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# MS-7314

Version 2.0

**CPU: Atom 330 - 1.6G**

## System Chipset:

**Intel 945GC (North Bridge)**

**Intel ICH7 (South Bridge)**

## On Board Chipset:

**BIOS -- SPI**

**HD -- ALC888**

**LPC Super I/O -- F71882FG**

**LAN-- REALTEK RTL8101E**

**CLOCK -- RTM876-665**

## Main Memory:

**DDR II \*1(Max 2GB) One Channel 2 DIMM**

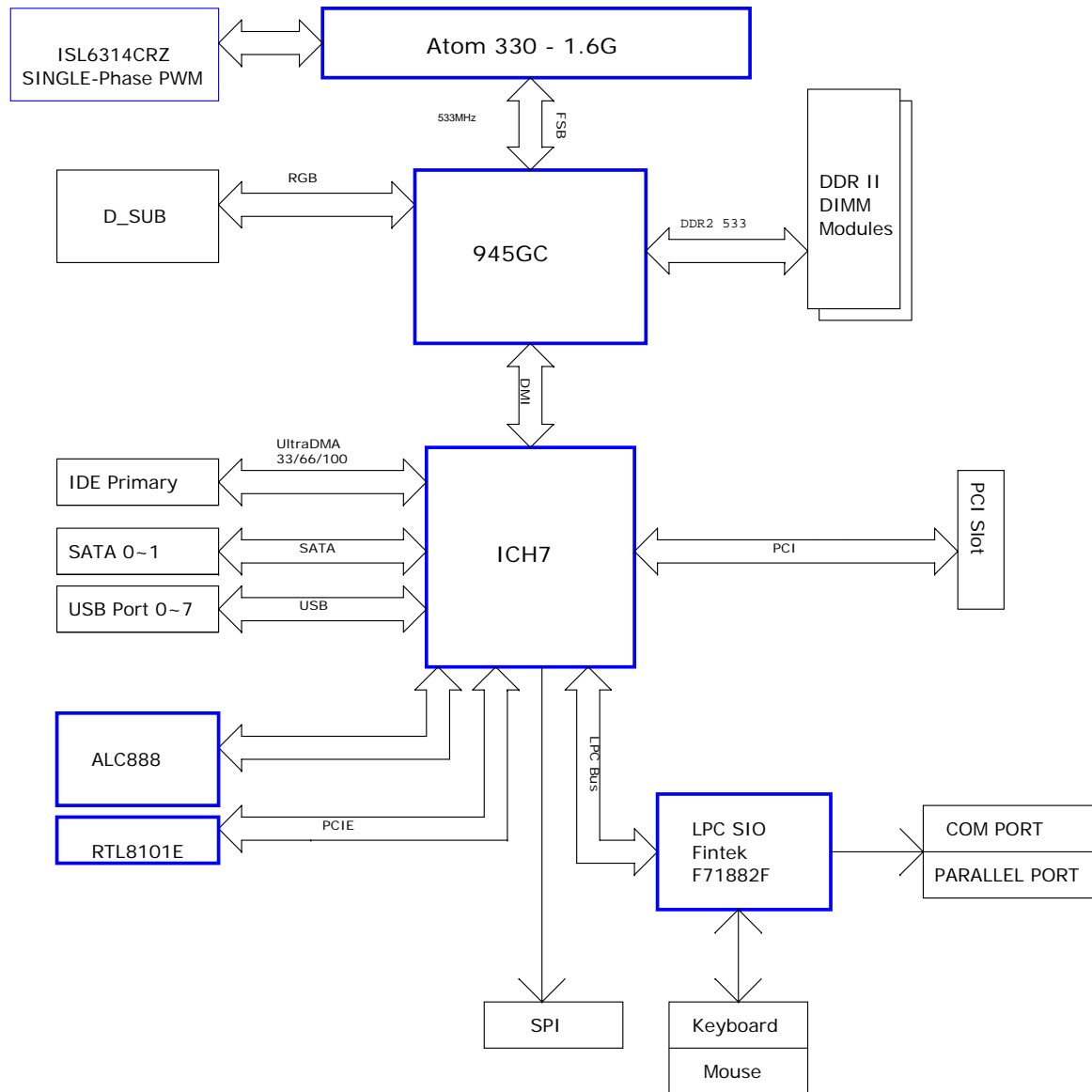
## Expansion Slots:

**PCIEX1 SLOT \* 1**

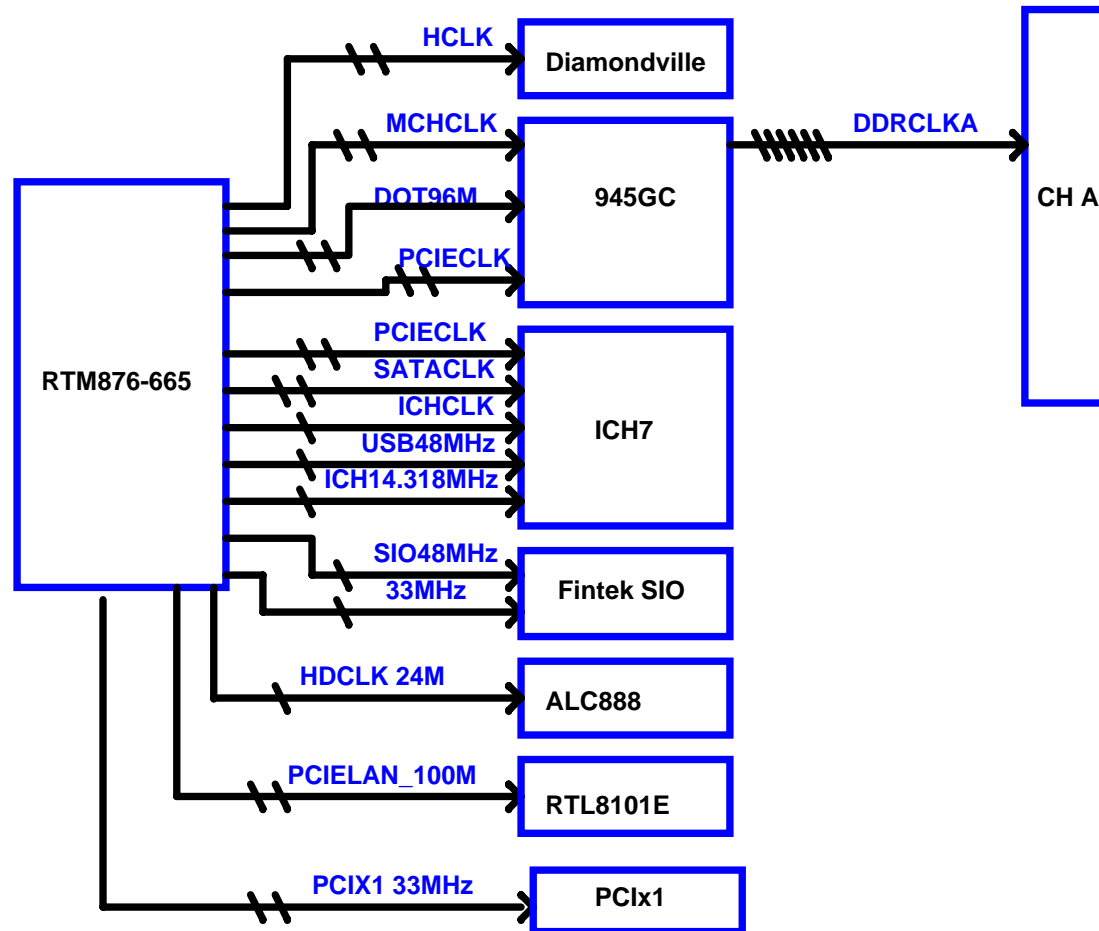
## PWM:

**ISL6314CRZ SINGLE PHASES**

# Block Diagram



# CLOCK MAP



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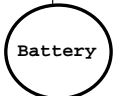
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|-------------------------------------|----------------------|---------------|
| Custom                              | CLOCK MAP            | 20            |
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|                     |
|---------------------|
| <b>Processor</b>    |
| Vcore=1.1V/7.5A     |
| V_FSB_VTT=1.1V/2.5A |
| VCCA=1.5V /130mA    |

|                             |
|-----------------------------|
| <b>945GC</b>                |
| 1.1V FSB Vtt-0.9A           |
| 1.8V DDR2 I/O-4.4A(S0,S1)   |
| 1.8V DDR2 I/O-25mA(S3)      |
| 0.9V DDR2 VREF-2mA          |
| 0.9V DDR2 SB_VREF-10uA      |
| DDR2 Resister Comp V-36mA   |
| DDR2 Resis Comp SB_V-10uA   |
| 1.5V Core-13.8A(Integrated) |
| 1.5V Core-8.9A(Discrete)    |
| 1.5V PCI Express&DMI-1.5A   |
| 1.5V PCIE&DMI PLL-45mA      |
| 1.5V HOST PLL-45mA          |
| 1.5V VCCA_DPLLA&B-55mA      |
| 1.5V MPLL-66mA              |
| 2.5V DAC-70mA*              |
| 2.5V HV-3mA                 |
| 2.5V CMOS-2.0mA             |

|                        |
|------------------------|
| <b>ICH7</b>            |
| 1.1V VCC_CPU-14mA      |
| 1.05V Core-2A          |
| VCC1_5A*-1.01A         |
| VCC1_5B*-0.77A         |
| 5VRef-6mA              |
| 5VrefSus-10mA          |
| +3.3V-0.33A            |
| RTC-6uA(G3)            |
| 3.3V VccSus*-52mA      |
| VccSus1_05V-See Note 1 |
| VccUSBPLL-10mA         |
| VccDMIPLL-50mA         |
| VccSATAIPLL-50mA       |



|                |
|----------------|
| <b>ISL6314</b> |
| <b>VCCP</b>    |
| 1.1V           |

|                      |
|----------------------|
| <b>VTT Regulator</b> |
| <b>V_FSB_VTT</b>     |
| 1.1V                 |

|                         |
|-------------------------|
| <b>uP6103 Regulator</b> |
| <b>VCC_DDR</b>          |
| 1.8V                    |

|                   |
|-------------------|
| <b>Linear</b>     |
| <b>V_1P5_CORE</b> |
| 1.5V              |

|                         |
|-------------------------|
| <b>uP7707 Regulator</b> |
| <b>V_2P5_MCH</b>        |
| 2.5V                    |

|                        |
|------------------------|
| <b>1.05V Regulator</b> |
| <b>V_1P05_CORE</b>     |
| 1.05V                  |

|                         |
|-------------------------|
| <b>uP7706 Regulator</b> |
| <b>3VSB</b>             |
| 3.3V                    |

|                         |
|-------------------------|
| <b>uP7501 Regulator</b> |
| <b>5VDIMM</b>           |
| 5V                      |

|                        |
|------------------------|
| <b>W83310DS Regula</b> |
| <b>VTT_DDR</b>         |
| 0.9V                   |

|                                     |
|-------------------------------------|
| <b>DDR2 DIMM conn(1) &amp; term</b> |
| 0.9V SM Vtt-1.2A(S0)                |
| 1.8V Vdd/vddq-4.7A(S0,S1)           |

|                        |
|------------------------|
| <b>PCI slot</b>        |
| +3.3Vaux-375mA(wake)   |
| +3.3Vaux-20mA(no wake) |
| +3.3V-7.6A             |
| +5.0V-5.0A             |
| +12V-0.5A              |
| -12V-0.1A              |

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|---------------|
| <b>USB</b>    |
| +5V-4A(S0,S1) |

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| <b>PS2</b>       |
| +5V-345mA(S0,S1) |

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| <b>LAN</b> |
| 3VSB-      |

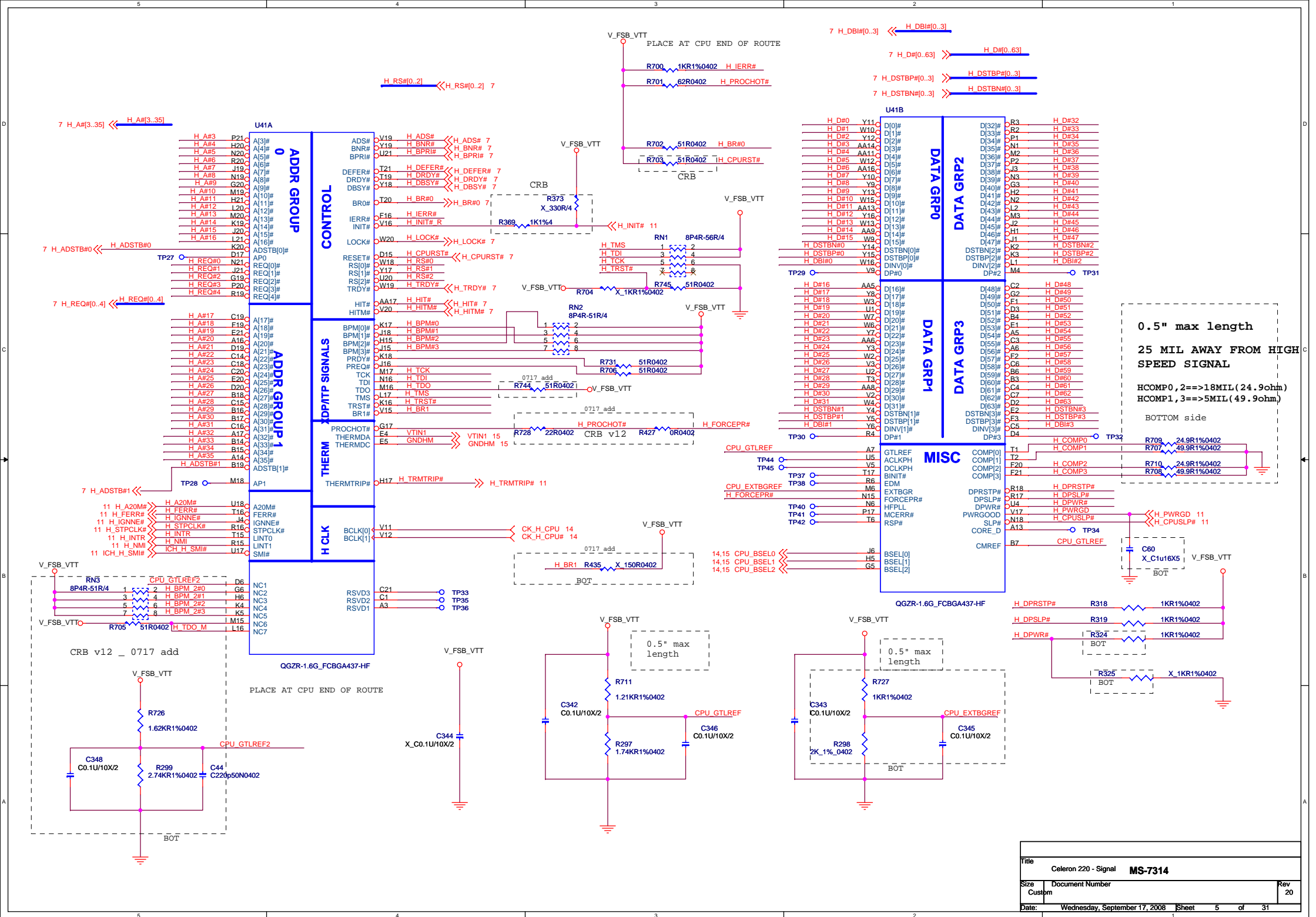
|               |
|---------------|
| <b>CLKGEN</b> |
| +3.3V-560mA   |

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|------------|
| <b>SIO</b> |
| +3.3V      |
| 3VSB-      |

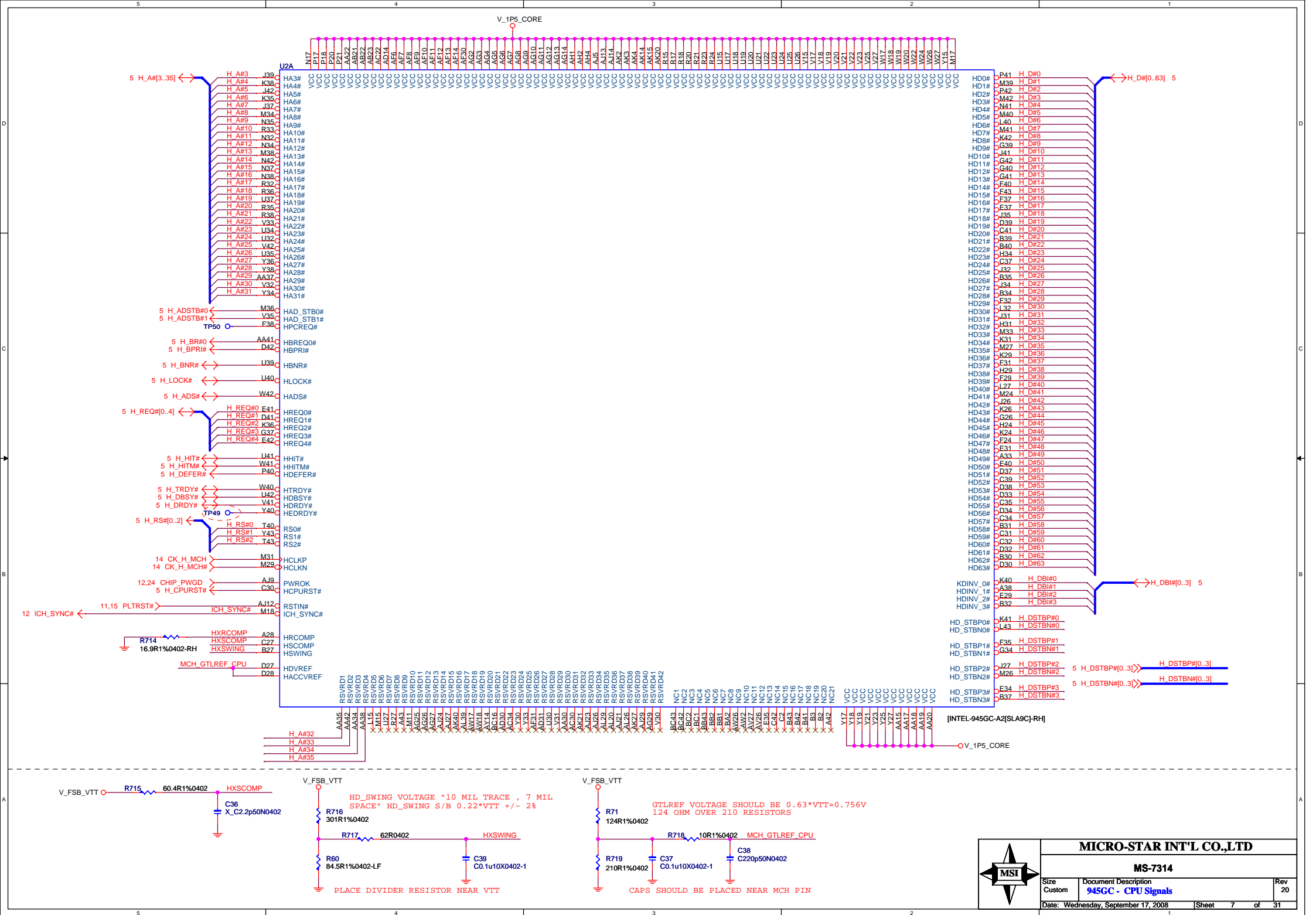
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| <b>SPI ROM</b> |
|----------------|

|                    |
|--------------------|
| <b>Audio Codec</b> |
|--------------------|

|                  |     |       |       |
|------------------|-----|-------|-------|
| +12V             | +5V | +3.3V | +5VSB |
| <b>ATX POWER</b> |     |       |       |

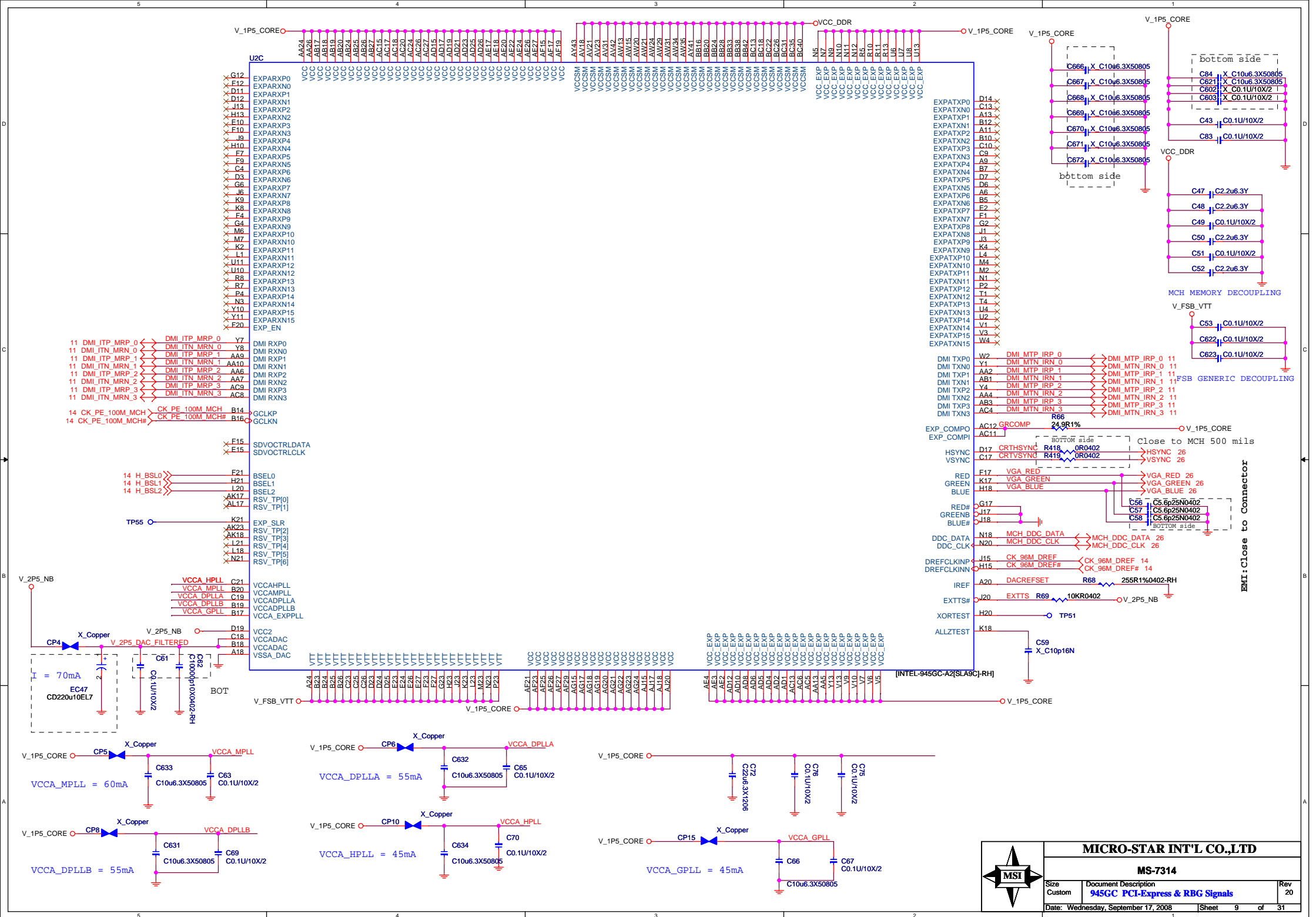














[INTEL-945GC-A2(SLA9C)-RH]



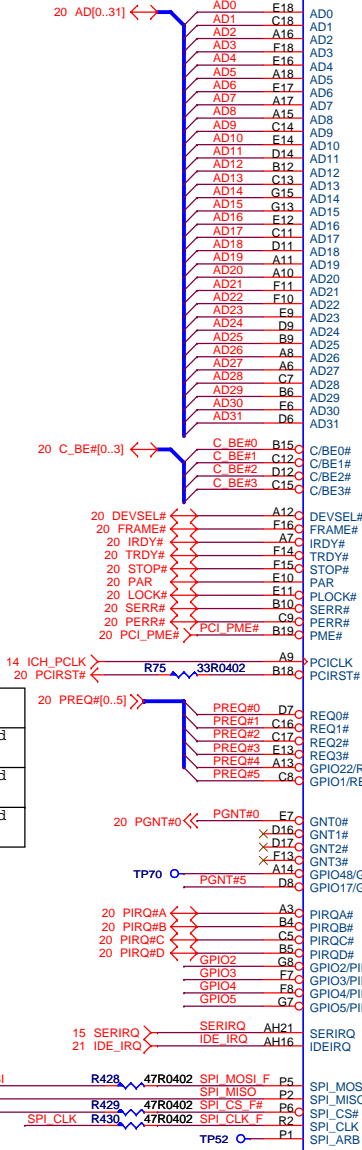
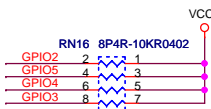
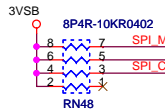
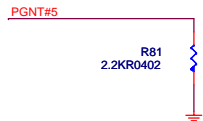
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| Custom                              | Intel 945GC - GND    | 20             |
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| GNT5# | GNT4# | ROUTING                    |
|-------|-------|----------------------------|
| 0     | 1     | Flash Cycles Routed to SPI |
| 1     | 0     | Flash Cycles Routed to PCI |
| 1     | 1     | Flash Cycles Routed to LPC |

PGNT4# Internal Pull-High



PCI INTERFACE

INTERUPT SPI

## ICH 7 PART 1/3

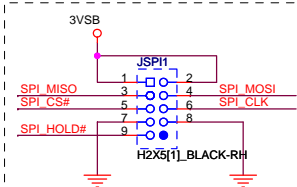
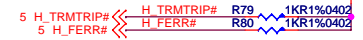
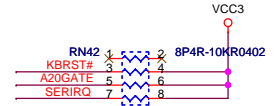
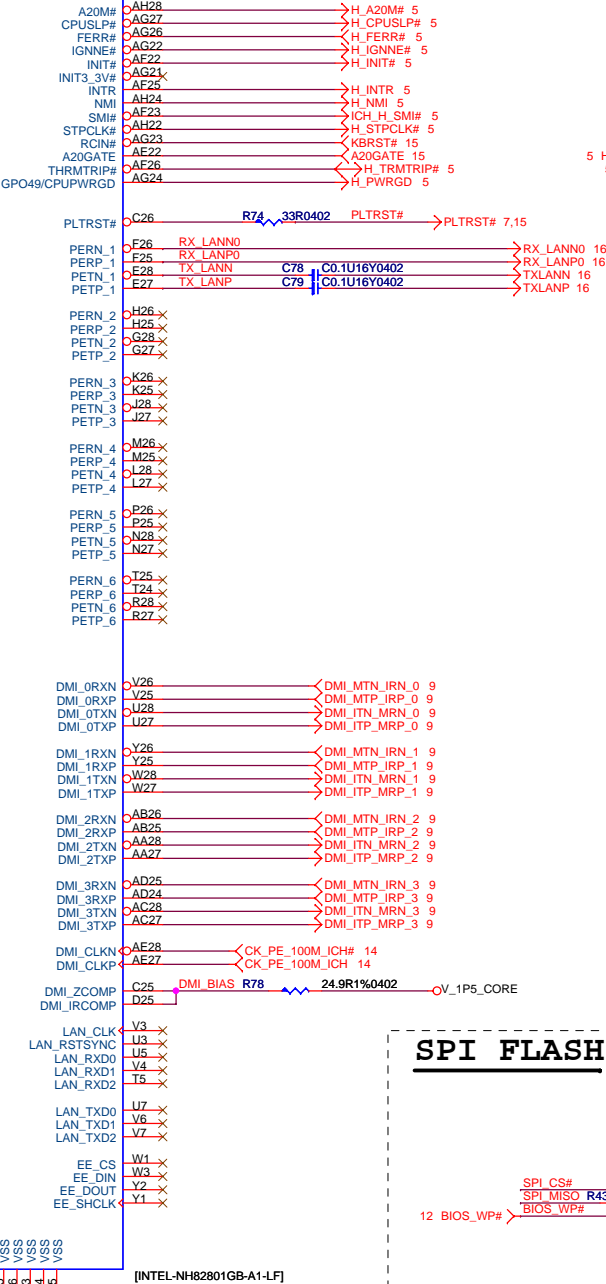
CPU

PCI EXPRESS

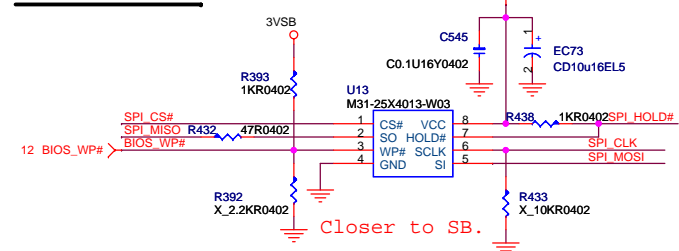
DIRECT MEDIA

LAN

U3A



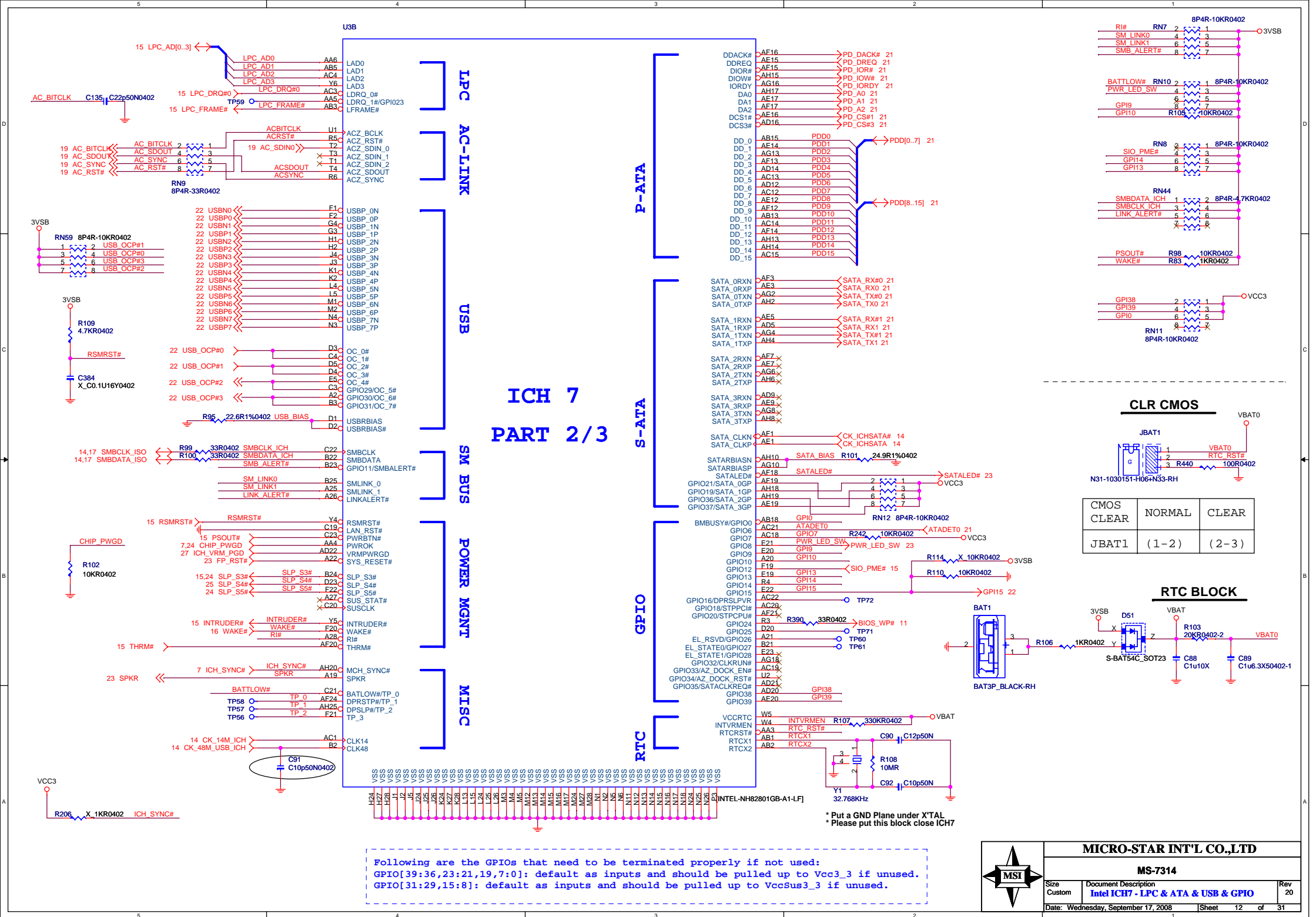
## SPI FLASH



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|-------------------------------------|------------------------------------|-----|
| Custom                              | Intel ICH7 - PCI & DMI & CPU & IRQ | 20  |
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ICH 7  
PART 3/3

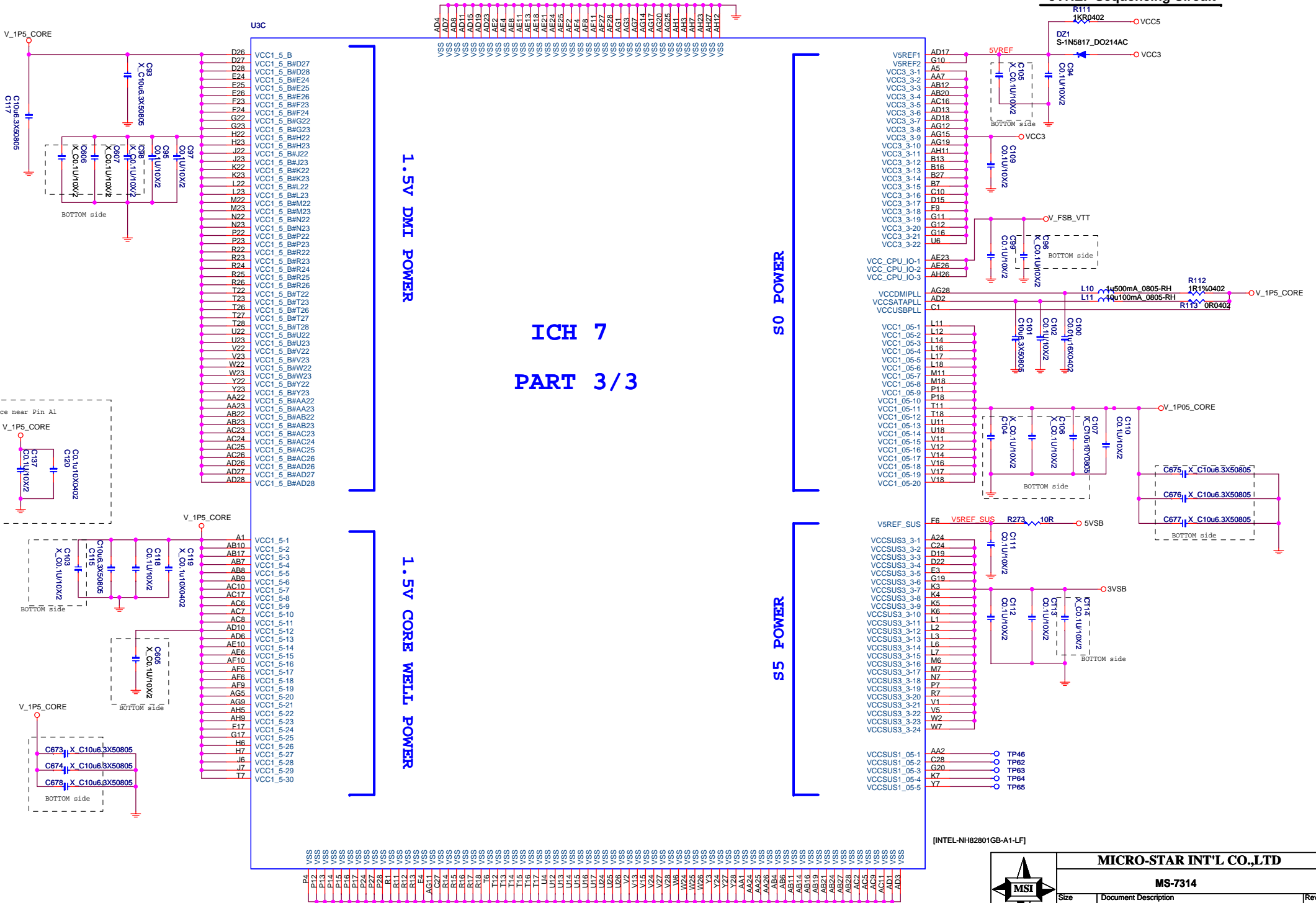
1.5V DMI POWER

1.5V CORE WELL POWER

S0 POWER

S5 POWER

5VREF Sequencing Circuit



[INTEL-NH82801GB-A1-LF]



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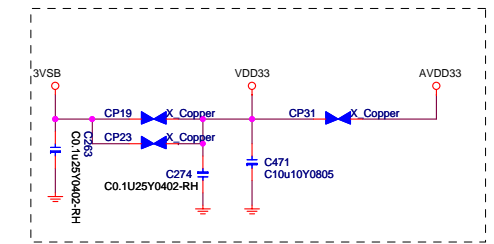
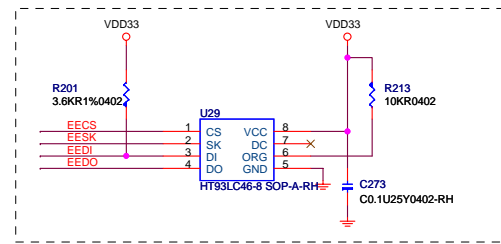
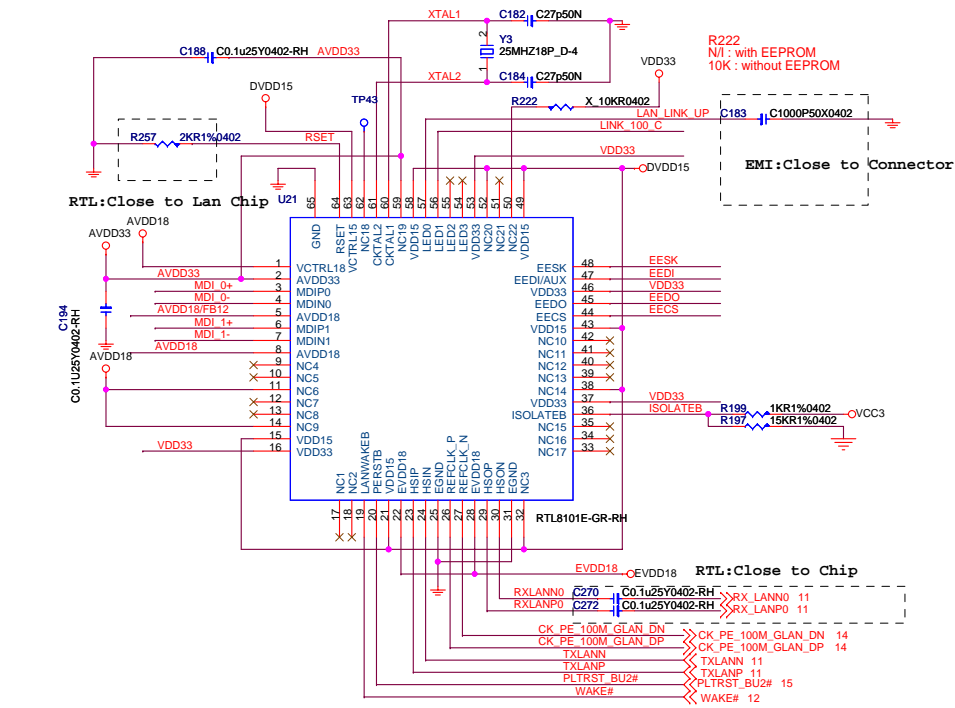
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| Custom                              | Intel ICH7 - POWER   | 20             |
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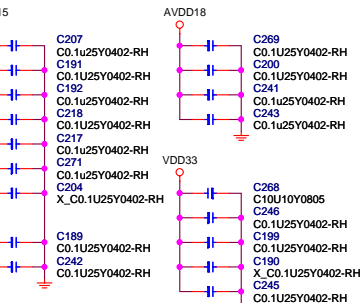
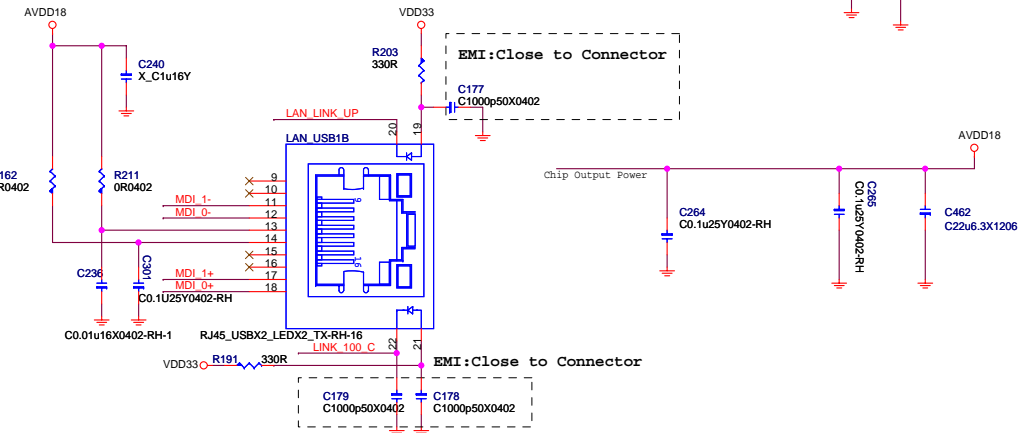
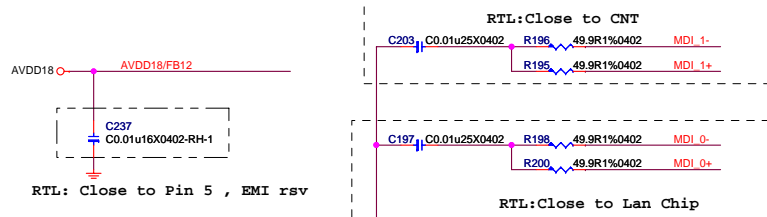
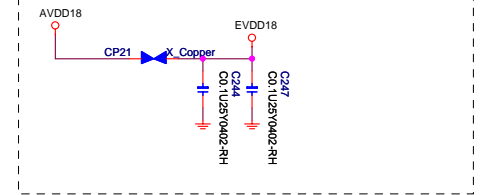








| Giga-Lan        | 10/100-Lan      |
|-----------------|-----------------|
| N58-22F0181-S42 | N58-22F0201-S42 |
| Link Yellow     | Link Yellow     |
| Active Blinking | Active Blinking |
| 1000 Orange     | 100 Green       |
| 100 Green       | 10 None         |
| 10 None         |               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





8,18 MAA\_A[0..13] <- MAA\_A[0..13]  
8 DATA\_A[0..63] <- DATA\_A[0..63]  
8 DQM\_A[0..7] <- DQM\_A[0..7]

## DDR2 DIMM A

DIMM1

DATA A0 3  
DATA A1 4  
DATA A2 9  
DATA A3 10  
DATA A4 122  
DATA A5 123  
DATA A6 128  
DATA A7 129  
DATA A8 12  
DATA A9 13  
DATA A10 21  
DATA A11 22  
DATA A12 131  
DATA A13 132  
DATA A14 140  
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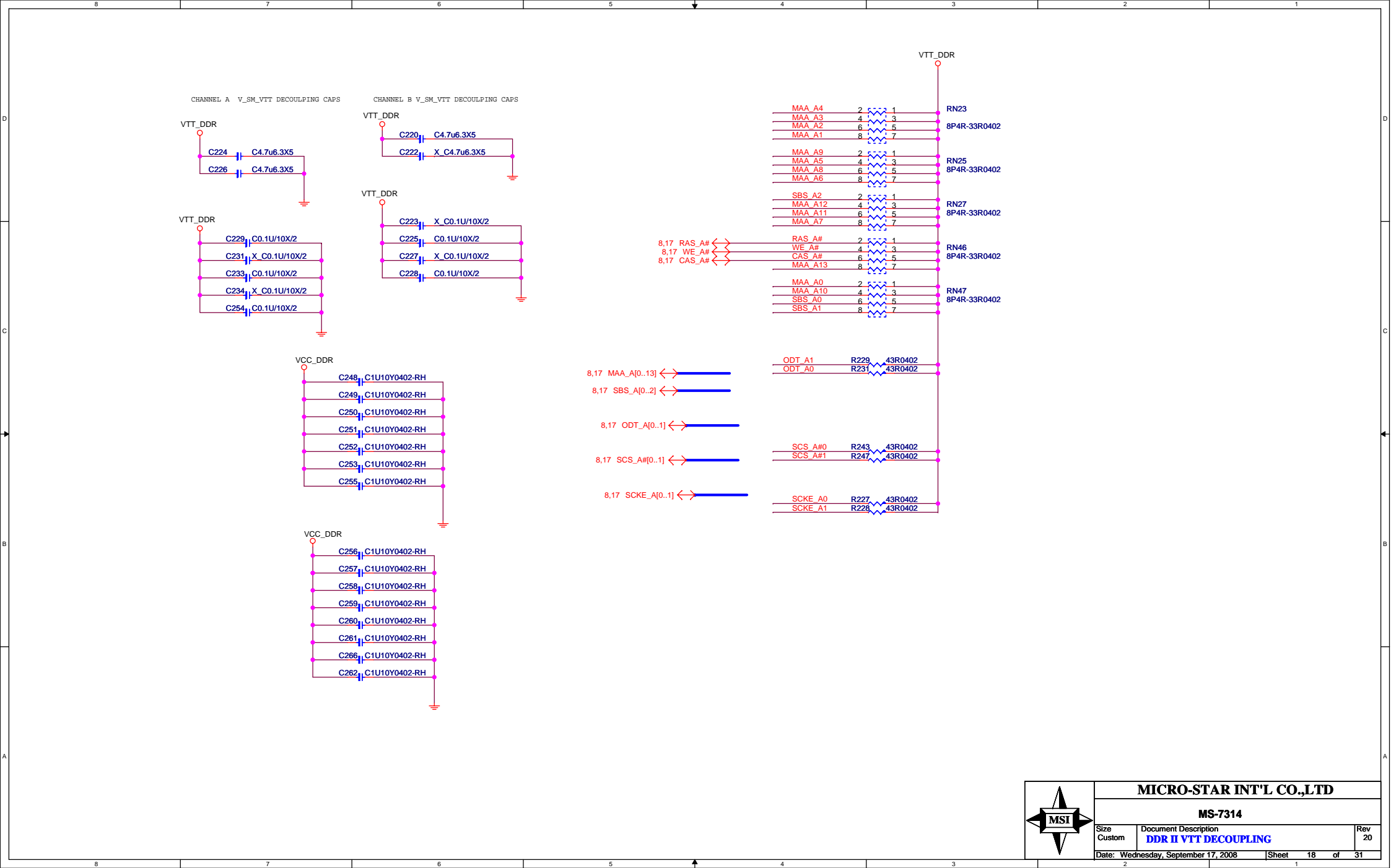
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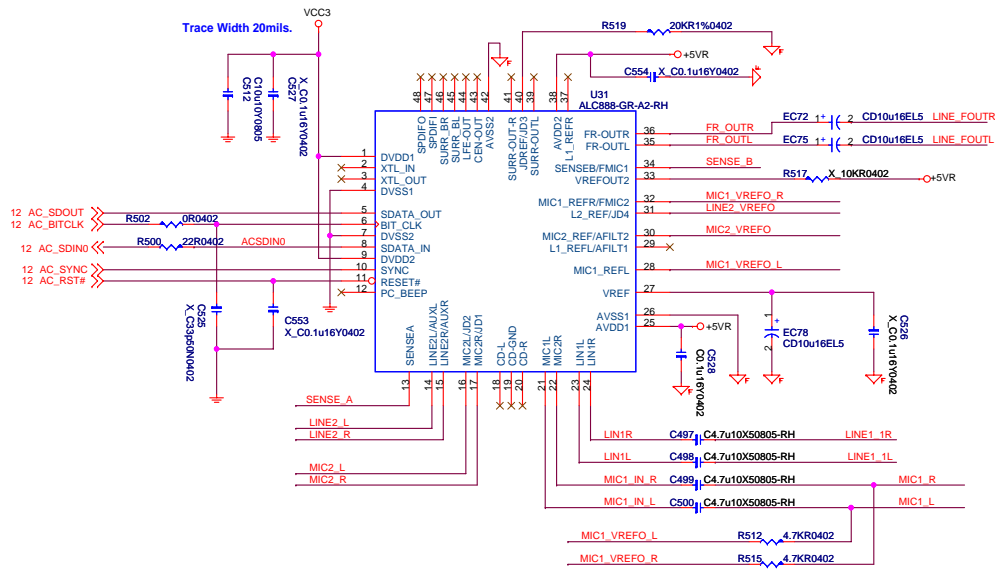
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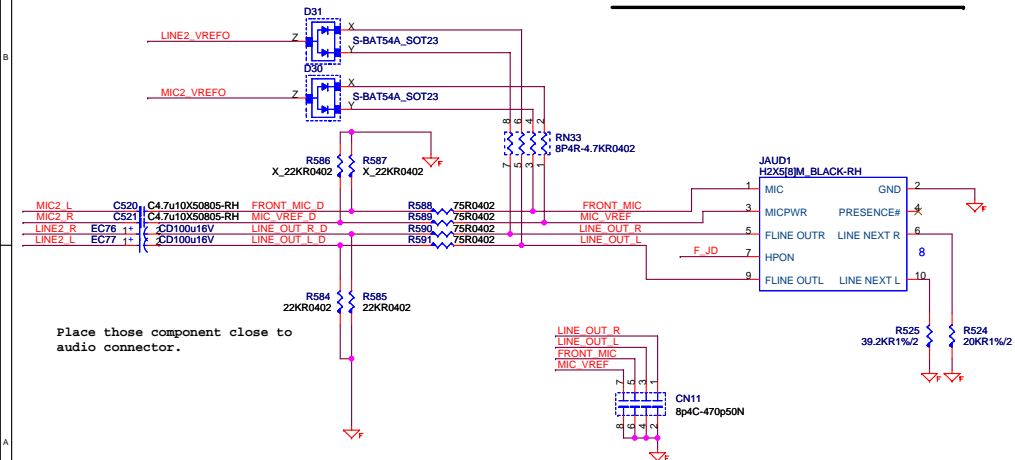
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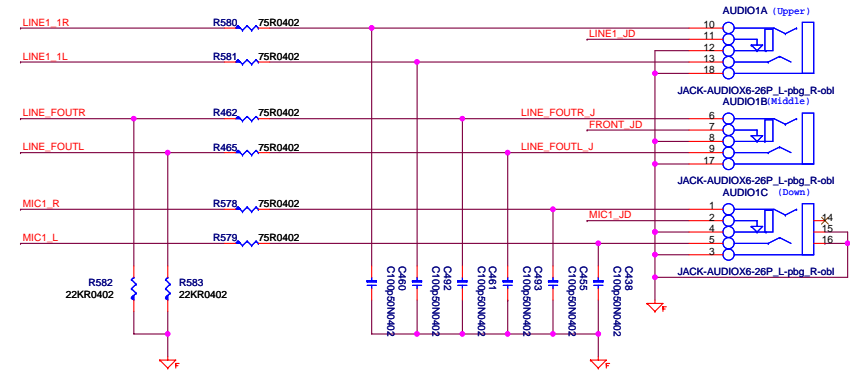
## ALC888 CODEC



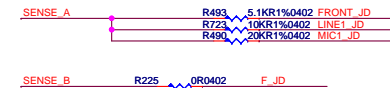
## Azalia Front Audio Connector



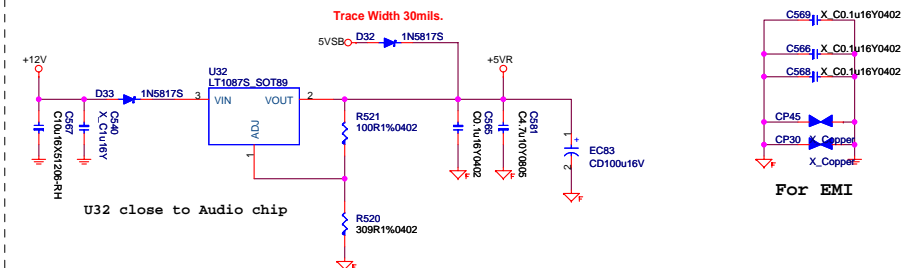
ALC888 JACK



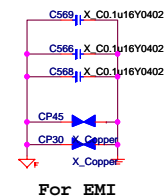
ALC888 JACK DETECT

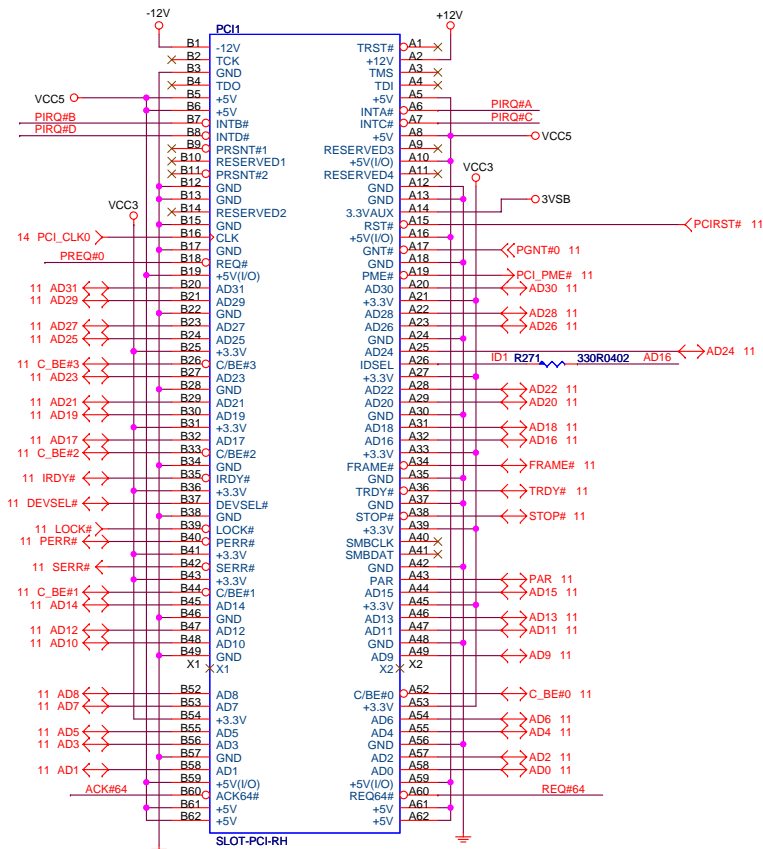


## AUDIO CODE REGULATORS



**EMI**

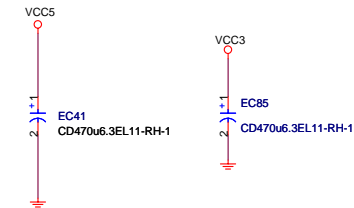
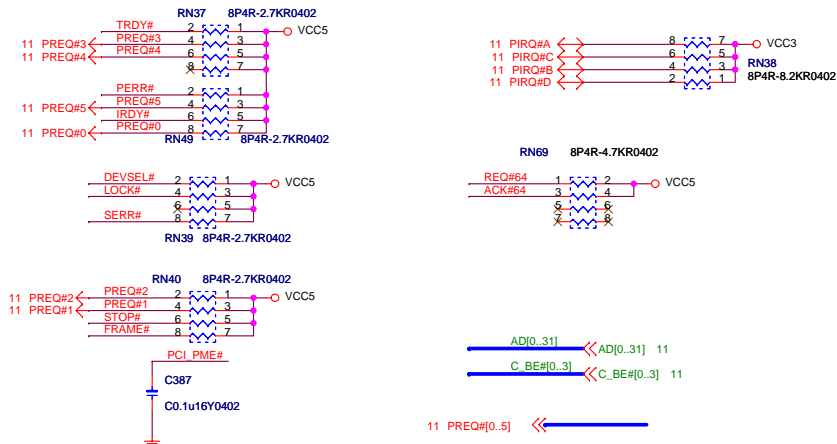




IDSEL = AD16  
MASTER = PREQ#0

PIRQ#A

### PCI PULL-UP / DOWN RESISTORS



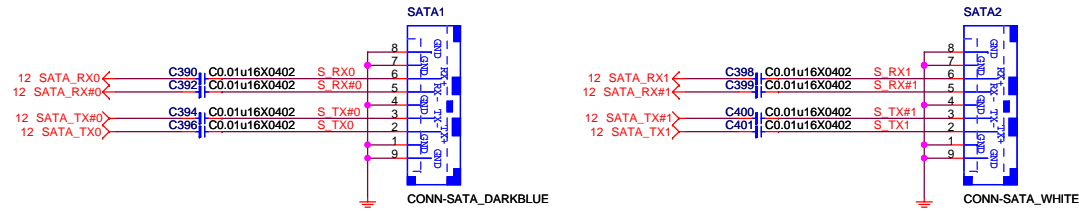
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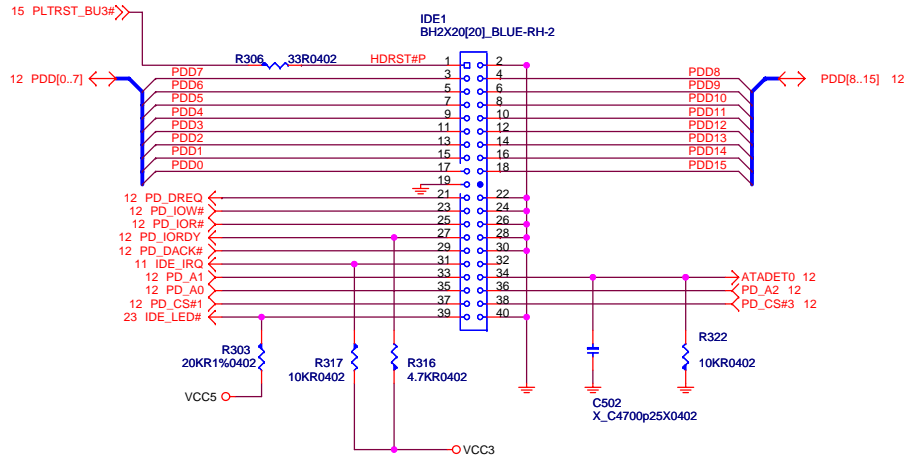
Size Custom Document Description PCI Slot 1 Rev 20

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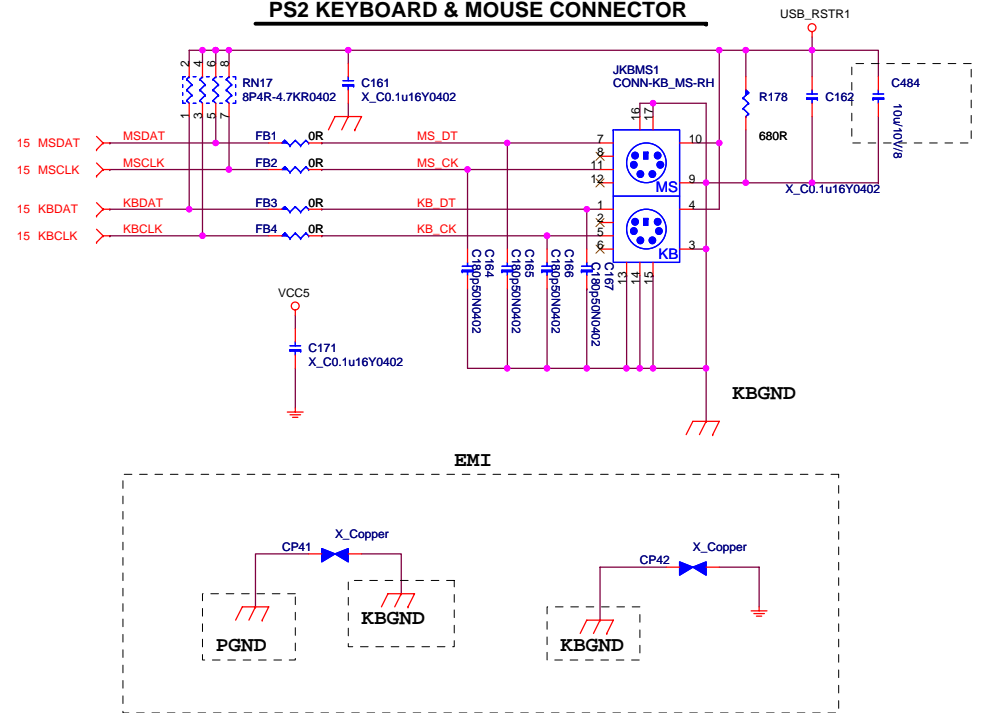
## SERIAL ATA CONNECTOR BLOCK



## ATA 33/66/100 IDE Connectors



## PS2 KEYBOARD & MOUSE CONNECTOR

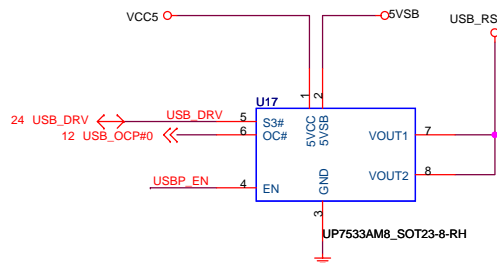


MICRO-STAR INT'L CO.,LTD

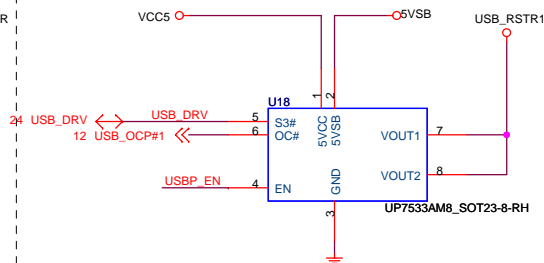
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|-------------------------------------|-----------------------------|-----|
| Custom                              | IDE & SATA & PS2 Connectors | 20  |
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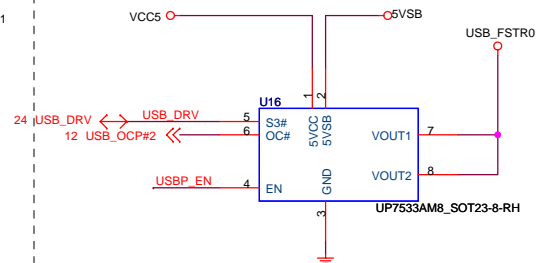
## POWER CIRCUIT FOR USB PORT 0,1



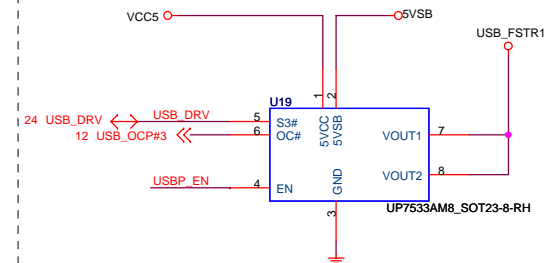
### POWER CIRCUIT FOR USB PORT 2.3



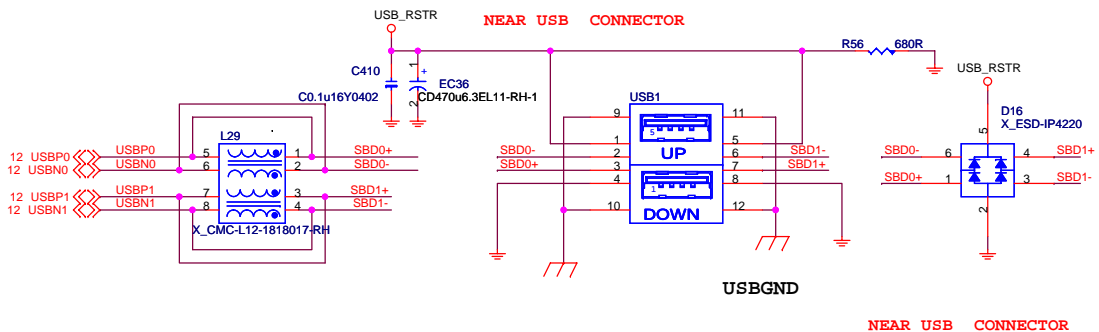
## POWER CIRCUIT FOR USB PORT 4.5



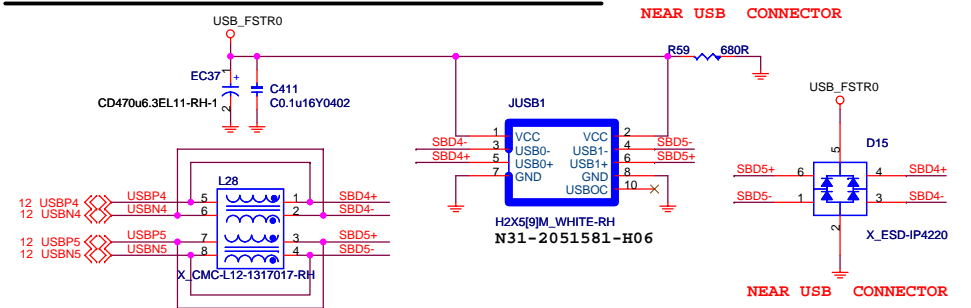
### POWER CIRCUIT FOR USB PORT 6,7



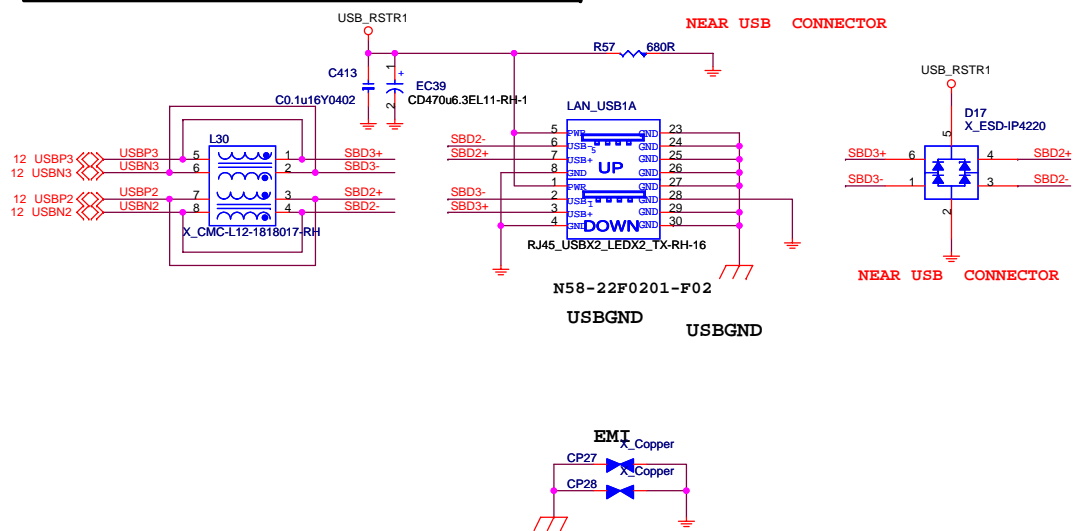
### REAR PANEL USB CONNECTOR FOR USB PORT 0,1



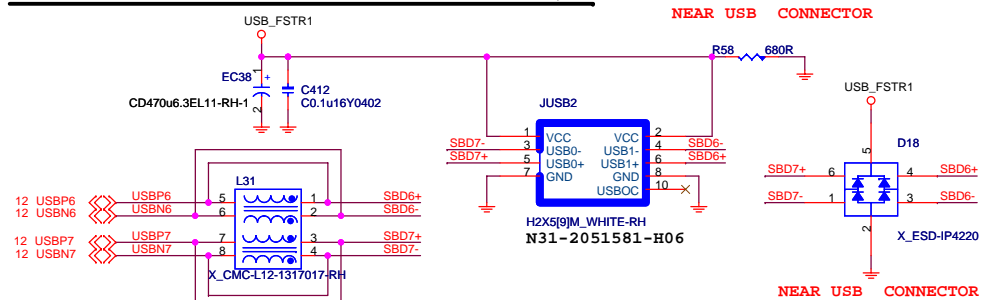
### FRONT PANEL USB CONNECTOR FOR USB PORT 4,5



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



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

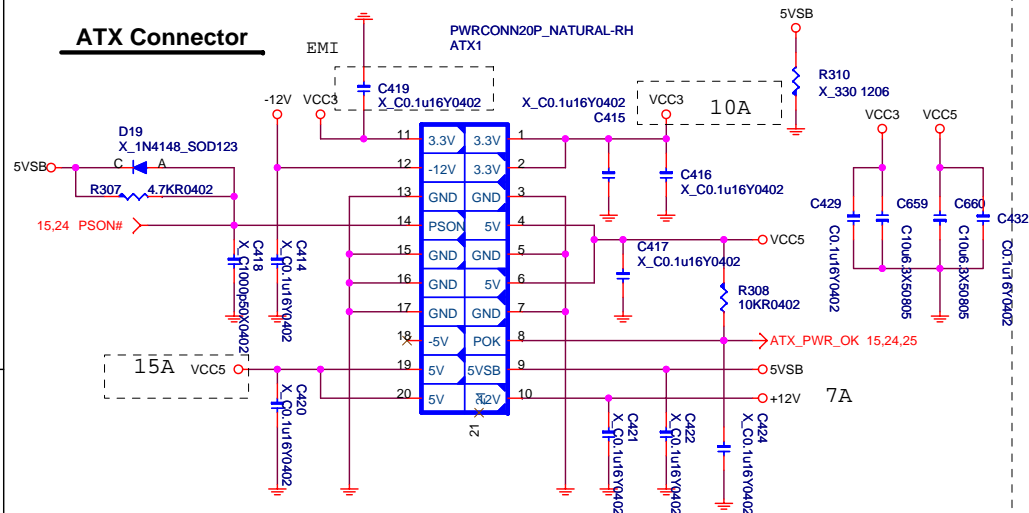


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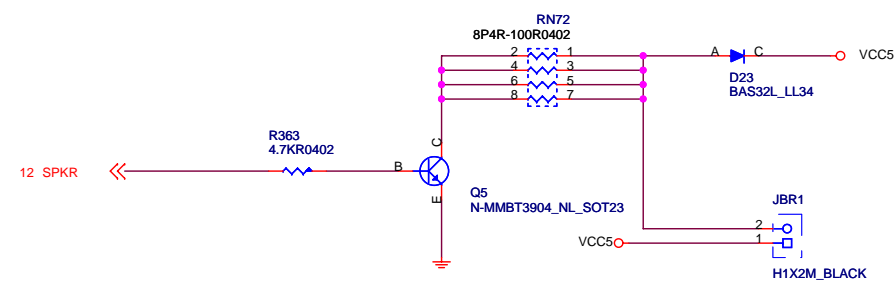
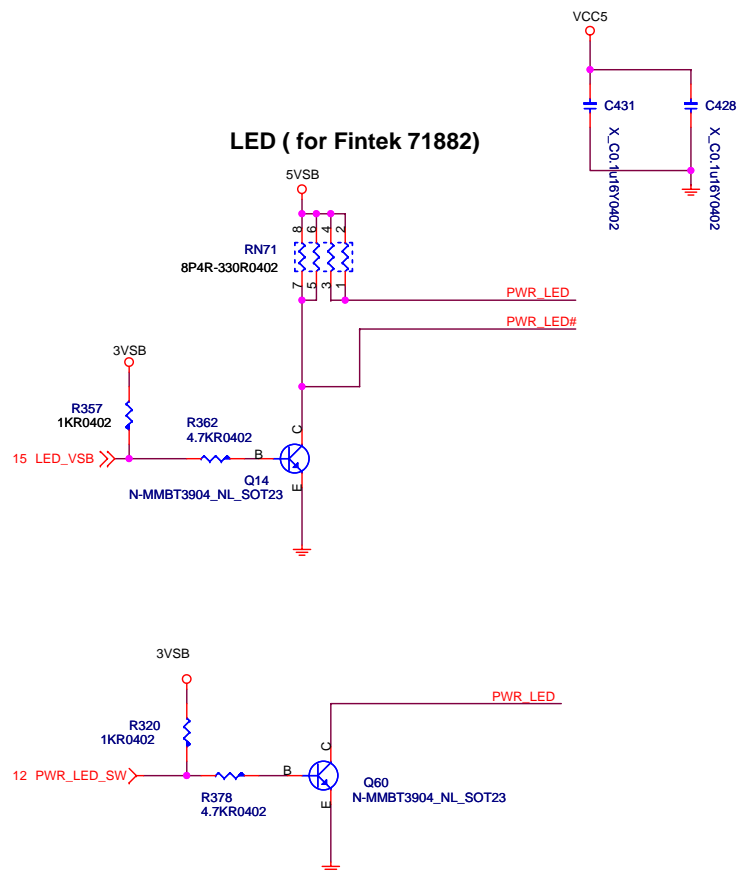
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|                                     |   |           |
|-------------------------------------|---|-----------|
| Size<br>Custom                      | Document Description<br><b>USB CONNECTORS</b> | Rev<br>20 |
| Date: Wednesday, September 17, 2008 | Sheet 22 of 31                                |           |

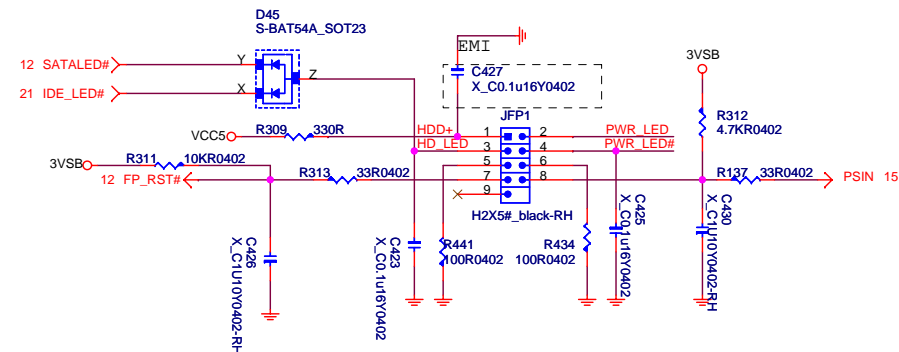
## ATX Connector



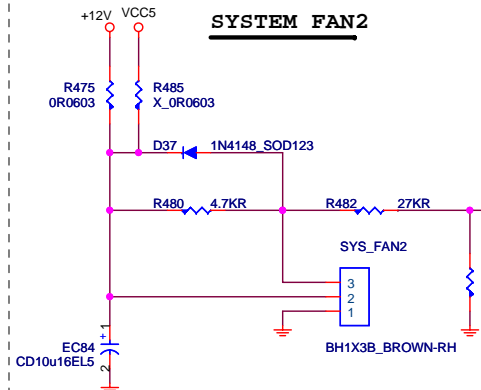
**LED ( for Fintek 71882)**



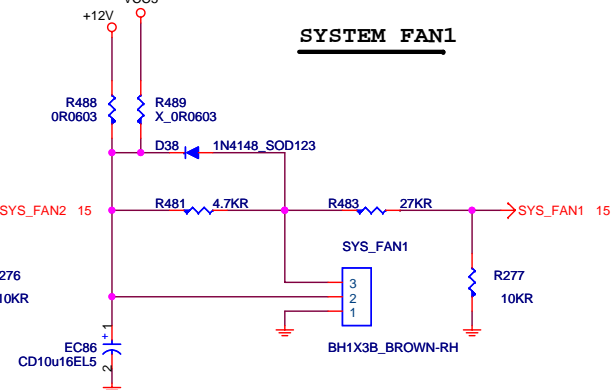
### INTEL/PB Front Panel Connector



## SYSTEM FAN2



## SYSTEM FAN1



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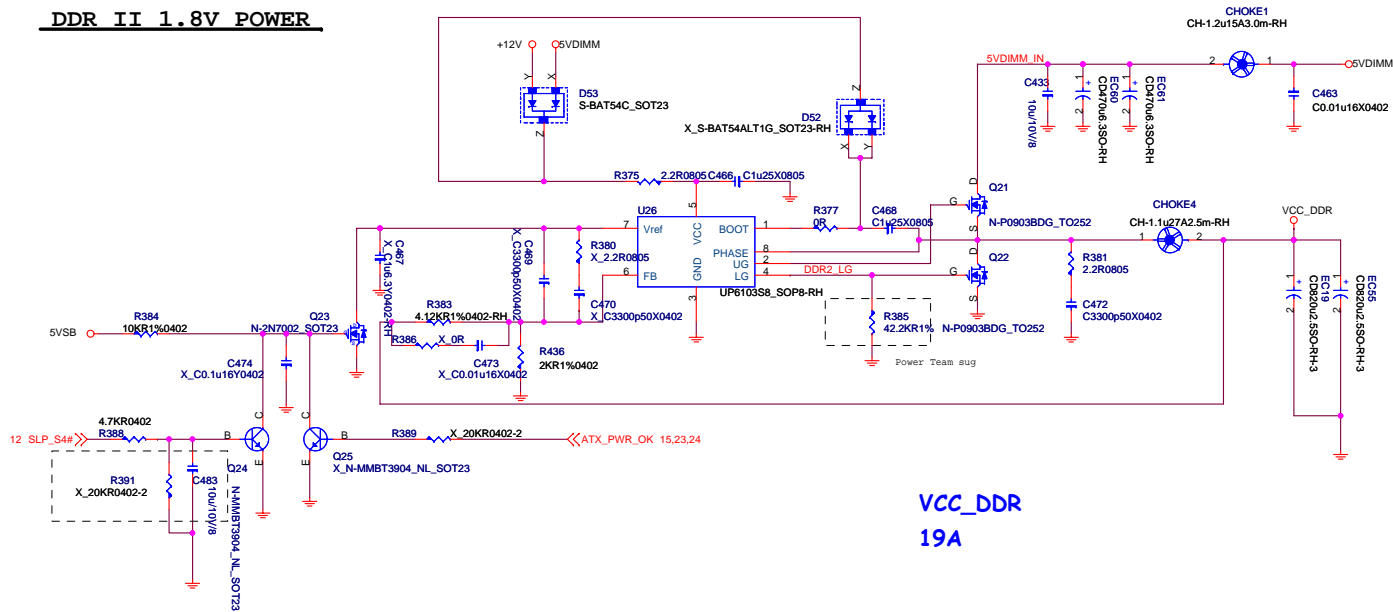
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|                                     |  |                |
|-------------------------------------|--|----------------|
| Size<br>Custom                      | Document Description<br><b>ATX &amp; Front Panel &amp; FAN</b> | Rev<br>20      |
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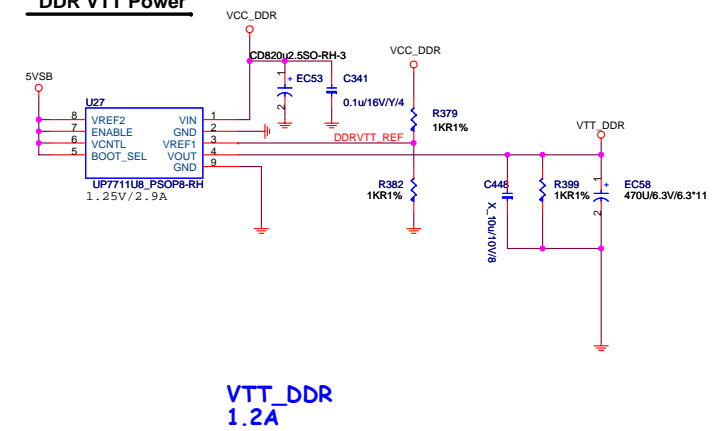


## DDR II 1.8V POWER



### DDR VTT Power

To CPU Copper trace width > 250mils , Fill island behind DIMM > 400mils .

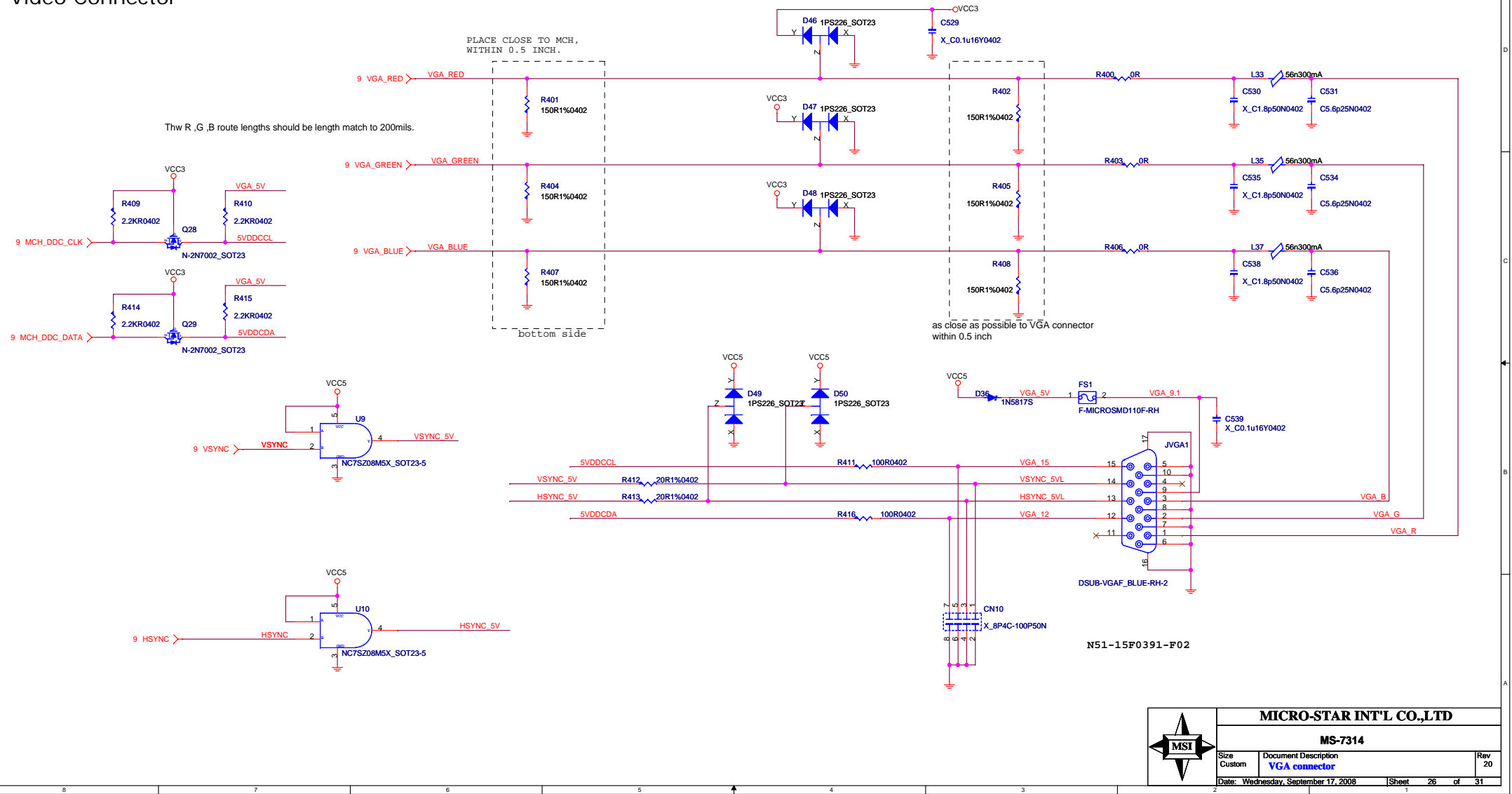


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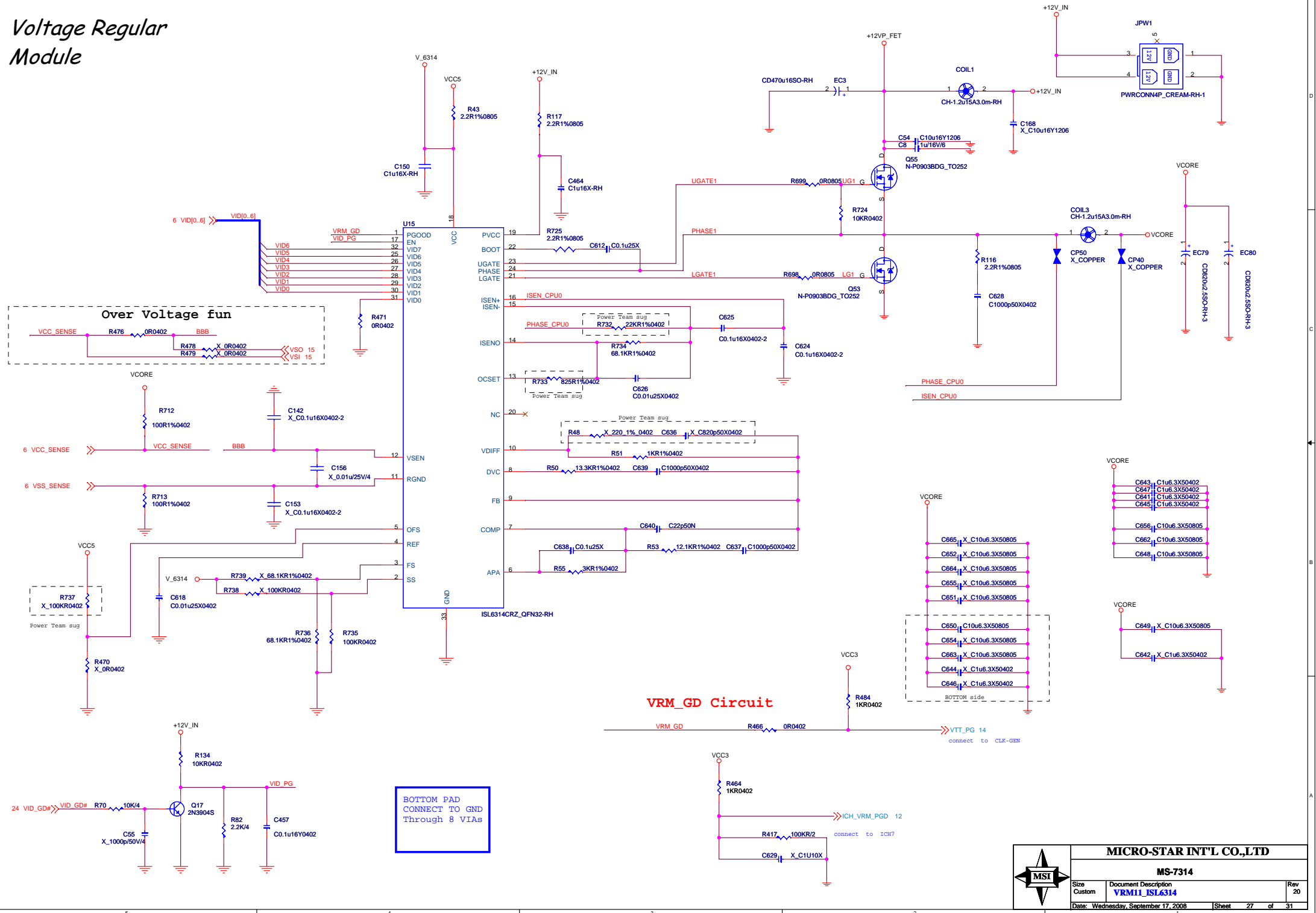
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|-------------------------------------|---|----------------|
| Size<br>Custom                      | Document Description<br><b>GMCH VCORE &amp; DDR Power</b> | Rev<br>20      |
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# Video Connector

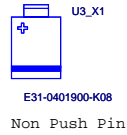


### Voltage Regular Module

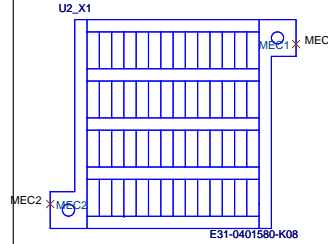




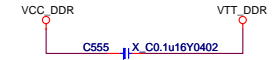
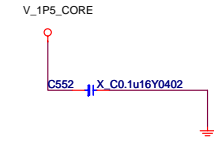
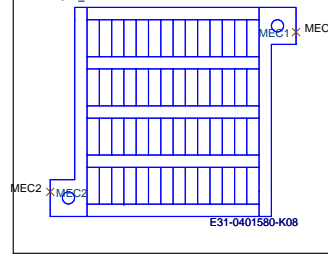
## ICH7 HEATSINK



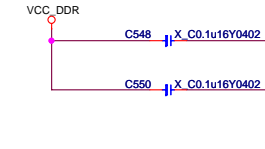
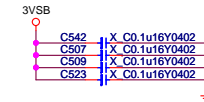
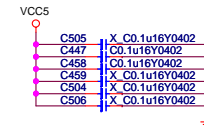
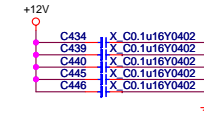
## MCH HEATSINK



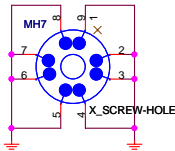
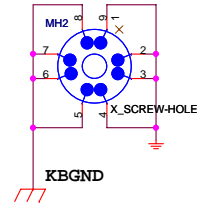
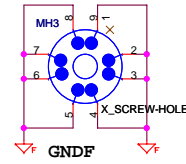
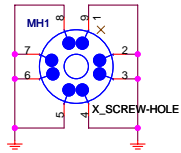
## CPU HEATSINK



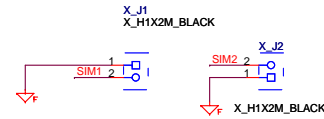
## EMI



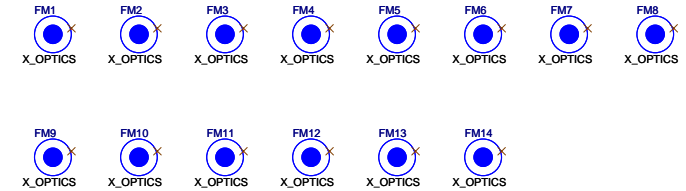
## Mounting Holes



## Simulation



## Optics Orientation Holes



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|-------------------------------------|----------------------|----------------|
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