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MS-7618_{mini-ITX} Version: 10



MSI
MICRO-STAR INTERNATIONAL

CPU:

Intel Pine view-D (1.6 GHz) D510 2c/ 4t/ 2x512k 15W
D410 1c/ 2t/ 1x512k 12W

Main Memory:

Single Channel DDRII x 2 (Max 4GB) (667 / 800 MHz)

System Chipset:

North Bridge : Intel Tiger Point

On Board Chip:

Super I/O : FINTEK F71889F
LAN : REALTEK RTL8111DL (Colay RTL8103EL 10/100)
Audio Codec : REALTEK ALC888S

Expansion Slots:

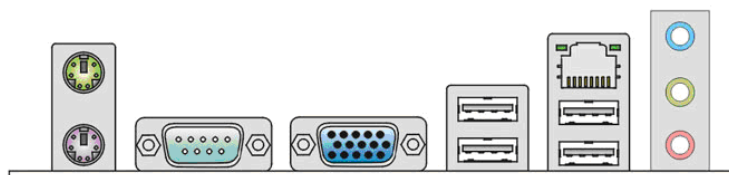
PCI 2.2 SLOT x 1

PWM:

Controller : Intersil 6314 + Dr.MOS (1 Phase) 15W (Dual Core)
12W (Single Core)

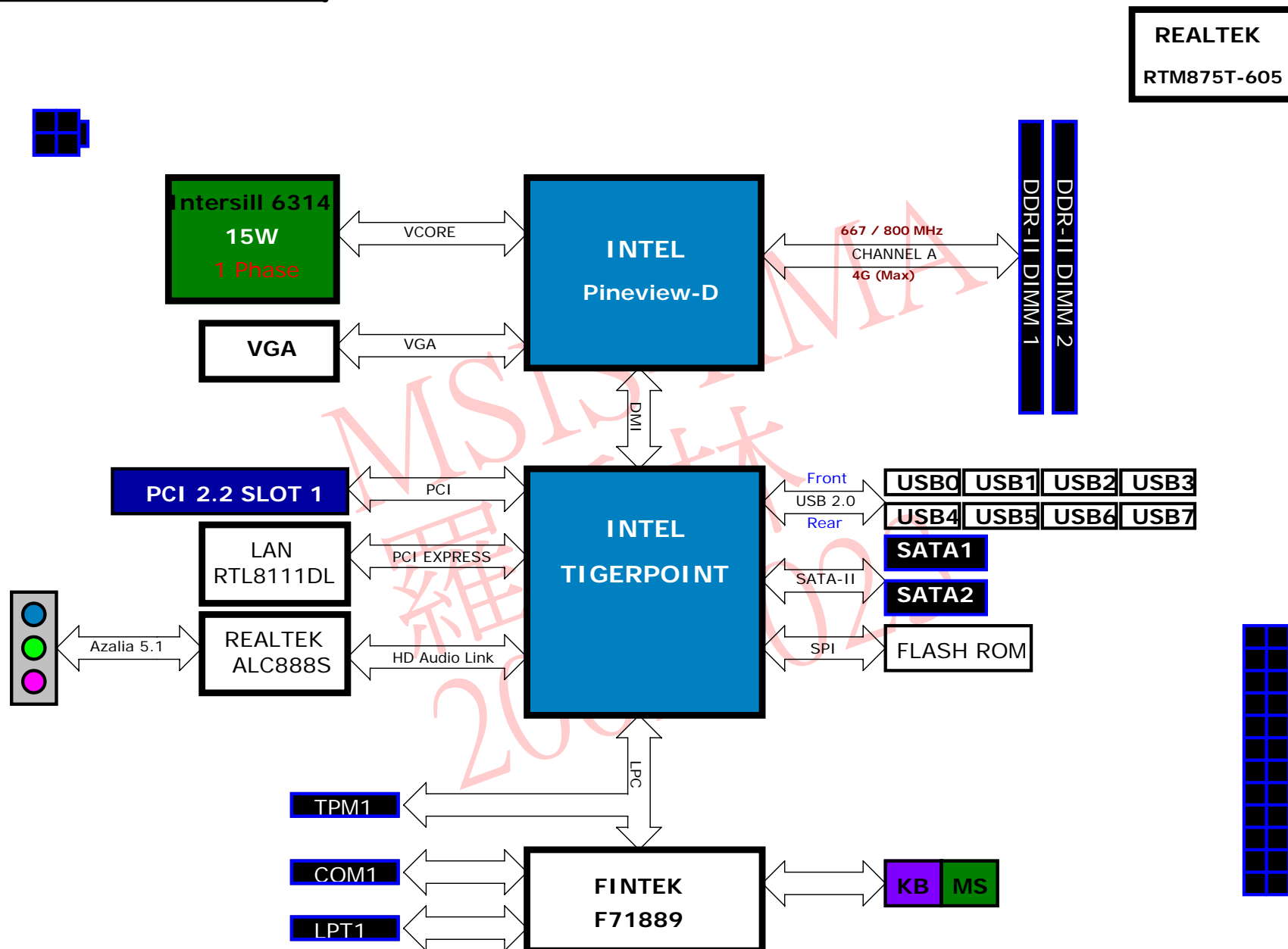
Clock Generator:

Controller : REALTEK RTM875T-605



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		COVER SHEET	
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Block Diagram



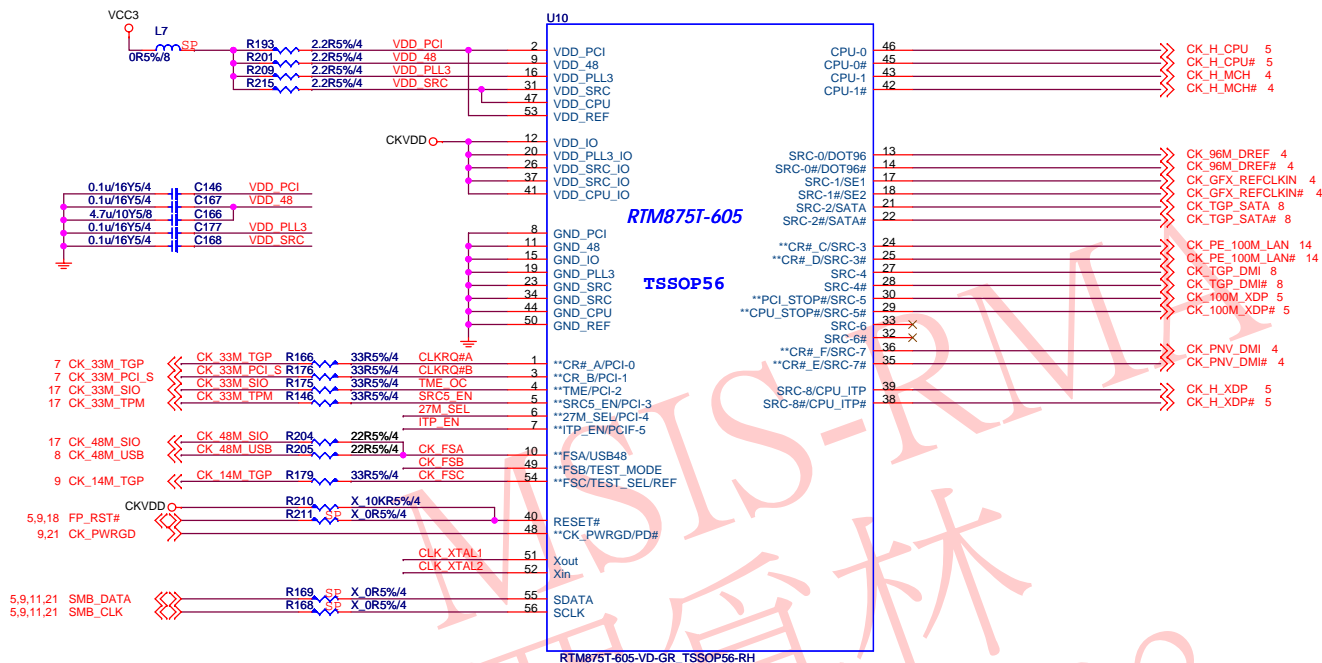
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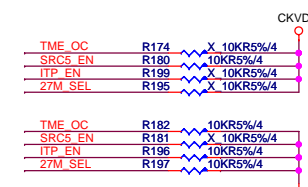
Size Custom	Document Description BLOCK DIAGRAM	Rev 10
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Clock Generator - RTM875T-605

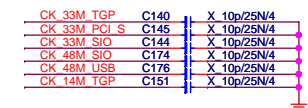
L01-1007034-J07
change to R11-0000034-W08



STRAPPING RESISTOR



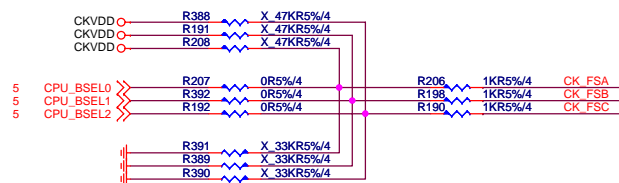
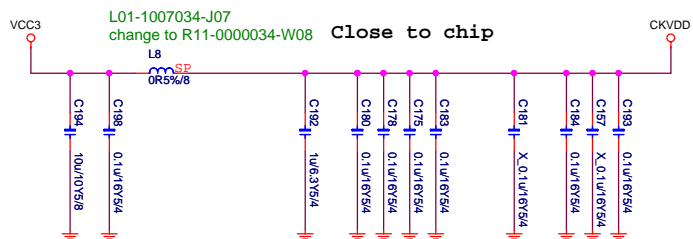
	PULL LOW	PULL HIGH
TME_OC	Normal Run	No Overclocking
SRC5_EN	Pin29/30 is PCI STOP/CPU STOP	Pin29/30 is SRC 5
ITP_EN	Pin38/39 is SRC 8	Pin38/39 is CPUITP
27M_SEL	Pin17/18 is SRC 1	Pin17/18 is 27MHz

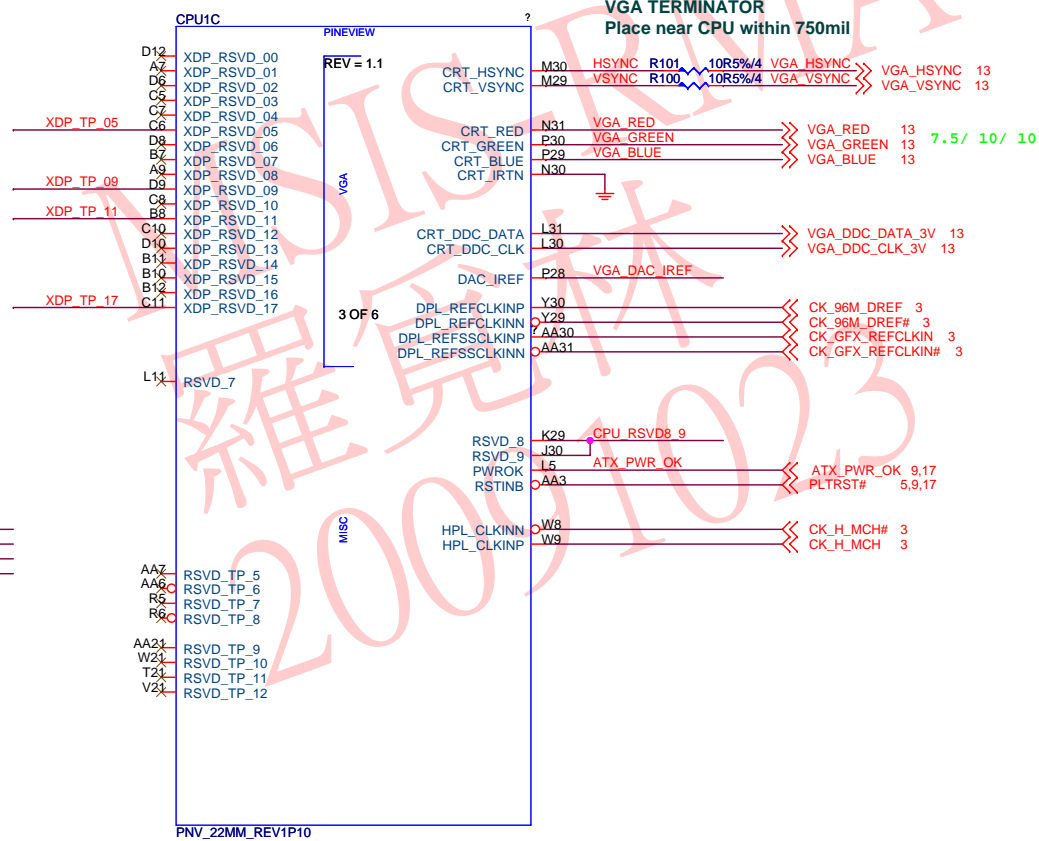
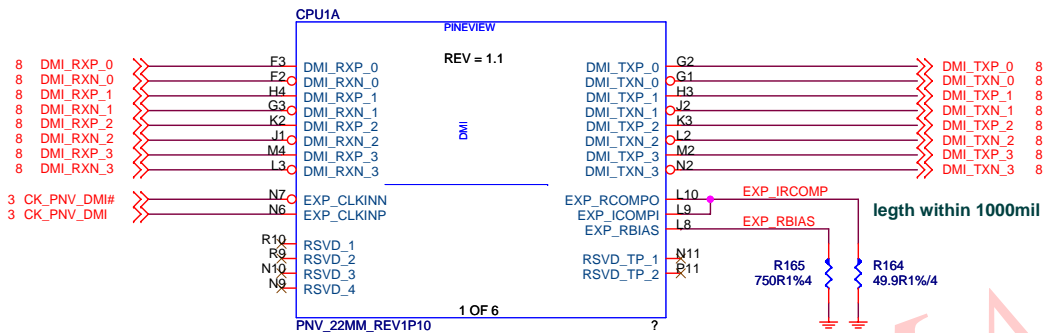


Clock Generator Power Good Block

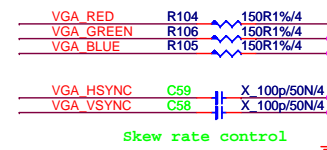
FSLC	FSLB	FSLA	CPU	PCIE	PCI
0	0	0	266.66	100	33.33
0	0	1	133.33	100	33.33
0	1	0	200.00	100	33.33
0	1	1	166.66	100	33.33
1	0	0	333.33	100	33.33
1	0	1	100.00	100	33.33
1	1	0	400.00	100	33.33

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VGA TERMINATOR
Place near CPU within 300mil



VGA_DAC_IREF R102 665R1%4

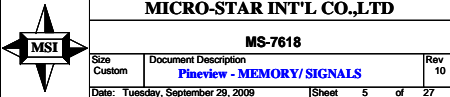
DAC IREF / RSET Resistor
Place near CPU within 500mil



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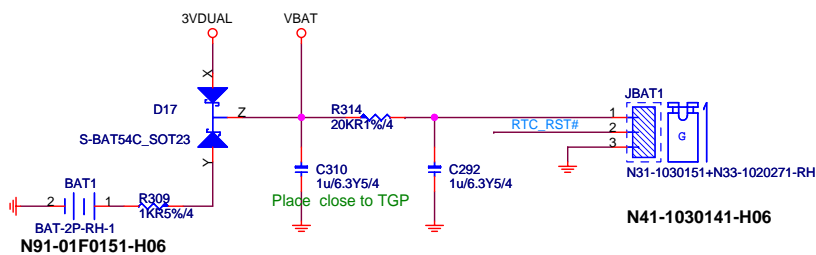
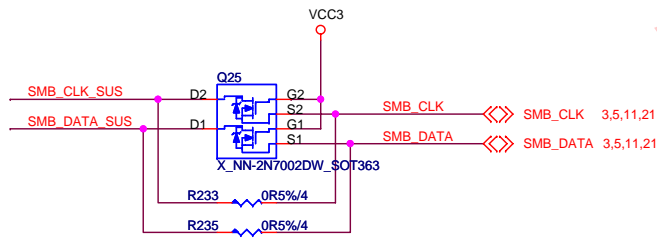
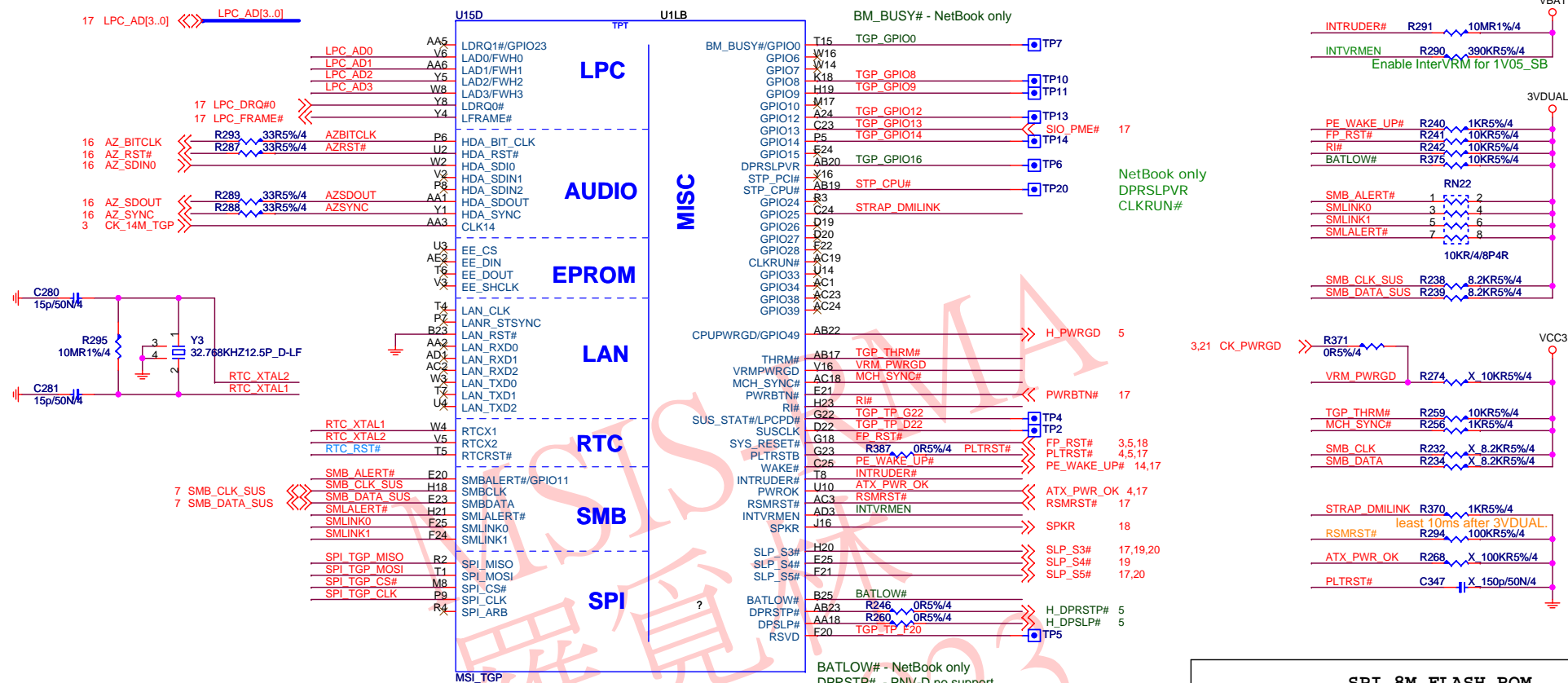
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Size	Document Description	Rev
Custom	Pineview - DMI/ VGA	10
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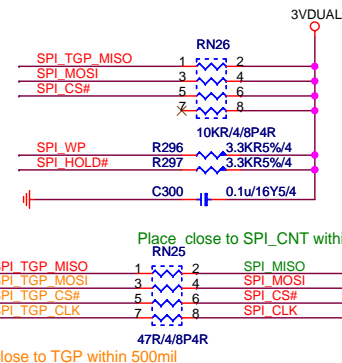


PCI TERMINATION

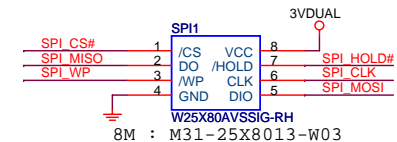
Size Custom	Document Description Tigerpoint - PCI/ PCI SLOT	Rev 10
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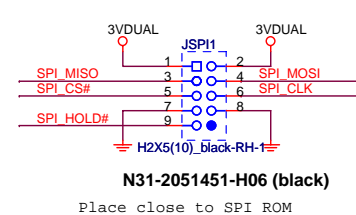
SPI TERMINATION



SPI 8M FLASH ROM



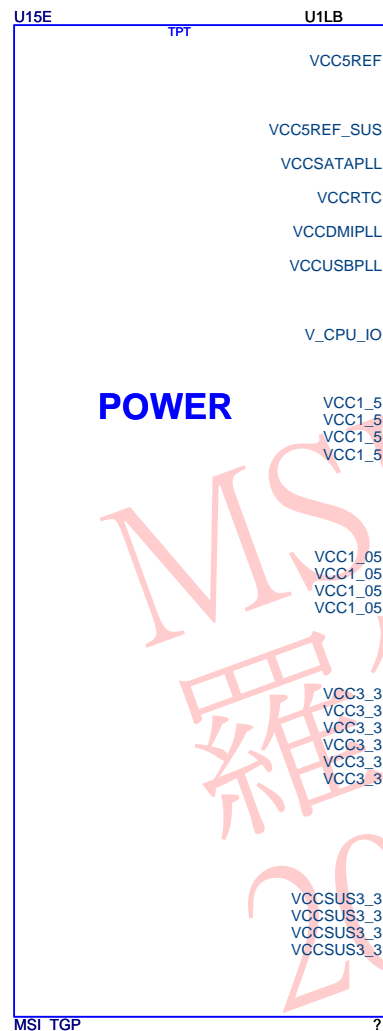
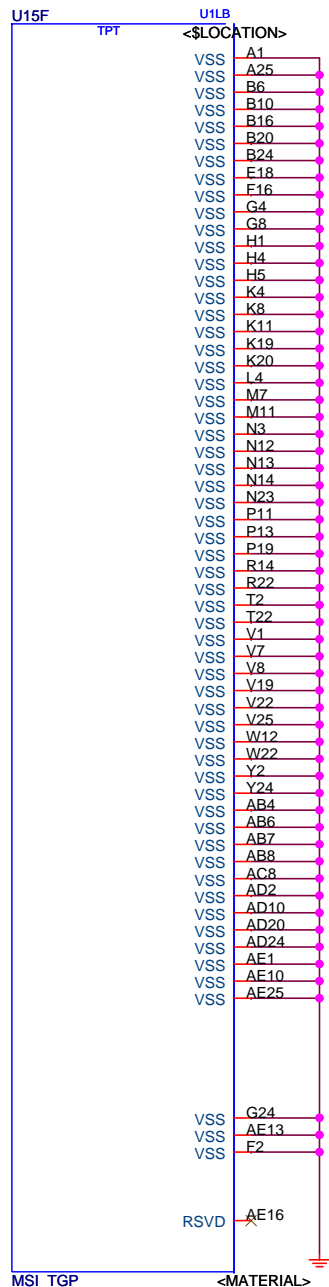
SPI DEBUG PORT



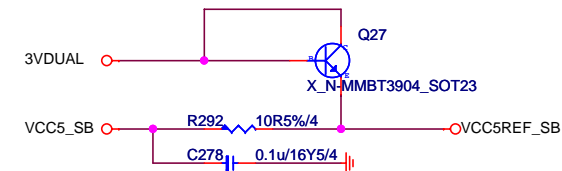
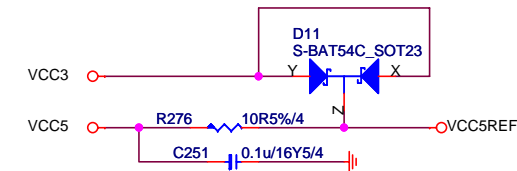
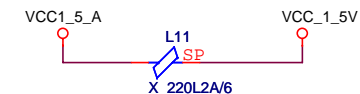
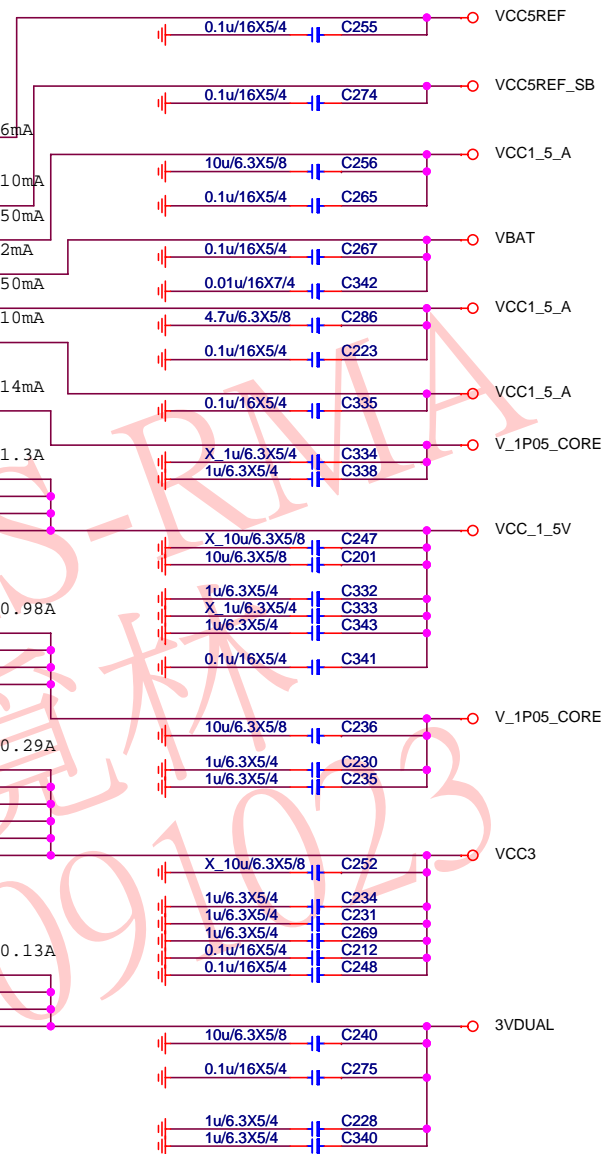
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Custom	Tigerpoint - LPC/HD/SPI/MISC	10
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POWER



1. V5REF must be powered up before VCC3, (or after VCC3 within 0.7 V)
2. V5REF_SUS must be powered up before 3VSB, (or after 3VSB within 0.7 V)



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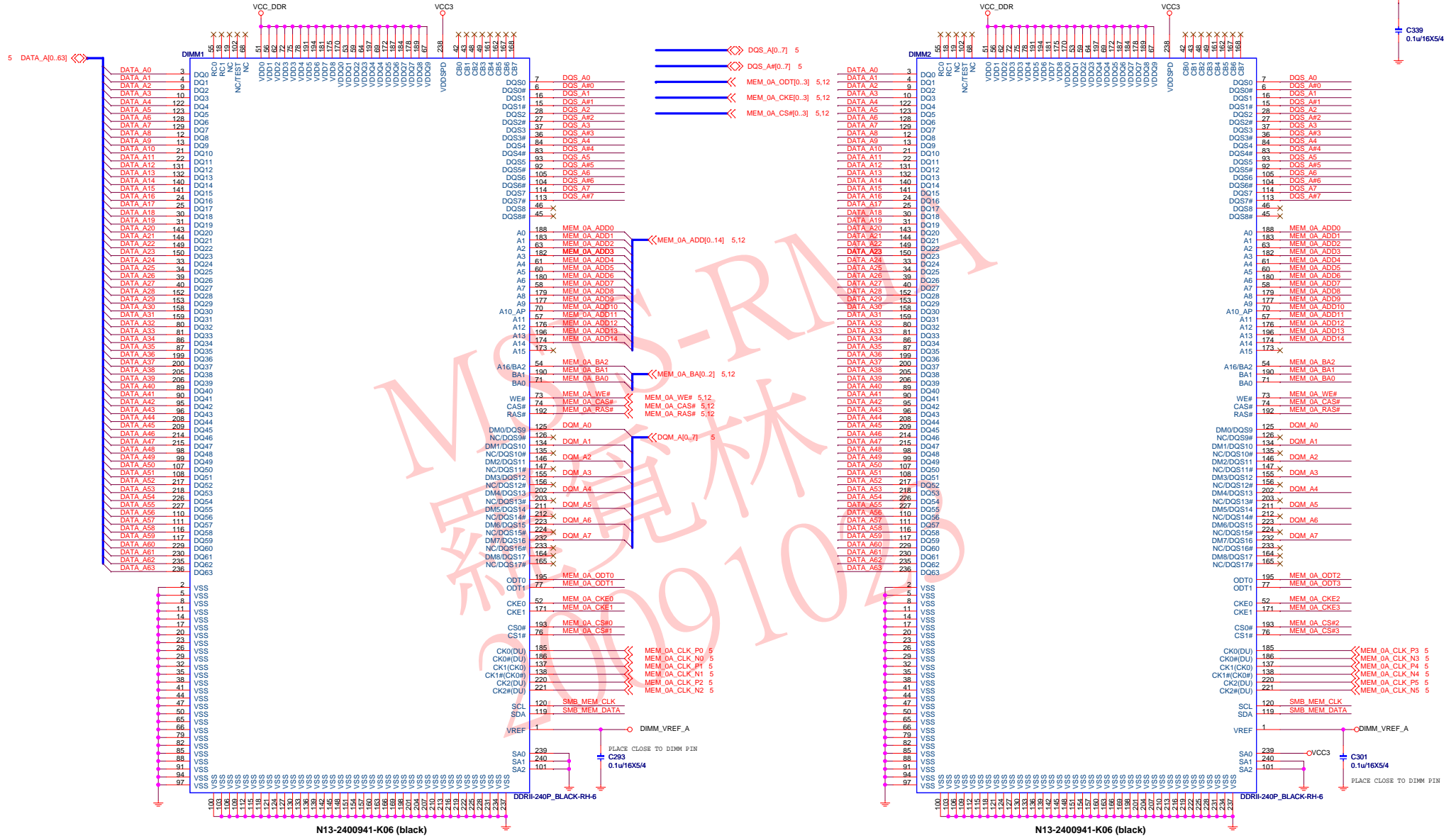
Size	Document Description	Rev
Custom	Tigerpoint - POWER	10
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DIMM1 / 0A

DATA A

DIMM 1 ADDR 0A / CNTL 0A 000
DIMM 2 ADDR 0A / CNTL 0A 001

DIMM2 / 0A



ADDRESS: 000
0xA0

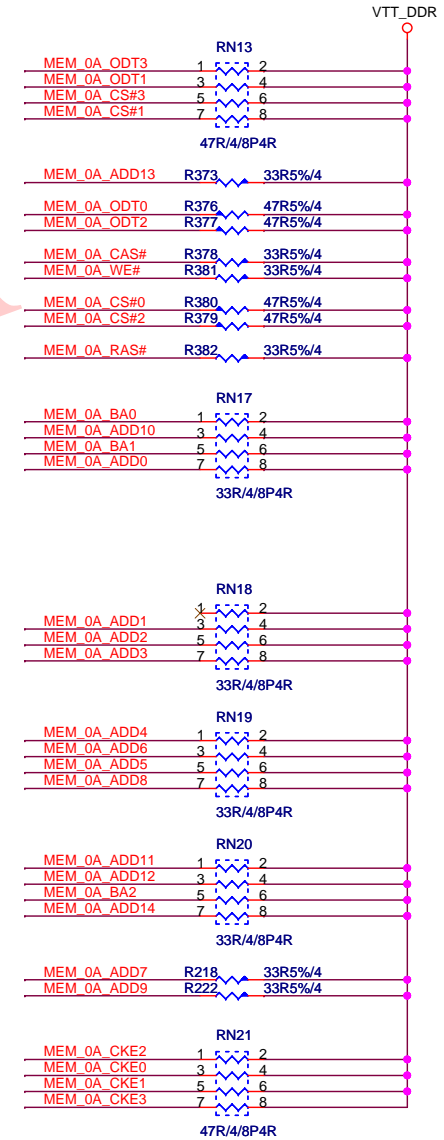
ADDRESS: 001
0xA2

SMB MEM CLK R62 0.1u/16X5/4 SMB CLK 3.5,9,21
SMB MEM DATA R66 0.1u/16X5/4 SMB DATA 3.5,9,21

CHANNEL A - DIMM1 / DIMM2

Stub Length: < 0.8"

- 5,11 MEM_OA_ADD[0..14] >> _____
- 5,11 MEM_OA_BA[0..2] >> _____
- 5,11 MEM_OA_CS#[0..3] >> _____
- 5,11 MEM_OA_CKE[0..3] >> _____
- 5,11 MEM_OA_ODT[0..3] >> _____
- 5,11 MEM_OA_RAS# >> MEM_OA_RAS#
- 5,11 MEM_OA_CAS# >> MEM_OA_CAS#
- 5,11 MEM_OA_WE# >> MEM_OA_WE#

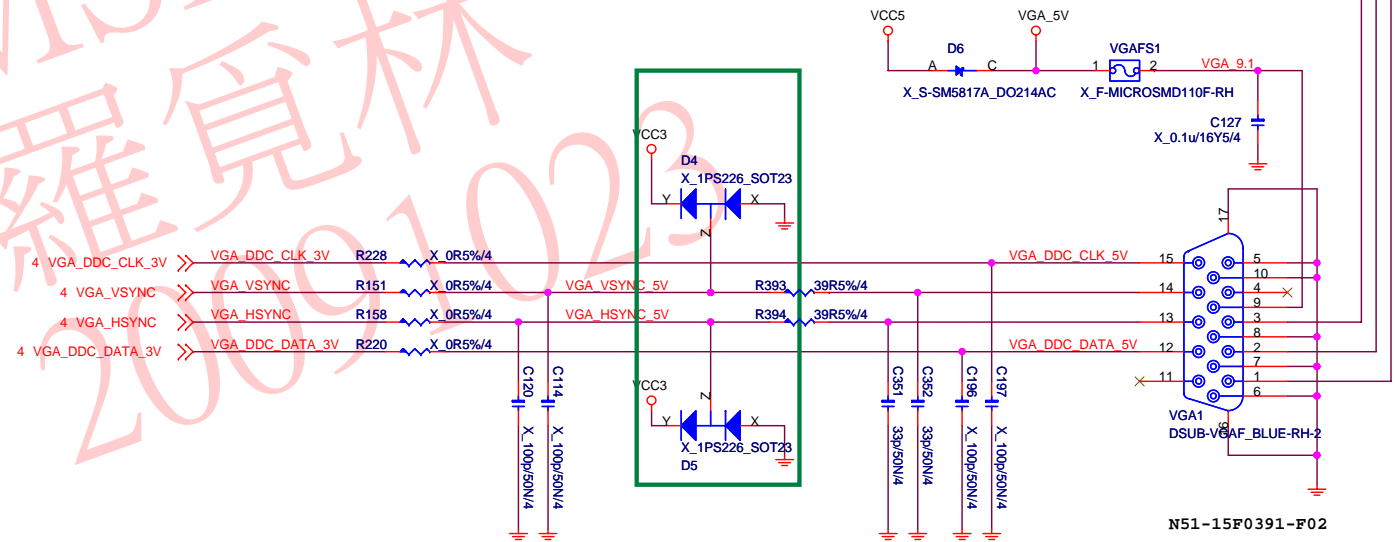
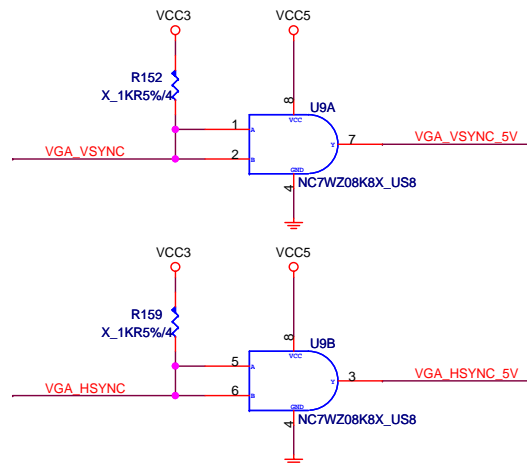
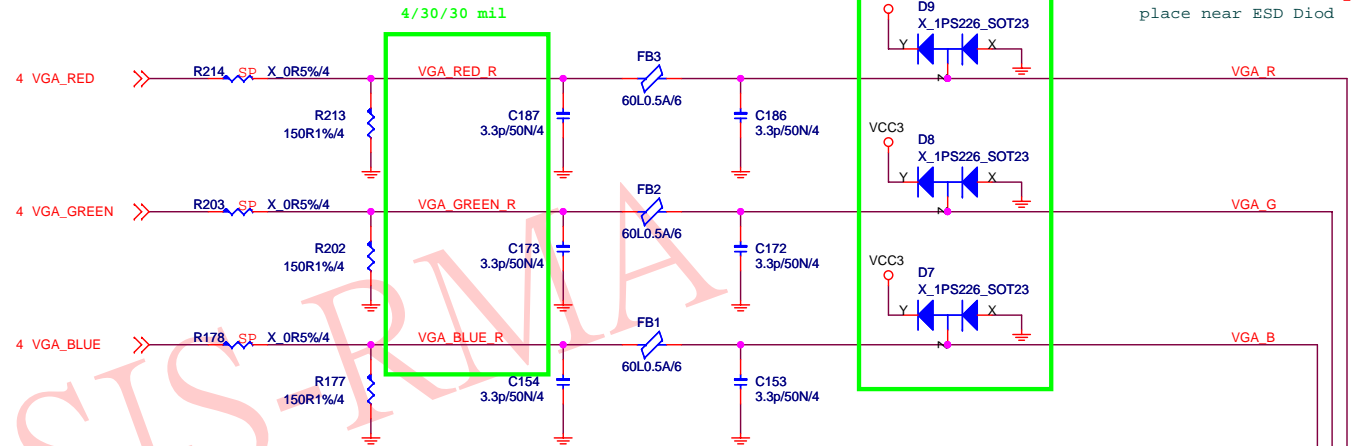
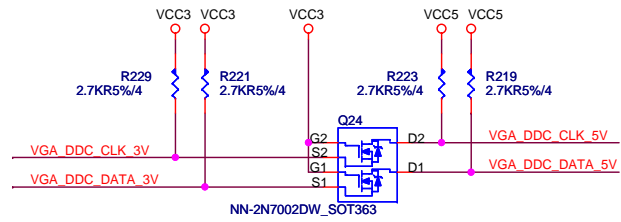


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Size	Document Description	Rev
Custom	DDR II - DDR Termination	10
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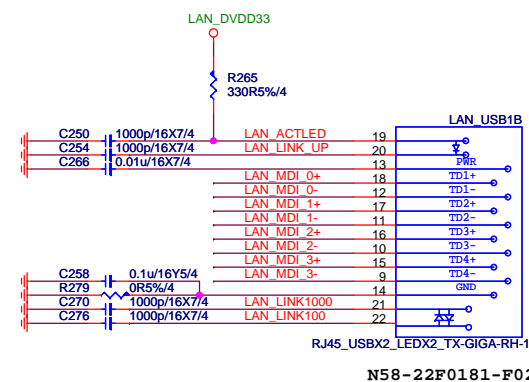
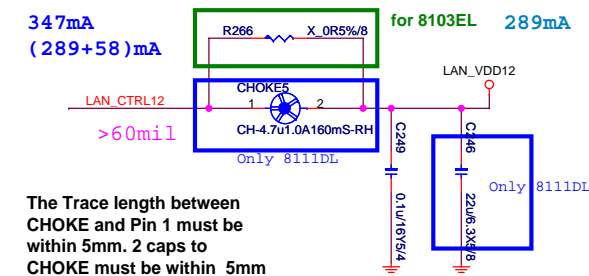
Video Connector



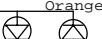





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Giga-Lan		10/100-Lan	
N58-22F0081-S42		N58-22F0061-S42 N58-22F0061-F02	
Link	Yellow	Link	Yellow
Active	Blinking	Active	Blinking
1000	Orange	100	Green
100	Green	10	None
10	None		
19		19	
	Yellow		Yellow
20		20	
21		21	
	Orange		
22		22	
	Green		Green

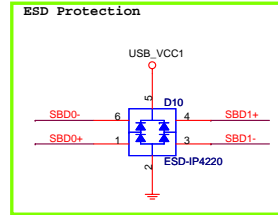
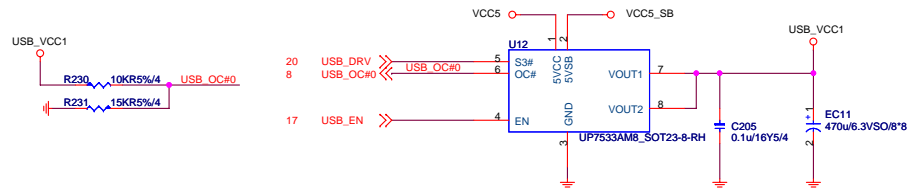


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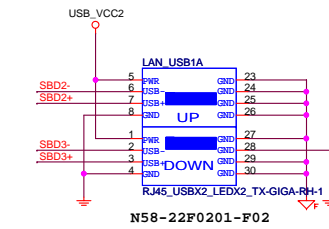
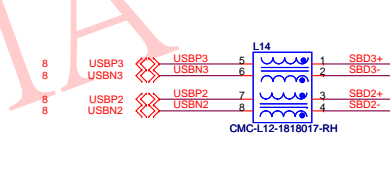
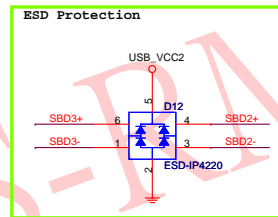
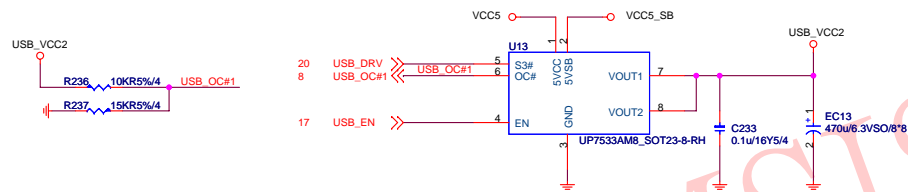
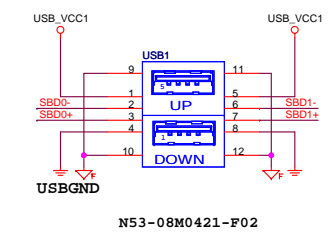
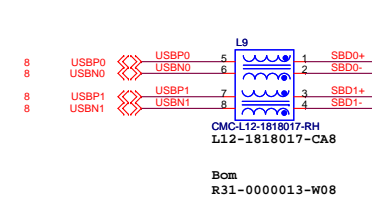
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Size Custom	Document Description LAN RTL 8111D(L) Colay 8103EL	Rev 10
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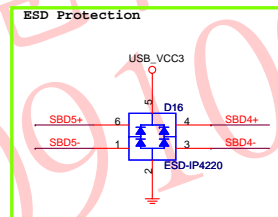
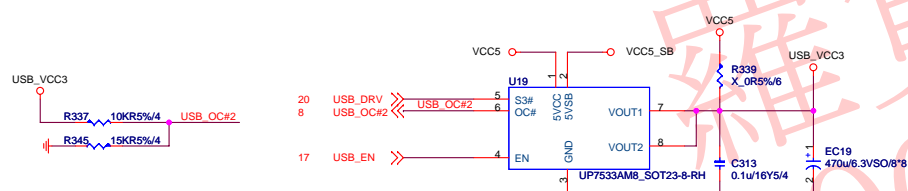
POWER CIRCUIT FOR USB PORT 0 ~ 3



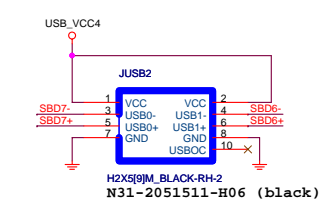
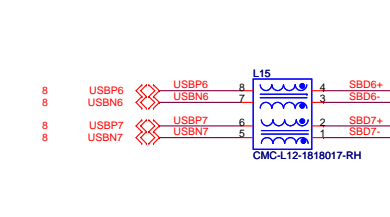
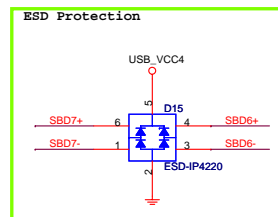
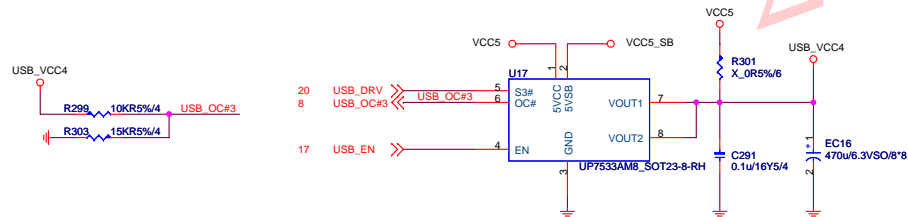
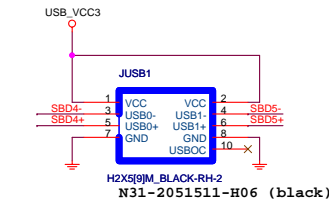
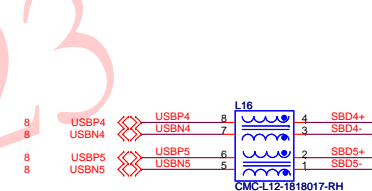
REAR PANEL USB CONNECTOR FOR USB PORT 0 ~ 3



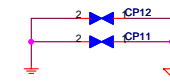
POWER CIRCUIT FOR USB PORT 4 ~ 7



FRONT PANEL USB CONNECTOR FOR USB PORT 4 ~ 7

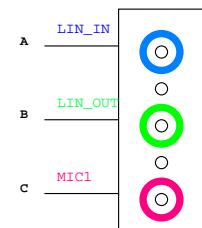
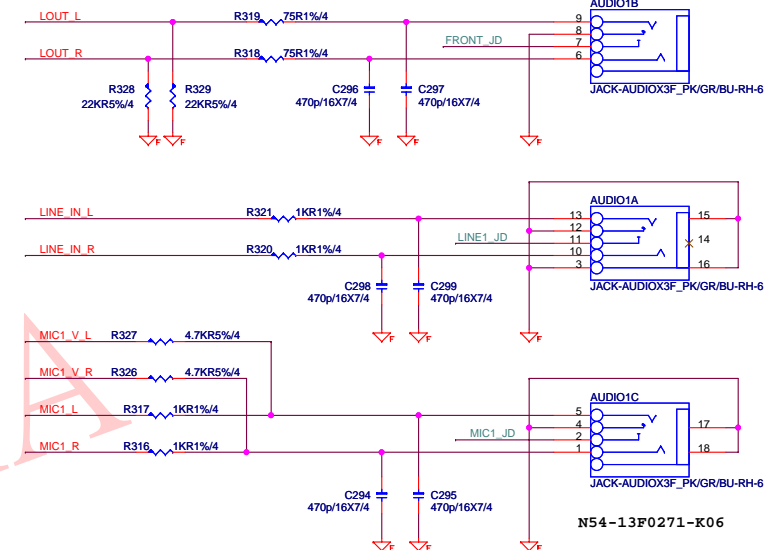
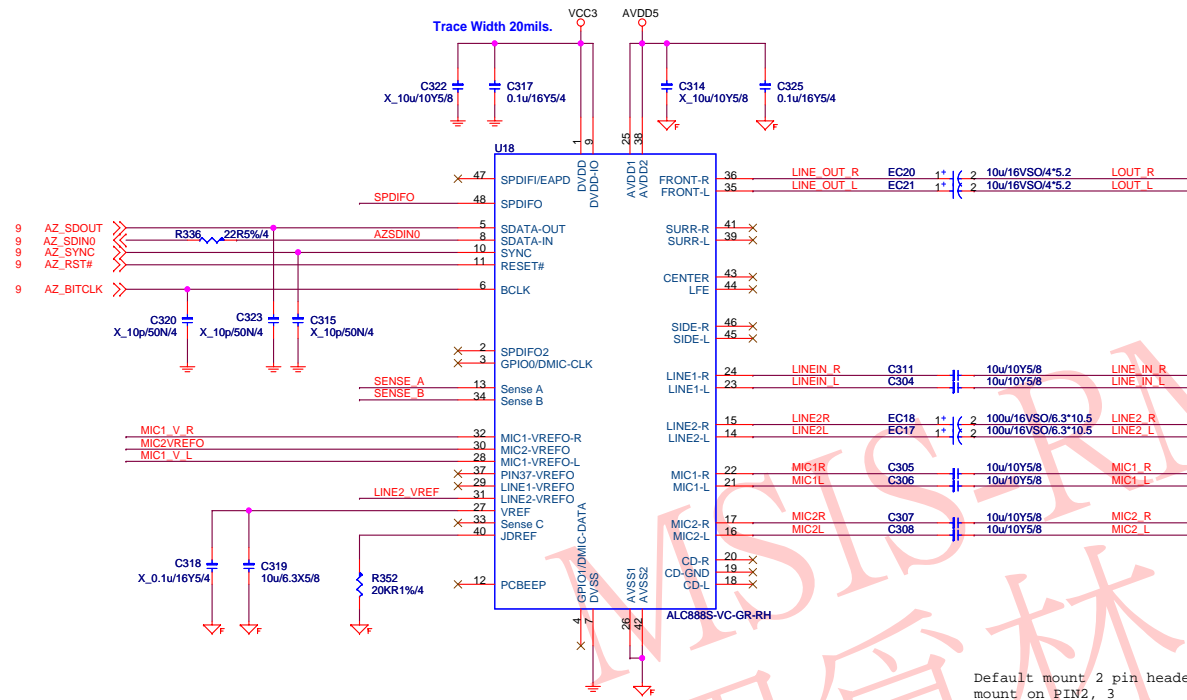


EMI

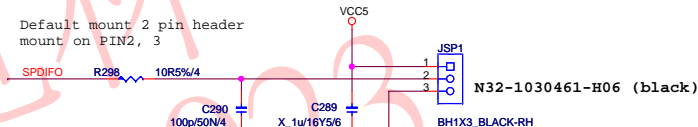


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Custom	USB Connector -Front / Rear	10	
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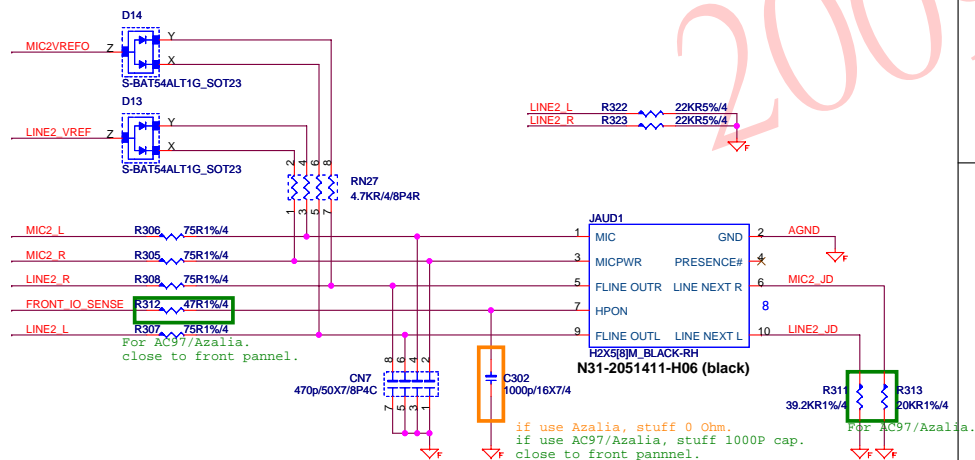
ALC888S CODEC



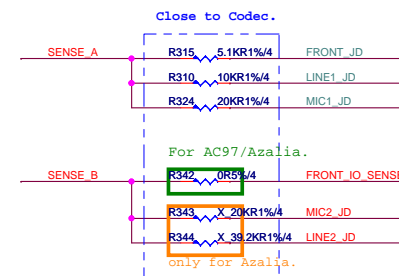
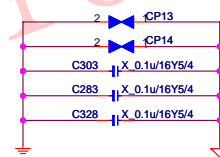
Default mount 2 pin header
mount on PIN2, 3



Azalia Front Audio Connector

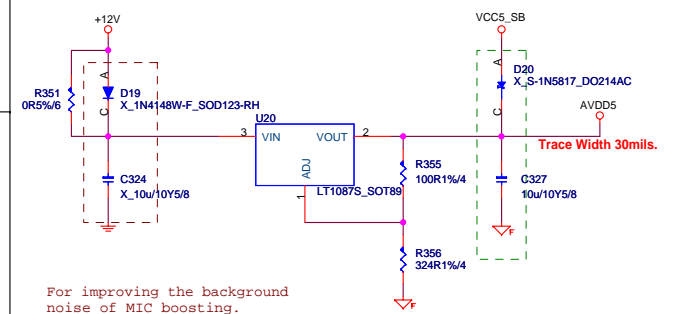


EMI



AUDIO CODE REGULATORS

For Standby mode-De-pop



For improving the background noise of MIC boosting.



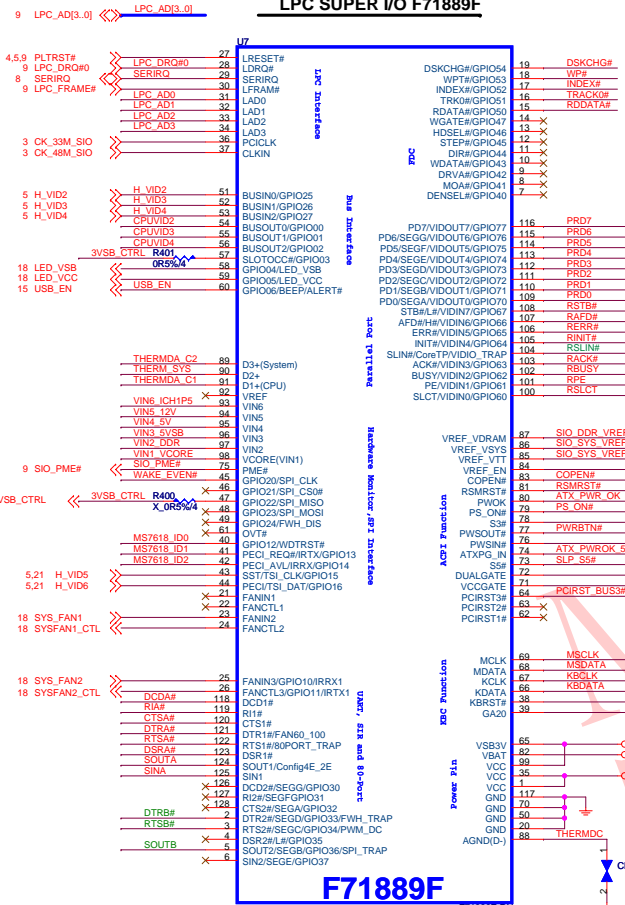
MICRO-STAR INT'L CO.,LTD

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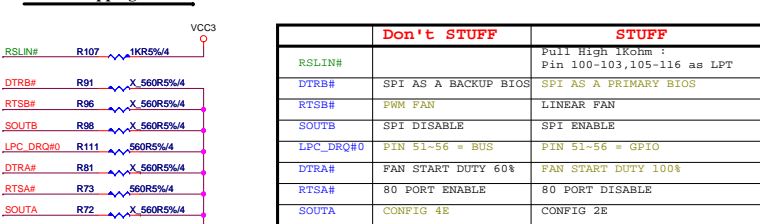
Size Custom	Document Description Azalia - HD ALC888S-VC	Rev 10
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Super I/O

LPC SUPER I/O F71889F

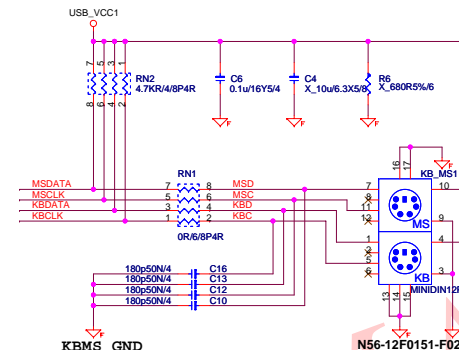


Strapping

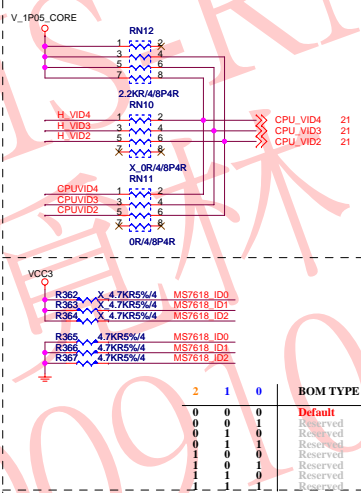


	Don't STUFF	STUFF
RSLIN#		Full High Iconn#
DTRB#	SPI AS A BACKUP BIOS	SPI AS A PRIMARY BIOS
RTSB#	PWM FAN	LINEAR FAN
SOUTB	SPI DISABLE	SPI ENABLE
LPC_DRQ#0	PIN 51-56 = BUS	PIN 51-56 = GPIO
DTRA#	FAN START DUTY 60%	FAN START DUTY 100%
RTSA#	80 PORT ENABLE	80 PORT DISABLE
SOUTA	CONFIG 4E	CONFIG 2E

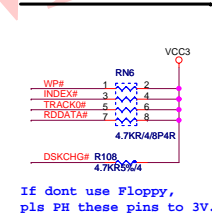
Keyboard / Mouse PS2 CONNECTOR



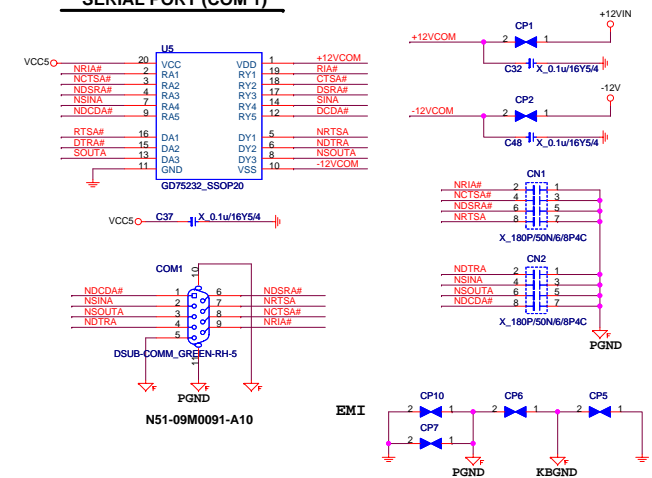
CPU VID Control



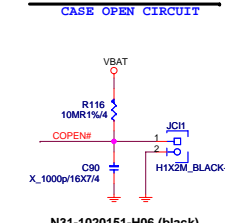
FLOPPY CNT BOLCK



SERIAL PORT (COM 1)

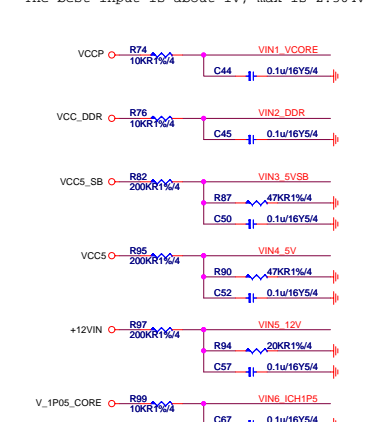


Chassis Intrusion

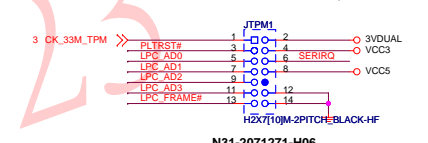


VOLTAGE SENSING (H/W Monitor)

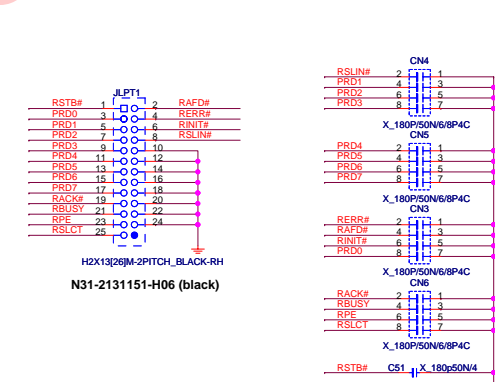
The best input is about 1V, max is 2.304V



JLPC port for TPM

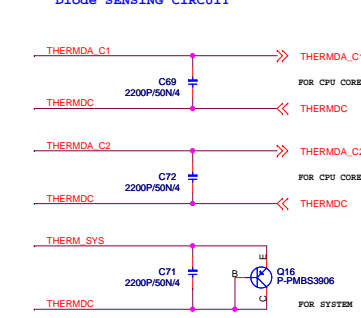


PARALLEL PORT (LPT)



Temperature Sensing

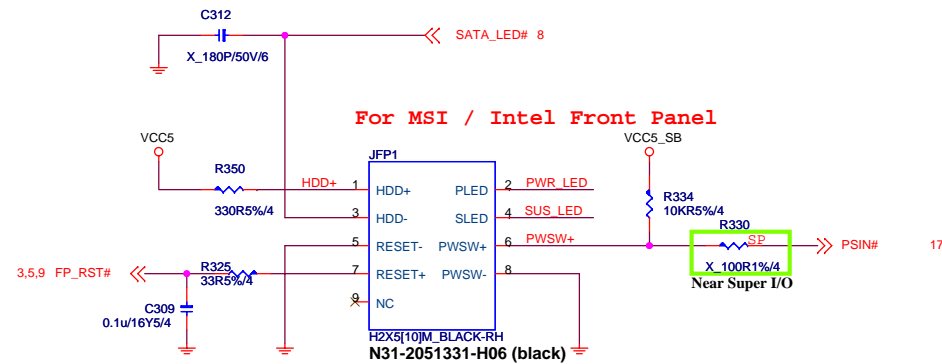
Diode SENSING CIRCUIT



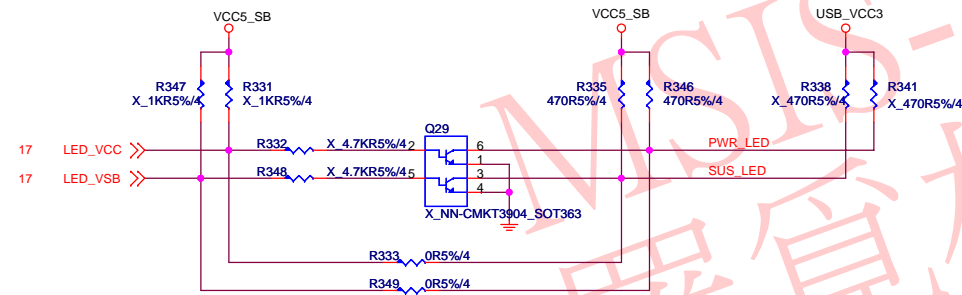
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Size Custom	Document Description SIO - F71889F/ FDD/ KBMS
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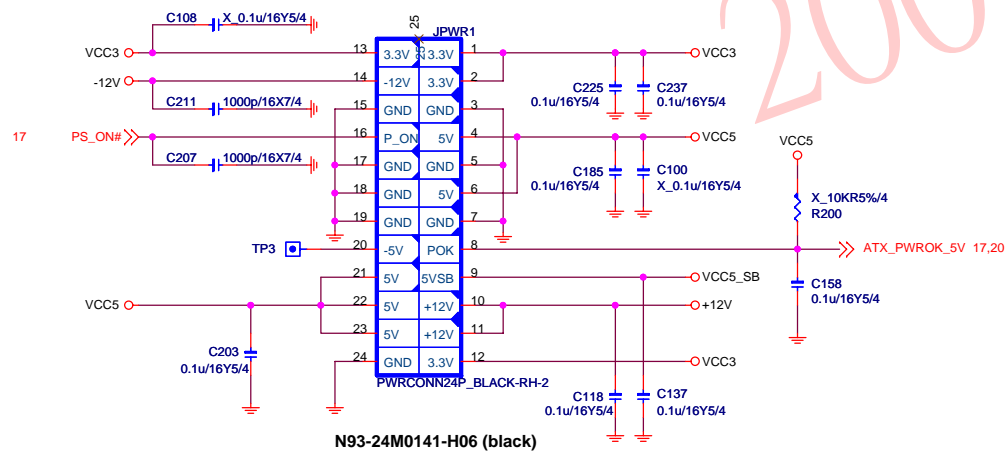
Intel Front Panel



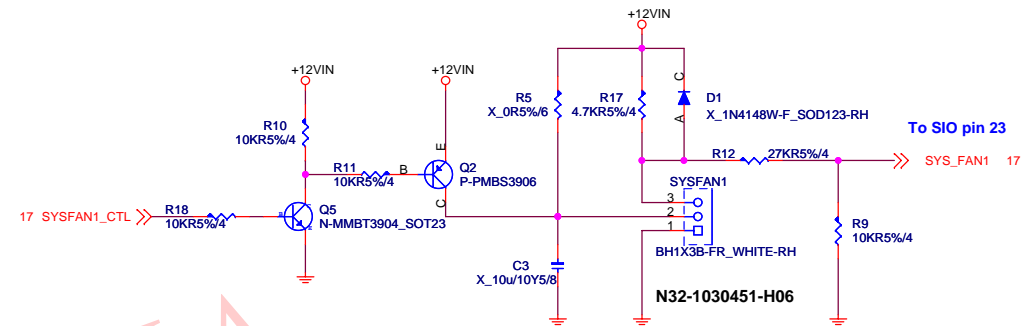
LED (for Fintek 71889)



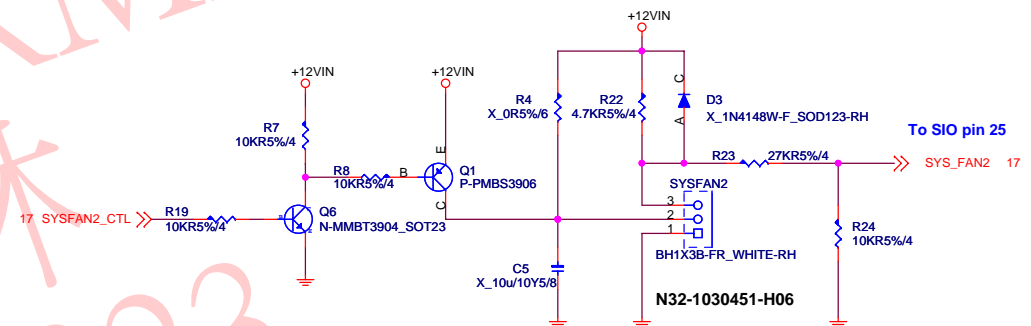
ATX Power Connector (2x10)



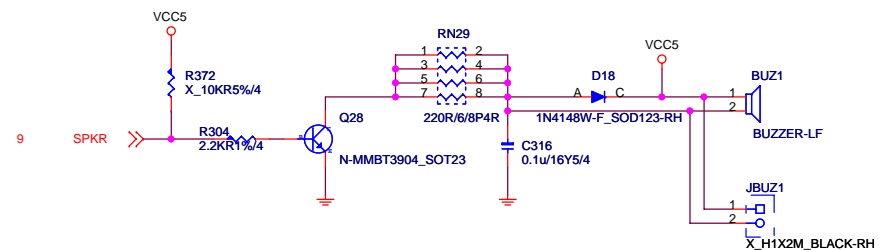
SYSTEM FAN 1



SYSTEM FAN 2



BUZZER



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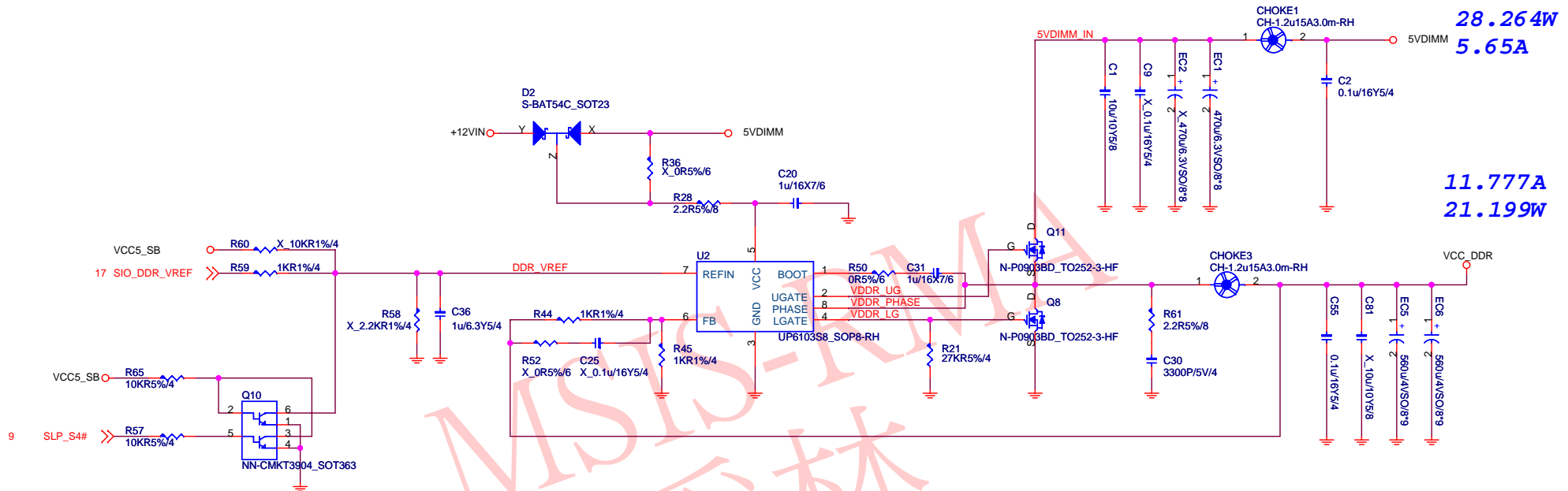
Size	Document Description	Rev
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DDR II 1.8V POWER

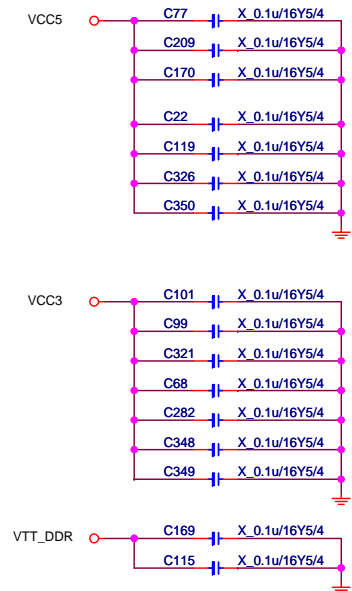
For CPU, 2.27A

For DIMMx2, 1A

$$\begin{aligned} I_{\text{ripple}} &= 22.21 \times 0.6 \times 0.8 / 1 = 10.66A \\ 2.35 \times 3 \times 1.7 &= 11.985A > 10.08A \end{aligned}$$

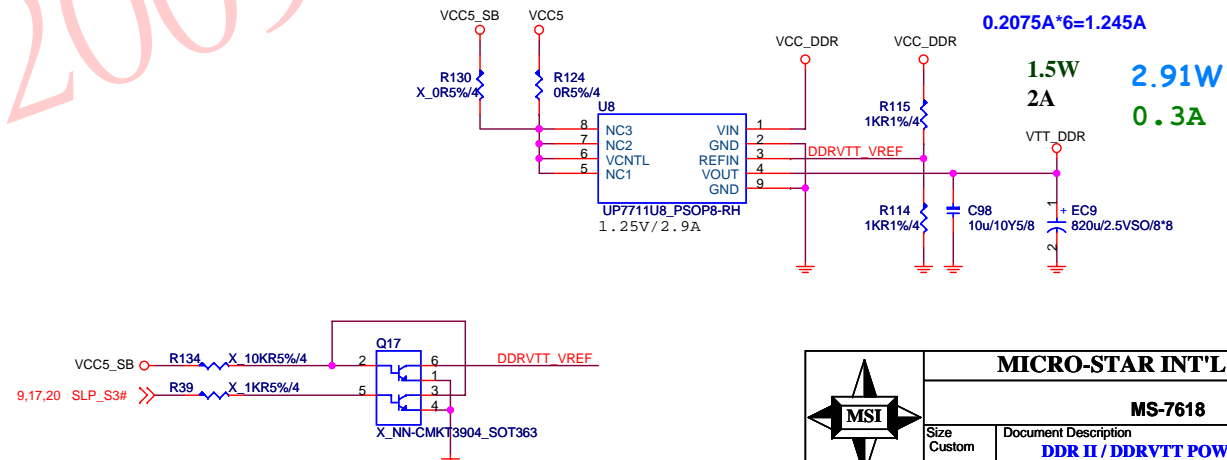


EMI



DDR VTT Power

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



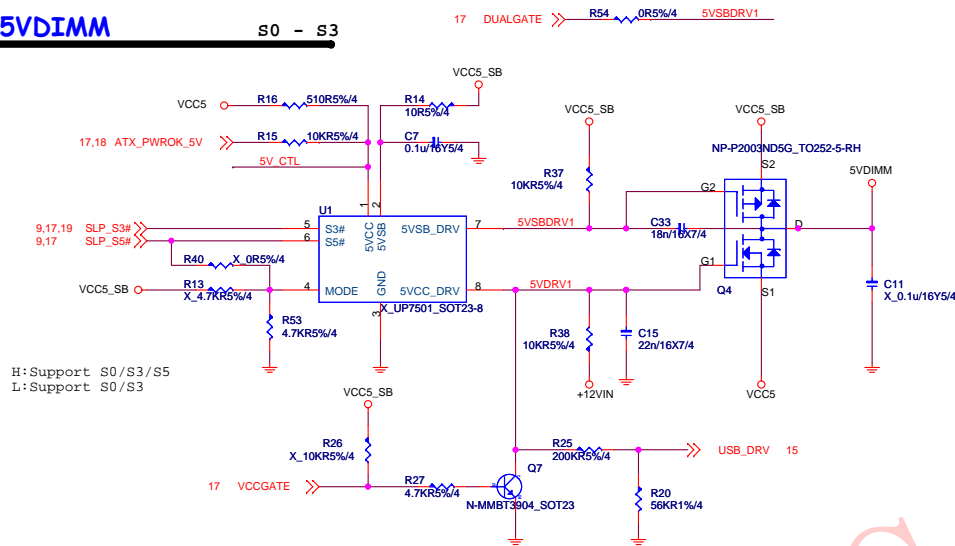
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5VDIMM

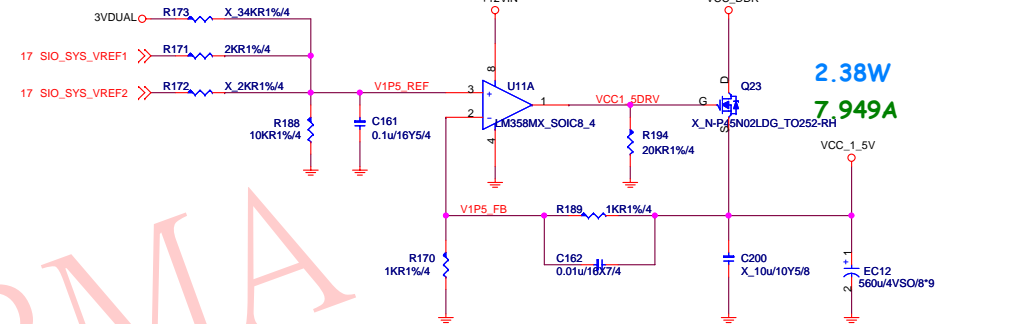
S0 - S3



1.5V

S0 - S1

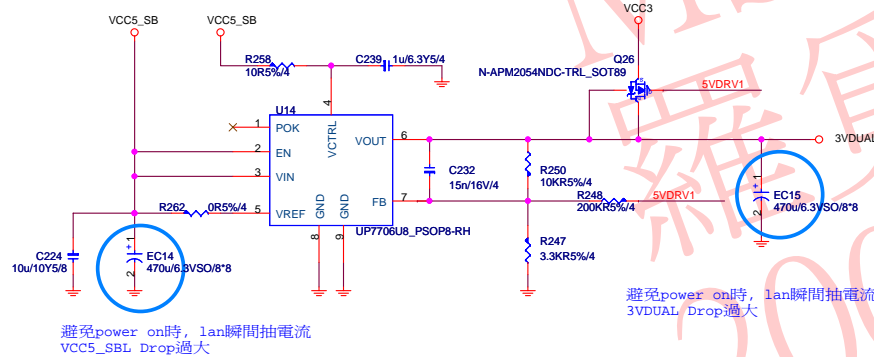
For CPU, 80mA
For TGP, 1.41A



3VDUAL

S0 - S5

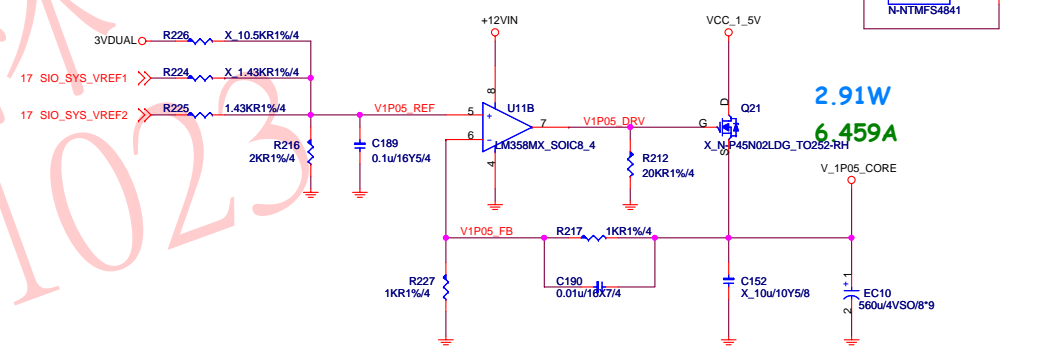
For LAN, 347mA
For TGP, S0 - 130mA / S1 - 50mA



1.05V

S0 - S1

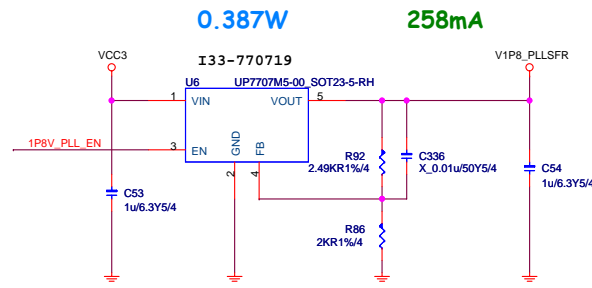
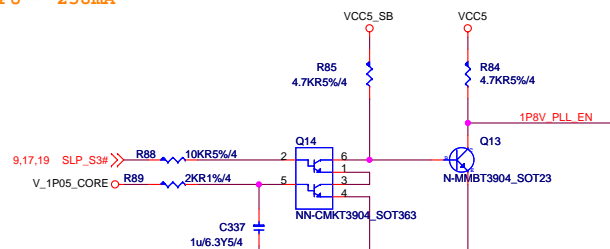
For CPU, 5.465A
For TGP CORE, 994mA



1.8V

S0 - S1

For CPU - 258mA



Vref=0.8
Vout=Vref* (R1+R2)/R1

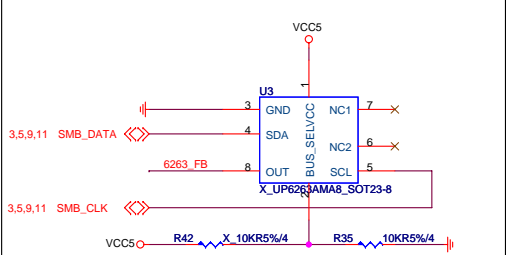
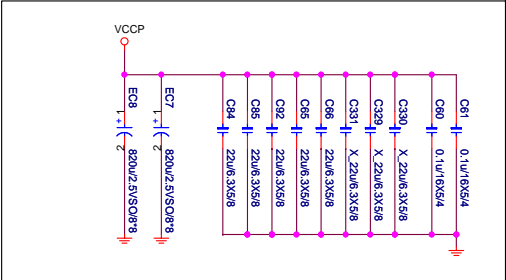
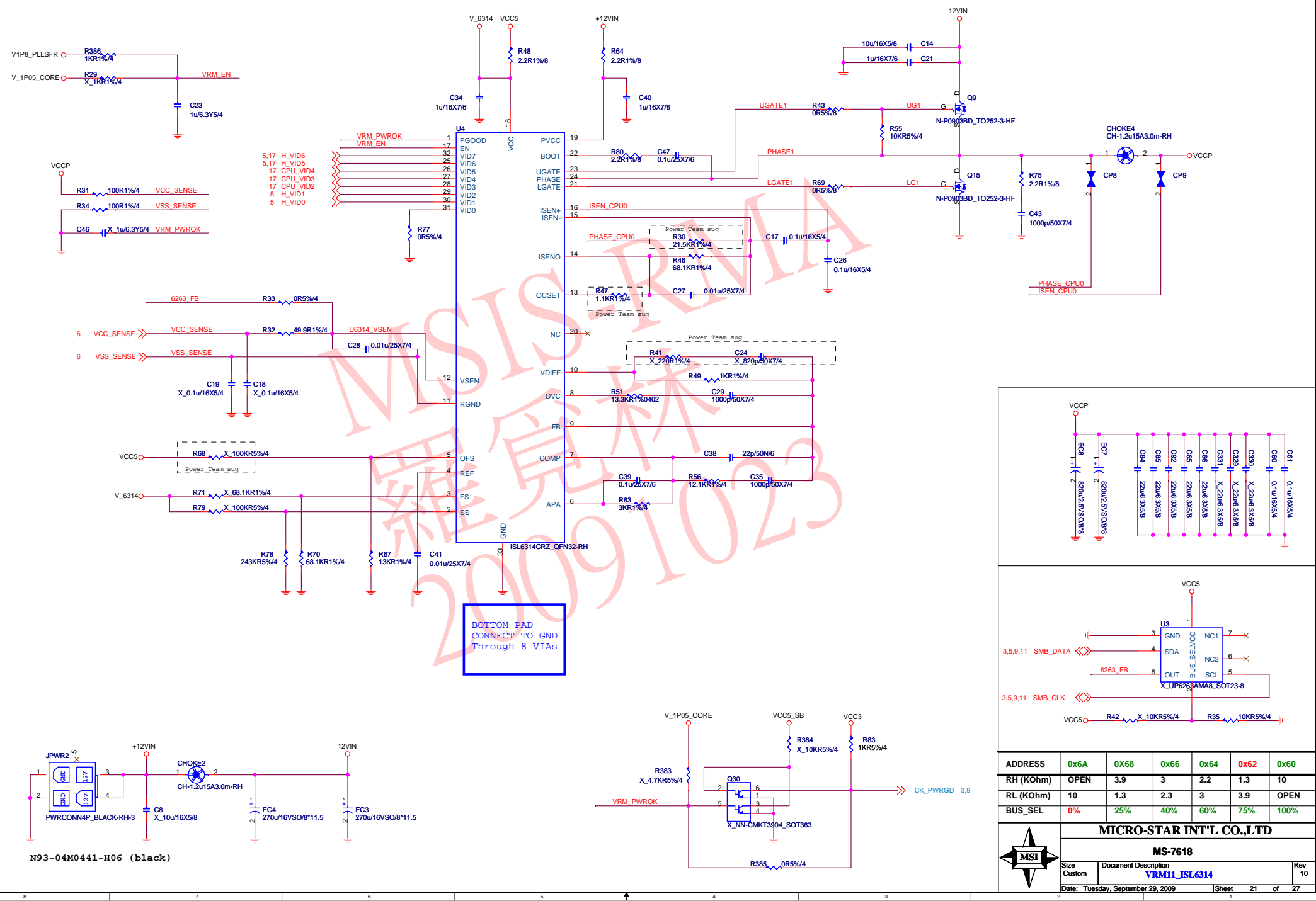


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Voltage Regular Module



ADDRESS	0x6A	0x68	0x66	0x64	0x62	0x60
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%



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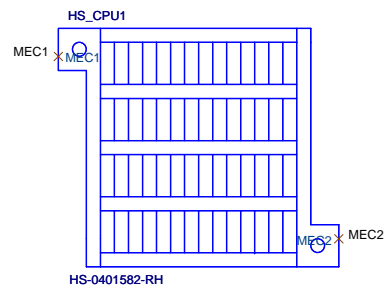


P80-0761810-G37
P80-0761810-E48

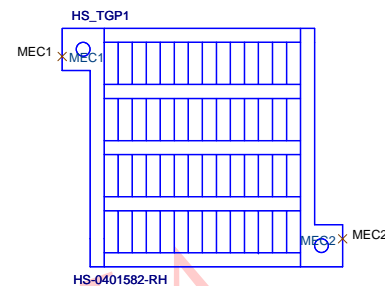


BAT2
BAT-BCR2032P-RH

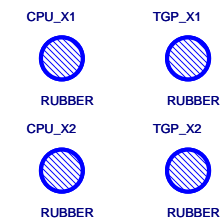
CPU HEATSINK



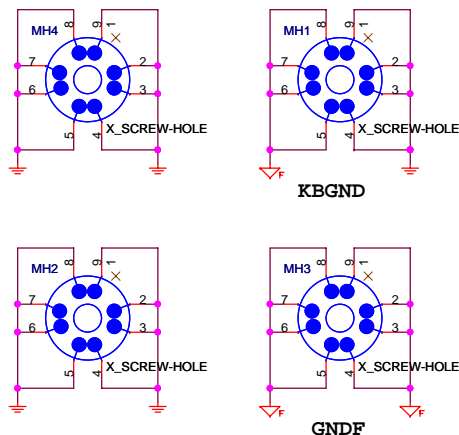
PCH HEATSINK



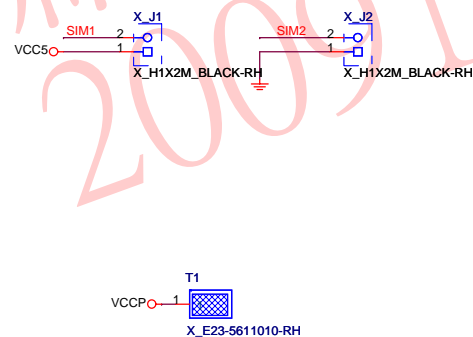
HEATSINK ROBBER



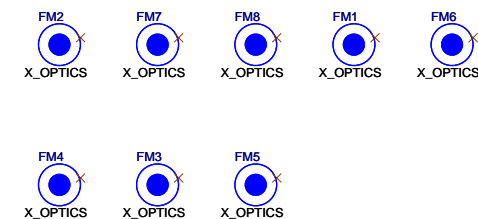
Mounting Holes



Simulation



Optics Orientation Holes



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