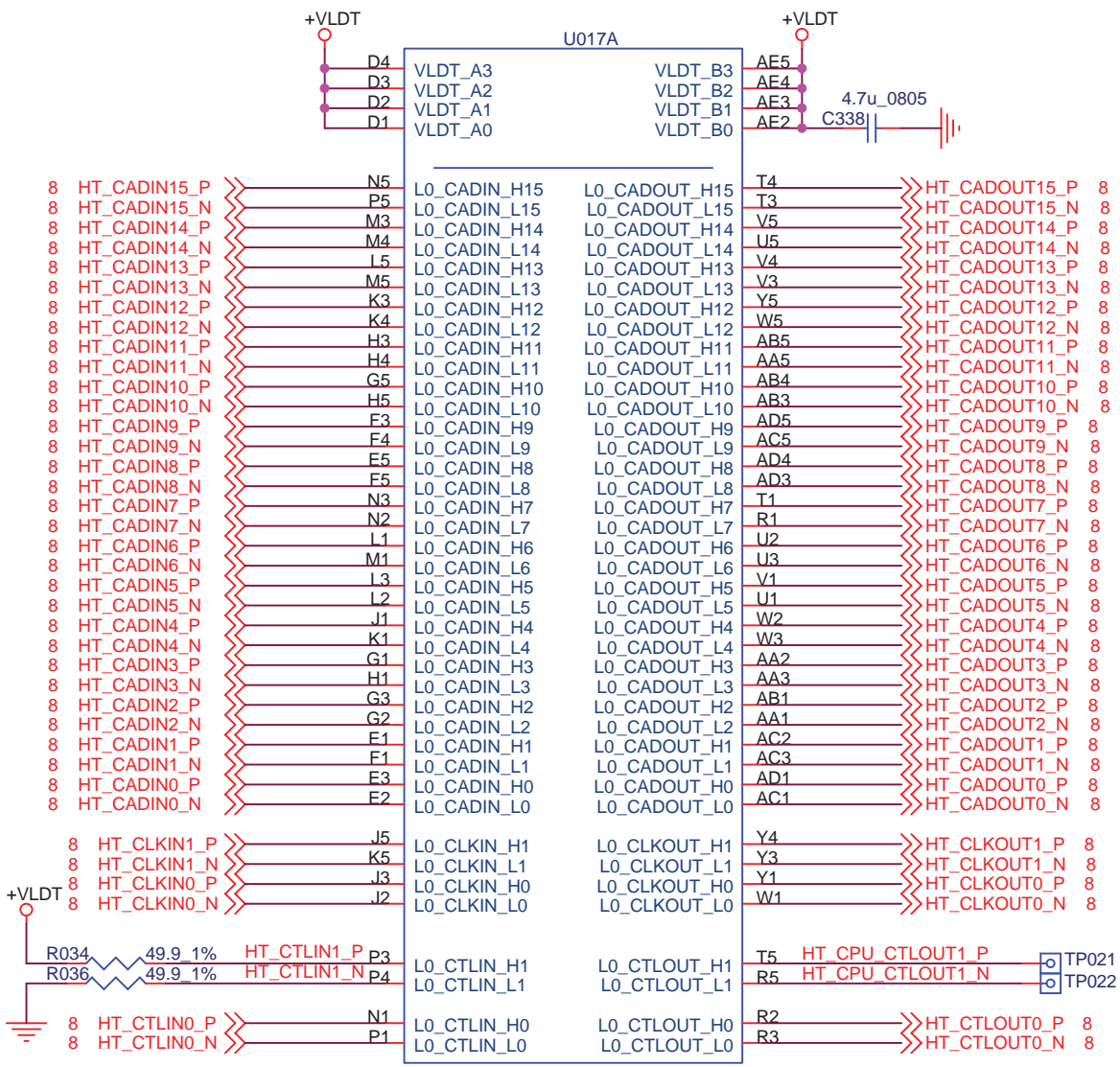


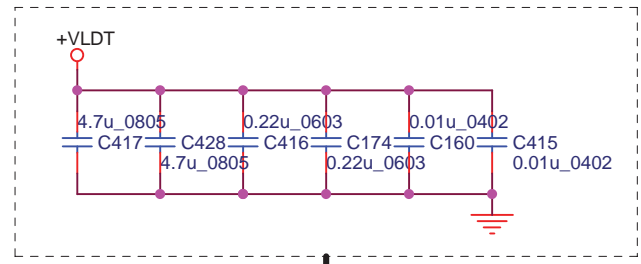
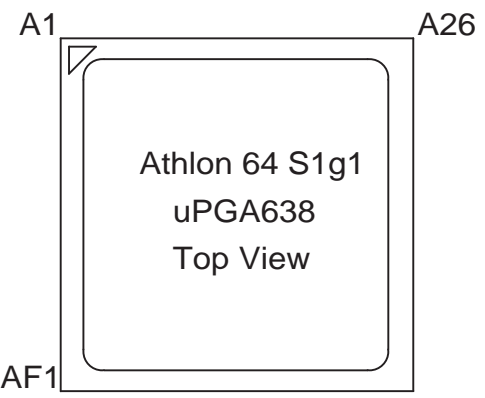


# PROCESSOR HYPERTRANSPORT INTERFACE

VLDT\_Ax AND VLDT\_Bx ARE CONNECTED TO THE LDT\_RUN POWER SUPPLY THROUGH THE PACKAGE OR ON THE DIE. IT IS ONLY CONNECTED ON THE BOARD TO DECOUPLING NEAR THE CPU PACKAGE



Athlon 64 S1 Processor Socket



**LAYOUT: Place bypass cap on topside of board**  
NEAR HT POWER PINS THAT ARE NOT CONNECTED DIRECTLY TO DOWNSTREAM HT DEVICE, BUT CONNECTED INTERNALLY TO OTHER HT POWER PINS  
PLACE CLOSE TO VLDT0 POWER PINS

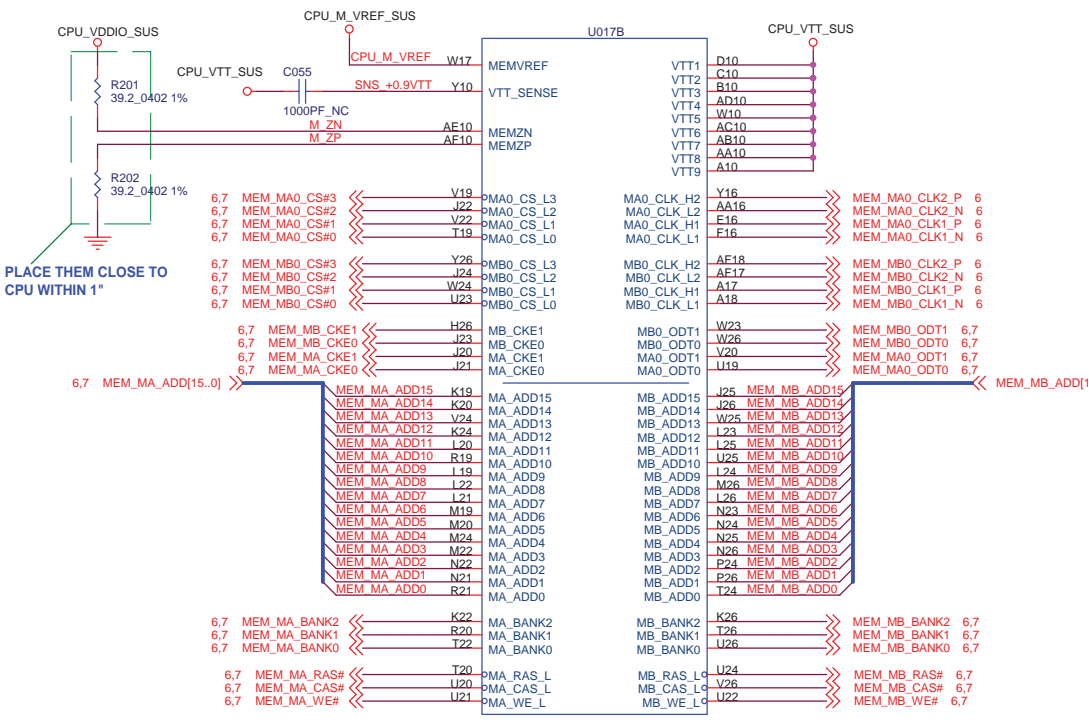


<b>MSI CORPORATION</b>		
Title		
<b>AMD S1 HT I/F</b>		
Size	Document Number	Rev
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VDD\_VTT\_SUS CPU IS CONNECTED TO THE VDD\_VTT\_SUS POWER SUPPLY THROUGH THE PACKAGE OR ON THE DIE. IT IS ONLY CONNECTED ON THE BOARD TO DECOUPLING NEAR THE CPU PACKAGE

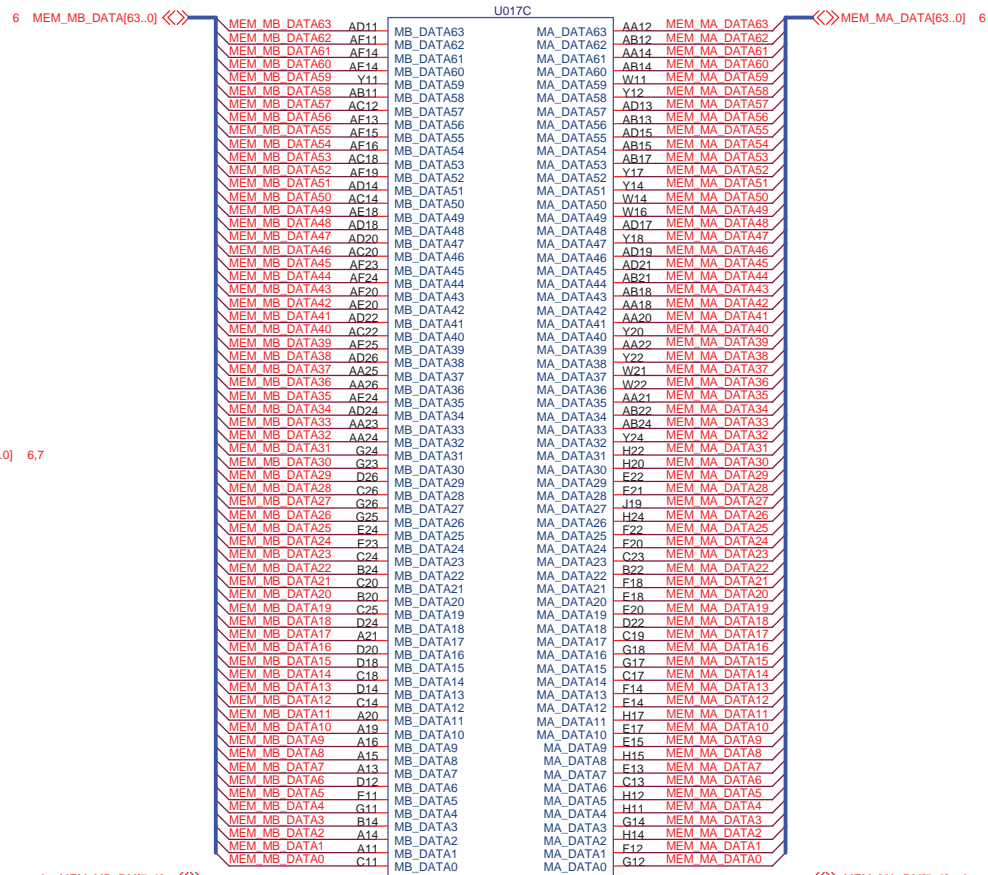
CPU\_M\_VREF 15MIL trace, 20MIL space, shorter than 1"  
 VTT\_SENSE  
 should be routed as a 10-mil trace with 10 mils spacing.

### Processor DDR2 Memory Interface



PLACE THEM CLOSE TO CPU WITHIN 1"

LAYOUT: PACKAGE CLOSE TO CPU



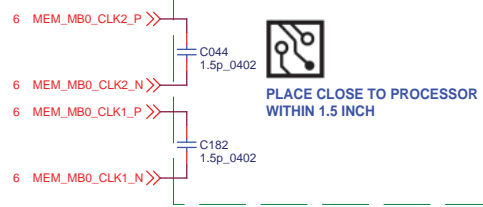
Athlon 64 S1 Processor Socket

Athlon 64 S1 Processor Socket

Differential CTT termination



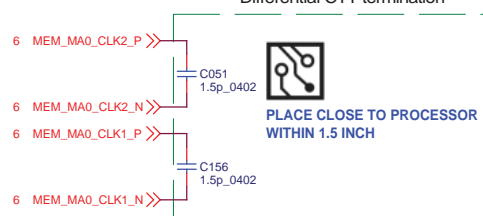
PLACE CLOSE TO PROCESSOR WITHIN 1.5 INCH



Differential CTT termination



PLACE CLOSE TO PROCESSOR WITHIN 1.5 INCH



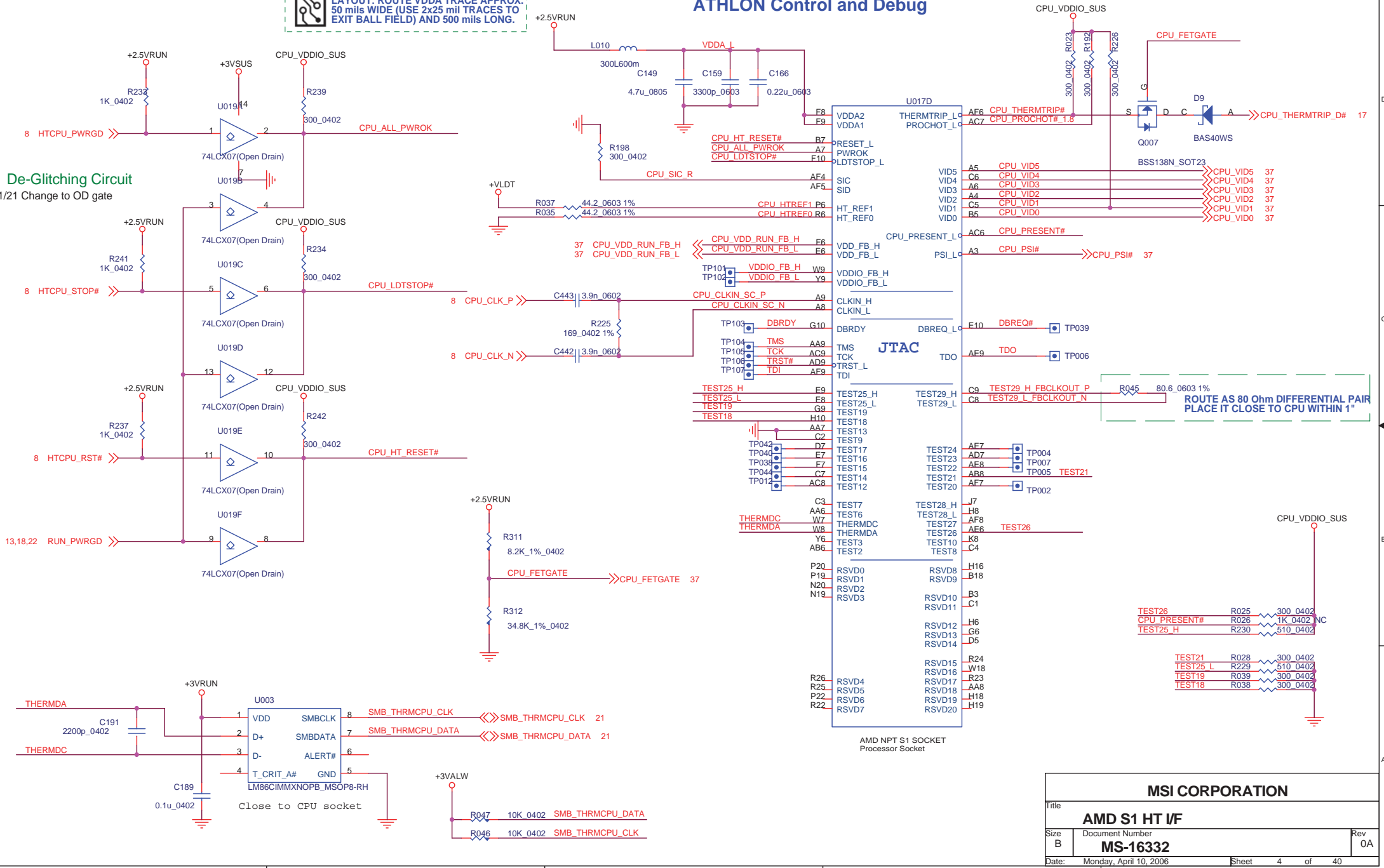
<b>MSI CORPORATION</b>			
Title			
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LAYOUT: ROUTE VDDA TRACE APPROX. 50 mils WIDE (USE 2x25 mil TRACES TO EXIT BALL FIELD) AND 500 mils LONG.

# ATHLON Control and Debug

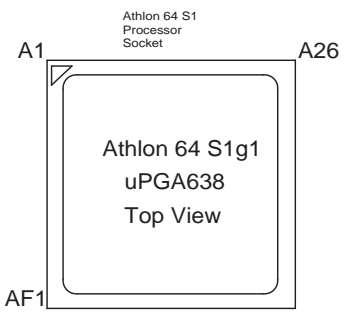
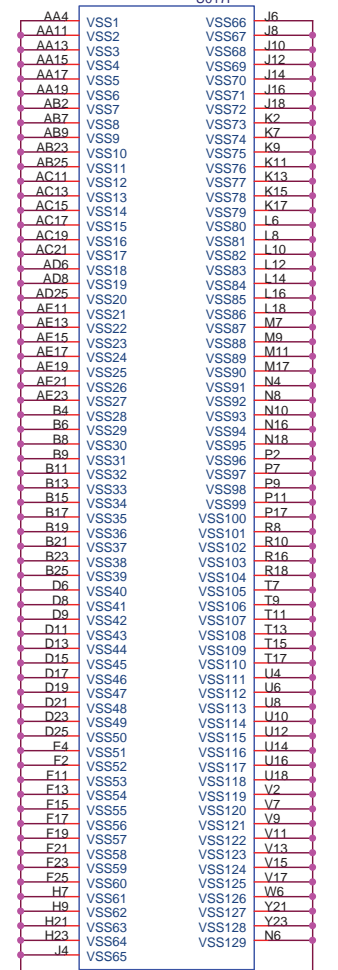
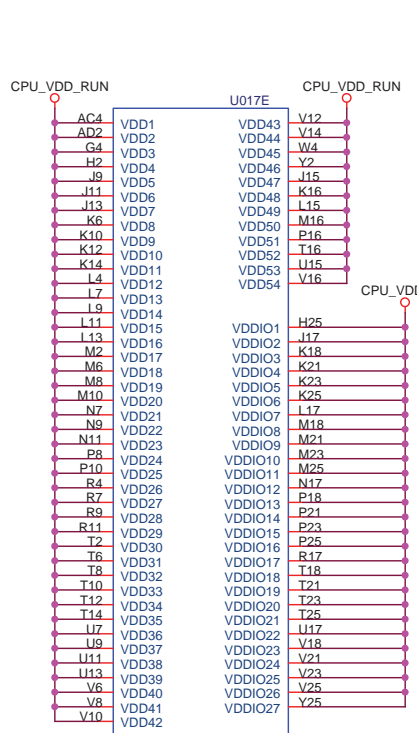
## De-Glitching Circuit

1/21 Change to OD gate

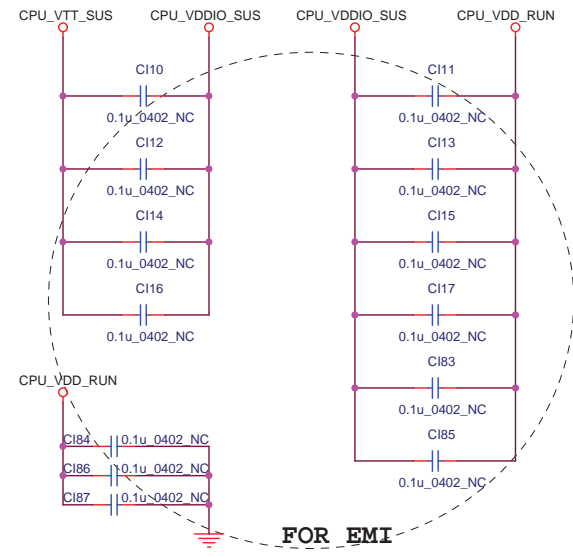
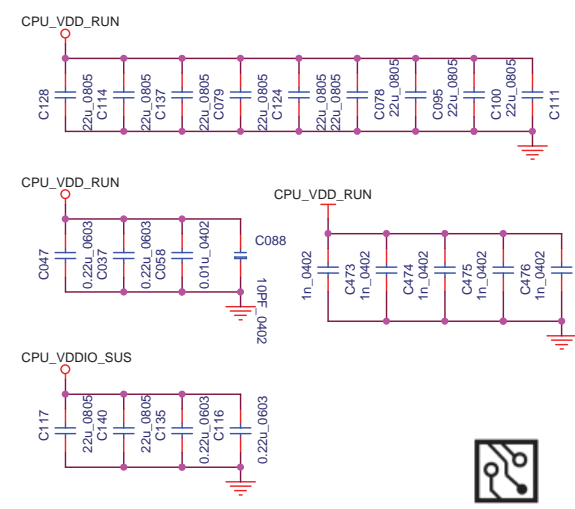


ROUTE AS 80 Ohm DIFFERENTIAL PAIR PLACE IT CLOSE TO CPU WITHIN 1"

<b>MSI CORPORATION</b>		
<b>AMD S1 HT I/F</b>		
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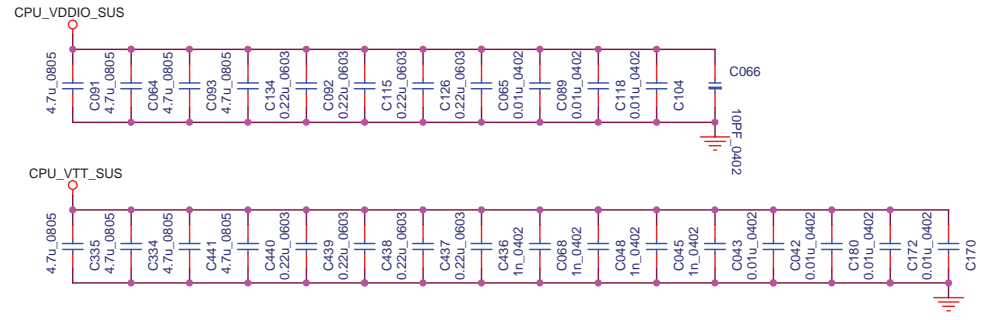


### BOTTOMSIDE DECOUPLING



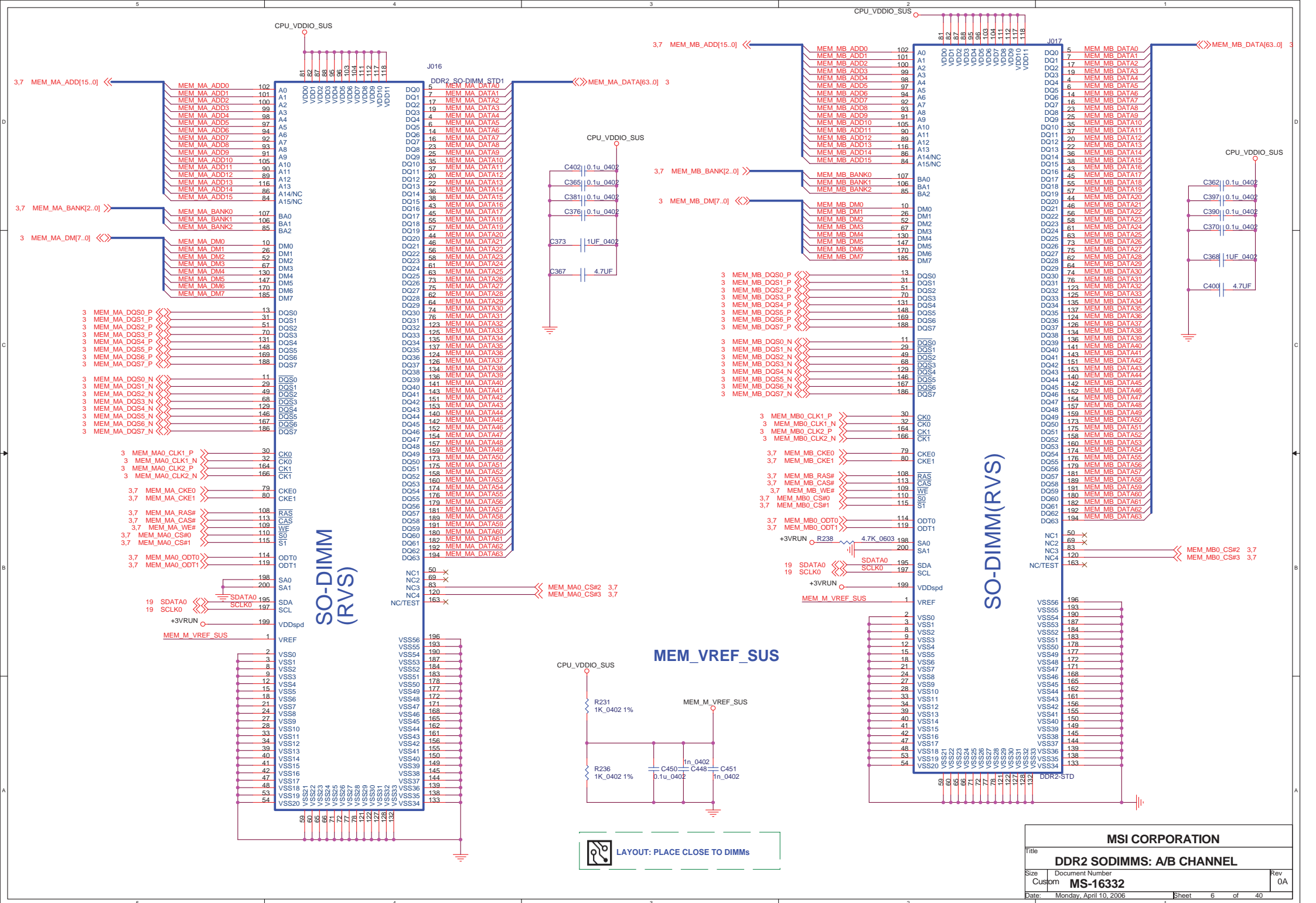
### DECOUPLING BETWEEN PROCESSOR AND DIMMs

PLACE CLOSE TO PROCESSOR AS POSSIBLE



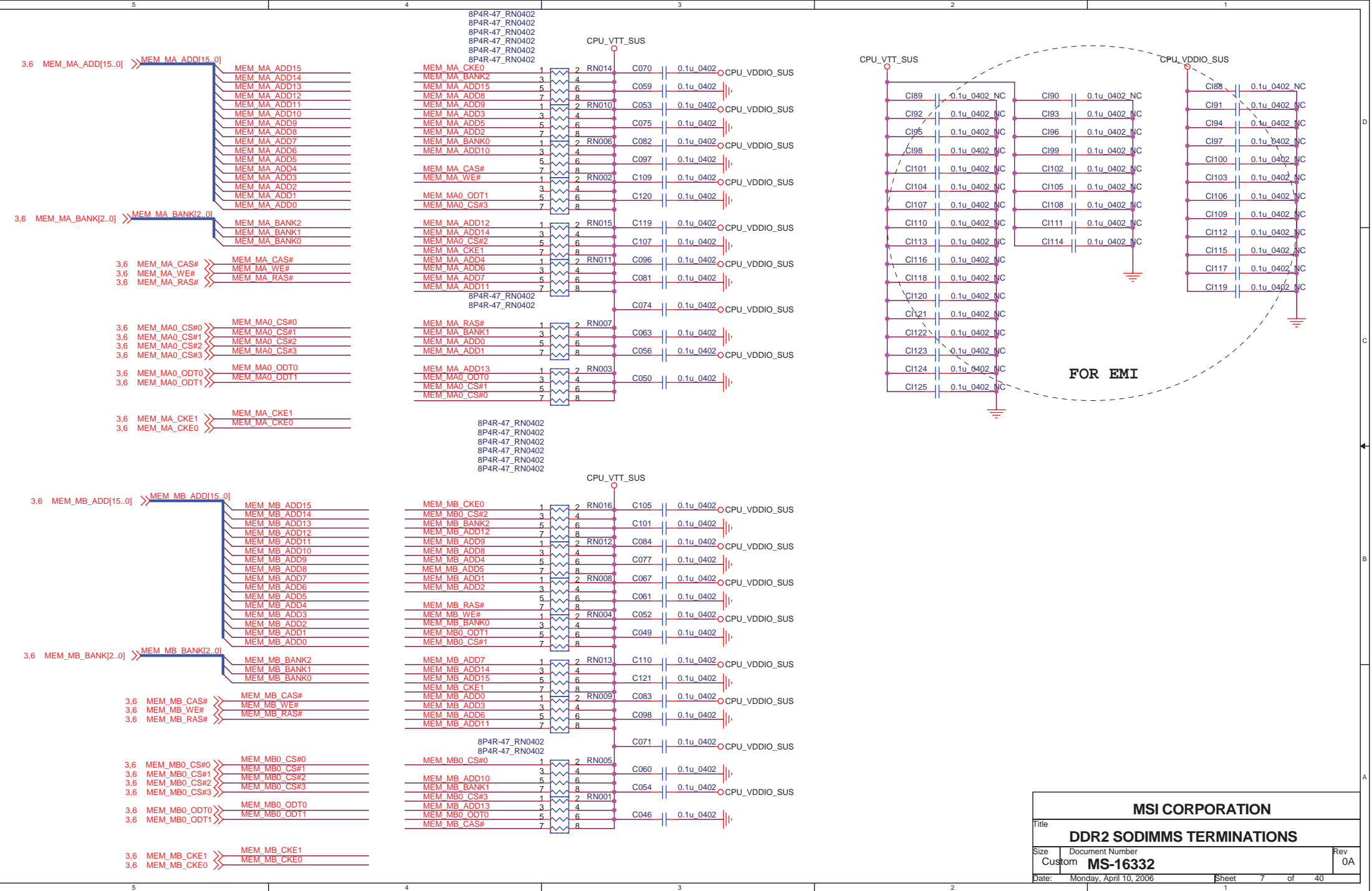
# PROCESSOR POWER AND GROUND

MSI CORPORATION		
Title	AMD S1 HT I/F	
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LAYOUT: PLACE CLOSE TO DIMMs

<b>MSI CORPORATION</b>		
<b>DDR2 SODIMMS: A/B CHANNEL</b>		
Title		
Size	Document Number	Rev
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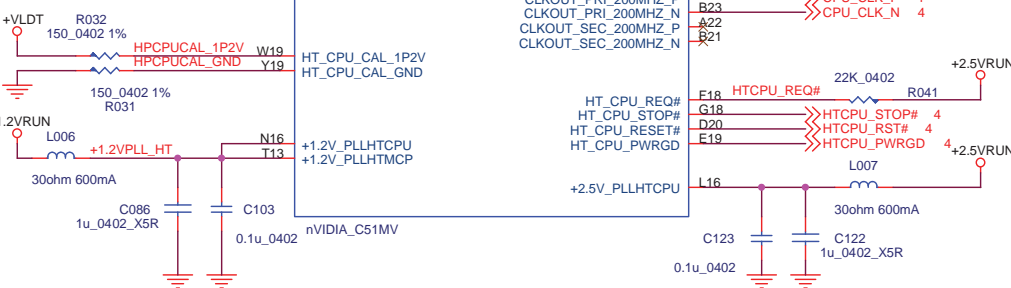
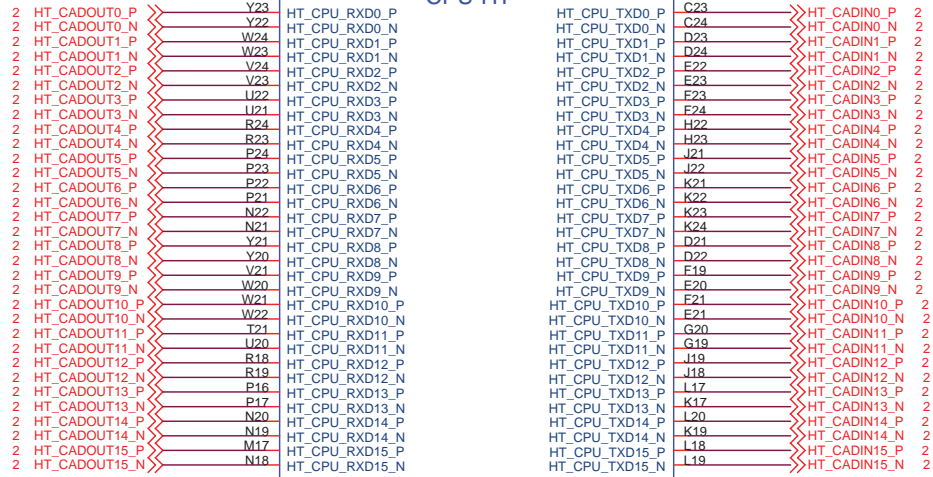


<b>MSI CORPORATION</b>		
Title		
<b>DDR2 SODIMMS TERMINATIONS</b>		
Size	Document Number	Rev
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### C51MV CPU-HT

PART 1 OF 5



HPCPUCAL\_1P2V  
HPCPUCAL\_GND

Place within 500 mils of ball,  
route 5/10

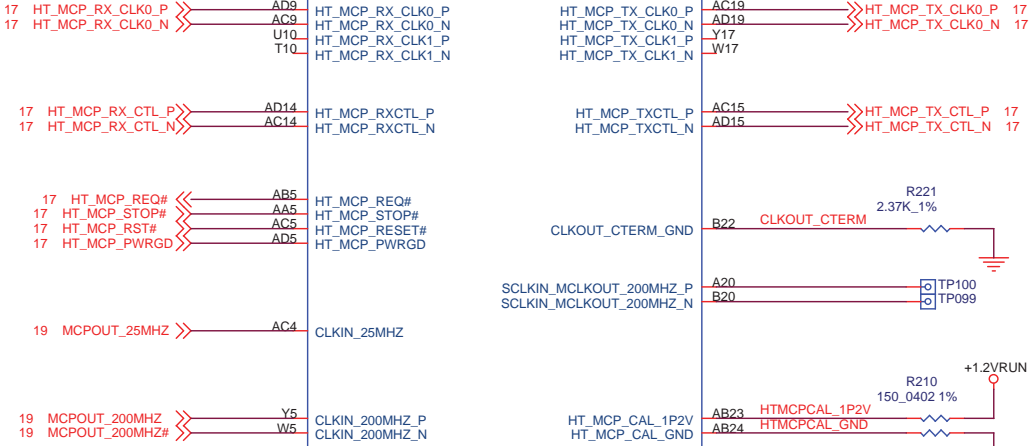
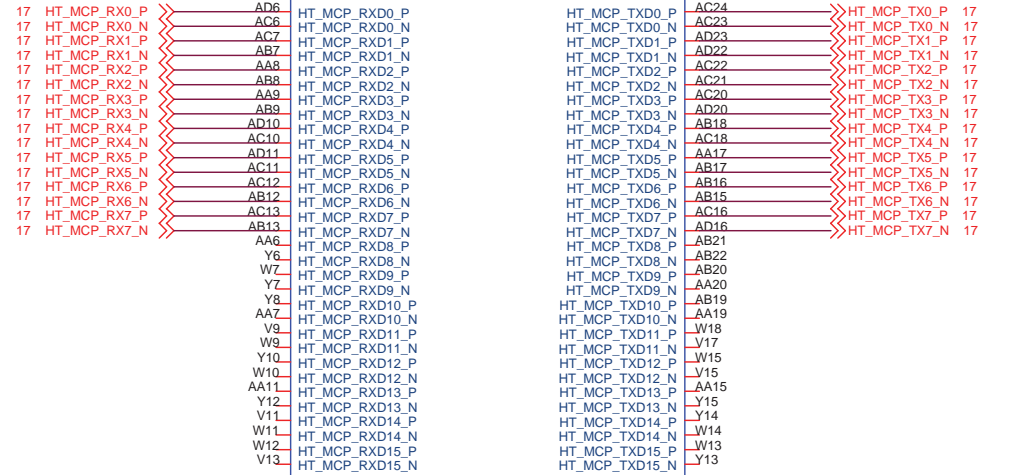
HTMCPAL\_1P2V  
HTMCPAL\_GND

Place within 500 mils  
of ball; route  
5/5/10.

U018B

### C51MV MCP-HT

PART 2 OF 5



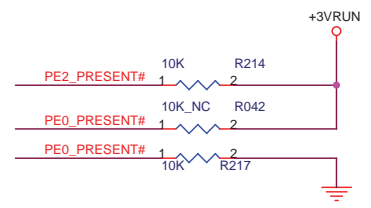
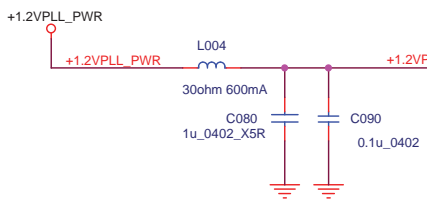
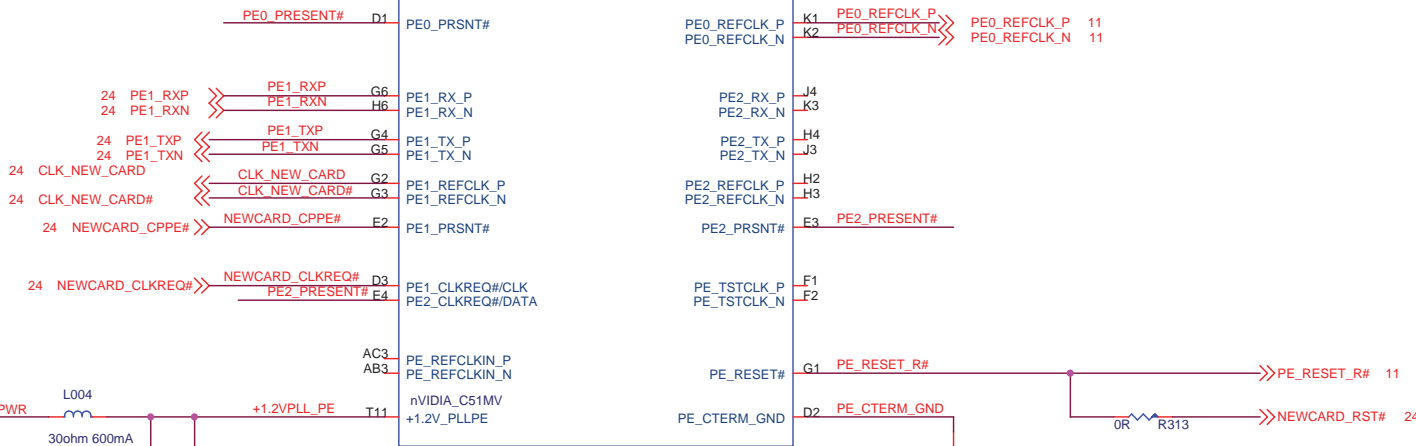
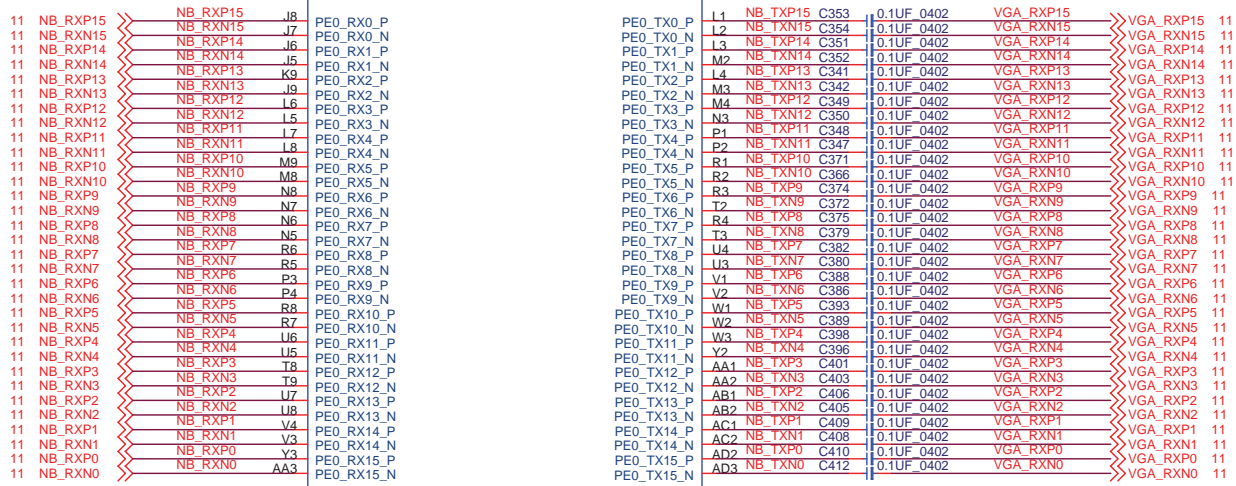
MSI CORPORATION		
Title <b>C51MV/D HT CPU/SB</b>		
Size B	Document Number <b>MS-16322</b>	Rev 0A
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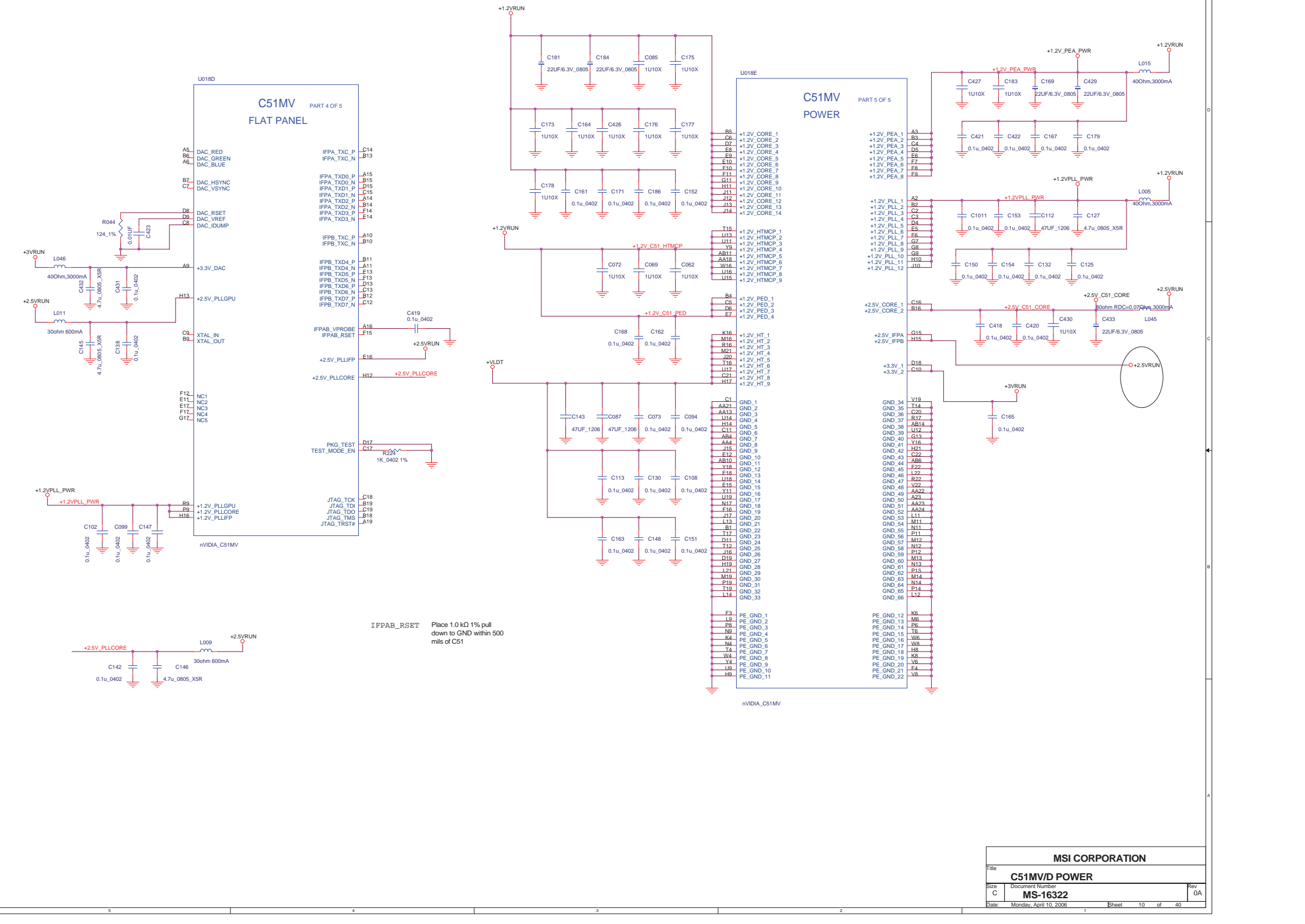
### C51MV PCI EXPRESS

PART 3 OF 5

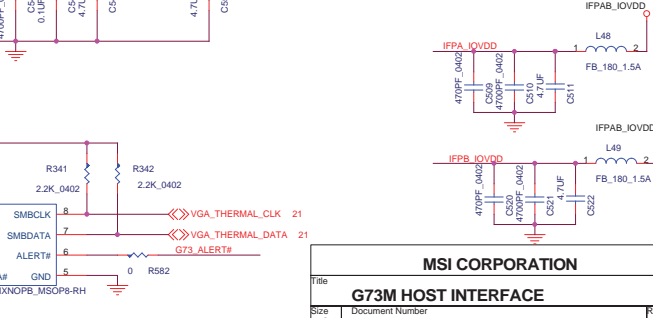
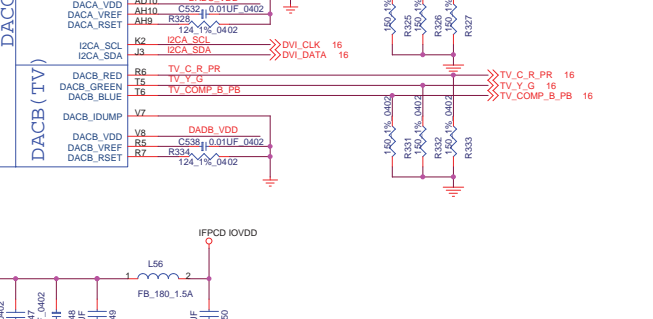
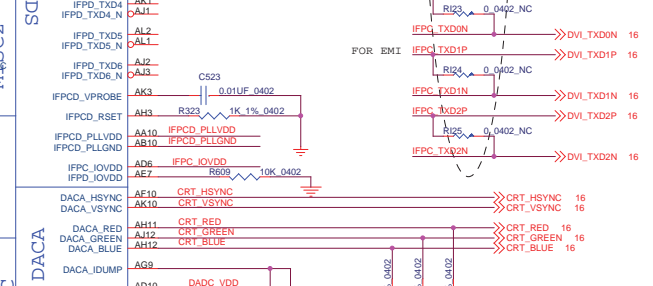
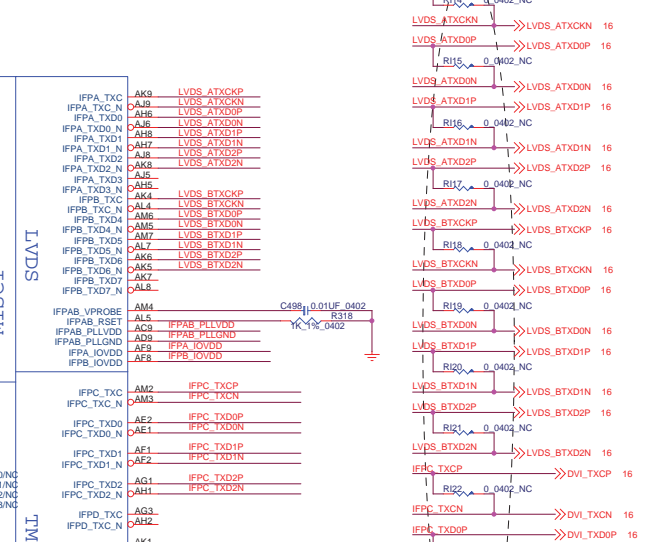
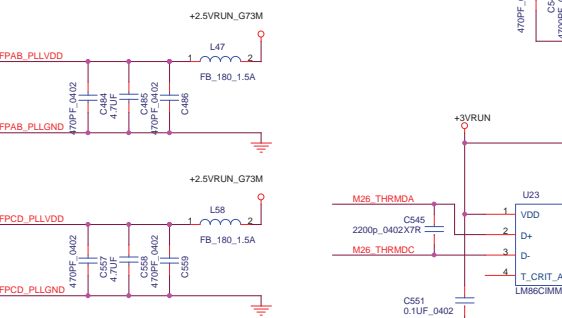
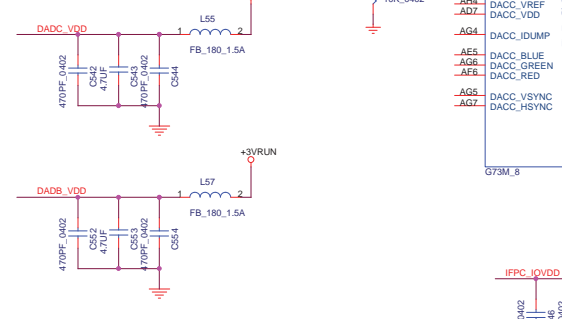
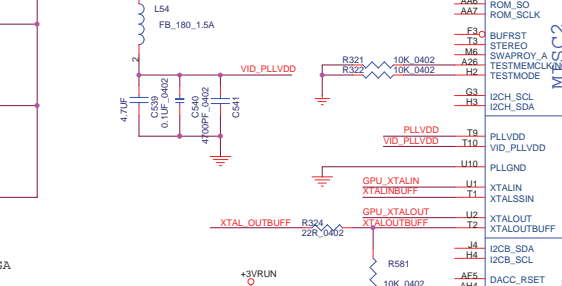
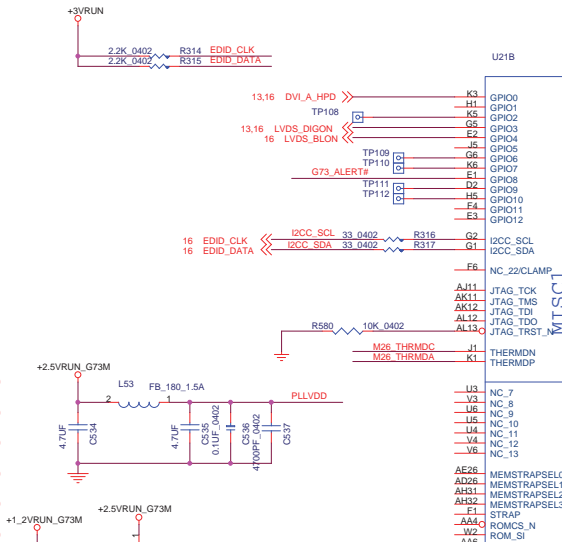
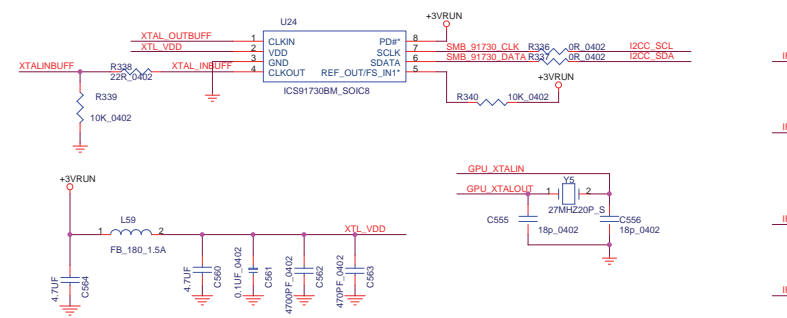
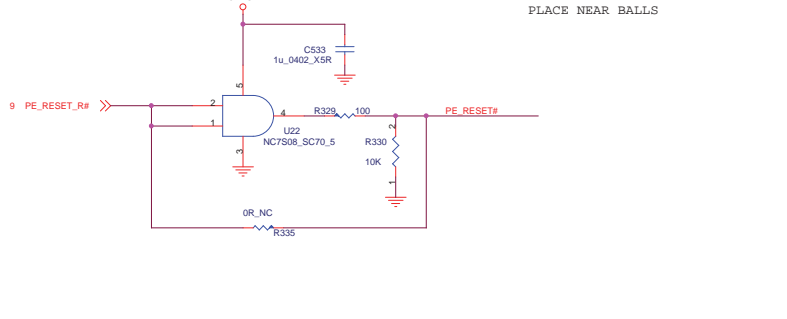
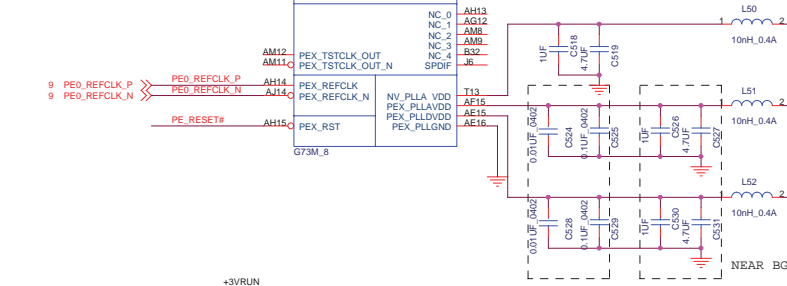
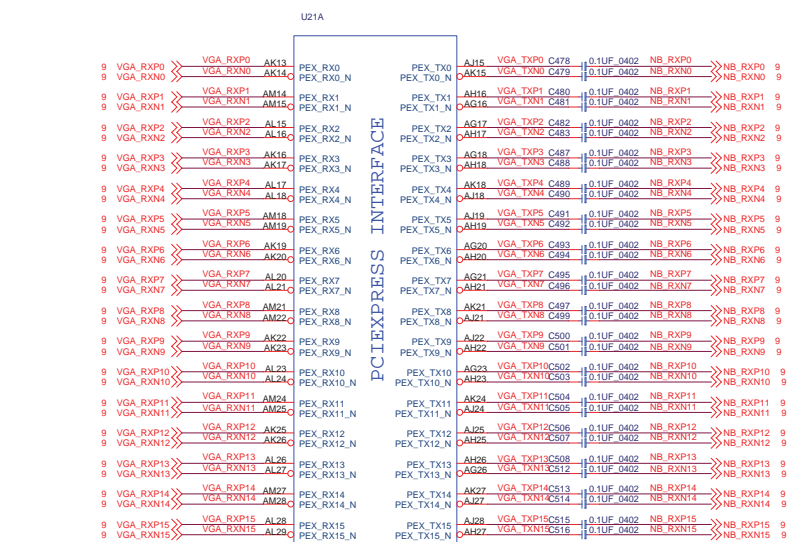


PE\_CTERM\_GND Place 2.37 kΩ 1% pull down to GND within 500 mils of C51

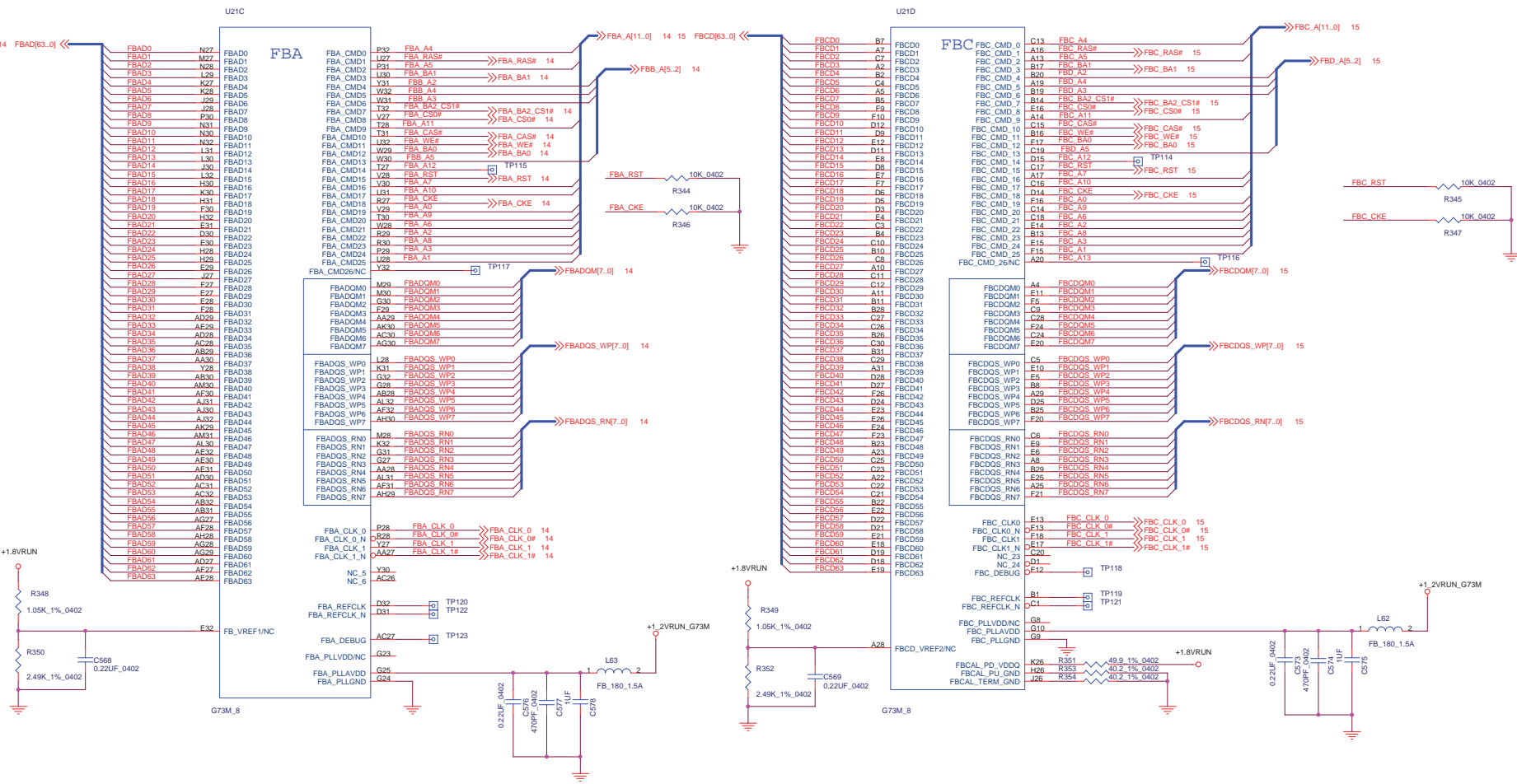
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<b>C51MV/D PCI-E GRAPH</b>		
Title		
Size	Document Number	Rev
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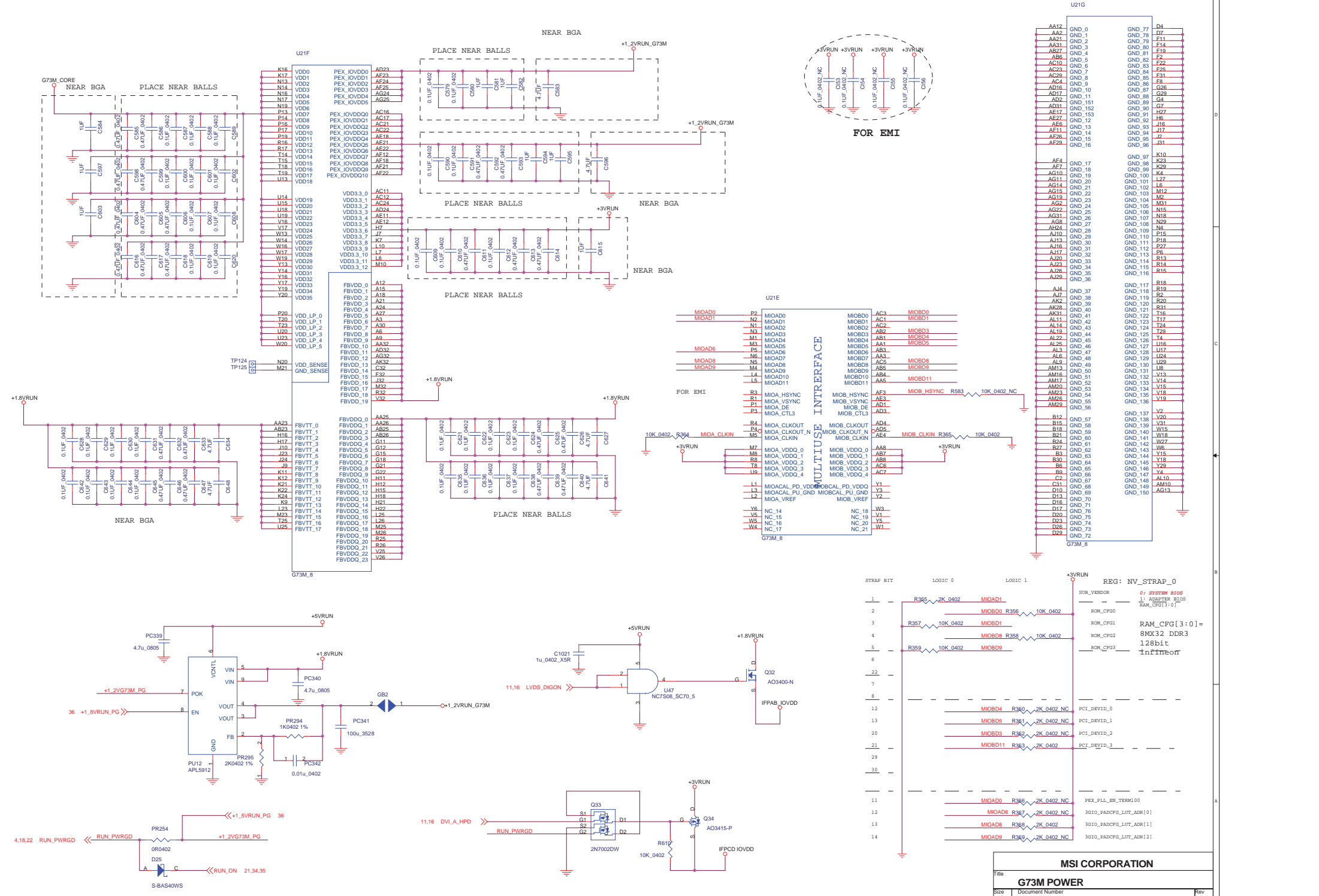


IFFPB\_RSET Place 1.0 kΩ 1% pull down to GND within 500 mils of C51



<b>MSI CORPORATION</b>		
<b>G73M HOST INTERFACE</b>		
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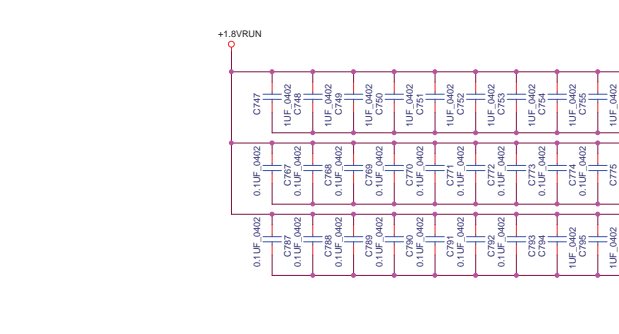
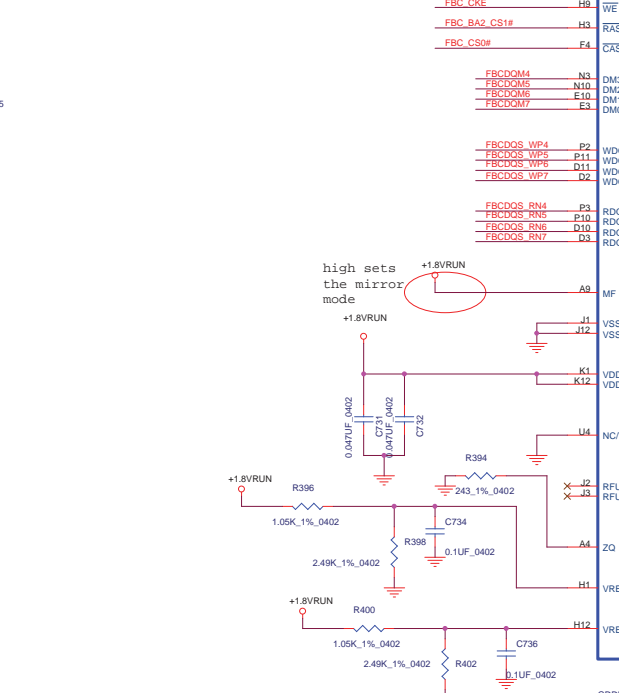
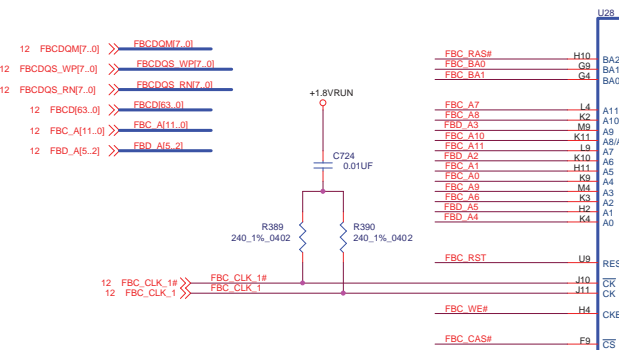
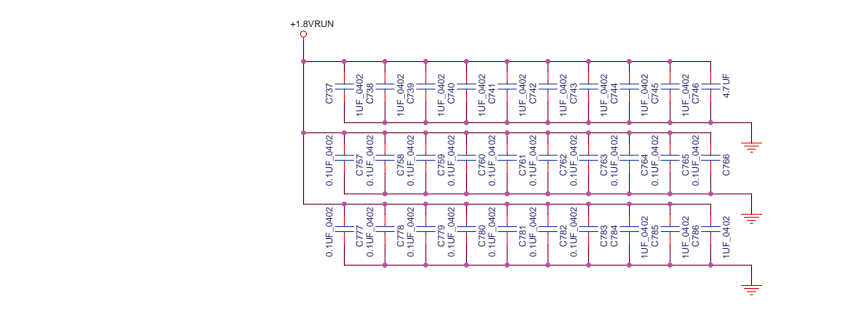
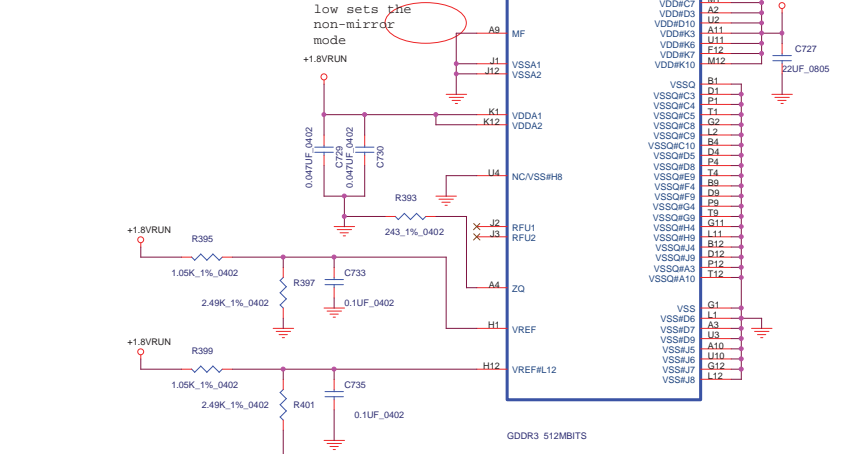
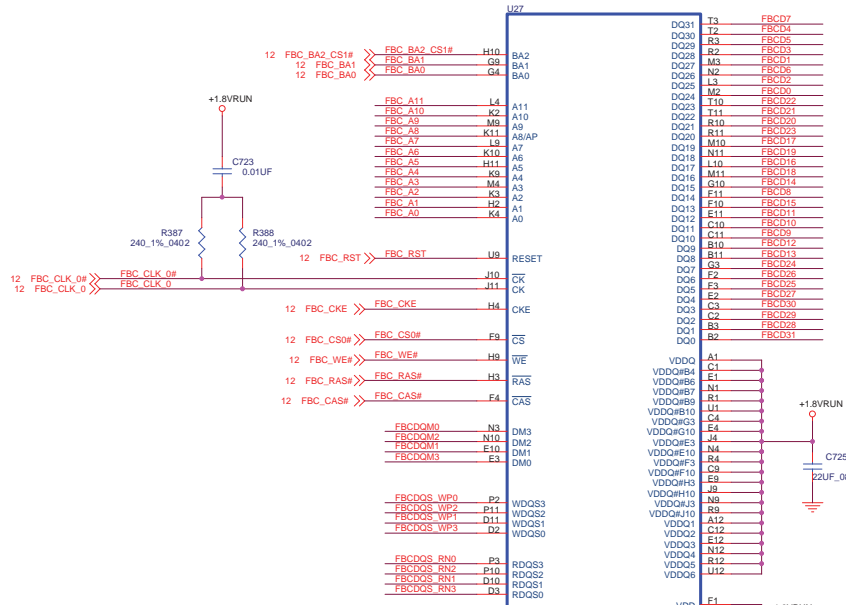


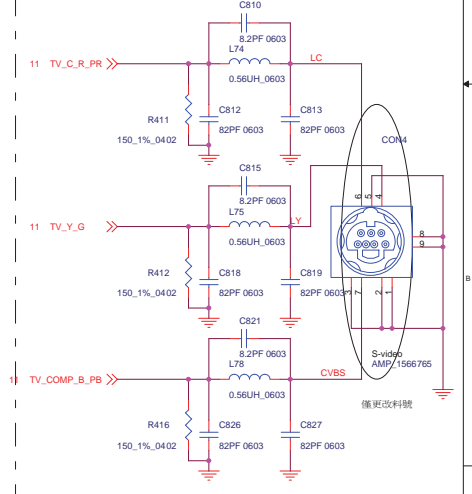
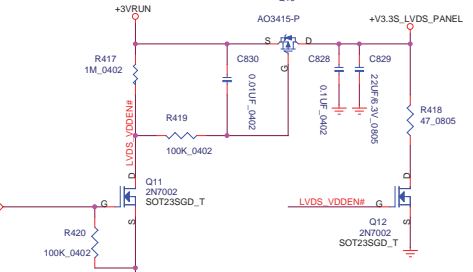
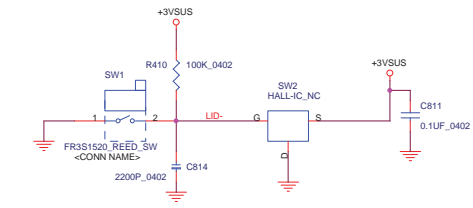
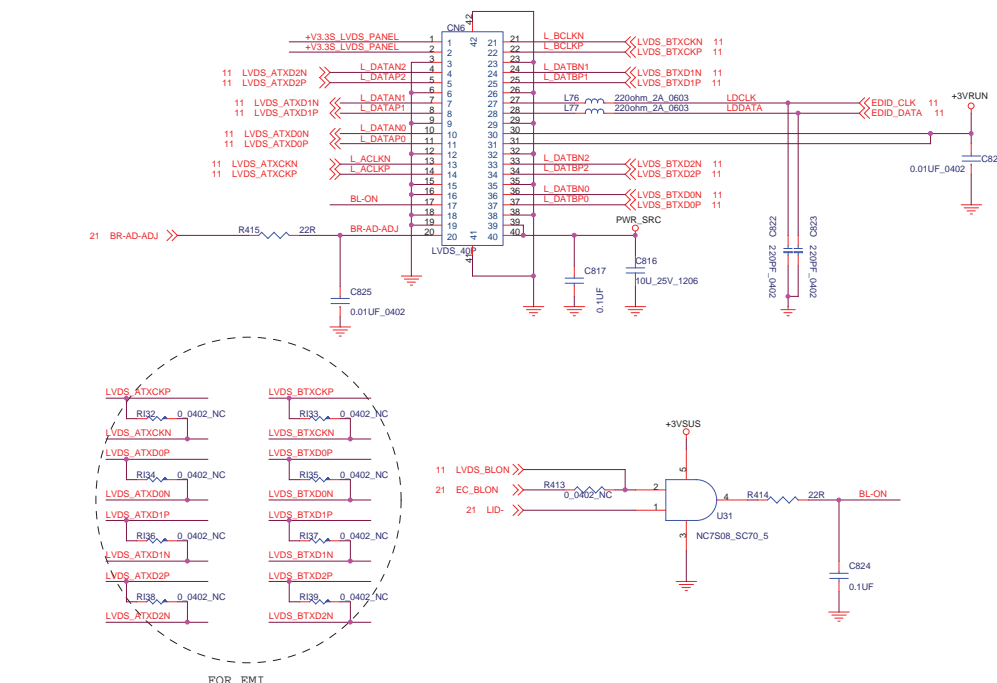
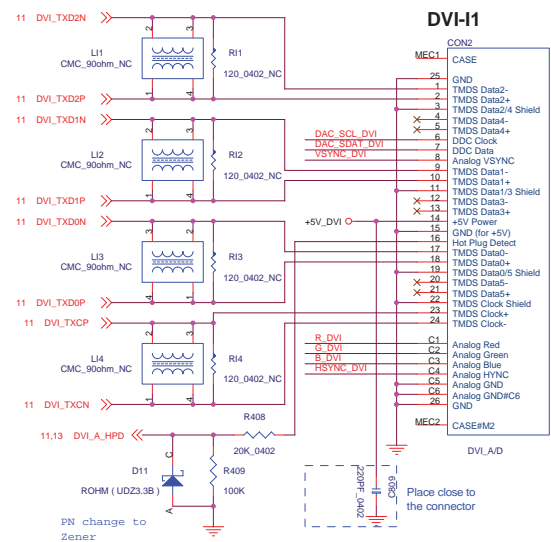
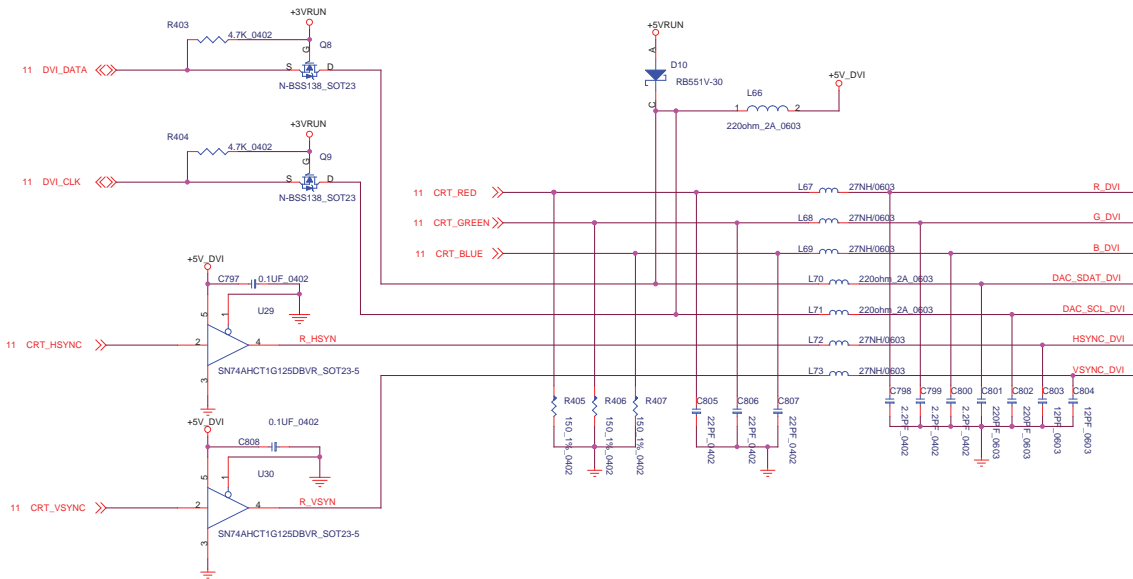


MSI CORPORATION			
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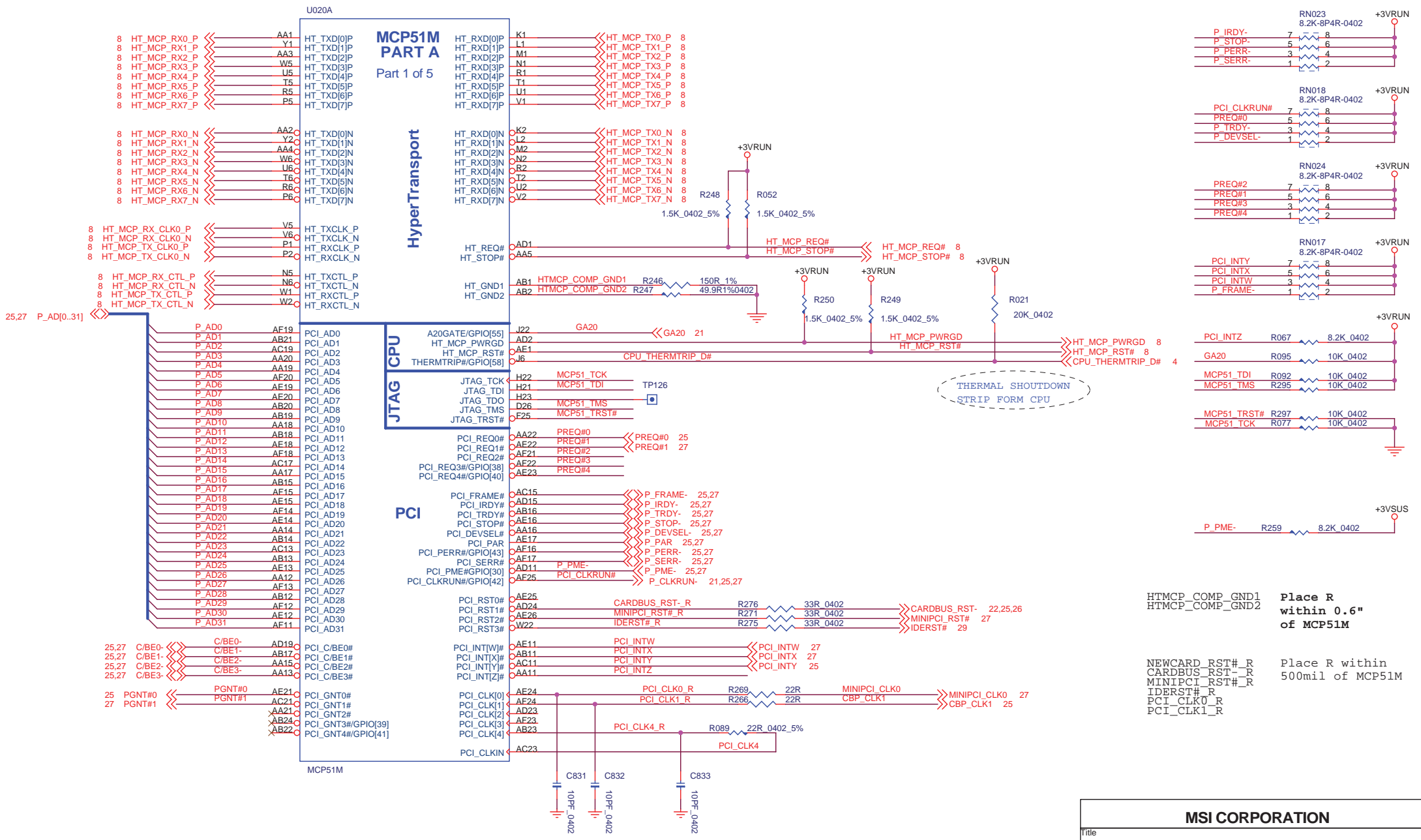
Channel B





<b>MSI CORPORATION</b>		
File	<b>DVI &amp; LVDS &amp; TV conn. &amp; BL</b>	
Size	Document Number	Rev
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HTMCP\_COMP\_GND1  
HTMCP\_COMP\_GND2

**Place R within 0.6" of MCP51M**

NEWCARD\_RST#\_R  
CARDBUS\_RST#\_R  
MINIPCI\_RST#\_R  
IDERST#\_R  
PCI\_CLK0\_R  
PCI\_CLK1\_R

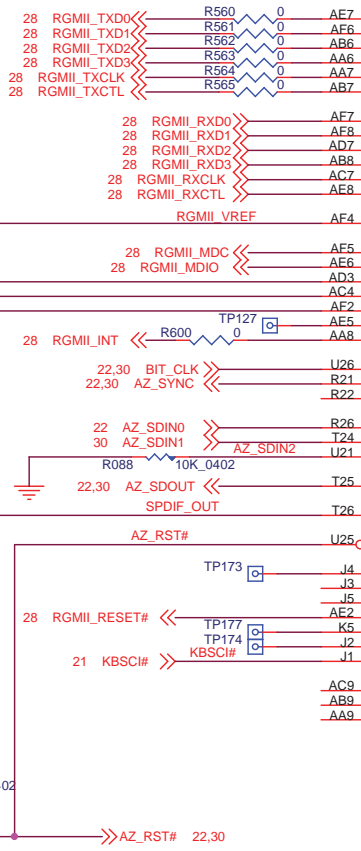
**Place R within 500mil of MCP51M**

<b>MSI CORPORATION</b>		
<b>MCP51M (HT/PCI/CPU)</b>		
Title		
Size B	Document Number <b>MS-16332</b>	Rev 0A
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U020C

### MCP51M PART C

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#### LAN

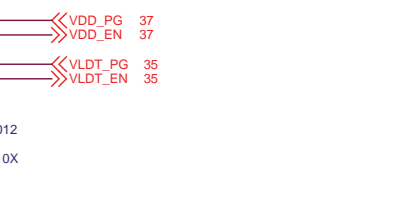
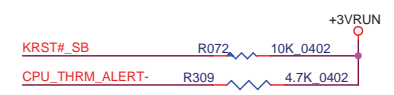
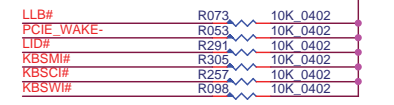
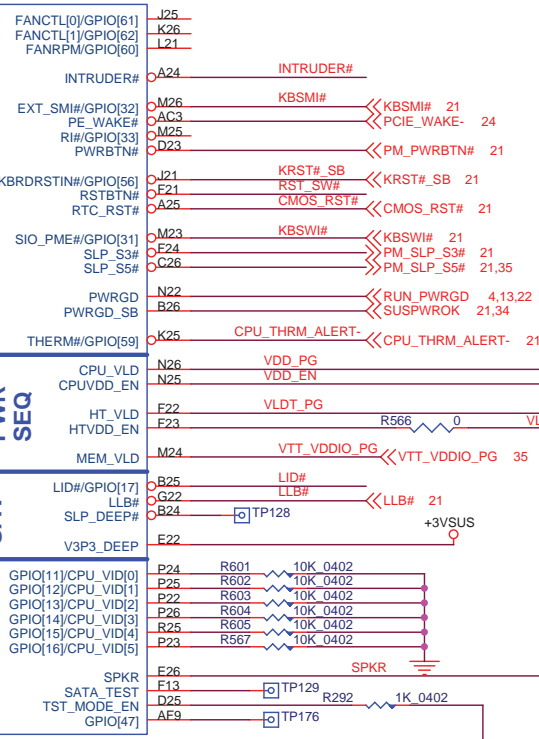
#### POWER GMT

#### HDA&AC97

#### CPU PWR SEQ

#### PWR SAV

#### GPIO



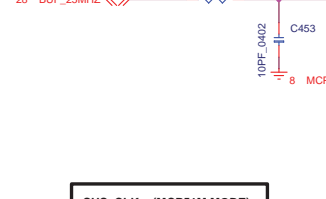
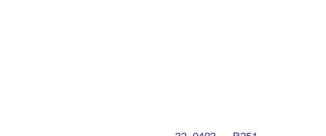
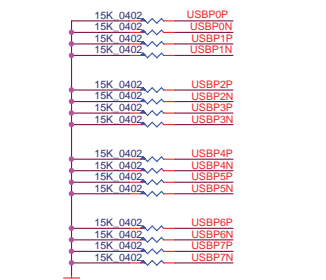
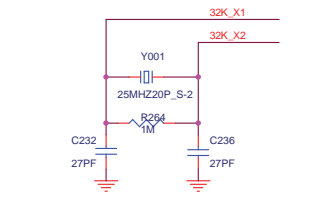
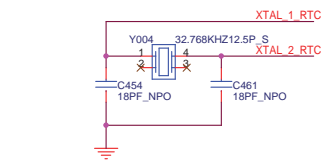
+3VSUS

ROM TABLE (SPEAKER)	
HIGH	SAFE
LOW	USER (DEF)

SPDIF_OUT (BUF_SIO_CLK)	
HIGH	24.000MHZ
LOW	14.318MHZ (DEF)

AZ_RST# (INTERNAL LAN)	
HIGH	RGMII (DEF)
LOW	MII

MSI CORPORATION		
Title <b>MCP51M (LAN/AC97/PMT/GPIO)</b>		
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SUS_CLK (MCP51M MODE)	
HIGH	SLAVE
LOW	NORMAL (DEF)

Place R within 2000 mils of MCP51M  
 Place R within 1000 mils of MCP51M  
 Place R within 500 mils of MCP51M

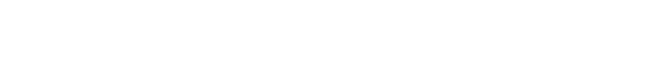
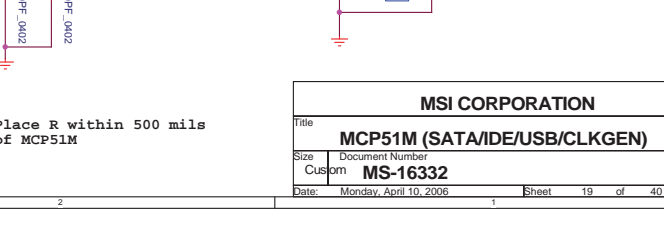
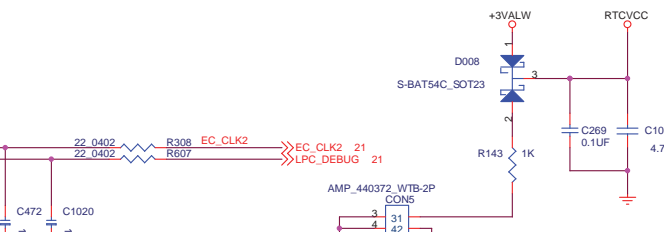
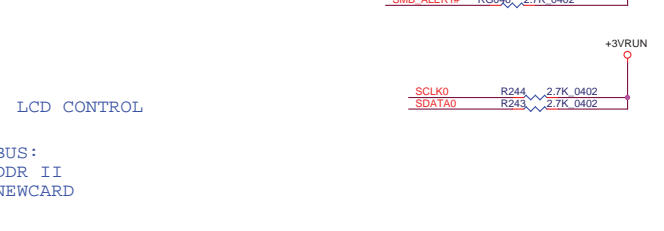
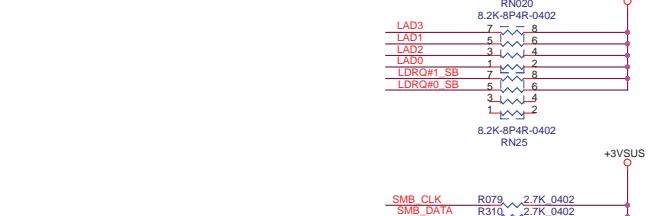
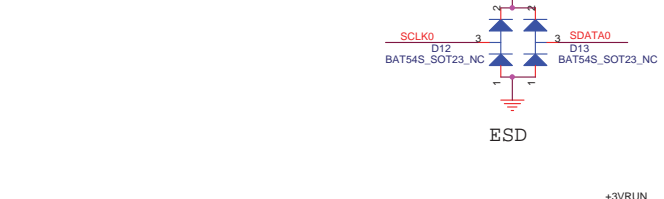
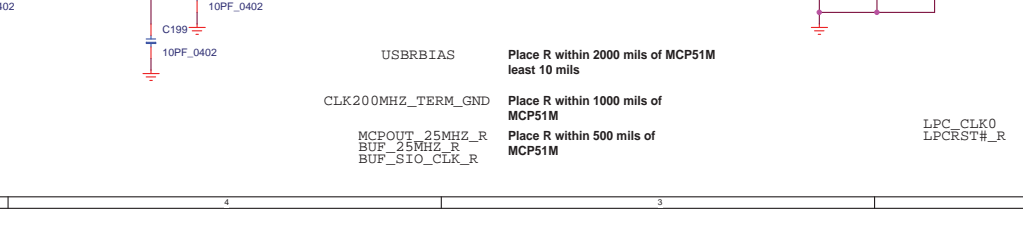
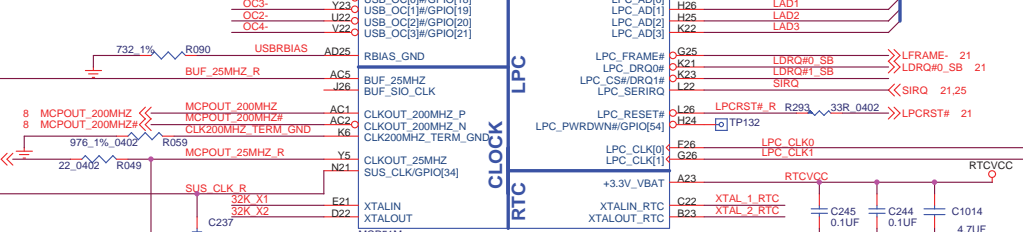
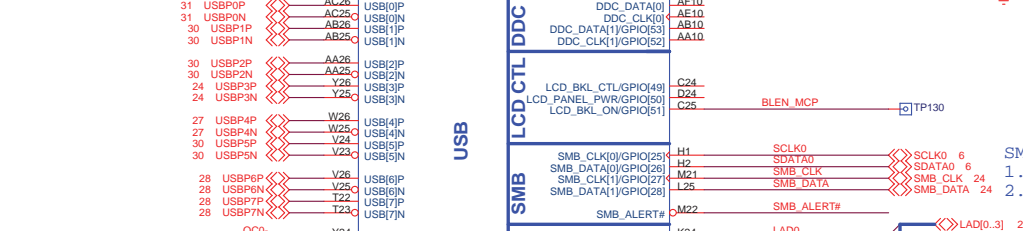
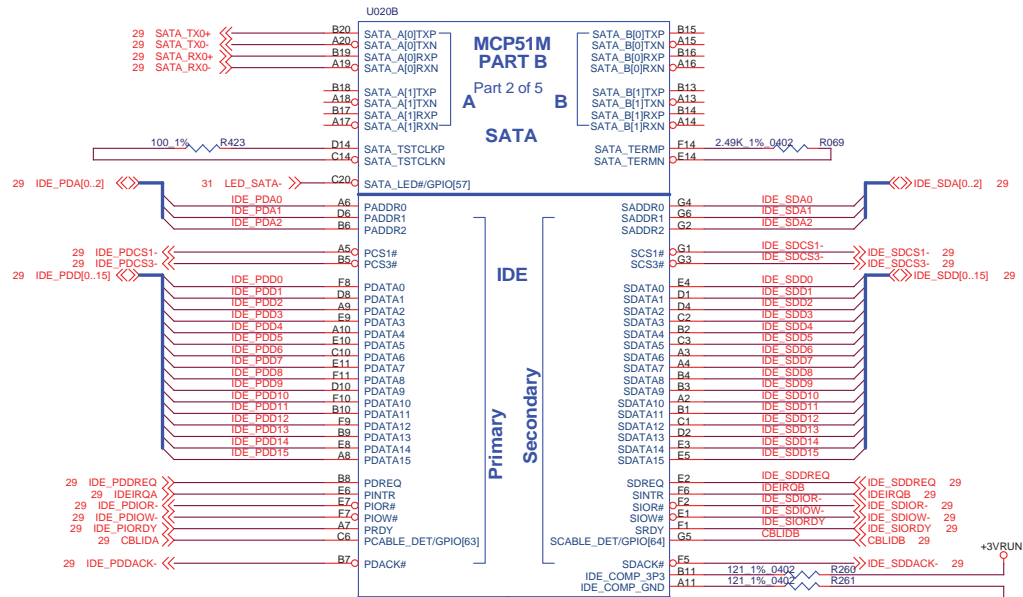
Place R within 500 mils of MCP51M

Place R within 500 mils of MCP51M

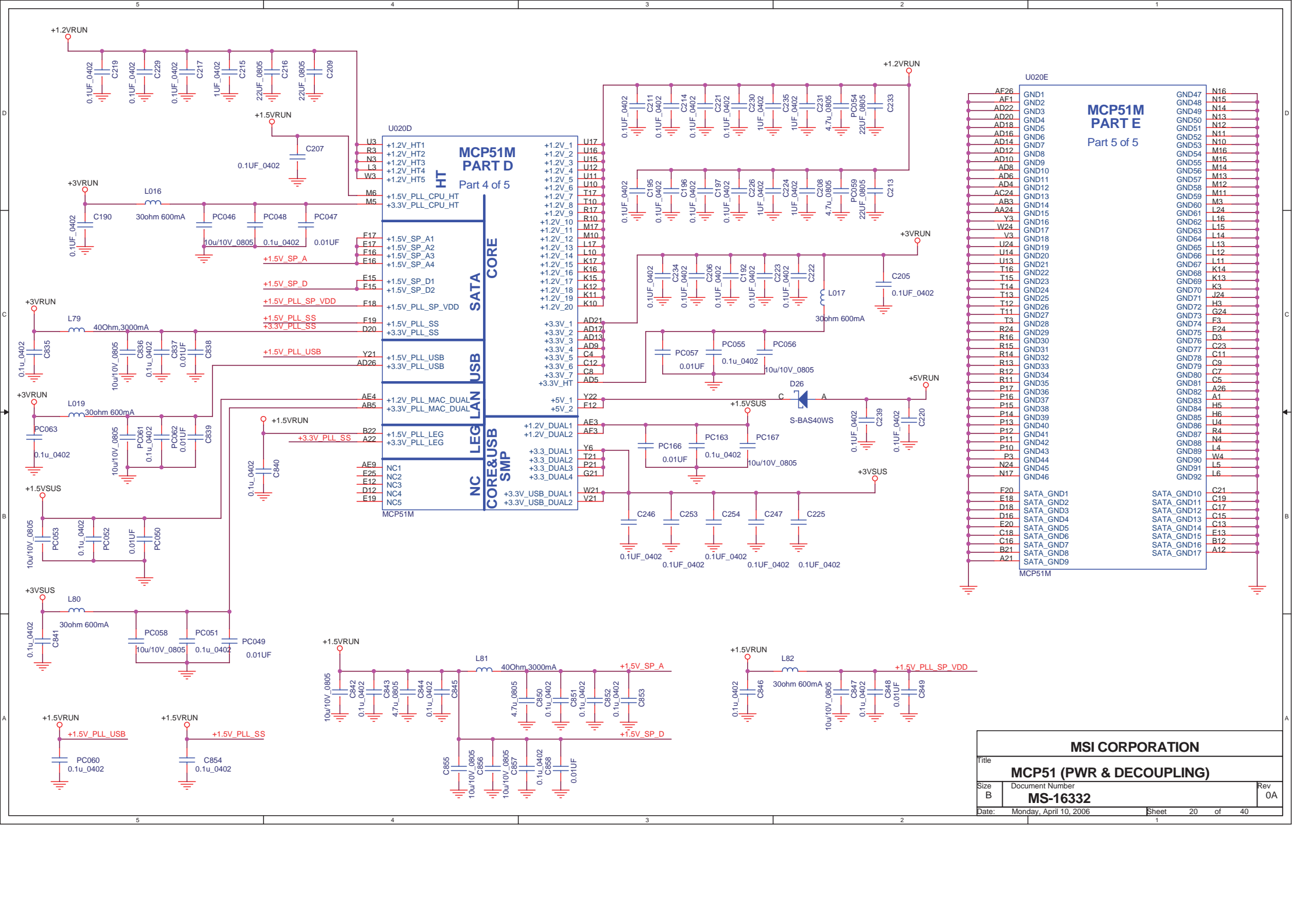
Place R within 500 mils of MCP51M

Place R within 500 mils of MCP51M

Place R within 500 mils of MCP51M



MSI CORPORATION			
Title	MCP51M (SATA/IDE/USB/CLKGEN)		
Size	Document Number	Cuspm	Rev
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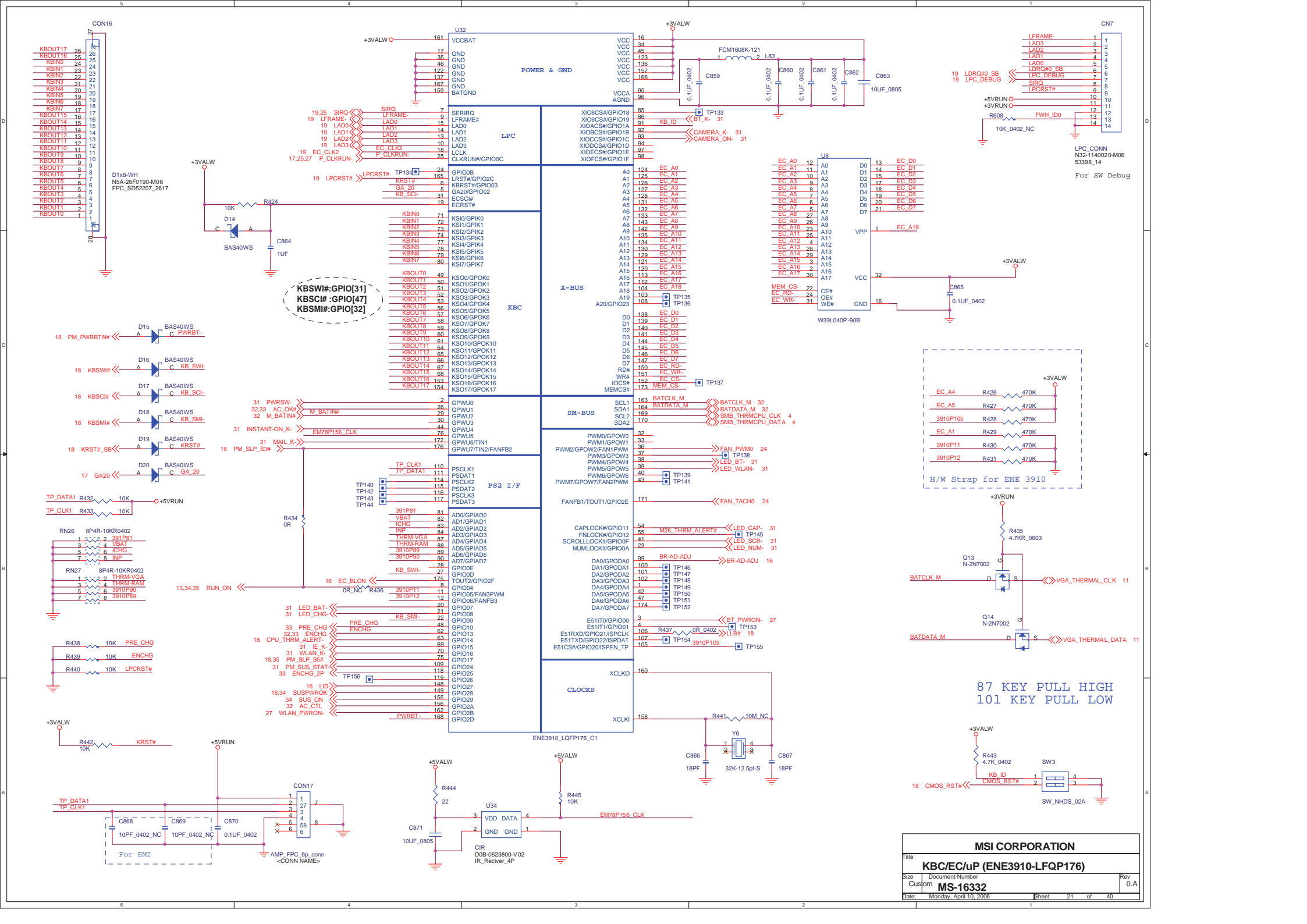


**MCP51M PART E**  
Part 5 of 5

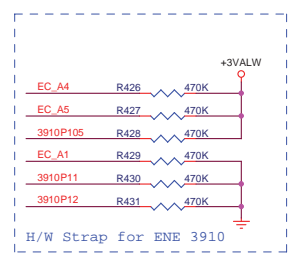
**MCP51M PART D**  
Part 4 of 5

**HT CORE**  
**SATA**  
**NC LEG LAN USB CORE & USB SMP**

<b>MSI CORPORATION</b>		
<b>MCP51 (PWR &amp; DECOUPLING)</b>		
Title	Document Number	Rev
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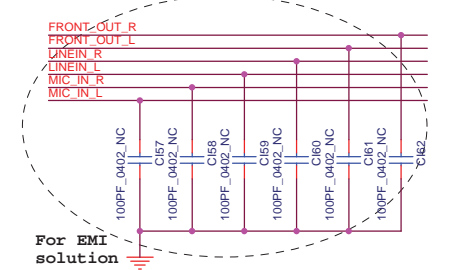
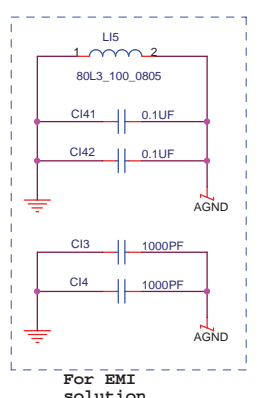
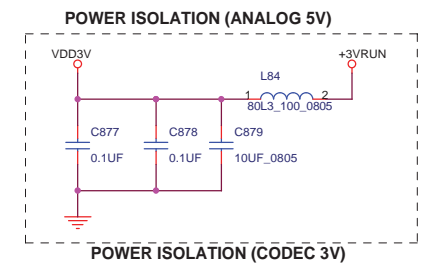
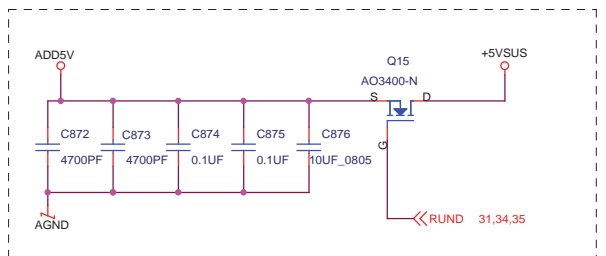
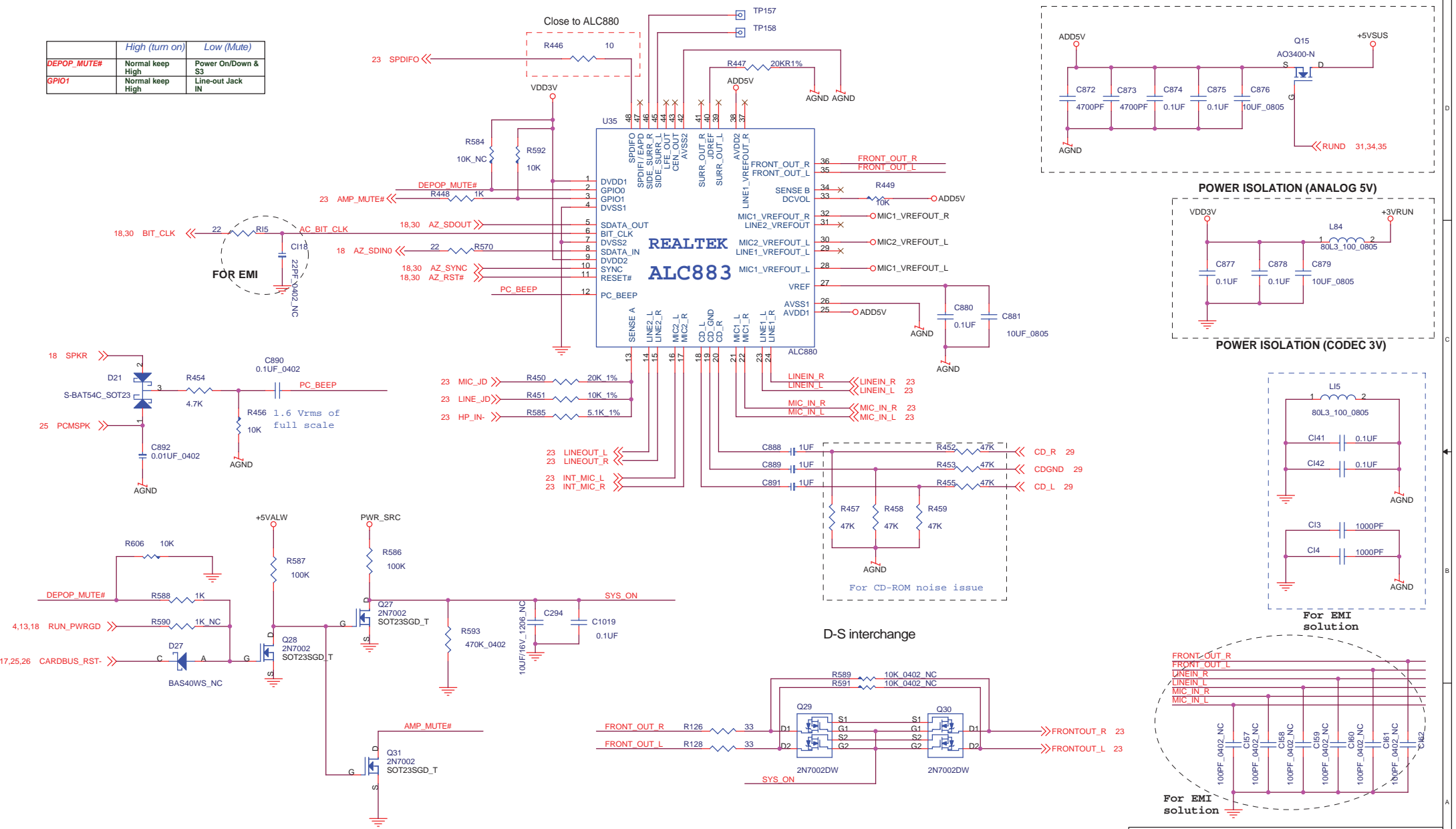
**KBSWI#:GPIO[31]**  
**KBSC#:GPIO[47]**  
**KBSMI#:GPIO[32]**



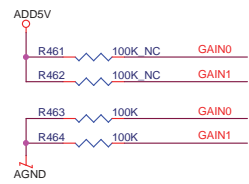
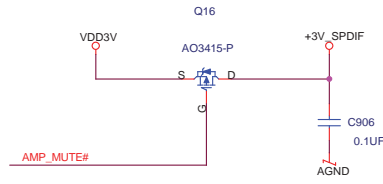
87 KEY PULL HIGH  
 101 KEY PULL LOW

<b>MSI CORPORATION</b>		
Title <b>KBC/EC/uP (ENE3910-LFQP176)</b>		
Size	Document Number	Rev
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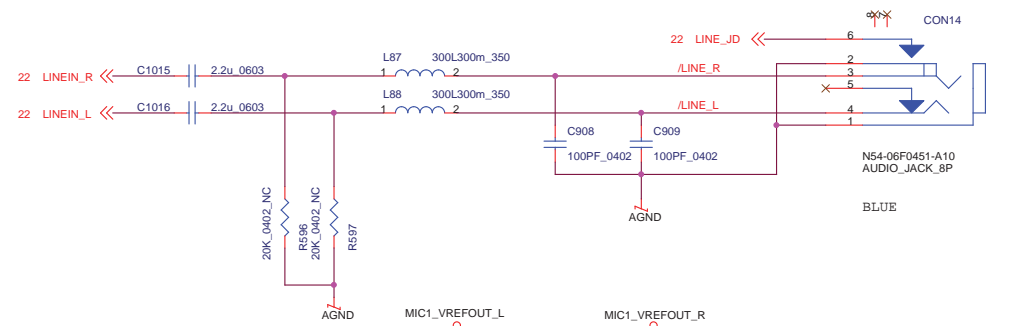
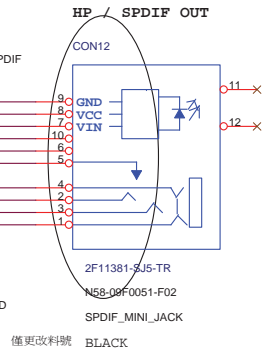
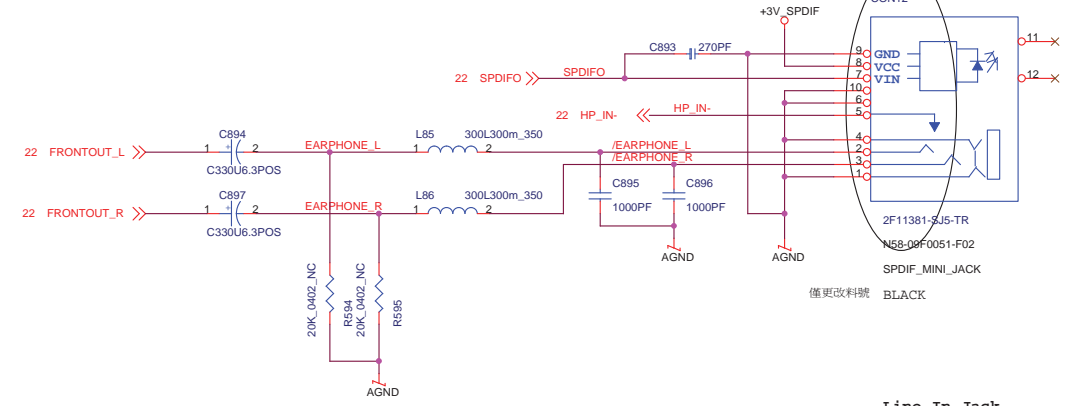
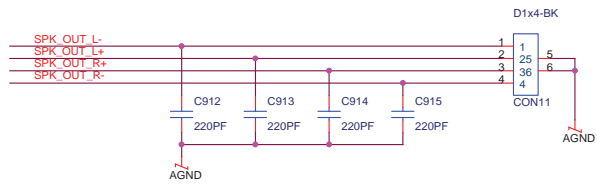
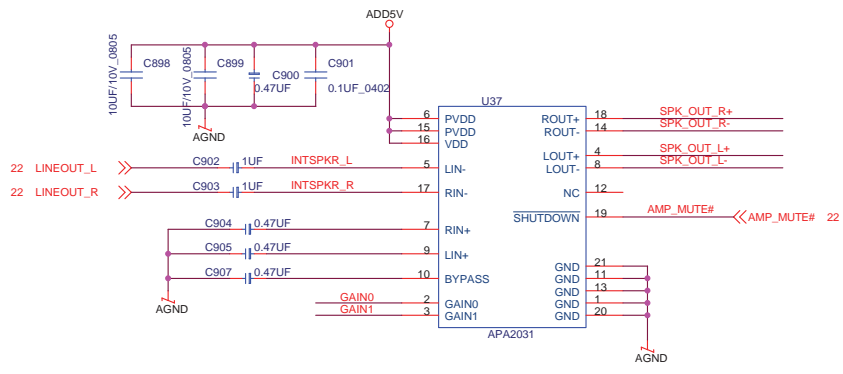
	High (turn on)	Low (Mute)
DEPOP_MUTE#	Normal keep High	Power On/Down & S3
GPIO1	Normal keep High	Line-out Jack IN



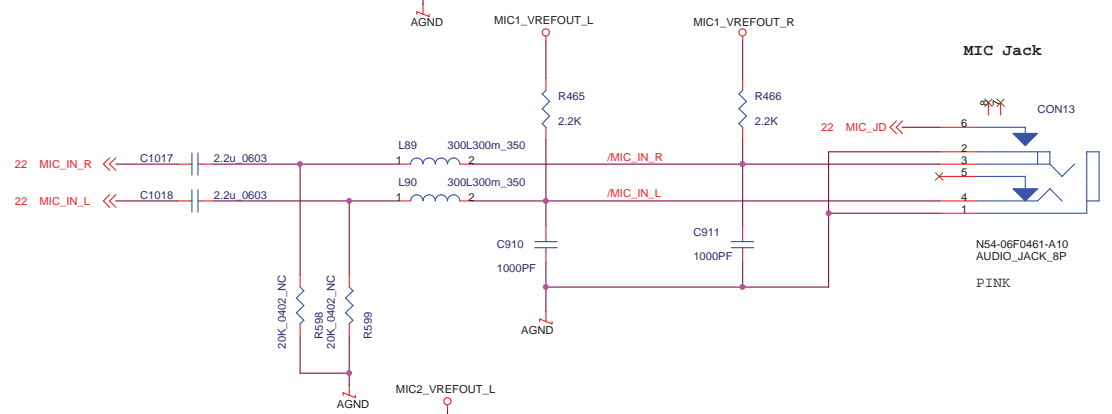
MSI CORPORATION		
Title	Azalia CODEC(AL883)	
Size	Document Number	Rev
Custom	MS-16322	1.0
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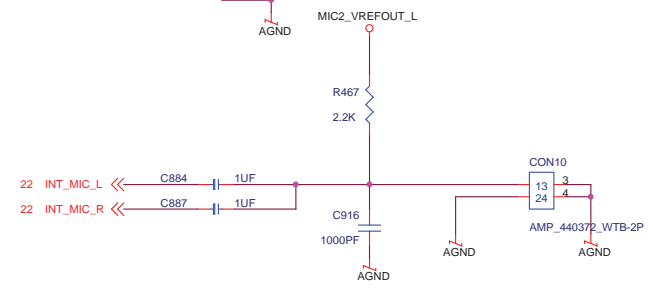
Av	GAIN0	GAIN1
6dB	0	0
10dB	0	1
15.6dB	1	0
21.6dB	1	1
4.3dB	X	X



Line In Jack



MIC Jack

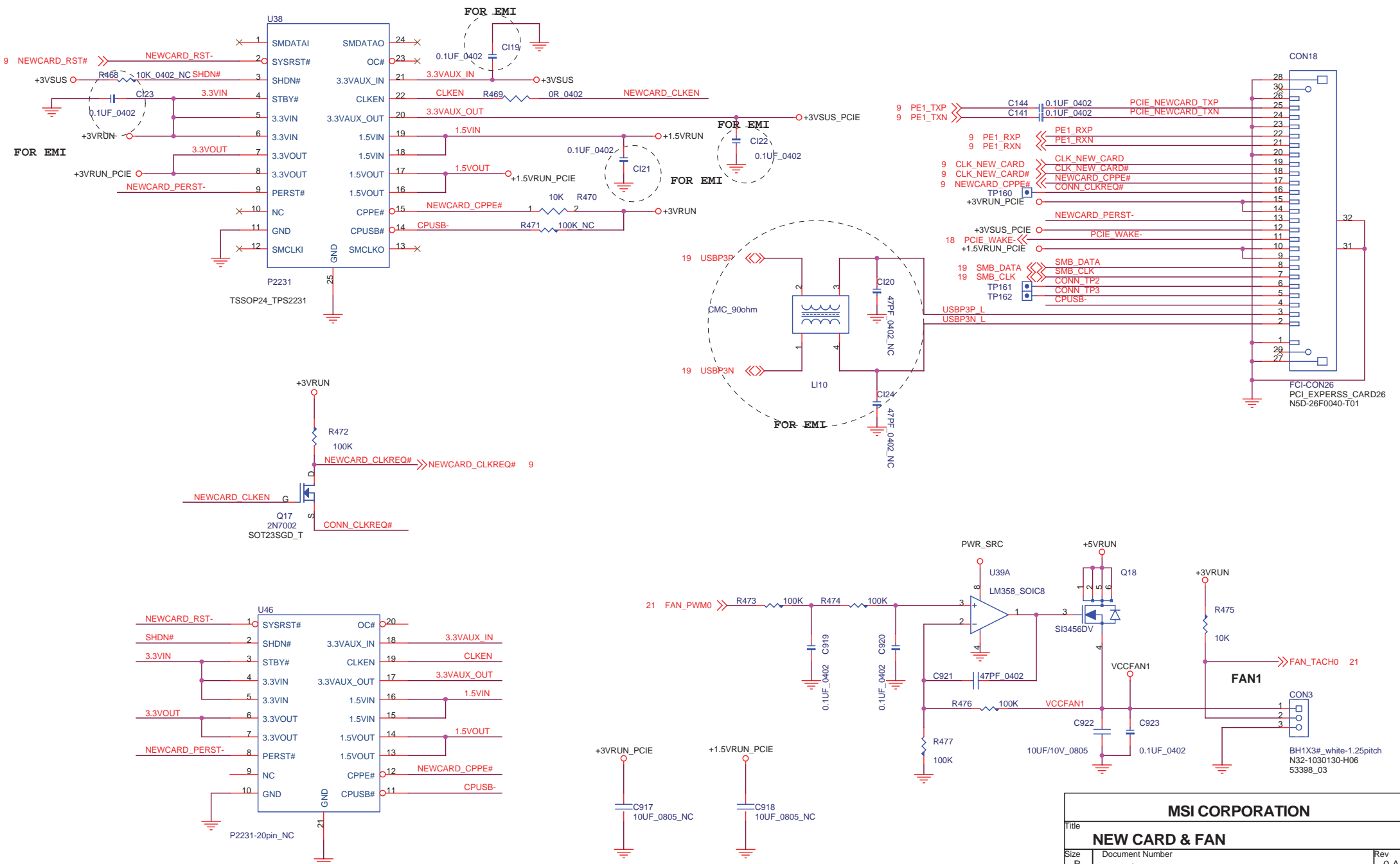


**MSI CORPORATION**

Title: **Audio Amp. & Jacks**

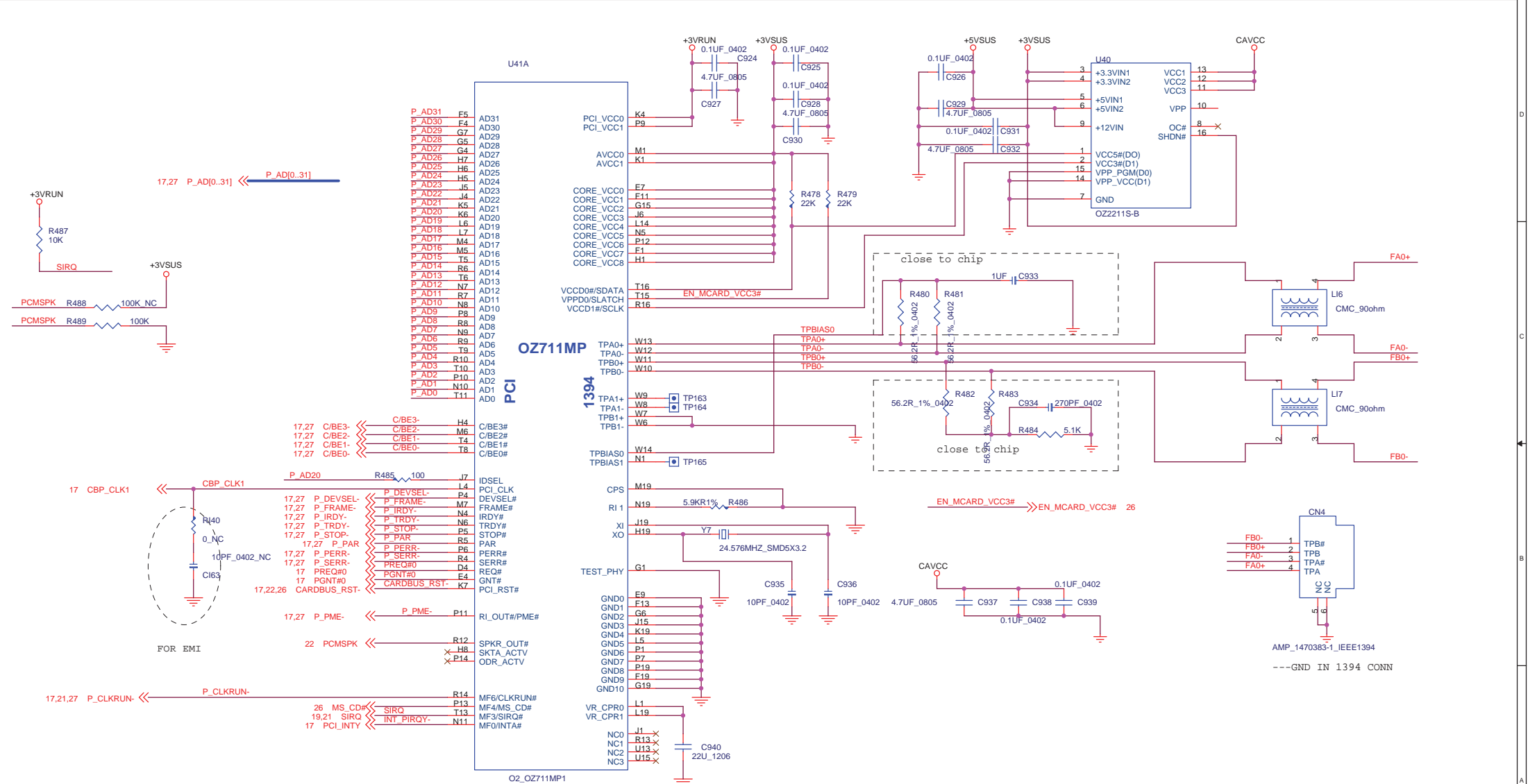
Size: Custom    Document Number: **MS-16332**    Rev: 0B

Date: Monday, April 10, 2006    Sheet: 23 of 40

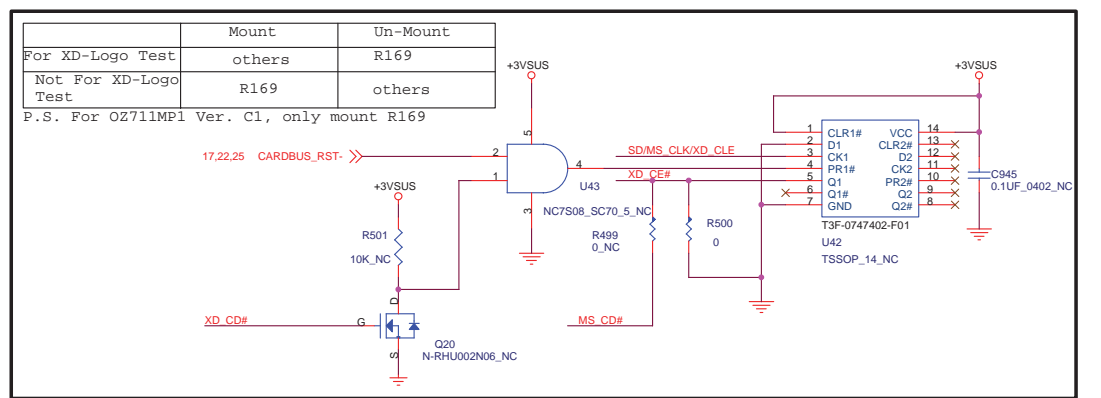
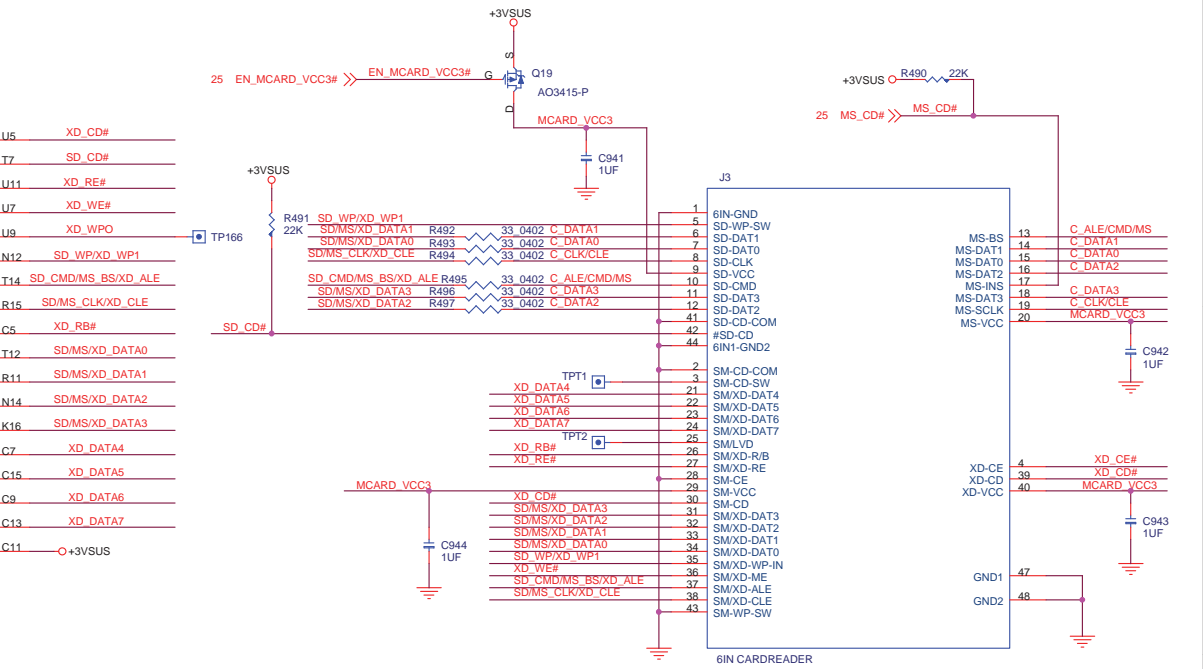
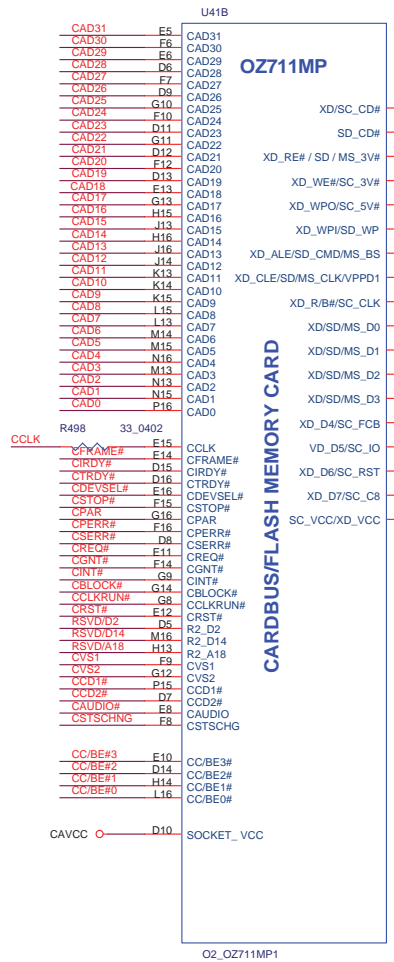
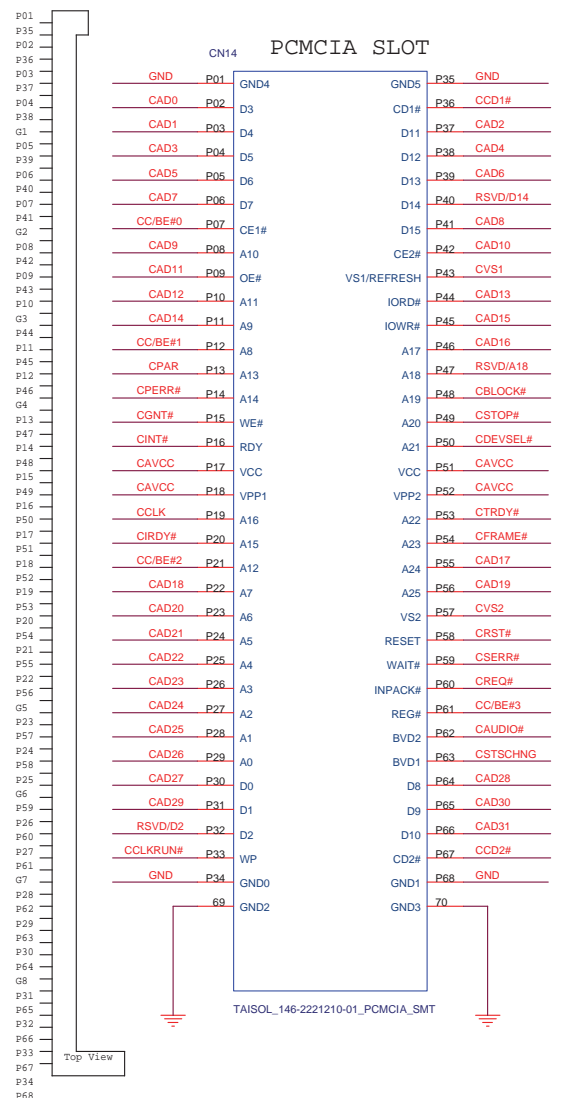


<b>MSI CORPORATION</b>		
<b>NEW CARD &amp; FAN</b>		
Title	NEW CARD & FAN	
Size	Document Number	Rev
B	<b>MS-16332</b>	0.A
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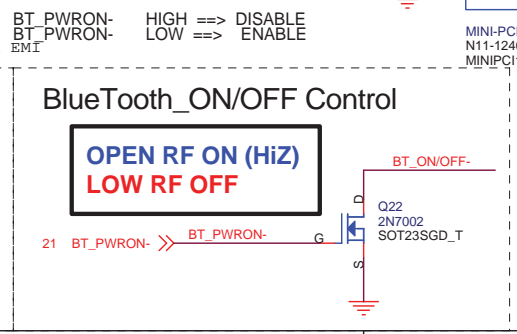
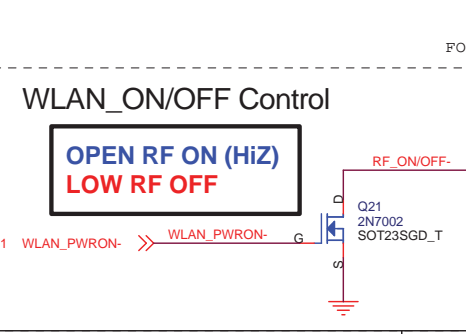
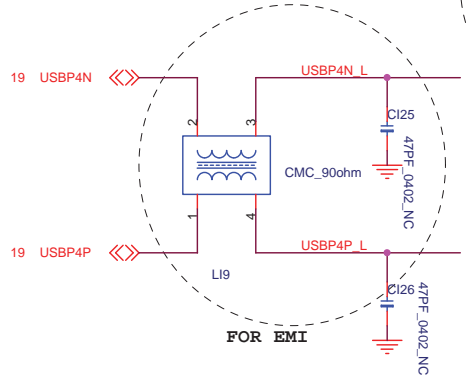
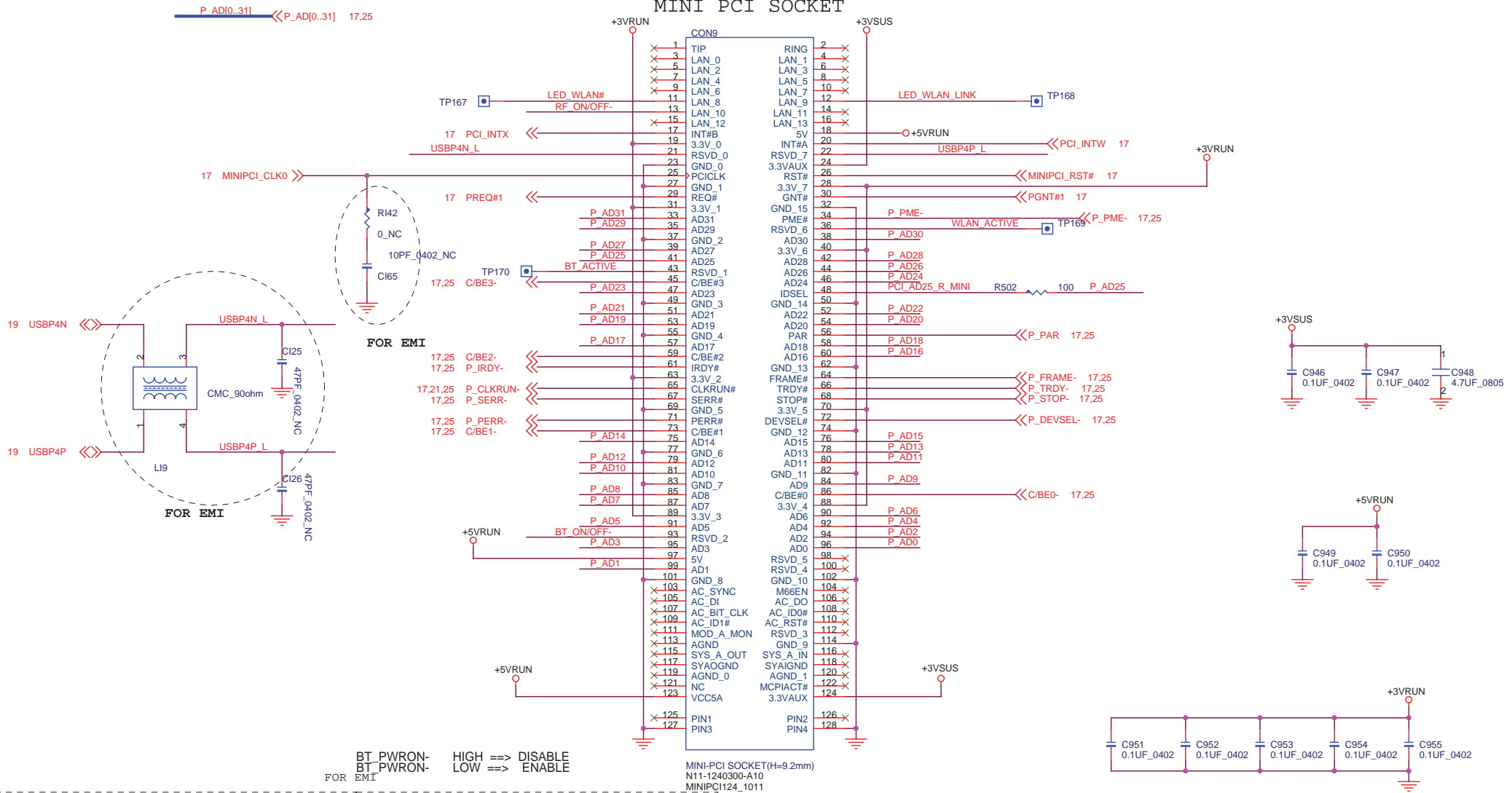




MSI CORPORATION			
Title	PCI / 1394 (OZ711MP1)		
Size	Document Number		Rev
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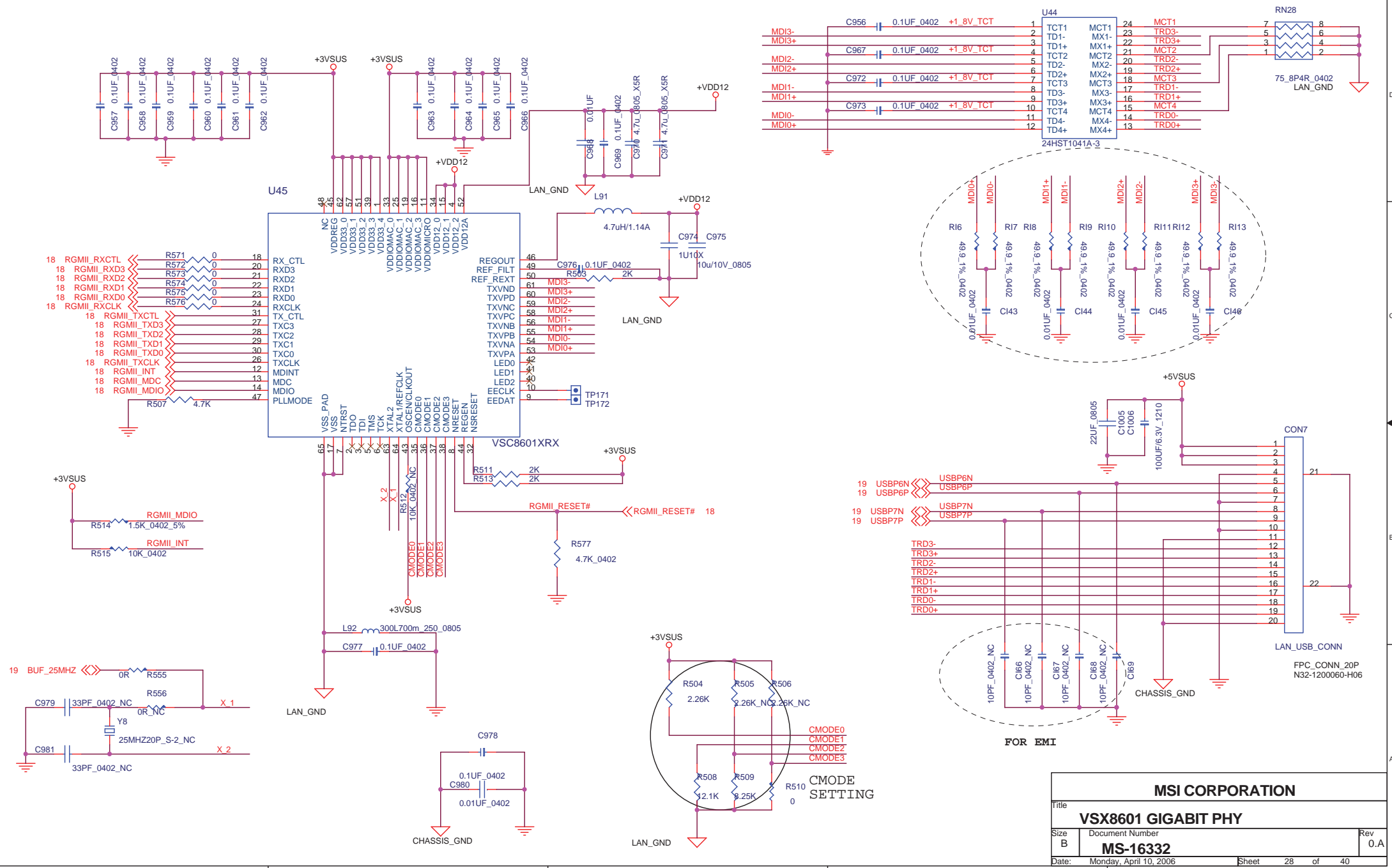
# MINI PCI SOCKET



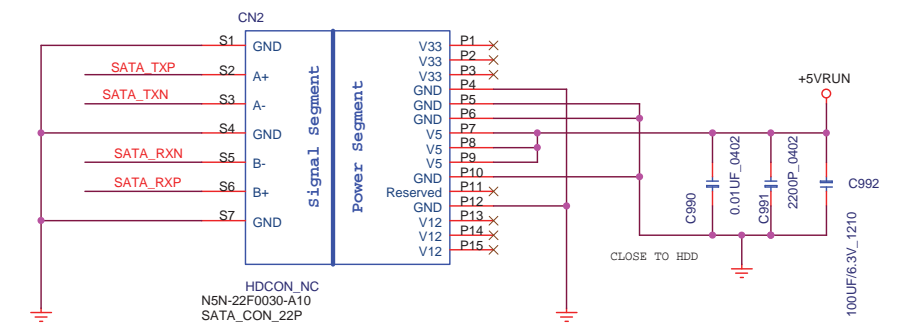
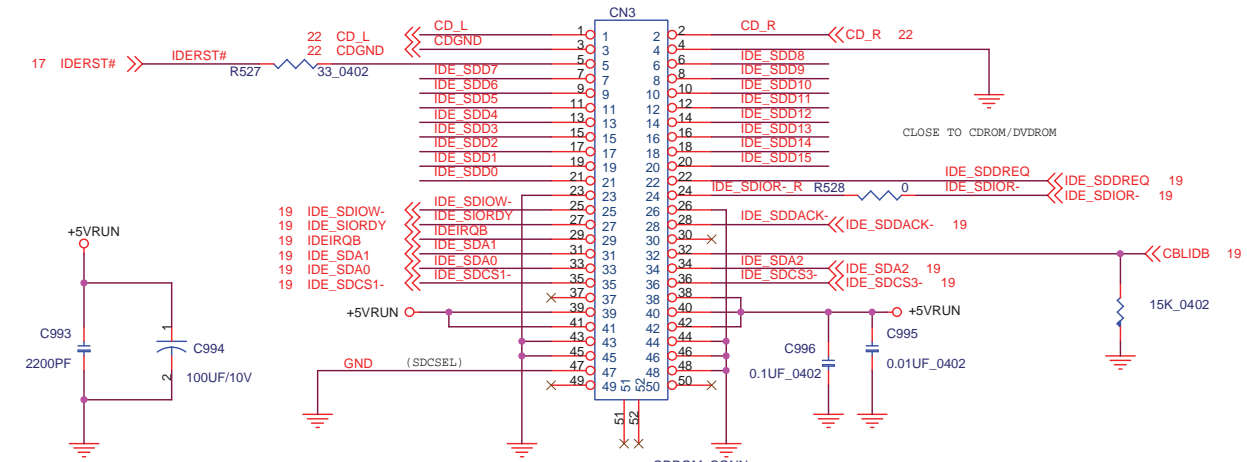
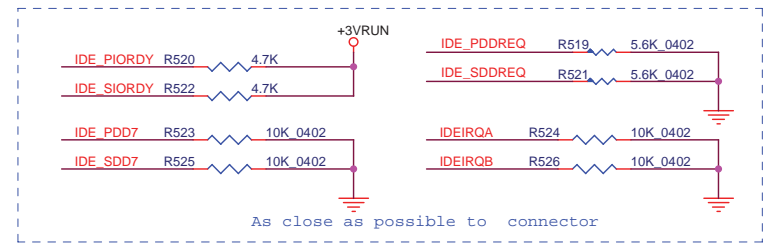
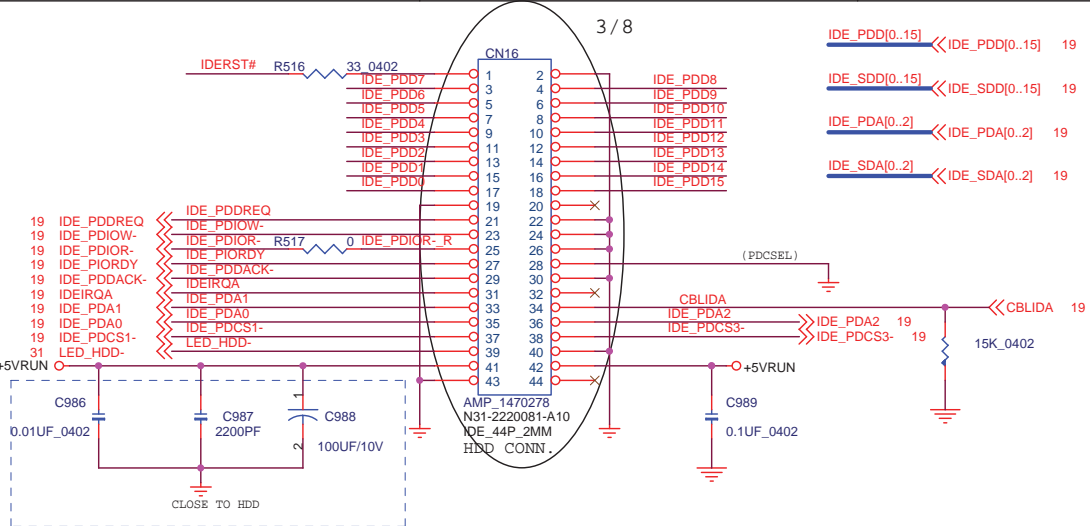
**MINI PCI POWER SPEC.**

- TOYAL : 2W
- +5V : 100mA
- 3.3VAUX : 5/200/375mA
- VCC5A : 100mA
- +3V

<b>MSI CORPORATION</b>		
<b>MINIPCI</b>		
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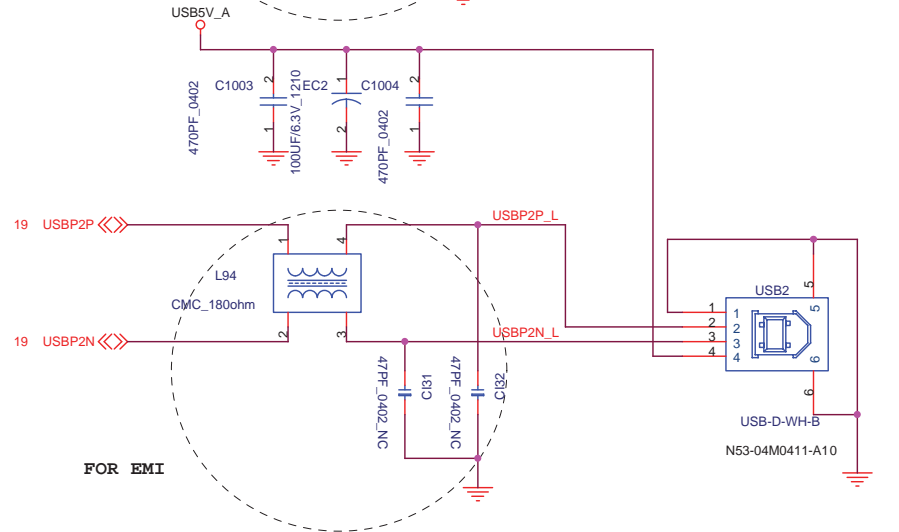
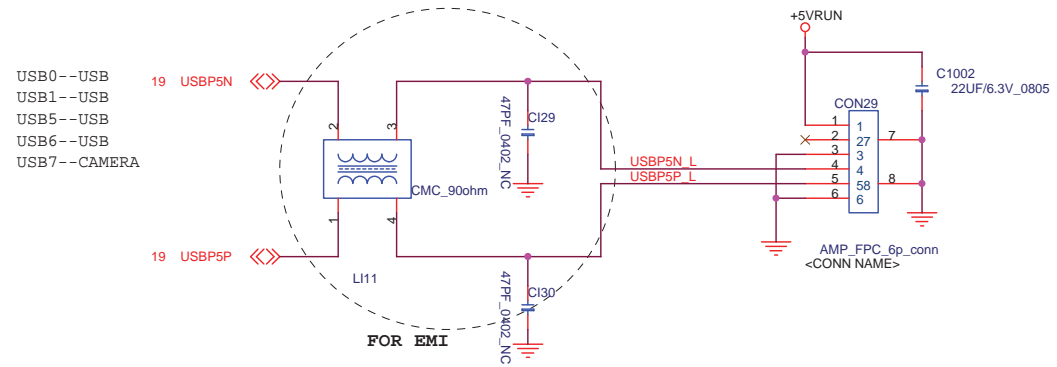
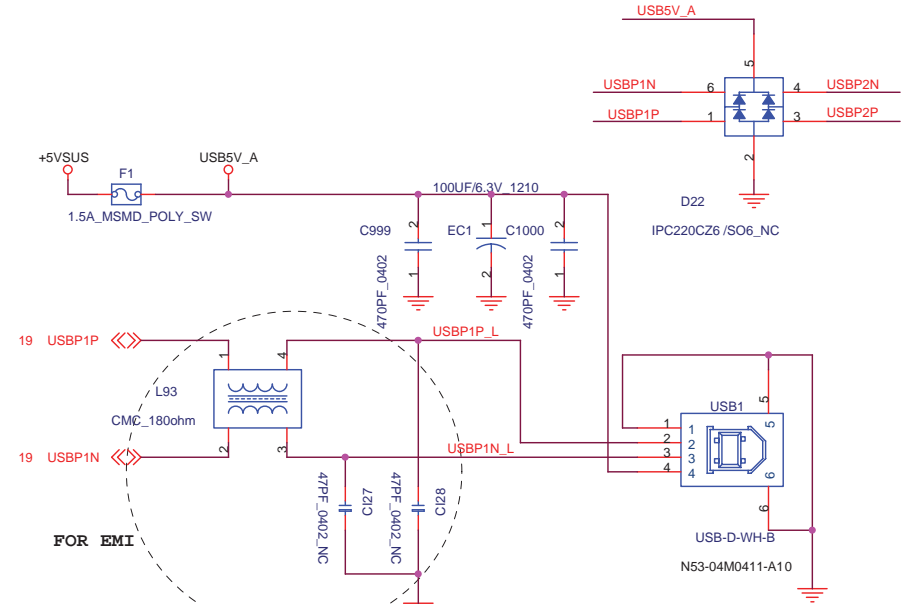
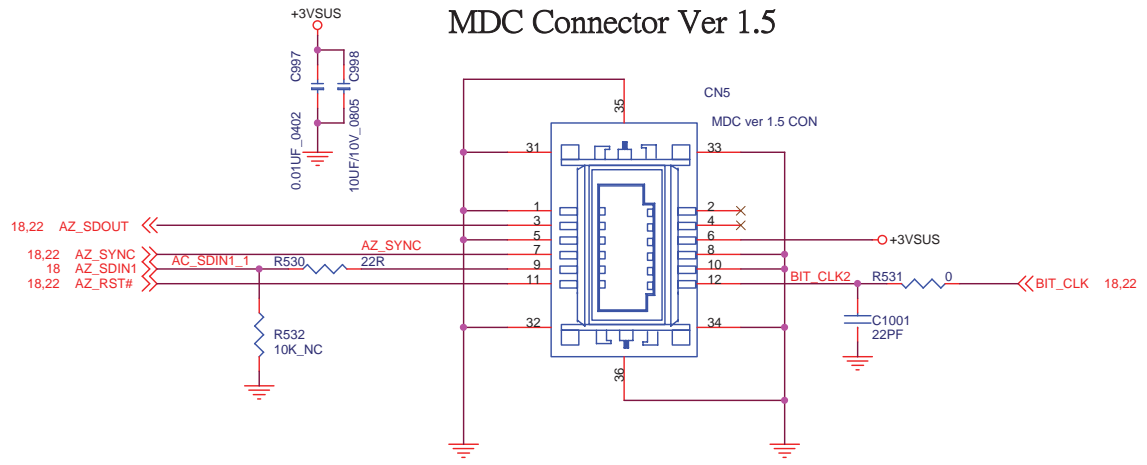


<b>MSI CORPORATION</b>		
<b>VSX8601 GIGABIT PHY</b>		
Size B	Document Number	Rev 0.A
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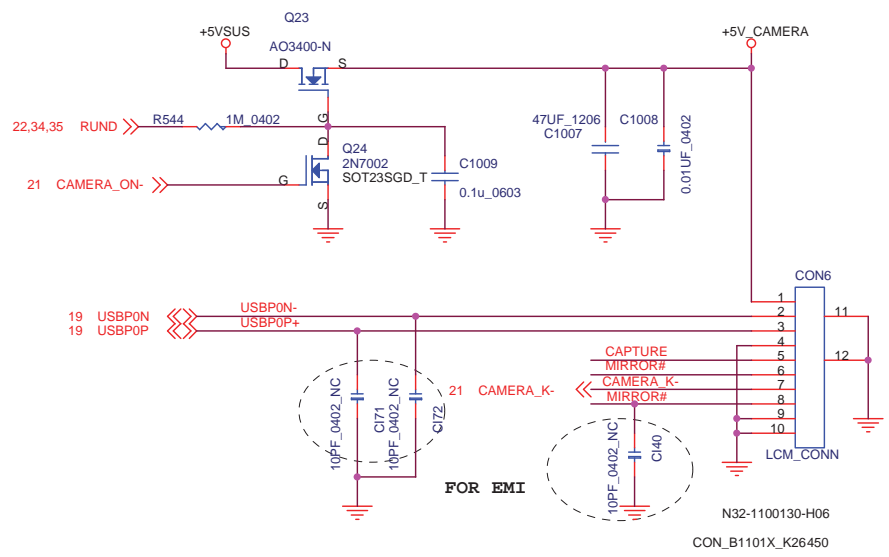
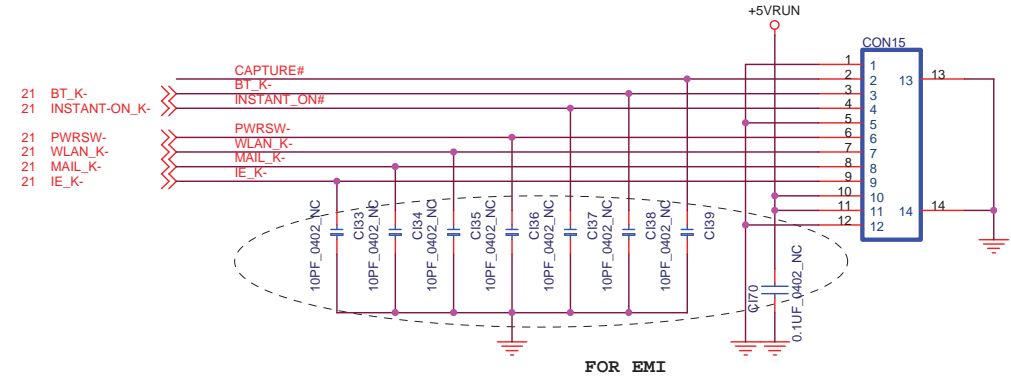
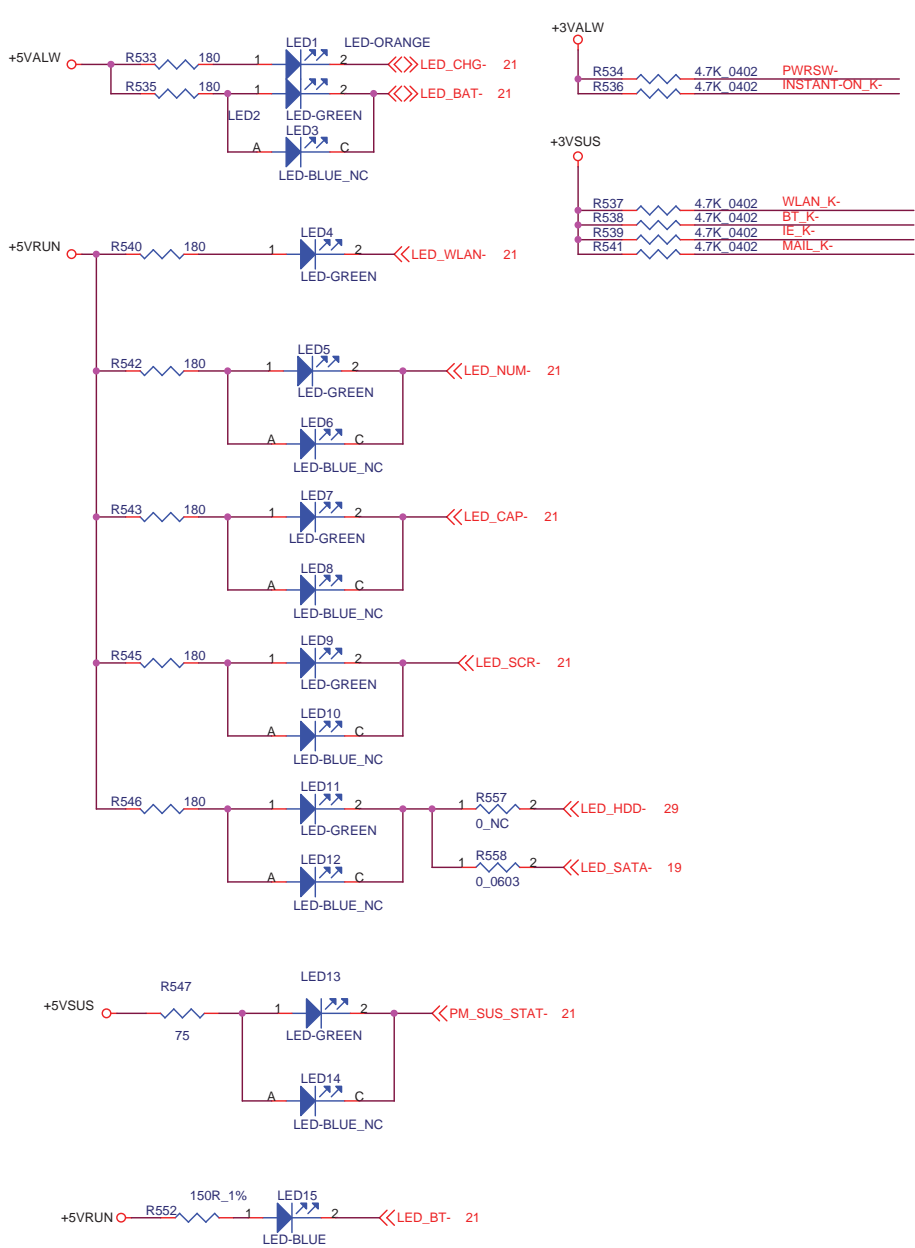


<b>MSI CORPORATION</b>		
<b>Title</b> HDD & CDROM CONN		
Size B	Document Number <b>MS-16332</b>	Rev 0.A
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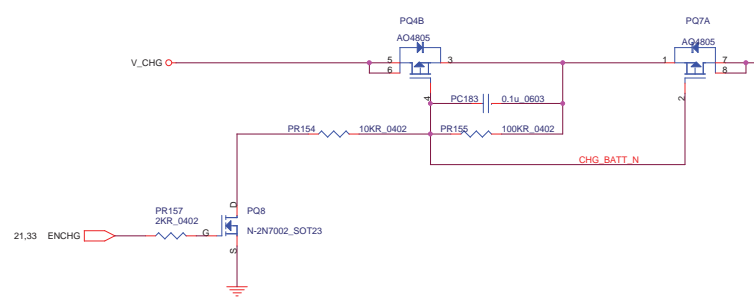
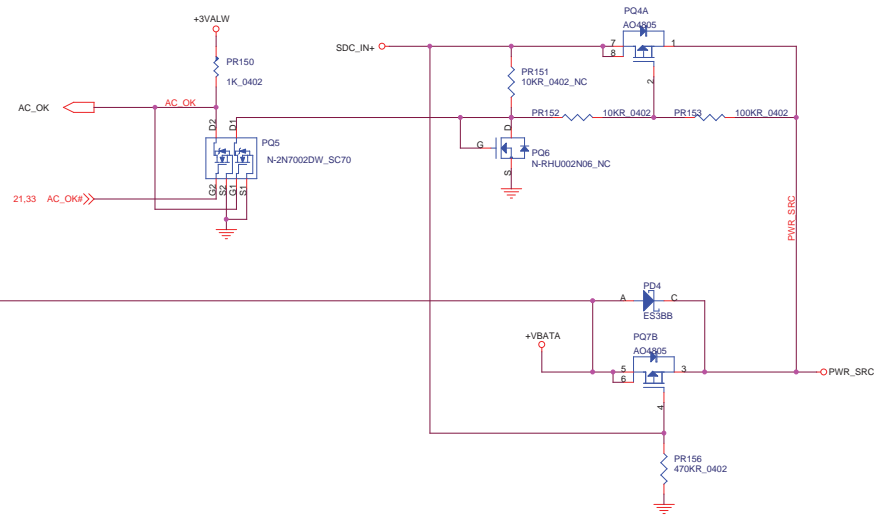
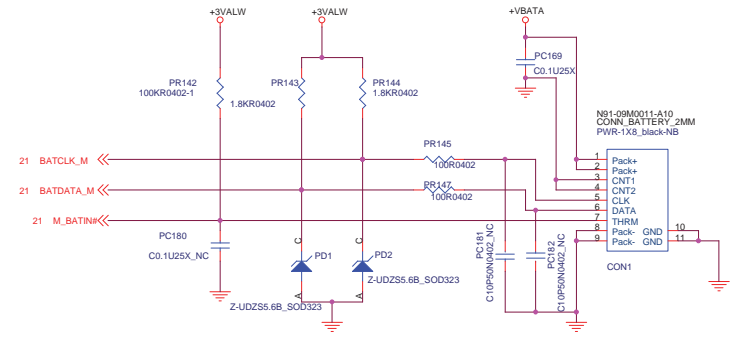
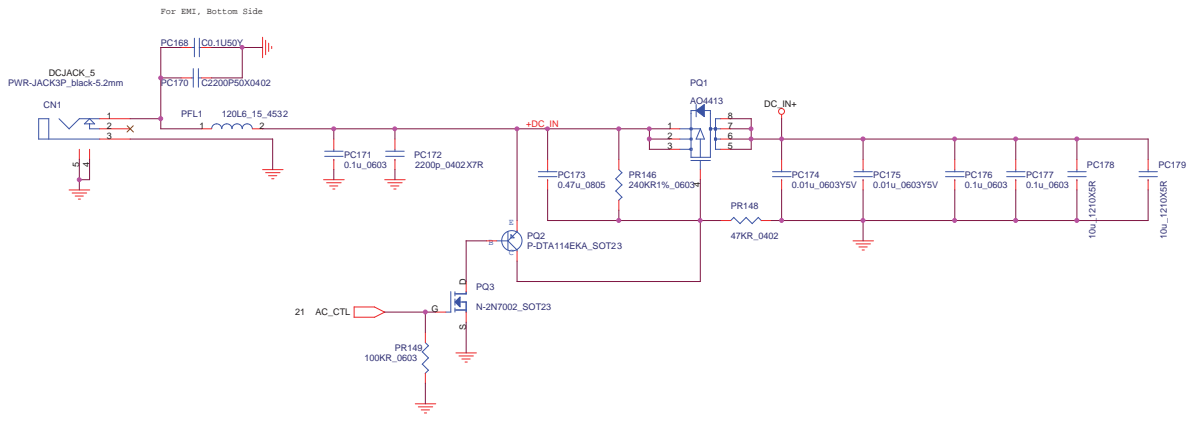
# MDC Connector Ver 1.5



<b>MSI CORPORATION</b>		
Title: <b>MDC &amp; USB</b>		
Size: B	Document Number: <b>MS-16332</b>	Rev: 0.A
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<b>MSI CORPORATION</b>		
Title <b>LED &amp; CONN</b>		
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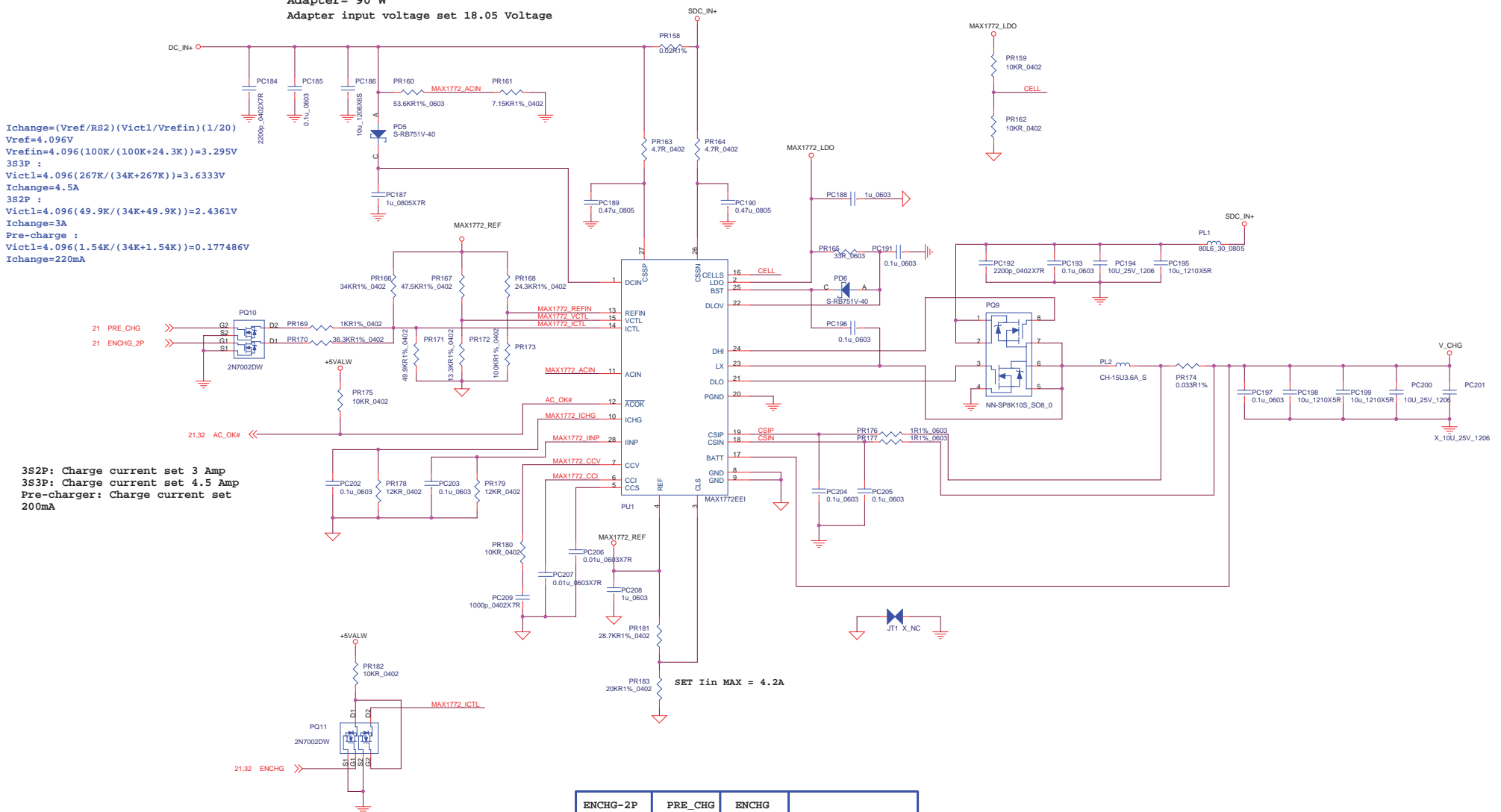
<b>MSI CORPORATION</b>		
Title		
<b>Battery select</b>		
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Adapter= 90 W  
 Adapter input voltage set 18.05 Voltage

$I_{charge} = (V_{ref}/R_{S2}) \cdot (V_{ict1}/V_{refin}) \cdot (1/20)$   
 $V_{ref} = 4.096V$   
 $V_{refin} = 4.096 \cdot (100K / (100K + 24.3K)) = 3.295V$   
 3S3P :  
 $V_{ict1} = 4.096 \cdot (267K / (34K + 267K)) = 3.6333V$   
 $I_{charge} = 4.5A$   
 3S2P :  
 $V_{ict1} = 4.096 \cdot (49.9K / (34K + 49.9K)) = 2.4361V$   
 $I_{charge} = 3A$   
 Pre-charge :  
 $V_{ict1} = 4.096 \cdot (1.54K / (34K + 1.54K)) = 0.177486V$   
 $I_{charge} = 220mA$

3S2P: Charge current set 3 Amp  
 3S3P: Charge current set 4.5 Amp  
 Pre-charger: Charge current set 200mA

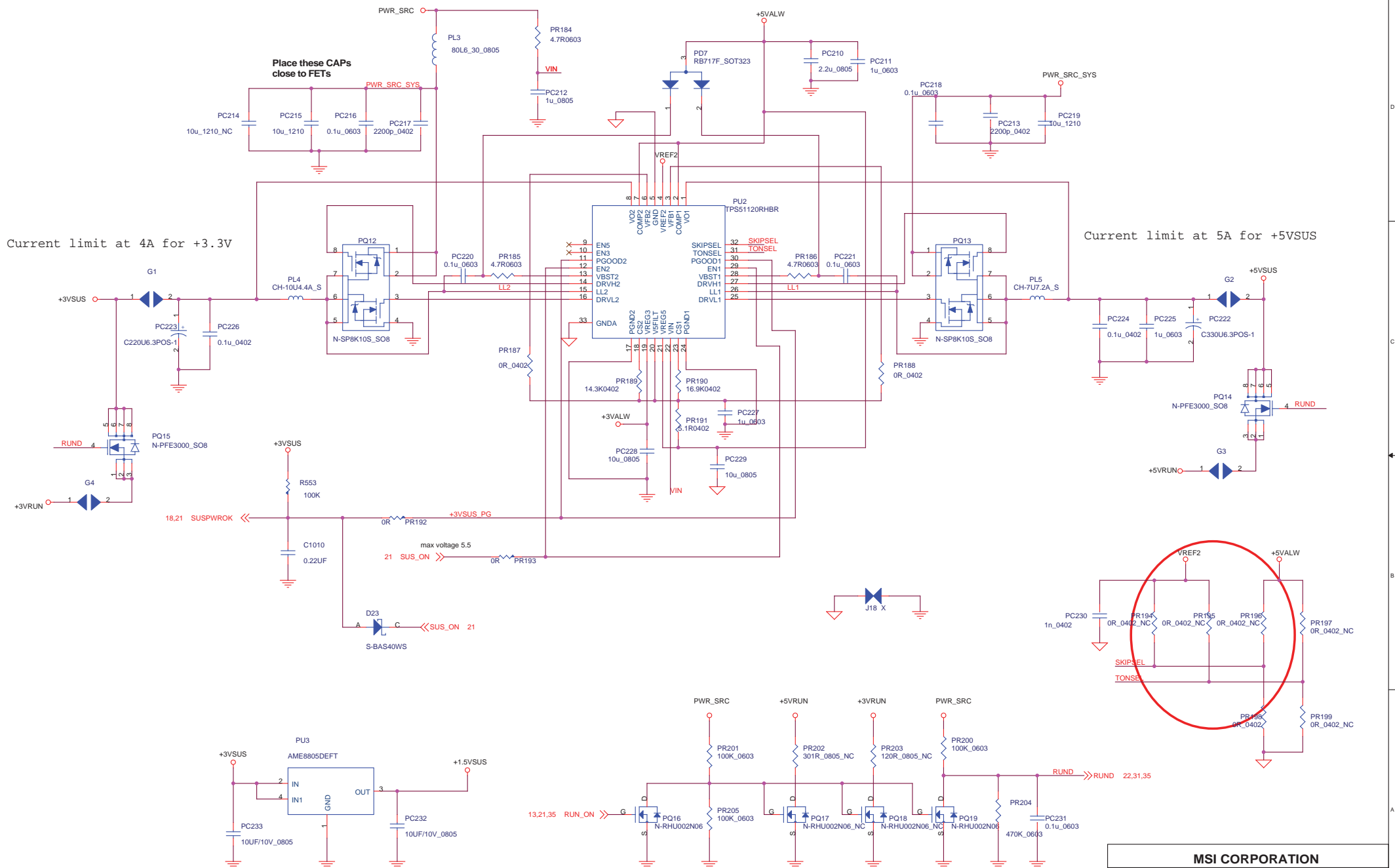


SET I<sub>in</sub> MAX = 4.2A

ENCHG-2P	PRE_CHG	ENCHG	
0	1	1	Pre-charge
1	0	1	3S2P-Fast charge
0	0	1	3S3P-Fast charge
0	0	0	STOP CHARGE

Current limit at 4A for +3.3V

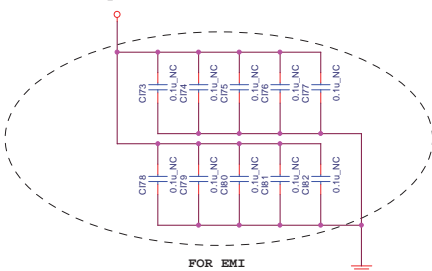
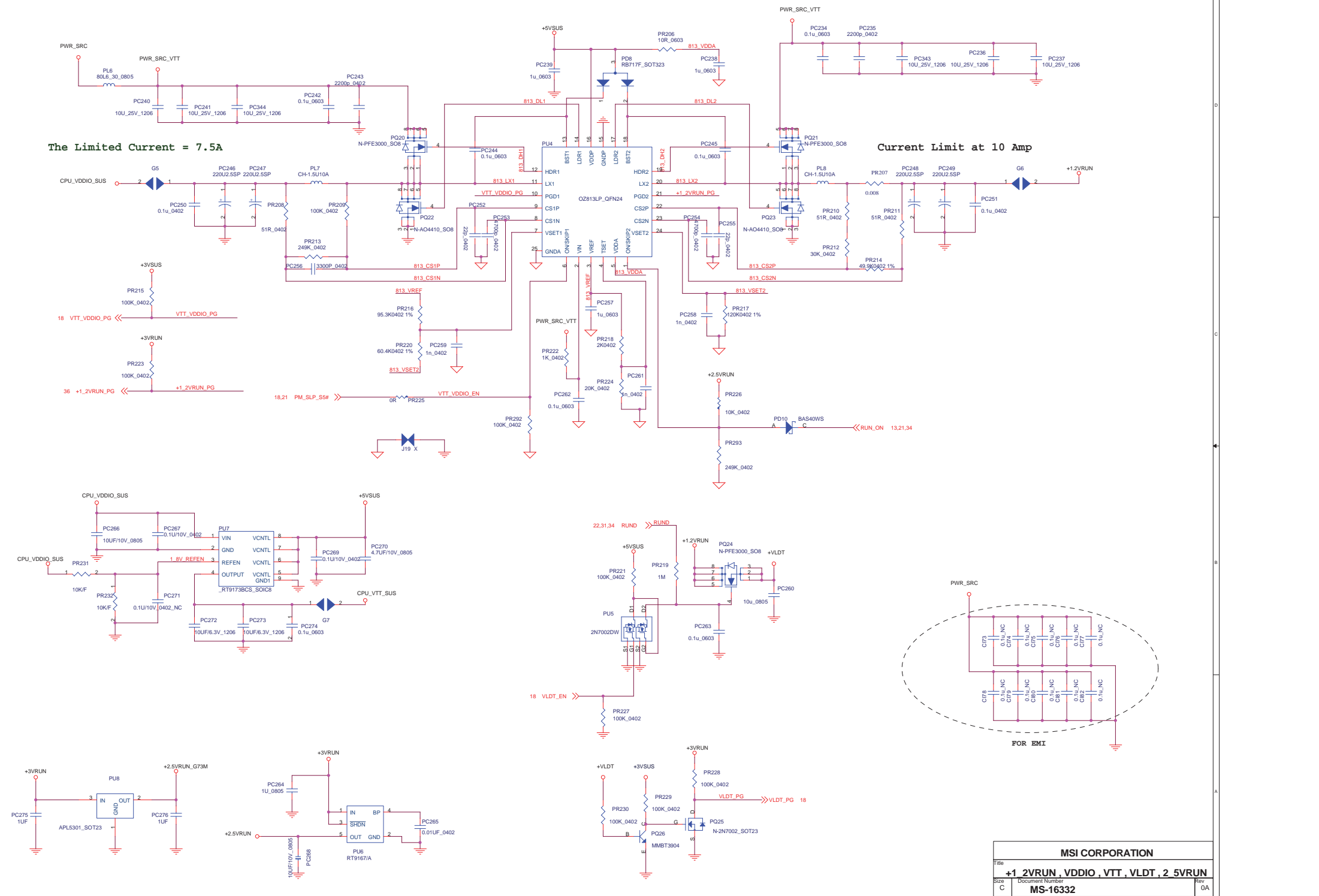
Current limit at 5A for +5VSUS



<b>MSI CORPORATION</b>		
<b>SYSTEM POWER 3/5VSUS</b>		
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The Limited Current = 7.5A

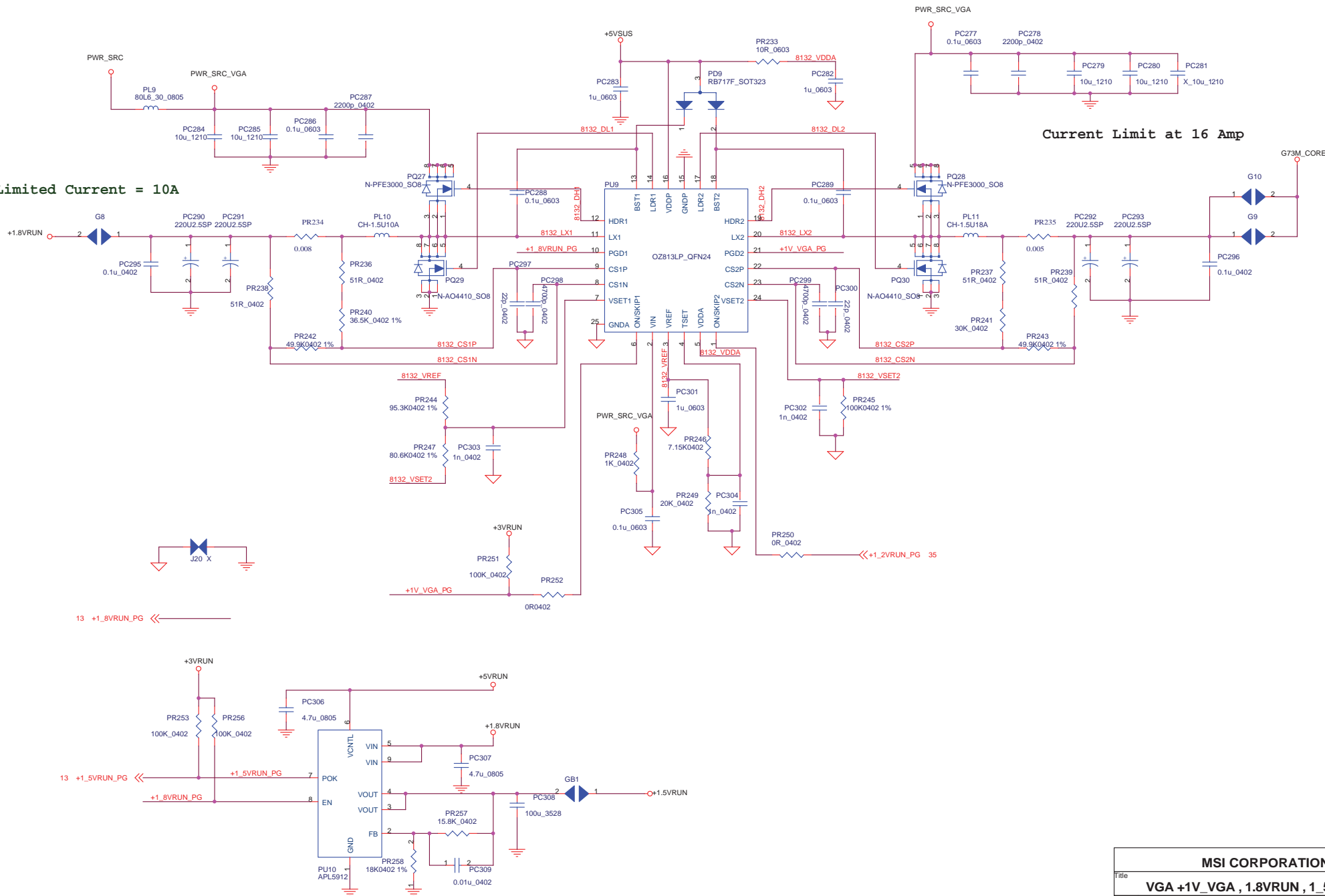
Current Limit at 10 Amp



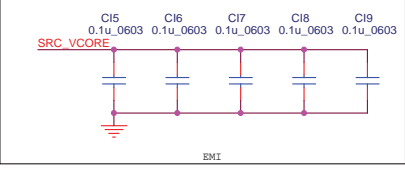
MSI CORPORATION			
Title <b>+1 2VRUN, VDDIO, VTT, VLDT, 2 5VRUN</b>			
Size	Document Number	Rev	
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The Limited Current = 10A

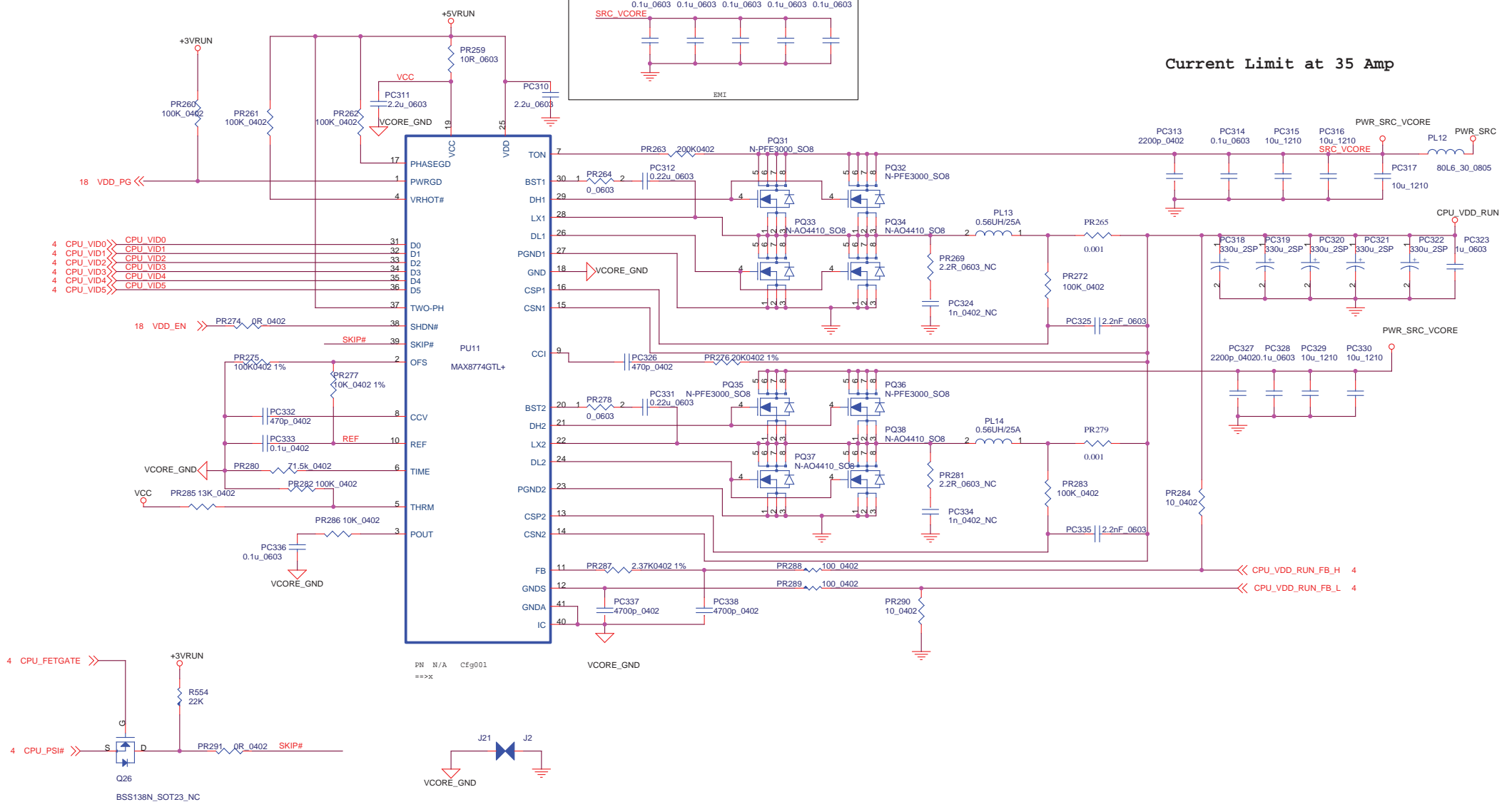
Current Limit at 16 Amp



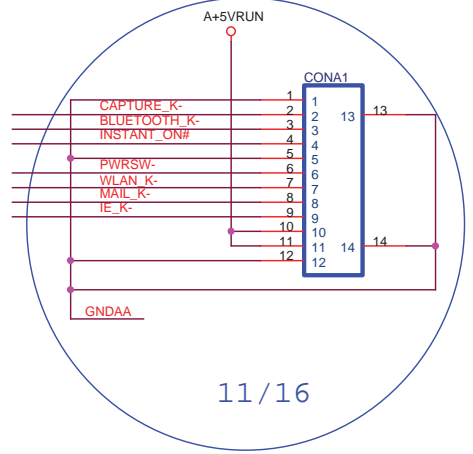
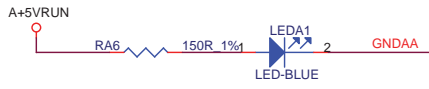
<b>MSI CORPORATION</b>		
<b>VGA +1V_VGA , 1.8VRUN , 1_5VRUN</b>		
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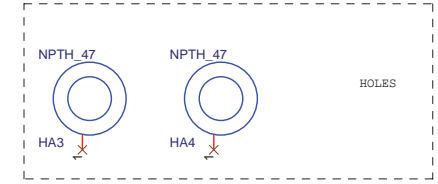
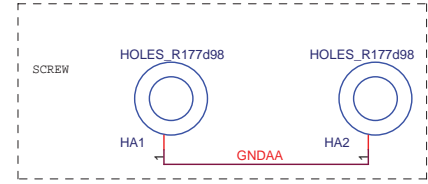
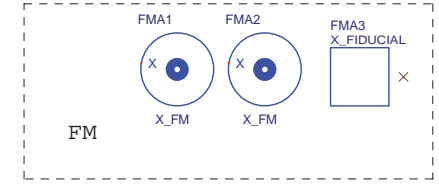
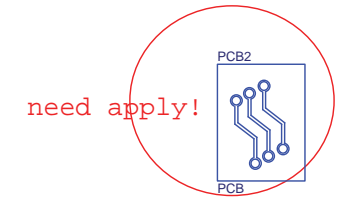
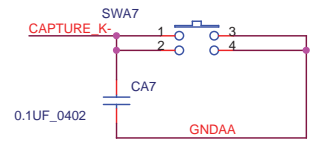
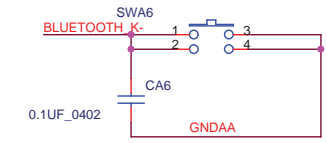
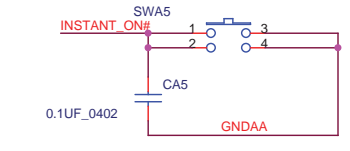
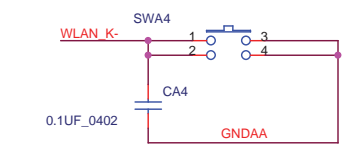
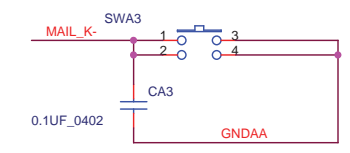
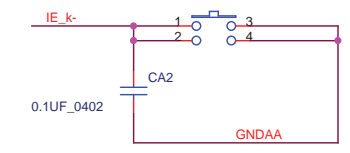
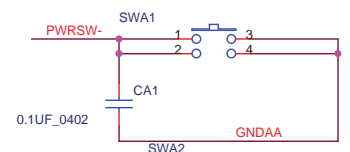
Current Limit at 35 Amp



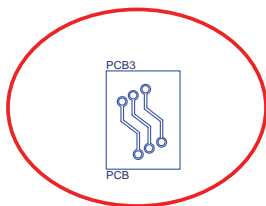
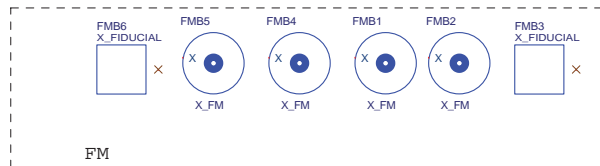
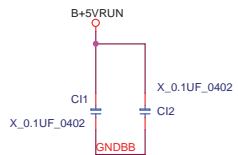
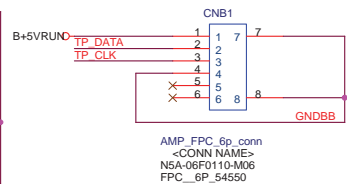
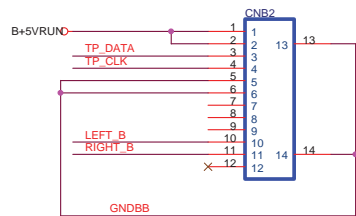
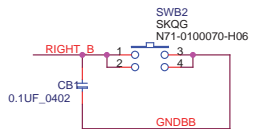
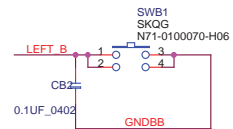
<b>MSI CORPORATION</b>		
Title <b>VCORE</b>		
Size Custom	Document Number <b>MS-16332</b>	Rev 0A
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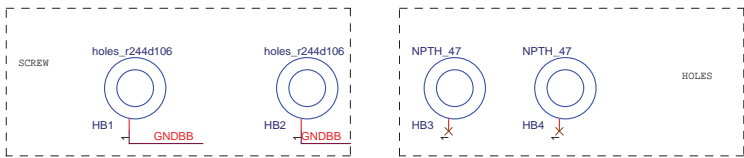
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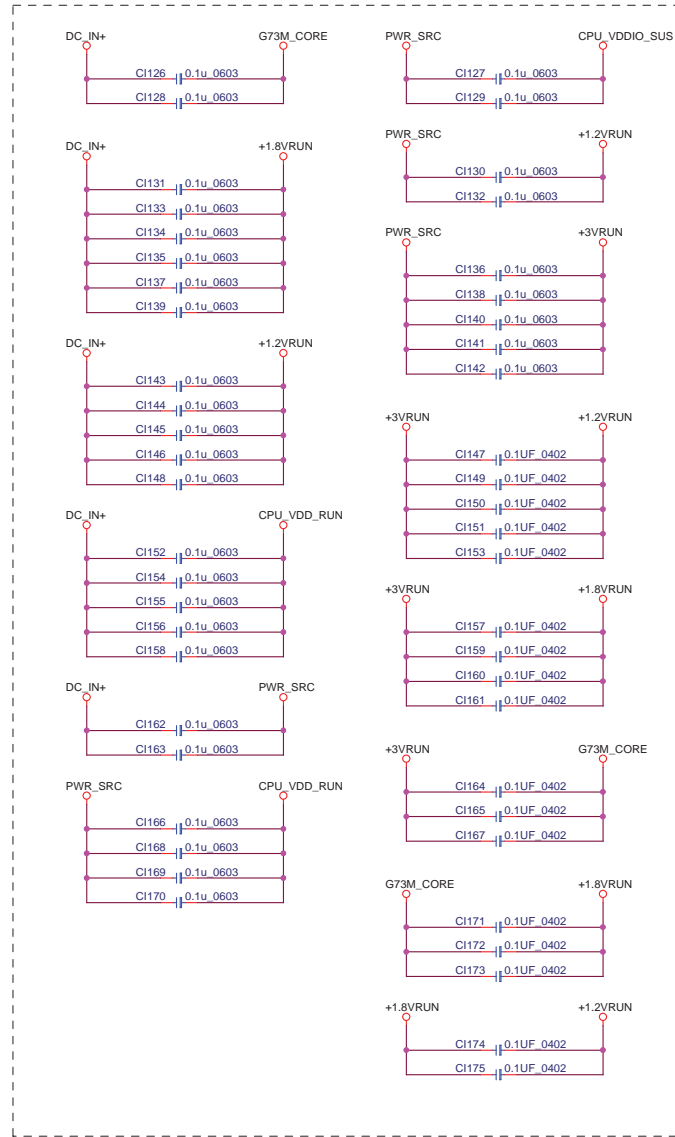
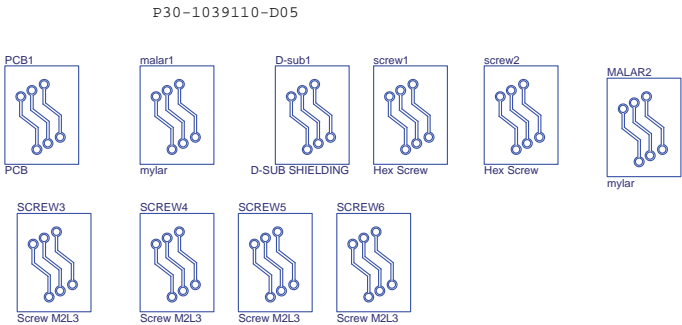
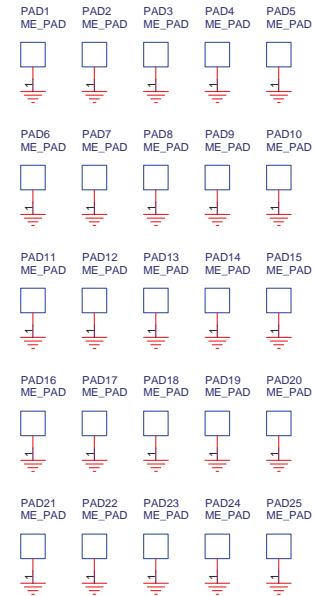
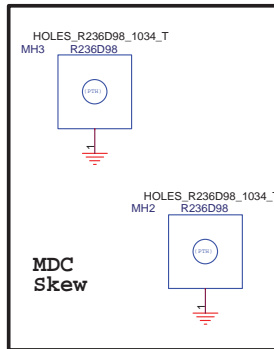
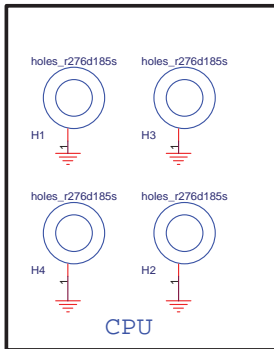
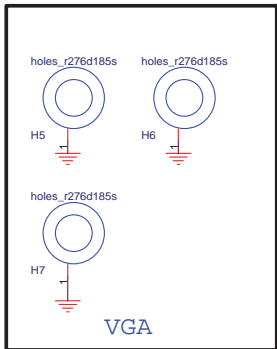
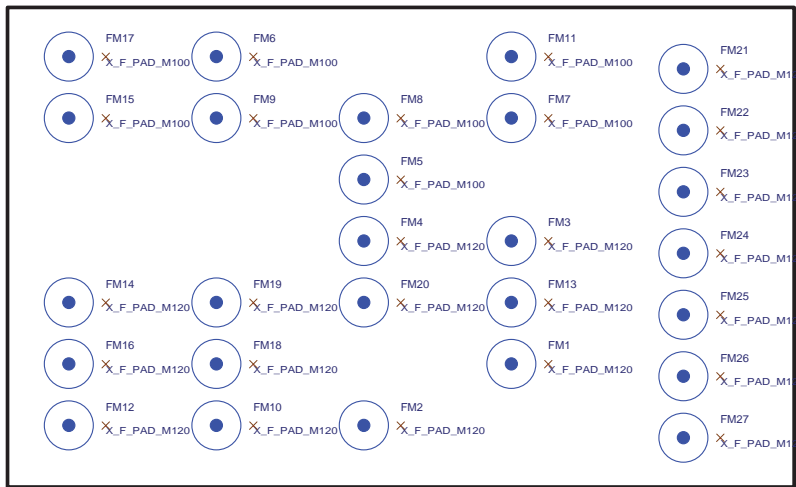
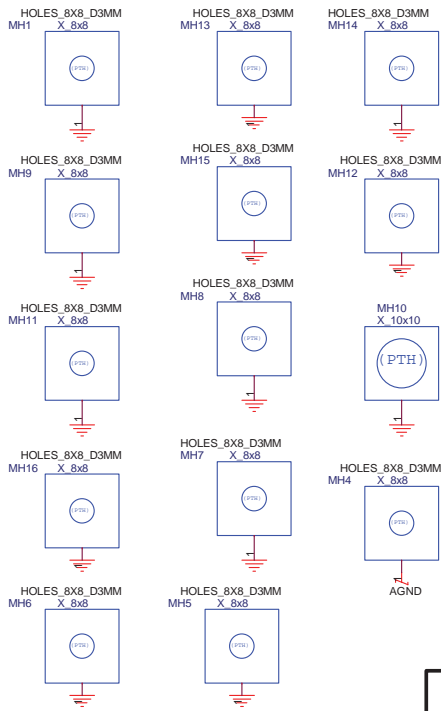
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