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# MS-7609

uATX Version:1.0

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

## System Chipset:

Intel Eaglelake - G43/45 (North Bridge)  
Intel ICH10/10R (South Bridge)

## On Board Device:

CLOCK Gen -- ICS 9LPRS113A  
LPC Super I/O -- Fintek F71889F  
LAN -- Realtek 8111DL/8103E(PCIE)  
HD Audio Codec -- RTL889/RTL888  
1394 Controller -- VIA 6315N  
PCIE to PATA -- JMB368

## Main Memory:

Dual-channel DDR-II \* 4

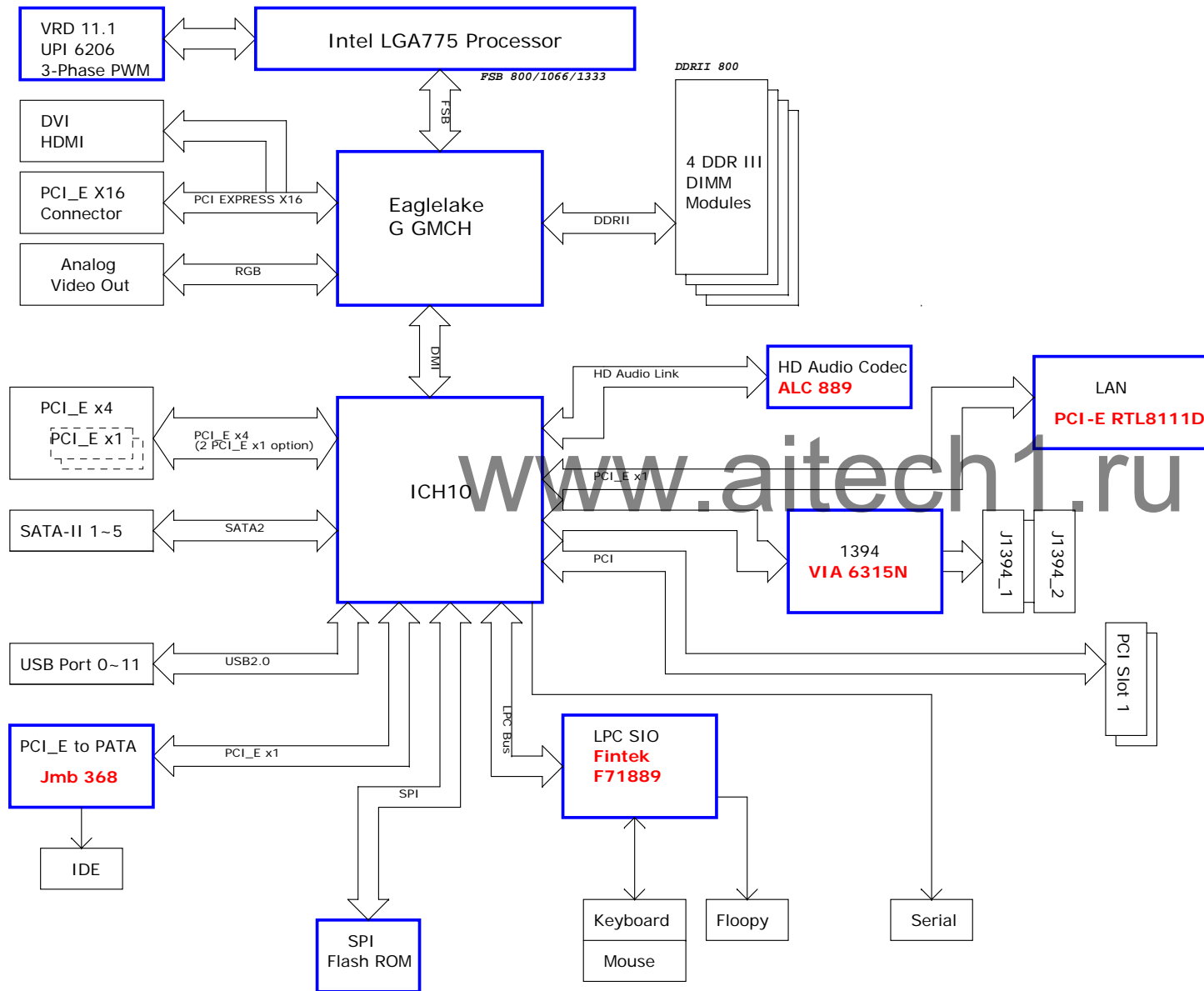
## Expansion Slots:

PCI EXPRESS X16 SLOT \*1  
PCI EXPRESS X1 SLOT \* 1  
PCI SLOT \* 2

**PWM:** UPI 6206

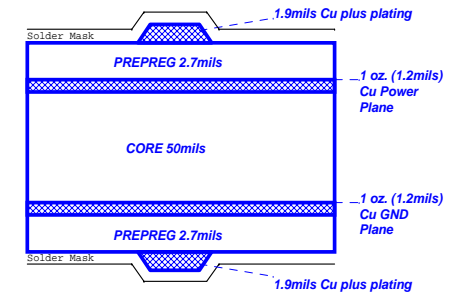
<b>MICRO-STAR INT'L CO.,LTD</b>		
<b>MS-7609</b>		
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# Block Diagram



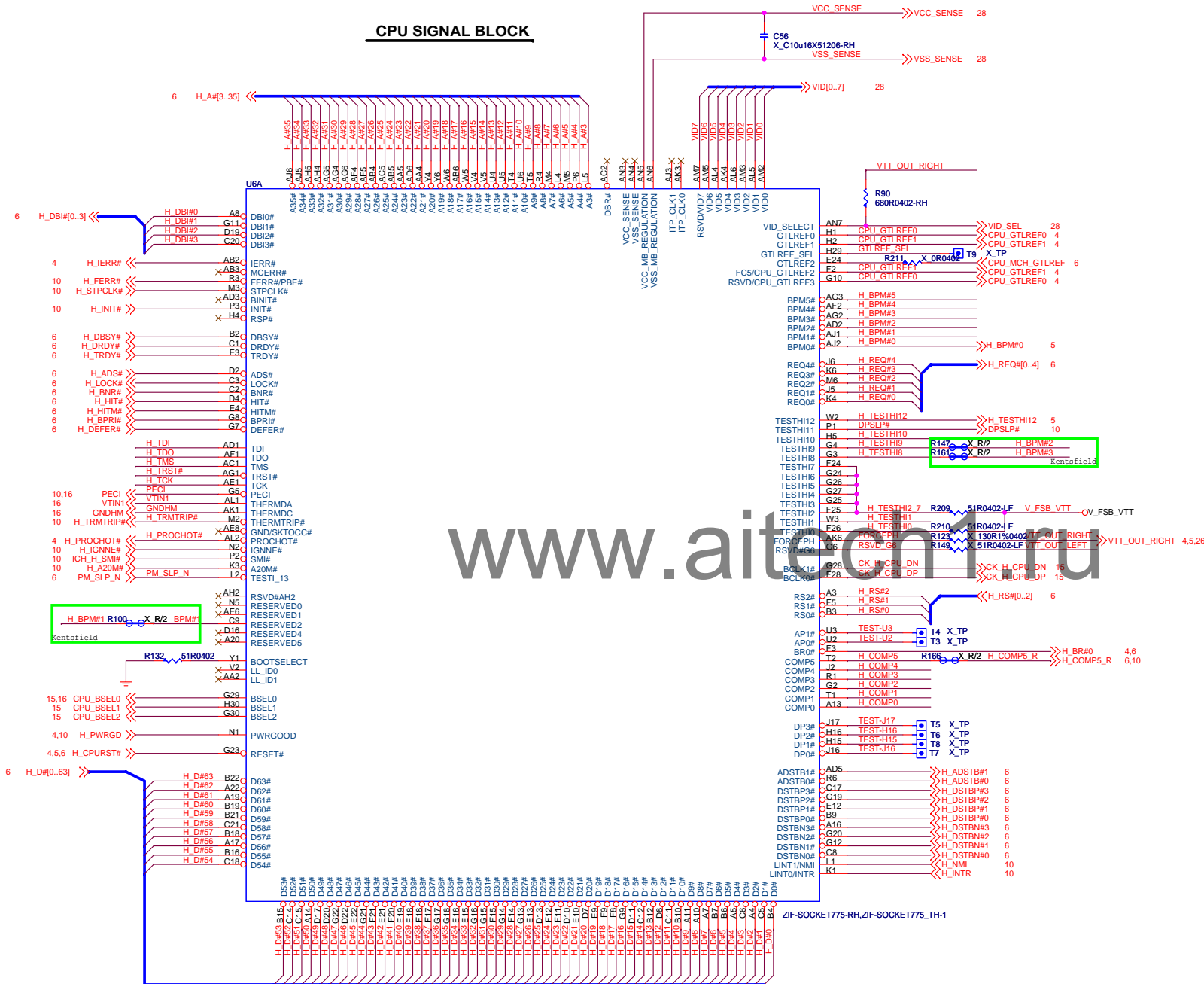
## Board Stack-up

(1080 Prepreg Considerations)

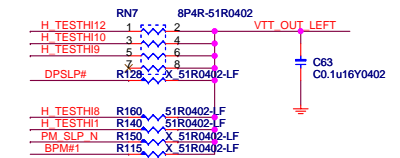
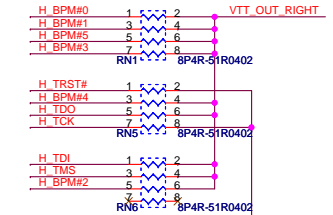
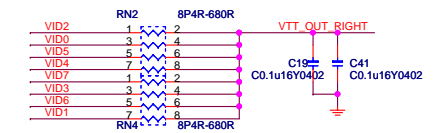


Single End 50ohm Top/Bottom : 4mils  
 USB2.0 - 90ohm : 15/4.5/7.5/4.5/15  
 SATA - 95ohm : 15/4/8/4/15  
 LAN - 100ohm : 15/4/8/4/15  
 PCIE - 95ohm : 15/4/8/4/15  
 IEEE1394 - 110ohm : 15/4/9/4/15  
 IDE : 15/4/8/4/15

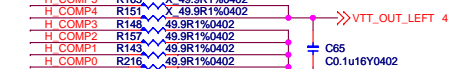
### CPU SIGNAL BLOCK



### PULL HIGHT PULL DOWN



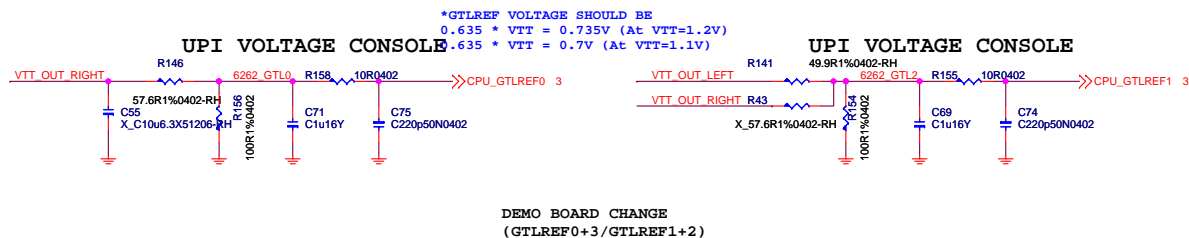
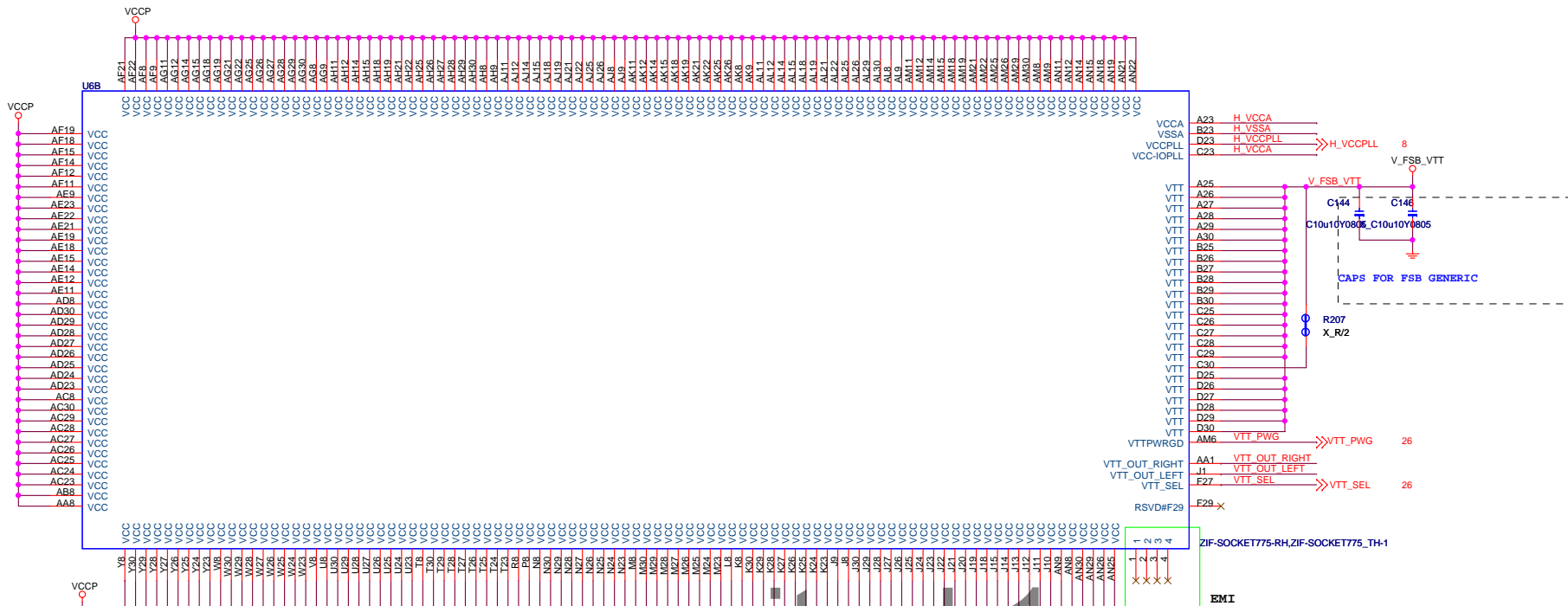
PM\_SLP\_N/H\_TESTHI1  
Demo schmatic is NC



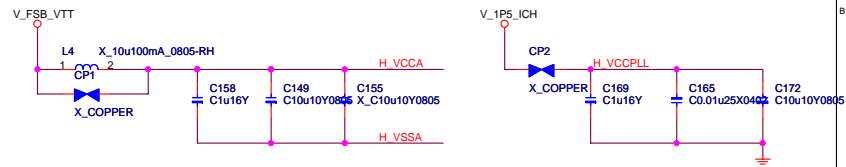
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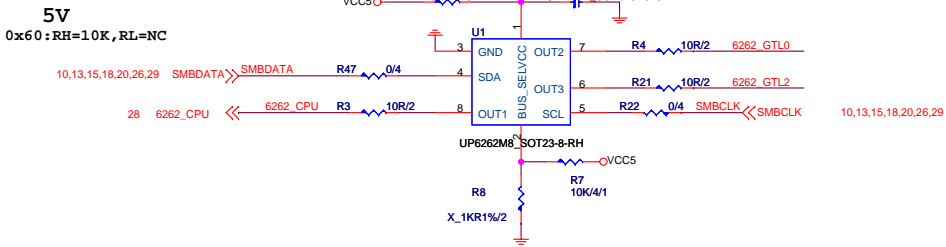


\*PLACE COMPONENTS AS CLOSE AS POSSIBLE TO PROCESSOR SOCKET  
 \*TRACE WIDTH TO CAPS MUST BE NO SMALLER THAN 12MILS

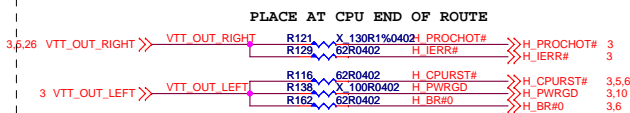


VTT\_PWG SPEC :  
 High > 0.9V  
 Low < 0.3V  
 Trise < 150ns

# UPI VOLTAGE CONSOLE

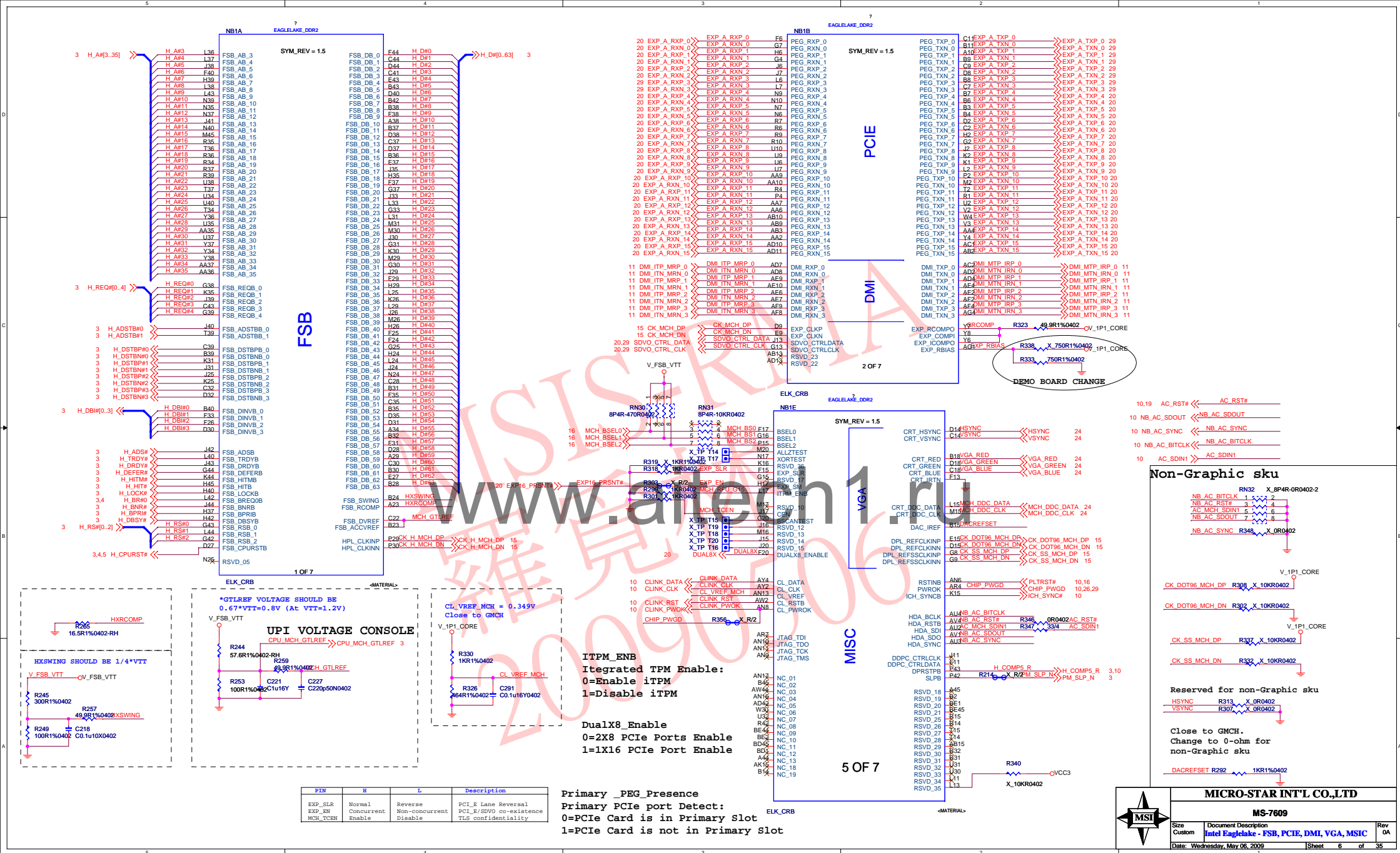


# VTT\_PWRGOOD



			<b>MICRO-STAR INT'L CO.,LTD</b>	
<b>MS-7609</b>				
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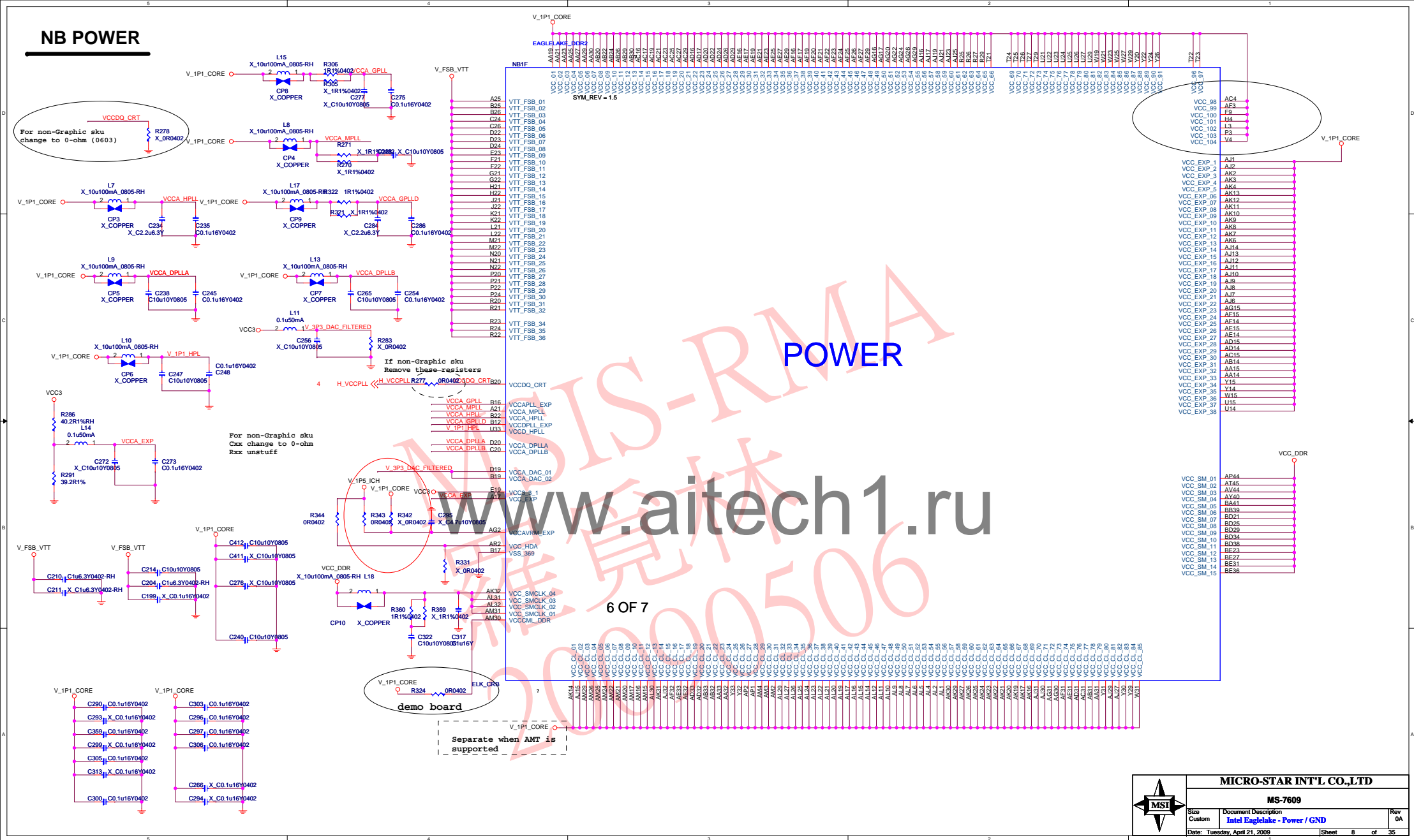




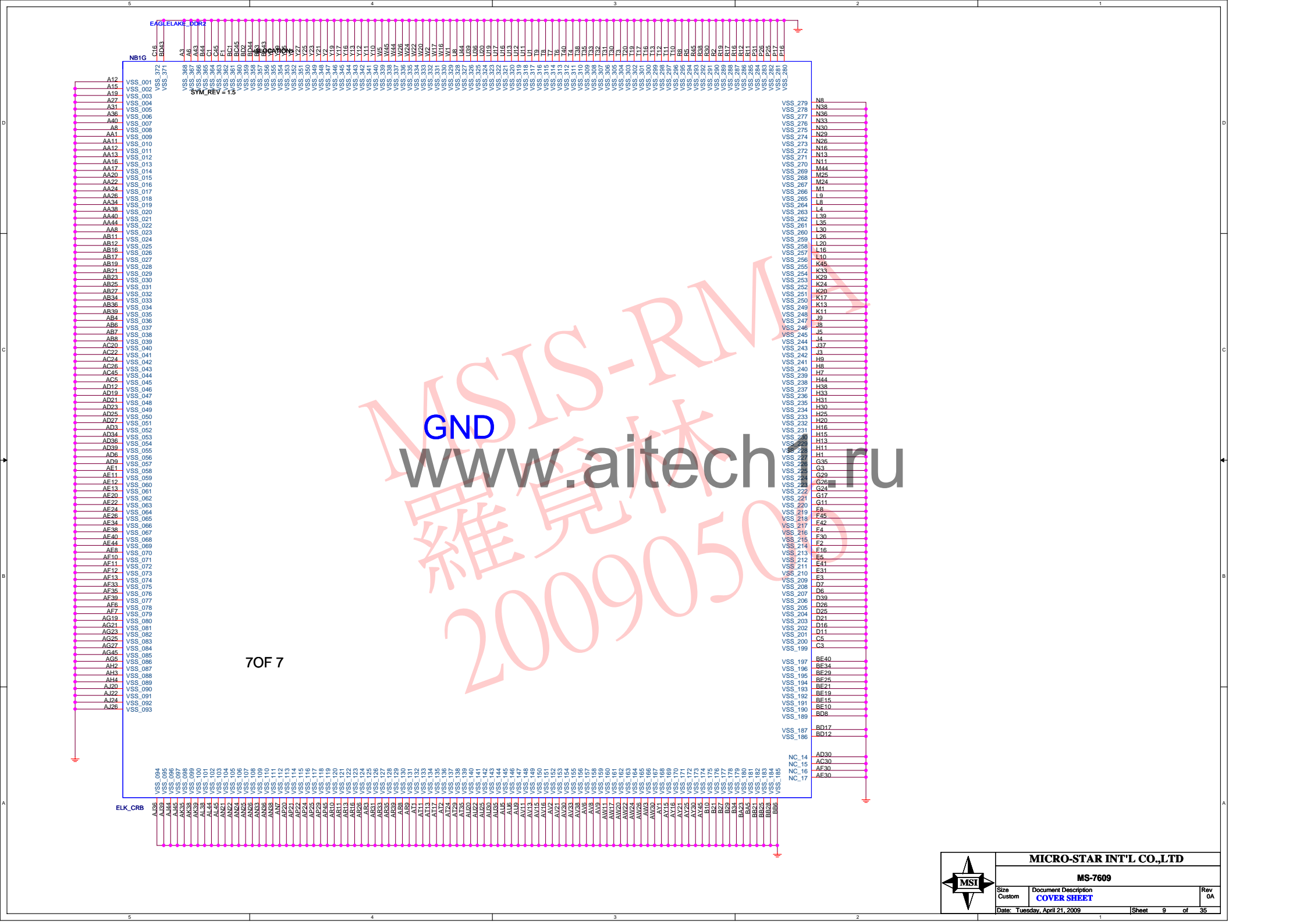


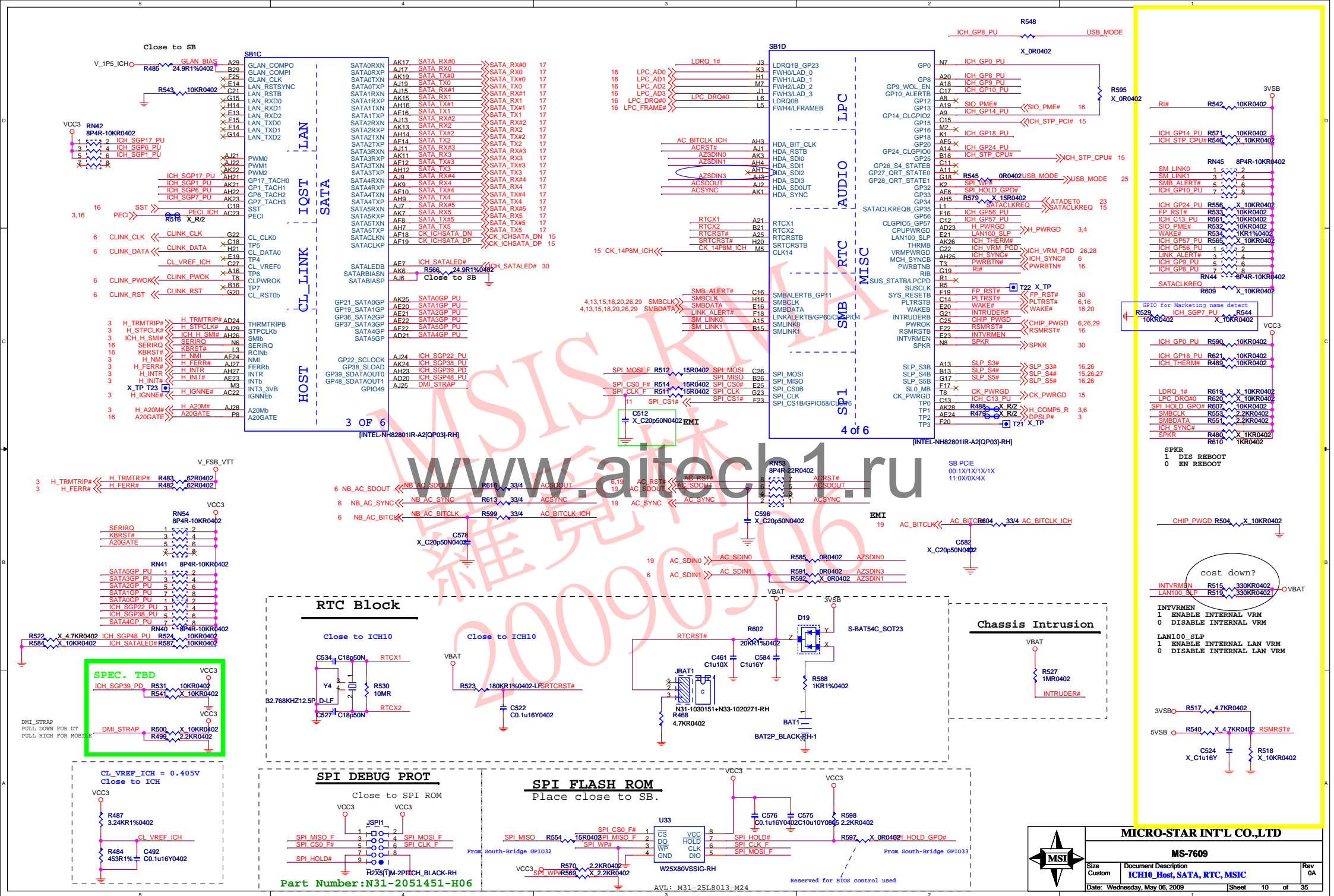


**NB POWER**



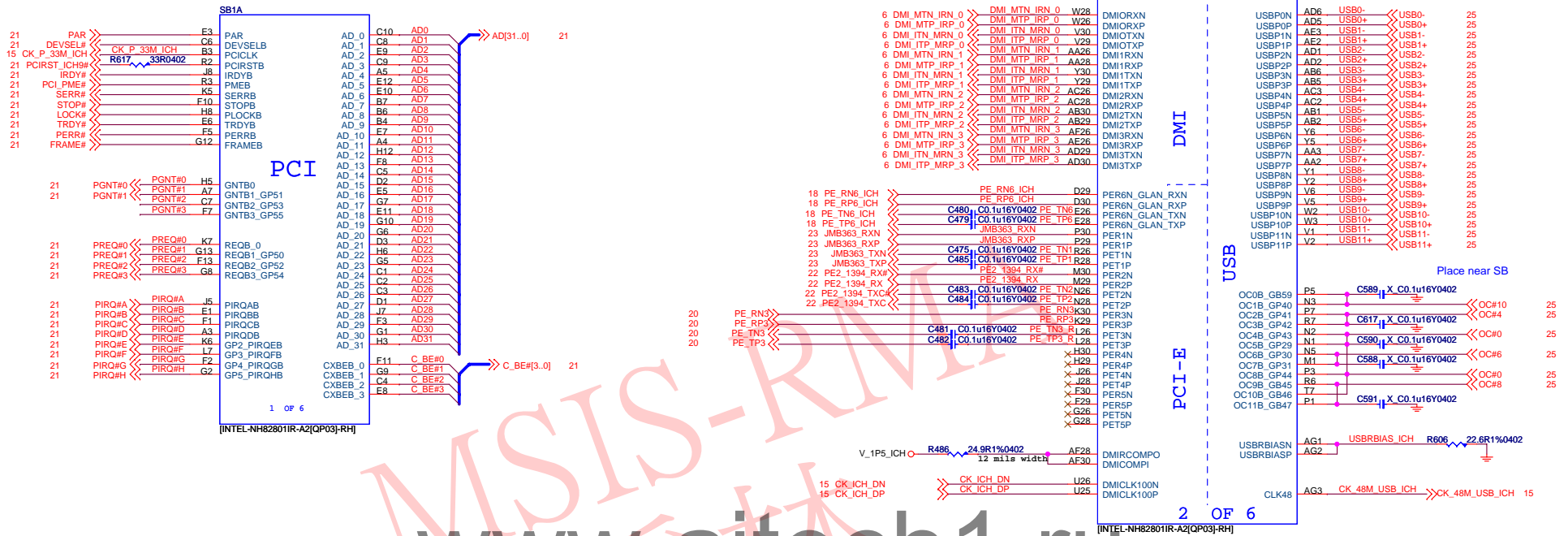




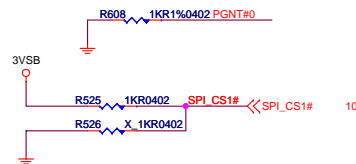


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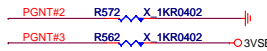
MICRO-STAR INT'L CO.,LTD			
MS-7609			
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Custom	ICH10_Host, SATA, RTC, MSIC	0A	
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## SB STRAPPING RESISTOR



BOOT SELECT STRAPS		
BOOT DEVICE	GNT#0	SPI_CS1#
FWH	1	1
SBI	0	X
PCI	1	0



SIGNAL	H	L	DES.
GNT 3	DIS	EN	A16 OVERRIDE
GNT 2	N/A	SET BIT	PCIE PORT CONFIG 2 BIT 0 (5-6)

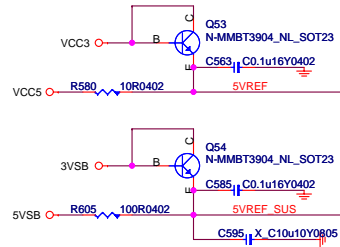


MICRO-STAR INT'L CO.,LTD

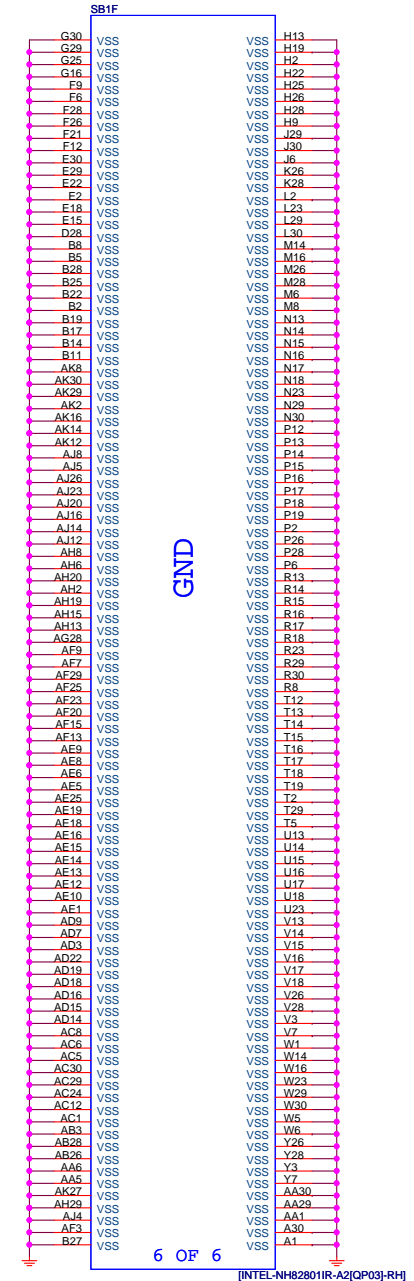
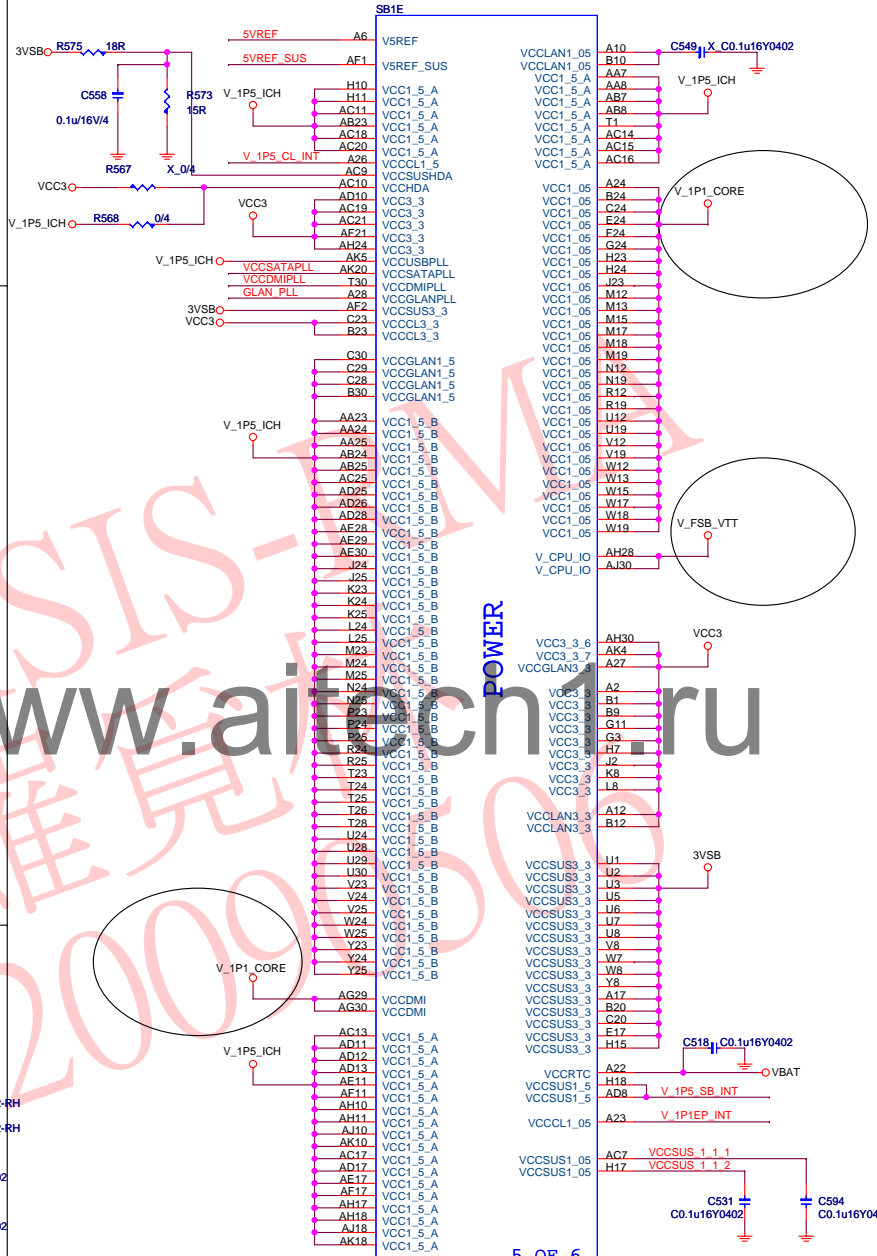
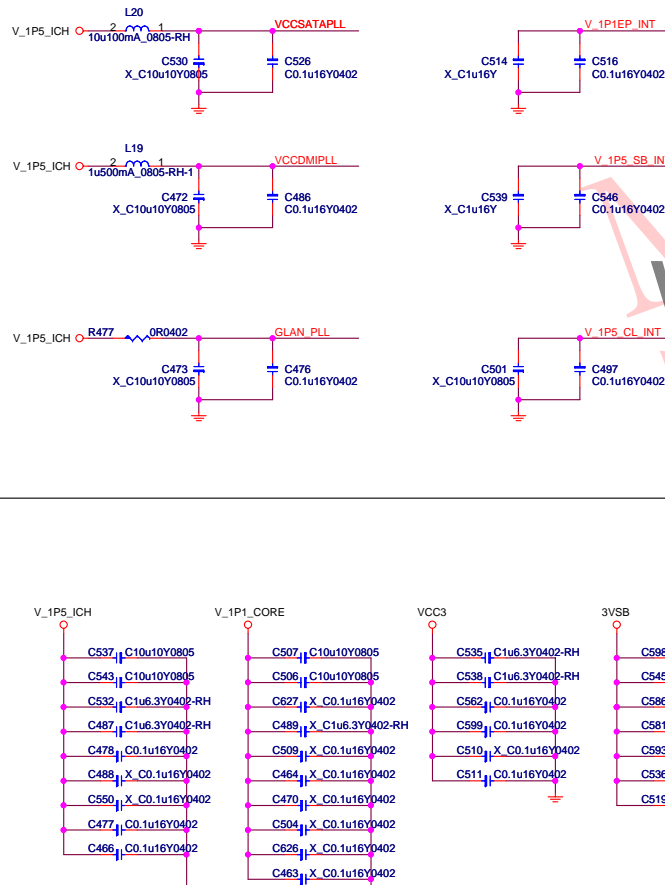
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Custom	ICH10_PCI, USB, DMI, PCIe1	0A
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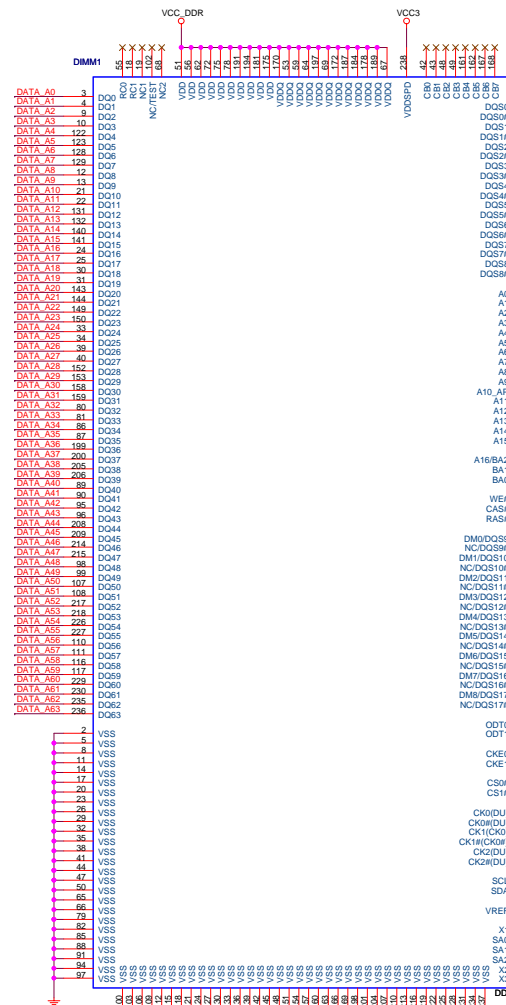
# 5VREF & 5VREF\_SUS Sequencing Circuit



## SB POWER

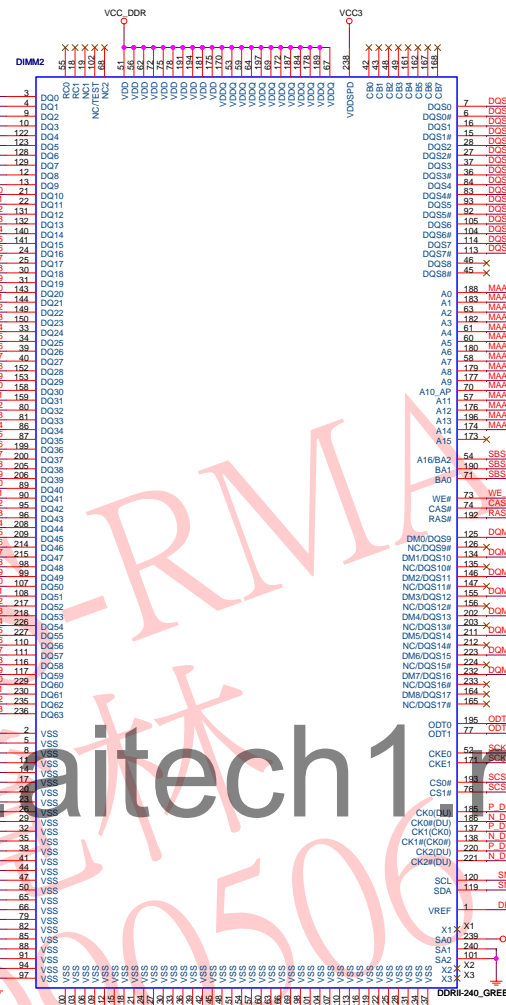


AC7, H17 & H18, AD8  
spec TBD



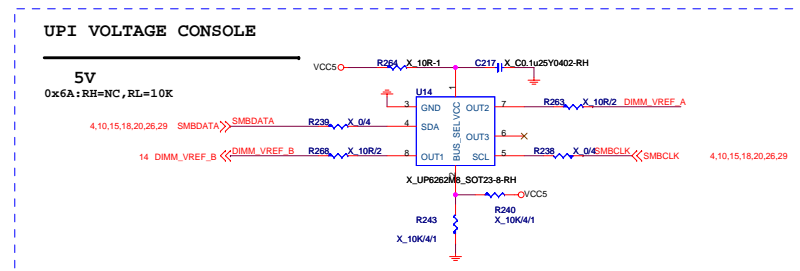
DDRII DIMM\_A1

ADDRESS: 000  
0xA0



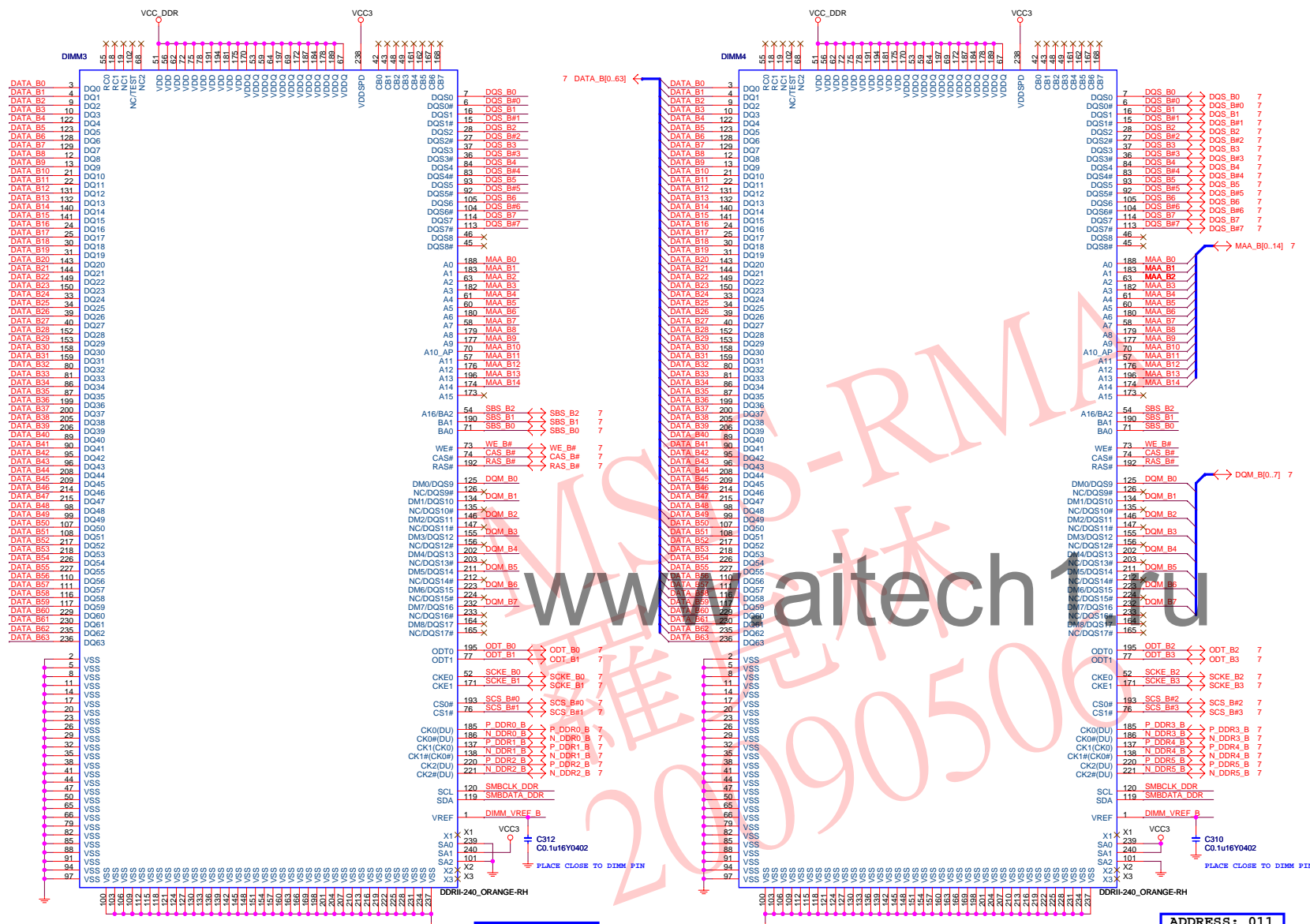
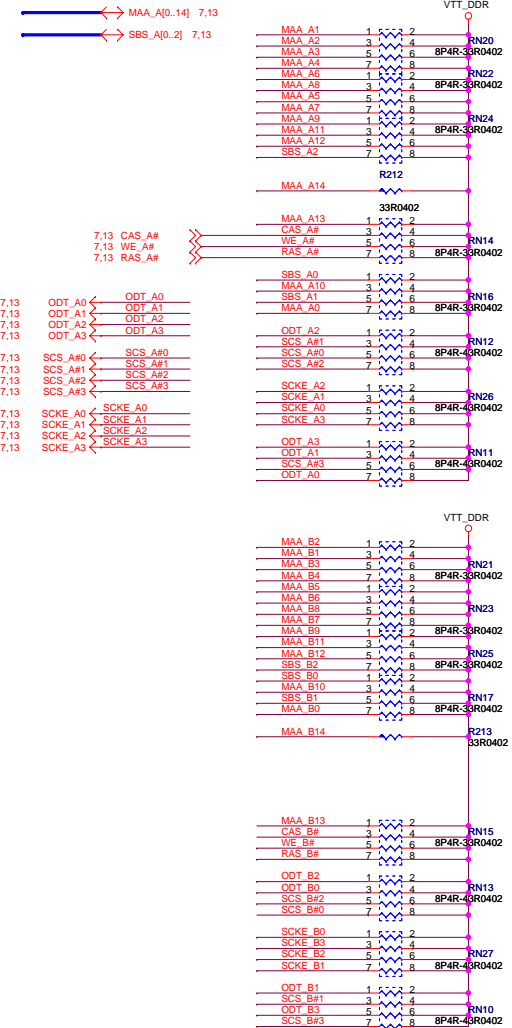
DDRII DIMM\_A2

ADDRESS: 001  
0xA2





# DDR II Termination

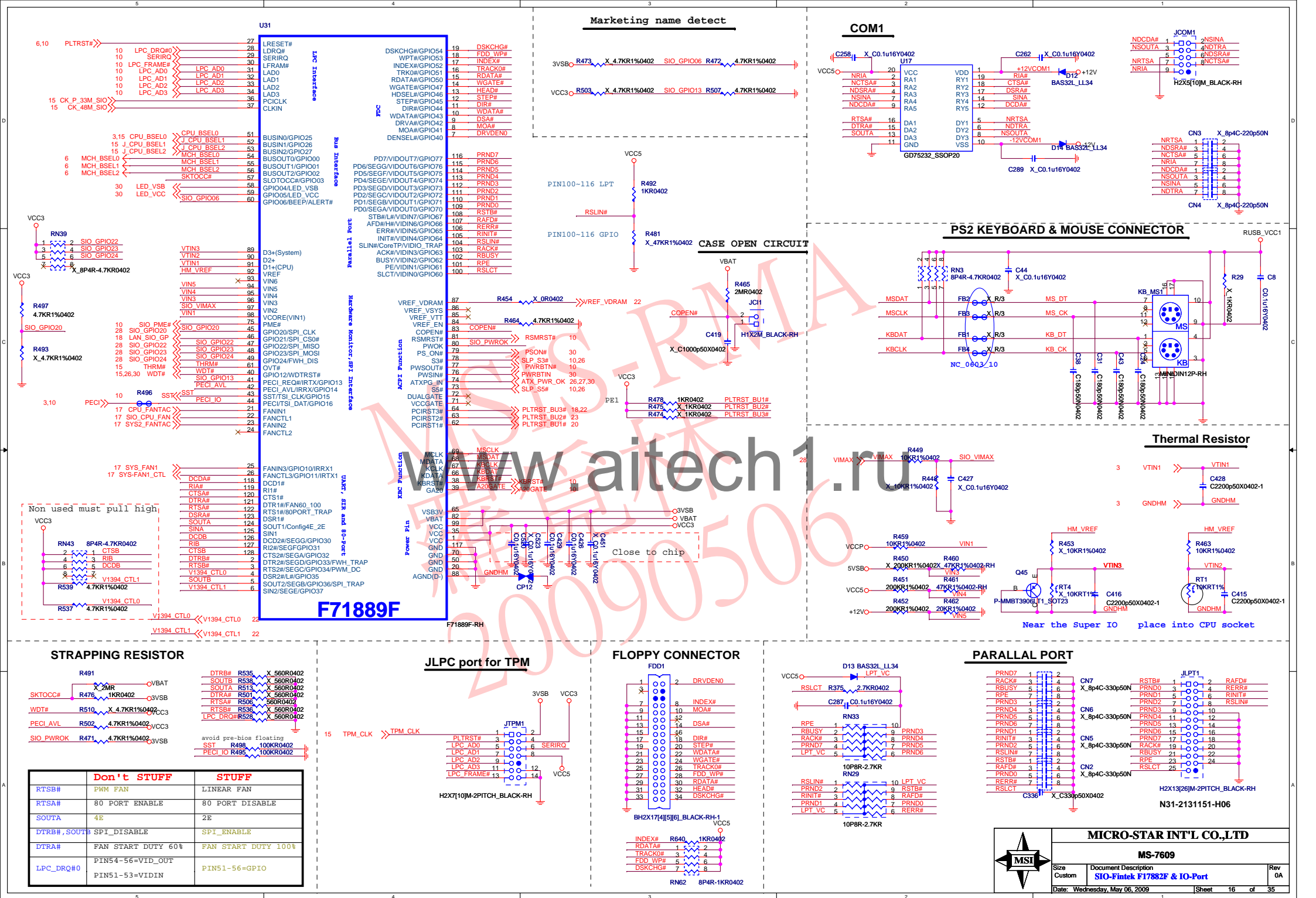


DDR II DIMM\_B1

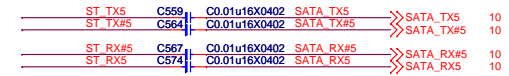
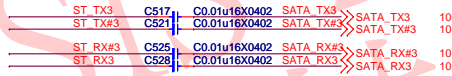
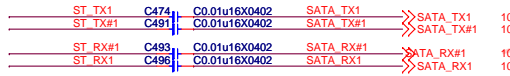
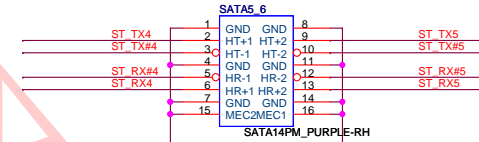
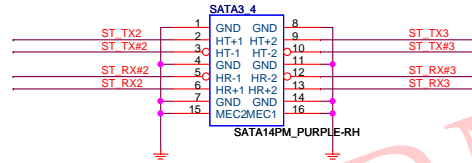
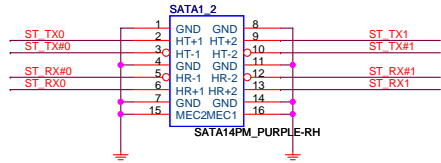
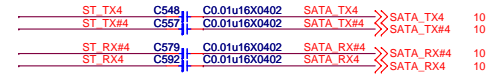
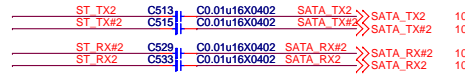
DDR II DIMM\_B2





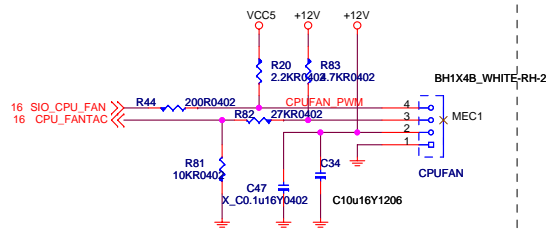


## SATA

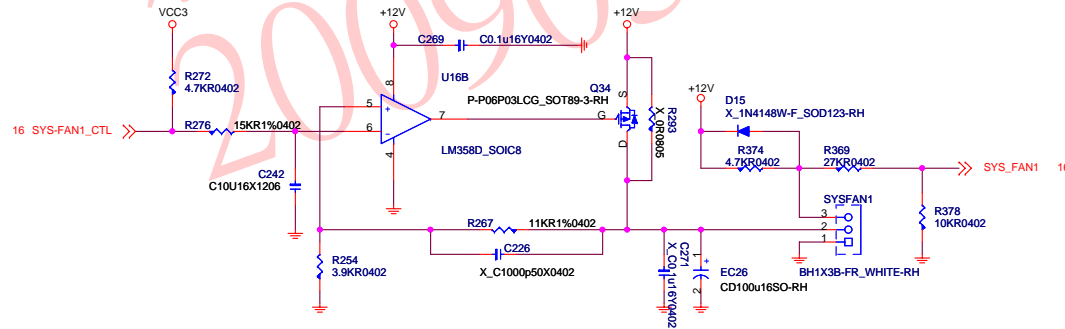


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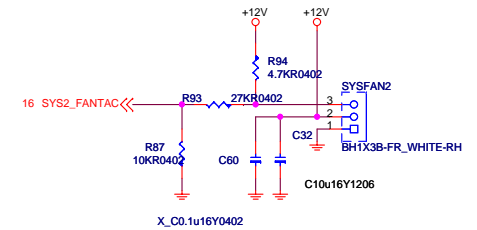
## CPU FAN



## SYSTEM FAN



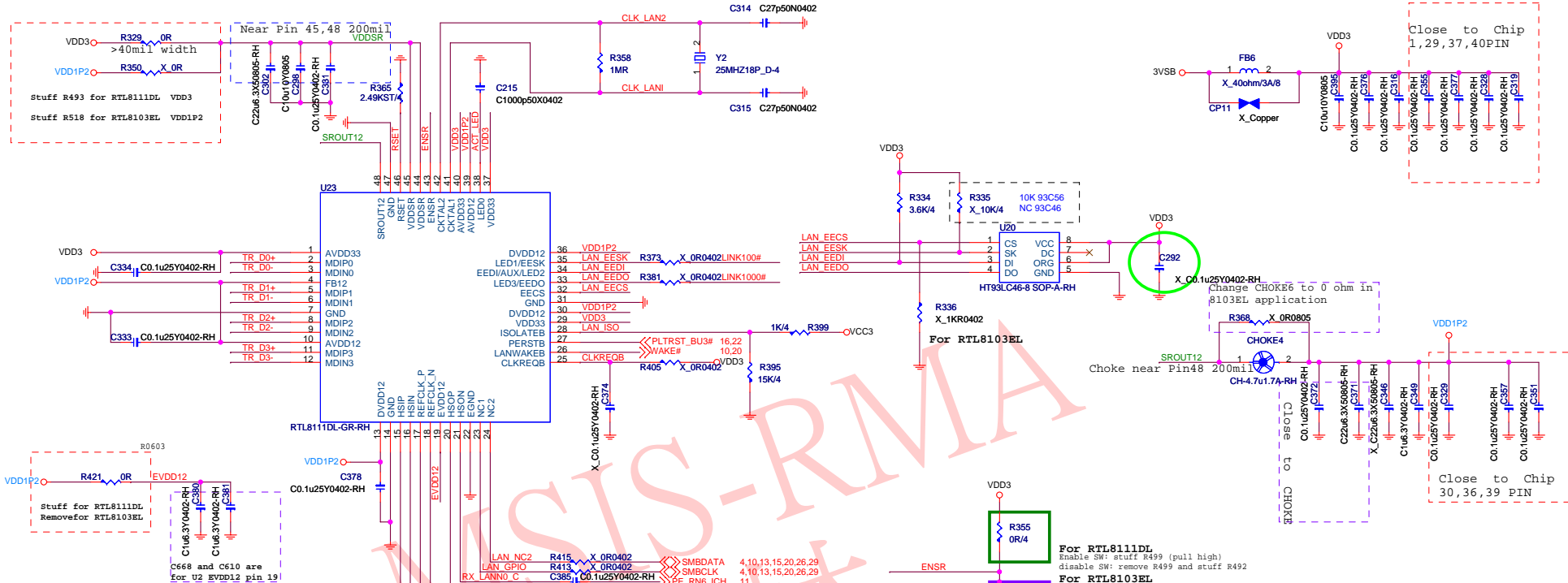
## PWR-FAN



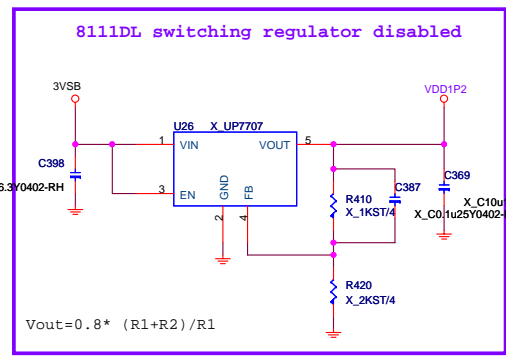
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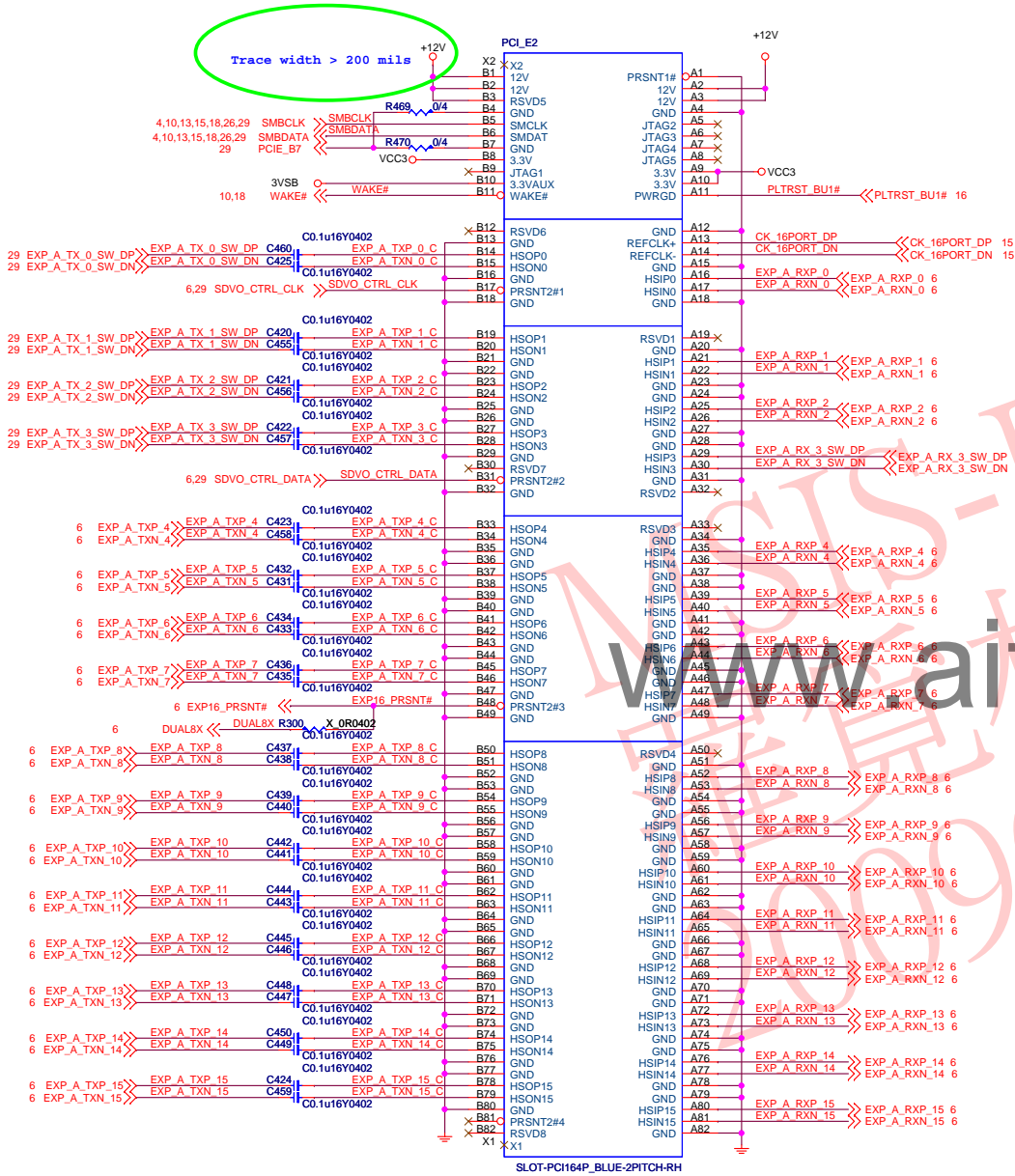


Giga-Lan	10/100-Lan
N58-22F0731-F02	N58-22F0771-F02
Link Yellow	Link Yellow
Active Blinking	Active Blinking
1000 Orange	100 Green
100 Green	10 None
10 None	
19 Yellow	19 Yellow
20 Yellow	20 Yellow
21 Orange	21 Orange
22 Green	22 Green

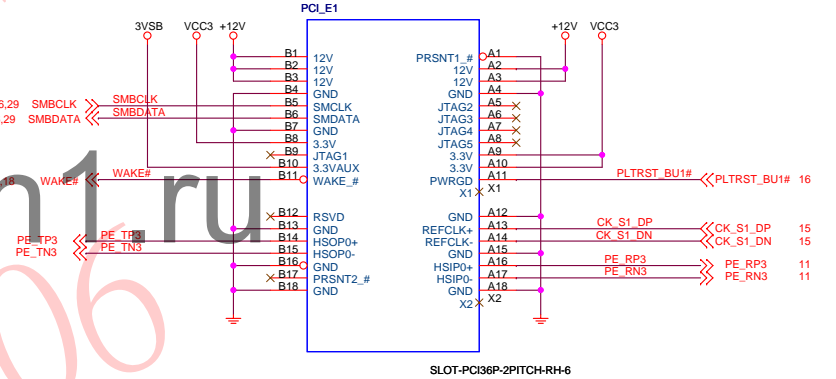




# PCI\_Express X16 Slot



## PCI EXPRESS x1-PORT



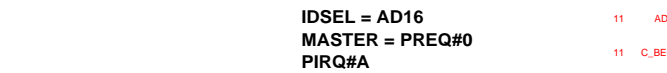
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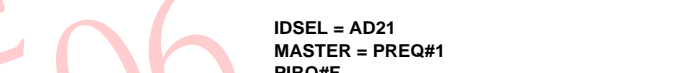
-12V +12V



```

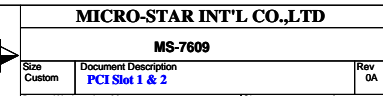
IDSEL = AD16
MASTER = PREQ#0
PIRQ#A

```

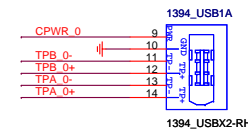


```
IDSEL = AD21
MASTER = PREQ#1
PIRQ#E
```

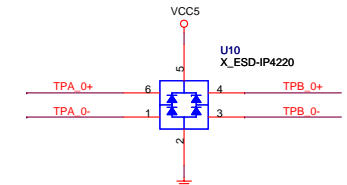
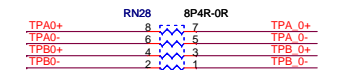
1000



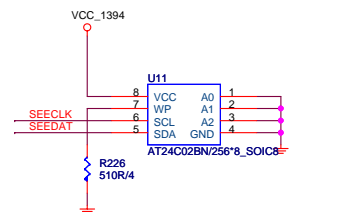
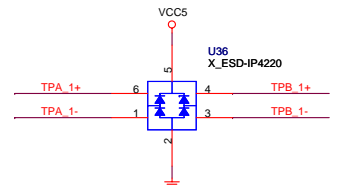
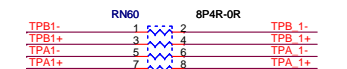
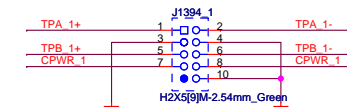
Rear 1394 port



**N58-14M0031-L06**



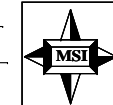
**N31-2051551-H06**



## VT6315N

### Power domain chart

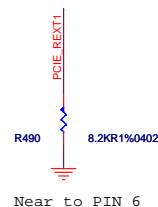
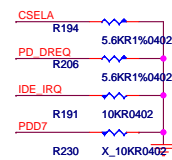
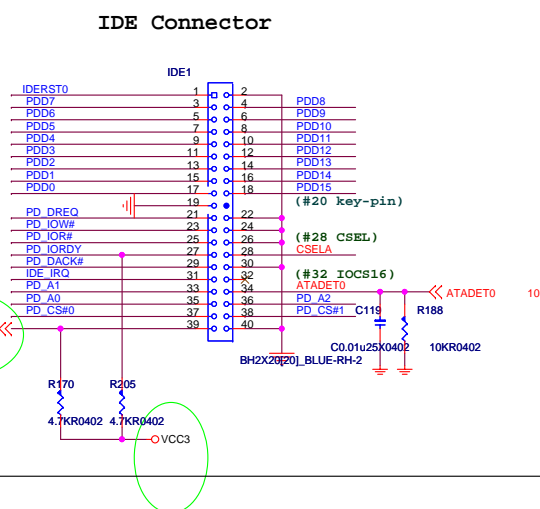
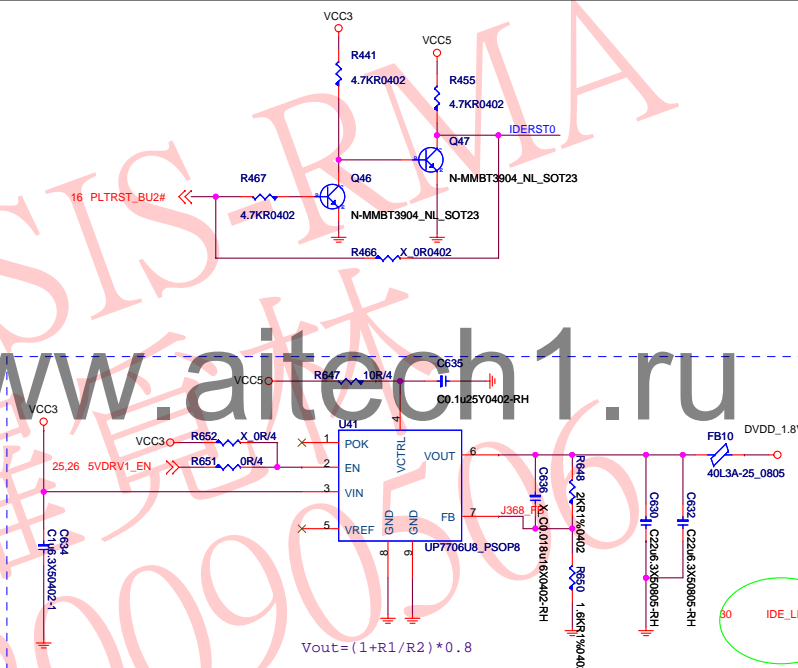
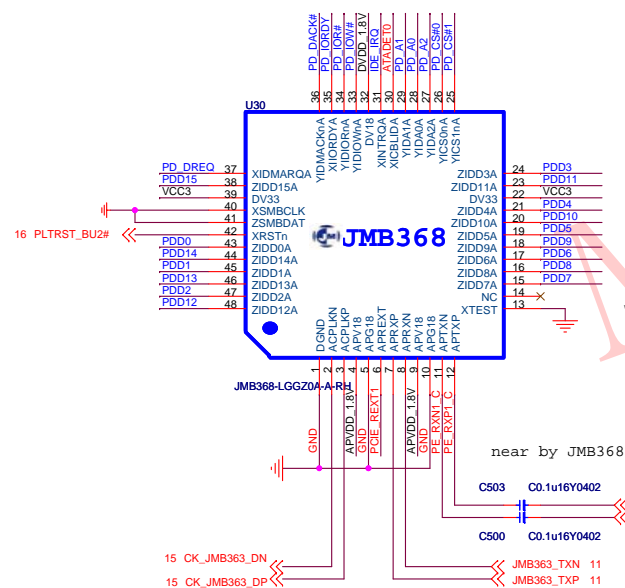
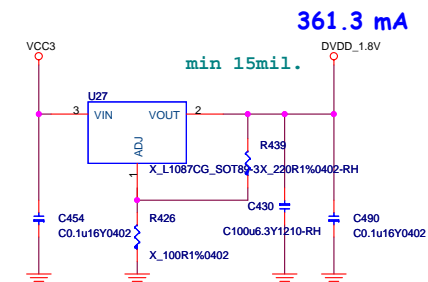
PIN Name	PIN NO.	Description
VCC_1394	17,46,38	PCIE power 3.3V
VCCA	6,10,20,26,32	Analog power 3.3V
VCC_CORE	18,19,39	Core power 1.2V
VCORE_A	2,5	Analog core power 1.2V



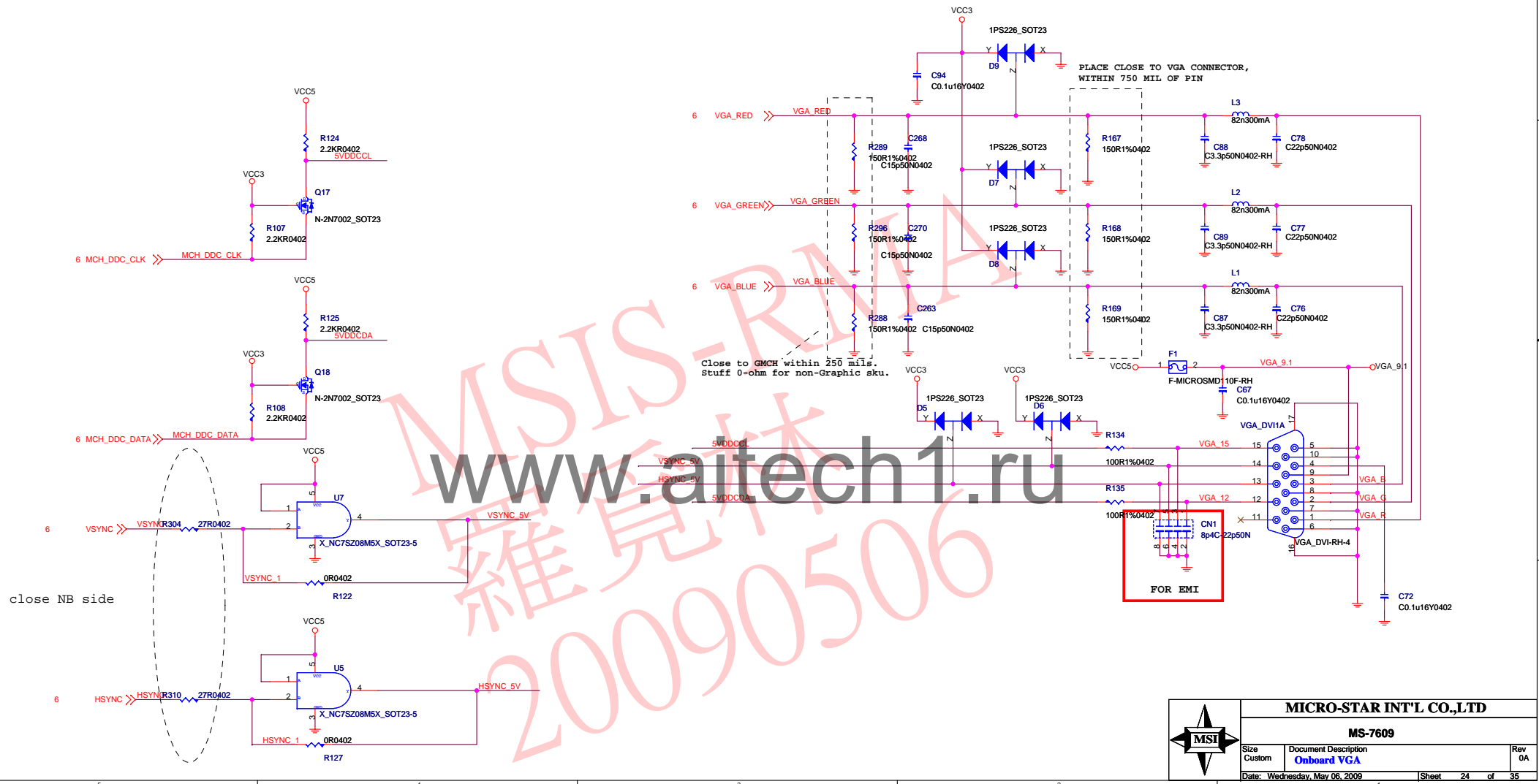
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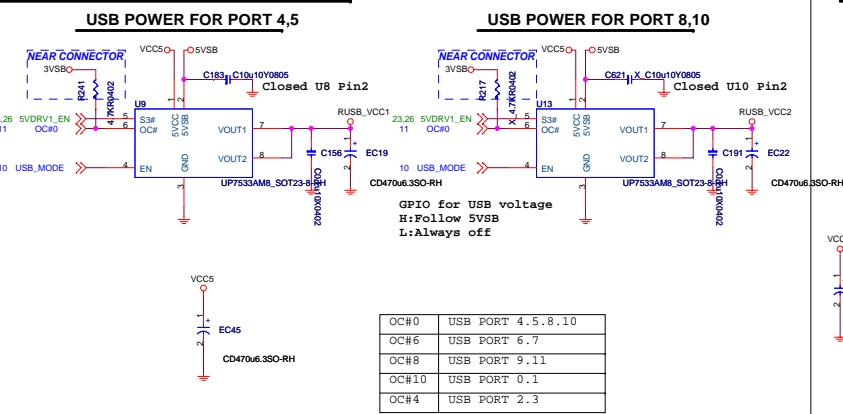


# Video Connector

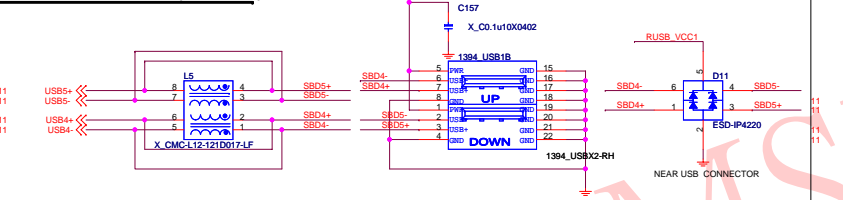


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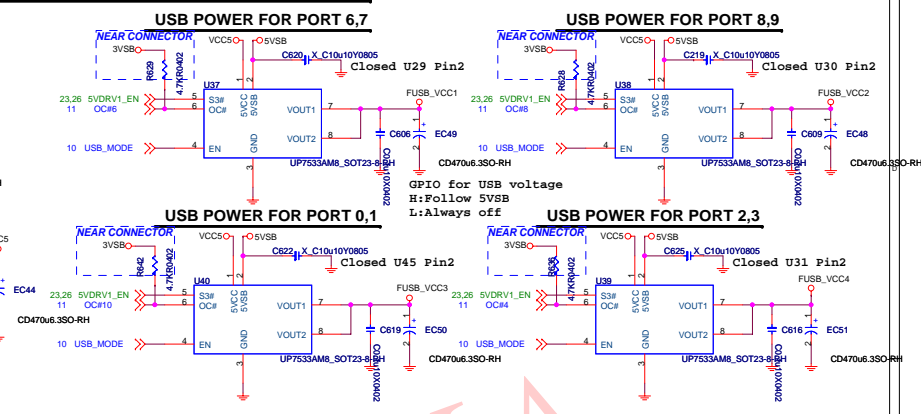
Rear USB Connector



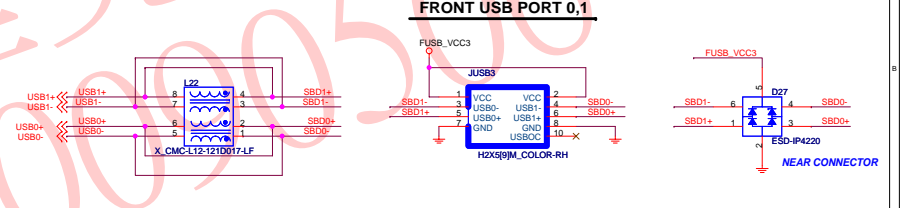
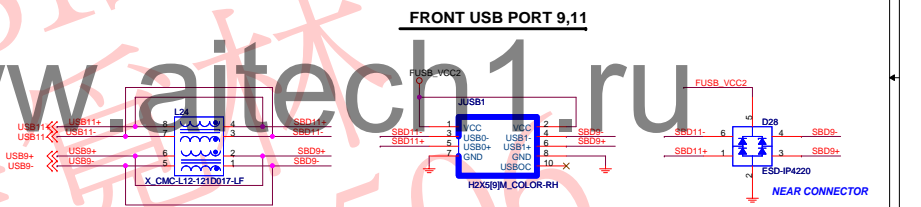
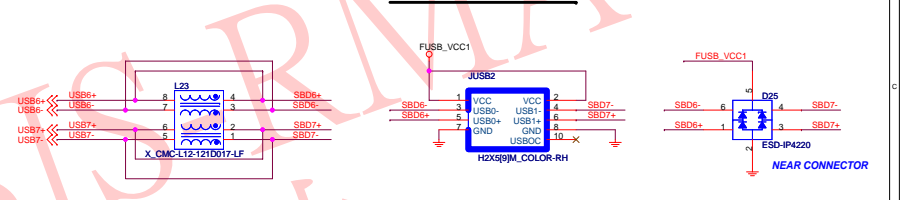
REAR USB PORT 4,5(With 1394)



Front USB Connector



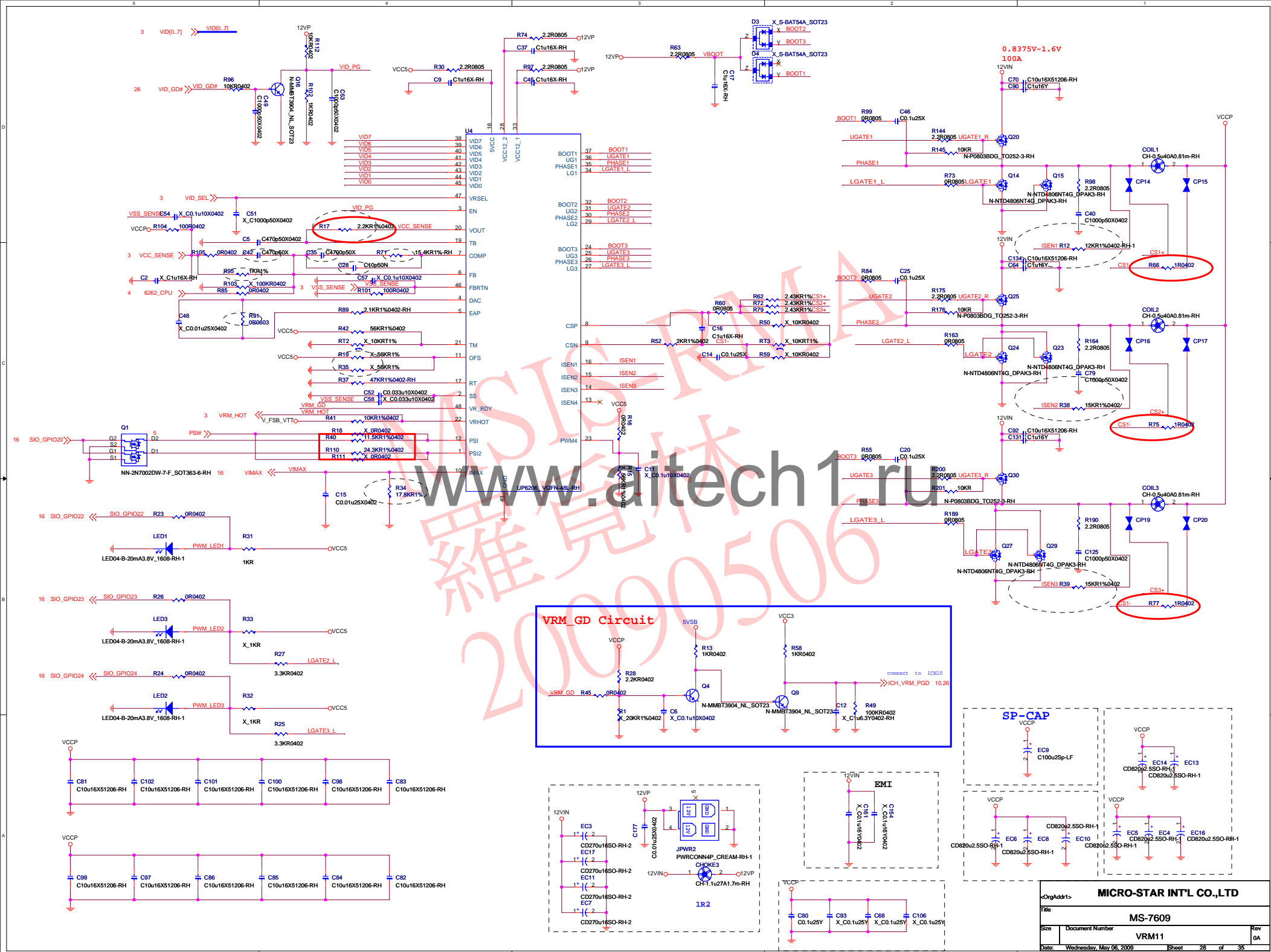
FRONT USB PORT 6,7

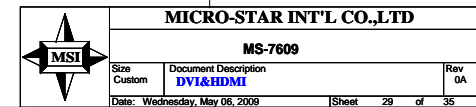




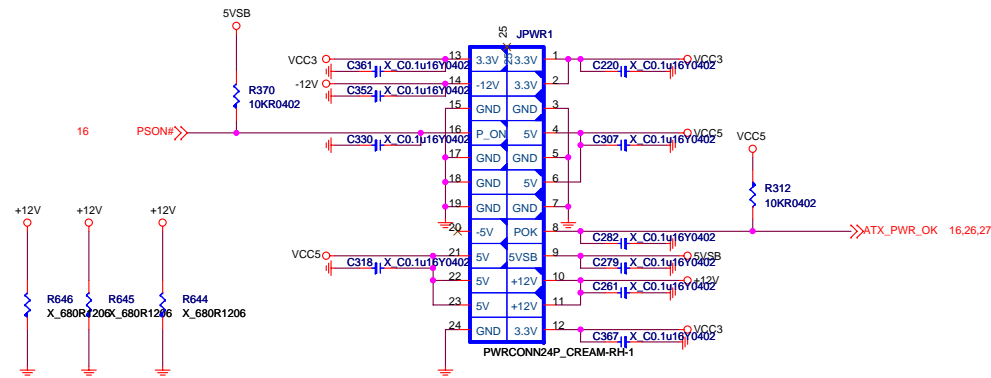








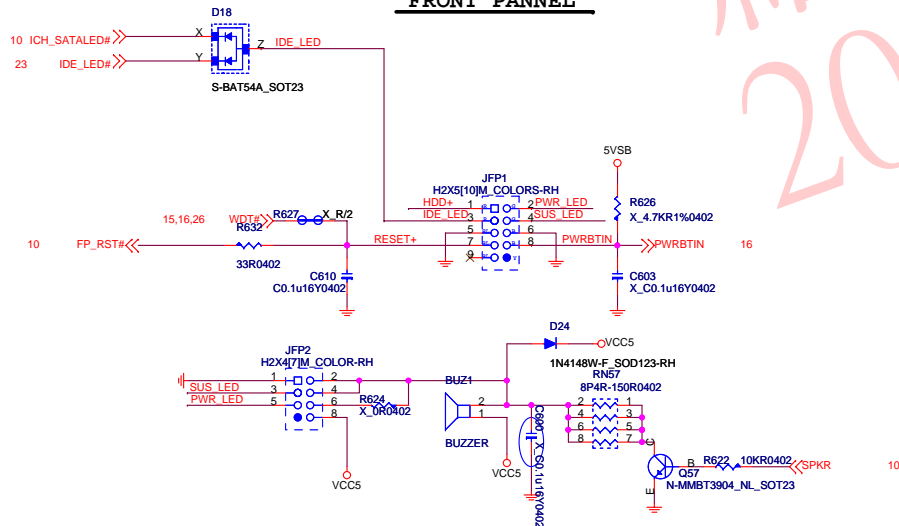
## ATX POWER CONNECTOR



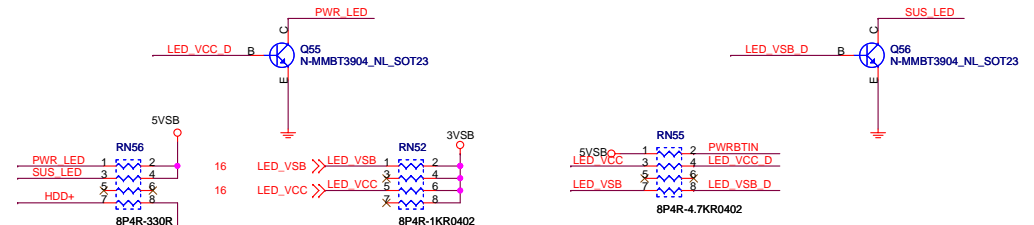
## Cap. for EMI & Power




## FRONT PANNEL

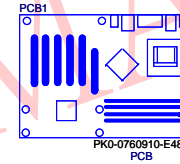
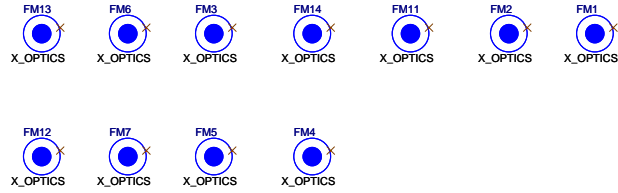


## LED ( for Fintek 71889)

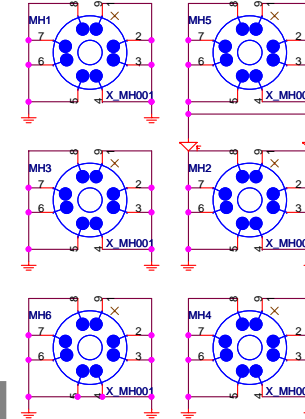


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# Optics Orientation Holes



# Mounting Holes



# Simulation

