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MS-7B97

ATX:200mm*194.5mm

intel -CoffeeLake-S plamform

CPU:
LGA1151
*CPU POWER PAK *3Phase*
*GT POWER PAK *1 Phase*

System Chipset:
H310C

Onboard Chip:
SIO: NUVOTON 5567
HD Audio Codec: ALC887
LAN: RTL8111H
Flash ROM: SPI 64 MB

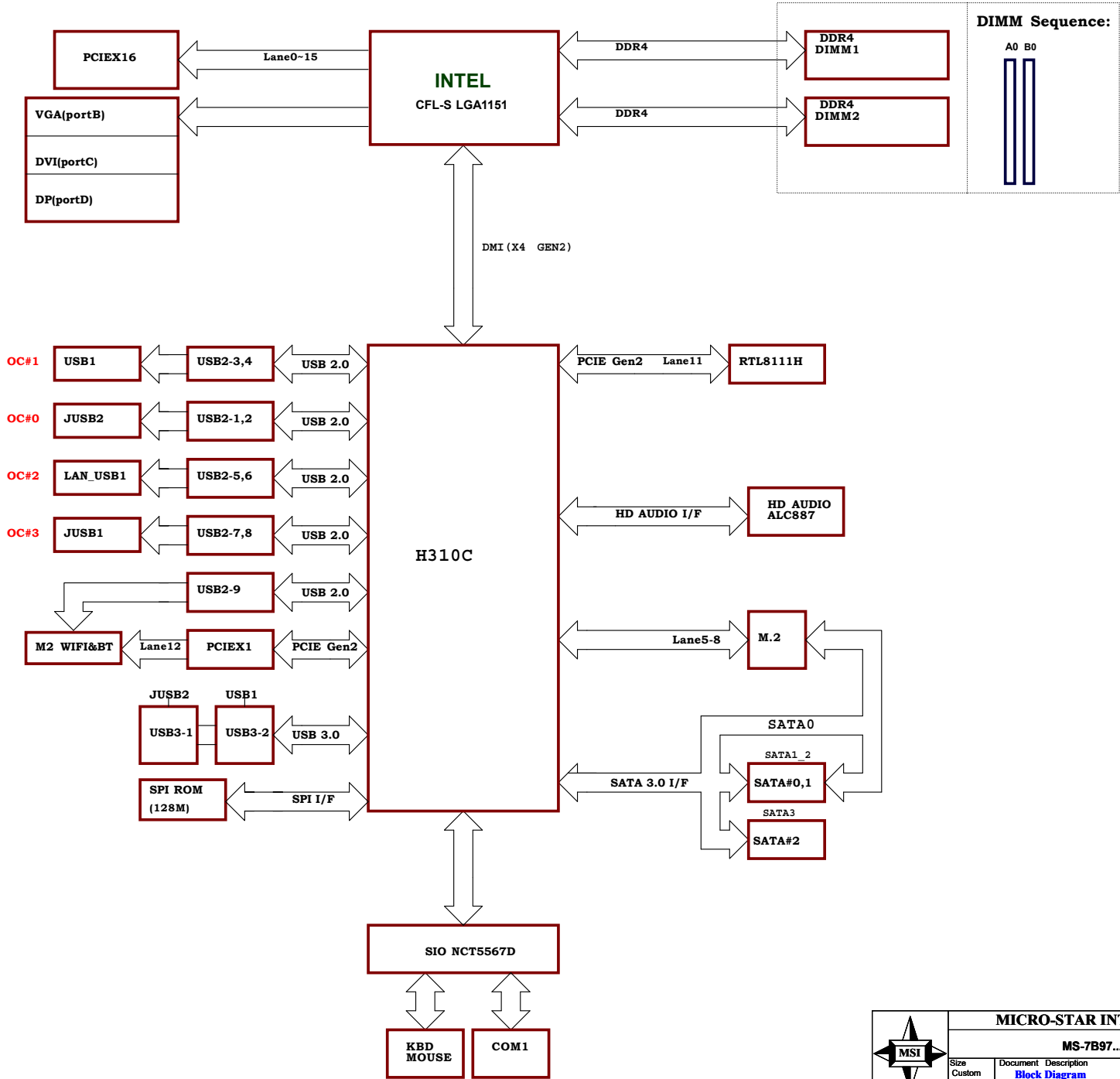
PWM:
VCORE - RT3607 193A
VGT- RT3607 45A
DDR - RT8231 11.525A
DDR VPP25- MP2333 1.12A
PCH(1.0V) -NB503 9.65A
VCCIOSA - RT8125E 17.5A

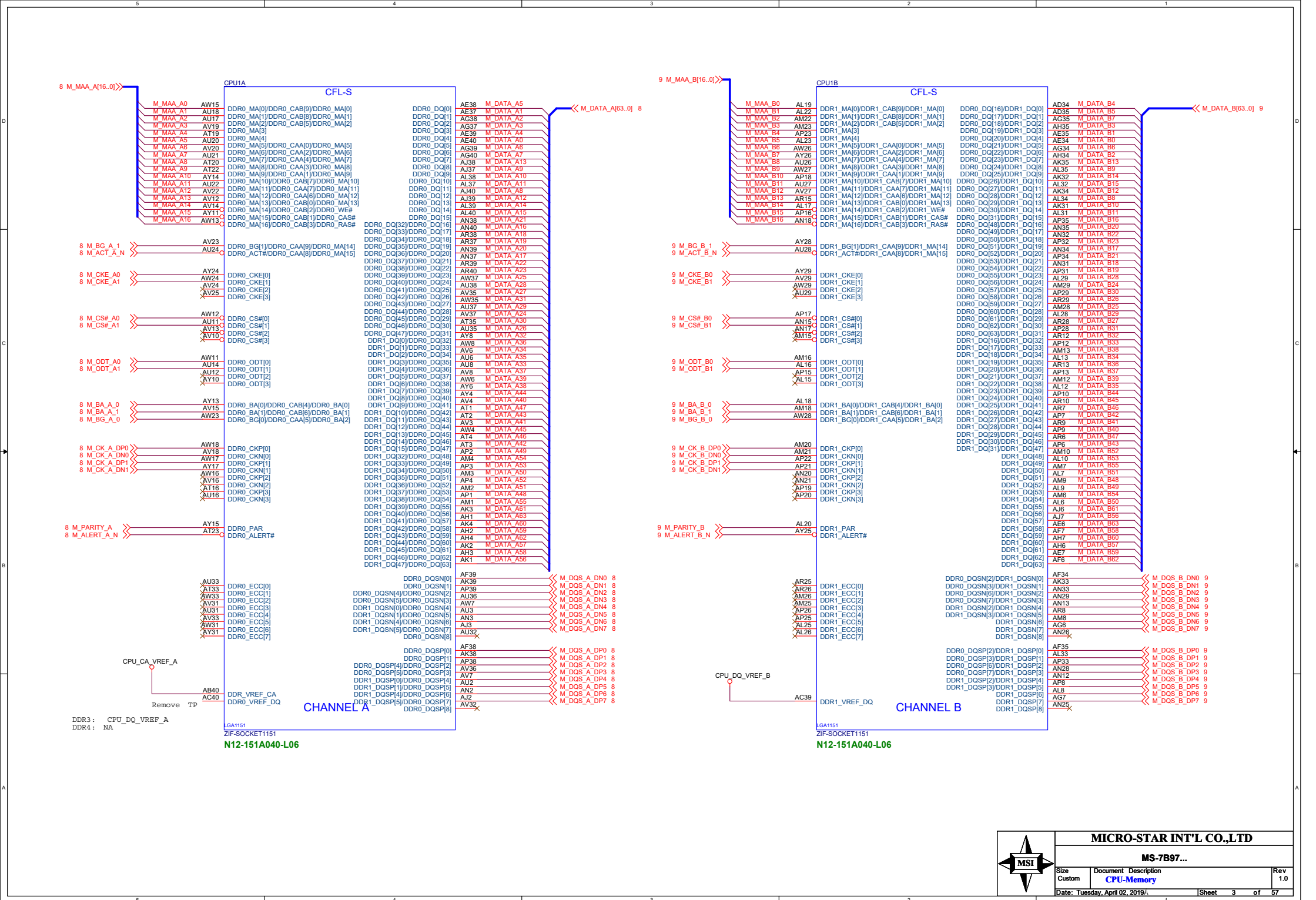
Main Memory:
*DDR4 * 2 (Dual Channel)*

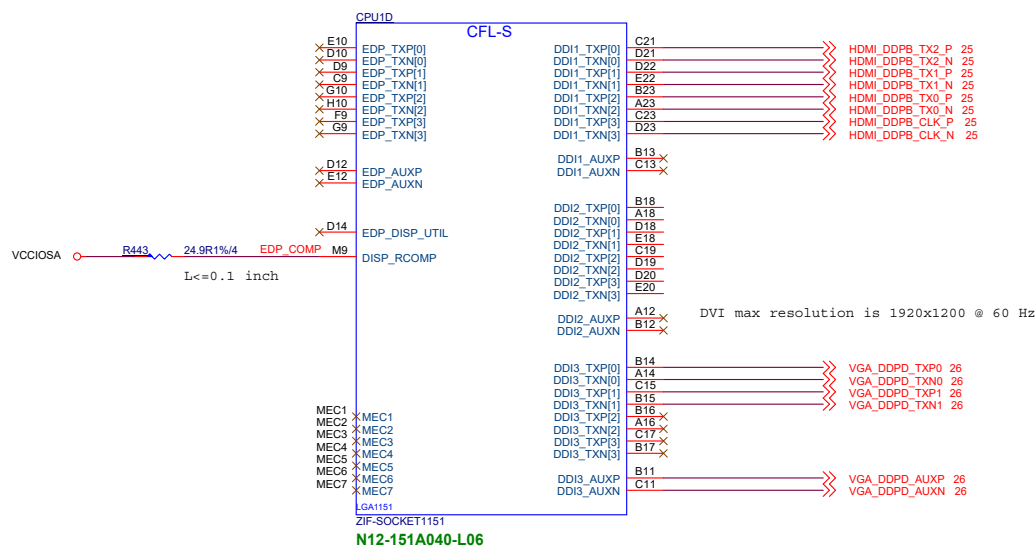
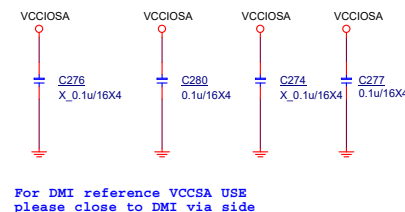
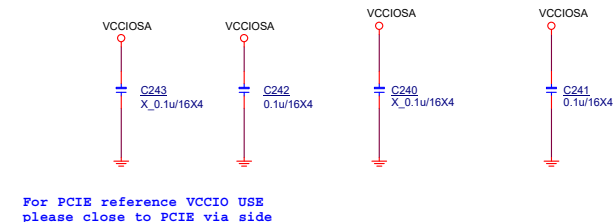
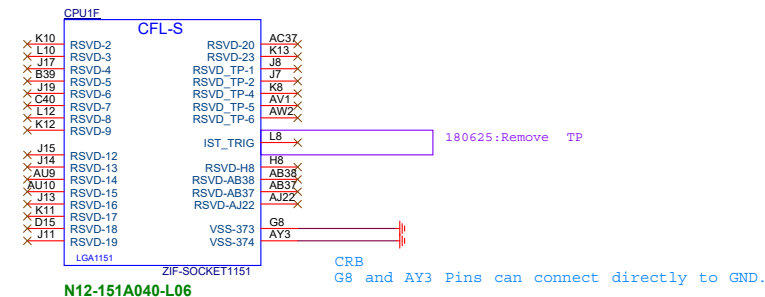
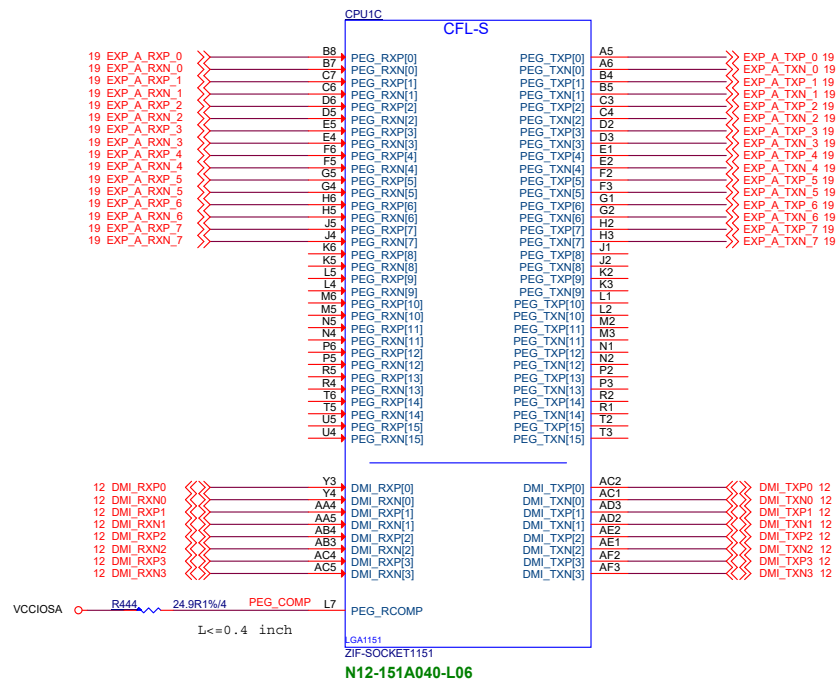
ACPI:
5VDAUL:uP7501
5VDIMM:uP7501
3VSB:GS7133+MOS
3VDSW:GS7133
VCCSTPLL:GS7133

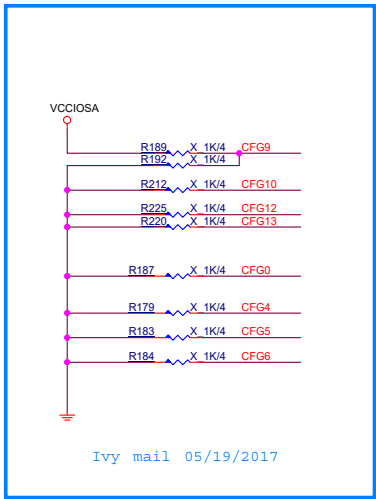
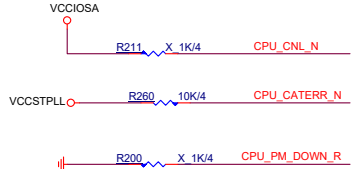
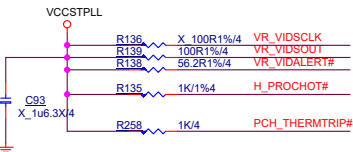
Expansion Slots:
*PCI Express (X16) Slot * 1*

Block Diagram





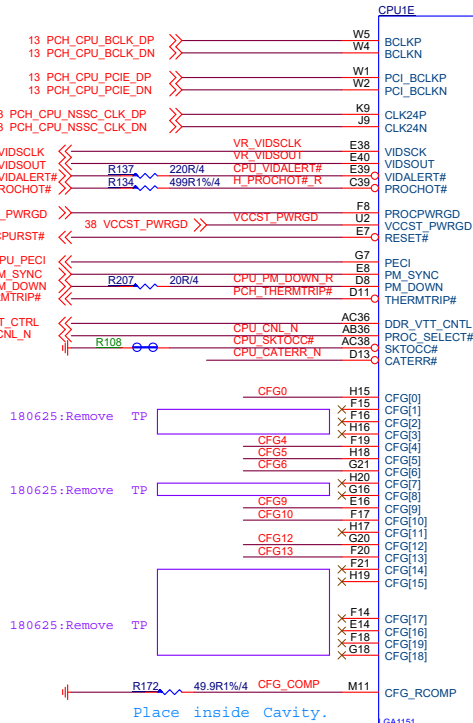
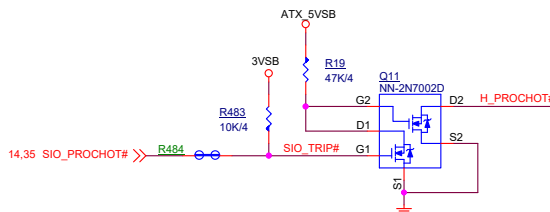




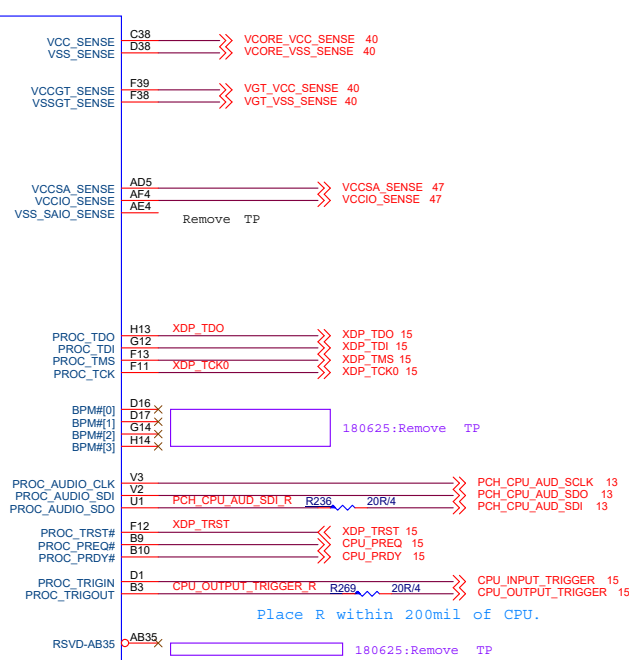
Ivy mail 05/19/2017

CFG6	CFG5	
0	0	1x8,2x4 PCI Express
0	1	reserved
1	0	2x8 PCI Express
1	1	1x16 PCI Express

SIO OVT接CPU PROCHOT使用 SIOOT做 降
RT3607 VRHOT#与CPU PROCHOT翻不使用 RT3607 V力 能



LGAI151
ZIF-SOCKET1151
N12-151A040-L06



XDP_TDO R264 100R1%/4
Place R within 1.5" of CPU.
XDP_TCK0 R228 51R/4
Place R within 1.1" of CPU.
XDP_TRST R248 X 51R/4

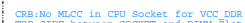
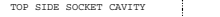
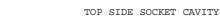
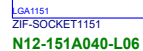
CFG Table		
HIGH	LOW	DESCRIPTION
0	No Lock	PCU PLL Lock
1	Lock	PCU PLL Lock
2	NORM	REVERSE PEG LANE REVERSAL
3	RSVD	RSVD
4	DISABLE	ENABLE eDP
5	DISABLE	ENABLE PEG0CPGSEL[0]
6	DISABLE	ENABLE PEG0CPGSEL[1]
7	RESET#	BIOS REQ PEG DEPER TRAINING
8	RSVD	RSVD
9	RSVD	RSVD
10	RSVD	RSVD
11	RSVD	RSVD
12	RSVD	RSVD
13	RSVD	RSVD
14	RSVD	RSVD
15	RSVD	RSVD

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MS-7B97...

Size	Document	Description	Rev
Custom		CPU-Control/MISC/CFG/Audio	1.0

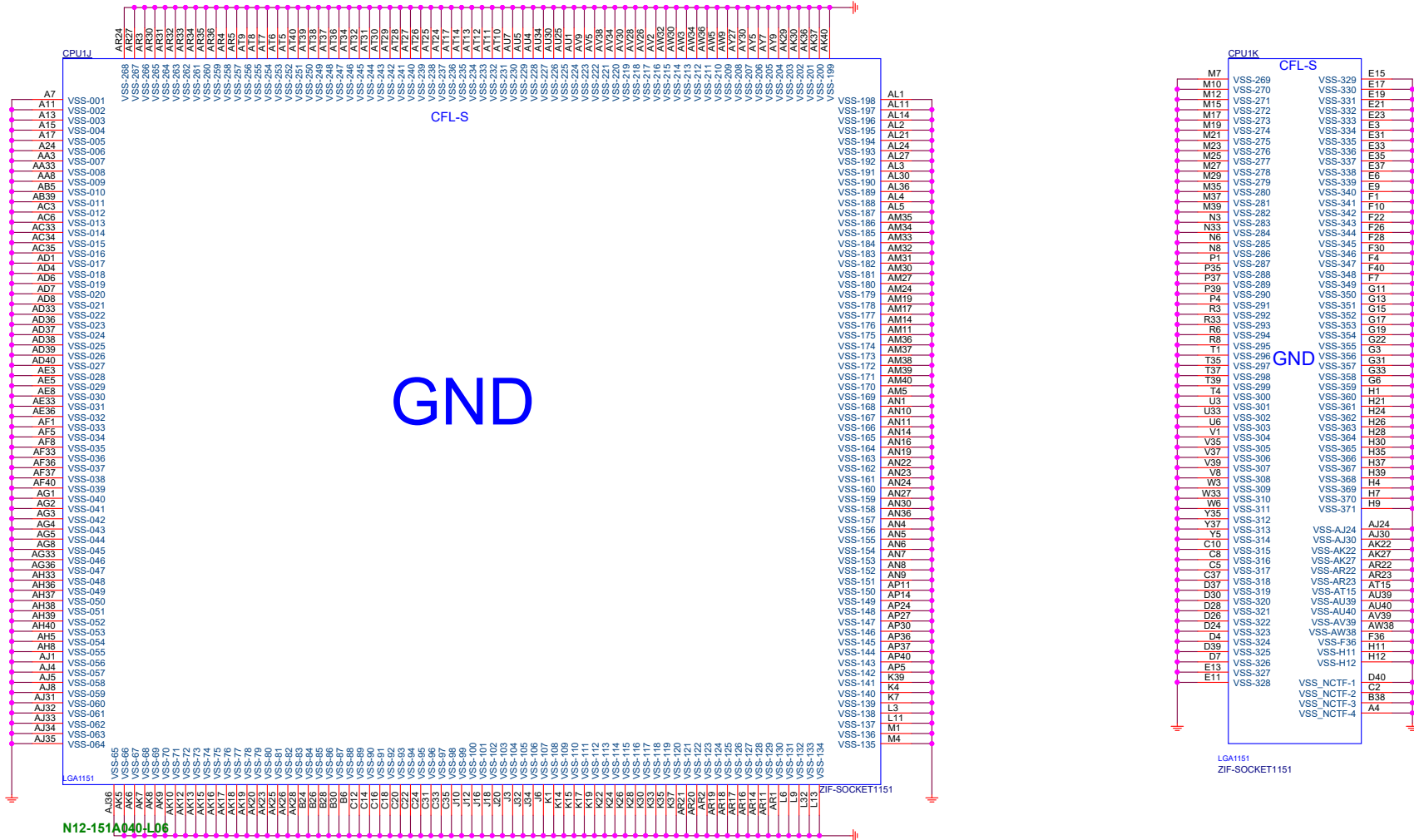
Date: Tuesday, April 02, 2019 Sheet 5 of 57

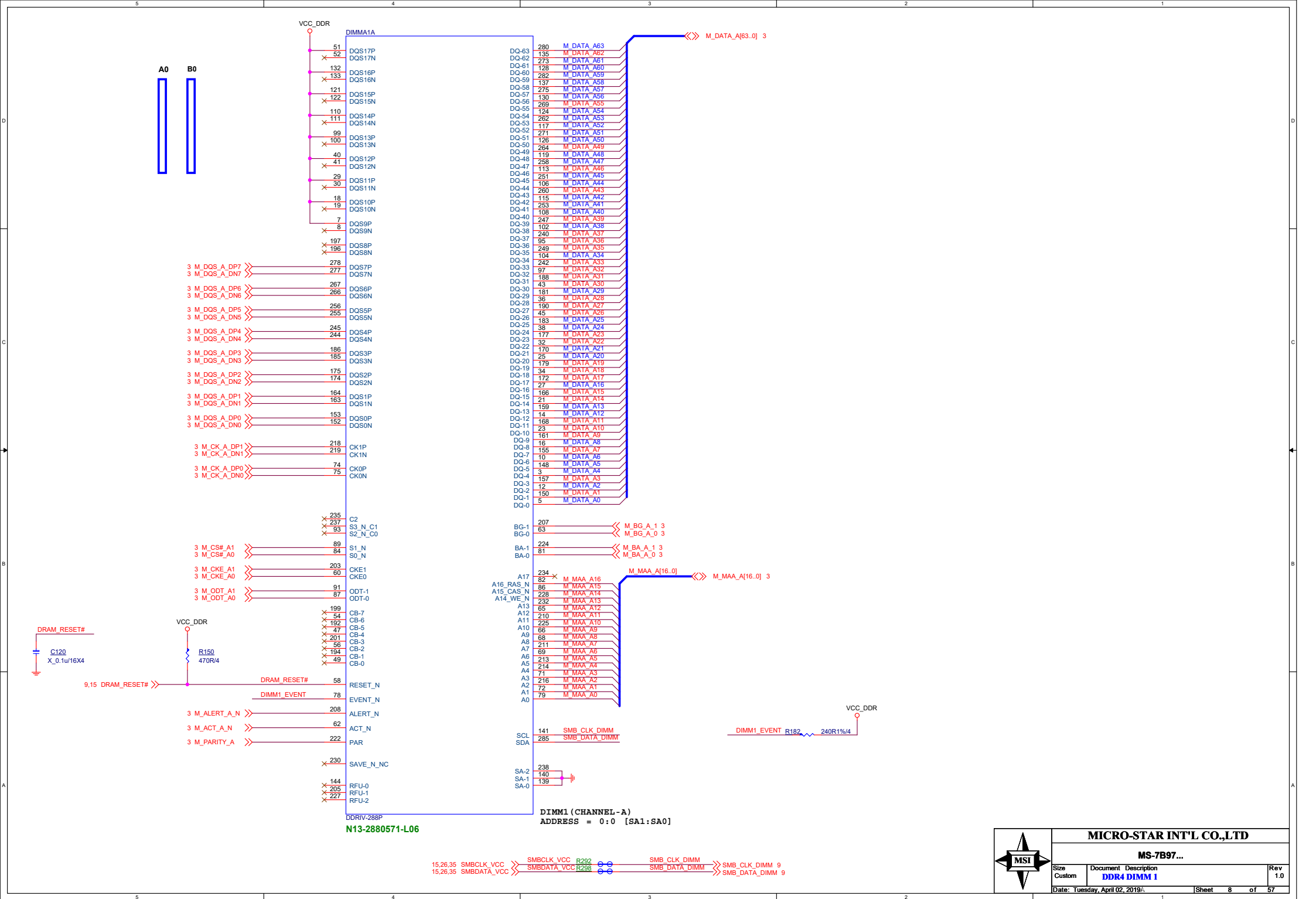


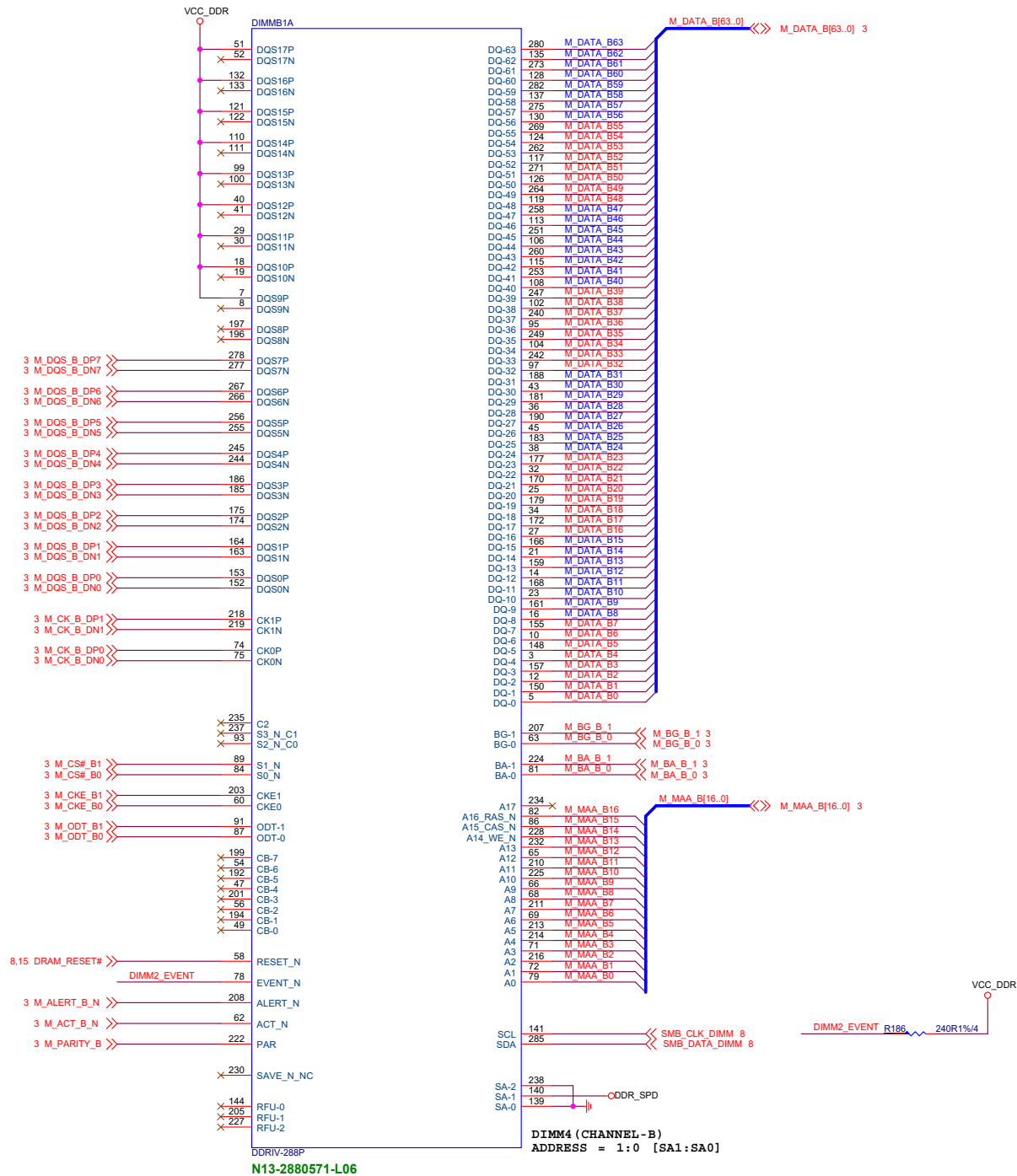
MICRO-STAR INT'L CO.,LTD

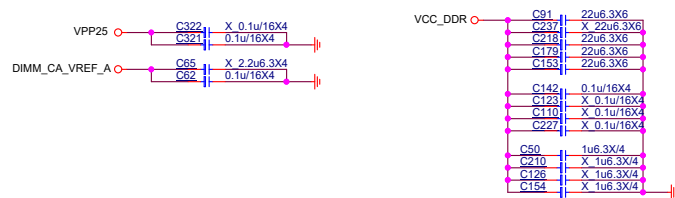
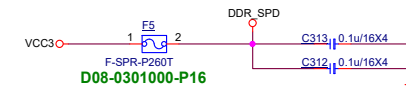
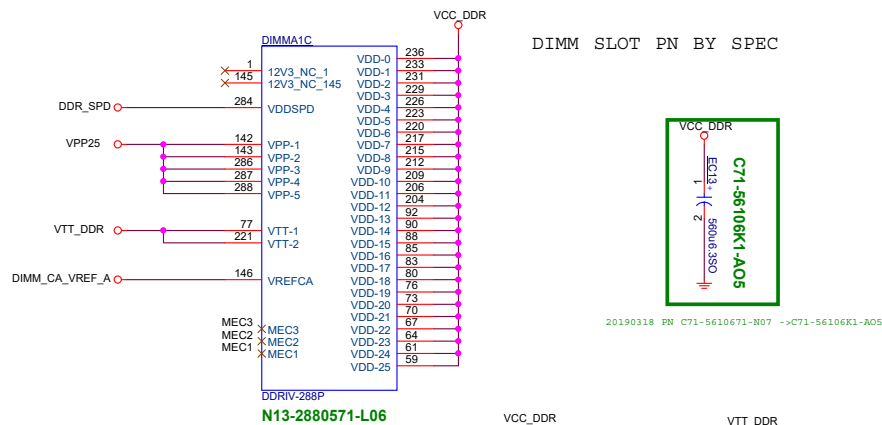
MS-7B97...

Size Custom	Document Description CPU-Power	Rev 1.0
Date: Tuesday, April 02, 2019		Sheet 6 of 57

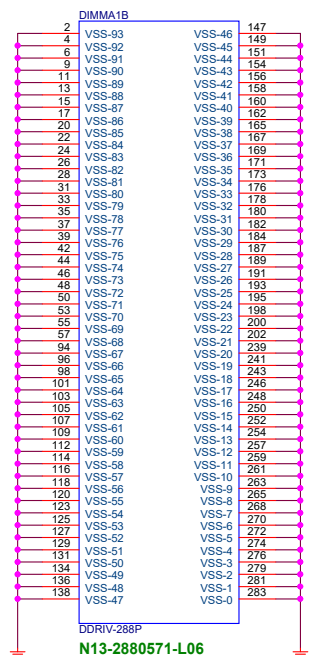
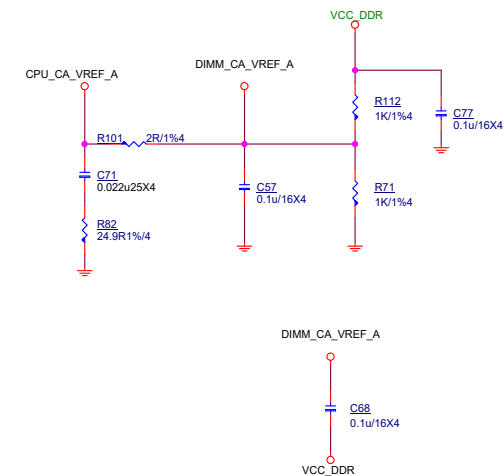
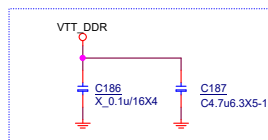








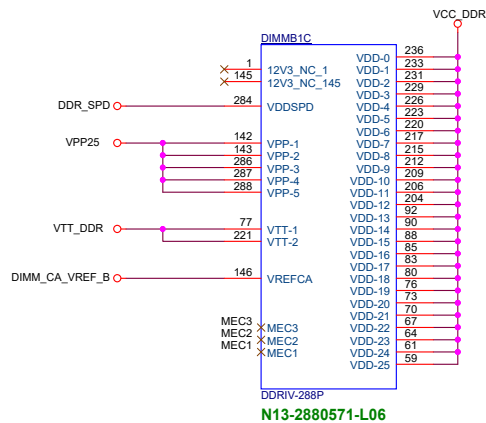
0.1uFx1 per dimm



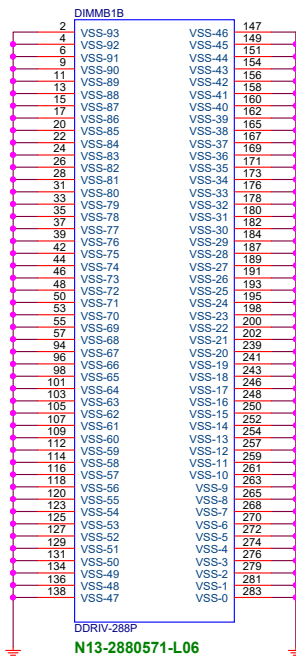
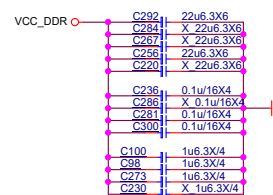
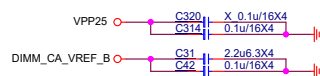
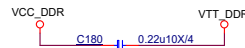
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MS-7B97...

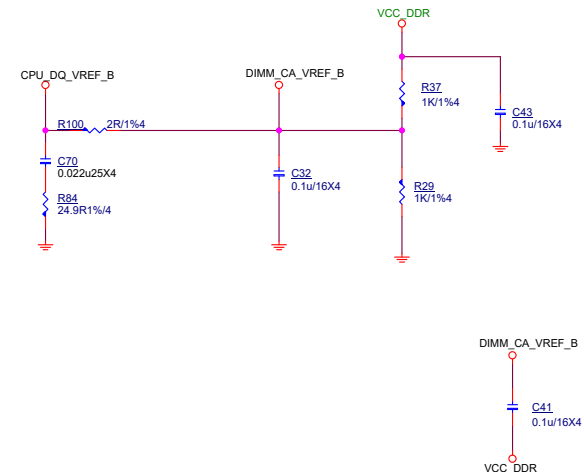
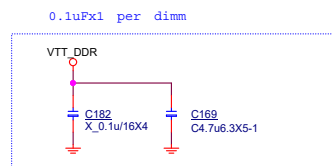
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Custom		DDR4-POWER/GND-1	1.0
Date: Tuesday, April 02, 2019			
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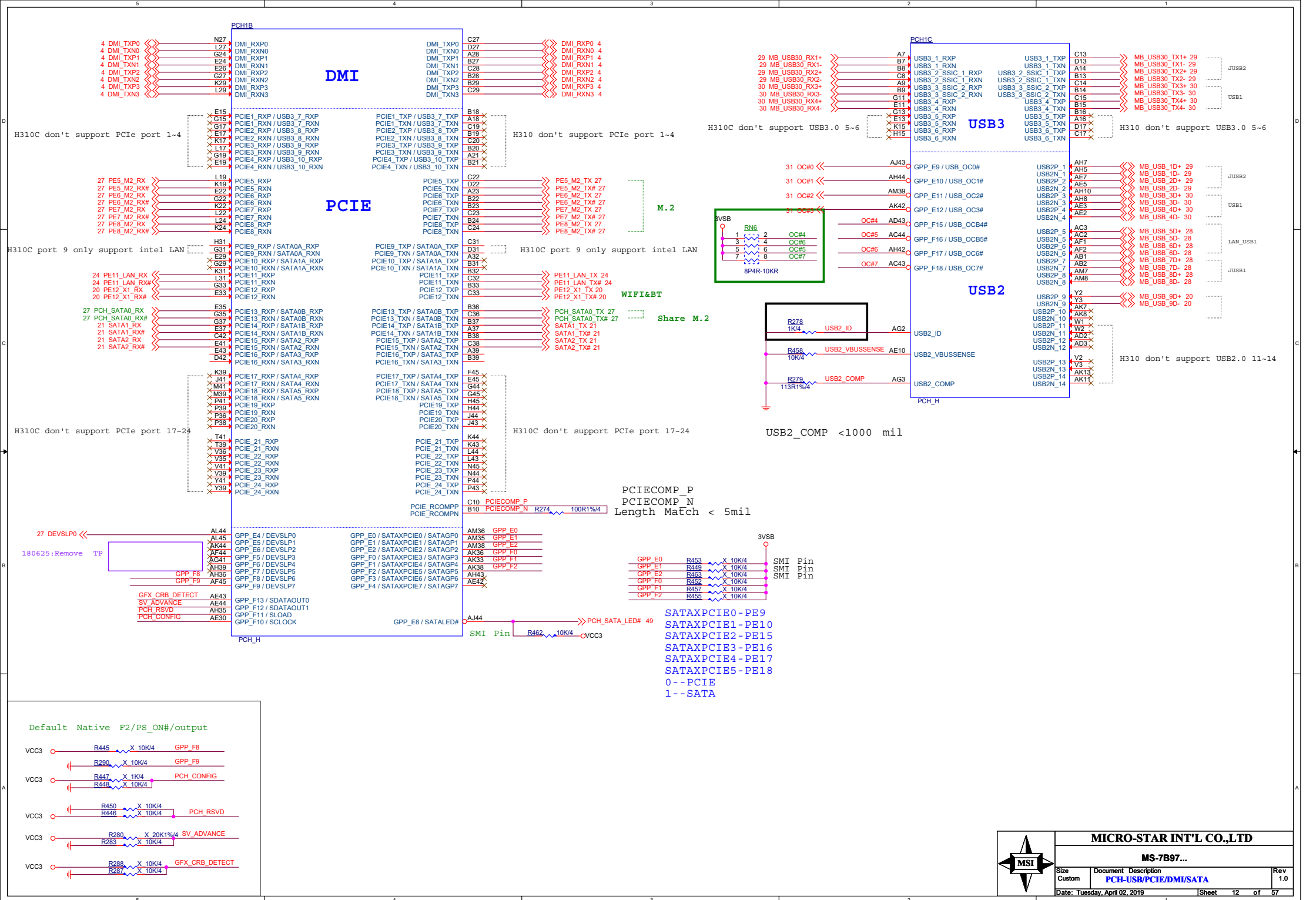


N13-2880571-L06

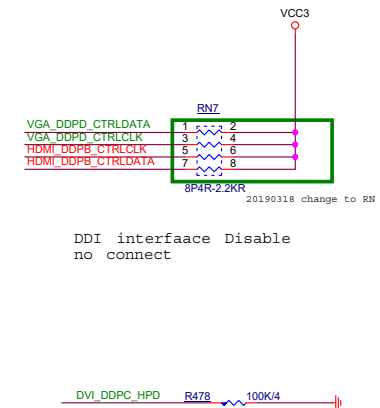
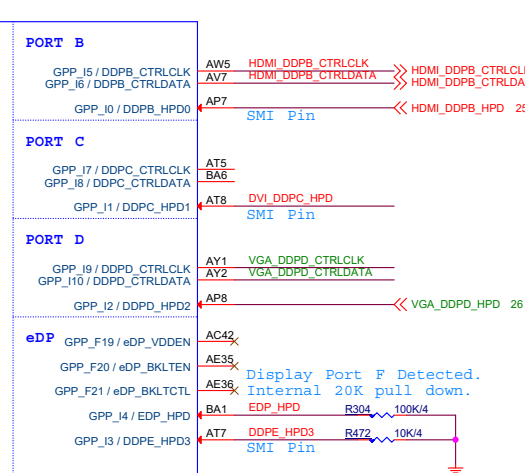
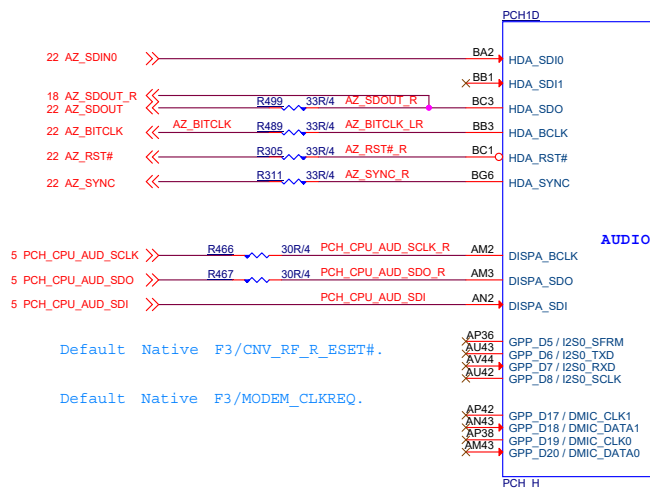
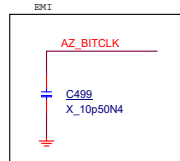
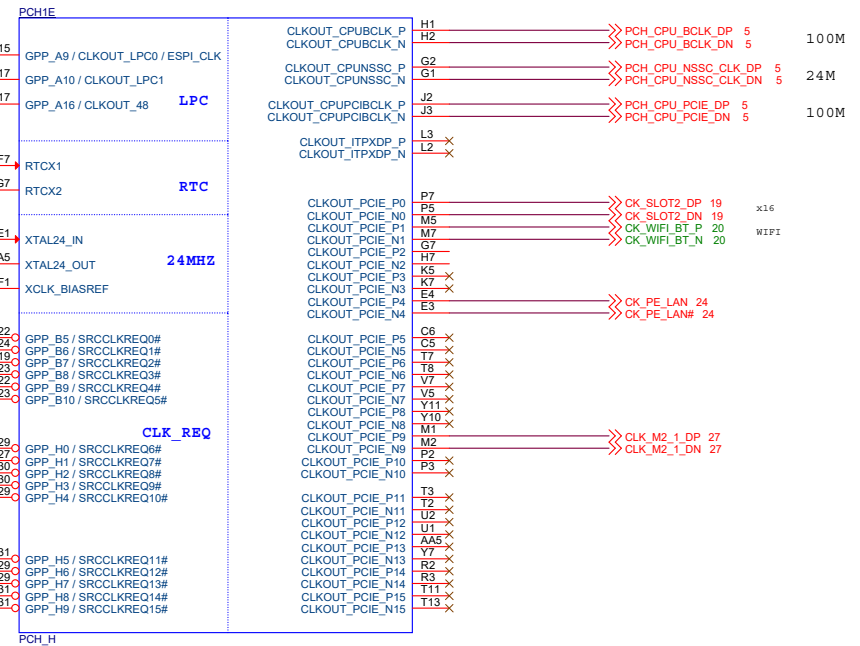
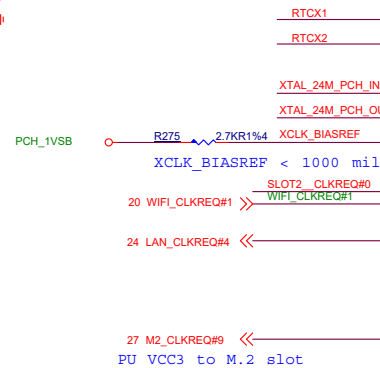
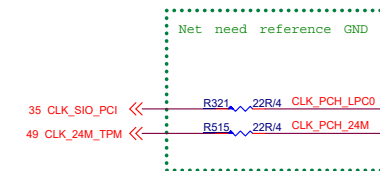
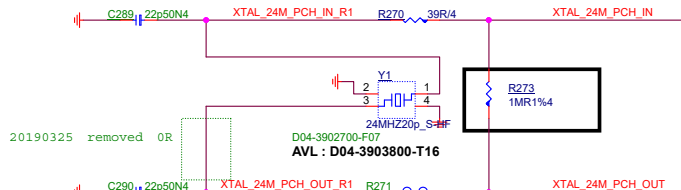
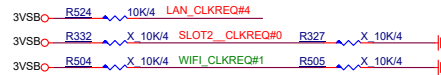
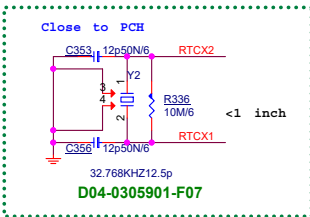


N13-2880571-L06

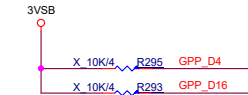




RTC Block



GPP_G[7:0] (Support SMI# only)



For BIOS BOM USE

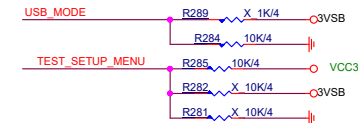
3VSB

RBO6 10K/4 GPP G21 RBO5 X 10K/4 NI.NI.NI

LL.NI RBO3 10K/4 GPP G22 RBO4 X 10K/4 NI.NI.NI

LL.NI RBO1 10K/4 GPP G23 RBO2 X 10K/4 NI.NI.NI

Ground



PCH_1VSB 8.72A

VCC3 0.007A

3VSB 0.846A

K1, K2
<120MIL

A43, B43
<120MIL

C44, C45
<120MIL

POWER

CP5
X COPPER

CP19
X COPPER

C485
0.1u/16X4

C515
0.1u/16X4

BC20
<120MIL



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Custom		PCH-Power	1.0
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VSS



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MS-7B97...

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Custom		PCH-GND	1.0
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TOP Swap

LPC eSPI Mode

Internal pull-down 20K is disabled after PLTRST#

Internal pull-down 20K is disabled after RSMRST

No Reboot

Boot BIOS

0 : DISABLE (Default)
1 : ENABLE

0 : SPI
1 : LPC

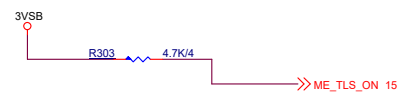
Internal pull-down 20K is disabled after PLTRST#

Internal pull-down 20K is disabled after PLTRST

AMT and SBA with confidentiality

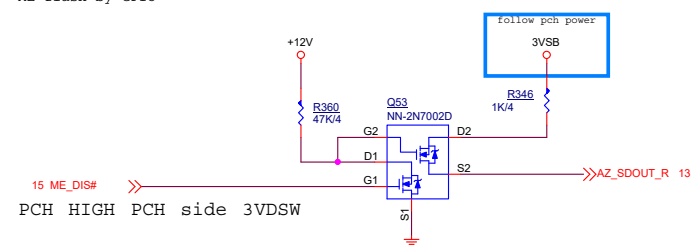
HDA_SDO

ME flash by GPIO



0 : DISABLE
1 : ENABLE (Default)

Internal pull-down 20K is disabled after RSMRST

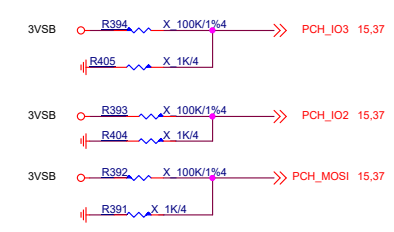
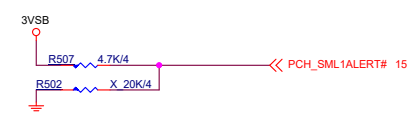


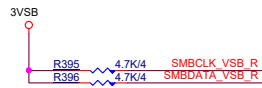
ESPI FLASH SHARING MODE

Reserved

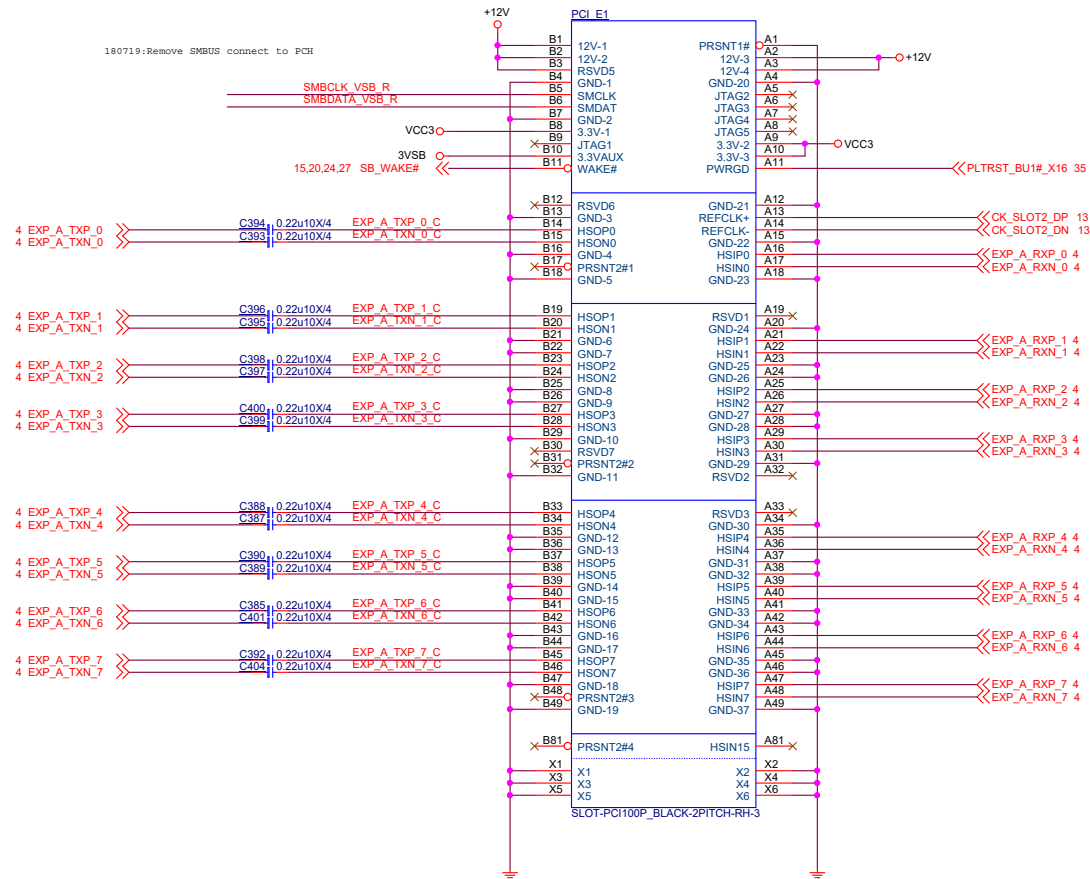
0 : MASTER ATTACHED FLASH SHARING
1 : SLAVE ATTACHED FLASH SHARING

Internal pull-down 20K is disabled after RSMRST





180719:Remove SMBUS connect to PCI



+12V

GD02

0.1uF/6X4

VCC3

GD03

0.1uF/6X4

3VSB

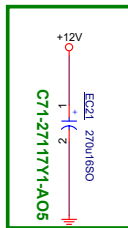
C415

X_10u6.3X6

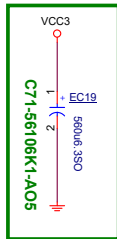
3VSB

GD14

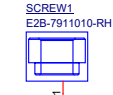
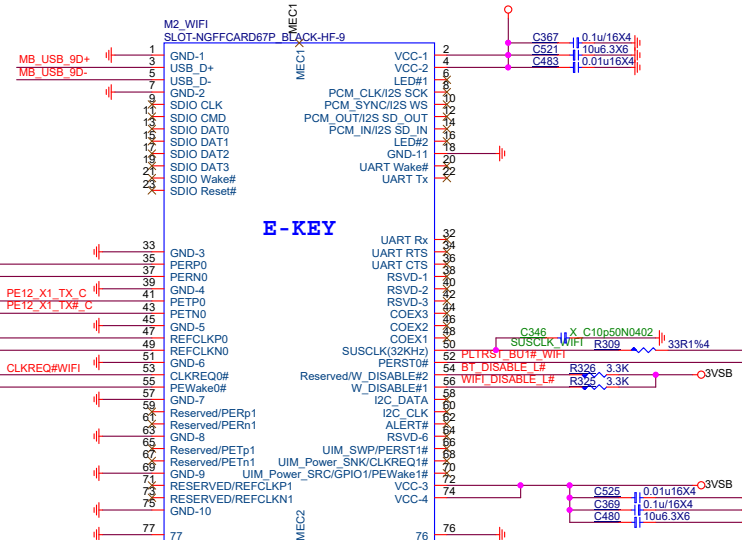
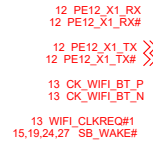
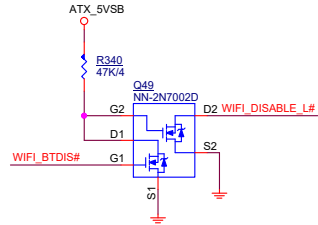
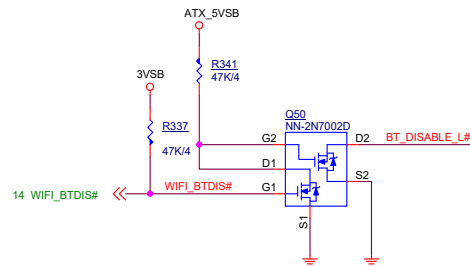
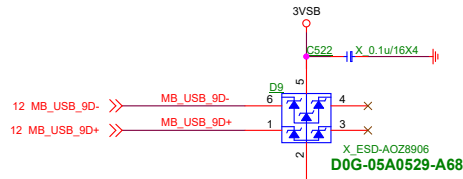
0.1uF/6X4



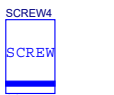
20190318 C71-2711761-N07 -> C71-27117Y1-A05



20190318 PN C71-5610671-N07 -> C71-56106K1-A05



E2B-7911010-A89

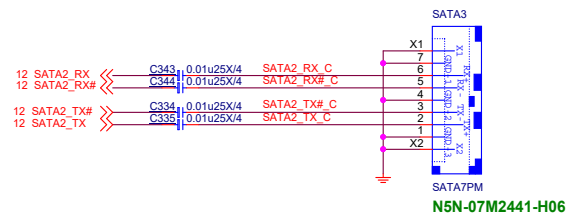
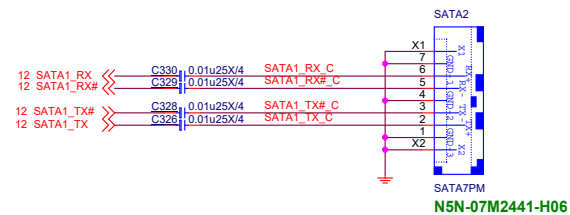
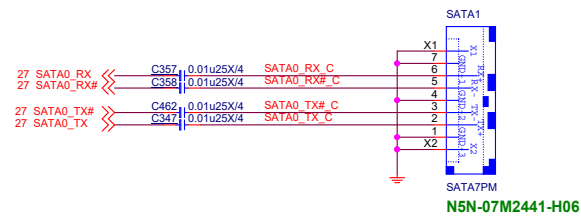


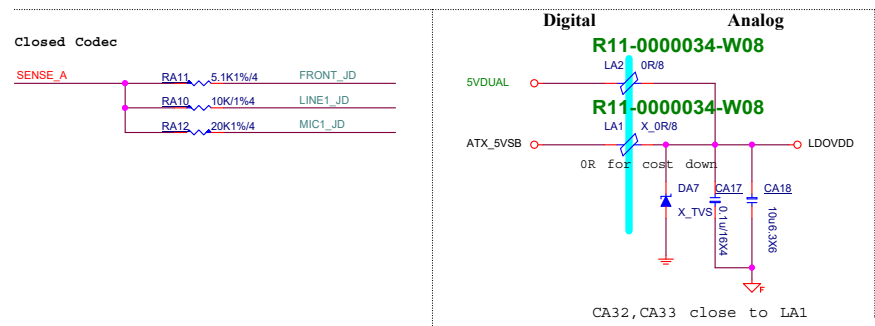
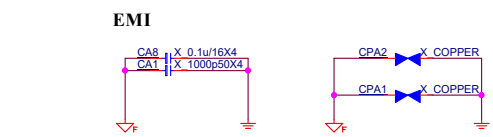
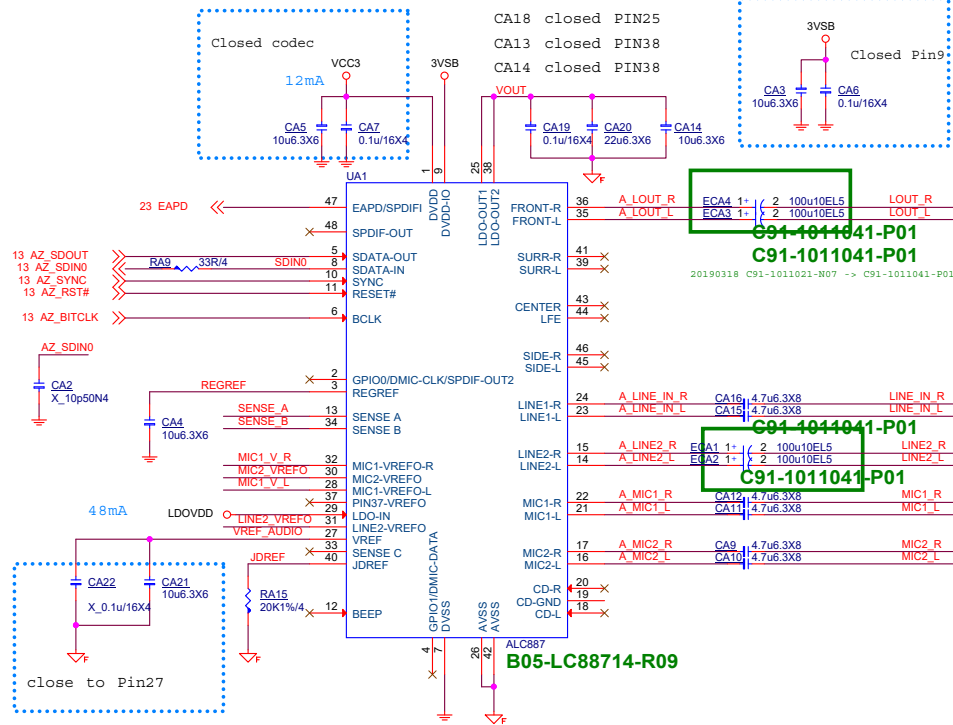
E43-1305031-P65



MICRO-STAR INT'L CO.,LTD			
MS-7B97...			
Size	Document	Description	Rev
Custom		M2 WIFI&BT	1.0
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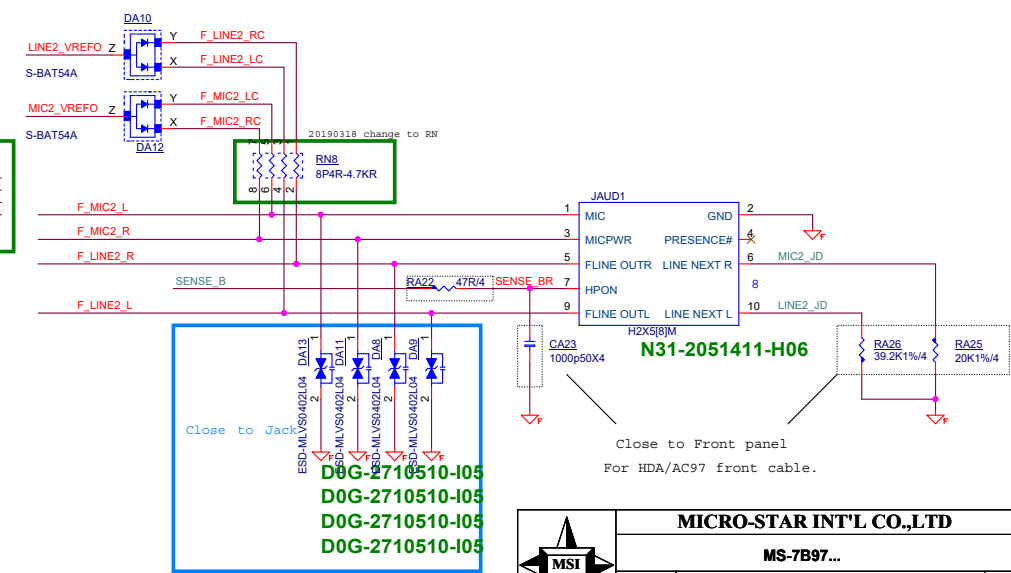
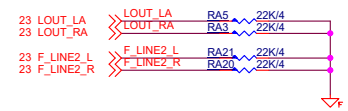
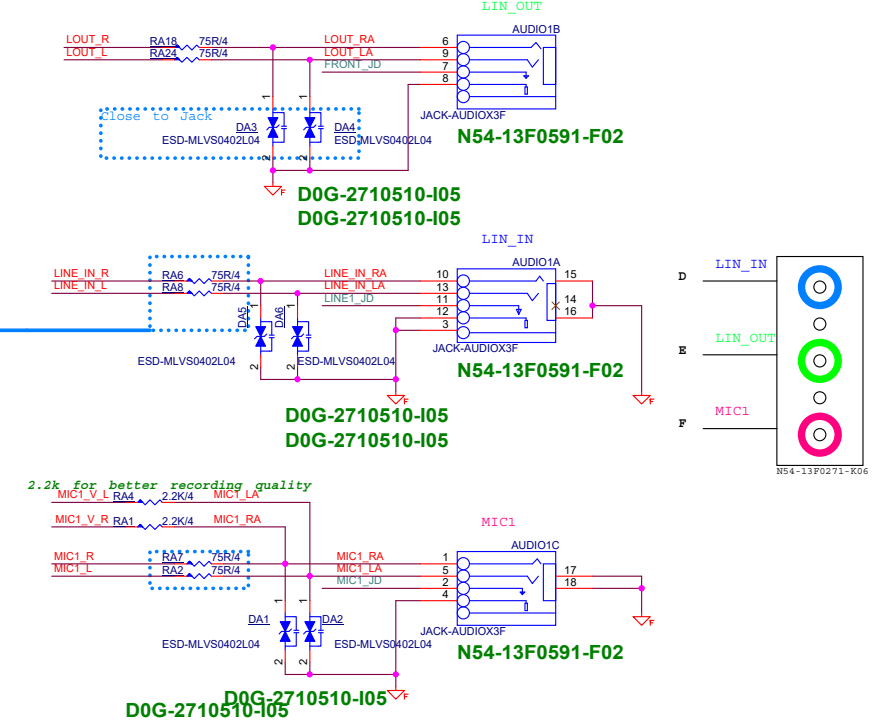
SATA 6G





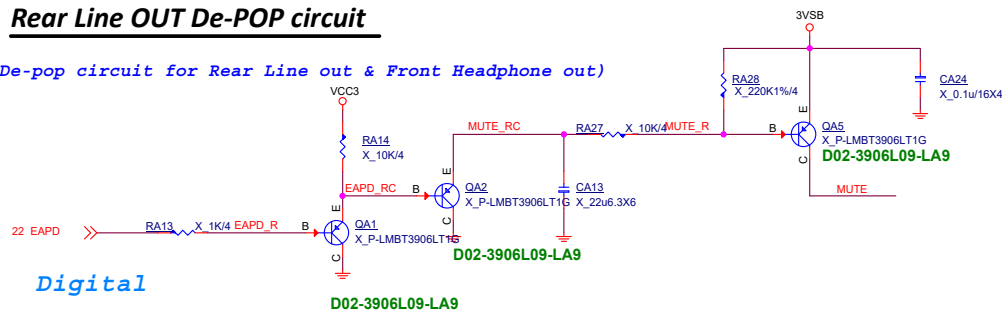
for rear I/O 6port:
887VD/892:1k

for rear I/O 3port:
887VD/892:75R



Rear Line OUT De-POP circuit

De-pop circuit for Rear Line out & Front Headphone out)



Digital

Analog



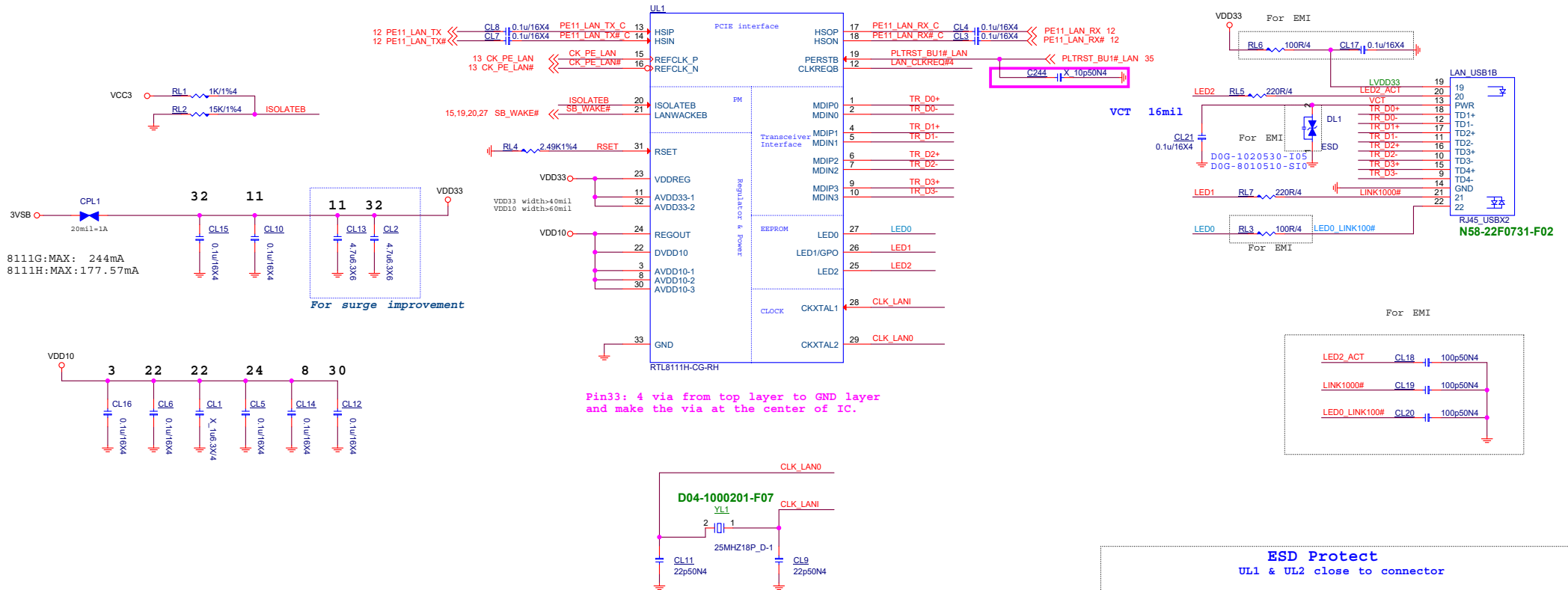
Audio moat is transparent and width 40mil

RTL8111G/RTL8111H Giga LAN

8111H:B06-08111CC-R09
8111G:B06-081116C-R09

LAN_CLKREQ#4 >>> LAN_CLKREQ# 13

LAN Connector



8111G POWER Consumption

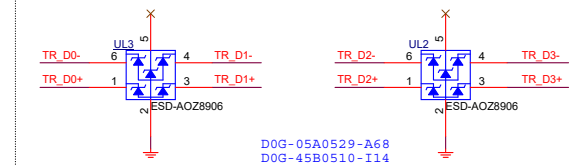
	3.3V @ mA	mW
10 M Idle/TxRx	17.15/116.7	56.6/385.1
100 M Idle/TxRx	71.45/129.5	235.8/427.4
Giga Idle/TxRx	179.1/243.9	591/804.9
ALDPS	6.41	21.15

8111H POWER Consumption

	3.3V @ mA	mW
10 M Idle/TxRx	9.9/84.69	32.67/279.48
100 M Idle/TxRx	48.11/92.44	158.76/305.05
Giga Idle/TxRx	124.5/177.57	410.85/585.98
ALDPS	5.50	18.15

ESD Protect

UL1 & UL2 close to connector

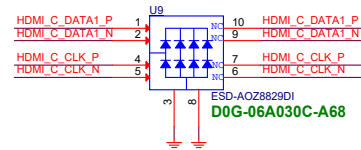
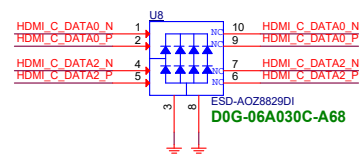
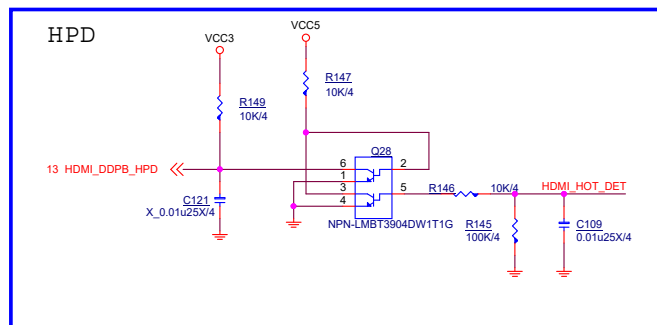
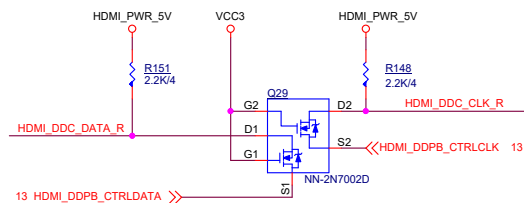
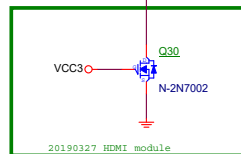
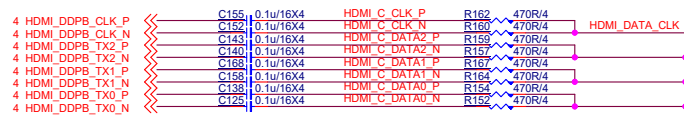


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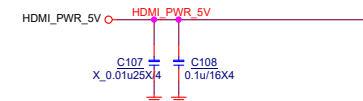
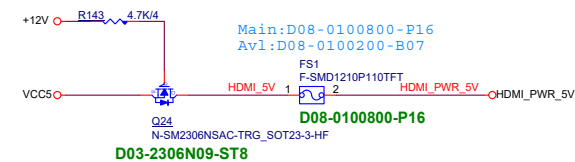
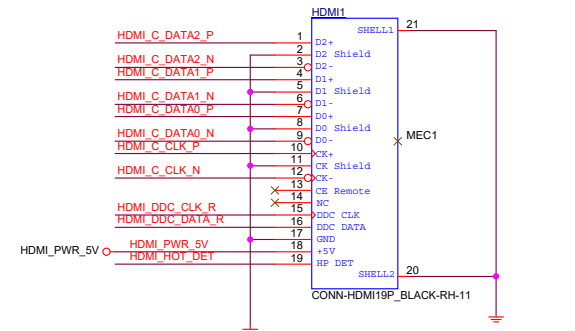
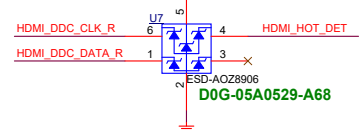
MS-7B97...

Size	Document	Description	Rev
Custom		LAN - RTL8111H	1.0
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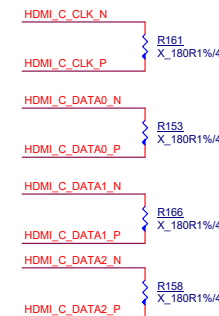
HDMI, DVI : 1920x1200 at 60 Hz (16:10 WUXGA)



注意：耐 壓5V零件



For EMI

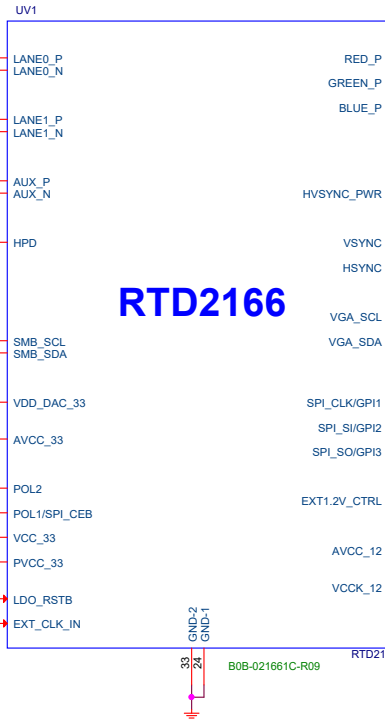


MICRO-STAR INT'L CO.,LTD

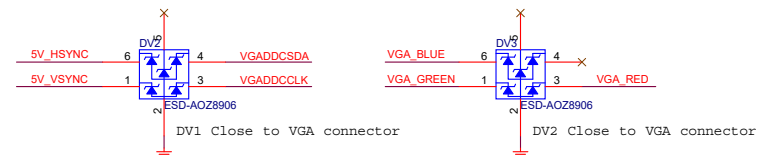
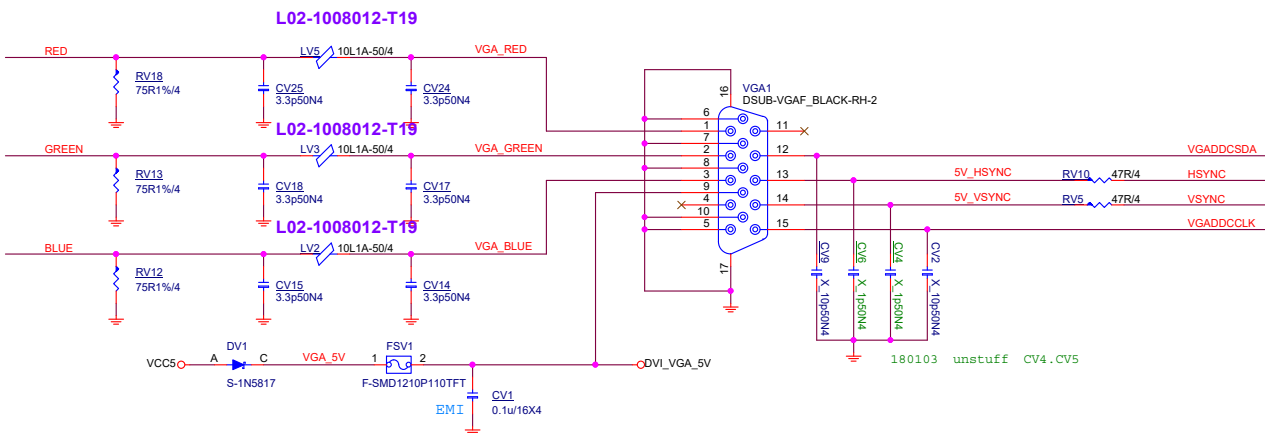
MS-7B97...

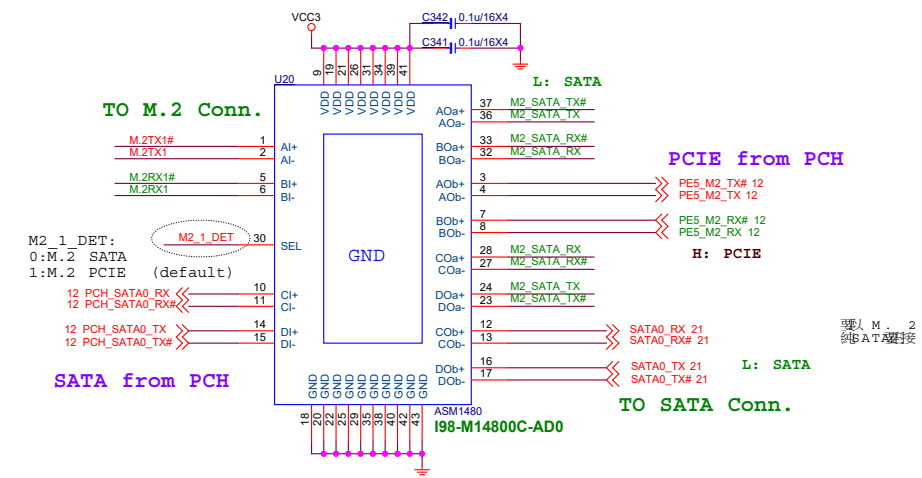
Size	Document	Description	Rev
Custom	HDMI		1.0
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If connect to eDP port,must confirm whether it support hot plug detection HPD and re-auxtraining

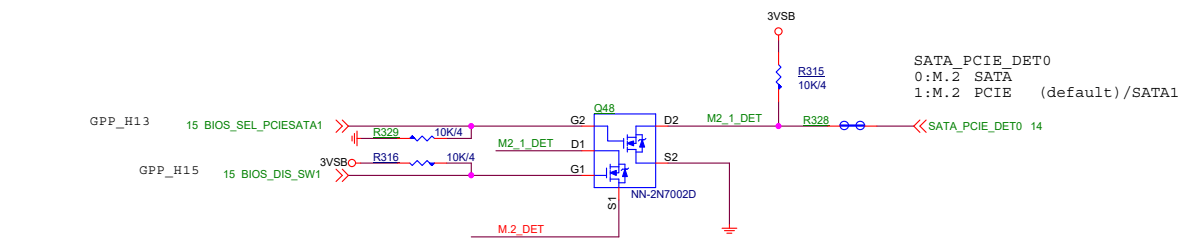
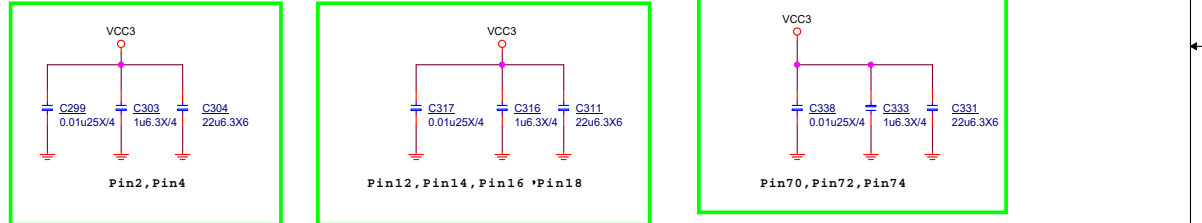
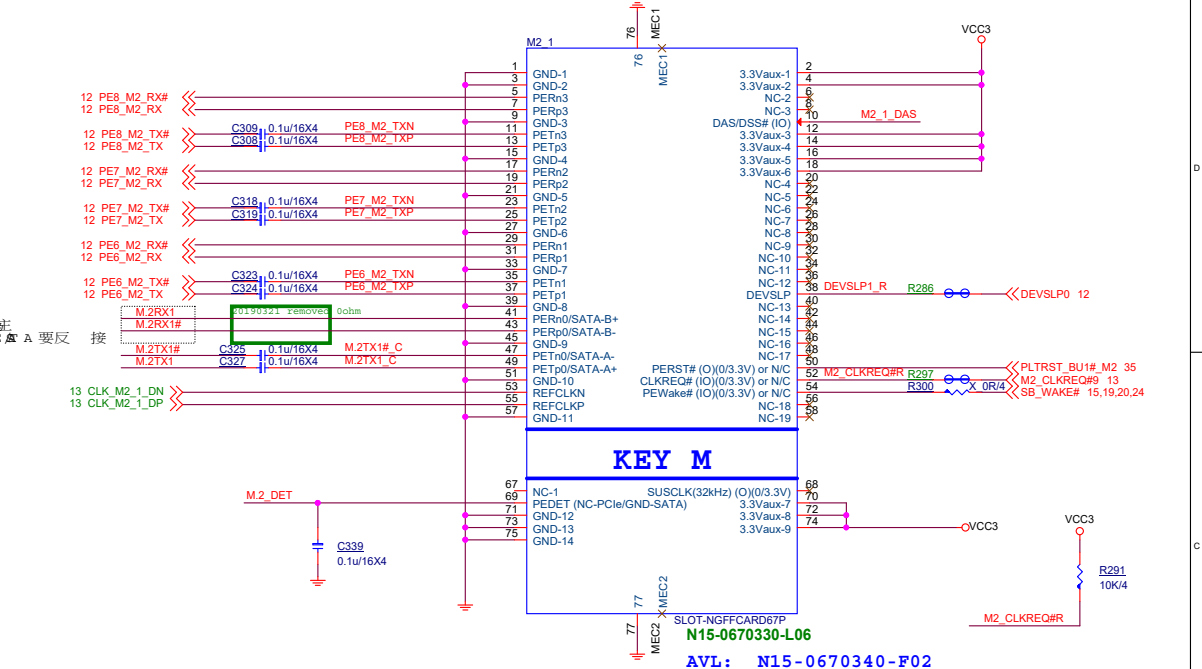
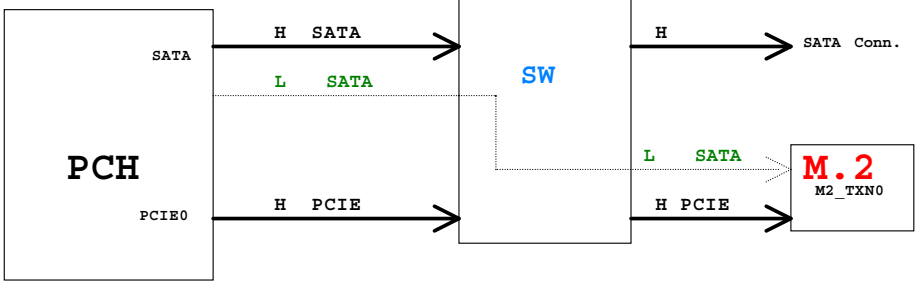
[illegible]

- PIN12 → 4.7K Ω Pull high, the maximum supported resolution is 1024x768
- PIN12 → 4.7K Ω Pull down(or N/C), the maximum supported resolution is 1920x1080

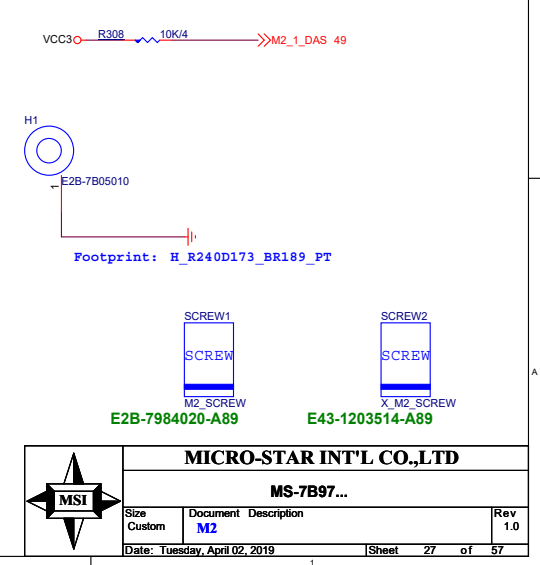




SW:
 ___ HW Default H:M.2 PCIE & SATA1
 M.2 Insert L:M.2 SATA & SATA1 NA



GPP_H15	GPP_H13	GPP_A18
BIOS_DIS_SW1	BIOS_SEL_PCIESATA1	Mode
0	1	M2-SATA
0	0	M2-PCIE/SATA1
GPI	GPI	AUTO



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MS-7B97...

Size Custom

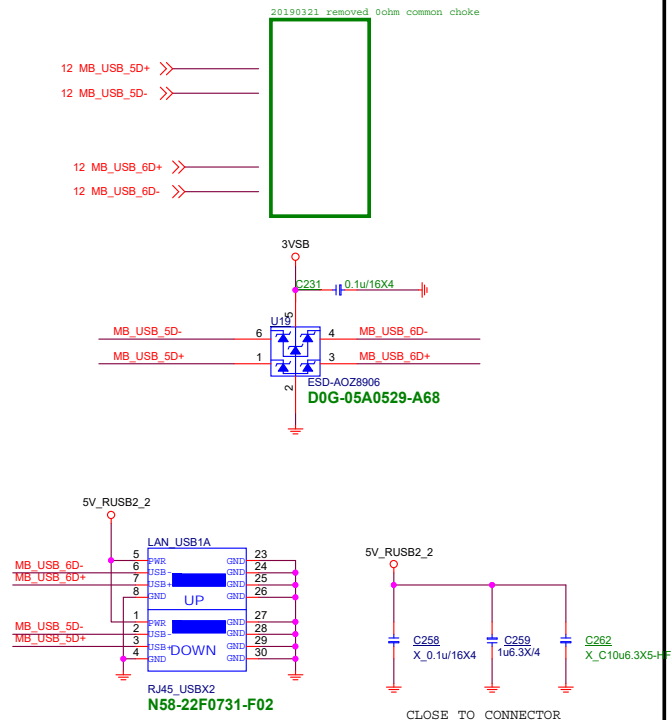
Document M2

Description

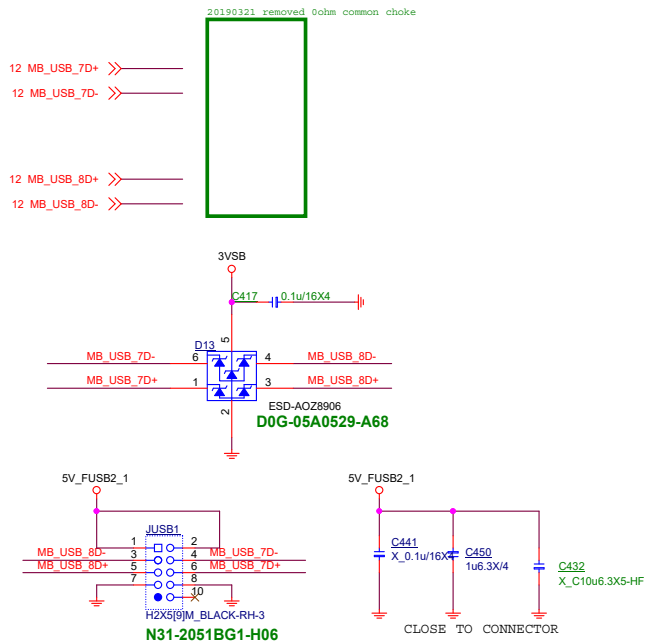
Rev 1.0

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Rear LAN_USB1 port 5,6



JUSB1 PORT 7,8

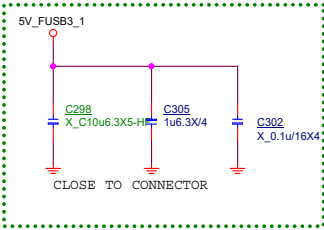
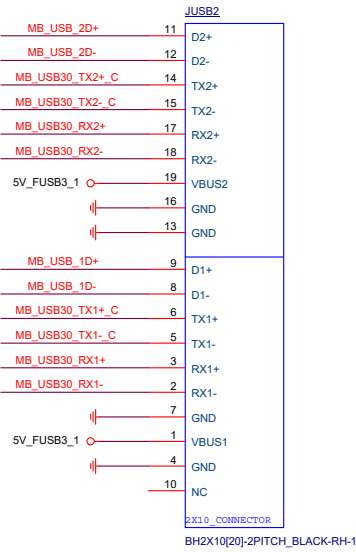
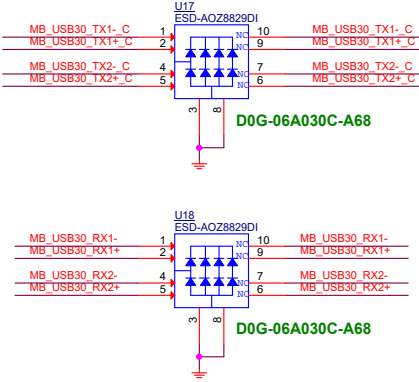
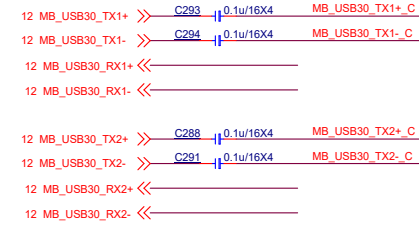
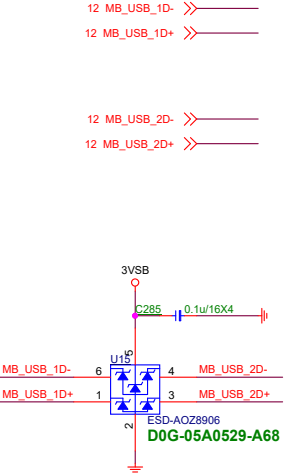


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Size	Document	Description	Rev
Custom		USB2.0 Connector	1.0
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Front JUSB3 port 1,2



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Size	Document	Description	Rev
Custom		Front USB3.0 Connector	1.0
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REAR USB1 Connect

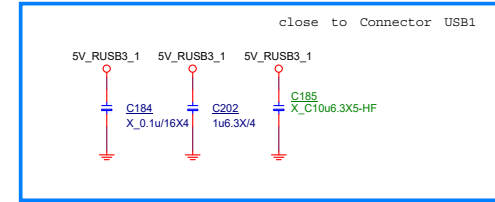
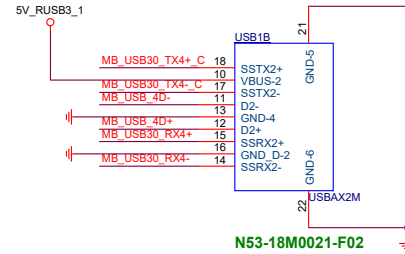
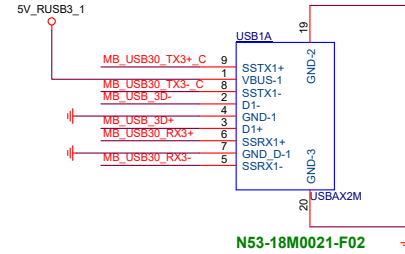
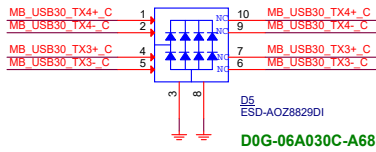
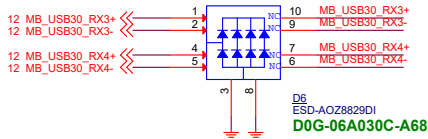
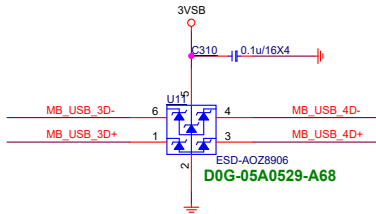
20190321 removed 0ohm common choke

12 MB_USB_3D- >>
12 MB_USB_3D+ >>

12 MB_USB_4D- >>
12 MB_USB_4D+ >>

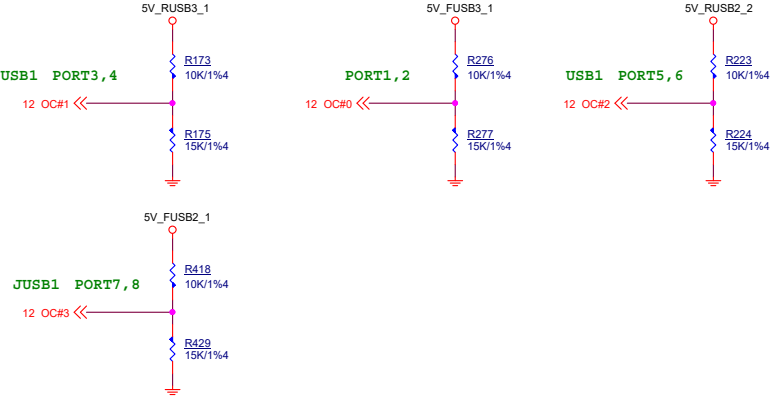
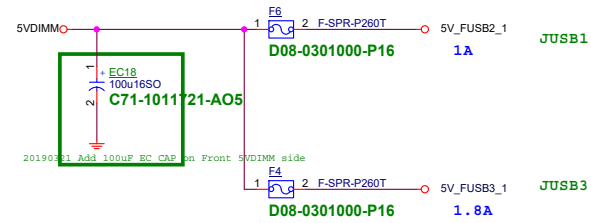


12 MB_USB30_TX4- >> C206 0.1u/16X4 MB_USB30_TX4- C
12 MB_USB30_TX4+ >> C203 0.1u/16X4 MB_USB30_TX4+ C
12 MB_USB30_TX3- >> C211 0.1u/16X4 MB_USB30_TX3- C
12 MB_USB30_TX3+ >> C207 0.1u/16X4 MB_USB30_TX3+ C



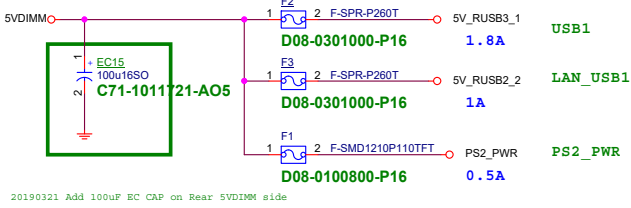
MICRO-STAR INT'L CO.,LTD			
MS-7B97...			
Size	Document	Description	Rev
Custom		REAR USB1 Connect	1.0
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FRONT USB PORT POWER

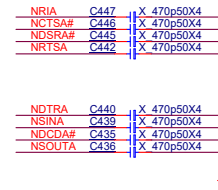
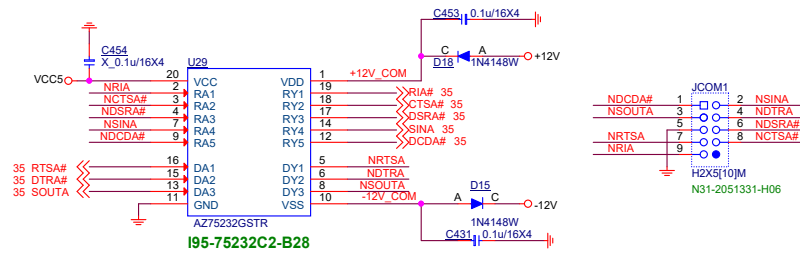


USB CONN	USB POWER	PCH PORT	OC# SIGNAL
USB1	5V_FUSB2_2	Port1,2	OC#0
JUSB3	5V_FUSB3_1	Port3,4	OC#1
LAN_USB1	5V_FUSB3_1	Port5,6	OC#2
JUSB1	5V_FUSB2_2	Port7,8	OC#3

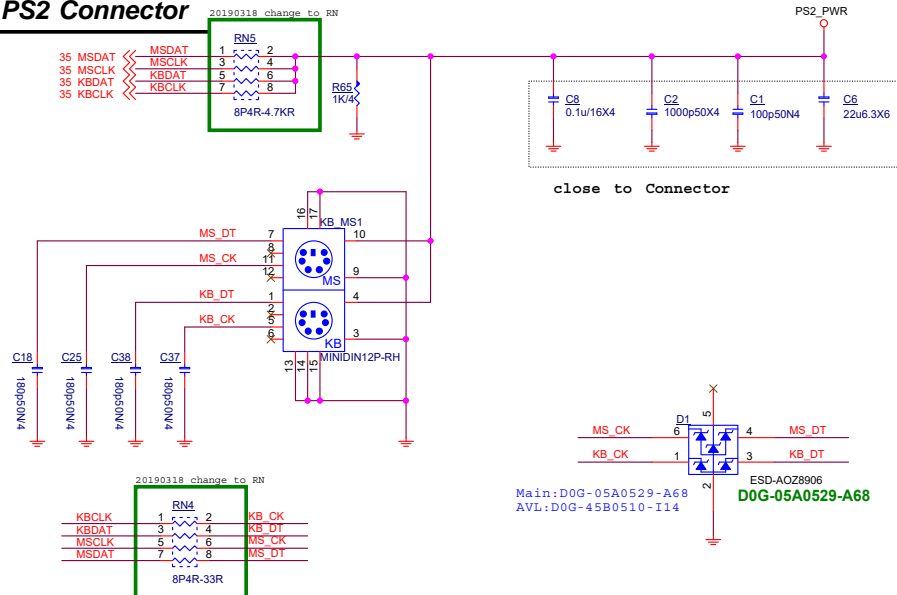
REAR USB PORT POWER



SERIAL PORT 1

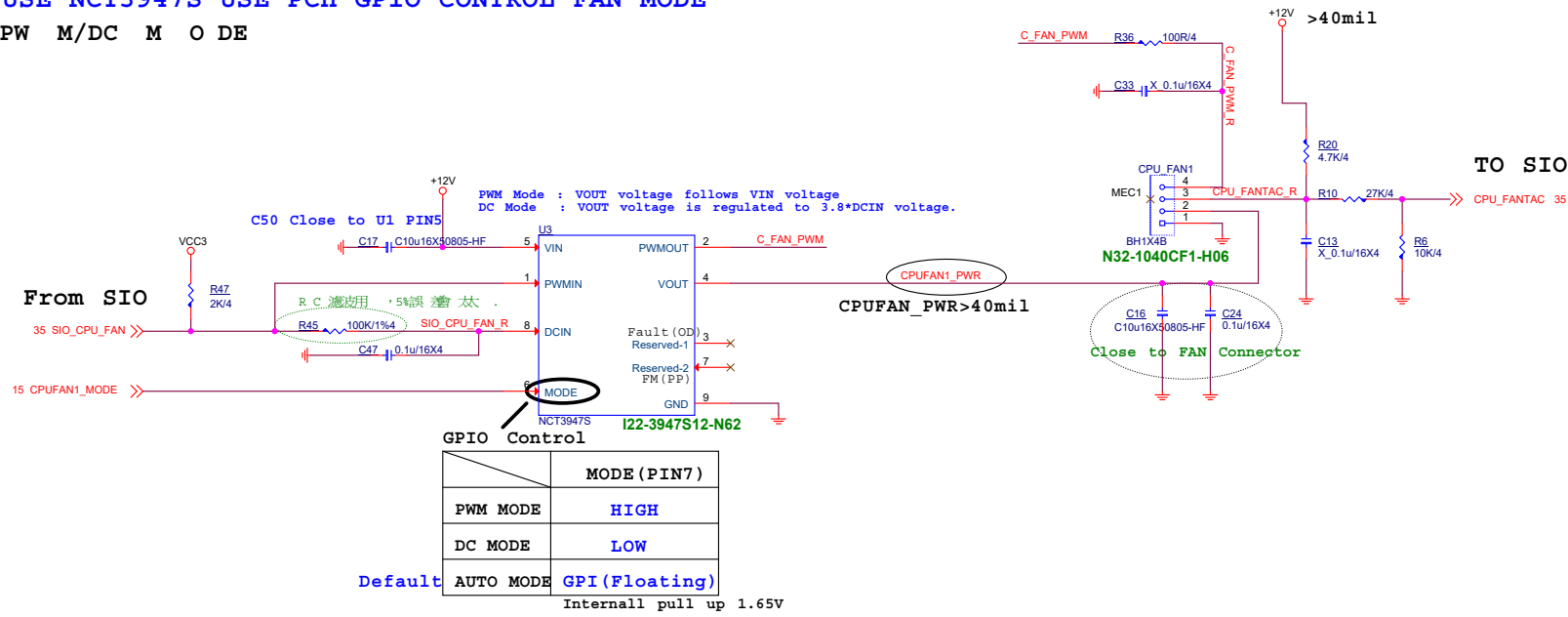


PS2 Connector

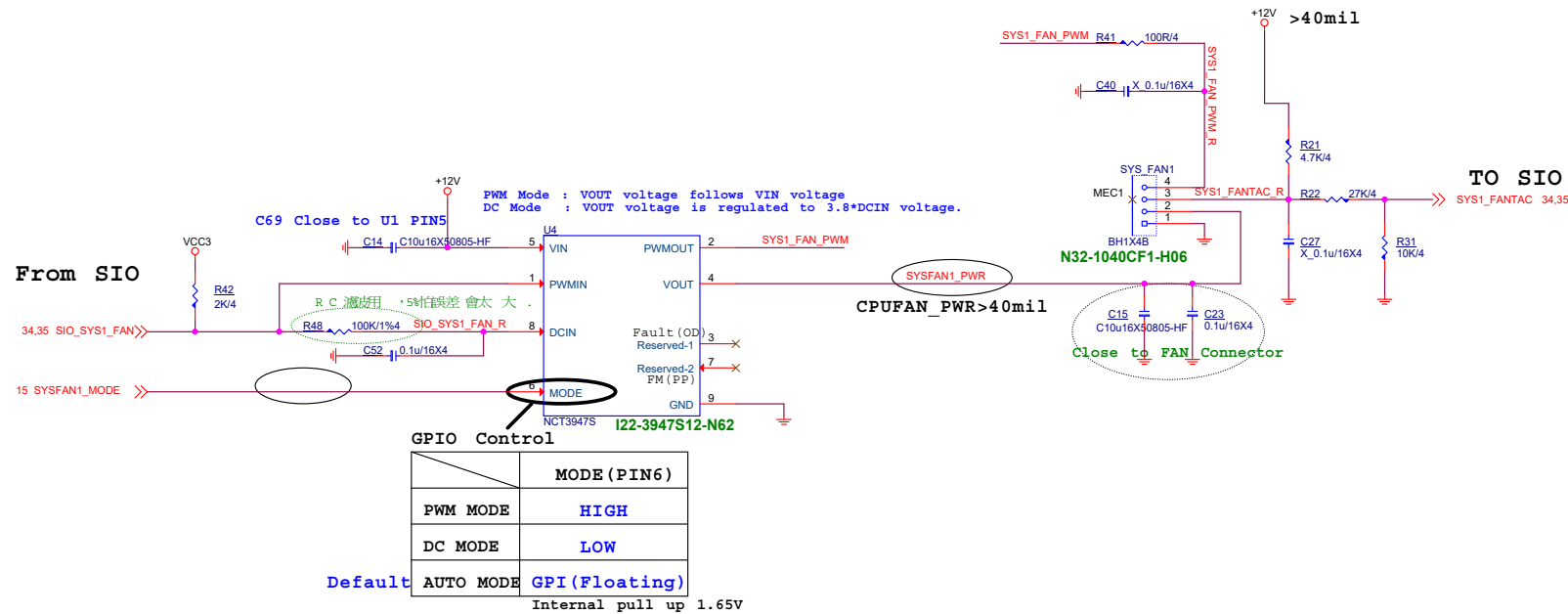


TYPE K : 4 PIN CPU FAN USE NCT3947S USE PCH GPIO CONTROL FAN MODE

GPIO 可由 切换 PW M/DC M O DE

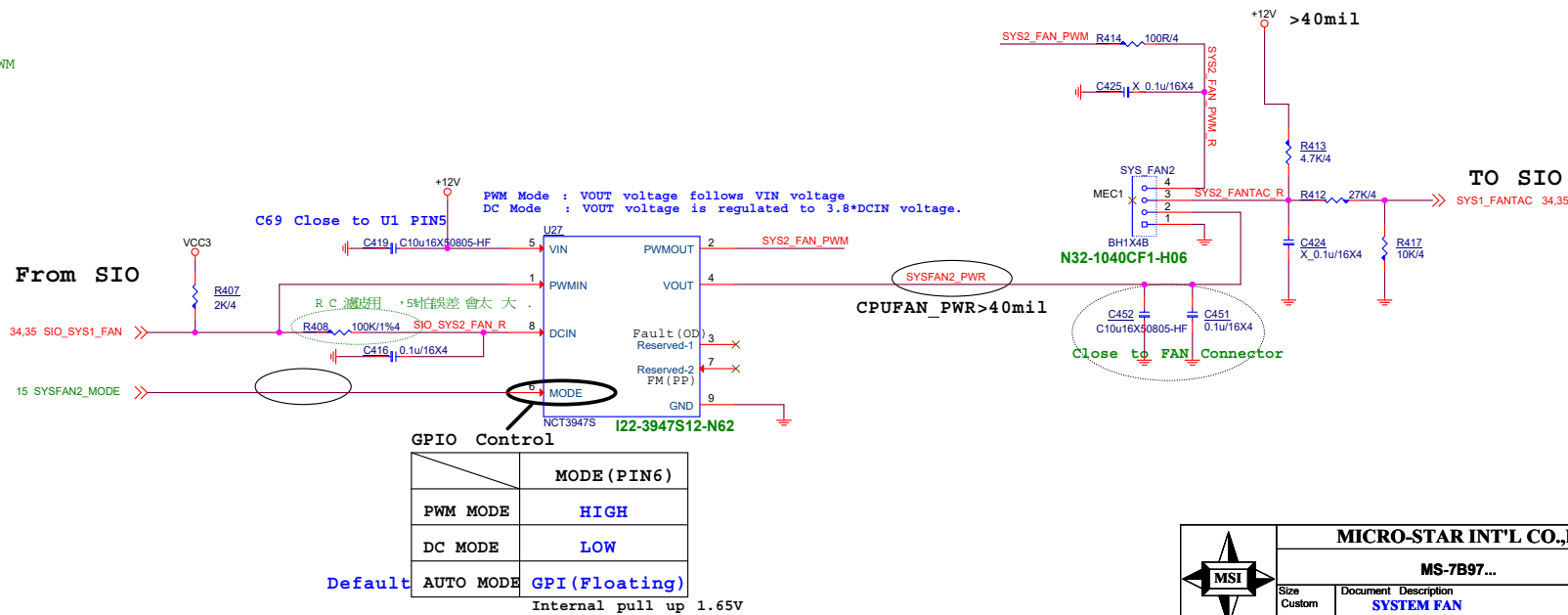


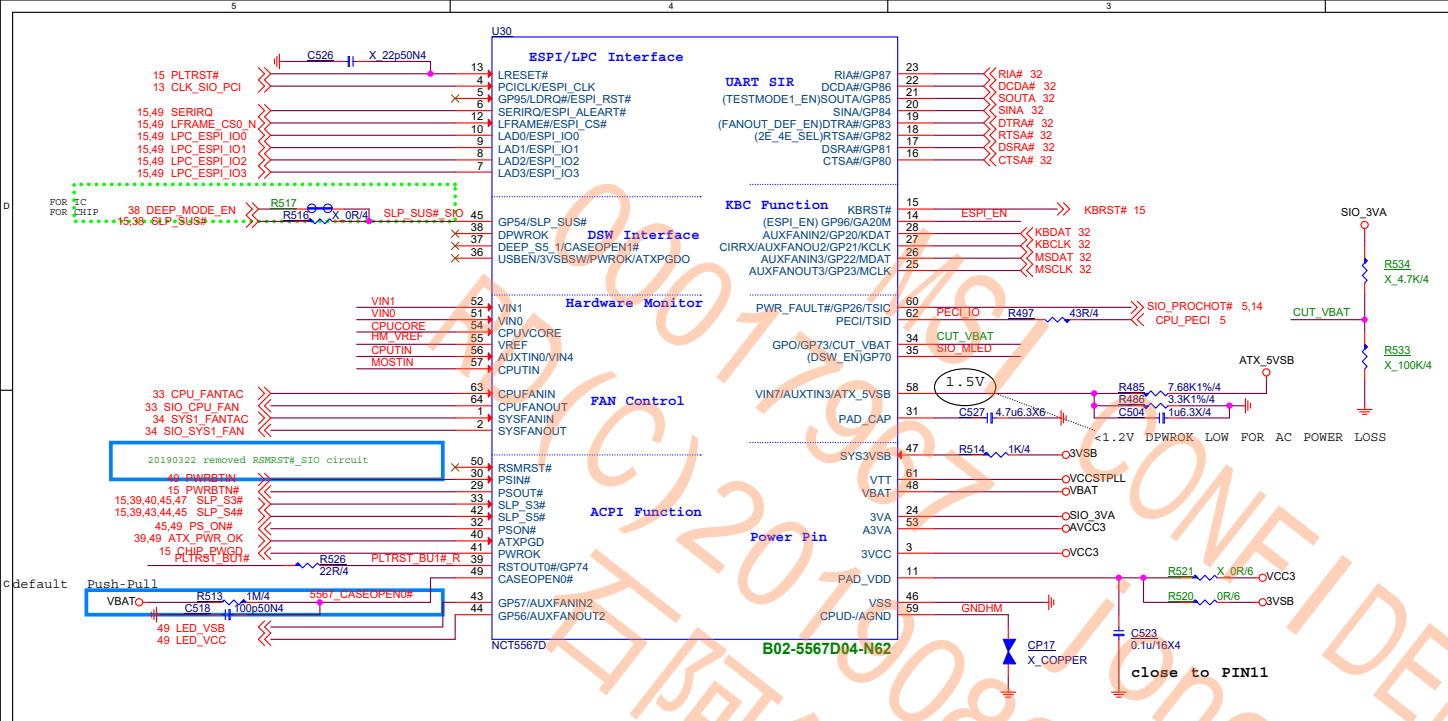
TYPE K : 4 PIN CPU FAN USE NCT3947S USE PCH GPIO CONTROL FAN MODE



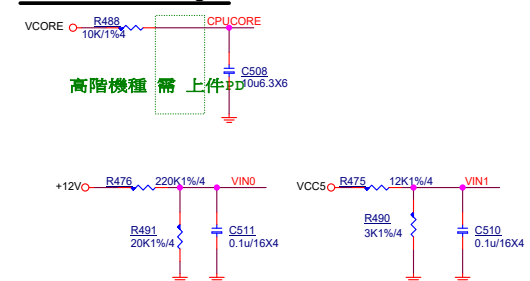
TYPE K : 4 PIN CPU FAN USE NCT3947S USE PCH GPIO CONTROL FAN MODE

SYS_FAN2 use SYS_FAN1 PWM



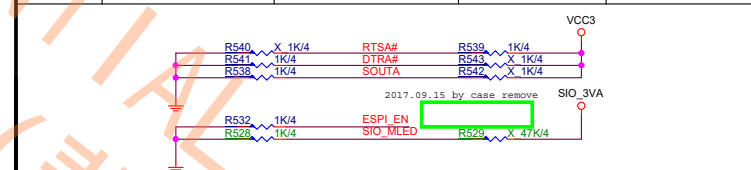
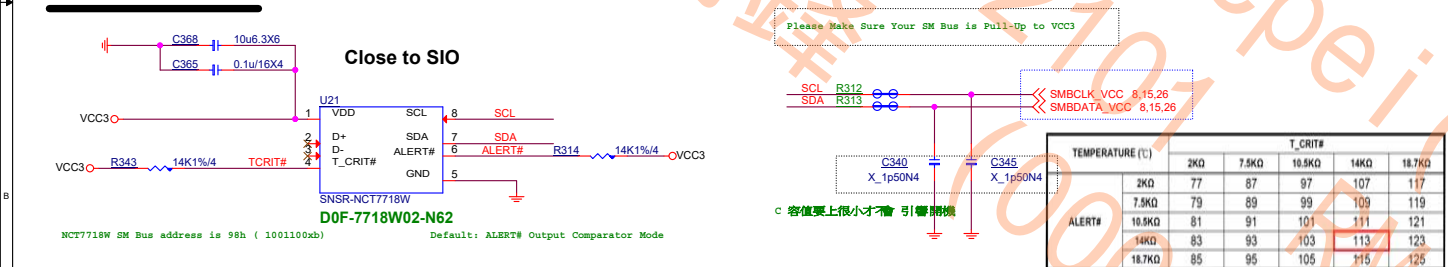


HW Monitor - Voltage

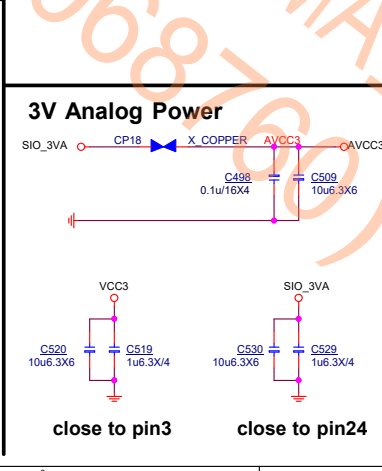
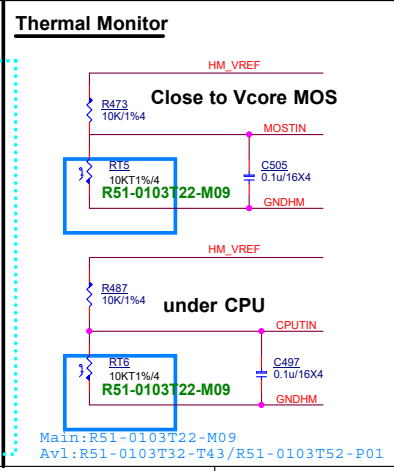
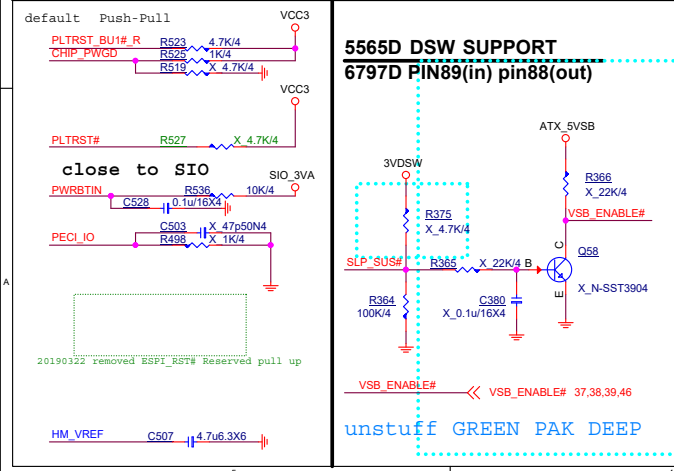
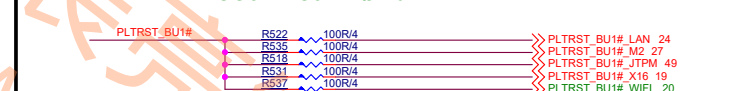


PIN	5567D NAME	Circuit NAME	0	1
18	2E_4E_SEL	RTSA#	I/O ADDRESS 2E	I/O ADDRESS 4E
19	FANOUT_DEF_EN	DTRA#	CPU FANOUT default RPM 50%	CPU FANOUT default RPM 100%
21	TESTMODE1_EN	SOUTA	DISABLE TESTMODE	ENABLE TESTMODE
14	ESPI_EN	GA20M	ENABLE LPC	ENABLE ESPI
35	DSW_EN	DSW_EN	DISABLE	ENABLE DSW_EN

NCT7718W



need near SIO

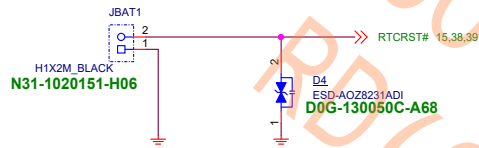


MICRO-STAR INT'L CO.,LTD

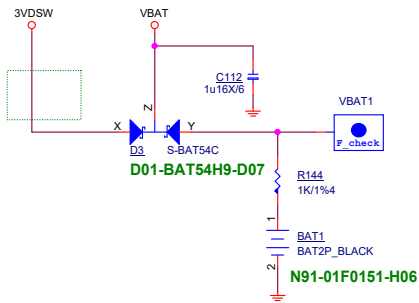
MS-7B97...

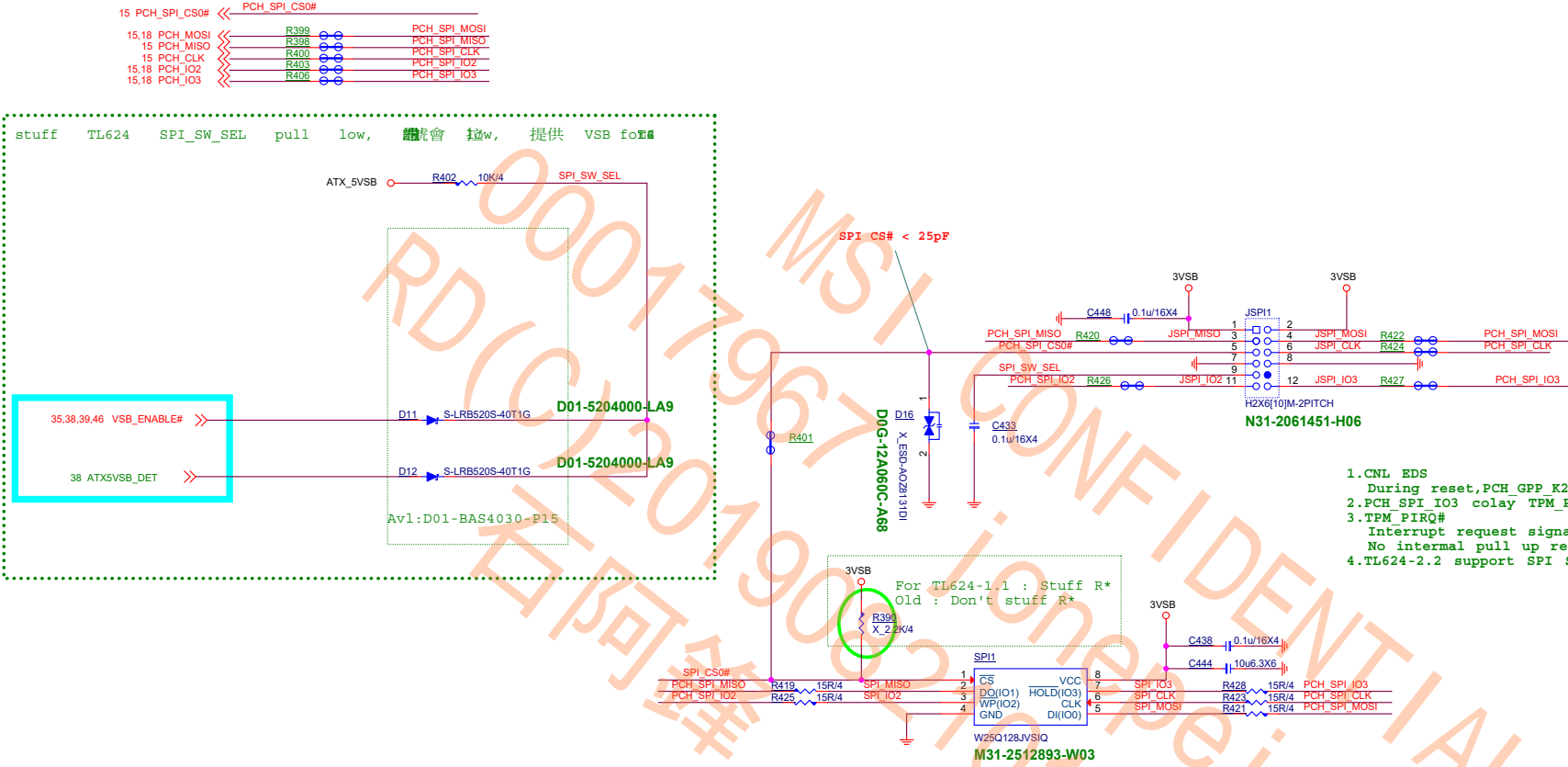
Size	Document	Description	Rev
Custom		SIO NCT6797-1	1.0
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Cut VBAT



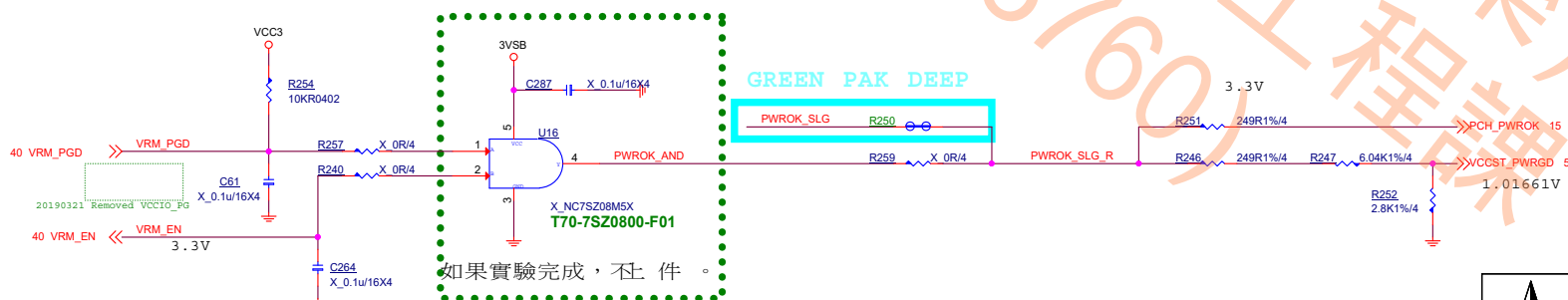
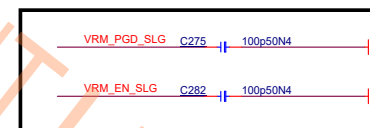
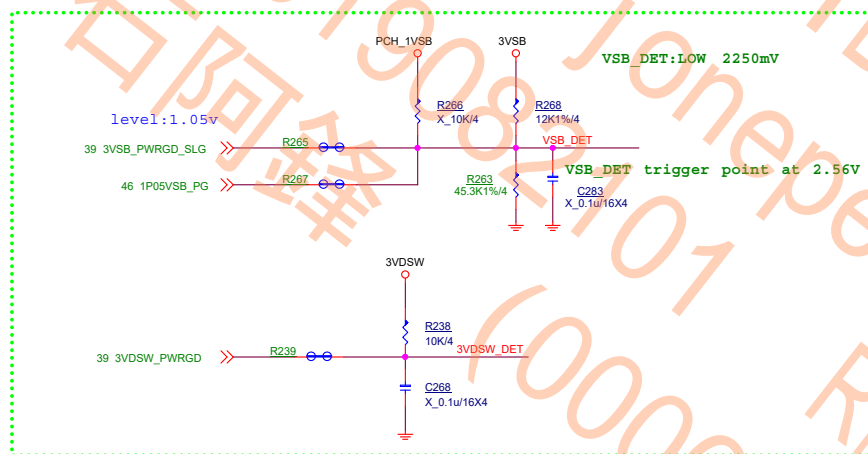
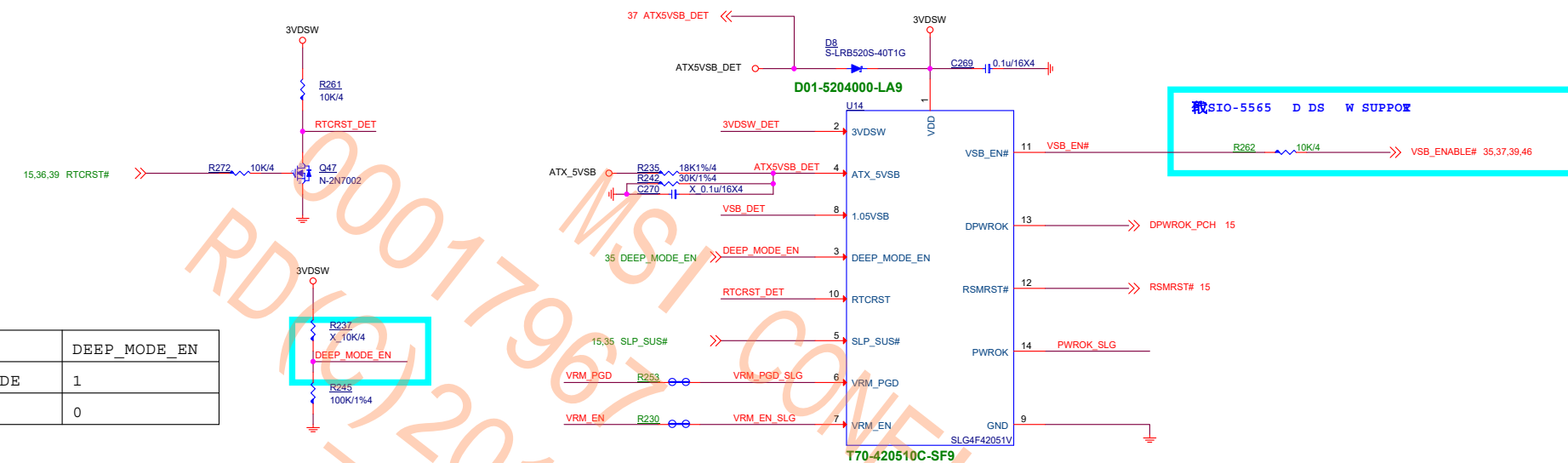
VBAT





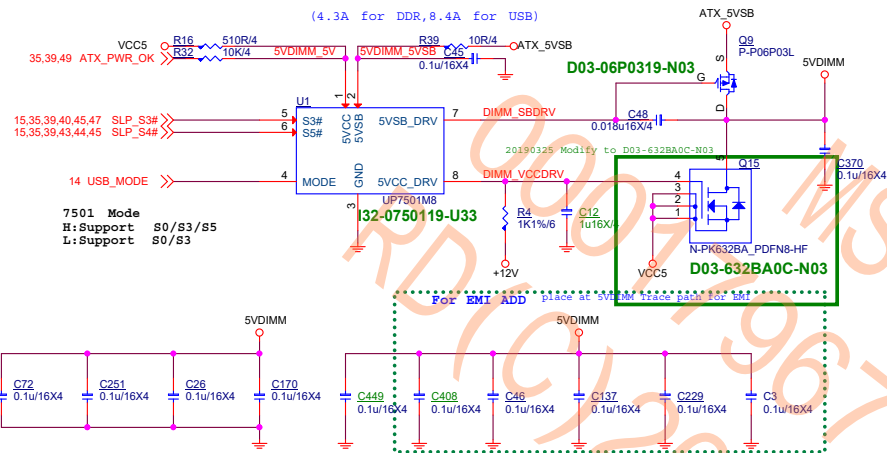
- 1.CNL EDS
During reset,PCH GPP K21 via 20k pull up to 3.3V.
- 2.PCH SPI IO3 colay TFM_PIRQ#(1.8V or 3.3V,OD)
- 3.TPM_PIRQ#
Interrupt request signal to the host.
No internal pull up resistor.Active low.
- 4.TL624-2.2 support SPI Standard Mode.

	DEEP_MODE_EN
DEEP_MODE	1
S5_MODE	0

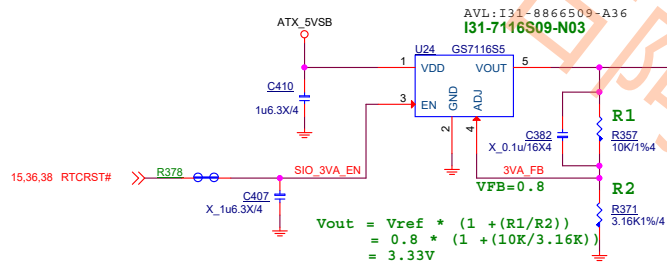


MICRO-STAR INT'L CO.,LTD			
MS-7B97...			
Size	Document	Description	Rev
Custom		GREEN PAK DEEP	1.0
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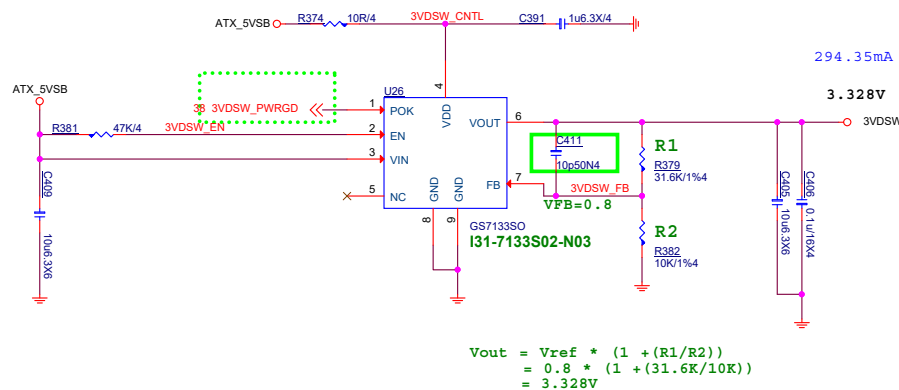
5VDIMM@5V/11.85A



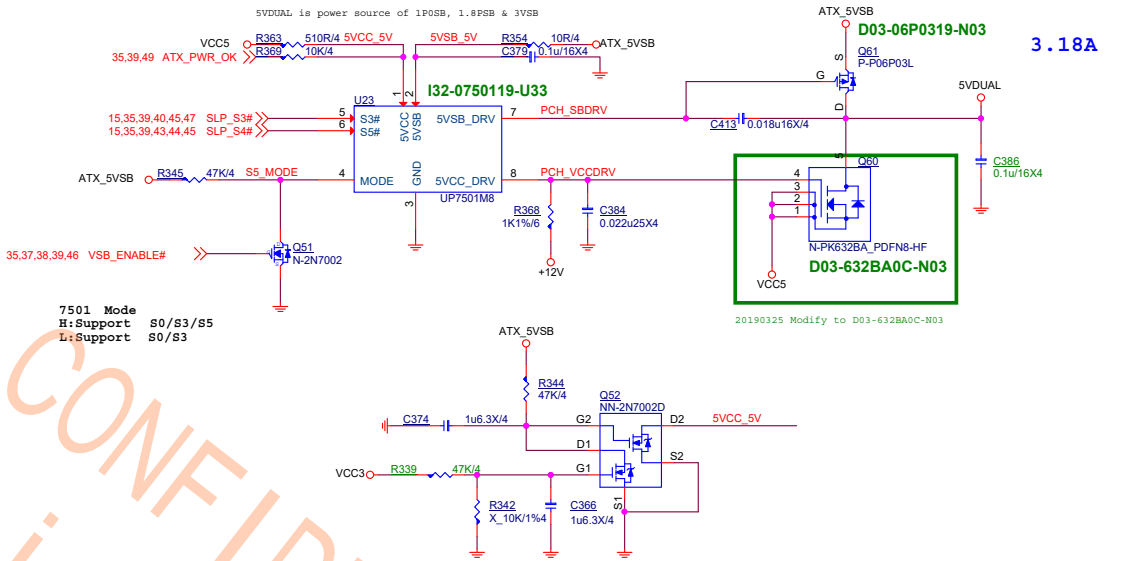
SIO 3VA@3.3V/20mA



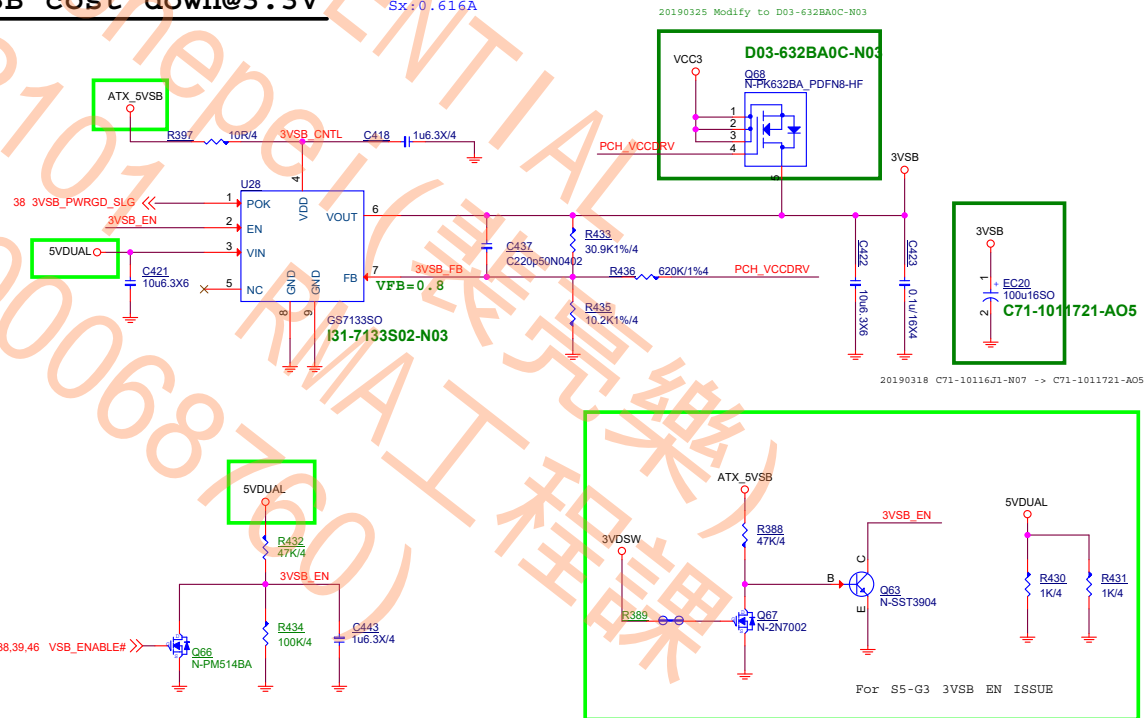
3VDSW@3.3V/294.35mA

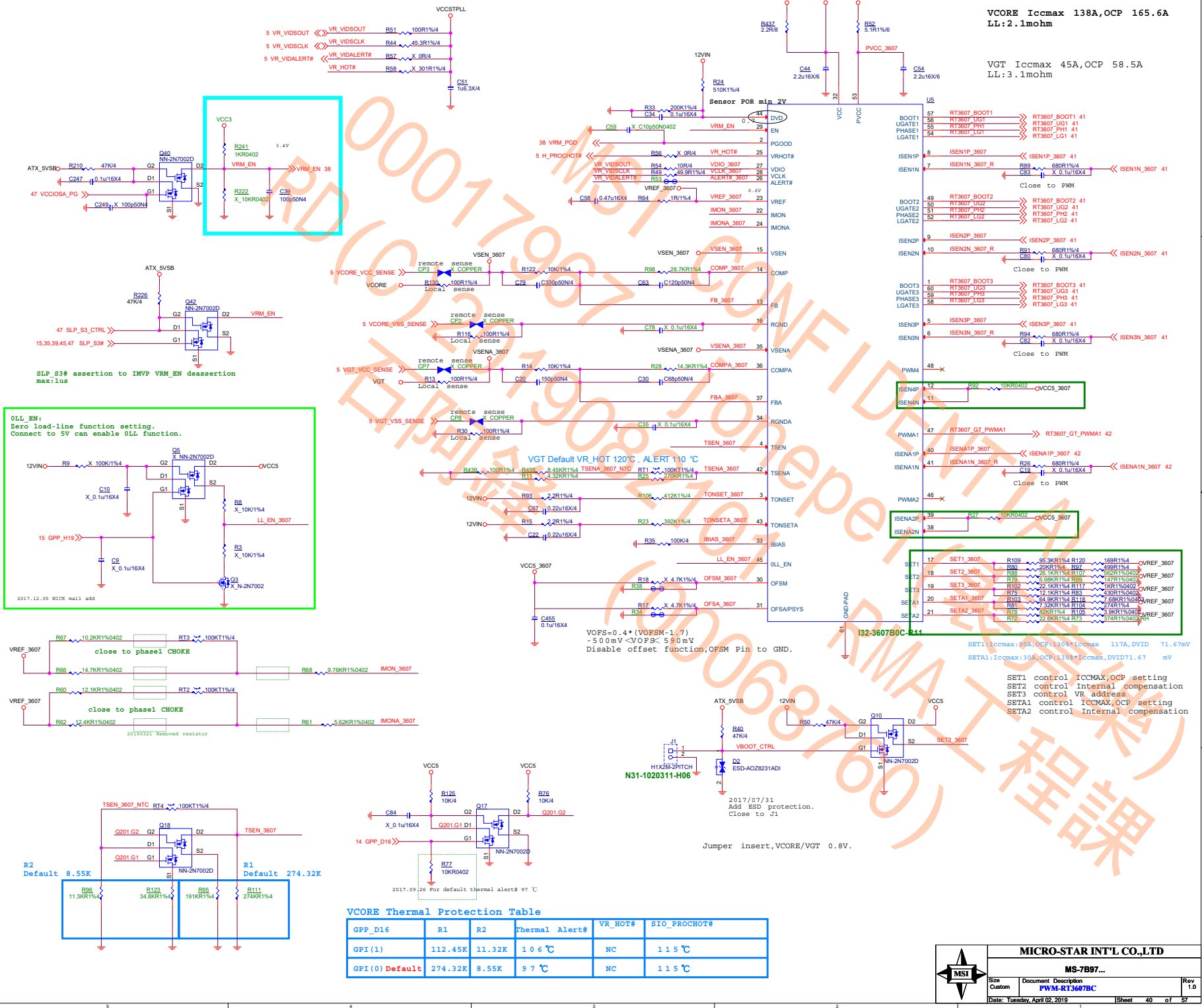


5VDUAL@5V/3.18A



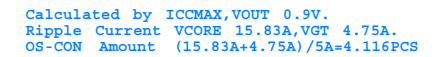
3VSB cost down@3.3V





$$\begin{aligned}\text{CORE OCP} &= I_{ccMAX} * 1.2 \\ &= 138 * 1.2 = 165.6A\end{aligned}$$

LL: 2.1mohm

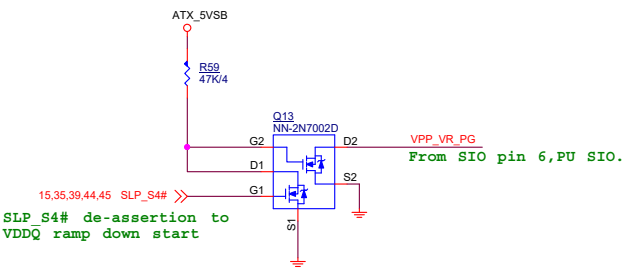
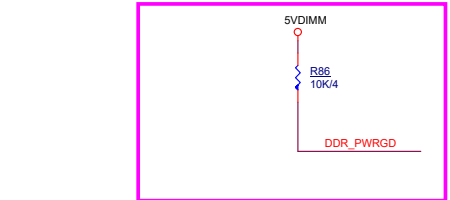


VCC DDR@1.2V/11.655A

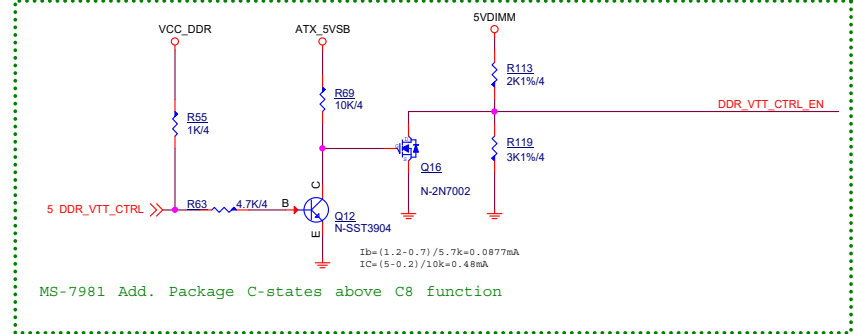
DDR4_1.2V 3.3A+ 7.85A+0.375A=11.655A

3.3A FOR CPU
7.85A FOR 2DIMM DDR4
0.375A FOR VTT_DDR
0.13A FOR PLLOC

D03-632BA0C-N03 3~4.6mohm/4.5V
Current limit= $154K*5uA/3.9mohm$ = 19.74A
Current limit= $154K*5uA/5.1mohm$ =15.09A
OUTPUT CHOCKE Isat=32A
Vcs=154K*5uA=0.77V(Spec:0.4V~3V)

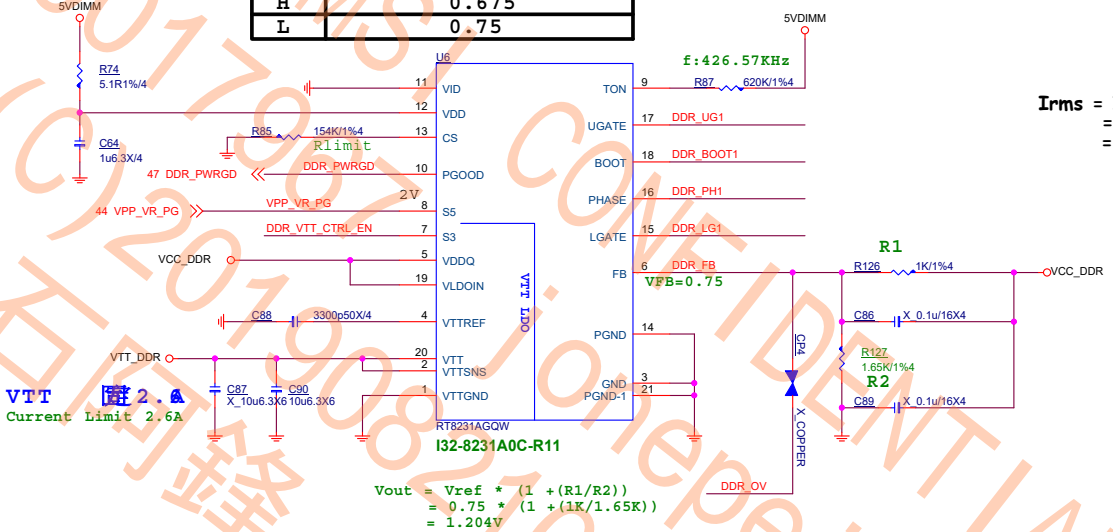


VPP ramp down after VDDQ ramp down



$V_{out}=0.75V/1.65K*(1.65K+1K)=1.204V$
NCT3933 source 10uA
 $V_{out}=[V_{REF}*(1+R171/R153)]+10uA*R171$
 $=0.75V*(1+1K/1.65K)+10uA*1K=1.204V+0.010V=1.215V$
NCT3933 sink 10uA
 $V_{out}=[V_{REF}*(1+R171/R153)]-10uA*R171$
 $=0.75V*(1+1K/1.65K)-10uA*1K=1.204V-0.010V=1.195V$

VID	Reference Voltage (V)
H	0.675
L	0.75



$$V_{out} = V_{ref} * (1 + (R1/R2))$$
$$= 0.75 * (1 + (1K/1.65K))$$
$$= 1.204V$$

$$I_{in}=I_{OCP}*V_{out}/0.8/V_{in}$$
$$=19.74A*1.2V/0.8/5V=5.841A$$

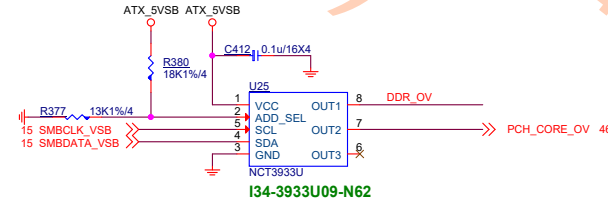
$$I_{rms} = I_{out} * \sqrt{((V_{out}/V_{in}) * (1-(V_{out}/V_{in})))}$$
$$=11.655 * 0.427$$
$$= 4.976A$$

$$L=\tau_{ON}*(V_{IN}-V_{DDQ})/(LIR*I_{LOAD}(MAX))$$
$$\tau_{ON}=636.4456ns$$
$$LIR:20\% \sim 40\%$$
$$L:0.63uH \sim 1.27uH.$$

MAX:11.525A
1.2V

UPI VOLTAGE CONSOLE

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



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Custom		DDR-RT8231	1.0
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2DIMM :1.12A FOR DDR VPP2.5V

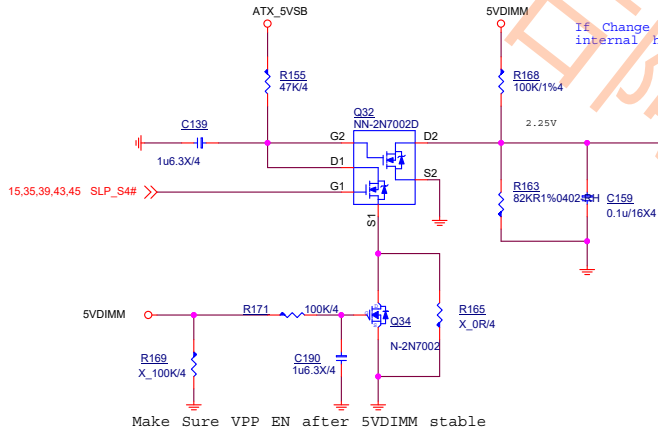
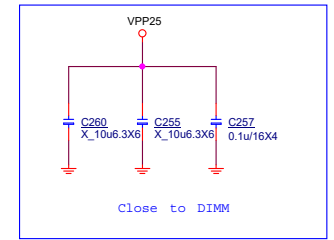
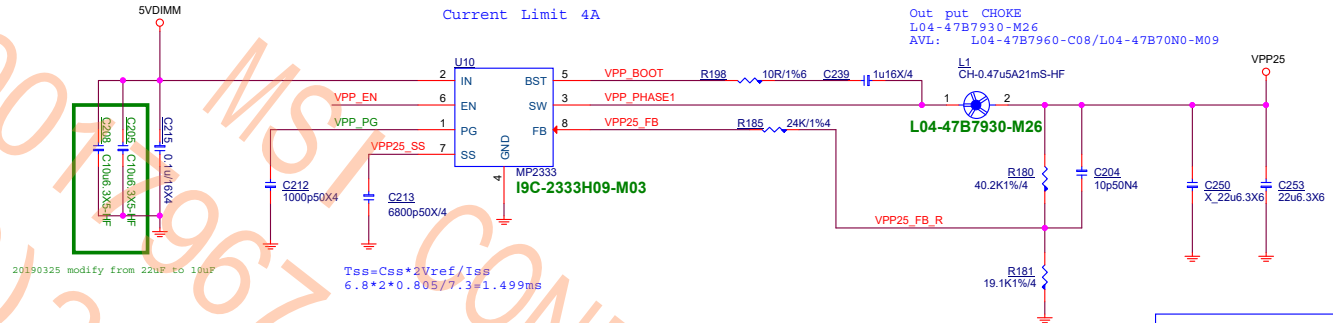
$I_{in} = I_{OCP} * V_{out} / 0.8 / V_{in}$
 $= 4A * 2.5V / 0.8 / 5V = 2.5A$
 L02-3008043-M26
 Over 85°C, Rated Current 1.5A

Input Current = $I_{out} * \sqrt{(V_{out}/V_{in}) * (1 - V_{out}/V_{in})} = 1.5A$

Switch Frequency
 Default 650KHz
 Current Limit 4A

Out put CHOKE
 L04-47B7930-M26
 AVL: L04-47B7960-C08/L04-47B70N0-M09

20190321removed Bead



Enable (EN) Control

EN is a digital control pin that turns the regulator on and off. Drive EN high to turn on the regulator. Drive EN low to turn off the regulator. EN is clamped internally using a 2.8V series Zener diode (see Figure 2). Connecting the EN input through a pull-up resistor to V_{in} limits the EN input current below 40μA to prevent damage to the Zener diode. For example, when connecting a 604kΩ pull-up resistor to 12V V_{in} , $I_{Zener} = (12V - 2.8V) / (604kΩ + 35kΩ) = 14μA$.

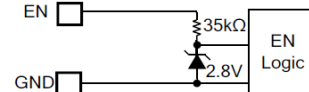
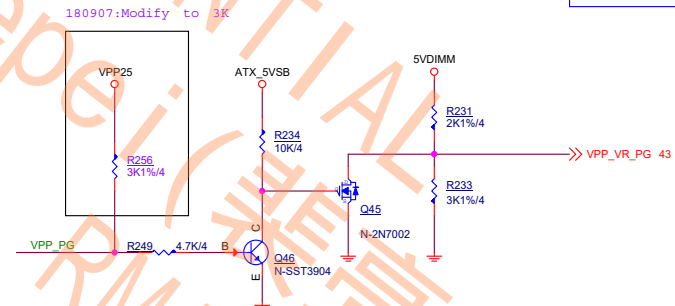


Figure 2: Zener Diode between EN and GND



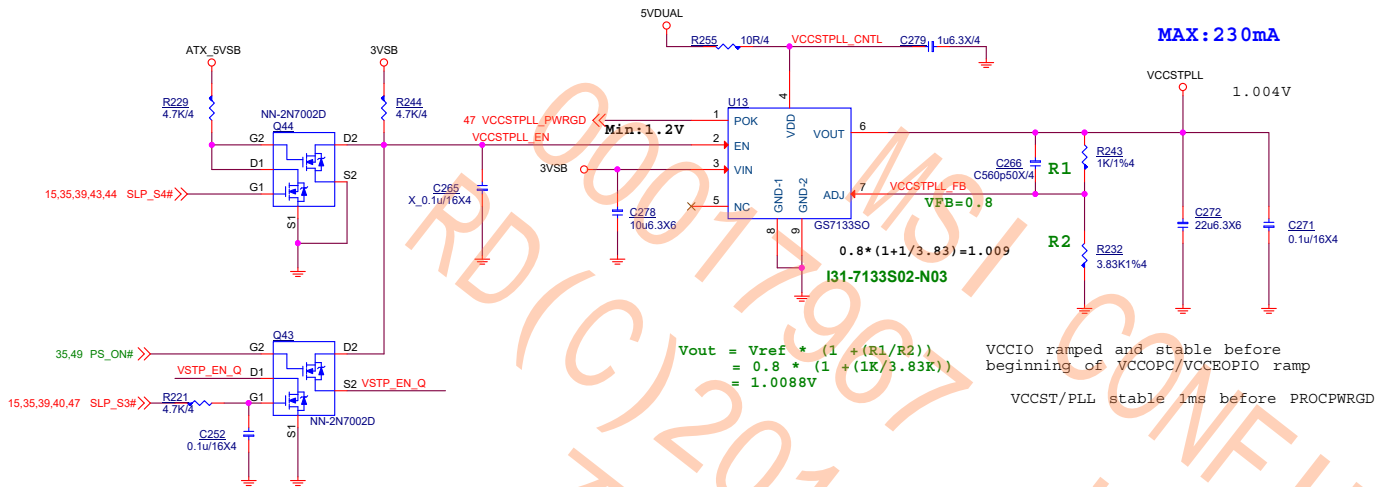
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MS-7B97...

Size	Document	Description	Rev
Custom	DDR-MP2143-VPP25		1.0
Date: Tuesday, April 02, 2019	Sheet 44	of 57	

VCCSTPLL@1.05V/230mA

VCCST: 80mA, VCCPLL: 150mA
VCCSTPLL=80mA+150mA=230mA



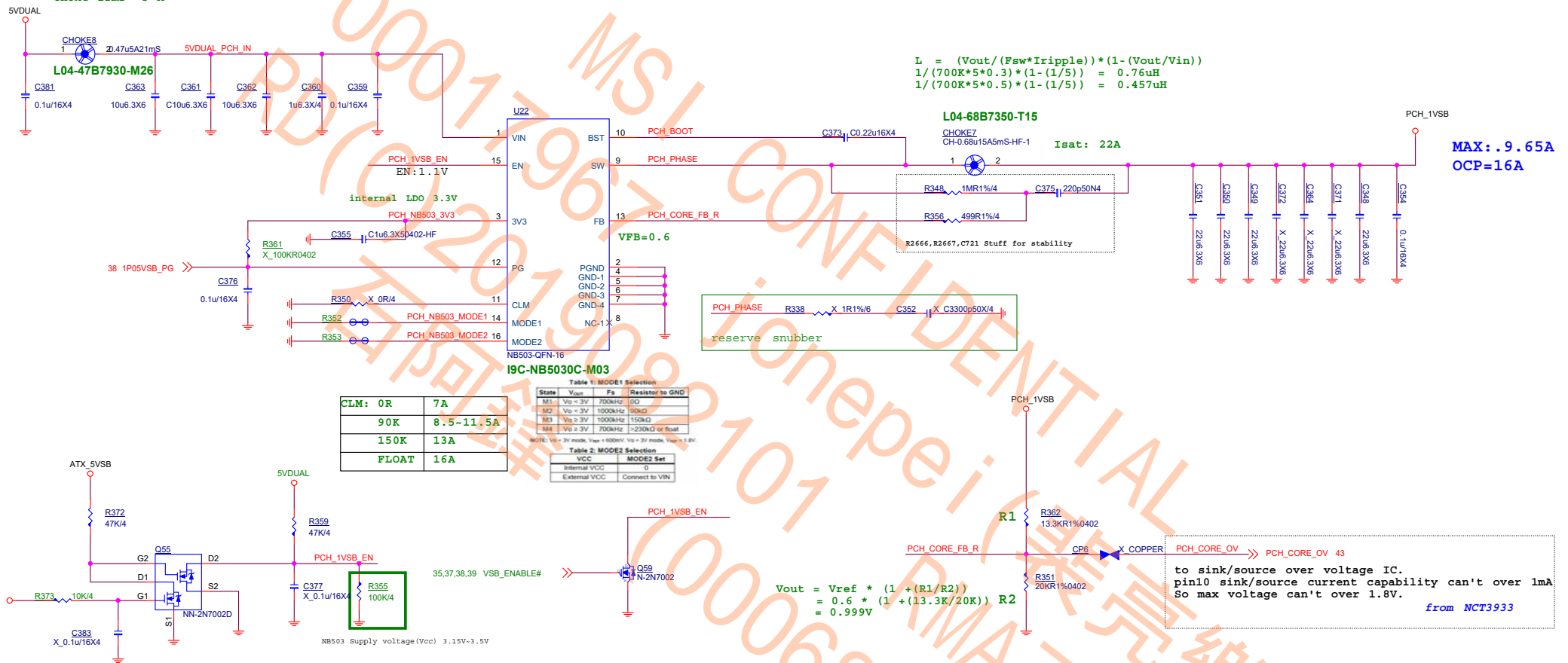
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MS-7B97...

Size	Document	Description	Rev
Custom		VCCSTPLL	1.0
Date: Tuesday, April 02, 2019		Sheet 45 of 57	

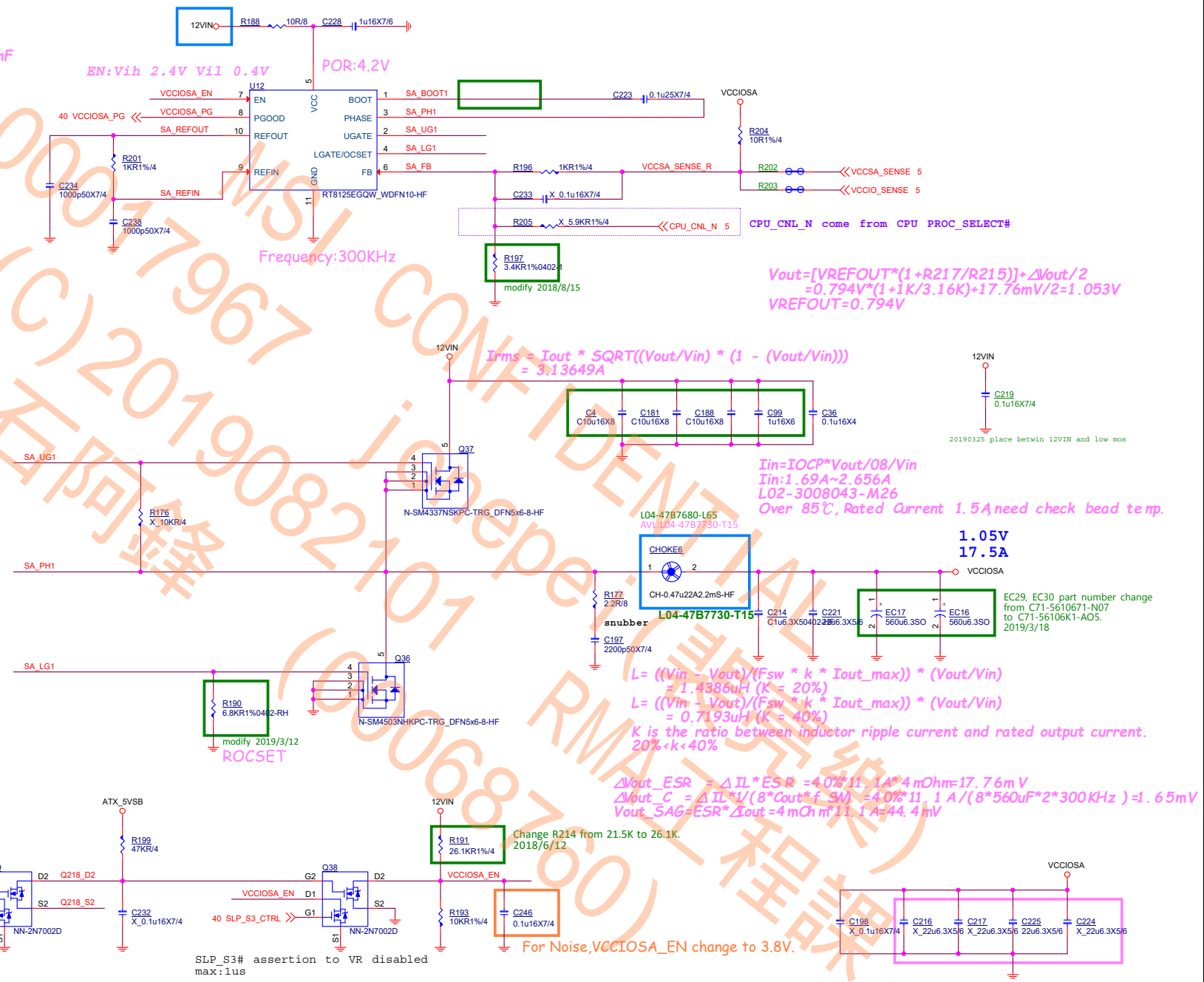
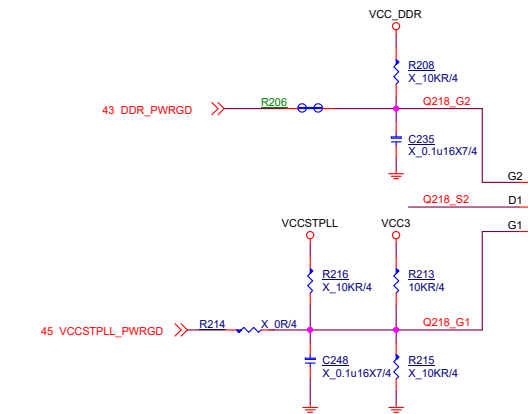
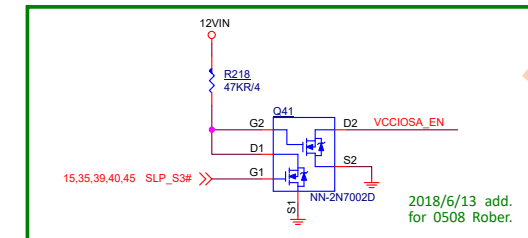
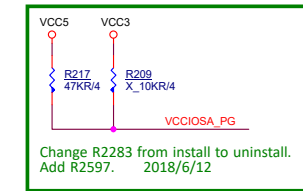
PCH 1VSB@1V/9.65A

```
Input Current = (12A*1V)/5V/0.8 =3A
Choke Isat = 8A
Irms=Iout*SQRT((Vo/Vi)*(1-(Vo/Vi)))
=12*SQRT((1/5)*(1-(1/5))) = 4.8A
Choke Irms =5 A
```



VCCIOSA Power:1.05V,17.5A

D03-4503N0C-ST8 2.5~3mohm/10V Ciss=1350pF<8nF
Current limit= 6.8K*10uA/3mohm)=22.667A
Current limit= 6.8K*10uA/2.5mohm)=27.2A
CHOKE Isat=22A
From CHOKE I-L Curve,when I=25A, L=0.6uH.
OCP Test Value=21.92A



$$V_{out} = [V_{REFOUT} * (1 + R_{217}/R_{215})] + \Delta V_{out}/2$$
$$= 0.794V * (1 + 1K/3.16K) + 17.76mV/2 = 1.053V$$

$V_{REFOUT} = 0.794V$

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

$= 3.13649A$

$$I_{in} = I_{OCP} * V_{out}/0.8/V_{in}$$

$I_{in} = 1.69A \sim 2.656A$
L02-3008043-M26
Over 85°C, Rated Current 1.5A, need check bead temp.

$$L = ((V_{in} - V_{out}) / (F_{sw} * k * I_{out_max})) * (V_{out}/V_{in})$$

$= 1.4386uH (K = 20\%)$
 $L = ((V_{in} - V_{out}) / (F_{sw} * k * I_{out_max})) * (V_{out}/V_{in})$

$= 0.7193uH (K = 40\%)$
K is the ratio between inductor ripple current and rated output current.
20% < k < 40%

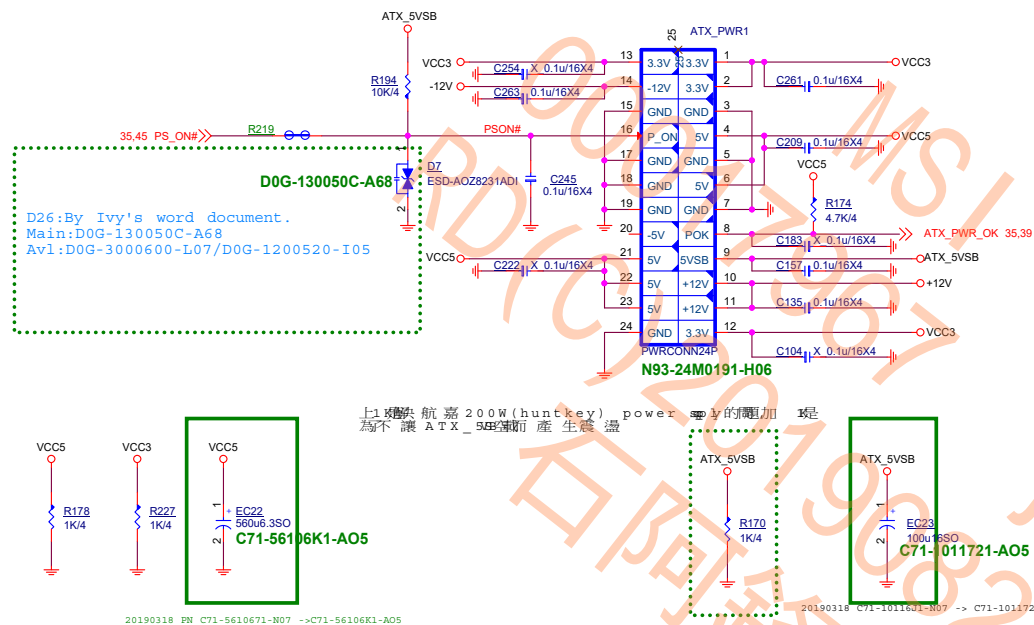
$$\Delta V_{out_ESR} = \Delta IL * ESR = 4.07 * 11.1A * 4mOhm = 17.76mV$$

$\Delta V_{out_C} = \Delta IL * 1 / (8 * C_{out} * f_{SW}) = 4.07 * 11.1A / (8 * 560uF * 2 * 300KHz) = 1.65mV$

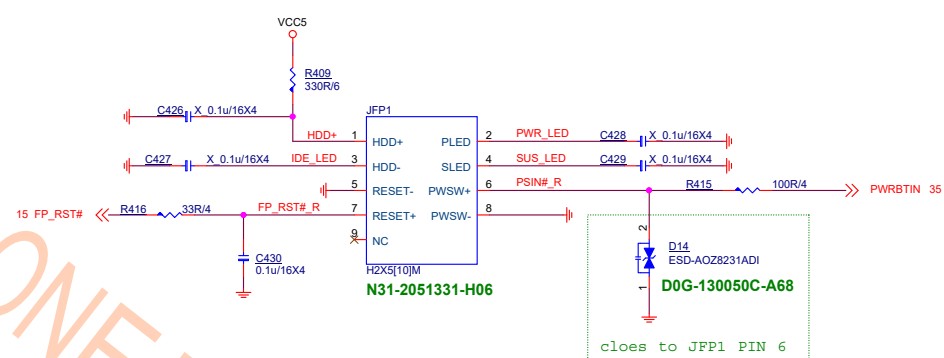
$V_{out_SAG} = ESR * \Delta I_{out} = 4mOhm * 11.1A = 44.4mV$

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00017967 jonepei (裴亮樂)
RD(C)2019082101 RMA工程課
石阿鋒 (00068760)

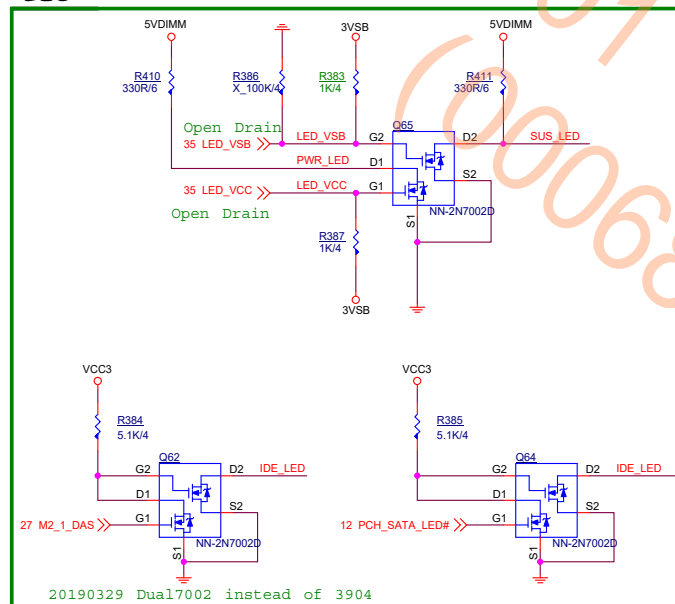
ATX POWER CONNECTOR



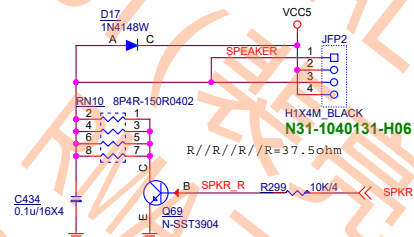
FRONT PANNEL



LED



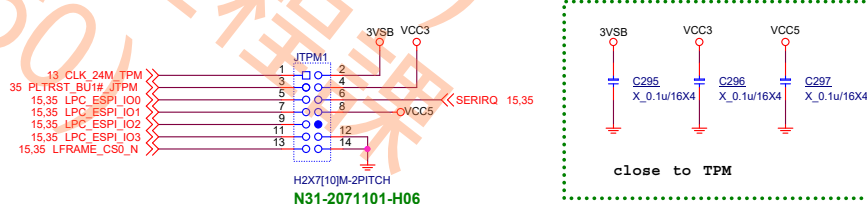
Speaker Pin Header



$$I_b = (5 - 0.7) / 37.5 = 0.1146 \text{ mA}$$

$$I_C = (5 - 0.2) / 10 \text{ k} = 0.48 \text{ mA}$$

TPM

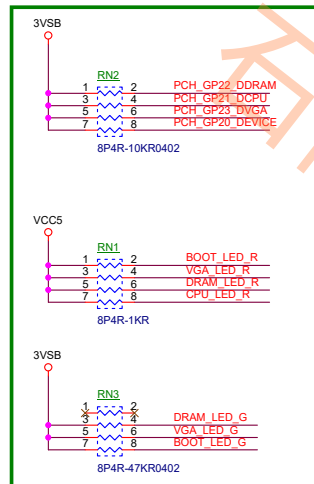
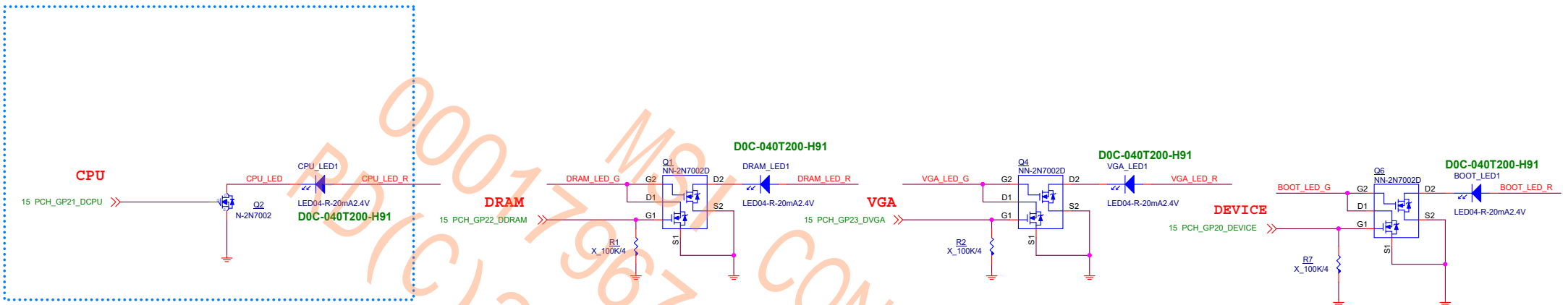


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EZ DEBUG LED



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

LED
RED:D0C-040P100-H91
AVL:D0C-040S500-E07

WHI:D0C-040T200-H91
AVL:D0C-040S200-E07

- 關機斷電狀態下，3個LED先維持 default 關閉機殼：
1. 首先進行 CPU check CPU LED 亮，check PASS 後則 CPU LED 滅掉。
 2. 接著依序進行 Memory / memory LED 亮 check PASS 後則 memory LED 滅掉。
 3. VGA 的 check/VGA LED 亮，check PASS 後則 VGA LED 滅掉。
 4. 因此最後正常順利開機後，三個 LED 滅掉。
(系統重啟或其他原因造成系統重開機則仍維持亮)

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LAB1
B310
Lable

MKT

G51-M1SPN57-Q13

HDMI LA1
HDMI
VIRTUAL

HDMI LABEL

Y01-RHDMI03-000

BIOS_LA1

AMI

AMI

G51-M1SPXXA-A09

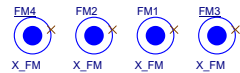
BAT1_X1



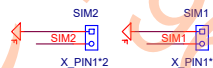
BAT-BCR2032P

D06-0100101-K26

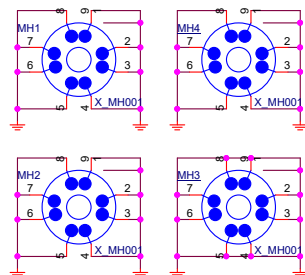
Optical Fiducial Marks-120



Simulation

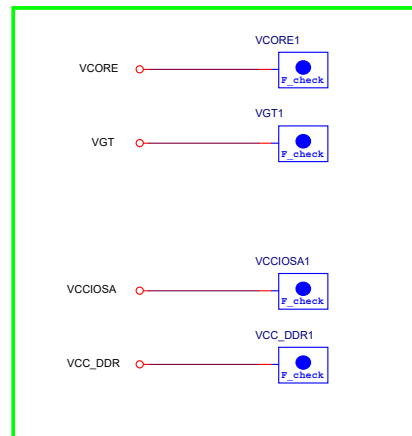


Mounting Holes

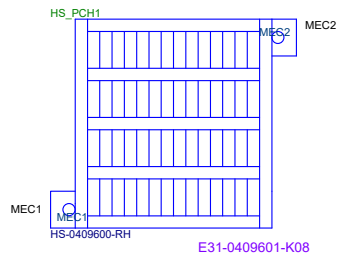


HOLES_4S

DFM check (Bottom)



OPTION BOM PARTS



E31-0409601-K08

PK0-07B9710-G37



PK0-07B9710-G37, 精深 圳 寶 安 恩 斯 邁 廠
PK0-07B9710-E48, 精 深 圳 寶 安 恩 斯 邁 廠

CPU_H1

CPU
鐵座

CPU_H1

E21-7557050-L06



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