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MS-7A57

ATX
Ver: 20

Z270 Gmaing 7 / Z270 MPOWER

Kabylake Platform

CPU: Kabylake S

PCH: Z270

SPI ROM : 128 MB

Memory: DDR4 * 4 (Dual Channel)

Power Solution:

CPU : UP9508

VCCSA : RT8125E

VCCIO : MPS NB685

DDR : POWERVATION 3205Q (2PH)

PCH : RT8125E

ACPI: MPS

Onboard Chip:

LAN Killer E2500

Dual Codec:ALC1220 *2

SIO:NTC6795D

Type C & A : ASM2142 + ASM1543

Clock Gen : TBD

USB3.1 Host : ASM2142 *2

USB Charger : SLG55583A * 2

USB3 Redrive : ASM1464 * 6

USB2 Redrive : TUSB211 * 2

HDMI:PTN3360D

Flash BIOS : F75504

GPIO : NCT5605 * 2

Expansion Slots:

PCI Express (X16) Slot * 1

PCI Express (X8) Slot * 1

PCI Express (X4) Slot * 1

PCI Express (X1) Slot * 3

M.2 Slot (Socket 3) * 3

Rear I/O Connectors

PS2 + Dual USB2

Clear COMS

Reflash BIOS USB2

DP+HDMI

RJ45 + Dual USB3

USB3.1 (Type C+ A)

Audio Jack 5 Port +SPDIF

Internal Connectors

Dual SATA * 6

U.2 *1

FUSB3 Header * 2

FUSB2 Header * 2

Front type C * 1

Front Audio Header * 1

Front Panel Header * 2

SPI Header * 1

TPM Header * 1

CPU Fan * 1

PUMP_FAN * 1

System Fan * 4

Internal Pin Header

JLED1

JSLOW1

JLN1

JOC_RT1

JOC_FS1

Bottom

Power

Reset

Gaming Boost

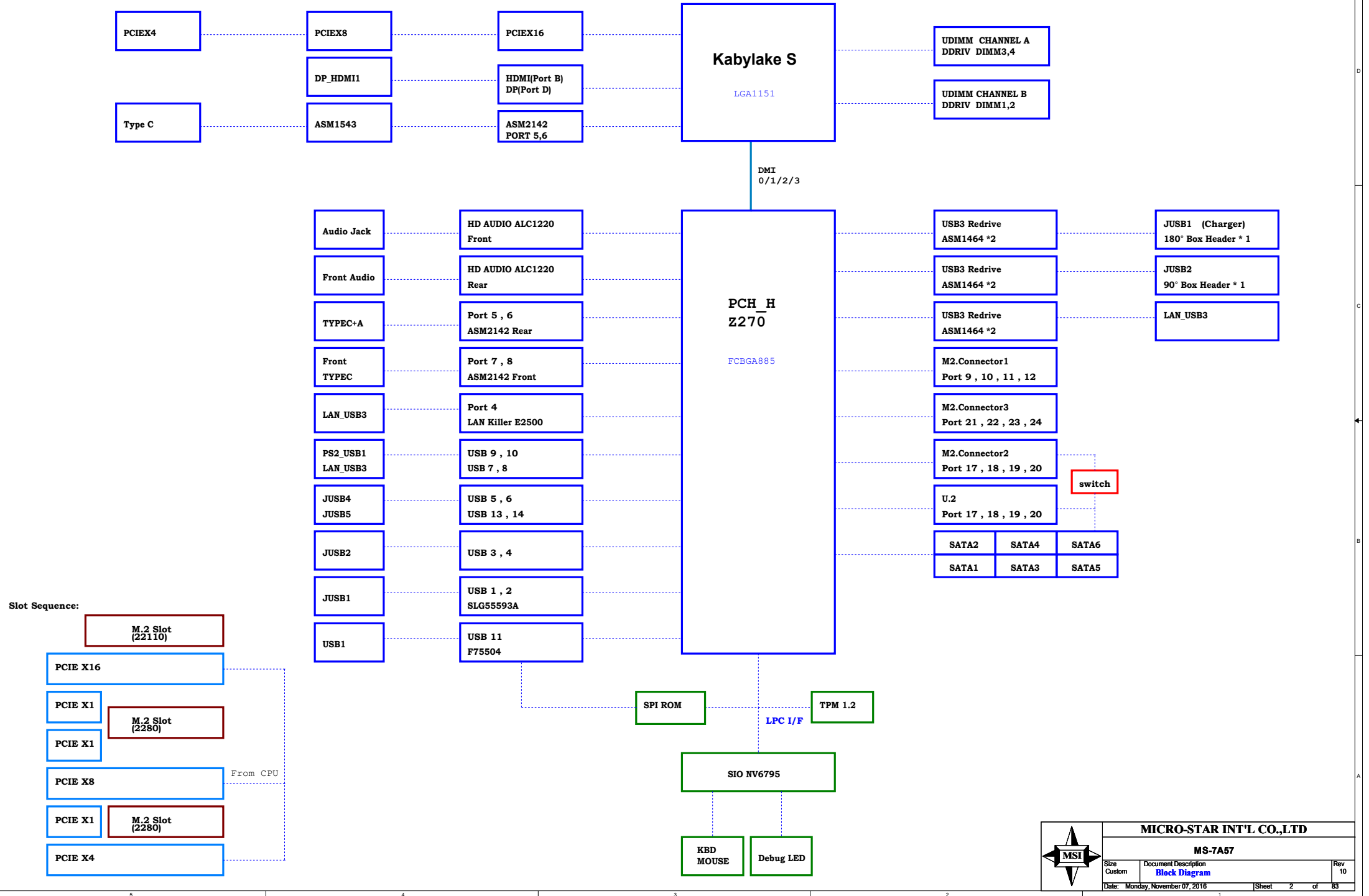
FLASHB

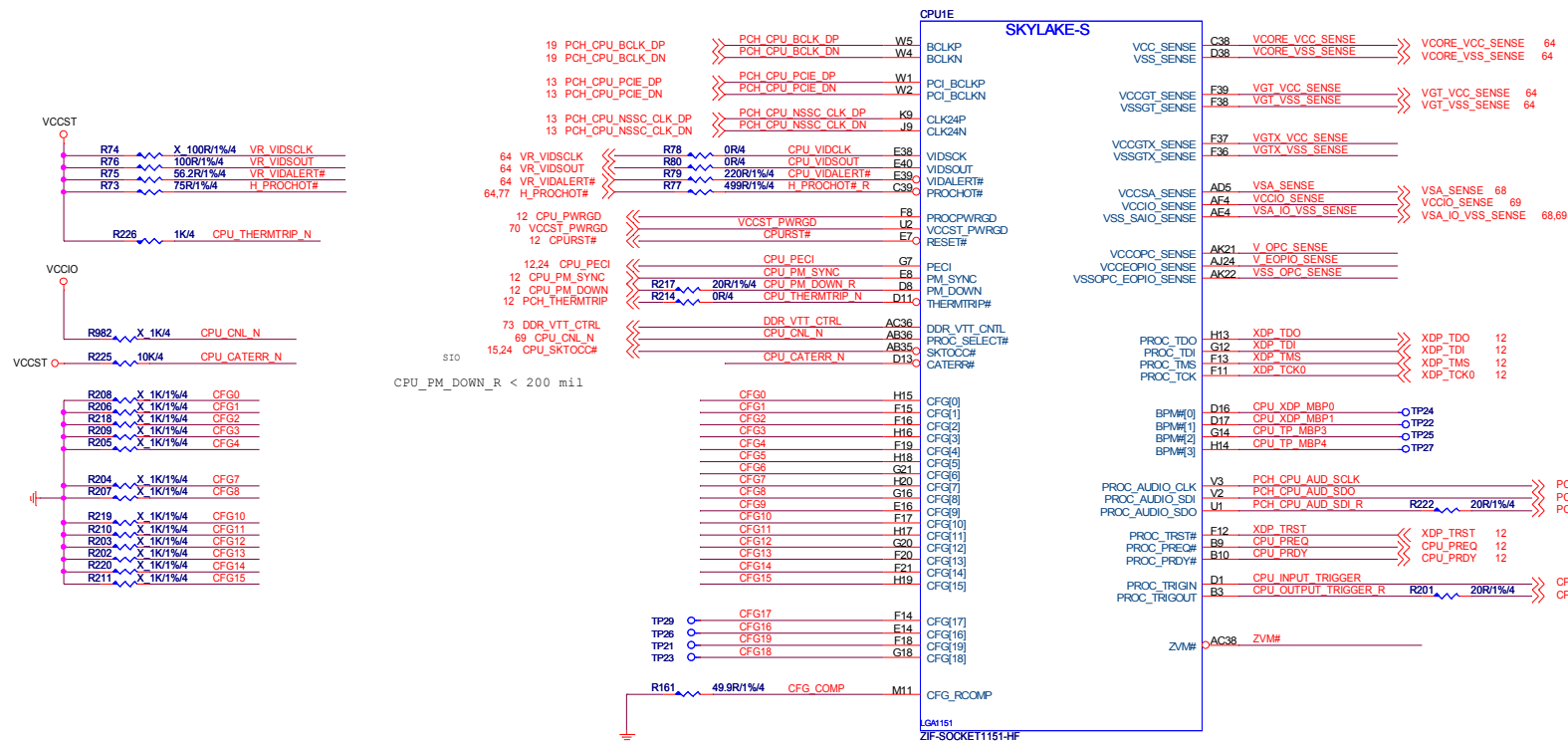
LED

Debug LED

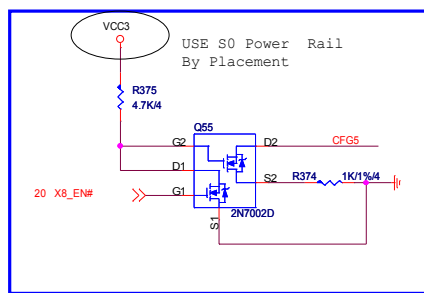
MICRO-STAR INT'L CO.,LTD			
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MS-7A57 Block Diagram

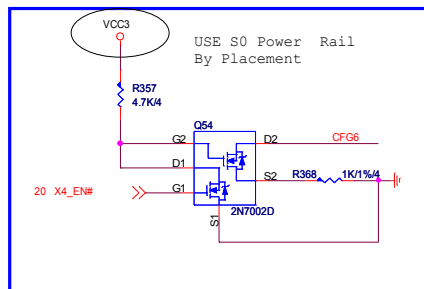


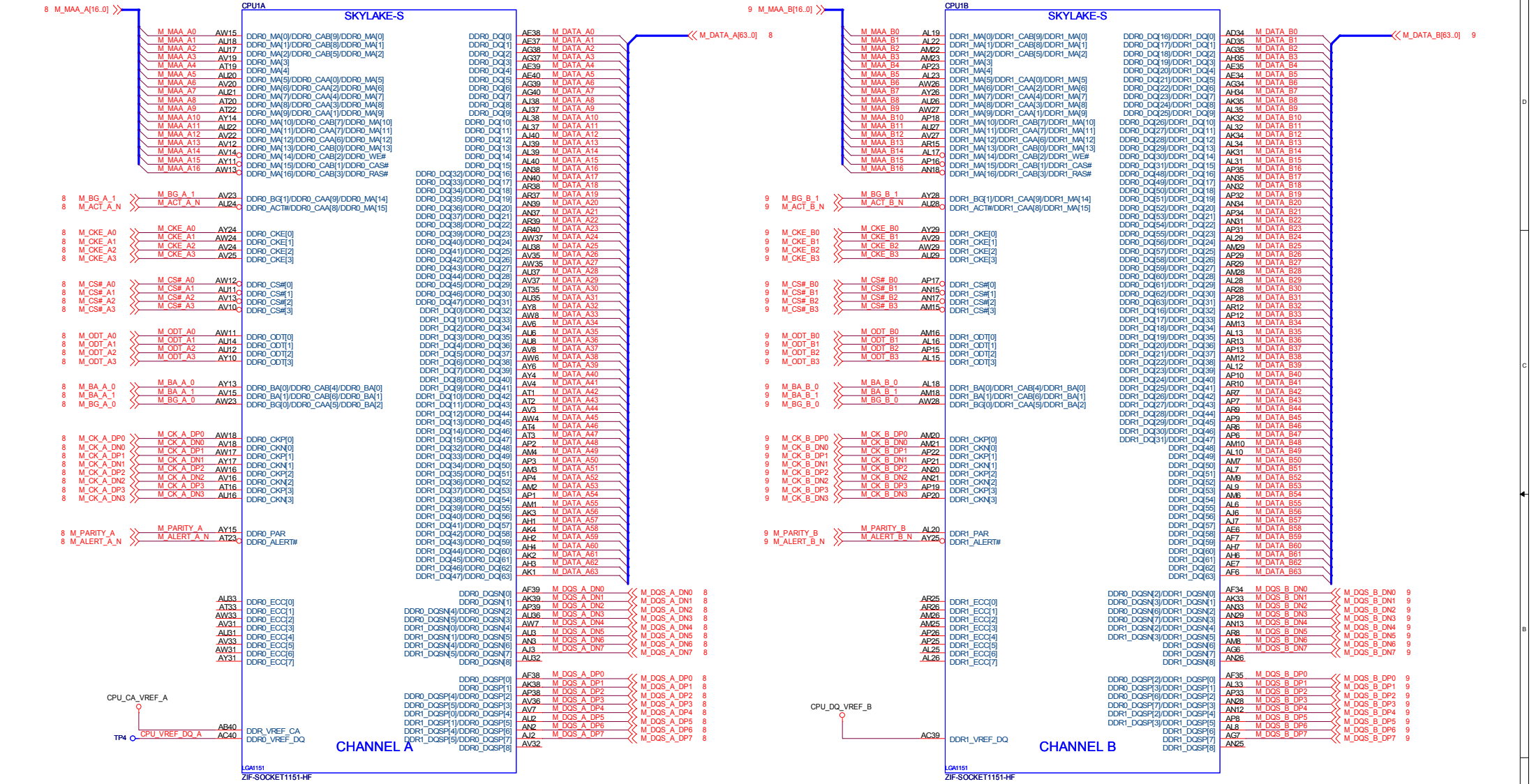


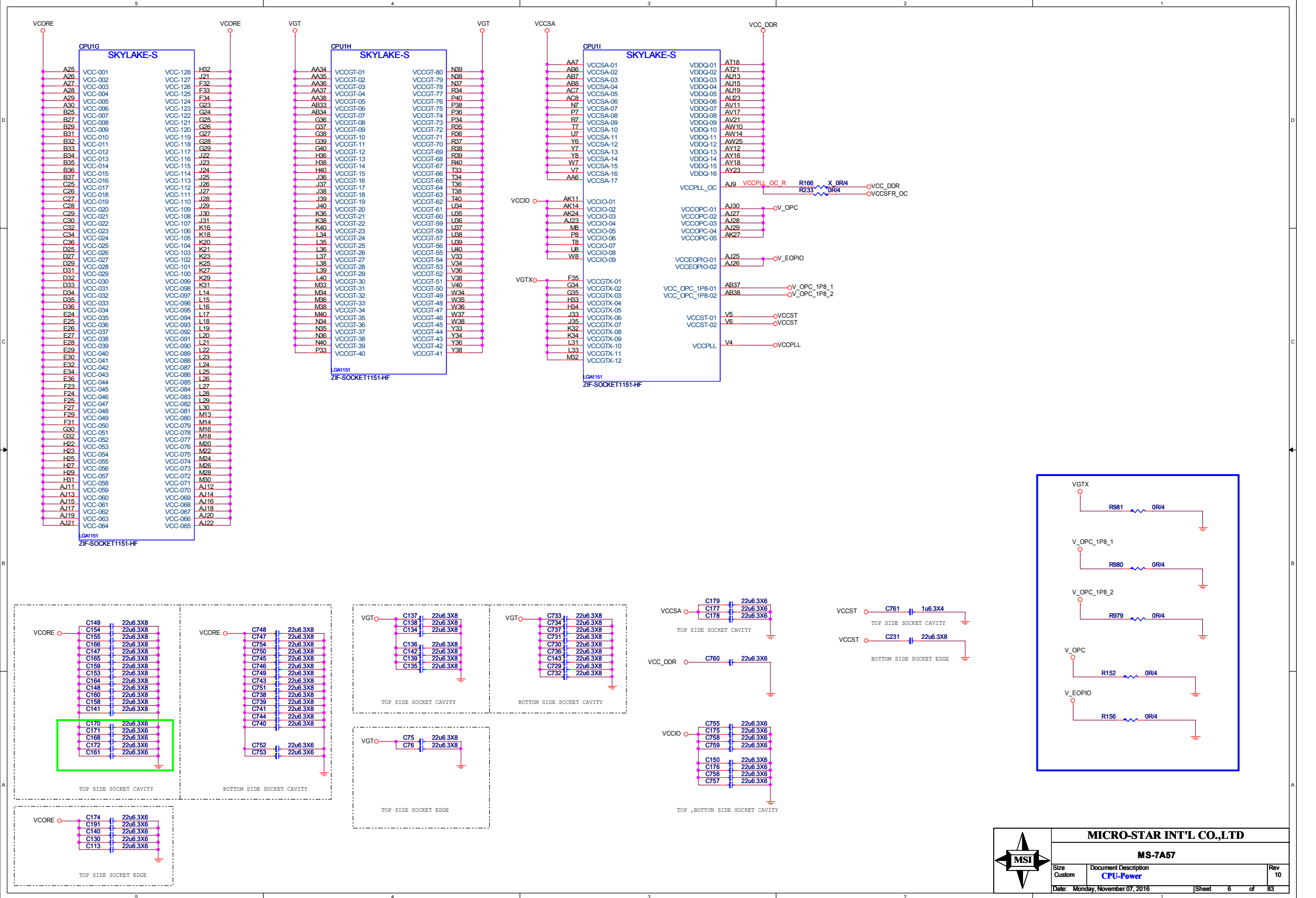
X8 and X4 Ctrl

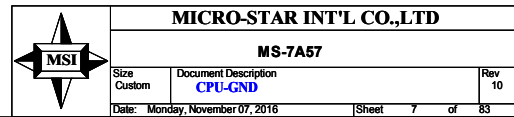


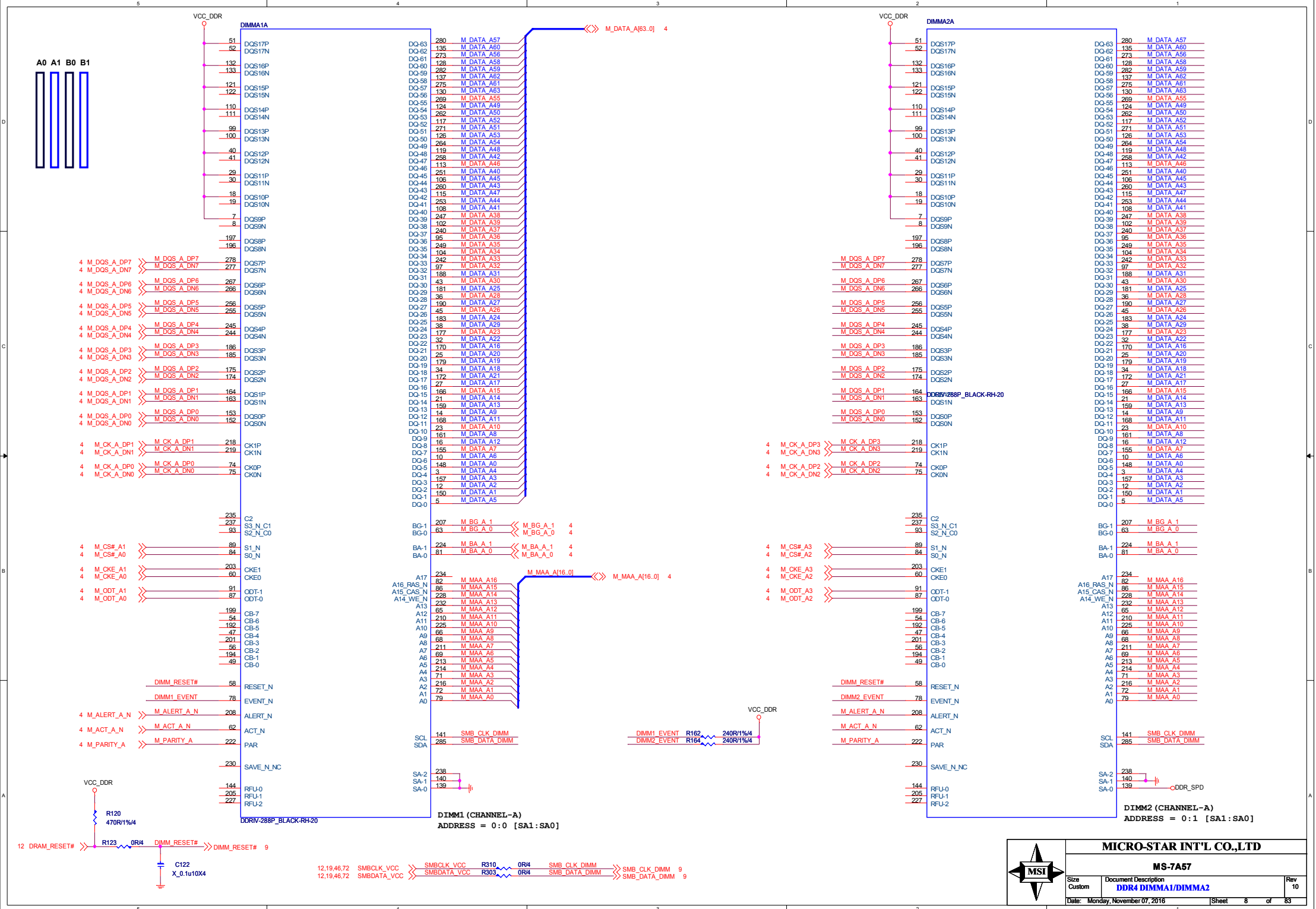
CFG Strap

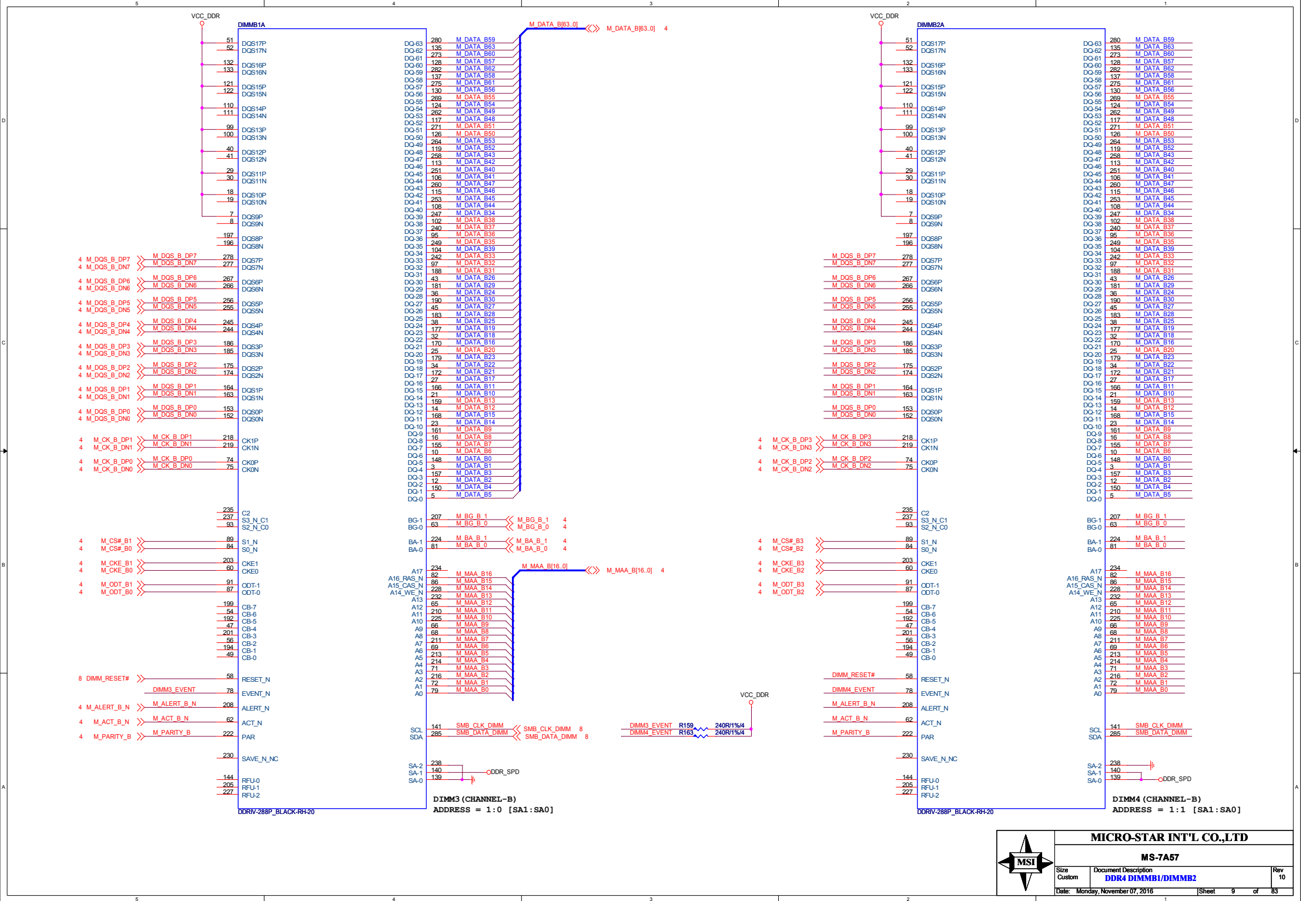


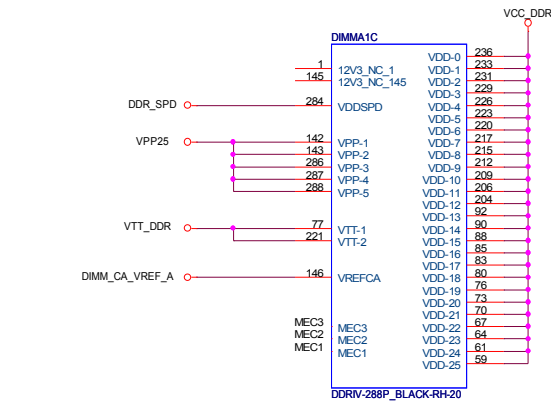




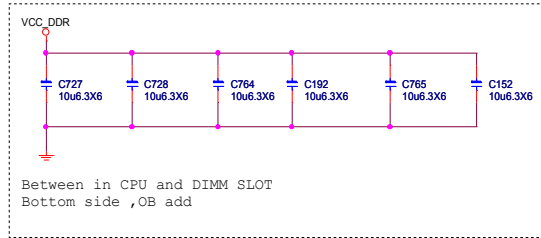
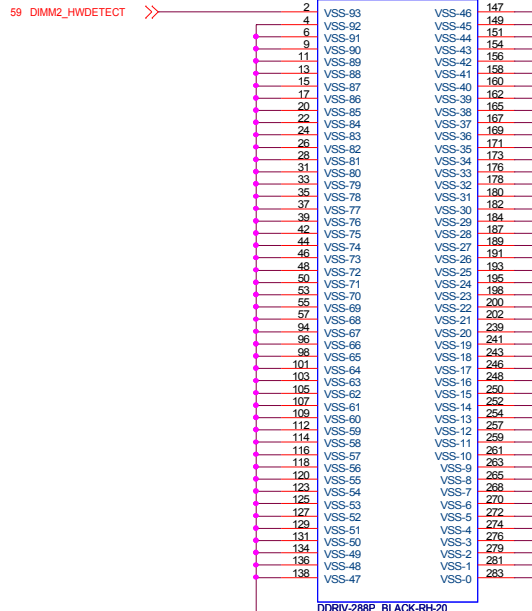
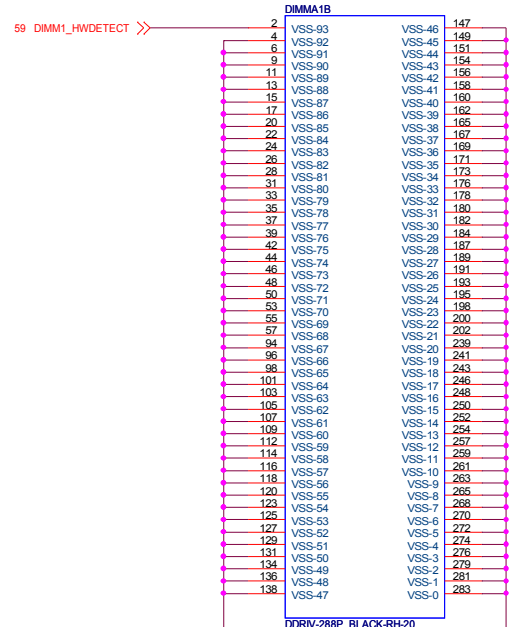
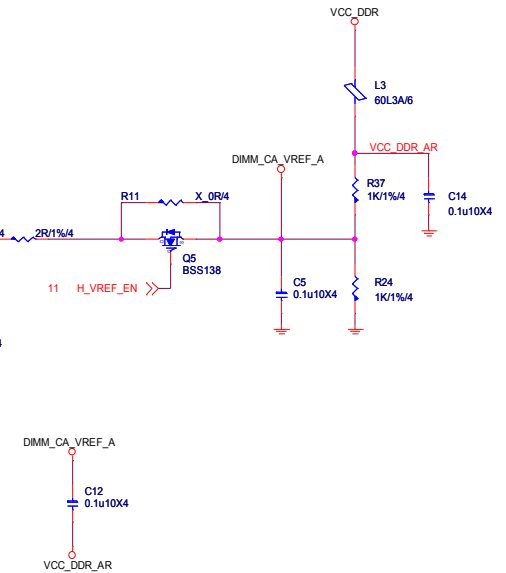
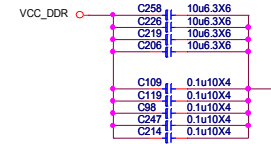
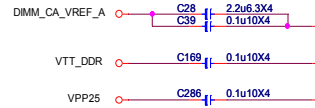
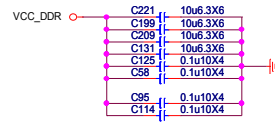
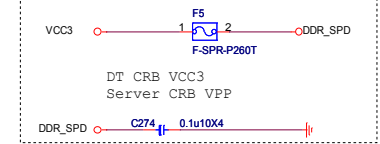
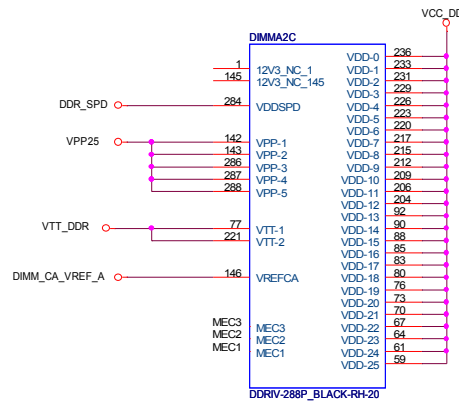
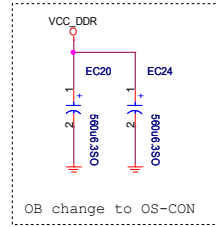


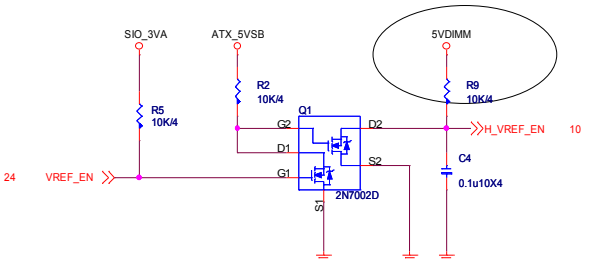
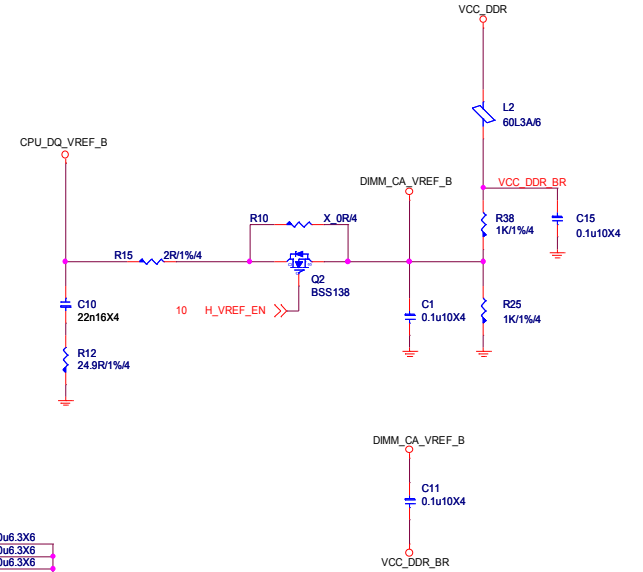
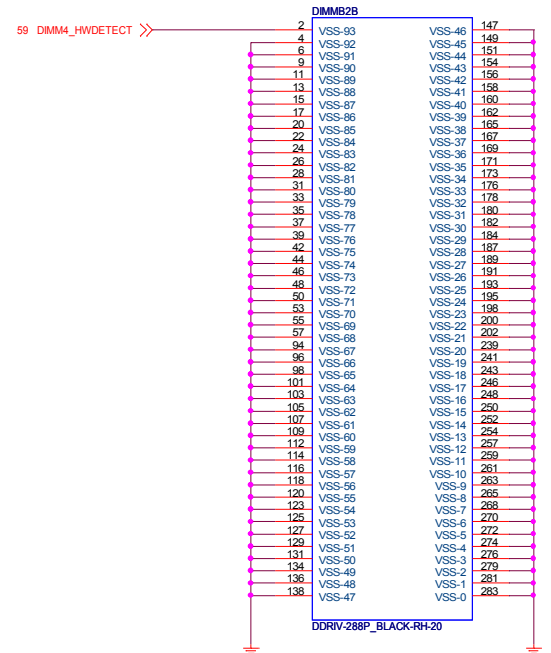
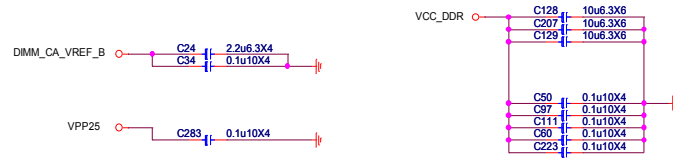
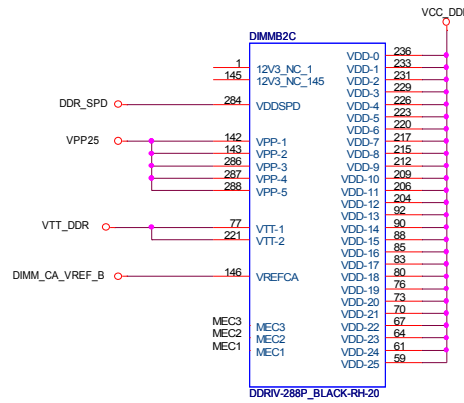
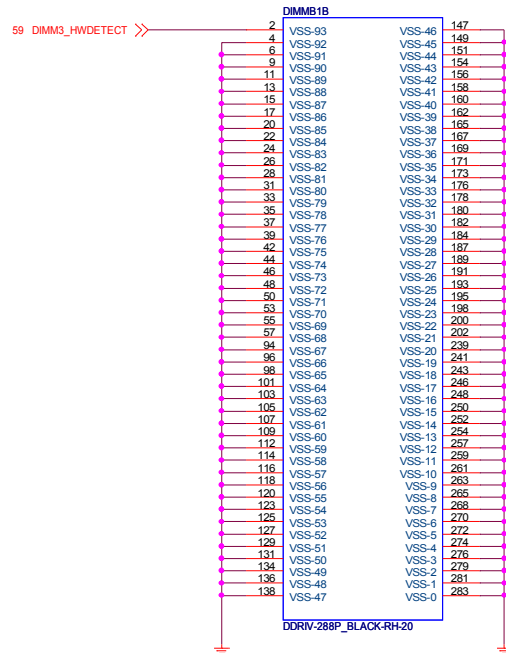
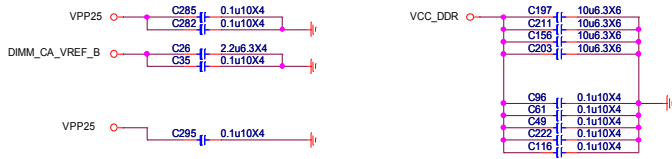
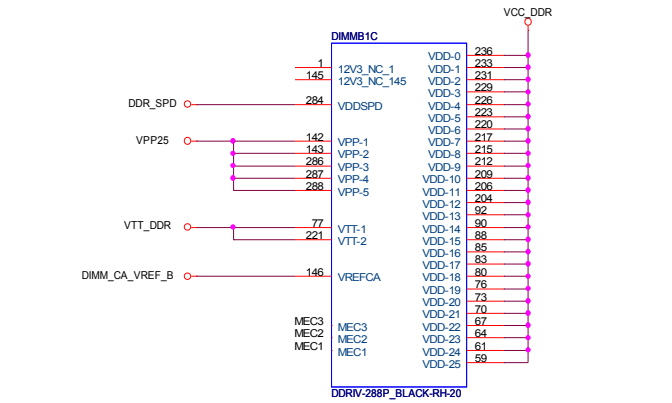




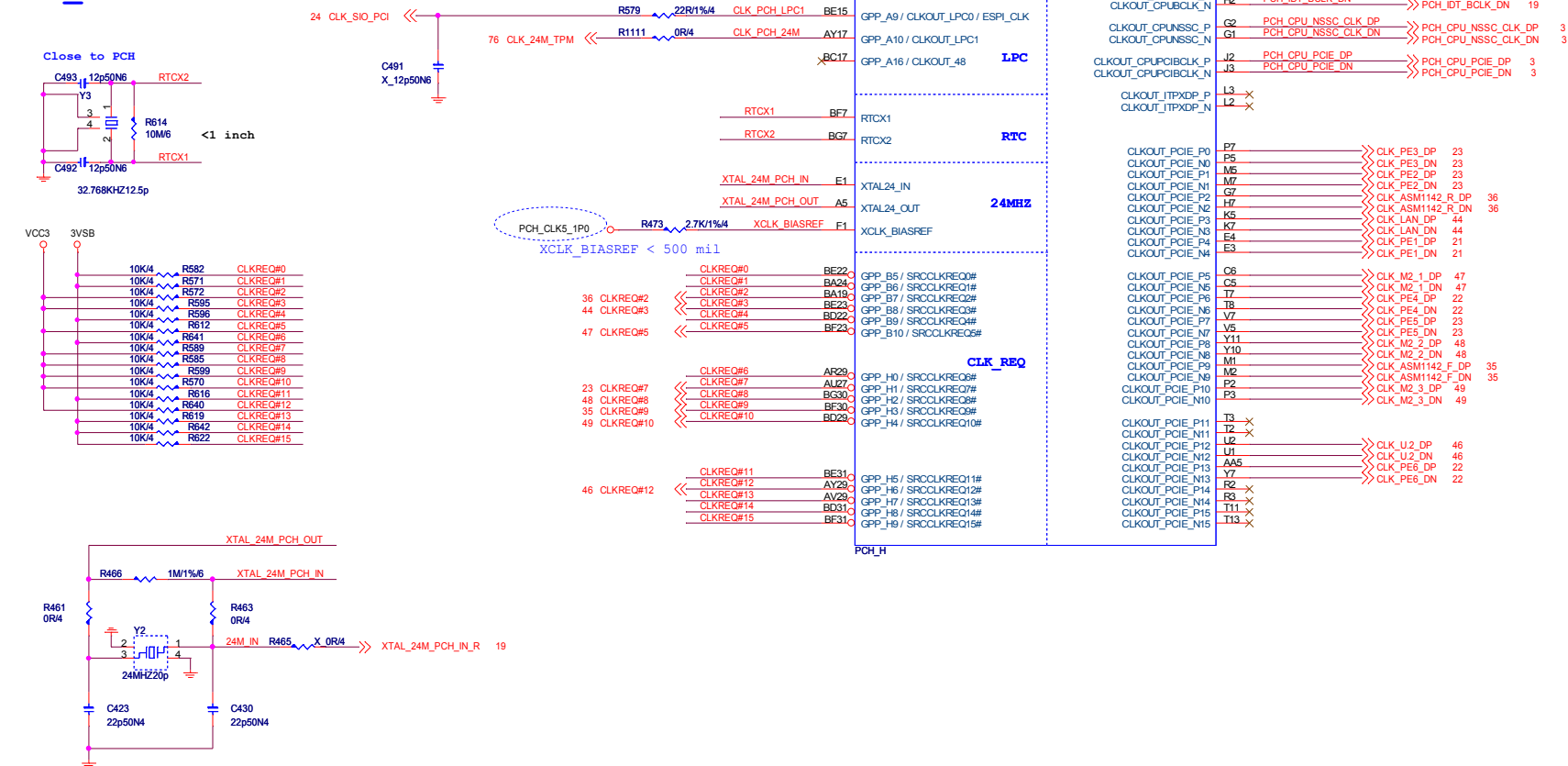


DIMM SLOT PN BY SPEC

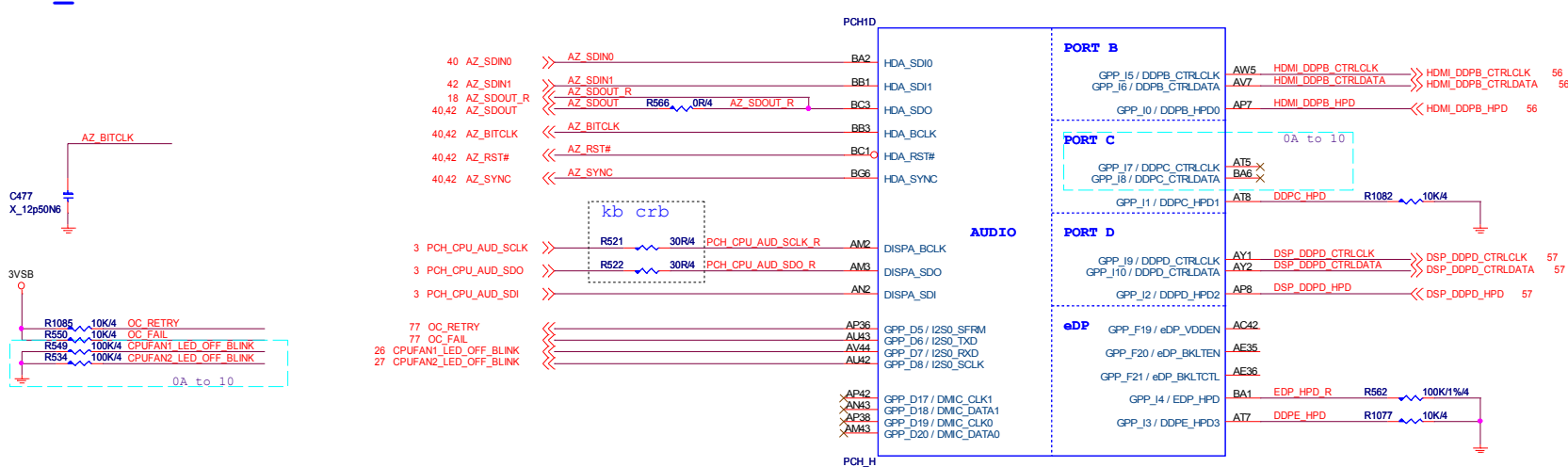




PCH CLK



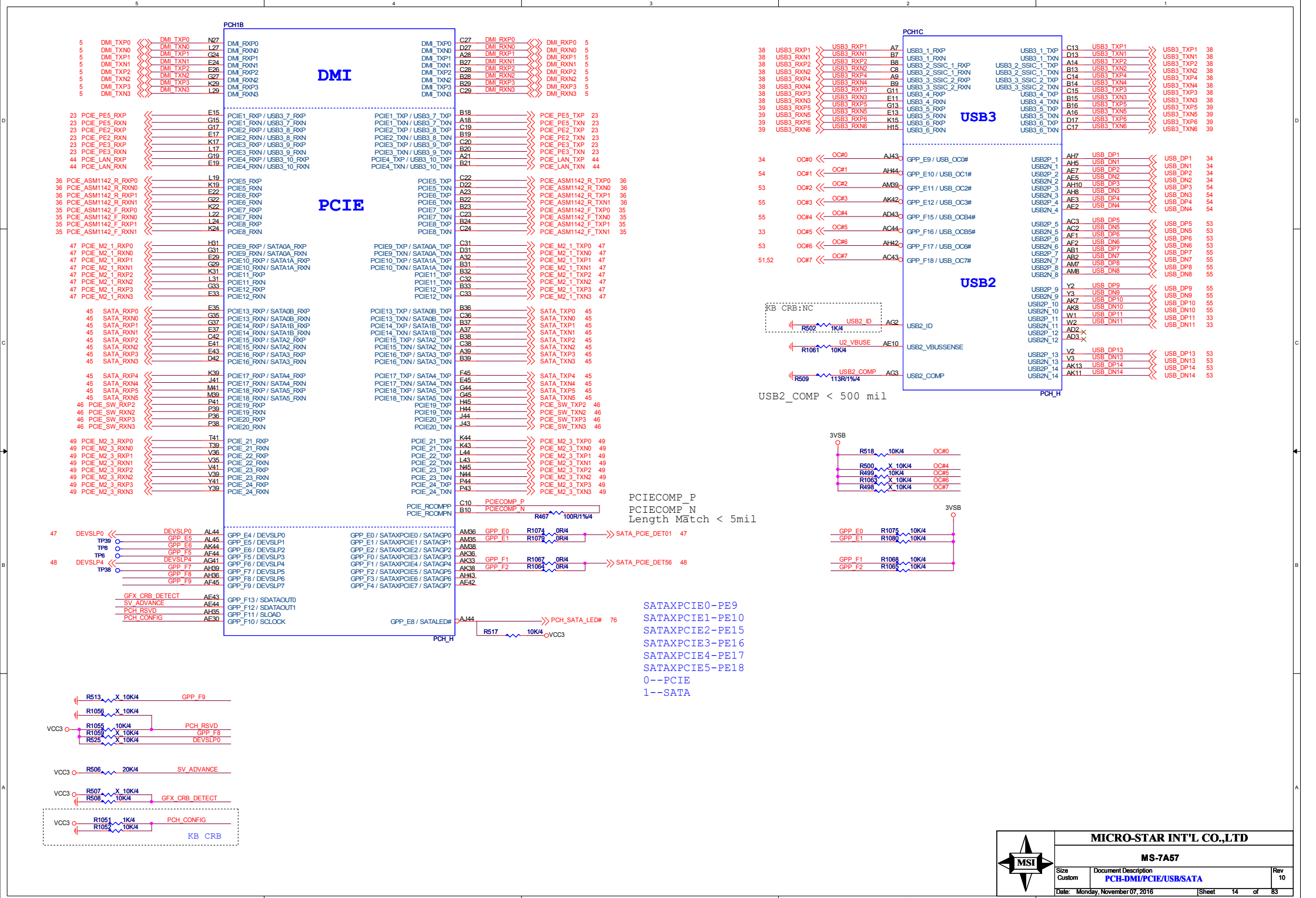
PCH AUDIO

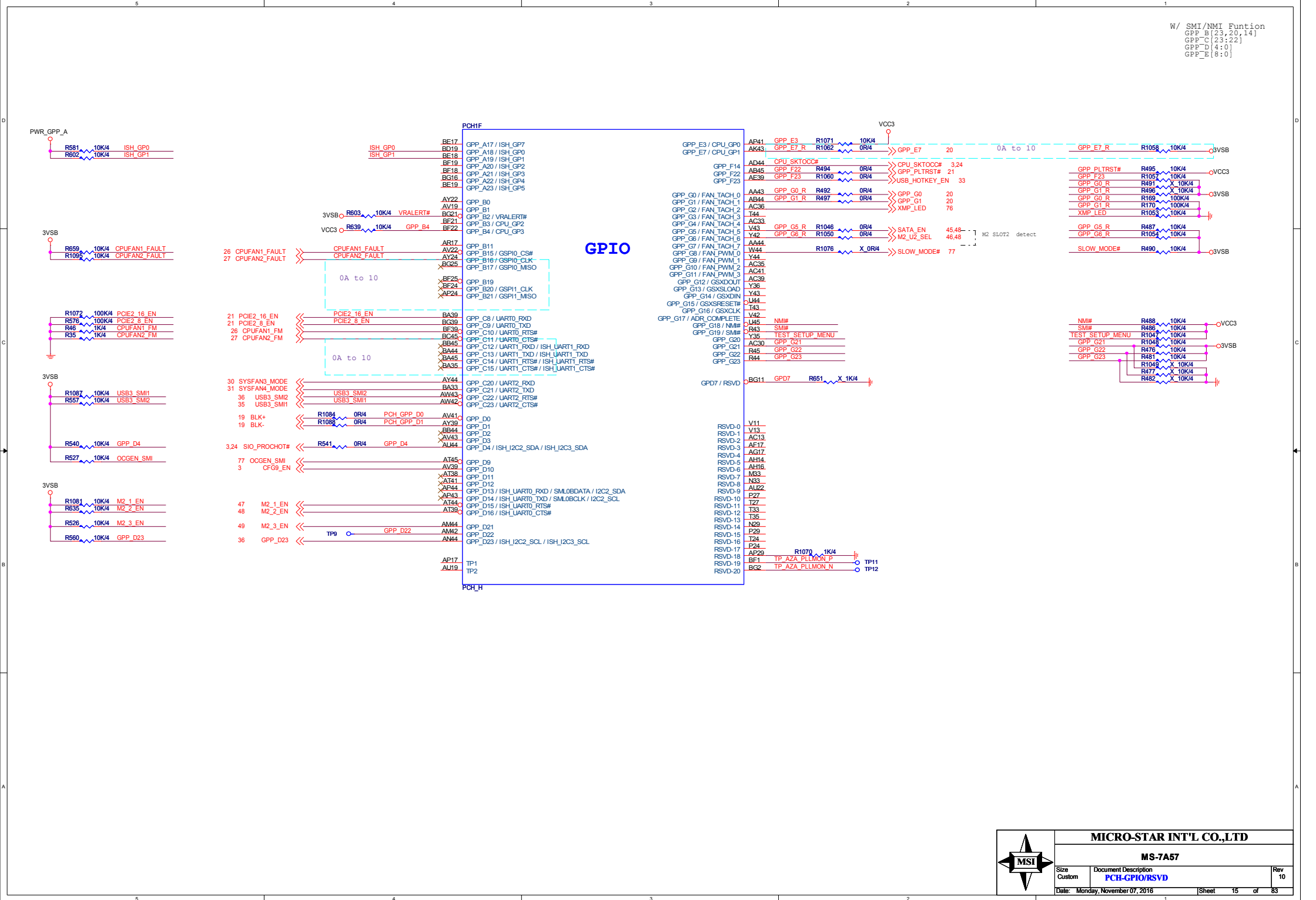


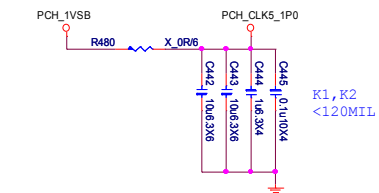
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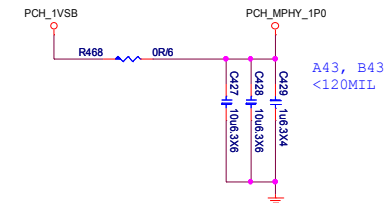
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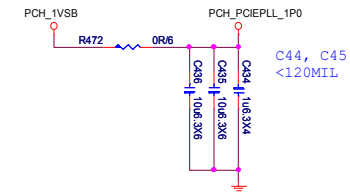




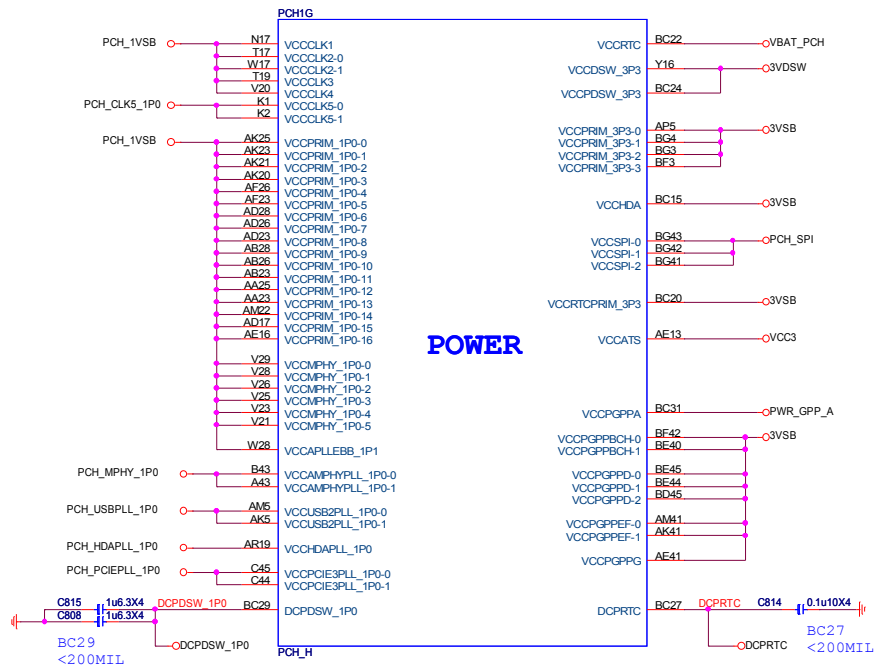
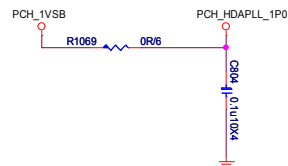
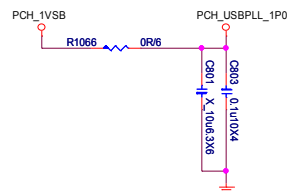
K1,K2
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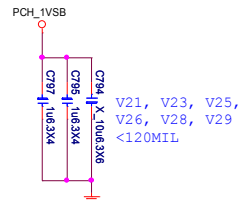
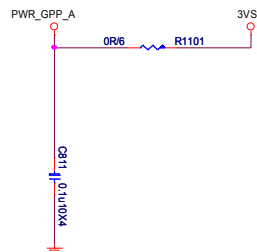
A43, B43
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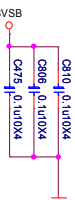
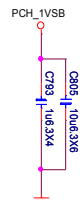
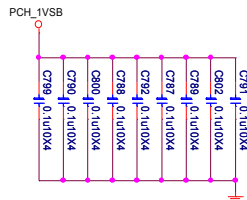
C44, C45
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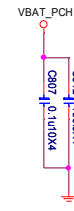
POWER



V21, V23, V25,
V26, V28, V29
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AE13
<200MIL



BC20
<120MIL



BC20
<120MIL



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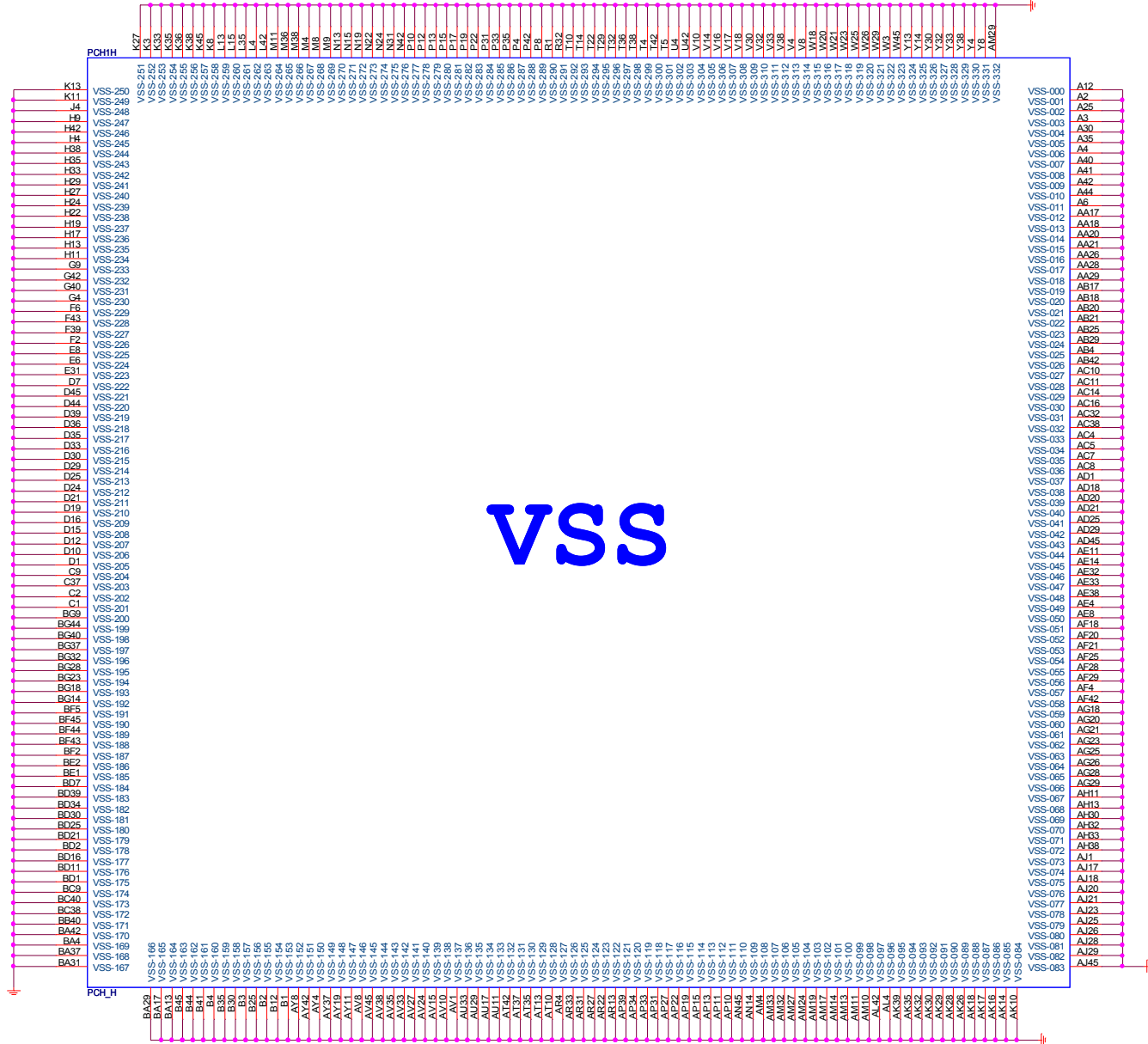
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PCH-Power

10

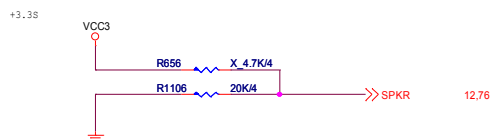
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VSS

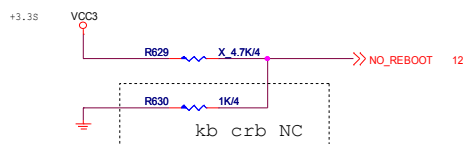


TOP Swap



Internal pull-down is disabled after PLTRST#

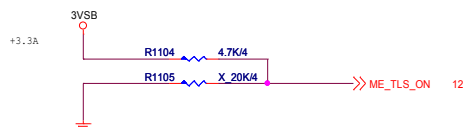
No Reboot



0 : DISABLE (Default)
1 : ENABLE

Internal pull-down is disabled after PLTRST#

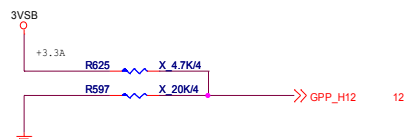
AMT and SBA with confidentiality



0 : DISABLE
1 : ENABLE (Default)

Internal pull-down is disabled after RSMRST

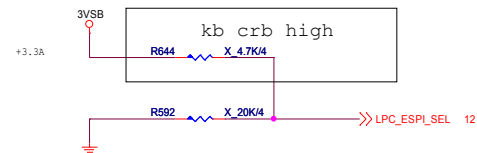
ESPI FLASH SHARING MODE



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

Internal pull-down is disabled after RSMRST

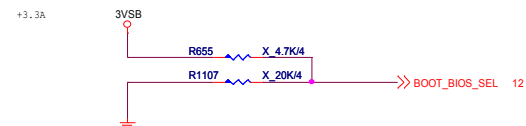
LPC eSPI Mode



0 : LPC
1 : eSPI

Internal pull-down is disabled after RSMRST

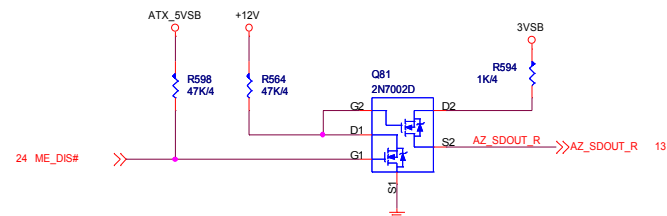
Boot BIOS



0 : SPI
1 : LPC

Internal pull-down is disabled after PLTRST

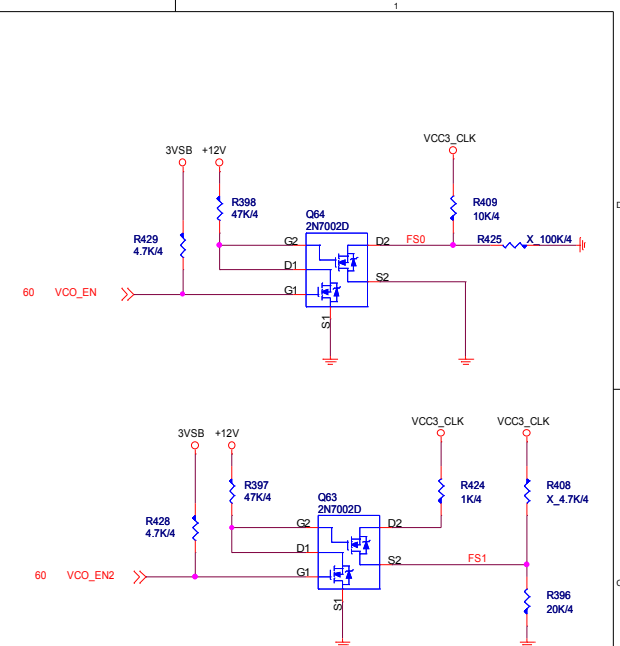
HDA_SDO



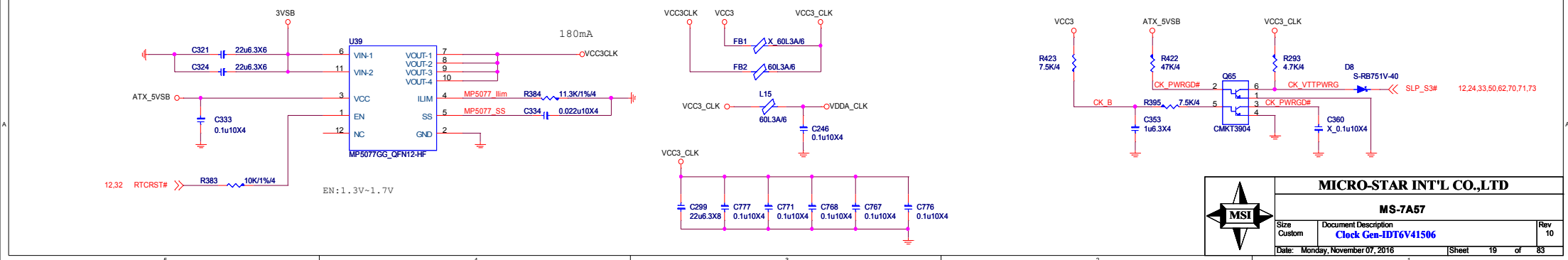
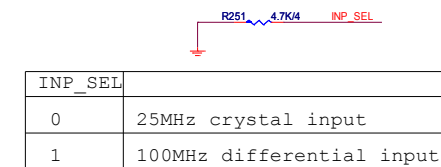
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FS1	FS0	VCO Frequency
0	0	VCO 200MHz
0	1	VCO 400MHz (default)
1	0	VCO 1000MHz
1	1	VCO 100MHz



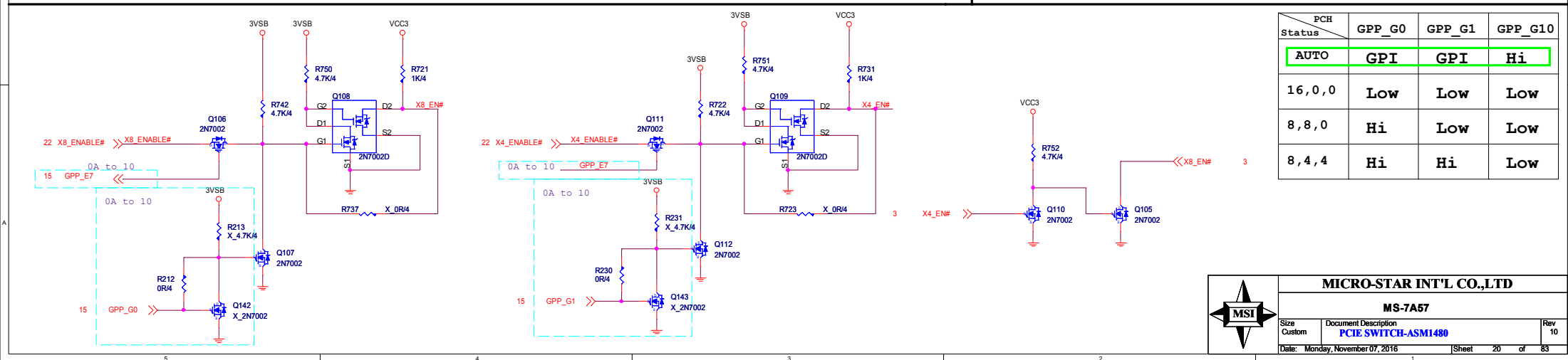
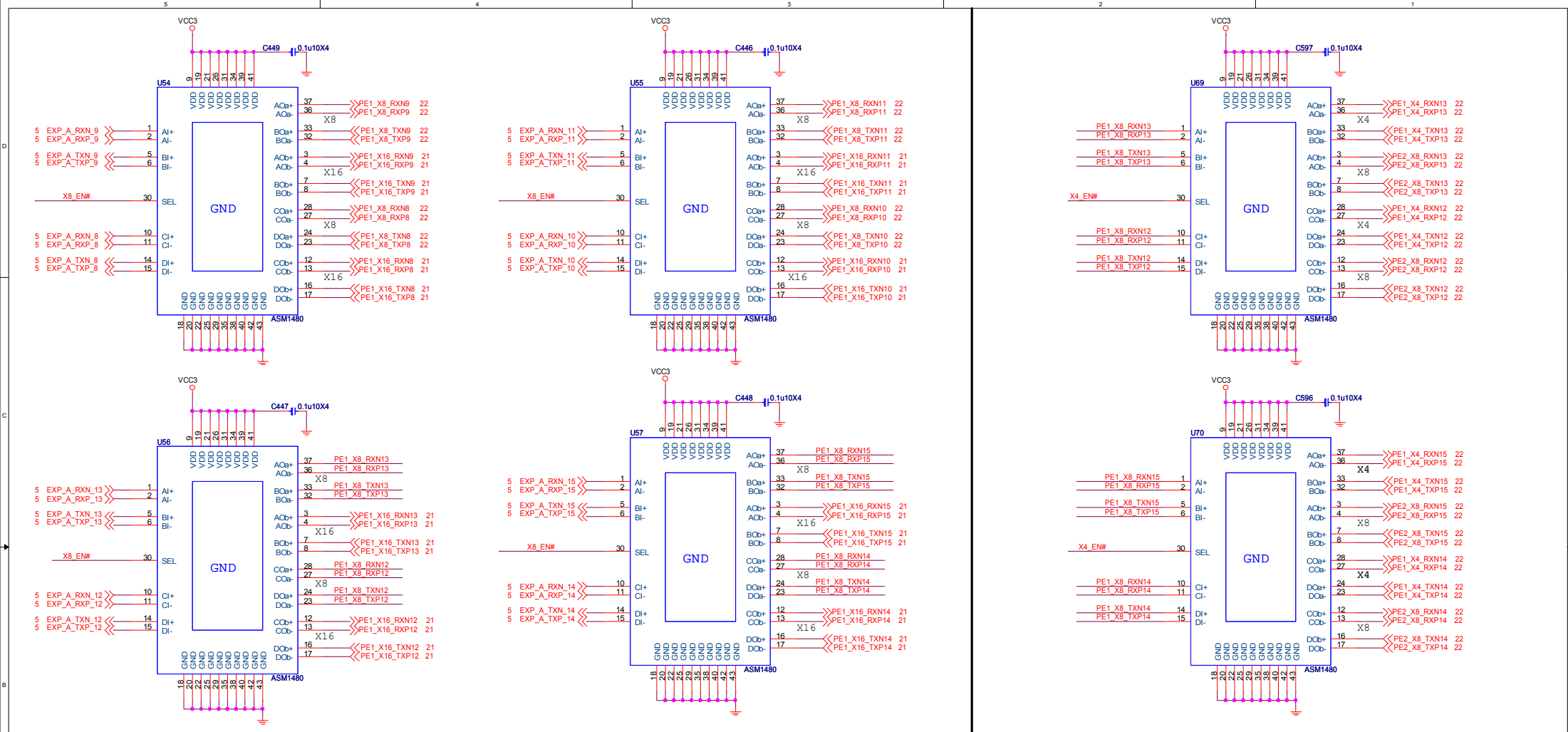
MICRO-STAR INT'L CO.,LTD

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Size Custom	Document Description Clock Gen-IDT6V41506
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Rev
10

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PCH Status	GPP_G0	GPP_G1	GPP_G10
AUTO	GPI	GPI	Hi
16,0,0	Low	Low	Low
8,8,0	Hi	Low	Low
8,4,4	Hi	Hi	Low

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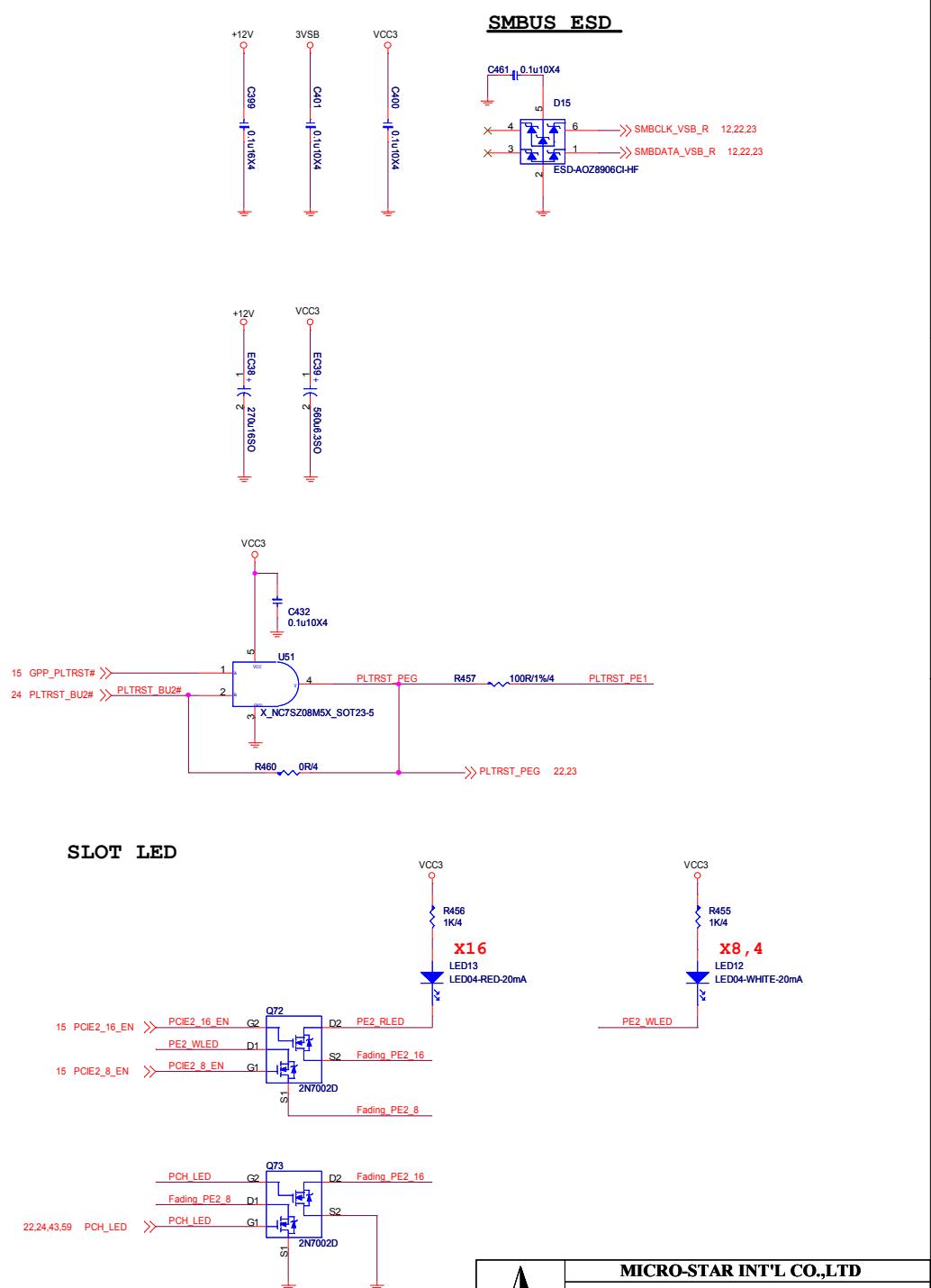
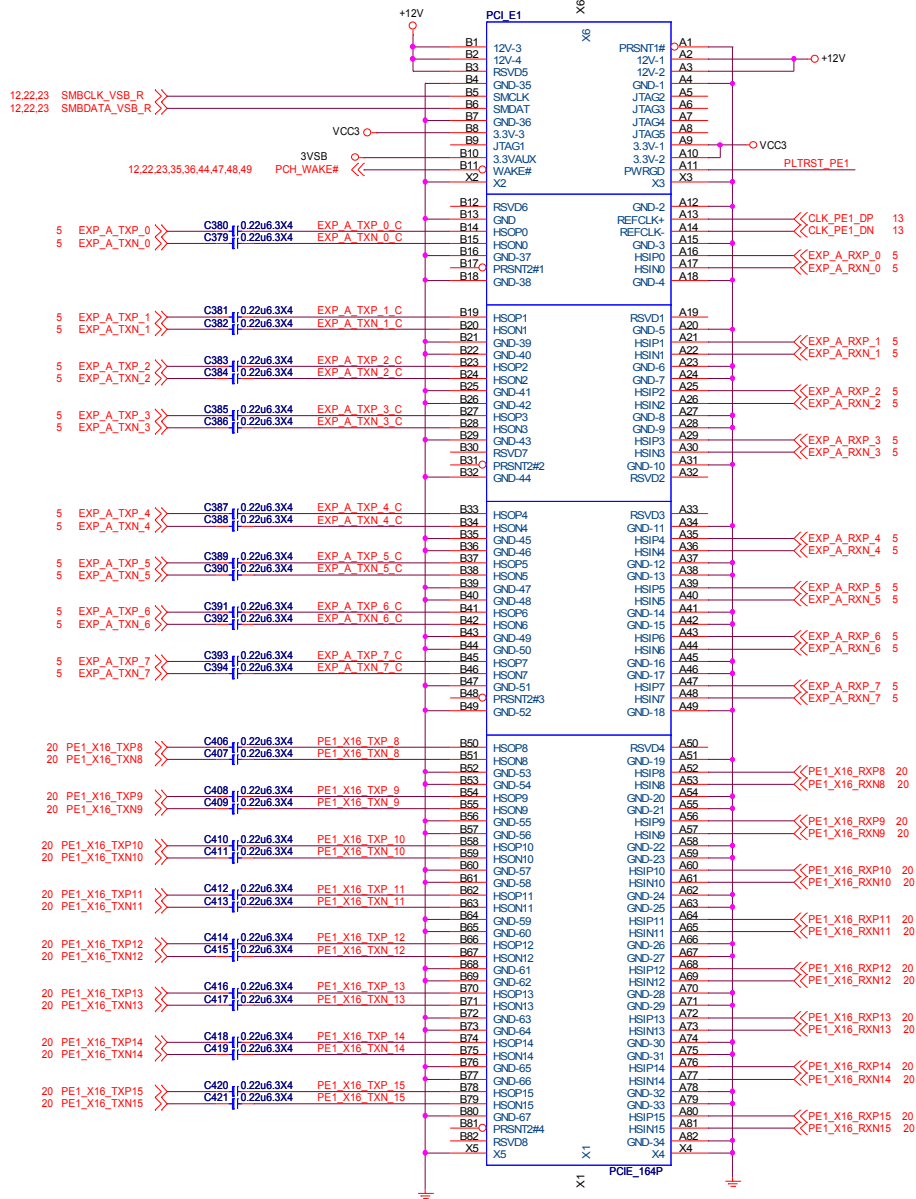
Size: Custom

Document Description: **PCIE SWITCH-ASM1480**

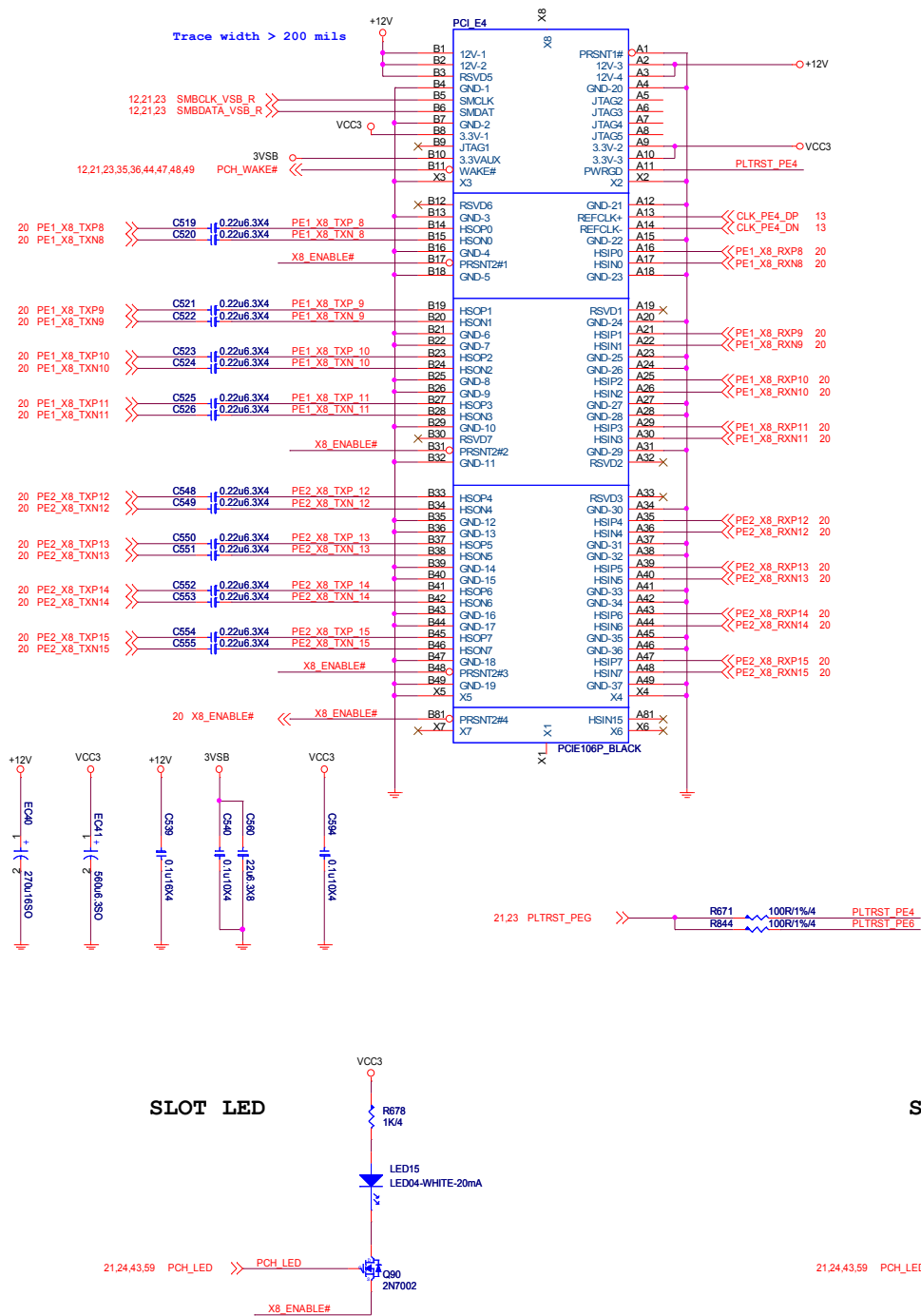
Date: Monday, November 07, 2016

Rev 10

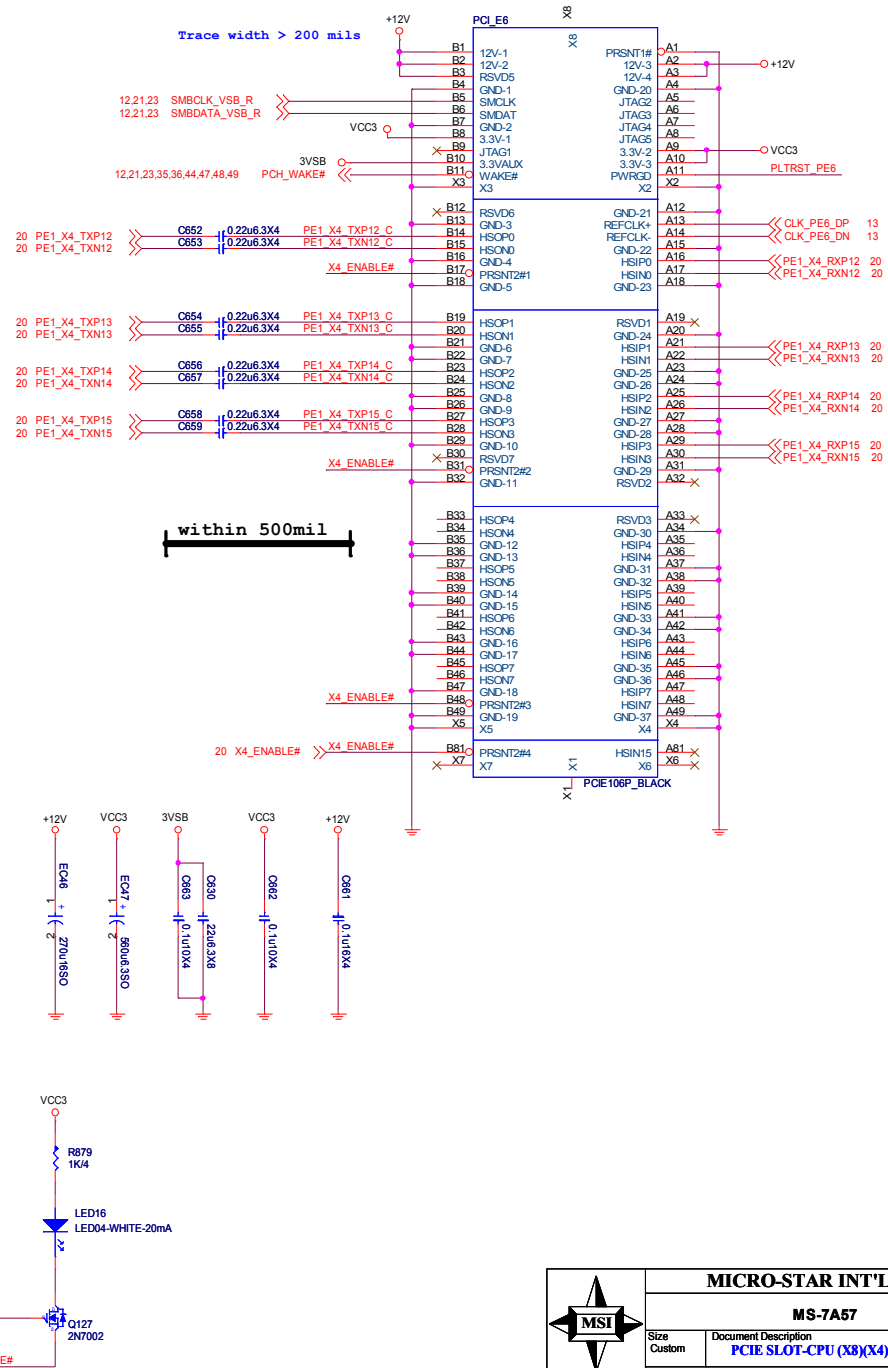
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PCI Express X8 Slot (Share with PCI_E x16 Slots)

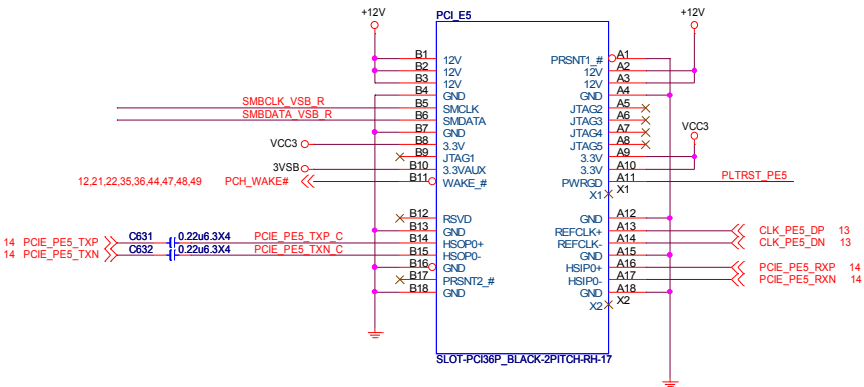
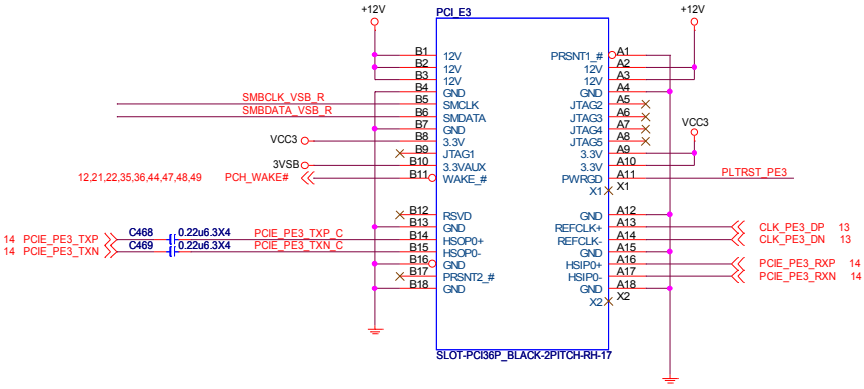
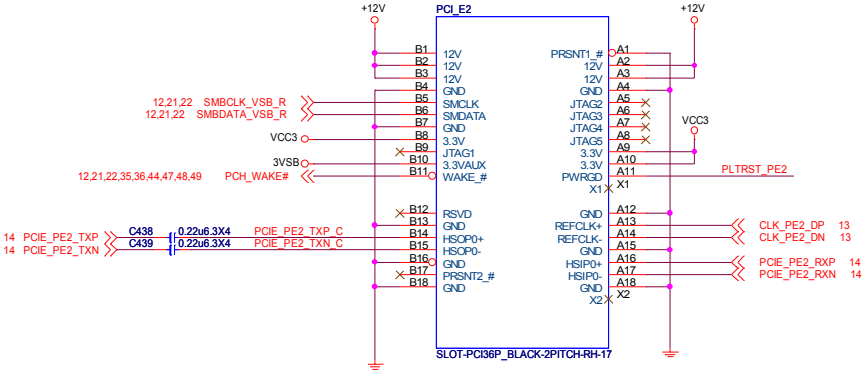


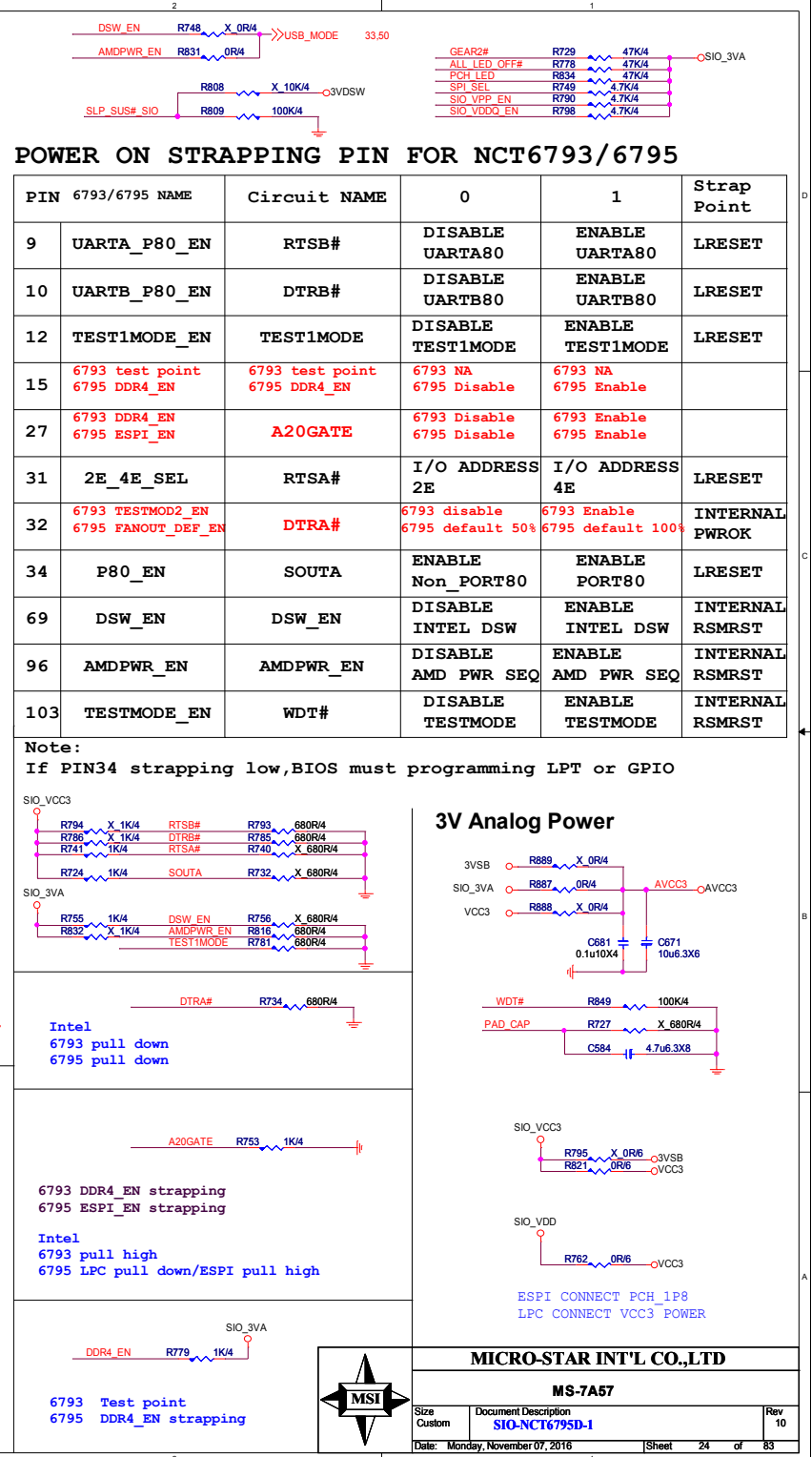
PCI Express X4 Slot(by CPU)



PCH PCIE X1 Slot

12V - 2.1A
VCC3 - 3A
3VSBV - 375mA

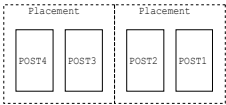




COM Port for BIOS Debug

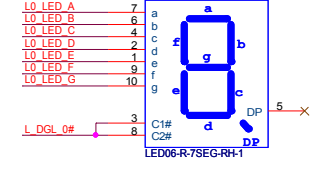
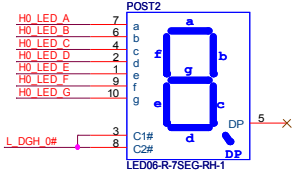
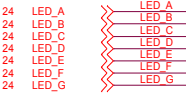


DEBUG LED



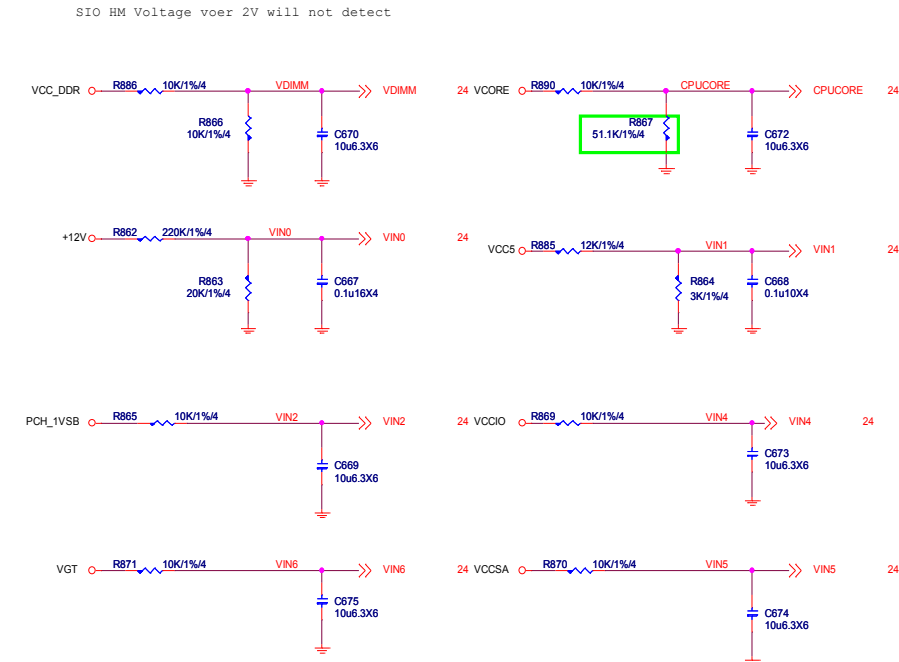
Placement一定要對
(DGH1=Post4/DGL1=Post3/DGH0=Post2/DGL0=Post1)

Debug LED OFF BIOS control

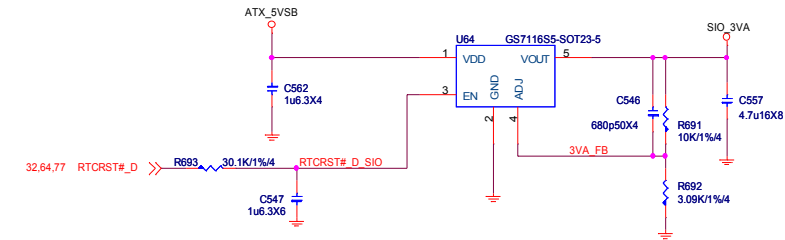
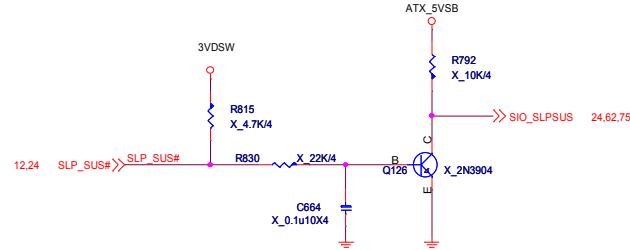


Ver 3.0
Remove Post3,Post4

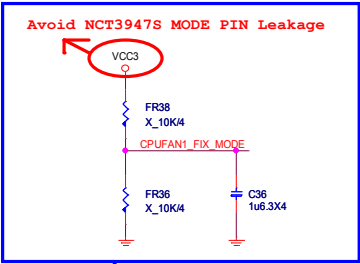
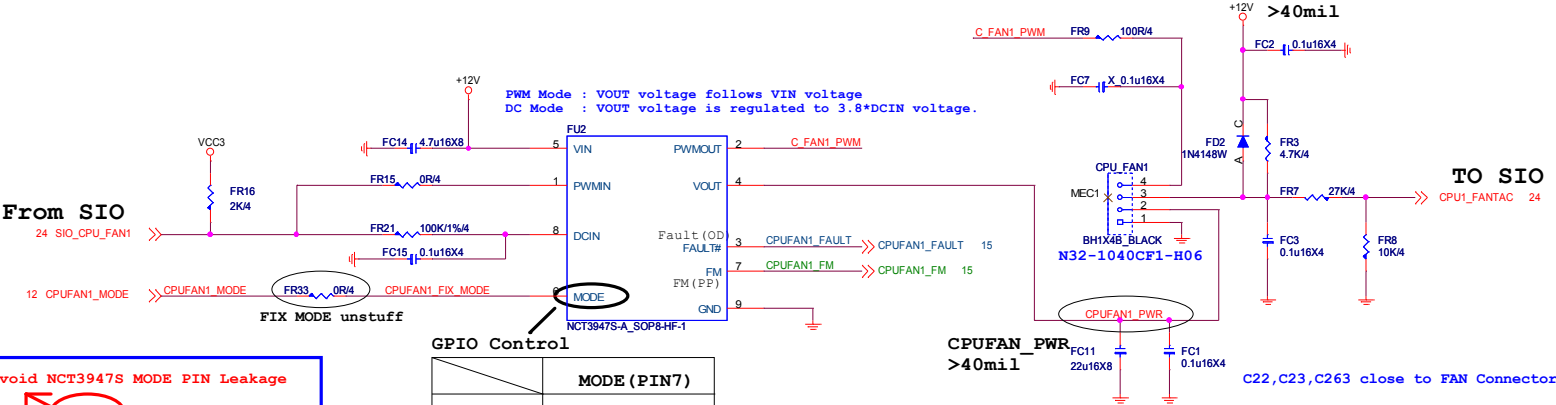
HW Monitor - Voltage



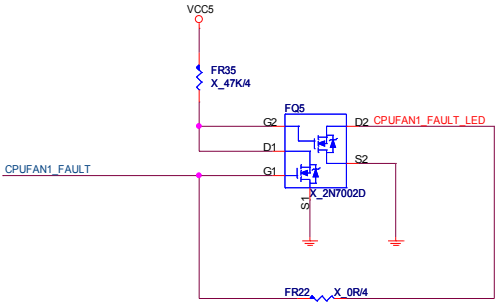
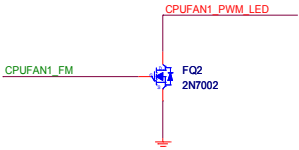
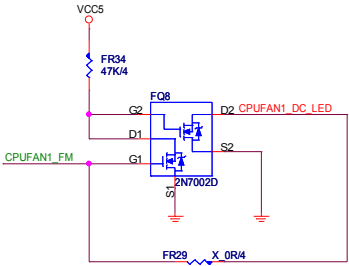
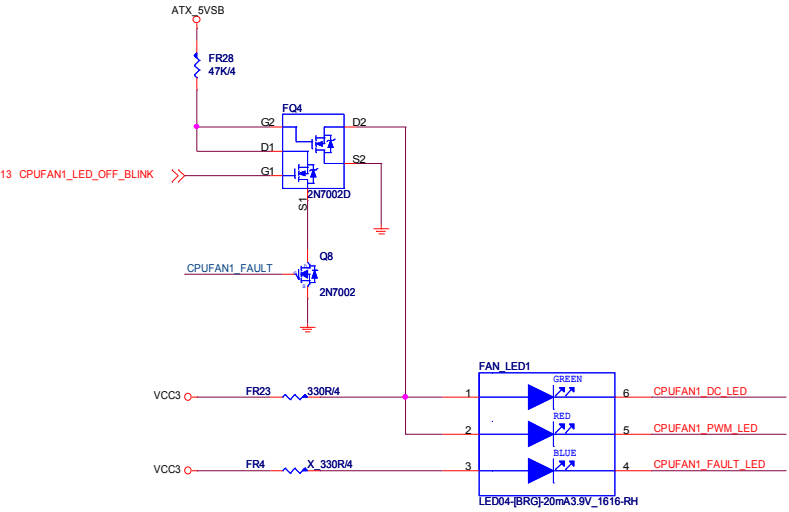
SLP_SUS Co-lay circuit



TYPE J : 4 PIN CPU FAN USE NCT3947S USE PCH GPIO

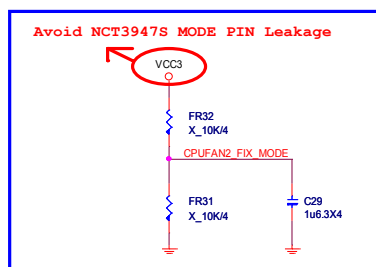
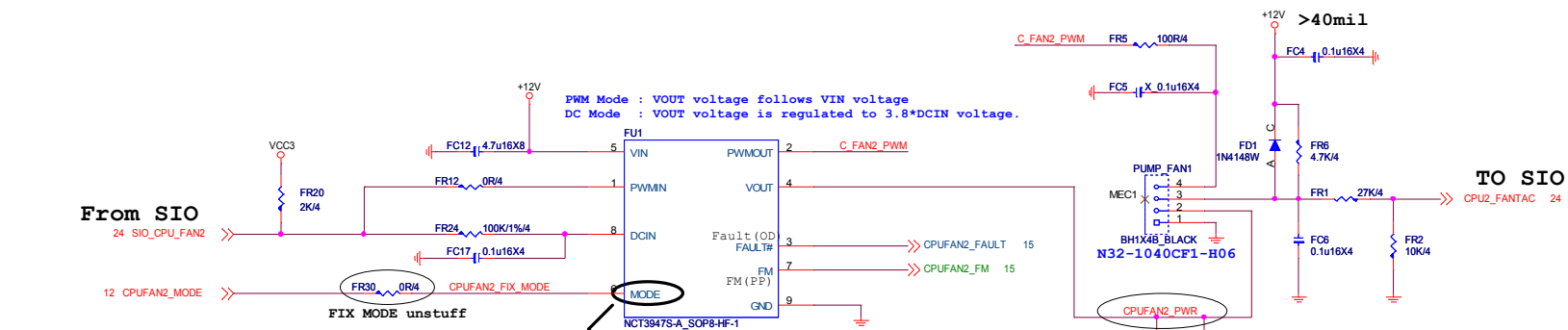


Resever For FIX DC or PWM MODE USE By PM SPEC



CHECK NCT3947S Sink Current

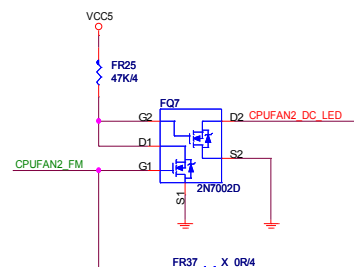
TYPE J : 4 PIN CPU FAN USE NCT3947S USE PCH GPIO



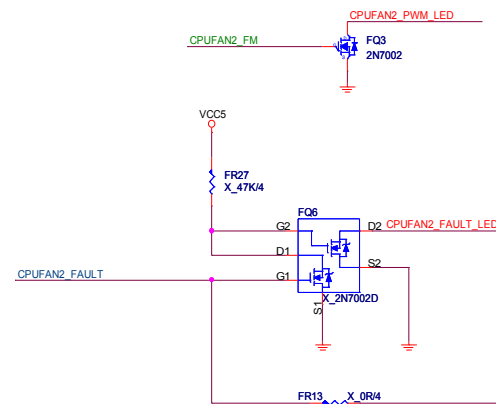
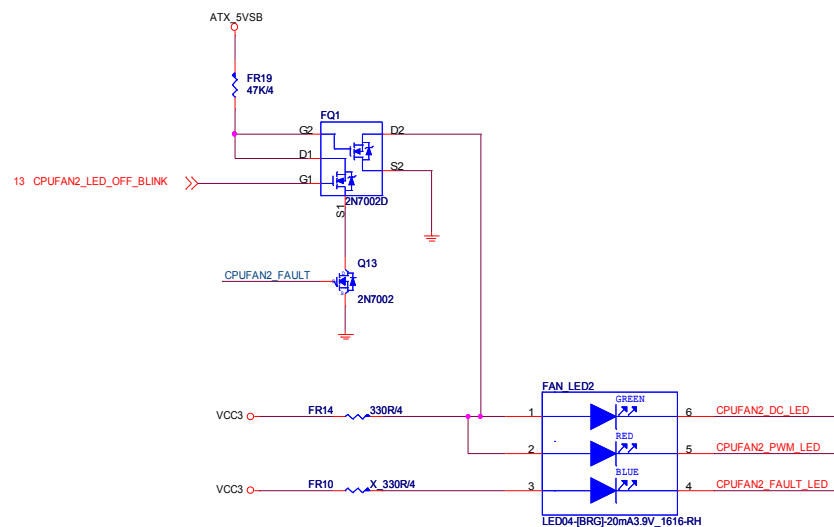
Resever For FIX DC or PWM MODE USE By PM SPEC

	MODE (PIN7)
PWM MODE	HIGH
DC MODE	LOW
AUTO MODE	GPI(Floating)

Internall pull up 1.65V



CHECK NCT3947S Sink Current



CHECK NCT3947S Sink Current



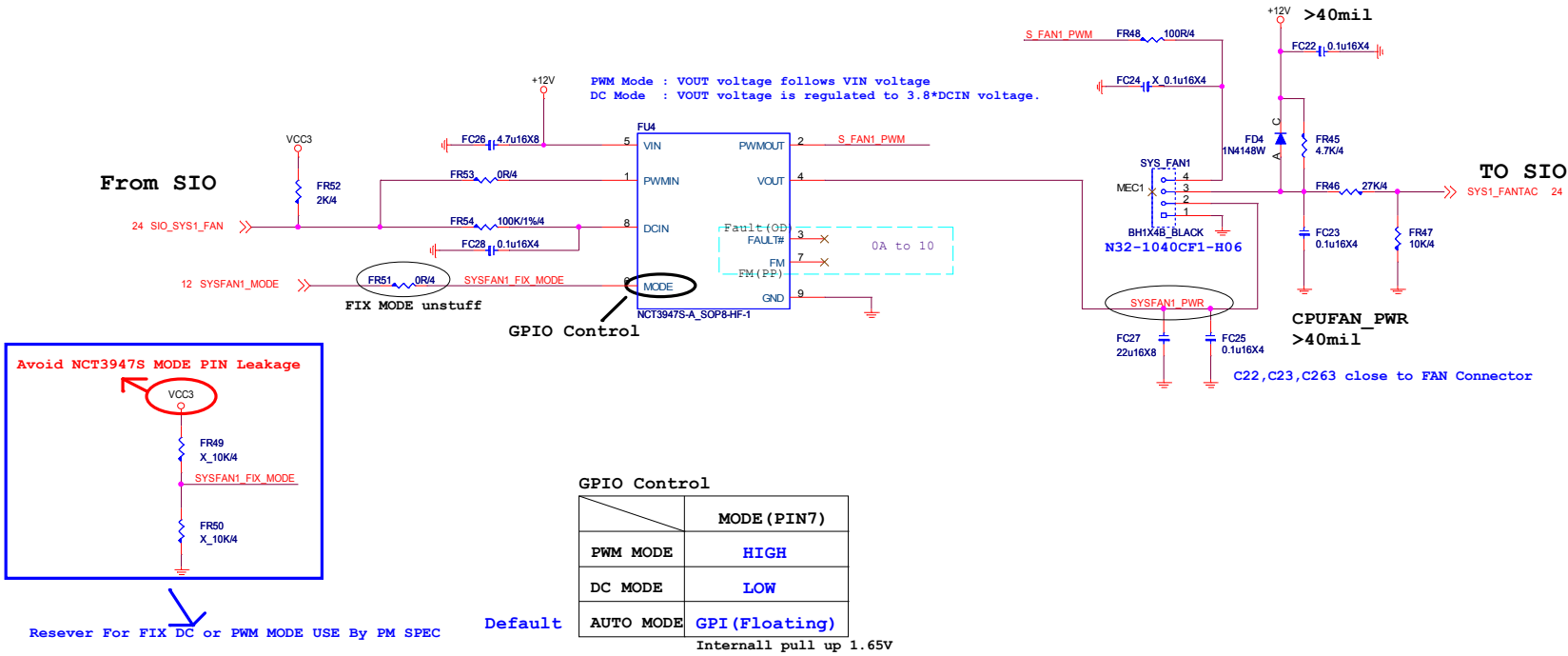
MICRO-STAR INT'L CO.,LTD

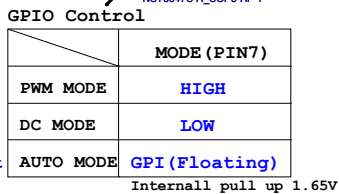
MS-7A57

Size Custom	Document Description CPU FAN2	Rev 10
Date: Monday, November 07, 2016		Sheet 27 of 83

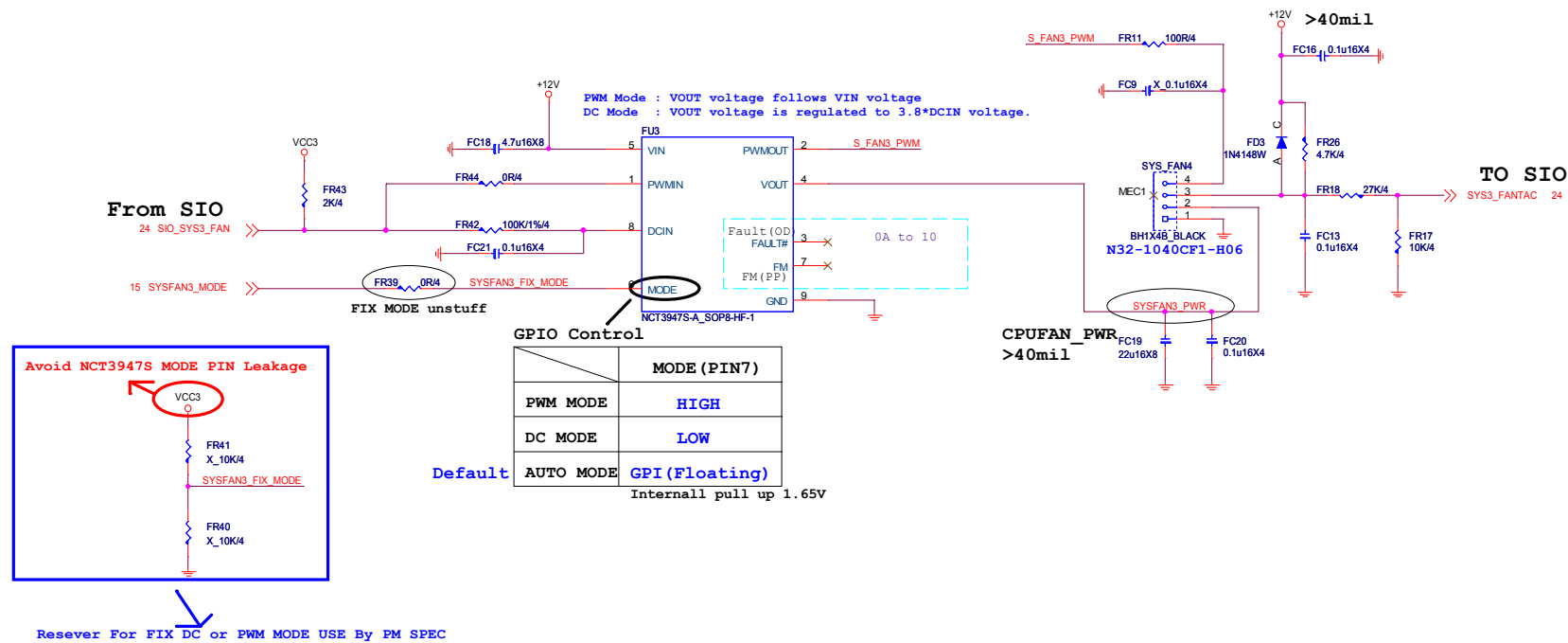
TYPE K : 4 PIN CPU FAN USE NCT3947S USE PCH GPIO CONTROL FAN MODE

2.GPIO可以由BIOS切换 PWM/DC MODE

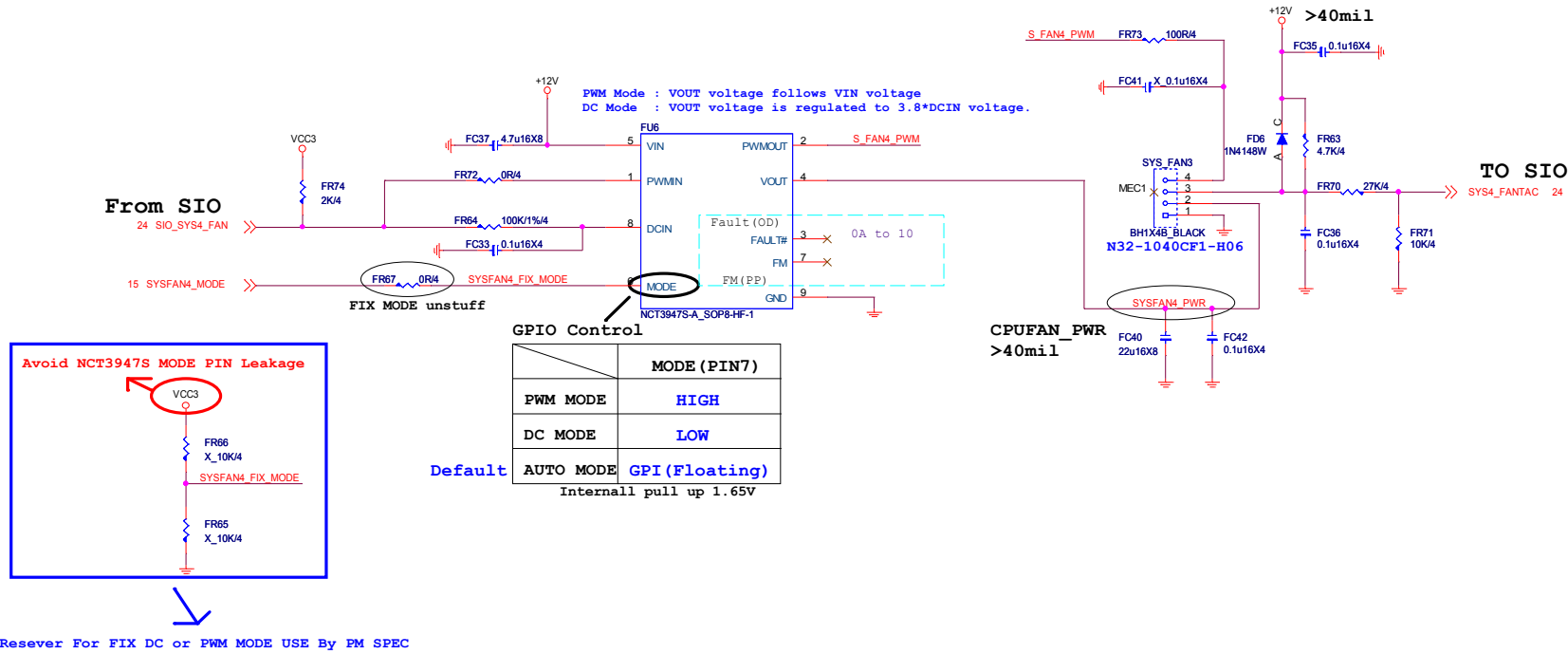




TYPE K : 4 PIN CPU FAN USE NCT3947S USE PCH GPIO CONTROL FAN MODE



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



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Size

Custom

Document Description

SYSTEM FAN4

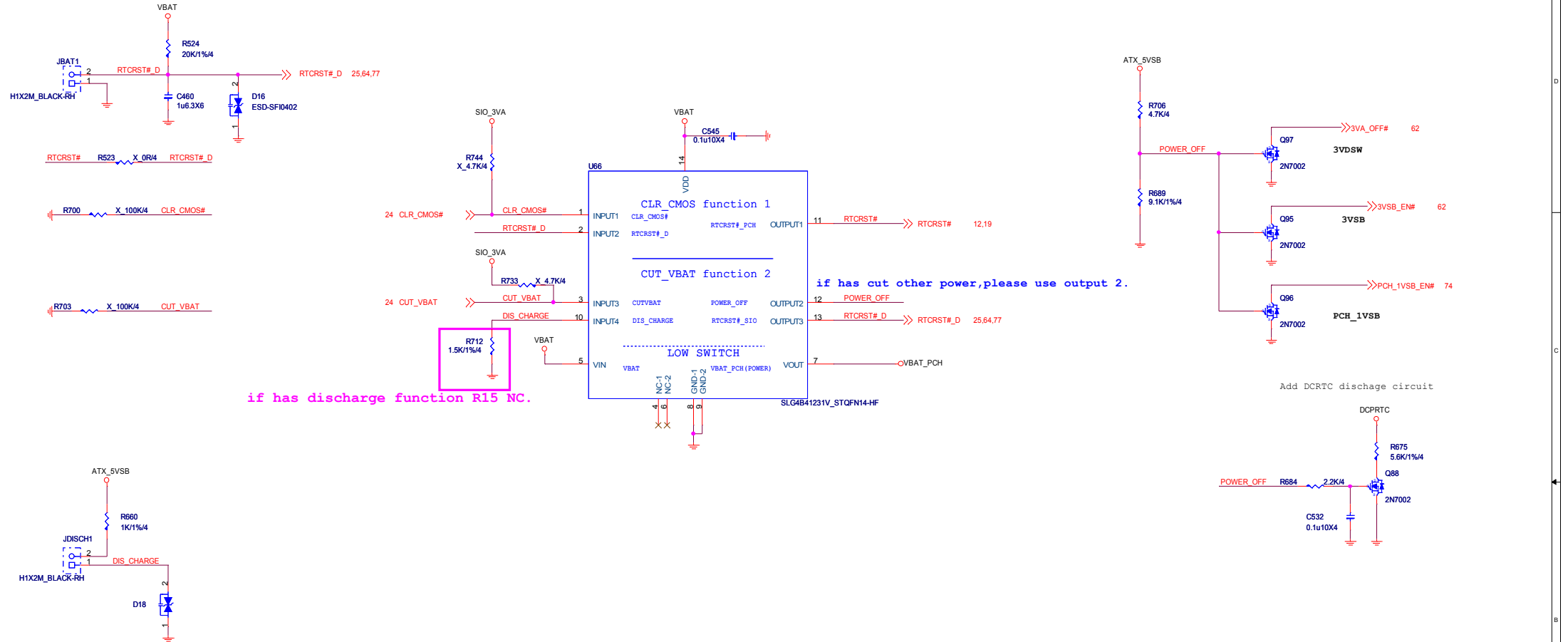
Rev

10

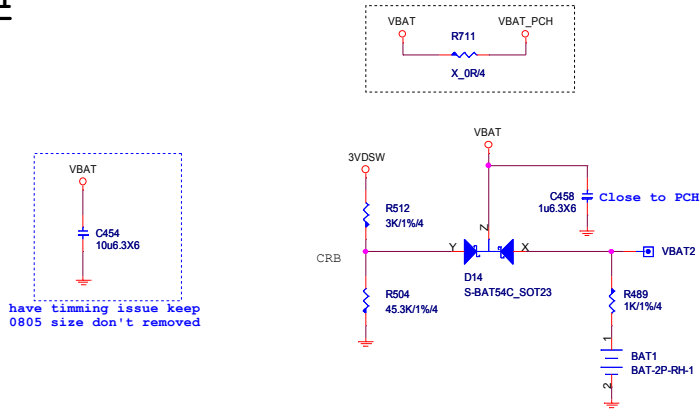
Date: Monday, November 07, 2016

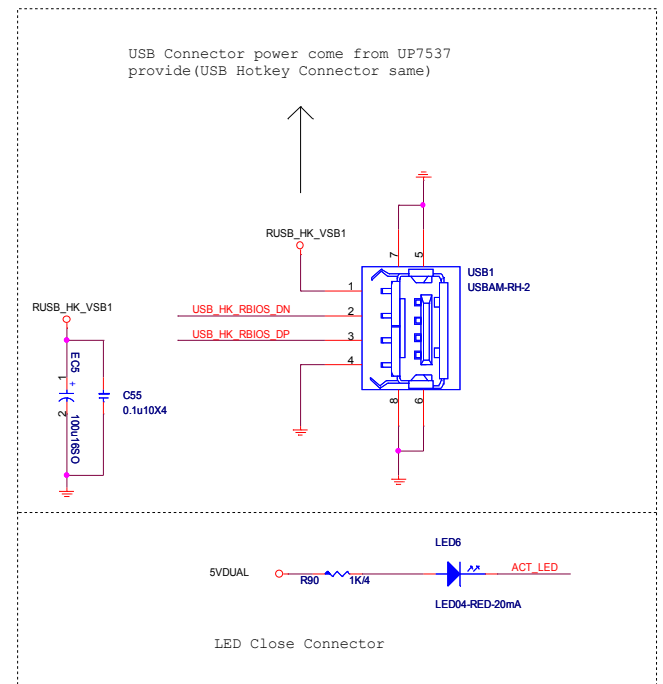
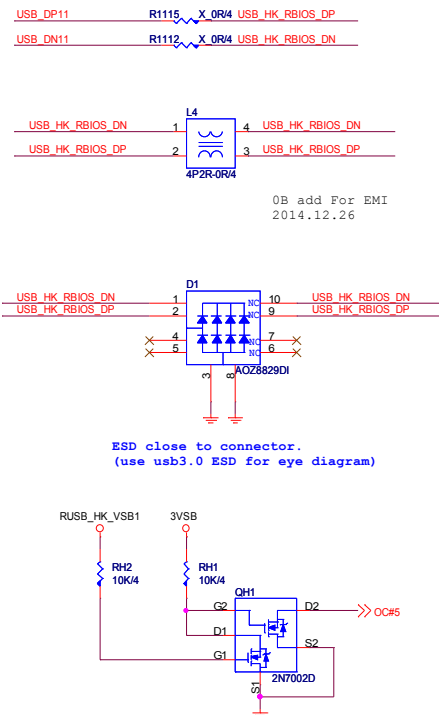
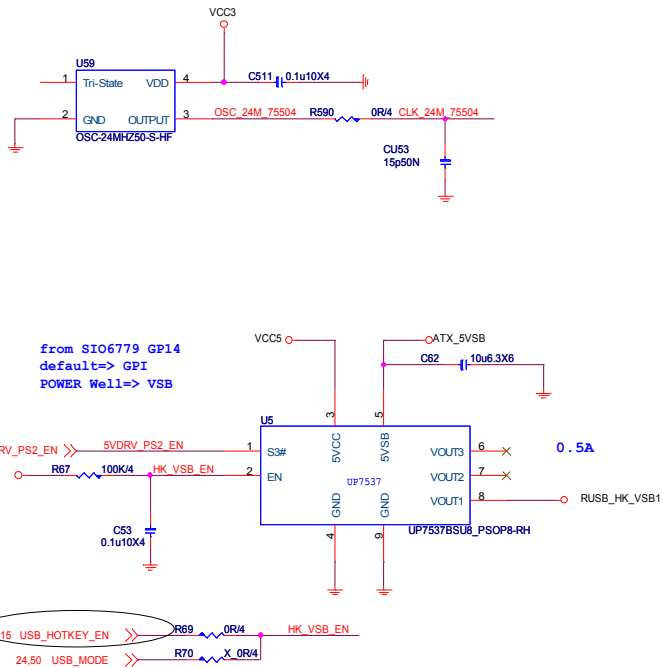
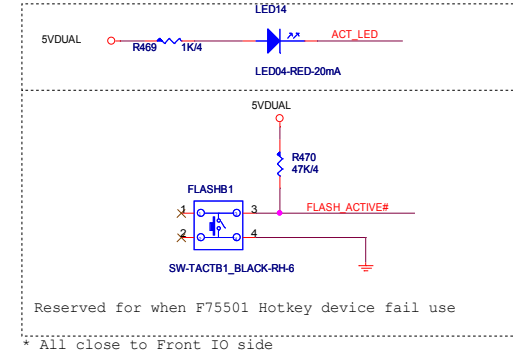
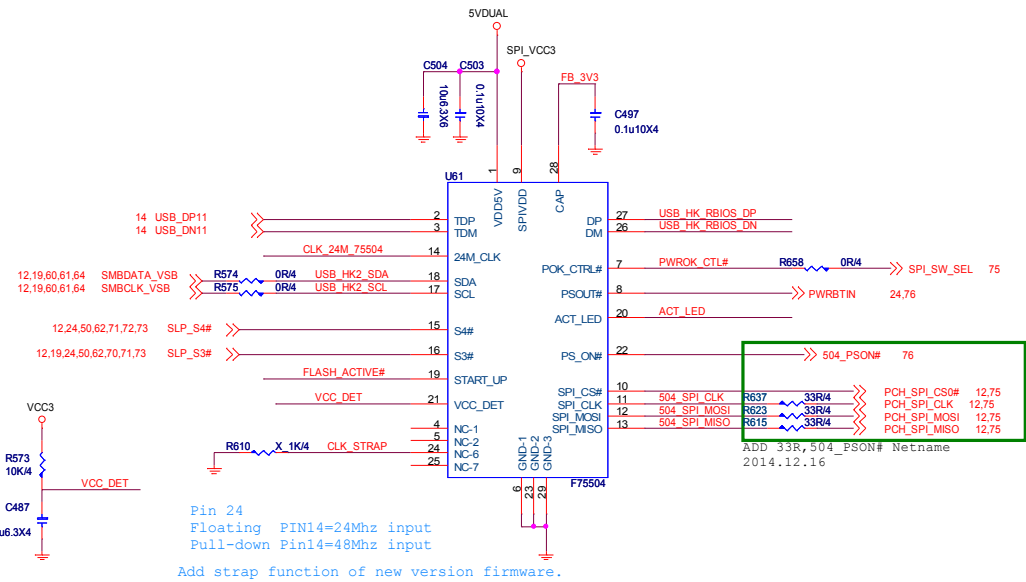
Sheet 31 of 83

CUT VBAT

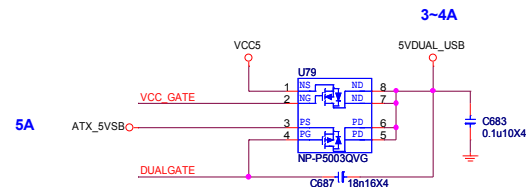
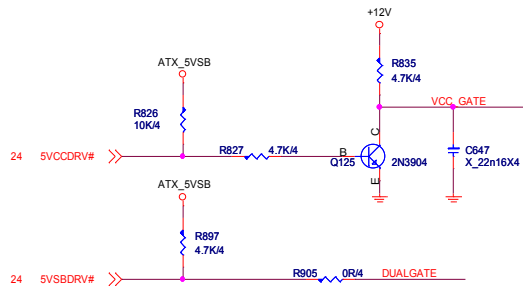


VBAT

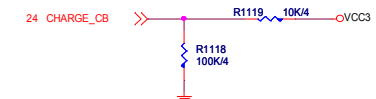




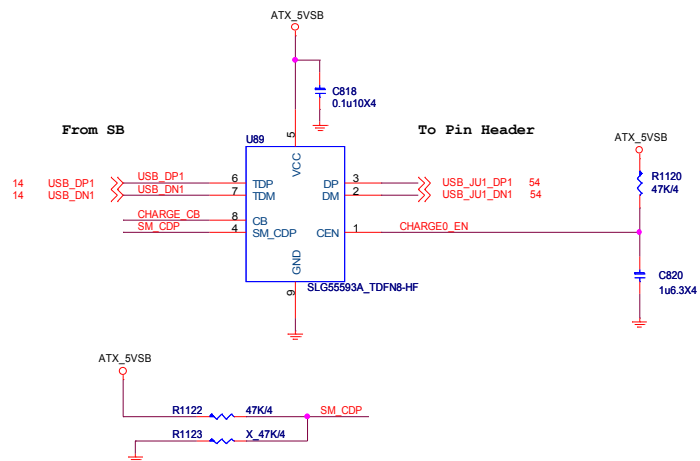
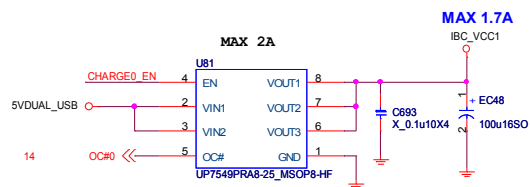
5VDUAL_USB



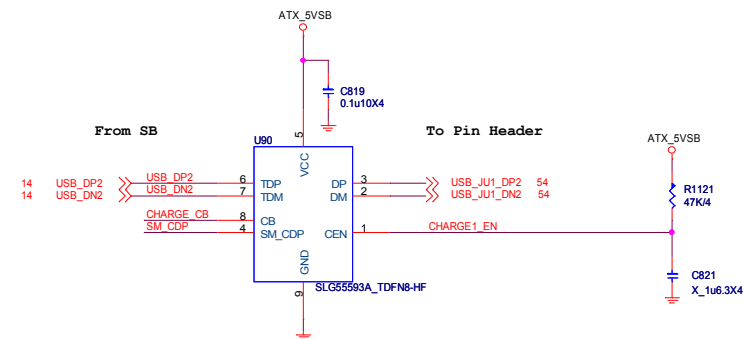
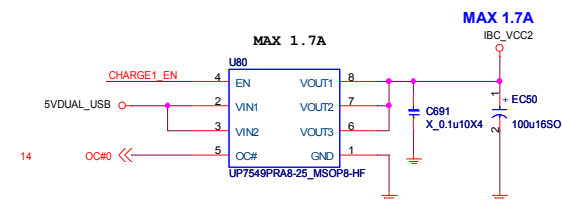
Pin power : I_3VSB
Register power : I_3VSB
Register reset : I_3VSB



USB POWER PORT 0 For USB Charging



USB POWER PORT 1 For USB Charging




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Custom	USB CHARGE_SLG55593A	10
Date: Monday, November 07, 2016	Sheet 34 of 83	

5	
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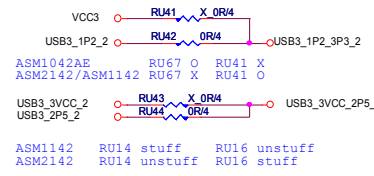
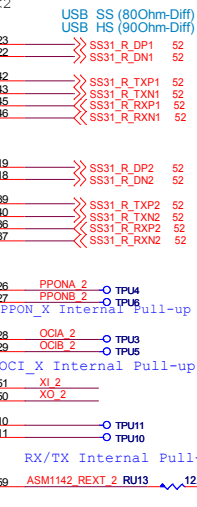
	3	
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	MICRO-STAR INT'L CO.,LTD		
	MS-7A57		
	Size	Document Description	Re
	Custom	USB3.1-ASM1142AE-Front	
Date: Monday, November 07, 2016		Sheet	35 of 83

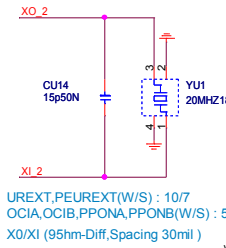


Date: Monday, November 07, 2016 Sheet 35 of 83

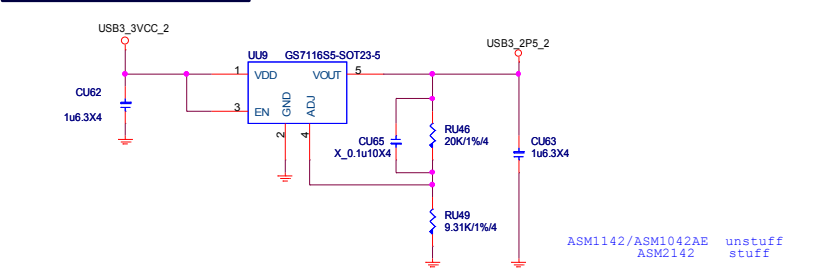
- 1.) USB3.1 to Connector Total Length < 1.5"
- 2.) VIA hole < 2



	3.3V	1.2V(1.05V)	3.3VSUS	1.05VSUS(1.2VSUS)	2.5V	Total Power
ASM1142	245mA	634mA	1mA	1mA	NA	1573.8(mW)
ASM2142	300mA	800mA	100mA	50mA	300mA	TDP
ASM1042AE	95mA	300mA	65mA	9.5mA	NA	852.975(mW)



ASM1142 RU72/RU11 100K/100K_1.2V
 ASM2142 RU72/RU71 196K/261K_1.05V

[illegible]

60 USB3_1_POWER_OFF_2

ATX_5VSB

3VSB

C248 22uF 6.3V

C227 22uF 6.3V

C233 0.1uF 10V

RU15 7.5K 1/4

R232 11.3K 1/4

C230 0.022uF 10V

U23

VIN-1

VIN-2

VCC

EN

NC

IILIM

SS

GND

MP5077GG_QFN124H

EN: 1.3V~1.7V

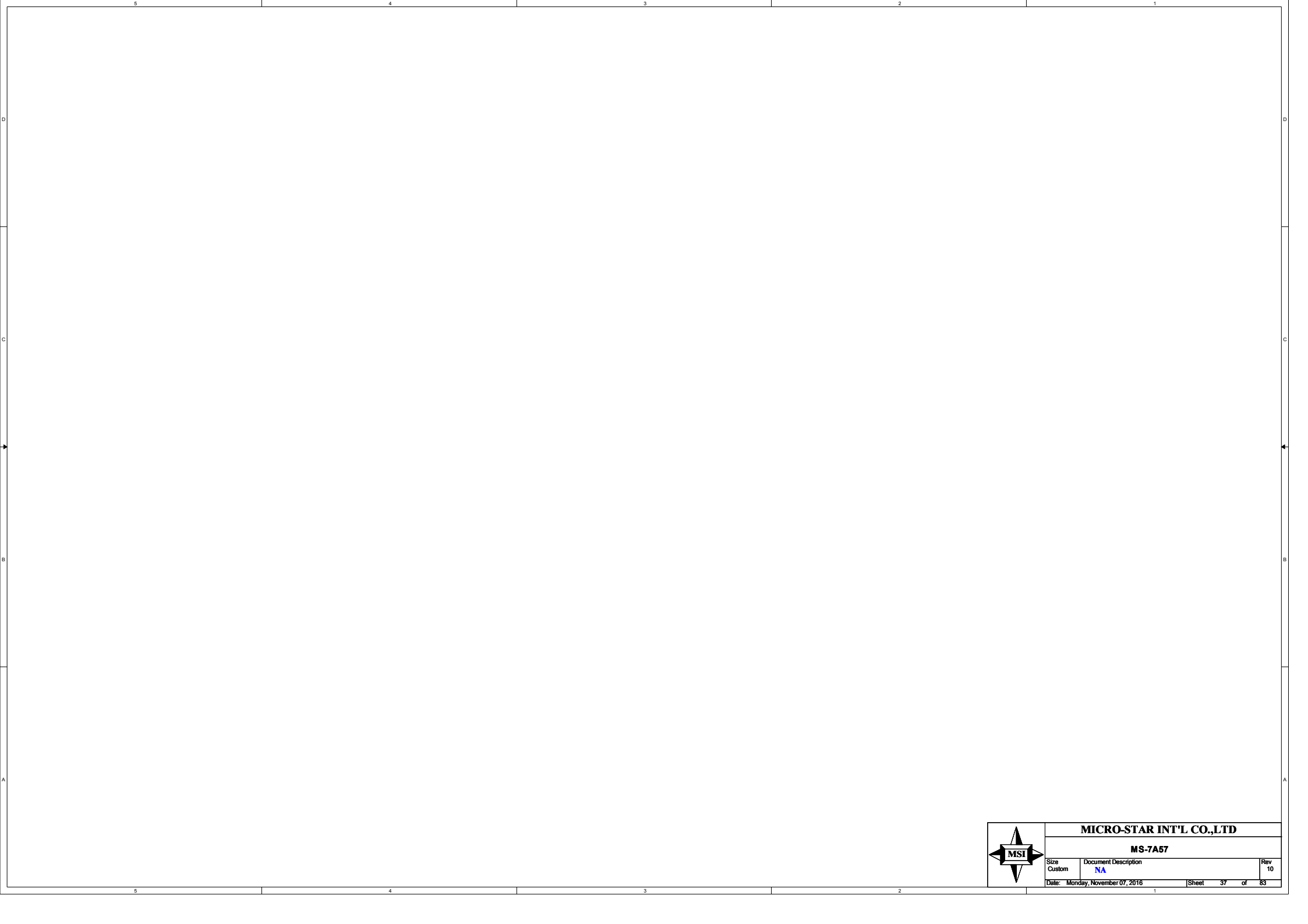
USB3_3VCC_2

RU14 X_0R6

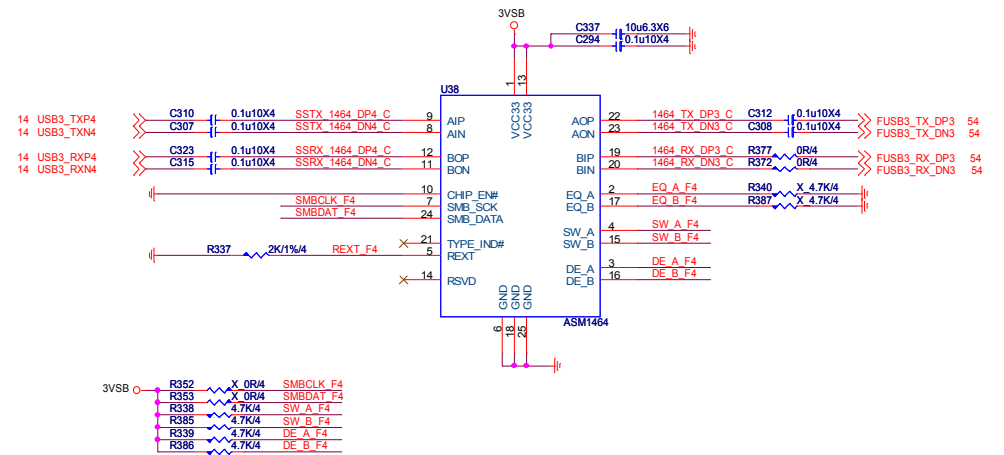
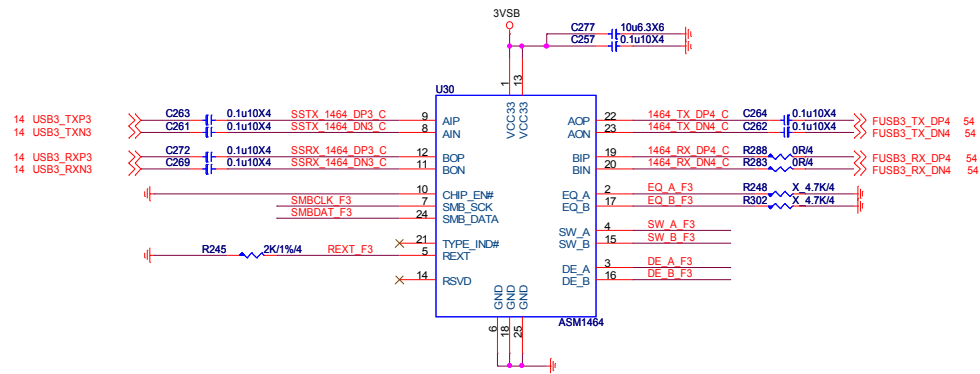
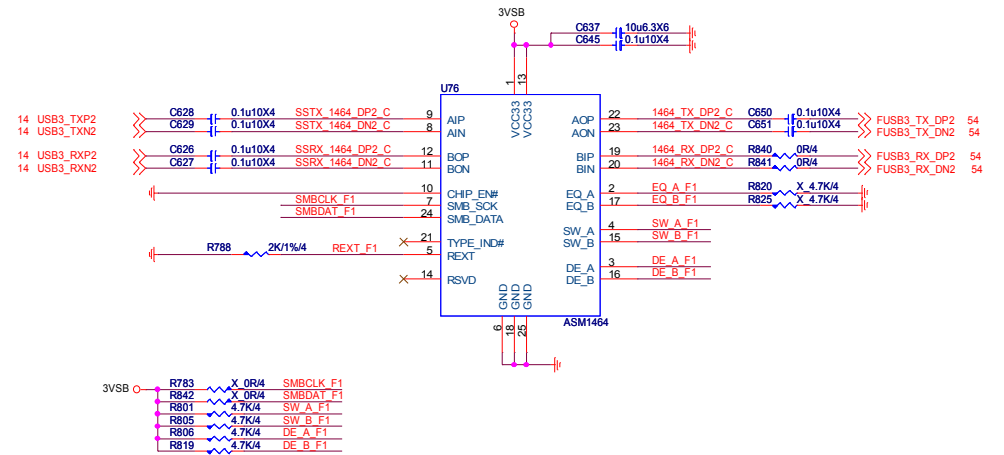
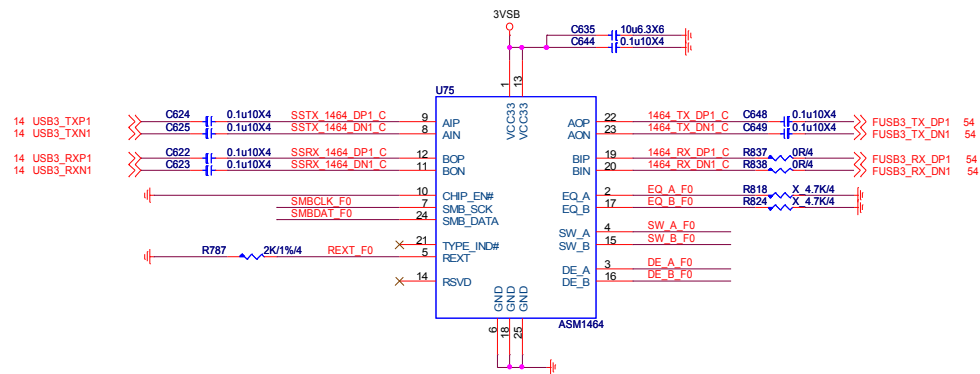
USB3_3VCC_2

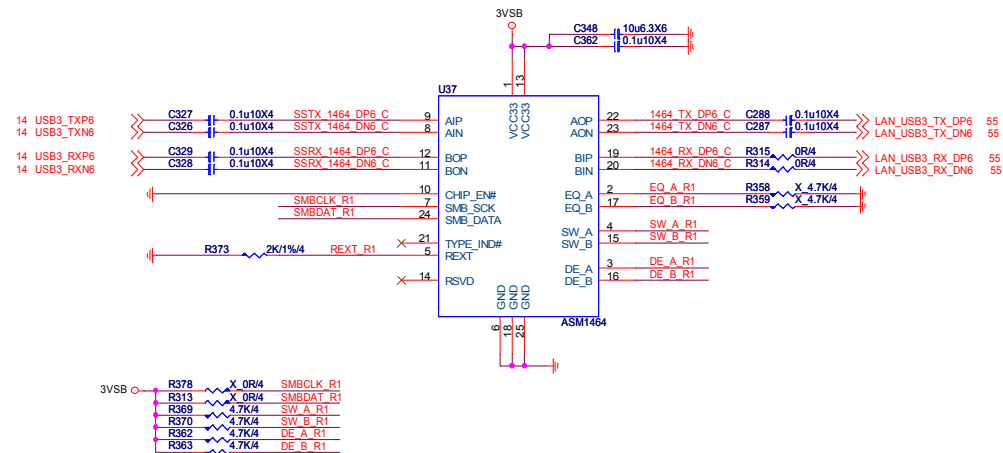
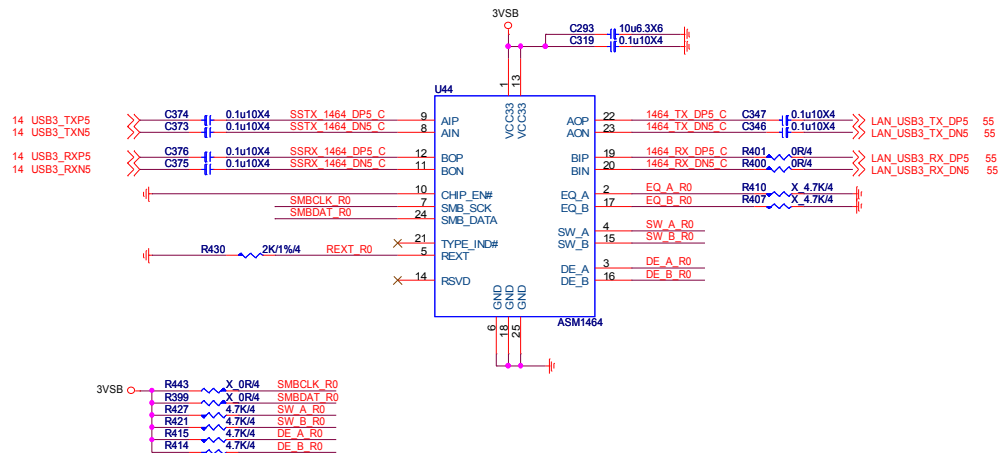


Size Custom	Document Description USB3.1-ASM1142AE-Rear	Rev 10
Date: Monday, November 07, 2016		Sheet 36 of 83

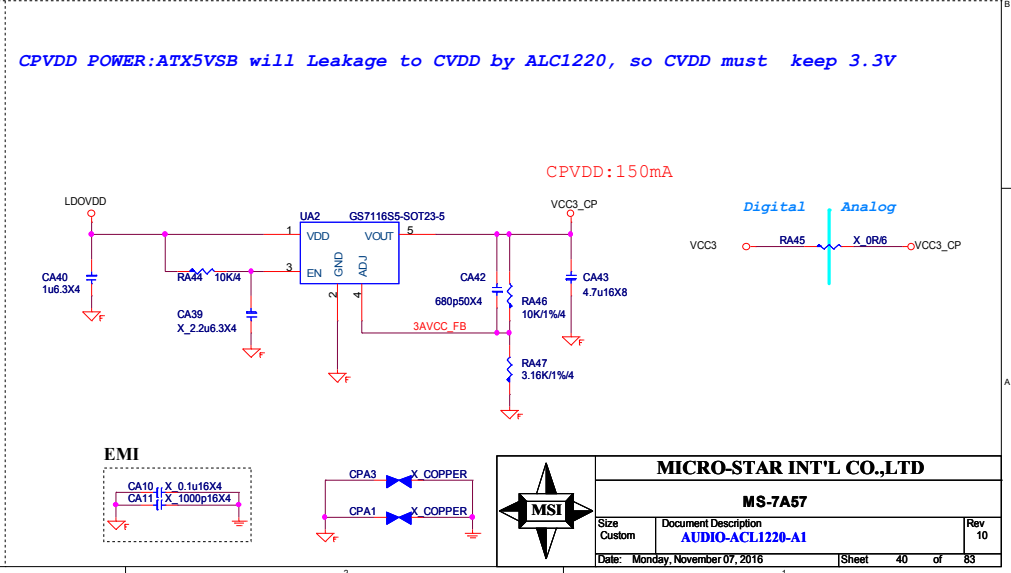
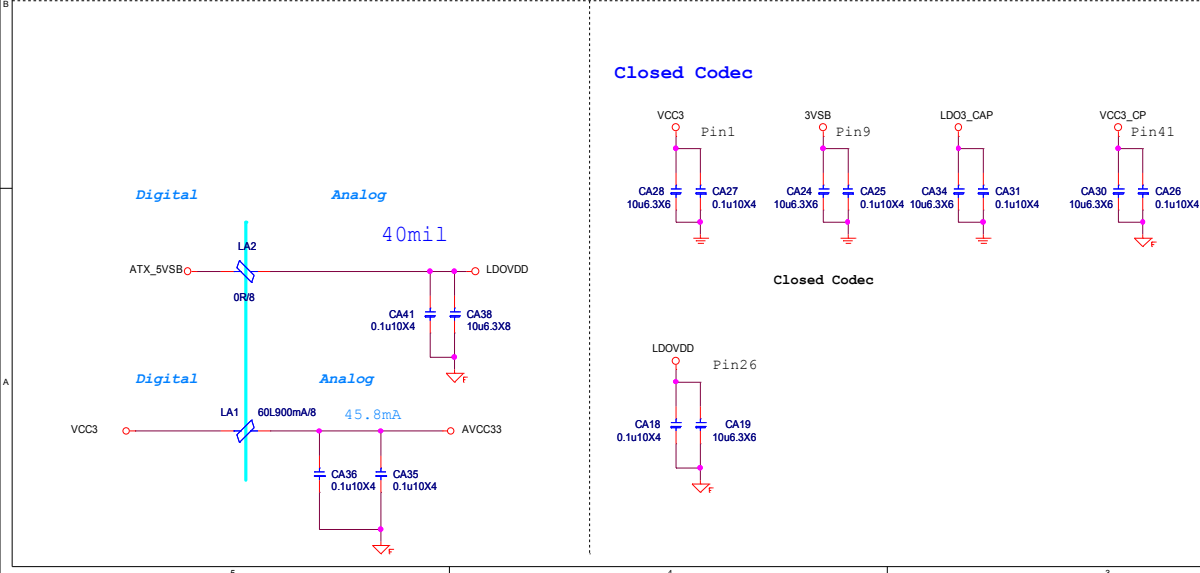
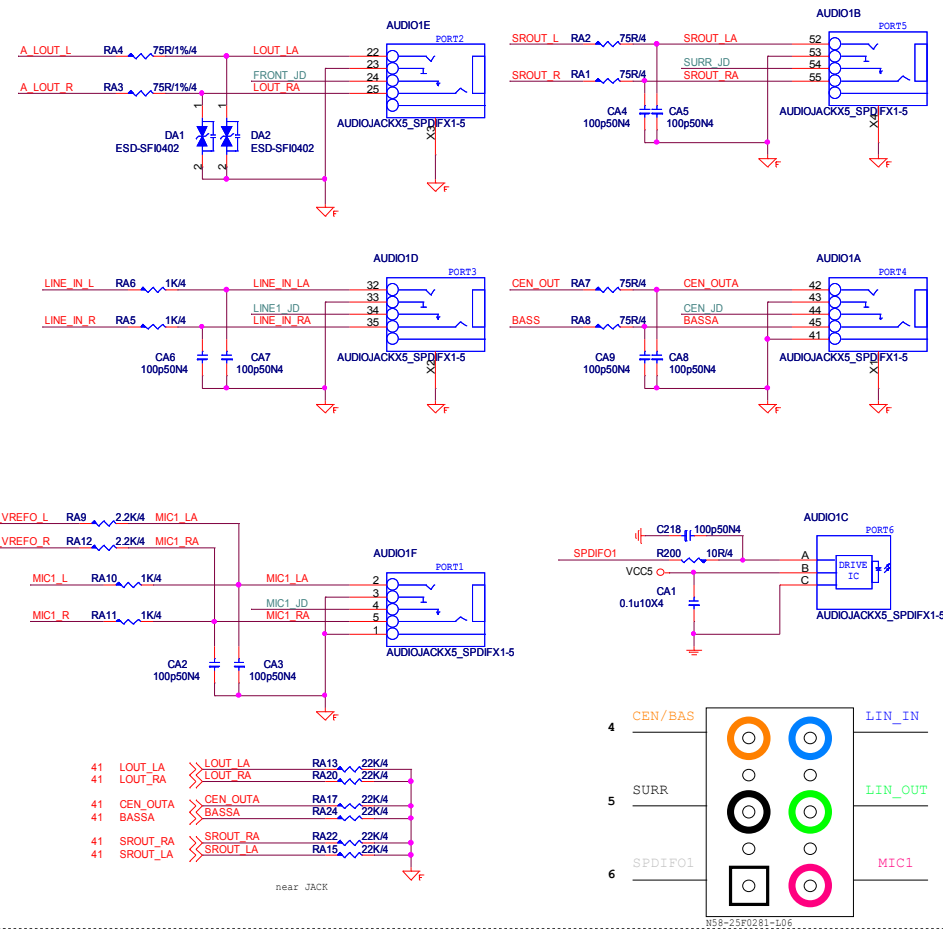
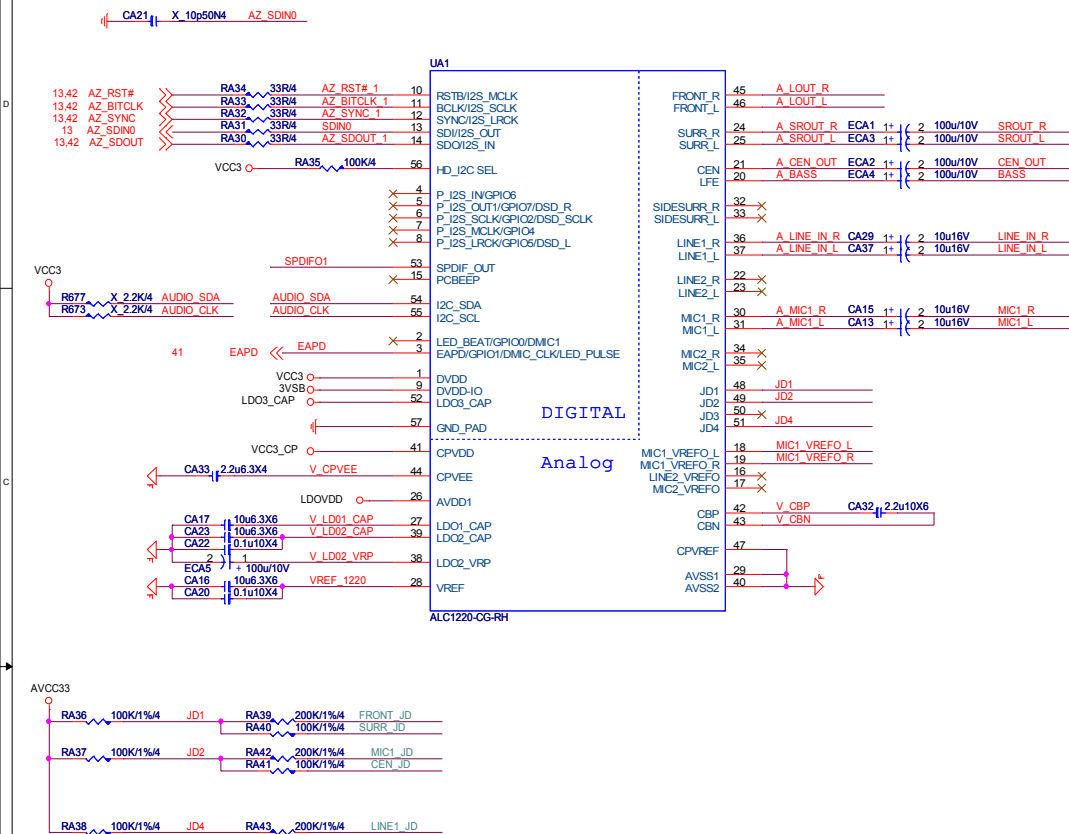


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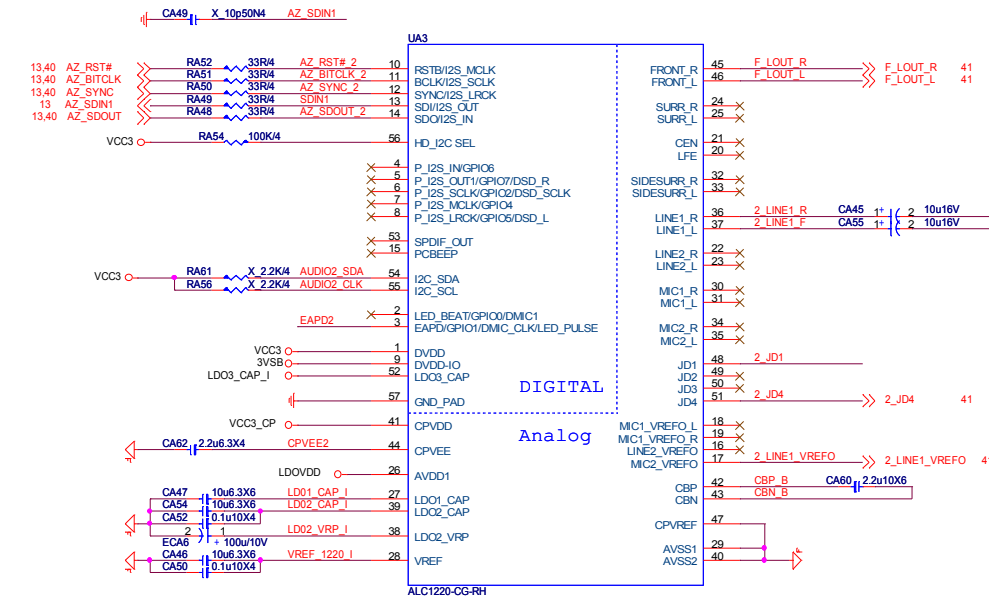




ALC1220

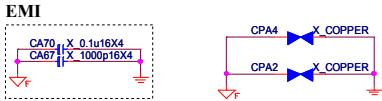
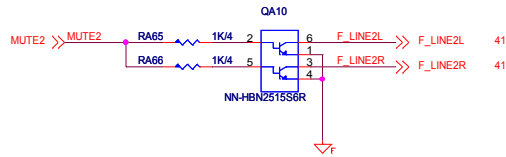
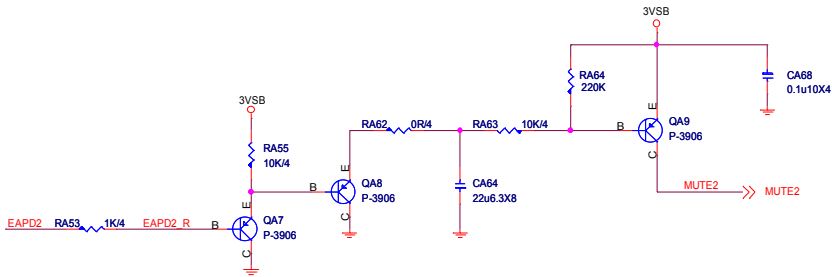



ALC1220



ACL1220 Version		
	A0/A1	A2
RA60	○	×
RA57	○	×
RA58	○	×

Front Header De-POP circuit
(De-pop circuit for Front Headphone)





MICRO-STAR INT'L CO.,LTD

MS-7A57

Size Custom

Document Description

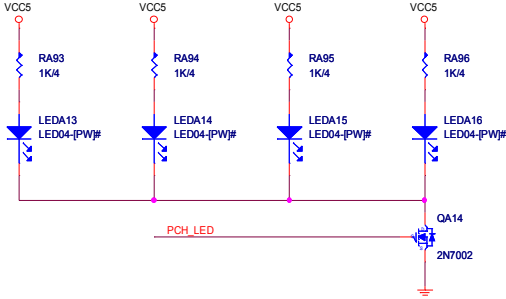
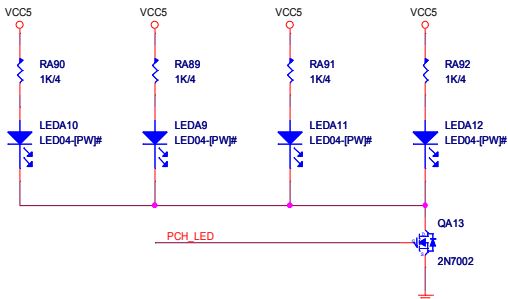
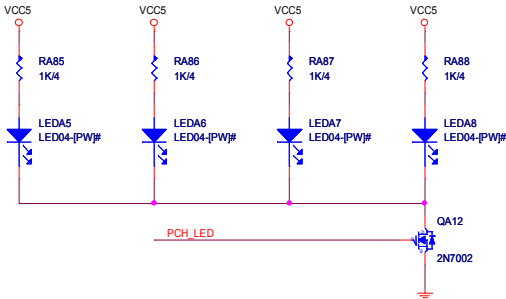
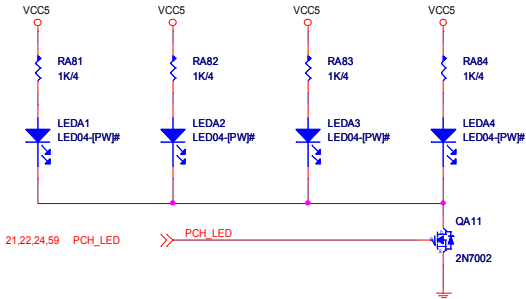
Rev 10

Audio-ALC1220-B1

Date: Monday, November 07, 2016

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Audio moat is transparent and width 40mil

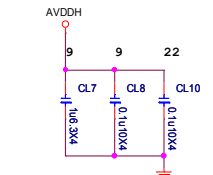
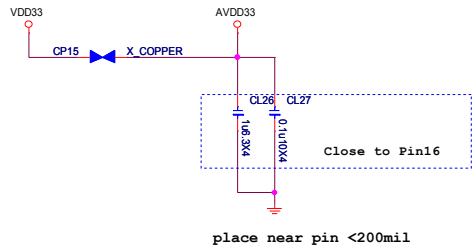
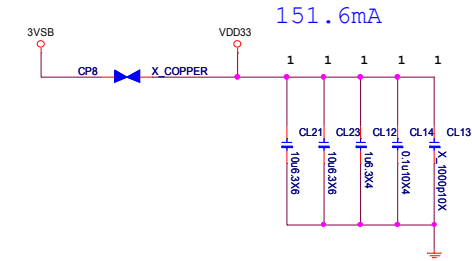


MICRO-STAR INT'L CO.,LTD

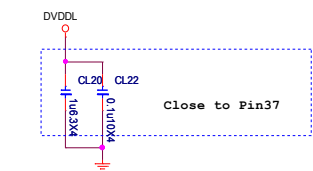
MS-7A57

Size Custom	Document Description AUDIO-LED	Rev 10
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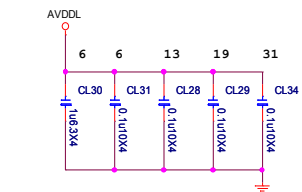
E2500 GIGA LAN



place near pin <200mil



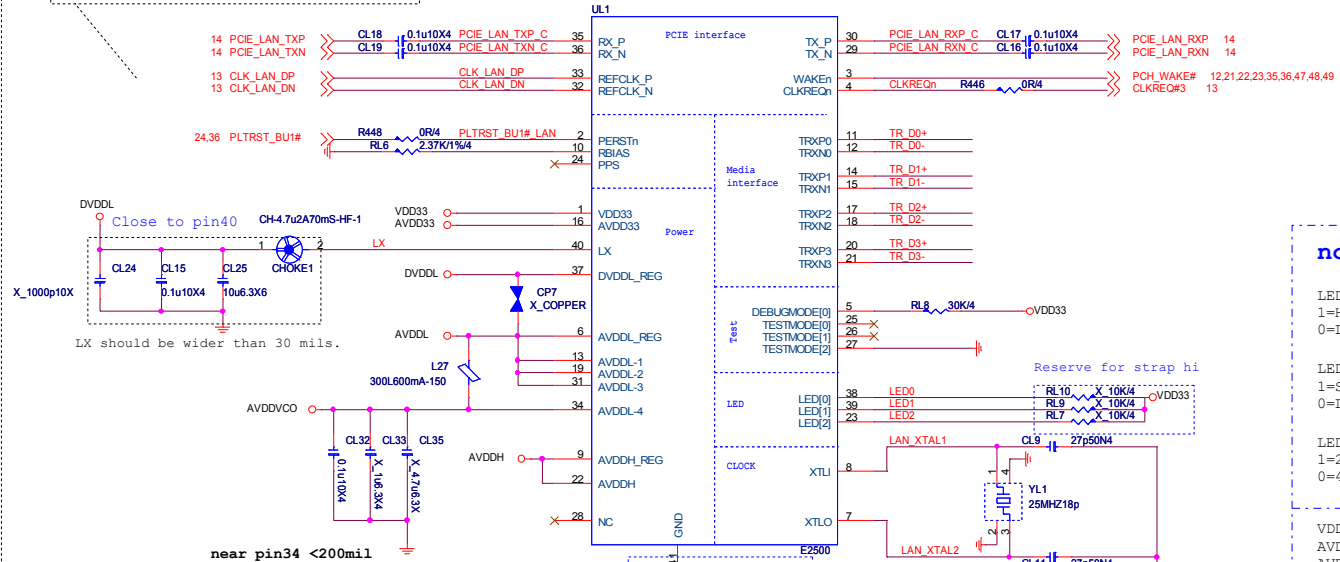
place near pin <200mil



place near pin <200mil

PIN2:
AMD platform connect to PCIE_RST#,
don't connect to A-RST#.
INTEL platform connect to PLT_RST#,

E2400:B06-E24000C-R54
E2500:B06-E25000C-R54



note:

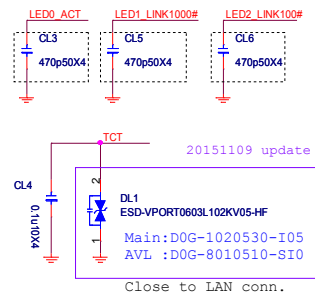
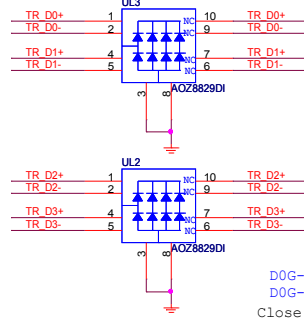
LED0:
1=High core voltage
0=Low core voltage

LED1:
1=SWR mode
0=LDO mode

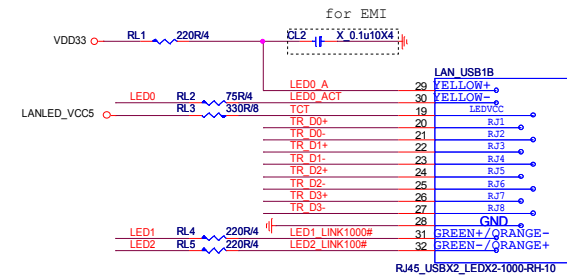
LED2:
1=25MHz clock
0=48MHz clock

VDD33 >= 30mils;
AVDD33 >= 30mils;
AVDDH >= 20mils;
AVDDL >= 20mils;
DVDDL >= 20mils;
Pin LX to L1 >= 30mils.

EMC



LED ON/OFF by SIO



LED1 low is Orange 1000
LED2 low is Green 100

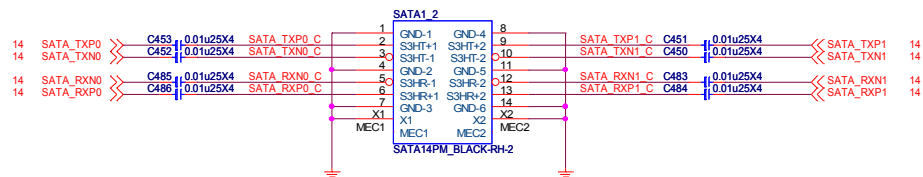


MICRO-STAR INT'L CO.,LTD

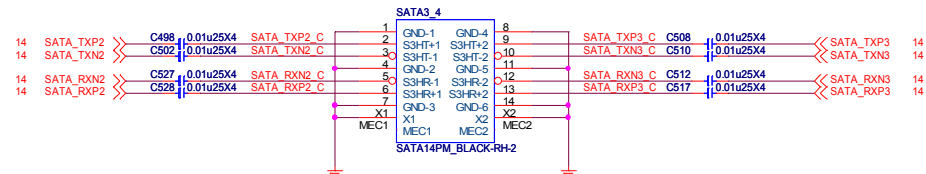
MS-7A57

Size	Document Description	Rev
Custom	LAN-Killer-E2400	10
Date: Monday, November 07, 2016	Sheet 44 of 83	

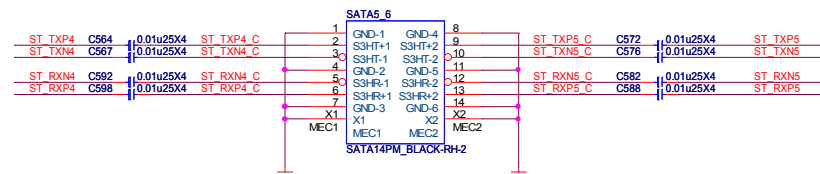
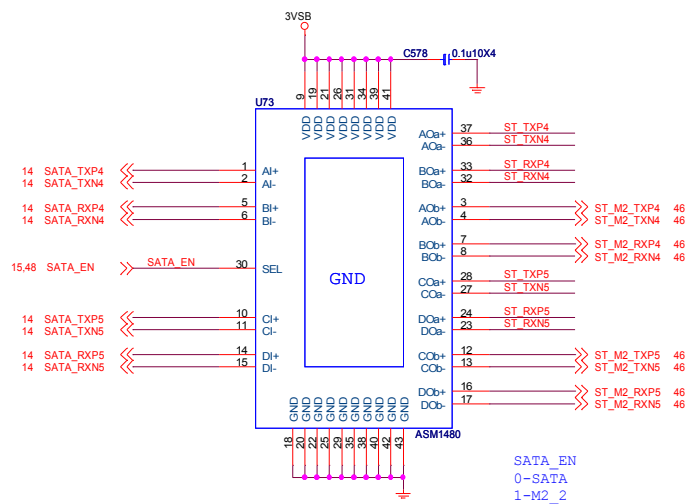
SATA 6G PORT 0.1



SATA 6G PORT 2.3



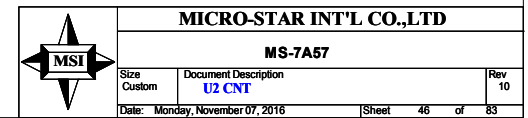
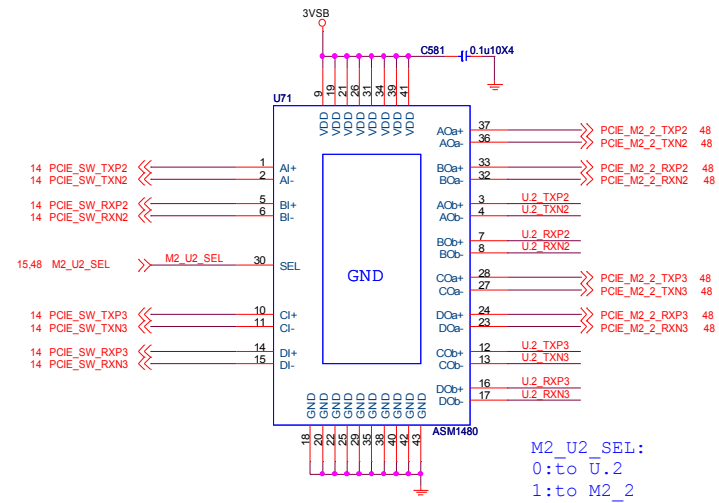
SATA 6G PORT 4.5

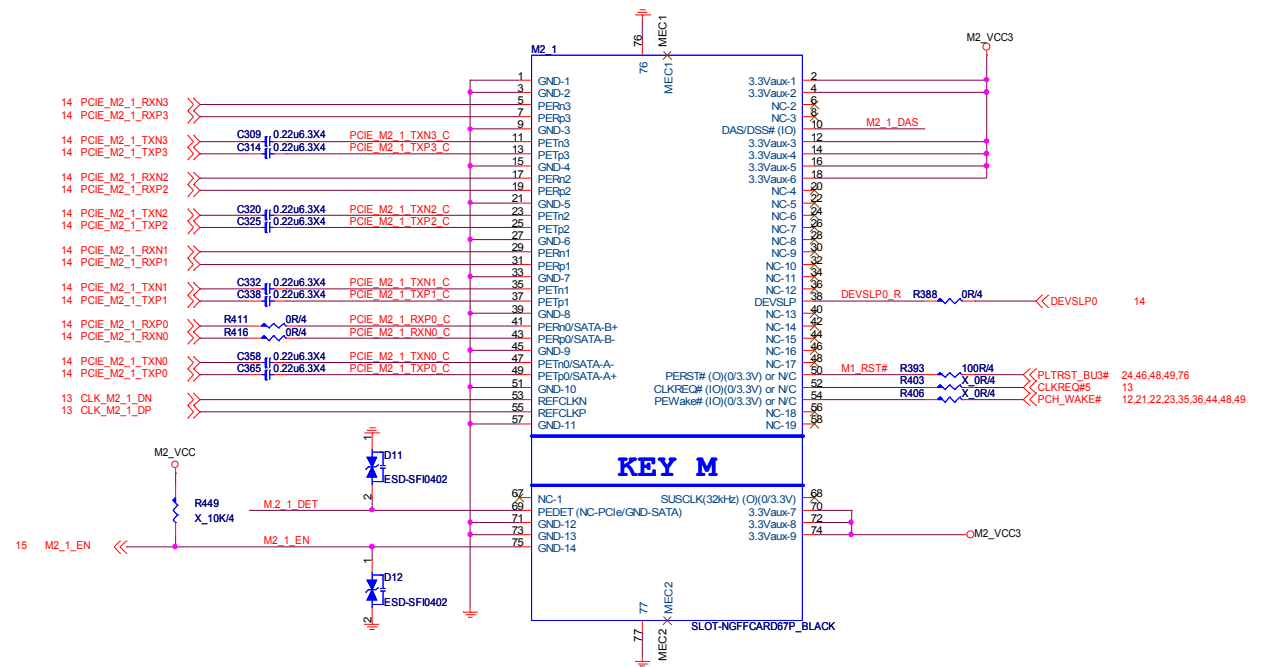


MICRO-STAR INT'L CO.,LTD

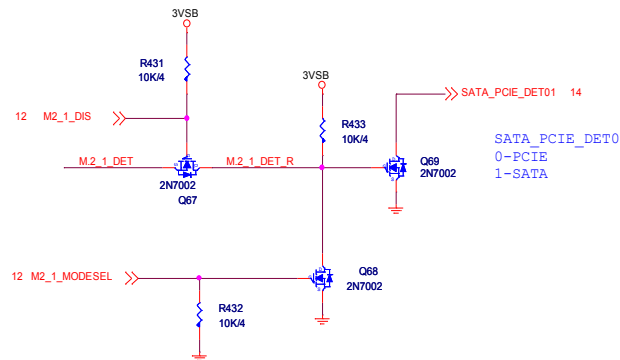
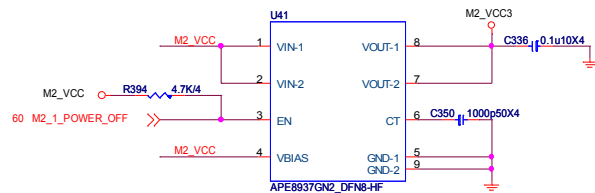
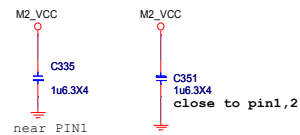
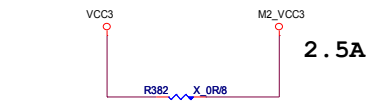
MS-7A57

Size Custom	Document Description SATA CNT	Rev 10
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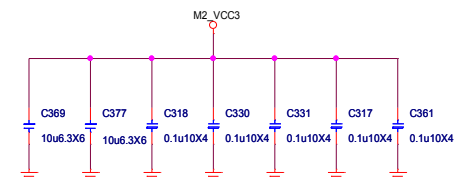
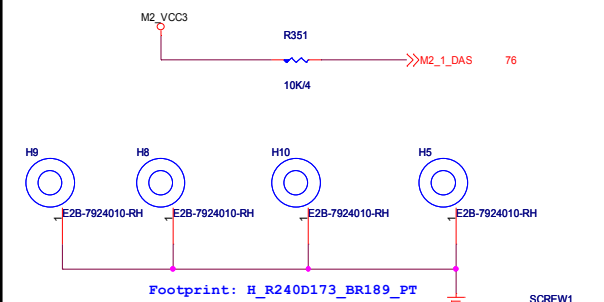




M2 cut power



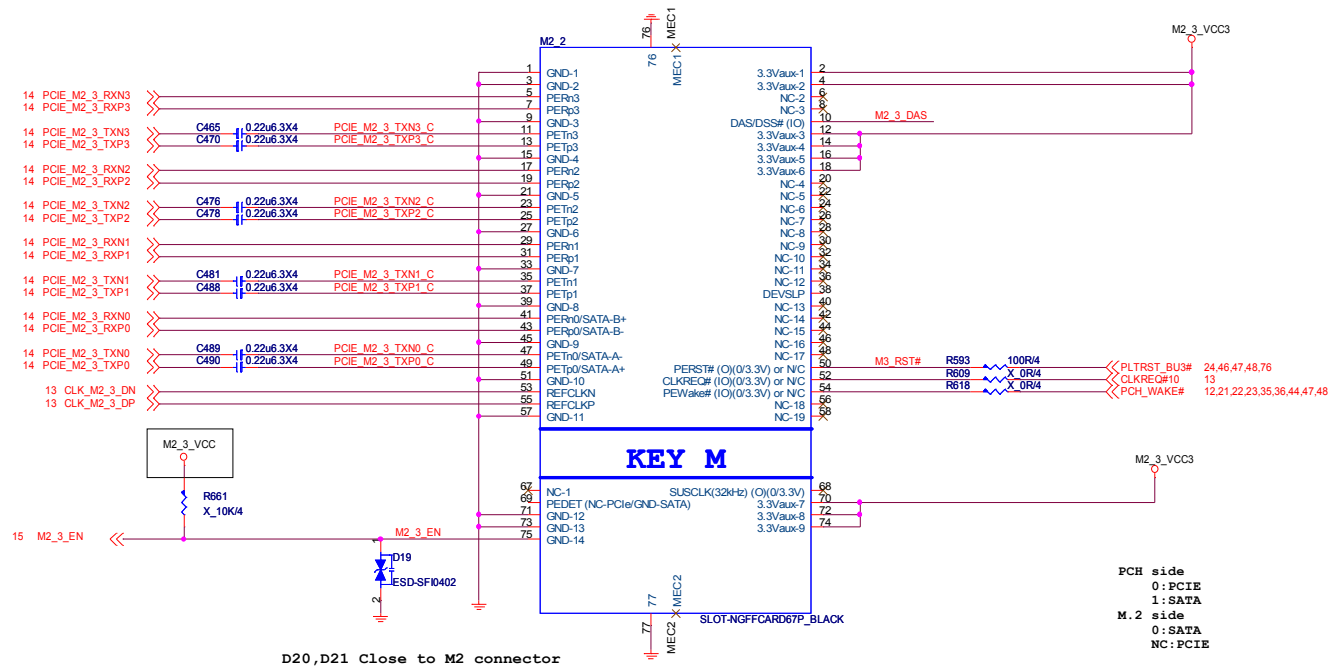
BIOS <u>MODE</u>		
M2_1_DIS	M2_1_MODESEL	Mode
0	1	M2-SATA
0	0	M2-PCIE
GPI	GPI	AUTO



MICRO-STAR INT'L CO.,LTD

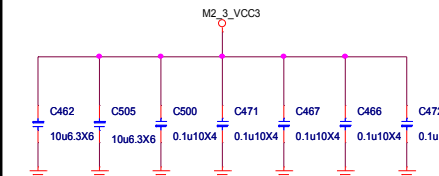
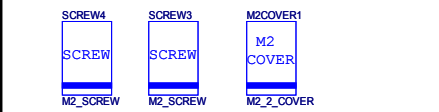
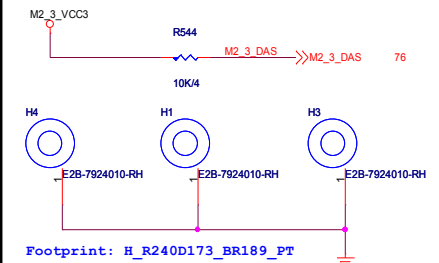
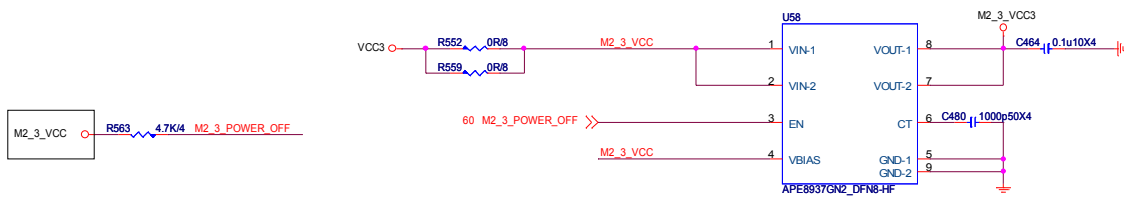
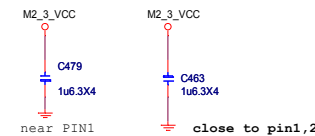
MS-7A57

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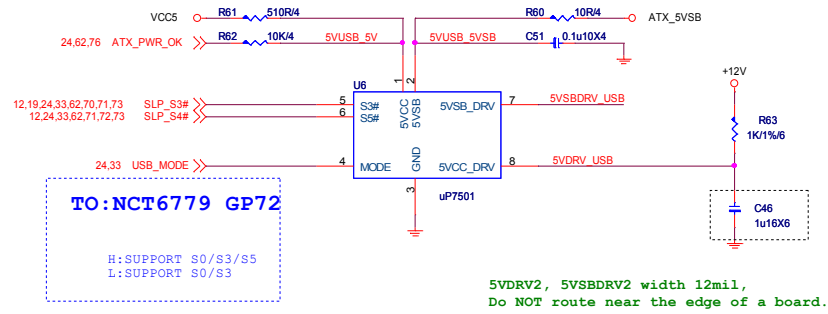


M2 cut power

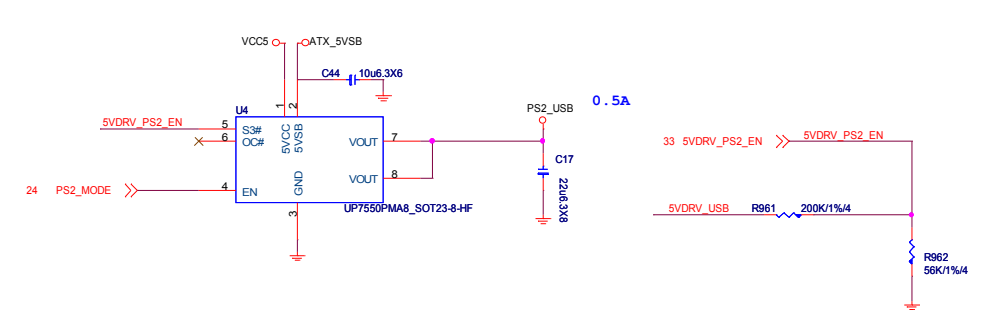
VCC3 — R530 — X_0R/8 — M2_3_VCC3 **2.5A**



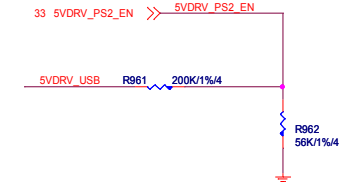
USB POWER



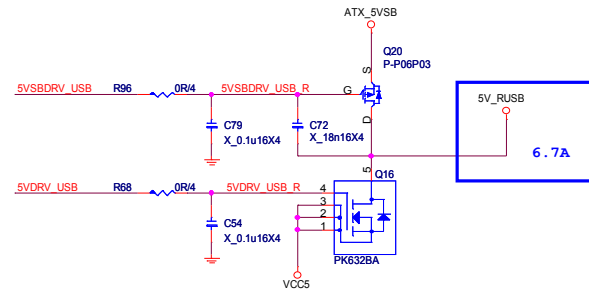
PS2 POWER



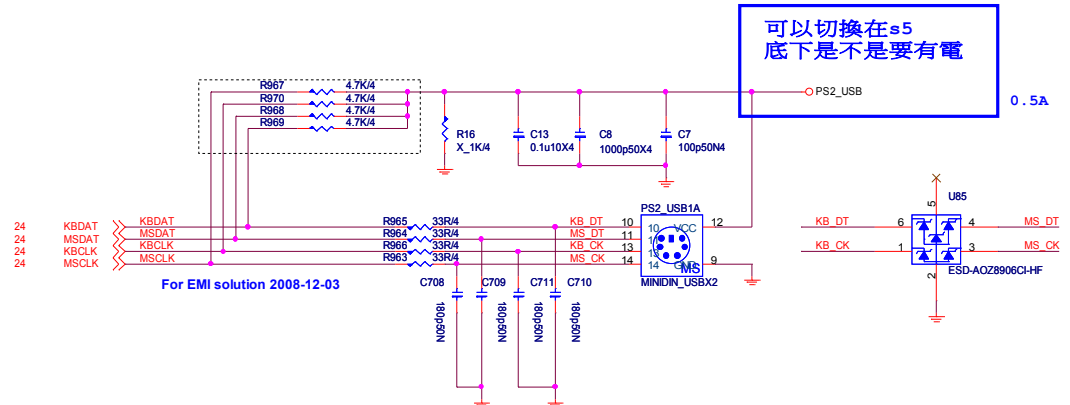
USB MODE



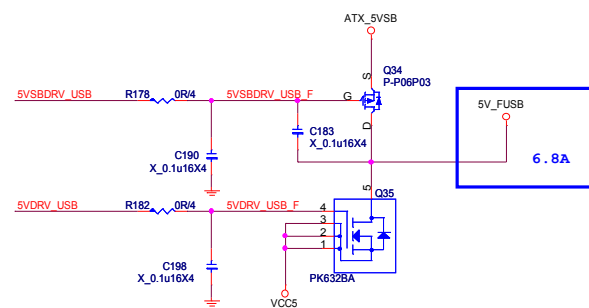
REAR USB PORT POWER



PS2 KEYBOARD & MOUSE CONNECTOR

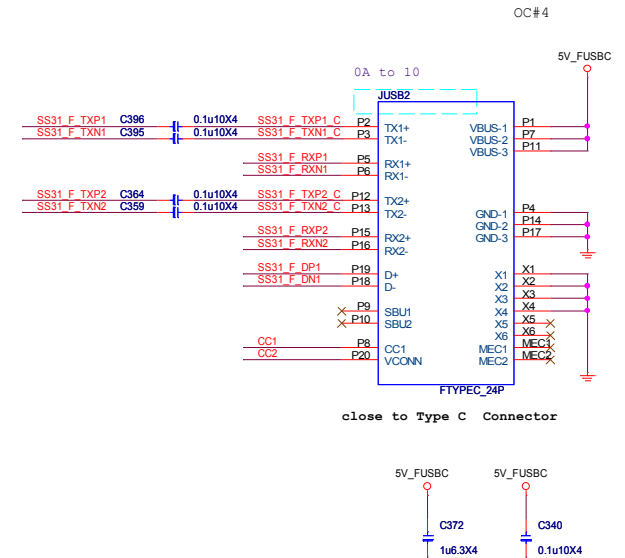
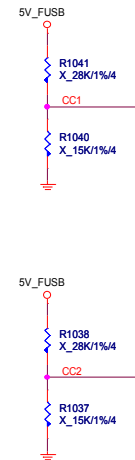
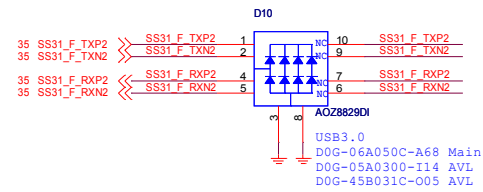
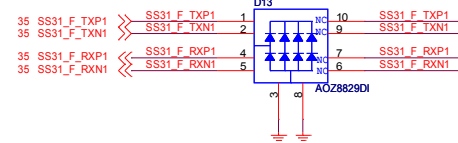


FRONT USB PORT POWER

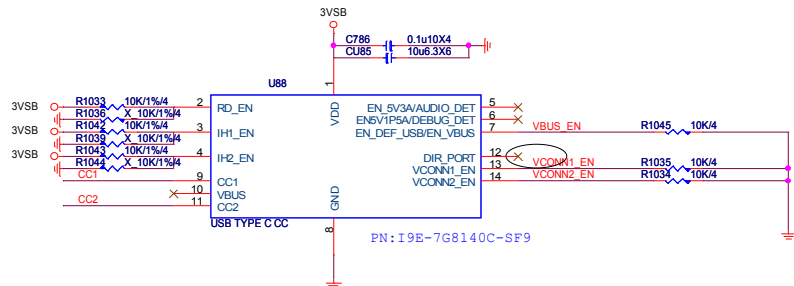


Front TYPE-C

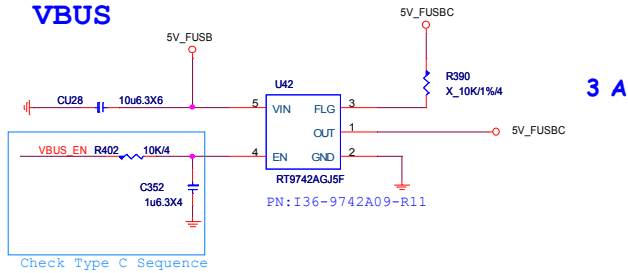
ESD Protection
NEAR CONNECTOR



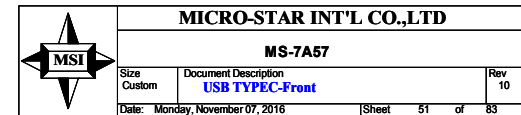
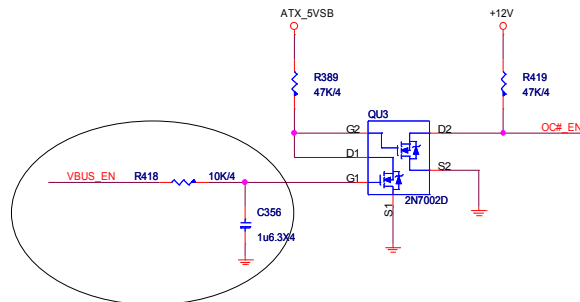
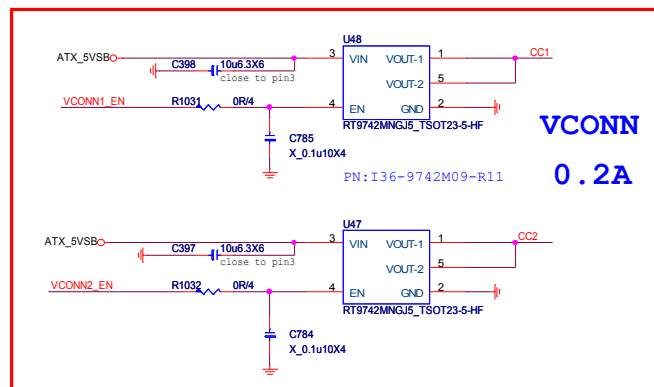
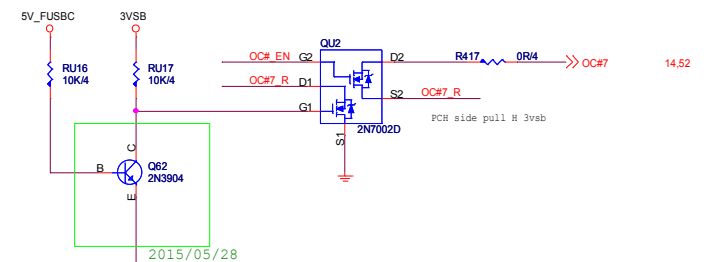
CC Logic CTRL -SLG7G814V



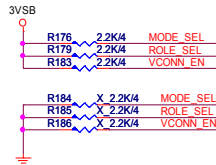
VBUS



USB OC# Singal



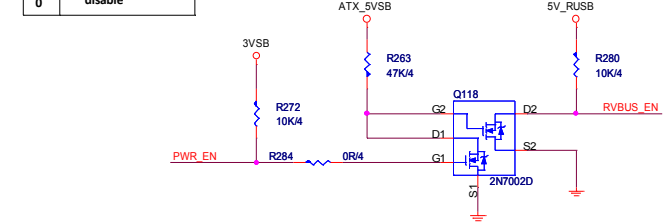
ASM1543



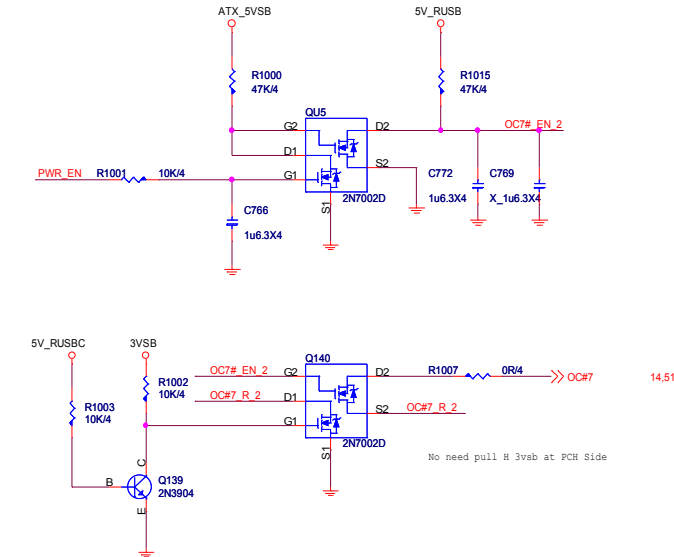
MODE_SEL	
1	CCL MODE (default)
0	Mux MODE

ROLE_SEL	
1	DFP role (default)
0	UFP role

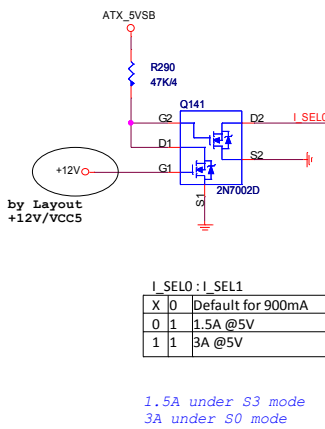
VCONN_EN	
1	enable
0	disable



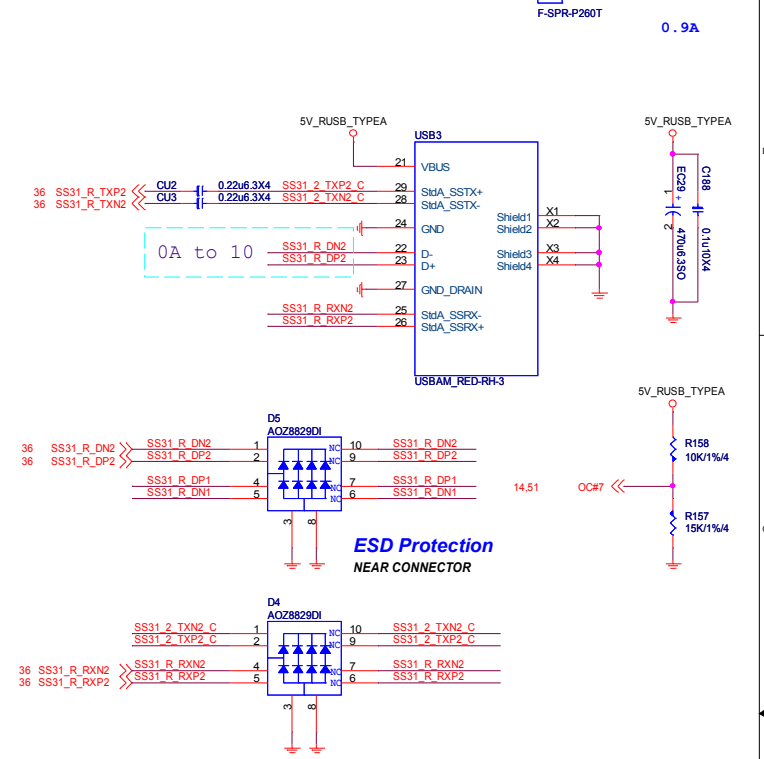
VBUS OC#



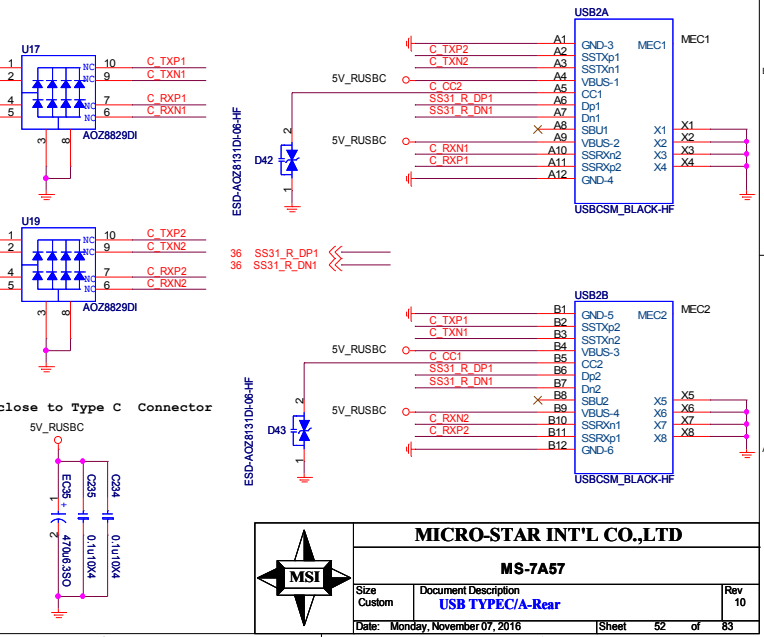
Current Mode



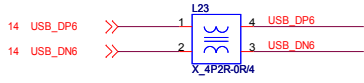
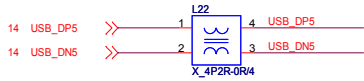
TYPE-A



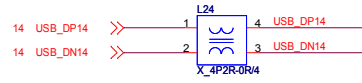
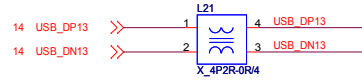
TYPE-C



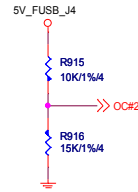
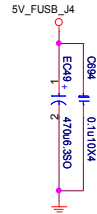
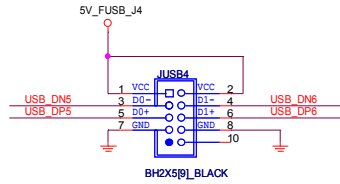
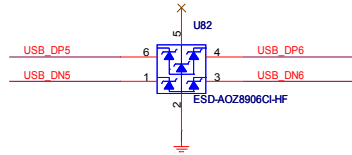
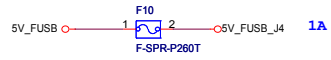
FRONT USB PORT 5,6



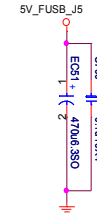
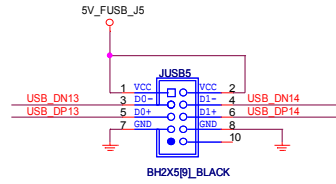
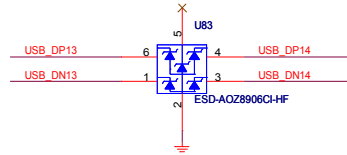
0R:R3C-0000012-W08



0R:R3C-0000012-W08



14



14

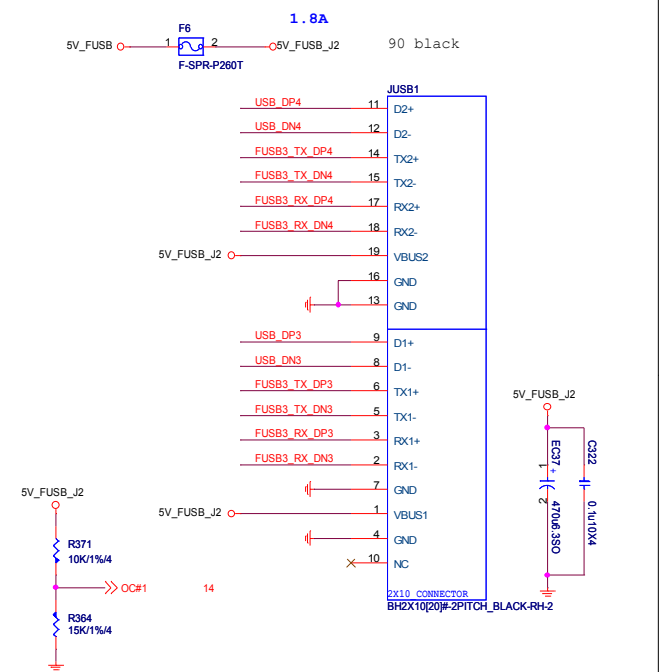
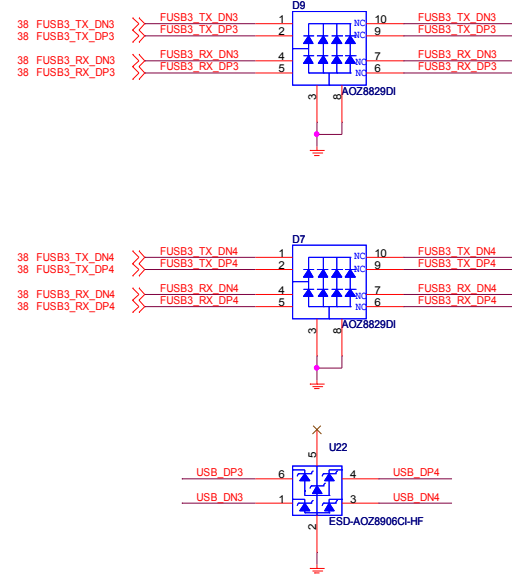
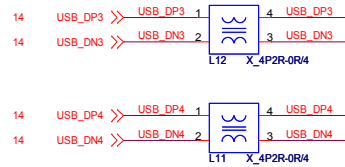


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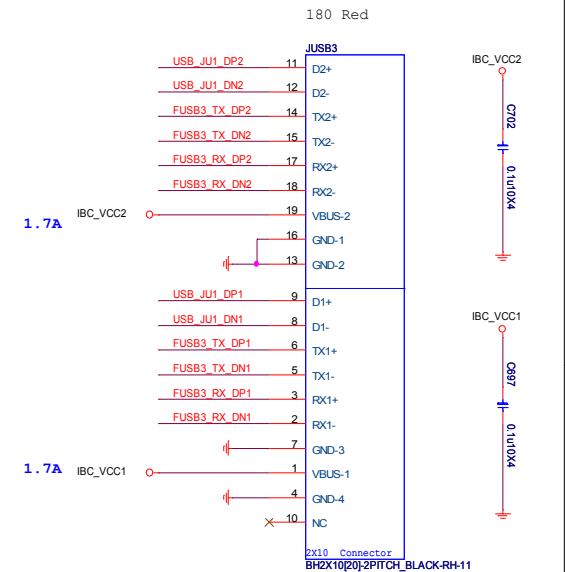
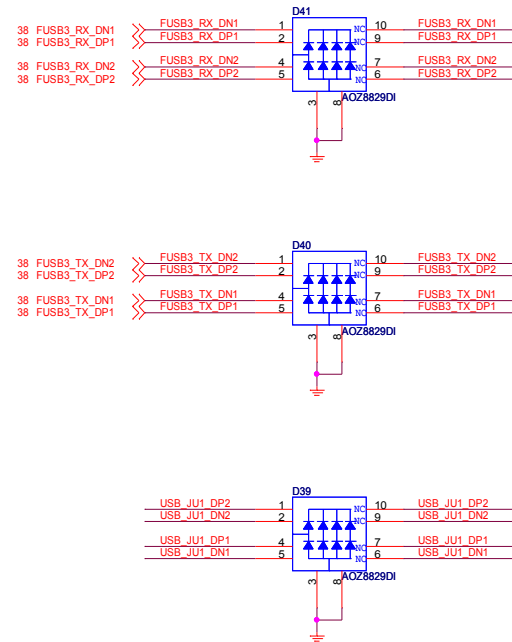
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FUSB3 90°

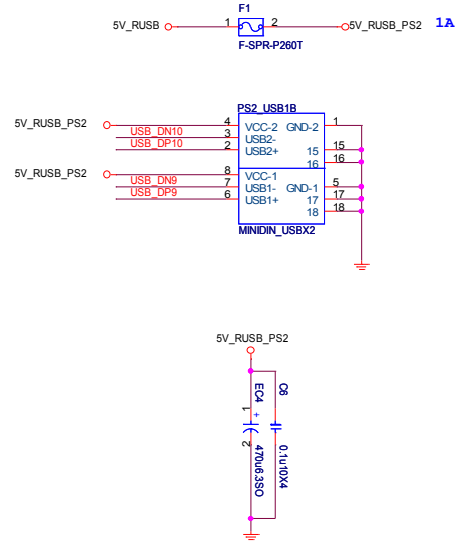
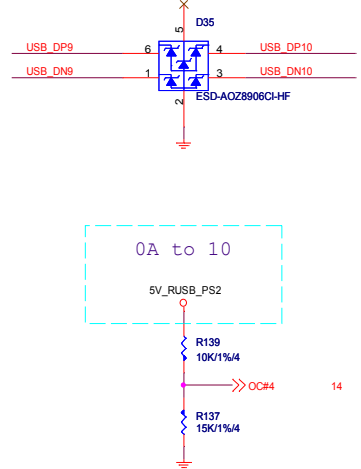
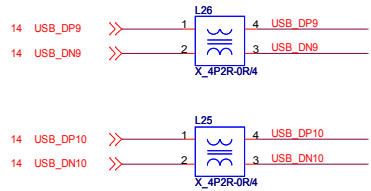
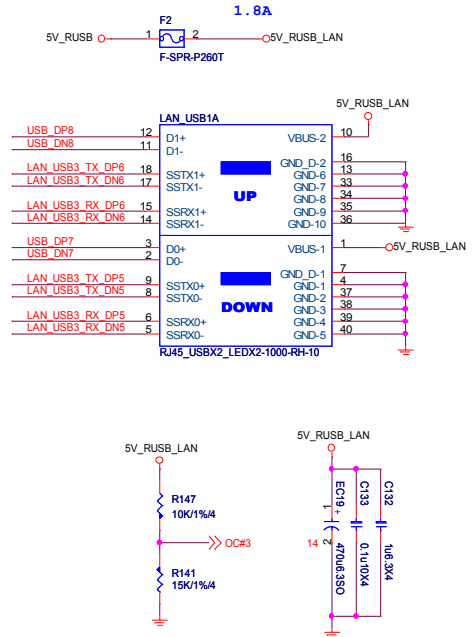
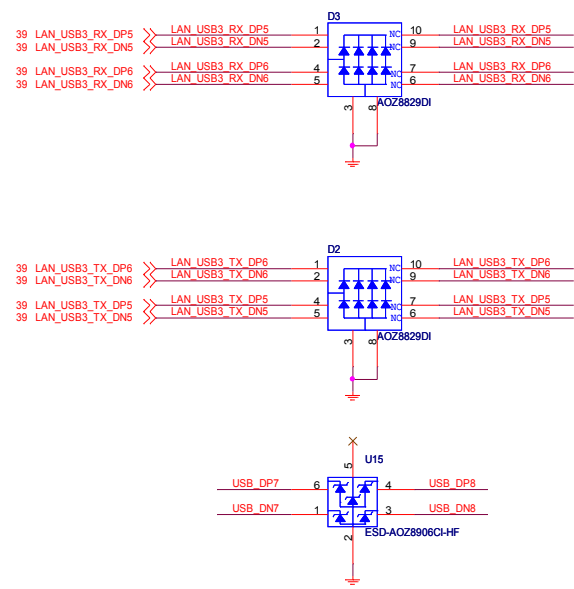
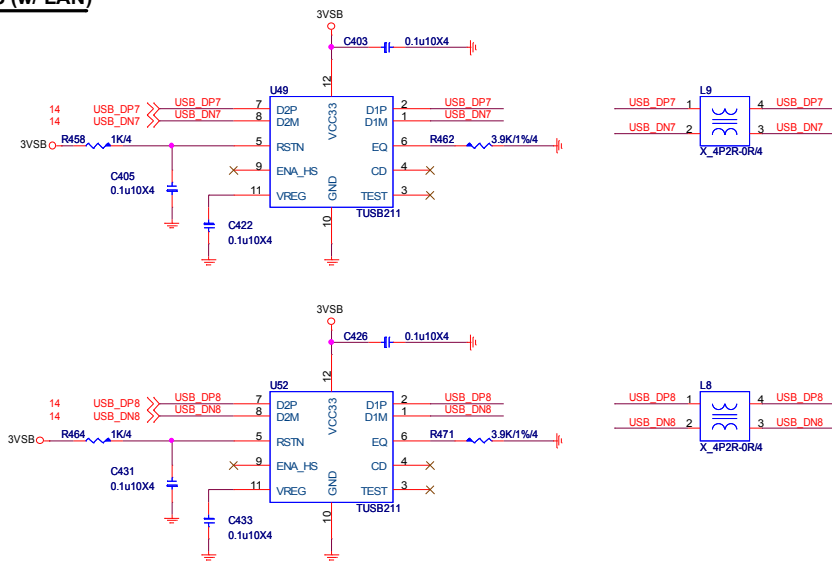


FUSB3 180°

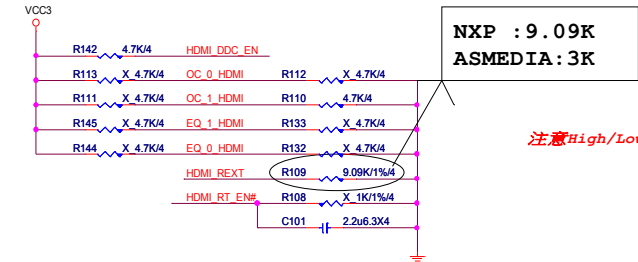
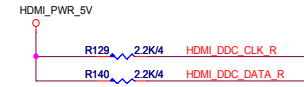
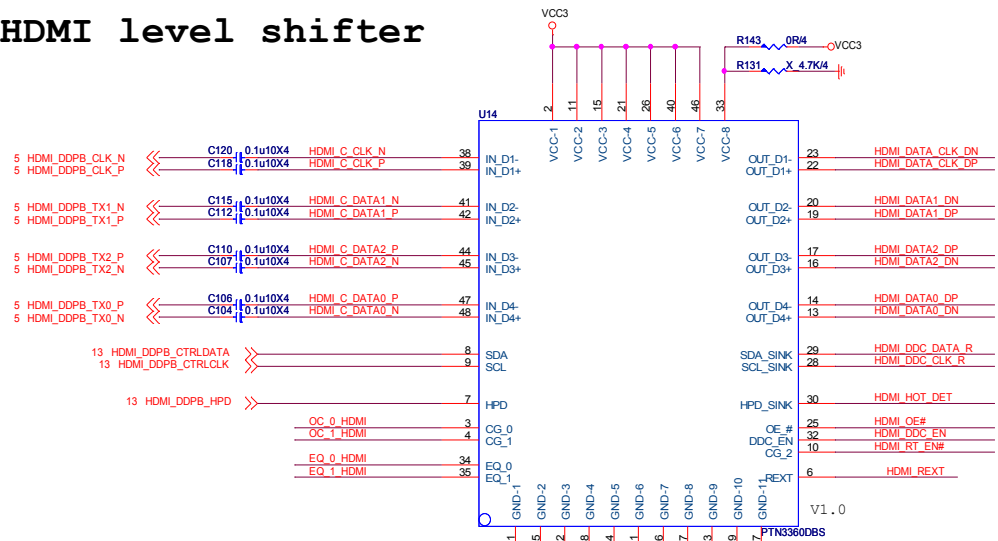


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Rear USB3 (w/ LAN)

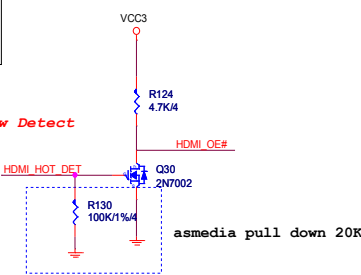


HDMI level shifter



NXP : 9.09K
ASMEDIA: 3K

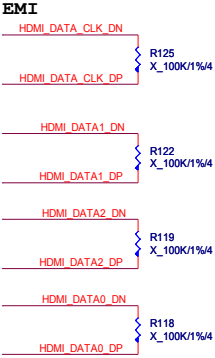
注意High/Low Detect



	"0"	"1"
DDC_EN	DDC level shifter disable	DDC level shifter enable
RT_EN#	Input 50 ohm termination resistor enable	the input termination ; resistors are set to high impedances
OE#	enable	the chip is power down and input termination resistors will be at high impedance.
HPD_SINK	disable	enable
DDCBUF_EN	For DDC level shifting configuration, please refer to Table.	
REXT		

[DDC_EN, DDCBUF_EN, OE#]	DDC Passive Switch	DDC Active Buffer
1, 0, X	On	Off
1, 1, 0	Off	On
1, 1, 1	Off	Off
0, X, X	Off	Off

PC1, PC0		note
00	8 dB	internal pull-down at ~500K ohm.
01	4 dB	
10	12 dB	
11	0 dB	



EMI cap.

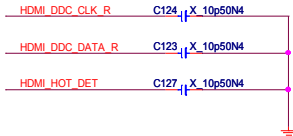
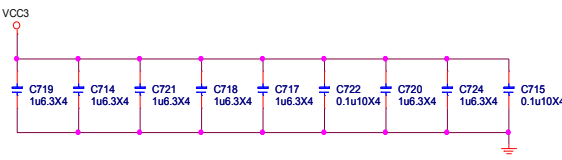
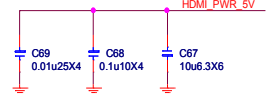
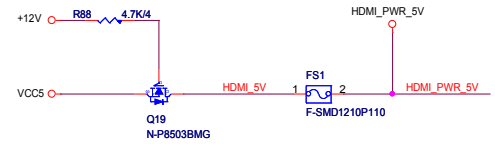
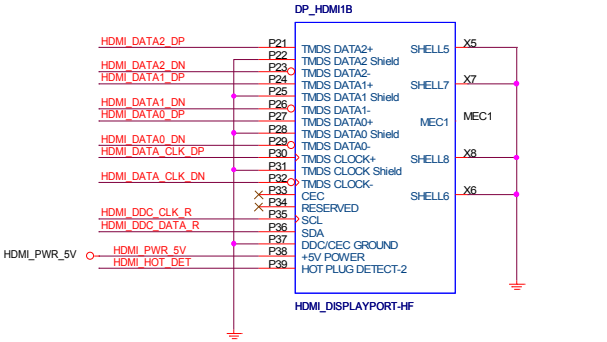


Table 8-1. PCH PCI Express Tx/RX - HDMI Signal Mappings

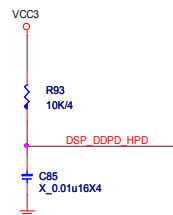
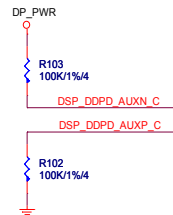
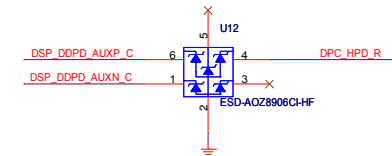
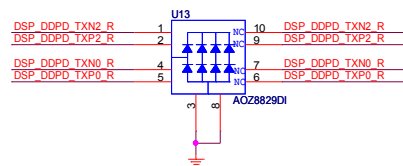
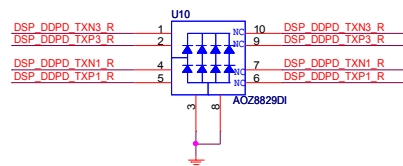
Port	Digital Display Interface Differential Pairs	HDMI Signals	PCH Digital Display Interface Pins
Port B	DDSP_B_TX0_DN	TMDSB_DATA2#	DDPB_ON
	DDSP_B_TX0_DP	TMDSB_DATA2	DDPB_OP
	DDSP_B_TX1_DN	TMDSB_DATA1#	DDPB_1N
	DDSP_B_TX1_DP	TMDSB_DATA1	DDPB_1P
	DDSP_B_TX2_DN	TMDSB_DATA0#	DDPB_2N
	DDSP_B_TX2_DP	TMDSB_DATA0	DDPB_2P
	DDSP_B_TX3_DN	TMDSB_CLK#	DDPB_3N
	DDSP_B_TX3_DP	TMDSB_CLK	DDPB_3P
	DDPB_HPD	DDSP_B_HPD0	Hot plug detect used by HDMI Port B.
	SDVO_CTRLCLK	HDMI_B_CTRL_CLK	HDMI DDC lines for Port B
	SDVO_CTRLDATA	HDMI_B_CTRL_DATA	



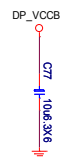
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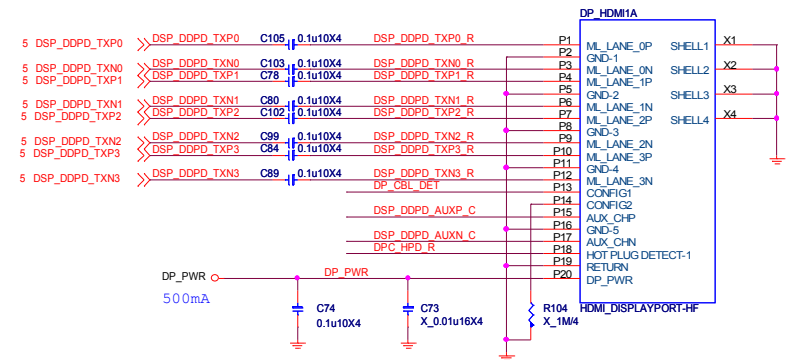
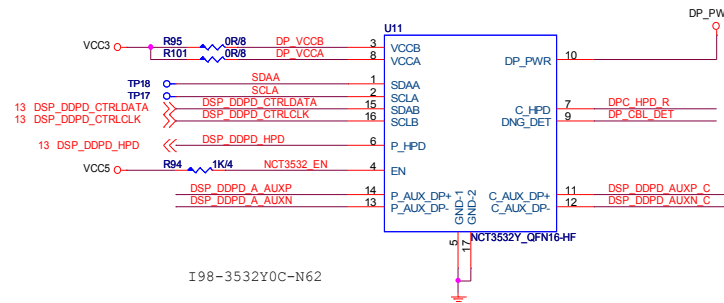
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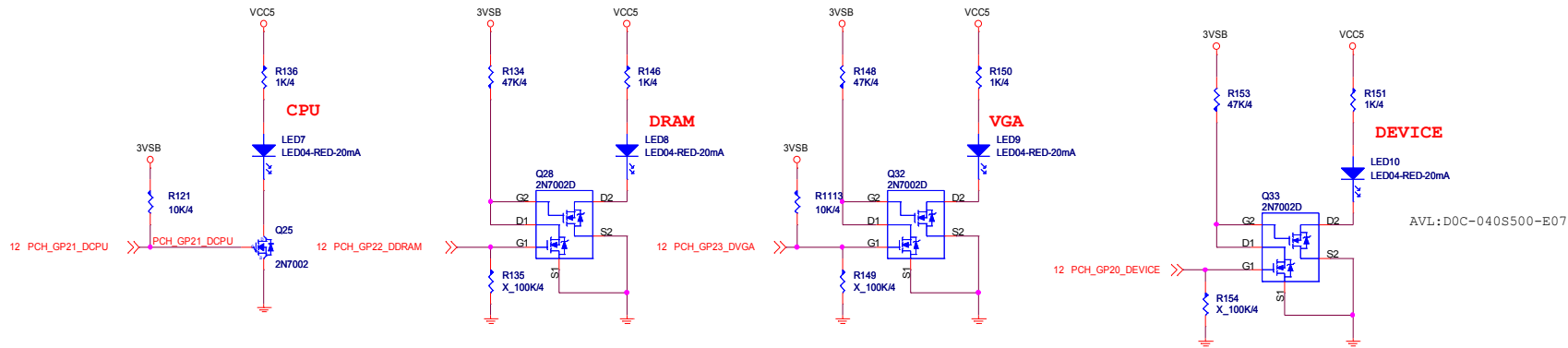


5 DSP_DDPD_AUXP >> DSP_DDPD_AUXP C90 0.1u10X4 DSP_DDPD_A_AUXP
5 DSP_DDPD_AUXN >> DSP_DDPD_AUXN C91 0.1u10X4 DSP_DDPD_A_AUXN



DP_VCCB trace don't less than 30 mil



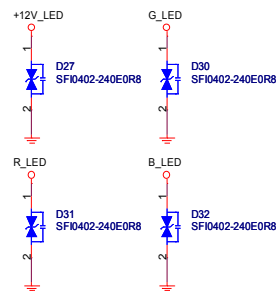
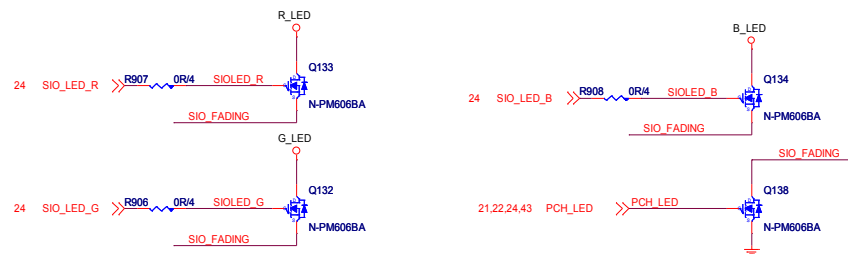
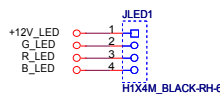
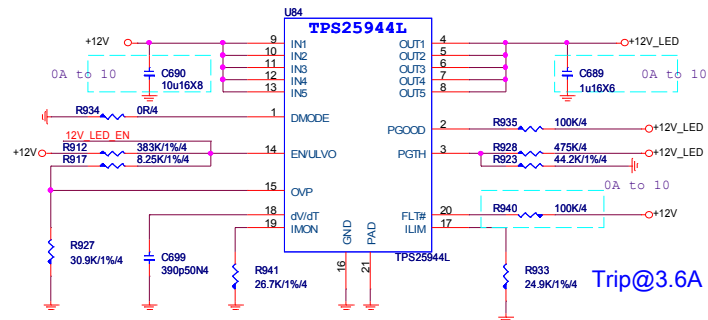


關機斷電狀態下，4個LED先維持default全暗，開機通電後：

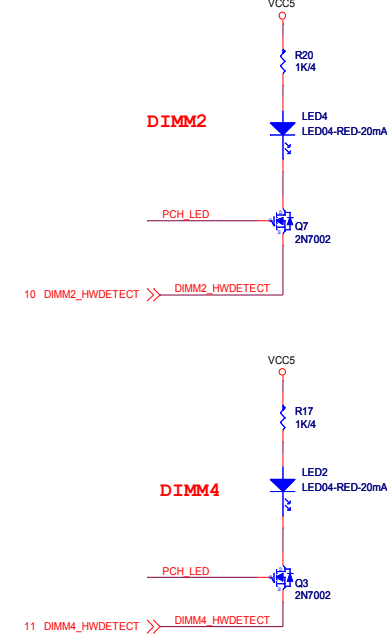
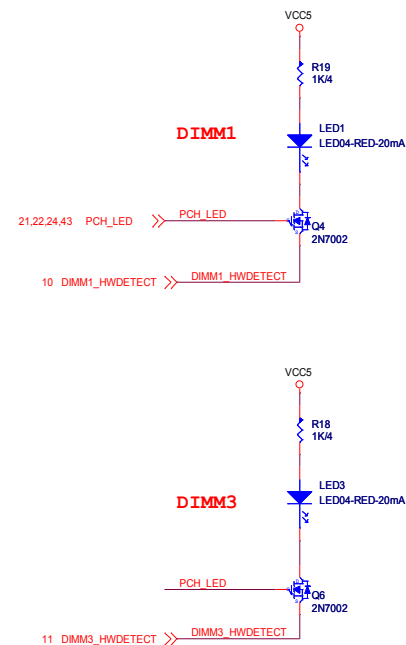
- 1.首先進行CPU check CPU LED 亮，check PASS後則CPU LED減掉。
- 2.接著依序進行Memory /memory LED亮check PASS後則memory LED減掉。
- 3.VGA的check/VGA LED亮，check PASS後則VGA LED減掉。
- 4.因此最後正常順利開機後，三個LED燈都是減掉的。
(系統重啟或其他原因造成系統重開機，則LED仍按上述行為動作)

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

JLED

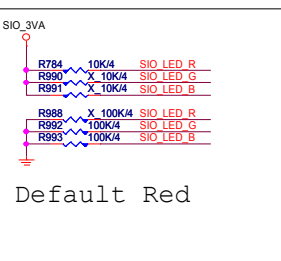


DIMM LED



PCH LED

MPOWER REMOVE



Default Red

MOS LED

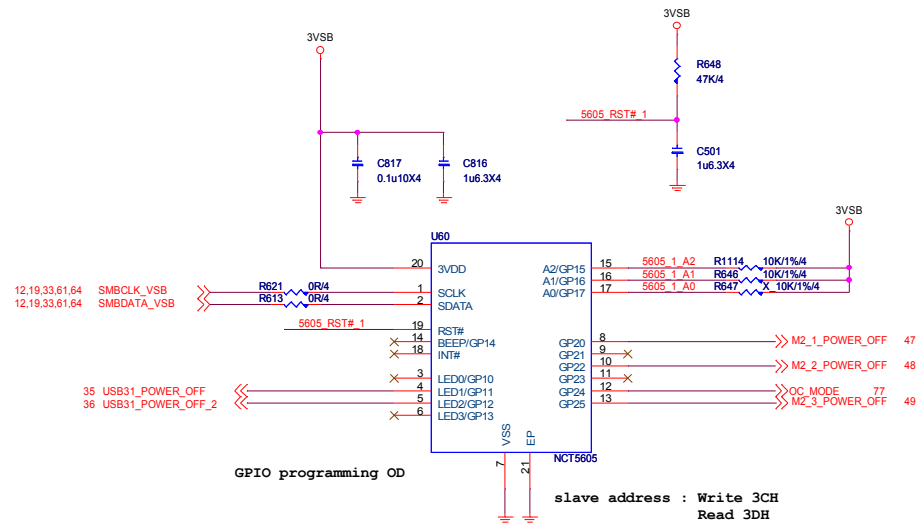
MPOWER REMOVE

AUDIO LED

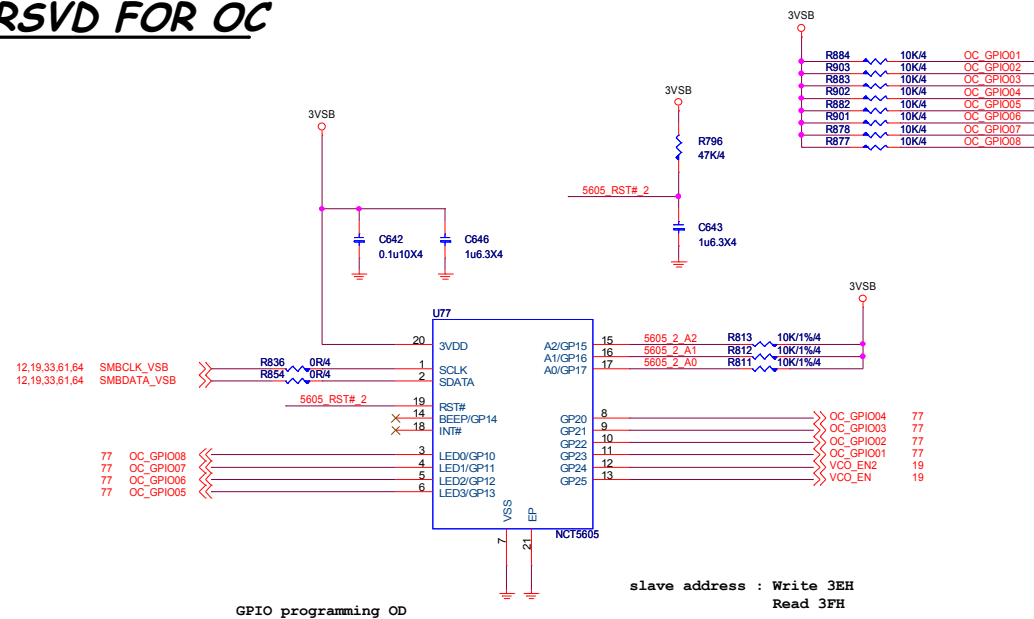
MPOWER REMOVE

MSI			
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CUT POWER



RSVD FOR OC



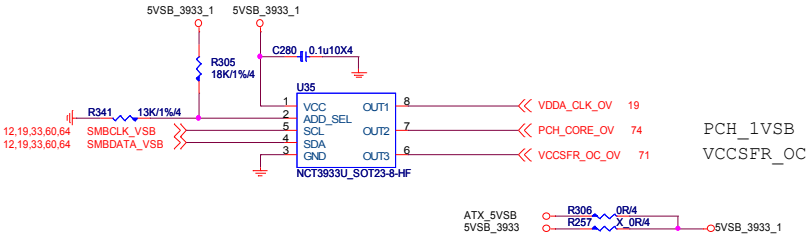
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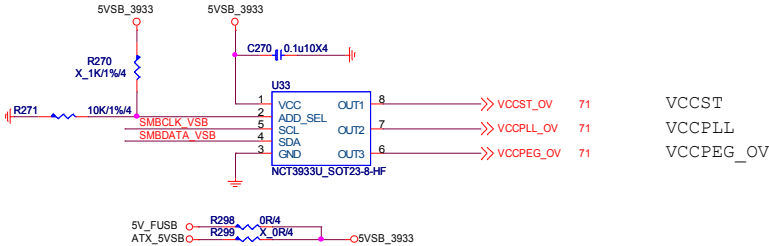
UPI VOLTAGE CONSOLE

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



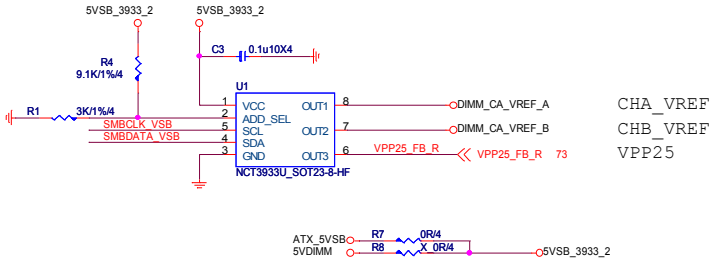
UPI VOLTAGE CONSOLE

0x2A: RH=9.1K, RL=3K



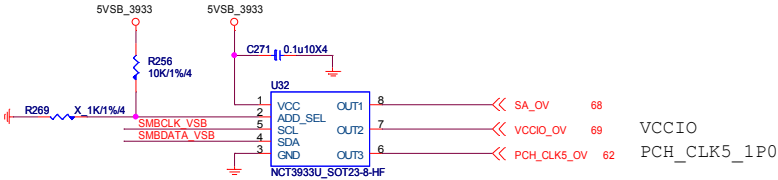
UPI VOLTAGE CONSOLE

0x28: RH=9.1K, RL=3K



UPI VOLTAGE CONSOLE

0x20: RH=18K, RL=13K



UPI VOLTAGE CONSOLE

0x20: RH=10K, RL=OPEN

ADDRESS	0x2A	0x28	0x26	0x24	0x22	0x20
RH (KOhm)	OPEN	3.9	3	2.2	1.3	10
RL (KOhm)	10	1.3	2.3	3	3.9	OPEN
BUS_SEL	0%	25%	40%	60%	75%	100%

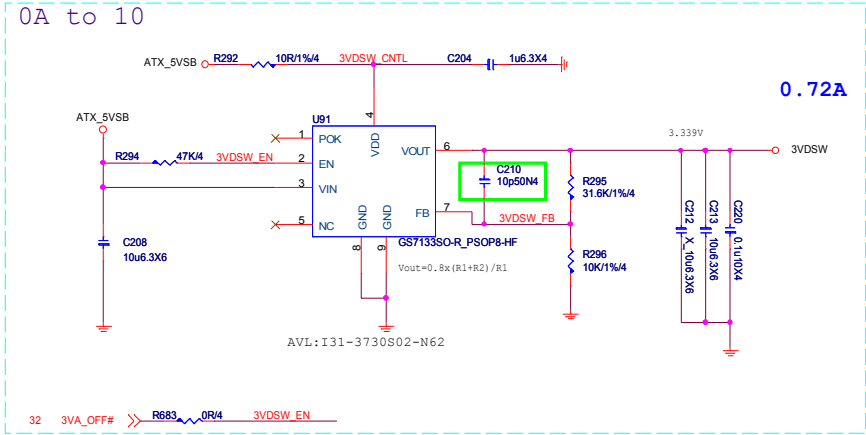


MICRO-STAR INT'L CO.,LTD

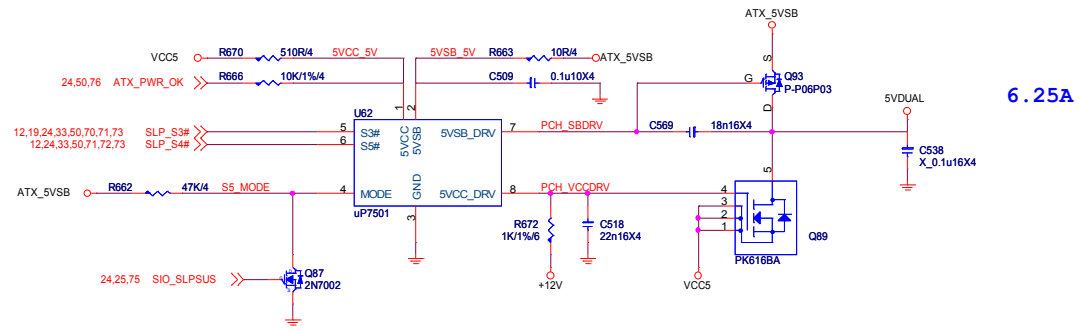
MS-7A57

Size	Document Description	Rev
Custom	OV-NCT3933/OV	10
Date:	Monday, November 07, 2016	Sheet 61 of 83

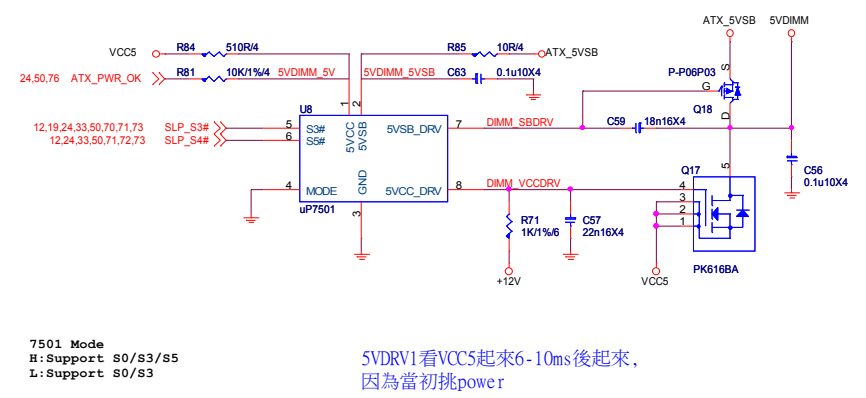
3VDSW



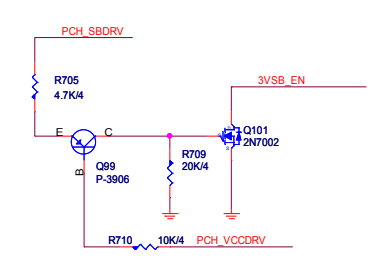
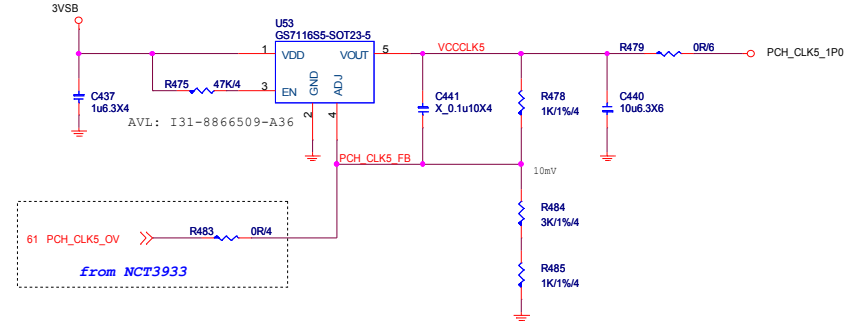
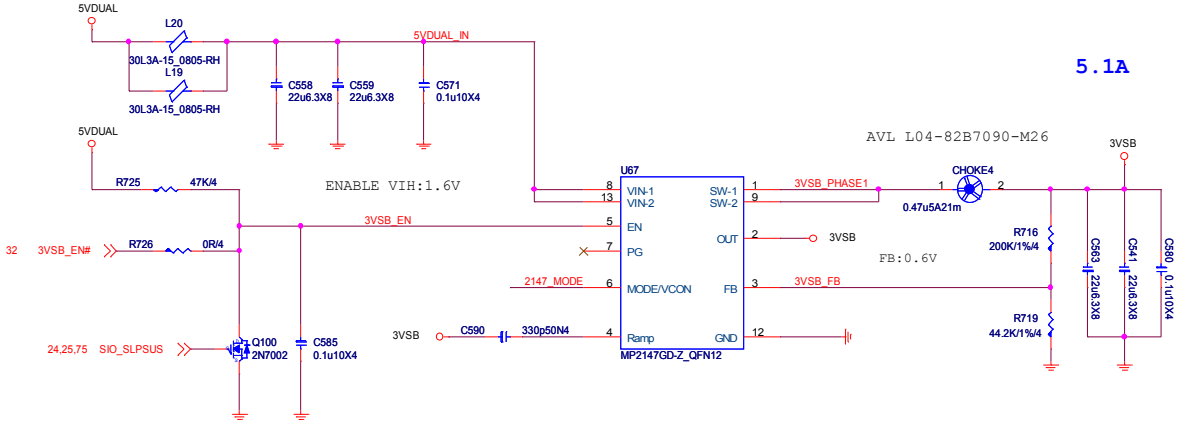
5VDUAL



5VDIMM FOR DDR

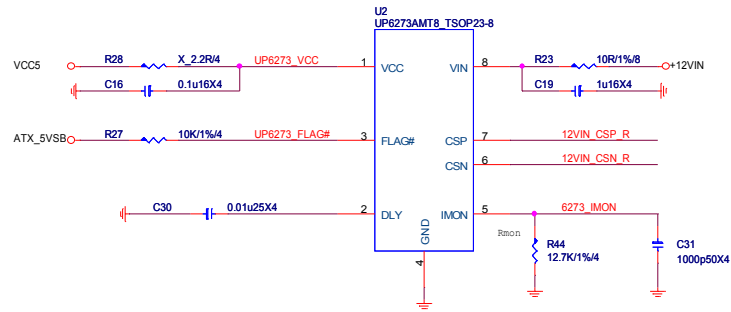


3VSB for OC & Gaming

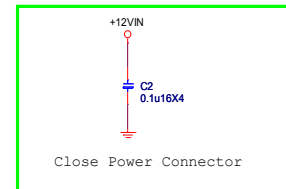
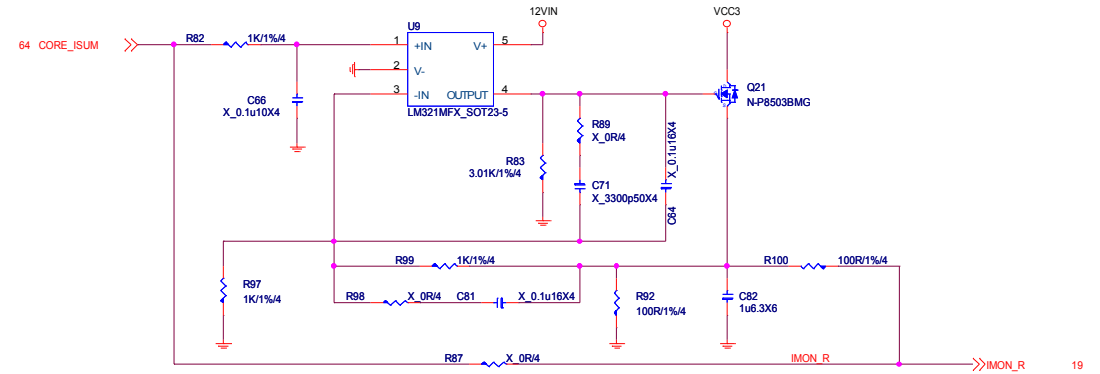
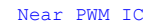
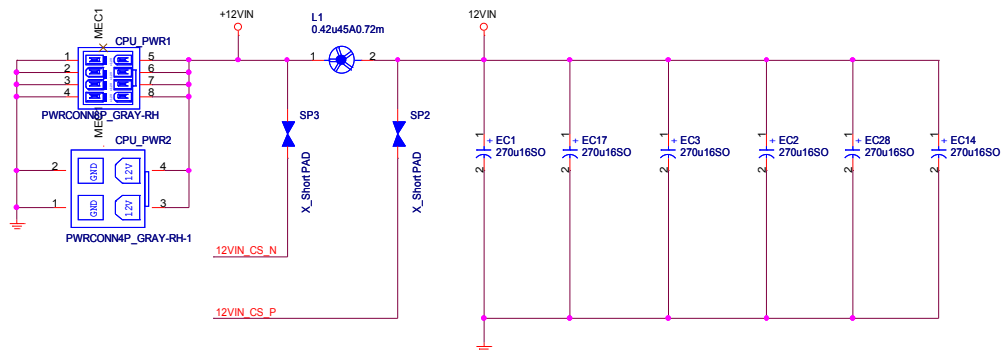
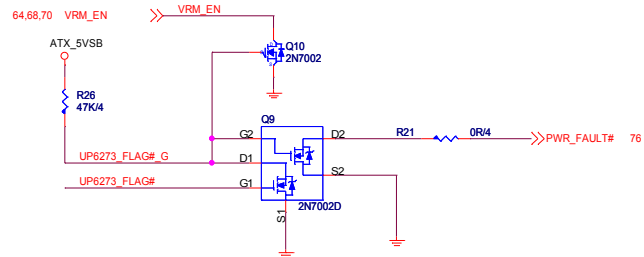
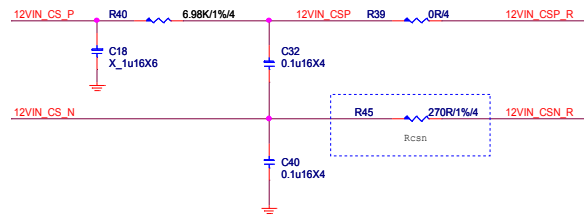


POWER METER

OCP: 35A



```
Iin=(Vmon*Rcsn) / (Rmon*Rdc)
Vmon=1.2
can change OCP trigger level by Rcsn and Rmon
```

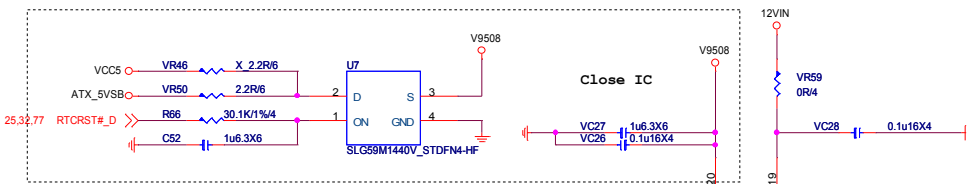


MICRO-STAR INT'L CO.,LTD

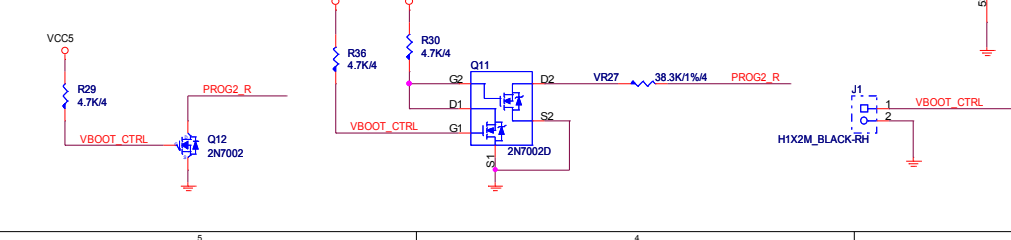
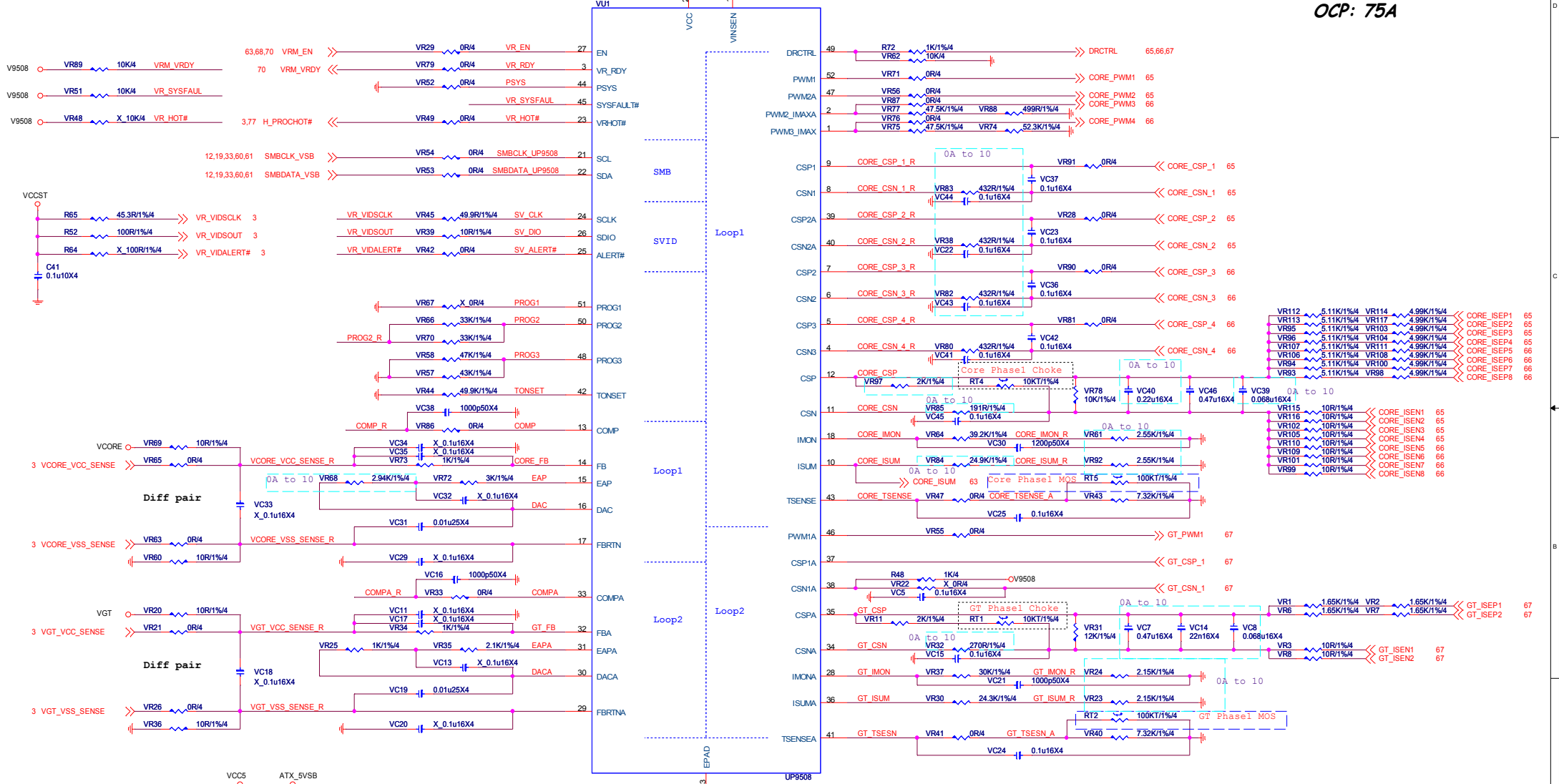
MS-7A57

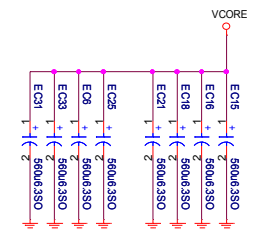
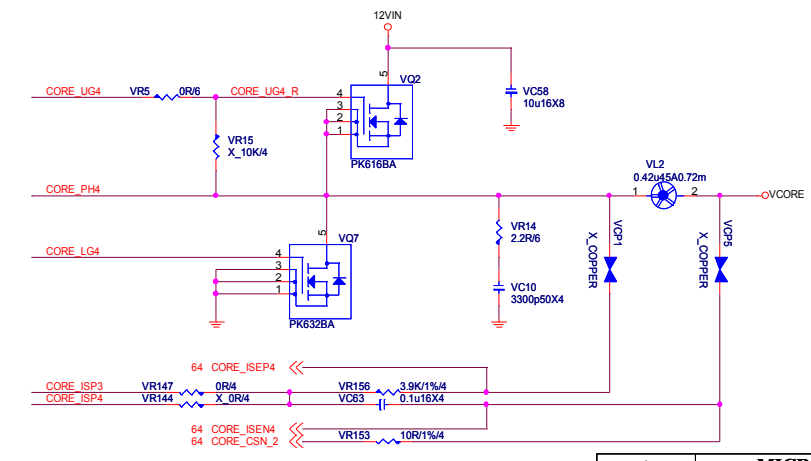
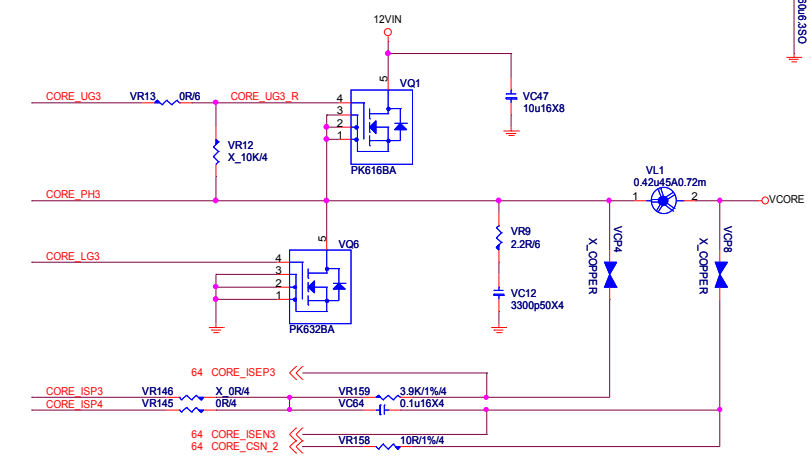
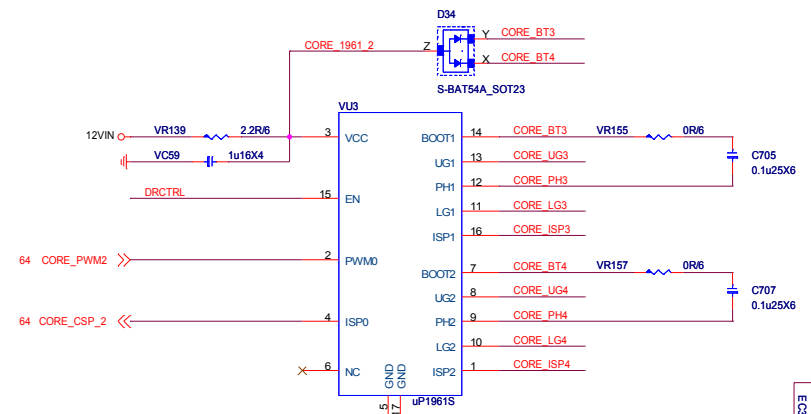
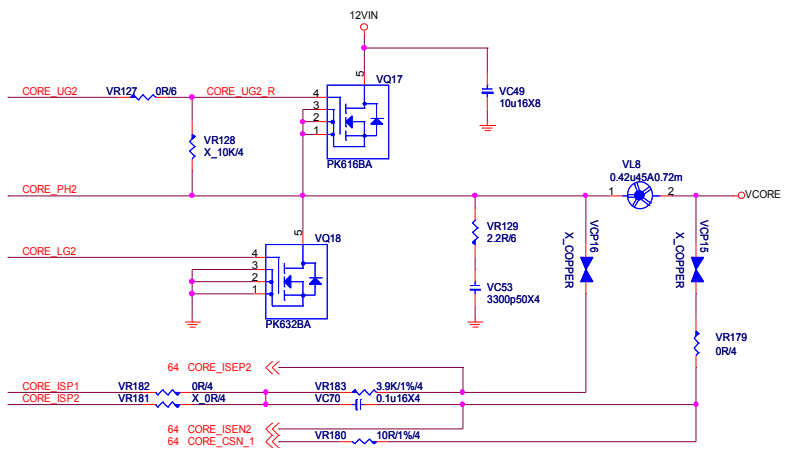
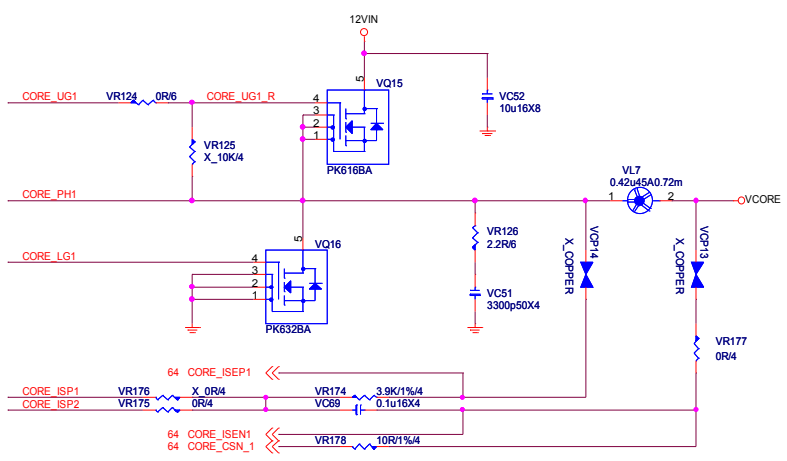
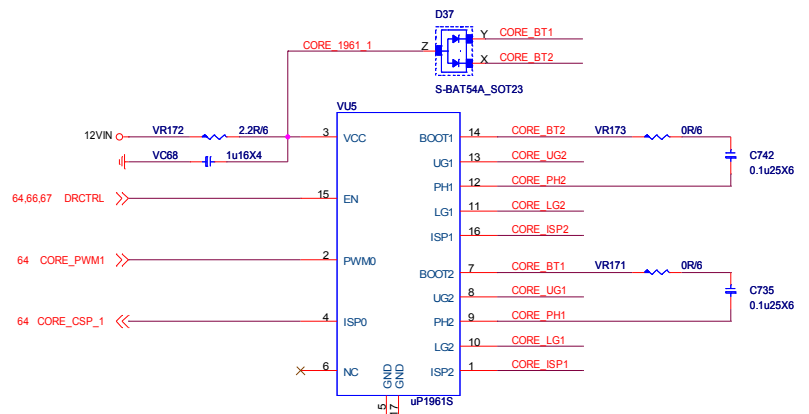
Size Custom	Document Description CURRENT SENSE-UP6273
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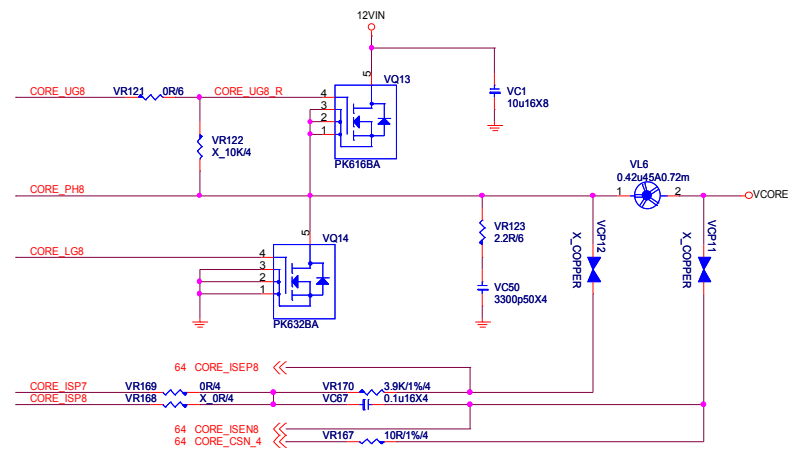
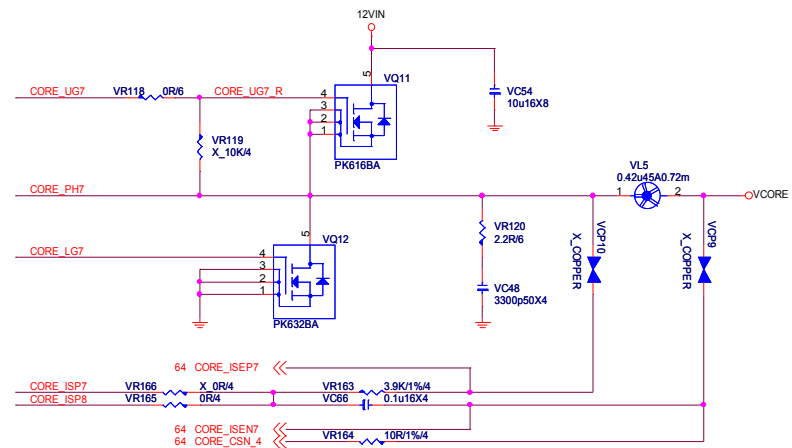
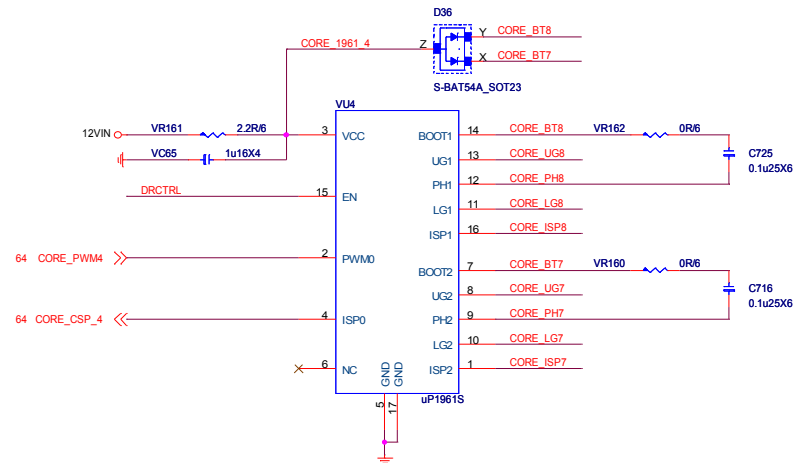
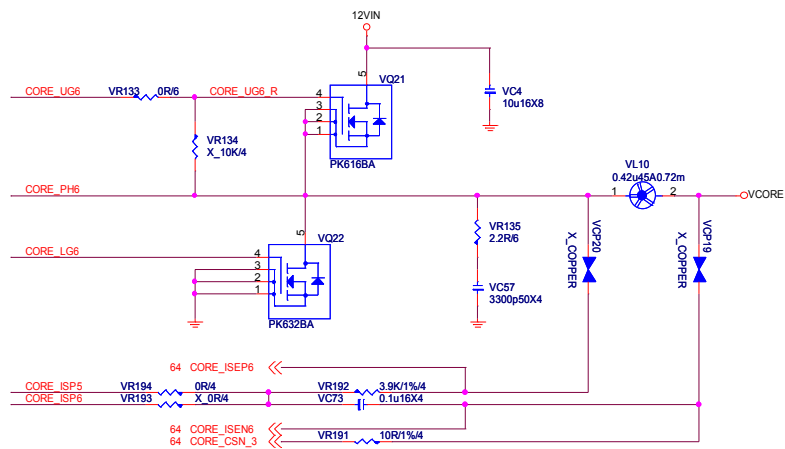
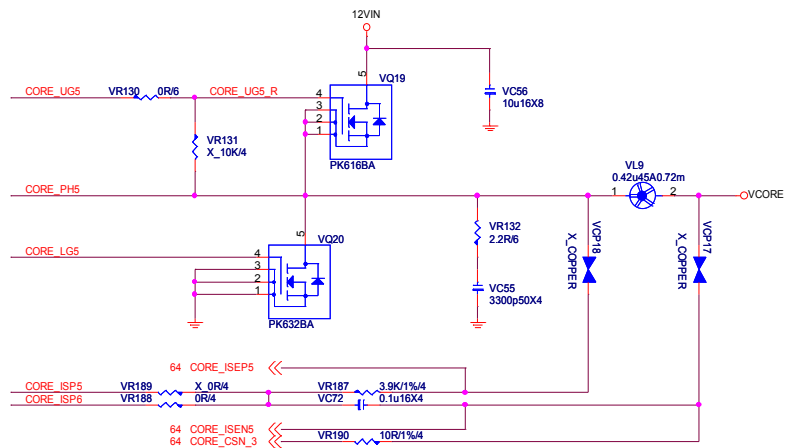
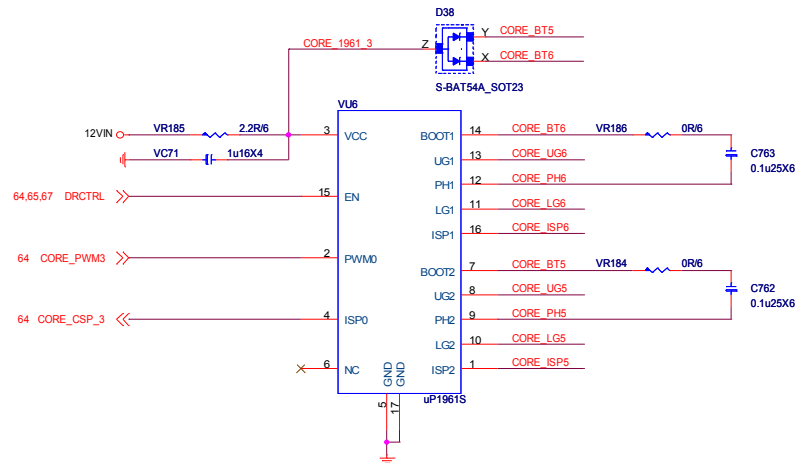
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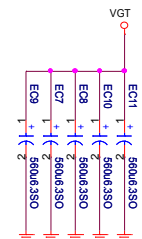


Vcore: ICC Max 100A
LL: 2.1 mohm
OCP: 200A
VGT: ICC Max 48A
LL: 3.1 mohm
OCP: 75A









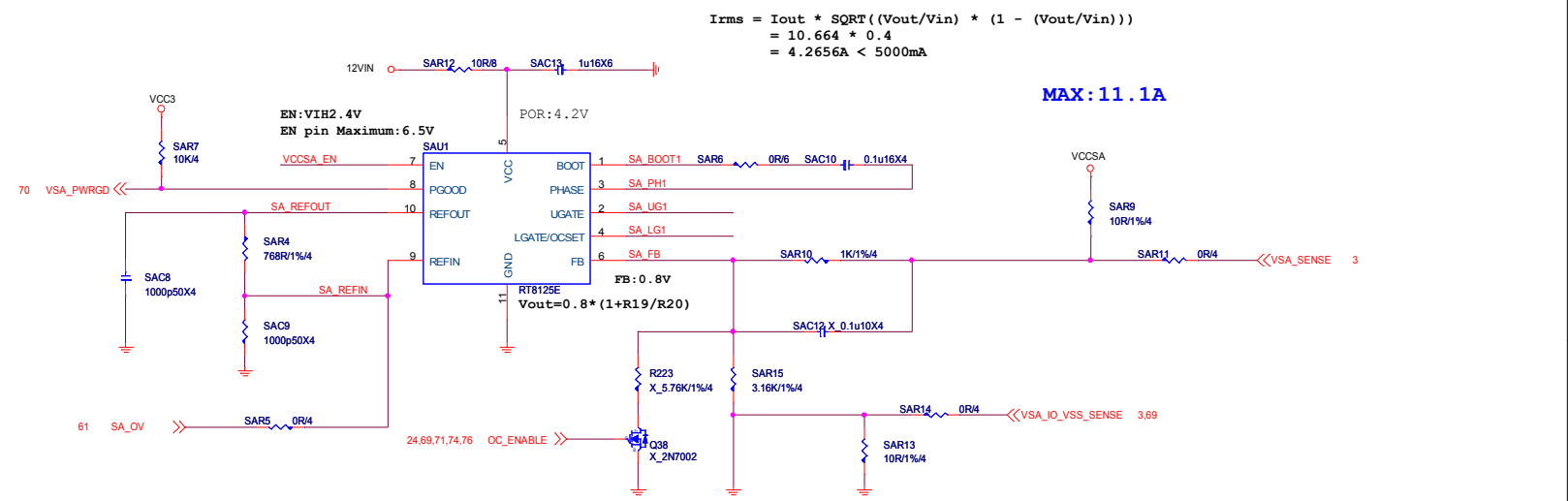
Size Custom	Document Description CPU PWR-GT-PH1~2	Rev 10
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SA Power:1.05V,11.1A

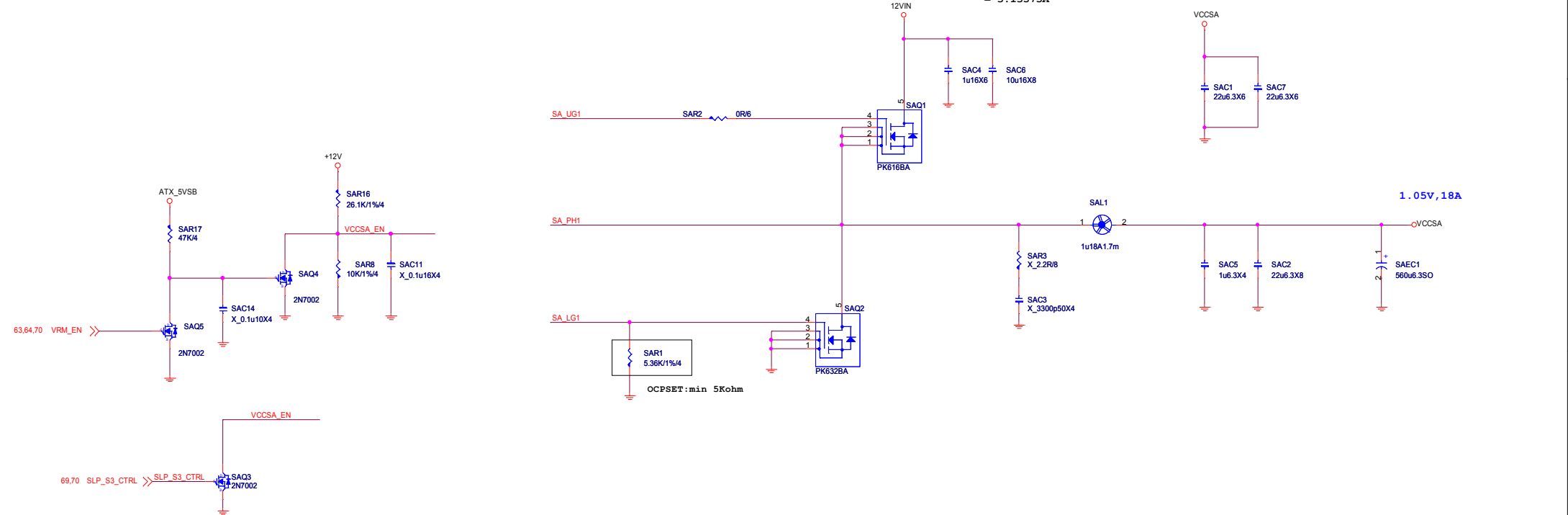
$OCP = 11.1A * 1.4 = 15.54A$
 $Rocs(R15) = OCP * R_{dson}(Low\ side) 3.4mohm / 10uA$
 $= 15.54 * (3.4)mohm / 10uA$
 $= 5.2836Kohm$

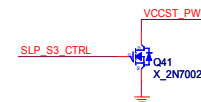
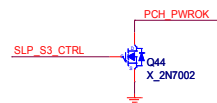
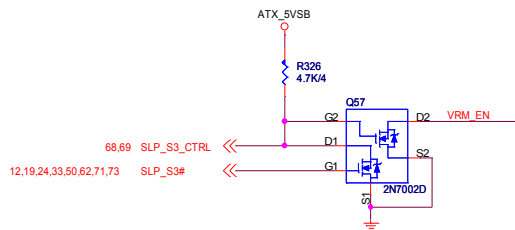
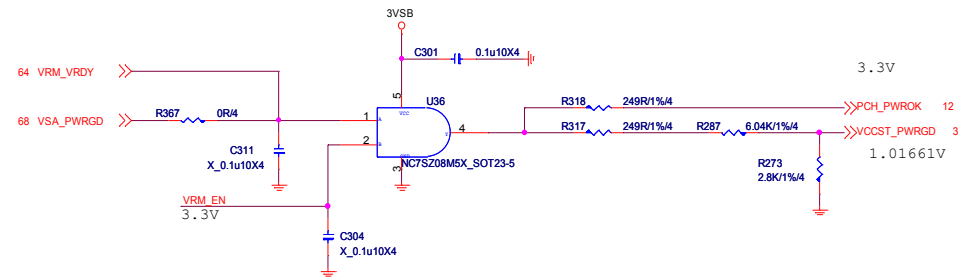
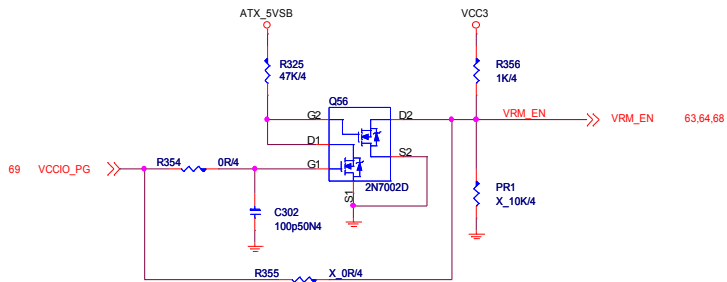
Rocs:5.2836K, OCP:
D03-4C05N03-O05 : 15.76A
D03-632BA0C-N03 : 16.24A
use UBIQ MOS need Check

Rdson (low) 10V
D03-4C05N03-O05 : 3.4mohm
D03-632BA0C-N03 : 3.3mohm
D03-3056M00-U47 : 4.2mohm

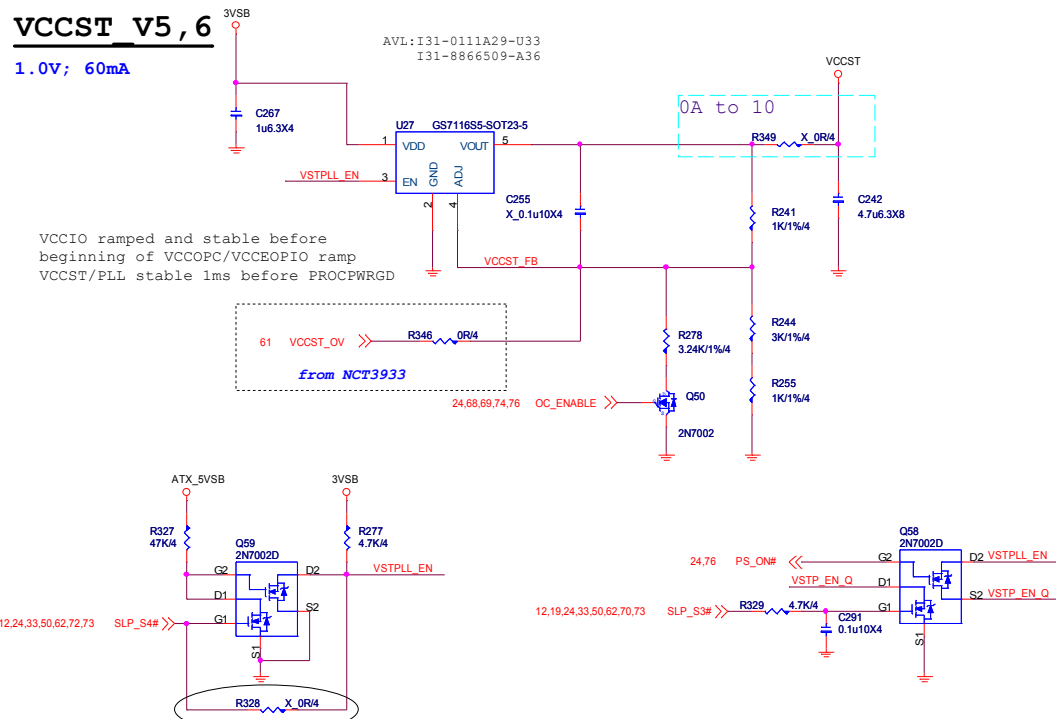


$I_{rms} = I_{out} * \sqrt{((V_{out}/V_{in}) * (1 - (V_{out}/V_{in})))}$
 $= 11.1 * 0.2825$
 $= 3.13575A$

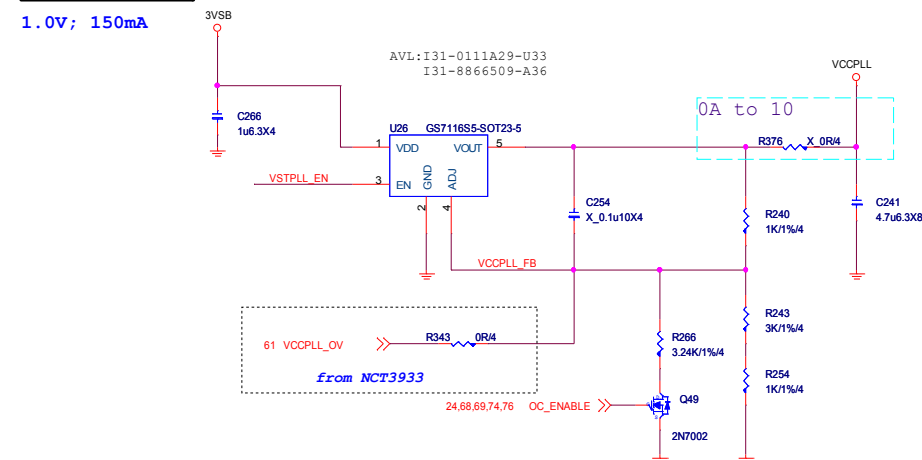




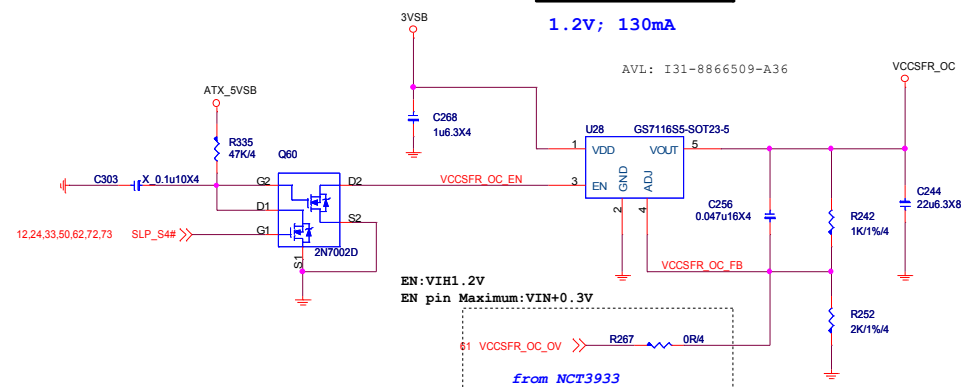
1.0V; 60mA



1.0V; 150mA

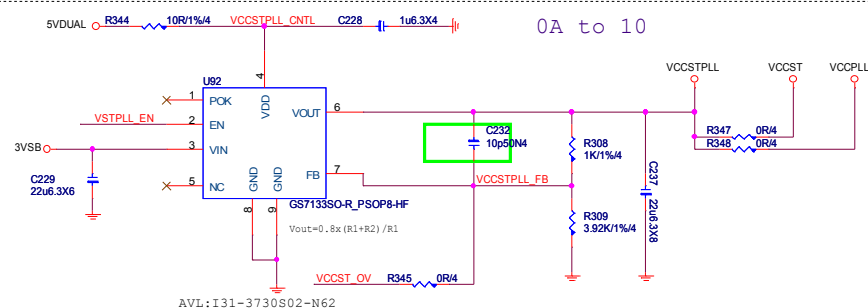


1.2V; 130mA

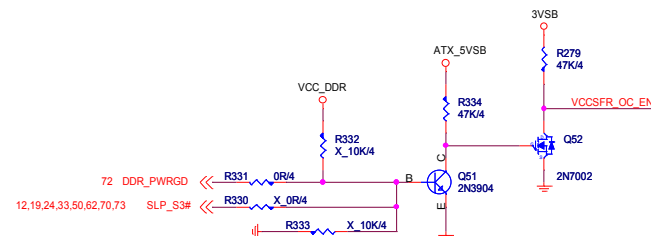
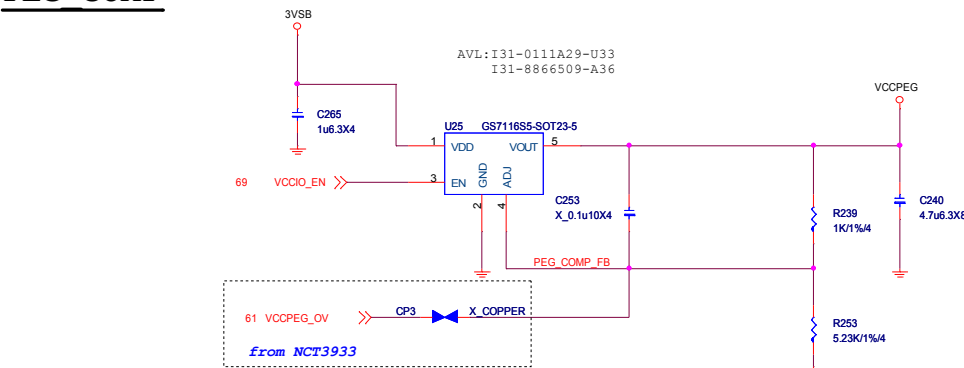


V4~6

1.0V; 300mA



PEG COMP



MICRO-STAR INT'L CO.,LTD

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DDR4 Power:1.2V,13.5A

2.8A FOR CPU

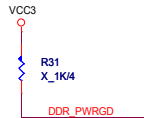
9.5A FOR 4DIMM

1.2A FOR DDR VTT

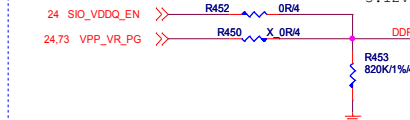
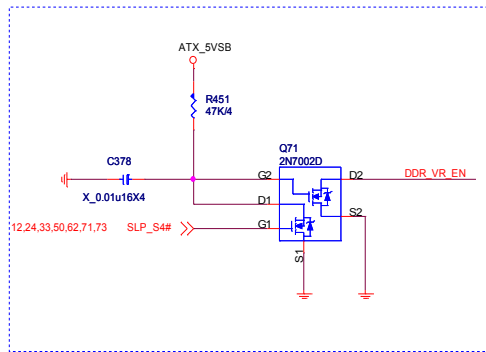
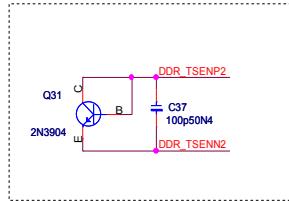
Internal LDO 1.8V
PV Address: 0X21
SMB Address: 0X42

8.12.19.46 SMBCLK_VCC
8.12.19.46 SMBDATA_VCC

71 DDR_PWRGD
CONFIG: Configuration Table #3



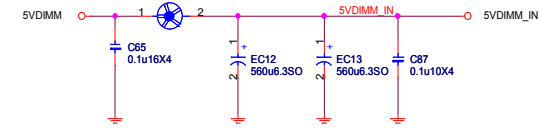
Close to DDR PHASE1 XXX



EN:VIH2V
EN pin Maximum:5.5V,RECOMMENDED:3.6V

L04-47B7730-T15

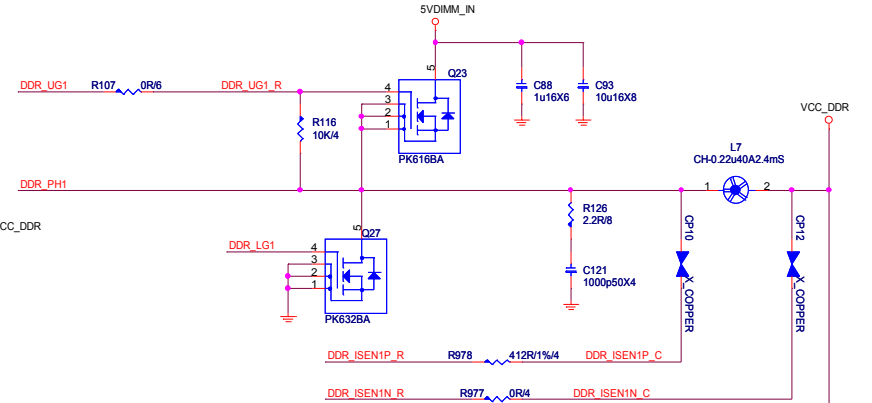
L5
CH-0.47u22A2.2mS



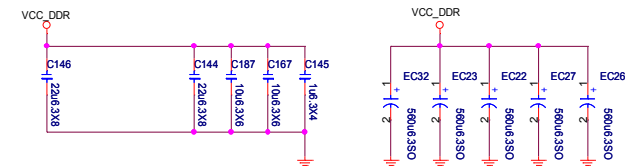
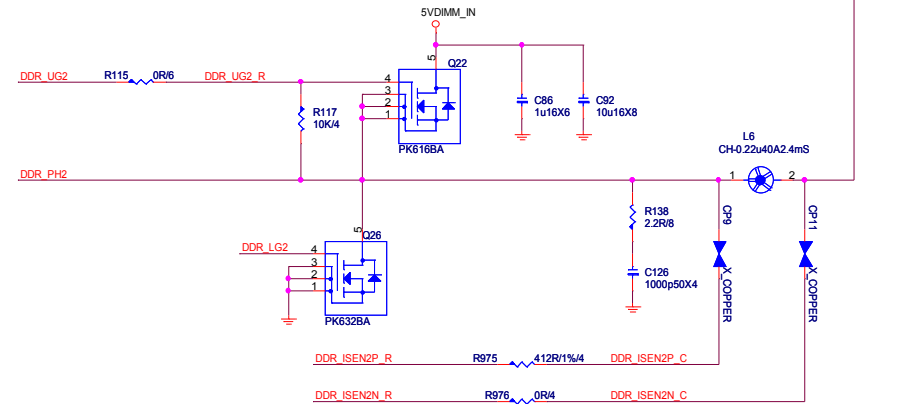
OCP:XXA for 2Phase

I_{max}: 13.2A

I_{out} ripple = 2.255A



L04-22B7120-M26



MICRO-STAR INT'L CO.,LTD

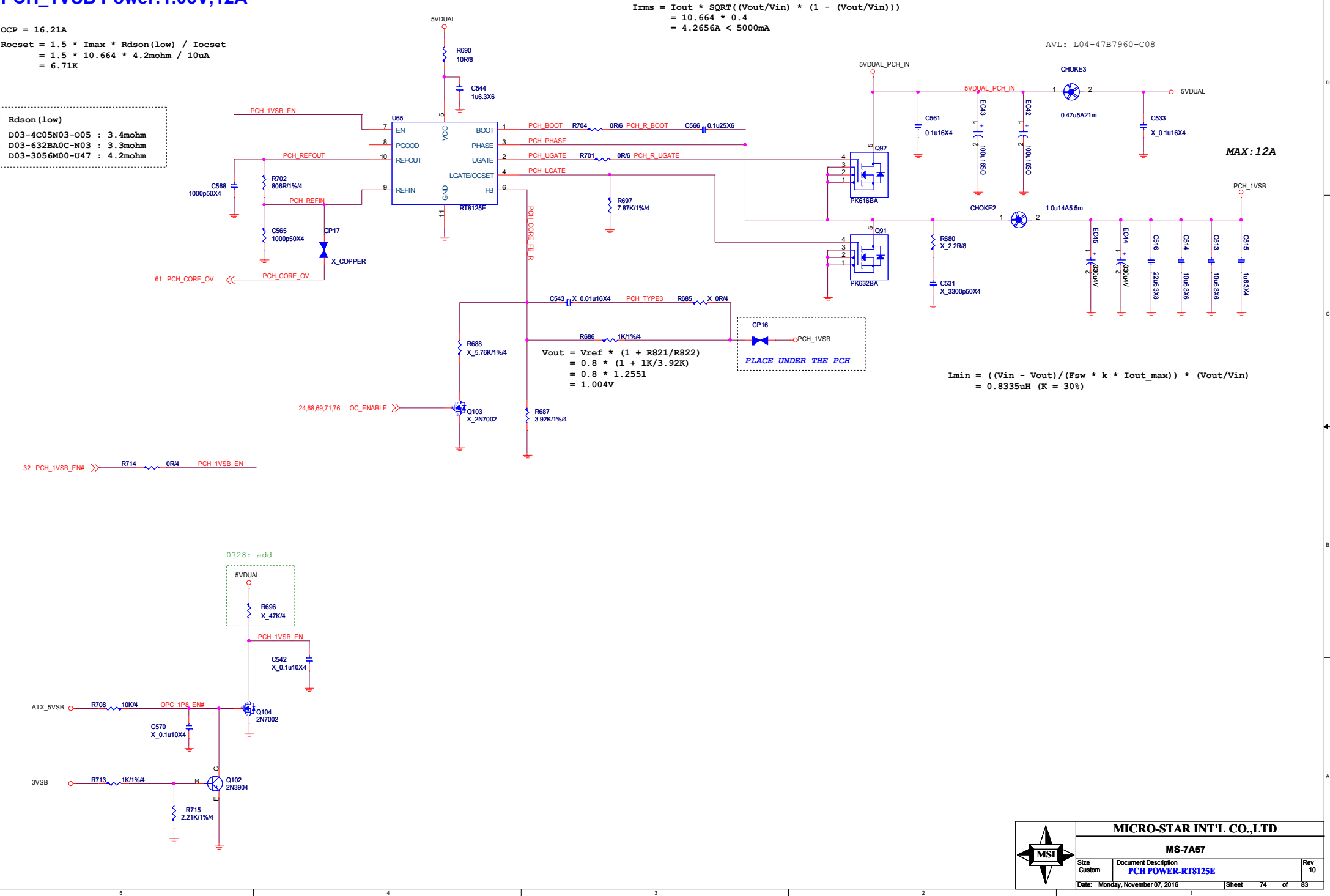
MS-7A57

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PCH_1VSB Power:1.05V,12A

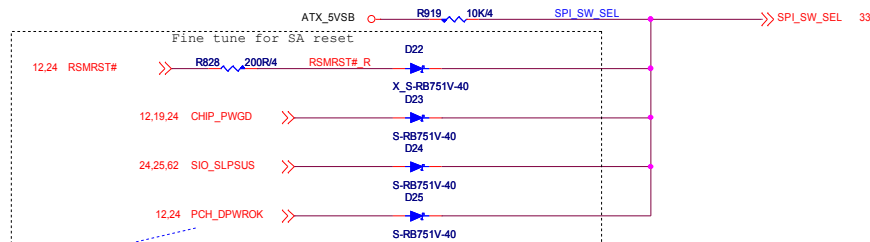
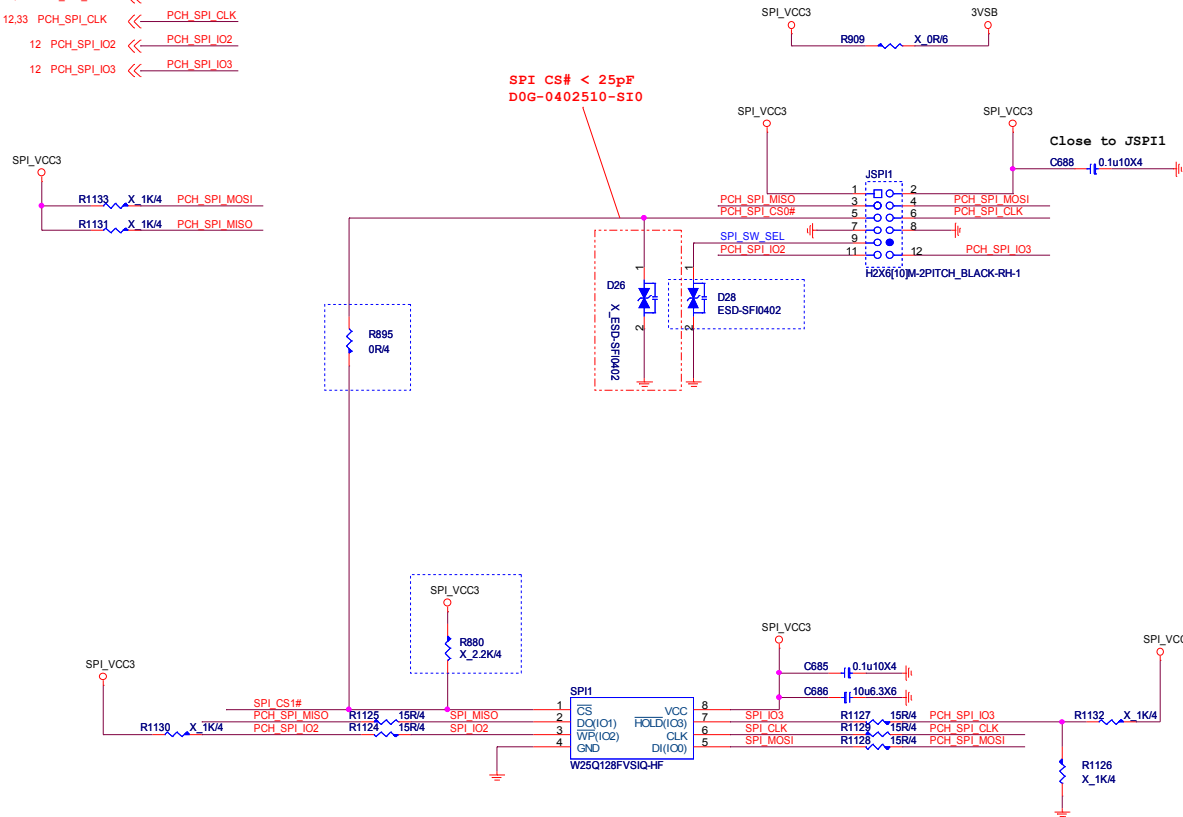
OCP = 16.21A
Rocset = 1.5 * Imax * Rdson(low) / Iocset
= 1.5 * 10.664 * 4.2mohm / 10uA
= 6.71K

Rdson(low)
D03-4C05N03-O05 : 3.4mohm
D03-632BA0C-N03 : 3.3mohm
D03-3056M00-U47 : 4.2mohm

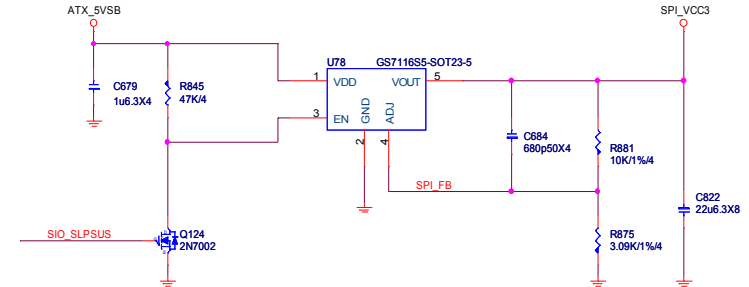


Part Number:N31-2061341-H06

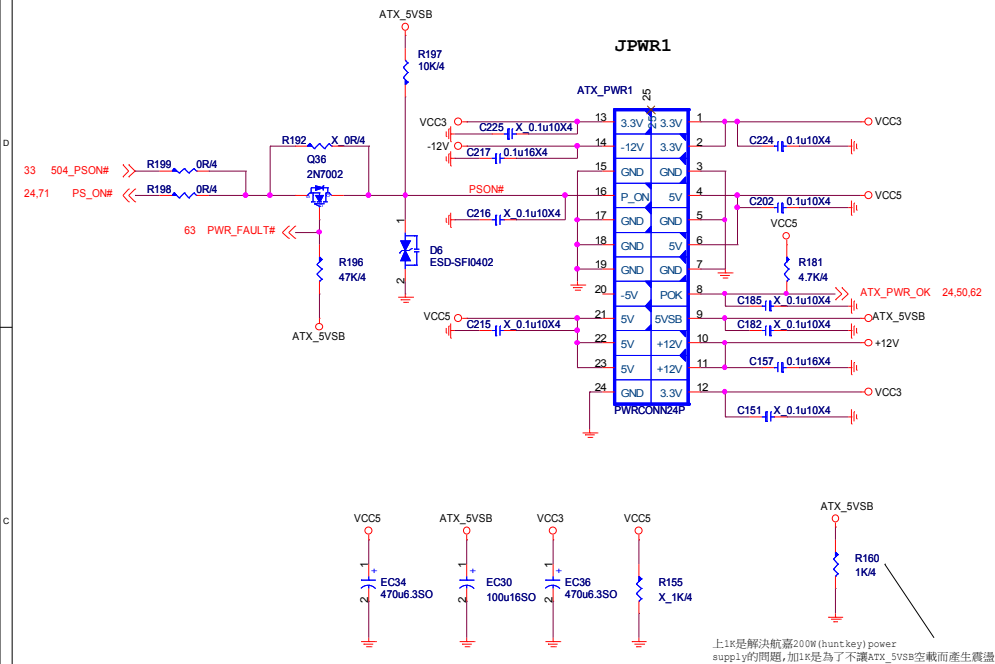
12.33 PCH_SPI_CS0# << PCH_SPI_CS0#
 12.33 PCH_SPI_MOSI << PCH_SPI_MOSI
 12.33 PCH_SPI_MISO << PCH_SPI_MISO
 12.33 PCH_SPI_CLK << PCH_SPI_CLK
 12 PCH_SPI_IO2 << PCH_SPI_IO2
 12 PCH_SPI_IO3 << PCH_SPI_IO3



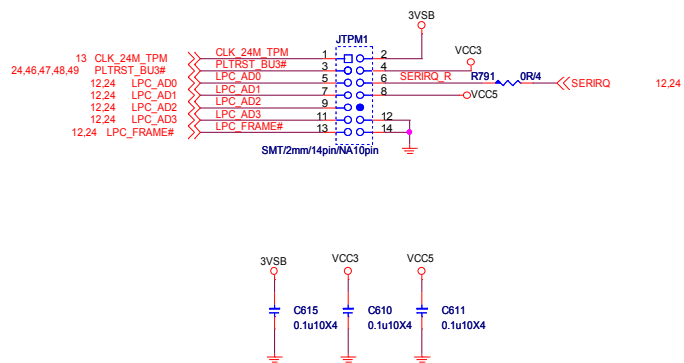
For TL624-1.1 (SKYLAKE)
 In skylake, PCH core is powered by VSB which need sink RSMRST#
 to low by SPI_SW_SEL.



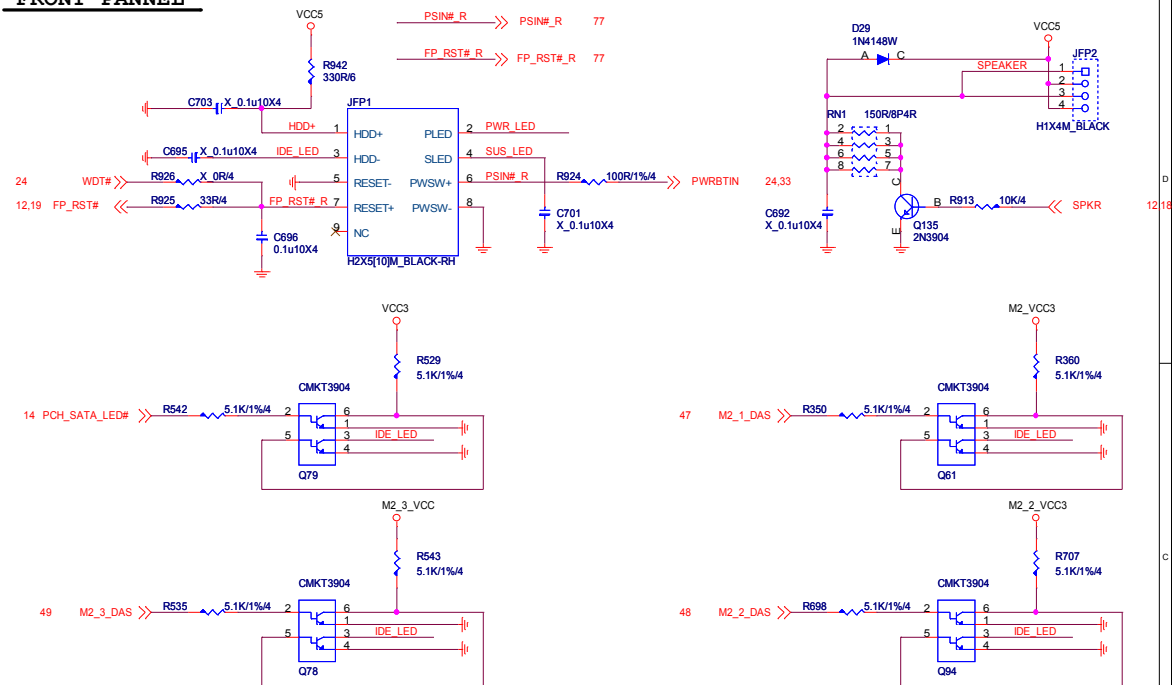
ATX POWER CONNECTOR



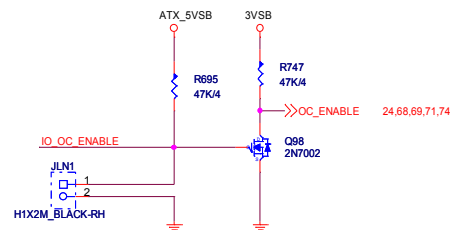
TPM Pin Header



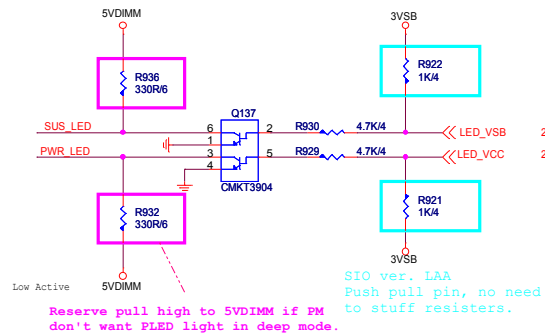
FRONT PANNEL



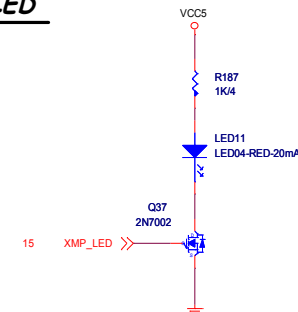
TOP PC USE Only



Front Panel LED

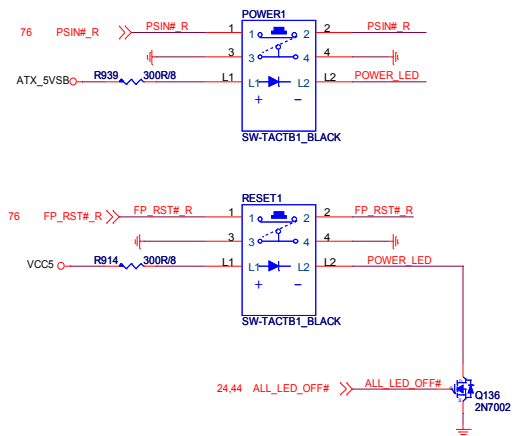


XMP LED

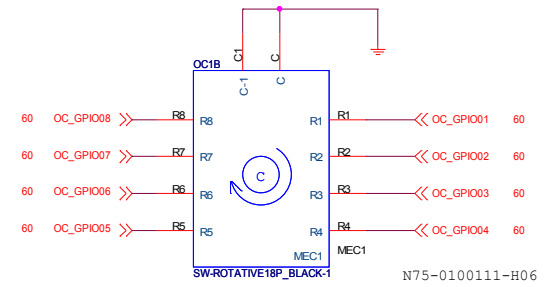
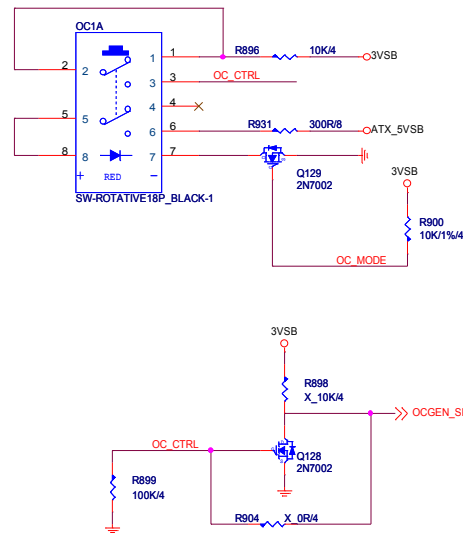


MICRO-STAR INT'L CO.,LTD		
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Size Custom	Document Description ATX Connector/F_Panel	Rev 10
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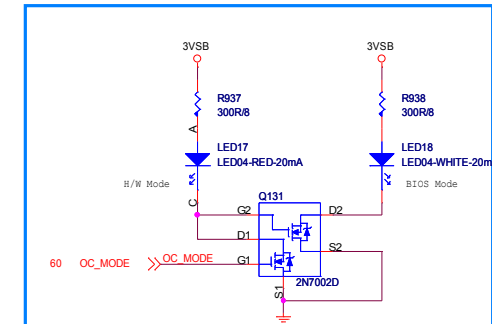
PWR/RST Button



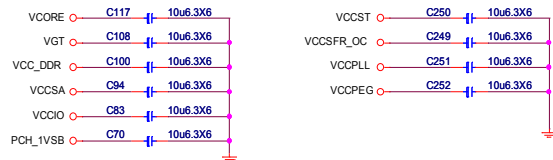
OC Genie



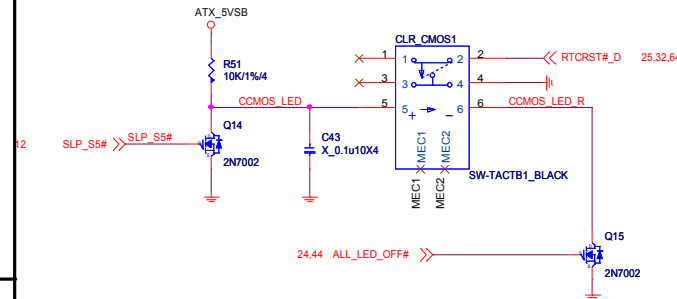
H/W & BIOS Mode LED



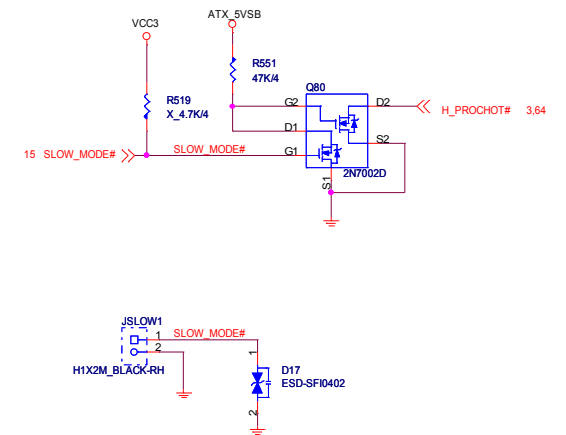
Vcheck



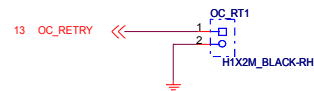
Clear CMOS button



Slow Mode



OC retry

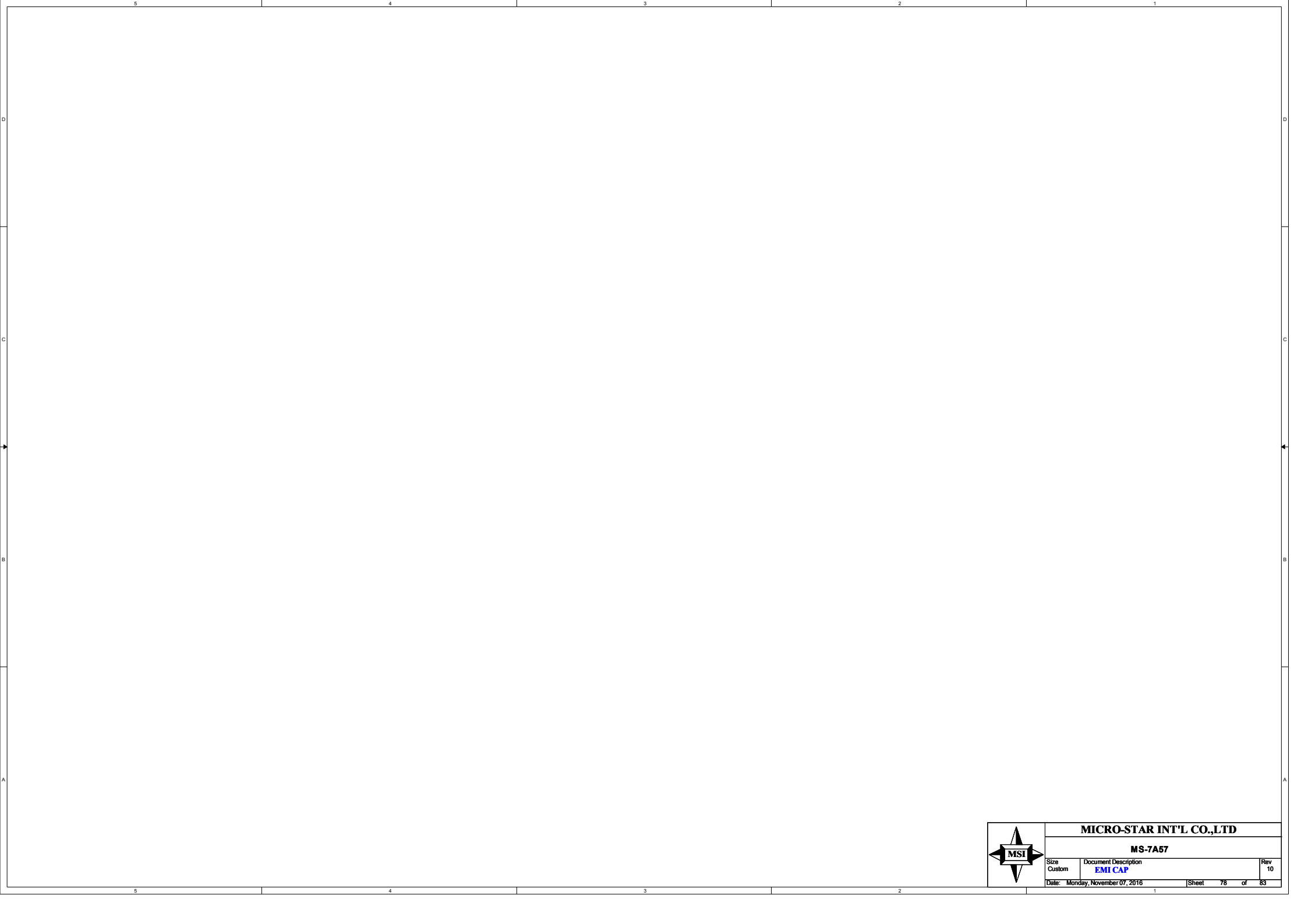


OC fail



LED LIGHTING RULE

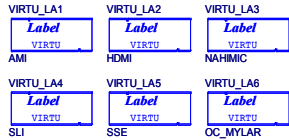
S0/S3/S4 : LED OFF
S5 : LED ON



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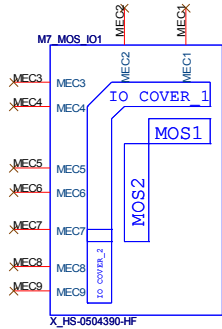
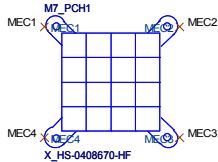


PD1-07A5720-G37, 精成-深圳, 61, 寶安恩斯邁廠 (MSIS)
PD1-07A5720-E48, 競華, 11, 寶安恩斯邁廠 (MSIS)

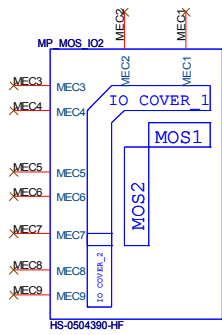
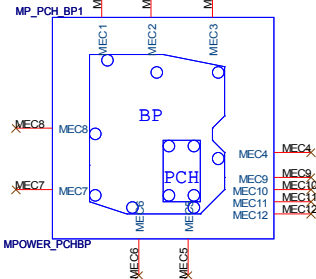


HEATSINK

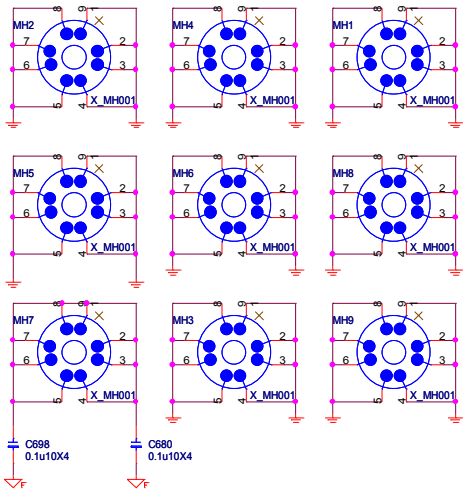
M7



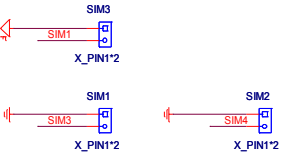
MPOWER



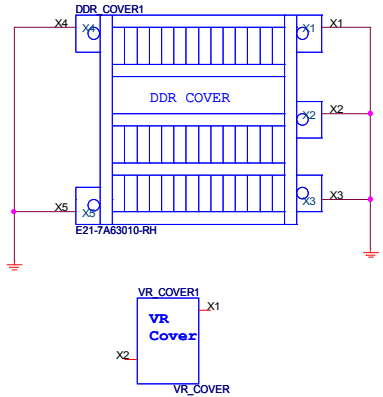
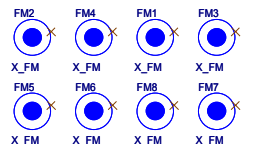
Mounting Holes



Simulation



Optical Fiducial Marks-120



- VCORE ○ □ VCORE1
- VGT ○ □ VGT1
- VCCSA ○ □ VCCSA1
- VCCIO ○ □ VCCIO1
- VCC_DDR ○ □ VCC_DDR1
- VTT_DDR ○ □ VTT_DDR1
- PCH_1VSB ○ □ PCH_1VSB1
- 5VDUAL ○ □ 5VDUAL1
- 5VDIMM ○ □ 5VDIMM1
- 3VSB ○ □ 3VSB1
- VBAT ○ □ VBAT1
- VPP25 ○ □ VPP1