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MS-7366 Micro ATX

Version: 0B_070829

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 -- VT6308P

Main Memory:

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

Expansion Slots:

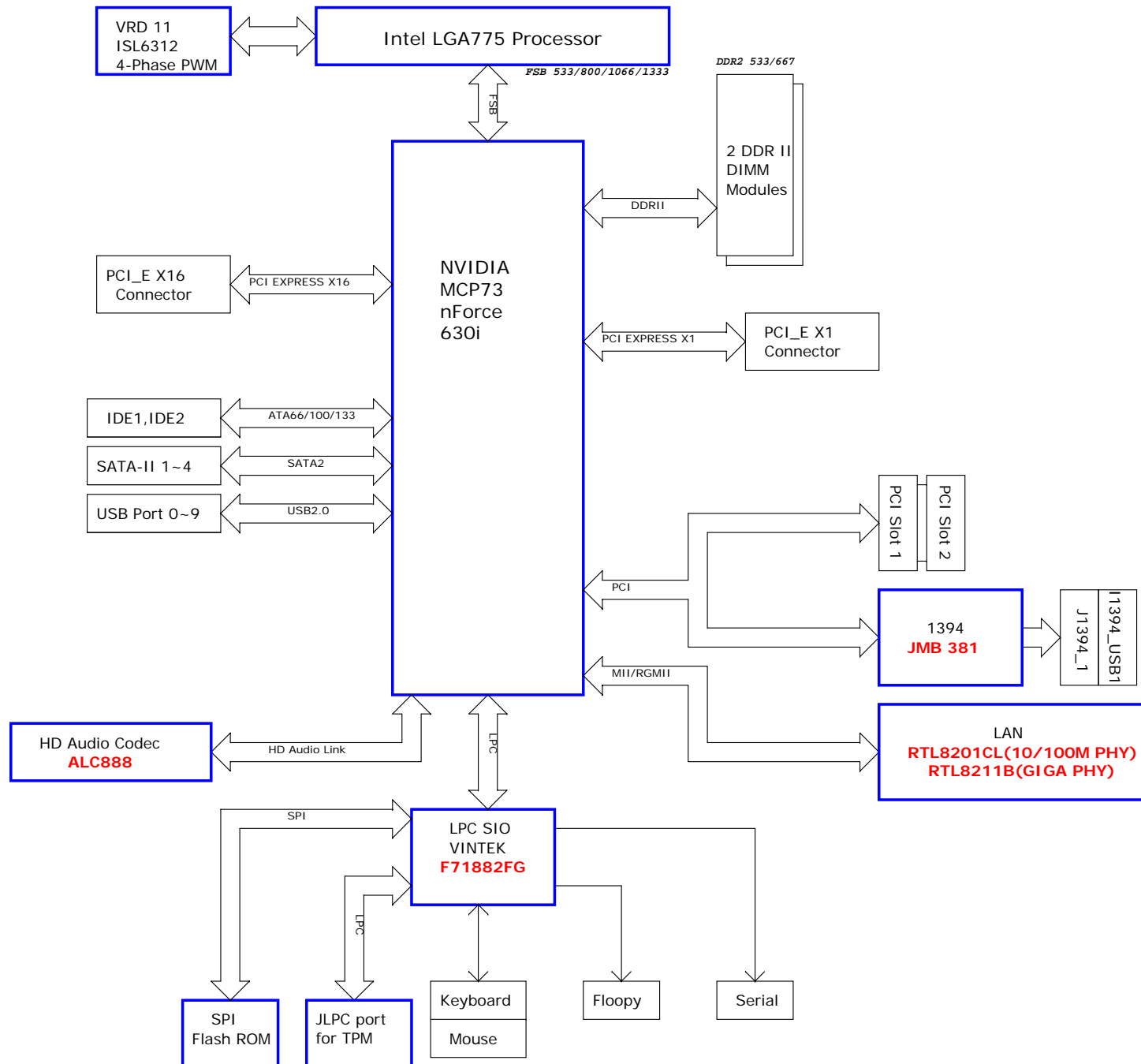
PCI EXPRESS X16 SLOT *1
 PCI EXPRESS X1 SLOT * 1
 PCI SLOT * 2

Intersil PWM:

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

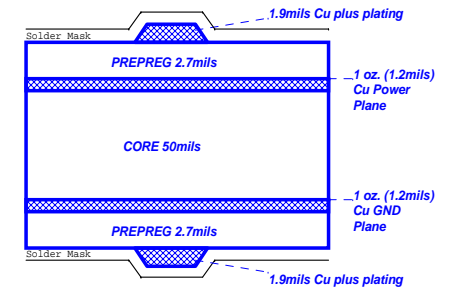
OPT	Function	Orcad Configure	BOM
A	MCP73U(HDMI,D-SUB)/F71882FG/ALC888/RTL8211BL/JMB381	Cfg-U	601-7366-B10
B	MCP73PV(DVI,D-SUB)/F71882FG/ALC888/RTL8211BL	Cfg-PV	
C	MCP73S(D-SUB)/F71882FG/ALC888/RTL8211BL	Cfg-S	
D	MCP73V(D-SUB)/F71882FG/ALC888/RTL8201CL	Cfg-V	

Block Diagram



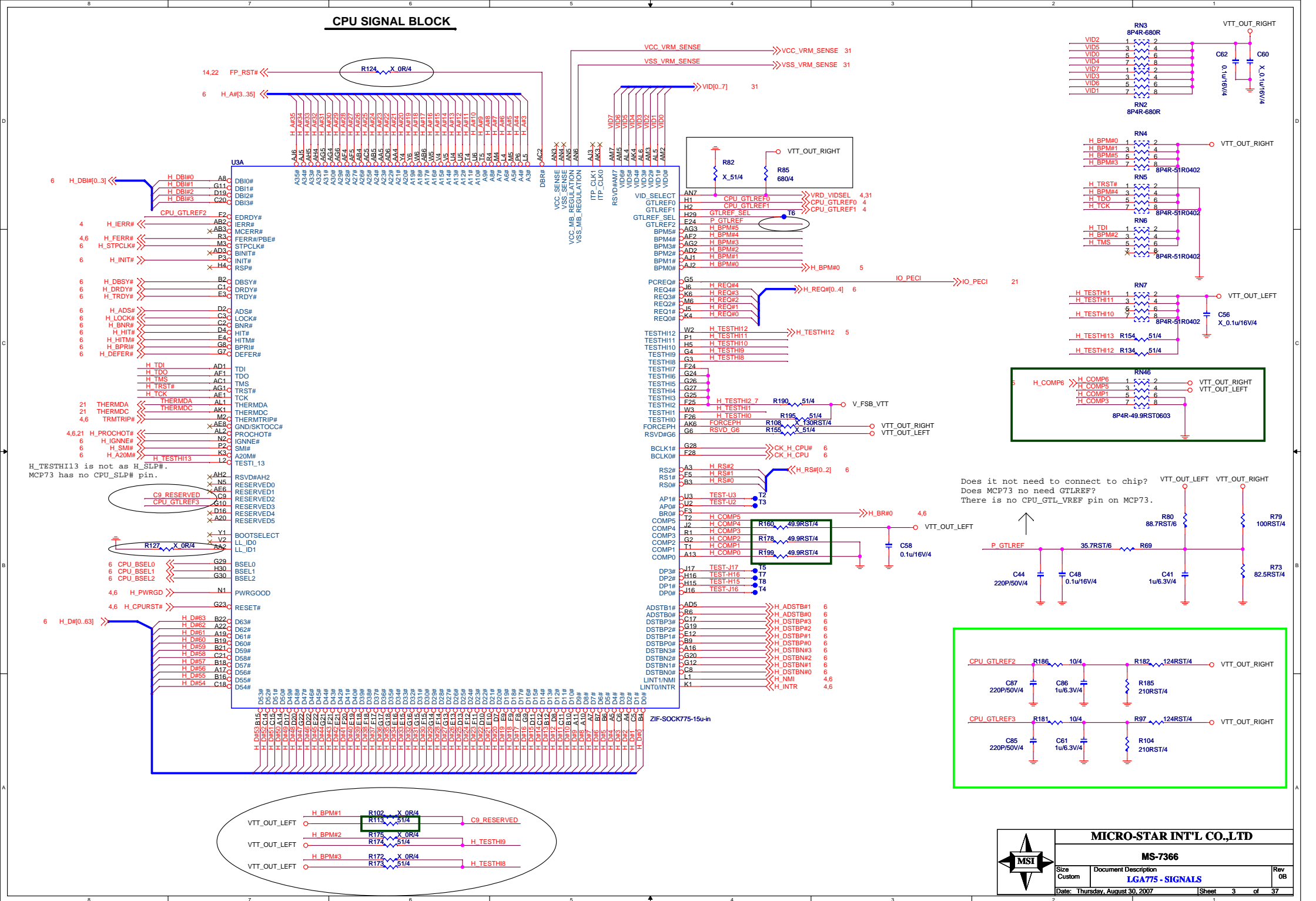
Board Stack-up

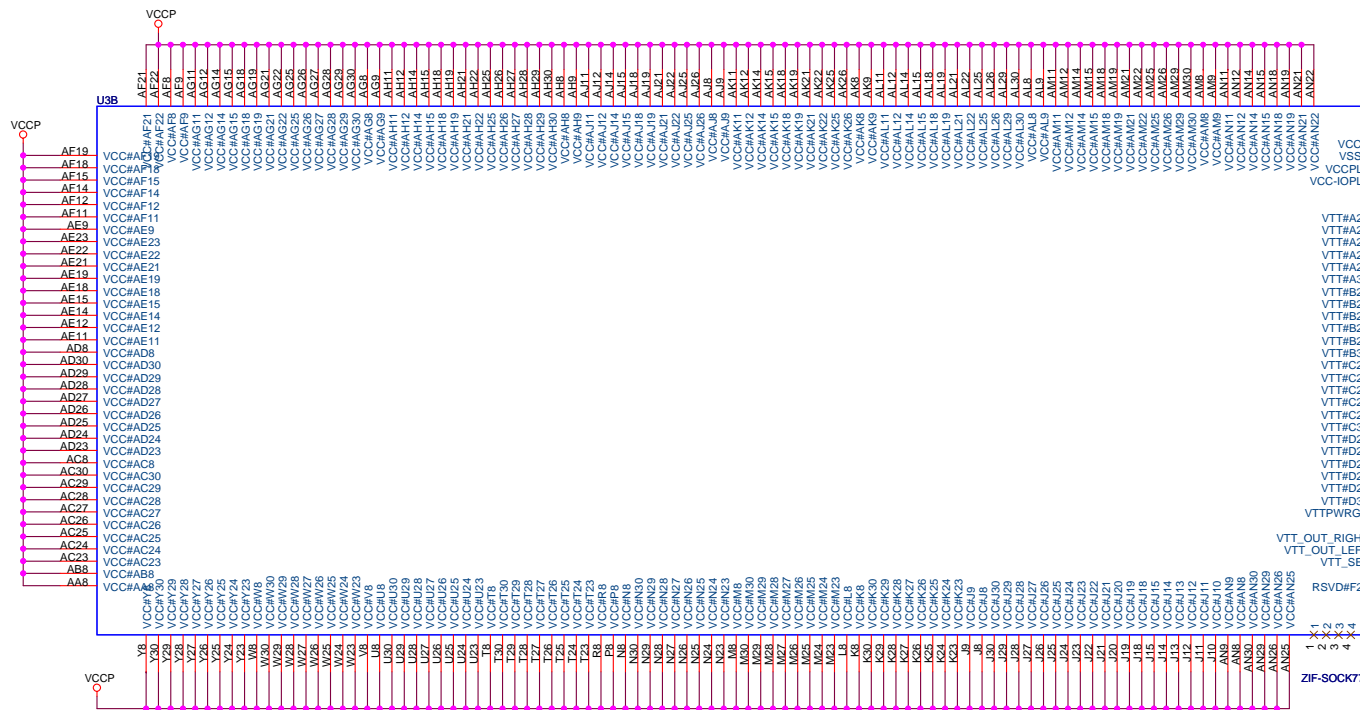
(1080 Prepreg Considerations)



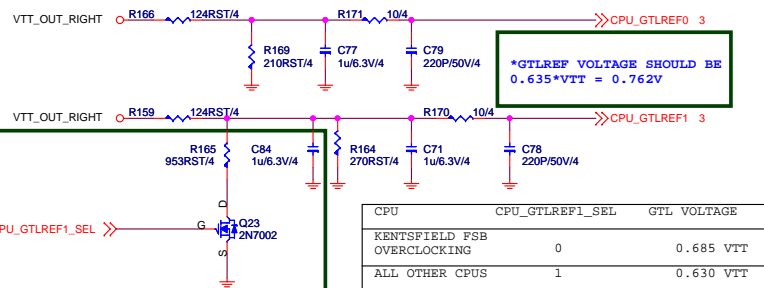
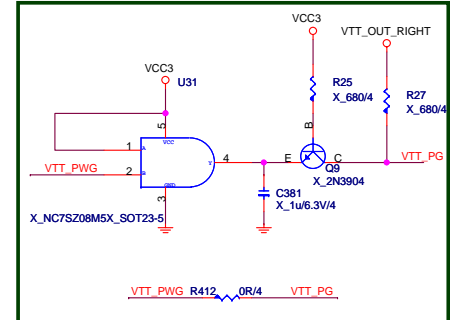
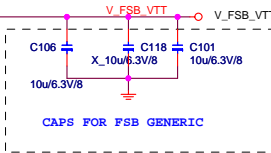
Single End 50ohm Top/Bottom : 4mils
 USB2.0 - 100ohm : 20/4/8/4/20
 HDMI - 100ohm : 20/4/8/4/20
 SATA - 100ohm : 20/4/8/4/20
 LAN - 100ohm : 20/4/8/4/20
 PCIE - 100ohm : 20/4/8/4/20
 IEEE1394 - 110ohm : 15/4/9/4/15
 IDE : 15/4/8/4/15

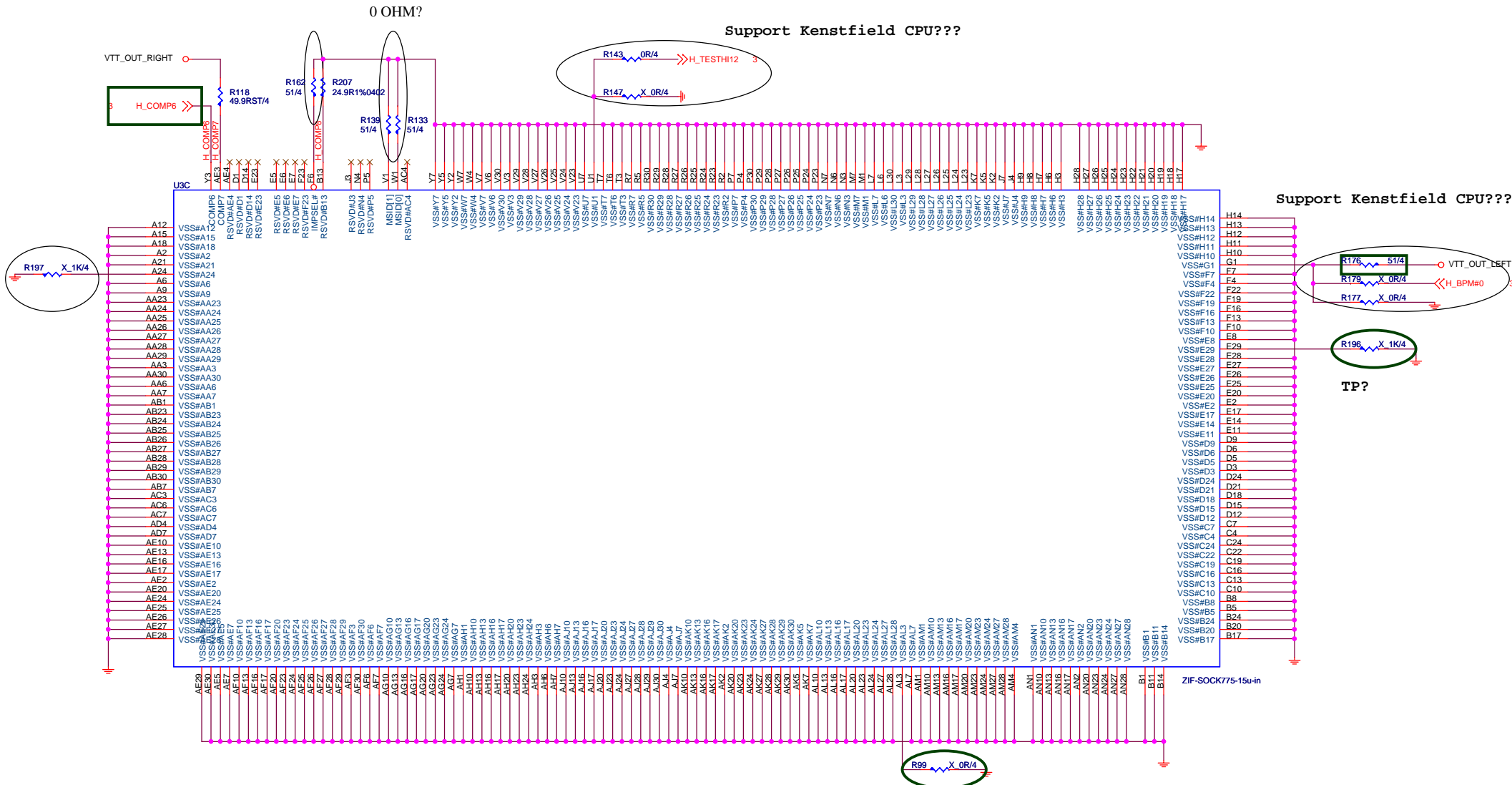
CPU SIGNAL BLOCK



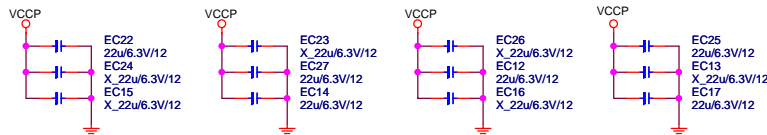


VCCA
VSSA
VCCPLL
VCC-IOPLL





CPU DECOUPLING CAPACITORS



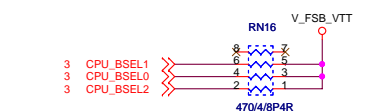
Place these caps within socket cavity




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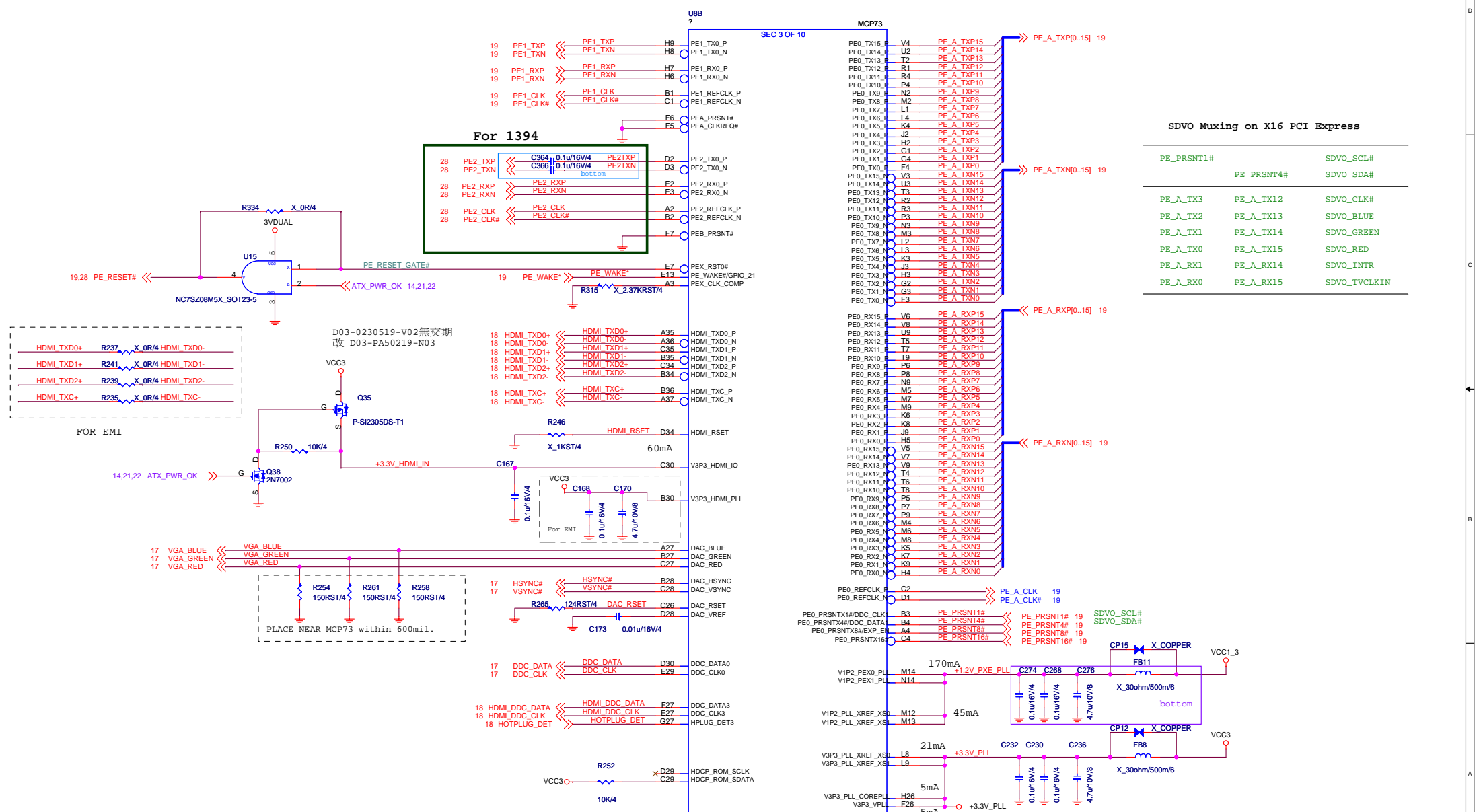
MS-7366

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Custom	Document Description	08
	LG4775 - GND	
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if CPU processor hot cause system shutdown, remove OR.

	MICRO-STAR INT'L CO.,LTD			
	MS-7366			
	Size Custom	Document Description MCP73-CPU	Rev 08	
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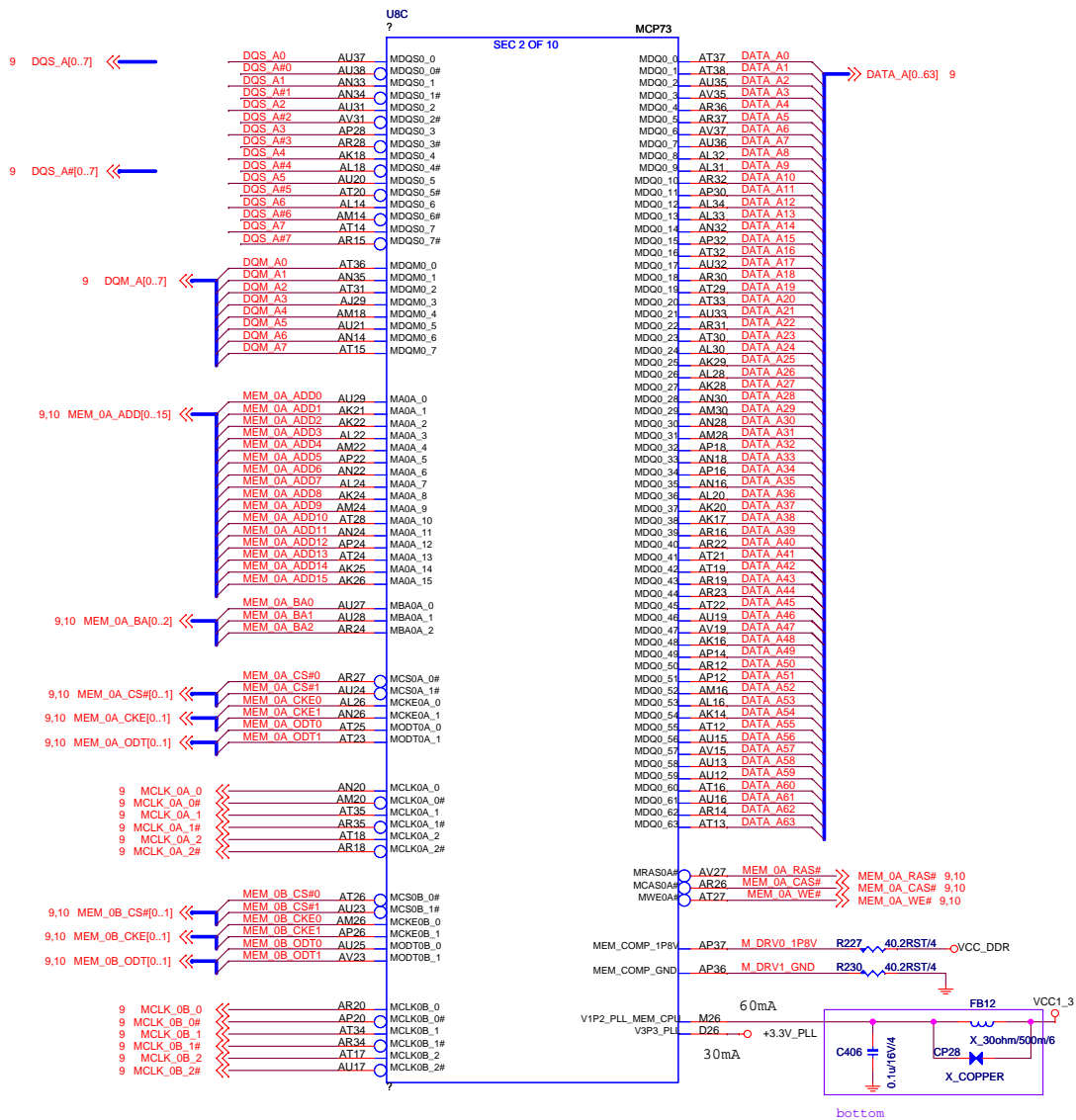
SDVO Muxing on X16 PCI Express			
PE_PRSNT1#	PE_PRSNT4#	SDVO_SCL#	SDVO_SDA#
PE_A_TX3	PE_A_TX12	SDVO_CLK#	
PE_A_TX2	PE_A_TX13	SDVO_BLUE	
PE_A_TX1	PE_A_TX14	SDVO_GREEN	
PE_A_TX0	PE_A_TX15	SDVO_RED	
PE_A_RX1	PE_A_RX14	SDVO_INTR	
PE_A_RX0	PE_A_RX15	SDVO_TVCLKIN	

DATA 0

DIMM 1 ADDR 0A / CNTL 0A

DIMM 2 ADDR 0B / CNTL 0B

DIMM 0A

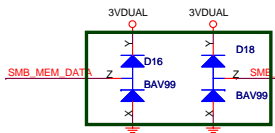
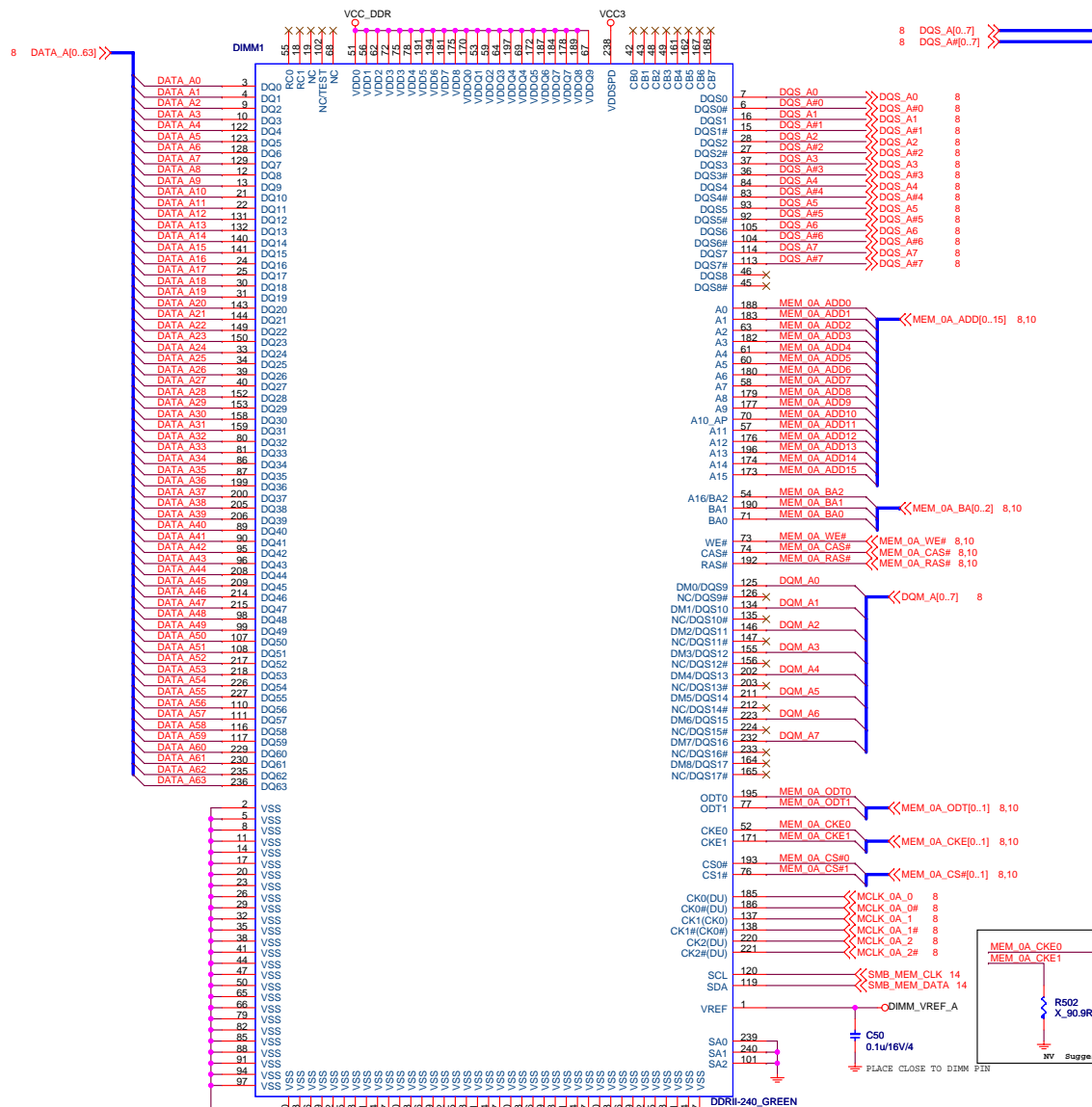


MICRO-STAR INT'L CO.,LTD

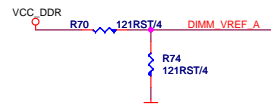
MS-7366

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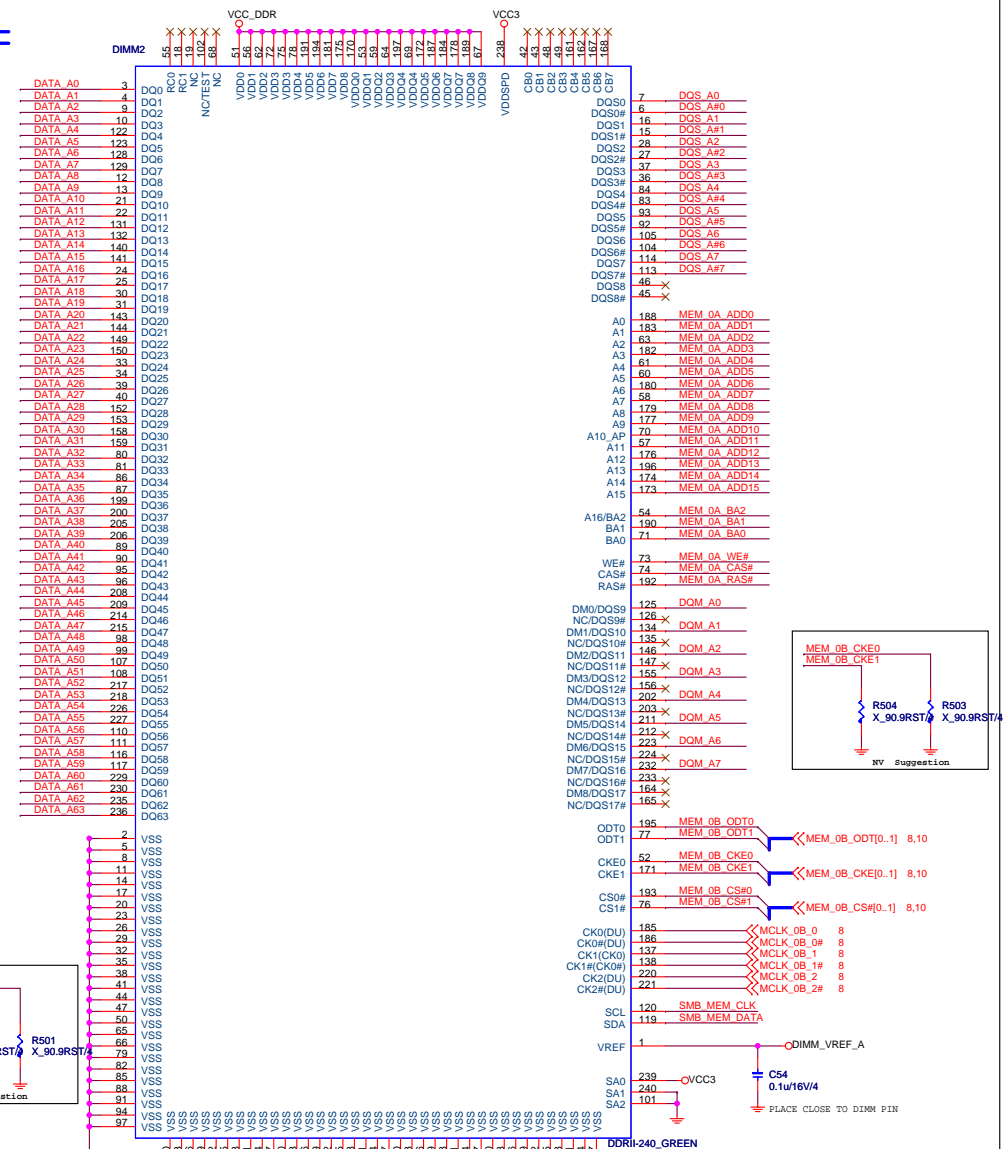
DIMM1 / 0A



ADDRESS: 000
0xA0



DIMM2 / 0B



ADDRESS: 001
0xA2

Diagram showing the connection of the DIMM2 pins to the memory module. The diagram shows the connection of the DIMM2 pins to the memory module, including the connection of the DIMM2 pins to the memory module, the connection of the DIMM2 pins to the memory module, and the connection of the DIMM2 pins to the memory module.

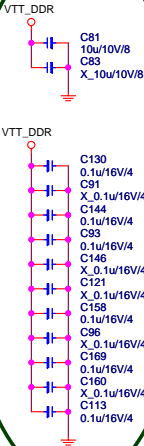
MICRO-STAR INT'L CO.,LTD

MS-7366

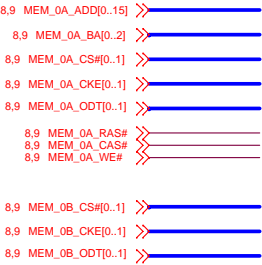
Size Custom Document Description **DDR II - DIMM 1 & 2 Sockets** Rev 0B

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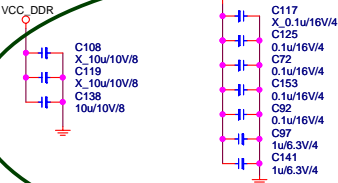
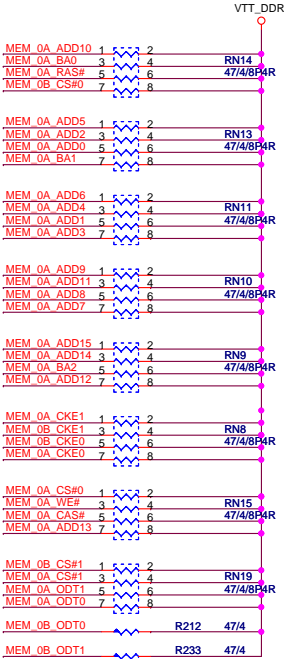
CHANNEL A VTT_DDR DECOUPLING CAPS



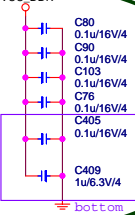
CHECK CAP



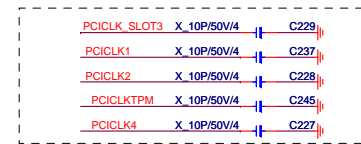
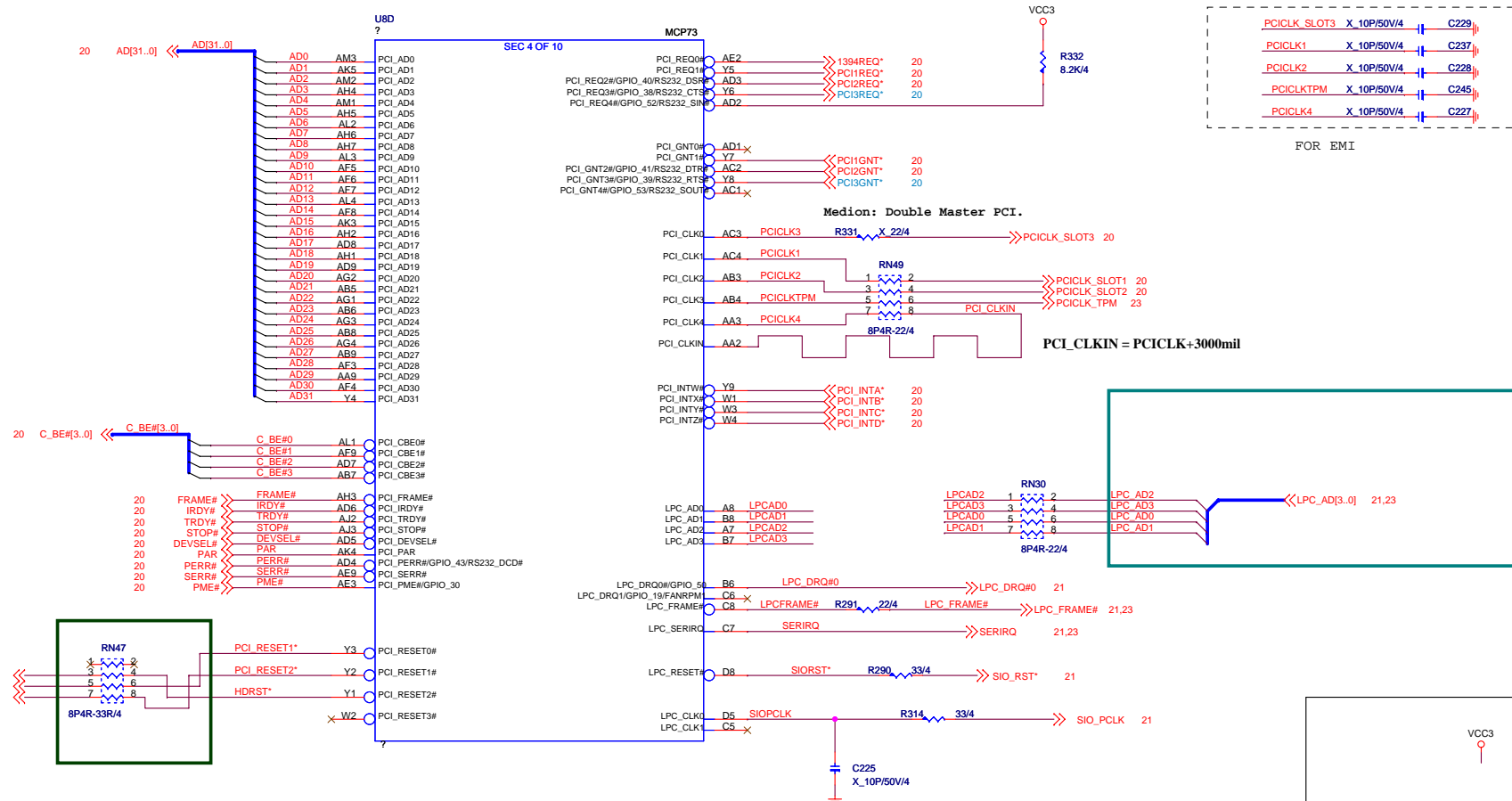
CHANNEL A ----- 0A , 0B



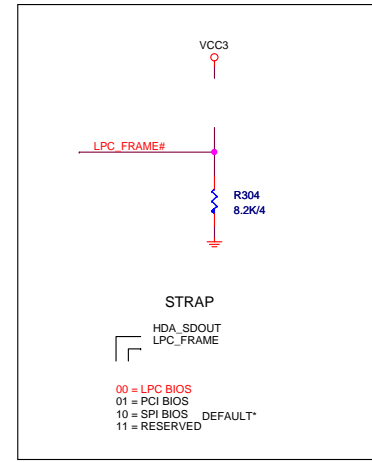
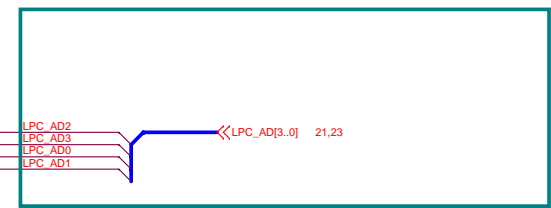
CHECK CAP

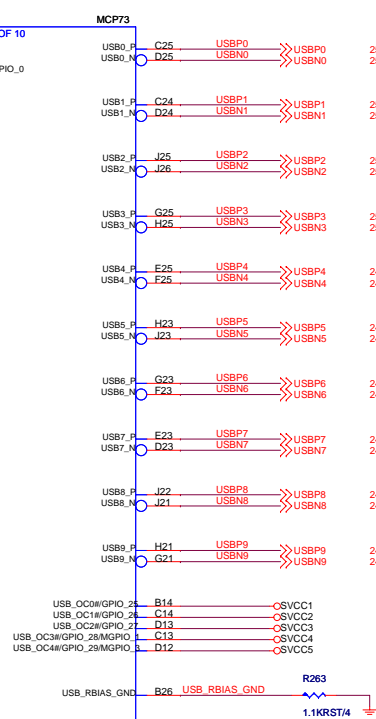
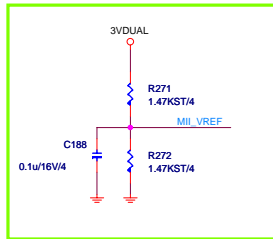
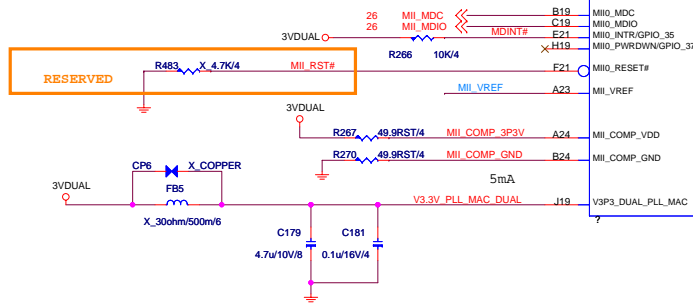
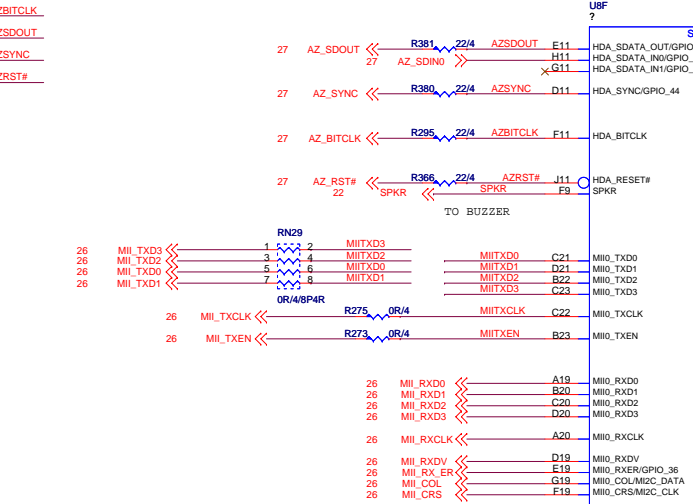
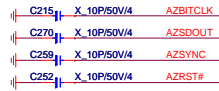
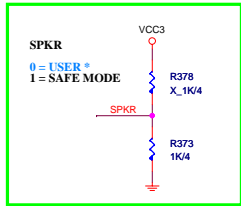
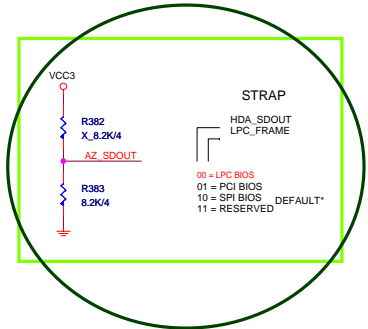
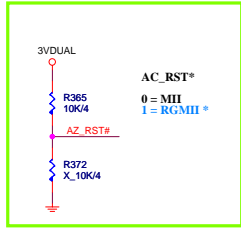
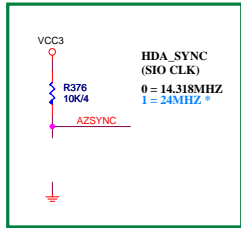


公板上0.1u X5, 1uX3, 10uX3
兩根再X2

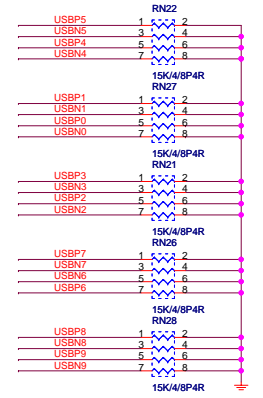


FOR EMI

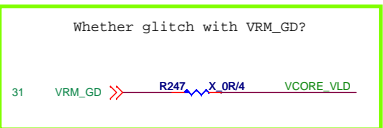
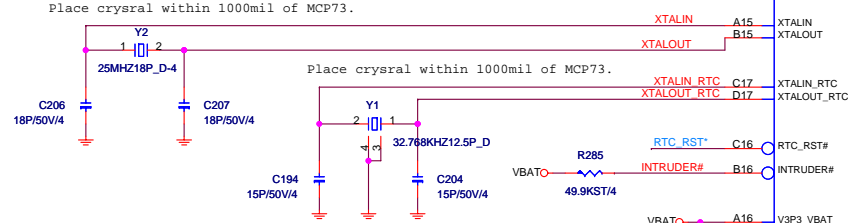
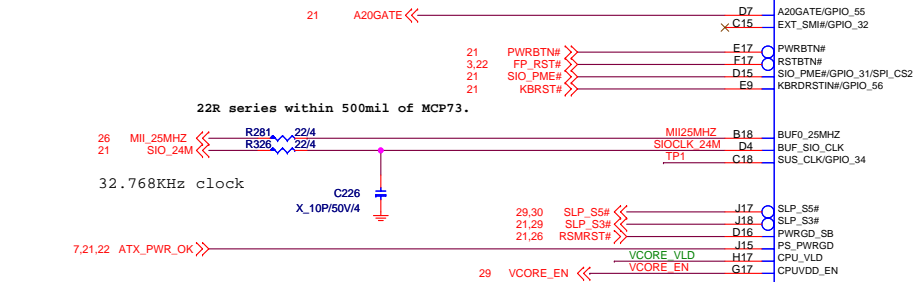
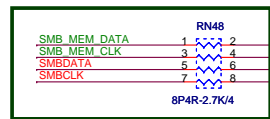




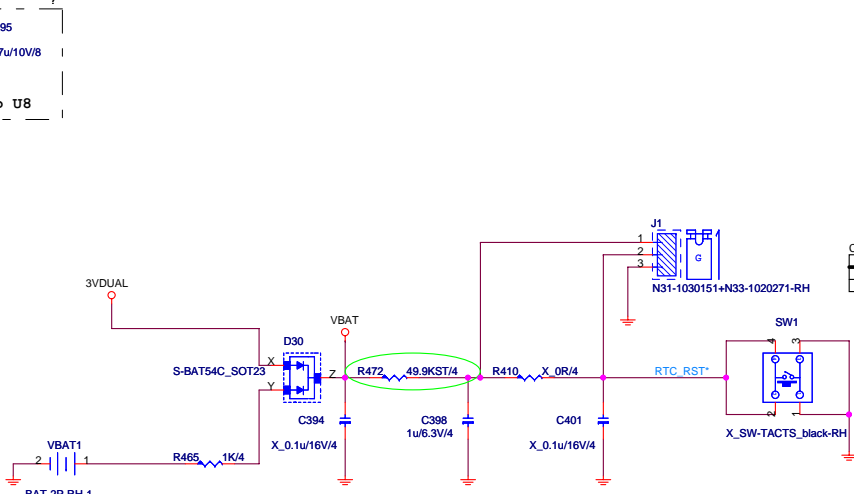
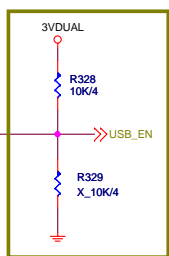
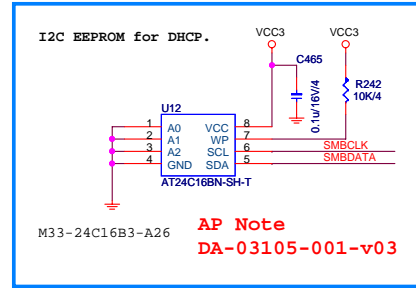
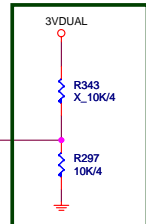
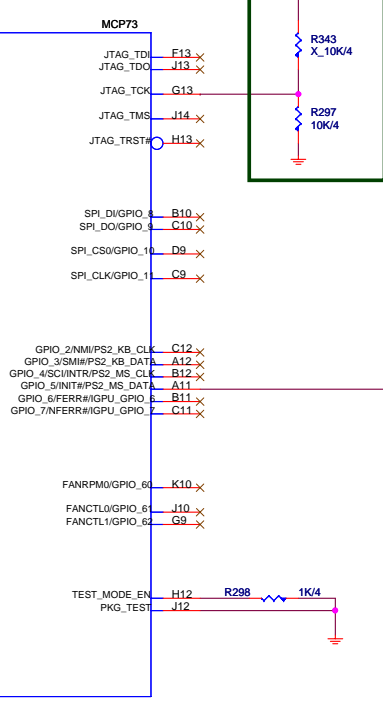
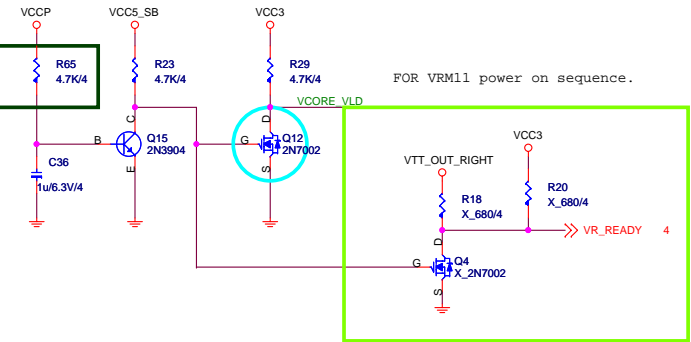
JUSB3--USB[8..9] is not present in MCP73V



MICRO-STAR INT'L CO.,LTD			
MS-7366			
Size	Document Description	Rev	
Custom	MCP51-Audio/USB/GPIO	0B	
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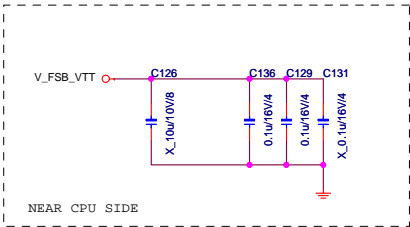
Vcore power-on sequence control circuit



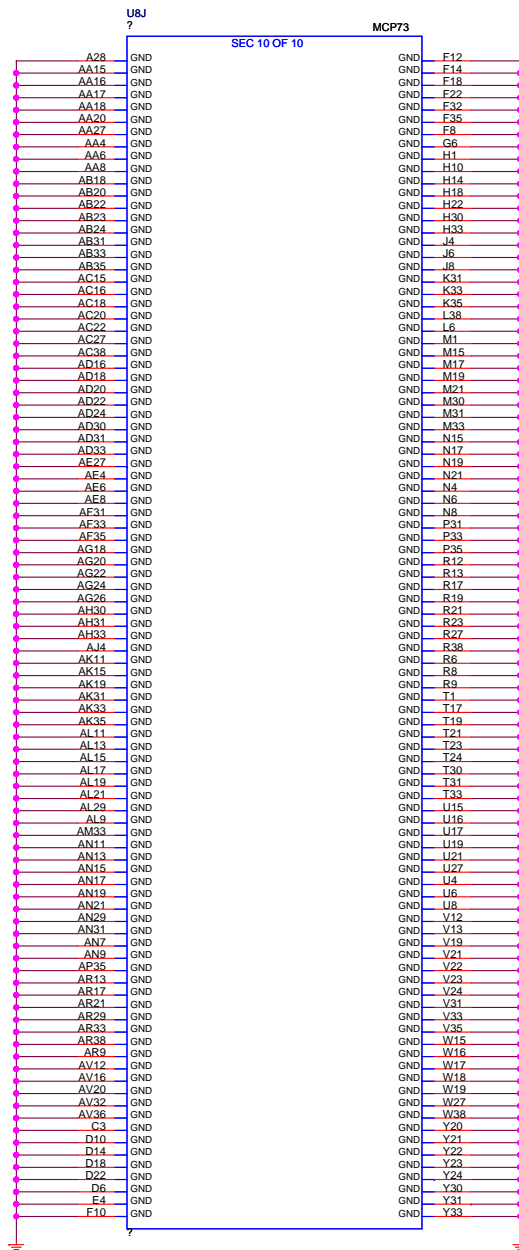
CMOS CLEAR JUMPER	
1-2	Clear CMOS
2-3	Normal
2-3	Clear CMOS



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MS-7366			
Size	Document Description	Rev	
Custom	MCP51-SPI/SMB	0B	
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[illegible]

Size Custom	Document Description MCP73-POWER	Rev 0B
Date: Thursday, August 30, 2007		Sheet 15 of 37

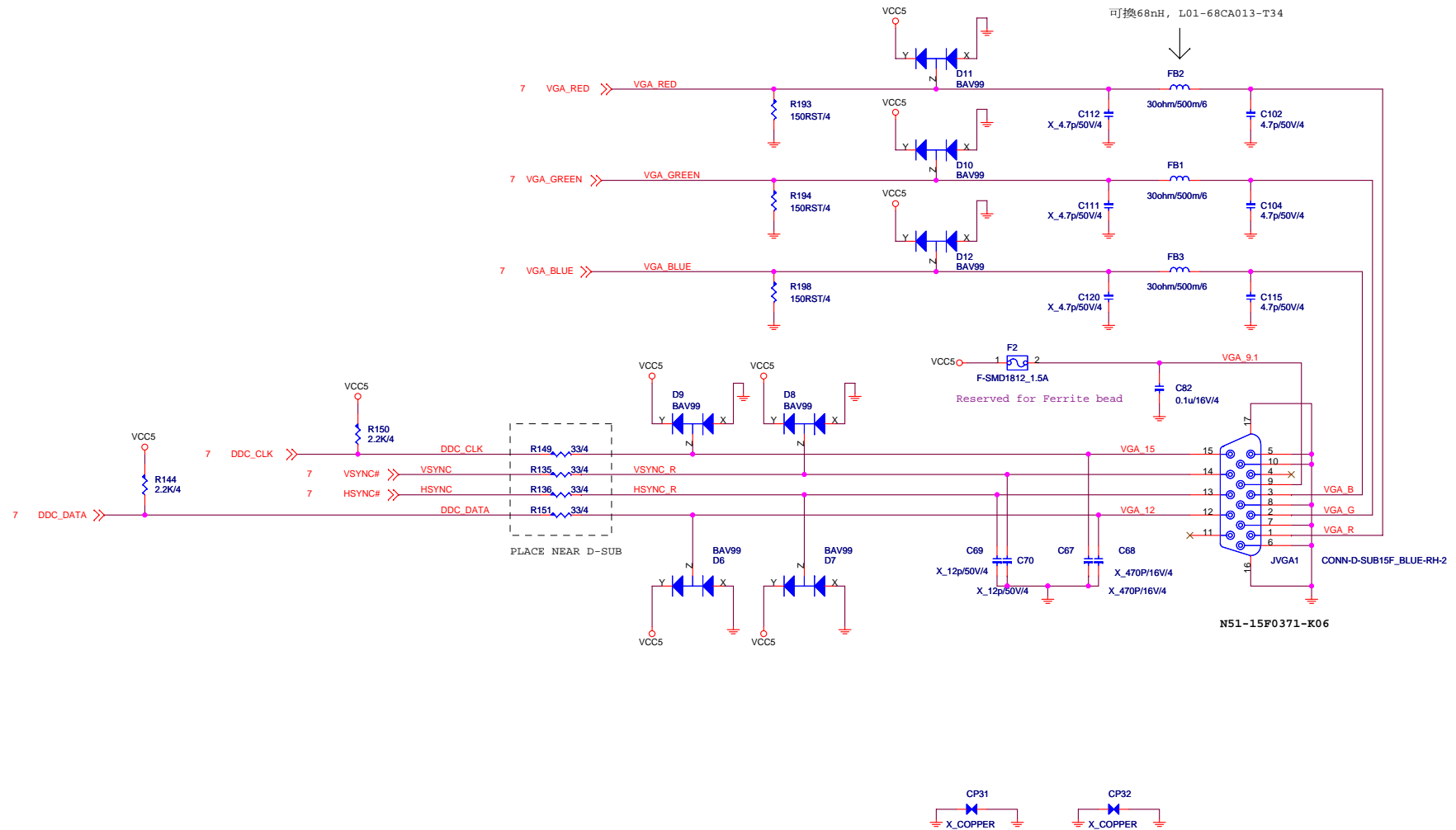


MICRO-STAR INT'L CO.,LTD

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Size	Document Description	Rev
Custom	MCP73-GND	0B
Date: Thursday, August 30, 2007		
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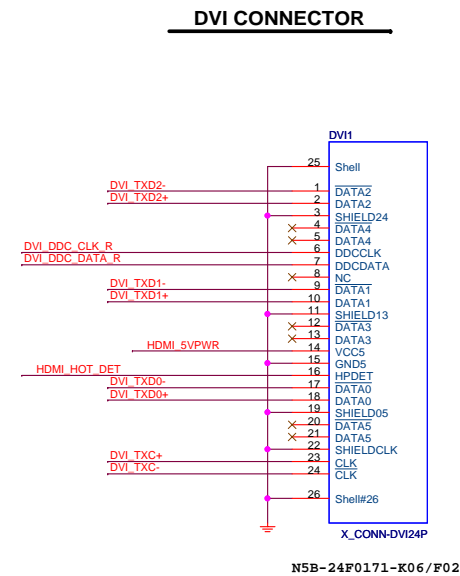
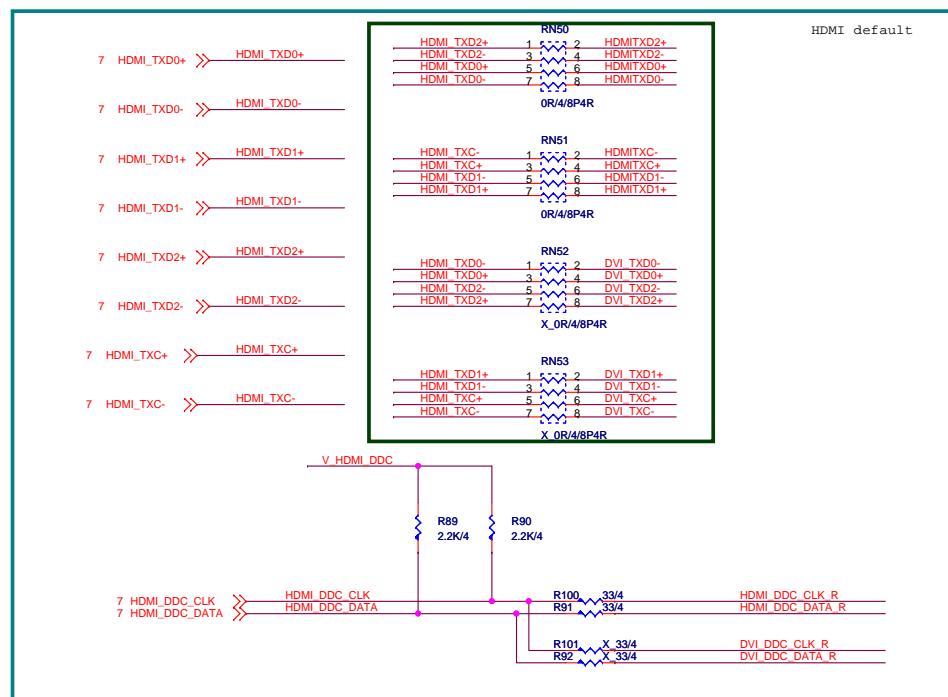
PLACE NEAR VGA CONNECTOR



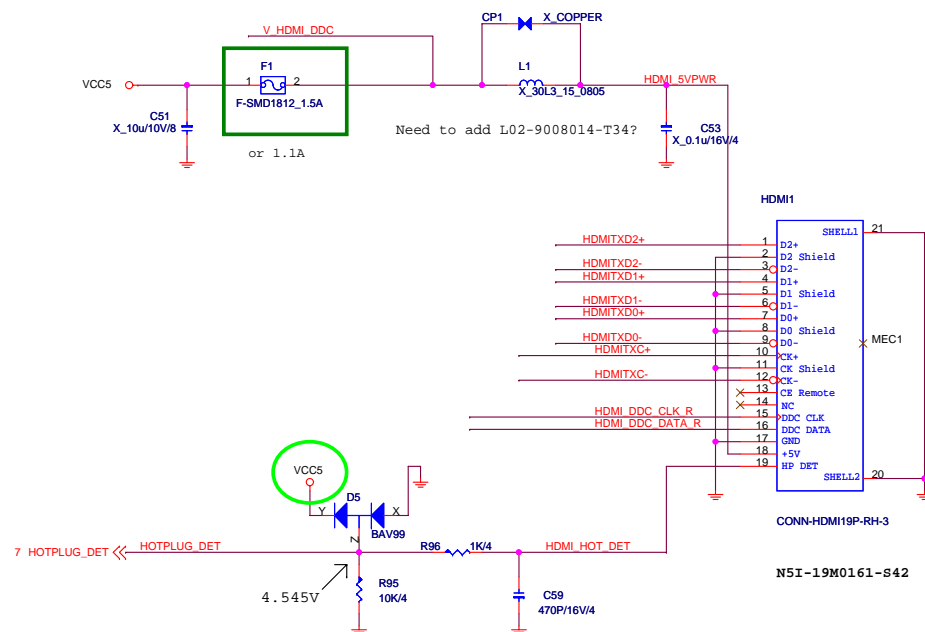
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HDMI CONNECTOR

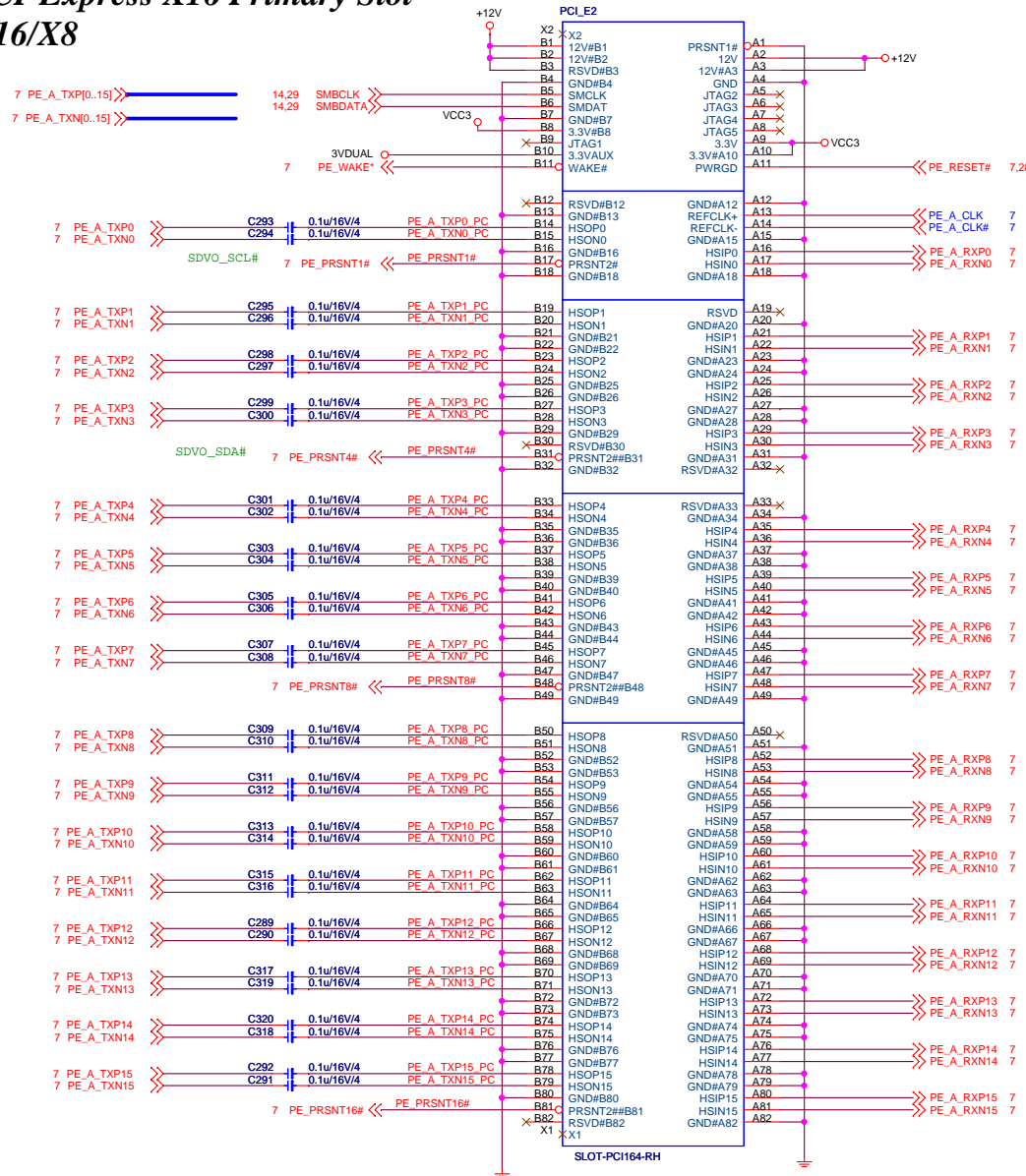


MICRO-STAR INT'L CO.,LTD

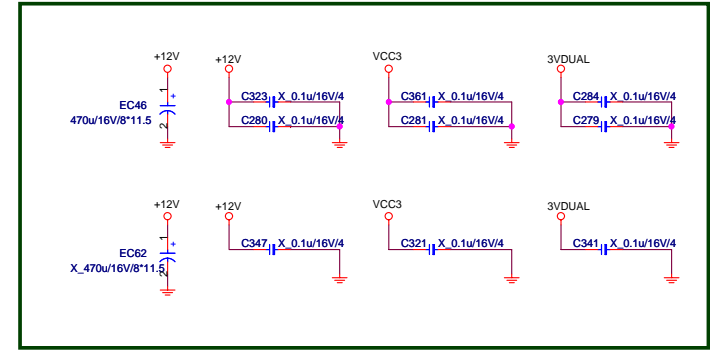
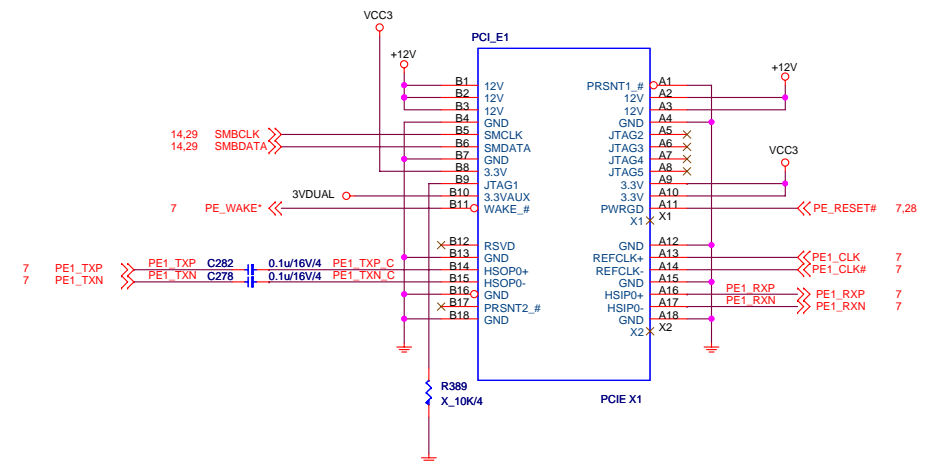
MS-7366

Size Custom	Document Description HDMI/DVI	Rev 0B
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PCI-Express X16 Primary Slot X16/X8



PCI-Express x1 SLOT 1



[illegible]

```

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

```

[illegible]

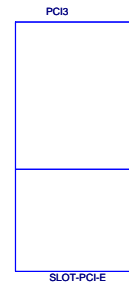
```

IDSEL = AD23
MASTER = PCI2REQ*
PCI2GNT*
PCI1ROUTE=B,C,D,A

```

```
IDSEL = AD24
MASTER = PCI3REQ*
PCI3GNT*
PCI1ROUTE=C
```

Medion BLUE PCI SLOT



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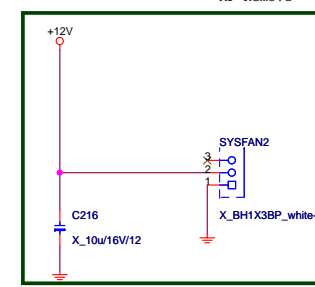
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Size Custom	Document Description PCI Slot 1 & 2	Rev 0B
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Intel Front Panel

[illegible][illegible]

Reserve for NB_FAN, Near MCP73
MP Remove

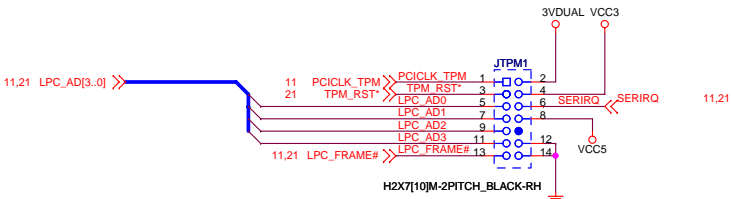


MICRO-STAR INT'L CO.,LTD

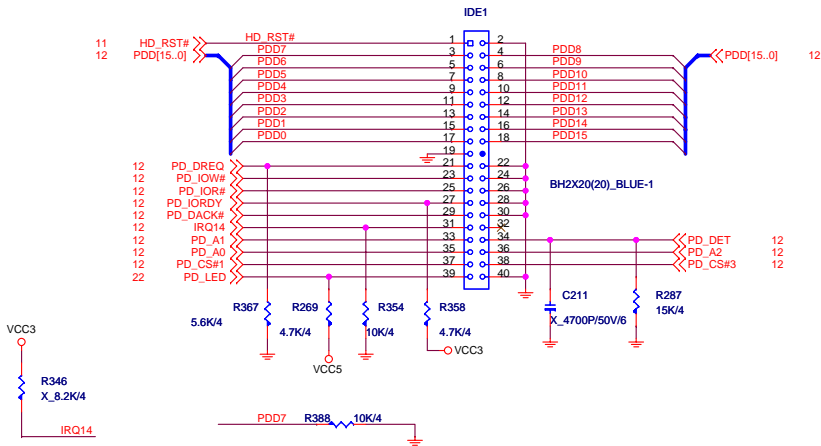
MS-7366

Size Custom	Document Description ATX/Front Panel/FAN	Rev 0E
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JLPC port for TPM



PRIMARY IDE BLOCK

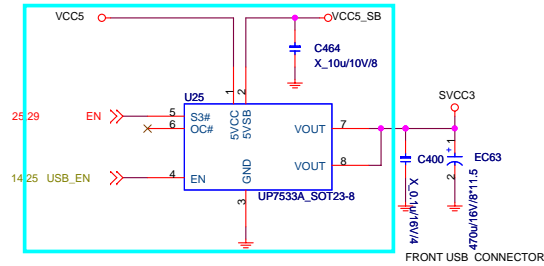


MS-7366

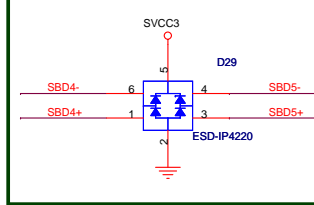
Size Custom	Document Description KB/COM1/IDE/FAN	Rev 0B
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FRONT PANEL USB CONNECTOR

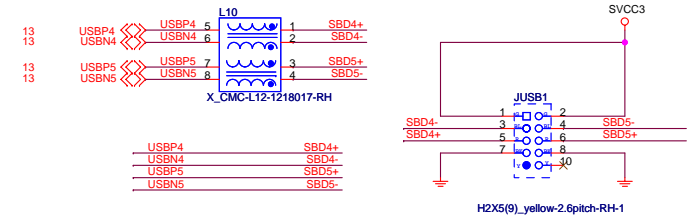
POWER CIRCUIT FOR USB PORT 4,5



ESD Protection



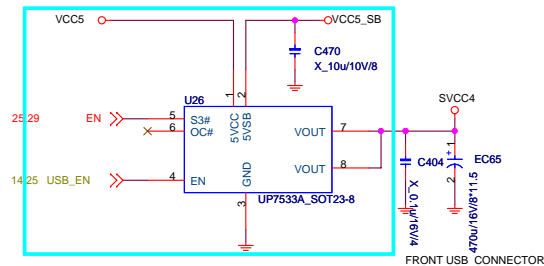
FRONT PANEL USB CONNECTOR FOR USB PORT 4,5



NEAR USB CONNECTOR

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

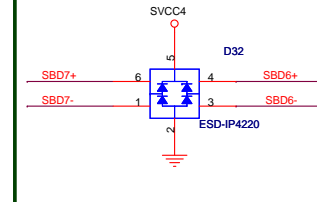
POWER CIRCUIT FOR USB PORT 6,7



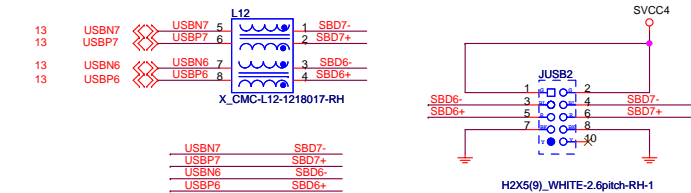
VCC5

EC71

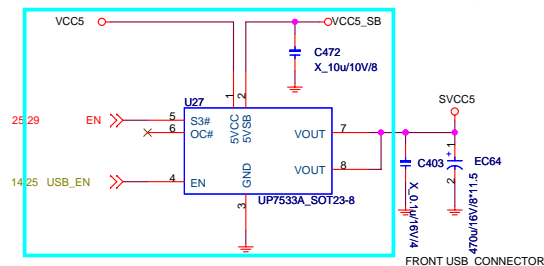
ESD Protection



FRONT PANEL USB CONNECTOR FOR USB PORT 6,7

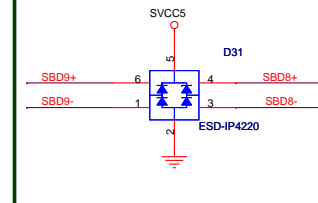


POWER CIRCUIT FOR USB PORT 8,9



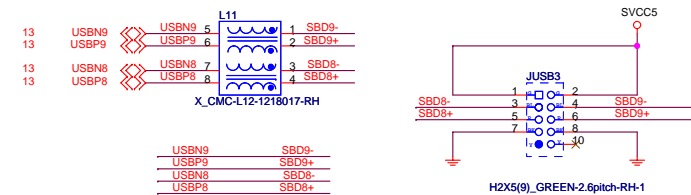
JUSB3--USB[8.9] is not present in MCP73V

ESD Protection



FRONT PANEL USB CONNECTOR FOR USB PORT 8,9

JUSB3 is not present in MCP73S



JUSB3--USB[8.9] is not present in MCP73V



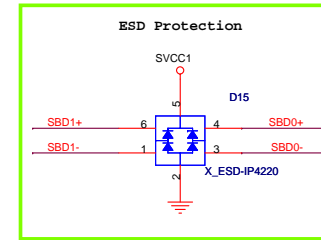
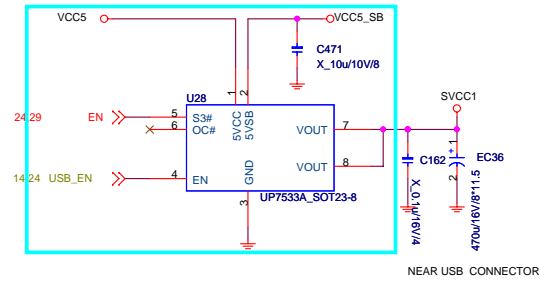
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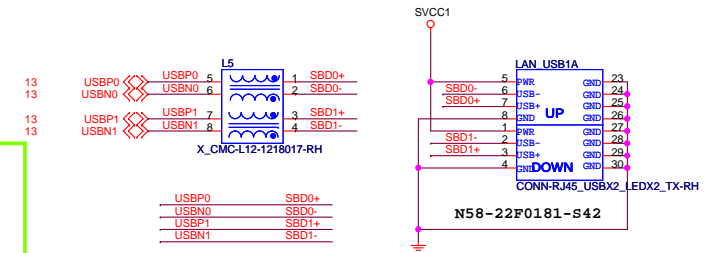
Size	Document Description	Rev
Custom	USB CONNECTORS PART1	0B
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REAR PANEL USB CONNECTOR

POWER CIRCUIT FOR USB PORT 0,1



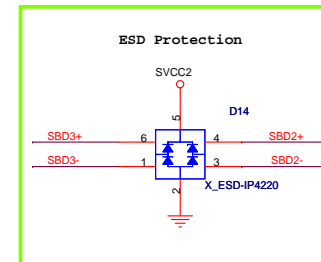
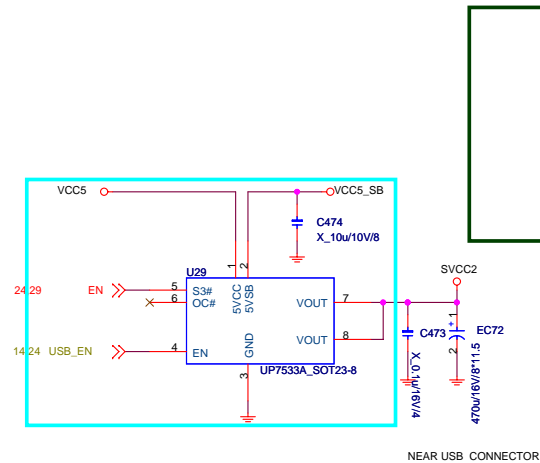
REAR PANEL USB CONNECTOR FOR USB PORT 0,1



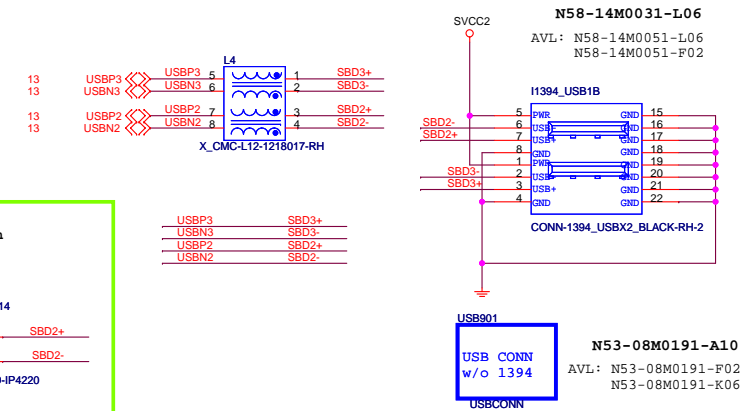
NEAR USB CONNECTOR

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

POWER CIRCUIT FOR USB PORT 2,3



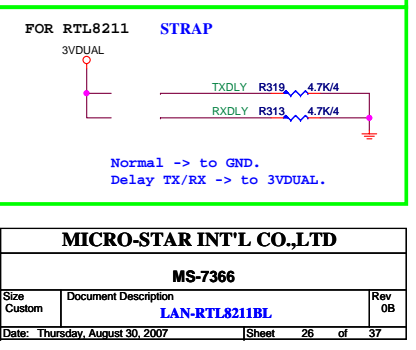
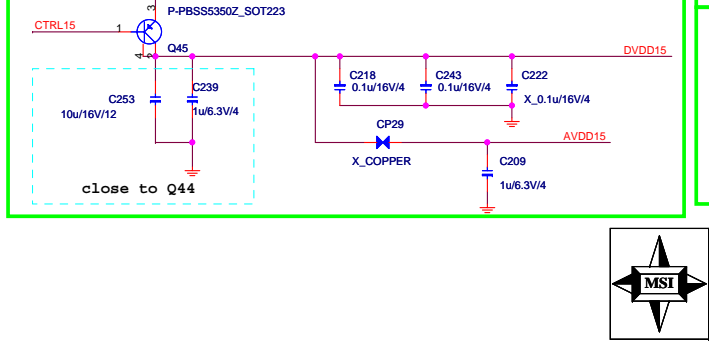
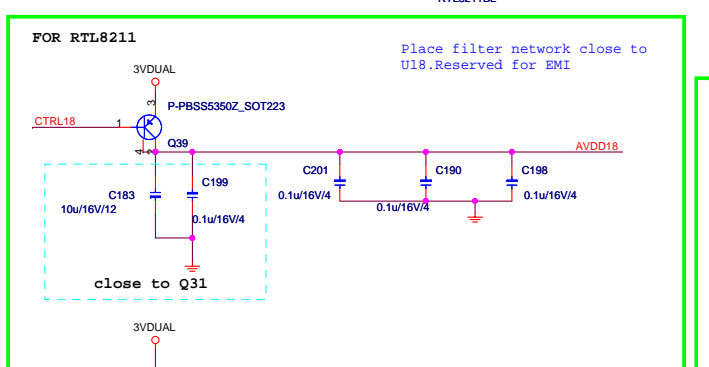
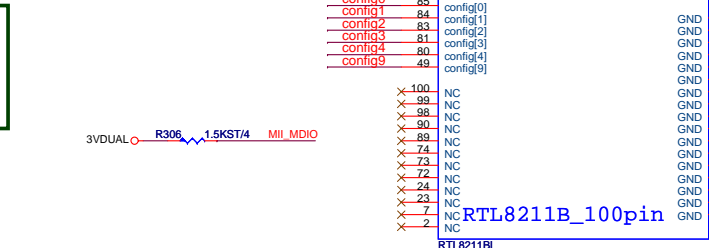
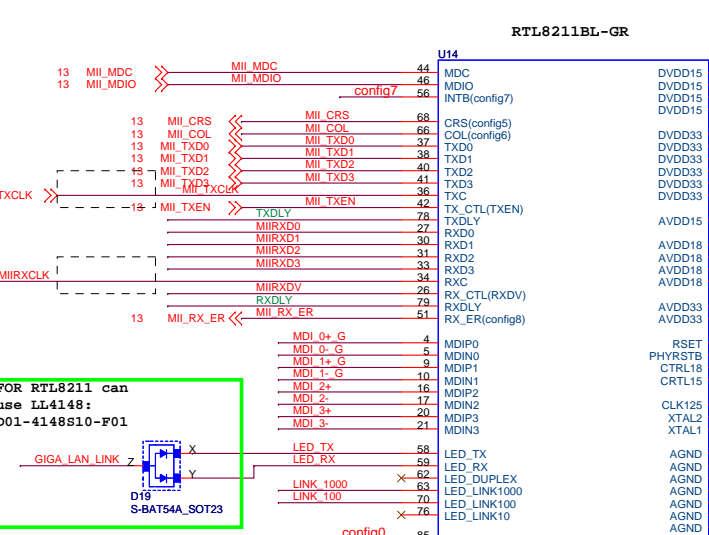
REAR PANEL USB CONNECTOR FOR USB PORT 2,3

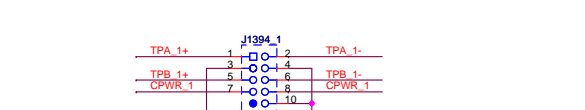
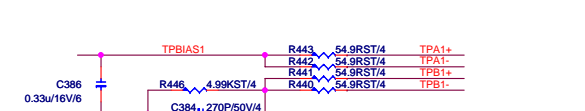
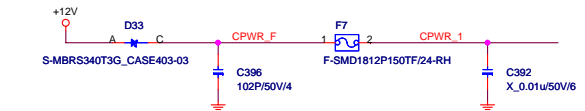
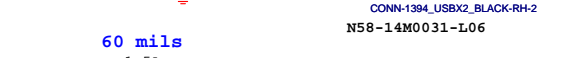
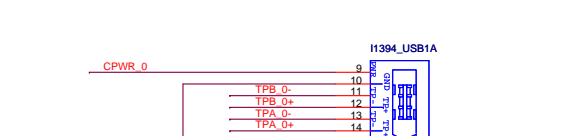
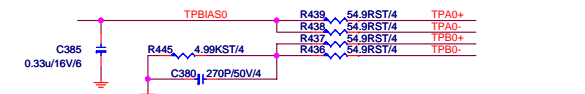
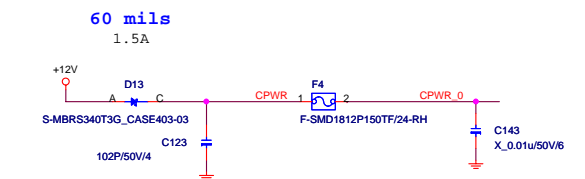
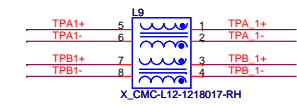
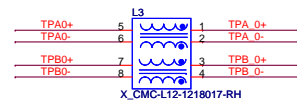
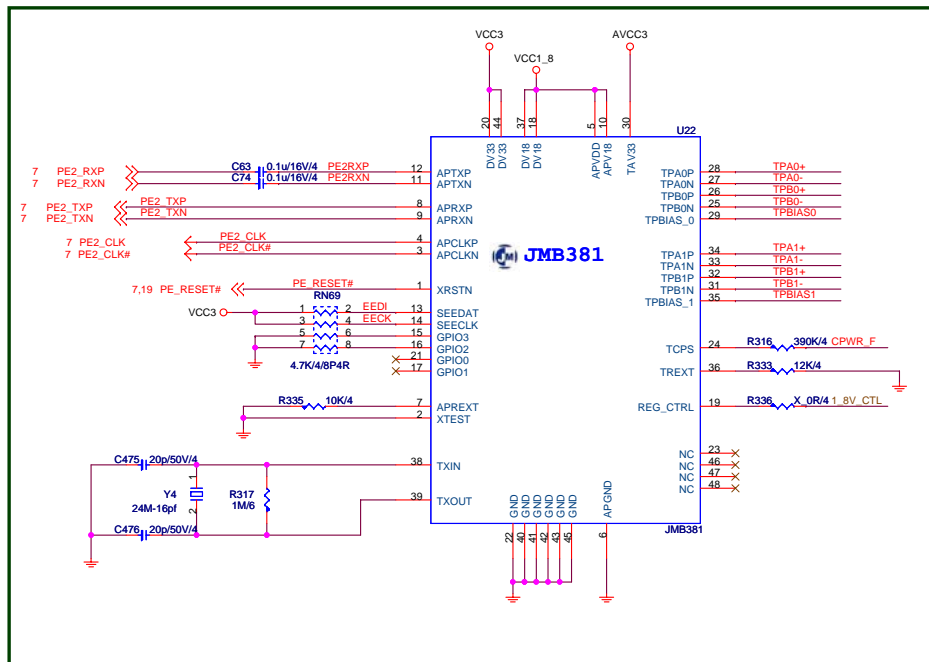


NEAR USB CONNECTOR

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

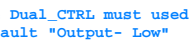
MICRO-STAR INT'L CO.,LTD			
MS-7366			
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For Intel 1394 pinheader

The Dual_CTRL must used
default "Output- Low"



避免power on時，lan瞬間抽電流
VCC5_SBL Drop過大



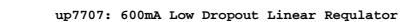
up6261: High Precision Voltage Console

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

up7707: 600mA Low Dropout Linear Regulator



$$V_{out} = 0.8 * (R1 + R2) / R1$$

FSB_VTT, 6.1A
3.66W

用 VCORE_EN 卡 V_FSB_VTT

VCC5_SB

R311 10K/4

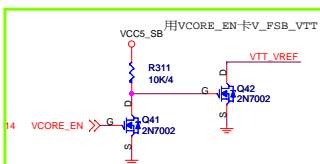
Q41 2N7002

Q42 2N7002

VTT_VREF

VCORE_EN

14

[illegible]

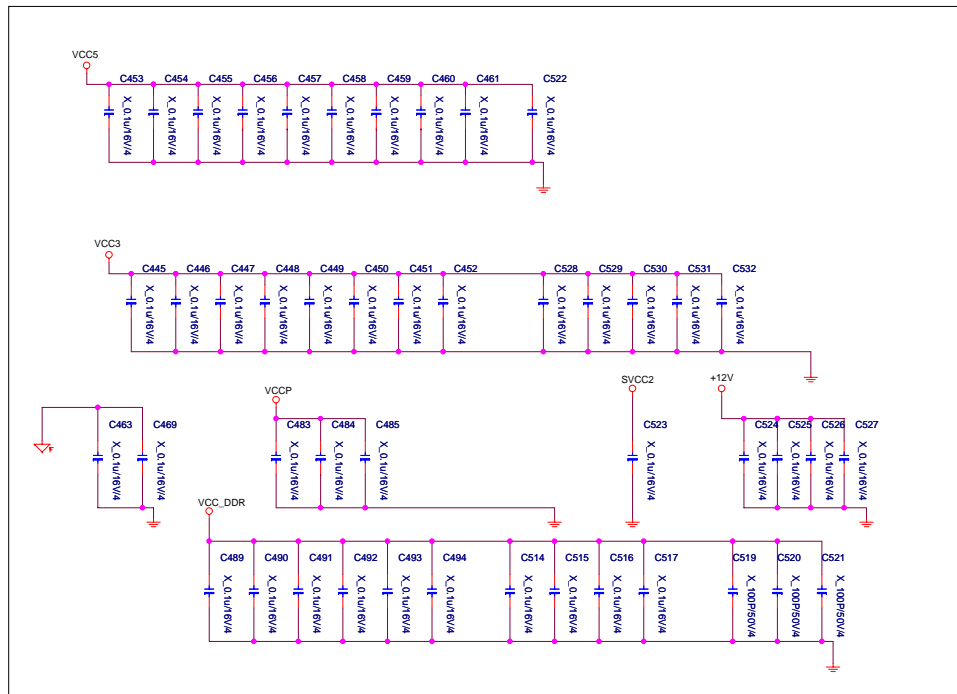
VTT_SEL = L	V_FSB_VTT=1.1V	For future KENTSFIELD processor. (FSB1333, Quad-Core)
VTT_SEL = H	V_FSB_VTT=1.2V	For normal processors.



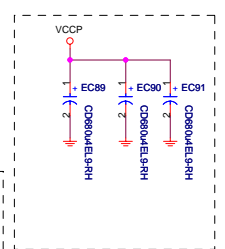
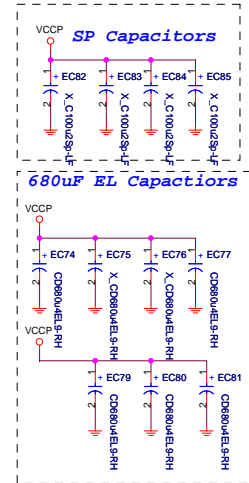
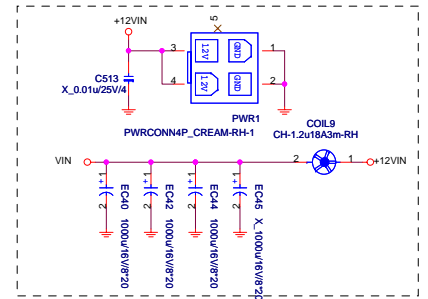
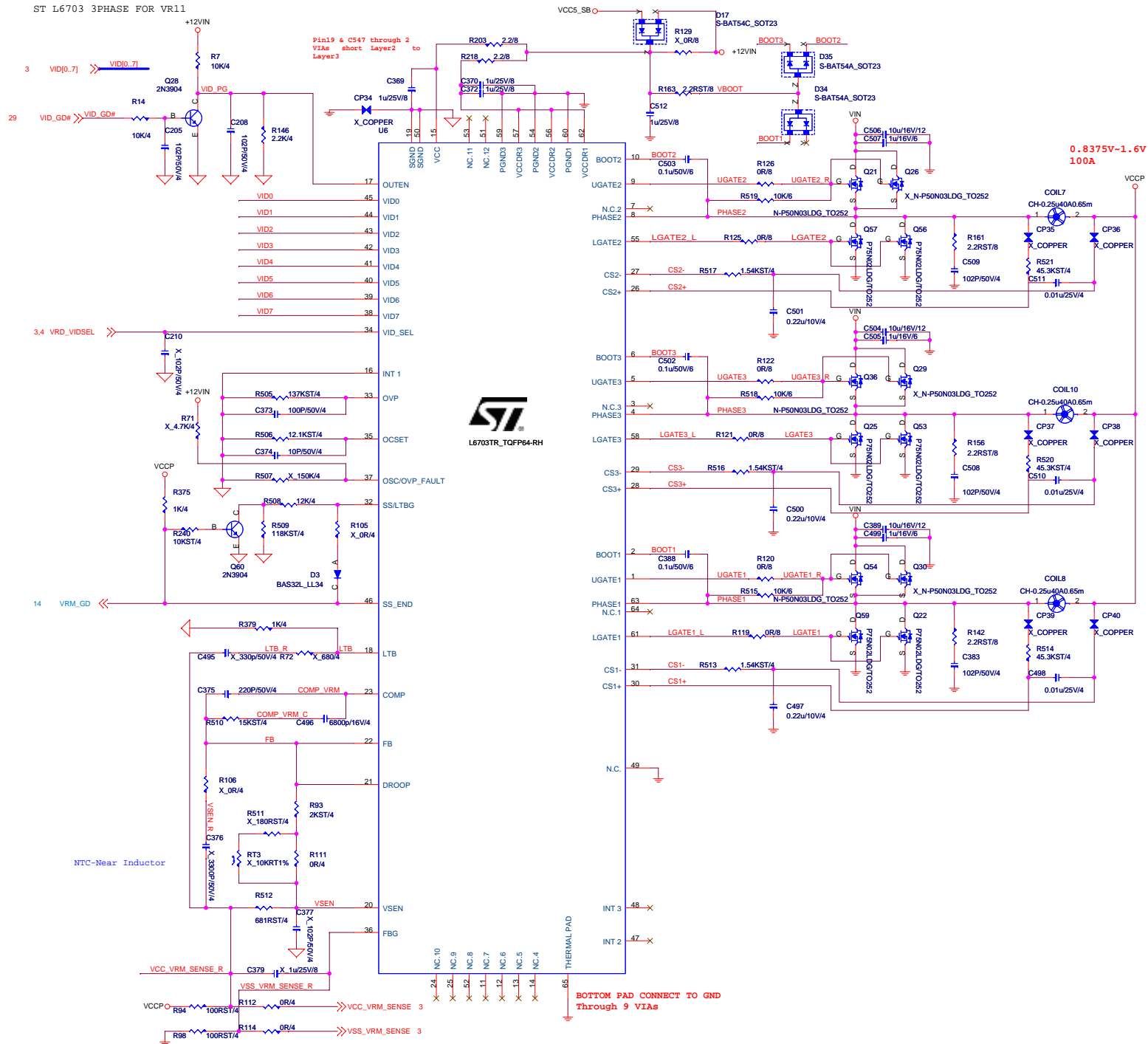
ACPI Controller UPI

Rev 0B

$$I_{ripple} = 22.21 \times 0.6 \times 0.8 / 1 = 10.66A$$

$$2.35 \times 3 \times 1.7 = 11.985A > 10.08A$$


ST L6703 3PHASE FOR VR11



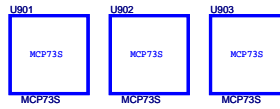
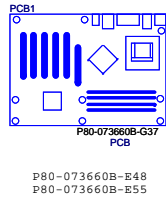
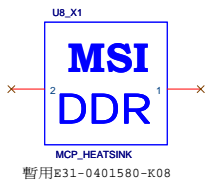
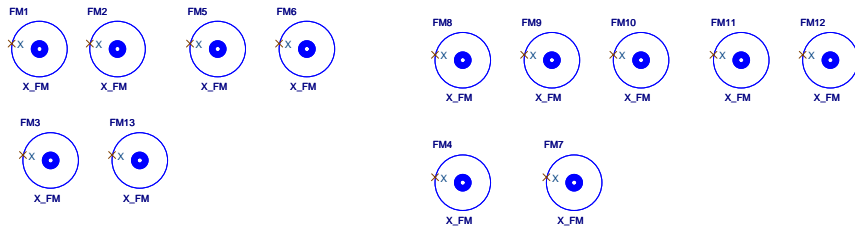


Table 1-4. Comparison of Different MCP73 Models

Features	MCP73D	MCP73PV	MCP730	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

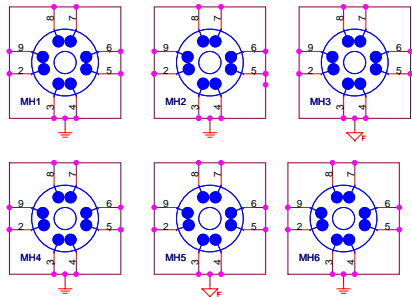


Table 1. MCP73 SKU Definition

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

