

# MS-7181 VER:20 for RoHS

**\*AMD PGA 754 K8-Processor (DDR 400)**  
**\*VIA K8M800**  
**\*VIA VT8237R+ (AGP 8X / VLink 8X)**  
**\*Winbond 83627EHG LPC I/O**  
**\*VIA VT6103L 10/100 Base-T LAN**  
**\*USB 2.0 support (integrated into VT8237R)**  
**\*VIA VT1617 AC'97 Codec**  
**\*DDR DIMM \* 2**  
**\*AGP SLOT \* 1 ( 8X )**  
**\*PCI SLOT \* 3**  
**\*VIA VT6307/6308P 2\_Port 1394**

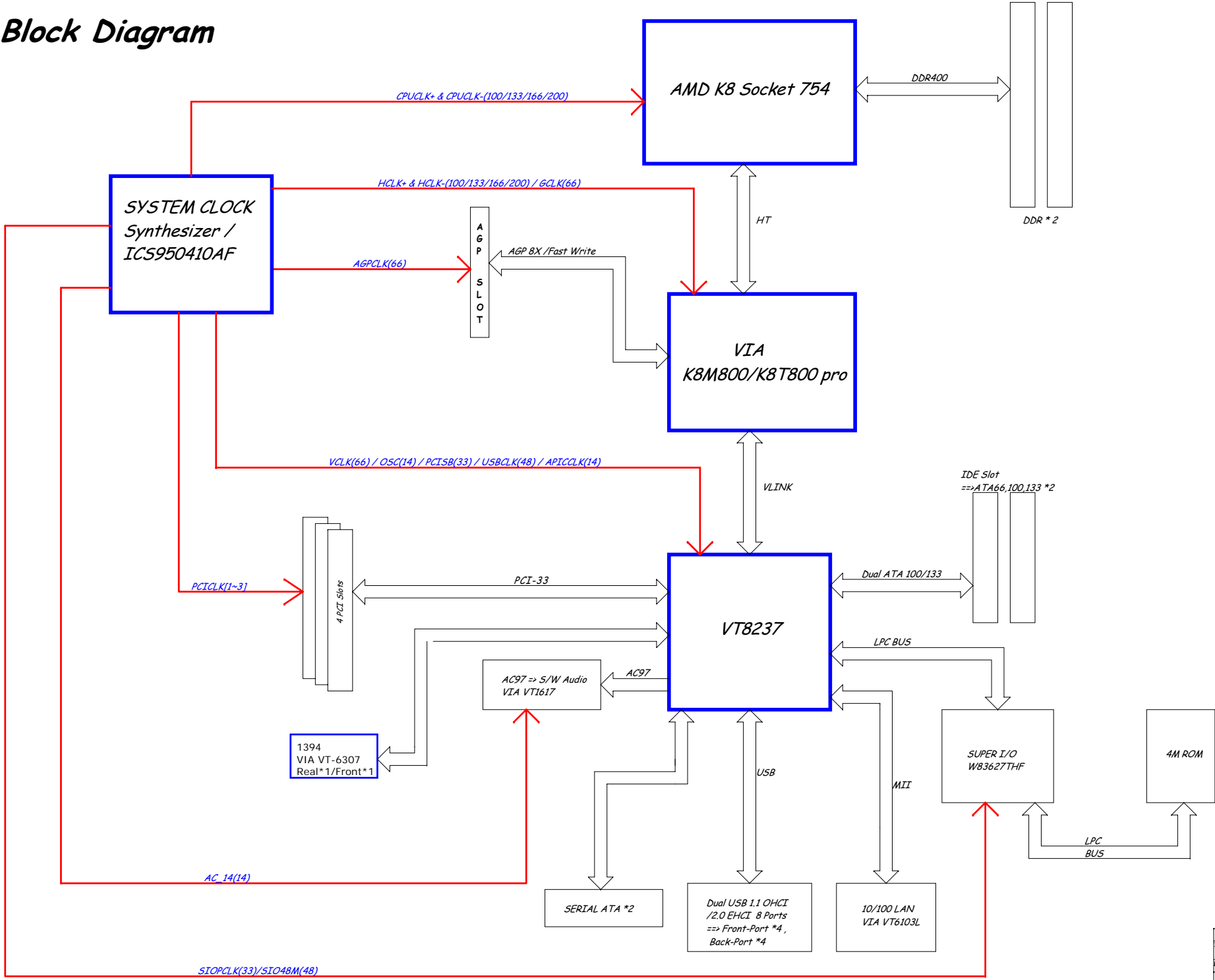
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Stelly Chang

| Micro Star Restricted Secret   |             |   |
|--|-------------|---|
| Title  | Cover Sheet | Rev<br>20   |
| Document Number  | MS-7181     |   |
| MICRO-STAR INT'L CO.,LTD.<br>No. 69, Li-De St, Jung-Hsi City,<br>Taipei Hsien, Taiwan<br><a href="http://www.msi.com.tw">http://www.msi.com.tw</a> |             | Last Revision Date:<br>Wednesday, October 19, 2005<br>Sheet 1 of 34 |

Block Diagram



GPIO FUNCTION

| PIN NAME                          | Default Function | Function define                   |
|-----------------------------------|------------------|-----------------------------------|
| GP00 (VDDS)                       | GP00             | NA                                |
| GP01 (VDDS)                       | GP01             | NA                                |
| GP02/SUSA# (VDDS)                 | SUSA#            | 4.7K ohm Pull up to 3VDUAL        |
| GP03/SUSST# (VDDS)                | SUSST#           | SUSST# 4.7K ohm Pull up to 3VDUAL |
| GP04/SUSCLK (VDDS)                | SUSCLK           | 4.7K ohm Pull up to 3VDUAL        |
| GP05/CPUSTP#                      | CPUSTP#          | 4.7K ohm Pull up to VCC3          |
| GP06/PCISTP#                      | PCISTP#          | 4.7K ohm Pull up to VCC3          |
| GP07/GNT5                         | GP07             | 2.7K ohm Pull up to VCC3          |
| * GP08/GPI8/VGATE                 | GPI8             | 4.7K ohm Pull up to VCC3          |
| * GP09/GPI9/UDPWREN               | UDPWREN          | NA                                |
| * GP010/GPI10/PICD0               | GPI10            | 330 ohm Pull up to VCC3           |
| * GP011/GPI11/PICD1               | GPI11            | 330 ohm Pull up to VCC3           |
| * GP012/GPI12/INTE#               | GPI12            | NA                                |
| * GP013/GPI13/INTF#               | GPI13            | NA                                |
| * GP014/GPI14/INTG#               | GPI14            | NA                                |
| * GP015/GPI15/INTH#               | GPI15            | INTH# 2.7K ohm Pull up to VCC3    |
| GP020/GPI20/ACSDIN2/PCS0#         | GPI20/ACSDIN2    | 4.7K ohm Pull down                |
| GP021/GPI21/ACSDIN3/PCS1#/SLPBTN# | GPI21/ACSDIN3    | 4.7K ohm Pull down                |
| GP022/GPI22/GHI#                  | GPI22            | 4.7K ohm Pull up to VCC3          |
| GP023/GPI23/DPSLP                 | GPI23            | 4.7K ohm Pull up to VCC3          |
| GP024/GPI24 /GPIOA                | GPI24            | 4.7K ohm Pull down                |
| GP025/GPI25 /GPIOB                | GPI25            | 4.7K ohm Pull down                |
| GP026/GPI26/SMBDT2 (VDDS)         | SMBDT2           | 4.7K ohm Pull up to 3VDUAL        |
| GP027/GPI27/SMBCK2 (VDDS)         | SMBCK2           | 4.7K ohm Pull up to 3VDUAL        |
| GP028/GPI28/VIDSEL                | GP028 /VIDSEL    | SATA_LED                          |
| GP029/GPI29/VRDSLP                | GP029 /VRDSLP    | 4.7K ohm Pull down                |
| GP030/GPI30 /GPIOC                | GPI30            | 4.7K ohm Pull down                |
| GP031/GPI31 /GPIOD                | GPI31            | 4.7K ohm Pull down                |

| PIN NAME               | Default Function | Function define                   |
|------------------------|------------------|-----------------------------------|
| GPI0 (VBAT)            | GPI0             | 4.7K ohm Pull up to VBAT          |
| GPI1 (VSUS3)           | GPI1             | ATADET0=>Detect IDE1 ATA100/66    |
| GPI2/EXTSMI# (VSUS3)   | EXTSMI#          | 4.7K ohm Pull up to 3VDUAL        |
| GPI3/RING# (VSUS3)     | RING#            | 4.7K ohm Pull up to 3VDUAL        |
| GPI4/LID# (VSUS3)      | LID#             | ATADET1=>Detect IDE2 ATA100/66    |
| GPI5/BATLOW# (VDDS)    | BATLOW#          | 4.7K ohm Pull up to 3VDUAL        |
| GPI6/AGPBZ             | AGPBZ            | 4.7K ohm Pull up to VCC3          |
| GPI7/REQ5              | GPI7             | 2.7K ohm Pull up to VCC3          |
| * GPI8/VGATE           | GPI8             | 4.7K ohm Pull up to VCC3          |
| * GPI9/UDPWREN         | UDPWREN          | NA                                |
| * GPI10/PICD0          | GPI10            | 330 ohm Pull up to VCC3           |
| * GPI11/PICD1          | GPI11            | 330 ohm Pull up to VCC3           |
| * GPI12/INTE#          | GPI12            | NA                                |
| * GPI13/INTF#          | GPI13            | NA                                |
| * GPI14/INTG#          | GPI14            | NA                                |
| * GPI15/INTH#          | GPI15            | INTH# 2.7K ohm Pull up to VCC3    |
| GPI16/INTRUDER# (VBAT) | INTRUDER#        | 1M ohm Pull up to VBAT            |
| GPI17/CPUMISS          | CPUMISS          | 4.7K ohm Pull up to 3VDUAL        |
| GPI18/AOLGP1/THRM#     | AOLGP1           | THRMS# 4.7K ohm Pull up to 3VDUAL |
| GPI19/APIICLK          | APIICLK          | APIICLK                           |

PCI Config.

| DEVICE     | MCP1 INT Pin                     | REQ# /GNT#       | IDSEL | CLOCK     | CLK GEN PIN OUT |
|------------|----------------------------------|------------------|-------|-----------|-----------------|
| PCI Slot 1 | INTA#<br>INTB#<br>INTC#<br>INTD# | PREQ#0<br>PGNT#0 | AD19  | PCICLK1   | 22 (PCICLK5)    |
| PCI Slot 2 | INTB#<br>INTC#<br>INTD#<br>INTA# | PREQ#1<br>PGNT#1 | AD20  | PCICLK2   | 23 (PCICLK6)    |
| PCI Slot 3 | INTC#<br>INTD#<br>INTA#<br>INTB# | PREQ#2<br>PGNT#2 | AD21  | PCICLK3   | 21 (PCICLK4)    |
| 1394       | INTD#                            | PREQ#3<br>PGNT#3 | AD25  | 1394_PCLK | 23 (PCICLK6)    |

USB

|       | Port     | DATA +/-                         | OC#                    |
|-------|----------|----------------------------------|------------------------|
| Rear  | USB1     | USB1-<br>USB1+<br>USB0-<br>USB0+ | USB_OC#1<br>( OC#0~1 ) |
|       | LAN_USB1 | USB2-<br>USB2+<br>USB3-<br>USB3+ | USB_OC#2<br>( OC#2~3 ) |
| Front | JUSB1    | USB4-<br>USB4+<br>USB5-<br>USB5+ | USB_OC#5<br>( OC#4~7 ) |
|       | JUSB2    | USB6-<br>USB6+<br>USB7-<br>USB7+ |                        |

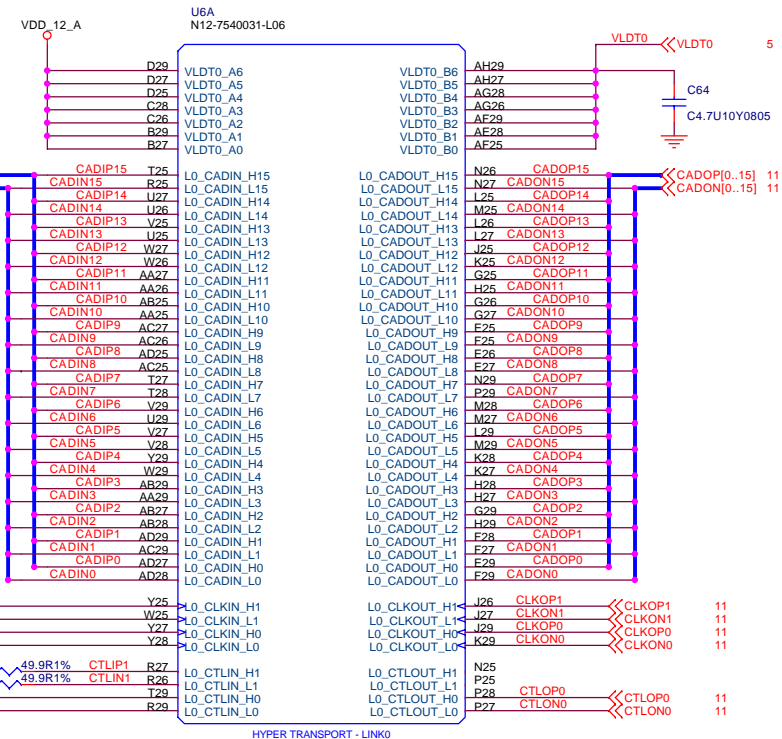
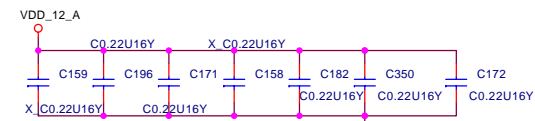
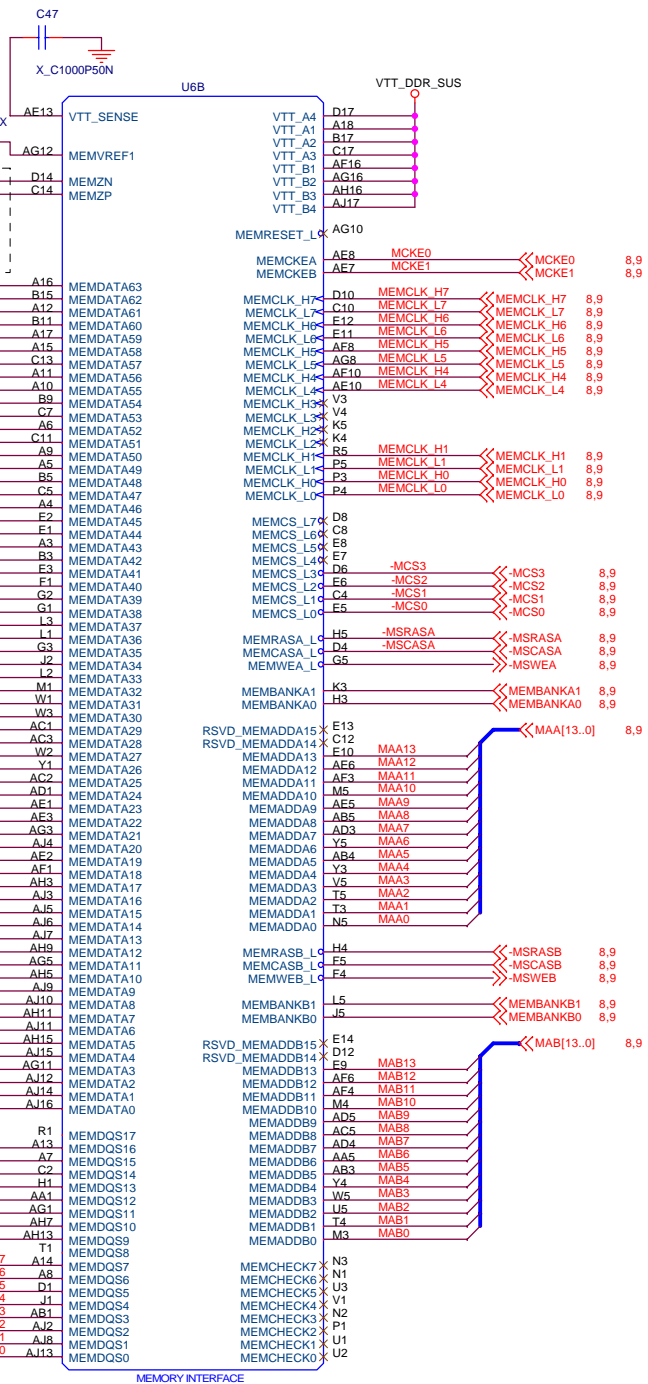
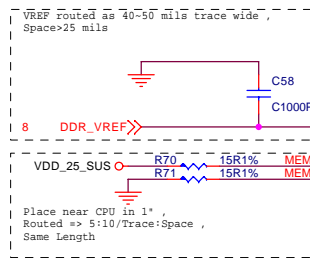
PCI RESET DEVICE

| Signals      | Target                 |
|--------------|------------------------|
| PCISLOTTRST# | PCI slot 1-3           |
| PCIDEVRST#   | NB , Super I/O         |
| HD_RST#      | Primary, Scoundary IDE |
| PCIRST#      | AGP SLOT               |

DDR DIMM Config.

| DEVICE | ADDRESS   | CLOCK   |
|--------|-----------|---|
| DIMM 1 | 1010000XB | MEMCLK_H5/MEMCLK_L5<br>MEMCLK_H0/MEMCLK_L0<br>MEMCLK_H7/MEMCLK_L7 |
| DIMM 2 | 1010001XB | MEMCLK_H4/MEMCLK_L4<br>MEMCLK_H1/MEMCLK_L1<br>MEMCLK_H6/MEMCLK_L6 |

|  |            |  |
|--|------------|--|
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| Title  | GPIO Spec. | Rev 20   |
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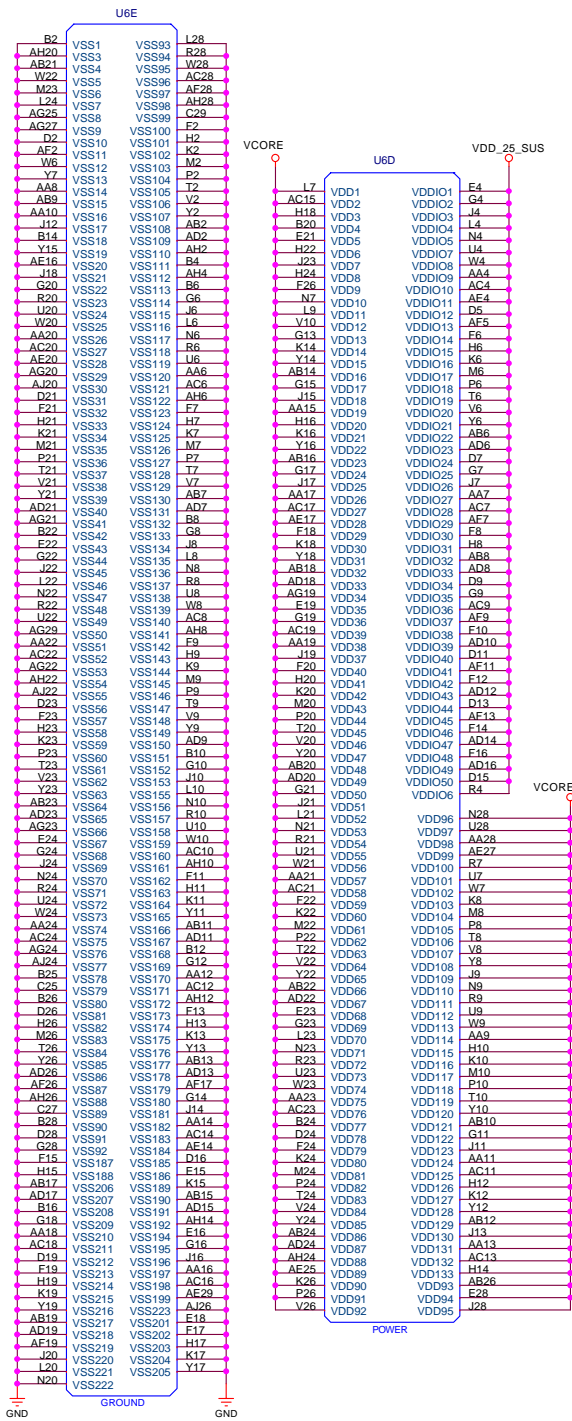
MD[63..0]

DM[7..0]

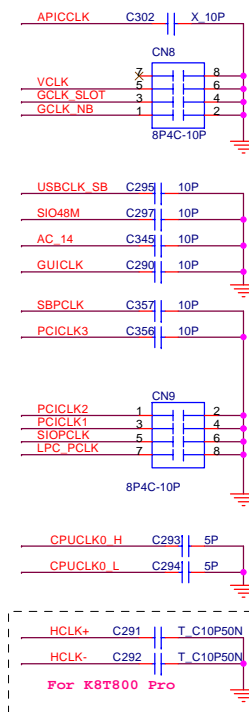
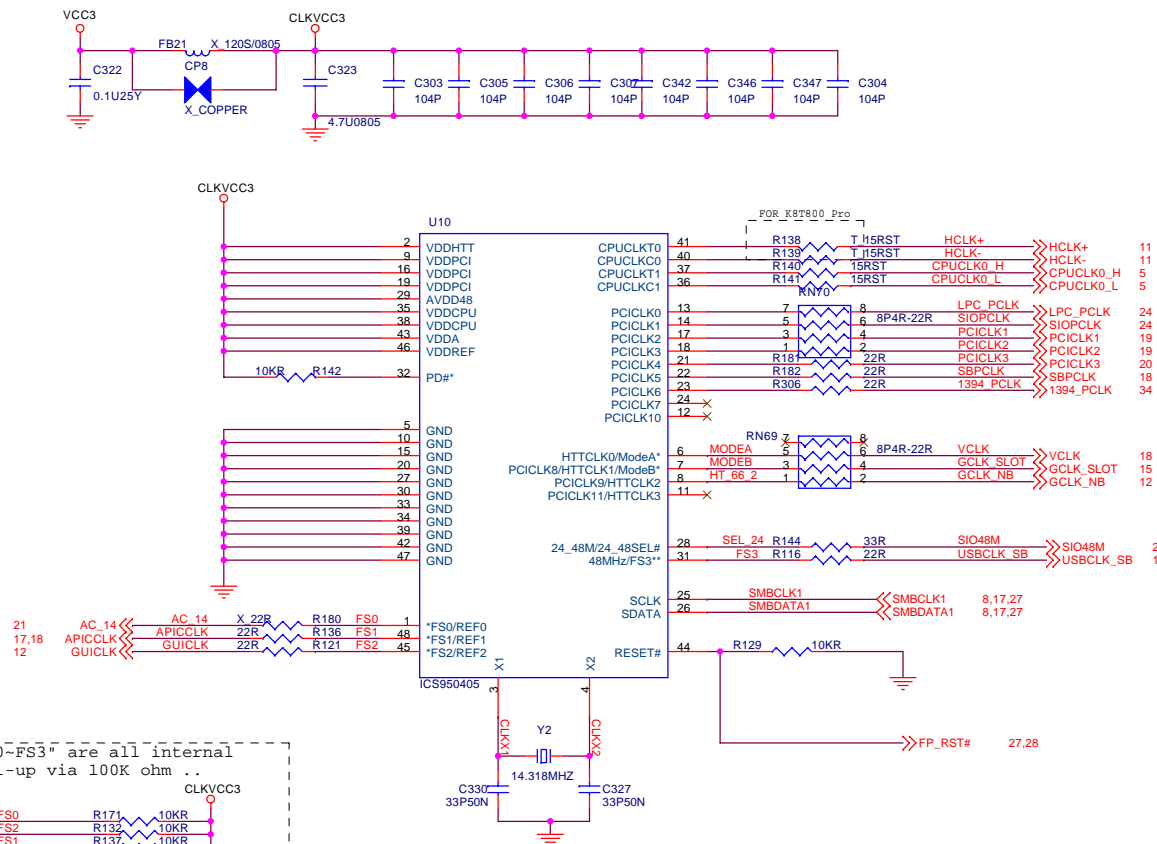
MDQS[7..0]

| Micro Star Restricted Secret  |             |   |
|---|-------------|---|
| Title   | K8 DDR & HT | Rev<br>20   |
| Document Number   | MS-7181     |   |
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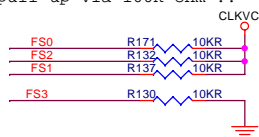




## Clock Synthesizer



"FS0~FS3" are all internal pull-up via 100K ohm ..



| FS(3:0) | CPU    | HTT   | PCI   |
|---------|--------|-------|-------|
| 0000    | 100.90 | 67.27 | 33.63 |
| 0001    | 133.90 | 66.95 | 33.48 |
| 0010    | 168.00 | 67.20 | 33.60 |
| 0011    | 202.00 | 67.33 | 33.67 |
| 0100    | 100.20 | 66.80 | 33.40 |
| 0101    | 133.50 | 66.75 | 33.38 |
| 0110    | 166.70 | 66.68 | 33.34 |
| 0111    | 200.40 | 66.80 | 33.40 |
| 1000    | 150.00 | 60.00 | 30.00 |
| 1001    | 180.00 | 60.00 | 30.00 |
| 1010    | 210.00 | 70.00 | 35.00 |
| 1011    | 240.00 | 60.00 | 30.00 |
| 1100    | 270.00 | 67.50 | 33.75 |
| 1101    | 233.33 | 66.67 | 33.33 |
| 1110    | 266.67 | 66.67 | 33.33 |
| 1111    | 300.00 | 75.00 | 37.50 |

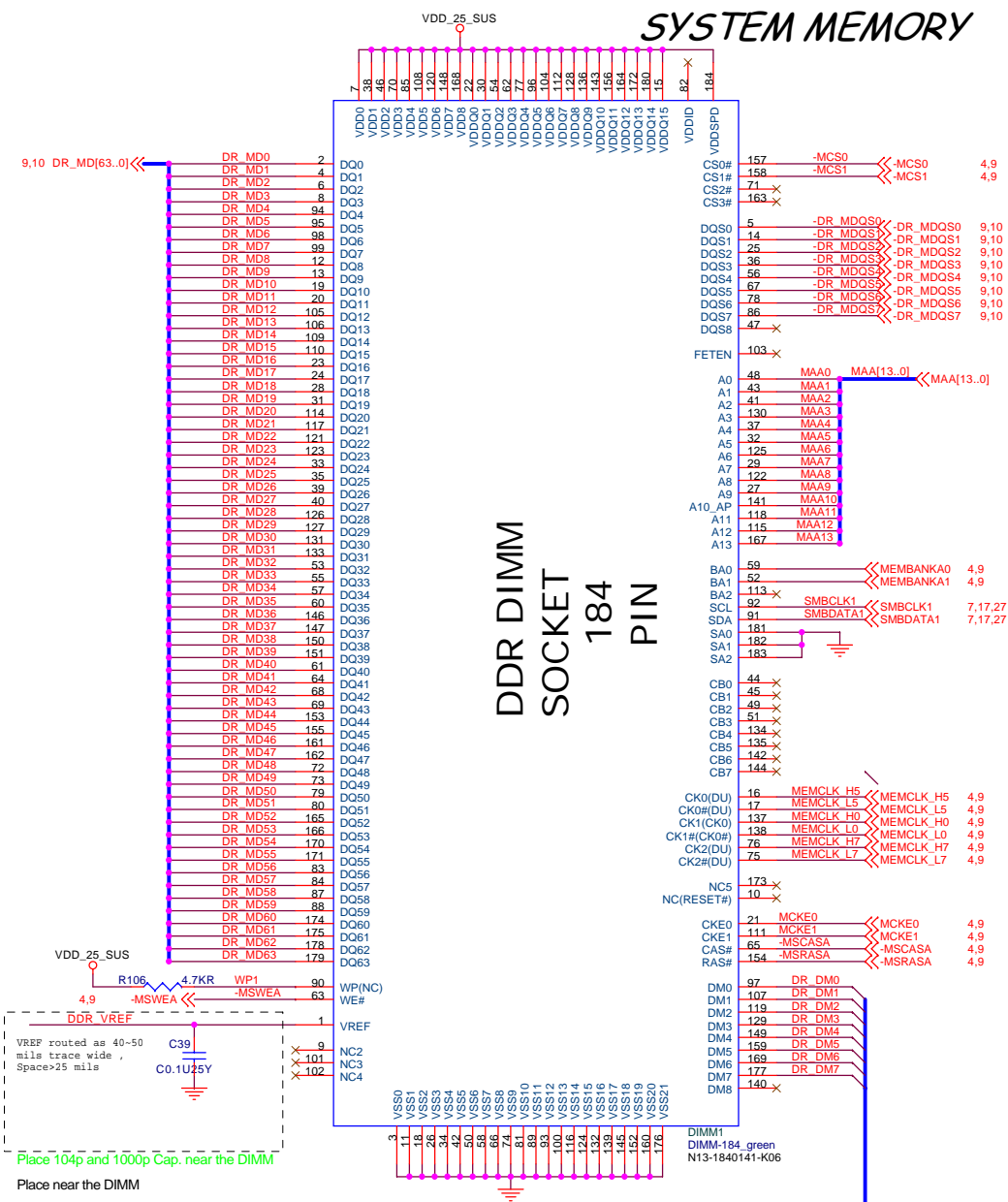


| MODE A | MODE B | PIN7    | PIN8    | PIN11    |
|--------|--------|---------|---------|----------|
| 0      | 0      | HTTCLK1 | HTTCLK2 | PCICLK11 |
| 0      | 1      | HTTCLK1 | HTTCLK2 | HTTCLK3  |
| 1      | 0      | PCICLK8 | PCICLK9 | PCICLK11 |
| 1      | 1      | HTTCLK1 | PCICLK9 | PCICLK11 |

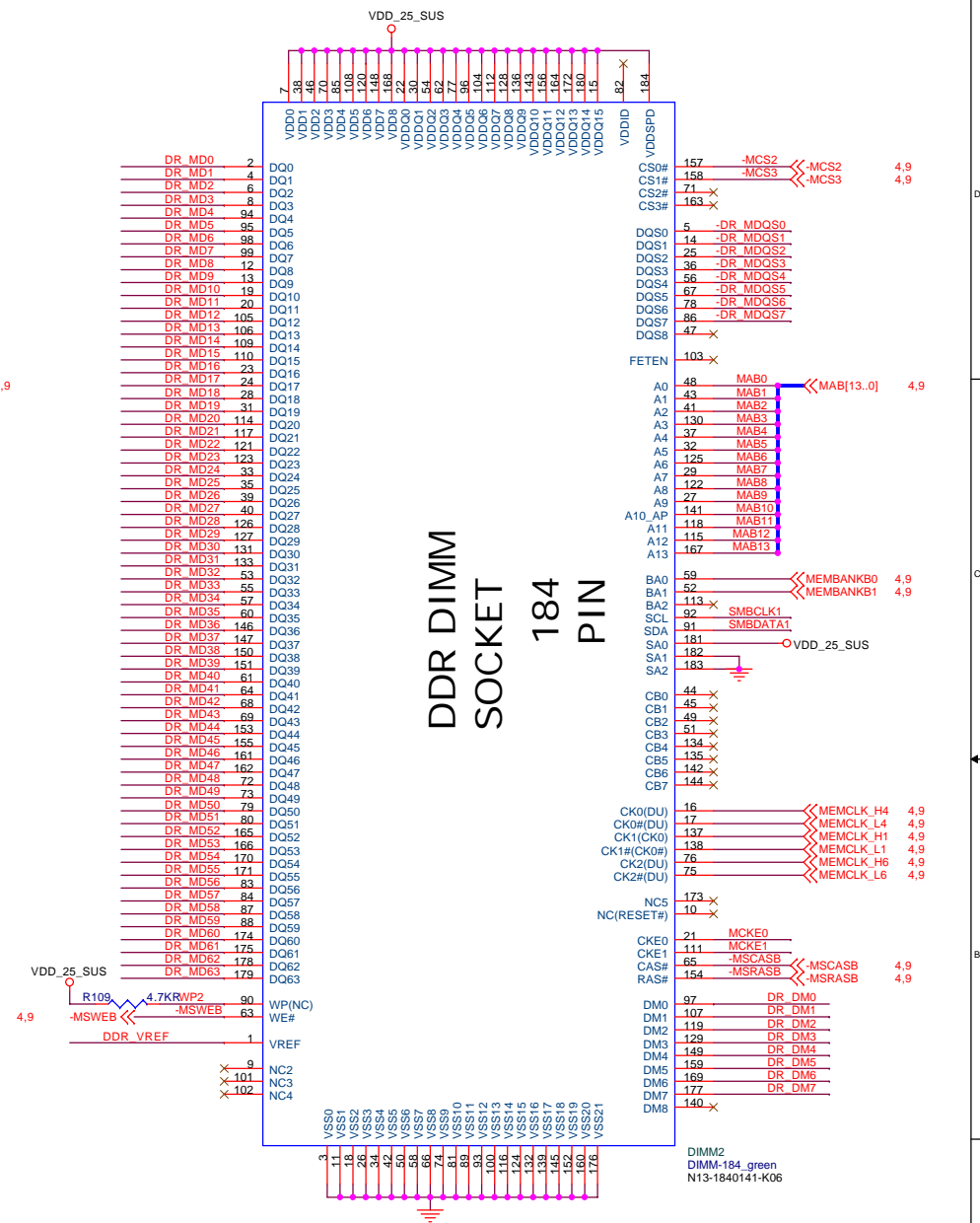
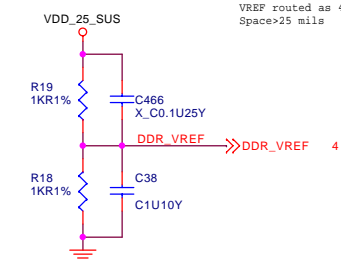
|        |       |
|--------|-------|
| SEL_24 | PIN28 |
| 0      | 48M   |
| 1      | 24M   |



## SYSTEM MEMORY



**DIMM1 SLAVE ADDRESS**  
**= (1010000X)B = A0**

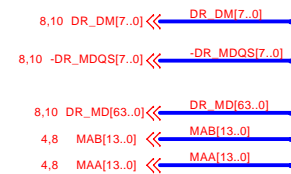
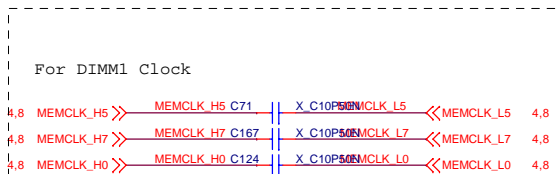
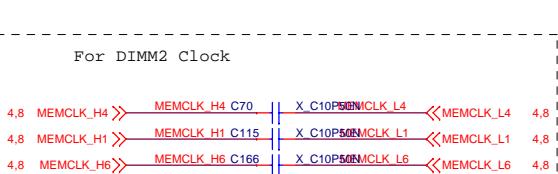
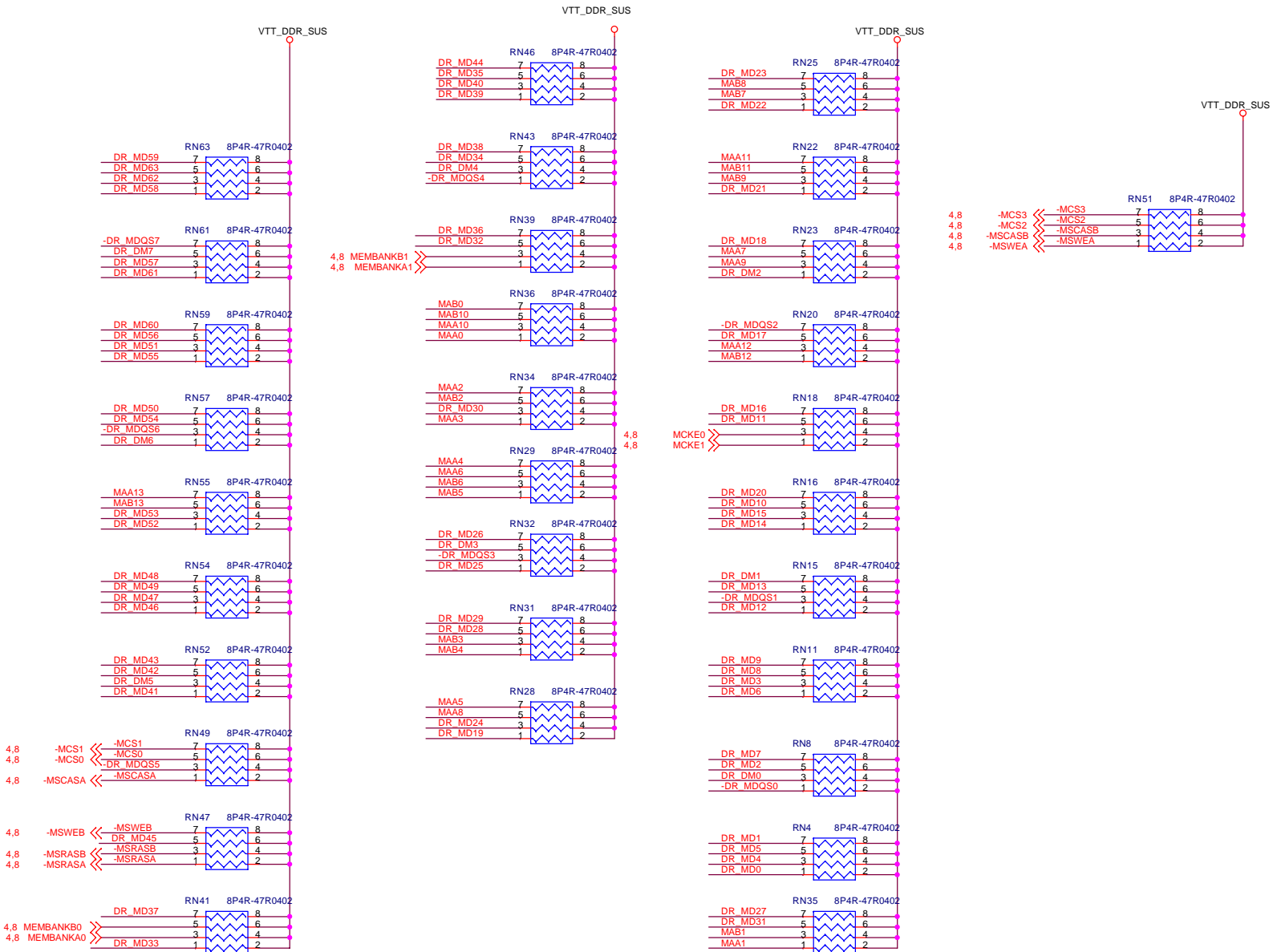


**DIMM2 SLAVE ADDRESS**  
= (1010001X)B = A2

|   |  |   |
|---|--|---|
| <b><i>Micro Star Restricted Secret</i></b>  |  |   |
| <b><i>Title</i></b>   | <b><i>System Memory : DDR DIMM 1</i></b> | <b>Rev</b>  |
| <b><i>Document Number</i></b>   | <b><i>MS-7181</i></b>                    | 20  |
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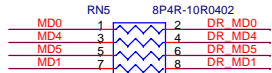
## DDR Terminations



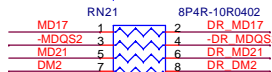
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| <b>Title</b>   | <b>DDR Terminations Bank 0</b>   | <b>Rev</b> |
|  |  | 20         |
| <b>Document Number</b>   | <b>MS-7181</b>   |            |
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# DDR Terminations

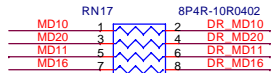
-MDQS0 R32 10R0402 -DR MDQS0



MD15 R54 10R0402 DR MD15



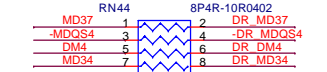
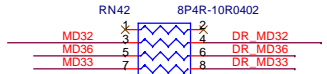
MD18 R55 10R0402 DR MD18



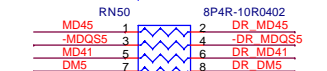
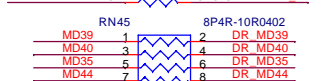
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8,9 -DR MDQS[7..0] << -DR MDQS[7..0]  
8,9 DR MD[63..0] << DR MD[63..0]  
4 MD[63..0] << MD[63..0]

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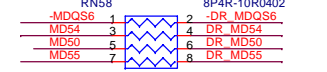
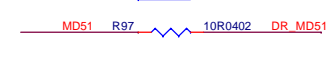
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MD42 R82 10R0402 DR MD42



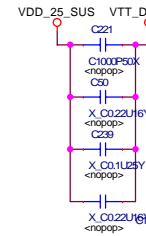
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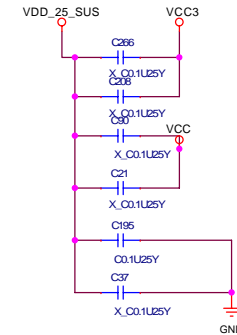
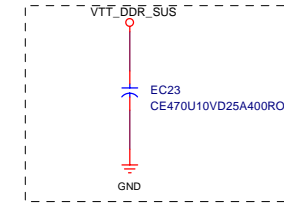
MD59 R105 10R0402 DR MD59

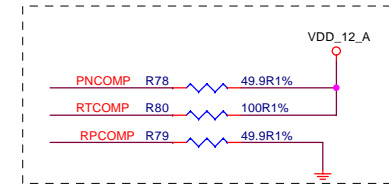
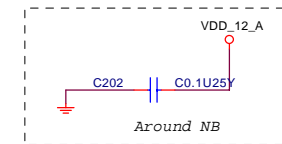
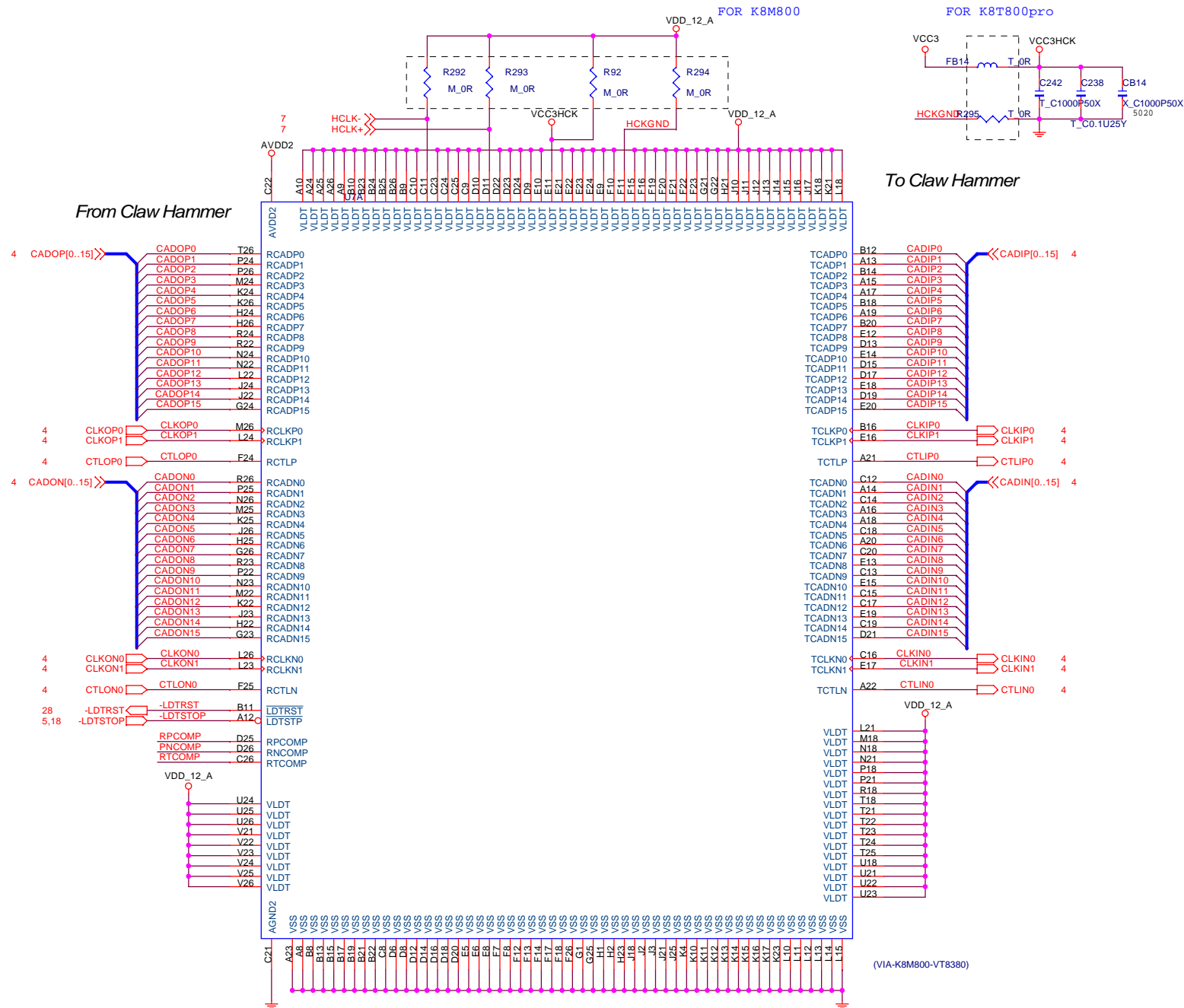


LAYOUT: Place on backside, evenly spaced around VTT fill.



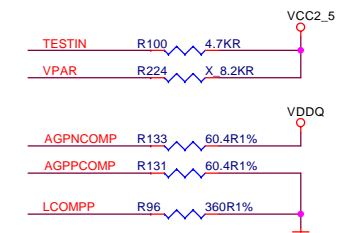
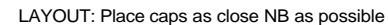
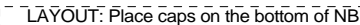
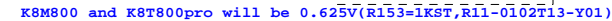
LAYOUT: Locate close to Clawhammer socket.





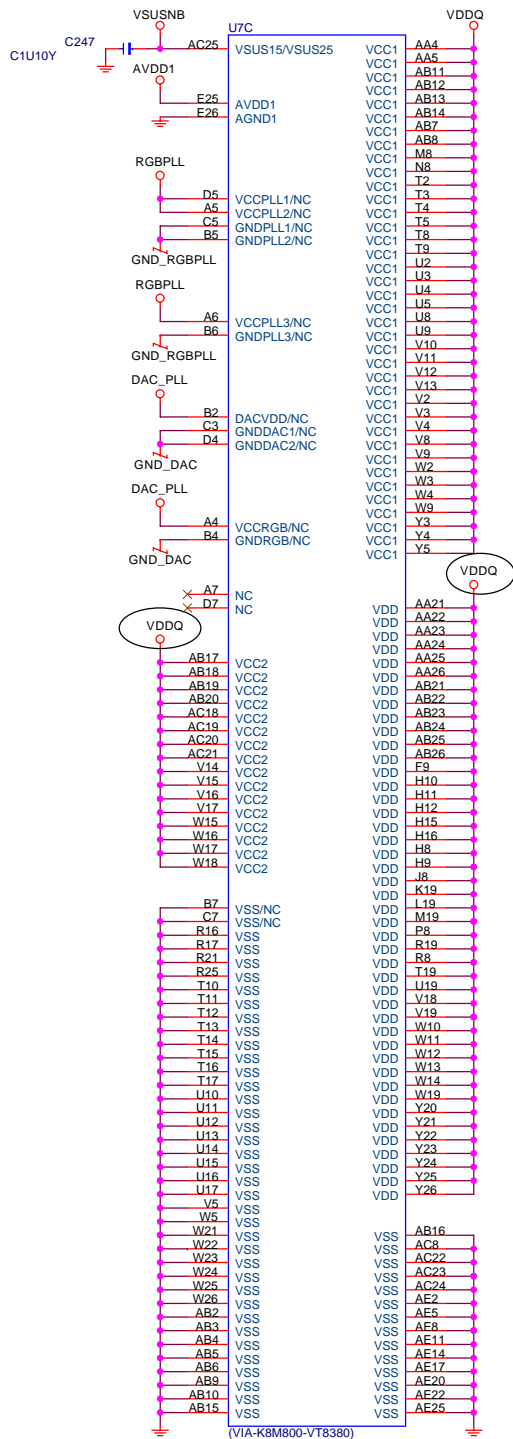
| Micro Star Restricted Secret   |                   |  |
|--|-------------------|--|
| Title  | NORTH BRIDGE (HT) | Rev<br>20  |
| Document Number  | MS-7181           |  |
| MICRO-STAR INT'L CO., LTD.<br>No. 69, Li-De St, Jung-He City,<br>Taipei Hsien, Taiwan<br><a href="http://www.msi.com.tw">http://www.msi.com.tw</a> |                   | Last Revision Date:<br>Thursday, October 13, 2005<br>Sheet<br>11 of 34 |

FOR K8T800pro K8M800:00hm;K8T800 pro:bead

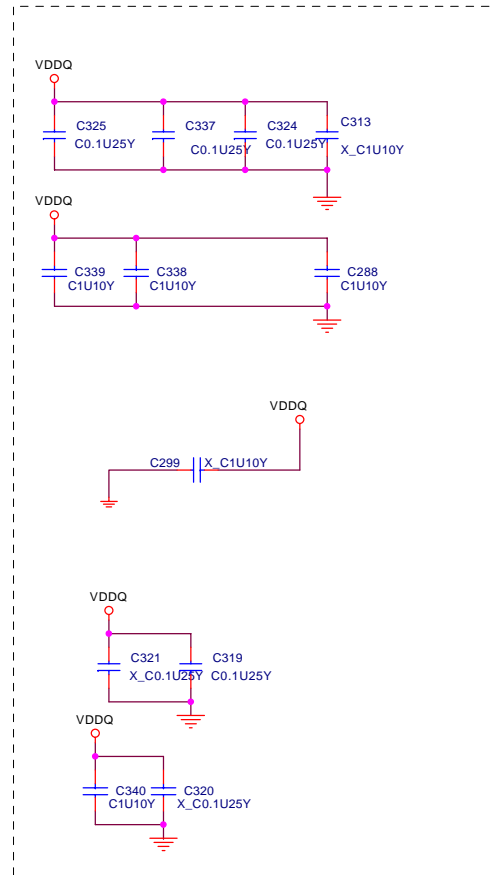
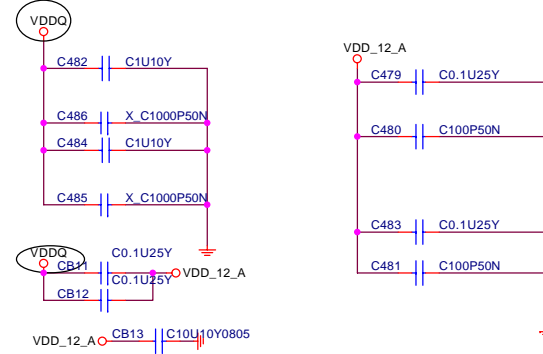


|   |                                       |  |
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| <b><i>Micro Star Restricted Secret</i></b>  |                                       |  |
| <b>Title</b>  | <b>NORTH BRIDGE (AGP &amp; VLINK)</b> | <b>Rev</b>   |
| <b>Document Number</b>  | <b>MS-7181</b>                        | <b>20</b>  |
| <b>MICRO STAR INT'L CO., LTD.</b><br>No. 69, Li-De St. Jung-Ho City,<br>Taipei Hsien, Taiwan<br><a href="http://www.msi.com.tw">http://www.msi.com.tw</a> |                                       | <b>Last Revision Date:</b><br>Thursday, October 13, 2005<br><hr/> <b>Sheet</b><br>12 of 34 |

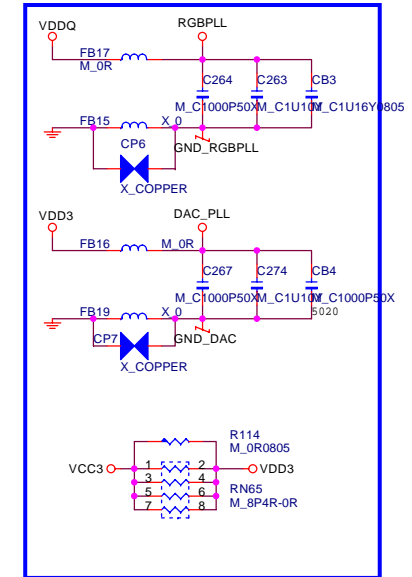
## Power and Ground Connections



LAYOUT : Popualte caps on the bottom side of NB.

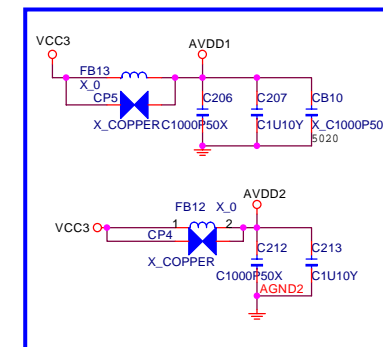


For K8M800 Only



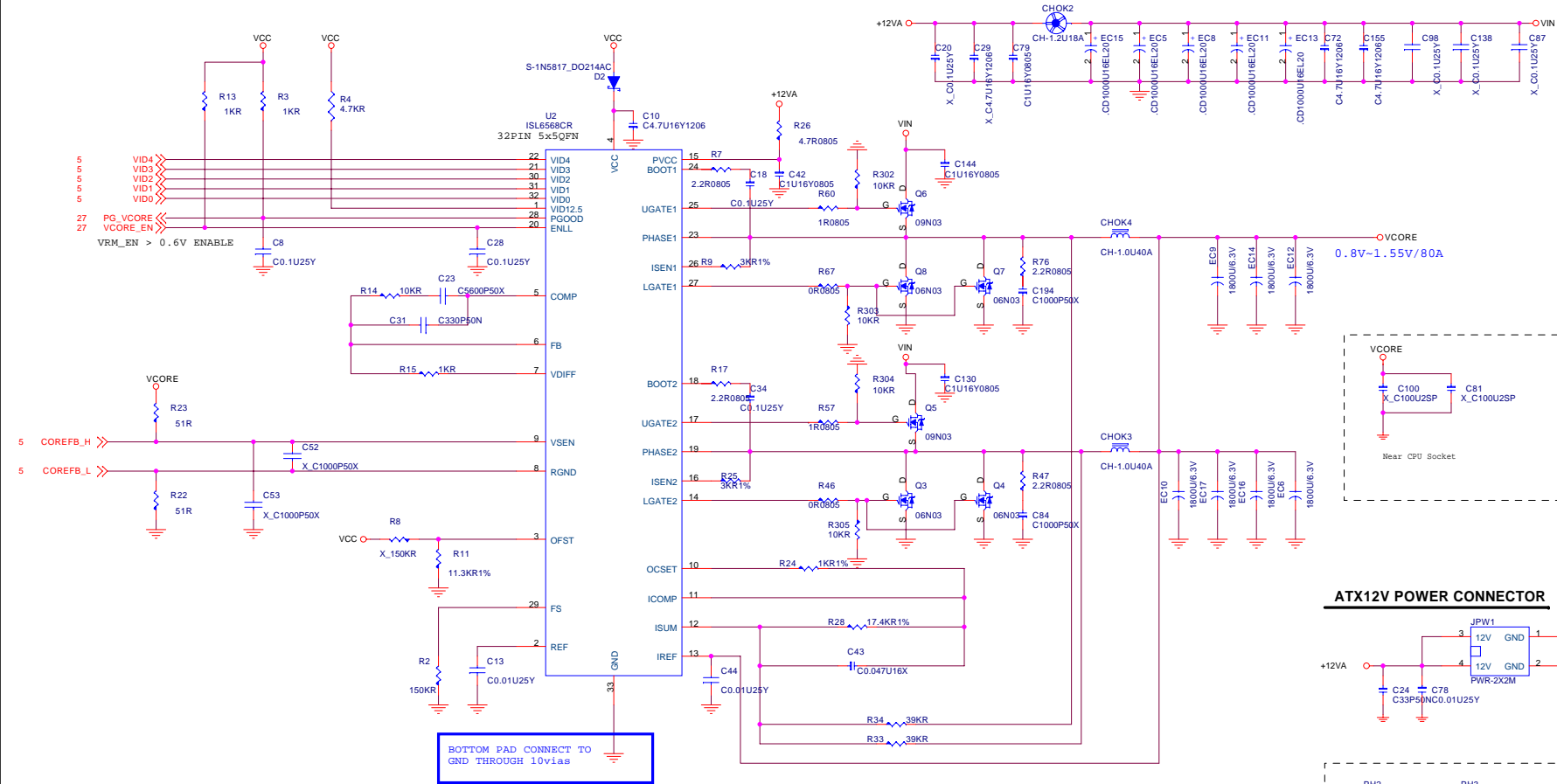
Note: When use K8T800,  
these power circuit for  
GFX analog power should be  
NOPOPED.

For K8M800/K8T800 Pro Only

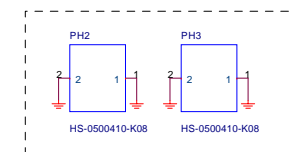
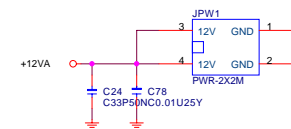


|  |  |   |                  |
|--|--|---|------------------|
| <b><i>Micro Star Restricted Secret</i></b>   |  |   |                  |
| <b>Title</b> NORTH BRIDGE (POWER/GOUND)  |  |   | <b>Rev</b><br>20 |
| <b>Document Number</b> MS-7181   |  |   |                  |
| MICRO STAR INT'L CO., LTD.<br>No. 69, Li-De St, Jung-He City,<br>Taipei Hsien, Taiwan<br><a href="http://www.msi.com.tw">http://www.msi.com.tw</a> |  | <b>Last Revision Date:</b><br>Thursday, October 13, 2005<br><b>Sheet</b> 13 of 34 |                  |

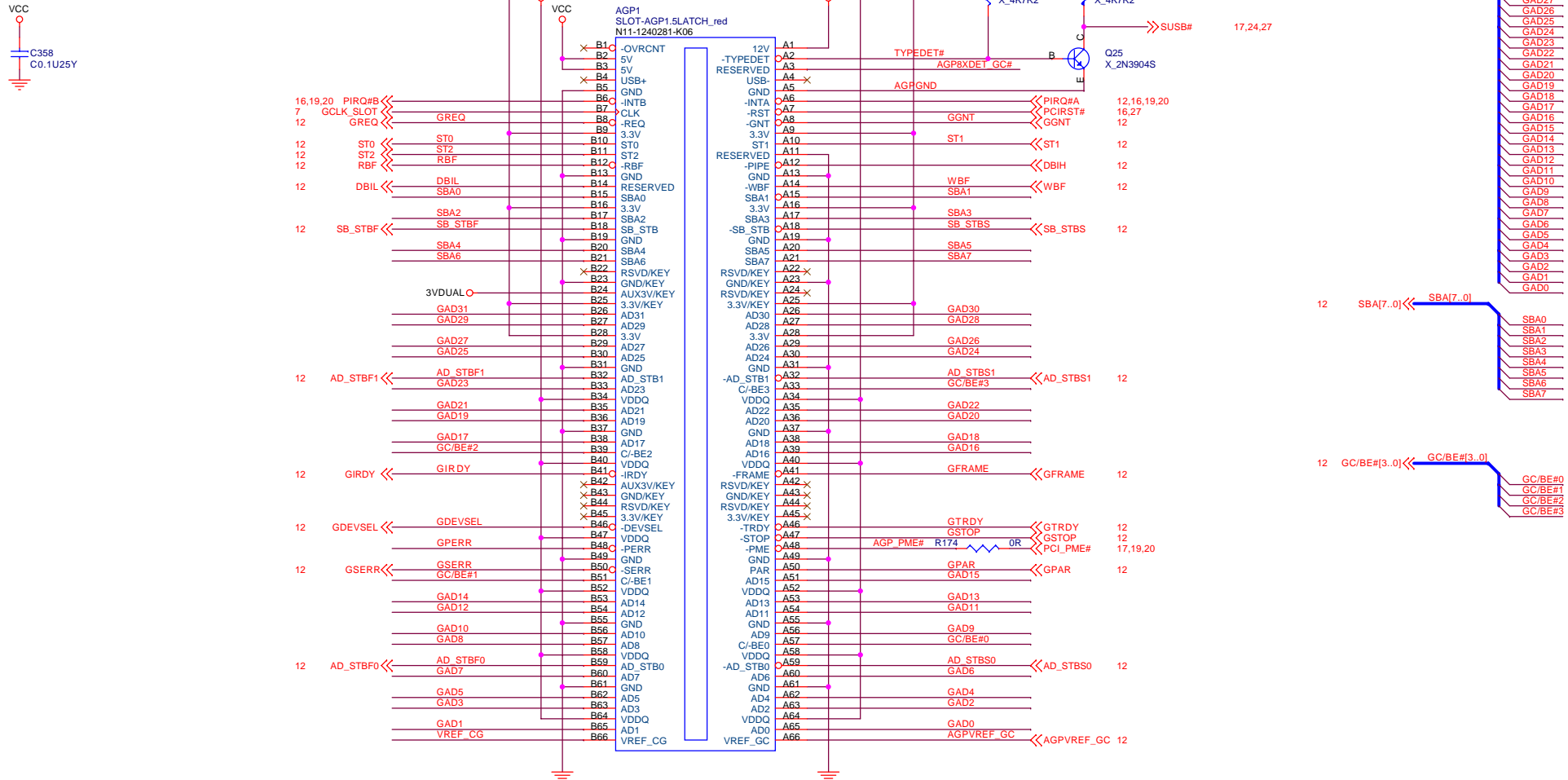
## ISL6568CR FOR AMD K8 754 POWER CKT



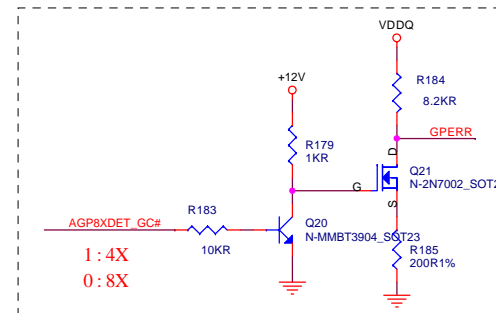
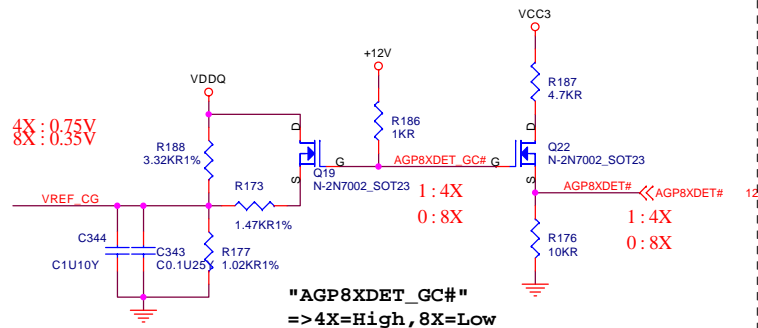
### ATX12V POWER CONNECTOR



# 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

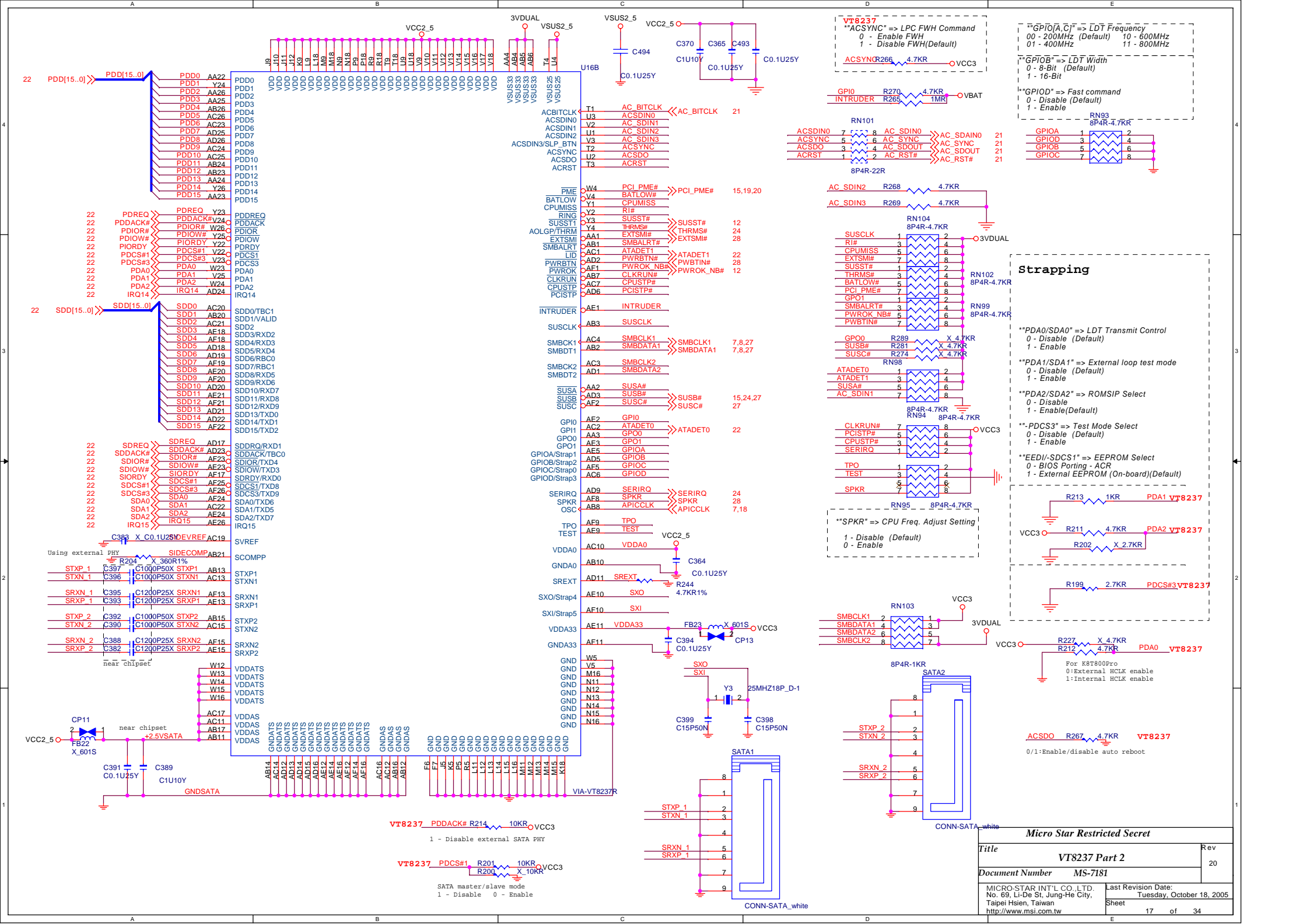
|        | I <sub>max</sub> | V <sub>Min</sub> | V <sub>Max</sub> | Units |
|--------|------------------|------------------|------------------|-------|
| VDDQ   | 2.0A             | 1.425            | 1.575            | V     |
| VCC3   | 6.0A             | 3.15             | 3.45             | V     |
| 3VDUAL | 0.75A            | 3.15             | 3.45             | V     |
| VCC5   | 2.0A             | 4.75             | 5.25             | V     |
| VCC12  | 1.0A             | 11.4             | 12.6             | V     |

## Micro Star Restricted Secret

|                                 |              |                            |    |
|---------------------------------|--------------|----------------------------|----|
| Title                           | AGP PRO Slot | Rev                        | 20 |
| Document Number                 | MS-7181      |                            |    |
| MICRO STAR INT'L CO., LTD.      |              | Last Revision Date:        |    |
| No. 69, Li-De St. Jung-He City, |              | Thursday, October 13, 2005 |    |
| Taipei Hsien, Taiwan            |              | Sheet                      |    |
| http://www.msi.com.tw           |              | 15 of 34                   |    |

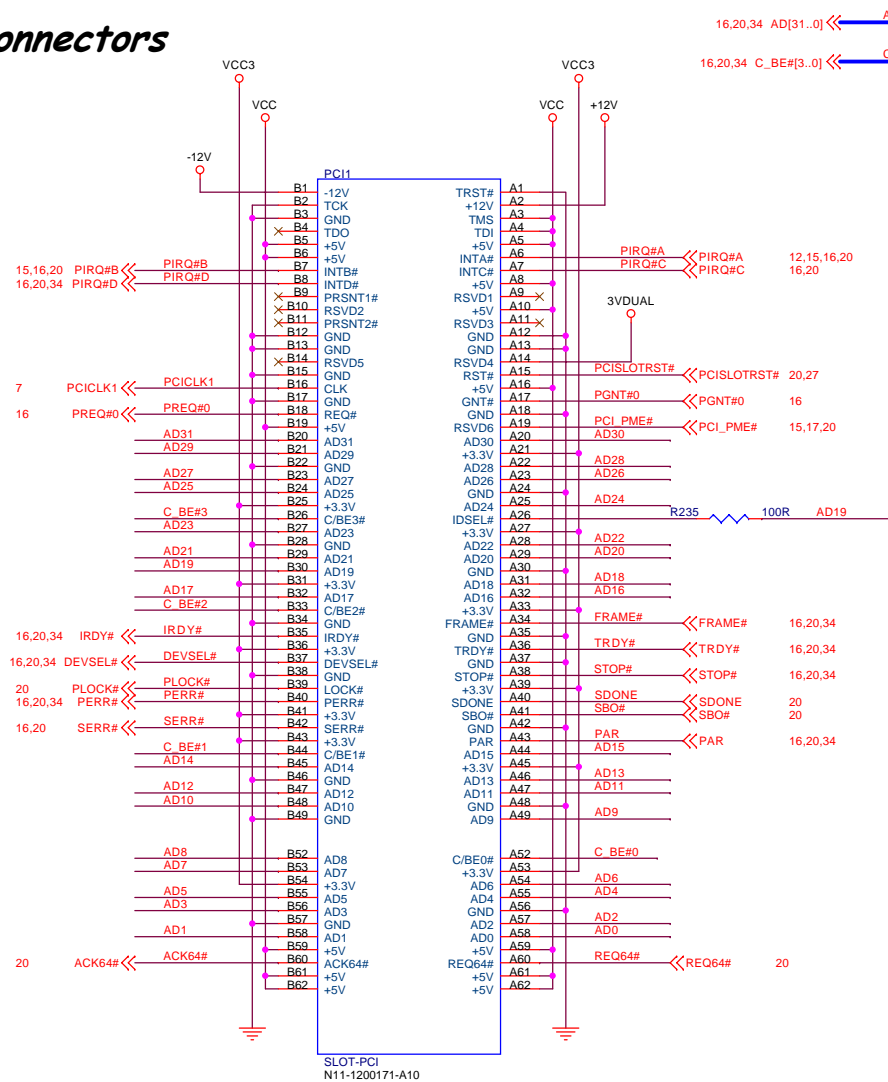




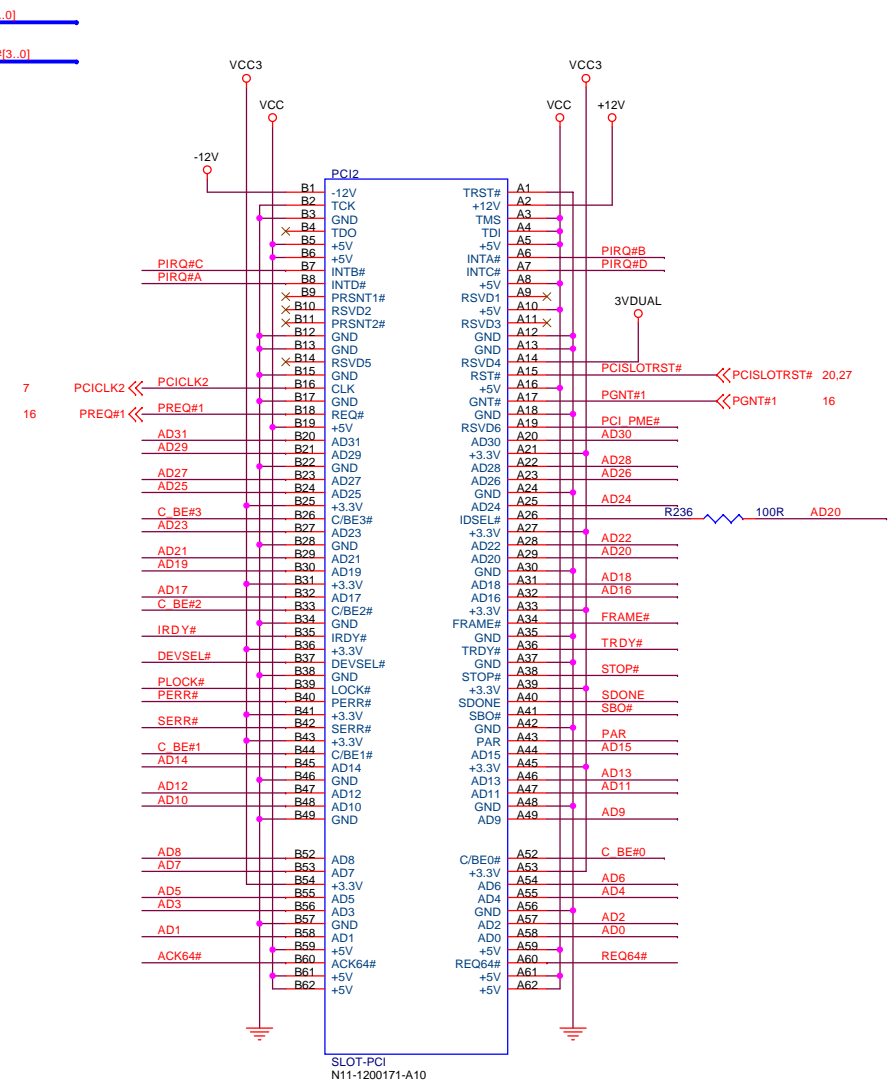
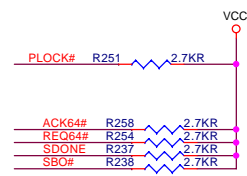




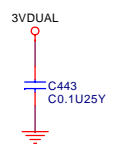
PCI Connectors



IDSEL#=AD19  
INT#=A,B,C,D

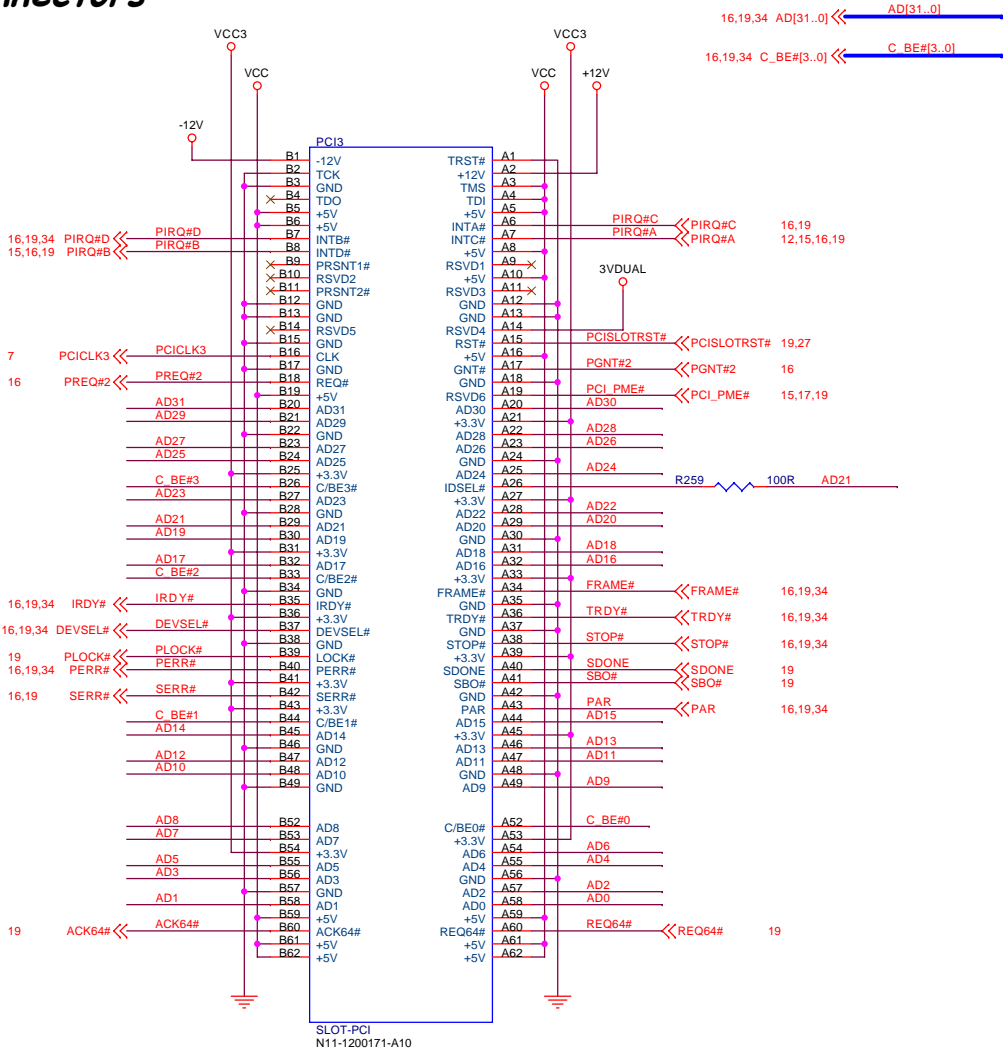


IDSEL#=AD20  
INT#=B,C,D,A

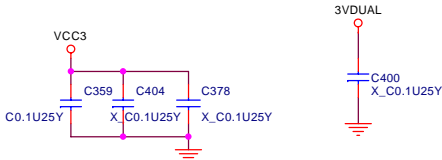


| Micro Star Restricted Secret   |                     |   |
|--|---------------------|---|
| Title  | PCI Connector 1 & 2 | Rev 20  |
| Document Number  | MS-7181             |   |
| MICRO STAR INT'L CO., LTD.<br>No. 69, Li-De St. Jung-He City,<br>Taipei Hsien, Taiwan<br>http://www.msi.com.tw |                     | Last Revision Date:<br>Thursday, October 13, 2005<br>Sheet 19 of 34 |

PCI Connectors



IDSEL#=AD21  
INT#=C, D, A, B

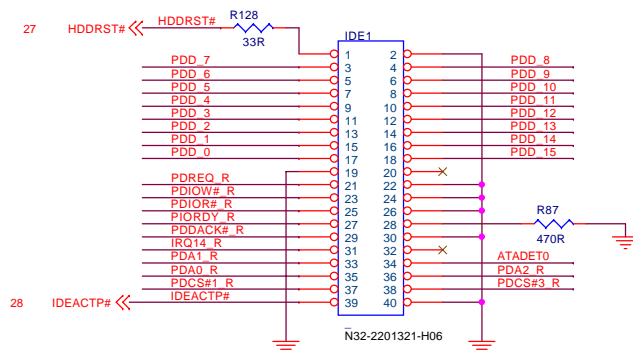


|   |                 |   |
|---|-----------------|---|
| Micro Star Restricted Secret  |                 |   |
| Title   | PCI Connector 3 | Rev   |
| Document Number   | MS-7181         | 20  |
| MICRO-STAR INT'L CO., LTD.<br>No. 69, Li-De St., Jung-He City,<br>Taipei Hsien, Taiwan<br>http://www.msi.com.tw |                 | Last Revision Date:<br>Thursday, October 13, 2005<br>Sheet 20 of 34 |

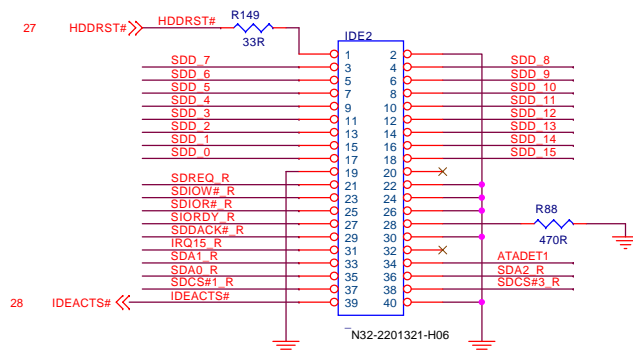


# ATA 33/66/100 Connector

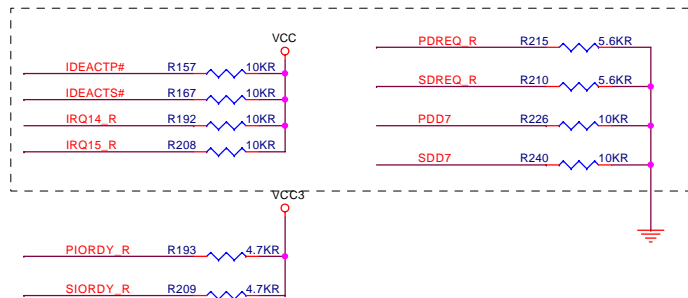
## PRIMARY IDE CONN.



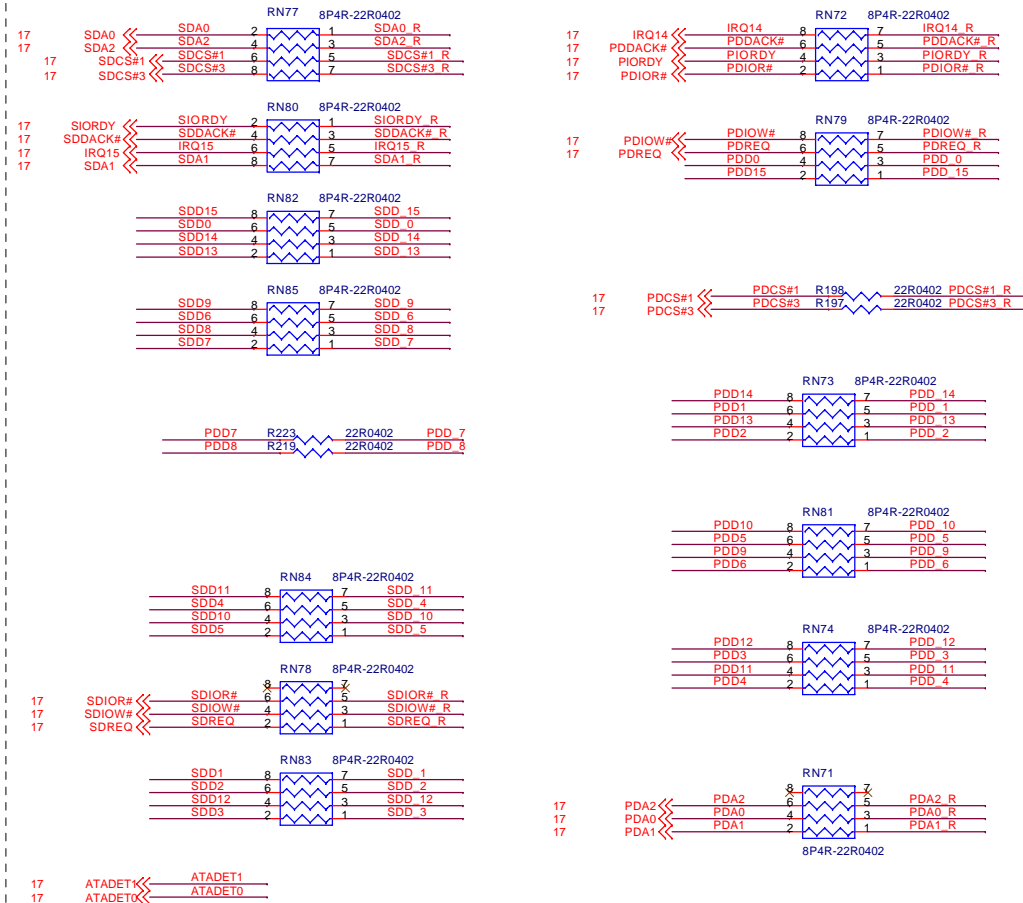
## SECONDARY IDE CONN.



## Near SB < 1" ( or Damping Rs)



## NEAR S.B SIDE

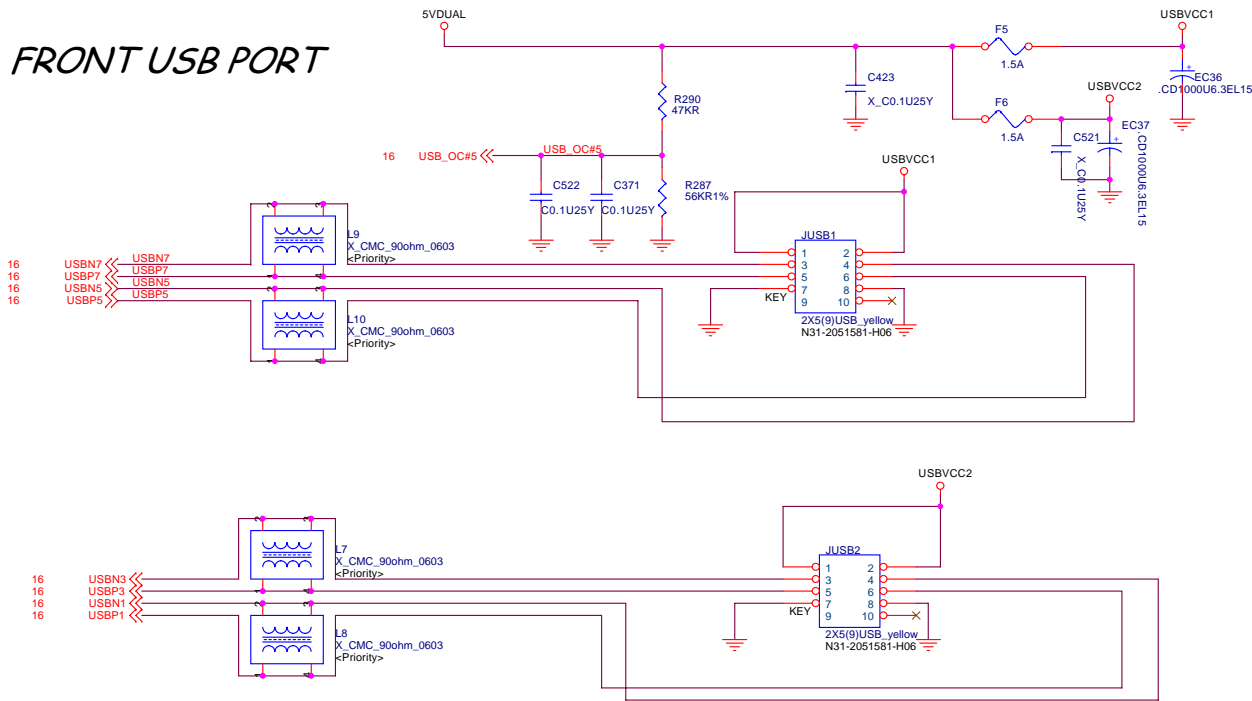


## Micro Star Restricted Secret

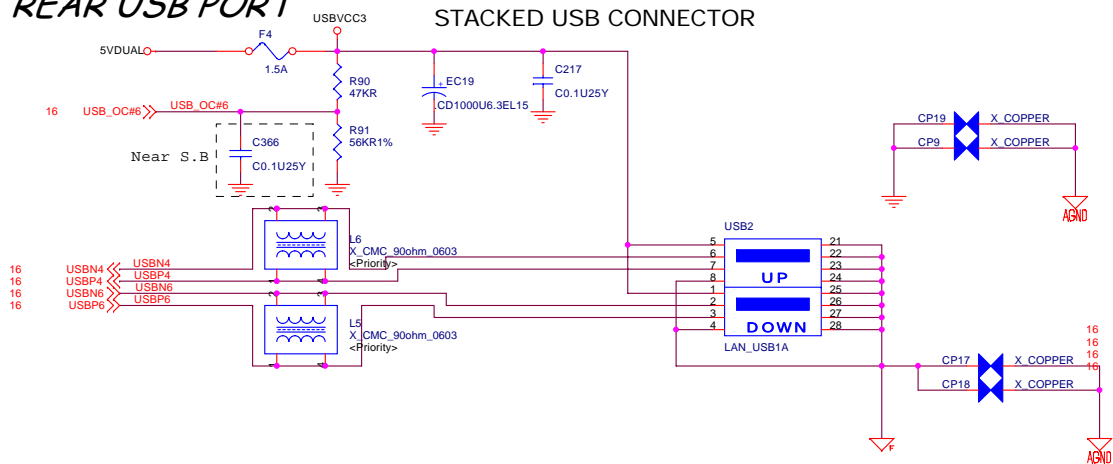
|   |  |   |
|---|--|---|
| Title   |  | Rev   |
| ATA 33/66/100 Connector   |  | 20  |
| Document Number   |  | MS-7181   |
| MICRO STAR INT'L CO. LTD.<br>No. 69, Li-De St. Jung-He City,<br>Taipei Hsien, Taiwan<br>http://www.msi.com.tw |  | Last Revision Date:<br>Thursday, October 13, 2005<br>Sheet 22 of 34 |



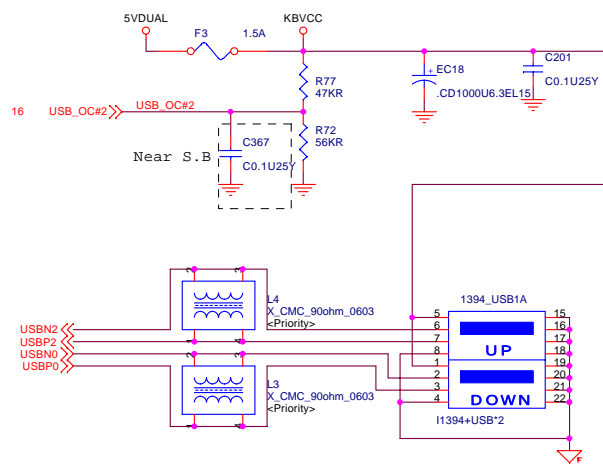
# FRONT USB PORT



# REAR USB PORT

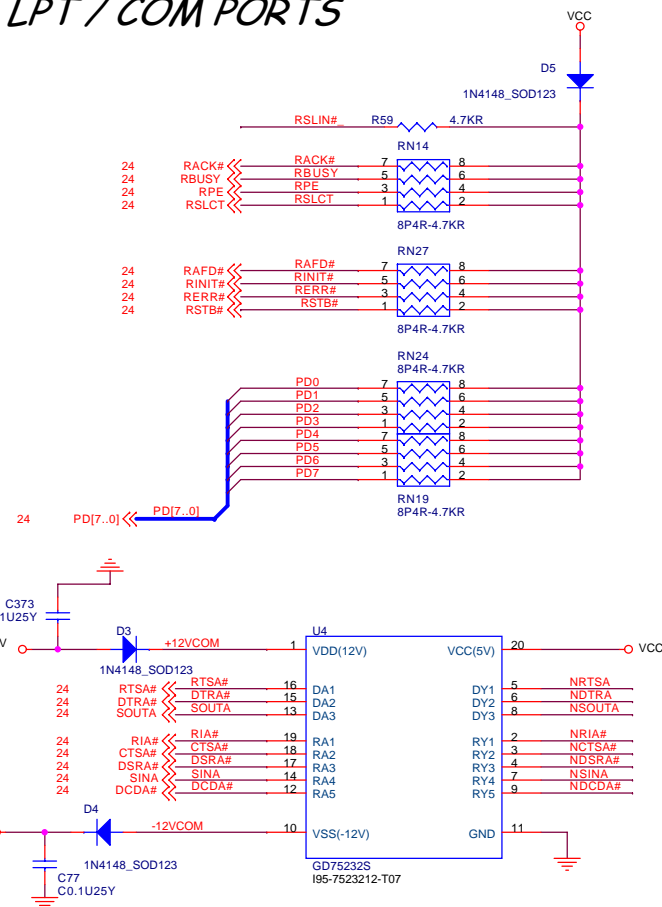


## STACKED USB CONNECTOR

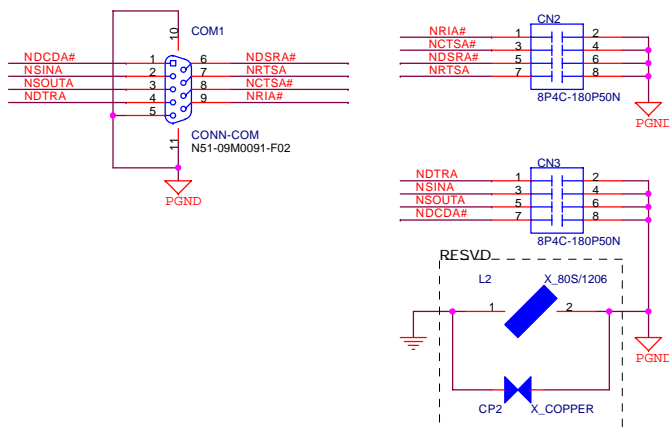




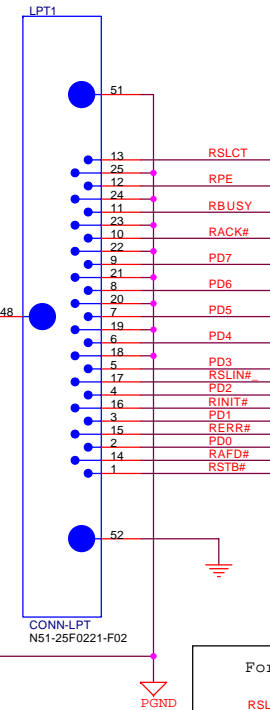
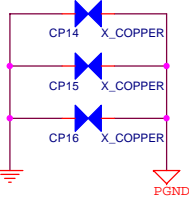
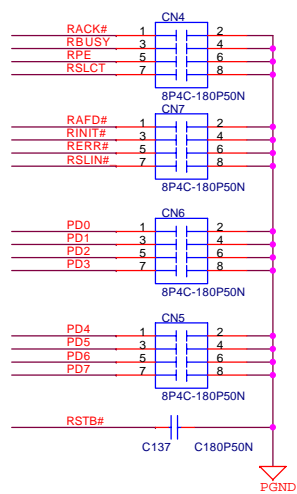
# LPT / COM PORTS



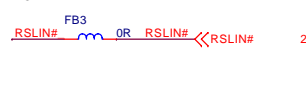
Multiple RS232 Drivers and Receivers



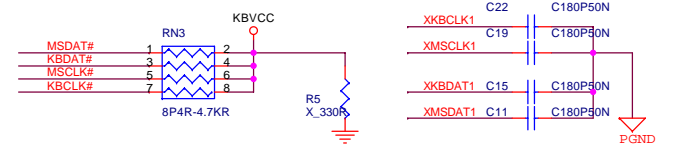
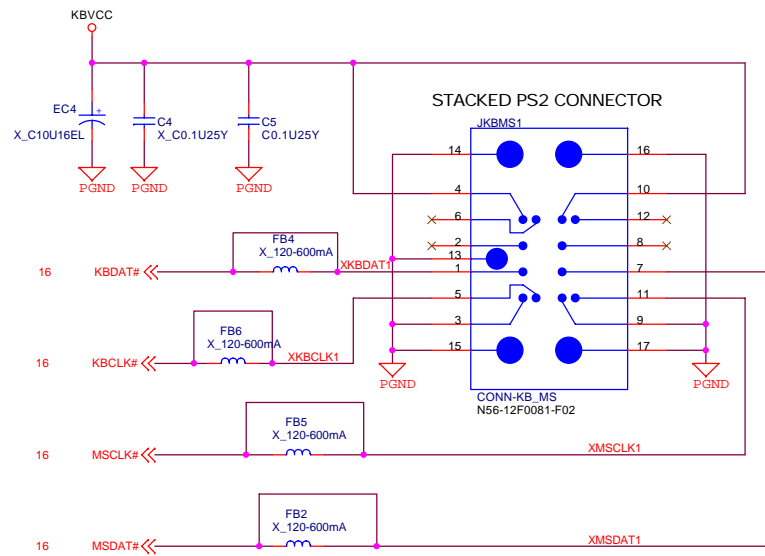
For EMI



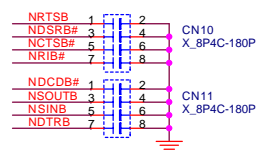
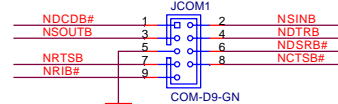
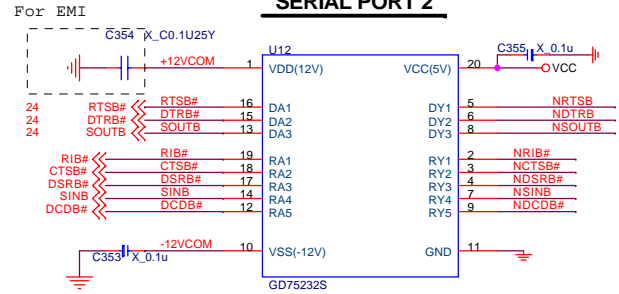
For EMI



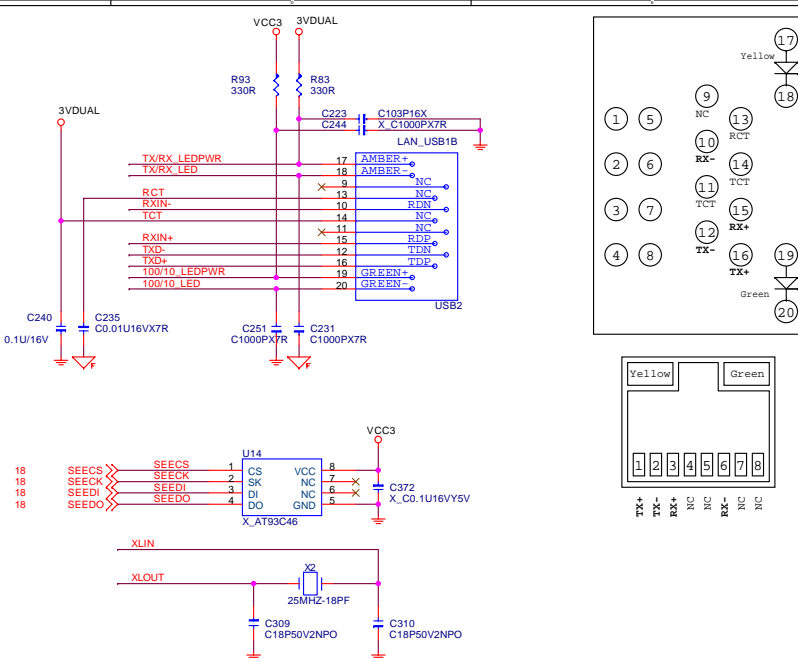
# Keyboard/Mouse Ports



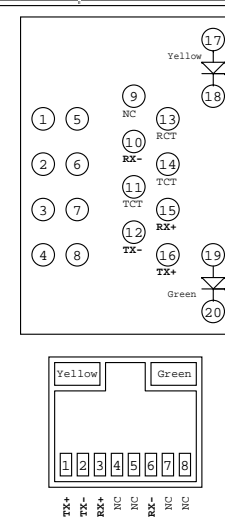
## SERIAL PORT 2



| Micro Star Restricted Secret  |                        |                            |
|---|------------------------|----------------------------|
| Title   | KeyBoard/Mouse/LPT/COM | Rev                        |
| Document Number   | MS-7181                | 20                         |
| MICRO STAR INT'L CO. LTD.<br>No. 69, Li-De St. Jung-He City,<br>Taipei Hsien, Taiwan<br>http://www.msi.com.tw |                        |                            |
| Last Revision Date:   |                        | Thursday, October 13, 2005 |
| Sheet   | 25                     | of 34                      |

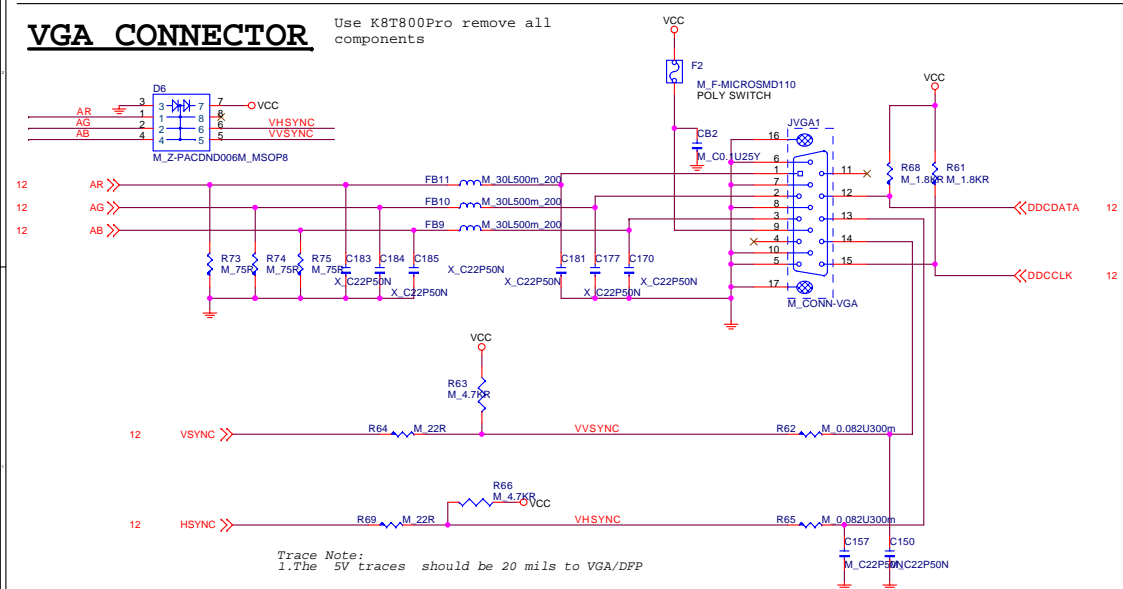


| Strap Options | 0       | 1        | Description        |
|---------------|---------|----------|--------------------|
| LED0 / LINK   | Enable  | Disable  | Test Mode Enable   |
| LED1 / SPD100 | Speed10 | Speed100 | Speed Select       |
| LED2 / DUPLEX | Half    | Full     | Duplex Mode Select |
| LED3 / NWAYEN | Disable | Enable   | N-Way Enable       |



## VGA CONNECTOR

```
Use K8T800Pro remove all
components
```



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

# LINEAR MODE

THESE OUTPUT AND INPUT PIN MUST BE PULL HIGH

## VDIMM LINEAR OR PWM SELECT

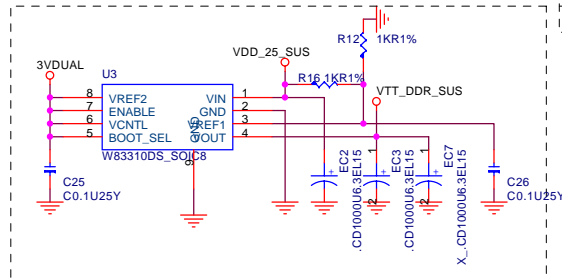
|                  |           |
|------------------|-----------|
| VDIMM MODE       | EXTRAM    |
| LINEAR REGULATOR | PULL LOW  |
| PWM REGULATOR    | PULL HIGH |

FRONT PANEL RESET BUTTON  
PCIRST# INPUT  
PCIRST# BUFFER OUTPUT

PCI SOLT PCIRST# BUFFER OUTPUT

THE TWO BLOCK CHOICE ONE  
SUPPORT SYSTEM POWER CONTROL

## DDR TERMINATION



## DDR AND DDR II VOLT SELECT

|           |       |
|-----------|-------|
| DDRTYPE   | VDIMM |
| PULL LOW  | 2.5V  |
| PULL HIGH | 1.8V  |

## WATCHING DOG TIMER SELECT

|           |       |
|-----------|-------|
| WD_DET#   | TIMER |
| PULL LOW  | OFF   |
| PULL HIGH | ON    |

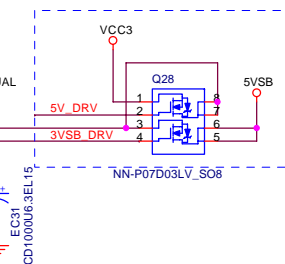
THE TWO MODE ONLY ONE MODE PRESENT  
SINGLE MODE  
THIS MODE SELECT BY PIN 47 PULL HIGH 5VSB

DUAL MODE  
THIS MODE SELECT BY PIN 47 PULL LOW

## THE VDIMM\_HSEN IN LINEAR MODE

|         |            |
|---------|------------|
| DDRTYPE | VDIMM_HSEN |
| DDR     | 2.0V       |
| DDR II  | 1.7V       |

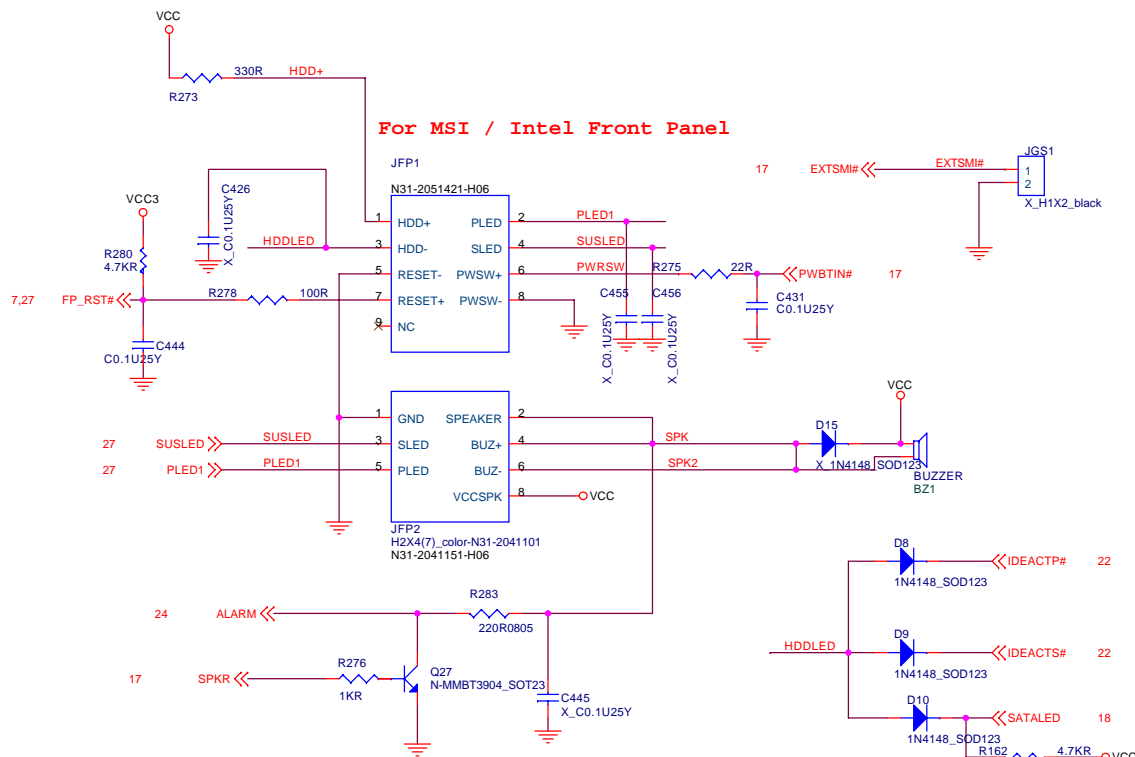
## 3VSB REGULATE BY 5VSB AND VCC3



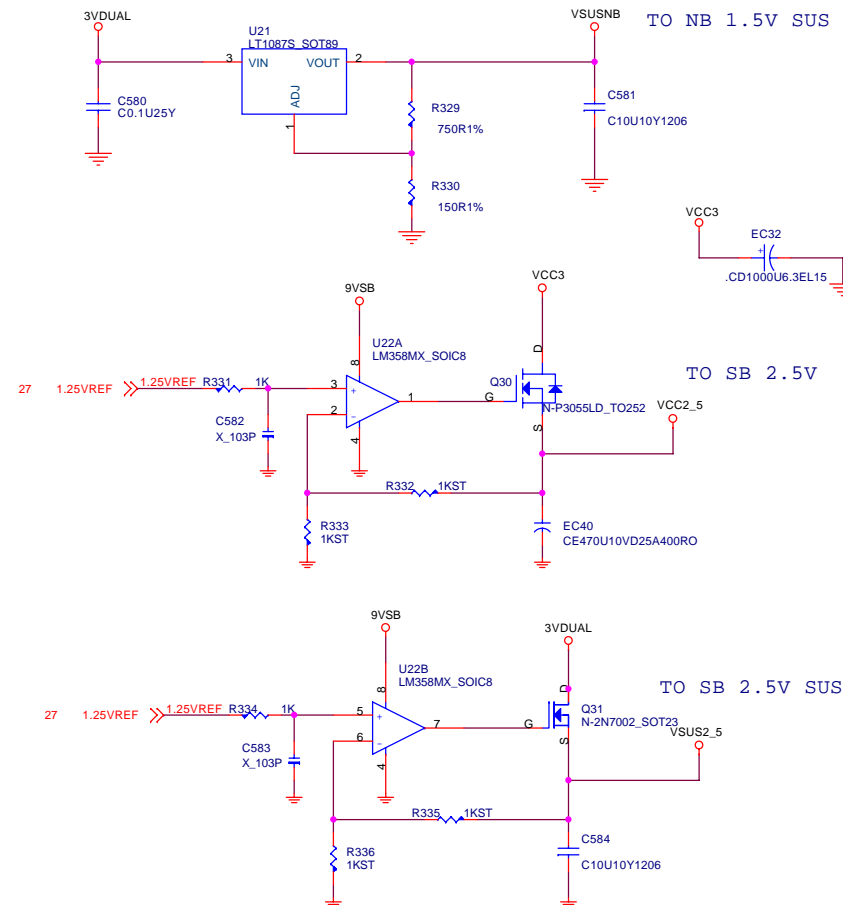
THIS POINT VOLT CAN'T SETTING BELOW 2.9V

|   |                              |   |
|---|------------------------------|---|
| Micro Star Restricted Secret  |                              |   |
| Title   | ACPI POWER CONTROLLER (MS-6) | Rev 20  |
| Document Number   | MS-7181                      |   |
| MICRO STAR INT'L CO. LTD.<br>No. 69, Li-De St. Jung-He City,<br>Taipei Hsien, Taiwan<br>http://www.msi.com.tw |                              | Last Revision Date:<br>Thursday, October 13, 2005<br>Sheet 27 of 34 |

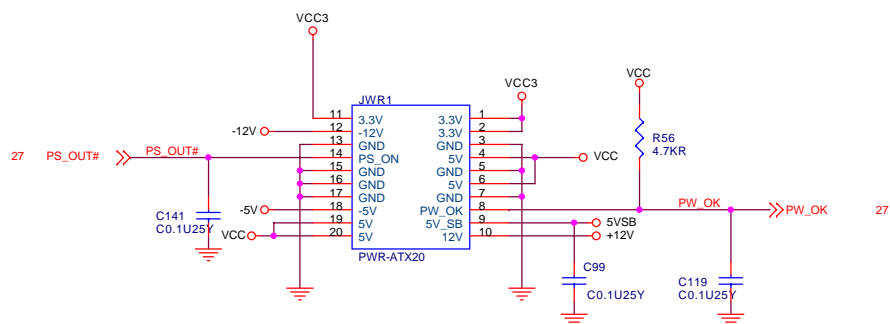
## FRONT PANEL



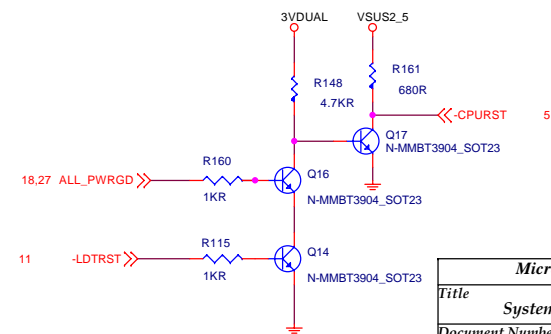
## System Voltage Regulator



## ATX Power Connector



## POWER OK Circuits

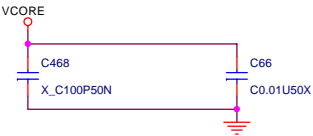


Micro Star Restricted Secret

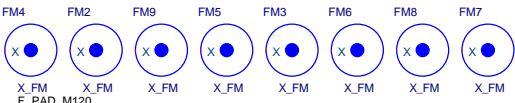
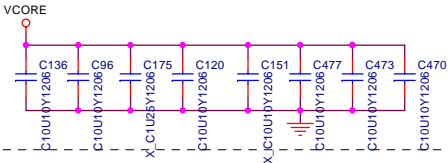
| Title                           |  | Rev                        |
|---------------------------------|--|----------------------------|
| System Regulator&Front Panel    |  | 20                         |
| Document Number                 |  | MS-7181                    |
| MICRO-STAR INT'L CO. LTD.       |  | Last Revision Date:        |
| No. 69, Li-De St. Jung-He City, |  | Thursday, October 13, 2005 |
| Taipei Hsien, Taiwan            |  | Sheet                      |
| http://www.msi.com.tw           |  | 28 of 34                   |

BULK / Decopuling

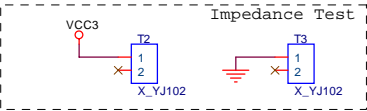
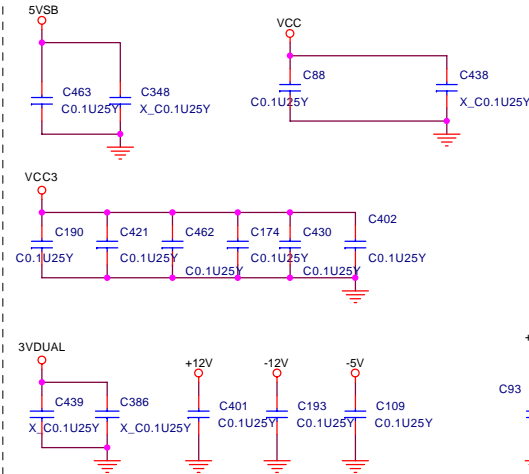
Place on CPU Solder side



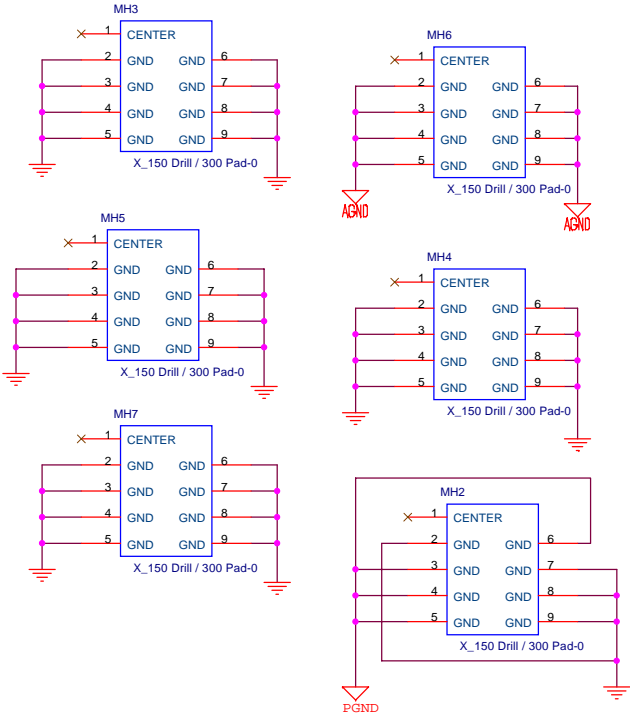
Buck-decoupling Mid-Freq. decoupling Cap.  
( 7 \* 4.7uF / 0805 , 4\*10uF/1206 )



SYSTEM



ATX VIA-Hole \* 9





# 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)

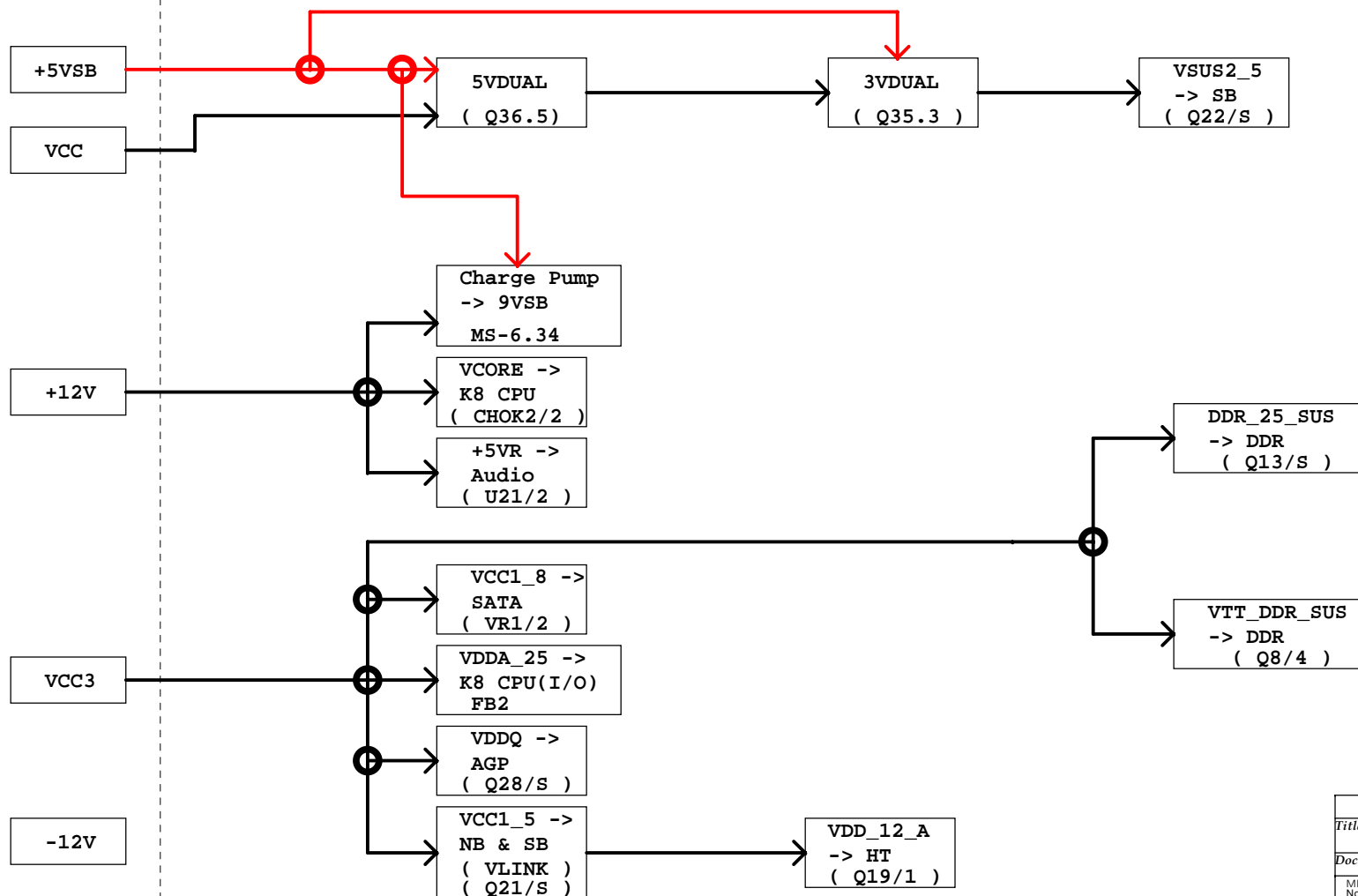
5VDUL

DDR\_3VDUAL

3VDUL

9VSB

## ATX Power Supply



Micro Star Restricted Secret

|  |                  |   |
|--|------------------|---|
| Title  | Power Generation | Rev   |
| Document Number  | MS-7181          | 20  |
| MICRO-STAR INT'L CO., LTD.<br>No. 69, Li-De St. Jung-He City,<br>Taipei Hsien, Taiwan<br><a href="http://www.msi.com.tw">http://www.msi.com.tw</a> |                  | Last Revision Date:<br>Thursday, October 13, 2005 |
| Sheet  | 30               | of 34   |

7142

Ver. 0A Copy from 7094

2004/11/25

Change R275 from 100ohm to 22ohm(Front Panel)  
Add D2 and remove R13 for PWM leakage voltage(VRM)

2004/11/26

Change R124,R125 from 1Kohm to 100ohm for ear phone(Codec)  
Swap smbc1k1 and smbcdata1 of clock gen for H/W issue(CLOCK Gen)  
Pop EC25 for MS6 power(ACPI)  
Change the footprint of R194,R196,C372 from 0402 to 0603

2004/11/29

Change F3 from 24V to 6V

2004/11/30

Add R296,R297,R298,R299,R300,R301.But don't pop them for VIA recommend(Codec).  
Change JUSB1 and JUSB2 PN from N31-2051131-H06 to N31-2051341-H06(USB)

2004/12/02

Don't pop R135(clock gen) and R27(SIO)==>Change SIO clock from 48MHz to 24MHz(SIO and Clock Gen)

2004/12/03

Pop U17,C425,R261,R271 and remove R262 for AC97 Power(Codec)  
Swap CPU\_TMP and THERMDA\_CPU of SIO for smart fan control(SIO)

2004/12/07

Change R98 to R11-0391T23-W08 for BOM error(Voltage Regulator)  
Change R95 to 200ohm for VSUSNB from1.1V to 1.5V(Voltage Regulator)

2004/12/08

Move EC36 and ADD EC37 for USB voltage droop(USB)  
Change R110 from 90.9ohm to 80.6ohm for RGB level from 0.66 to 0.71V(VGA)  
Pop CB2(VCC),C273(VCCA3),C147(VCC) for VGA water-wave(VGA)

2004/12/09

Change R70,R71 from 44.2 ohm to 15 ohm for MEMORY(CPU)  
Add R302,R303,R304,R305 to 10K ohm for ISL AP note(VRM)  
Change R61,R68 from 10K ohm to 1.8K ohm for VGA I2C(VGA)

2004/12/10

Delete R51 for OVT function(SIO)

2004/12/13

Change C279 from 0.01u to 0.1u for LAN Rise/Fall sym fail(LAN)  
Change C31 from X\_10p to 330p for Chock noise(VRM)  
Change C330,C327 from 10p to 33p for Clock Crystal(Clock Gen)  
Remove EC33(VCC),EC7(VTT\_DDR) for cost  
Change EC20(VDD\_12\_A),EC23(VTT\_DDR\_SUS) new PN(and footprint) for best Layout  
Pop CN8,CN9,C356 for slow rise/fall time

2004/12/14

Pull R193(PIORDY\_R),R209(SIORDY\_R) from VCC to VCC3

2004/12/16

Change C154,C128,Cc149,C180,C132,C135,C211,C248 footprint from 0603 to 0402 for EMI

Ver. 10

2005/01/03

Pop R257 for AC97 Strap

2005/01/05

Add C543-C551 for EMI  
Non-pop C170,C177,C181 for RGB rise/fall time issue

2005/01/24

Pop C407 for G3-S5

2005/02/02

Change R11 from 24K to 11.3K for higher Vcore  
Pop EC9,EC14,C470.C473,C477 for better Vcore

7181 Add 1394,AUX-IN(1394),BUZZER(FP),IrDA(SIO) from 7142

2005/02/01

Delete Q11

2005/03/25

Pop C293,C294 for CPU\_CLK quailty  
Pop R322 for 1394 without EEPROM  
Change R161 from 4.7K to 680ohm for CPU issue

2005/04/08

Isolate Phnoe(Pin13) and pin16.17 of AC97 for phone mute noise

2005/04/18

Change R232 from 6.04K to 5.6K for stronger USB driving.

2005/07/13

Pop C482 & C484 in VDDQ of NB for better V-Link

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|---|--|---|-----------|
| Title   |  | History   |           |
| Document Number   |  | MS-7181   | Rev<br>20 |
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NB FAN/HEAT-SINK

U7-F



X\_NB-HEATSINK-W/Fan

-

U7-H



NB-HEATSINK-W/O Fan

E31-0401520-E25

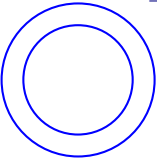
PCB1



7181-11

P50-0718111-N16

VBAT1\_M



BAT-BCR2032P

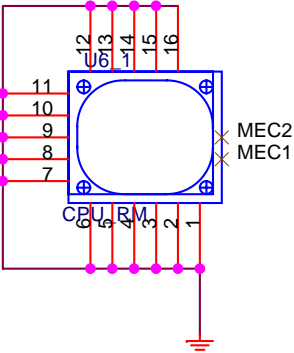
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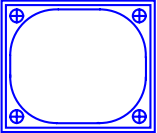


BIOS FLASH ROM

LPC Flash ROM-4M



U6\_2



CPU\_RM\_Back

Micro Star Restricted Secret

Title

OPTION PART

Document Number

MS-7181

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Taipei Hsien, Taiwan  
<http://www.msi.com.tw>

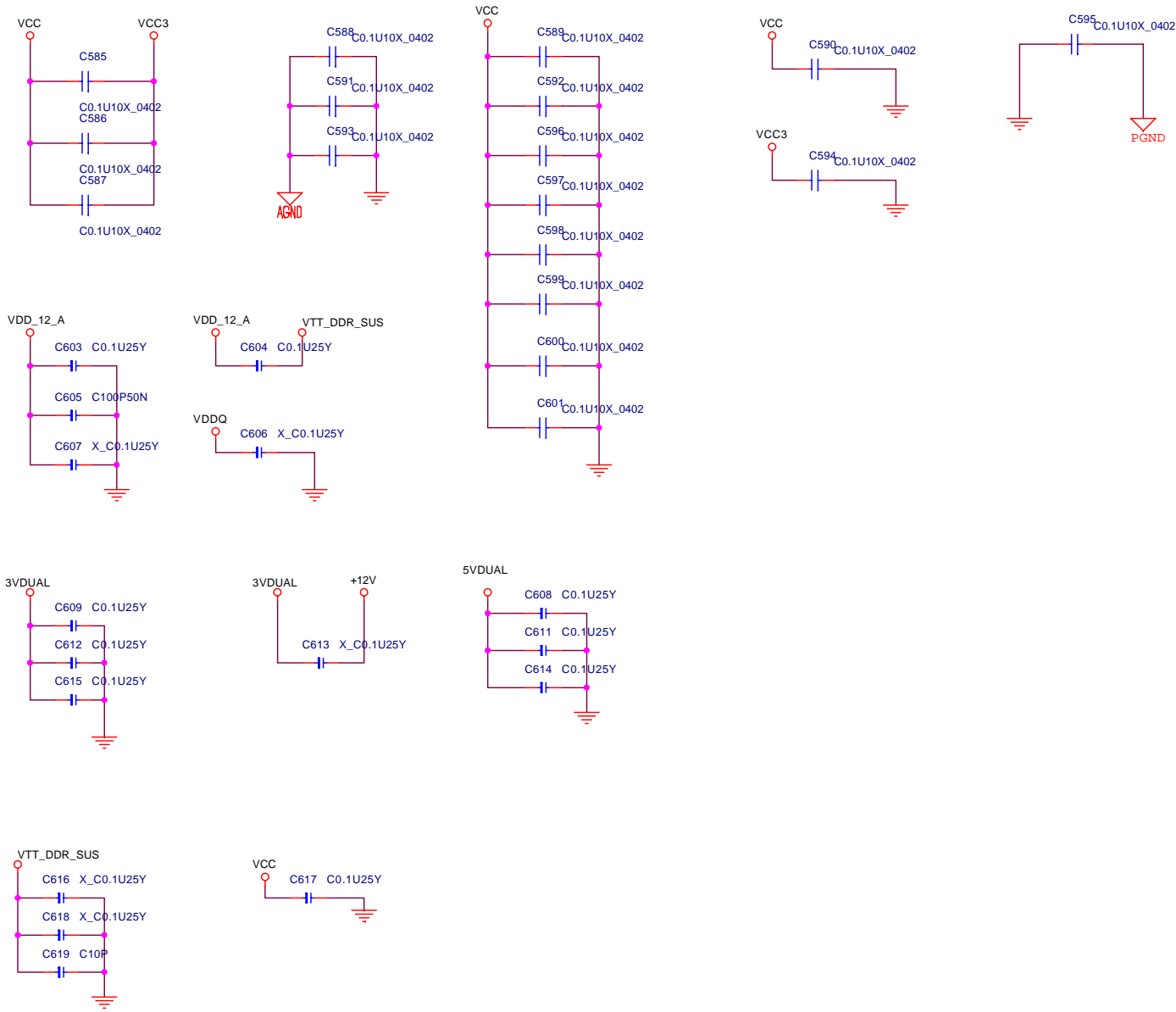
Last Revision Date:  
Wednesday, October 19, 2005

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Rev

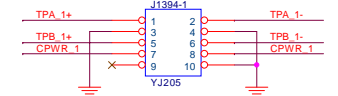
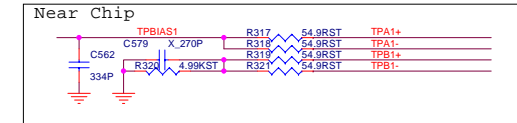
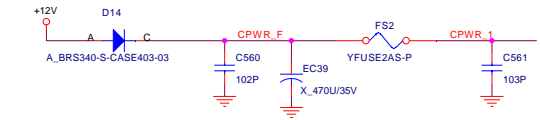
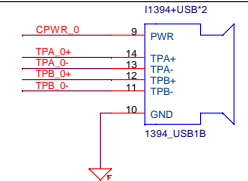
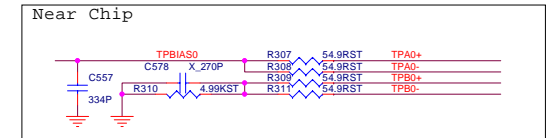
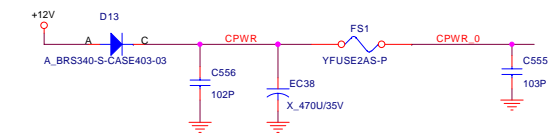
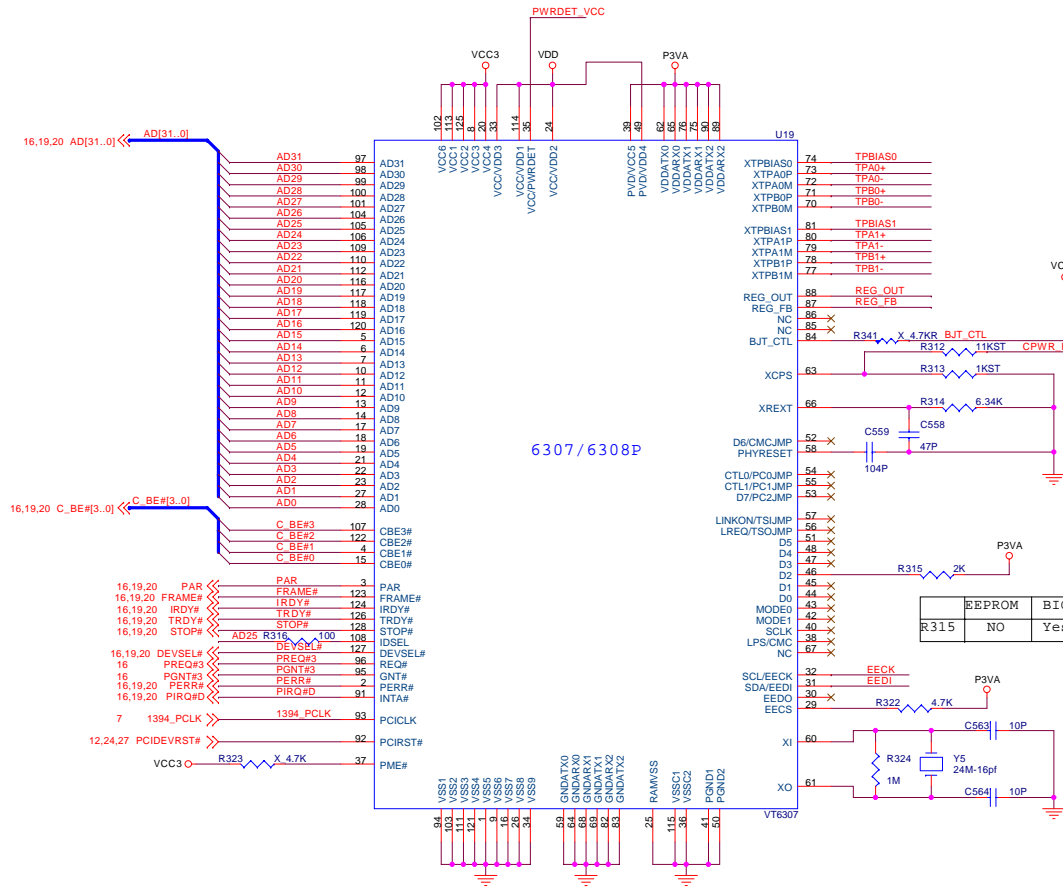
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For EMI

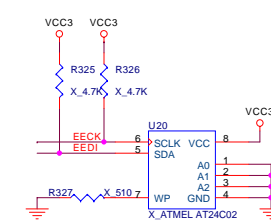
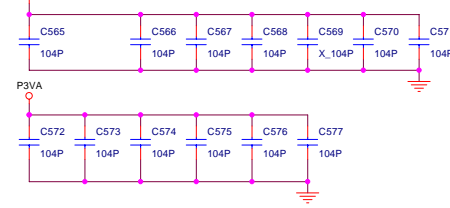
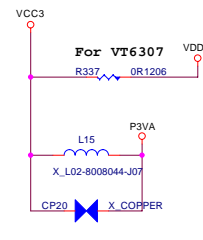
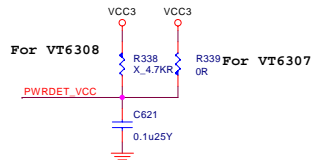
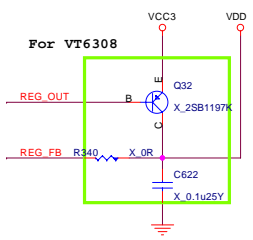


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|--|---------|---|
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| Title  | For EMI | Rev   |
| Document Number  | MS-7181 | 20  |
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# 1394a OHCI Link Layer Controller



For Intel 1394 pinheader



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| Title  | VT-6307 1394 | Rev  |
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