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# MS-7B49

ATX  
Ver: 2.0

## Intel -Coffeelake plamform Z370

### CPU:

Coffeelake-S

### System Chipset:

Z370

### Onboard Chip:

HD Audio Codec : ALC887

LAN : Intel I219

SIO : Nuvoton 6795

Flash ROM : 16MB GSE Z370

### Main Memory:

DDRIV (800/1066/1333/1600/2133MHz) \* 4 (Dual Channel)

### ACPI:

NIKO/UPi

### PWM:

UP9508

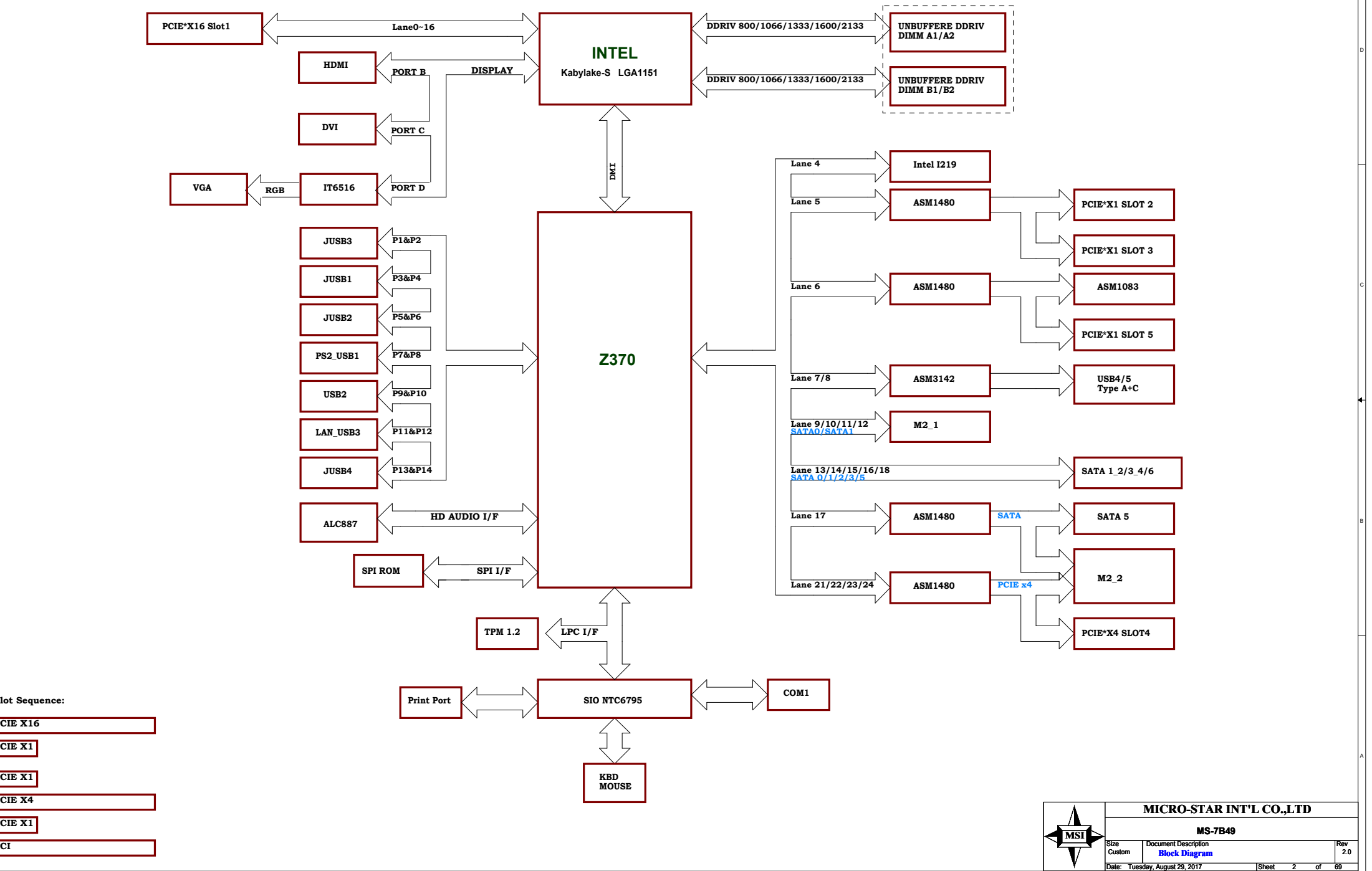
### Expansion Slots:

PCI Express (X16) Slot \*1  
PCI Express (X4) Slot \* 1  
PCI Express (X1 ) Slot \* 3  
PCI Slot \* 1  
M2 \* 2 (22110 and 2280)

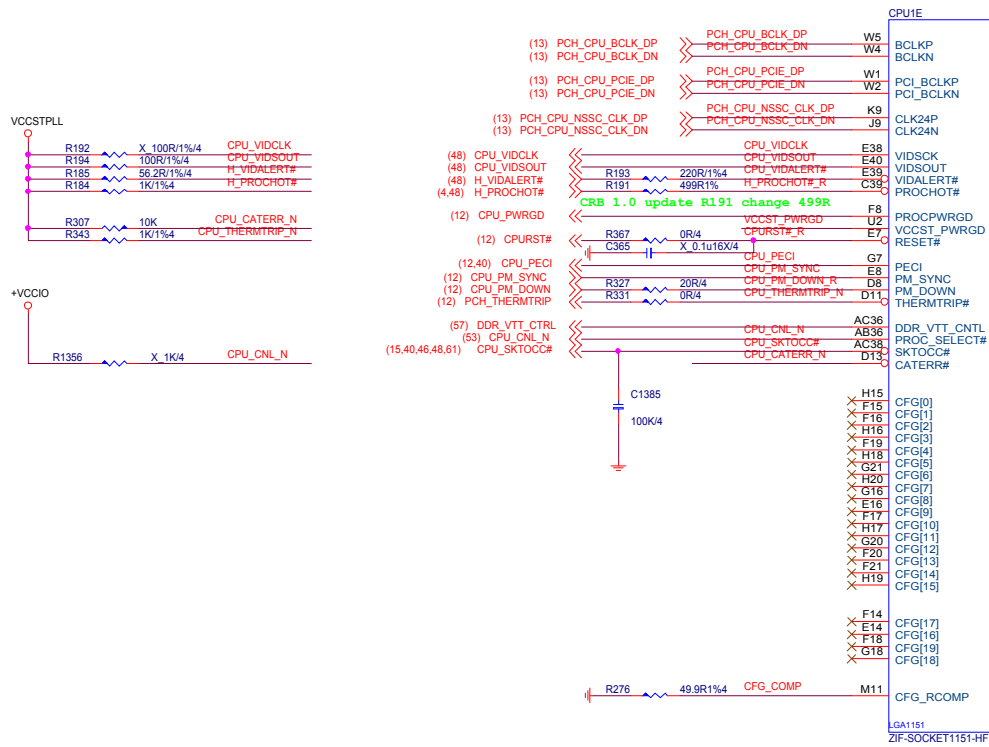
### Other:

SATA3.0 x6 (PCH)  
FRONT USB2.0 \*4  
FRONT USB3.0 \*4  
REAR USB2.0 \*2  
REAR USB3.0 \*4  
REAR USB3.1 TYPE A+C

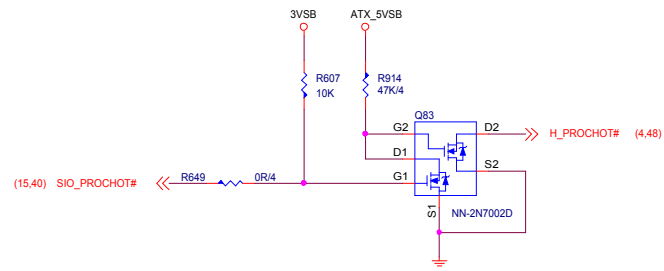
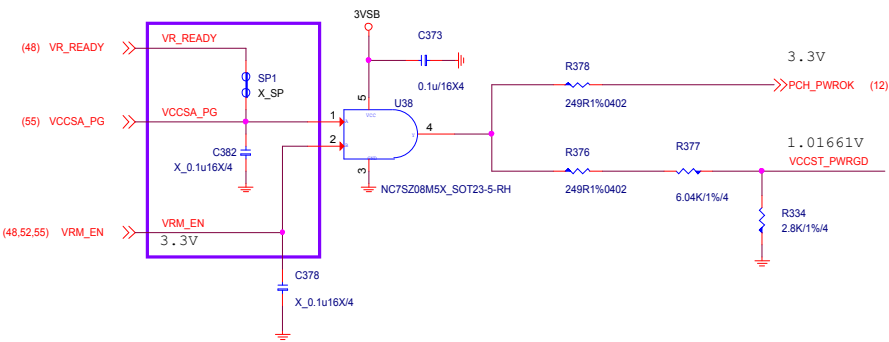
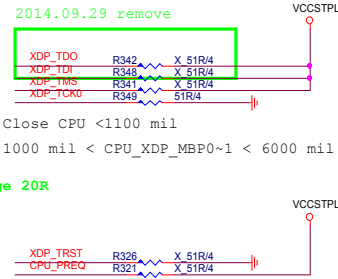
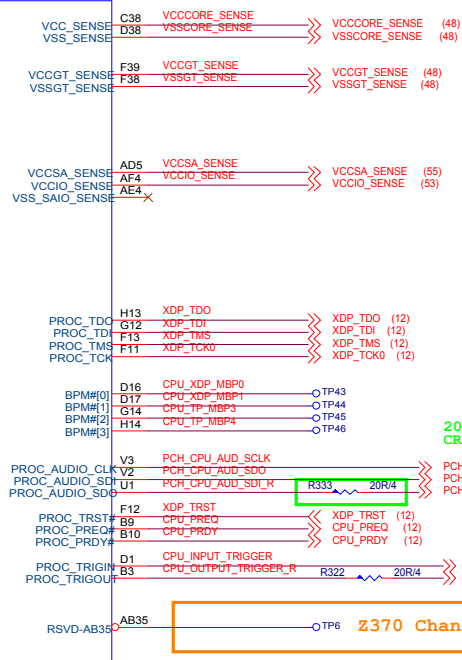
MS-7B49 Block Diagram





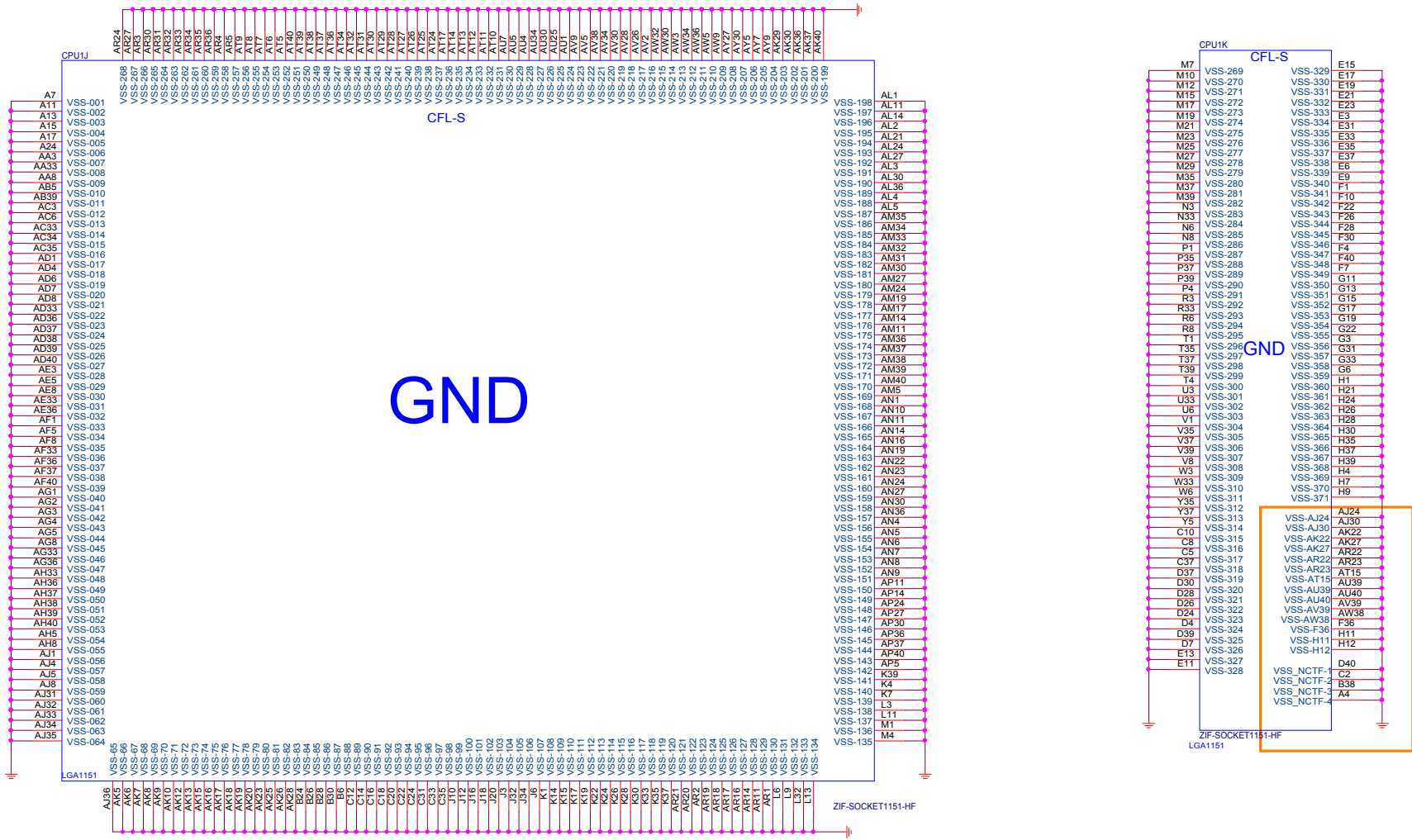


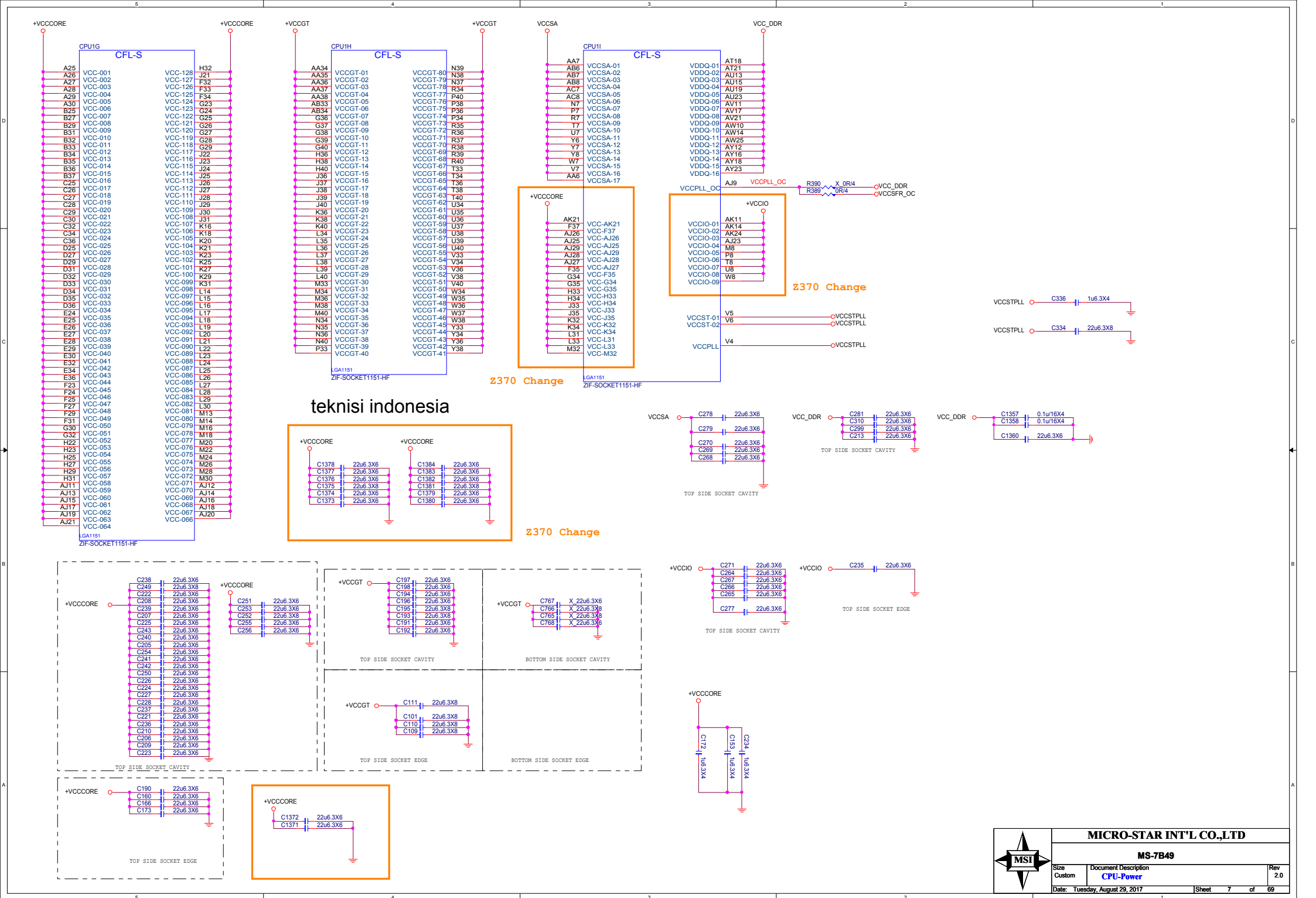
CFG Strap			
CFG Table			
	HIGH	LOW	DESCRIPTION
0	No Lock	Lock	PCU PLL Lock
1			RSVD
2	NORM	REVERSE	PEG LAKE REVERSAL
3			RSVD
4	DISABLE	ENABLE	eDP
5	DISABLE	ENABLE	PEG0CFGSEL[0]
6	DISABLE	ENABLE	PEG0CFGSEL[1]
7	RESET#	BIOS REQ	PEG DEFER TRAINING
8			RSVD
9	PRESENT	NO PRESENT	SVID PRESENT
10			RSVD
11			RSVD
12			RSVD
13			RSVD
14	RSVD		RSVD
15	RSVD		RSVD



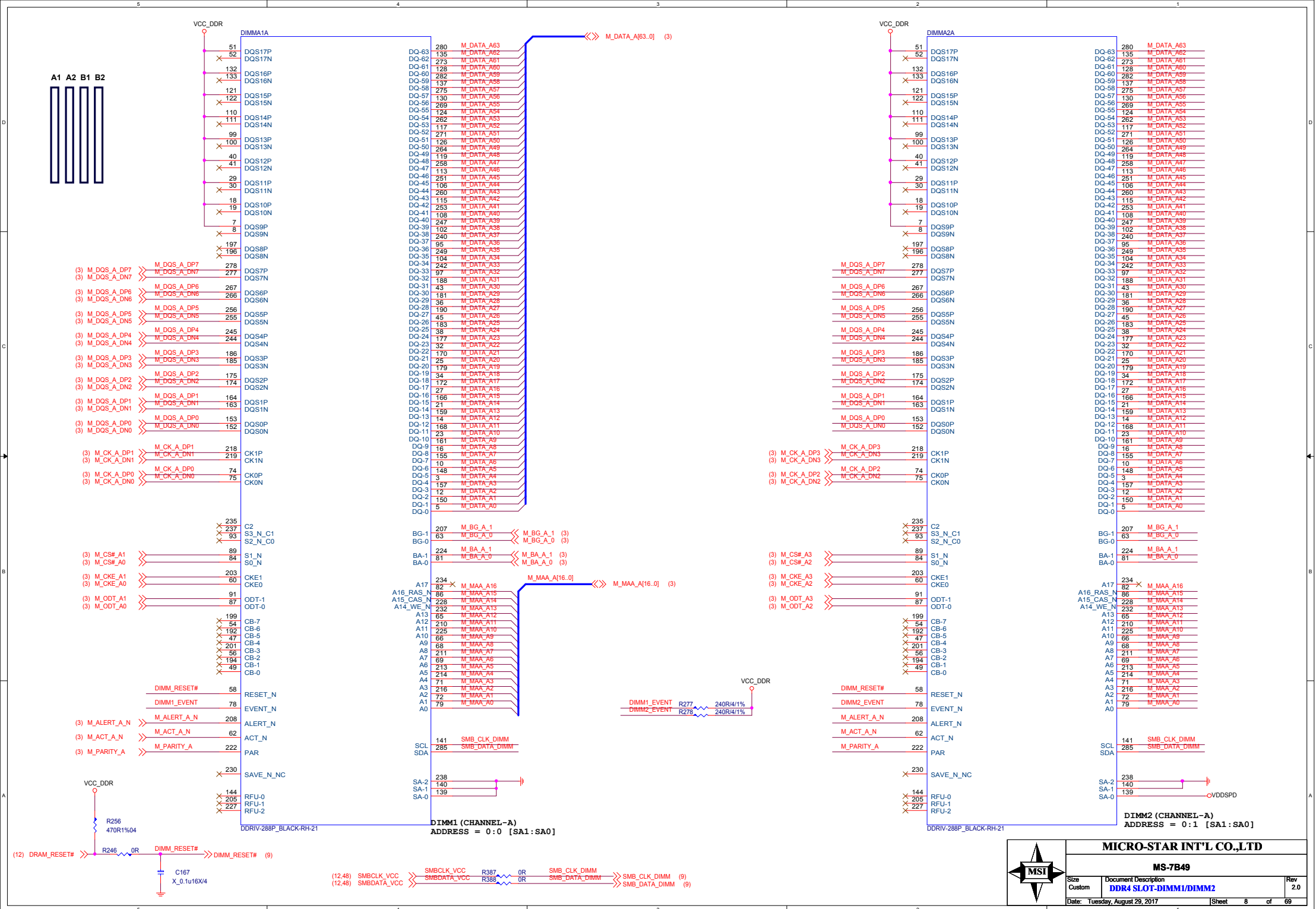


GND



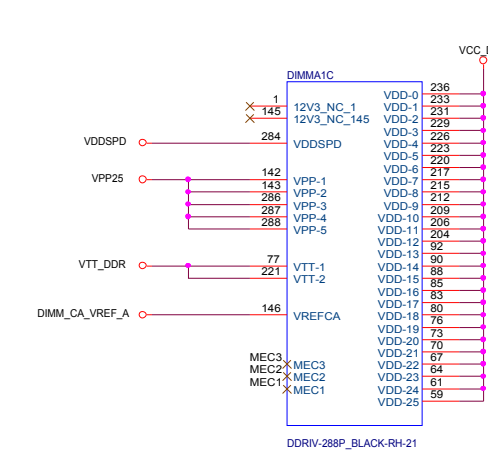




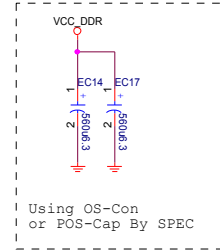




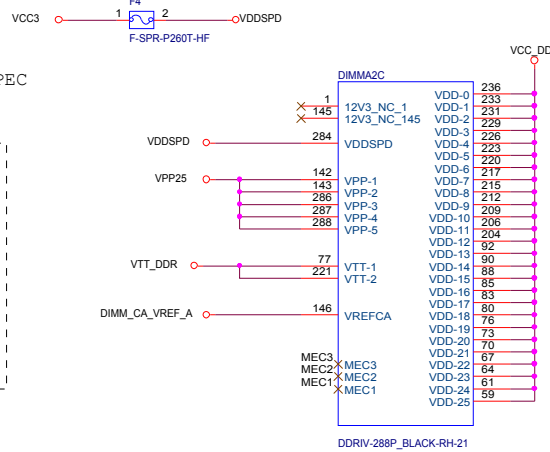




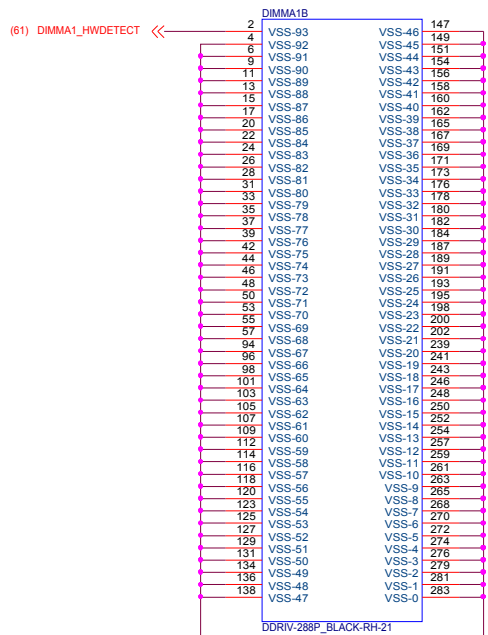
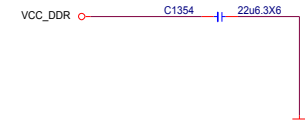
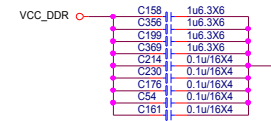
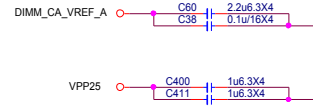
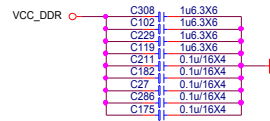
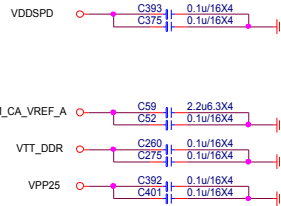
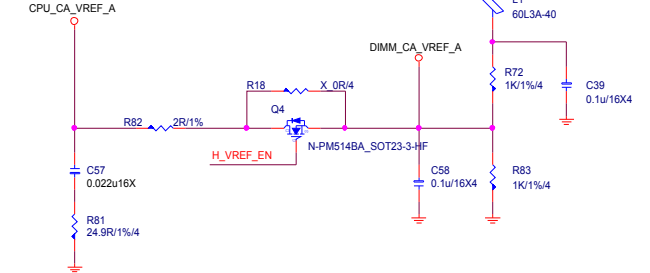
DIMM SLOT PN BY SPEC



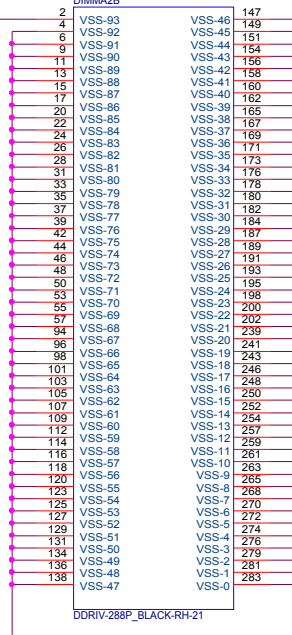
Using OS-Con  
or POS-Cap By SPEC



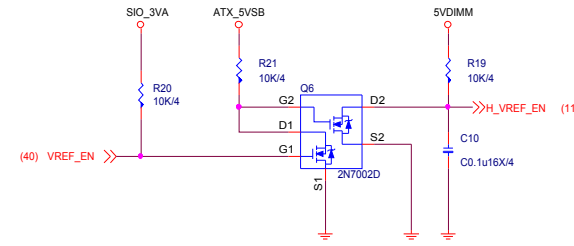
DDRIV-288P\_BLACK-RH-21



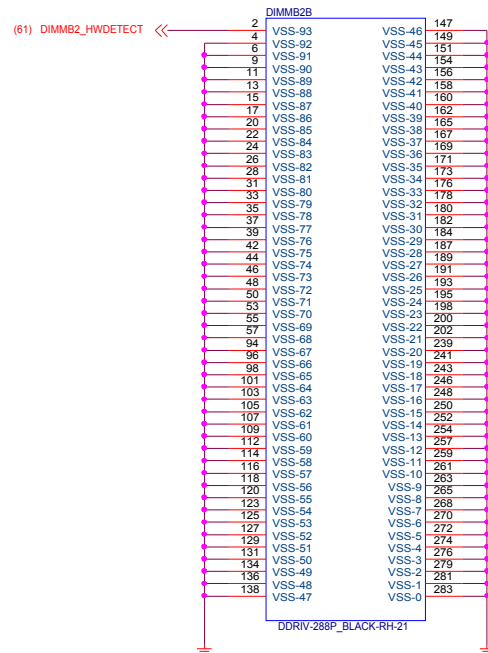
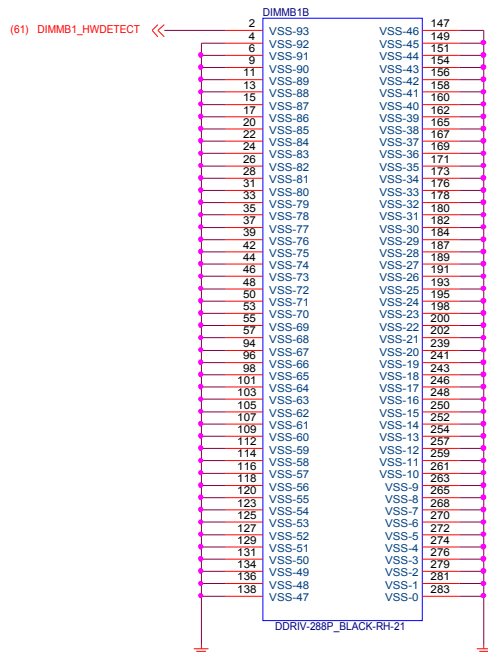
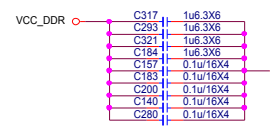
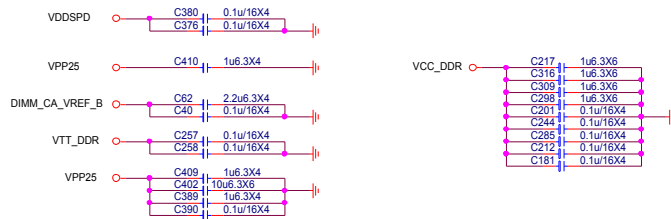
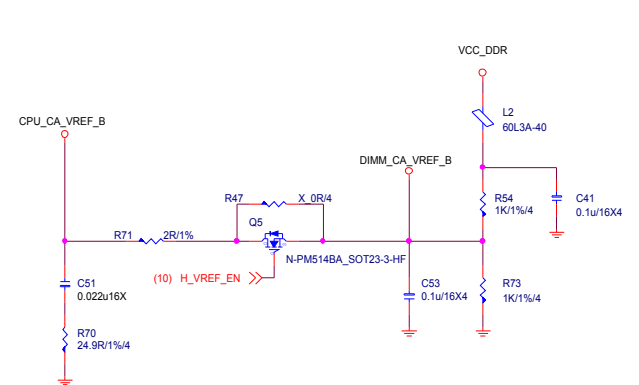
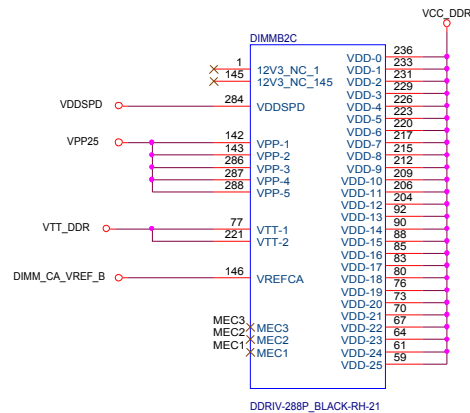
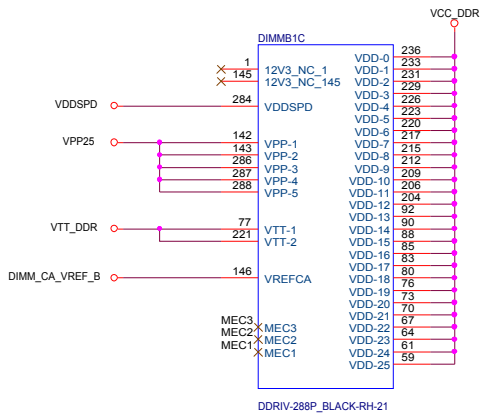
(61) DIMMA1\_HWDTECT <<

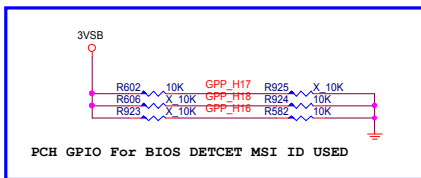
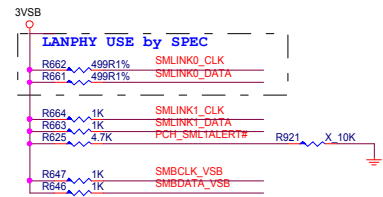


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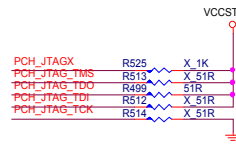
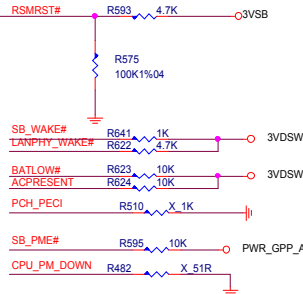
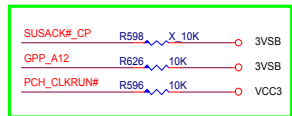
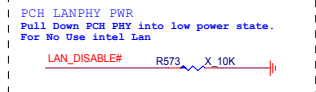
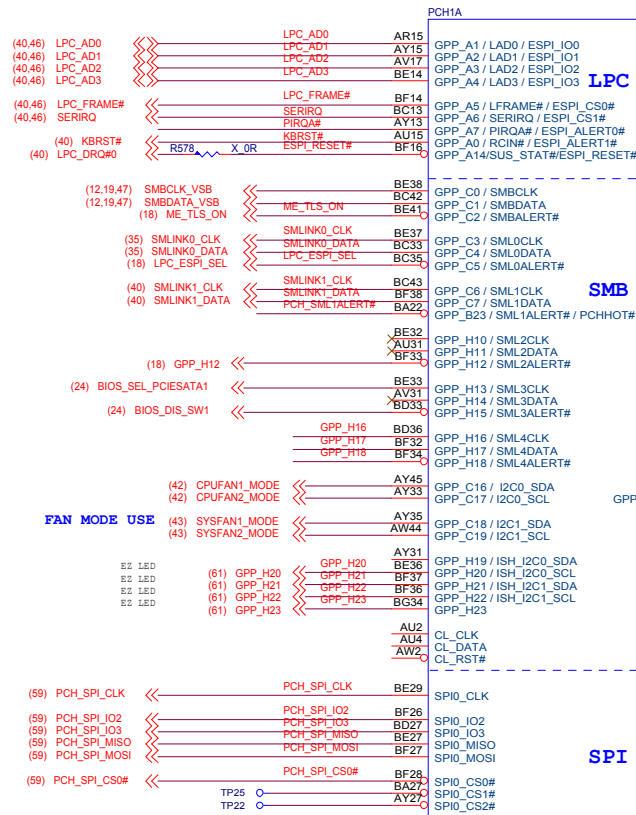


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The image contains two schematic diagrams. The top diagram is for the SRTC module, showing a signal line from IAT\_PCH passing through a 20K1% resistor and a 1u6.3X6 capacitor to ground, connected to SRTCST#. The bottom diagram is for the RTC module, showing a similar setup with a 20K1% resistor and a 1u6.3X6 capacitor to ground, connected to RTCST#, which then has a 60 ohm termination resistor at the end.

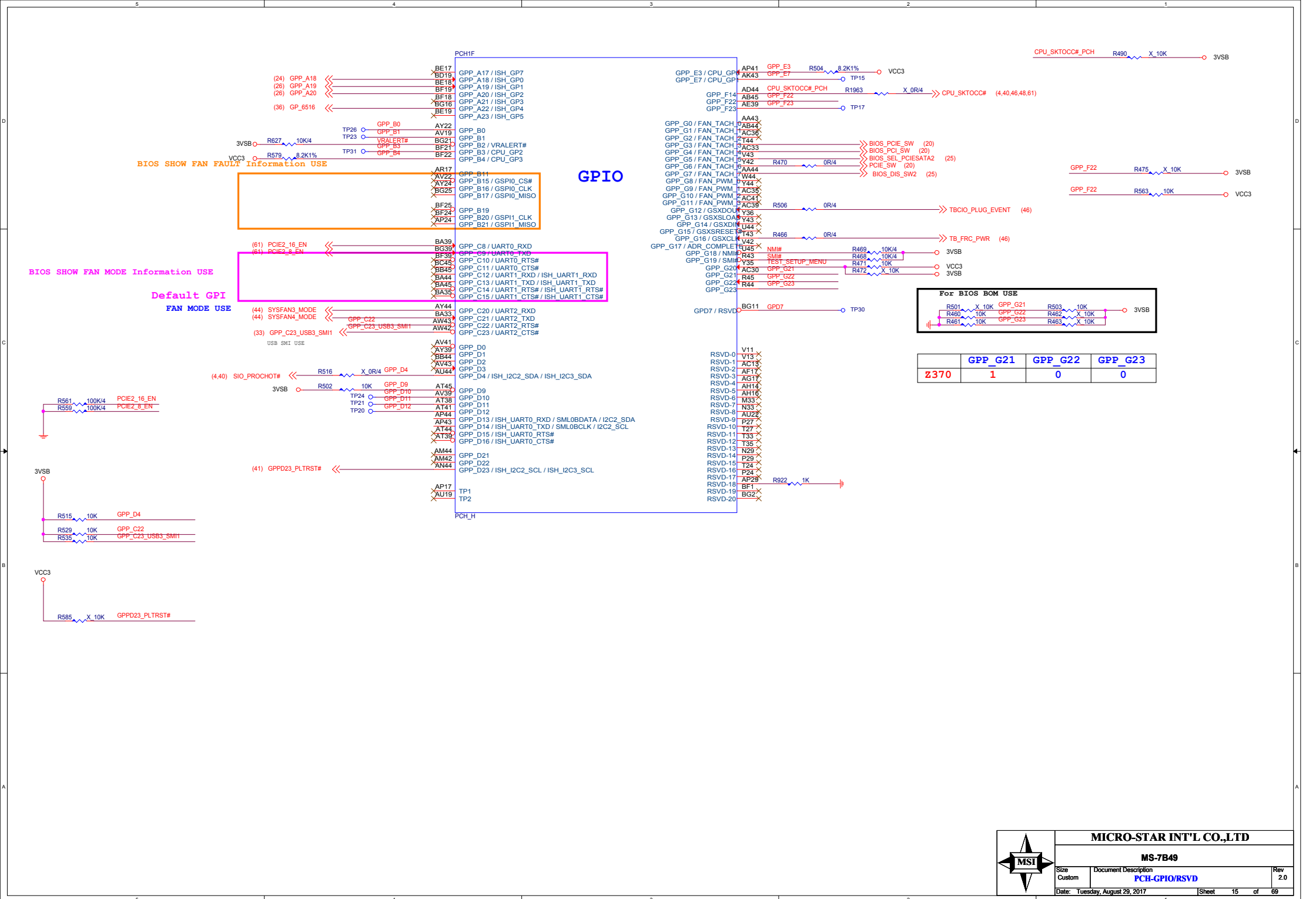


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<b>MS-7B49</b>			
Size Custom	Document Description <b>PCH-LPC/SPU/SMBUS/MISC</b>		Rev 2.0
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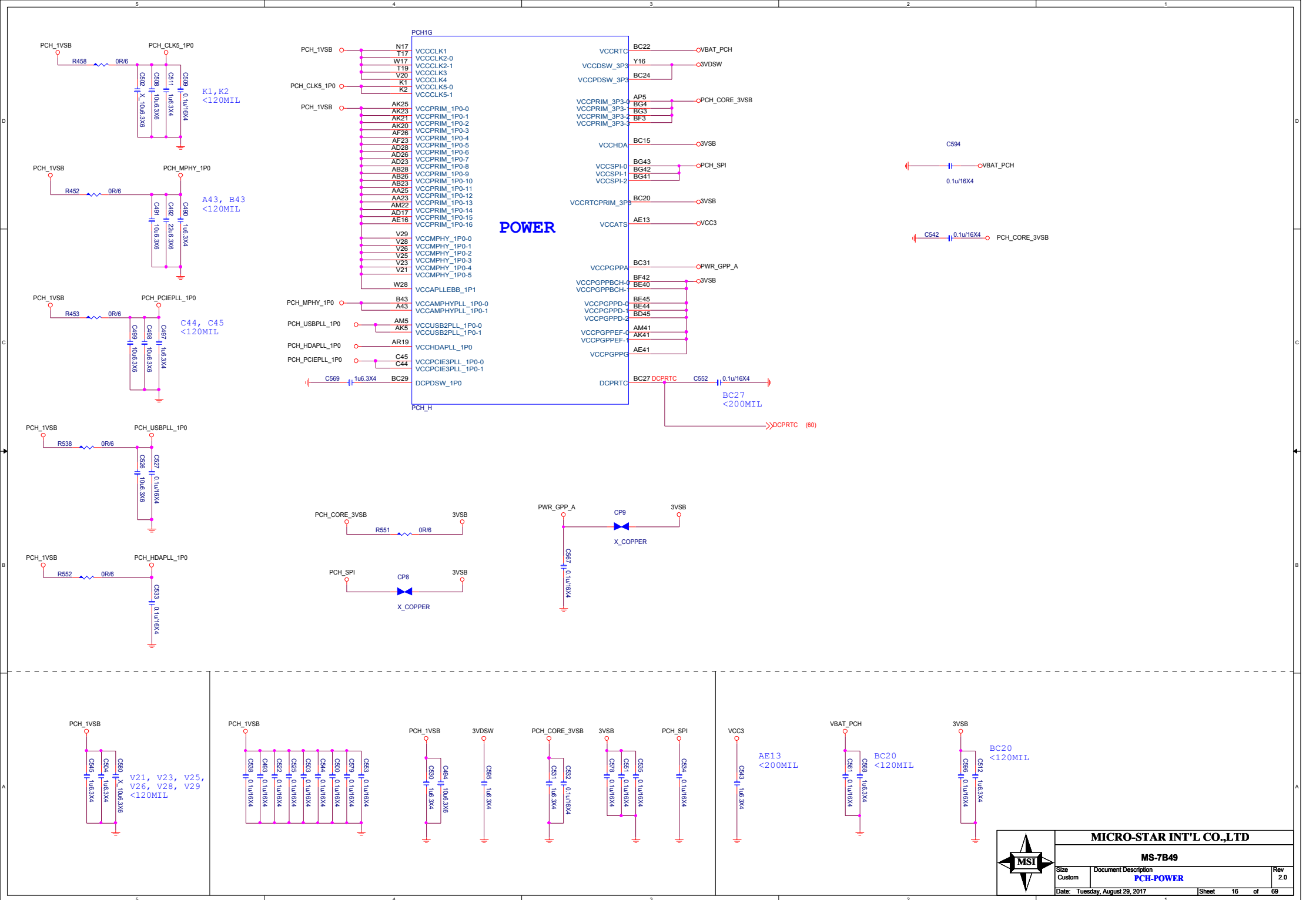
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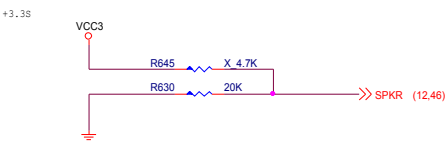




VSS

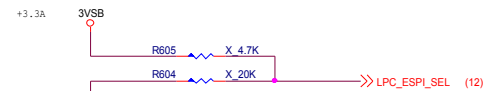
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TOP Swap



Internal pull-down is disabled after PLTRST#

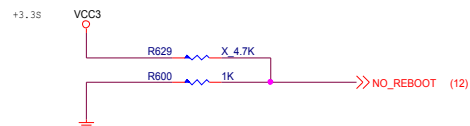
LPC eSPI Mode



0 : LPC  
1 : eSPI

Internal pull-down is disabled after RSMRST

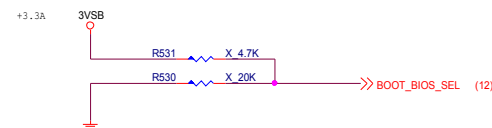
No Reboot



0 : DISABLE (Default)  
1 : ENABLE

Internal pull-down is disabled after PLTRST#

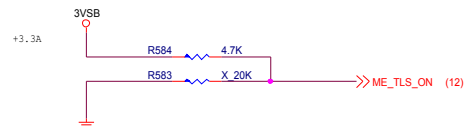
Boot BIOS



0 : SPI  
1 : LPC

Internal pull-down is disabled after PLTRST

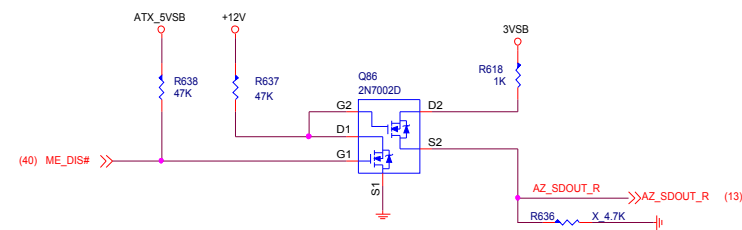
AMT and SBA with confidentiality



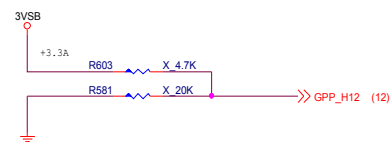
0 : DISABLE  
1 : ENABLE (Default)

Internal pull-down is disabled after RSMRST

HDA\_SDO



ESPI FLASH SHARING MODE



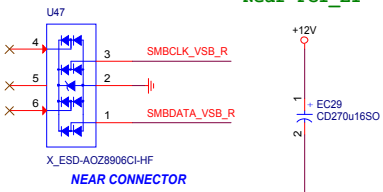
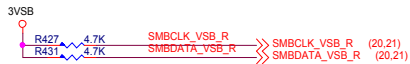
0 : MASTER ATTACHED FLASH SHARING  
1 : SLAVE ATTACHED FLASH SHARING

Internal pull-down is disabled after RSMRST

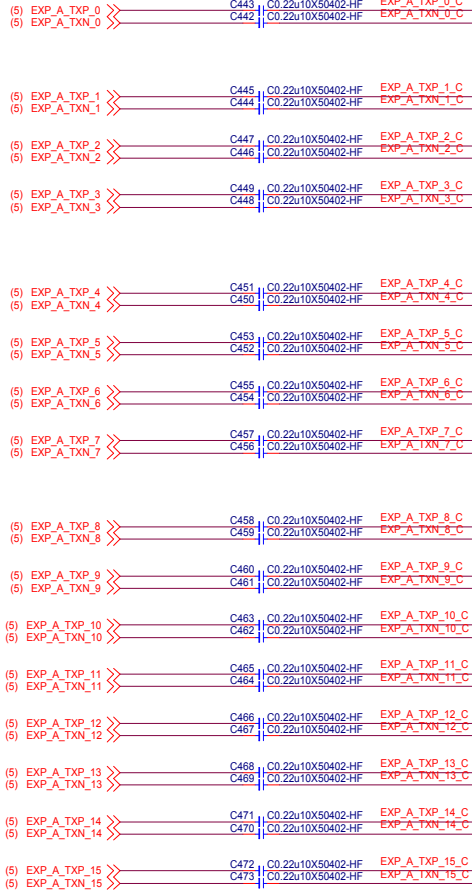


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12V - 5.5A  
VCC3 - 3A  
3VSB - 375mA



(12,20,21,24,25,33) SB\_WAKE#

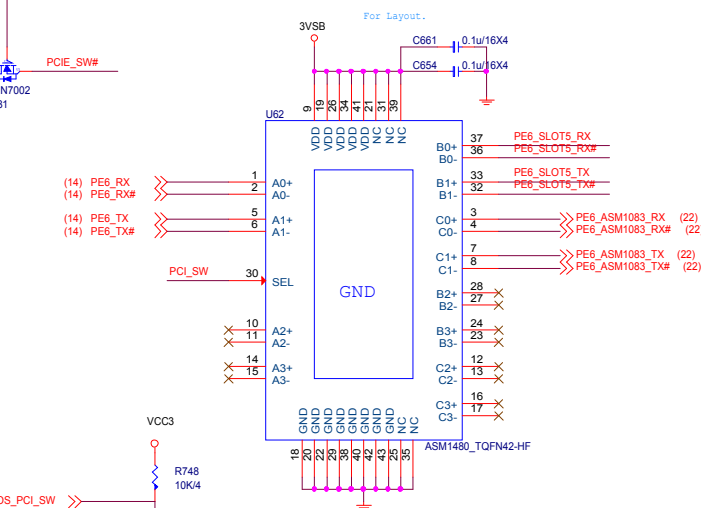
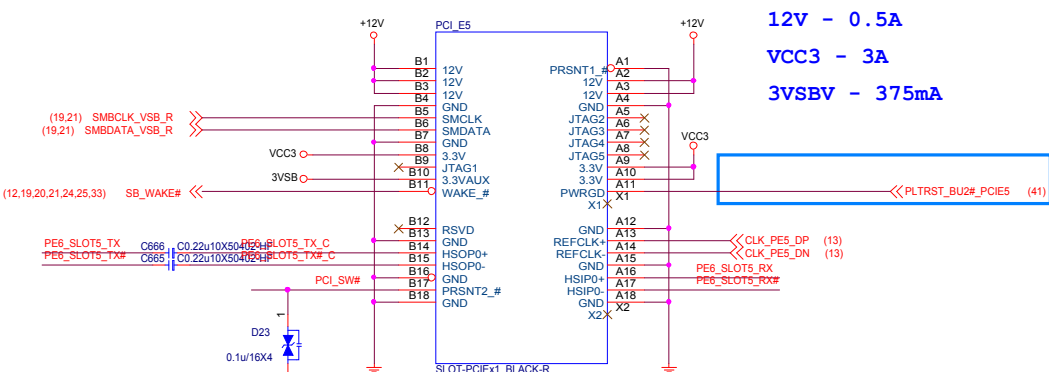
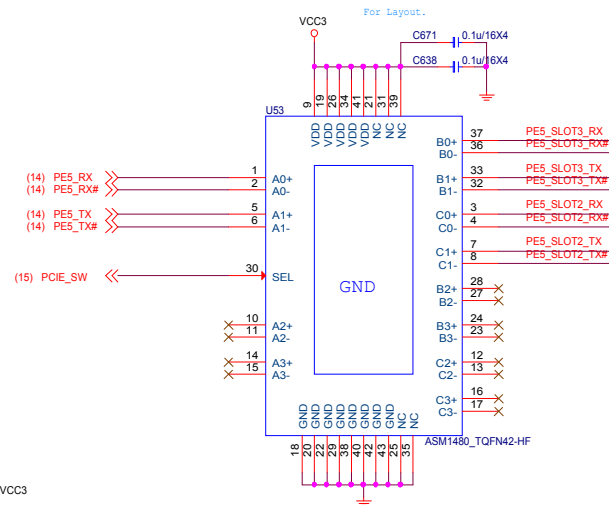
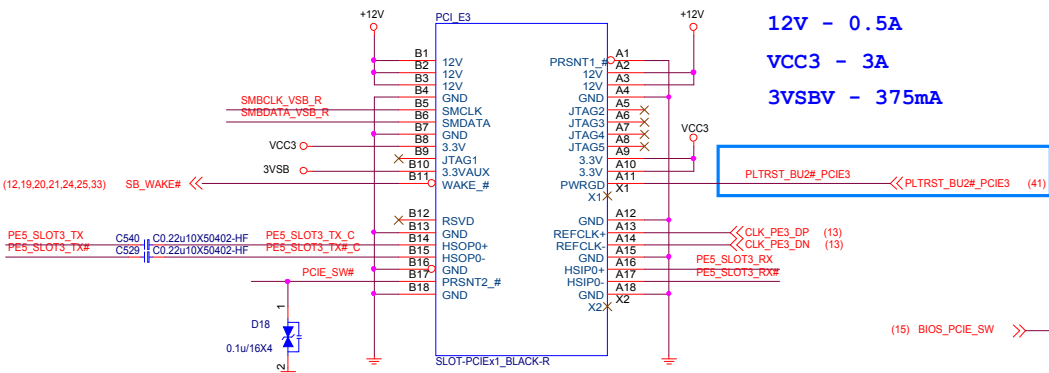
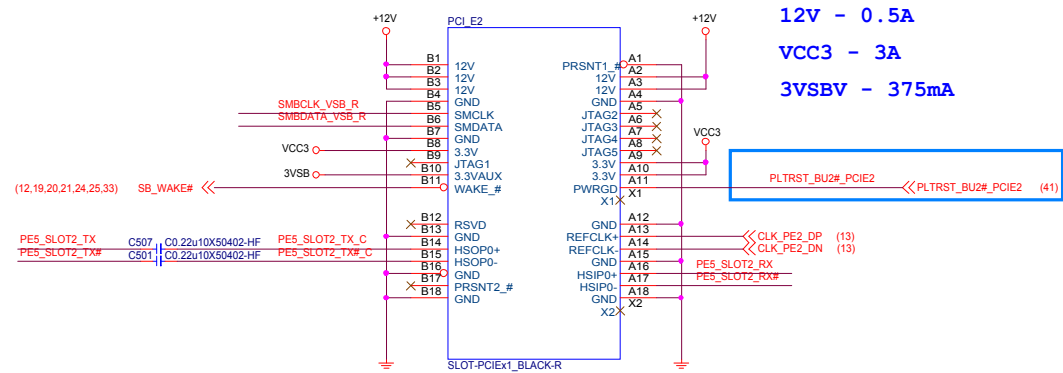


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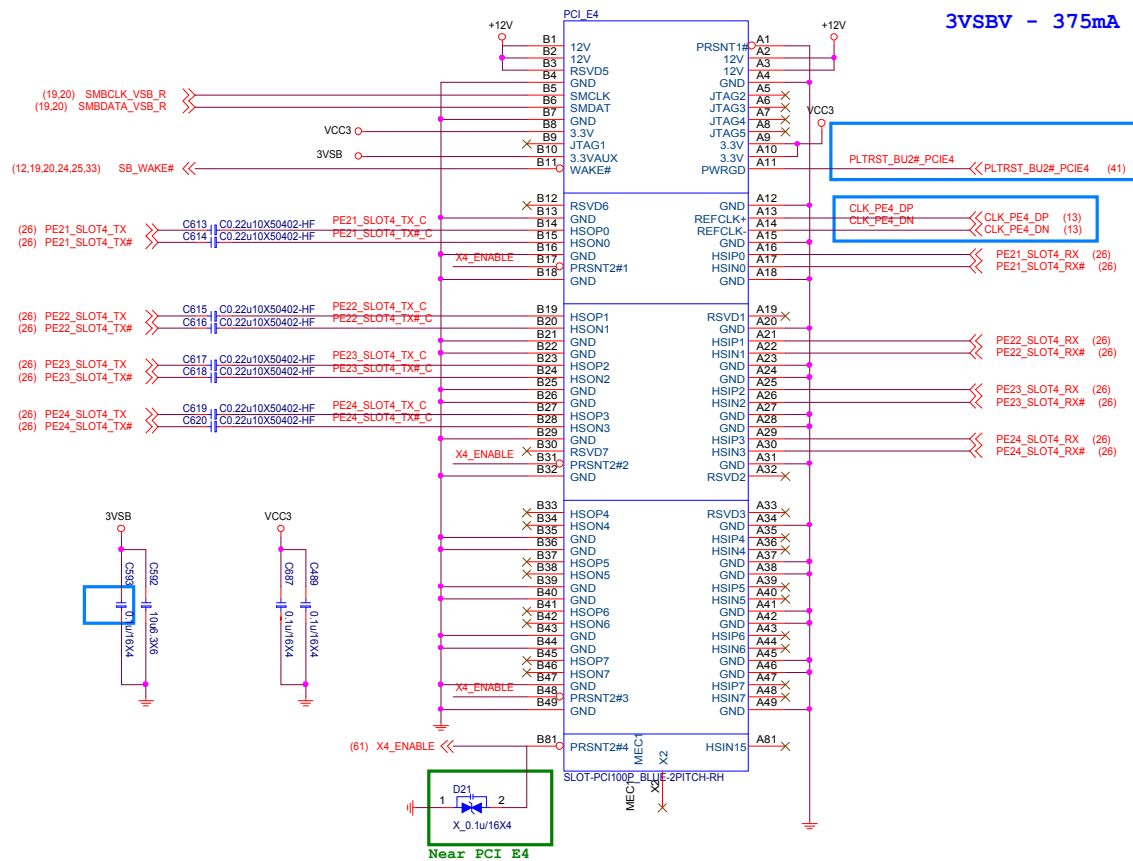
MS-7B49

Size	Document Description	Rev
Custom	PCIE SLOT (X16)	2.0
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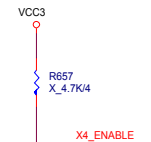
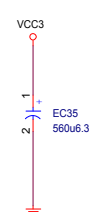
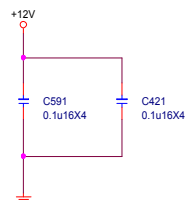
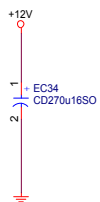


# PCI Express X4 Slot

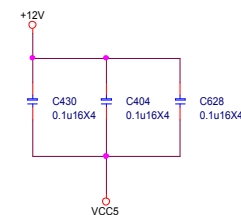
12V - 2.1A  
VCC3 - 3A  
3VSBV - 375mA

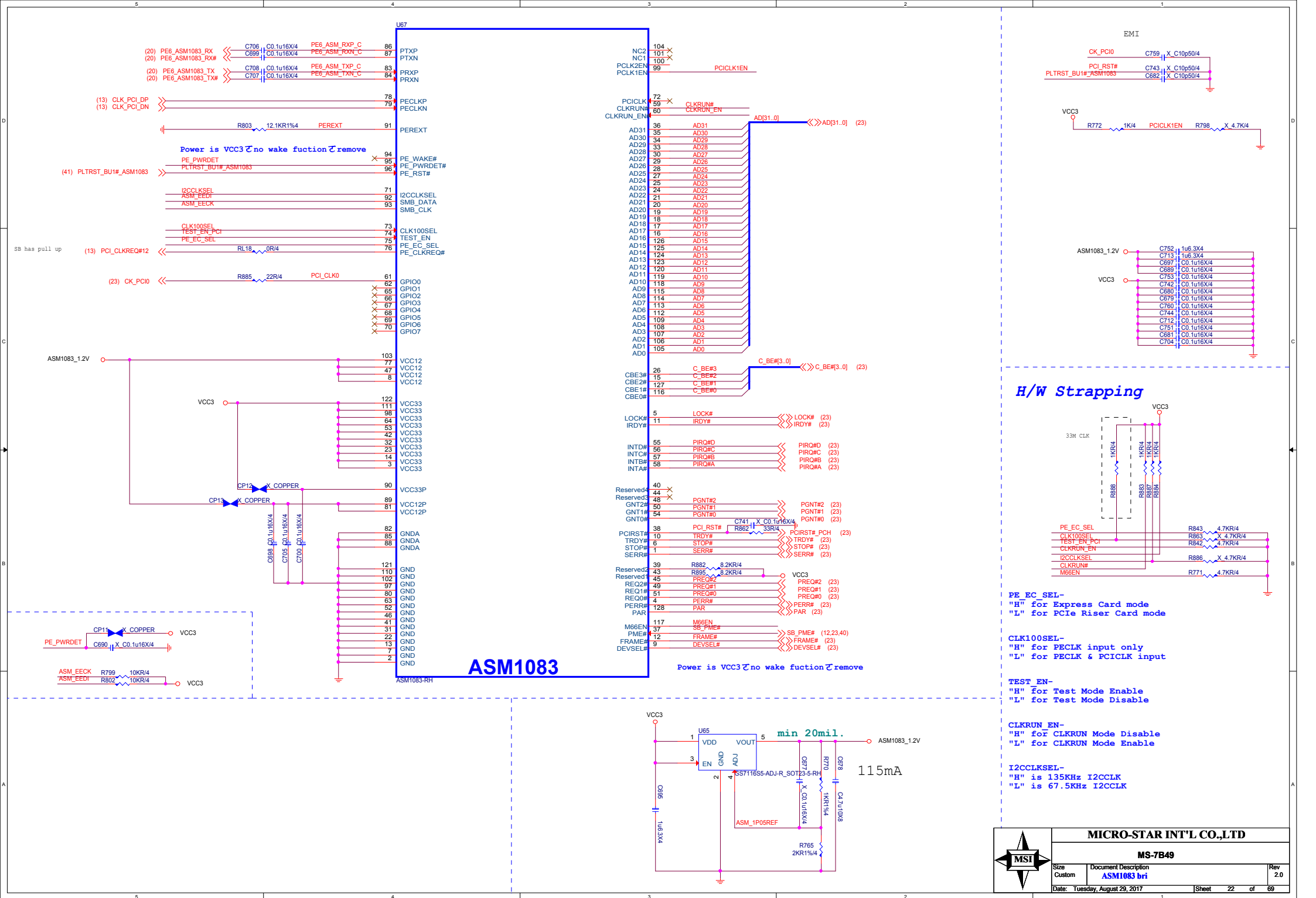


Near PCI\_E4



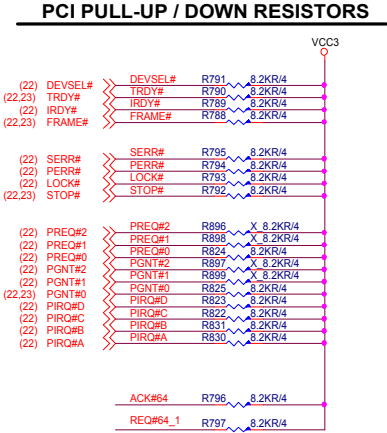
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```
3.3Vaux:0.375*2=0.75A(wake)
0.02*2=0.04A(no wake)
VCC3 :7.6*2=15.2A
VCC5:5*2=10A
+12V:0.5*2=1A
-12V:0.1*2=0.2A
```

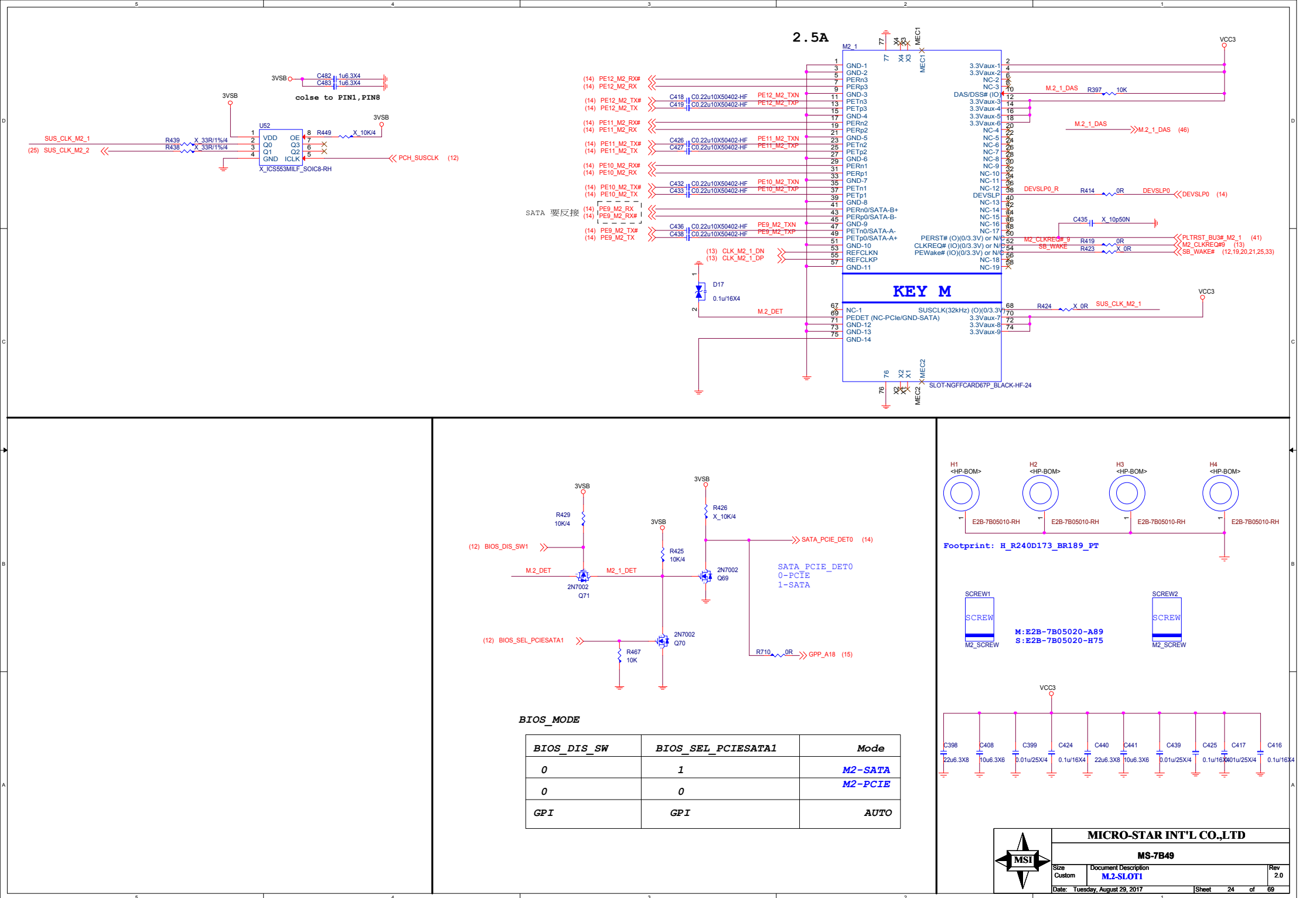


```
IDSEL = AD16
MASTER = PREQ#0
PIRQ#A
```

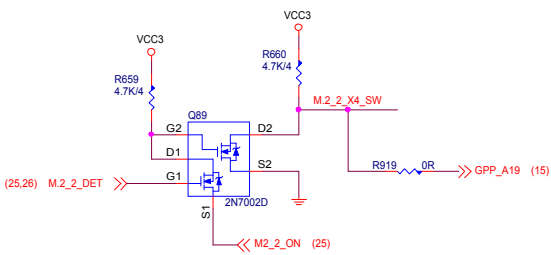
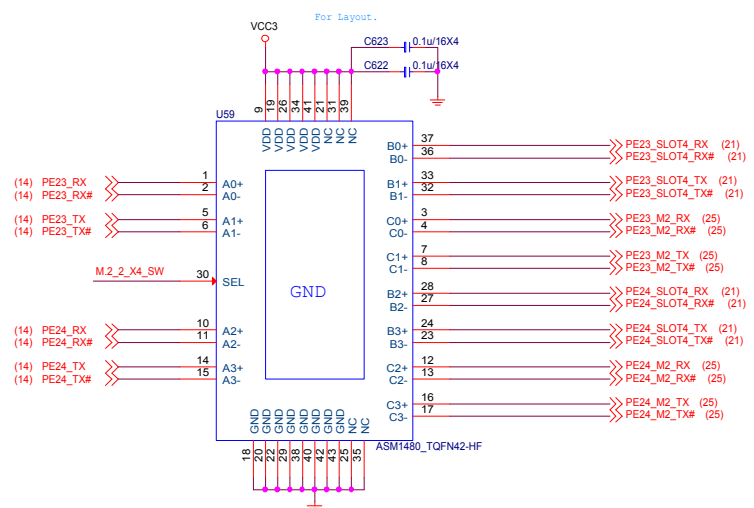
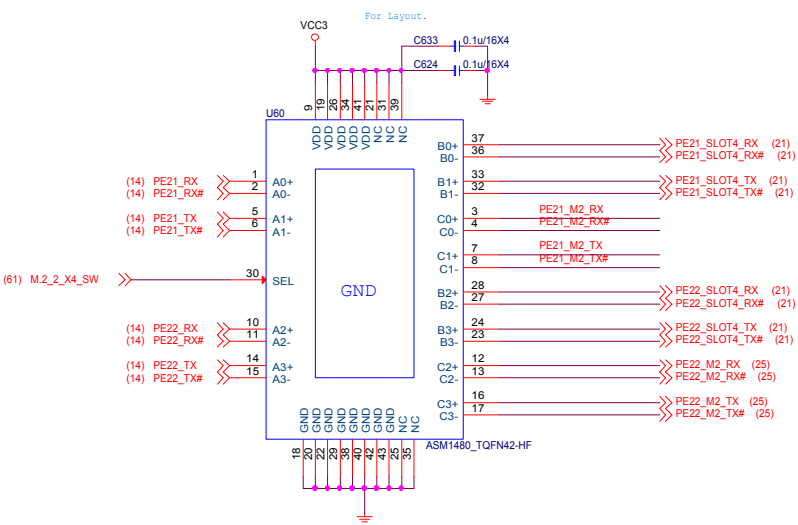
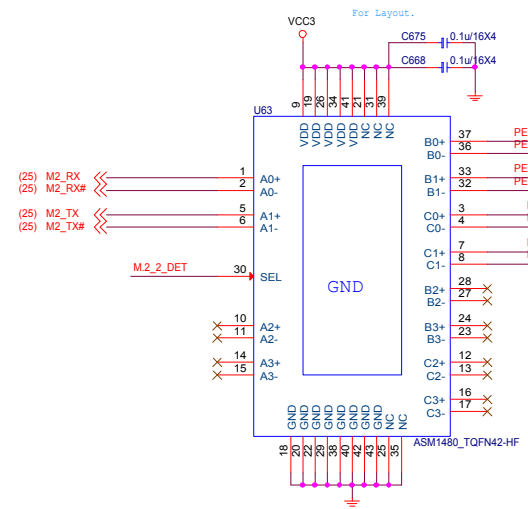
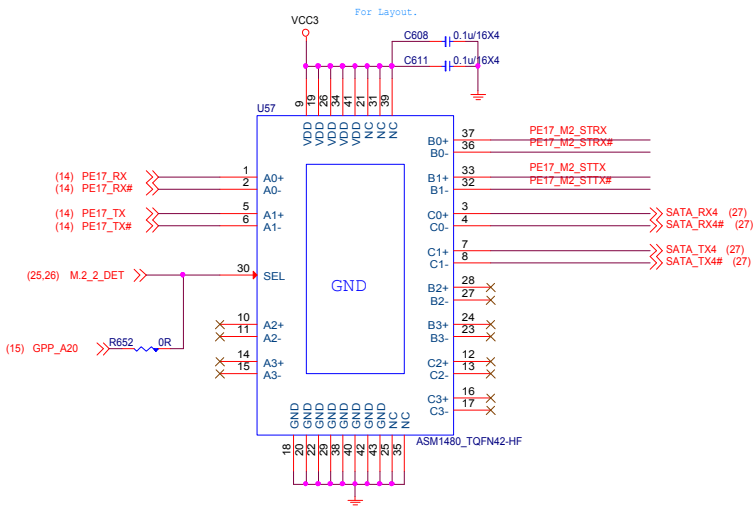
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Default  
M.2\_2 PCIE  
M.2\_2 SATA

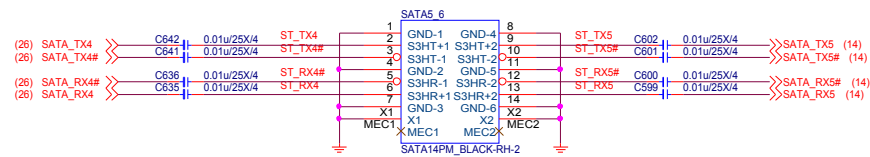
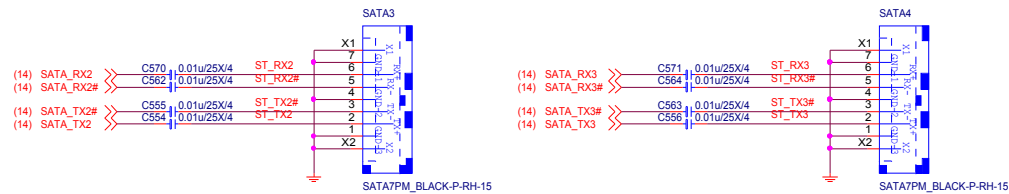
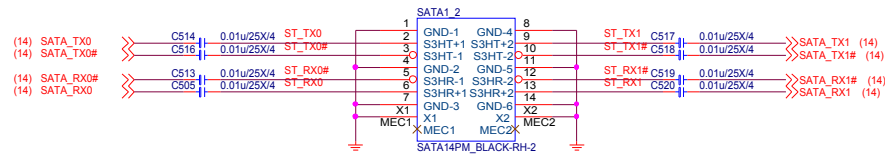
M2_2_ON	M.2_2_X4_SW	M.2 SATA	M.2 PCIE	X4 SLOT	SATA5
V	V	X	X	V	V
X	X	X	V	X	V
X	V	V	X	V	X

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**MS-7B49**

Size Custom Document Description **M.2/SATA/PCIE SW** Rev 2.0

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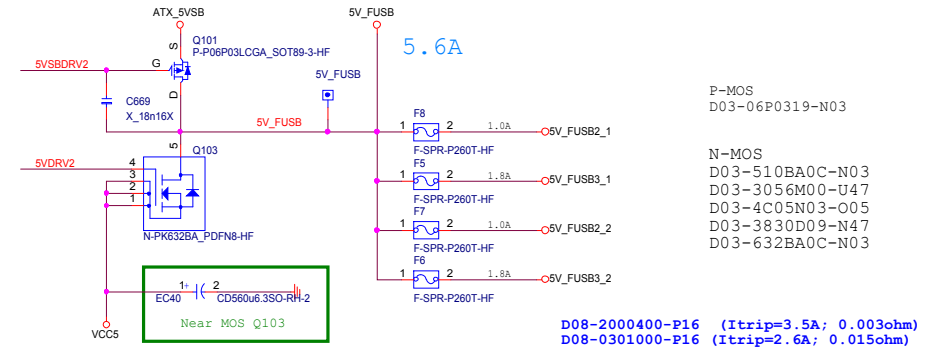
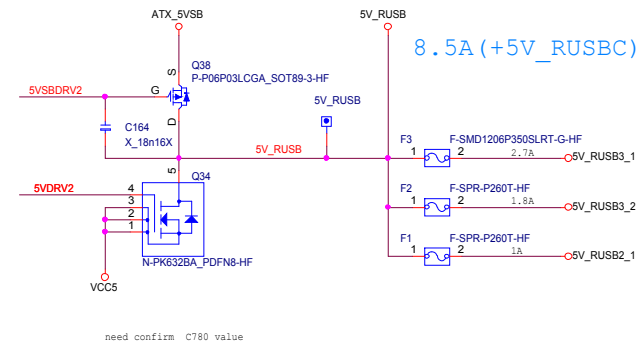
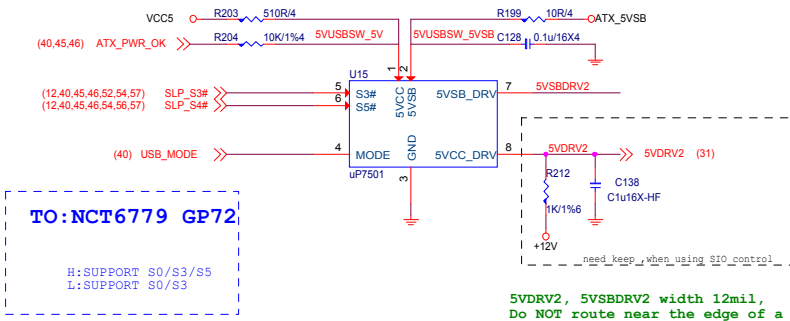


MICRO-STAR INT'L CO.,LTD

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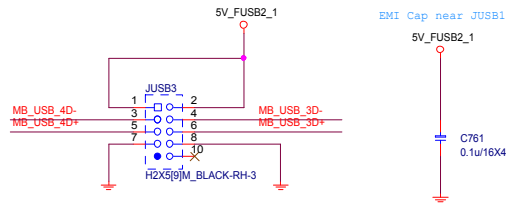
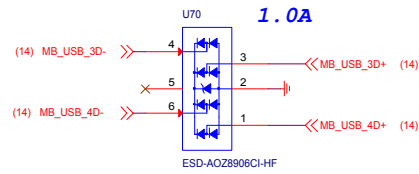
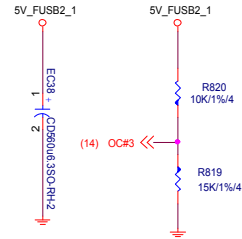
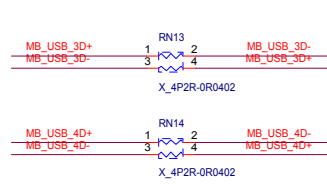
Size	Document Description	Rev
Custom	SATA Express/SATA Connector	2.0
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## REAR USB PORT POWER

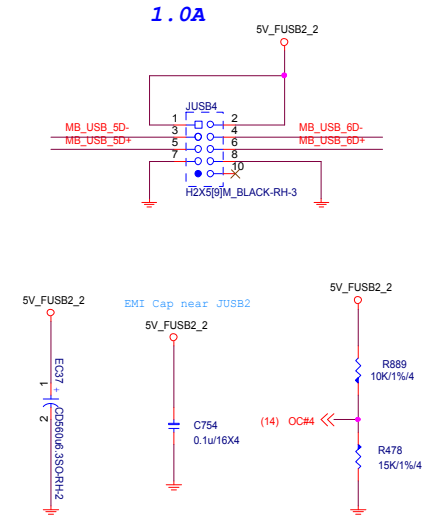
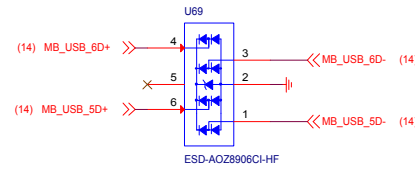
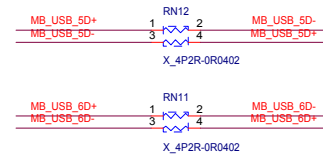


<b>MICRO-STAR INT'L CO.,LTD</b>			
<b>MS-7B49</b>			
Size Custom	Document Description <b>USB POWER-MP149S/UP7501</b>		Rev 2.0
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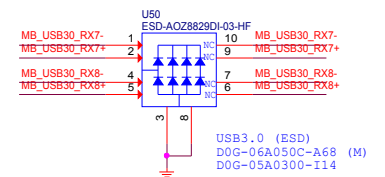
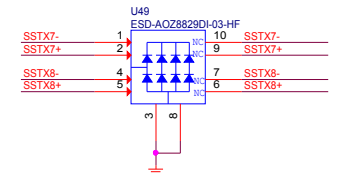
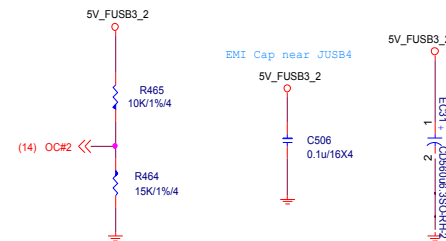
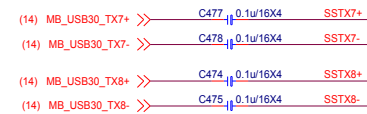
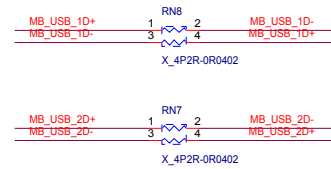
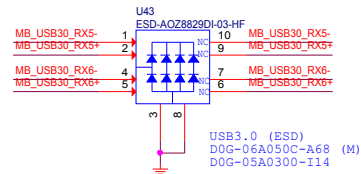
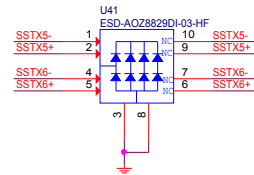
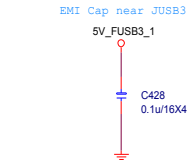
# FRONT USB2.0 PORT 3,4



# FRONT USB2.0 PORT 5,6



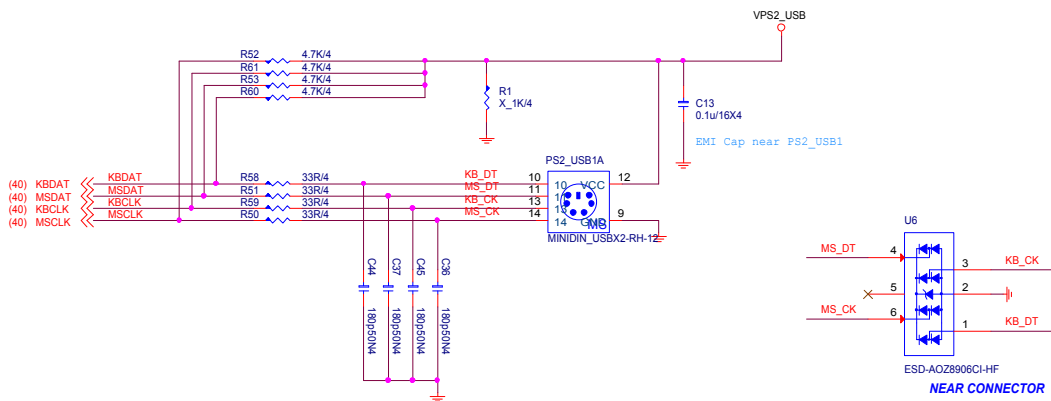




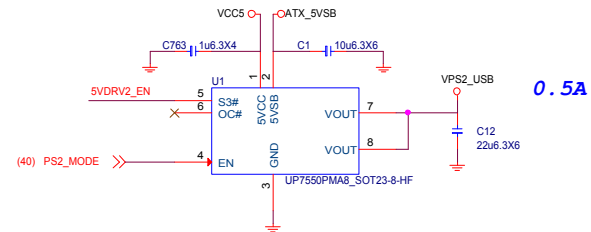
Size Custom	Document Description <b>Front USB3</b>	Rev 2.0
Date: Tuesday, August 29, 2017		Sheet 30 of 69

# PS2 KEYBOARD & MOUSE CONNECTOR

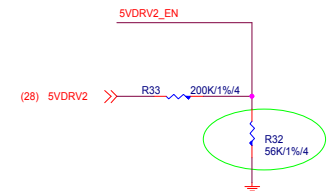
## PS2 Connector



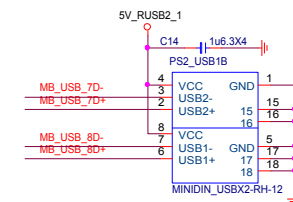
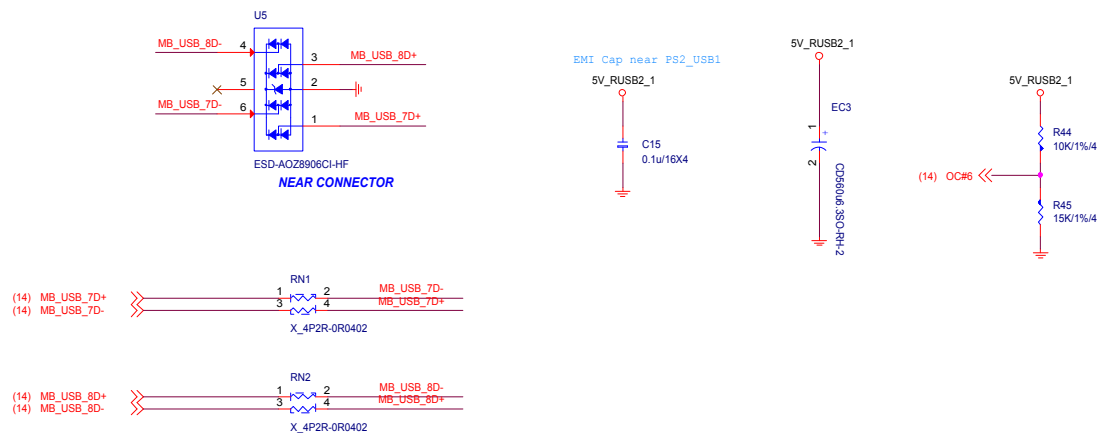
## PS2 Power



## USB MODE



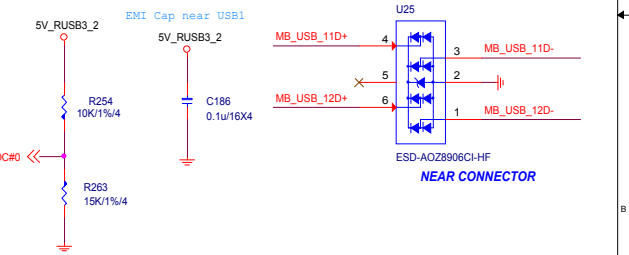
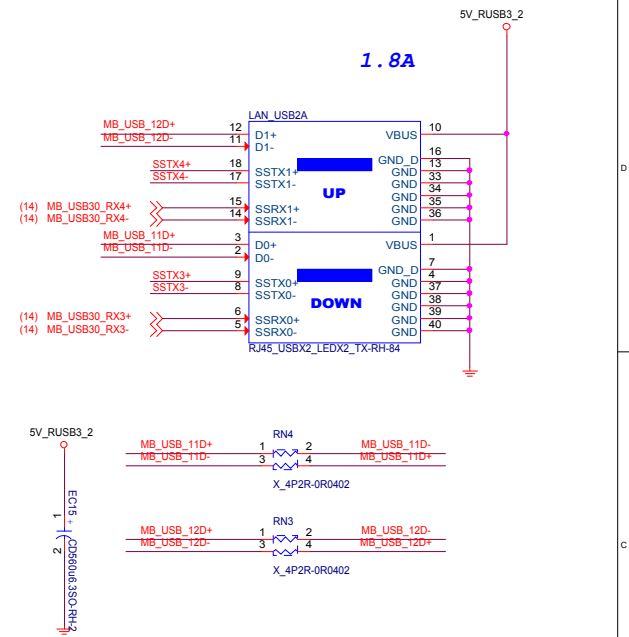
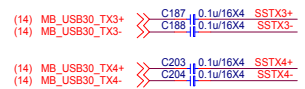
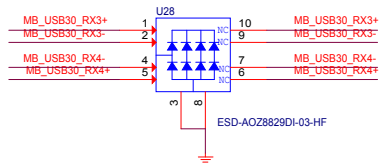
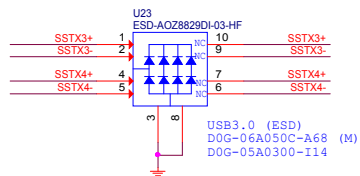
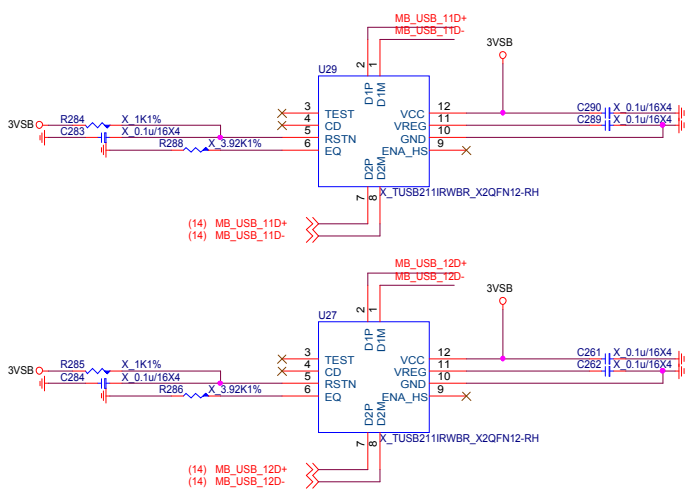
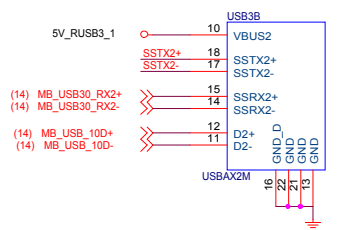
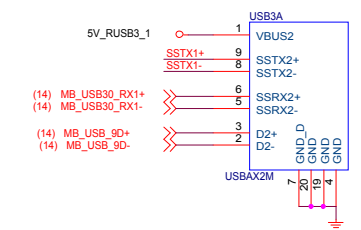
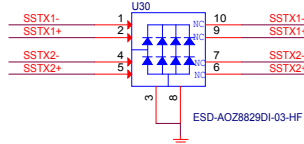
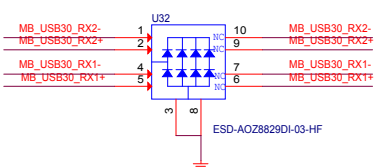
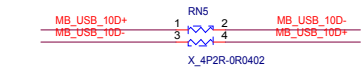
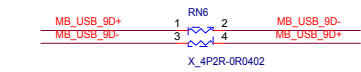
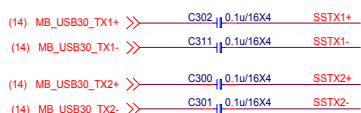
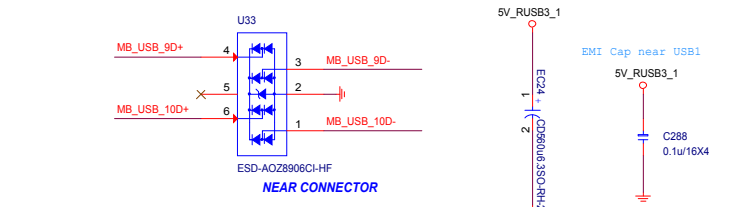
## PS2\_USB

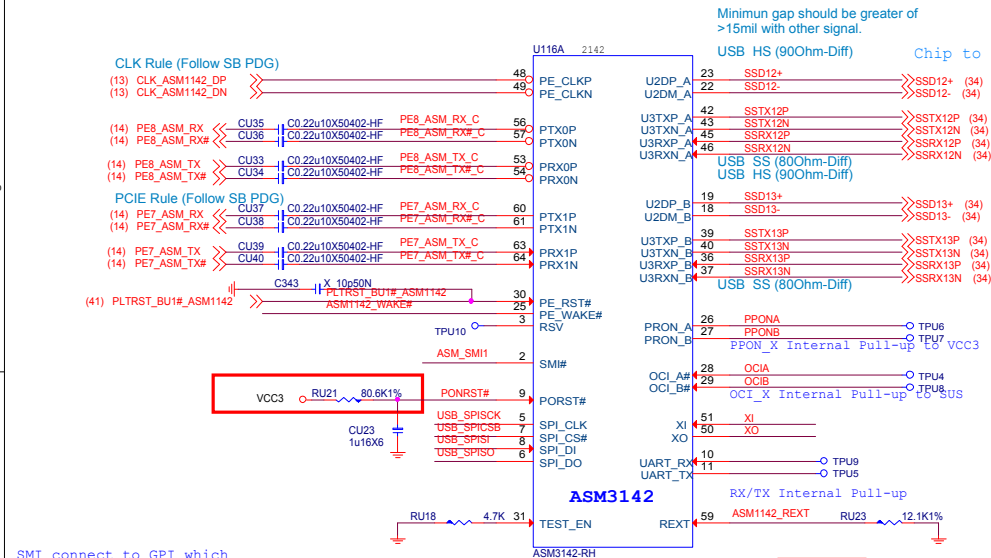


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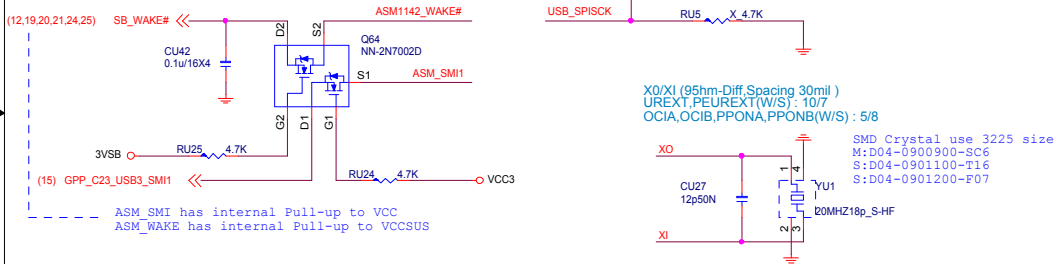
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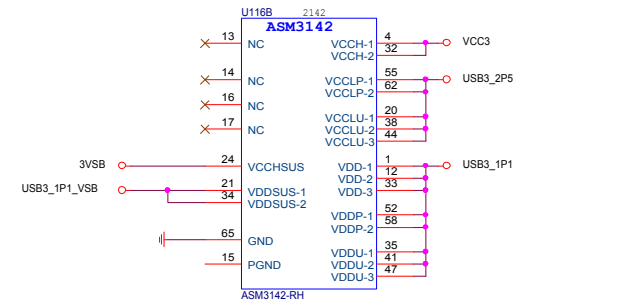


SMI connect to GPI which support smi function. SB side pull high 10K ohm to 3VSB. (Intel 8X & 9X series use GPIO10) (Intel SKL use GPP\_C23)

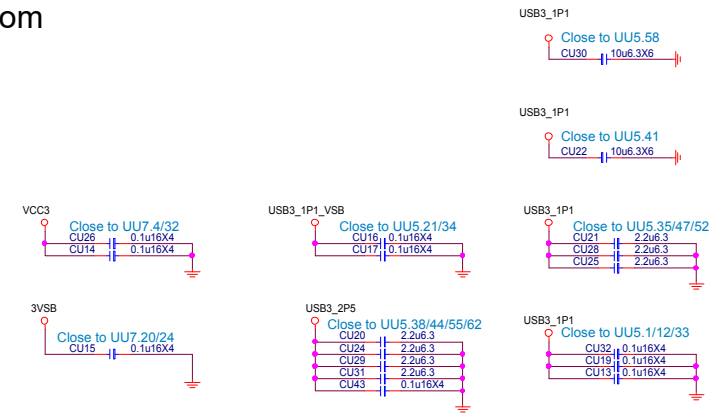


Power Consumption

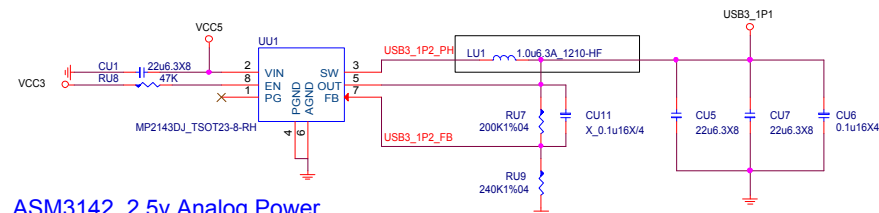
	3.3V	3.3VSUS	2.5V	1.1V	1.1VSUS	Unit
ASM3142	TbD	TbD	TbD	TbD	TbD	mA
ASM2142	4	9	220	470	10	mA



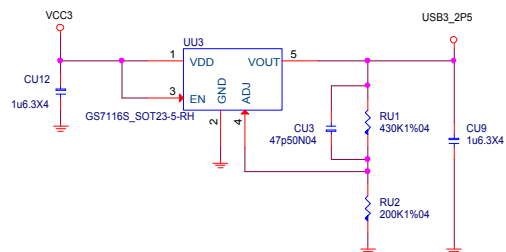
Vinafix.com



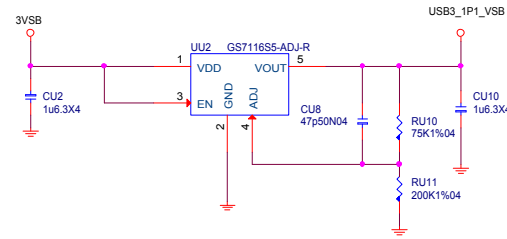
## ASM3142 1.1v Core Power



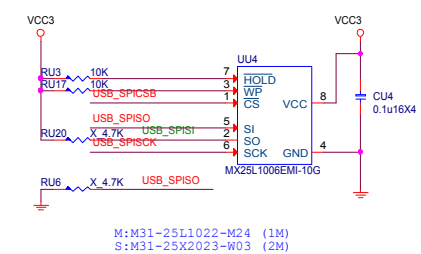
## ASM3142 2.5v Analog Power



## ASM3142 1.1v Suspend Power

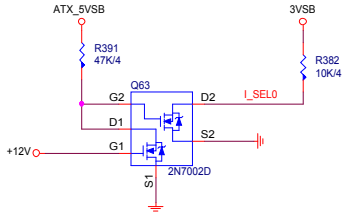


## EEPROM



MICRO-STAR INT'L CO.,LTD		
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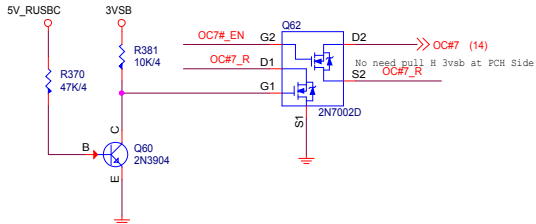
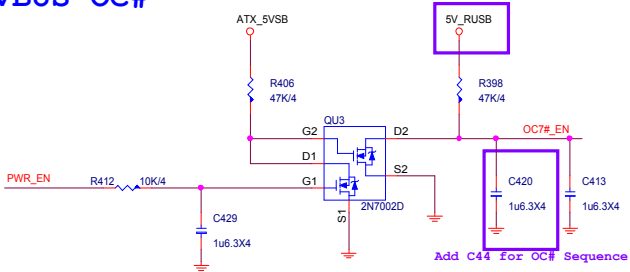
Current Mode



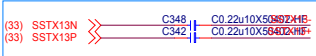
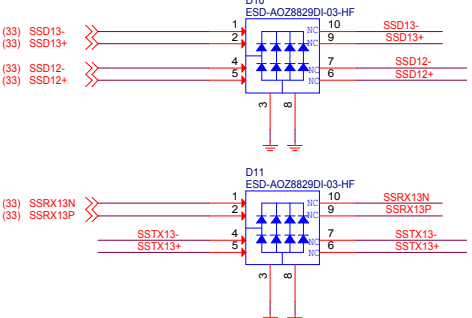
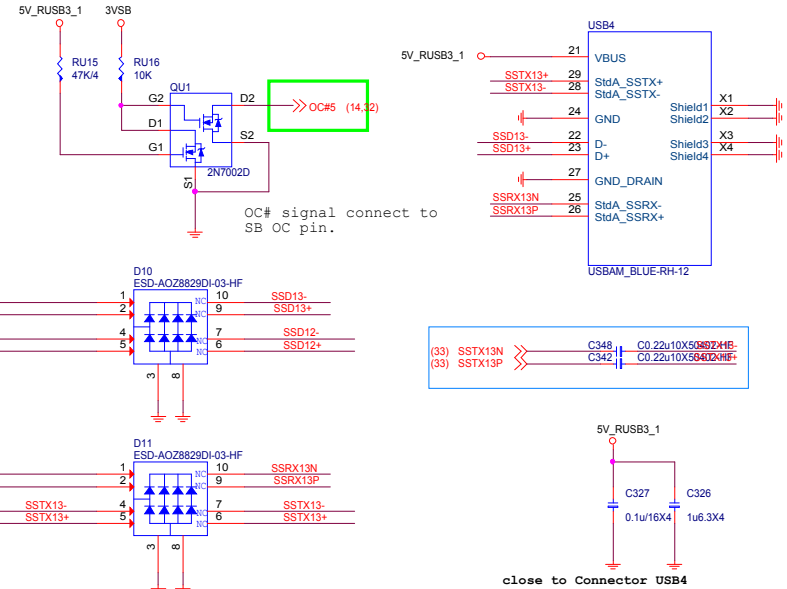
I_SELO: I_SEL1	
X	0
0	1
1	1

1.5A under S3 mode  
3A under S0 mode

VBUS OC#

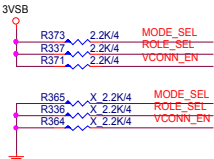


TYPE-A



close to Connector USB4

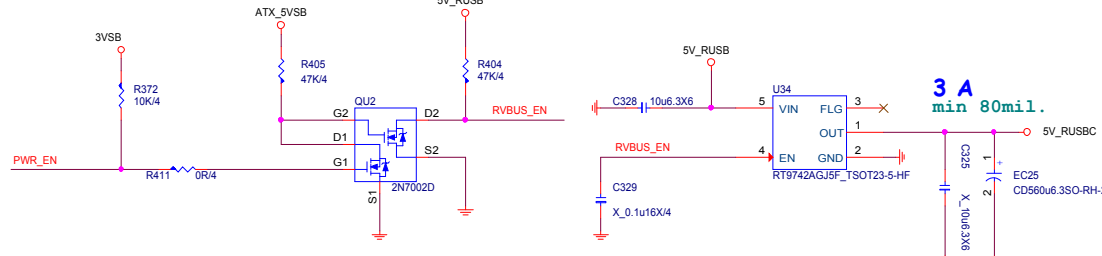
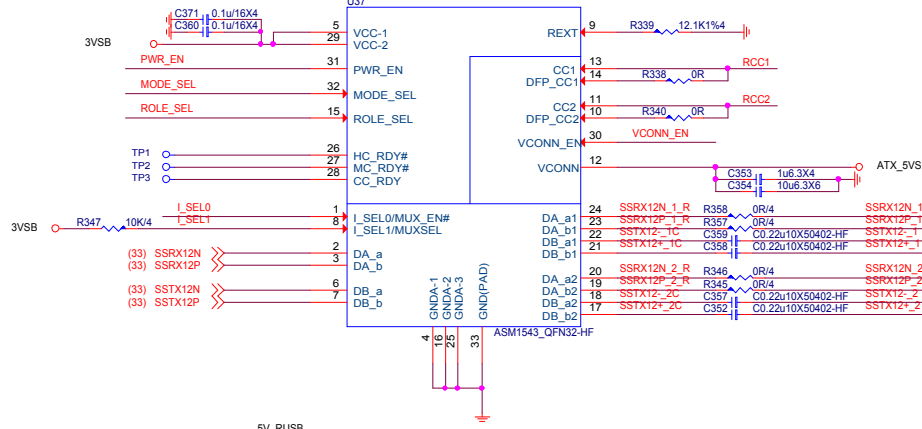
USB Type-C MUX with Configuration Channel (CC)



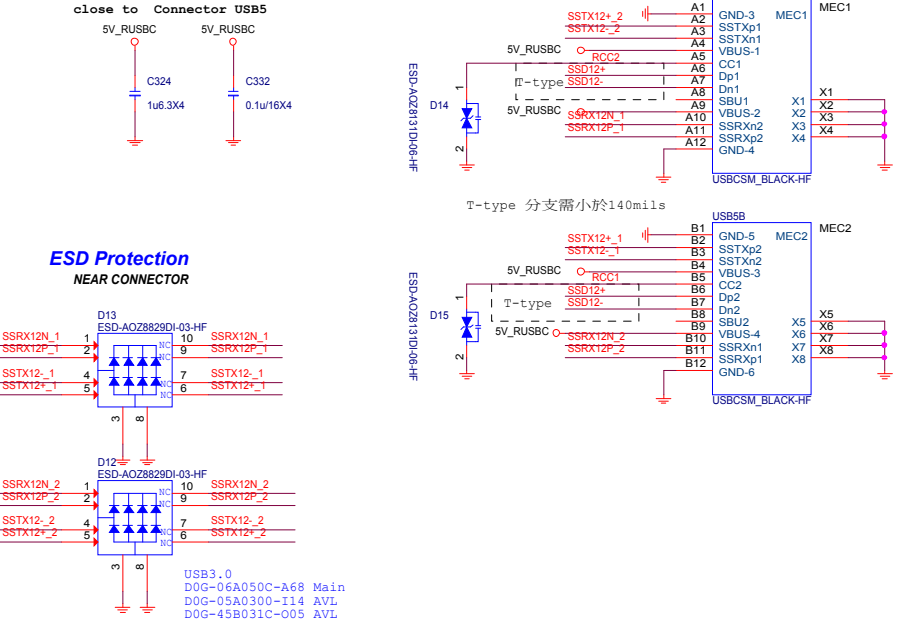
MODE_SEL	
1	CCL MODE (default)
0	Mux MODE

ROLE_SEL	
1	DFP role (default)
0	UFP role

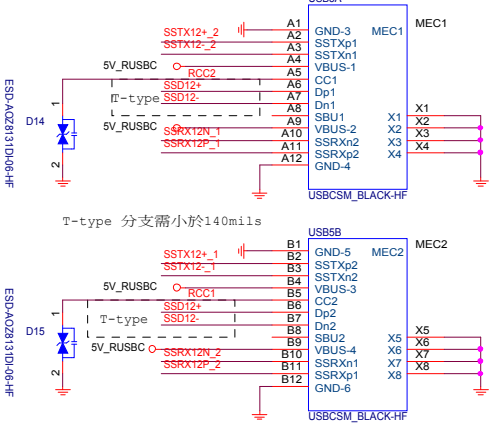
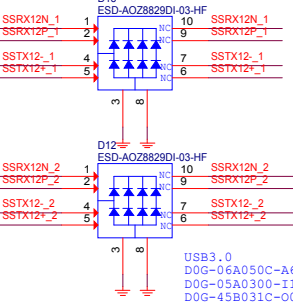
VCONN_EN	
1	enable
0	disable



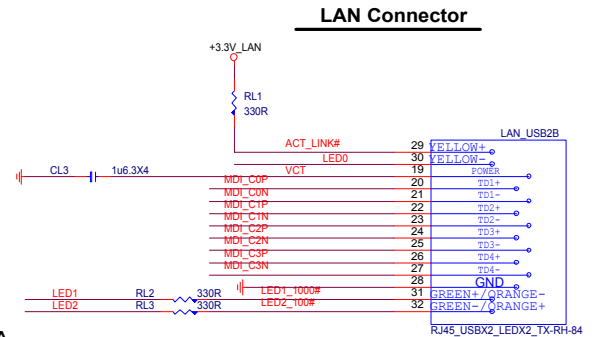
TYPE-C



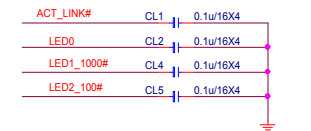
ESD Protection  
NEAR CONNECTOR



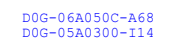
8111H:B06-08111CC-R09  
8111G:B06-081116C-R09



*For EMI*



UL2&UL3 close to connector



The diagram illustrates the MDI input circuit for the ESD-AOZ8829DI-03-HF. It features a 4x4 multiplexer (UL1) with MDI\_C2P and MDI\_C2N inputs on pins 1, 2, 4, and 5, and MDI\_C3P and MDI\_C3N inputs on pins 10, 9, 7, and 6. The multiplexer is configured with NC and +NC pins. The output is connected to the ESD-AOZ8829DI-03-HF chip, which is grounded.

ATX\_5VSB

3VDSW

SLP\_LAN

QL3 P-P06P03

QL4 2N7002

QL16 22u6.3X8

QL17 0.1u/16X4

QL18 1u6.3X4

QL19 1u6.3X4

RL14 10K

RL16 47K

RL17 20K1%

(12) SLP\_LAN#

+3.3V\_LAN

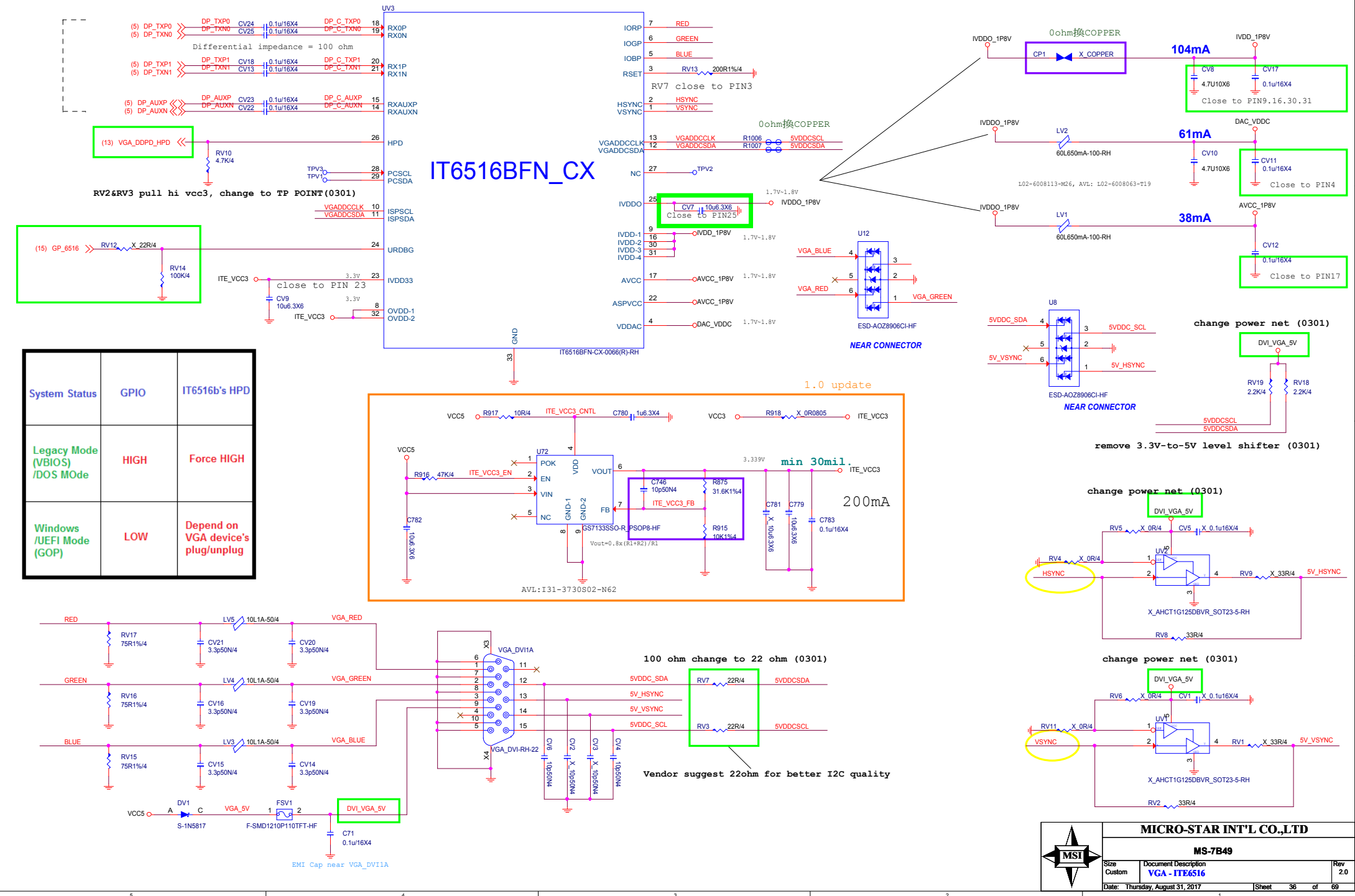
Note: These caps

Note: These caps closed to PHY



<b>MICRO-STAR INT'L CO.,LTD</b>			
<b>MS-7B49</b>			
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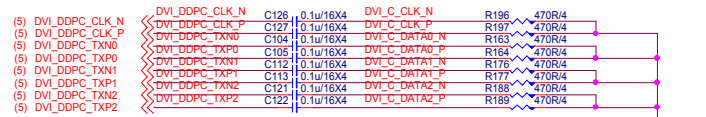
**Note:**  
If connect to eDP port,must confirm whether it support hot plug detection HPD and re-auxtraining



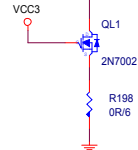
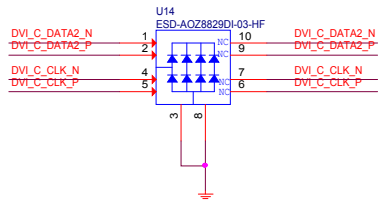


VGA: resolution of 2048x1536 pixels with 32-bit color at 75 Hz (4:3 QXGA)

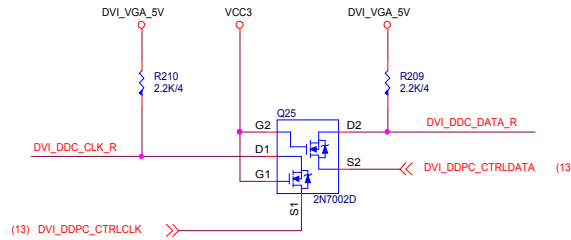
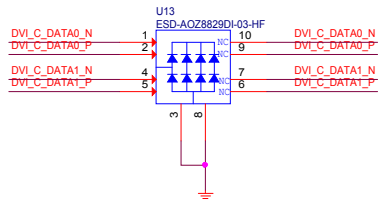
Check MSI PN  
N58-39F0231-K06



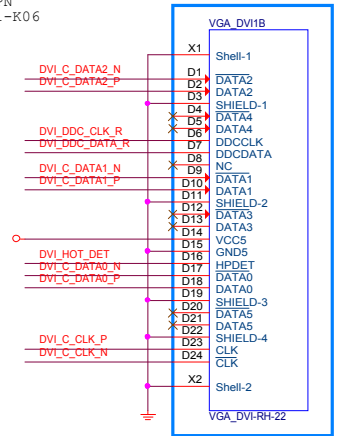
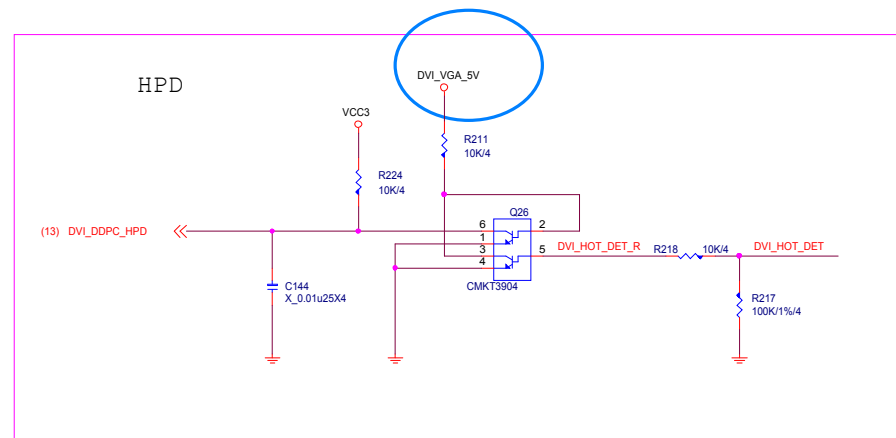
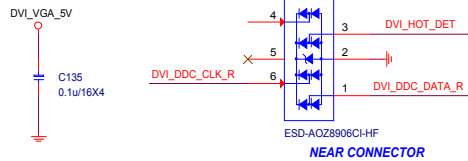
U26 AVL:D0G-05A050C-005  
D0G-06A050C-A68



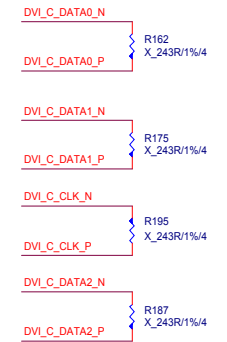
U27 AVL:D0G-05A050C-005  
D0G-06A050C-A68



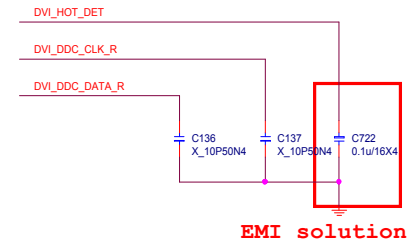
EMI Cap near connector DVI1



For EMI



EMI

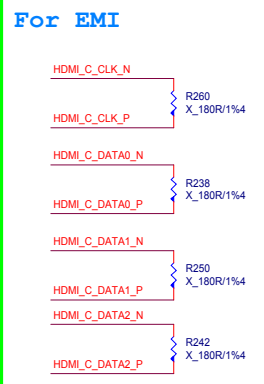
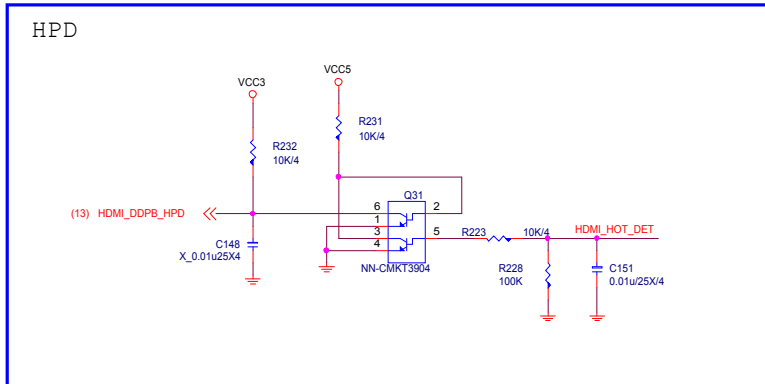
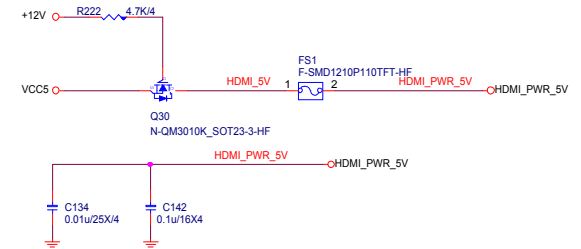
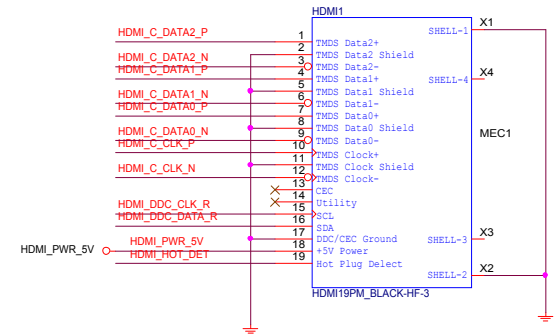
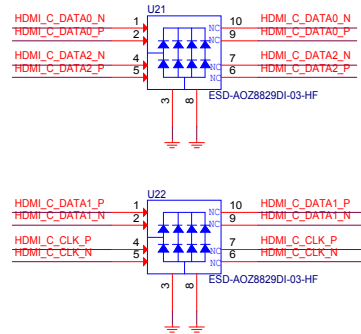
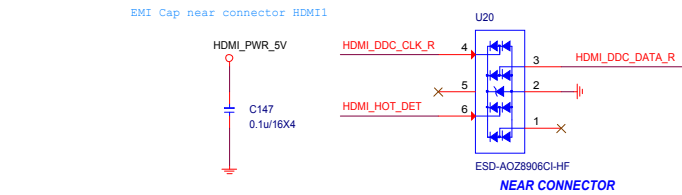
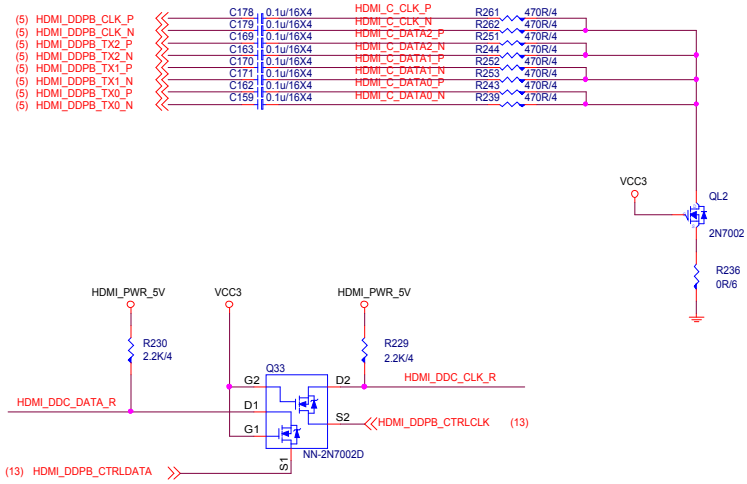


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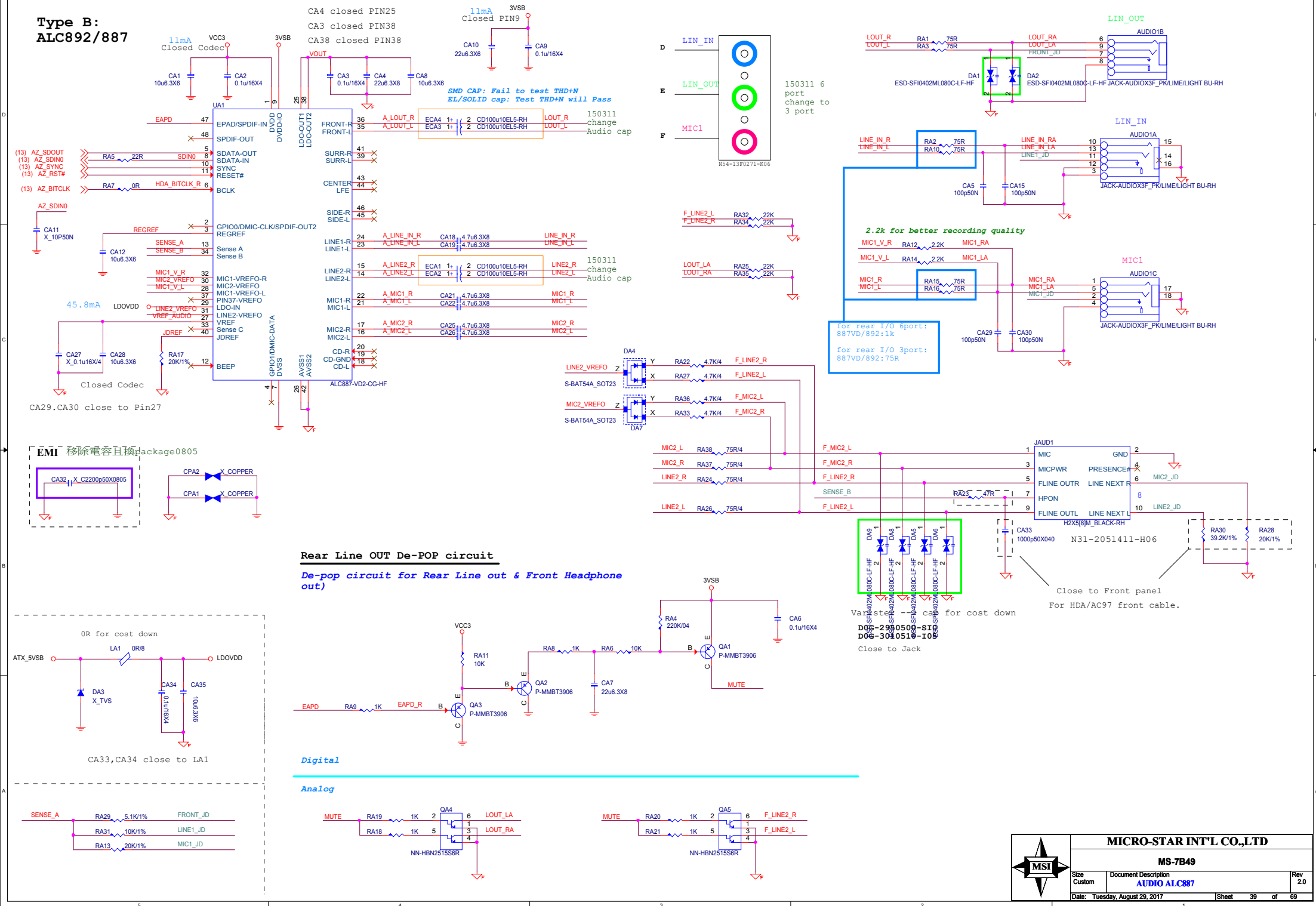
Size	Document Description	Rev
Custom	DVI Connector	2.0
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# HDMI, DVI : 1920x1200 at 60 Hz (16:10 WUXGA)



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Type B:  
ALC892/887

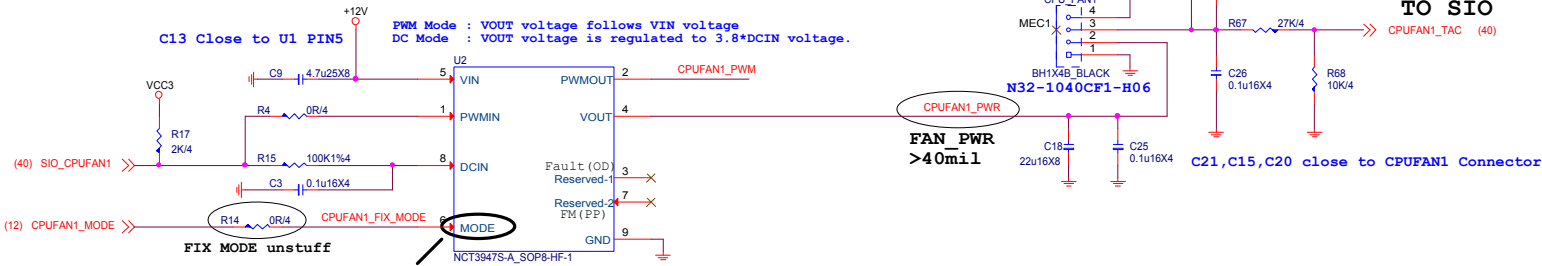






TYPE K : 4 PIN CPU FAN USE NCT3947S USE PCH GPIO CONTROL FAN MODE

- 1. PWM/DC/OCF LED (現在是改成R/G/B3色LED)
- 2. GPIO可以由BIOS切換 PWM/DC MODE
- 3. OCP拉回GPIO給BIOS認
- 4. PWM OR DC FAN拉回GPIO給BIOS認
- 5. FAN轉速加快的時候由SOFTWARE 控制GPIO讓燈的變化



GPIO Control

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

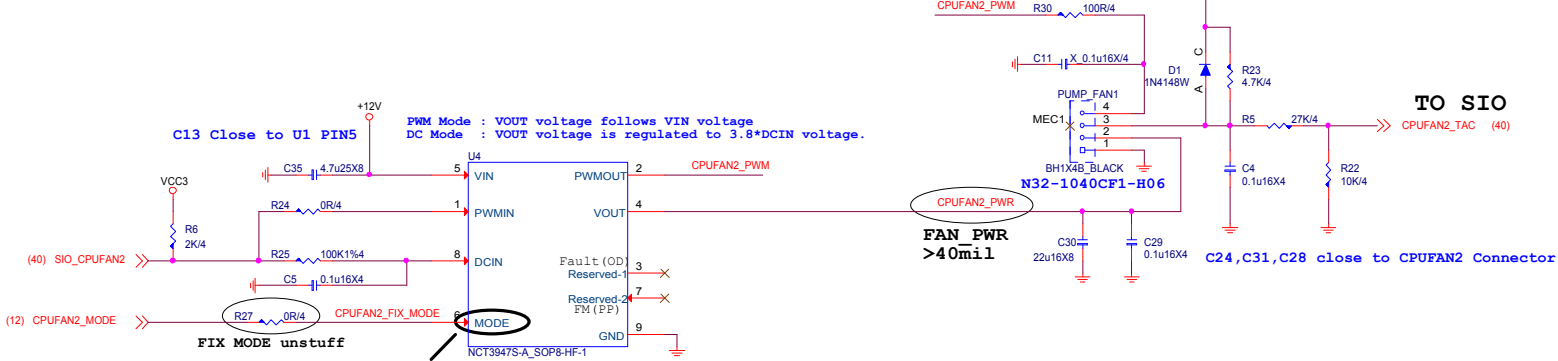
Default

Internall pull up 1.65V

Resever For FIX DC or PWM MODE USE By PM SPEC

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



GPIO Control

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

Default

Internall pull up 1.65V

Resever For FIX DC or PWM MODE USE By PM SPEC

- 1. MODE : USE MODE PIN change FAN MODE (PWM or DC FAN)
- 2. FAULT : USE FAULT PIN Triger OVT/OCF Protection, LOW Atcive (Reserve NEW IC)
- 3. FM : USE FM PIN For BIOS USE to Detect PWM or DC FAN & Show information (Reserve NEW IC)

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

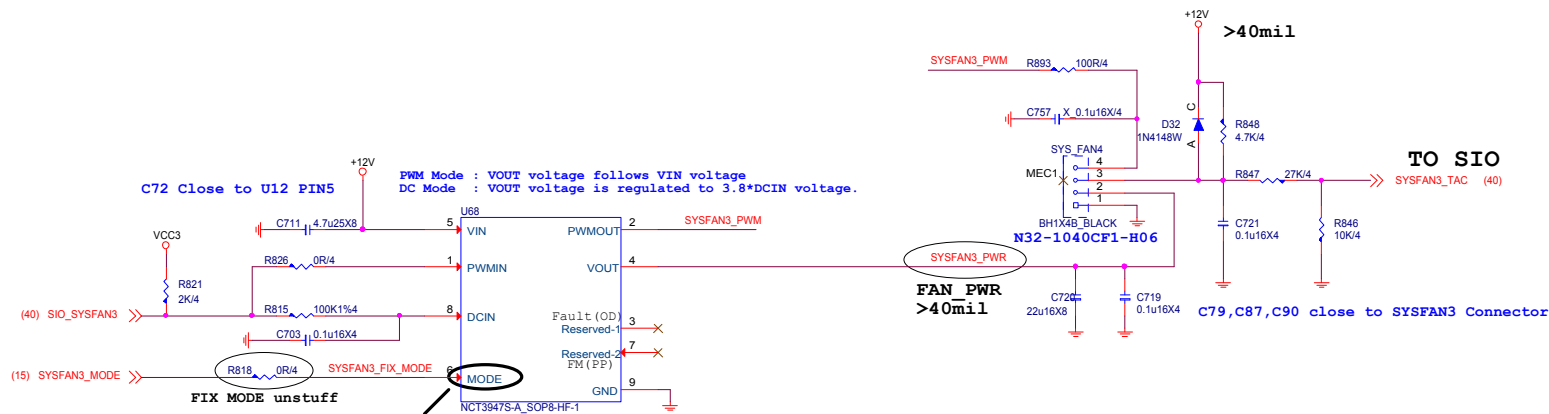


Default	AUTO MODE	GPI (Floating)
Internall pull up 1.65V		



Default	AUTO MODE	GPI (Floating)
Internall pull up 1.65V		

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

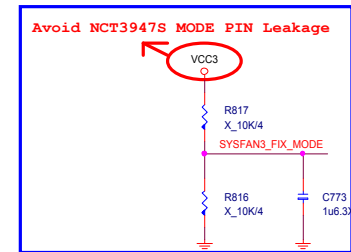


GPIO Control

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

Default

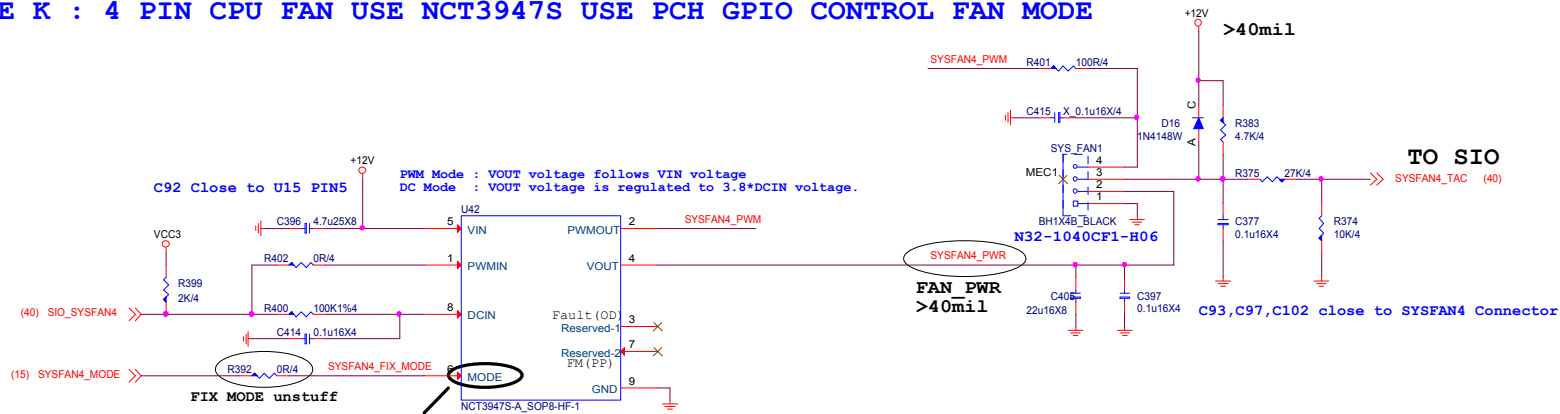
Internall pull up 1.65V



Reserver For FIX DC or PWM MODE USE By PM SPEC

Reserver For FIX DC or PWM MODE USE By PM SPEC

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



GPIO Control

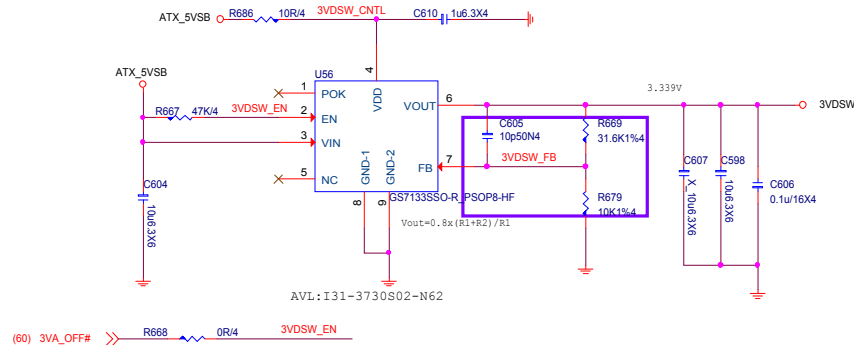
	MODE (PIN7)
PWM MODE	HIGH
DC MODE	LOW
AUTO MODE	GPI(Floating)

Default

Internall pull up 1.65V

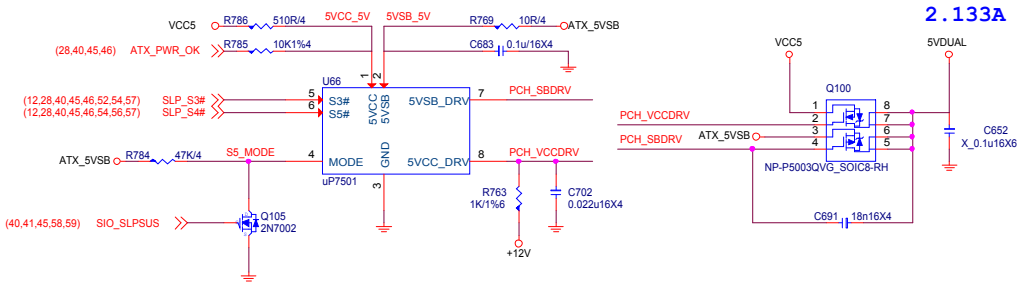


## 3VDSW

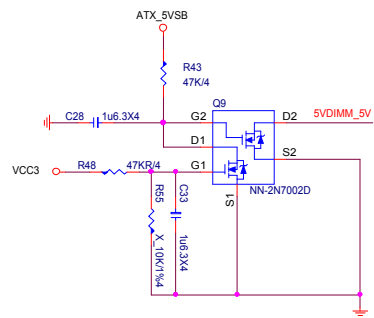
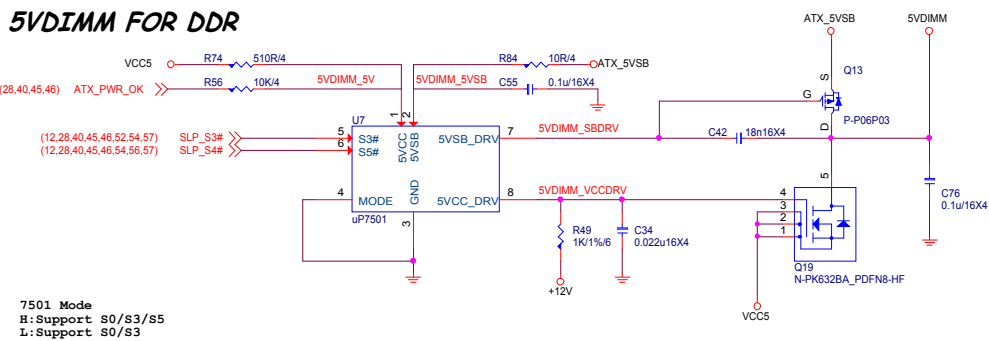


## 5VDUAL

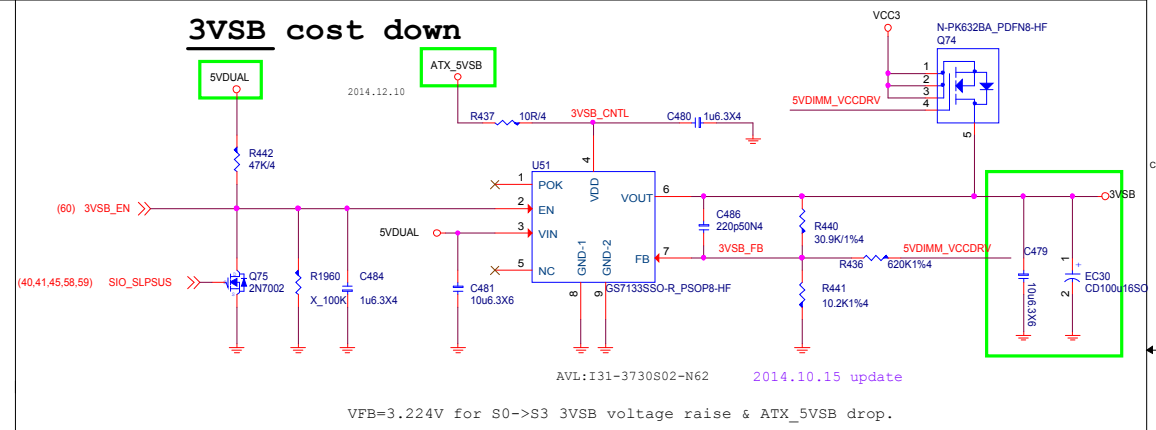
5VDUAL is power source of 1P0SB



## 5VDIMM FOR DDR

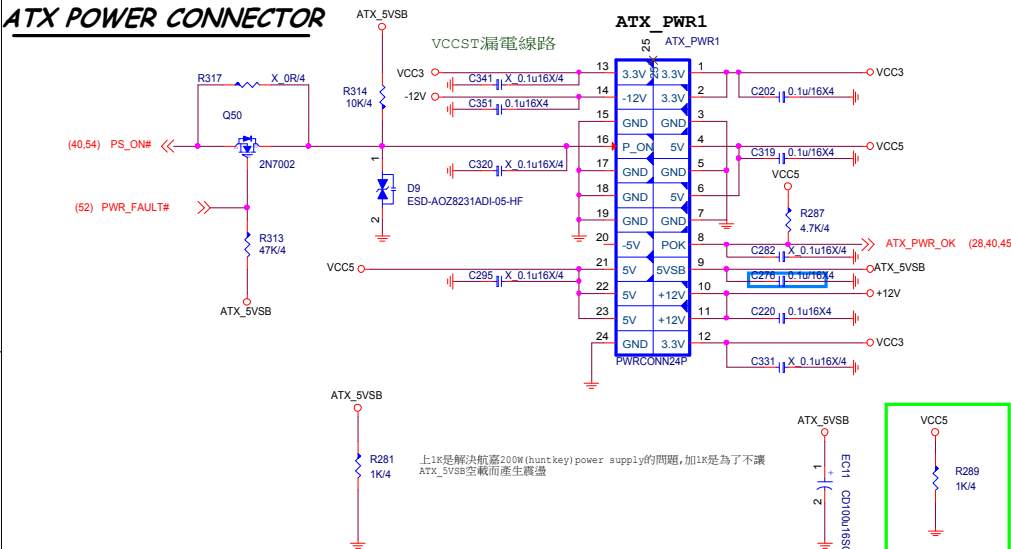


## 3VSB cost down

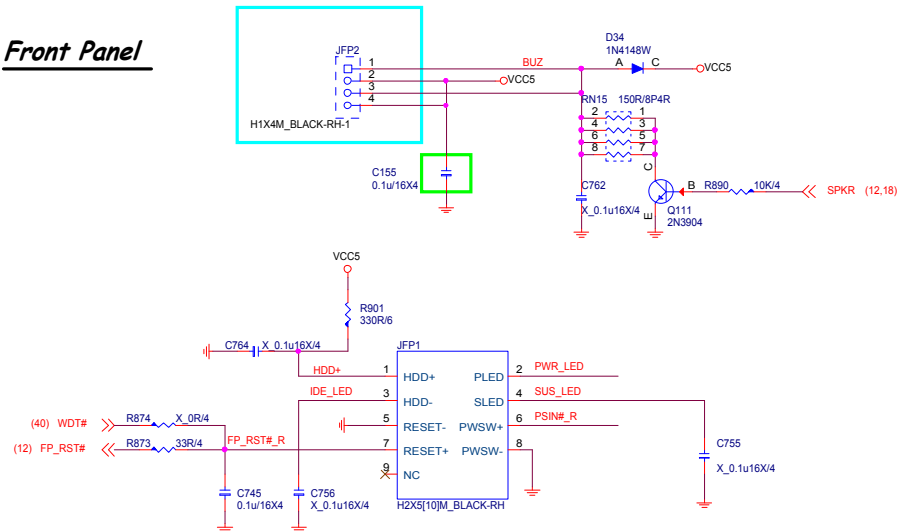


Vinafix.com

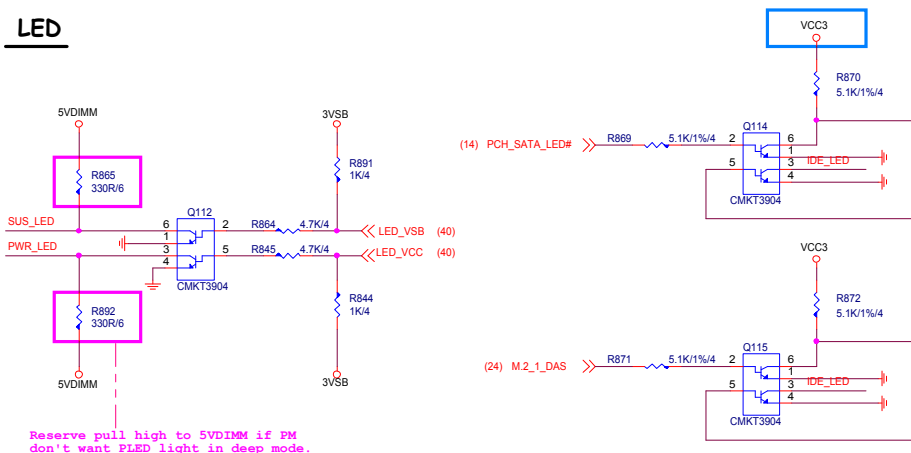
## ATX POWER CONNECTOR



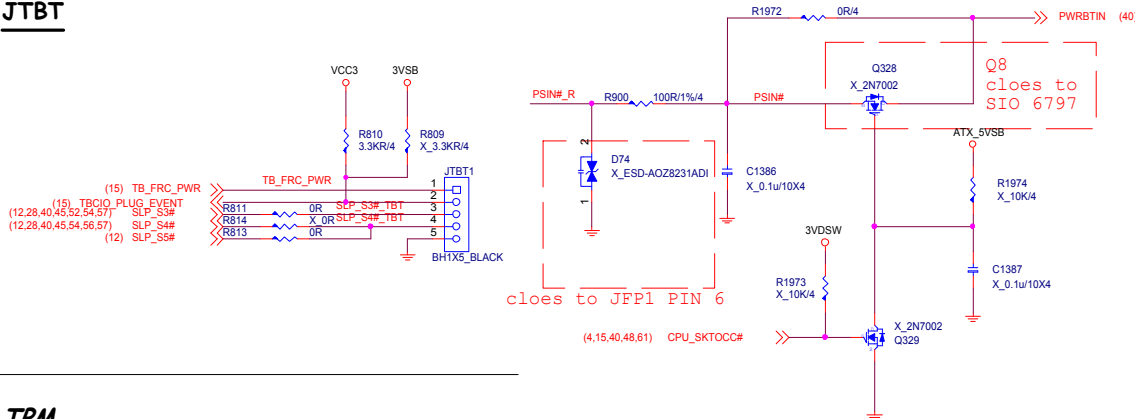
### Front Panel



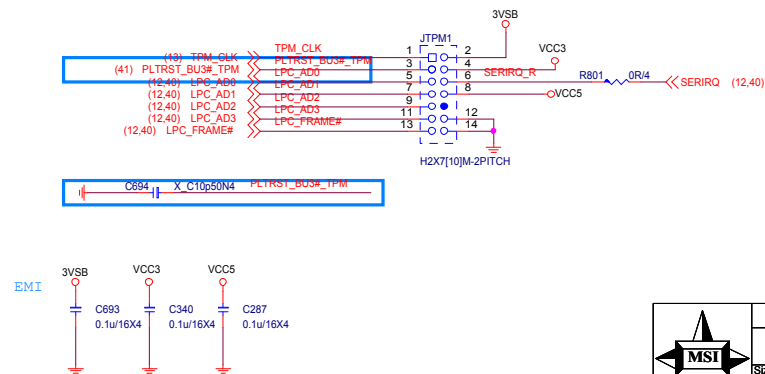
LED



**JTB**



**TPM**



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

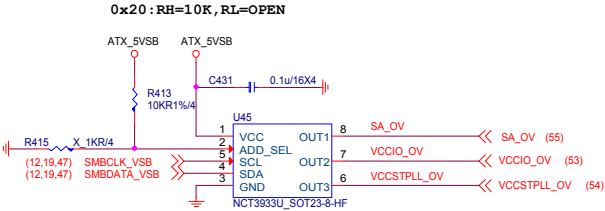
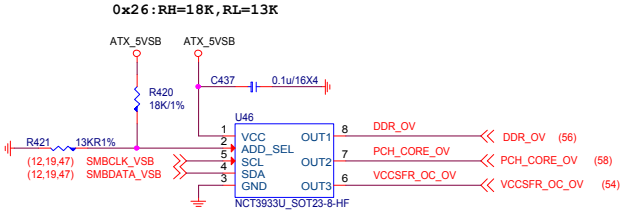
MS-7B49

Size Custom	Document Description <b>ATX Power/F_Panel</b>	Rev 2.0
Date: Tuesday, August 29, 2017		Sheet 46 of 69

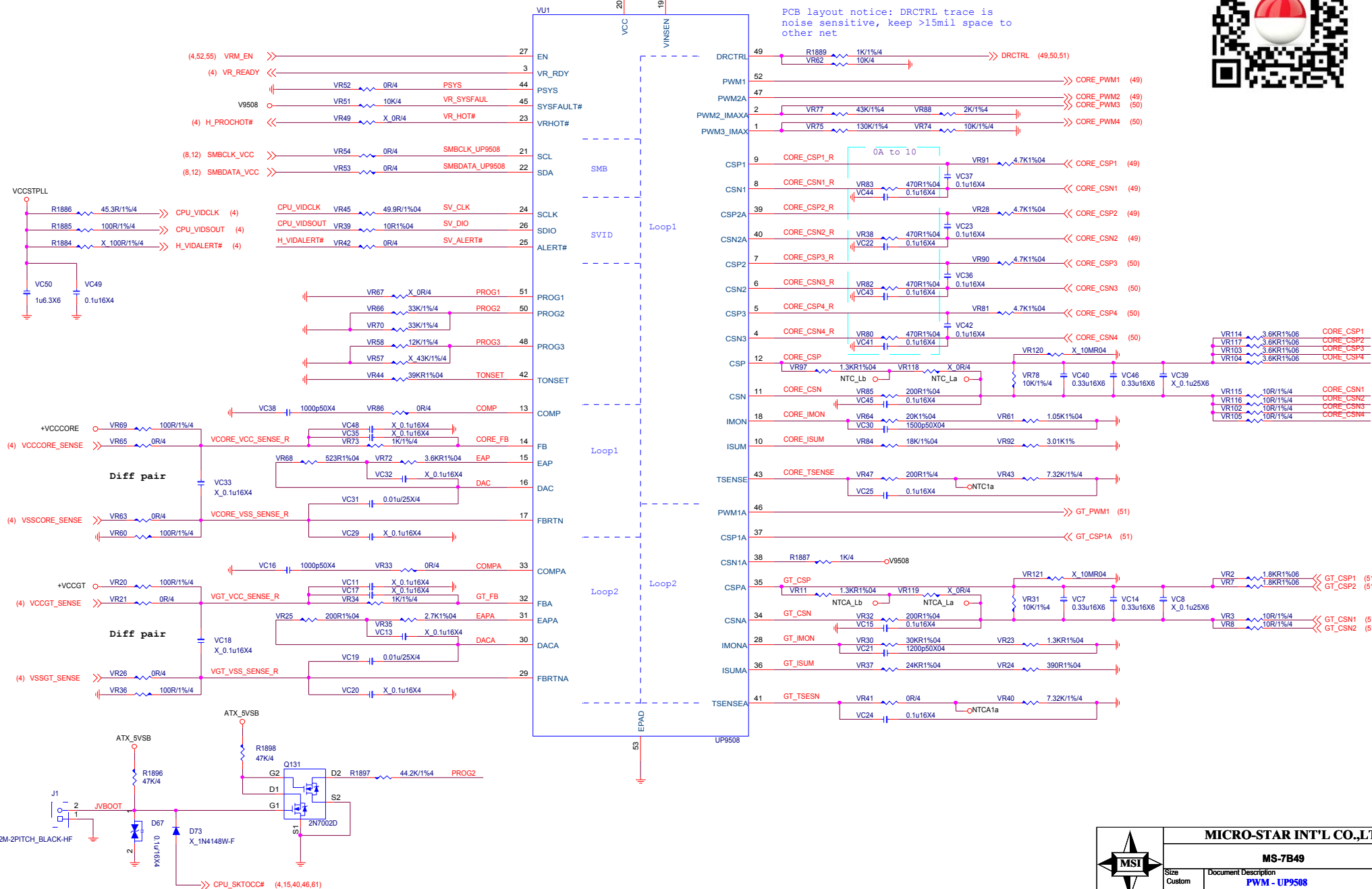
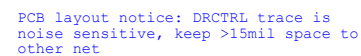
Over Voltage Control IC

UPI VOLTAGE CONSOLE

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%

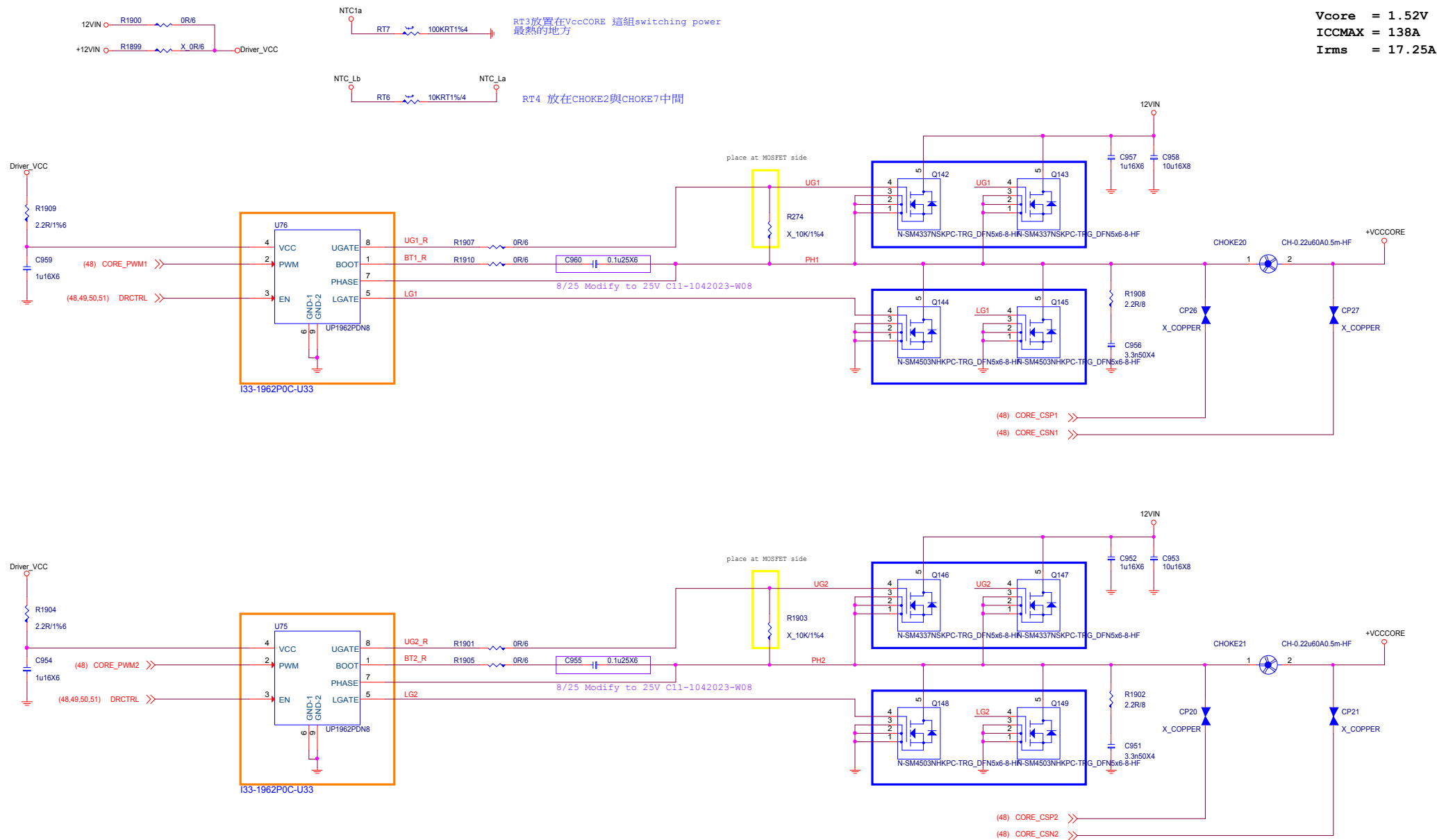


VGT: ICC Max 45A  
LL: 3.1 mohm  
OCP: 75A



MS-7B49

Size Custom	Document Description <b>PWM - UP9508</b>	Rev 2.0
Date: Tuesday, August 29, 2017		Sheet 48 of 69

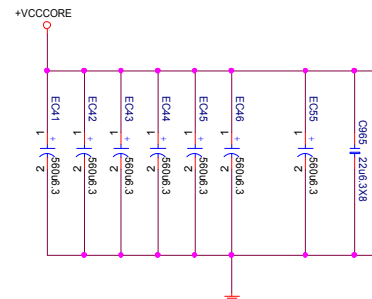
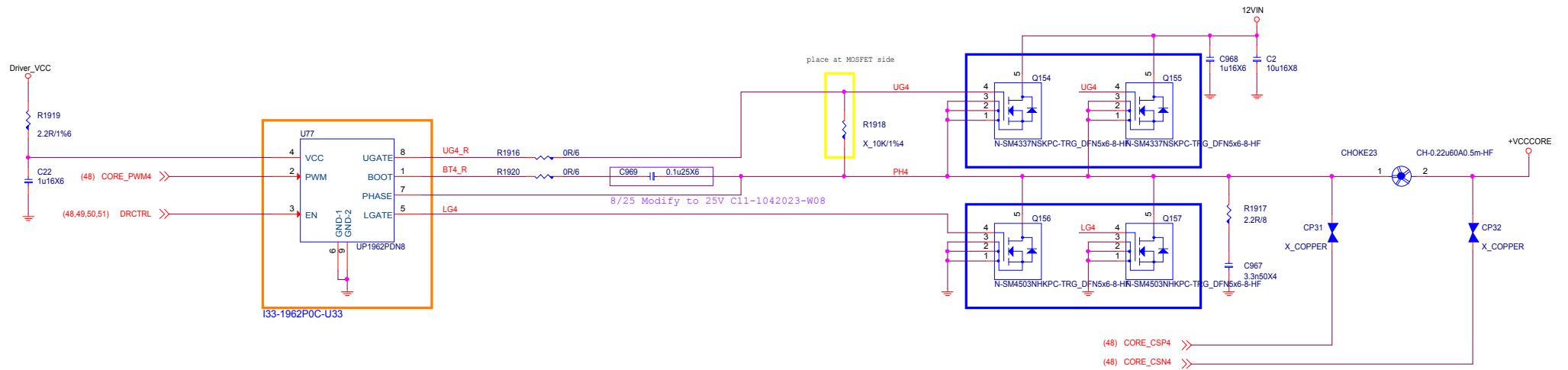
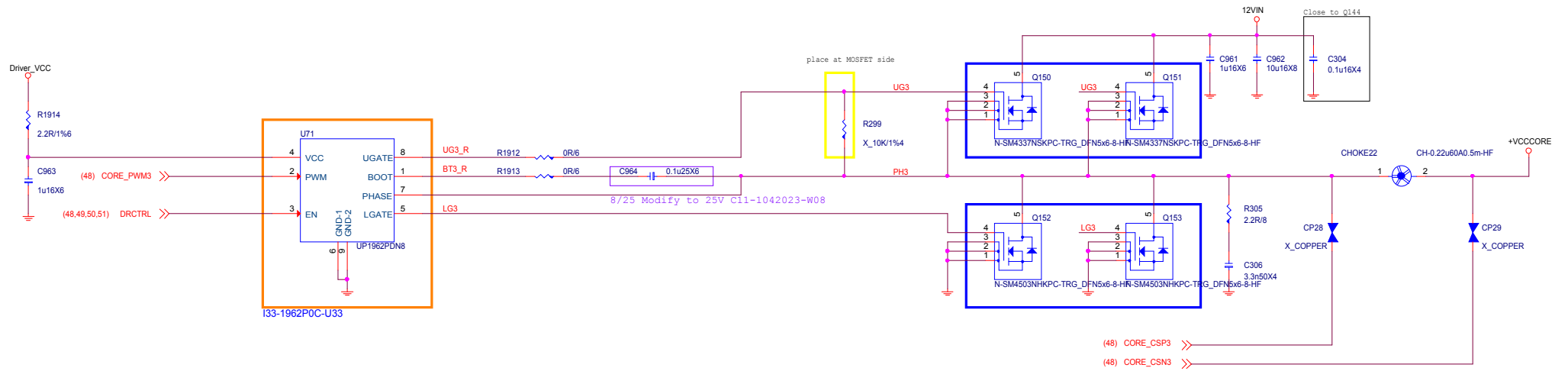


Vcore = 1.52V  
ICCMAX = 138A  
Irms = 17.25A

Vinafix.com



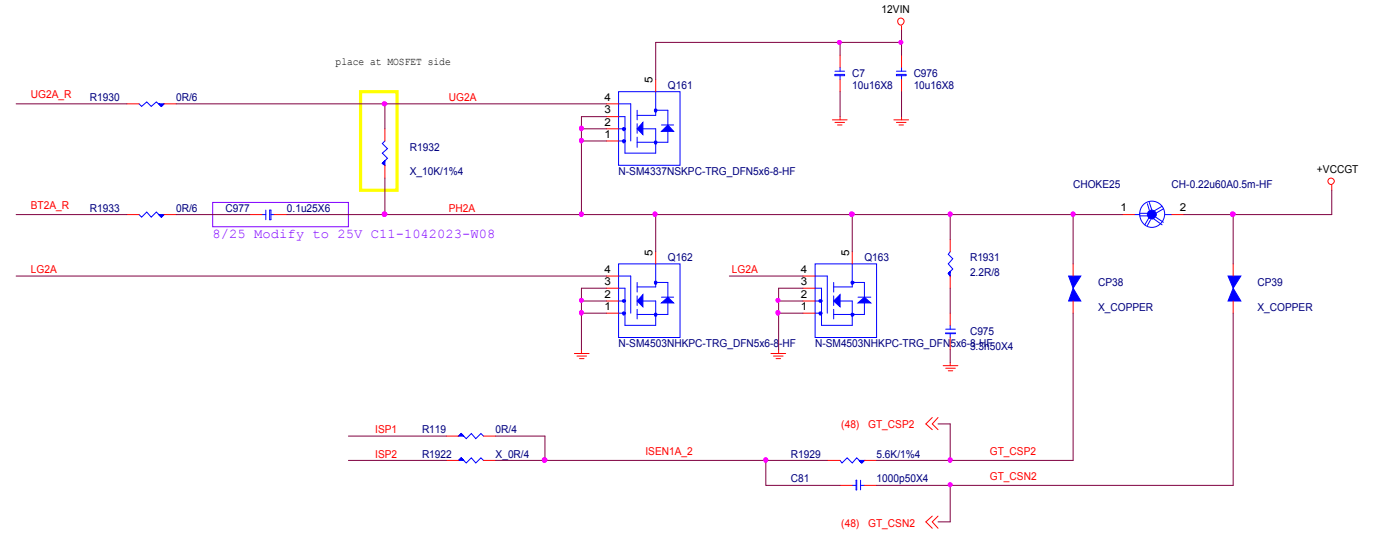
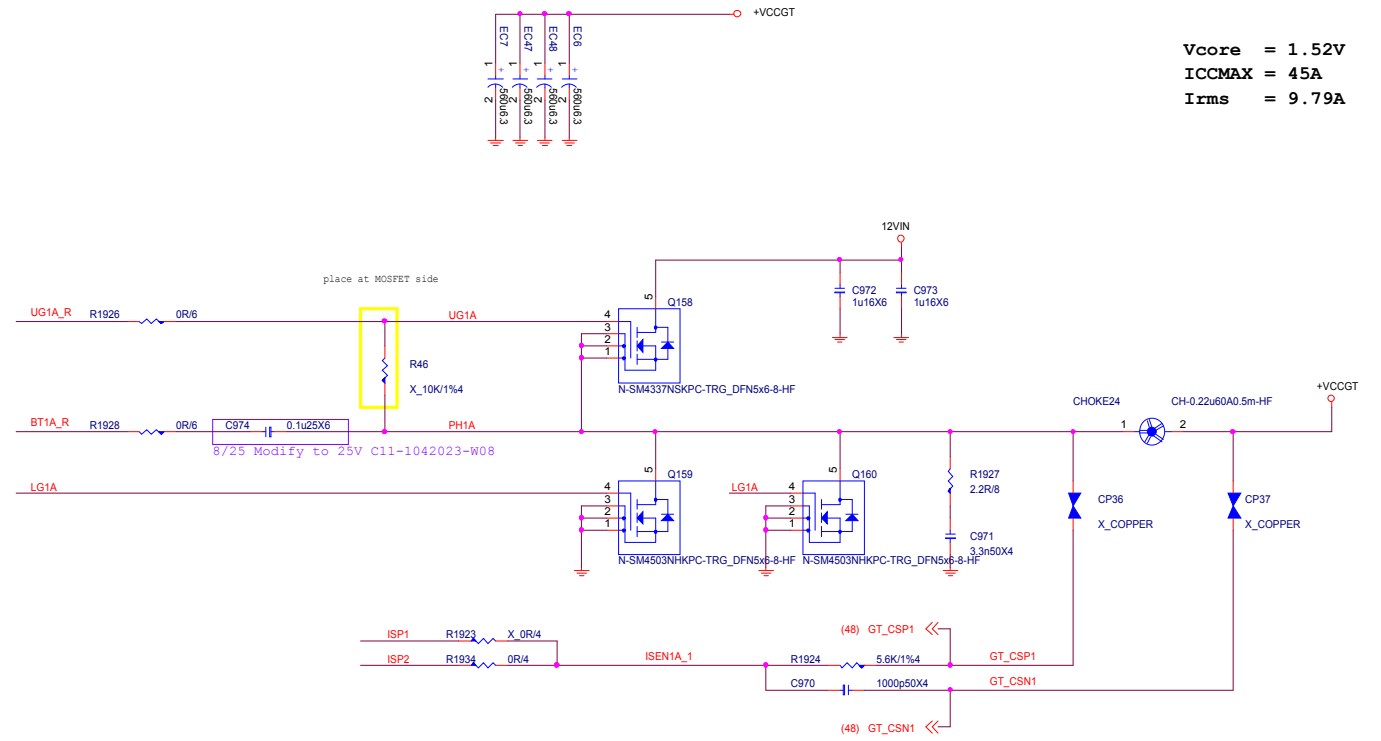
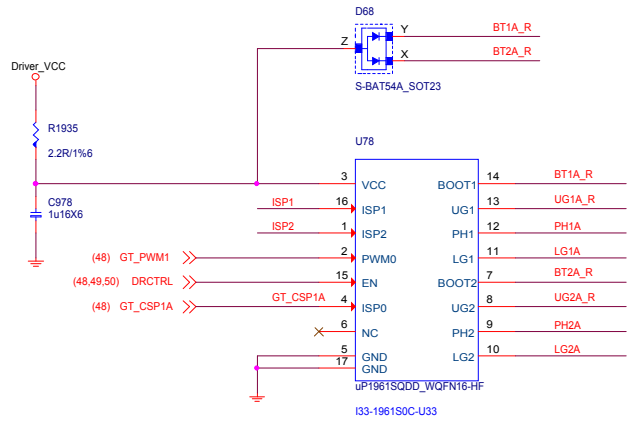
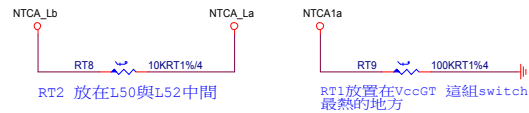
MICRO-STAR INT'L CO.,LTD		
MS-7B49		
Size	Document Description	Rev
Custom	VCORE - PHASE 1-2	2.0
Date: Tuesday, August 29, 2017	Sheet 49 of 69	



MICRO-STAR INT'L CO.,LTD

MS-7B49

Size	Document Description	Rev
Custom	VCORE - PHASE 2-4	2.0
Date: Tuesday, August 29, 2017	Sheet 50 of 69	

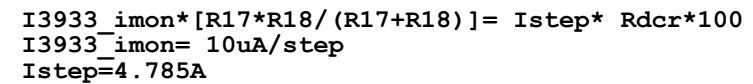
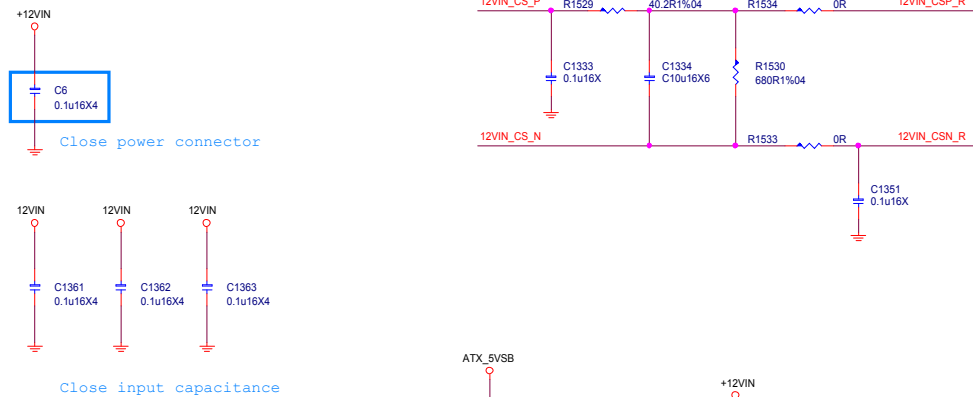


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MS-7B49

Size	Document Description	Rev
Custom	VGT - PHASE 1-2	2.0
Date: Tuesday, August 29, 2017	Sheet 51 of 69	

```
Iripple = 27.04A
VCORE   = 17.25A
VGT      = 9.79A
```



MS-7B49

Size Custom	Document Description <b>UP6273</b>	Rev 2.0
Date: Tuesday, August 29, 2017	Sheet 52 of 69	

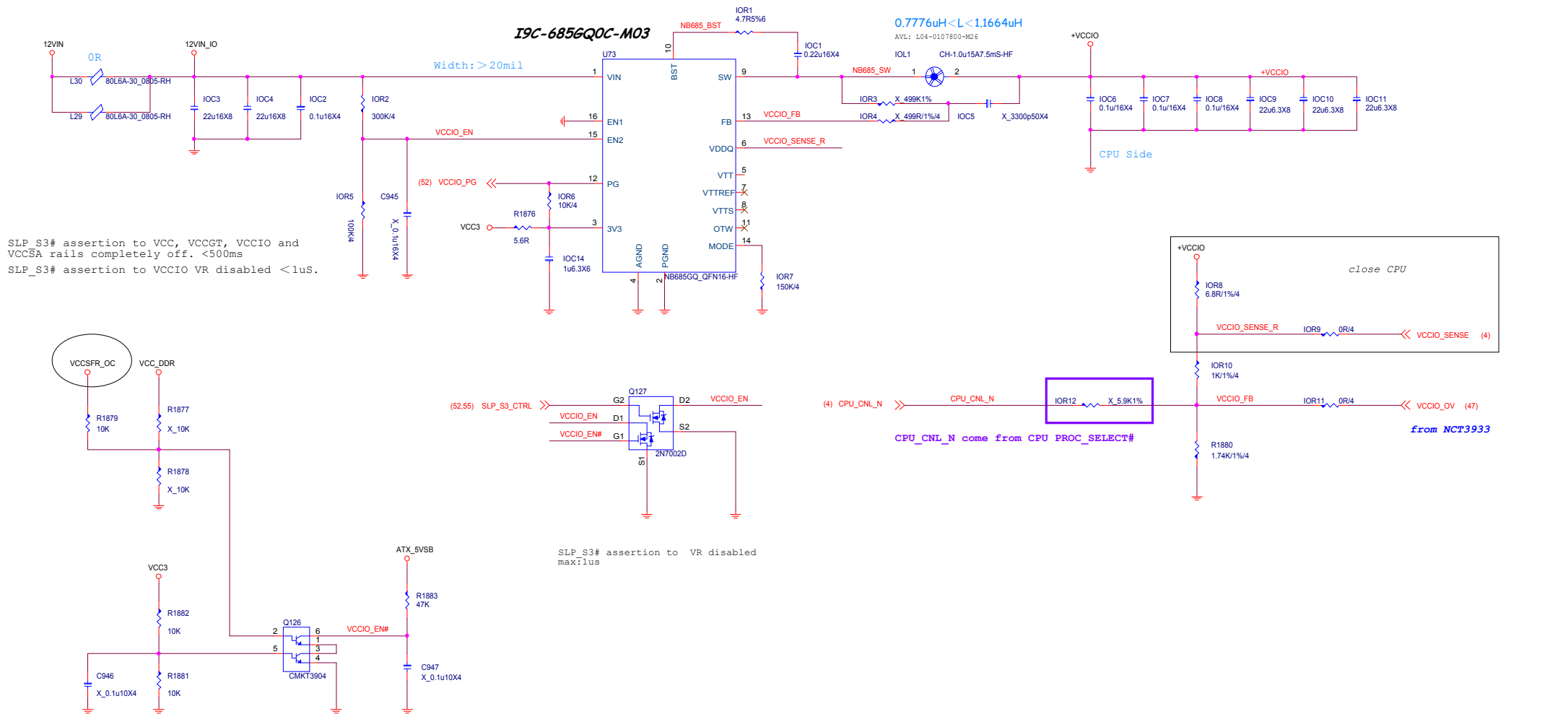


# VCCIO

0.95V ; 6.4A

IMAX 10A  
ILIMIT=10A~12A  
IOC=ILIMIT+40%\*IMAX/2=12A~14A.

support OV=>NB685



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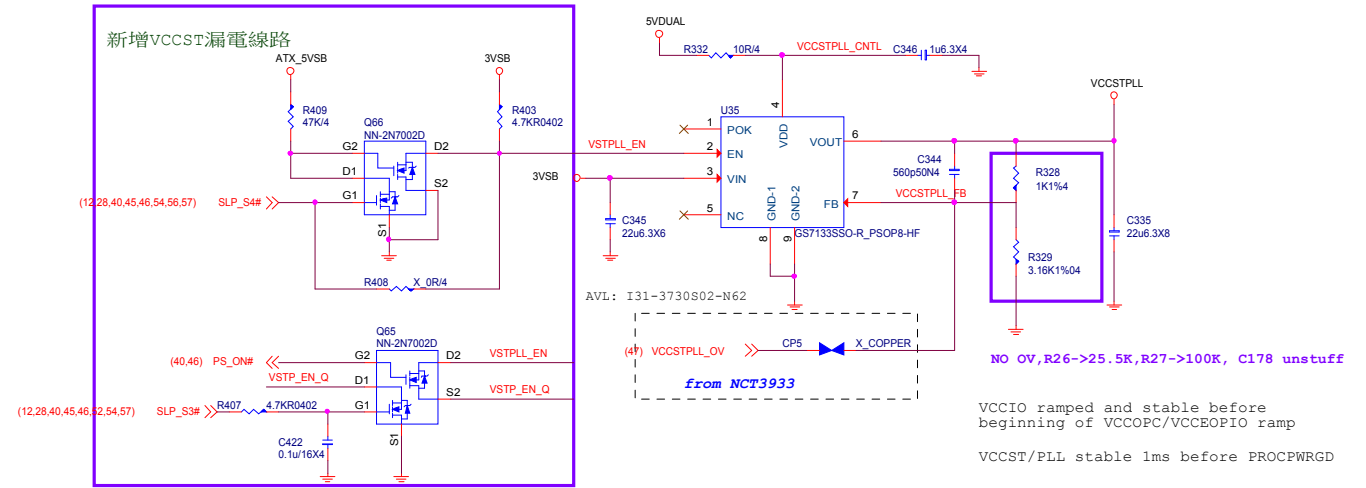
Size	Document Description	Rev
Custom	VCCIO - NB685	2.0
Date: Tuesday, August 29, 2017	Sheet 53 of 69	

# VCCSTPLL

1.0V; 250mA

For Cost down VCCST&VCCPLL merge

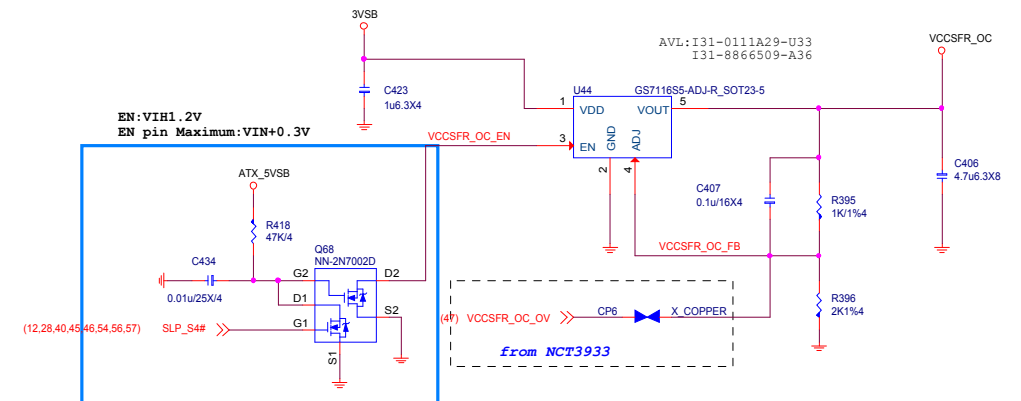
for Gaming3/5, Classic, ECO and H110



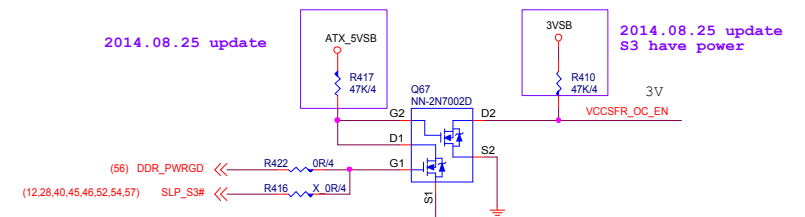
# VCCPLL\_OC

1.2V; 130mA

2014.08.21 update



2014.08.25 update



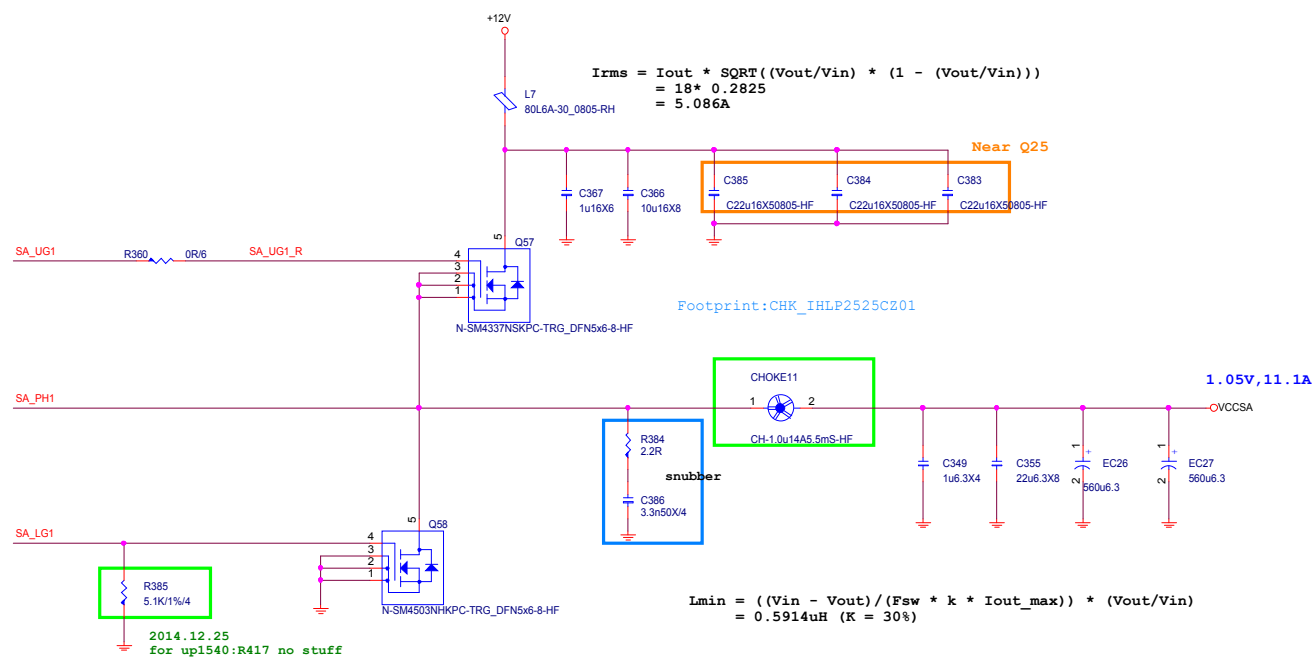
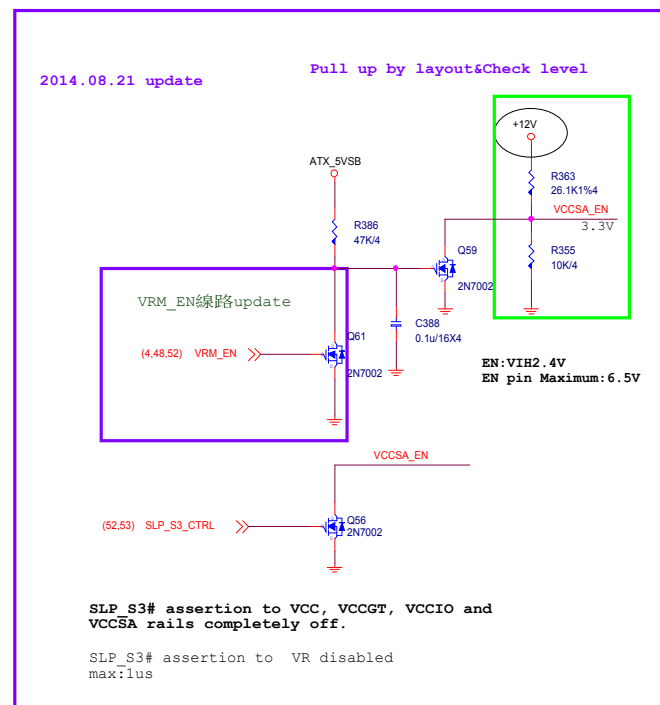
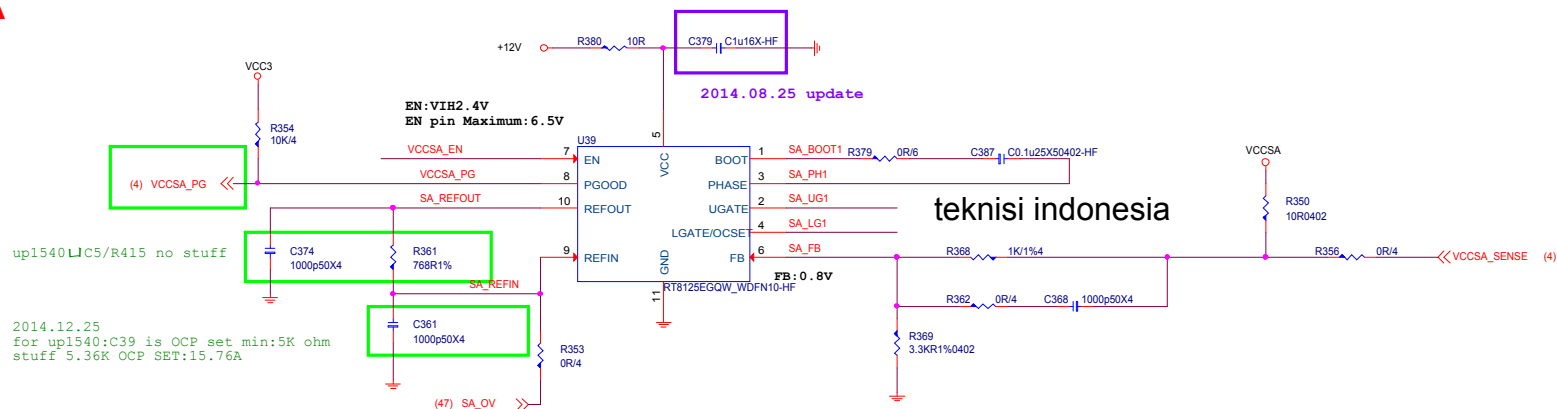
MICRO-STAR INT'L CO.,LTD			
MS-7B49			
Size	Document Description	Rev	
Custom	VCCST/PLL - GS7133/7116	2.0	
Date:	Tuesday, August 29, 2017	Sheet	54 of 69

$$\begin{aligned} R_{ocpset} &= 5.6K \\ OCP &= R_{ocpset} * R_{dson}(\text{Low side}) / 10uA \\ &= 5.1K * 3mohm / 10uA \\ &= 19A \end{aligned}$$

Rdson (low) 10V

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

Vsa = 1.05V  
ICCMAX = 11.1A  
Irms = 3.14A







# PCH 1VSB

1.0V; 11A

Rocpset: 6.8K  
 OCP=Rocset\*10uA/Rdson(Low side)  
 =6.8K\*10uA/4mohm  
 =17A

Rocs: 7.87K, OCP:  
 D03-4C05N03-O05 : 15.74A  
 D03-632BA0C-N03 : 17.1A  
 use UBIQ MOS need Check

Rdson(Low) 4.5V

D03-3116M00-U47 : 3.6 mohm  
 D03-632BA0C-N03 : 4.6mohm  
 D03-3056M00-U47 : 6.2mohm

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

$$= 10.664 * 0.4$$

$$= 4.2656A < 5000mA$$

L04-47B7730-T15 for OC, Gaming 10, 9, 7, 5  
 L04-12A7321-L65 for Gaming 3, SLI, ECO  
 L04-12A7721-T15 for cost down

MAX: 10.664A

$$I_{min} = ((V_{in} - V_{out}) / (F_{sw} * k * I_{out\_max})) * (V_{out}/V_{in})$$

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

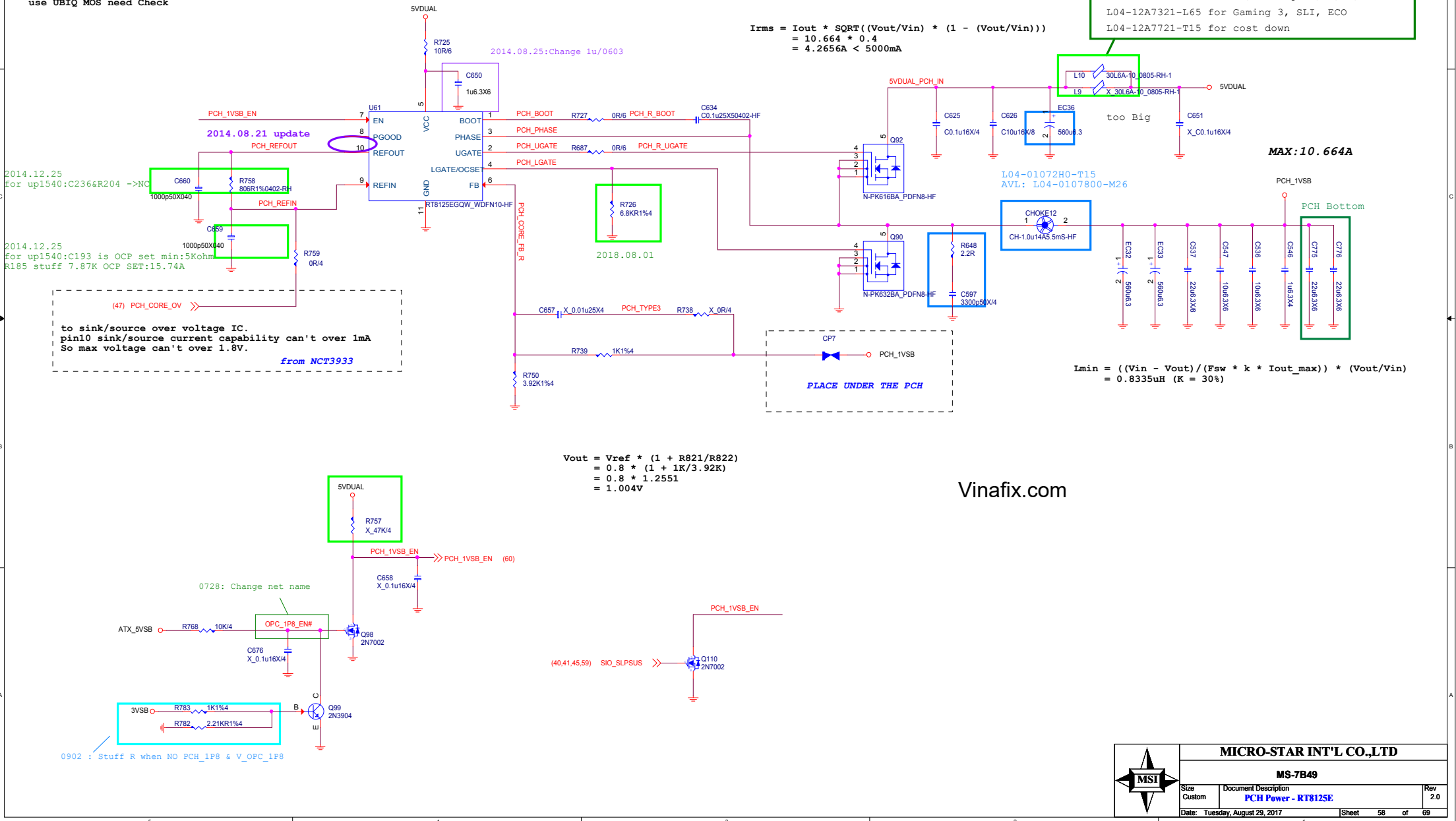
$$V_{out} = V_{ref} * (1 + R_{821}/R_{822})$$

$$= 0.8 * (1 + 1K/3.92K)$$

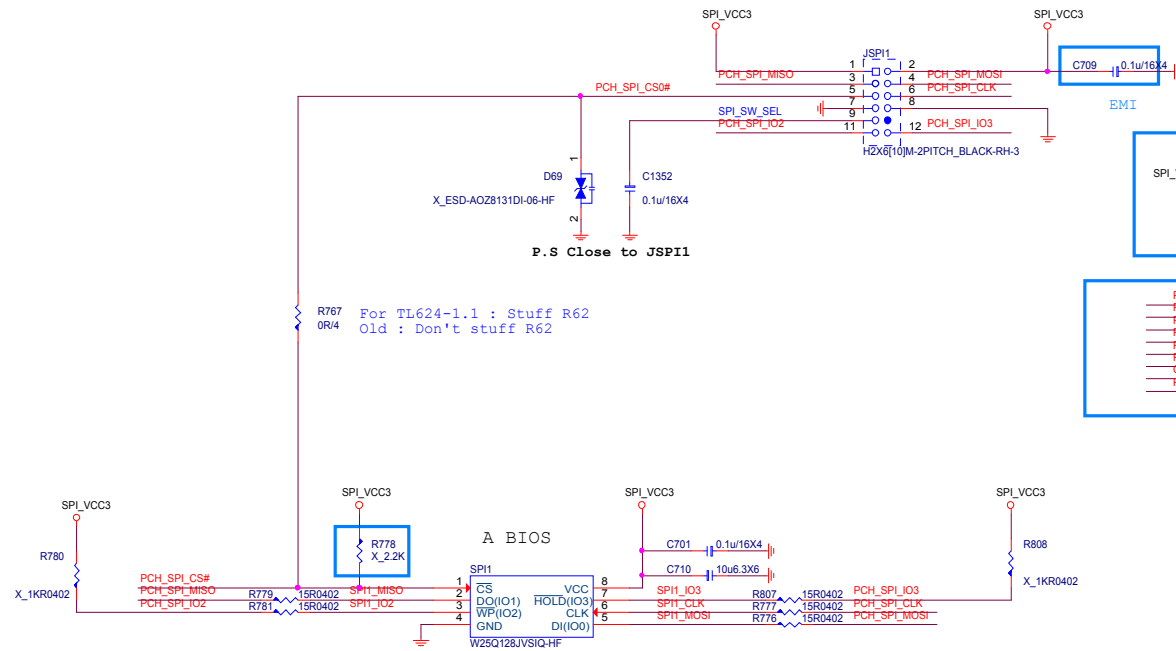
$$= 0.8 * 1.2551$$

$$= 1.004V$$

Vinafix.com

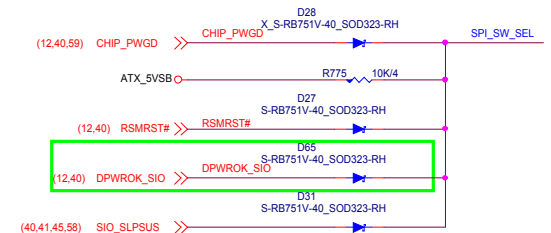


MICRO-STAR INT'L CO.,LTD			
MS-7B49			
Size	Document Description	Rev	
Custom	PCH Power - RT812SE	2.0	
Date: Tuesday, August 29, 2017	Sheet	58	of 69



Module Stuff CHIP\_PWGD,  
But PCH\_PWROK may ramp up before CHIP\_PWGD.

For TL624 1.1



**For TL624-1.1**  
**SKYLAKE : Stuff D10/D17/R353**  
**B85/H87 : Stuff D8/D9/R353**  
**Others : Stuff R272**



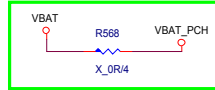
**MICRO-STAR INT'L CO.,LTD**

**MS-7B49**

Size	Document Description	Rev
Custom	<b>SPI ROM</b>	2.0
Date: Tuesday, August 29, 2017	Sheet 59 of 69	

20160505

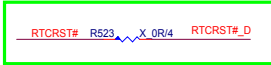
Co-Lay NOT U18 , Stuff R260



Function 1		
IN		OUT
INPUT1	INPUT2	OUTPUT1
0	1	1
1	0	0
1	1	0
0	0	0

Default

Co-Lay NOT USE U1 , R20 STUFF

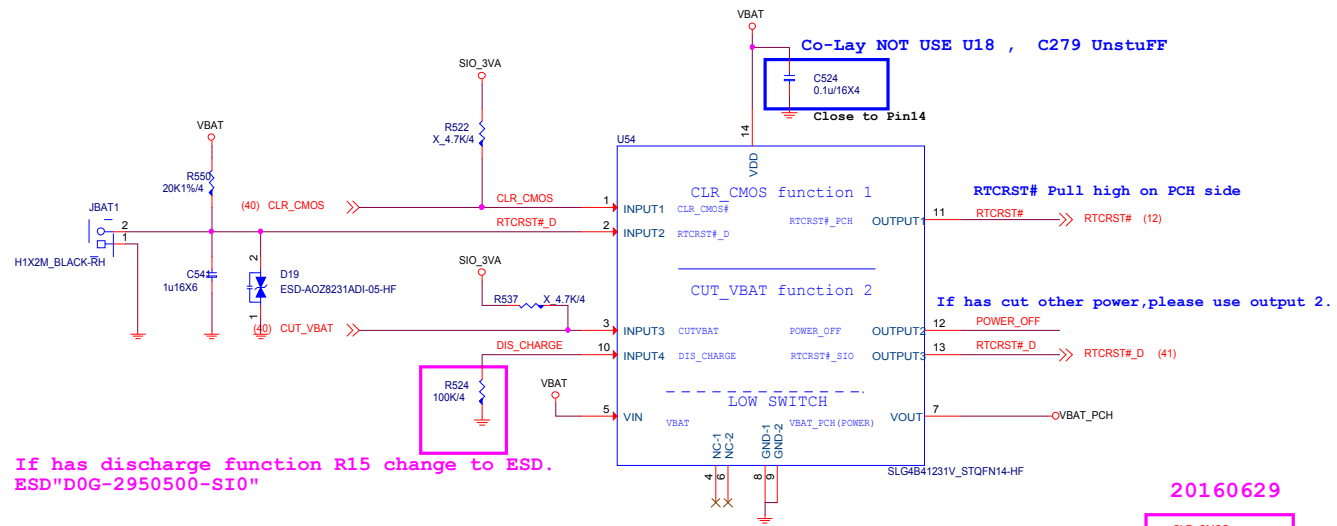


Function 2				
IN		OUT		
INPUT3 & lowswitch EN	INPUT4	OUTPUT2	OUTPUT3	VOUT
0	0	0	1	1
1	0	1	1	0 (discharge)
0	1	1	0	0 (discharge)
1	1	1	0	0 (discharge)

Default

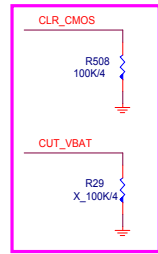
If STUFF R20 Please Check RTCRST# Double Pull High

Co-Lay NOT USE U18 , C279 Unstuff

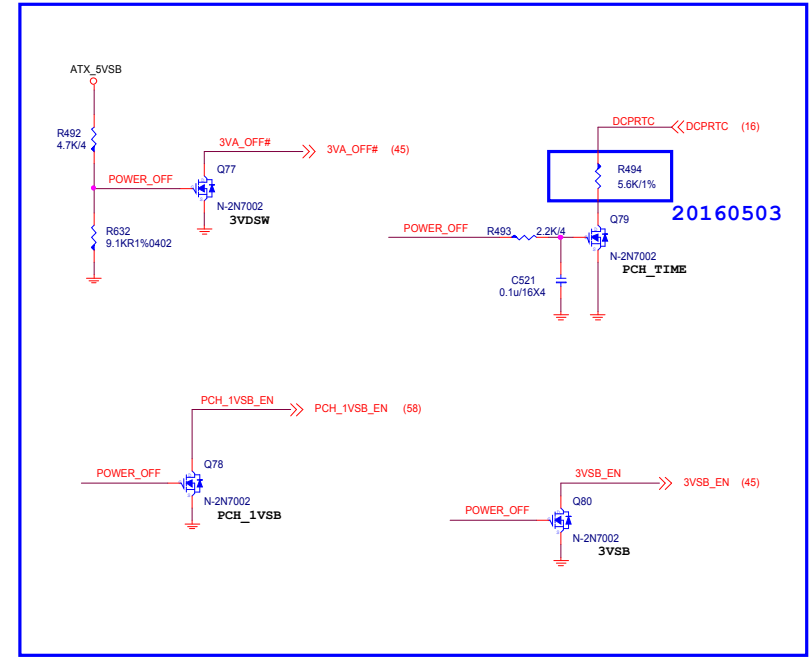


If has discharge function R15 change to ESD. ESD"D0G-2950500-SI0"

20160629



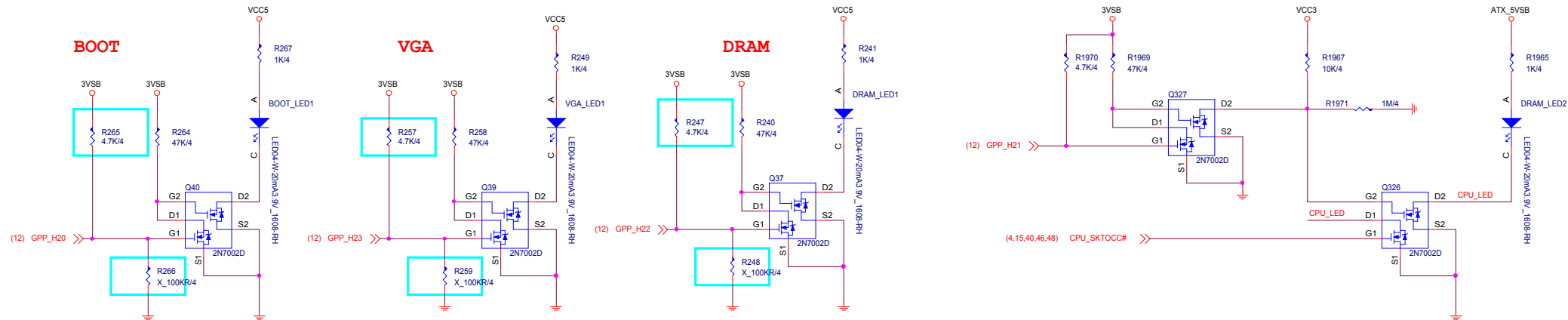
Co-Lay NOT USE U1 , ALL UNSTUFF



20160503

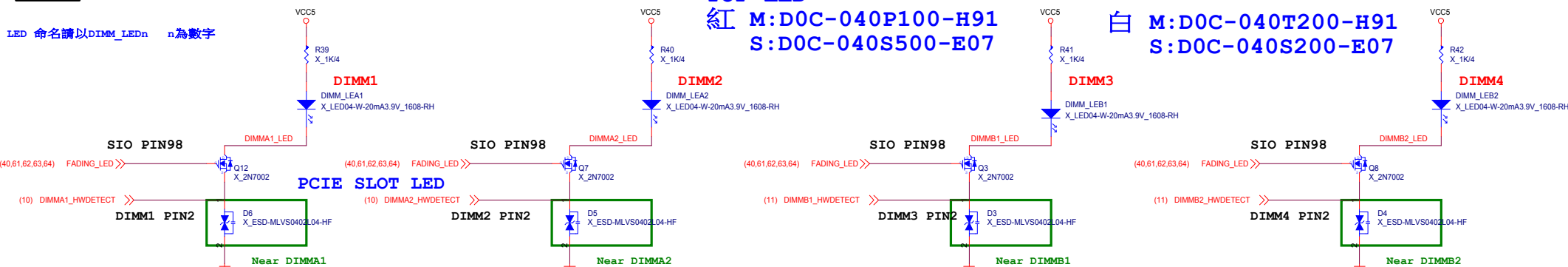


## EZ Debug



## DIMM

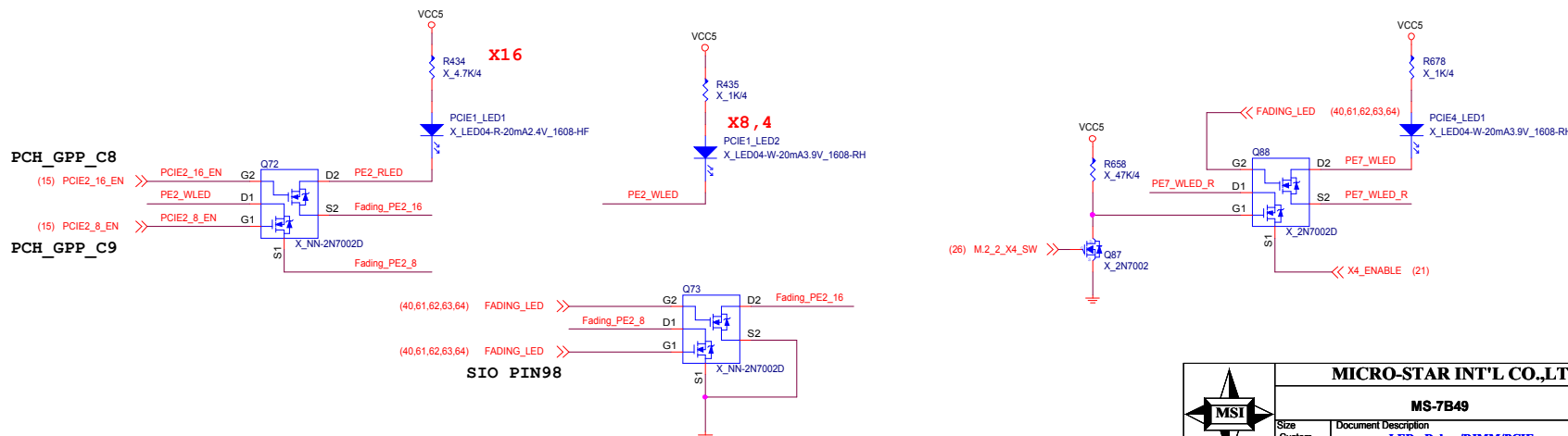
LED 命名請以DIMM\_LEDn n為數字



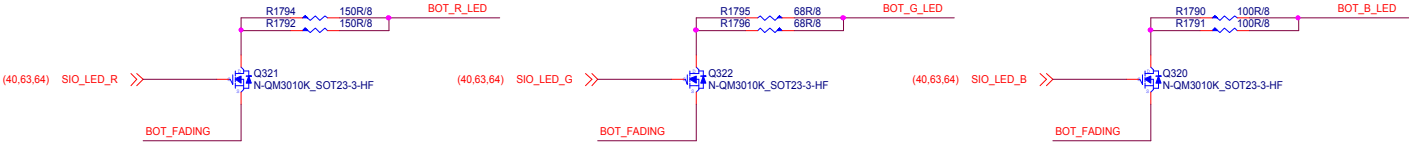
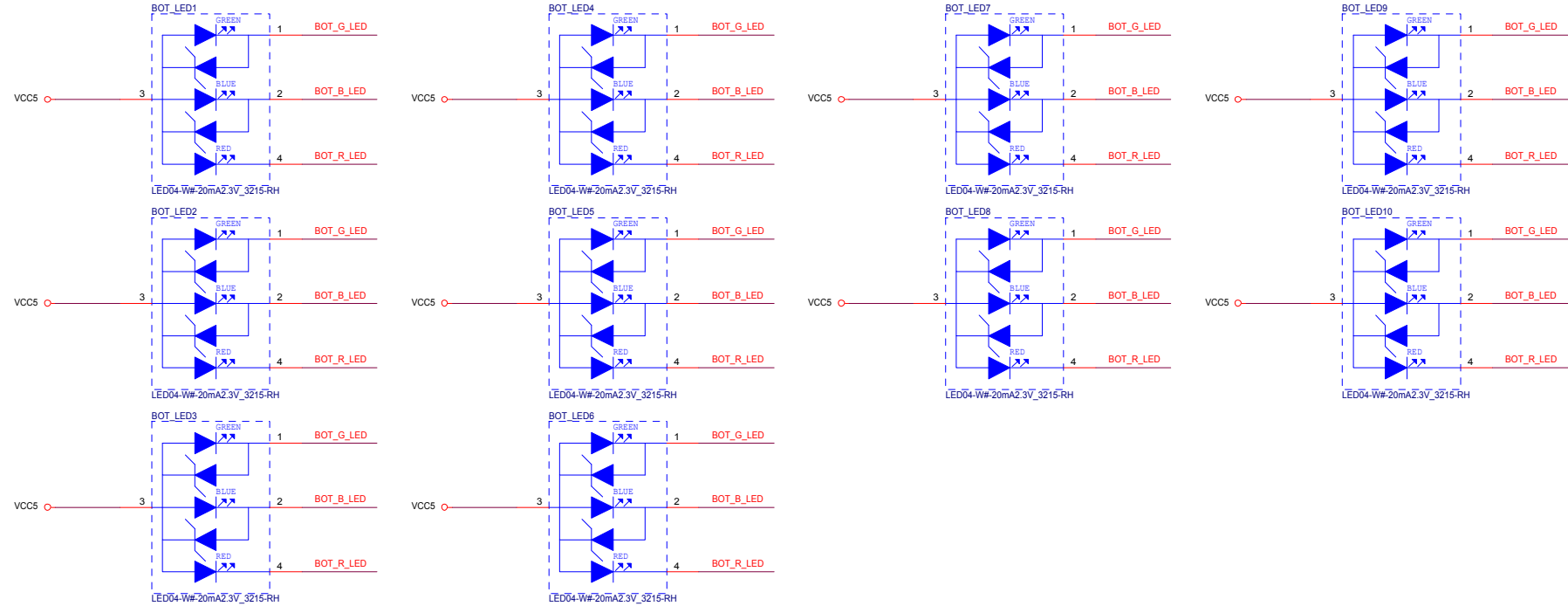
## PCIE

PCIE SLOT LED 命名請以PCIE\_LEDn n為數字

GPIO LED	GPP_C8	GPP_C9
	GPO PO HIGH	GPO PO HIGH
亮	GPO PO HIGH	GPO PO HIGH
滅	GPI (default LOW)	GPI (default LOW)



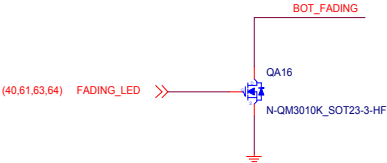
BOTTOM LED



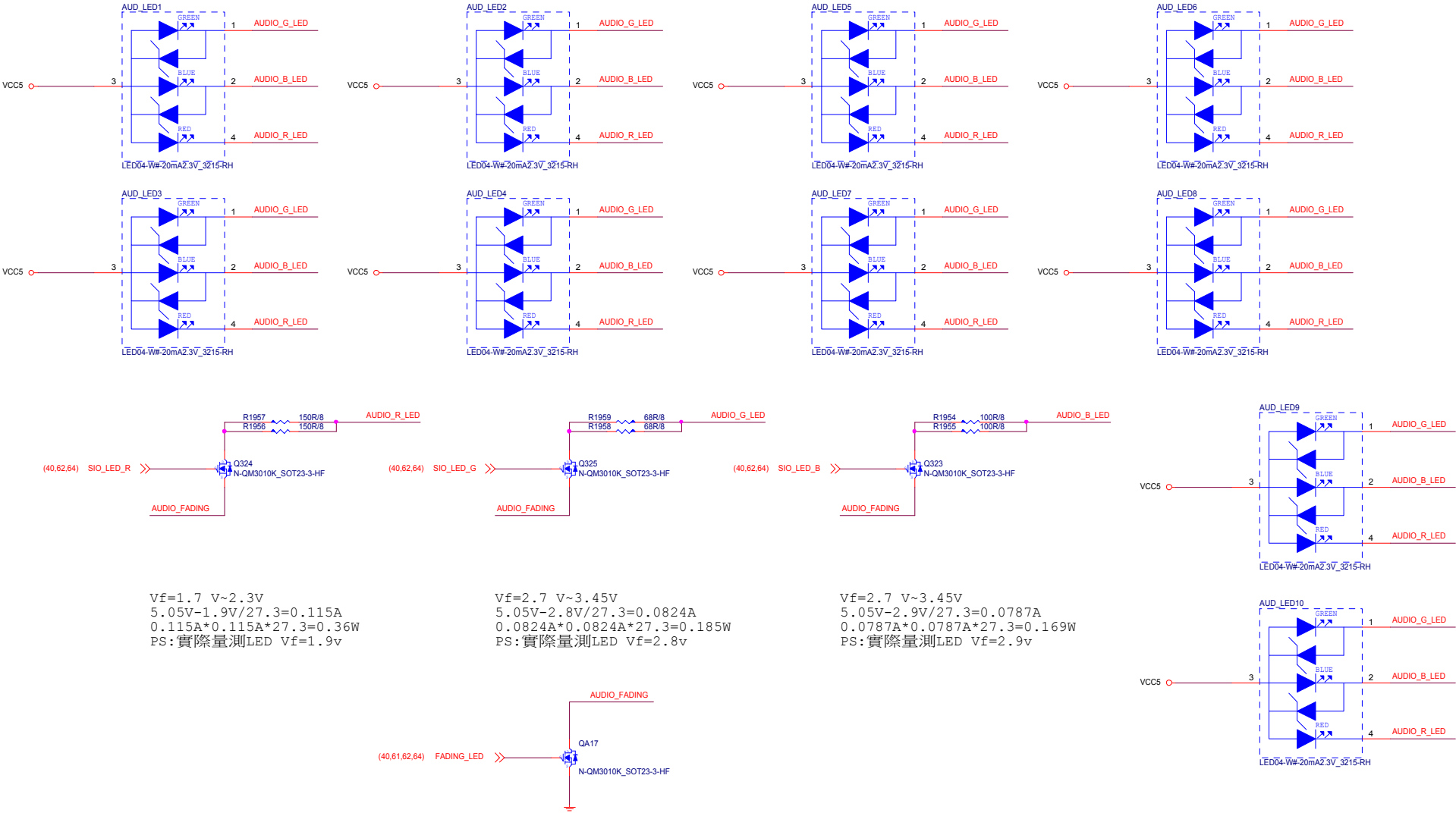
Vf=1.7 V~2.3V  
5.05V-1.9V/27.3=0.115A  
0.115A\*0.115A\*27.3=0.36W  
PS:實際量測LED Vf=1.9v

Vf=2.7 V~3.45V  
5.05V-2.8V/27.3=0.0824A  
0.0824A\*0.0824A\*27.3=0.185W  
PS:實際量測LED Vf=2.8v

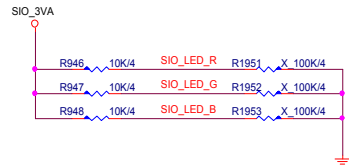
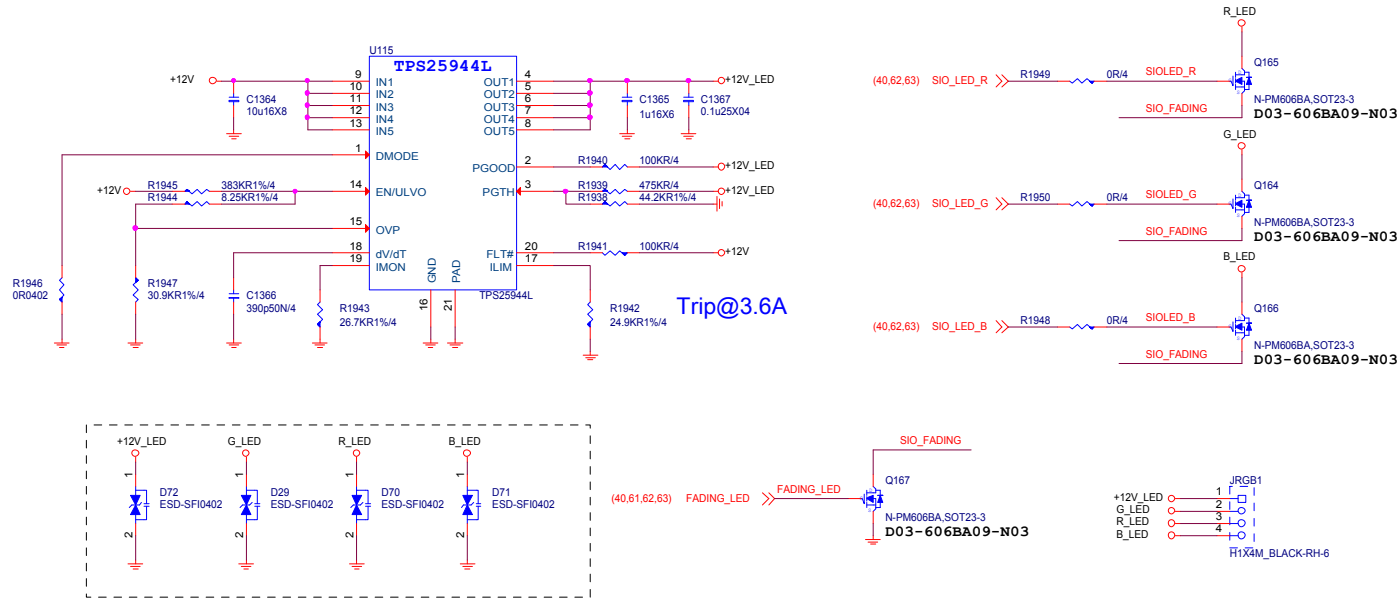
Vf=2.7 V~3.45V  
5.05V-2.9V/27.3=0.0787A  
0.0787A\*0.0787A\*27.3=0.169W  
PS:實際量測LED Vf=2.9v



AUDIO LED



LED Control by SIO



Color	SIO_LED_R	SIO_LED_G	SIO_LED_B
RED	1	0	0
GREEN	0	1	0
BLUE	0	0	1
WHITE	1	1	1

## CPU Socket



## Battery



## BIOS Label

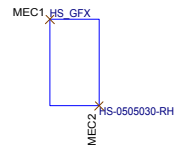


## PCB

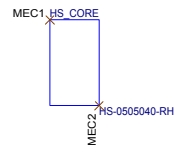


PD0-07B4920-G37, 精成-深圳, 1, 台北微星廠 (MSI)  
PD0-07B4920-E48, 競華, 1, 台北微星廠 (MSI)

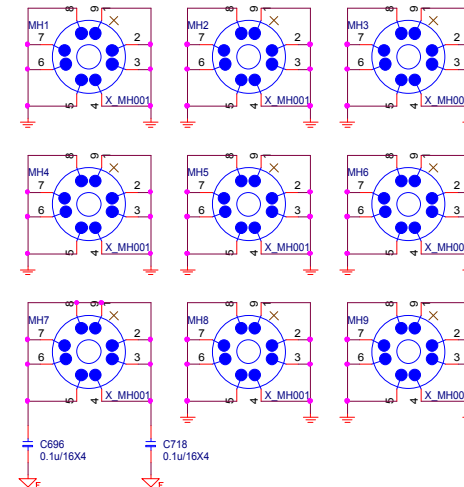
## GFX Heatsink



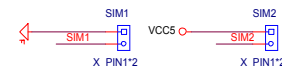
## CORE Heatsink



## Mounting Holes



## Simulation



## Test point



## Optical Fiducial Marks-120

