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MS-7366 Micro ATX

Version: 2.0_070921C

CPU: Intel Pentium 4 Cedar Mill / Prescott , Pentium D Smithfield / Presler and Conroe / Kentsfield family processors in LGA775 Package.

System Chipset:

NVIDIA MCP73

On Board Device:

BIOS -- SPI Flash 8M
 Azalia Codec -- ALC888
 LPC Super I/O -- FINTEK F71882FG
 LAN -- Realtek RTL8211BL-GR
 CLOCK Gen -- Integrated in MCP73
 1394 Controller -- JMB381

Main Memory:

Dual-channel DDR-II * 2 (Max 4GB)


Expansion Slots:

PCI EXPRESS X16 SLOT *1
 PCI EXPRESS X1 SLOT * 1
 PCI SLOT * 2

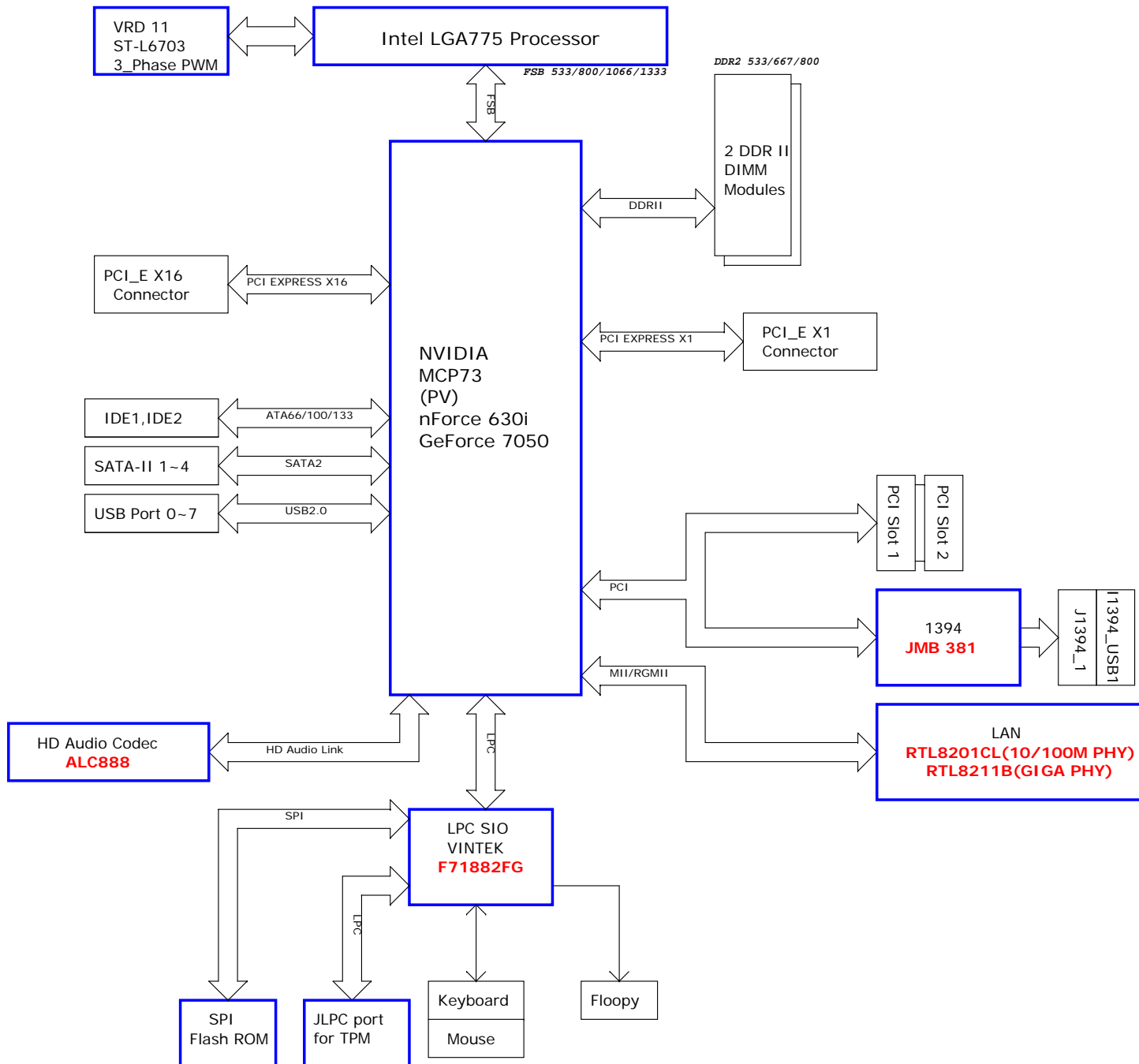
Intersil PWM:

Controller: ST L6703 (3 Phases)
 Driver:ST L6703

OPT	Function	Orcad Configure	BOM
A	MCP73U(HDMI,D-SUB)/F71882FG/ALC888/RTL8211BL/JMB381	Cfg-U	601-7366-B10
B	MCP73PV(DVI,D-SUB)/F71882FG/ALC888/RTL8211BL	Cfg-PV	601-7366-B20
C	MCP73S(D-SUB)/F71882FG/ALC888/RTL8211BL	Cfg-S	
D	MCP73V(D-SUB)/F71882FG/ALC888/RTL8201CL	Cfg-V	601-7366-B30
*	MCP73U(HDMI,D-SUB)/F71882FG/ALC888/RTL8211BL/JMB381	Cfg-M1	601-7366-B40

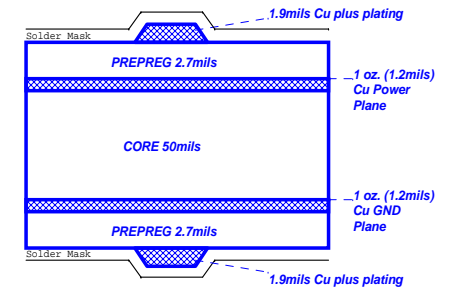
	MICRO-STAR INT'L CO.,LTD				
	MS-7366				
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Block Diagram



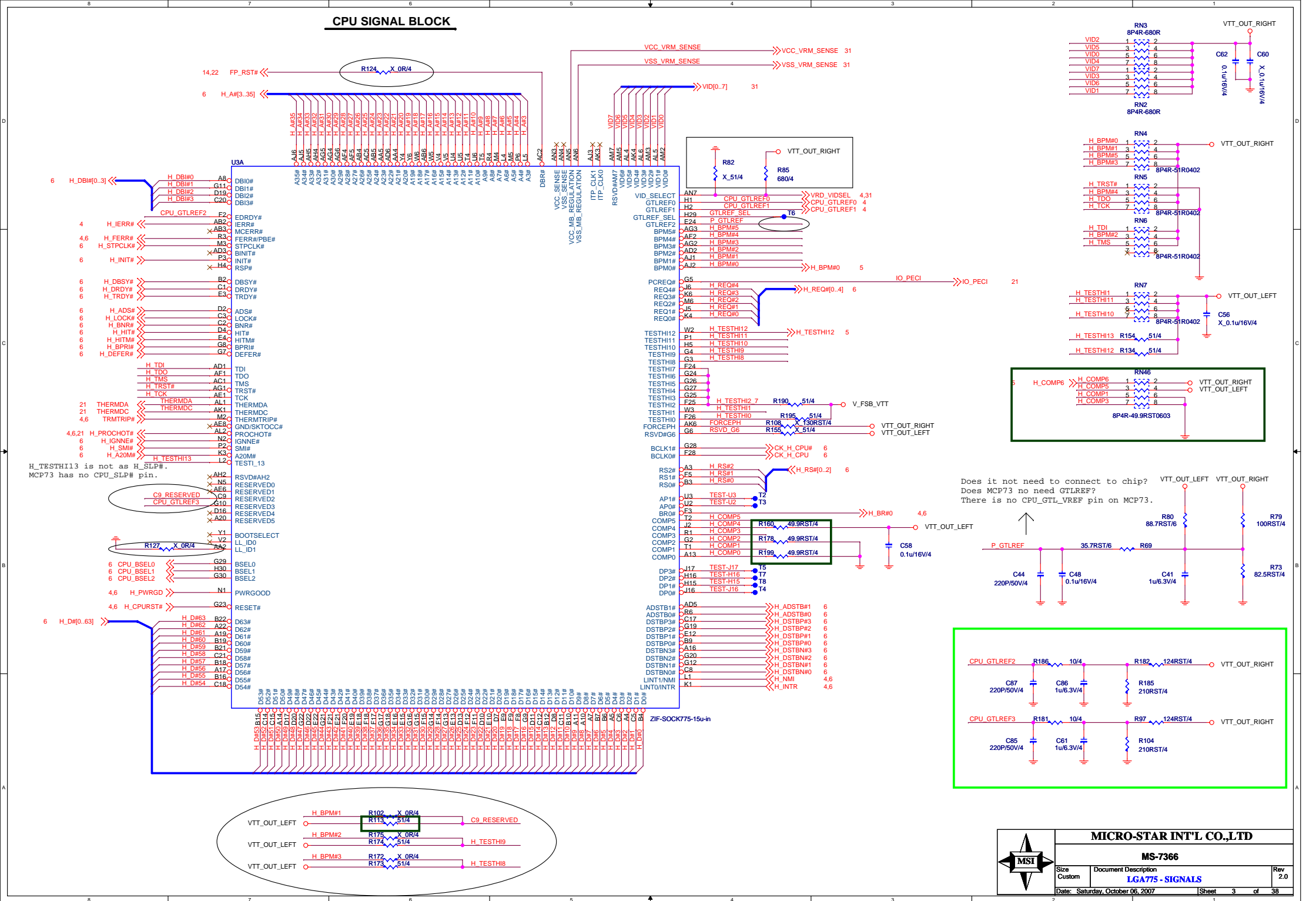
Board Stack-up

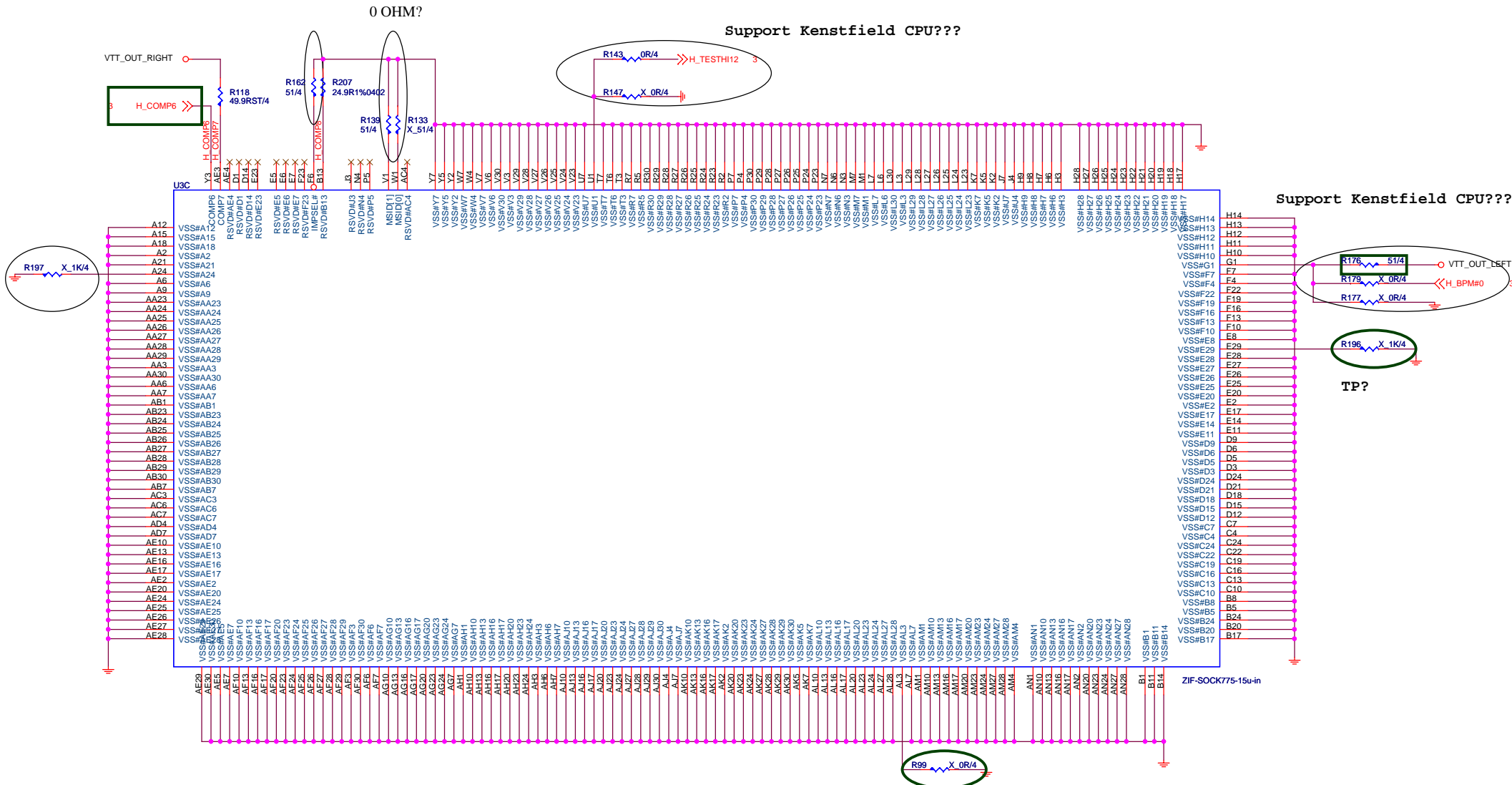
(1080 Prepreg Considerations)



Single End 50ohm Top/Bottom : 4mils
 USB2.0 - 100ohm : 20/4/8/4/20
 HDMI - 100ohm : 20/4/8/4/20
 SATA - 100ohm : 20/4/8/4/20
 LAN - 100ohm : 20/4/8/4/20
 PCIE - 100ohm : 20/4/8/4/20
 IEEE1394 - 110ohm : 15/4/9/4/15
 IDE : 15/4/8/4/15

CPU SIGNAL BLOCK



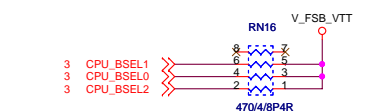


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Size Custom Document Description LGAT775 - GND Rev 2.0

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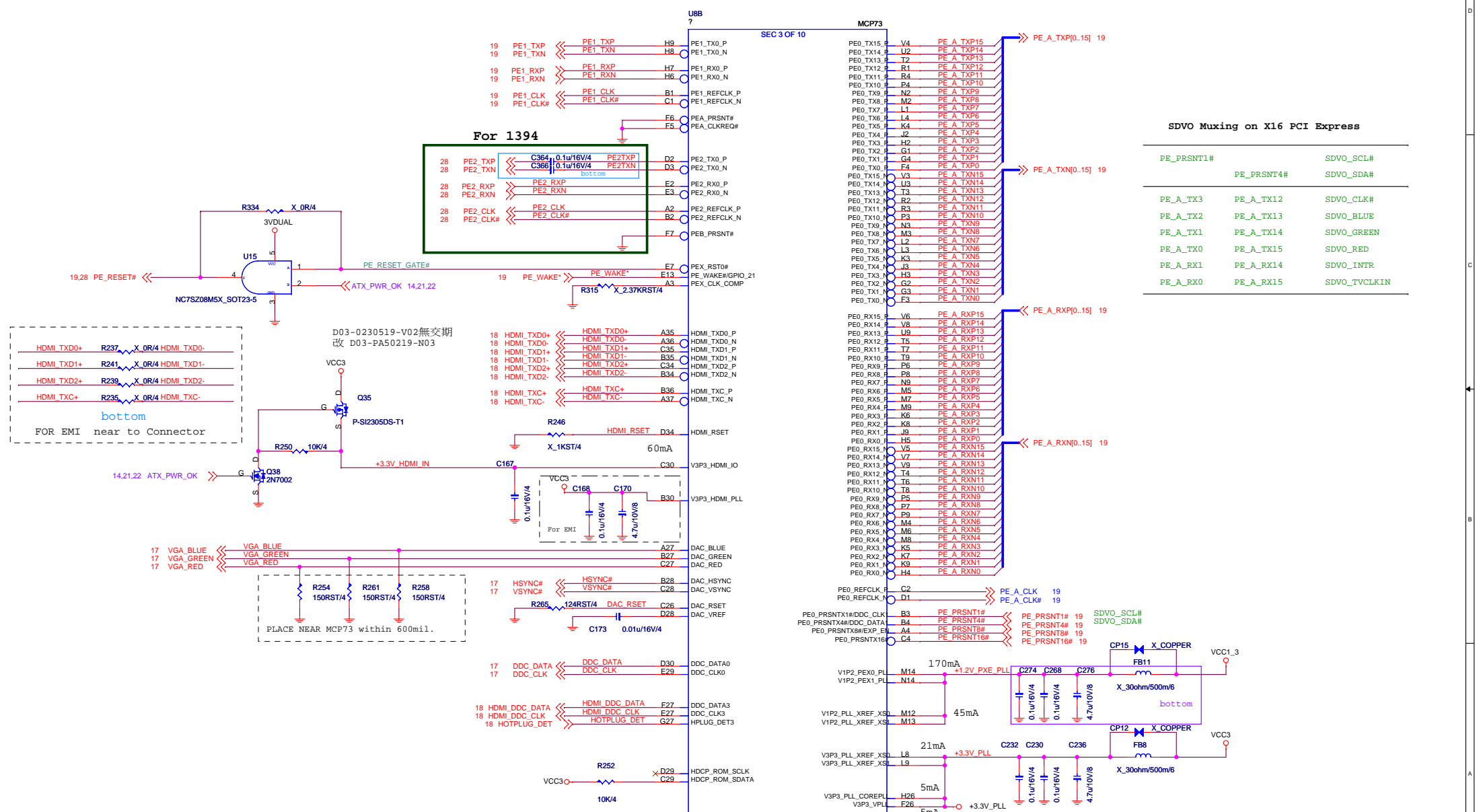


if CPU processor hot cause system shutdown, remove OR.

Check this pin for CPU function



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MS-7366			
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	MCP73-CPU	2.0	
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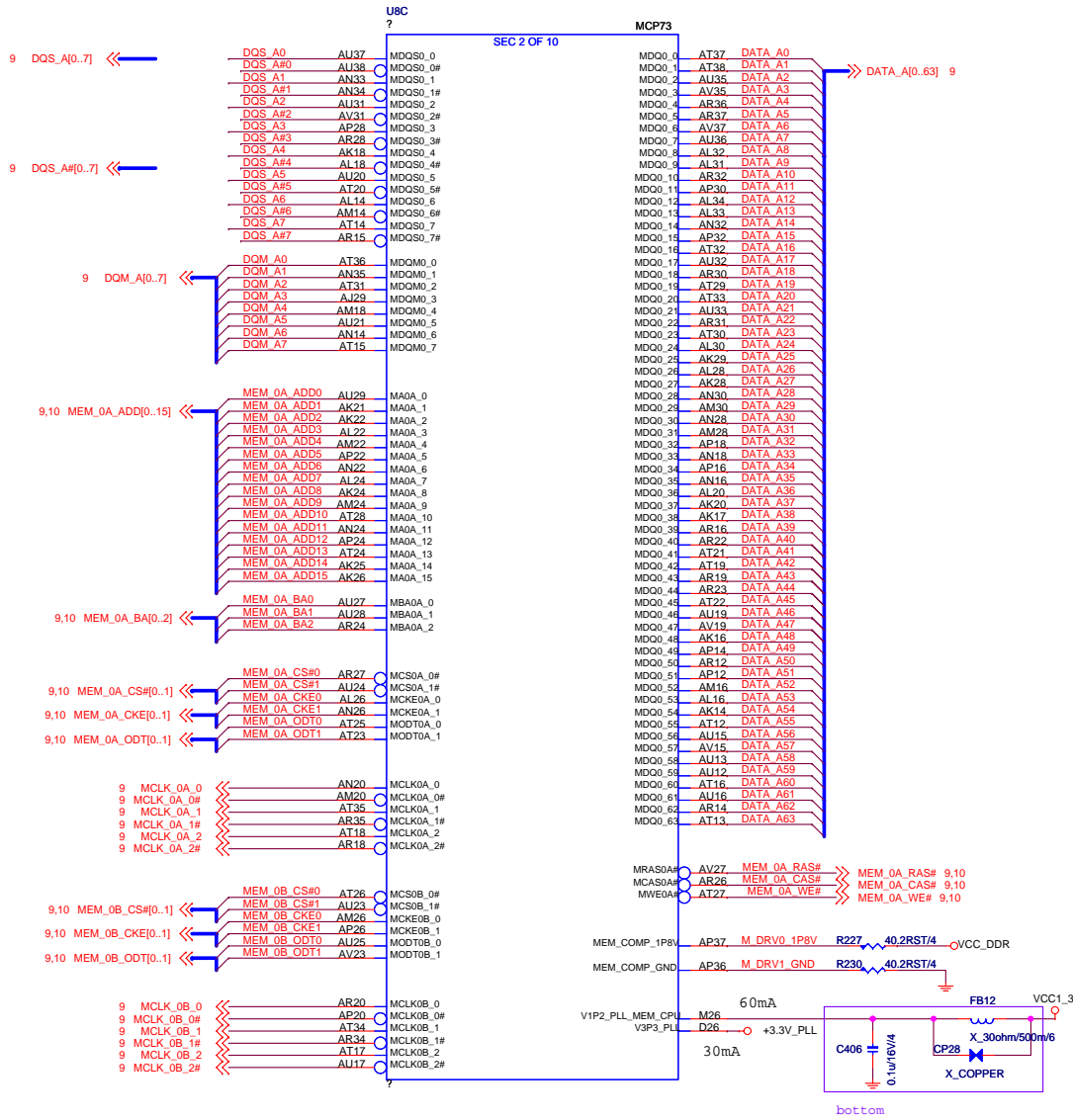
SDVO Muxing on X16 PCI Express			
PE_PRSNT1#	PE_PRSNT4#	SDVO_SCL#	SDVO_SDA#
PE_A_TX3	PE_A_TX12	SDVO_CLK#	
PE_A_TX2	PE_A_TX13	SDVO_BLUE	
PE_A_TX1	PE_A_TX14	SDVO_GREEN	
PE_A_TX0	PE_A_TX15	SDVO_RED	
PE_A_RX1	PE_A_RX14	SDVO_INTR	
PE_A_RX0	PE_A_RX15	SDVO_TVCLKIN	

DATA 0

DIMM 1 ADDR 0A / CNTL 0A

DIMM 2 ADDR 0B / CNTL 0B

DIMM 0A

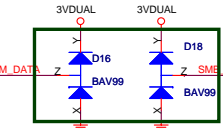


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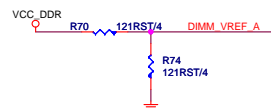
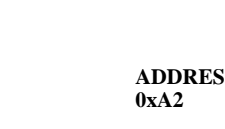
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Size Custom	Document Description MCP73-MEM	Rev 2.0
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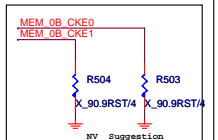
DIMM1 / 0A



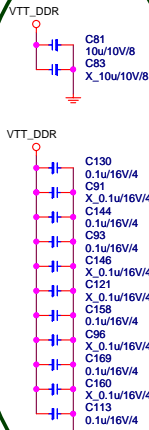
ADDRESS: 0000xA0

**DIMM2 / 0B**

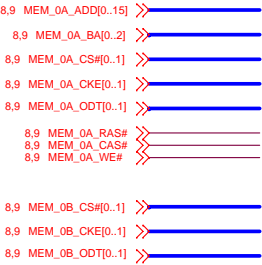
ADDRESS: 0010xA2



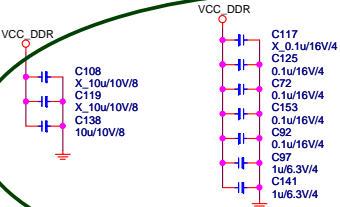
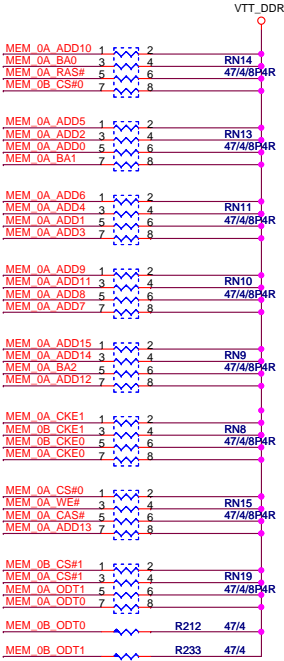
CHANNEL A VTT_DDR DECOUPLING CAPS



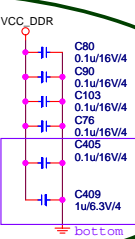
CHECK CAP



CHANNEL A ----- 0A , 0B



CHECK CAP



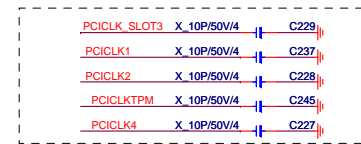
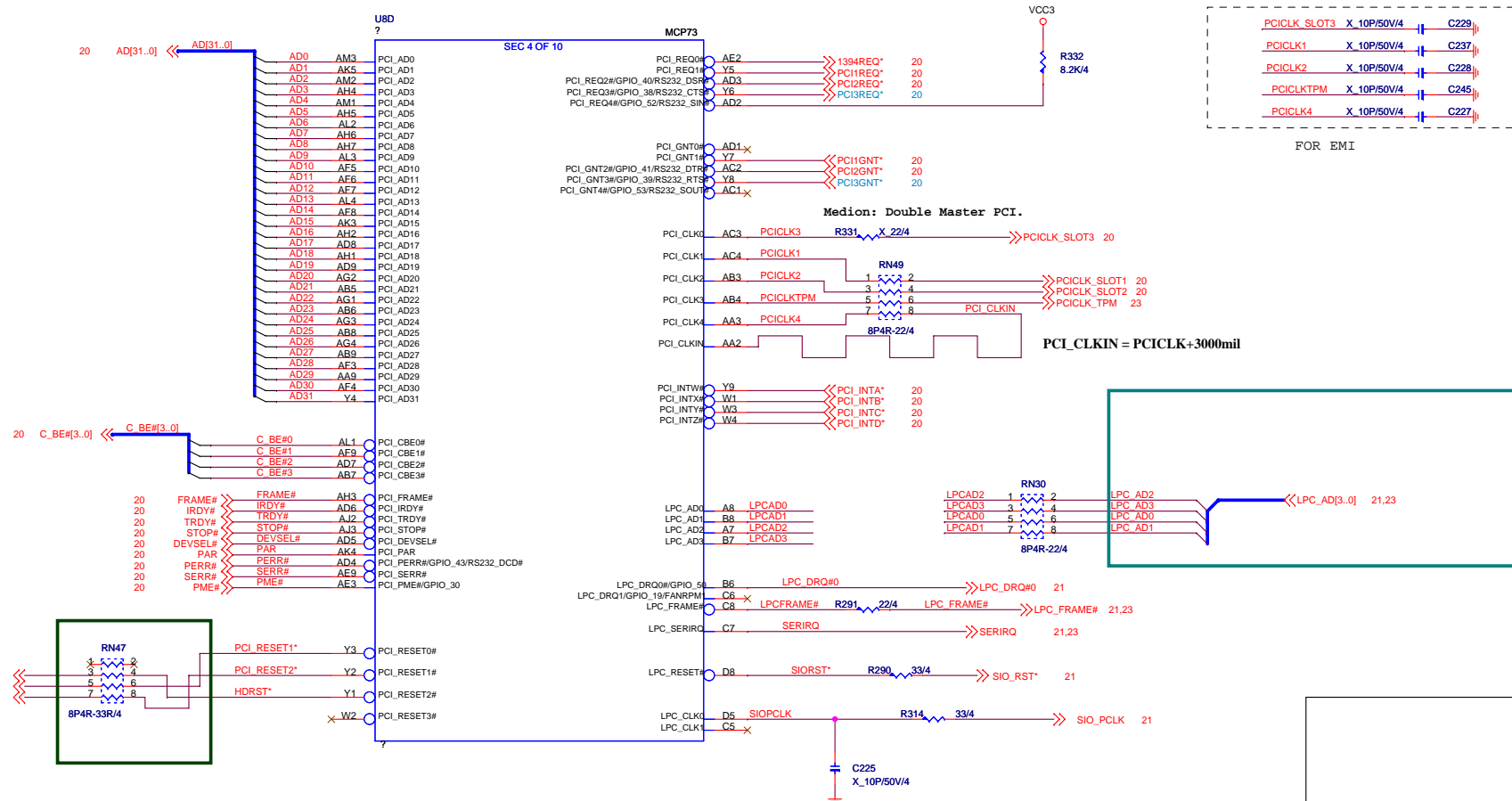
公板上0.1u X5, 1uX3, 10uX3
兩根再X2



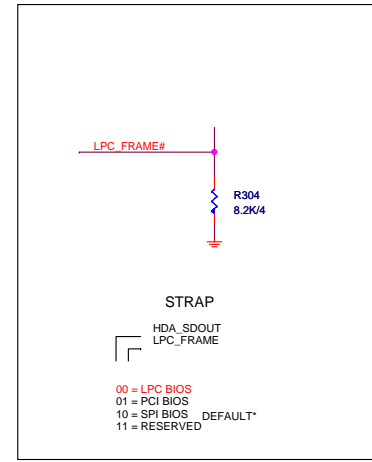
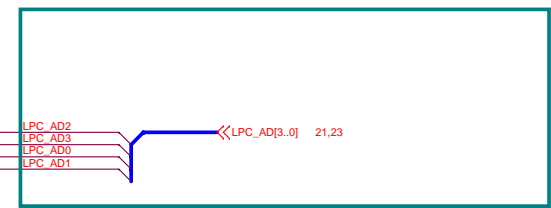
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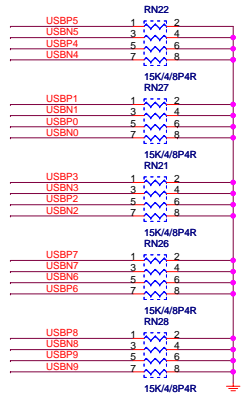
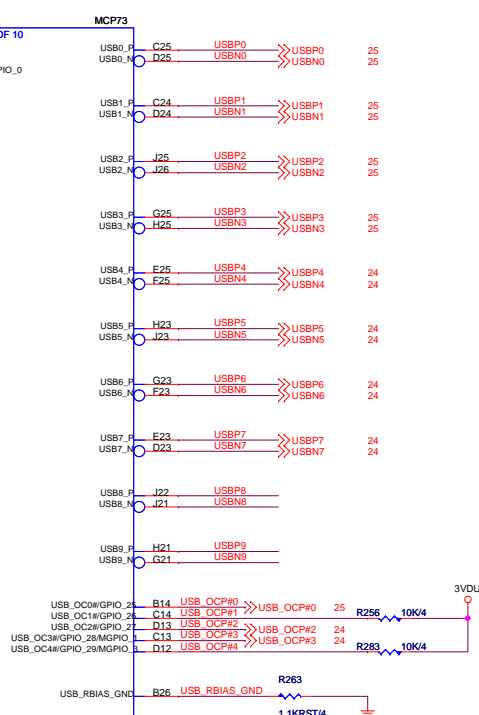
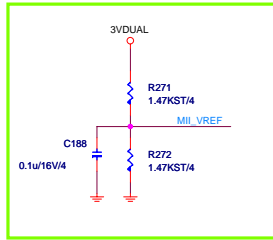
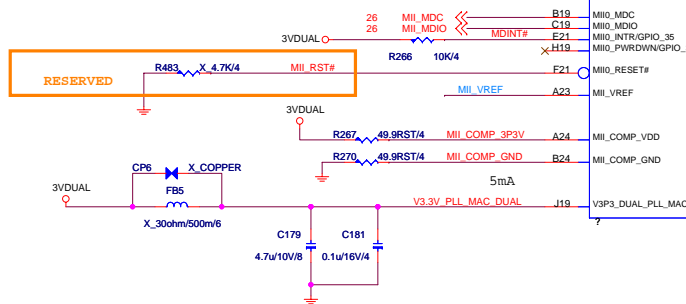
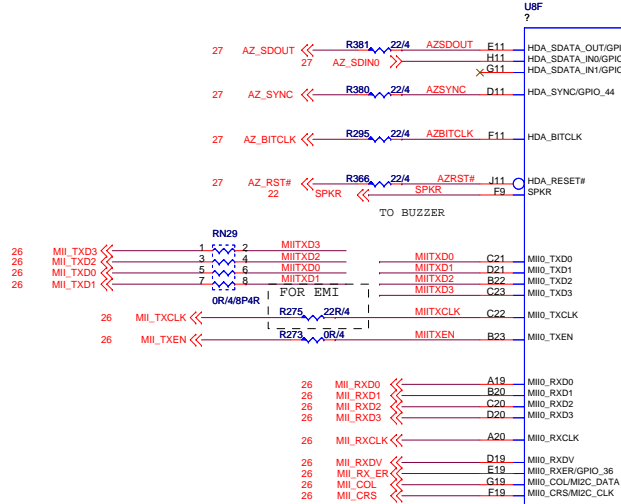
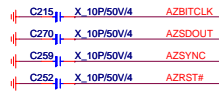
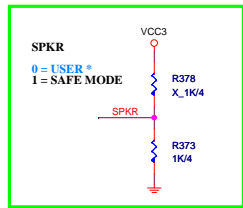
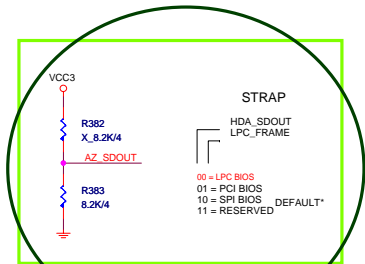
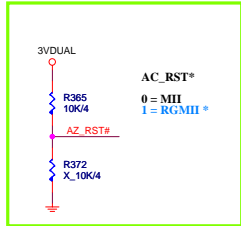
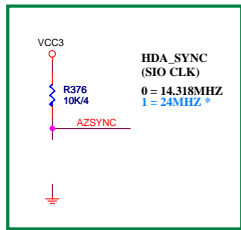
Size	Document Description	Rev
Custom	DDR II VTT Termination & Decoupling	2.0
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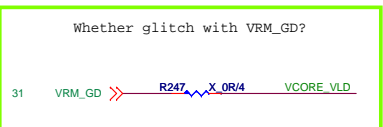
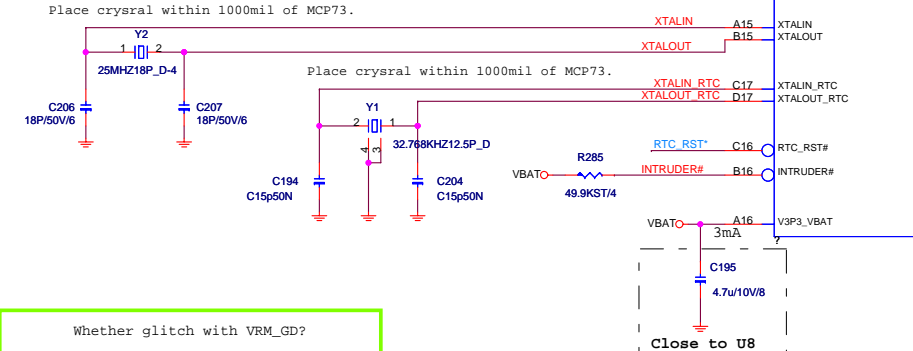
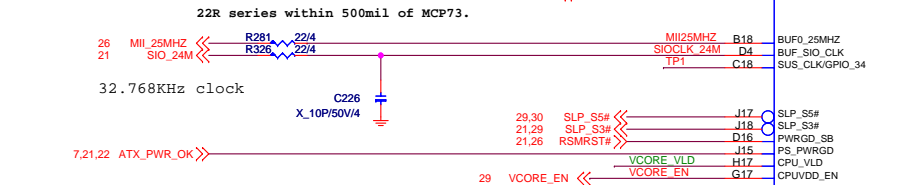
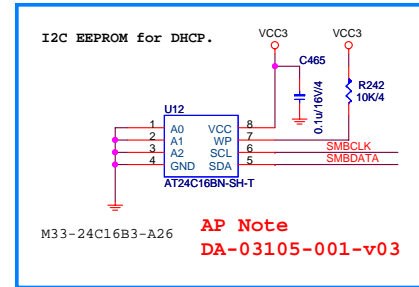
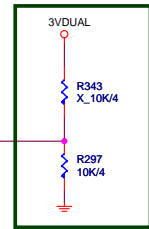
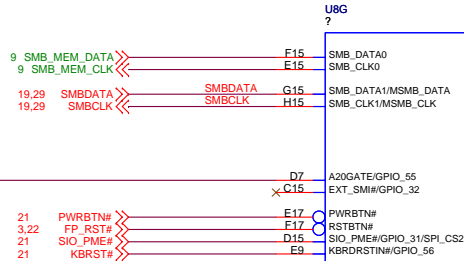
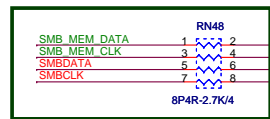


FOR EMI

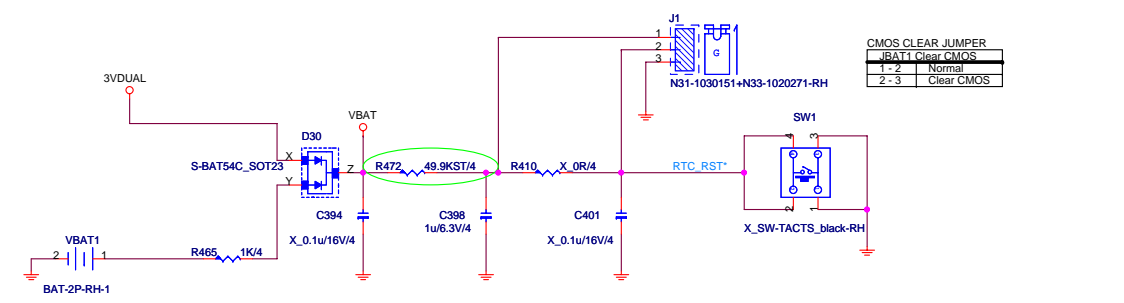
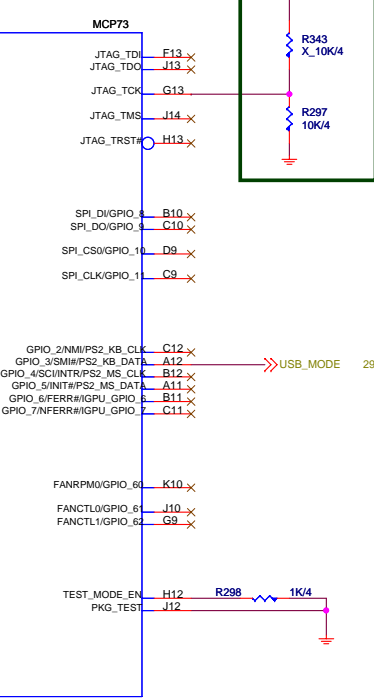
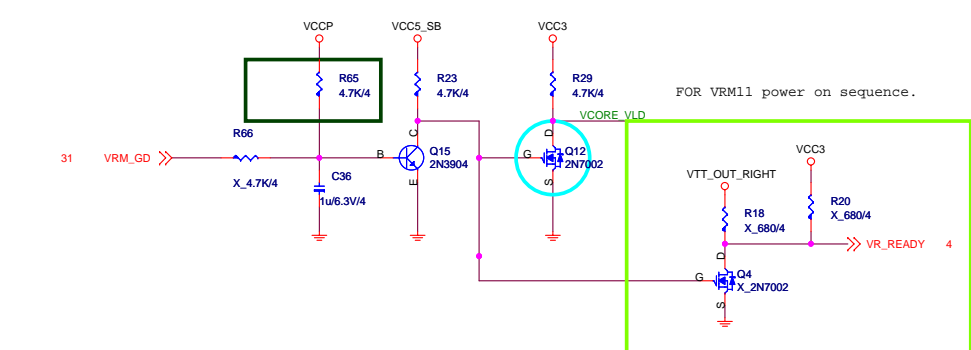


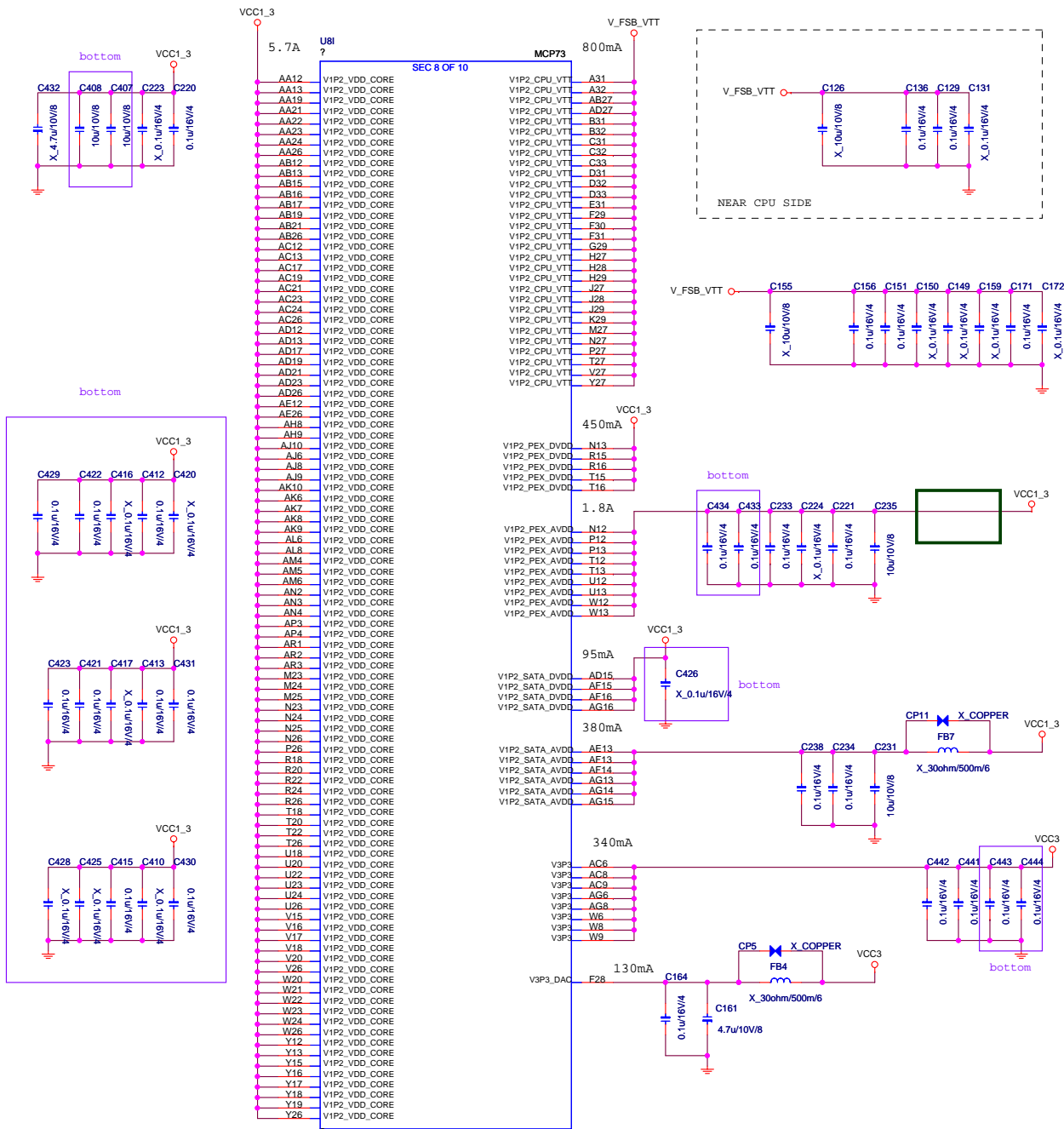




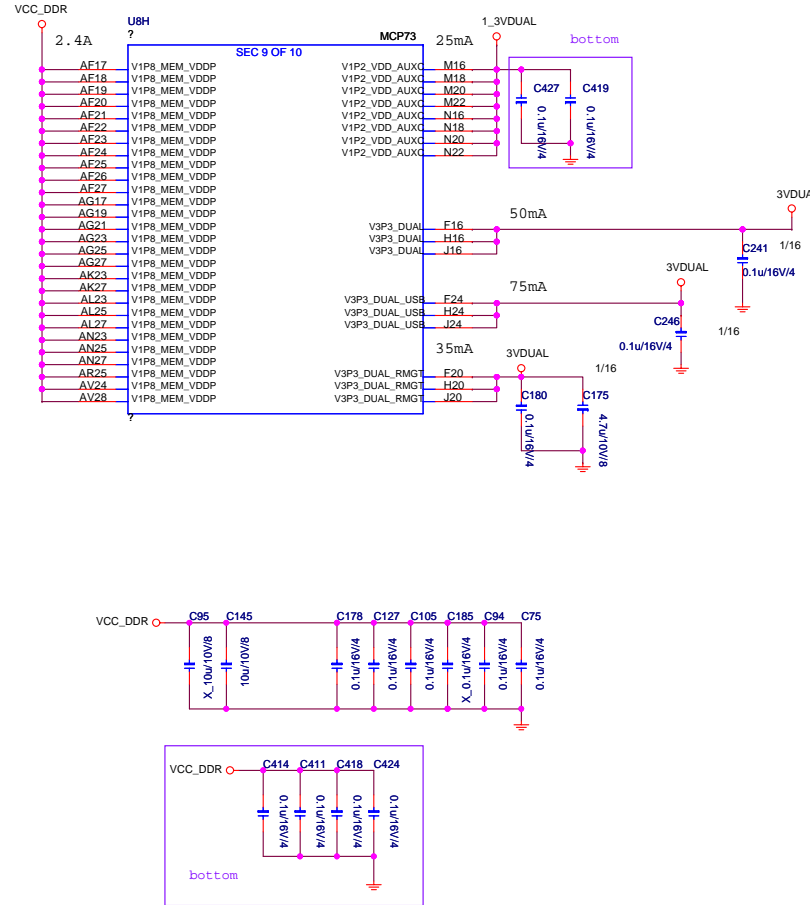


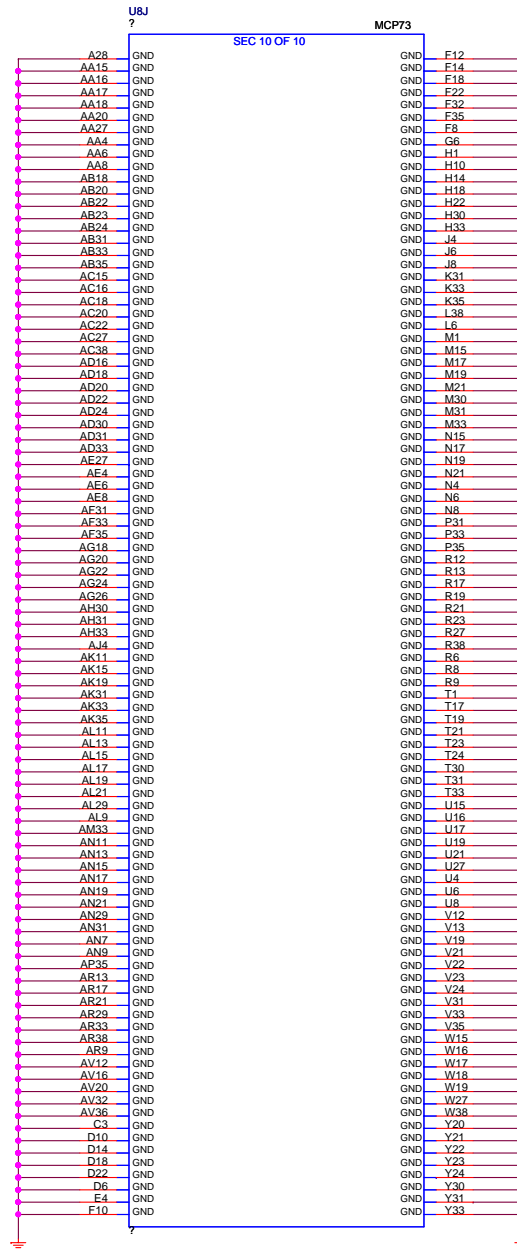
Vcore power-on sequence control circuit





MEME POWER



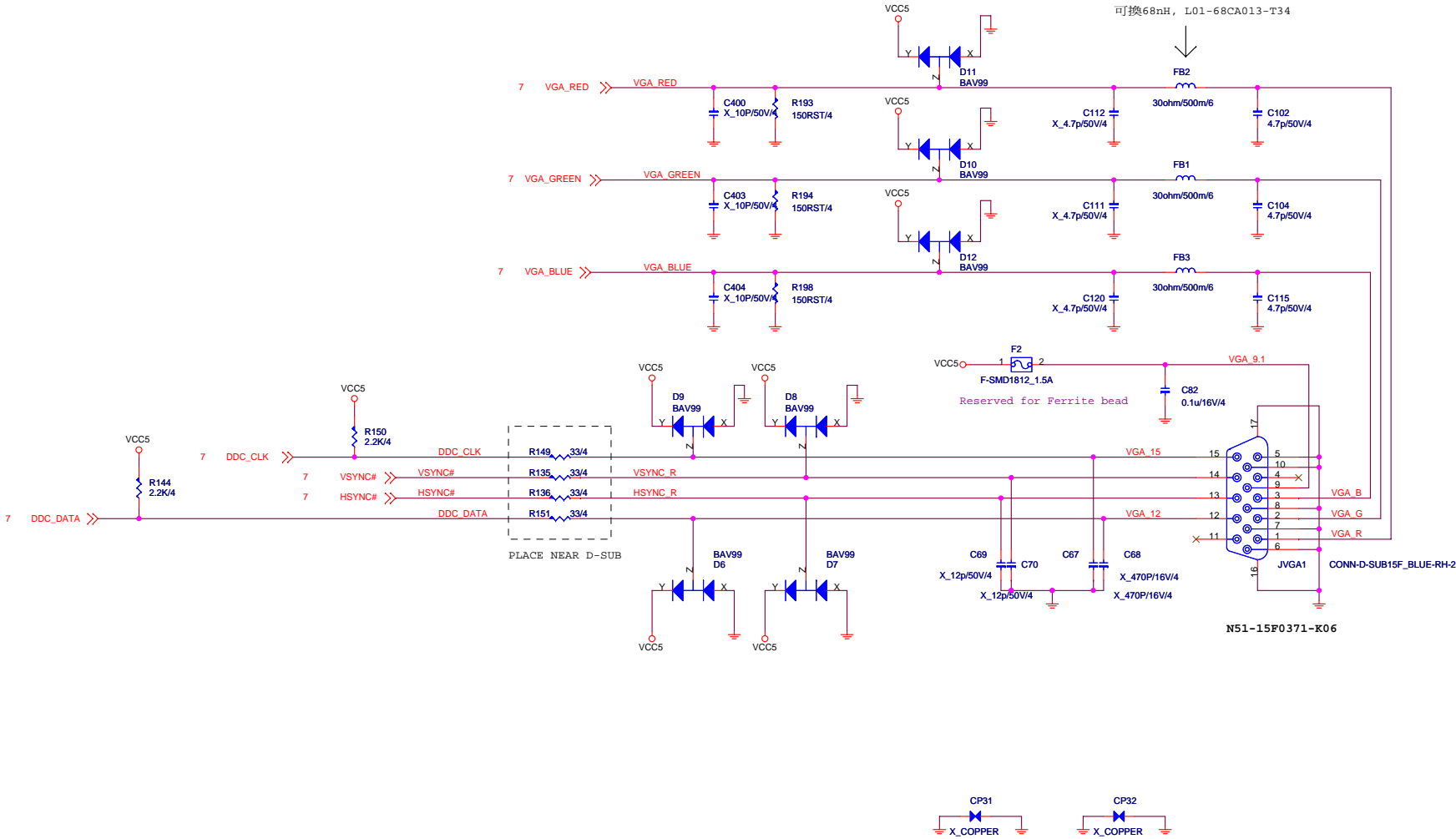


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Custom	MCP73-GND	2.0
Date: Saturday, October 06, 2007		
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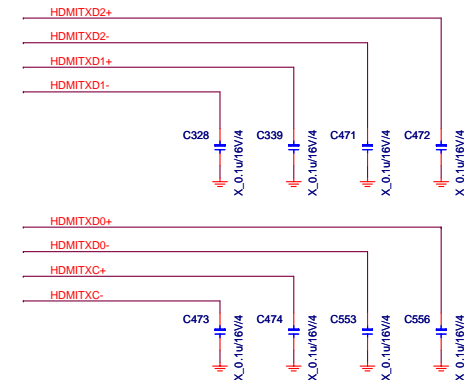
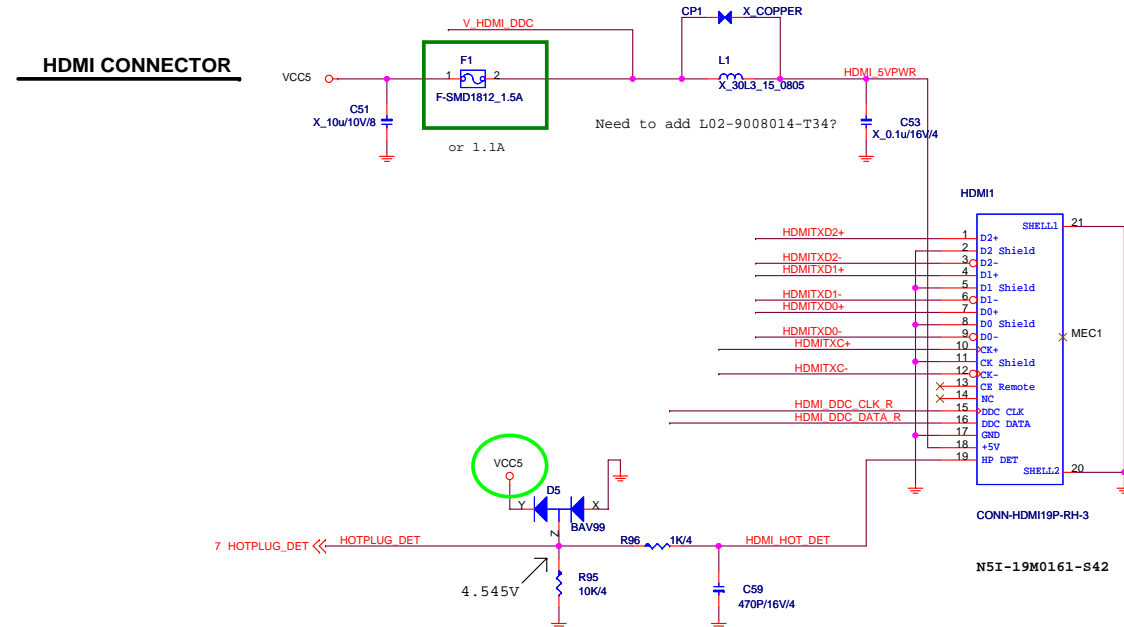
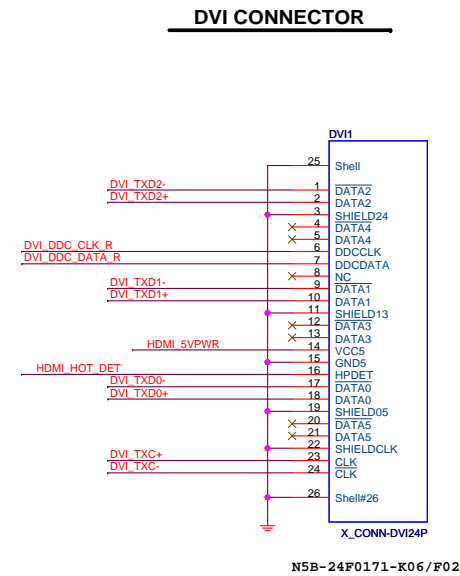
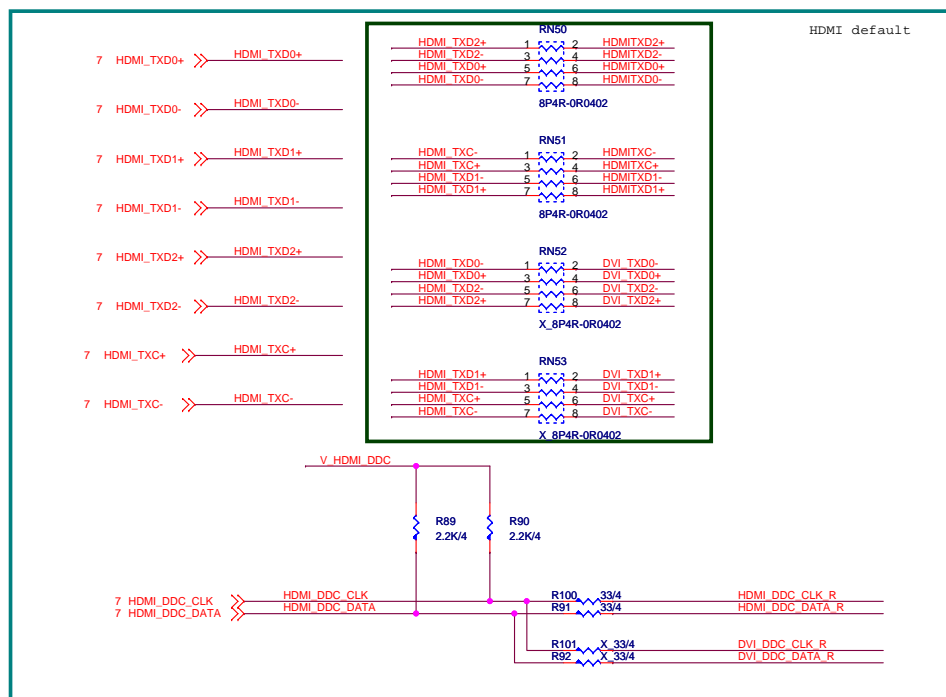
PLACE NEAR VGA CONNECTOR



MICRO-STAR INT'L CO.,LTD

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Custom	D-SUB	2.0
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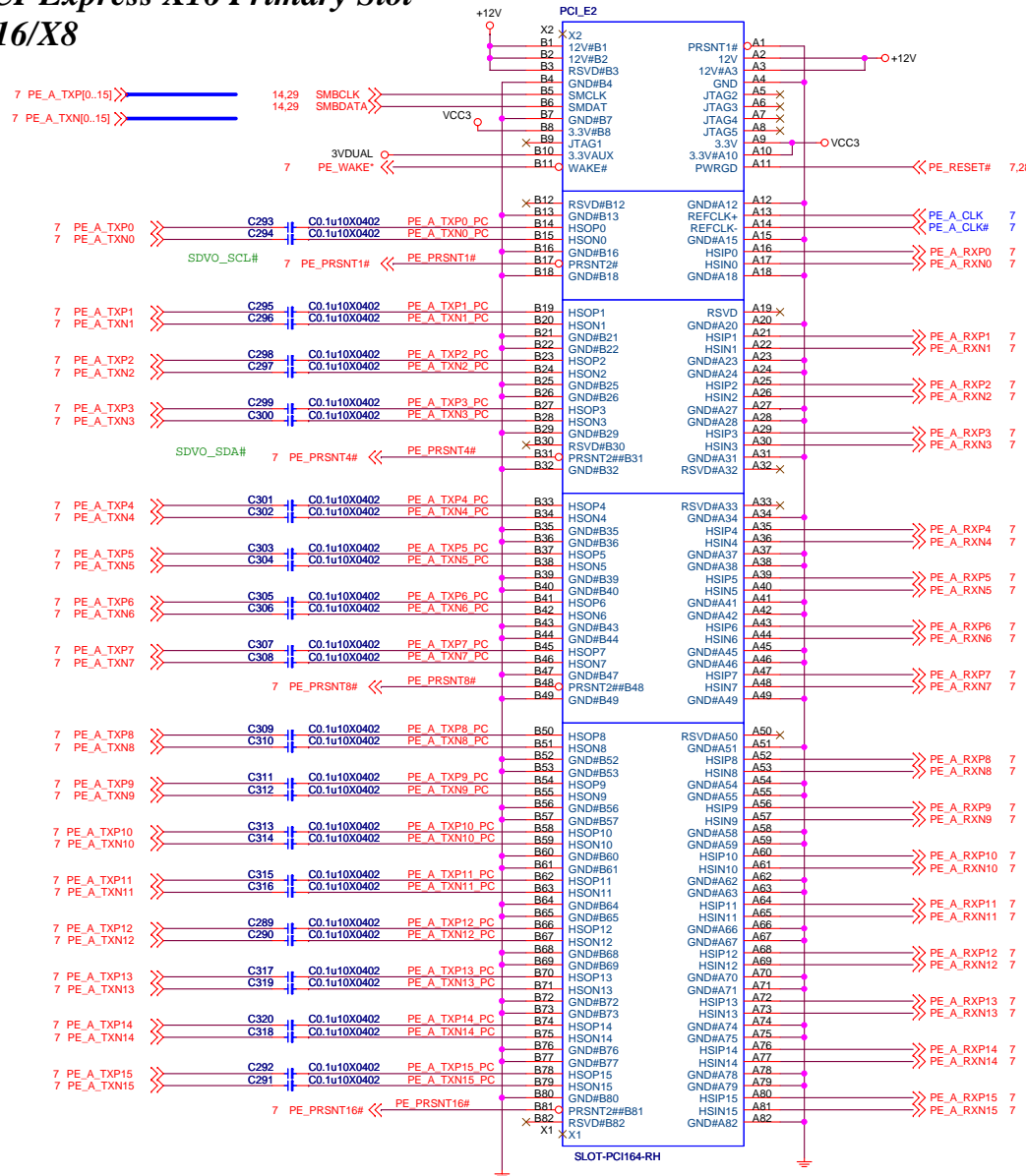


MICRO-STAR INT'L CO.,LTD

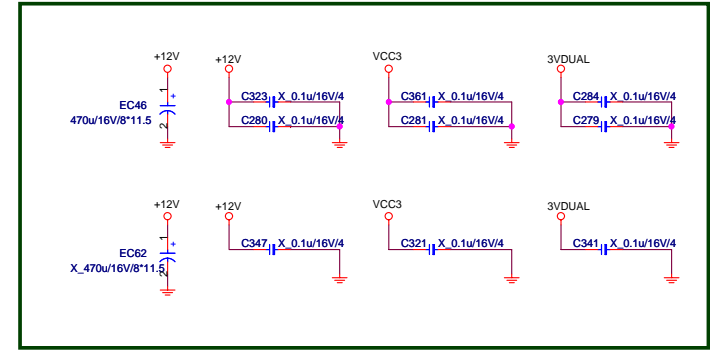
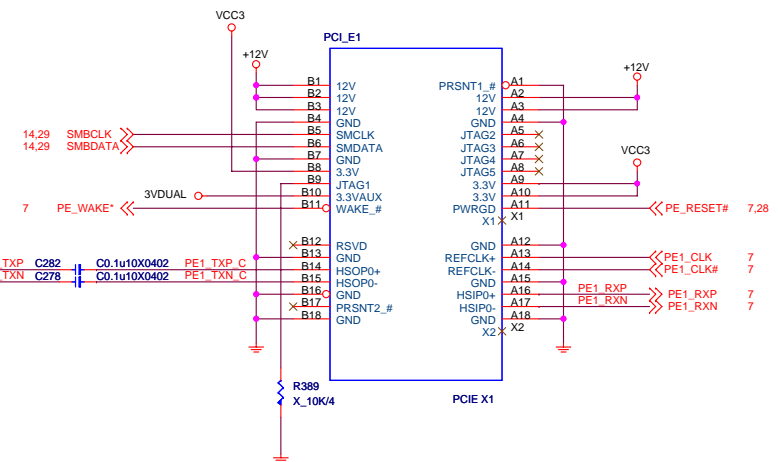
MS-7366

Size Custom	Document Description HDMI/DVI	Rev 2.0
Date: Tuesday, October 09, 2007		Sheet 18 of 38

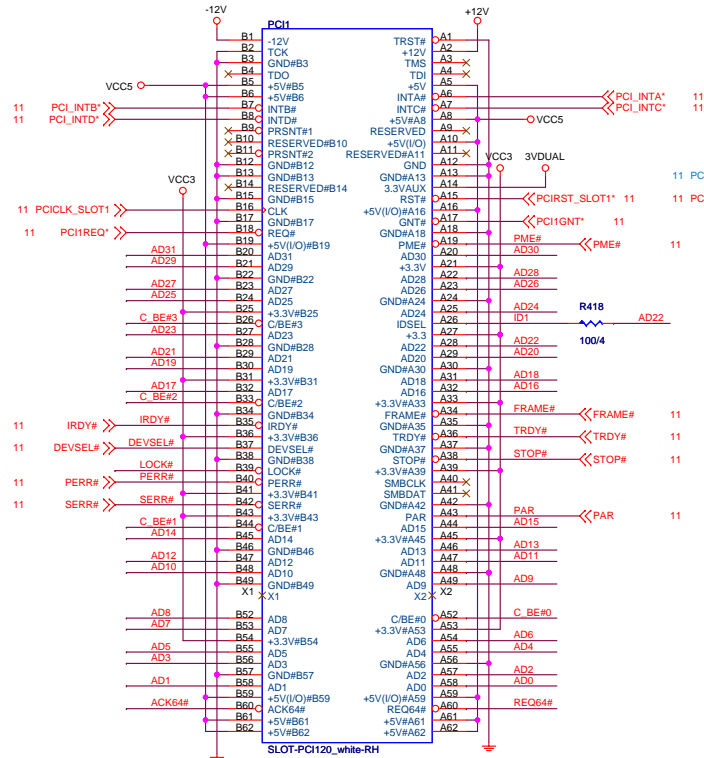
PCI-Express X16 Primary Slot X16/X8



PCI-Express x1 SLOT 1

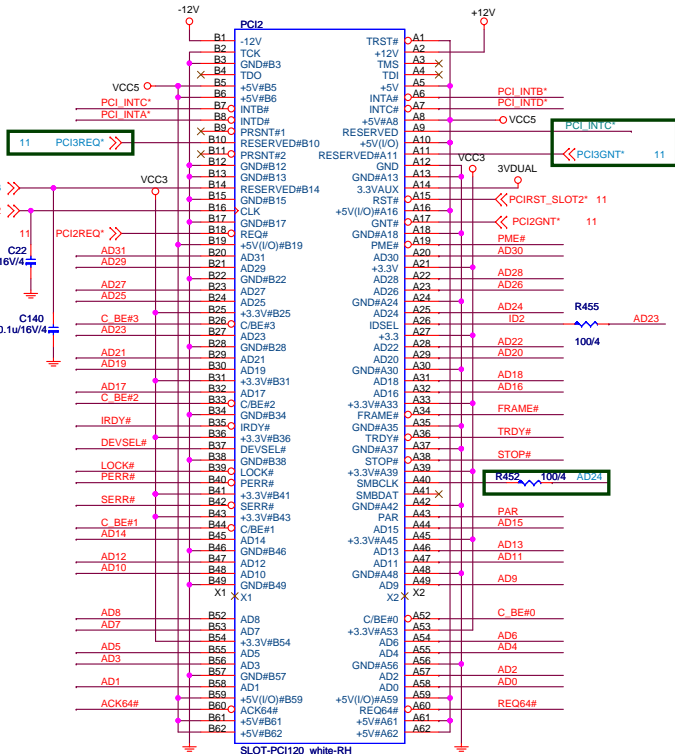


PCI SLOT 1 (PCI VER: 2.2 COMPLY)



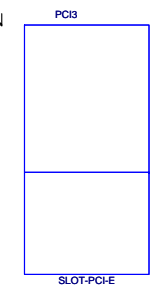
IDSEL = AD22
 MASTER = PCI1REQ*
 PCI1GNT*
 PCI1ROUTE=A,B,C,D

PCI SLOT 2 (PCI VER: 2.2 COMPLY)

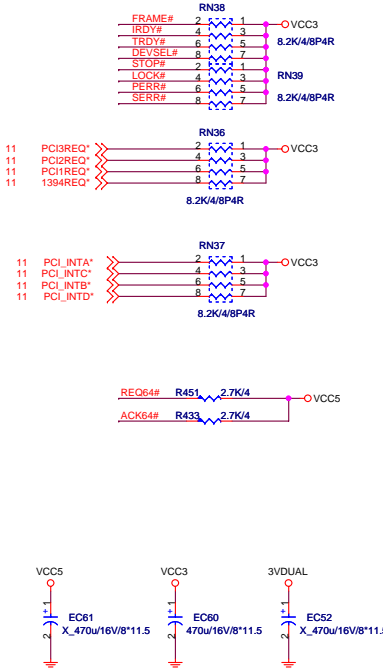


IDSEL = AD23
 MASTER = PCI2REQ*
 PCI2GNT*
 PCI2ROUTE=B,C,D,A
 IDSEL = AD24
 MASTER = PCI3REQ*
 PCI3GNT*
 PCI3ROUTE=C

Medion BLUE PCI SLOT



PCI PULL-UP / DOWN RESISTORS



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



ATX Connector



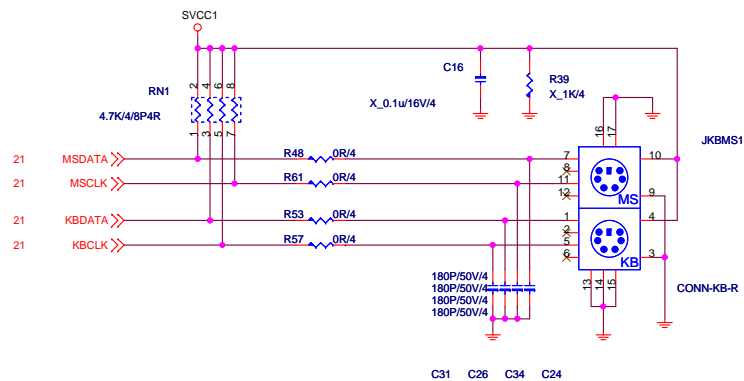
Winbond Protection circuit

NB FAN

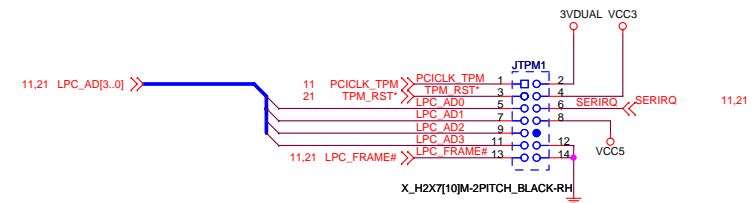


Size Custom	Document Description ATX/Front Panel/FAN	Rev 2.0
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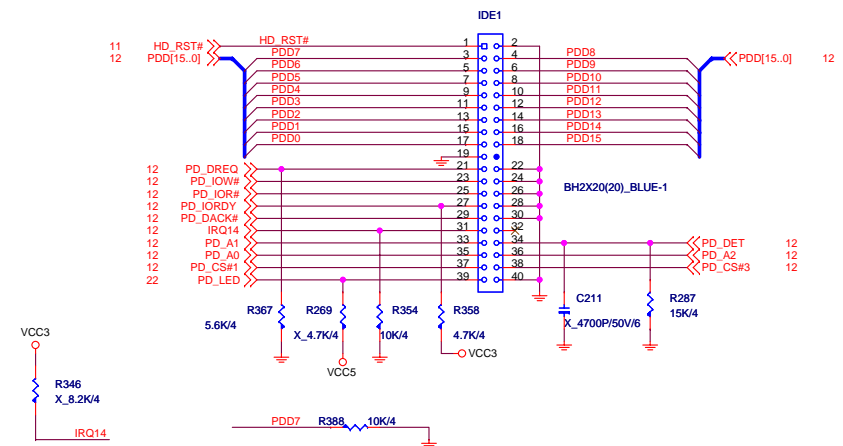
PS2 KEYBOARD & MOUSE CONNECTOR



JLPC port for TPM



PRIMARY IDE BLOCK



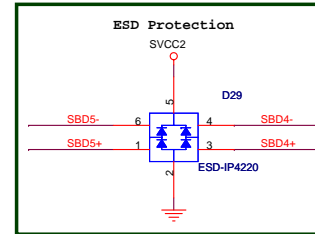
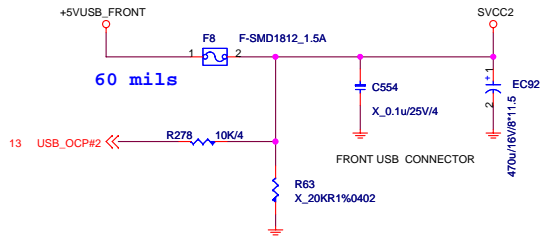
MICRO-STAR INT'L CO.,LTD

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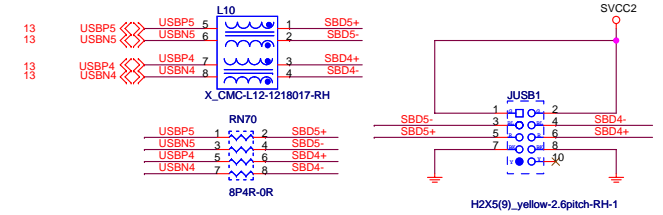
Size	Document Description	Rev
Custom	KB/COM1/IDE/FAN	2.0
Date:	Tuesday, October 09, 2007	Sheet 23 of 38

FRONT PANEL USB CONNECTOR

POWER CIRCUIT FOR USB PORT 4,5

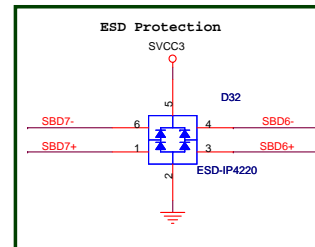
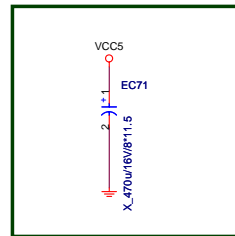
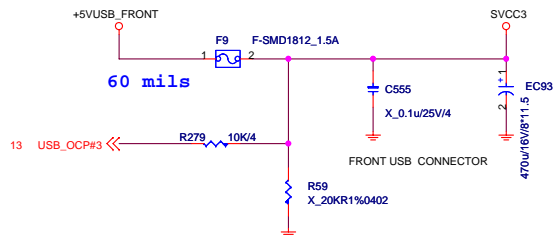


FRONT PANEL USB CONNECTOR FOR USB PORT 4,5

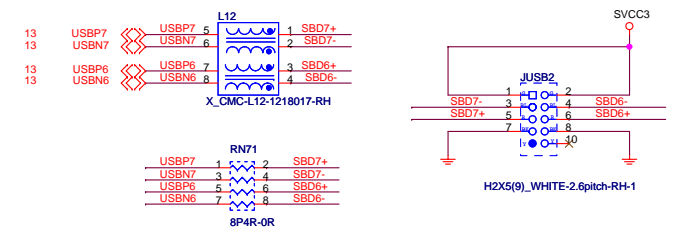


NEAR USB CONNECTOR
22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

POWER CIRCUIT FOR USB PORT 6,7

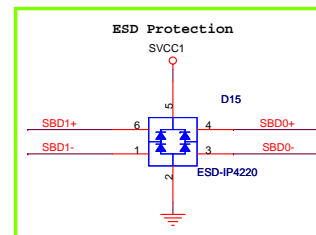
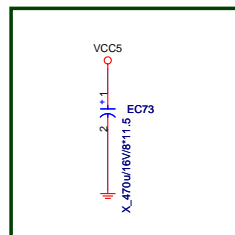
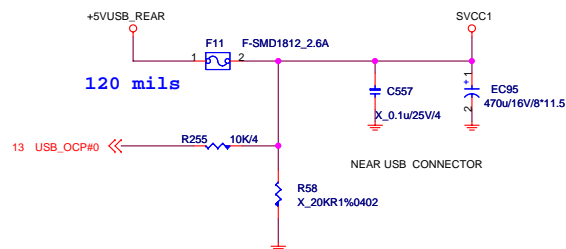


FRONT PANEL USB CONNECTOR FOR USB PORT 6,7

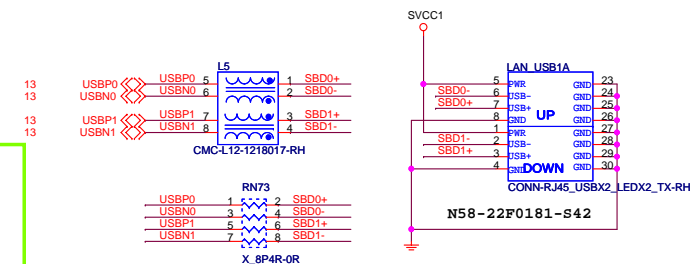


REAR PANEL USB CONNECTOR

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



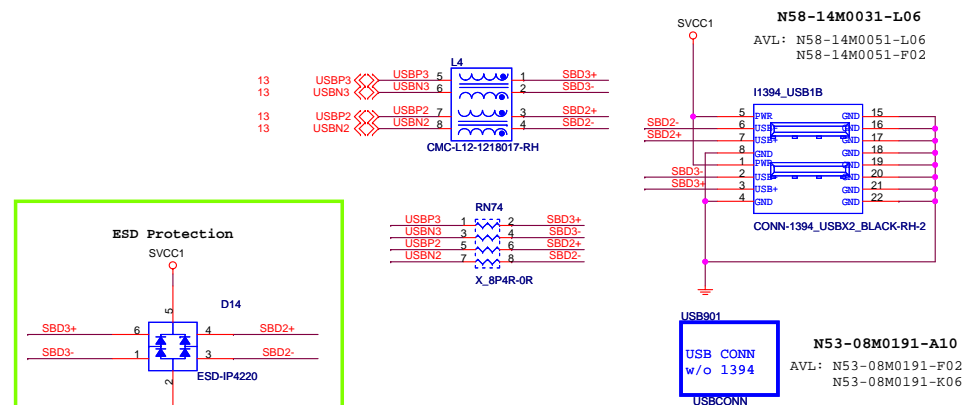
REAR PANEL USB CONNECTOR FOR USB PORT 0,1



NEAR USB CONNECTOR

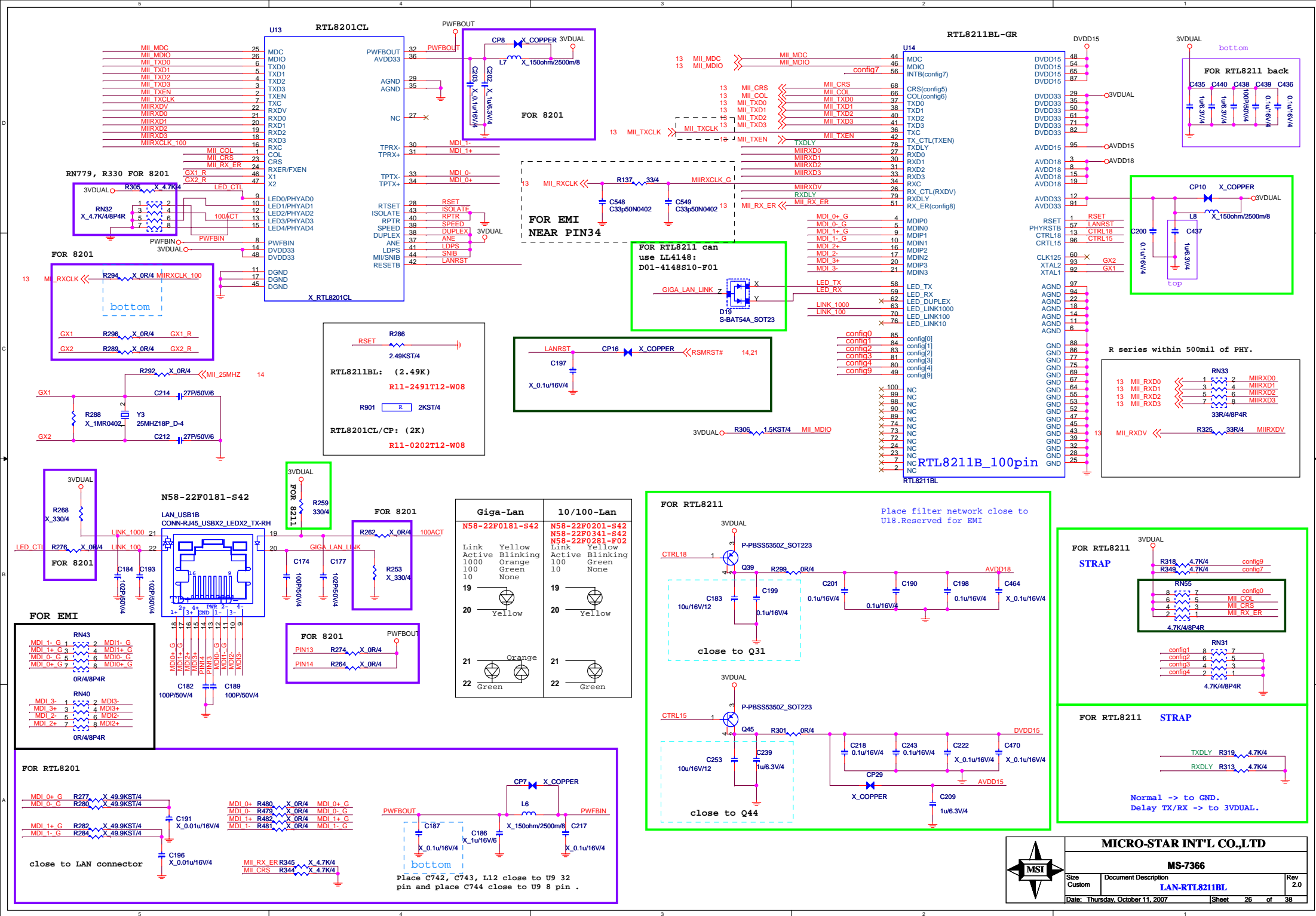
22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

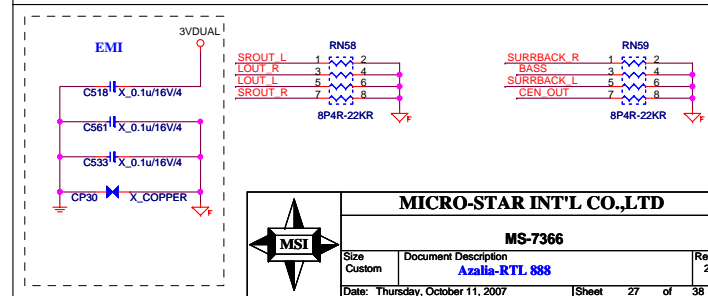
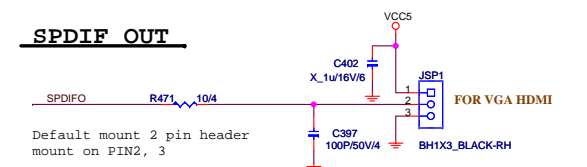
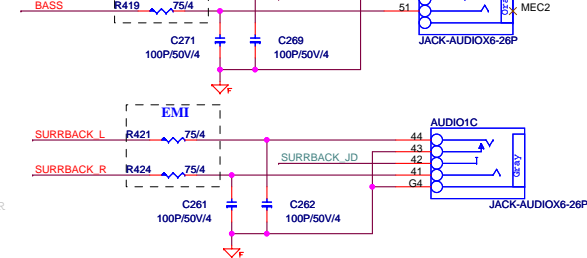
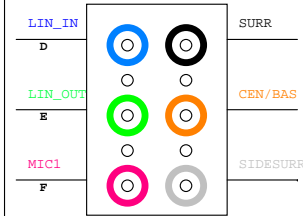
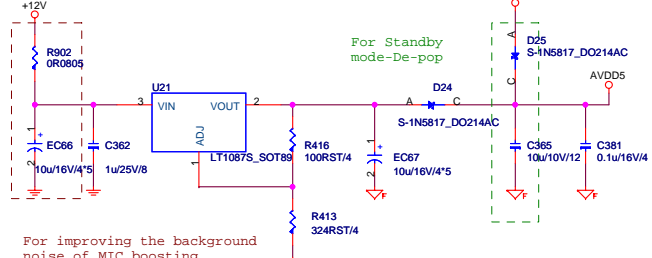
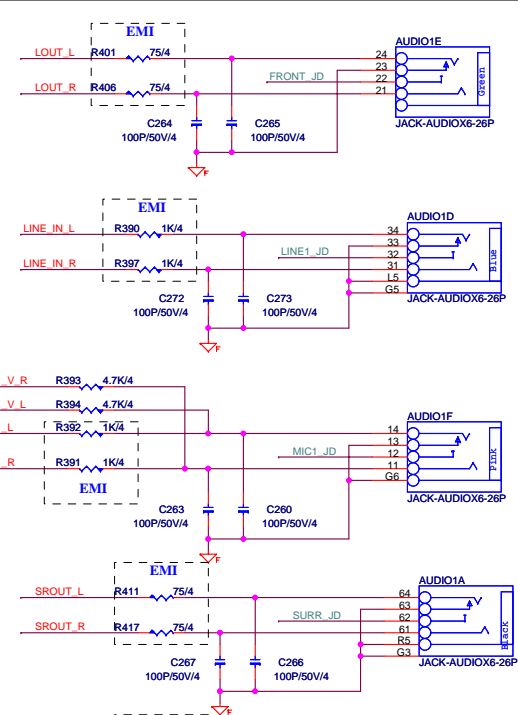
REAR PANEL USB CONNECTOR FOR USB PORT 2,3

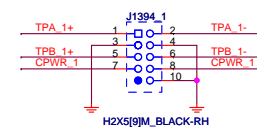
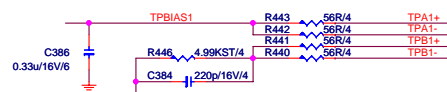
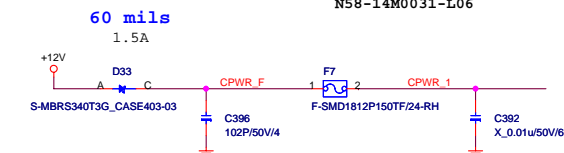
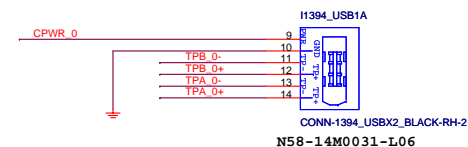
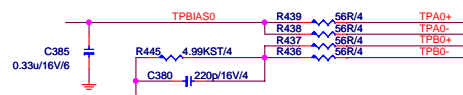
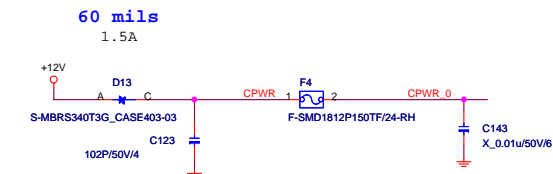
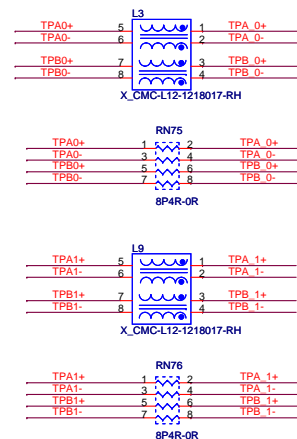
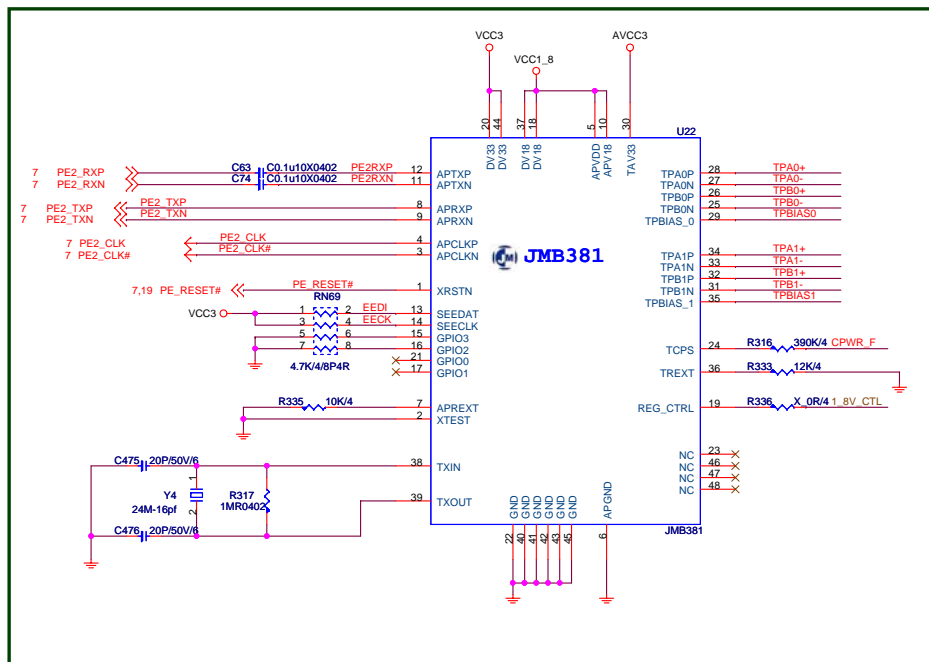


NEAR USB CONNECTOR

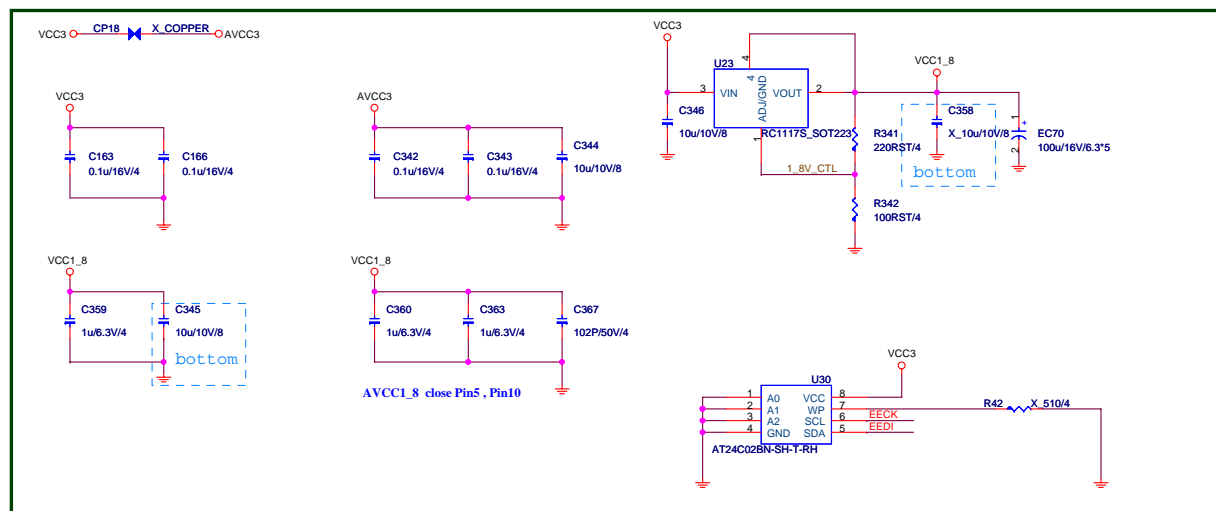
22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22







For Intel 1394 pinheader



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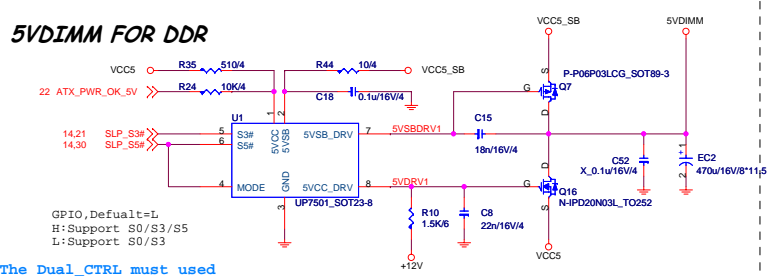
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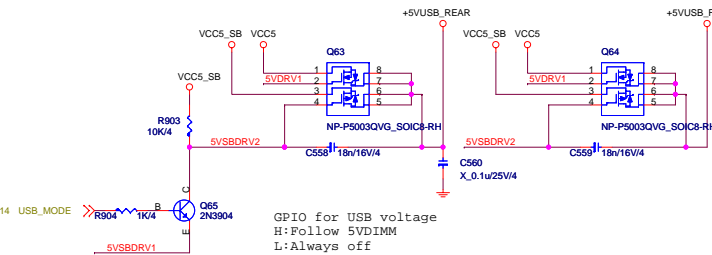
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5VDIMM FOR DDR

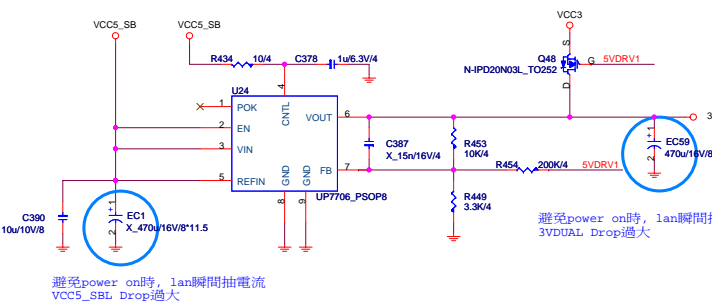


5VSB FOR Front USB

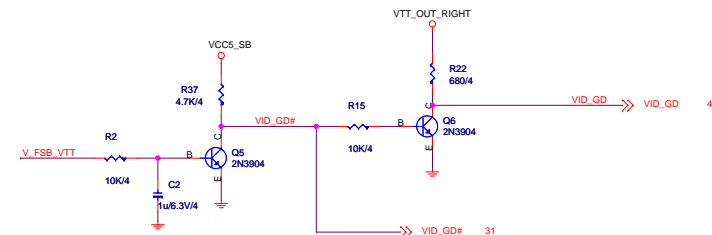
5VSB FOR Rear USB



3VDUAL, 1.7A



VID_GD# to PWM and VID_GD to CPU
for VRM10 power sequence.



	S0	S3	S4	S5
DUAL_CTRL	X	X	0	1
5VSBDRV1	1	0	1	0
5VDRV1	1	0	0	0
5VSBDRV2	X	0	1	0
USB_MODE	X	1	X	1
5VDIMM	Y	Y	N	Y
USB power	Y	Y	N	N

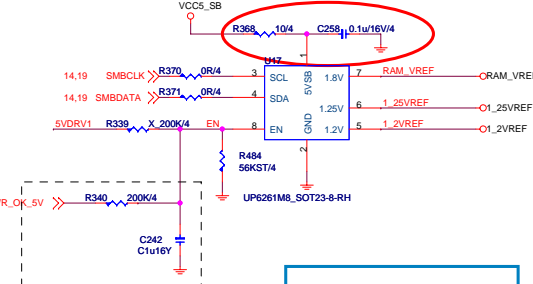
DUAL_CTRL可控制S4/S5, USB是否有電
USB_MODE控制S4, S5一種要有電一種不要有電的狀態

Reference Voltage

up6261: High Precision Voltage Console

ONLY OVER DDR Voltage to 2V

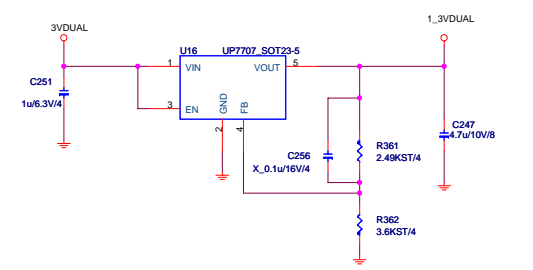
VCC5_SB to UP6261 pin1 path keep the same.



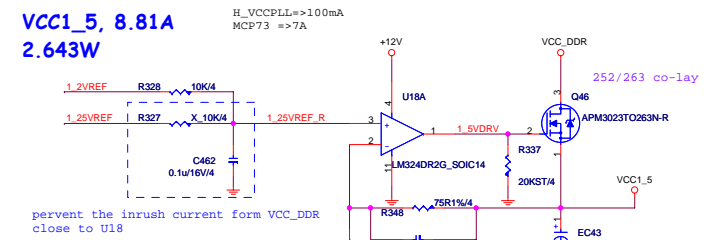
I32-0626109-U33, delay 20 ms
避免EN比 5VDRV1早, MCP73 core power
抽到VCC5_SB

1_3VDUAL, 25mA

up7707: 600mA Low Dropout Linear Regulator

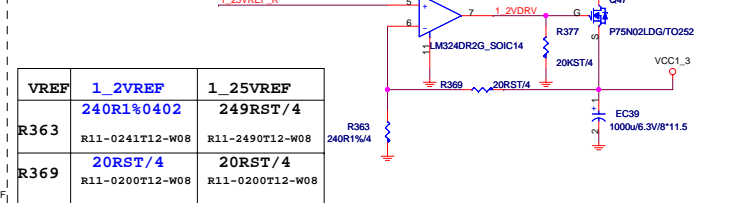


VCC1_5, 8.81A
2.643W

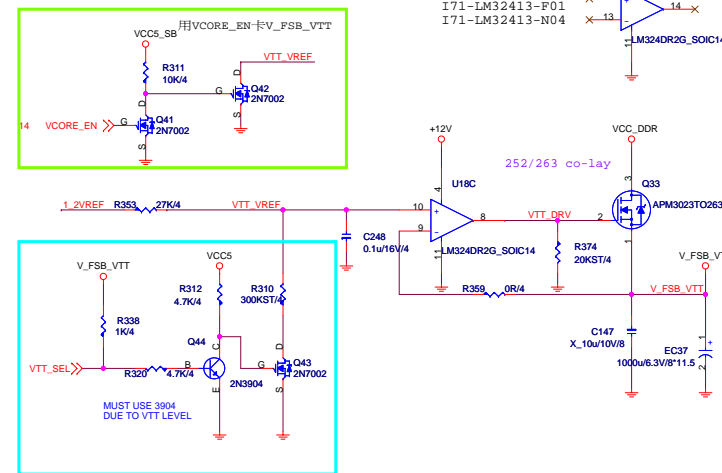


VREF	1_2VREF	1_25VREF
R356	300R1%/4	100RST/4
R348	75R1%/4	20RST/4

VCC1_3, 8.81A
1.3215W

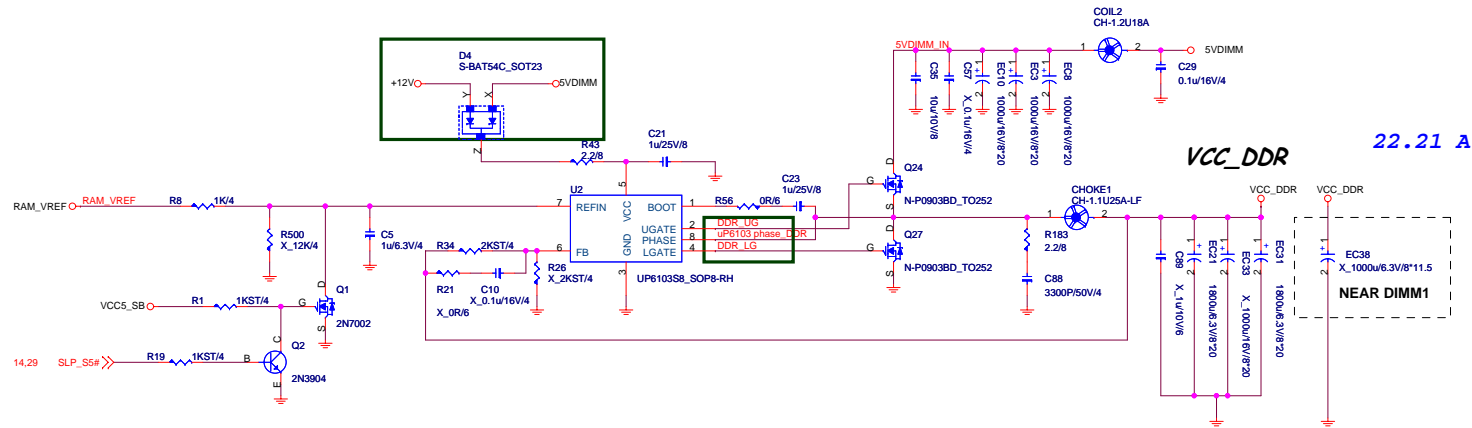


FSB_VTT, 6.1A
3.66W



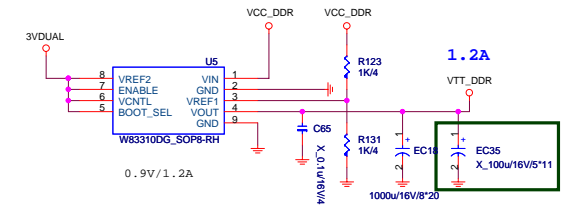
VTT_SEL = L	V_FSB_VTT=1.1V	For future KENTSFIELD processor. (FSB133, Quad-Core)
VTT_SEL = H	V_FSB_VTT=1.2V	For normal processors.

DDR II 1.8V POWER

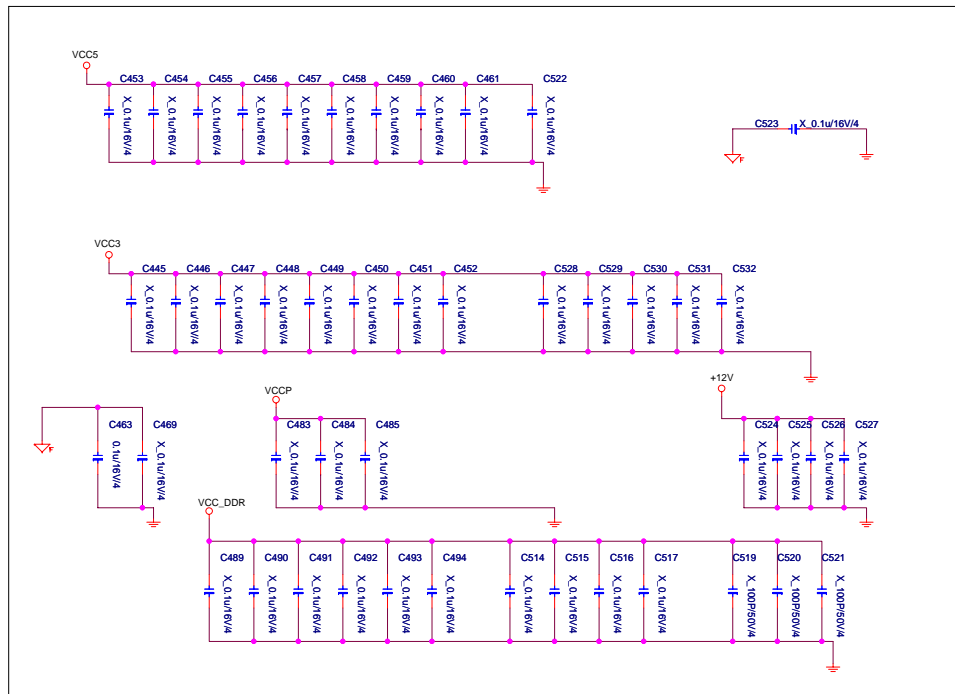
$$I_{ripple} = 22.21 \times 0.6 \times 0.8 / 1 = 10.66A$$
$$2.35 \times 3 \times 1.7 = 11.985A > 10.08A$$


DDR VTT Power

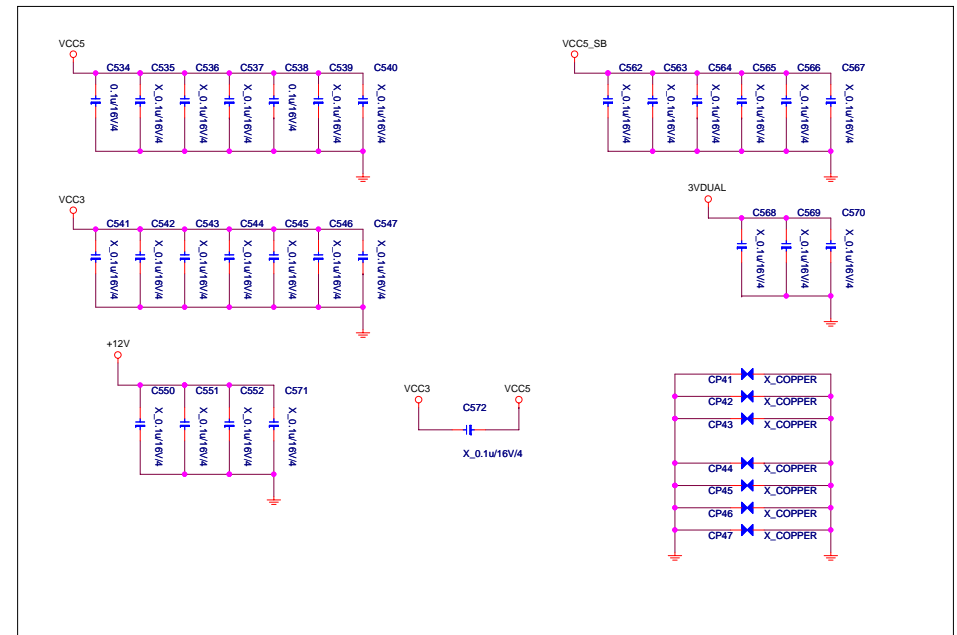
To CPU Copper trace width > 200mils



EMI



FOR EMI

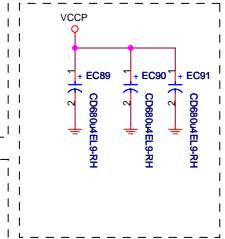
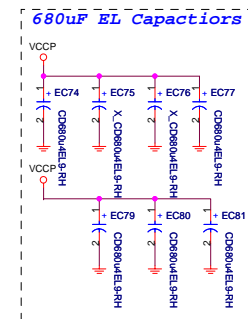
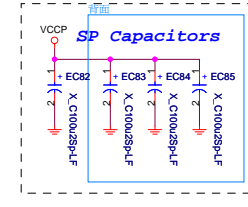
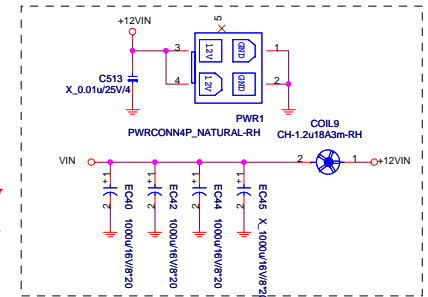
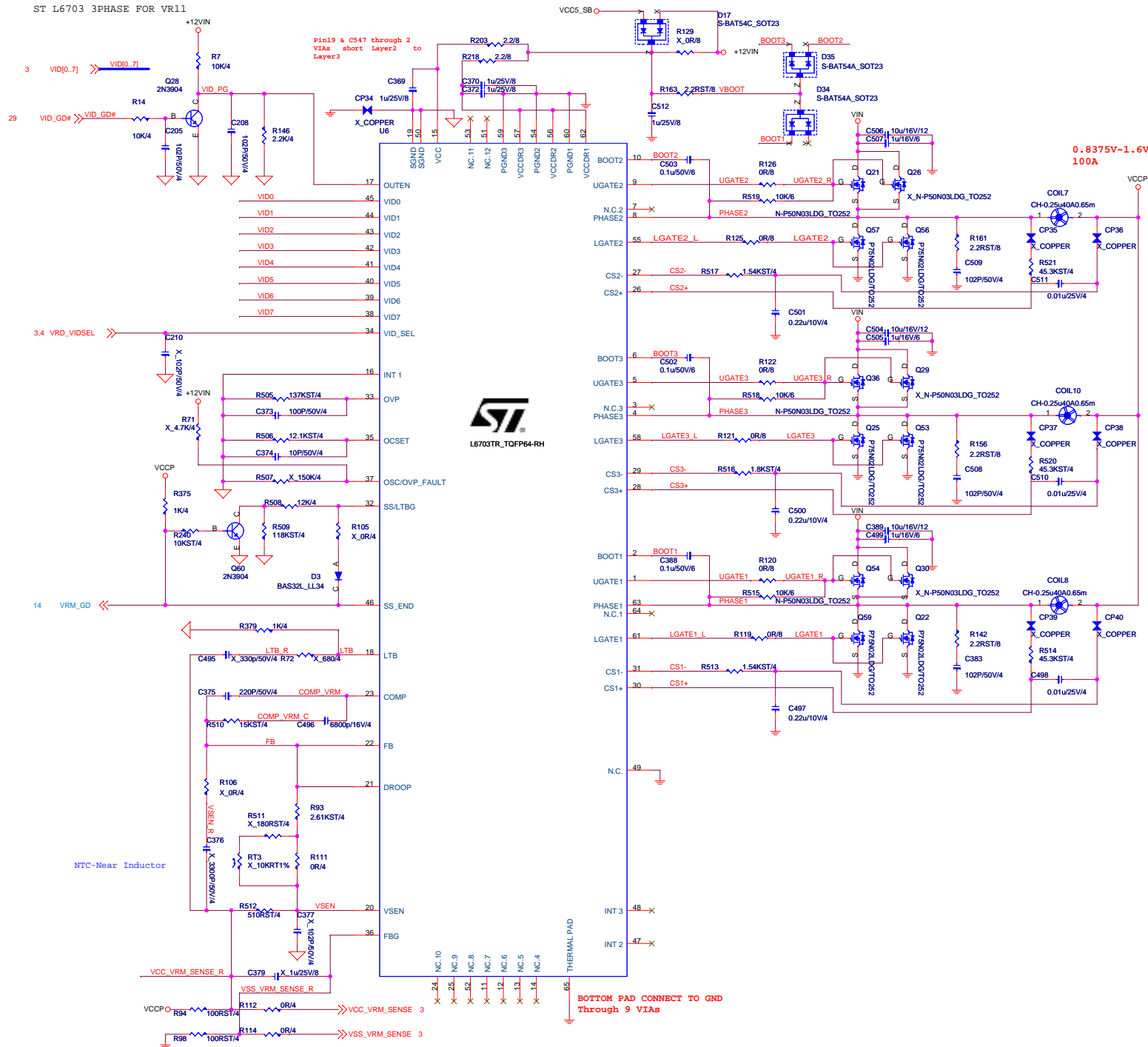


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ST L6703 3PHASE FOR VR11



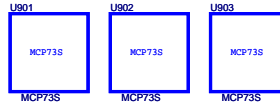
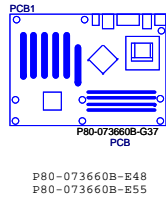
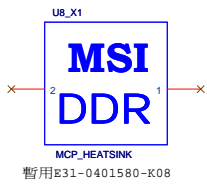
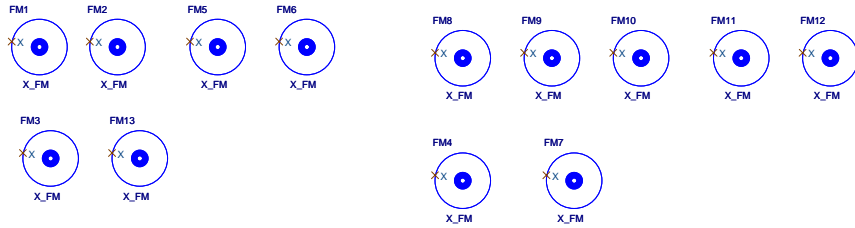


Table 1-4. Comparison of Different MCP73 Models

Features	MCP73D	MCP73PV	MCP73O	MCP73S	MCP73V
IGPU	No	DX9 SM3.0	DX9 SM3.0	DX9 SM3.0	DX9 SM3.0
Display Interface	N/A	HDMI, DVI, RGB, sDVO	DVI, RGB, sDVO	DVI, RGB, sDVO	RGB
Integrated HDCP	N/A	Yes	Yes	Yes	No
FSB	1333	1333	1333	1066	1066
Memory	DDR2-667 64-bit	DDR2-667 64-bit	DDR2-667 64-bit	DDR2-667 64-bit	DDR2-667 64-bit
PCI Express	1 x16, 2 x1	1 x16, 2 x1	1 x16, 2 x1	1 x16, 2 x1	1 x16, 2 x1
USB Ports	8	10	10	10	8
Networking	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100
SATA II Ports	4	4	4	4	4
RAID	0, 1	0, 1, 0+1, 5	0, 1, 0+1, 5	0, 1, 0+1, 5	0, 1
PATA-133	Two devices	Two devices	Two devices	Two devices	Two devices
iGPU Dev-ID	N/A	0x7E0	0x7E1	0x7E2	0x7E3
Marketing Brand Name	NVIDIA nForce 630i	NVIDIA nForce 630i GeForce 7050	NVIDIA nForce 630i GeForce 7050	NVIDIA nForce 630i GeForce 7025	NVIDIA nForce 610i GeForce 7025

Optics Orientation Holes



Mounting Holes

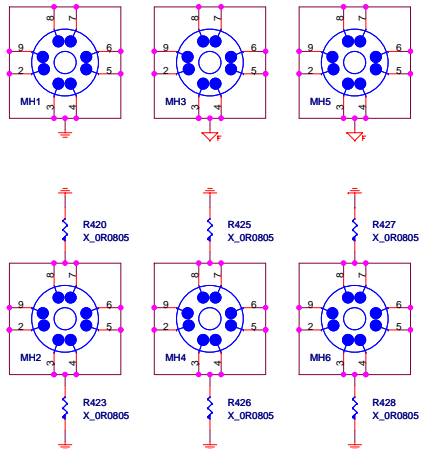


Table 1. MCP73 SKU Definition

Features	MCP73PV	MCP73S	MCP73V
FSB	1333	1333	1066
Memory	DDR2-800 64 bit	DDR2-667 64 bit	DDR2-667 64 bit
Display	HDMI, DVI, RGB, sDVO	DVI, RGB, sDVO	RGB
Integrated HDCP	Yes	Yes	No
Integrated Networking	10/100/1000	10/100/1000	10/100
Vista Premium	Yes	Yes	Yes
PCI-E	1 x16, 2 x1	1 x16, 2 x1	1 x16, 2 x1
USB Ports	10	10	8
SATA II Ports	4	4	4
RAID	0,1,0+1,5	0,1,0+1,5	0, 1
PATA Drives	2	2	2

Simulation

