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MS-7366 Micro ATX

Version: 2.2_071116D

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
E	MCP73U(HDMI,D-SUB)/F71882FG/ALC888/RTL8211BL/JMB381	Cfg-M1	601-7366-08S
*F	MCP73D /F71882FG/ALC888/RTL8211BL/JMB381	Cfg-D	601-7366-07S

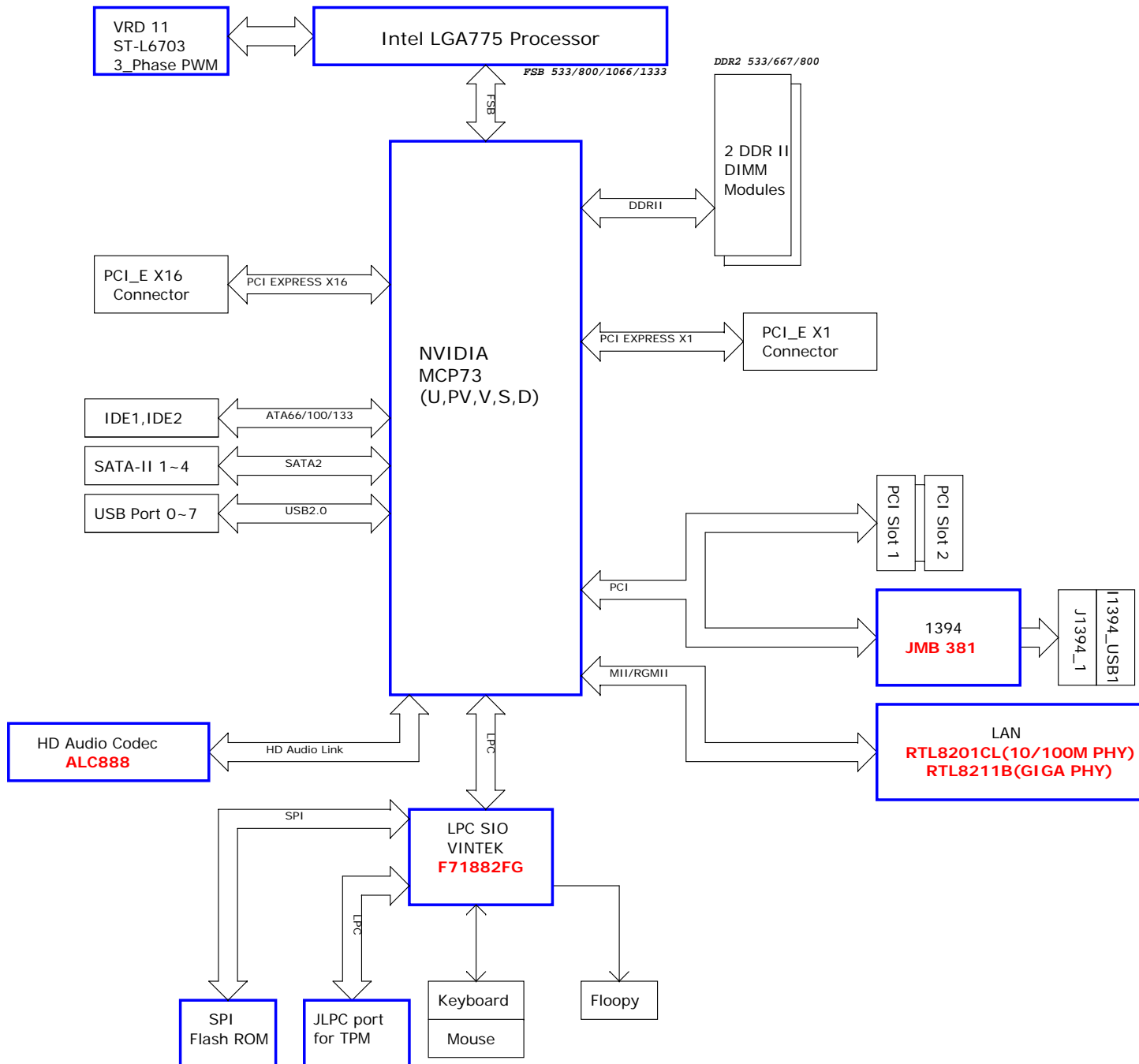


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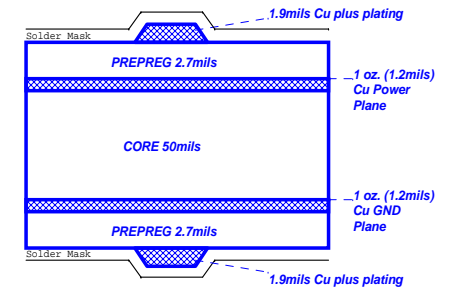
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Block Diagram



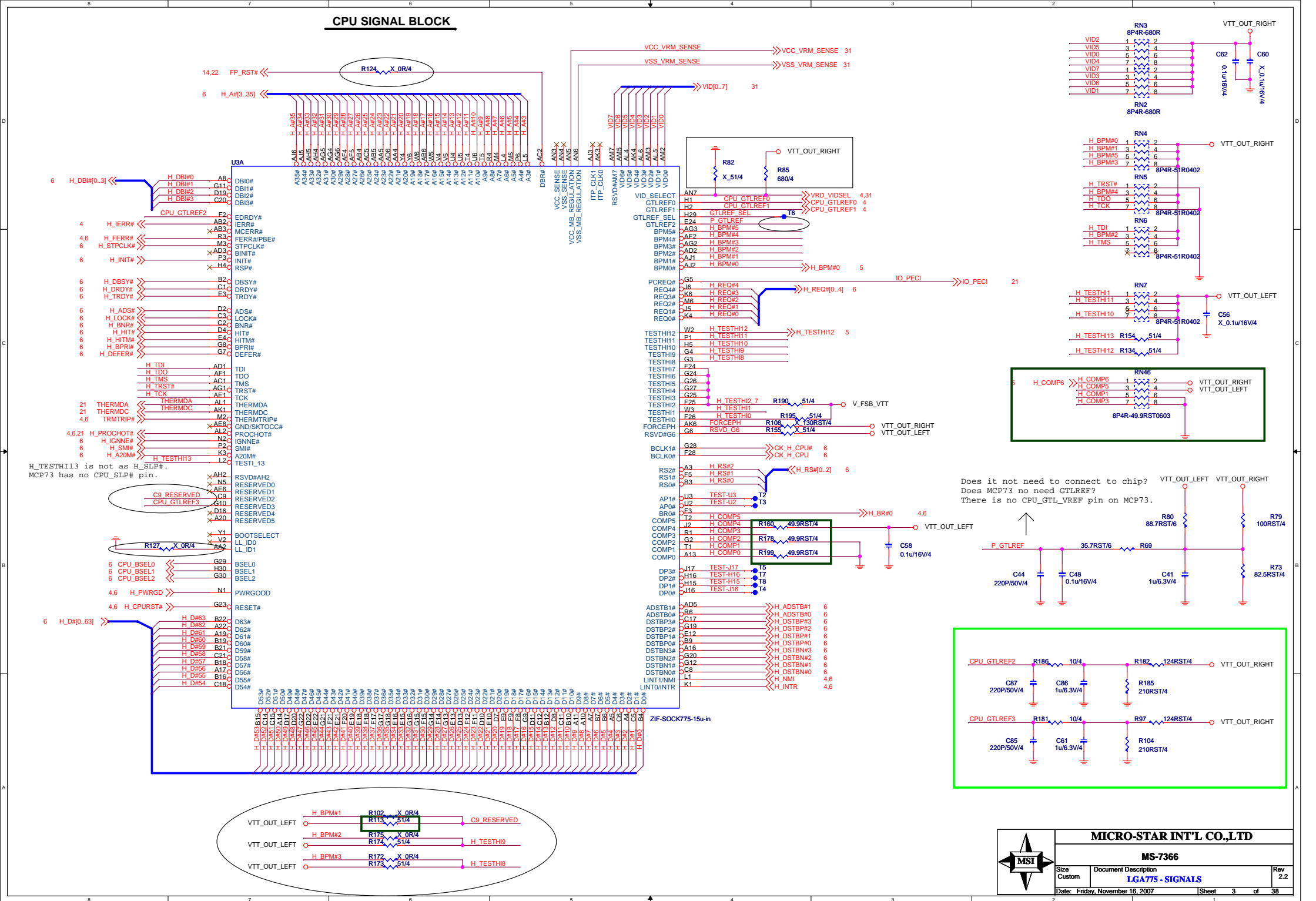
Board Stack-up

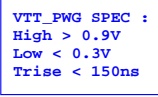
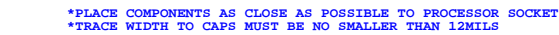
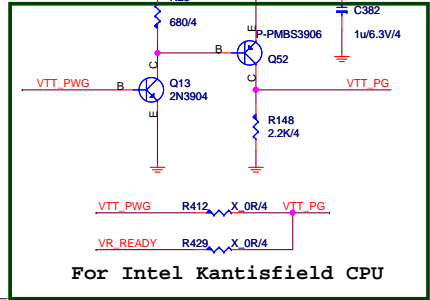
(1080 Prepreg Considerations)




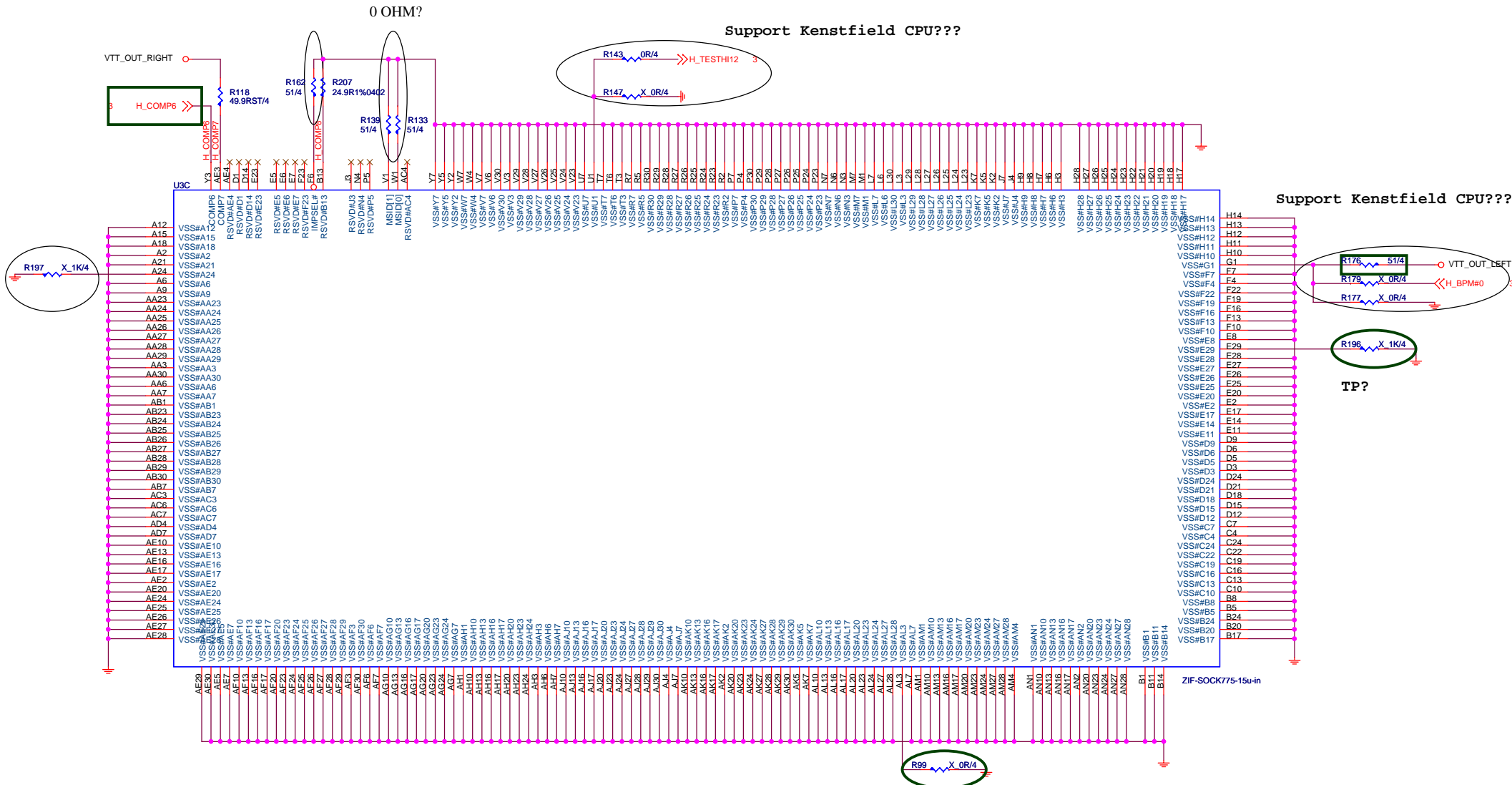
Single End 50ohm Top/Bottom : 4mils
 USB2.0 - 100ohm : 20/4/8/4/20
 HDMI - 100ohm : 20/4/8/4/20
 SATA - 100ohm : 20/4/8/4/20
 LAN - 100ohm : 20/4/8/4/20
 PCIE - 100ohm : 20/4/8/4/20
 IEEE1394 - 110ohm : 15/4/9/4/15
 IDE : 15/4/8/4/15

CPU SIGNAL BLOCK

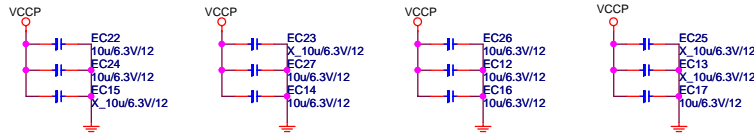




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	MS-7366		
	Size Custom	Document Description LGA775 - POWER	Rev 2.2
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CPU DECOUPLING CAPACITORS



Place these caps within socket cavity

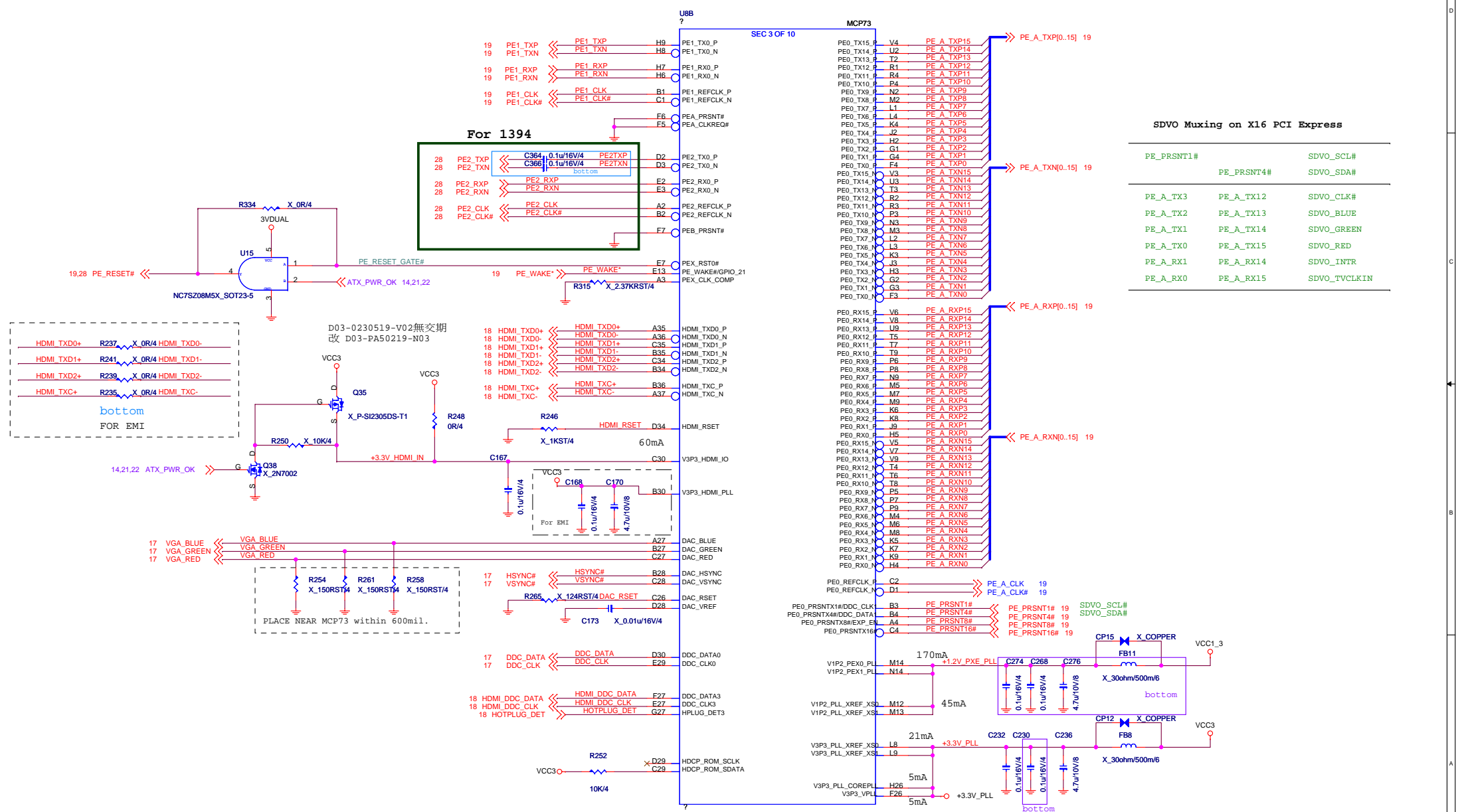


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Custom	LG4775 - GND	2.2

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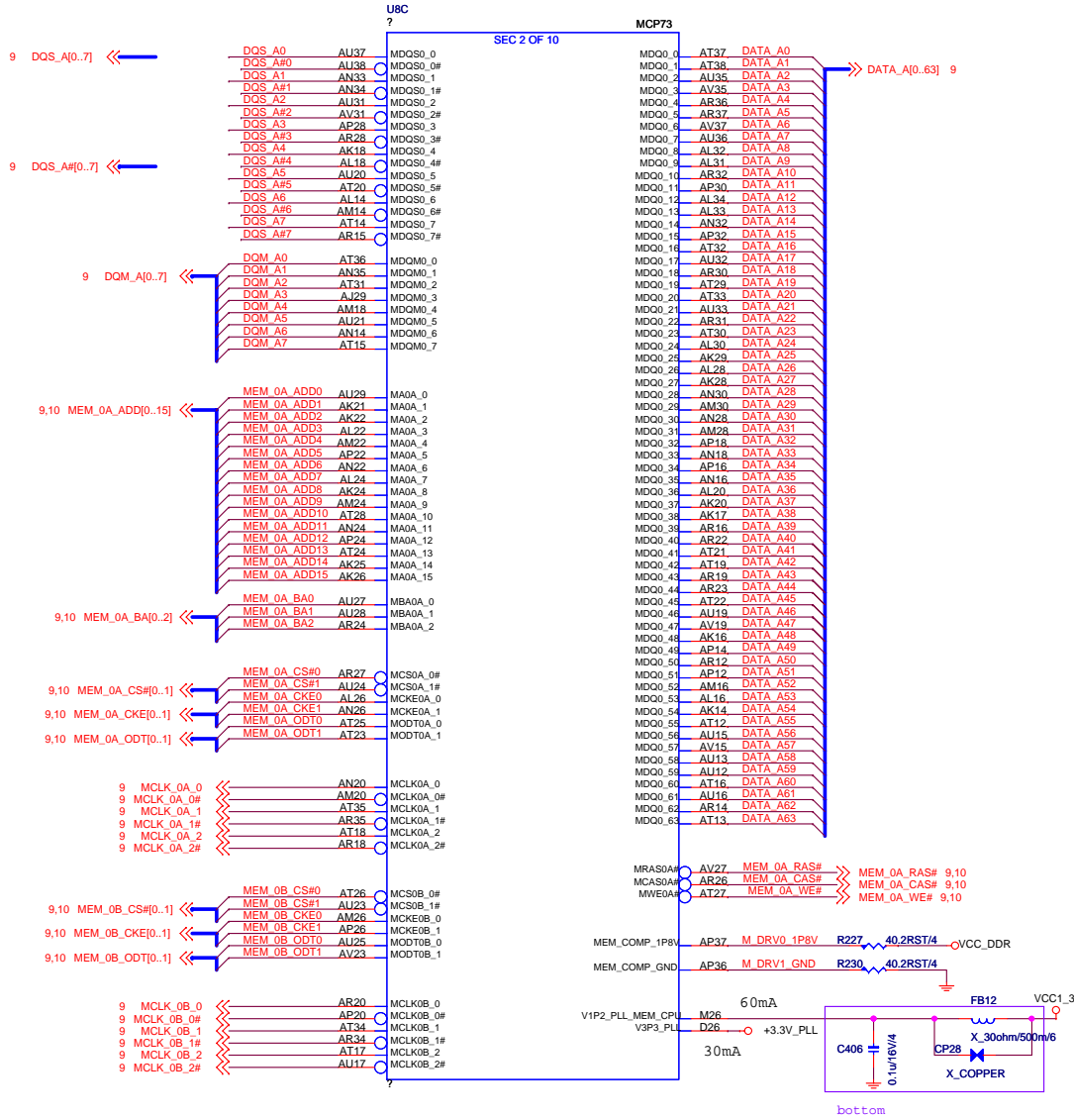


SDVO Muxing on X16 PCI Express		
PE_PRSNT1#		SDVO_SCL#
PE_PRSNT4#		SDVO_SDA#
PE_A_TX3	PE_A_TX12	SDVO_CLK#
PE_A_TX2	PE_A_TX13	SDVO_BLUE
PE_A_TX1	PE_A_TX14	SDVO_GREEN
PE_A_TX0	PE_A_TX15	SDVO_RED
PE_A_RX1	PE_A_RX14	SDVO_INTR
PE_A_RX0	PE_A_RX15	SDVO_TVCLKIN

DATA 0

	DIMM 1	ADDR 0A / CNTL 0A
	DIMM 2	ADDR 0B / CNTL 0B

DIMM 0A

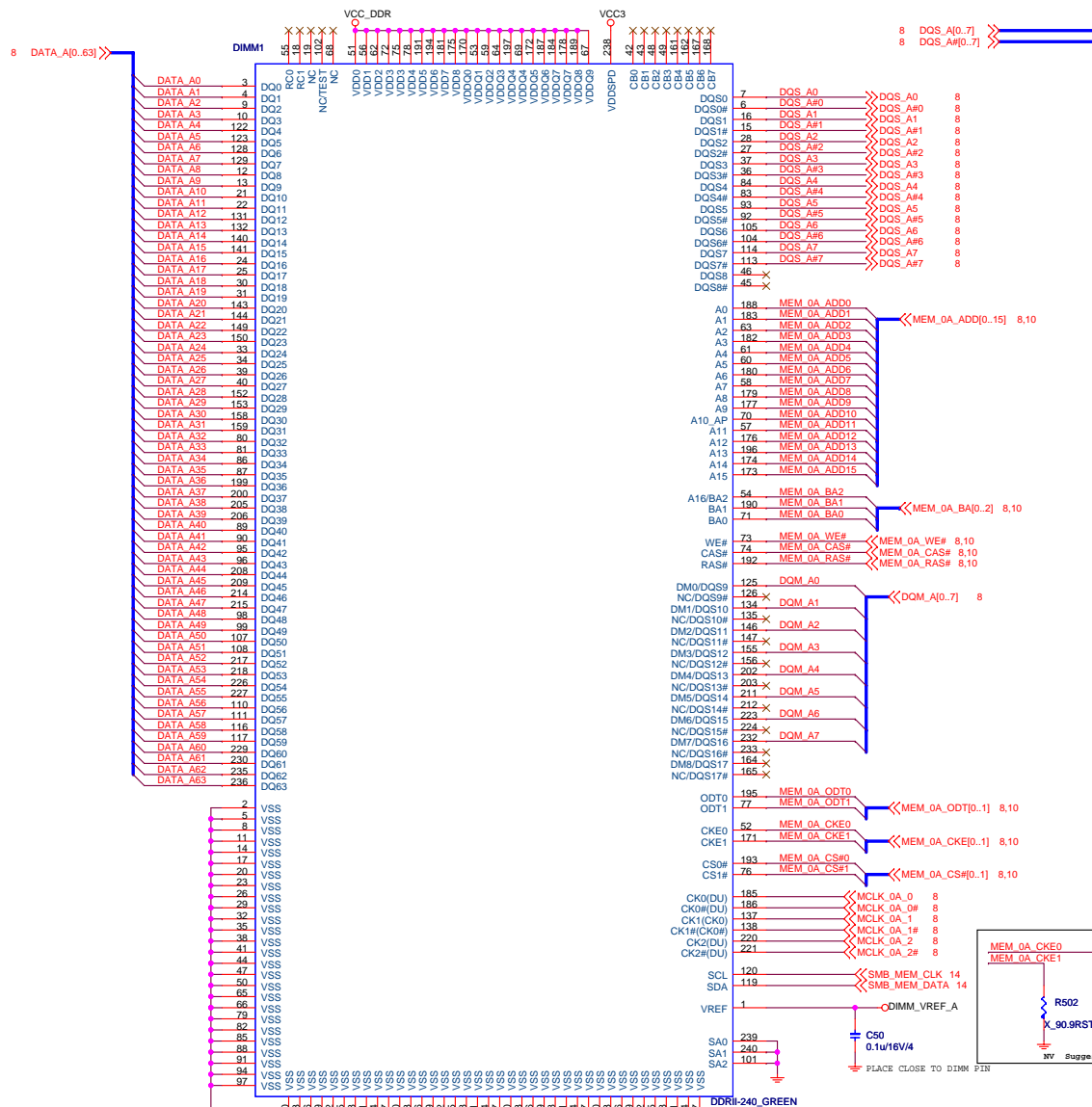


MICRO-STAR INT'L CO.,LTD

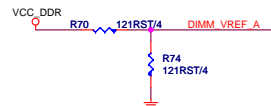
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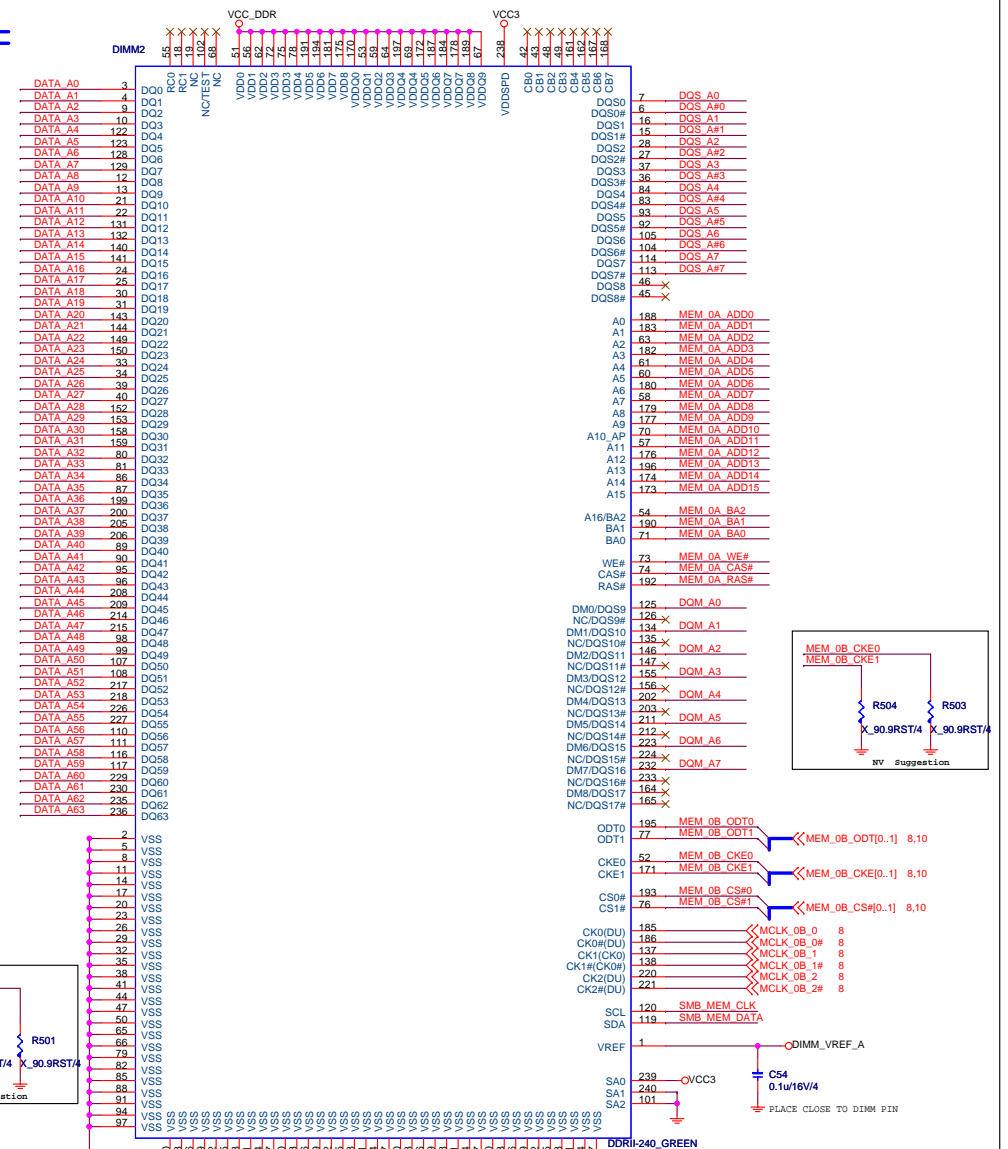
DIMM1 / 0A



ADDRESS: 000
0xA0



DIMM2 / 0B



ADDRESS: 001
0xA2

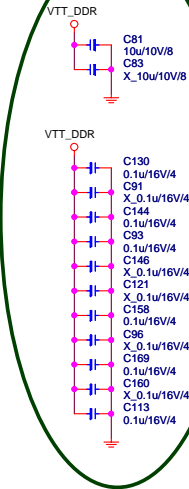
MICRO-STAR INT'L CO.,LTD

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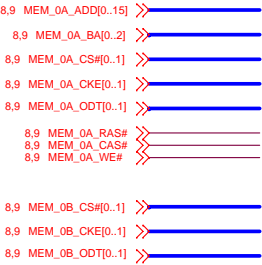
Size Custom Document Description **DDR II - DIMM 1 & 2 Sockets** Rev 2.2

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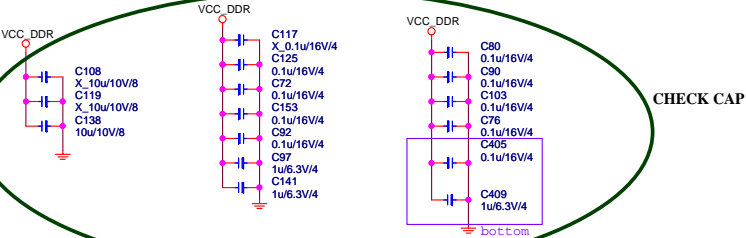
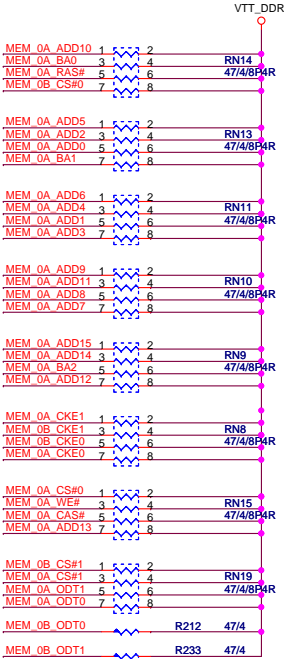
CHANNEL A VTT_DDR DECOUPLING CAPS



CHECK CAP

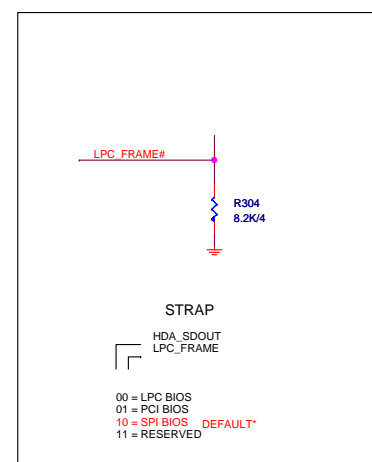
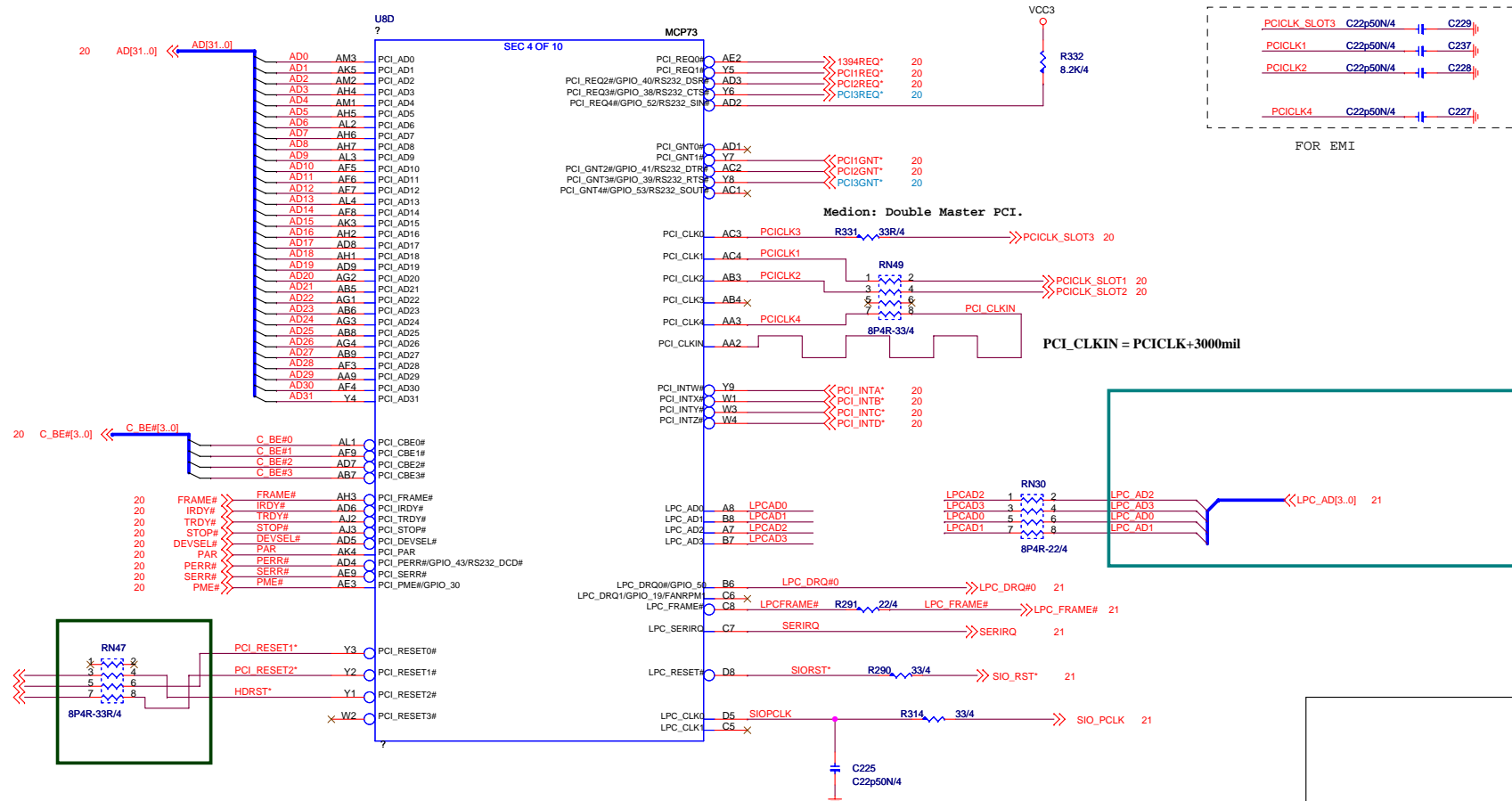


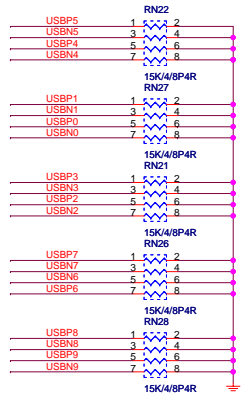
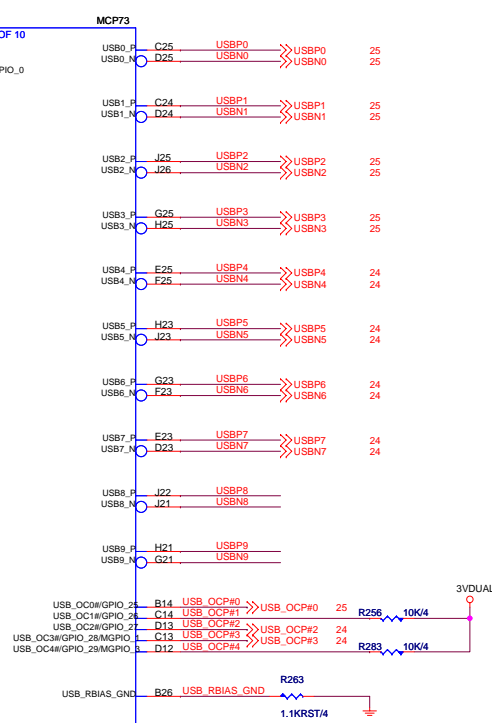
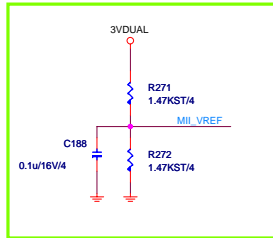
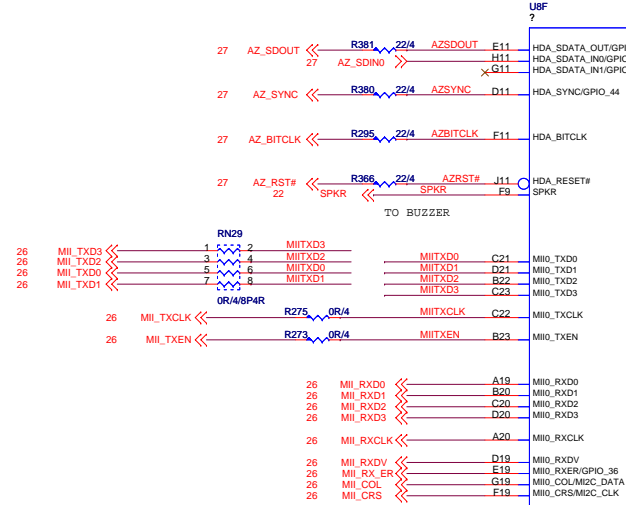
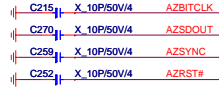
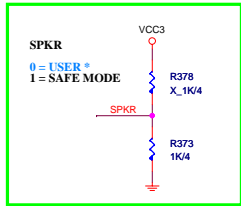
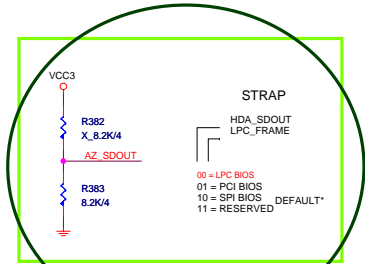
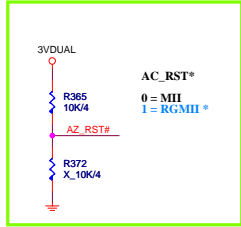
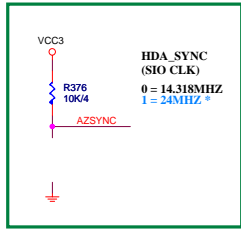
CHANNEL A ----- 0A , 0B

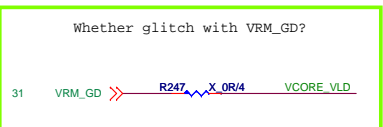
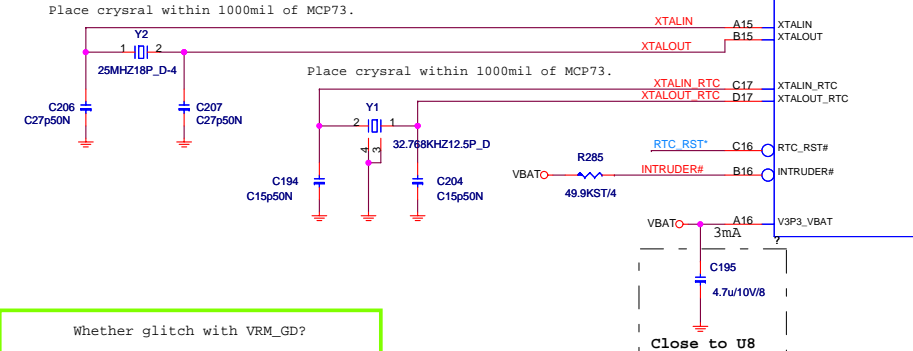
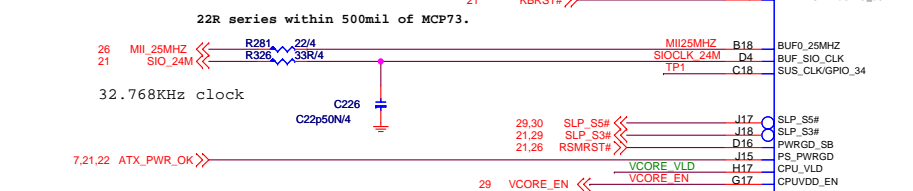
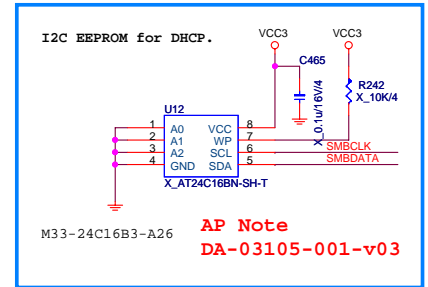
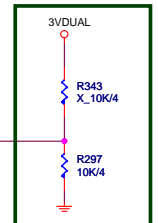
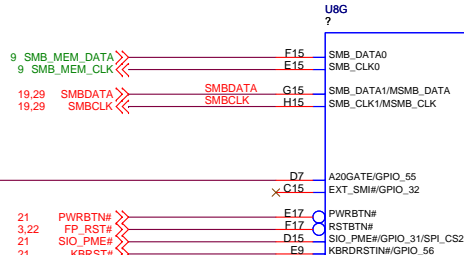
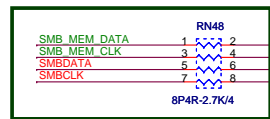


CHECK CAP

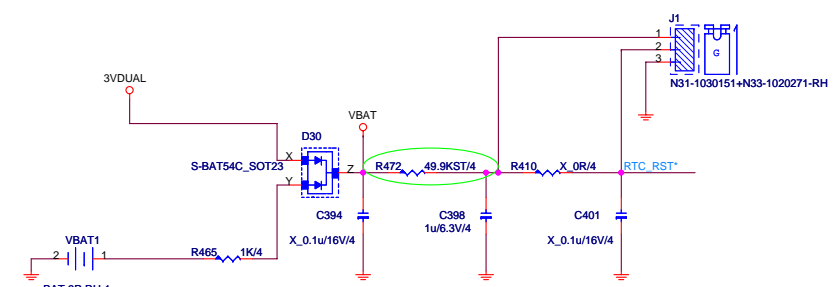
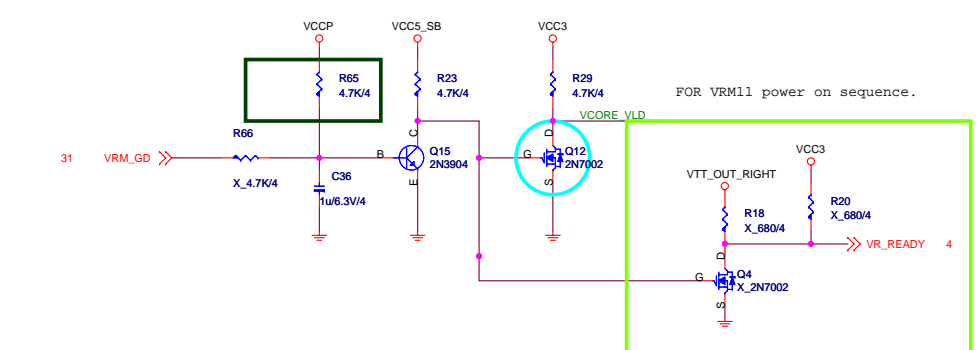
公板上0.1u X5, 1uX3, 10uX3
兩根再X2

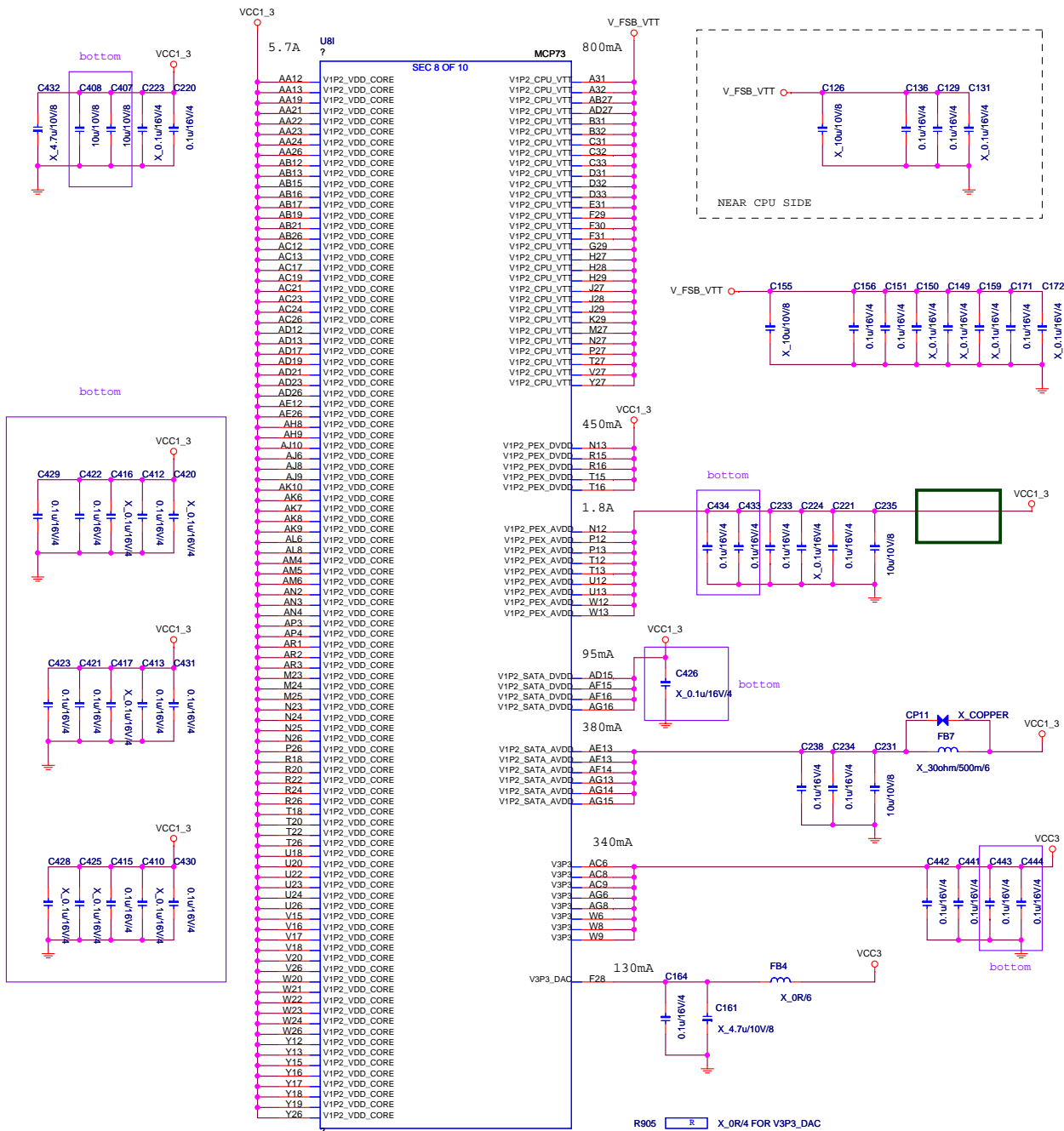






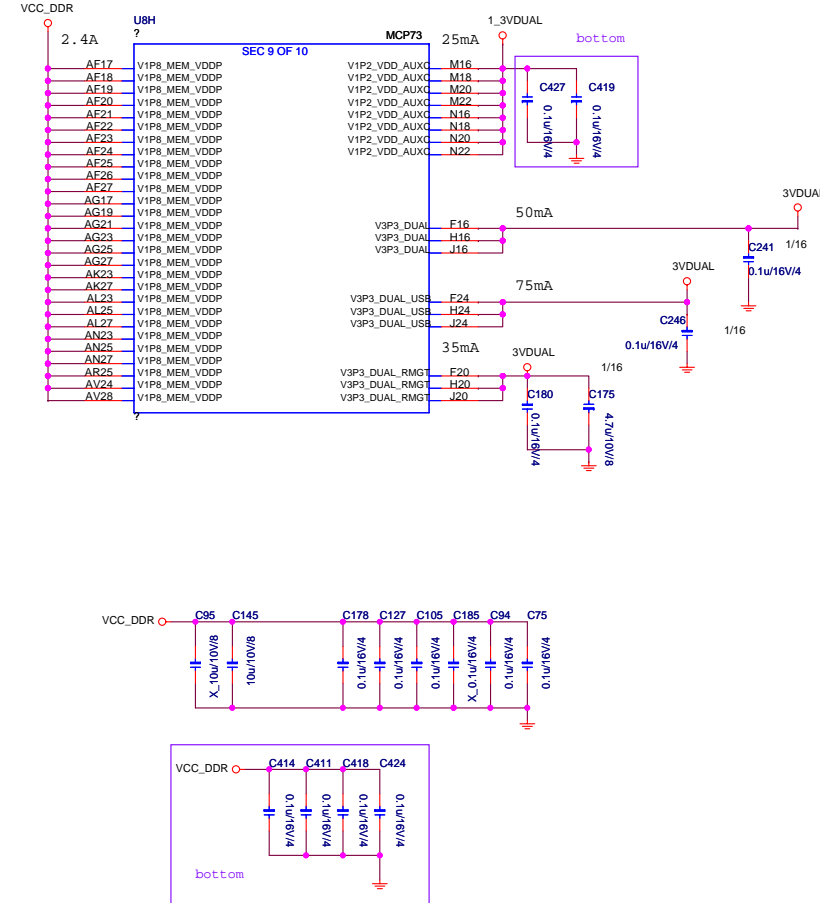
Vcore power-on sequence control circuit





R905 X_0R/4 FOR V3P3_DAC

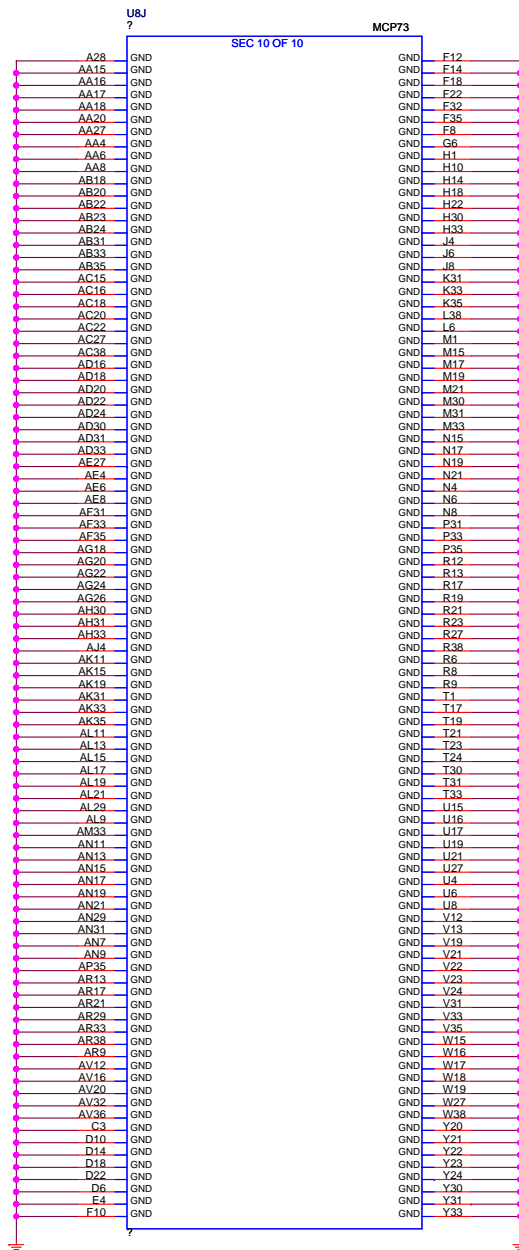
MEME POWER



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Custom	MCP73-POWER	2.2
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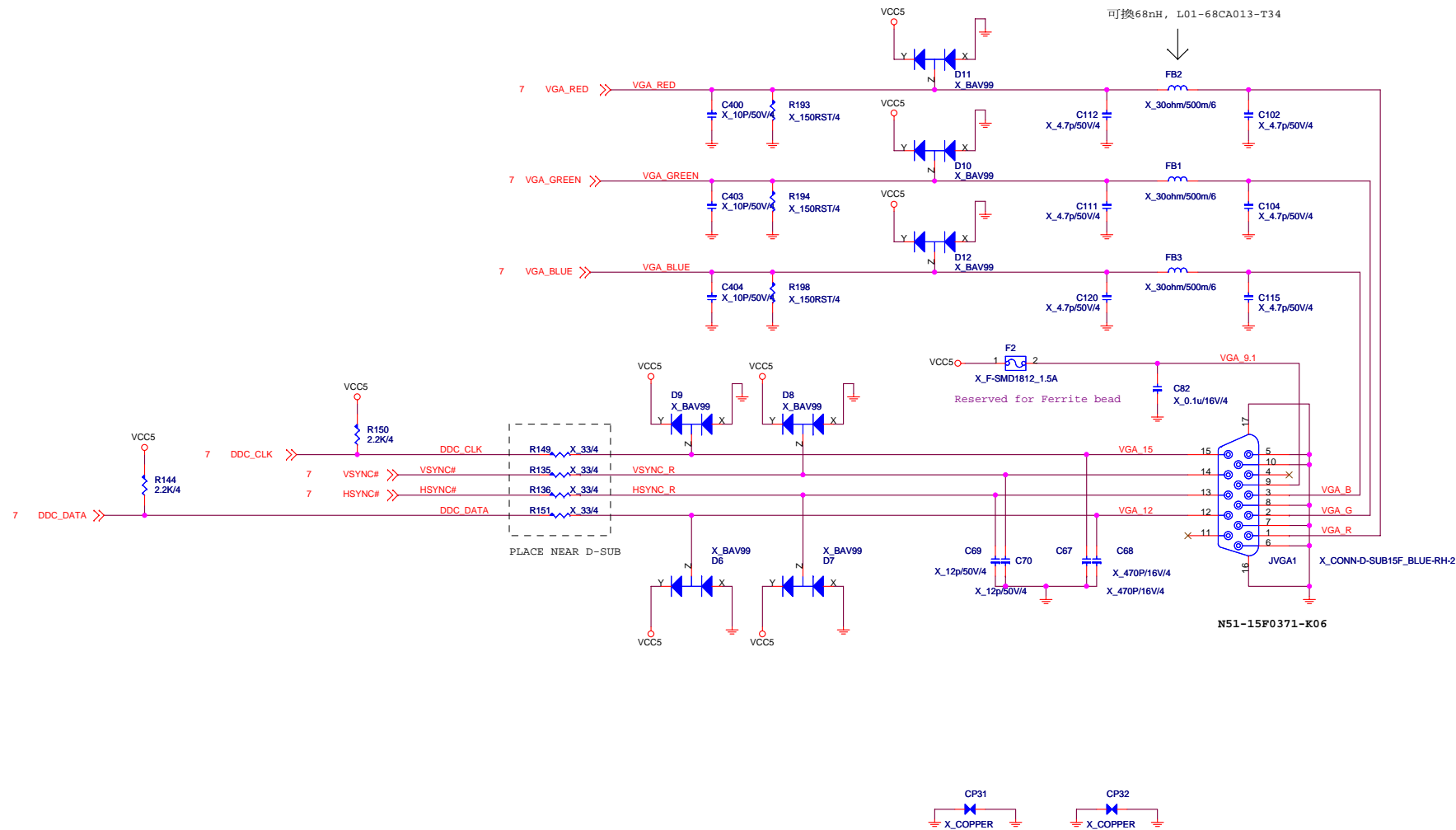


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Custom	MCP73-GND	2.2
Date: Friday, November 16, 2007		
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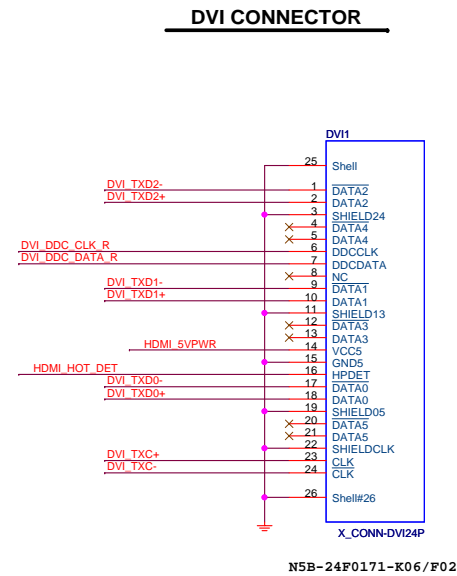
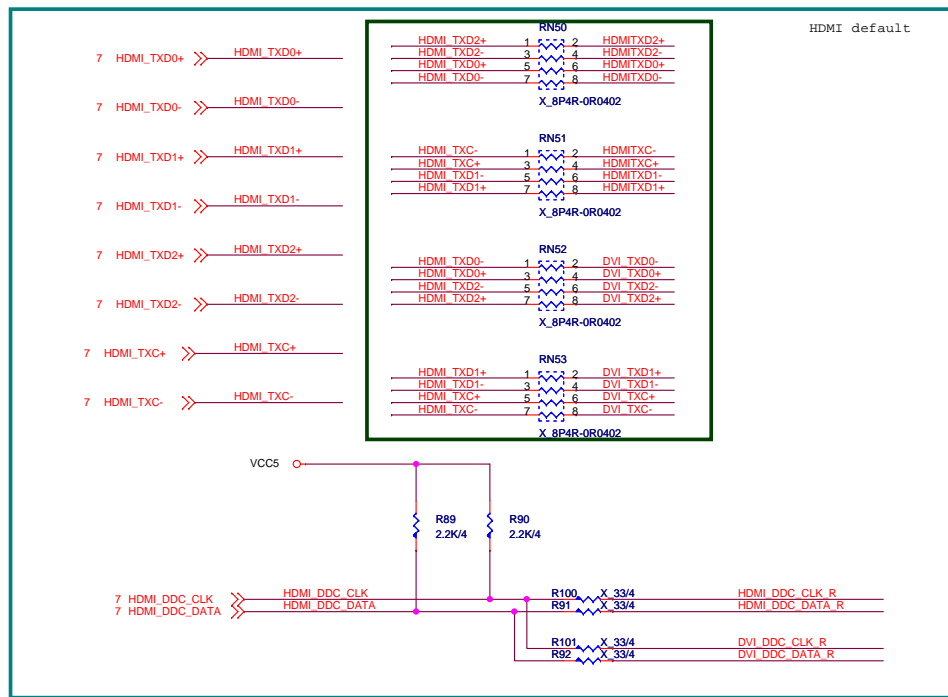
PLACE NEAR VGA CONNECTOR



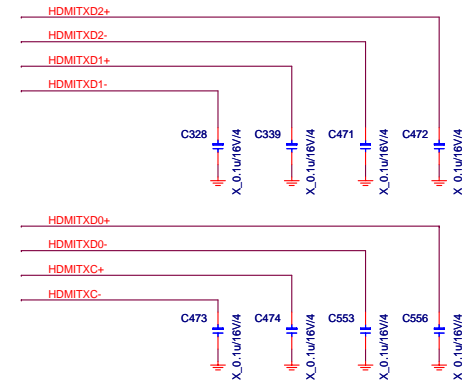
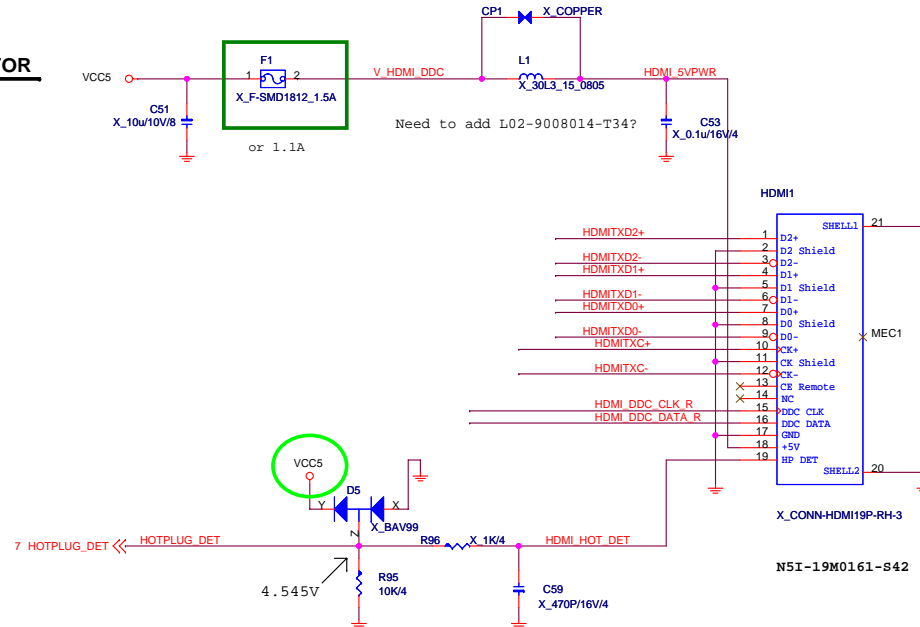
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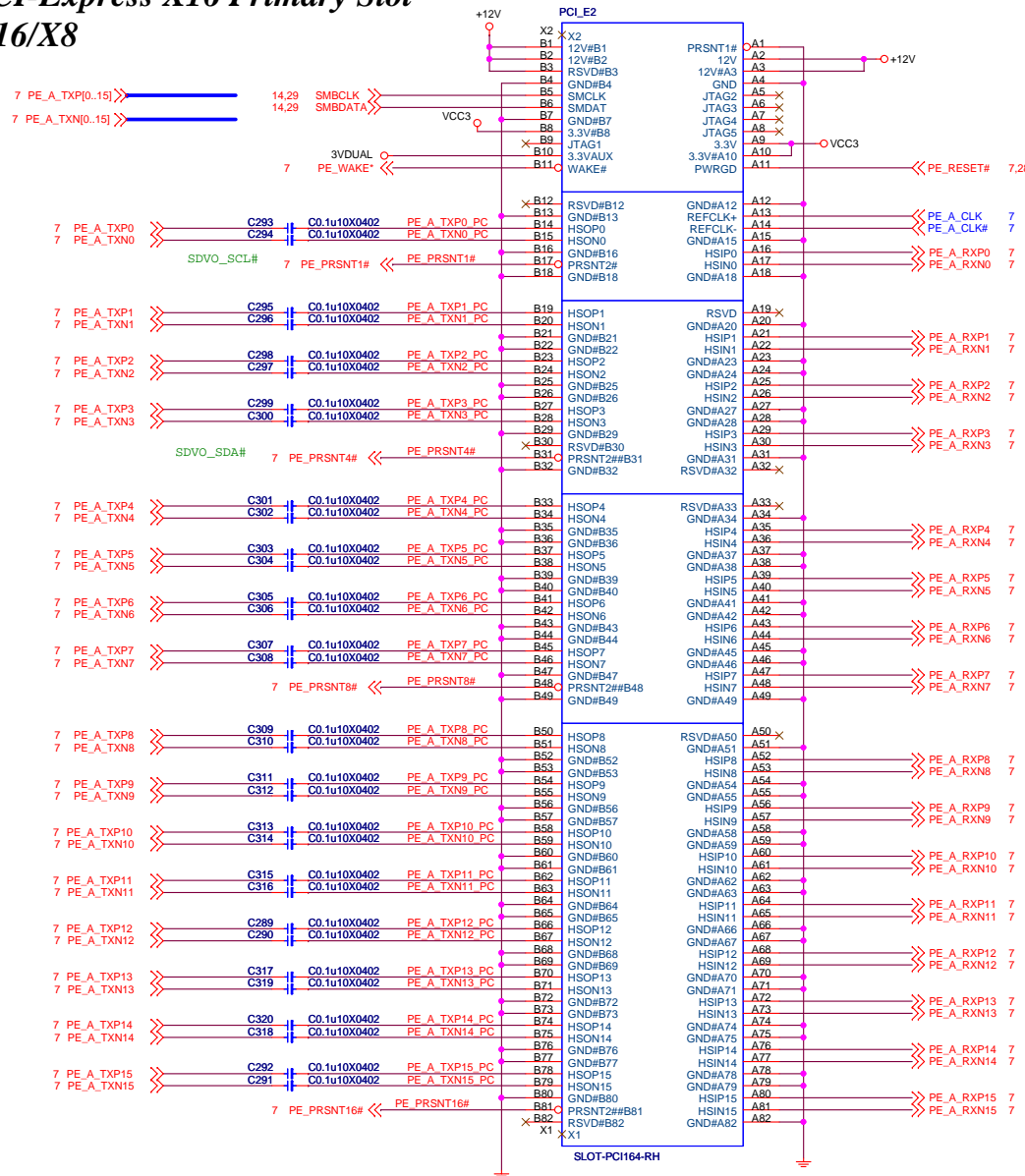
Size	Document Description	Rev
Custom	D-SUB	2.2
Date:	Tuesday, November 20, 2007	Sheet 17 of 38



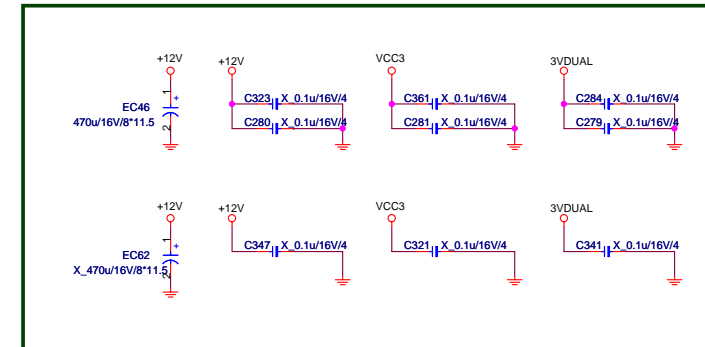
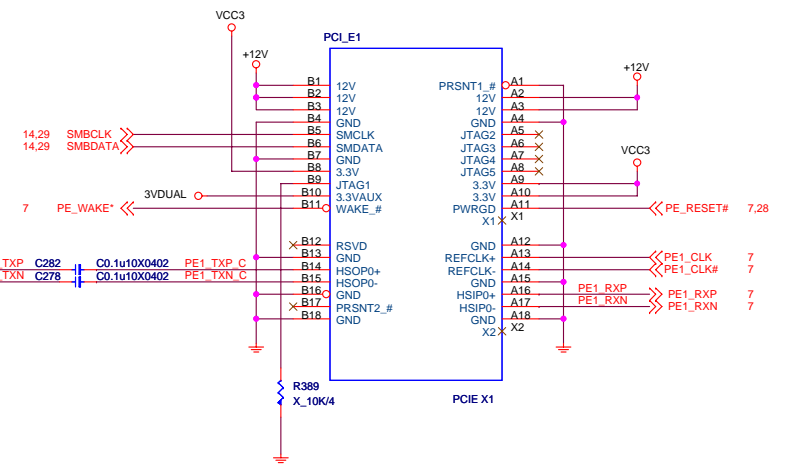
HDMI CONNECTOR



PCI-Express X16 Primary Slot X16/X8



PCI-Express x1 SLOT 1

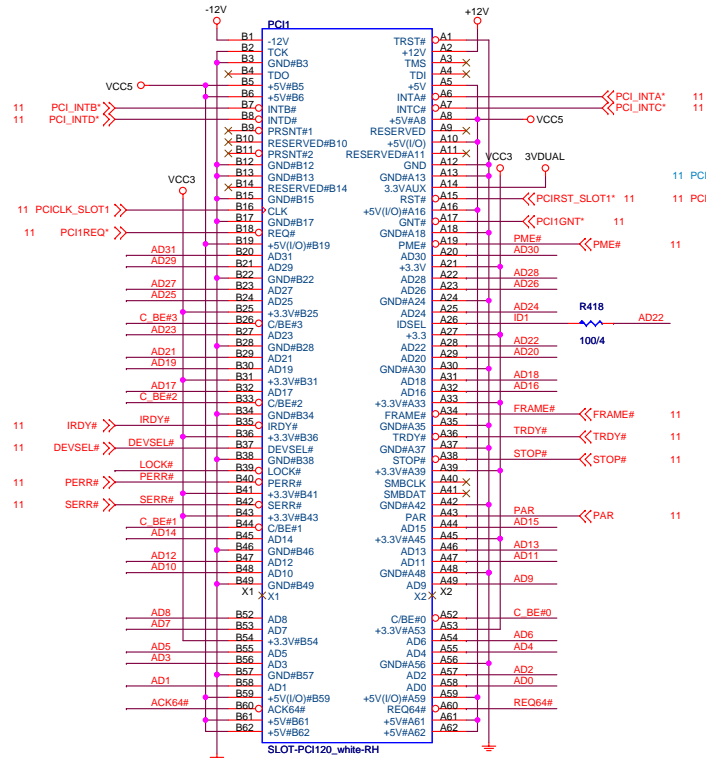


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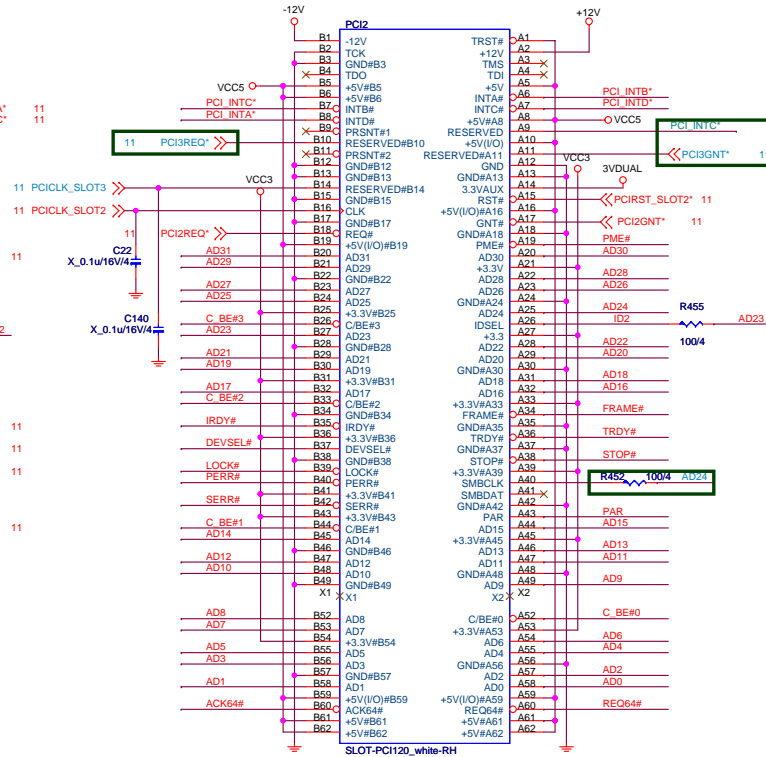
Size	Document Description	Rev
Custom	PCI-E X16/X1 Slot	2.2
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PCI SLOT 1 (PCI VER: 2.2 COMPLY)



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

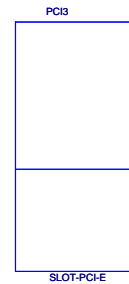
PCI SLOT 2 (PCI VER: 2.2 COMPLY)



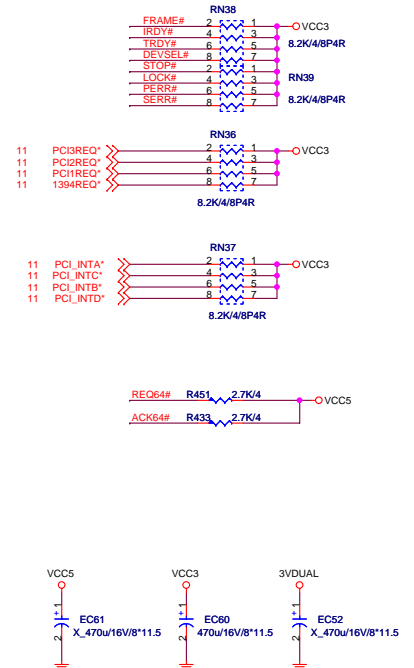
IDSEL = AD23
MASTER = PCI2REQ*
PCI2GNT*
PCI1ROUTE=B,C,D,A

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

Medion BLUE PCI SLOT



PCI PULL-UP / DOWN RESISTORS



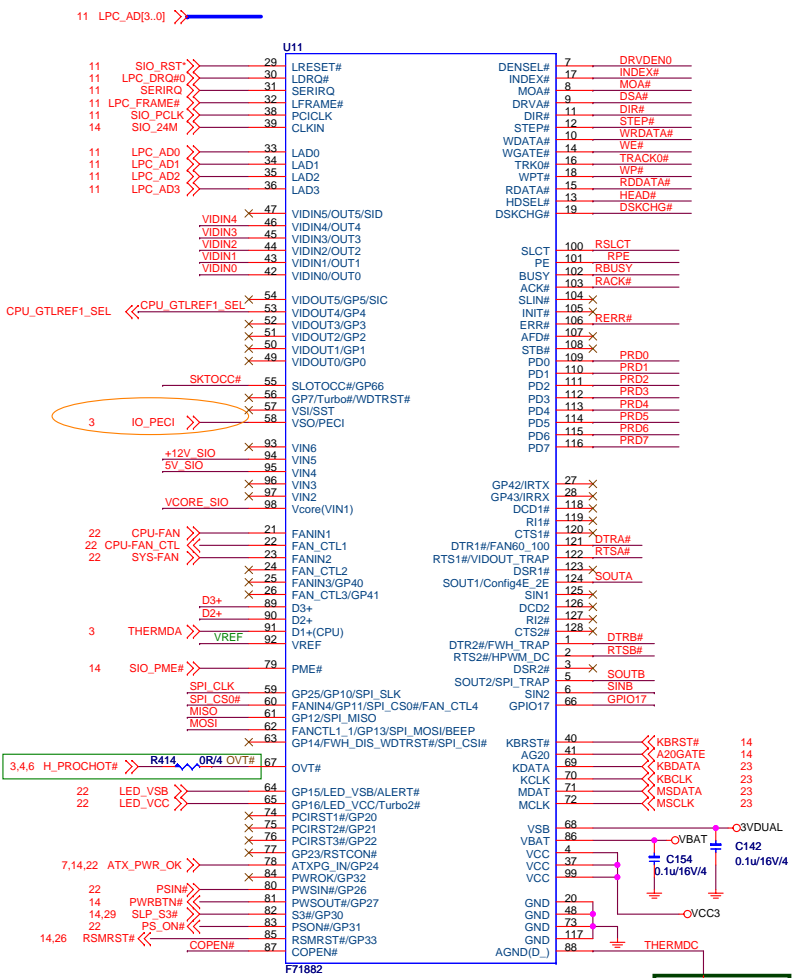
MICRO-STAR INT'L CO.,LTD

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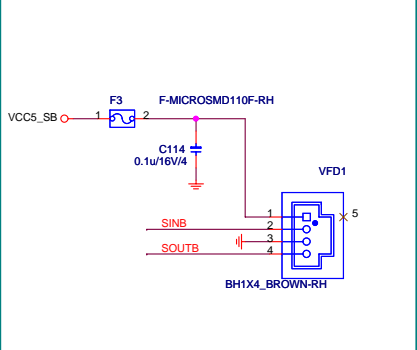
Size	Document Description	Rev
Custom	PCI Slot 1 & 2	2.2
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Super I/O

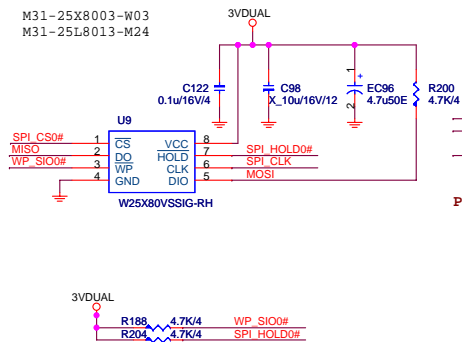
LPC SUPER I/O F71882



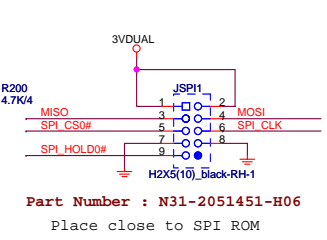
Medion VFD Pin header



SPI 8M FLASH ROM

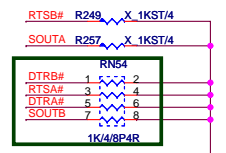


SPI DEBUG PORT



Part Number : N31-2051451-H06
Place close to SPI ROM

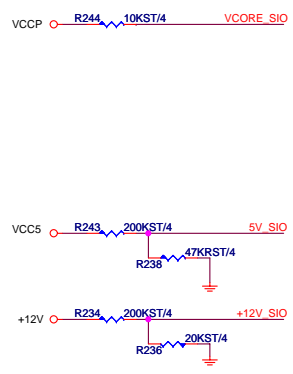
Strapping



	Don't STUFF	STUFF
RTSB#	PWM FAN	LINEAR FAN
RTSA#	PIN49-54=VID_OUT PIN42-47=VIDIN	PIN49-54=GPIO PIN42-47=VIDIN/OUT
SOUTA	4E	2E
DTRB#, SOUTB	SPI_DISABLE	SPI_ENABLE
DTRA#	FAN START DUTY 60%	FAN START DUTY 100%

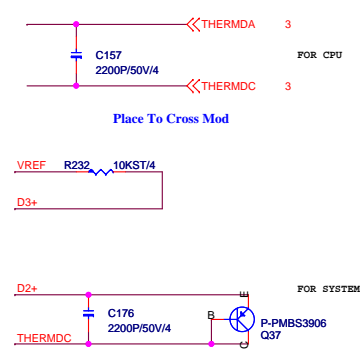
VOLTAGE SENSING(H/W Monitor).

The best voltage input level is about 1V.



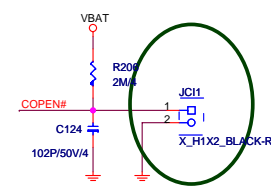
Temperature Sensing

DIODE SENSING CIRCUIT



CASE OPEN CIRCUIT

Change to reserve???

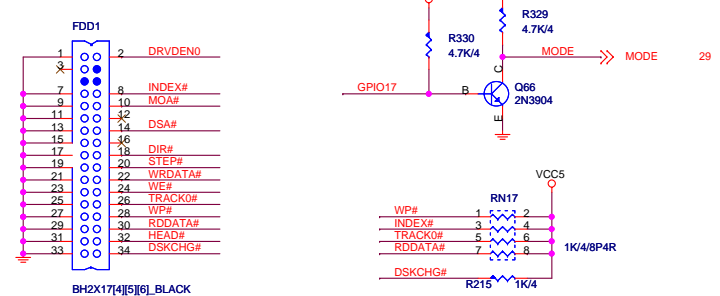


CPU VID reset

SLOT_OCC#



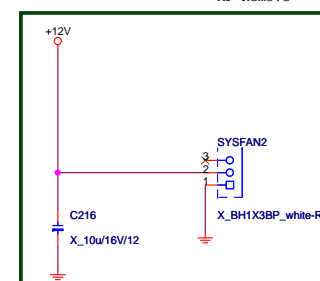
FLOPPY CONN BOLCK



Intel Front Panel



Reserve for NB_FAN, Near MCP73
MP Remove

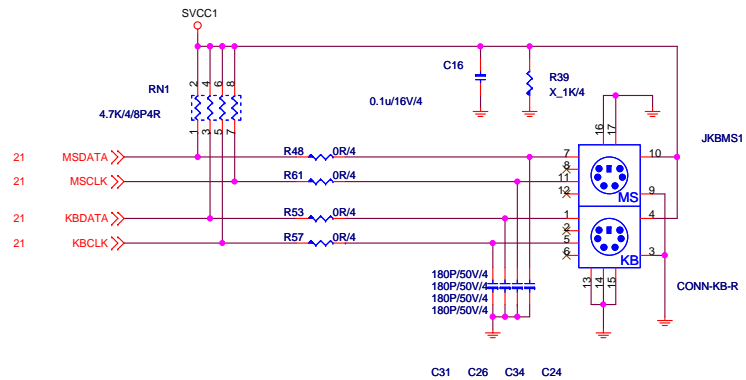


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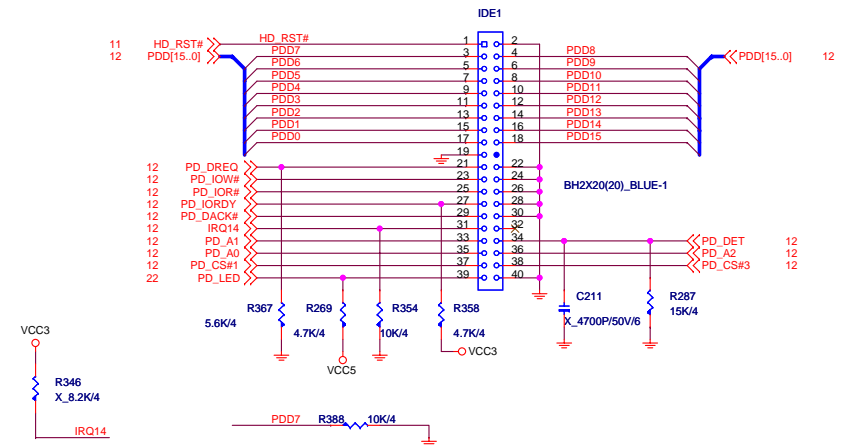
MS-7366

Size Custom	Document Description ATX/Front Panel/FAN	Rev 2.2
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PS2 KEYBOARD & MOUSE CONNECTOR



PRIMARY IDE BLOCK



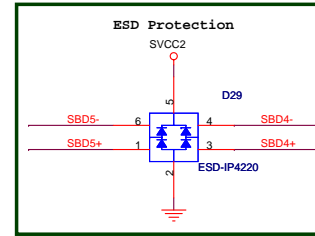
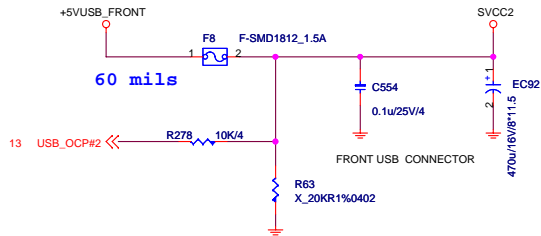
MICRO-STAR INT'L CO.,LTD

MS-7366

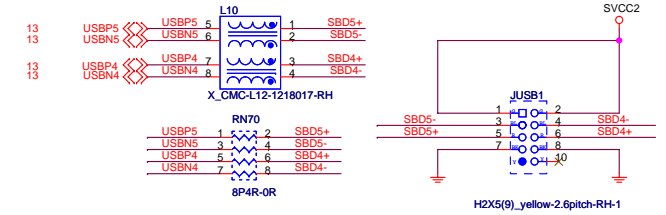
Size Custom	Document Description KB/COM1/IDE/FAN	Rev 2.2
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FRONT PANEL USB CONNECTOR

POWER CIRCUIT FOR USB PORT 4,5

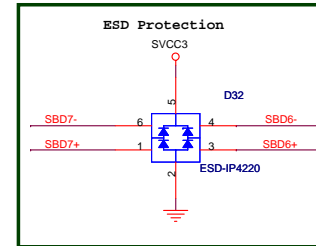
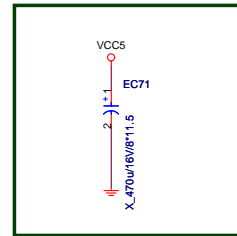
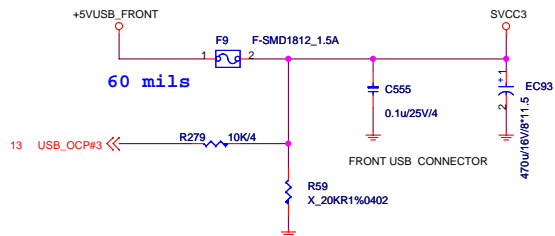


FRONT PANEL USB CONNECTOR FOR USB PORT 4,5

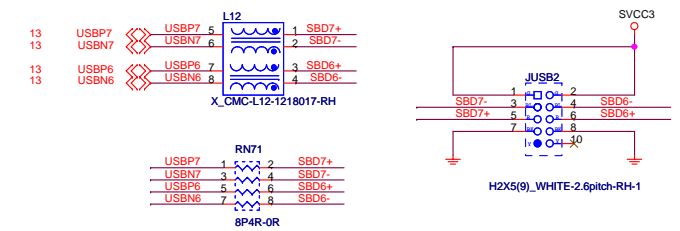


NEAR USB CONNECTOR
22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

POWER CIRCUIT FOR USB PORT 6,7

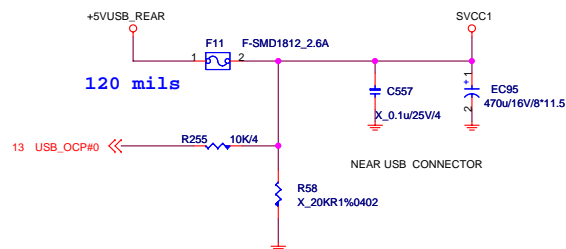


FRONT PANEL USB CONNECTOR FOR USB PORT 6,7

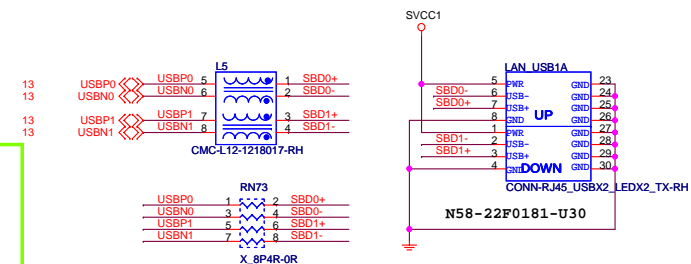


REAR PANEL USB CONNECTOR

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



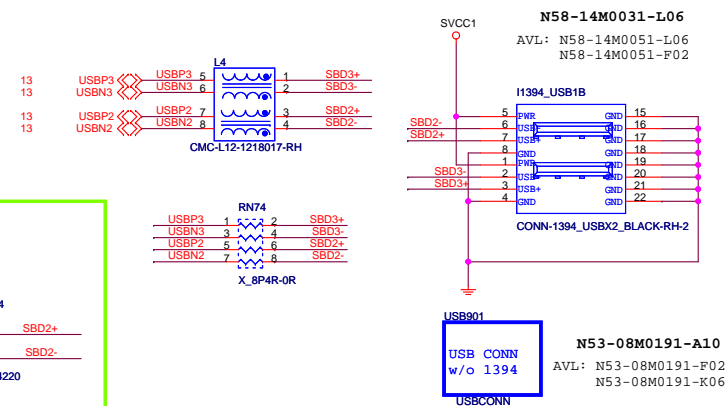
REAR PANEL USB CONNECTOR FOR USB PORT 0,1



NEAR USB CONNECTOR

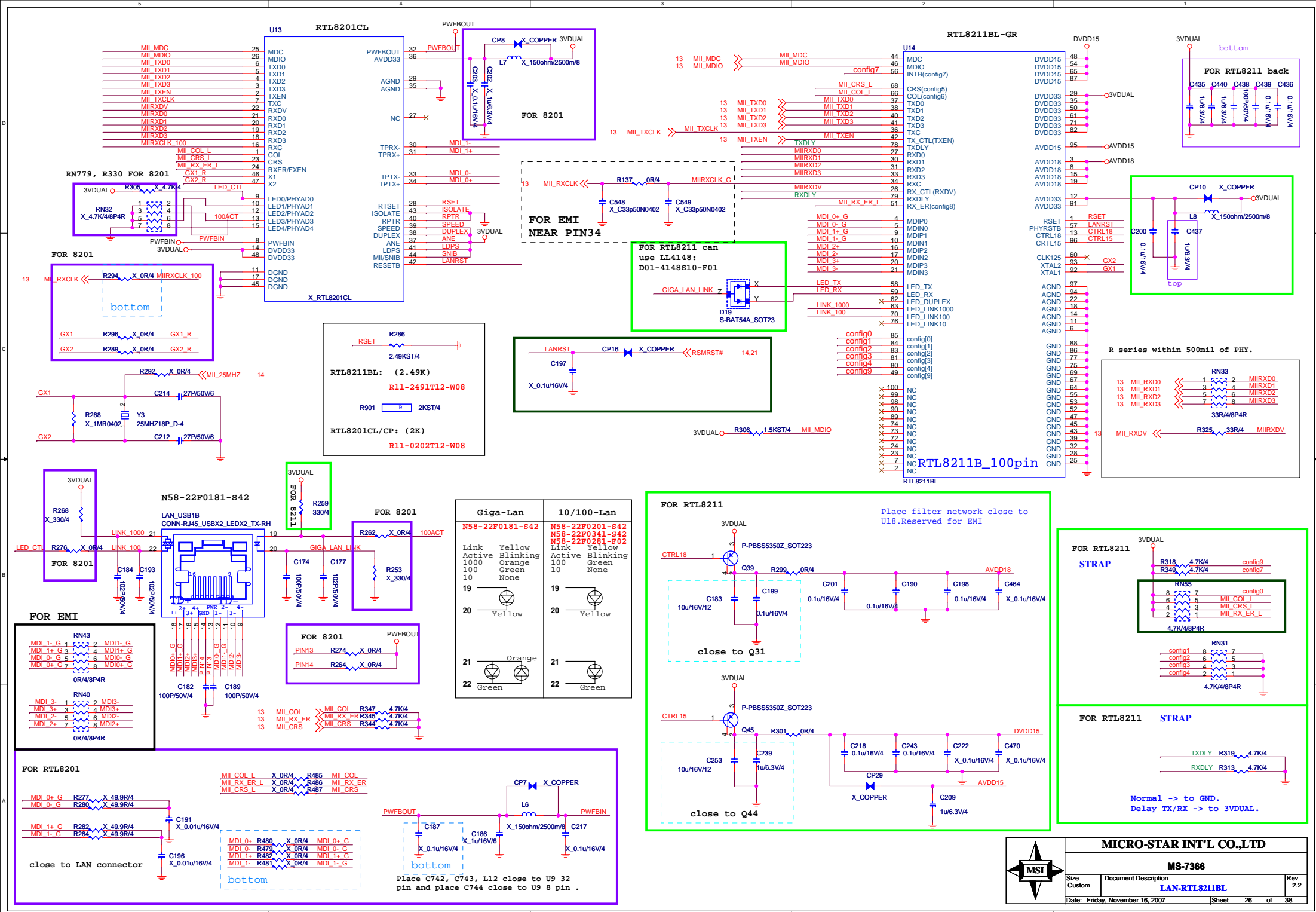
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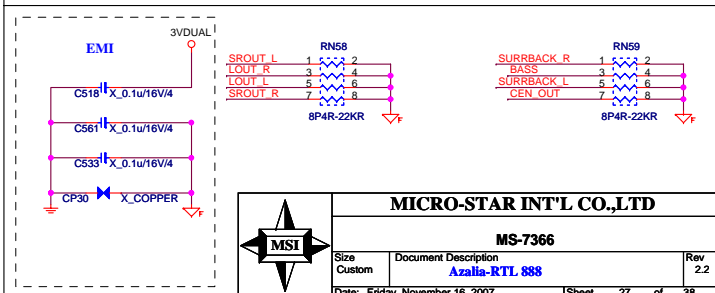
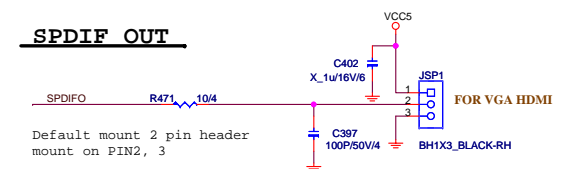
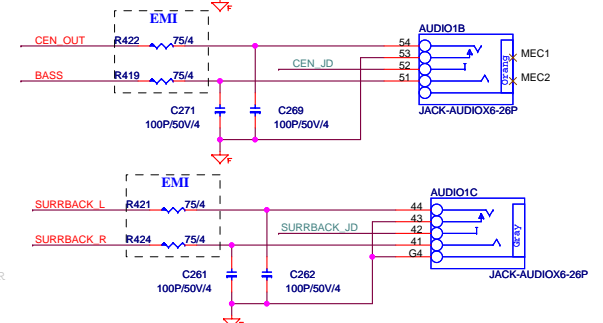
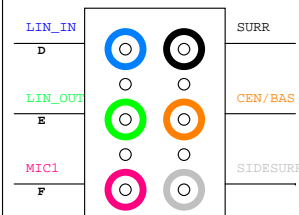
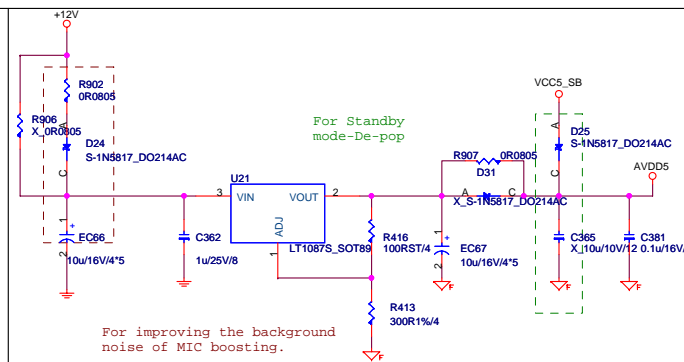
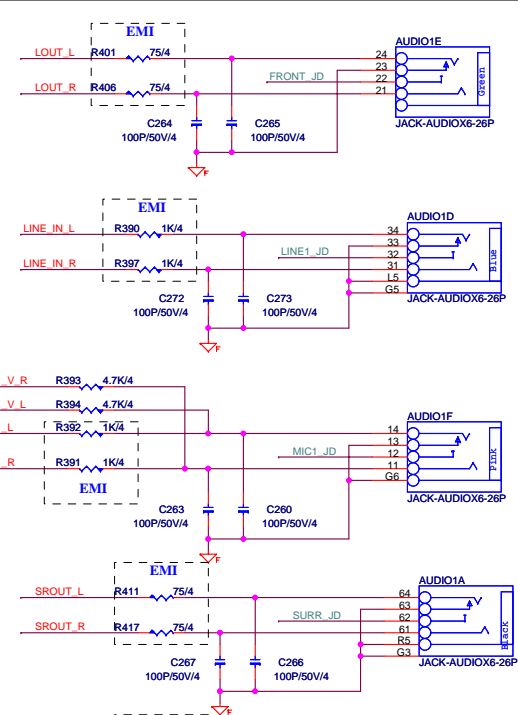
REAR PANEL USB CONNECTOR FOR USB PORT 2,3

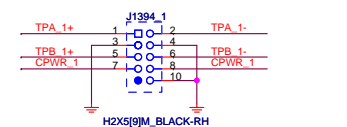
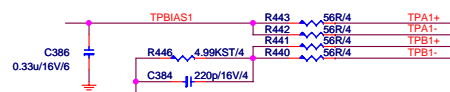
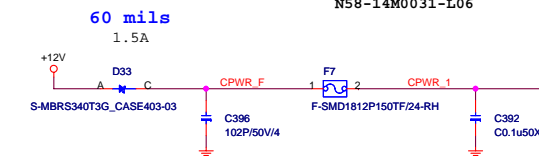
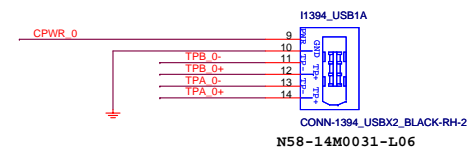
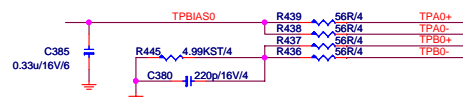
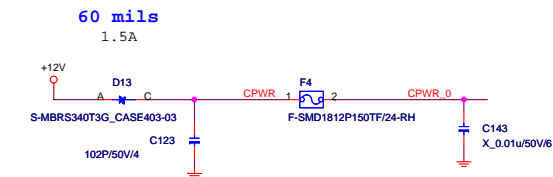
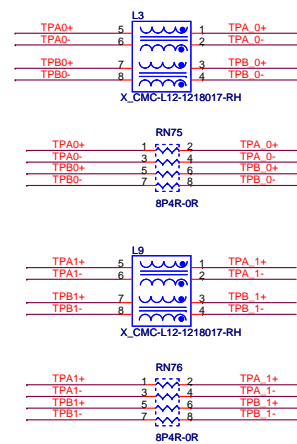
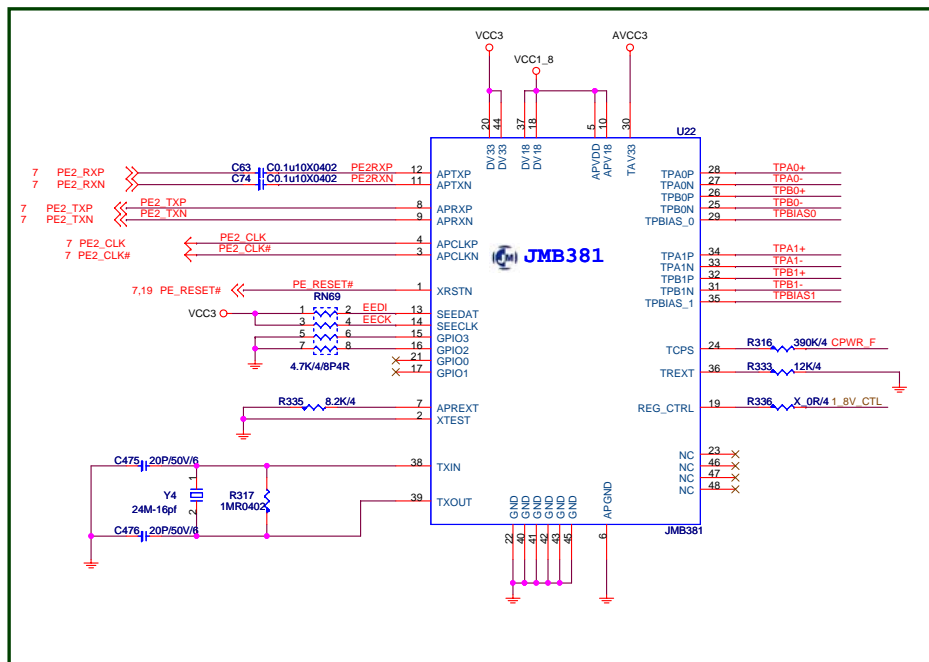


NEAR USB CONNECTOR

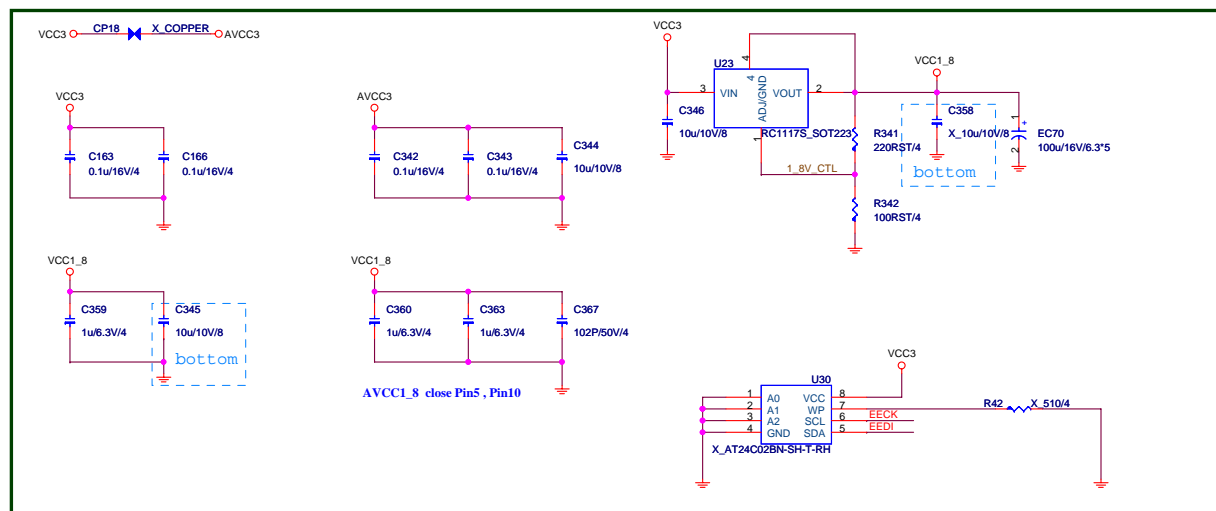
22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22







For Intel 1394 pinheader

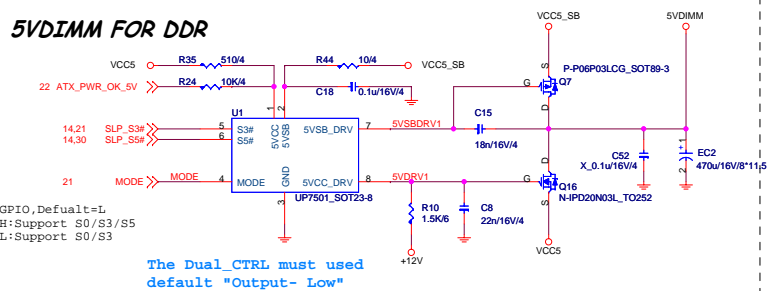


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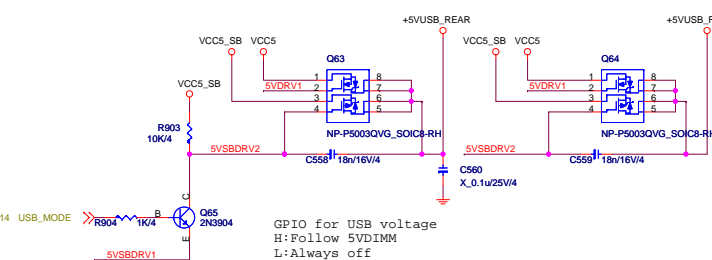
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5VDIMM FOR DDR

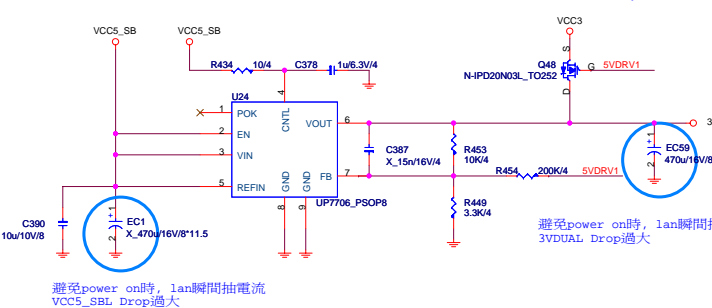


5VSB FOR Front USB

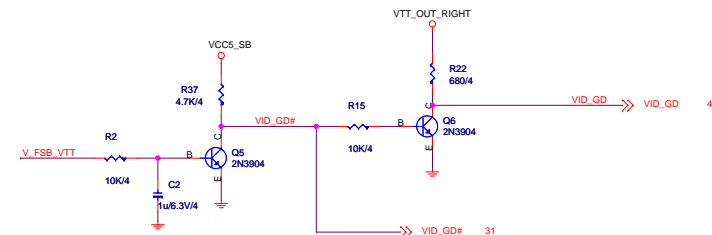
5VSB FOR Rear USB



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	1	0	1	1
5VSBDRV1	1	0	1	0	0	1	0	0
5VDRV1	1	0	0	0	0	0	0	0
5VSBDRV2	X	0	1	0	0	1	0	0
USB_MODE	X	1	X	1	0	X	1	0
5VDIMM	Y	Y	N	Y	Y	N	Y	Y
USB power	Y	Y	N	N	N	N	N	N

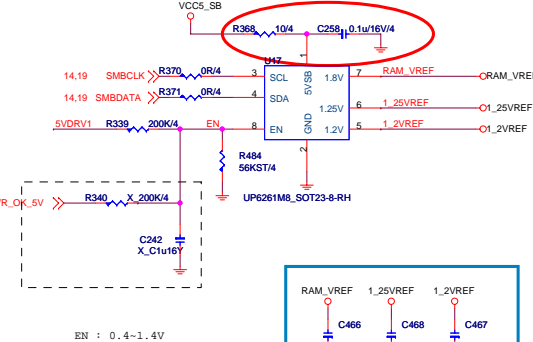
DUAL_CTRL可控制S4/S5, USB是否要有電
USB_MODE控制S4, S5一種要有電一種不要有電的狀態

Reference Voltage

up6261: High Precision Voltage Console

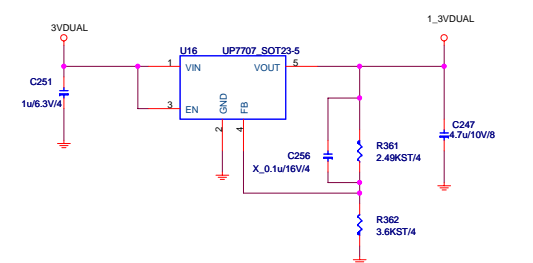
ONLY OVER DDR Voltage to 2V

VCC5_SB to UP6261 pin1 path keep the same.

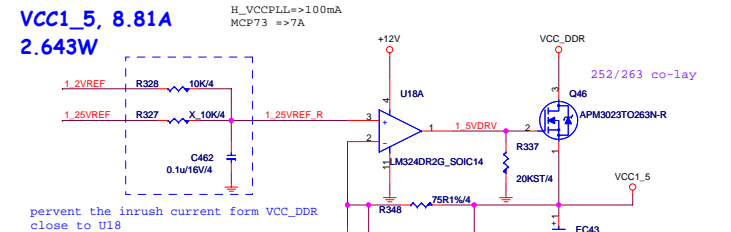


1_3VDUAL, 25mA

up7707: 600mA Low Dropout Linear Regulator



VCC1_5, 8.81A
2.643W

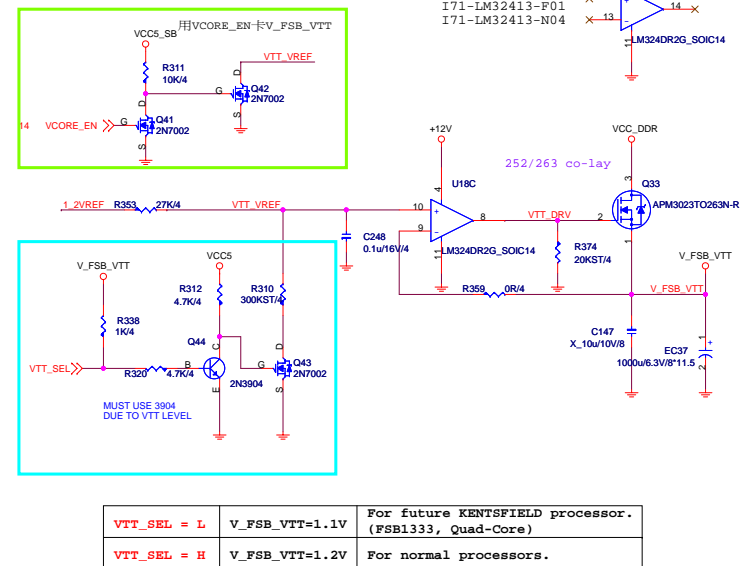


VREF	1_2VREF	1_25VREF
R356	300R1%/4	100RST/4
R348	75R1%/4	20RST/4

VCC1_3, 8.81A
1.3215W

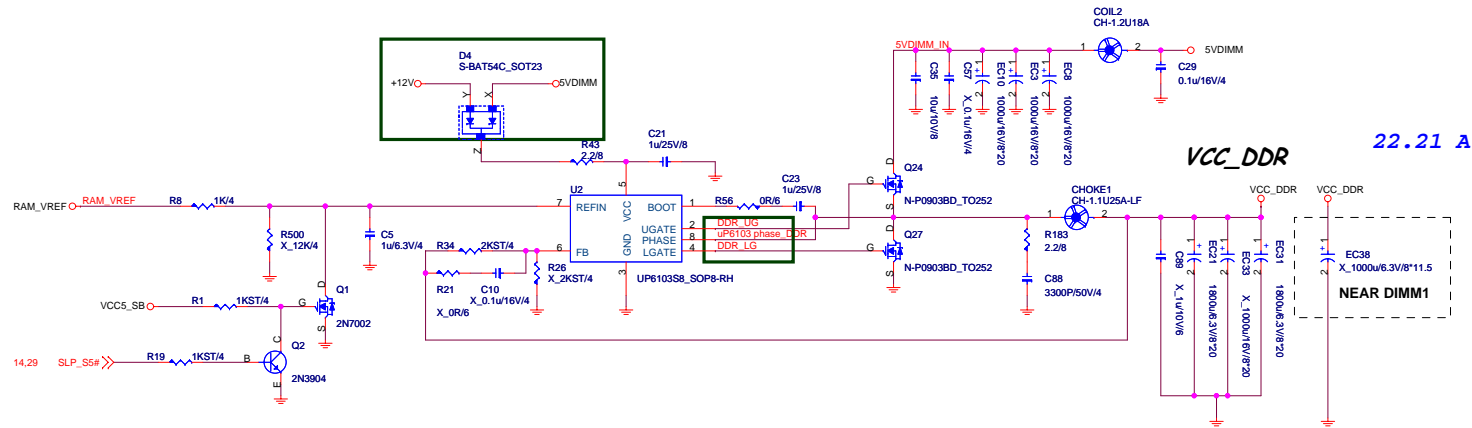
VREF	1_2VREF	1_25VREF
R363	240R1%/4	249RST/4
R369	30RST/4	20RST/4

FSB_VTT, 6.1A
3.66W



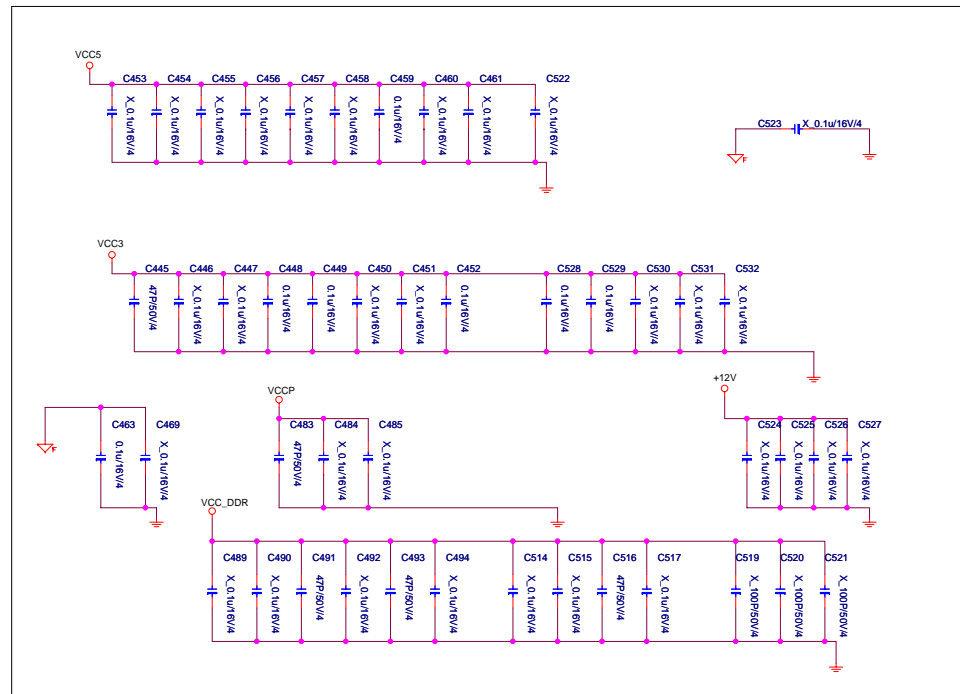
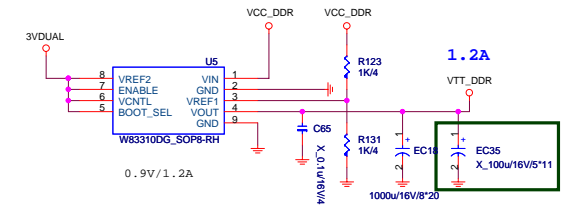
DDR II 1.8V POWER

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

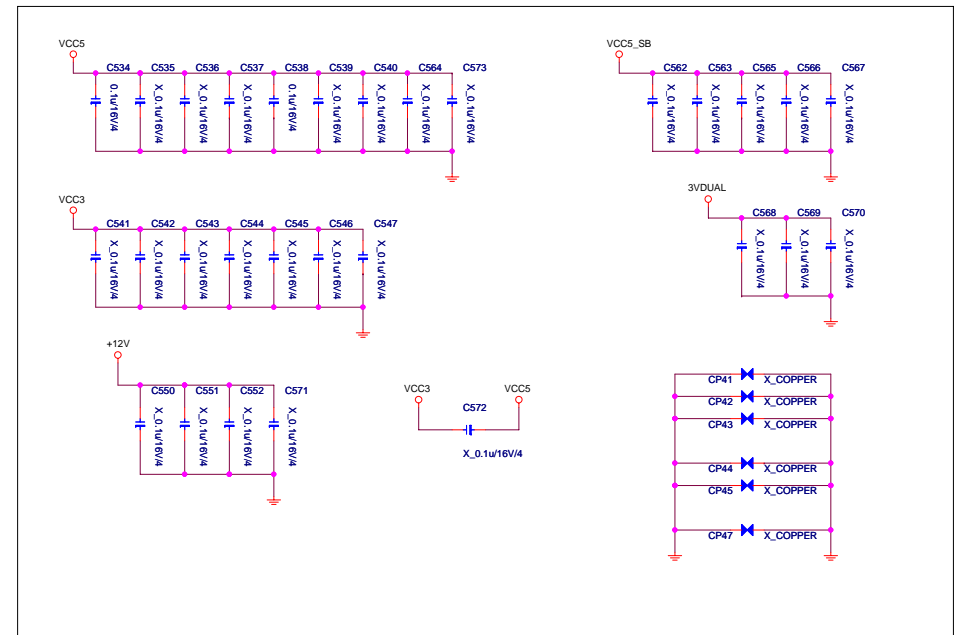
$$2.35 \times 3 \times 1.7 = 11.985A > 10.08A$$


DDR VTT Power

To CPU Copper trace width > 200mils



FOR EMI

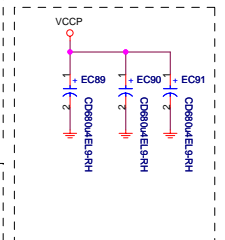
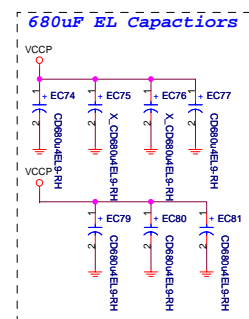
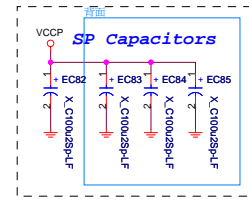
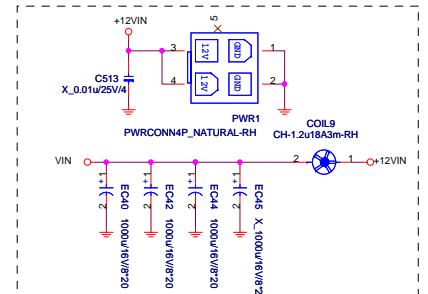
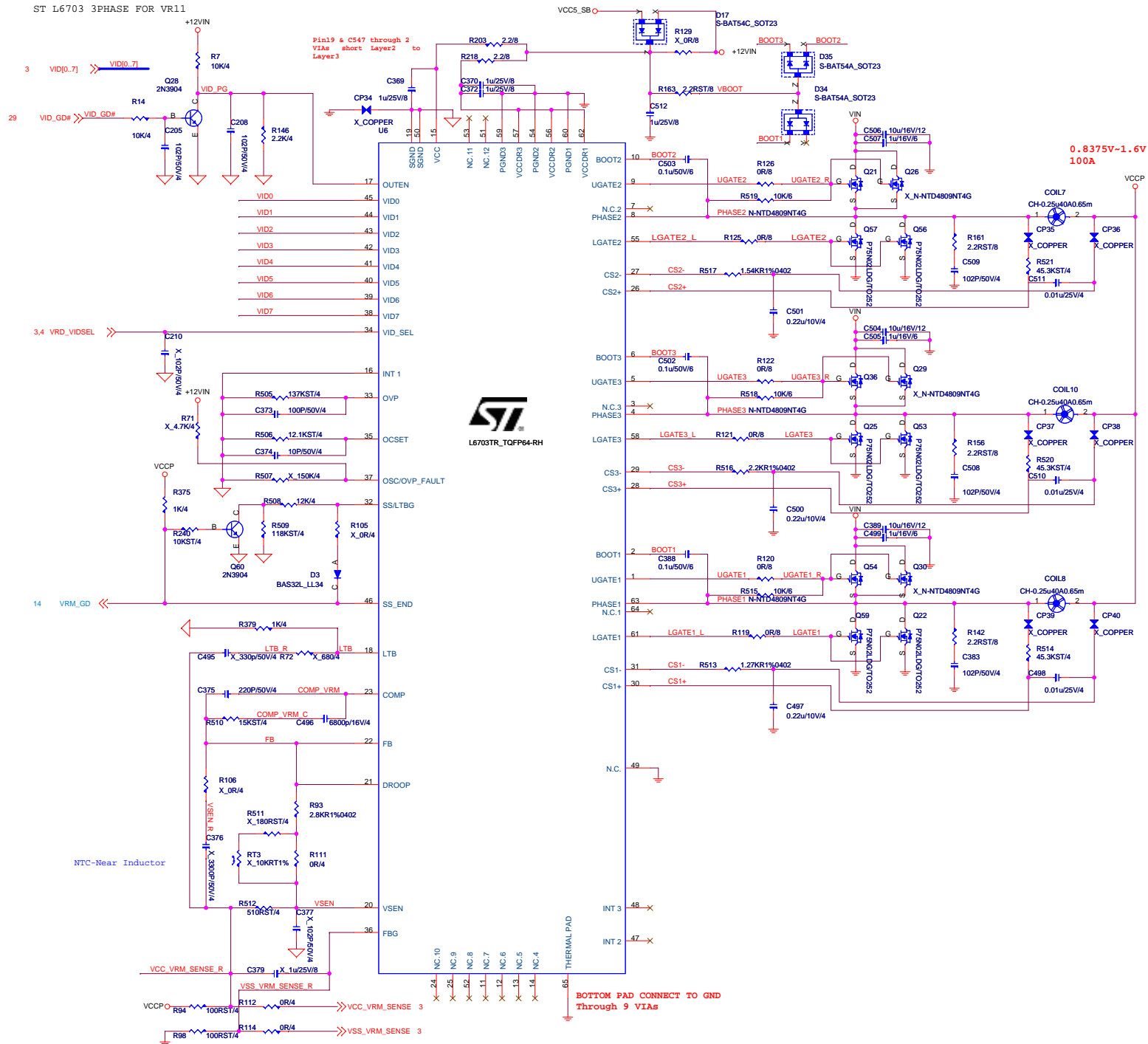


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ST L6703 3PHASE FOR VR11



BOTTOM PAD CONNECT TO GND Through 9 VIAs

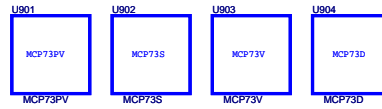
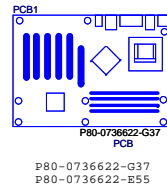
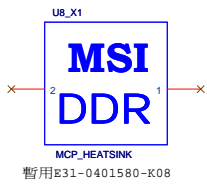
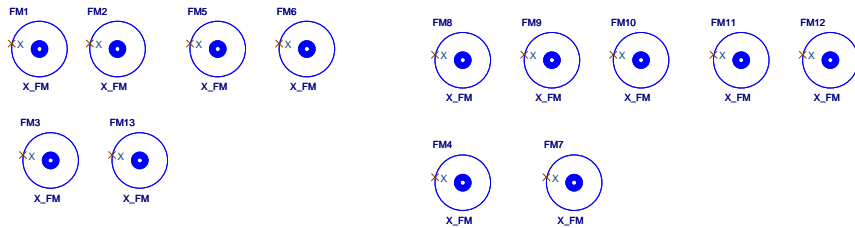


Table 1-4. Comparison of Different MCP73 Models

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

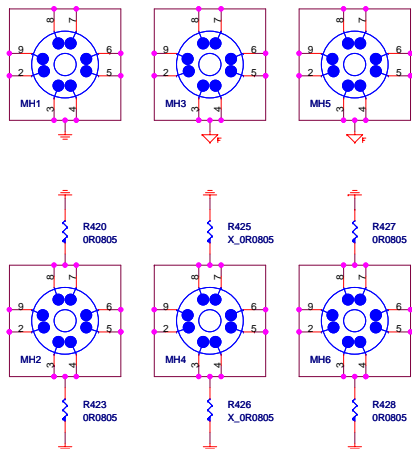


Table 1. MCP73 SKU Definition

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

