

MS-7094 VER:100 ATX

**AMD PGA 939 K8-Processor (DDR 400)*

**VIA K8M800 /K8T800 Pro /K8T800#B*

**VIA VT8237 (AGP 8X / VLink 8X)*

**Winbond 83627THF LPC I/O*

**8201CL 100/10 Bit LAN Support*

**USB 2.0 support (integrated into VT8237)*

**ALC655 6 channel S/W Audio*

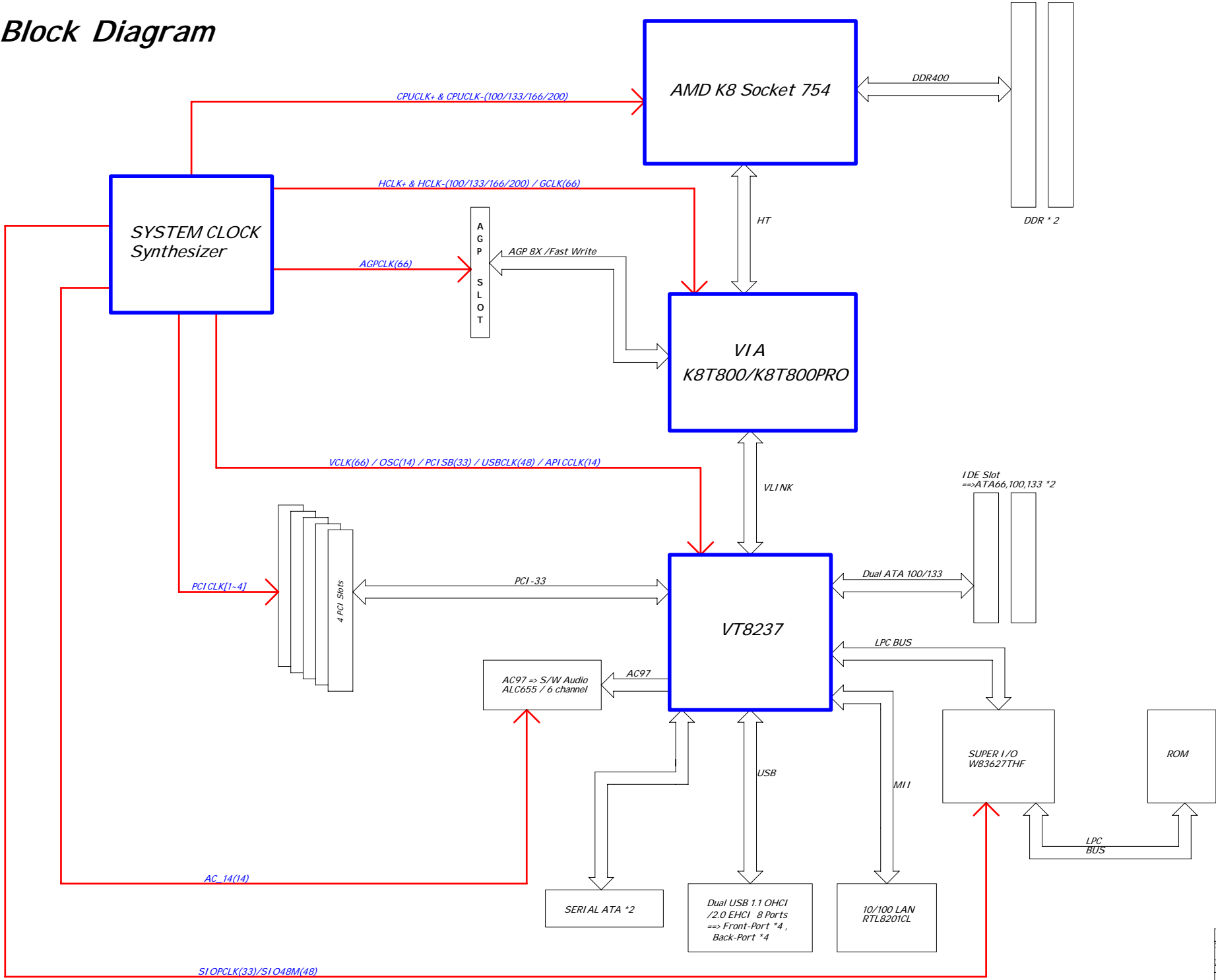
**DDR DIMM * 2*

**AGP SLOT * 1 (8X)*

**PCI SLOT * 4*

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Block Diagram



GPI O FUNCTION

VT8237 GPIO Function Define

PIN NAME	Function define
GPO0 (VSUS33)	NA
GPO1/SUSA# (VSUS33)	NA
GPO2/SUSB# (VSUS33)	SUSB#
GPO3/SUSST1# (VSUS33)	SUSST#
GPO4/SUSCLK (VSUS33)	NA (Exteranl Pull up to 3VDUAL)
GPO5/CPUSTP#	NA (Exteranl Pull up to VCC3)
GPO6/PCISTP#	NA (Exteranl Pull up to VCC3)
GPO7/SLP#	LDTSTOP#
GPO8/GPI8/IPBIN0	NA
GPO9/GPI9/IPBIN1	NA
GPO10/GPI10/IPBRDFR	NA
GPO11/GPI11/IPBRDCK	NA
GPO12/GPI12/INTE#	VSET0
GPO13/GPI13/INTF#	VSET1
GPO14/GPI14/INTG#	VSET2
GPO15/GPI15/INTH#	NA
GPO16/SA16/STRAP	LDT Freq Strapping Bit0
GPO17/SA17/STRAP	LDT Freq Strapping Bit1
GPO18/SA18/STRAP	LDT Width (Low=8 Bit)
GPO19/SA19/STRAP	Fast Command (Low=Disable)
GPO20/GPI20 /ACSDIN2/PCS0#/EI	POWERF1
GPO21/GPI21/ACSDIN3 /PCS1#/SLPBTN#	POWERF2
GPO22/GPI22/IOR#	NA
GPO23/GPI23/DPSLP	ROMLOCK
GPO24/GPI24/GPIOA	NA
GPO25/GPI25/GPIOC	NA
GPO26/GPI26/SMBDT2 (VSUS33)	SMBDATA2/Slave SMBUS
GPO27/GPI27/SMBCK2 (VSUS33)	SMBCLK2/Slave SMBUS
GPO28/GPI28/VIDSEL	NA
GPO29/GPI29/VRDSLP	NA
GPO30/GPI30/GPIOD	NA
GPO31/GPI31/GPIOE	NA

PIN NAME	Function define
GPI0	NA (Exteranl Pull up to VBAT)
GPI1	ATADET0=>Detect IDE1 ATA100/66
GPI2/EXTSMI#	EXTSMI#
GPI3/RING#	RING#
GPI4/LID#	ATADET1=>Detect IDE2 ATA100/66
GPI5/BATLOW#	NA (Exteranl Pull up to 3VDUAL)
GPI6/AGPBZ#	POWERF3
GPI7/REQ#5	NA (Exteranl Pull up to 3VDUAL)
GPI16/INTRUDER#	NA (Exteranl Pull up to VBAT)
GPI17/CPUMISS	NA (Exteranl Pull up to 3VDUAL)
GPI18/AOLGP1/THRM#	THRM#
GPI19/IORDY	NA (Exteranl Pull up to VCC3)

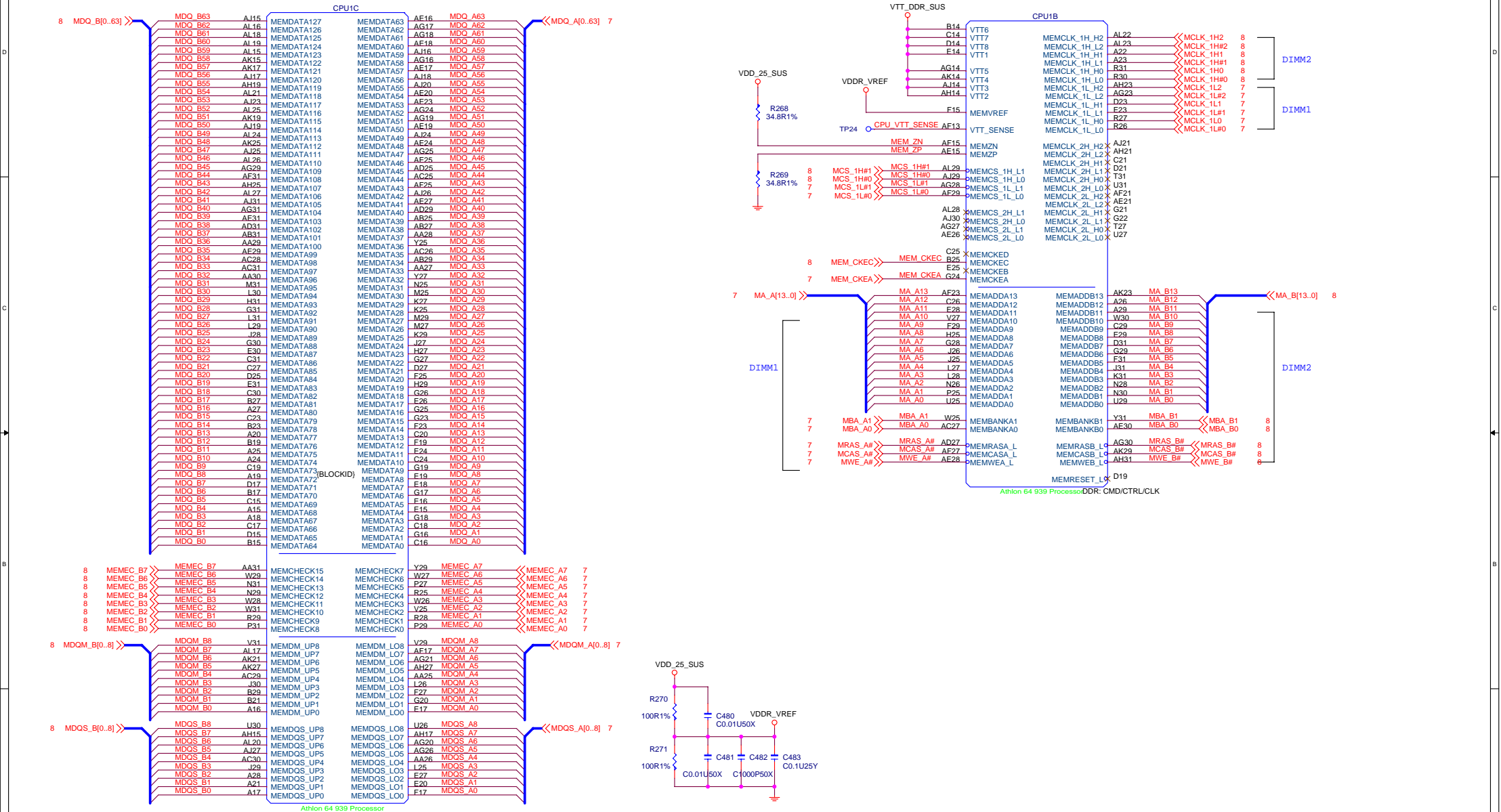
S/IO GPIO Function Define

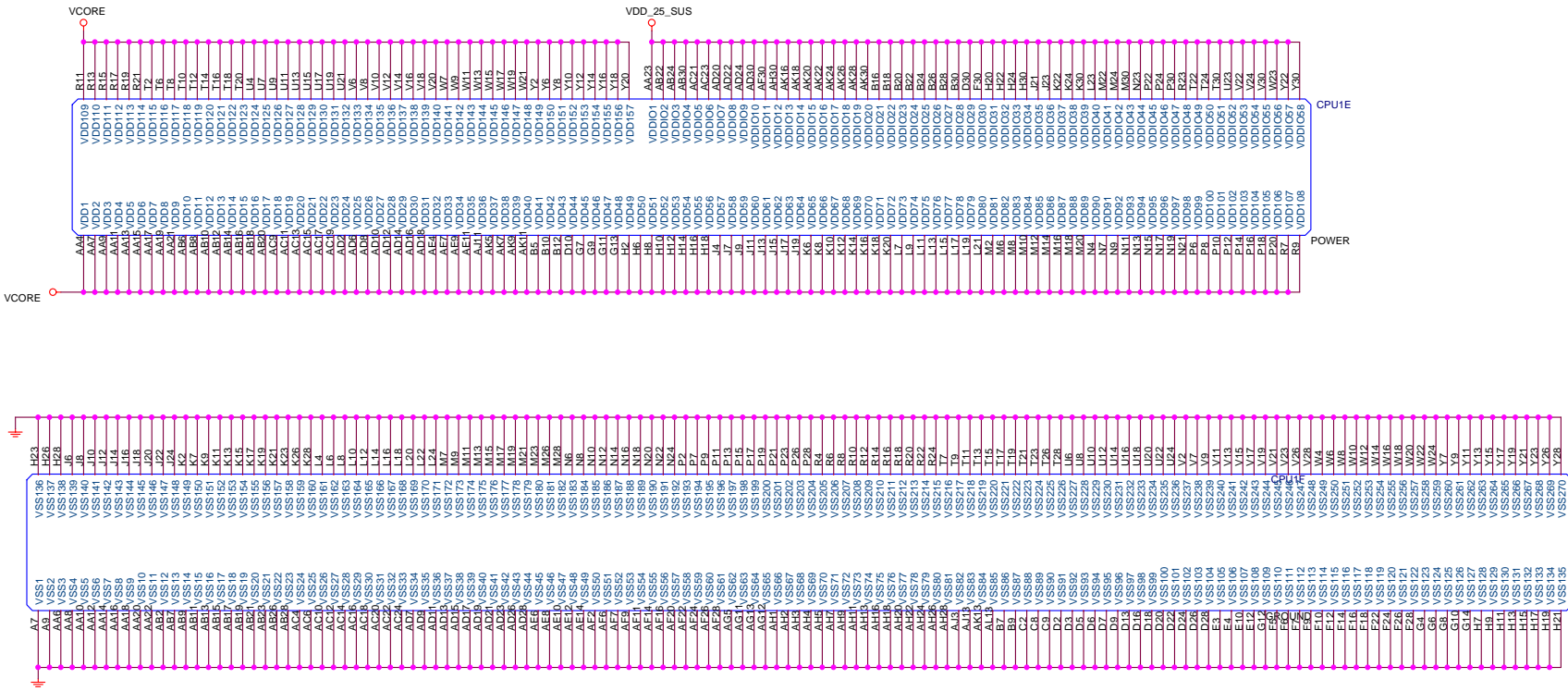
PIN NAME	Function define
GPBX/GP13	LED#4
GPAY/GP15	LED#2
GPAS1/GP10	LED1
GPAS2/GP17	LED4
GPAX/GP12	LED#3
GPBY/GP14	LED#1
GPBS1/GP11	LED2
GPBS2/GP16	LED3

PCI Routing

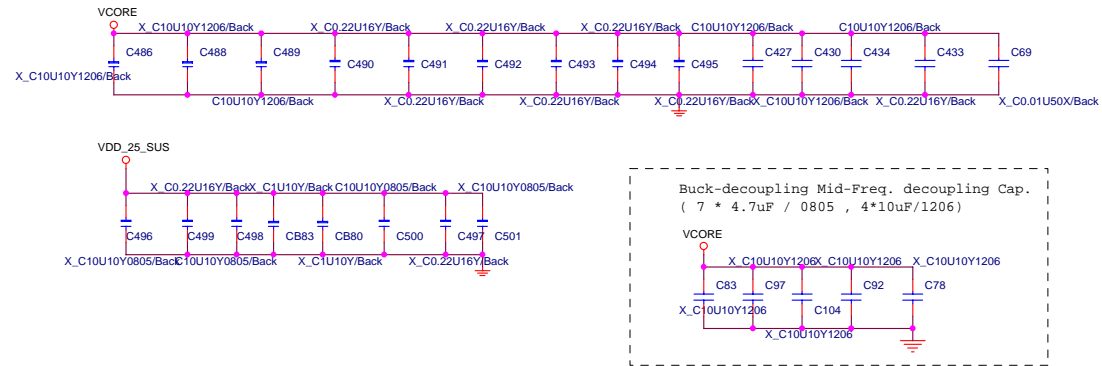
DEVICES	INT#	IDSEL	REQ#/GNT#	CLOCK
PCI SLOT 1	INT#A INT#B INT#C INT#D	AD16	PREQ#6 PGNT#6	PCICLK1
PCI SLOT 2	INT#B INT#C INT#D INT#A	AD17	PREQ#3 PGNT#3	PCICLK2
PCI SLOT 3	INT#C INT#D INT#A INT#B	AD18	PREQ#4 PGNT#4	PCICLK3
PCI SLOT 4	INT#D INT#A INT#B INT#C	AD19	PREQ#7 PGNT#7	PCICLK4
PCI SLOT 5	INT#B INT#C INT#D INT#A	AD21	PREQ#8 PGNT#8	PCICLK5
Giga-Bit LAN	INT#A	AD22	PREQ#1 PGNT#1	GLAN_PCLK

VDD_VTT_SUS_CPU is connected to the VDD_VTT_SUS power supply through the package or on the die. It is only connected on the board to decoupling near the CPU package.

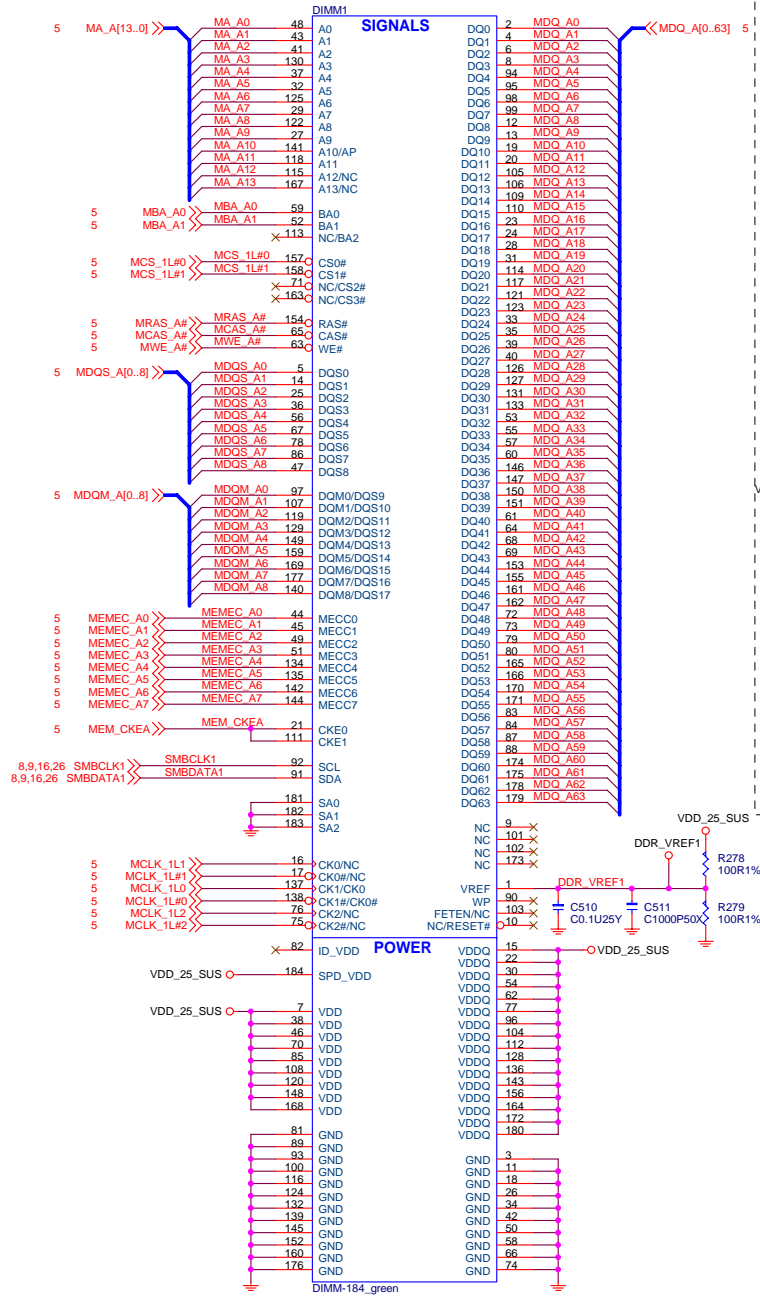




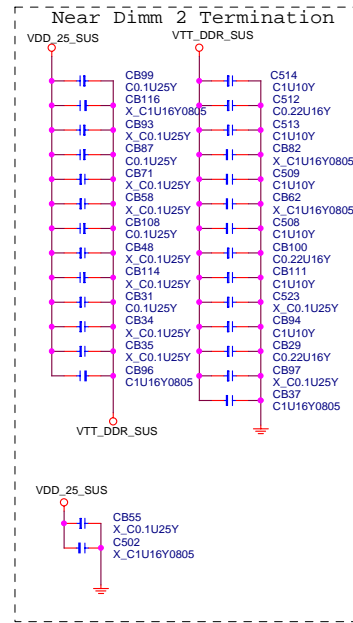
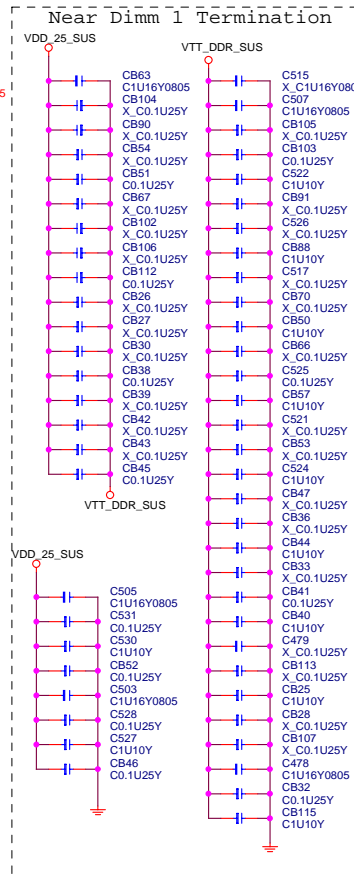
Bottomside Decoupling



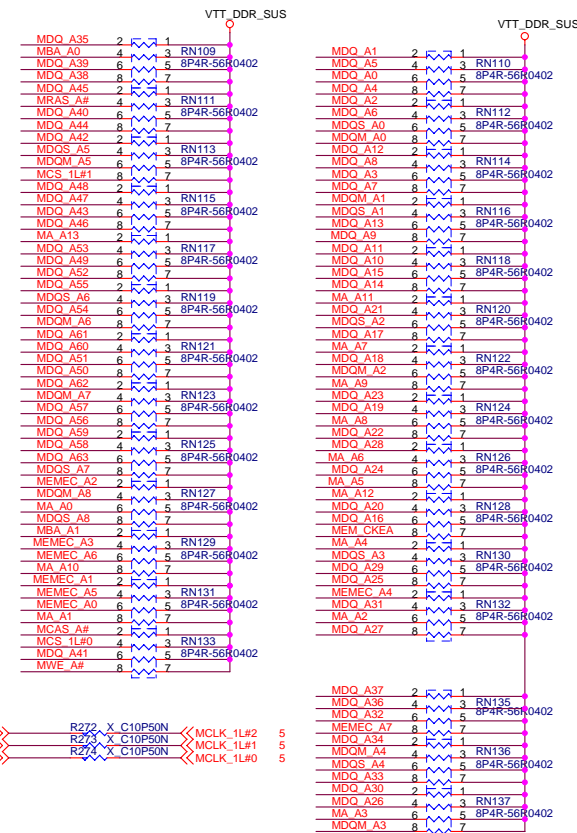
DDR DIMM1



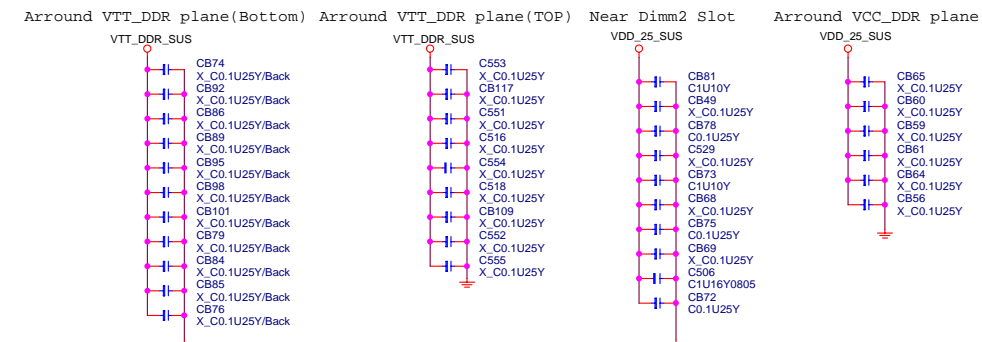
DECOUPLING CAPACITORS



DDR Termination Resistors

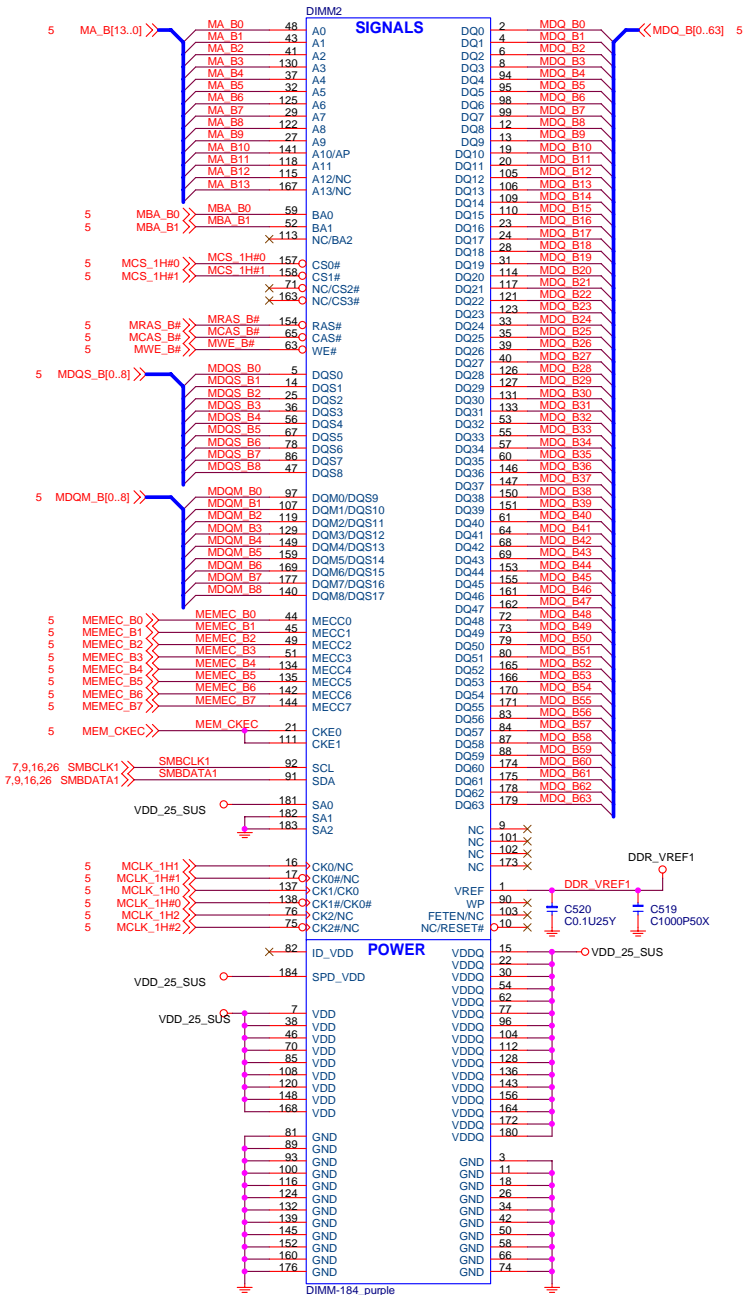


DECOUPLING CAPACITORS

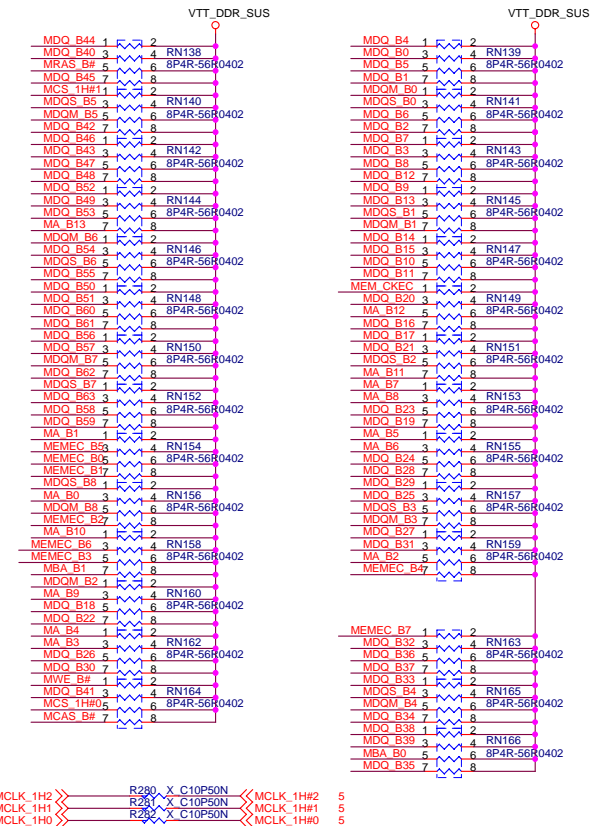


SYSTEM MEMORY

DDR DIMM2



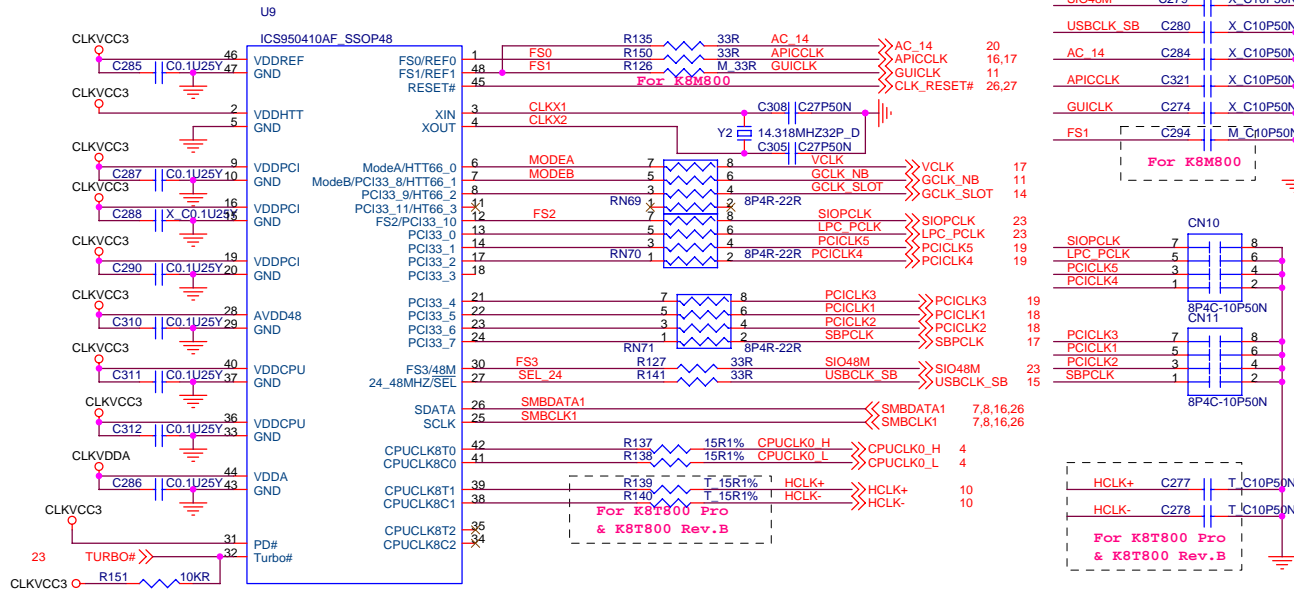
DDR Terminational Resistors



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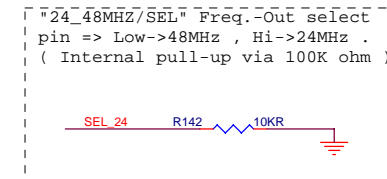
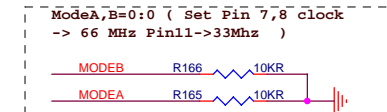
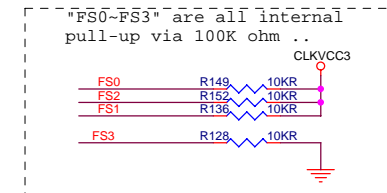
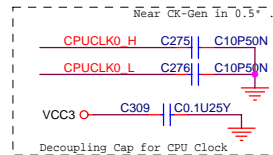
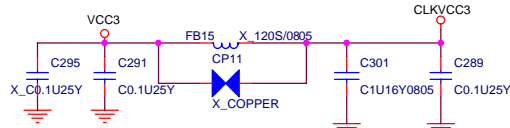
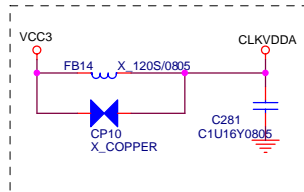
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Document Number	MS-7094	
MICRO-STAR INT'L No. 66, Hsiao-De St., Jung-He City, Taipei Hsien, Taiwan		Last Revision Date: Monday, January 24, 2005
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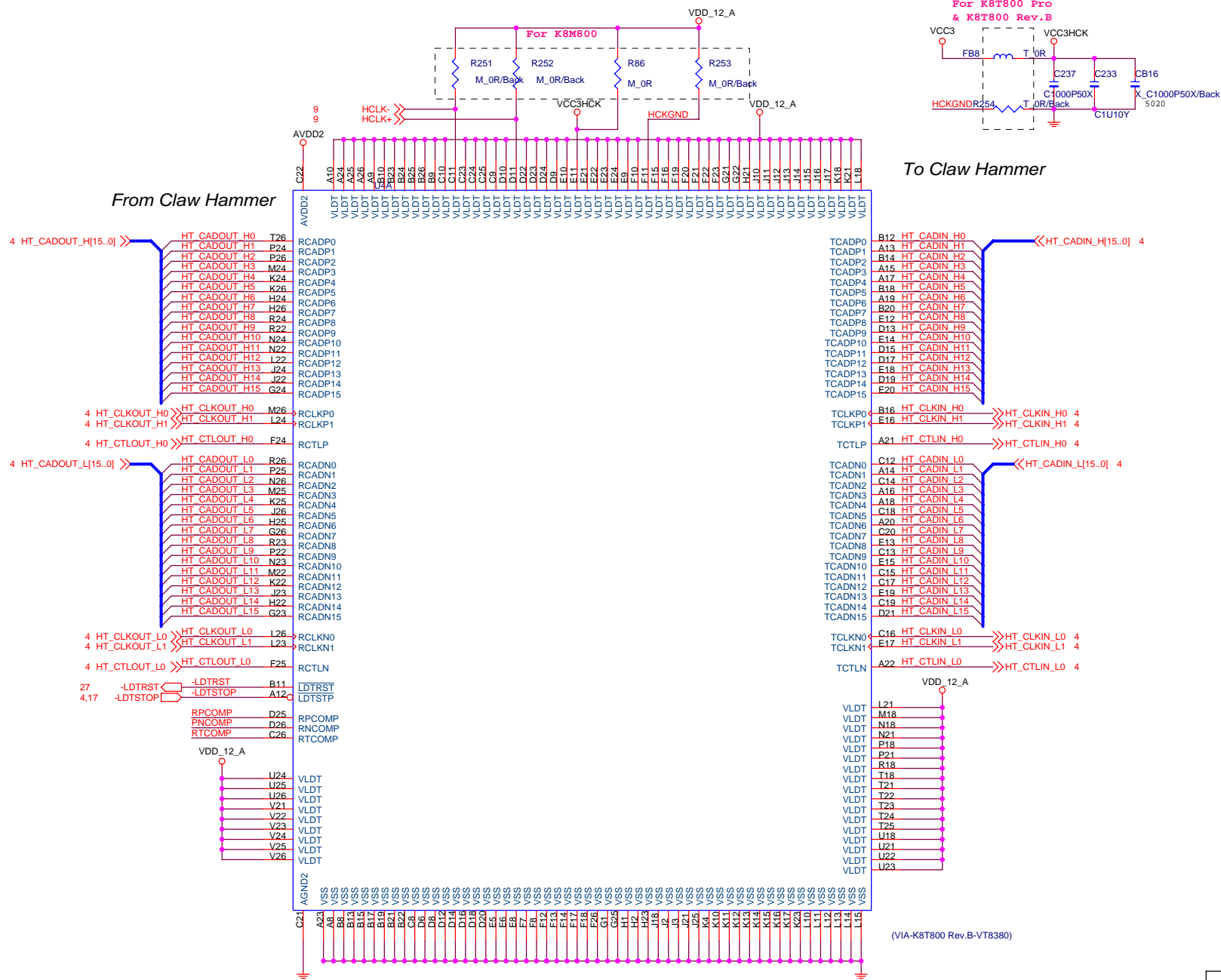
Clock Synthesizer



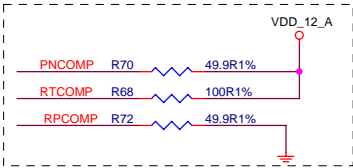
ICS950410AF									
Strapping				CPU		HTT	PCI		
FS3	FS2	FS1	FS0	MHz	MHz	MHz			
0	0	0	0	100.90	67.27	33.63			
0	0	0	1	133.90	66.95	33.48			
0	0	1	0	168.00	67.20	33.60			
0	0	1	1	202.00	67.33	33.67			
0	1	0	0	100.20	66.80	33.40			
0	1	0	1	133.50	66.75	33.38			
0	1	1	0	166.70	66.68	33.34			
0	1	1	1	200.40	66.80	33.40			
1	0	0	0	150.00	60.00	33.00			
1	0	0	1	180.00	60.00	33.00			
1	0	1	0	210.00	70.00	35.00			
1	0	1	1	240.00	60.00	30.00			
1	1	0	0	270.00	67.50	33.75			
1	1	0	1	233.33	66.67	33.33			
1	1	1	0	266.67	66.67	33.33			
1	1	1	1	300.00	75.00	37.50			

ModeA	ModeB	Pin6	Pin7	Pin8	Pin11
0	0	HTTCLK0	HTTCLK1	HTTCLK2	PCICLK10
0	1	ModeA In	HTTCLK1	HTTCLK2	HTTCLK3
1	0	PCICLK7	PCICLK8	PCICLK9	PCICLK10
1	1	ModeA In	PCICLK8	PCICLK9	PCICLK10





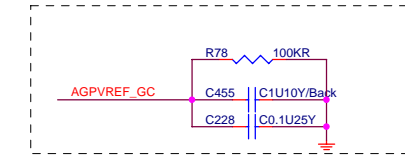
To Claw Hammer



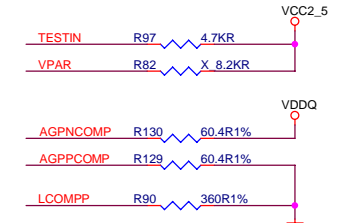
(VIA-K8T800 Rev.B-VT8380)

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For K8T800 Pro
& K8T800 Rev.B

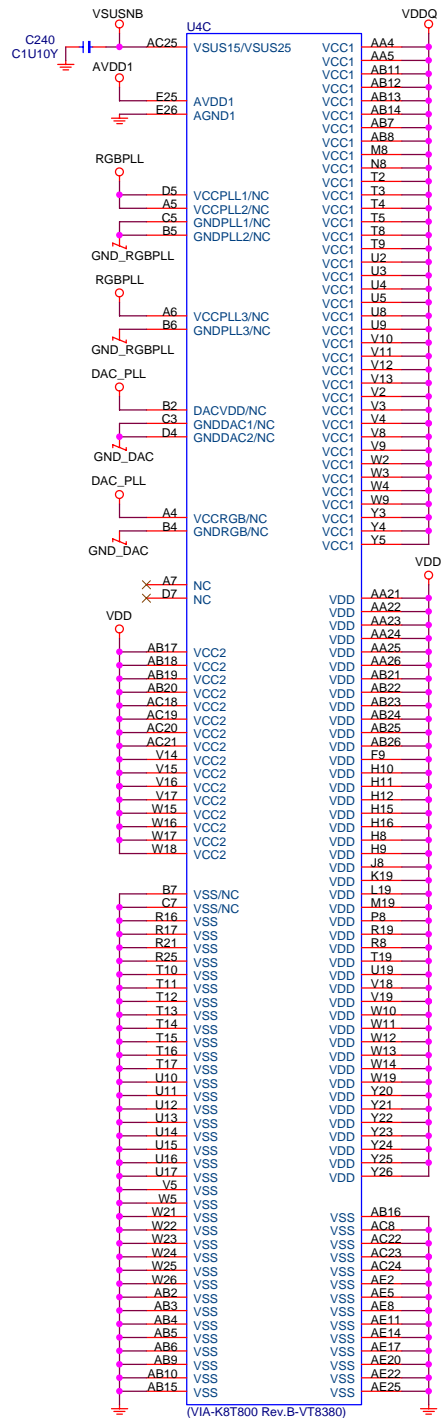


LAYOUT: Place caps as close NB as possible

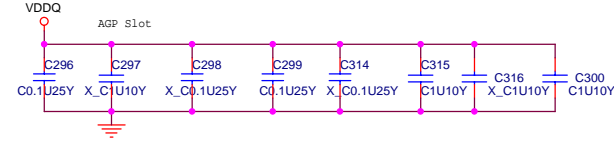
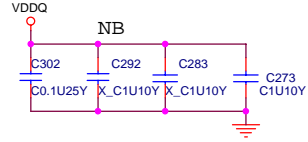


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Document Number <i>MS-7094</i>			
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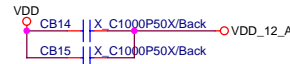
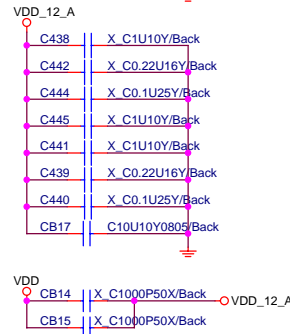
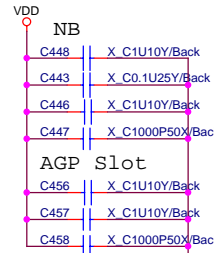
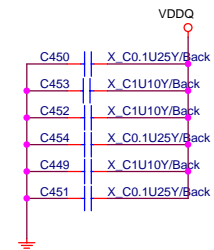
Power and Ground Connections



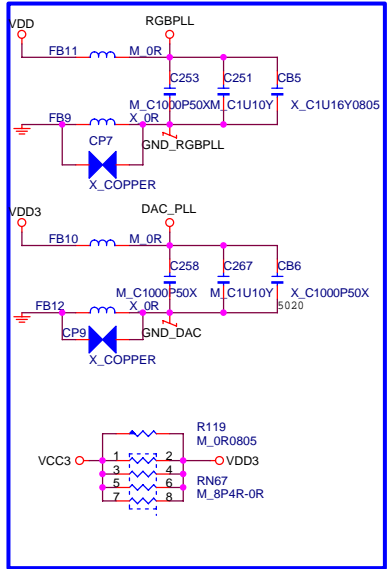
LAYOUT: Place caps on the Top of NB



LAYOUT: Place caps on the Bottom of NB

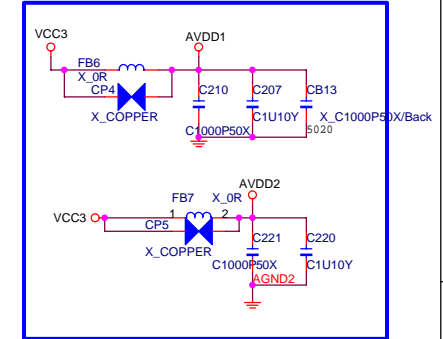


For K8M800 Only



Note: When use K8T800 Pro & K8T800 Rev.B, these power circuit for GFX analog power should be NOPOPED.

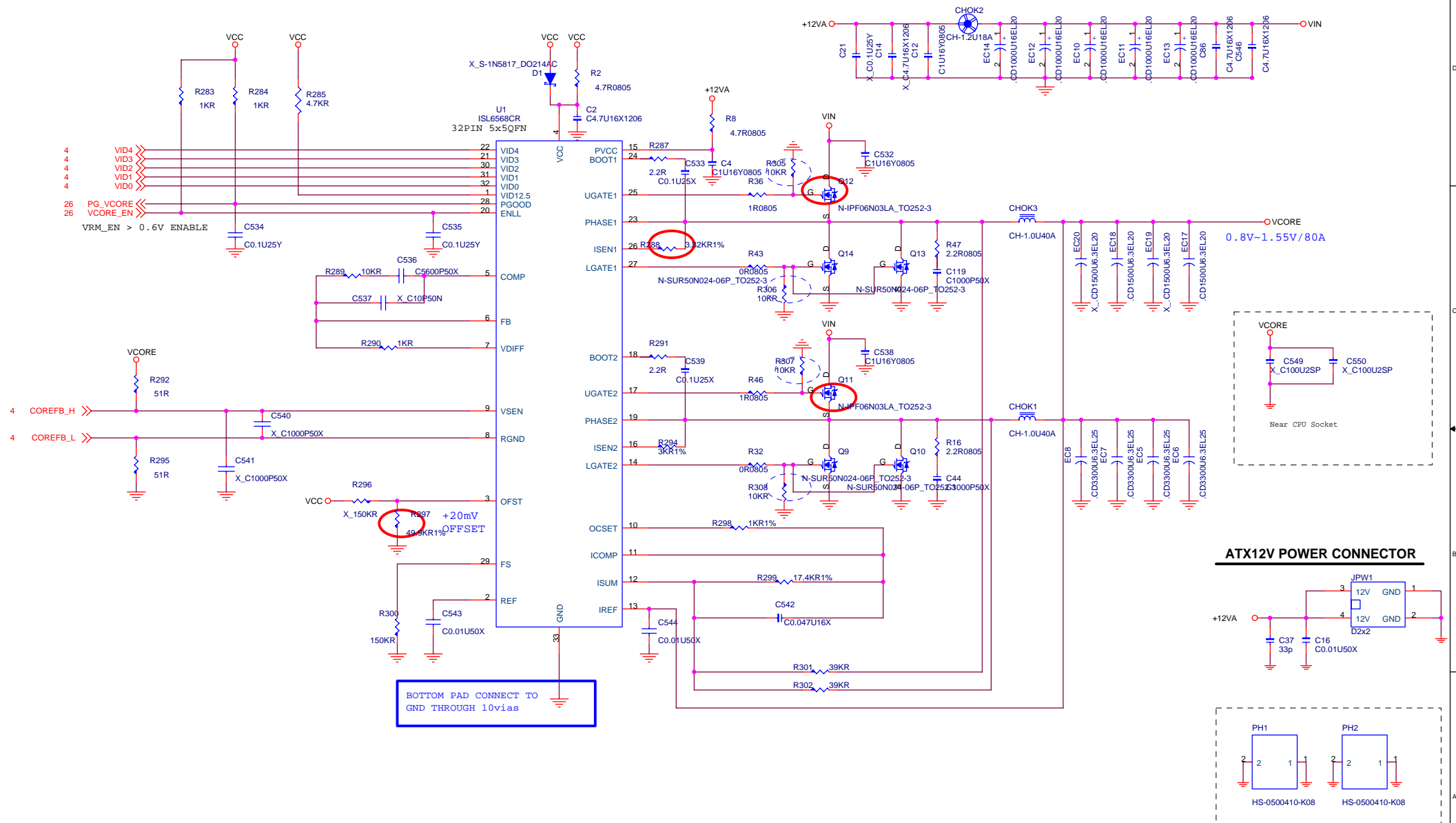
For K8M800/K8T800 Pro/K8T800 Rev.B



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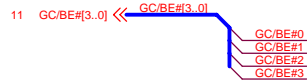
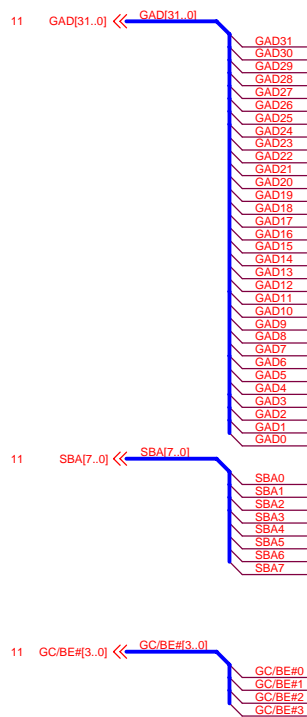
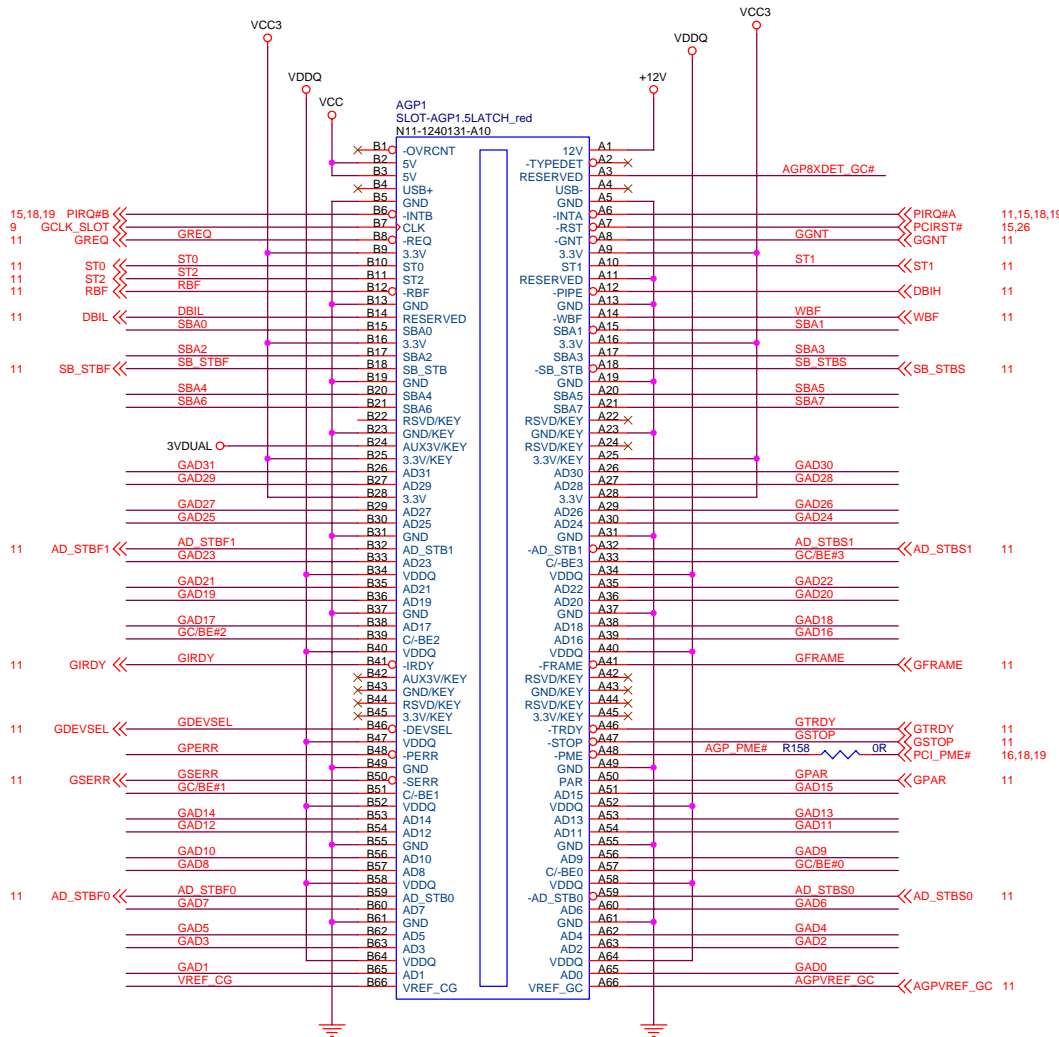
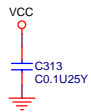
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NORTH BRIDGE (POWER/GROUND)		100
Document Number		MS-7094
MICRO-STAR INT'L		Last Revision Date:
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Taiper Hsien, Taiwan		Sheet
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ISL6568CR FOR AMD K8 939 POWER CKT

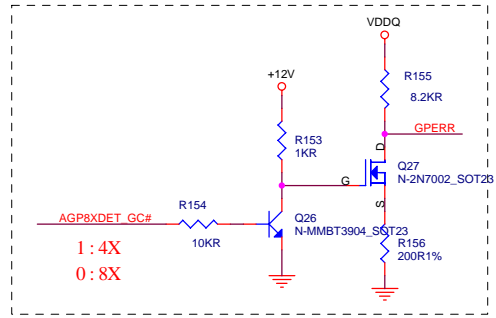
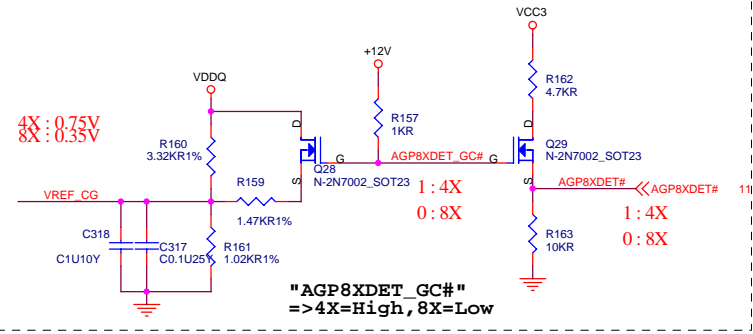


Title		
ISL6568CR K8 939 power ckt - 2 phase		
Size	Document Number	Rev
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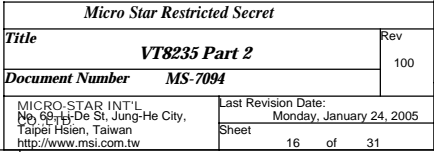
AGP PRO Connector



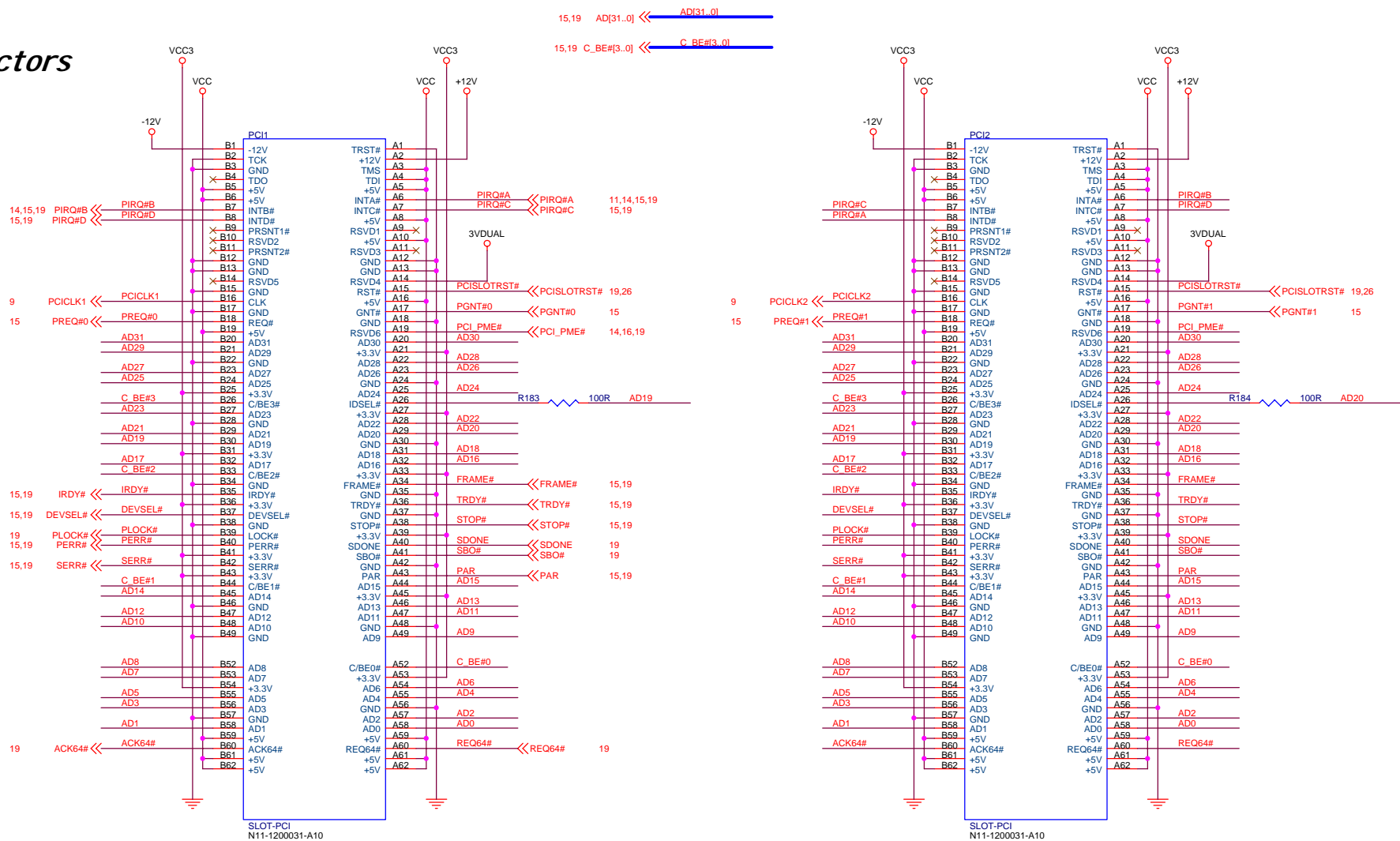
AGP "Vref" => 4X : 0.5*1.5V=0.75 Volt ,
8X : 0.23*1.5 =0.345 Volt



Add-in Card Power				
	I _{max}	V _{Min}	V _{Max}	Units
VDDQ	2.0A	1.425	1.575	V
VCC3	6.0A	3.15	3.45	V
3VDUAL	0.75A	3.15	3.45	V
VCC5	2.0A	4.75	5.25	V
VCC12	1.0A	11.4	12.6	V

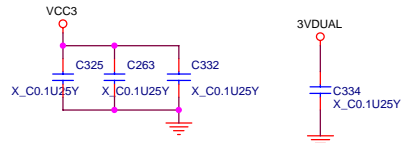
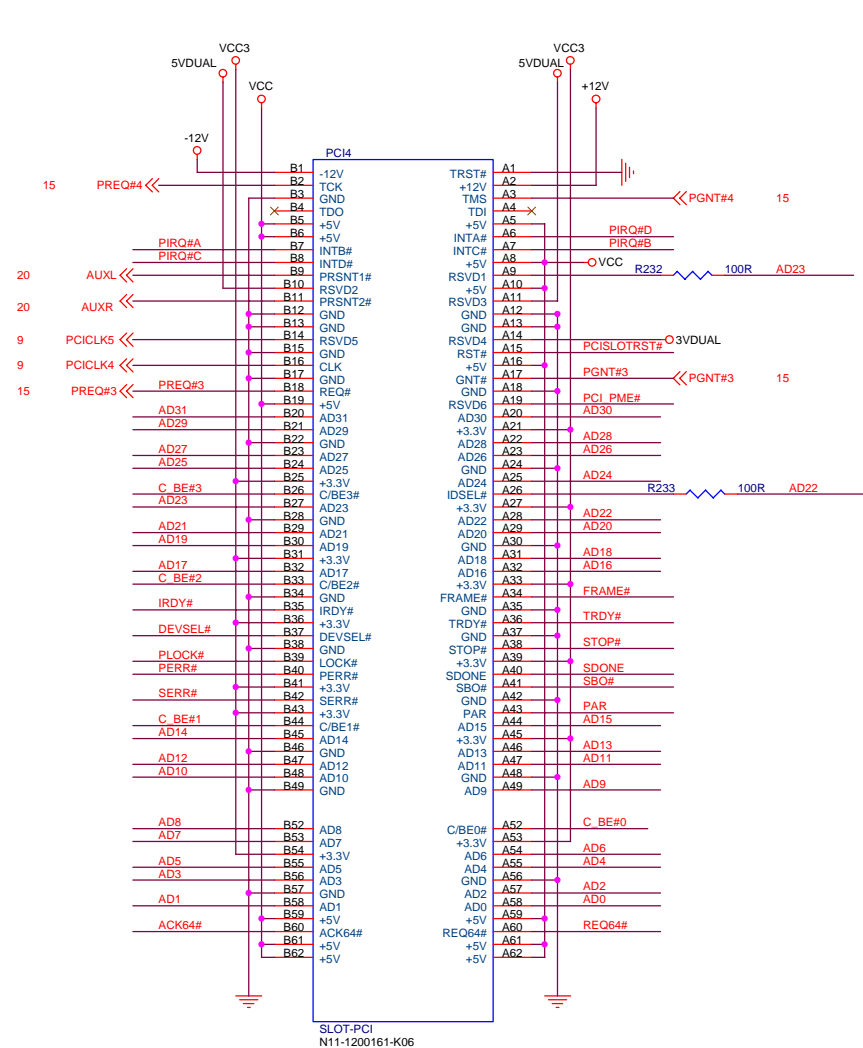
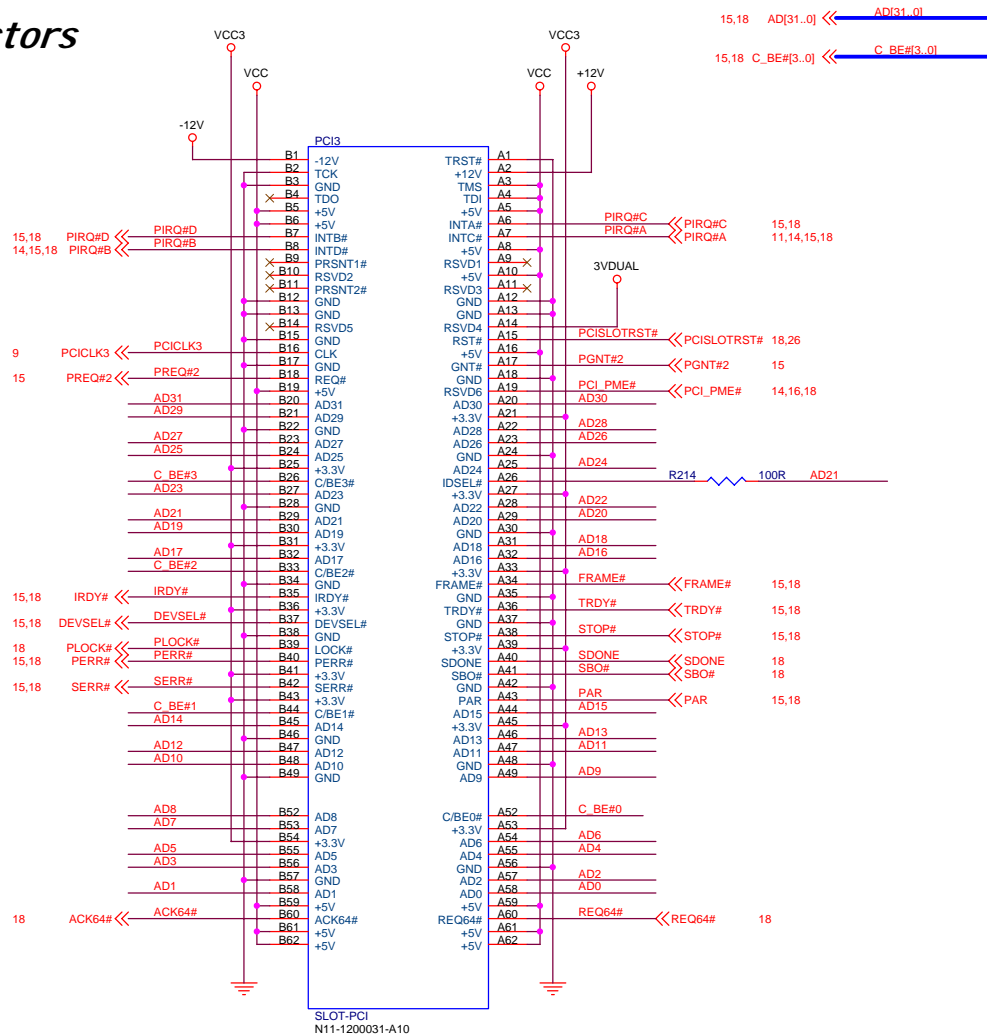


PCI Connectors

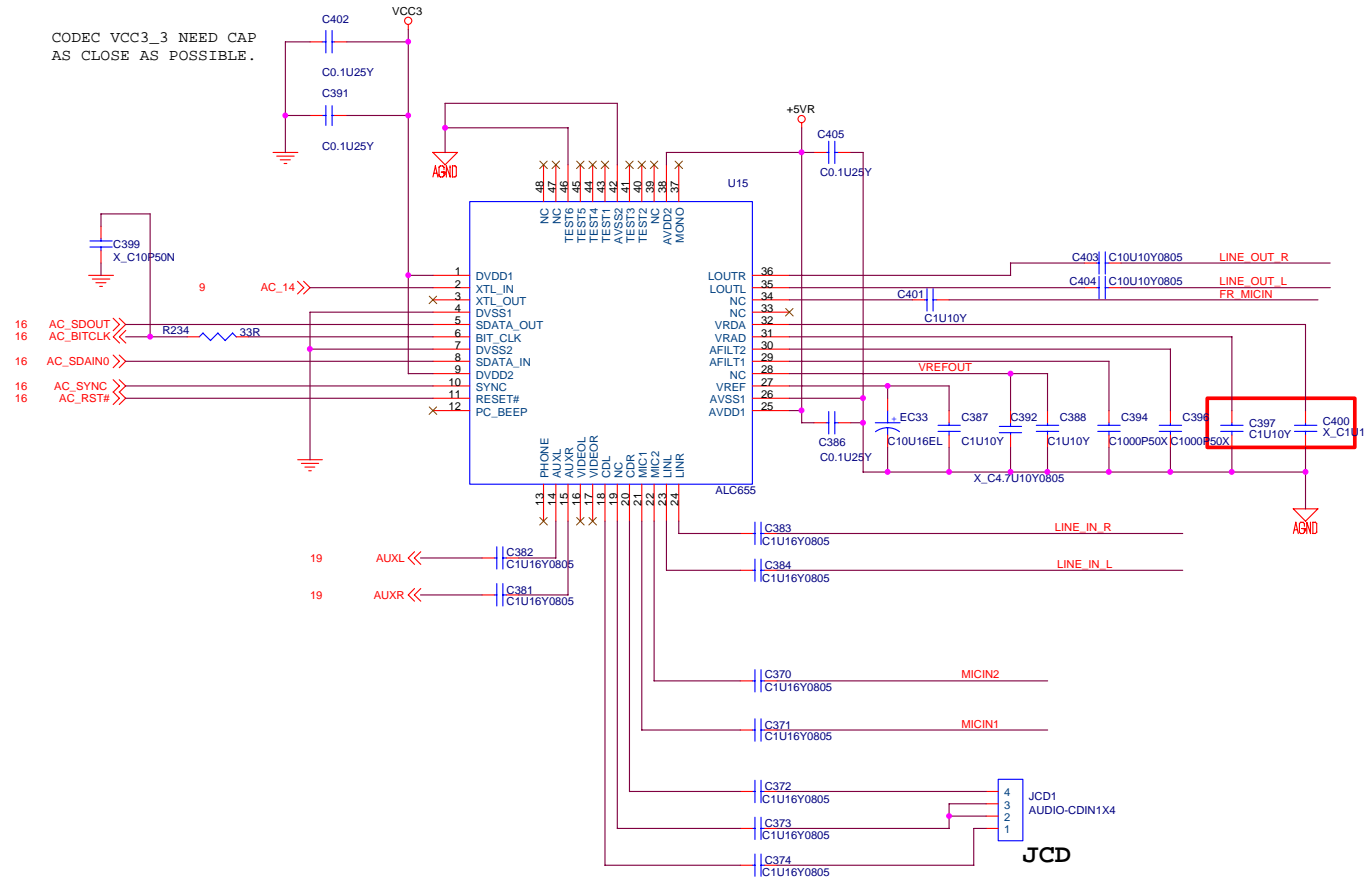


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PCI Connectors

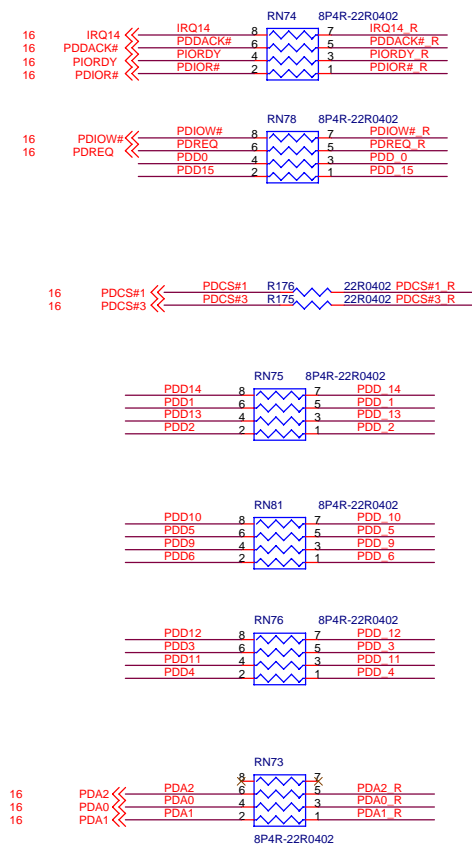
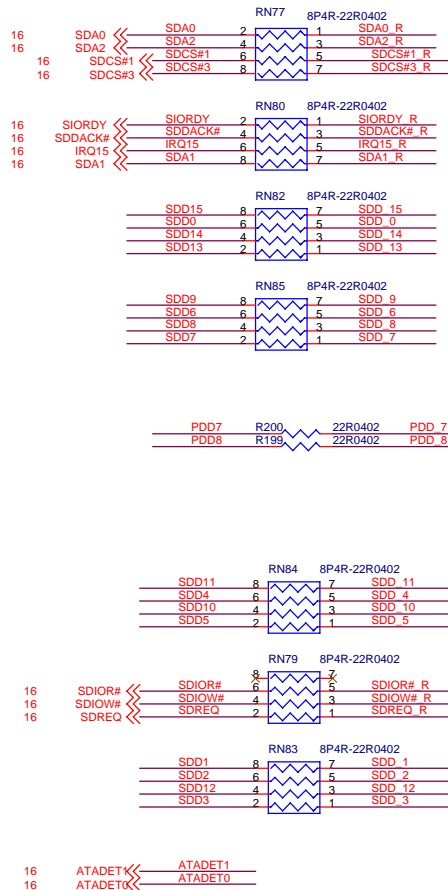


AUDIO CODEC

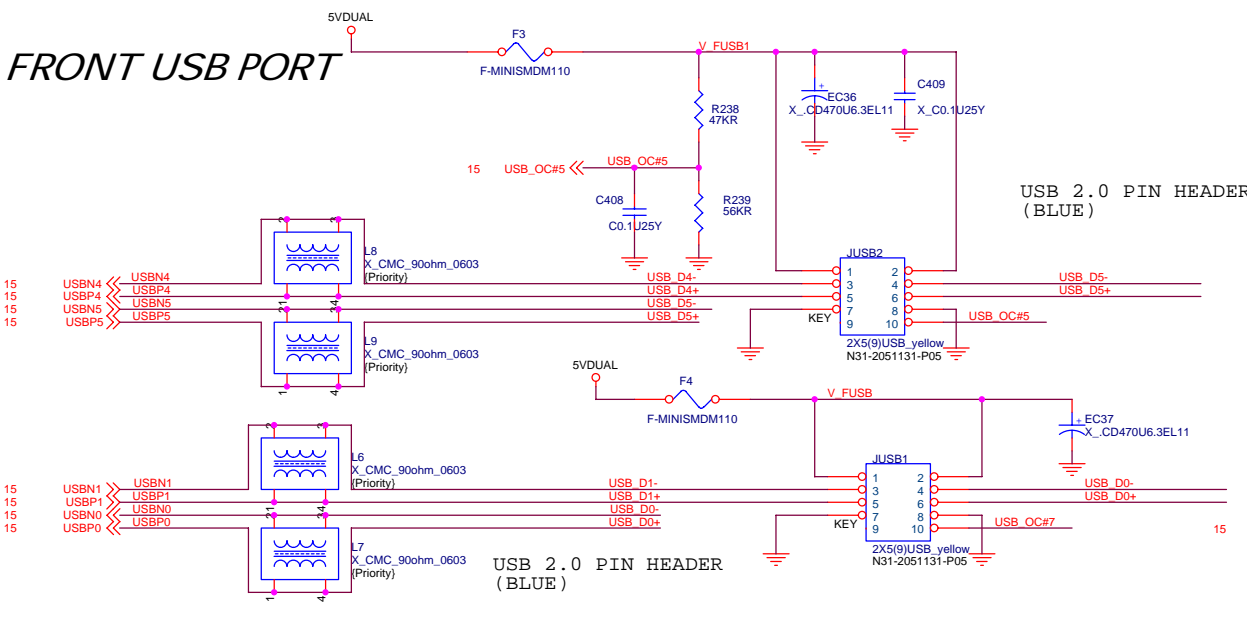


16 PDD[15..0] << PDD[15..0]

16 SDD[15..0] << SDD[15..0]

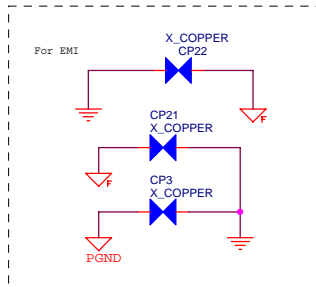
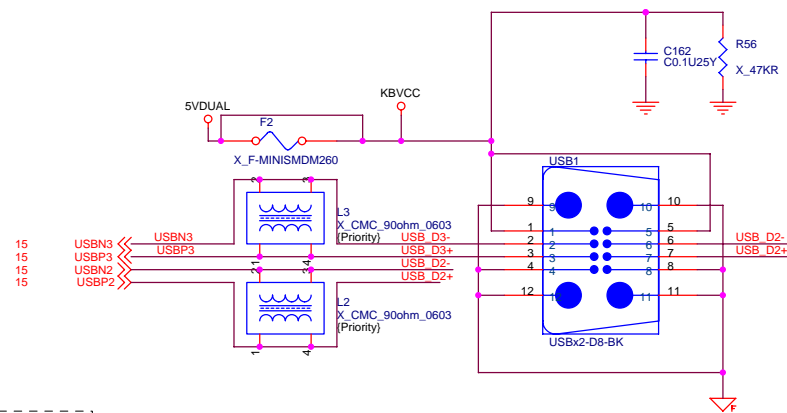
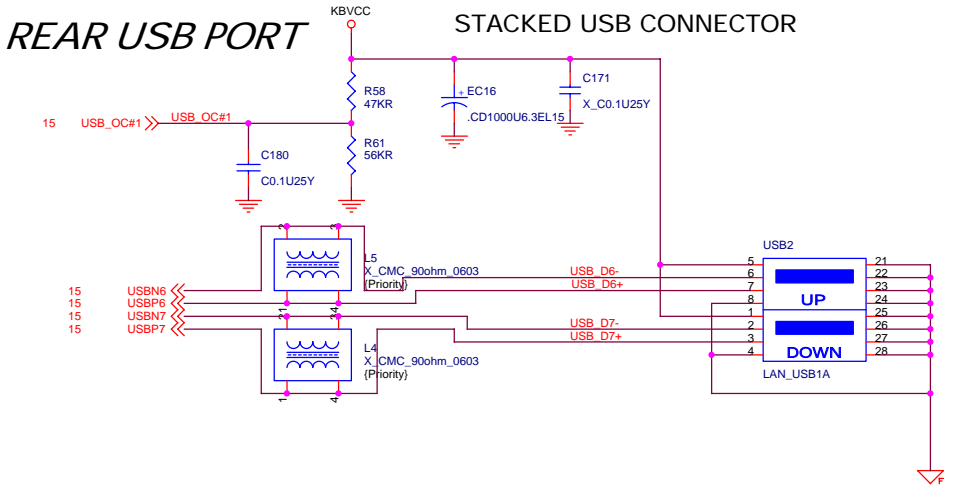


FRONT USB PORT



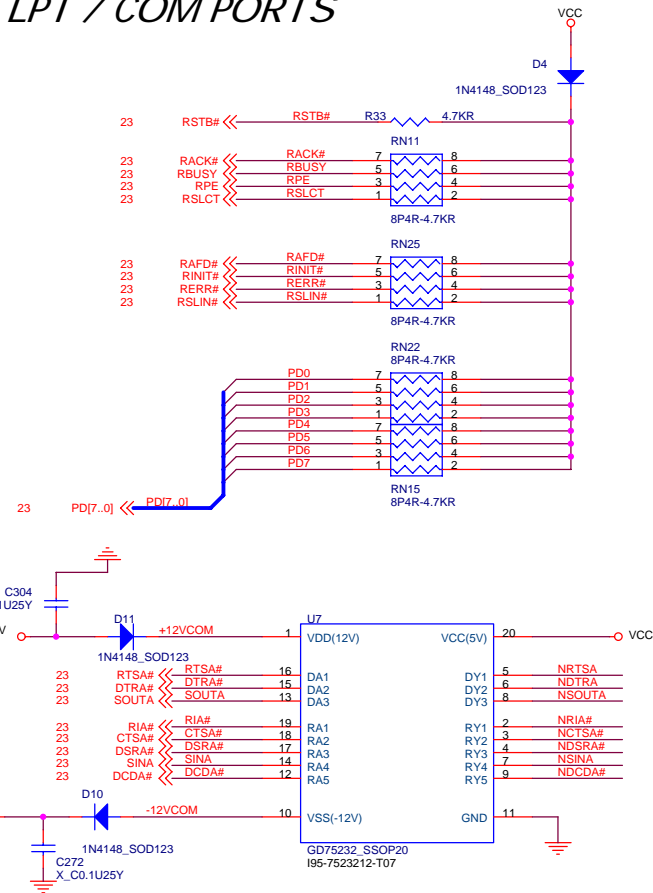
REAR USB PORT

STACKED USB CONNECTOR

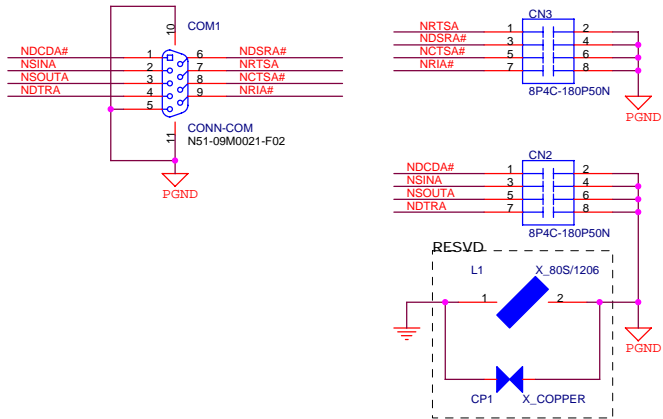


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Document Number	MS-7094	
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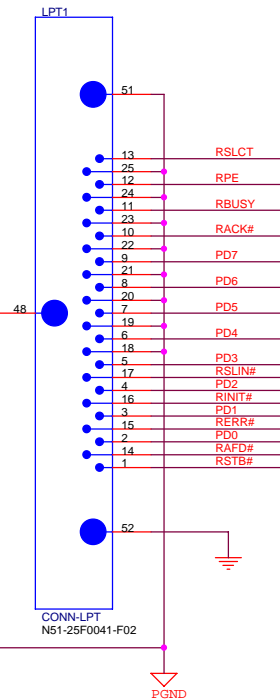
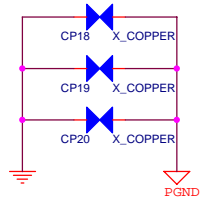
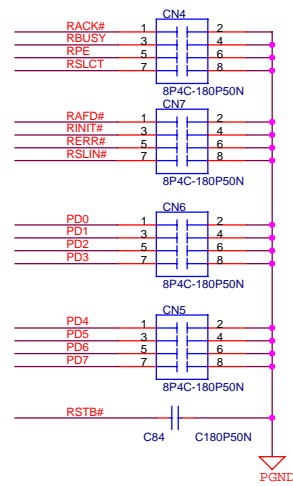
LPT / COM PORTS



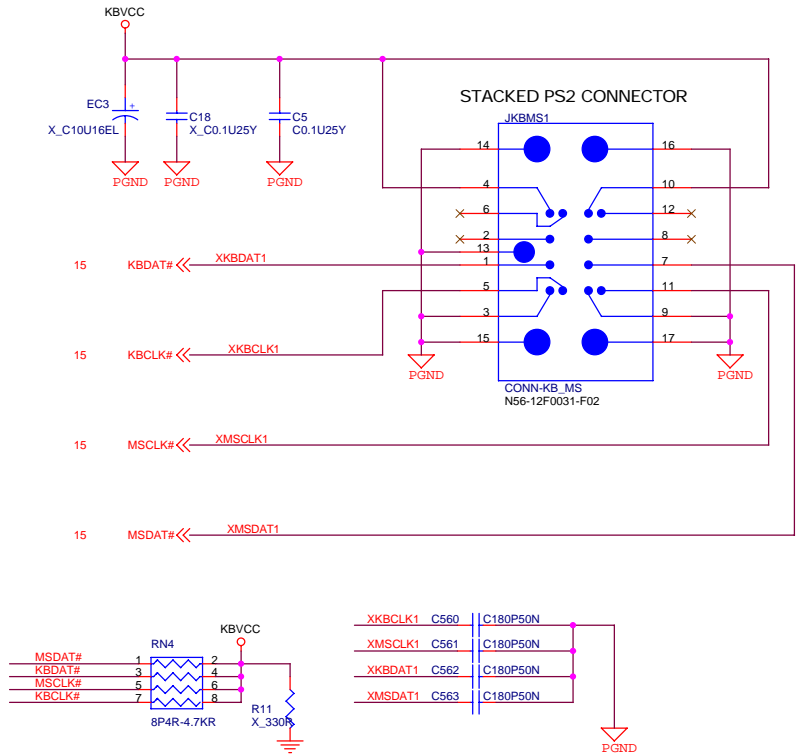
Multiple RS232 Drivers and Receivers



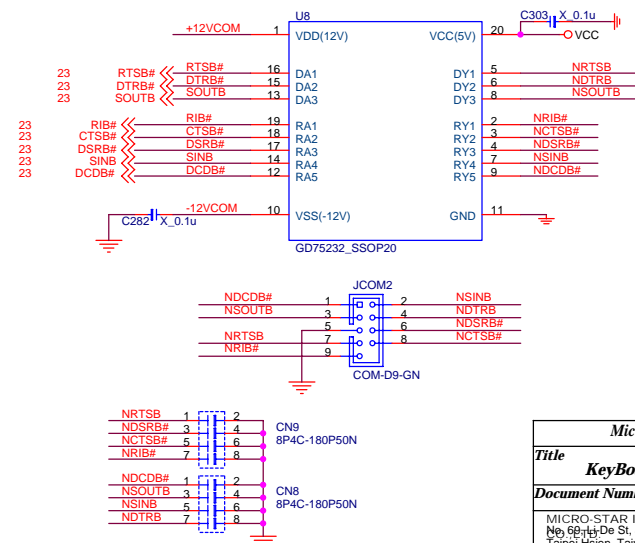
For EMI



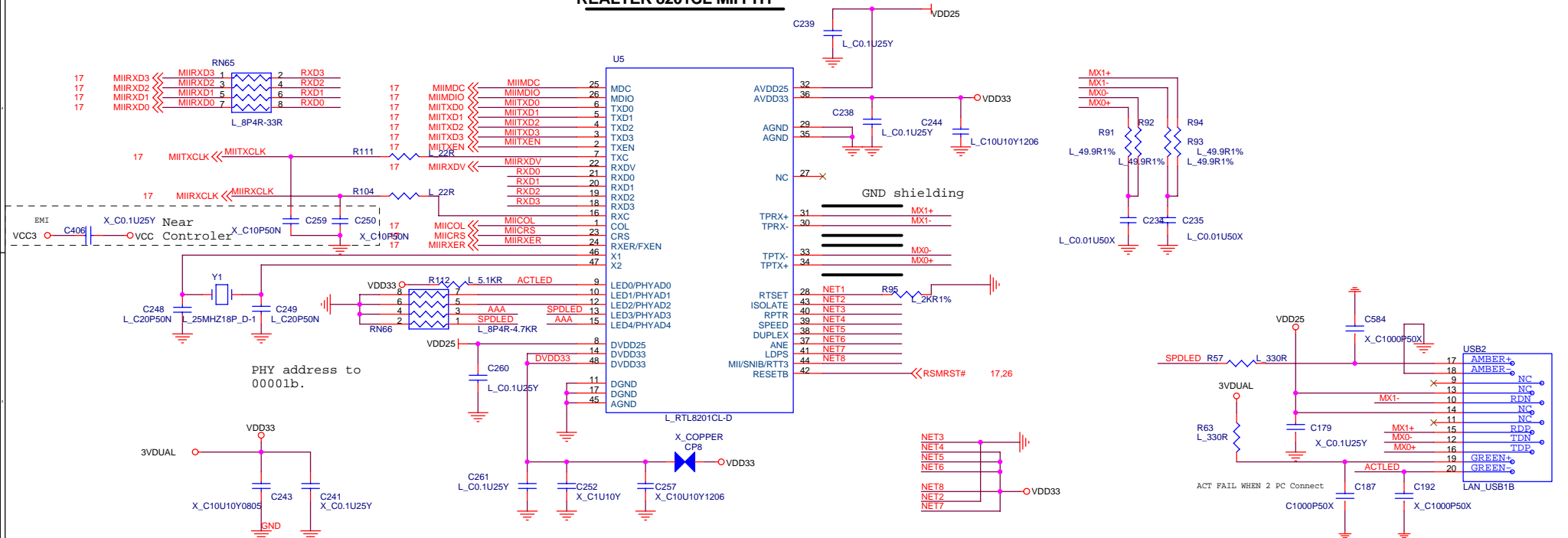
Keyboard/Mouse Ports



SERIAL PORT 2

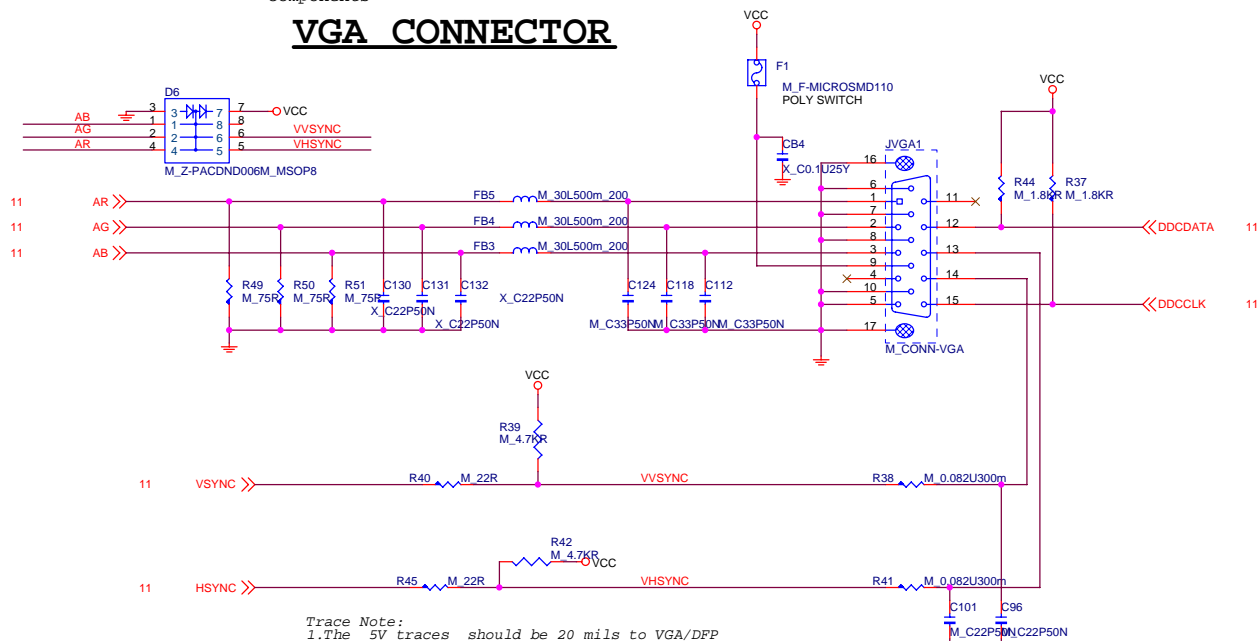


REALTEK 8201CL MII PHY



Use K8T800Pro remove all components

VGA CONNECTOR



Trace Note:
1.The 5V traces should be 20 mils to VGA/DFP

<i>Micro Star Restricted Secret</i>			
<i>Title</i>	<i>REALTEK 8201BL MII PHY</i>		<i>Rev</i>
<i>Document Number</i>	<i>MS-7094</i>		100
MICRO-STAR INT'L No. 96-14 De St. Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Wednesday, January 26, 2000	
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LINEAR MODE

THESE OUTPUT AND INPUT PIN MUST
BE PULL HIGH

CPU_PWR_GD OUTPUT
CHIP_PWR_GD OUTPUT
I2C_BUS
I2C_BUS
CONNECT TO SOUTH BRIDGE RSMRST# SIGNAL
SOUTH BRIDGE POWER CONTROL (SLP_S4# OR SUSB#) SIGNAL
SOUTH BRIDGE POWER CONTROL (SLP_S3# OR SUSC#) SIGNAL
ATX POWER OK INPUT

3VSB MODE SELECT
3VSB_MODE
SINGLE MOSFET
DUAL MOSFET
3VDDLDEC#
PULL HIGH
PULL LOW

VDIMM LINEAR OR PWM SELECT
VDIMM_MODE
LINEAR REGULATOR
PWM REGULATOR
EXTRAM
PULL LOW
PULL HIGH

FRONT PANEL RESET BUTTON
PCIRST# INPUT
PCIRST# BUFFER OUTPUT

PCI SOLT PCIRST# BUFFER OUTPUT

PS_OUT#

CONNECT TO SOUTH BRIDGE SUSB# SIGNAL
16,23
SUSB#

THE TWO BLOCK CHOICE ONE
SUPPORT SYSTEM POWER CONTROL

DDR TERMINATION

DDR AND DDR II VOLT SELECT

WATCHING DOG TIMER SELECT

THE TWO MODE ONLY ONE MODE PRESENT
SINGLE MODE
DUAL MODE

THIS MODE SELECT BY PIN
47 PULL HIGH 5VSB

THIS MODE SELECT BY
PIN 47 PULL LOW

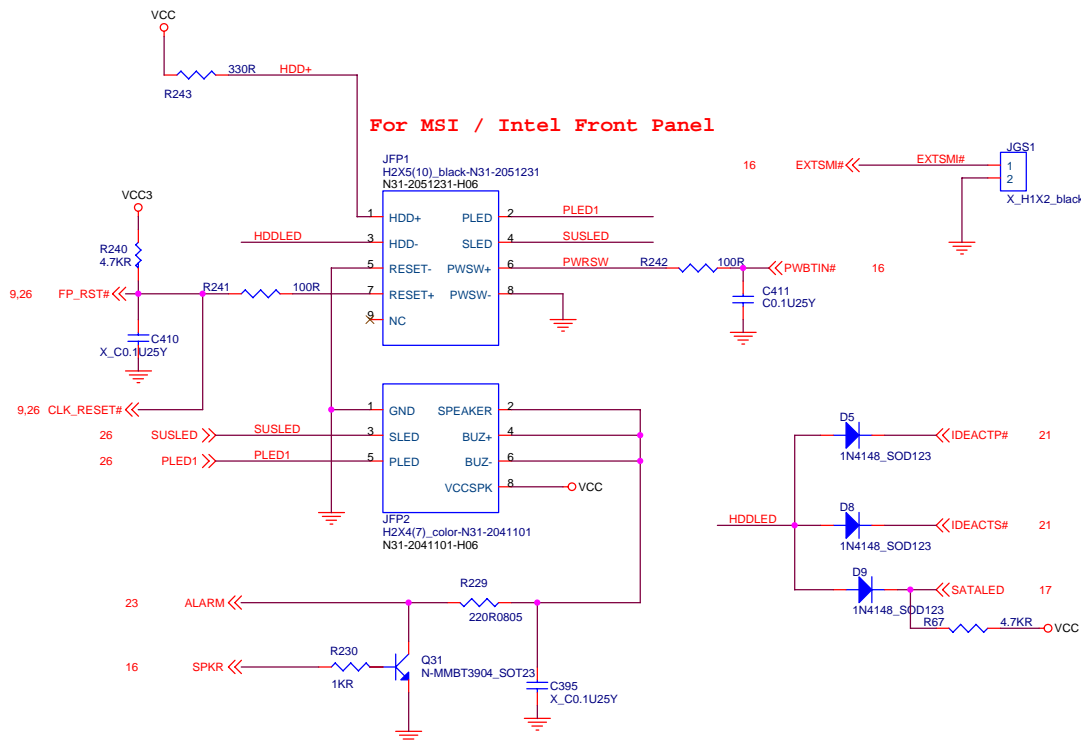
THE VDIMM_HSEN IN LINEAR MODE

3VSB REGULATE BY 5VSB AND VCC3

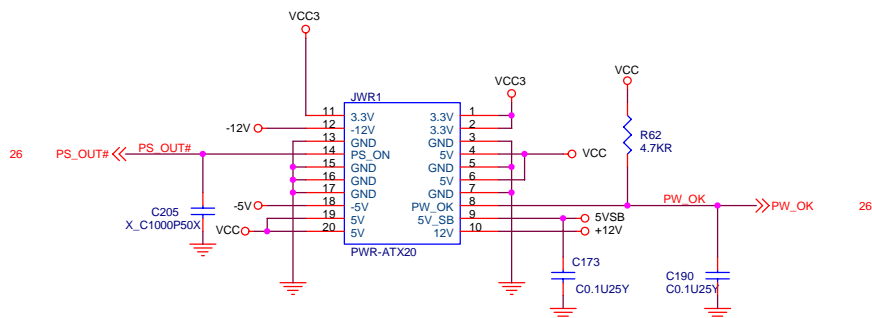
THIS POINT VOLT CAN'T SETTING
BELOW 2.9V

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Title	ACPI POWER CONTROLLER (MS-6)	Rev
Document Number	MS-7094	100
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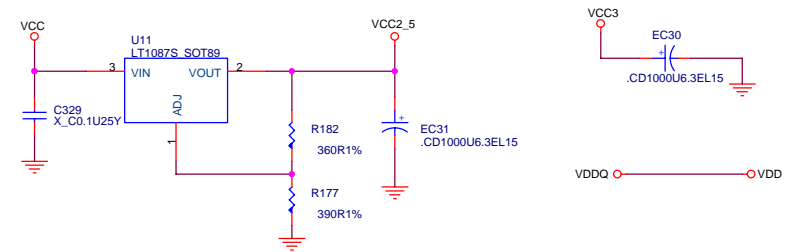
FRONT PANEL



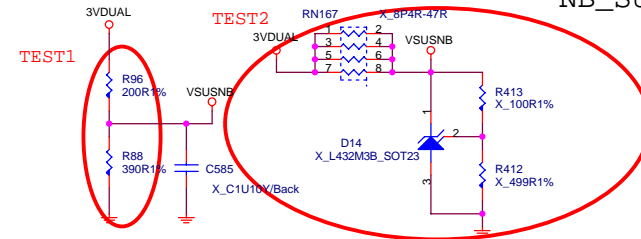
ATX Power Connector



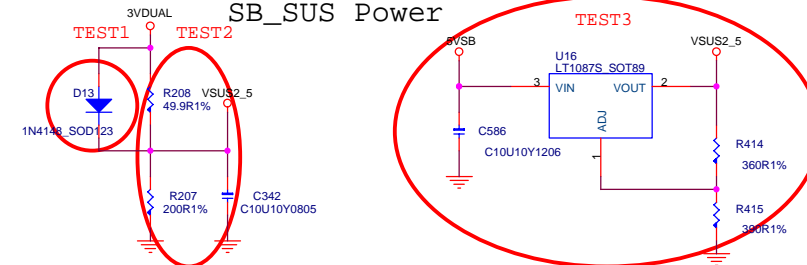
System Voltage Regulator



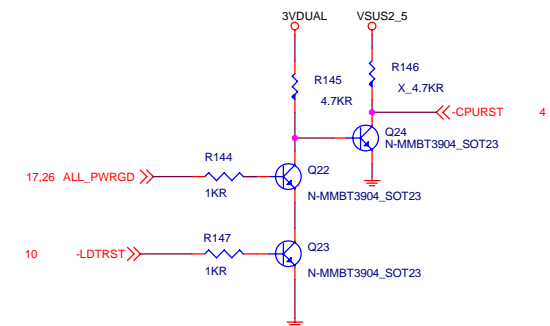
NB_SUS Power



SB_SUS Power



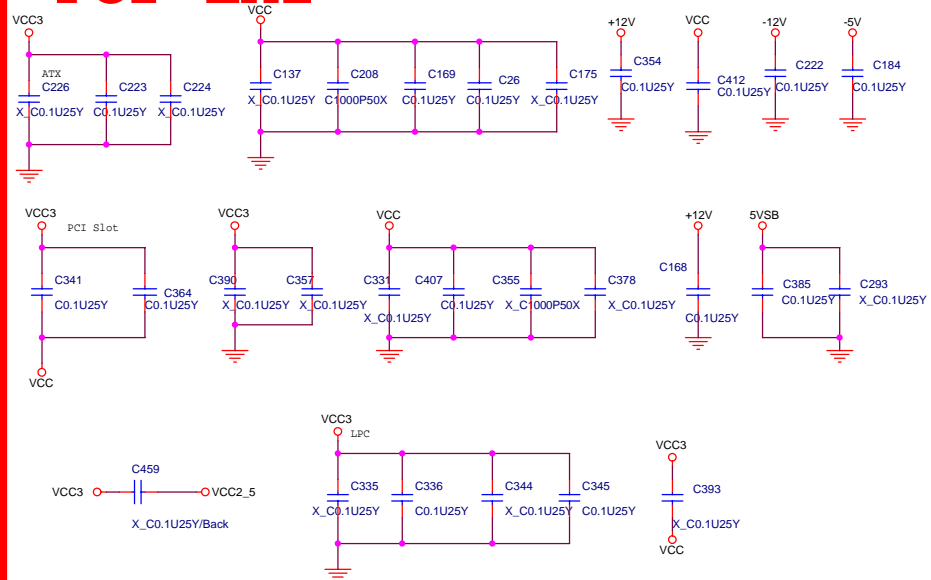
POWER OK Circuits



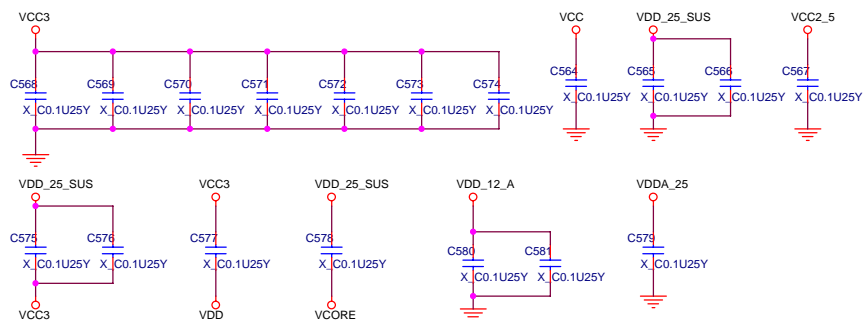
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Title	Rev
System Regulator&Front Panel	100
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MICRO-STAR INT'L No. 66, De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw	Last Revision Date: Tuesday, February 01, 2005 Sheet 27 of 31

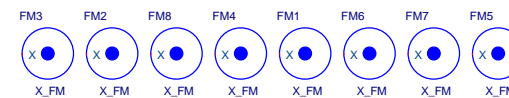
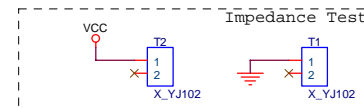
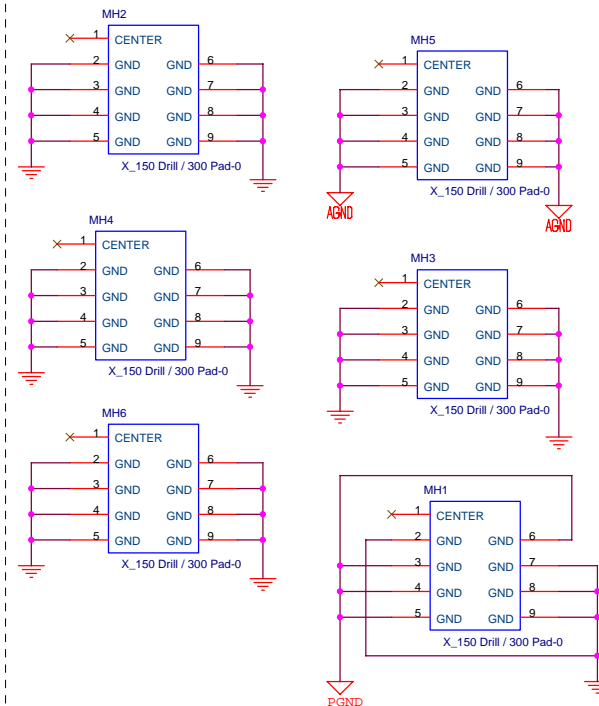
For EMI



Ver .100



ATX VIA-Hole * 9



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K8 CPU Power

NB & SB & AGP Power

Other Power

CPU Side

DDR Side

K8 Vcore ->
"VCORE" (60A)

VDDA 2.5 Power ->
"VDDA_25" (0.11A)

HT Power ->
"VDD_12_A"&"VLDT0"
(2A)

DDR Power ->
"VDD_25_SUS"
(9.5A)

DDR-VTTPower ->
"VTT_DDR_SUS"
(5.21A)

NB & SB Core-Power
-> "VCC2_5" (?A)

NB & SB Core-Suspend
Power -> "VSUS2_5" (?A)

NB AGP8X Power ->
"VDDQ" (1.5A)

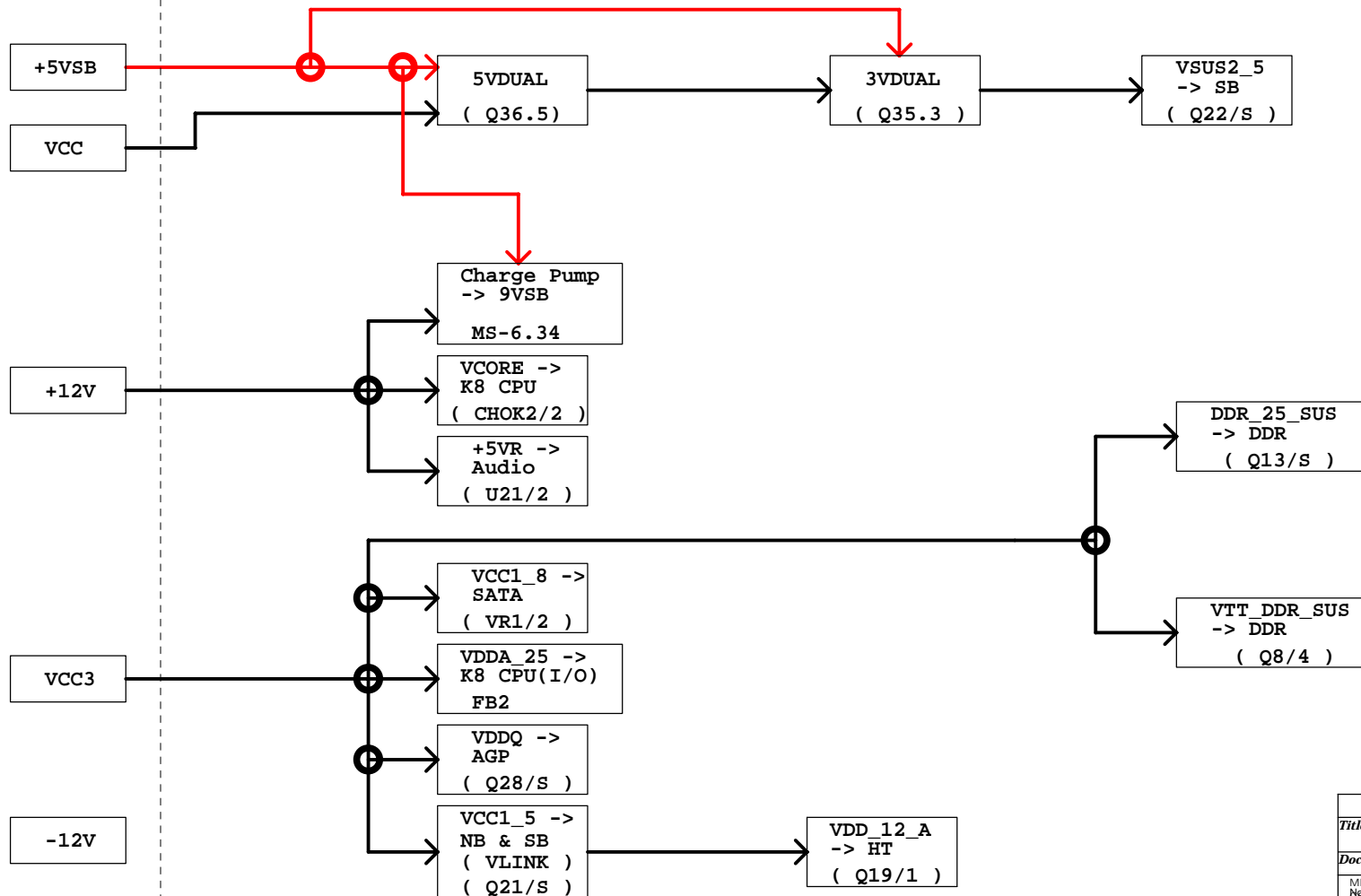
5VDUL

DDR_3VDUAL

3VDUL

9VSB

ATX Power Supply



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Ver. 00A 2004/06/27

- 1.New SPEC(Copy from 7032-10A)
- 2.Changed SOCKET from SMD754 to DIP754(04/07/29)
- 3.Gerber-Out(04/08/05)

Ver. 00B 2004/08/20

- 1.Re-SPEC from K8-754 to K8-939,Changed Power Solution from NIKO2101 to Intersil6568CR(04/08/05)
- 2.Wait for Power Solution from 04/08/09 to 04/08/19

Ver. 100 2005/01/24

- 1.JCASE1 conflict with AGP Card.
- 2.Remove some coppers for Audio noise solution
- 3.Add 10KR for ISL6568 PWM IC gate pin to GND
- 4.Add some MLCCs for EMI,pls reference Page28

Micro Star Restricted Secret		
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Document Number	MS-7094	100
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