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MS-7C79

ATX

Ver: 10

CML Platform

CPU:

Comet lake S 65W

Onboard Chip

HD Audio Codec: ALC1200

LAN: Intel RTL8125B

SIO: NIC6687

Flash ROM SPI 128MB X1

System Chipset:

Z490 PCH_H

VGA Output:

HDMI Port

DP Port

Main Memory:

DDR4 (2666MHz) * 4 (Dual Channel)

PWM

IMP8-RT3609BE

ACPI

LDO

Expansion Slots:

PCI Express (X16) Slot * 1

PCI Express (X4) Slot * 1

PCI Express (X1) Slot * 2

M2 Slot * 2

Intel WIFI * 1

Other:

SATA30 *6

USB20 *6

REAL USB3.1 Gen2 Type A

REAL USB3.1 Gen3 Type C

REAL USB3.1 Gen1 LAN_USB

FRONT USB3.1 GEN1 TypeC

FRONT USB3.1 *2

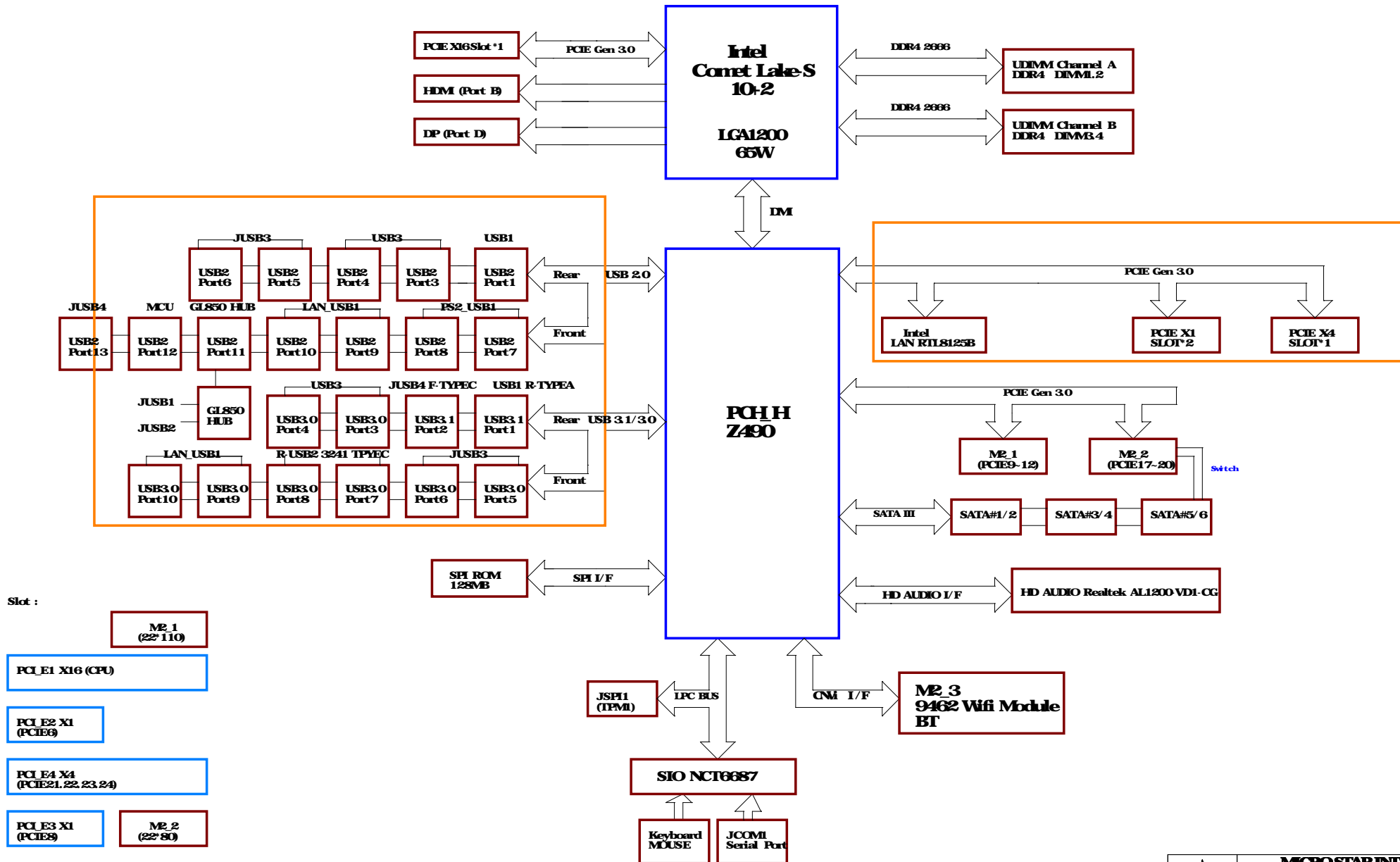


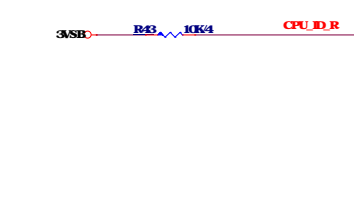
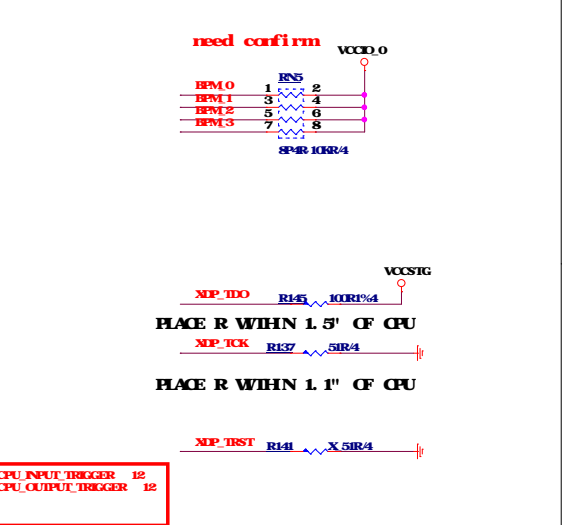
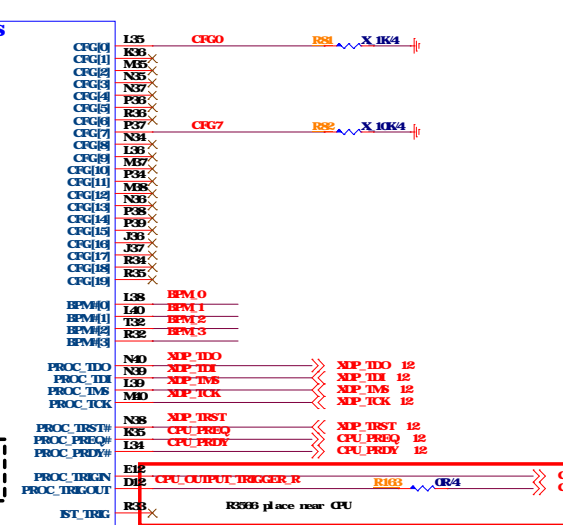
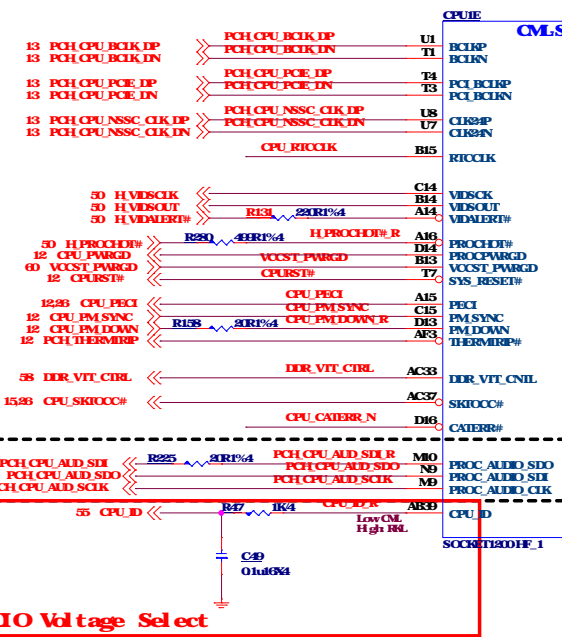
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MS-7C79

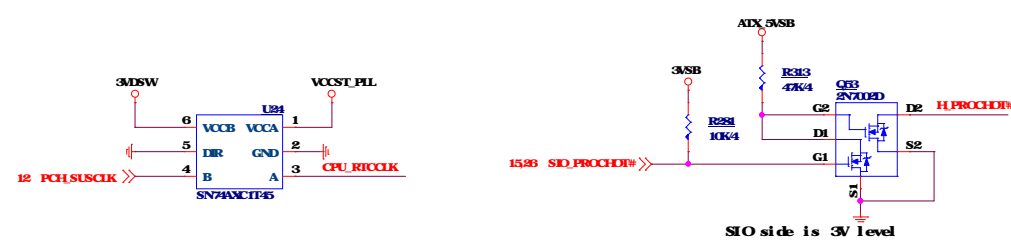
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MS-7C79 Block Diagram



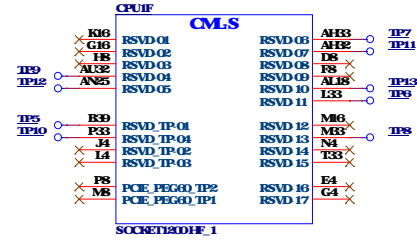
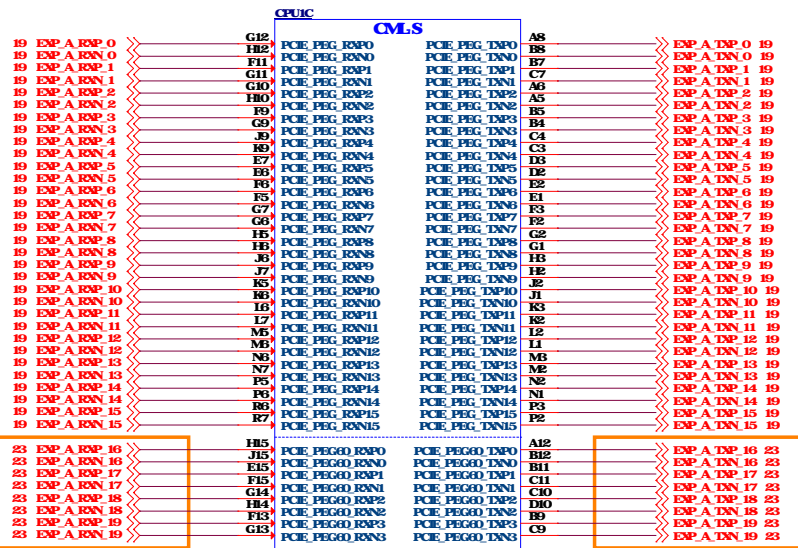


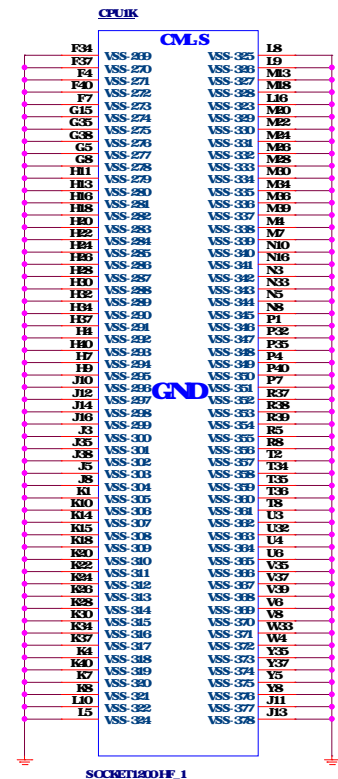
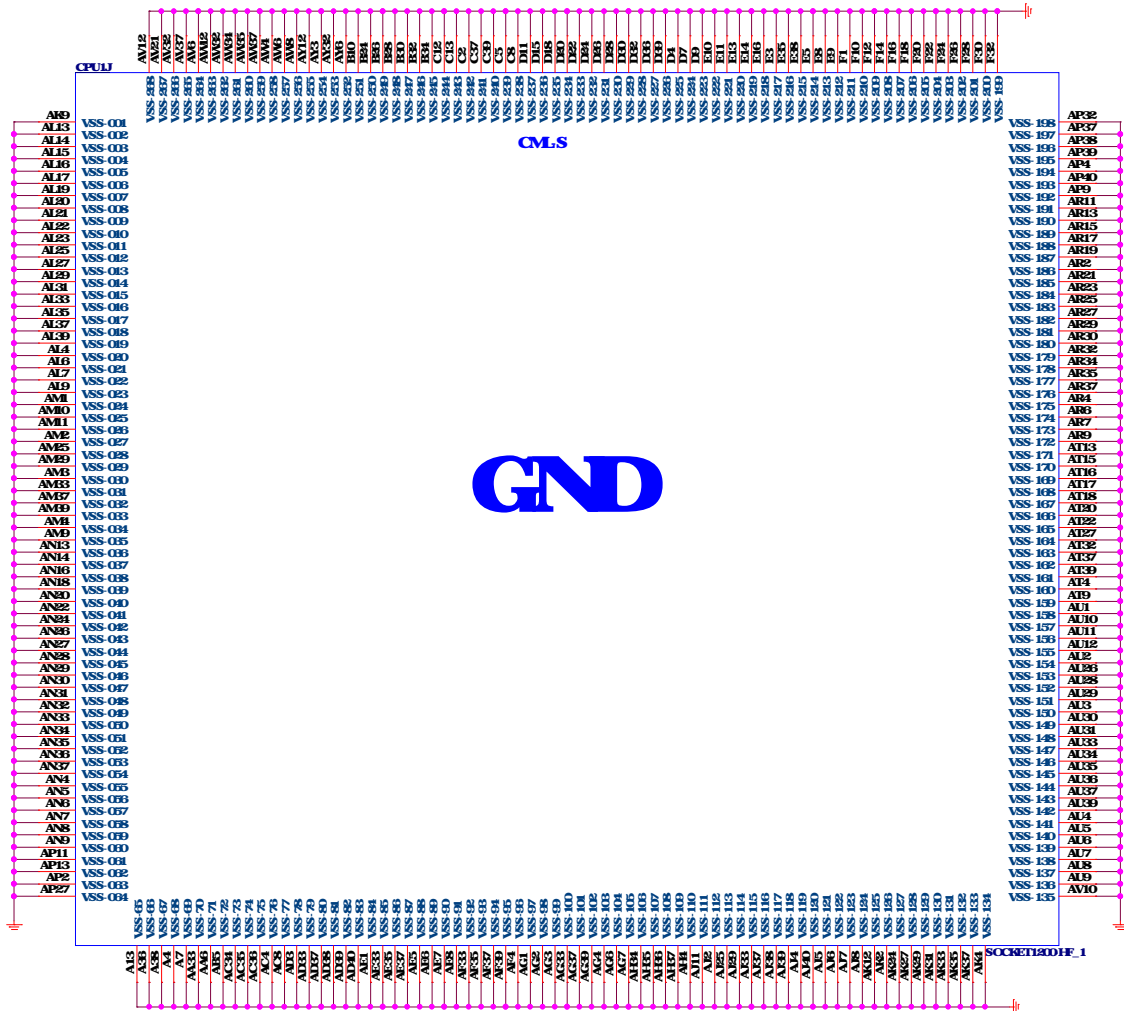
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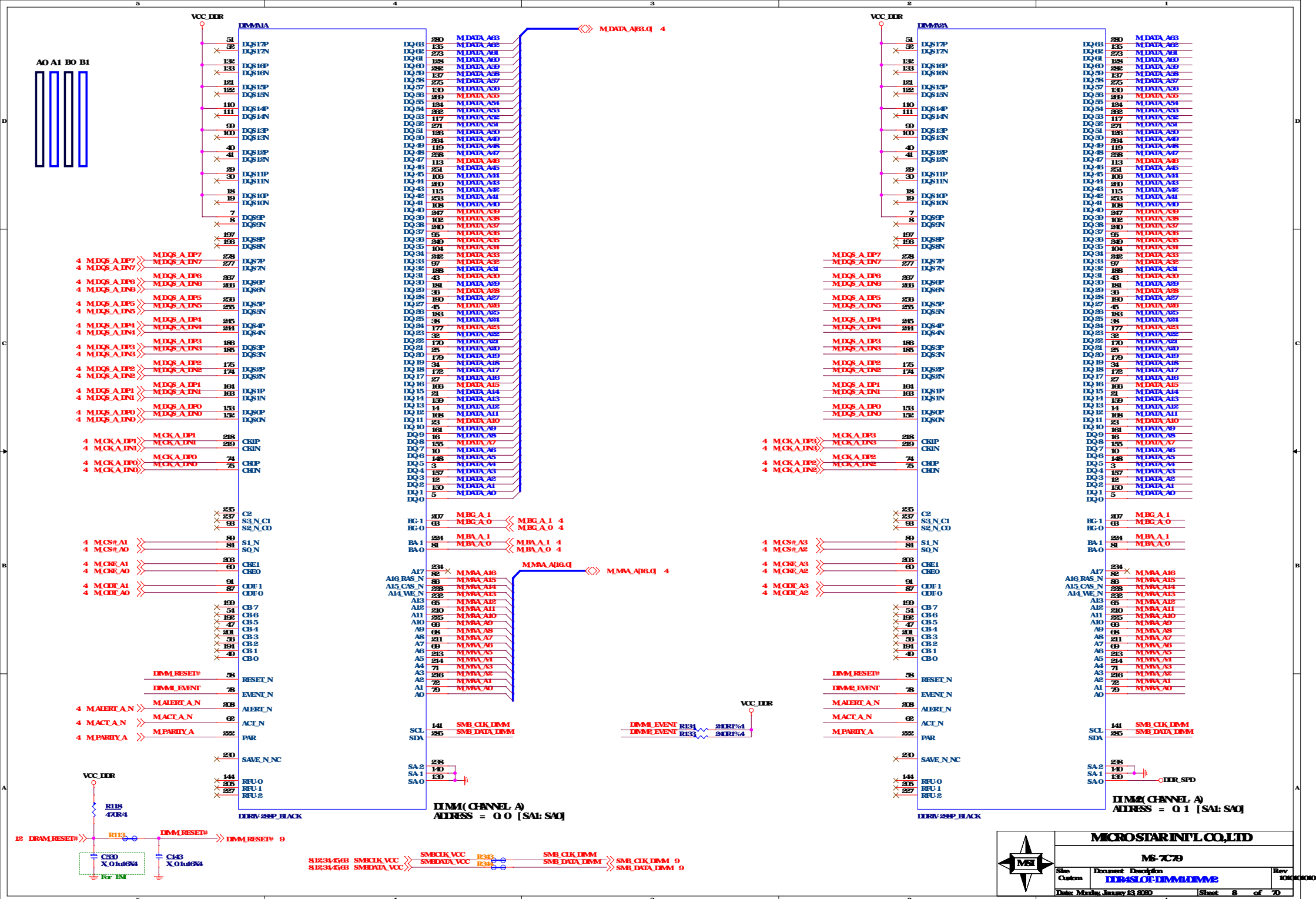
**CFG Strap**

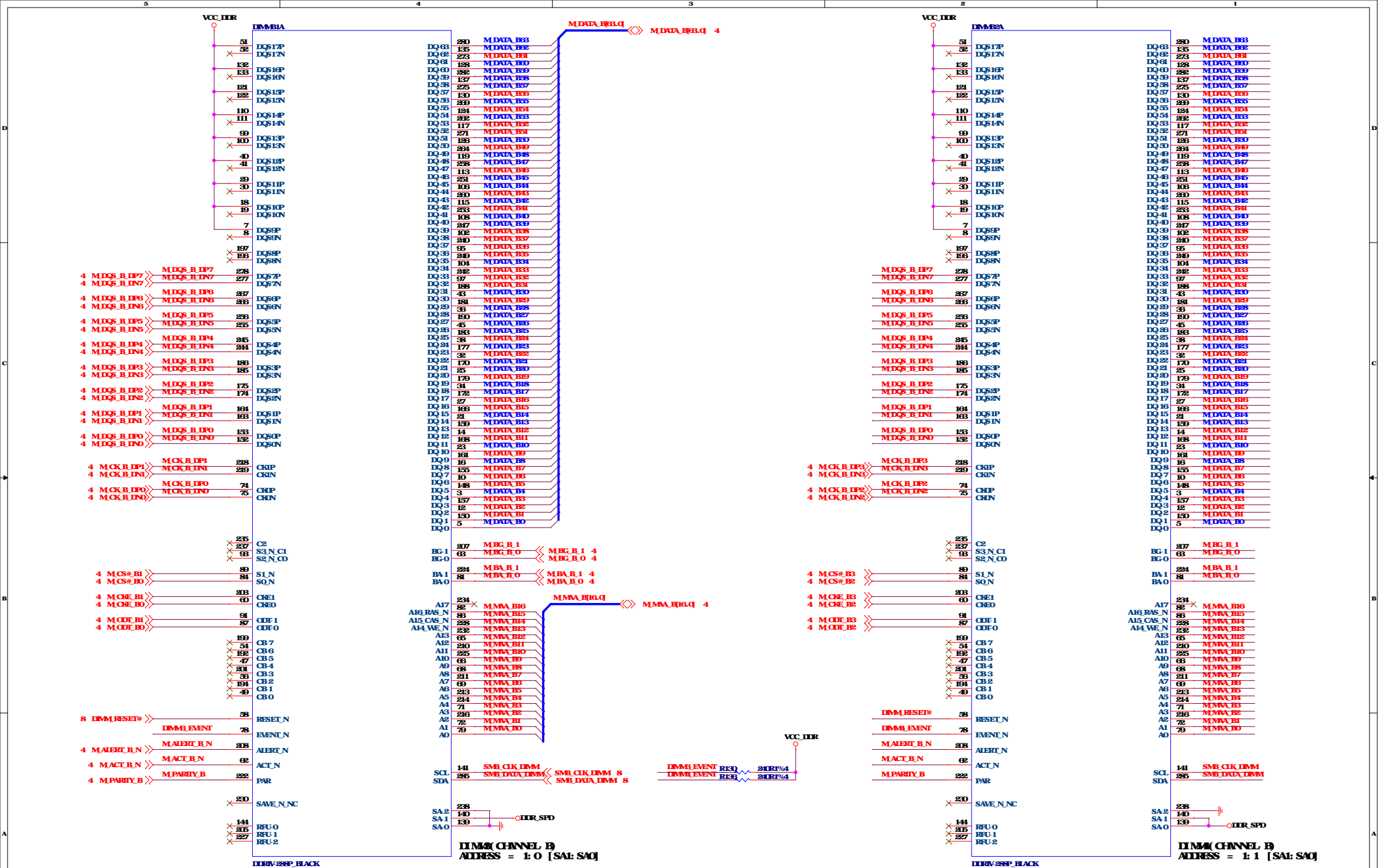
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0	No stall	Stall	PCU PLL Lock
1			HSVD
2	NORM	REARISE	REG. LANE REARMAL
3			HSVD
4	DISABLE	ENABLE	eSP
5			PCIE Hibernation
6			PCIE Hibernation
7	Follow MEMP	Wait for HOS	CFG. DRIVING
8			HSVD
9			HSVD
10			HSVD
11			HSVD
12			HSVD
13			HSVD
14			HSVD
15			HSVD
16			HSVD
17			HSVD
18			HSVD
19			HSVD

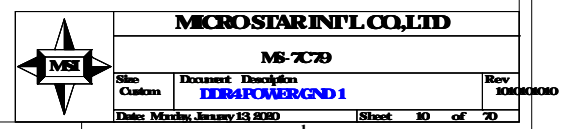
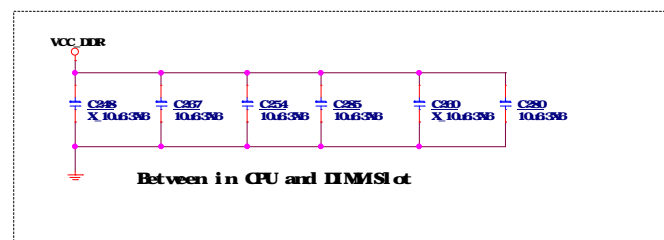
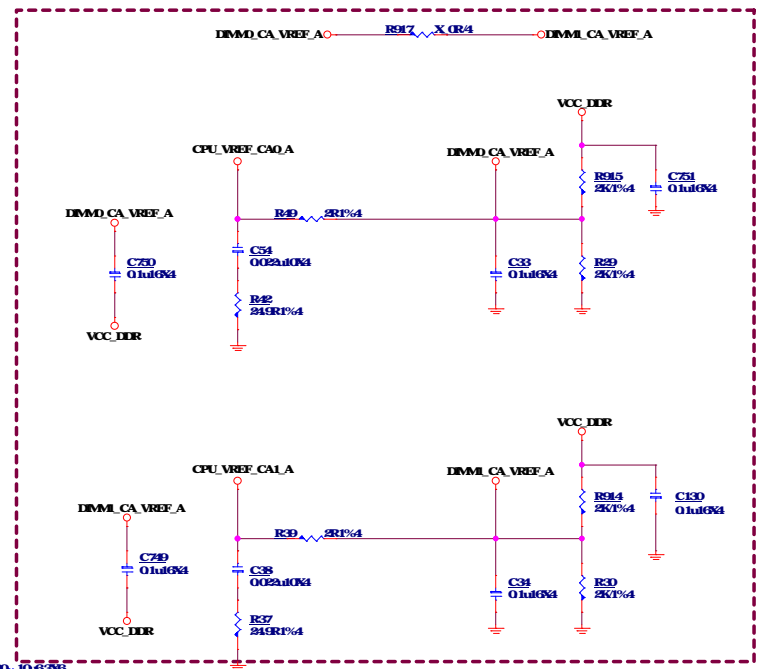
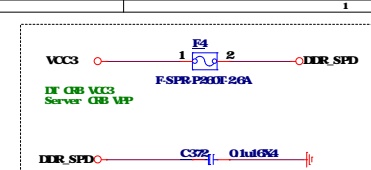
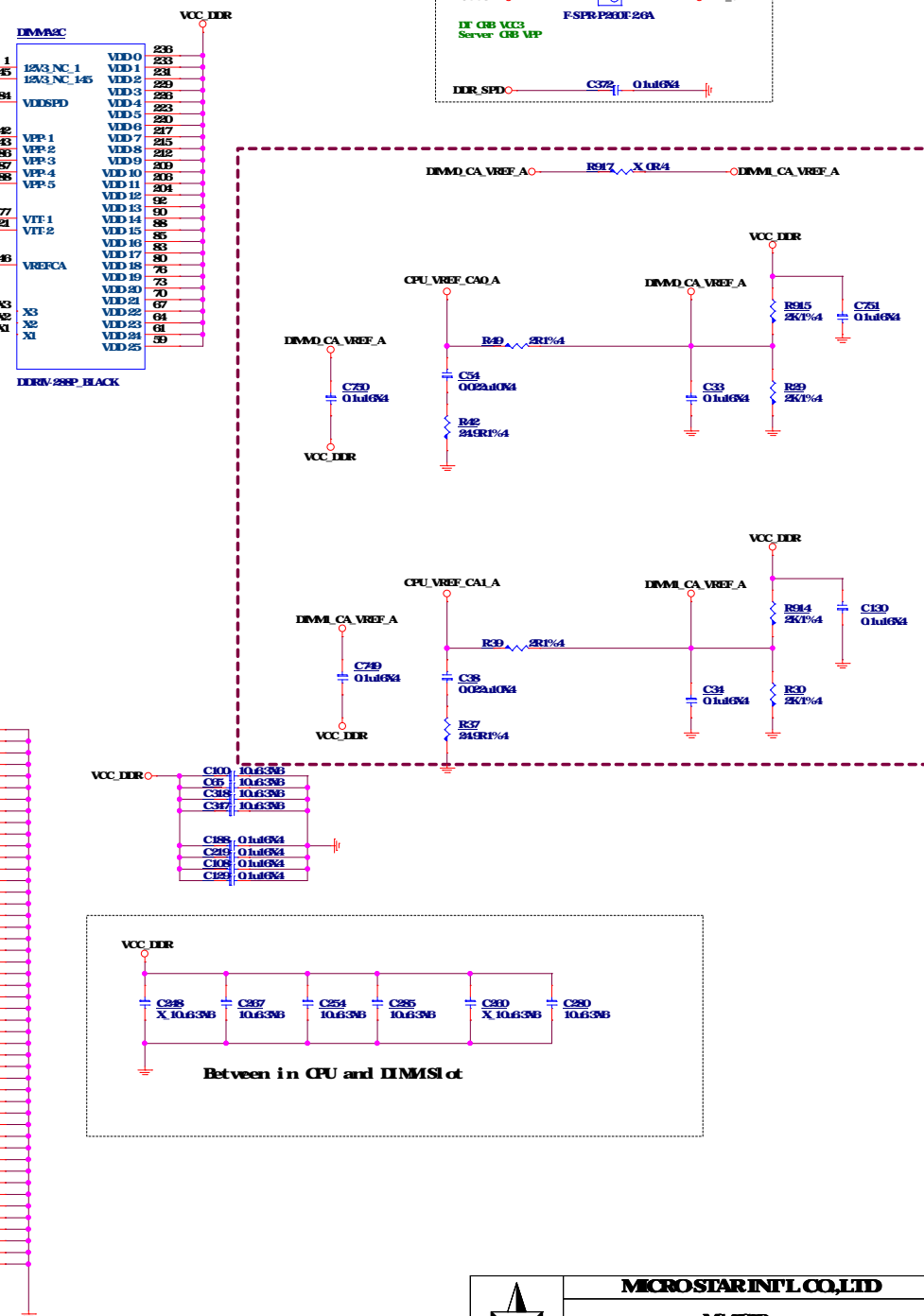
ENBLE#		SLOT	SLOT	SLOT
X8	X1			
0	0	X8	X1	X1
0	1	X8	X8	X0
1	0	RSVD	RSVD	RSVD
1	1	X16	X0	X0

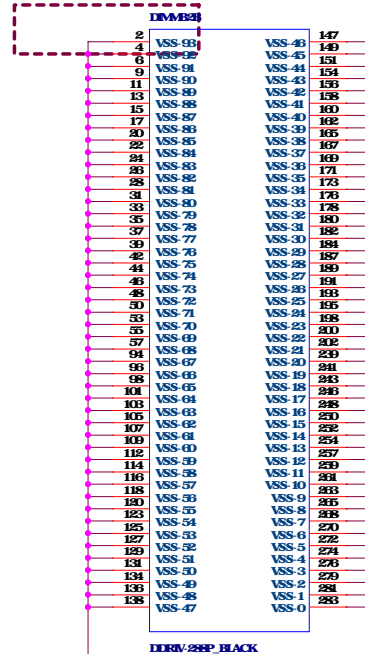
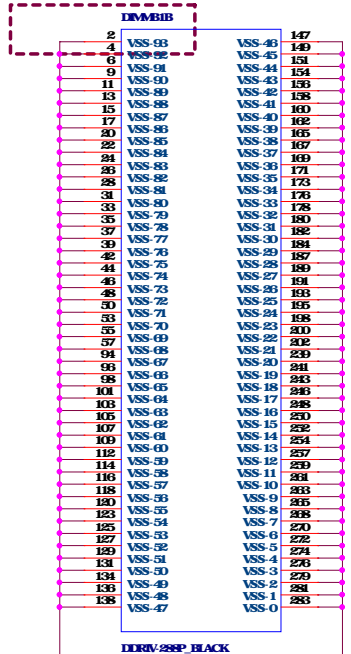
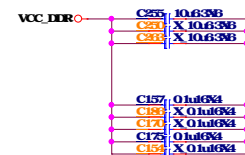
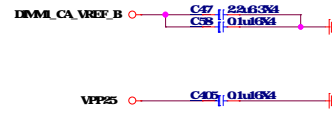
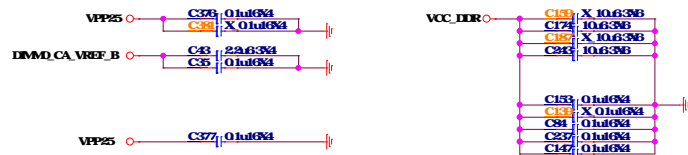
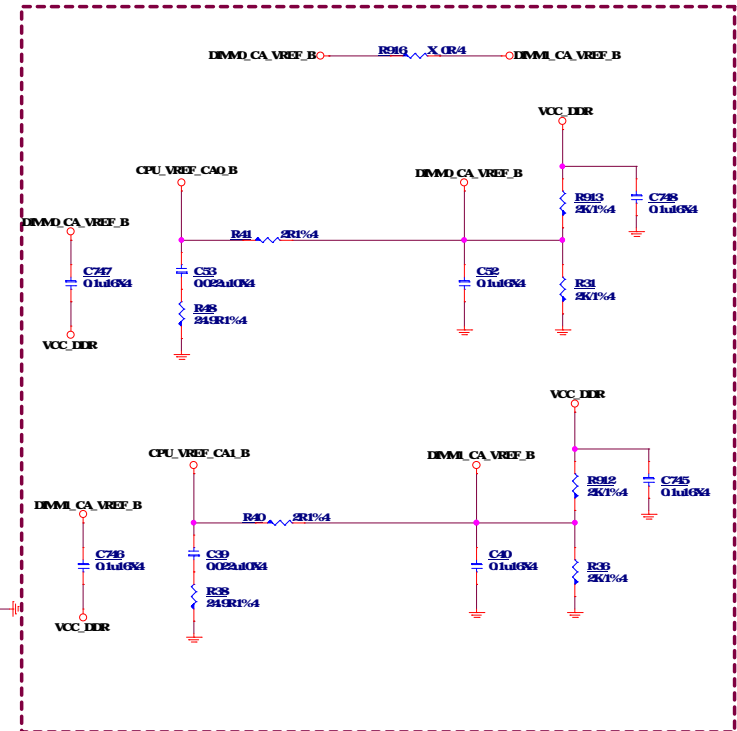
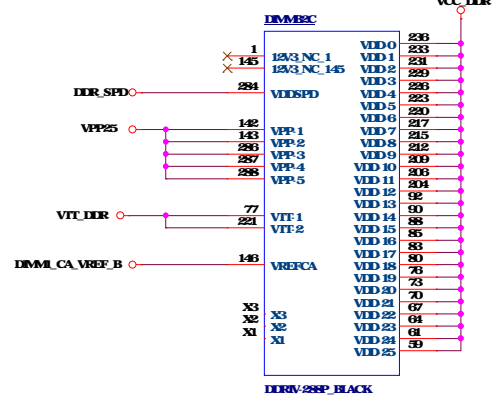
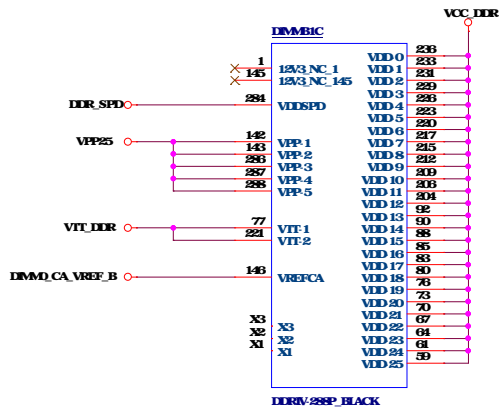


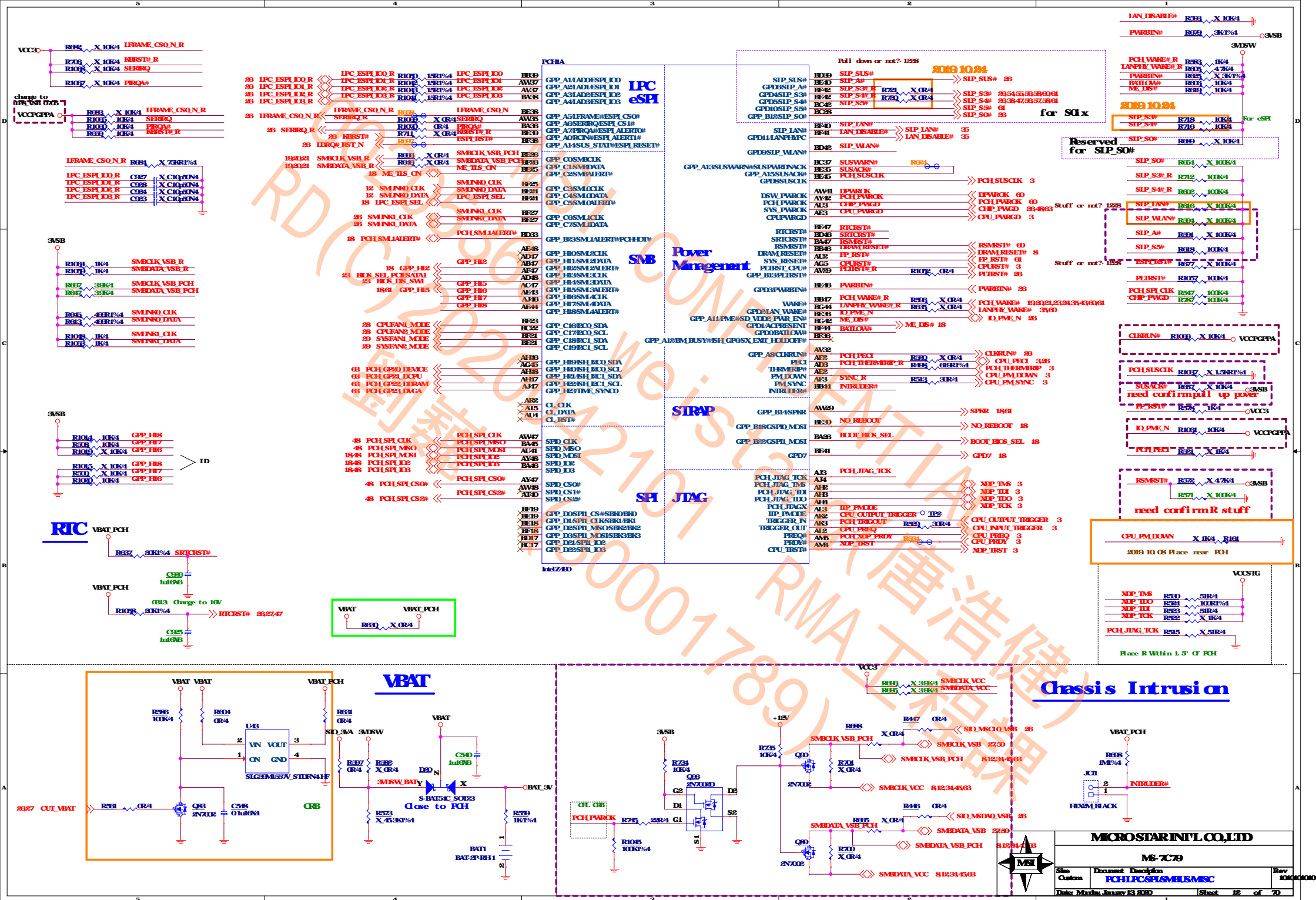




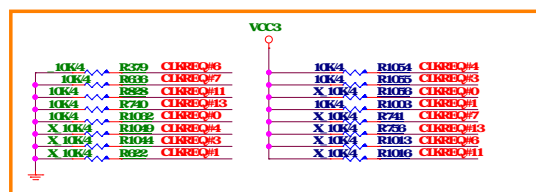
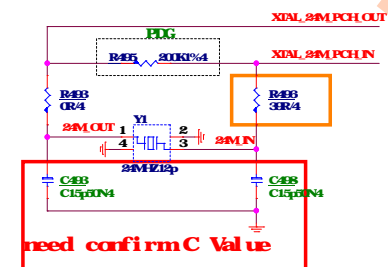
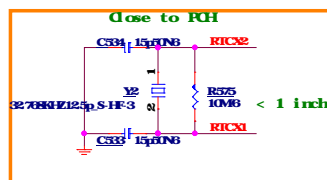








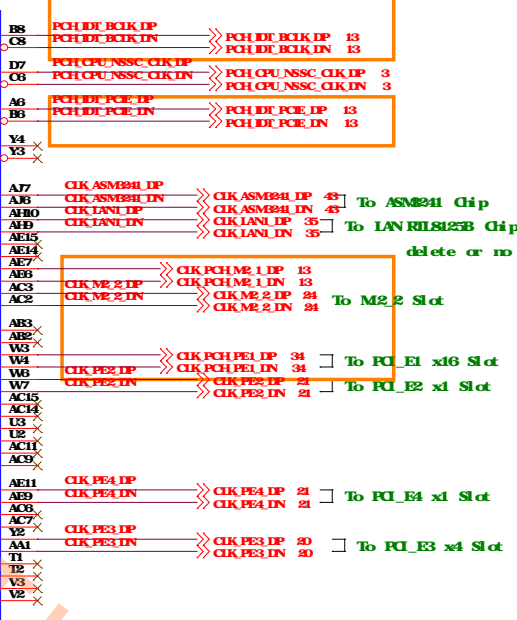
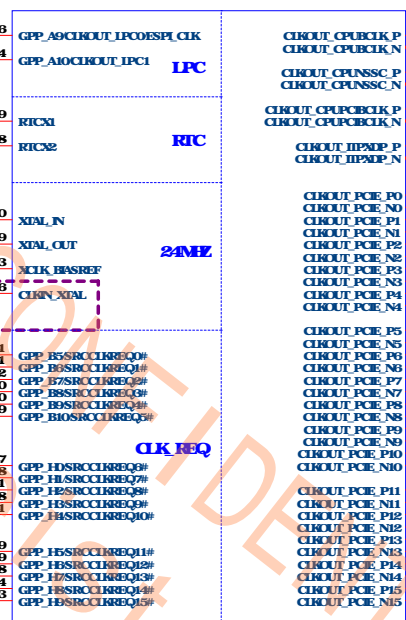
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need confirm R Value

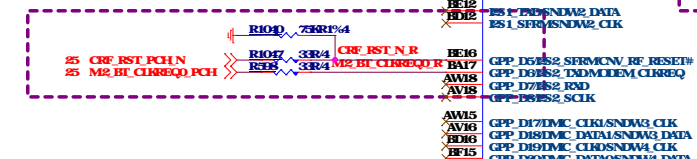
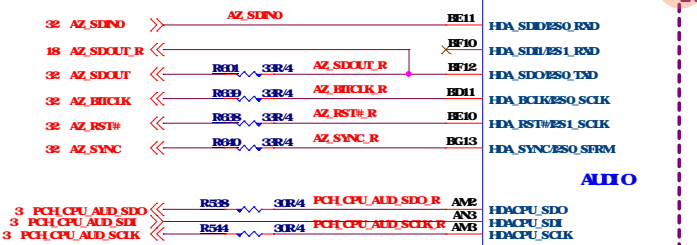


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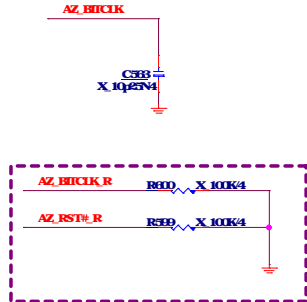
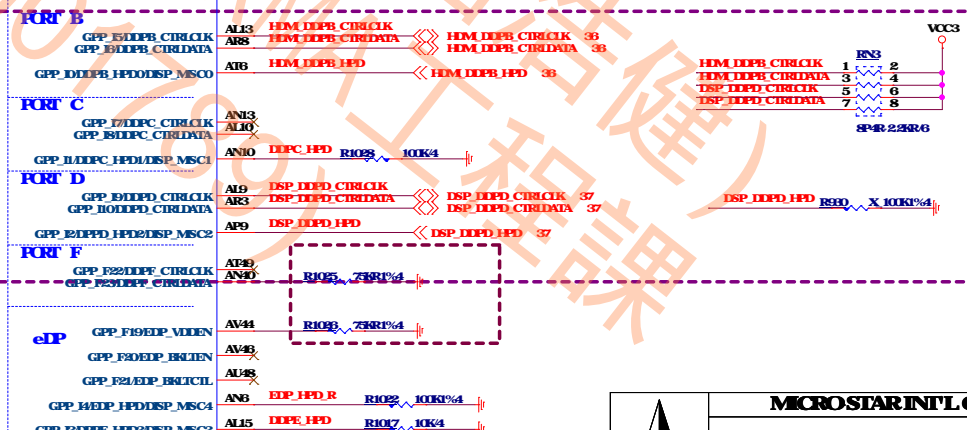


Intel Z490

PCIID



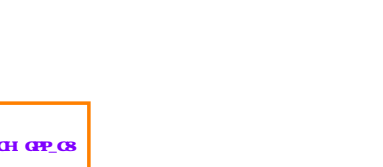
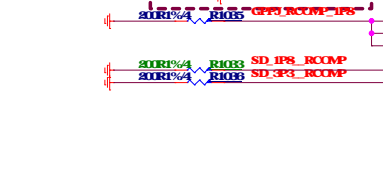
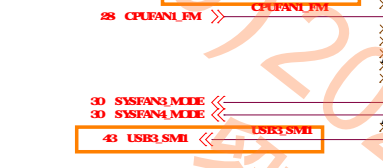
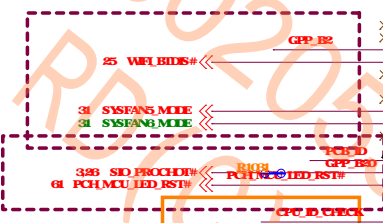
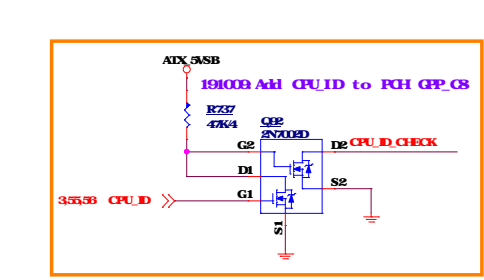
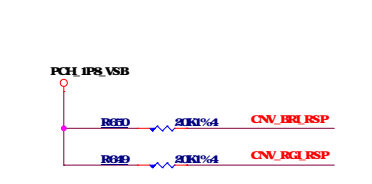
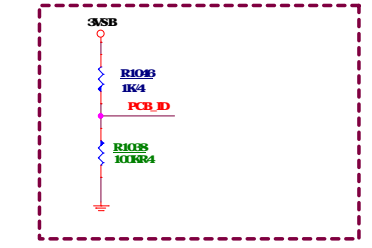
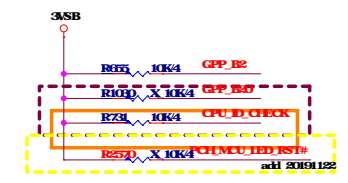
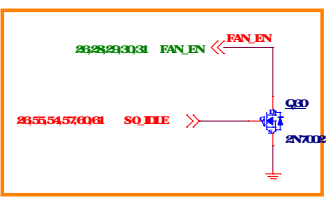
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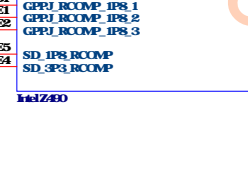
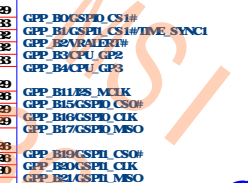
MICROSTAR INT'L CO., LTD

MS-7C7E

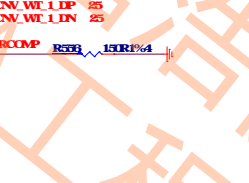
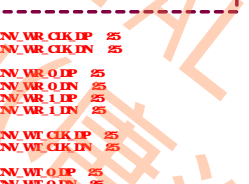
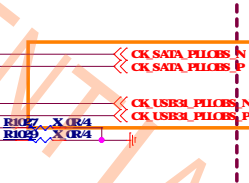
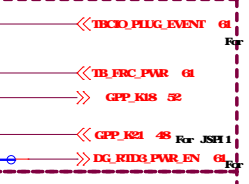
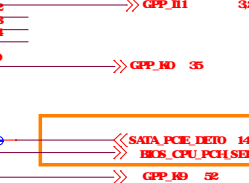
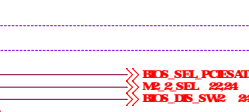
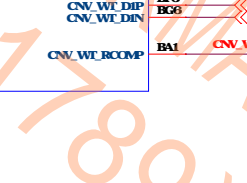
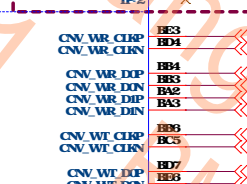
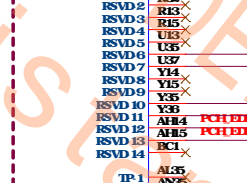
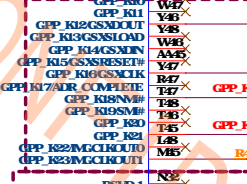
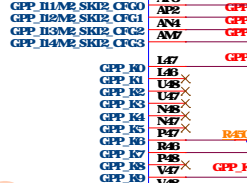
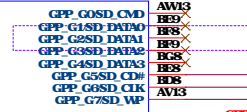
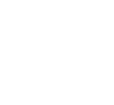
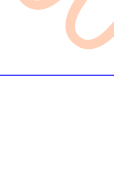
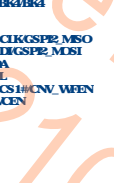
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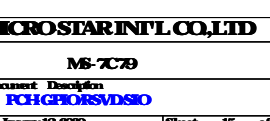
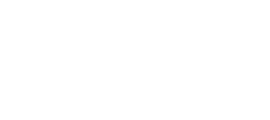
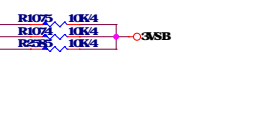
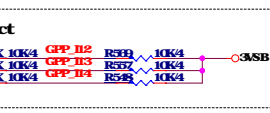
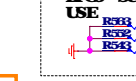
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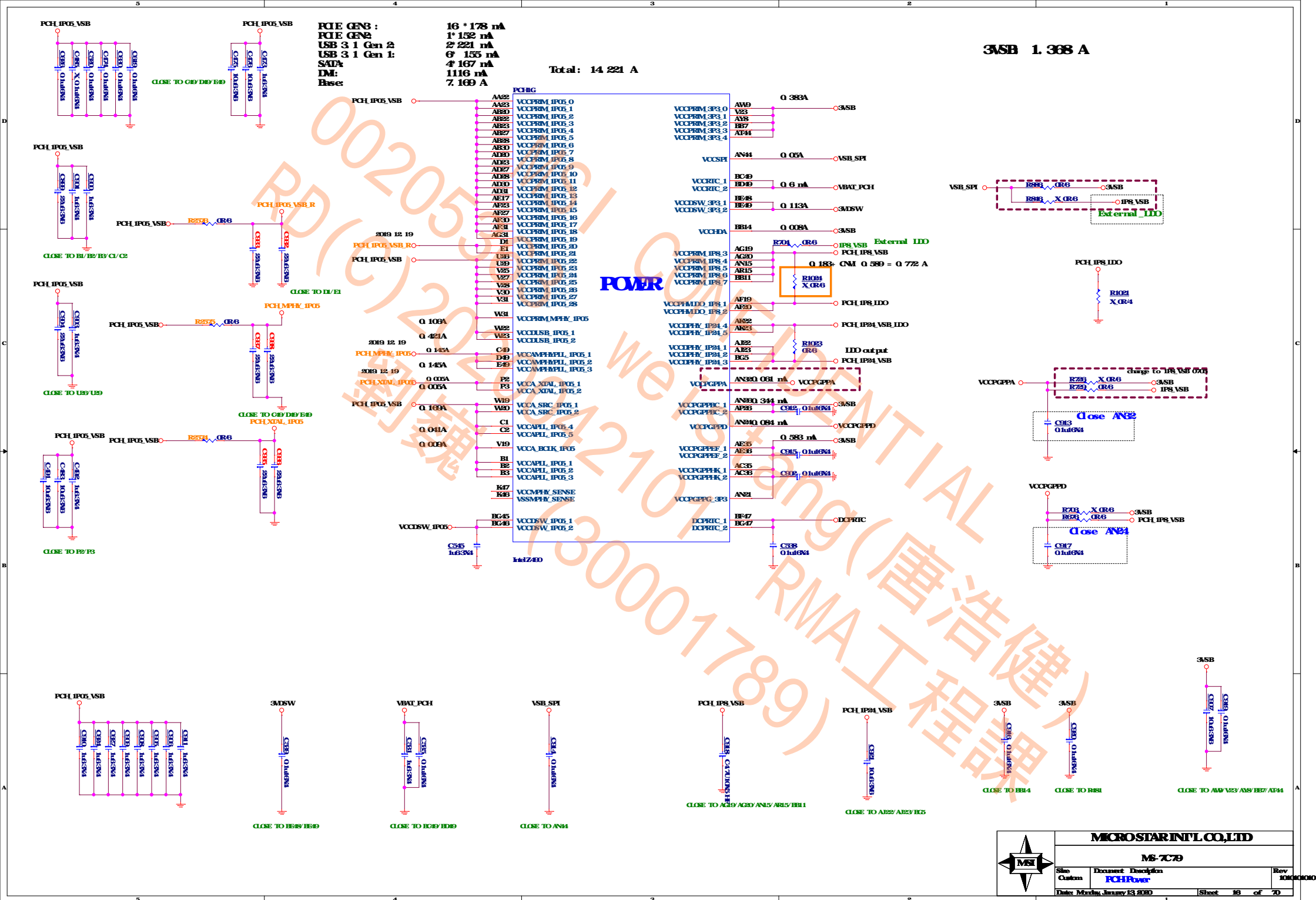
GPIO



HOS Select



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MS-7C79			
Site	Document	Discipline	Rev
Custom	PCIE#	GPIO#	MSIO
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need confirm AL37

VSS

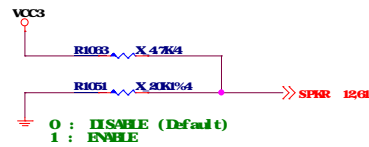


MICROSTAR INT'L CO., LTD

MS-7C79

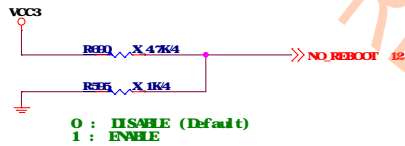
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TCP Swap



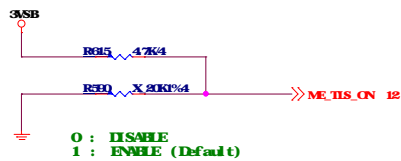
Internal Pull-down is disabled after PCHPMCK is High

No Reboot



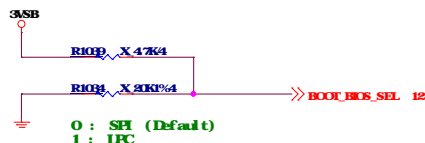
Internal Pull-down is disabled after PCHPMCK is High

TLS confidentiality



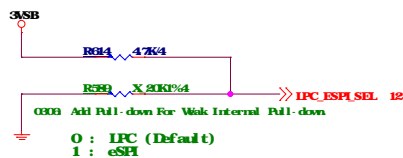
Internal Pull-down is disabled after RSMST# de-assert.

Boot BIOS



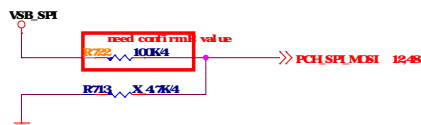
Internal Pull-down is disabled after PCHPMCK is High

LPC eSPI Mode

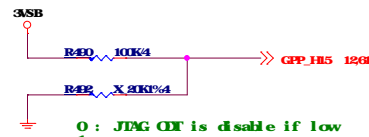


Internal Pull-down is disabled after RSMST# de-assert.

Reserved

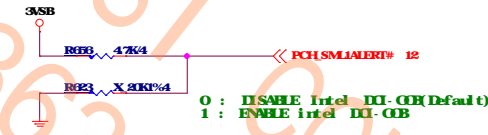


OT Disable



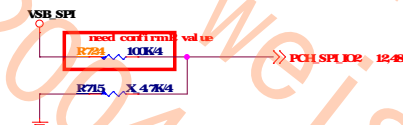
Internal Pull-down is disabled after RSMST# de-assert.

DDI Enable

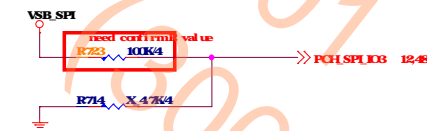


Internal Pull-down is disabled after RSMST# de-assert.

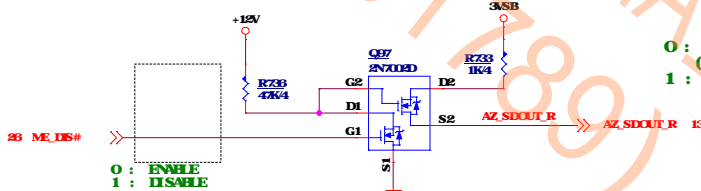
Reserved



Reserved



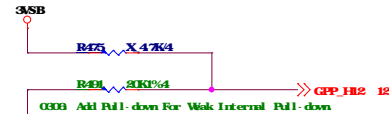
Flash Descriptor Security Override



0 : Enable security measures defined in the Flash Descriptor. (Default)
1 : DISABLE Flash Descriptor Security(Override).

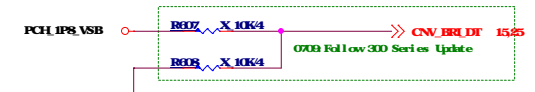
Internal Pull-down is disabled after PCHPMCK is High

ESPI FLASH SHARING MODE



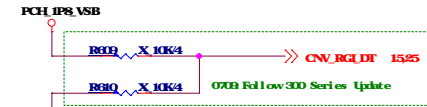
Internal Pull-down is disabled after RSMST# de-assert.

XIAL FREQUENCY SELECTION



This Signal has a Weak Internal Pull-down.
An External Pull-up is Required On this Strap Since 38.4 MHz XIAL is Not Supported On the PCH.
0 = 38.4 XIAL Frequency Selected (Default)
1 = 24MHz XIAL Frequency Selected

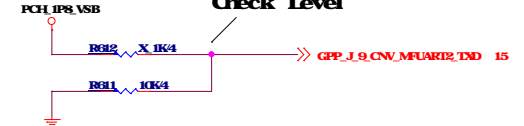
Midem Reference Clock Source Select



A Weak External Pull-up is Required
0 = Integrated CMA Enable
1 = Integrated CMA Disable

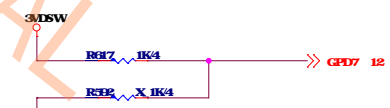
1.8V VCCSPH

need check level
Check Level



SELECT THE SPI BIOS FLASH INTERFACE OPERATING VOLTAGE
0 = VCCSPH IS CONNECTED TO 3.3V RAIL - DEFAULT
1 = VCCSPH IS CONNECTED TO 1.8V RAIL
PCH HAS INTERNAL 20K PD

Reserved



XIAL INPUT MODE
0 = XIAL INPUT IS SINGLE ENDED
1 = XIAL INPUT IS DIFFERENTIAL
PCH HAS INTERNAL 20K PD



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Site Custom

Document Description

PCHStrap

Date: Monday, January 13, 2020

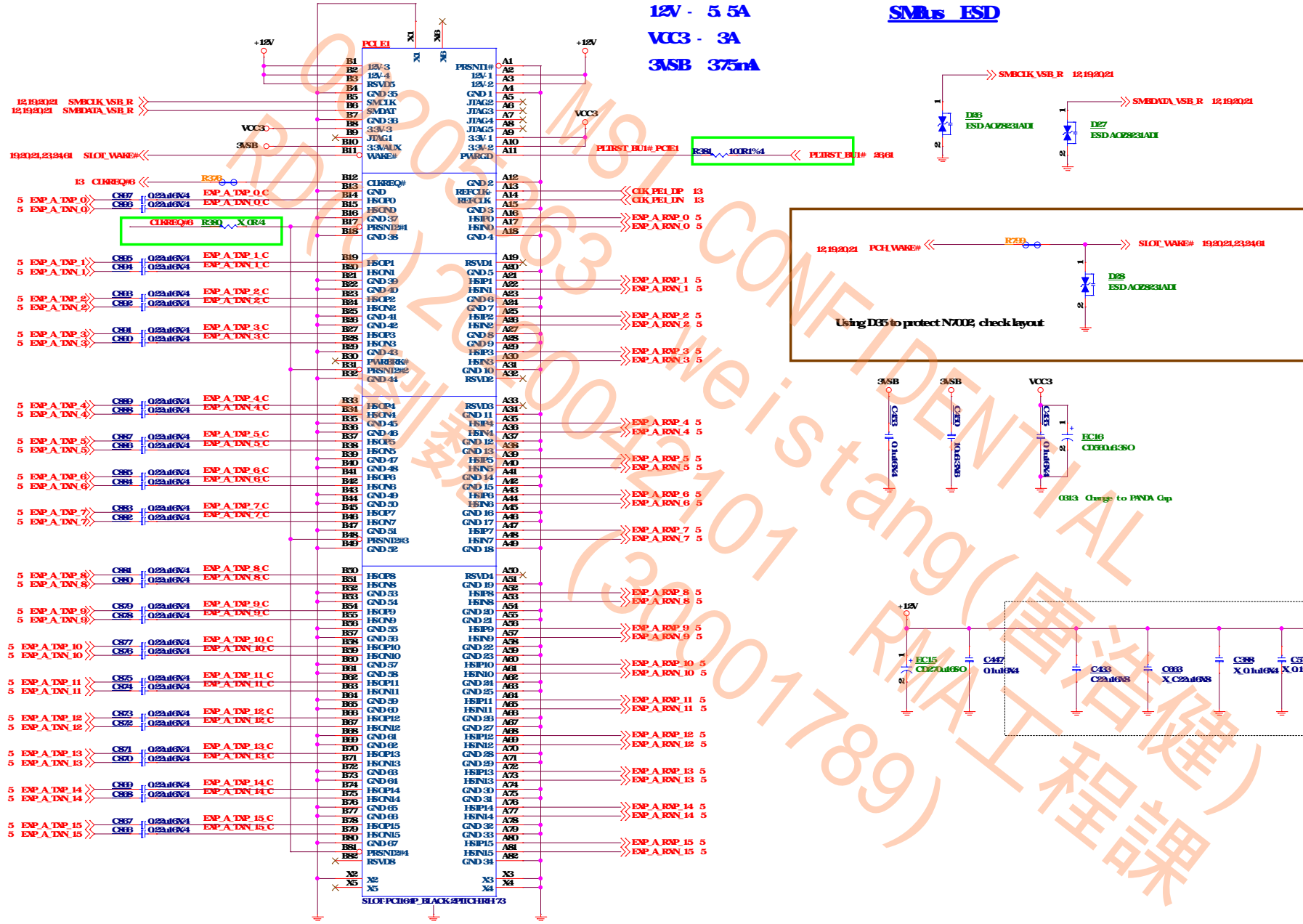
Sheet 88 of 90

Rev 10/20/2020

PCI Express X16 Slot

12V - 5 5A
VCC3 - 3A
3VSB 375mA

SMBus ESD





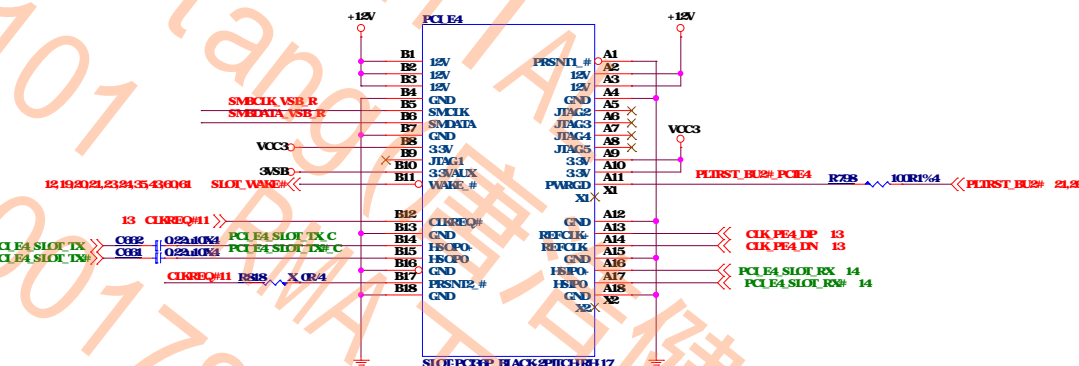
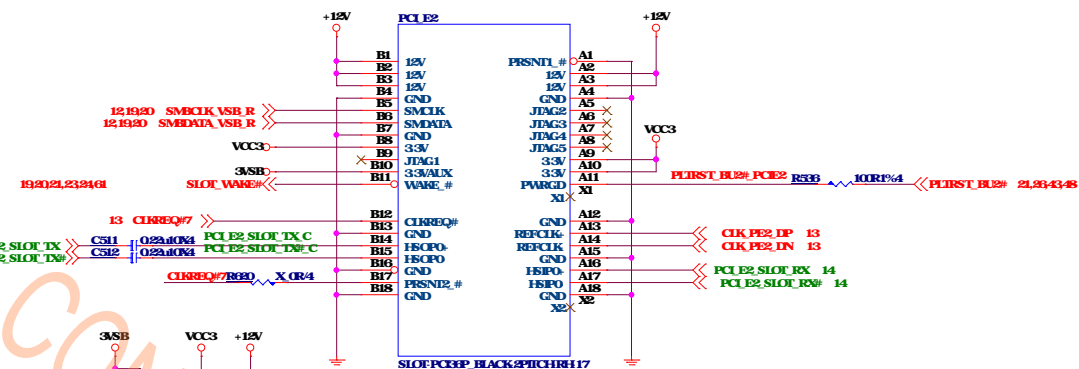
Site Custom	Document Description PCIE SLOT (%)	Rev 10000000
Date: Monday, January 13, 2020		Sheet 20 of 70

PCI/PCIE X1 Slot

12V - 0.5A

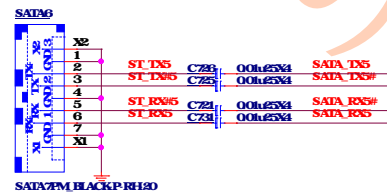
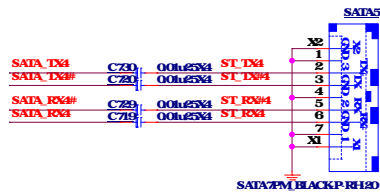
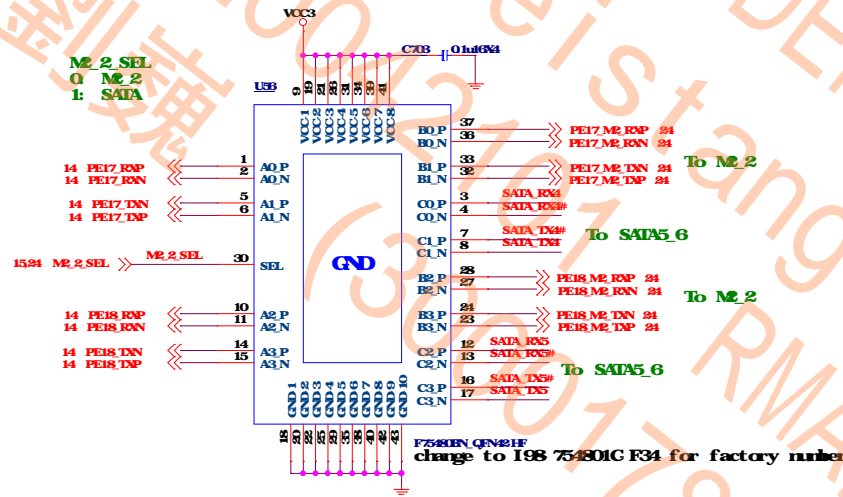
VCC3 - 3A

3VSB - 375mA



MICROSTAR INT'L CO., LTD			
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Site	Document	Revision	Rev
Custom	PCIE SLOT(X)		10
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SATA Connector

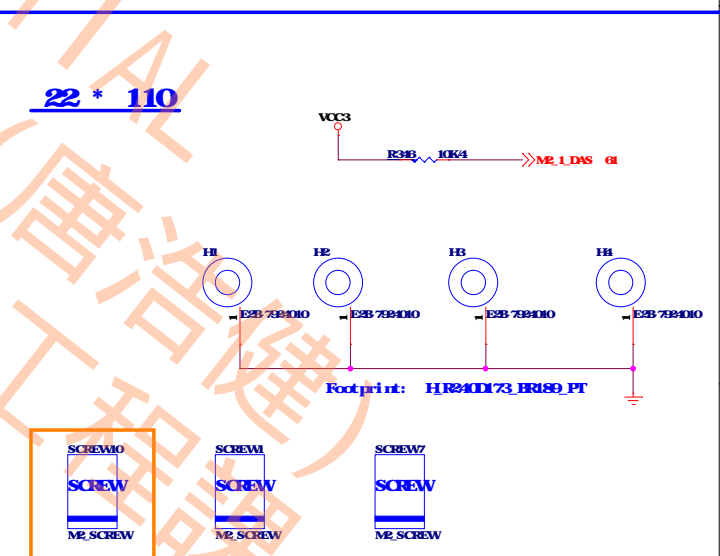
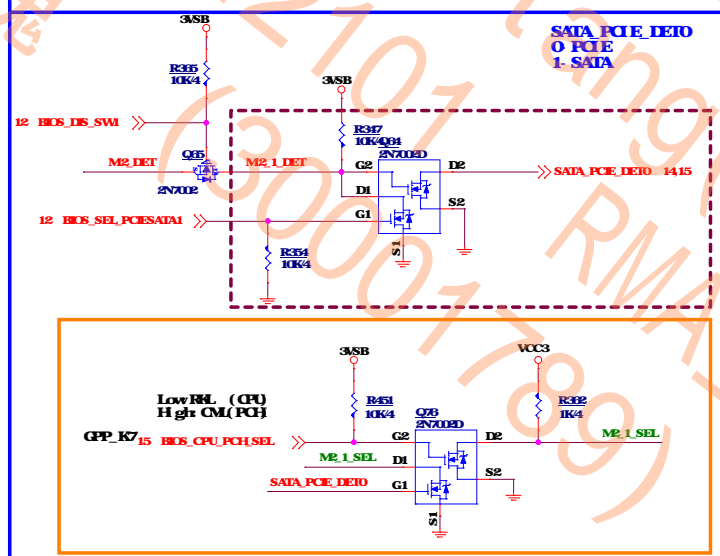
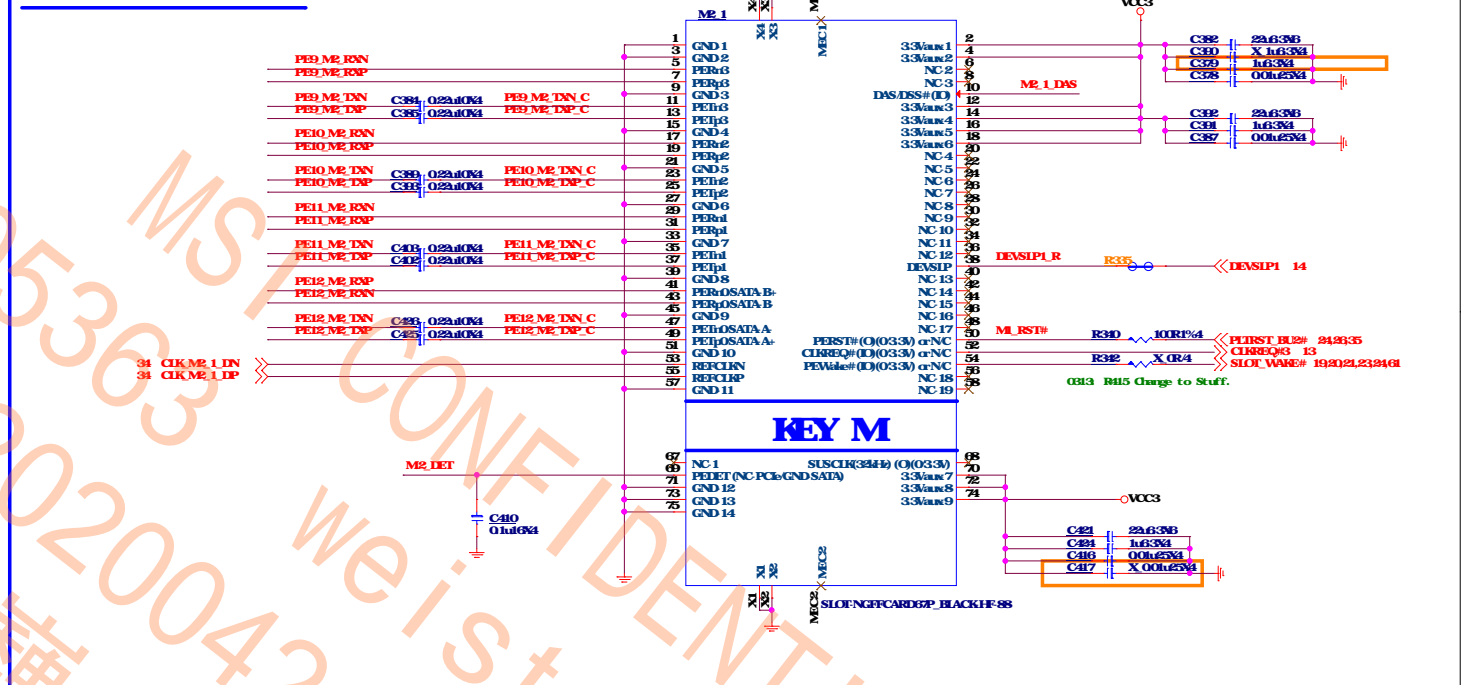
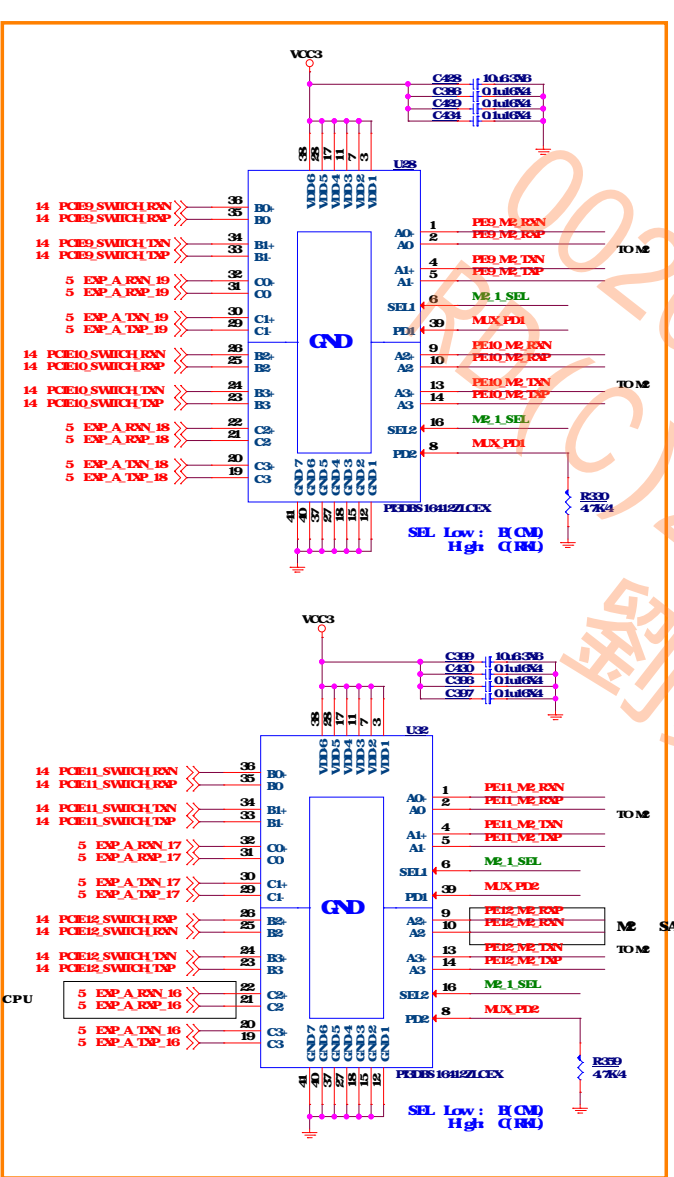


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Site	Document	Revision
Custom	SATA Connector	10
Date: Monday, January 13, 2003	Sheet 22 of 70	

M2 Connector



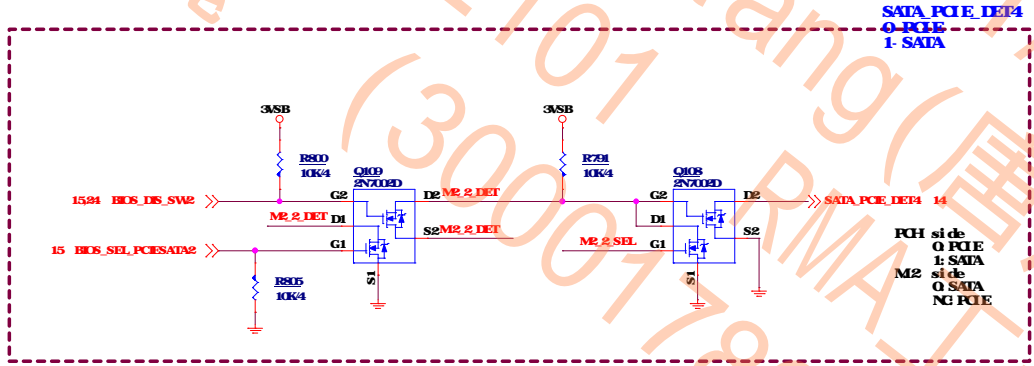
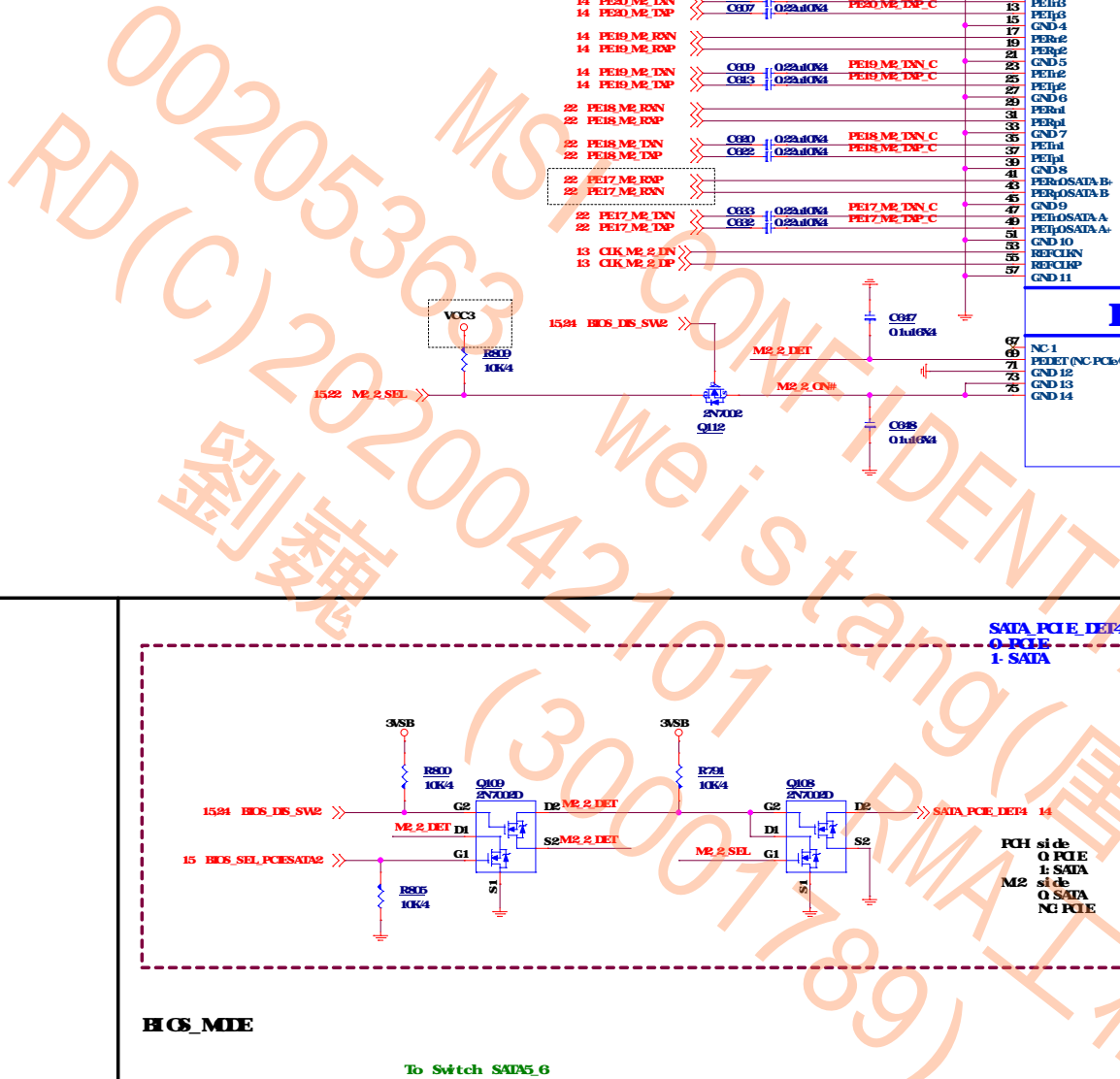
BIOS_DIS_SWI	BIOS_SEL_PCEISATAI	Mode
0	1	M2 SATA
0	0	M2 PCIe
GP	GP	AUTO

MICROSTAR INT'L CO., LTD

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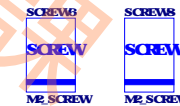
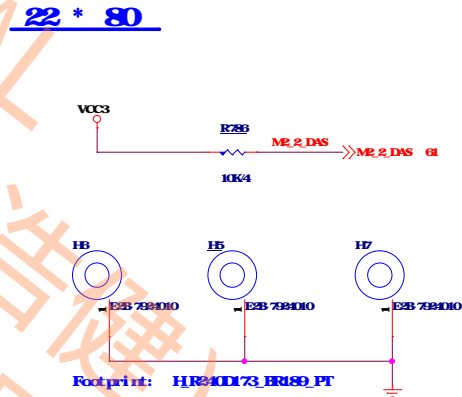
Site: Custom Document Description: M2SL001 Rev: 10


Date: Mar 01, 2007 Sheet: 23 of 70



HCS_MDE

To Switch SATA5_6				
GP_G7	GP_G6	GP_G5		
HCS_DIS_SW2	M2_2_SEL	HCS_SEL_PCIE SATA2	Mode	SATA_PCE_DET4
GP1 (1)	GP1 (1)	GP1 (0)	AUTO	1
0	1	0	SATA5_6	1
0	0	1	M2 SATA	1
0	0	0	M2 PCIe	0

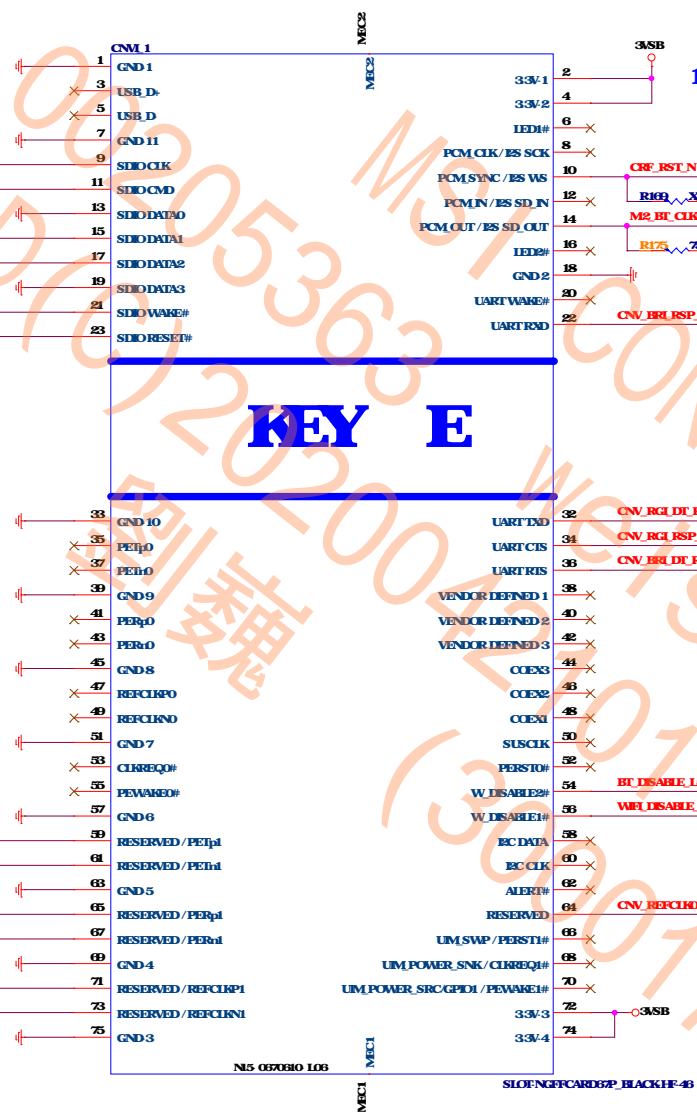




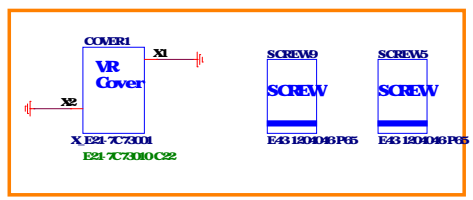
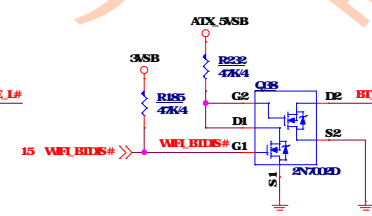
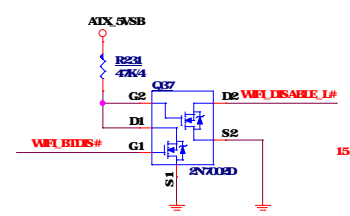
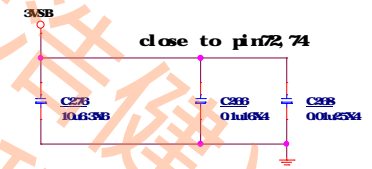
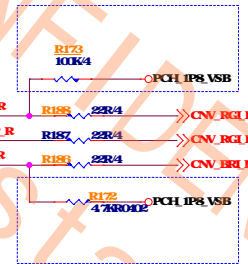
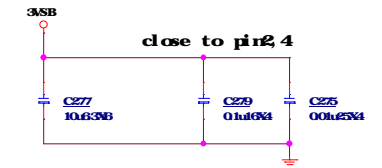
MICROSTAR INT'L CO., LTD		
MS-7C79		
Site	Document Description	Rev
Custom	M2SL02	10
Date: March, January 23, 2020		Sheet 21 of 20

15 CNV_WR_LDN << R215 OR/4 CNV_WR_R_LDN
 15 CNV_WR_LDP << R214 OR/4 CNV_WR_R_LDP
 15 CNV_WR_0LDN << R195 OR/4 CNV_WR_R_0LDN
 15 CNV_WR_0LDP << R194 OR/4 CNV_WR_R_0LDP
 15 CNV_WR_CLK_LDN << R213 OR/4 CNV_WR_R_CLK_LDN
 15 CNV_WR_CLK_LDP << R212 OR/4 CNV_WR_R_CLK_LDP

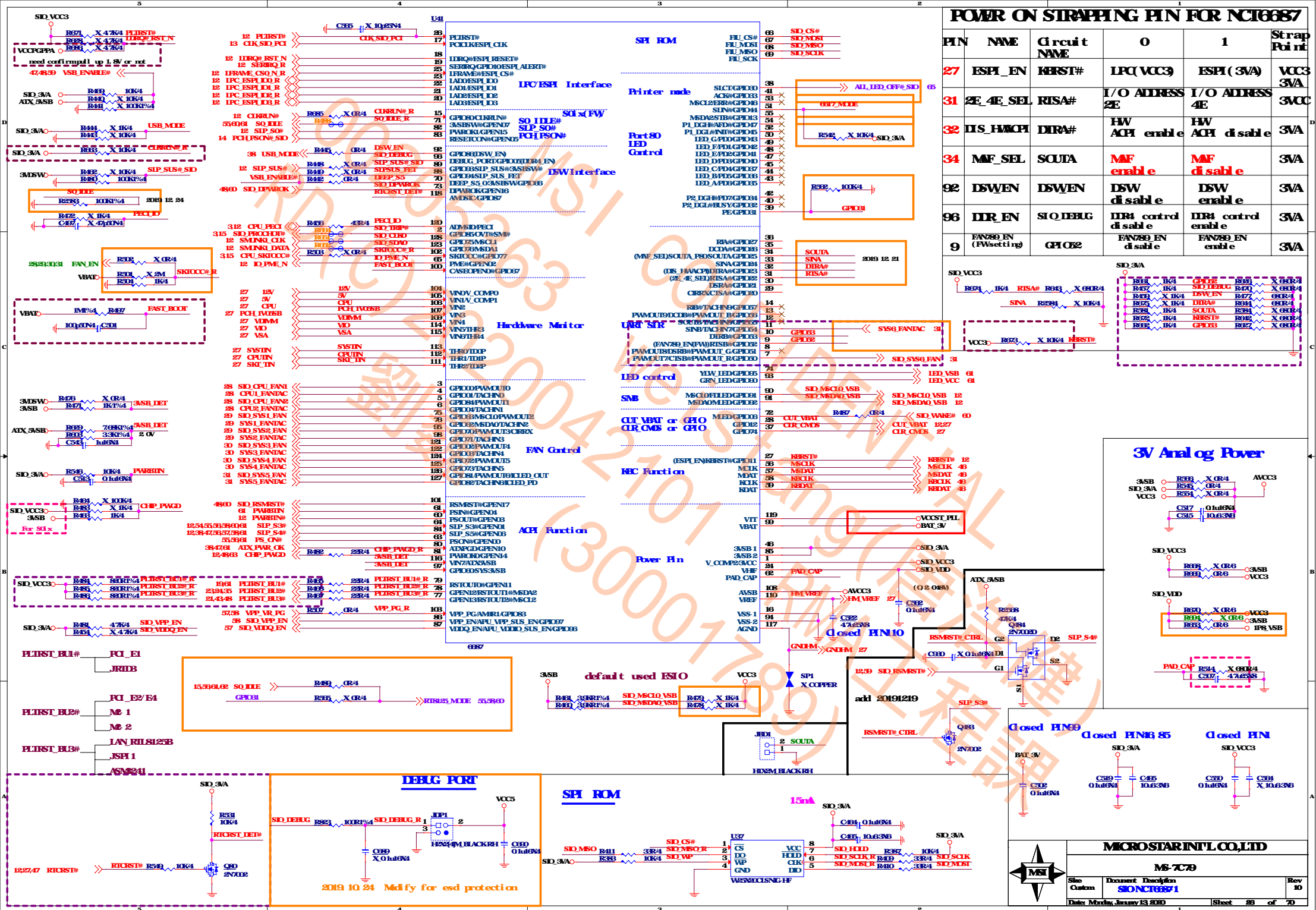
15 CNV_WL_LDN << R193 OR/4 CNV_WL_R_LDN
 15 CNV_WL_LDP << R192 OR/4 CNV_WL_R_LDP
 15 CNV_WL_0LDN << R211 OR/4 CNV_WL_R_0LDN
 15 CNV_WL_0LDP << R210 OR/4 CNV_WL_R_0LDP
 15 CNV_WL_CLK_LDN << R191 OR/4 CNV_WL_R_CLK_LDN
 15 CNV_WL_CLK_LDP << R190 OR/4 CNV_WL_R_CLK_LDP



1. 36A (Jefferson Peak2)

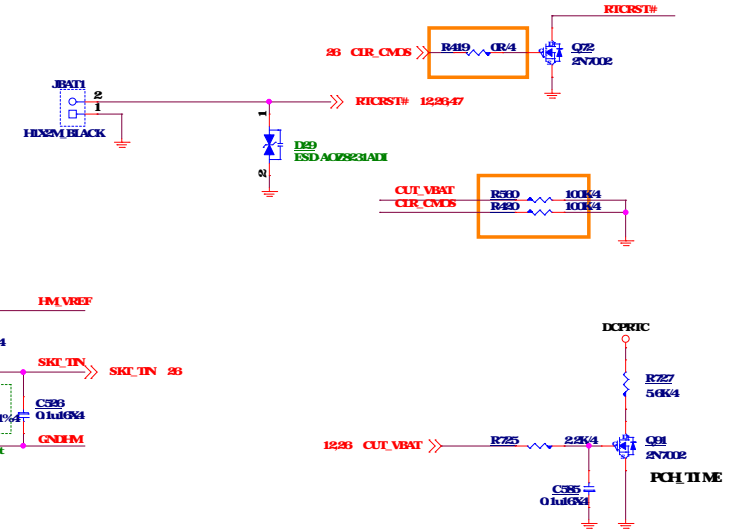
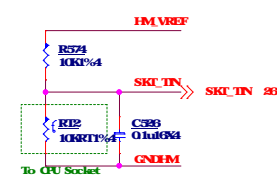
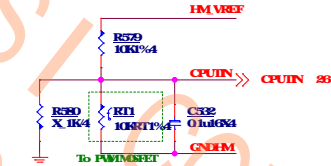
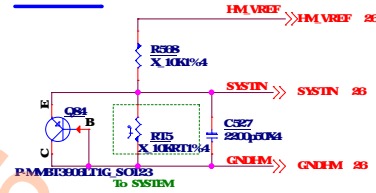


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Site	Document	Discipline	Rev
Custom		M2.CNV	10
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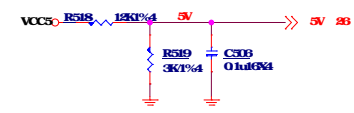
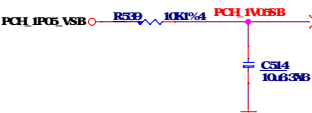
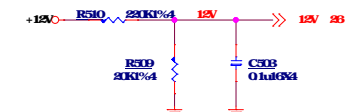
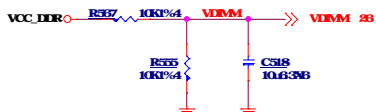
Serial Port 1

Thermal

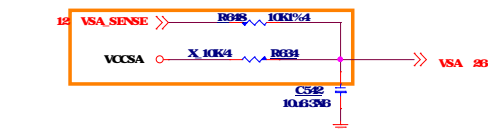
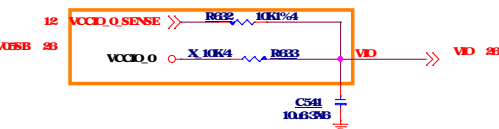
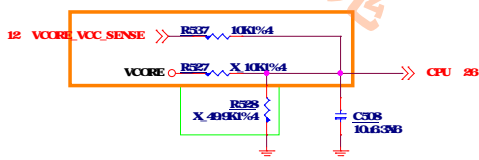


HWMonitor - Voltage

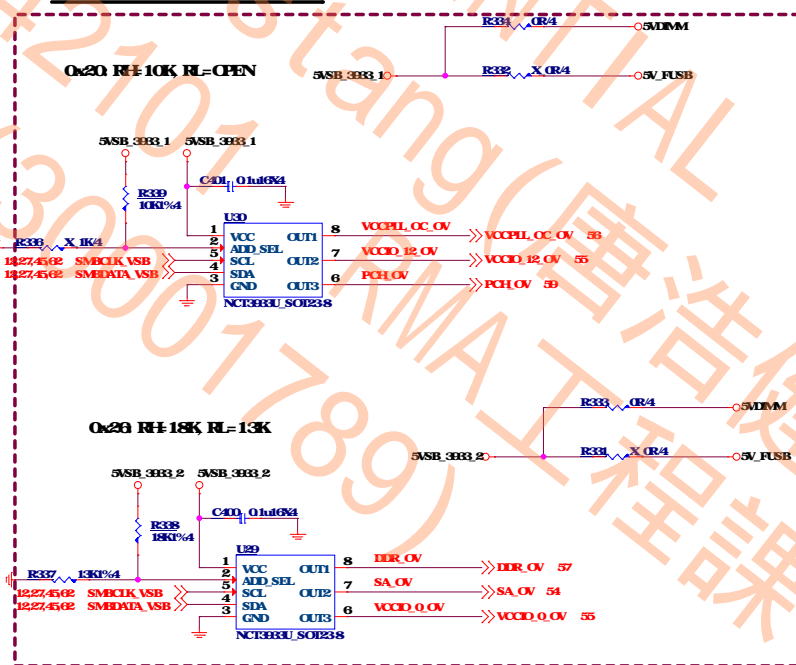
SIO HM Voltage Over 2V will Not Detect



2019.12.24: Remote sense R Place near CPU Side or VR Side



VOLTAGE CONSOLE



UPI VOLTAGE CONSOLE

ADDRESS	0x2A	0x2B	0x2C	0x2D	0x2E
RH(KOhm)	OPEN	39	3	22	13
RL(KOhm)	10	13	23	3	39
BUS_SEL	0%	25%	40%	60%	75%

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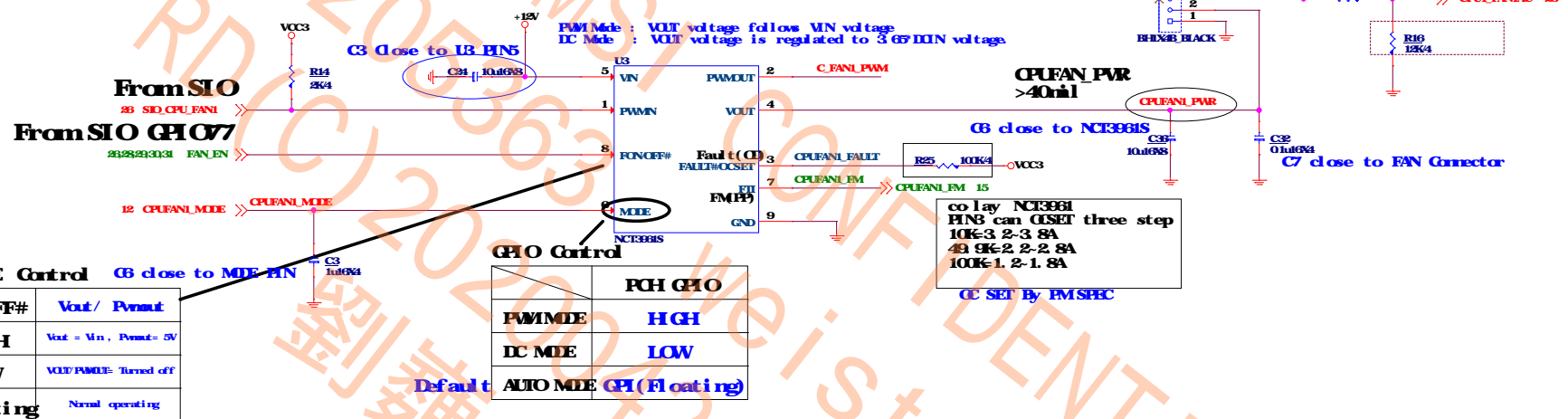
Docu: NCT330

Rev: 10

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

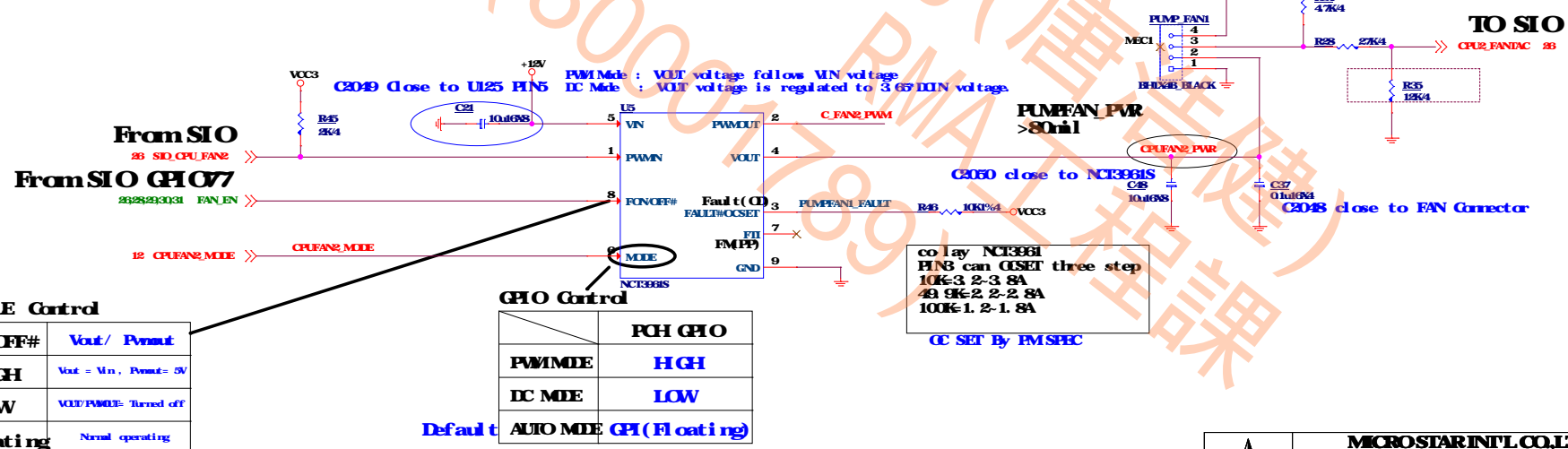
1. Mode GPIO HIGS can switch PWMDC MODE

2. FMBIGS can read FAN PWMDC MODE



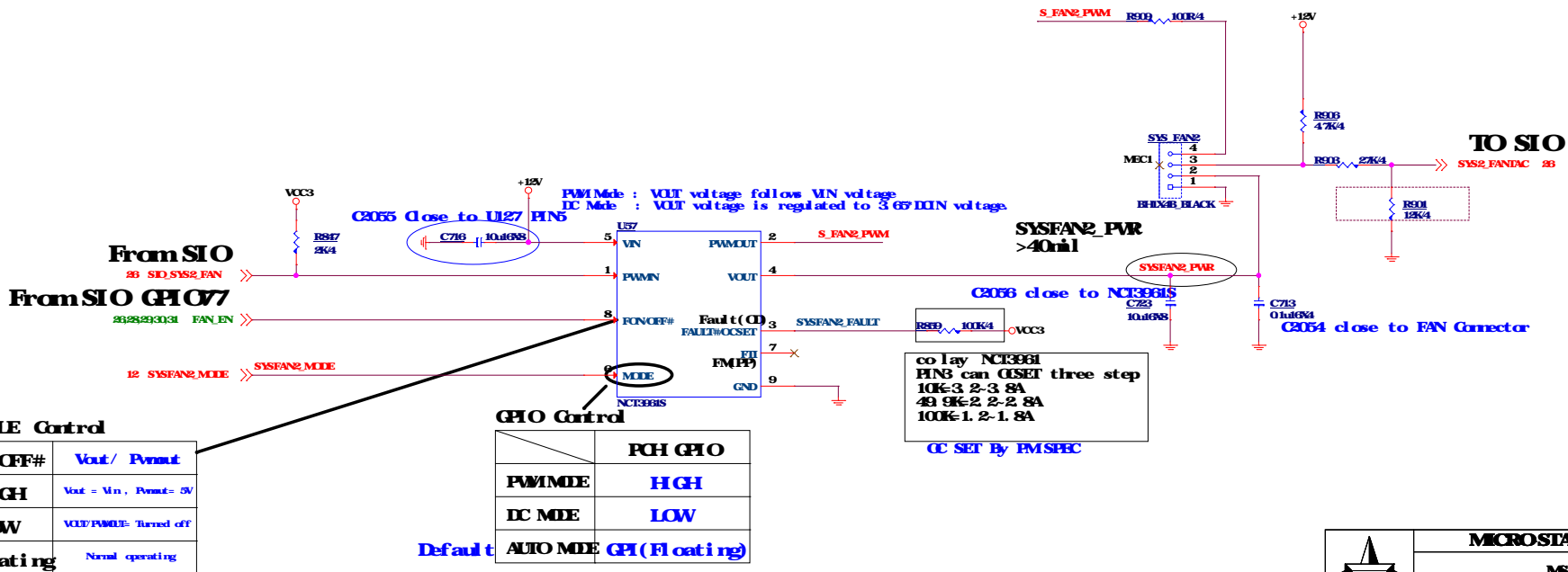
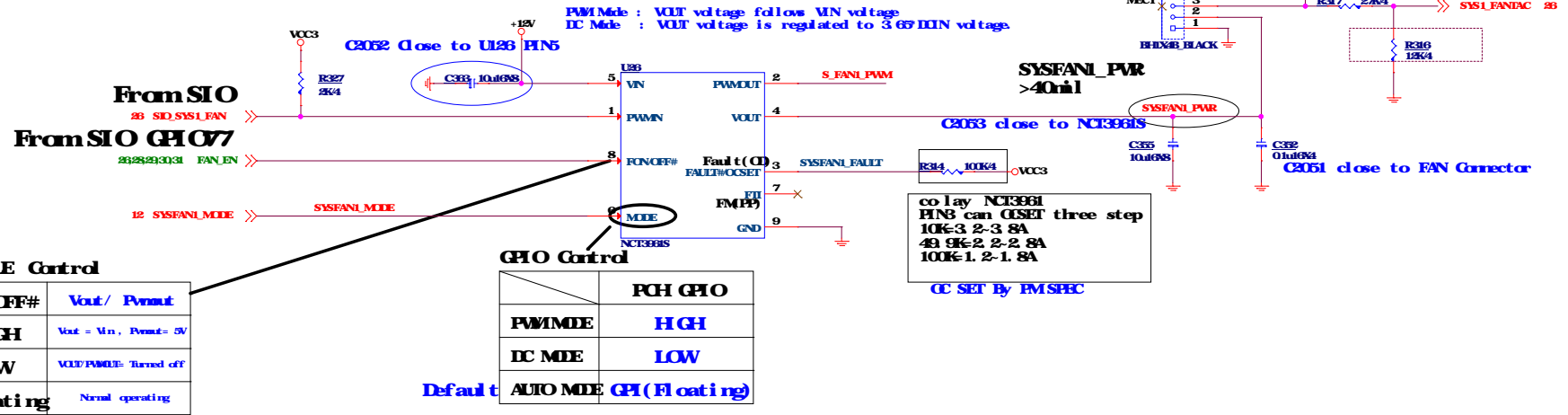
TYPE M: 4 PIN CPU FAN USE NCT3961S USE PCH GPIO CONTROL FAN MODE

1. Mode GPIO HIGS can switch PWMDC MODE

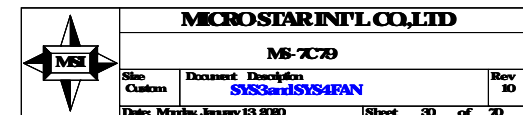


TYPE M: 4 PIN CPU FAN USE NCT3961S USE PCH GPIO CONTROL FAN MODE

1. Mode GPIO HIGH can switch PWM/DC Mode

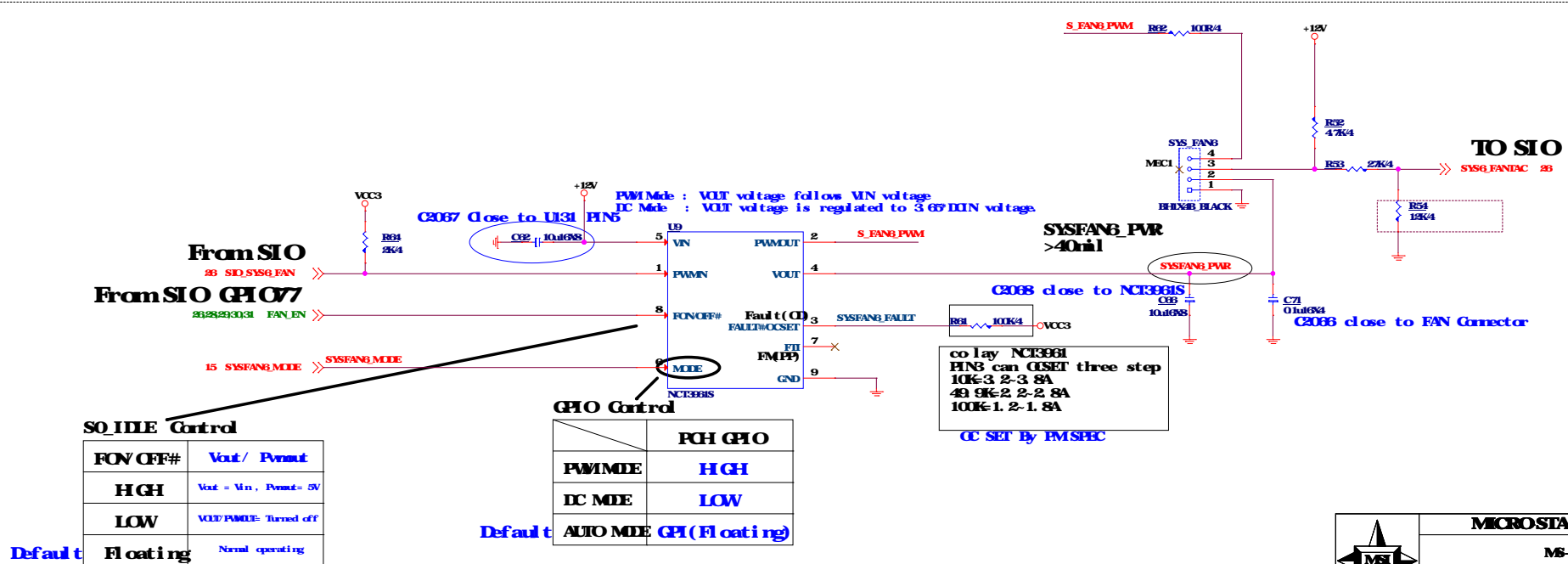
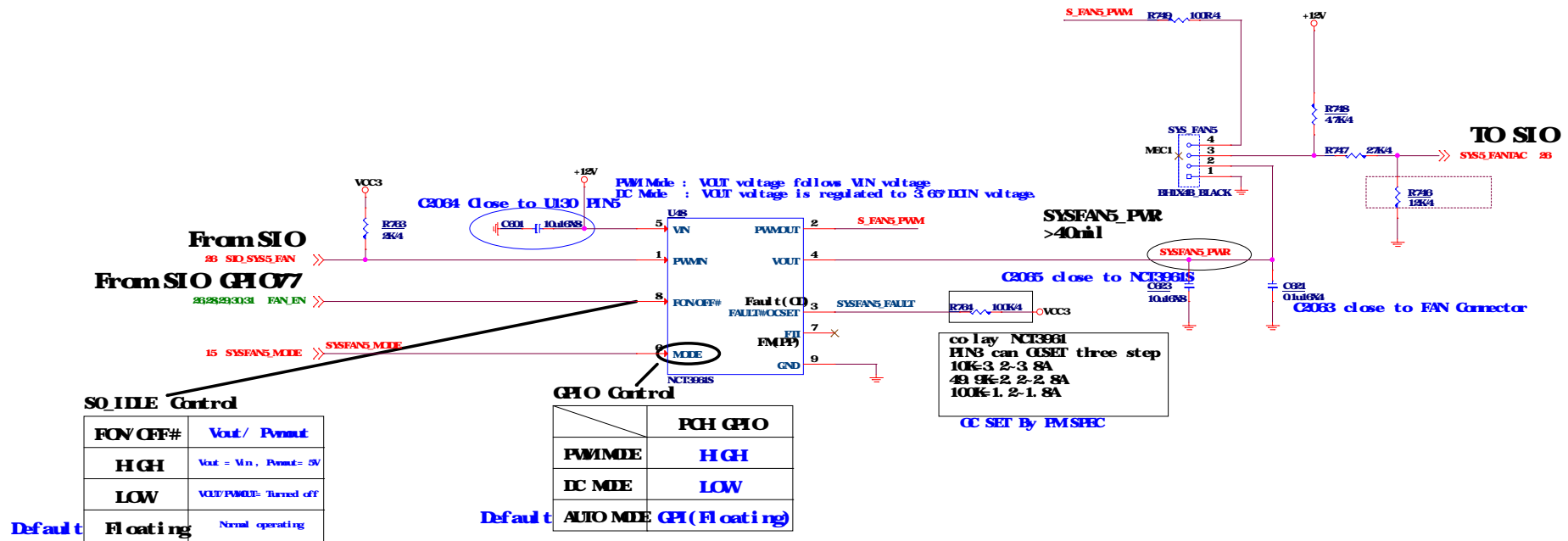


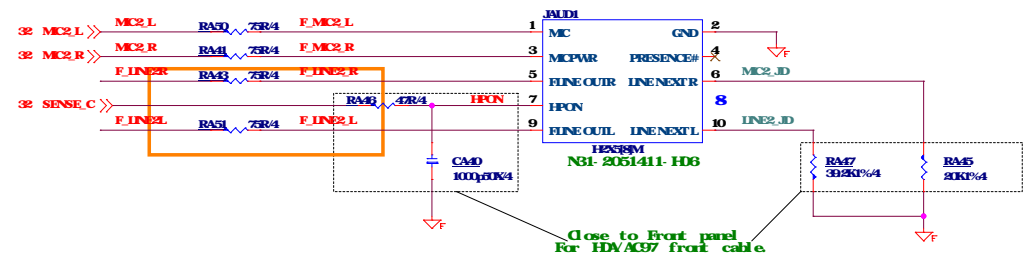
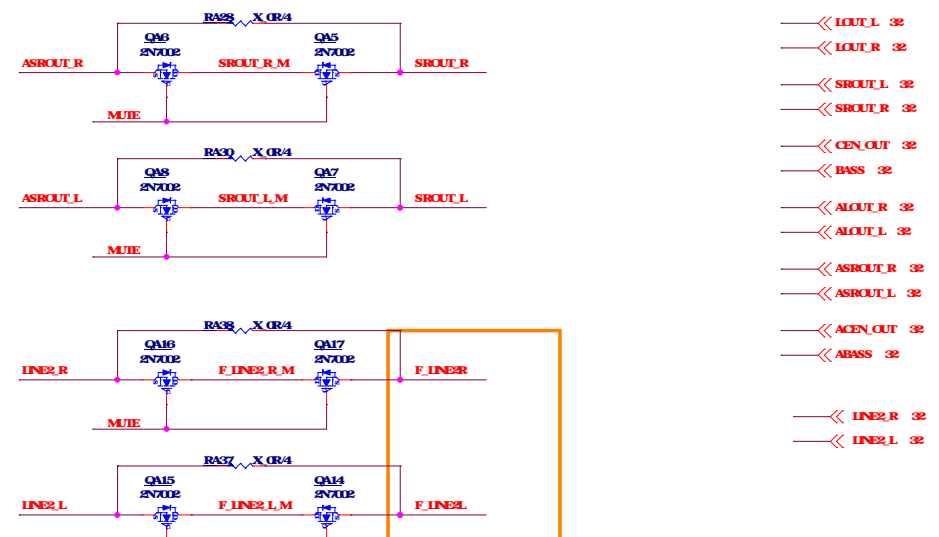
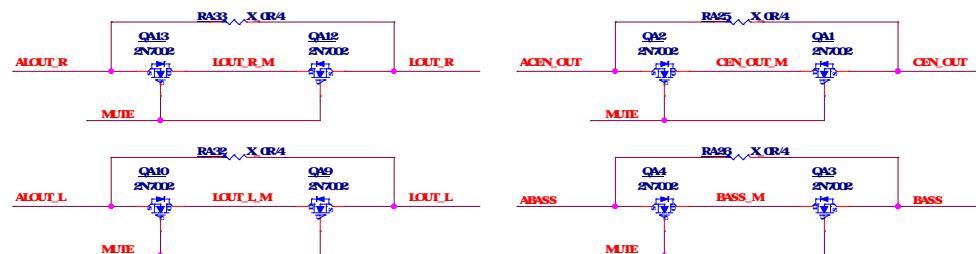
1. Mode GPIO HCS can switch PWMDC MODE

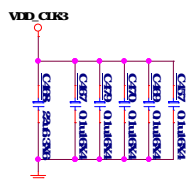
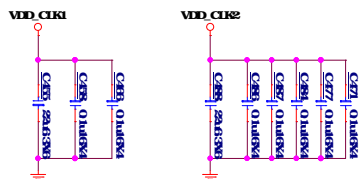


TYPE M: 4 PIN CPU FAN USE NCT3961S USE PCH GPIO CONTROL FAN MDE

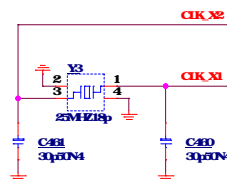
1. Mde GPIO HIGS can switch PWM/DC MDE



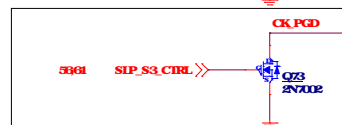
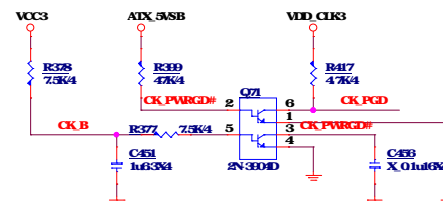
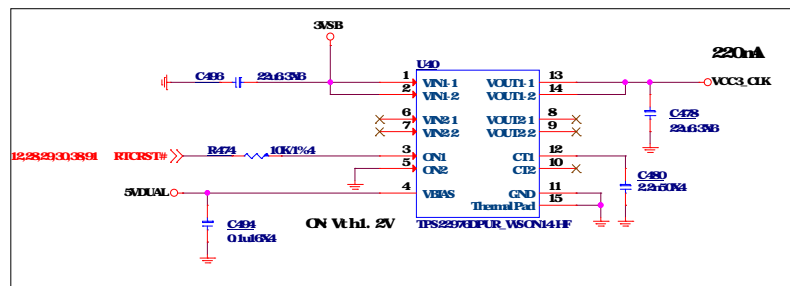
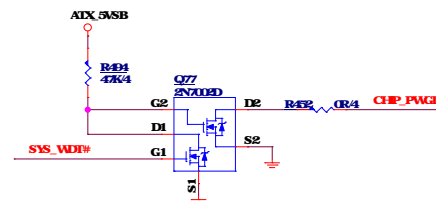
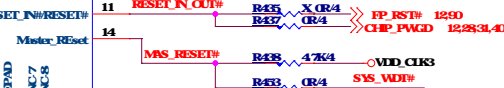
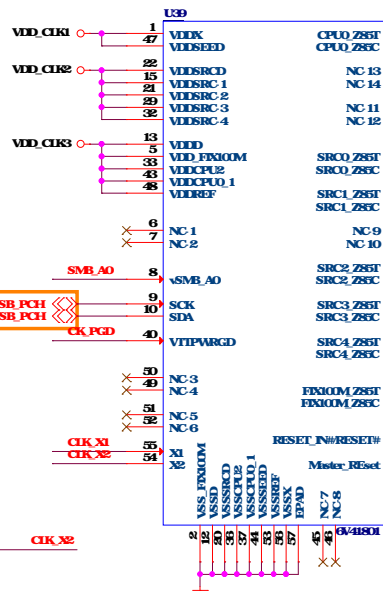
[illegible]



SMB_A0	ADDR
0	D2/D3
1	D8/D9

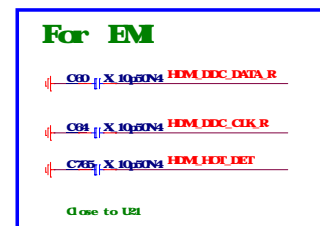
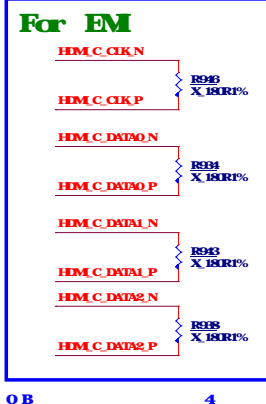
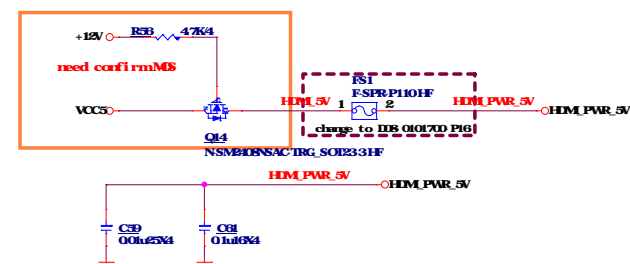
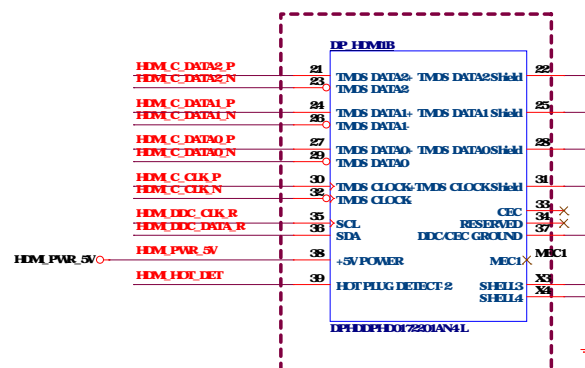
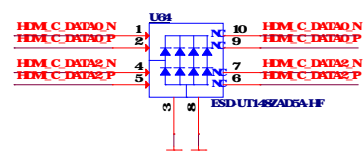
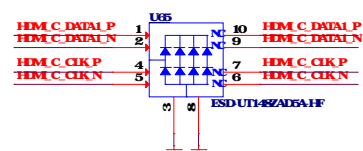
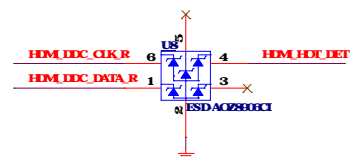


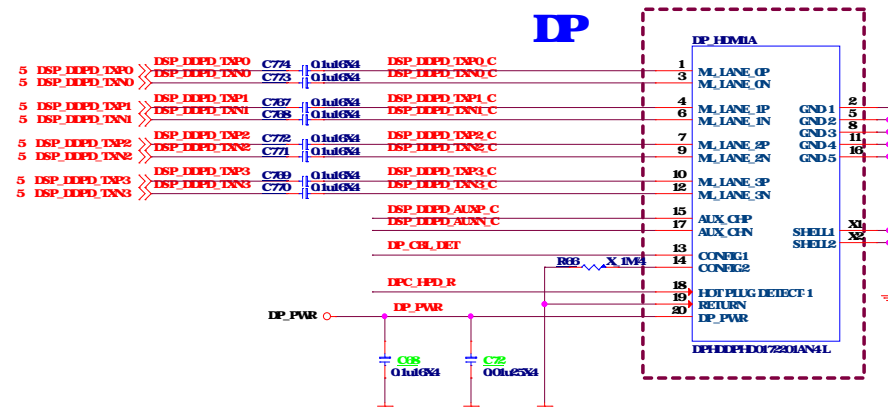
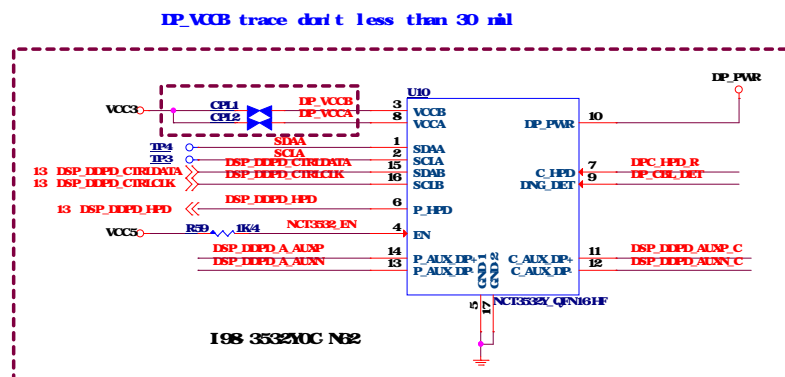
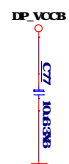
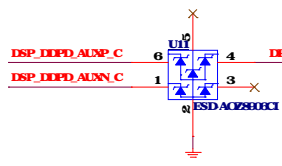
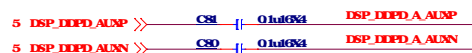
CPU_SEL	SRC_SEL	CPU(2 0)	SRC(5 0)	Notes
0	0	CPULL	CPULL	
0	1	CPULL	SRCPL	Default
1	0	N/A	N/A	
1	1	SRCPL	SRCPL	



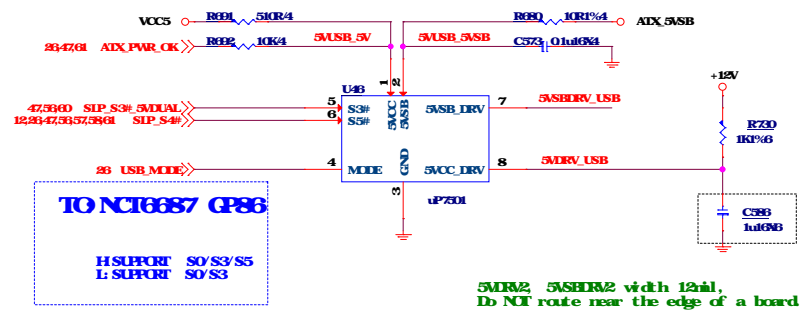
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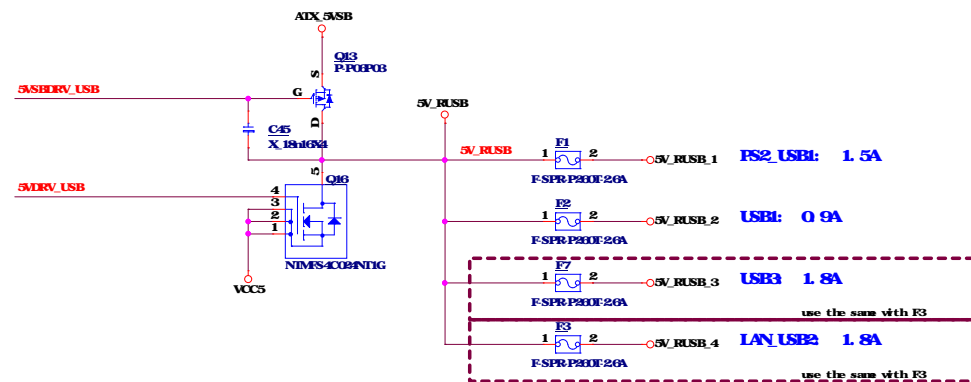




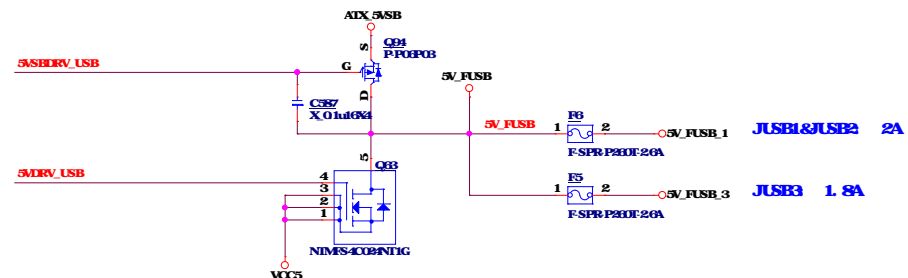
USB Power



Rear USB Port Power



Front USB Port Power

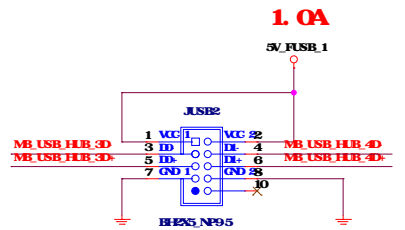
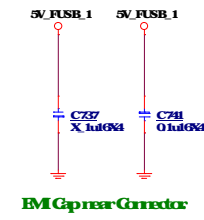
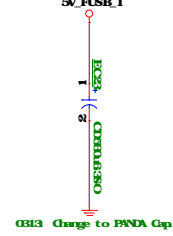
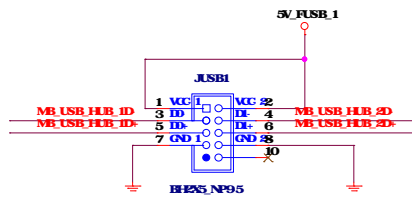
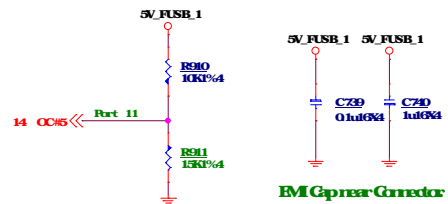
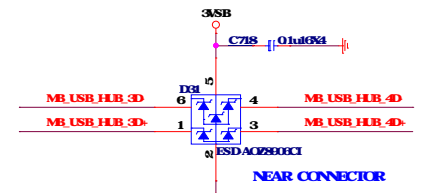
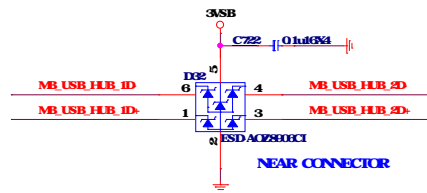


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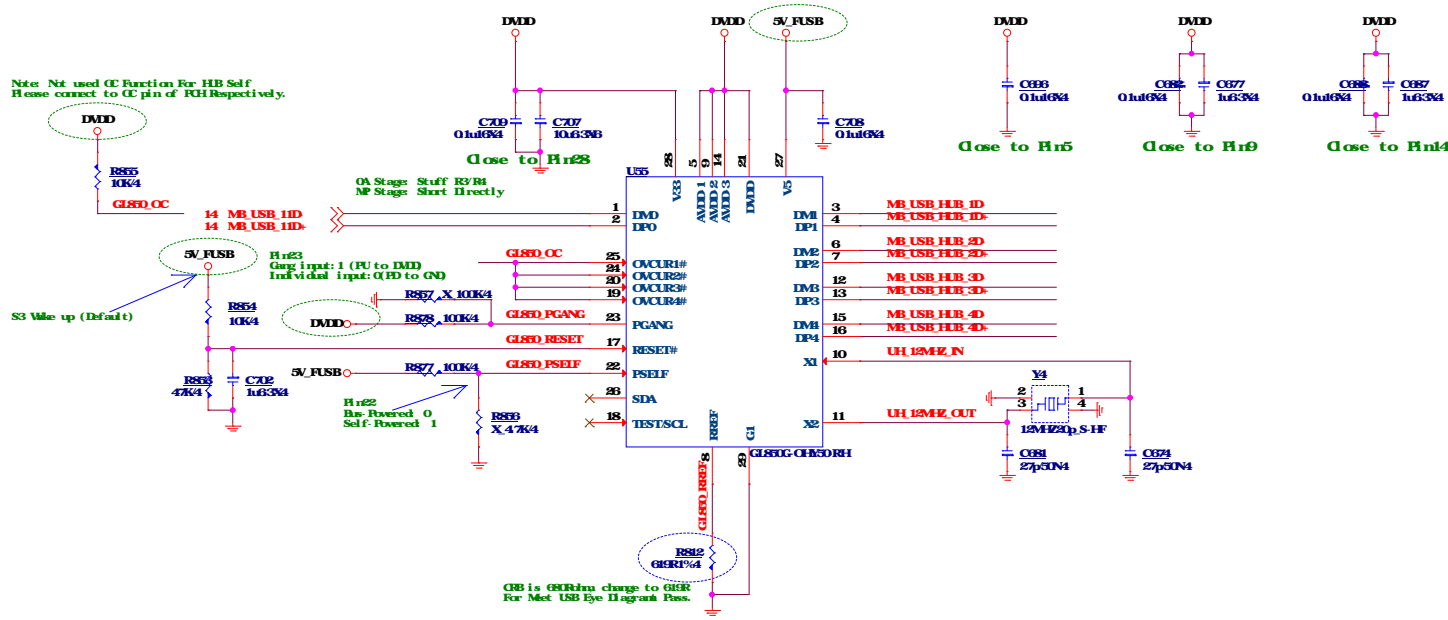
Site Custom	Document Description USB Power	Rev 10
Date: Monday, January 13, 2020		Sheet 36 of 70

Front USB2 0



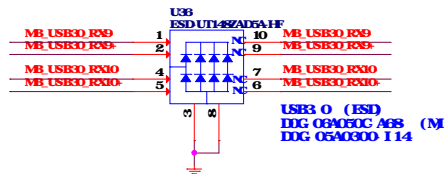
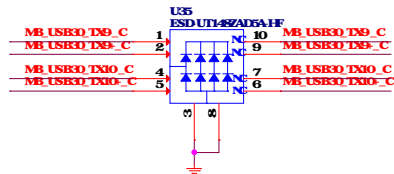
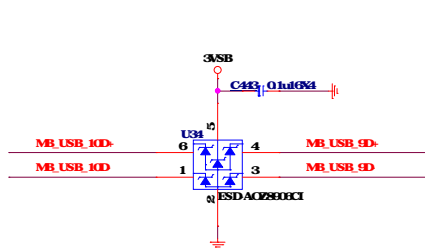
GL50G USB20HUB

Note: Please connect to USB Power Source.

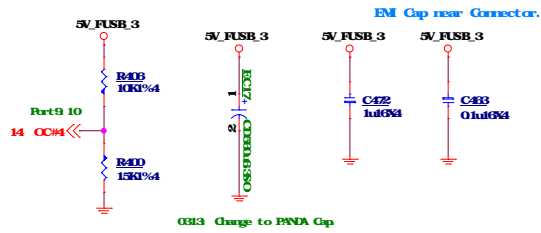


MICROSTAR INT'L CO., LTD			
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Front USB3 1 Gen1

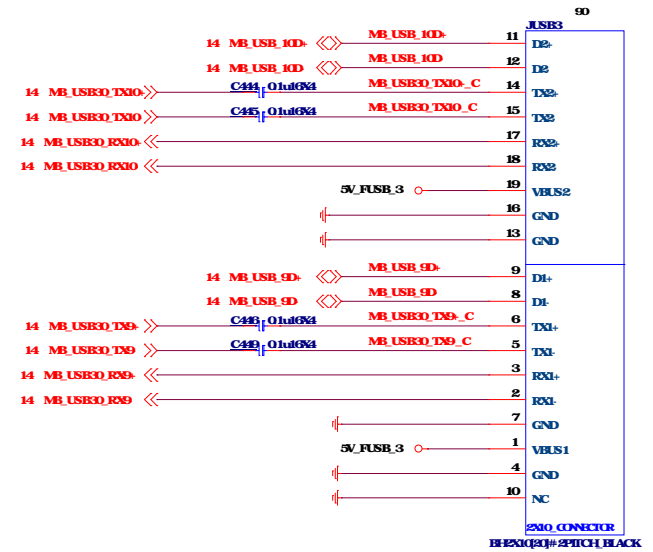


USB3 0 (ESD)
IDG 08AC0C A68 (M)
IDG 05AC000 I 14



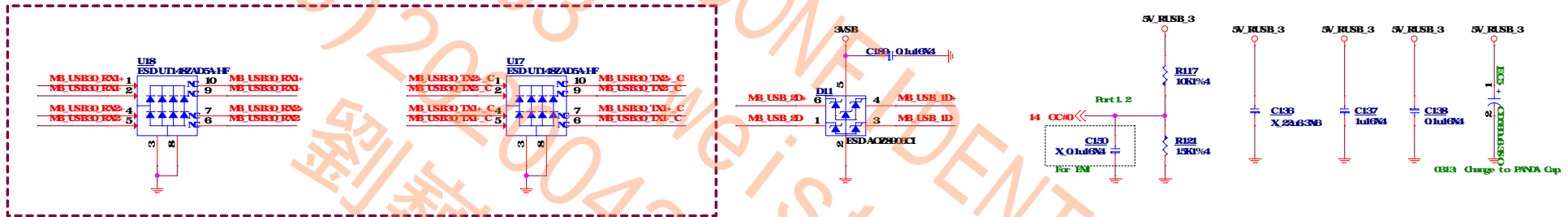
EM Cap near Connector.

03B3 Charge to PANDA Cap

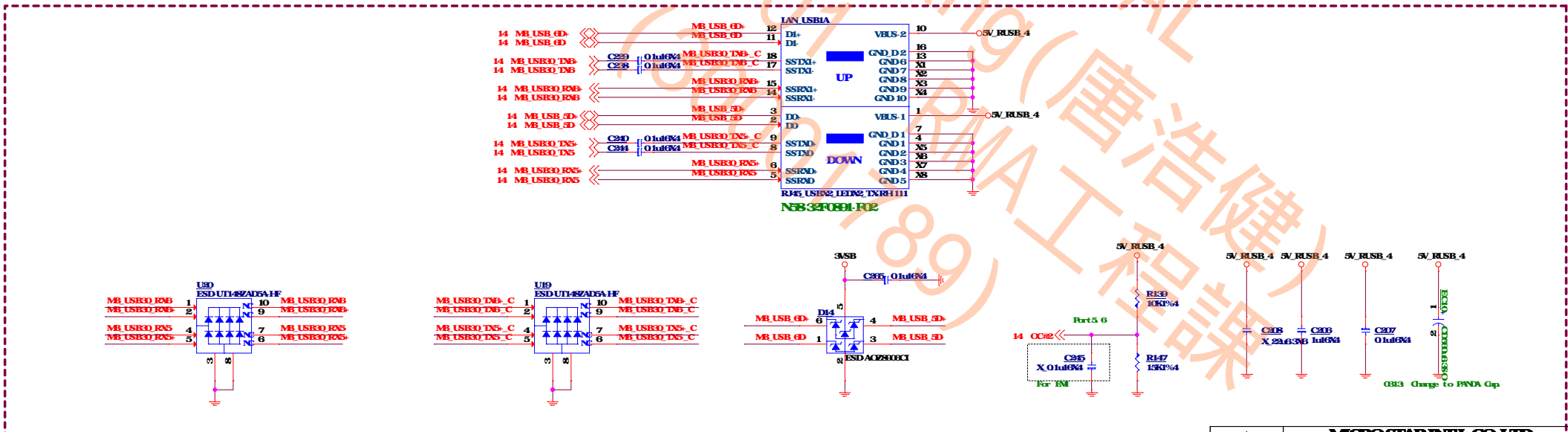


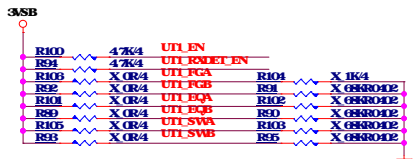
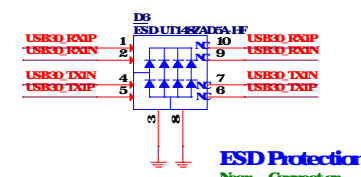
230 CONECTOR
B230(33)+2P1CH BLACK

Rear USB3 1 Gen1



Rear LAN USB3 1 Gen1



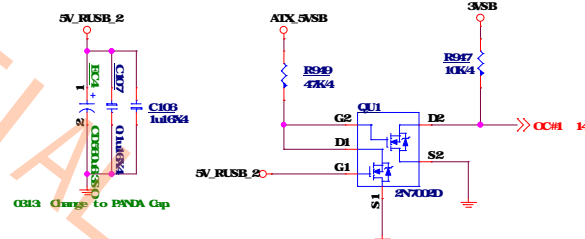
[illegible]

	HIGH	LOW
EN	Normal operation	Power down mode
FWDET_EN	Receive Enable	Receive Disable

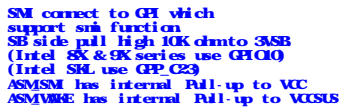
```

UN_EQA setting Floating , RI15 NC
UN_EQB setting 68K ohm to GND , RI17 68K ohm
UN_FGA setting 0 ohm to GND RI11 NC, RI12 0 ohm
UN_FGB setting Floating , RI14 NC
UN_SVA and UN_SVB setting Floating RI19 RI21 NC

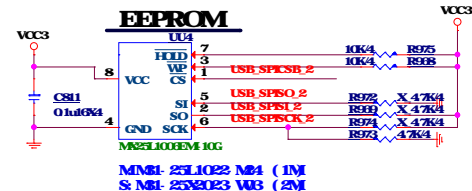
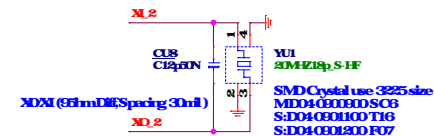
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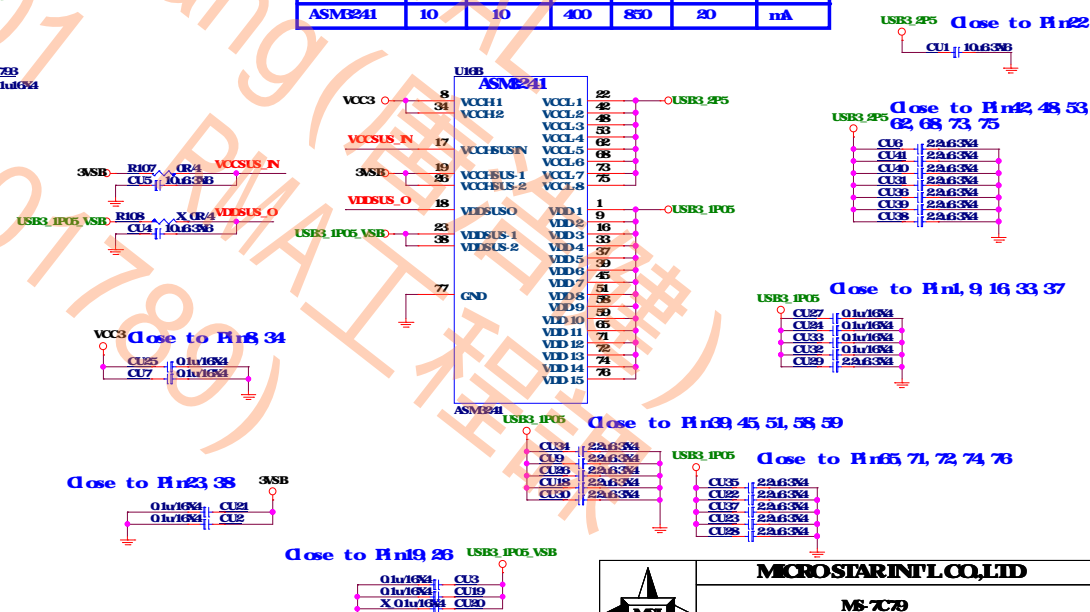
Symbols	Parameter	Min	Typ	Max	Unit	Remark
V _{TH_POR}	Threshold voltage for PORST pins	1.38	1.6	1.8	V	Use Q 22a Gr2 use
t _{OCI}	OCiF ready after Suspend/Normal Ready			12	ms	
t _{WSP}	Waiting time for Suspend and normal Power Ready			10	ms	
t _{WSPRST}	Timing for all normal power Ready	50			ms	Note 1
	Timing for all normal Power Ready to Power On Reset (when suspend power domains are existed)	10		80	ms	
t _{PORST1}	Timing for all normal Power Ready to Power On Reset (when suspen powers connect to normal power directly)	60		80	ms	



1) USB3.1 to Connector Total Length < 1.5'
2) VIA hole < 2



	3.3V	3.3VSUS	2.5V	1.05V	1.05VSUS	Unit
ASMB241	10	10	400	850	20	mA

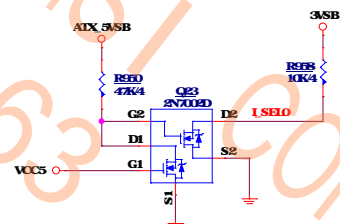
**MS-7C79**

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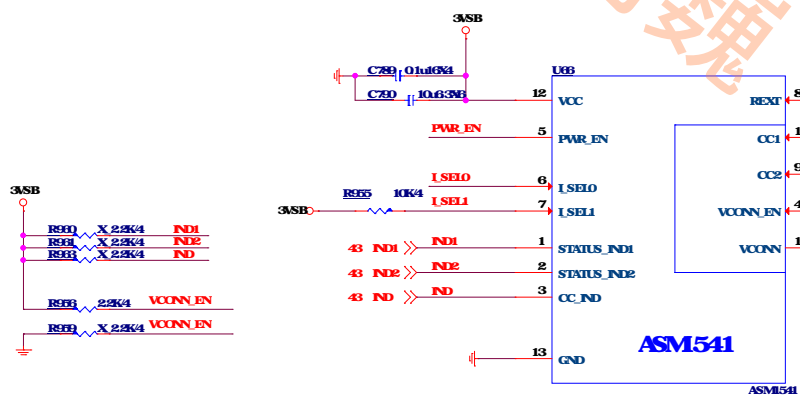
ISO: IS1

X 0	Default for 900mA
0 1	15A@5V
1 1	3A@5V

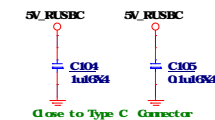
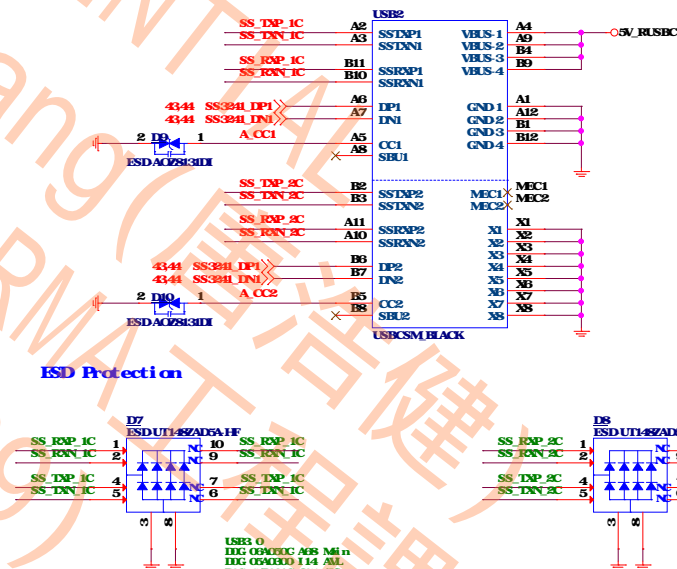
1.5A under S3 node
3A under S0 node



TYPE C



ESD Protection



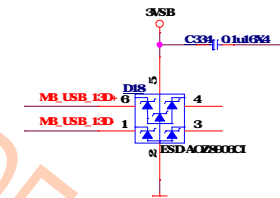
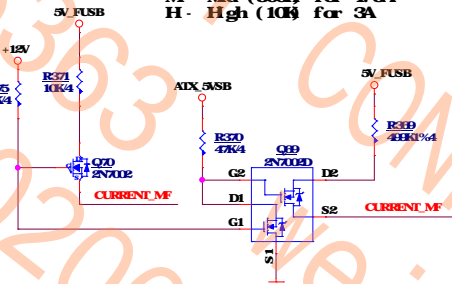
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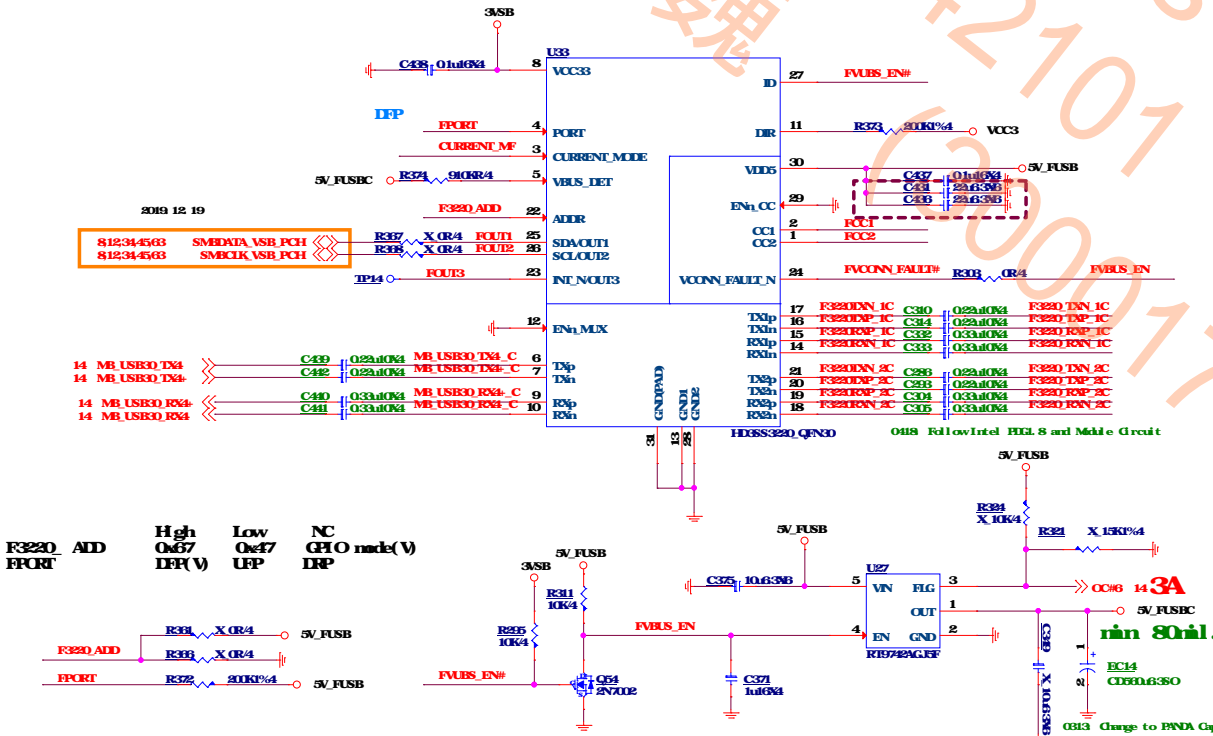
Current Mode

3A under S0 mode
1.5A under S3 mode

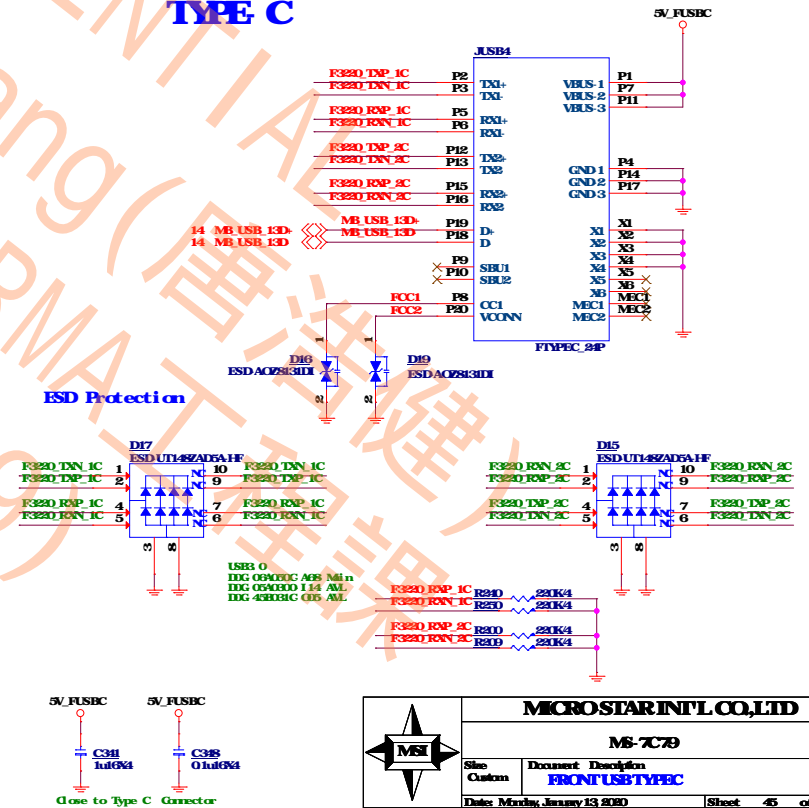
L- Default for 900mA
M- Mid (500K) for 1.5A
H- High (10K) for 3A



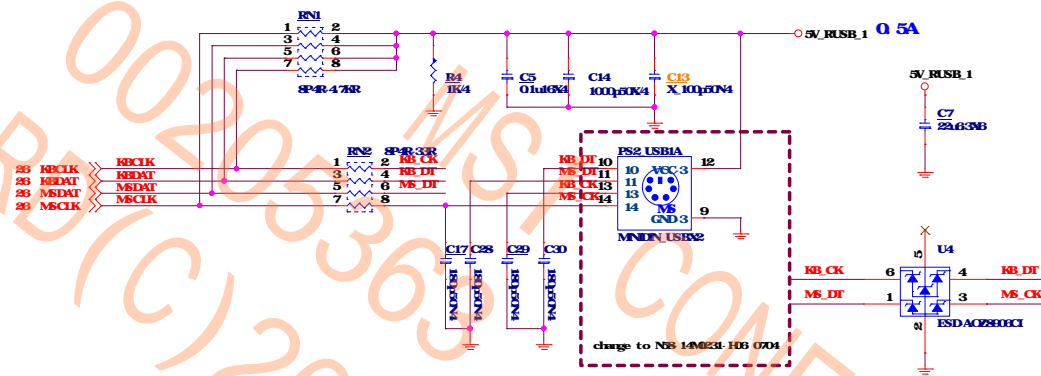
USB Type C MIX with Configuration Channel (CC)



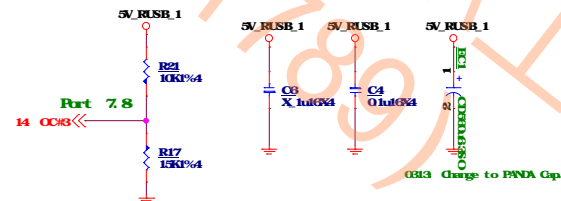
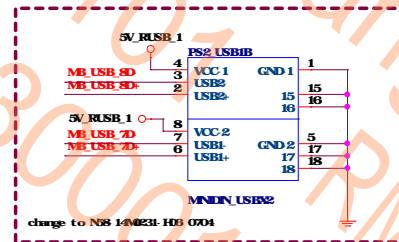
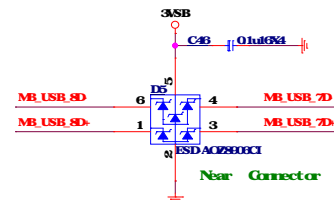
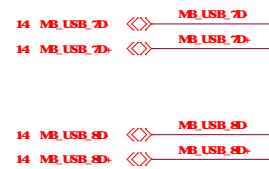
TYPE C



PS2 Keyboard & Mouse Connector



PS2 USB2 0



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	Size
	Custom

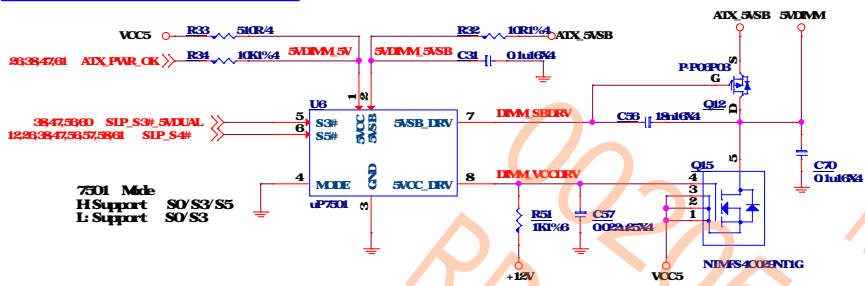
Document Description PS2 USB1
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Rev
10

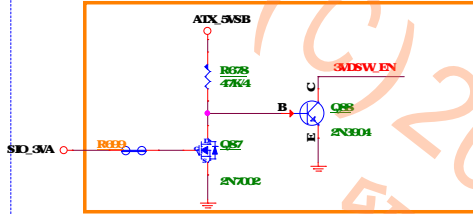
Date: Monday, January 13, 2020

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5VIMMFOR DDR



For S5 -> G3 3VSWEN Bounce issue

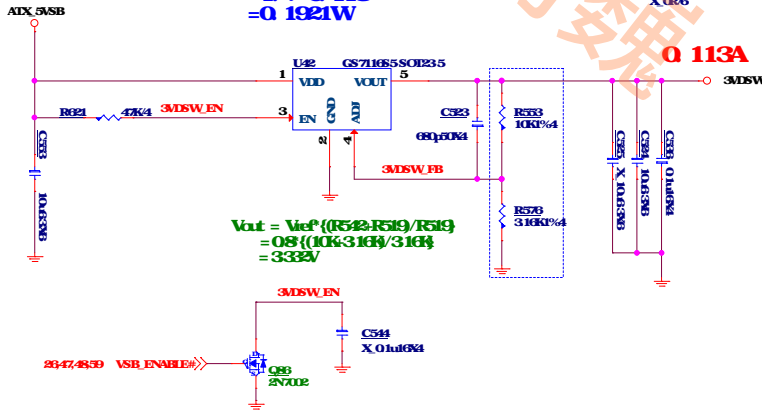


Q155 Add Discharge Circuit For S5 to G3 Issue

$$\begin{aligned} \text{Power Loss} &= (V_{in} - V_{out}) \cdot I_{out} \\ &= (5.3 - 3) \cdot 0.113 \\ &= 1.70113 \\ &= 0.1921W \end{aligned}$$

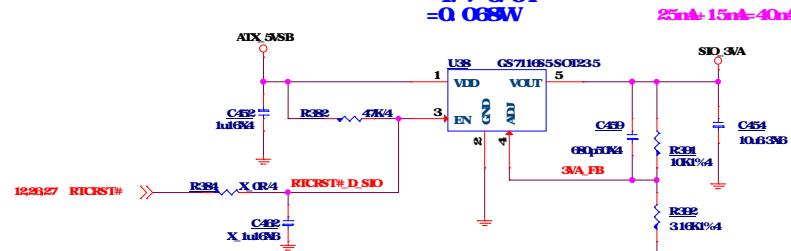
Resverd

0.113A

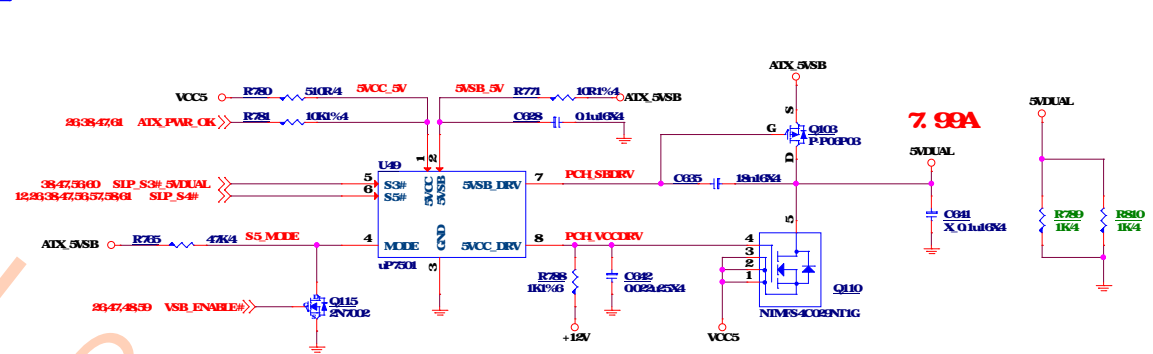


$$\begin{aligned} V_{out} &= V_{in} \cdot \left(\frac{R_{155} \cdot R_{156}}{R_{155} + R_{156}} \right) \\ &= 0.8 \cdot \left(\frac{10K \cdot 31K}{10K + 31K} \right) \\ &= 3.33V \end{aligned}$$

$$\begin{aligned} \text{Power Loss} &= (V_{in} - V_{out}) \cdot I_{out} \\ &= (5.3 - 3) \cdot 0.04 \\ &= 1.7004 \\ &= 0.068W \end{aligned}$$

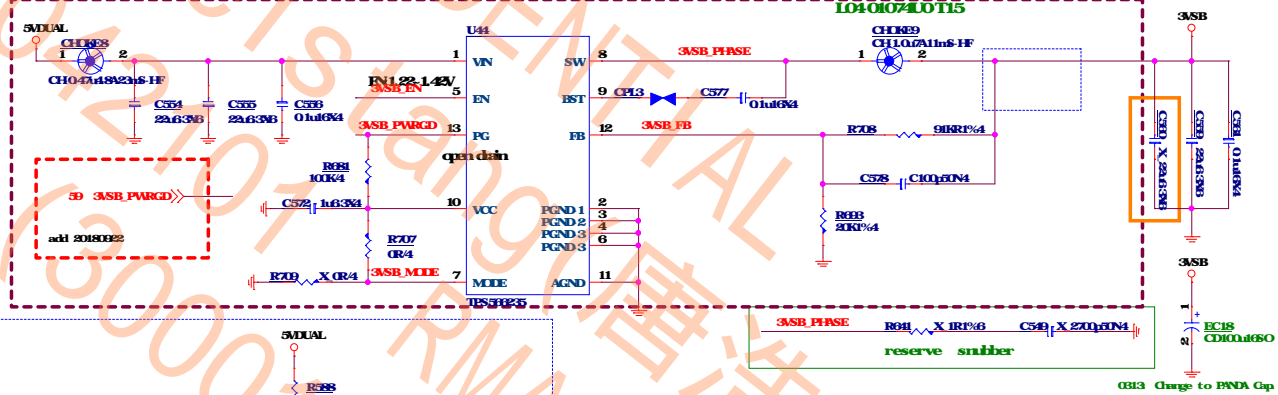


5VDUAL



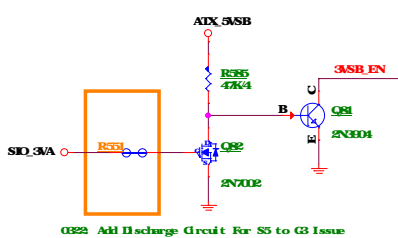
3VSB

$$\begin{aligned} I_{rms} &= I_{out} \cdot \sqrt{f \cdot (V_{out}/V_{in}) \cdot (1 - (V_{out}/V_{in}))} \\ &= 4.98 \cdot 0.474 \\ &= 2.35A \end{aligned}$$



$$\begin{aligned} V_{out} &= V_{in} \cdot \left(\frac{R_{155} \cdot R_{156}}{R_{155} + R_{156}} \right) \\ &= 0.8 \cdot \left(\frac{10K \cdot 31K}{10K + 31K} \right) \\ &= 3.33V \end{aligned}$$

For S5 -> G3 3VSB EN ISSUE



Q155 Add Discharge Circuit For S5 to G3 Issue

Vmode(VP25 MODE)	0-0.3V	0.3-1.2V	>1.2V
Rmode	OR	100K-150K	To VCC(recommend) or R-400K
Operating Mode	Eco Mode	Out-CF-Audio	FCOM

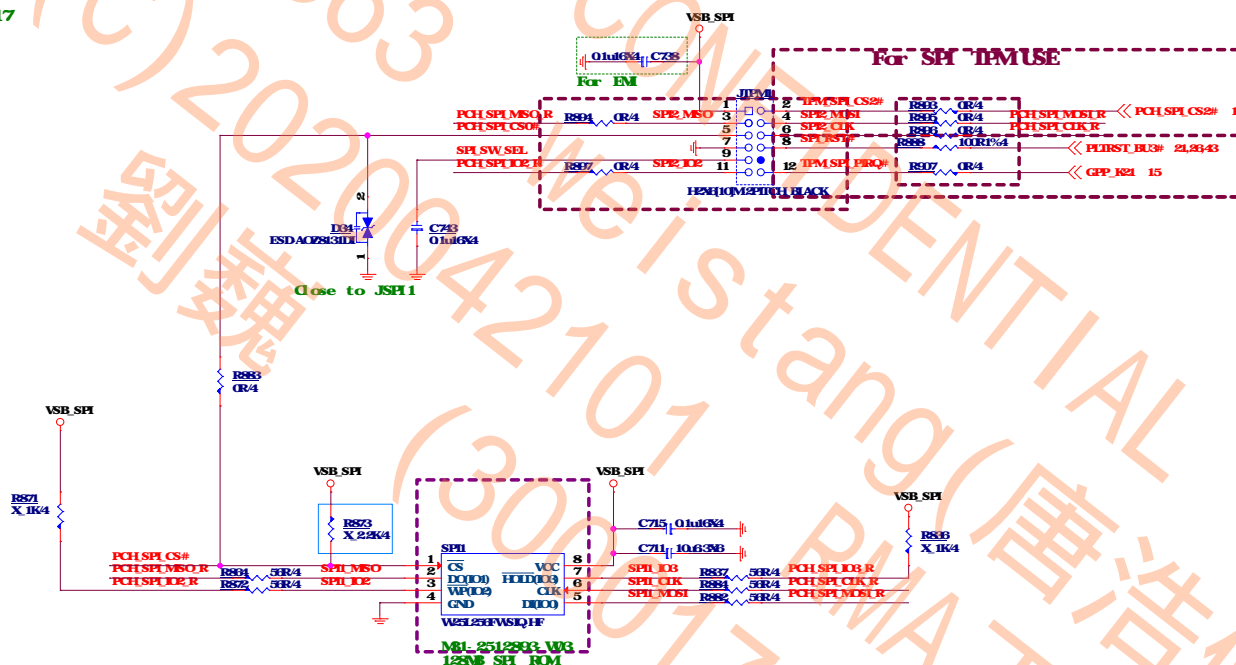
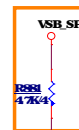


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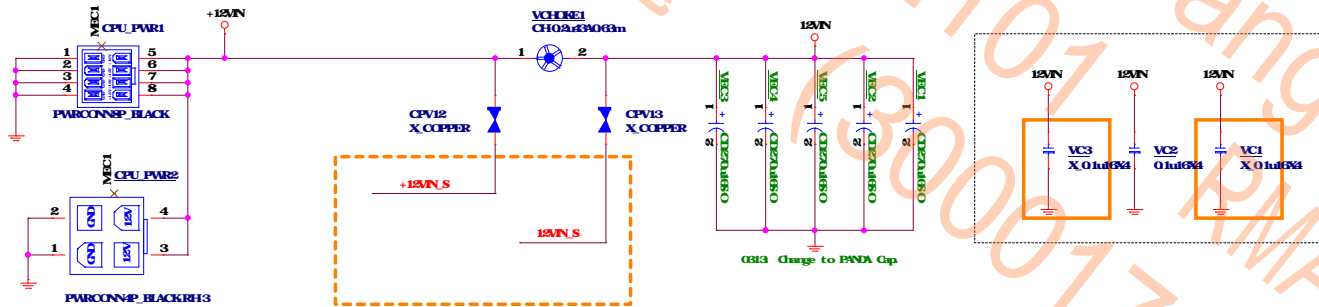
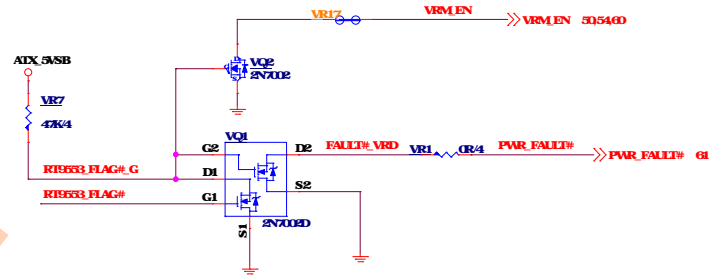
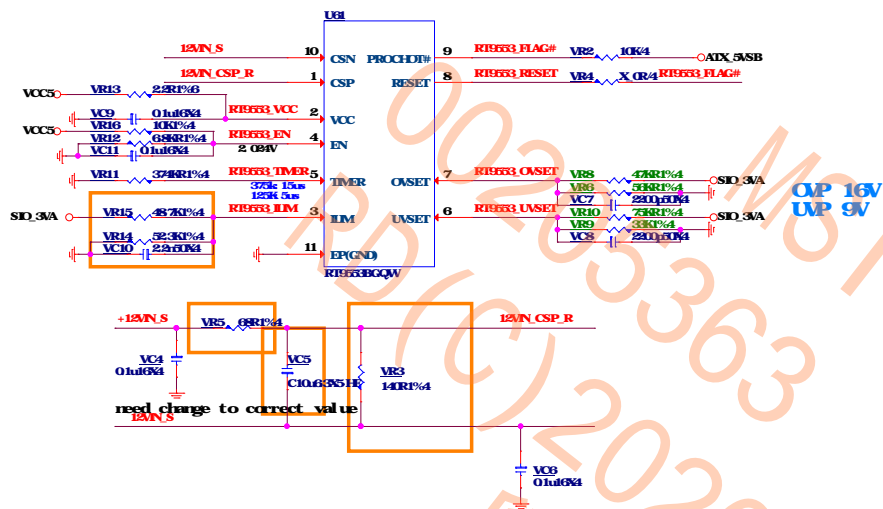
For TL624 1.
DEEP Mode : Stuff D18/R2517
DSWMode : Stuff D18/D19/R2517



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OOP. 45A
VLM41. 711V



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Custom

ID	Document Description
m	12VIN Current Detect

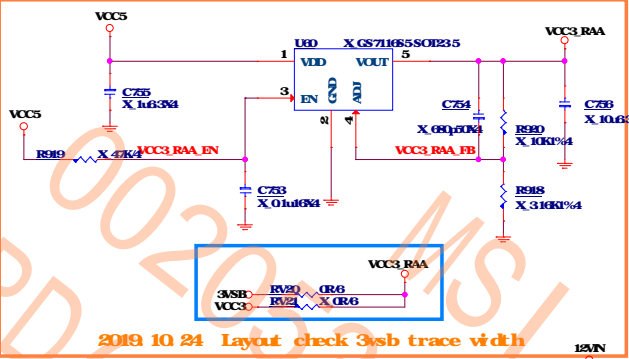
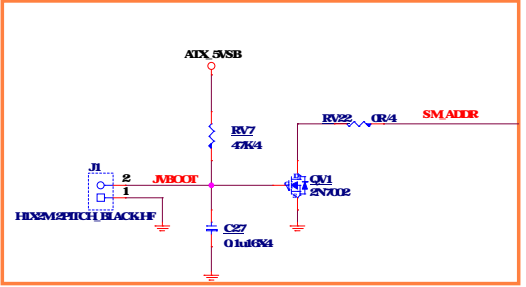
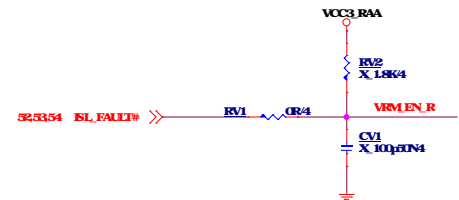
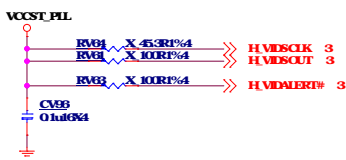
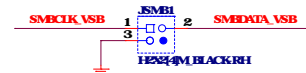
Rev
10

Date: Monday, January 13, 2020

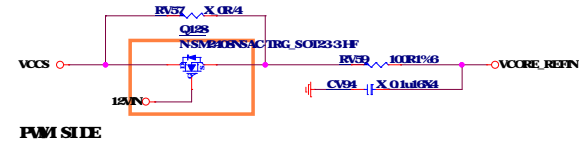
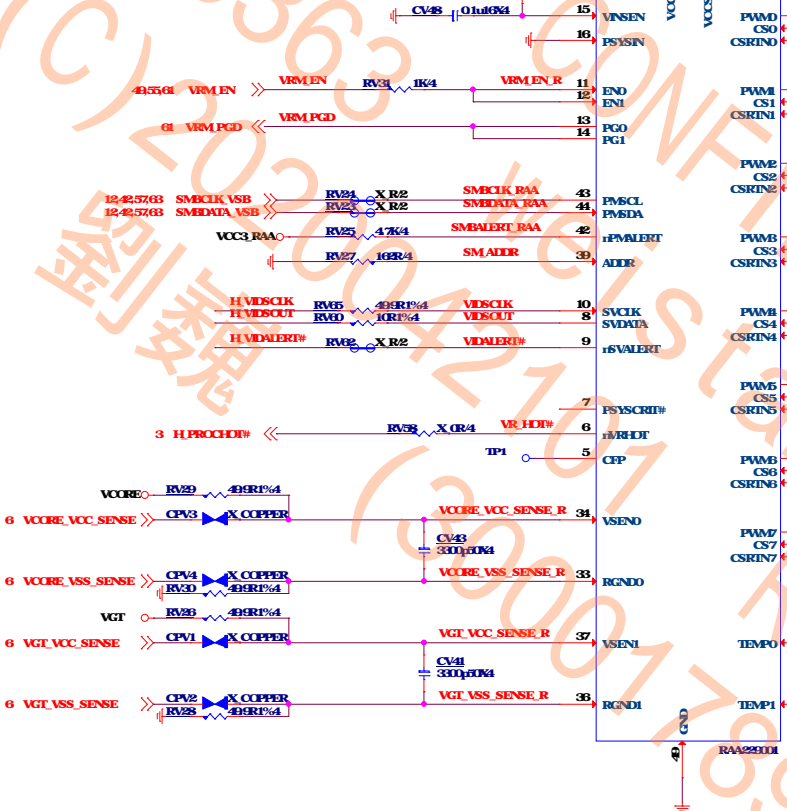
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VCORE ICC Max 245A
IL: 1.1 nA
VGT ICC Max 35A
IL: 4 nA

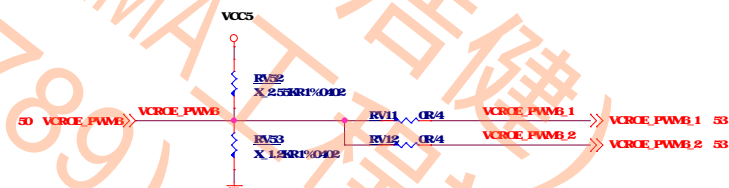
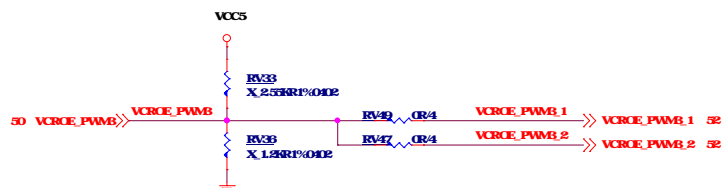
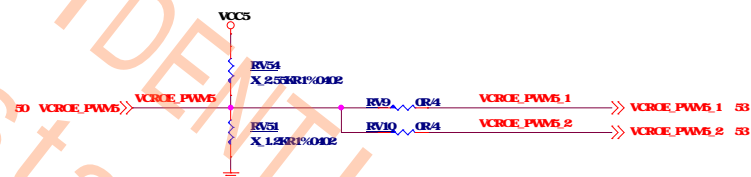
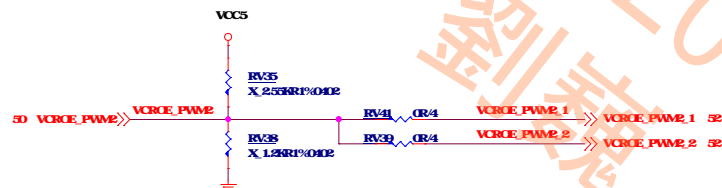
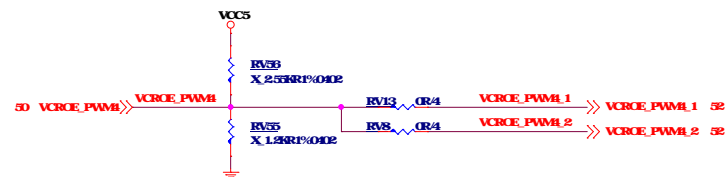
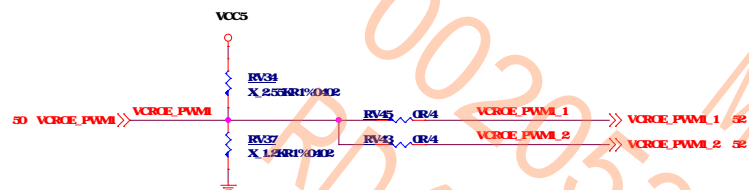
SMB Address: 080



2019 10 24 Layout check 3v3b trace width



VOORE Double e



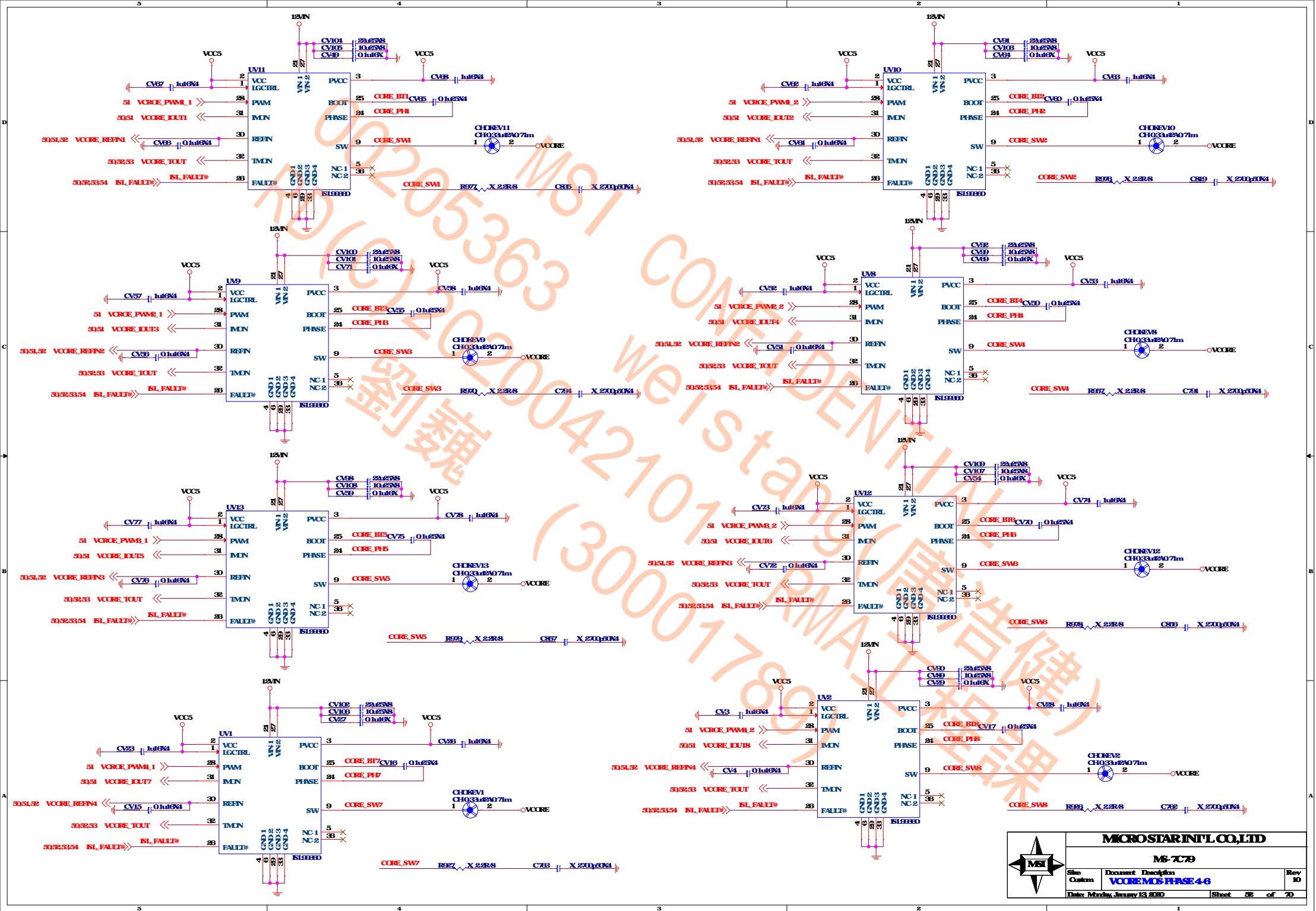
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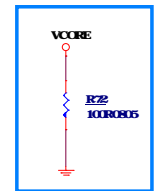
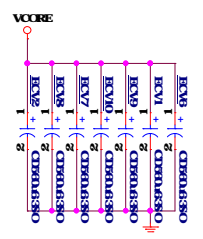
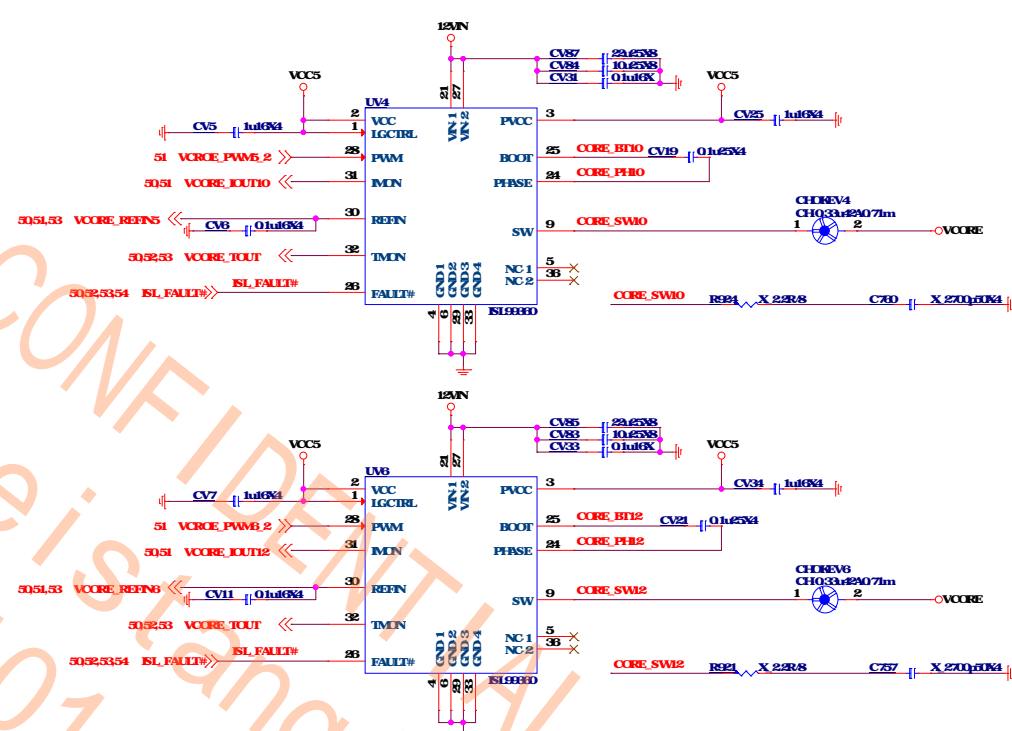
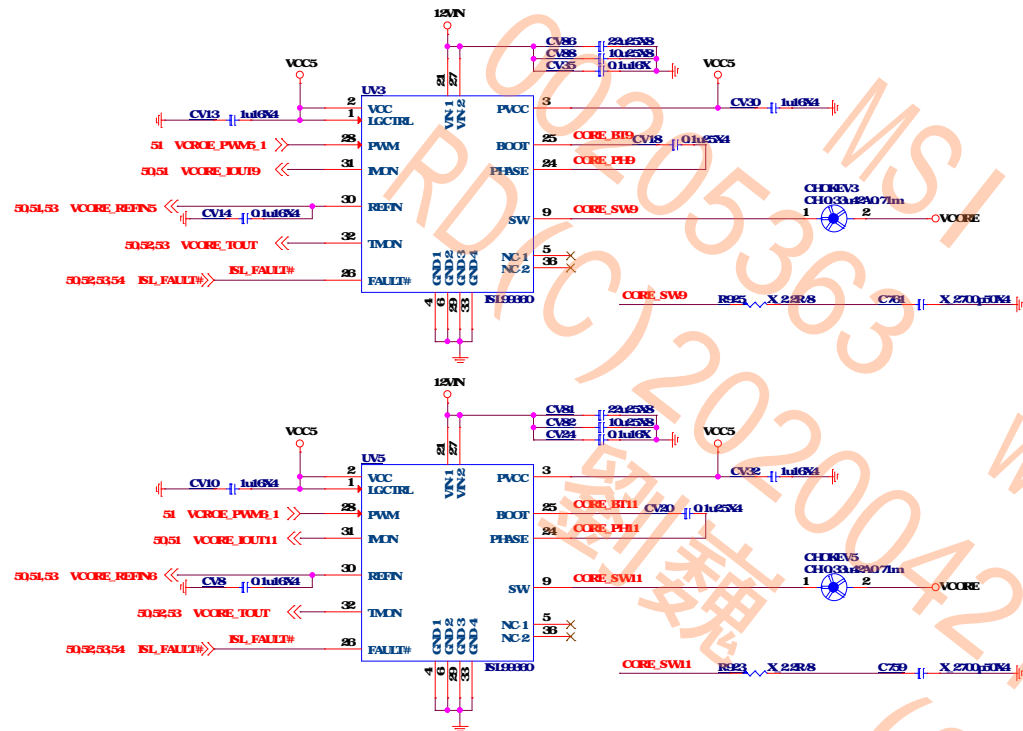
MS-7C79

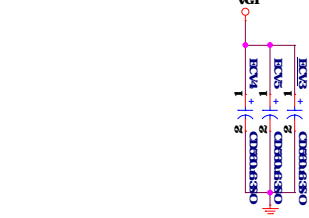
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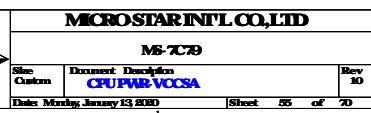






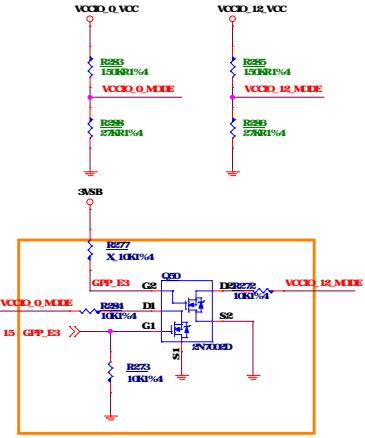

```
CML S (CPU_ID = 0)
RML S (CPU_ID = 1)
```

1. 05V
Icc: 11. 1A/ 22. 1A



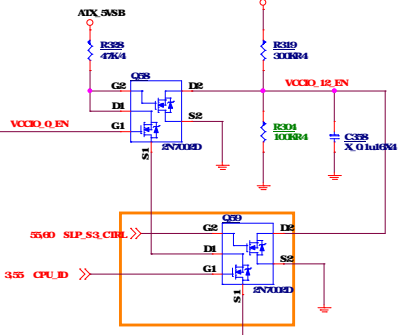
VCCIO 0 Power

0.95V Icc: 6.4 A
1.05V Icc: 8.3 A

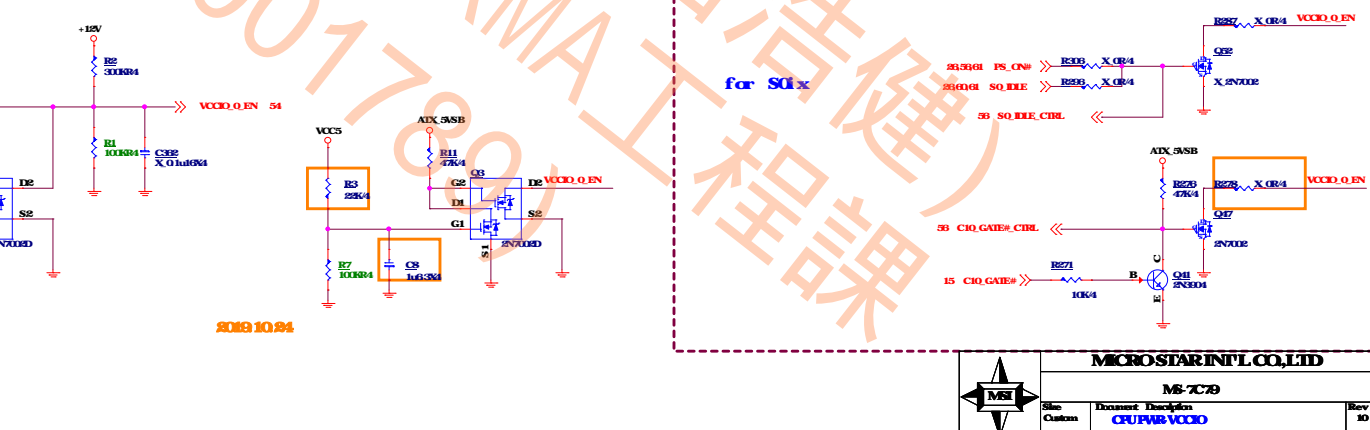
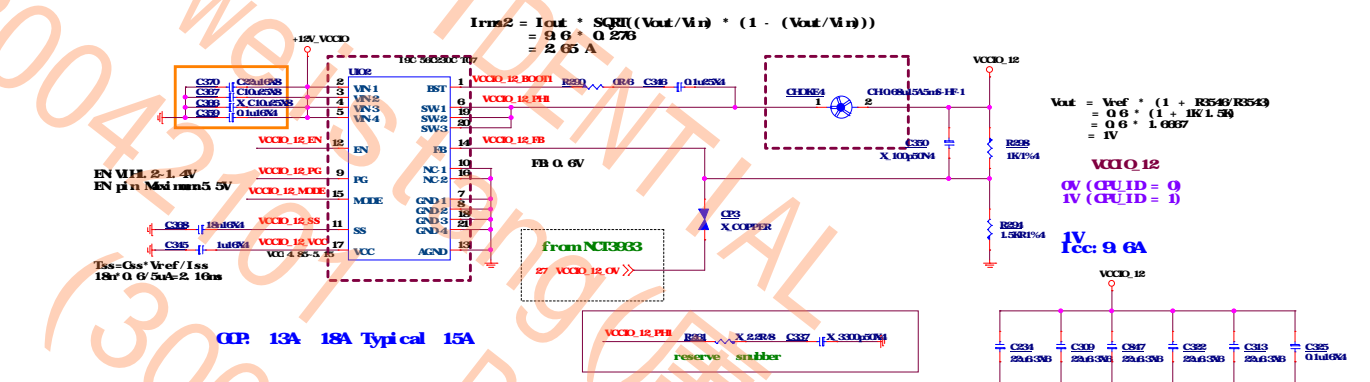
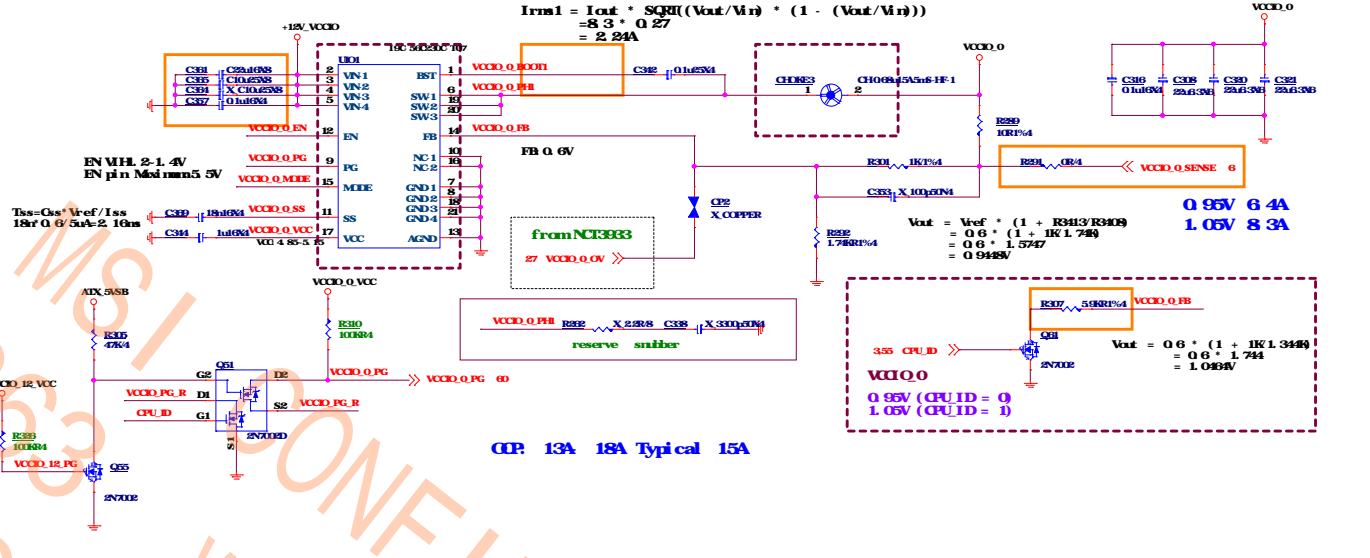
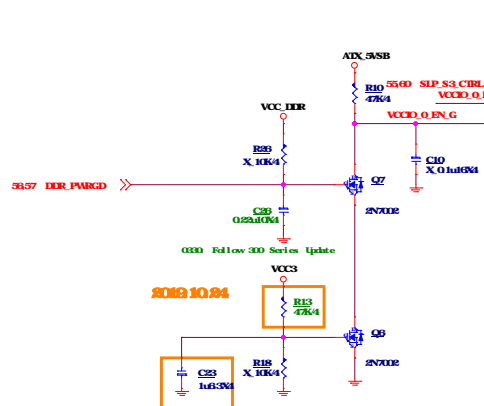


MODE:
(10%20%)*VCC > P0EM (Freq 500Hz)
(0-10%)*VCC > P0EM (Freq 500Hz)

VCCIO_12_EN 1V Icc: 9.6 A

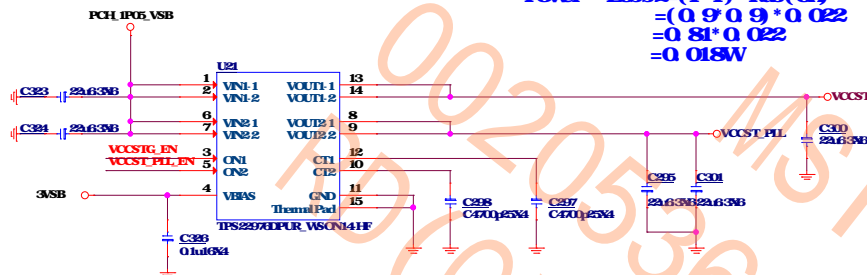


VCCIO_0_EN



Power Loss1=(I*I)*Rts(ar)
 =(2.53*2.53)*0.022
 =6.4*0.022
 =0.141W

Power Loss2=(I*I)*Rts(ar)
 =(0.9*0.9)*0.022
 =0.81*0.022
 =0.018W



AD5_5VSB

R35 47k

Q57 2N7000

D2

VCCSTG_EN

G2

G1

S2

10k

R33 10k

R35 10k

R32 10k

SLP_S3

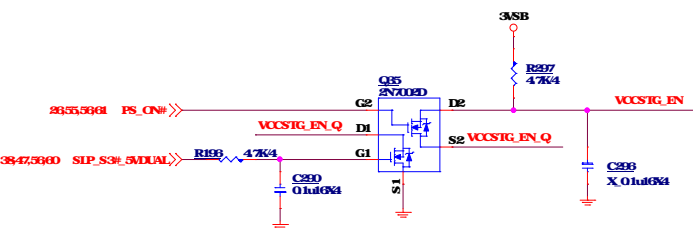
SLP_S4

SLP_S3_5DUAL

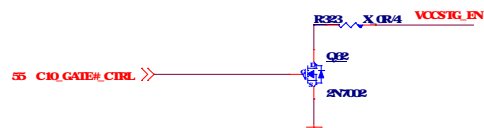
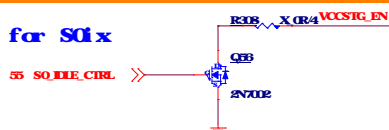
sch 20180312

S3/S4/S5 turn off VCCSTG_EN

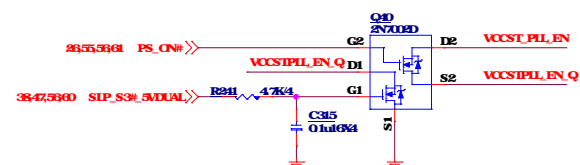
S3/S4/S5 turn off **VCCSIG_EN**



G3 to S5 turn off VCCSIG_EN

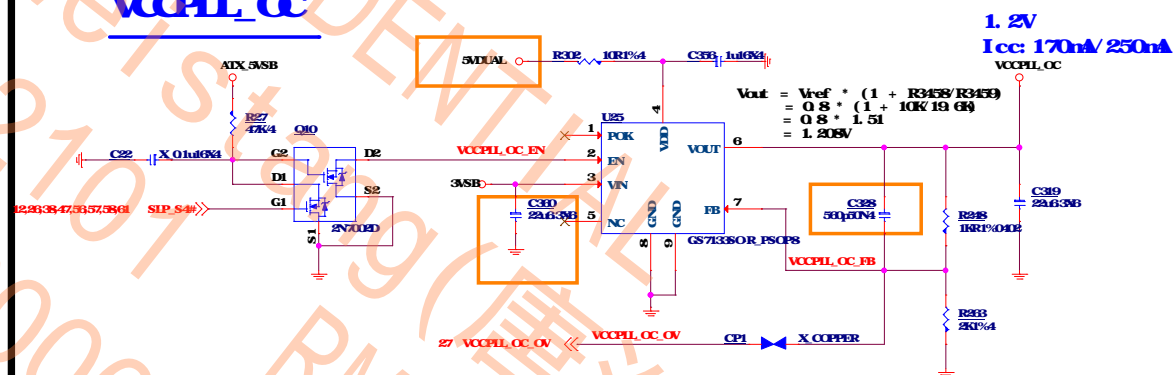
[illegible]

S4/S5, turn off VCST_EN



G3 to S5, turn off VCCST_EN

WUOL CC



$$\begin{aligned}\text{Power Loss} &= (V_{in} - V_{out}) * I_{out} \\ &= (3.3 - 1.2) * 0.17 \\ &= 2.1 * 0.17 \\ &= 0.357W\end{aligned}$$

$$\begin{aligned} \text{Power Loss} &= (V_{in} - V_{out}) * I_{out} \\ &= (3.3 - 1.2) * 0.25 \\ &= 2.1 * 0.25 \\ &= 0.525W \end{aligned}$$



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DDR4 Power: 1.2V, 13.48A

3.68A For CPU
9.1A For DIMM
0.7A For DDR VTT

1.2V, ICC_max=14.1A

CCP Measure : 22A

IO3 4C02403 C05 3 3-4 0min65V

CCP_max=Iocset*Rocset/Rison(nan)
=10uA*6.8k/3.3nA
=20.6A

CCP_min=Iocset*Rocset/Rison(max)
=10uA*6.8k/4nA
=17A

Output CHKE IO4 82B7080 M6 Isat=18A
I=20A L=0.6uH by L-I Curve

DDR_VR_EN
FROM SIO_VDDQ_EN R3438/R3441/R3439/Q38 stuff
FROM VPP_VR_PG R3438/R3441/R3439/Q38 un stuff

EN/MODE Pin Voltage	IC Operate Mode
<0.4V	shut down
2.1-2.7V	DEM
4.3-5V	FCOM

$$V_{out} = V_{ref} * (1 + R215/R222)$$

$$= 0.8 * (1 + 1K/1.93K)$$

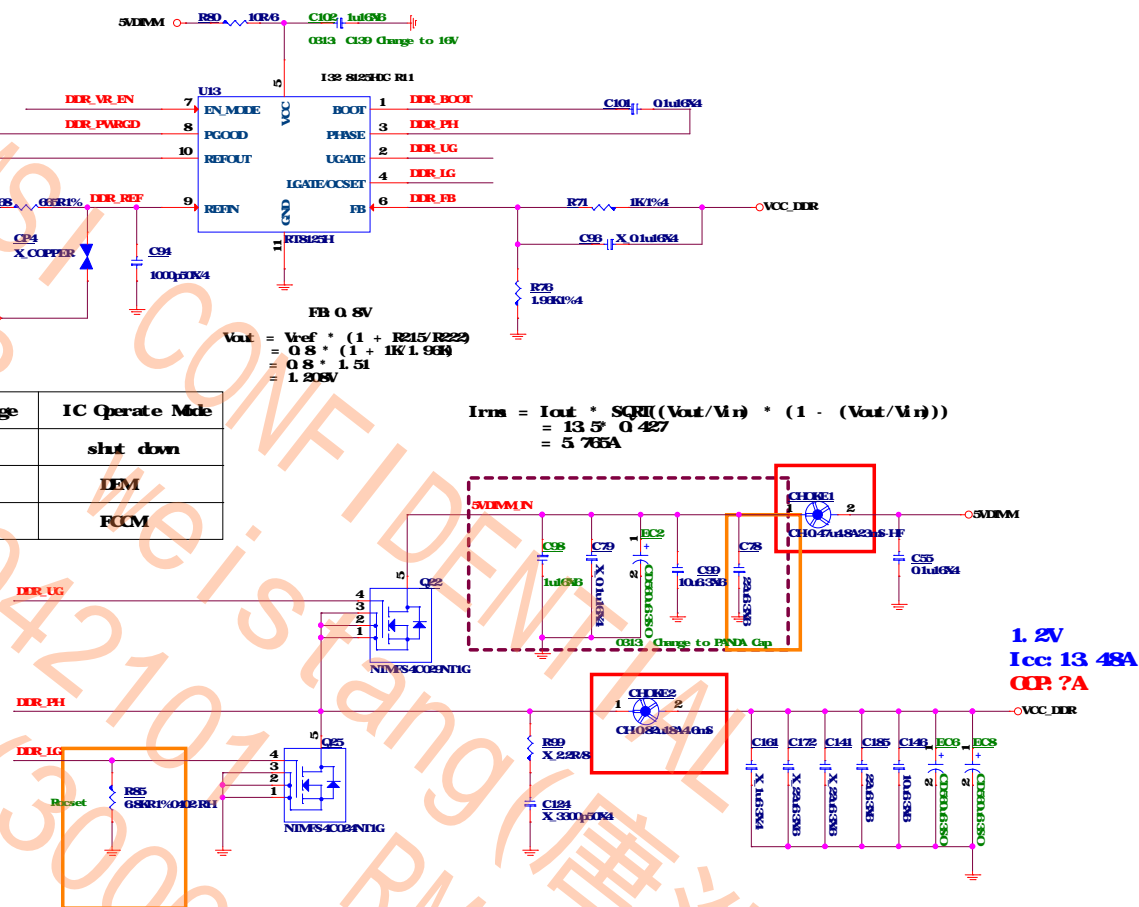
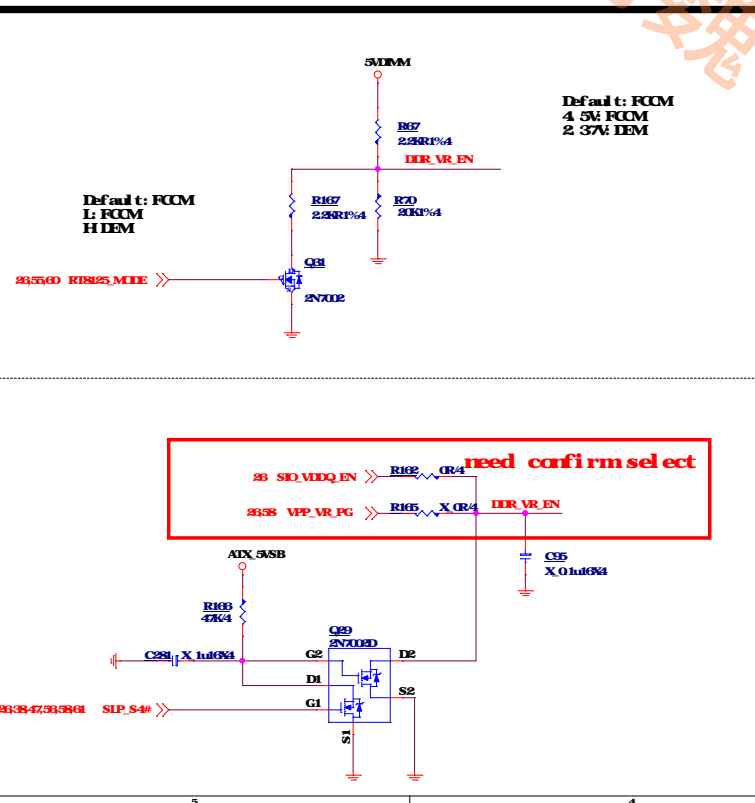
$$= 0.8 * 1.51$$

$$= 1.208V$$

$$I_{rms} = I_{out} * \sqrt{R_L((V_{out}/V_{in}) * (1 - (V_{out}/V_{in})))}$$

$$= 13.5 * 0.427$$

$$= 5.765A$$



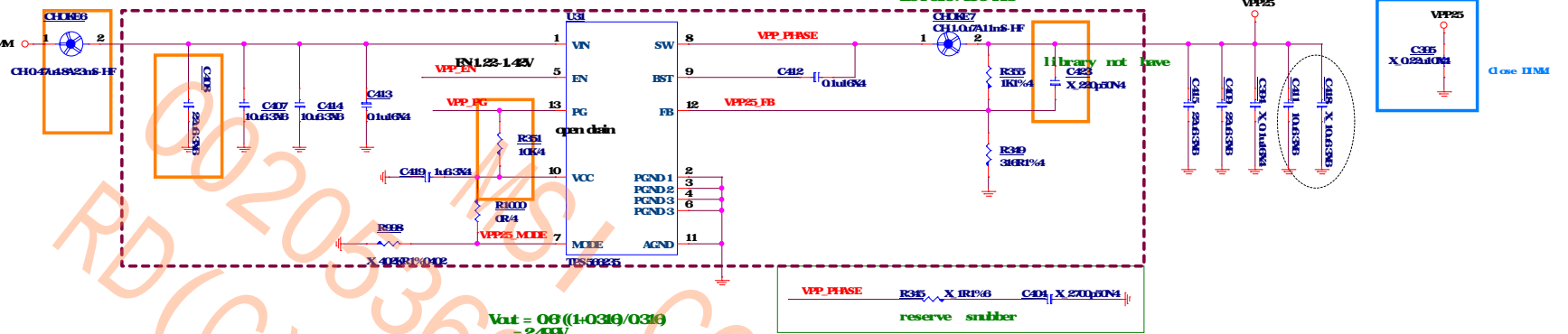
VPP2.5V Power: 2.5V, 6A (for dimm LED)

IC OCP: 7.6A (66A-86A)

$$I_{rms} = I_{out} * \sqrt{SQ(1 - (V_{out}/V_{in}) * (1 - (V_{out}/V_{in})))}$$

$$= 6 * 0.5$$

$$= 3A$$



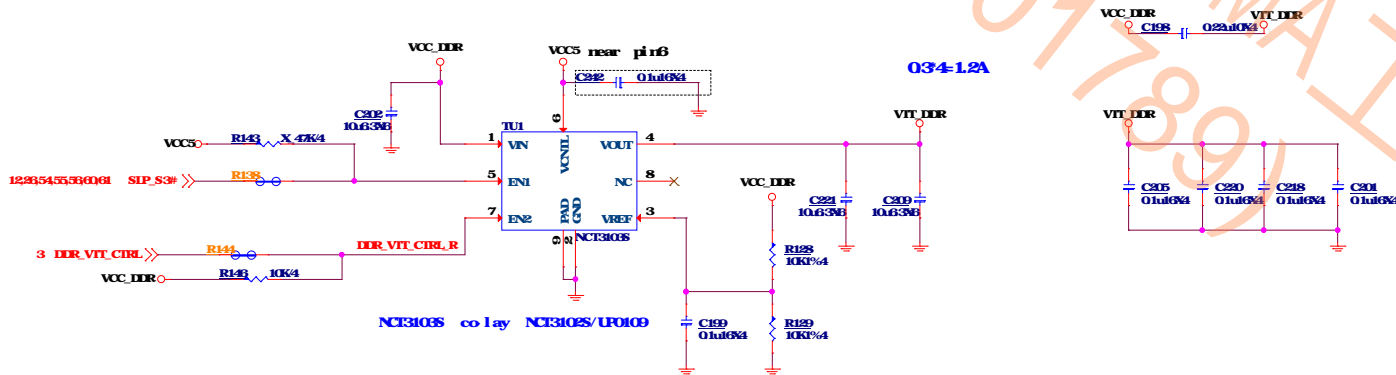
$$V_{out} = 0.6 \cdot (1.0316 / 0.316)$$

$$= 2.43V$$

Vmode(VPP25_MDE)	0-0.3V	0.3-1.2V	>1.2V
Rmode	OR	100K-150K	To VCC (recommand) or R-400K
Operating Mode	Eco Mode	Off-Of-Audio	ROOM

DDR VTT Power:

To CPU Copper trace width > 250mils, Fill island behind DIMM > 40mils.



PCH_IP05_VSB Power: 1.05V, 17.651A

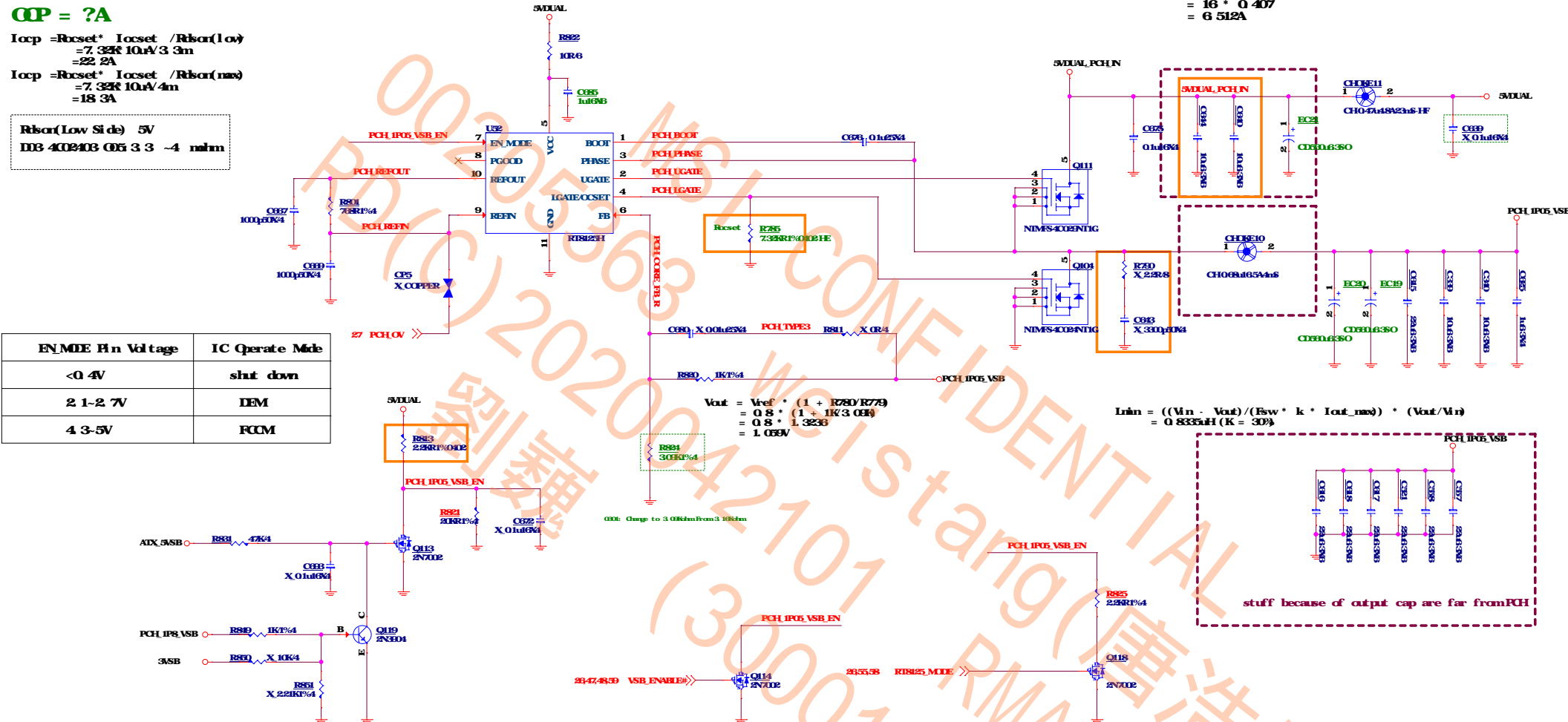
QCP = ?A

$$I_{ocp} = R_{ocp} \cdot I_{ocp} / R_{ocp}(low) = 7.32K \cdot 10uA / 3.3m = 22.2A$$

$$I_{ocp} = R_{ocp} \cdot I_{ocp} / R_{ocp}(nom) = 7.32K \cdot 10uA / 4m = 18.3A$$

R_{ocp}(Low Side) 5V
D03 402403 05 3 3 -4 naim

EN/MOE Pin Voltage	IC Operate Mode
<0.4V	shut down
2.1-2.7V	DEM
4.3-5V	FCOM



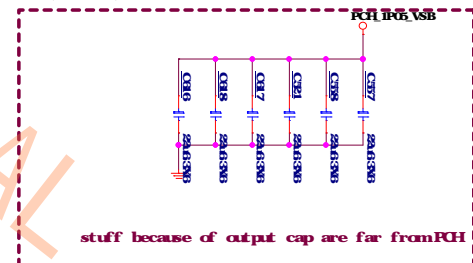
$$I_{rms} = I_{out} \cdot \sqrt{0.5 \cdot (V_{out}/V_{in}) \cdot (1 - (V_{out}/V_{in}))}$$

$$= 16 \cdot \sqrt{0.407}$$

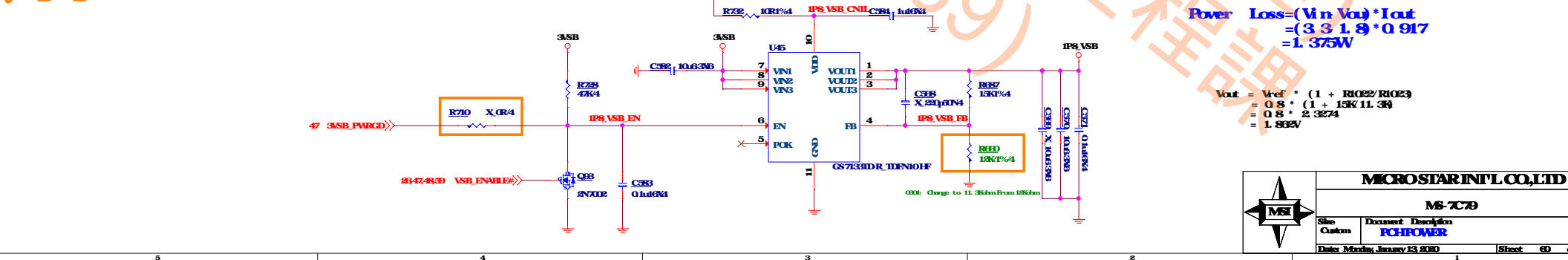
$$= 6.512A$$

$$I_{lim} = ((V_{in} - V_{out}) / (f_{sw} \cdot k \cdot I_{out_max})) \cdot (V_{out}/V_{in})$$

$$= 0.8335uH (K = 30)$$



IP8_VSB Power: 1.8V, 0.917A (3.3V-1.8V)*0.917A=1.375W QFN_10 3X3 PD 1.6W



$$Power\ Loss = (V_{in} - V_{out}) \cdot I_{out}$$

$$= (3.3 - 1.8) \cdot 0.917$$

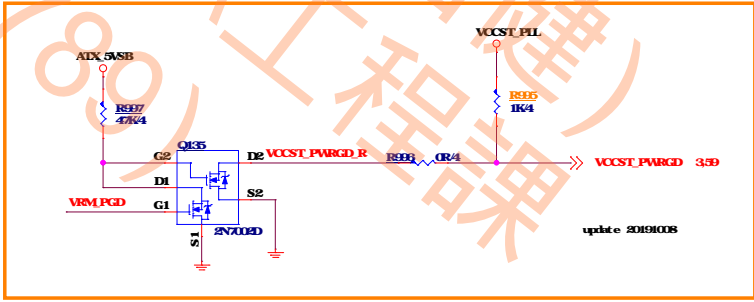
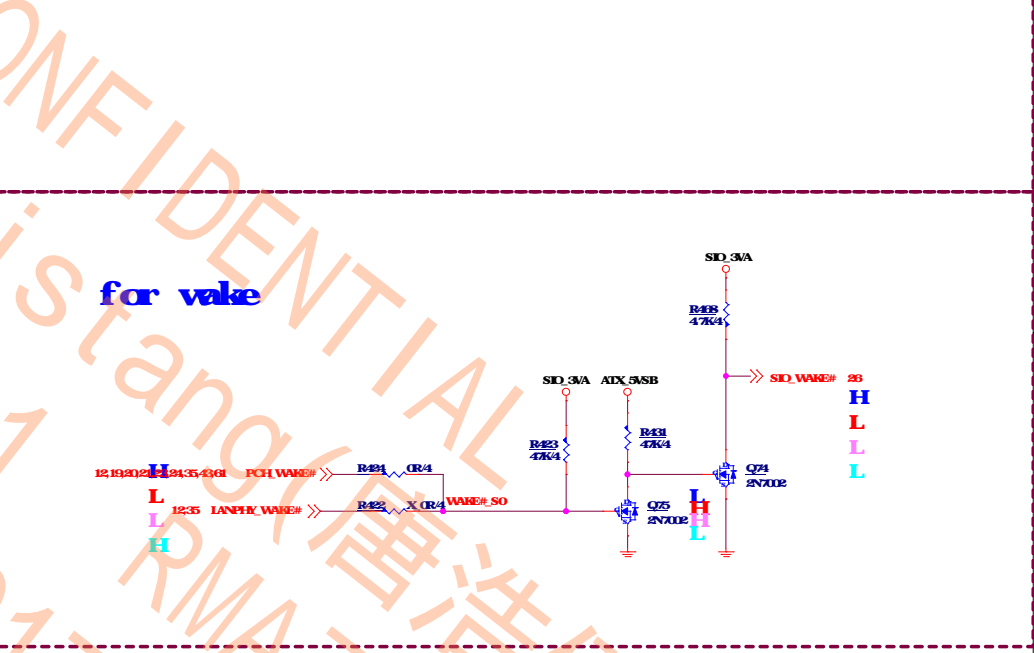
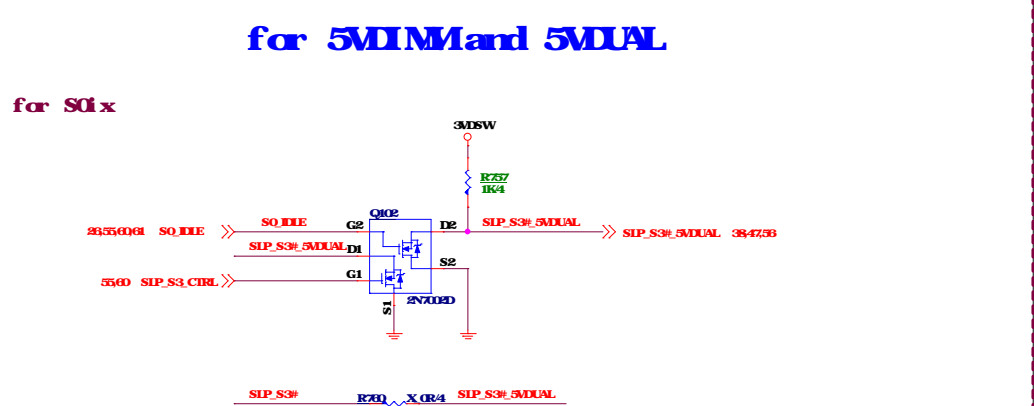
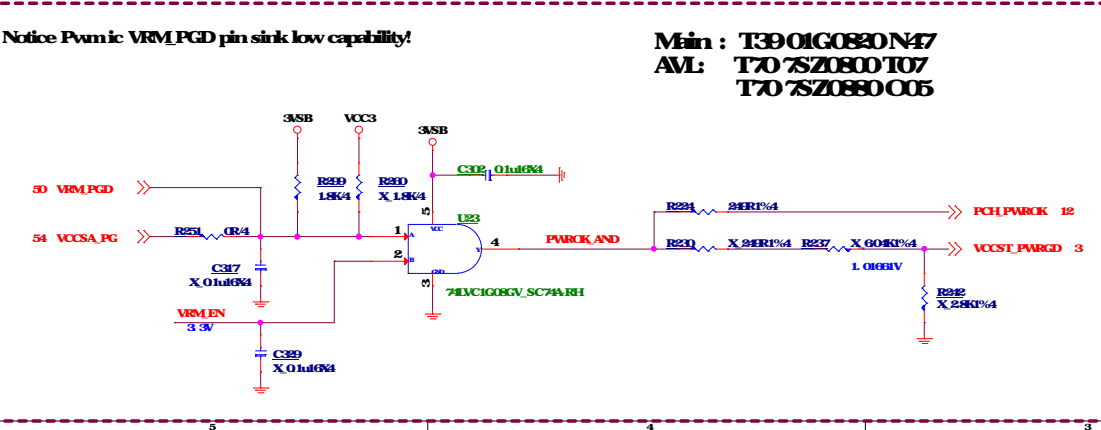
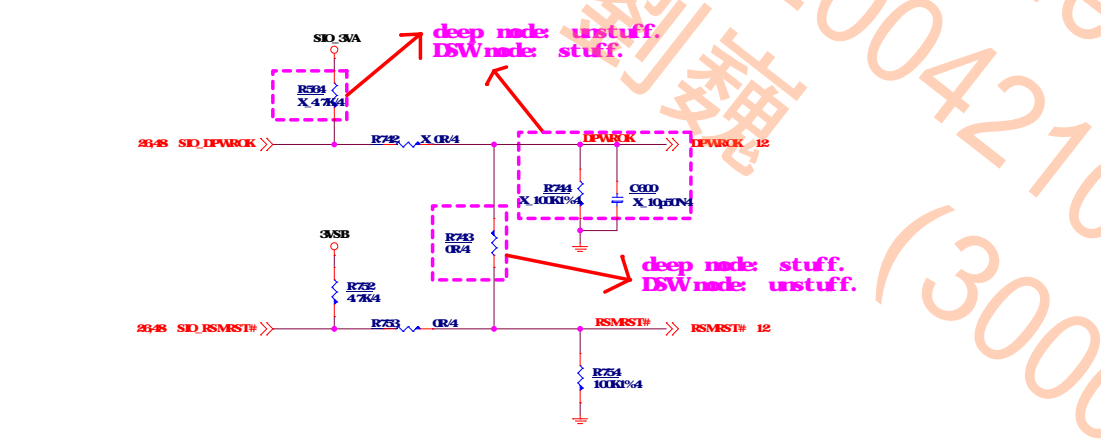
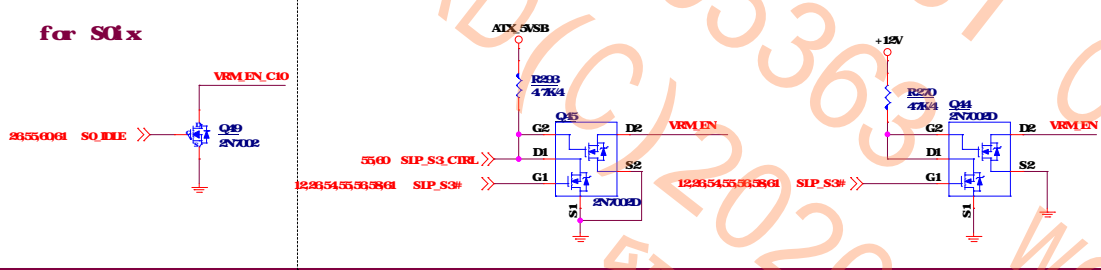
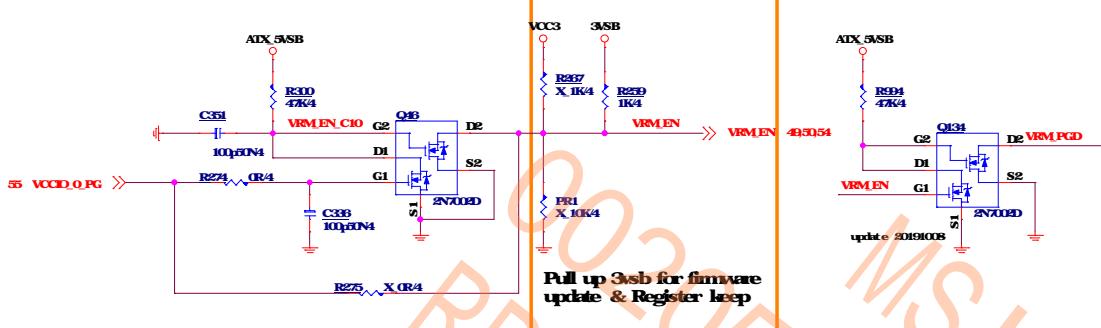
$$= 1.375W$$

$$V_{out} = V_{ref} \cdot (1 + R_{102}/R_{103})$$

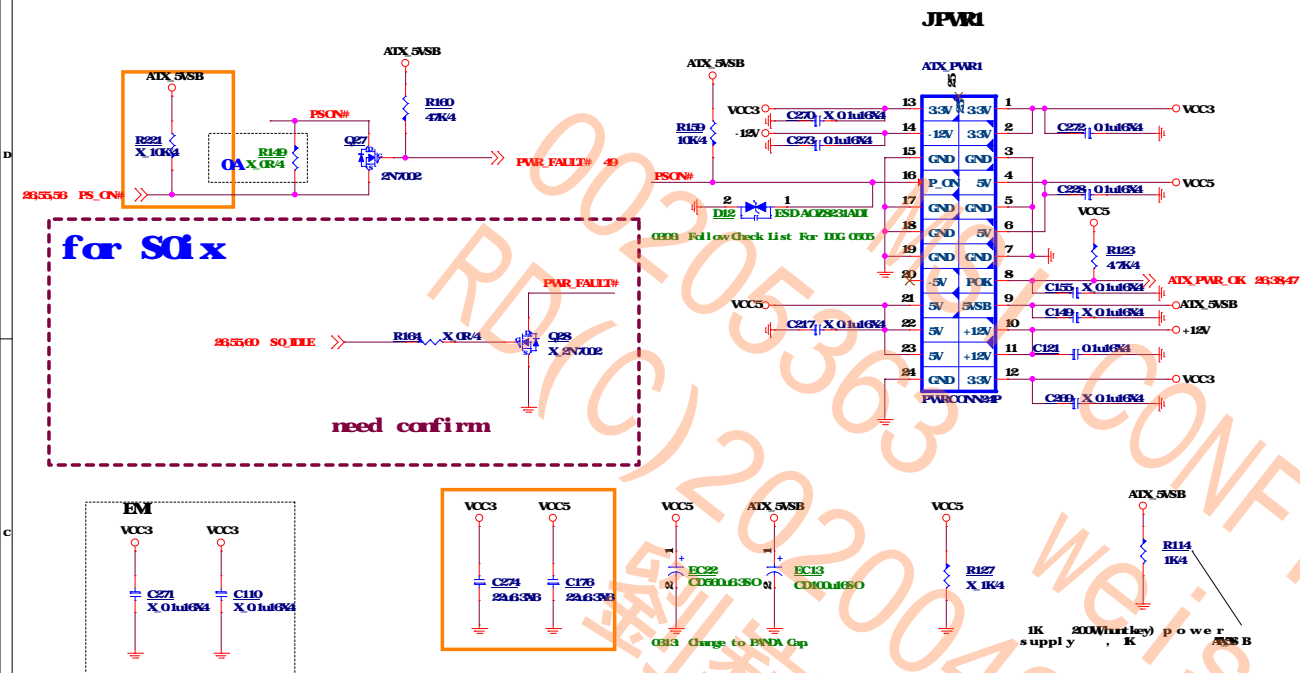
$$= 0.8 \cdot (1 + 15K/11.3K)$$

$$= 0.8 \cdot 2.3274$$

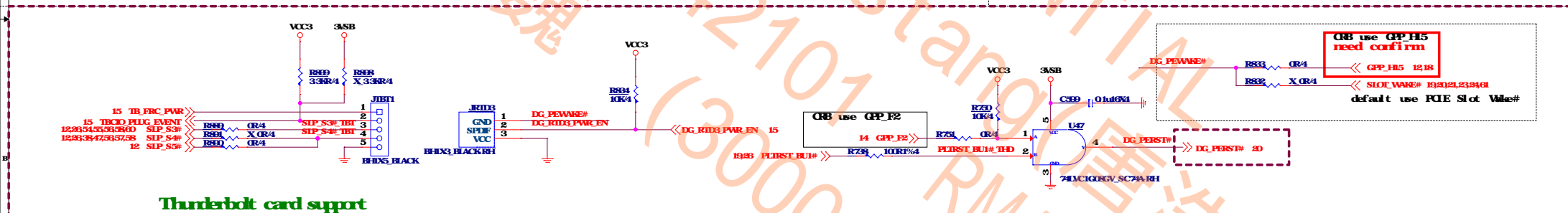
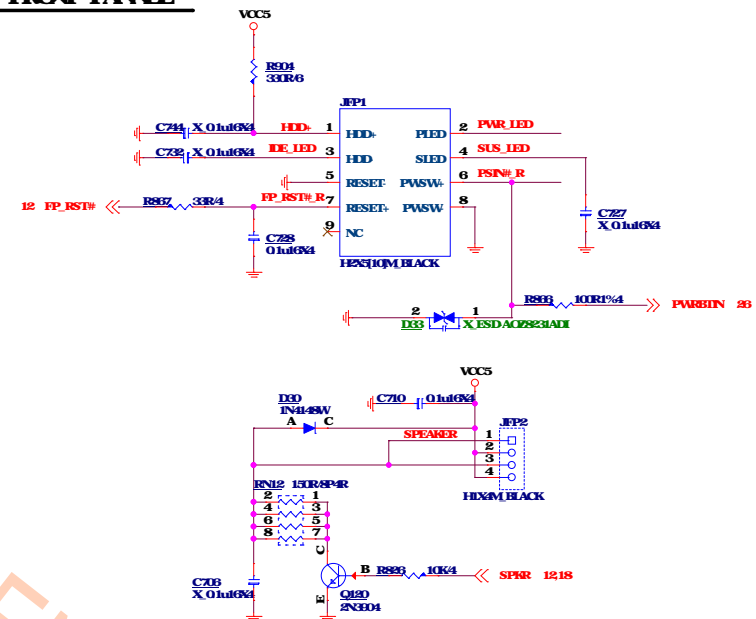
$$= 1.862V$$



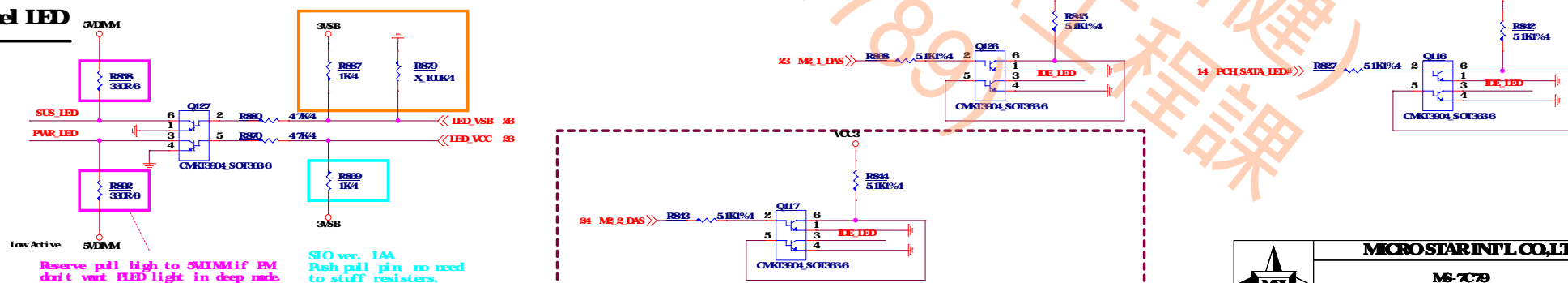
ATX POWER CONNECTOR



FRONT PANNEL



Front Panel LED



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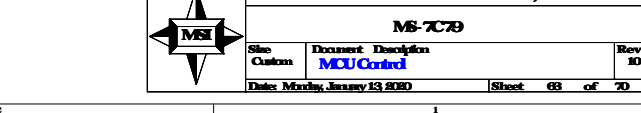
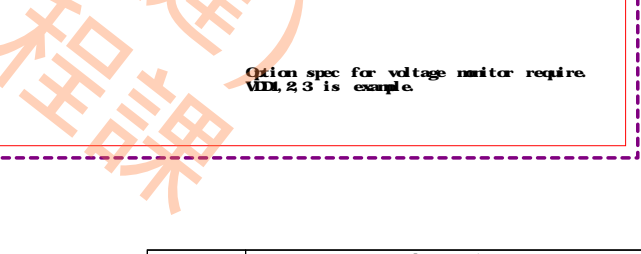
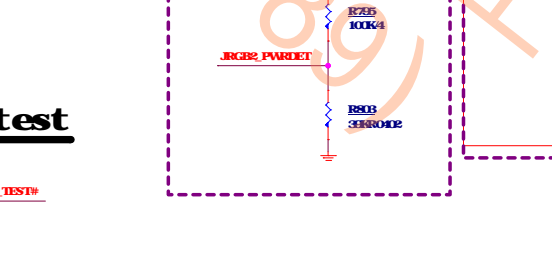
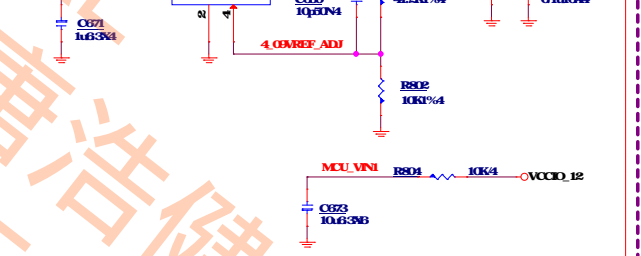
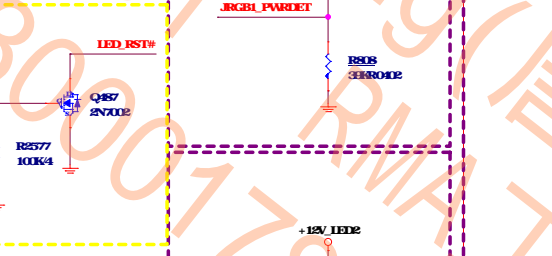
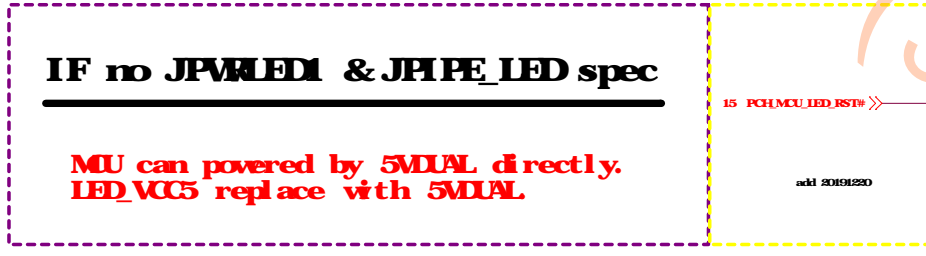
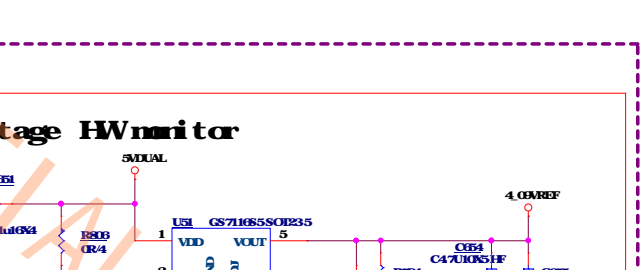
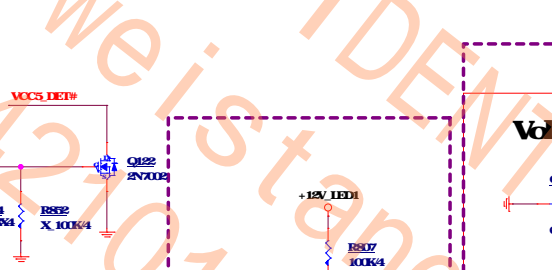
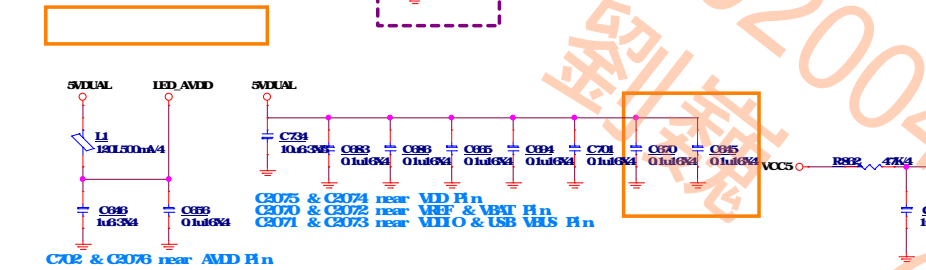
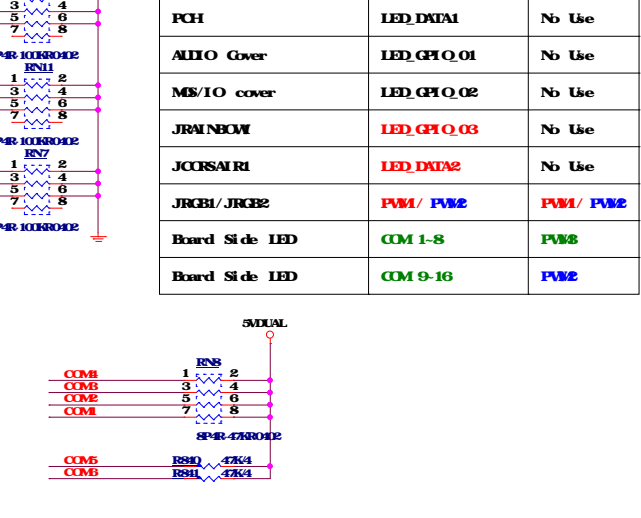
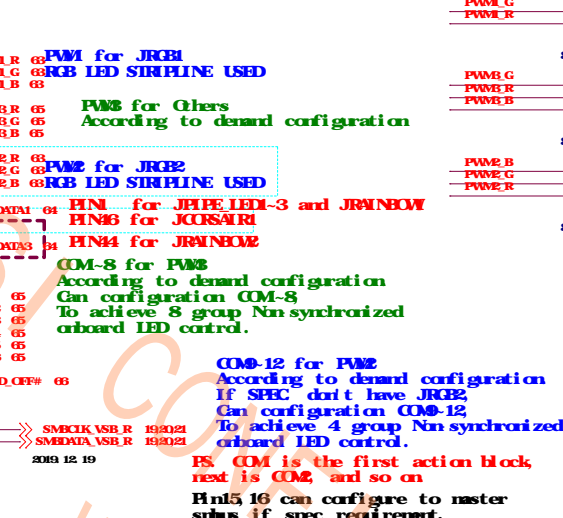
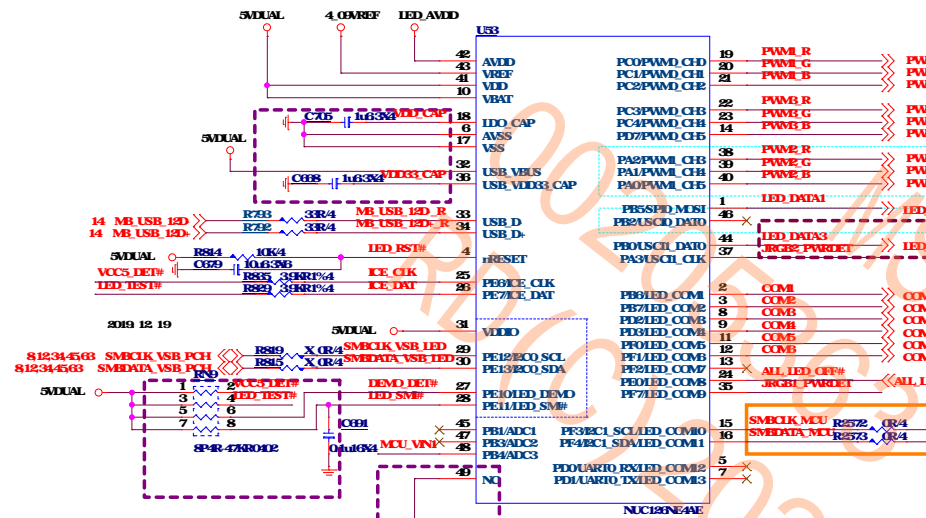
MS-7C79

Size	Document Description
Custom	ATXConnector_F_Panel

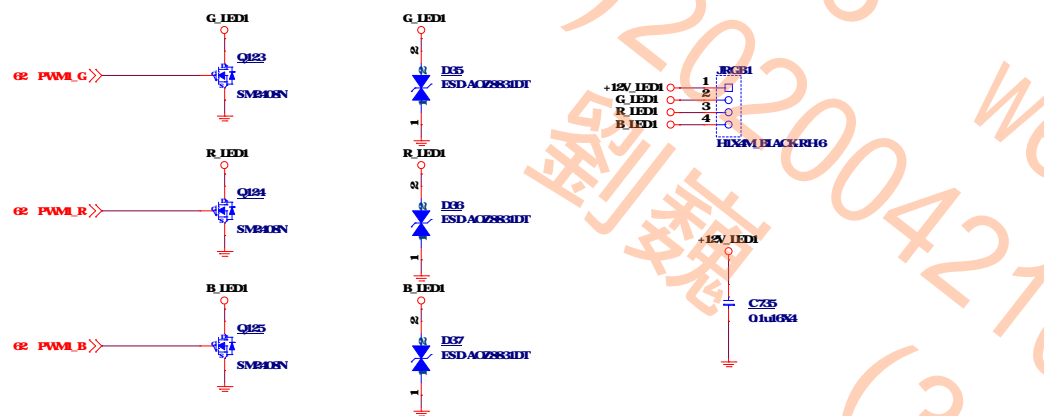
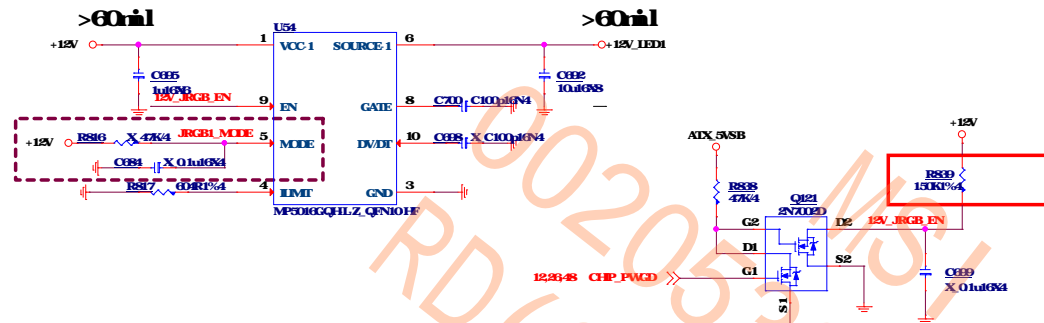
	Rev 10
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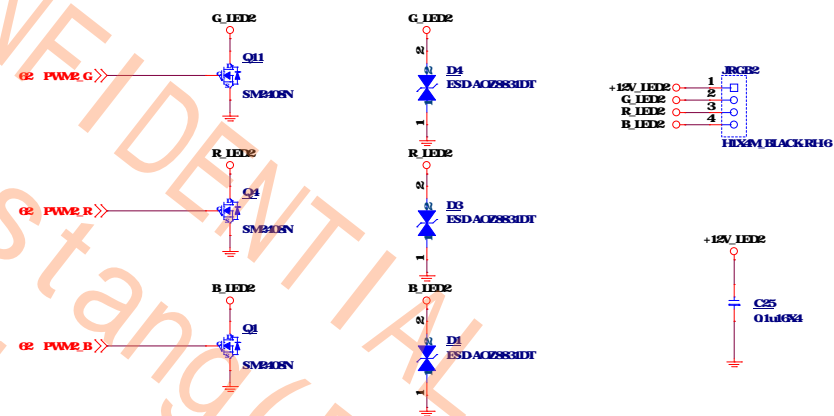
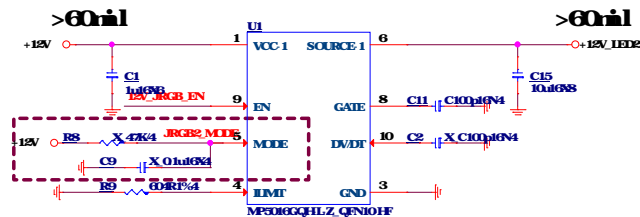
LED MCU



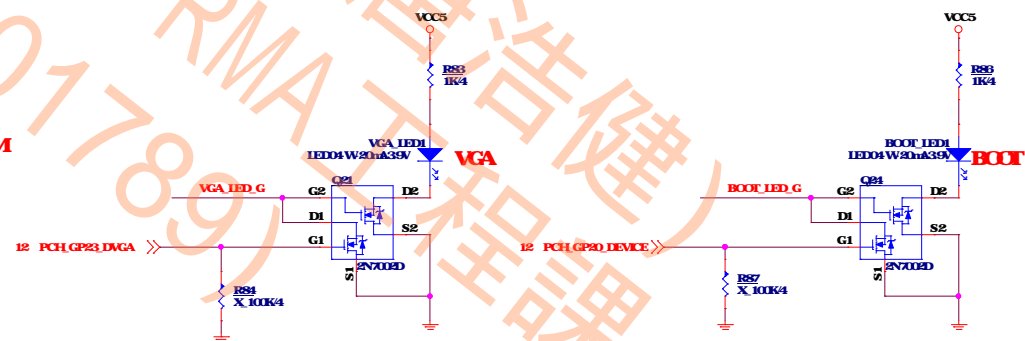
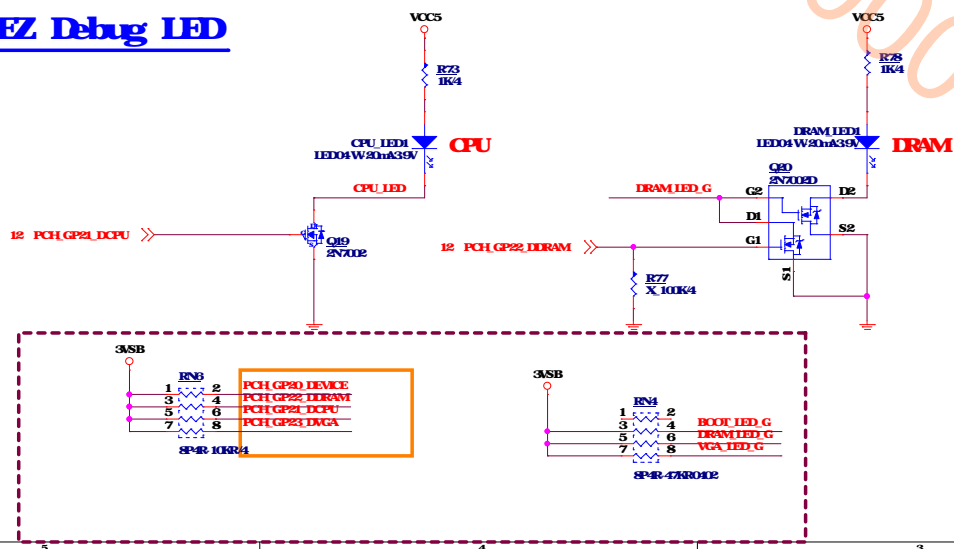
JRCB1



JRCB2



EZ Debug LED



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MS-7C79

Site	Document Description	Rev
Custom	JRCB and EZ Debug LED	10000000
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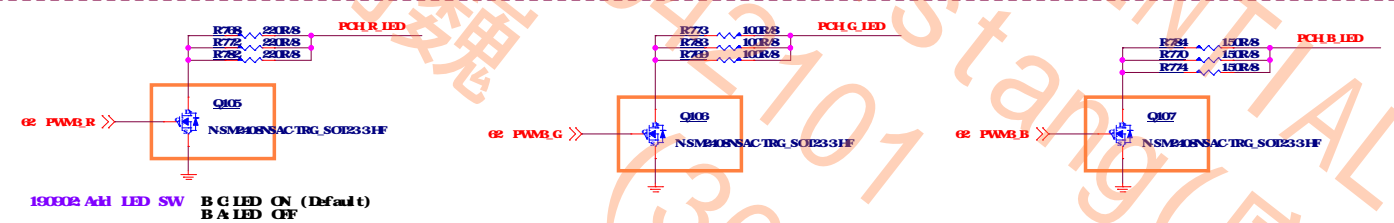
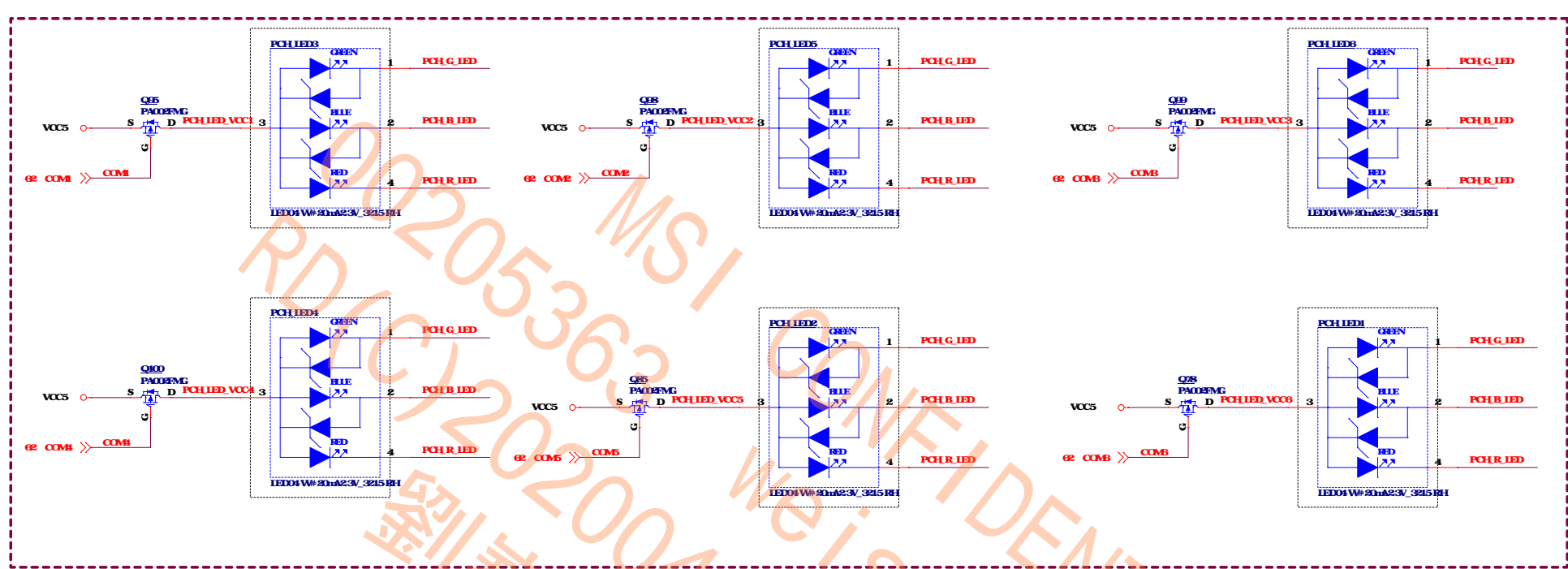
JRAINBOW1 LED



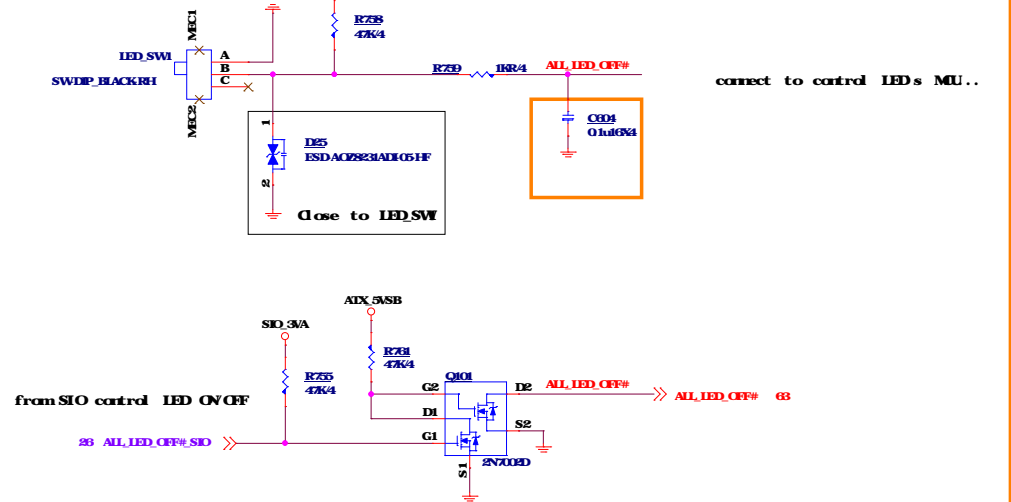
JRAINBOW2 LED



PCH_LED



LED_SWITCH





7C70A



CPU_H1



BATT_X1

BATTDCR002P



HDMI_LABEL



CFOS_LABEL



NATIVE_LABEL

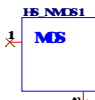


BIOS_LABEL

Heat Sink



OE37C7001A87



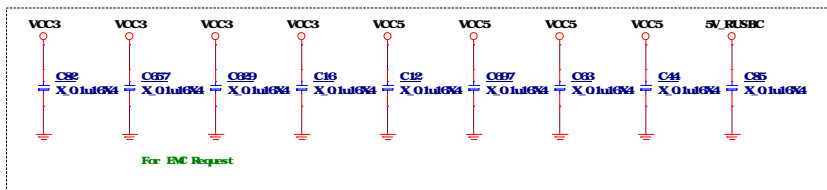
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OE37C7002A87

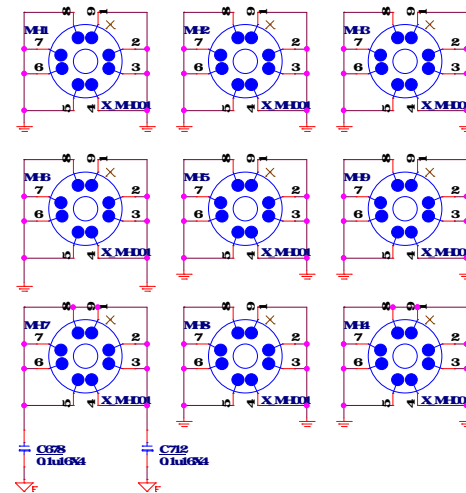


COVER_M2_H51

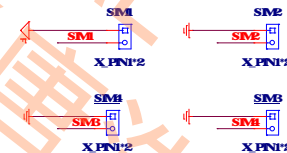


For EMC Request

Murting Hles



Simulation



Optical Fducia Marks 120

