

# MS-7667

Version : 2.2

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## CPU :

**INTEL Sandy Bridge Processor**

## System Chipset :

**INTEL Cougar Point Chipset**

## On Board Chipset :

**VRM 12 -- ISL6366 6 Phase**

**Gigabit LAN -- RTL8111E**

**USB 3.0 -- UPD720200**

**eSATA -- JMB362**

**IEEE 1394 -- VT6315N**

**HDA Codec -- Realtek ALC892**

**Super I/O -- F71889AD**

**SPI Flash 32Mb**


## Main Memory :

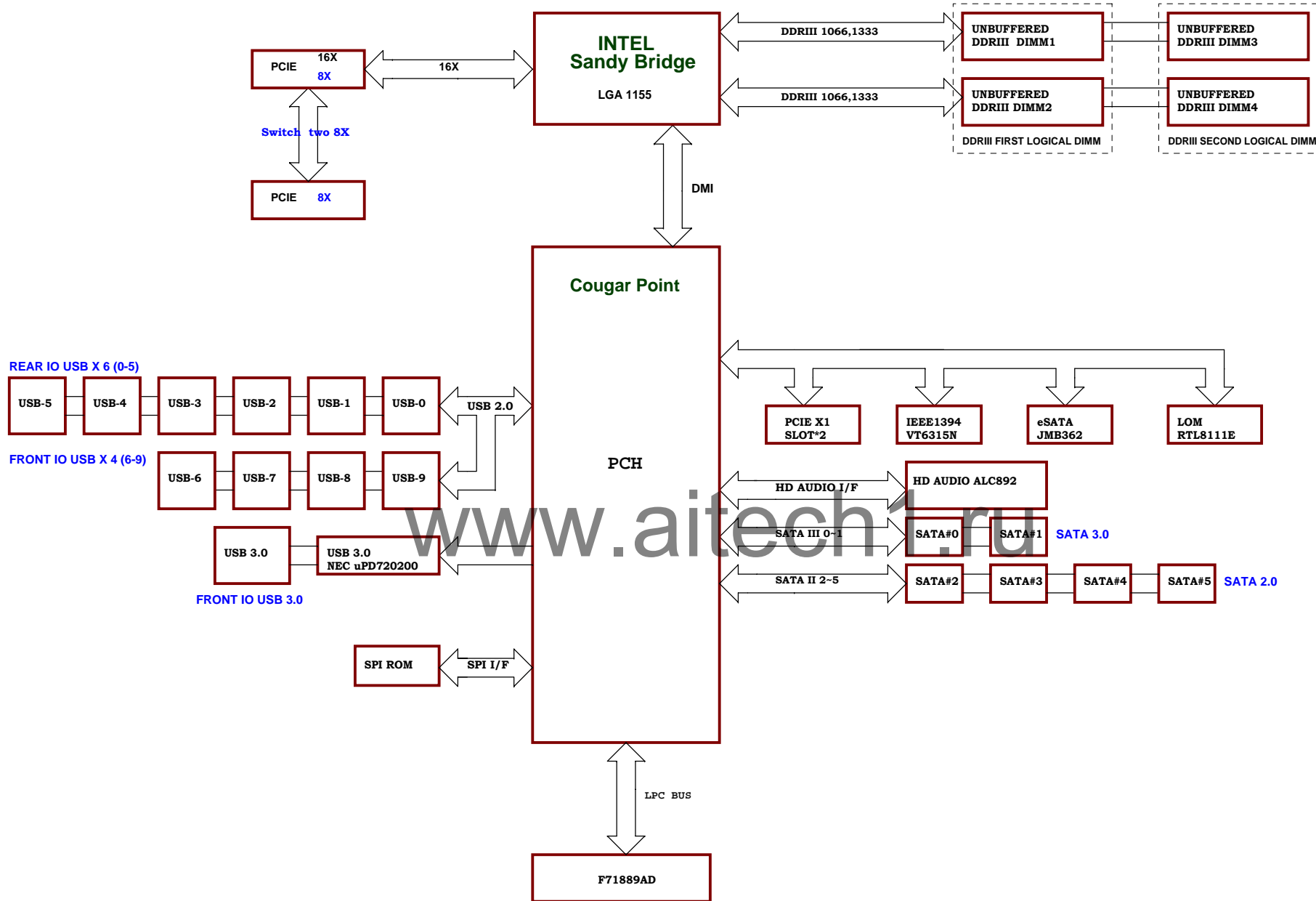
**2 Channel DDR III \* 4 (Max 16GB)**

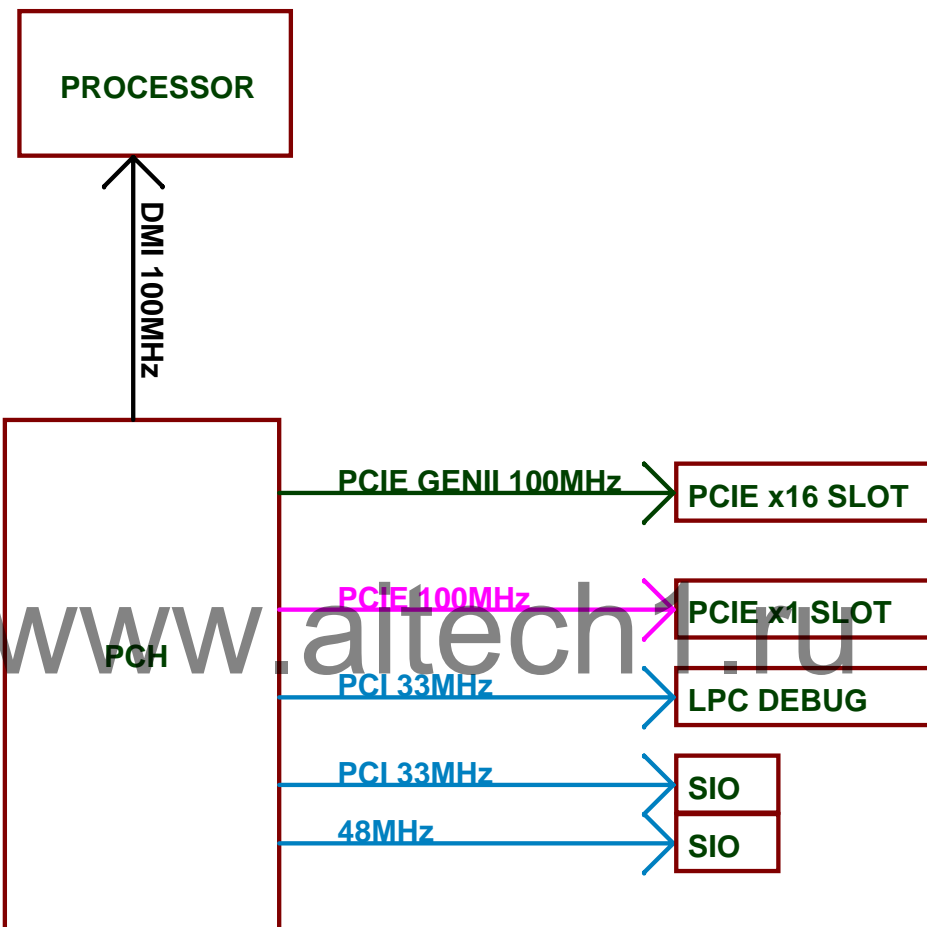
## Expansion Slot :

**PCI Express x16 Slot \* 2**

**PCI Express x1 Slot \* 2**

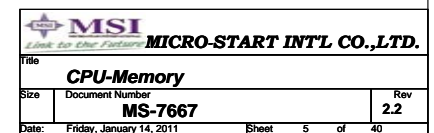
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Title <b>Cover Sheet</b>		
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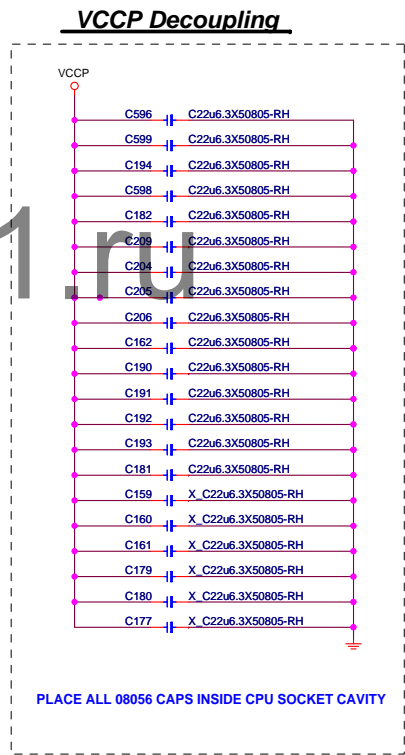
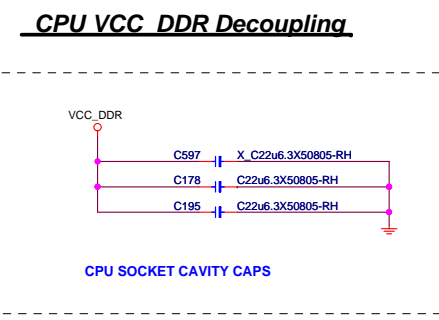
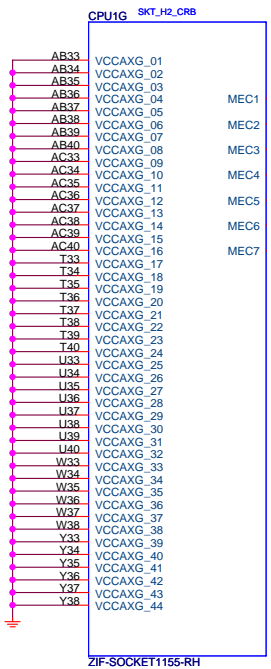
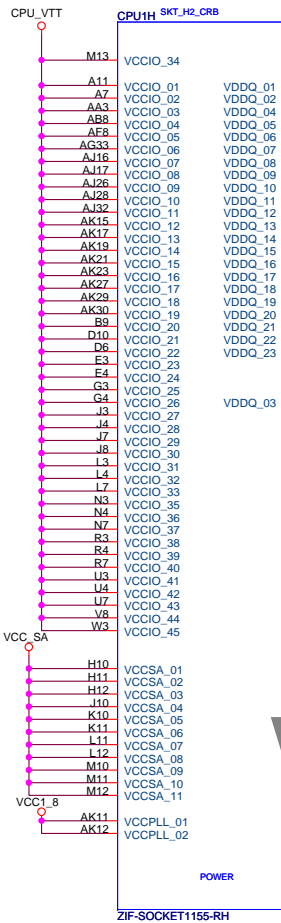
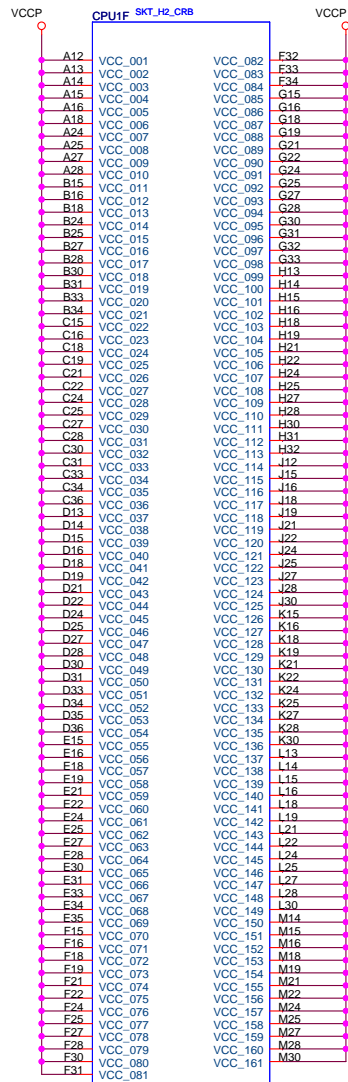




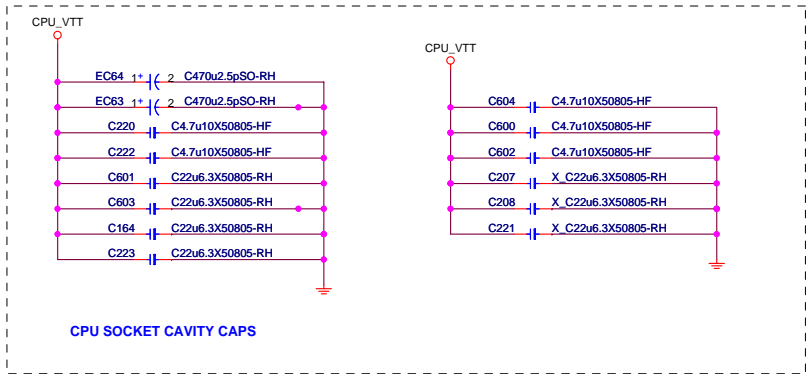
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Size	Document Number <b>MS-7667</b>	Rev <b>2.2</b>
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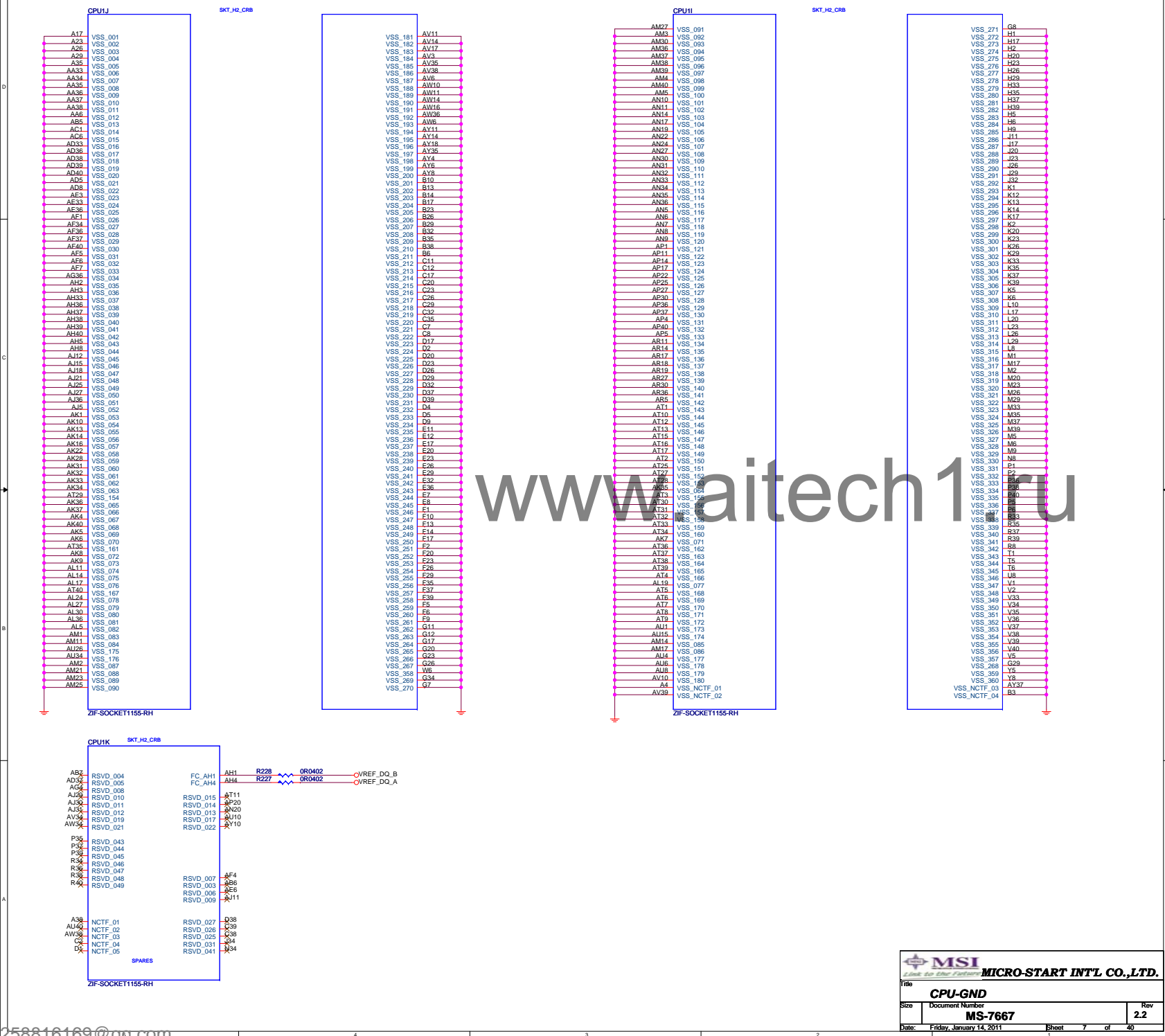






### CPU VTT Decoupling

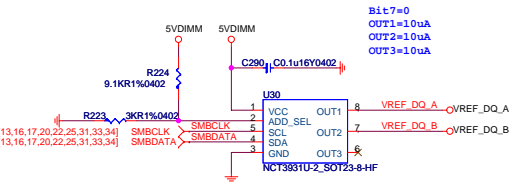
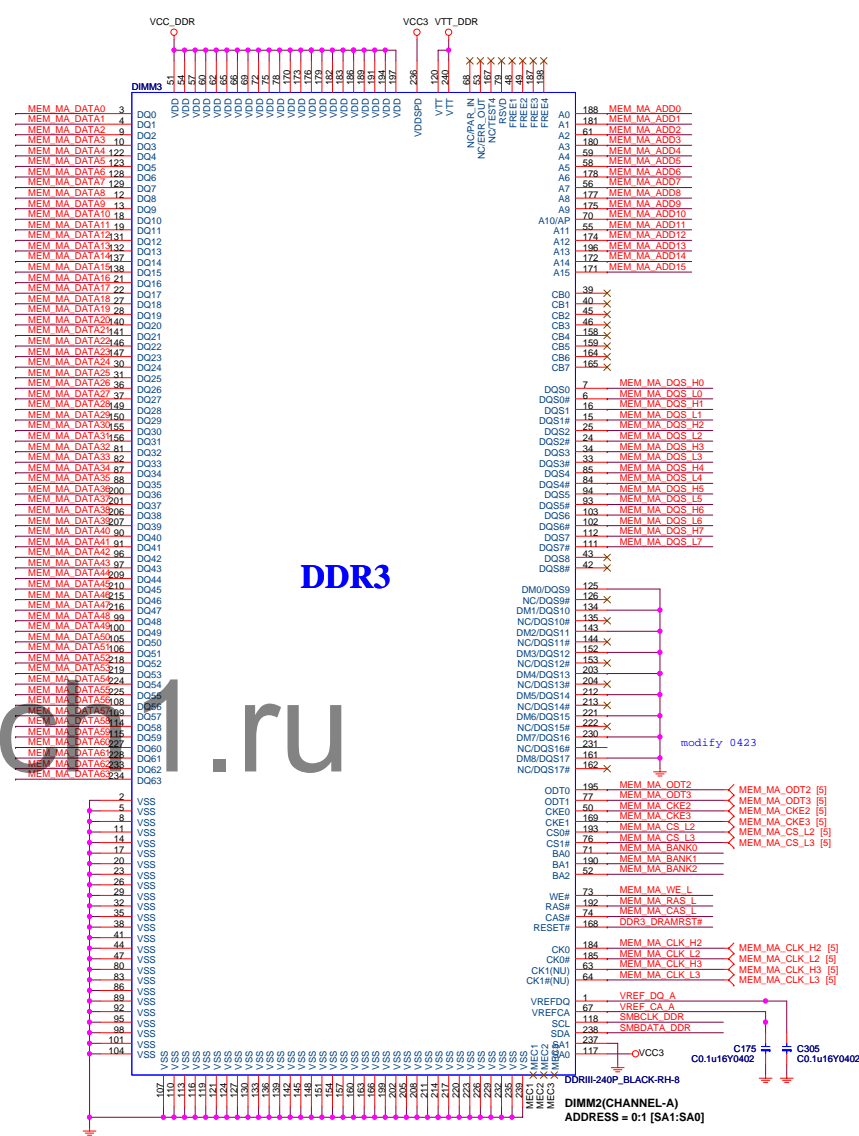
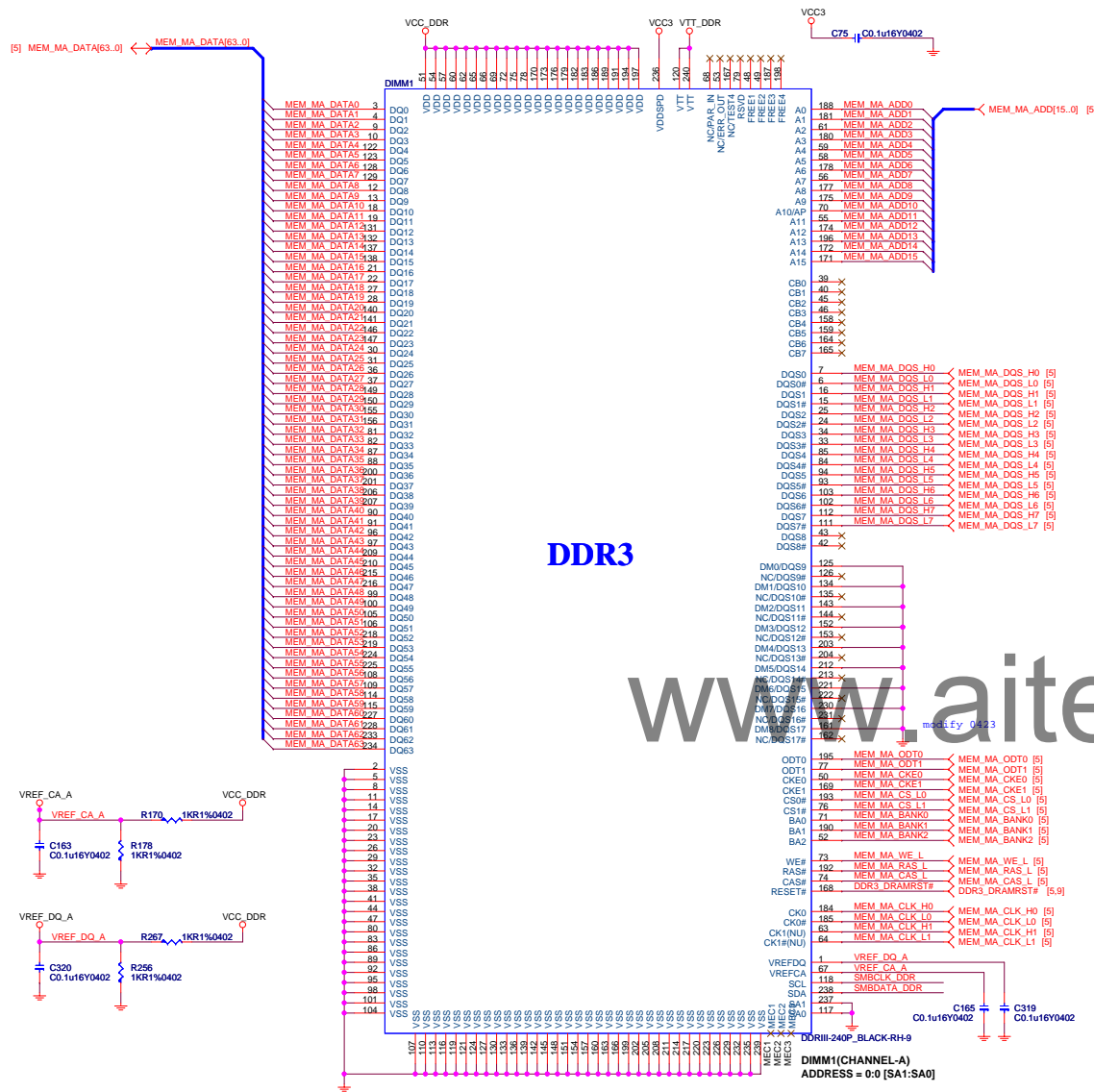




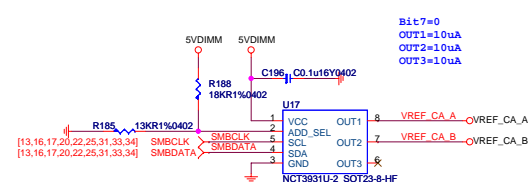


# DDRIII DIMM\_A1

# DDRIII DIMM\_A2



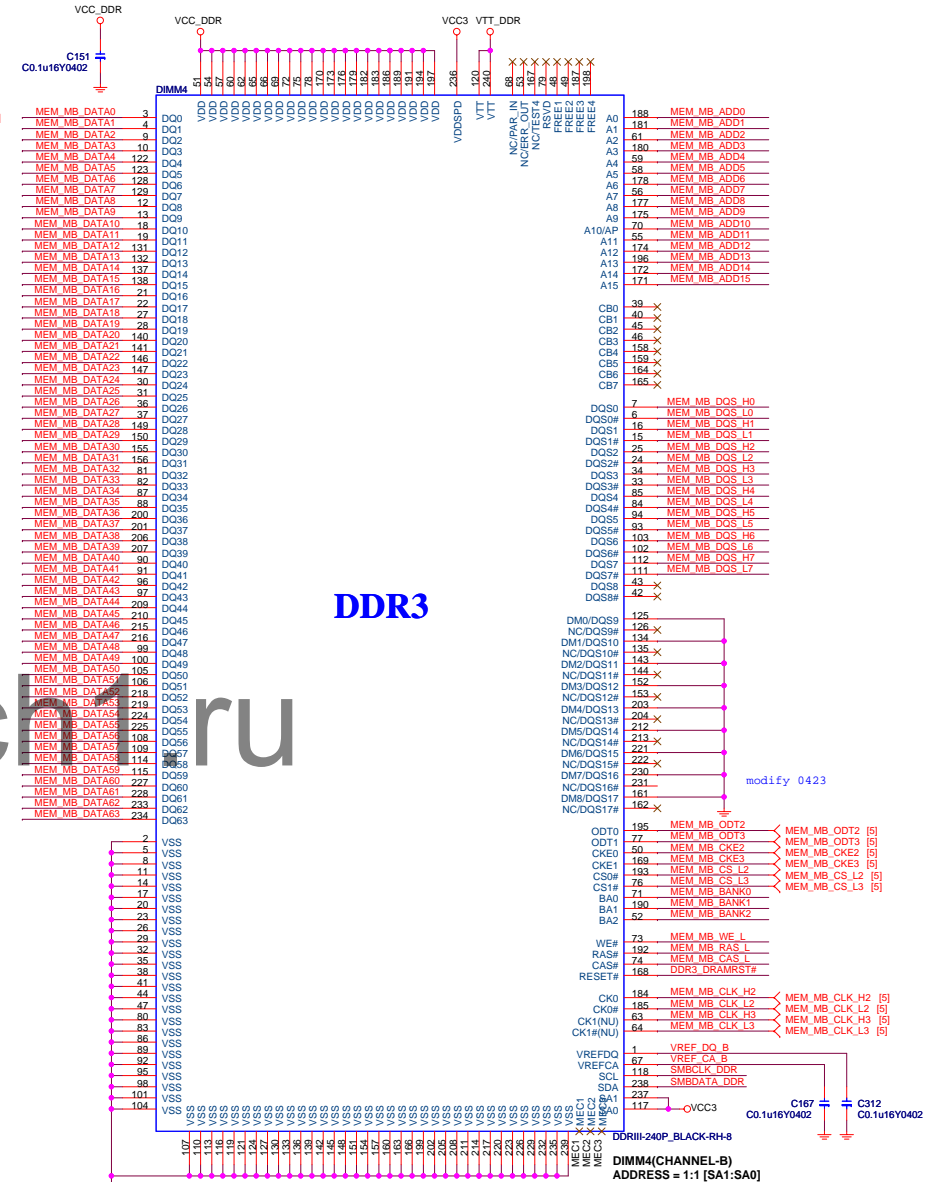
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RH (KOhm)	OPEN	3.9	3	2.2	1.3	10
RL (KOhm)	10	1.3	2.3	3	3.9	OPEN
BUS_SEL	0%	25%	40%	60%	75%	100%



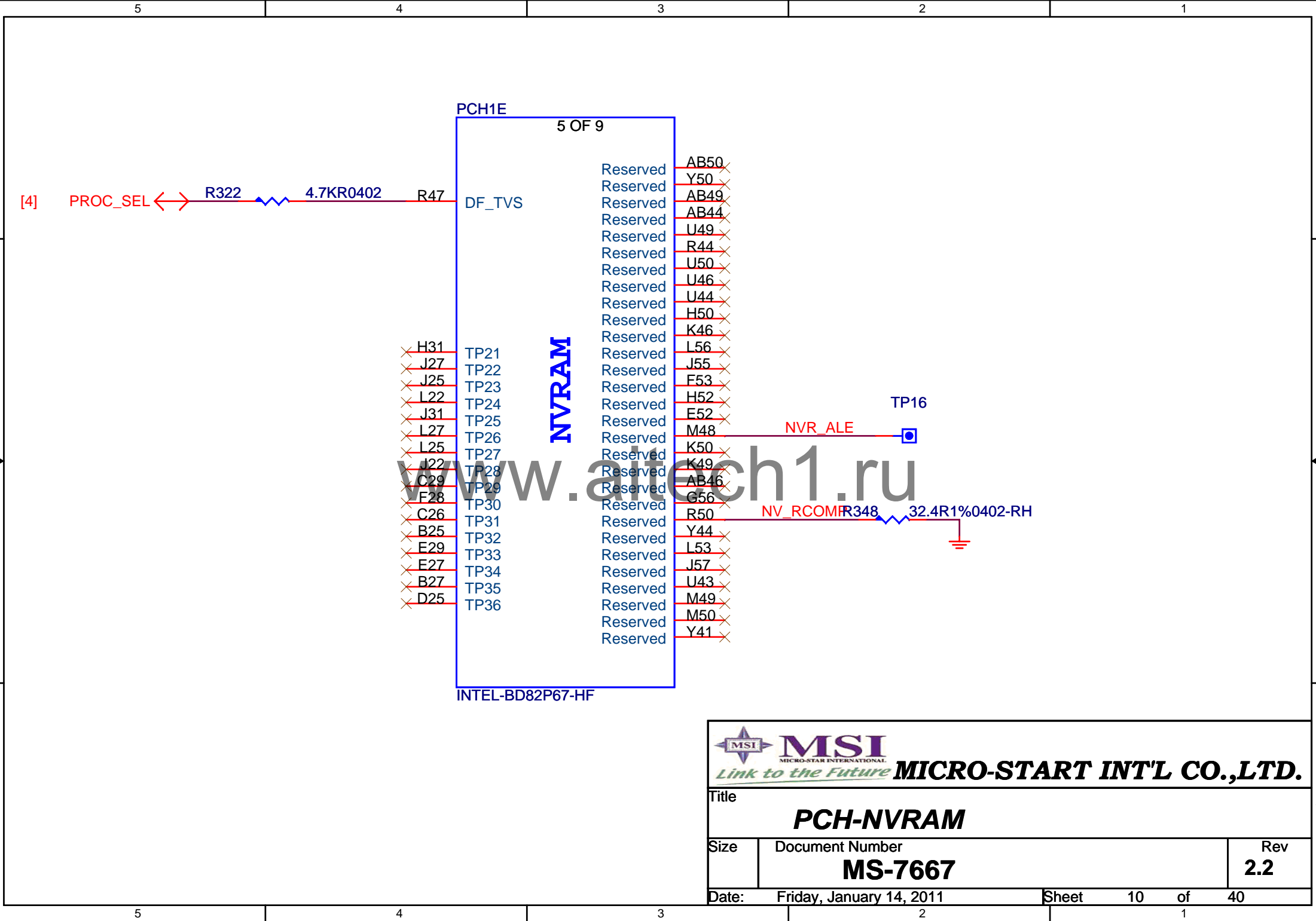
ADDRESS	0x2A	0x28	0x26	0x24	0x22	0x20
RH (KOhm)	OPEN	3.9	3	2.2	1.3	10
RL (KOhm)	10	1.3	2.3	3	3.9	OPEN
BUS_SEL	0%	25%	40%	60%	75%	100%




## DDRIII DIMM\_B2



258816169@qq.com





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Title

**PCH-NVRAM**

Size

Document Number

Rev

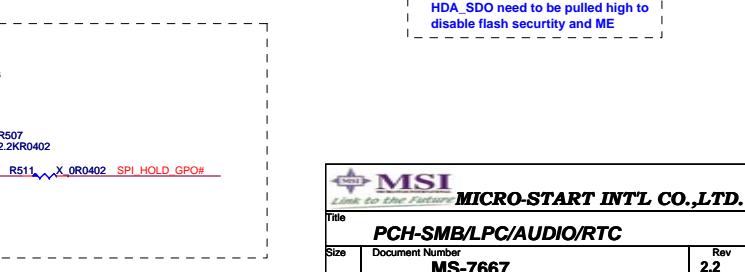
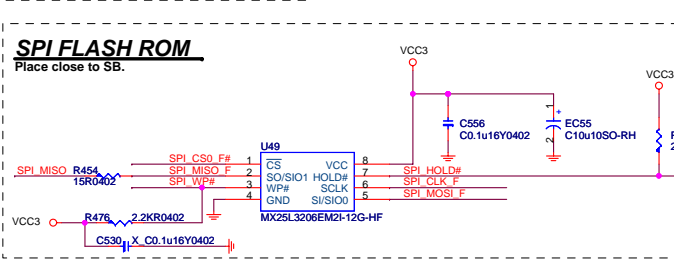
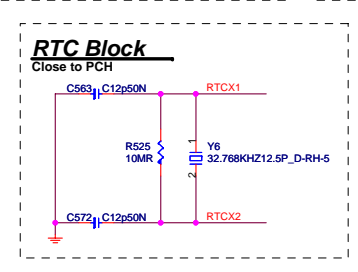
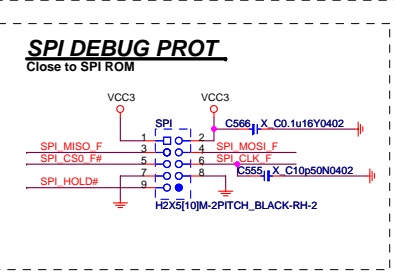
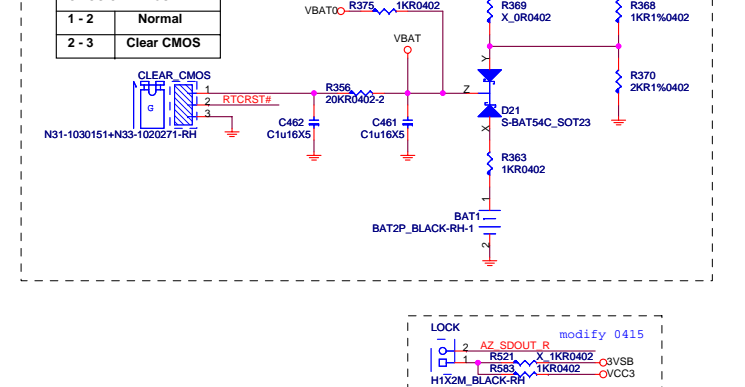
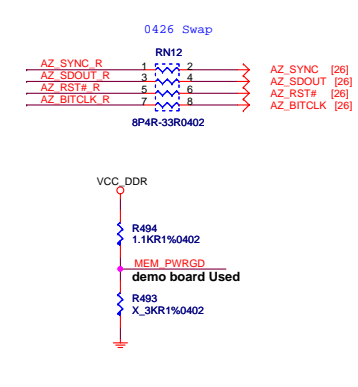
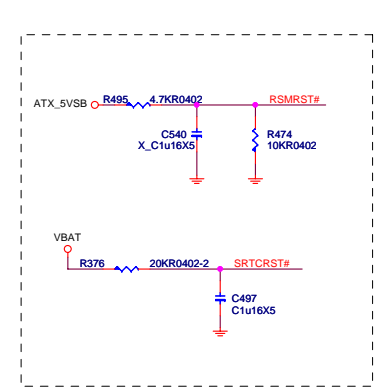
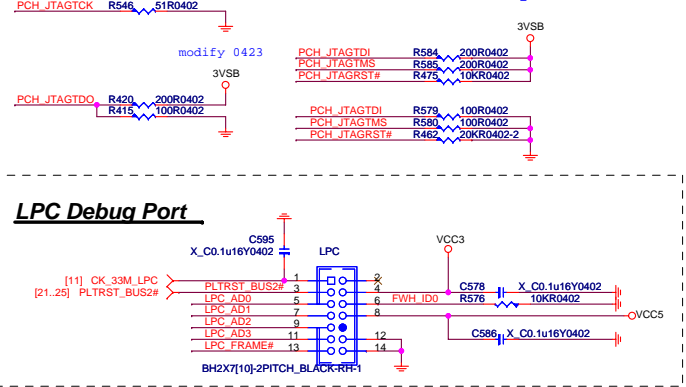
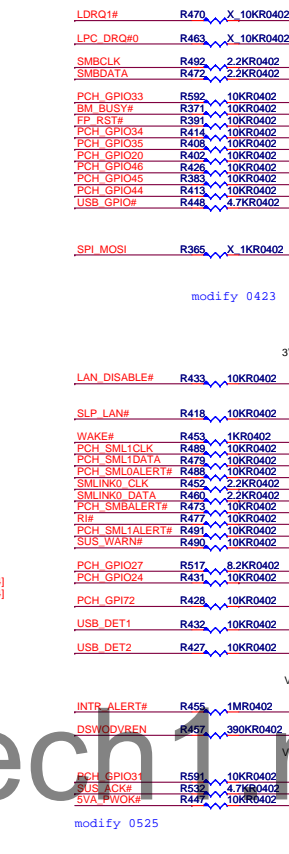
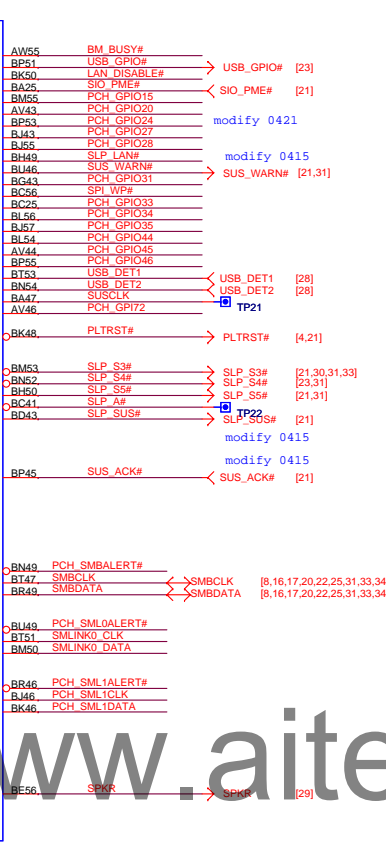
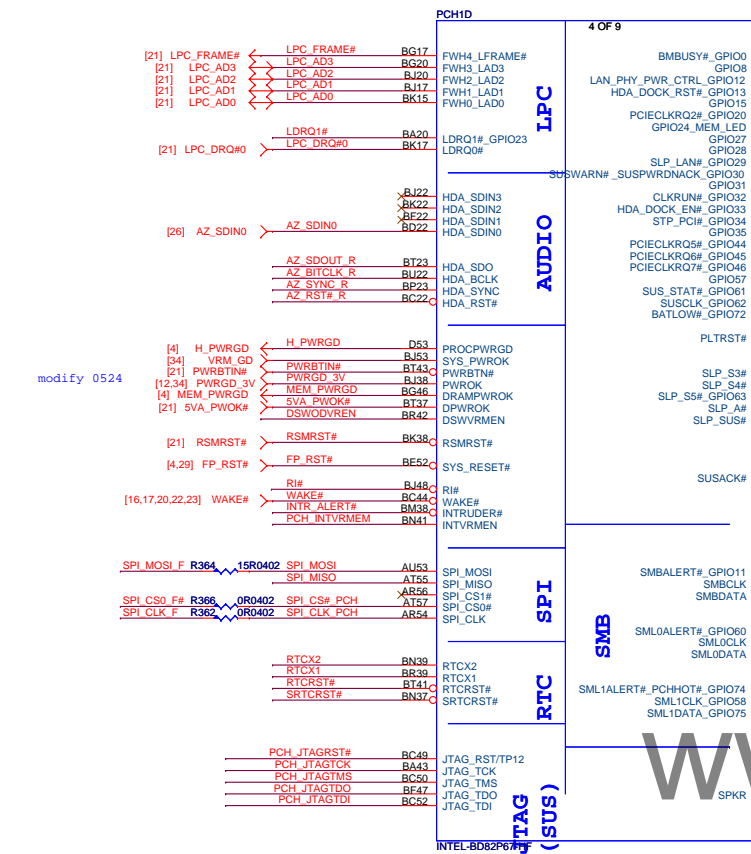
**MS-7667**

**2.2**

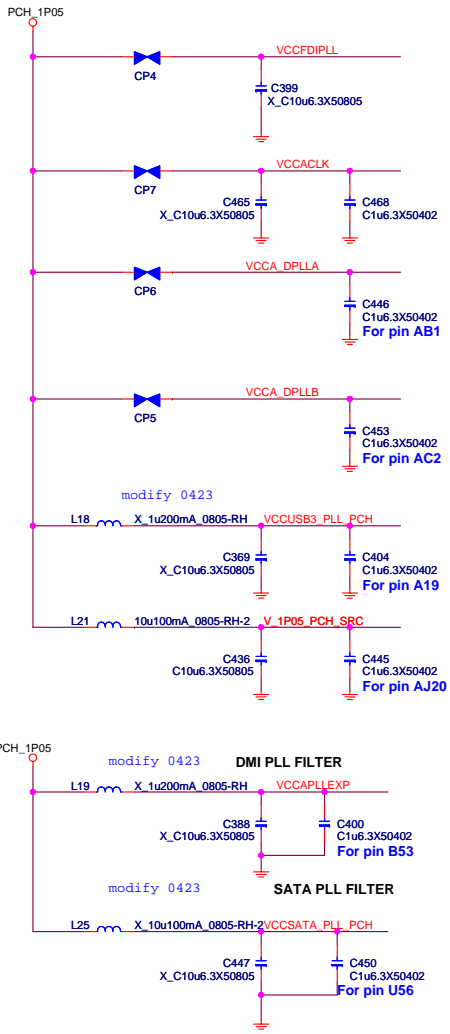
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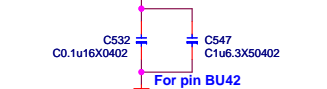
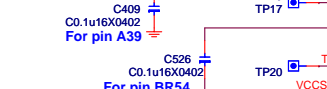
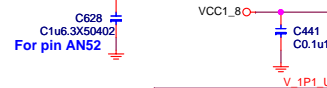
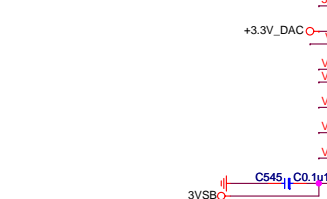
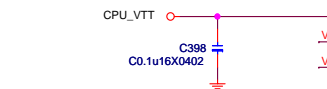
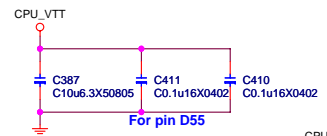
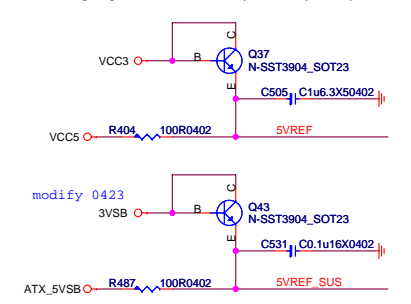




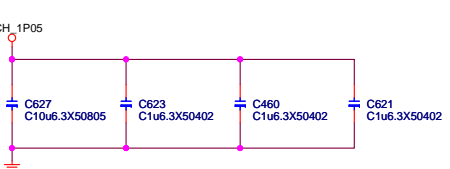
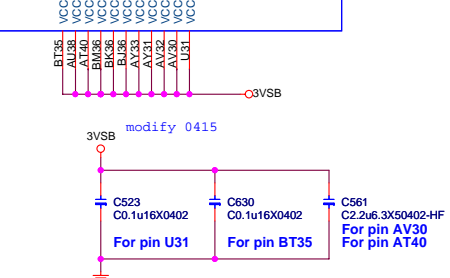
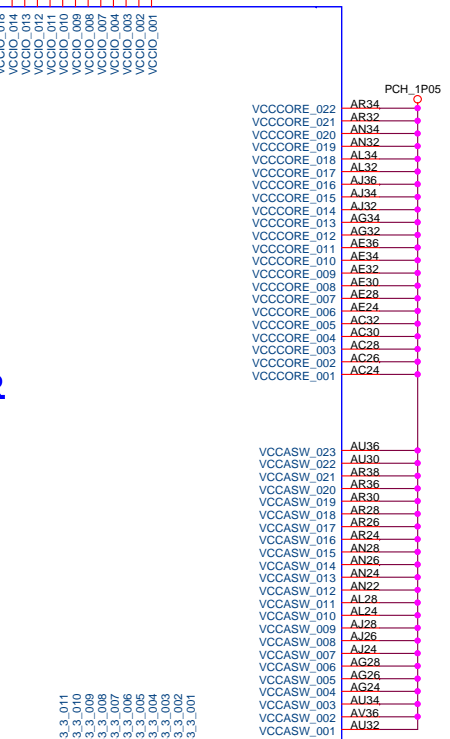
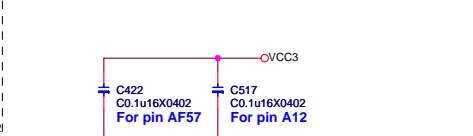
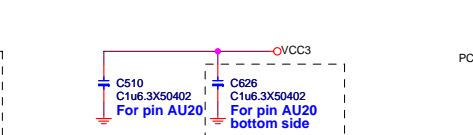
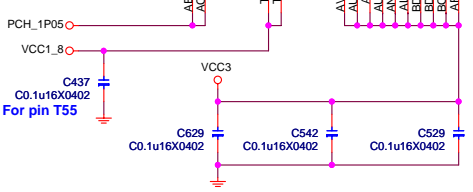
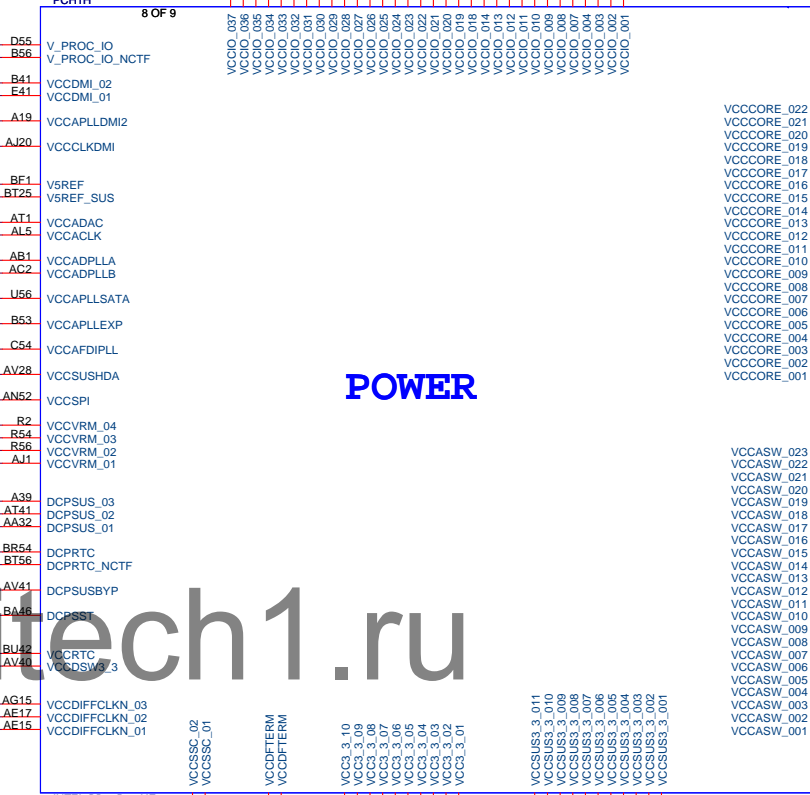
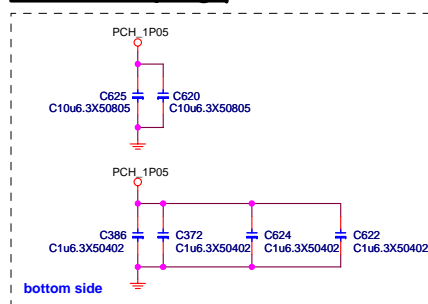


### 5VREF & 5VREF\_SUS Sequencing Circuit

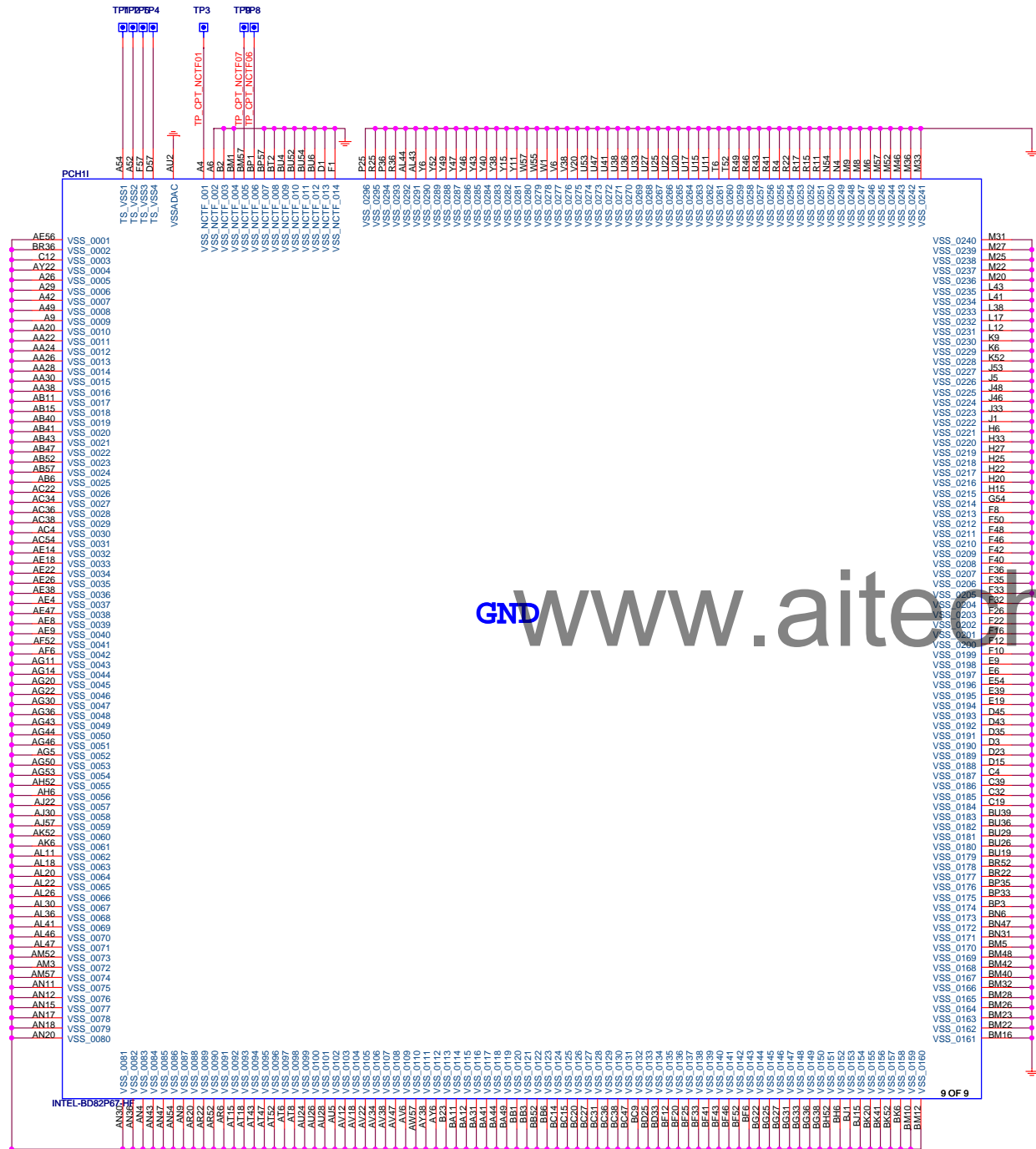
V5REF must be powered up before VCC3 or after VCC3 within 0.7V. Also, V5REF must power down after VCC3 or before VCC3 within 0.7V. This rule is also applies to V5REF\_SUS and 3VSB. However, the 3VSB is derived from the 5VSB on the power supply thru a voltage regulator and therefore, they can satisfy the requirement.




### PCH Decoupling



<b>MSI</b> Link to the Future <b>MICRO-START INTL CO.,LTD.</b>			
Title <b>PCH-POWER</b>			
Size	Document Number	Rev	
	<b>MS-7667</b>	<b>2.2</b>	
Date:	Friday, January 14, 2011	Sheet	14 of 40

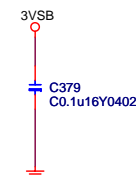
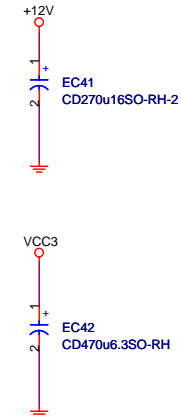
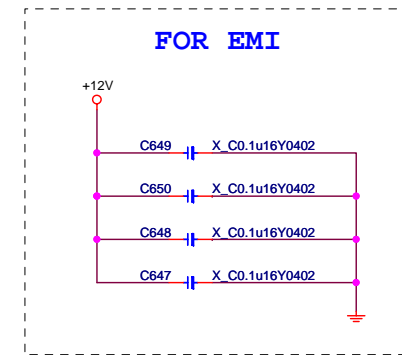
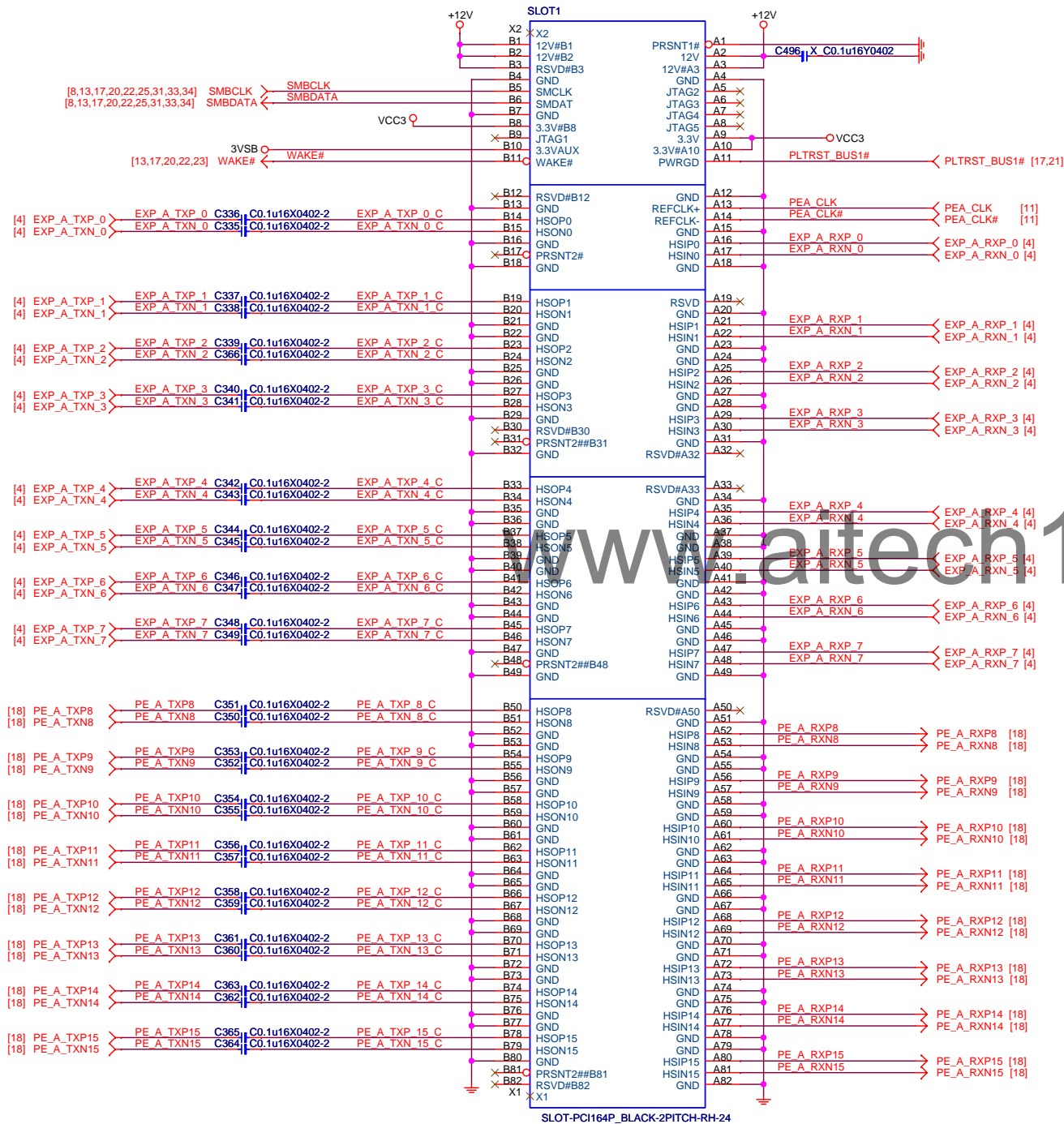


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 <b>MICRO-START INT'L CO.,LTD.</b>		
Title <b>PCH-GND</b>		
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# PCI EXPRESS X16 SLOT



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

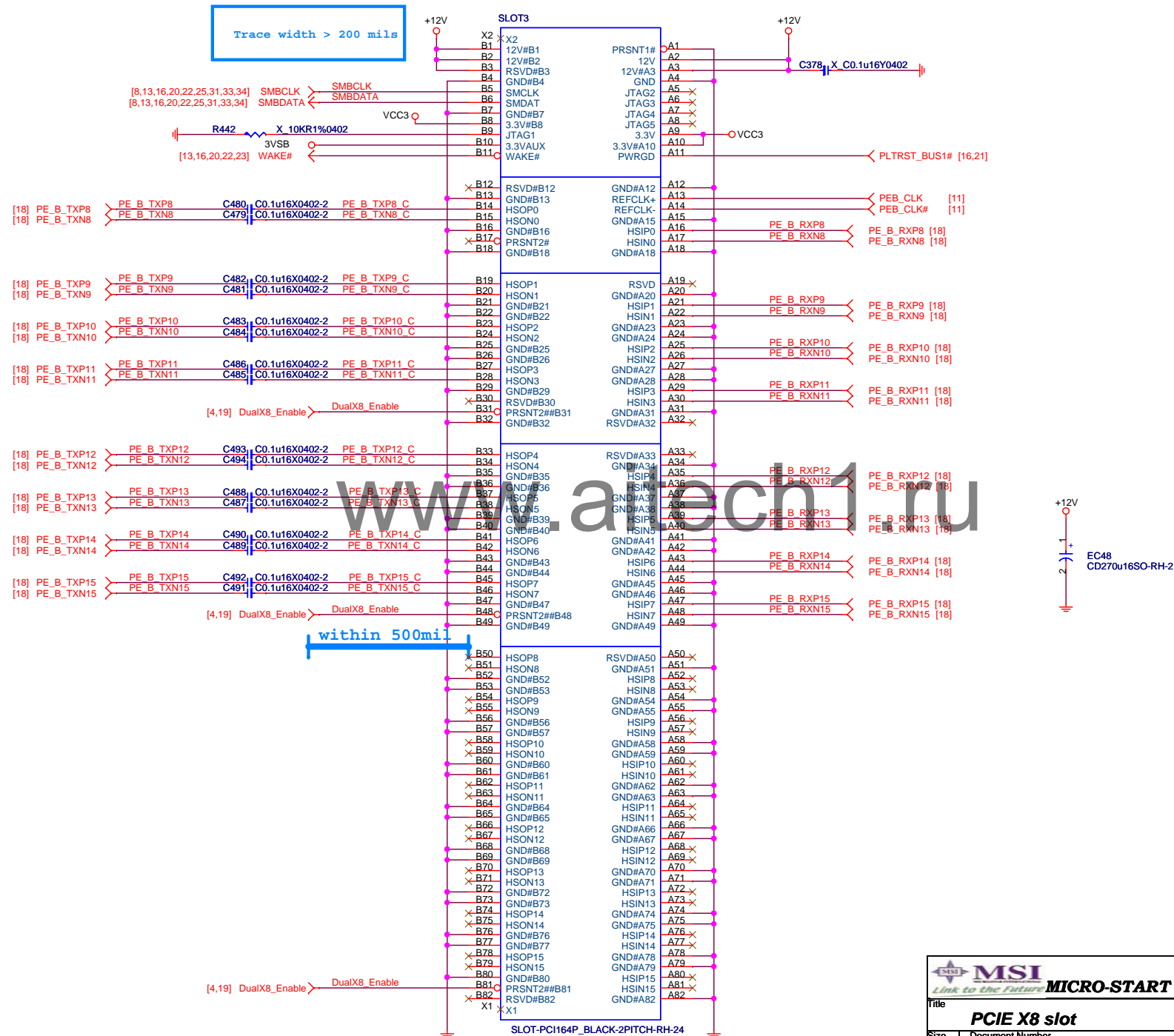
Title: **PCIE X16 slot**

Size: Document Number **MS-7667** Rev **2.2**

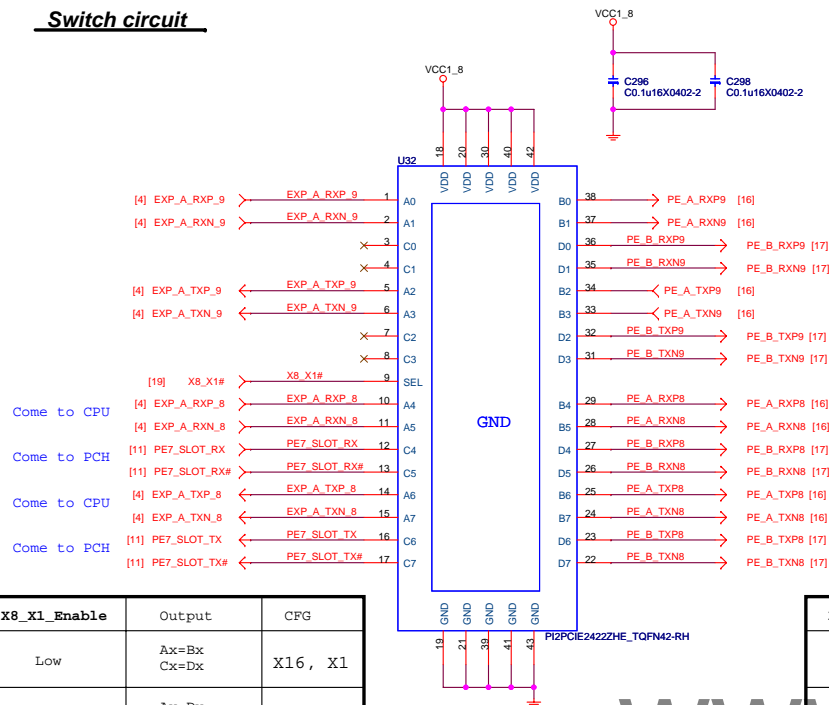
Date: Friday, January 14, 2011 Sheet 16 of 40

# PCI Express X8 slot

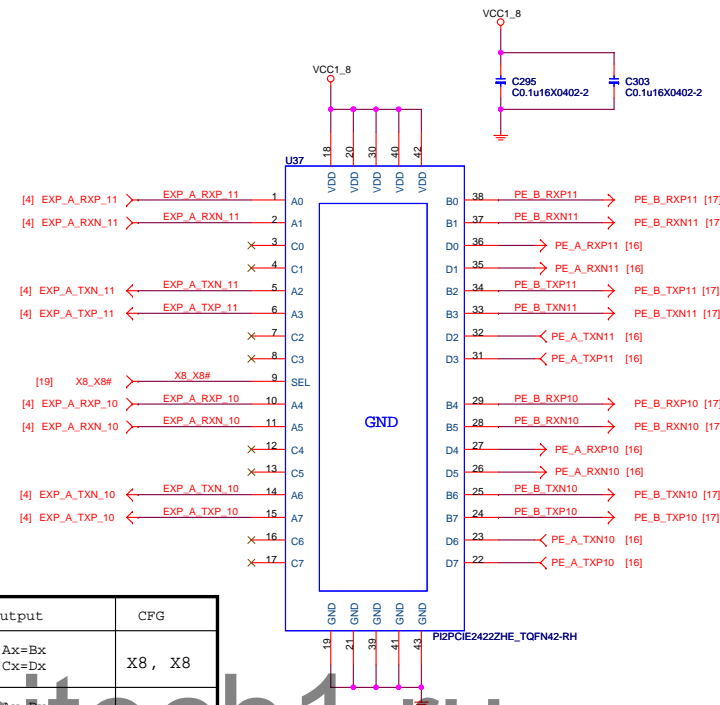
(Share with PCI\_E x16 slots)



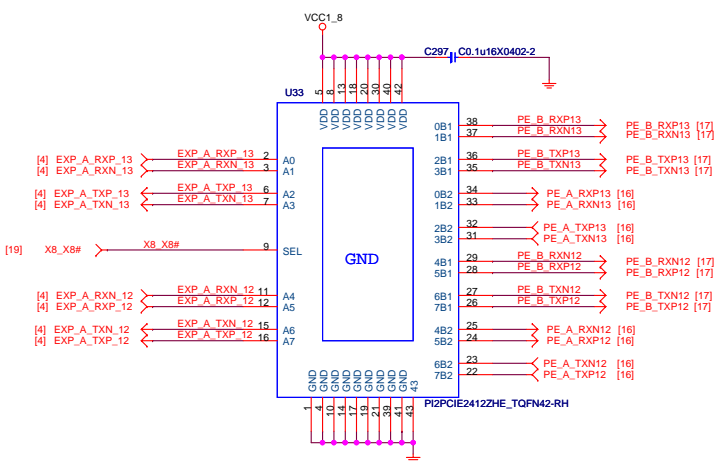
## Switch circuit



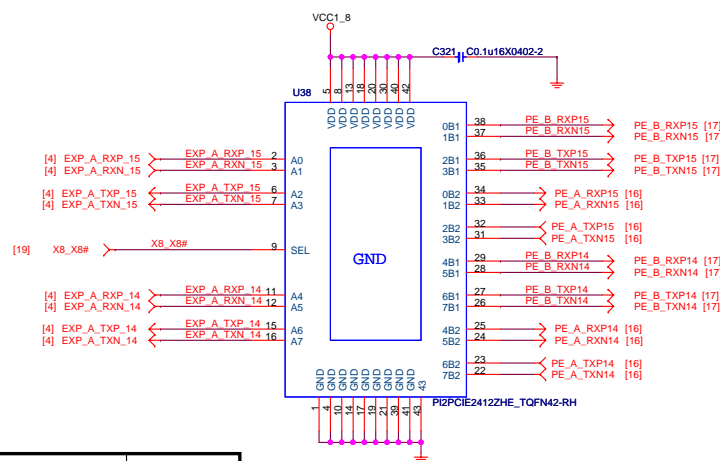
X8_X8_Enable	Output	CFG
Low	Ax=Bx Cx=Dx	X8, X8
Hi	Ax=Dx Cx=Bx=Hi-Z	X16, X1



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X8_X8_Enable	Output	CFG
Low	An=nB1	X8, X8
Hi	An=nB2	X16, X1



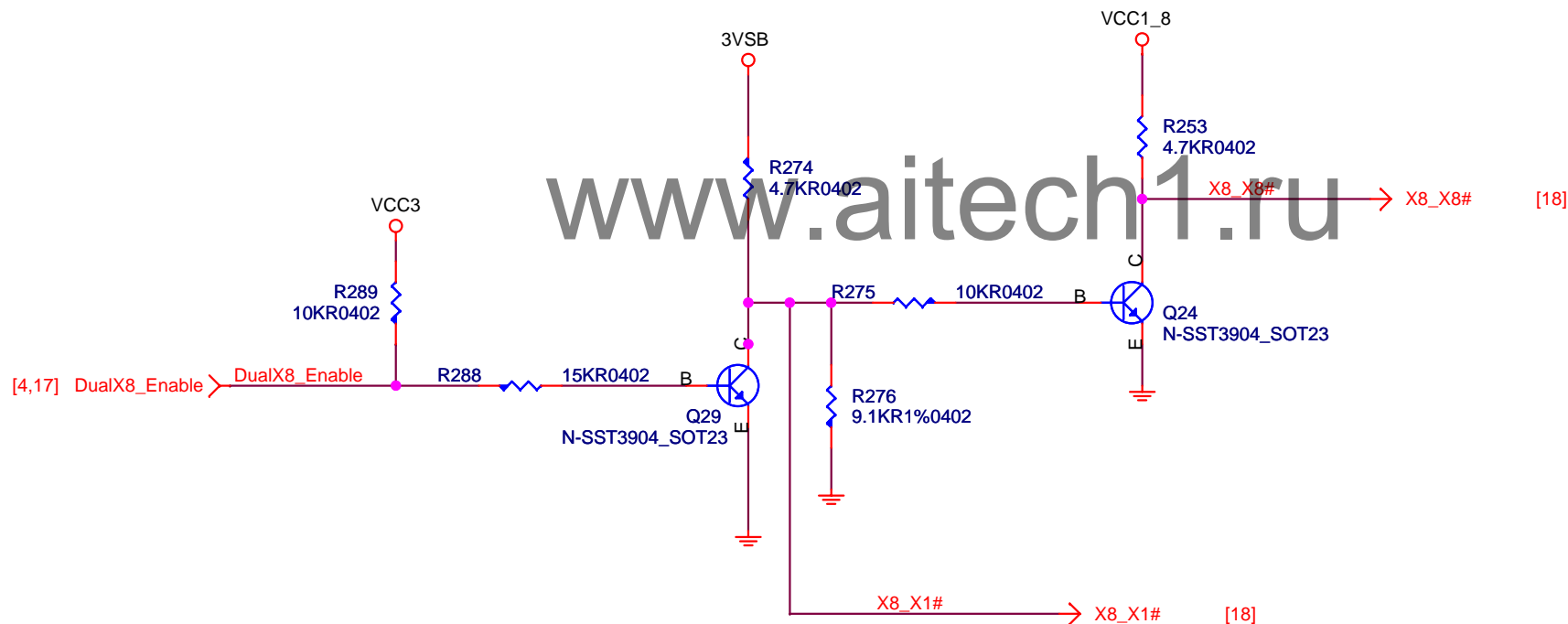
## Digital Switch SEL pin


SEL(1->B2;0->B1)

X8_PRSENT#	Output	X8_X8#	PCI-E_Slot 1/2
Low	B1	Low	X8 / X8
Hi	B2	Hi	X16

SEL(1->B2;0->B1)

X8_PRSENT#	Output	X8_X1#	PCI-E_Slot 1/2
Low	B1	Hi	X8 / X8
Hi	B2	Low	X16 / X1



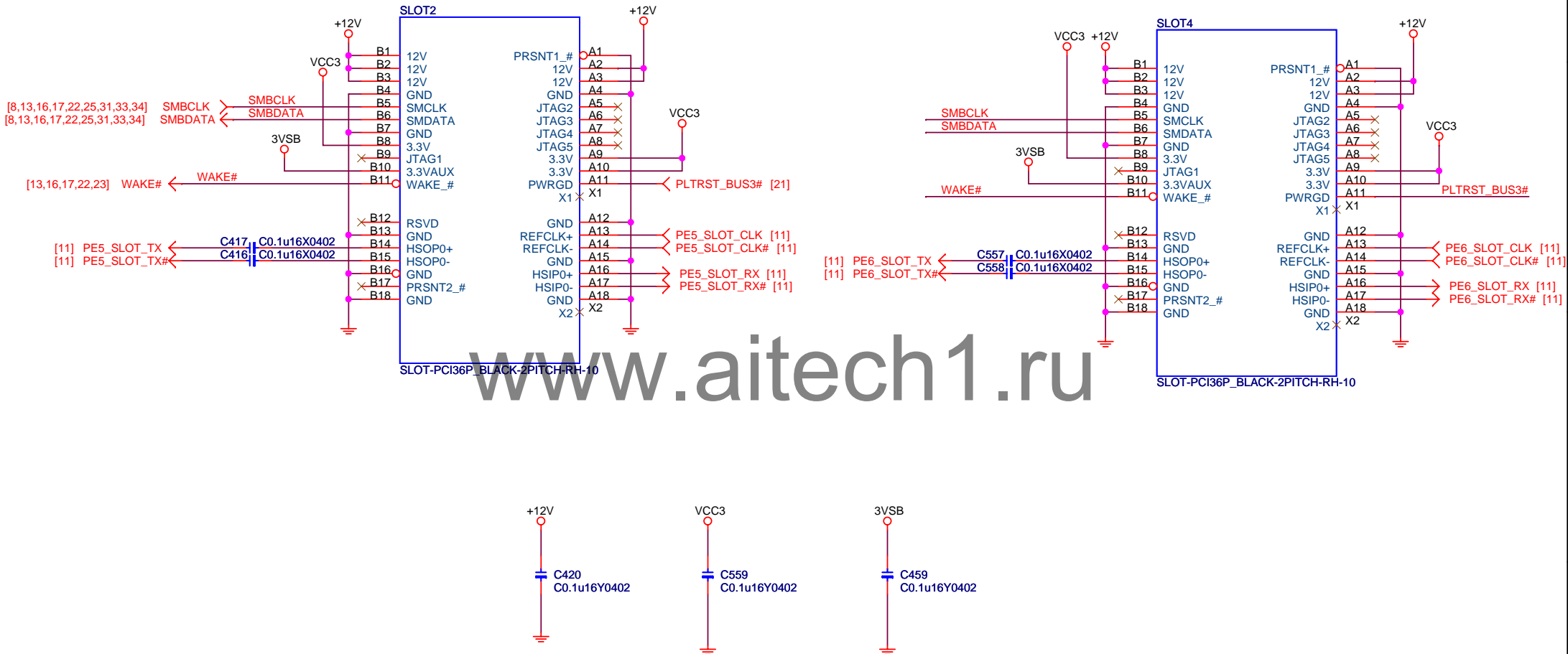
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*Link to the Future* **MICRO-STAR INT'L CO.,LTD.**

Title  
**Digital Switch Power**

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# PCI EXPRESS X1 SLOT

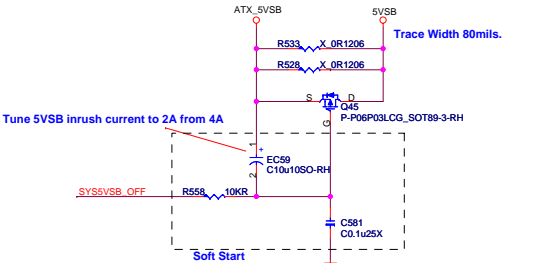
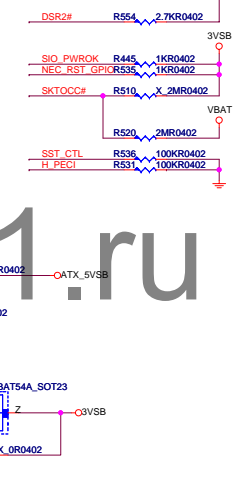
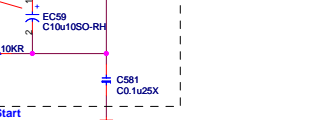
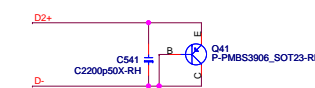
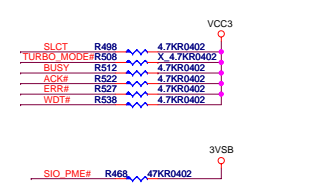
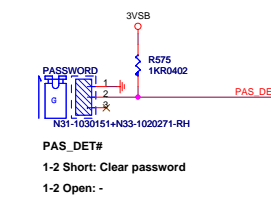
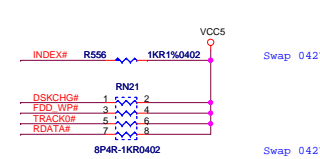
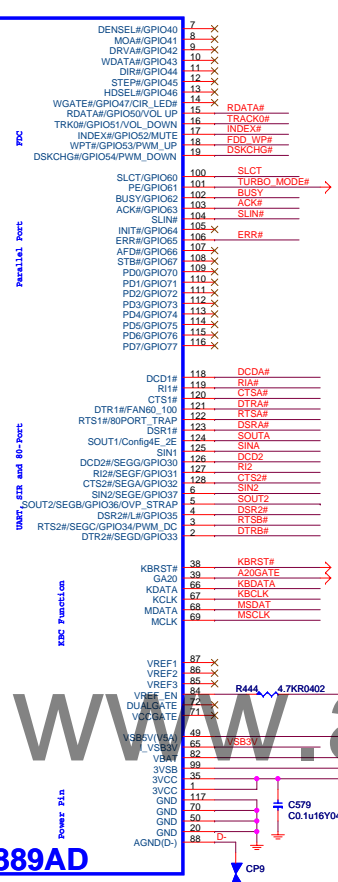


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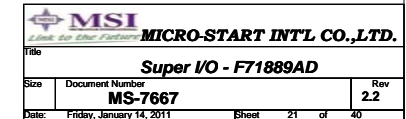
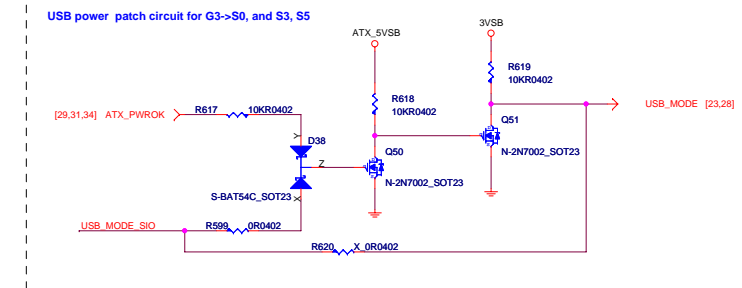
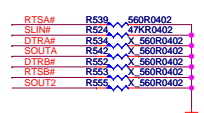
Title  
**PCIE x1 SLOTS**

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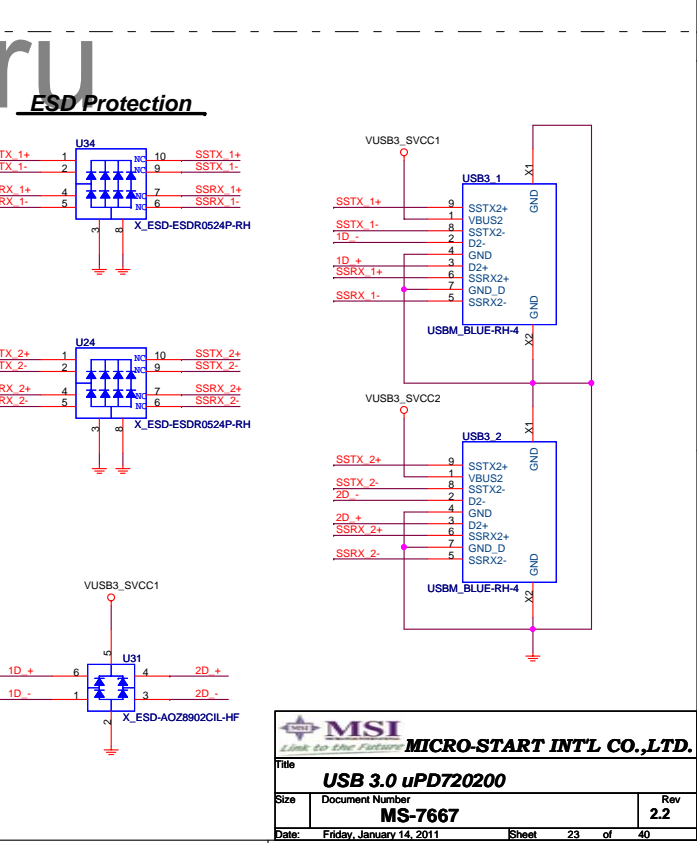
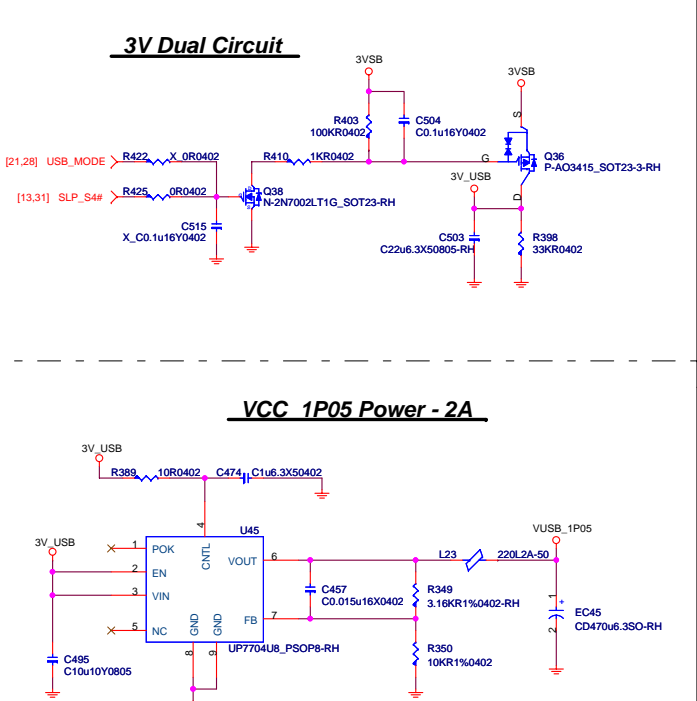


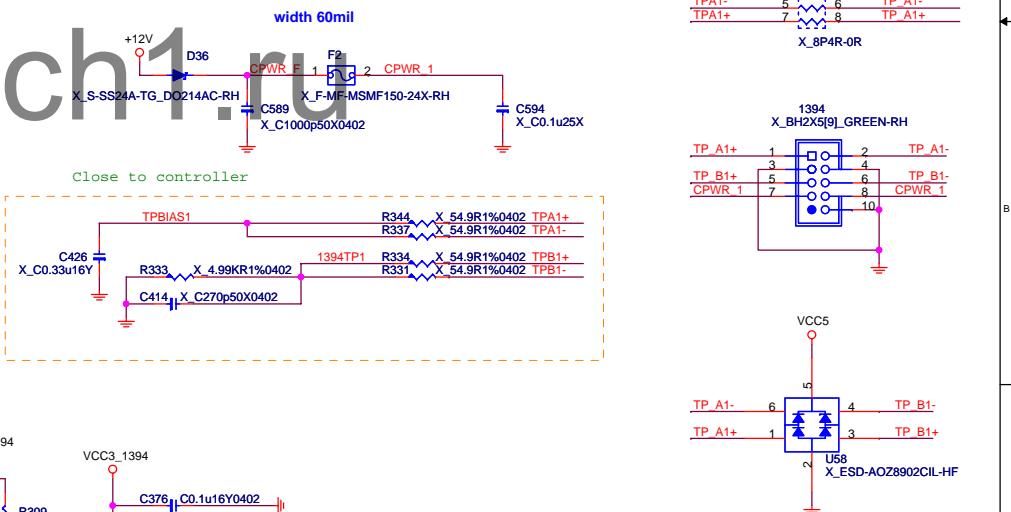
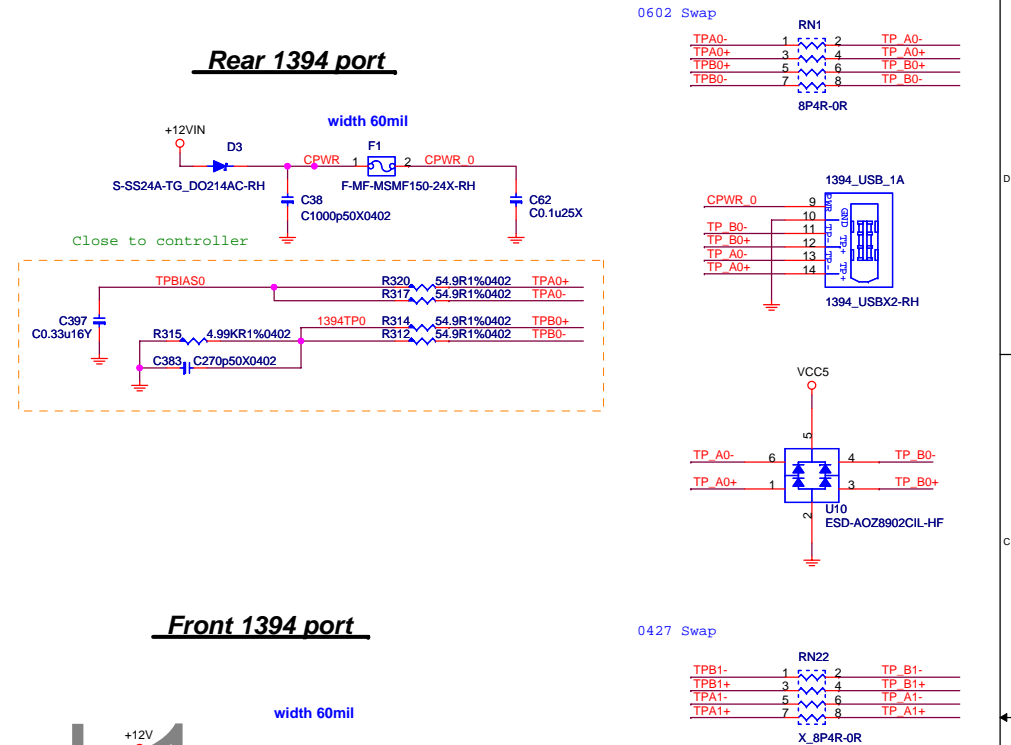
PLTRST_BUS1#	SLOT1 SLOT3
PLTRST_BUS2#	USB3.0 LAN1 eSATA 1394
PLTRST_BUS3#	SLOT2 SLOT4












 <b>MSI</b> <i>Link to the Future</i>				<b>MICRO-START INT'L CO.,LTD.</b>			
<b>Title</b> <b>IEEE1394 VIA VT6315N</b>							
<b>Size</b>		<b>Document Number</b> <b>MS-7667</b>				<b>Rev</b> <b>2.2</b>	
<b>Date:</b>		<b>Friday, January 14, 2011</b>		<b>Sheet</b>		<b>24 of 40</b>	

**JMB362 - ESATA X2**

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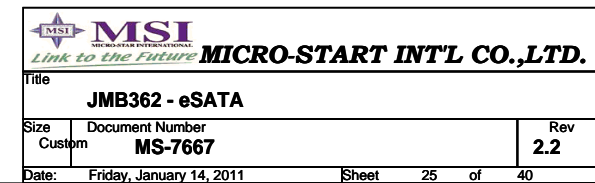
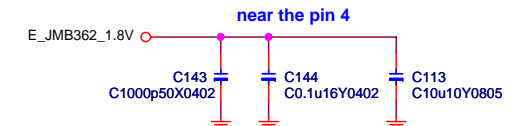
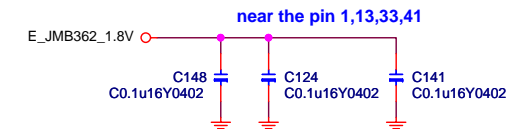
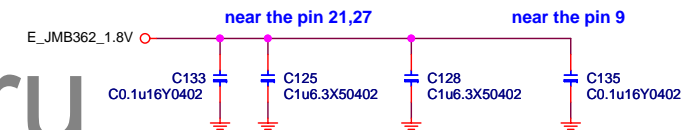
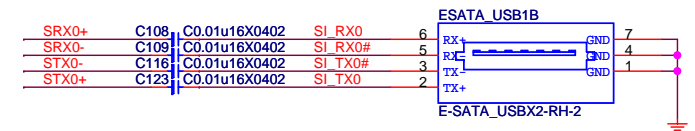
**JMB362 - eSATA**

**MS-7667**

**Rev 2.2**

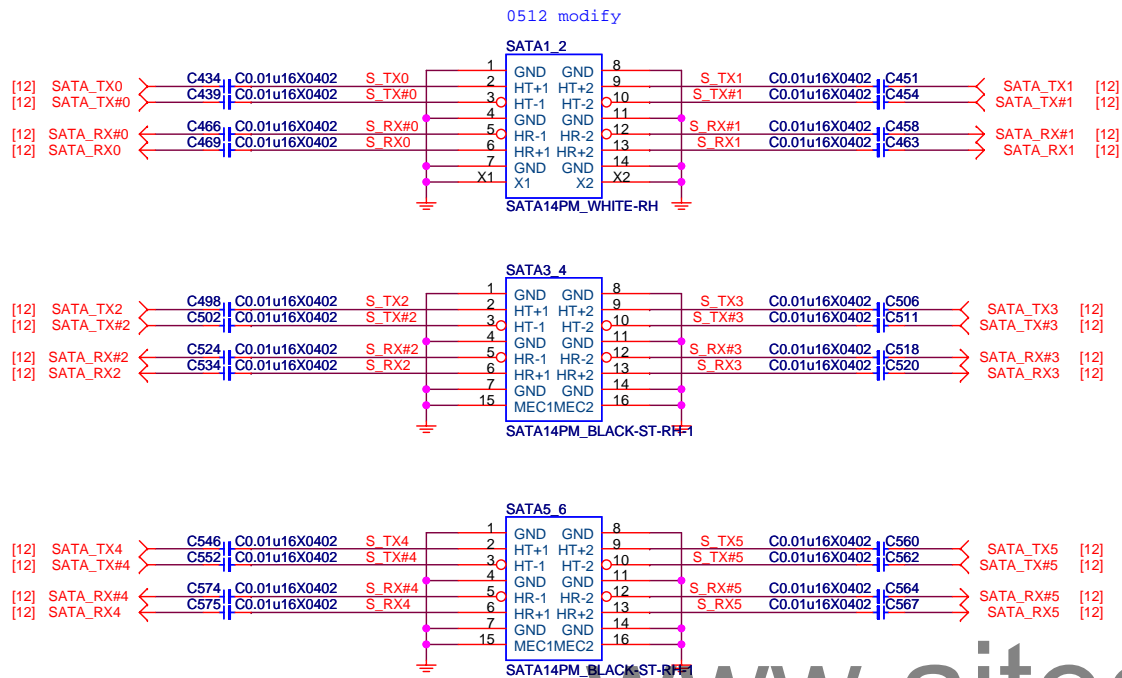
**Date: Friday, January 14, 2011**

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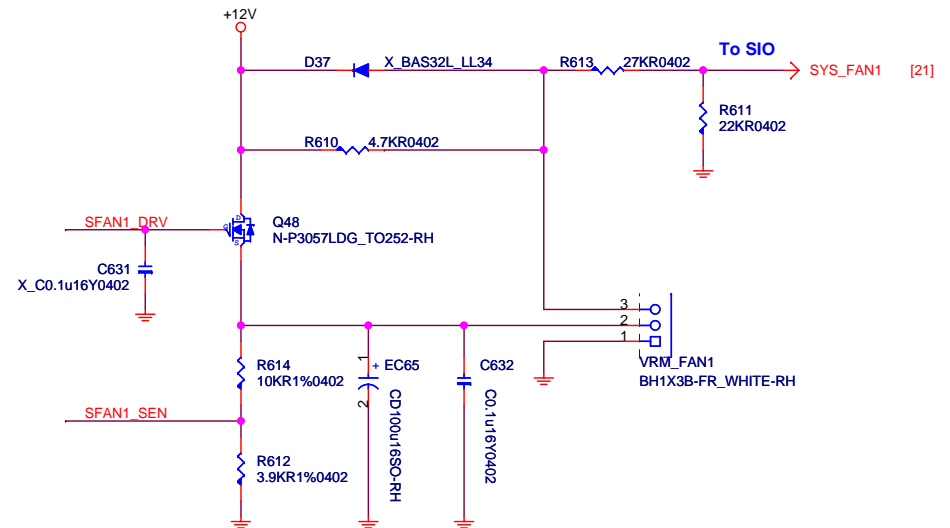




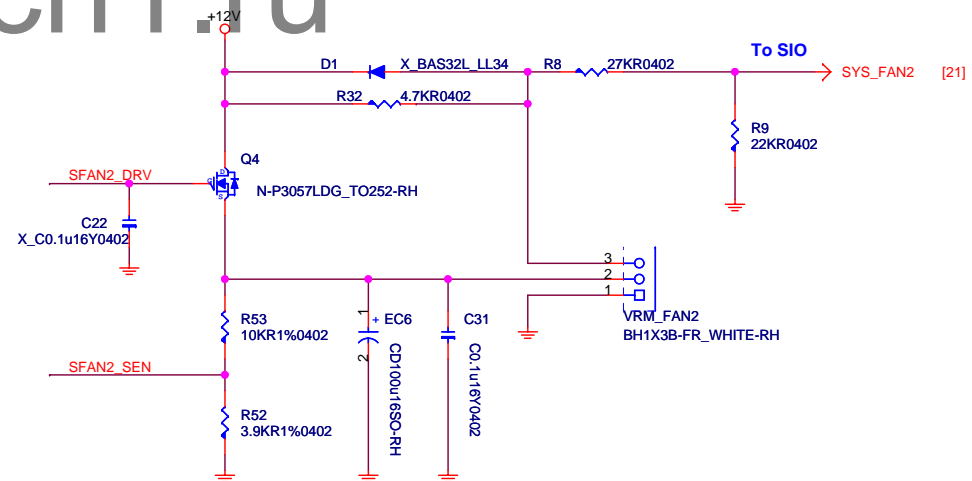
## SATA Connector



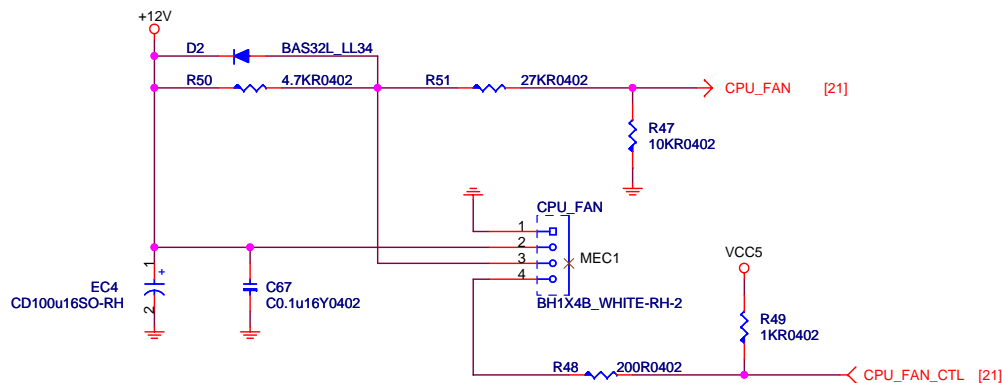
## System Fan1



## System Fan2



## CPU Fan



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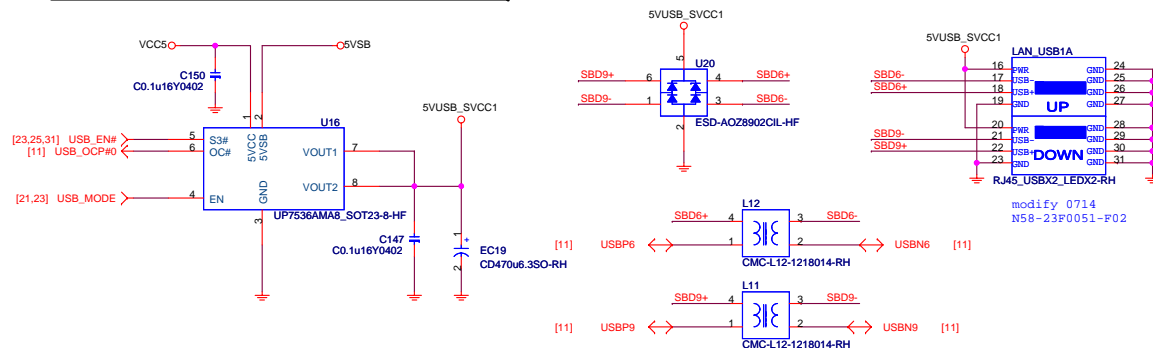
**MSI** MICRO-START INT'L CO.,LTD.  
Link to the Future

Title **SATA / FAN / VGA / HDMI PORT**

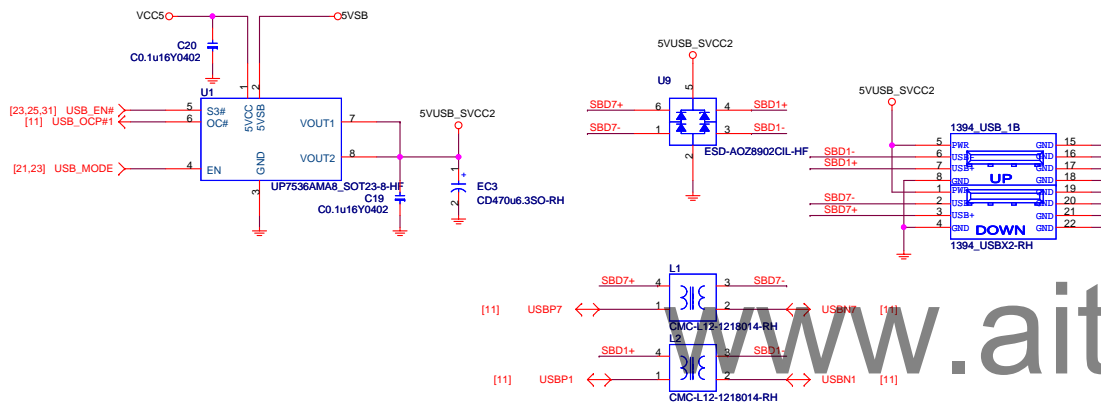
Size Document Number **MS-7667** Rev **2.2**

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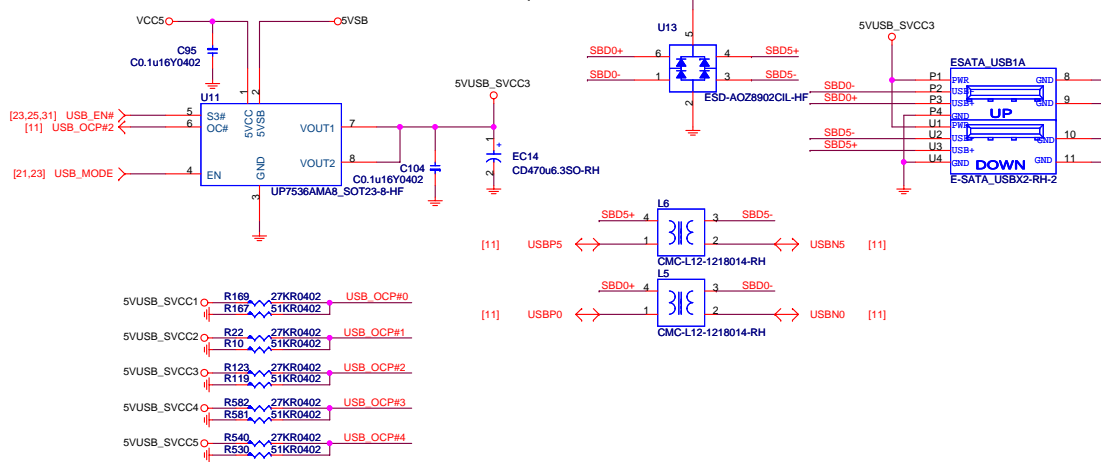
## Rear USB Connector For USB Port 0 / 1



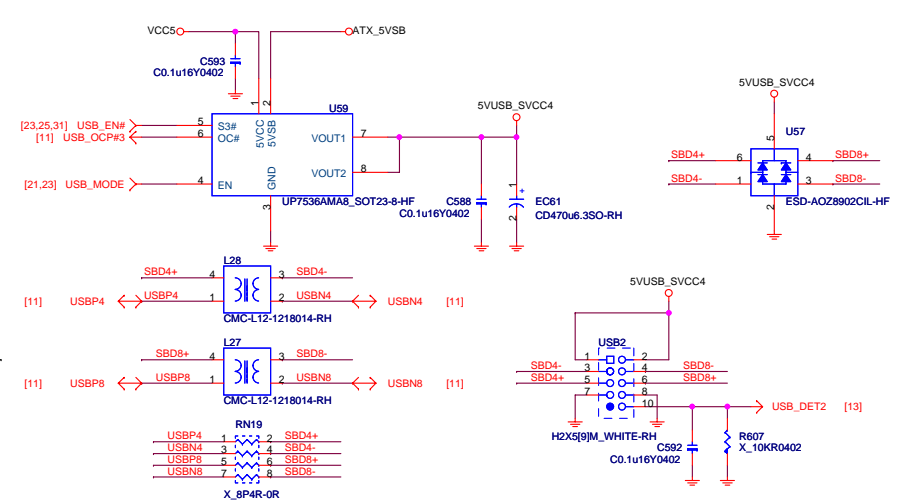
## Rear USB Connector For USB Port 2 / 3



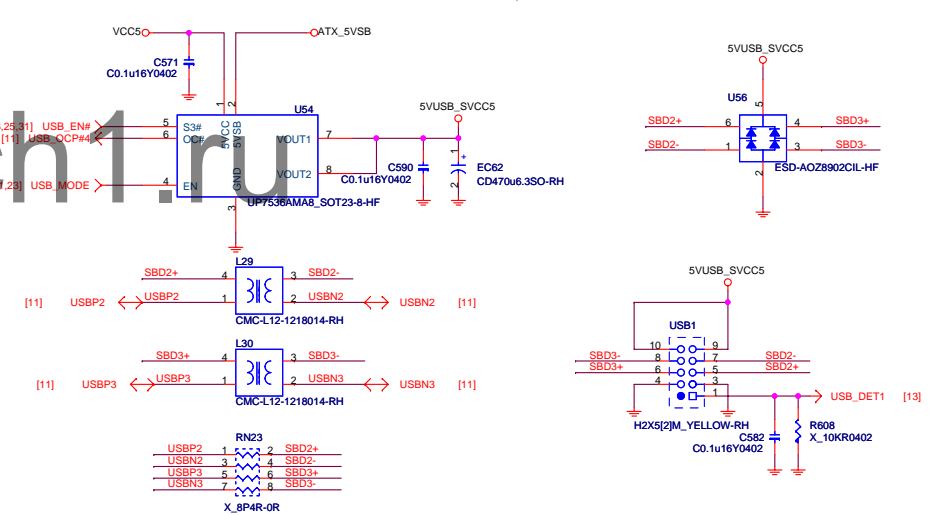
## Rear USB Connector For USB Port 4 / 5



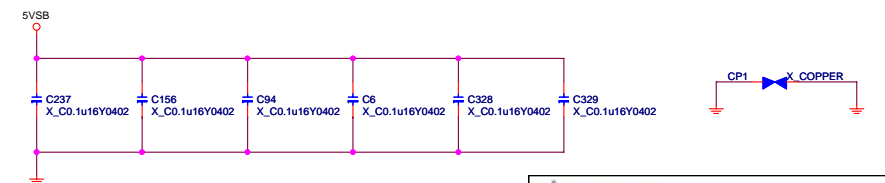
## Front Panel USB Connector For USB Port 6 / 7



## Front Panel USB Connector For USB Port 8 / 9

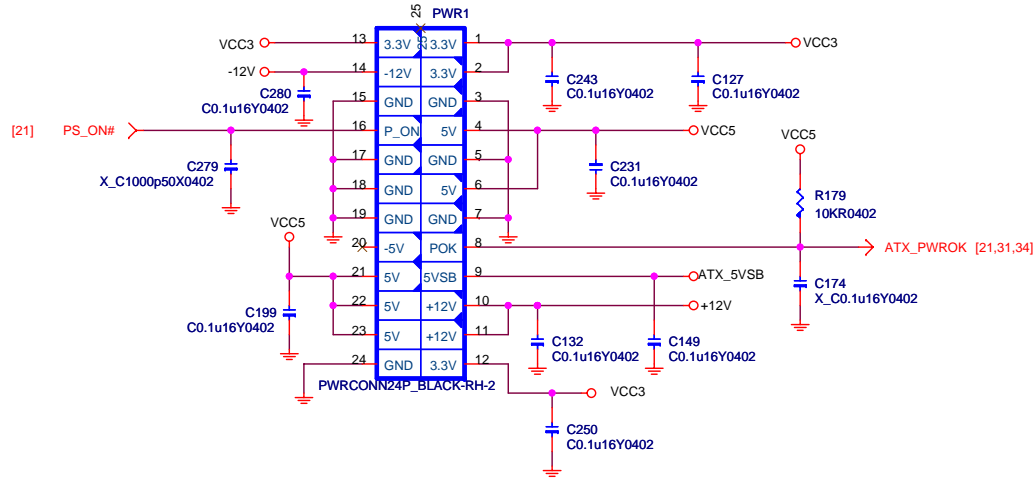


FOR EMI

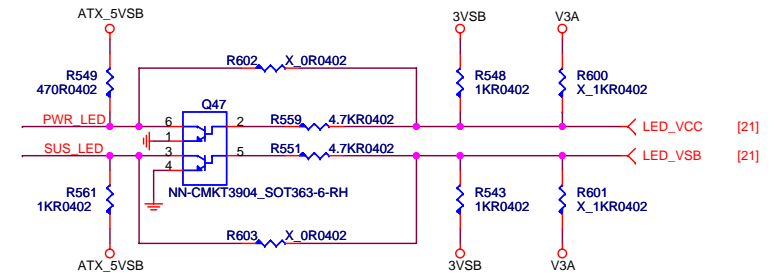


## ATX Power Connector / Front Panel / LED

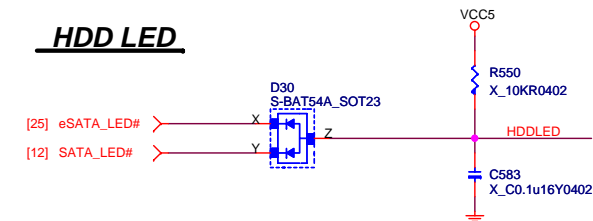
### 24 Pin ATX Power Connector



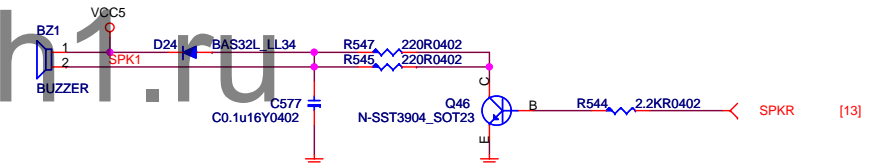
### Power LED



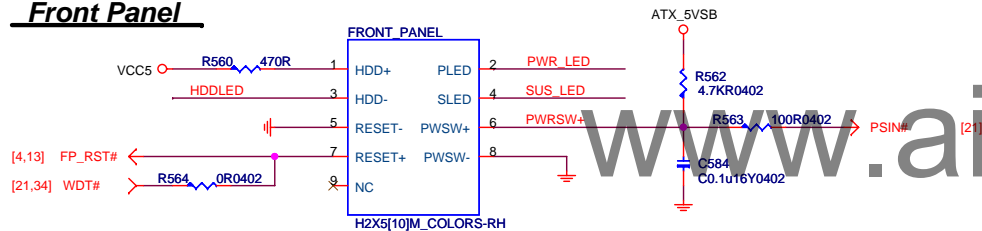
### HDD LED



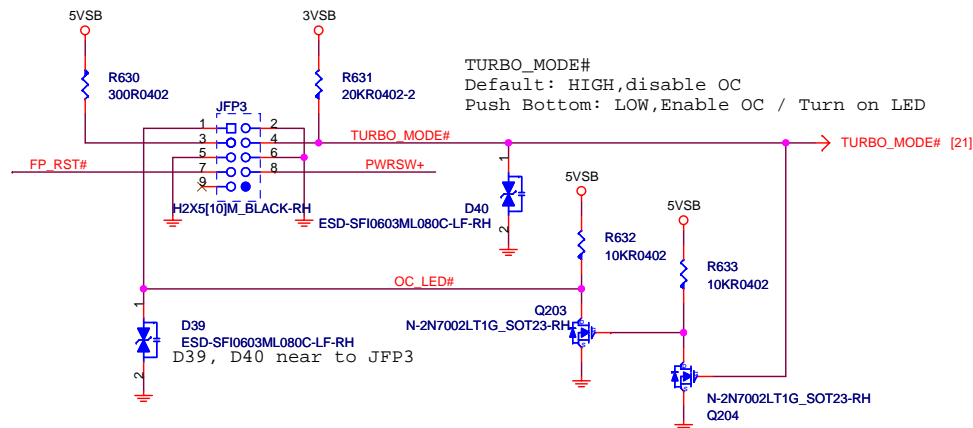
### Buzzer Circuit



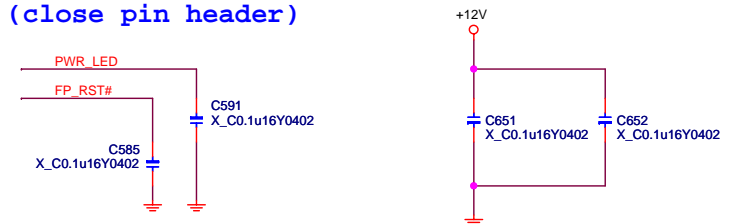
### Front Panel




### OC Panel



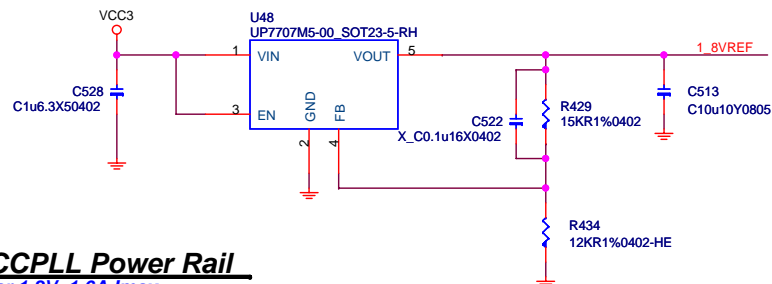
For EMI  
(close pin header)



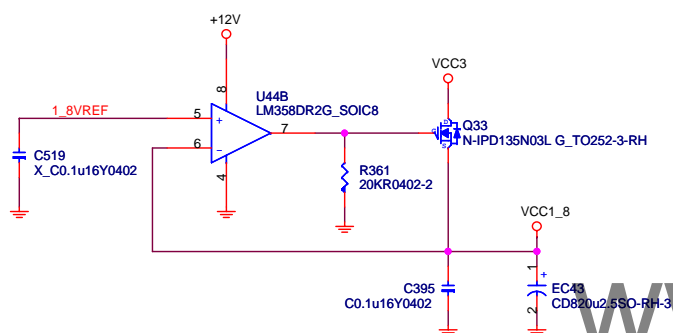
 <b>MICRO-START INT'L CO.,LTD.</b>		
Title		
<b>ATX Connector / Front Panel / LED</b>		
Size	Document Number	Rev
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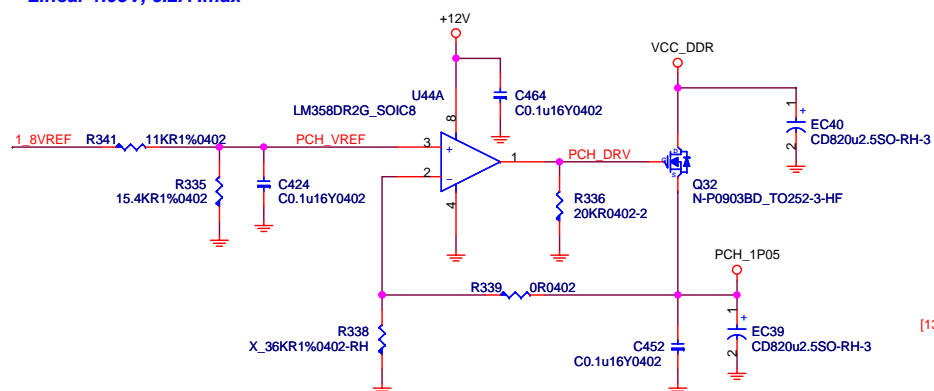
### 1.8V Reference Power



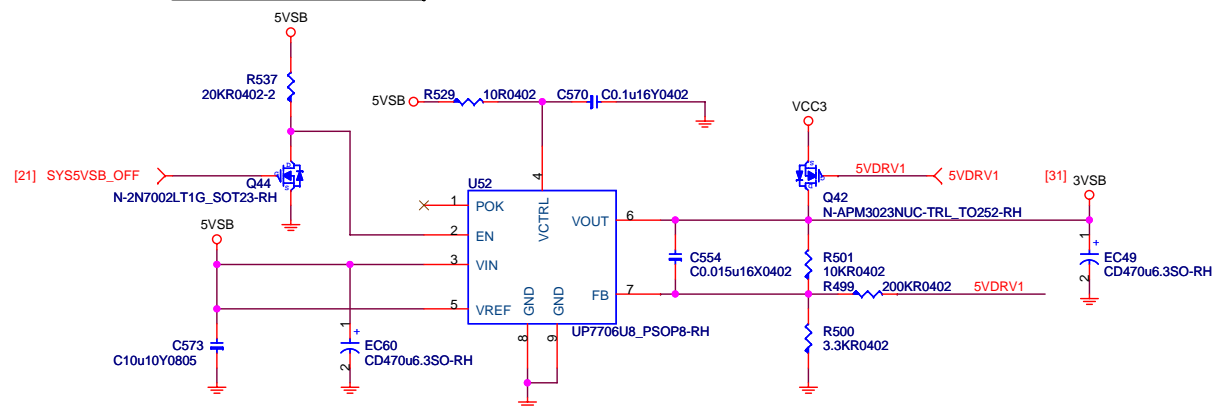
### VCCPLL Power Rail



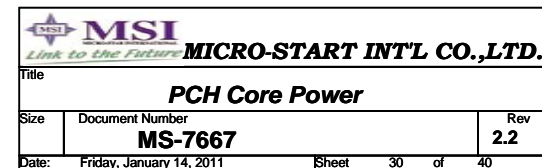
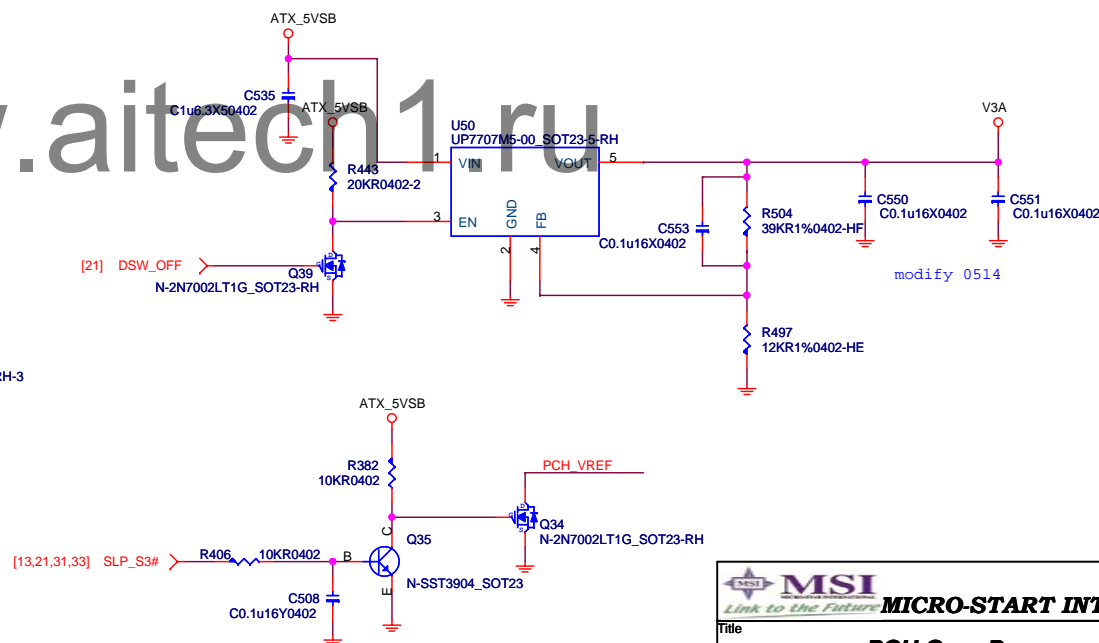
### PCH Core Power Rail



### 3VSB Power Rail



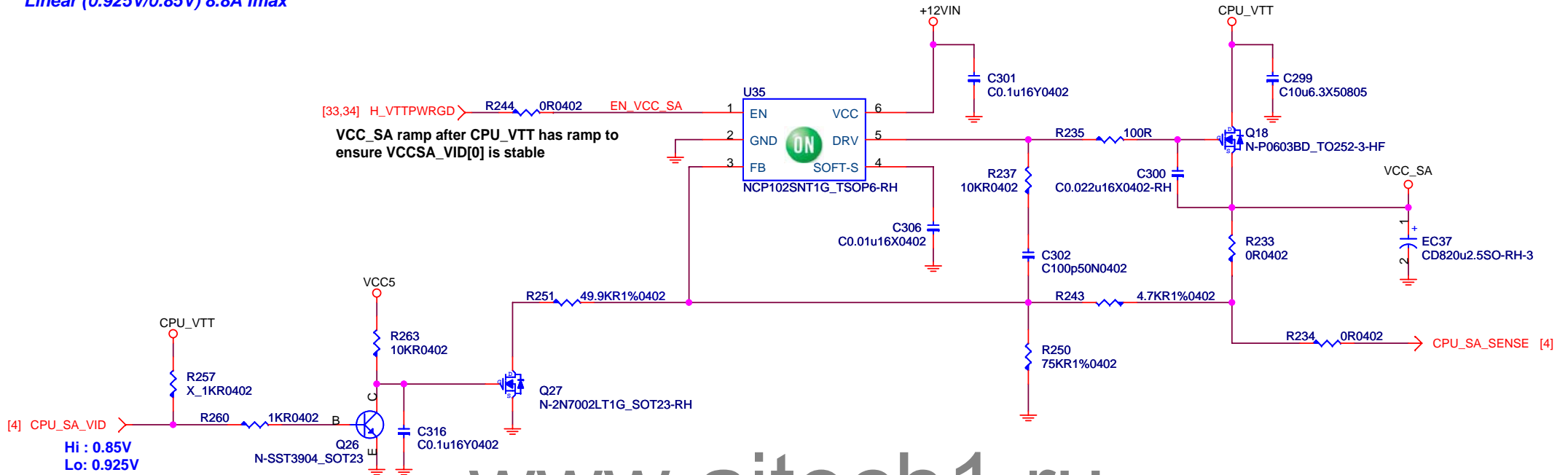
### V3A Power Rail



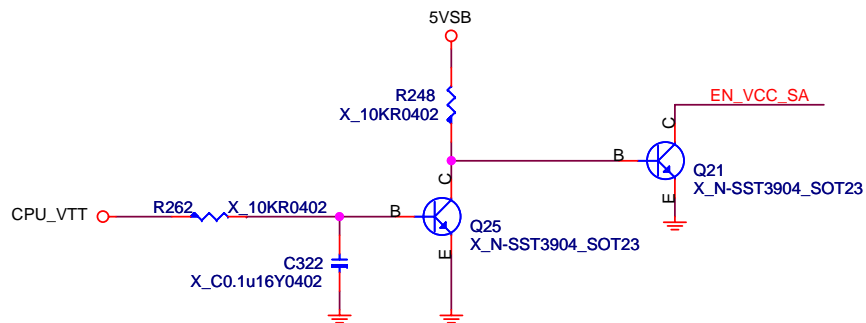


## VCC SA Power Rail


Linear (0.925V/0.85V) 8.8A I<sub>max</sub>



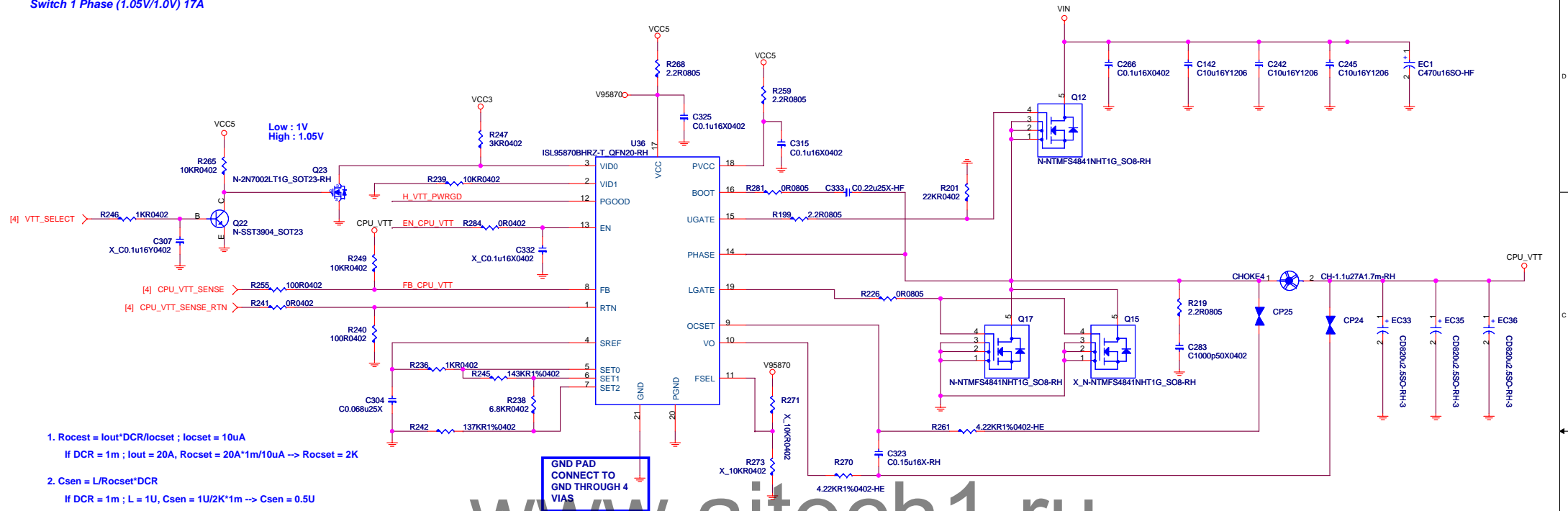
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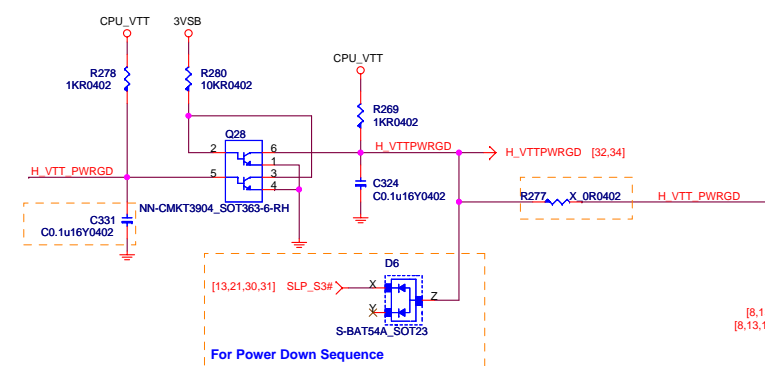
Reserved for power sequence requirement

 <b>MSI</b> MICRO-STAR INTERNATIONAL <i>Link to the Future</i>		<b>MICRO-START INT'L CO.,LTD.</b>	
Title			
<b>CPU VCC_SA</b>			
Size	Document Number		Rev
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# **CPU VTT Power Rail** Switch 1 Phase (1.05V/1.0V) 17A



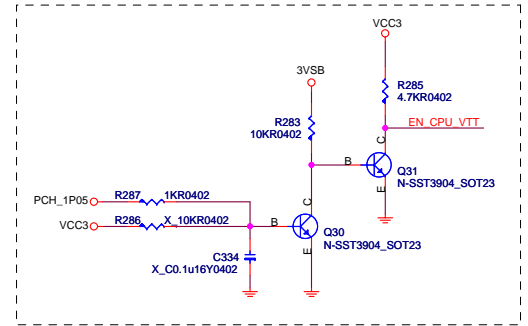
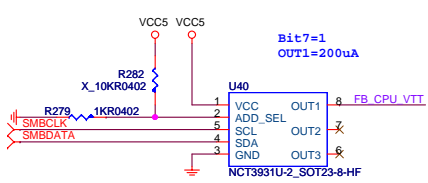
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## **UPI VOLTAGE CONSOLE**

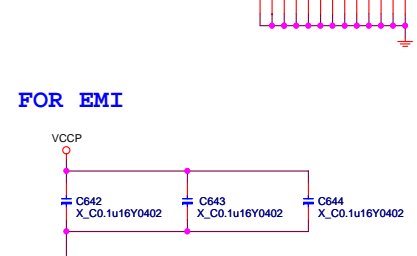
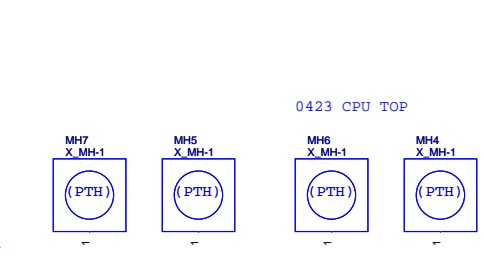
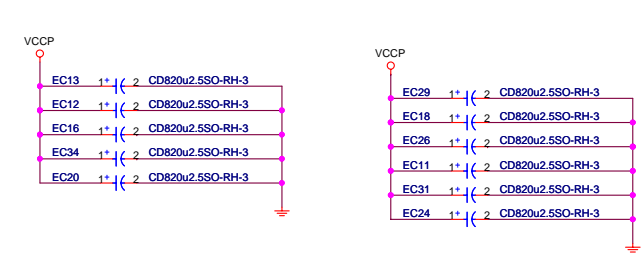
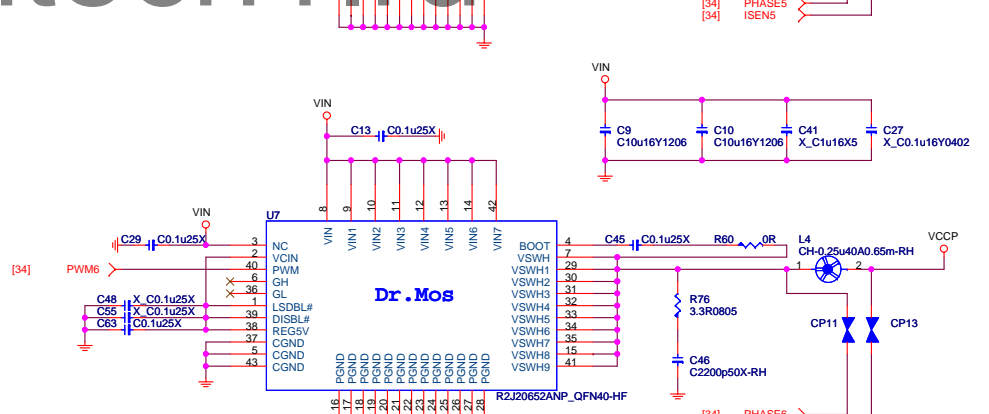
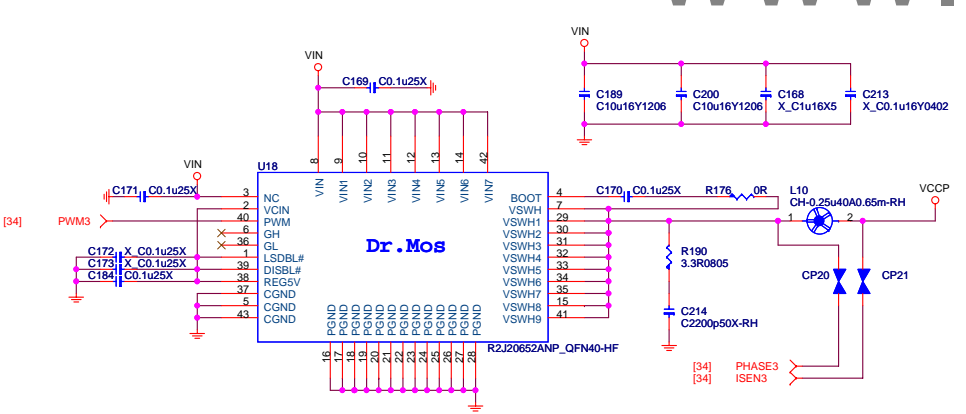
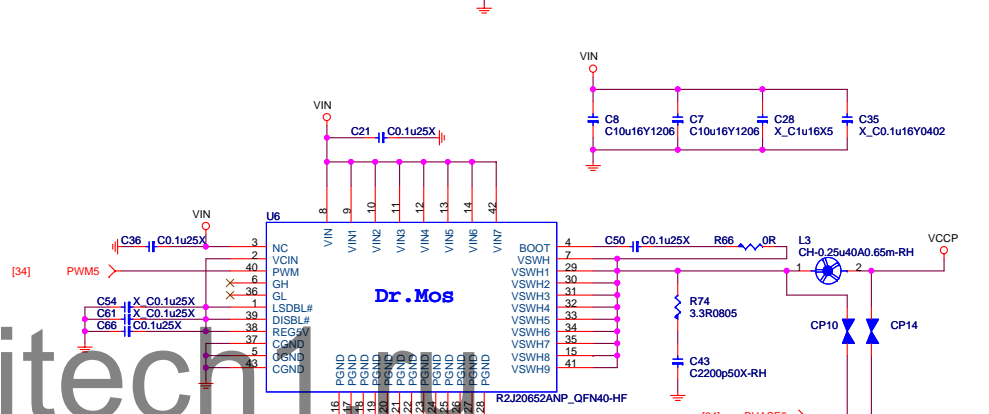
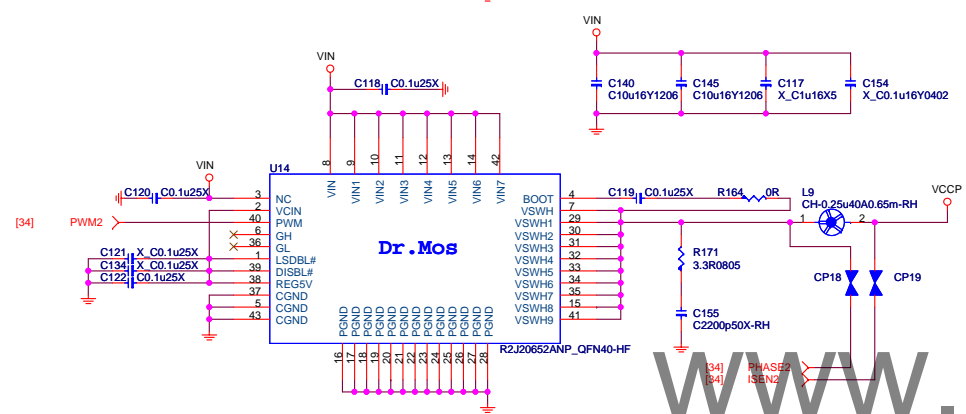
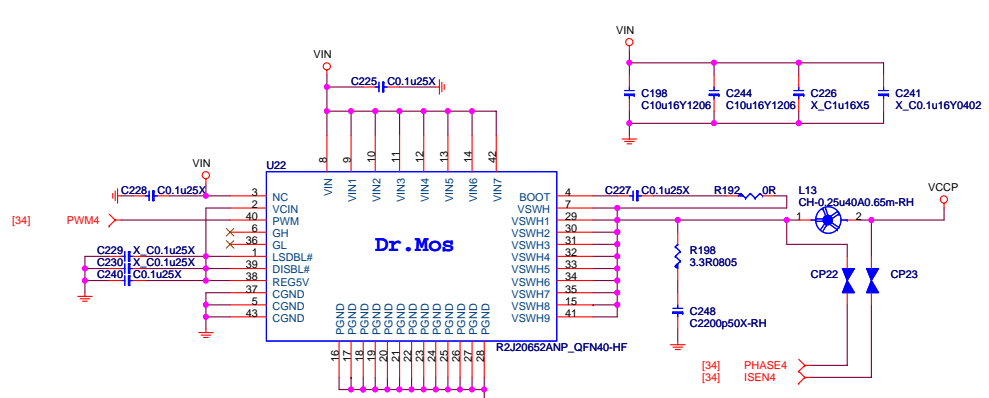
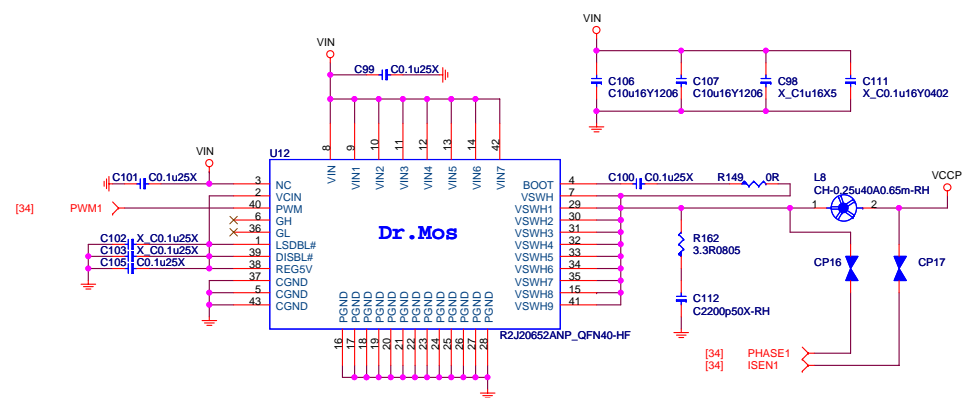
0x2A:RH=open,RL=10K;Bit7=1

ADDRESS	0x2A	0x28	0x26	0x24	0x22	0x20
RH (KOhm)	OPEN	3.9	3	2.2	1.3	10
RL (KOhm)	10	1.3	2.3	3	3.9	OPEN
BUS_SEL	0%	25%	40%	60%	75%	100%



<b>MICRO-START INT'L CO.,LTD.</b>		
Title		
<b>CPU VTT VR</b>		
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## ISL6366CR VRD12 POWER CKT



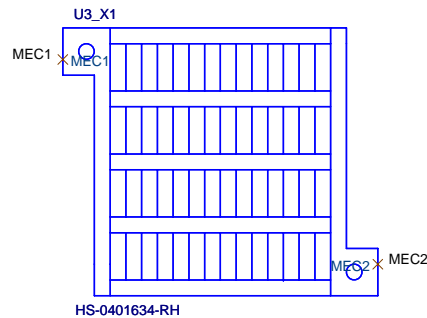
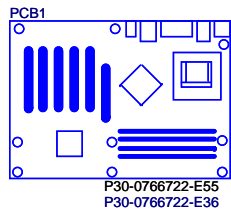
**MSI**  
Link to the Future  
**MICRO-START INT'L CO.,LTD.**

**VCORE POWER**

Size: Document Number: **MS-7667** Rev: **2.2**

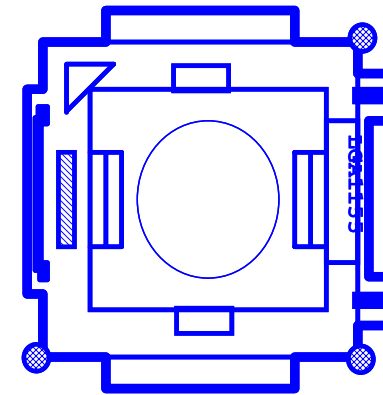
Date: Friday, January 14, 2011 Sheet: 35 of 40

Manual Parts

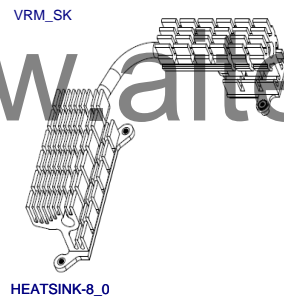
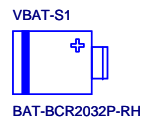
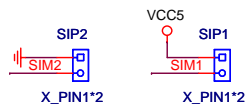


modify 0423

XU1\_X1  
CPU SOCKET\_2

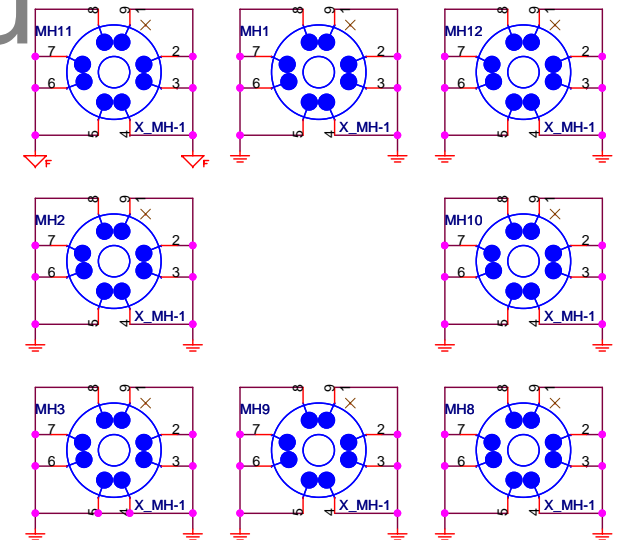


Simulation



PCB Mounting Holes

Mounting Holes



Optics Orientation Holes

Optical Fiducial Marks-120

