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# MS-7174H1

**Version 1A**

Intel (R) Grantsdale (GMCH) + ICH6 Chipset  
Intel Prescott LGA775 Processor

## CPU:

**Intel Prescott Celeron D 350J (3.2GHz), P4 550J (3.4GHz)**

## System Chipset:

**Intel Grantsdale - GMCH (North Bridge 915GV or 910GE)  
Intel ICH6 (South Bridge)**

## On Board Chipset:

**BIOS -- FWH FLASH 4Mb  
AC97 AUDIO -- ALC880  
LPC Super I/O -- SMSC47M997  
LAN -- Intel 82562GT  
1394 -- VIA VT-6307  
CLOCK -- Cypress CY28416**

## Main Memory:

**2 CHANNEL DDR II \* 1 (Max 2GB)**

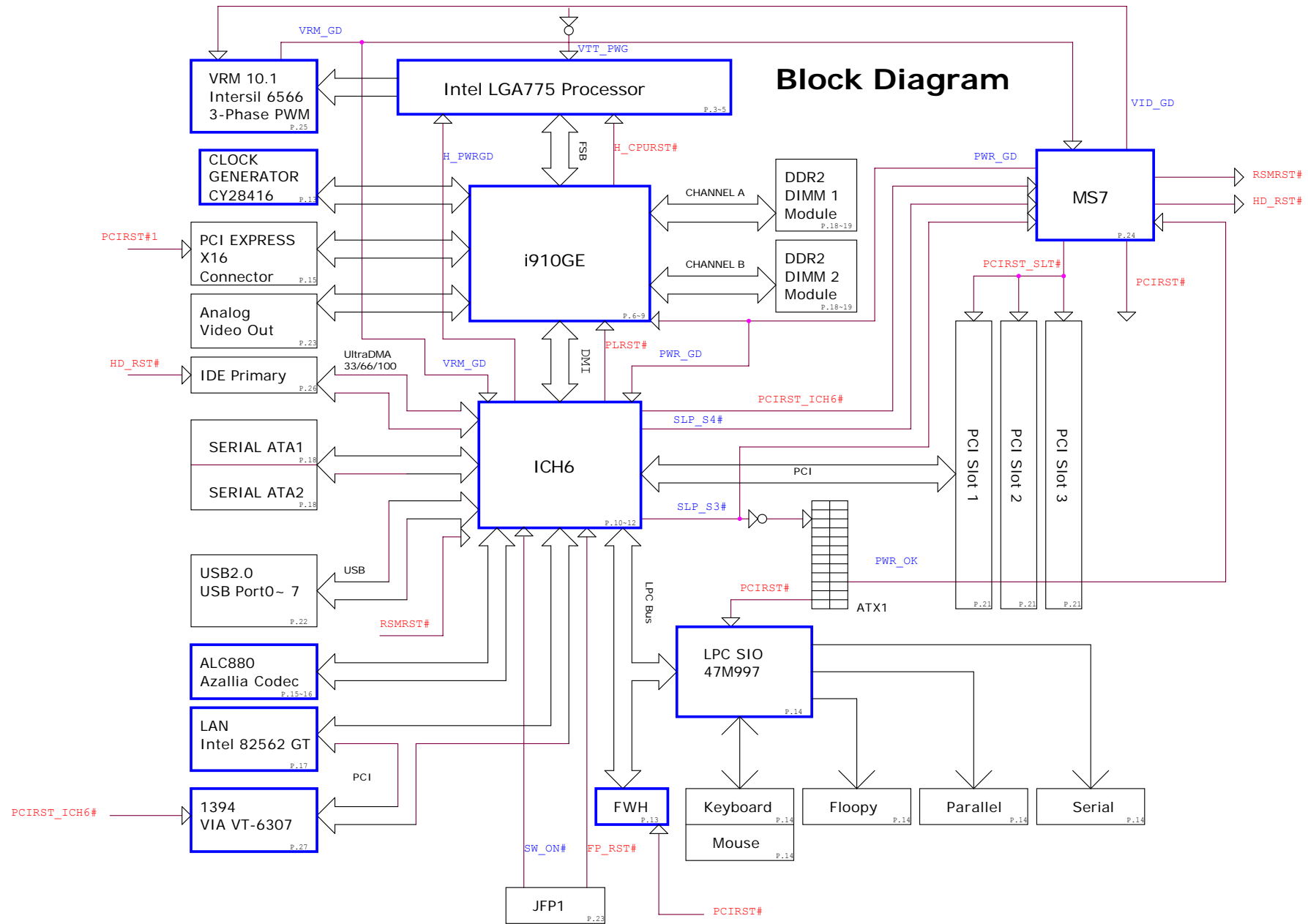
## Expansion Slots:

**PCI 2.3 SLOT \* 3**

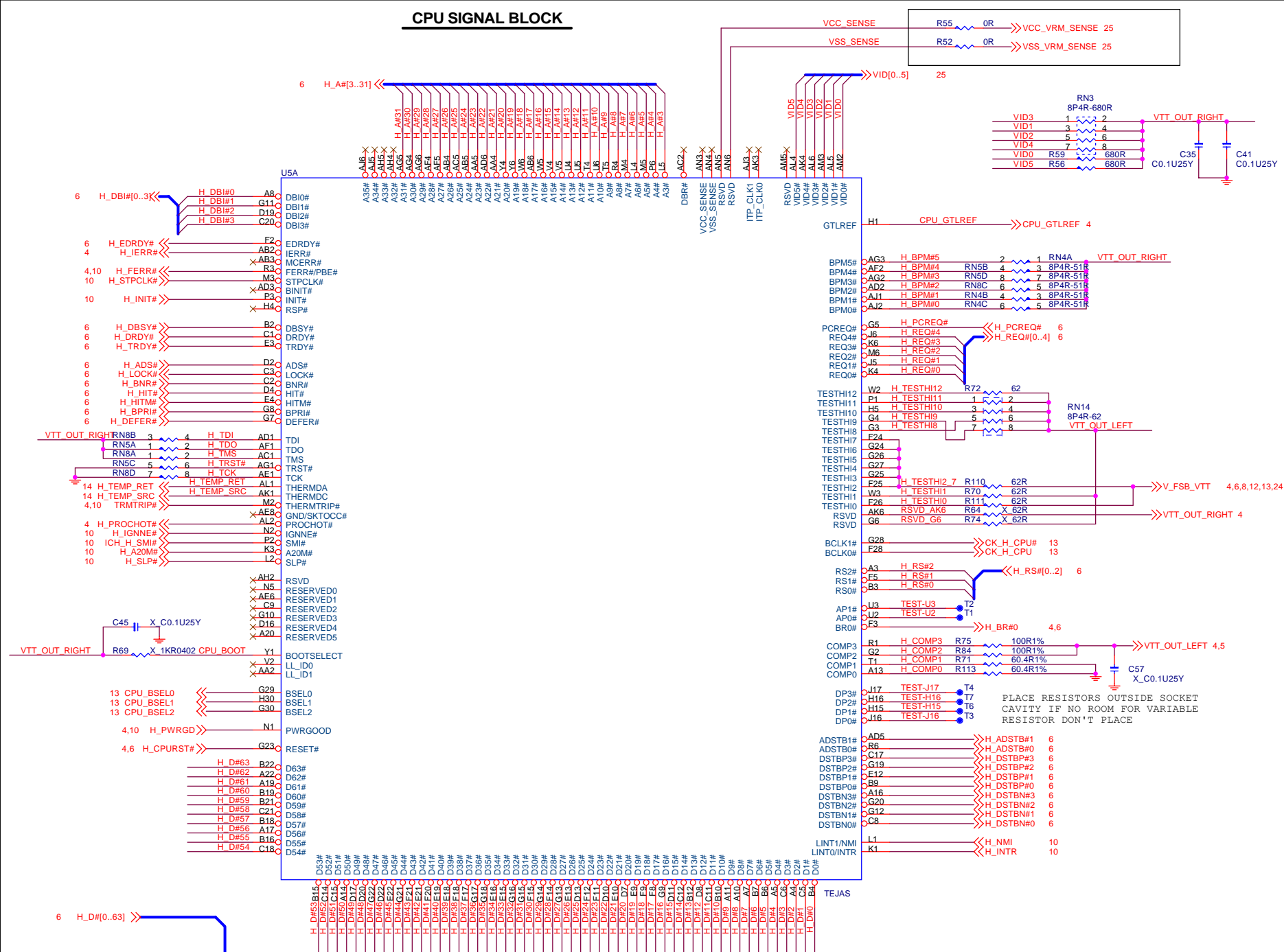
## Intersil PWM:

**Controller: INTERSIL 6566 3PHASE**

# Block Diagram



### CPU SIGNAL BLOCK

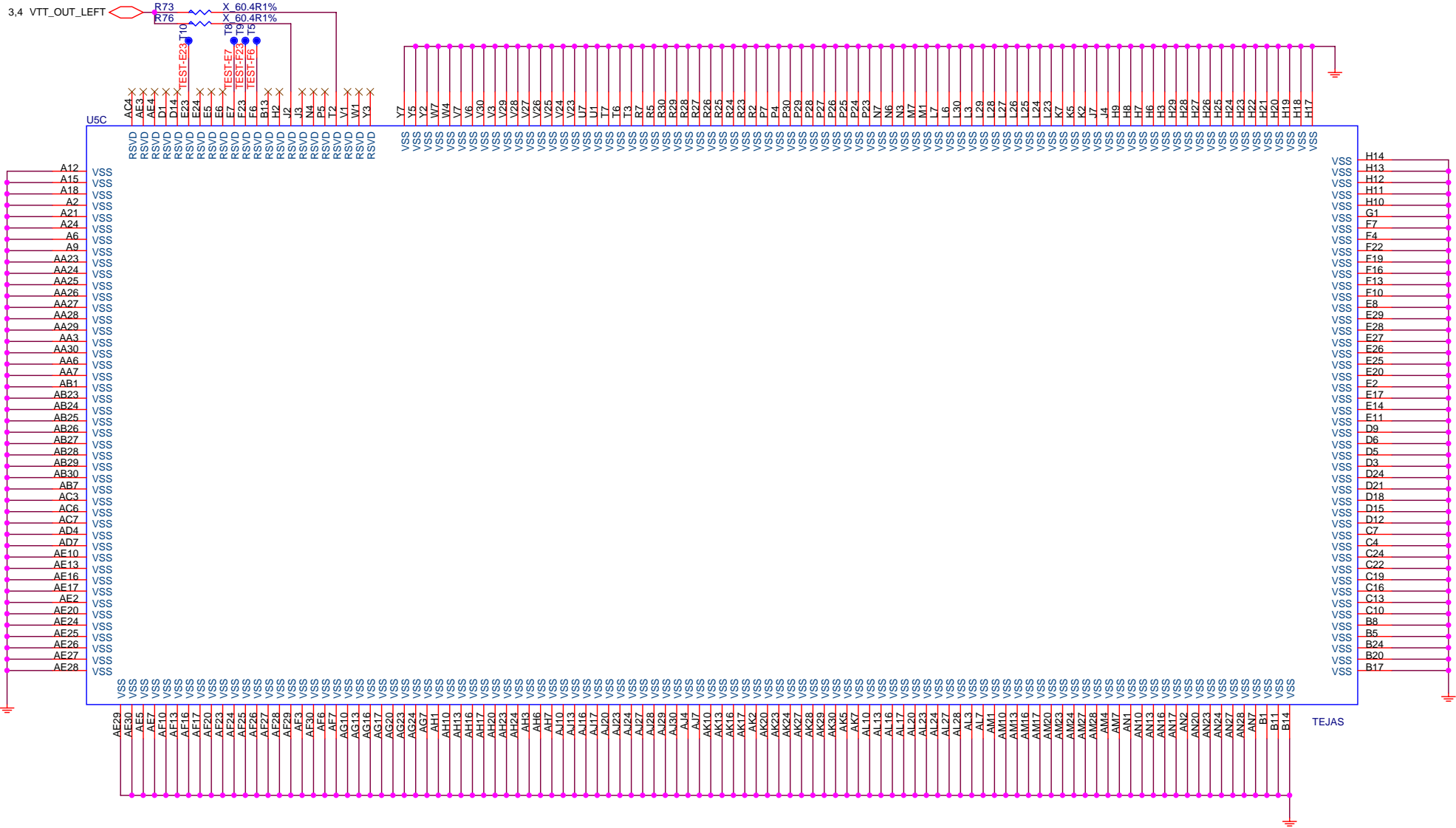


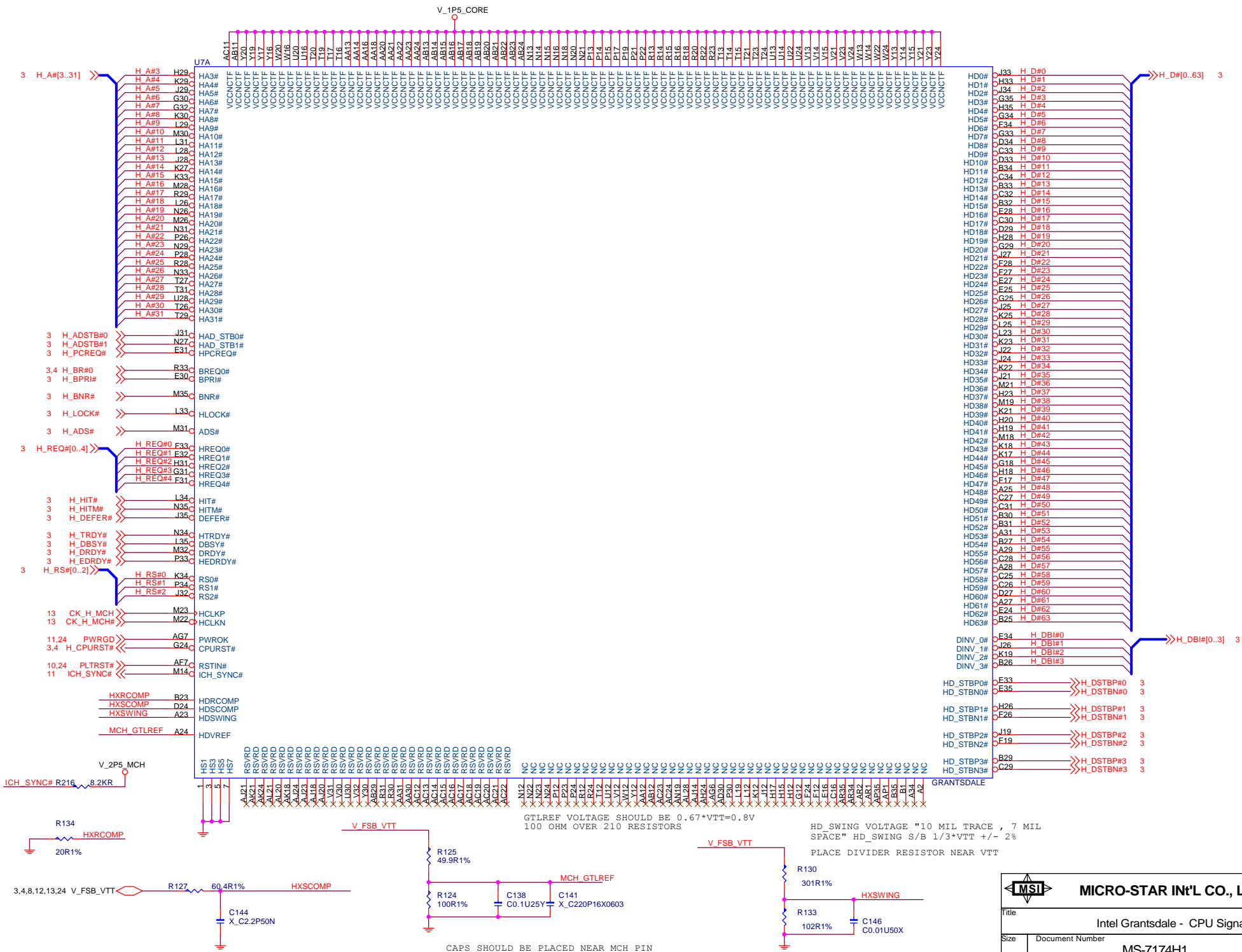
**MICRO-STAR INT'L CO., LTD.**

Title			
Intel LGA775 CPU - Signals			
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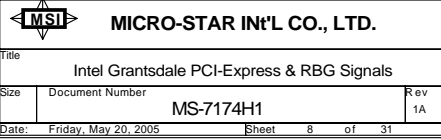


3,4 VTT\_OUT\_LEFT



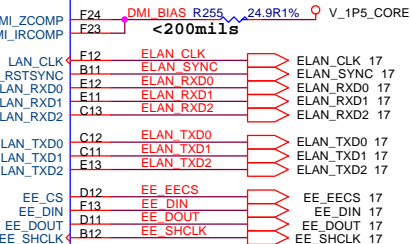
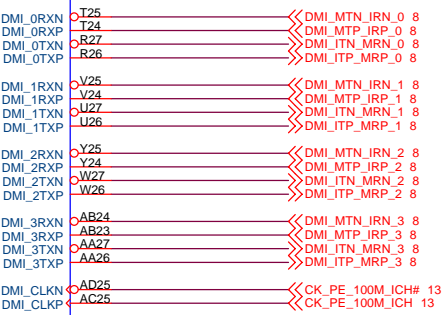
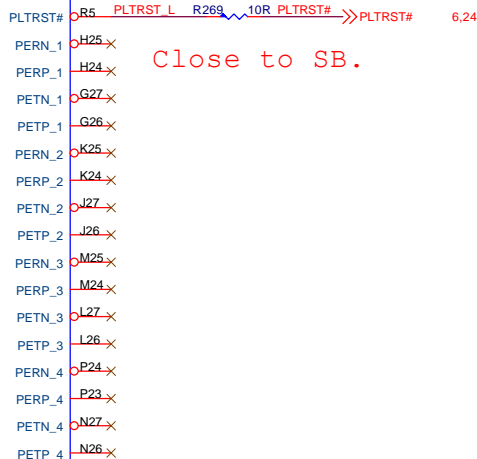
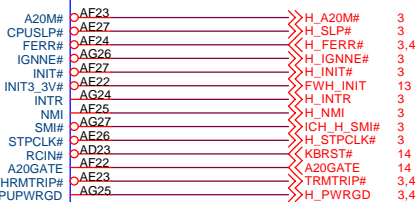
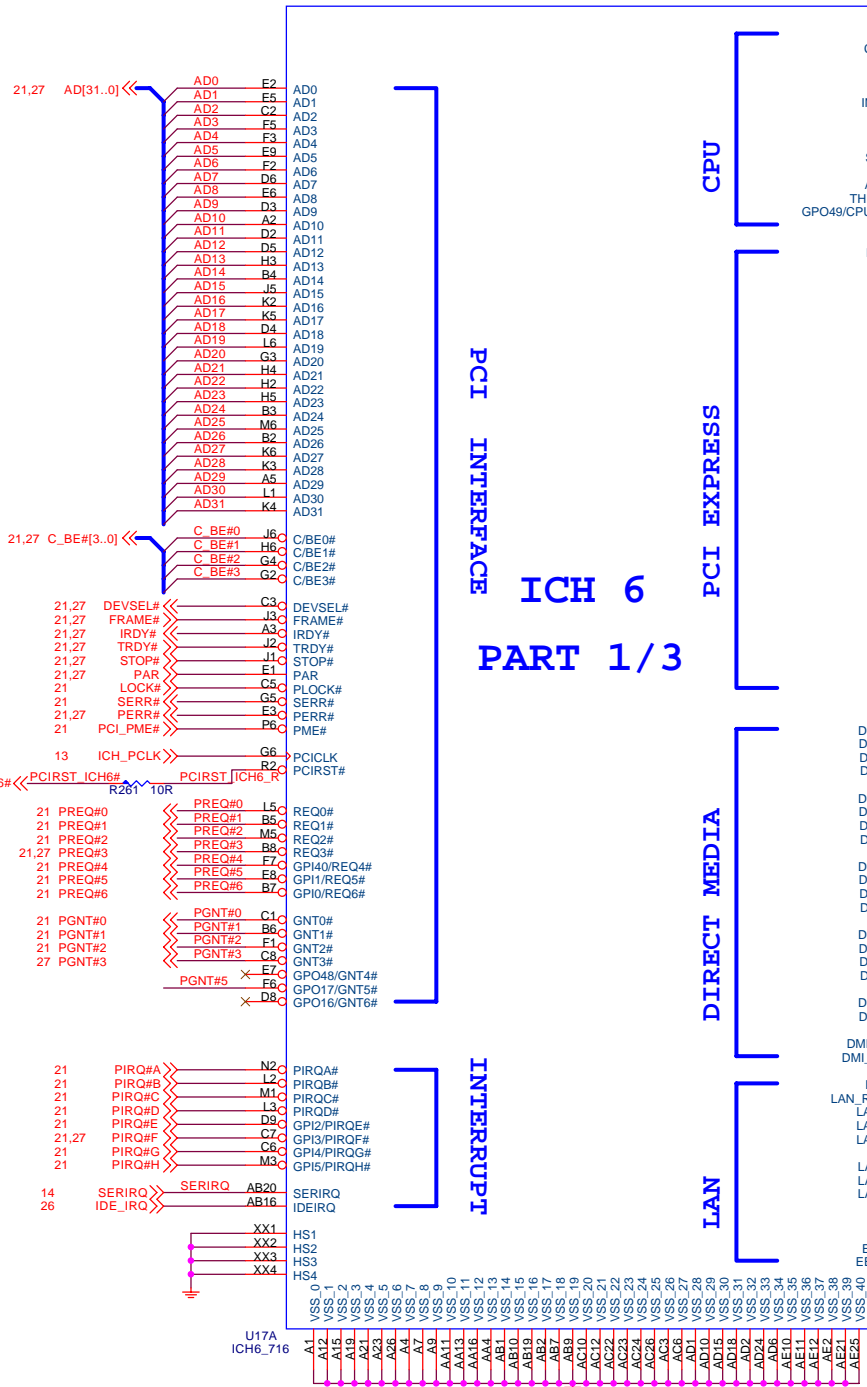




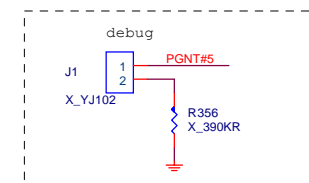








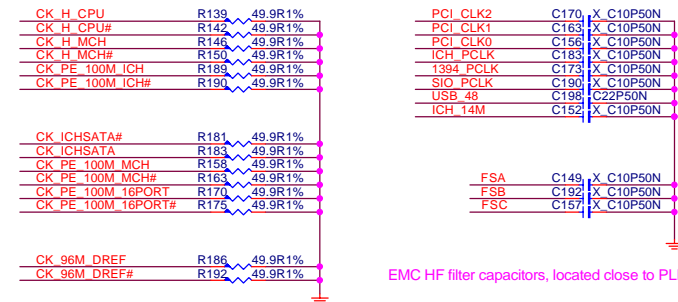
**DMI Interface**  
Trace width 5 mils & 7 mils space.  
GMCH breakout space 5 mils, length < 250 mils  
Length matching < 5 mils  
Trace Length 2" to 11"







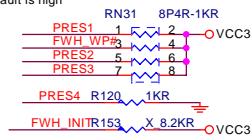
Trace length less than 0.5inches



EMC HF filter capacitors, located close to PLL



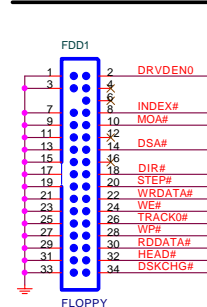
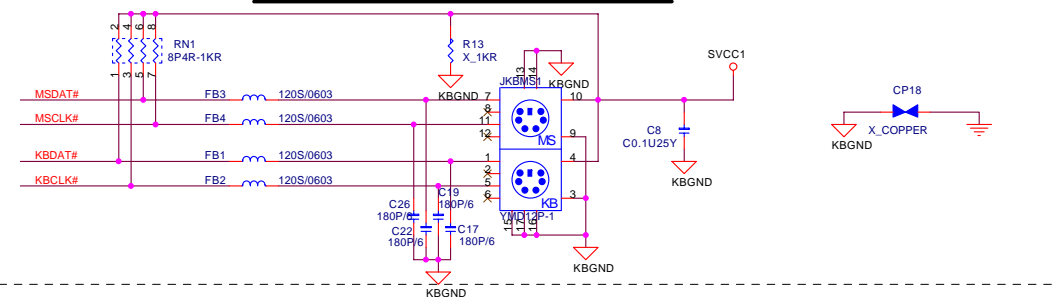
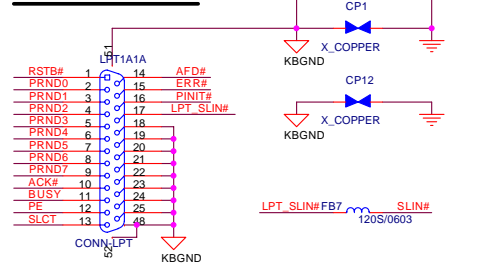
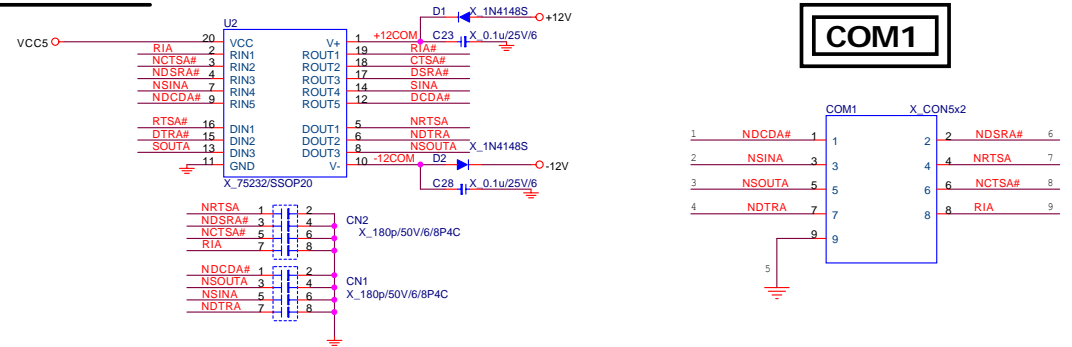
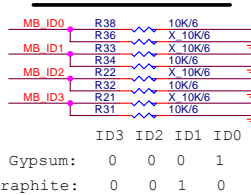
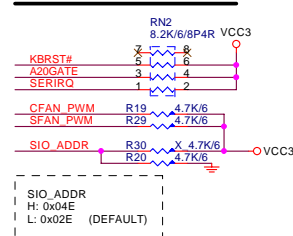
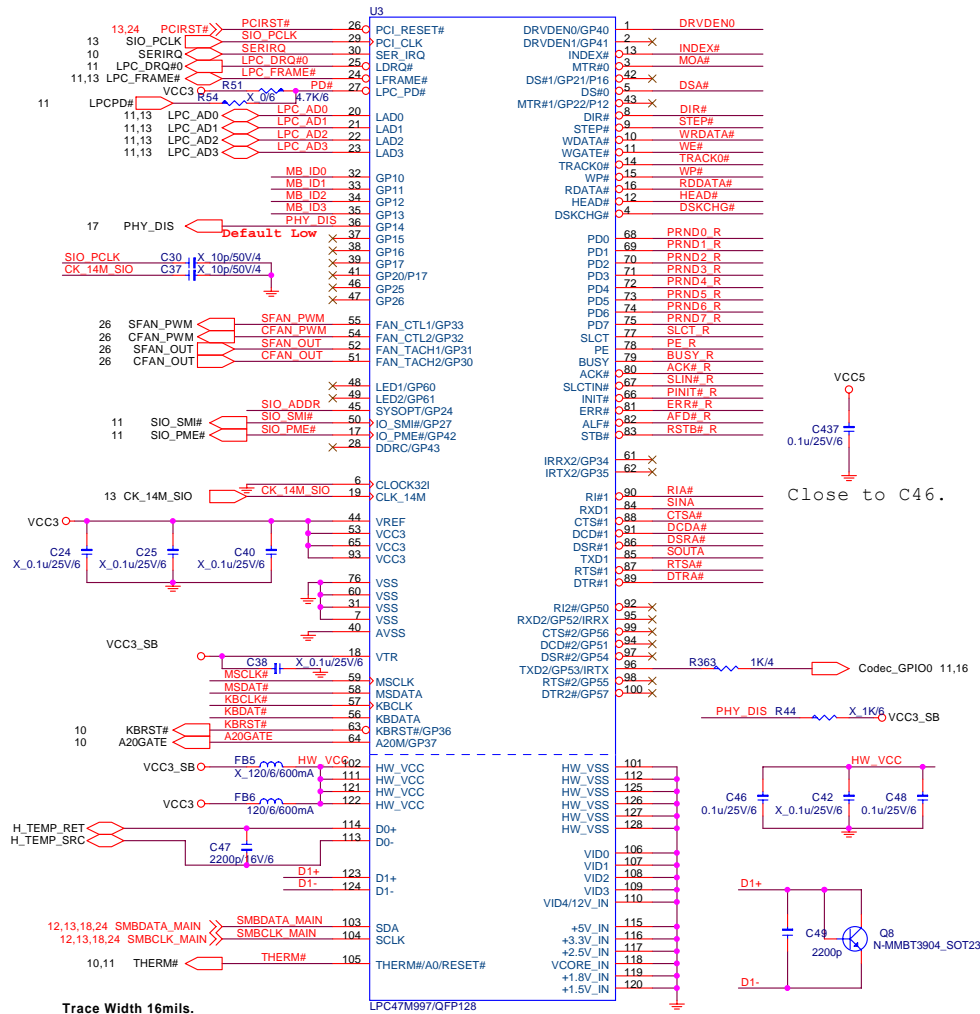
## FWH Resistors



**Place Cap. as Close to FWH< 350 mil**

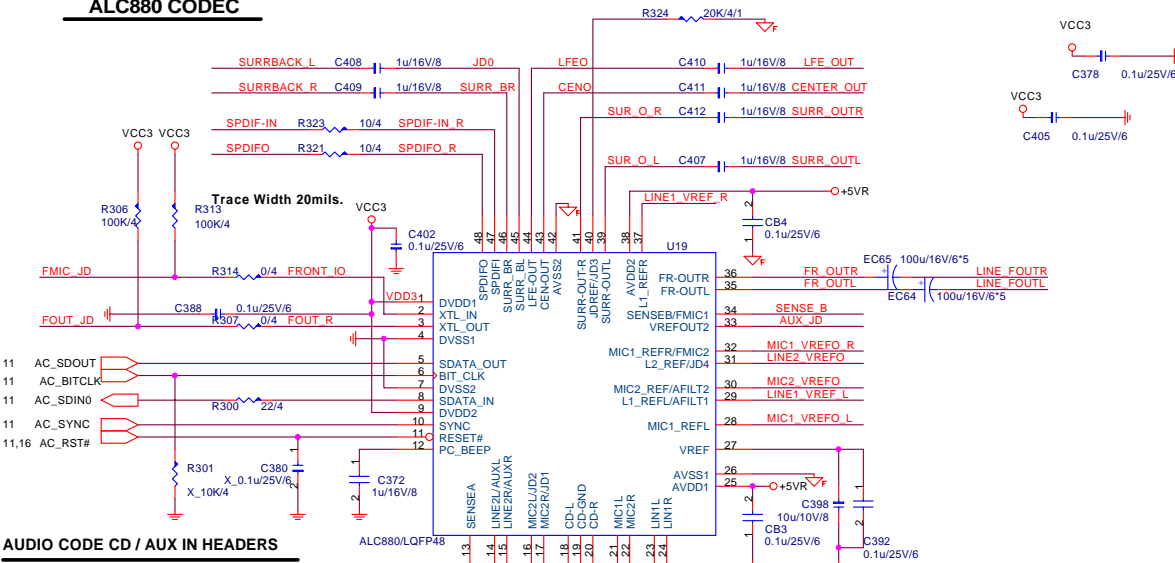


Title				
CY28416 & FWH				
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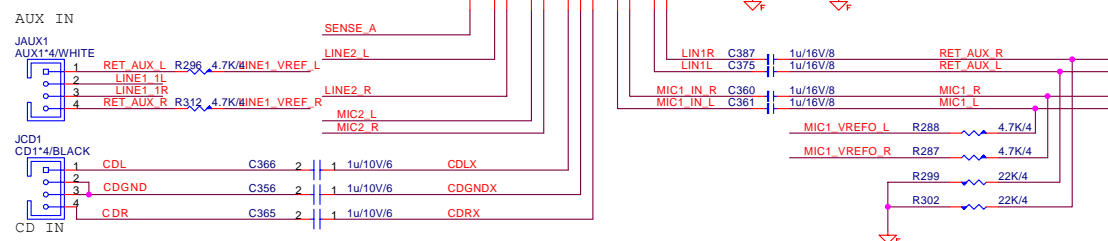




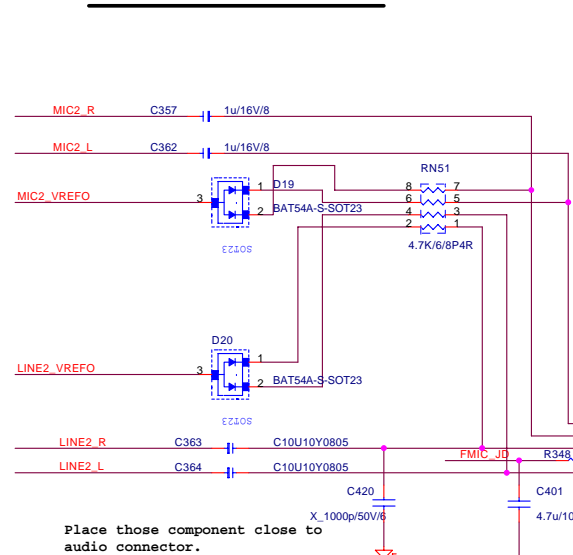
## ALC880 CODEC



## AUDIO CODE CD / AUX IN HEADERS



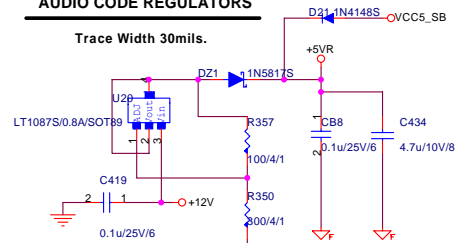
## Speaker Out Decoupling



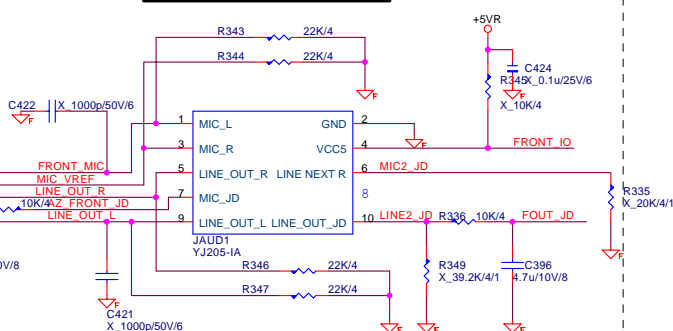
Place those component close to  
audio connector.

## AUDIO CODE REGULATORS

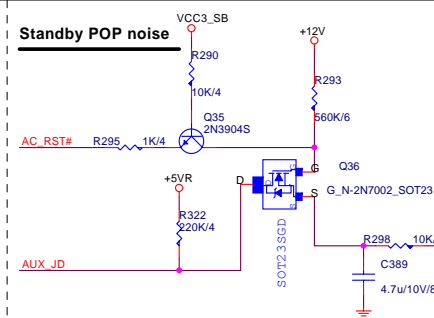
Trace Width 30mils



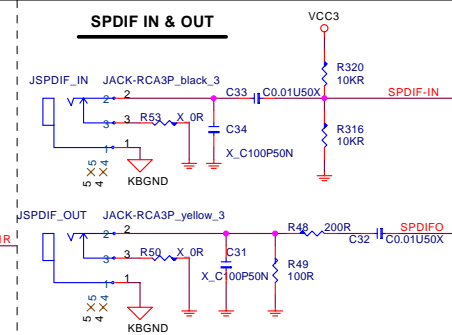
**Azalia Front Audio Connector**



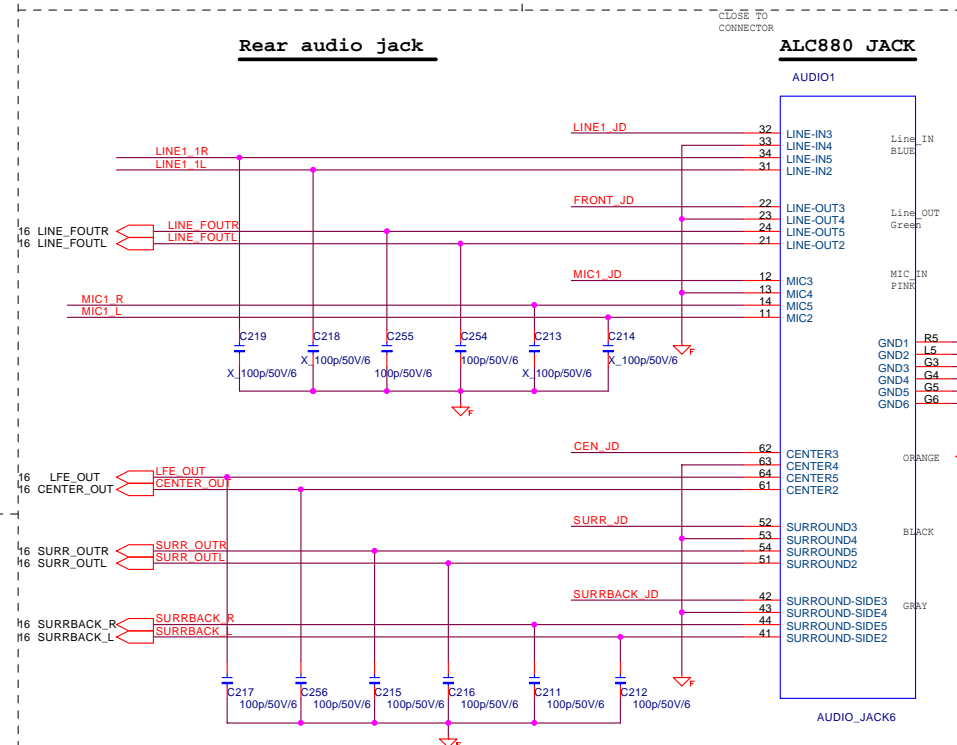
**Standby POP noise**



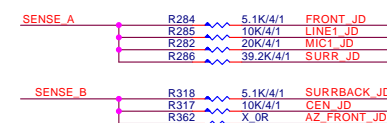
## SPDIF IN & OUT



Rear audio jack



## ALC880 JACK DETECT

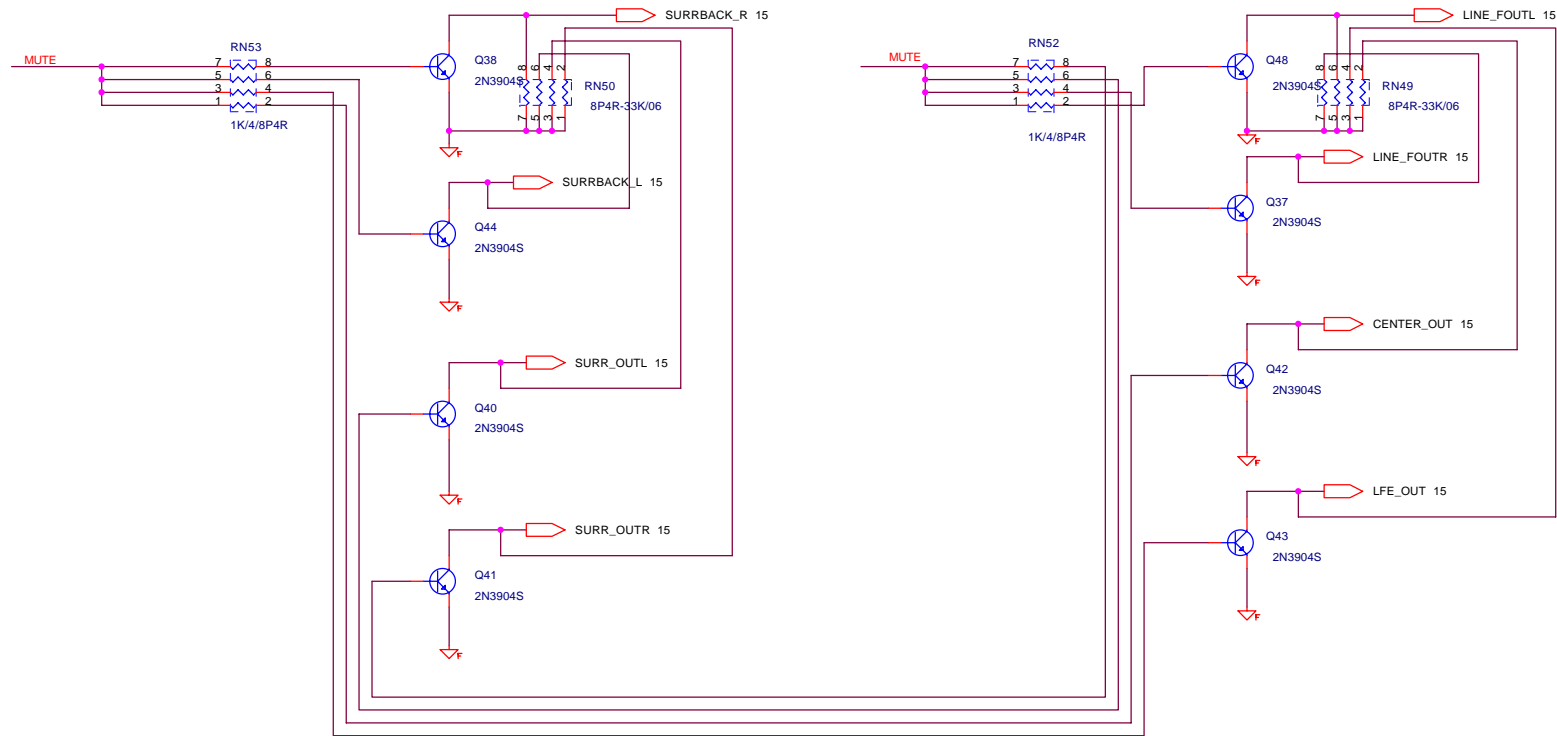


Closer to Codec.

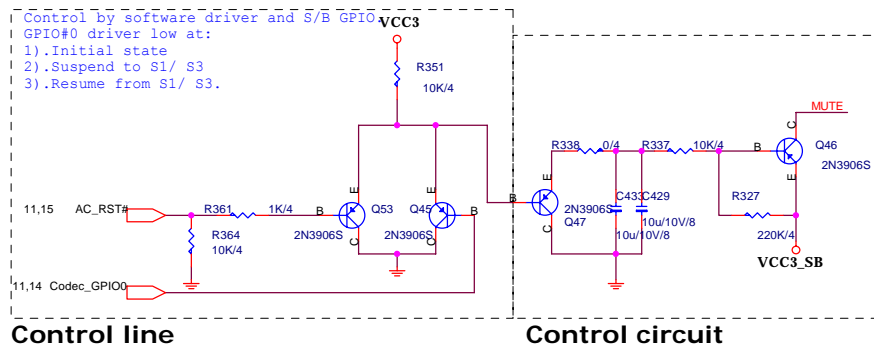


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Title		Azalia & Interanl SPK	
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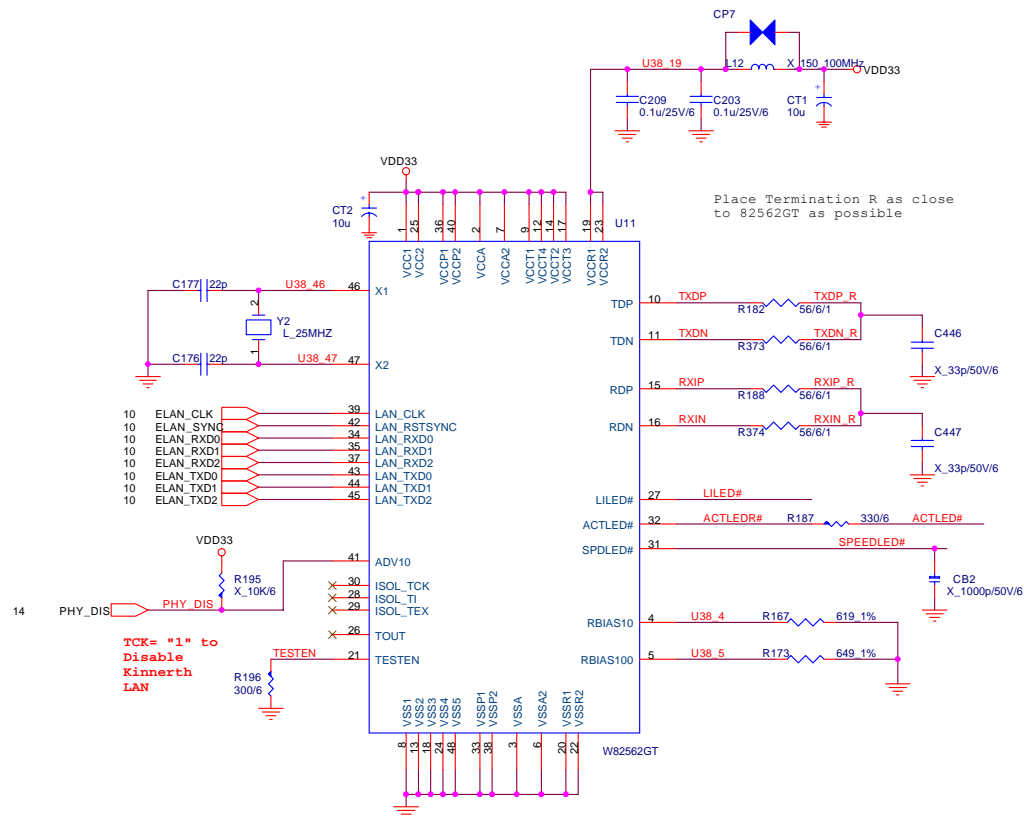


darlington circuit

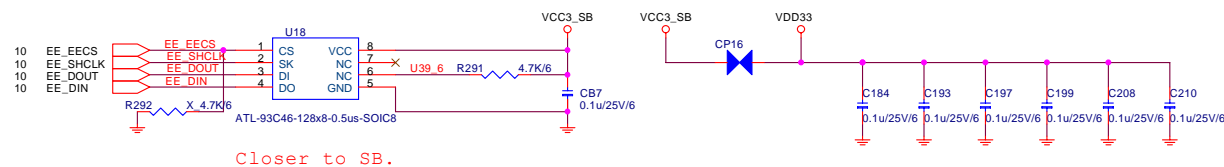




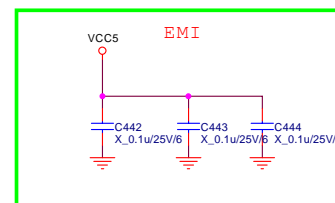
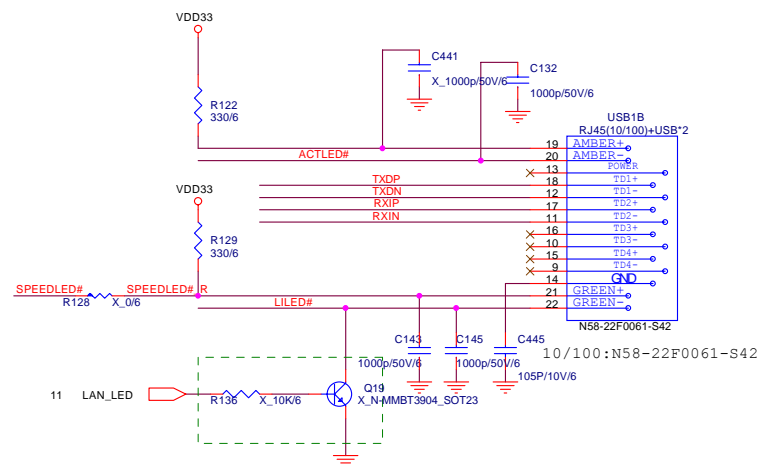
## LAN - KINNERITH



## EEPROM



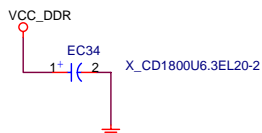
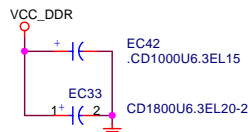
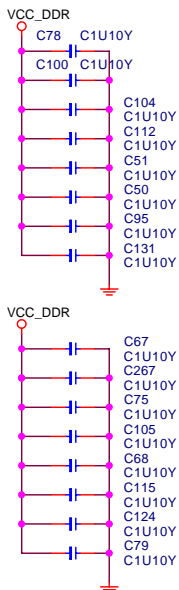
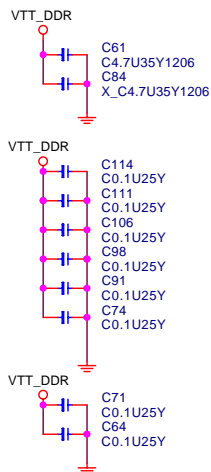
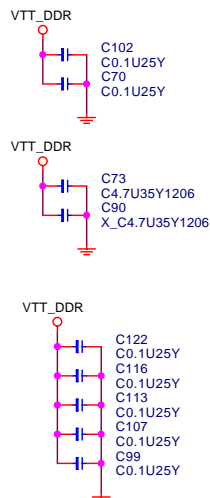
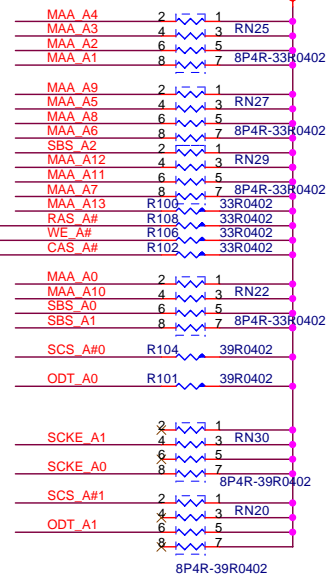
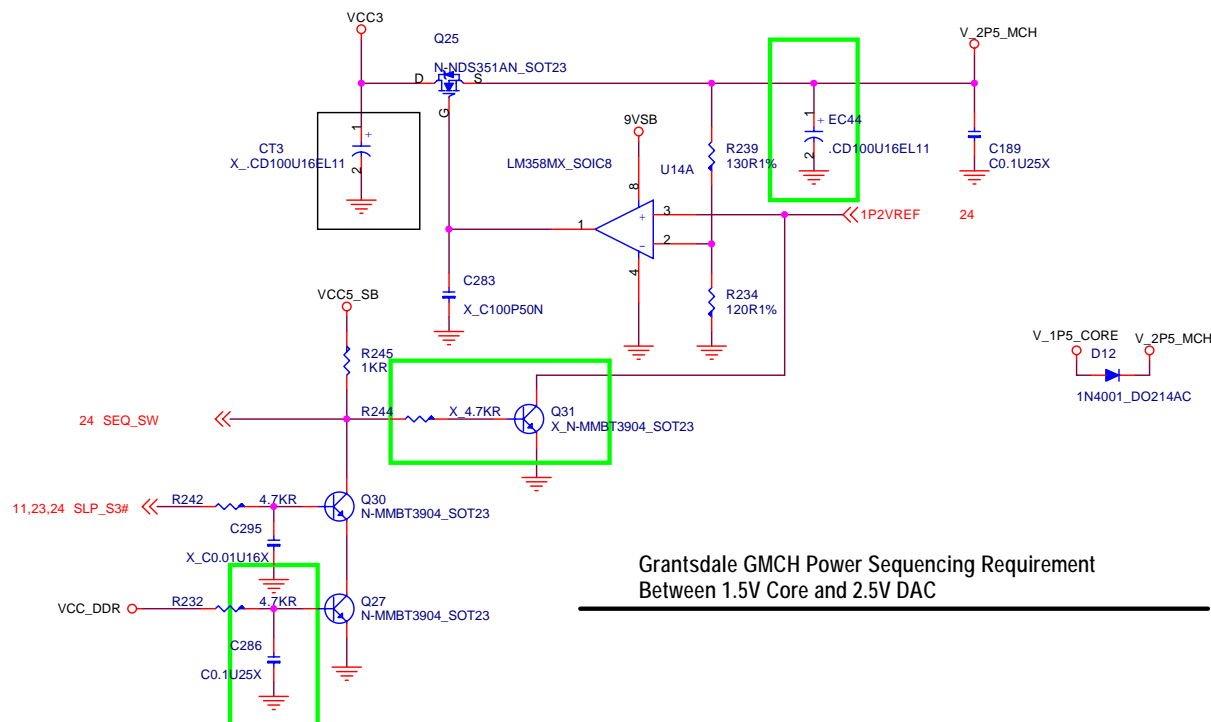
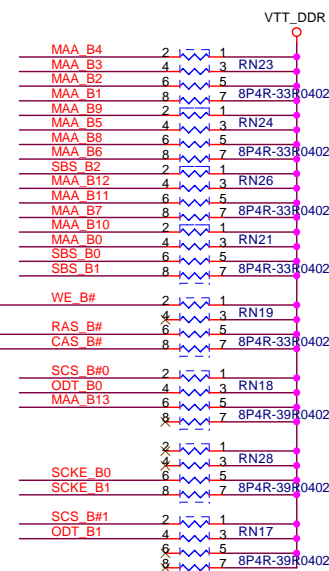
## LAN CONNECTOR





CHANNEL A V\_SM\_VTT DECOUPLING CAPS

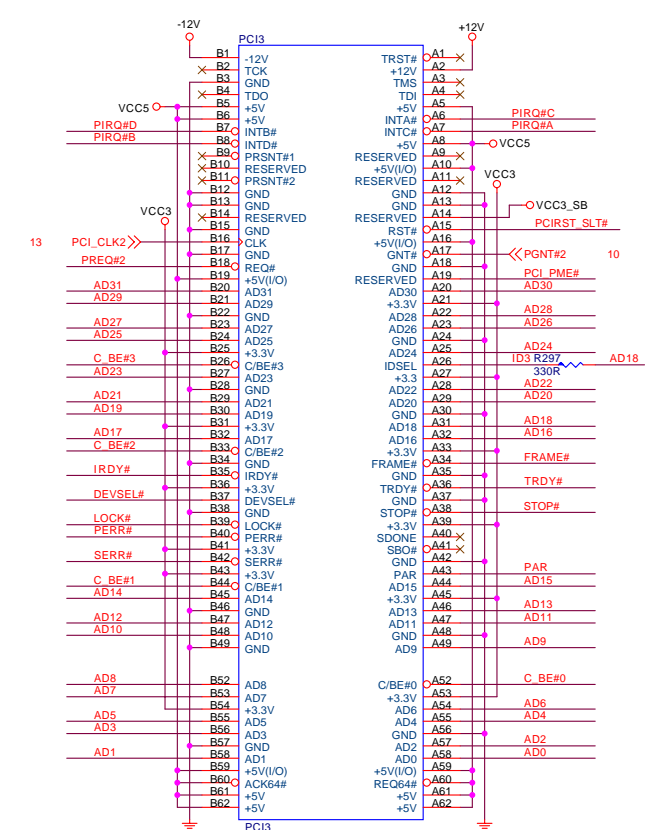
CHANNEL B V\_SM\_VTT DECOUPLING CAPS

7,18 RAS\_A#  
7,18 WE\_A#  
7,18 CAS\_A#7,18 WE\_B#  
7,18 RAS\_B#  
7,18 CAS\_B#Grantsdale GMCH Power Sequencing Requirement  
Between 1.5V Core and 2.5V DAC7,18 MAA\_A[0..13]  
7,18 SBS\_A[0..2]  
7,18 SCS\_A#[0..1]  
7,18 SCKE\_A[0..1]  
7,18 ODT\_A[0..1]7,18 MAA\_B[0..13]  
7,18 SBS\_B[0..2]  
7,18 SCS\_B#[0..1]  
7,18 SCKE\_B[0..1]  
7,18 ODT\_B[0..1]

MSI MICRO-STAR INT'L CO., LTD.			
Title			
DDR TERMINATION & VTT DECOUPLING&2.5VDAC			
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**PCI SLOT 2 (PCI VER: 2.2 COMPLY)**

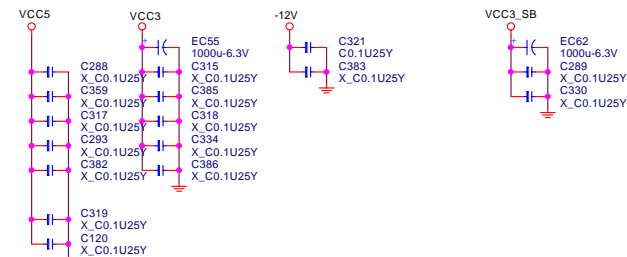


```

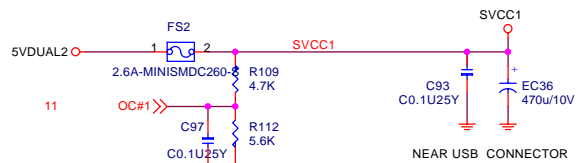
IDSEL = AD18
MASTER = PREQ#2
PIRQ#C

```

## PCI SLOT DECOUPLING CAPACITORS

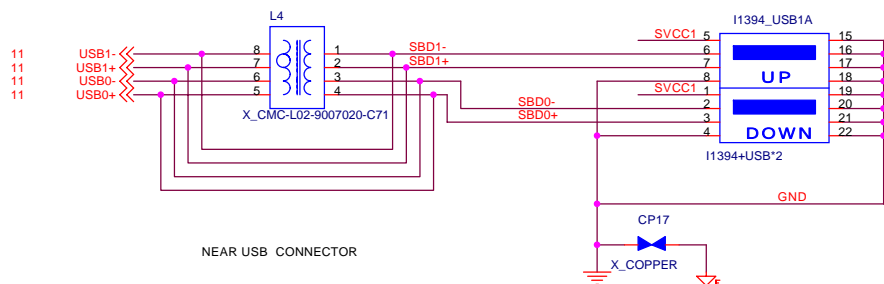


## POWER CIRCUIT FOR USB PORT 0,1,2,3 (REAR)

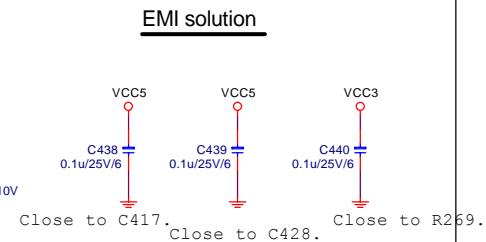
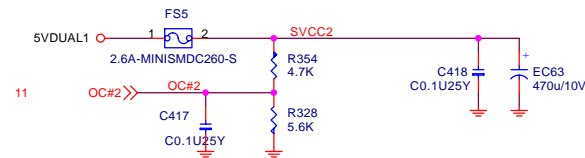


## REAR PANEL USB CONNECTOR FOR USB PORT 0,1

USB Interface  
Diff. Trace width 7.5 mils & 7.5 mils space.  
Diff. & other space 20 mils.  
Length matching: < 150 mils  
Ttrace length 0" to 17"

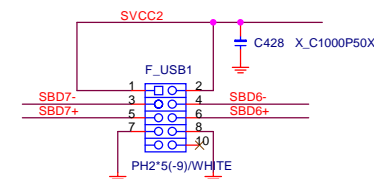
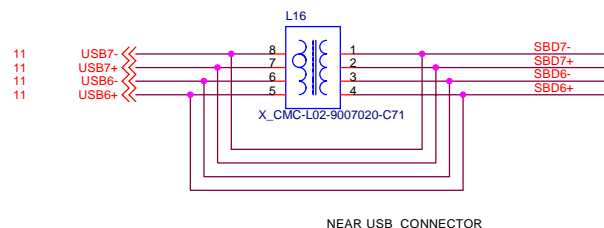


## POWER CIRCUIT FOR USB PORT 4,5,6,7 (FRONT)

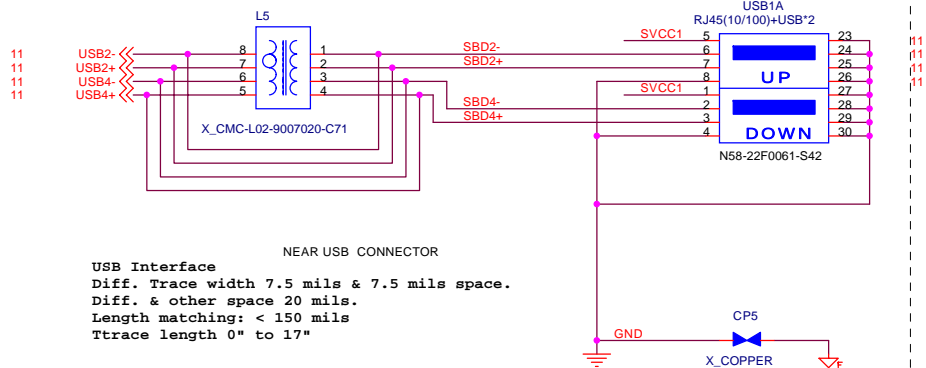


## FRONT PANEL USB CONNECTOR FOR USB PORT 6,7

USB Interface  
Diff. Trace width 7.5 mils & 7.5 mils space.  
Diff. & other space 20 mils.  
Length matching: < 150 mils  
Ttrace length 0" to 17"

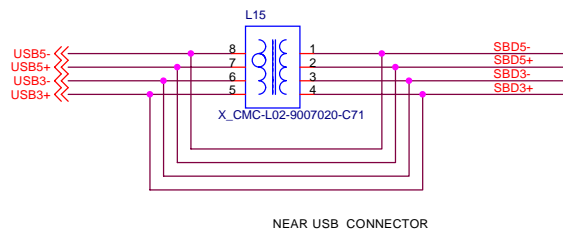


## REAR PANEL USB CONNECTOR FOR USB PORT 2,3

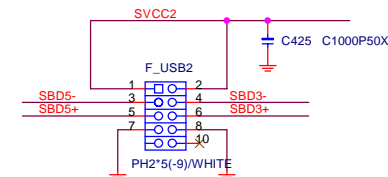


USB Interface  
Diff. Trace width 7.5 mils & 7.5 mils space.  
Diff. & other space 20 mils.  
Length matching: < 150 mils  
Ttrace length 0" to 17"

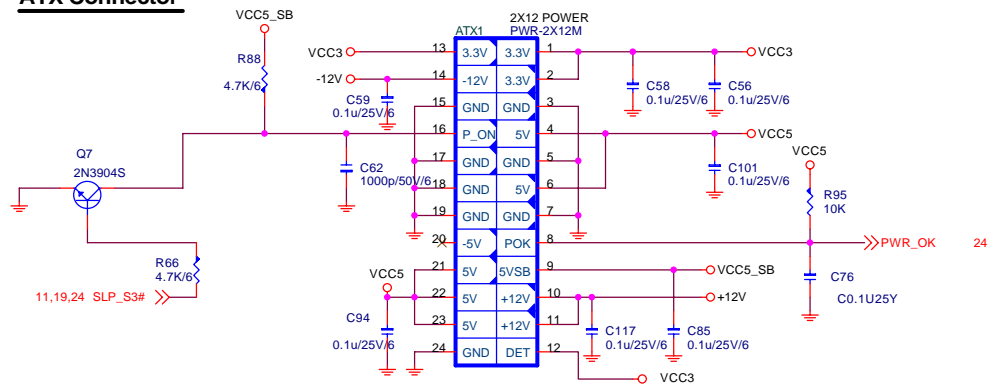
## FRONT PANEL USB CONNECTOR FOR USB PORT 4,5



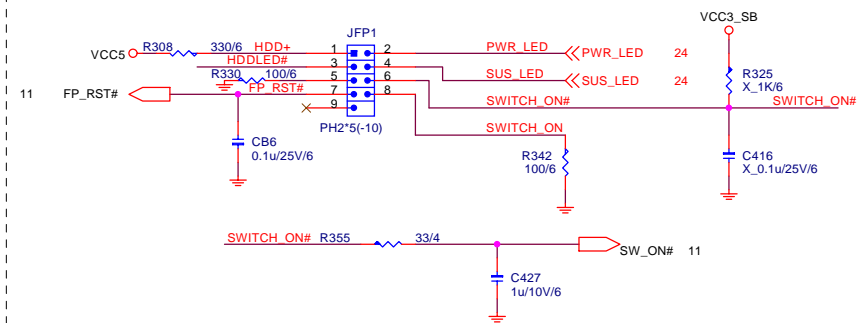
USB Interface  
Diff. Trace width 7.5 mils & 7.5 mils space.  
Diff. & other space 20 mils.  
Length matching: < 150 mils  
Ttrace length 0" to 17"



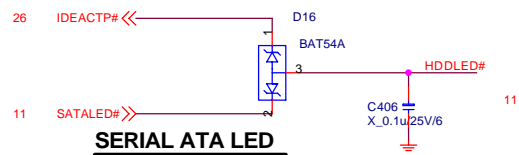
## ATX Connector



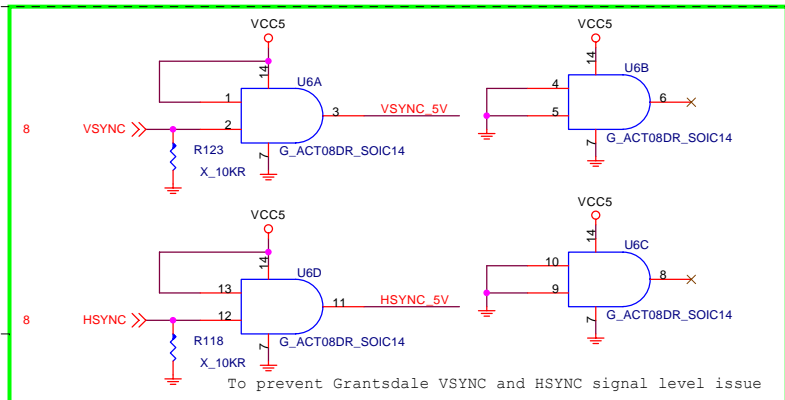
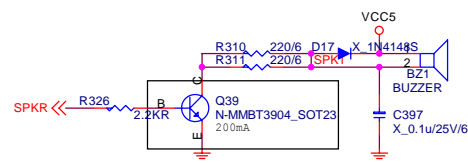
## Intel Front Panel



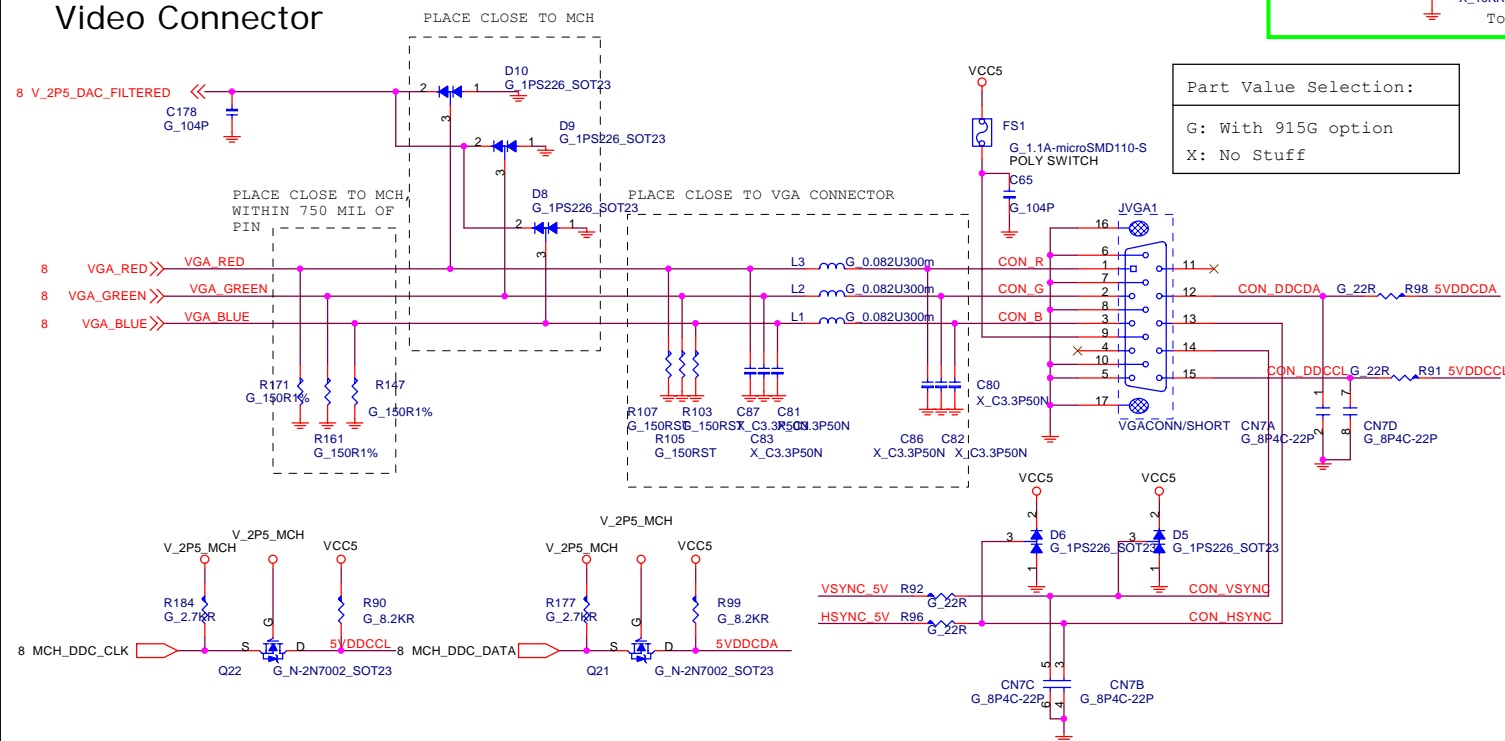
## IDE LED



**BUZZER**

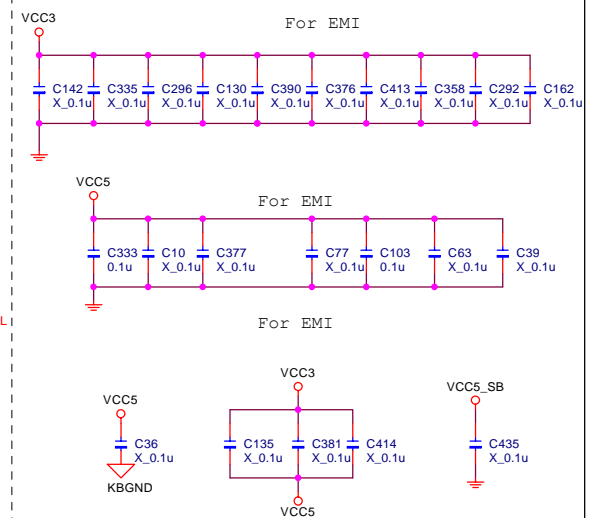


## Video Connector



Part Value Selection:

```
G: With 915G option
X: No Stuff
```



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Title	ATX Connector & Front Panel
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1A	



# ACPI Controller

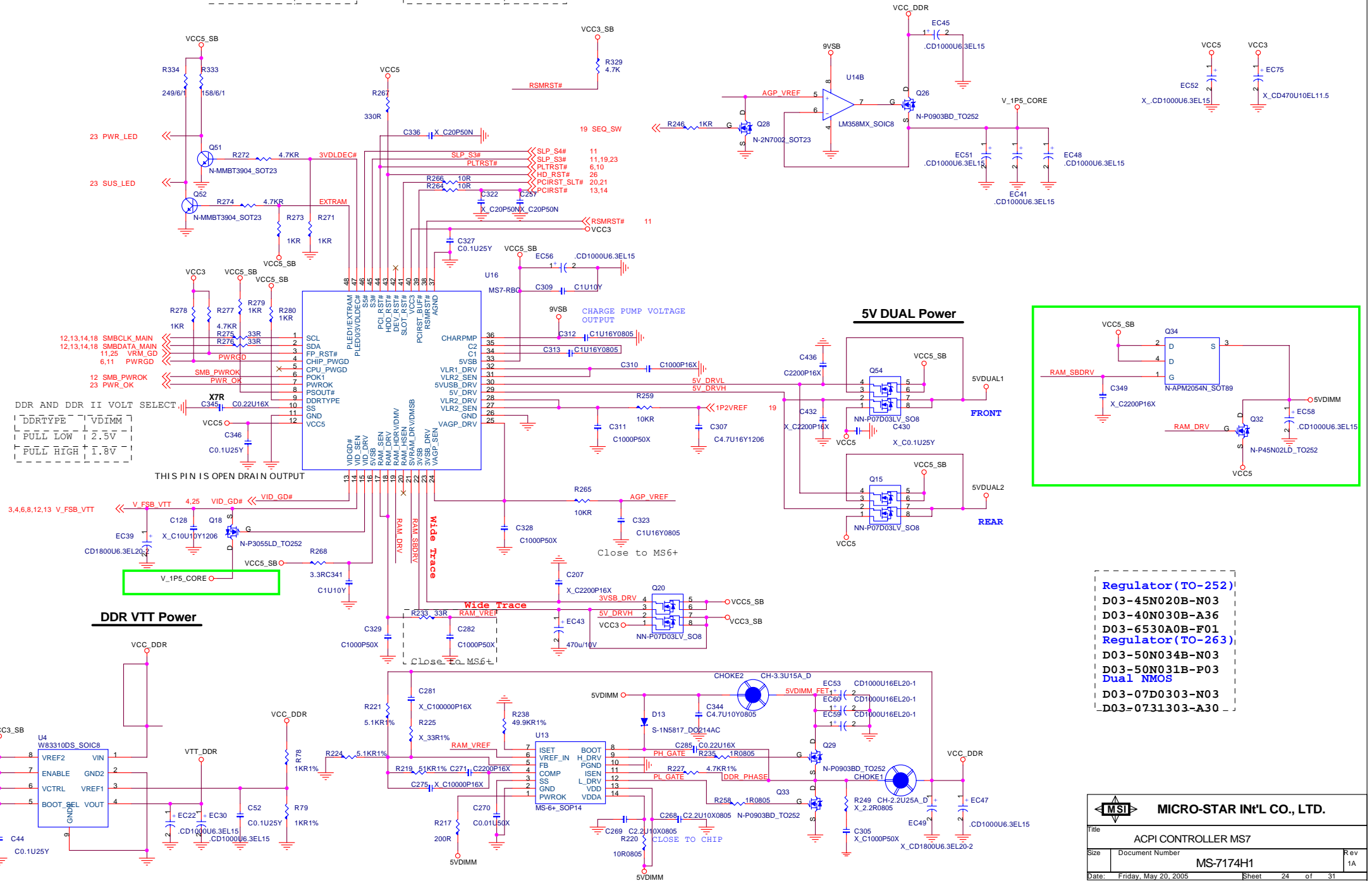
**3VSB MODE SELECT**

3VSB MODE	3VBLDEC#
SINGLE MOSFET	FULL HIGH
DUAL MOSFET	FULL LOW

**VDIMM LINEAR OR PWM SELECT**

VDIMM MODE	EXTRAM
LINEAR REGULATOR	PULL LOW
PWM REGULATOR	PULL HIGH

## PCI-Express POWER



**Regulator (TO-252)**

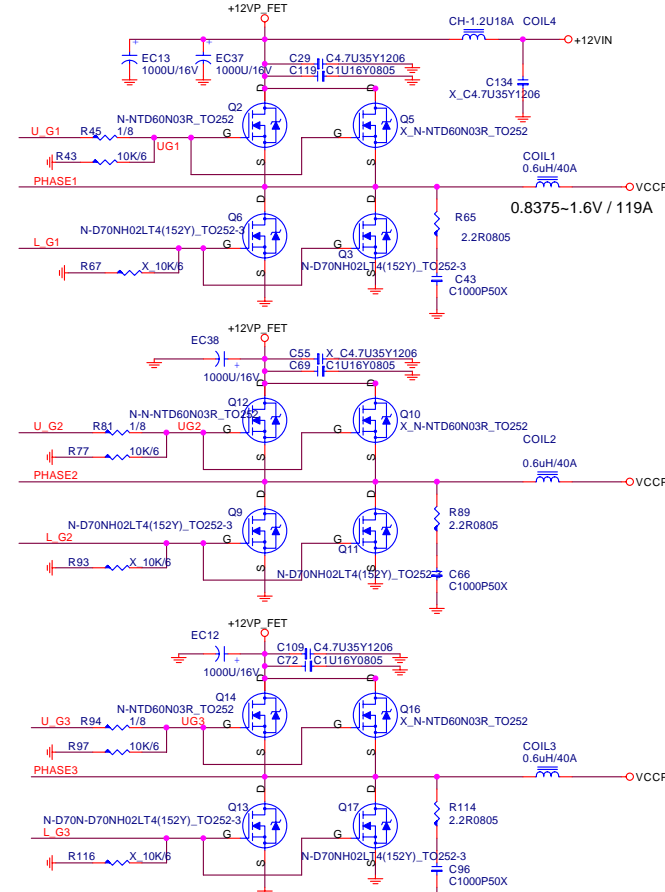
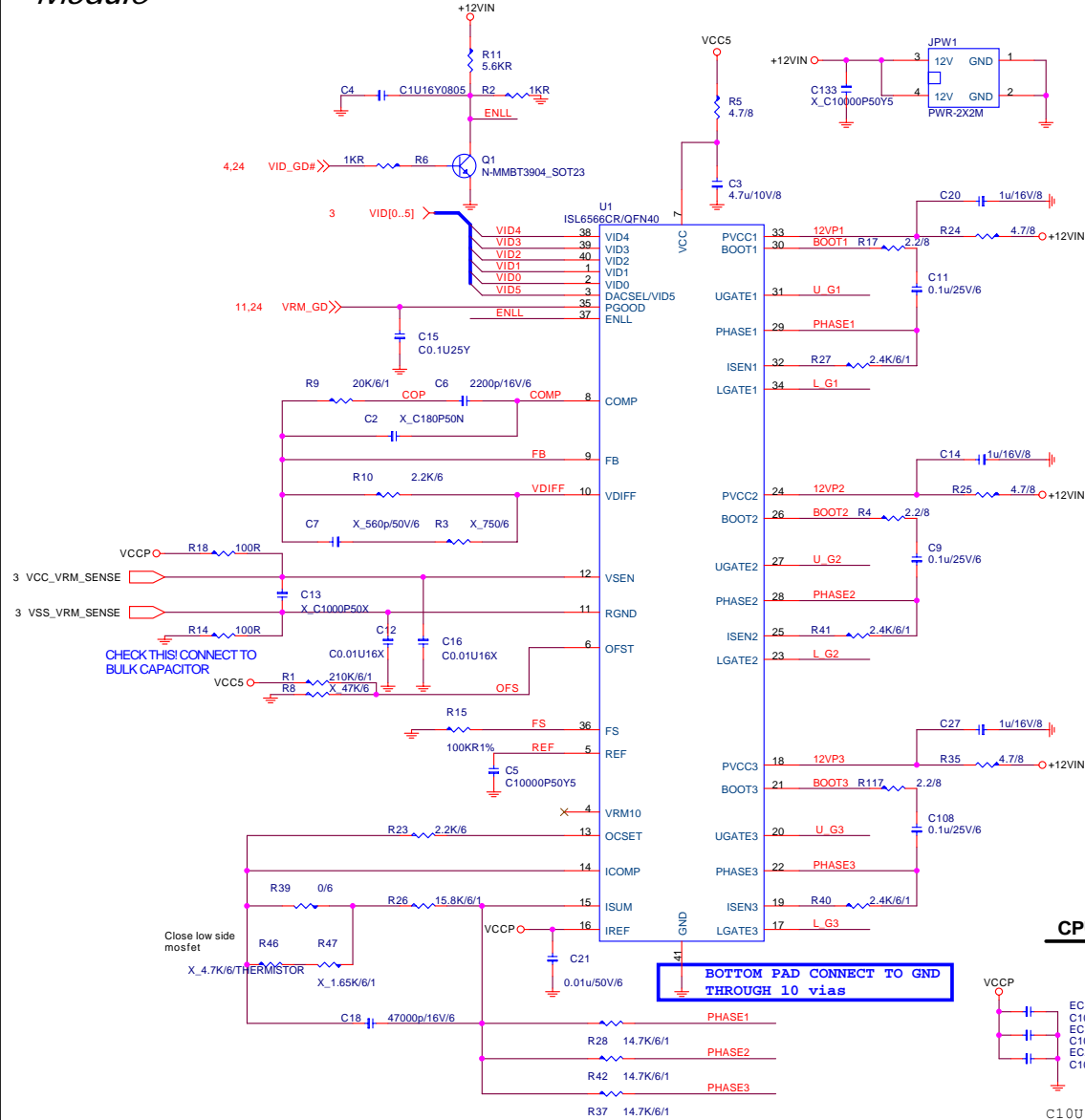
D03-45N020B-N03  
D03-40N030B-A36  
D03-6530A0B-F01  
**Regulator (TO-263)**  
D03-50N034B-N03  
D03-50N031B-P03  
**Dual NMOS**  
D03-07D0303-N03  
D03-0731303-A30



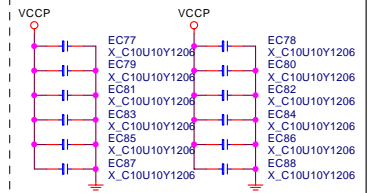
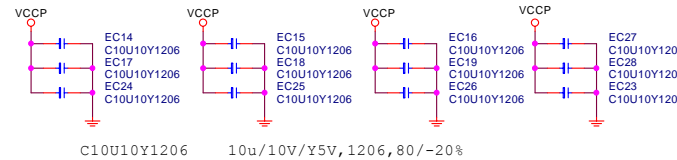
# Voltage Regular Module

IPF06N03LA Rds(on)=8.7mΩ(@4.5V,30A), Vgs(on)=1.2~2V, Id=50A, Ciss=3110pf, Qg=10nC, Vds=25V, Vgs=±20V  
C100U2SP ESR<13mΩ, Ripple cur.<2.7A, Lc<12uA, 105C  
.CD3300U6.3EL25 ESR<12mΩ, Ripplecur.<2800mA, 105C, longlife3000hrs, KZGSeries  
560u\_2.5V ESR=6mΩ, Ripplecur.=4400mA, Lc.<500uA, 105C/2000hrs  
1800UF/6.3V ESR<12mΩ, Ripplecur<2350mA, 105C, longlife change from 2000hrs to 3000hrs ,KZJ series  
0.6uH/40A  
CH-1.2U18A 1.2u/20%, Isat=40A, Rdc=1.2m ohm, PEW wire  
1.2u/20%, Dip-2/vertical17.5mm, 1.2ψ/5.5turns, 18A

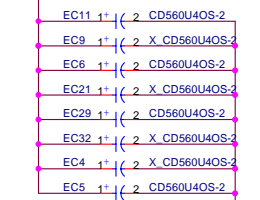
TDP = 115 W  
VR\_TDC = 101 A  
Icc(max) = 119 A  
Tejas Tcase = [P x 0.213] + 43.3  
Prescott Tcase = [P x 0.25] + 43.3



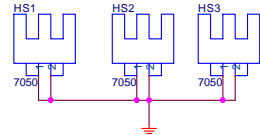
## CPU DECOUPLING CAPACITORS



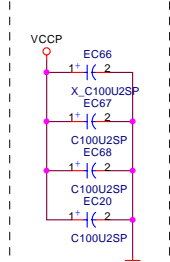
## OS-CON Capacitors



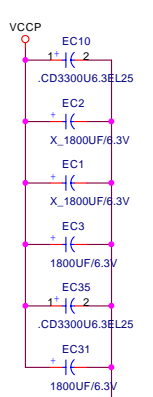
## MOSFET Heatsinks



## SP Capacitors



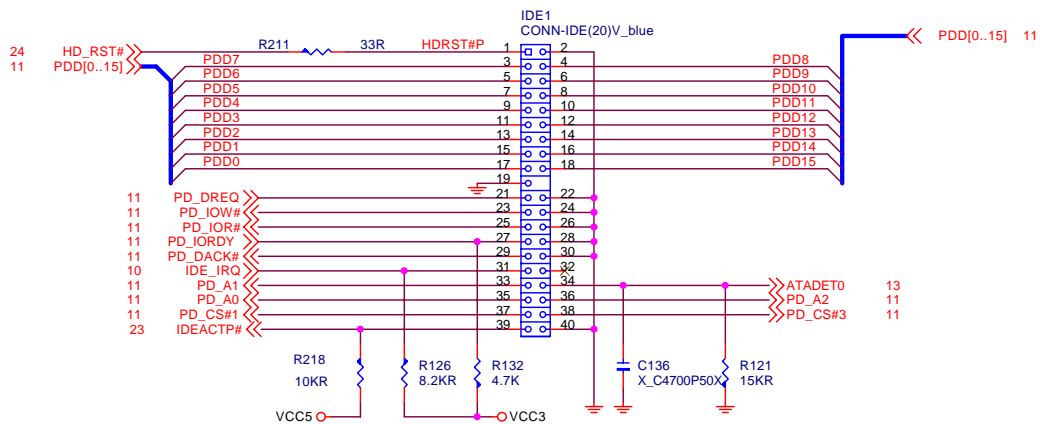
## EL Capacitors



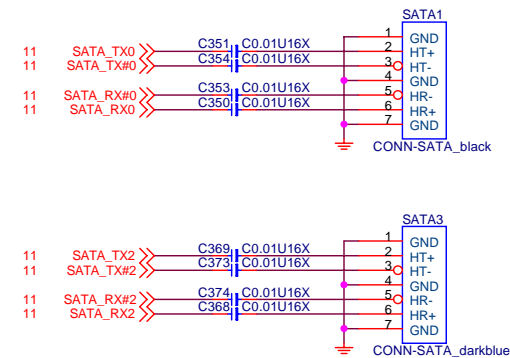
## Solder Side

MICRO-STAR IN'L CO., LTD.			
Title VRM 10.1 - Intersil 6565ACV 3 Phase			
Size	Document Number	MS-7174H1	
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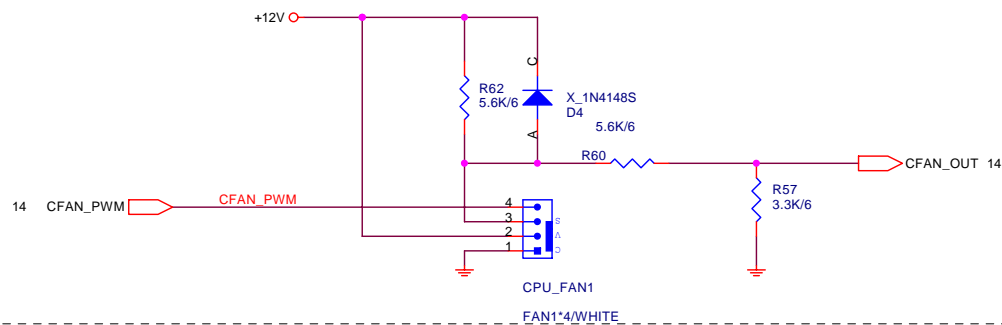
## ATA 33/66/100 IDE Connectors



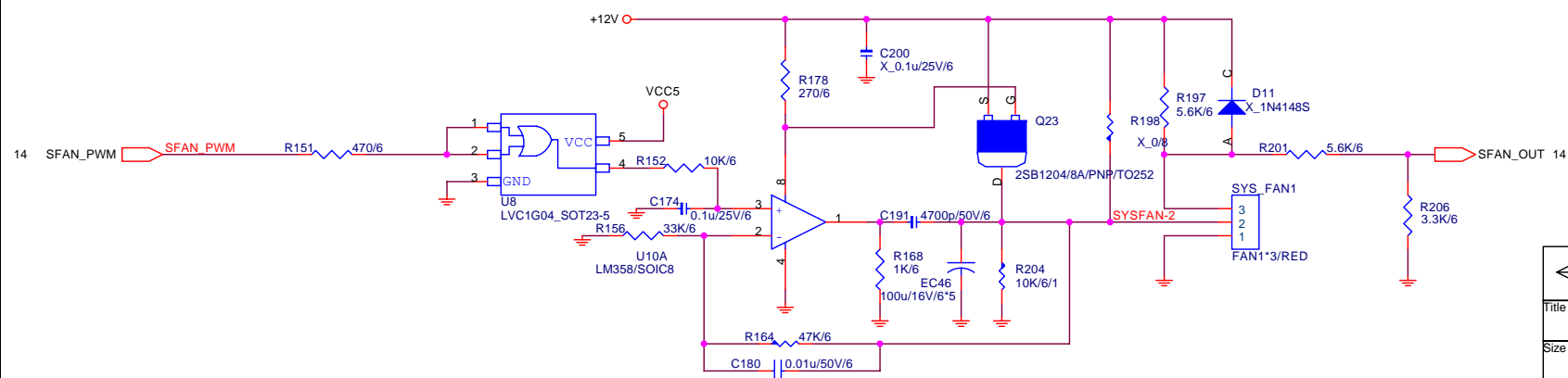
## SERIAL ATA CONNECTOR BLOCK



## CPU FAN



## SYSTEM FAN



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

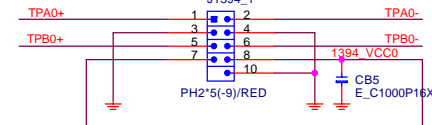
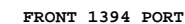
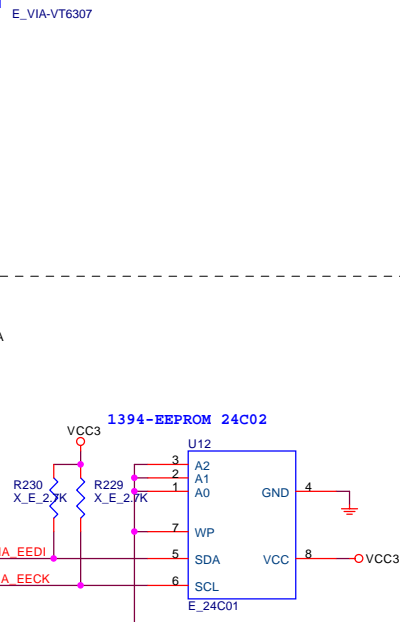
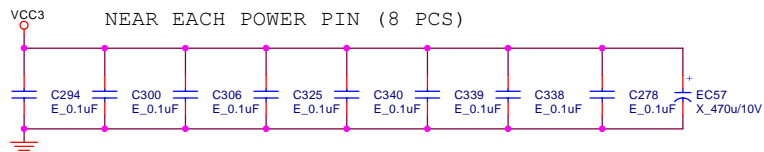
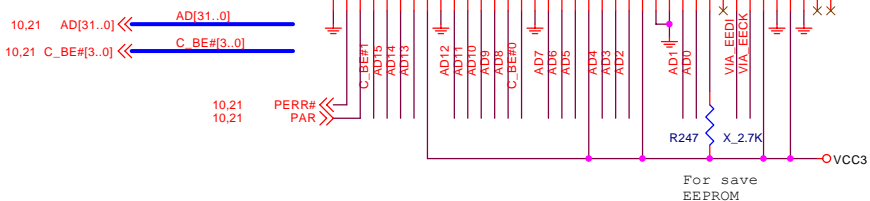
Title			
FAN & IDE Connectors			
Size	Document Number		Rev
	MS-7174H1		1A
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X: No Stuff

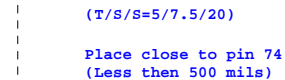
```

IDSEL = AD25
MASTER = PREQ#3
PIRQ#F

```



## Rear 1394 PORT

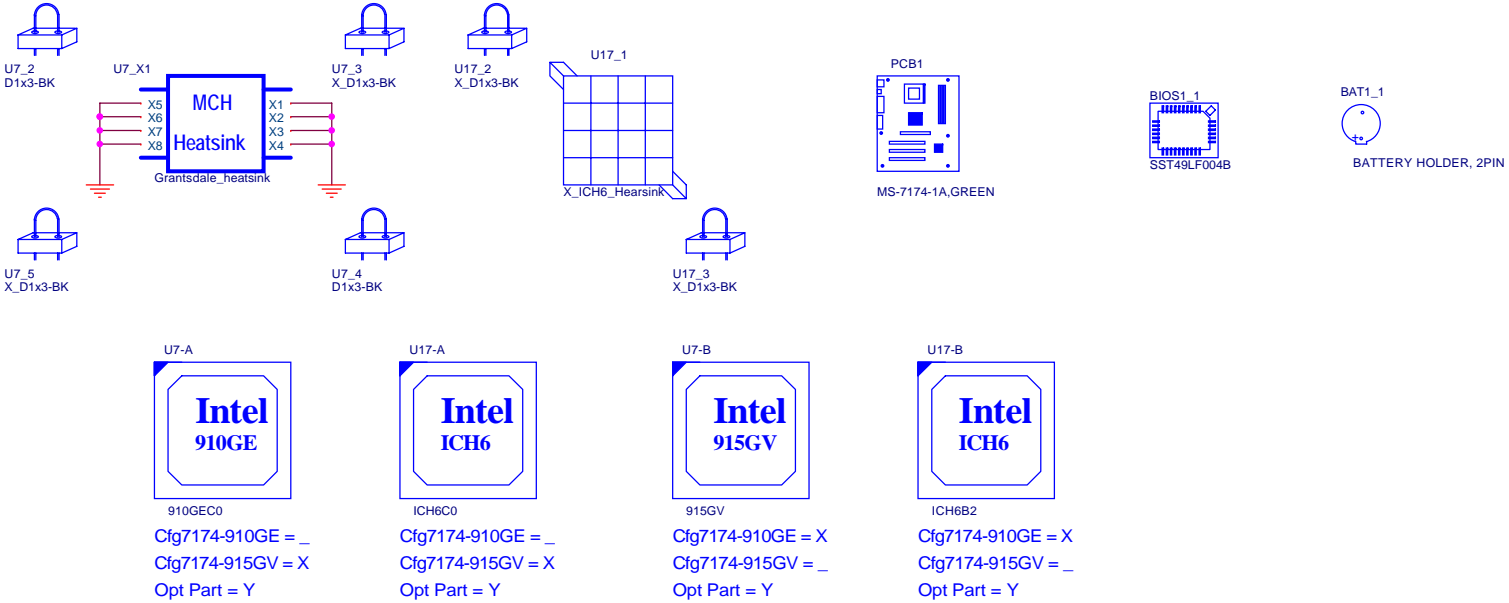



**MSI**  
 MICRO-START INT'L CO., LTD.

Title  
**VIA-6307 IEEE1394 Controller**

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MANUAL PART



Model option table

Model type	Function	BOM Config	ERP BOM No.
MS7174 (Graphite)	915GV+ICH6+47M997+82562GT+ALC880+3PCI+u-ATX+2PS2+8USB+1COM+VGA+1Audio+LPT+RJ45+Intel pinhead+1394	Cfg7174-915GV	601-7174-***
MS7174 (Gypsum)	910GE+ICH6+47M997+82562GT+ALC880+3PCI+PCIE X16+u-ATX+2PS2+8USB+1COM+VGA+1Audio+LPT+RJ45+Intel pinhead+1394	Cfg7174-910GE	601-7174-02S