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30	PCI-E SLOT
31	PCI SLOT
32	IDE ATA 133
33	USB CONN
34	CODEC ALC662
35	AUDIO CONNECTOR
36	SUPER I/O ITE8718F
37	HW MONITOR / FAN CONTROL
38	FDD / PS2 CONN / FLASH
39	COM&LPT CONNECTOR
40	ATX PWR / FRONT PANEL / LED
41	OVER VOLTAGE IC
42	FRONT USB
43	PWRGD / MISC DC-DC
44	VCC_CORE DC-DC CONVER
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47	Realtek RTL8111C
48	BOM

A78GA-M2T (RS780&SB700)

REV 6.4

DDR2 X 4 Dual channel , PCI-Ex16 X 1 , PCI-Ex1 X 1 , PCI X 2 , Realtek 10/100/1000 PCI-E Lan , AMD K8-940

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Title	COVER	
Size: Custom	Document Number: A78GA-M2T	Rev: 6.4
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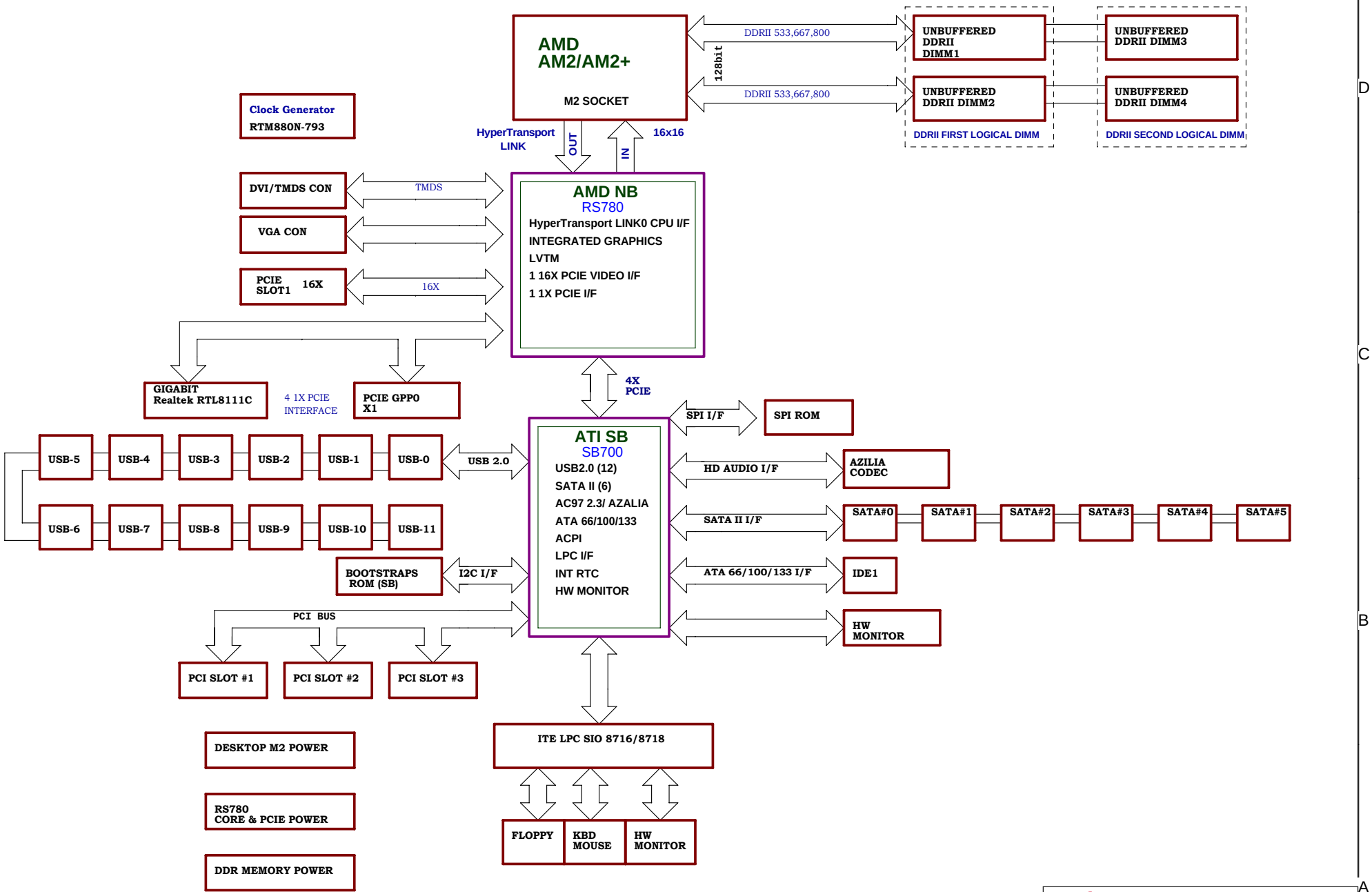

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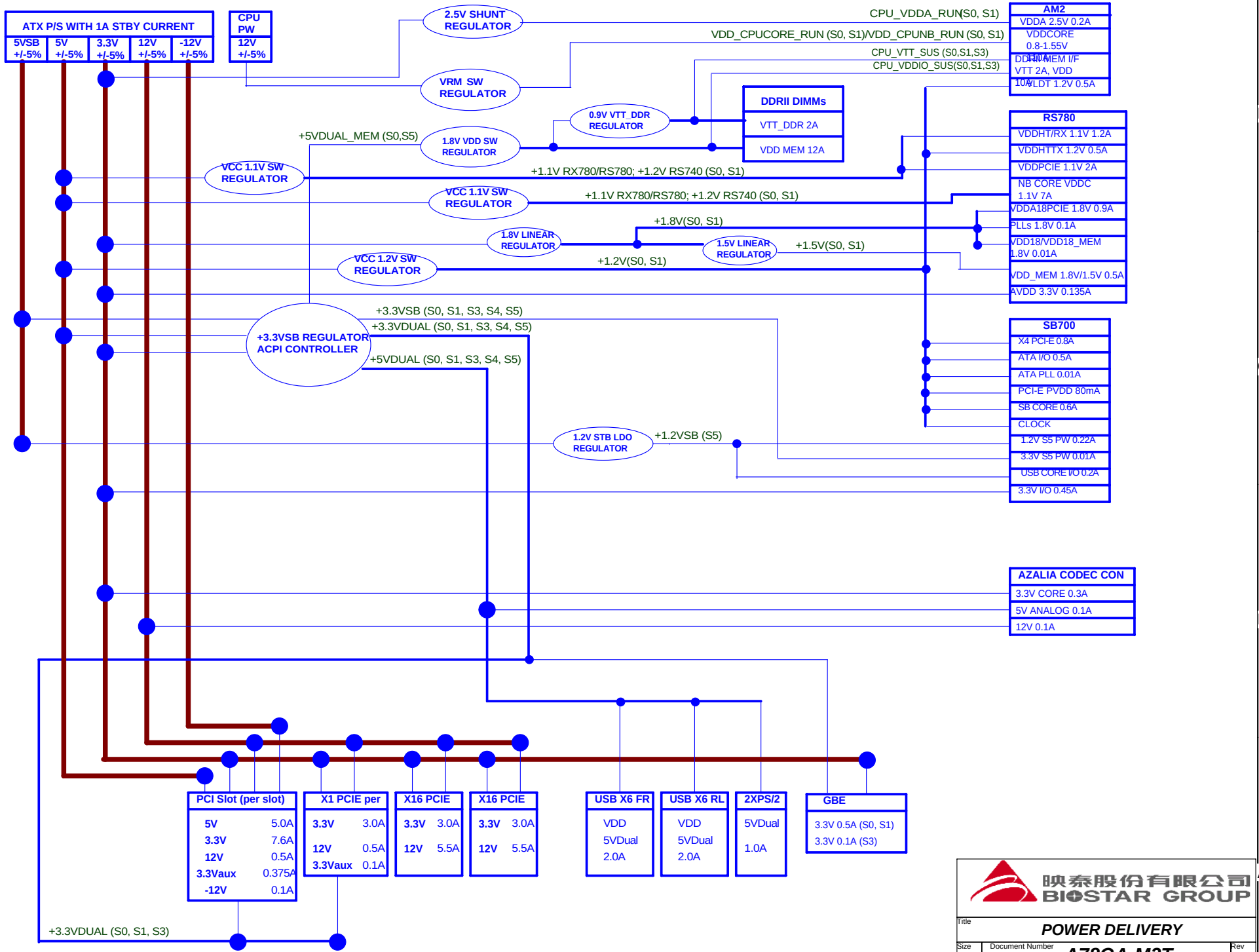
Title	BLOCK DIAGRAM	
Size: Custom	Document Number: A78GA-M2T	Rev: 6.4
Date: Tuesday, February 03, 2009	Sheet 2 of 48	



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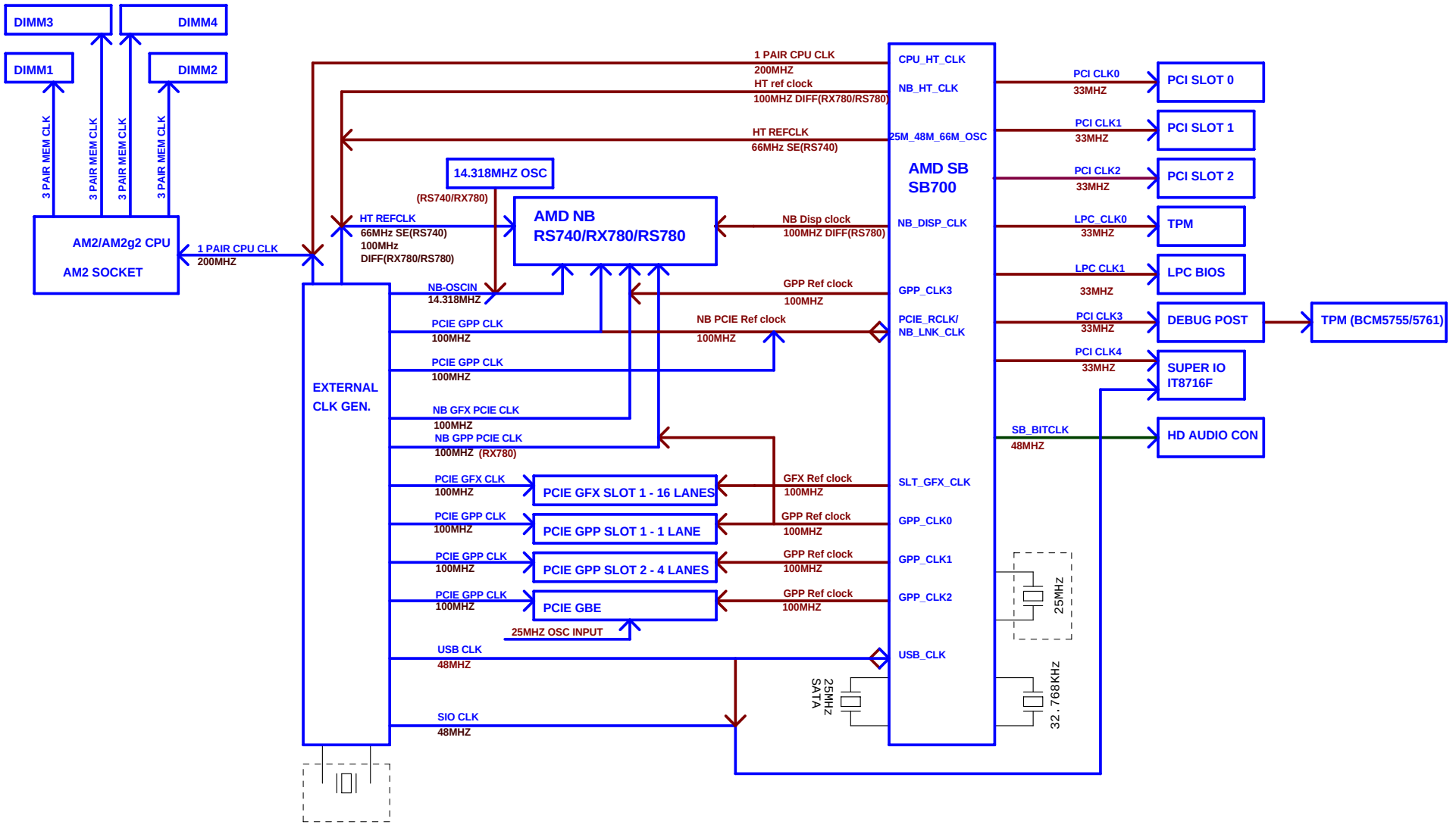
Title	POWER DELIVERY	
Size: Custom	Document Number: A78GA-M2T	Rev: 6.4
Date: Tuesday, February 03, 2009	Sheet 3 of 48	



External clock mode

Internal clock mode

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Title: CLOCK DISTRIBUTION

Size	Document Number	Rev
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REV	DATA	DESCRIPTION
6.3	16/09/08	1. Add U6- --->解決3850顯卡有時點不亮問題 Page:30
6.4	02/02/09	1.修改EMI問題及螺絲孔(使用A76GA-M2T V6.0 PCB修改) 2.Add D14,R307,R323 3.U12,U13用料修改FP6321A 4.R320 NI

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Title: REVISION HISTORY

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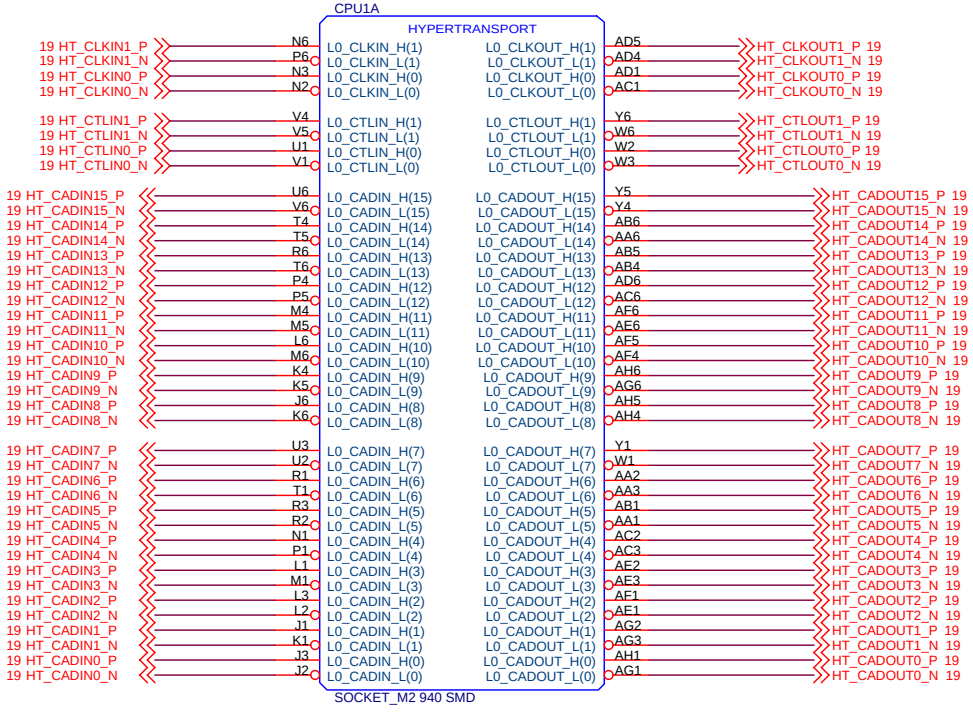
HyperTransport



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Title	K8 CPU HT	
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Vout=Vref (1.25V) X (1+R2/R1)=2.5V

+5V
C533 1UF 16V 0805 Y5V
Q1 AZ1117H-ADJ SOT-223
R1 R1 100 0402
R2 R4 100 0402
CT1 10UF 10V 0805 Y5V
C3 0.1UF 16V Y5V 0402
C1 1UF 16V 0805 Y5V
C2 3300P 50V X7R 0402
CPU_VDDA

ROUTE AS DIF 20/5/5/5/20
LAYOUT: PLACE 169 OHM WITHIN 600mils OF CPU
AND TRACE TO AC CAPS LESS THAN 1250mil

23 CPU_CLKIN_P
CPUCLK
C4 3900P 50V X7R 0402
R5 169 1% 0402
23 CPU_CLKIN_N
CPUCLK#
C5 3900P 50V X7R 0402

CPU1D
MISC
VDDA1 VDDA2
CLKIN_H CLKIN_L
CORE_TYPE
PWROK LDTSTOP_L RESET_L
CPU_PRESENT_L
SIC SID
THERMTRIP_L PROCHOT_L
CPU_SA0 TDI TRST_L TCK TMS DBREQ_L
TDO ALERT_
DBRDY
VDD_FB_H VDD_FB_L
VDDIO_FB_H VDDIO_FB_L
VTT_SENSE PSI_L
VDDNB_FB_H VDDNB_FB_L
M_VREF M_ZN M_ZP
HTREF1 HTREF0
TEST25_H TEST25_L TEST19 TEST18 TEST13 TEST9
TEST29_H TEST29_L
TEST17 TEST16 TEST15 TEST14 TEST12
TEST24 TEST23 TEST22 TEST21 TEST20
SOCKET_M2 940 SMD
TEST7 TEST6 THERMDC THERMDA TEST3 TEST2
TEST28_H TEST28_L TEST27 TEST26 TEST10 TEST8
VID(5) VID(4) VID(3) VID(2) VID(1) VID(0)

+1.8V_SUS
Required for compatibility with future processors
RN1 330 8P4R
R2 1K 0402
R3 1K 0402
K8_VID5 44
K8_VID4 44
K8_VID3 44
K8_VID2 44
K8_VID1 44
K8_VID0 44

+1.8V_SUS
R7 1K 0402 CPU_PRESENT#
25 CPU_PRESENT#
ROUTE AS DIFF PAIR 10/5/5/5/10
R8 1K 0402
R9 1K 0402
R528 0 0402
R529 1K 0402
+1.8V_SUS
CPU_THERMTRIP
CPU_PROCHOT_L_1.8
+3.3V_DUAL
Q2 APM2300AAC SOT23
R382 4.7K 0402 /NI
CPU_THERMTRIP#
CPU_THERMTRIP# 25
CPU_PROCHOT# 24

+1.8V_SUS
R507 300 0402
44 CPU_CORE_FB
44 CPU_CORE_FB_
CPU_CORE_FB
LAYOUT: PLACE WITHIN 1 INCH OF CPU 5/10

Layout: keep trace to resistors less than 1" from CPU pins
+1.8V_SUS
R12 39.2 1% 0402
R14 39.2 1% 0402
CPU_M_VREFF
R15 510 0402
R16 510 0402
R508 300 0402
R509 300 0402
+1.2V_HT
R11 44.2 1% 0402
R13 44.2 1% 0402
FBCLKOUT
FBCLKOUT_
R17 80.6 1% 0402
20/8/5/8/20
LAYOUT: PLACE WITHIN 1 INCH OF CPU
LAYOUT: ROUTE 80 OHM DIFF IMPEDENCE
R510 300 0402
R511 300 0402
36 CPU_THERMDC
36 CPU_THERMDA
R18 300 0402
+1.8V_SUS

+1.8V_SUS
R6 16.9 1% 0402
CPU_M_VREFF
R10 16.9 1% 0402
C6 0.1UF 16V Y5V 0402
C7 1000P 50V X7R 0402
LESS THAN 1000mil
5/10 M_ZN,M_ZP

24 LDT_RST#
24 SB_CPUPWRGD
21,24 LDT_STOP#
CPU_HT_RESET#
CPU_ALL_PWROK
CPU_LDTSTOP#
RN4 680 8P4R
+1.8V_SUS

Title	K8 CPU MISC	
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Title	K8 CPU MEMORY-1
Size	Custom
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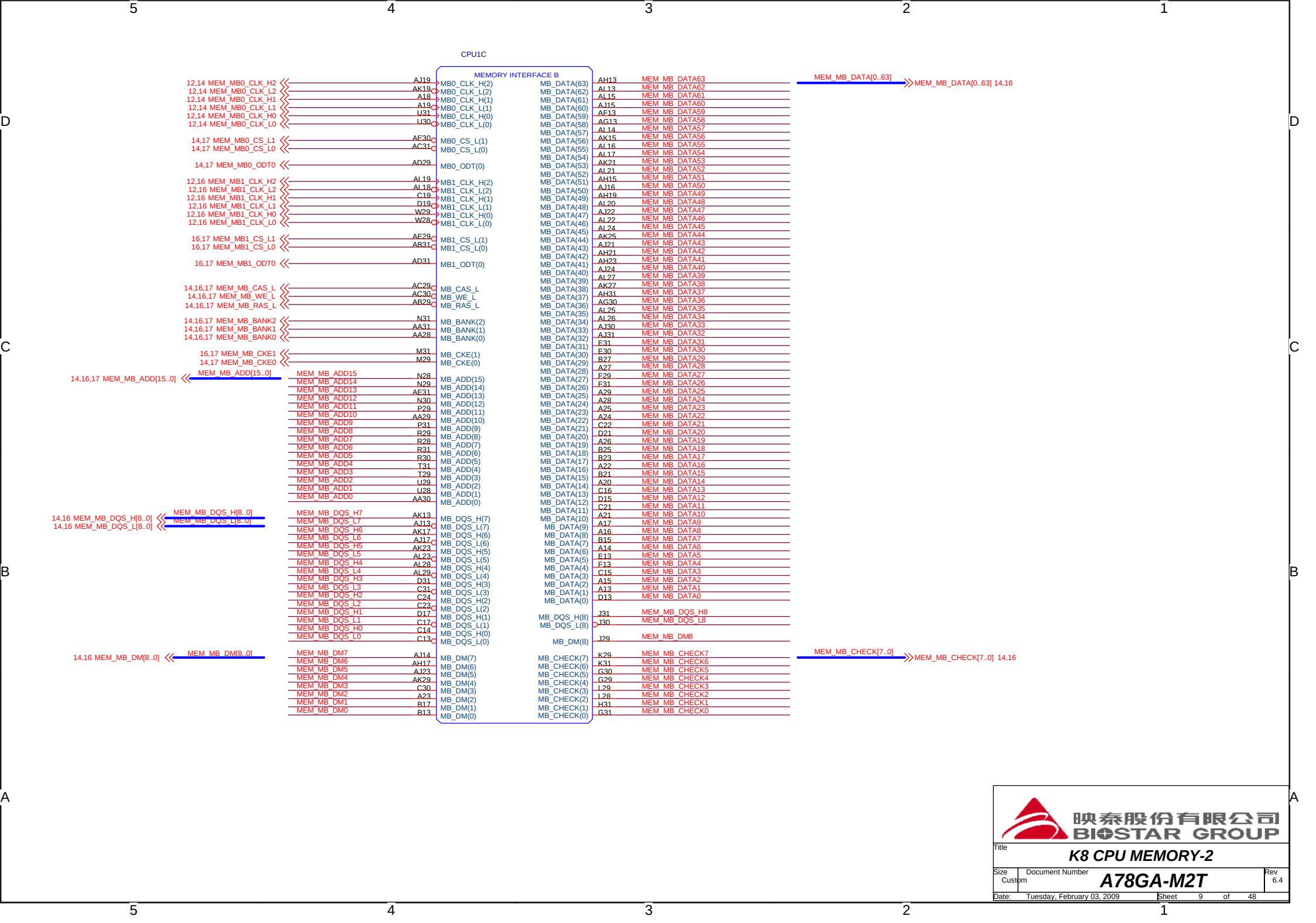

Title	K8 CPU MEMORY-2
Size	Custom
Document Number	A78GA-M2T
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Date:	Tuesday, February 03, 2009
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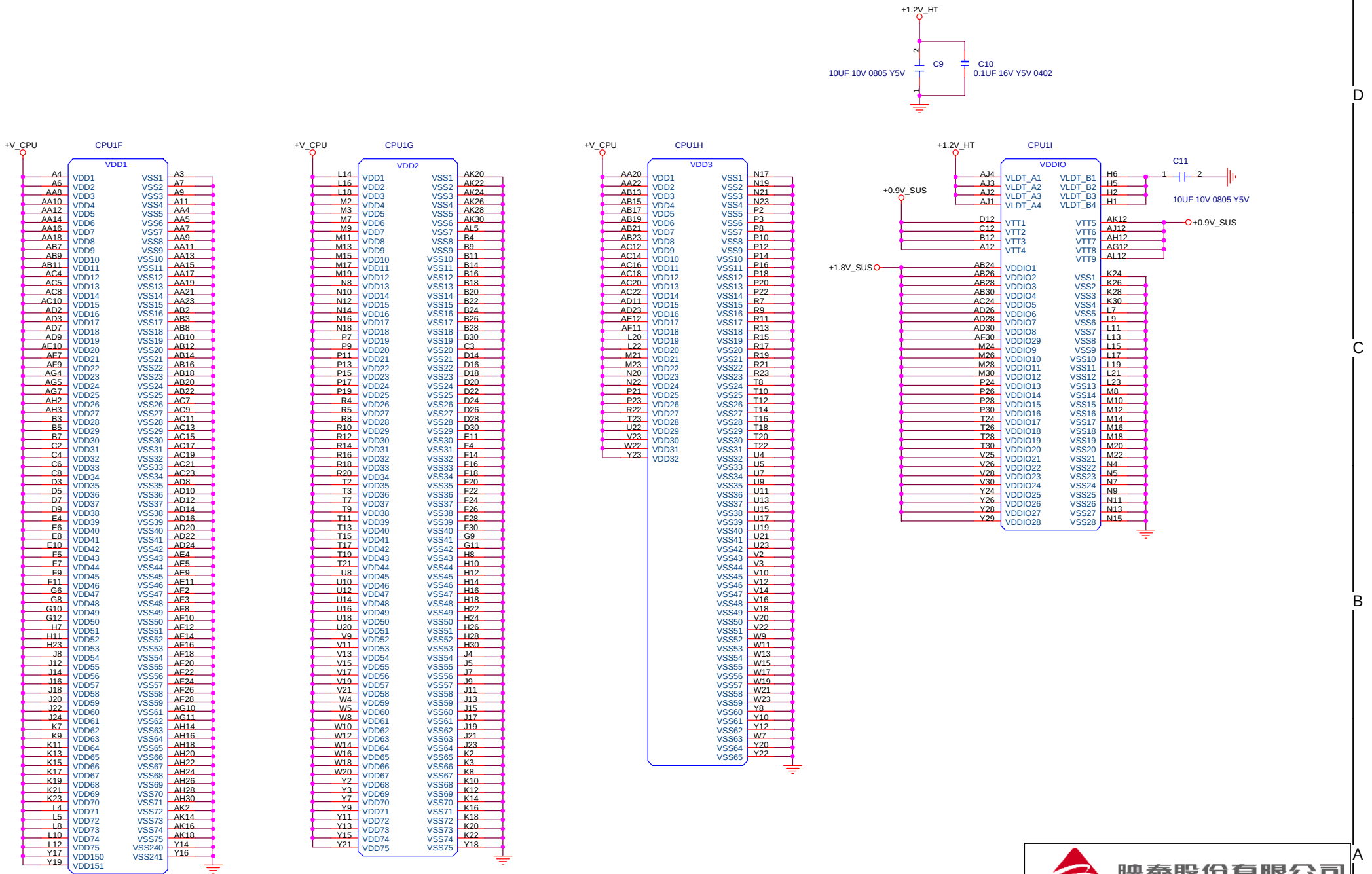

Title	K8 CPU POWER
Size	Custom
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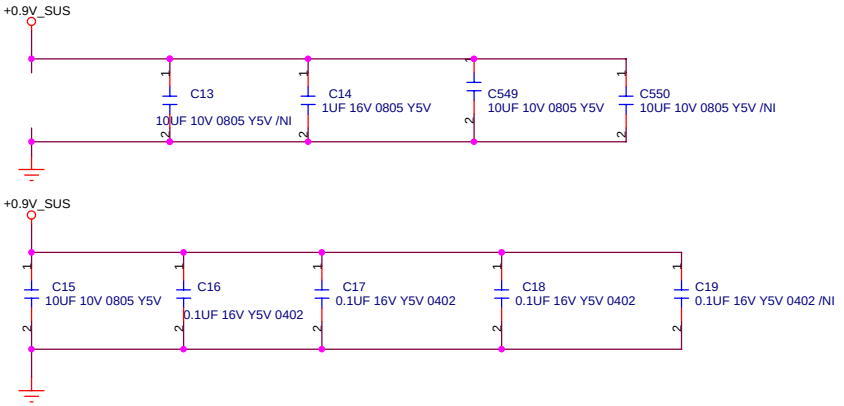
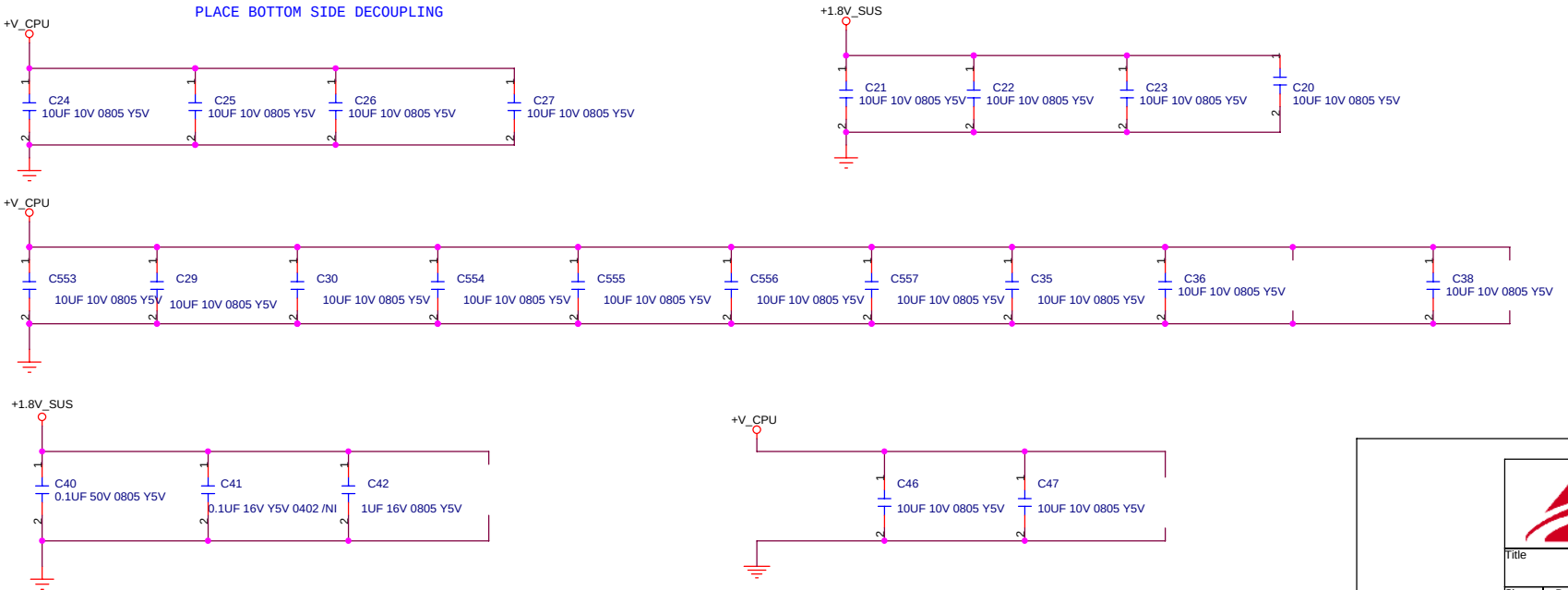
DECOUPLING BETWEEN PROCESSOR AND DIMMS
PLACE AS CLOSE TO PROCESSOR AS
POSSIBLE



PLACE BOTTOM SIDE DECOUPLING



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Title	CPU DECPOULING CAP	
Size: Custom	Document Number: A78GA-M2T	Rev: 6.4
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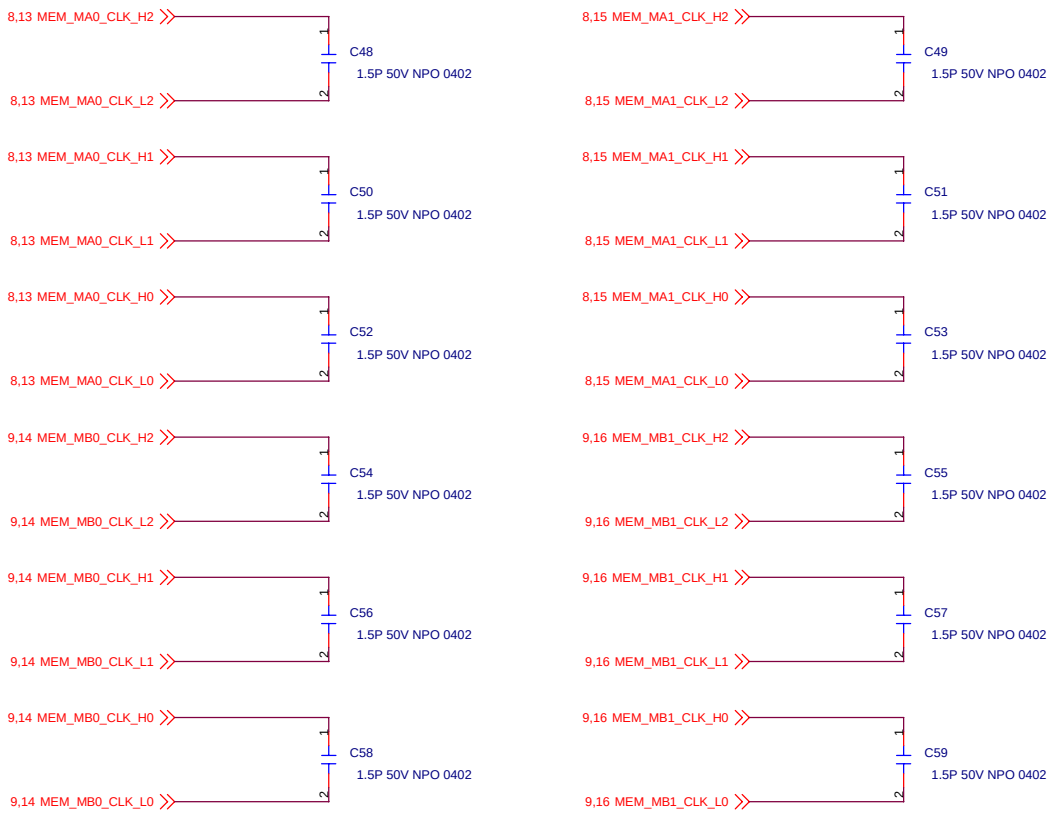

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Title	DDR CLK BYPASS	
Size: Custom	Document Number: A78GA-M2T	Rev: 6.4
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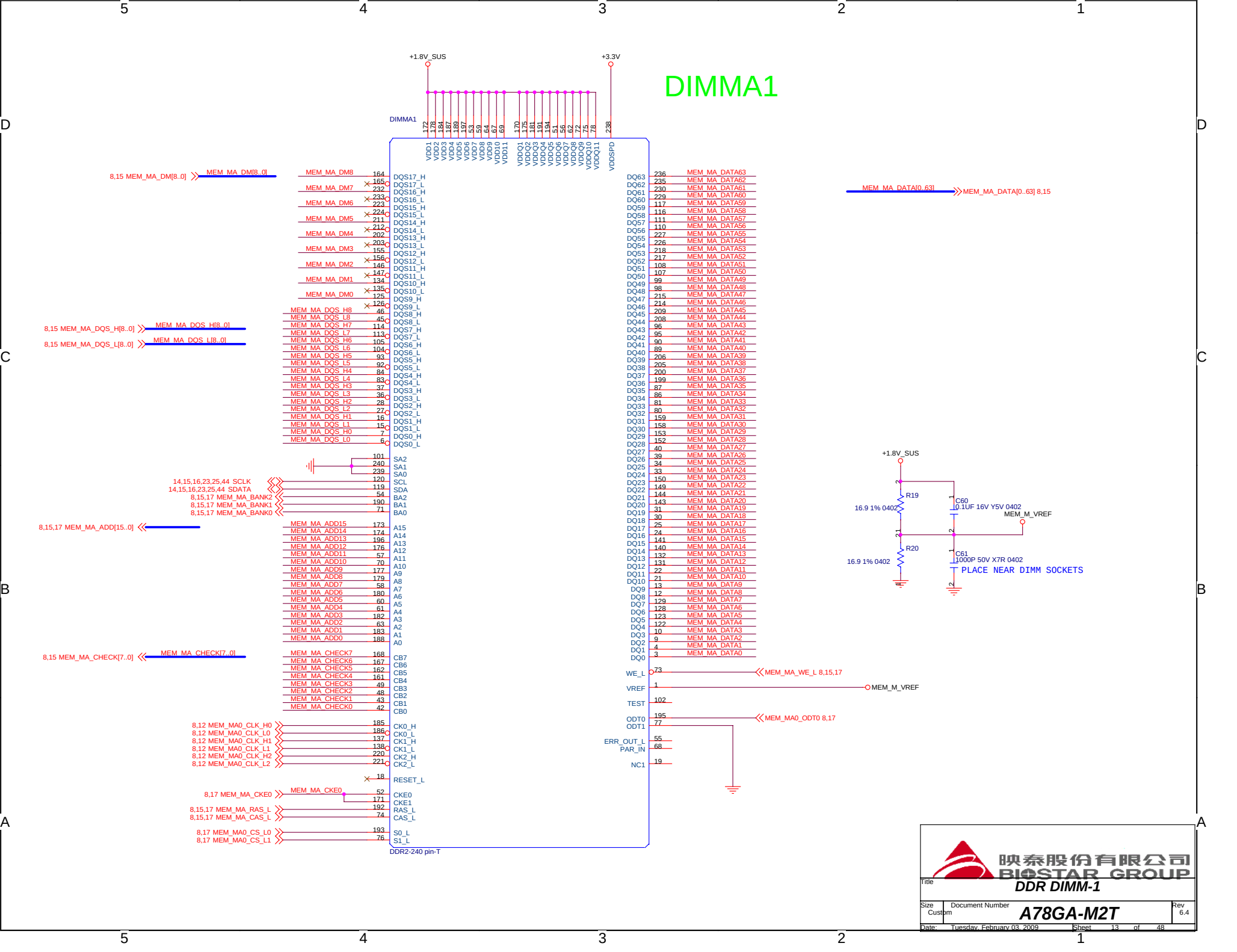
DIMMA1
+1.8V_SUS
+3.3V
DDR2-240 pin-T
MEM_MA_DM[8..0]
MEM_MA_DQS_H[8..0]
MEM_MA_DQS_L[8..0]
MEM_MA_ADD[15..0]
MEM_MA_CHECK[7..0]
MEM_MA_DATA[0..63]
MEM_M_VREF
R19
16.9 1% 0402
R20
16.9 1% 0402
C60
0.1UF 16V Y5V 0402
C61
1000P 50V X7R 0402
PLACE NEAR DIMM SOCKETS
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Title
DDR DIMM-1
Size
Custom
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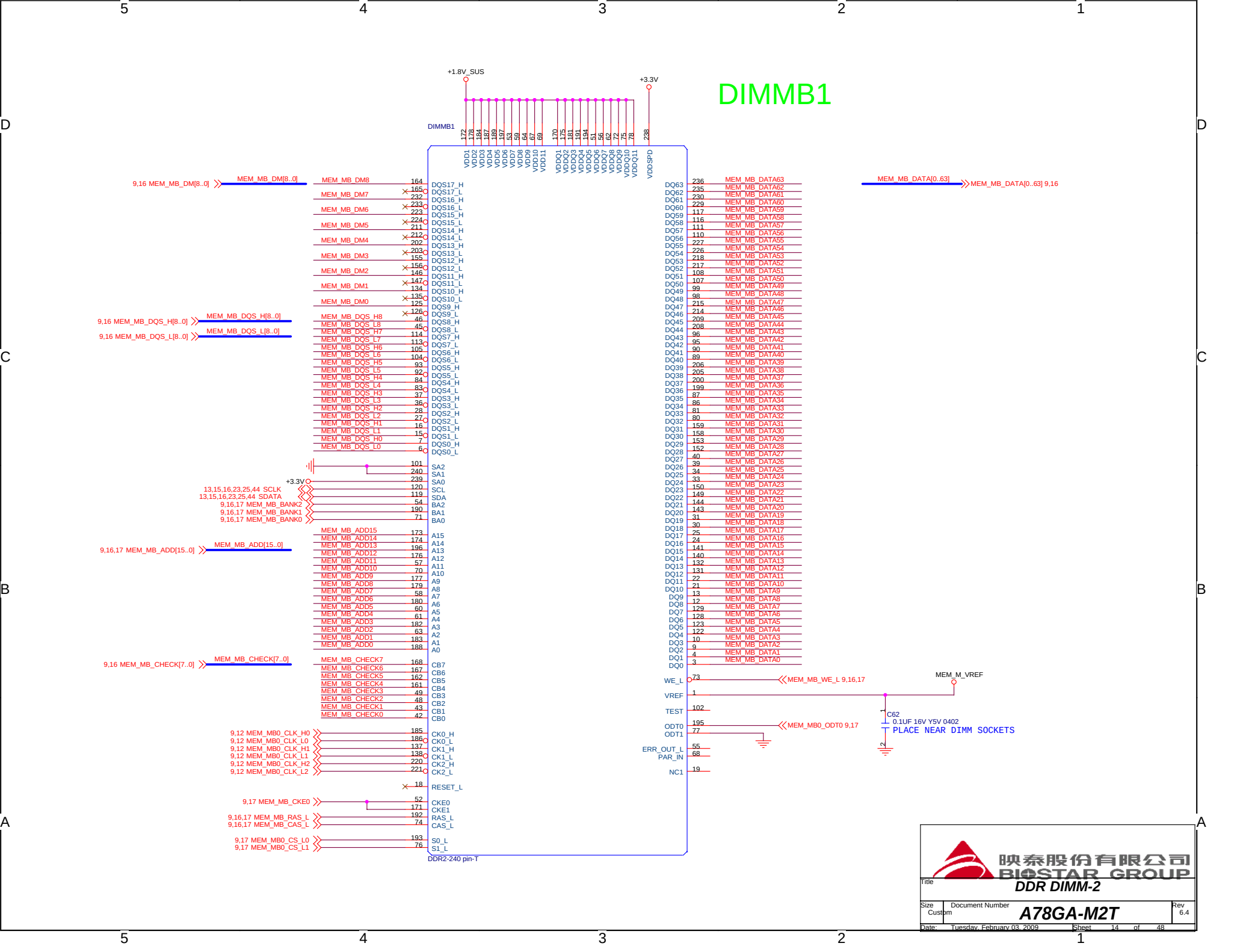

DIMMB1

Title	DDR DIMM-2
Size	Custom
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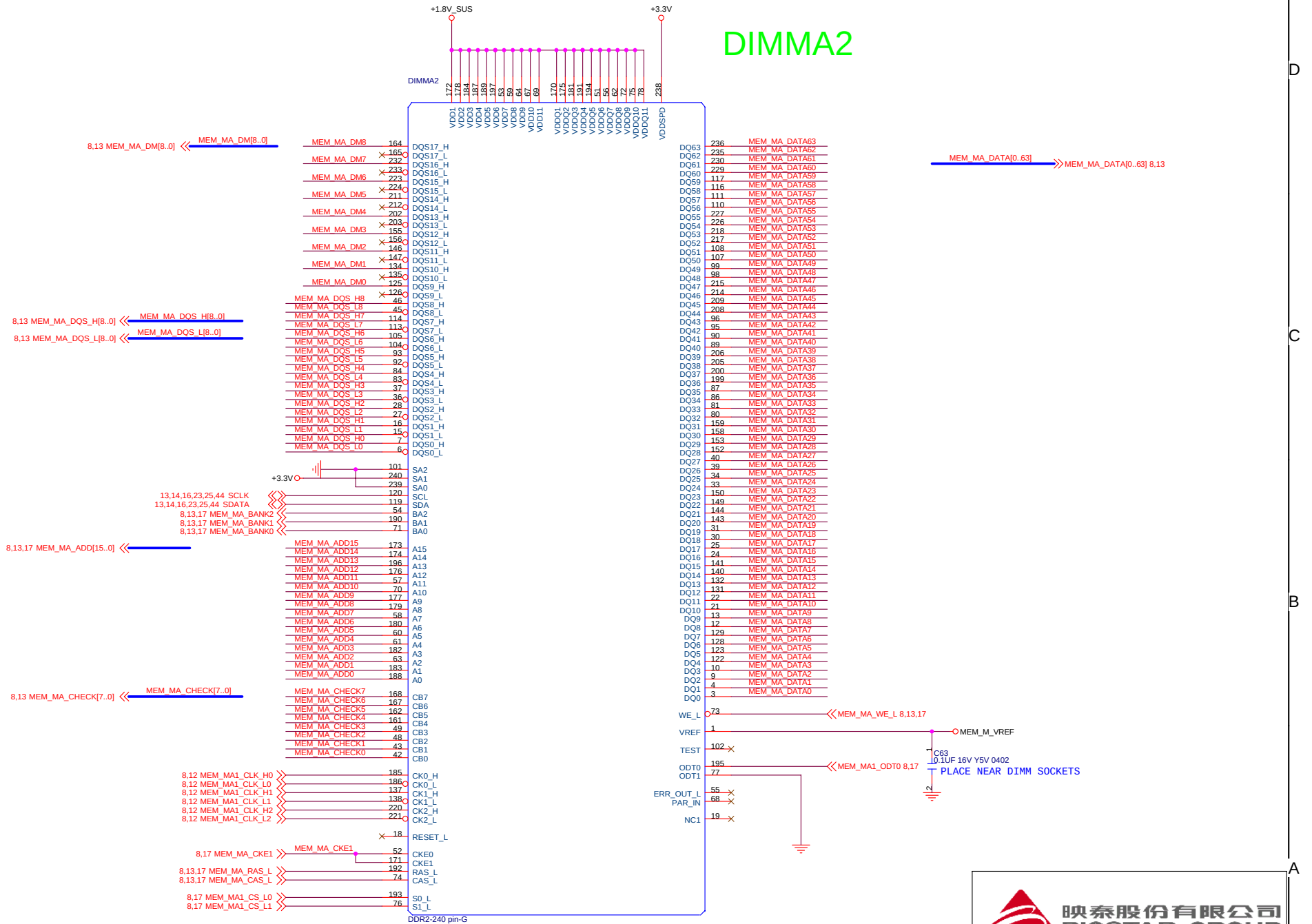
DIMMA2



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Title: DDR DIMM-3

Size	Document Number	Rev
Custom	A78GA-M2T	6.4

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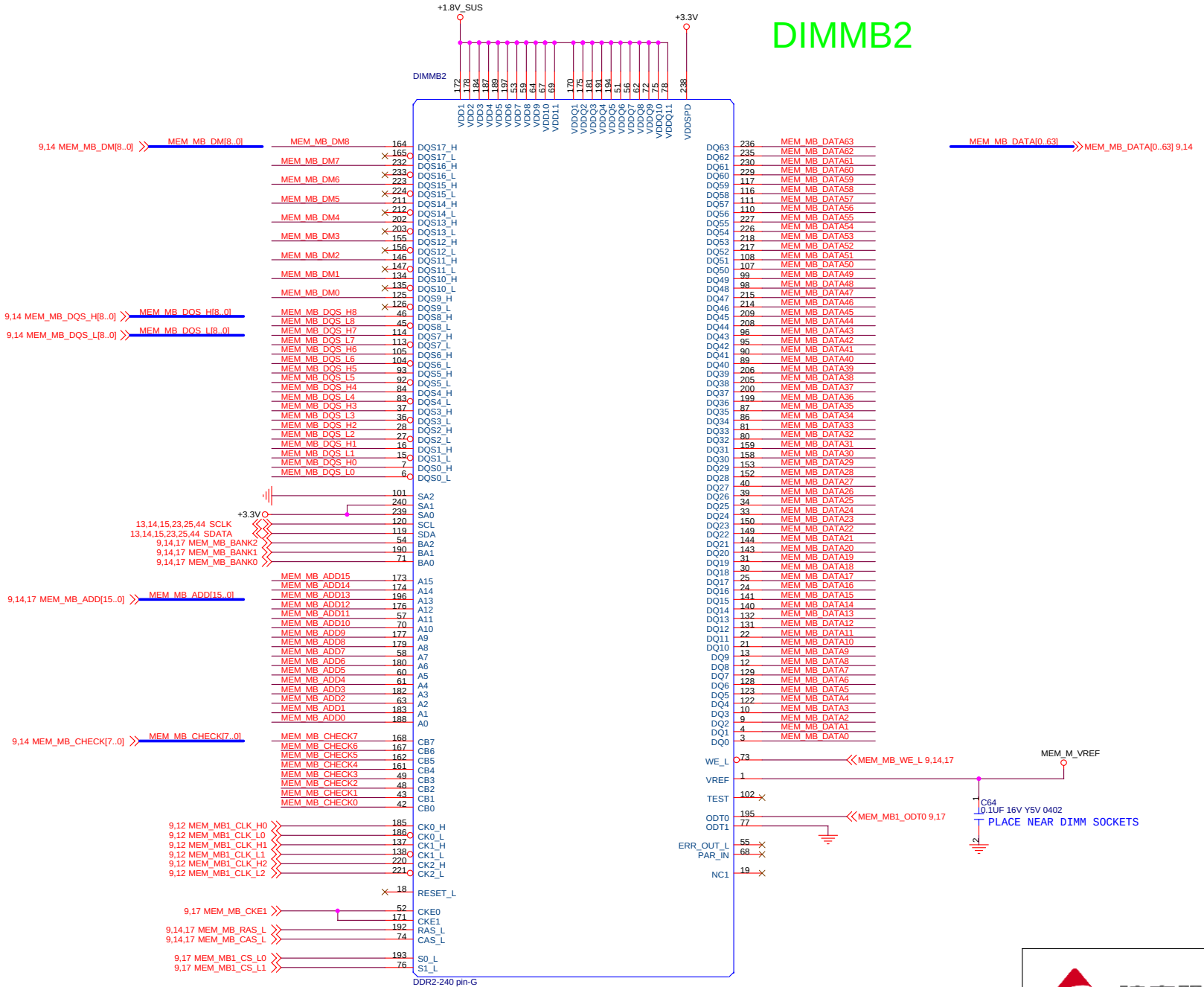

DIMMB2

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Title: DDR DIMM-4

Size	Document Number	Rev
Custom	A78GA-M2T	6.4

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+0.9V_SUS
RN6 47 8P4R
9,14,16 MEM_MB_BANK0 MEM_MB_BANK0 8 7
9,14,16 MEM_MB_RAS_L MEM_MB_RAS_L 6 5
8,15 MEM_MA1_CS_L0 MEM_MA1_CS_L0 4 3
8,13 MEM_MA0_CS_L0 MEM_MA0_CS_L0 2 1
RN8 47 8P4R
9,14 MEM_MB0_CS_L1 MEM_MB0_CS_L1 8 7
8,13 MEM_MA0_ODT0 MEM_MA0_ODT0 6 5
8,13,15 MEM_MA_WE_L MEM_MA_WE_L 4 3
9,14,16 MEM_MB_WE_L MEM_MB_WE_L 2 1
RN10 47 8P4R
8,13,15 MEM_MA_ADD11 MEM_MA_ADD11 8 7
8,13,15 MEM_MA_ADD7 MEM_MA_ADD7 6 5
8,13,15 MEM_MA_ADD8 MEM_MA_ADD8 4 3
8,13,15 MEM_MA_ADD6 MEM_MA_ADD6 2 1
RN12 47 8P4R
9,14,16 MEM_MB_ADD12 MEM_MB_ADD12 8 7
9,14,16 MEM_MB_ADD11 MEM_MB_ADD11 6 5
9,14,16 MEM_MB_ADD9 MEM_MB_ADD9 4 3
9,14,16 MEM_MB_ADD7 MEM_MB_ADD7 2 1
RN14 47 8P4R
9,16 MEM_MB1_CS_L0 MEM_MB1_CS_L0 8 7
9,14 MEM_MB0_CS_L0 MEM_MB0_CS_L0 6 5
9,14,16 MEM_MB_CAS_L MEM_MB_CAS_L 4 3
9,14 MEM_MB0_ODT0 MEM_MB0_ODT0 2 1
RN16 47 8P4R
8,13,15 MEM_MA_ADD14 MEM_MA_ADD14 8 7
8,13,15 MEM_MA_BANK2 MEM_MA_BANK2 6 5
8,13,15 MEM_MA_ADD12 MEM_MA_ADD12 4 3
8,13,15 MEM_MA_ADD9 MEM_MA_ADD9 2 1
RN18 47 8P4R
9,16 MEM_MB_CKE1 MEM_MB_CKE1 8 7
9,14,16 MEM_MB_ADD15 MEM_MB_ADD15 6 5
9,14,16 MEM_MB_ADD14 MEM_MB_ADD14 4 3
9,14,16 MEM_MB_BANK2 MEM_MB_BANK2 2 1
+0.9V_SUS
RN5 47 8P4R
8,13,15 MEM_MA_CAS_L MEM_MA_CAS_L 8 7
8,15 MEM_MA1_ODT0 MEM_MA1_ODT0 6 5
8,13,15 MEM_MA_ADD13 MEM_MA_ADD13 4 3
8,15 MEM_MA1_CS_L1 MEM_MA1_CS_L1 2 1
RN7 47 8P4R
8,13,15 MEM_MA_RAS_L MEM_MA_RAS_L 8 7
9,14,16 MEM_MB_ADD0 MEM_MB_ADD0 6 5
9,14,16 MEM_MB_ADD10 MEM_MB_ADD10 4 3
9,14,16 MEM_MB_BANK1 MEM_MB_BANK1 2 1
RN9 47 8P4R
9,14,16 MEM_MB_ADD8 MEM_MB_ADD8 8 7
9,14,16 MEM_MB_ADD6 MEM_MB_ADD6 6 5
8,13,15 MEM_MA_ADD5 MEM_MA_ADD5 4 3
9,14,16 MEM_MB_ADD5 MEM_MB_ADD5 2 1
RN11 47 8P4R
8,13,15 MEM_MA_ADD4 MEM_MA_ADD4 8 7
8,13,15 MEM_MA_ADD3 MEM_MA_ADD3 6 5
9,14,16 MEM_MB_ADD3 MEM_MB_ADD3 4 3
9,14,16 MEM_MB_ADD4 MEM_MB_ADD4 2 1
RN13 47 8P4R
9,14,16 MEM_MB_ADD1 MEM_MB_ADD1 8 7
8,13,15 MEM_MA_ADD1 MEM_MA_ADD1 6 5
8,13,15 MEM_MA_ADD2 MEM_MA_ADD2 4 3
9,14,16 MEM_MB_ADD2 MEM_MB_ADD2 2 1
RN15 47 8P4R
8,13,15 MEM_MA_ADD0 MEM_MA_ADD0 8 7
8,13,15 MEM_MA_ADD10 MEM_MA_ADD10 6 5
8,13,15 MEM_MA_BANK1 MEM_MA_BANK1 4 3
8,13,15 MEM_MA_BANK0 MEM_MA_BANK0 2 1
RN17 47 8P4R
9,14 MEM_MB_CKE0 MEM_MB_CKE0 8 7
8,15 MEM_MA_CKE1 MEM_MA_CKE1 6 5
8,13 MEM_MA_CKE0 MEM_MA_CKE0 4 3
8,13,15 MEM_MA_ADD15 MEM_MA_ADD15 2 1
RN19 47 8P4R
9,16 MEM_MB1_ODT0 MEM_MB1_ODT0 8 7
9,14,16 MEM_MB_ADD13 MEM_MB_ADD13 6 5
9,16 MEM_MB1_CS_L1 MEM_MB1_CS_L1 4 3
8,13 MEM_MA0_CS_L1 MEM_MA0_CS_L1 2 1
+1.8V_SUS
MEM_MB_ADD15 C67 2 1 22P 50V NPO 0402
MEM_MA_ADD15 C69 2 1 22P 50V NPO 0402
MEM_MB_ADD14 C71 2 1 22P 50V NPO 0402
MEM_MA_ADD13 C73 2 1 22P 50V NPO 0402
MEM_MA_ADD12 C75 2 1 22P 50V NPO 0402
MEM_MA_ADD11 C77 2 1 22P 50V NPO 0402
MEM_MB_ADD11 C79 2 1 22P 50V NPO 0402
MEM_MA_ADD9 C81 2 1 22P 50V NPO 0402
MEM_MA_ADD8 C83 2 1 22P 50V NPO 0402
MEM_MA_ADD7 C85 2 1 22P 50V NPO 0402
MEM_MA_ADD6 C87 2 1 22P 50V NPO 0402
MEM_MB_ADD7 C89 2 1 22P 50V NPO 0402
MEM_MB_ADD9 C91 2 1 22P 50V NPO 0402
MEM_MB_ADD12 C93 2 1 22P 50V NPO 0402
MEM_MB_WE_L C97 2 1 22P 50V NPO 0402
MEM_MA_CAS_L C98 2 1 22P 50V NPO 0402
MEM_MA_WE_L C100 2 1 22P 50V NPO 0402
MEM_MA_RAS_L C102 2 1 22P 50V NPO 0402
MEM_MA_BANK2 C103 2 1 22P 50V NPO 0402
MEM_MB_BANK2 C105 2 1 22P 50V NPO 0402
MEM_MA_BANK0 C107 2 1 22P 50V NPO 0402
+1.8V_SUS
MEM_MB_ADD8 C65 2 1 22P 50V NPO 0402
MEM_MB_ADD6 C66 2 1 22P 50V NPO 0402
MEM_MA_ADD14 C68 2 1 22P 50V NPO 0402
MEM_MB_ADD5 C70 2 1 22P 50V NPO 0402
MEM_MB_ADD4 C72 2 1 22P 50V NPO 0402
MEM_MB_ADD3 C74 2 1 22P 50V NPO 0402
MEM_MA_ADD10 C76 2 1 22P 50V NPO 0402
MEM_MB_ADD10 C78 2 1 22P 50V NPO 0402
MEM_MB_ADD2 C80 2 1 22P 50V NPO 0402
MEM_MA_ADD0 C82 2 1 22P 50V NPO 0402
MEM_MA_ADD1 C84 2 1 22P 50V NPO 0402
MEM_MA_ADD5 C86 2 1 22P 50V NPO 0402
MEM_MA_ADD4 C88 2 1 22P 50V NPO 0402
MEM_MA_ADD3 C90 2 1 22P 50V NPO 0402
MEM_MA_ADD2 C92 2 1 22P 50V NPO 0402
MEM_MB_ADD1 C94 2 1 22P 50V NPO 0402
MEM_MB_ADD0 C95 2 1 22P 50V NPO 0402
MEM_MB_ADD13 C96 2 1 22P 50V NPO 0402
MEM_MB_CAS_L C99 2 1 22P 50V NPO 0402
MEM_MB_RAS_L C101 2 1 22P 50V NPO 0402
MEM_MB_BANK1 C104 2 1 22P 50V NPO 0402
MEM_MA_BANK1 C106 2 1 22P 50V NPO 0402
MEM_MB_BANK0 C108 2 1 22P 50V NPO 0402
映泰股份有限公司
BIOSTAR GROUP
Title
DDR VTT TERMINATION
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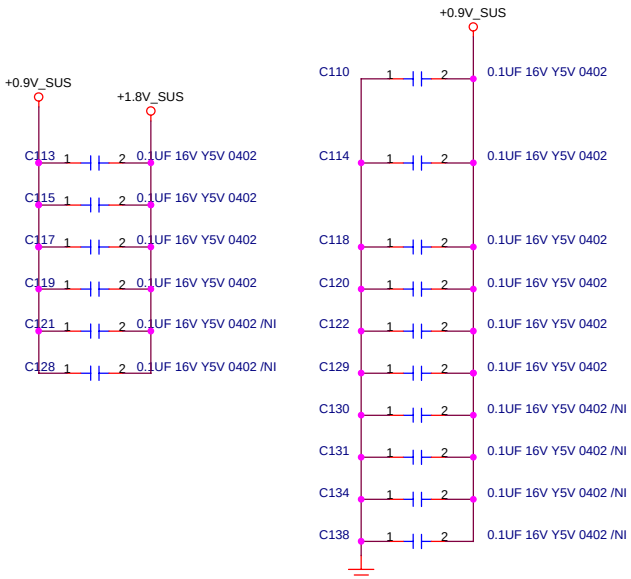
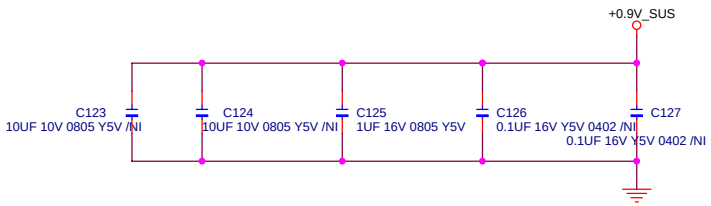
LAYOUT: FRONT SIDE PLACE ALTERNATING GND AND 1.8V
ALONG 0.9V VTT FILL





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Title: DDR DECOUPLING CAP

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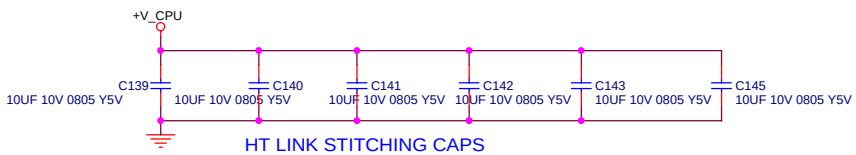

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Title	RX780-HT LINK	
Size: Custom	Document Number: A78GA-M2T	Rev: 6.4
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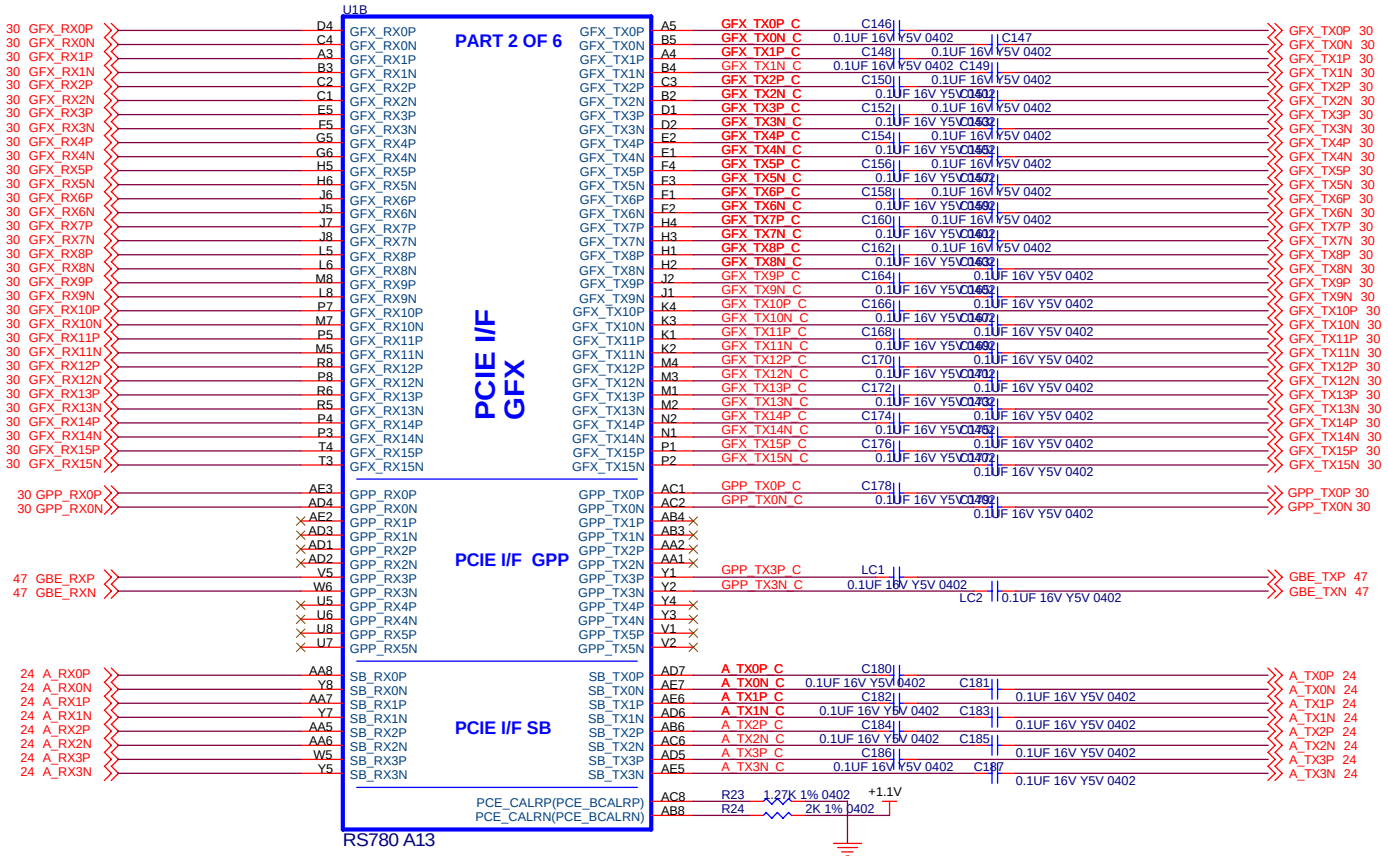

Title	RS780 PCI-E
Size	Custom
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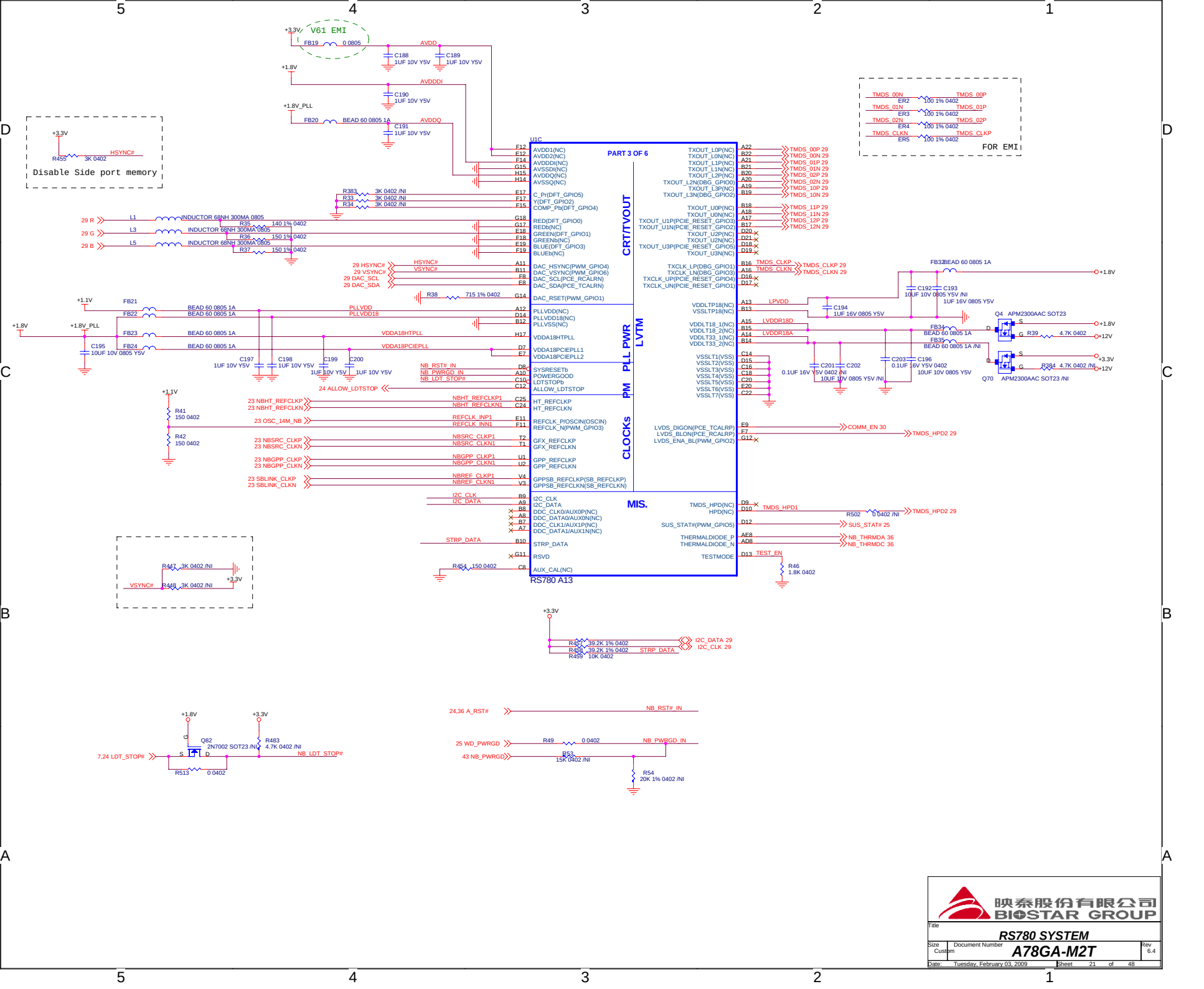
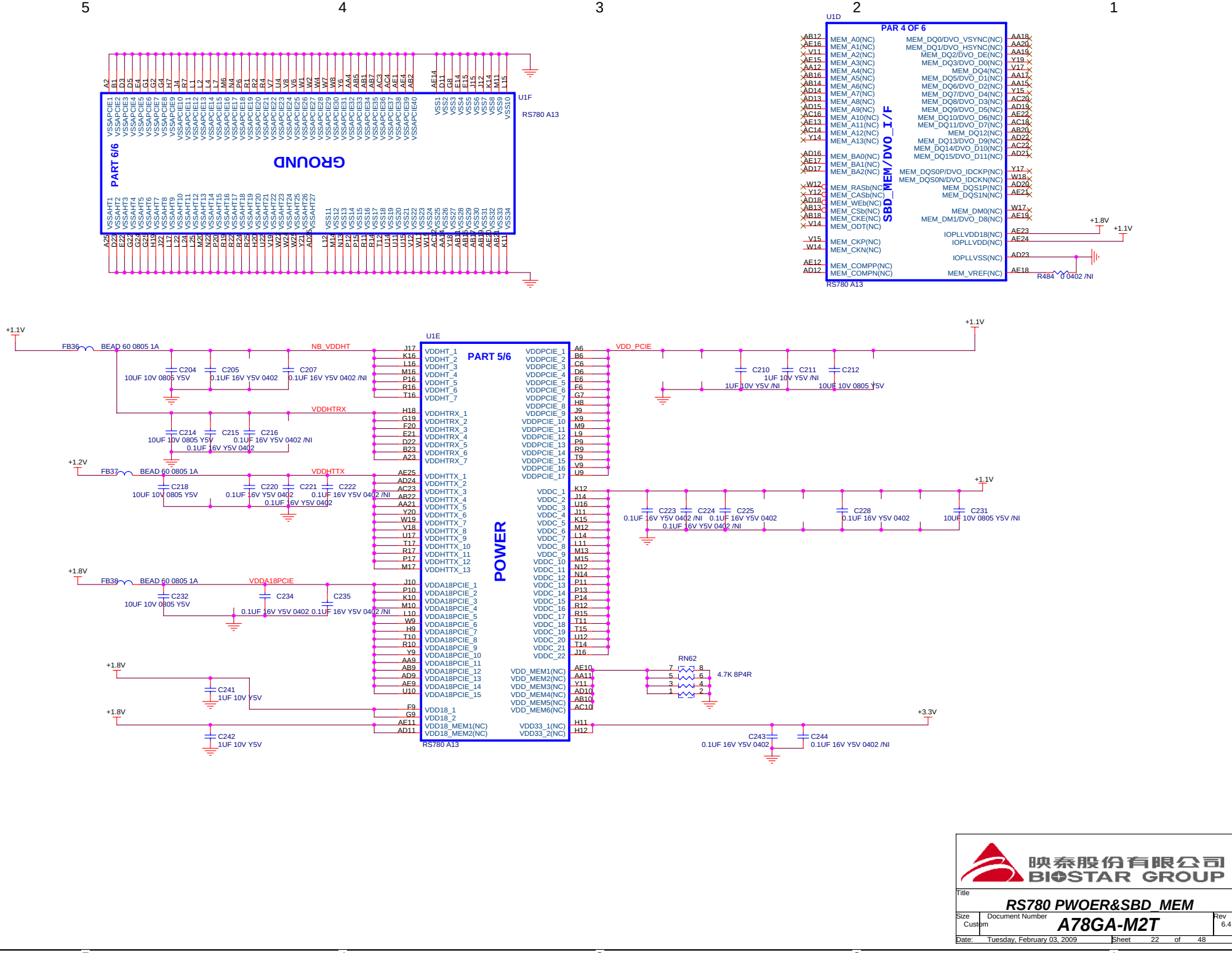
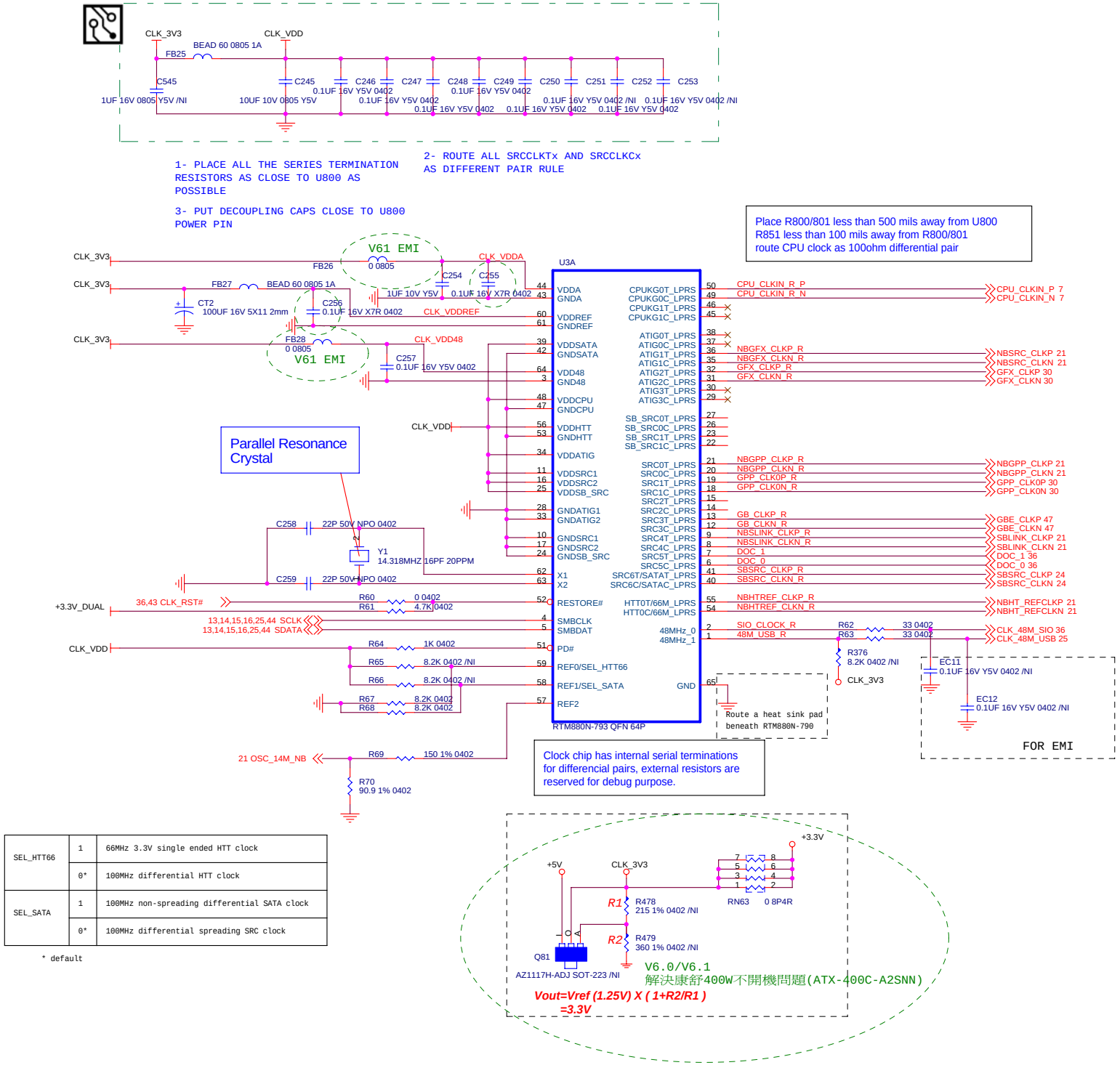

V61 EMI
Disable Side port memory
FOR EMI
U1C
PART 3 OF 6
RS780 A13
CRT/TVOUT
PLL PWR
LVTM
CLOCKS
PM
MIS.
RS780 SYSTEM
A78GA-M2T
映泰股份有限公司
BIOSTAR GROUP
Tuesday, February 03, 2009



Title	RS780 PWOER&SBD_MEM
Size	Custom
Document Number	A78GA-M2T
Rev	6.4
Date:	Tuesday, February 03, 2009
Sheet	22 of 48



SEL_HTT66	1	66MHz 3.3V single ended HTT clock
	0*	100MHz differential HTT clock
SEL_SATA	1	100MHz non-spreading differential SATA clock
	0*	100MHz differential spreading SRC clock

* default

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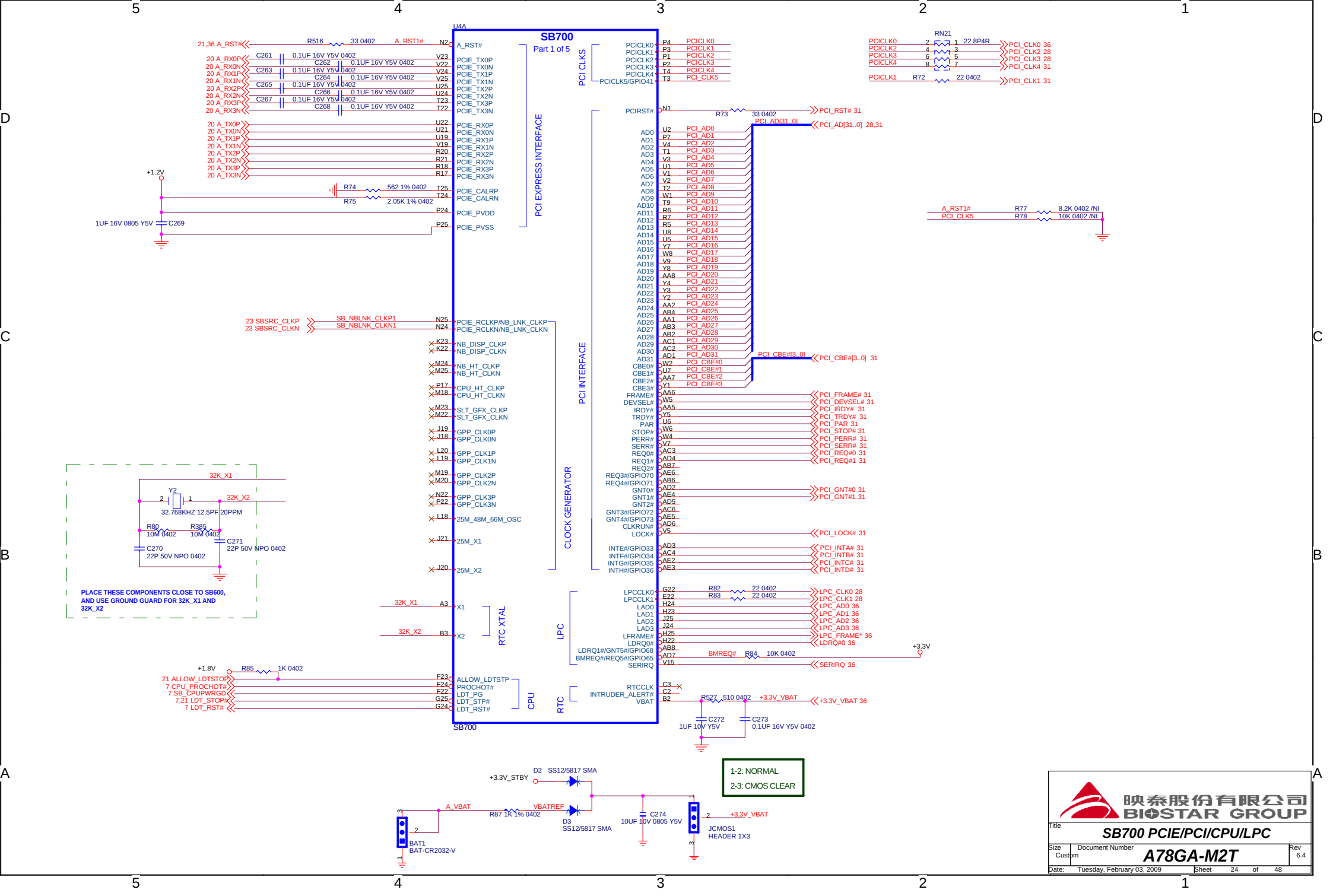
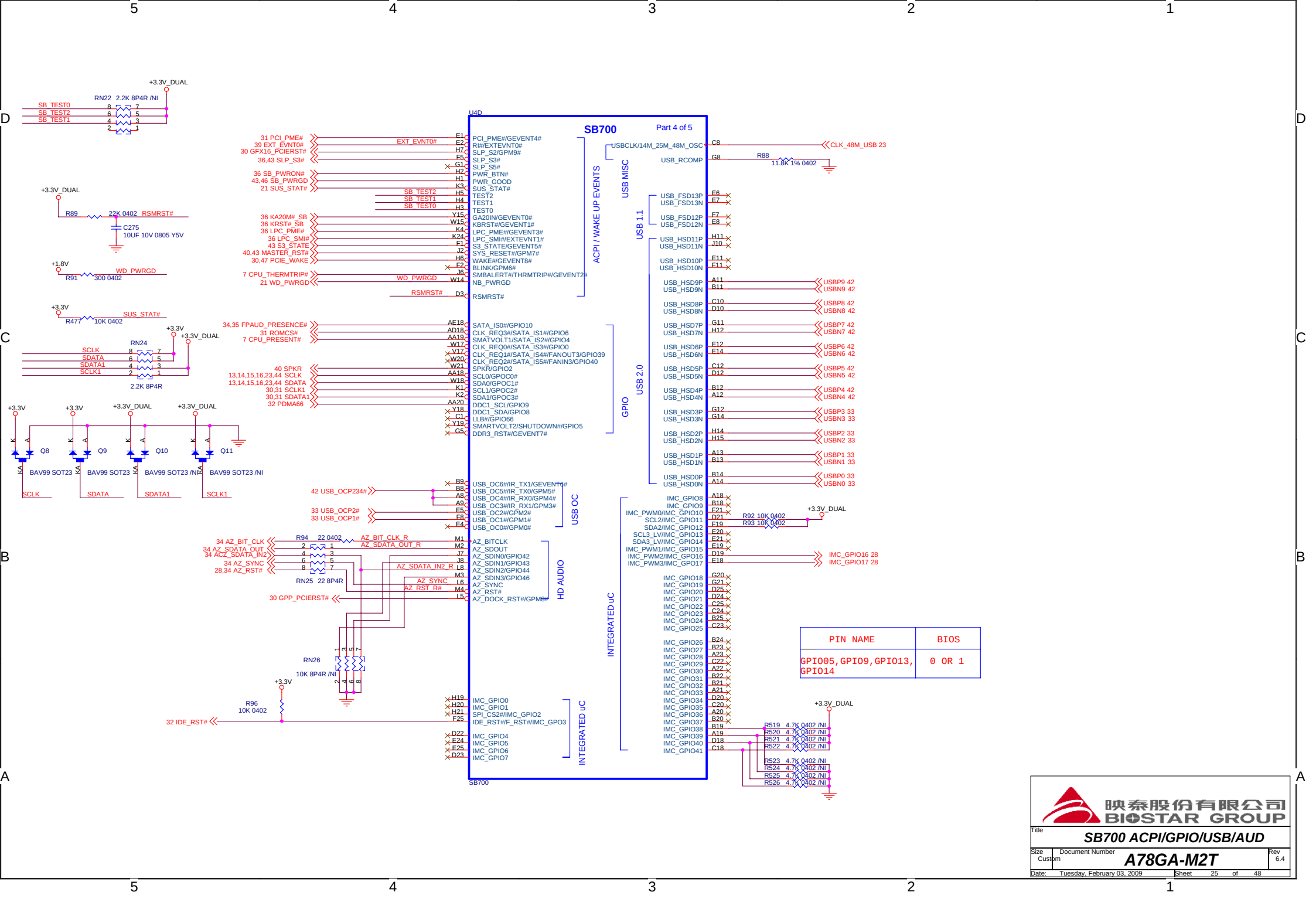
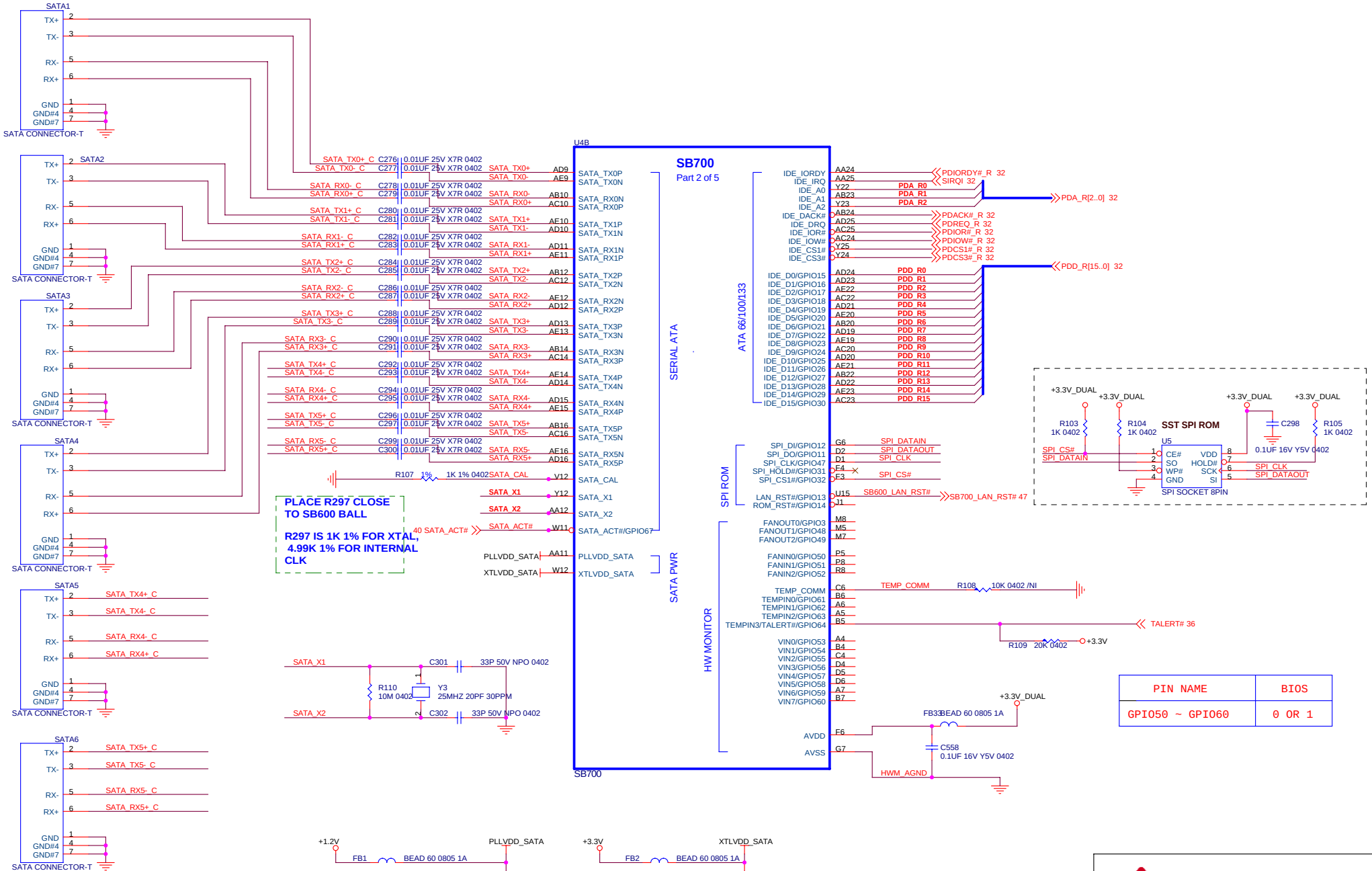
Title	CLOCK GEN	
Size: Custom	Document Number: A78GA-M2T	Rev: 6.4
Date: Tuesday, February 03, 2009	Sheet 23 of 48	


SB700
Part 1 of 5
PCI CLKS
PCI EXPRESS INTERFACE
PCI INTERFACE
CLOCK GENERATOR
LPC
RTC XTAL
CPU
RTC
PLACE THESE COMPONENTS CLOSE TO SB600, AND USE GROUND GUARD FOR 32K_X1 AND 32K_X2
1-2: NORMAL
2-3: CMOS CLEAR
BIOSTAR GROUP
SB700 PCIE/PCI/CPU/LPC
A78GA-M2T
Tuesday, February 03, 2009


SB700
Part 4 of 5
U4D
ACPI / WAKE UP EVENTS
USB MISC
USB 1.1
USB 2.0
GPIO
USB OC
HD AUDIO
INTEGRATED uC
PCI_PME#/GEVENT4#
RI#/EXTEVNT0#
SLP_S2/GPM9#
SLP_S3#
SLP_S5#
PWR_BTN#
PWR_GOOD
SUS_STAT#
TEST2
TEST1
TEST0
GA20IN/GEVENT0#
KBRST#/GEVENT1#
LPC_PME#/GEVENT3#
LPC_SMI#/EXTEVNT1#
S3_STATE/GEVENT5#
SYS_RESET#/GPM7#
WAKE#/GEVENT8#
BLINK/GPM6#
SMBALERT#/THRMTRIP#/GEVENT2#
NB_PWRGD
RSMRST#
USBCLK/14M_25M_48M_OSC
USB_RCOMP
USB_FSD13P
USB_FSD13N
USB_FSD12P
USB_FSD12N
USB_HSD11P
USB_HSD11N
USB_HSD10P
USB_HSD10N
USB_HSD9P
USB_HSD9N
USB_HSD8P
USB_HSD8N
USB_HSD7P
USB_HSD7N
USB_HSD6P
USB_HSD6N
USB_HSD5P
USB_HSD5N
USB_HSD4P
USB_HSD4N
USB_HSD3P
USB_HSD3N
USB_HSD2P
USB_HSD2N
USB_HSD1P
USB_HSD1N
USB_HSD0P
USB_HSD0N
SATA_IS0#/GPIO10
CLK_REQ3#/SATA_IS1#/GPIO6
SMATVOLT1/SATA_IS2#/GPIO4
CLK_REQ0#/SATA_IS3#/GPIO0
CLK_REQ1#/SATA_IS4#/FANOUT3/GPIO39
CLK_REQ2#/SATA_IS5#/FANIN3/GPIO40
SPKR/GPIO2
SCL0/GPOC0#
SDA0/GPOC1#
SCL1/GPOC2#
SDA1/GPOC3#
DDC1_SCL/GPIO9
DDC1_SDA/GPIO8
LLB#/GPIO66
SMARTVOLT2/SHUTDOWN#/GPIO5
DDR3_RST#/GEVENT7#
USB_OC6#/IR_TX1/GEVENT6#
USB_OC5#/IR_TX0/GPM5#
USB_OC4#/IR_RX0/GPM4#
USB_OC3#/IR_RX1/GPM3#
USB_OC2#/GPM2#
USB_OC1#/GPM1#
USB_OC0#/GPM0#
AZ_BITCLK
AZ_SDOUT
AZ_SDIN0/GPIO42
AZ_SDIN1/GPIO43
AZ_SDIN2/GPIO44
AZ_SDIN3/GPIO46
AZ_SYNC
AZ_RST#
AZ_DOCK_RST#/GPM8#
IMC_GPIO0
IMC_GPIO1
SPI_CS2#/IMC_GPIO2
IDE_RST#/F_RST#/IMC_GPO3
IMC_GPIO4
IMC_GPIO5
IMC_GPIO6
IMC_GPIO7
IMC_GPIO8
IMC_GPIO9
IMC_PWM0/IMC_GPIO10
SCL2/IMC_GPIO11
SDA2/IMC_GPIO12
SCL3_LV/IMC_GPIO13
SDA3_LV/IMC_GPIO14
IMC_PWM1/IMC_GPIO15
IMC_PWM2/IMC_GPO16
IMC_PWM3/IMC_GPO17
IMC_GPIO18
IMC_GPIO19
IMC_GPIO20
IMC_GPIO21
IMC_GPIO22
IMC_GPIO23
IMC_GPIO24
IMC_GPIO25
IMC_GPIO26
IMC_GPIO27
IMC_GPIO28
IMC_GPIO29
IMC_GPIO30
IMC_GPIO31
IMC_GPIO32
IMC_GPIO33
IMC_GPIO34
IMC_GPIO35
IMC_GPIO36
IMC_GPIO37
IMC_GPIO38
IMC_GPIO39
IMC_GPIO40
IMC_GPIO41
SB700
CLK_48M_USB 23
R88 11.8K 1% 0402
USBP9 42
USBN9 42
USBP8 42
USBN8 42
USBP7 42
USBN7 42
USBP6 42
USBN6 42
USBP5 42
USBN5 42
USBP4 42
USBN4 42
USBP3 33
USBN3 33
USBP2 33
USBN2 33
USBP1 33
USBN1 33
USBP0 33
USBN0 33
R92 10K 0402
R93 10K 0402
IMC_GPIO16 28
IMC_GPIO17 28
R519 4.7K 0402 /NI
R520 4.7K 0402 /NI
R521 4.7K 0402 /NI
R522 4.7K 0402 /NI
R523 4.7K 0402 /NI
R524 4.7K 0402 /NI
R525 4.7K 0402 /NI
R526 4.7K 0402 /NI
PIN NAME
BIOS
GPIO05,GPIO9,GPIO13, GPIO14
0 OR 1
RN22 2.2K 8P4R /NI
SB_TEST0
SB_TEST2
SB_TEST1
R89 22K 0402 RSMRST#
C275 10UF 10V 0805 Y5V
R91 300 0402 WD_PWRGD
R477 10K 0402 SUS_STAT#
RN24 2.2K 8P4R
SCLK
SDATA
SDATA1
SCLK1
Q8 Q9 Q10 Q11
BAV99 SOT23
BAV99 SOT23 /NI
RN25 22 8P4R
RN26 10K 8P4R /NI
R96 10K 0402
R94 22 0402
AZ_BIT_CLK_R
AZ_SDATA_OUT_R
AZ_SDATA_IN2_R
AZ_SYNC
AZ_RST_R#
EXT_EVNT0#
WD_PWRGD
RSMRST#
31 PCI_PME#
39 EXT_EVNT0#
30 GFX16_PCIERST#
36,43 SLP_S3#
36 SB_PWRON#
43,46 SB_PWRGD
21 SUS_STAT#
36 KA20M#_SB
36 KRST#_SB
36 LPC_PME#
36 LPC_SMI#
43 S3_STATE
40,43 MASTER_RST#
30,47 PCIE_WAKE
7 CPU_THERMTRIP#
21 WD_PWRGD
34,35 FPAUD_PRESENCE#
31 ROMCS#
7 CPU_PRESENT#
40 SPKR
13,14,15,16,23,44 SCLK
13,14,15,16,23,44 SDATA
30,31 SCLK1
30,31 SDATA1
32 PDMA66
42 USB_OCP234#
33 USB_OCP2#
33 USB_OCP1#
34 AZ_BIT_CLK
34 AZ_SDATA_OUT
34 ACZ_SDATA_IN2
34 AZ_SYNC
28,34 AZ_RST#
30 GPP_PCIERST#
32 IDE_RST#
+3.3V_DUAL
+3.3V
+1.8V


SATA1
SATA2
SATA3
SATA4
SATA5
SATA6
SATA CONNECTOR-T
U4B
SB700
Part 2 of 5
SERIAL ATA
SATA PWR
ATA 66/100/133
SPI ROM
HW MONITOR
SB700
PLACE R297 CLOSE TO SB600 BALL
R297 IS 1K 1% FOR XTAL, 4.99K 1% FOR INTERNAL CLK
SST SPI ROM
SPI SOCKET 8PIN
PIN NAME
BIOS
GPIO50 ~ GPIO60
0 OR 1
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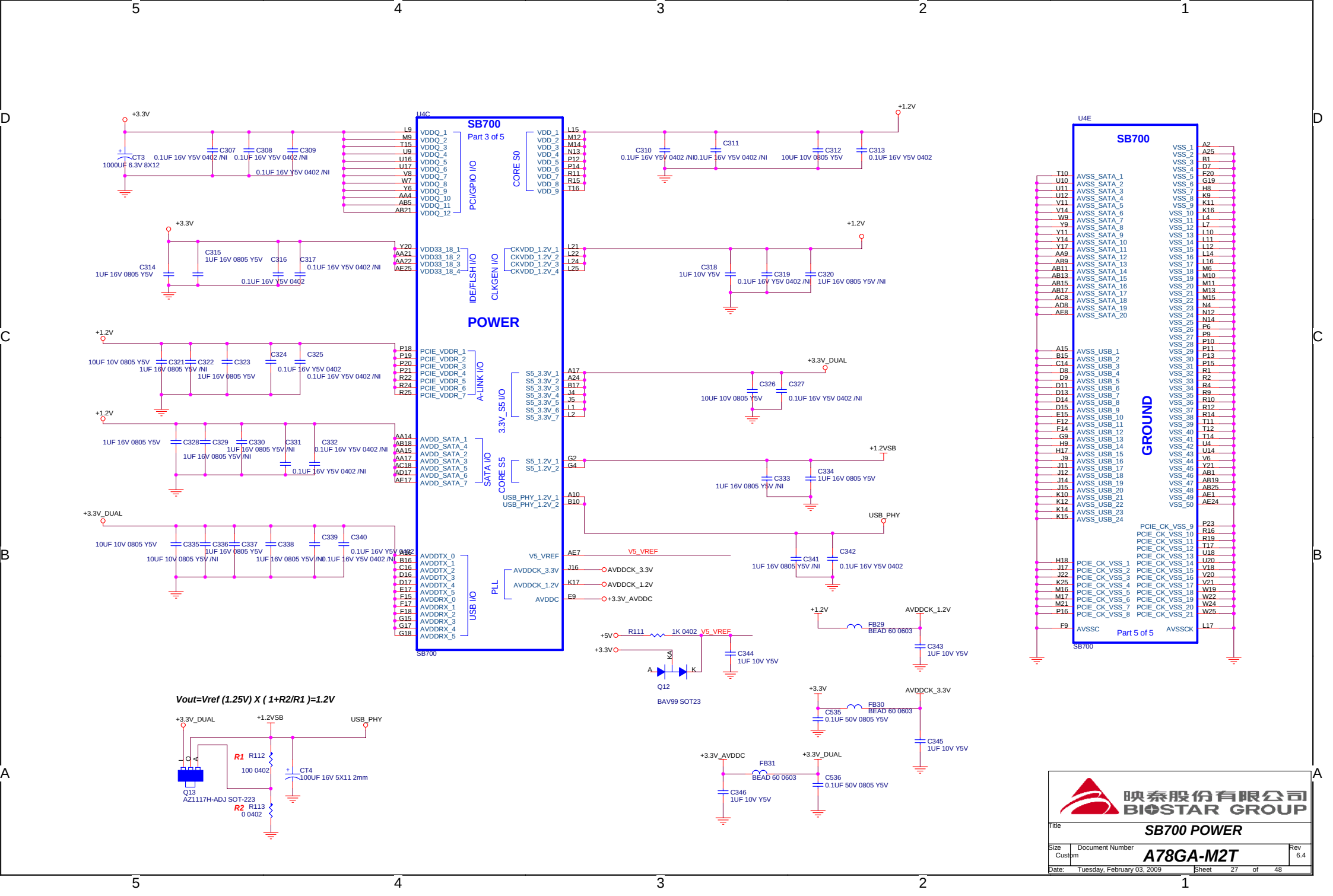
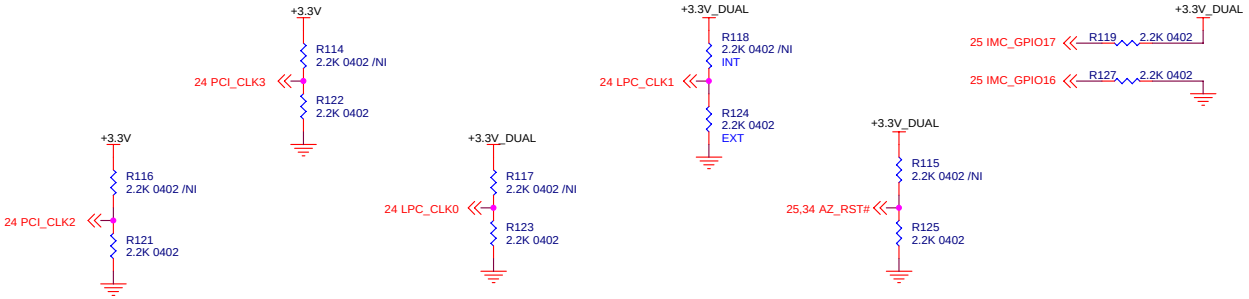
BIOSTAR GROUP
SB700 SATA/IDE/SPI
A78GA-M2T
Tuesday, February 03, 2009


SB700
Part 3 of 5
POWER
PCI/GPIO I/O
CORE S0
IDE/FLSH I/O
CLKGEN I/O
A-LINK I/O
3.3V_S5 I/O
SATA I/O
CORE S5
USB I/O
PLL
SB700
Part 5 of 5
GROUND
AVSS_SATA_1
AVSS_SATA_2
AVSS_SATA_3
AVSS_SATA_4
AVSS_SATA_5
AVSS_SATA_6
AVSS_SATA_7
AVSS_SATA_8
AVSS_SATA_9
AVSS_SATA_10
AVSS_SATA_11
AVSS_SATA_12
AVSS_SATA_13
AVSS_SATA_14
AVSS_SATA_15
AVSS_SATA_16
AVSS_SATA_17
AVSS_SATA_18
AVSS_SATA_19
AVSS_SATA_20
AVSS_USB_1
AVSS_USB_2
AVSS_USB_3
AVSS_USB_4
AVSS_USB_5
AVSS_USB_6
AVSS_USB_7
AVSS_USB_8
AVSS_USB_9
AVSS_USB_10
AVSS_USB_11
AVSS_USB_12
AVSS_USB_13
AVSS_USB_14
AVSS_USB_15
AVSS_USB_16
AVSS_USB_17
AVSS_USB_18
AVSS_USB_19
AVSS_USB_20
AVSS_USB_21
AVSS_USB_22
AVSS_USB_23
AVSS_USB_24
PCIE_CK_VSS_1
PCIE_CK_VSS_2
PCIE_CK_VSS_3
PCIE_CK_VSS_4
PCIE_CK_VSS_5
PCIE_CK_VSS_6
PCIE_CK_VSS_7
PCIE_CK_VSS_8
PCIE_CK_VSS_9
PCIE_CK_VSS_10
PCIE_CK_VSS_11
PCIE_CK_VSS_12
PCIE_CK_VSS_13
PCIE_CK_VSS_14
PCIE_CK_VSS_15
PCIE_CK_VSS_16
PCIE_CK_VSS_17
PCIE_CK_VSS_18
PCIE_CK_VSS_19
PCIE_CK_VSS_20
PCIE_CK_VSS_21
AVSSC
AVSSCK
Vout=Vref (1.25V) X (1+R2/R1)=1.2V
BAV99 SOT23
AZ1117H-ADJ SOT-223
映泰股份有限公司
BIOSTAR GROUP
SB700 POWER
A78GA-M2T
Tuesday, February 03, 2009
Sheet 27 of 48

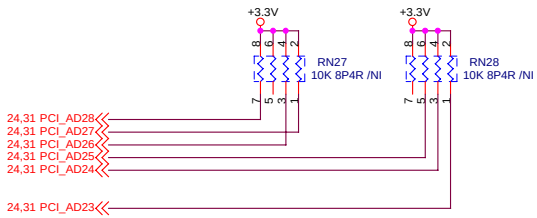


REQUIRED STRAPS

NOTE: SB700 HAS INTERNAL 15K PULL UP RESISTOR FOR RTC_CLK

	PCI_CLK2	PCI_CLK3	PCI_CLK4	PCI_CLK5	LPC_CLK0	LPC_CLK1	AZ_RST#	IMC_GPIO17 IMC_GPIO16
PULL HIGH	WATCHDOG TIMER ON NB_PWRGD ENABLED	USE DEBUG STRAPS	RESERVED	RESERVED	ENABLE PCI MEM BOOT	CLKGEN ENABLED	IMC ENABLED	ROM TYPE: H, L = SPI ROM DEFAULT
PULL LOW	WATCHDOG TIMER ON NB_PWRGD DISABLED DEFAULT	IGNORE DEBUG STRAPS DEFAULT			DISABLE PCI MEM BOOT DEFAULT	CLKGEN DISABLED DEFAULT	IMC DISABLED DEFAULT	

OVERLAP COMMON PADS WHERE POSSIBLE FOR DUAL-OP RESISTORS.



DEBUG STRAPS

SB700 HAS 15K INTERNAL PU FOR PCI_AD[28:23]

	PCI_AD28	PCI_AD27	PCI_AD26	PCI_AD25	PCI_AD24	PCI_AD23
PULL HIGH	USE LONG RESET DEFAULT	USE PCI PLL DEFAULT	USE ACPI BCLK DEFAULT	USE IDE PLL DEFAULT	USE DEFAULT PCIE STRAPS DEFAULT	RESERVED
PULL LOW	USE SHORT RESET	BYPASS PCI PLL	BYPASS ACPI BCLK	BYPASS IDE PLL	USE EEPROM PCIE STRAPS	

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Title: SB700 STRAP

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PLACE ESD PROTECTION DIODES DIRECTLY ON SIGNAL TRACES

PLACE ESD PROTECTION DIODES DIRECTLY ON SIGNAL TRACES

V6.0

PLACE L2,L4,L6 90 DEGREE FROM EACH OTHER

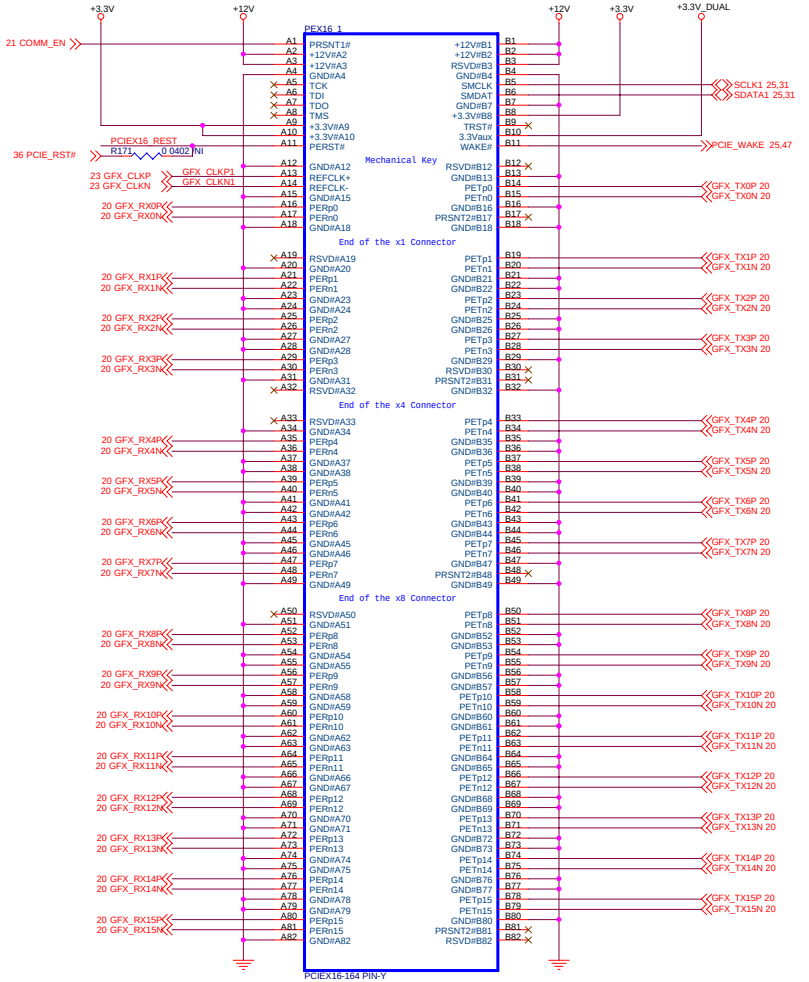
R96-R98 EITHER CLOSE TO NB OR CRT CONNECTOR, THE TRACE IMPEDANCE BETWEEN TWO 150R RESISTORS SHOULD BE 50R+/-15%, THE TRACE IMPEDANCE BETWEEN 150R RESISTOR AND CONNECTOR SHOULD BE 75R+/-15%

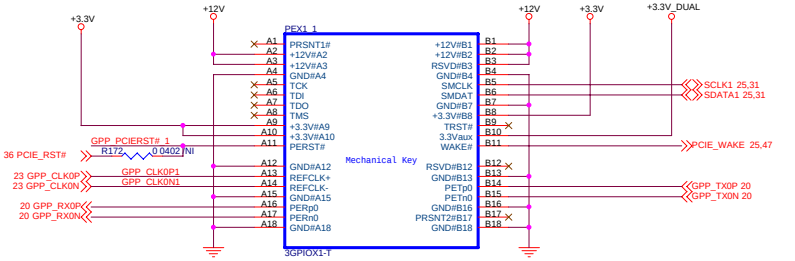
SHARE COMMON PADS AVIOD STUB

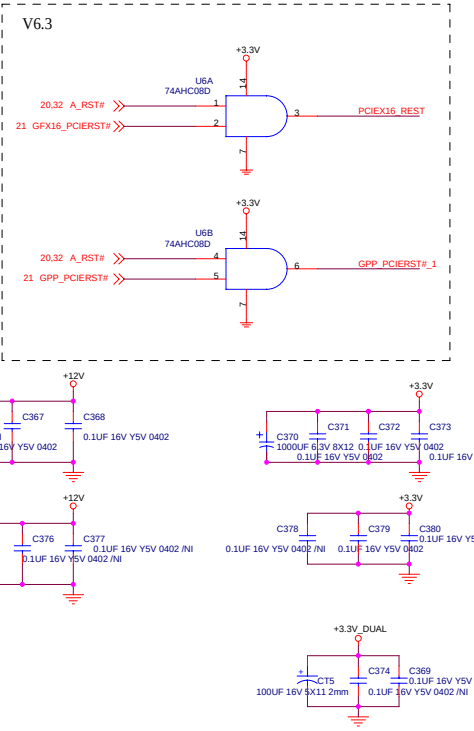
VGA CONNECTOR

Title	DVI & CRT		
Size C	Document Number A78GA-M2T		Rev 6.4
Date: Tuesday, February 03, 2009	Sheet 29 of 48		

映泰股份有限公司 BIOSTAR GROUP







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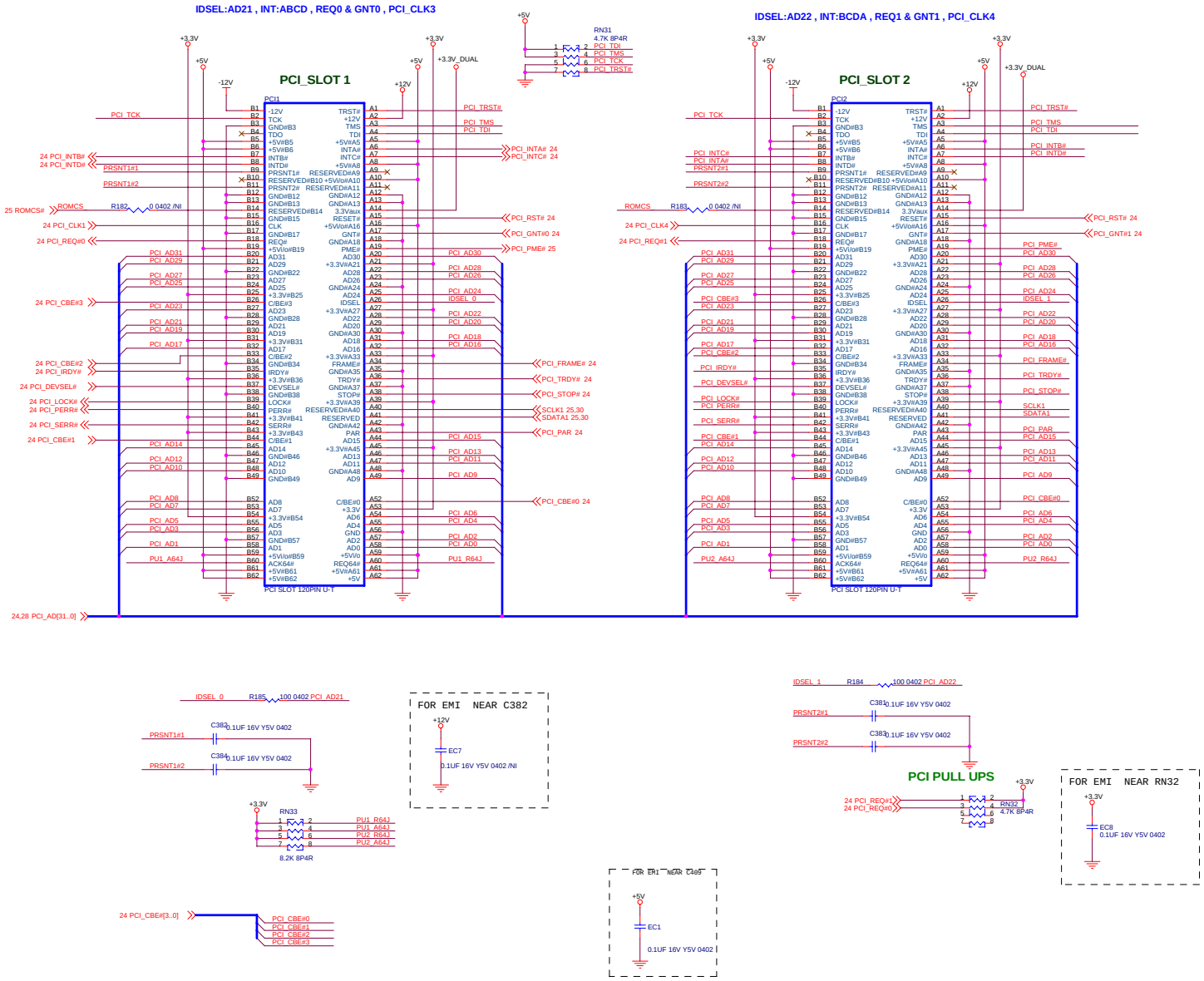
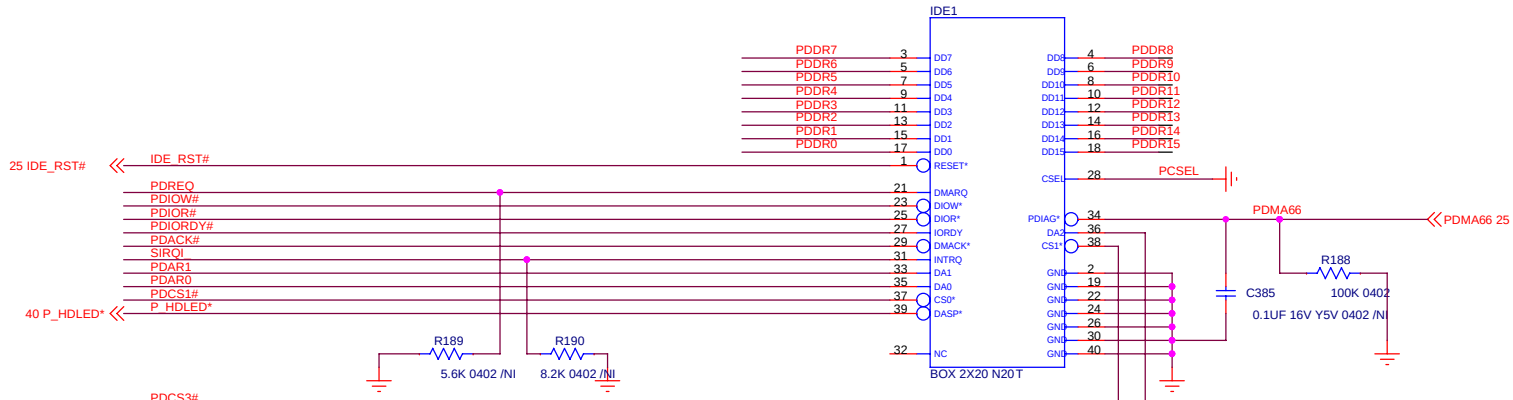
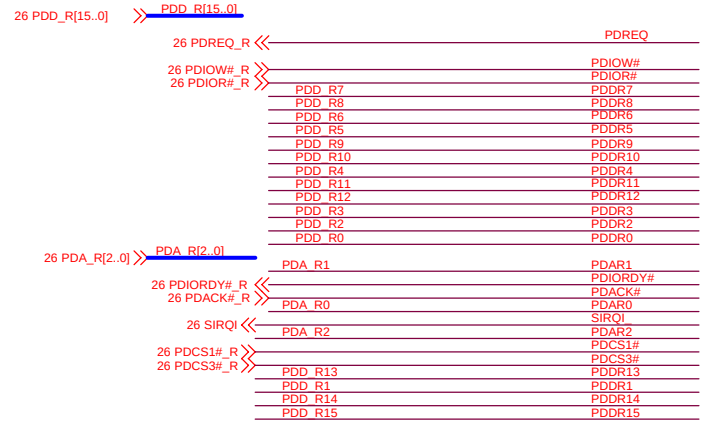
BIOSTAR GROUP

Title	PCI-E SLOT	
Size: Custom	Document Number: A78GA-M2T	Rev: 6.4
Date: Tuesday, February 03, 2009	Sheet 30 of 48	



Title	PCI SLOT		
Size: Custom	Document Number: A78GA-M2T		Rev: 6.4
Date: Tuesday, February 03, 2009	Sheet 31 of 48		





1) MATCH WHOLE IDE LINES (BEFORE AND AFTER DAMPING RESISTORS) WITHIN 0.5"
2) ALL DAMPING RESISTORS CLOSE TO IDE CONNECTORS.

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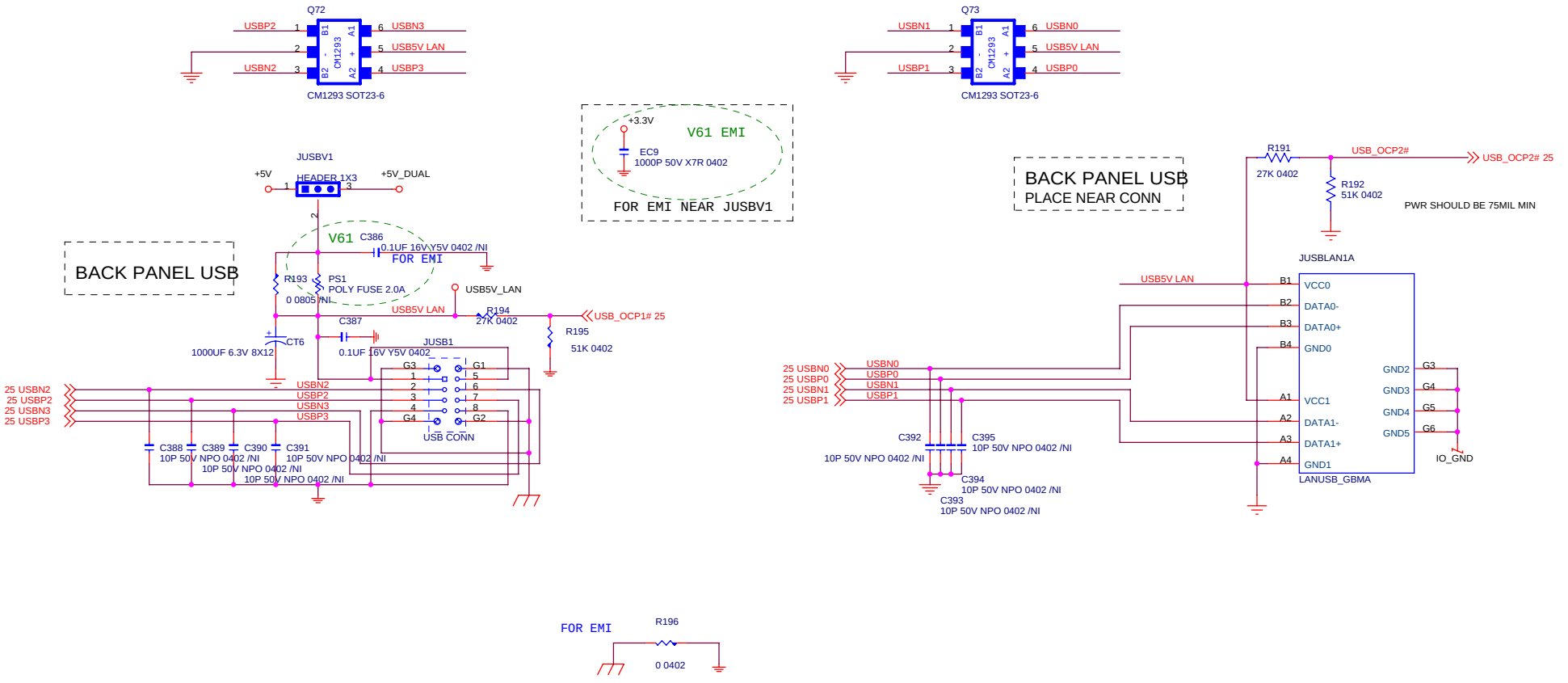
BIOSTAR GROUP

Title	IDE ATA 133		
Size: Custom	Document Number: A78GA-M2T		Rev: 6.4
Date: Tuesday, February 03, 2009	Sheet 32 of 48		



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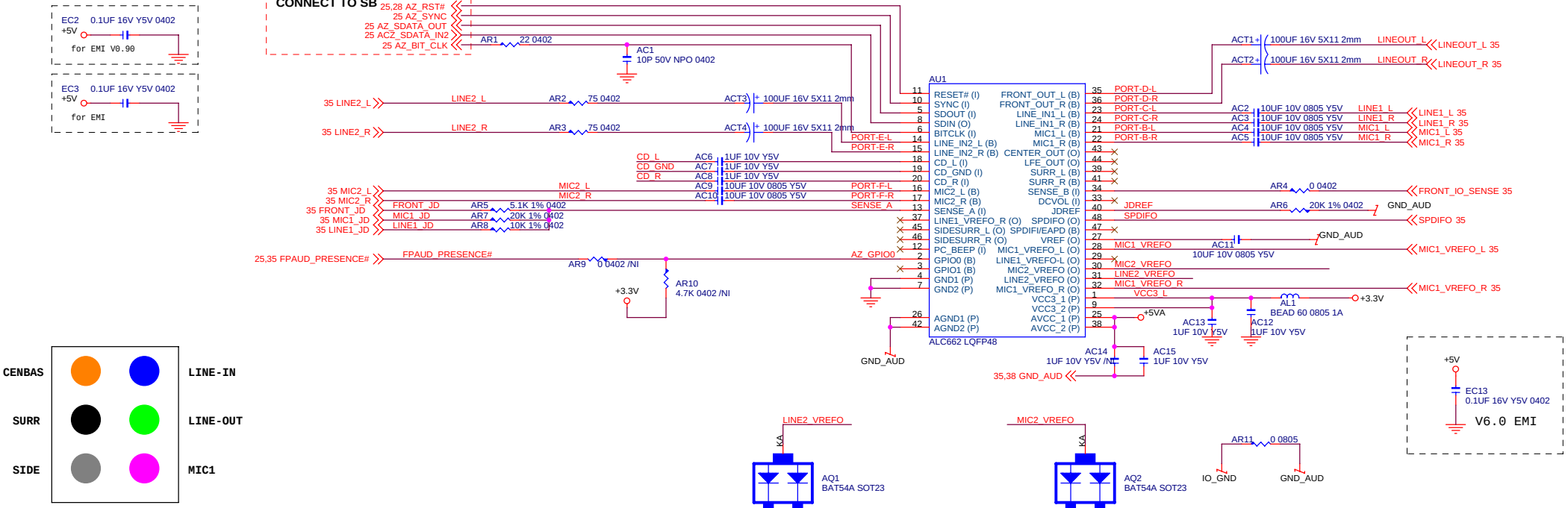
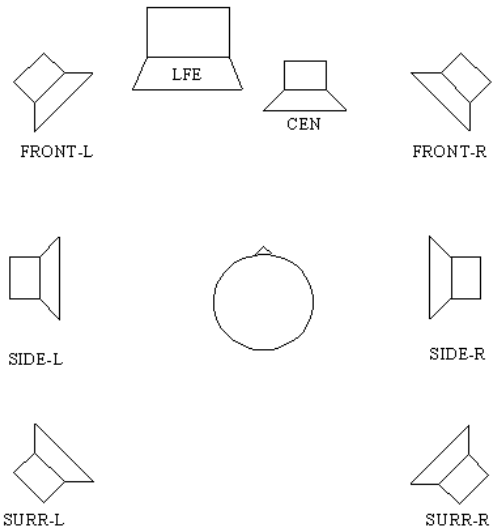
BIOSTAR GROUP

Title	USB CONN	
Size: Custom	Document Number: A78GA-M2T	Rev: 6.4
Date: Tuesday, February 03, 2009	Sheet 33 of 48	



7.1 Speaker Configuration



Configuration

	PORT-A	PORT-B	PORT-C	PORT-D	PORT-E	PORT-F	PORT-G	PORT-H
Function	SURR	MIC1	LINE1	LINEOUT	LINE2	MIC2	CEN/LFE	SIDE
Location	Rear	Rear	Rear	Rear	Front	Front	Rear	Rear

映泰股份有限公司 BIOSTAR GROUP

Title: CODEC ALC 662

Size: Custom | Document Number: A78GA-M2T | Rev: 6.4

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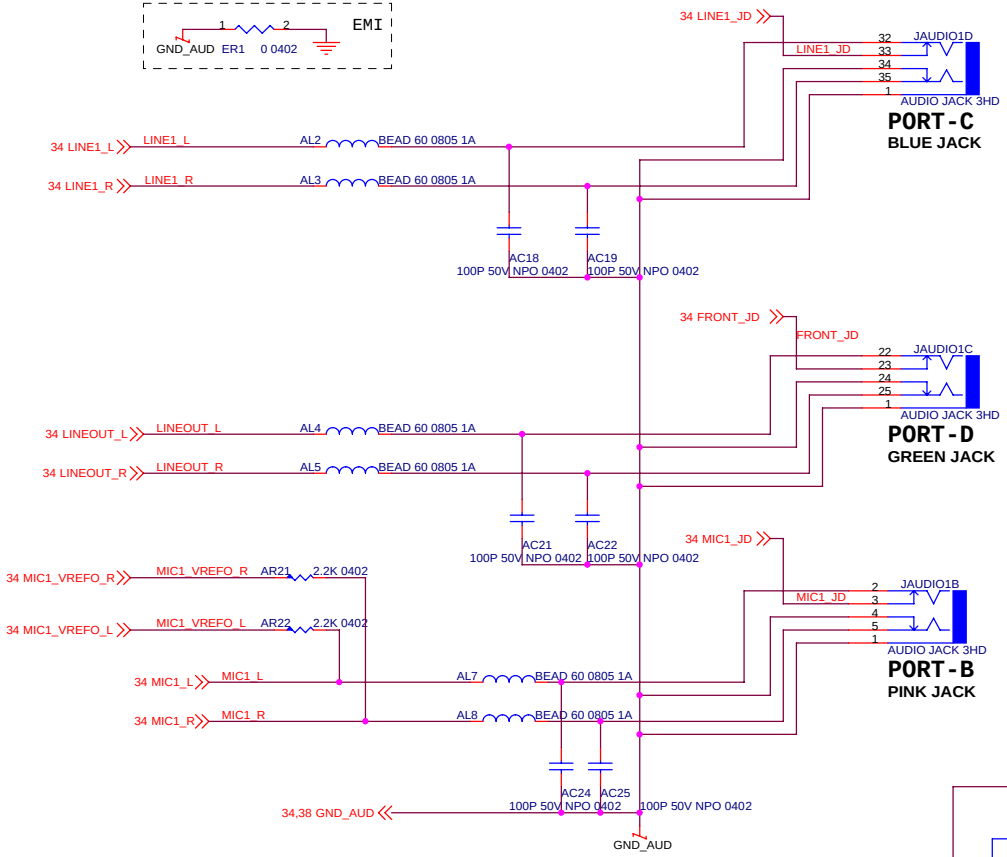
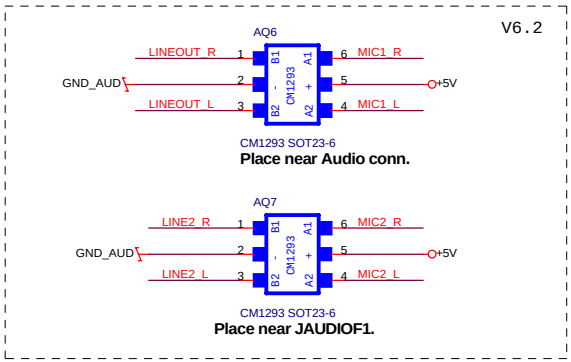
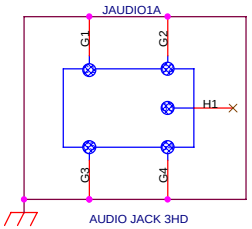
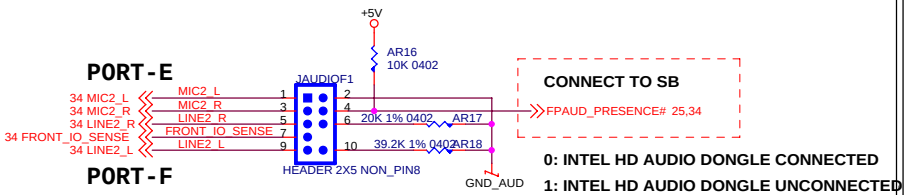
Rear Panel Onboard Analog I/O

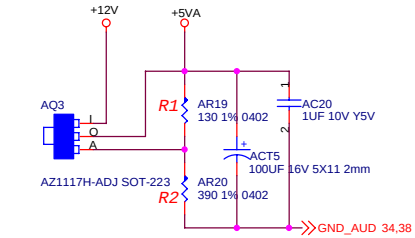






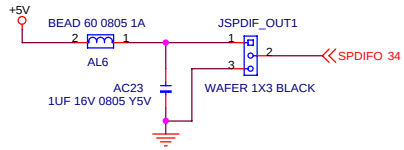


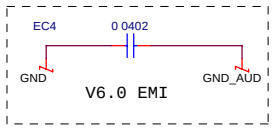
AUDIO ANALOG POWER



Vout=Vref (1.25V) X (1+R2/R1)
=5V

SPDIF OUT





映泰股份有限公司
BIOSTAR GROUP

Title	AUDIO CONNECTOR	
Size: Custom	Document Number: A78GA-M2T	Rev: 6.4
Date: Tuesday, February 03, 2009	Sheet 35 of 48	

Check list

1. IT8718F PIN(28,48) VID06 &VID07 need pull high.
2. PIN (119,127)RI1&RI2 need pull high.
3. Use GPIO need pull high 4.7K.
4. Pin78 & Pin 30 & Pin 71 不要拿來當GPIO.
5. IT8718F/CX pin 28 & pin 48 default 爲VID06 & VID07 不要當GPIO使用
6. GPIO use:IT8712F/KX, /IT8716,IT8718F ALL GPIO need pull high ,pure Open Drian(pull 1.2V or 3.3V or 5V 皆可),不會有 10-20 hs 自己pull high.

From CPU
Routed by differential

GP35: To generate an event for the function THERMAL SHUTDOWN
To CK8-04

GP54: To generate an event for the function SLEEP BUTTON, POWER ON BY KB/MOUSE,RING-IN

NO USE FUNCTION ADD R4 R5-->10K

8716-->R7-->30K /NI
8712-->R7-->ADD 30K

8716 : R1-->BEAD 60 0805 1A
8716 : C1-->1UF

8712 : R1-->0 0805
8712 : C1-->1UF /NI

8716-->C2-->ADD 2200P
8712-->C2-->ADD 3900P

IT8718F

IT8718FHX

Title	SUPER I/O ITE 8718
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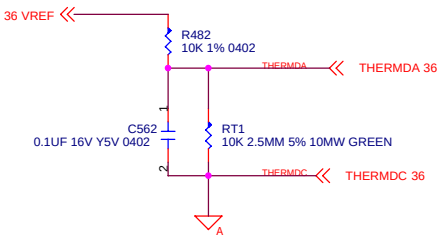
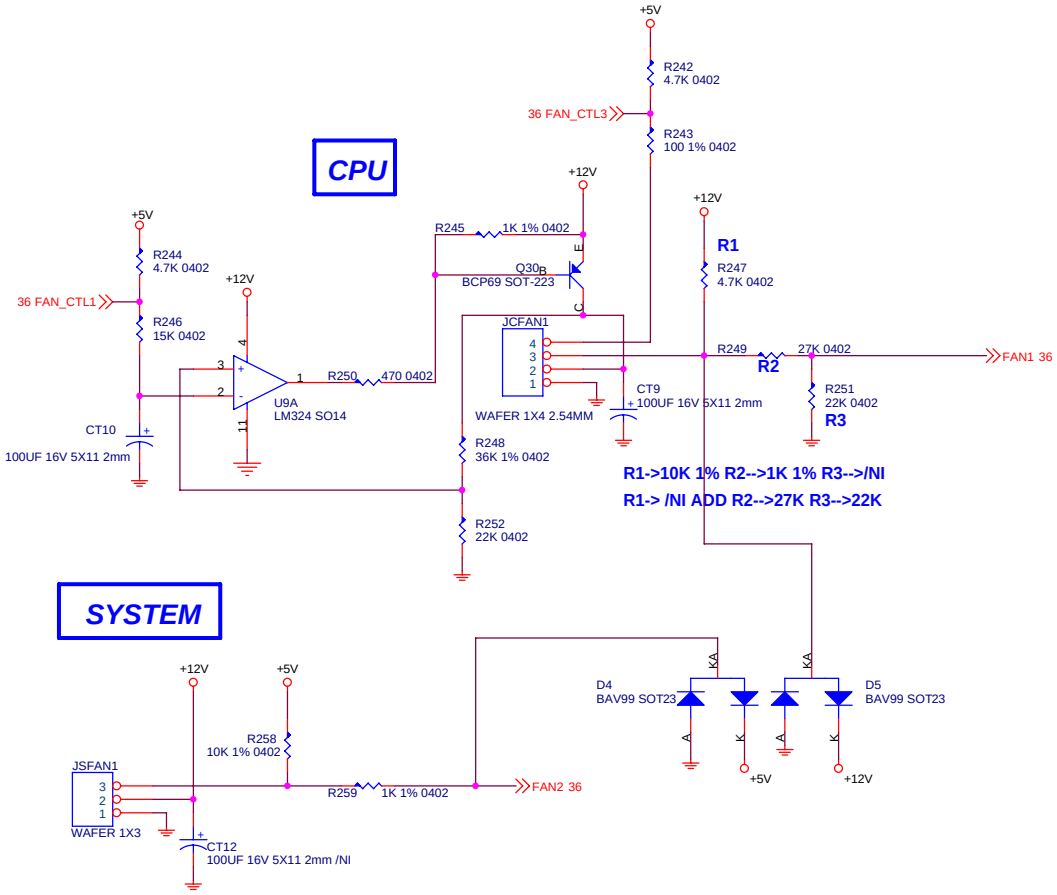
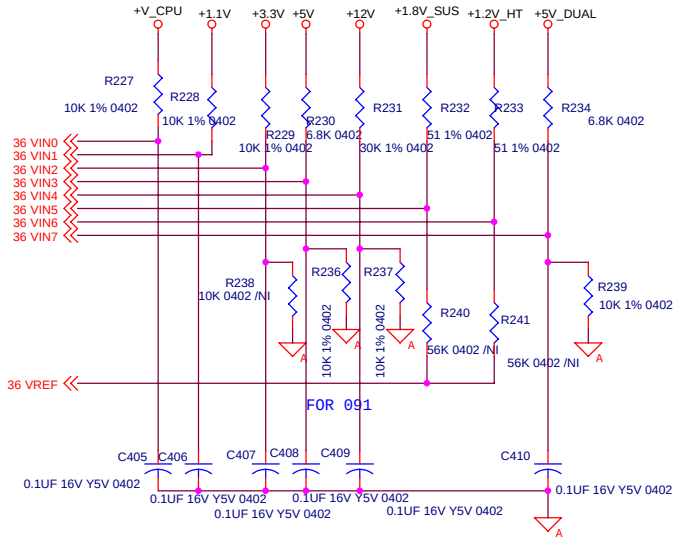
Temperature Sensing

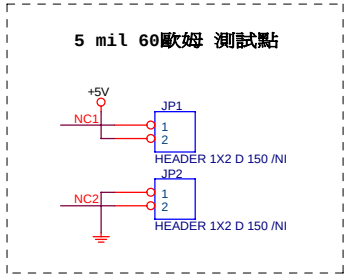




Voltage Sensing



hardware monitor



映泰股份有限公司 BIOSTAR GROUP		
Title	HW MONITOR/FAN CONTROL	
Size: Custom	Document Number: A78GA-M2T	Rev: 6.4
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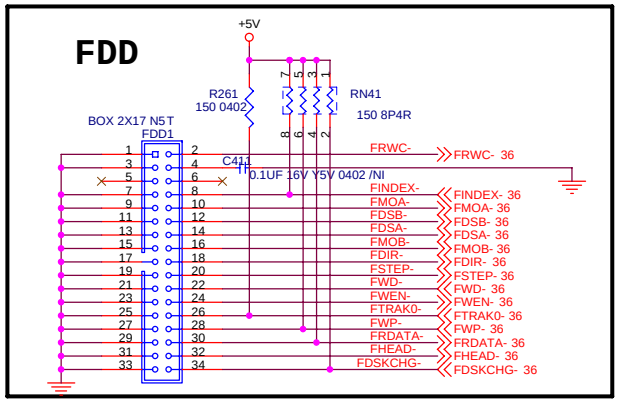

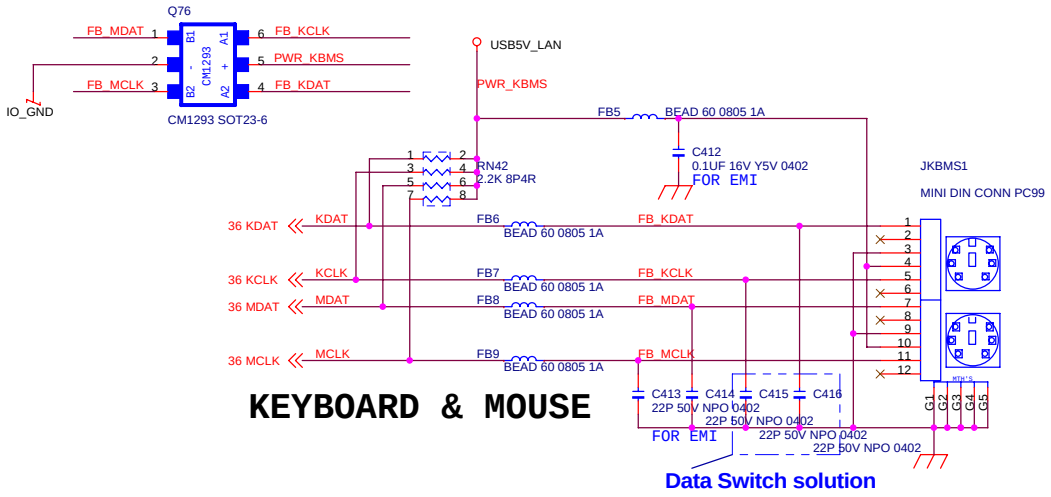

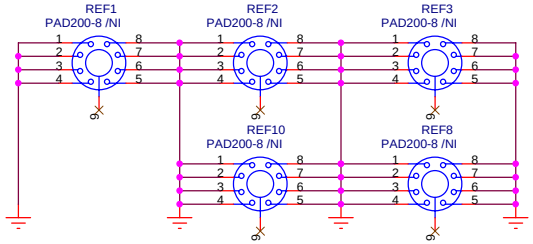

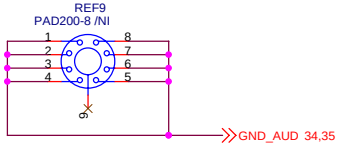

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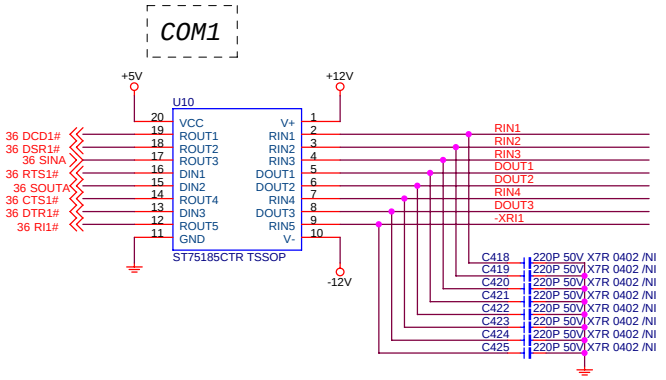
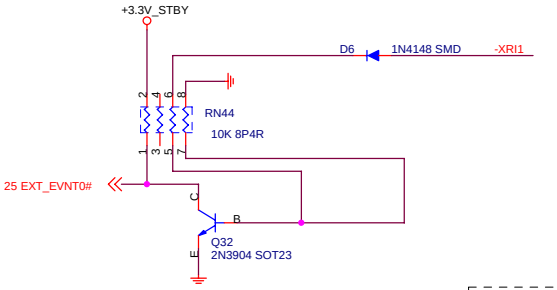
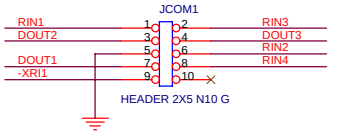
BIOSTAR GROUP

Title	FDD / PS2 CONN	
Size: Custom	Document Number: A78GA-M2T	Rev: 6.4
Date: Tuesday, February 03, 2009	Sheet 38 of 48	

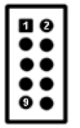




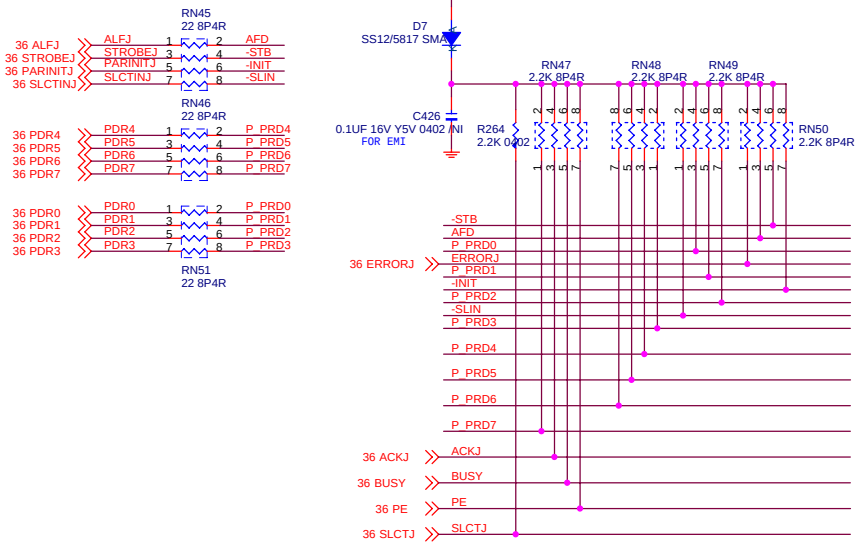
WAKE ON LAN

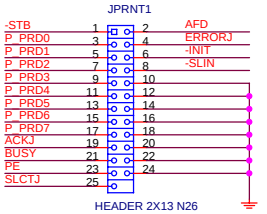


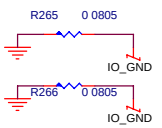
COM PORT

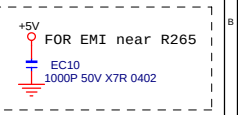


COM PORT PIN ASSIGNMENT









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Title	COM & PRINTER CONNECTOR	
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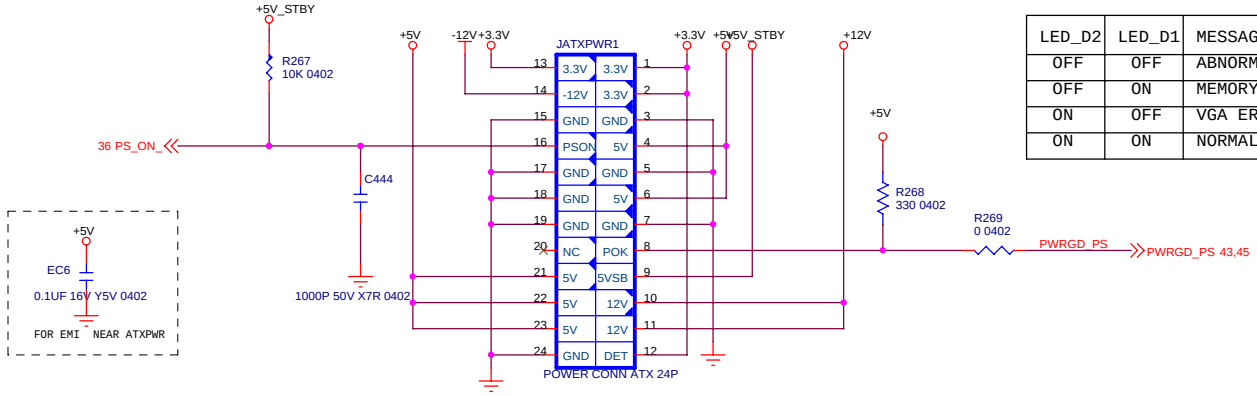
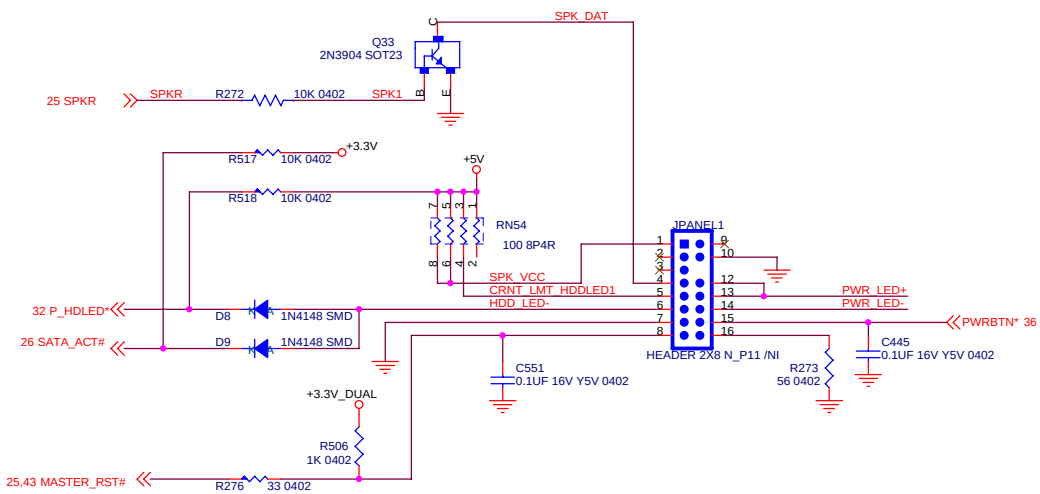
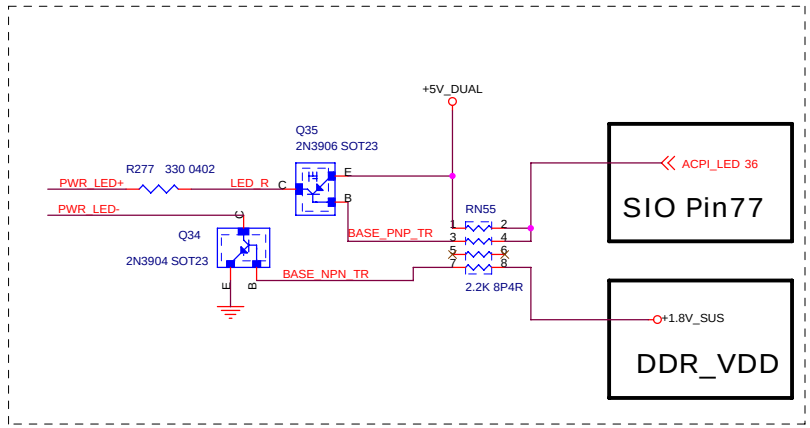


LED_D2	LED_D1	MESSAGE
OFF	OFF	ABNORMAL
OFF	ON	MEMORY ERROR
ON	OFF	VGA ERROR
ON	ON	NORMAL





BIOSTAR GROUP

Title	ATX PWR / FRONT PANEL	
Size: Custom	Document Number: A78GA-M2T	Rev: 6.4
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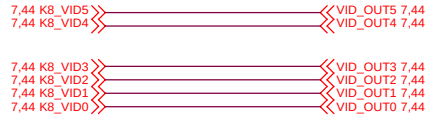
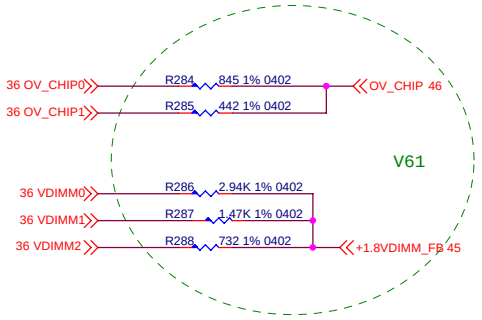
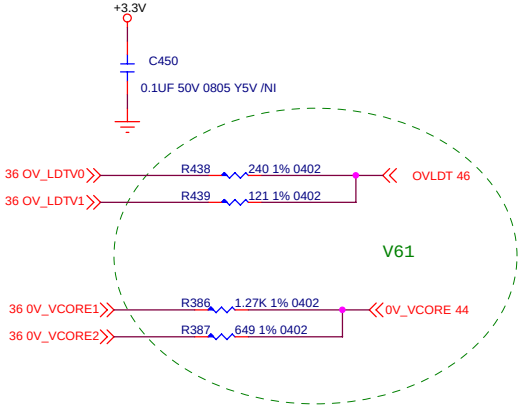




+1.1V	OV_CHIP1	OV_CHIP0
+1.15V	1	1
+1.25V	0	1
+1.35V	1	0
+1.45V	0	0

+1.8VDIMM_FB	VDIMM0	VDIMM1	VDIMM2
Default 1.95V	1	1	1
2.05V	0	1	1
2.15V	1	0	1
2.25V	0	0	1
2.35V	1	1	0
2.45V	0	1	0
2.55V	1	0	0
2.65V	0	0	0

DUAL +3.3V



1.2V_HT	OV_LDT0	OV_LDT1
Default 1.2V	1	1
1.3V	0	1
1.4V	1	0
1.5V	0	0

0V_VCORE	OV_VCORE1	OV_LDT1
Default V_CPU	1	1
+0.1V	0	1
+0.2V	1	0
+0.3V	0	0

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Title: OVER VOLTAGE

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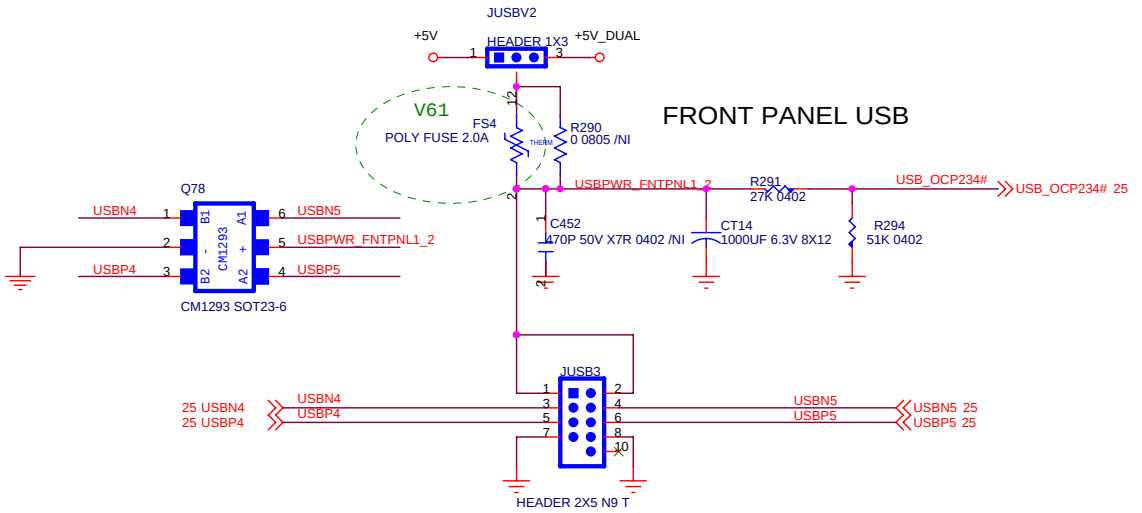
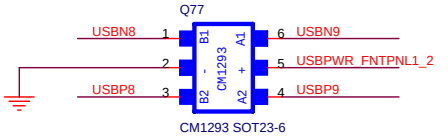
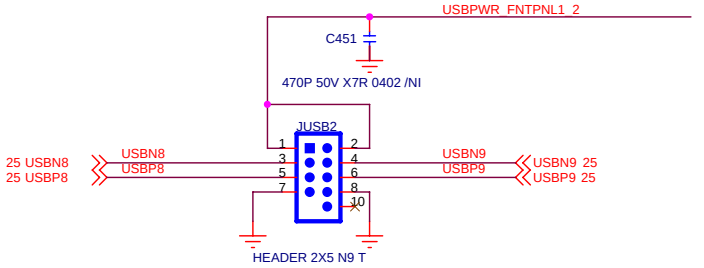
FRONT PANEL USB



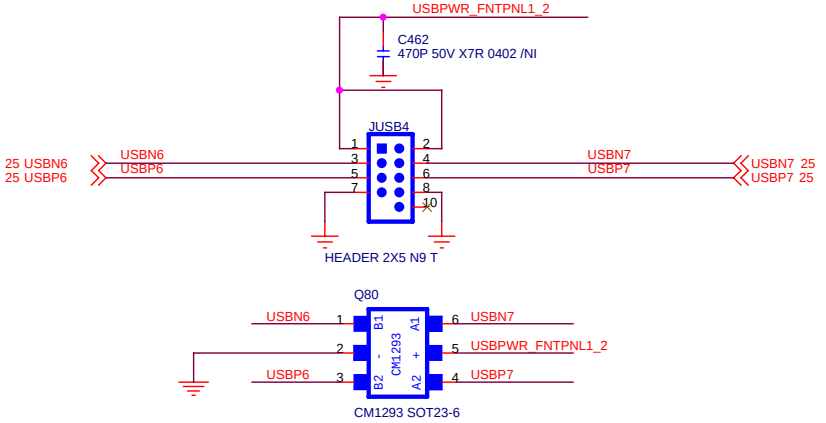
FRONT PANEL USB



FRONT PANEL USB



FRONT PANEL USB



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Title	**FRONT USB**	
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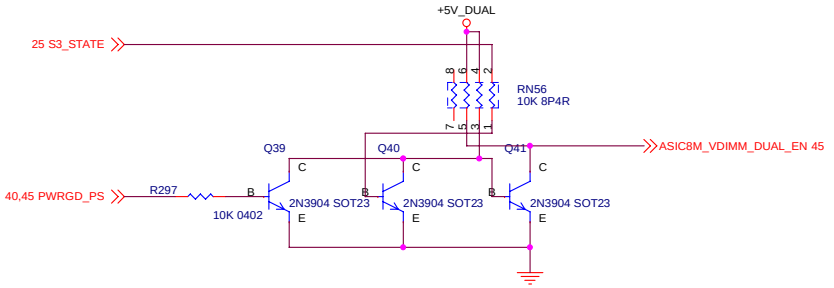
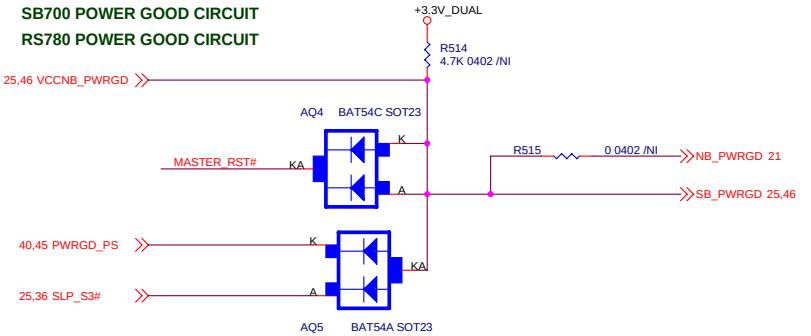
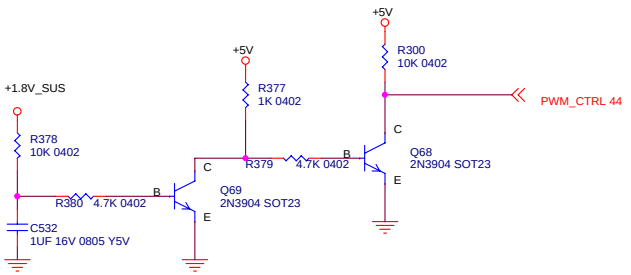
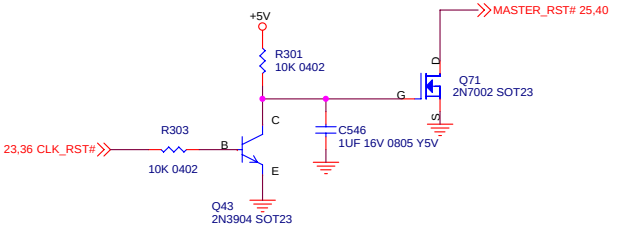
ATHLON64 POWER GOOD & ENABLES CIRCUIT



SB700 POWER GOOD CIRCUIT
RS780 POWER GOOD CIRCUIT







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BIOSTAR GROUP

Title	PWR GD / MISC POWER	
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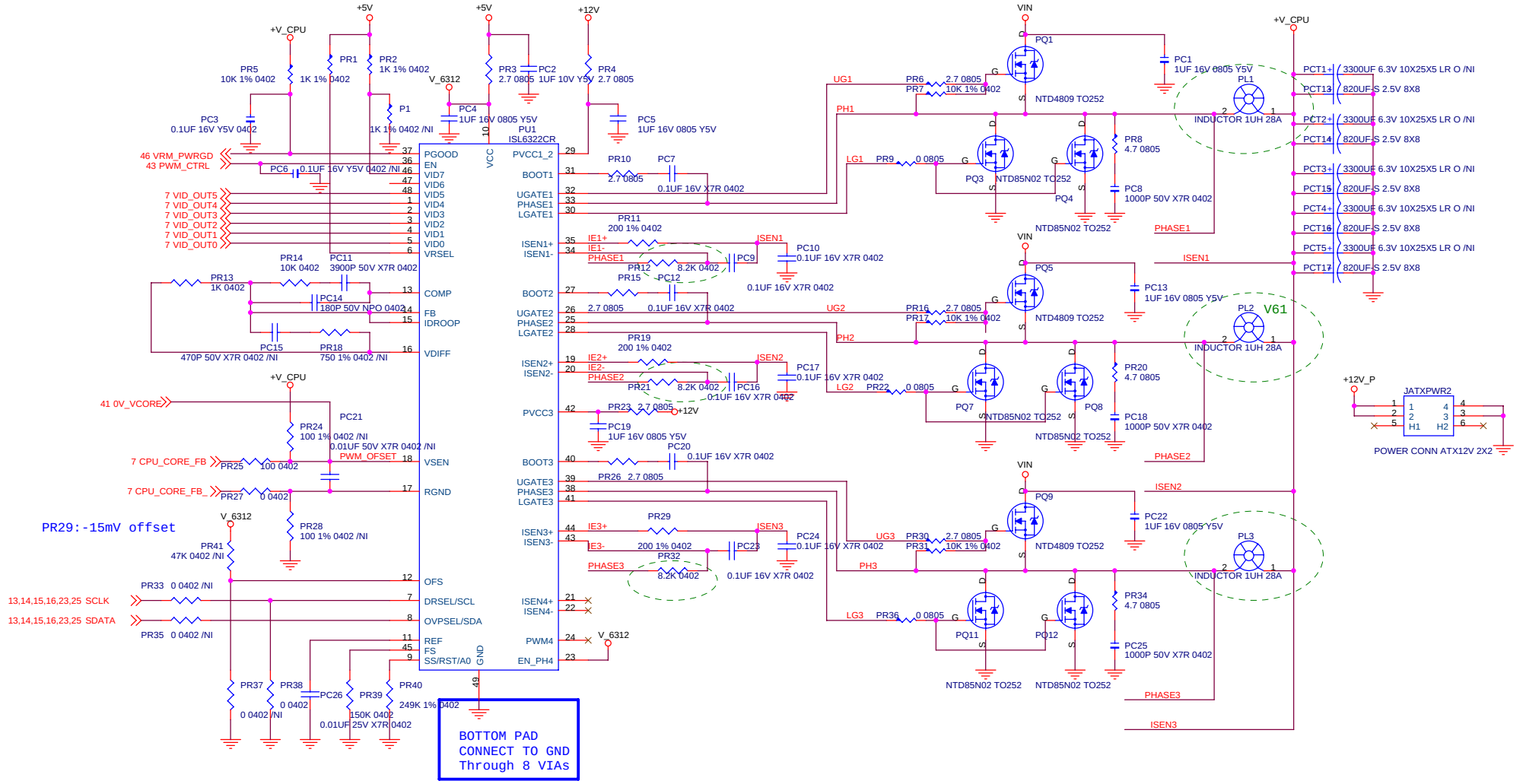

ISL6312CR FOR K8 940 POWER CKT

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Title	VCORE POWER SUPPLY	
Size: Custom	Document Number: A78GA-M2T	Rev: 6.4
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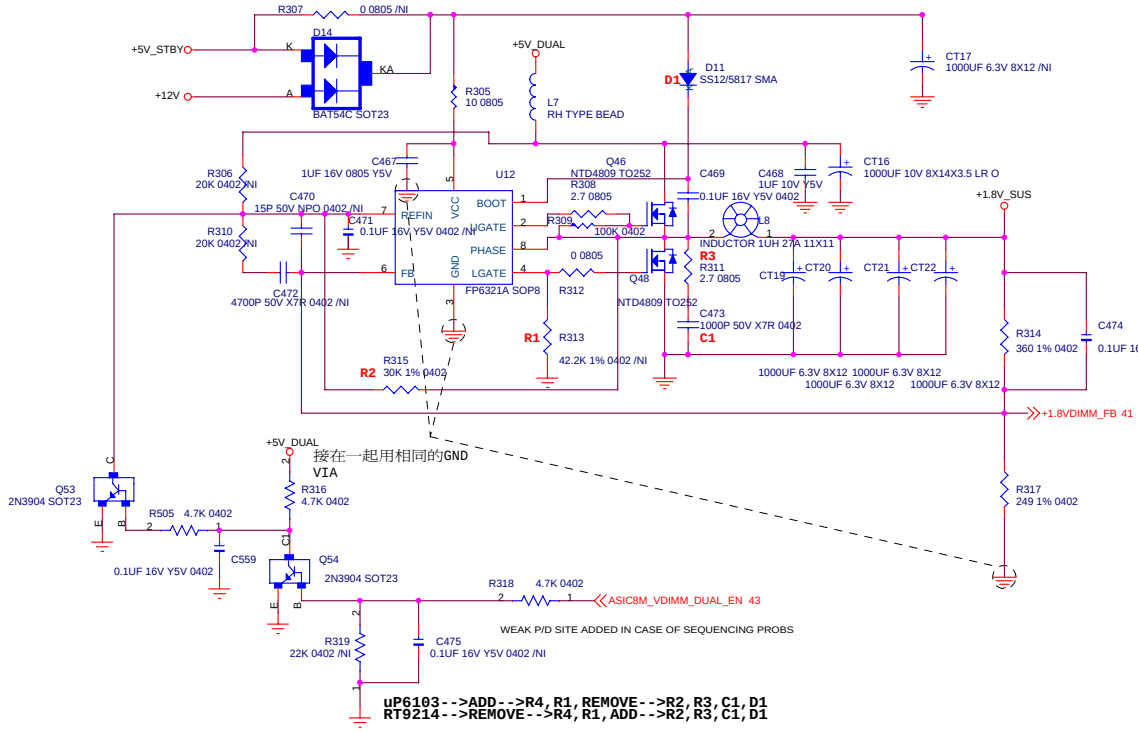

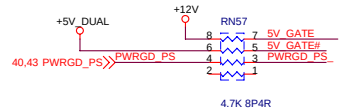

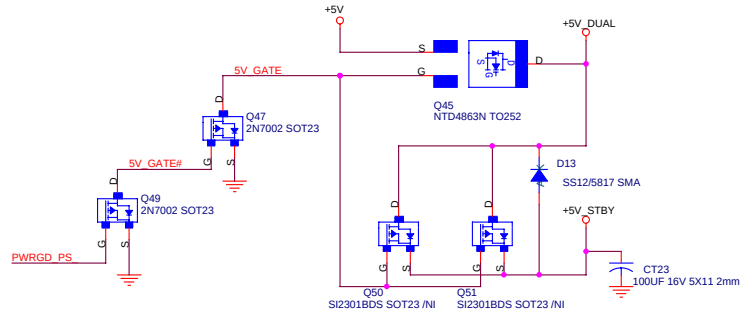

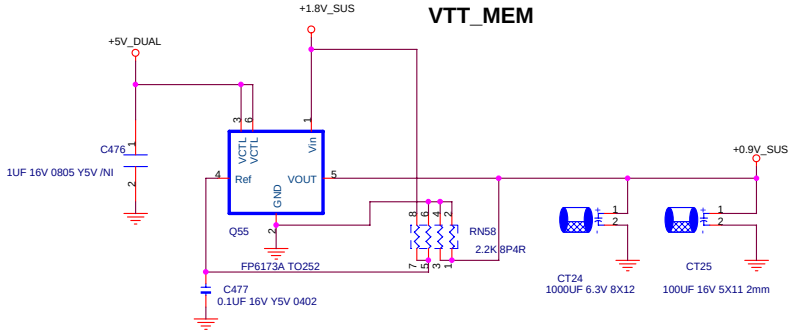

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Title	MEMORY POWER		
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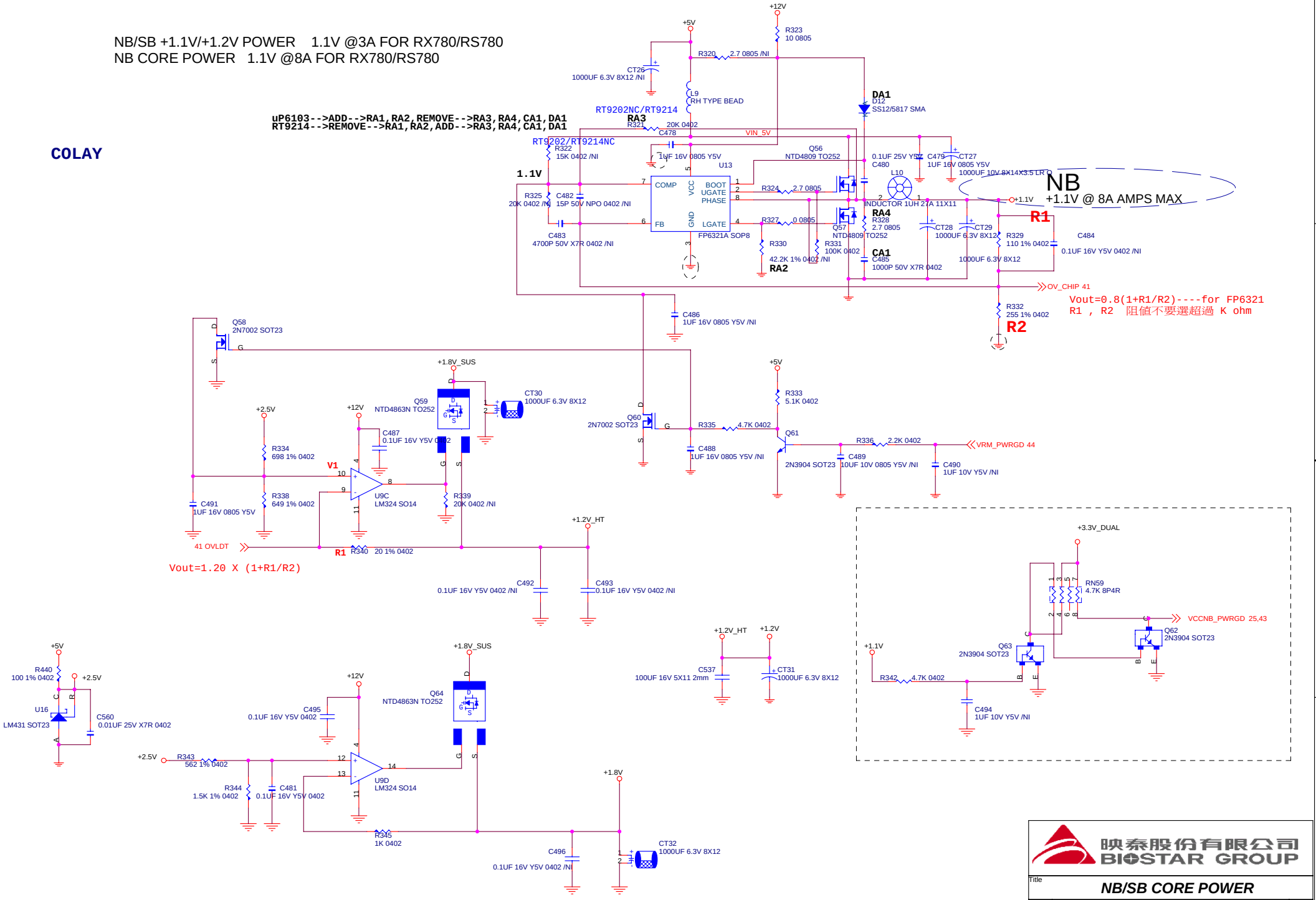
NB/SB +1.1V/+1.2V POWER 1.1V @3A FOR RX780/RS780
NB CORE POWER 1.1V @8A FOR RX780/RS780

COLAY

uP6103-->ADD-->RA1,RA2,REMOVE-->RA3,RA4,CA1,DA1
RT9214-->REMOVE-->RA1,RA2,ADD-->RA3,RA4,CA1,DA1



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Title	NB/SB CORE POWER	
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*C499~C502 for U4 VDD33 pins-- 16,37,46,53

*C497&,C498 for U4 AVDD33 pins--2 and 59

C506~C509 are for U14 pins 8,11,14 and 58

C512,C513 are for U14 pins 22 and 28

Use internal regulator:

Remove R348,R349,Q65,CT33

Vout=Vref (1.25V) X (1+R2/R1)
=1.25V

Vout=Vref (1.25V) X (1+R2/R1)
=3.3V

Power domain chart

	RTL8111C RTL8102E
AVDD33	3.3V
AVDD18	1.2V
EVDD18	1.2V
DVDD15	1.2V

V6.2 靜電保護

V6.2 靜電保護

93C46A-2.7V SO8

FOR EMI

V6.0 EMI

U14 RTL8111C-VCO-GR QFN 64

8111C(P)

JUSBLAN1B

LANUSB_GBMA

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Title: REL8111C/8102E

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(BAT1)

3V BATTERY SONY

JUSBV1(1_2)
JUMPER 2P R

JUSBV2(1_2)
JUMPER 2P R

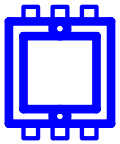
JCMOS1(1_2)
JUMPER 2P B

(Y2)
X'TAL WIRE

(U5)

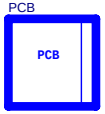
SPI MX25L8005 DIP

(CPU1)



AM2RM-T

PCB



A78GA-M2T V6.4

(U1)

NBHS-RS780

(U4)

SB SMALL-AMD

(PCB)

POLON 245x220

New JPANEL1
JPANEL1 2*8

JPANEL1(9_10)1
HEADER 1X2

JPANEL1(15_16)1
HEADER 1X2

JPANEL1(11_14)1
PLED

JPANEL1(1_4)1
SPK

JPANEL1(5_6)1
HLED

JPANEL1(7_8)1
RST

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Title	**BOM**	
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