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# MS-7366 Micro ATX

Version: 1.0\_070919

**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:

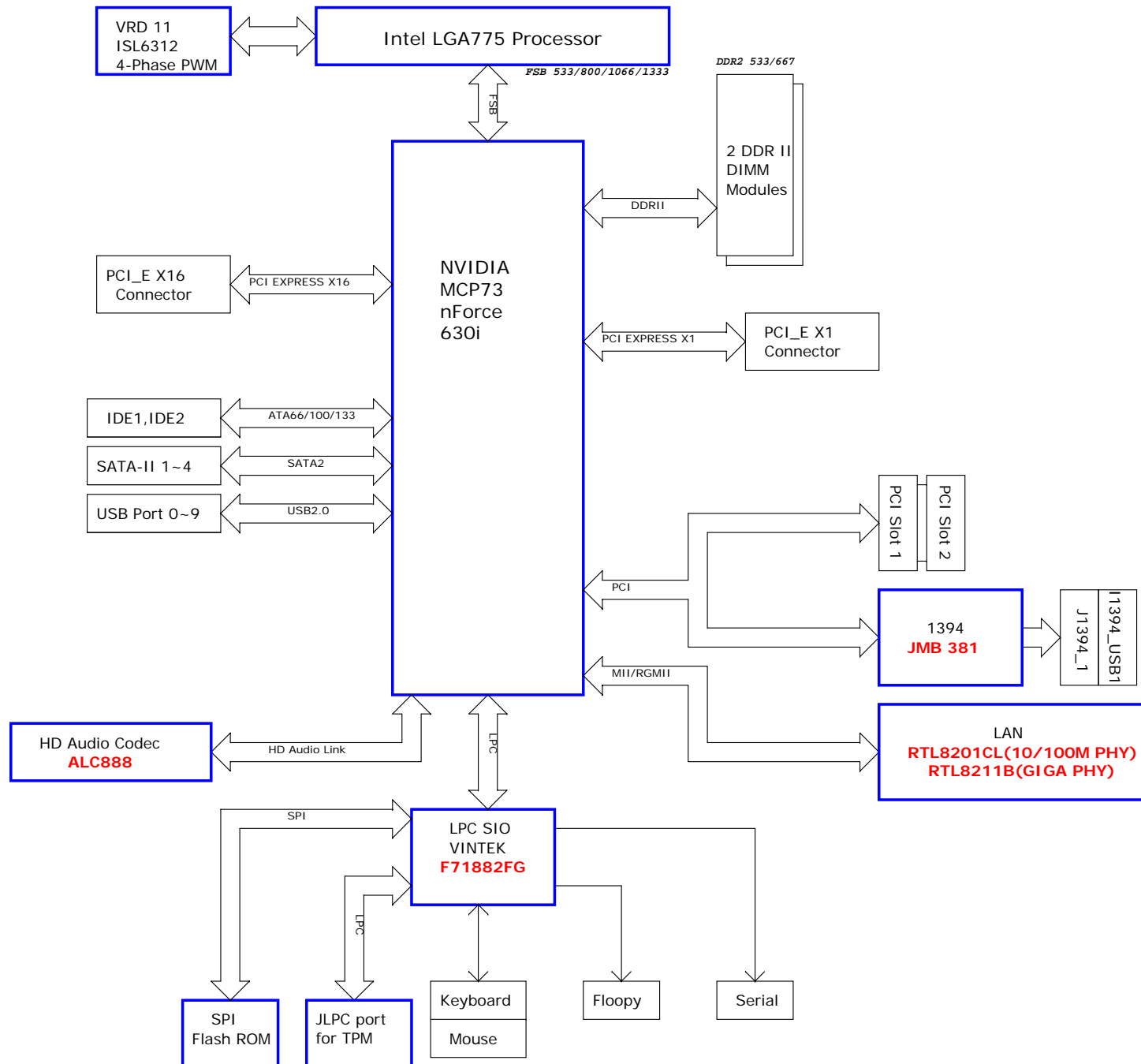
PCI EXPRESS X16 SLOT \*1  
 PCI EXPRESS X1 SLOT \* 1  
 PCI SLOT \* 2

## Intersil PWM:

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

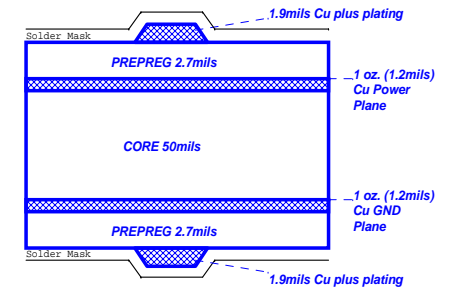
OPT	Function	Orcad Configure	BOM
A	MCP73U(HDMI, D-SUB) / F71882FG/ALC888/RTL8211BL/JMB381	Cfg-U	601-7366-B10
B	MCP73PV(DVI, D-SUB) / F71882FG/ALC888/RTL8211BL	Cfg-PV	601-7366-B20
C	MCP73S(D-SUB) / F71882FG/ALC888/RTL8211BL	Cfg-S	
D	MCP73V(D-SUB) / F71882FG/ALC888/RTL8201CL	Cfg-V	601-7366-B30

# Block Diagram



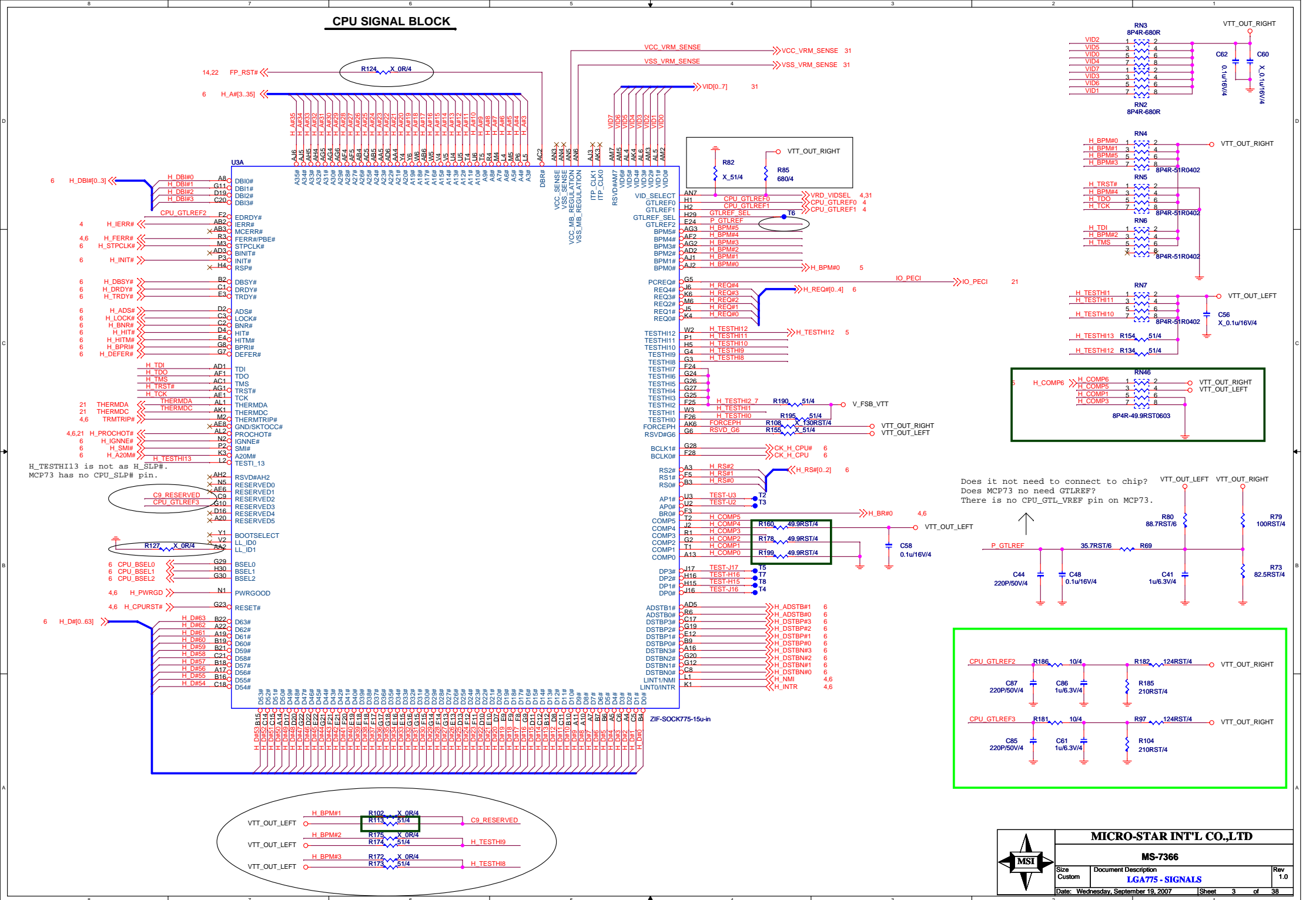
## Board Stack-up

(1080 Prepreg Considerations)

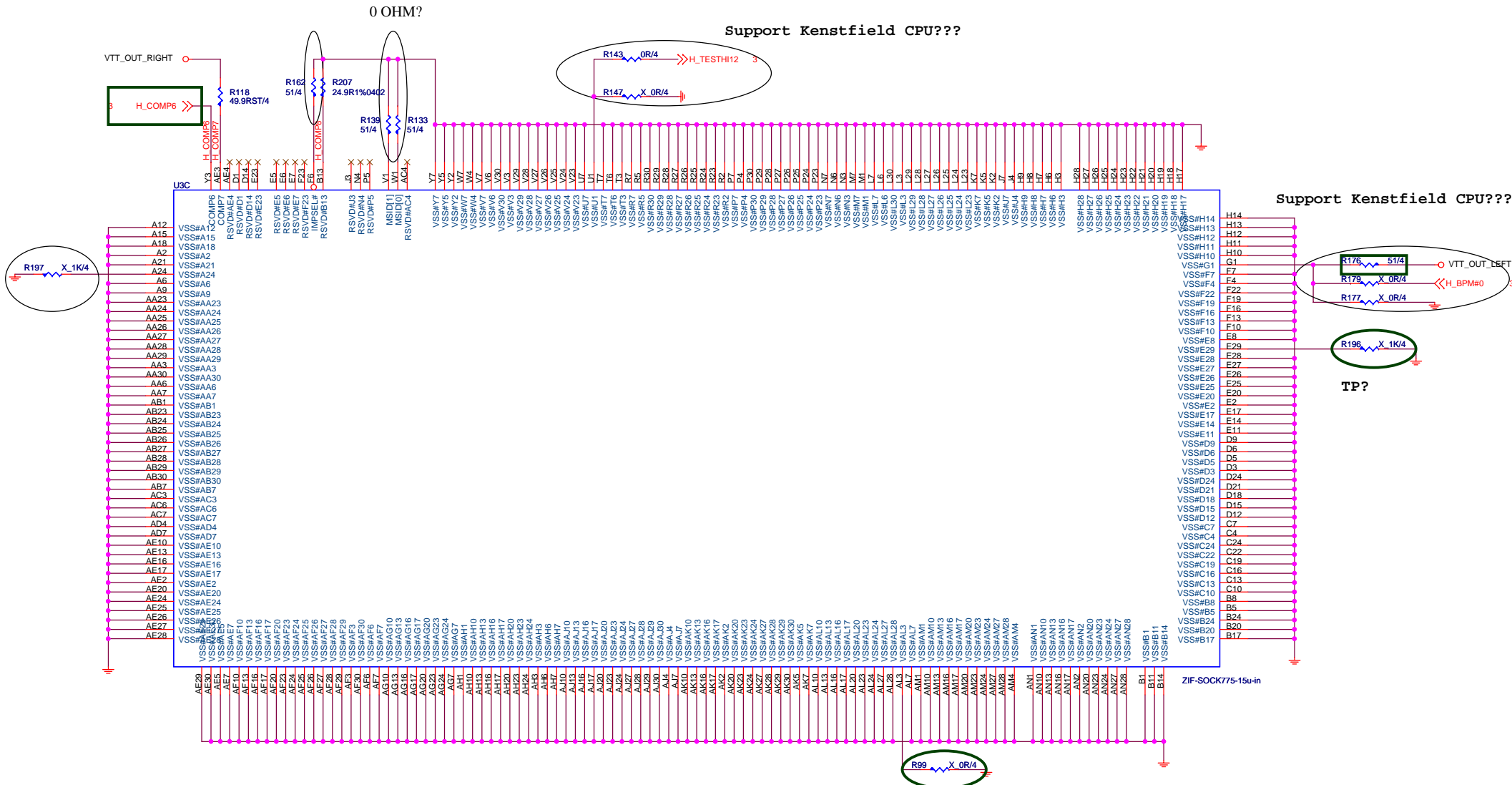


Single End 50ohm Top/Bottom : 4mils  
 USB2.0 - 100ohm : 20/4/8/4/20  
 HDMI - 100ohm : 20/4/8/4/20  
 SATA - 100ohm : 20/4/8/4/20  
 LAN - 100ohm : 20/4/8/4/20  
 PCIE - 100ohm : 20/4/8/4/20  
 IEEE1394 - 110ohm : 15/4/9/4/15  
 IDE : 15/4/8/4/15

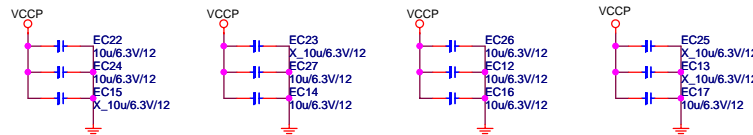
## CPU SIGNAL BLOCK



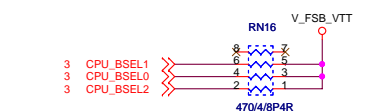





### CPU DECOUPLING CAPACITORS

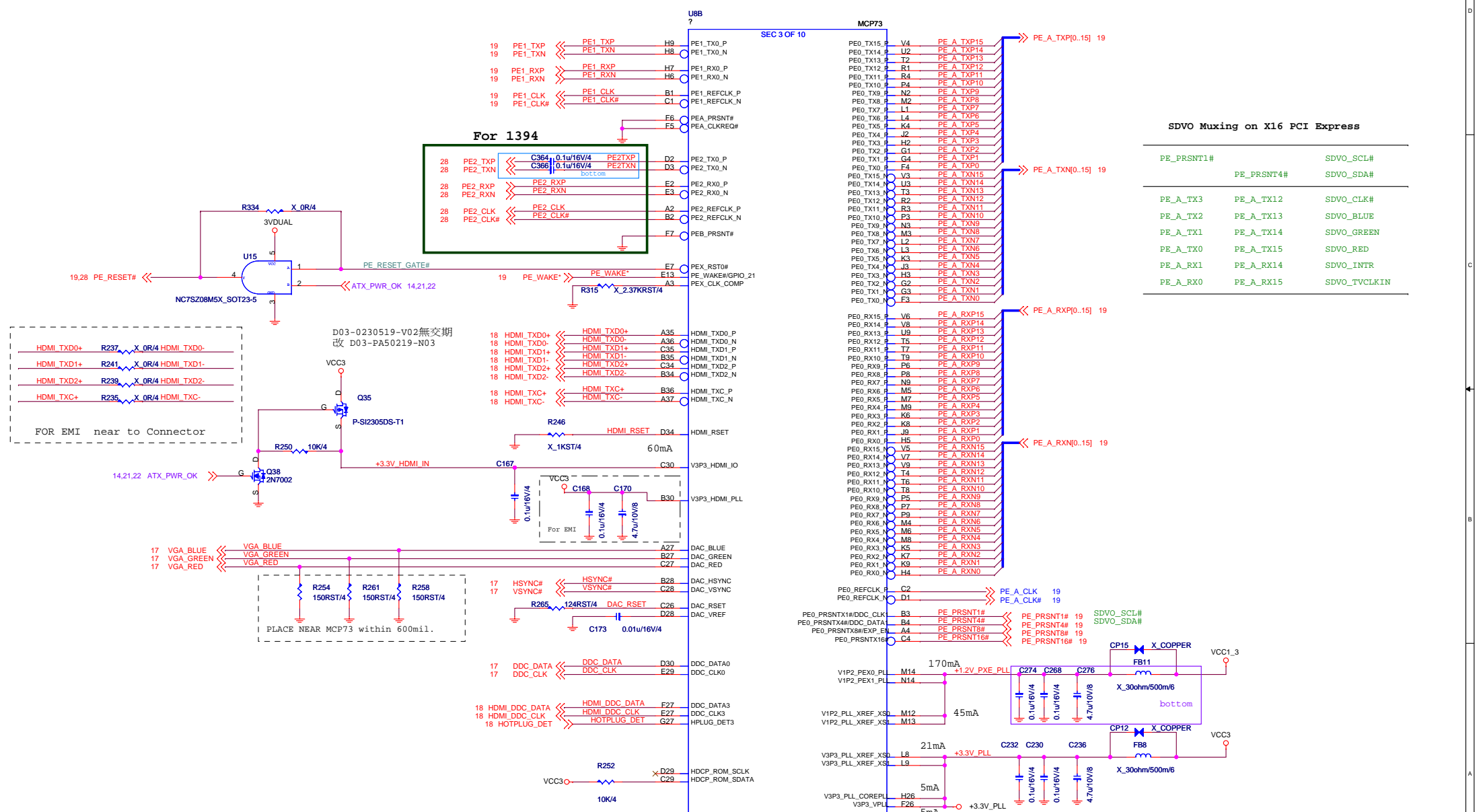


Place these caps within socket cavity



if CPU processor hot cause system shutdown, remove OR.

	<b>MICRO-STAR INT'L CO.,LTD</b>		
	<b>MS-7366</b>		
	Size Custom	Document Description <b>MCP73-CPU</b>	Rev 1.0
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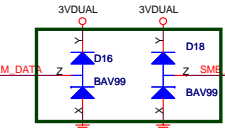


SDVO Muxing on X16 PCI Express			
PE_PRSNT1#	PE_PRSNT4#	SDVO_SCL#	SDVO_SDA#
PE_A_TX3	PE_A_TX12	SDVO_CLK#	
PE_A_TX2	PE_A_TX13	SDVO_BLUE	
PE_A_TX1	PE_A_TX14	SDVO_GREEN	
PE_A_TX0	PE_A_TX15	SDVO_RED	
PE_A_RX1	PE_A_RX14	SDVO_INTR	
PE_A_RX0	PE_A_RX15	SDVO_TVCLKIN	

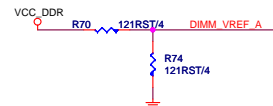
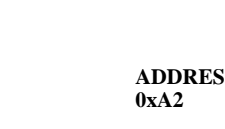




**DIMM1 / 0A**



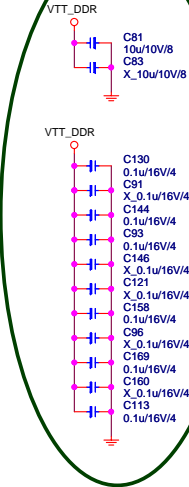
**ADDRESS: 00000000**  
**0xA0**

**DIMM2 / 0B**

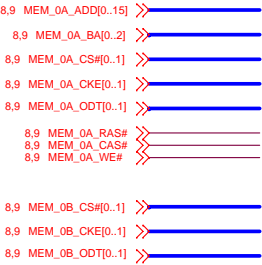
**ADDRESS: 0010xA2**



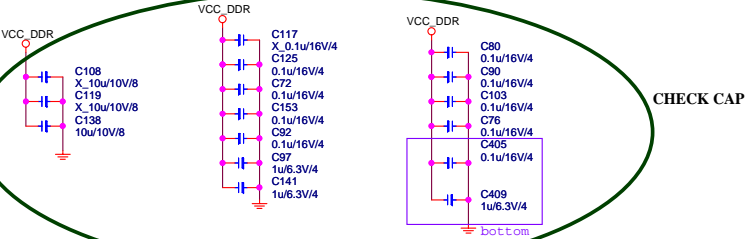
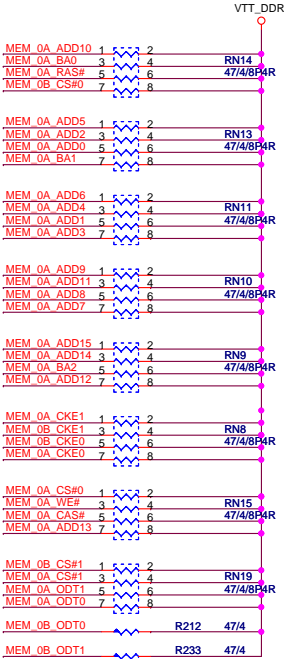
CHANNEL A VTT\_DDR DECOUPLING CAPS



CHECK CAP



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



CHECK CAP

公板上0.1u X5, 1uX3, 10uX3  
兩根再X2

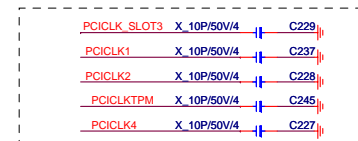
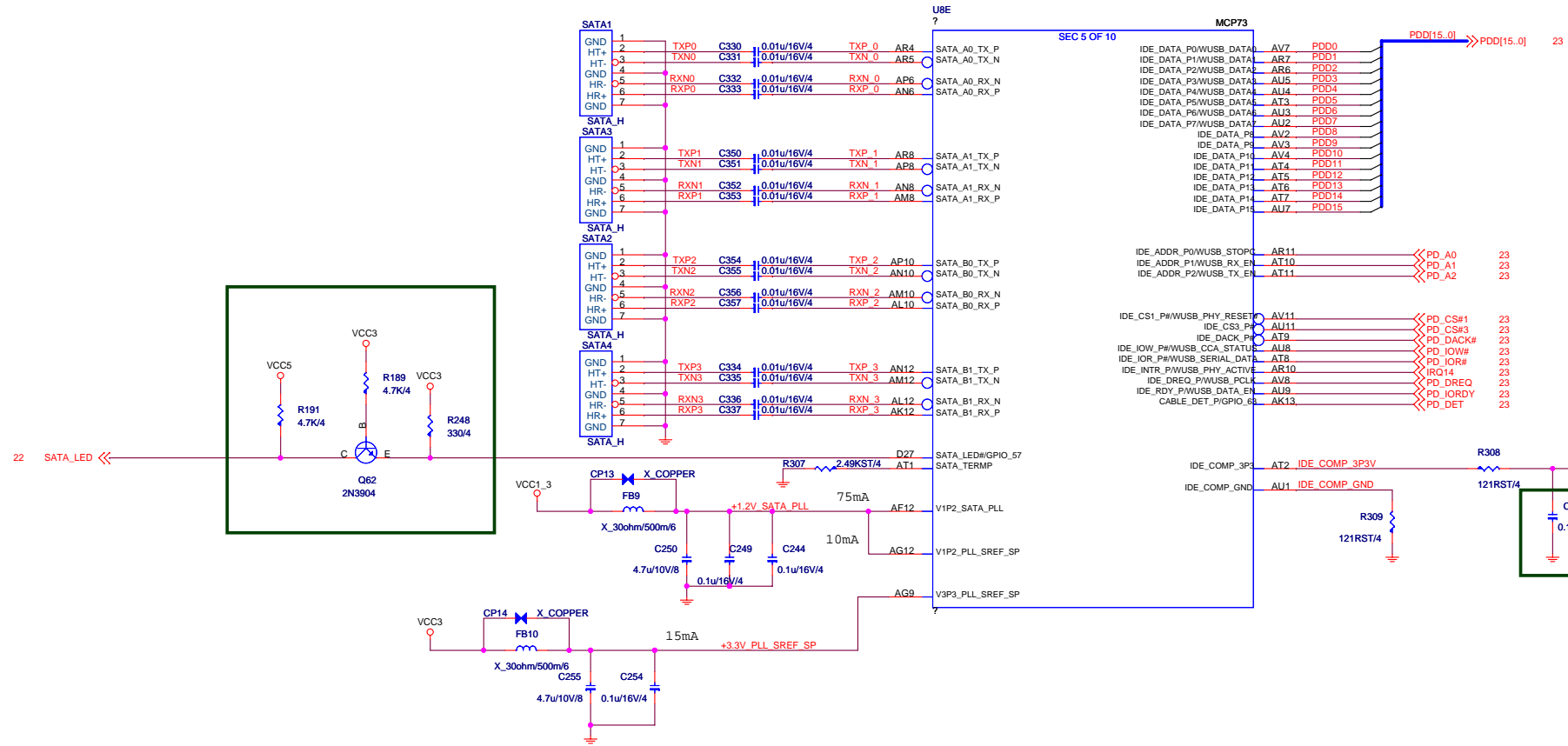


Diagram illustrating the connection of the LPC AD pins to the AD converter. The pins are labeled LPC\_AD2, LPC\_AD3, LPC\_AD0, and LPC\_AD1. These pins are connected to the AD converter input, which is labeled LPC\_AD[3..0] 21,23.



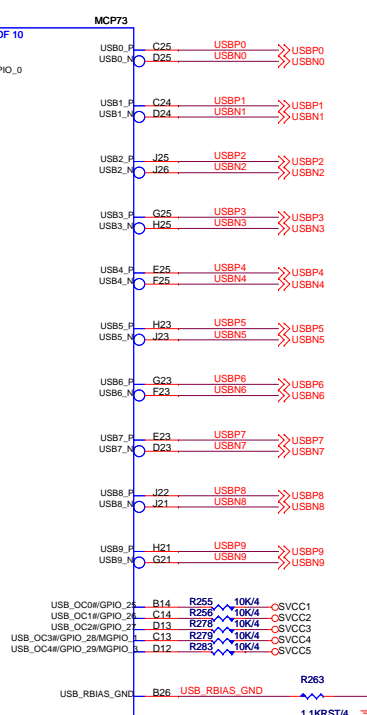
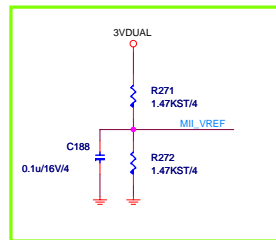
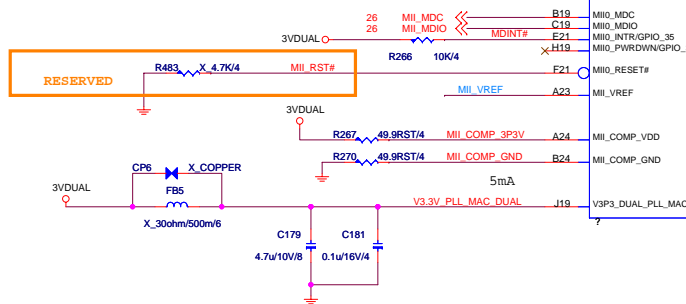
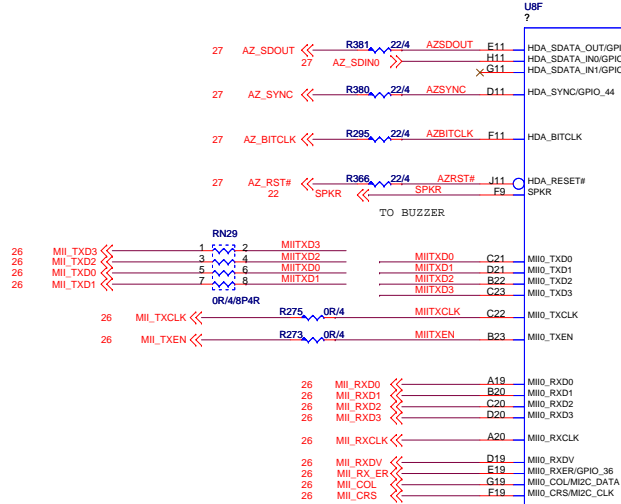
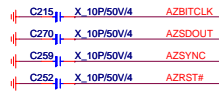
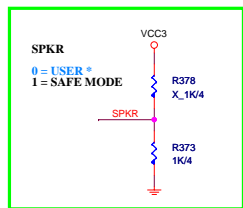
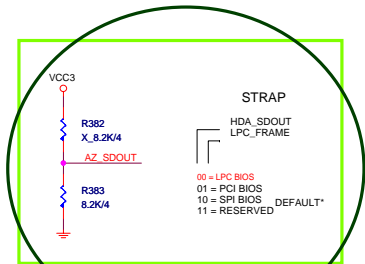
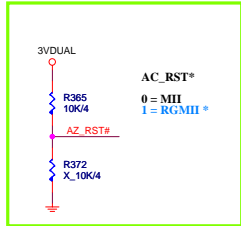
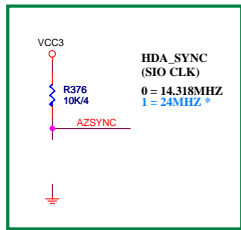
PLACE CAPS AT CONNECTOR.



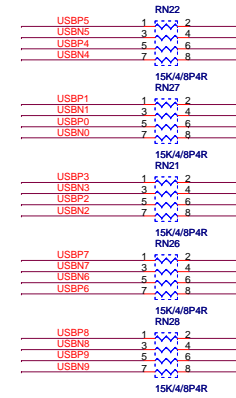
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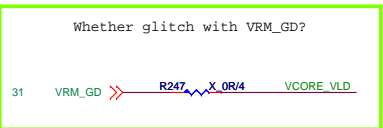
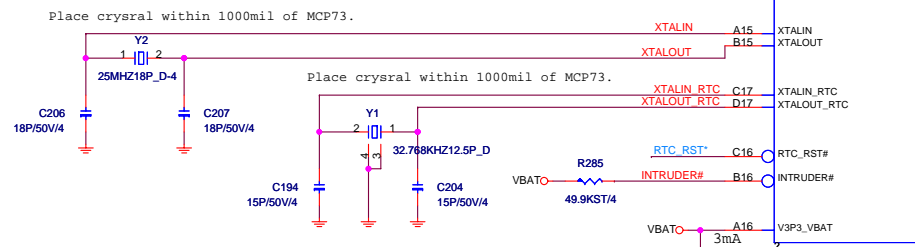
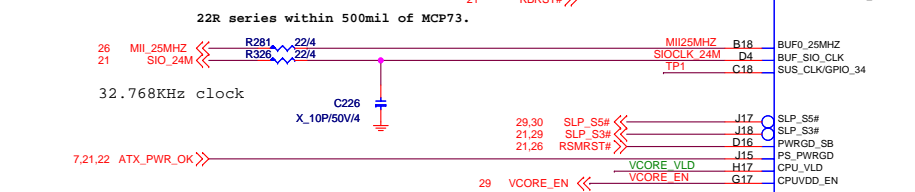
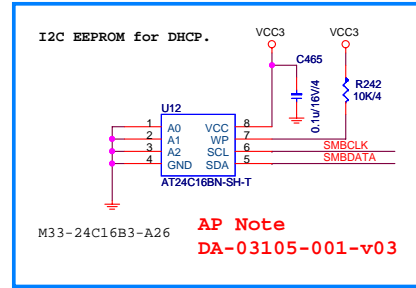
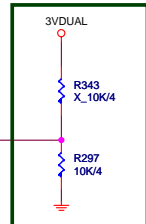
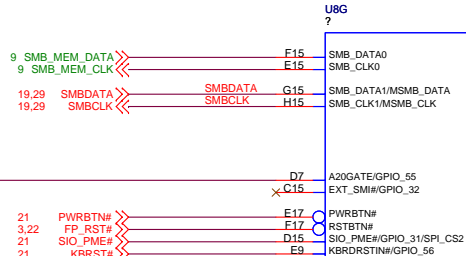
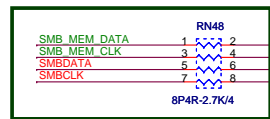
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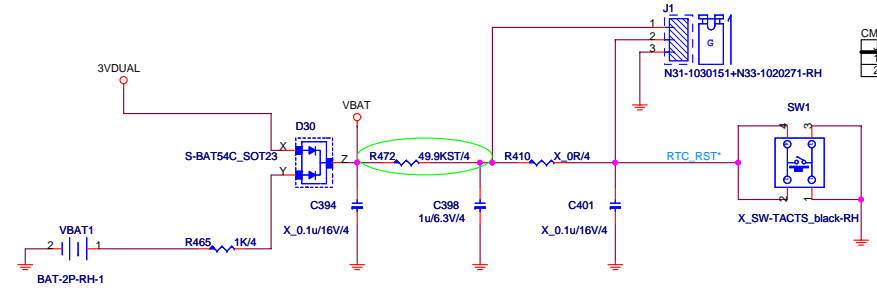
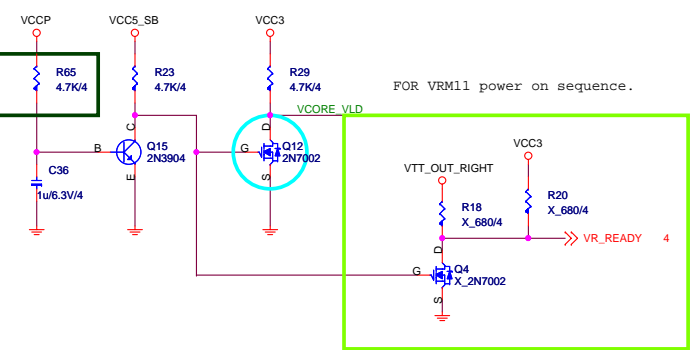


JUSB3--USB[8..9] is not present in MCP73V

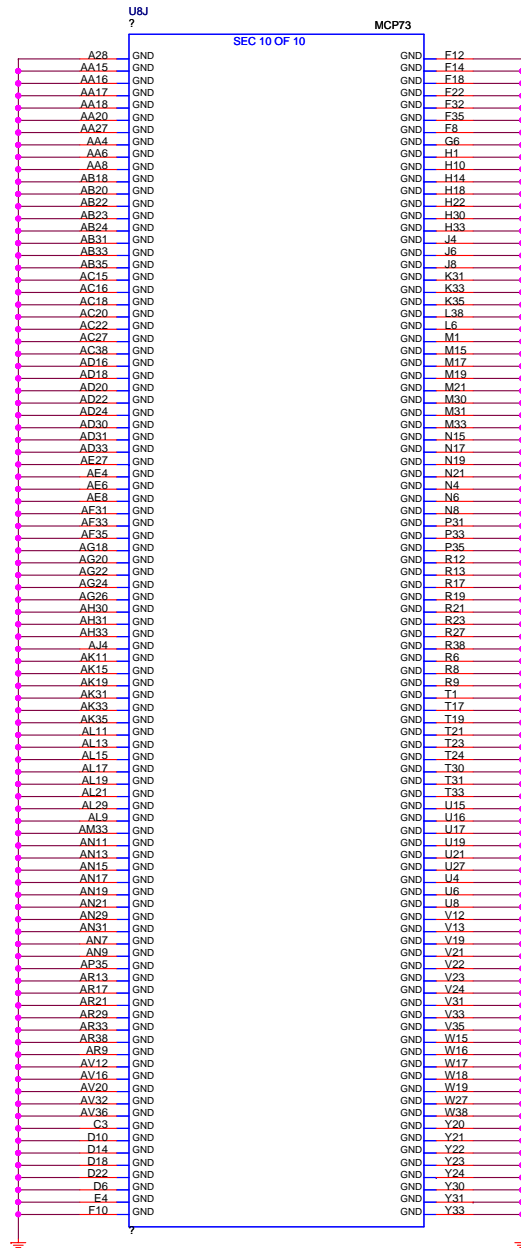




Vcore power-on sequence control circuit







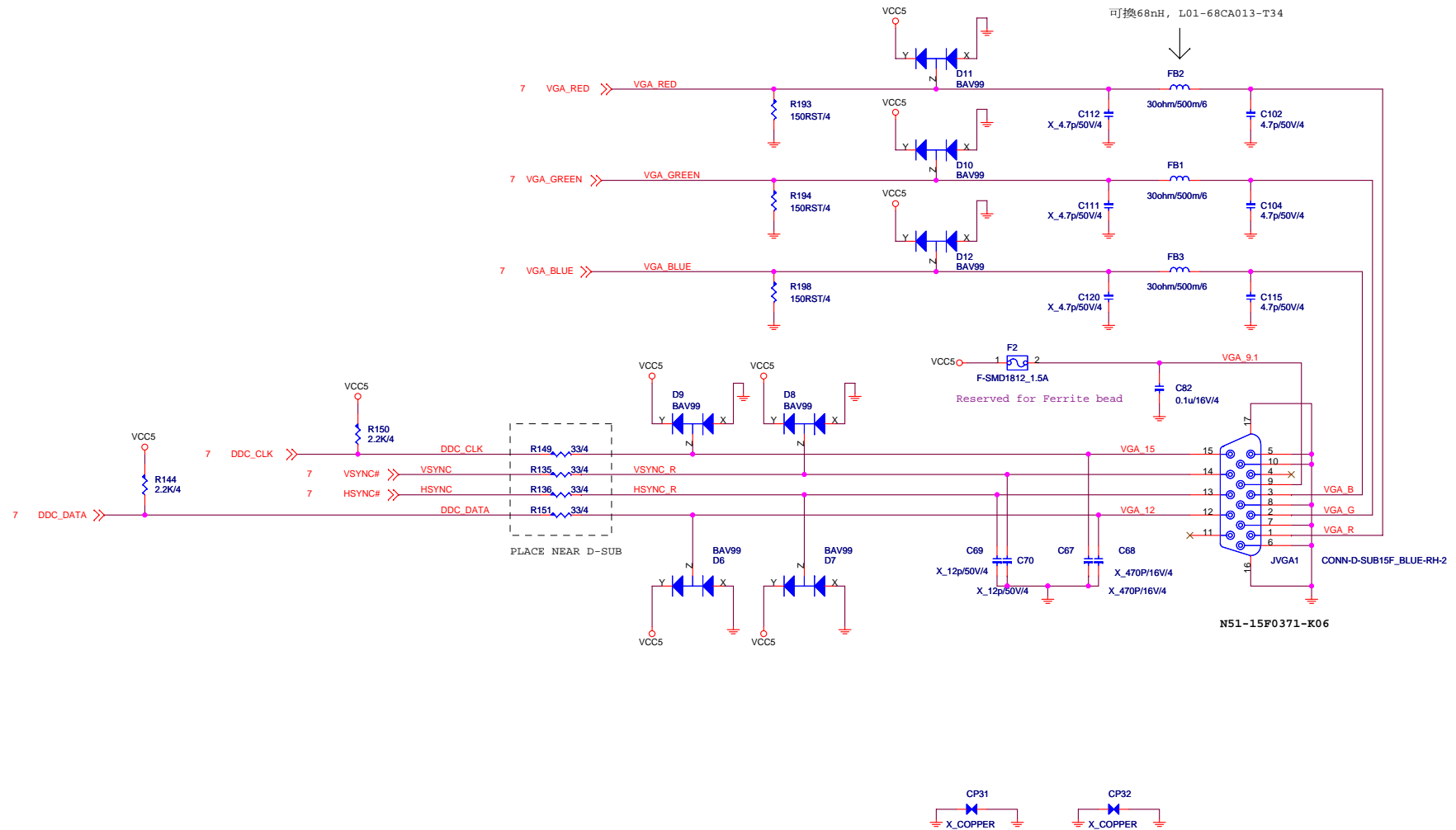
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Custom	MCP73-GND	1.0
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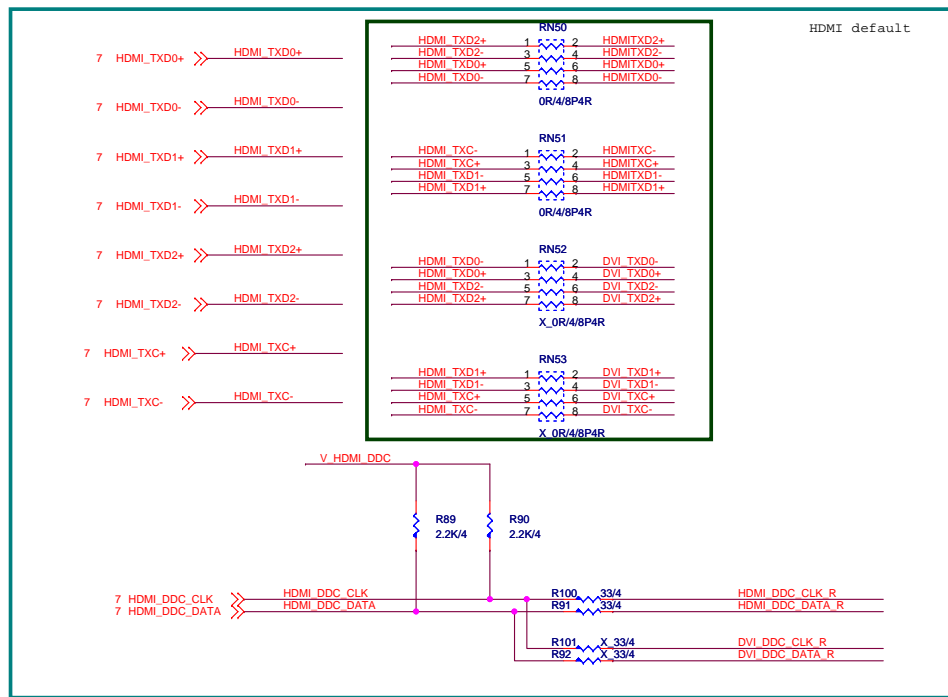
PLACE NEAR VGA CONNECTOR



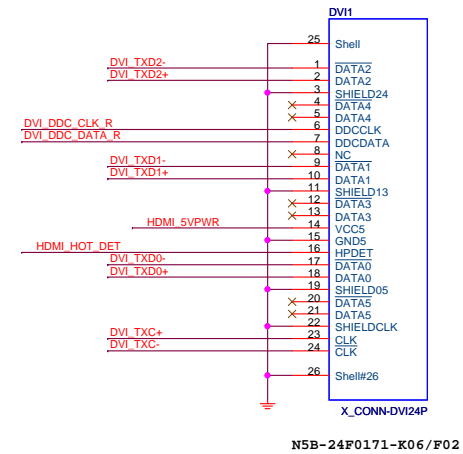
**MICRO-STAR INT'L CO.,LTD**

**MS-7366**

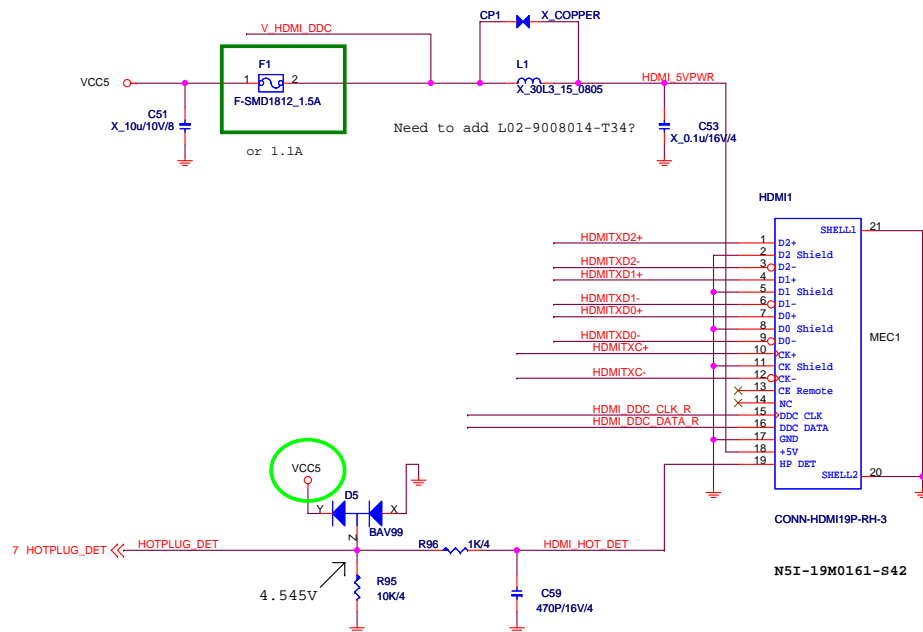
Size Custom	Document Description <b>D-SUB</b>	Rev 1.0
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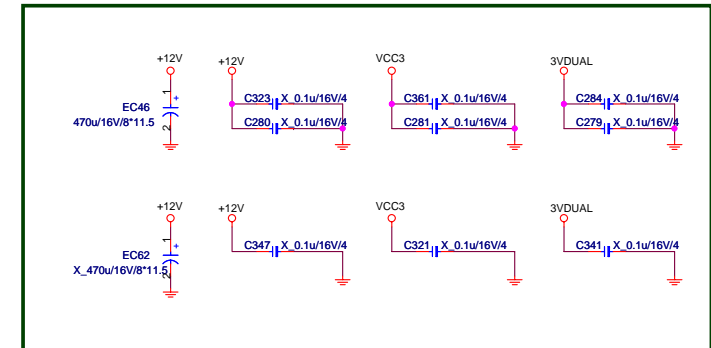
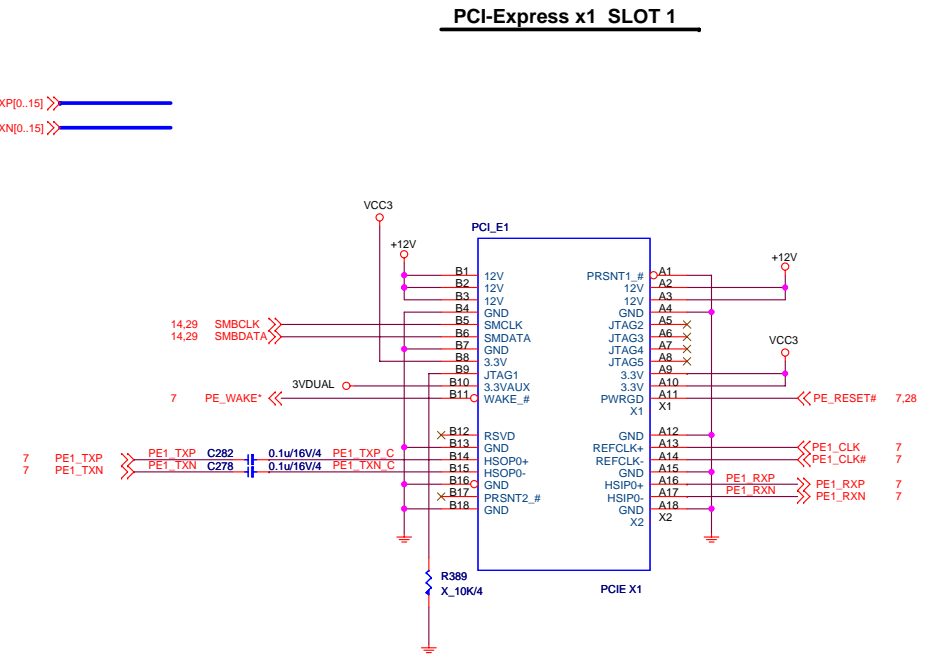
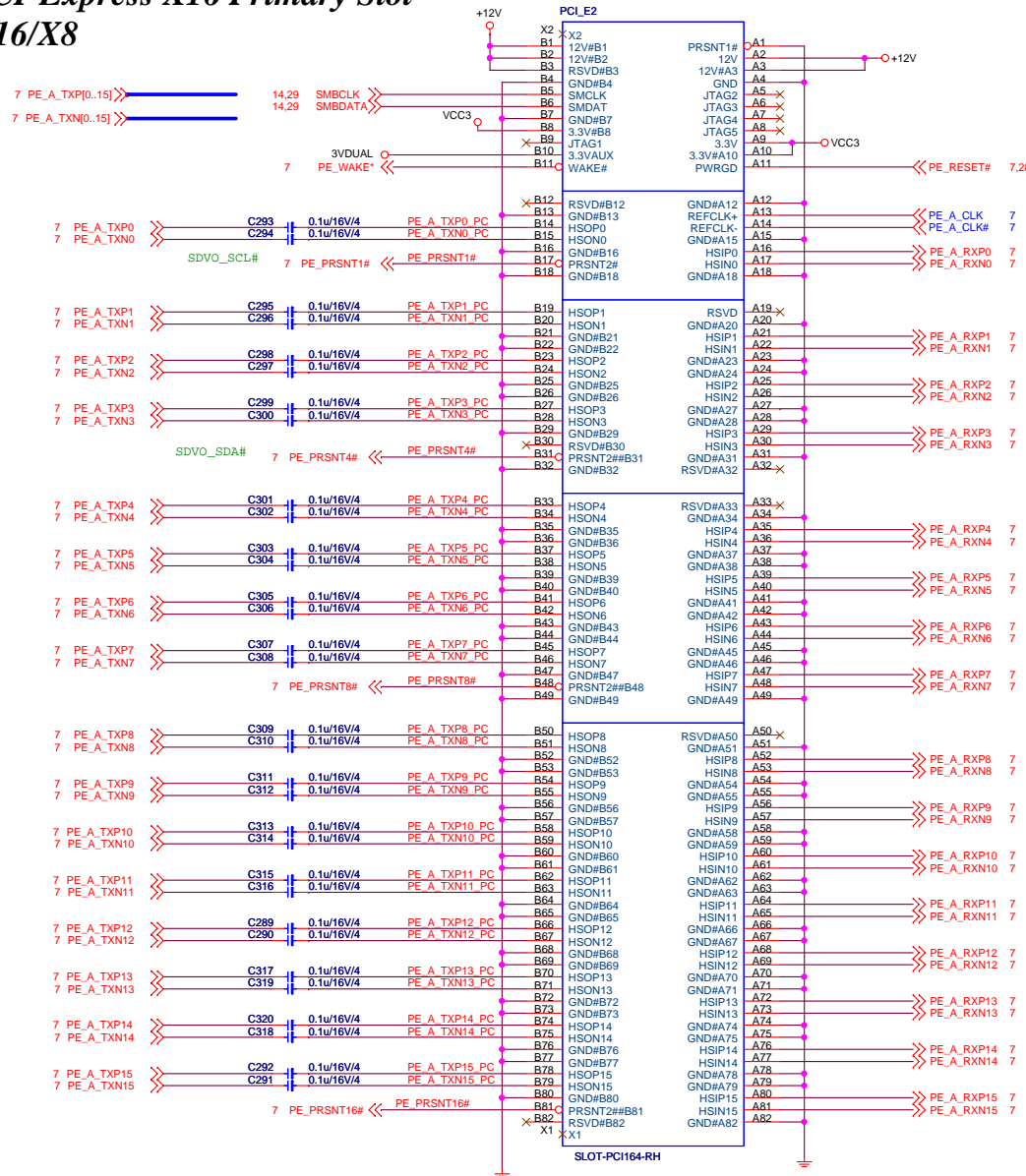
## DVI CONNECTOR



## HDMI CONNECTOR



# PCI-Express X16 Primary Slot X16/X8



[illegible]

```

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

```

```

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

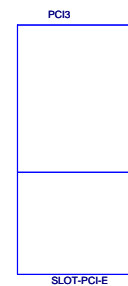
```

```

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

```

Medion BLUE PCI SLOT

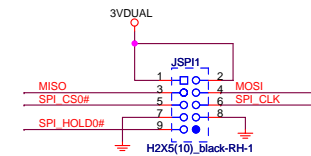
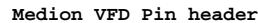


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**LPC SUPER I/O F71882**



Place close to SPI ROM



RTSB# R249 X 1KST/4

SOUTA R257 X 1KST/4

DTRB# 1 2

RTSA# 3 4

DTRA# 5 6

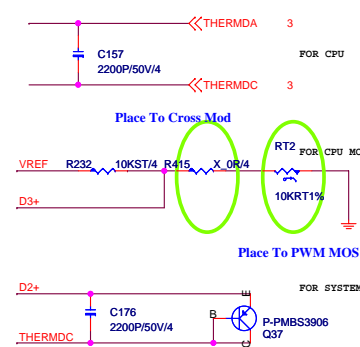
SOUTB 7 8

RN54

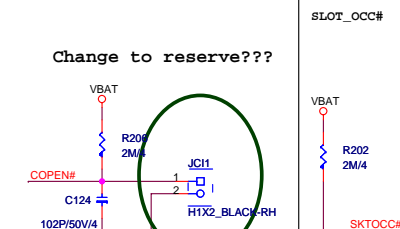
1K/8P4R

PWM FAN	LINEAR FAN
PIN49-54=VID_OUT	PIN49-54=GPIO
PIN42-47=VIDIN	PIN42-47=VIDIN/OUT

## DIODE SENSING CIRCUIT



## CPU VID reset



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Size Custom	Document Description <b>LPC-Super I/O F71882FG</b>	Rev 1.0
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## Intel Front Panel



### ATX Connector



The schematic diagram illustrates the Winbond Protection circuit. It features a +12V input line that passes through a diode D1 and a capacitor EC69 (100u/16V/6.3\*5) before reaching a diode BAS32L\_LL34. The output of this diode is connected to a resistor R31 (4.7K/4), which then connects to a resistor R12 (27K/4). This network is connected to the fan motor CPUFAN1. The fan motor is also connected to a resistor R5 (10K/4), which leads to the CPU-FAN signal line (pin 21). Additionally, the fan motor is connected to a resistor R30 (200R/ST/4), which is connected to a resistor R41 (1K/4). This resistor R41 is connected to a diode D2 (BAS32L\_LL34), which is connected to the CPU-FAN\_CTL signal line (pin 21). The entire circuit is labeled 'Winbond Protection circuit'.

Reserve for NB\_FAN, Near MCP73  
MP Remove



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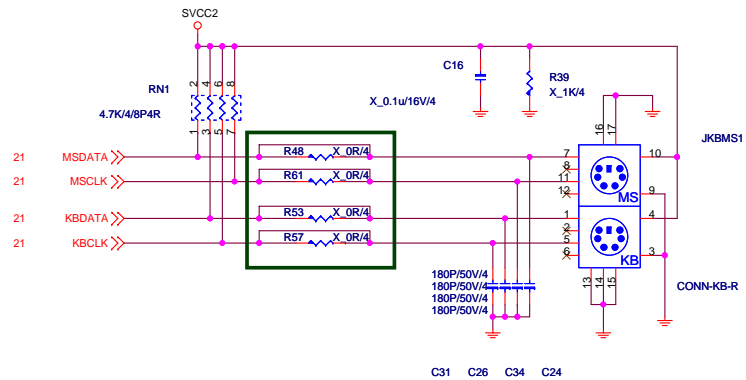
**MS-7366**

Size	Document Description
Custom	ATX/Front Panel/FAN

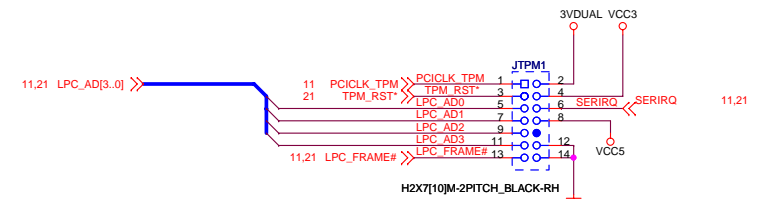
Rev  
1.0

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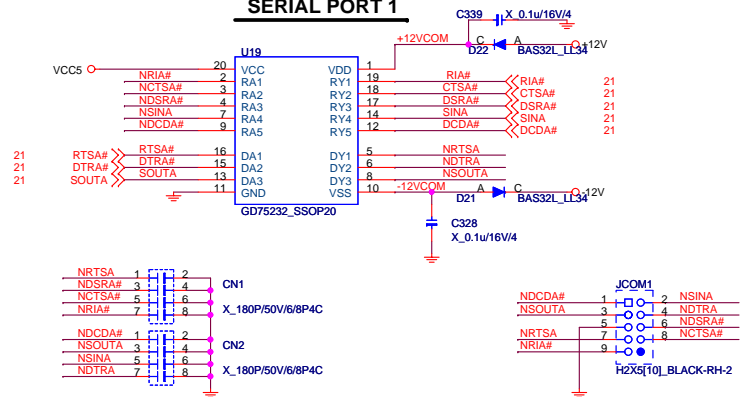
## PS2 KEYBOARD & MOUSE CONNECTOR



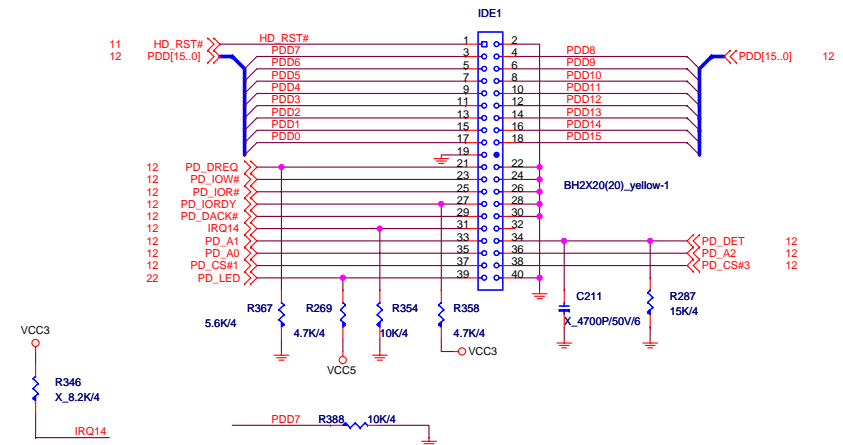
### JLPC port for TPM



## SERIAL PORT 1



### PRIMARY IDE BLOCK



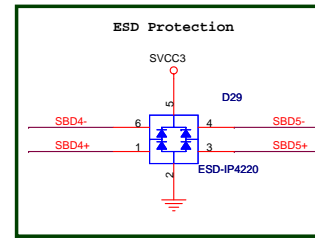
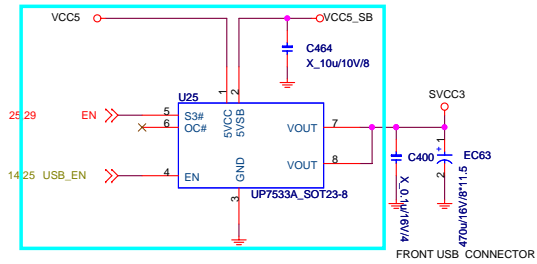
**MICRO-STAR INT'L CO.,LTD**

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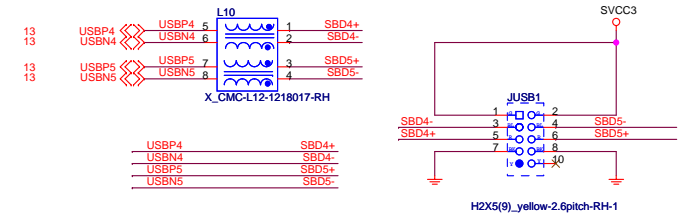
Size Custom	Document Description <b>KB/COM1/IDE/FAN</b>	Rev 1.0
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# FRONT PANEL USB CONNECTOR

## POWER CIRCUIT FOR USB PORT 4,5

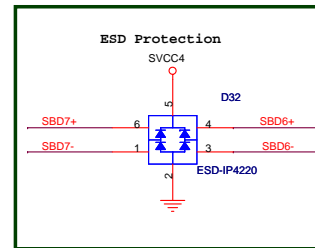
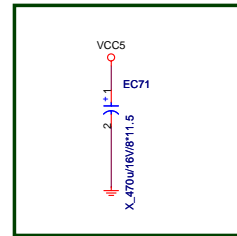
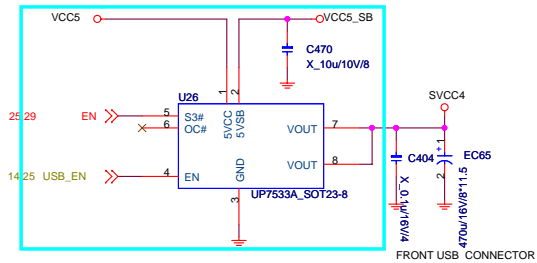


## FRONT PANEL USB CONNECTOR FOR USB PORT 4,5

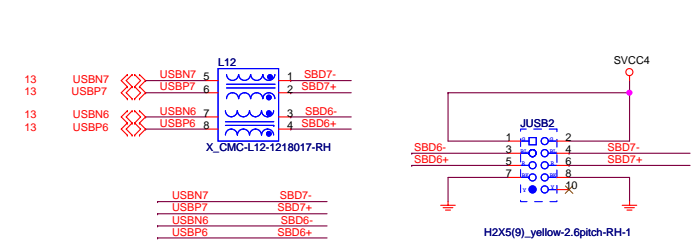


NEAR USB CONNECTOR  
22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

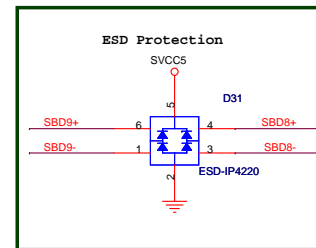
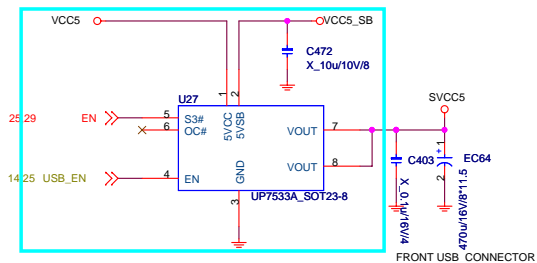
## POWER CIRCUIT FOR USB PORT 6,7



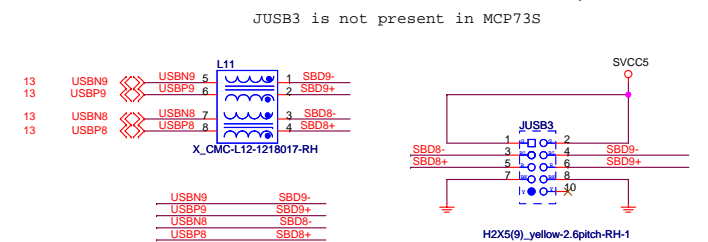
## FRONT PANEL USB CONNECTOR FOR USB PORT 6,7



## POWER CIRCUIT FOR USB PORT 8,9



## FRONT PANEL USB CONNECTOR FOR USB PORT 8,9



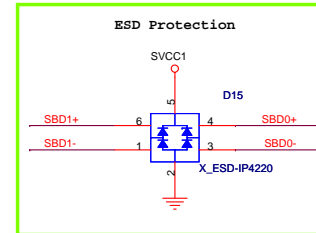
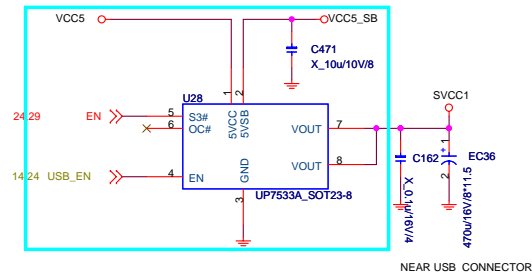
JUSB3--USB[8,9] is not present in MCP73V

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

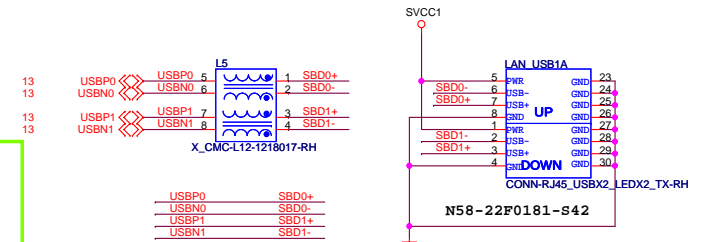


# REAR PANEL USB CONNECTOR

## POWER CIRCUIT FOR USB PORT 0,1



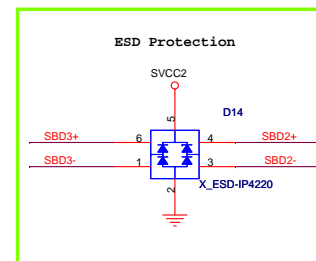
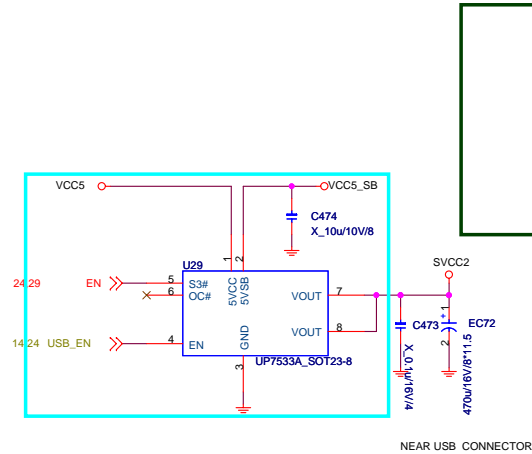
## REAR PANEL USB CONNECTOR FOR USB PORT 0,1



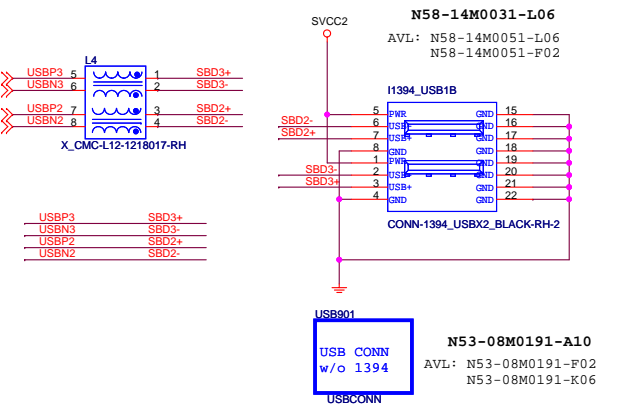
## NEAR USB CONNECTOR

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

## POWER CIRCUIT FOR USB PORT 2,3

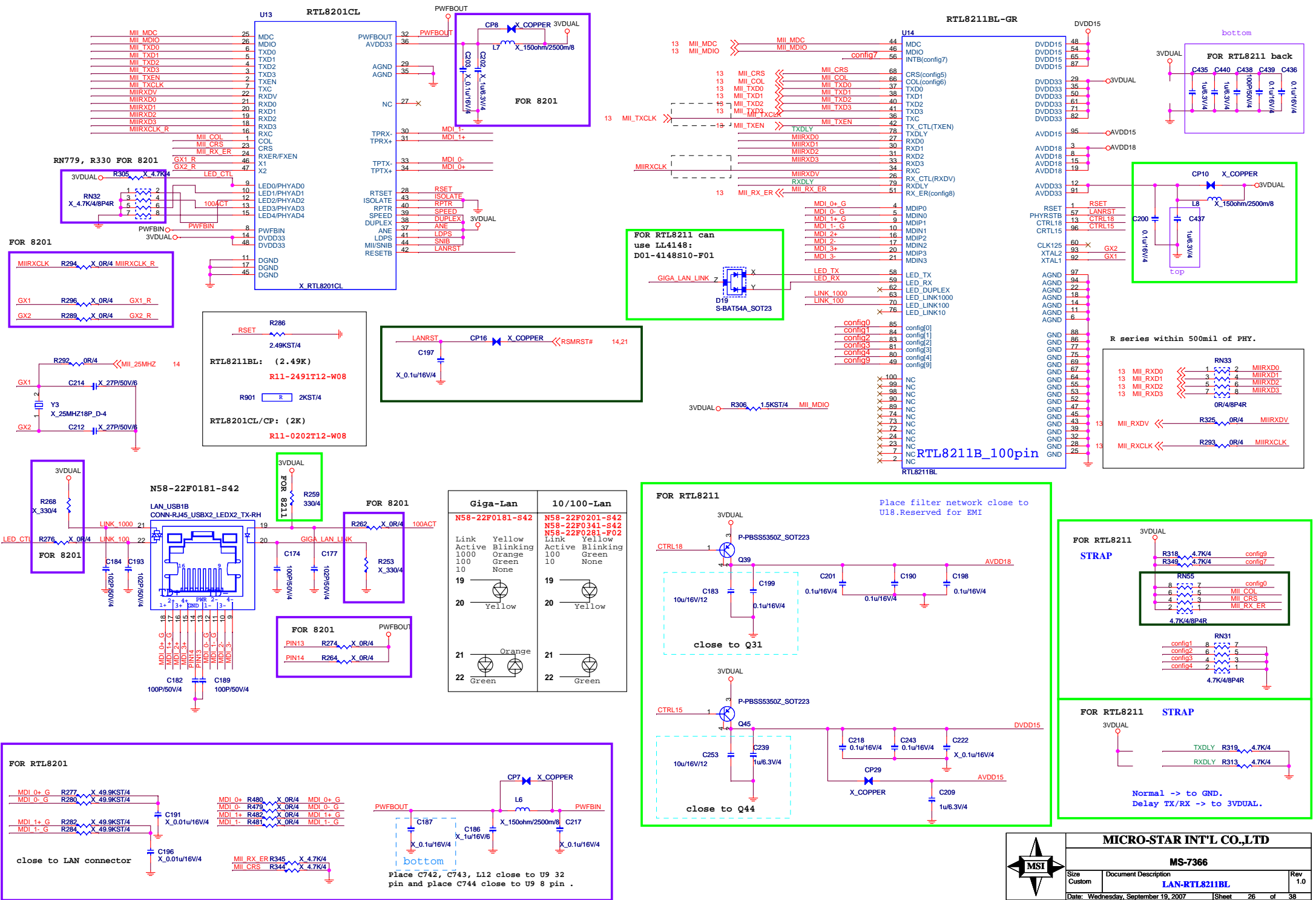


## REAR PANEL USB CONNECTOR FOR USB PORT 2,3



## NEAR USB CONNECTOR

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

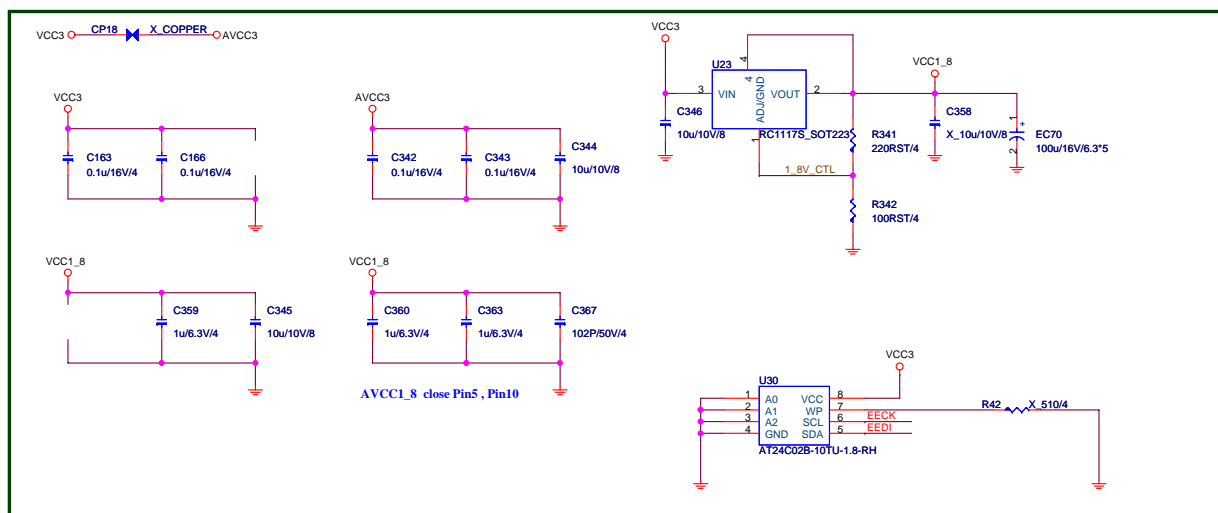
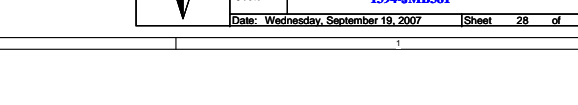
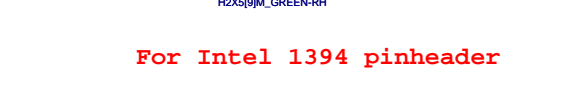
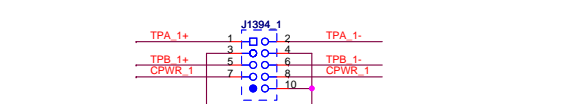
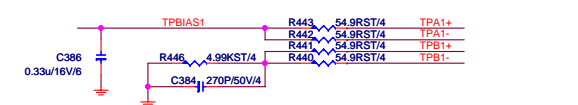
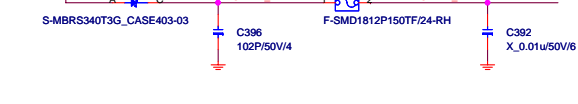
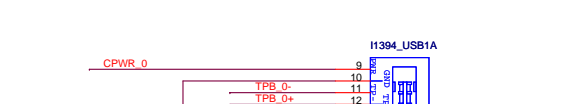
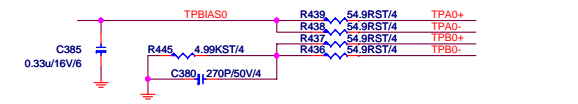
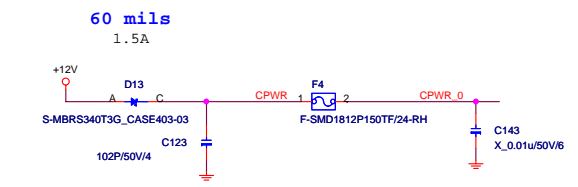
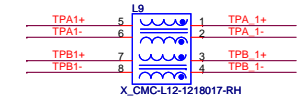
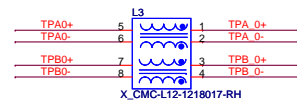
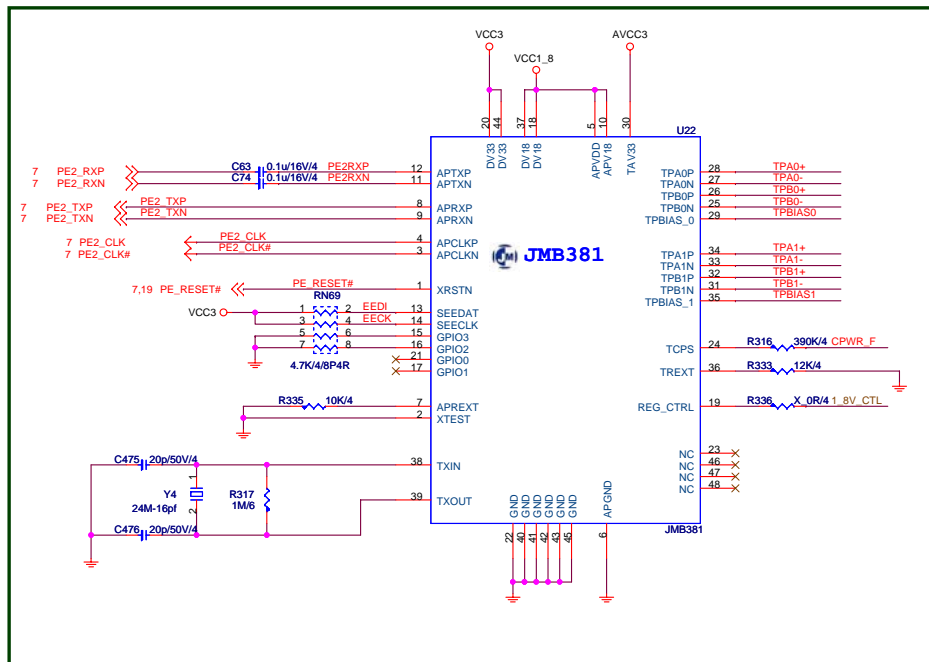


**MICRO-STAR INT'L CO.,LTD**

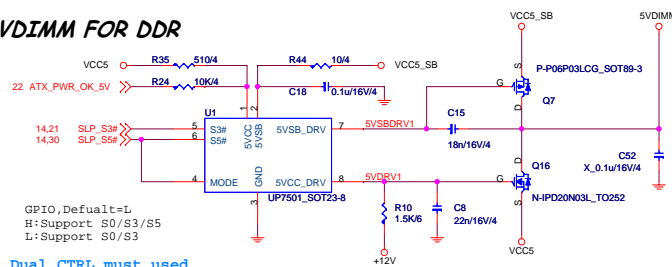
MS-7366

Size Custom	Document Description <b>LAN-RTL8211BL</b>	Rev 1.0
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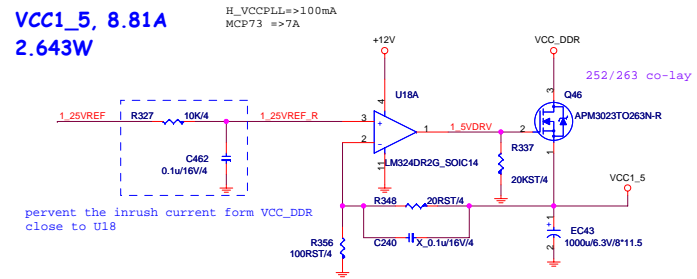




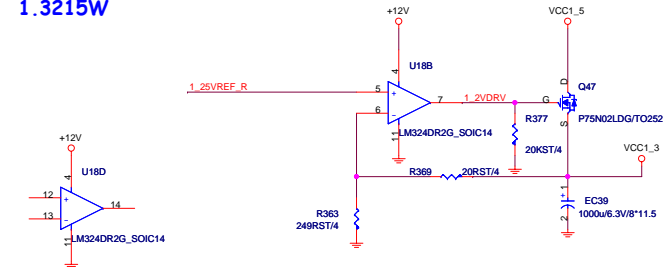
## 5VDIMM FOR DDR



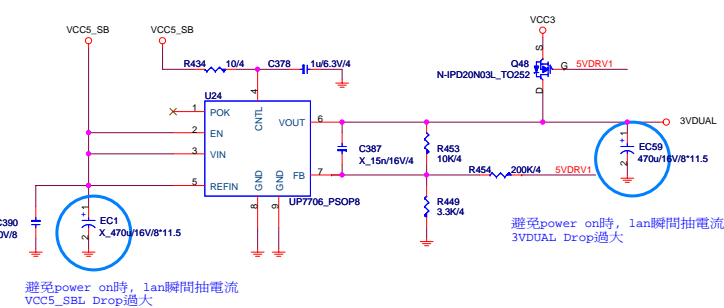
VCC1\_5, 8.81A  
2.643W



VCC1\_3, 8.81A  
1.3215W



3VDUAL, 1.7A

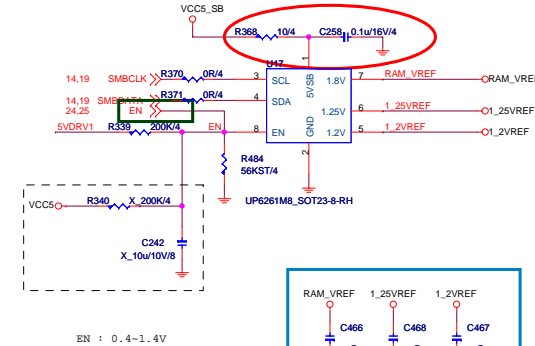


## Reference Voltage

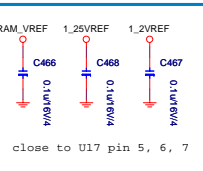
up6261: High Precision Voltage Console

ONLY OVER DDR Voltage to 2V

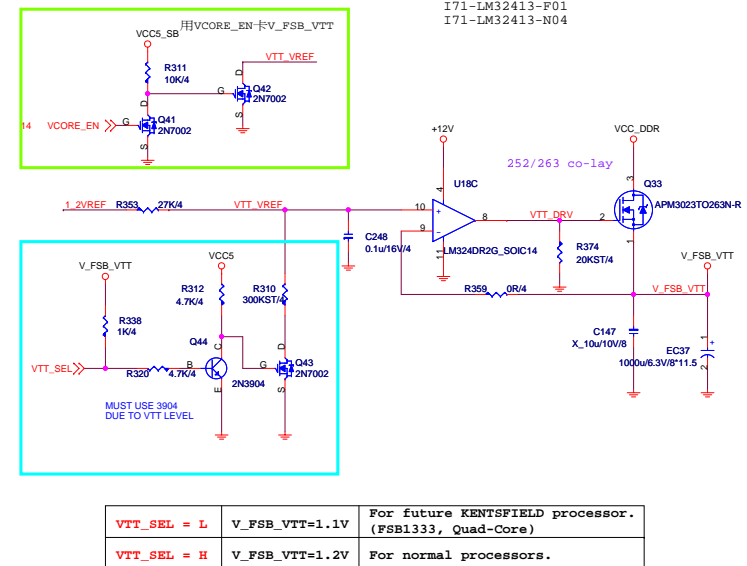
VCC5\_SB to UP6261 pin1 path keep the same.



I32-0626109-U33, delay 20 ms  
避免EN比 5VDV1早, MCP73 core power  
抽到VCC5\_SB

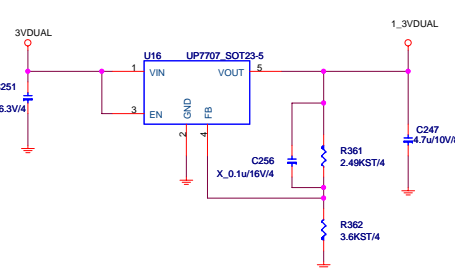


FSB\_VTT, 6.1A  
3.66W



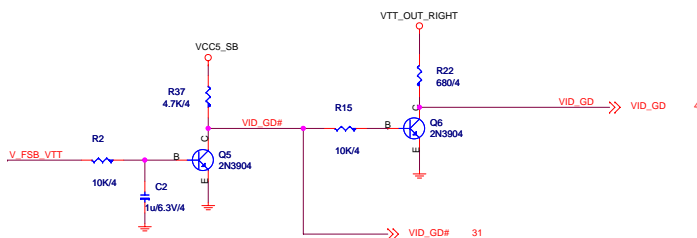
1\_3VDUAL, 25mA

up7707: 600mA Low Dropout Linear Regulator

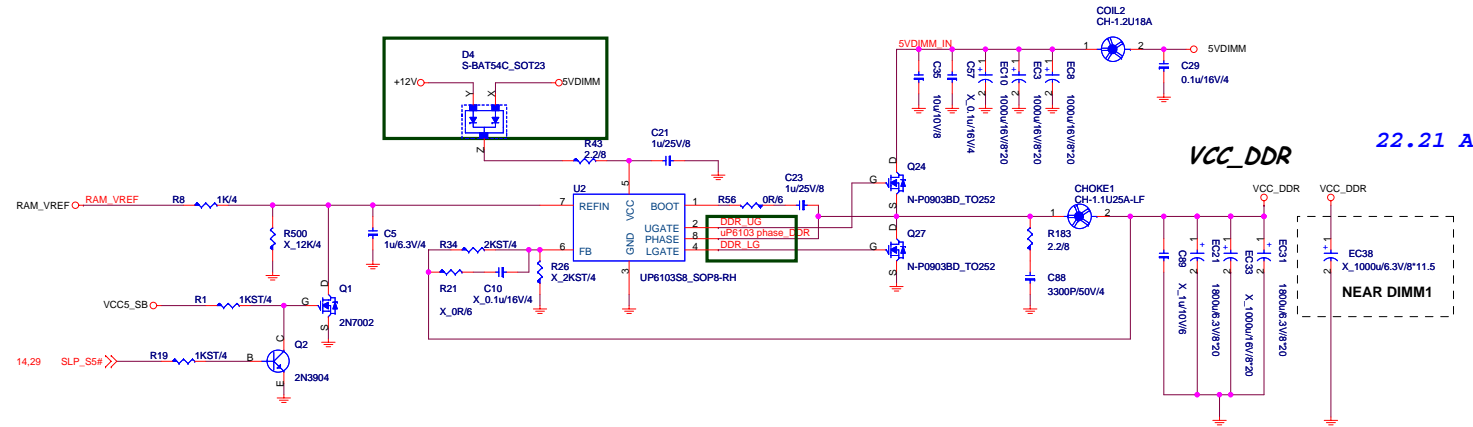


Vout=0.8 \* (R1+R2)/R1

VID\_GD# to PWM and VID\_GD to CPU  
for VRM10 power sequence.

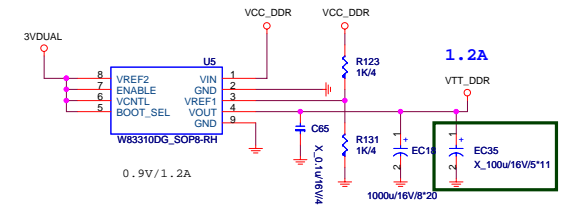


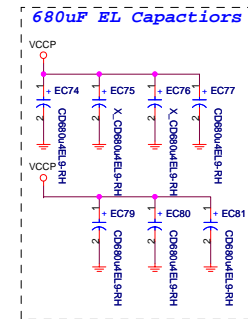
## DDR II 1.8V POWER



## DDR VTT Power

To CPU Copper trace width > 200mils





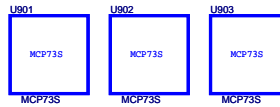
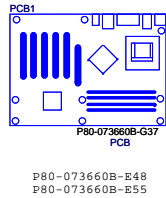
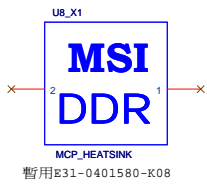
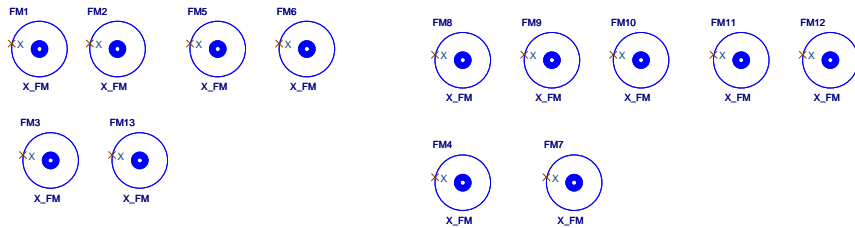


Table 1-4. Comparison of Different MCP73 Models

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

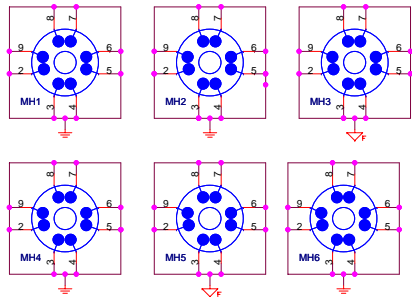


Table 1. MCP73 SKU Definition

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

