



MS-7295 Ver:1.0

CPU:

AMD 940 Athlon 64/Athlon 64 FX

System Chipset:

NVIDIA C51PV / C51PVG

NVIDIA MCP 51

On Board Chipset:

LPC Super I/O -- Winbond 83627EHF

LAN Vitess VSC8601

HD Codec --ALC883

BIOS --LPC FLASH ROM 4M

Main Memory:

DDR * 4 (Max 4GB)

Expansion Slots:

PCI-E X 16 *1

PCI-E X 4 *1

PCI 2.3 Slot * 2

PWM:

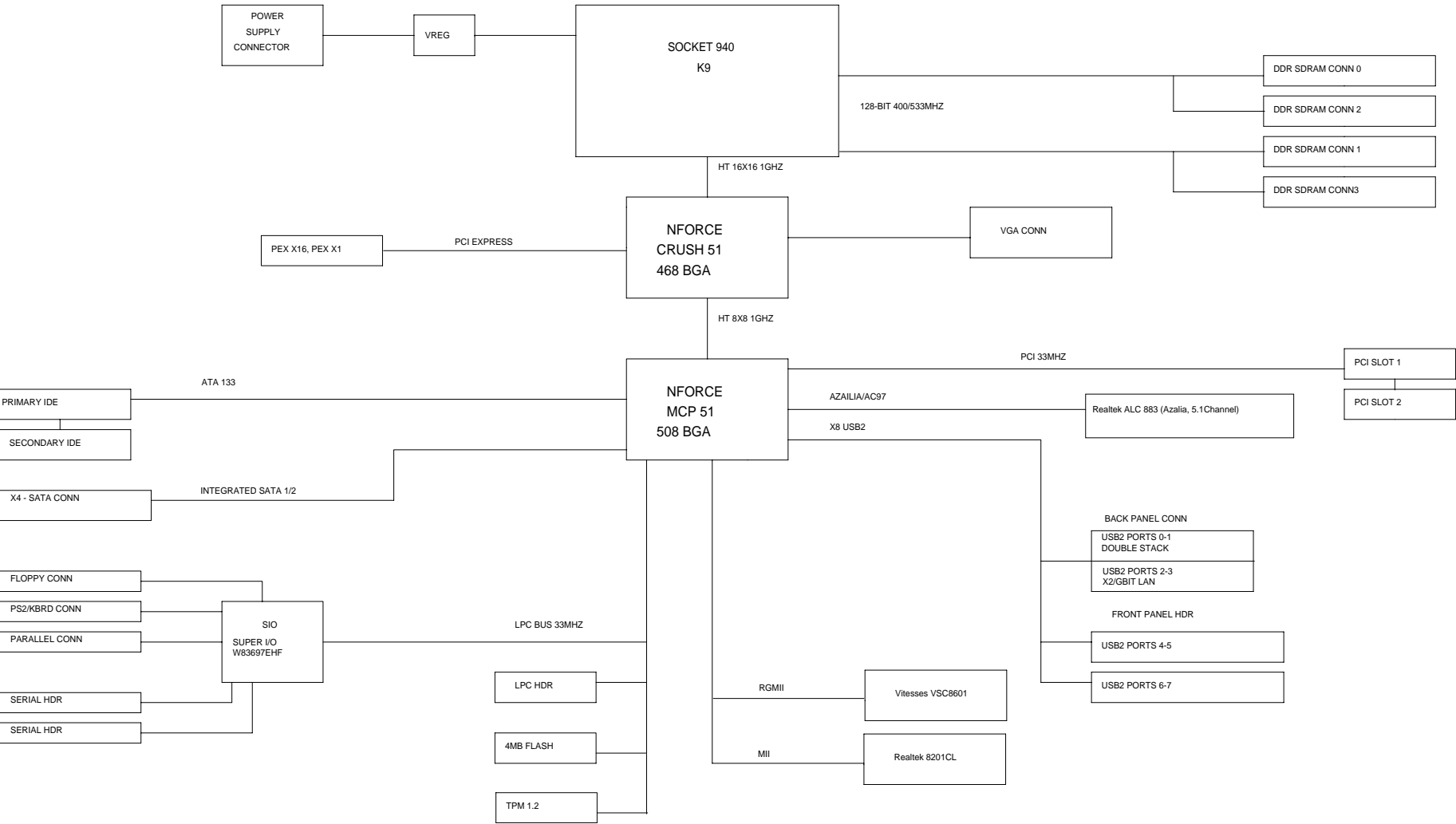
Controller--Intersil ISL6566CR 3 Phase

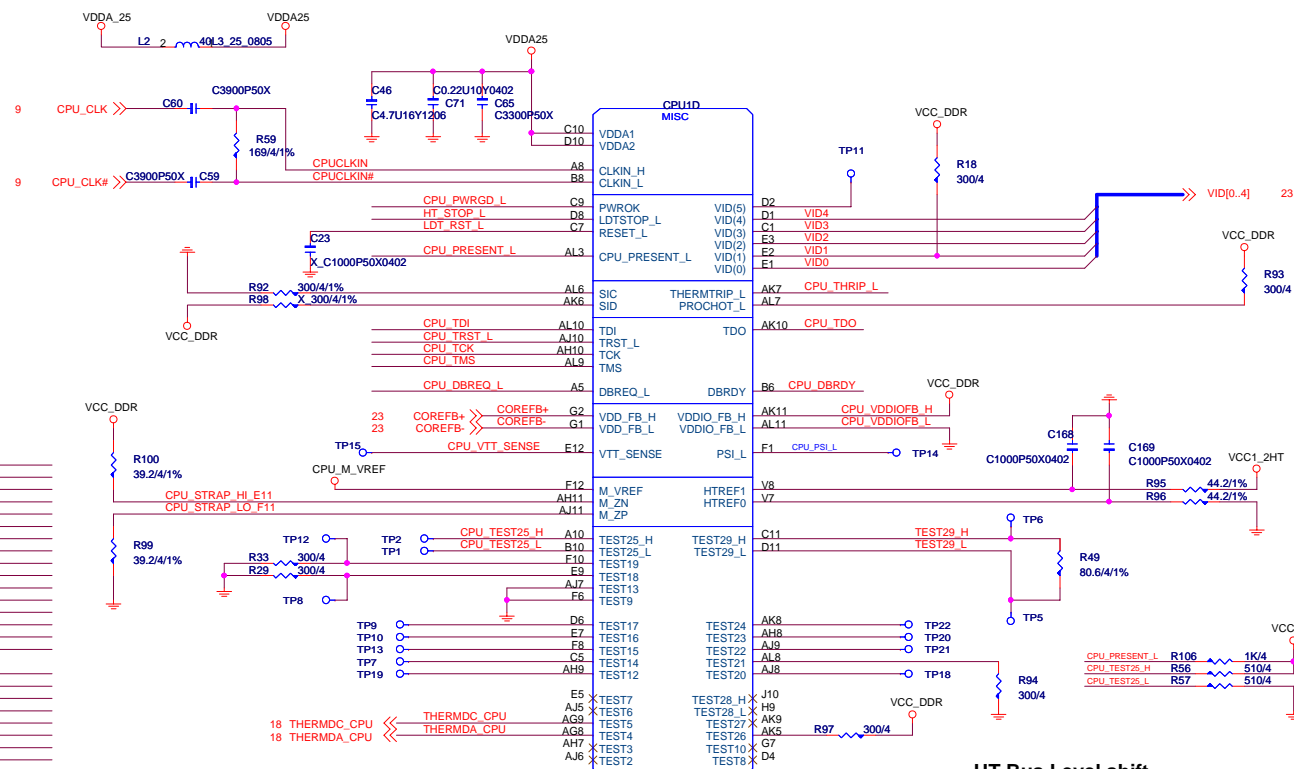
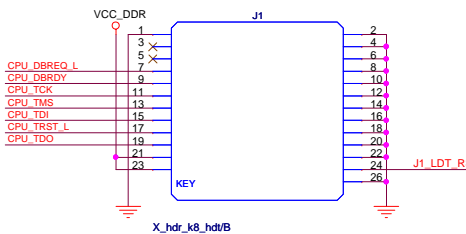
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NECCI BOGOTA

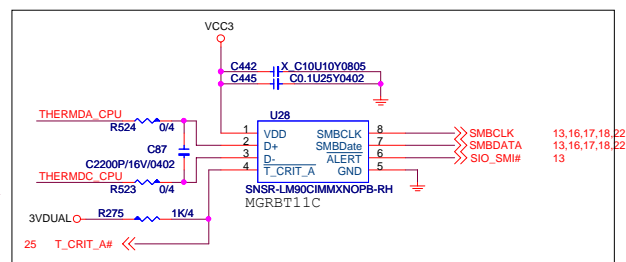
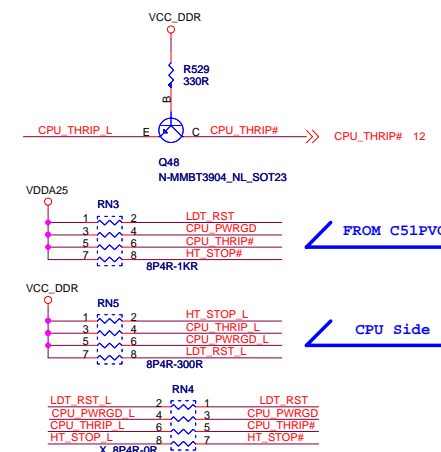
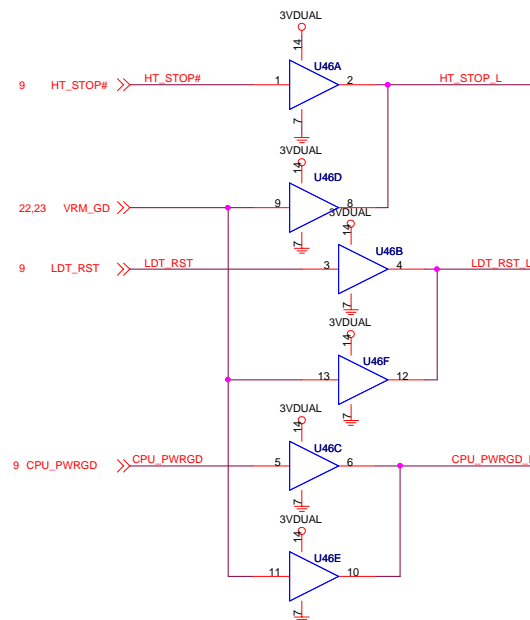
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Title	Cover Sheet	Rev 1.0
Document Number	MS-7295	
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St., Jung-Hsi City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Friday, June 16, 2006 Sheet 1 of 35

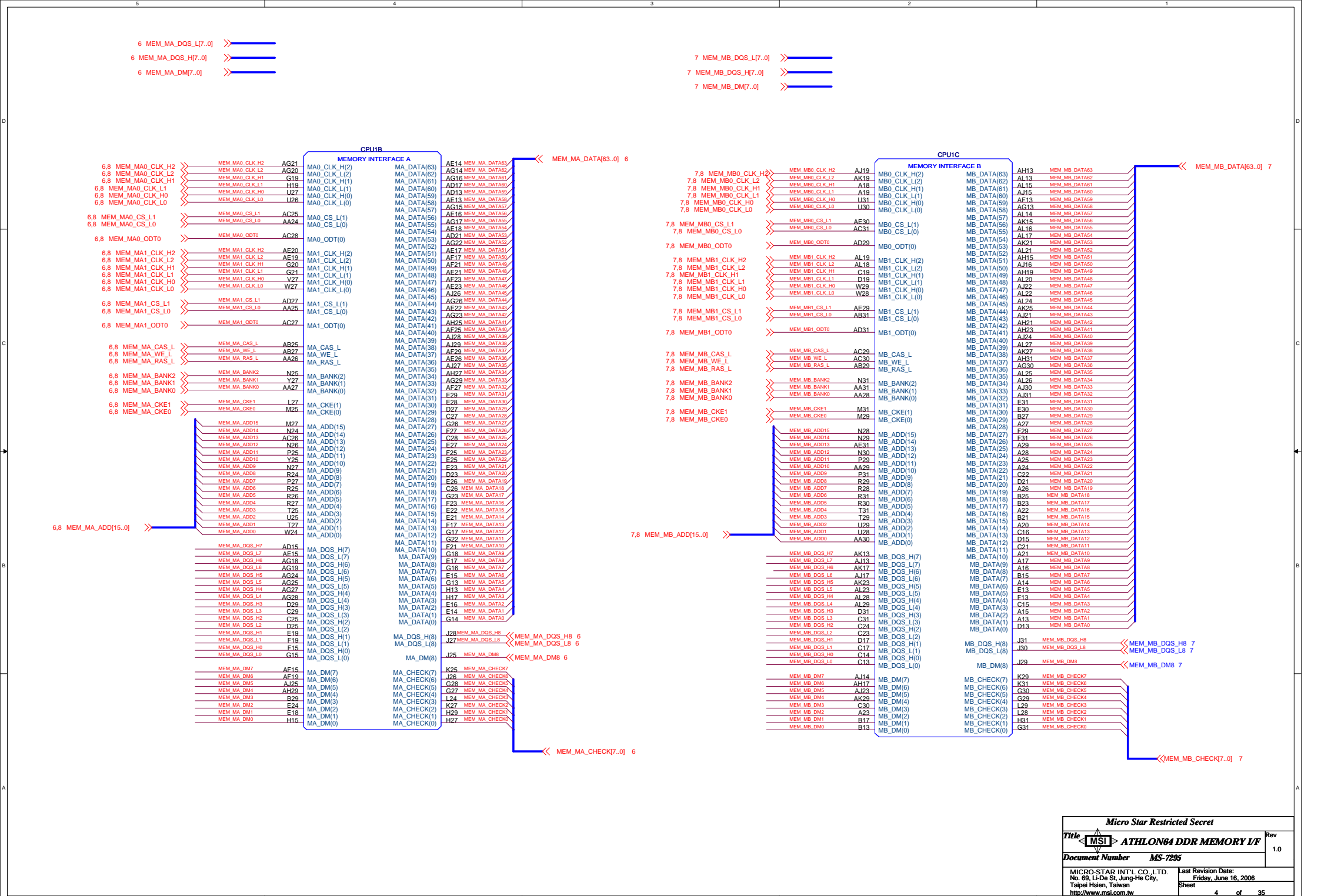
BLOCK DIAGRAM

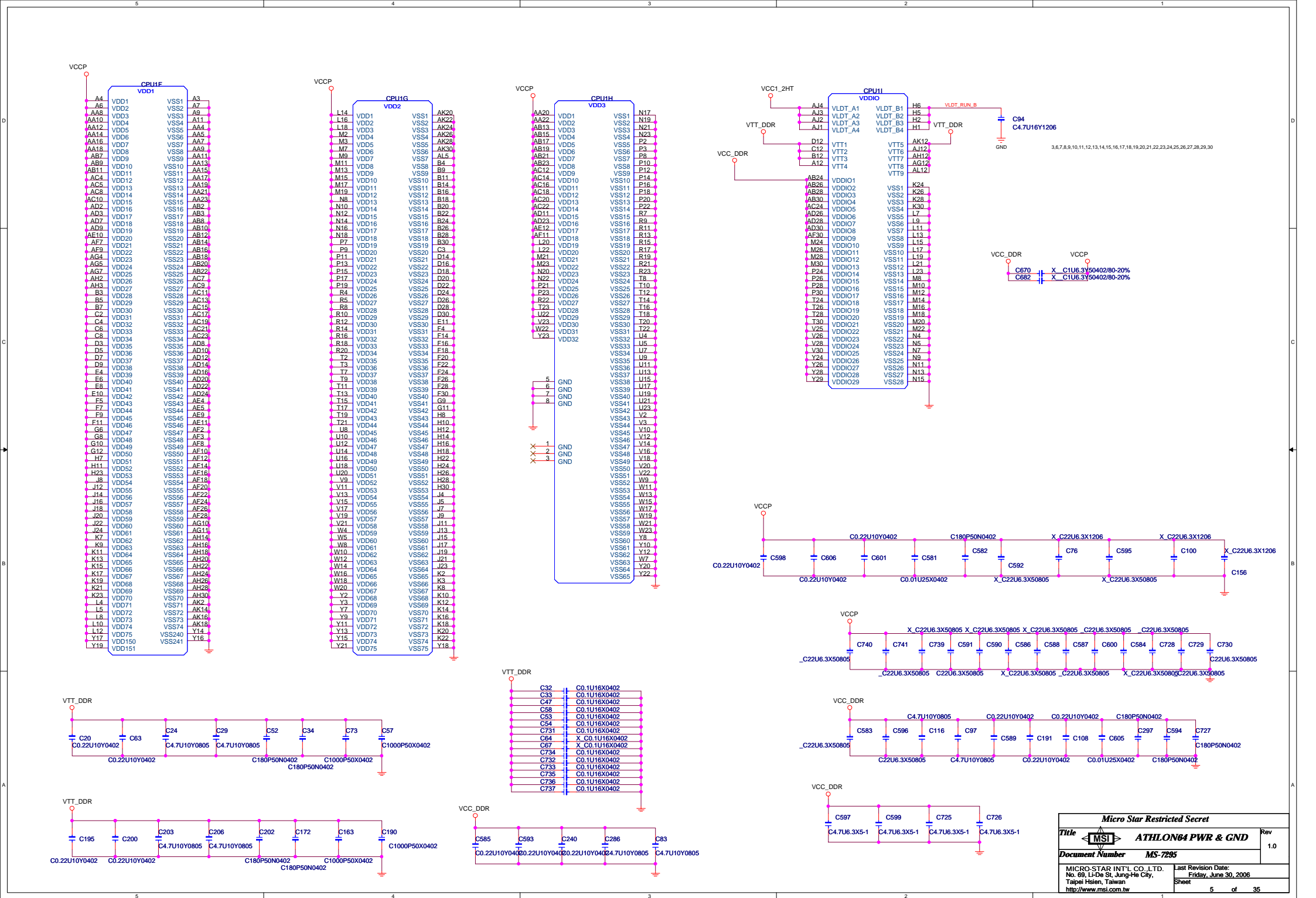


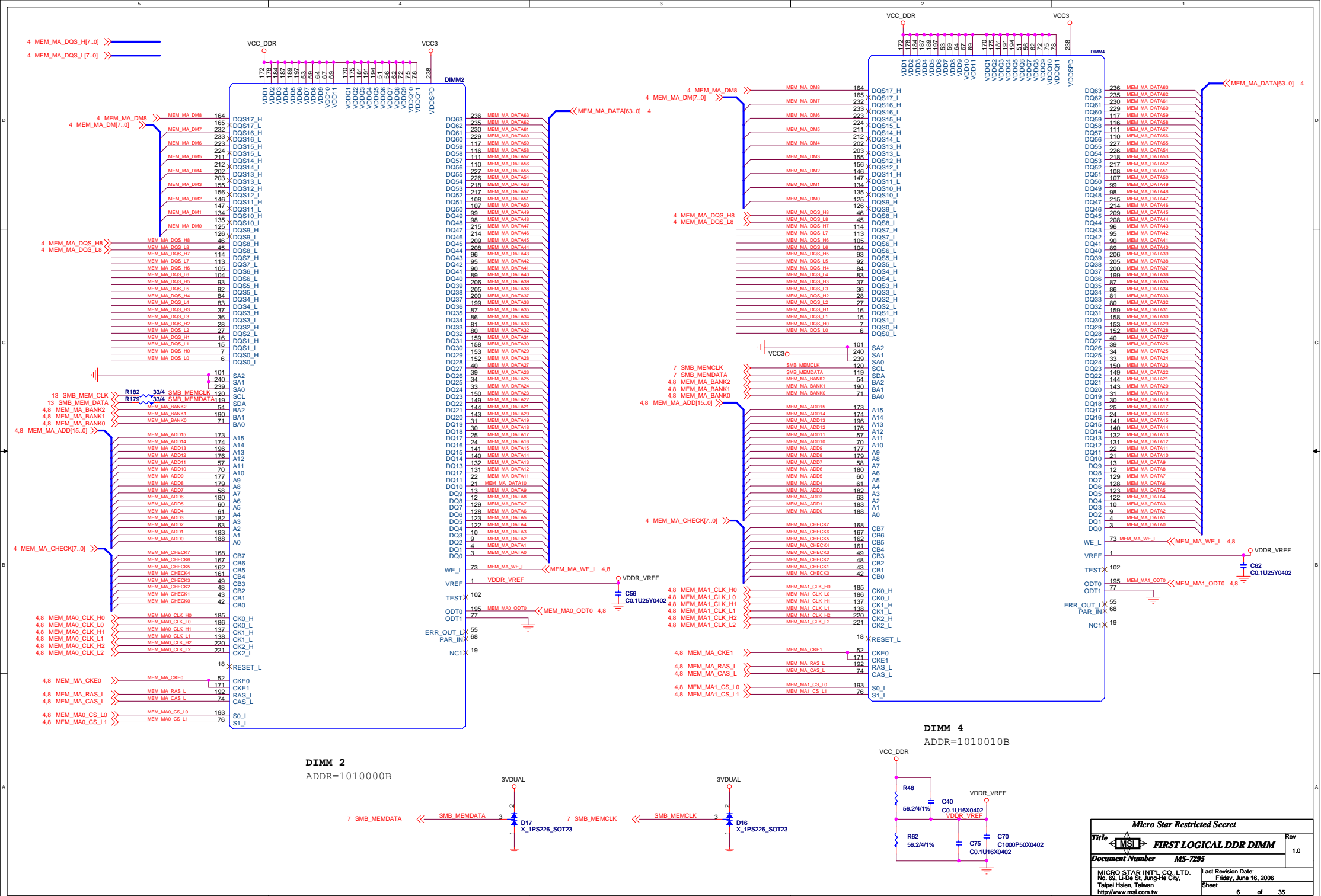


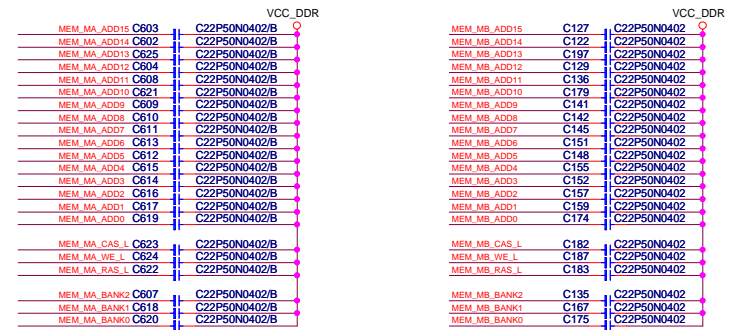
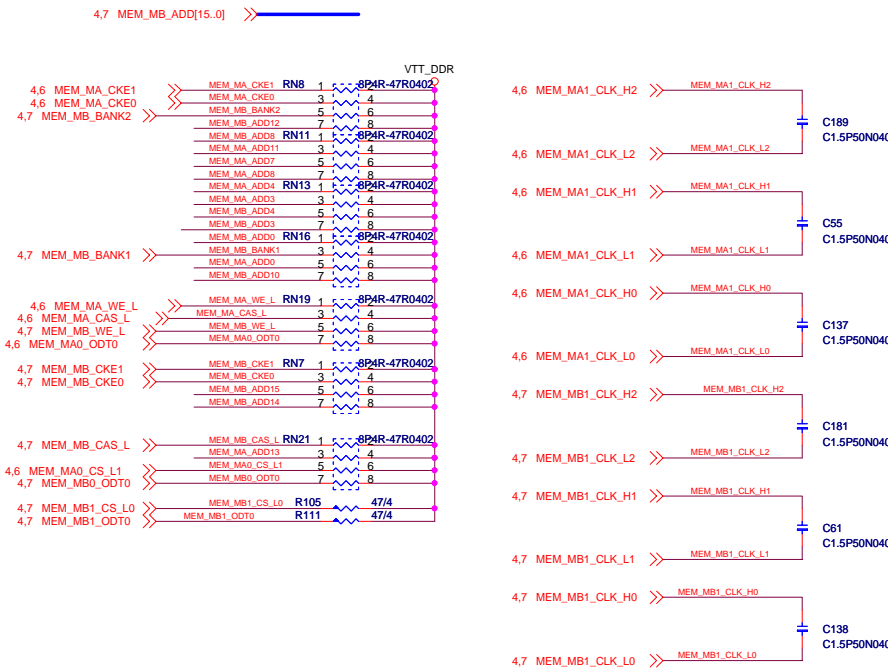
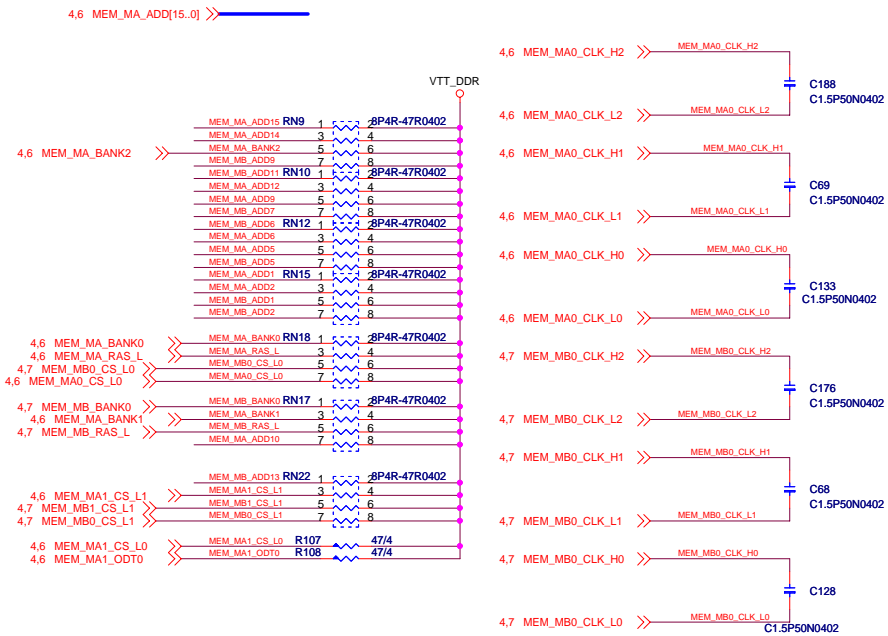
HT Bus Level shift





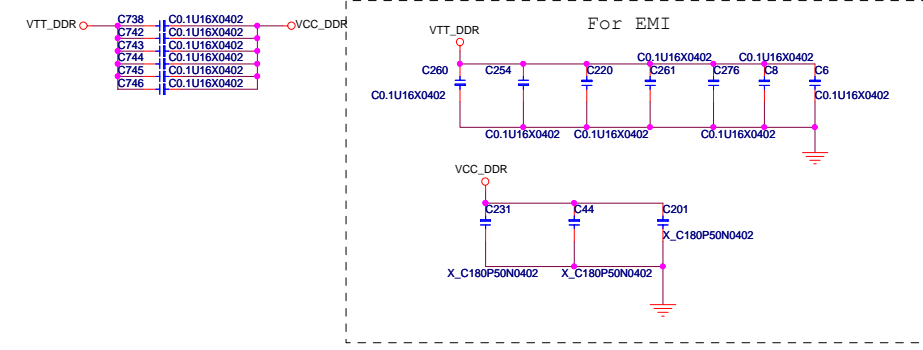
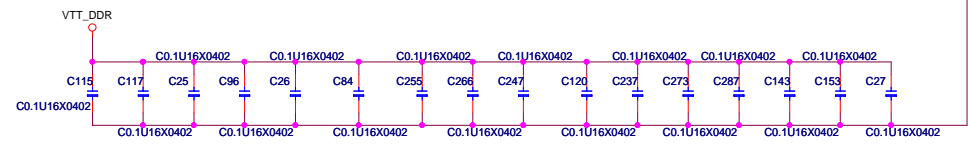
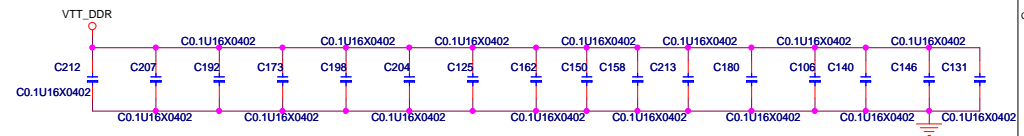


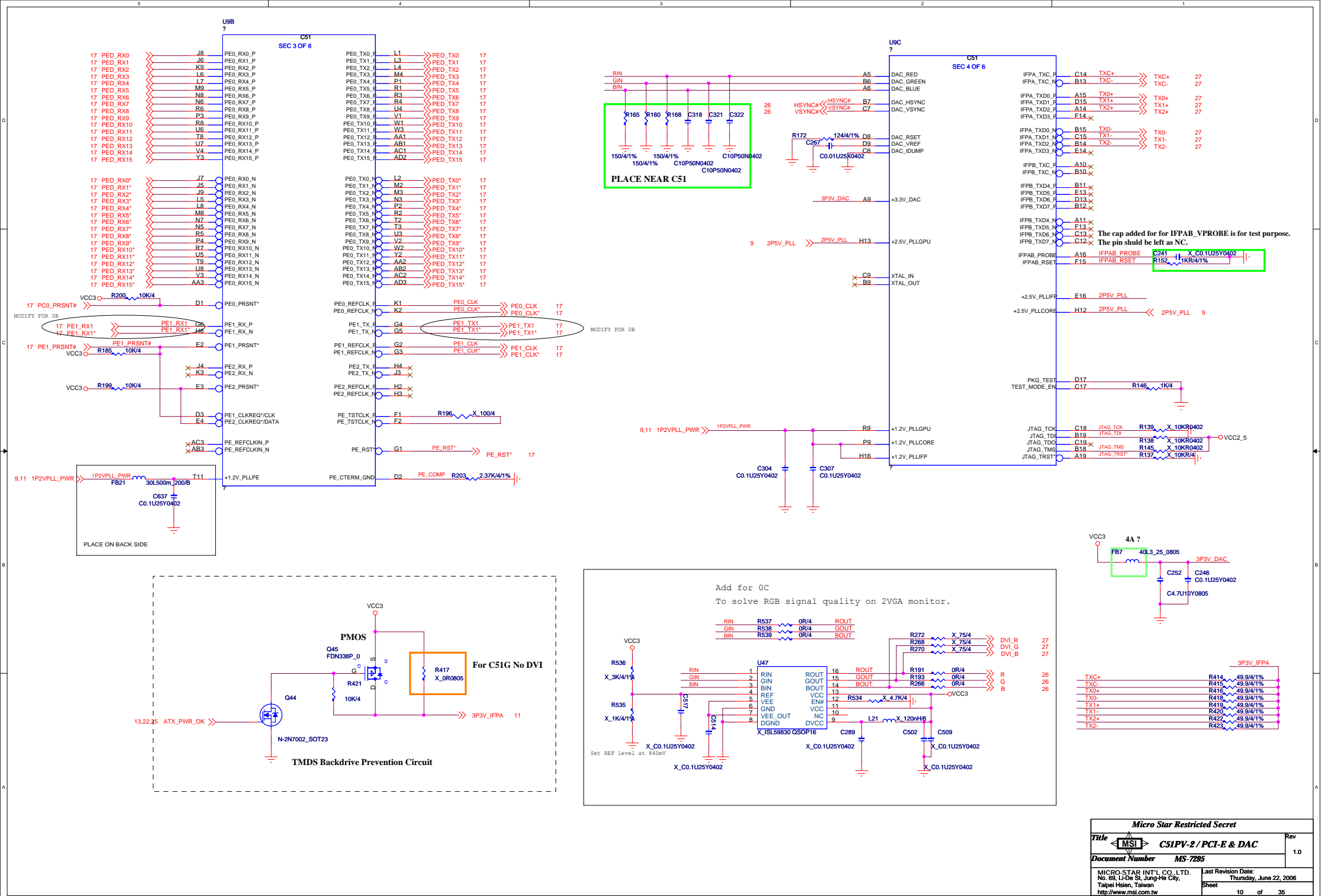


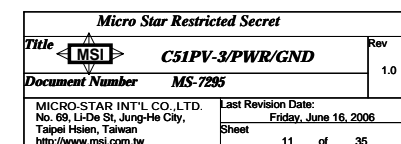
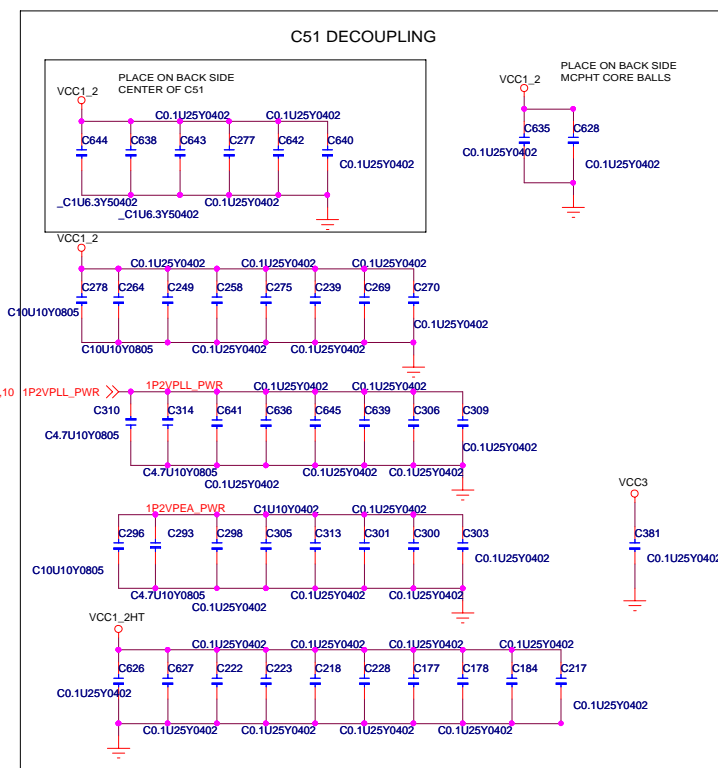


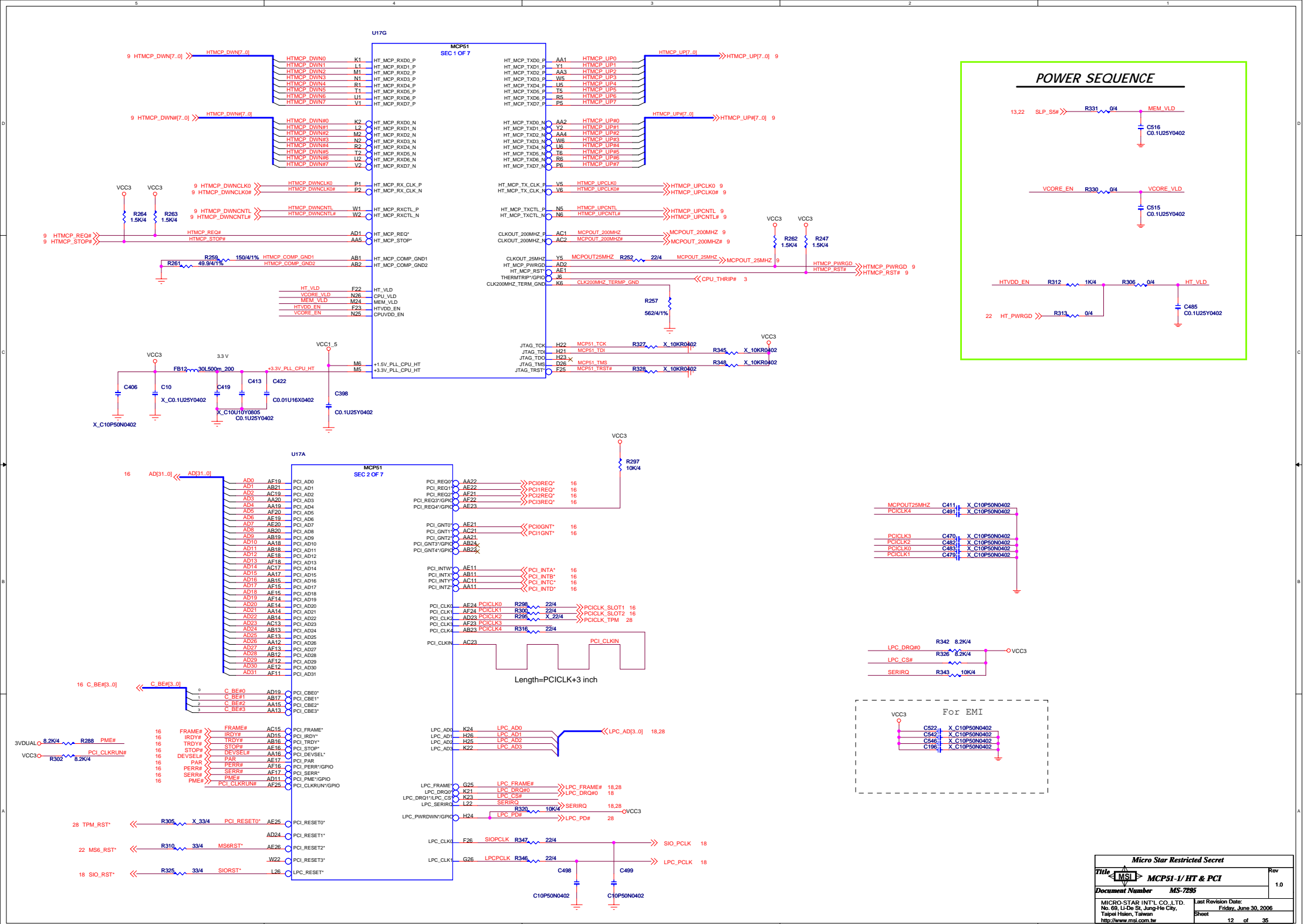
Decoupling Between Processor and DIMMs

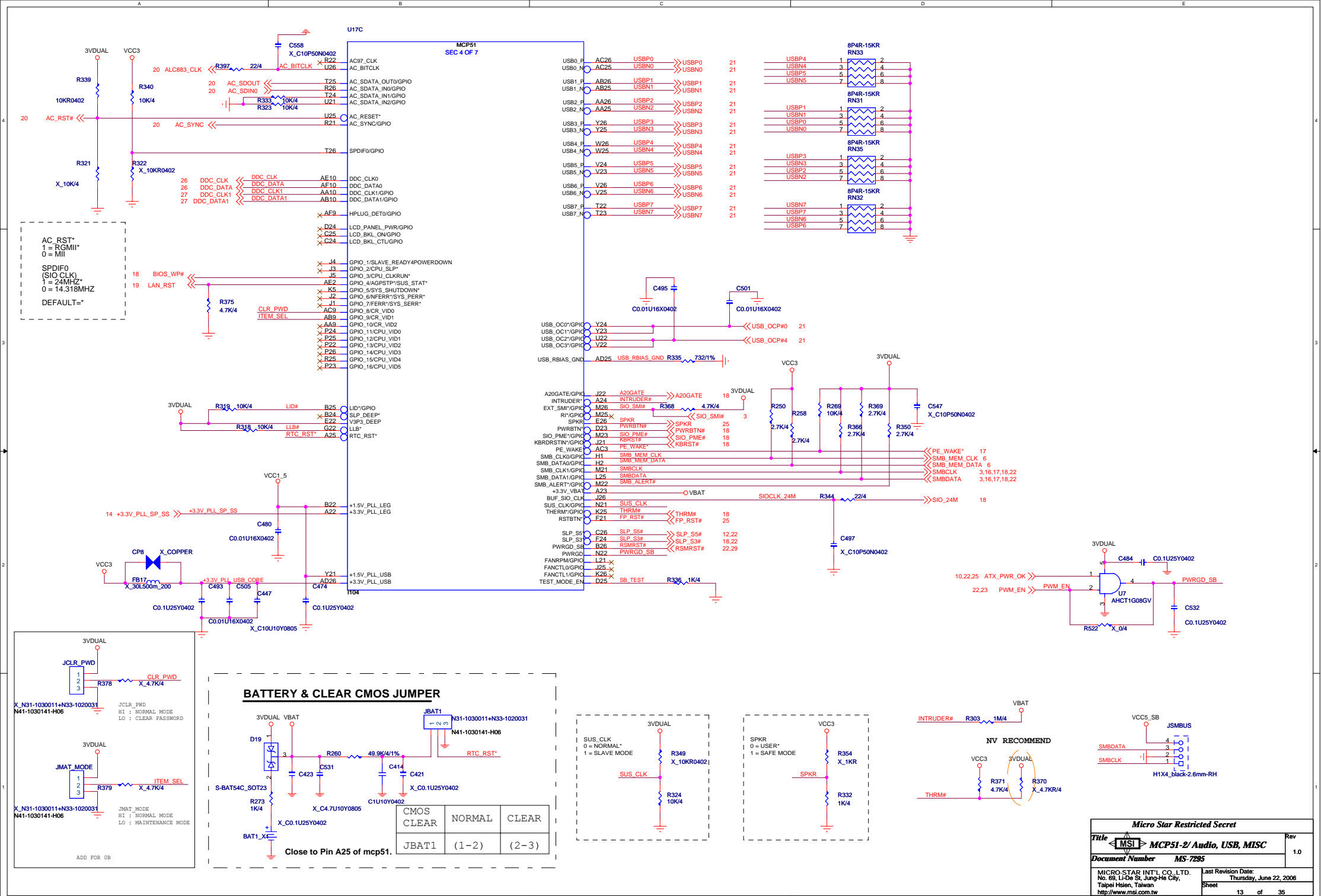
Layout: Spread out on VTT pour

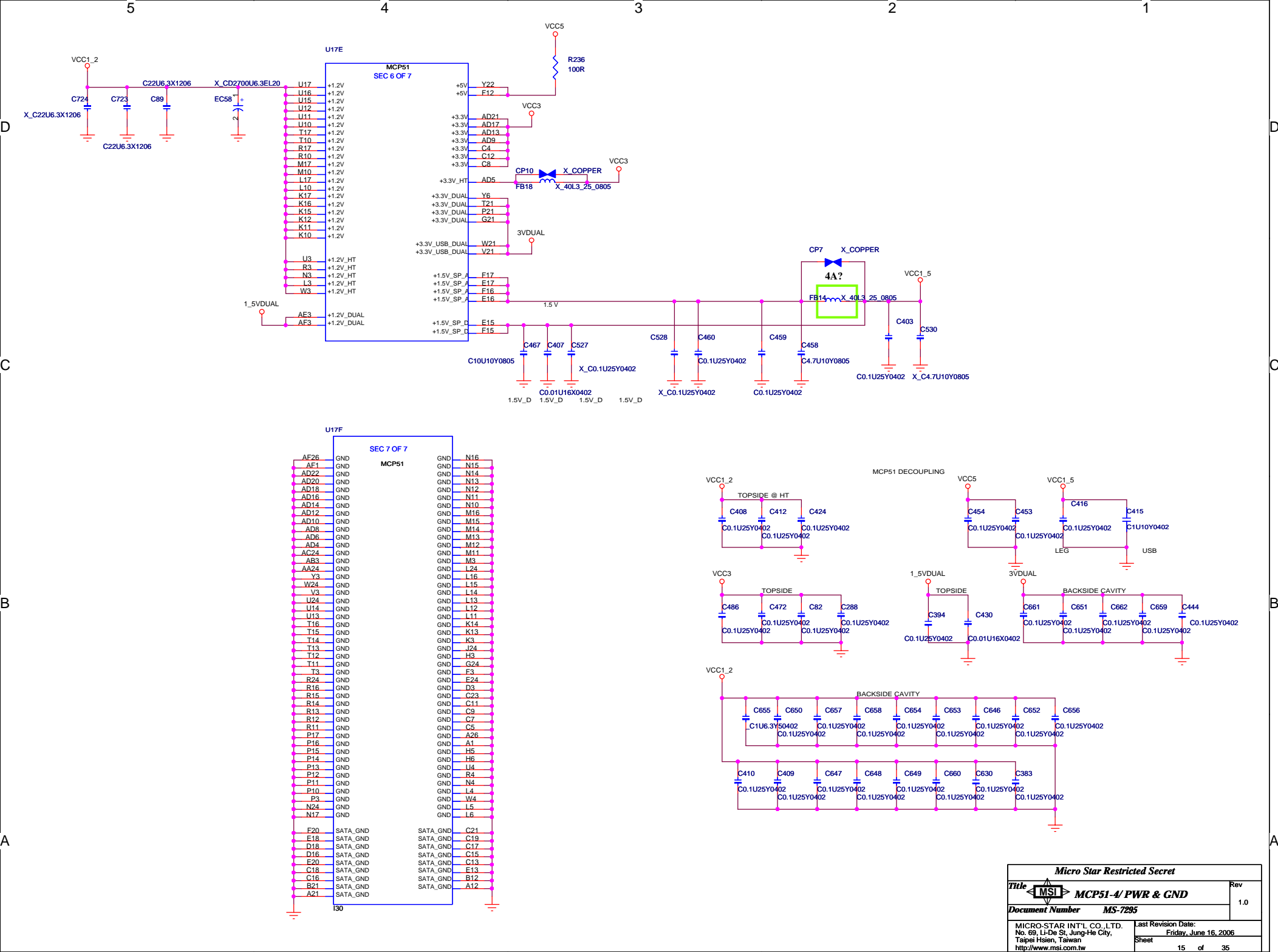


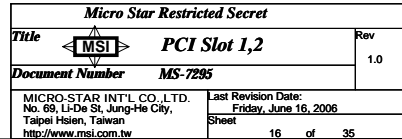
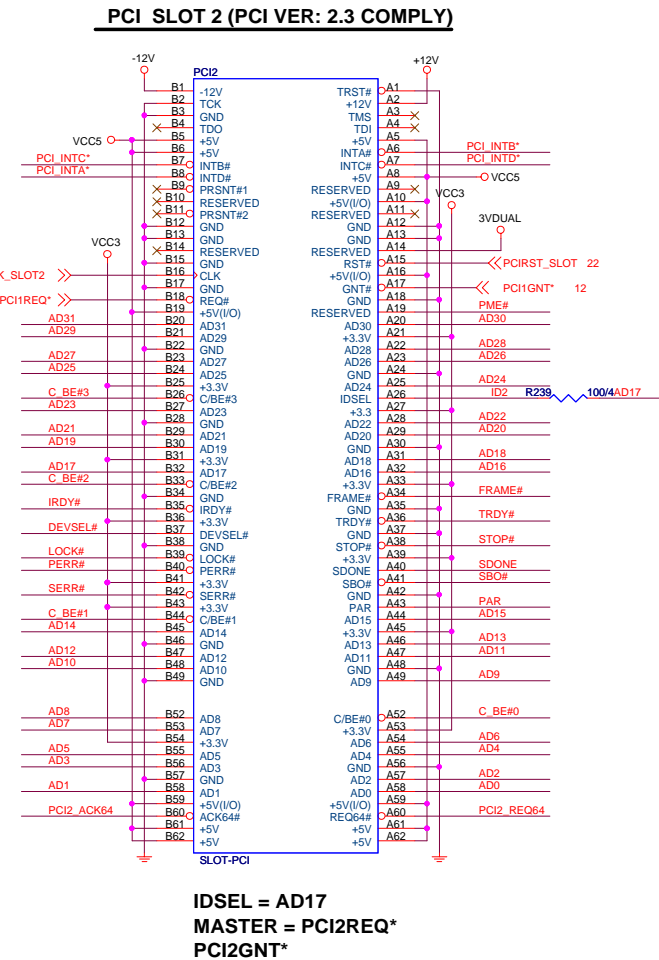




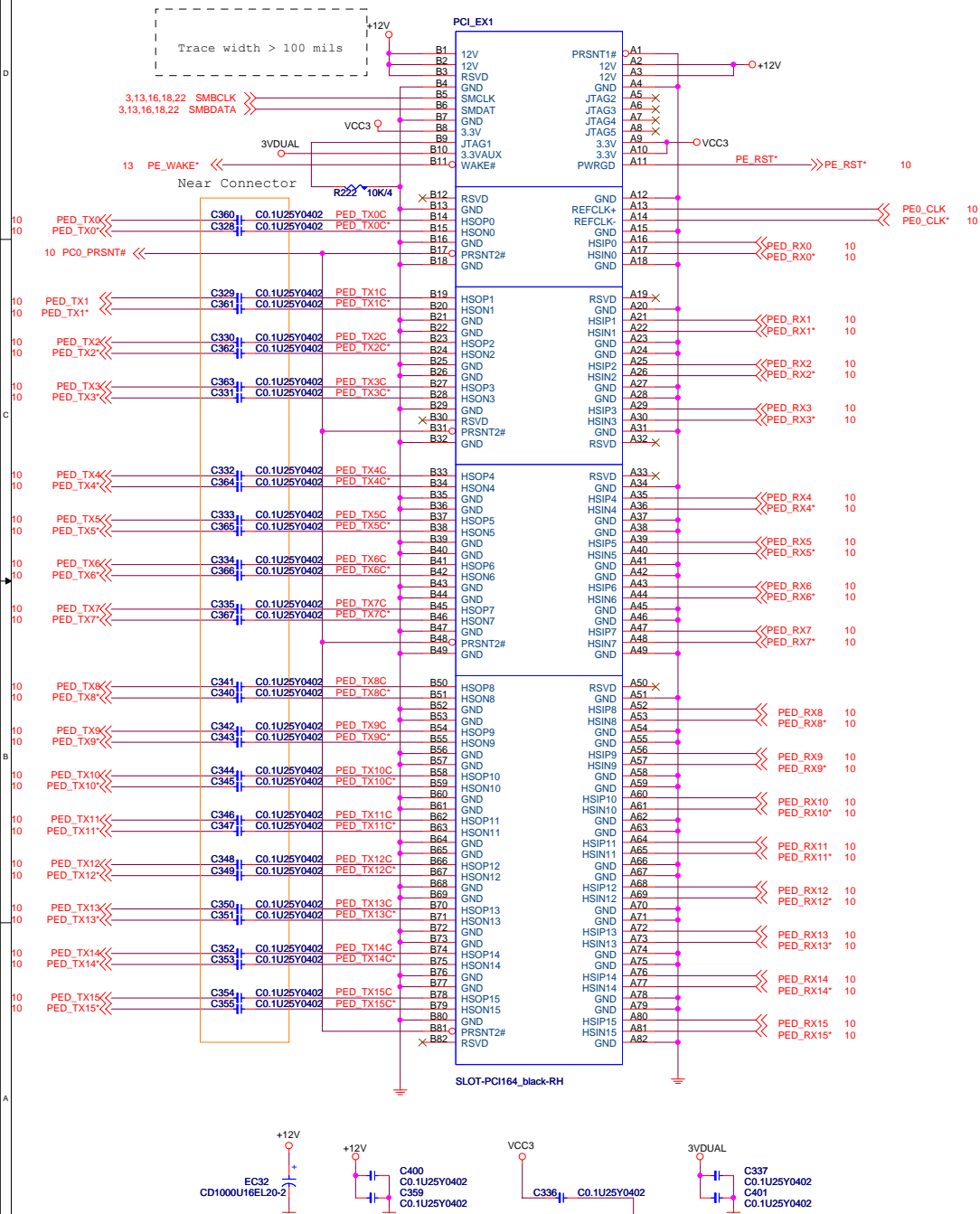




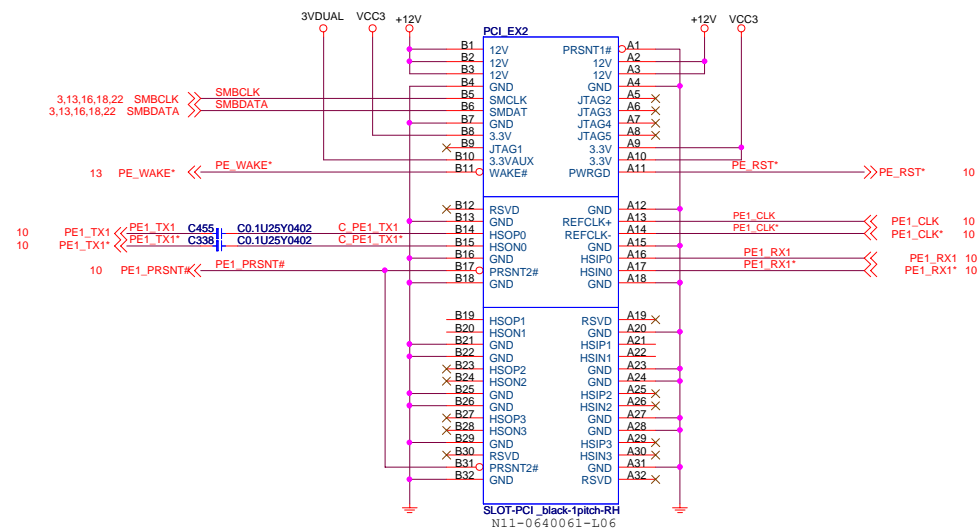




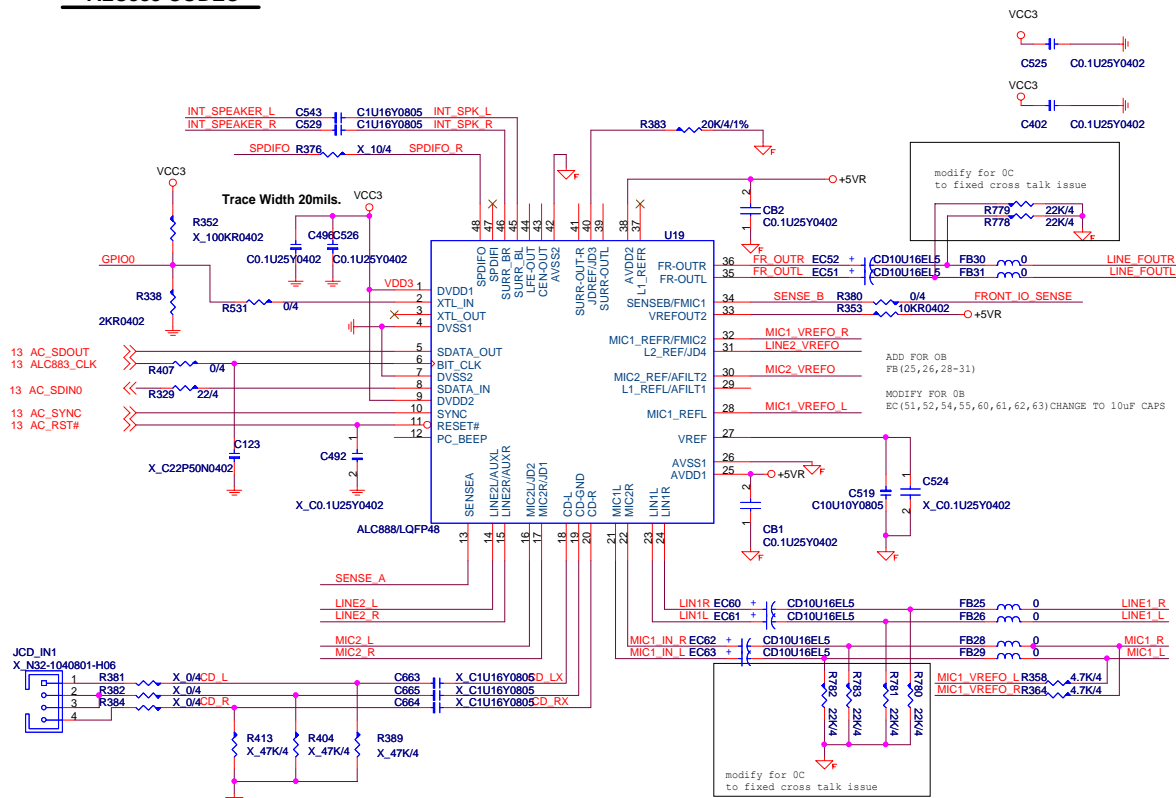
PCI EXPRESS_16



PCI EXPRESS x4-PORT

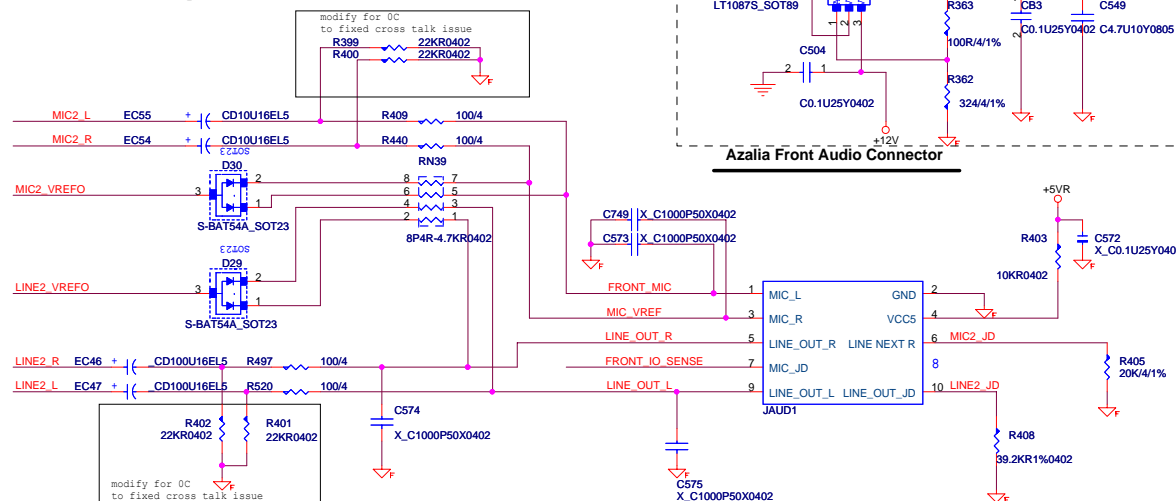


ALC883 CODEC

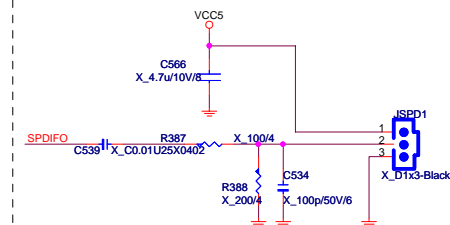
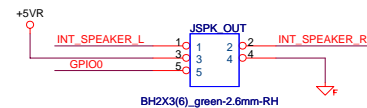


Speaker Out Decoupling

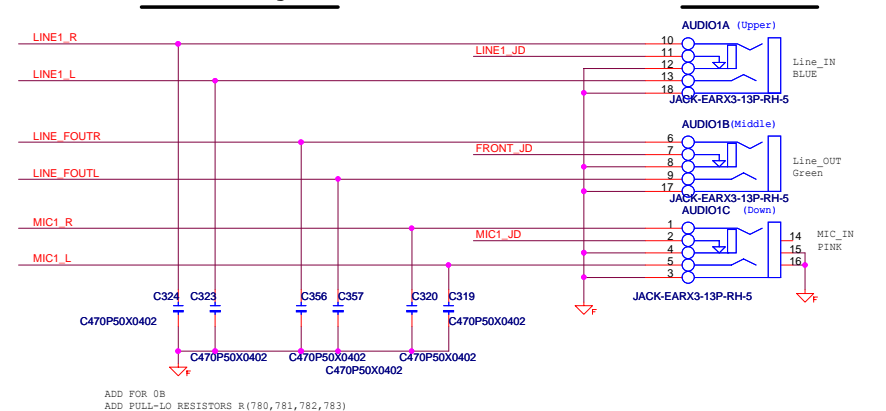
Place those component close to audio connector.



SPDIF OUT



Rear audio jack

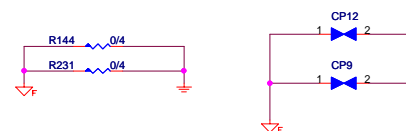


ALC883 JACK DETECT

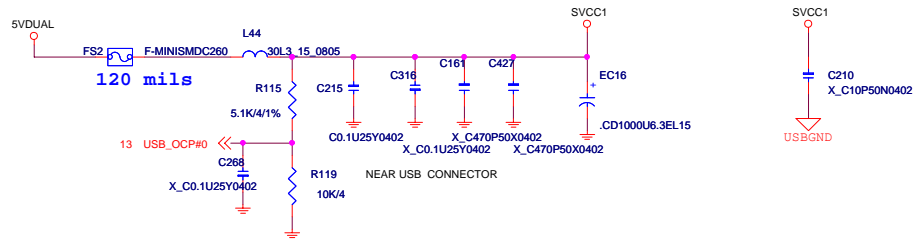


Closer to Codec.

EMI Solution

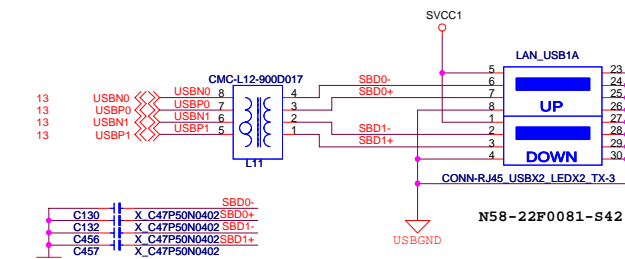
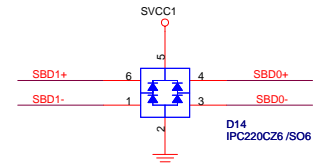


POWER CIRCUIT FOR USB PORT 0,1,2,3



REAR PANEL USB CONNECTOR FOR USB PORT 0,1

ESD Protection

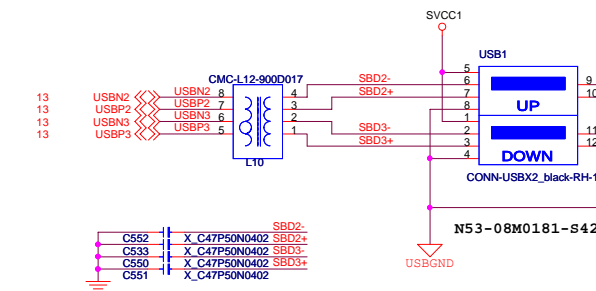
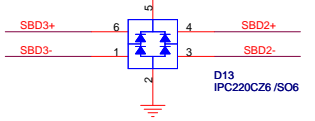


NEAR USB CONNECTOR

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

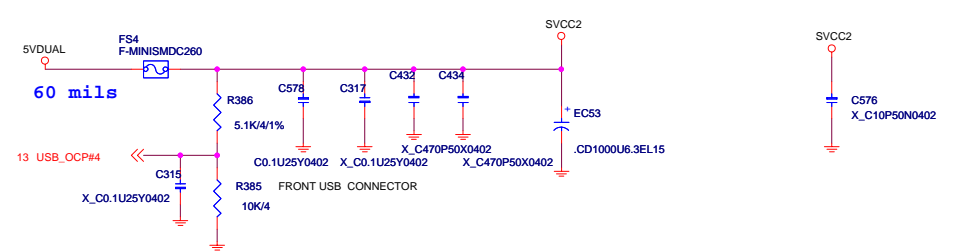
REAR PANEL USB CONNECTOR FOR USB PORT 2,3

ESD Protection



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

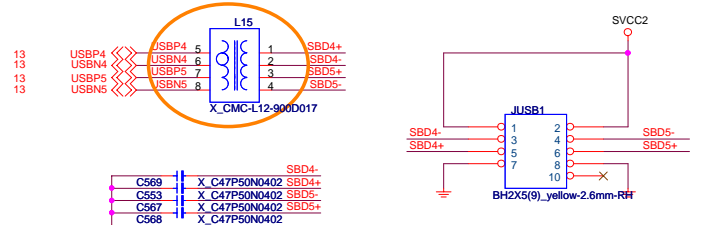
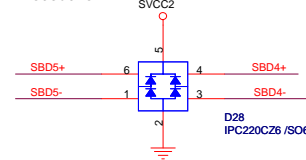
POWER CIRCUIT FOR USB PORT 4,5,6,7



FRONT PANEL USB CONNECTOR FOR USB PORT 4,5

Reserved, can be taken off riser card within bead

ESD Protection

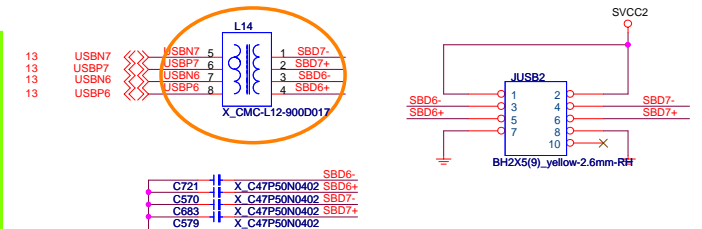
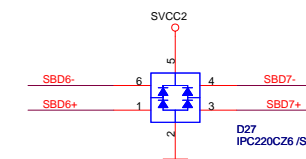


NEAR USB CONNECTOR

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

FRONT PANEL USB CONNECTOR FOR USB PORT 6,7

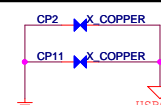
ESD Protection



NEAR USB CONNECTOR

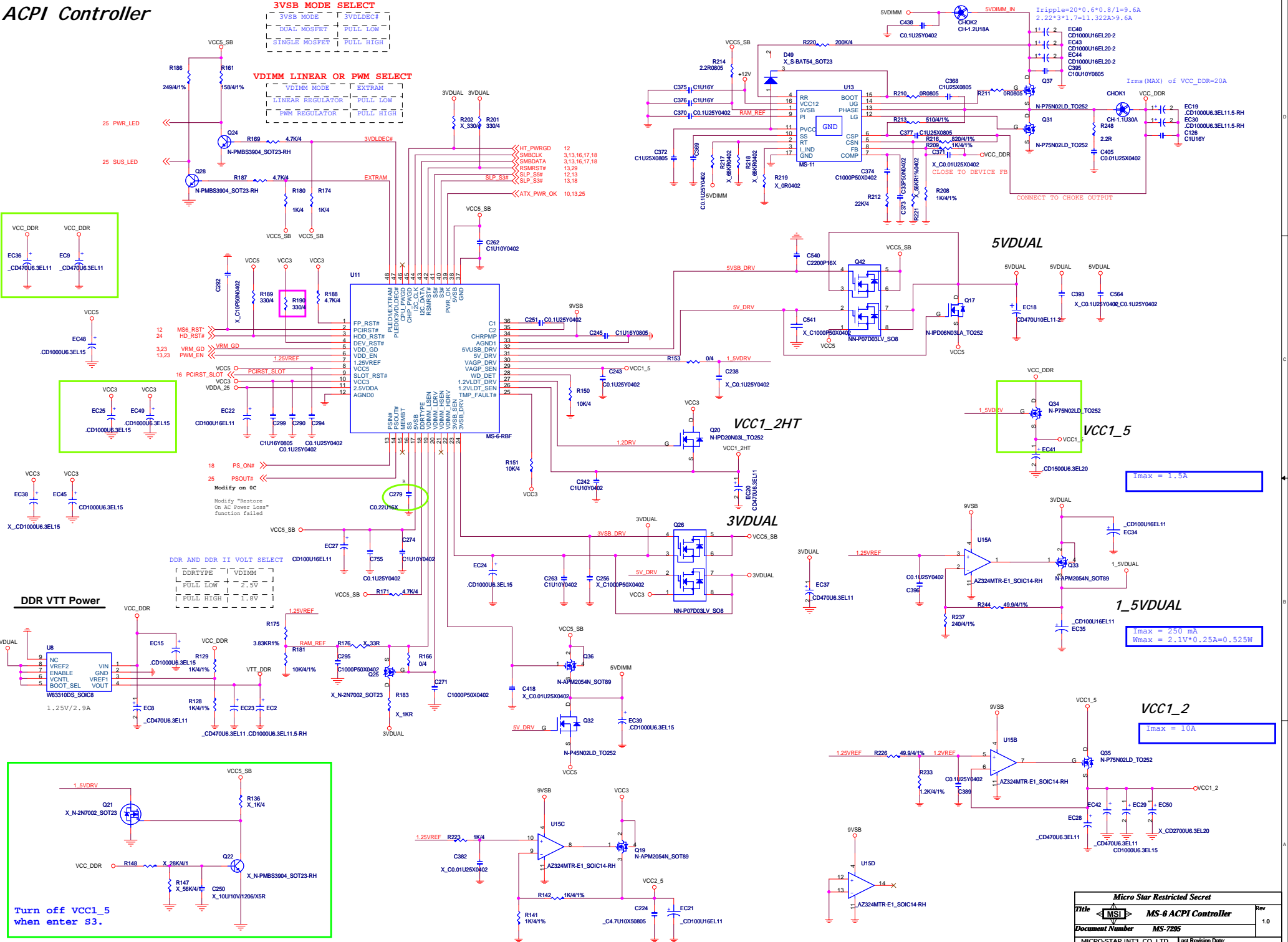
22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

EMI TEST



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ACPI Controller

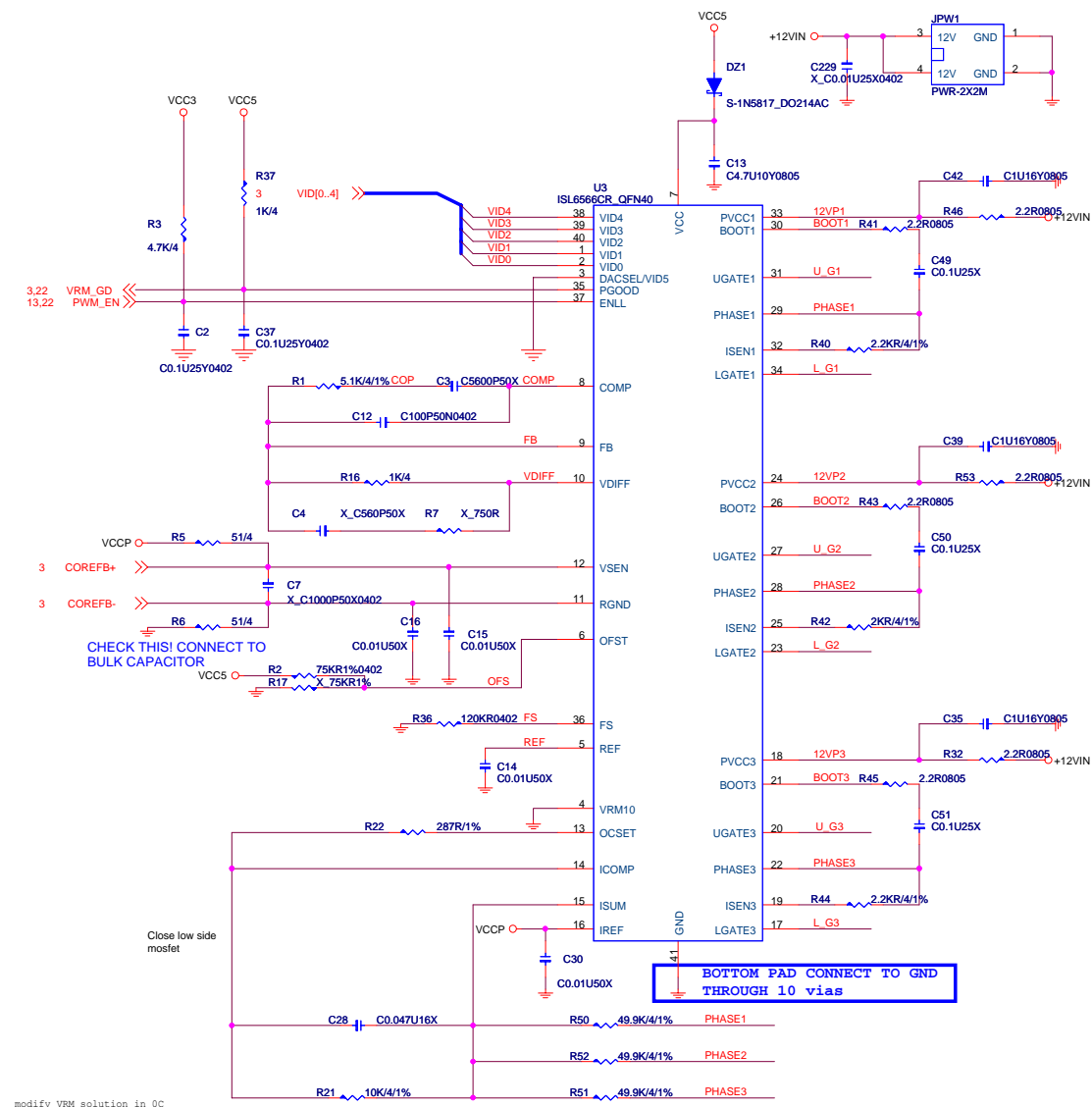


Voltage Regular Module

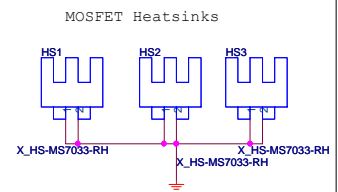
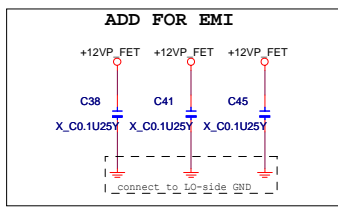
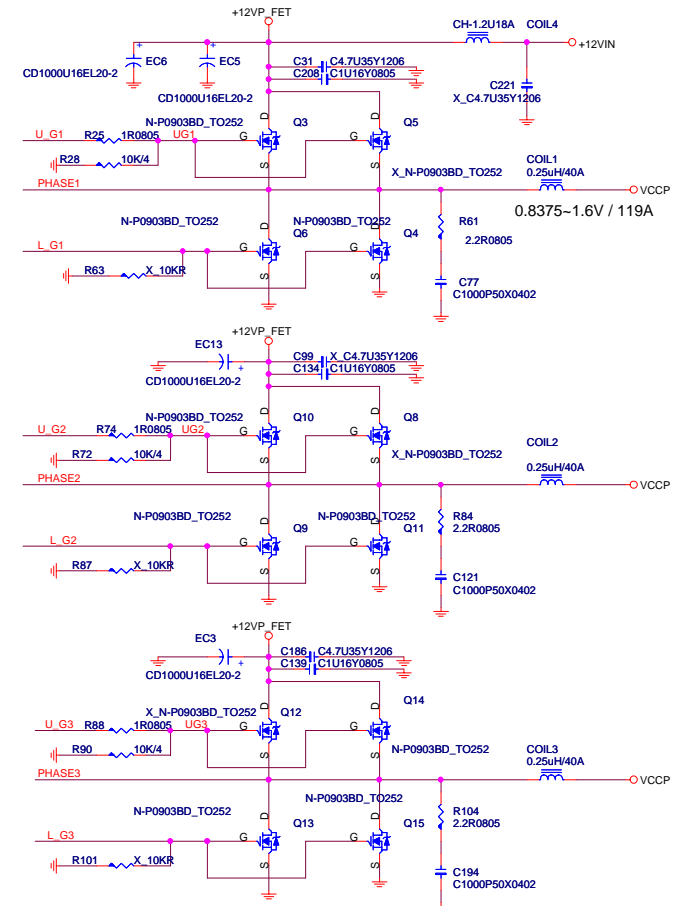
IPF06N03LA
C100U2SP
.CD3300U6.3EL25
560u_2.5V
1800UF/6.3V
0.6uH/40A
CH-1.2U18A

Rds(on)=8.7mΩ (@4.5V, 30A), Vgs(ON)=1.2~2V, Id=50A, Ciss=3110pf, Qg=10nC, Vds=25V, Vgs=±20V
ESR<13mΩ, Ripple cur.<2.7A, LC<12uA, 105C
ESR<12mΩ, Ripplecur.<2800mA, 105C, longlife3000hrs, KZJSeries
ESR=6mΩ, Ripplecur.=4400mA, Lc.<500uA, 105C/2000hrs
ESR<12mΩ, Ripplecur<2350mA, 105C, longlife change from 2000hrs to 3000hrs ,KZJ series
0.6u/20%, Isat=40A, Rdc=1.2m ohm, PEW wire
1.2u/20%, Dip-2/vertical 7.5mm, 1.2ψ/5.5turns, 18A

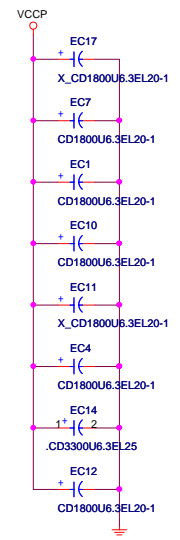
TDP = 115 W
VR_TDC = 101 A
Icc(max) = 119 A
Tejas Tcase = [P x 0.213] + 43.3
Prescott Tcase = [P x 0.25] + 43.3



modify VRM solution in OC
R2 change to 75K ohm 14
R36 change to 120K ohm
R42 change to 2K ohm
remove Q5,Q8,Q12 in bom
Q(4,6,9,11,13,15) change to NIKOS 0903BDG (D03-0903BDB-N03)

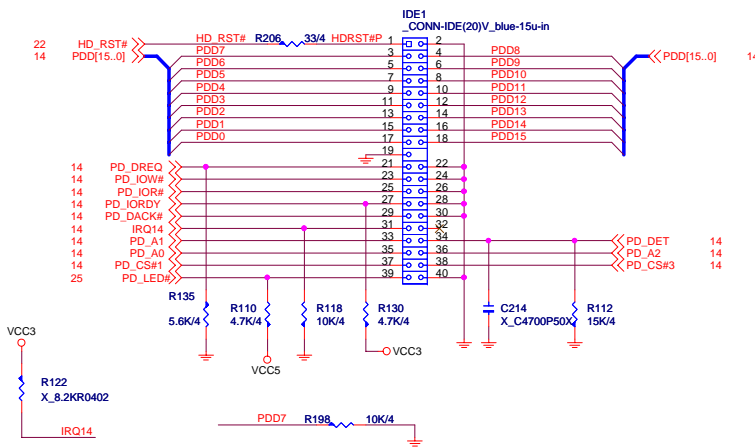


EL Capacitors

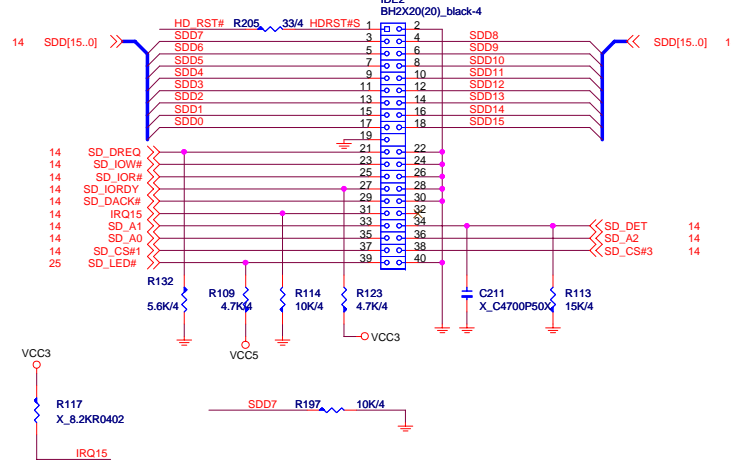


MICRO-STAR IN'L CO., LTD.			
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Intersil 6565ACV 3 Phase			
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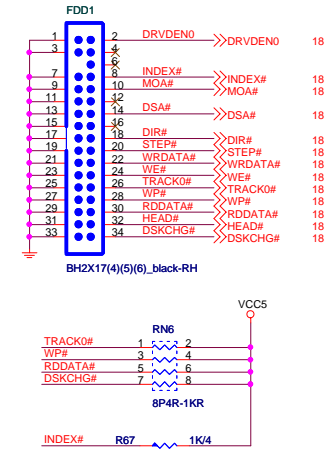
IDE 1



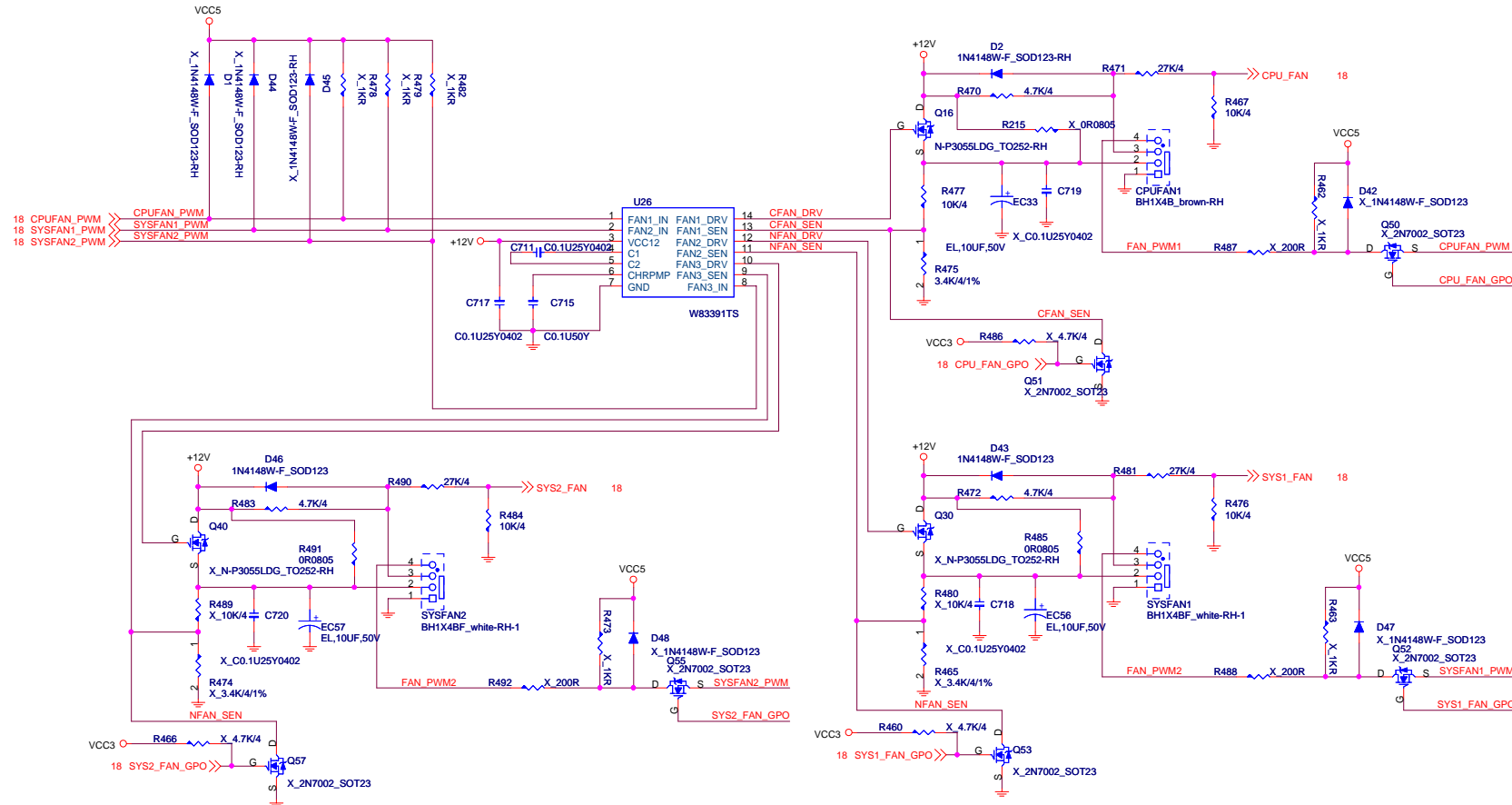
IDE 2



Floppy

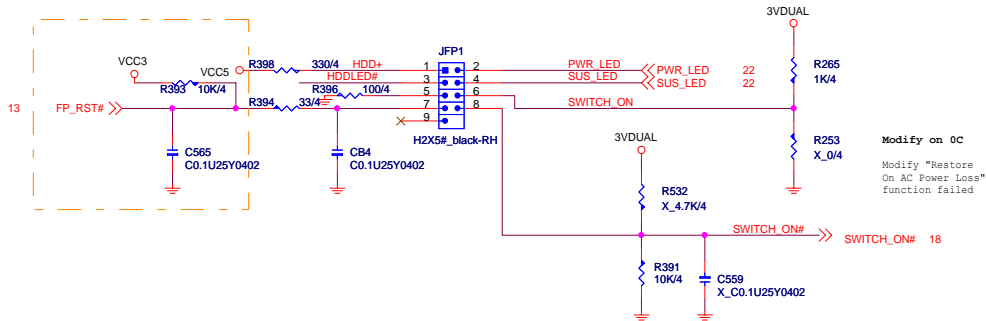


FAN CONNECTOR



ATX connector / Front Panel

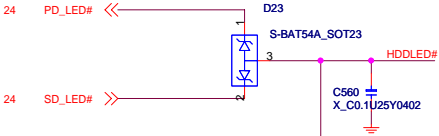
Intel Front Panel



DHG : Low active
R256->N/I
R391->N/I
R253->00HM
R532->4.7K

EHG : High active
R256->1K
R391->10K
R253->N/I
R532->N/I

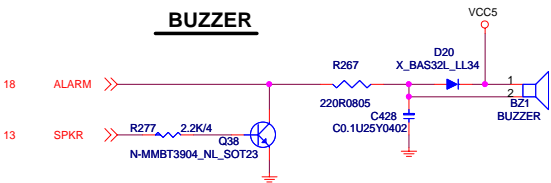
IDE LED



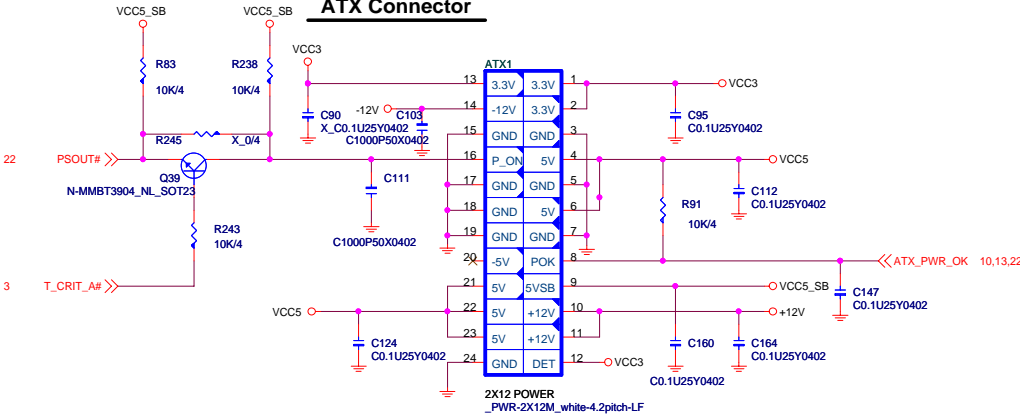
SERIAL ATA LED



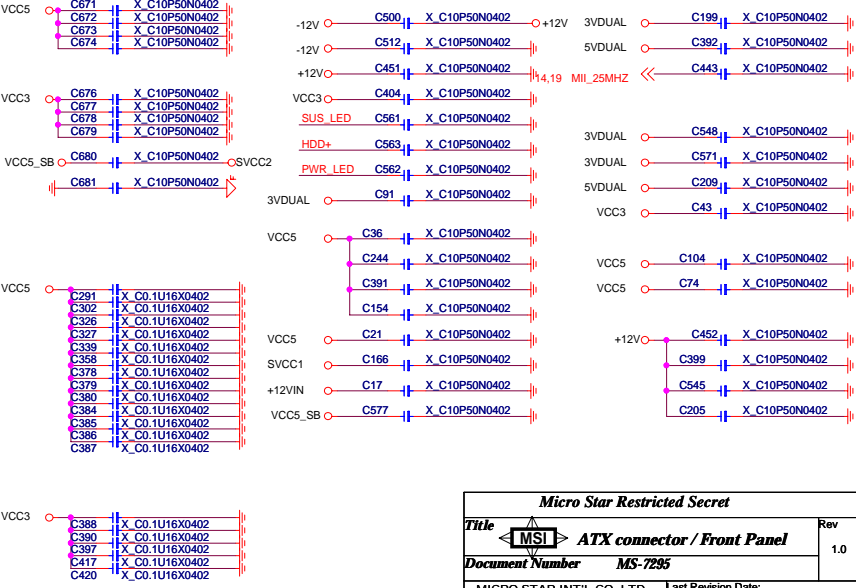
BUZZER



ATX Connector

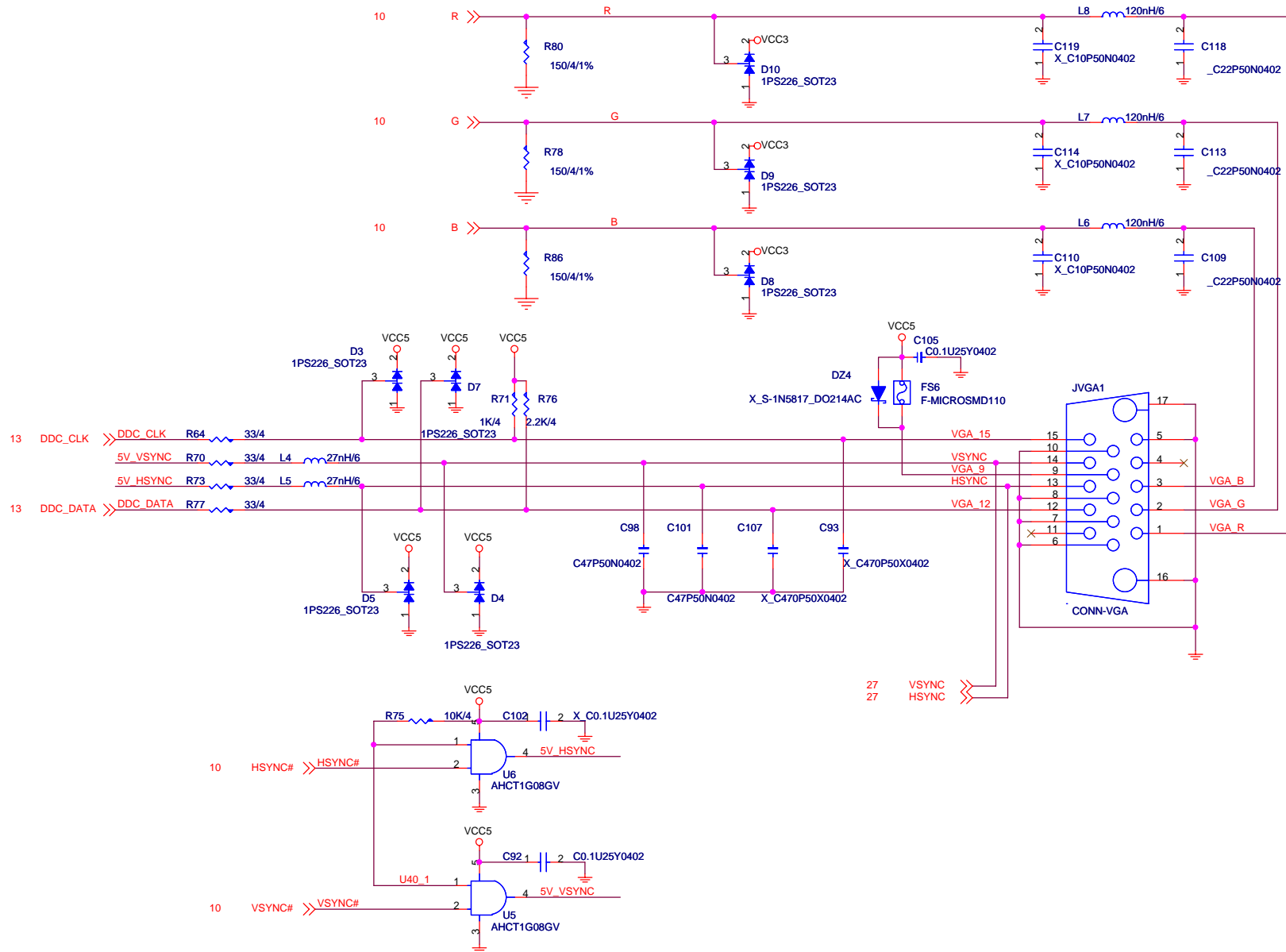



For EMI

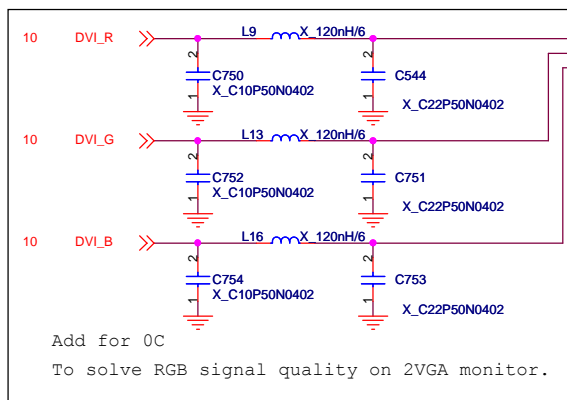
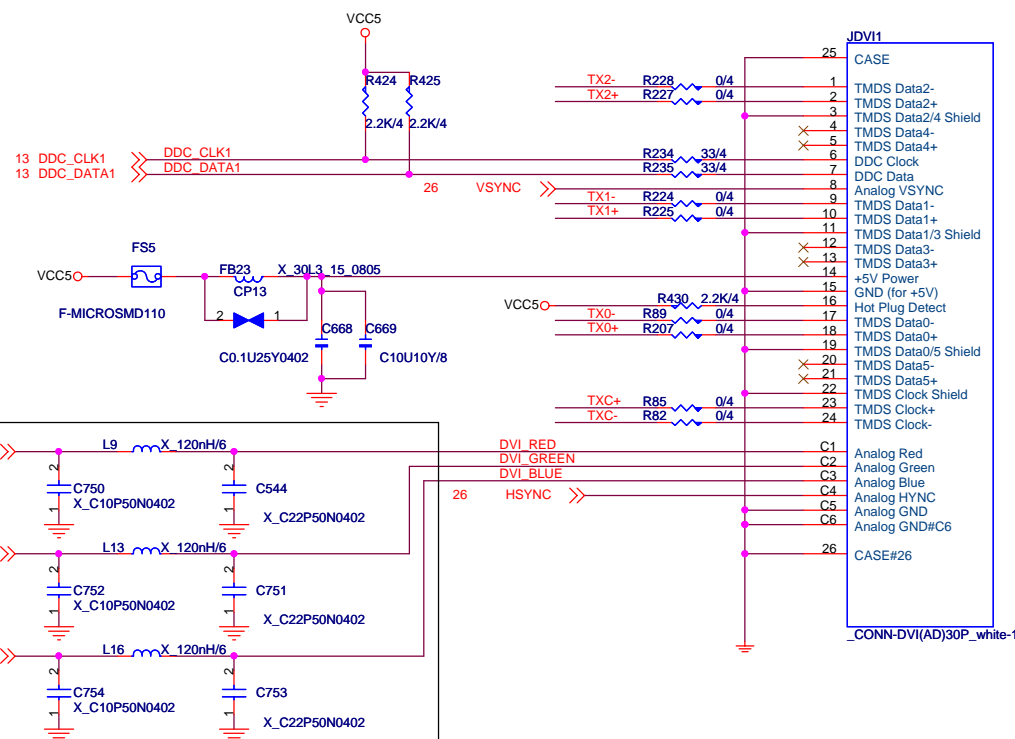
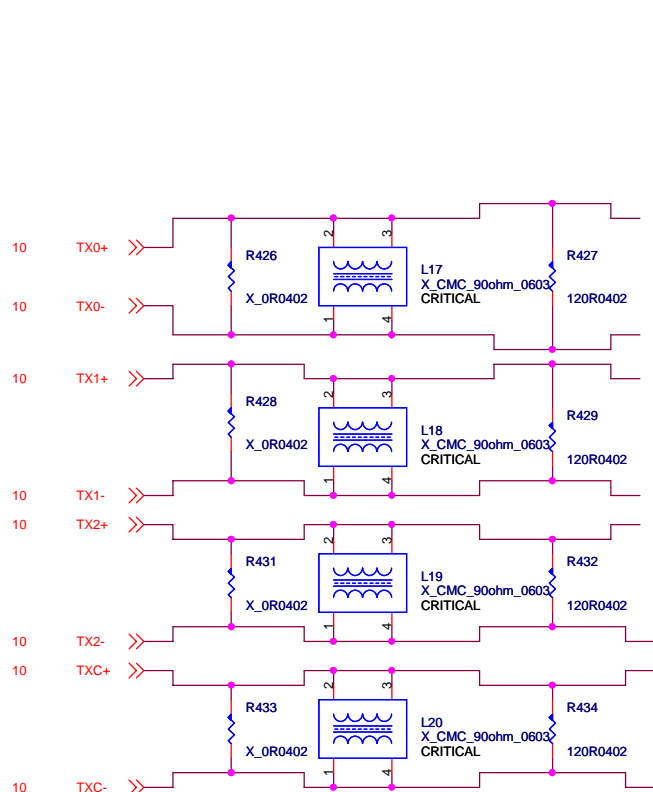


VGA CONNECTOR

close VGA connector

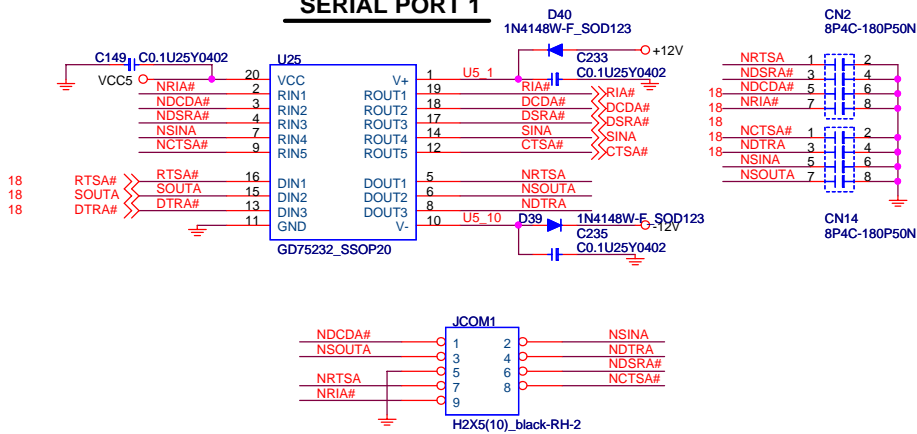


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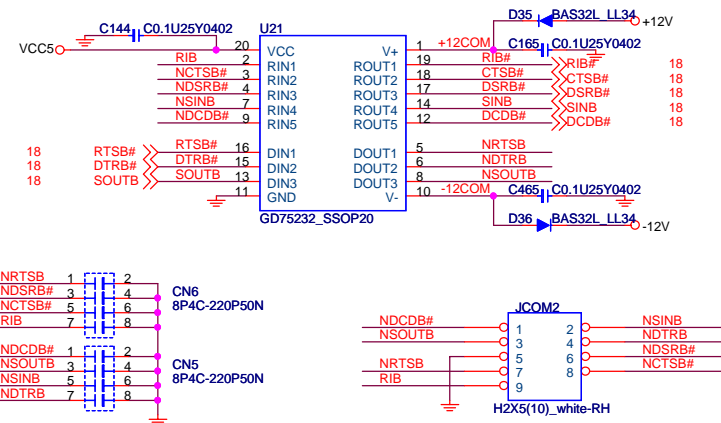


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MICRO-STAR INT'L CO.,LTD. No. 89, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, June 22, 2006 Sheet 27 of 35	

SERIAL PORT 1

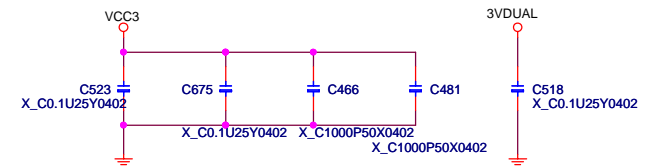
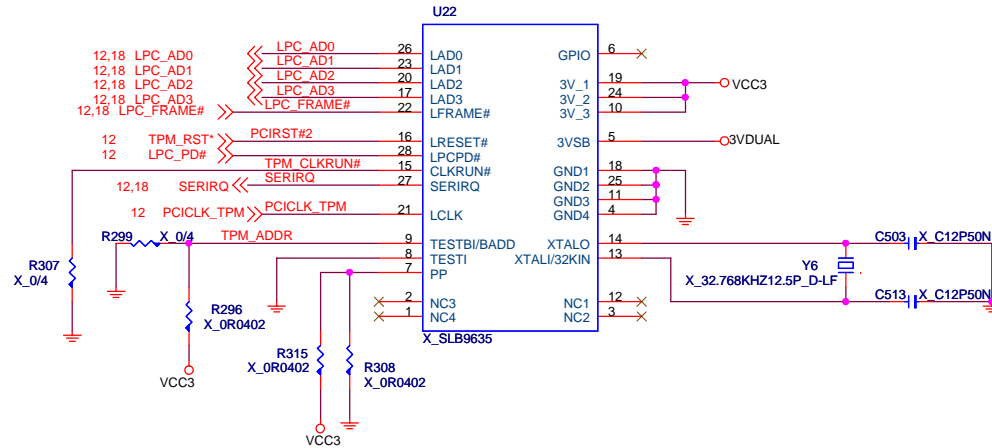


SERIAL PORT 2



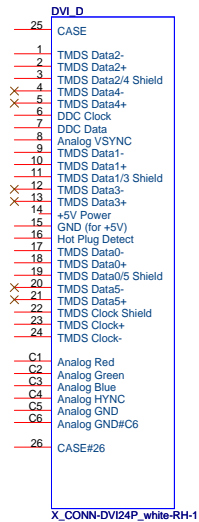
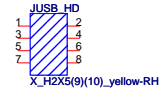
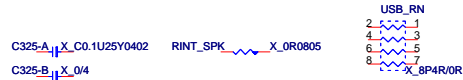
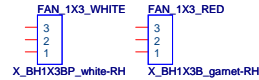
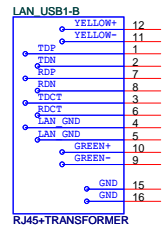
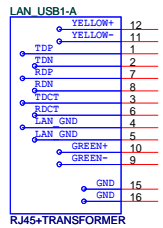
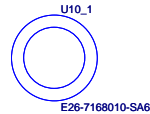
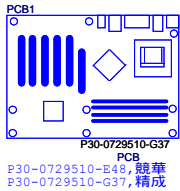
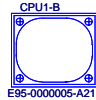
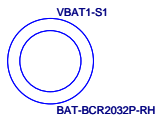
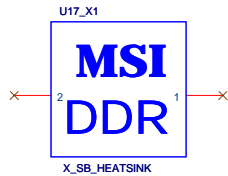
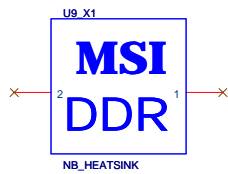
TPM 1.2

IO Address:0x02E

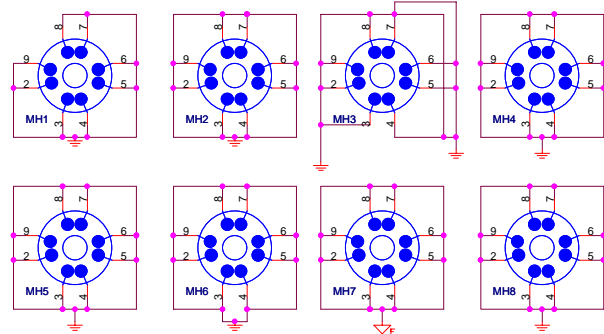


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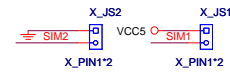
Title			
COM PORTS & TPM 1.2			
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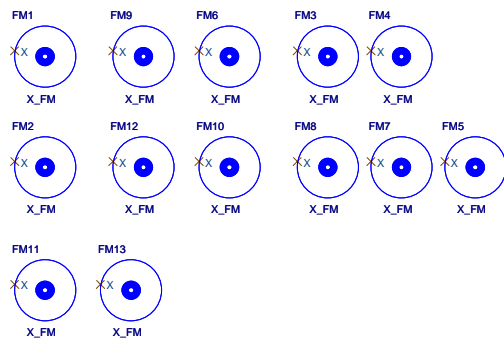
Mounting Holes



Simulation



Optics Orientation Holes



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Modify for AMD check list


Page03 : HT_STOP_L, LDT_RST_L and CPU_PWRGD_L have 330 ohm pullup resistors (RN5). The recommend value for the pullup resistors is 300 ohms (5%).
Page03 : Add level shifting to RESET_L . modify R23 pin1 & J1 pin24 from LDT_RST_L to LDT_RST.
Page05 : change caps(C34,C52,C202,C172) value to 180-pF.
Page03 : Change the part of L2 position , change the part to L02-4008044-C08.
Page03 : Add a level shift circuit for AMD test tool.
Page05 : Add 2x 1uF caps (C670 & C682) from VDDIO to VCCP .
Page05 : Add a fuse (FS3) for PS2 power .

Modify for nVidia check list

Page26 : Remove D21,D31, R285,R440 for MCP51 A03 .
Page26 : Add a poly fuse (FS6) for VGA power.
Page27 : Reserved 0Ω series resistor close to DVI connector.
Page14 : Add 10 kΩ pull-down resistors for MII_RXER,MII_COL,MII_CRS
Page14 : Add a Pull-up resistor(R377=1.5 kΩ) to RG/MII_MDIO
Page13 : Change strap pin (AC_RESET#) to pull up , to select RGMII mode.
Page15 : Add a bypass cap (C425 0.01uF) for 3P3_IFPA_L .
Page27 : Add damping resistors (R234 & R235 33ohm) for DDC_CLK1 & DDC_DATA1 .
Page19 : Add a damping resistor (R526 0ohm) for RG/MII_INTR .
Page21 : Reserved bypass caps (C161 , C427 , C432 & C434 470pF) for SVCC1 & SVCC2 .
Page16 : Add Pull-up resistors (RN36= 8.2KΩ) for ACK64# & REQ64# (PCI solt pin)
Page14 : Reserved bypass cap (C494 10uF) for +3.3V_PLL_SP_SS
Page15 : Reserved bypass caps (C527 & C528 0.1uF) for +1.5V_SP_A & +1.5V_SP_D
Page15 : Add a damping resistor (R236 100ohm) for +5V
Page15 : Rerserved a ferrite bead (FB18) for +3.3V_HT
Page14 : Reserved bypass cap (C530 4.7uF) for +1.5V_SP_A
Page13 : Reserved bypass cap (C531 4.7uF) for +3.3V_VBAT
Page09 : Reserved bypass cap (C435 4.7uF) for 2P5V_PLL
Page13 : Reserved bypass cap (C447 10uF) for +3.3V_PLL_USB_CORE
Page26 : Reserved bypass caps (C107 & C93 470pF) for DDC_CLK & DDC_DATA .
Page21 : Reserved bypass caps (47pF) for USB1.1 mode .
Page22 : Reserved bypass caps and place near Q35 (EC50 2700uF) for VCC1_2.
Page11 : Reserved bypass caps (C80 & C81 22uF) for VCC1_2.
Page11 : Reserved bypass caps (C85 47uF) for 1P2VPLL_PWR.
Page15 : Reserved bypass caps place near MCP51(EC58 & EC59 2700uF) for VCC1_2.
Page15 : Reserved bypass caps place near MCP51(C88,C89,C723 & C724 22uF) for VCC1_2.
Page26 : Reserved a diode(DZ4 1N5817) co-lay with FS6 for VGA power.

Modify for MSI

Page03 : Modify LM90 circuit , THERMDA_CPU connected to D+ & THERMDC_CPU connected to D- .

Micro Star Restricted Secret			
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			1.0
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Modify for MSI

Page19 : Modify lan circuit (MII_RXD0~3)
Page10 : Modify PCI_EX2 CIRCUIT (PE1_RX1/PE1_RX1* & PE1_TX1/PE1_TX*)
Page13 : ADD JUMPER SELECT FOR CLEAR PASSWORD & MAINTENANCE MODE
Page20 : Modify codec circuit for co-lay ALC888

ver : 0C data : 2006 / 05 / 17

Modify for MSI

Page28 : Change JCOM1 color to black
Page21 : L10 & L11 change to common choke
Page23 : modify VRM solution
Page17 : PCI-express X16 CHANGE TO AUTOMATIC CLIP
Page21 : JUSB1 & JUSB2 change to 2*4pin header without housing
Page28 : JCOM1 change to black color
Page28 : JAUD1 change to blue color
Page30 : CPU retention module change vender to AVC
Page18,22,25 : Modify "Restore On AC Power Loss function" failed
Page10,27 : Add amplifier to solve RGB signal quality on 2VGA monitor.
Page22 : add EC49 & EC25 for VCC3

Modify for LAYOUT

1. Add mask on CPU screw and connect the shape to GND
2. FS3,EC46 move out the MH7 & MH1
3. Fix mechanical issue of audio caps
4. Modify VTT_DDR plane to 200mil (at least 200mil)
5. Modify CPU_VDDIOFB_H/L route to VCC_DDR power supply
6. Modify processor clocks route as 5mil trace with 5mil spacing
7. Modify data group signals failed length matching with clks
8. Modify MA-MEN_MB_DATA49 failed length matching

Modify for AMD

Page05 : Add C206 (4.7uF) for VTT_DDR

Modify for NECCI

Page20 : Codec change to ALC888
Page27 : DVI-I change DVI-D
Page10 : remove R,G,B amplifier

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Modify for MSI

Page18 : Modify R533 pull-up power to VCC5_SB (PS_ON#)
Page09 : Add Nvidia AP note DA-02549-001_v01, to solve Glitch issue on HTMCPR_RST# Signal
Page21 : Remove USB bypass caps.
Page28 : Remove TPM function.
Page08 : Add EMI soultion.
Page30 : Add mylar on U23.

Modify for LAYOUT

Modify internal power layer for Vista.

Micro Star Restricted Secret		
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