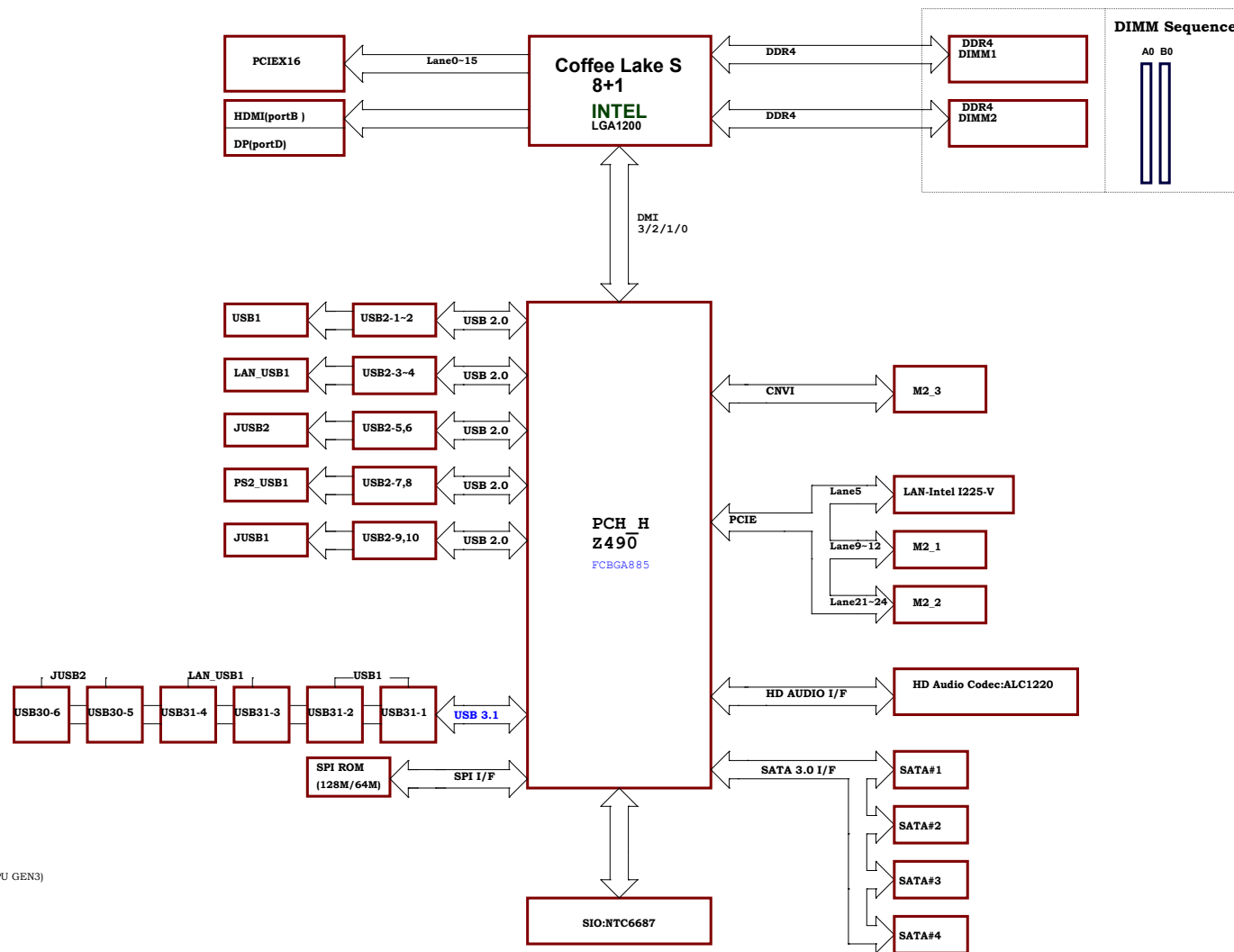
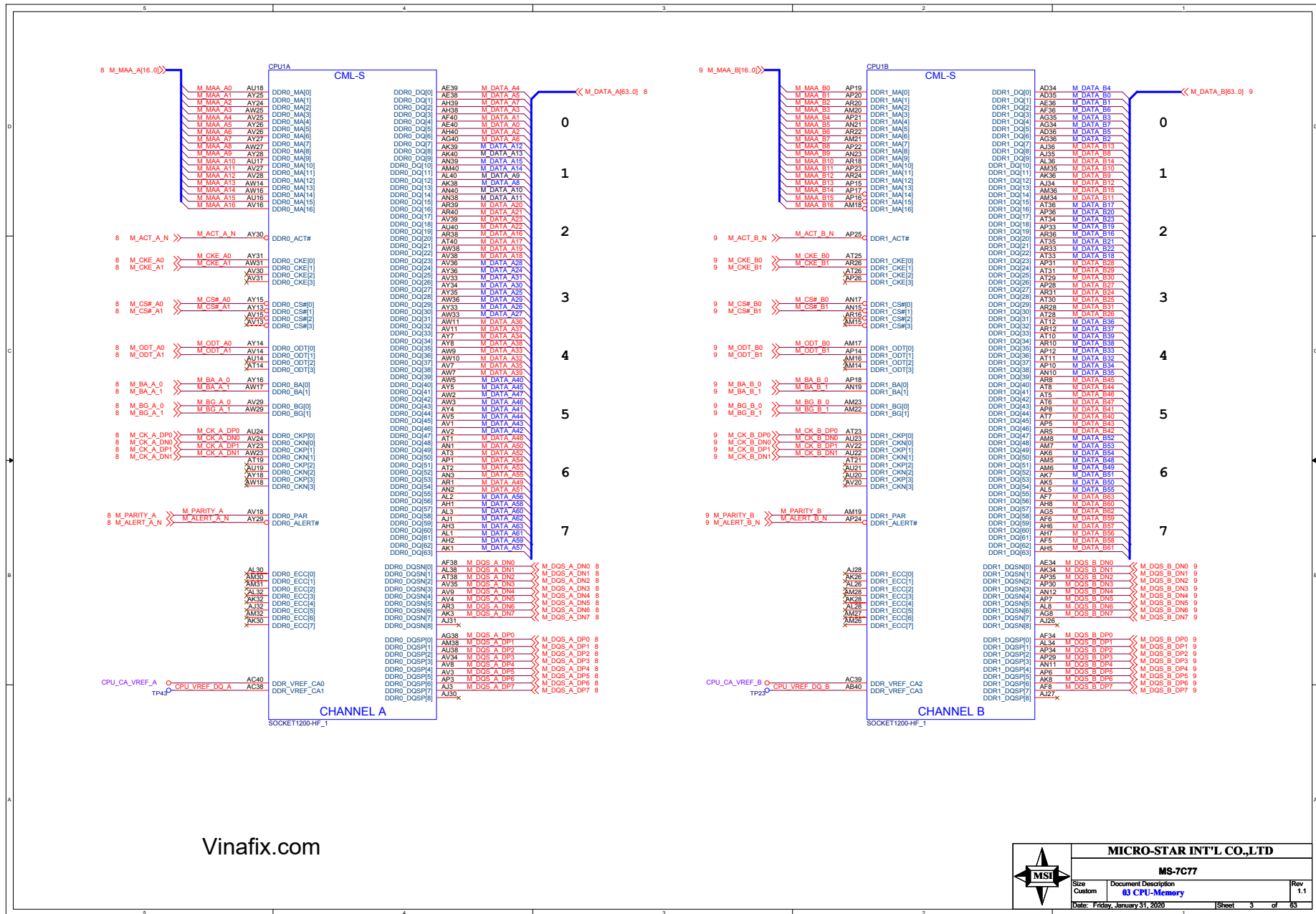


MS-7C77 Block Diagram





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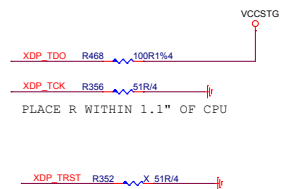
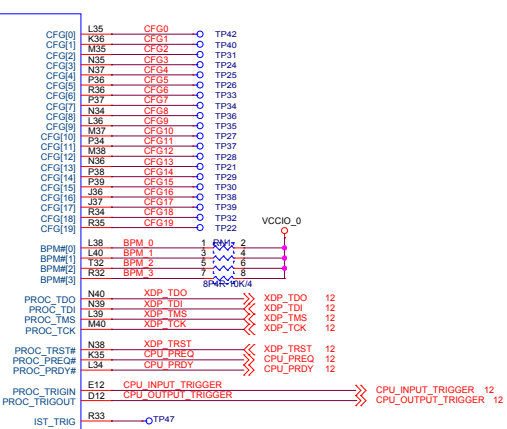
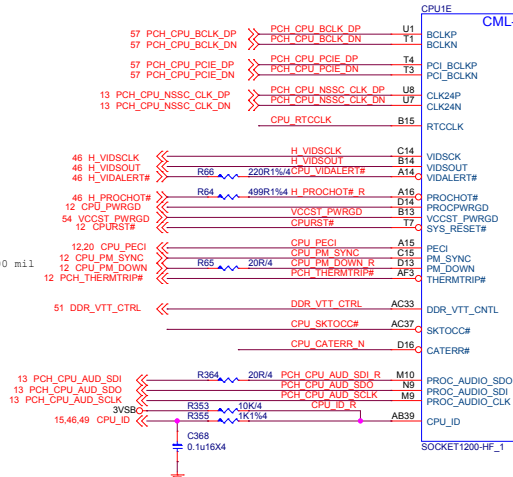
MICRO-STAR INT'L CO.,LTD

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Date: Friday, January 31, 2020	Sheet 3 of 63	



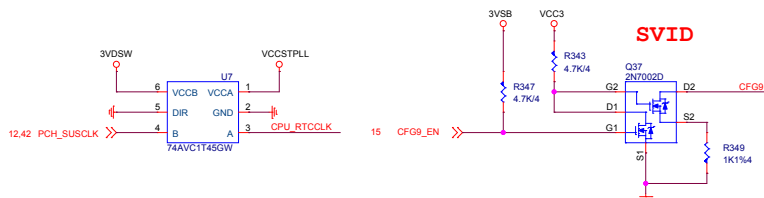
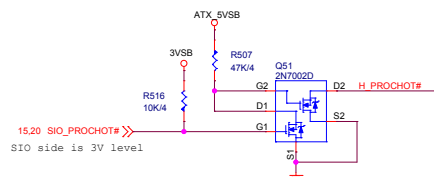
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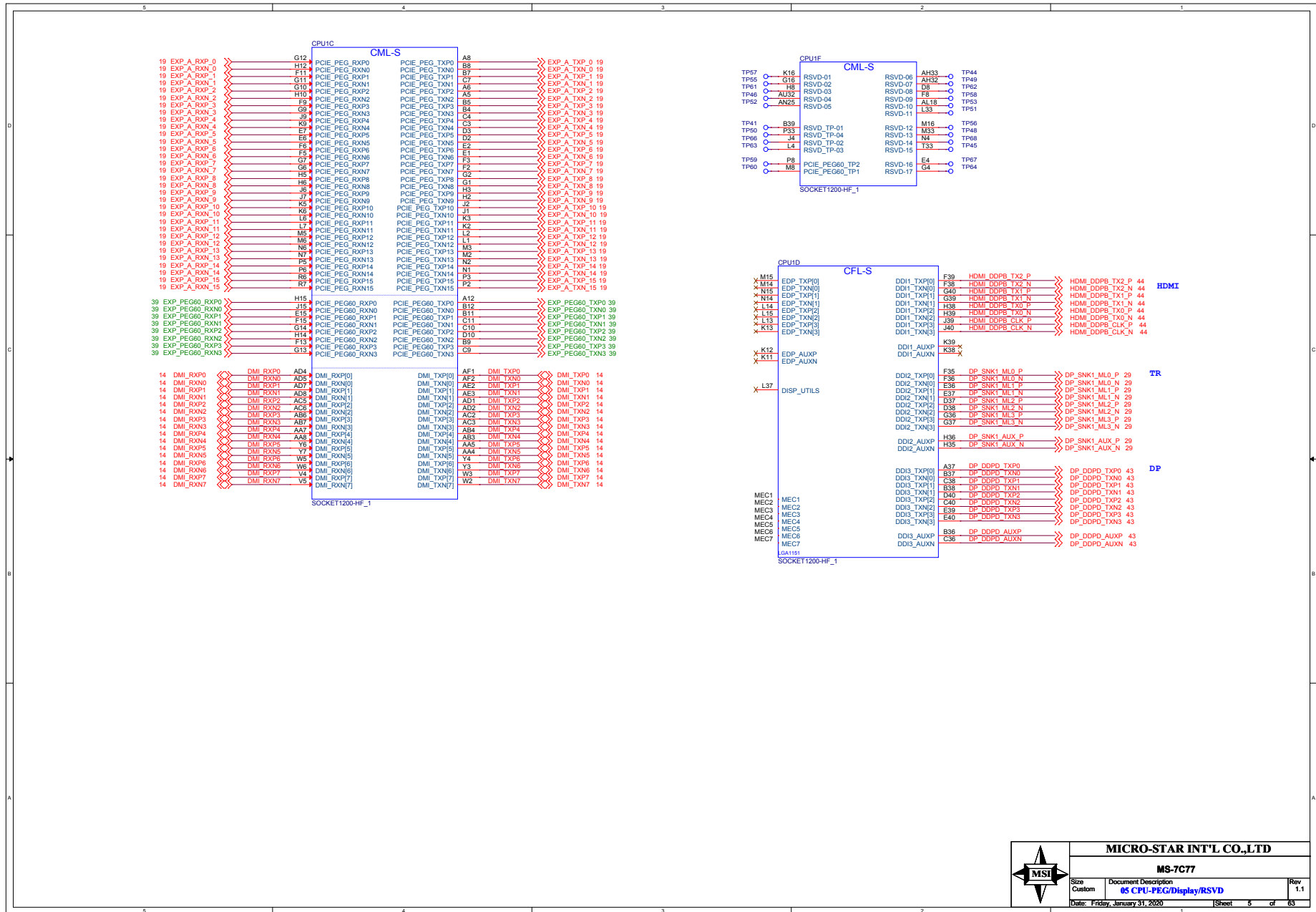


CFG Strap

CFG Table		
HIGH	LOW	Intel
0 (Default)Normal Operation	stall	PCU PLL lock
1	REVERSE	REV0
2	REVERSE	PCU LANE REVERSE
3	REVERSE	REV0
4	ENABLE	REV0
5	ENABLE	PCU_CFGSEL[0]
6	ENABLE	PCU_CFGSEL[1]
7	ENABLE	PCU_CFGSEL[2]
8	ENABLE	PCU_CFGSEL[3]
9	ENABLE	PCU_CFGSEL[4]
10	PRESENT	NO PRESENT
11	PRESENT	NO PRESENT
12	PRESENT	NO PRESENT
13	PRESENT	NO PRESENT
14	PRESENT	NO PRESENT
15	PRESENT	NO PRESENT
16	PRESENT	NO PRESENT
17	PRESENT	NO PRESENT
18	PRESENT	NO PRESENT
19	PRESENT	NO PRESENT

Tempture protection MP BOM remove

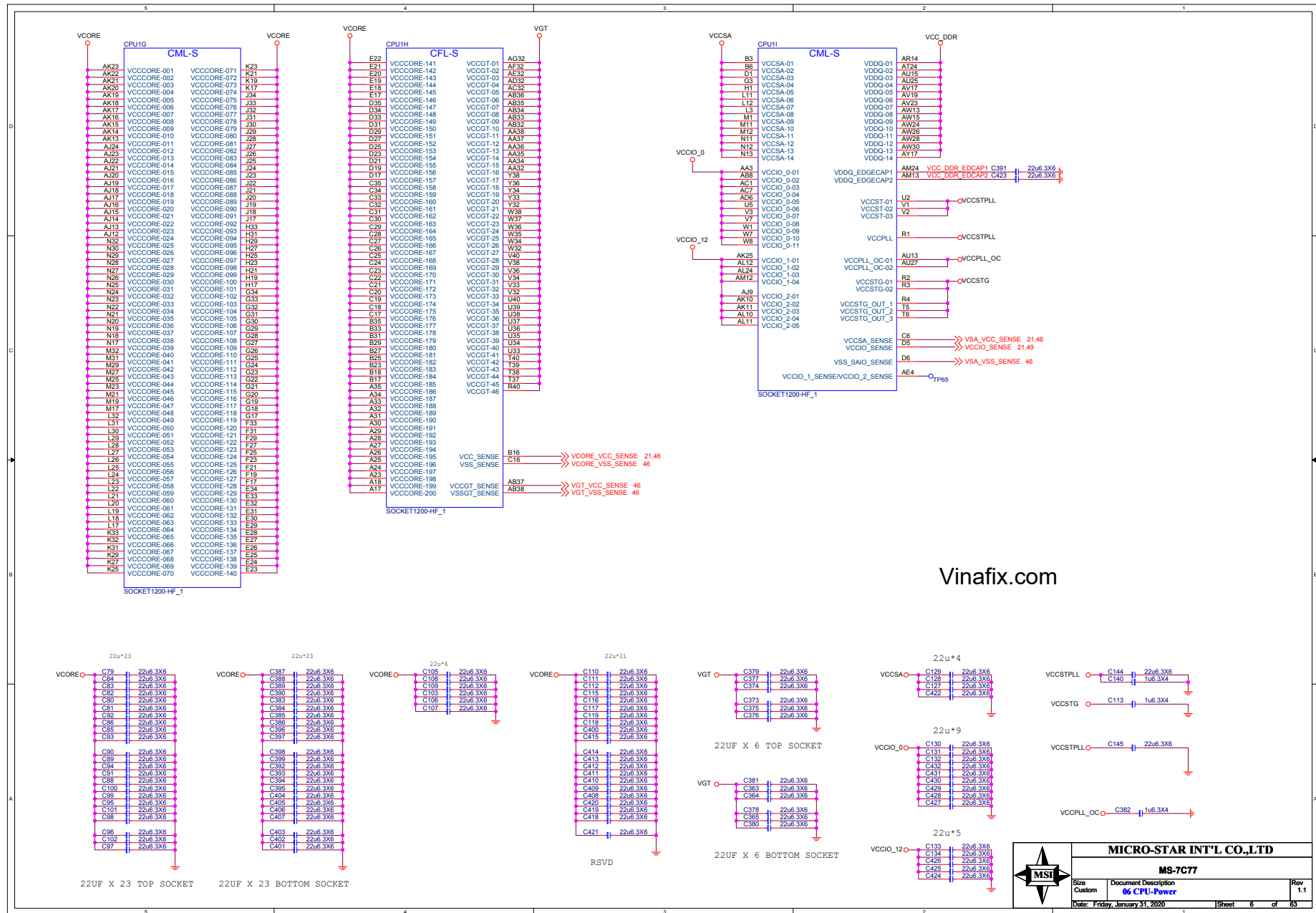




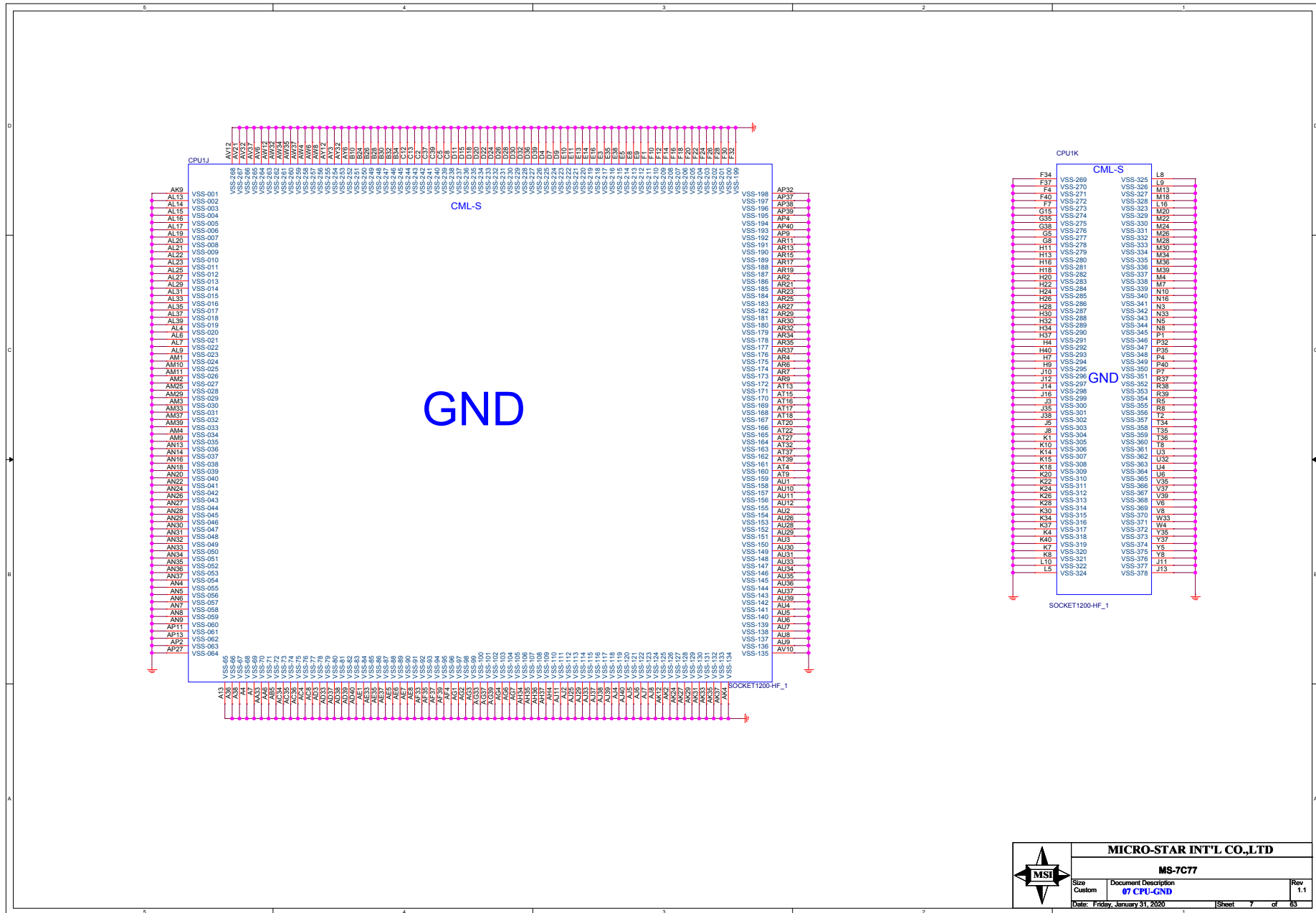
MICRO-STAR INT'L CO.,LTD

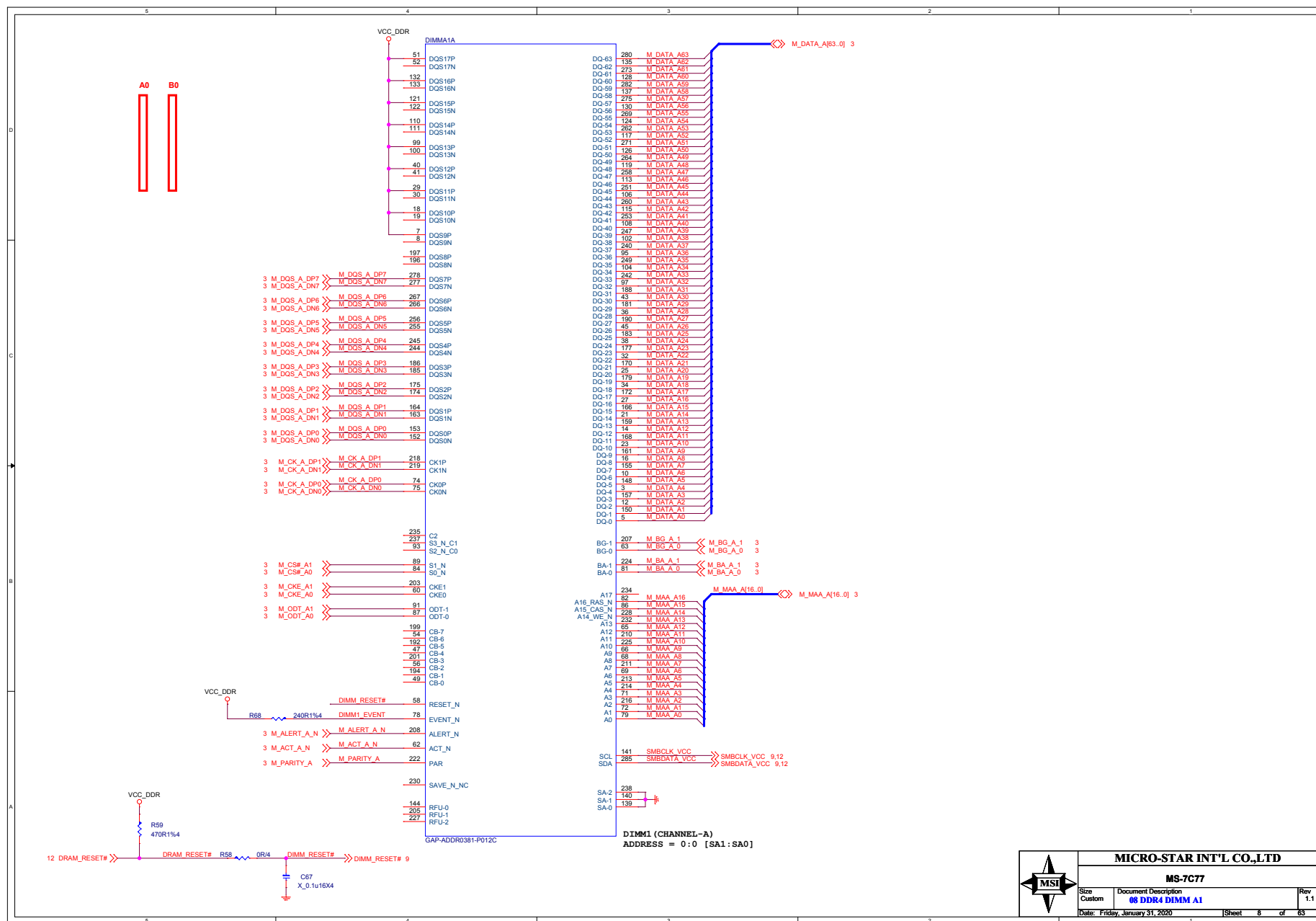
MS-7C77

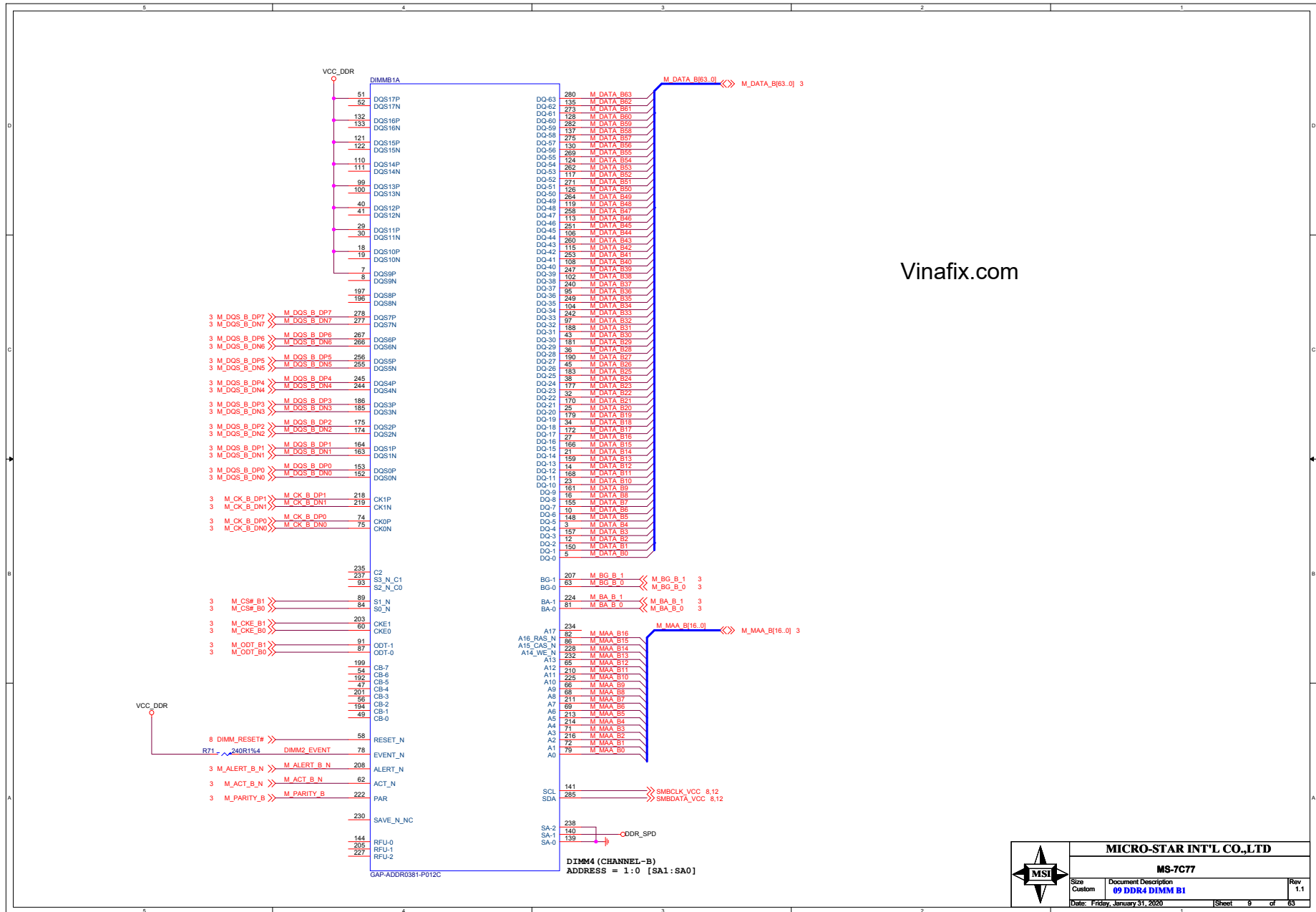
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Document Description: 65 CPU-PEG/Display/RSVD
Date: Friday, January 31, 2020
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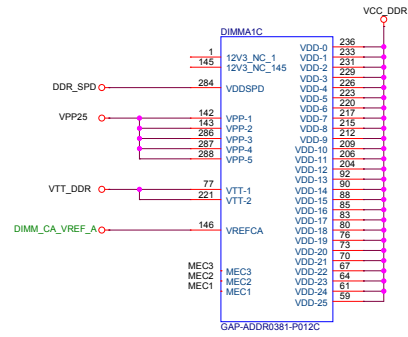


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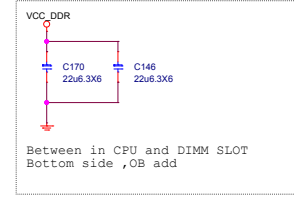
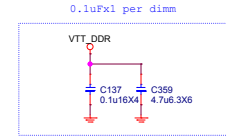
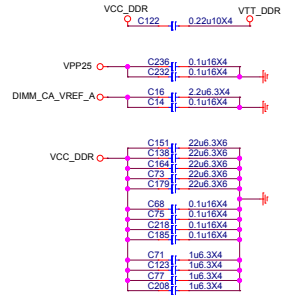
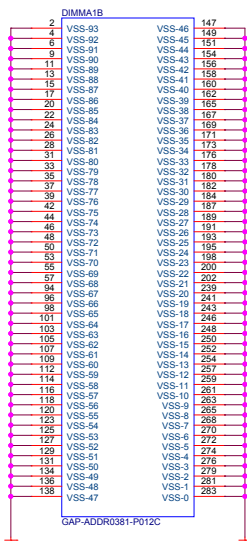
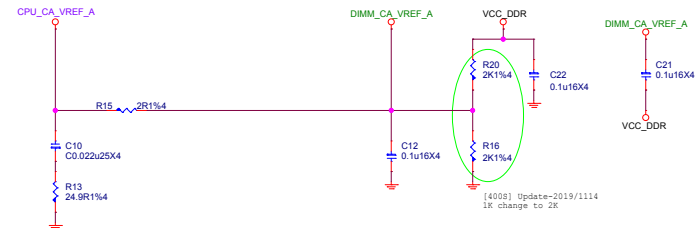
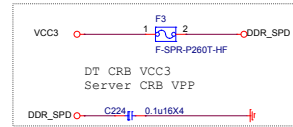
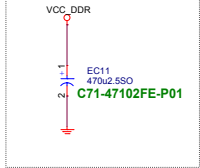


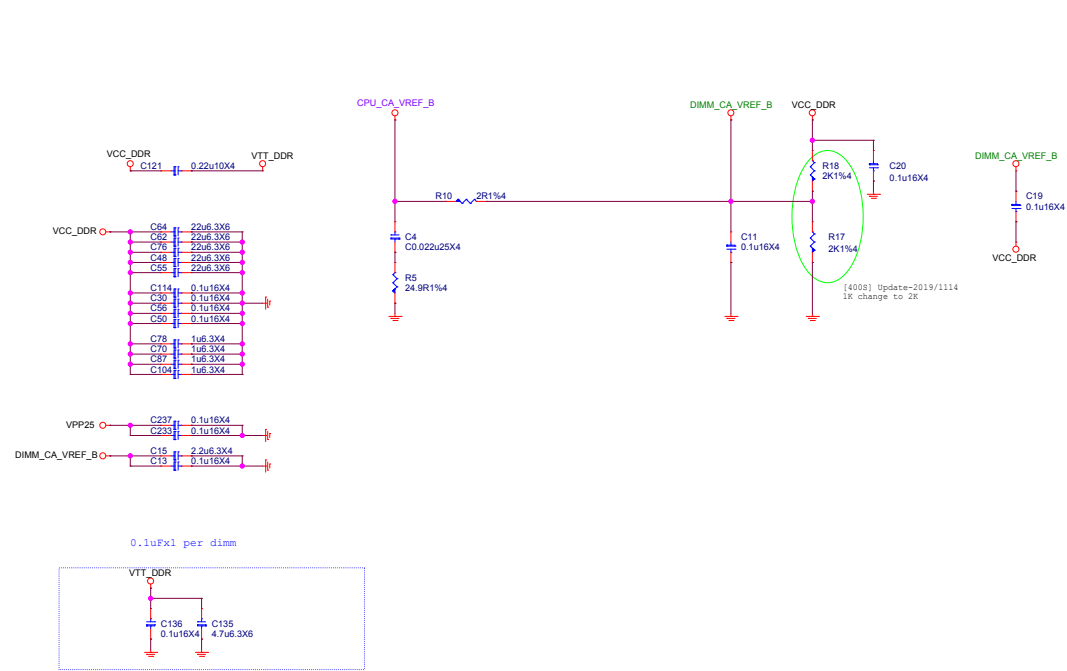
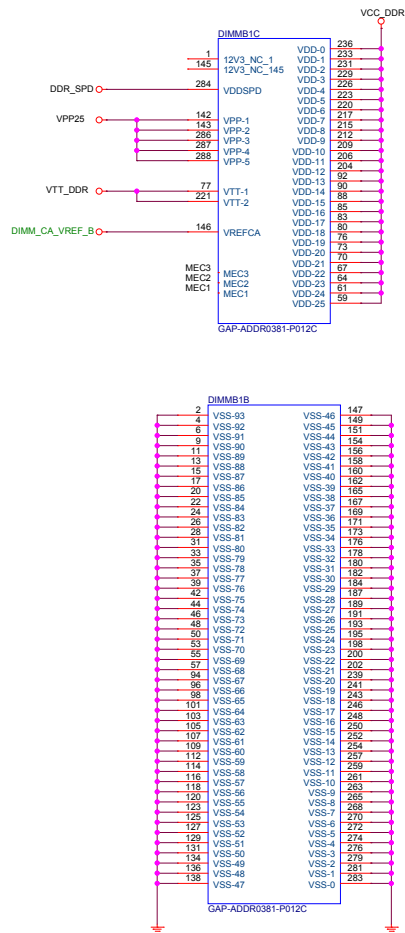


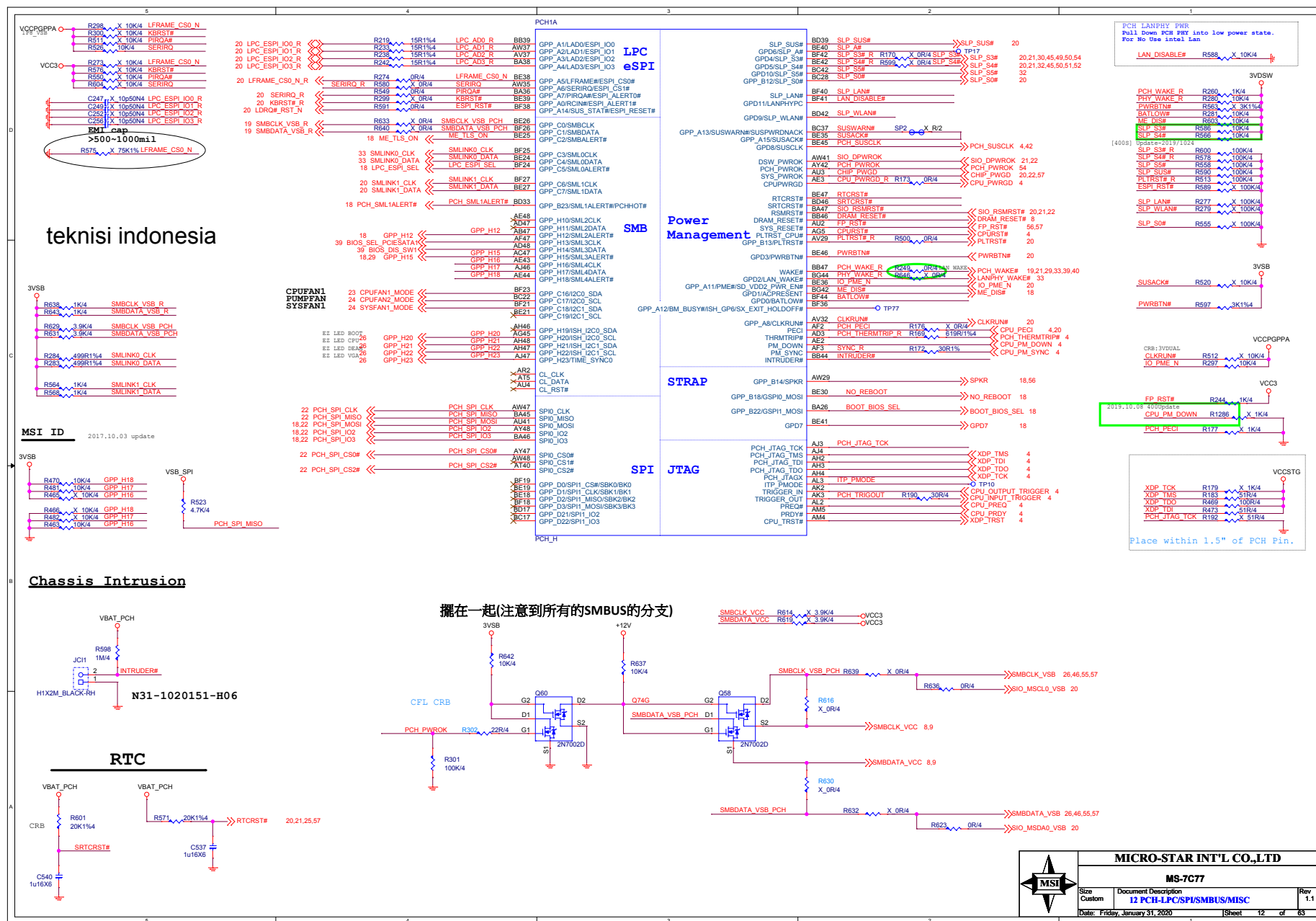


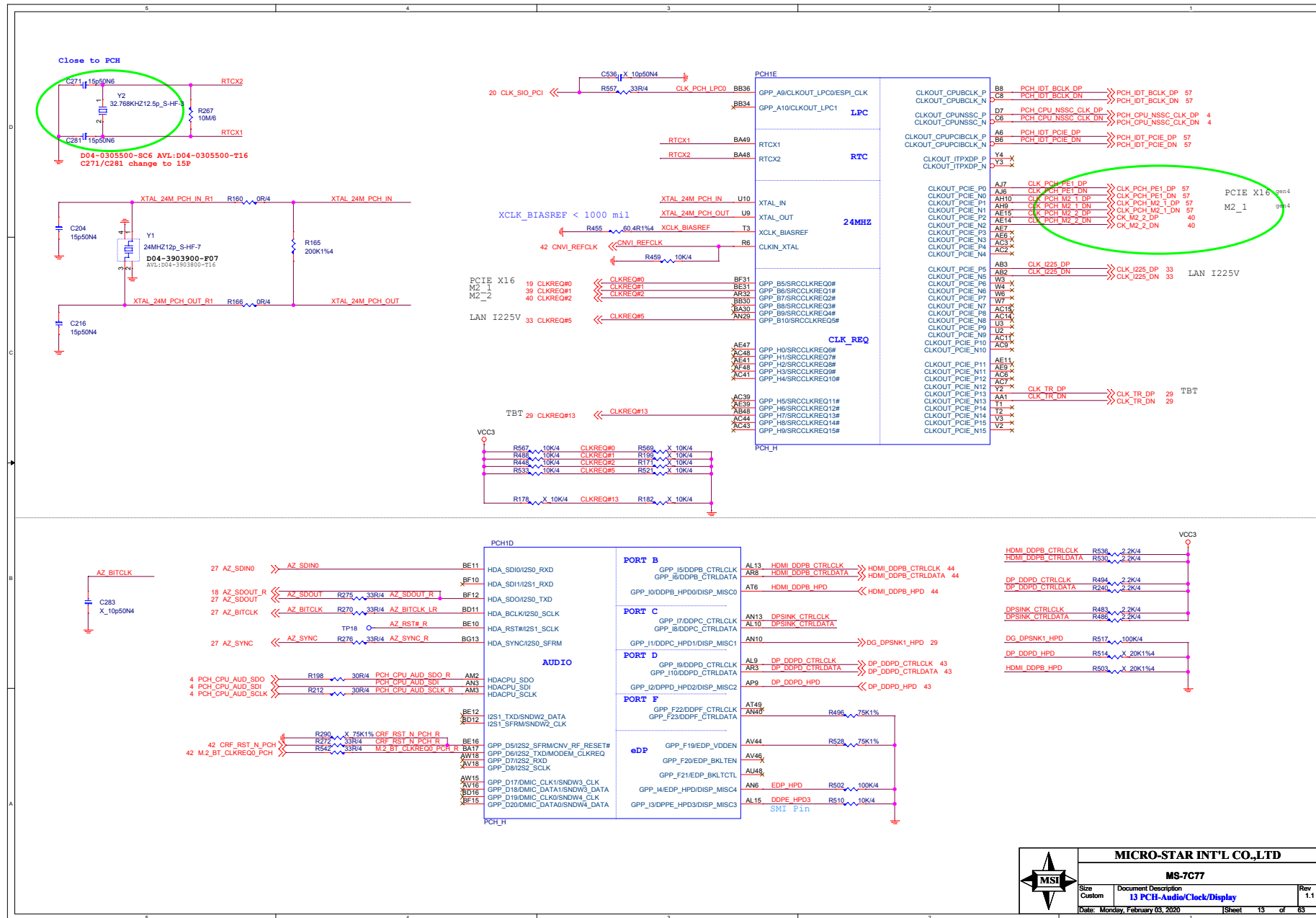


DIMM SLOT PN BY SPEC







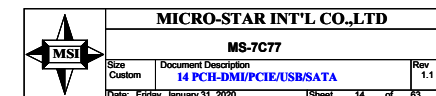


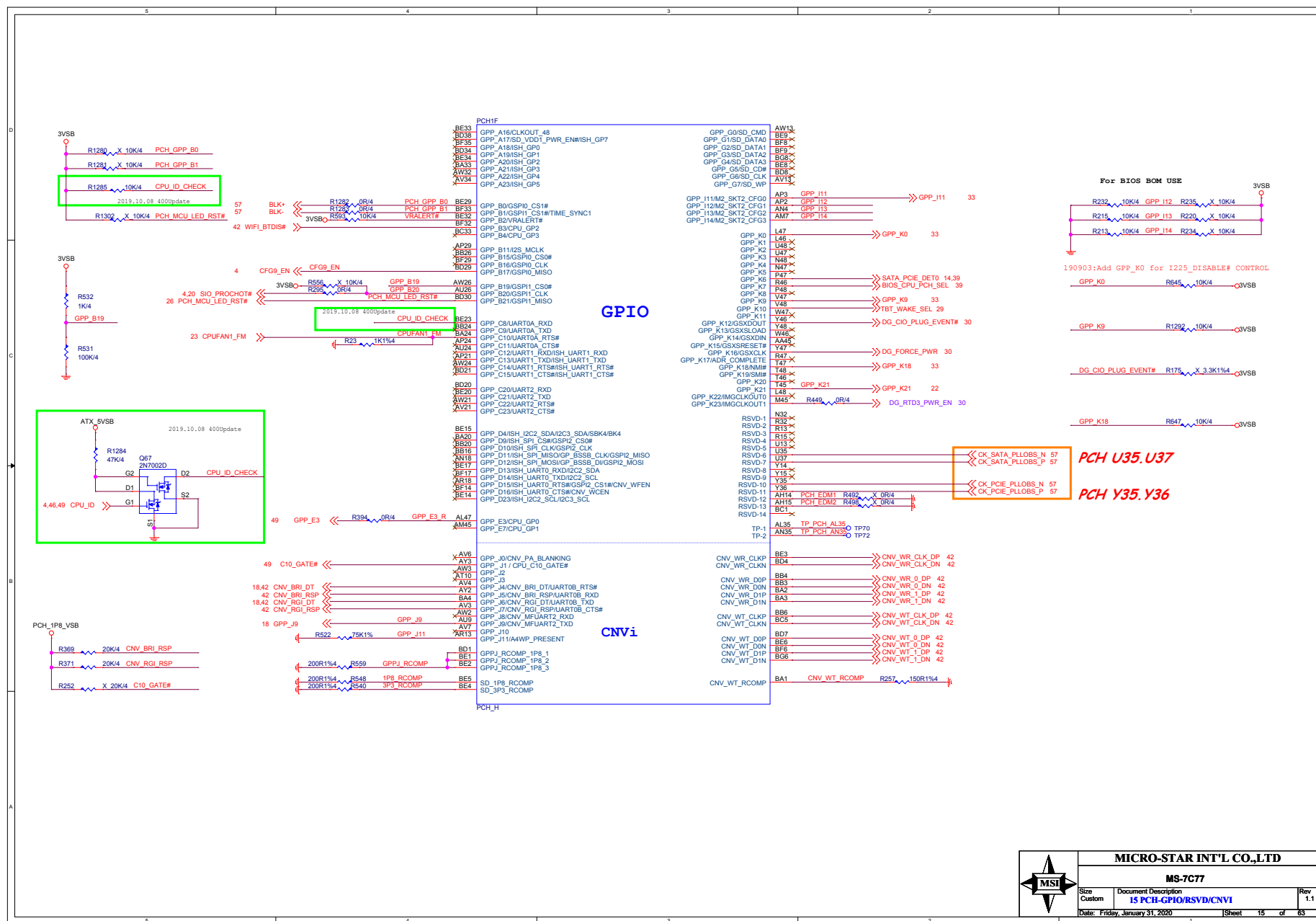
MICRO-STAR INT'L CO.,LTD

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Size Custom	Document Description 13 PCH-Audio/Clock/Display
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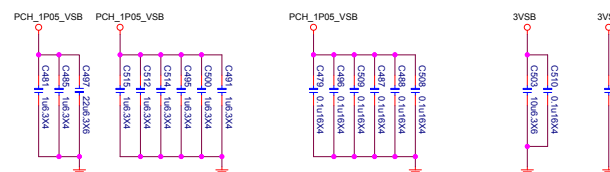
Rev	1.1
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3VSB
Total $2.437A + 0.14A = 2.577A$
PCH 1P8 VSB
Total $0.772A + 0.14A = 0.912A$

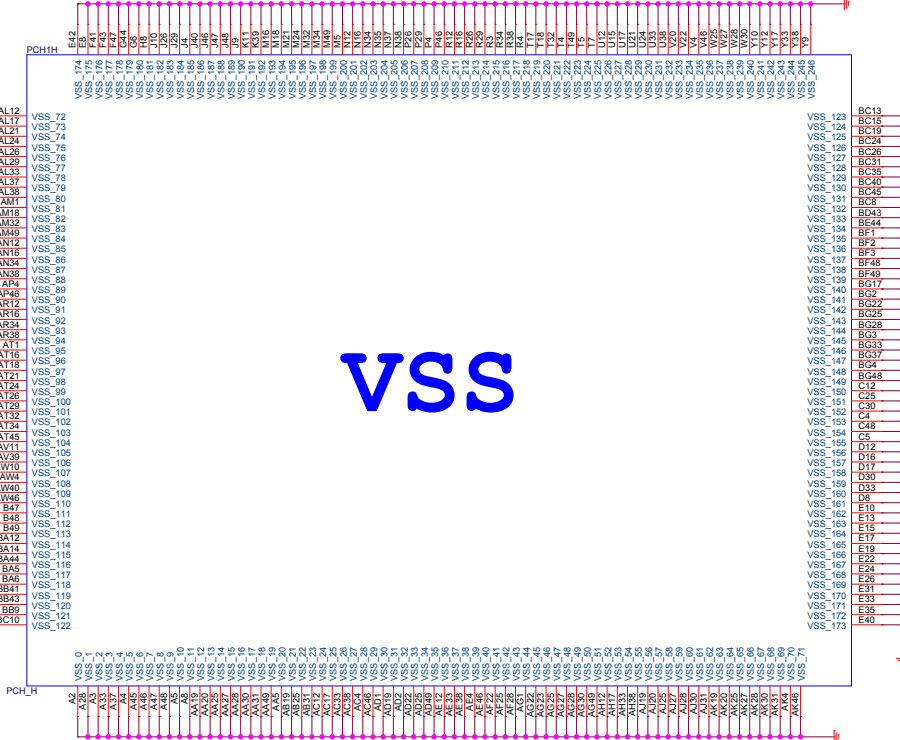
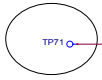
```
Base 7.169A
Base other 1.089A
DMI Gen3 0.5A
PCIE Gen3 1.602A
USB3.1 Gen1 1.062A
SATA3.0 0.668A
```

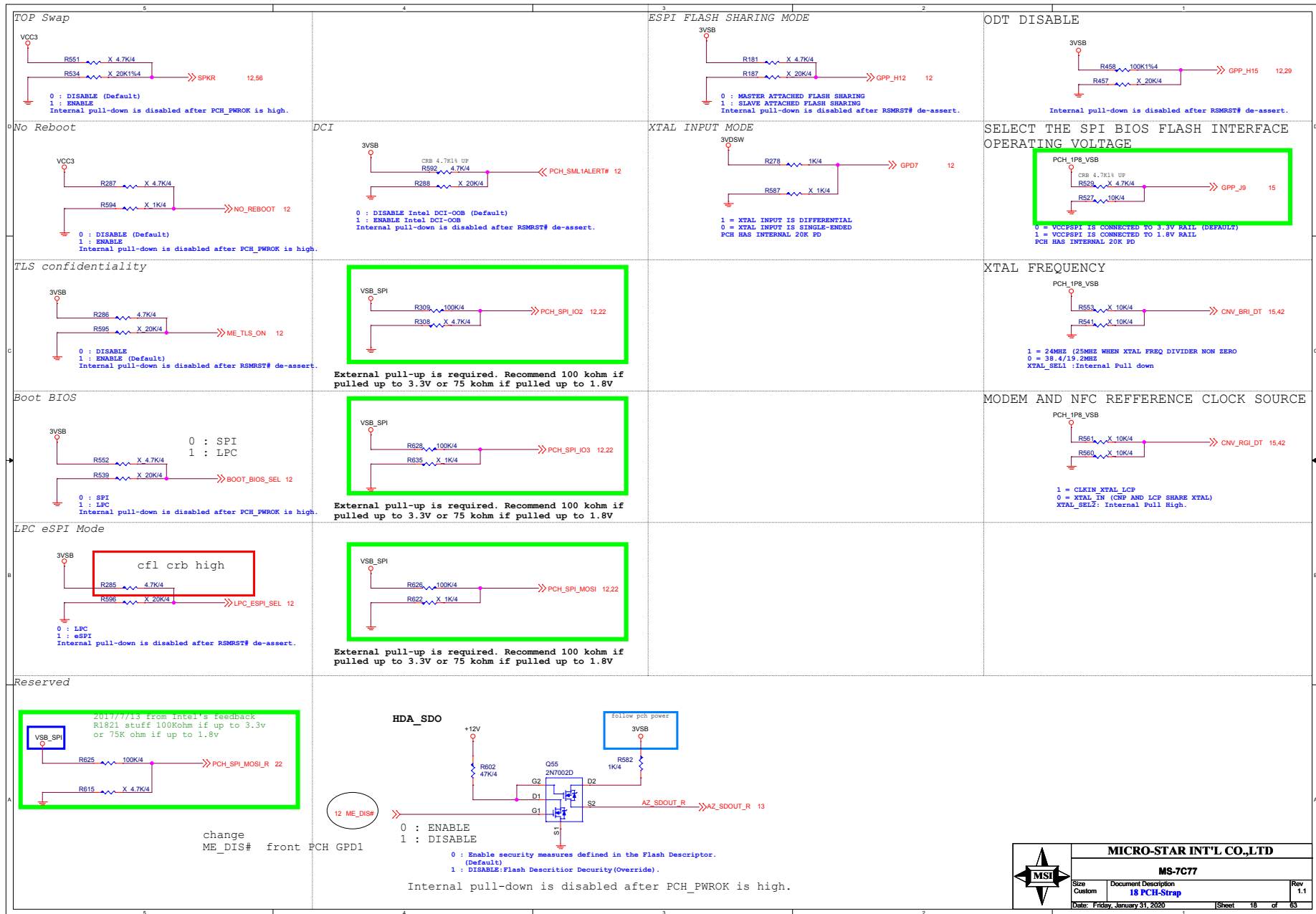


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VSS



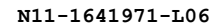


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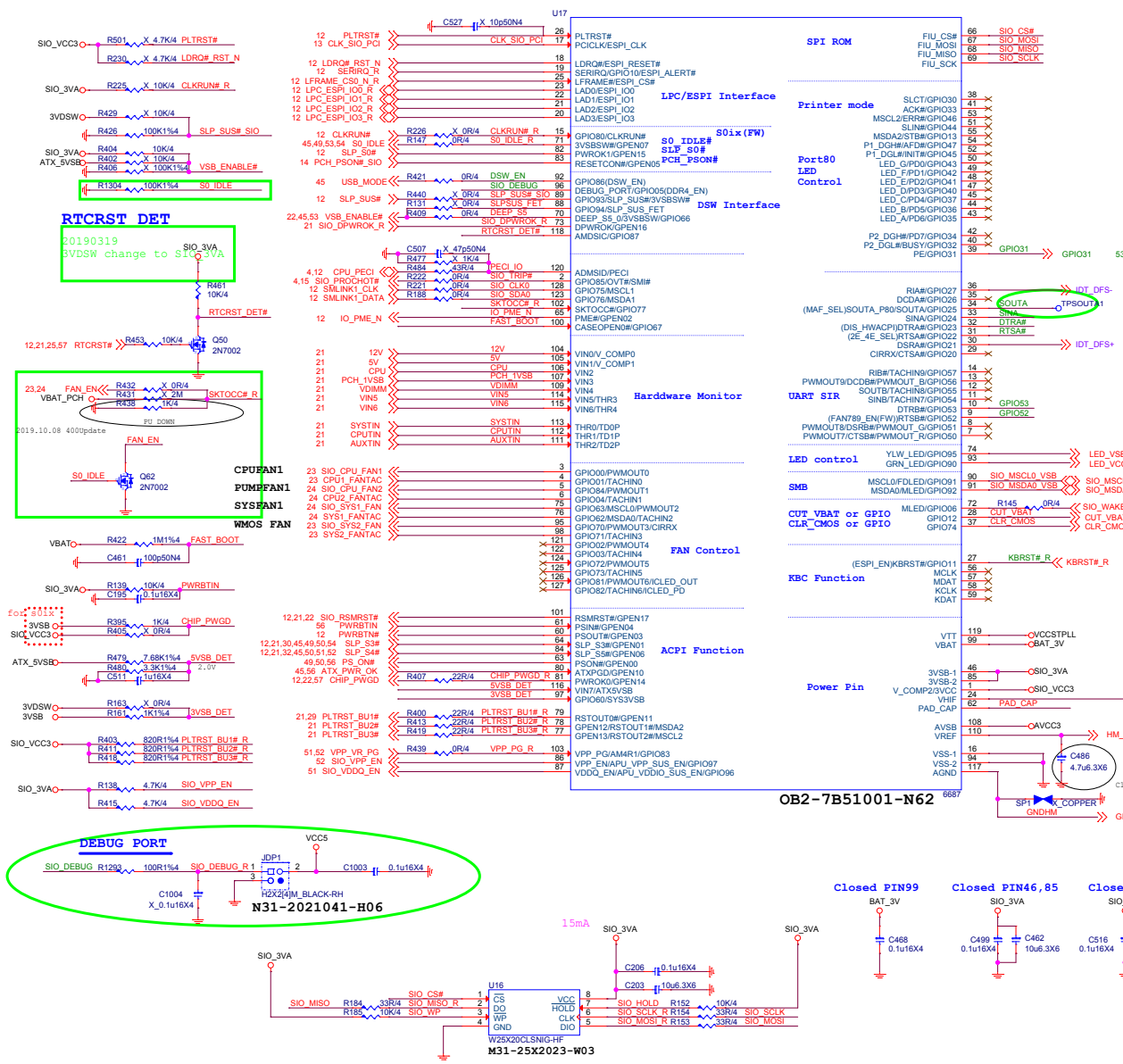
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```
3VSB:0.375A(wake)
3VSB:0.02A (no wake)
VCC3:3A
+12V:5.5A
```

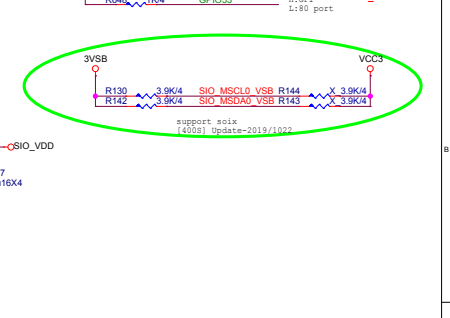
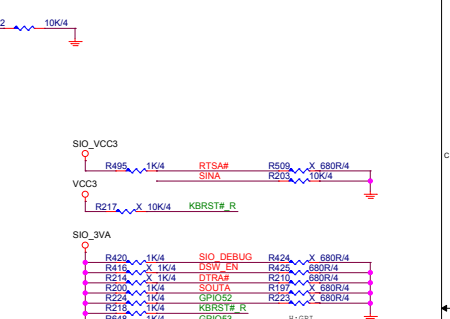



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POWER ON STRAPPING PIN FOR NCT6687

PIN	NAME	Circuit NAME	0	1	Strap Point
31	2E_4E_SEL	RTSA#	I/O ADDRESS 2E	I/O ADDRESS 4E	3VCC
32	DIS_HWACPI	DTRA#	HW ACPI enable	HW ACPI disable	3VA
34	MAF_SEL	SOUTA	MAF enable	MAF disable	3VA
92	DSW_EN	DSW_EN	DSW disable	DSW enable	3VA
96	DDR4_EN	SIO_DEBUG	DDR4 control disable	DDR4 control enable	3VA
9	FAN789_EN (FW setting)	GPI052	FAN789 disable	FAN789 enable	3VA
PIN	NAME	Circuit NAME	VCC3	3VA	Strap Point
27	ESPI_EN	KBRST#	LPC	ESPI	VCC3 or 3VA





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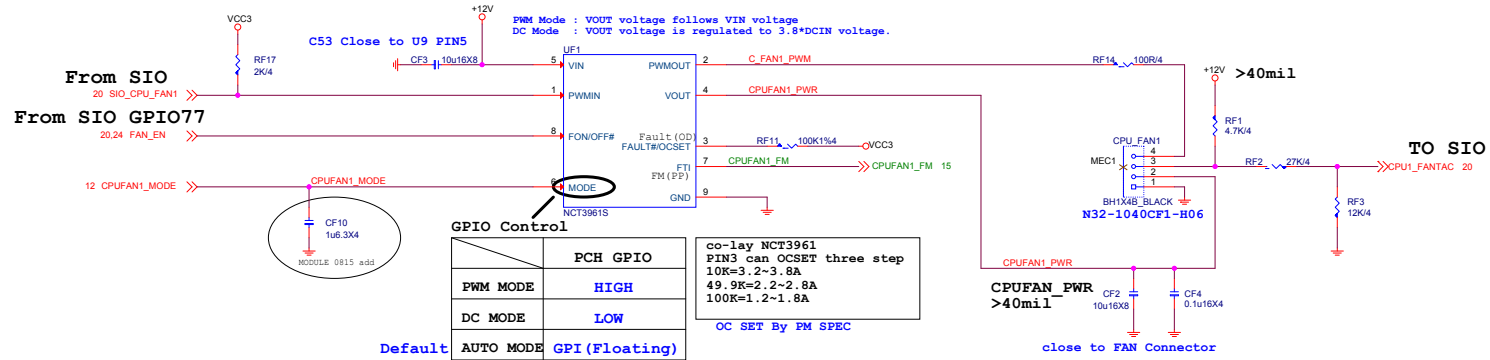
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TYPE N : 4 PIN CPU FAN USE NCT3961S USE PCH GPIO CONTROL FAN MODE

1.Mode GPIO BIOS can swtich PWM/DC MODE

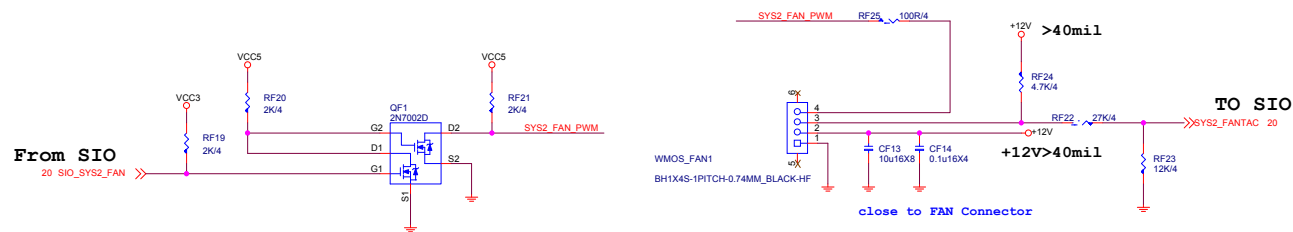
2.FM:BIOS can read FAN PWM/DC MODE

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2019/11/11 add real IO fan

TYPE O : 4 PIN FAN ONLY PWM MODE



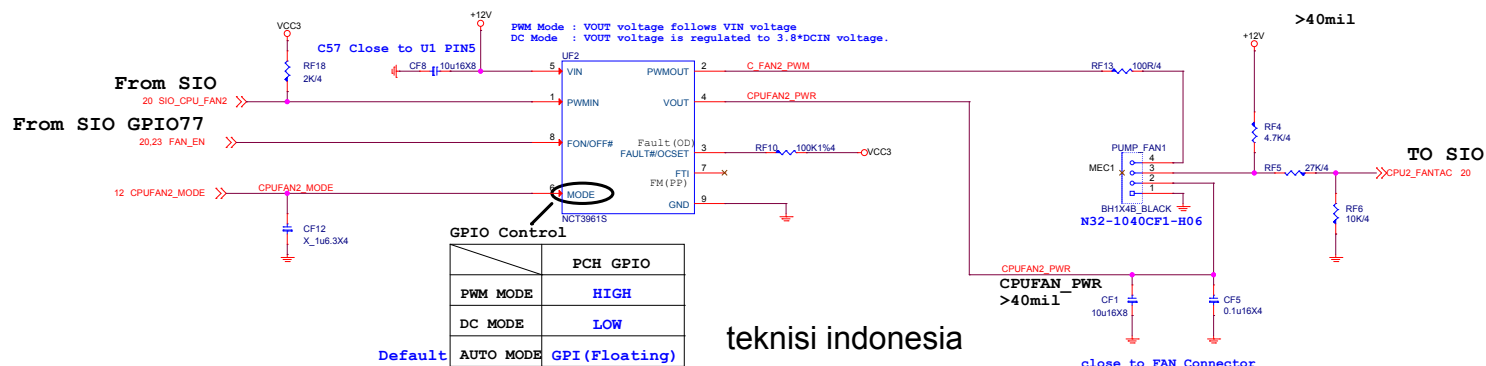
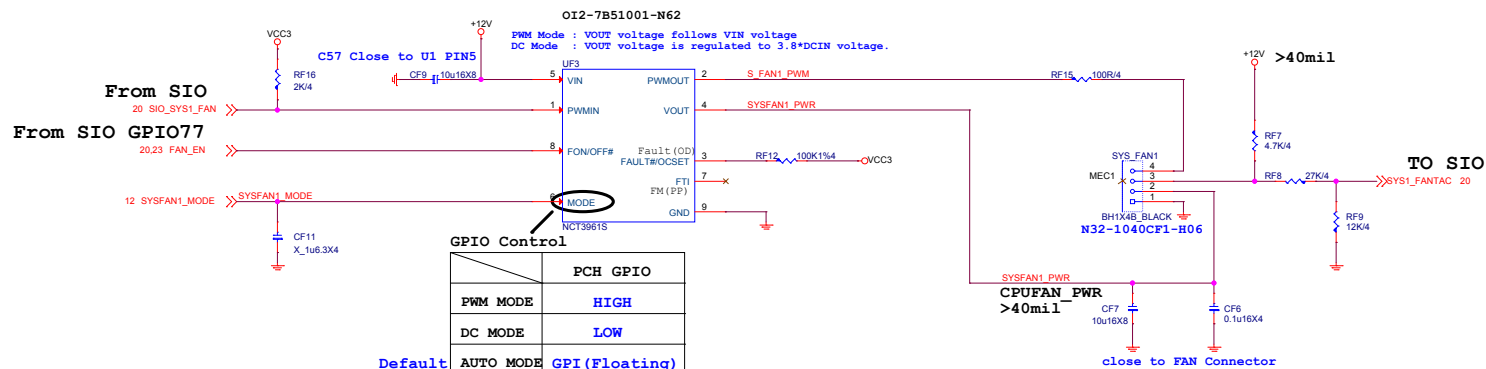
MICRO-STAR INT'L CO.,LTD

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Size Custom	Document Description 23 FAN CPUFAN1 N	Rev 1.1
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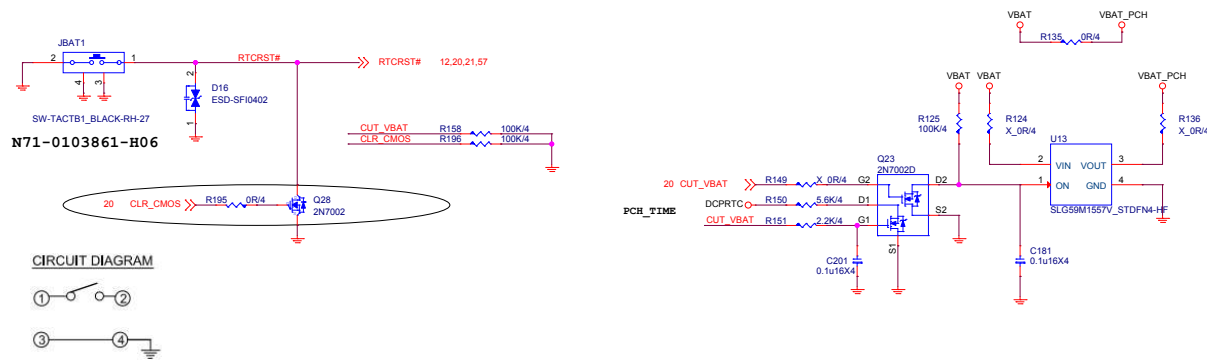
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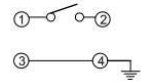


teknisi indonesia

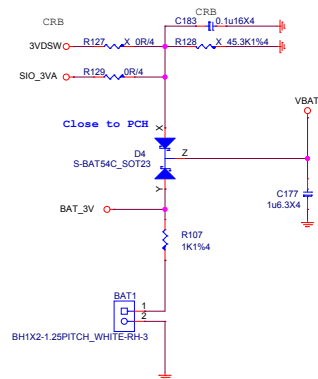
CLR COMS



CIRCUIT DIAGRAM



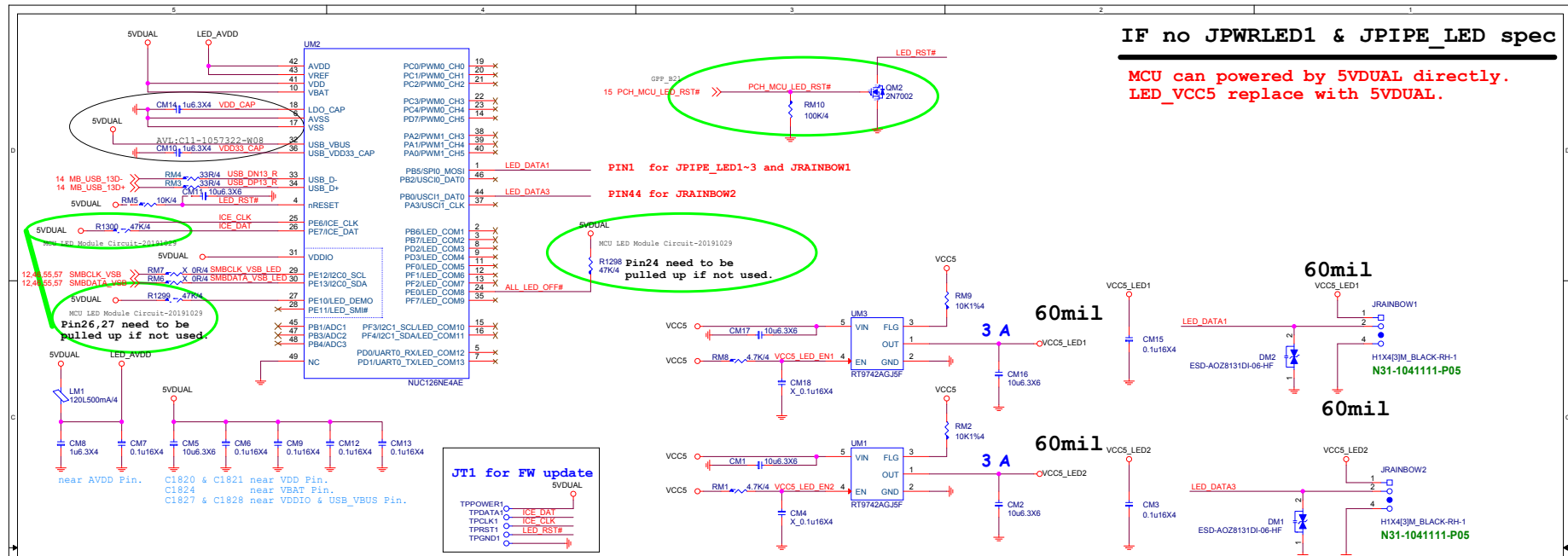
VBAT



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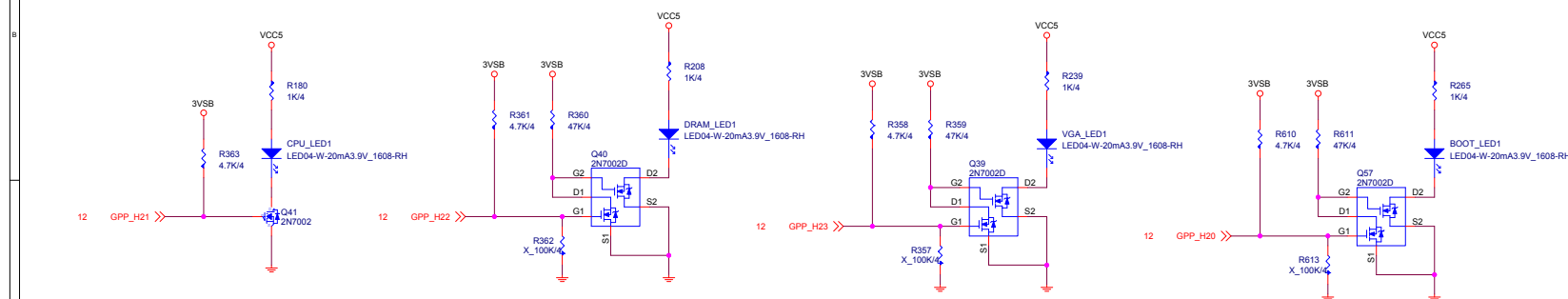
MS-7C70

Size Custom	Document Description 25 VBAT/CLR COMS	Rev 1.1
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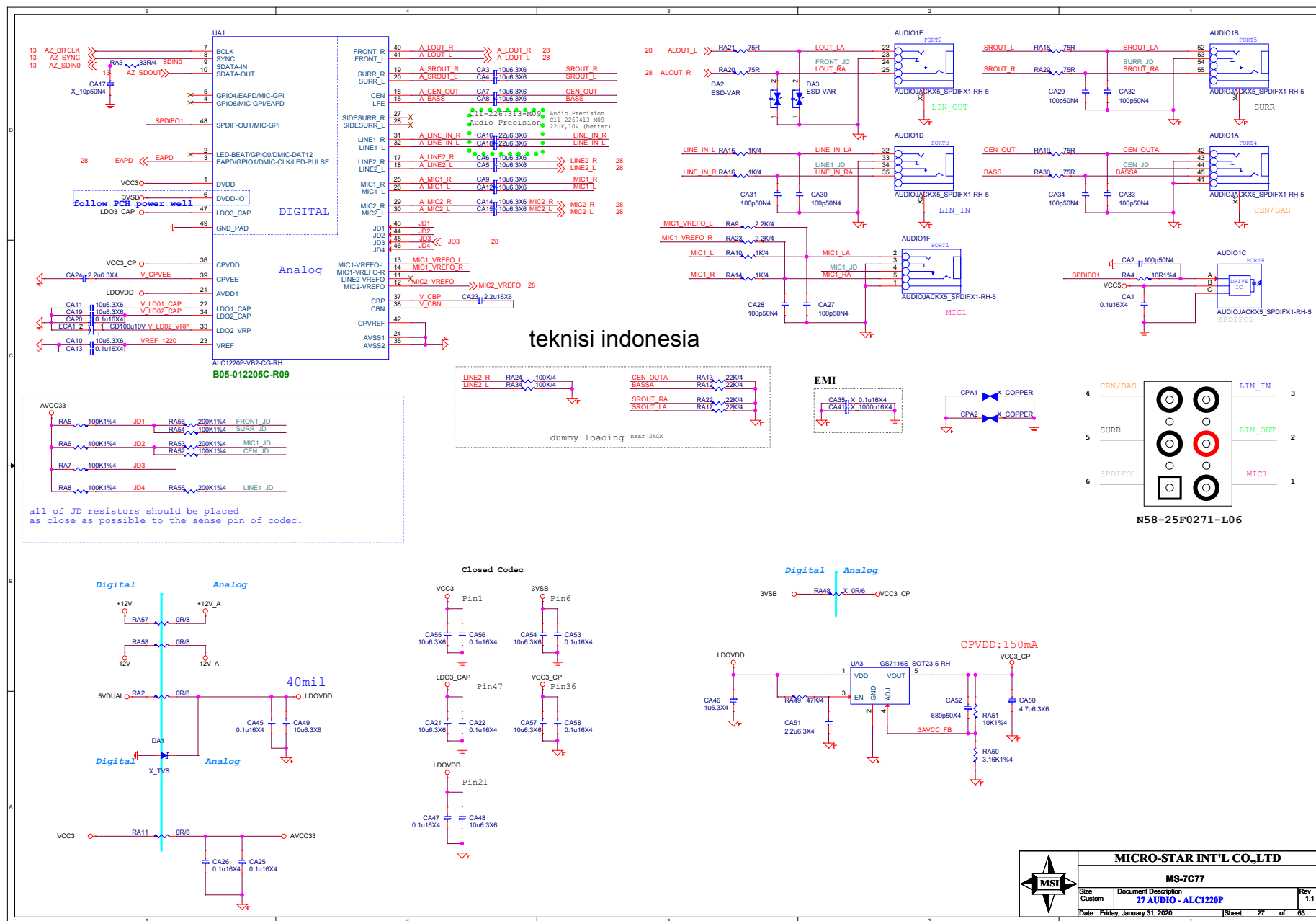


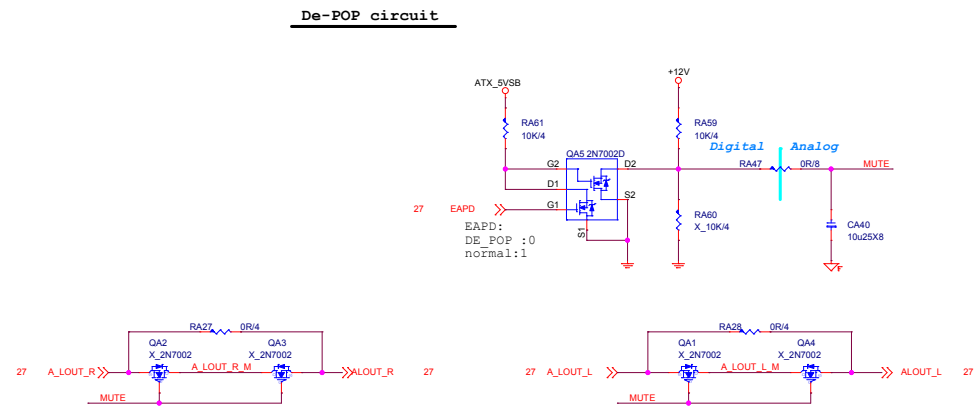
DEBUG LED

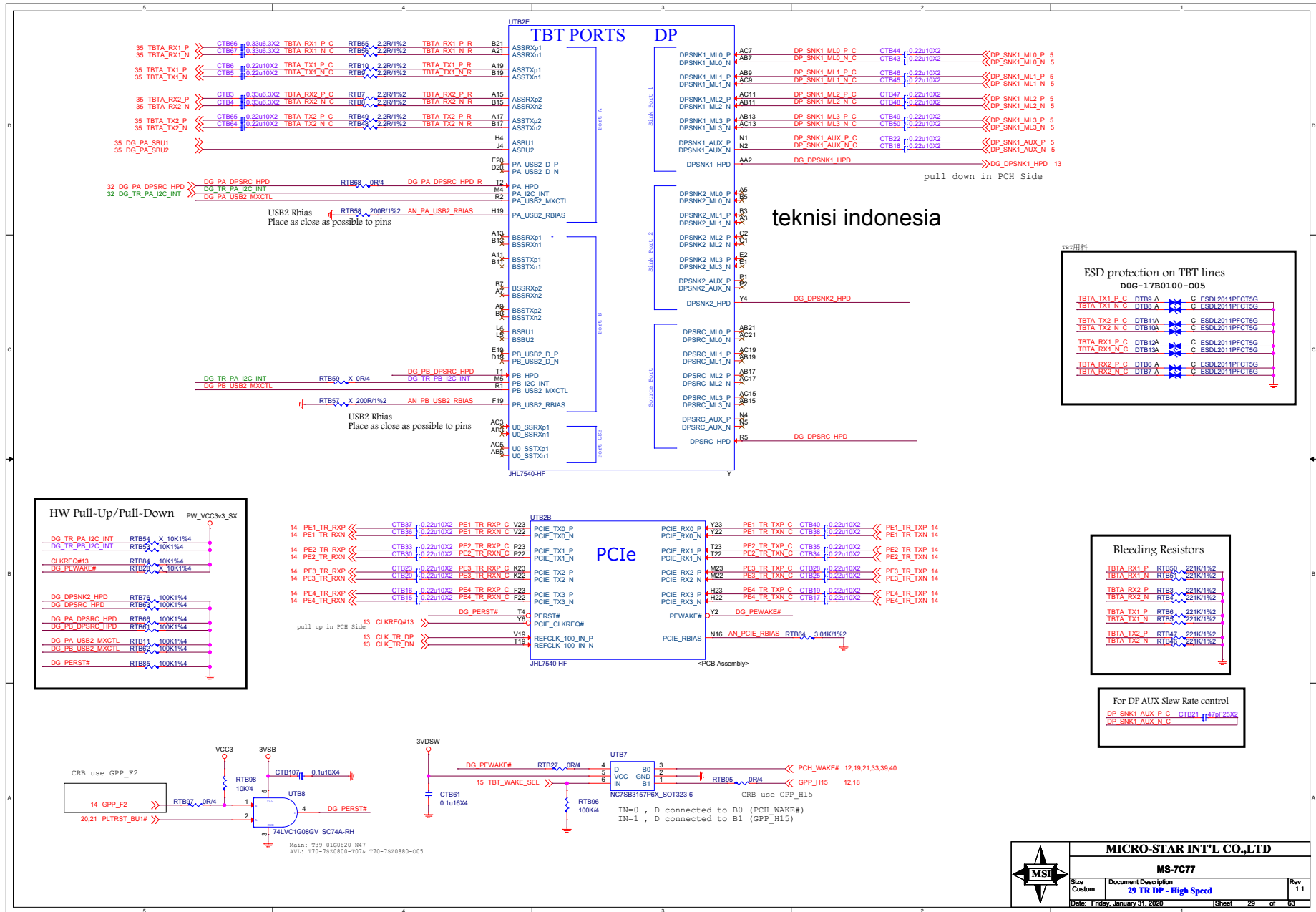
Vinafix.com

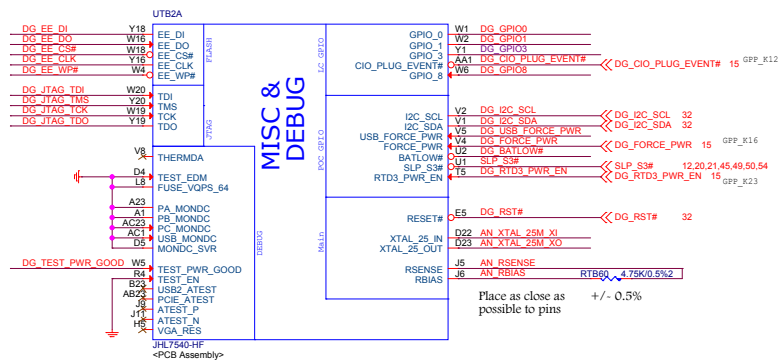


LED	PCH_GP20	PCH_GP21	PCH_GP22	PCH_GP23
	NATIVE PULL HIGH	GPO PULL HIGH	GPO PULL HIGH	NATIVE PULL HIGH
	NATIVE LOW	GPO LOW (default LOW)	GPO LOW (default LOW)	GPO LOW (default LOW)

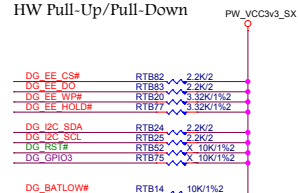




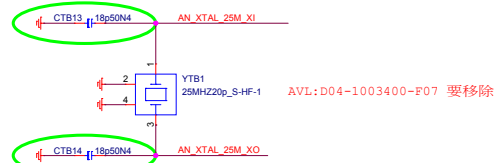
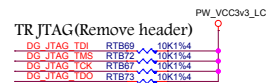




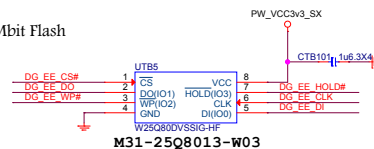
HW Pull-Up/Pull-Down



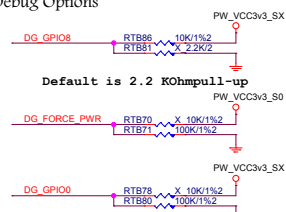
TR JTAG(Remove header)

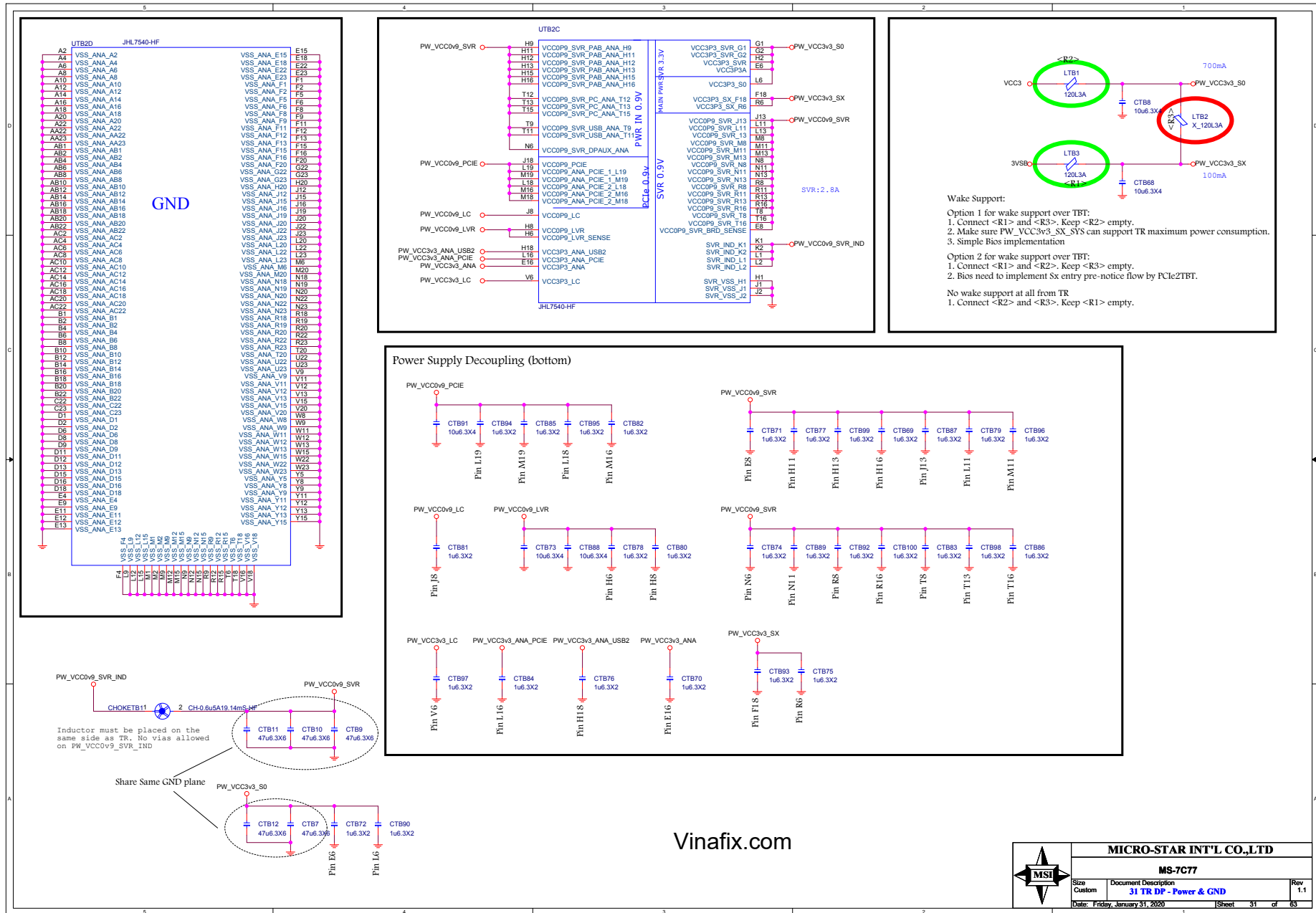


8Mbit Flash

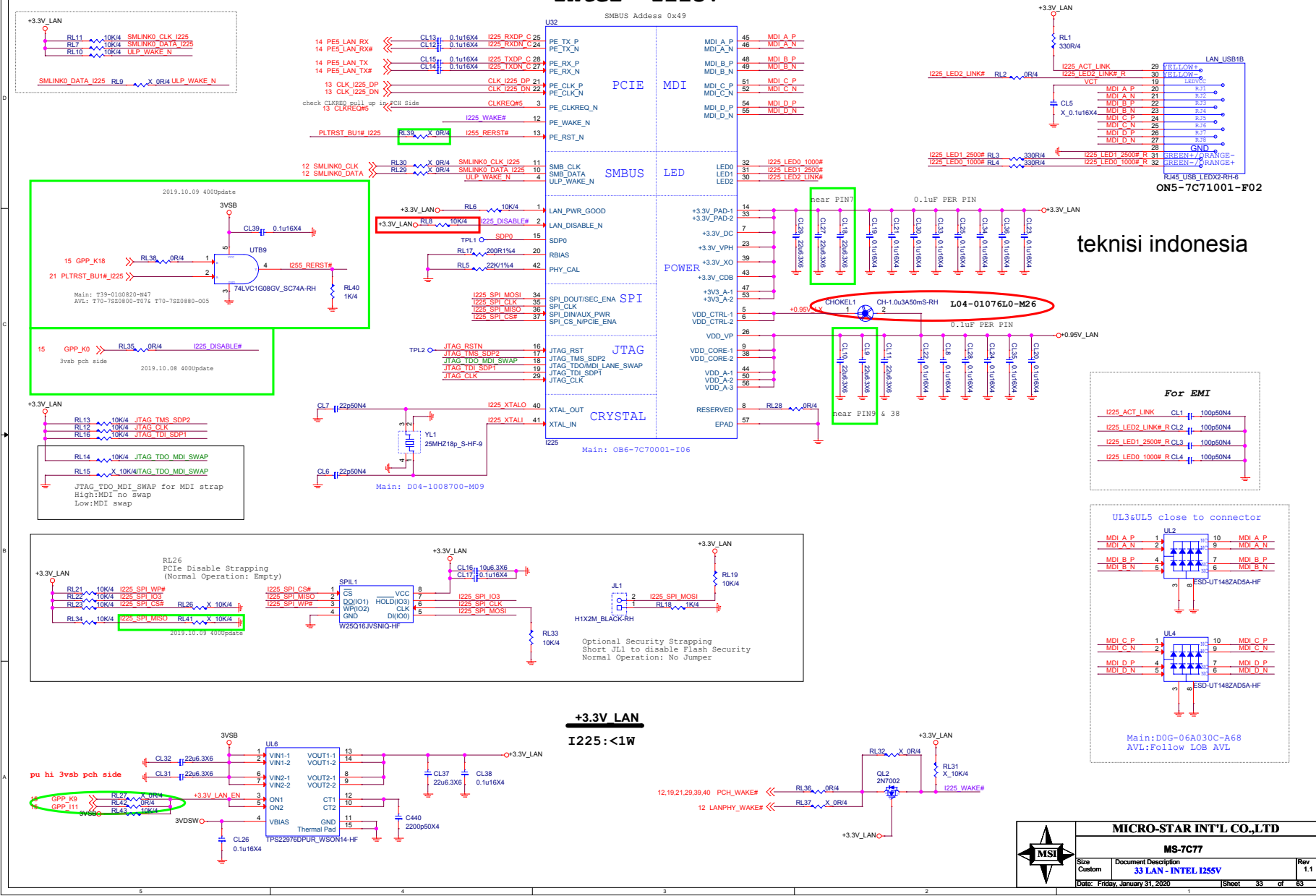


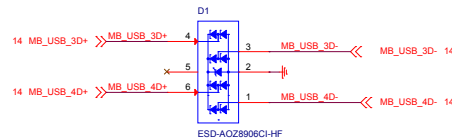
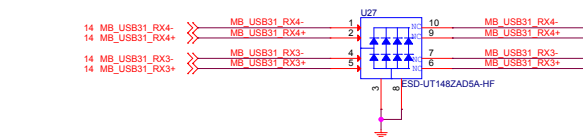
Debug Options



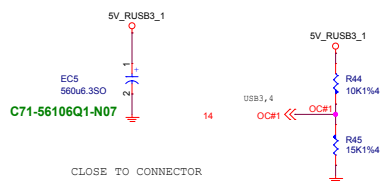
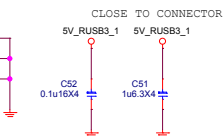
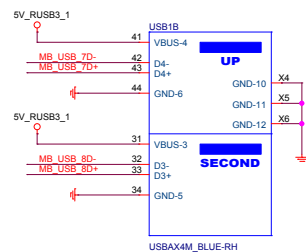
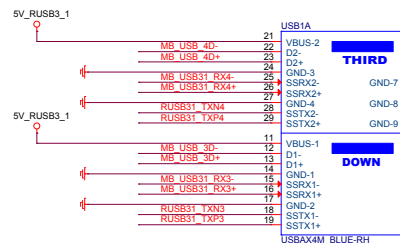
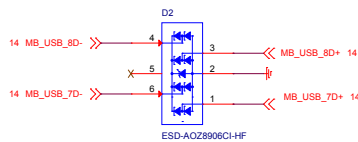


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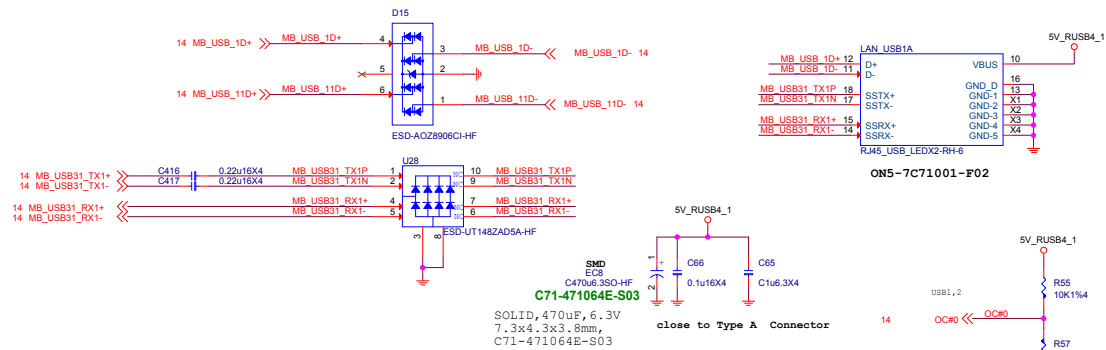
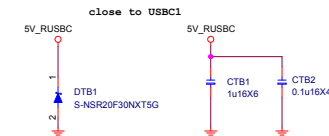
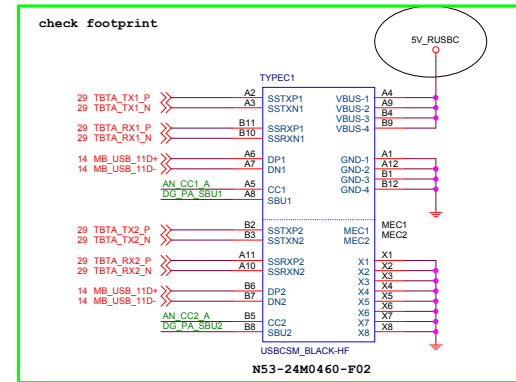
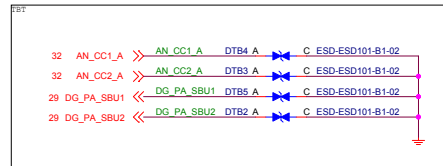
ESD Protection
NEAR CONNECTOR
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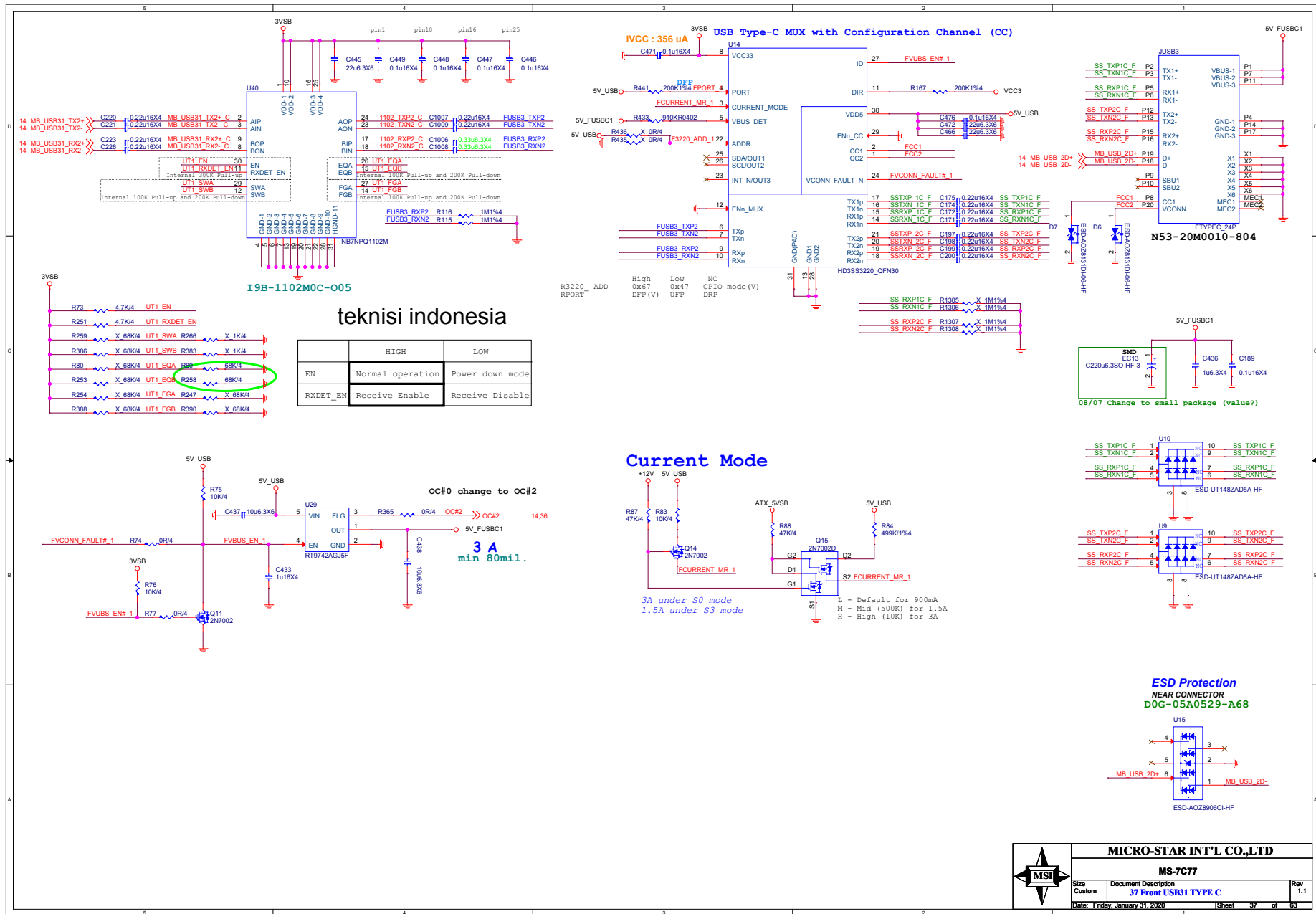
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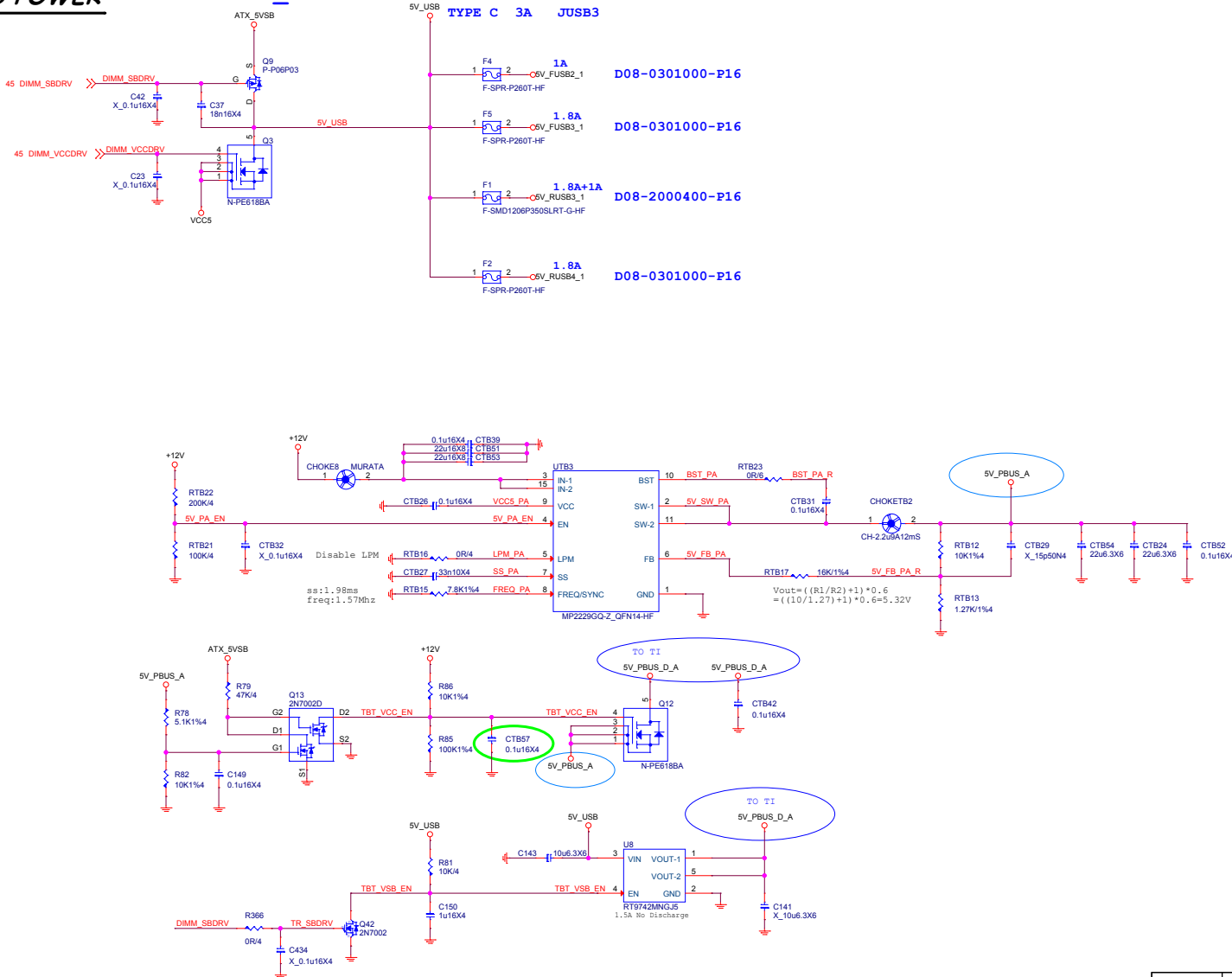
Vinafix.com

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USB POWER

5V USB:10.4A



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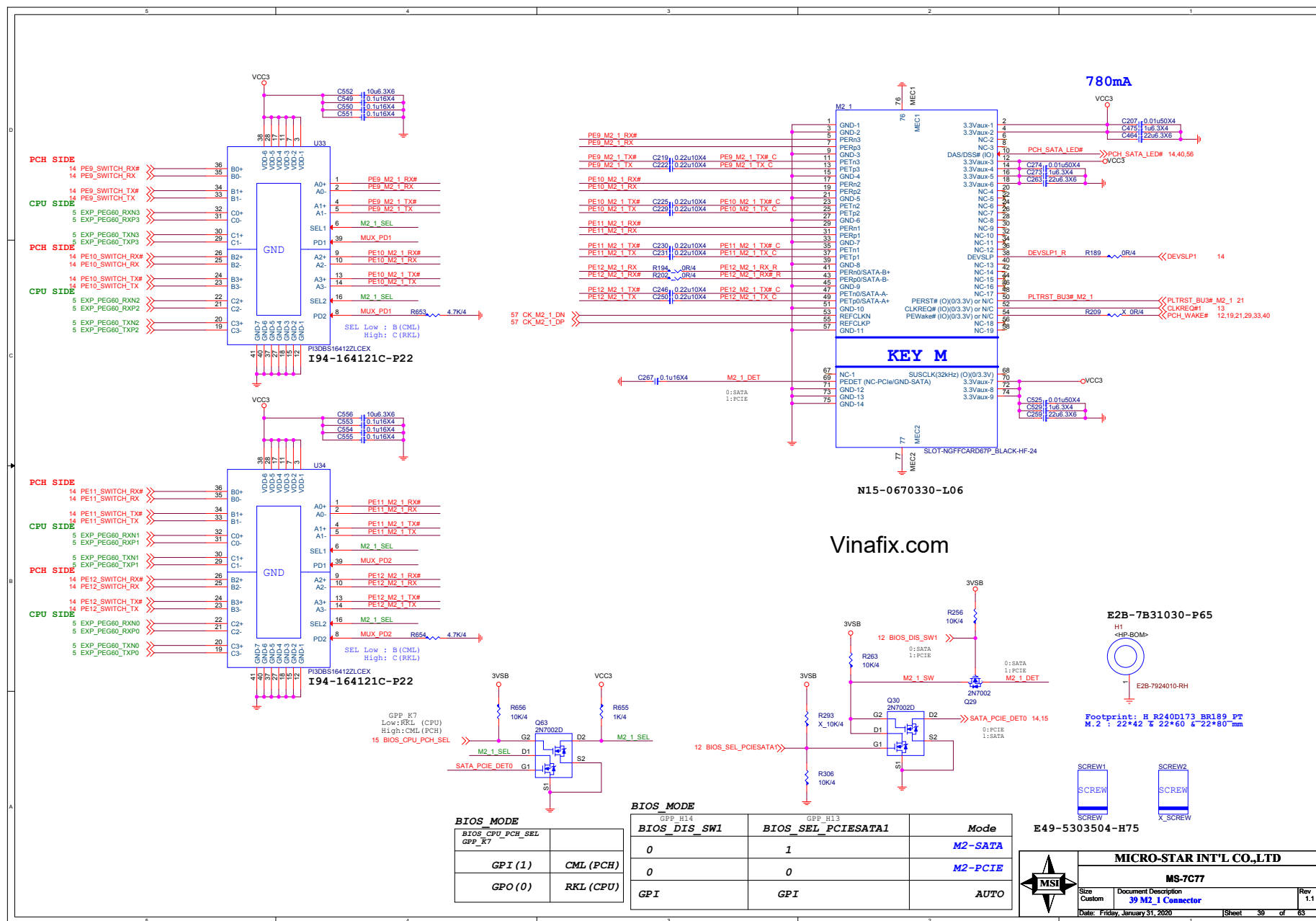
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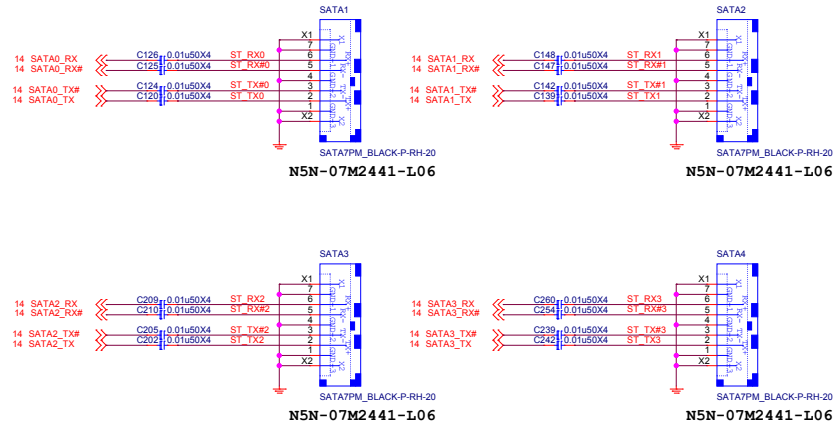
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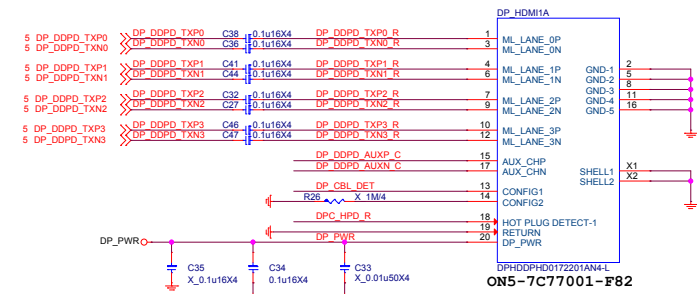
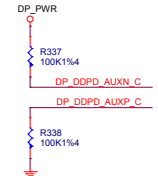
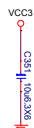
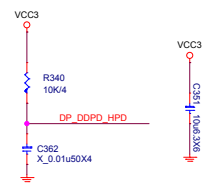
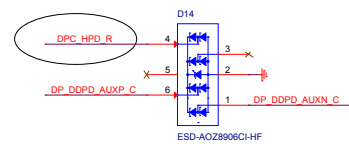
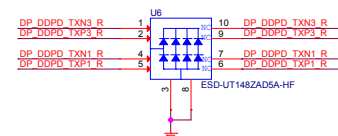
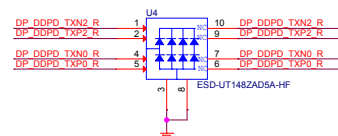
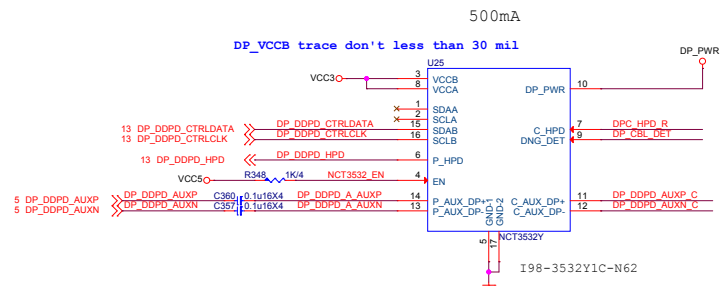
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SATA GEN3

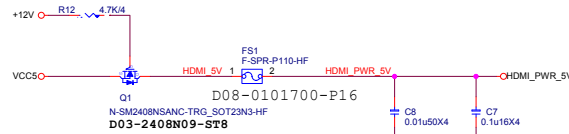
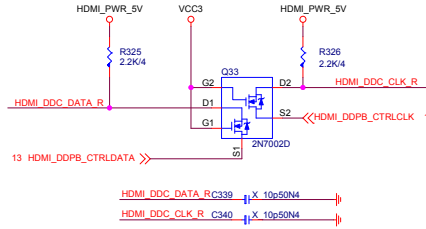
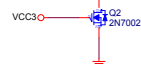
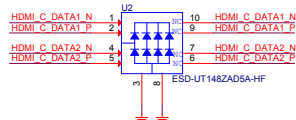
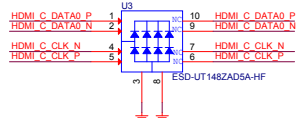
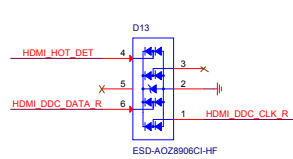




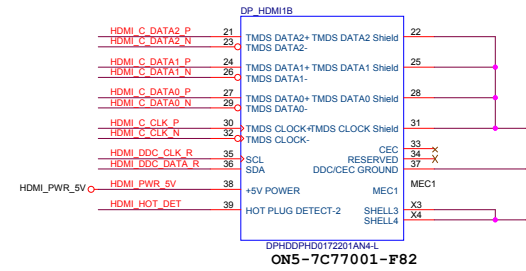
HDMI, DVI : 1920x1200 at 60 Hz (16:10 WUXGA)

5 HDMI_DDPB_CLK_P << C17 0.1u16X4 HDMI_C_CLK_P R19 470R/4 HDMI_MOS_DATA
 5 HDMI_DDPB_CLK_N << C18 0.1u16X4 HDMI_C_CLK_N R21 470R/4
 5 HDMI_DDPB_TX2_P << C3 0.1u16X4 HDMI_C_DATA2_P R1 470R/4
 5 HDMI_DDPB_TX2_N << C4 0.1u16X4 HDMI_C_DATA2_N R4 470R/4
 5 HDMI_DDPB_TX1_P << C5 0.1u16X4 HDMI_C_DATA1_P R7 470R/4
 5 HDMI_DDPB_TX1_N << C6 0.1u16X4 HDMI_C_DATA1_N R14 470R/4
 5 HDMI_DDPB_TX0_P << C26 0.1u16X4 HDMI_C_DATA0_P R27 470R/4
 5 HDMI_DDPB_TX0_N << C25 0.1u16X4 HDMI_C_DATA0_N R24 470R/4

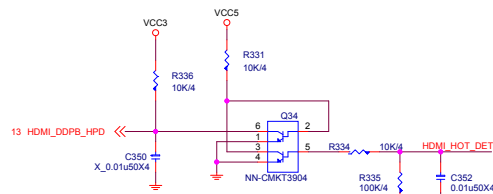
HDMI_MOS_DATA trace length < 500mil
 Other platform please check your design guide length



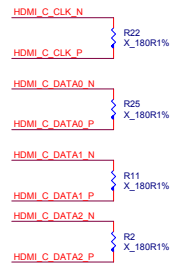
Vinafix.com



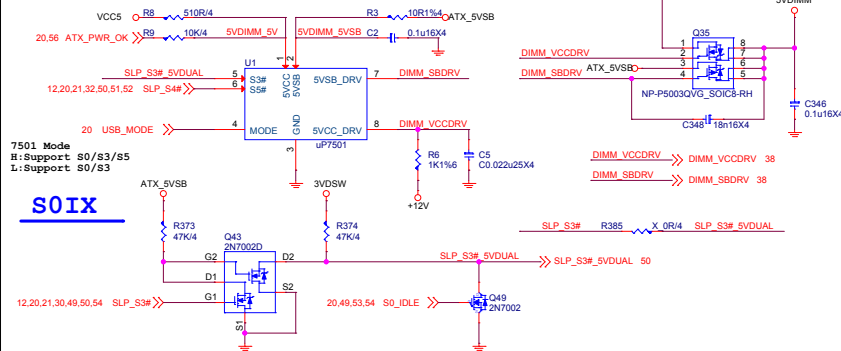
HPD



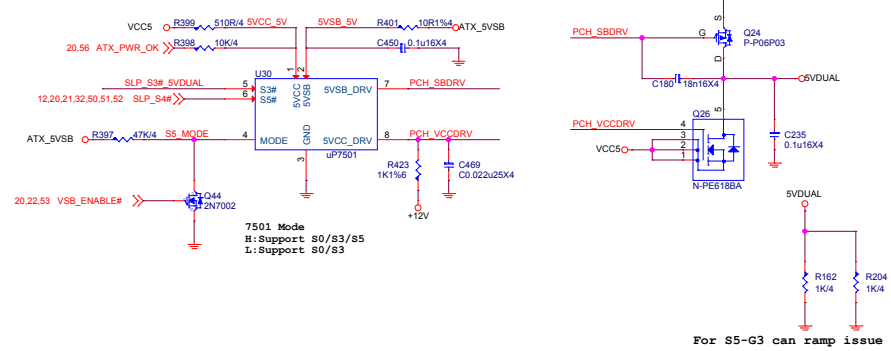
For EMI



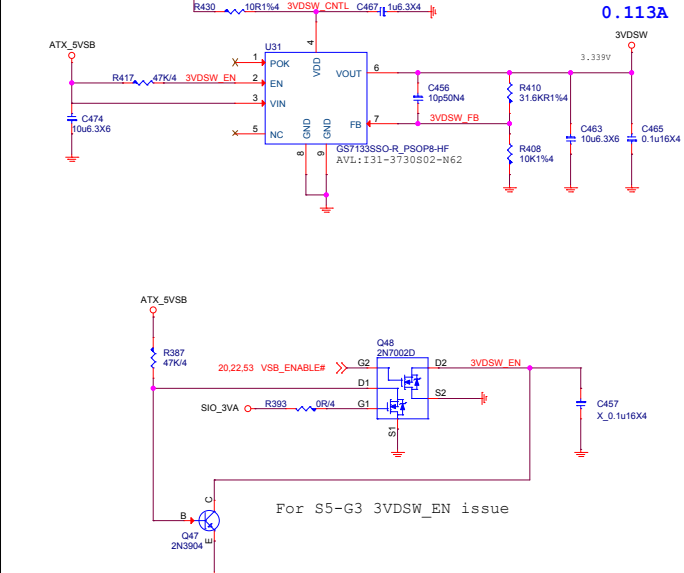
5VDIMM& USB POWER



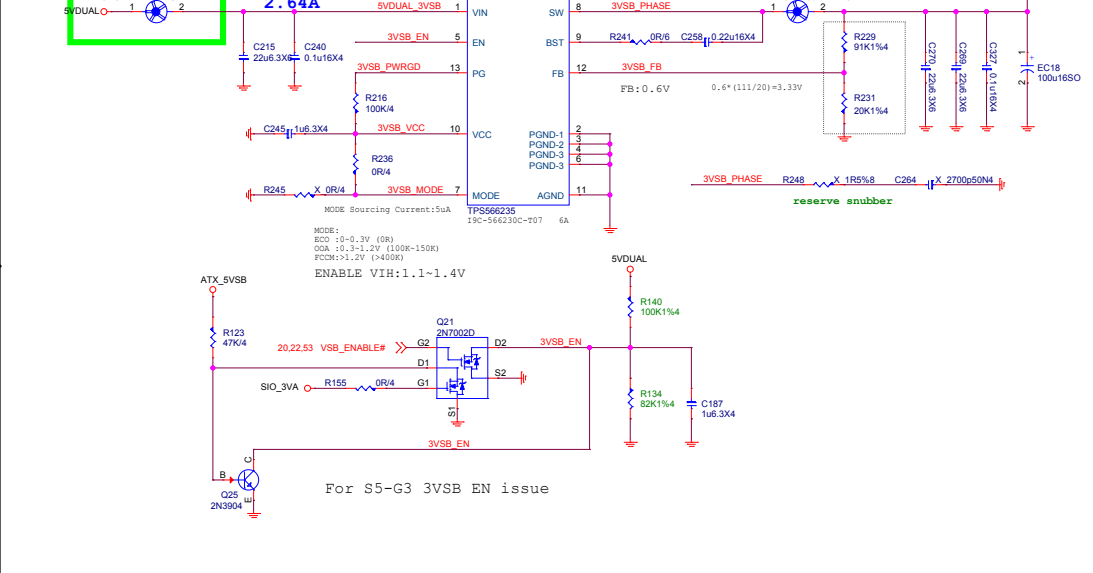
5VDUAL

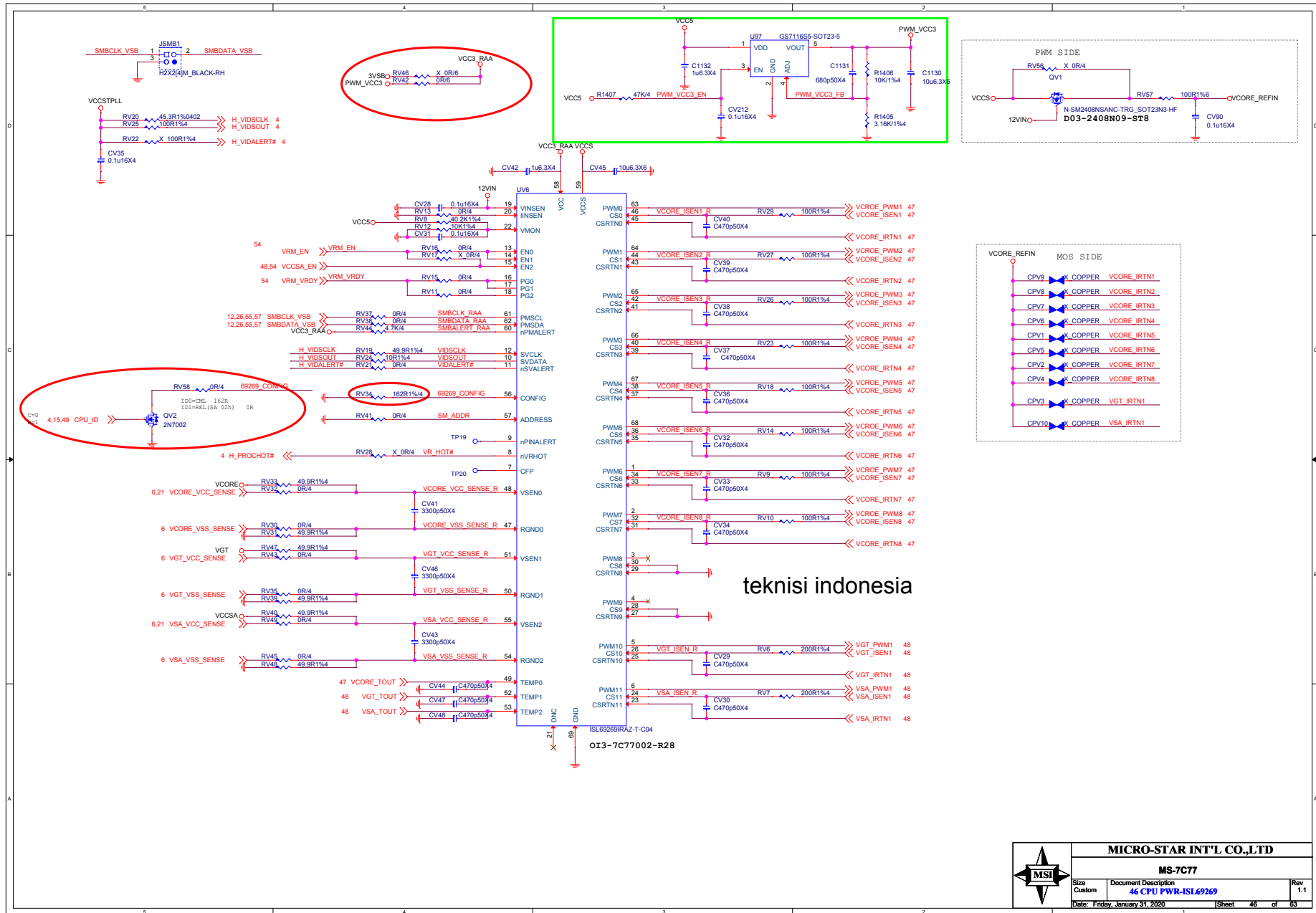


3VDSW

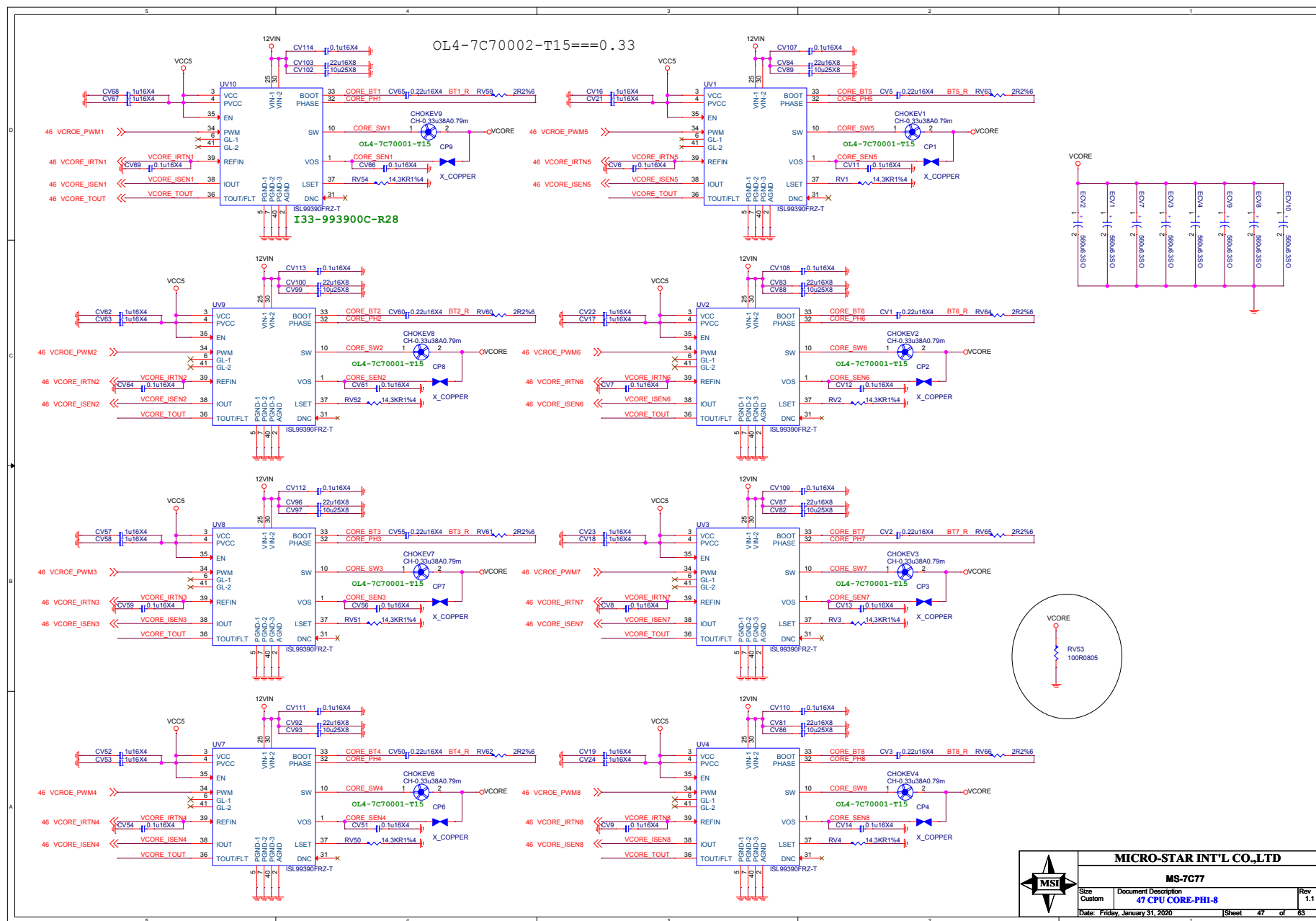


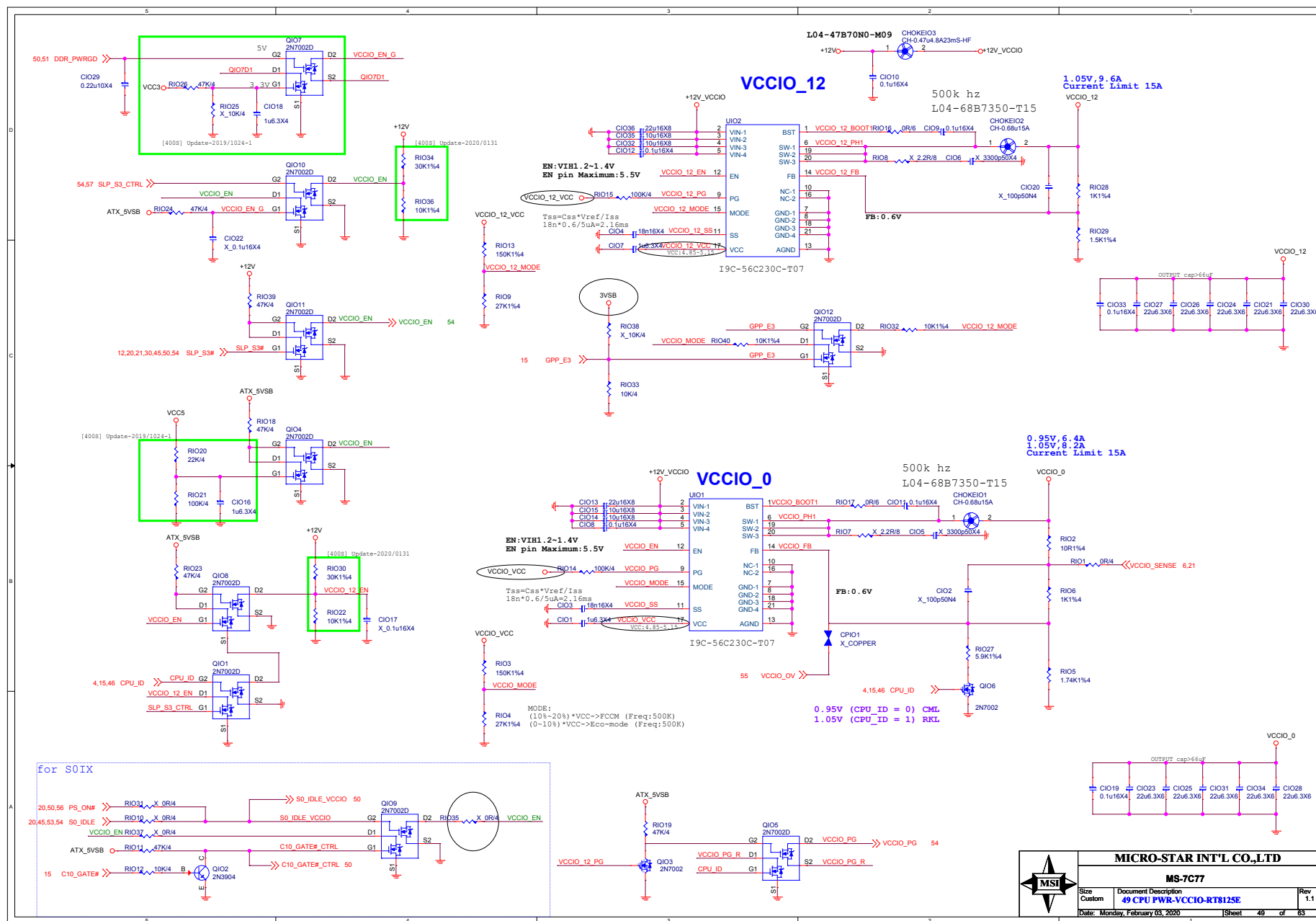
3VSB





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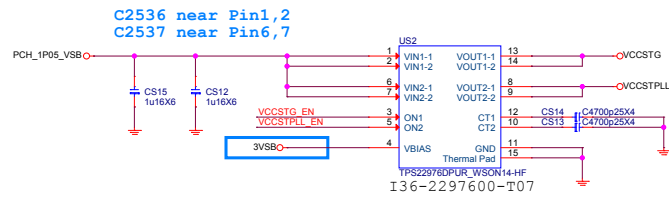


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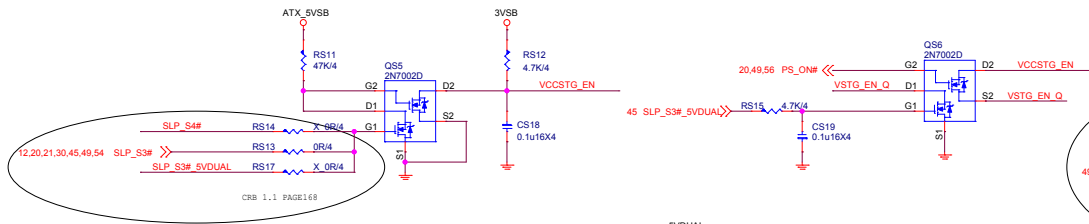
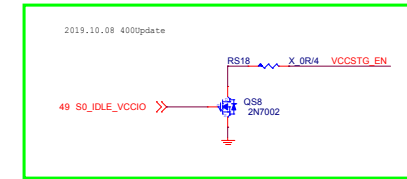
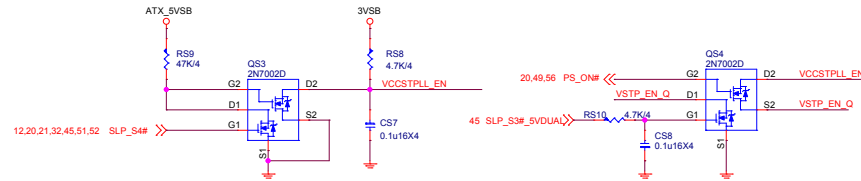
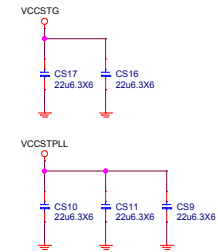
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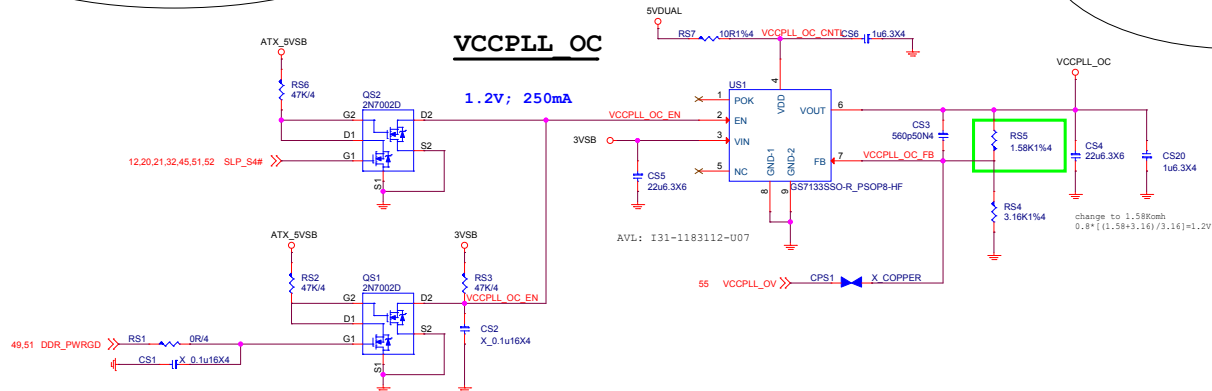


VCCSTG
1.05V; 0.2A/0.9A
VCCSTPLL
1.05V; 0.92A/2.3A+0.23A=2.53A
VCCST VCCPLL



VCCPLL OC

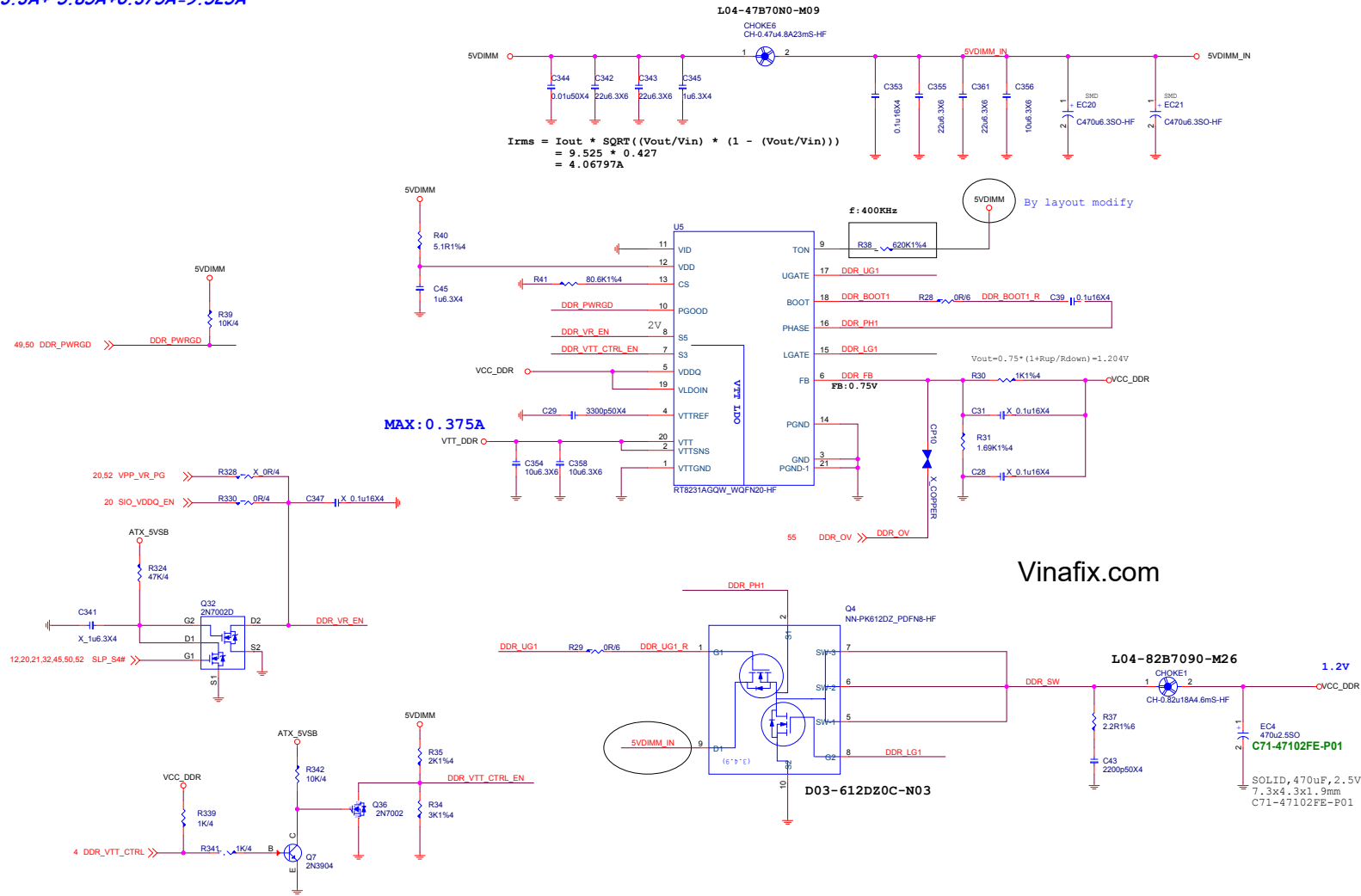
1.2V; 250mA



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VDDQ Power:1.2V;9.525A

$$3.3A + 5.85A + 0.375A = 9.525A$$



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VPP Power:2.5V; 1.12A FOR 2DIMM

VPP25 Power 2.5V; 1.12A

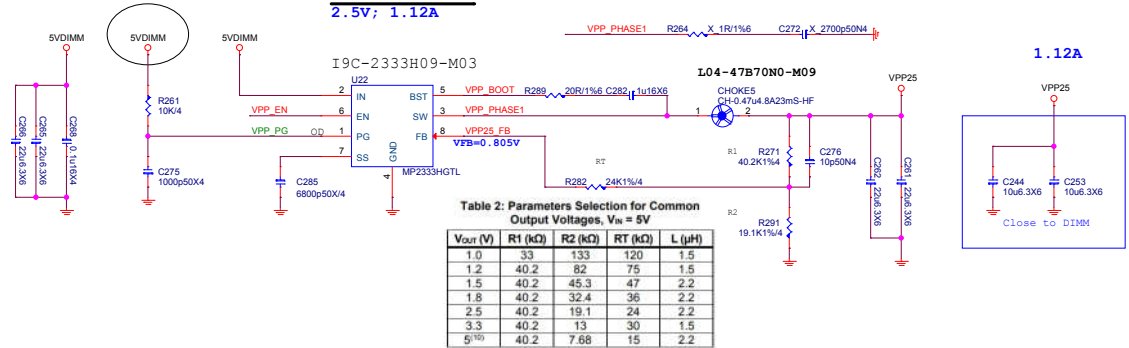


Table 2: Parameters Selection for Common Output Voltages, $V_{IN} = 5V$

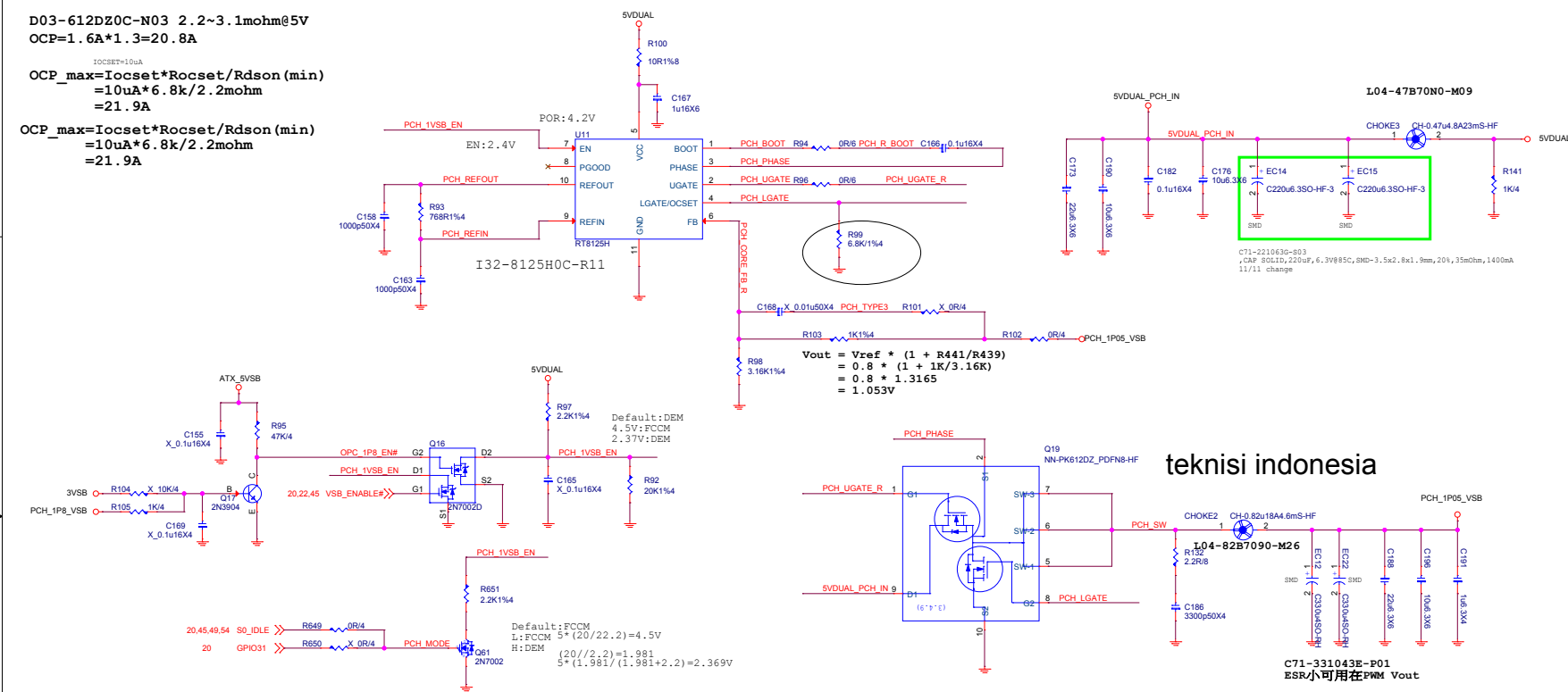
V_{OUT} (V)	$R1$ (k Ω)	$R2$ (k Ω)	RT (k Ω)	L (μ H)
1.0	33	133	120	1.5
1.2	40.2	82	75	1.5
1.5	40.2	45.3	47	2.2
1.8	40.2	32.4	36	2.2
2.5	40.2	19.1	24	2.2
3.3	40.2	13	30	1.5
5 ⁽¹⁰⁾	40.2	7.68	15	2.2

D03-612DZ0C-N03 2.2~3.1mohm@5V
OCP=1.6A*1.3=20.8A

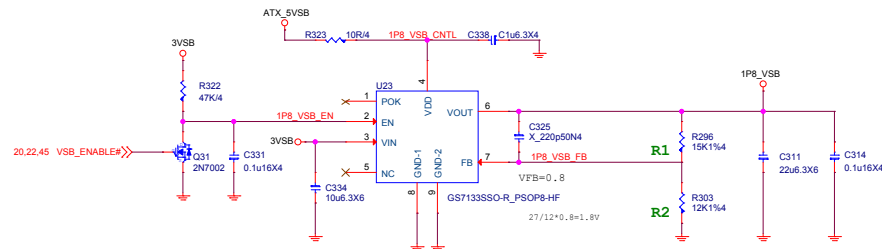
```

IOCSET=10uA
OCP_max=IOCset*Rocset/Rdson(min)
        =10uA*6.8k/2.2mohm
        =21.9A
OCP_max=IOCset*Rocset/Rdson(min)
        =10uA*6.8k/2.2mohm
        =21.9A

```



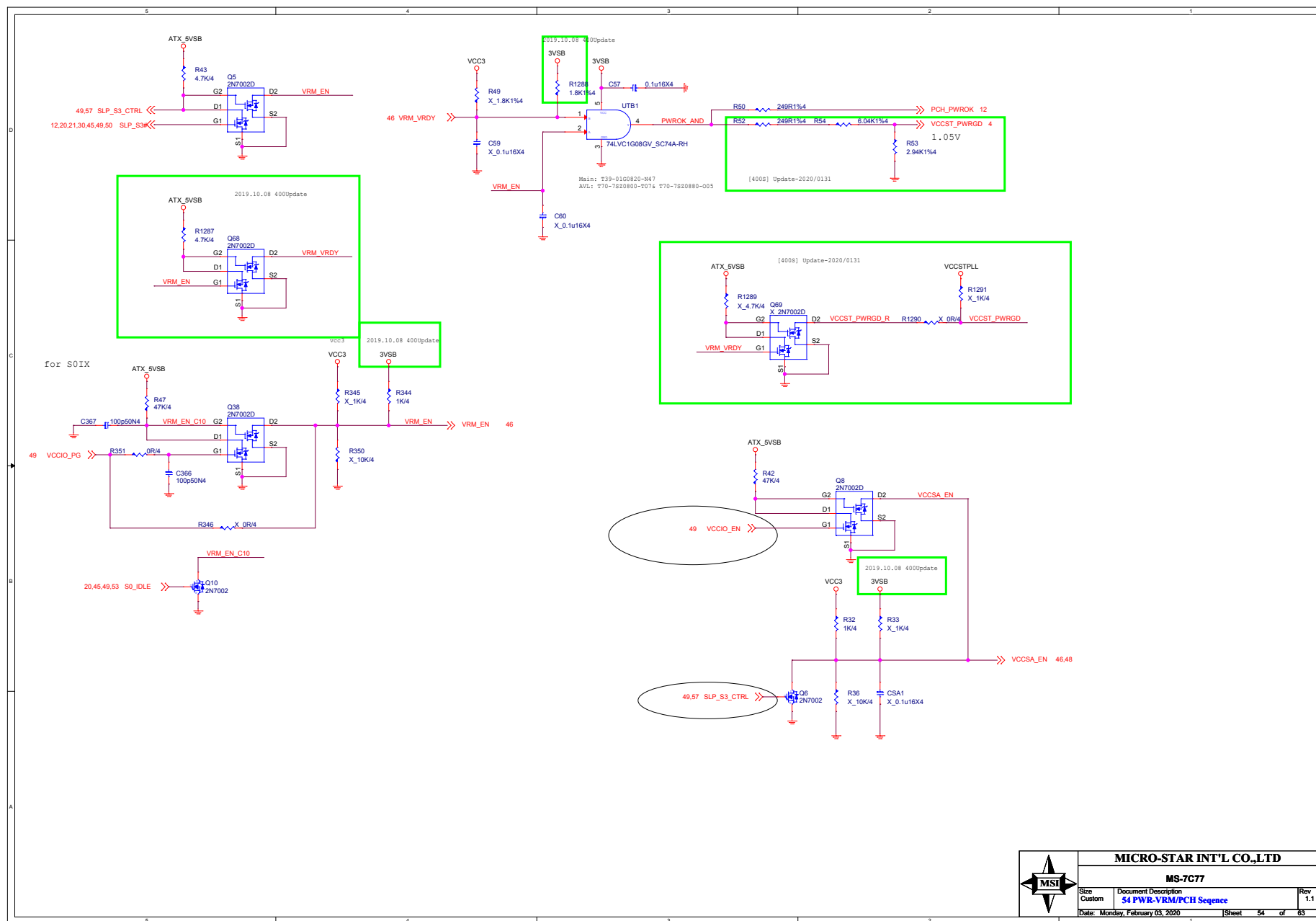
ATX_5VSB



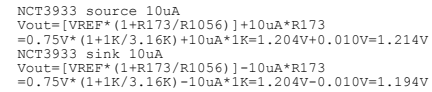
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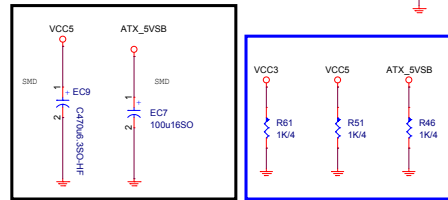
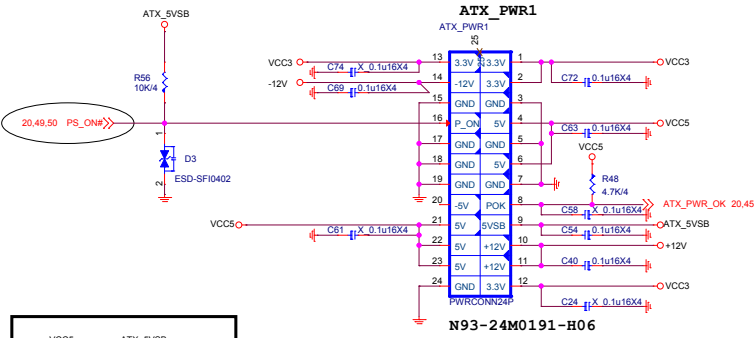
0x26:RH=18K,RL=13K



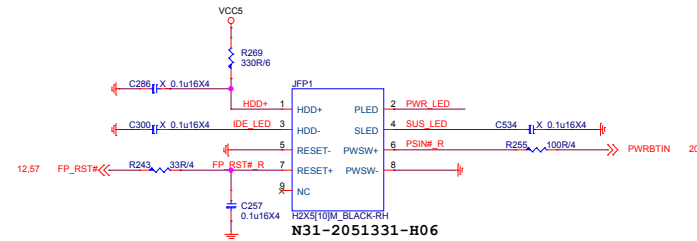
	MICRO-STAR INT'L CO.,LTD		
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ATX POWER CONNECTOR

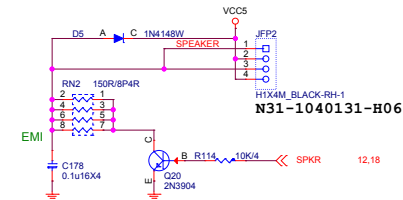
note: If -12V/-5V pin were connected, remember add MLCC cap close pin



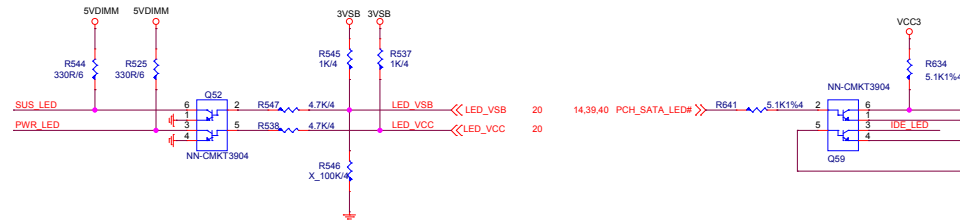
FRONT PANNEL



Speaker Pin Header



FRONT PANEL LED



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