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# MS-7607 UATX Version: 10

# ACER

**CPU:** Intel Pentium 4, Pentium D, Core2 Duo, Wolfdale, Yorkfield processors in LGA775 Package.

**System Chipset:**

Intel Eaglelake - G43 (North Bridge)  
Intel ICH10(R) (South Bridge)

**On Board Device:**

Clock Gen - SLG8xP518T  
Super I/O - iTE-8720  
LAN - MARVELL 88E8071  
HD Audio Codec -- ALC662  
PCIE to DVI Interface


**Main Memory:**

Dual-channel DDR-III \* 4(800,1066)

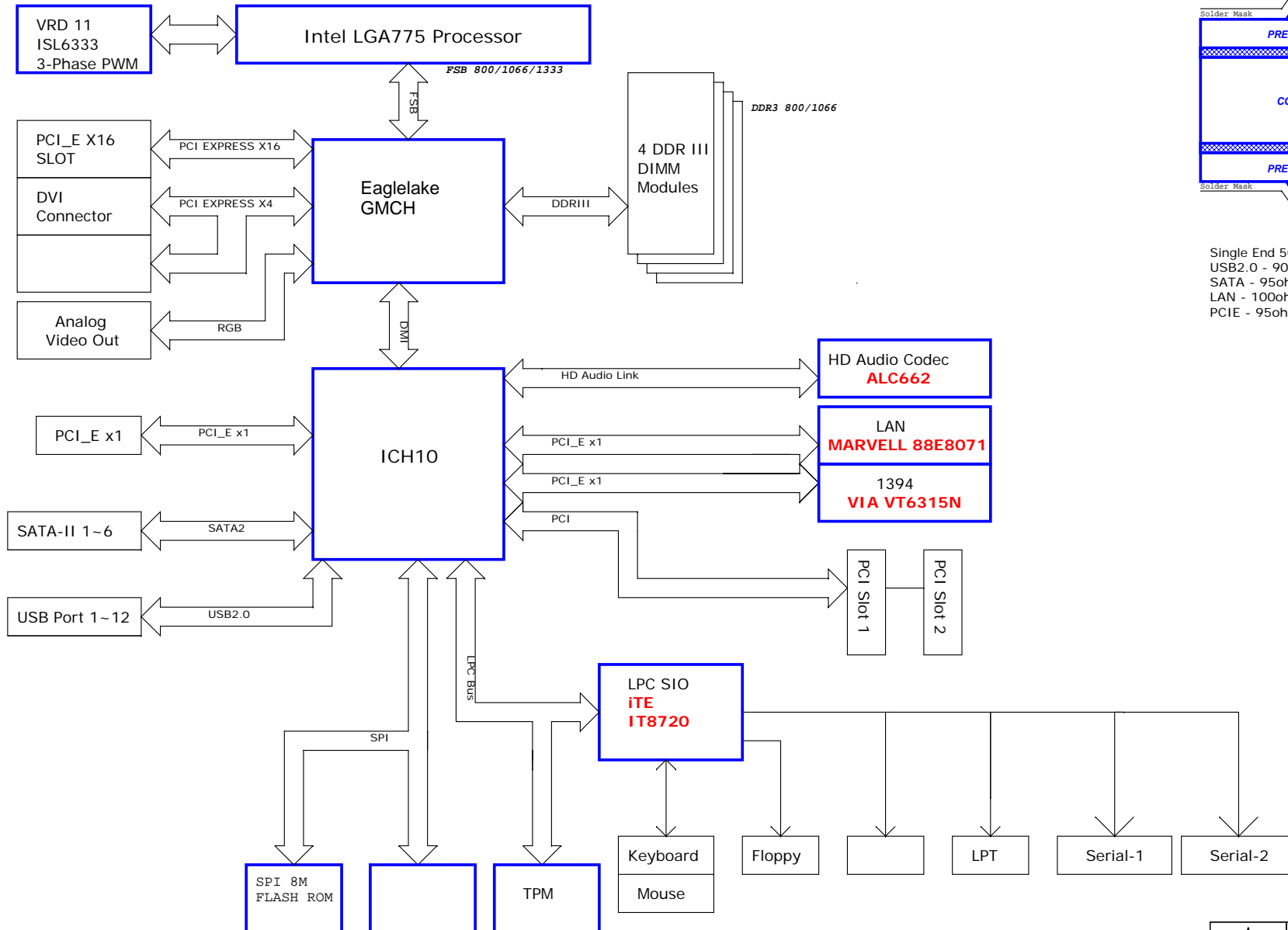
**Expansion Slots:**

PCI EXPRESS X16 SLOT \*1  
PCI EXPRESS X4 share to DVI  
PCI EXPRESS X1 SLOT \* 1  
PCI SLOT \* 2

**PWM:** NTERSIL - ISL6333CRZ 3Phase

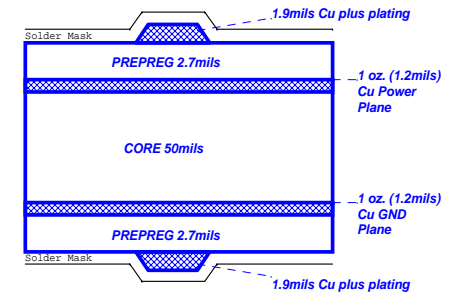
<b>MICRO-STAR INT'L CO.,LTD</b>			
<b>MS-7607</b>			
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# Block Diagram



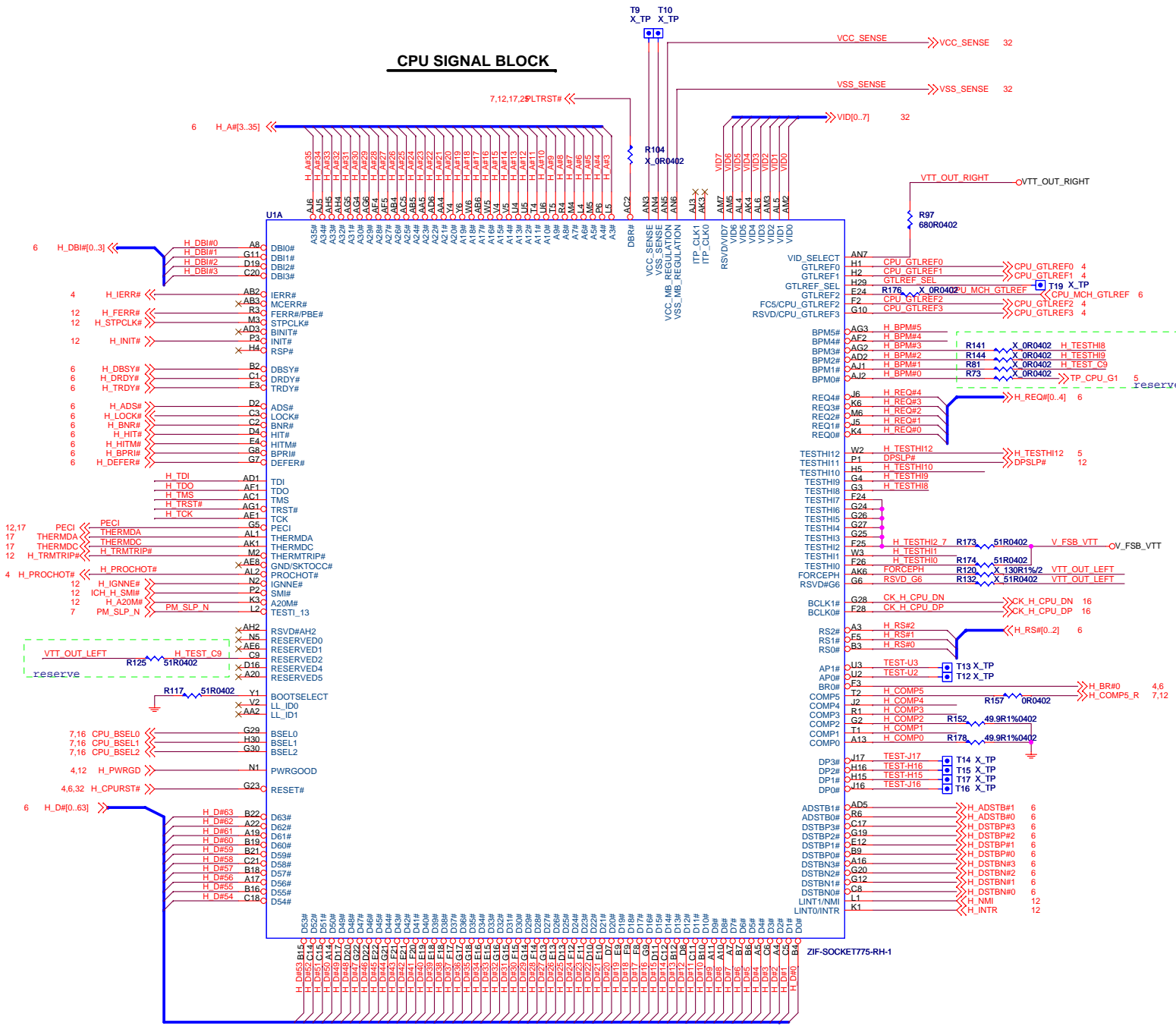
## Board Stack-up

(1080 Prepreg Considerations)

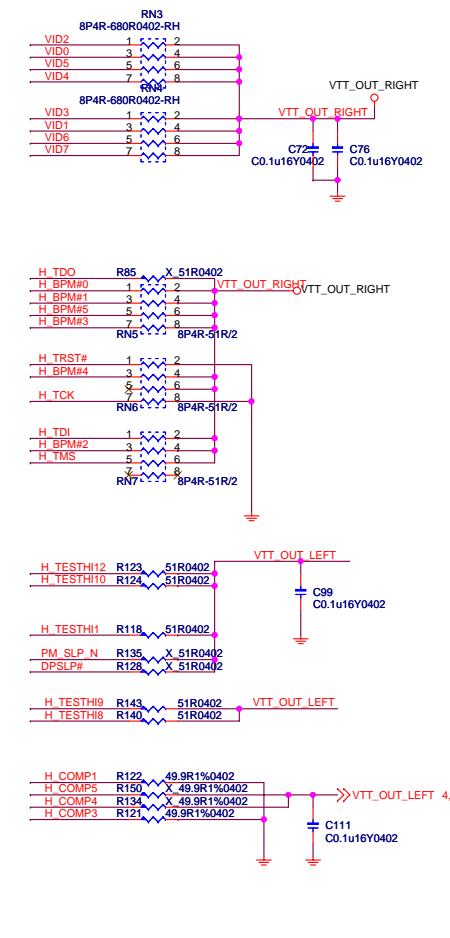



Single End 50ohm Top/Bottom : 4mils  
 USB2.0 - 90ohm : 15/4.5/7.5/4.5/15  
 SATA - 95ohm : 15/4/8/4/15  
 LAN - 100ohm : 15/4/8/4/15  
 PCIE - 95ohm : 15/4/8/4/15

### CPU SIGNAL BLOCK



### PULL HIGHT PULL DOWN

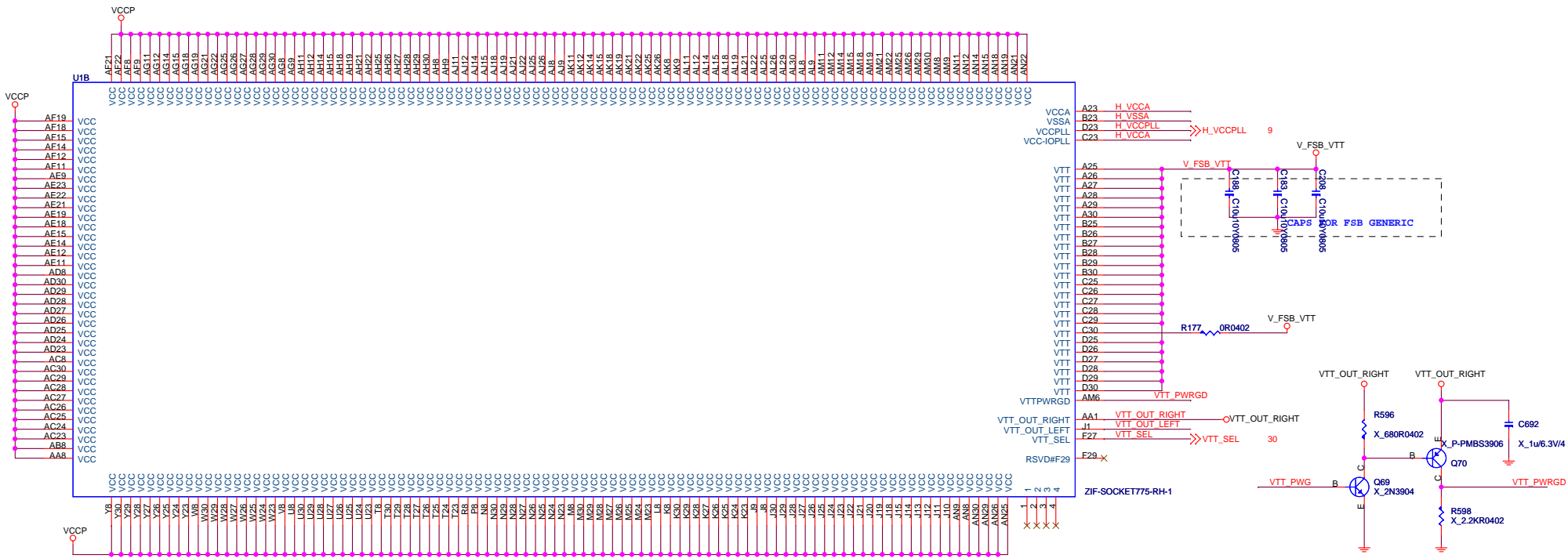




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**MS-7607**

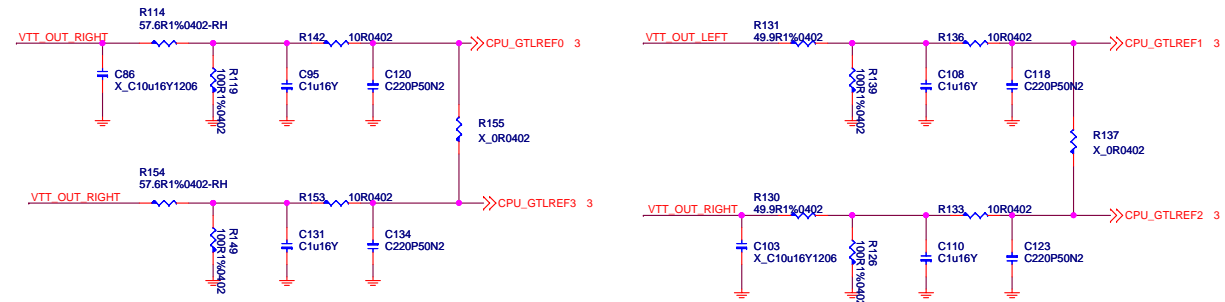
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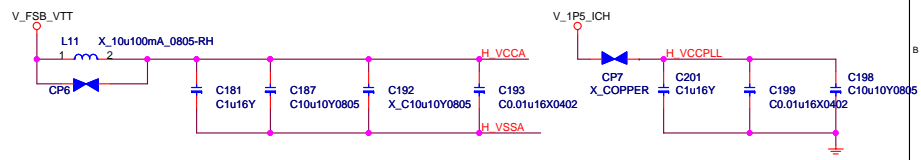
\*GTLREF0,3 VOLTAGE SHOULD BE  
 $0.635 * V_{TT} = 0.76V$  (At  $V_{TT}=1.2V$ )

DEMO BOARD CHANGE  
 (GTLREF0+3/GTLREF1+2)

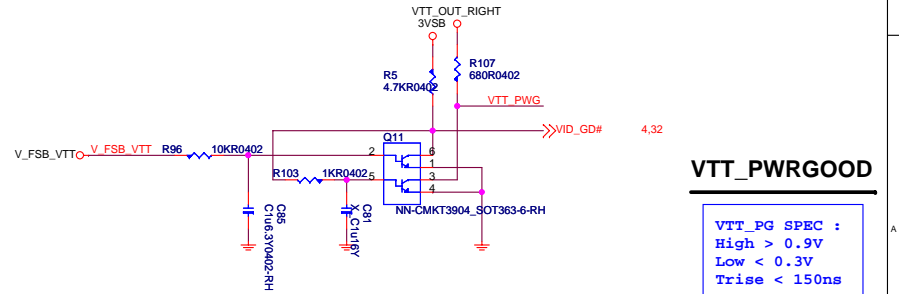
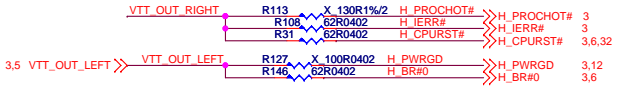
\*GTLREF1,2 VOLTAGE SHOULD BE  
 $0.6667 * V_{TT} = 0.8V$  (At  $V_{TT}=1.2V$ )



\*PLACE COMPONENTS AS CLOSE AS POSSIBLE TO PROCESSOR SOCKET  
 \*TRACE WIDTH TO CAPS MUST BE NO SMALLER THAN 12MILS



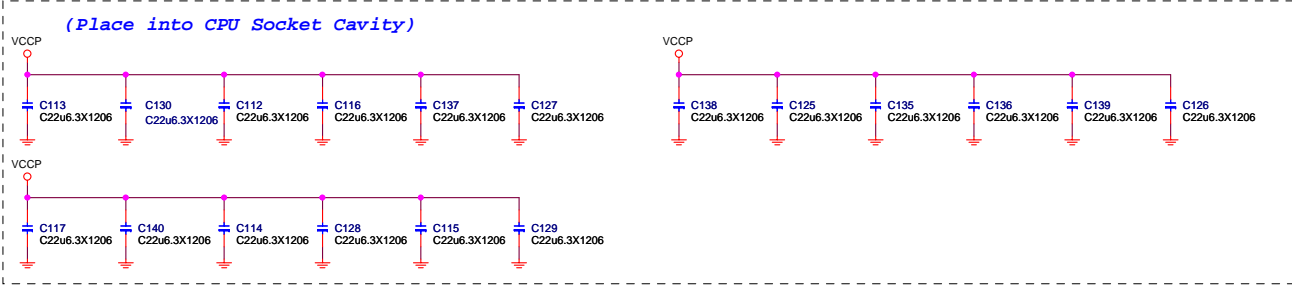
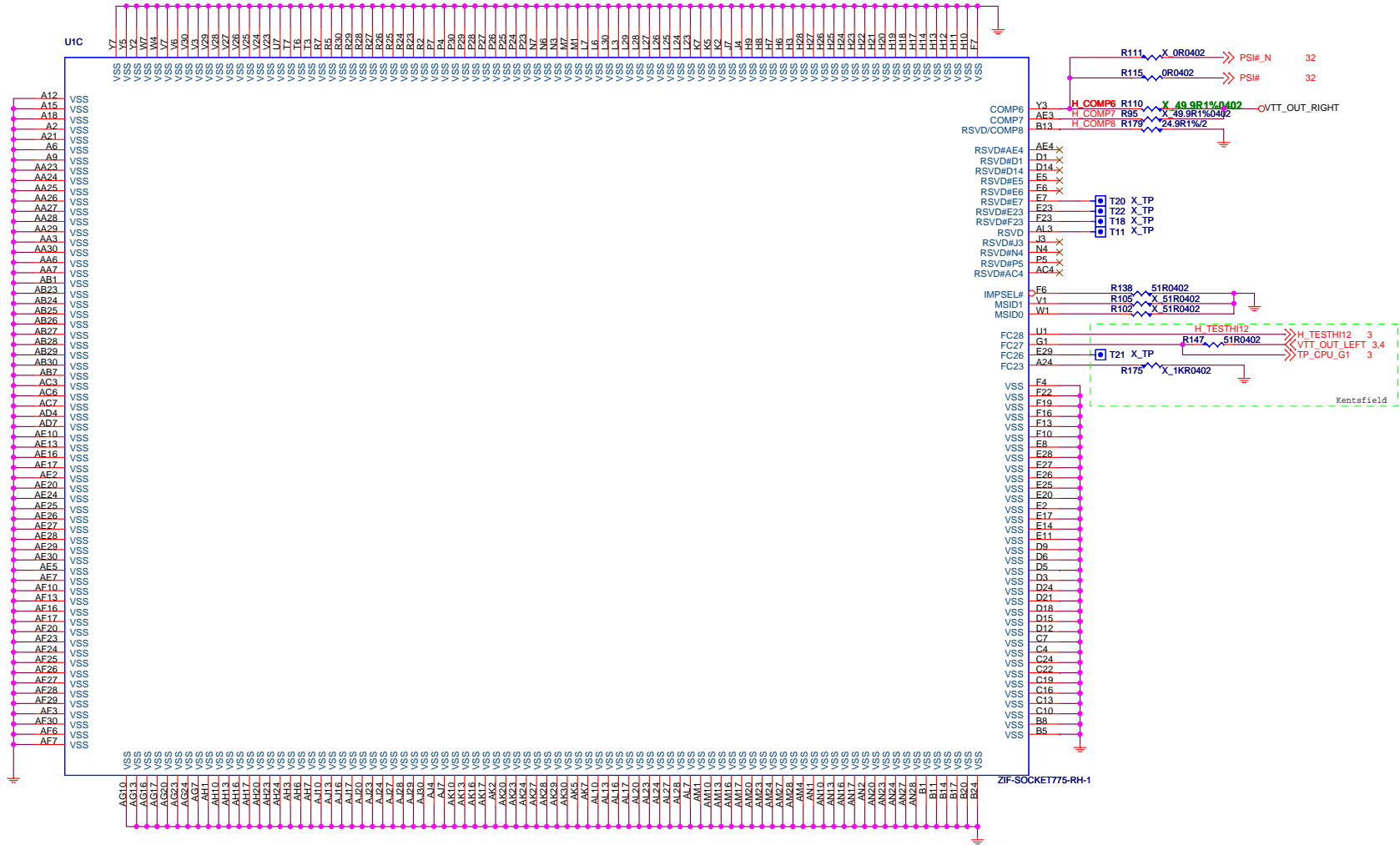
PLACE AT CPU END OF ROUTE



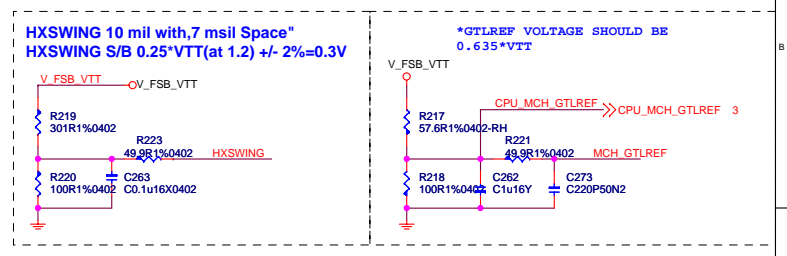
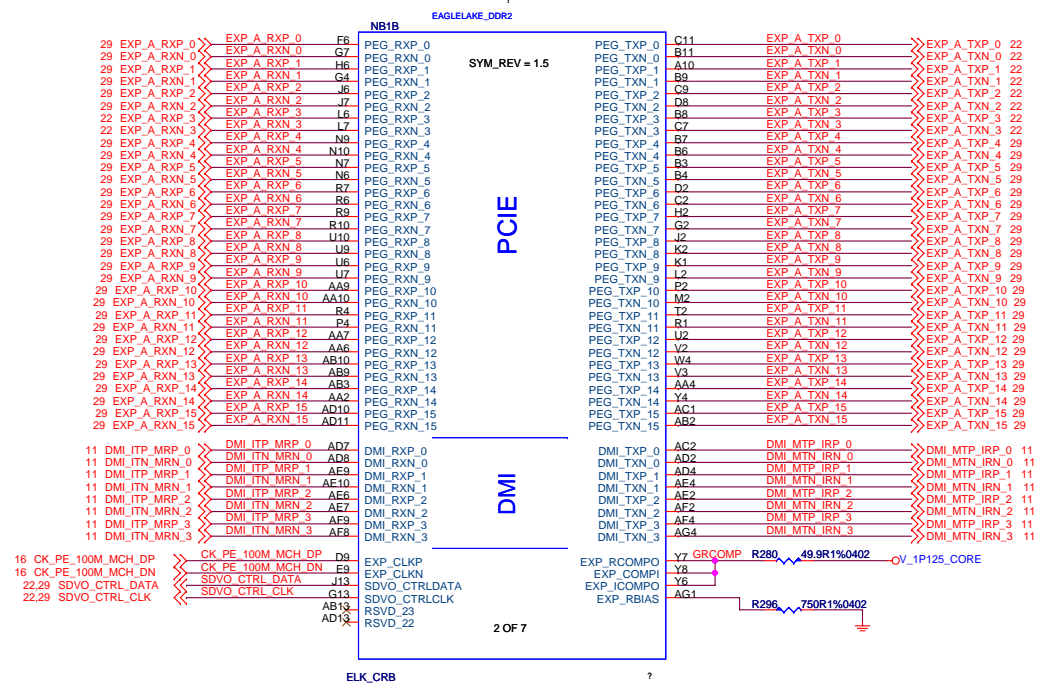
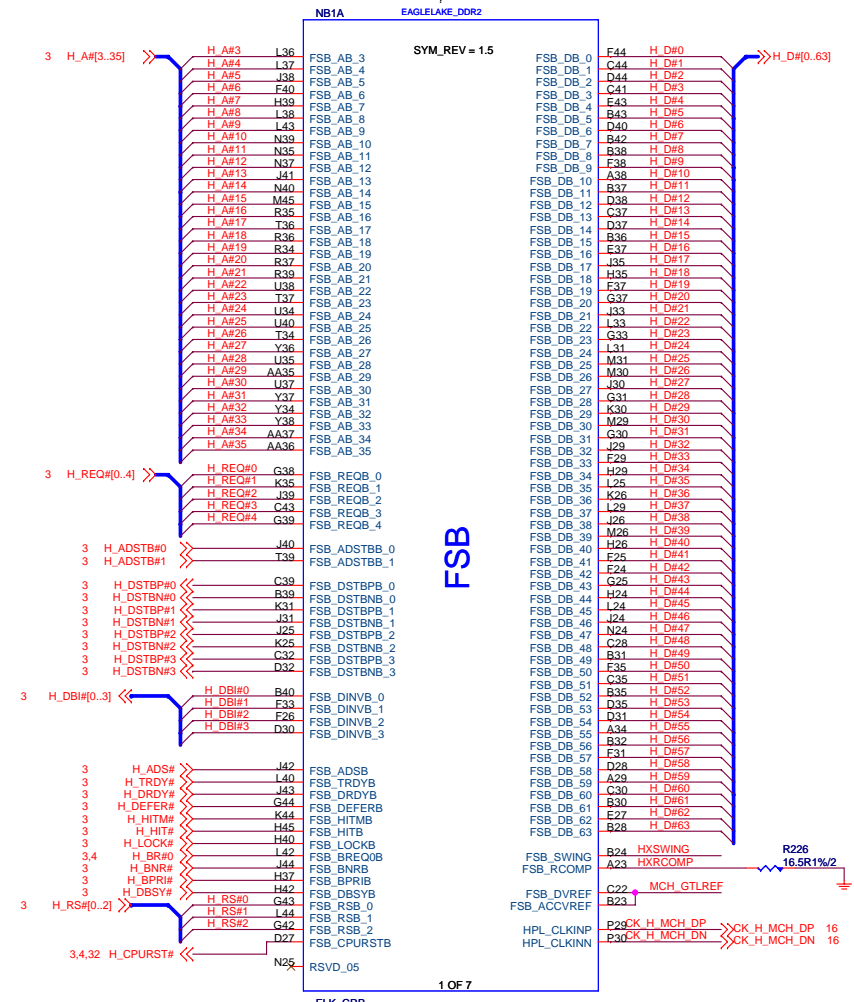
VTT\_PWRGOOD

VTT\_PG SPEC :  
 High > 0.9V  
 Low < 0.3V  
 Trise < 150ns

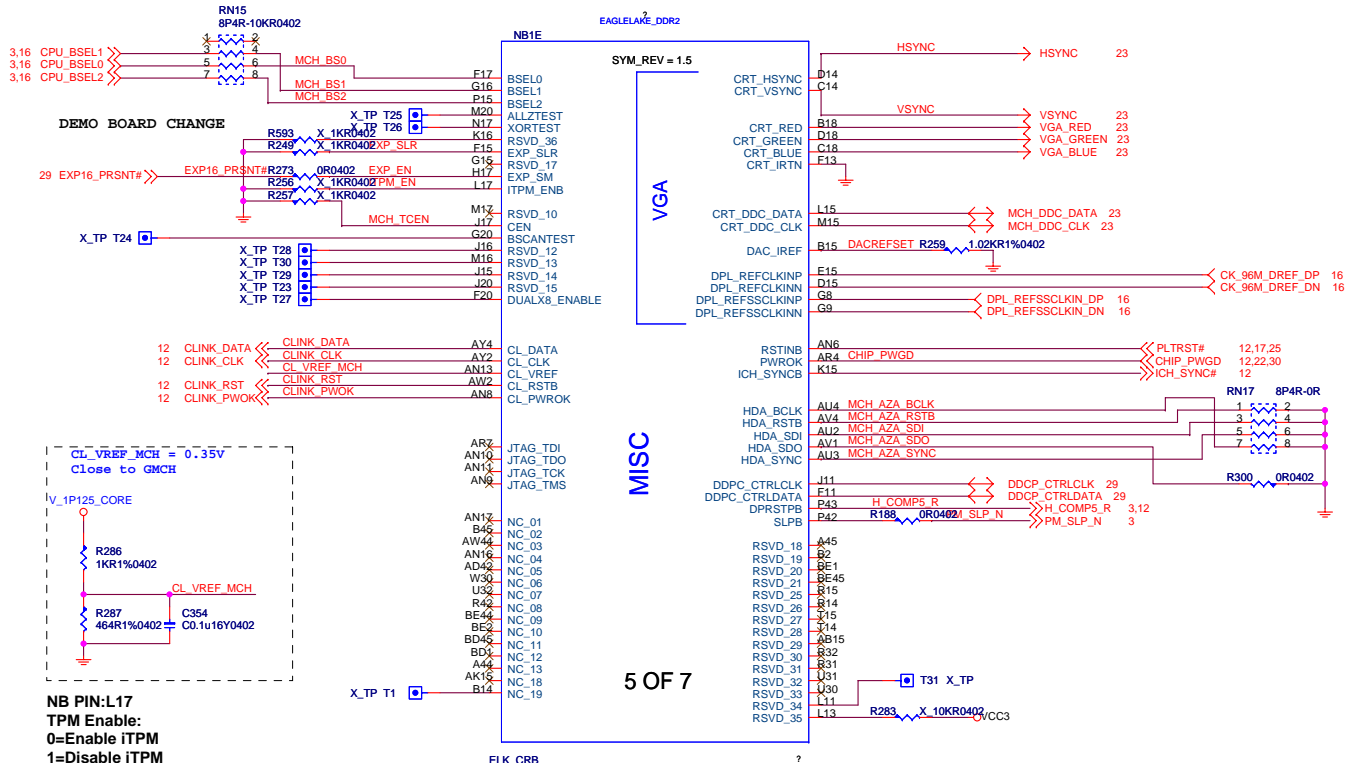
<b>MSI</b>		
<b>MICRO-STAR INT'L CO.,LTD</b>		
<b>MS-7607</b>		
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Size Custom	Document Description		Rev 10
	Intel Eaglelake - FSB, PCIE, DMI, VGA, MSIC		
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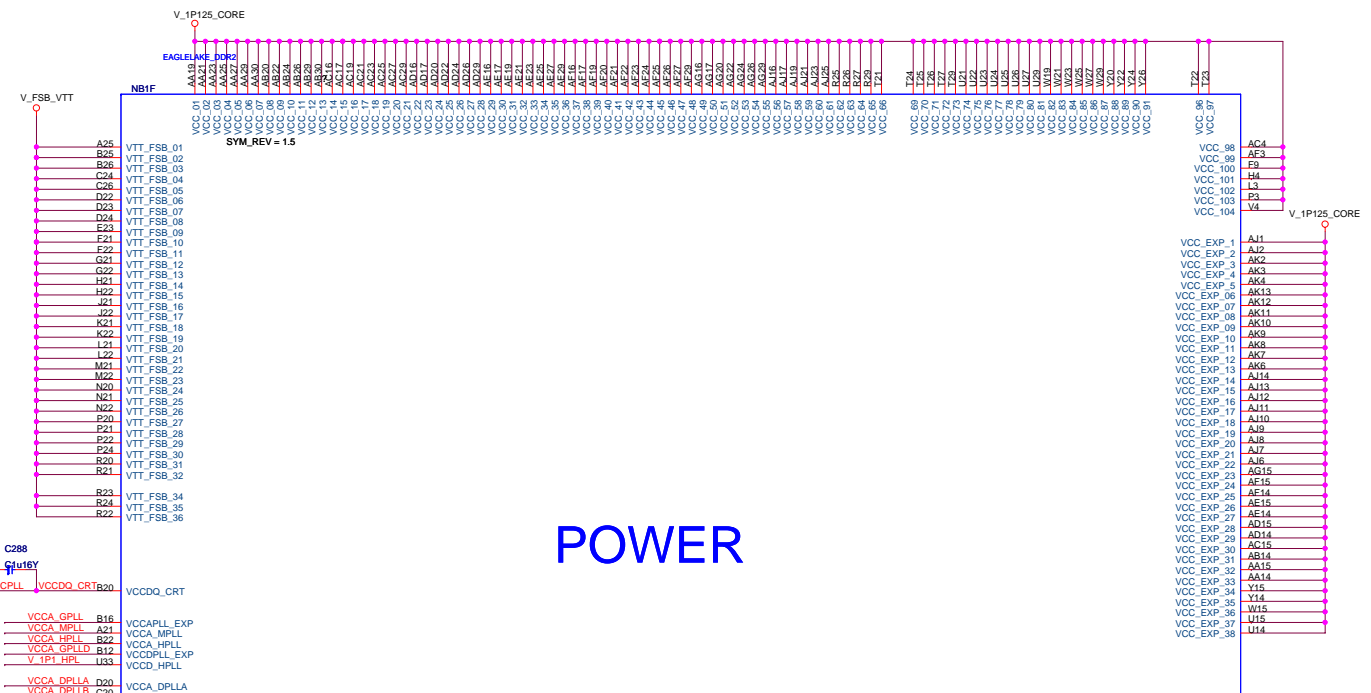
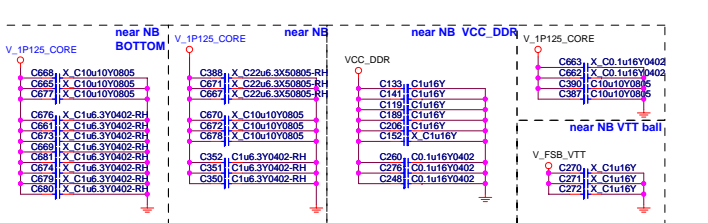
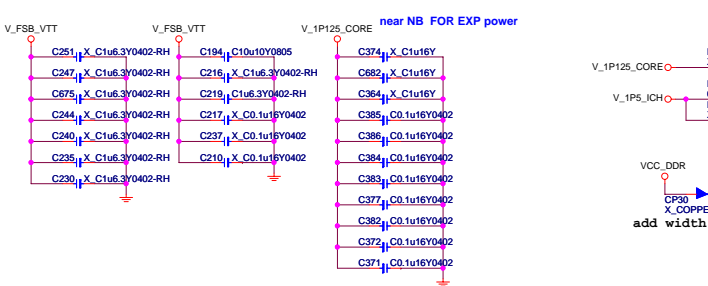
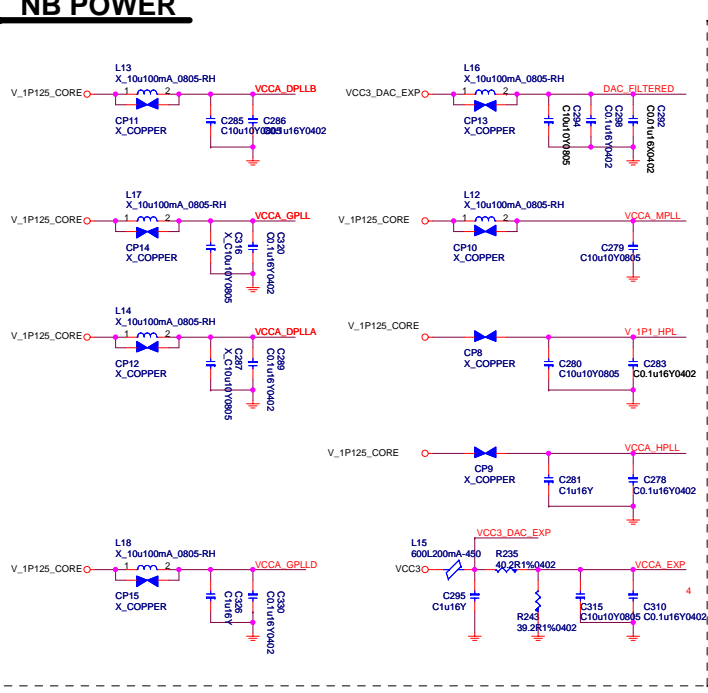
NB PIN:L17  
 TPM Enable:  
 0=Enable iTPM  
 1=Disable iTPM

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	<b>MS-7607</b>		
	Size Custom	Document Description <b>Intel Eaglelake - FSB, PCIE, DMI, VGA, MSIC</b>	Rev 10
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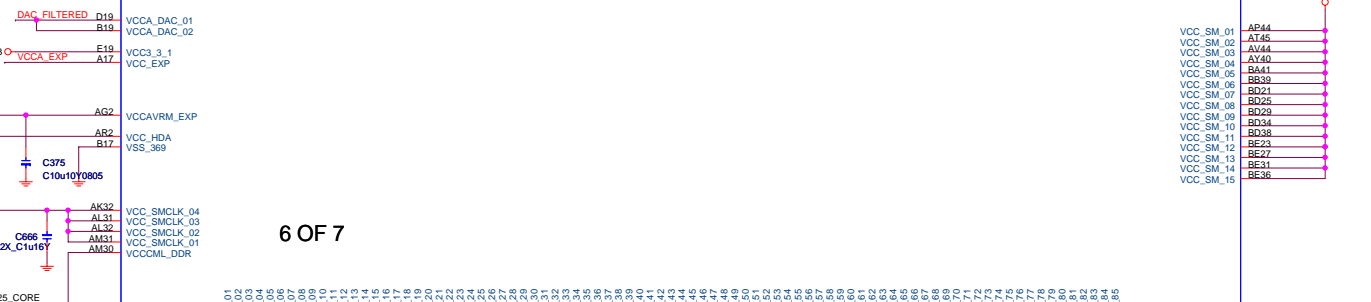




# NB POWER



# POWER

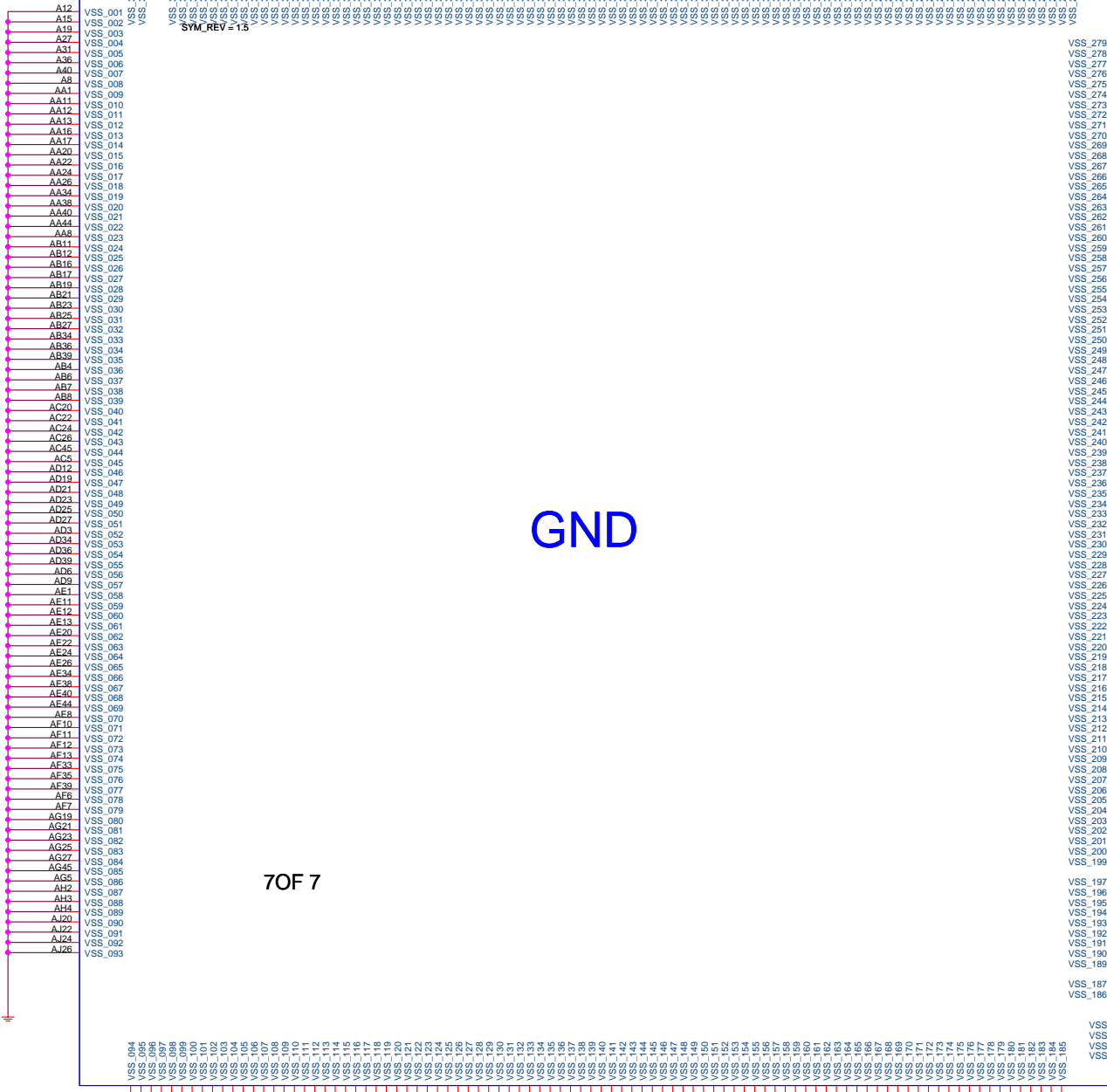


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<b>MS-7607</b>			
Size: Custom	Document Description: Intel Eaglelake - Power / GND	Rev: 10	
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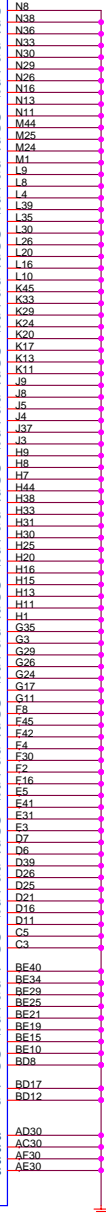
EAQLELAKE\_DDR2

NB1G



GND

70F 7

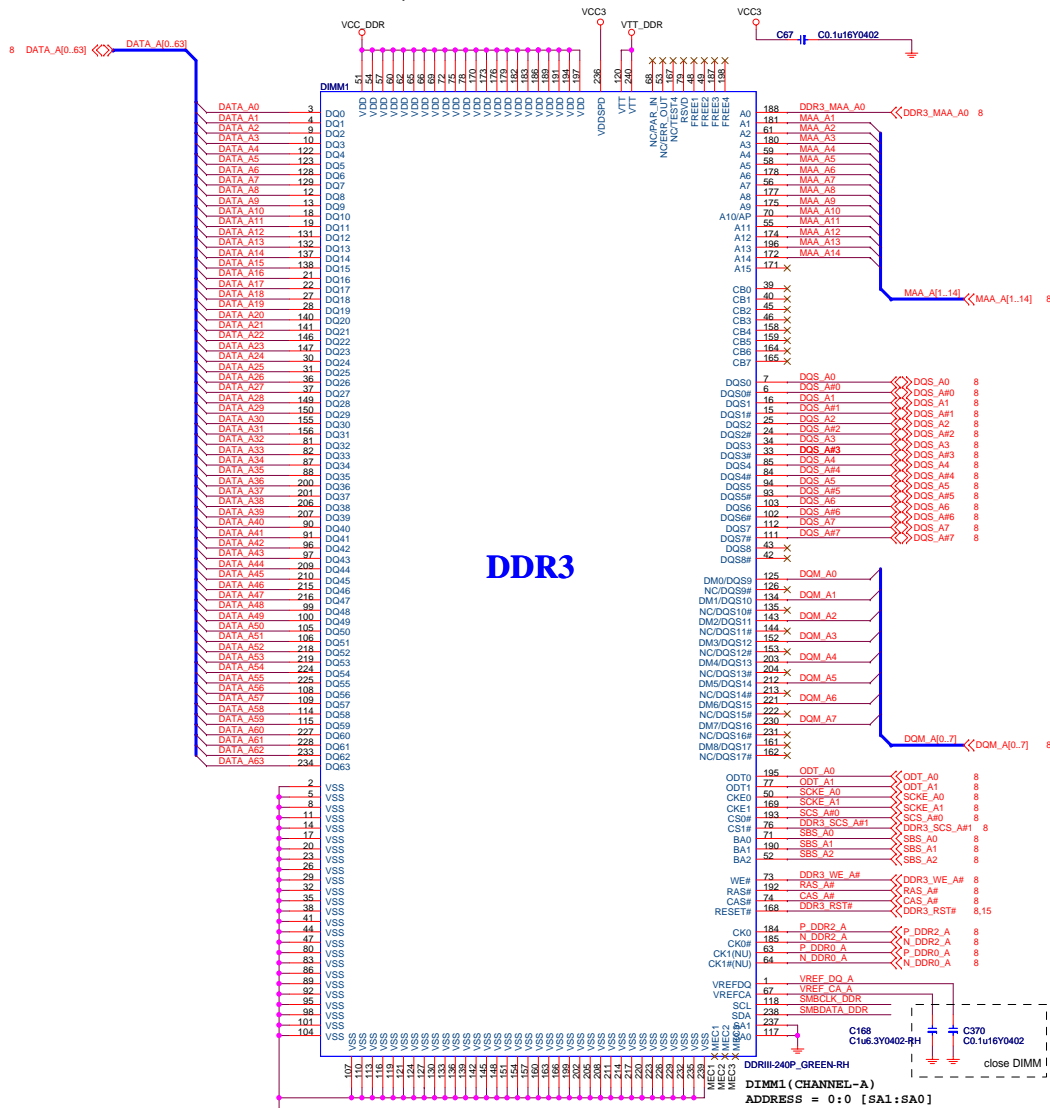




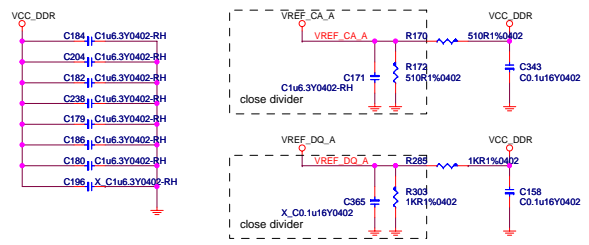
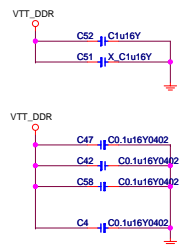




# DDR3 DIMM\_A1

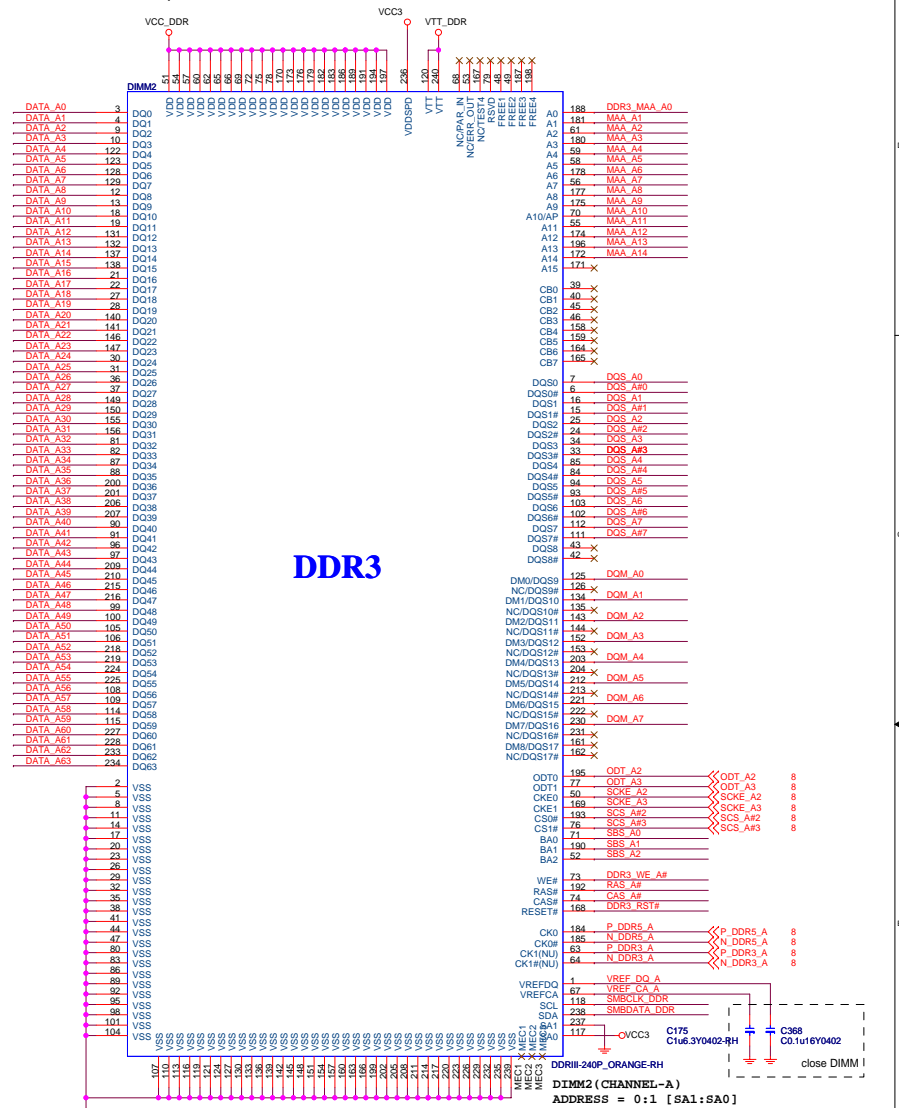


CHANNEL A\_V\_SX\_VTT DECOUPLING CAPS



15 SMBCLK\_DDR <<< SMBCLK\_DDR R64 <<< 33R0402 <<< SMBCLK 12.16, 18.28, 29.30  
 15 SMBDATA\_DDR <<< SMBDATA\_DDR R67 <<< 33R0402 <<< SMBDATA 12.16, 18.28, 29.30

# DDR3 DIMM\_A2



CHANNEL A\_V\_SX\_VTT DECOUPLING CAPS

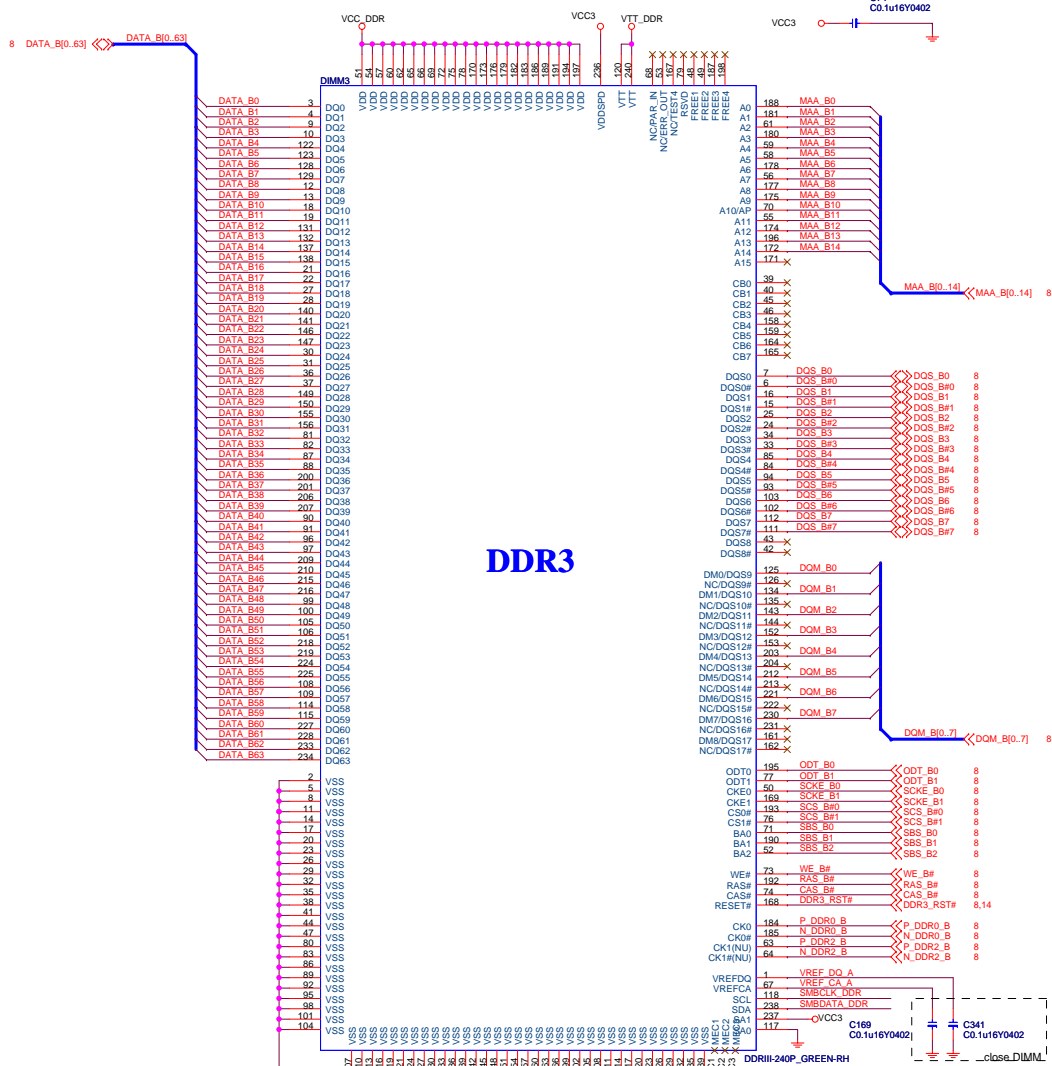


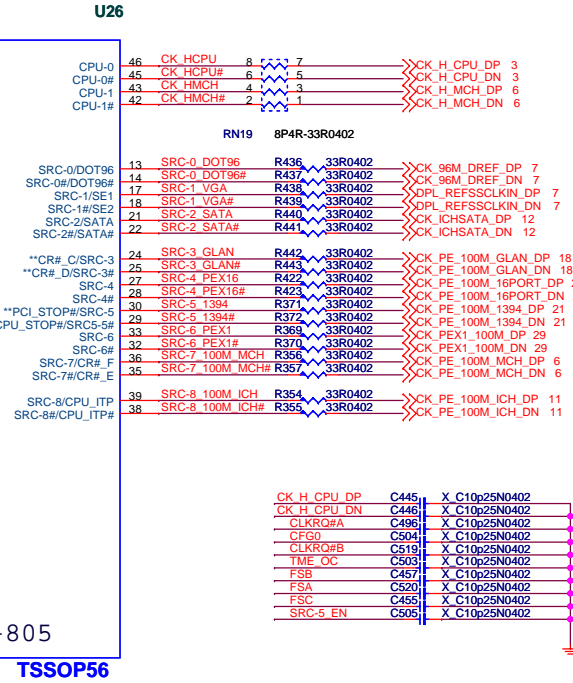
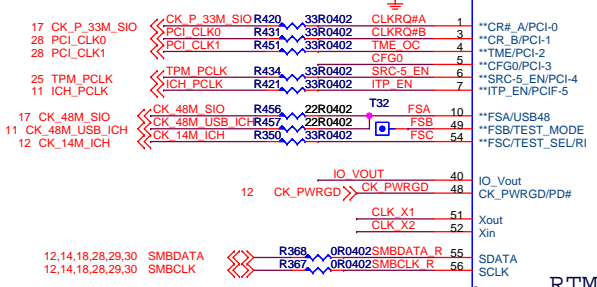
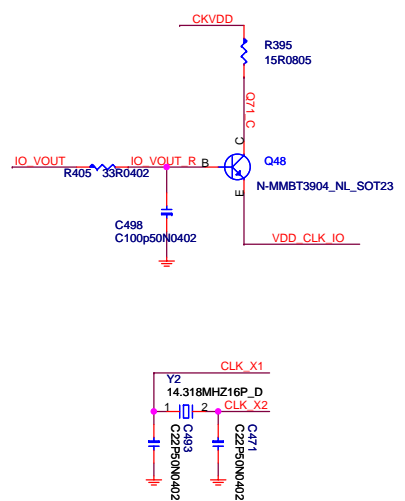
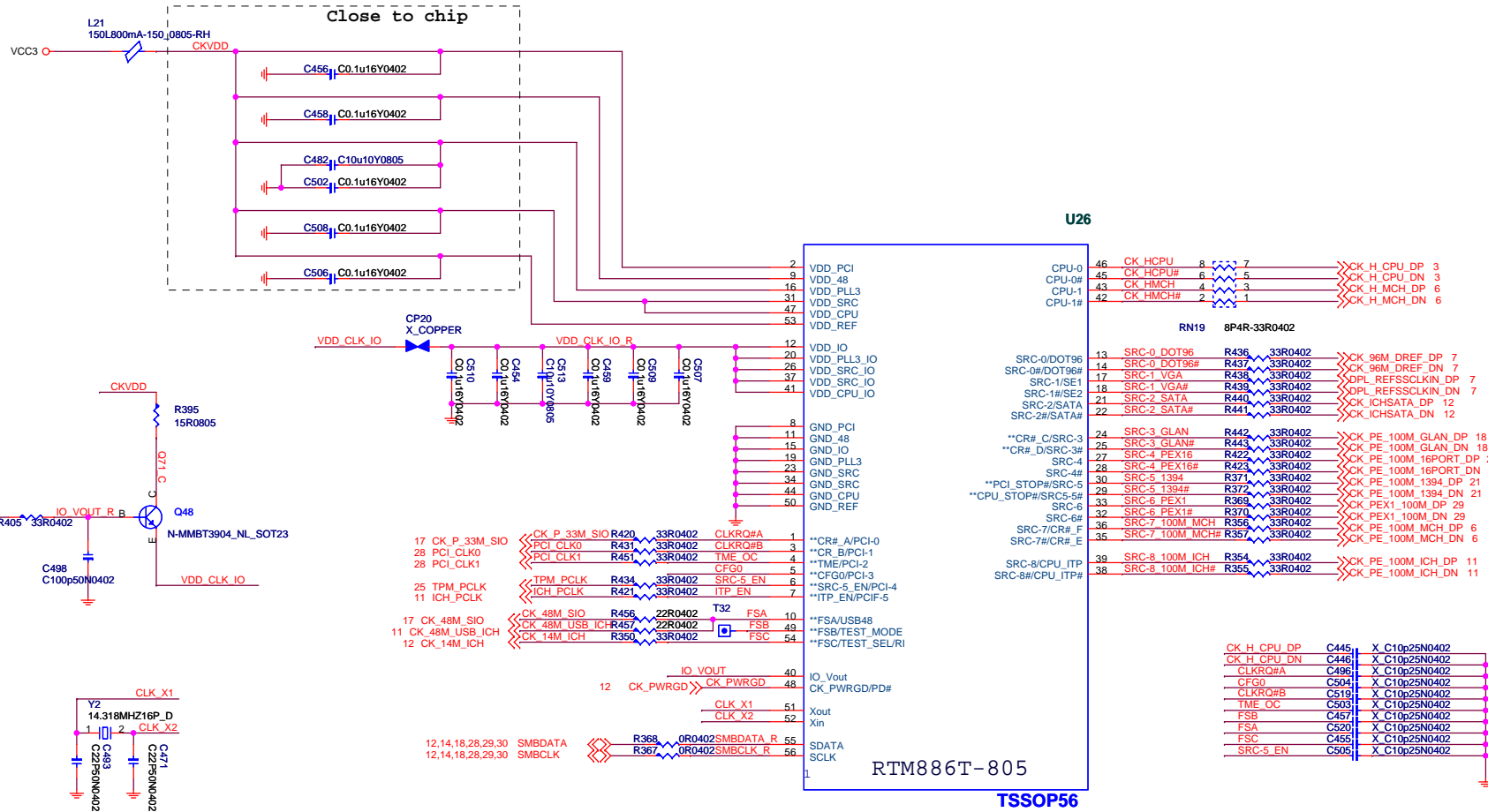
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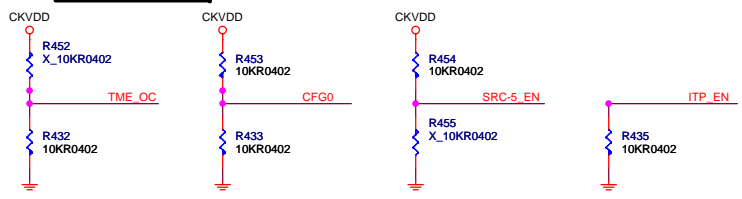
Size c Document Description Rev 10  
 DDR3 Channel-A / Channel-B  
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# DDR3 DIMM\_B1

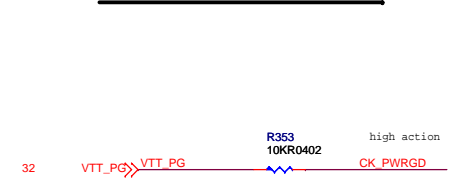




**STRAPPING RESISTOR**



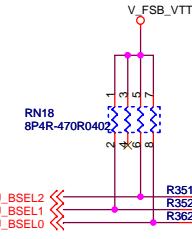
**Clock Generator Power Good Block**



**CPU Frequency Selection**

F5_C	F5_B	F5_A	CPU
0	0	1	133M
0	1	0	200M
0	0	0	266M
1	0	0	333M
1	1	0	400M

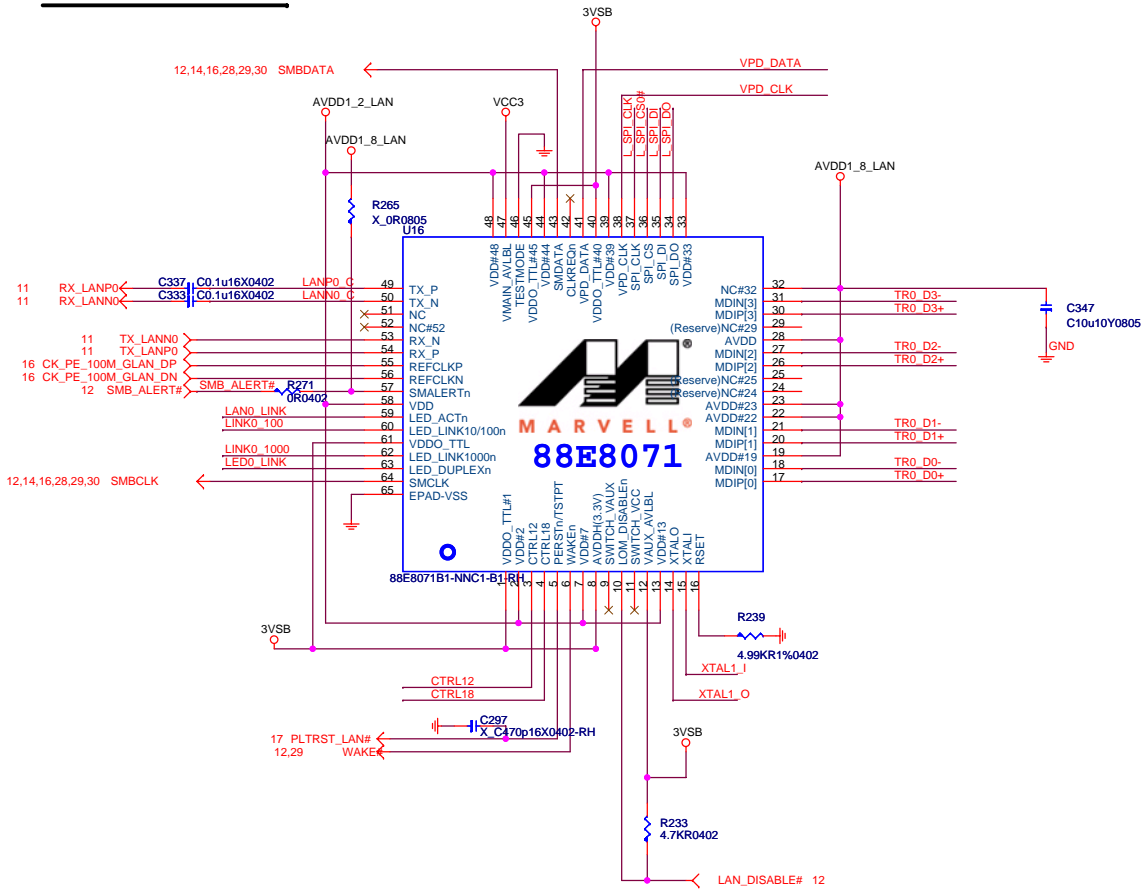
Only the selection in the table is valid



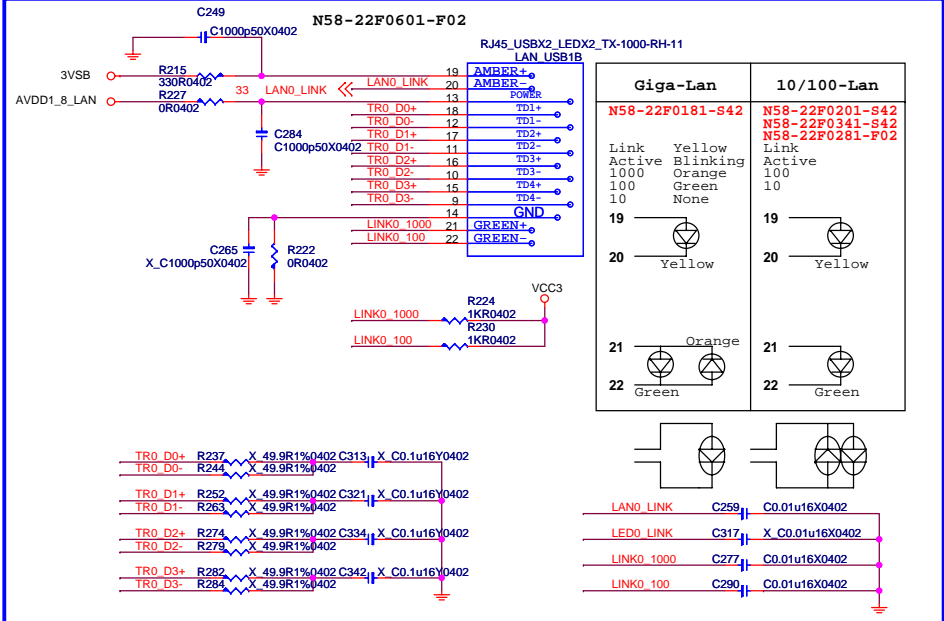
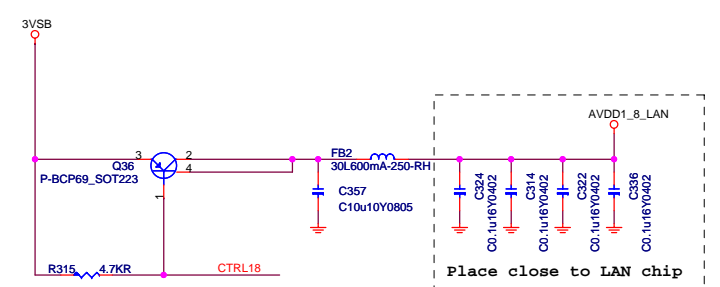
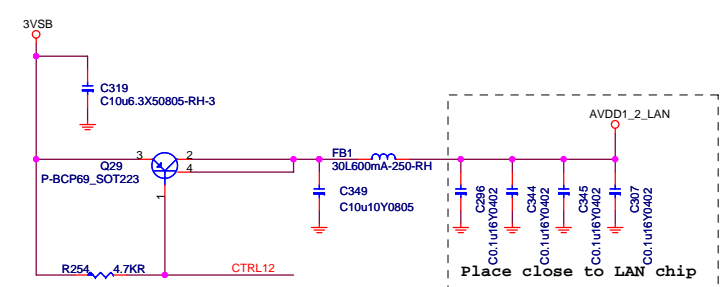




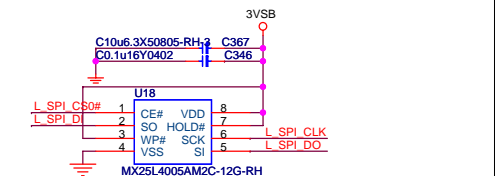
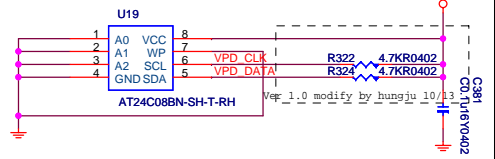
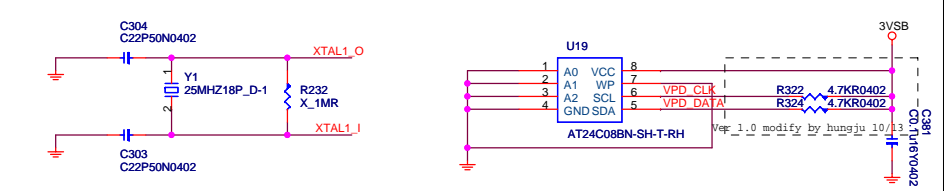
# LAN MAVELL 88E8071



## LAN POWER



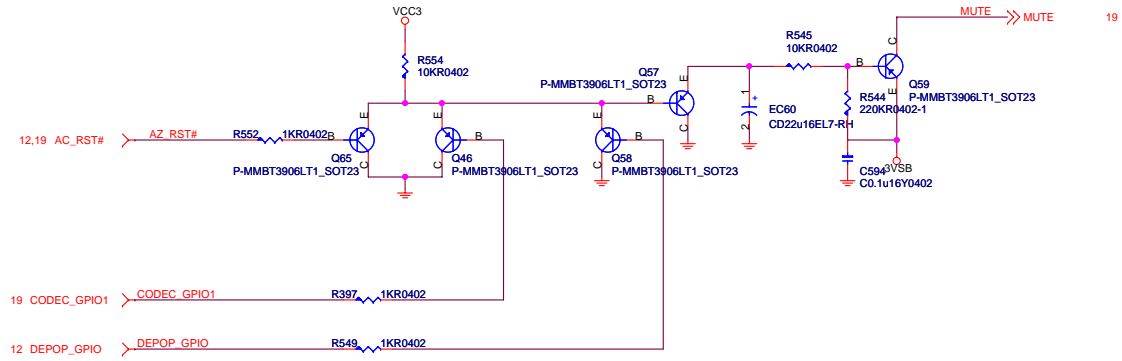
Giga-Lan		10/100-Lan	
<b>N58-22F0181-S42</b>		<b>N58-22F0201-S42</b>	
Link Yellow		Link Orange	
Active Blinking		Active	
1000 Orange		100	
100 Green		10	
10 None		None	
19	Yellow	19	Yellow
20	Orange	20	Green
21	Green	21	Green
22	Green	22	Green



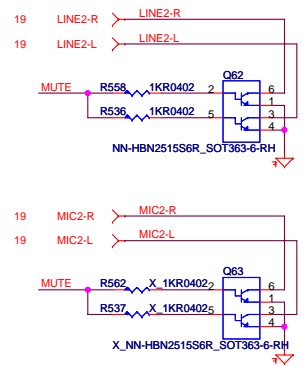
Micro Star Restricted Secret		
Title	MS-7607	Rev
Document Number	MARVELL 88E8057&8075	10
MICRO-STAR INT'L CO.,LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan <a href="http://www.msi.com.tw">http://www.msi.com.tw</a>		Last Revision Date: Wednesday, March 04, 2009 Sheet
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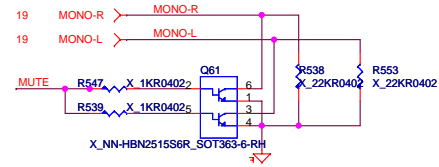
# Audio De-Pop Control Circuit



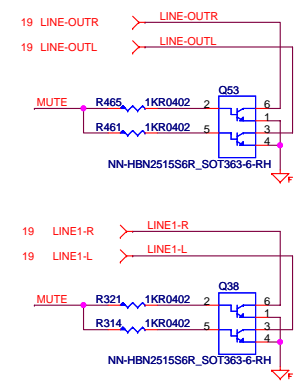
## Front Audio Port De-Pop Circuit



## Internal Speaker De-Pop Circuit

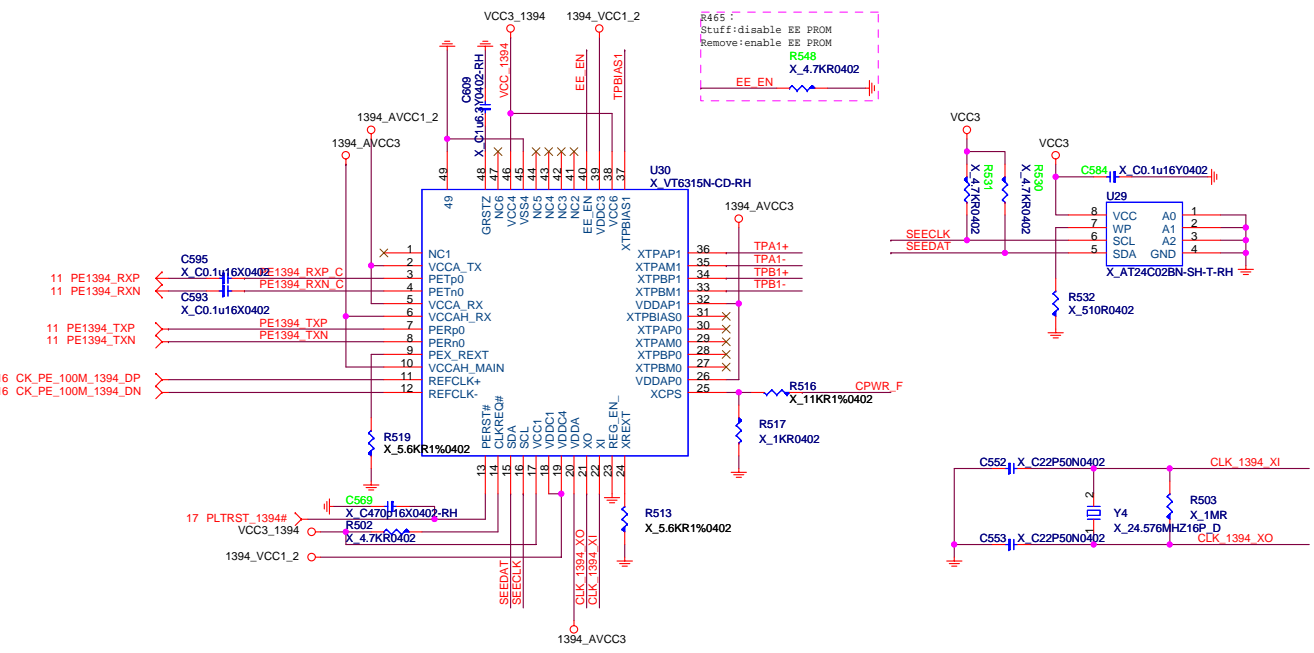


## Rear Audio Port De-Pop Circuit

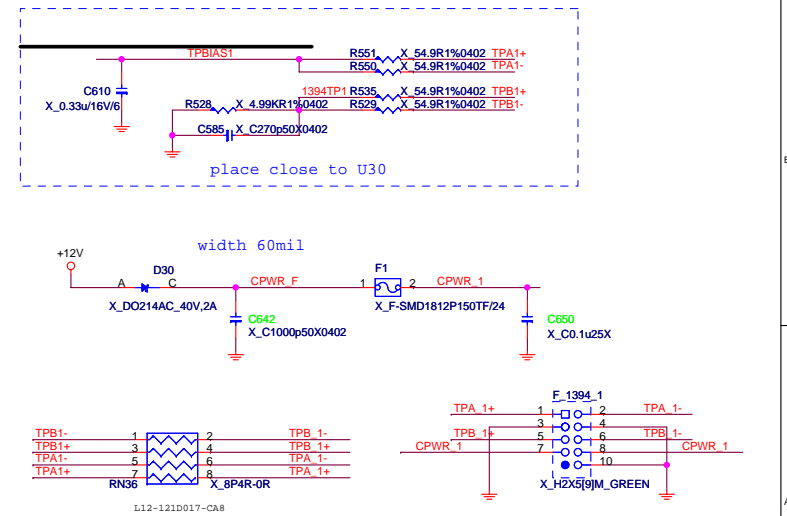


# 1394 CONTROLLER

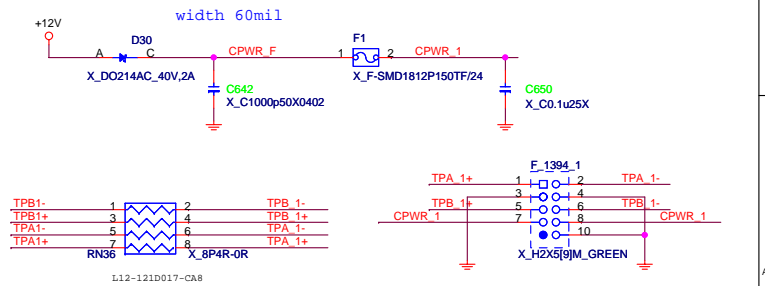
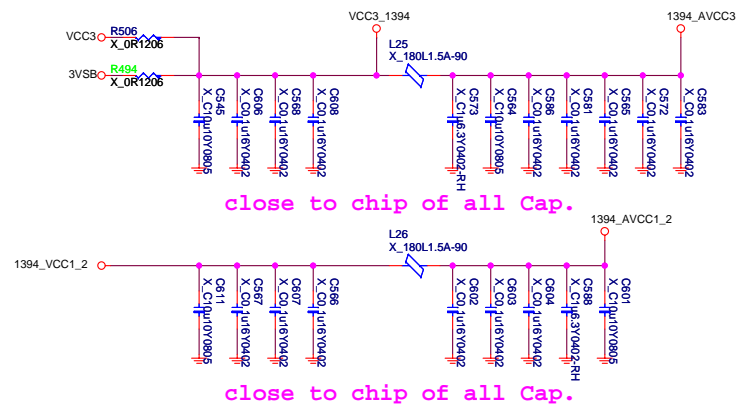
# Rear 1394 port



# Front 1394 pin header

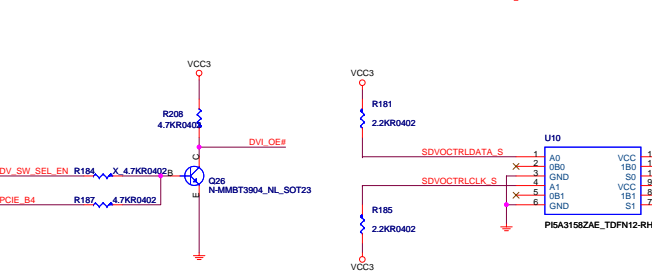
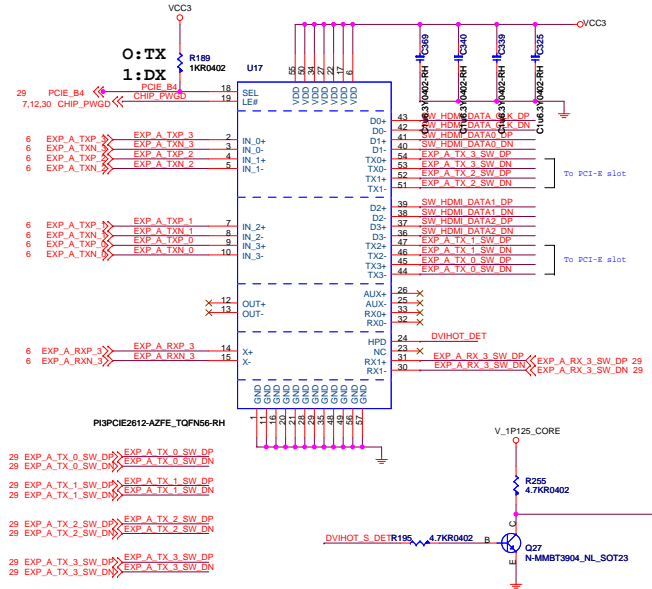


# POWER



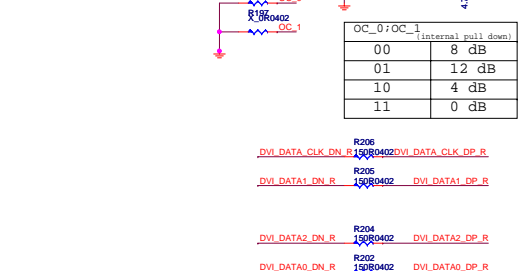
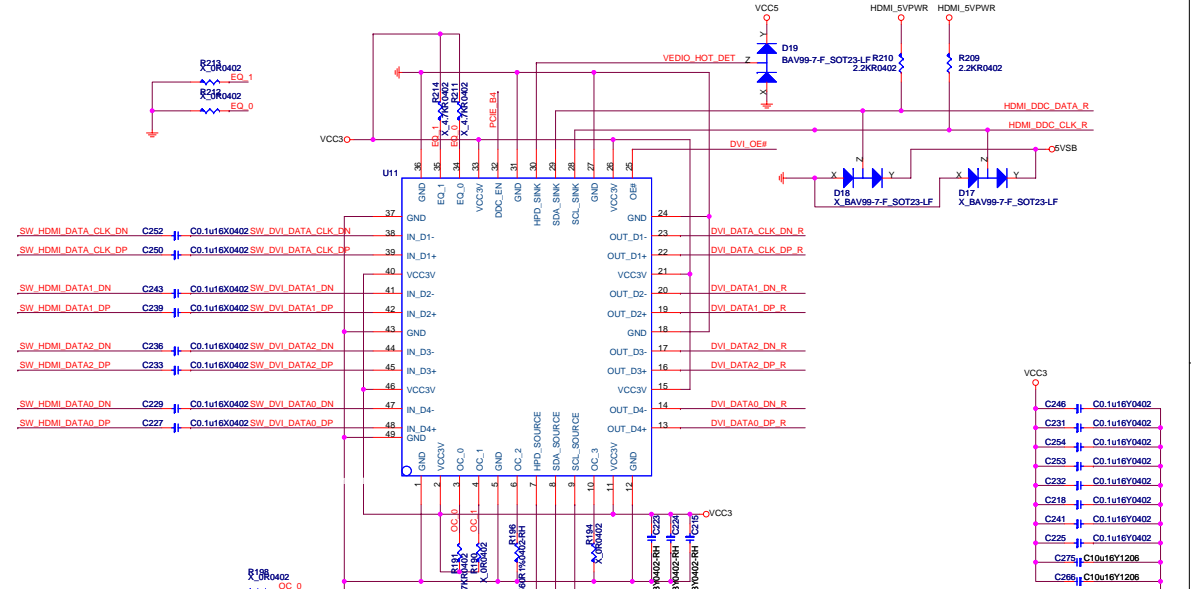
For Intel 1394 pinheader

<b>MICRO-STAR INT'L CO.,LTD</b>		
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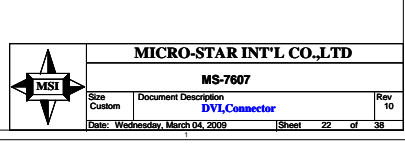
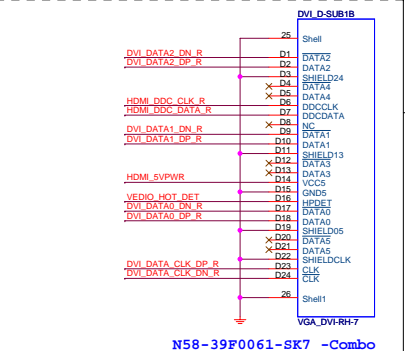
value	DVI_OE#
0	Enable SW
1	Disable SW

value(S1,S0)	Internal Link	DDC
0	AO==>0B0 A1==>0B1	N/A
1	AO==>1B0 A1==>1B1	DVI



value	DVI_OE#
0	Enable SW
1	Disable SW

value(S1,S0)	Internal Link	DDC
0	AO==>0B0 A1==>0B1	N/A
1	AO==>1B0 A1==>1B1	DVI



N58-39F0061-SK7 -Combo

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Size: Custom	Document Description: DVI Connector	Rev: 10
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# Video Connector

The R, G, B route lengths should be length matched to 700mils.

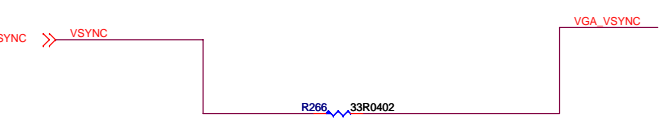
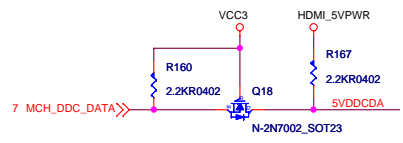
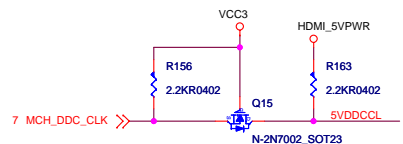
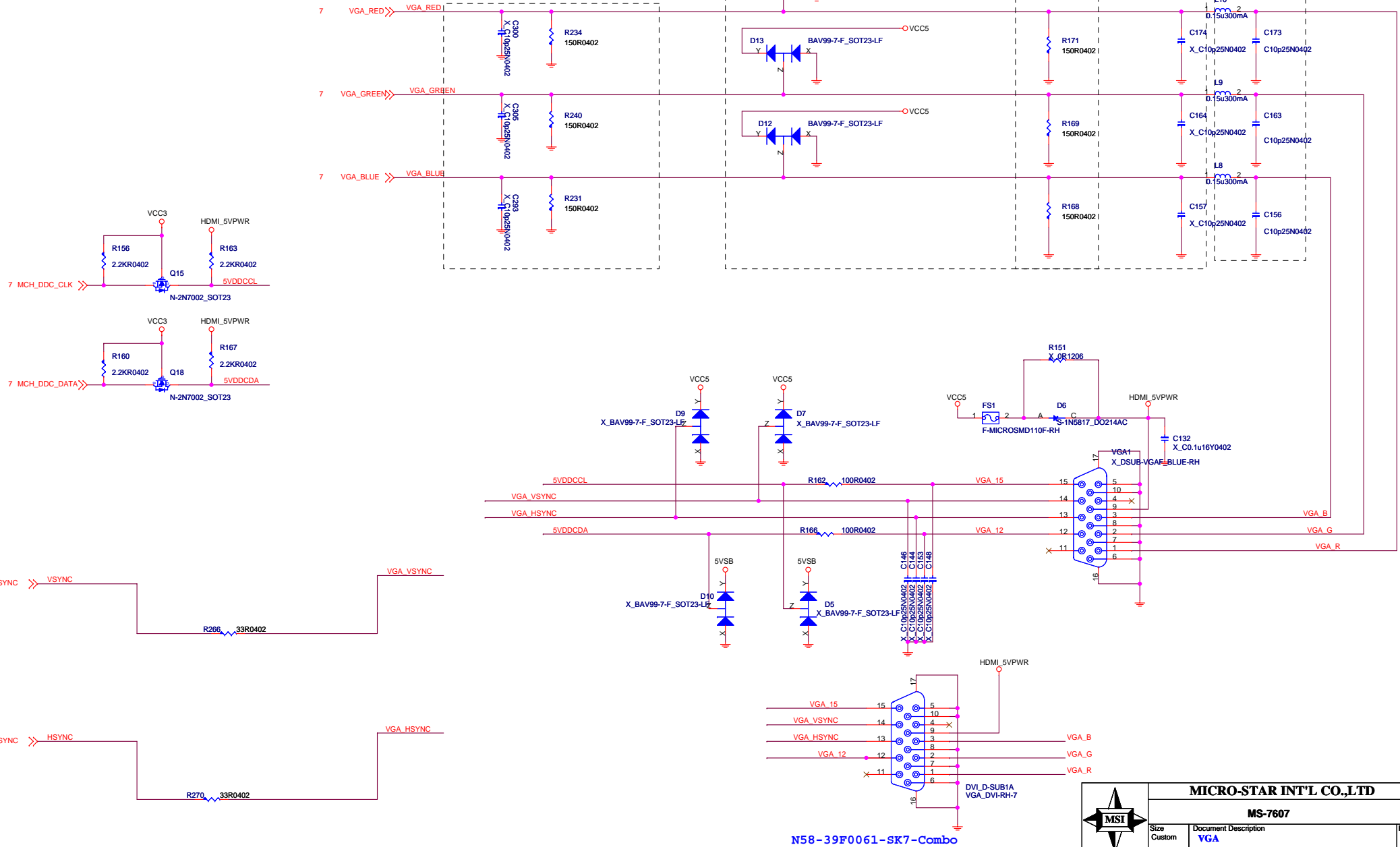
trace symmetry should be kept, even if the 700 mil maximum mismatch cannot be met.

PLACE CLOSE TO MCH with a maximum distance of 300mils.

PLACE CLOSE TO VGA CONNECTOR

Place this next to Video Filter

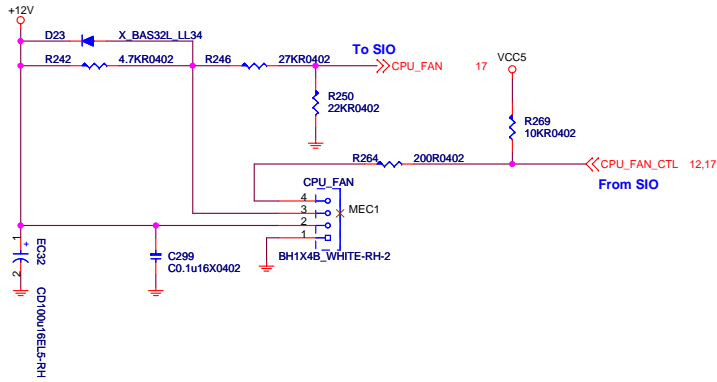
as close as possible to VGA connector between 0.1 inch to 0.8 inch



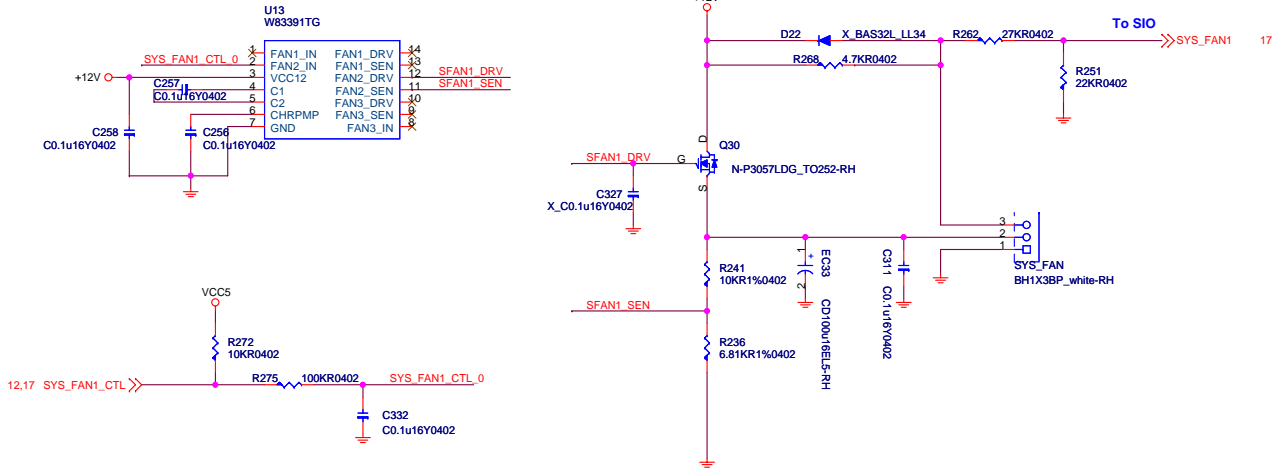
<b>MSI</b>		
<b>MICRO-STAR INT'L CO.,LTD</b>		
<b>MS-7607</b>		
Size Custom	Document Description <b>VGA</b>	Rev 10
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N58-39F0061-SK7-Combo

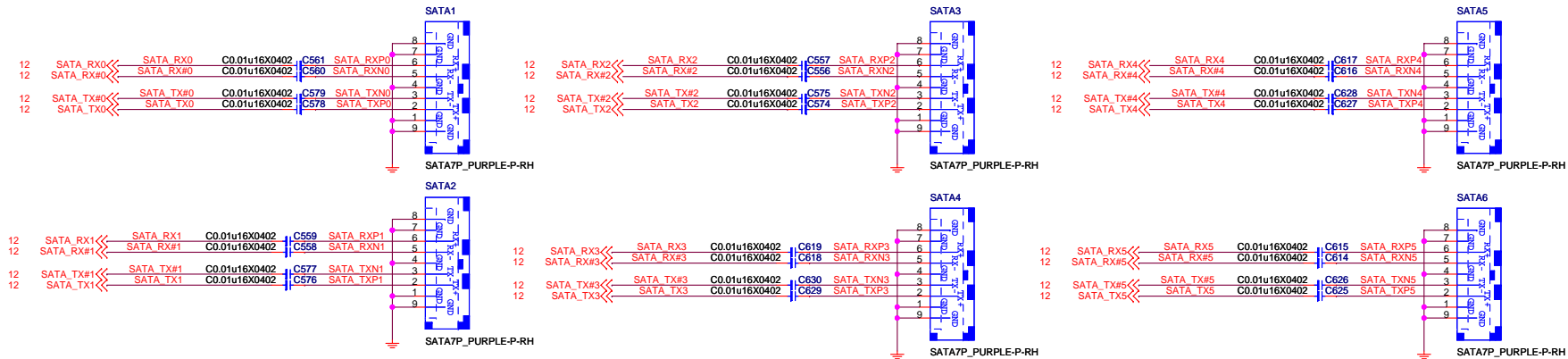
# CPU Fan



# System Fan



# SATA 1- 6 PORT



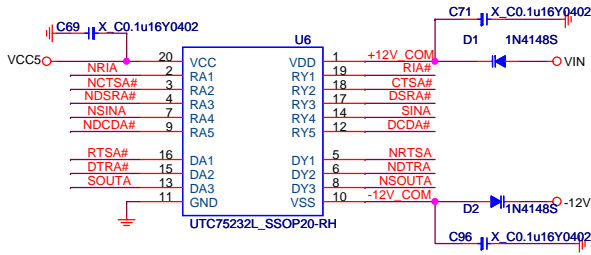
MICRO-STAR INT'L CO.,LTD

MS-7607

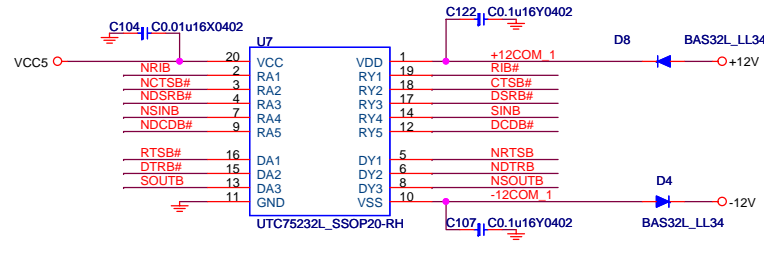
Size	Document Description	Rev
Custom	SATA & e-SATA Ports and Fan Control	10
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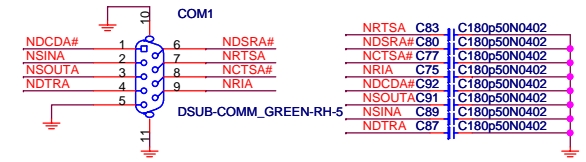
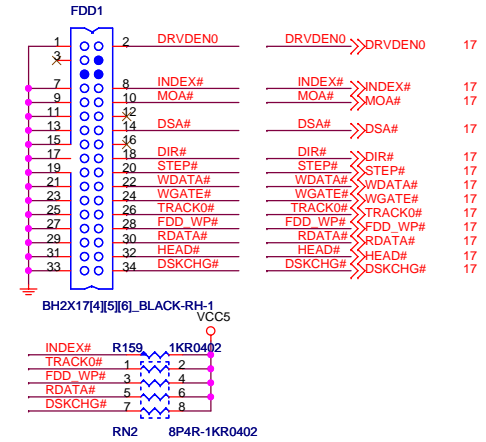
### SERIAL PORT 1



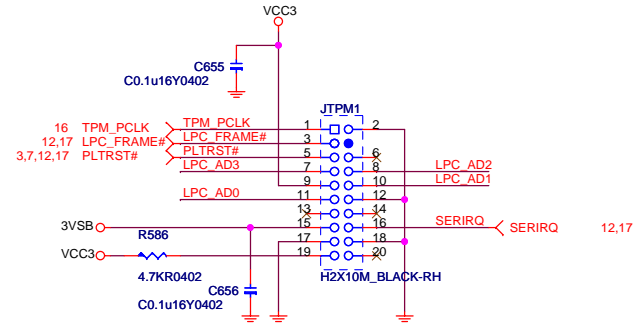
### SERIAL PORT 2



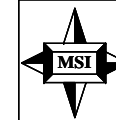
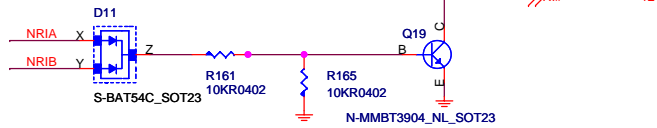
### FLOPPY CONNECTOR



### TPM Header



For COM port S5 wake-up function



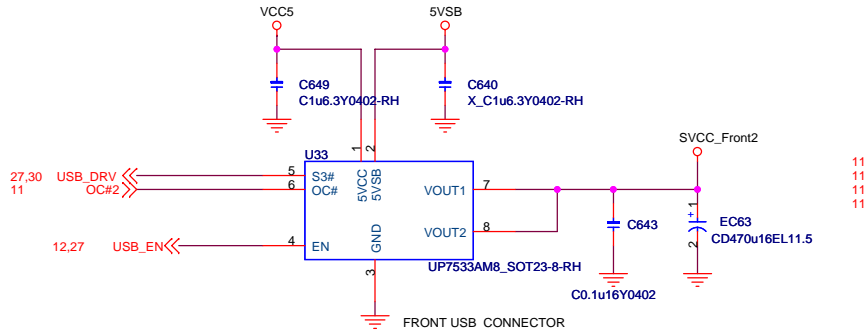
MICRO-STAR INT'L CO.,LTD

MS-7607

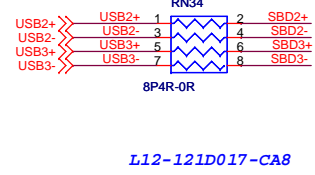
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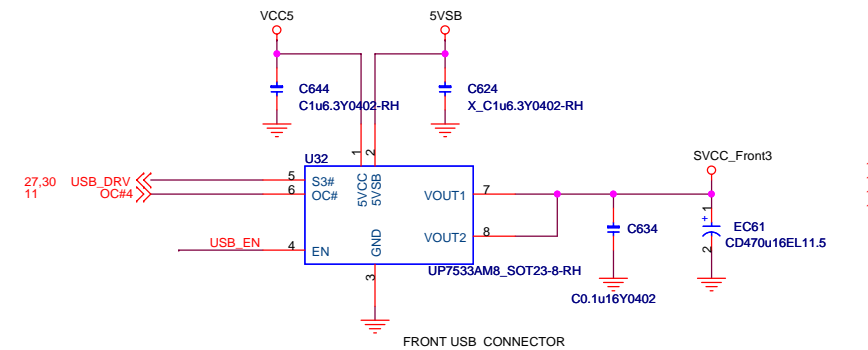
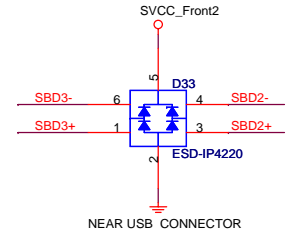
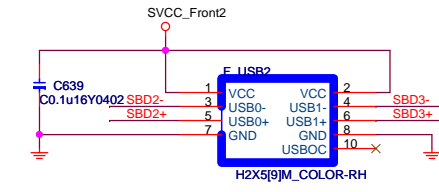
# Front USB Connector



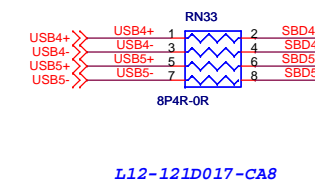
11  
11  
11



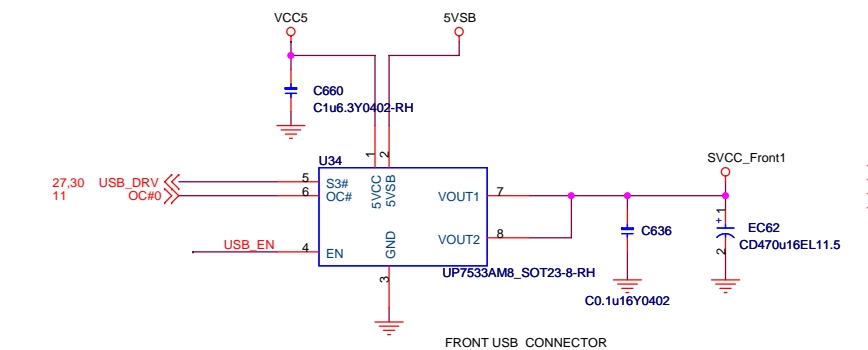
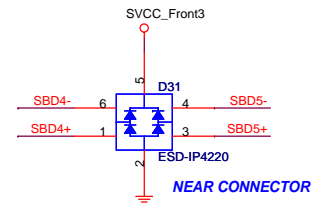
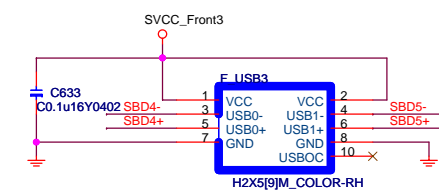
## FRONT USB PORT 2,3



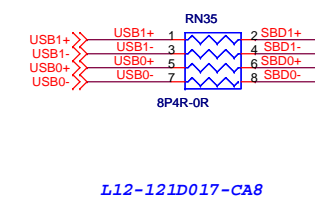
11  
11  
11  
11



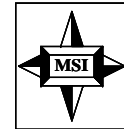
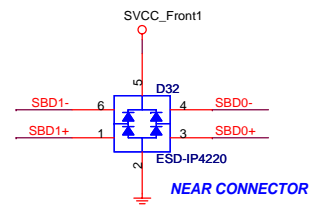
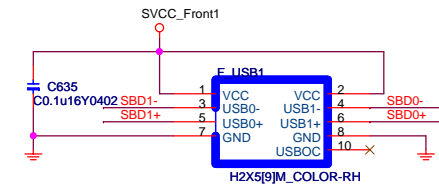
## FRONT USB PORT 4,5



11  
11  
11

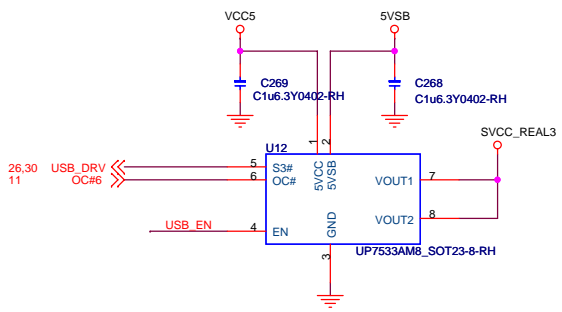
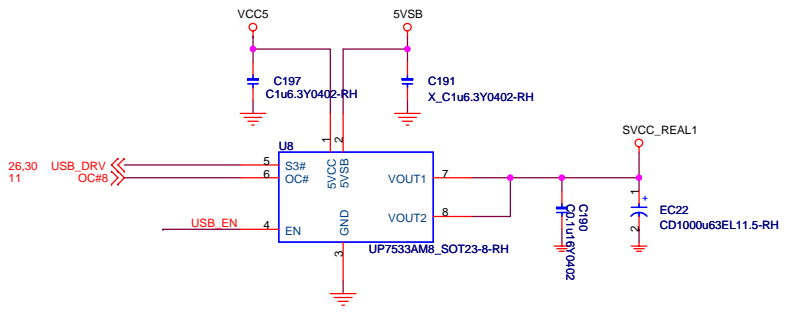
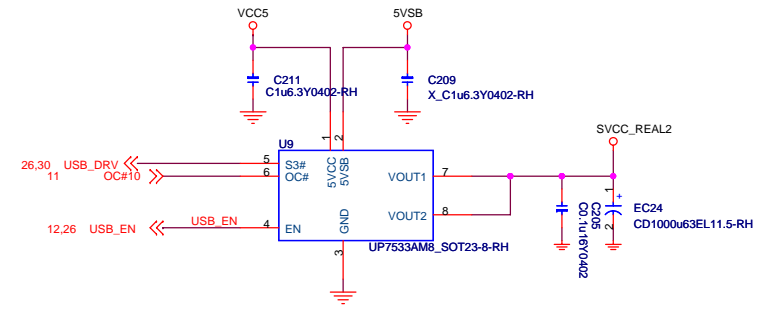


## FRONT USB PORT 0,1

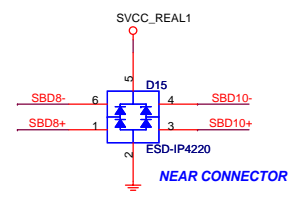
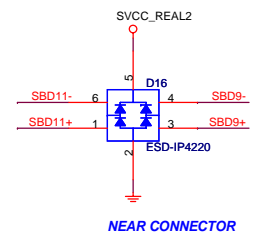
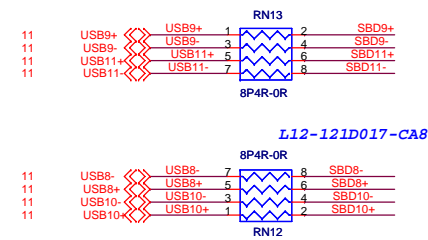
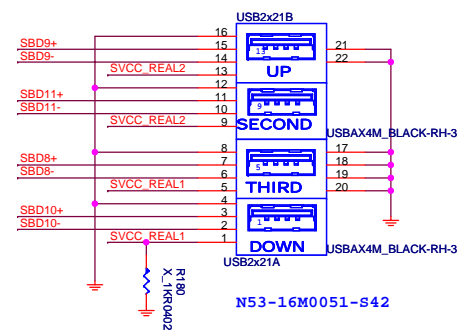


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<b>MS-7607</b>		
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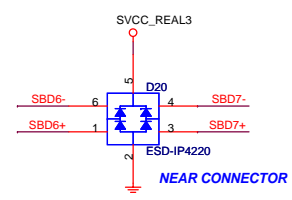
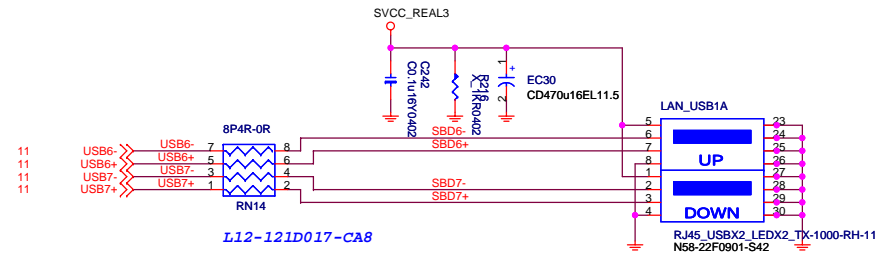
# Rear USB Connector



## REAR USB PORT 4,5 (With LAN)



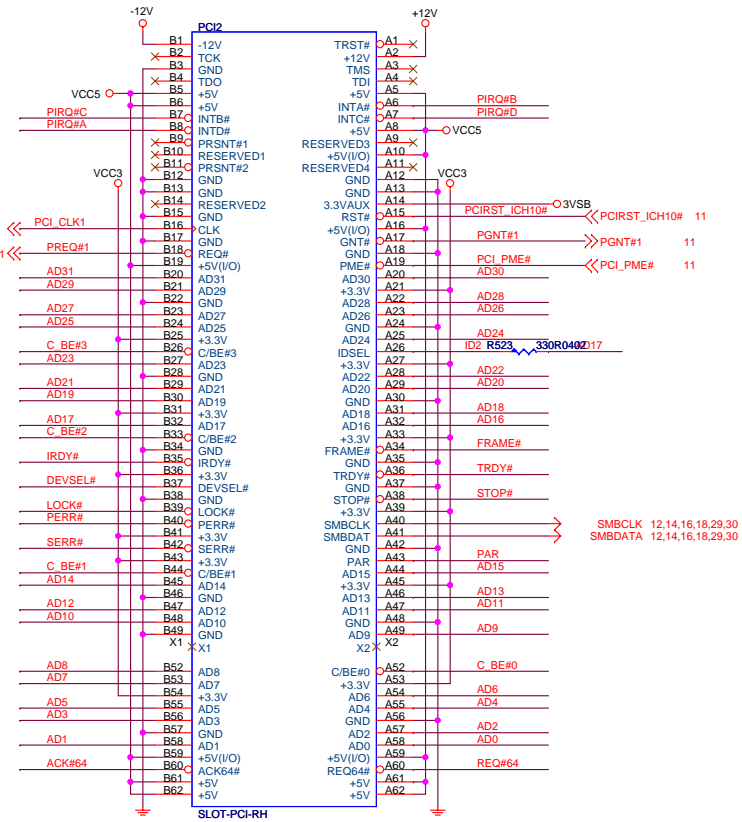
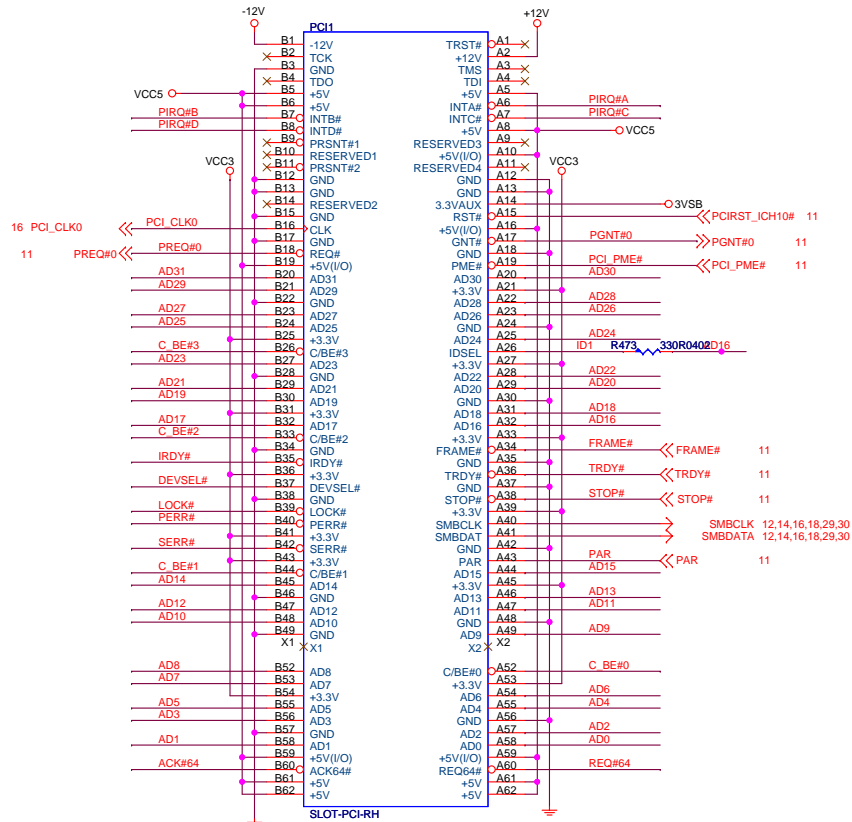
## REAR USB PORT 0,1 (With LAN)



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**PCI SLOT 1 (PCI VER: 2.2 COMPLY)**

**PCI SLOT 2 (PCI VER: 2.2 COMPLY)**

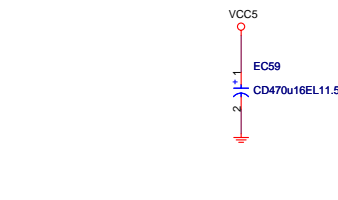


**IDSEL = AD16**  
**MASTER = PREQ#0**  
**PIRQ#A**

**IDSEL = AD17**  
**MASTER = PREQ#1**  
**PIRQ#B**

**PCI PULL-UP / DOWN RESISTORS**

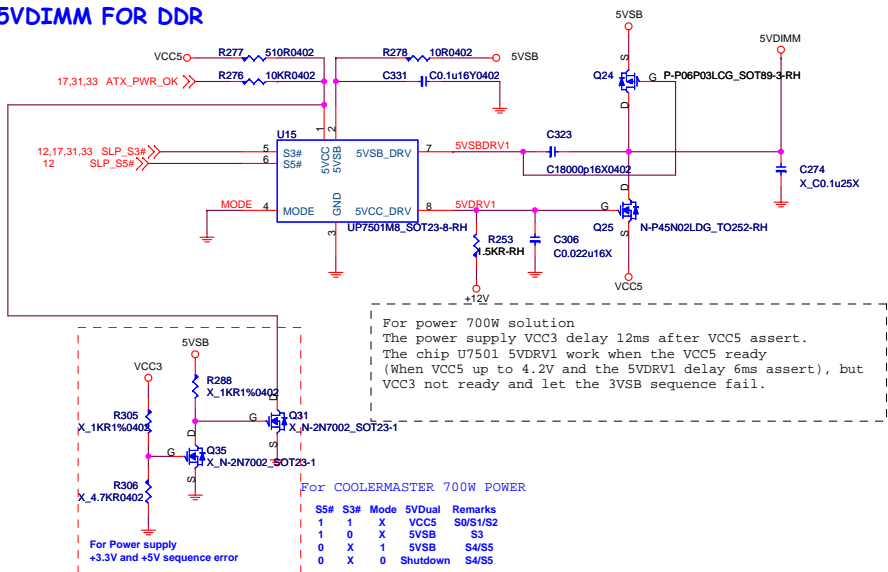
**PCI SLOT DECOUPLING CAPACITORS**



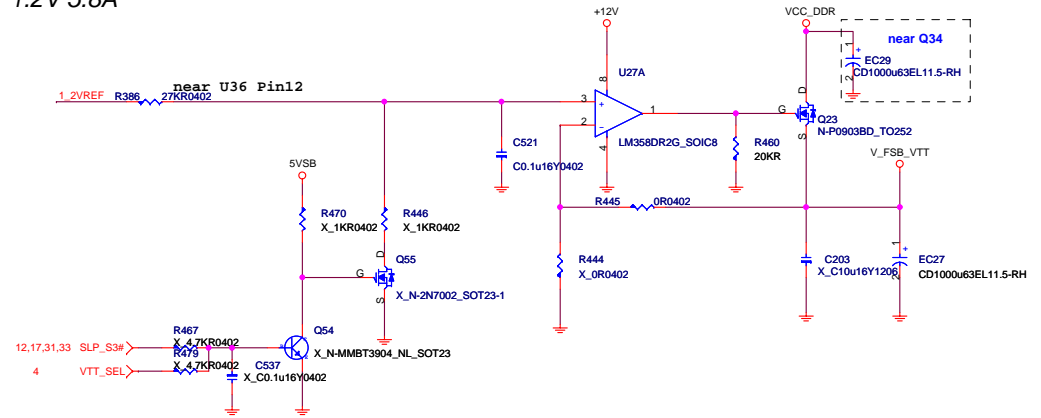
<b>MICRO-STAR INT'L CO.,LTD</b>		
<b>MS-7607</b>		
Size Custom	Document Description <b>PCI Slot 1 &amp; 2</b>	Rev 10
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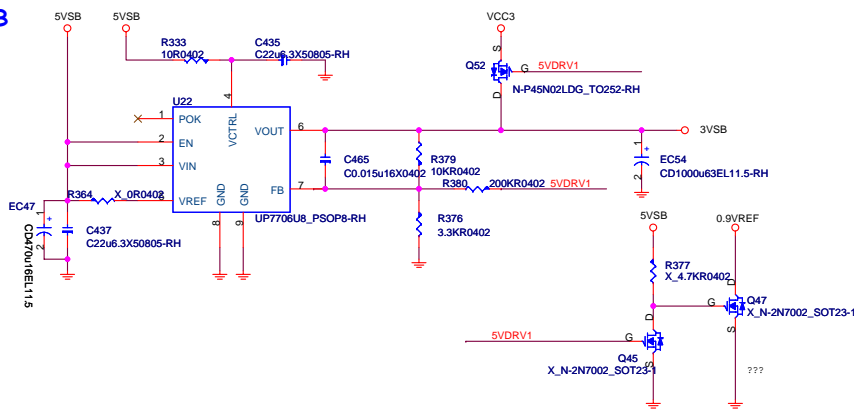
### 5VDDIMM FOR DDR



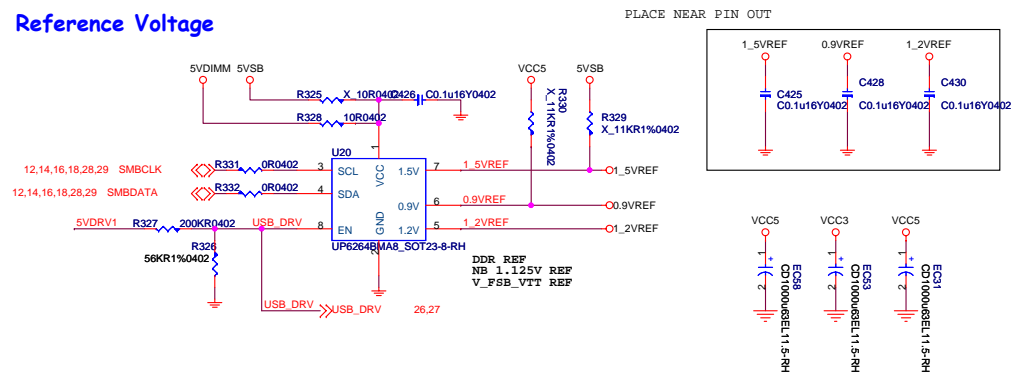
### 1.2V 1.2V 5.8A



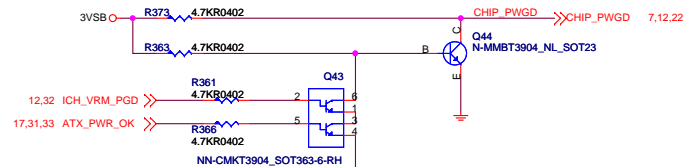
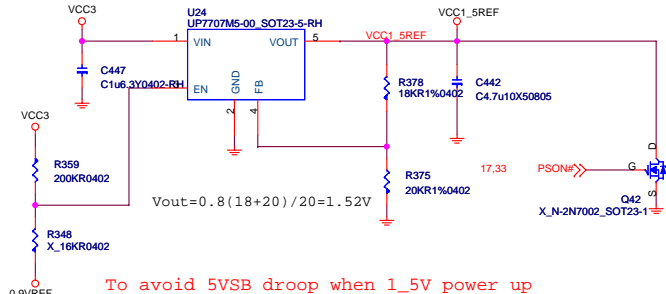
### 3VSB



### Reference Voltage

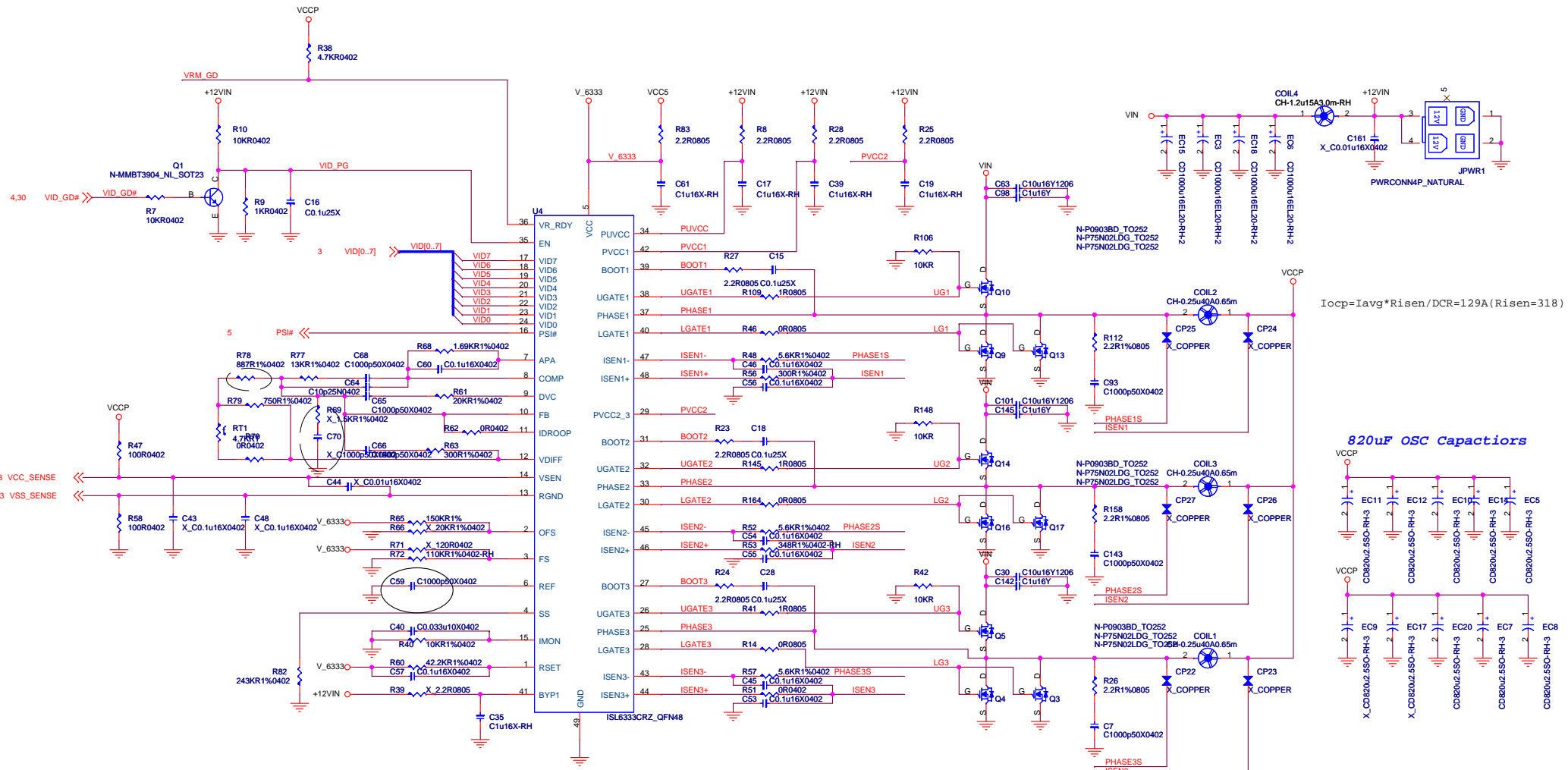


### VCC1\_5REF





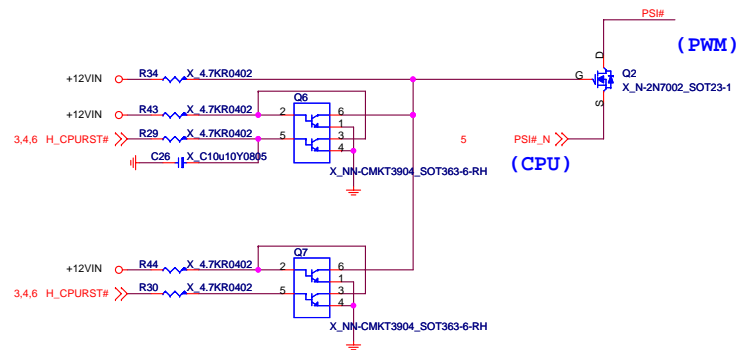
# Voltage Regular Moudule



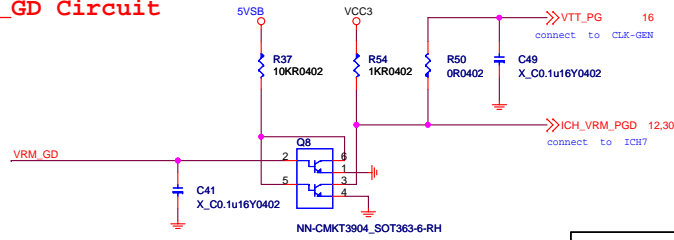
$$I_{cp} = I_{avg} * R_{isen} / DCR = 129A \text{ (Risen=318)}$$

## INTEL CPU PSI# Circuit

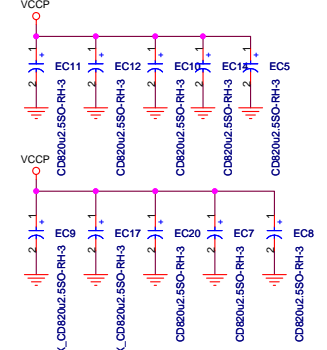
Modify V1.0



## VRM\_GD Circuit



## 820uF OSC Capactors

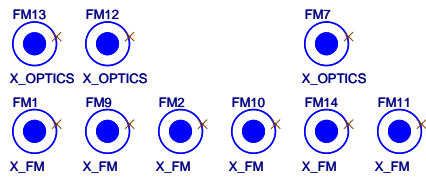


-OrgAddr- <b>MICRO-STAR INT'L CO.,LTD</b>		
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	<b>Voltage Regular Moudule</b>	<b>10</b>
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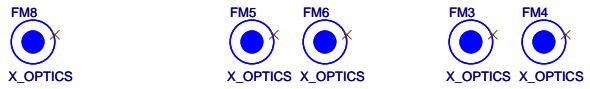




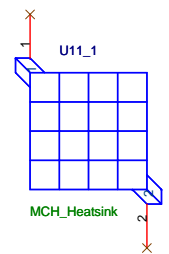
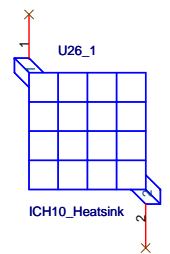
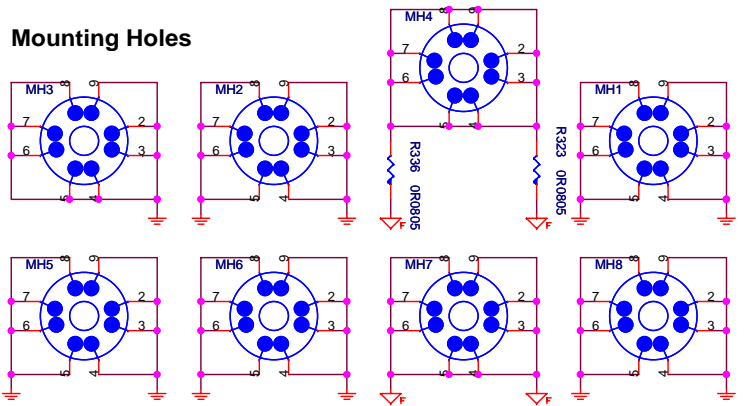
### Optical Fiducial Marks-120



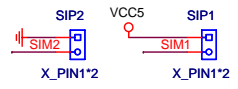
### Optical Fiducial Marks-100




### Mounting Holes



### Simulation



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2009-01-13

- 1.Add EC35,EC36,EC40,EC41 -- page 19
- 2.Modify PCI-E"EXP\_A\_RXP\_7"EXP\_A\_RXN\_7"signal -- page 29
- 3.Add H/W SPI write protect header(JWP), and reserve R576 -- page 12
- 4.swap U5 pin88 pin89 for PECCI function -- page 17
- 5.modify SMB\_ALERT# connect to LAN chipset -- page 12,18
- 6.Add L24 and remove CP21 for SATA power -- page 13
- 7.change NB HEASTSINK P/N to E31-0401630-K08 -- page 34
- 8.Modify AUDIO1 Pin14 connect to GND issue -- page 19

2009-01-14

- 1.Add C691 for iTE suggest -- page 17
- 2.Reserve R596,C692,Q69,Q70,R598,R597 -- page 4
- 3.Change NB&SB part Number for ACER only -- page 6~13

2009-01-16

- 1.Change R196 to 4020hm1% -- page 22
- 2.Add CP21,CD33~35 -- page 33
- 3.Add DVI\_D-SUB1A(B) connect to co-lay DVI&D-SUB Combo parts -- 22,23

2009-01-20

- 1.Remove 1394 function -- page 21
- 2.Add Retention Module -- page 34
- 3.Remove ALL 5020 parts
- 4.Change LAN connct for EMI suggest -- page 18,27
- 5.change R77:13K,R65:150K,R79:750OHM,R78:887OHM,R56:300 OHM,R53:348 OHM -- page 32



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