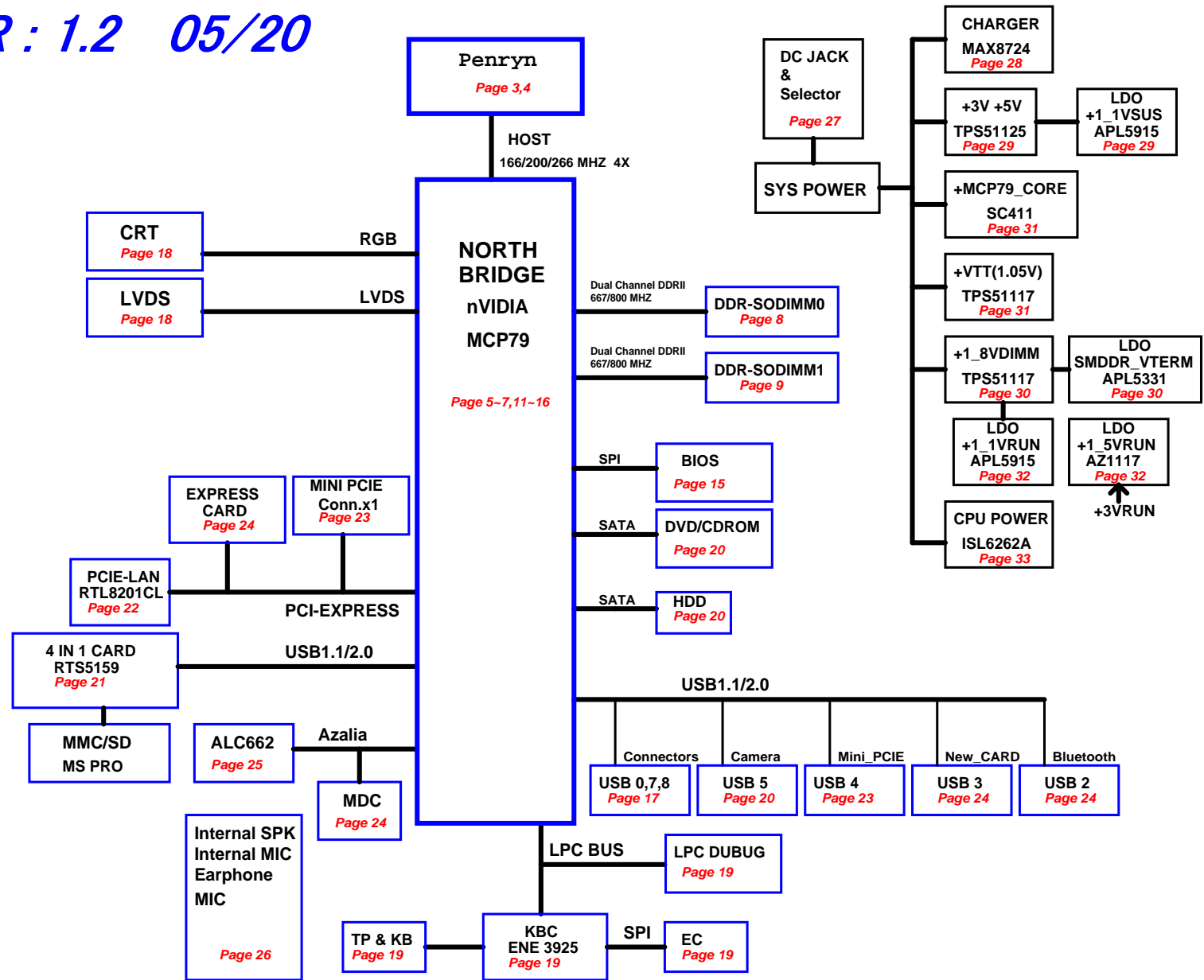
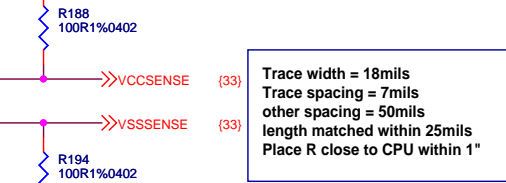
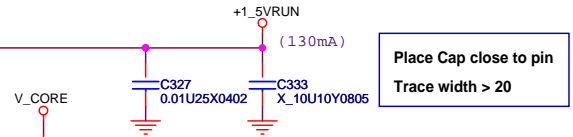
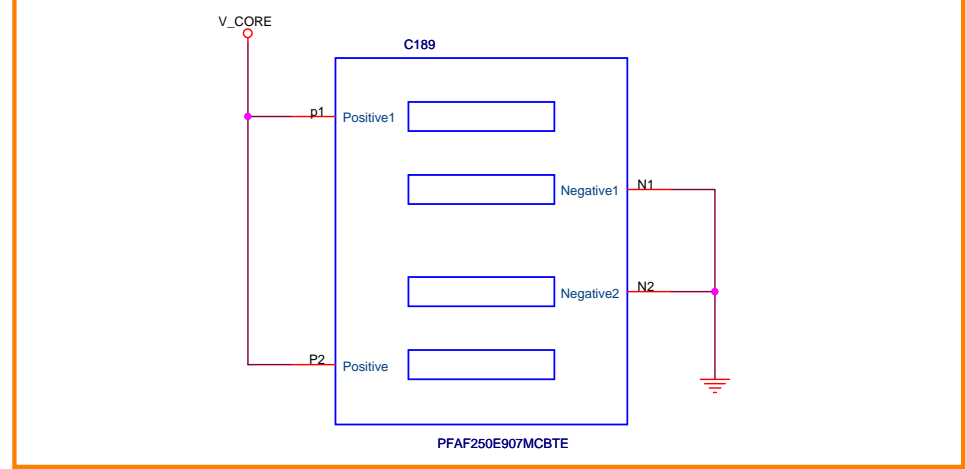
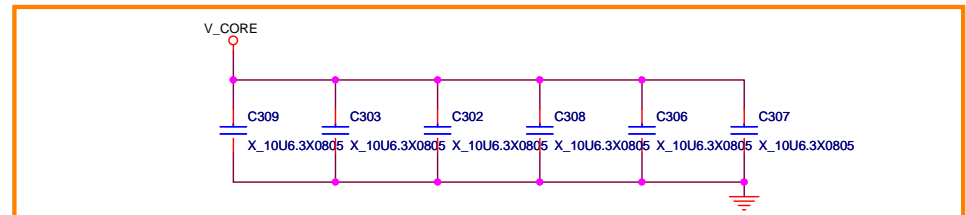
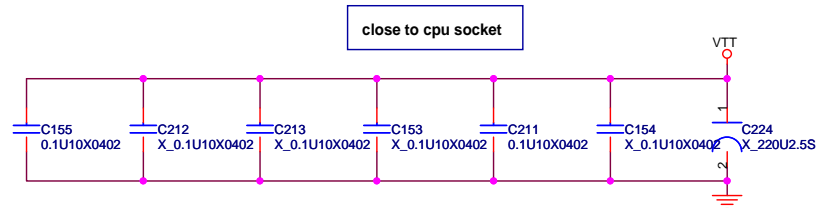
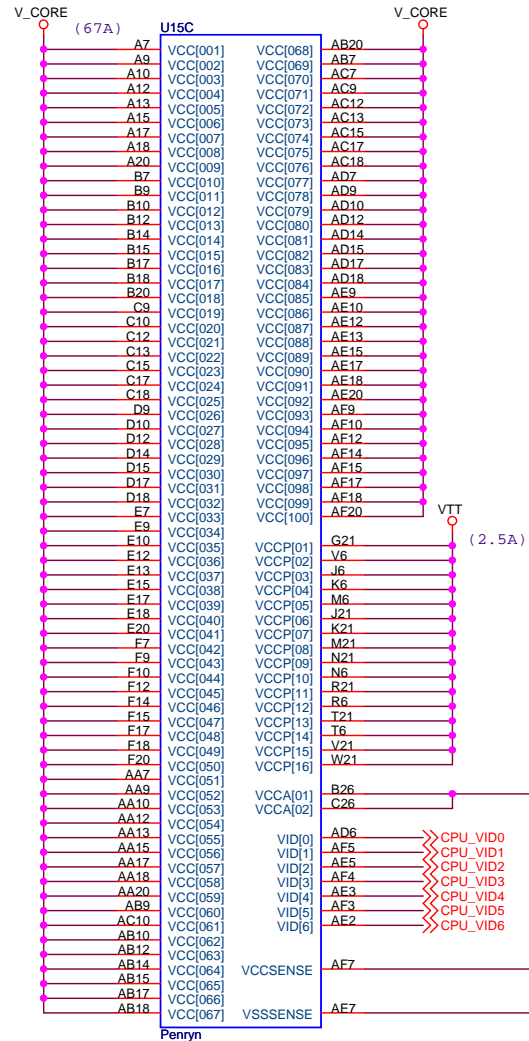
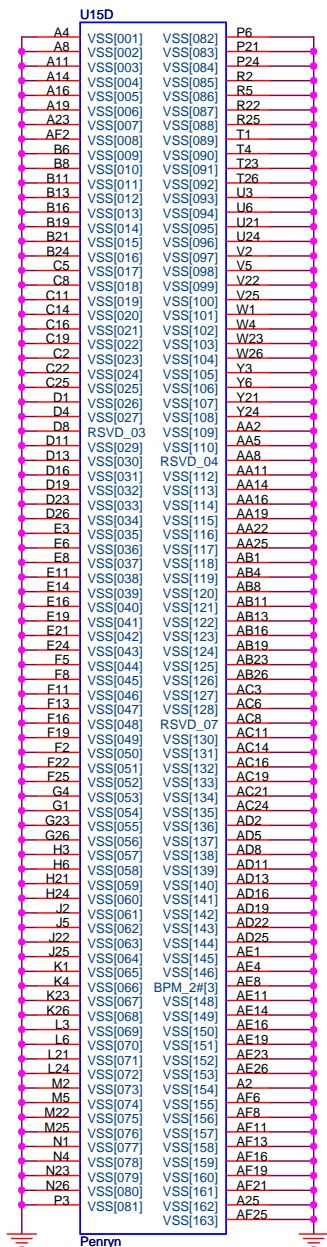


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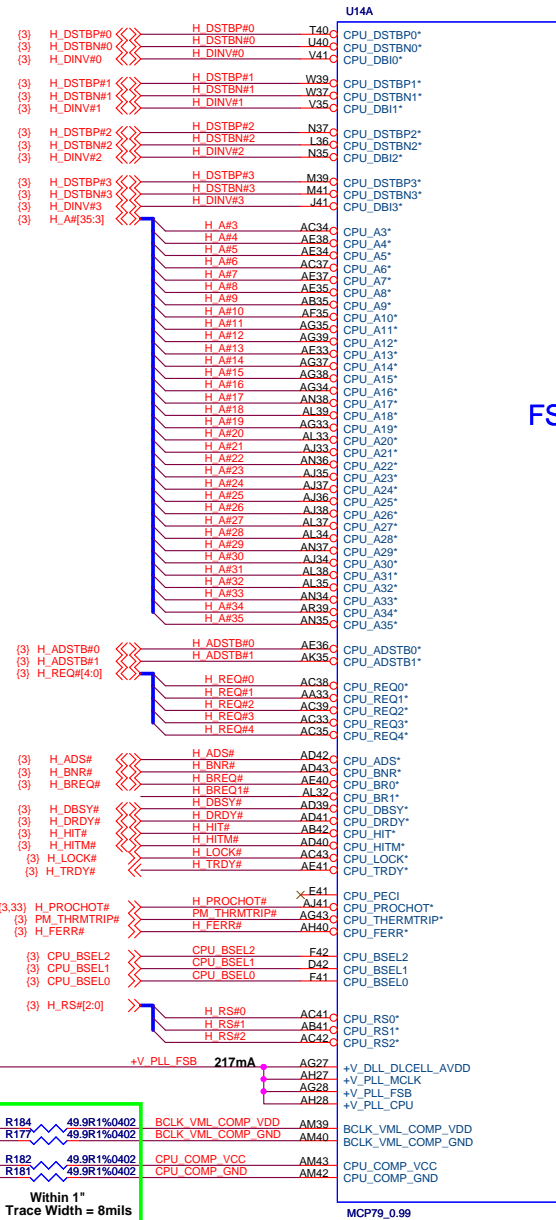
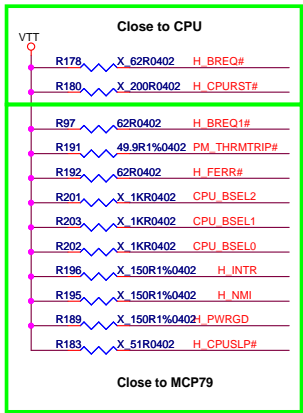




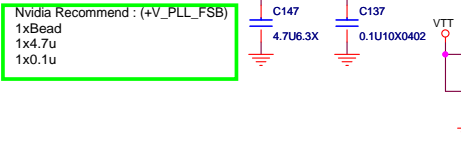
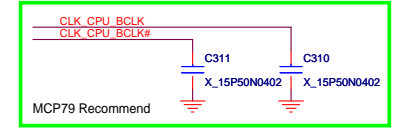
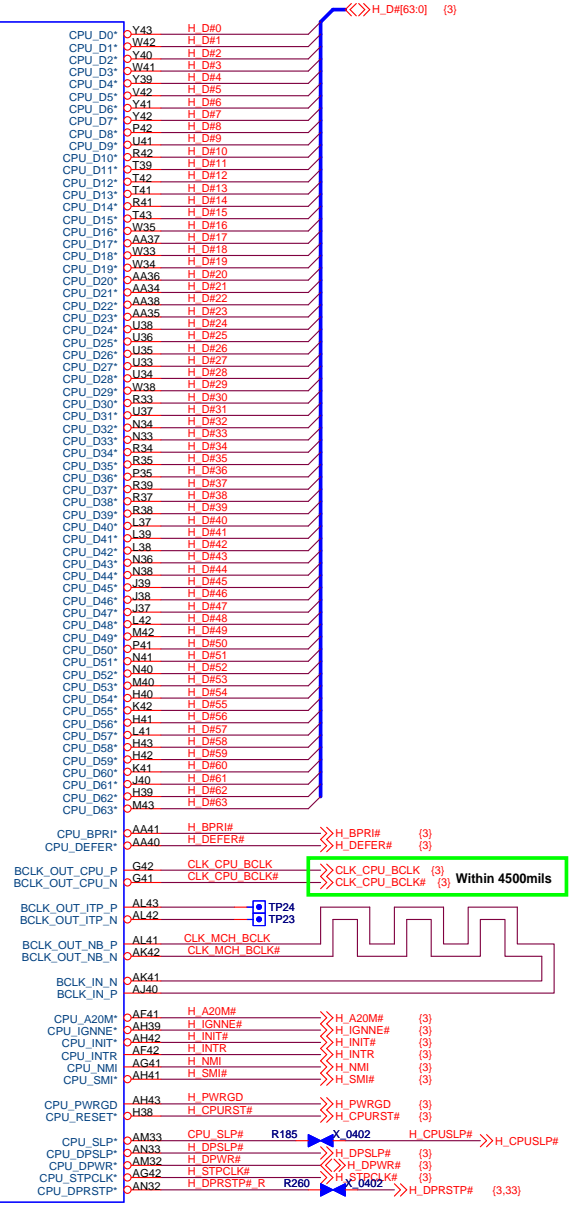
**MICRO-STAR INT'L CO.,LTD.**

**PENRYN-2 (POWER/GND)**

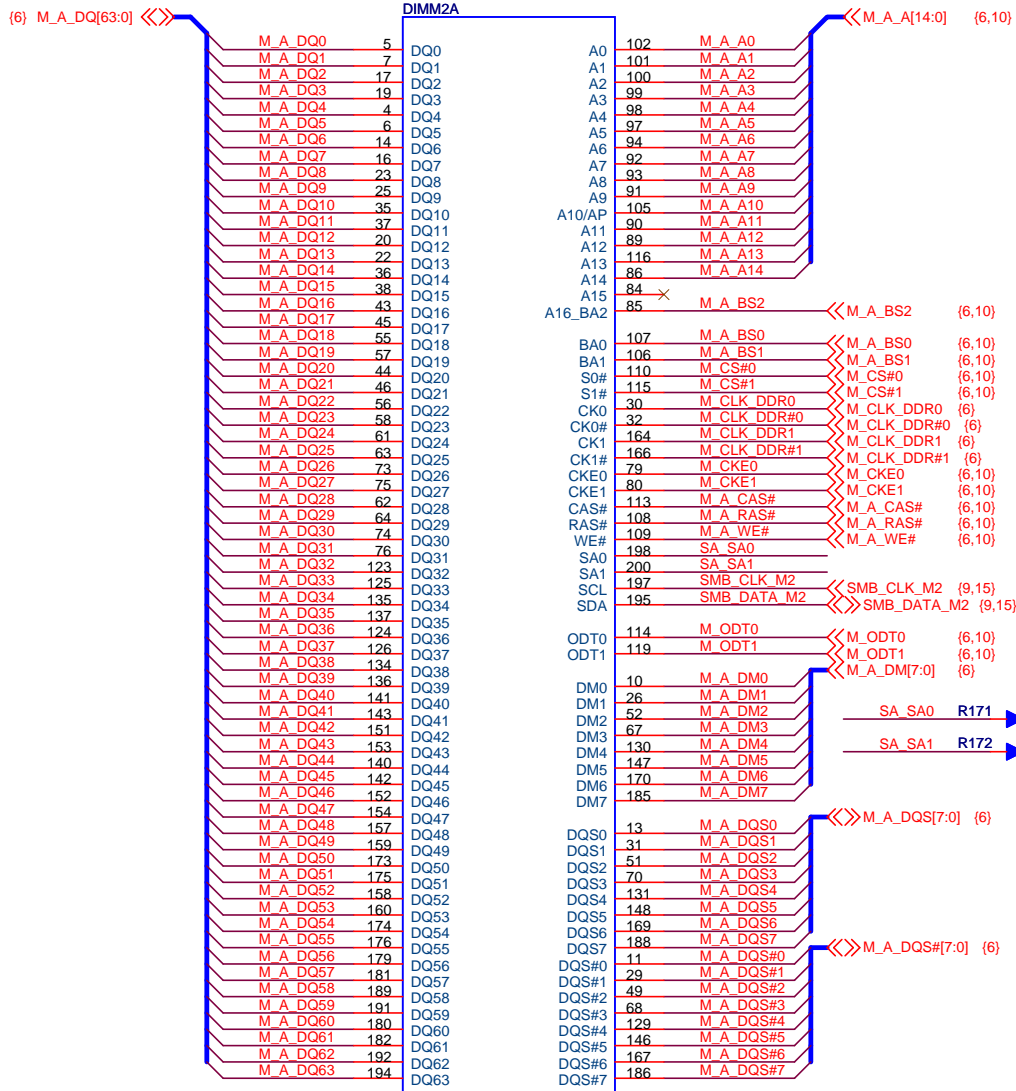
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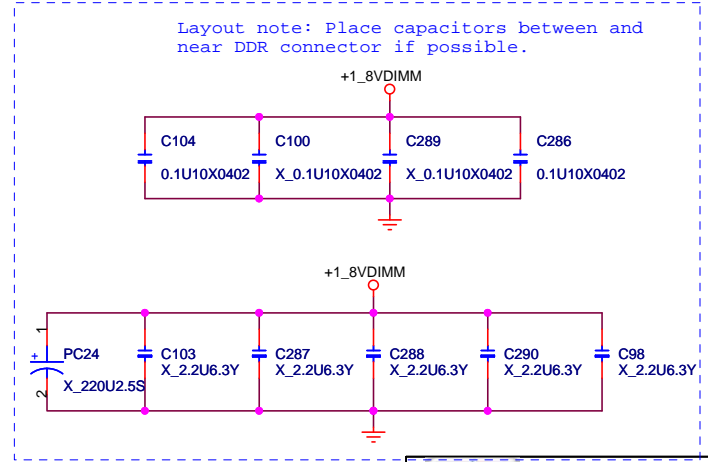
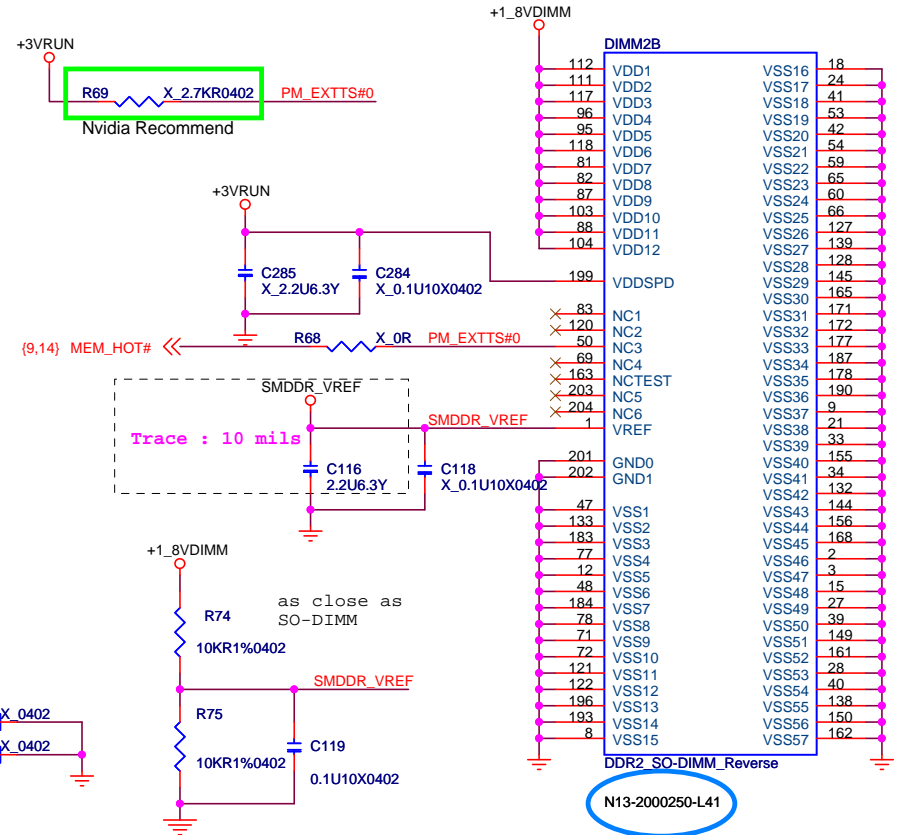
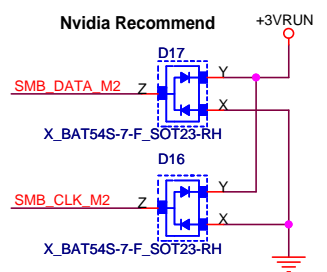
FSB







DDR2\_SO-DIMM\_Reverse  
N13-2000250-L41



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

**DDR2 SODIMM 0**

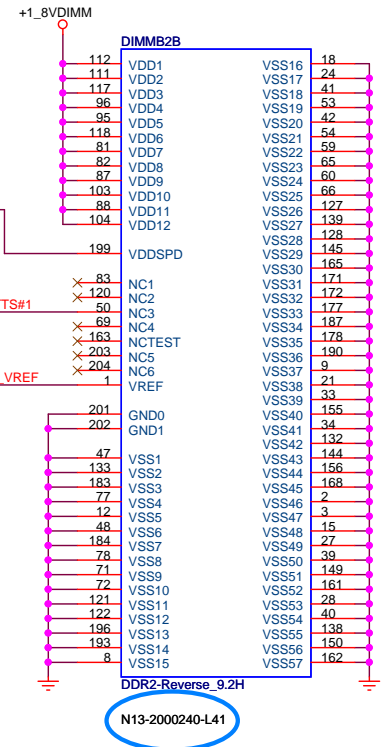
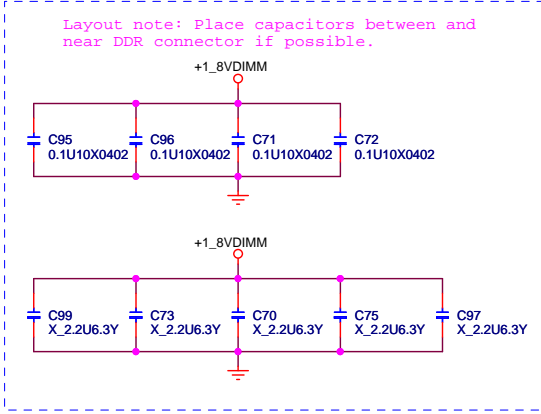
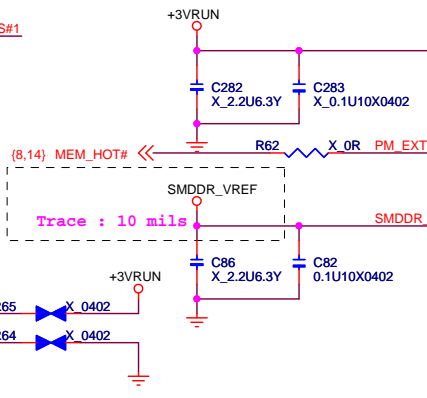
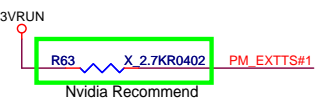
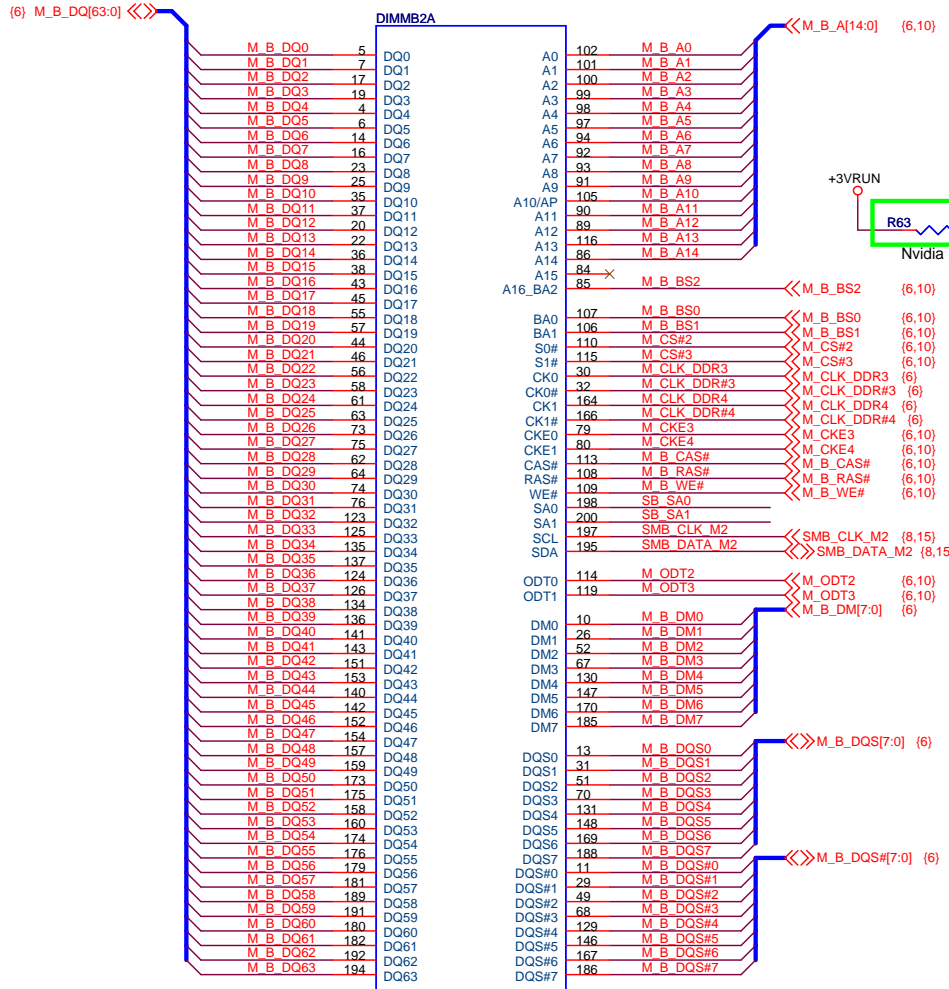
MSI Notebook

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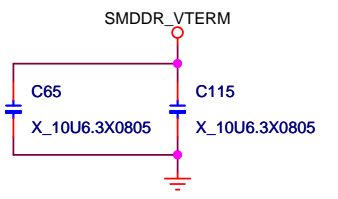
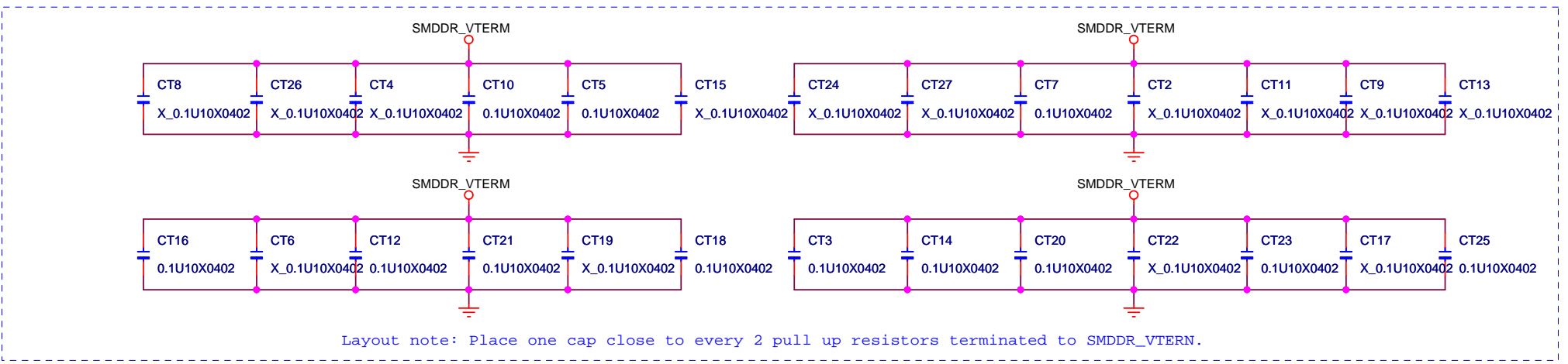
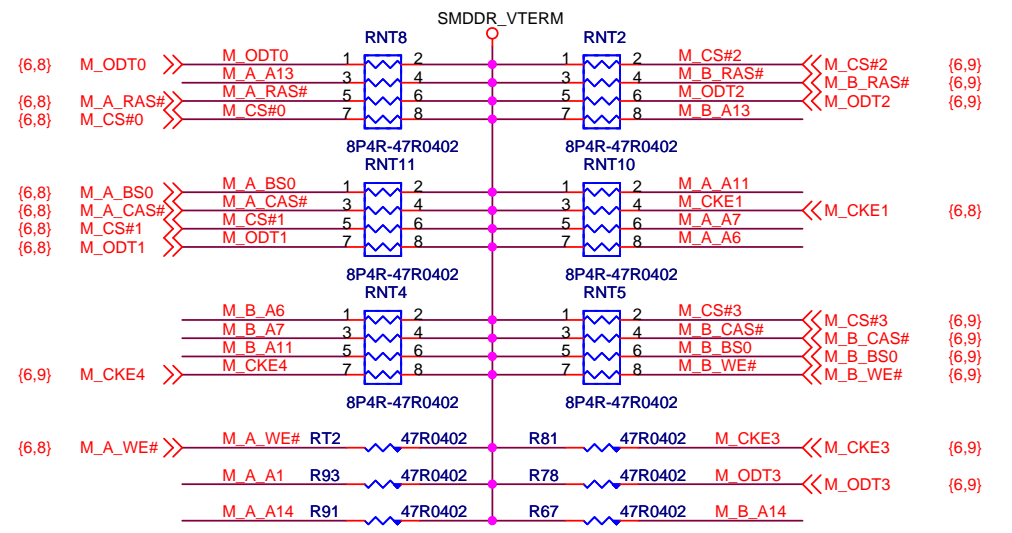
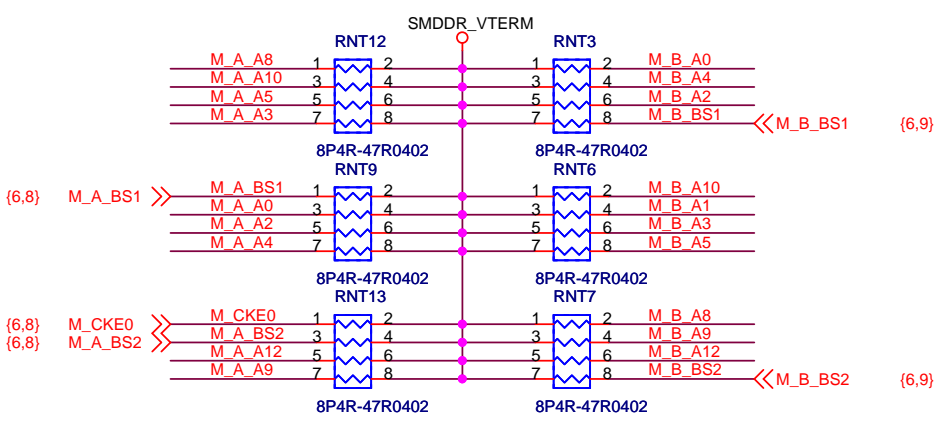


**MICRO-STAR INT'L CO.,LTD.**

Title: **DDR2 SODIMM 1**

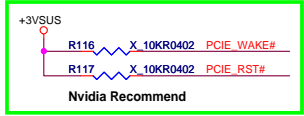
Size: Custom	Document Number: <b>MS-1451</b>	Rev: 1.2
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M\_A\_A[14:0] << M\_A\_A[14:0] (6,8)  
 M\_B\_A[14:0] << M\_B\_A[14:0] (6,9)



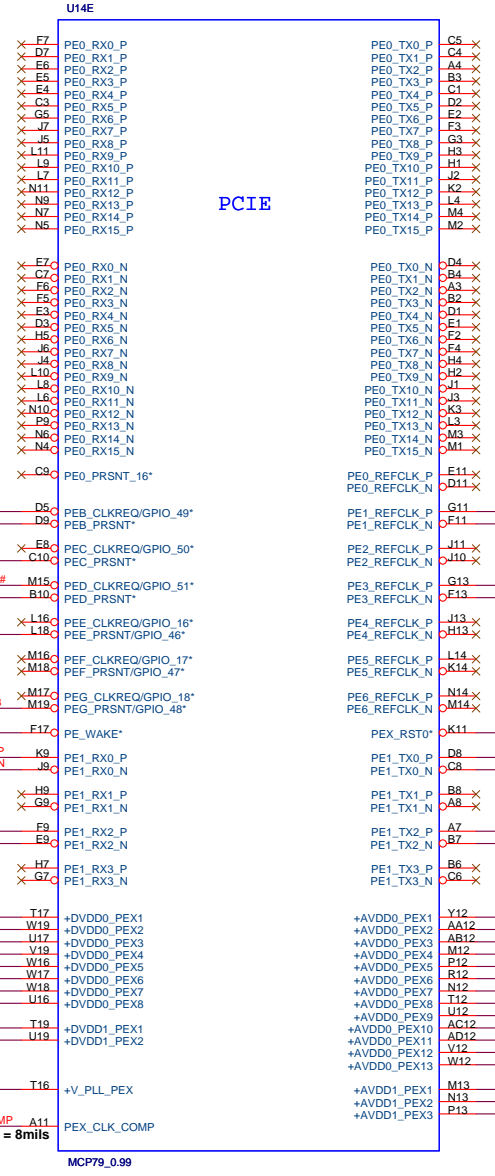
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Title		<b>DDR2 TREMINATION</b>	
Size	Document Number	<b>MS-1451</b>	
Custom			
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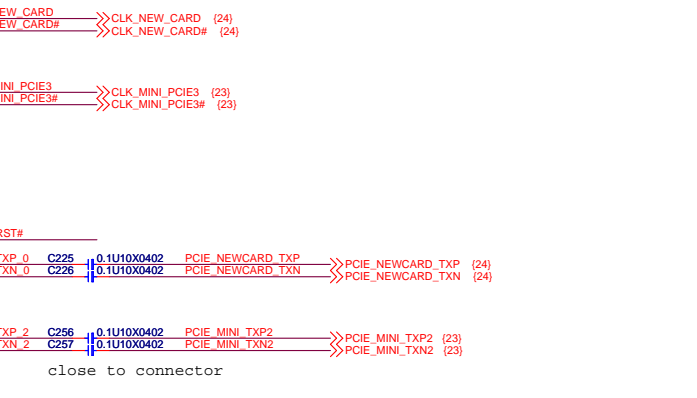
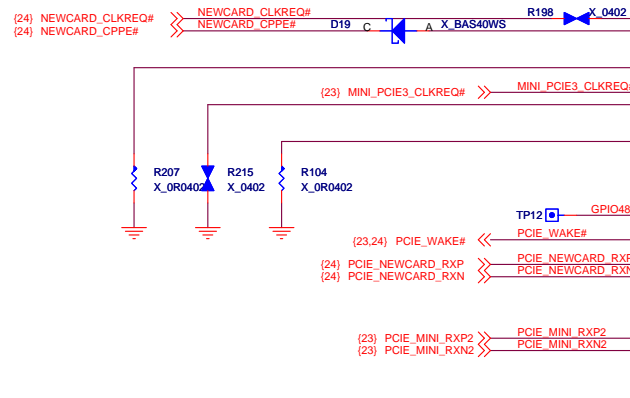
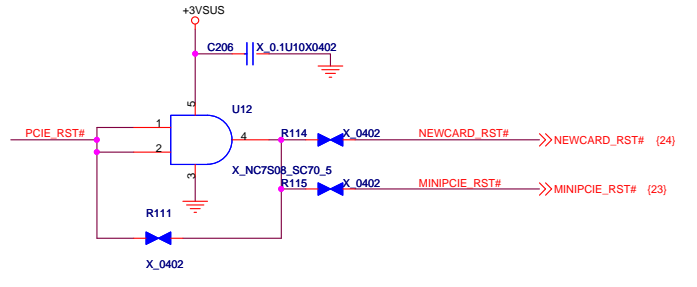


Nvidia Recommend : (+DVDD\_PEX)  
 1x4.7u  
 2x1u  
 2x0.1u

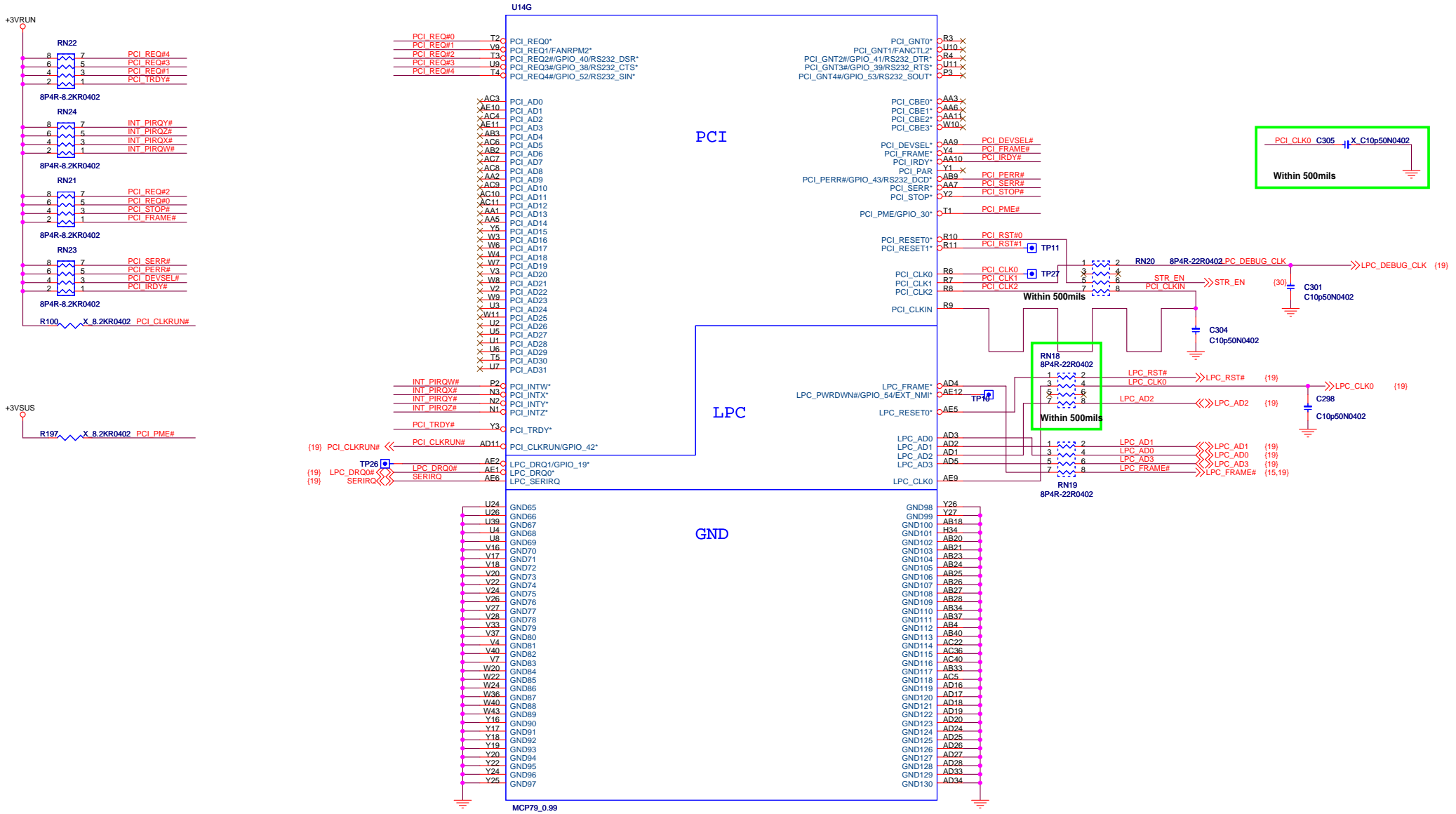
Nvidia Recommend : (+V\_PLL\_PEX)  
 1x10nH  
 1x4.7u  
 1x2.2u



PCI-E



Nvidia Recommend : (+AVDD\_PEX)  
 1xBead  
 1x10u  
 1x4.7u  
 2x1u  
 2x0.1u

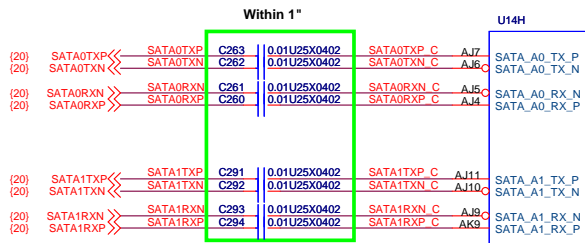


PCI\_CLK0 C305 X C10p50N0402  
Within 500mils

Within 500mils

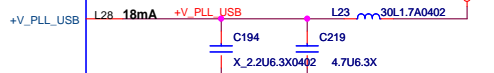
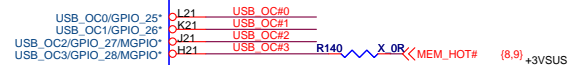
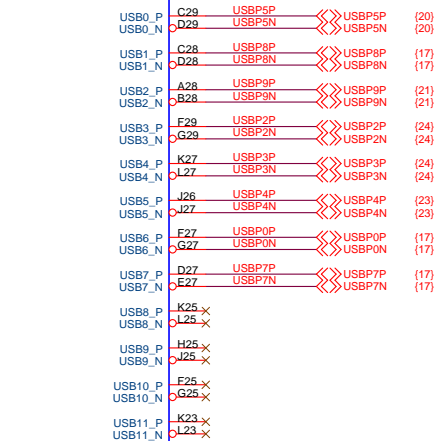
Within 500mils

**MICRO-STAR INT'L CO.,LTD.**  
**MCP79-6 (PCI & LPC)**  
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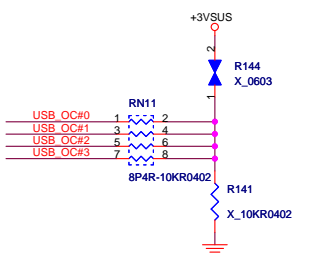


Place Cap Close to Connector

SATA USB



Nvidia Recommend : (+V\_PLL\_USB)  
1xBead  
1x4.7u  
1x2.2u

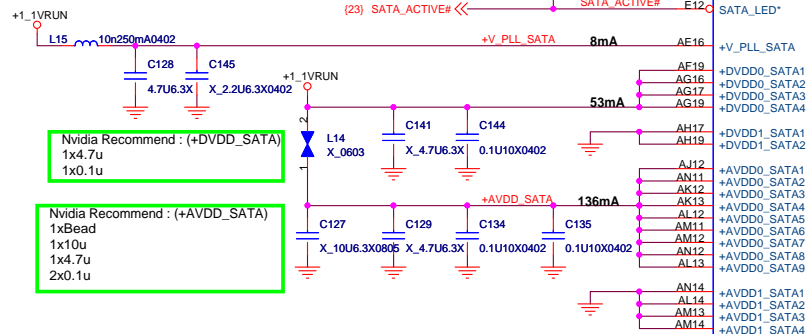


Nvidia Recommend : (+V\_PLL\_SATA)  
1x10nH  
1x4.7u  
1x2.2u



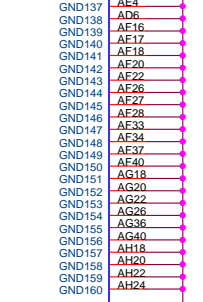
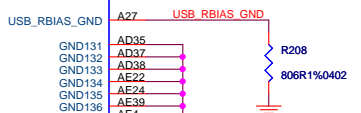
Nvidia Recommend : (+DVDD\_SATA)  
1x4.7u  
1x0.1u

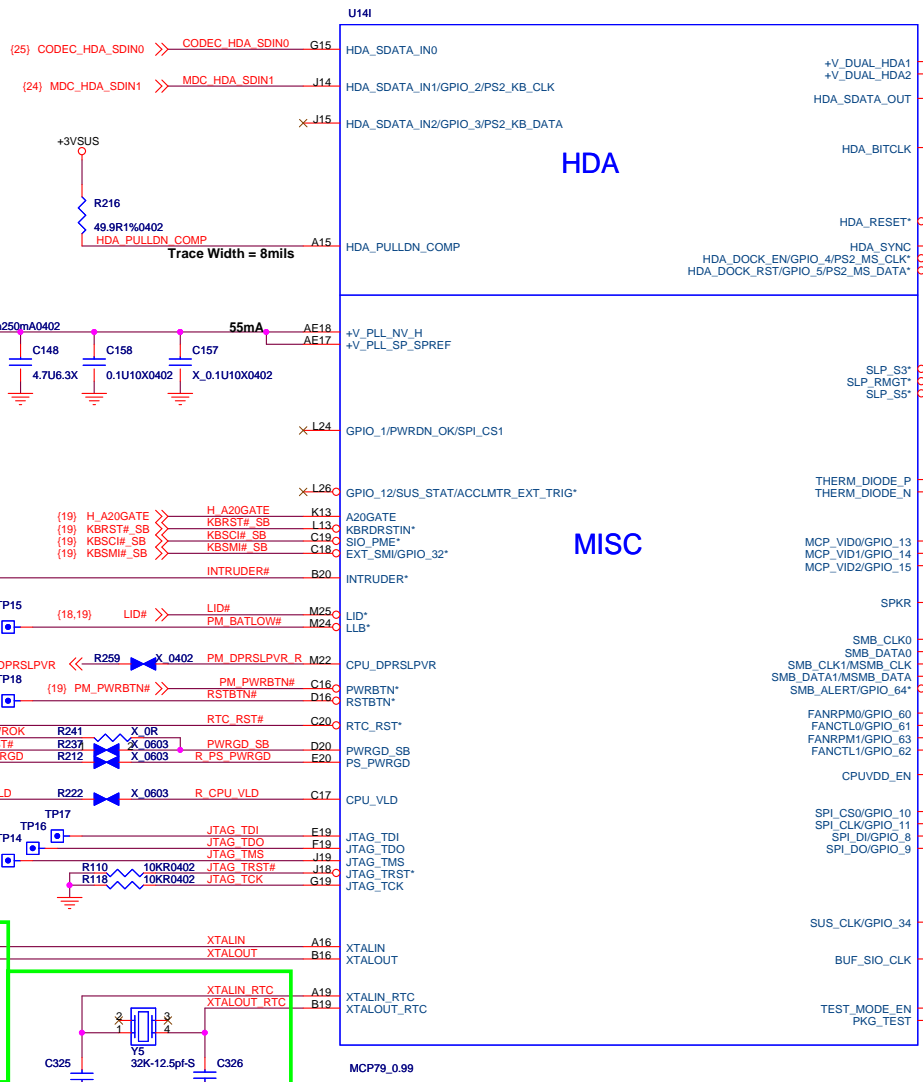
Nvidia Recommend : (+AVDD\_SATA)  
1xBead  
1x10u  
1x4.7u  
2x0.1u



Trace Width = 8mils

Trace Width = 8mils





Nvidia Recommend : (+V\_DUAL\_HDA)  
1x4.7u  
1x0.1u

Nvidia Recommend : (+V\_PLL\_NV\_H)  
1xBead  
1x4.7u  
2x0.1u

Nvidia Recommend  
PWRGD\_SB  
R228  
X\_100KR0402

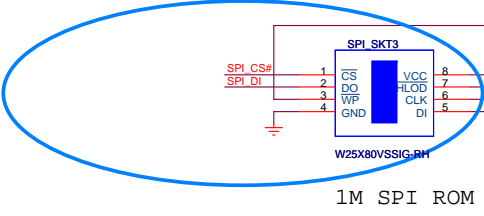
Within 1"  
C332  
15P50N0402  
Y4  
25MHZ18p\_S-RH  
C331  
15P50N0402

Within 1"  
C325  
18P50N0402  
Y5  
32K-12.5p-S  
C326  
18P50N0402

EMI Solution  
C102  
X\_C10p50N0402

+3VSUS  
R\_SPL\_MOSI(MSB)  
R\_SPL\_CLK(LSB)  
00=31MHz  
01=42MHz  
10=25MHz  
11=1MHz

+3VRUN  
HDA\_SDOUT(MSB)  
LPC\_FRAME#(LSB)  
00=LPC BIOS  
01=PCI BIOS  
10=SPI BIOS CS0  
11=SPI BIOS CS1



1M SPI ROM

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

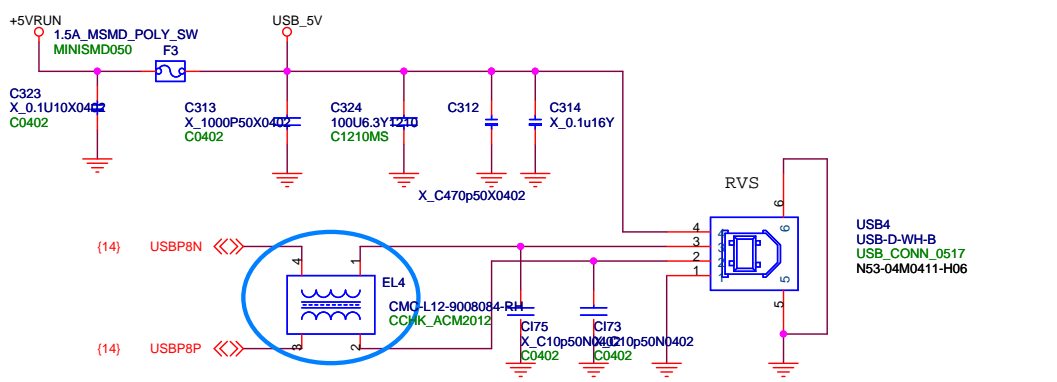
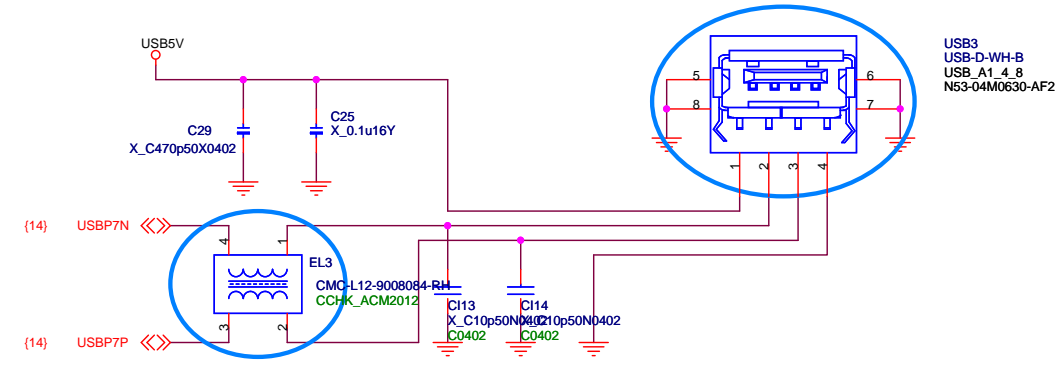
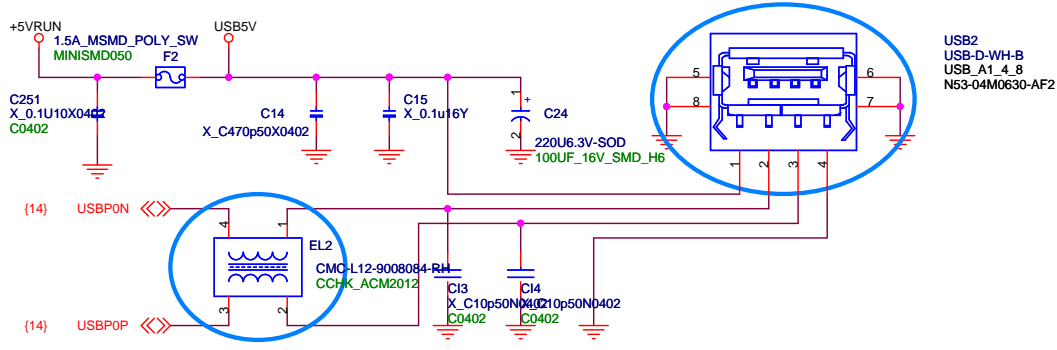
**MCP79-8 (HDA & MISC)**

Title: **MCP79-8 (HDA & MISC)**

Size: Custom Document Number: **MS-1451** Rev: 1.2

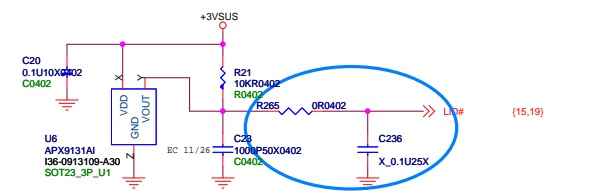
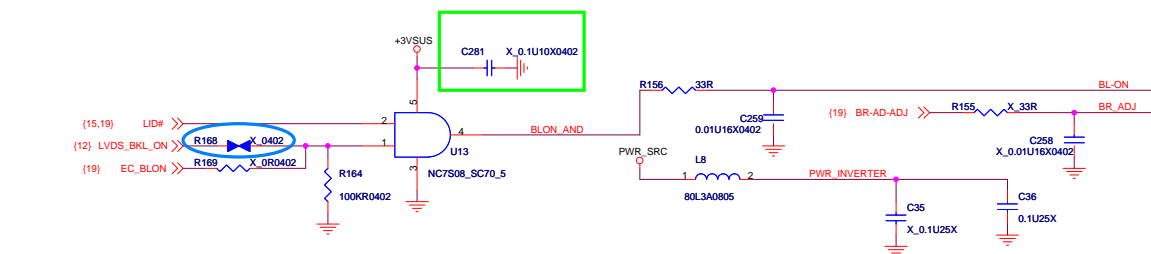
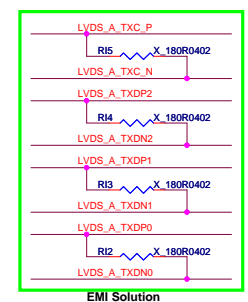
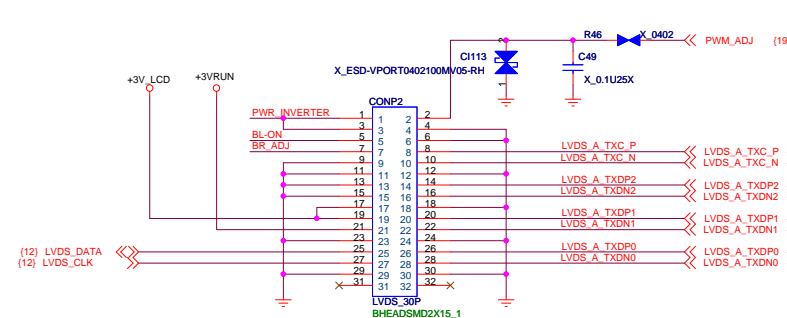
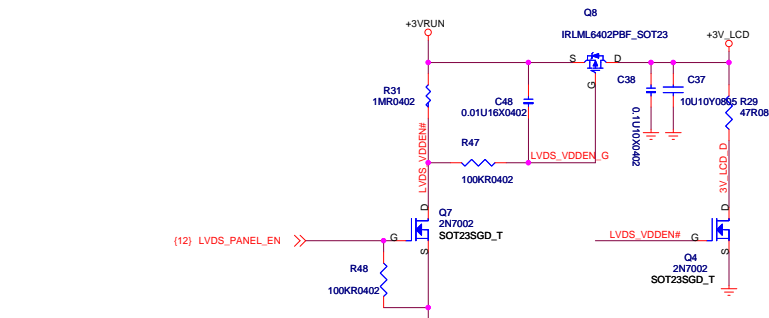
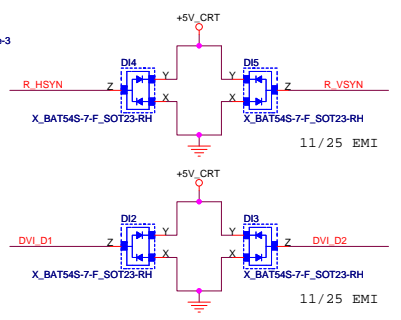
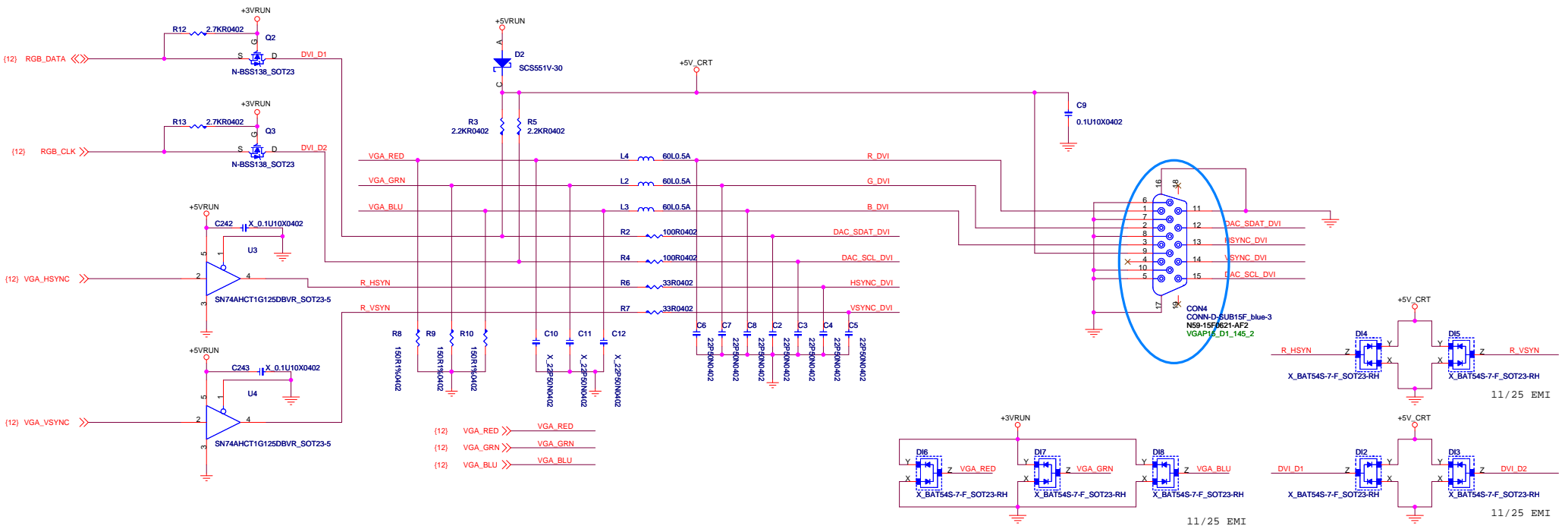
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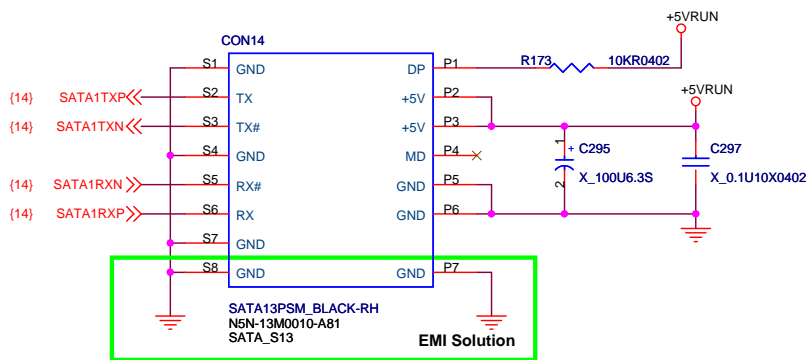
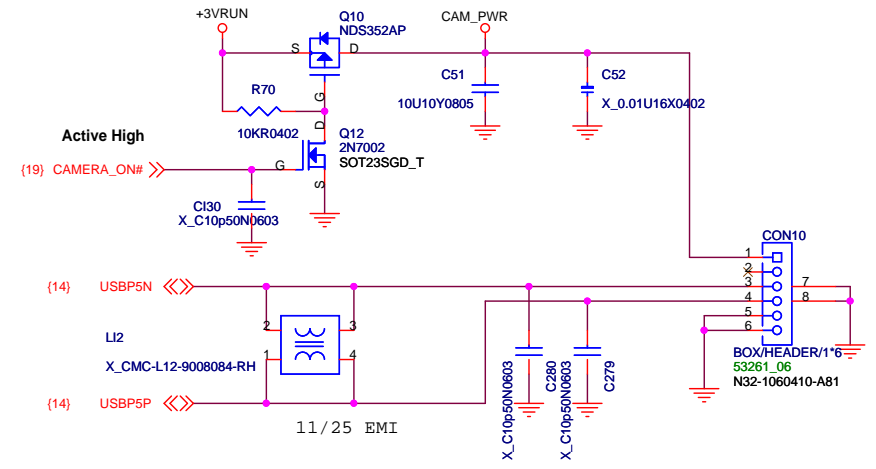
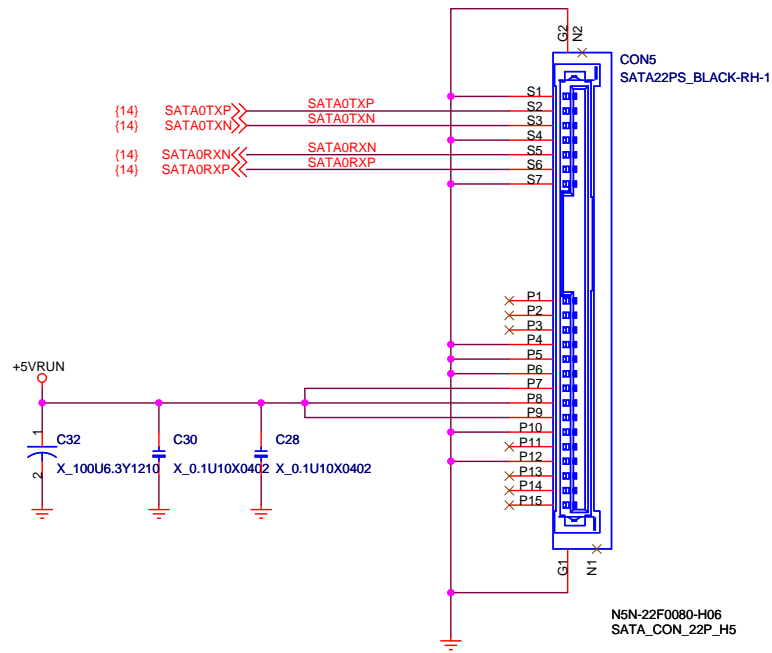


Title		
USB_CONN		
Size	Document Number	Rev
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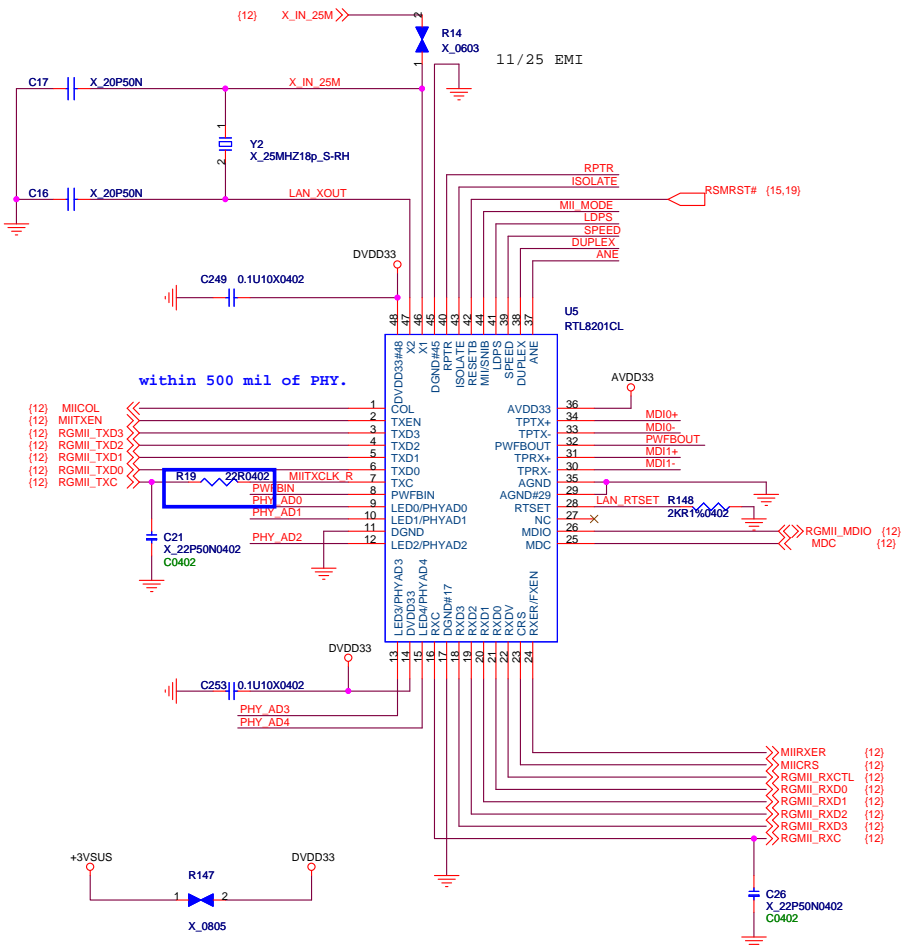




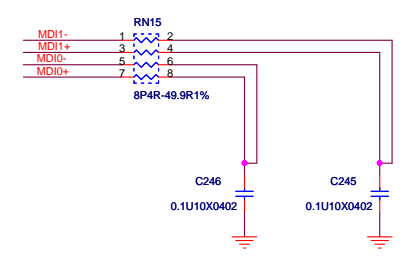
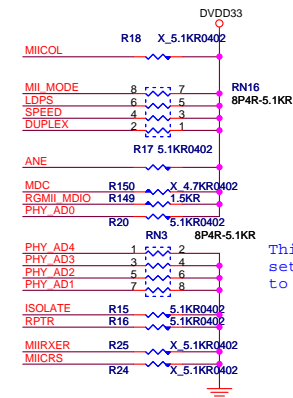
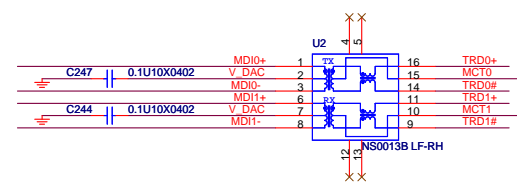






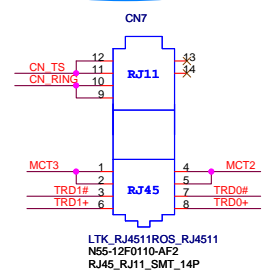
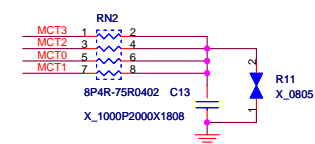
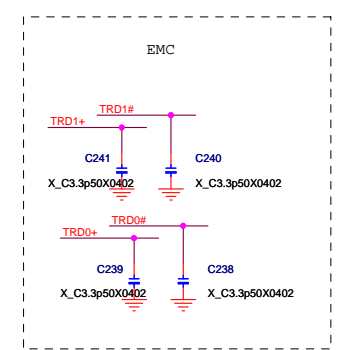
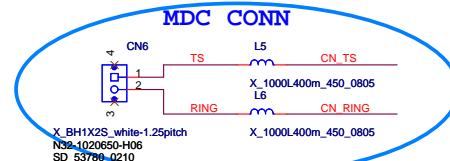


**LAN MAGNETICS**

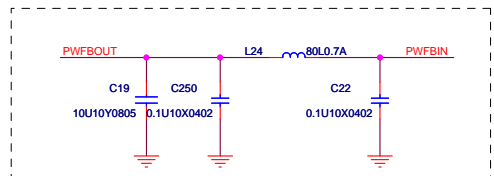


This schematic sets PHY address to 00001b.

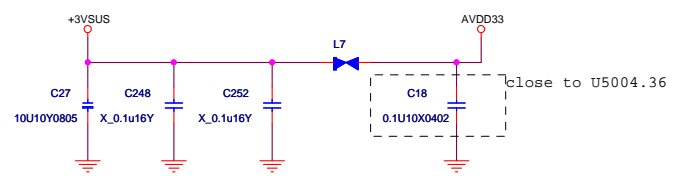
R375 R376 C514 close U5004  
R377 R379 C513 close U5003



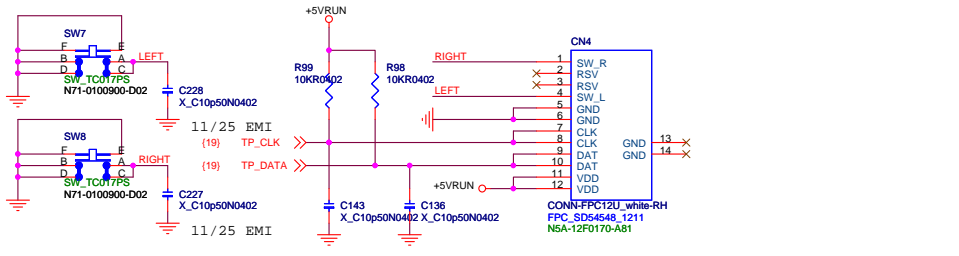
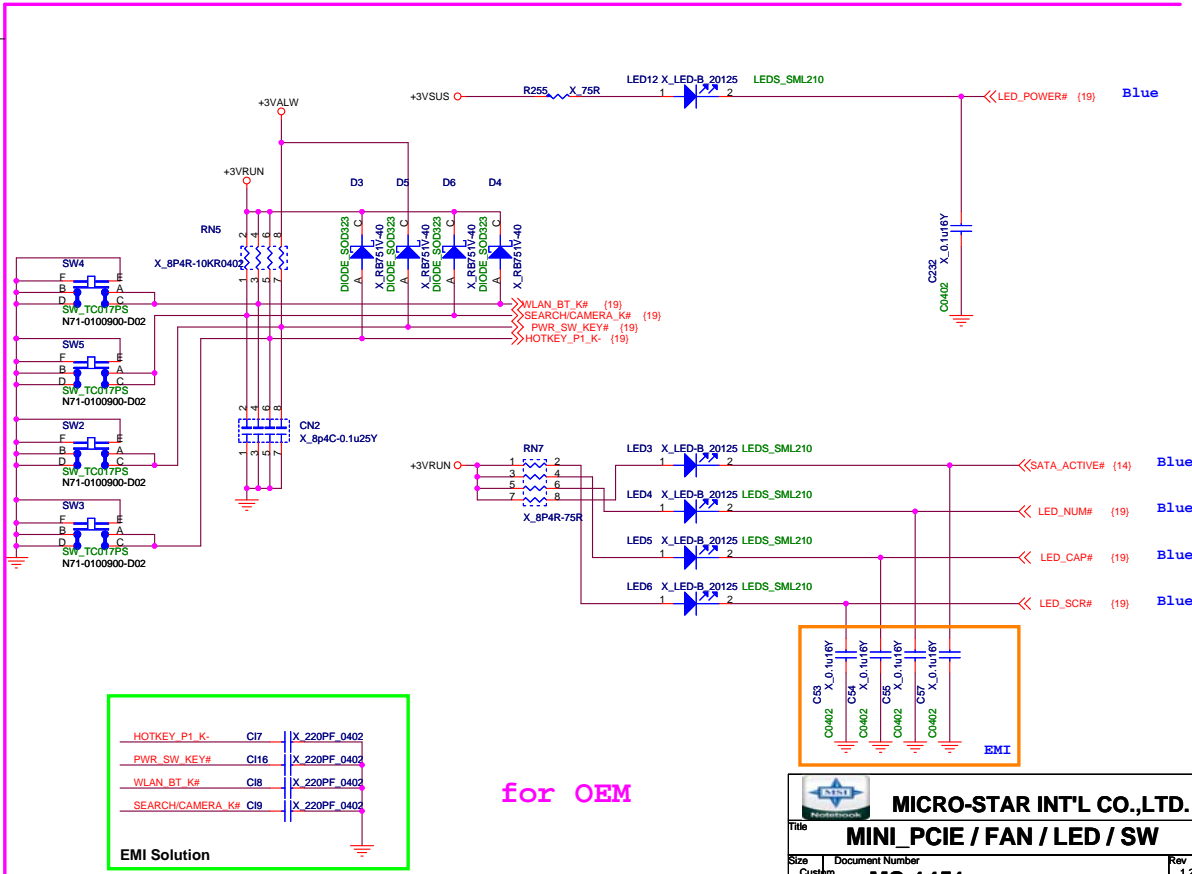
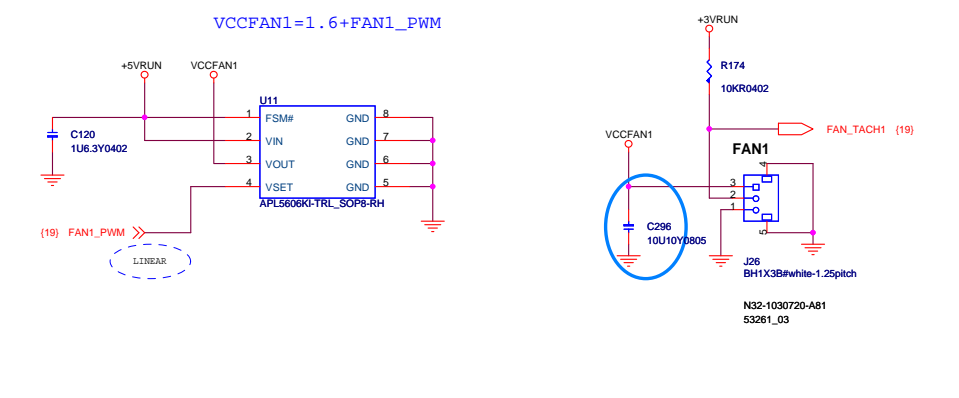
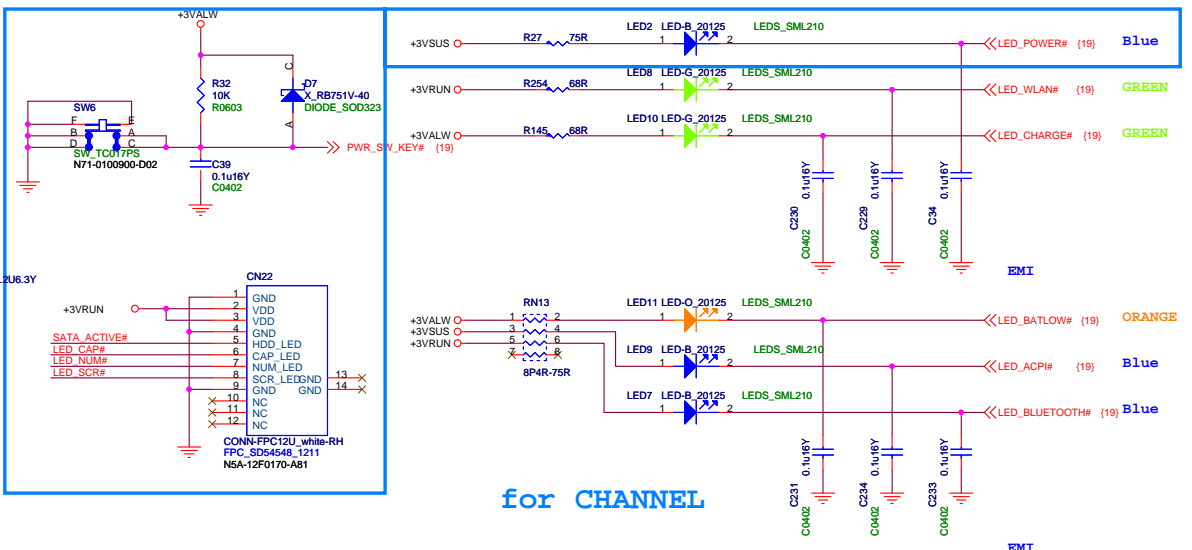
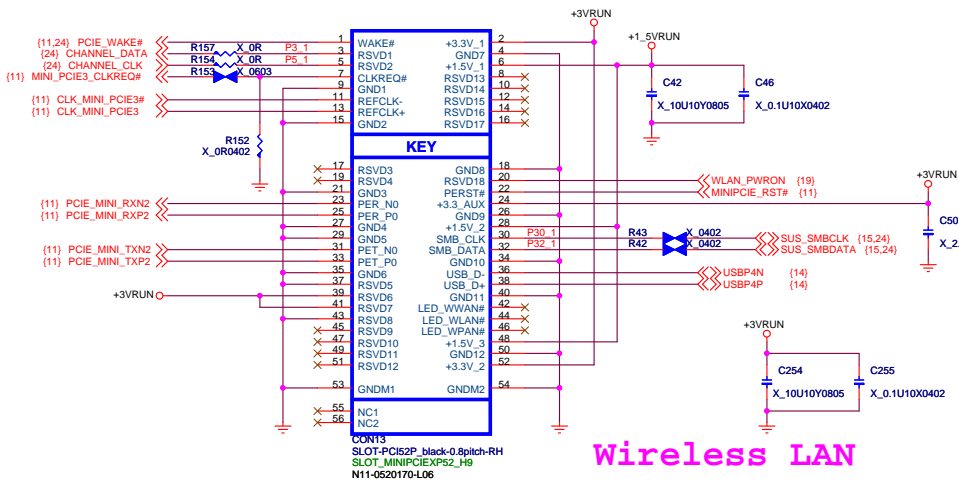
LTK\_RJ4511ROS\_RJ4511  
NS5-12F0110-AF2  
RJ45\_RJ11\_SMT\_14P



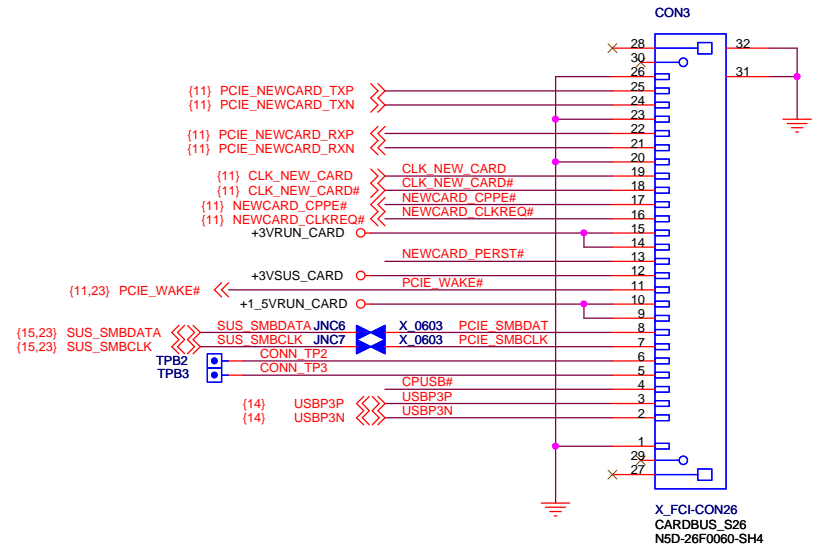
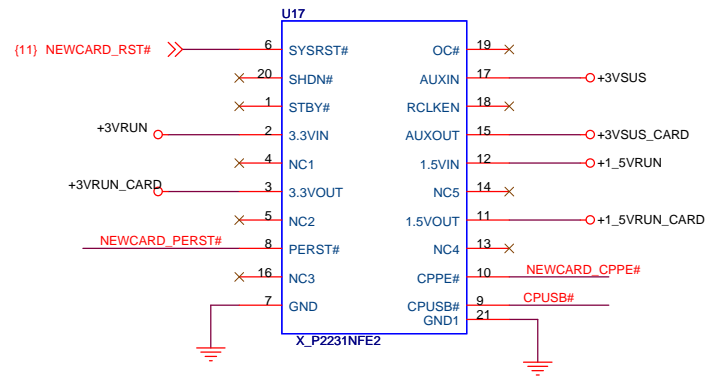
please C416,C417,L32 close to PWFBOOUT(U5004.32)  
and C418 close to PWFBIN (U5004.8)



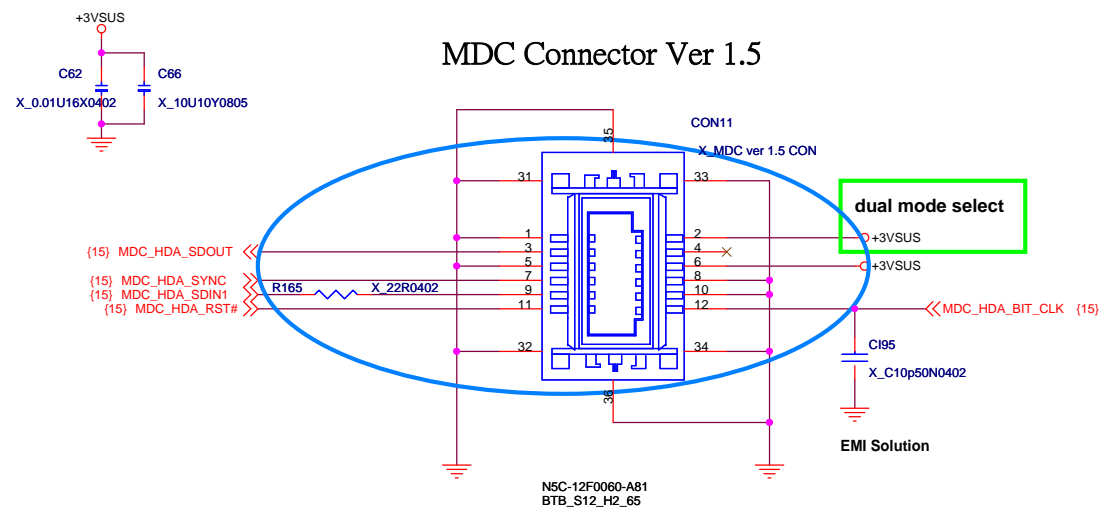
**MICRO-STAR INT'L CO.,LTD.**  
**LAN (RTL8201CL)**  
 Title  
 Size Custom Document Number MS-1451 Rev 1.2  
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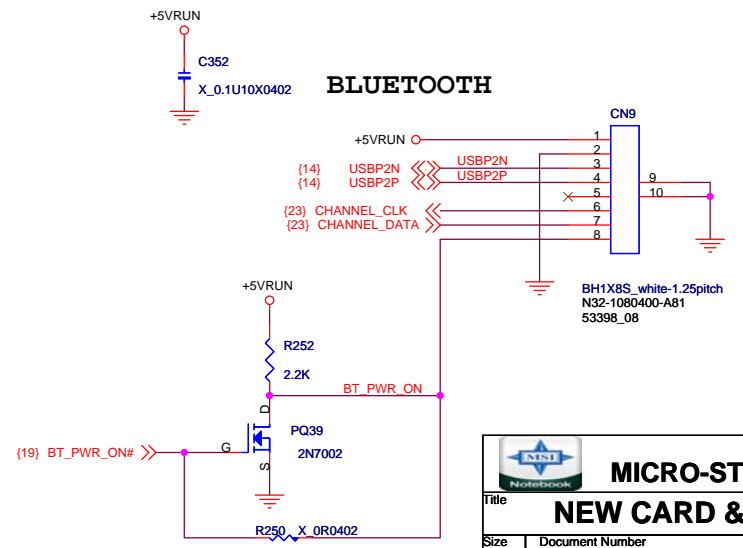




### MDC Connector Ver 1.5



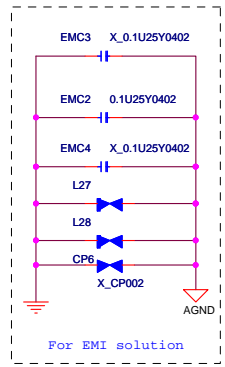
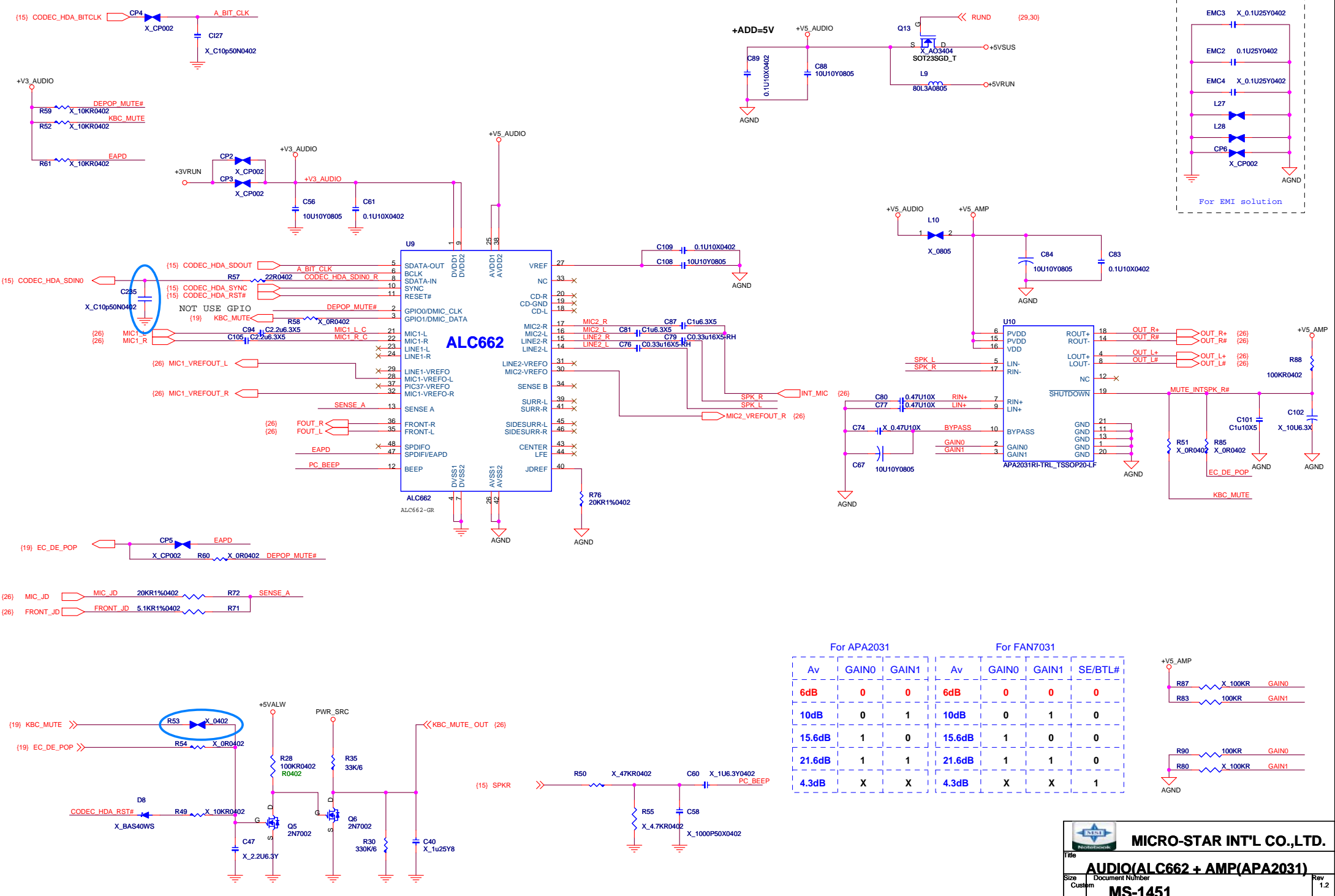
### BLUETOOTH



N5C-12F0060-A81  
BTB\_S12\_H2\_65

EMI Solution

<b>MICRO-STAR INT'L CO.,LTD.</b>		
<b>Title</b>		
<b>NEW CARD &amp; MDC CONN</b>		
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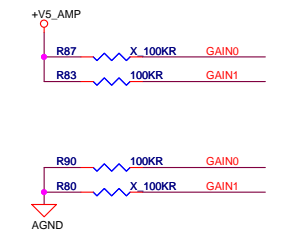


For APA2031

Av	GAIN0	GAIN1
6dB	0	0
10dB	0	1
15.6dB	1	0
21.6dB	1	1
4.3dB	X	X

For FAN7031

Av	GAIN0	GAIN1	SE/BTL#
6dB	0	0	0
10dB	0	1	0
15.6dB	1	0	0
21.6dB	1	1	0
4.3dB	X	X	1



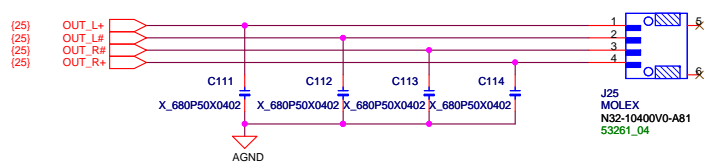
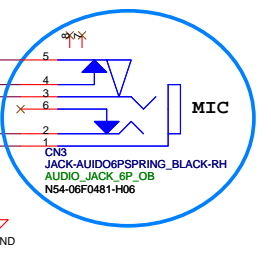
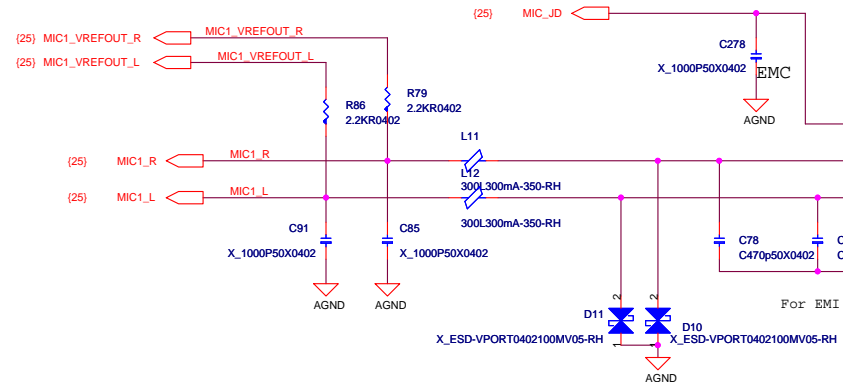
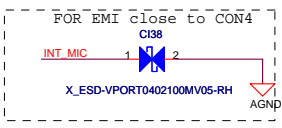
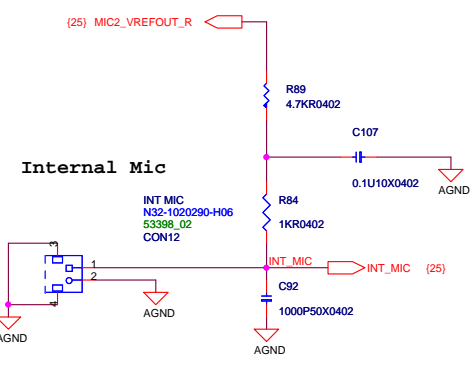
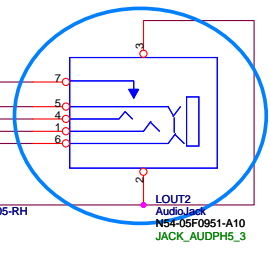
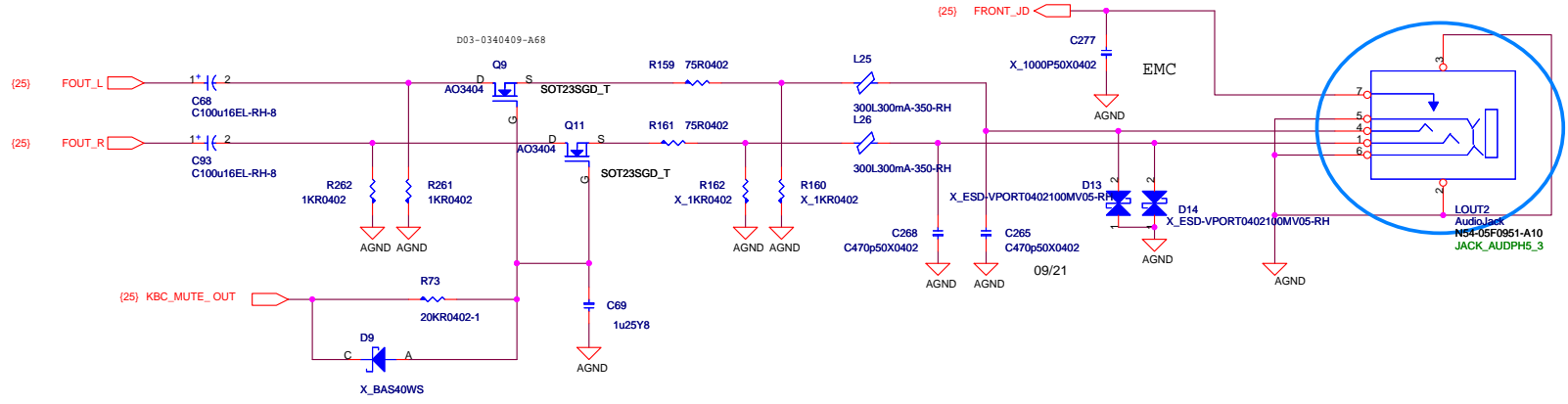
**MICRO-STAR INT'L CO.,LTD.**


Title: **AUDIO(ALC662 + AMP(APA2031))**

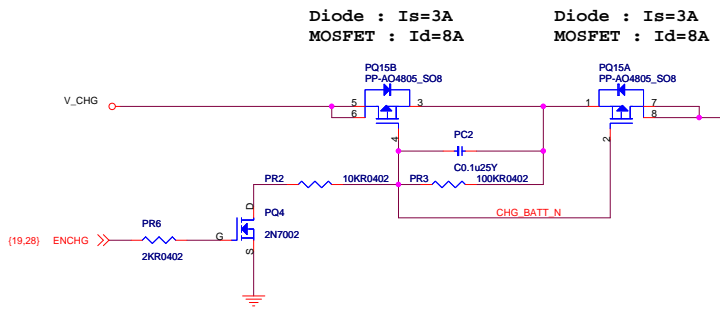
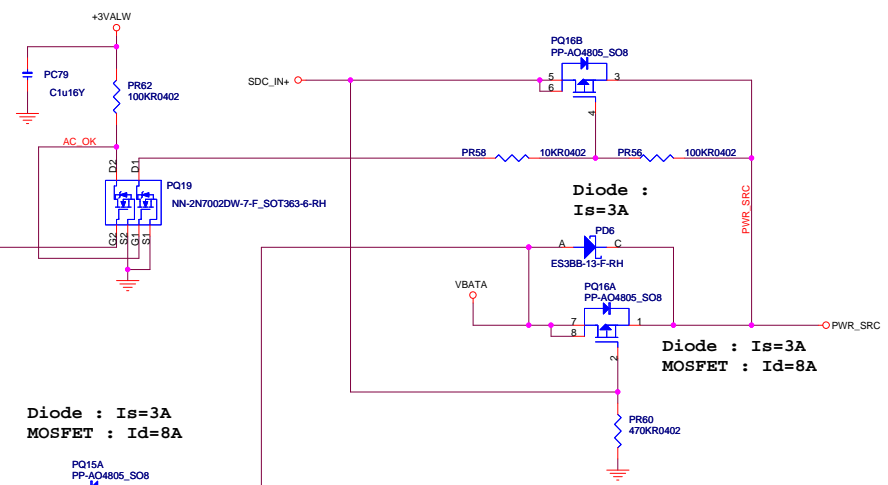
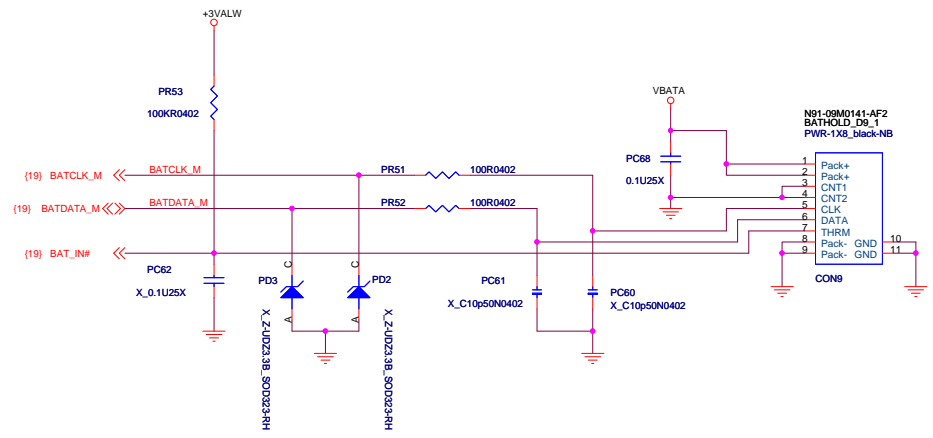
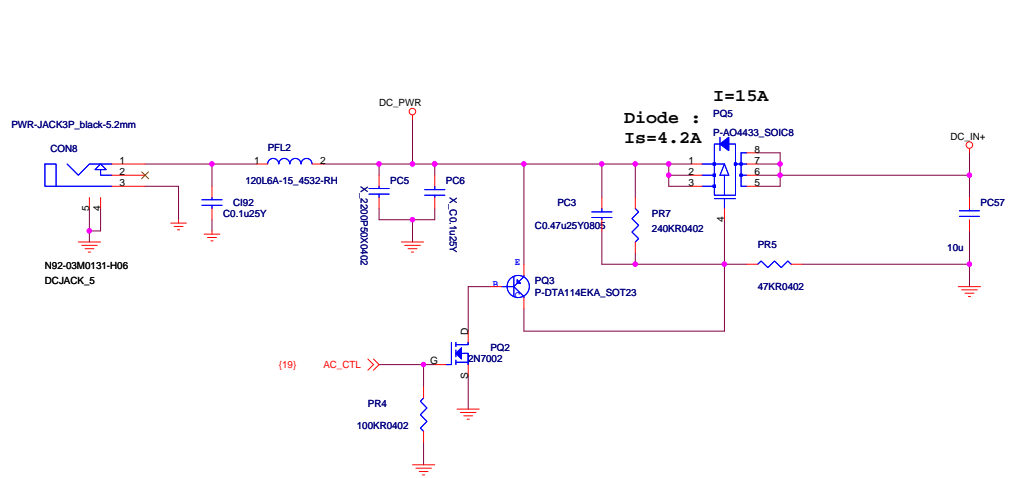
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Customer: **MS-1451**

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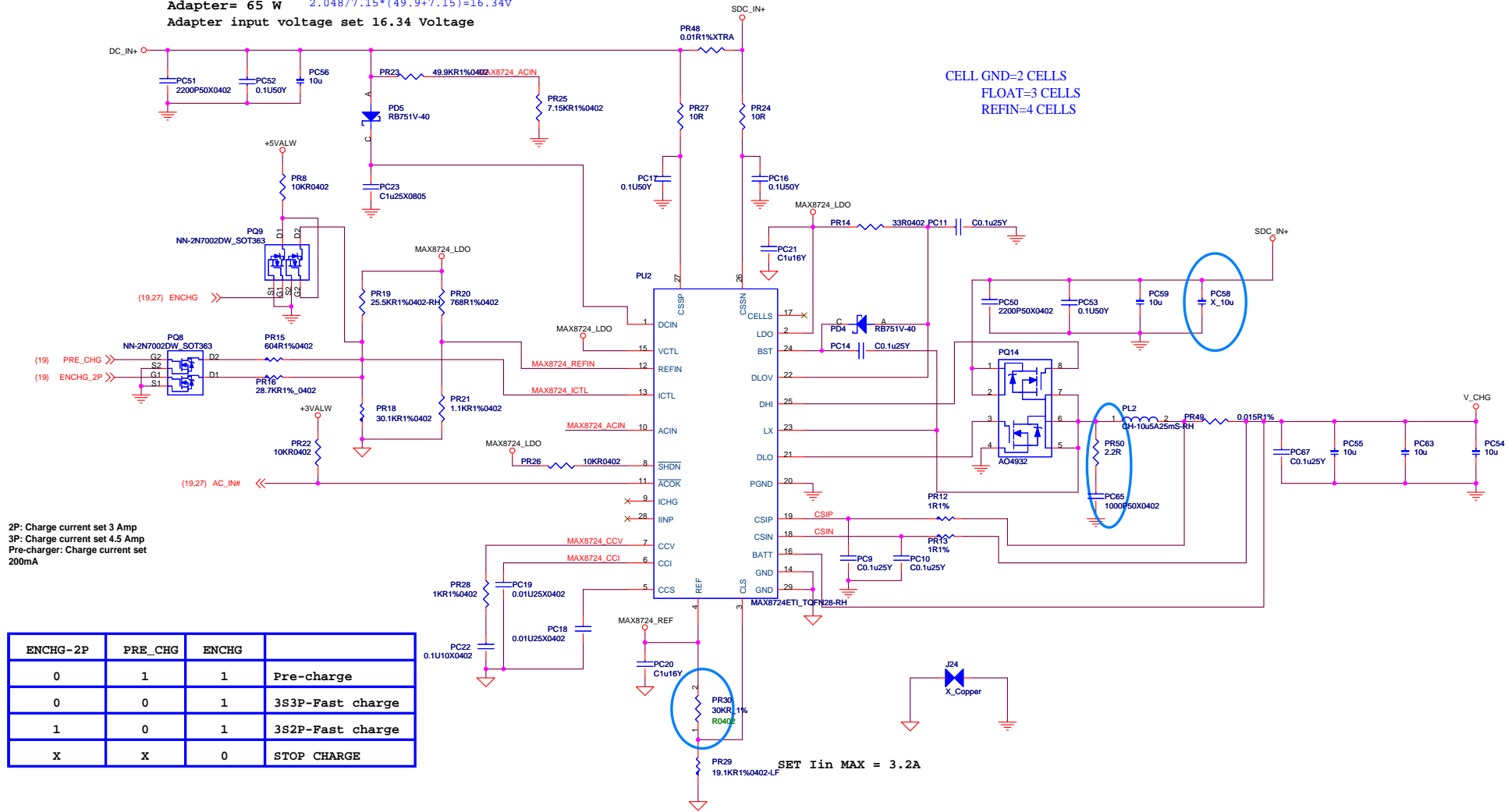
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<b>Title</b>			
<b>SPK / HP / MIC</b>			
<b>Size</b> Document Number			
<b>Custom</b> MS-1451			
<b>Date:</b> Wednesday, May 20, 2009			
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MSI CORPORATION		
Title	Battery Select	
Size	Document Number	Rev
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Adapter= 65 W  $2.048/7.15*(49.9+7.15)=16.34V$   
 Adapter input voltage set 16.34 Voltage

CELL\_GND=2 CELLS  
 FLOAT=3 CELLS  
 REFIN=4 CELLS

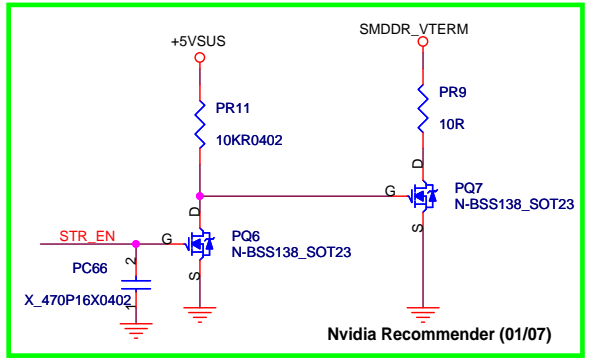
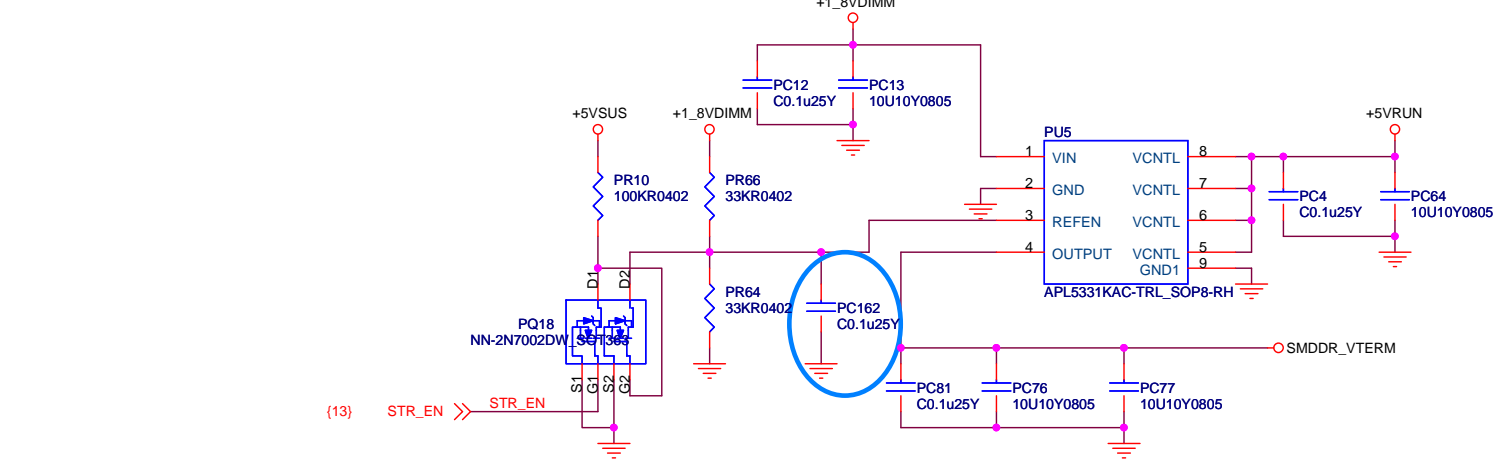
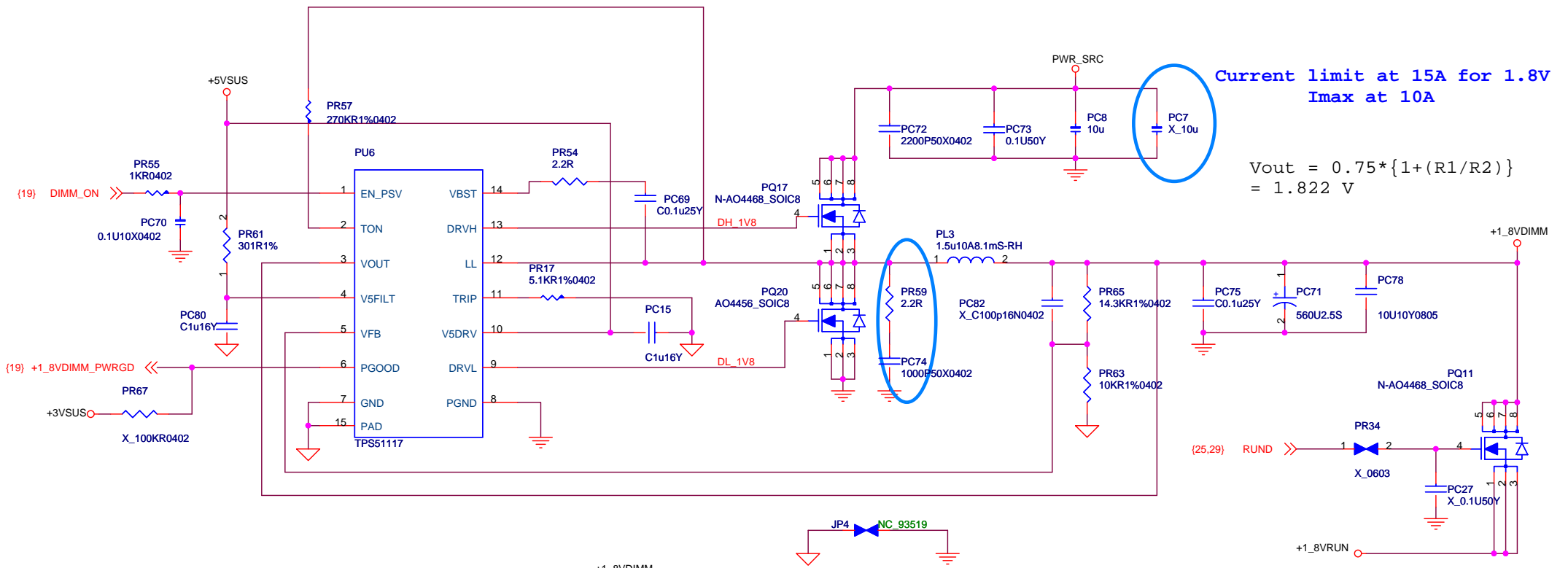


2P: Charge current set 3 Amp  
 3P: Charge current set 4.5 Amp  
 Pre-charger: Charge current set 200mA

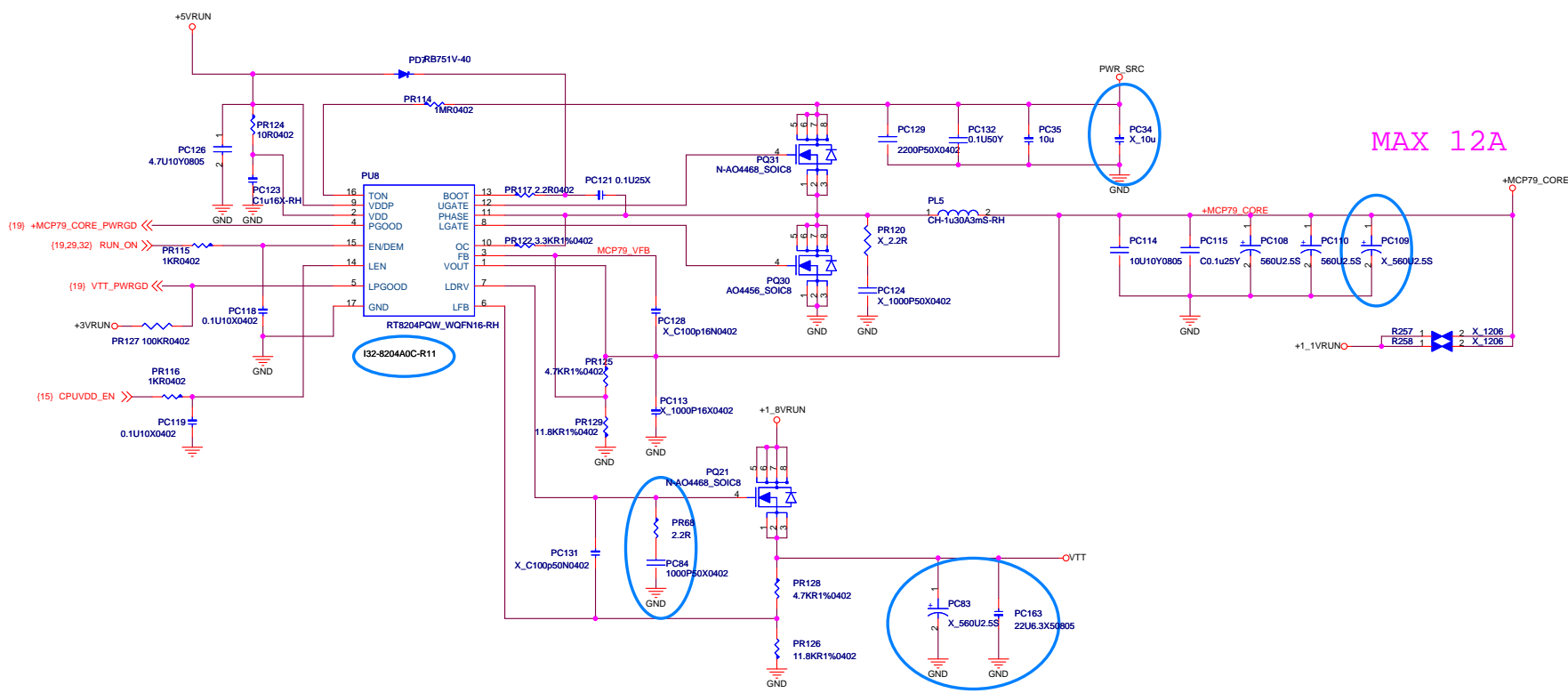
ENCHG-2P	PRE_CHG	ENCHG	
0	1	1	Pre-charge
0	0	1	3S3P-Fast charge
1	0	1	3S2P-Fast charge
X	X	0	STOP CHARGE







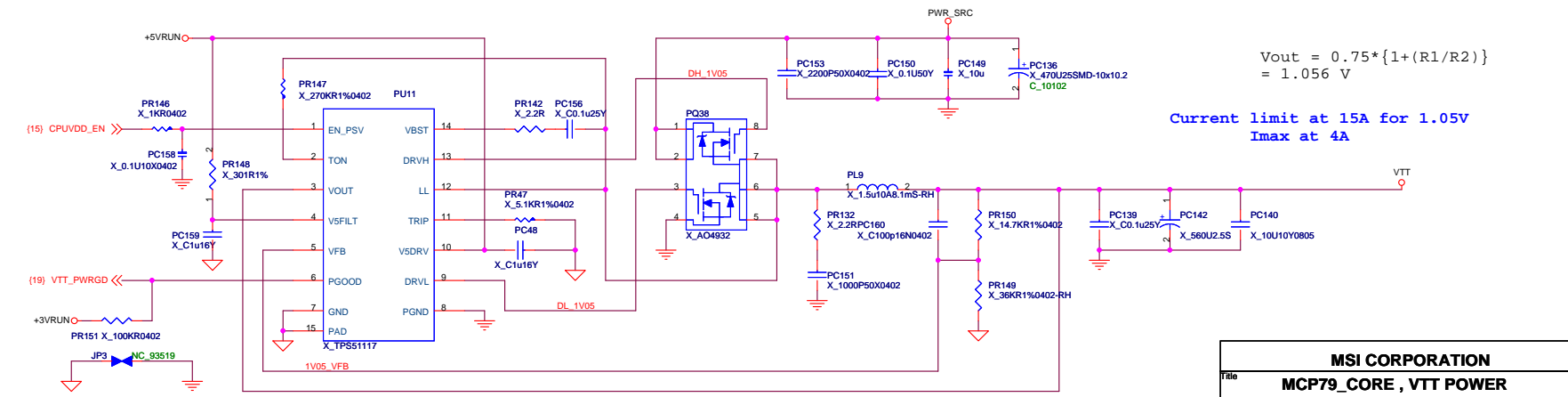
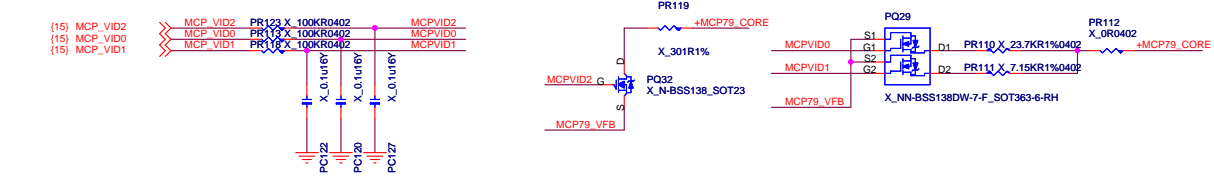
<b>MSI CORPORATION</b>			
Title: <b>DDR2 RAM POWER</b>			
Size: Custom	Document Number: <b>MS-1451</b>		Rev: 1.2
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MAX 12A

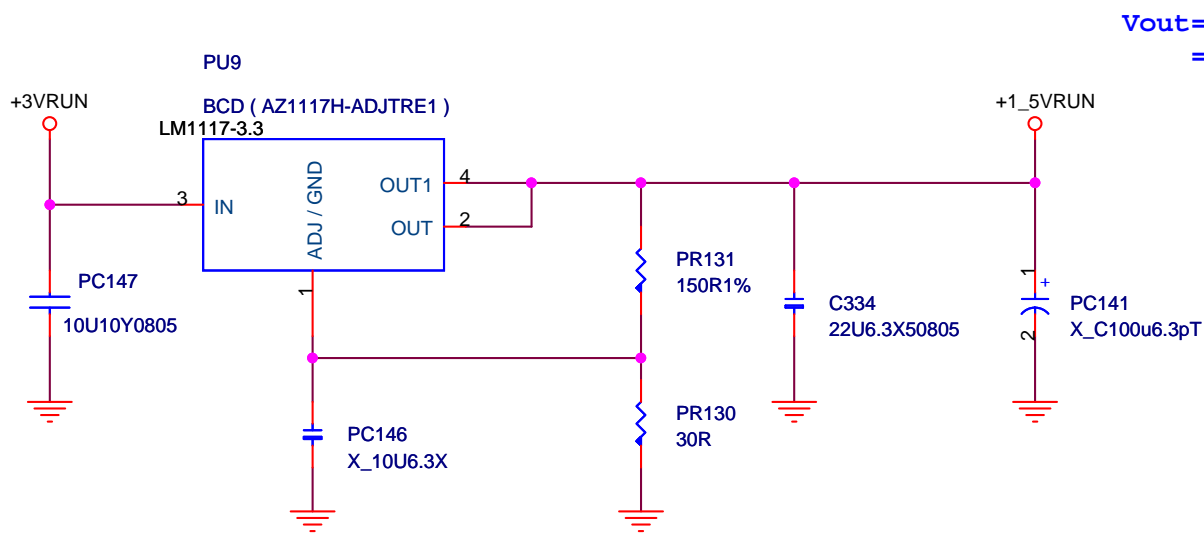
**+MCP CORE POWER TABLE**

VID2	VID1	VID0	+MCP CORE POWER
0	0	0	1.056 V
0	0	1	1.007 V
0	1	0	0.937 V
0	1	1	0.918 V

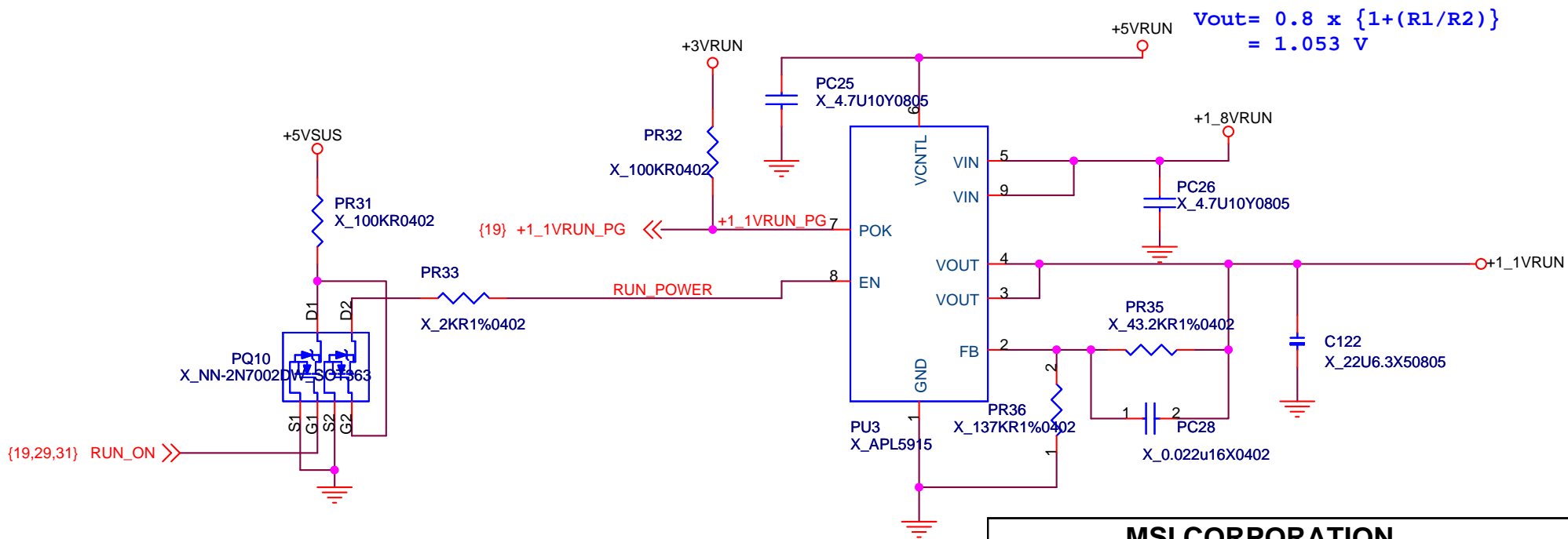


$$V_{out} = 0.75 * \{1 + (R1/R2)\} = 1.056 V$$

Current limit at 15A for 1.05V  
Imax at 4A



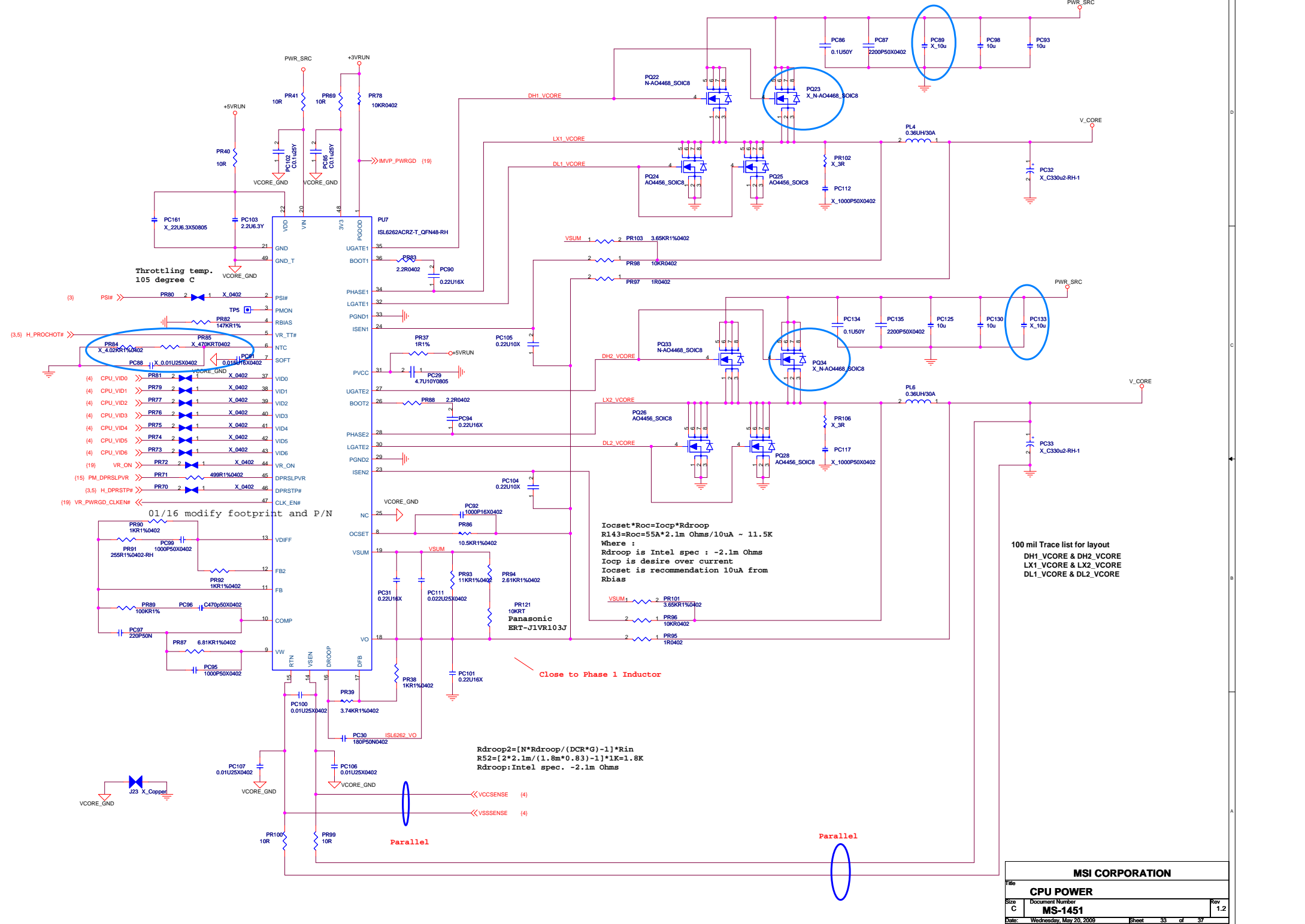
$$V_{out} = 1.25 \times \{1 + (30/150)\} = 1.5 \text{ V}$$



$$V_{out} = 0.8 \times \{1 + (R1/R2)\} = 1.053 \text{ V}$$

### MSI CORPORATION

Title		
<b>+1_5VRUN , +1_1VRUN</b>		
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Throttling temp.  
105 degree C

01/16 modify footprint and P/N

$I_{ocset} * R_{oc} = I_{ocp} * R_{droop}$   
 $R_{143} = R_{oc} = 55A * 2.1m\ Ohms / 10uA \sim 11.5K$   
 Where :  
 $R_{droop}$  is Intel spec : -2.1m Ohms  
 $I_{ocp}$  is desire over current  
 $I_{ocset}$  is recommendation 10uA from Rbias

$R_{droop2} = [N * R_{droop} / (DCR * G) - 1] * R_{in}$   
 $R_{52} = [2 * 2.1m / (1.8m * 0.83) - 1] * 1K = 1.8K$   
 $R_{droop}$ : Intel spec. -2.1m Ohms

100 mil Trace list for layout  
 DH1\_VCORE & DH2\_VCORE  
 LX1\_VCORE & LX2\_VCORE  
 DL1\_VCORE & DL2\_VCORE

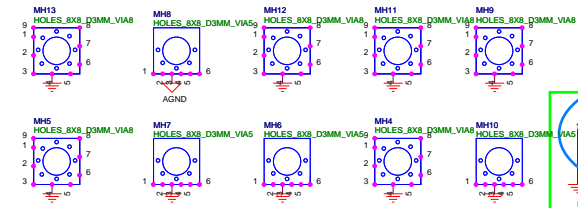
Close to Phase 1 Inductor

Parallel

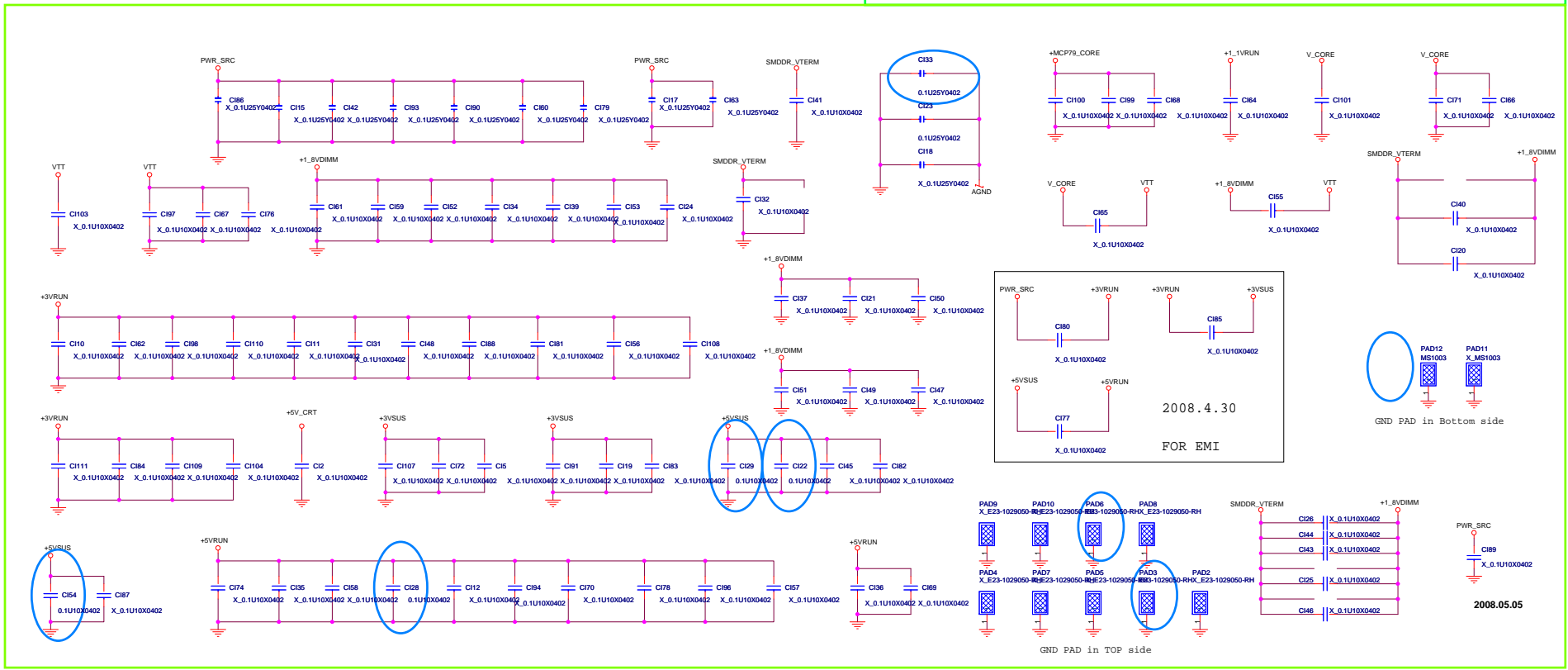
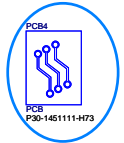
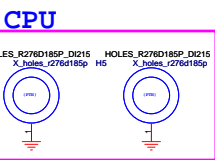
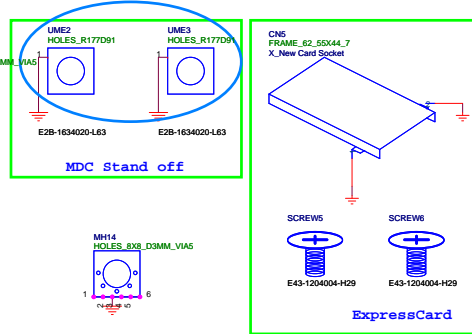
Parallel

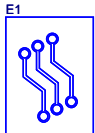
<b>MSI CORPORATION</b>		
Title <b>CPU POWER</b>		
Size C	Document Number <b>MS-1451</b>	Rev 1.2
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# C-case & D-case

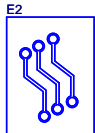


12/1 EMI

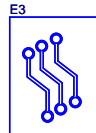




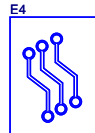
X\_NEW CARD MYLAR  
E2P-4521411-G40



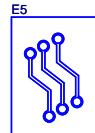
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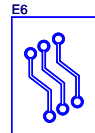
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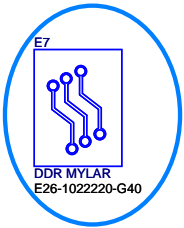
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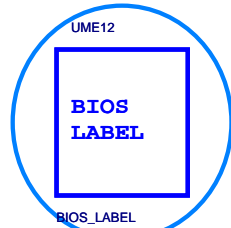
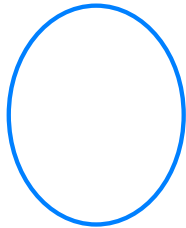
Touchpad Rubber  
E2Y-4520311-Y40



Touchpad Rubber  
E2Y-4520311-Y40



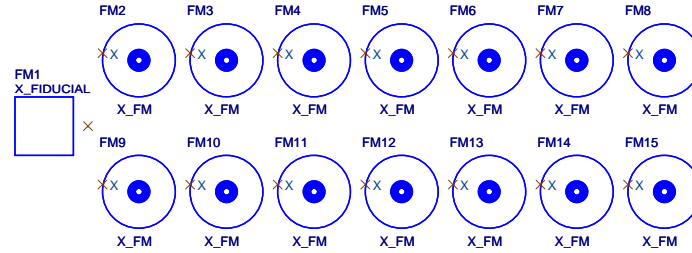
DDR MYLAR  
E26-1022220-G40



UME12

**BIOS  
LABEL**

BIOS\_LABEL



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

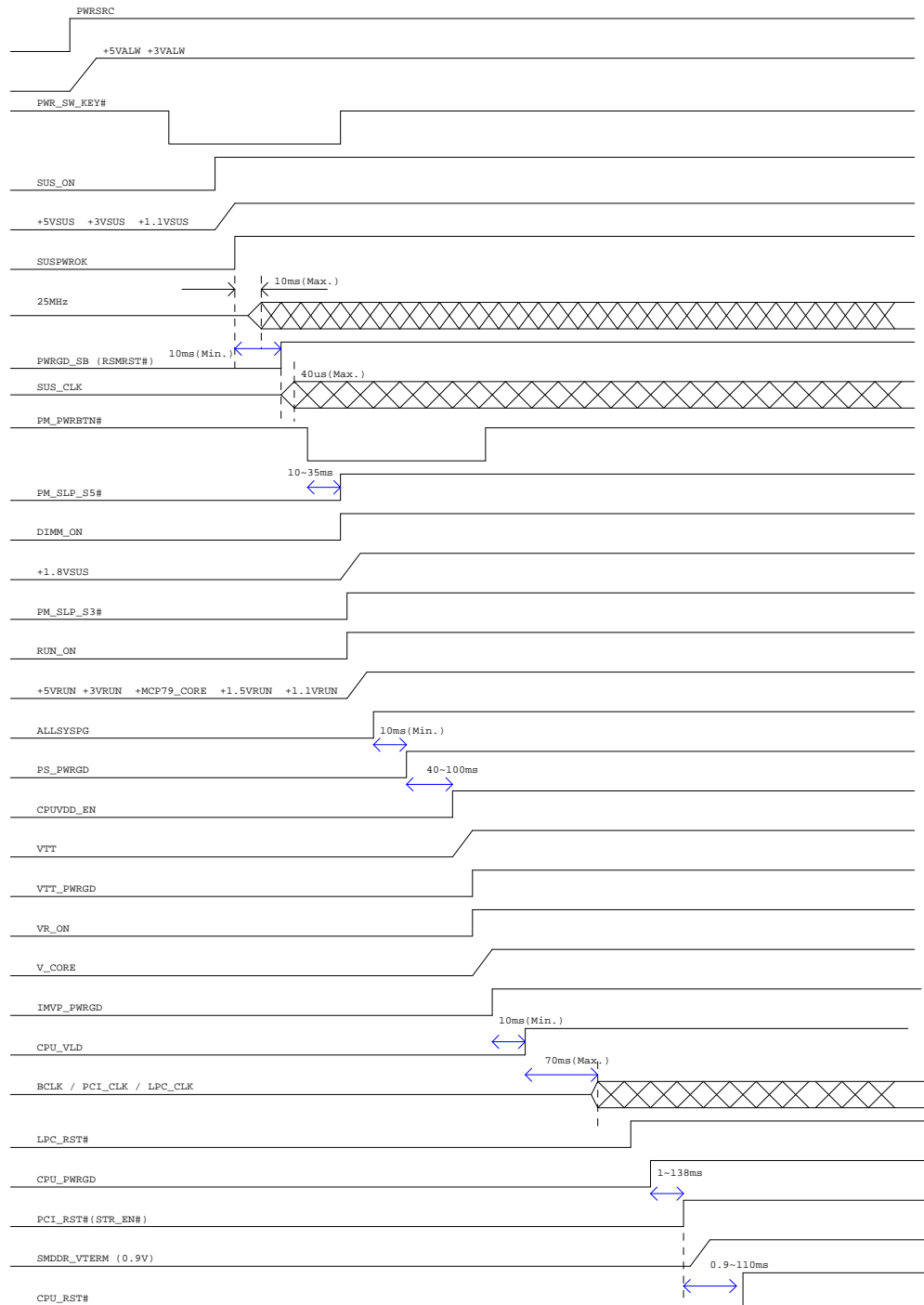
Title **Non-Footprint for BOM**

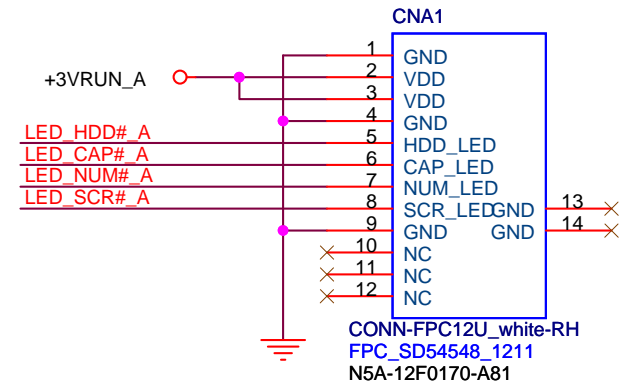
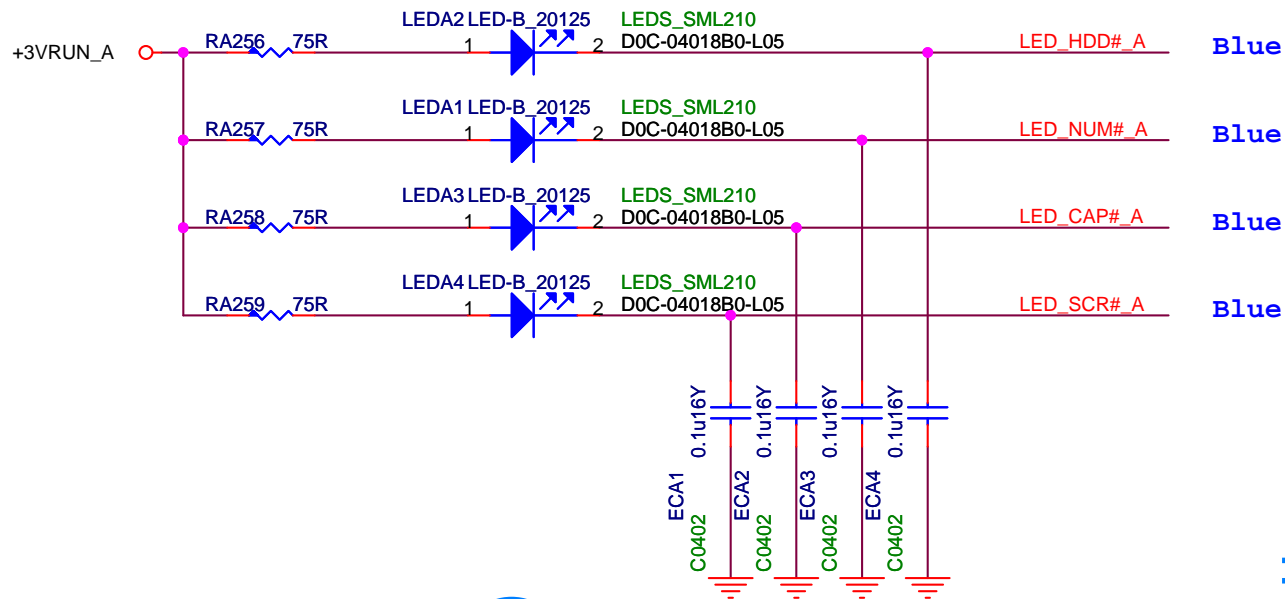
Size B	Document Number <b>MS-1451</b>	Rev 1.2
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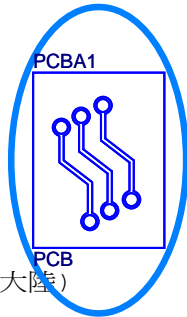


# G0 to S0 Power-Up Timing

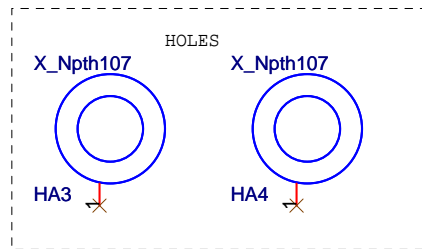
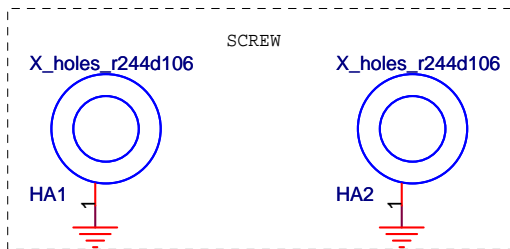
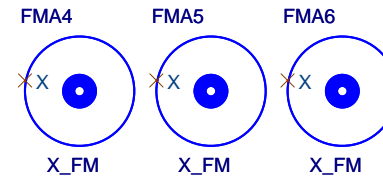
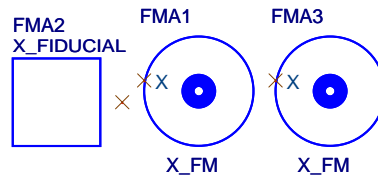





for CHANNEL



P30-1451A11-H73, 瀚宇博德  
P30-1451A11-D05, 昆穎 (定穎大陸)



 <b>MICRO-STAR INT'L CO.,LTD.</b>	
Title	
<b>LED BOARD</b>	
Size A	Document Number <b>MS-1451A</b>
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