MS-6787 Ver : 10D1

VIA P4M266A + VT8235 Chipset

CPU:

P4 Socket 478

System Chipset:

VIA P4M266A + VT8235

On Board Chipset:

LPC Super I/O -- W83697HF
Lan : Via PHY VT6103

Expansion Slots:

AGP 3.0 Slot * 1
DDR Slot * 2
PCI 2.2 Slot * 3
CNR Slot * 1

MODEL Config.	ORCAD Config.	Function	Option	ERP Number
MS6787 STD	cfg6787-LAN	STD 4 MOSFET heatsink	STD	601-6787-13S
MS6787 OPT:A	cfg6787-A	STD 6 MOSFET	A	601-6787-14S
MS6787 OPT:B	cfg6787-B	STD 4 MOSFET heatsink +FAN	B	601-6787-15S

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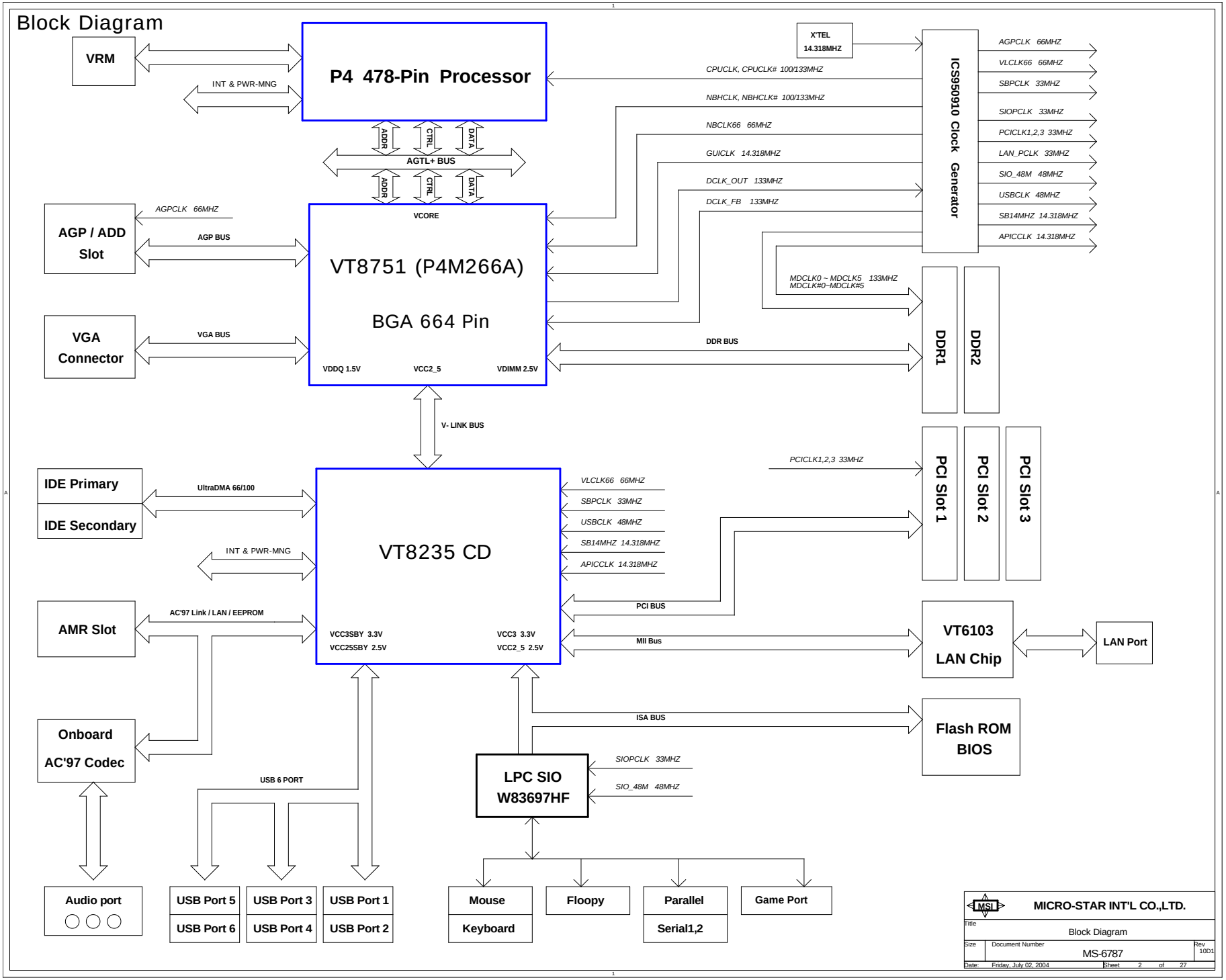
Title: Cover Sheet

Size | Document Number: MS-6787 | Rev: 10D1

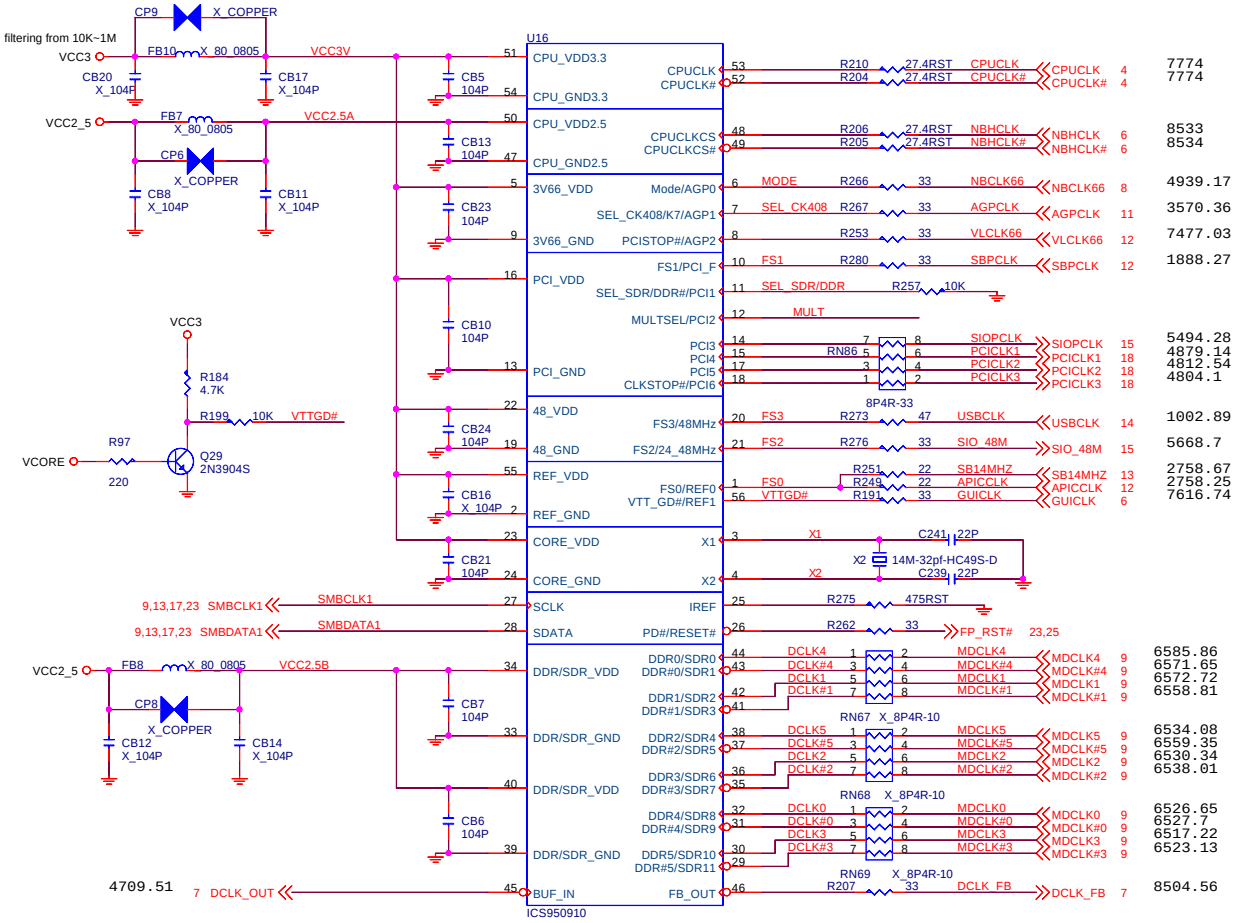
Date: Monday, July 12, 2004 | Sheet 1 of 27

Block Diagram

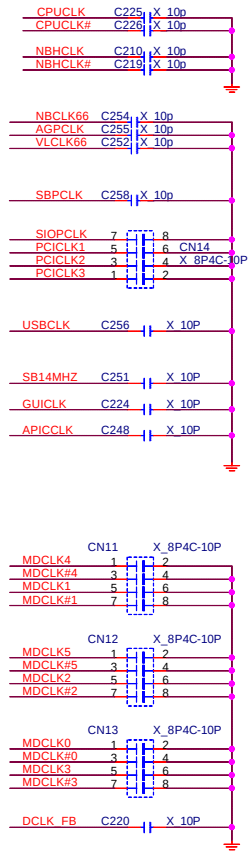


MSI MICRO-STAR INT'L CO.,LTD.

Title	Block Diagram	
Size	Document Number: MS-6787	Rev: 10D1
Date: Friday, July 02, 2004	Sheet 2 of 27	



Pull-Down Capacitors



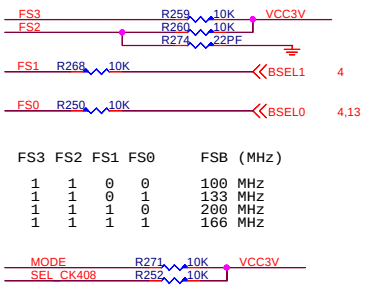
used only for EMI issue

Trace less 0.2"

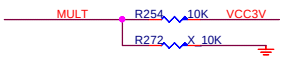
Shut Source Termination Resistors

Trace less 0.2" **49.9ohm for 50ohm M/B impedance**

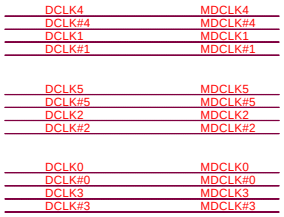
CLOCK STRAPPING RESISTORS



FS3	FS2	FS1	FS0	FSB (MHz)
1	1	0	0	100 MHz
1	1	0	1	133 MHz
1	1	1	0	200 MHz
1	1	1	1	166 MHz



MULT	Rr	Iref	Ioh	Voh
0	221	5.00mA	4*Iref	1.0V
1	475	2.32mA	6*Iref	0.7V



Micro-Star	
Title	Clock Generator
Size	Document Number: MS-6787
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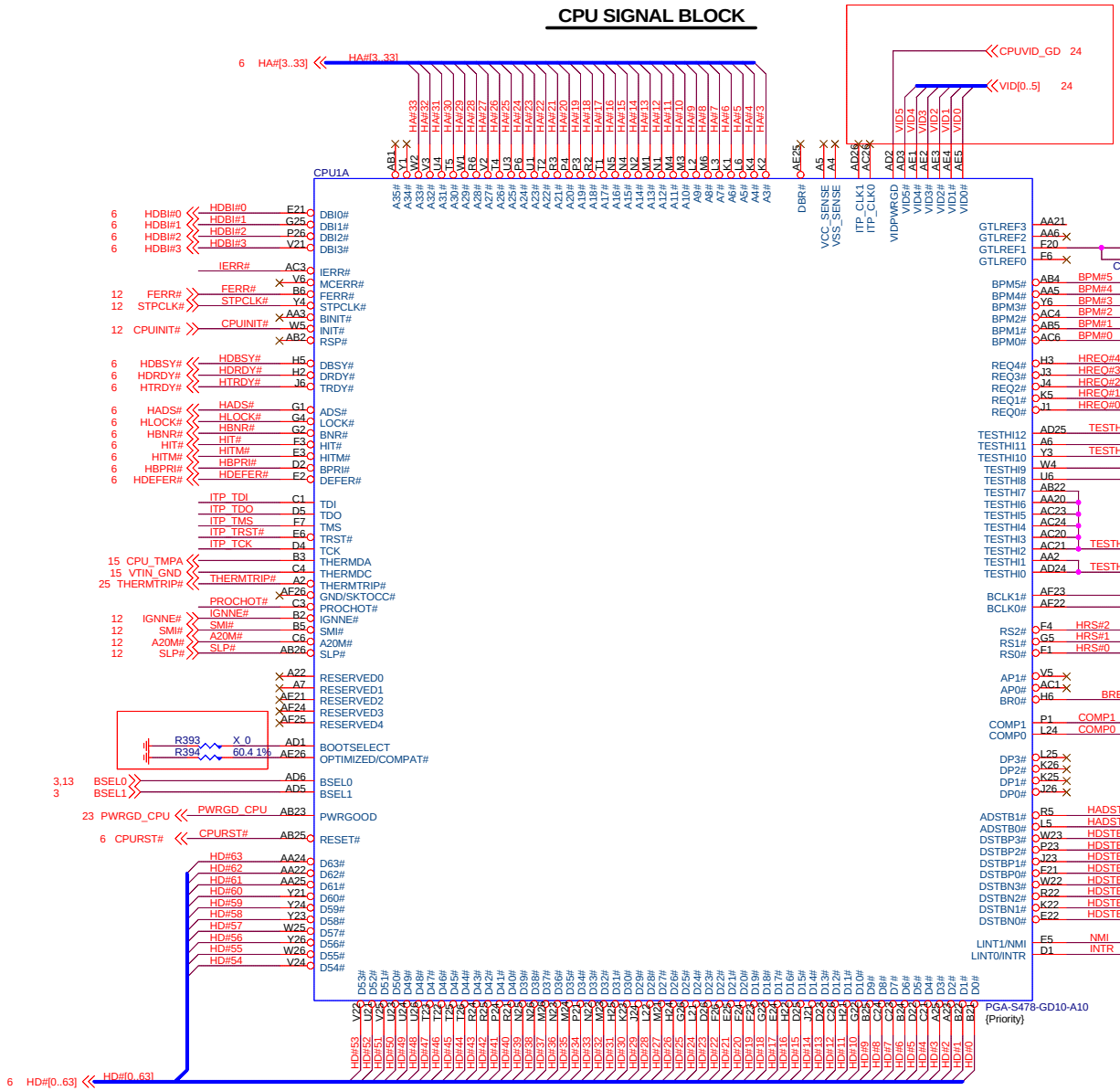
CPU SIGNAL BLOCK

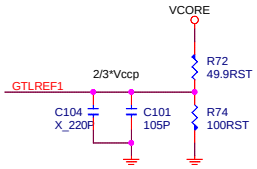


VIDPWRGD DC Specifications

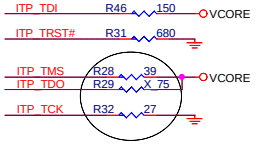
	Min	Typ	Max
VIL			0.3
VIH	0.9		

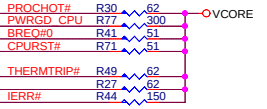
It must rout to the enable pin of PWM and CK-409.
VIDGD to Vccp delay time is from 1ms to 10ms.
VIDGD rising time is 150ns.

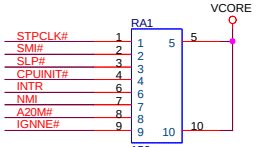
CPU GTL REFERNCE VOLTAGE BLOCK



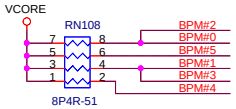
CPU ITP BLOCK







CPU STRAPPING RESISTORS



MSI	Micro-Star		
Title	CPU Socket 478 part1		
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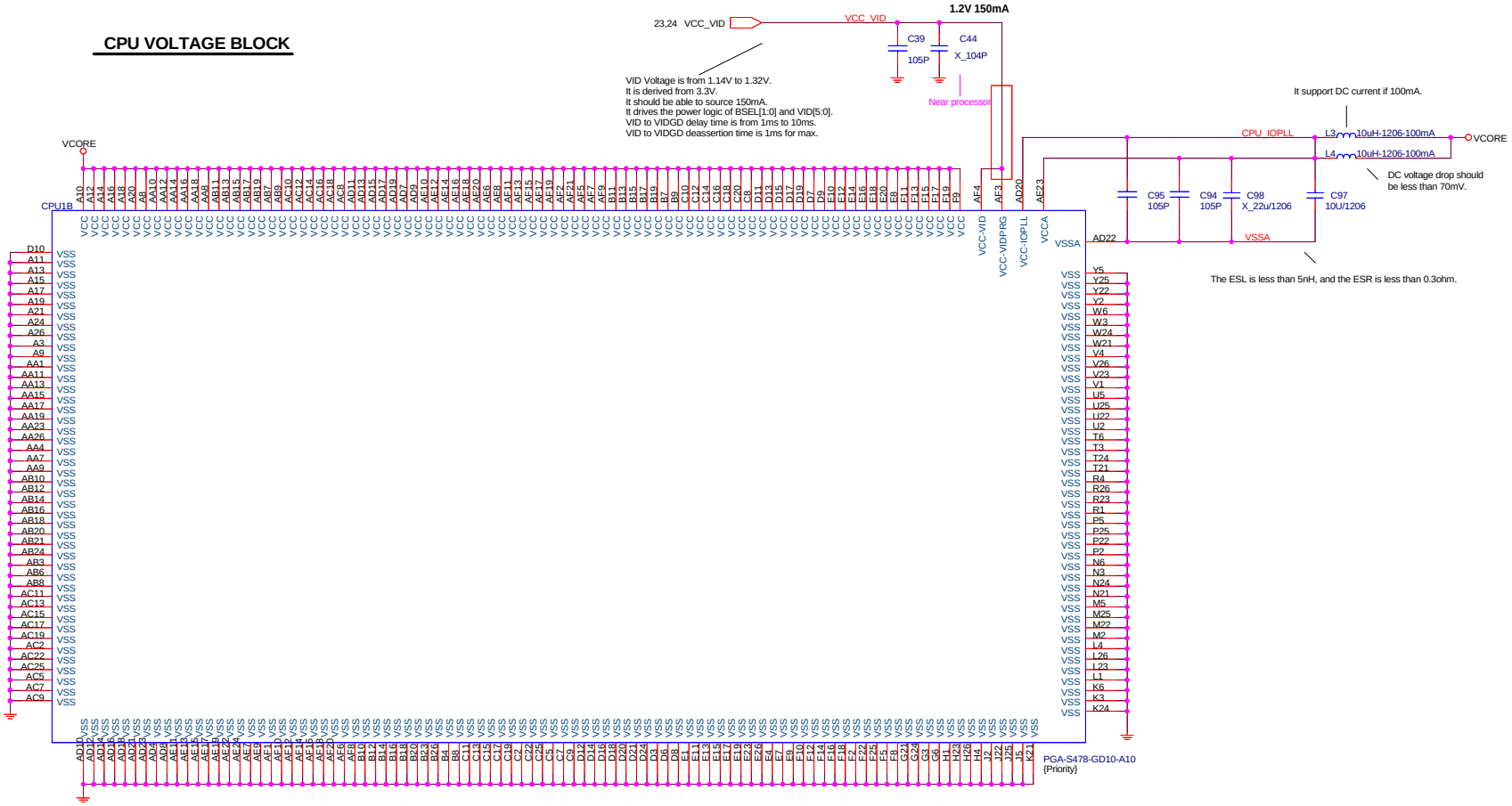
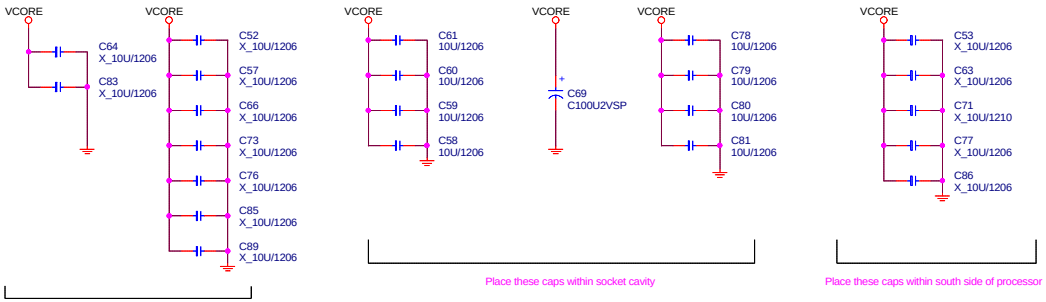
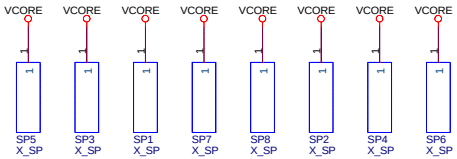
CPU VOLTAGE BLOCK

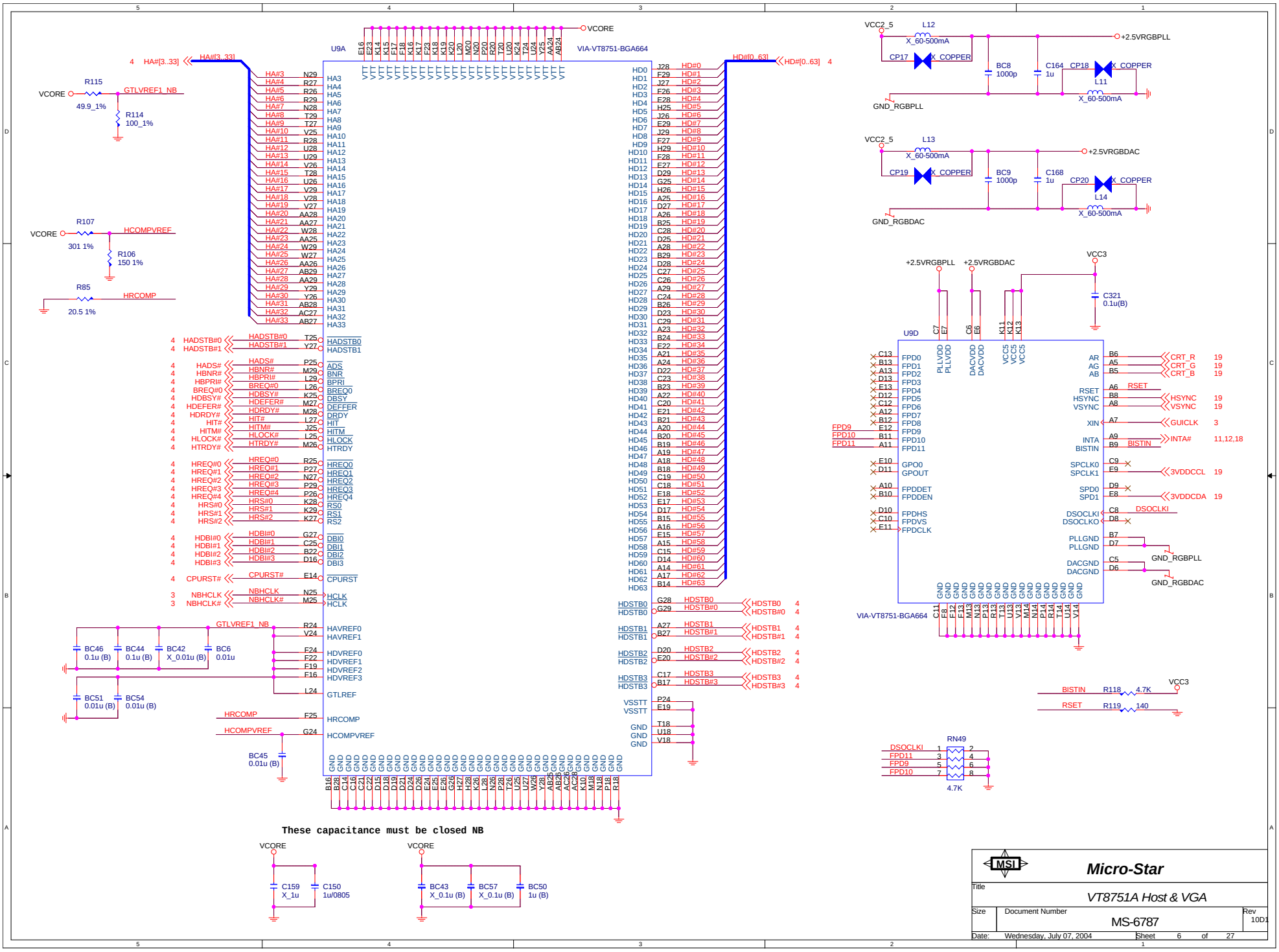


CPU DECOUPLING CAPACITORS





Micro-Star		
Title: CPU Socket 478 part2		
Size	Document Number: MS-6787	Rev: 10D1
Date: Wednesday, July 07, 2004	Sheet 5 of 27	


U9A
VIA-VT8751-BGA664
VCORE
HA#[3..33]
HD#[0..63]
R115
GTLVREF1_NB
49.9_1%
R114
100_1%
R107
HCOMPVREF
301 1%
R106
150 1%
R85
HRCOMP
20.5 1%
HADSTB0
HADSTB1
ADS
BNR
BPRI
BREQ0
DBSY
DEFFER
DRDY
HIT
HITM
HLOCK
HTRDY
RS0
RS1
RS2
DBI0
DBI1
DBI2
DBI3
CPURST
HCLK
HAVREF0
HAVREF1
HDVREF0
HDVREF1
HDVREF2
HDVREF3
GTLREF
HRCOMP
HCOMPVREF
BC46 0.1u (B)
BC44 0.1u (B)
BC42 X_0.01u (B)
BC6 0.01u
BC51 0.01u (B)
BC54 0.01u (B)
BC45 0.01u (B)
These capacitance must be closed NB
C159 X_1u
C150 1u/0805
BC43 X_0.1u (B)
BC57 X_0.1u (B)
BC50 1u (B)
VCC2_5
L12
X_60-500mA
CP17
X_COPPER
BC8 1000p
C164 1u
CP18
L11
+2.5VRGBPLL
GND_RGBPLL
L13
CP19
BC9 1000p
C168 1u
CP20
L14
+2.5VRGBDAC
GND_RGBDAC
U9D
VIA-VT8751-BGA664
C321 0.1u(B)
VCC3
CRT_R
CRT_G
CRT_B
HSYNC
VSYNC
GUICLK
INTA#
BISTIN
3VDDCCL
3VDDCDA
DSOCLKI
R118 4.7K
R119 140
RN49
4.7K
MSI
Micro-Star
VT8751A Host & VGA
MS-6787
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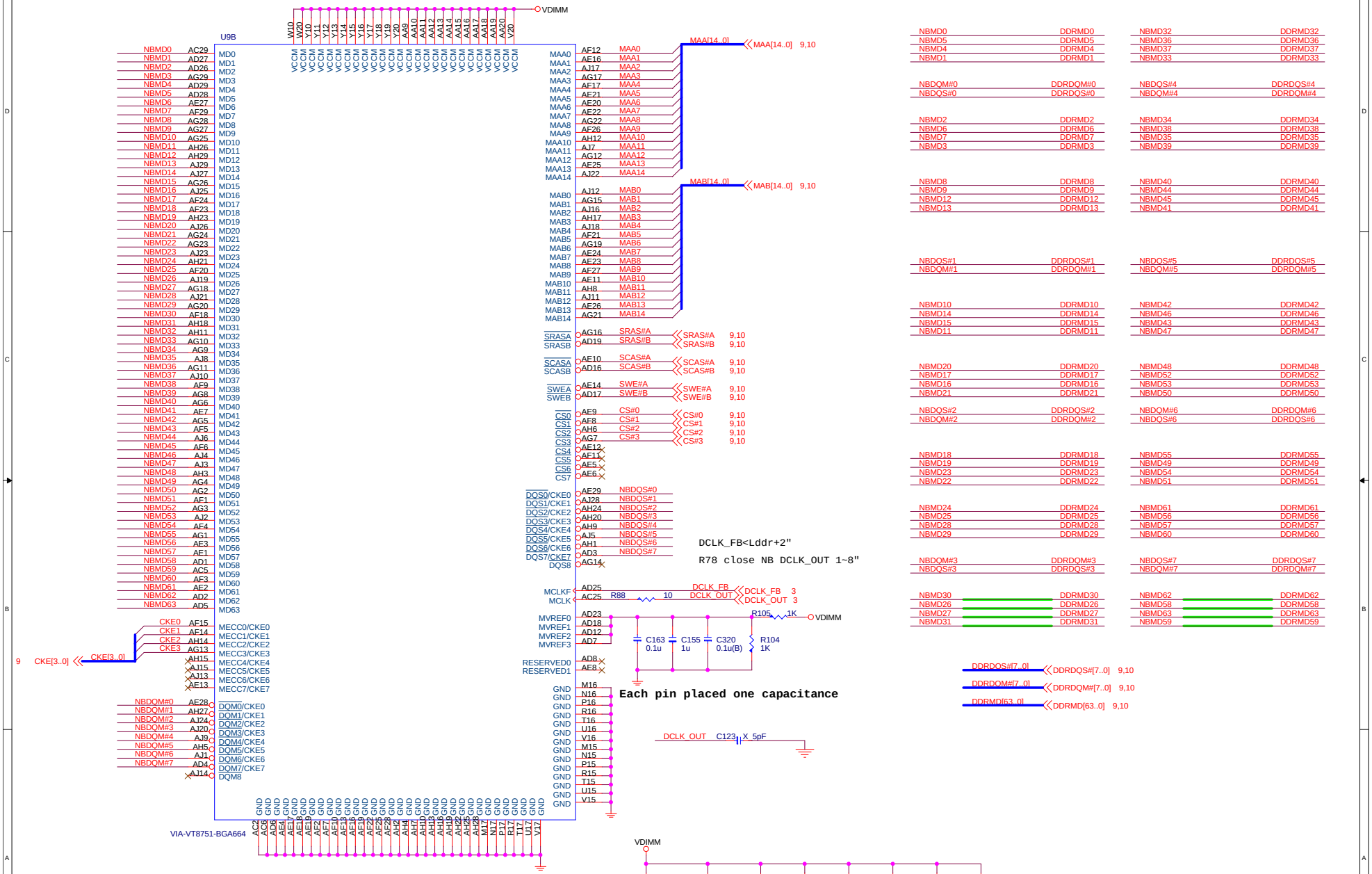
VDIMM
U9B
MD0 MD1 MD2 MD3 MD4 MD5 MD6 MD7 MD8 MD9 MD10 MD11 MD12 MD13 MD14 MD15 MD16 MD17 MD18 MD19 MD20 MD21 MD22 MD23 MD24 MD25 MD26 MD27 MD28 MD29 MD30 MD31 MD32 MD33 MD34 MD35 MD36 MD37 MD38 MD39 MD40 MD41 MD42 MD43 MD44 MD45 MD46 MD47 MD48 MD49 MD50 MD51 MD52 MD53 MD54 MD55 MD56 MD57 MD58 MD59 MD60 MD61 MD62 MD63
MECC0/CKE0 MECC1/CKE1 MECC2/CKE2 MECC3/CKE3 MECC4/CKE4 MECC5/CKE5 MECC6/CKE6 MECC7/CKE7
DQM0/CKE0 DQM1/CKE1 DQM2/CKE2 DQM3/CKE3 DQM4/CKE4 DQM5/CKE5 DQM6/CKE6 DQM7/CKE7 DQM8
MAA0 MAA1 MAA2 MAA3 MAA4 MAA5 MAA6 MAA7 MAA8 MAA9 MAA10 MAA11 MAA12 MAA13 MAA14
MAB0 MAB1 MAB2 MAB3 MAB4 MAB5 MAB6 MAB7 MAB8 MAB9 MAB10 MAB11 MAB12 MAB13 MAB14
SRASA SRASB
SCASA SCASB
SWEA SWEB
CS0 CS1 CS2 CS3 CS4 CS5 CS6 CS7
DQS0/CKE0 DQS1/CKE1 DQS2/CKE2 DQS3/CKE3 DQS4/CKE4 DQS5/CKE5 DQS6/CKE6 DQS7/CKE7 DQS8
MCLKF MCLK
MVREF0 MVREF1 MVREF2 MVREF3
RESERVED0 RESERVED1
GND
VIA-VT8751-BGA664
MAA[14..0]
MAB[14..0]
SRAS#A SRAS#B
SCAS#A SCAS#B
SWE#A SWE#B
CS#0 CS#1 CS#2 CS#3
NBDQS#0 NBDQS#1 NBDQS#2 NBDQS#3 NBDQS#4 NBDQS#5 NBDQS#6 NBDQS#7
DCLK_FB
DCLK_OUT
R88 10
R105 1K
R104 1K
C163 0.1u
C155 1u
C320 0.1u(B)
C123 X_5pF
CKE[3..0]
DCLK_FB<Lddr+2"
R78 close NB DCLK_OUT 1~8"
Each pin placed one capacitance
DDRDQS#[7..0]
DDRDQM#[7..0]
DDRMD[63..0]
BC61 1u/0805 (B)
BC41 1u/0805 (B)
BC58 1u (B)
BC52 1u (B)
C133 X_0.1u
C161 X_0.1u
C169 X_0.1u
C139 X_0.1u
These capacitance must be closed NB
4 pcs placed on solder side
4 pcs placed on Top side
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VT8751A memory
MS-6787
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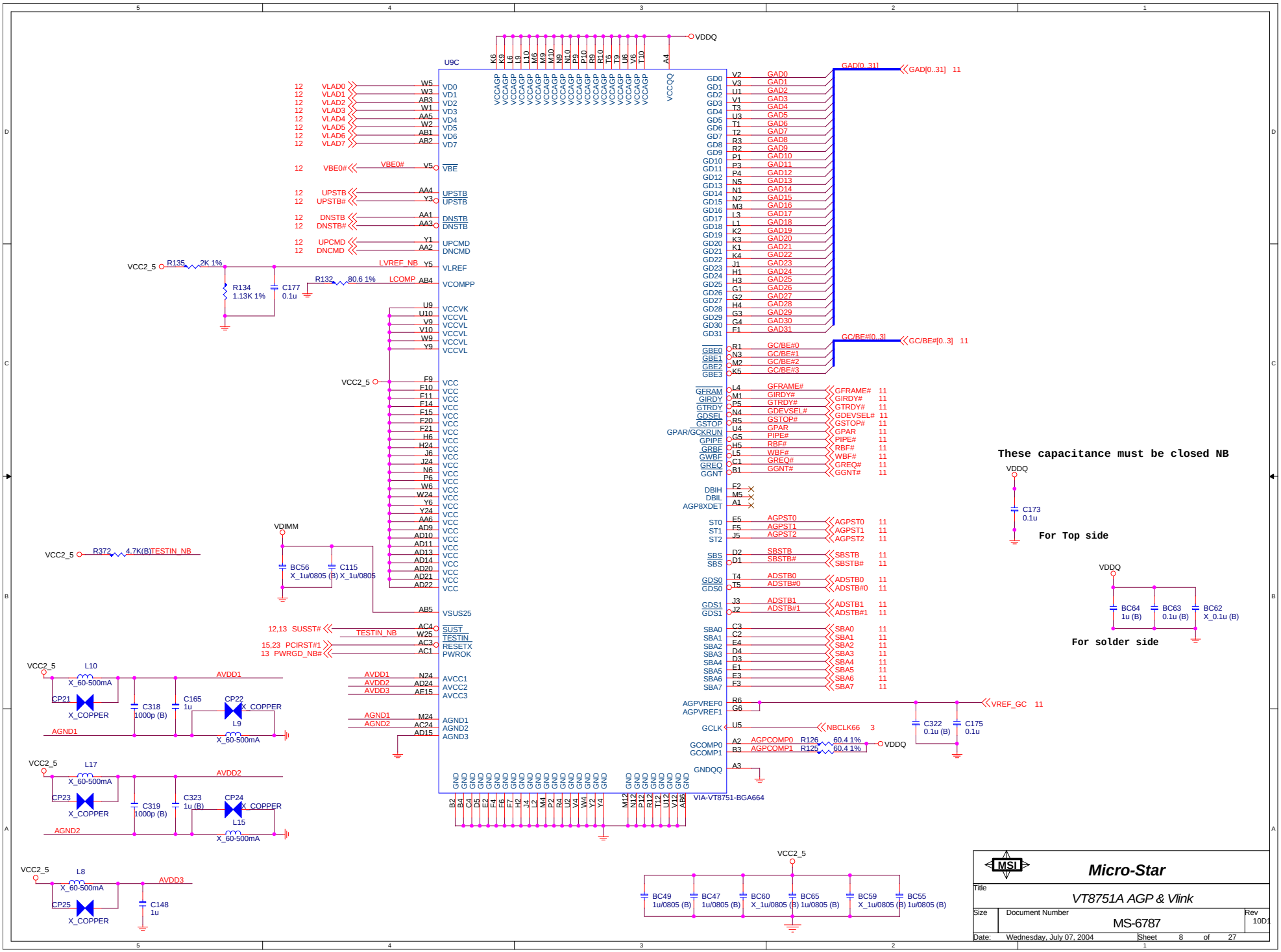
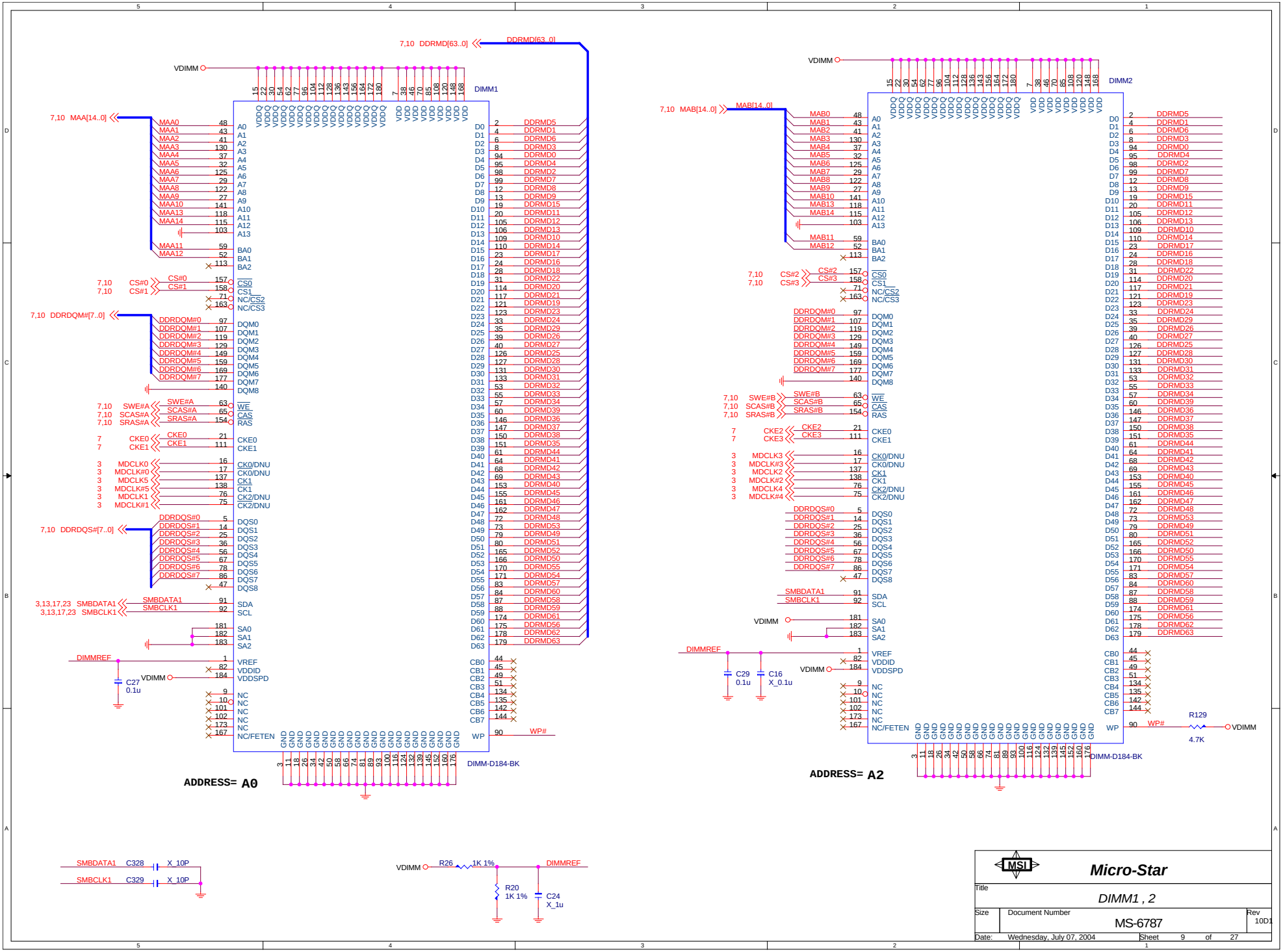

U9C
VIA-VT8751-BGA664
VDDQ
VCC2_5
VDIMM
GAD[0..31]
GC/BE#[0..3]
These capacitance must be closed NB
For Top side
For solder side
Micro-Star
MSI
VT8751A AGP & Vlink
MS-6787
Wednesday, July 07, 2004


DIMM1
DIMM2
DIMM-D184-BK
ADDRESS= A0
ADDRESS= A2
VDIMM
DIMMREF
SMBDATA1
SMBCLK1
C27 0.1u
C29 0.1u
C16 X_0.1u
R26 1K 1%
R20 1K 1%
C24 X_1u
C328 X_10P
C329 X_10P
R129 4.7K
Micro-Star
DIMM1 , 2
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DDRMD[63..0] DDRMD[63..0] 7,9
DDRDQM#[7..0] DDRDQM#[7..0] 7,9
DDRDQS#[7..0] DDRDQS#[7..0] 7,9
MAA[14..0] MAA[14..0] 7,9
MAB[14..0] MAB[14..0] 7,9

VTT_DDR

RN3 8P4R-56
DDRMD0 1 2
DDRMD5 3 4
DDRMD4 5 6
DDRMD1 7 8

RN5 8P4R-56
DDRDQM#0 1 2
DDRDQS#0 3 4
DDRMD2 5 6
DDRMD6 7 8

RN6 8P4R-56
DDRMD7 1 2
DDRMD3 3 4
DDRMD8 5 6
DDRMD9 7 8

RN9 8P4R-56
DDRMD12 1 2
DDRMD13 3 4
DDRDQS#1 5 6
DDRDQM#1 7 8

RN10 8P4R-56
DDRMD10 1 2
DDRMD14 3 4
DDRMD15 5 6
DDRMD11 7 8

RN12 8P4R-56
DDRMD20 1 2
DDRMD17 3 4
DDRMD16 5 6
MAB14 7 8

RN13 8P4R-56
MAA14 1 2
MAA9 3 4
MAB13 5 6
DDRMD21 7 8

RN15 8P4R-56
DDRDQS#2 1 2
DDRDQM#2 3 4
MAA13 5 6
MAB9 7 8

RN17 8P4R-56
DDRMD18 1 2
MAA7 3 4
DDRMD19 5 6
MAB7 7 8

RN19 8P4R-56
MAA8 1 2
MAB8 3 4
DDRMD23 5 6
DDRMD22 7 8

VTT_DDR

RN22 8P4R-56
MAA5 1 2
MAB5 3 4
MAB6 5 6
MAA6 7 8

RN24 8P4R-56
DDRMD24 1 2
DDRMD25 3 4
DDRMD28 5 6
DDRMD29 7 8

RN25 8P4R-56
MAA4 1 2
MAB4 3 4
DDRDQM#3 5 6
DDRDQS#3 7 8

RN28 8P4R-56
MAB3 1 2
MAA3 3 4
DDRMD30 5 6
DDRMD26 7 8

RN30 8P4R-56
DDRMD27 1 2
DDRMD31 3 4
MAB2 5 6
MAB1 7 8

RN32 8P4R-56
MAA2 1 2
MAA1 3 4
MAB0 5 6
MAA0 7 8

RN33 8P4R-56
MAB10 1 2
MAA10 3 4
MAA12 5 6
MAB12 7 8

RN35 8P4R-56
DDRMD32 1 2
DDRMD36 3 4
DDRMD37 5 6
DDRMD33 7 8

RN36 8P4R-56
DDRDQS#4 1 2
DDRDQM#4 3 4
DDRMD34 5 6
DDRMD38 7 8

RN37 8P4R-56
MAB11 1 2
MAA11 3 4
DDRMD35 5 6
DDRMD39 7 8

VTT_DDR

RN39 8P4R-56
DDRMD44 1 2
7,9 SRAS#A 3 4
DDRMD40 5 6
7,9 SRAS#B 7 8

RN41 8P4R-56
7,9 SWE#A 1 2
7,9 SWE#B 3 4
DDRMD45 5 6
DDRMD41 7 8

RN42 8P4R-56
7,9 CS#0 1 2
7,9 SCAS#B 3 4
7,9 CS#2 5 6
7,9 SCAS#A 7 8

RN43 8P4R-56
7,9 CS#3 1 2
7,9 CS#1 3 4
DDRDQM#5 5 6
DDRDQS#5 7 8

RN45 8P4R-56
DDRMD42 1 2
DDRMD46 3 4
DDRMD43 5 6
DDRMD47 7 8

RN48 8P4R-56
DDRMD48 1 2
DDRMD52 3 4
DDRMD53 5 6
DDRMD50 7 8

RN50 8P4R-56
DDRDQM#6 1 2
DDRDQS#6 3 4
DDRMD55 5 6
DDRMD49 7 8

RN52 8P4R-56
DDRMD54 1 2
DDRMD51 3 4
DDRMD61 5 6
DDRMD56 7 8

RN55 8P4R-56
DDRMD57 1 2
DDRMD60 3 4
DDRDQM#7 5 6
DDRDQS#7 7 8

RN56 8P4R-56
DDRMD62 1 2
DDRMD58 3 4
DDRMD63 5 6
DDRMD59 7 8

VTT_DDR

C35 X_0.1u
C41 1u
C62 X_0.1u
C72 1u
C82 X_0.1u
C93 1u
C99 X_0.1u
C109 1u
C113 X_0.1u
C122 X_0.1u
C126 X_0.1u
C132 X_0.1u
C144 X_0.1u
C149 X_0.1u
C154 X_0.1u
C91 X_0.1u
C167 X_0.1u
C28 X_4.7u-0805
C49 4.7u-0805

VTT_DDR

C32 X_0.1u
C37 X_0.1u
C47 X_0.1u
C54 X_0.1u
C67 X_0.1u
C87 X_0.1u
C96 X_0.1u
C102 X_0.1u
C112 X_0.1u
C121 X_0.1u
C124 1u
C128 X_0.1u
C136 X_0.1u
C141 1u
C147 X_0.1u
C151 X_0.1u
C157 1u
C158 X_0.1u
C162 X_0.1u
C171 X_4.7u-0805

VDIMM

C172 X_0.1u
C160 0.1u
C145 0.1u
C130 0.1u
C118 X_0.1u
C108 0.1u
C92 0.1u
C65 0.1u

VDIMM

C36 0.1u
C26 X_0.1u
C125 X_0.1u
C90 X_0.1u
C143 X_0.1u
C43 X_0.1u
C42 X_0.1u
C146 X_0.1u

Closed to DIMM

MSI **Micro-Star**

Title: *DDR terminator*

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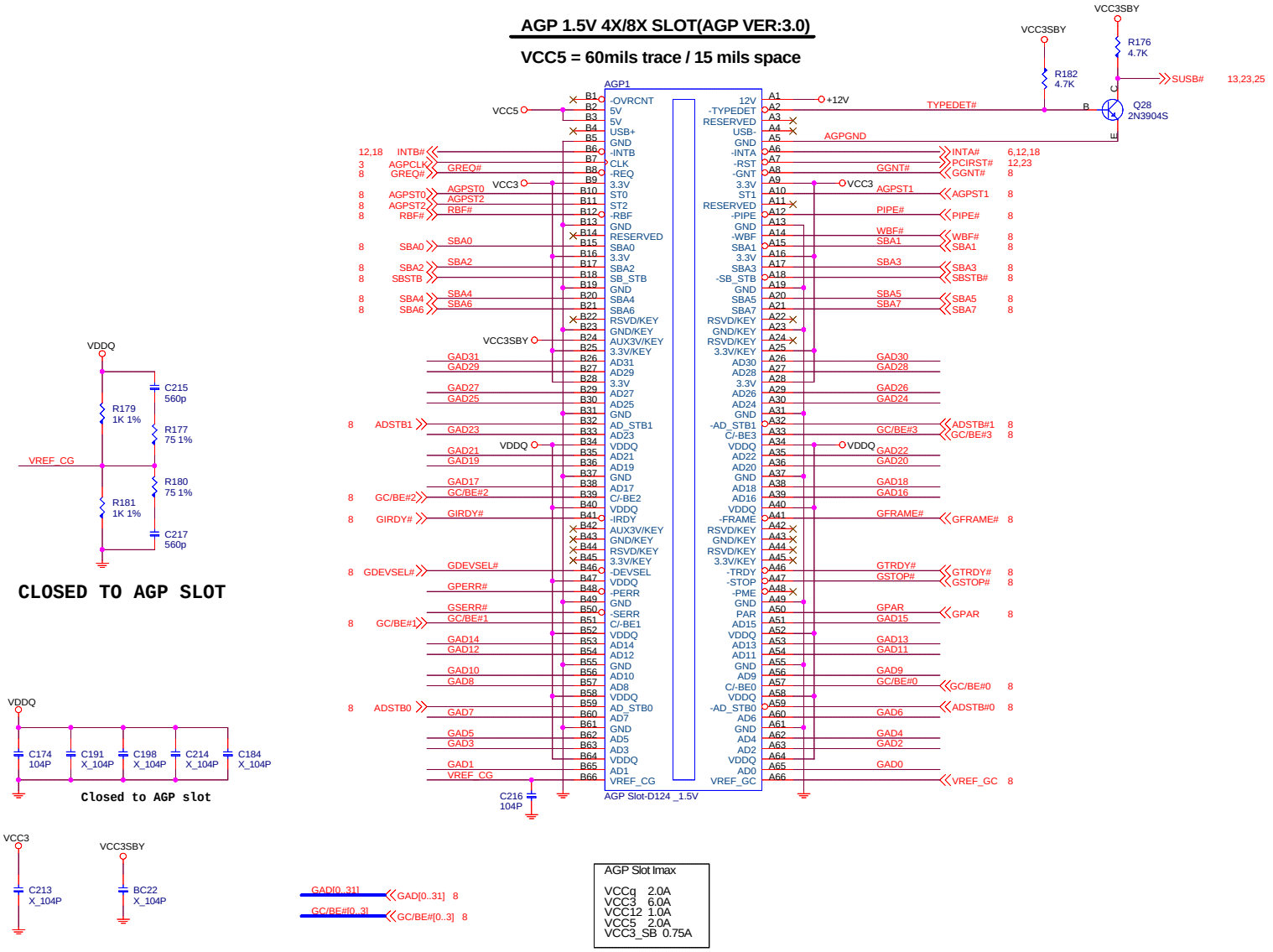
AGP 1.5V 4X/8X SLOT(AGP VER:3.0)

VCC5 = 60mils trace / 15 mils space



CLOSED TO AGP SLOT

Closed to AGP slot

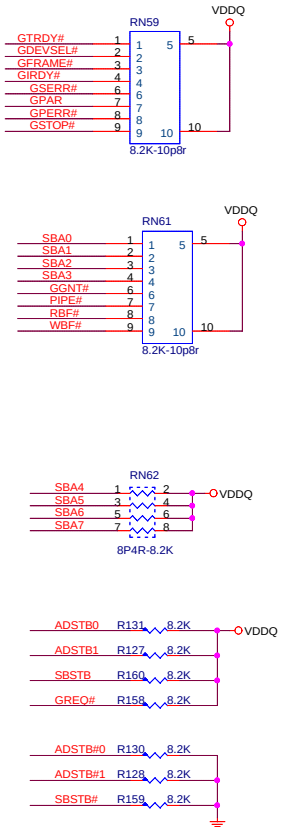
GAD[0..31] → GAD[0..31] 8

GC/BE#[0..3] → GC/BE#[0..3] 8

AGP Slot Imax

VCCq	2.0A
VCC3	6.0A
VCC12	1.0A
VCC5	2.0A
VCC3_SB	0.75A

AGP TERMINATION RESISTORS



MSI	Micro-Star	
Title	AGP slot	
Size	Document Number MS-6787	Rev 10D1
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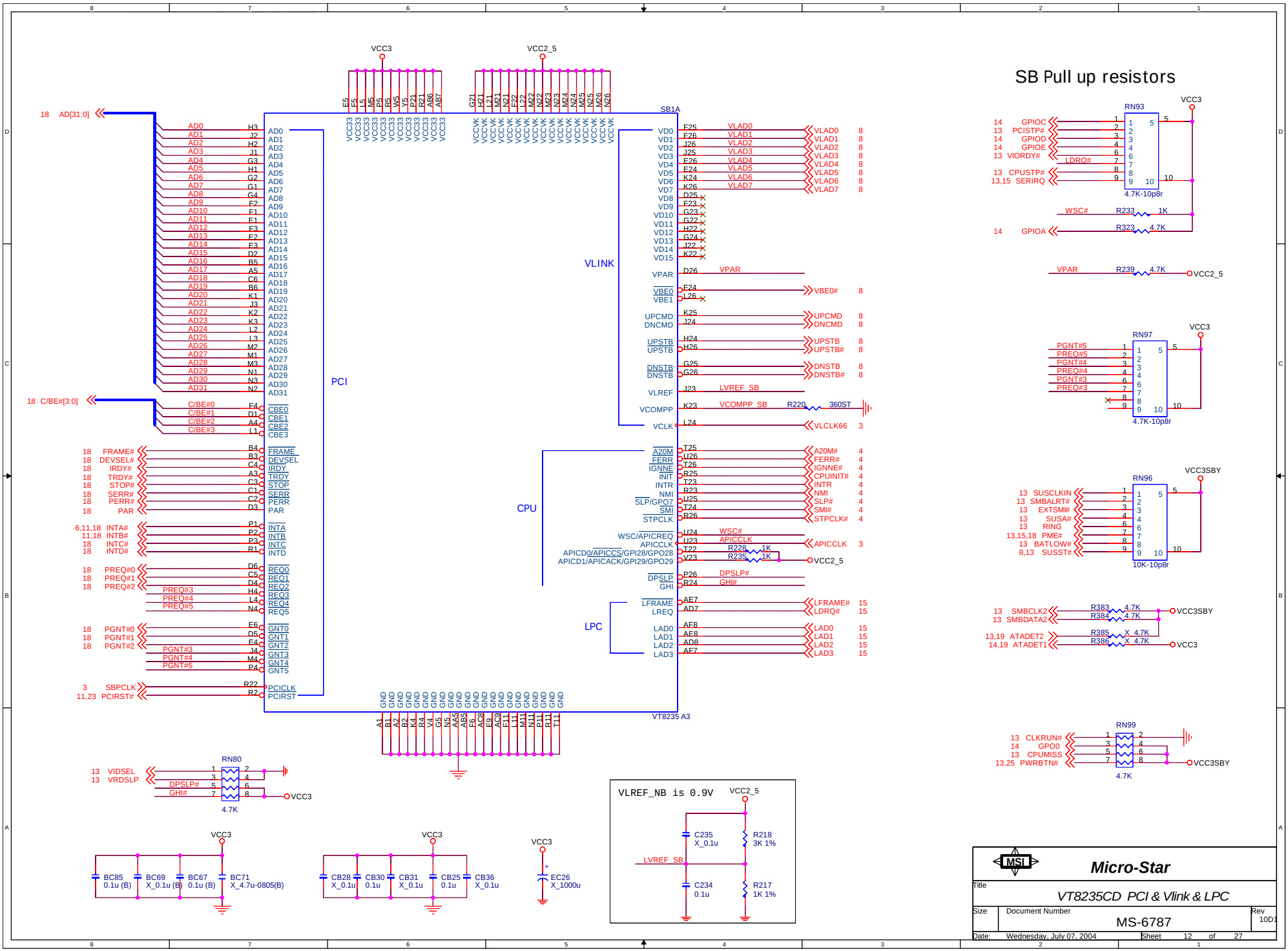
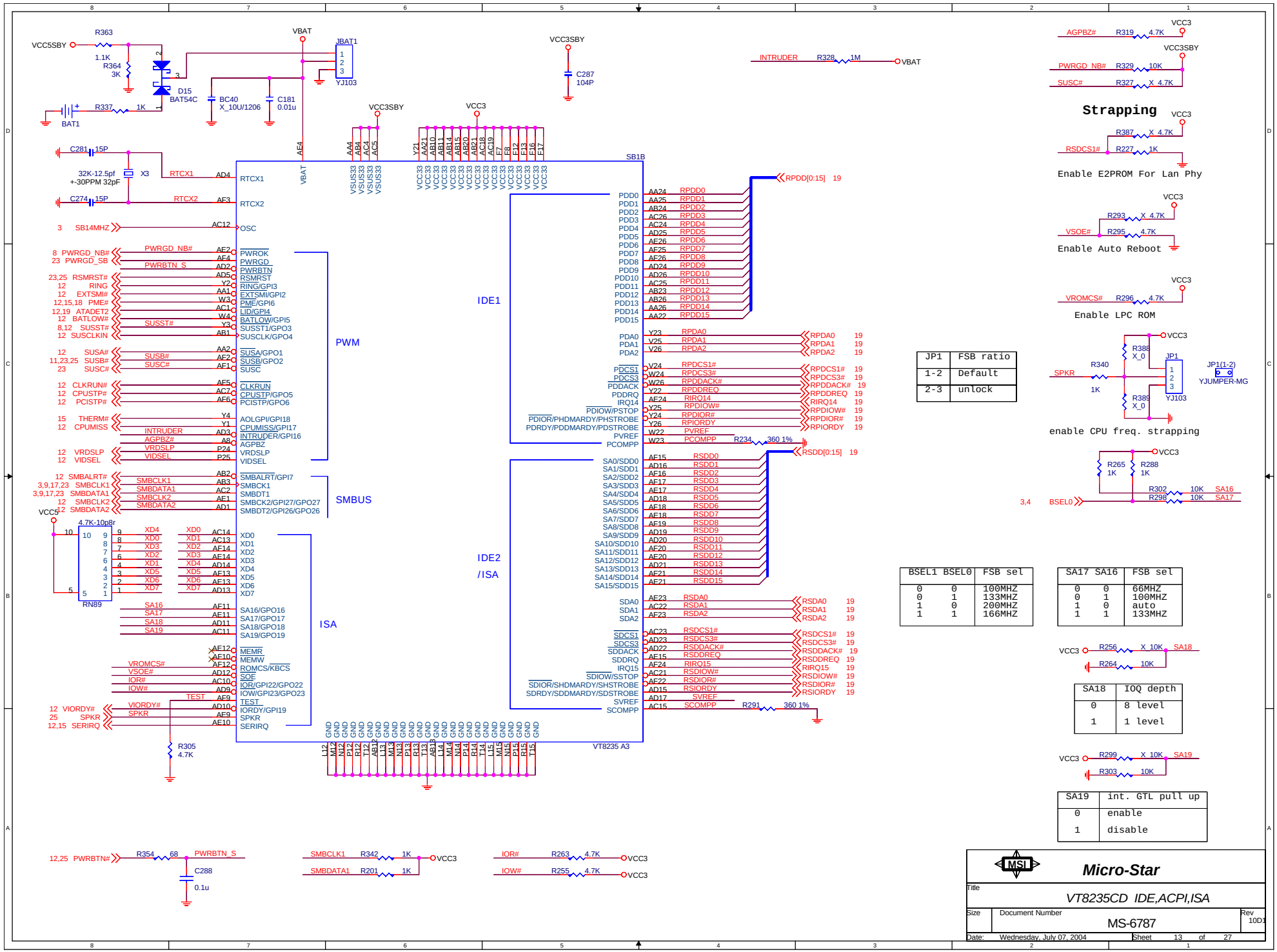

SB Pull up resistors
VT8235 A3
PCI
VLINK
CPU
LPC
SB1A
RN93
RN96
RN97
RN99
RN80
4.7K-10p8r
10K-10p8r
VLREF_NB is 0.9V
Micro-Star
VT8235CD PCI & Vlink & LPC
MS-6787
Wednesday, July 07, 2004


VT8235CD IDE,ACPI,ISA
MS-6787
Micro-Star
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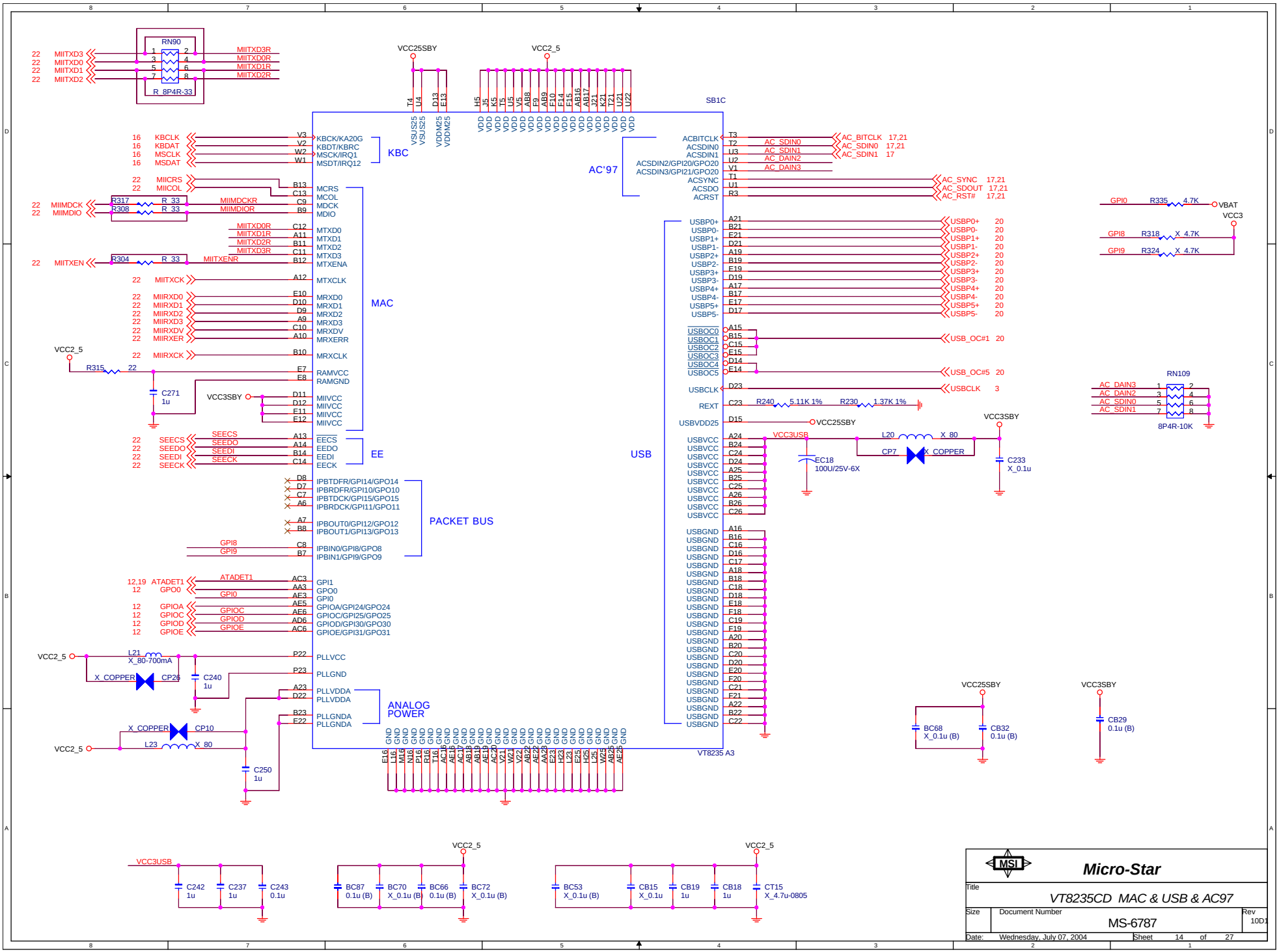
Rev 10D1
Strapping
Enable E2PROM For Lan Phy
Enable Auto Reboot
Enable LPC ROM
enable CPU freq. strapping
JP1 FSB ratio
1-2 Default
2-3 unlock
BSEL1 BSEL0 FSB sel
0 0 100MHZ
0 1 133MHZ
1 0 200MHZ
1 1 166MHZ
SA17 SA16 FSB sel
0 0 66MHZ
0 1 100MHZ
1 0 auto
1 1 133MHZ
SA18 IOQ depth
0 8 level
1 1 level
SA19 int. GTL pull up
0 enable
1 disable
SB1B
PWM
SMBUS
ISA
IDE1
IDE2 /ISA


RN90
R_8P4R-33
MIITXD3
MIITXD0
MIITXD1
MIITXD2
MIITXD3R
MIITXD0R
MIITXD1R
MIITXD2R
VCC25SBY
VCC2_5
SB1C
KBC
KBCK/KA20G
KBDT/KBRC
MSCK/IRQ1
MSDT/IRQ12
KBCLK
KBDAT
MSCLK
MSDAT
MAC
MCRS
MCOL
MDCK
MDIO
MIIMDCK
MIIMDIO
MIIMDCKR
MIIMDIOR
MTXD0
MTXD1
MTXD2
MTXD3
MTXENA
MIITXEN
MIITXENR
MTXCLK
MRXD0
MRXD1
MRXD2
MRXD3
MRXDV
MRXERR
MRXCLK
RAMVCC
RAMGND
MIIVCC
EE
EECS
EEDO
EEDI
EECK
PACKET BUS
IPBTDFR/GPI14/GPO14
IPBRDFR/GPI10/GPO10
IPBTDCK/GPI15/GPO15
IPBRDCK/GPI11/GPO11
IPBOUT0/GPI12/GPO12
IPBOUT1/GPI13/GPO13
IPBIN0/GPI8/GPO8
IPBIN1/GPI9/GPO9
GPI1
GPO0
GPI0
GPIOA/GPI24/GPO24
GPIOC/GPI25/GPO25
GPIOD/GPI30/GPO30
GPIOE/GPI31/GPO31
ANALOG POWER
PLLVCC
PLLGND
PLLVDDA
PLLGNDA
AC'97
ACBITCLK
ACSDIN0
ACSDIN1
ACSDIN2/GPI20/GPO20
ACSDIN3/GPI21/GPO20
ACSYNC
ACSDO
ACRST
USB
USBP0+
USBP0-
USBP1+
USBP1-
USBP2+
USBP2-
USBP3+
USBP3-
USBP4+
USBP4-
USBP5+
USBP5-
USBOC0
USBOC1
USBOC2
USBOC3
USBOC4
USBOC5
USBCLK
REXT
USBVDD25
USBVCC
USBGND
VT8235 A3
R240 5.11K 1%
R230 1.37K 1%
VCC3USB
L20 X_80
CP7 X_COPPER
EC18 100U/25V-6X
C233 X_0.1u
RN109
8P4R-10K
VBAT
VCC3
GPI0 R335 4.7K
GPI8 R318 X_4.7K
GPI9 R324 X_4.7K
L21 X_80-700mA
CP26 X_COPPER
C240 1u
CP10 X_COPPER
L23 X_80
C250 1u
C271 1u
C242 1u
C237 1u
C243 0.1u
BC87 0.1u (B)
BC70 X_0.1u (B)
BC66 0.1u (B)
BC72 X_0.1u (B)
BC53 X_0.1u (B)
CB15 X_0.1u
CB19 1u
CB18 1u
CT15 X_4.7u-0805
BC68 X_0.1u (B)
CB32 0.1u (B)
CB29 0.1u (B)
Micro-Star
VT8235CD MAC & USB & AC97
MS-6787
Wednesday, July 07, 2004
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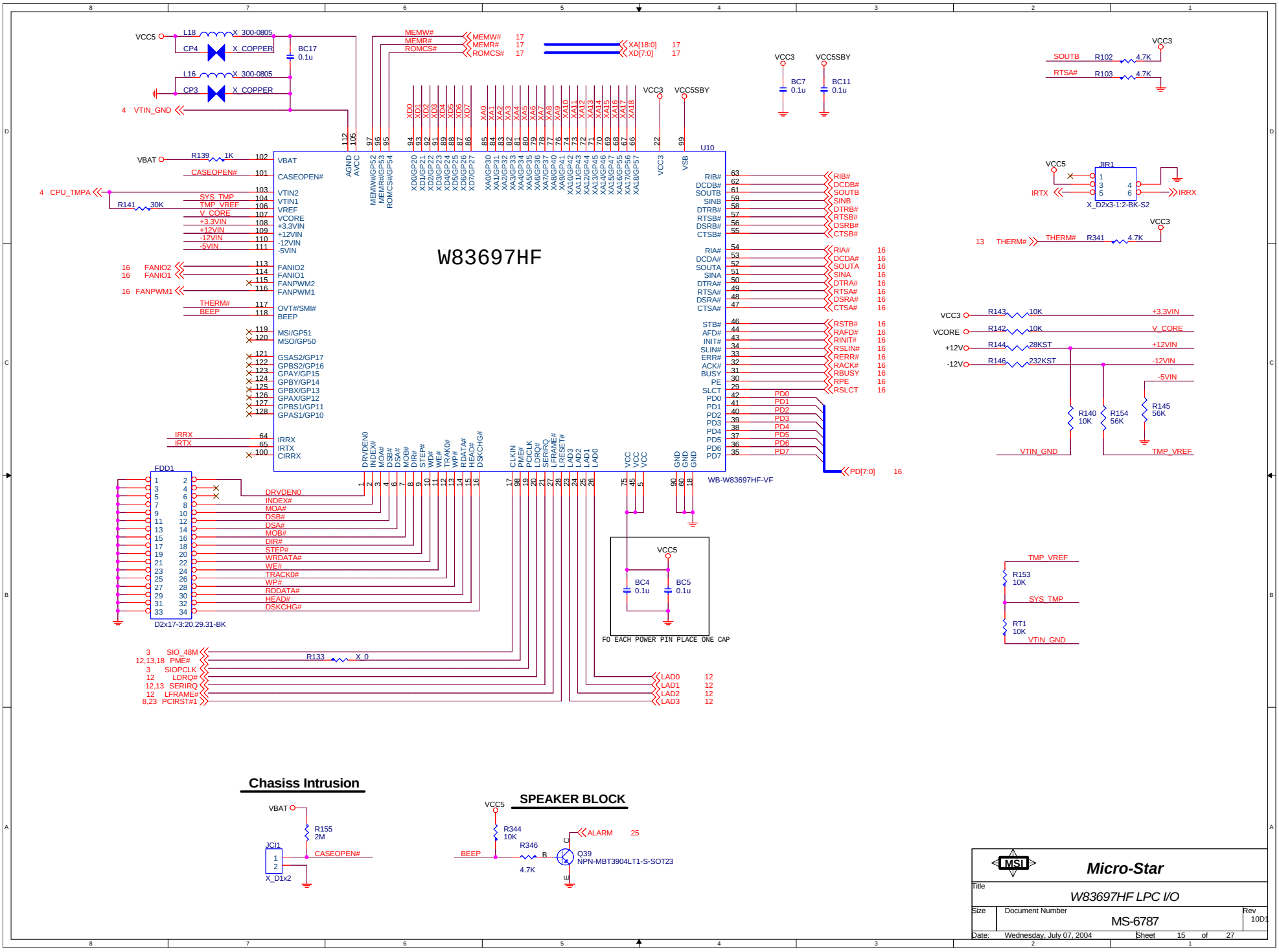
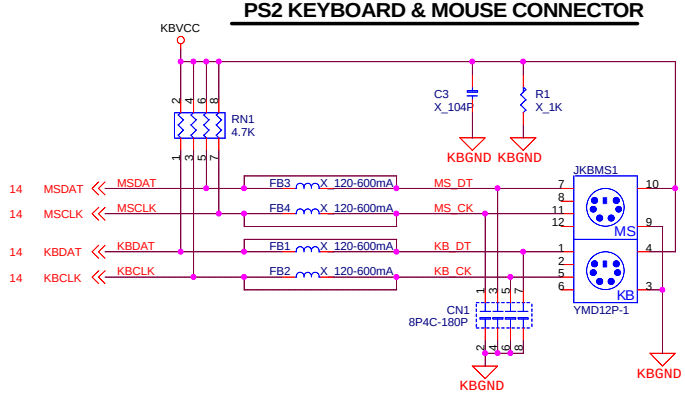
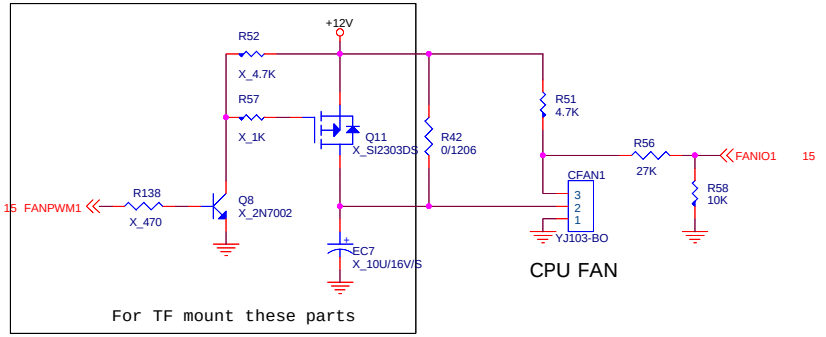
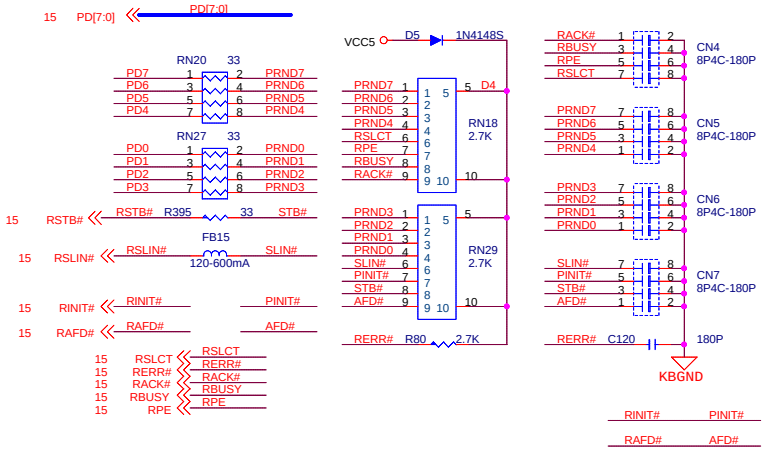


Micro-Star		
Title	W83697HF LPC I/O	
Size	Document Number MS-6787	Rev 10D1
Date: Wednesday, July 07, 2004	Sheet 15 of 27	

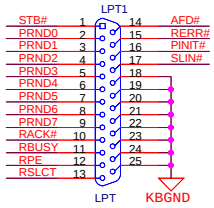
PS2 KEYBOARD & MOUSE CONNECTOR

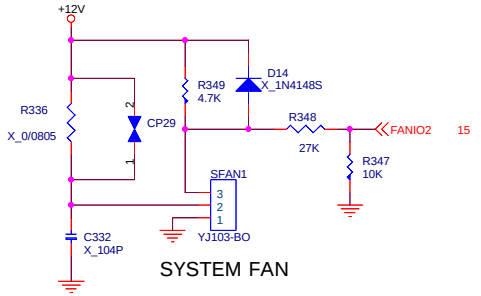




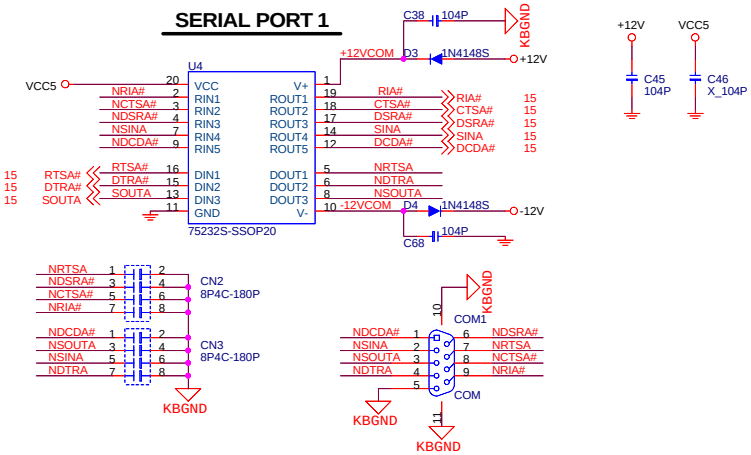


PARALLAL PORT

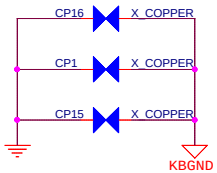




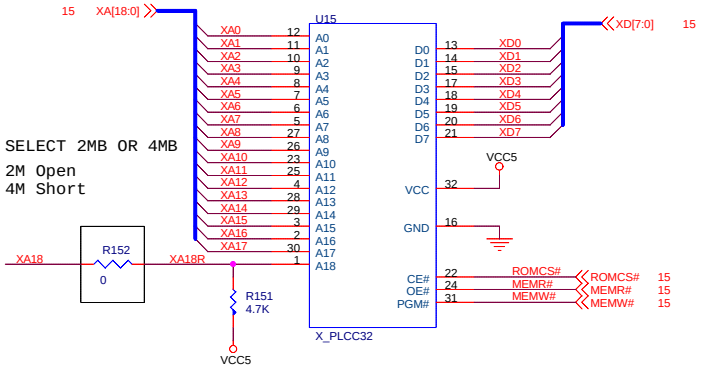
SERIAL PORT 1

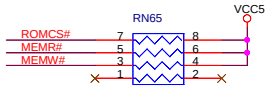


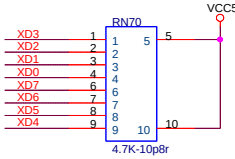
EMI

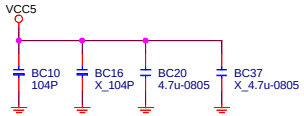


MSI	Micro-Star	
Title	KB/MS/LPT/COM Port/FAN	
Size	Document Number MS-6787	Rev 10D1
Date: Friday, July 09, 2004	Sheet 16 of 27	



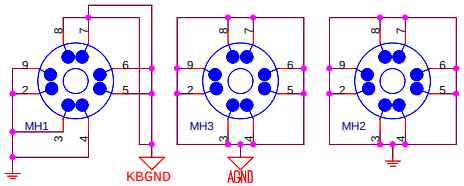


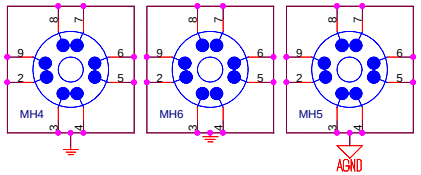




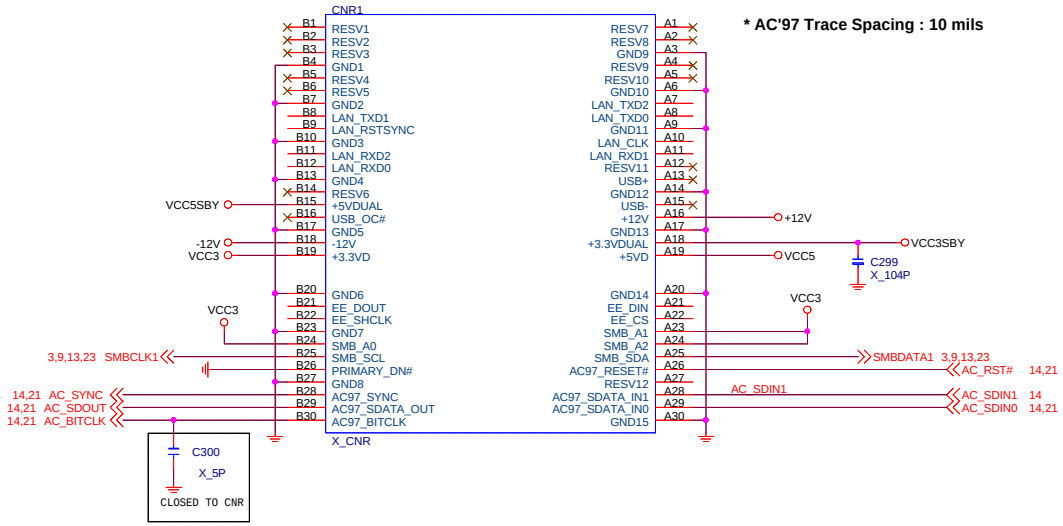
close BIOS power pin

Mounting Holes

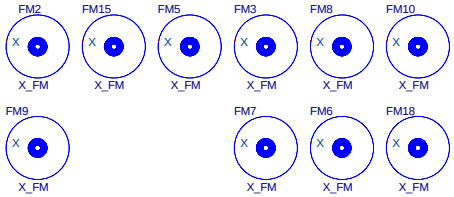




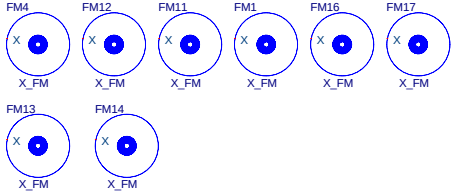
CNR RISER



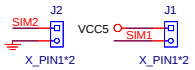
*** AC'97 Trace Spacing : 10 mils**



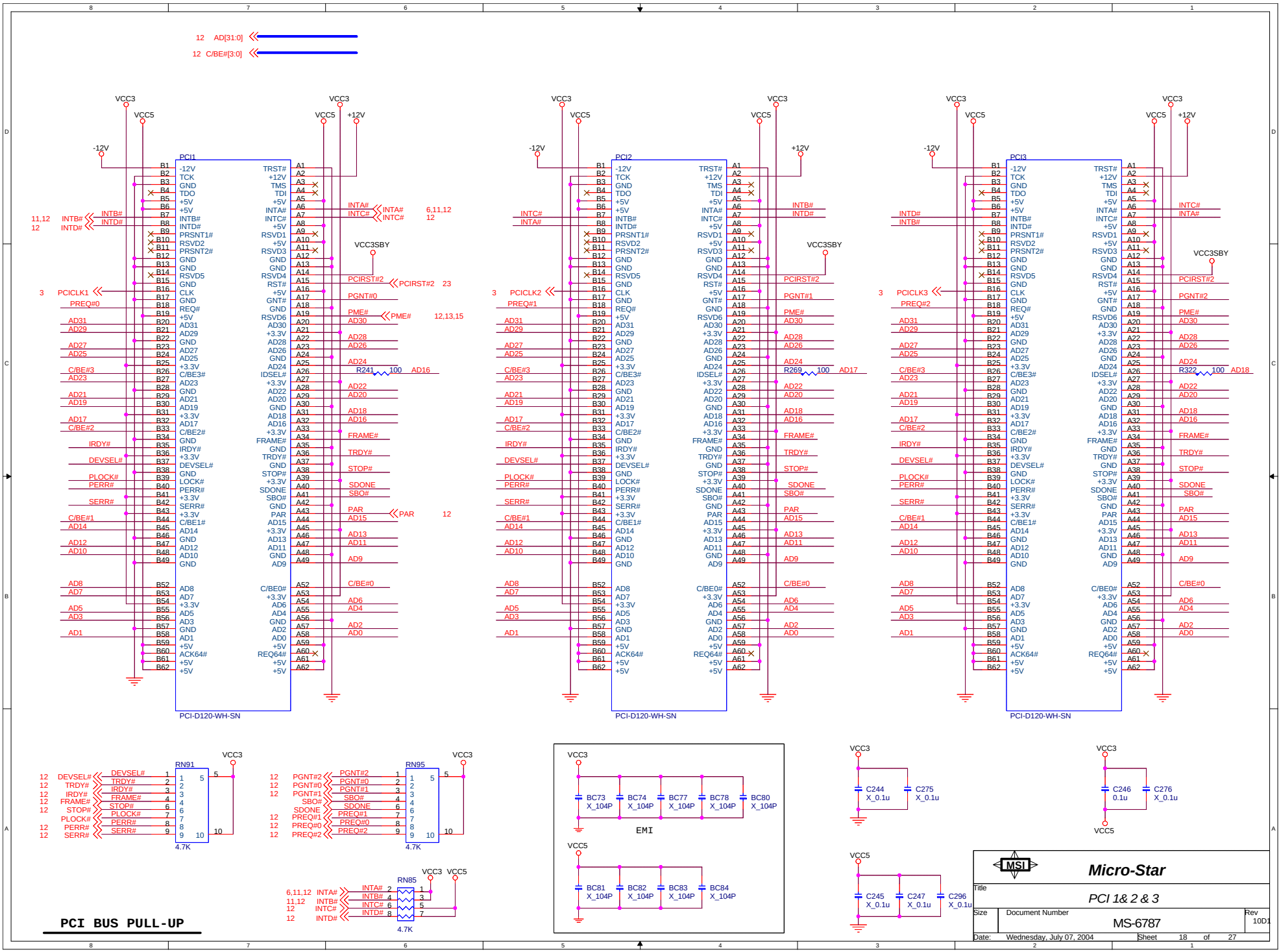
Optics Orientation Holes



Simulation



MSI	Micro-Star	
Title	AMR & ROM & Battery	
Size	Document Number: MS-6787	Rev: 10D1
Date: Wednesday, July 07, 2004	Sheet 17 of 27	


12 AD[31:0]
12 C/BE#[3:0]
PCI1
PCI2
PCI3
PCI-D120-WH-SN
VCC3
VCC5
+12V
-12V
VCC3SBY
INTA#
INTB#
INTC#
INTD#
PCIRST#2
PCIRST#2 23
PCICLK1
PCICLK2
PCICLK3
PREQ#0
PREQ#1
PREQ#2
PGNT#0
PGNT#1
PGNT#2
PME#
PME# 12,13,15
R241 100 AD16
R269 100 AD17
R322 100 AD18
FRAME#
IRDY#
TRDY#
DEVSEL#
STOP#
PLOCK#
PERR#
SERR#
SDONE
SBO#
PAR
PAR 12
RN91
RN95
RN85
4.7K
PCI BUS PULL-UP
EMI
BC73 X_104P
BC74 X_104P
BC77 X_104P
BC78 X_104P
BC80 X_104P
BC81 X_104P
BC82 X_104P
BC83 X_104P
BC84 X_104P
C244 X_0.1u
C275 X_0.1u
C245 X_0.1u
C247 X_0.1u
C296 X_0.1u
C246 0.1u
C276 X_0.1u
Micro-Star
PCI 1& 2 & 3
MS-6787
10D1
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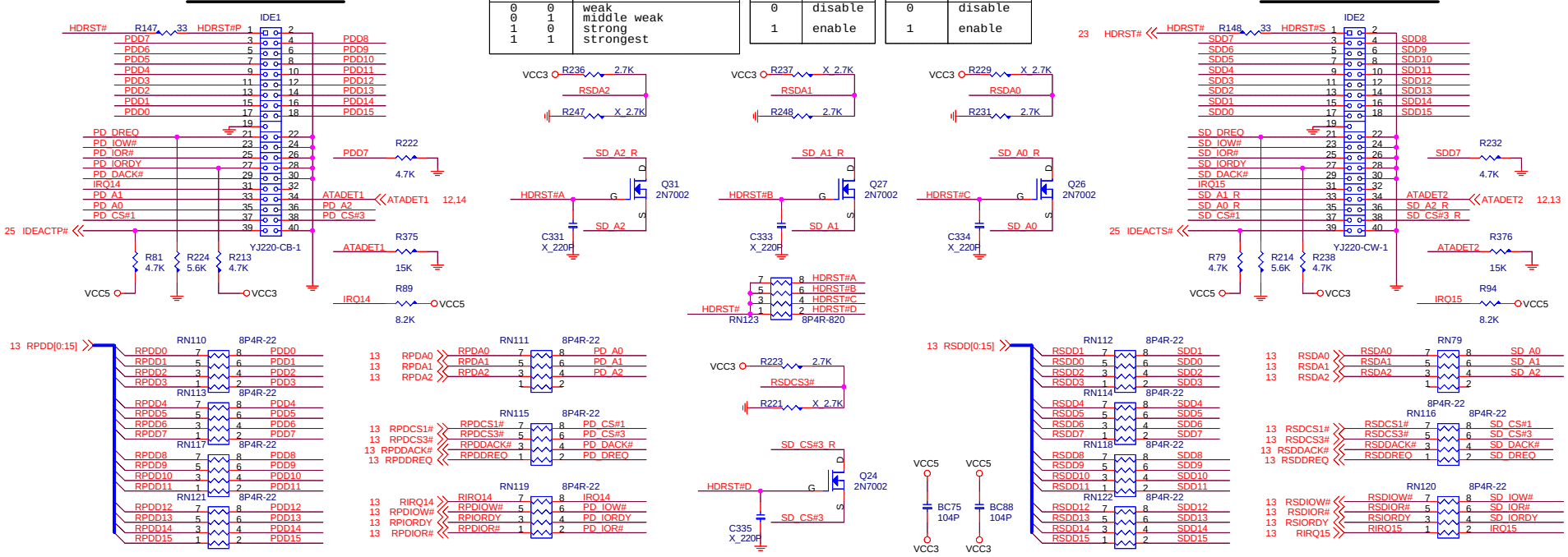
PRIMARY IDE BLOCK

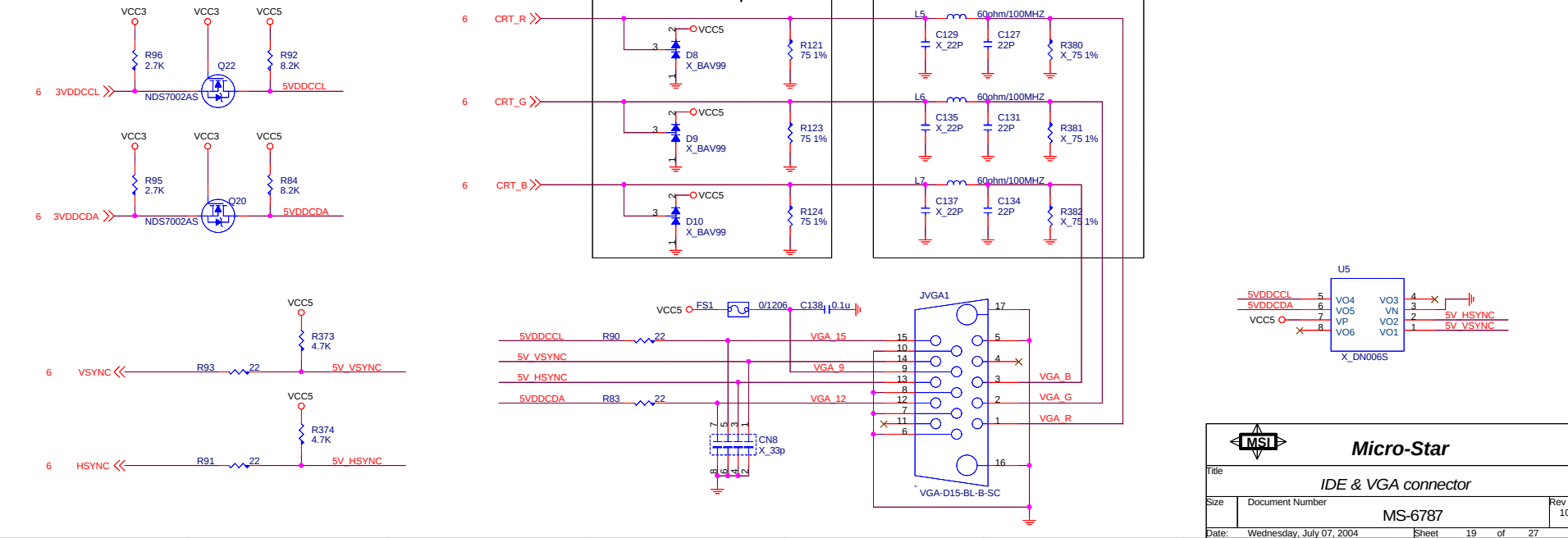
SDA1	SDA0	GTL driving strength
0	0	weak
0	1	middle weak
1	0	strong
1	1	strongest

SDA2	ROMSIP
0	disable
1	enable

SD_CS#3	Hyper Thr.
0	disable
1	enable

SECONDARY IDE BLOCK

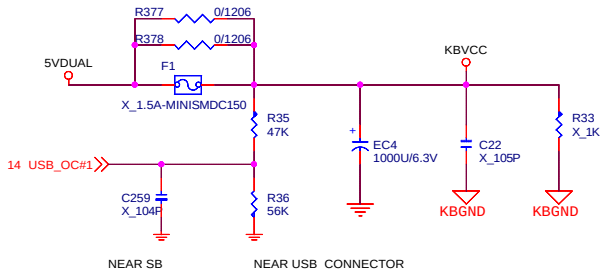




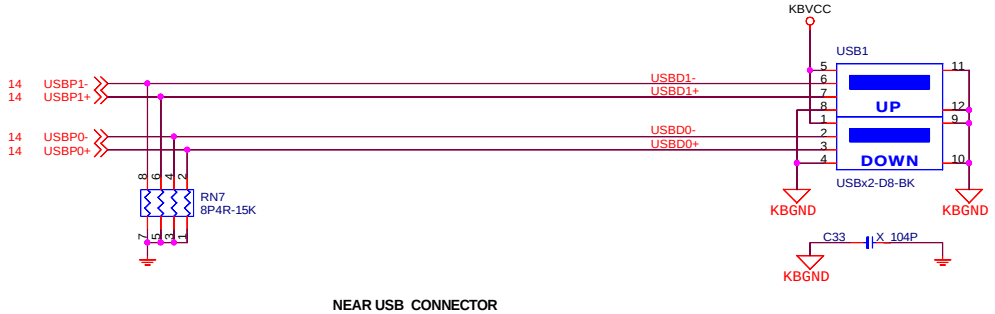
MSI **Micro-Star**

Title	IDE & VGA connector	
Size	Document Number: MS-6787	Rev: 10D1
Date: Wednesday, July 07, 2004	Sheet 19 of 27	

POWER CIRCUIT FOR USB PORT 0,1

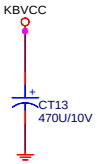


REAR PANEL USB CONNECTOR FOR USB PORT 0,1

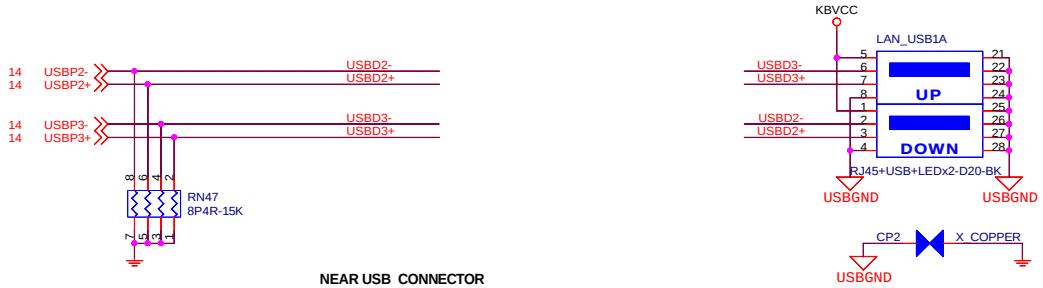


NEAR USB CONNECTOR

POWER CIRCUIT FOR USB PORT 2,3

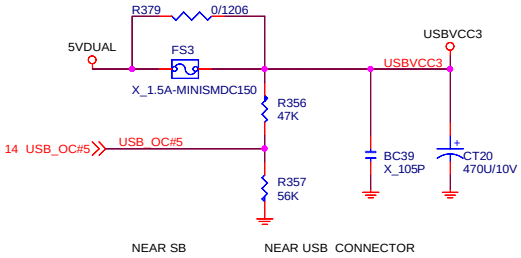


REAR PANEL USB CONNECTOR FOR USB PORT 2,3

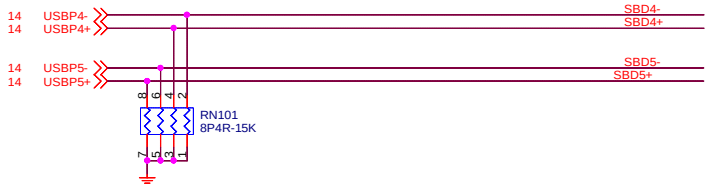


NEAR USB CONNECTOR

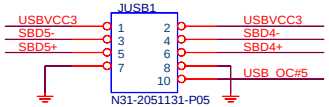
POWER CIRCUIT FOR USB PORT 4,5



FRONT PANEL USB CONNECTOR FOR USB PORT 4,5



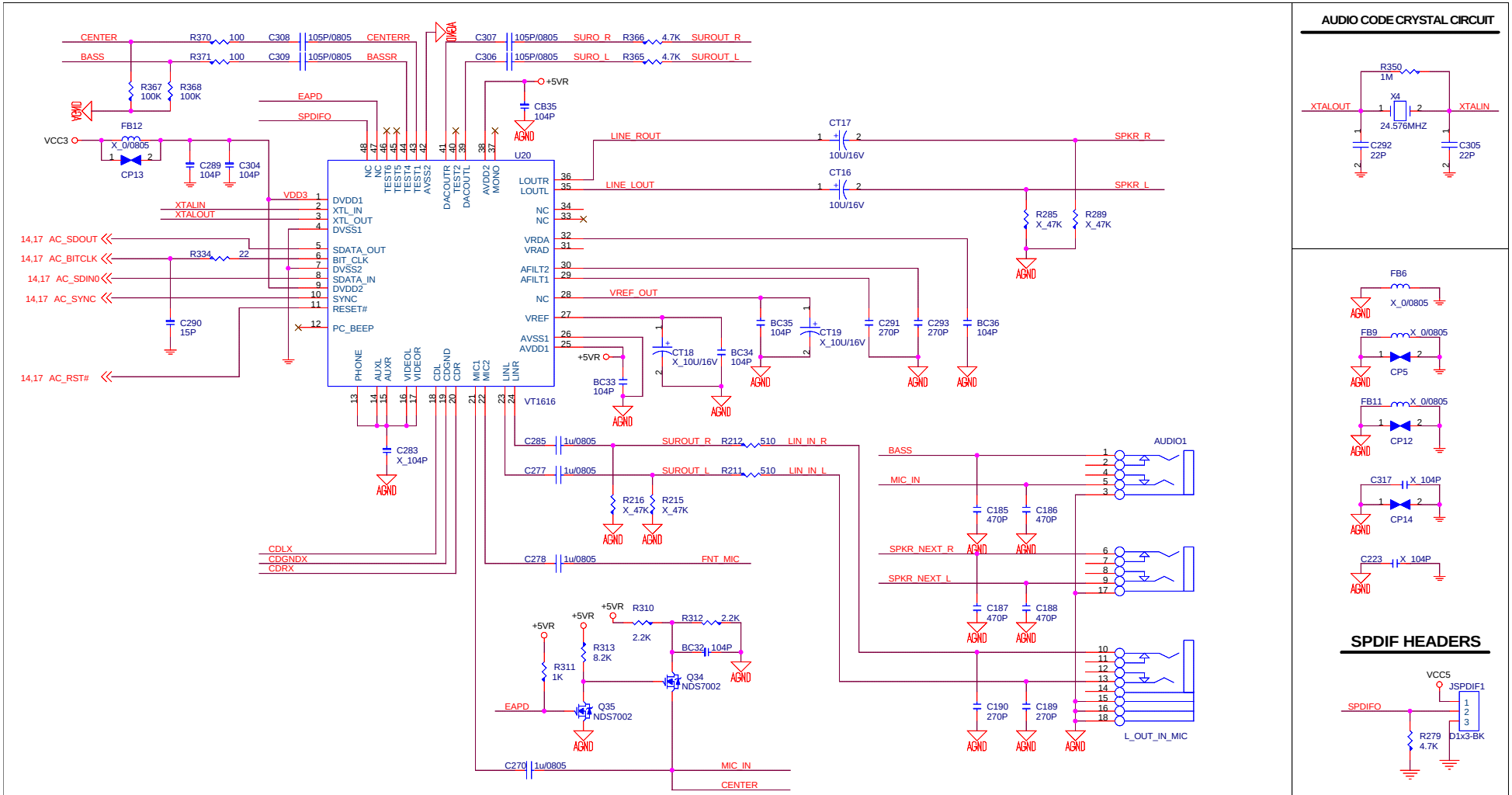
Intel Front USB Header



NEAR USB CONNECTOR

* USB Trace width : 7.5 mils
* USB Trace Spacing : 20 mils
* Differential USB Signlas Trace, Spacing : 7.5 mils
* USB Power Trace must be 50mils width

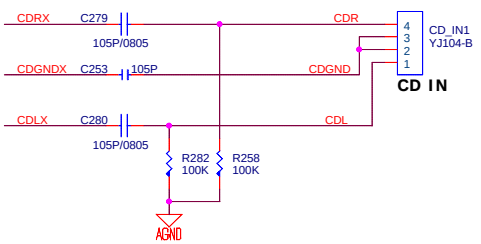
MSI	Micro-Star	
Title	USB CONNECTORS	
Size	Document Number MS-6787	Rev 10D1
Date: Wednesday, July 07, 2004	Sheet 20 of 27	



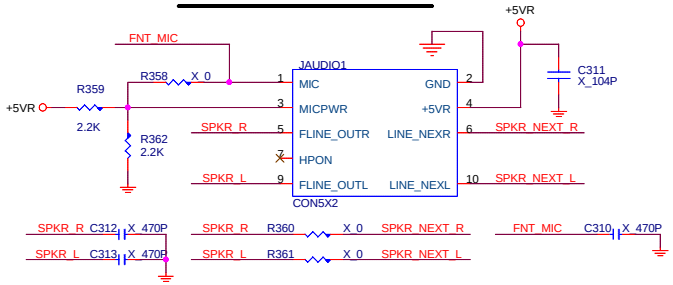
AUDIO CODE CRYSTAL CIRCUIT

SPDIF HEADERS

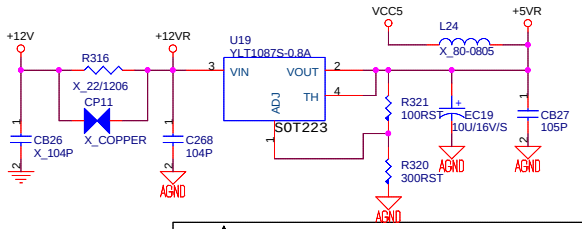
AUDIO CODE CD / AUX / MODEM IN HEADERS



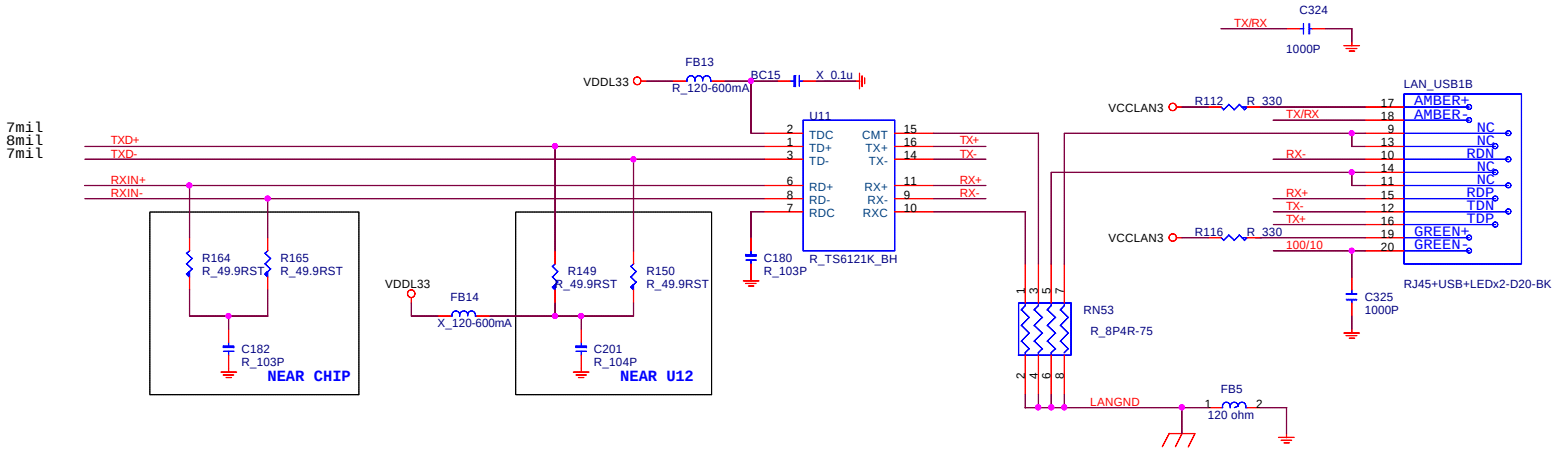
FOR Intel INTERNAL HEADER

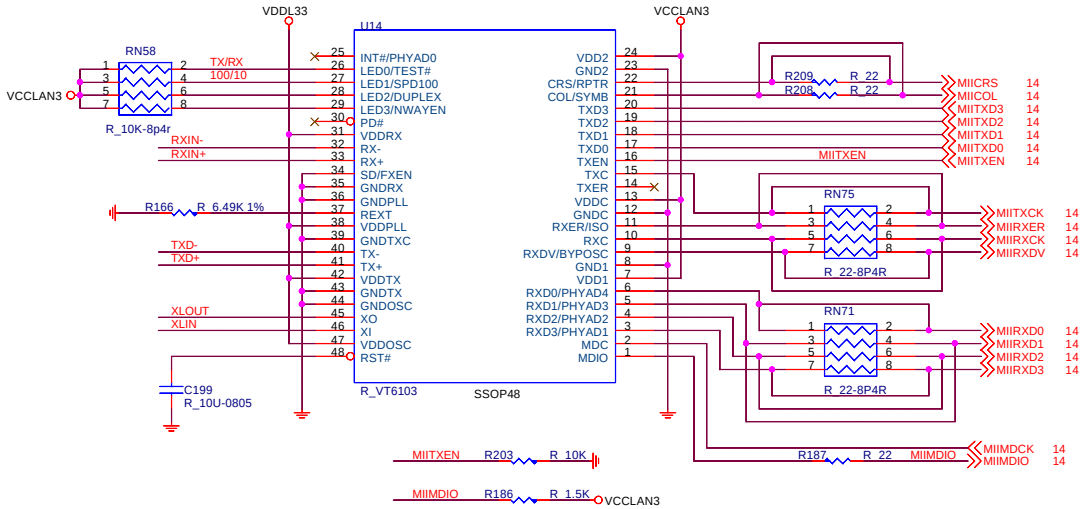


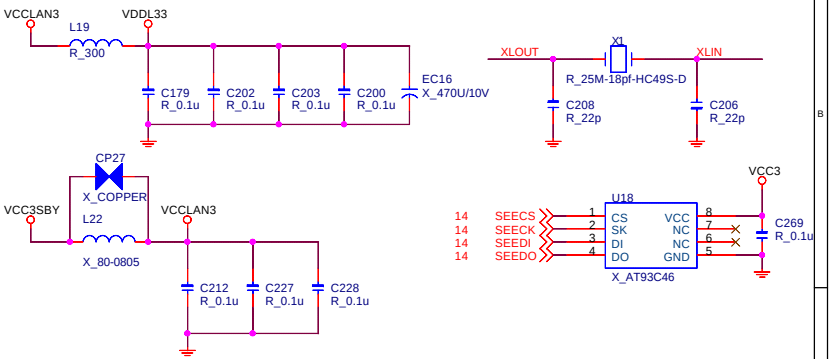
AUDIO CODE REGULATORS



MSI	Micro-Star	
Title	AC97 CODEC	
Size	Document Number	Rev
	MS-6787	10D1
Date: Wednesday, July 07, 2004	Sheet 21 of 27	







MSI	Micro-Star	
Title	LAN VT6103	
Size	Document Number MS-6787	Rev 10D1
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ACPI Controller

1.7V@250mA

Power	S0	S3	S5
VCC3_SB	Main	Standby	Standby
VCC5_STR	Main	Standby	0V
MEM_STR	Main	Standby	0V

SEL0	5VUSB
H	2 MOSFET
L	1 MOSFET

**S50# pin function(Hi level = 5V)
same as 5VUSB(Hi level = 12V)
5VUSB USE 2 MOSFET

5V DUAL Power

Low RDS ON MOSFET

DDR VTT Power

1.275V/2.1A

SEL1	VRAM	VRAM_2.5
H	3.3VDUAL	2.5V
TRI-STATE	3.3VSB	2.5V
L	3.3VSTR	1.25V

FOR 3VSB OR 3VSTR
SETTING BY SEL1

FOR 3VDUAL
SETTING BY
SEL1

Wide Trace

Pin 15,19,22,32 Must
reserve capacitor.

ICH5 300mA
PCI 375+20+20= 415mA
VCC3_SB 715mA

** SETTING 3VSTR THEN VRAM_2.5
BECOME TO 1.25 VREF

CHARGE PUMP VOLTAGE OUTPUT

VCC_VID / VID_GOOD

Place MOSFET near CPU

VCC_VID 1.2V/150mA

THIS PIN IS OPEN DRAIN OUTPUT

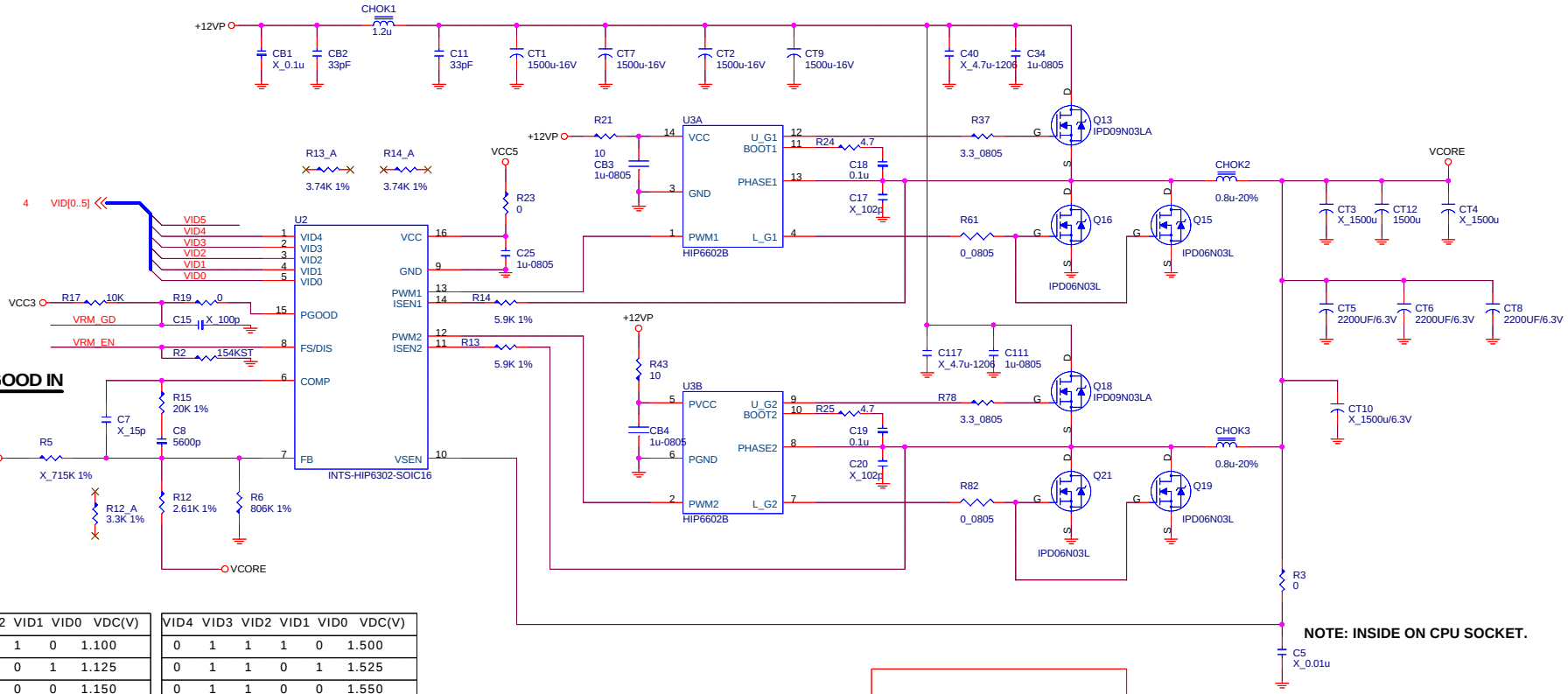
DDR 2.5V Power

2.5V/7A(DIMM)+5A(NB)

WB-W83302CRB

Title	MS-5 ACPI Controller	
Size	Document Number	Rev
	MS-6787	10D1
Date: Wednesday, July 07, 2004	Sheet 23 of 27	

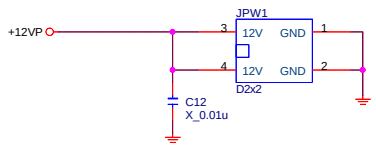
Micro-Star



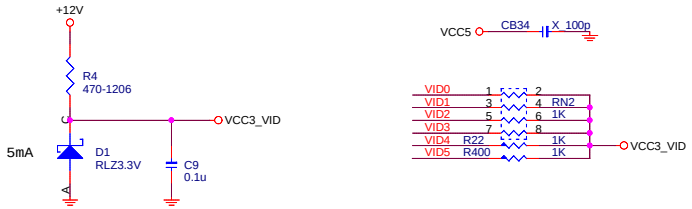
VID4	VID3	VID2	VID1	VID0	VDC(V)
1	1	1	1	0	1.100
1	1	1	0	1	1.125
1	1	1	0	0	1.150
1	1	0	1	1	1.175
1	1	0	1	0	1.200
1	1	0	0	1	1.225
1	1	0	0	0	1.250
1	0	1	1	1	1.275
1	0	1	1	0	1.300
1	0	1	0	1	1.325
1	0	1	0	0	1.350
1	0	0	1	1	1.375
1	0	0	1	0	1.400
1	0	0	0	1	1.425
1	0	0	0	0	1.450
0	1	1	1	1	1.475

VID4	VID3	VID2	VID1	VID0	VDC(V)
0	1	1	1	0	1.500
0	1	1	0	1	1.525
0	1	1	0	0	1.550
0	1	0	1	1	1.575
0	1	0	1	0	1.600
0	1	0	0	1	1.625
0	1	0	0	0	1.650
0	0	1	1	1	1.675
0	0	1	1	0	1.700
0	0	1	0	1	1.725
0	0	1	0	0	1.750
0	0	0	1	1	1.775
0	0	0	1	0	1.800
0	0	0	0	1	1.825
0	0	0	0	0	1.850
1	1	1	1	1	OFF

ATX12V POWER CONNECTOR



VID PULL-UP RESISTORS



MSI	MICRO-STAR INT'L CO.,LTD.	
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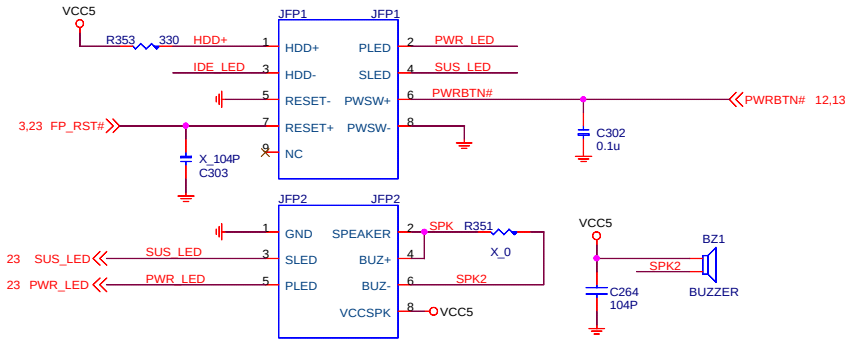
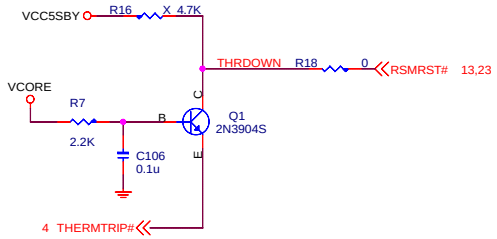
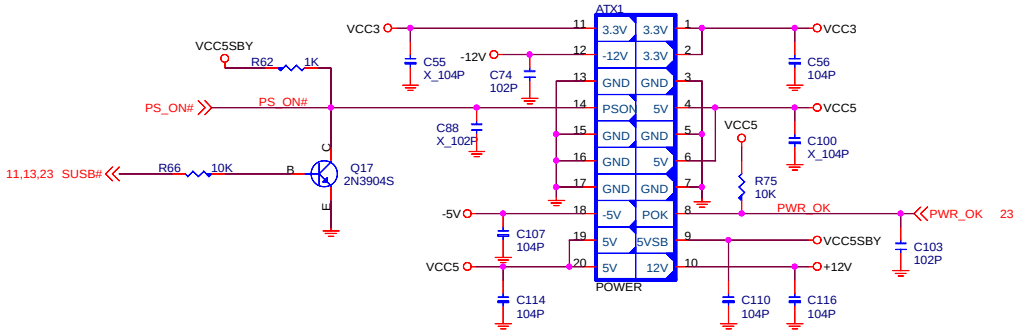
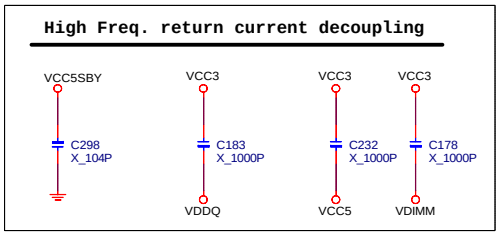
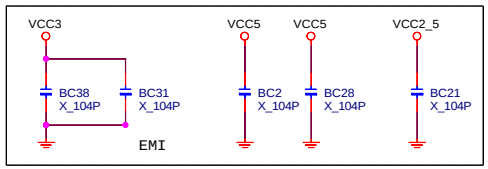
MSI / Intel Front Panel

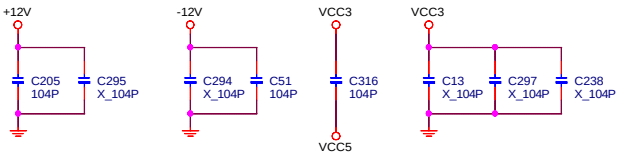












MSI **Micro-Star**

Title: *Front Panel & ATX & therm*

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GPIO FUNCTION

VT8235

GPIO Pin	Mux with	Power	Default function	Used function
GPI 0		VDD	GPI0	Pull up to VBAT
GPI 1		VDD	GPI1	IDE1 Detect
GPI 2	EXTSMI#	VDD	EXTSMI#	Pull up to VCC3SBY
GPI 3	RING#	VDD	RING#	Pull up to VCC3SBY
GPI 4	LID#	VDD	LID#	IDE2 Detect
GPI 5	BATLOW#	VDD	BATLOW#	Pull up to VCC3SBY
GPI 6	AGPBZ	VDD	AGPBZ	Pull up to VCC3
GPI 7	REQ5	VDD	GPI7	Pull up to VCC3
GPIO 8	GPO8/PCREQA/ VGATE	VDD	GPI8	GPI8
GPIO 9	GPO9/VRDPSLP	VDD	GPI9	GPI9
GPIO 10	GPO10	VDD	GPI10	GPI10
GPIO 11	GPO11	VDD	GPI11	GPI11
GPIO 12	GPO12/INTE#	VDD	GPI12	GPI12
GPIO 13	GPO13/INTF#	VDD	GPI13	GPI13
GPIO 14	GPO14/INTG#	VDD	GPI14	GPI14
GPIO 15	GPO15/INTH#	VDD	GPI15	GPI15
GPIO 16	INTRUDER#	VDD	INTRUDER#	INTRUDER#
GPIO 17	CPUMISS	VDD	CPUMISS	CPUMISS
GPIO 18	AOLGPI/THRM#	VDD	AOLGPI	AOLGPI
GPIO 19	IORDY	VDD	IORDY	IORDY
GPIO 20	SDIN2/PCS0#	VDD	SDIN2	SDIN2
GPIO 21	SDIN3/PCS1#/ SLPBTN#	VDD	SDIN3	SDIN3
GPIO 22	GPO22/GHI#	VDD	GPO22	GPO22
GPIO 23	GPO23/DPSLP	VDD	GPO23	GPO23
GPIO 24	GPO24/GPIOA	VDD	GPO24	GPO24
GPIO 25	GPO25/GPIOC	VDD	GPO25	GPO25
GPIO 26	GPO26/SMBDT2	VDD	SMBDT2	Pull up
* GPIO 27	GPO27/SMBCK2	VDD	SMBCK2	Pull up
GPIO 28	GPO28/VIDSEL	VDD	GPO28	GPO28
GPIO 29	GPO29/VRDSLP	VDD	GPO29	GPO29
GPIO 30	GPO30/GPIOD	VDD	GPO30	GPO30
GPIO 31	GPO31/GPIOE	VDD	GPO31	GPO31

FWH

GPIO Pin	Type	Function
GPI 0	I	PD_DET
GPI 1	I	SD_DET
* GPI 2	I	Pull down through 1K ohms (unused)
GPI 3	I	Pull down through 1K ohms (unused)
* GPI 4	I	Pull down through 1K ohms (unused)

DDR DIMM Config.

DEVICE	ADDRESS	CLOCK
DIMM 1	1010000B	MCLK_A0/MCLK_A0# MCLK_A1/MCLK_A1# MCLK_A2/MCLK_A2#
DIMM 2	1010001B	MCLK_B0/MCLK_B0# MCLK_B1/MCLK_B1# MCLK_B2/MCLK_B2#

PCI RESET DEVICE

Signals	Target
PCIRST#_ICH5	AGP,FWH,MS-5
PCIRST#1	Springdale,LAN, Super I/O,SATA, 1394,MS-1
PCIRST#2	PCI slot 1-6
HD_RST#	Primary, Scondary IDE

PCI

DEVICES	INT#	IDSEL	REQ#/GNT#	CLOCK
PCI SLOT 1	INT#A INT#B INT#C INT#D	AD16	PREQ#1 PGNT#1	PCICLK1
PCI SLOT 2	INT#B INT#C INT#D INT#A	AD17	PREQ#2 PGNT#2	PCICLK2
PCI SLOT 3	INT#C INT#D INT#A INT#B	AD18	PREQ#3 PGNT#3	PCICLK3
PCI SLOT 4	INT#D INT#A INT#B INT#C	AD19	PREQ#4 PGNT#4	PCICLK4
PCI SLOT 5	INT#B INT#C INT#D INT#A	AD20	PREQ#5 PGNT#5	PCICLK5
PCI SLOT 6	INT#A INT#B INT#C INT#D	AD21	PCI6REQ# PCI6GNT#	PCICLK6
SERIAL ATA	INT#E	AD25	SATA_GNT# SATA_REQ#	SATA_PCLK
1394	INT#F	AD26	1394_GNT# 1394_REQ#	1394_PCLK
MS-1			PREQ#0 PGNT#0	

Micro-Star

Title: GPIO SPEC

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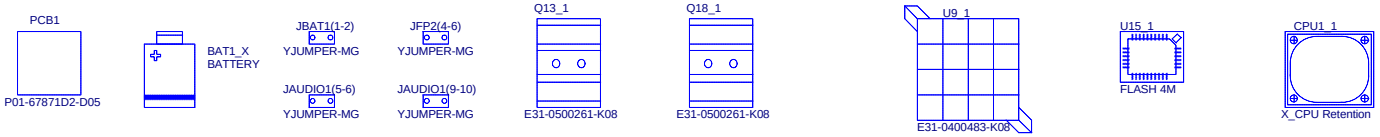
Jumper Setting & Connector Setting



STD	LAN_USB1_A USB X 2 - 8pin
LAN	LAN_USB1_B USB X2 +RJ45

MSI	***Micro-Star***	
Title	*manual part*	
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