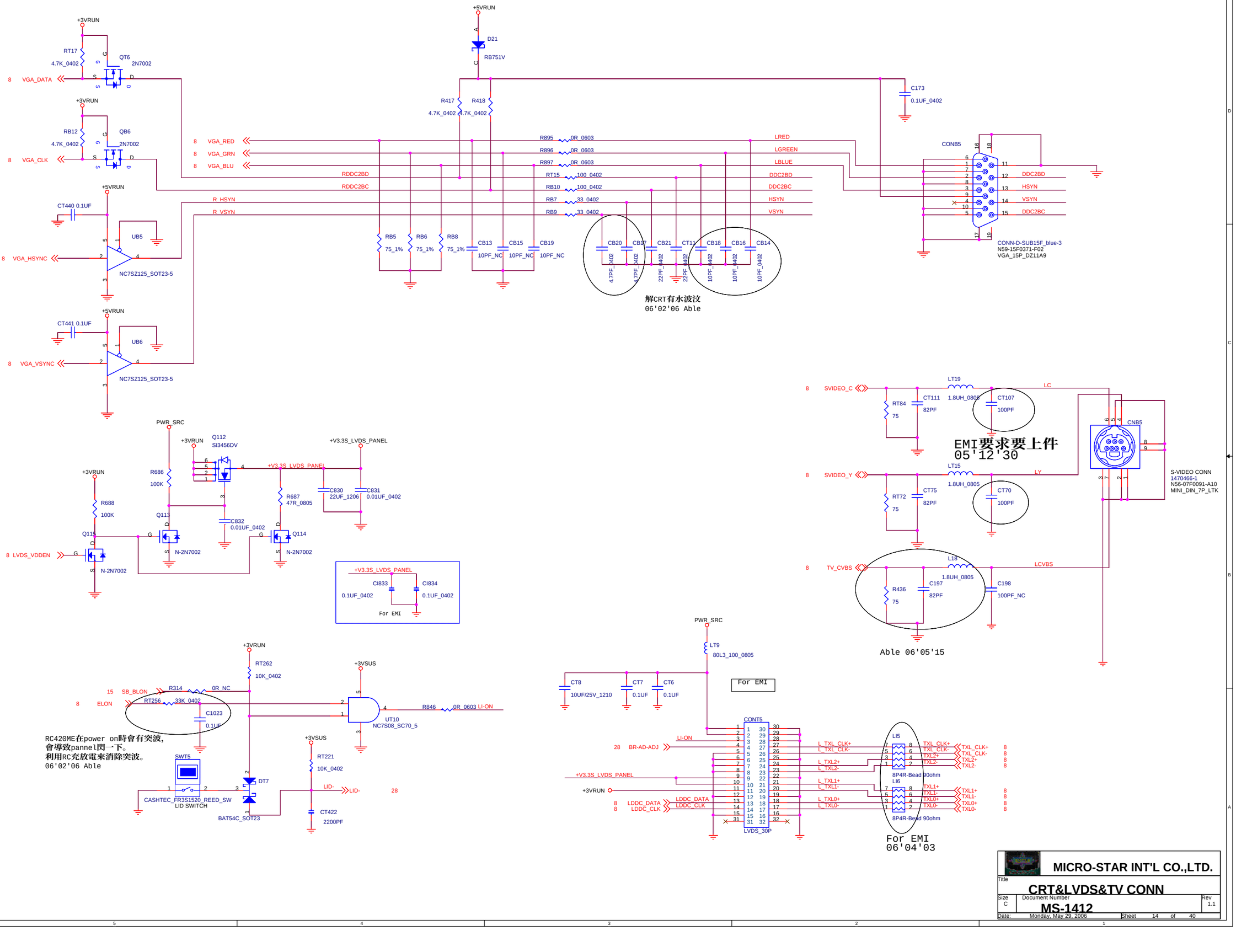


MICRO-STAR INT'L CO.,LTD.

Title: CLOCK Generator (ICS951413CGLFT)

Size	Document Number	Rev
B	MS-1412	1.1

Date: Monday, May 29, 2006 Sheet 13 of 40


+5VRUN
D21
RB751V
C173
0.1UF_0402
R417 4.7K_0402
R418 4.7K_0402
8 VGA_RED
8 VGA_GRN
8 VGA_BLU
R895 0R_0603
R896 0R_0603
R897 0R_0603
LRED
LGREEN
LBLUE
RDDC2BD
RDDC2BC
RT15 100_0402
RB10 100_0402
RB7 33_0402
RB9 33_0402
DDC2BD
DDC2BC
HSYN
VSYN
R_HSYN
R_VSYN
RB5 75_1%
RB6 75_1%
RB8 75_1%
CB13 10PF_NC
CB15 10PF_NC
CB19 10PF_NC
CB20 4.7PF_0402
CB17 4.7PF_0402
CB21 22PF_0402
CT11 22PF_0402
CB18 10PF_0402
CB16 10PF_0402
CB14 10PF_0402
CONB5
CONN-D-SUB15F_blue-3
N59-15F0371-F02
VGA_15P_DZ11A9
+3VRUN
RT17 4.7K_0402
QT6 2N7002
8 VGA_DATA
RB12 4.7K_0402
QB6 2N7002
8 VGA_CLK
CT440 0.1UF
UB5
8 VGA_HSYNC
NC7SZ125_SOT23-5
CT441 0.1UF
UB6
8 VGA_VSYNC
NC7SZ125_SOT23-5
解CRT有水波汶
06'02'06 Able
PWR_SRC
Q112 SI3456DV
+V3.3S_LVDS_PANEL
R686 100K
R688 100K
R687 47R_0805
C830 22UF_1206
C831 0.01UF_0402
C832 0.01UF_0402
Q113 N-2N7002
Q114 N-2N7002
Q115 N-2N7002
8 LVDS_VDDEN
+V3.3S_LVDS_PANEL
CI833 0.1UF_0402
CI834 0.1UF_0402
For EMI
+3VRUN
RT262 10K_0402
15 SB_BLON
R314 0R_NC
8 ELON
RT256 33K_0402
C1023 0.1UF
+3VSUS
UT10 NC7S08_SC70_5
R846 0R_0603 LI-ON
SWT5
CASHTEC_FR3S1520_REED_SW
LID SWITCH
DT7
BAT54C_SOT23
RT221 10K_0402
LID-
28
CT422 2200PF
RC420ME在power on時會有突波,
會導致pannel閃一下。
利用RC充放電來消除突波。
06'02'06 Able
8 SVIDEO_C
LT19 1.8UH_0805
LC
RT84 75
CT111 82PF
CT107 100PF
8 SVIDEO_Y
LT15 1.8UH_0805
LY
RT72 75
CT75 82PF
CT70 100PF
CNB5
S-VIDEO CONN
1470466-1
N56-07F0091-A10
MINI_DIN_7P_LTK
EMI要求要上件
05'12'30
8 TV_CVBS
L18 1.8UH_0805
LCVBS
R436 75
C197 82PF
C198 100PF_NC
Able 06'05'15
PWR_SRC
LT9 80L3_100_0805
CT8 10UF/25V_1210
CT7 0.1UF
CT6 0.1UF
For EMI
CONT5
LVDS_30P
LI-ON
28 BR-AD-ADJ
+V3.3S_LVDS_PANEL
+3VRUN
8 LDDC_DATA
8 LDDC_CLK
L_TXL_CLK+
L_TXL_CLK-
L_TXL2+
L_TXL2-
L_TXL1+
L_TXL1-
L_TXL0+
L_TXL0-
LI5
LI6
8P4R-Bead 90ohm
TXL_CLK+
TXL_CLK-
TXL2+
TXL2-
TXL1+
TXL1-
TXL0+
TXL0-
For EMI
06'04'03
MICRO-STAR INT'L CO.,LTD.
Title
CRT&LVDS&TV CONN
Size C
Document Number
MS-1412
Rev 1.1
Date: Monday, May 29, 2006
Sheet 14 of 40

If USB internal PLL is used, 48M_X1 and 48M_X2 need to be connected to GND through 10K resistor.

SB_48M_X1 R725 0R0402_NC
SB_48M_X2 R726 0R0402_NC

+3VSUS

PM_PWRBTN- R689 10K_0402
S3_STATE R690 4.7K_0402
PM_SLP_S3- R691 4.7K_0402
PM_SLP_S5- R692 4.7K_0402
KBSCI- R694 10K_0402
P_PME- R695 4.7K_0402
FP_RST- R696 10K_0402
GPM2 R697 10K_0402
GPM0 R698 10K_0402
GPM1 R699 10K_0402
GPM3 R701 10K_0402
GPM4 R702 10K_0402
PCIE_CLKEN R704 10K_0402_NC
GEVENT7- R705 10K_0402
LANWAKE- R706 10K_0402
PCIE_WAKE- R707 10K_0402

PCIE WAKE UP CONNECT TO 397 EVENT6

KBSMI- R708 10K_0402 +3VRUN

AZ_SDOUT R710 10K_0402
AZ_SYNC R711 10K_0402
AZ_RST- R712 10K_0402
CHI- R713 10K_0402_NC
GPM6- R716 10K_0402
AZ_SDIN1 R718 10K_0402
AZ_SDIN0 R719 10K_0402
BIT_CLK R720 10K_0402
SB_TEST0 R721 10K_0402
SB_TEST1 R723 10K_0402

+3VRUN CI1030 0.1UF_0402_NC

For EMI Near R720

+3VRUN

RUN_SMBCLK R727 4.7K
RUN_SMBDATA R728 4.7K
ROM_CS- R729 4.7K_0402
MB_ID0 R732 4.7K_0402
MB_ID1 R734 4.7K_0402
VGATE R693 4.7K_0402

05'10'21 ABLE

C837 15PF_NPO_NC 14_X1
14M-20pf-SMD_NC Y6 R738 1M_NC
C842 15PF_NPO_NC 14_X2

U202D

SB400 SB Part 4 of 4

25 PCIE_CLKEN	PCIE_CLKEN	C6	TALERT#/TEMP_ALERT#/GPIO10
	GPM6-	D5	BLINK/GPM6#
21,23,24 P_PME-		C4	PCI_PME#/GEVENT4#
23 LANWAKE-	LANWAKE-	D3	RI#/EXTEVNT0#
28 PM_SLP_S3-		B4	SLP_S3#
28 PM_SLP_S5-		E3	SLP_S5#
28 PM_PWRBTN-		B3	PWR_BTN#
6 SB_PWRGD		C3	PWR_GOOD
6 SUS_STAT-		D4	SUS_STAT#
	SB_TEST1	F2	TEST1
	SB_TEST0	E2	TEST0
28 GA20	GA20	AJ26	GA20IN
28 KBRST-	KBRST-	AJ27	KBRST#
3 THERMTRIPSB-		D6	SMBALERT#/THRMTRIP#/GEVENT2#
	TP152	C5	LPC_PME#/GEVENT3#
28 KBSMI-	KBSMI-	A25	LPC_SMI#/EXTEVNT1#
	TP153 S3_STATE	D8	VOLT_ALERT#/S3_STATE/GEVENT5#
	TP154 FP_RST-	D7	SYS_RESET#/GPM7#
25 PCIE_WAKE-	PCIE_WAKE-	D2	WAKE#/GEVENT8#
28 RSMRST-		D1	RSMRST#
13 SB_OSCIN	R722 0R0402 14_X1	A23	14M_X1/OSC
	14_X2	B23	14M_X2
	TP155	AK24	SIO_CLK
	ROM_CS-	B25	ROM_CS#/GPIO1
	CHI-	C25	GHI#/GPIO6
	VGATE	C23	VGATE/GPIO7
14 SB_BLON	SB_BLON	D24	AGP_STP#/GPIO4
		D23	AGP_BUSY#/GPIO5
	TP176	A27	FANOUT0/GPIO3
26 SPKR		C24	SPKR/GPIO2
10,11,13,23,25 RUN_SMBCLK		A26	SCL0/GPOC0#
10,11,13,23,25 RUN_SMBDATA		B26	SDA0/GPOC1#
	MB_ID0	B27	DDC1_SCL/GPIO9
	MB_ID1	C26	DDC1_SDA/GPIO8
20 CBLIDA		C27	DDC2_SCL/GPIO11
20 CBLIDB		D26	DDC2_SDA/GPIO12
25,26 BIT_CLK	R733 33R	J2	NC1
CLK48_USB	R735 0R0402_NC	K3	NC4
24,25,26 AZ_SDOUT	R736 33_0402 SDATO_R	J3	NC3
25,26 AZ_SYNC	R737 33_0402 SYNC_R	K2	NC2
	TP156	G1	AC_BITCLK
18 AC_SDOUT		G2	AC_SDOUT
26 AZ_SDIN0		H4	AC_SDIN0
25 AZ_SDIN1		G3	AC_SDIN1
	TP169	G4	AC_SDIN2
	TP157	H1	AC_SYNC
	TP158	H3	AC_RST#
18 SPDIF_OUT		H2	SPDIF_OUT

ACPI WAKE UP EVENTS
USB INTERFACE
CLK / RST
GPIO
(NOT USED)
AC97

SB400

	48M_X1/USBCLK	A15	SB_48M_X1
	48M_X2	B15	SB_48M_X2
	USB_RCOMP	C15	USB_RCOMP R814 11.8K_1%
	USB_VREFOUT	D16	TP149
	USB_ATEST1	C16	TP150
	USB_ATEST0	D15	TP151
	USB_OC0#/GPM0#	B8	GPM0
	USB_OC1#/GPM1#	C8	GPM1
	USB_OC2#/FANOUT1/GPM2#	C7	GPM2
	USB_OC3#/GPM3#	B7	GPM3
	USB_OC4#/GPM4#	B6	GPM4
	USB_OC5#/GPM5#	A6	R709 33R AZ_RST- 24,25,26
	USB_OC6#/FAN_ALERT#/GEVENT6#	B5	KBSCI- KBSCI- 28
	USB_OC7#/CASE_ALERT#/GEVENT7#	A5	GEVENT7-
	USB_HSDP7+	A11	
	USB_HSDM7-	B11	
	USB_HSDP6+	A10	USBP6P 24
	USB_HSDM6-	B10	USBP6N 24
	USB_HSDP5+	A14	
	USB_HSDM5-	B14	
	USB_HSDP4+	A13	
	USB_HSDM4-	B13	
	USB_HSDP3+	A18	USBP3P 25
	USB_HSDM3-	B18	USBP3N 25
	USB_HSDP2+	A17	USBP2P 19
	USB_HSDM2-	B17	USBP2N 19
	USB_HSDP1+	A21	USBP1P 19
	USB_HSDM1-	B21	USBP1N 19
	USB_HSDP0+	A20	USBP0P 19
	USB_HSDM0-	B20	USBP0N 19
	AVDDTX_0	C21	
	AVDDTX_1	C18	
	AVDDTX_2	D13	
	AVDDTX_3	D10	
	AVDDRX_0	D20	
	AVDDRX_1	D17	
	AVDDRX_2	C14	
	AVDDRX_3	C11	
	AVDDC	A16	
	AVSSC	B16	
	AVSS_USB_1	A9	
	AVSS_USB_2	A12	
	AVSS_USB_3	A19	
	AVSS_USB_4	A22	
	AVSS_USB_5	B9	
	AVSS_USB_6	B12	
	AVSS_USB_7	B19	
	AVSS_USB_8	B22	
	AVSS_USB_9	C9	
	AVSS_USB_10	C10	
	AVSS_USB_11	C12	
	AVSS_USB_12	C13	
	AVSS_USB_13	C17	
	AVSS_USB_14	C19	
	AVSS_USB_15	C20	
	AVSS_USB_16	C22	
	AVSS_USB_17	D9	
	AVSS_USB_18	D11	
	AVSS_USB_19	D12	
	AVSS_USB_20	D14	
	AVSS_USB_21	D18	
	AVSS_USB_22	D19	
	AVSS_USB_23	D21	
	AVSS_USB_24	D22	

USB PWR

CLK48_USB R700 0R0402 13

LOW LOW BATTERY -->A21

200mA rating

+3VSUS L45 FB_28_0.9A_0805 +3VUSB1
C843 22UF_1206
C986 C839 1UF C840 0.1UF_0402 0.1UF_0402 C841
10UF/10V_0805

+3VUSB1
C844 1UF C845 0.1UF_0402 0.1UF_0402 C846

+3VSUS L47 FB_28_0.9A_0805 AVDDC
C847 2.2UF C848 10UF/10V_0805

AVDDC

MICRO-STAR INT'L CO.,LTD.		
Title: SB450(ACPI&GPIO&USB)		
Size: Custom	Document Number: MS-1412	Rev: 1.1
Date: Monday, May 29, 2006	Sheet 15 of 40	

EMI要求改為33ohm

LENGTH OF (PCI_CLK9_R + PCI_CLK9_FB) SHOULD MATCH THE AVERAGE OF THE OTHER SPCI_CLKS

SB400 SB
Part 1 of 4

U202A

32K_X1
Y7 32.768KHZ12.5P_S-RH-2
32K_X2
R739 20M
R740 20MR
C849 18PF_NPO
C850 18PF_NPO

For RoHS change.
06'05'15

R884 10K
A_RST-

13 SBSRCCLK
13 SBSRCCLK-

8 A_RX0P
8 A_RX0N
8 A_RX1P
8 A_RX1N
C852 0.1UF 0402
C853 0.1UF 0402
C854 0.1UF 0402
C855 0.1UF 0402
A_RX0P_C
A_RX0N_C
A_RX1P_C
A_RX1N_C

8 A_TX0P
8 A_TX0N
8 A_TX1P
8 A_TX1N

+1.8VRUN
R742 150R 1%
R743 150R 1%
R744 4.12K 1%
L49 200Ohm500mA 0.3Ohm
PCIE_PVDD
C856 10UF_0805
C857 1UF
C858 0.1UF_0402
L48 28L900m_100_0805
C862 1UF
C863 1UF
C864 0.1UF_0402
C865 0.1UF_0402
C866 0.1UF_0402
C867 0.1UF_0402
C859 10UF_0805
PCIE_VDDR

PCI EXPRESS INTERFACE

PCIE_RCLKP
PCIE_RCLKN
PCIE_TX0P
PCIE_TX0N
PCIE_TX1P
PCIE_TX1N
PCIE_TX2P
PCIE_TX2N
PCIE_TX3P
PCIE_TX3N
PCIE_RX0P
PCIE_RX0N
PCIE_RX1P
PCIE_RX1N
PCIE_RX2P
PCIE_RX2N
PCIE_RX3P
PCIE_RX3N
PCIE_CALRP
PCIE_CALRN
PCIE_CALI
PCIE_PVDD
PCIE_VDDR_1
PCIE_VDDR_2
PCIE_VDDR_3
PCIE_VDDR_4
PCIE_VDDR_5
PCIE_VDDR_6
PCIE_VDDR_7
PCIE_VDDR_8
PCIE_VDDR_9
PCIE_VSS_1
PCIE_VSS_2
PCIE_VSS_3
PCIE_VSS_4
PCIE_VSS_5
PCIE_VSS_6
PCIE_VSS_7
PCIE_VSS_8
PCIE_VSS_9
PCIE_VSS_10
PCIE_VSS_11
PCIE_VSS_12
PCIE_VSS_13
PCIE_VSS_14
PCIE_VSS_15

13 PM_STP_CPU-
3 H_DPSLP-
24 INTA-
24 INTB-
23 INTC-
21 INTD-
INTE-
INTF-
INTG-
INTH-
CPU_STP#/DPSLP#
PCI_STP#
INTA#
INTB#
INTC#
INTD#
INTE#/GPIO33
INTF#/GPIO34
INTG#/GPIO35
INTH#/GPIO36

32K_X1
32K_X2
XTAL

3 CPU_PWRGD
3 INTR
3 NMI
3 CPU_INIT-
3 SMI-
3 CPUSLP-
3 IGNNE-
3 A20M-
3 FERR-
3 STPCLK-
3,34 DPRSLPVR
8 BMREQ-
CPU_PWRGD
INTR
NMI
CPU_INIT-
SMI-
CPUSLP-
IGNNE-
A20M-
FERR-
STPCLK-
DPRSLPVR
BMREQ-
CPU_PG
INTR/LINT0
NMI/LINT1
INIT#
SMI#
SLP#/LDT_STP#
IGNNE#
A20M#
FERR#
STPCLK#/ALLOW_LDTSTP
LDT_PG/SSMUXSEL/GPIO0
DPRSLPVR
BMREQ#
LDT_RST#
CPU

RTC

SB400

PCI CLKS

PCICLK0 PCI_CLK0_R
PCICLK1 PCI_CLK1_R
PCICLK2 PCI_CLK2_R
PCICLK3 PCI_CLK3_R
PCICLK4 PCI_CLK4_R
PCICLK5 PCI_CLK5_R
PCICLK6 PCI_CLK6_R
PCICLK7 PCI_CLK7_R
PCICLK8 PCI_CLK8_R
PCICLK9 PCI_CLK9_R
PCICLK_FB PCI_CLK9_FB
R741 22R
C851 1000PF_X7R_NC

RN2 33R-8P4R
PCI_CLK4_R
PCI_CLK1_R
PCI_CLK3_R
PCI_CLK2_R
CBP_CLK4 18,21
LPC_DEBUG 28
MINIPCI_CLK3 18,24
PCI_LAN_CLK2 18,23

RN3 33R-8P4R
PCI_CLK8_R
PCI_CLK6_R
PCI_CLK7_R
PCI_CLK5_R
PCI_CLK8 18
PCI_CLK6 18
PCI_CLK7 18
EC_CLK5 18,28

TP160

PCIRST# PCIRST-
AD0/ROMA18 P_AD0
AD1/ROMA17 P_AD1
AD2/ROMA16 P_AD2
AD3/ROMA15 P_AD3
AD4/ROMA14 P_AD4
AD5/ROMA13 P_AD5
AD6/ROMA12 P_AD6
AD7/ROMA11 P_AD7
AD8/ROMA9 P_AD8
AD9/ROMA8 P_AD9
AD10/ROMA7 P_AD10
AD11/ROMA6 P_AD11
AD12/ROMA5 P_AD12
AD13/ROMA4 P_AD13
AD14/ROMA3 P_AD14
AD15/ROMA2 P_AD15
AD16/ROMD0 P_AD16
AD17/ROMD1 P_AD17
AD18/ROMD2 P_AD18
AD19/ROMD3 P_AD19
AD20/ROMD4 P_AD20
AD21/ROMD5 P_AD21
AD22/ROMD6 P_AD22
AD23/ROMD7 P_AD23
AD24 P_AD24
AD25 P_AD25
AD26 P_AD26
AD27 P_AD27
AD28 P_AD28
AD29 P_AD29
AD30 P_AD30
AD31 P_AD31
P_AD[0..31] 18,21,23,24

PCI INTERFACE

CBE0#/ROMA10 C/BE0-
CBE1#/ROMA1 C/BE1-
CBE2#/ROMWE# C/BE2-
CBE3# C/BE3-
FRAME# P_FRAME-
DEVSEL#/ROMA0 P_DEVSEL-
IRDY# P_IRDY-
TRDY#/ROMOE# P_TRDY-
PAR/ROMA19 P_PAR
STOP# P_STOP-
PERR# P_PERR-
SERR# P_SERR-
REQ0# PREQ-0
REQ1# PREQ-1
REQ2# PREQ-2
REQ3#/PDMA_REQ0# PREQ-3
REQ4#/PLL_BP33/PDMA_REQ1# PREQ-4
REQ5#/GPIO13 PREQ-5
REQ6#/GPIO31 PREQ-6
GNT0# PGNT-0
GNT1# PGNT-1
GNT2# PGNT-2
GNT3#/PLL_BP66/PDMA_GNT0# PGNT-3
GNT4#/PLL_BP50/PDMA_GNT1# PGNT-4
GNT5#/GPIO14 PGNT-5
GNT6#/GPIO32 PGNT-6
CLKRUN# P_CLKRUN-
LOCK# LOCK-

C/BE0- 21,23,24
C/BE1- 21,23,24
C/BE2- 21,23,24
C/BE3- 21,23,24
P_FRAME- 21,23,24
P_DEVSEL- 21,23,24
P_IRDY- 21,23,24
P_TRDY- 21,23,24
P_PAR 21,23,24
P_STOP- 21,23,24
P_PERR- 21,23,24
P_SERR- 21,23,24
PREQ-0 21
PREQ-1 24
PREQ-2 23
PGNT-0 21
PGNT-1 24
PGNT-2 23
P_CLKRUN- 21,24,28

R747 0R
R748 0 NC

LPC

LAD0 LAD0
LAD1 LAD1
LAD2 LAD2
LAD3 LAD3
LFRAME# LFRAME-
LDRQ0# LDRQ0-
LDRQ1#
SERIRQ SIRQ
LAD0 28
LAD1 28
LAD2 28
LAD3 28
LFRAME- 28
L_LDRQ0- 28
SIRQ 21,28
R749 0R
LDRQ-1_SB
R750 10K
+3VRUN

RTC

RTCCLK RTC_CLK
RTC_IRQ#/ACPWR_STRAP AUTO_ON-
VBAT
RTC_GND
RTC_CLK 18
AUTO_ON- 18
RTCVCC
C872 0.1UF
C873 2.2u_0603

06'25'26 ABLE

RN1 8.2K-10P8R
PGNT-5
PGNT-4
PGNT-0
PREQ-3
PGNT-1
PGNT-2
PGNT-3
PGNT-6

RN4 8.2K-10P8R
INTD-
PREQ-5
PREQ-2
INTB-
INTC-
PREQ-0
INTA-
PREQ-1

RN5 8.2K-10P8R
21,23,24 P_IRDY-
21,23,24 P_DEVSEL-
P_FRAME- 21,23,24
P_TRDY- 21,23,24
PREQ-6
PREQ-4

RN6 8.2K-10P8R
21,23,24 P_SERR-
21,23,24 P_STOP-
21,23,24 P_PERR-
LOCK-
INTE-
INTF-
INTG-
INTH-

RN7 8.2K-8P4R-0402
P_CLKRUN-
LDRQ-1_SB
BMREQ-
L_LDRQ0-

RN8 100K-8P4R-0402
LAD3
LAD0
LAD1
LAD2

+3VRUN
+3VSUS
+3VALW
+1.8VRUN

C988 1UF
R745 33-0402
R756 33R_0402
R755 33R_0402
U211 NC7S08_SC70_5
A_RST-
NB_RST- 6
ENE_RST- 28
IDERST- 20

05'10'20 ABLE

C989 1UF
R752 33R_0402
R753 33R_0402
R754 33R_0402
R746 33-0402
U212 NC7S08_SC70_5
PCIRST-
LAN_RST- 23
CARDBUS_RST- 21,26
MINIPCI_RST- 24
NEWCARD_RST- 25
R894 10K

CBP_CLK4
MINIPCI_CLK3
EC_CLK5
C839 33PF_0402_NC
C840 33PF_0402_NC
C841 33PF_0402_NC
EMI

Note: Overlap common pads where possible for dual-op resistors.

06'05'25 Able
R957 0R_0603
RTCVCC
D25 S-BAT54C_SOT23
R848 1K
CNB7
BH1X2S_white-1.25pitch
N32-1020290-H06
53398_02

Place all the decoupling caps on this sheet close to SB.

U202B — SB400 SB, Part 2 of 4

SERIAL ATA

AK22	SATA_TX0+
AJ22	SATA_TX0-
AK21	SATA_RX0-
AJ21	SATA_RX0+
AK19	SATA_TX1+
AJ19	SATA_TX1-
AK18	SATA_RX1-
AJ18	SATA_RX1+
AK14	SATA_TX2+
AJ14	SATA_TX2-
AK13	SATA_RX2-
AJ13	SATA_RX2+
AK11	SATA_TX3+
AJ11	SATA_TX3-
AK10	SATA_RX3-
AJ10	SATA_RX3+
AJ15	SATA_CAL
AJ16	SATA_X1
AK16	SATA_X2
AK8	SATA_ACT#

SERIAL ATA POWER

AH15	PLLVDD_SATA
AH16	XTLVDD_SATA
AG10	AVDD_SATA_1
AG14	AVDD_SATA_2
AH12	AVDD_SATA_3
AG12	AVDD_SATA_4
AG18	AVDD_SATA_5
AG21	AVDD_SATA_6
AH18	AVDD_SATA_7
AG20	AVDD_SATA_8
AG9	AVSSP_SATA_1
AE10	AVSSP_SATA_2
AE11	AVSSP_SATA_3
AE12	AVSSP_SATA_4
AE13	AVSSP_SATA_5
AE14	AVSSP_SATA_6
AE15	AVSSP_SATA_7
AE16	AVSSP_SATA_8
AE17	AVSSP_SATA_9
AE18	AVSSP_SATA_10
AE19	AVSSP_SATA_11
AE20	AVSSP_SATA_12
AE21	AVSSP_SATA_13
AE22	AVSSP_SATA_14
AH9	AVSSP_SATA_15
AG11	AVSSP_SATA_16
AG15	AVSSP_SATA_17
AG17	AVSSP_SATA_18
AG19	AVSSP_SATA_19
AG22	AVSSP_SATA_20
AG23	AVSSP_SATA_21
AF9	AVSSP_SATA_22
AH17	AVSSP_SATA_23
AH23	AVSSP_SATA_24
AH13	AVSSP_SATA_25
AH20	AVSSP_SATA_26
AK9	AVSSP_SATA_27
AJ12	AVSSP_SATA_28
AK17	AVSSP_SATA_29
AK23	AVSSP_SATA_30
AH10	AVSSP_SATA_31
AJ23	AVSSP_SATA_32

PRIMARY ATA 66/100

PIDE_IORDY	AD30	IDE_PIORDY	IDE_PIORDY 20
PIDE_IRQ	AE28	IDEIRQA	IDEIRQA 20
PIDE_A0	AD27	IDE_PDA0	IDE_PDA0 20
PIDE_A1	AC27	IDE_PDA1	IDE_PDA1 20
PIDE_A2	AD28	IDE_PDA2	IDE_PDA2 20
PIDE_DACK#	AD29	IDE_PDDACK-	IDE_PDDACK- 18,20
PIDE_DRQ	AE27	IDE_PDDREQ	IDE_PDDREQ 20
PIDE_IOR#	AE30	IDE_PDIOR-	IDE_PDIOR- 20
PIDE_IOW#	AE29	IDE_PDIOW-	IDE_PDIOW- 20
PIDE_CS1#	AC28	IDE_PDCS1-	IDE_PDCS1- 20
PIDE_CS3#	AC29	IDE_PDCS3-	IDE_PDCS3- 20
PIDE_D0	AF29	IDE_PDD0	
PIDE_D1	AF27	IDE_PDD1	
PIDE_D2	AG29	IDE_PDD2	
PIDE_D3	AH30	IDE_PDD3	
PIDE_D4	AH28	IDE_PDD4	
PIDE_D5	AK29	IDE_PDD5	
PIDE_D6	AK28	IDE_PDD6	
PIDE_D7	AH27	IDE_PDD7	
PIDE_D8	AG27	IDE_PDD8	
PIDE_D9	AJ28	IDE_PDD9	
PIDE_D10	AJ29	IDE_PDD10	
PIDE_D11	AH29	IDE_PDD11	
PIDE_D12	AG28	IDE_PDD12	
PIDE_D13	AG30	IDE_PDD13	
PIDE_D14	AF30	IDE_PDD14	
PIDE_D15	AF28	IDE_PDD15	

IDE_PDD[0..15] 20

SECONDARY ATA 66/100

SIDE_IORDY	V29	IDE_SIORDY	IDE_SIORDY 20
SIDE_IRQ	T27	IDEIRQB	IDEIRQB 20
SIDE_A0	T28	IDE_SDA0	IDE_SDA0 20
SIDE_A1	U29	IDE_SDA1	IDE_SDA1 20
SIDE_A2	T29	IDE_SDA2	IDE_SDA2 20
SIDE_DACK#	V30	IDE_SDDACK-	IDE_SDDACK- 20
SIDE_DRQ	U28	IDE_SDDREQ	IDE_SDDREQ 20
SIDE_IOR#	W29	IDE_SDIOR-	IDE_SDIOR- 20
SIDE_IOW#	W30	IDE_SDIOW-	IDE_SDIOW- 20
SIDE_CS1#	R27	IDE_SDCS1-	IDE_SDCS1- 20
SIDE_CS3#	R28	IDE_SDCS3-	IDE_SDCS3- 20
SIDE_D0/GPIO15	V28	IDE_SDD0	
SIDE_D1/GPIO16	W28	IDE_SDD1	
SIDE_D2/GPIO17	Y30	IDE_SDD2	
SIDE_D3/GPIO18	AA30	IDE_SDD3	
SIDE_D4/GPIO19	Y28	IDE_SDD4	
SIDE_D5/GPIO20	AA28	IDE_SDD5	
SIDE_D6/GPIO21	AB28	IDE_SDD6	
SIDE_D7/GPIO22	AB27	IDE_SDD7	
SIDE_D8/GPIO23	AB29	IDE_SDD8	
SIDE_D9/GPIO24	AA27	IDE_SDD9	
SIDE_D10/GPIO25	Y27	IDE_SDD10	
SIDE_D11/GPIO26	AA29	IDE_SDD11	
SIDE_D12/GPIO27	W27	IDE_SDD12	
SIDE_D13/GPIO28	Y29	IDE_SDD13	
SIDE_D14/GPIO29	V27	IDE_SDD14	
SIDE_D15/GPIO30	U27	IDE_SDD15	

IDE_SDD[0..15] 20

AVSST_SATA_1	AG13
AVSST_SATA_2	AH22
AVSST_SATA_3	AK12
AVSST_SATA_4	AH11
AVSST_SATA_5	AJ17
AVSST_SATA_6	AH14
AVSST_SATA_7	AH19
AVSST_SATA_8	AJ20
AVSST_SATA_9	AH21
AVSST_SATA_10	AJ9
AVSST_SATA_11	AG16
AVSST_SATA_12	AK15
AVSST_SATA_13	AK20

SB400

+3VRUN — C878 22UF_0805; C879 C880 C881 C882 C883 C884 1UF_0402

+3VSUS — C903 4.7UF; C904 0.1UF_0402; C905 0.1UF_0402

+3VSUS — C979 4.7UF; 05'10'20 ABLE; U210 IN OUT GND; AME8800MEETZ_SOT23-RH; C980 4.7UF; +1.8VSUS

+3VRUN — D20 BAS40WS; R757 1K; +5VRUN; 05'10'20 ABLE; C907 1UF_0402; C908 0.1UF_0402

C906 0.1UF_0402; VTT; V5_VREF; AVDD_CK; 接到C894後在下地

+1.8VRUN — L50 200Ohm500mA_0.3Ohm; AVDD_CK; C894 2.2UF

+1.8VSUS — C895 C896 C897 C898 C899 C900 C901 0.1UF_0402

+1.8VRUN — C886 2.2UF; C887 2.2UF; C888 2.2UF; C889 C890 C891 C892 0.1UF_0402; C893 10UF_0805

U202C — SB400 SB, Part 3 of 4 — POWER

A30	VDDQ_1
D30	VDDQ_2
E24	VDDQ_3
E25	VDDQ_4
J5	VDDQ_5
K1	VDDQ_6
K5	VDDQ_7
N5	VDDQ_8
P5	VDDQ_9
R1	VDDQ_10
U5	VDDQ_11
U26	VDDQ_12
U30	VDDQ_13
V5	VDDQ_14
V26	VDDQ_15
Y1	VDDQ_16
Y26	VDDQ_17
AA5	VDDQ_18
AA26	VDDQ_19
AB5	VDDQ_20
AC30	VDDQ_21
AD5	VDDQ_22
AD26	VDDQ_23
AE1	VDDQ_24
AE5	VDDQ_25
AE26	VDDQ_26
AF6	VDDQ_27
AF7	VDDQ_28
AF24	VDDQ_29
AF25	VDDQ_30
AK1	VDDQ_31
AK4	VDDQ_32
AK26	VDDQ_33
AK30	VDDQ_34
M12	VDD_1
M13	VDD_2
M18	VDD_3
M19	VDD_4
N12	VDD_5
N13	VDD_6
N18	VDD_7
N19	VDD_8
V12	VDD_9
V13	VDD_10
V18	VDD_11
V19	VDD_12
W12	VDD_13
W13	VDD_14
W18	VDD_15
W19	VDD_16
A3	S5_3.3V_1
A7	S5_3.3V_2
E6	S5_3.3V_3
E7	S5_3.3V_4
E1	S5_3.3V_5
F5	S5_3.3V_6
E9	S5_1.8V_1
E10	S5_1.8V_2
E20	S5_1.8V_3
E21	S5_1.8V_4
E13	USB_PHY_1.8V_1
E14	USB_PHY_1.8V_2
E16	USB_PHY_1.8V_3
E17	USB_PHY_1.8V_4
C30	CPU_PWR
AG6	V5_VREF
A24	AVDDCK
B24	AVSSCK
A4	VSS_1
A8	VSS_2
A29	VSS_3
B28	VSS_4
C1	VSS_5
E5	VSS_6
E8	VSS_7
E11	VSS_8
E12	VSS_9
E15	VSS_10
E18	VSS_11
E19	VSS_12
E22	VSS_13
E23	VSS_14
E26	VSS_15
E30	VSS_16
F1	VSS_17
F4	VSS_18
G5	VSS_19
H5	VSS_20
J1	VSS_21
J4	VSS_22
K4	VSS_23
L5	VSS_24
M5	VSS_25
P1	VSS_26
R5	VSS_27
R26	VSS_28
T5	VSS_29
T26	VSS_30
T30	VSS_31
W1	VSS_32
W5	VSS_33
W26	VSS_34
Y5	VSS_35
AB26	VSS_36
AB30	VSS_37
AC5	VSS_38
AC26	VSS_39
AD1	VSS_40
AE5	VSS_41
AE8	VSS_42
AF23	VSS_43
AF26	VSS_44
AG8	VSS_45
AJ1	VSS_46
AJ24	VSS_47
AJ30	VSS_48
AK5	VSS_49
AK25	VSS_50
M14	VSS_51
M15	VSS_52
M16	VSS_53
M17	VSS_54
N14	VSS_55
N15	VSS_56
N16	VSS_57
N17	VSS_58
P12	VSS_59
P13	VSS_60
P14	VSS_61
P15	VSS_62
P16	VSS_63
P17	VSS_64
P18	VSS_65
P19	VSS_66
R12	VSS_67
R13	VSS_68
R14	VSS_69
R15	VSS_70
R16	VSS_71
R17	VSS_72
R18	VSS_73
R19	VSS_74
T12	VSS_75
T13	VSS_76
T14	VSS_77
T15	VSS_78
T16	VSS_79
T17	VSS_80
T18	VSS_81
T19	VSS_82
U12	VSS_83
U13	VSS_84
U14	VSS_85
U15	VSS_86
U16	VSS_87
U17	VSS_88
U18	VSS_89
U19	VSS_90
V14	VSS_91
V15	VSS_92
V16	VSS_93
V17	VSS_94
W14	VSS_95
W15	VSS_96
W16	VSS_97
W17	VSS_98

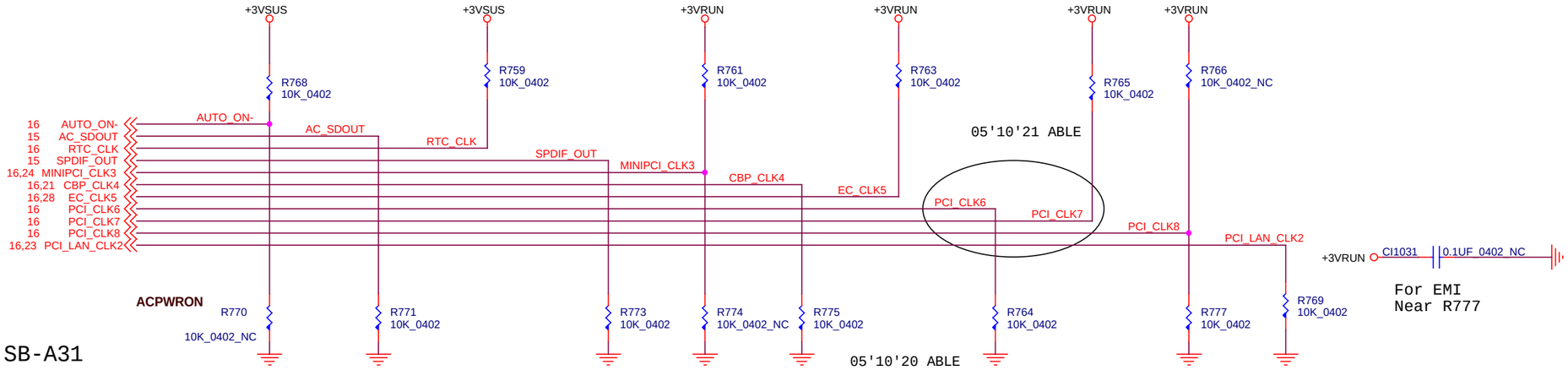
SB400

MSI CORPORATION

Title: **SB450(SATA/IDE)&POWER**

Size: Custom | Document Number: **MS-1412** | Rev: 1.1

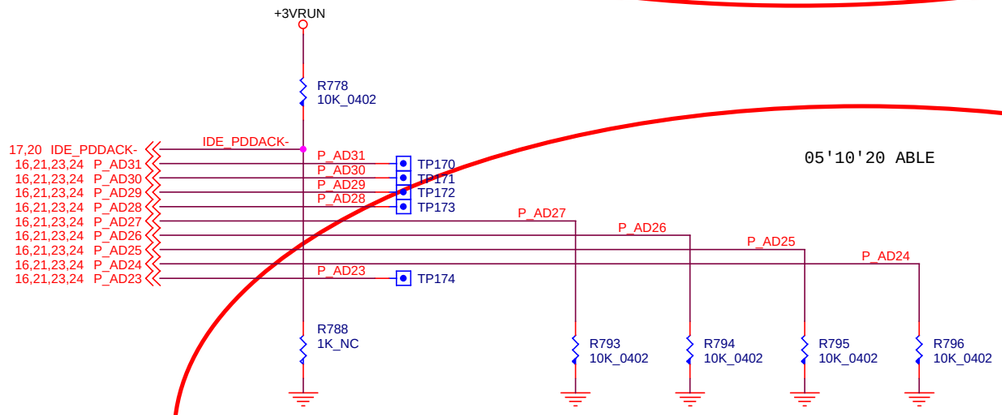
Date: Monday, May 29, 2006 | Sheet 17 of 40



STRAP FOR SB-A31

Note: Overlap common pads where possible for dual-op resistors.

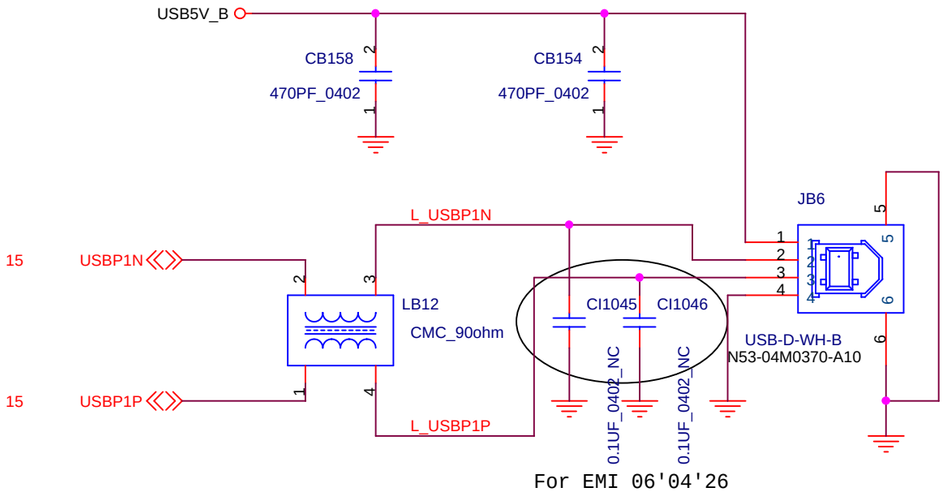
	ACPWRON	AC_SDOUT	RTC_CLK	SPDIF_OUT	PCI_CLK2	PCI_CLK3	PCI_CLK4	PCI_CLK5	PCI_CLK6	PCI_CLK7 PCI_CLK8
PULL HIGH	MANUAL PWR ON DEFAULT	USE DEBUG STRAPS	INTERNAL RTC DEFAULT	SIO 24MHz	48MHz XTAL MODE	USB PHY POWERDOWN DISABLE DEFAULT	Use internal PLL48	14MHZ OSC MODE DEFAULT	CPU IF=K8	ROM TYPE: H, H = PCI ROM H, L = LPC TYPE I ROM DEFAULT L, H = LPC TYPE II ROM L, L = FWH ROM
PULL LOW	AUTO PWR ON	IGNORE DEBUG STRAPS DEFAULT	EXTERNAL RTC	SIO 48MHz DEFAULT	48MHz OSC MODE DEFAULT	USB PHY POWERDOWN ENABLE	Use external 48MHz clock DEFAULT	14MHZ XTAL MODE	CPU IF=P4 DEFAULT	



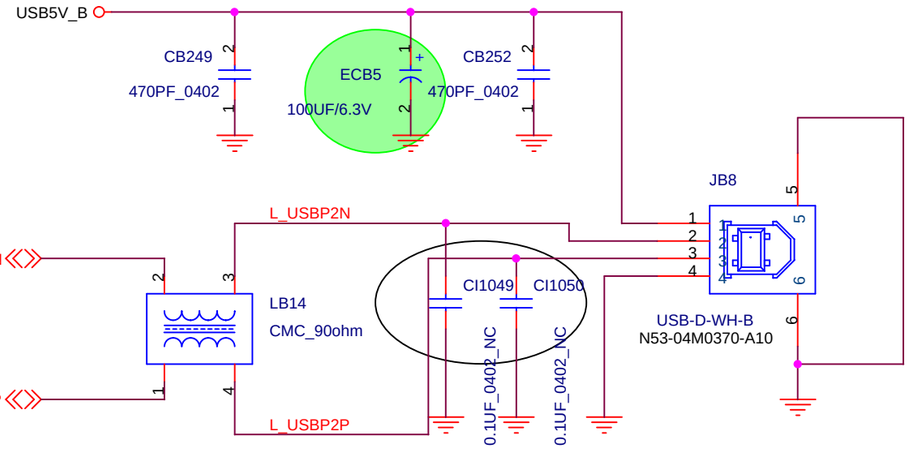
	PDACK#	PCI_AD31	PCI_AD30	PCI_AD29	PCI_AD28	PCI_AD27	PCI_AD26	PCI_AD25	PCI_AD24	PCI_AD23
PULL HIGH	USE LONG RESET DEFAULT	RESERVED DEFAULT	RESERVED DEFAULT	RESERVED DEFAULT	RESERVED DEFAULT	BYPASS internal PCI PLL	BYPASS ACPI BCLK	BYPASS IDE PLL	USE EEPROM PCIE STRAPS	USE USB PLL
PULL LOW	USE SHORT RESET					USE internal PCI PLL DEFAULT	USE ACPI BCLK DEFAULT	USE IDE PLL DEFAULT	USE DEFAULT PCIE STRAPS DEFAULT	BYPASS USB PLL

LONG RESET -->A21

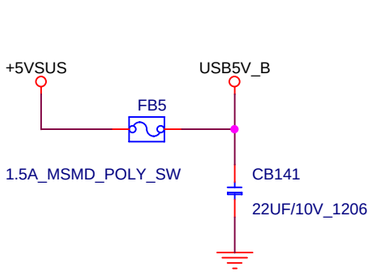
MICRO-STAR INT'L CO.,LTD.		
Title: SB450(HW STRAP)		
Size: Custom	Document Number: MS-1412	Rev: 1.1
Date: Monday, May 29, 2006	Sheet 18 of 40	

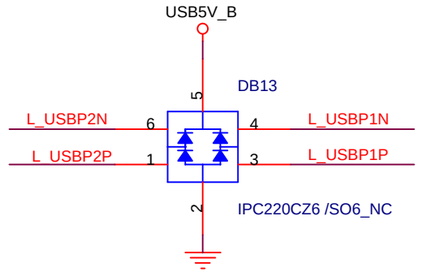


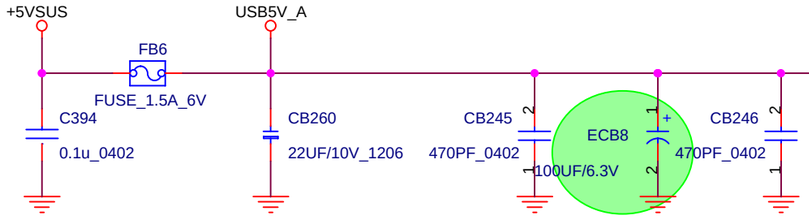
For EMI 06'04'26

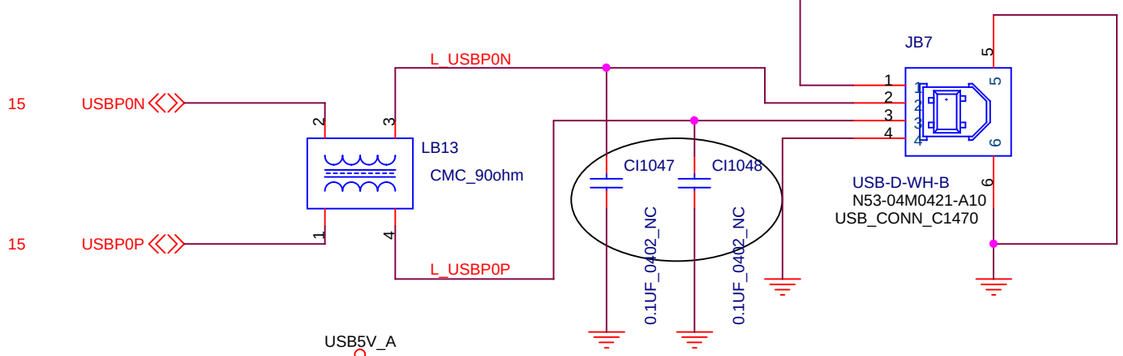


For EMI 06'04'26

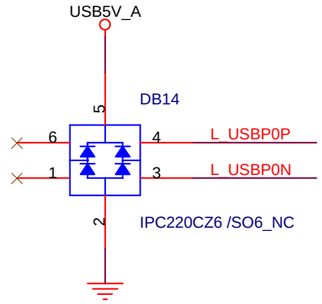








For EMI 06'04'26



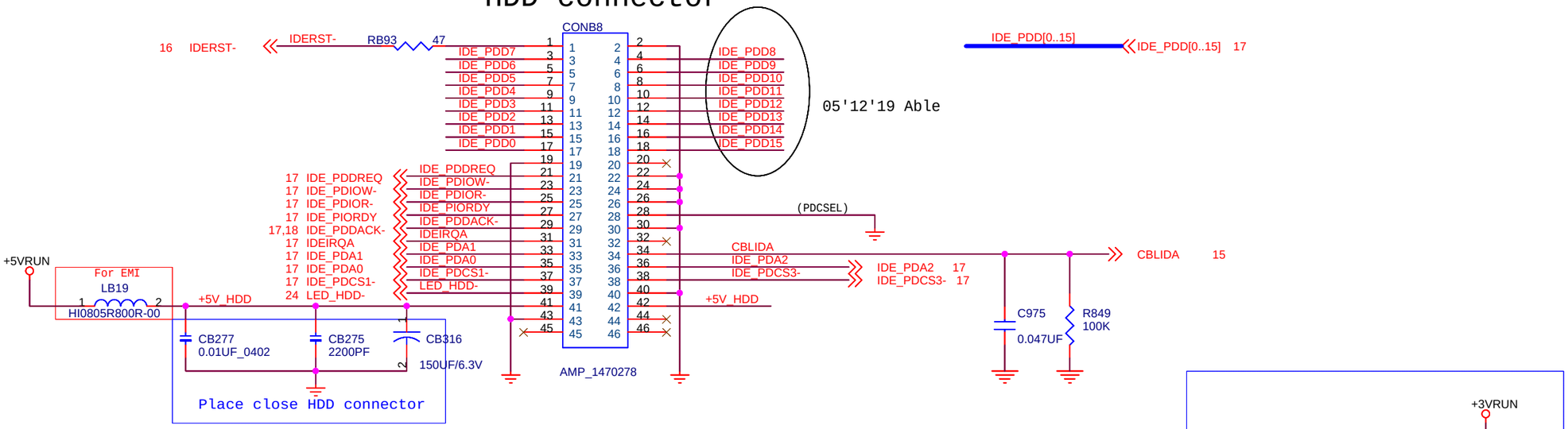
MICRO-STAR INT'L CO.,LTD.

Title: USB2.0 CON X3

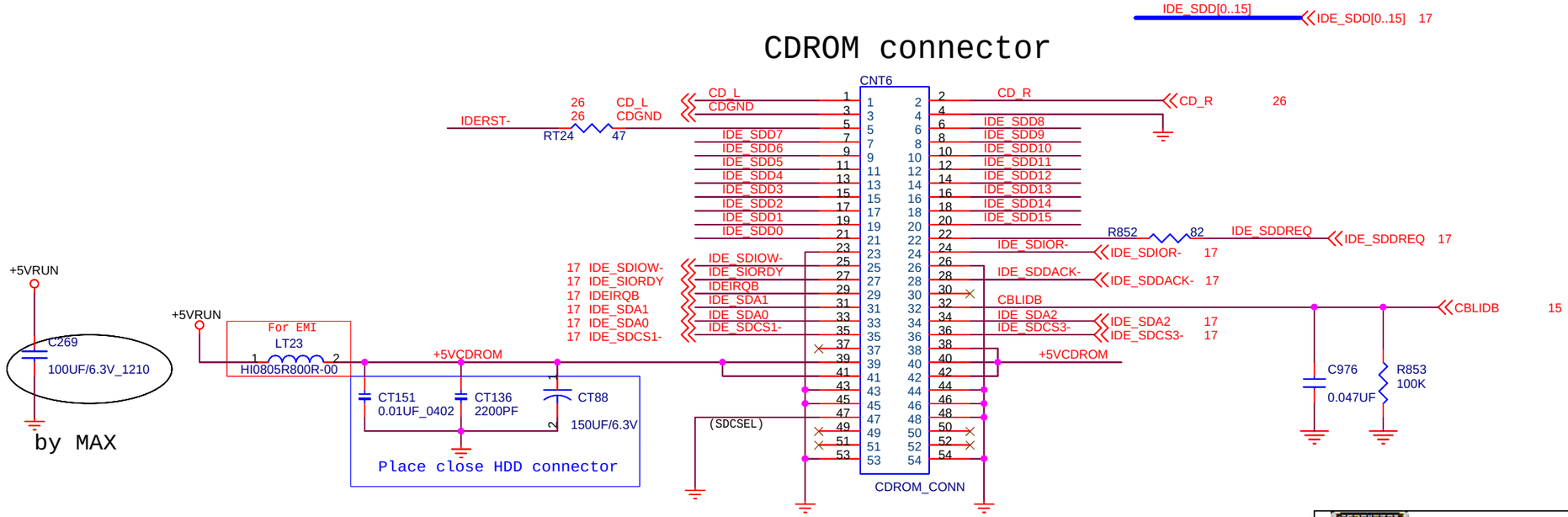
Size: Custom | Document Number: MS-1412 | Rev: 1.1

Date: Monday, May 29, 2006 | Sheet 19 of 40

HDD connector



CDROM connector



PIN32:PDIAG
PIN37:PASP
PIN47:CABLE SELECT->Low:Master
NC or High:Slave

MICRO-STAR INT'L CO.,LTD.

Title: **HDD & CDROM CONN**

Size	Document Number	Rev
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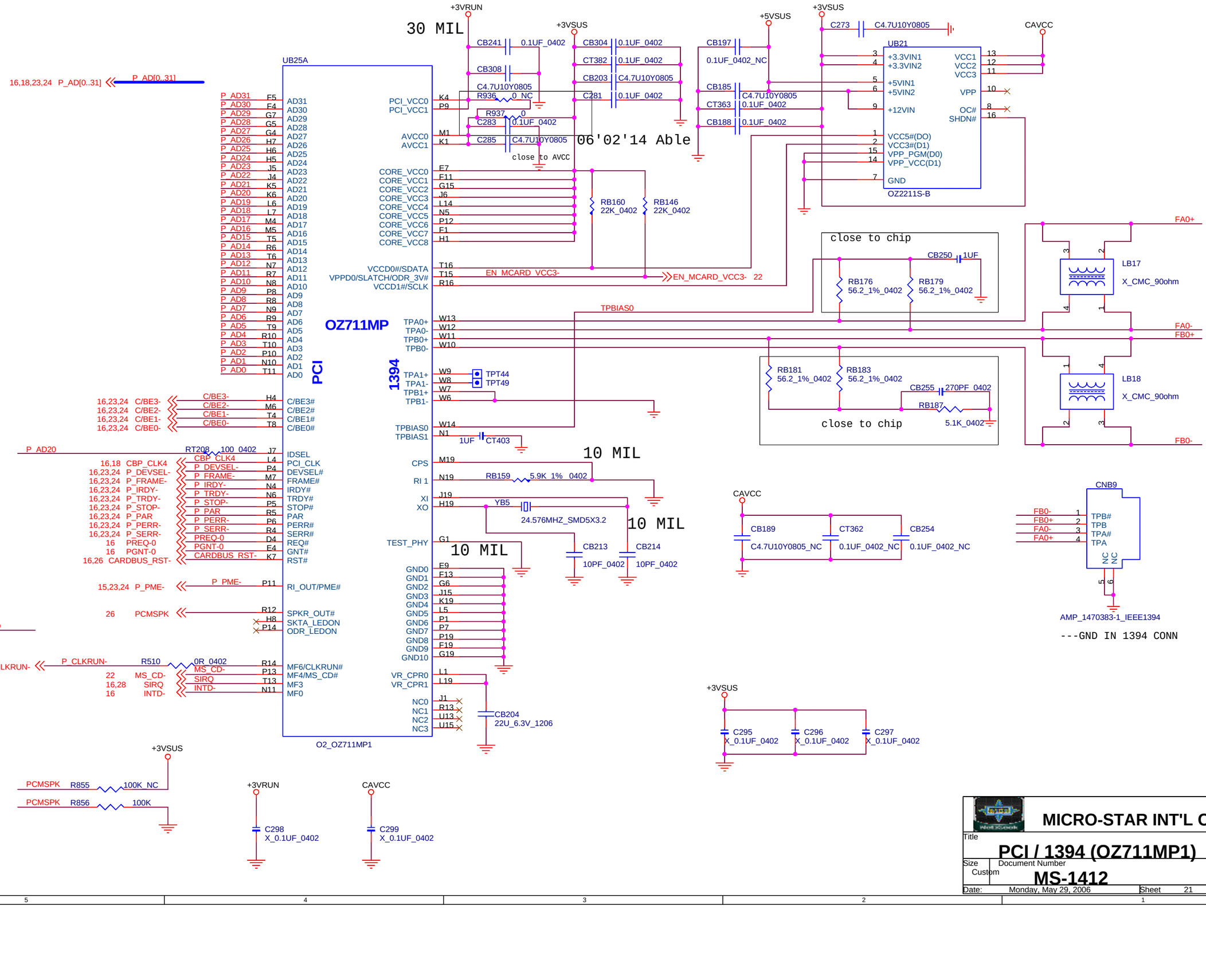
30 MIL
06'02'14 Able
10 MIL
10 MIL
10 MIL
close to AVCC
close to chip
close to chip
---GND IN 1394 CONN
UB25A
OZ711MP
PCI
1394
O2_OZ711MP1
UB21
OZ2211S-B
CNB9
AMP_1470383-1_IEEE1394
+3VRUN
+3VSUS
+5VSUS
CAVCC
P_AD[0..31]
TPBIAS0
EN_MCARD_VCC3-
FA0+
FA0-
FB0+
FB0-
LB17
LB18
X_CMC_90ohm
TPT44
TPT49
SIRQ
PCMSPK
P_CLKRUN-
P_AD20
CBP_CLK4
P_DEVSEL-
P_FRAME-
P_IRDY-
P_TRDY-
P_STOP-
P_PAR
P_PERR-
P_SERR-
PREQ-0
PGNT-0
CARDBUS_RST-
P_PME-
MS_CD-
INTD-
YB5
24.576MHZ_SMD5X3.2
CB204
22U_6.3V_1206
CB213
CB214
10PF_0402
CB241
CB304
CT382
CB203
C281
CB308
R936
R937
C283
C285
CB197
CB185
CT363
CB188
C273
C4.7U10Y0805
0.1UF_0402
0.1UF_0402_NC
C4.7U10Y0805_NC
CB189
CT362
CB254
CB250
1UF
RB160
RB146
RB176
RB179
RB181
RB183
CB255
270PF_0402
RB187
5.1K_0402
RB159
5.9K_1%_0402
RT208
100_0402
R854
10K
R855
100K_NC
R856
100K
R510
0R_0402
C295
C296
C297
C298
C299
X_0.1UF_0402
CT403
1UF
MICRO-STAR INT'L CO.,LTD.
PCI / 1394 (OZ711MP1)
MS-1412
Custom
Rev 1.1
Monday, May 29, 2006
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PCMCIA SLOT

CONT9

GND	1	GND	GND	35	GND
CAD0	2	D3	CD1#	36	CCD1-
CAD1	3	D4	D11	37	CAD2
CAD3	4	D5	D12	38	CAD4
CAD5	5	D6	D13	39	CAD6
CAD7	6	D7	D14	40	R2_D14
CC/BE-0	7	CE1#	D15	41	CAD8
CAD9	8	A10	CE2#	42	CAD10
CAD11	9	OE#	VS1/REFRESH	43	CVS1
CAD12	10	A11	IORD#	44	CAD13
CAD14	11	A9	IOWR#	45	CAD15
CC/BE-1	12	A8	A17	46	CAD16
CPAR	13	A13	A18	47	R2_A18
CPERR-	14	A14	A19	48	CBLOCK-
CGNT-	15	WE#	A20	49	CSTOP-
CINT-	16	RDY	A21	50	CDEVSEL-
CAVCC	17	VCC	VCC	51	CAVCC
CAVCC	18	VPP1	VPP2	52	CAVCC
CCLK	19	A16	A22	53	CTRDY-
CIRDY-	20	A15	A23	54	CFRAME-
CC/BE-2	21	A12	A24	55	CAD17
CAD18	22	A7	A25	56	CAD19
CAD20	23	A6	VS2	57	CVS2
CAD21	24	A5	RESET	58	CRST-
CAD22	25	A4	WAIT#	59	CSERR-
CAD23	26	A3	INPACK#	60	CREQ-
CAD24	27	A2	REG#	61	CC/BE-3
CAD25	28	A1	BVD2	62	CAUDIO-
CAD26	29	A0	BVD1	63	CSTSCHNG
CAD27	30	D0	D8	64	CAD28
CAD29	31	D1	D9	65	CAD30
R2_D2	32	D2	D10	66	CAD31
CCLKRUN-	33	WP	CD2#	67	CCD2-
GND	34	GND	GND	68	GND
	69	GND	NC	MEC1	
	70	GND	NC	MEC2	
	71	GND	NC	MEC3	
	72	GND	NC	MEC4	

TAISOL_146-2221210-01_PCMCIA_SMT_NC

Top View

UB25B

OZ711MP

CARDBUS/FLASH MEMORY CARD

CAD31	E5	D10/CAD31	
CAD30	F6	D9/CAD30	
CAD29	E6	D1/CAD29	
CAD28	D6	D8/CAD28	
CAD27	F7	D0/CAD27	
CAD26	D9	A0/CAD26	
CAD25	G10	A1/CAD25	
CAD24	F10	A2/CAD24	
CAD23	D11	A3/CAD23	
CAD22	G11	A4/CAD22	
CAD21	D12	A5/CAD21	
CAD20	F12	A6/CAD20	
CAD19	D13	A25/CAD19	
CAD18	E13	A7/CAD18	
CAD17	G13	A24/CAD17	
CAD16	H15	A17/CAD16	
CAD15	J13	IOWR#/CAD15	
CAD14	H16	A9/CAD14	
CAD13	J16	IORD#/CAD13	
CAD12	J14	A11/CAD12	
CAD11	K13	OE#/CAD11	
CAD10	K14	CE2#/CAD10	
CAD9	K15	A10/CAD9	
CAD8	L15	D15/CAD8	
CAD7	L13	D7/CAD7	
CAD6	M14	D13/CAD6	
CAD5	M15	D6/CAD5	
CAD4	N16	D12/CAD4	
CAD3	M13	D5/CAD3	
CAD2	N13	D11/CAD2	
CAD1	N15	D4/CAD1	
CAD0	P16	D3/CAD0	
CCLK	RB158 33_0402 E15	A16/CCLK	
CFRAME-	E14	A23/CFRAME#	
CIRDY-	D15	A15/CIRDY#	
CTRDY-	D16	A22/CTRDY#	
CDEVSEL-	E16	A21/CDEVSEL#	
CSTOP-	F15	A20/CSTOP#	
CPAR	G16	A13/CPAR	
CPERR-	F16	A14/CPERR#	
CSERR-	D8	WAIT#/CSERR#	
CREQ-	E11	INPACK#/CREQ#	
CGNT-	F14	WE#/CGNT#	
CINT-	G9	RDY/IREQ#/CINT#	
CBLOCK-	G14	A19/CBLOCK#	
CCLKRUN-	G8	WP/IOIS16/CCLKRUN	
CRST-	E12	RESET/CRST#	
R2_D2	D5	D2/RFU	
R2_D14	M16	D14/RFU	
R2_A18	H13	A18/RFU	
CVS1	F9	VS1/CVS1	
CVS2	G12	VS2/CVS2	
CCD1-	P15	CD1#/CCD1#	
CCD2-	D7	CD2#/CCD2#	
CAUDIO-	E8	BVD2/SPKR#/CAUDIO	
CSTSCHNG	F8	BVD1/RI#/CSTSCHG	
CC/BE-3	E10	REG#/CCBE3#	
CC/BE-2	D14	A12/CCBE2#	
CC/BE-1	H14	A8/CCBE1#	
CC/BE-0	L16	CE1#/CCBE0#	
CAVCC	D10	SOCKET_ VCC	
		XD_CD#/SC_CD#	U5
		SD_CD#	T7 SD_CD-
		XD_RE#/ODR_3V#	U11
		XD_WE#/SC_3V#	U7
		XD_WPO/SC_5V#	U9
		MF2/ODR_WP	N12 SD_WP/XD_WP1
		MF5/ODR_CMD_BS/XD_ALE	T14 SD_CMD/MS_BS/XD_ALE
		VPPD1/ODR_CLK	R15 SD/MS_CLK/XD_CLE
		XD_R/B#/SC_CLK	C5
		MF1/ODR_DATA0	T12 SD/MS/XD_DATA0
		ODR_DATA1	R11 SD/MS/XD_DATA1
		ODR_DATA2	N14 SD/MS/XD_DATA2
		ODR_DATA3	K16 SD/MS/XD_DATA3
		XD_D4/SC_C4	C7
		XD_D5/SC_IO	C15
		XD_D6/SC_RST	C9
		XD_D7/SC_C8	C13
		SC_VCC/XD_VCC	C11 +3VSUS

C300 0.1UF_0402

O2_OZ711MP1

CAVCC

C305 C4.7U10Y0805 | C306 0.1UF_0402 | C307 0.1UF_0402

+3VSUS

RT228 22K_0402

MCARD_VCC3

3 in 1

JT10

SD_WP/XD_WP1				SD-WP1
SD_CD-				SD-CD1
SD/MS/XD_DATA1	RT222	33_0402	P22_J16_001	SD-8
SD/MS/XD_DATA0	RT226	33_0402	P22_J16_002	SD-7
SD/MS_CLK/XD_CLE	RT216	33_0402	P22_J16_003	SD-6
SD_CMD/MS_BS/XD_ALE	RT224	33_0402	P22_J16_004	SD-5
SD/MS/XD_DATA3	RT225	33_0402	P22_J16_005	SD-4
SD/MS/XD_DATA2	RT217	33_0402	P22_J16_006	SD-3
				SD-2
				SD-1
				SD-10
				MS-1
				MS-2
				MS-3
				MS-4
				MS-5
				MS-6
				MS-7
				MS-8
				MS-9
				MS-10

SD_WP, CD_SWITCH, SD_DAT1, SD_DAT0, SD_VSS1, SD_CLK, SD_VDD, SD_VSS2, SD_CMD, SD_CD/DAT3, SD_DAT2 — SD Signal

MS_VSS1, MS_BS, MS_DATA1, MS_DATA0, MS_DATA2, MS_INS, MS_DATA3, MS_SCLK, MS_VCC2, MS_VSS2 — Mem Stick

GND, GND — SD-CD2, SD-WP2

CONN-SD_MMC_MS Card
N58-23F0040-T01
3IN1_SD_MMS

+3VSUS

RT131 22K_0402

21 MS_CD- → MS_CD-

CI93 10PF_0402_NC

For EMI

CT325 1UF | CT423 1UF

+3VSUS

21 EN_MCARD_VCC3- → EN_MCARD_VCC3-

QB12
MOSFET P DGS

MCARD_VCC3

MICRO-STAR INT'L CO.,LTD.

Title: CARDBUS/FLASH CARD

Size: Custom | Document Number: MS-1412 | Rev: 1.1

Date: Monday, May 29, 2006 | Sheet 22 of 40

Part Value Selection:
GbE: 8110S LAN(1000M)
TE: 8100C LAN(10/100M)
L: With LAN option
X: No Stuff

	DVDD	DVDDA	AVDDL	AVDDH	V-12P
8100C	2.5V	2.5V	3.3V	X	2.5V
8110S	1.8V	1.8V	2.5V	3.3V	X
8110SB	1.2V	1.2V	2.5V	3.3V	3.3V

RTL8100C 10/100M	USED: Q125,R903,L66,C991
	REMOVE: Q124,Q126,L67,C1009,C1010,R926
RTL8110S 1G	USED: Q124,Q126,L67,C1009,C1010
	REMOVE: Q125,R903,R926,L66,C991

VDD33 CTRL18 Q124 P-BCP69_NC CTRL25 Q125 P-BCP69 DVDD R903 0R V_12P C991 0.1UF_0402 C992 22UF/6.3V_0805 C993 0.1UF_0402 C994 C995 C996 C997 C998 C999 C1000 0.1UF_0402

VDD33 C1019 22UF/6.3V_0805 L65 300L700m_250_0805 +3VSUS C625 0.1U

VDD33 Place at pin 26,41,56,71,84,94,107 C593 C626 C579 C619 C576 C594 C577 0.1u_0402

VDD33 CTRL25 Q126 P-BCP69_NC AVDDL VDD33 AVDDH V_12P C1004 22UF/6.3V_0805 C1005 C1006 C1007 C1008 0.1UF_0402 L66 300L700m_250_0805 L67 300L700m_250_0805_NC R926 0R_NC C1009 C1010 0.1UF_0402_NC

Place at pin 10,120

C1001 C1002 C1003 C1011 0.1u_0402_NC R904 R906 R907 R909 R912 R914 R915 R917 75_1%_0402 49.9_1%_0402_NC MDI0+ MDI0- MDI1+ MDI1- MDI2+ MDI2- MDI3+ MDI3-

TX 10/100M RX 1G

Close to LAN Chip. 8100C use 0.1u; 8110SX use 0.01u

For 8110SB/SC R928 0R_0402_NC DVDD V_12P AVDDH VDD33 AVDDL

U128

P_AD[0..31] 16,18,21,24 P_AD0 P_AD1 P_AD2 P_AD3 P_AD4 P_AD5 P_AD6 P_AD7 P_AD8 P_AD9 P_AD10 P_AD11 P_AD12 P_AD13 P_AD14 P_AD15 P_AD16 P_AD17 P_AD18 P_AD19 P_AD20 P_AD21 P_AD22 P_AD23 P_AD24 P_AD25 P_AD26 P_AD27 P_AD28 P_AD29 P_AD30 P_AD31

16,21,24 C/BE0- C/BE1- C/BE2- C/BE3-
16 INTC-
16 PREQ-2
16 PGNT-2
16,18 PCI_LAN_CLK2
16 LAN_RST-
15,21,24 P_PME-
16,21,24 P_DEVSEL- P_FRAME- P_IRDY- P_TRDY- P_PAR P_SERR- P_PERR- P_STOP-
P_AD19 R922 100_1%_0402

MDI0+/TX+ MDI0-/TX- MDI1+/RX+ MDI1-/RX- MDI2+/NC MDI2-/NC MDI3+/NC MDI3-/NC

LANWAKEUP LANWAKE- LANWAKE- 15
LED0 LED1 LED2 LED3/NC

EECS EESK EEDI EEDO R918 3.6K_0402 R919 3.6K_0402_NC U207 AT93C46 C1016 0.1UF_0402 VDD33

CTRL18/NC CTRL18
CTRL25 CTRL25
XTAL1 X_IN C1017 27PF Y8 D04-1000110_25MHz XTAL2 X_OUT C1018 27PF

For RoHS change. 06'05'15

SMBDATA SMBCLK R920 R921 0R_0402_NC RUN_SMBDATA 10,11,13,15,25 RUN_SMBCLK 10,11,13,15,25

M66EN/NC CLKRUNB ISOLATEB R923 1K_0402 +5VRUN R924 15K

GND/NC VSS VSS/NC VSSPST

Close Pin 127 R925 5.6K_1%_0402

RTL8100C R = 5.6K1%
RTL8110S R = 2.49K1%

DVDD R932 0R AVDDL R927 0R_NC

R927 is reserved for RTL8110S. For RTL8100C, must be remove. 06'02'06 ABLE

U213 LFE8457-R C1012 C1013 C1014 C1015 0.1UF_0402 0.01UF_0402_NC MDI0+ MDI0- MDI1+ MDI1- MDI2+ MDI2- MDI3+ MDI3- MCT1 MCT2 MCT3 MCT4 MX1+ MX1- MX2+ MX2- MX3+ MX3- MX4+ MX4- TD1+ TD1- TD2+ TD2- TD3+ TD3- TD4+ TD4- TRD0+ TRD0- TRD1+ TRD1- TRD2+ TRD2- TRD3+ TRD3-

RN9 75_8P4R_0402

C990 1000PF/2KV_1808

If used RTL8110S, use C1012,C1014,C1015 but C1013 change to 0.01UF.

CON3 AMP_C440209_RJ45 TRD0+ TRD0- TRD1+ TRD2+ TRD2- TRD1- TRD3+ TRD3- TX+ TX- RX+ N/C RX- GND

RJ45
1 TRD3-
2 TRD3+
3 TRD1-
4 TRD2-
5 TRD2+
6 TRD1+
7 TRD0-
8 TRD0+

1 GND
2 5V
3 TX
4 RX
5 CTS
6 GND

RTL 8100C

B06-8100C04-R09

LAN = INTC-
IDSEL = P_AD19
MASTER = PREQ-2

MICRO-STAR INT'L CO.,LTD.

Title: PCI_LAN (RTL8100C)

Size: Custom | Document Number: MS-1412 | Rev: 1.1

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MINI PCI SOCKET

P_AD[0..31] — P_AD[0..31] 16,18,21,23

CNB10

1	TIP	RING	2
3	LAN_0	LAN_1	4
5	LAN_2	LAN_3	6
7	LAN_4	LAN_5	8
9	LAN_6	LAN_7	10
11	LAN_8	LAN_9	12
13	LAN_10	LAN_11	14
15	LAN_12	LAN_13	16
17	INT#B	5V	18
19	3.3V_0	INT#A	20
21	RSVD_0	RSVD_7	22
23	GND_0	3.3VAUX	24
25	PCICLK	RST#	26
27	GND_1	3.3V_7	28
29	REQ#	GNT#	30
31	3.3V_1	GND_15	32
33	AD31	PME#	34
35	AD29	RSVD_6	36
37	GND_2	AD30	38
39	AD27	3.3V_6	40
41	AD25	AD28	42
43	RSVD_1	AD26	44
45	C/BE#3	AD24	46
47	AD23	IDSEL	48
49	GND_3	GND_14	50
51	AD21	AD22	52
53	AD19	AD20	54
55	GND_4	PAR	56
57	AD17	AD18	58
59	C/BE#2	AD16	60
61	IRDY#	GND_13	62
63	3.3V_2	FRAME#	64
65	CLKRUN#	TRDY#	66
67	SERR#	STOP#	68
69	GND_5	3.3V_5	70
71	PERR#	DEVSEL#	72
73	C/BE#1	GND_12	74
75	AD14	AD15	76
77	GND_6	AD13	78
79	AD12	AD11	80
81	AD10	GND_11	82
83	GND_7	AD9	84
85	AD8	C/BE#0	86
87	AD7	3.3V_4	88
89	3.3V_3	AD6	90
91	AD5	AD4	92
93	RSVD_2	AD2	94
95	AD3	AD0	96
97	5V	RSVD_5	98
99	AD1	RSVD_4	100
101	GND_8	GND_10	102
103	AC_SYNC	M66EN	104
105	AC_DI	AC_DO	106
107	AC_BIT_CLK	AC_ID0#	108
109	AC_ID1#	AC_RST#	110
111	MOD_A_MON	RSVD_3	112
113	AGND	GND_9	114
115	SYS_A_OUT	SYS_A_IN	116
117	SYAOGND	SYAIGND	118
119	AGND_0	AGND_1	120
121	NC	MCPIACT#	122
123	VCC5A	3.3VAUX	124
125	PIN1	PIN2	126
127	PIN3	PIN4	128

+3VRUN, +3VSUS, +5VRUN

TP167 — MINIPCI_LED_WLAN- — RF_ON/OFF- — LED_WLAN_LINK — TP166

16 INTB-

USBP6_N R458 0 — R798 0 USBP6_P — INTA- 16

16,18 MINIPCI_CLK3

16 PREQ-1

MINIPCI_RST- 16

PGNT-1 16

P_AD31 P_AD29 P_AD27 P_AD25 P_AD23 P_AD21 P_AD19 P_AD17 P_AD14 P_AD12 P_AD10 P_AD8 P_AD7 P_AD5 P_AD3 P_AD1

P_PME- — P_PME- 15,21,23

WLAN_ACTIVE — TP180

P_AD30 P_AD28 P_AD26 P_AD24

TP177 — BT_ACTIVE

16,21,23 C/BE3-

PCI_AD25_R_MINI R799 100 P_AD25

P_AD22 P_AD20

P_PAR 16,21,23

P_AD18 P_AD16

16,21,23 C/BE2-
16,21,23 P_IRDY-
16,28 P_CLKRUN-
16,21,23 P_SERR-
16,21,23 P_PERR-
16,21,23 C/BE1-

P_FRAME- 16,21,23
P_TRDY- 16,21,23
P_STOP- 16,21,23
P_DEVSEL- 16,21,23

P_AD15 P_AD13 P_AD11 P_AD9

C/BE0- 16,21,23

P_AD6 P_AD4 P_AD2 P_AD0

+5VRUN — BT_ON/OFF-

AZ_SDOUT 15,25,26

AZ_RST- 15,25,26

05'10'20 ABLE

MINI-PCI SOCKET(H=9.2mm)
N11-1240300-A10
MINIPCI124

C909 0.1UF_0402 — C910 0.1UF_0402

15 USBP6N — USBP6_N — L51 CMC_180ohm — USBP6_P — 15 USBP6P

close CN8 for EMI

MINIPCI_CLK3 — RI13 100_0402_NC — CI838 10PF_0402_NC

C911 0.1UF_0402 — C912 0.1UF_0402 — C913 4.7UF_0805

C915 0.1UF_0402 — C916 0.1UF_0402 — C917 0.1UF_0402 — C918 0.1UF_0402 — C919 0.1UF_0402

WLAN_ON/OFF Control

OPEN RF ON (HiZ)
LOW RF OFF

28 WLAN_PWRON- — WLAN_PWRON- — RF_ON/OFF-

Q116 2N7002 SOT23SGD_T

BlueTooth_ON/OFF Control

OPEN RF ON (HiZ)
LOW RF OFF

28 BT_PWR_ON- — BT_PWR_ON- — BT_ON/OFF-

Q117 2N7002 SOT23SGD_T

LEDT11 BLUE_0603_LITEON — +5VSUS — RB248 240_0402 — R552 0R_0402 — BLUETOOTH_LED- 28

LEDT10 GREEN_0603_LITEON — +5VSUS — RB249 240_0402 — LED_WLAN- — LED_WLAN- 28

LEDT9 Orange_LTST-C190KFKT — +3VALW — RB250 240_0402 — LED_BATLOW- 28

LEDT8 GREEN_0603_LITEON — +5VALW — RB251 240_0402 — LED_CHARGE- 28

LEDT12 BLUE_0603_LITEON — +5VRUN — RB244 240_0402 — LED_CAP- 28

LEDT13 BLUE_0603_LITEON — +5VRUN — RB243 240_0402 — LED_NUM- 28

LEDT5 BLUE_0603_LITEON — +5VRUN — RB245 240_0402 — LED_HDD- 20

LEDT6 BLUE_0603_LITEON — +5VALW — RB247 240_0402 — LED_PWR- — LED_ACPI- 28

+3VALW — RT230 10K_0402 — D12 RB551V-30 — PWR_SW- — PWR_SW- 28 — C346 0.1UF_0402

+3VSUS — RT232 10K_0402 — D13 RB551V-30 — USER_K- — USER_K- 28 — C347 0.1UF_0402

+5VALW +3VSUS — CONT6

1	PWR_SW-
2	BT_WLAN_K-
3	USER_K-
4	IE_K-
5	MAIL_K-
6	LED_PWR-

Power Switch Conn.(12Pin)

+3VSUS — RT234 10K_0402 — D14 RB551V-30 — MAIL_K- — MAIL_K- 28 — C348 0.1UF_0402

+3VSUS — RT233 10K_0402 — D15 RB551V-30 — IE_K- — IE_K- 28 — C349 0.1UF_0402

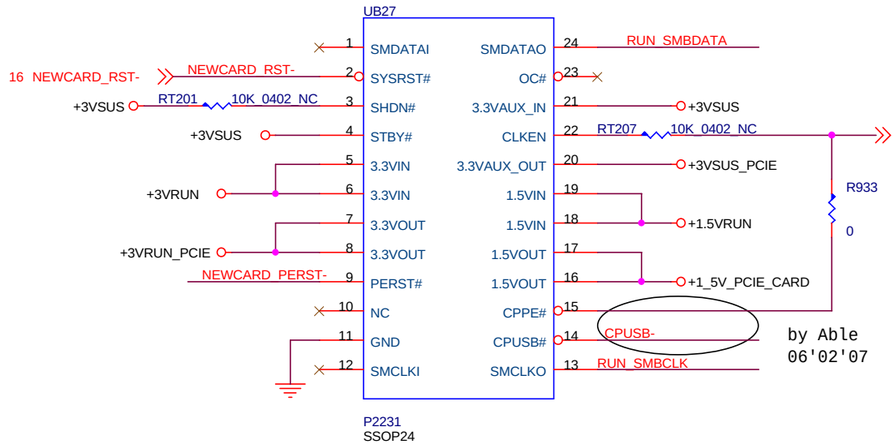
+3VSUS — RT231 10K_0402 — D16 RB551V-30 — BT_WLAN_K- — BT_WLAN_K- 28 — C350 0.1UF_0402

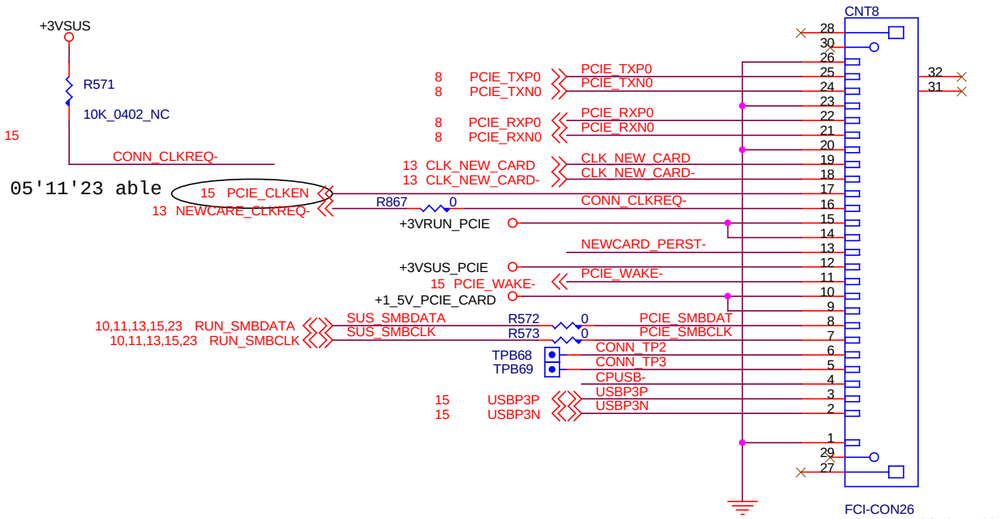
MICRO-STAR INT'L CO.,LTD.

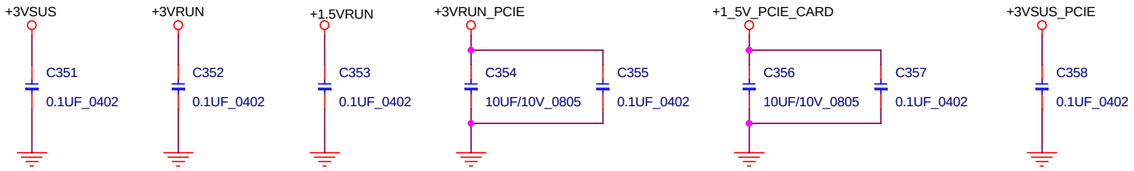
Title: MINI_PCI & LED & SW

Size: Custom | Document Number: MS-1412 | Rev: 1.1

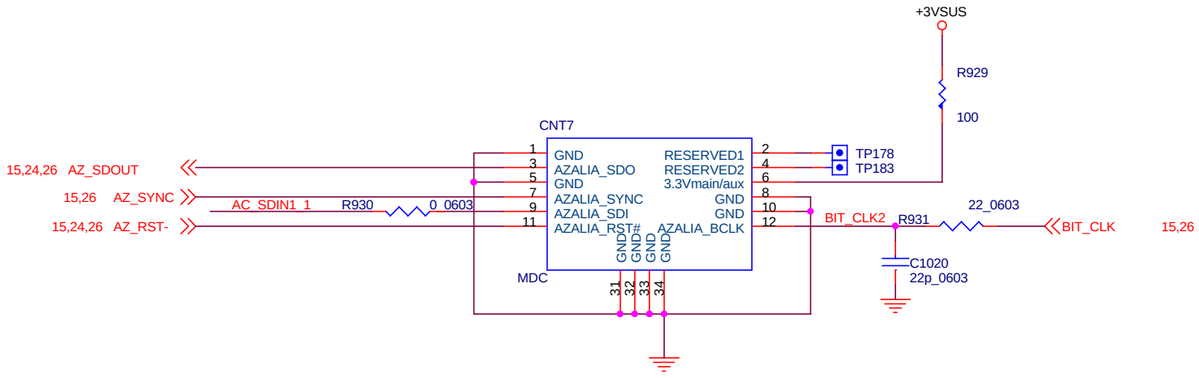
Date: Monday, May 29, 2006 | Sheet 24 of 40

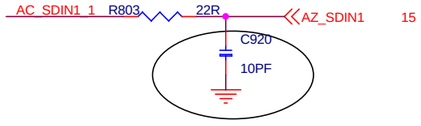




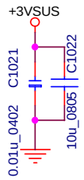


New Card





EMI request 05'12'30



MDC Ver1.5

MICRO-STAR INT'L CO.,LTD.		
Title: NEW CARD & MDC CONN		
Size: Custom	Document Number: MS-1412	Rev: 1.1
Date: Monday, May 29, 2006	Sheet 25 of 40	

	High (turn on)	Low (Mute)
DEPOP_MUTE#	Normal keep High	Power On/Down & S3
GPIO1	Normal keep High	Line-out Jack IN

REALTEK ALC883

UB29

DVDD1 GPIO0 GPIO1 DVSS1 SDATA_OUT BIT_CLK DVSS2 SDATA_IN DVDD2 SYNC RESET# PC_BEEP

SPDIFO SPDIFI / EAPD SIDE_SURR_R SIDE_SURR_L LFE_OUT CEN_OUT AVSS2 SURR_OUT_R JDREF SURR_OUT_L AVDD2 LINE1_VREFOUT_R

FRONT_OUT_R FRONT_OUT_L SENSE B DCVOL MIC1_VREFOUT_R LINE2_VREFOUT MIC2_VREFOUT_L LINE1_VREFOUT_L MIC1_VREFOUT_L VREF AVSS1 AVDD1

SENSE A LINE2_L LINE2_R MIC2_L MIC2_R CD_L CD_GND CD_R MIC1_L MIC1_R LINE1_L LINE1_R

ALC883-LF-A2-RH

RB203 10 — Close to ALC880

RB218 20KR1%

R938 10K_NC R939 10K

DEPOP_MUTE- R940 1K

AMP_MUTE- R941 22

AZ_SDOUT BIT_CLK AZ_SDIN0 AZ_SYNC AZ_RST-

CB269 0.1UF_0402

RB228 10K

VREF_ALC880

For EMI: CB334 0.1UF, CB328 10UF/10V_0805

FRONTOUT_R FRONTOUT_L

MIC1_VREFOUT_R MIC2_VREFOUT_L MIC1_VREFOUT_L VREF_ALC880 ADD5V

FOR EMI: CI94 470PF_0402, CI95 470PF_0402

FOR VISTA

LINE1_R CB344 2.2u_0603 LINE_R 27

LINE1_L CB345 2.2u_0603 LINE_L 27

MIC1_R CB313 2.2u_0603 MIC_IN_R 27

MIC1_L CB309 2.2u_0603 MIC_IN_L 27

MIC_JD R629 20K 1%

LINE_JD R630 10K 1%

HP_IN- R942 5.1K 1%

LINEOUT_L LINEOUT_R

INT_MIC_IN C395 1UF MIC2_L C396 1UF MIC2_R

CD_R_IN C960 1UF R836 47K CD_R 20

CD_GND C961 1UF R837 47K CDGND 20

CD_L_IN C962 1UF R838 47K CD_L 20

10/7

R839 47K R840 47K R841 47K

SPKR R934 0 R834 R935 4.7K 0_NC PCMSPK

06'02'06 Able

R835 10K

POWER ISOLATION (ANALOG 5V)

+5VSUS QB19 AO3404_SOT23 ADD5V_BEAD LB22 80L3_100_0805 ADD5V LT32 80L3_100_0805 AGND

RUND

ADD5V: C1025 4700PF, C1026 4700PF, C1027 0.1UF, C1028 0.1UF, CB329 10UF_0805

POWER ISOLATION (CODEC 3V)

VDD3V: C1029 0.1UF, C1030 0.1UF, C1031 10UF_0805

+3VRUN L68 80L3_100_0805

For EMI solution

CI1043 1000PF, CI1044 1000PF

L69 80L3_100_0805

CI1035 0.1UF, CI1036 0.1UF

PWR

+5VALW R947 100K

PWR R945 100K — Q130 2N7002 SOT23SGD_T — SYS_ON — C1032 10UF/16V_1206

DEPOP_MUTE- R946 10K, R950 1K

IMVP_PWRGD R951 1K_NC

CARDBUS_RST- D27 BAS40WS_NC

Q131 2N7002 SOT23SGD_T

PWR R952 100K — Q133 2N7002 SOT23SGD_T — SYS_OFF

PWR_SRC R953 100K — PWR R954 180K

AMP_MUTE- — Q132 2N7002 SOT23SGD_T

R_FRONTOUT

R_FRONTOUT_R R943 10K_0402_NC

R_FRONTOUT_L R944 10K_0402_NC

FRONTOUT_R R948 33 — Q128 D1 S1 G1 S2 G2 D2 — FRONT_OUT_R 27

FRONTOUT_L R949 33 — Q129 D1 S1 G1 S2 G2 D2 — FRONT_OUT_L 27

2N7002DW SYS_OFF SYS_ON

UB30 APA2031

ADD5V

RB232 100K_NC GAIN0

RB233 100K_NC GAIN1

RB224 100K GAIN0

RB225 100K GAIN1

Av	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

C1034 10UF/10V_0805, CB282 10UF/10V_0805, C1035 0.47UF, CB279 0.1UF_0402

PVDD PVDD VDD LIN- RIN- RIN+ LIN+ BYPASS GAIN0 GAIN1

ROUT+ ROUT- LOUT+ LOUT- NC SHUTDOWN GND GND GND GND GND

LINEOUT_L CB278 1UF INTSPKR_L

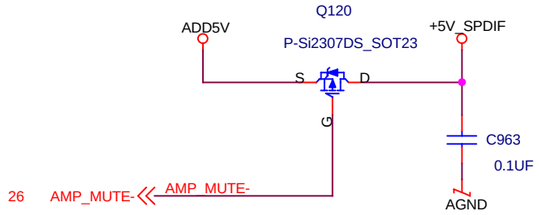
LINEOUT_R CB318 1UF INTSPKR_R

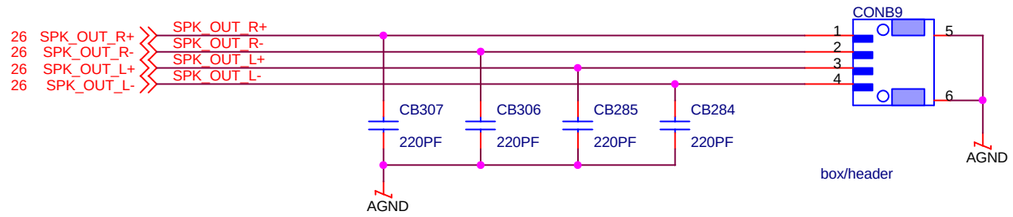
CB320 0.47UF, CB321 0.47UF, C1036 0.47UF

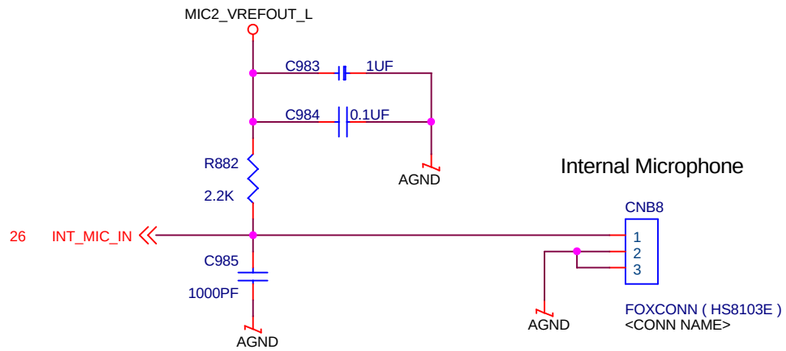
SPK_OUT_R+ SPK_OUT_R- SPK_OUT_L+ SPK_OUT_L- AMP_MUTE-

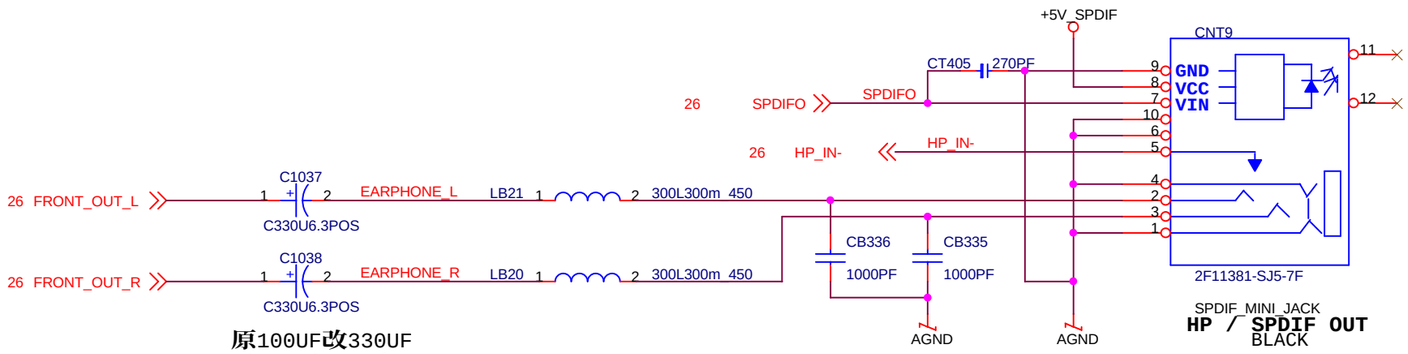
GAIN0 GAIN1

MICRO-STAR INT'L CO.,LTD.			
Title: AZALIA CODEC(ALC883)			
Size: Custom	Document Number: MS-1412		Rev: 1.1
Date: Monday, May 29, 2006	Sheet 26 of 40		

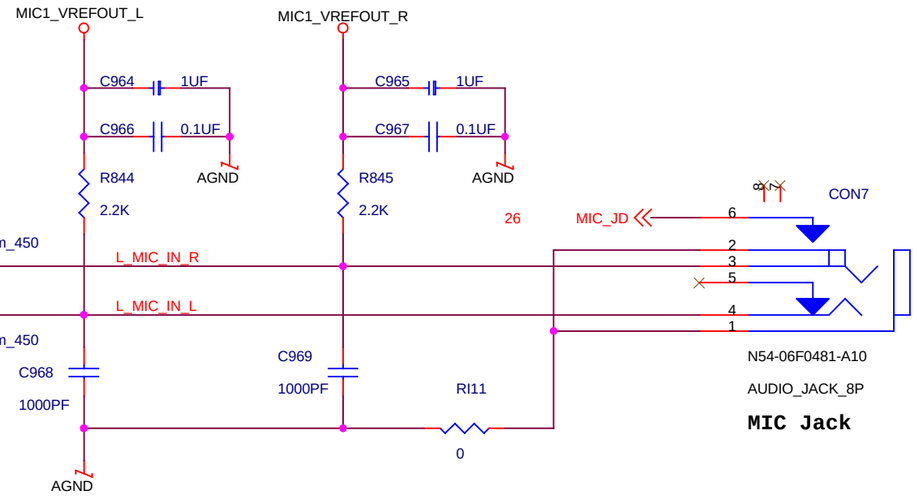


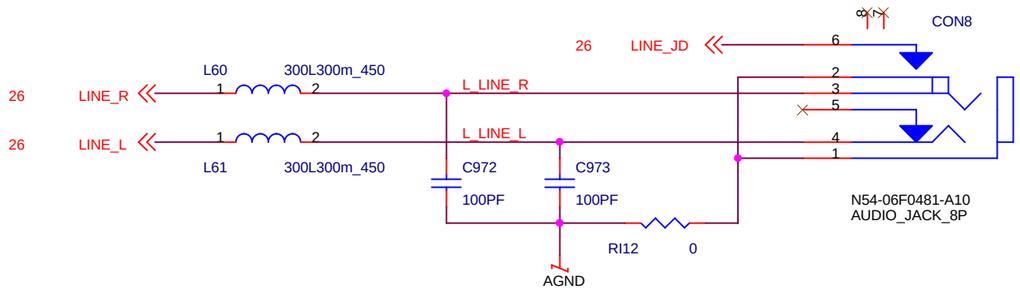






原100UF改330UF
FOR VISTA 4/7





MSI Link to the Future	MICRO-STAR INT'L CO.,LTD.	
Title: AUDIO AMP(FNA7031)		
Size: B	Document Number: MS-1412	Rev: 1.1
Date: Monday, May 29, 2006	Sheet 27 of 40	

need check with KB pin define

EMI request 05'12'30

CONT8

D1x8-WH
N5A-26F0210-A10
FPC_26_C1470903

Close to Pin19

UB17

ENE3910_LQFP176

POWER & GND
LPC
PS2 I/F
KBC
X-BUS
SM-BUS
CLOCKS

W39L040P-70Z

USB/LAN_CONN_NC
N32-1140020-M06
53398_14

FLASH_8M_NC

BATT'S

H/W Strap for ENE 3910

電池改1P3S
06'02'07 by Able

FPC_6P_54550
T/P CONN

For EMI

For RoHS change.
06'05'15

MICRO-STAR INT'L CO.,LTD.

Title: KBC/EC/uP (ENE3910-LFQP176)

Size: Custom | Document Number: MS-1412 | Rev: 1.1

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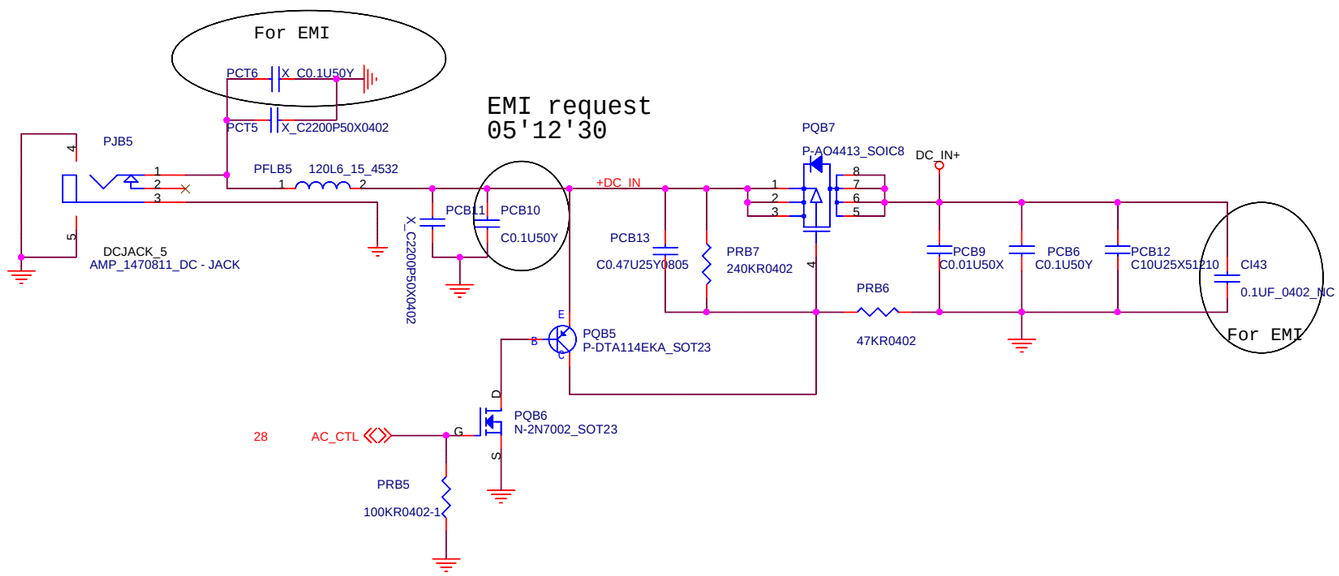

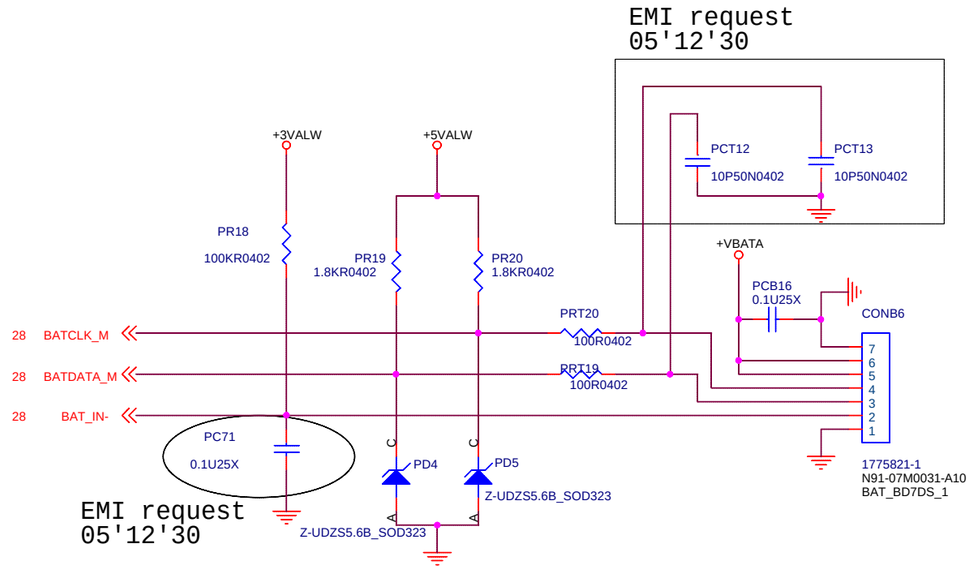

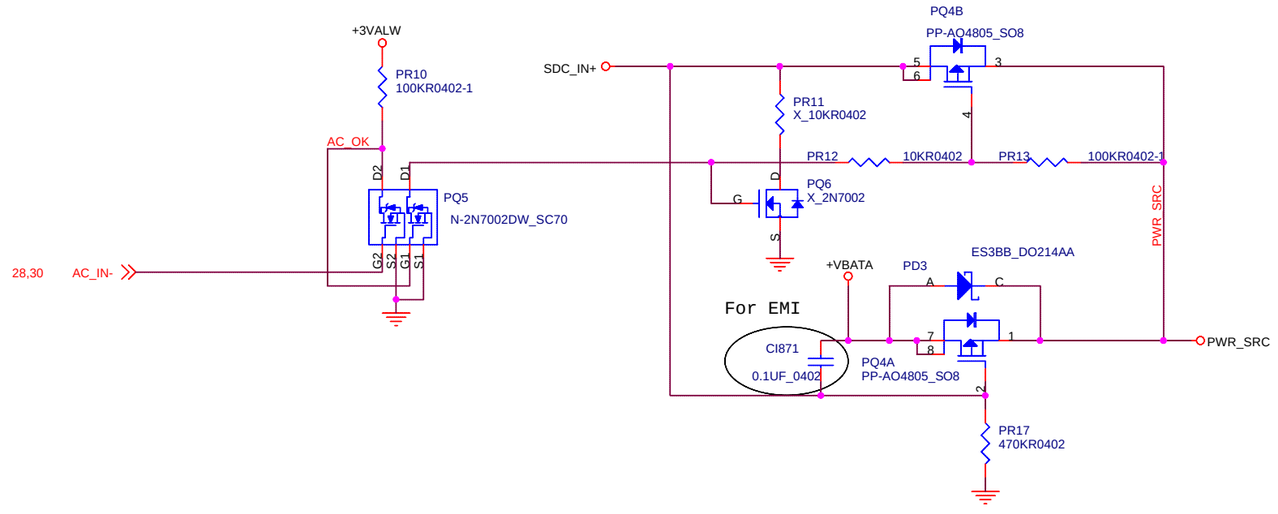

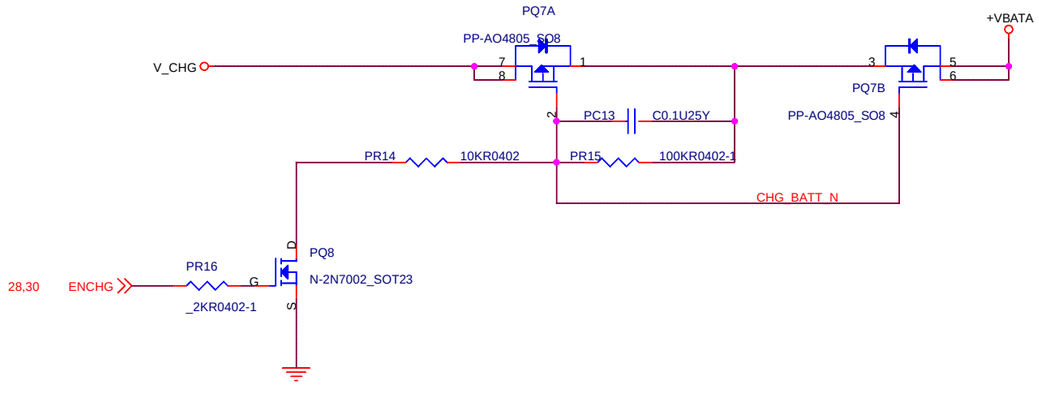

MICRO-STAR INT'L CO.,LTD.

Title: **Battery Select**

Size: Custom | Document Number: **MS-1412** | Rev: 1.1

Date: Monday, May 29, 2006 | Sheet 29 of 40

Adapter= 65 W
Adapter input voltage set 18.05 Voltage

3S2P: Charge current set 3 Amp
3S3P: Charge current set 4.5 Amp
Pre-charger: Charge current set 200mA

DC_IN+
PCB27 1u25X
PRB30 53.6KR0603
MAX1772_ACIN
PRB29 7.15KR0402
PDT10 S-RB751V-40
PCT50 1u25X
PRT58 0.02R3720
SDC_IN+
PRT61 4.7R0402
PRT60 4.7R0402
PCT48 0.47u25Y
PCT44 0.47u25Y
MAX1772_LDO
PRB25 10KR0402
CELL
PRT52 10KR0402
PCT51 1u16Y
PRB26 33R0603
PCB26 0.1u25Y
PDB5 S-RB751V-40
PCT42 0.1u25Y
MAX1772_REF
PRT51 34KR0402
PRT49 47.5KR0402
PRT50 24.3KR0402
PRB24 49.9KR0603
PRT48 13.3KR0402
PRT53 100KR0402
PRB28 1K_1%_0402
PRB27 38.3KR0402
PQB22 2N7002DW
28 PRE_CHG
28 ENCHG_2P
+5VALW
PRT56 10KR0402
28,29 AC_IN-
PCT38 0.1u25Y
PRT57 12KR0402
PCT54 0.1u25Y
PRT64 12KR0402
PRT59 10KR0402
PCT41 1000p50X
PCT43 0.01u50X
PCT45 0.01u50X
PCT46 1u16Y
PRT62 42.2KR0402
PRT63 20KR0402
PUT6
MAX1772EEI+
DCIN CSSP CSSN CELLS LDO BST DLOV DHI LX DLO PGND CSIP CSIN BATT GND GND REFIN VCTL ICTL ACIN ACOK ICHG IINP CCV CCI CCS REF CLS
MAX1772_REFIN MAX1772_VCTL MAX1772_ICTL MAX1772_ACIN AC_IN- MAX1772_ICHG MAX1772_IINP MAX1772_CCV MAX1772_CCI
PRT54 1R0603
PRT55 1R0603
PCT39 0.1u25Y
PCT36 0.1u25Y
JT5 X
PCT35 2200p50X
PCT32 0.1u25Y
PCT34 10UX5R1206
PCT33 10uX5R1210
PQT10 NN-SP8K10S
PLB7 CH-10U5A_S
RI3 1R1%_0603_NC
CI45 1000P_0603_NC
PRB22 0.033ohm
V_CHG
PCT31 0.1u25Y
PCB18 10uX5R1210
PCB25 10uX5R1210
PCT27 10UX5R1206
PCT23 X_10UX5R1206

電池改1P3S
06'02'07
by Able
MAX1772_ICTL
PR91 10KR0402
PQ38 N-2N7002_SOT23
28 ENCHG_1P

+5VALW
PRB23 10KR0402
MAX1772_ICTL
PQB21 2N7002DW
28,29 ENCHG

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

SET Iin MAX = 3.3A

MICRO-STAR INT'L CO.,LTD.
Title: Battery Charger
Size: Custom
Document Number: MS-1412
Rev: 1.1
Date: Monday, May 29, 2006
Sheet 30 of 40

Place these CAPs close to FETs

Current limit at 4A for +3.3V

Current limit at 4A for +5VSUS

add on 0610

From SUS change to ALW,
不然會漏電!
05'12'19 Able

05'11'14 ABLE

PN change to C11-1043612-Y01 06'05'25 Able

Add the current limit

For EMI

MAX1999EEI+

Title	+3VSUS/+5VSUS
Size	Custom
Document Number	MS-1412
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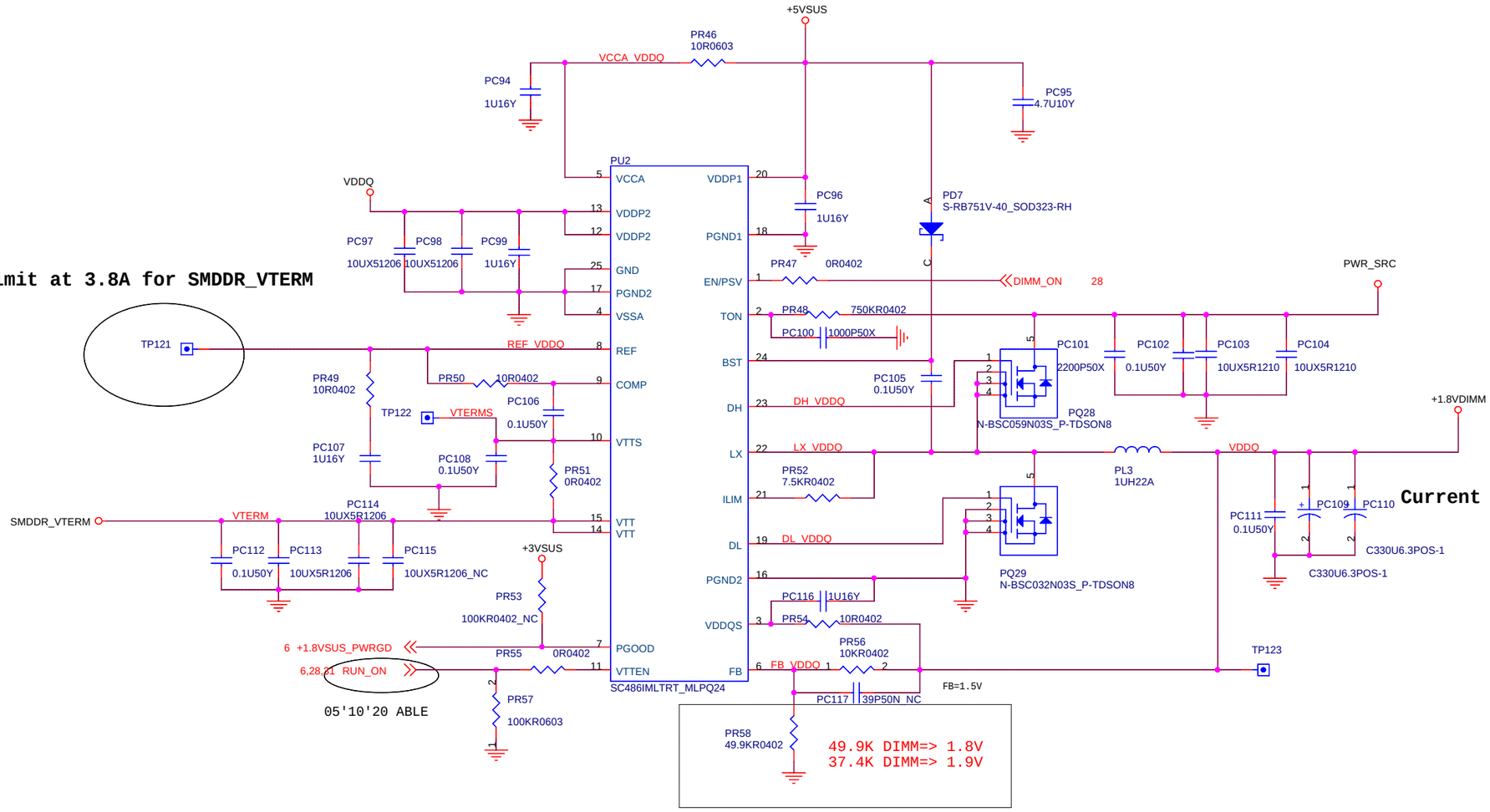
Date:	Monday, May 29, 2006
Sheet	31 of 40

MICRO-STAR INT'L CO.,LTD.

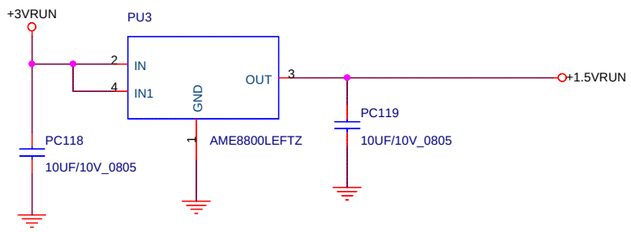
Current limit at 3.8A for SMDDR_VTERM

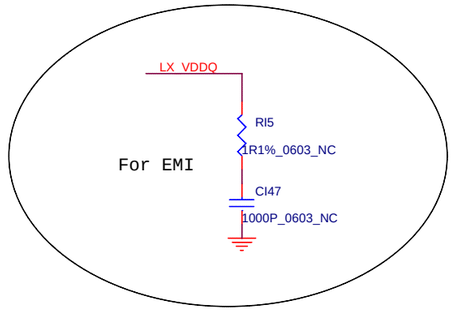


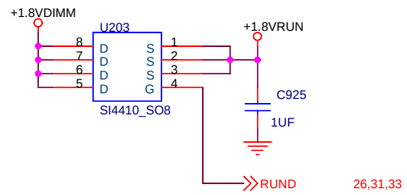
05'10'20 ABLE

Current limit at 15A for +1.8VSUS

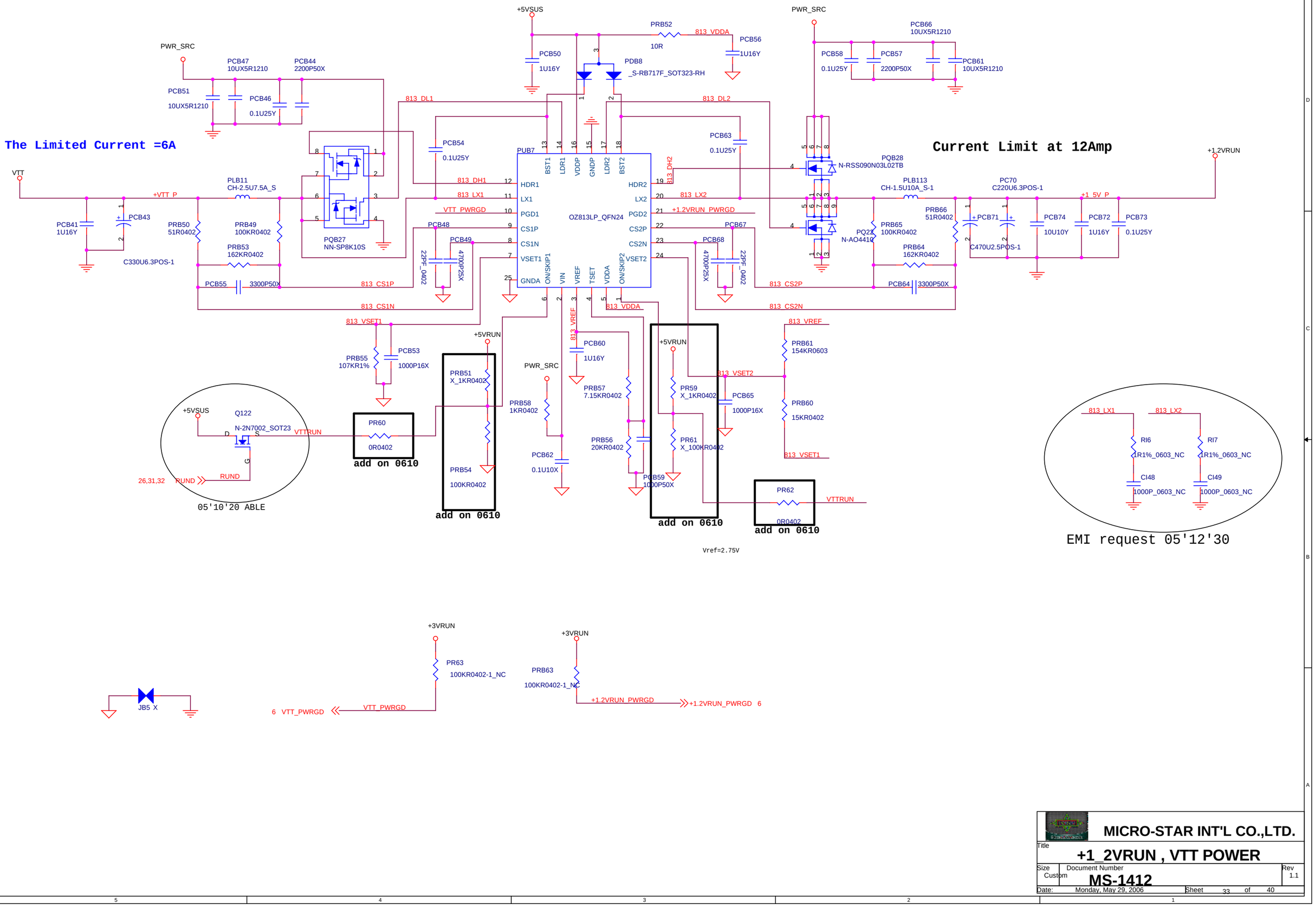
Current limit at 3.38A for +1.8VRUN



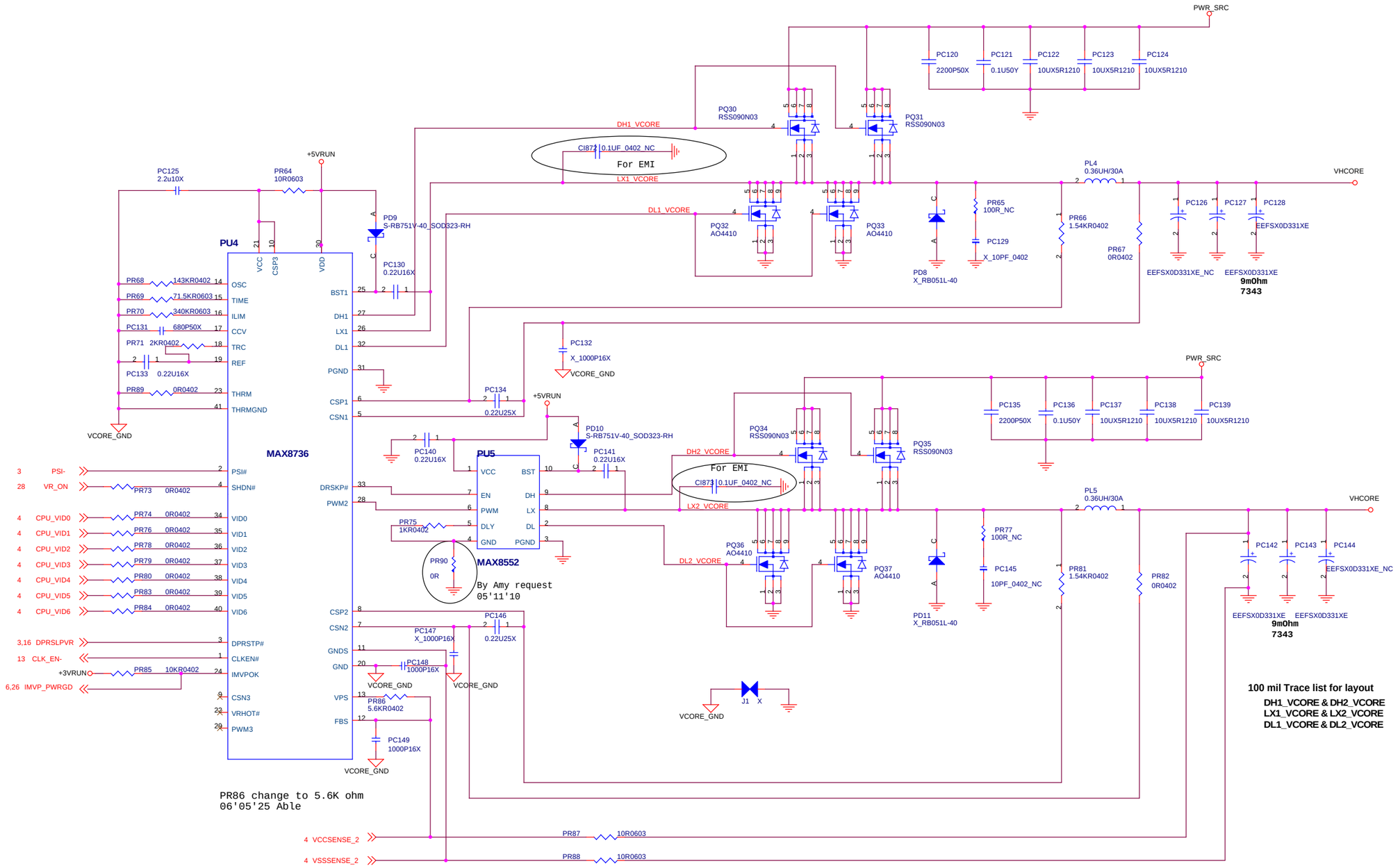




Title	M_VDDR & +1.8VDIMM	
Size: Custom	Document Number: MS-1412	Rev: 1.1
Date: Monday, May 29, 2006	Sheet 32 of 40	



MICRO-STAR INT'L CO.,LTD.	
Title	+1_2VRUN , VTT POWER
Size: Custom	Document Number: MS-1412
Rev: 1.1	
Date: Monday, May 29, 2006	Sheet 33 of 40



MICRO-STAR INT'L CO.,LTD.

Title: CPU POWER

Size: C | Document Number: MS-1412 | Rev: 1.1

Date: Monday, May 29, 2006 | Sheet 34 of 40

HT24 HT9 HT5 HT26 HT25 HT14 HT16

HOLES_S276D118 HOLES_S276D118 HOLES_S276D118 HOLES_S276D118 HOLES_S276D118 HOLES_S276D118 HOLES_S276D118

HT17 HT12 HT21 HT27 HT22 HT8 HT7

HOLES_S276D118 HOLES_S276D118 HOLES_S276D118 HOLES_S276D118 HOLES_S276D118 HOLES_S276D118 HOLES_S276D118

MB position fixed rib

HT19 HT6

NPTH_80 NPTH_80

HT28 HT31 HT30

HOLE157 HOLE157 HOLE157

HT29

HOLE157

CPU's

holes_r276d185P holes_r276d185P

HT10 HT13

holes_r276d185P

HT11

MDC Stand off

HOLES_R177D91

HT23

HOLES_R177D91

HT20

Impedence Test

JPB5 JPB6 JPB10

JPB11 JPB16 JPB17

JPB19

JPB21 JPB22 JPB23

JPB24 JPB25 JPB26

JPB27 JPB28 JPB29

JPB30 JPB32

FMB16 FMT8 FMT11 FMB17 FMB10 FMB5 FMB15 FMB11 FMB13 FMB9 FMB14 FM1

X_FM X_FM X_FM X_FM X_FM X_FM X_FM X_FM X_FM X_FM X_FM X_FM

FMB6 FMB12 FMB7 FMT5 FMT10 FMB8 FMT12 FM2 FM3 FM4 FM5 FM6

X_FM X_FM X_FM X_FM X_FM X_FM X_FM X_FM X_FM X_FM X_FM X_FM

MICRO-STAR INT'L CO.,LTD.

Title

Screw1

Size	Document Number	Rev
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U217
South Brige AL FOIL for EMI
South Brige AL FOIL

PCB0
MS10241 PCB
健鼎無錫

U101
MDC Module
MDC_Module

U102
PCMCIA R-Eject
PCMCIA-EJECT_NC
E21-1022010-H21

U107
PCMCIA Mylar
PCMCIA_MYLAR

U214
NB MYLAR
NB_MYLAR

U215
RJ45 MYLAR
RJ45_MYLAR

U216
DDR MYLAR
DDR_MYLAR

SCREW1
Screw
Screw

SCREW2
Screw
Screw

SCREW4
Screw
Screw

SCREW5
Screw
Screw

SCREW11
Screw
Screw

U218
HDD MYLAR
HDD_MYLAR

U219
HDD MYLAR
HDD_MYLAR

U220
DDR MYLAR
DDR_MYLAR

SCREW7
Screw
Screw

U104
M/B Mylar
M/B_MYLAR

SCREW8
Screw
Screw

SCREW6
Screw
Screw

U110
MB_HD_ MYLAR
HD_MYLAR

U111
CARD READER MYLAR
CARD_READER_MYLAR

U221
BIOS LABEL
BIOS_LABEL

SCREW3
Screw
Screw

BAT1
RTC Battery
RTC battery

SCREW9
Screw
Screw

U103
NEW CARD COVER
PCI-EXPRESS-CARD
E23-1016011-T01

U109
PCI-E Mylar
PCI-E_MYLAR

SCREW10
Screw
Screw

MSI Link to the Future
MICRO-STAR INT'L CO.,LTD.

Title: Screw2

Size: A
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For EMI

PVT12 PVT6 PVT11 PVT7 PVT8 PVT20 PVT23 PVT24 PVB3 PVB5 PVT25 PVT26 PVT27

PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197 PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC

PVT17 PVT15 PVT10 PVT9 PVT14 PVT13 PVT16 PVT22 PVT5 PVB1

PAD-98X197_NC PAD-98X197 PAD-98X197 PAD-98X197_NC PAD-98X197_NC PAD-98X197 PAD-98X197 PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC

PWR_SRC CI885 0.1UF25V_0402_NC +3VRUN
CI889 0.1UF25V_0402
CI902 0.1UF25V_0402

+3VRUN CI924 0.1UF_0402 VHCORE

CI927 0.1UF_0402 VHCORE
CI930 0.1UF_0402

+3VRUN CI952 0.1UF_0402_NC

+3VRUN CI882 0.1UF_0402 +1.2VRUN

+1.8VRUN CI888 0.1UF_0402 +3VRUN
CI890 0.1UF_0402
CI897 0.1UF_0402
CI907 0.1UF_0402
CI909 0.1UF_0402
CI912 0.1UF_0402

+5VSUS CI932 0.1UF_0402 +3VRUN
CI937 0.1UF_0402
CI940 0.1UF_0402_NC
CI943 0.1UF_0402_NC
CI946 0.1UF_0402_NC
CI948 0.1UF_0402
CI951 0.1UF_0402
CI954 0.1UF_0402
CI955 0.1UF_0402_NC
CI956 0.1UF_0402

+3VSUS CI925 0.1UF_0402 +3VRUN
CI929 0.1UF_0402_NC

+3VRUN CI962 0.1UF_0402
CI963 0.1UF_0402
CI966 0.1UF_0402
CI967 0.1UF_0402
CI968 0.1UF_0402_NC

SMDDR_VTERM CI877 0.1UF_0402 +1.8VDIMM
CI880 0.1UF_0402
CI884 0.1UF_0402
CI887 0.1UF_0402_NC

CI893 0.1UF_0402 +1.8VDIMM

+3VSUS CI898 0.1UF_0402_NC +5VSUS

CI903 0.1UF_0402 +5VSUS
CI906 0.1UF_0402_NC

PWR_SRC CI914 0.1UF25V_0402 +5VRUN

+3VSUS CI957 0.1UF_0402
CI959 0.1UF_0402
CI960 0.1UF_0402

PWR_SRC CI958 0.1UF25V_0402
CI961 0.1UF25V_0402_NC

+3VRUN CI1032 0.1UF_0402_NC

For EMI
Near
CI940

PWR_SRC CI1033 0.1UF25V_0402_NC
CI1034 0.1UF25V_0402_NC

CI876 0.1UF_0402_NC +1.2VRUN

+5VSUS CI883 0.1UF_0402_NC AGND
CI886 0.1UF_0402

+5VSUS CI892 0.1UF_0402_NC
CI896 0.1UF_0402_NC

CI901 0.1UF_0402 AGND

+3VRUN CI913 0.1UF_0402

+5VRUN CI917 0.1UF_0402
CI920 0.1UF_0402
CI923 0.1UF_0402

+3VSUS CI931 0.1UF_0402

CI933 0.1UF_0402 +3VALW

CI938 0.1UF_0402 VTT
CI941 0.1UF_0402

CI949 0.1UF_0402_NC +1.8VRUN

+3VRUN CI971 0.1UF_0402

PWR_SRC CI881 0.1UF25V_0402 +3VRUN

+1.8VDIMM CI973 0.1UF_0402_NC
CI975 0.1UF_0402_NC
CI977 0.1UF_0402_NC
CI979 0.1UF_0402_NC
CI981 0.1UF_0402_NC
CI983 0.1UF_0402_NC
CI985 0.1UF_0402_NC
CI987 0.1UF_0402_NC
CI989 0.1UF_0402_NC
CI991 0.1UF_0402_NC

SMDDR_VTERM CI972 0.1UF_0402_NC
CI974 0.1UF_0402_NC
CI976 0.1UF_0402_NC
CI978 0.1UF_0402_NC
CI980 0.1UF_0402_NC
CI982 0.1UF_0402_NC
CI984 0.1UF_0402_NC
CI986 0.1UF_0402_NC
CI988 0.1UF_0402_NC
CI990 0.1UF_0402_NC

PVB6 PVB7 PVB8 PVB9 PVB10

PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC

PVB11 PVB12 PVB13 PVB14 PVB15

PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC

CI936 0.1UF_0402 +3VRUN
CI910 0.1UF_0402
CI964 0.1UF_0402_NC
CI965 0.1UF_0402
CI969 0.1UF_0402_NC
CI970 0.1UF_0402
CI939 0.1UF_0402_NC
CI942 0.1UF_0402
CI945 0.1UF_0402
CI947 0.1UF_0402
CI950 0.1UF_0402

+5VSUS CI1025 0.1UF_0402_NC +3VRUN

+5VSUS CI1026 0.1UF_0402_NC +3VSUS

PVB16 PVB17 PVB18 PVB19 PVB20 PVB21 PVB22 PVB23 PVB24

PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC PAD-98X197_NC

VTT CI992 0.1UF_0402_NC
CI994 0.1UF_0402_NC
CI996 0.1UF_0402_NC
CI998 0.1UF_0402_NC
CI1000 0.1UF_0402_NC
CI1002 0.1UF_0402_NC
CI1004 0.1UF_0402_NC
CI1006 0.1UF_0402_NC
CI1008 0.1UF_0402_NC
CI1010 0.1UF_0402_NC

VTT CI1012 0.1UF_0402_NC +1.8VDIMM
CI1013 0.1UF_0402_NC
CI1014 0.1UF_0402_NC
CI1015 0.1UF_0402_NC
CI1016 0.1UF_0402_NC

+3VRUN CI919 0.1UF_0402 +3VSUS
CI922 0.1UF_0402

SMDDR_VTERM CI993 0.1UF_0402_NC +1.8VDIMM
CI995 0.1UF_0402_NC
CI997 0.1UF_0402_NC
CI999 0.1UF_0402_NC
CI1001 0.1UF_0402_NC
CI1003 0.1UF_0402_NC
CI1005 0.1UF_0402_NC
CI1007 0.1UF_0402_NC
CI1009 0.1UF_0402_NC
CI1011 0.1UF_0402_NC

CI1017 0.1UF_0402 AGND
CI1018 0.1UF_0402
CI1019 0.1UF_0402
CI1020 0.1UF_0402
CI1021 0.1UF_0402

+5VSUS CI1022 0.1UF_0402 AGND
CI1023 0.1UF_0402
CI1024 0.1UF_0402

CI1027 0.1UF_0402_NC AGND
CI1028 0.1UF_0402_NC
CI1029 0.1UF_0402_NC

Title	EMI		
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0 Power Button

PWRSW#

Pin 2

1 SUS_ON

Pin 155

2 +3VSUSPG

Pin 27

5 RUN_ON

Pin 91

+3VSUS
+5VSUS
+3VRUN
+5VRUN
RUND

MAX1999

5 RUN_ON

VTT
+1_5VRUN
SMDDR_VTERM
6 VTT_PWRGD
6 +1_5VRUN_PWRGD

OZ813LP

6 +1_8VSUS_PWRGD

+1_8VSUS

4 DIMM_ON

Pin 4

SC486IMLTRT

+1_5VRUN_PWRGD
VTT_PWRGD

7 ALLSYSPG

Pin 3

KBC

Pin 168
Pin 149
Pin 75
Pin 70
Pin 176

KB_PWRBTN#

3 RSMRST# Delay >20ms

4 PM_SLP_S5#

5 PM_SLP_S3#

RSMRST#

ATi
SB450

Pin 55

8 VR_ON Delay 99ms

VR_ON
VR_ON
PGD_IN

ISL6262

VHCORE
IMVP_PWRGD

MICRO-STAR INT'L CO.,LTD.

Title: KBC CTR PWR BD

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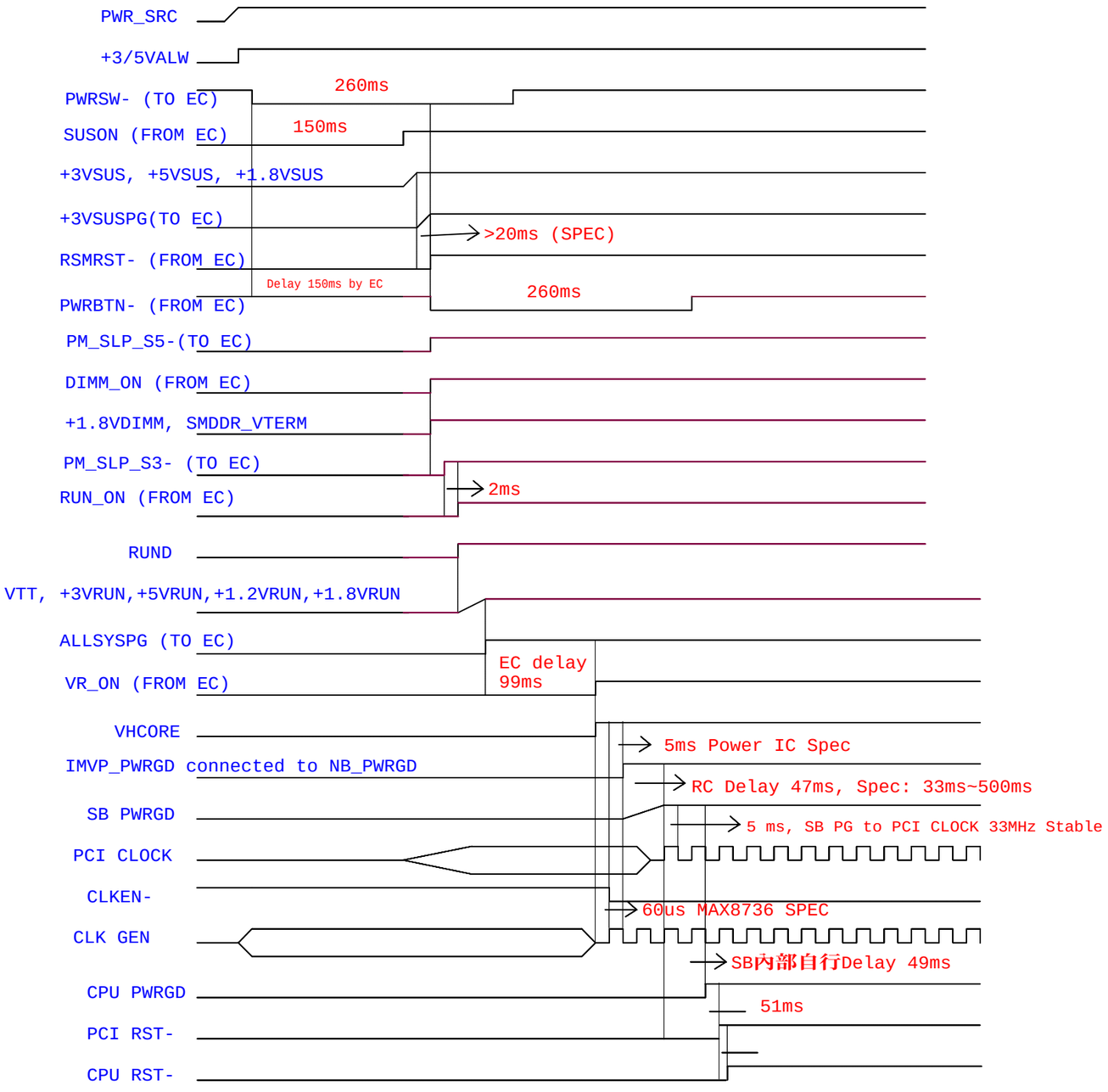
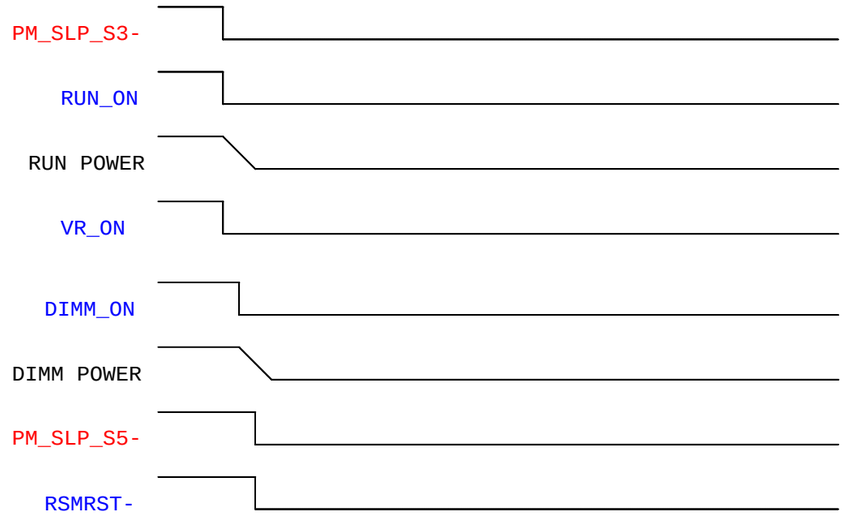
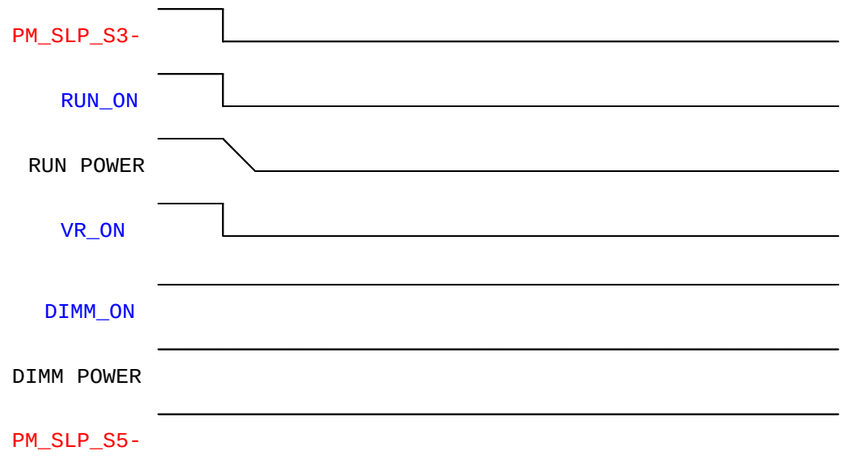
Power Up



Power Down



S3



MICRO-STAR INT'L CO.,LTD.

Title: **Power Sequency**

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1.Y7,YT6 32.768MHZ change to D04-0300800-T16 for RoHS. Able 06'05'15

2.Y8 25MHz change to D04-1001100-T16 for RoHS. Able 06'05'15

3.利用R955 or R956來決定LM86是吃+3VALW or +3VRUN. Able 06'05'25

4.Add R957用來做實驗。可調整阻值來量測RTC的耗電流. Able 06'05'25

MICRO-STAR INT'L CO.,LTD.

Title: change history

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