



MS-7250 VER.: 20

CPU:

AMD 940 Athlon 64/Athlon 64 FX

System Chipset:

NVIDIA MCP 55P / MCP55 Ultra

On Board Chipset:

LPC Super I/O -- Winbond 83627EHG/DHG

LAN -- Vitesse VSC8601 X2

AC97 Codec --ALC883/885/888

1394 --VIA VT8237

BIOS --LPC FLASH ROM 4M

Main Memory:

DDRII * 4 (Max 4GB)

Expansion Slots:

PCI-E X 16 *2

PCI-E X1 *2

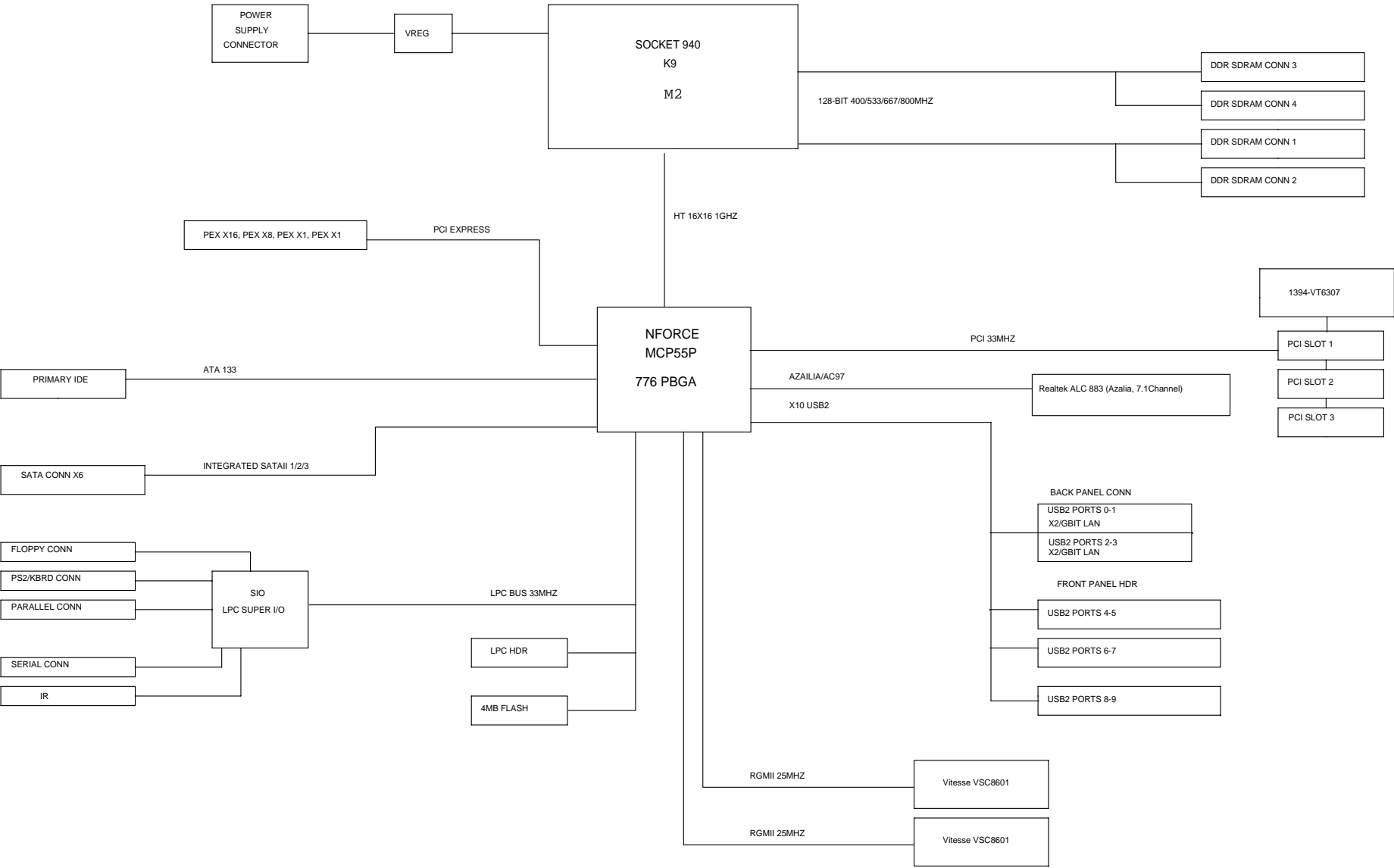
PCI 2.2 Slot * 3

PWM:

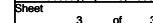
Controller--Intersil ISL6566CR 3 Phase

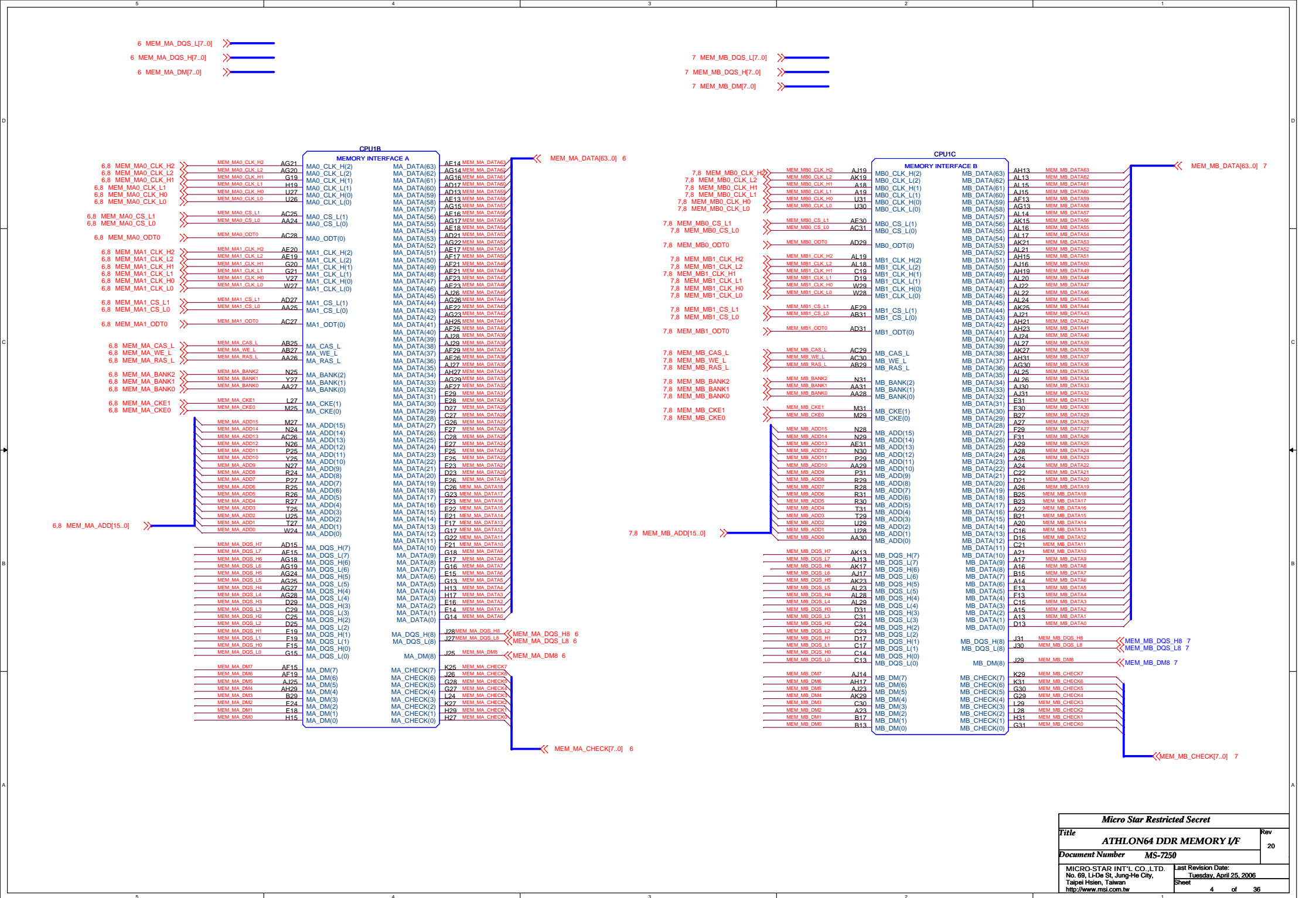
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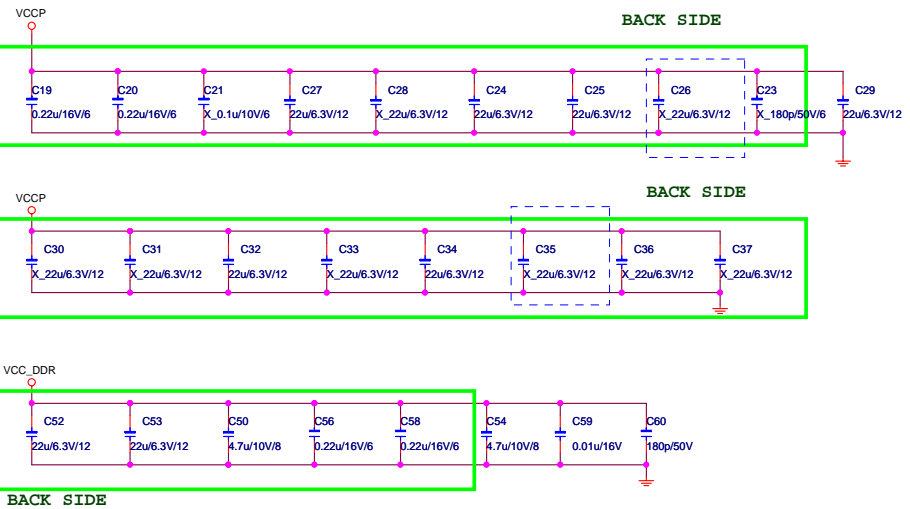
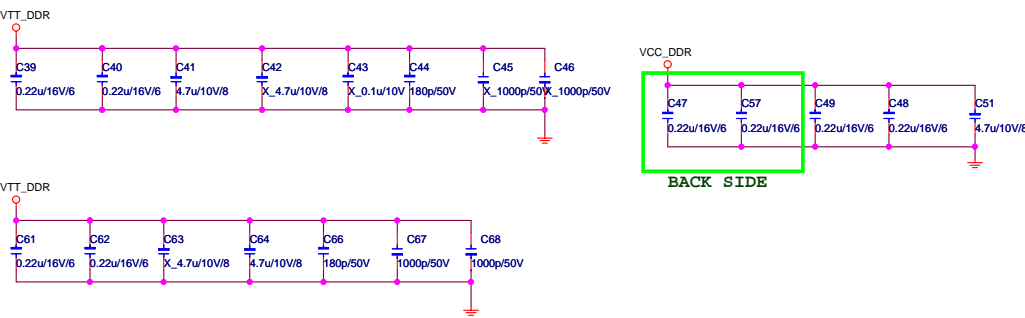
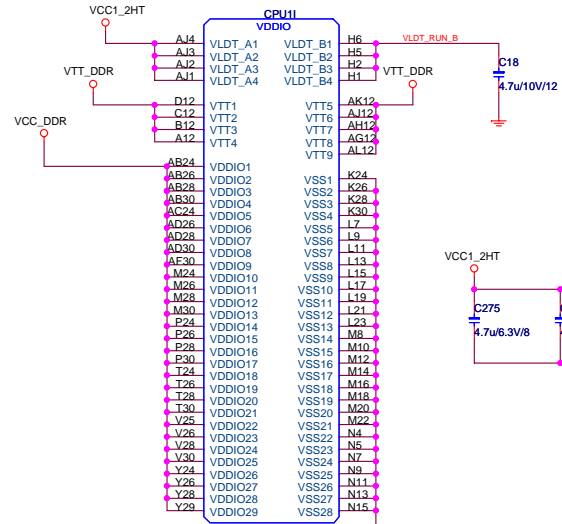
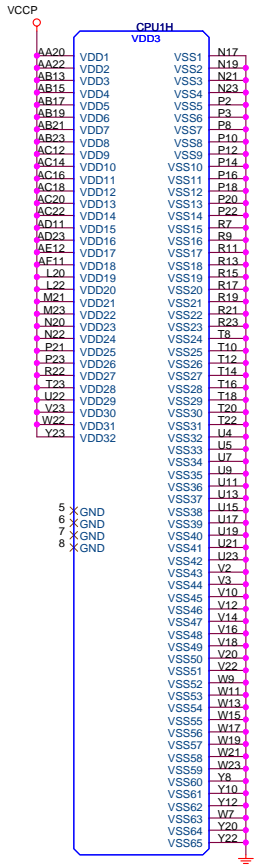
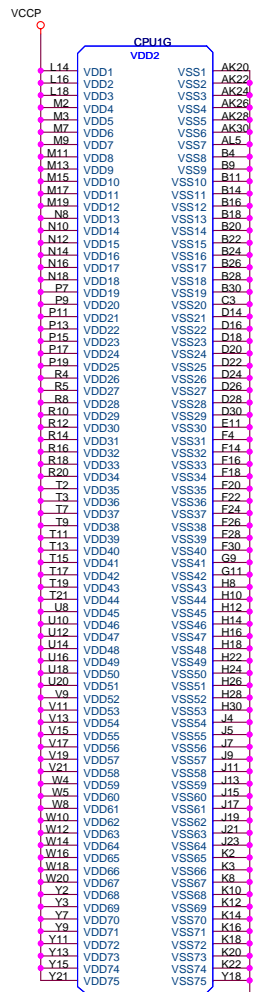
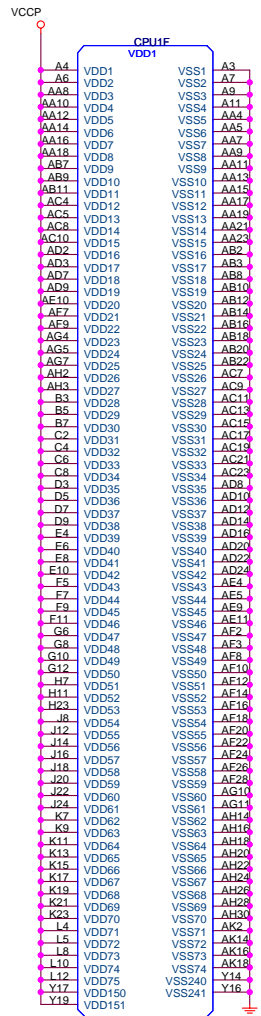
BLOCK DIAGRAM

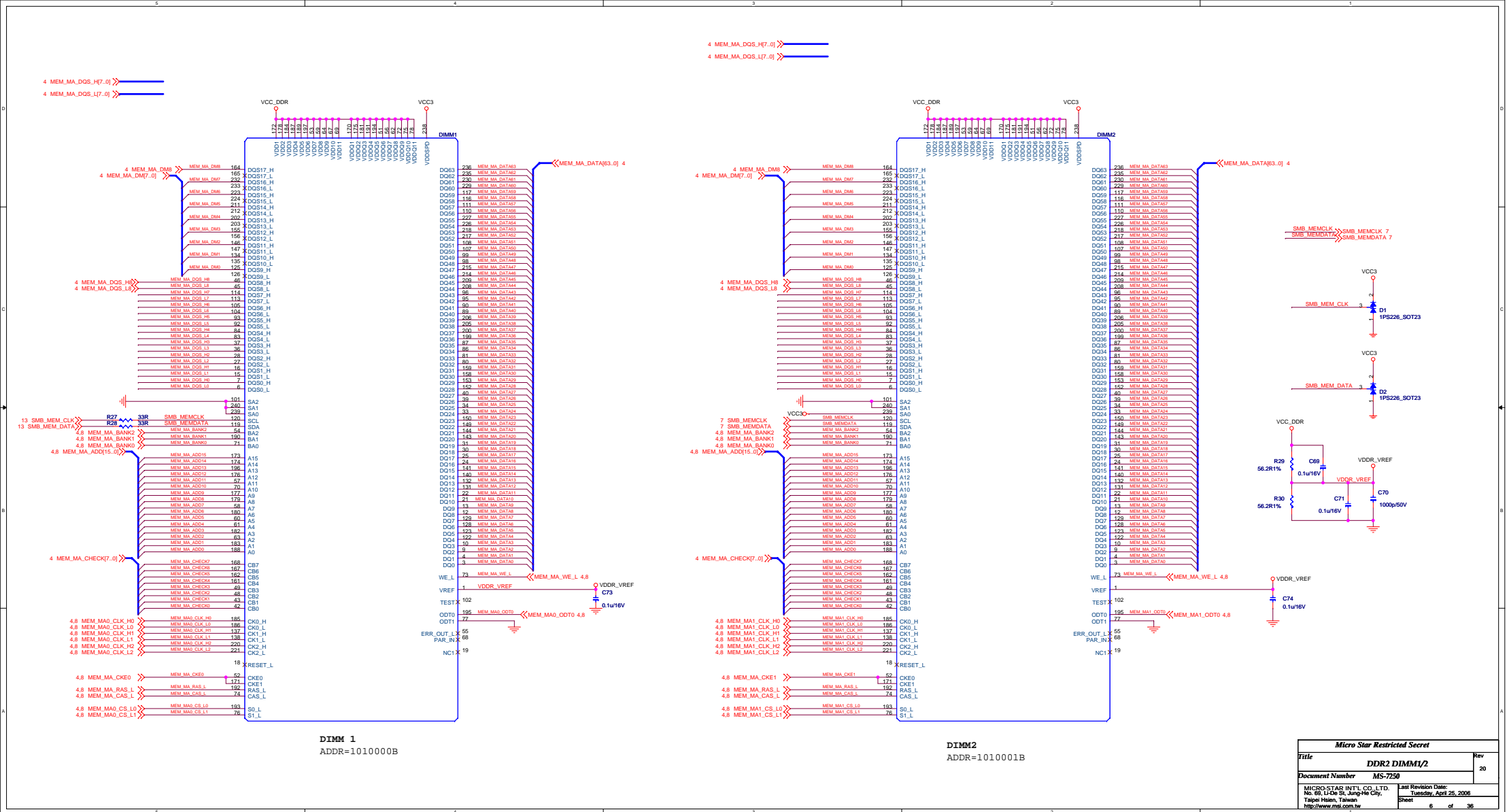


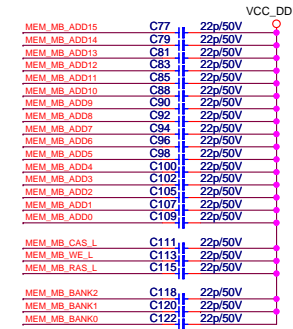
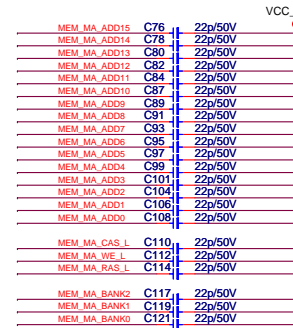
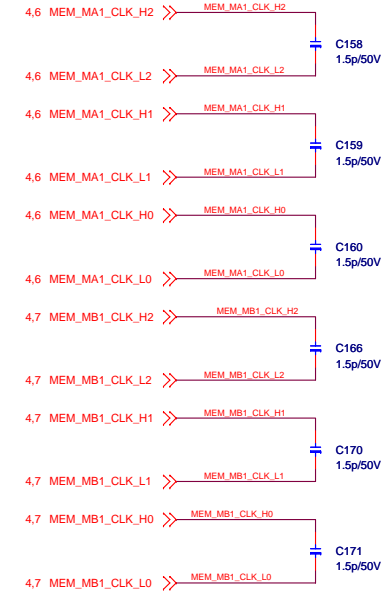
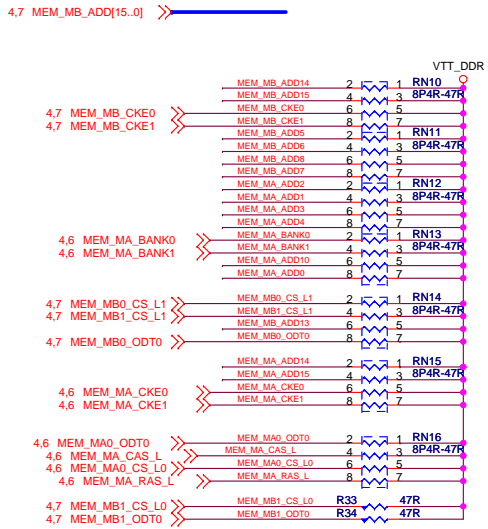
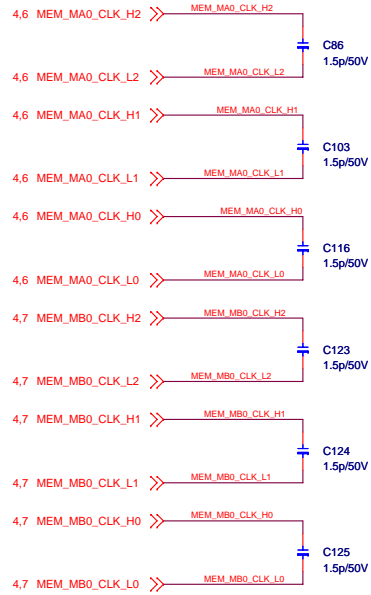
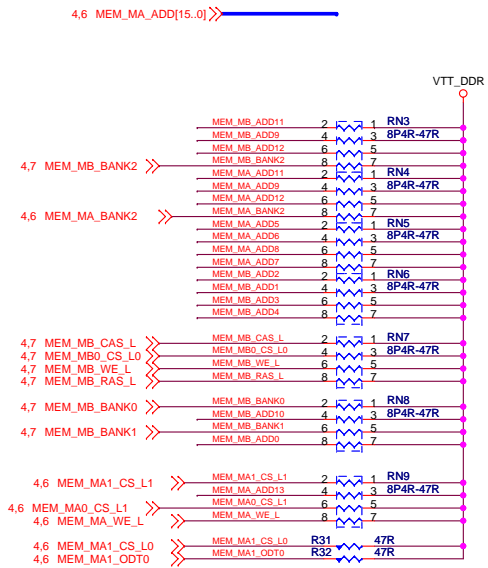
Micro Star Restricted Secret		
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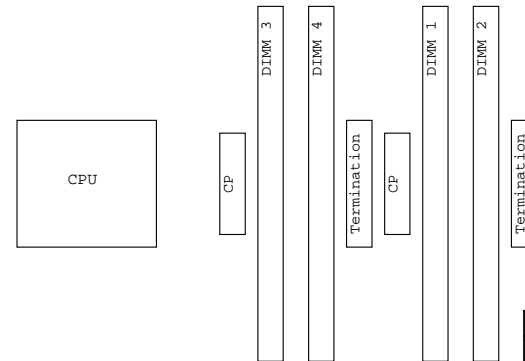
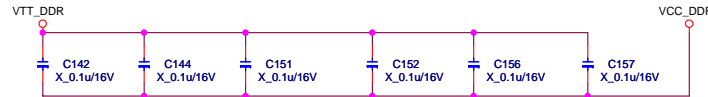
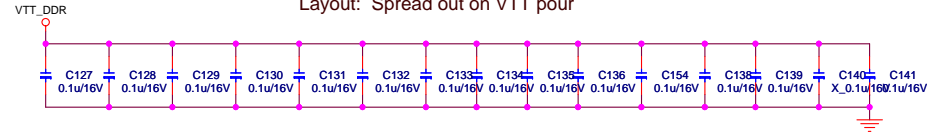




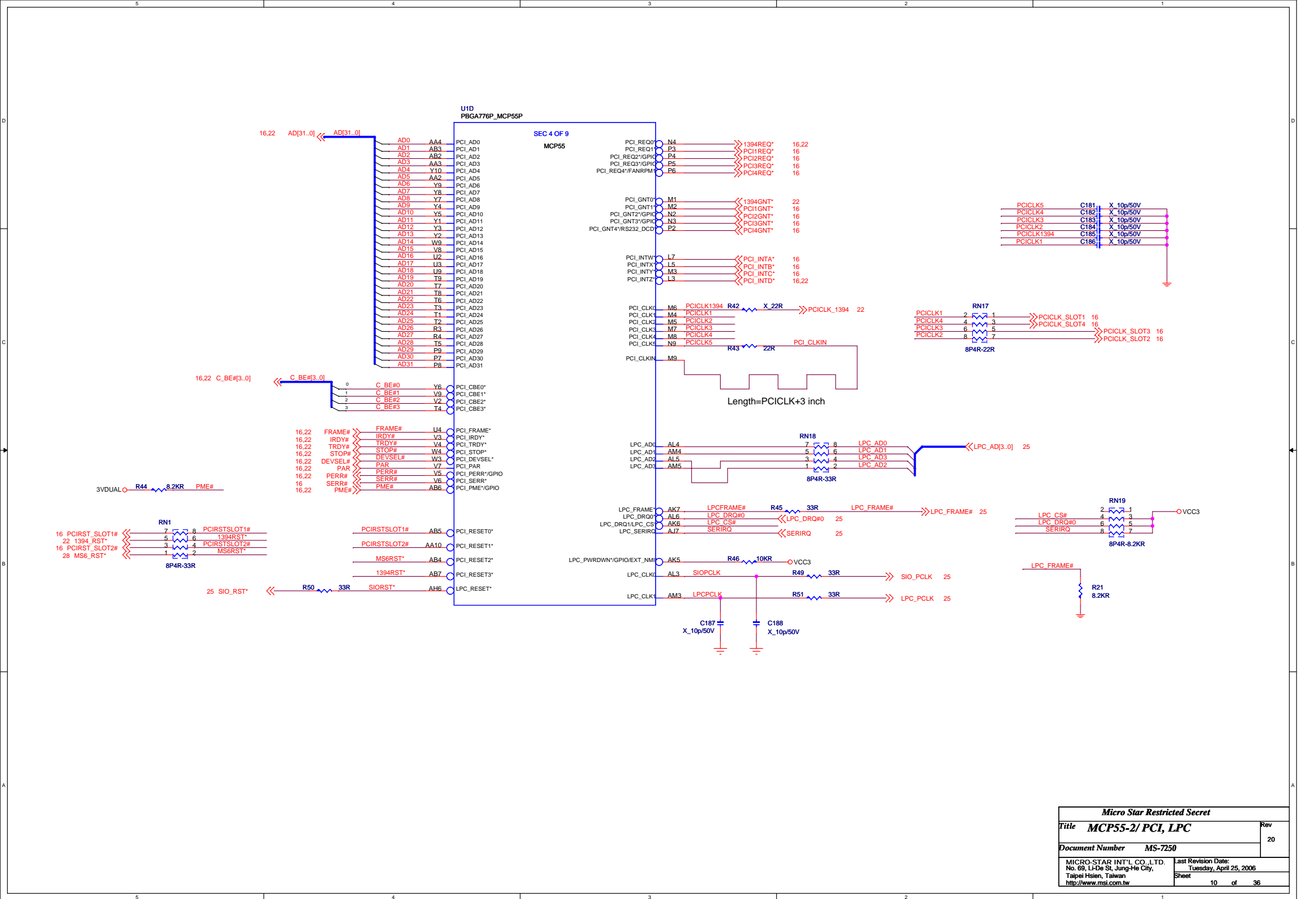


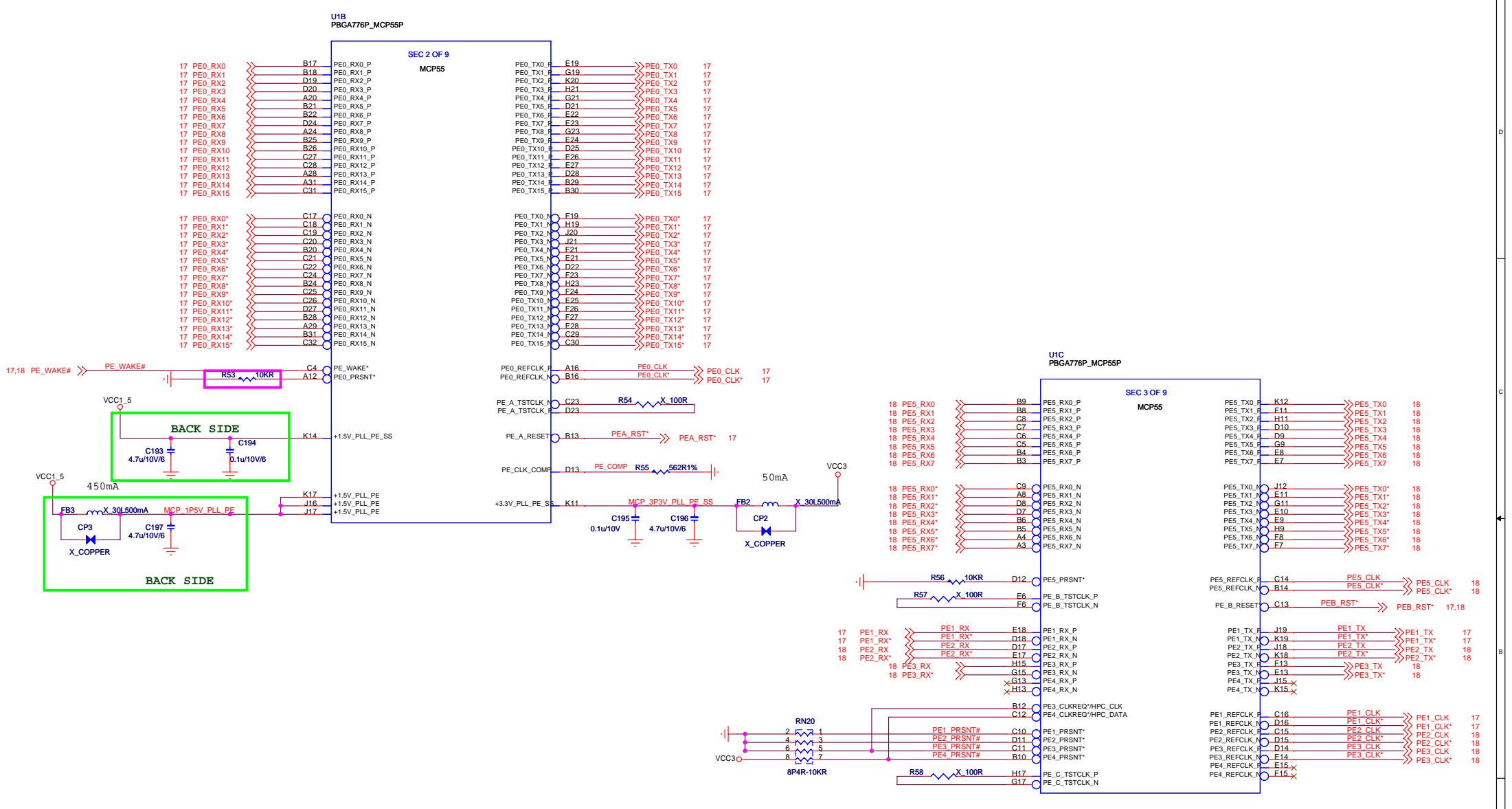
Decoupling Between Processor and DIMMs (CP)

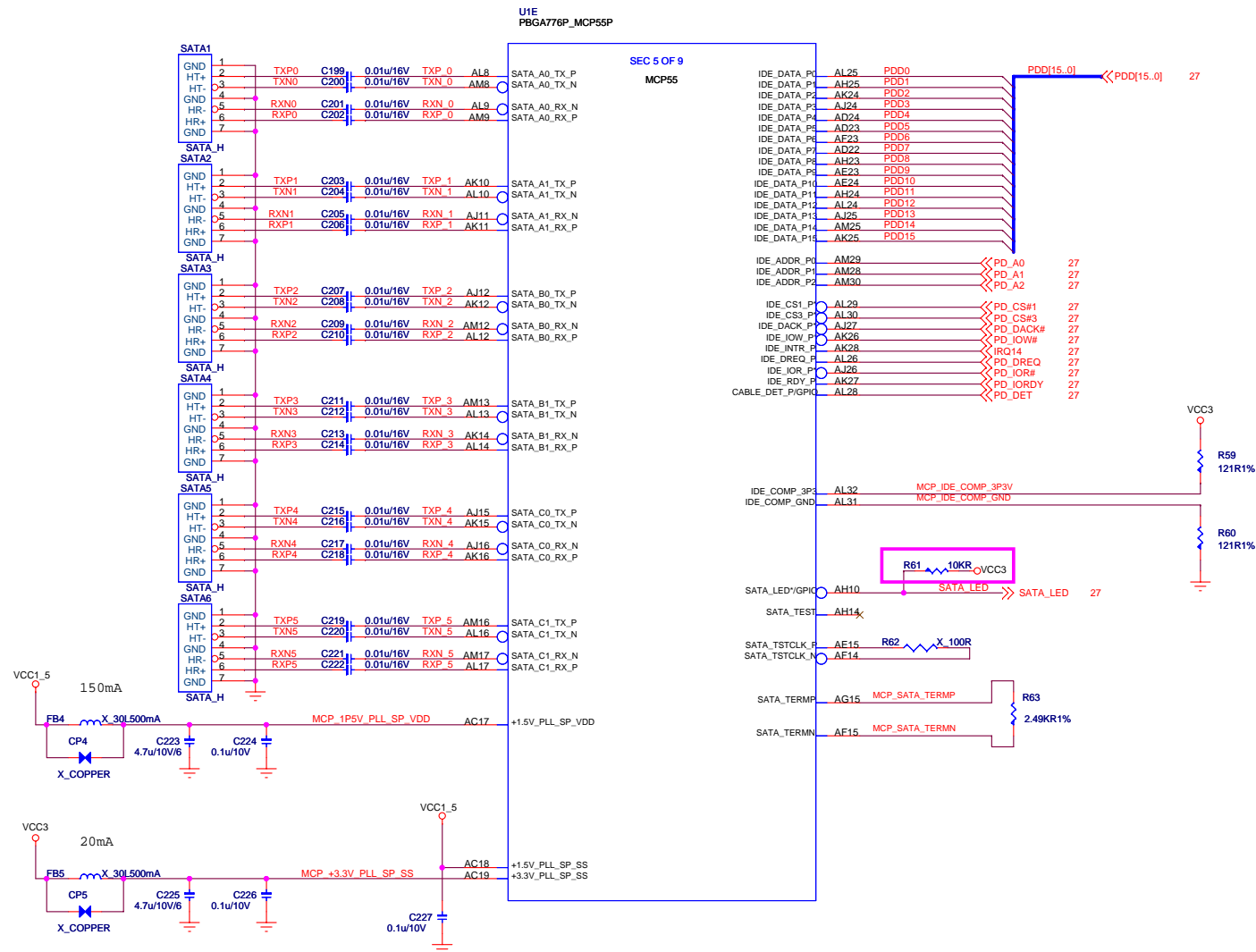
Layout: Spread out on VTT pour



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U1F PBG776P_MCP55P

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MCP55

PROG_REFCLK
HDA_BCLK
HDA_SDATA_OUT/GPIO_45
HDA_SDATA_IN/GPIO_22/MGPIO_0
HDA_SDATA_IN/GPIO_23/MGPIO_1
HDA_SDATA_IN/GPIO_24/MGPIO_2
HDA_RESET/MGPIO_3
HDA_SYNC/GPIO_44
GPIO_1/SLV_RDY4PWRDWN
GPIO_2/CPU_SLP*/NMI
GPIO_3/CPU_CKRUN/SMI*
GPIO_4/SUS_STAT*/SCI
GPIO_5/SYS_SHUTDOWN*/INIT*
GPIO_6/FERR*/SYS_PERR*
GPIO_7/FERR*/SYS_SERR*
GPIO_8/MSMB_CLK
GPIO_9/MSMB_DATA
GPIO_10/THERM_SID1
GPIO_11/CPU_VID0/R5232_SIN*
GPIO_12/CPU_VID1/R5232_SOUT*
GPIO_13/CPU_VID2/R5232_DTR*
GPIO_14/CPU_VID3/R5232_DSR*
GPIO_15/CPU_VID4/R5232_RTS*
GPIO_16/CPU_VID5/R5232_CTS*
GPIO_17/SPI_DI
GPIO_18/SPI_DO
GPIO_19/SPI_CS
GPIO_20/SPI_CLK

USB0_F AL1 USBP0 USBP0
USB0_N AL2 USBN0 USBN0
USB1_F AK1 USBP1 USBP1
USB1_N AK2 USBN1 USBN1
USB2_F AJ1 USBP2 USBP2
USB2_N AJ2 USBN2 USBN2
USB3_F AJ5 USBP3 USBP3
USB3_N AJ4 USBN3 USBN3
USB4_F AH1 USBP4 USBP4
USB4_N AH2 USBN4 USBN4
USB5_F AH4 USBP5 USBP5
USB5_N AH3 USBN5 USBN5
USB6_F AG4 USBP6 USBP6
USB6_N AG3 USBN6 USBN6
USB7_F AG5 USBP7 USBP7
USB7_N AG6 USBN7 USBN7
USB8_F AF3 USBP8 USBP8
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USB9_F AF4 USBP9 USBP9
USB9_N AF5 USBN9 USBN9

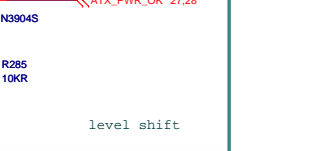
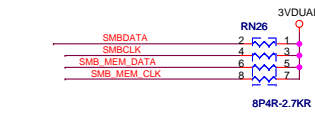
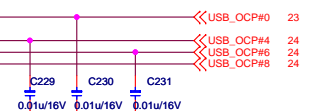
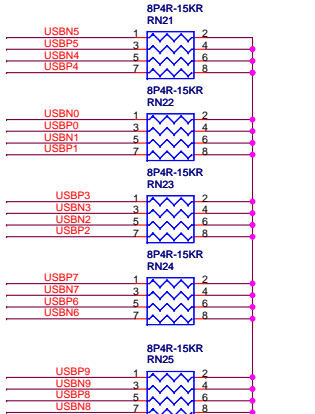
USB_OC0*/GPI AE4 USB_OCP#0
USB_OC1*/GPI/MGPIO AE6 USB_OCP#4
USB_OC2*/GPI/MGPIO AE3 USB_OCP#6
USB_OC3*/GPI/MGPIO AE1 USB_OCP#8
USB_OC4*/GPI/MGPIO AE2 USB_OCP#6

A20GATE/GPI AB9 A20GATE
INTRUDER# AL21 INTRUDER#
R*/GPI AF9
SPKR AD9 SPKR
PWRBTN# AF10 PWRBTN#
SIO_PME*/GPI AC3 SIO_PME#
KBDRSTIN*/GPI AB8 KBRST#

SMB_CLK# AL20 SMB_MEM_CLK
SMB_DATA# AK20 SMB_MEM_DATA
SMB_CLK# AK19 SMBCLK
SMB_DATA# AJ19 SMBDATA
+3.3V_VBA AD21 VBAT
BUF_SIO_CLK AD3 SIOCLK_24M
SUS_CLK# AD2 SUS_CLK
THERM*/GPI AD8 THRM#
RSTBTN# AD10 FP_RST#
SLP_S# AK18 SLP_S#
SLP_S3# AK18 RSMRST#
PWRGD# S21 RSMRST#

FANRPM/GPI AD6
FANCTL0/GPI AD5
FANCTL1/GPI AD7
THERM_SIC/GPI AK30 MCP_THERM_SIC
THERM_SIDO/GPI AH27 MCP_THERM_SID

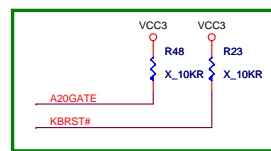
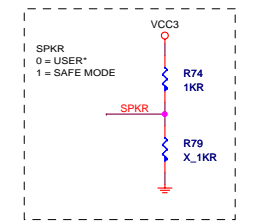
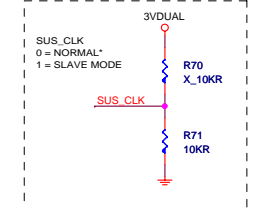
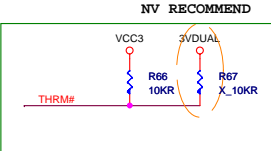
TEST_MODE_EN P24 SB_TEST



X_JUMPER-1X2A_green
JBAT1(1-2)1

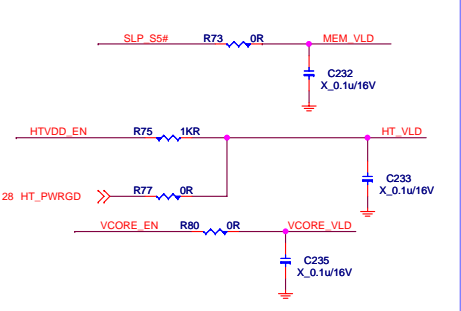
CMOS CLEAR JUMPER	
JBAT1 Clear CMOS	
1-2	Normal
2-3	Clear CMOS

if used JBAT1, pls remove R82 and SW1
if used SW1, pls add R82 and remove JBAT1



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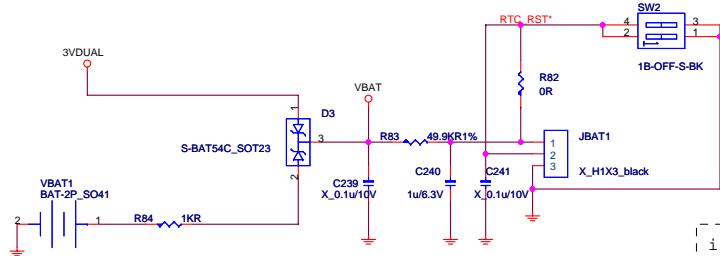
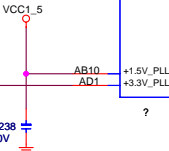
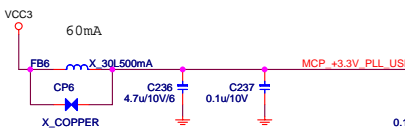
POWER SEQUENCE



RTC_RST* AJ22 RTC_RST*

AG11 N/C
AF11 N/C
AH11 N/C
AD11 N/C
AE11 N/C

MEM_VLD AL18 MEM_VLD
HT_VLD AE21 HT_VLD
HTVDD_EN AJ21 HTVDD_EN
VCCORE_VLD AD21 CPU_VDD_EN
VCCORE_EN AG21 CPUVDD_EN



MII_RXD / MII_RXCTL
0 OHM IF ROUTED 7/15 (60 OHM), Length<8"
22 OHM IF ROUTED 5/10 (60 OHM), Length<12"

MII_RXCLK
0 OHM IF ROUTED 7/20 (60 OHM), Length<8"
22 OHM IF ROUTED 5/10 (60 OHM), Length<12"

MI1_TXD / MI1_TXCTL
0 OHM IF ROUTED 7/15 (60 OHM), Length<8"
22 OHM IF ROUTED 5/10 (60 OHM), Length<12"

MI1_TXCLK
0 OHM IF ROUTED 7/20 (60 OHM), Length<8"
22 OHM IF ROUTED 5/10 (60 OHM), Length<12"

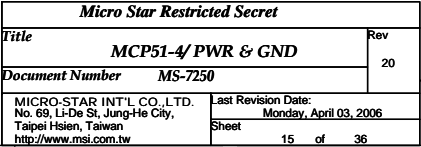
U1G
PBG776P_MCP56P

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MCP55

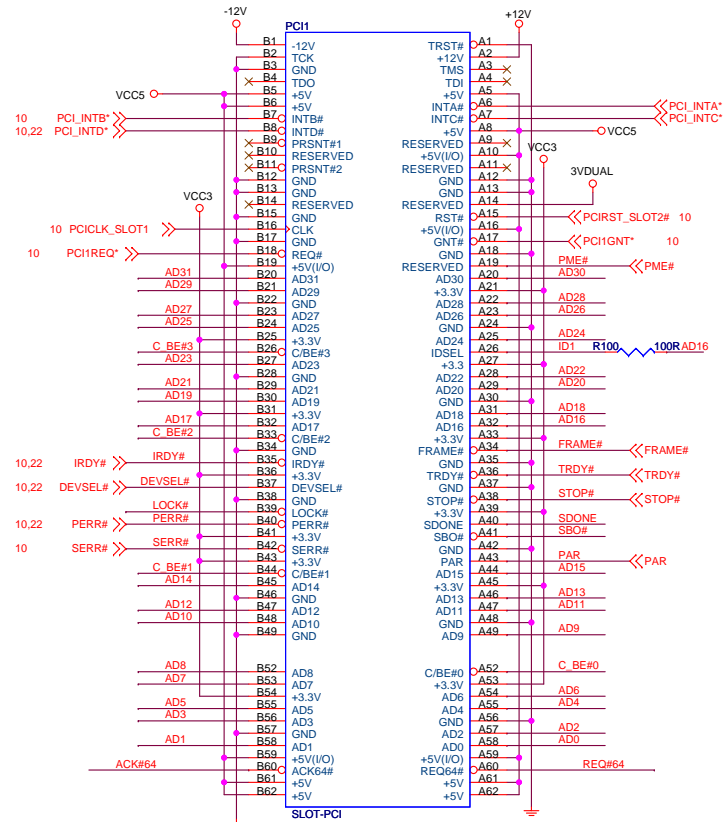
BACK SIDE

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Document Number	MS-7250	
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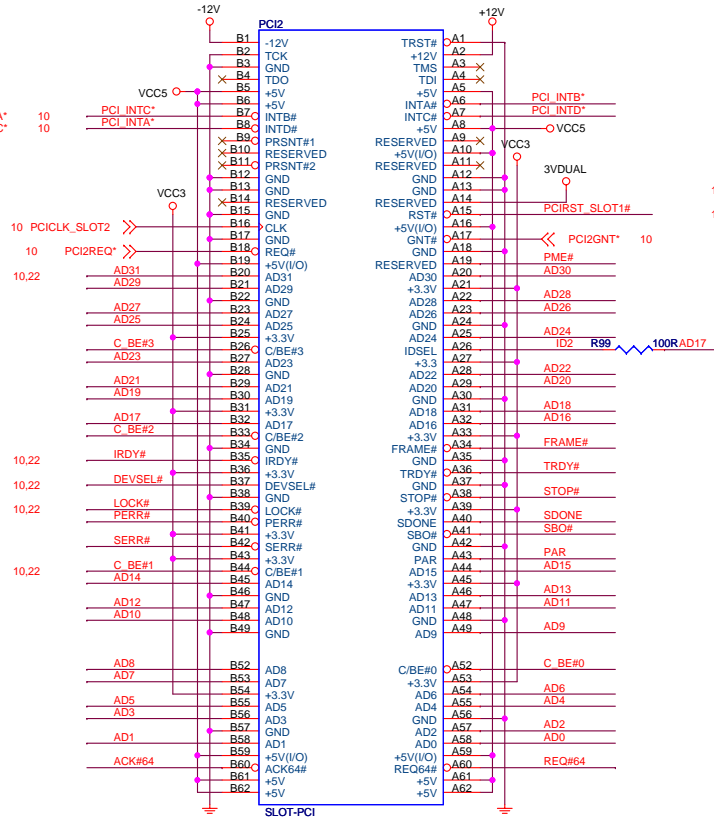
10.22 AD[31..0] >> AD[31..0]
10.22 C_BE#[3..0] >> C_BE#[3..0]

PCI SLOT 1 (PCI VER: 2.2 COMPLY)



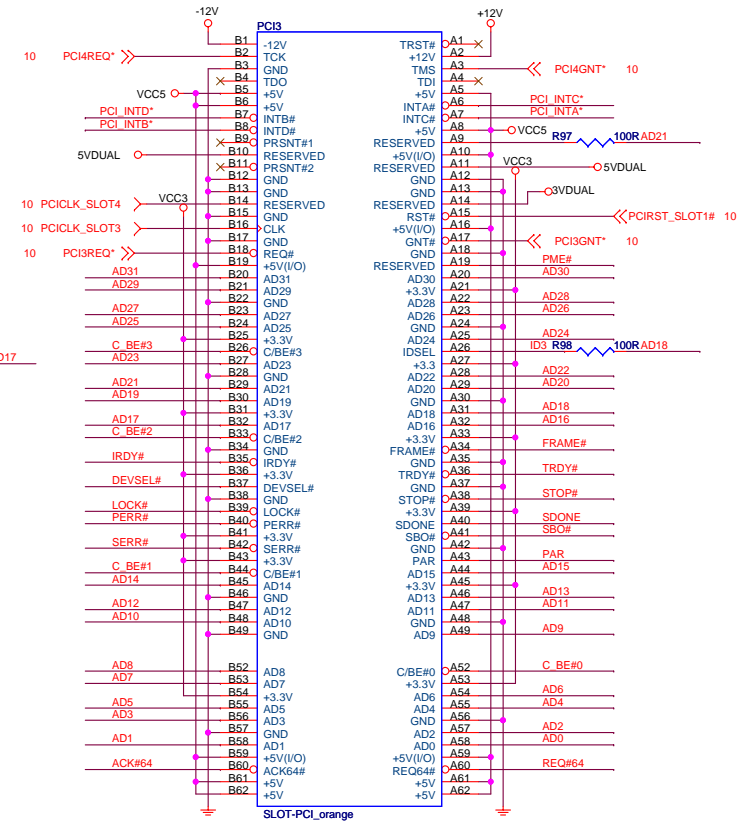
IDSEL = AD16
MASTER = PCI1REQ*
PCI1GNT*

PCI SLOT 2 (PCI VER: 2.2 COMPLY)



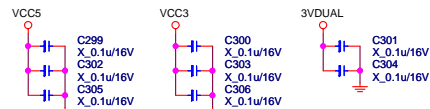
IDSEL = AD17
MASTER = PCI2REQ*
PCI2GNT*

PCI SLOT 3 (PCI VER: 2.2 COMPLY)

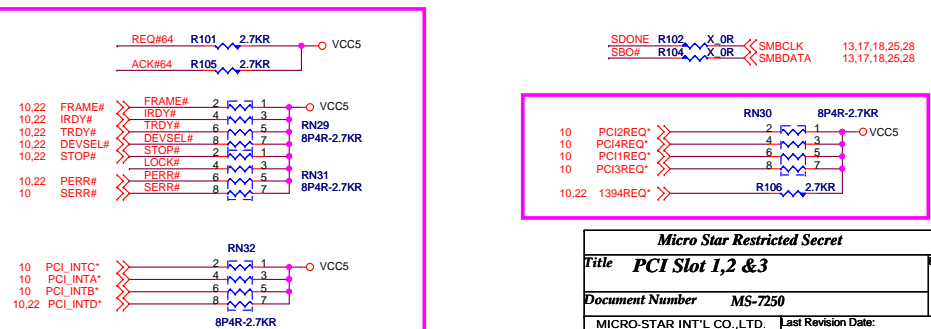


IDSEL = AD18
MASTER = PCI3REQ*
PCI3GNT*

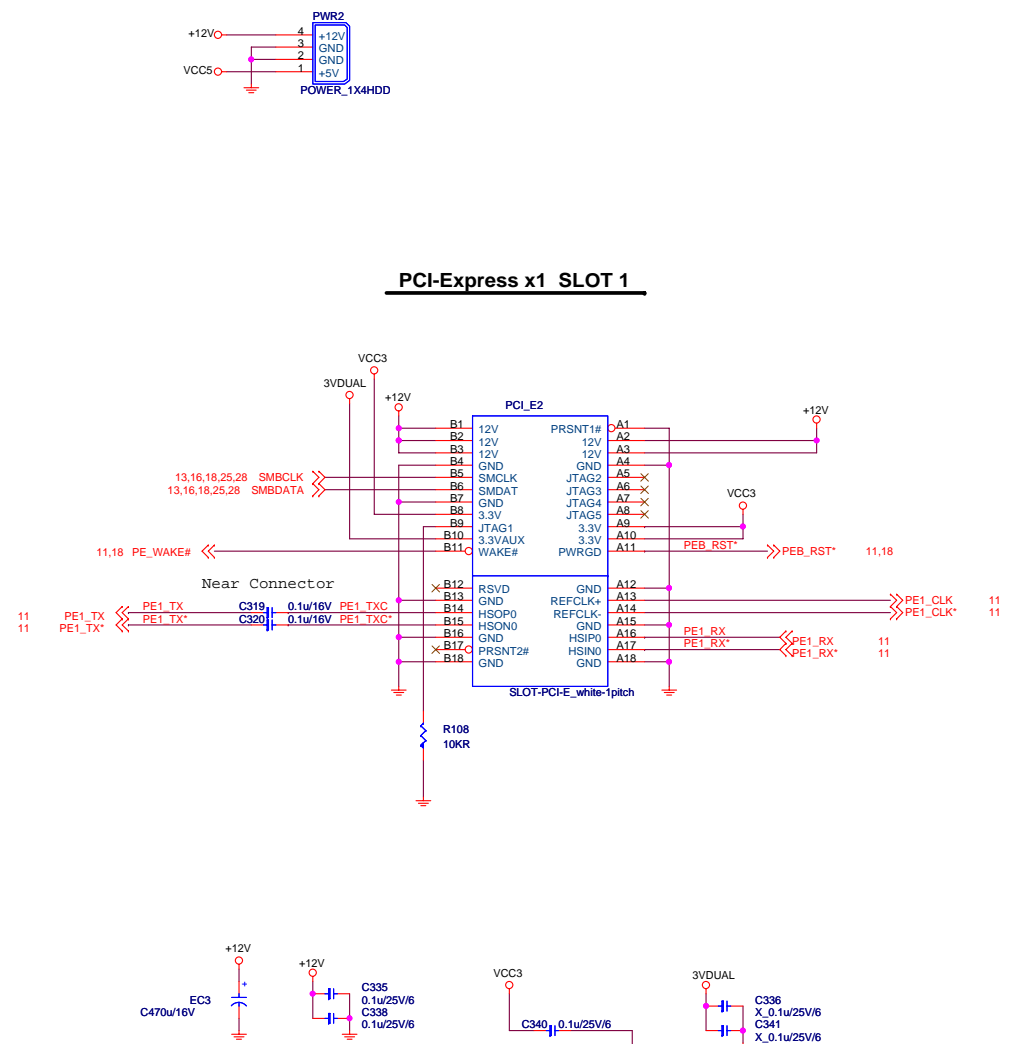
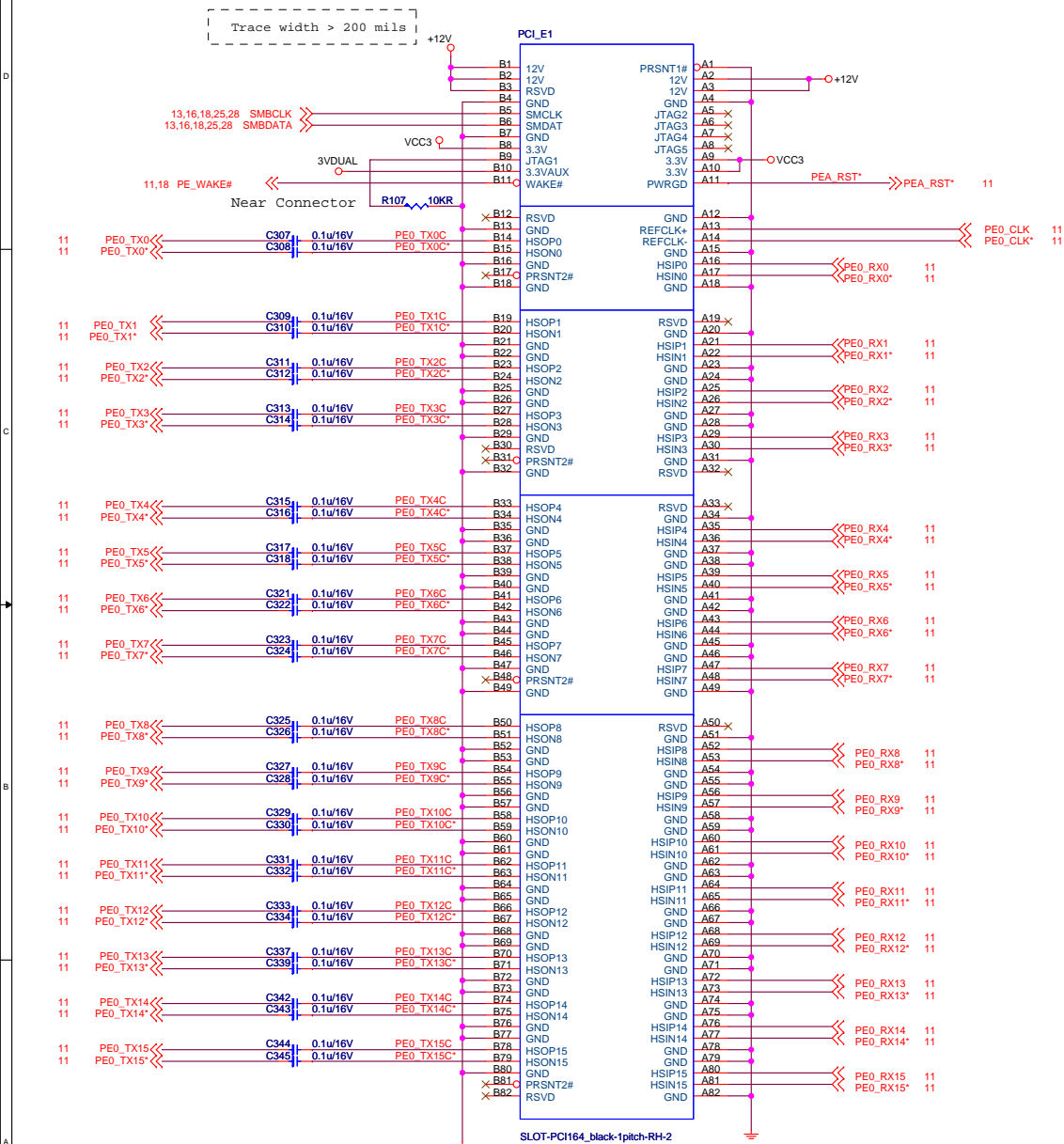
PCI SLOT DECOUPLING CAPACITORS



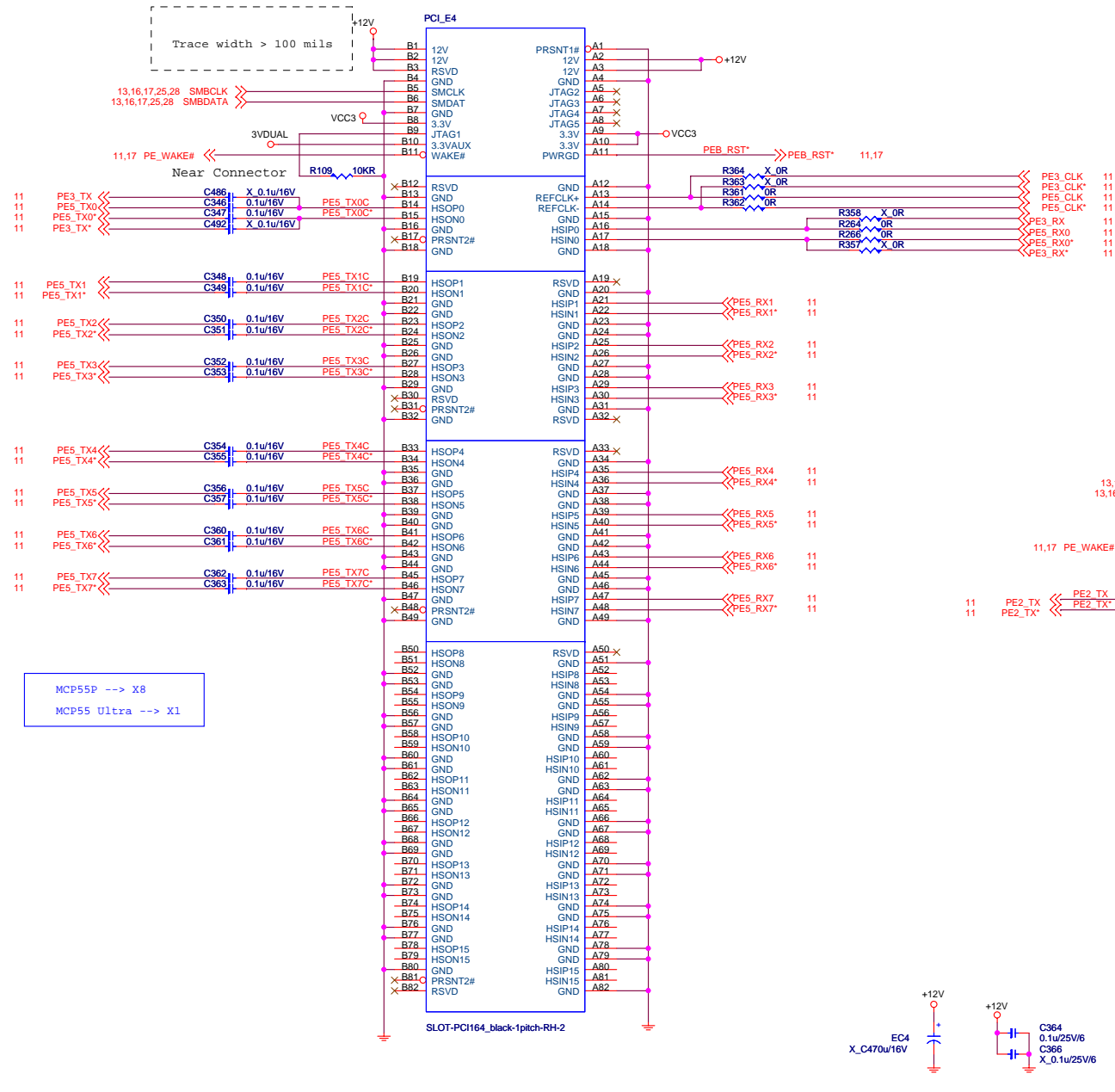
PCI PULL-UP / DOWN RESISTORS



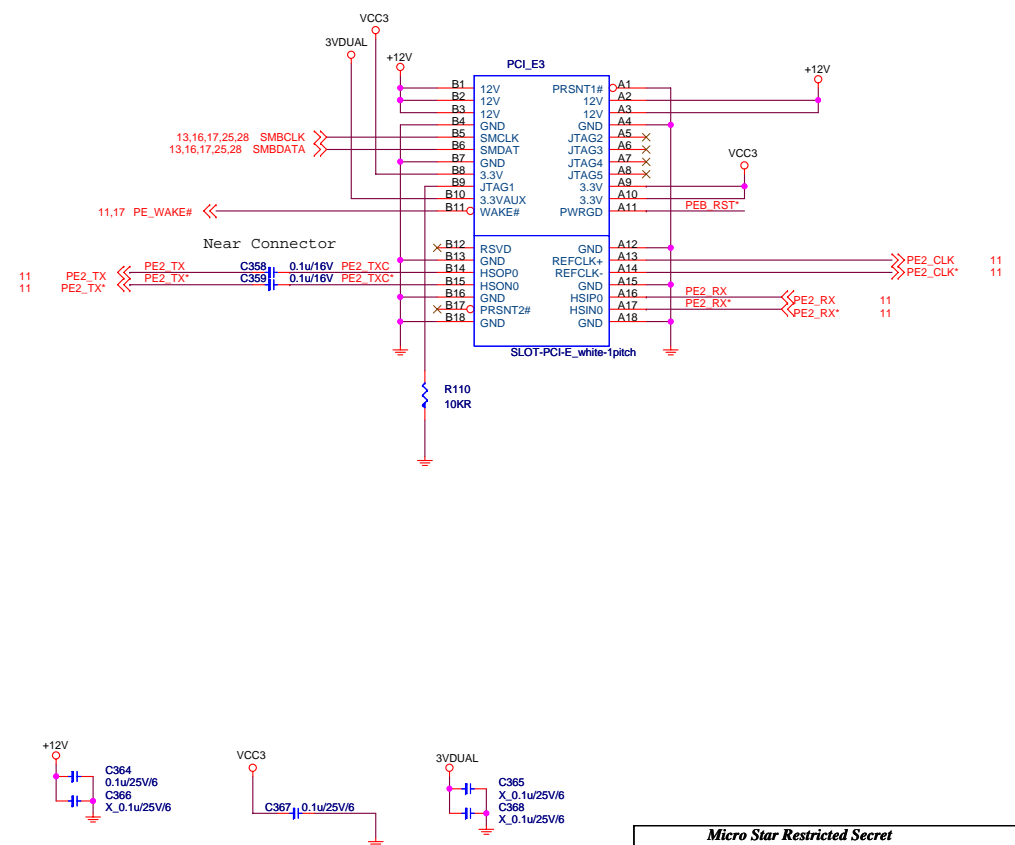
PCI EXPRESS_16



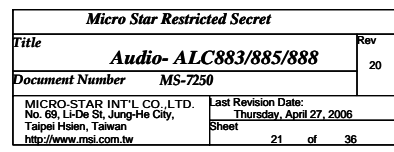
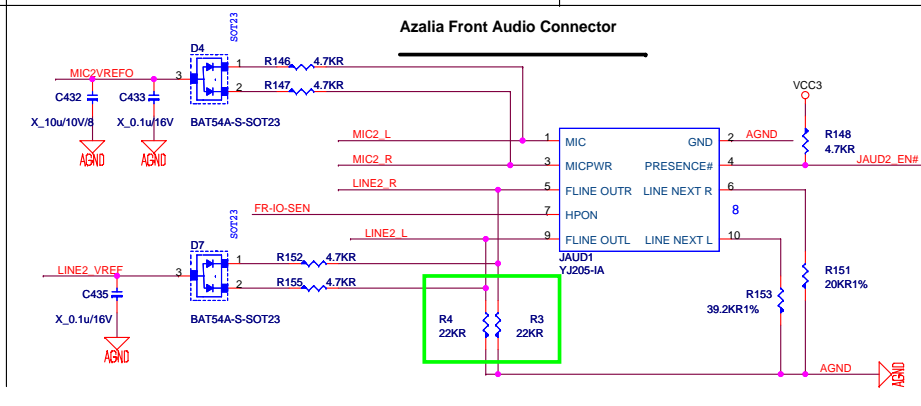
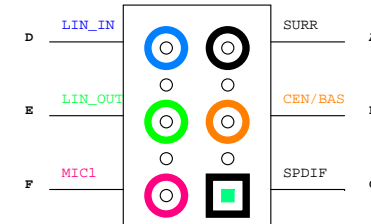
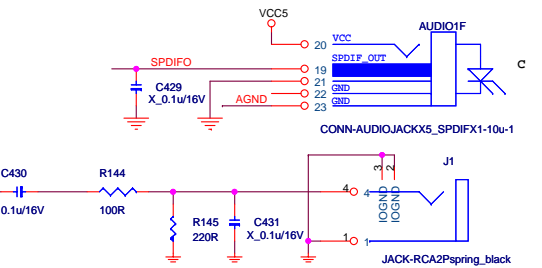
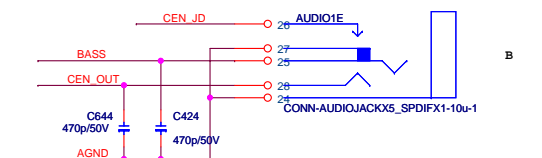
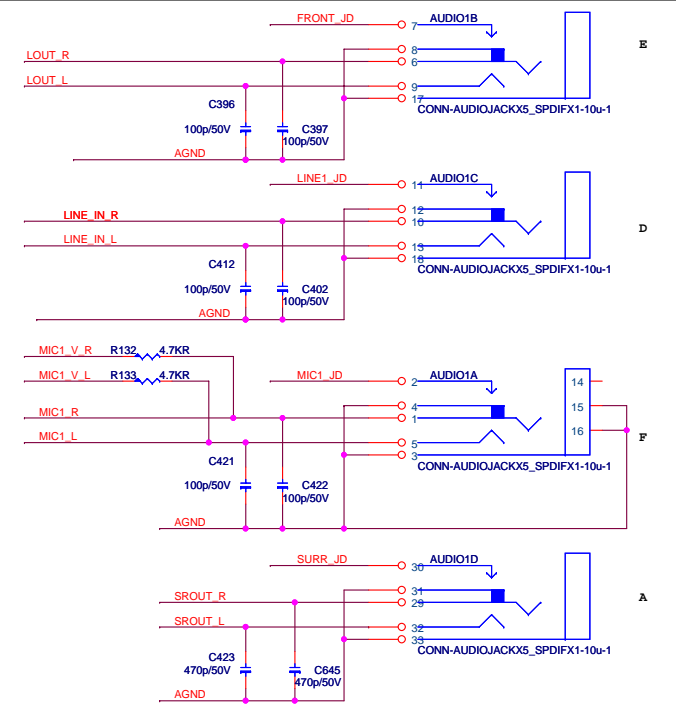
PCI EXPRESS_16



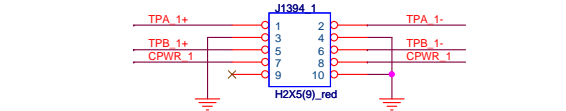
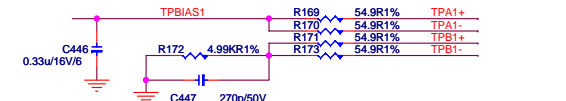
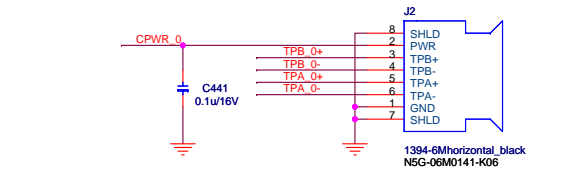
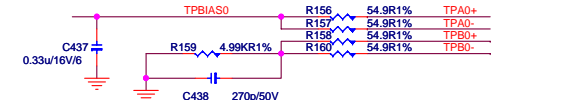
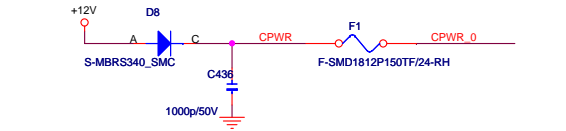
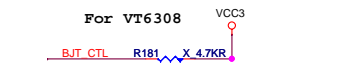
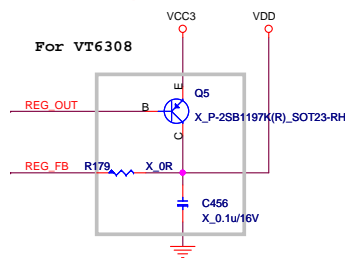
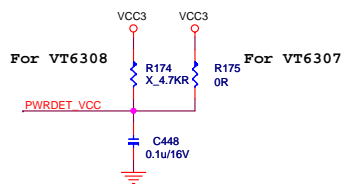
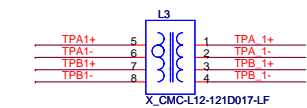
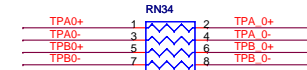
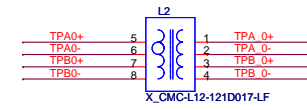
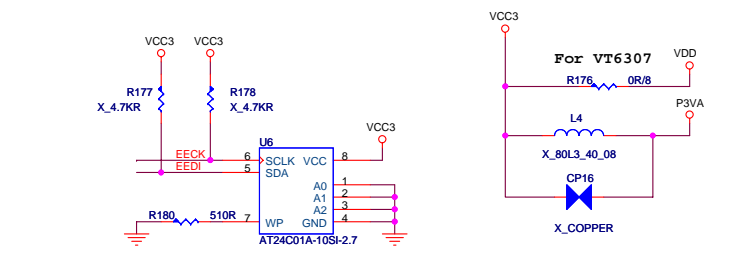
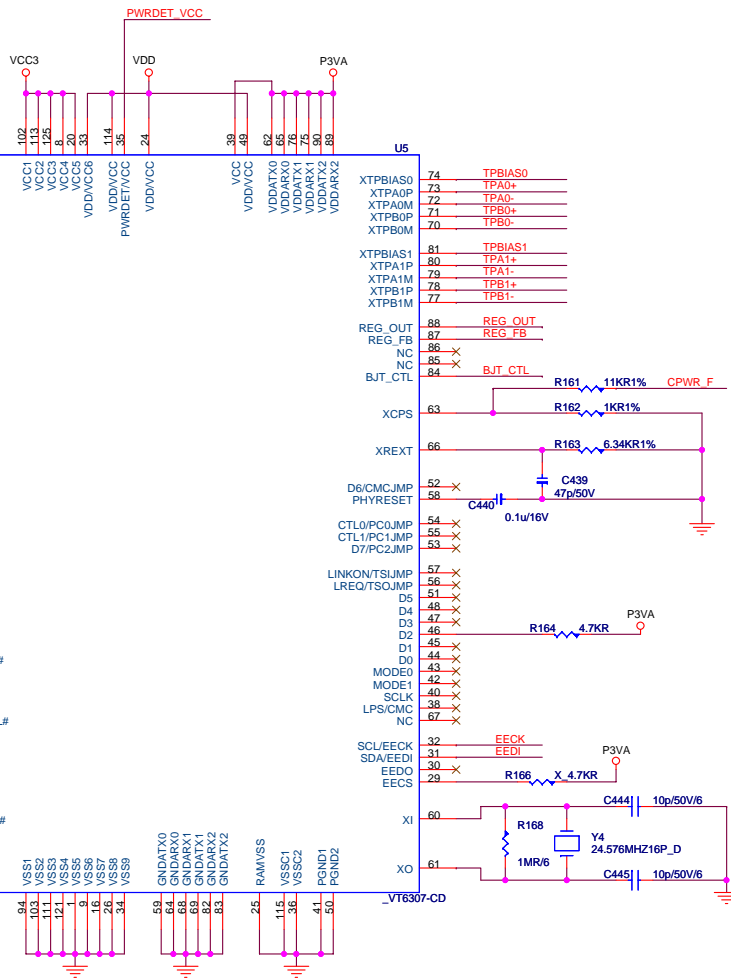
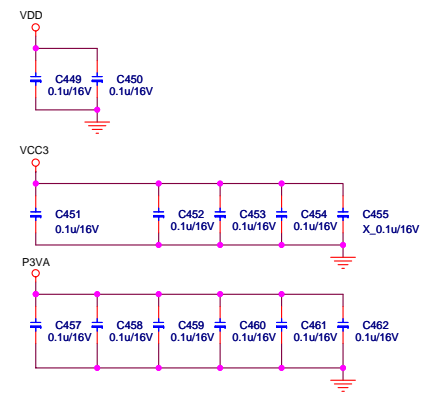
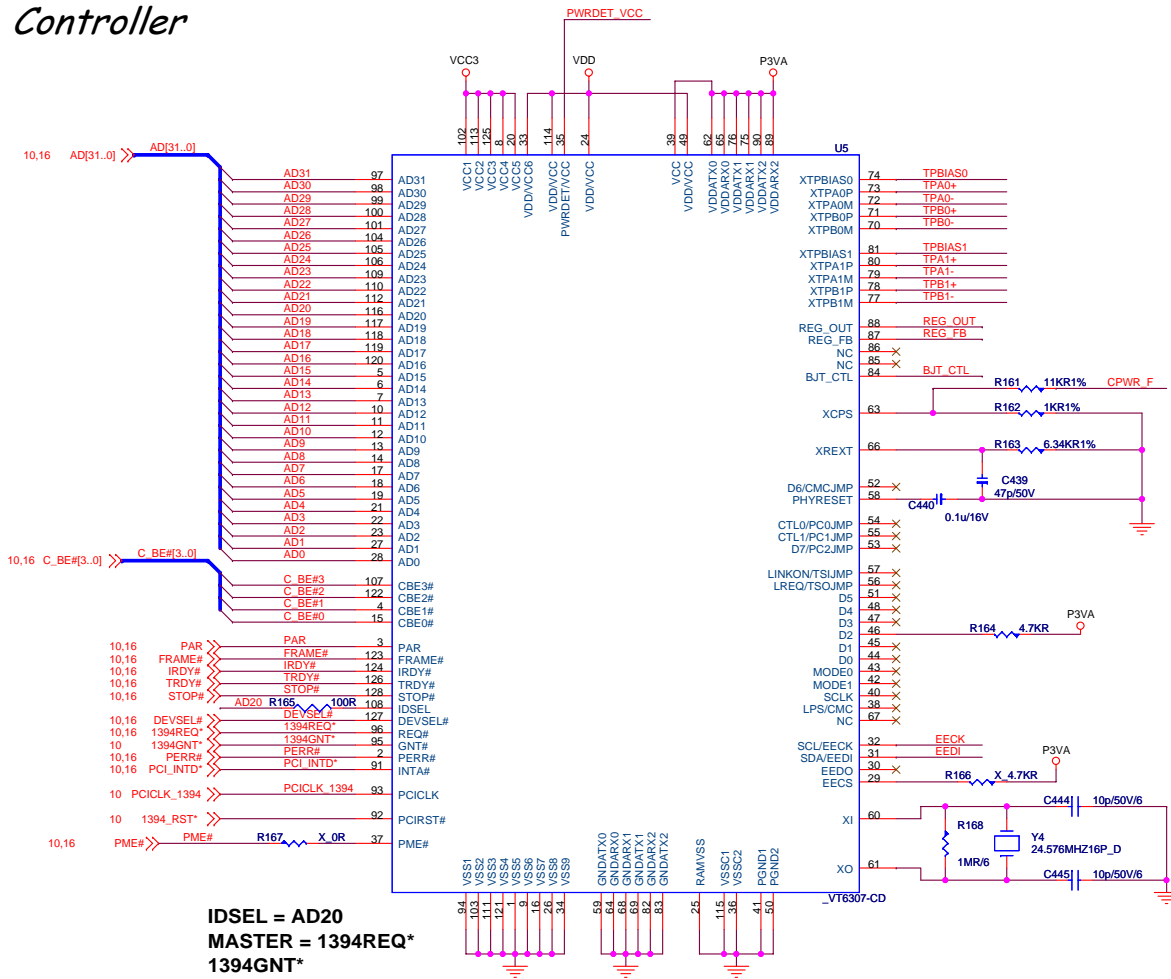
PCI-Express x1 SLOTT 3



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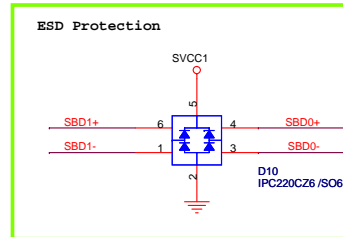
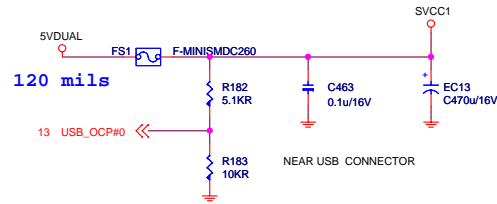
1394a OHCI Link Layer Controller



For Intel 1394 pinheader

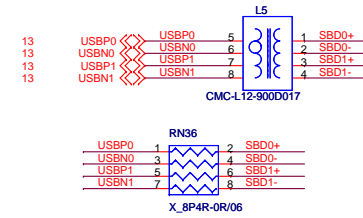
<i>Micro Star Restricted Secret</i>		
<i>Title</i>	<i>1394a Link Layer Controller</i>	<i>Rev</i>
<i>Document Number</i>	<i>MS-7250</i>	<i>20</i>
MICRO-STAR INT'L CO. LTD. No. 68, Li-De St, Jung-Huei City, Taipei Hsien, Taiwan http://www.msi.com.tw		<i>Last Revision Date:</i> <i>Tuesday, April 25, 2006</i> <i>Sheet</i>
		<i>22 of 36</i>

POWER CIRCUIT FOR USB PORT 0,1,2,3



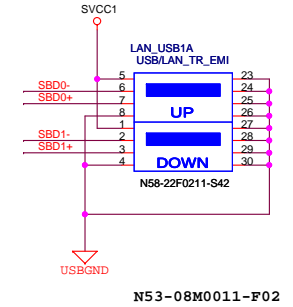
REAR PANEL USB CONNECTOR FOR USB PORT 0,1

Should be 67 OHM, but no have...><

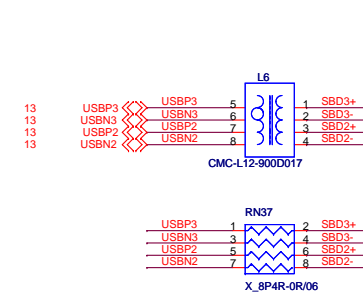


NEAR USB CONNECTOR

22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

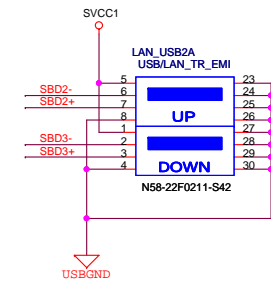


REAR PANEL USB CONNECTOR FOR USB PORT 2,3



NEAR USB CONNECTOR

22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

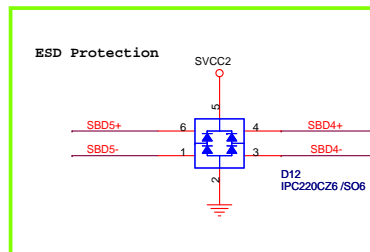
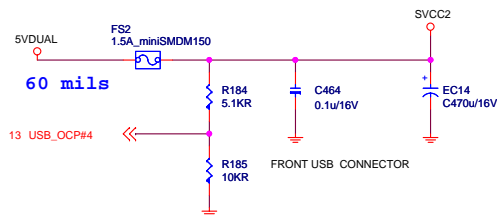


EMI TEST

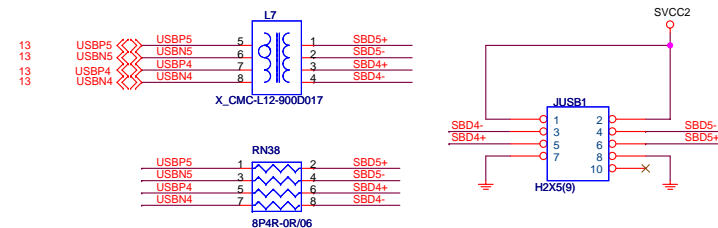


Micro Star Restricted Secret		
Title	REAR USB PORTS	Rev
Document Number	MS-7250	20
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-Ho City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Wednesday, April 26, 2006 Sheet 23 of 36

POWER CIRCUIT FOR USB PORT 4,5



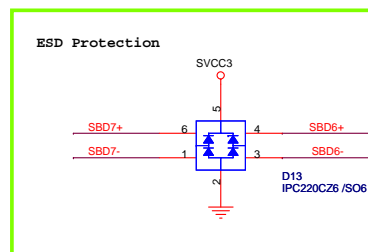
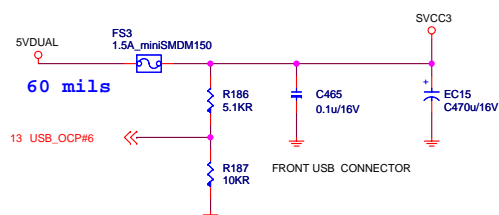
FRONT PANEL USB CONNECTOR FOR USB PORT 4,5



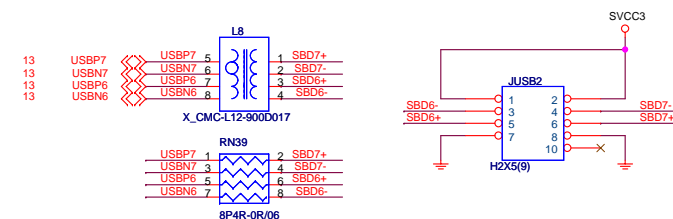
NEAR USB CONNECTOR

22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

POWER CIRCUIT FOR USB PORT 6,7



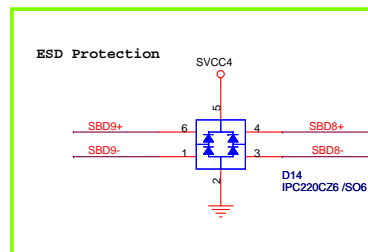
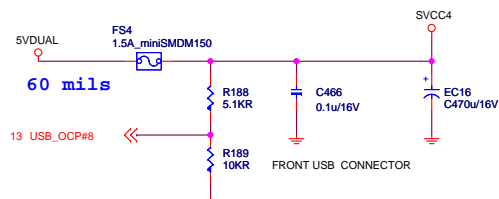
FRONT PANEL USB CONNECTOR FOR USB PORT 6,7



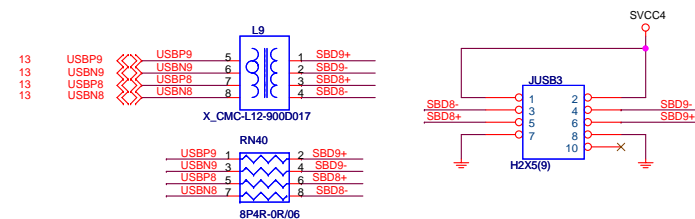
NEAR USB CONNECTOR

22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

POWER CIRCUIT FOR USB PORT 8,9



FRONT PANEL USB CONNECTOR FOR USB PORT 8,9

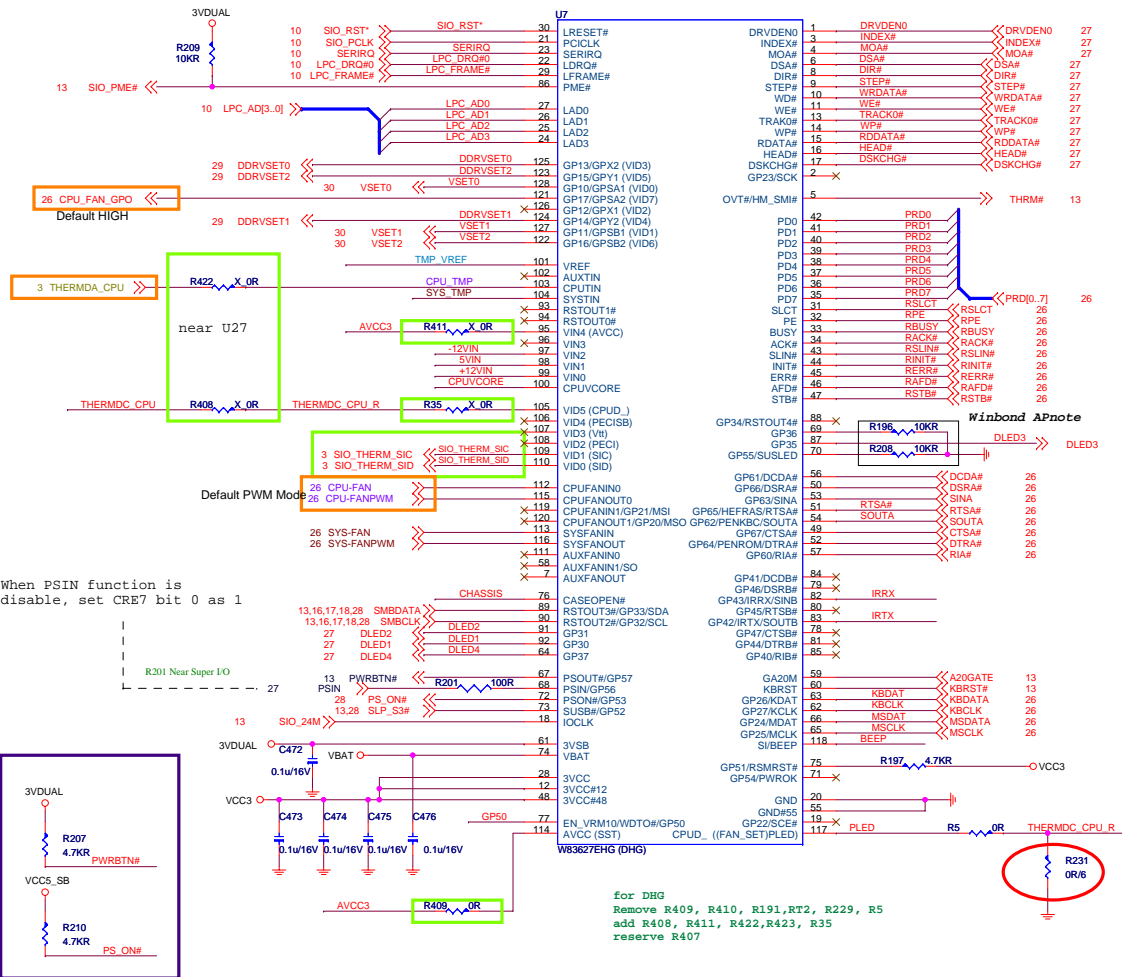


NEAR USB CONNECTOR

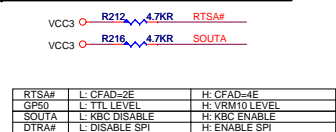
22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

Micro Star Restricted Secret		
Title	FRONT USB PORT	Rev
Document Number	MS-7250	20
MICRO-STAR INT'L CO., LTD. No. 68, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		
Last Revision Date:		Sheet
Tuesday, April 25, 2006		24 of 36

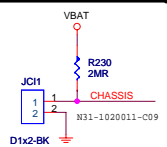
Super I/O



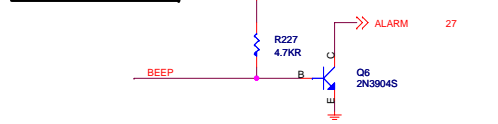
LPC I/O STRAPPING RESISTOR



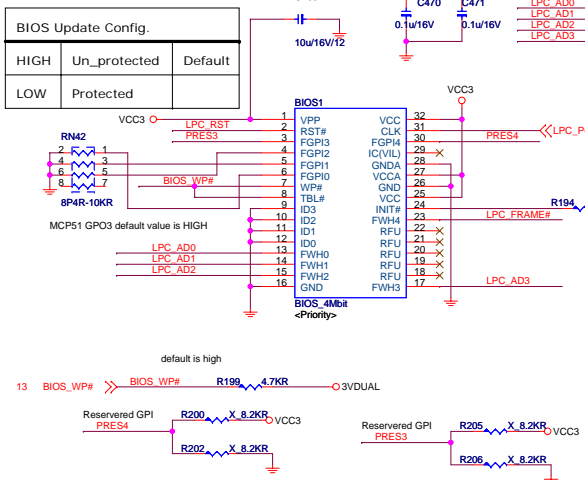
Chassis Intrusion



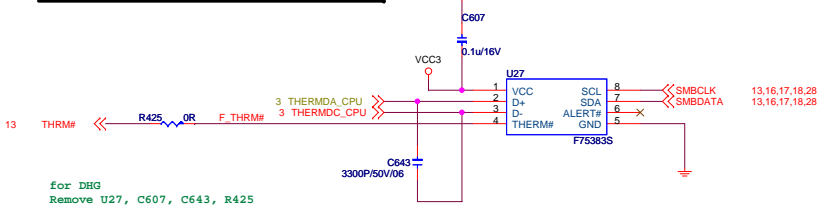
SPEAKER BLOCK



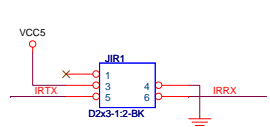
BIOS PROTECT BLOCK



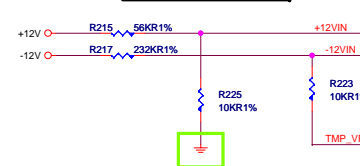
CPU TEMPERATURE SENSOR



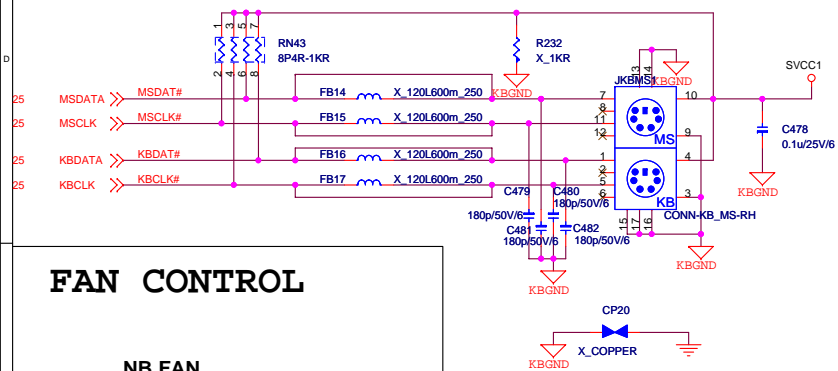
Intel Front IR Header



Thermal Resistor

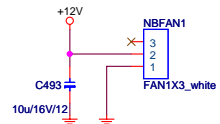


PS2 KEYBOARD & MOUSE CONNECTOR



FAN CONTROL

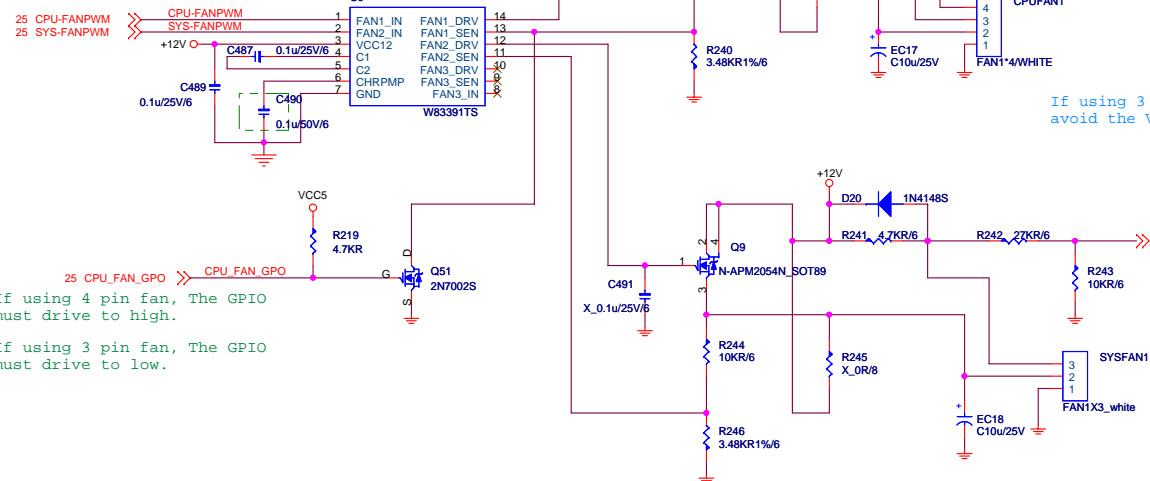
NB FAN



CPU FAN

CPU-FANPWM connect to 627EHF pin 120; default is DC mode

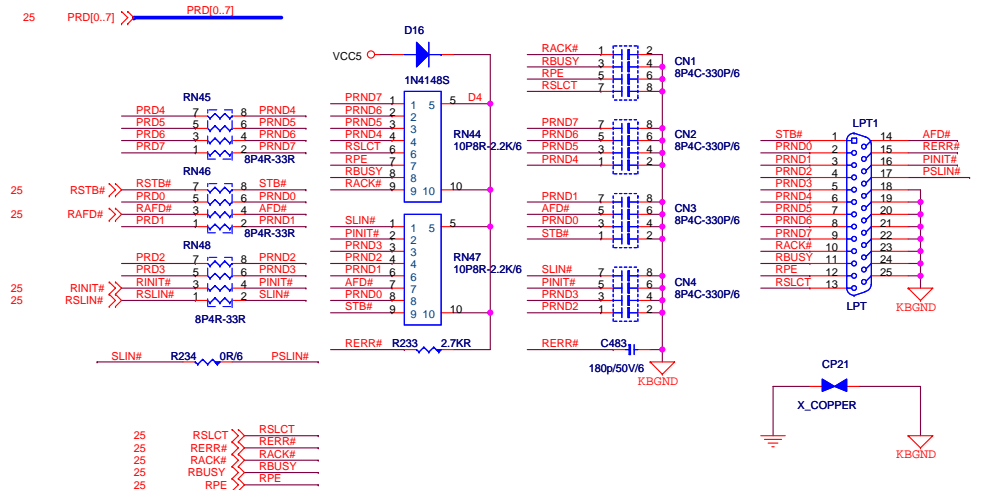
SYS-PWM connect to 627EHF pin 116; default is DC mode



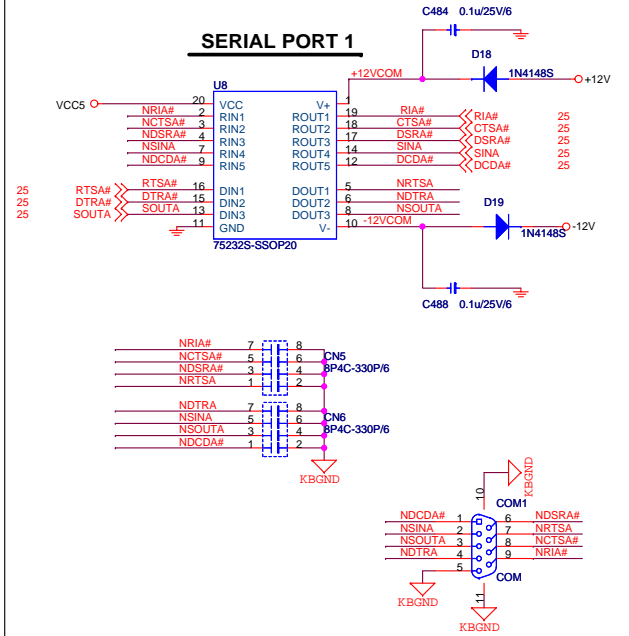
If using 4 pin fan, The GPIO must drive to high.

If using 3 pin fan, The GPIO must drive to low.

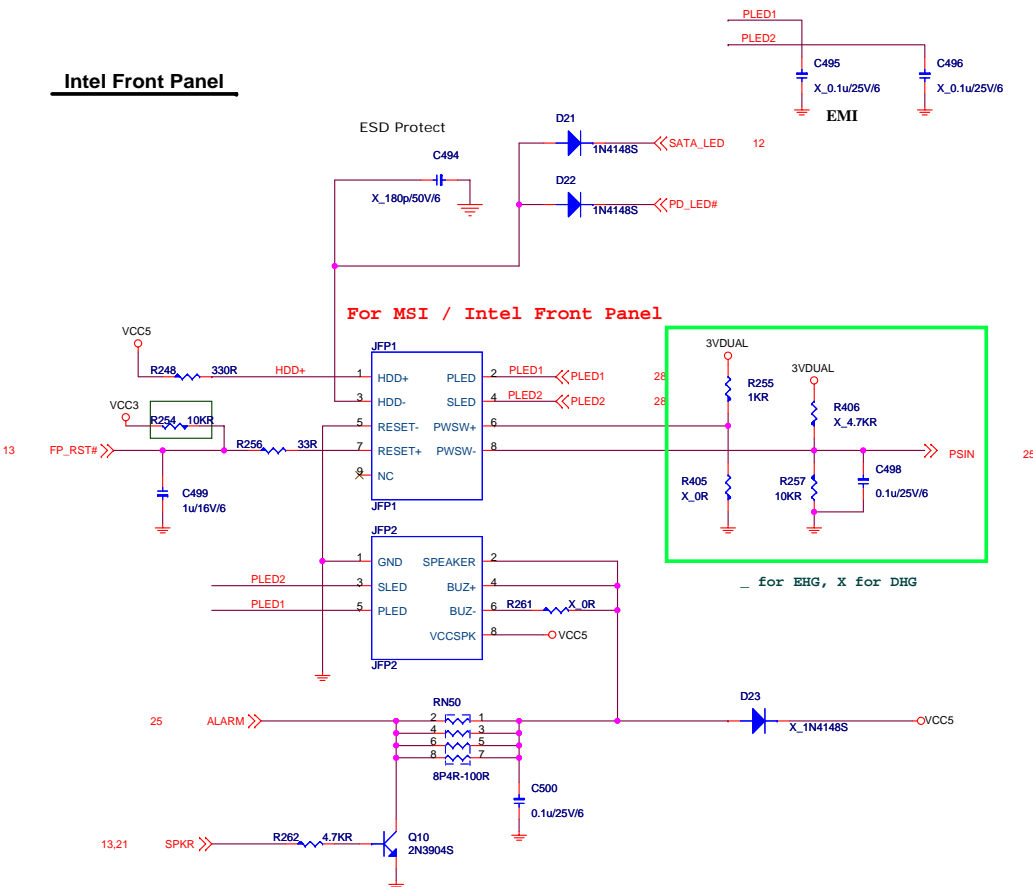
PARALLAL PORT



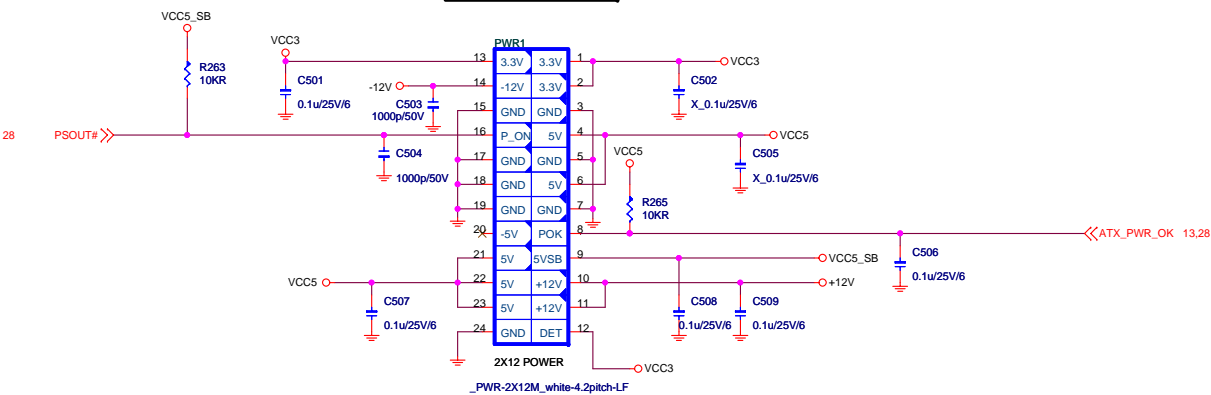
SERIAL PORT 1



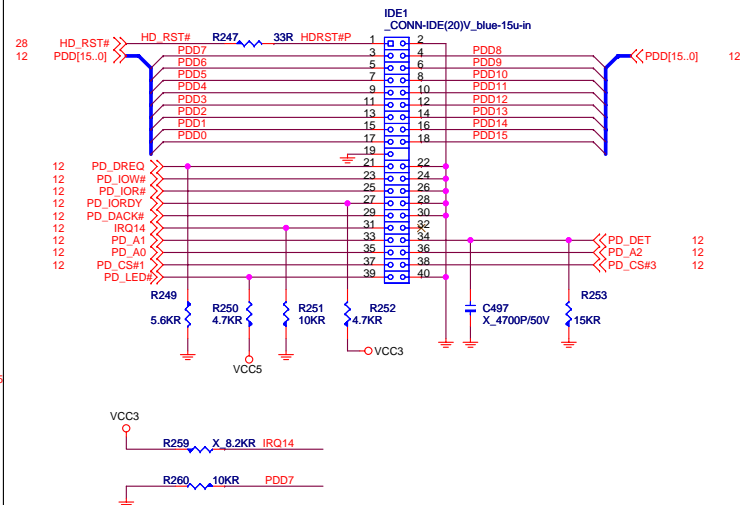
Intel Front Panel



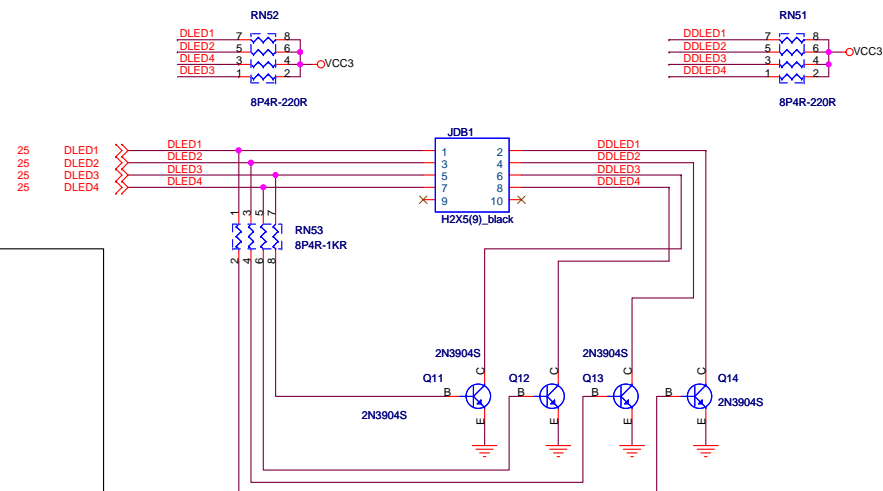
ATX Connector



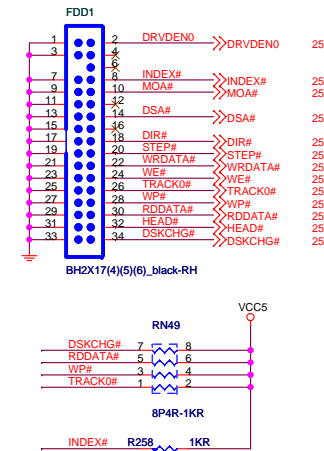
IDE 1



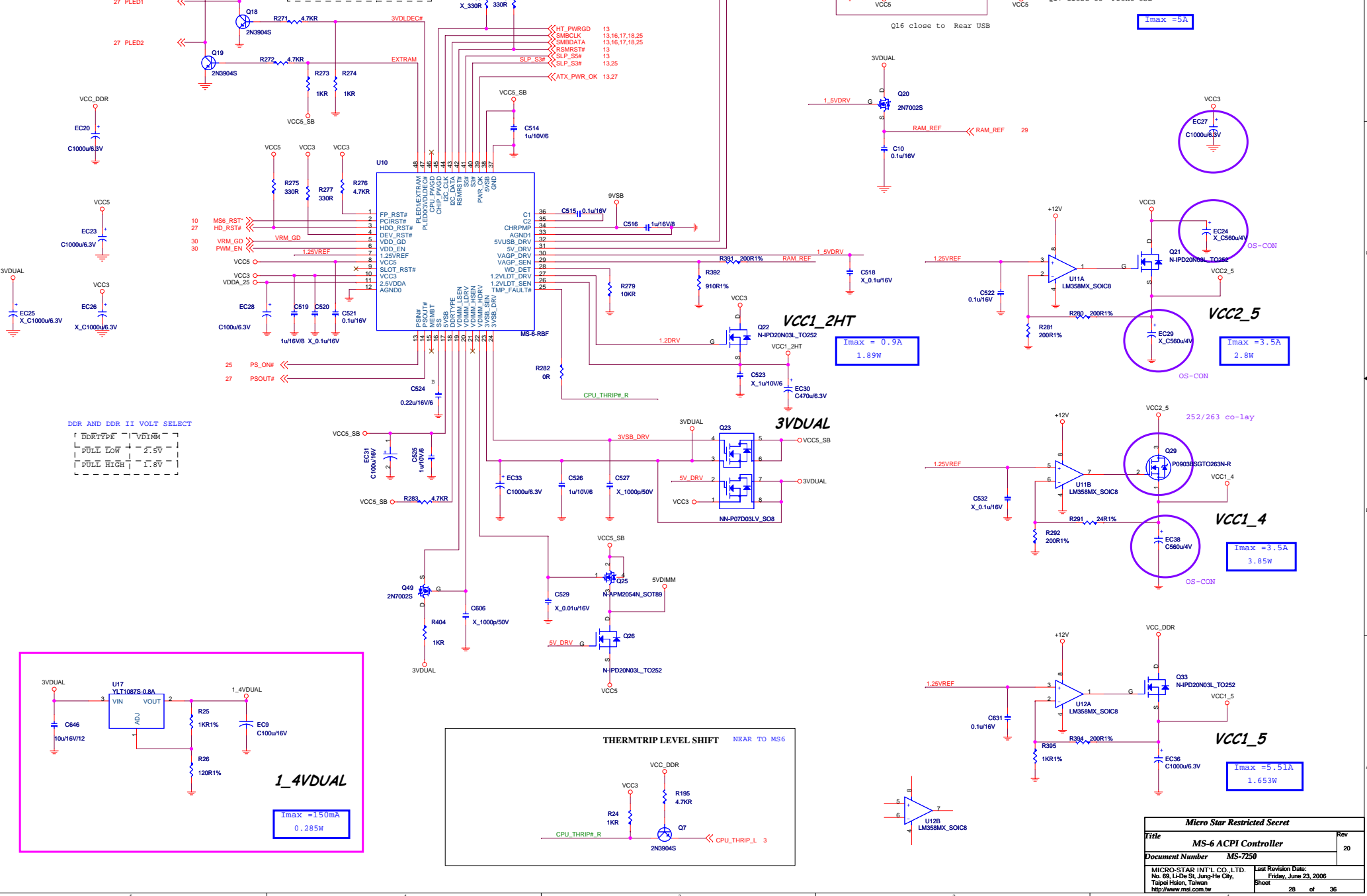
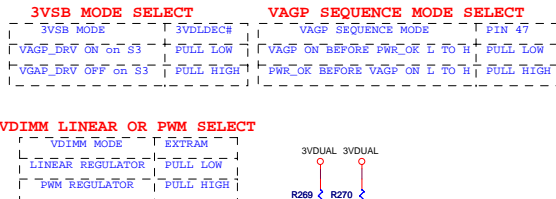
D-Bracket



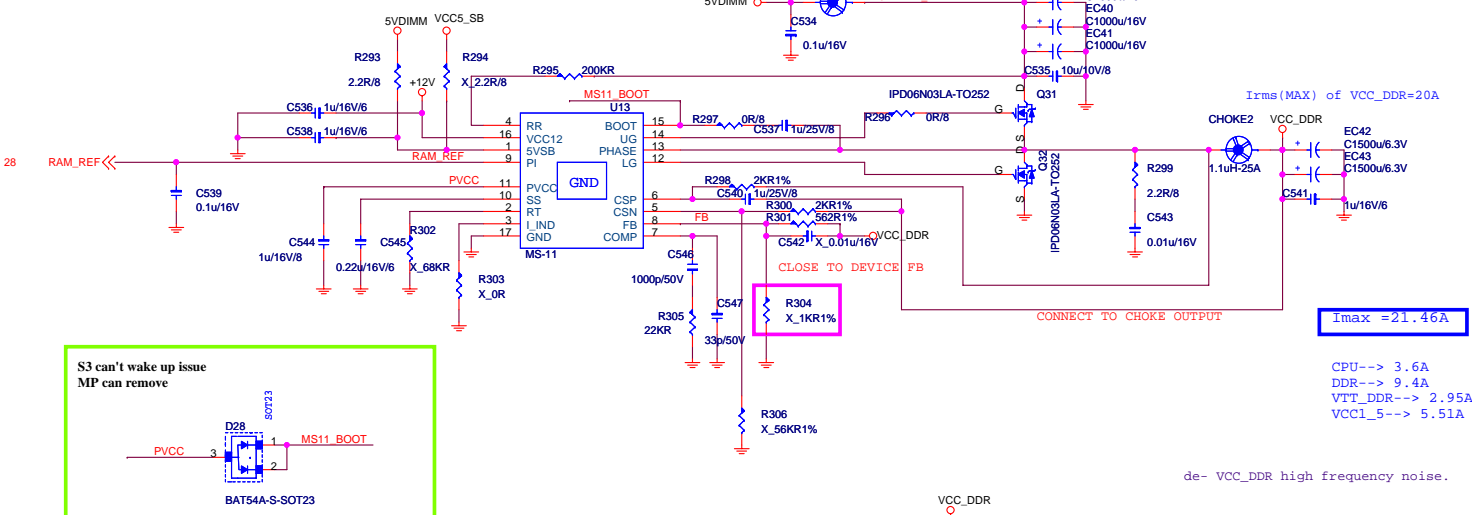
Floppy



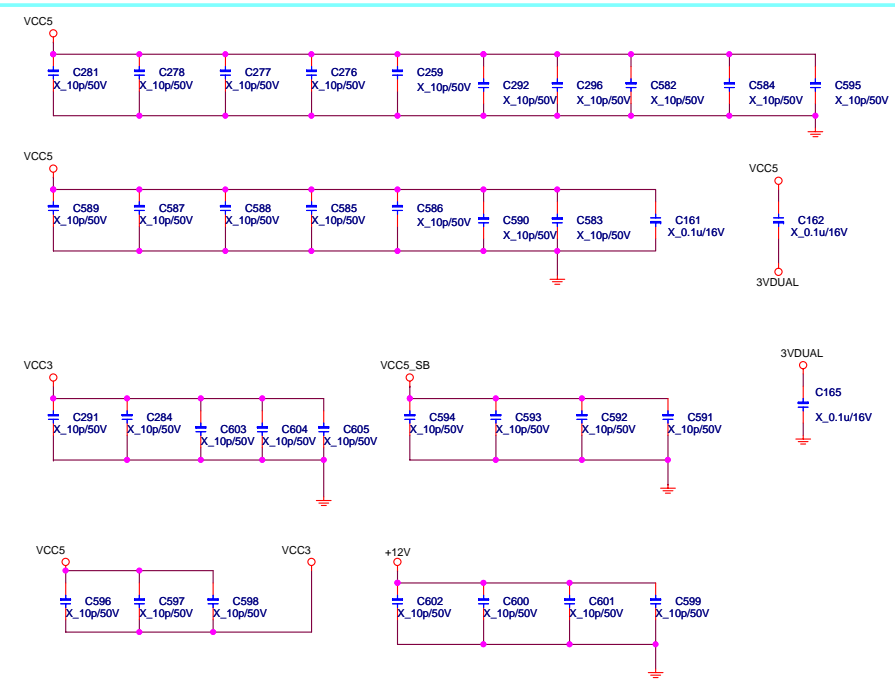
ACPI Controller



DDR II 1.8V POWER



For EMI


$$\begin{aligned} I_{ripple} &= 21.46 \times 0.6 \times 0.8 / 1 = 10.3A \\ 2.35 \times 3 \times 1.7 &= 11.985A > 10.3A \end{aligned}$$

AVL: C94-10216A1-N07

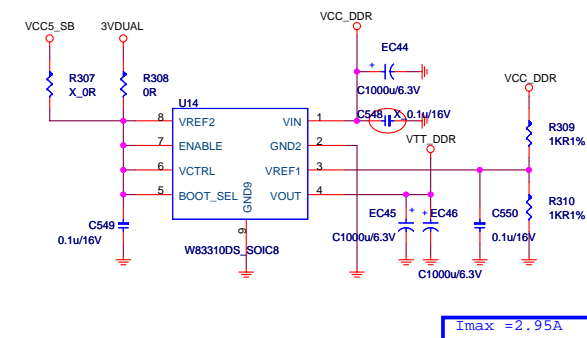
High-side MOS AVL(RoHS):
D03-75N022B-N03
D03-06N030B-I14
D03-80N021B-O05

Low-side MOS AVL(RoHS):
D03-75N022B-N03
D03-06N030B-I14
D03-80N021B-O05

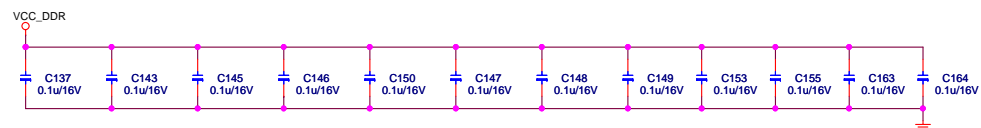
```
L/DCR=R*C
Rcsp >= (1.1uH/2.3m ohm)/1uF
      >= 478 ohm
```

```
Iocp* DCR_max = Ix*Rcsn
Rcsn >= (40amp * 3 m ohm)/80uA
      >= 1.5K
```

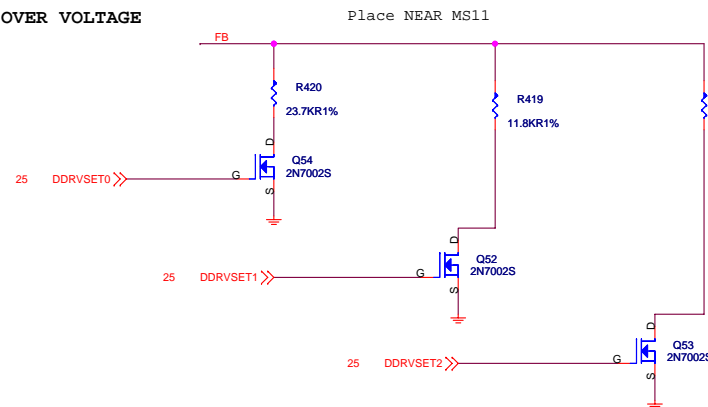
DDR II VTT POWER



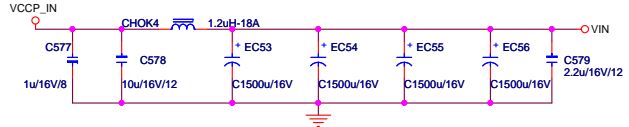
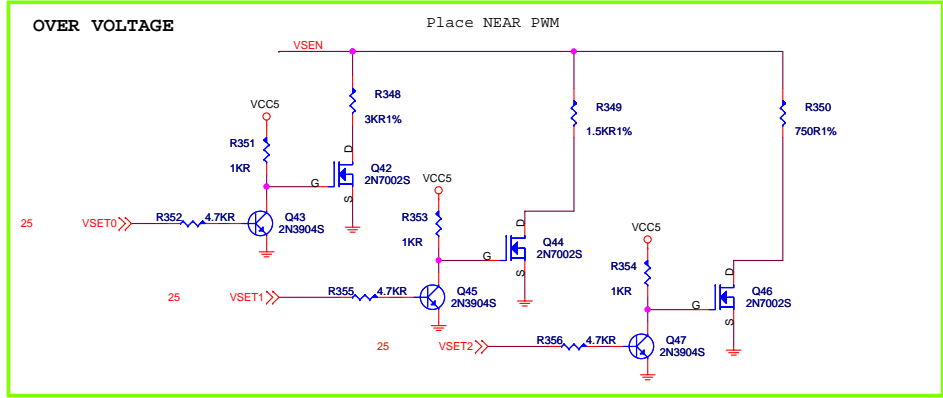
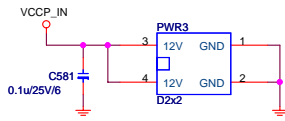
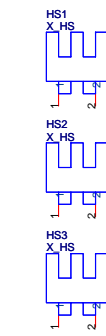
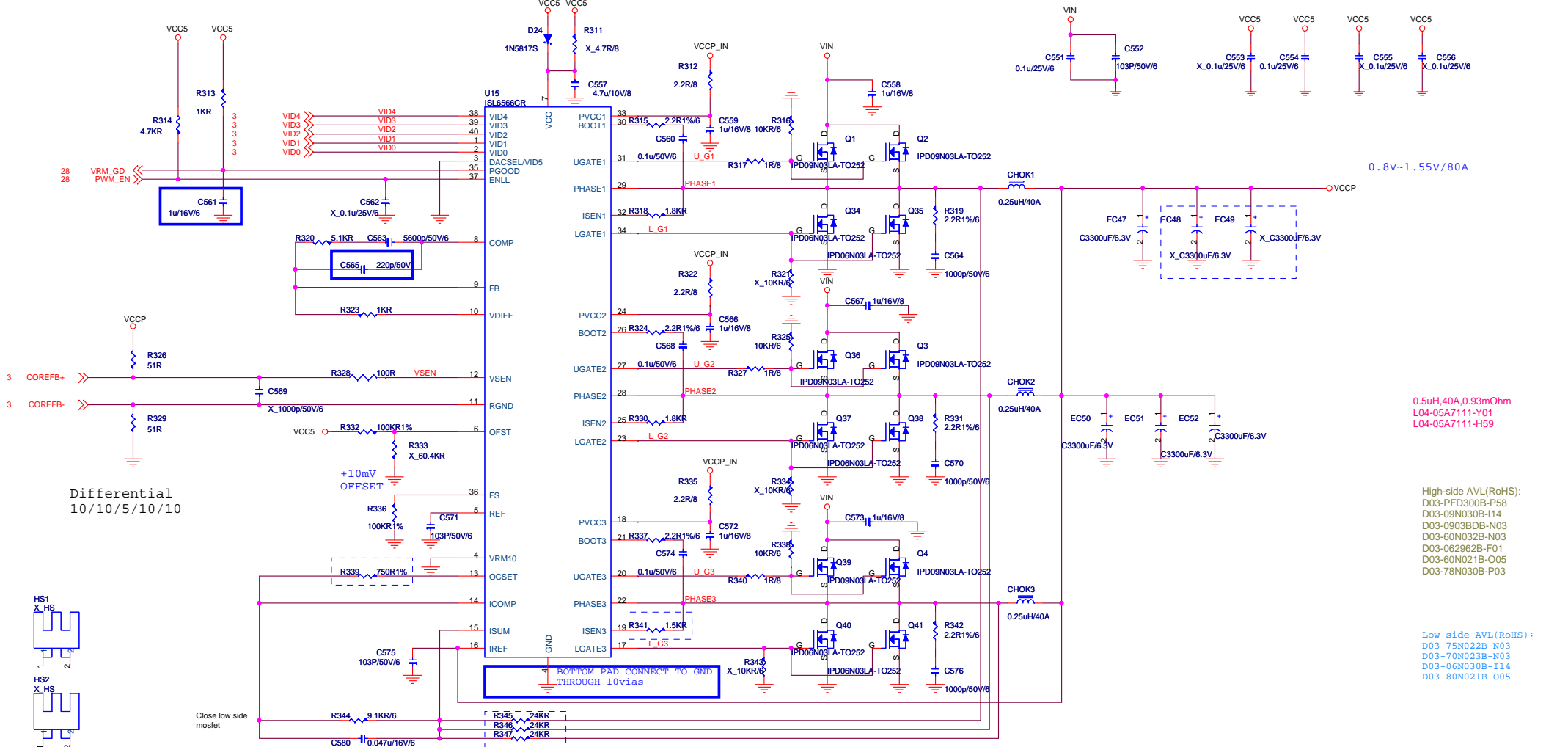
de- VCC_DDR high frequency noise.



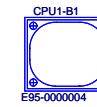
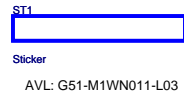
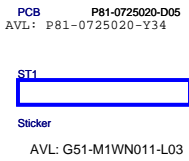
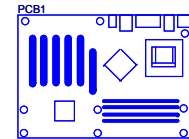
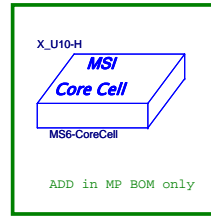
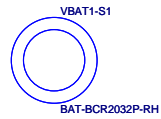
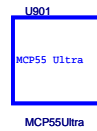
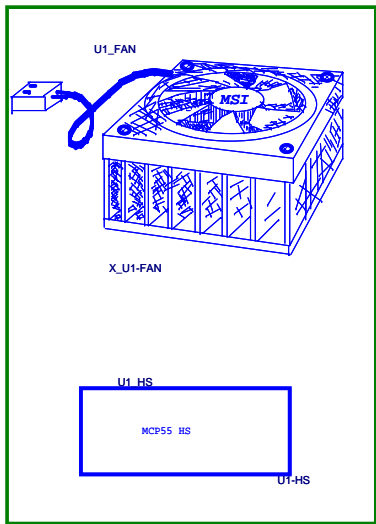
DDR OVER VOLTAGE



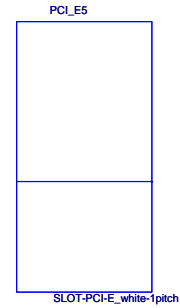
<i>Micro Star Restricted Secret</i>		
Title	MS-11 DDR2 Power	Rev
Document Number	MS-7250	20
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-Huei City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Tuesday, April 25, 2006 Sheet 29 of 36



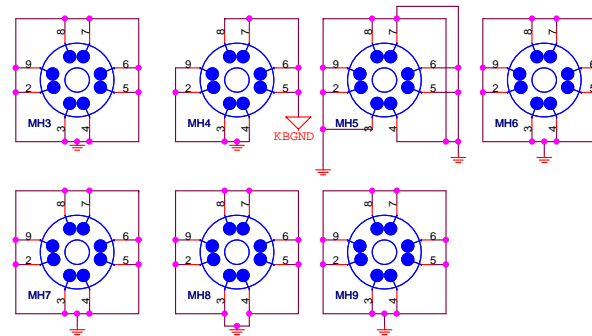
Micro Star Restricted Secret		
Title	Intersil 6566 3 Phase	Rev
Document Number	MS-7250	20
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-Ho City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, July 27, 2006
Sheet		30 of 36



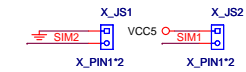
20: E95-0000003-H06
10: E95-0000004-A21



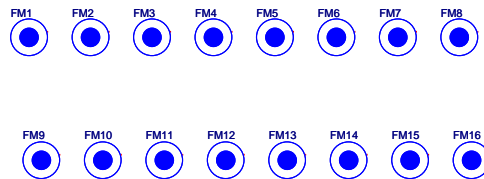
Mounting Holes



Simulation



Optics Orientation Holes



Model option table

Model type	Function	BOM Config	ERP BOM No.
MS-7250	MCP55P / VSC6801x2/ ALC883/ W83627EHG/ ISL6566CR	Cfg-A	601-7250-03S
MS-7250	MCP55 Ultra/ VSC6801x2/ ALC883/ W83627EHG/ ISL6566CR	Cfg-B	601-7250-04S

Micro Star Restricted Secret			
Title	MANUAL PARTS		Rev 20
Document Number	MS-7250		
MICRO-STAR INT'L CO., LTD. No. 68, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Friday, June 23, 2006 Sheet 31 of 36	