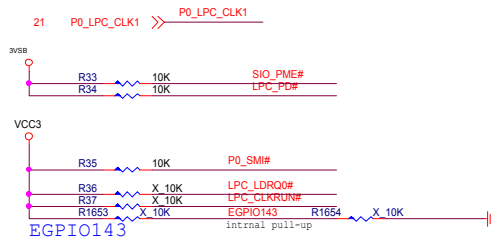
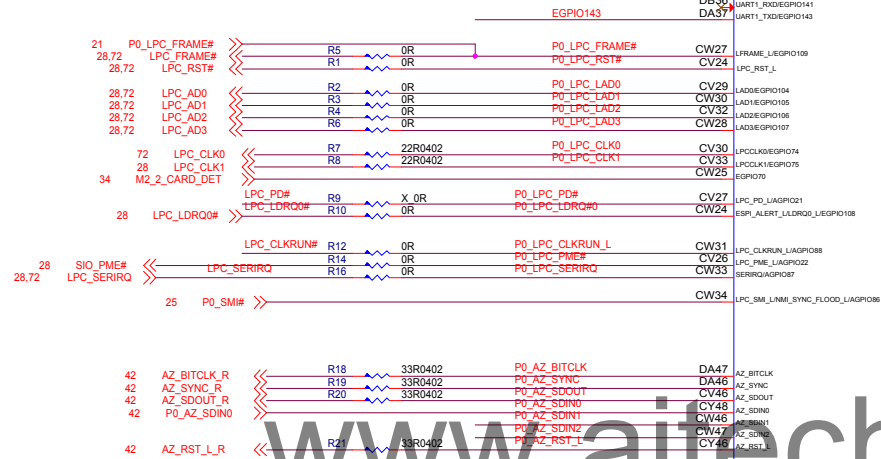
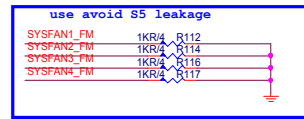


AMD TR4(X399)

Promontry 300-Series

01 Cover Sheet	27 Promontory GND	55 ACPI uPI-5VDIMM&3VSB
02 Block Diagram	28 SIO NCT6795D	56~59 CPU Power IR35201 10Phase
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04 SP3 SVI2/WAFL/JTAG/MISC	30 PCIE X16 Slot1& X8 Slot3	62 CPU Power VDDCR_SOC_S5
05 SP3 ACPI/SPI/I2C/CLK/GPIO	31 PCIE X16 Slot4 & X8 Slot6	63 CPU Power Connector/RT9553B
06 SP3 PCIE	32 PCIE X1 SLOT2&5	64 CPU Power 1P8V-MP2147
07 SP3 MEMORY A	33 SATA Connector	65 CPU Power Audio-GS7133
08 SP3 MEMORY B	34 M2_1/M2_2 Connector	66~69 DDR PWR VPP25-MP2145/VTT
09 SP3 MEMORY C	35 M2_3 Connector	70 PROM3-NB685 1.05V/GS7133-2.5
10 SP3 MEMORY D	36 FAN GPIO	71 CPU Power Good
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13 SP3 DECOUPLING Cap	39 SYSTEM FAN1/2-TYPE L	74 Button/OV Control/NCT3933
14 SP3 GND	40 SYSTEM FAN3/4-TYPE L	75~78 LED MCU Control/EZ Debug LED
15 DDR4 - DIMM_A	41 LAN-Intel I211AT	79 80 Clock Gen/Clock Buffer
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17 DDR4 - DIMM_C	43 Audio ALC1220-2	82 BOM Option
18 DDR4 - DIMM_D	44 USB2.0 Flash BIOS	83 EMI CAP/ SLG IC
19 DDR4 - POWER	45 USB Power	84 History
20 DDR4 - GND	46 USB Rear Side-USB1	85 GPIO MAP
21 CPU STRAPS	47 USB3.0 Rear Side-VR	86 Power Delivery
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23 Promontory PCIE/SATA	49 USB3.1 ASM2142-2	
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25 Promontory GPIO/SMB/SPI	51 USB3.1 TYPE C-Front-JUSB3	
26 Promontory POWER	52 53 54 USB3.0 Front Side-JUSB4/JUSB5(Charge)	

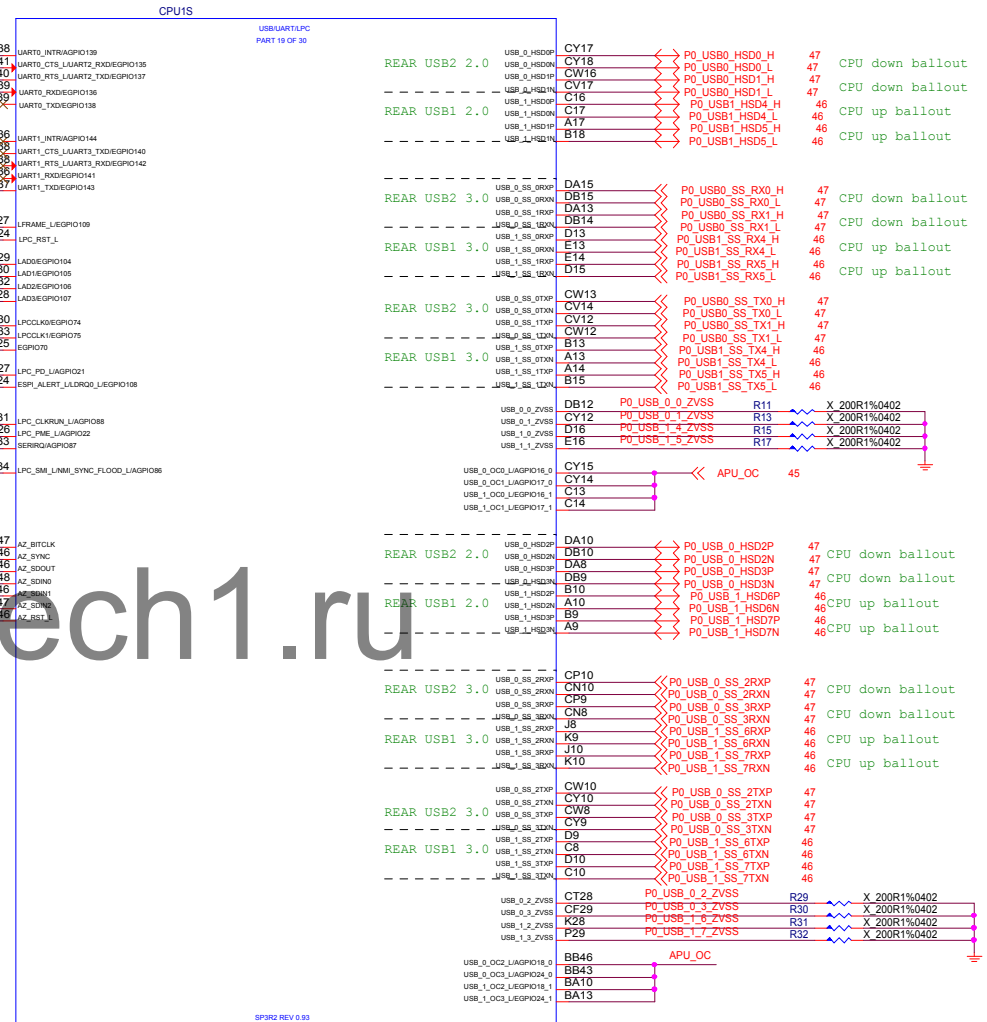
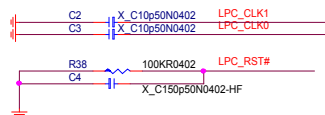
USB/LPC/UART/HDA



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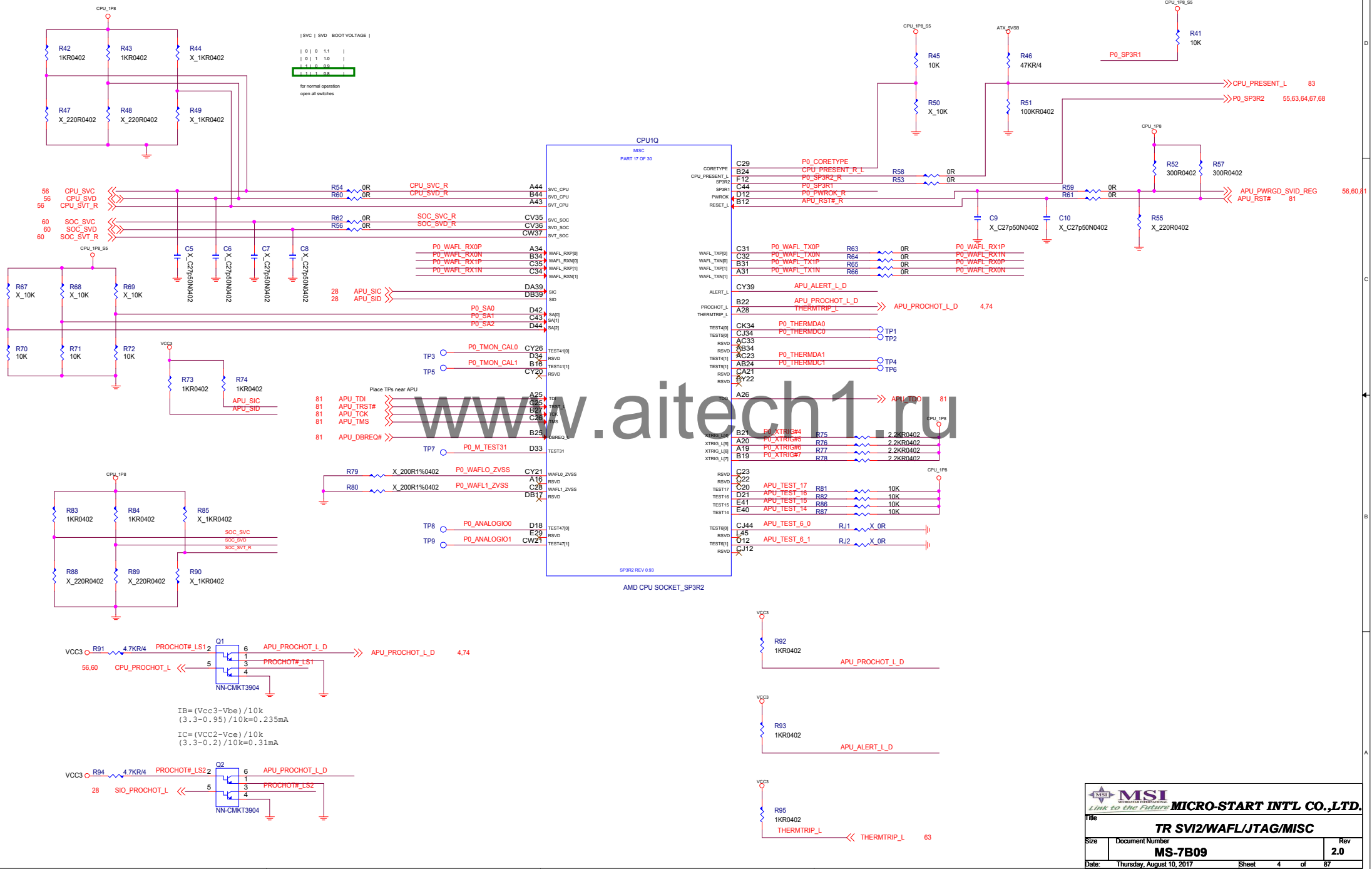
HIGH : Nothing.(If use ASM1x42 or ASM3142)
LOW  : Bios running ASM2142 path code.(ASM2142)

```

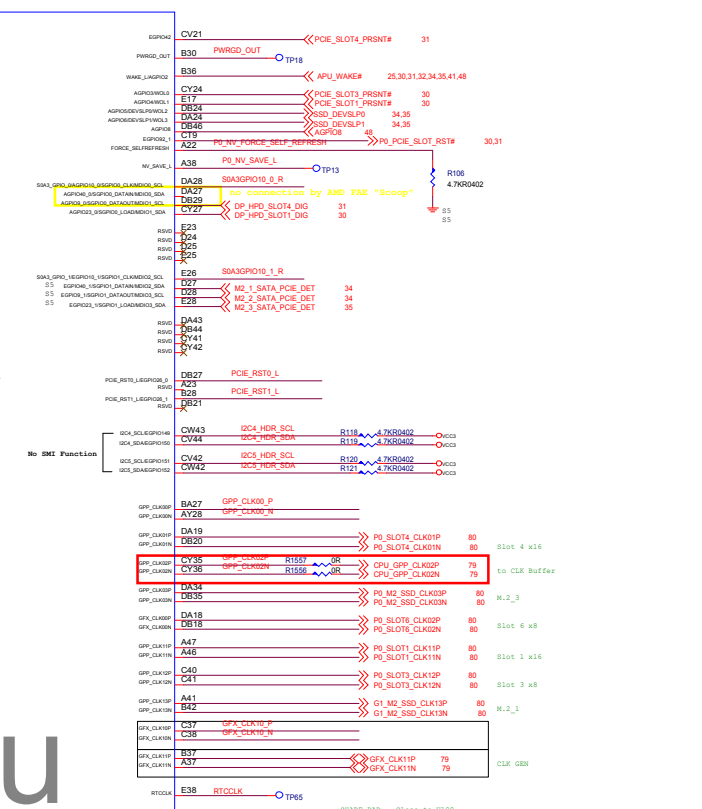
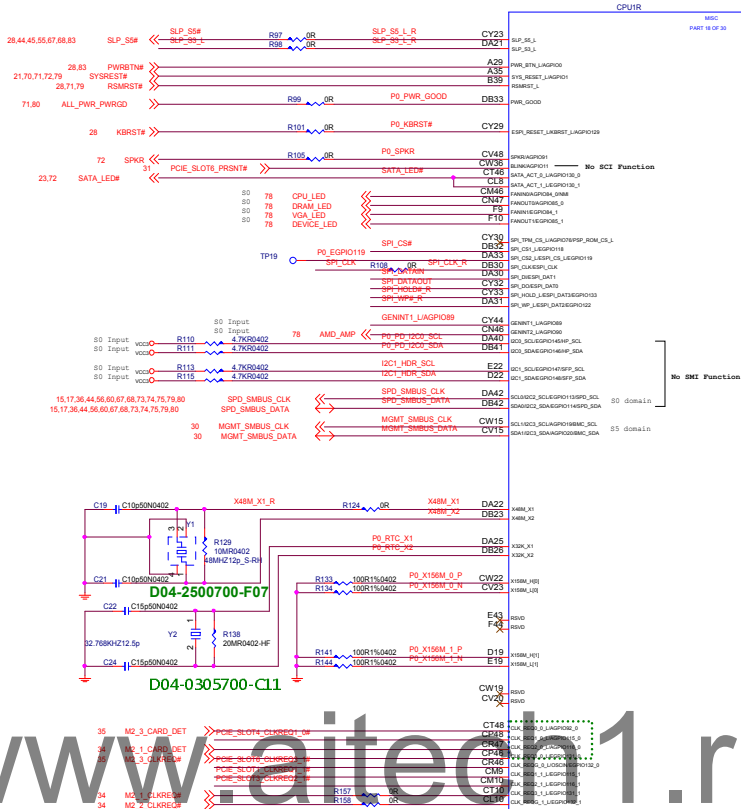
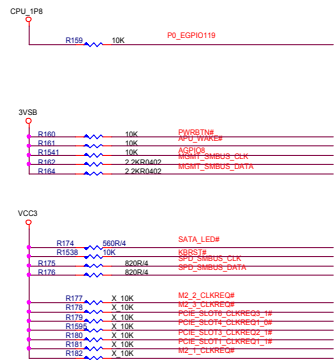
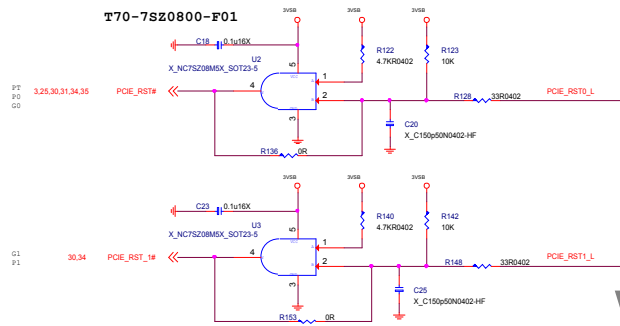
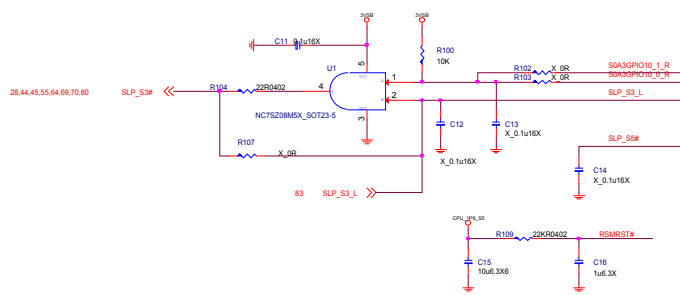


AMD CPU SOCKET_SP3R2
N12-094A020-L06

SVI2/WAFL/JTAG/MISC



ACPI/SPI/I2C/CLK/GPIO

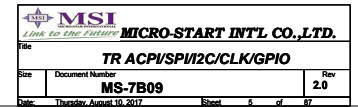
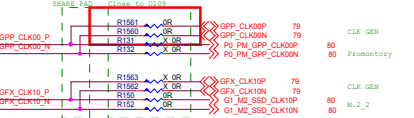
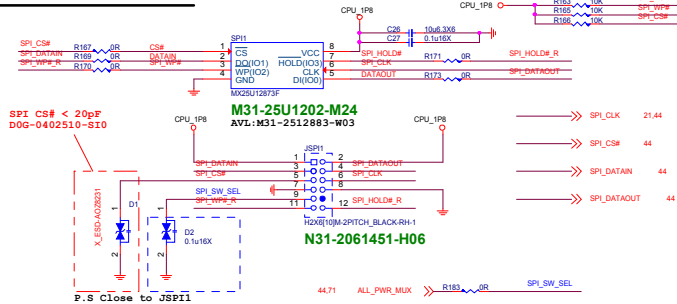
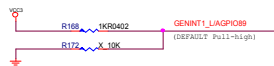


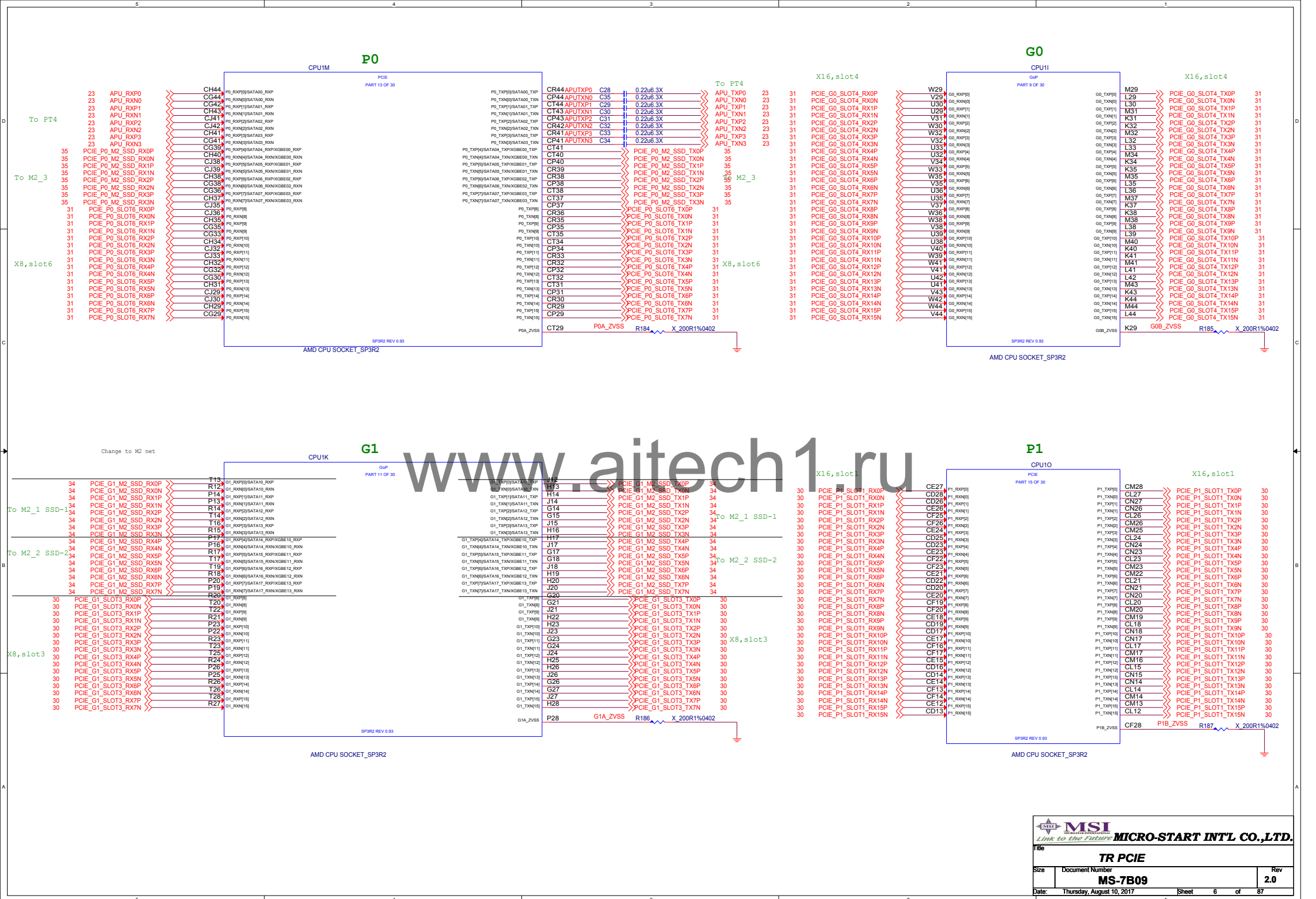
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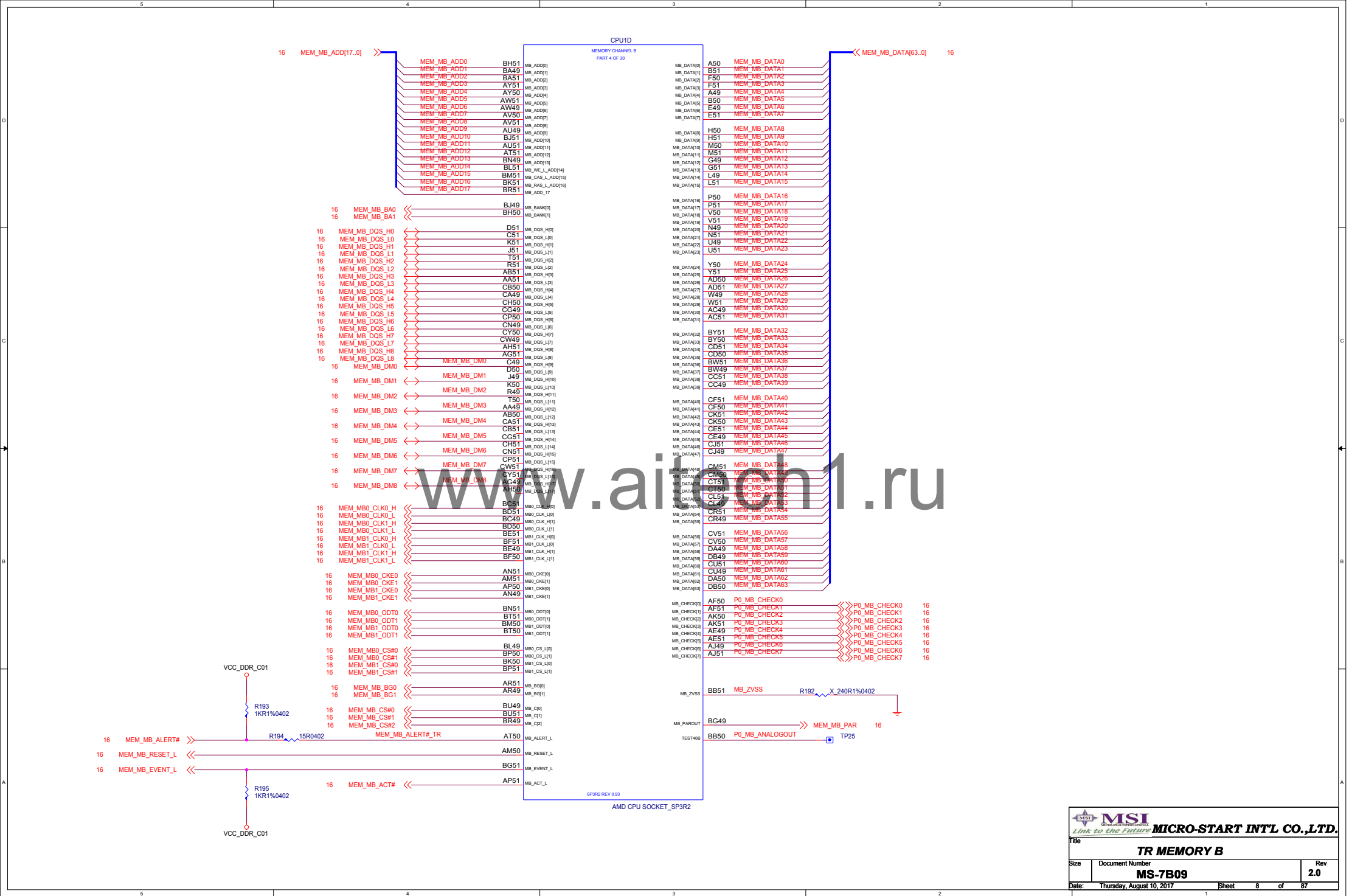
AMD DOCUMENT NUMBER: 105 D12700 00B
DATE: Mon Jan 23 14:21:00 2017
NOTE:
CLK REQ[3:0] 0 L ARE NOT SUPPORTED ON THREADRIPPER.
PIN CT48, CP48, CR47 AND CP46 CAN ONLY BE USED AS GPIO

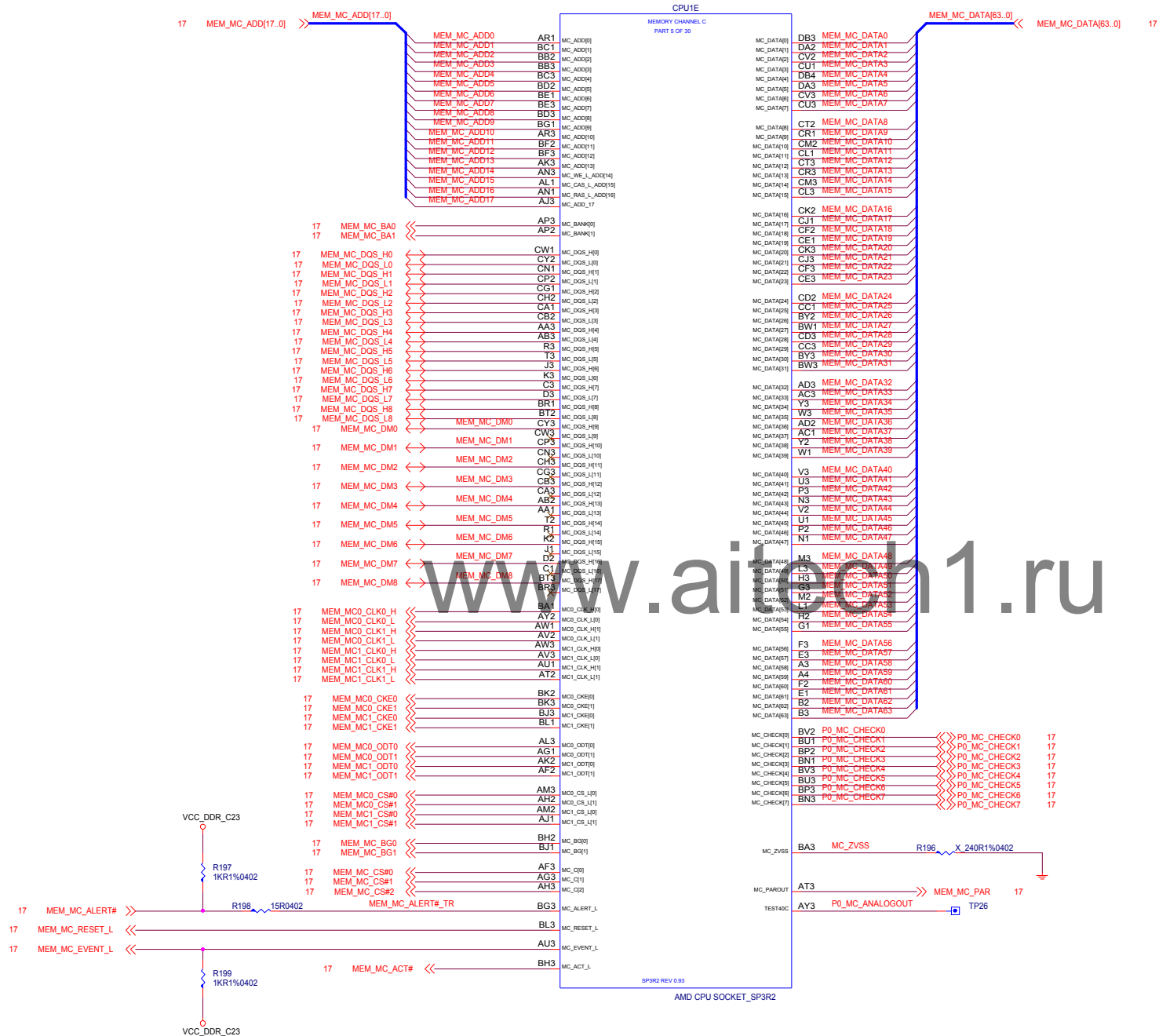
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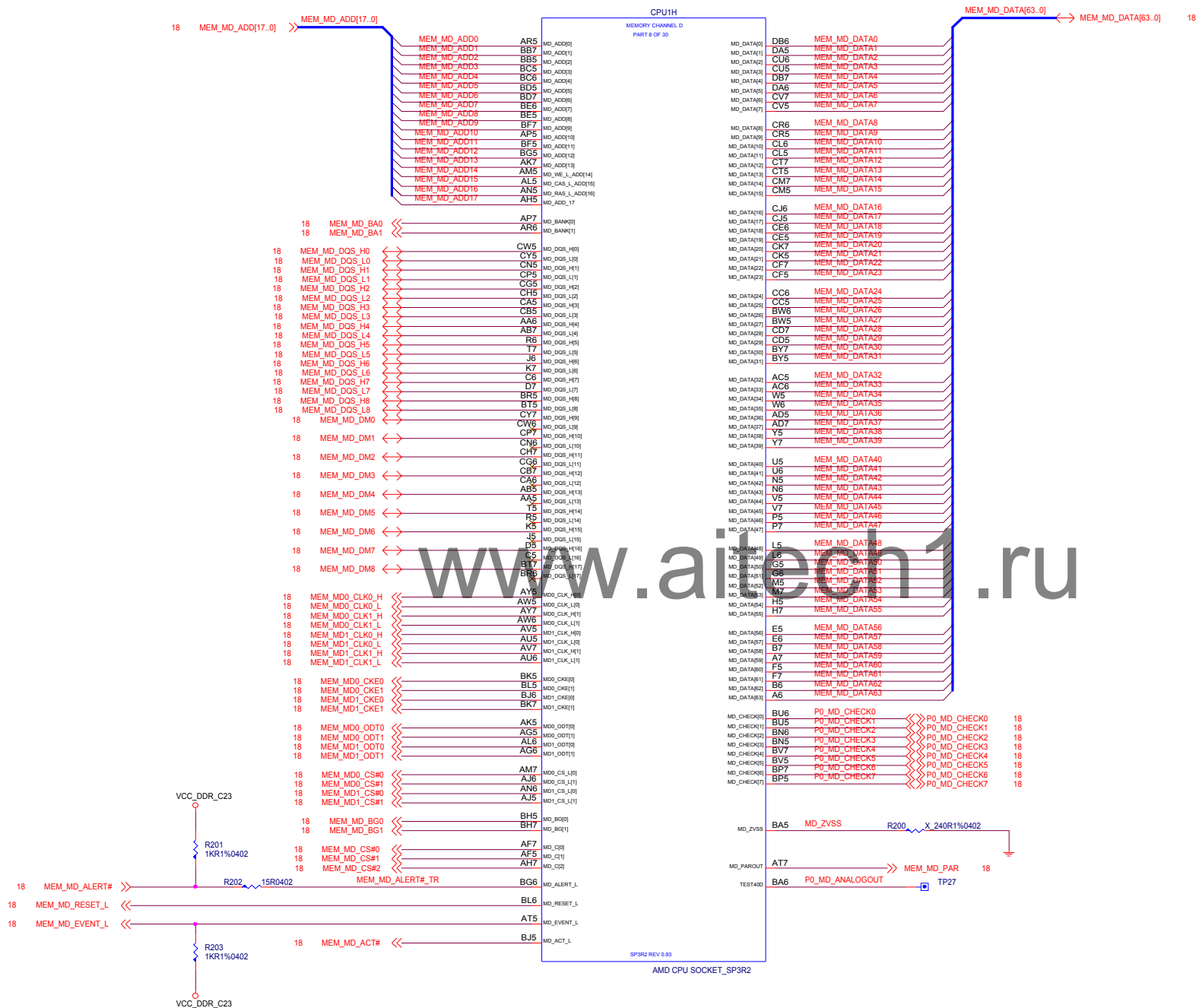
SPI ROM (1.8V)



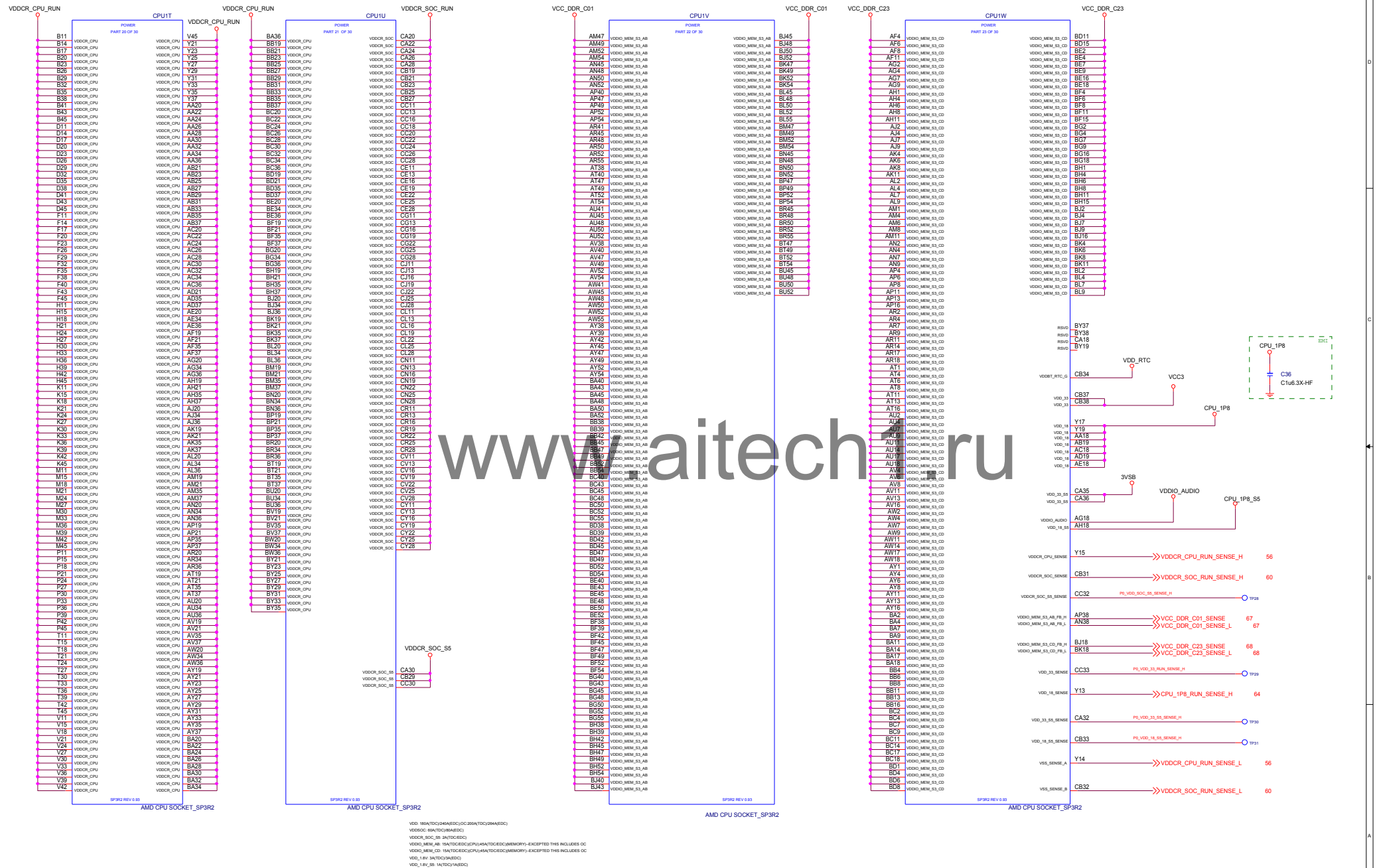






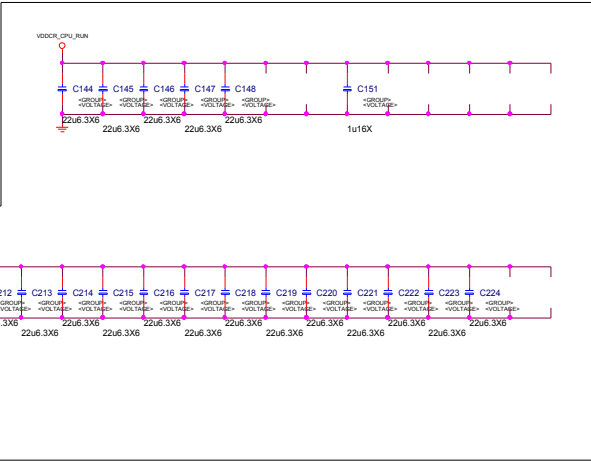
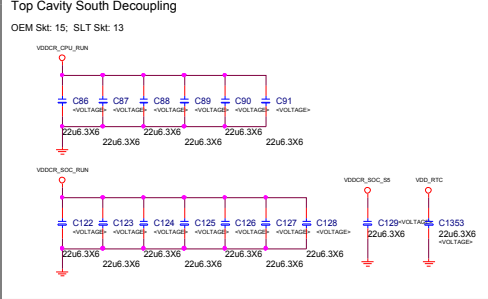
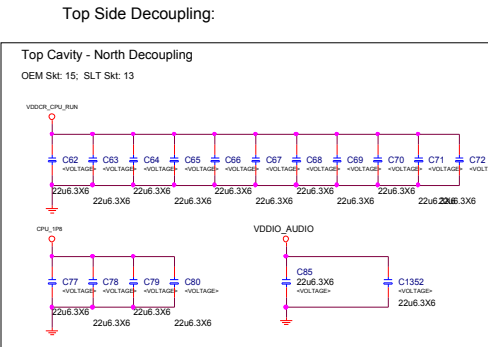
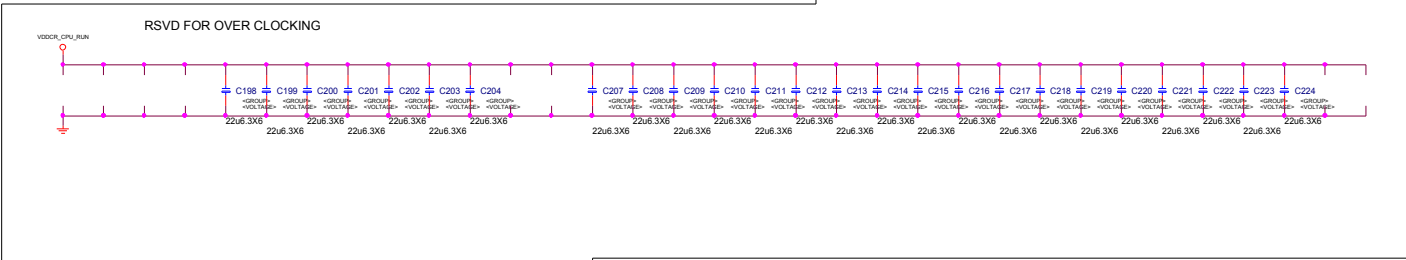
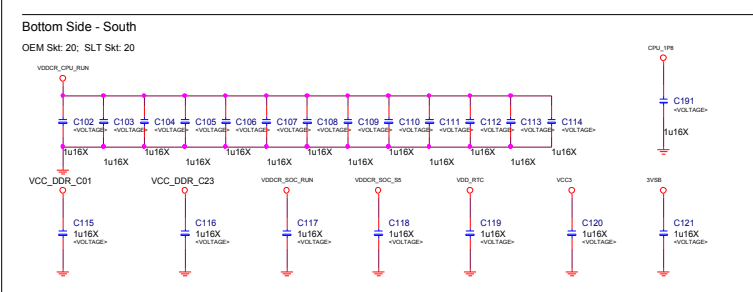
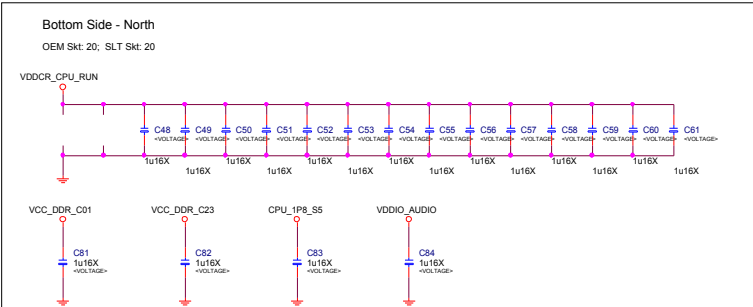
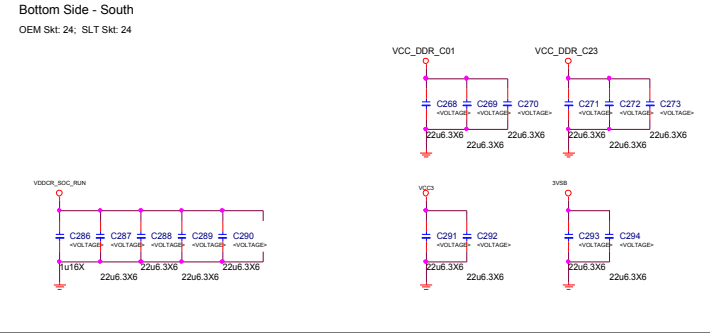
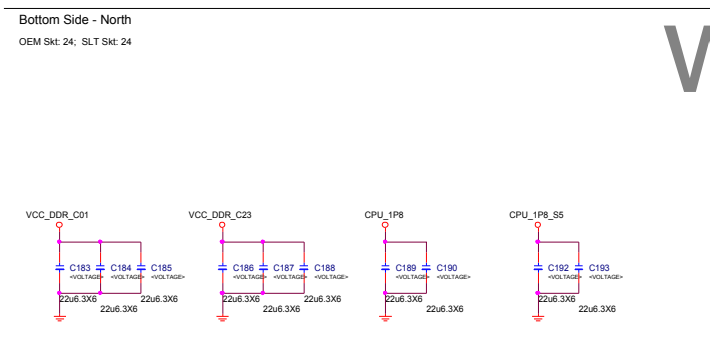
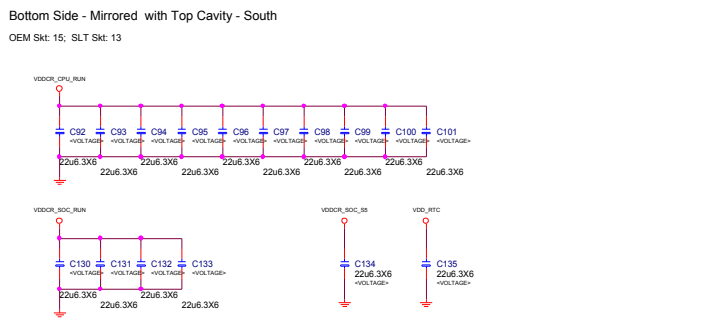
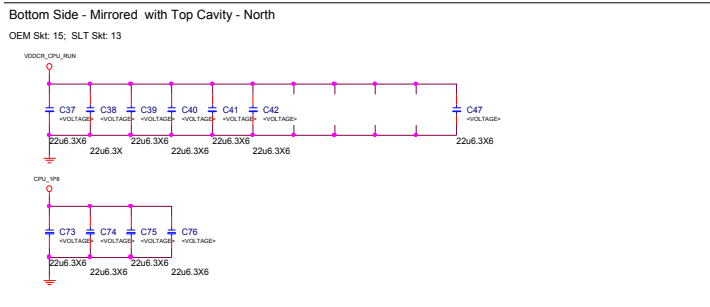


POWER

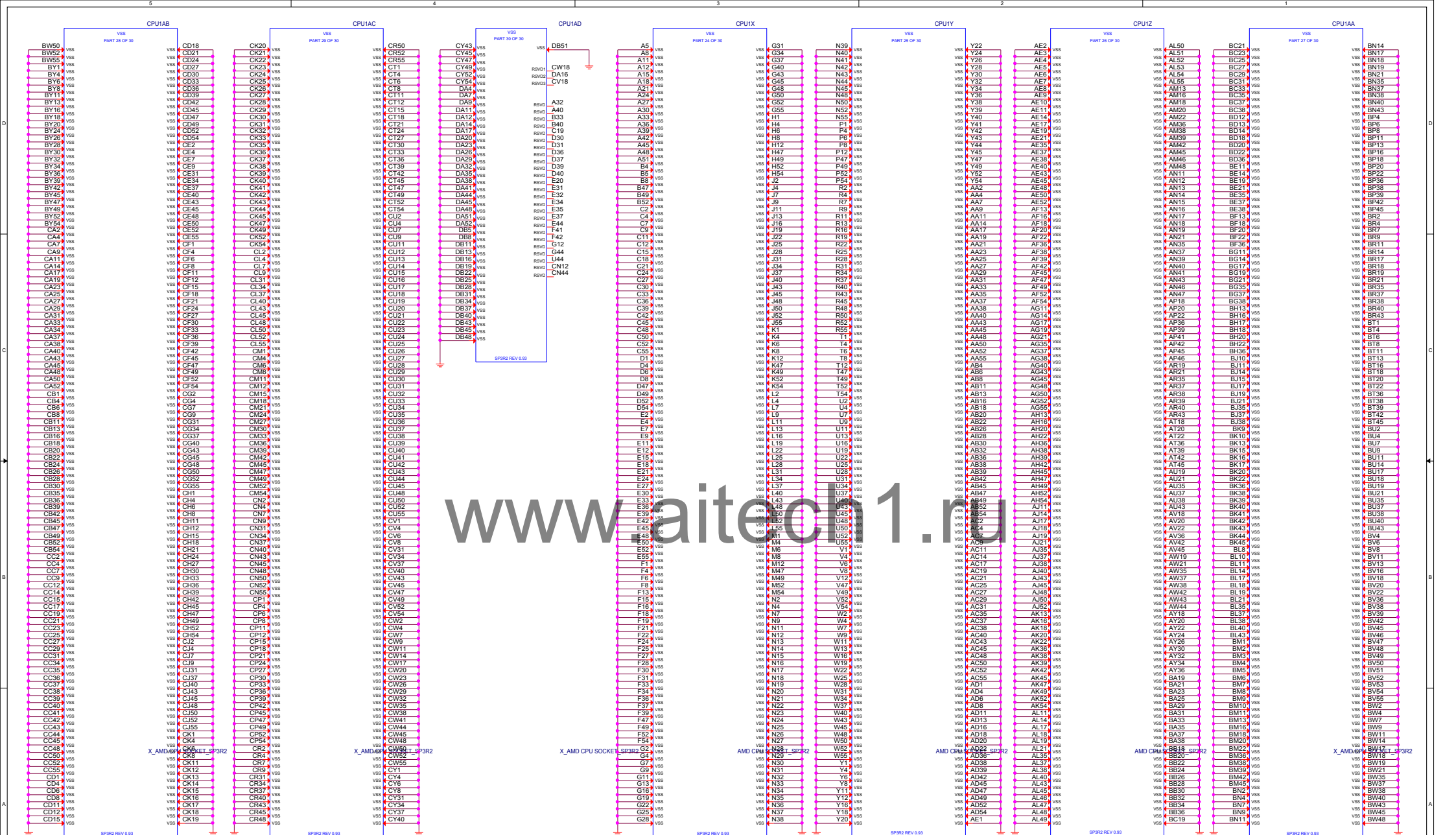


Decoupling Grouped by Placement Location

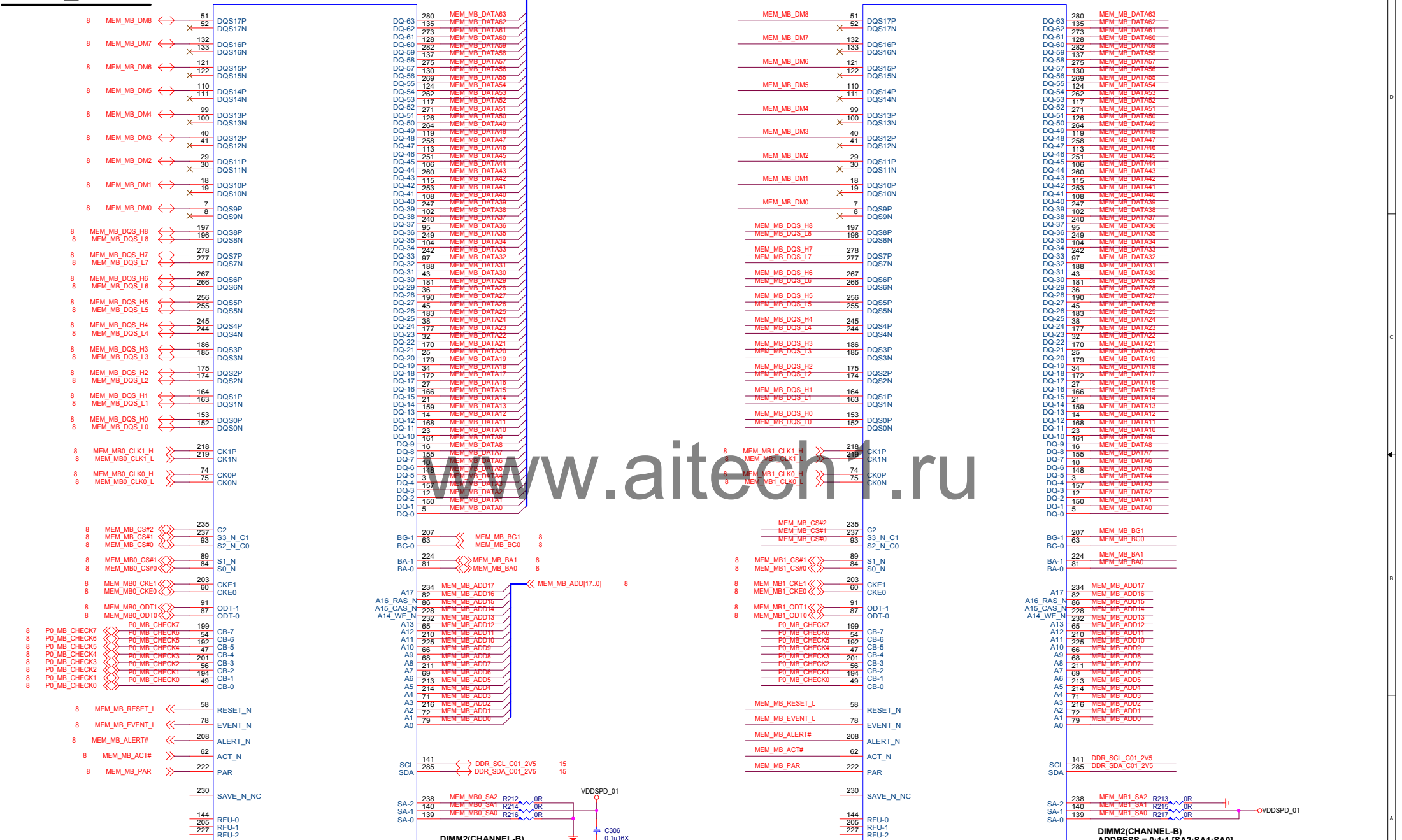
VDDCR_CPU Bottom Side Decoupling:



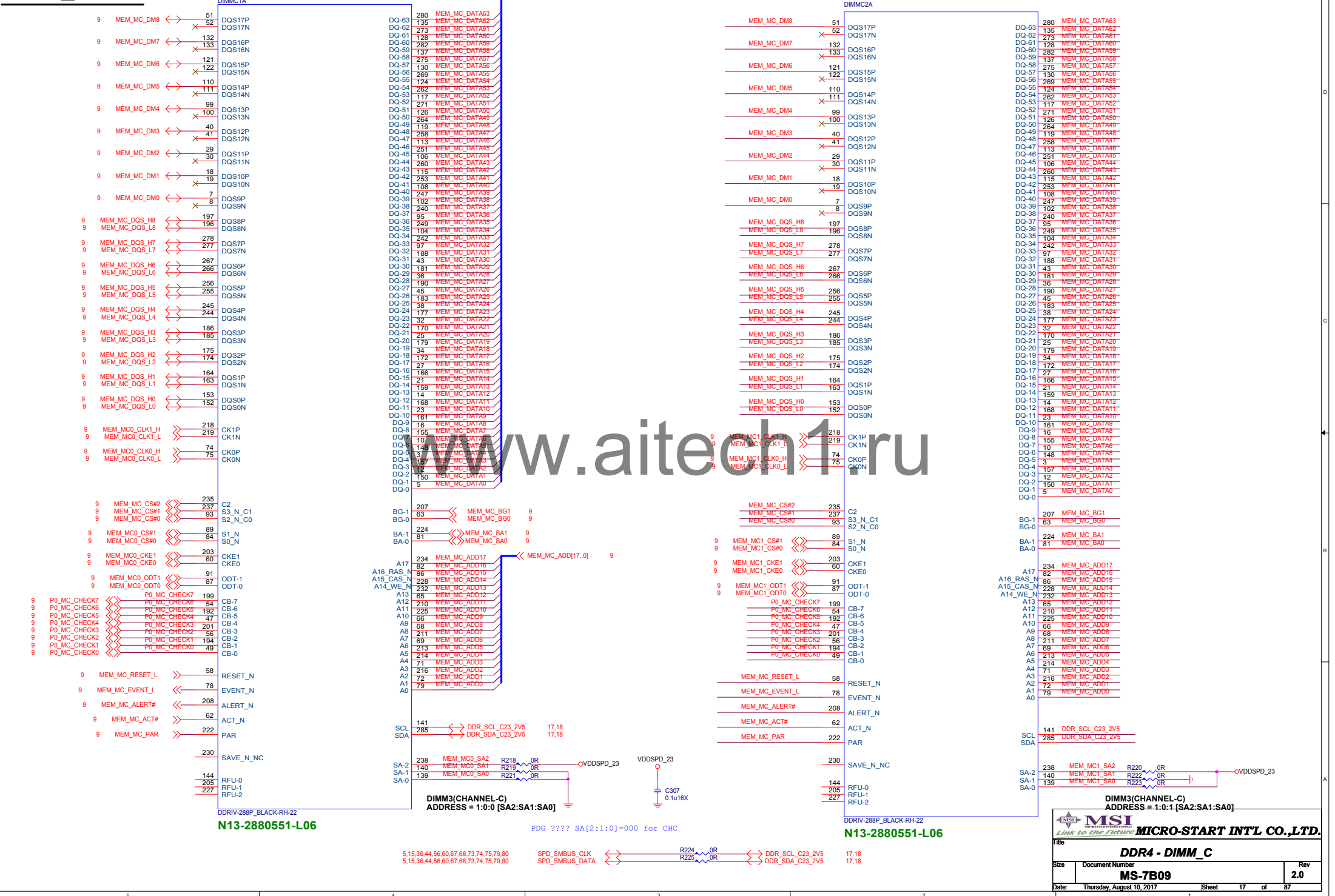
17ci203



DIMM_B1/B2



DIMM_C1/C2



MSI
Link to the future

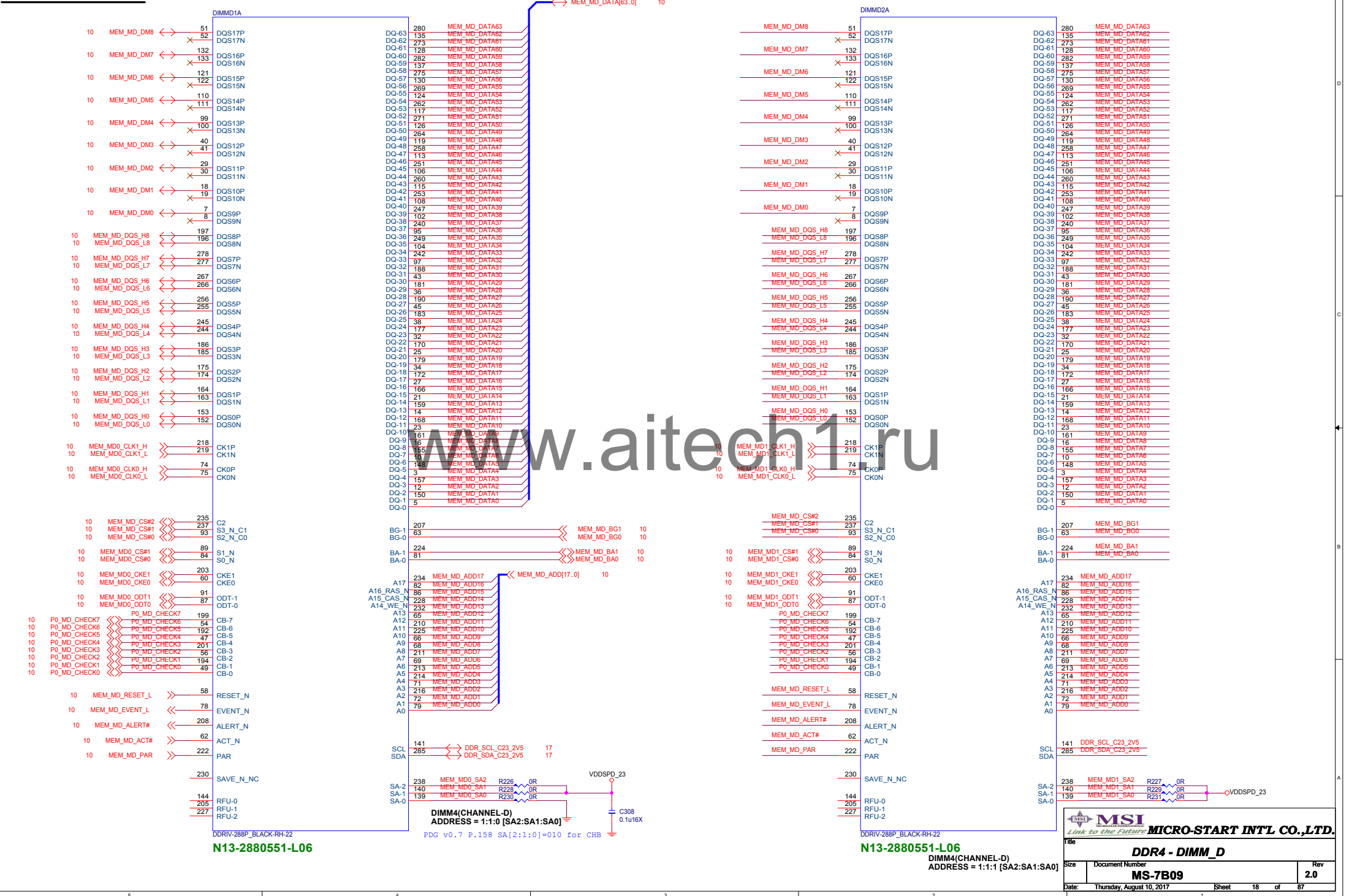
MICRO-START INTL CO.,LTD.

File: **DDR4 - DIMM_C**

Size: Document Number: **MS-7B09** Rev: **2.0**

Date: Thursday, August 10, 2017 Sheet: 17 of 87

DIMM_D1/D2



N13-2880551-L06

N13-2880551-L06

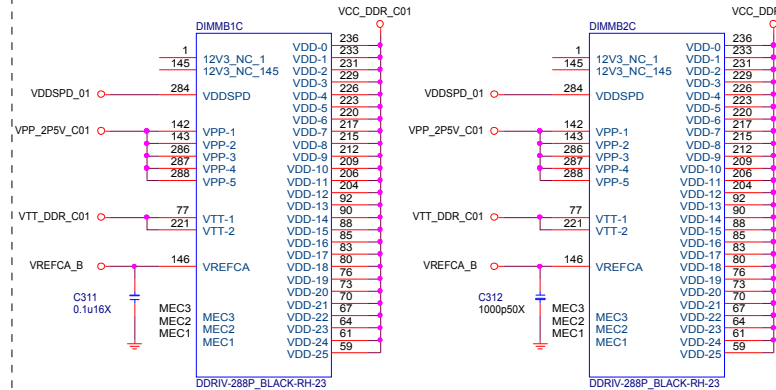
MSI MICRO-START INTL CO.,LTD.

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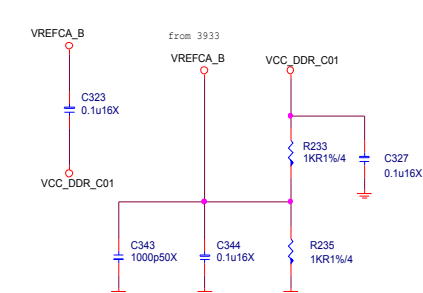
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Thursday, August 10, 2017

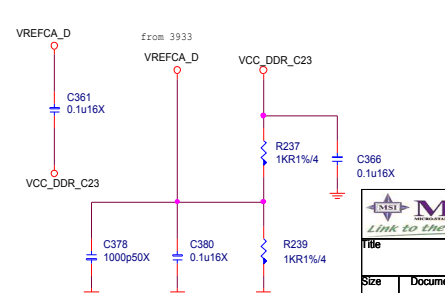
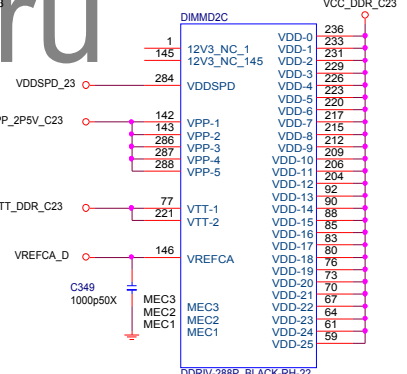
Sheet 18 of 87



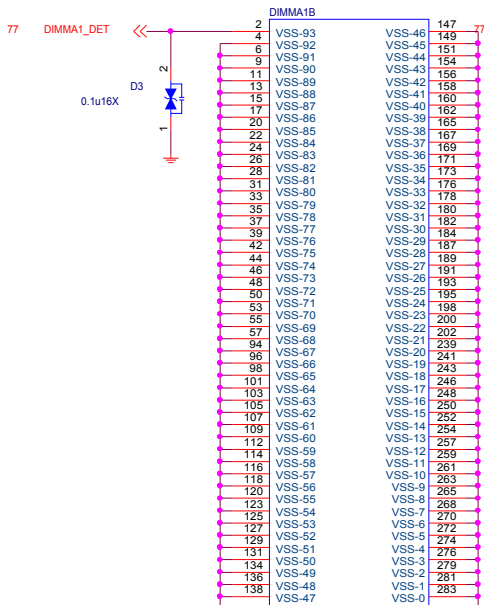
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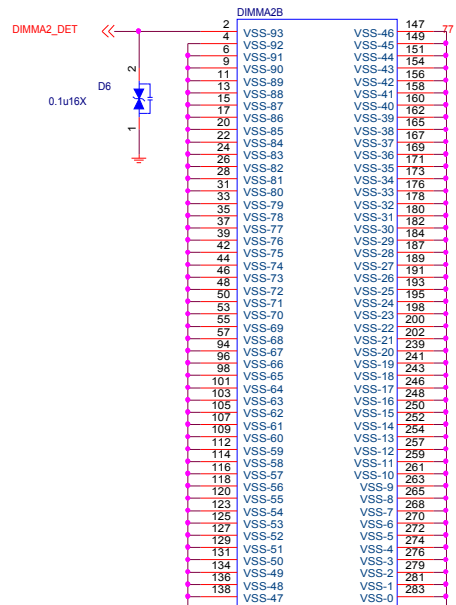
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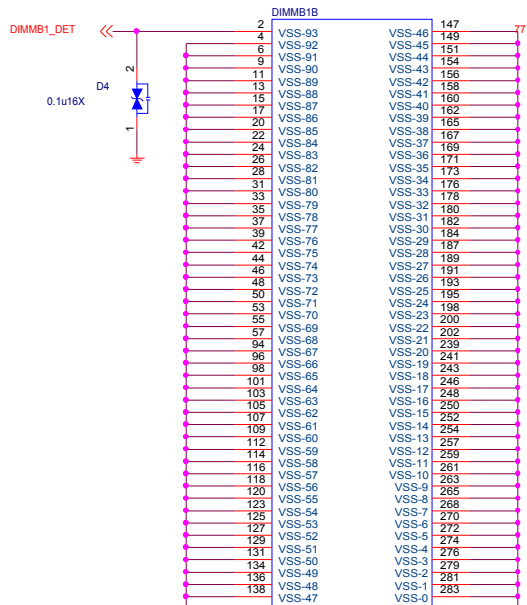
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Size	Document Number	Rev	
	MS-7B09	2.0	
Date:	Thursday, August 10, 2017	Sheet	19 of 87



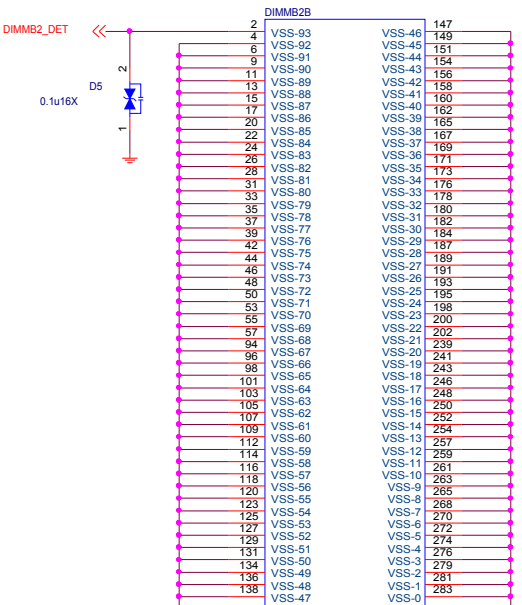
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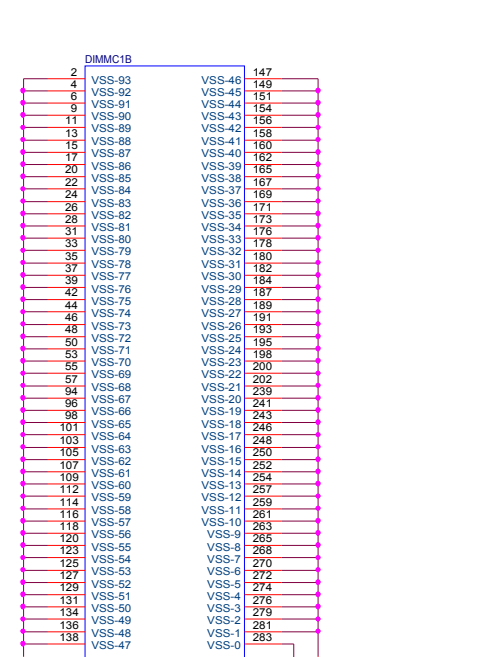
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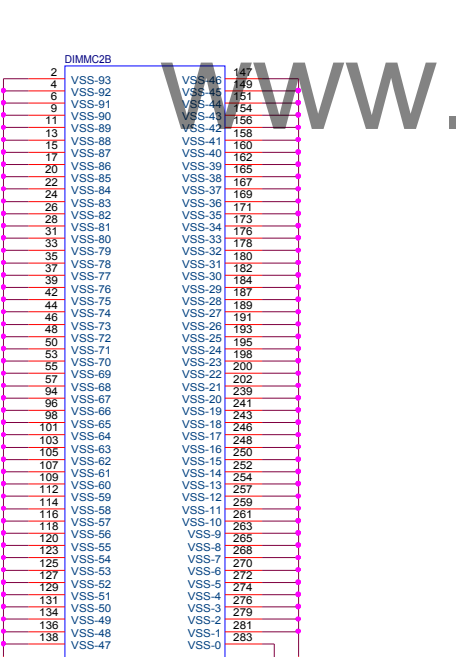
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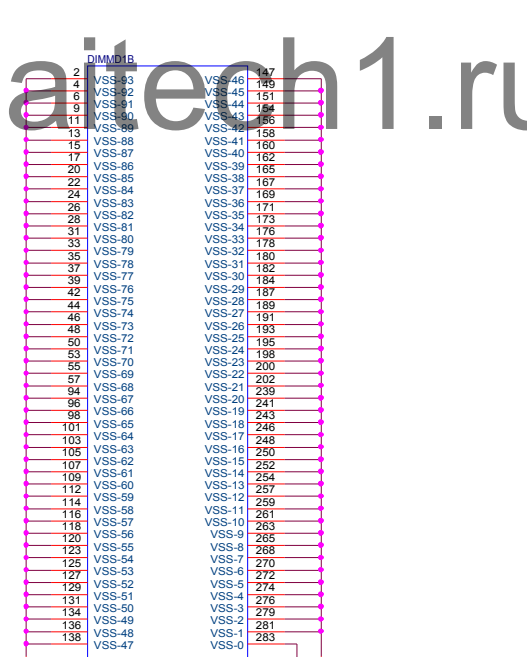
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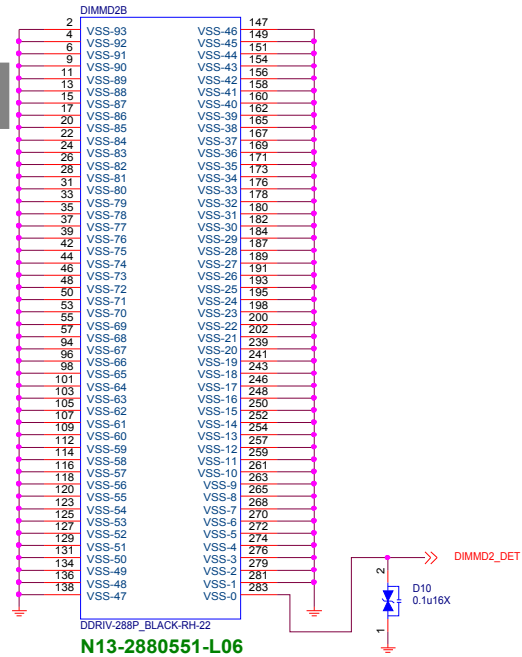
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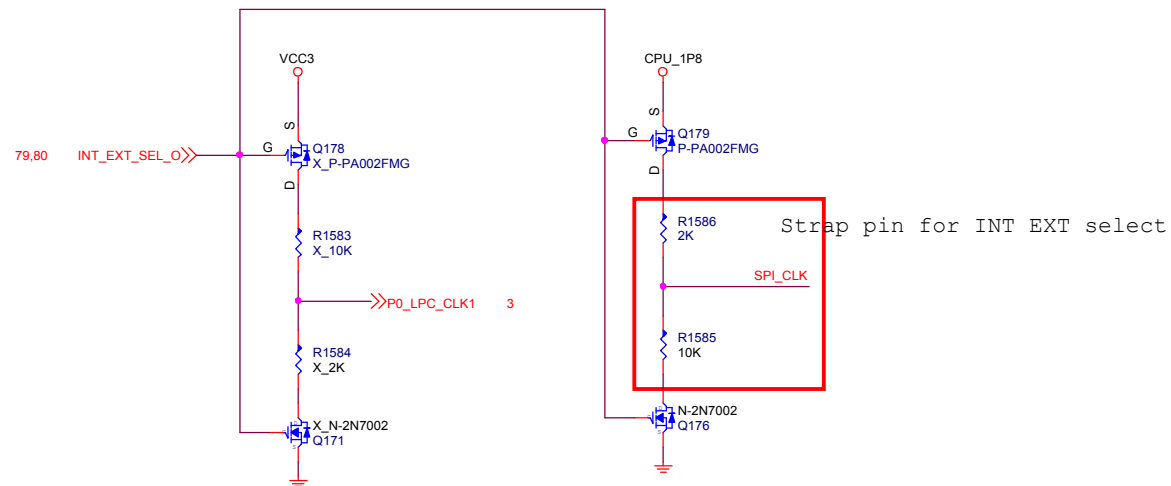
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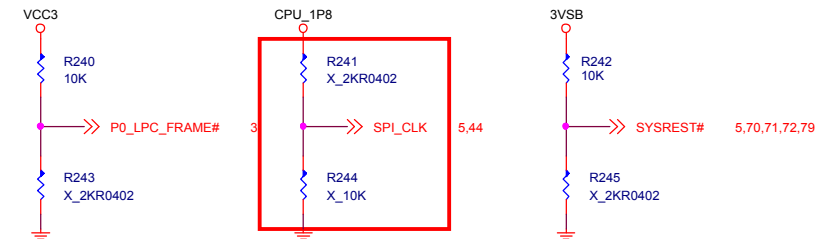


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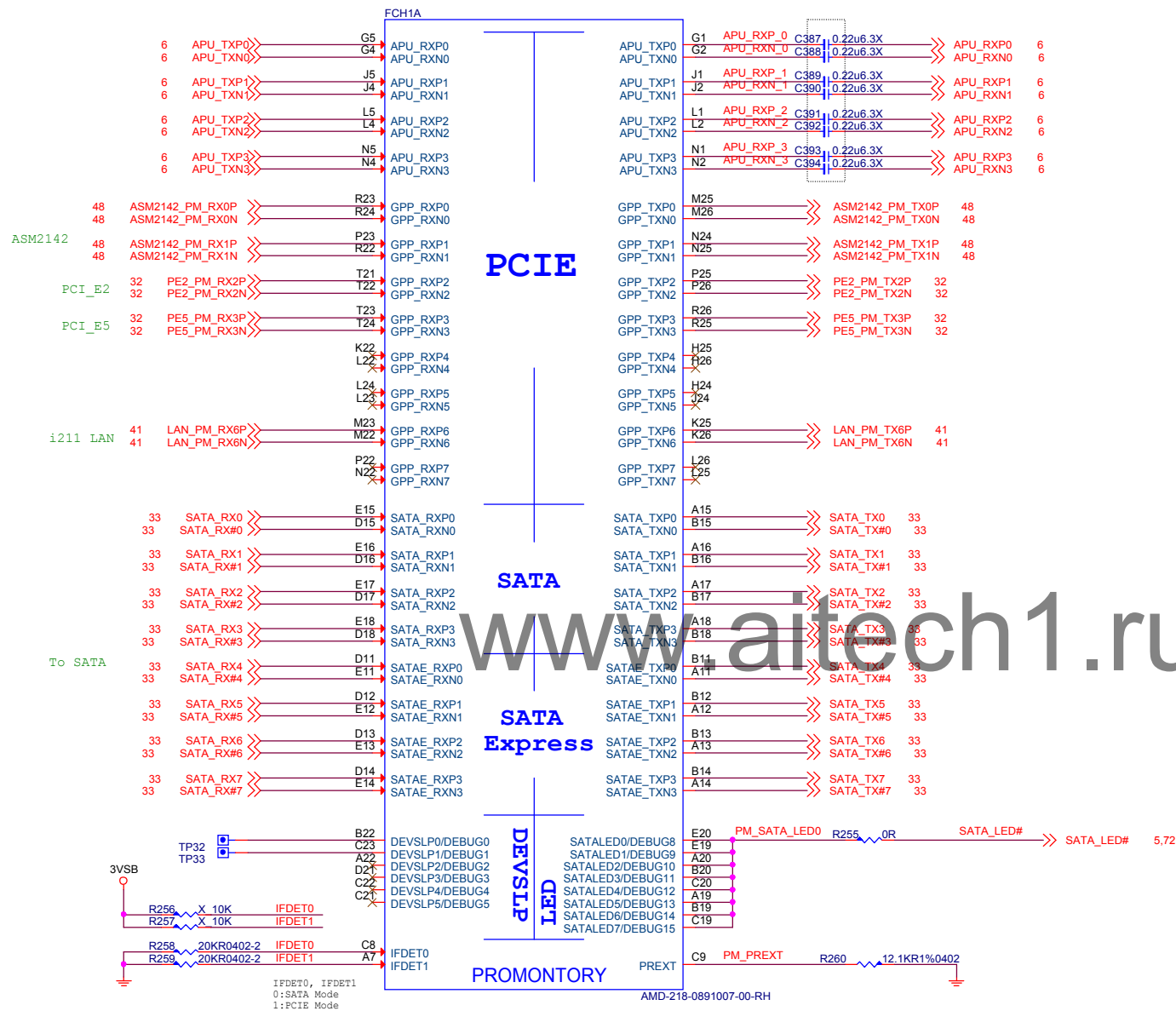


CPU STRAPS


STRAP	DEFINITION
SPI_CLK	1:USE 48MHZ CRYSTAL CLOCK AND GENERATE BOTH INTERNAL AND EXTERNAL CLOCKS(DEFAULT) 0:USE 100MHZ PCIE CLOCK AS REFERENCE CLOCK AND GENERATE INTERNAL CLOCKS ONLY
SYS_RST#	1:NORMAL RESET MODE(DEFAULT) 0:SHORT RESET MODE
LPC_FRAME_L	ROM TYPE SELECT 1:BOOT FROM SPI ROM(DEFAULT) 0:BOOT FROM LPC ROM



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SATA port	DEVSLP signal
SATA_TX/RXP/N[0]	DEVSLP0
SATA_TX/RXP/N[1]	DEVSLP1
SATA_TX/RXP/N[2]	DEVSLP2
SATA_TX/RXP/N[3]	DEVSLP3
SATAE_TX/RXP/N[0]	SATAE_CLKREQ0N
SATAE_TX/RXP/N[1]	DEVSLP4
SATAE_TX/RXP/N[2]	SATAE_CLKREQ1N
SATAE_TX/RXP/N[3]	DEVSLP5

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

Title

Promontory PCIE/SATA

Size

Document Number

MS-7B09

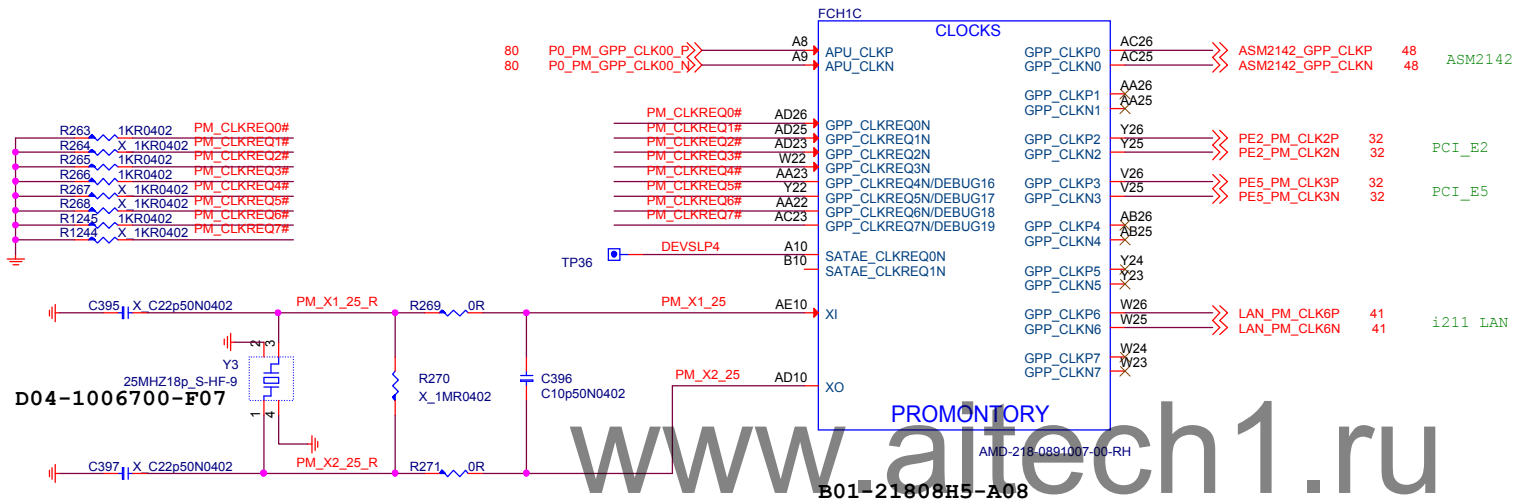
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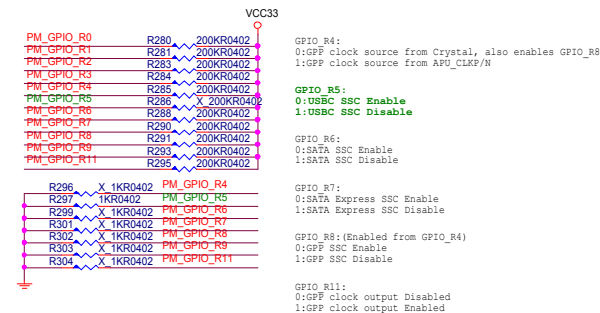
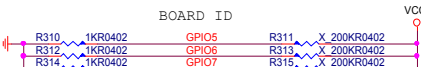
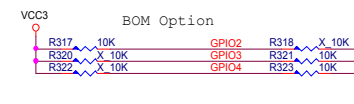
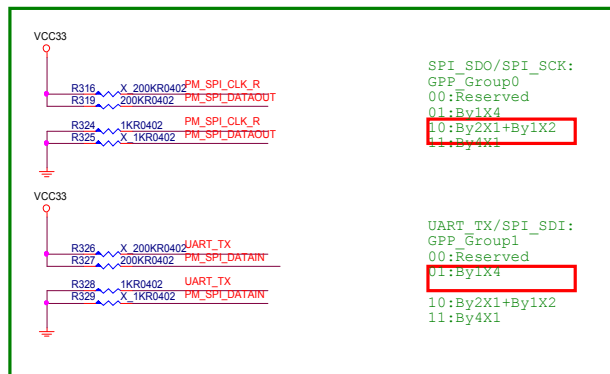
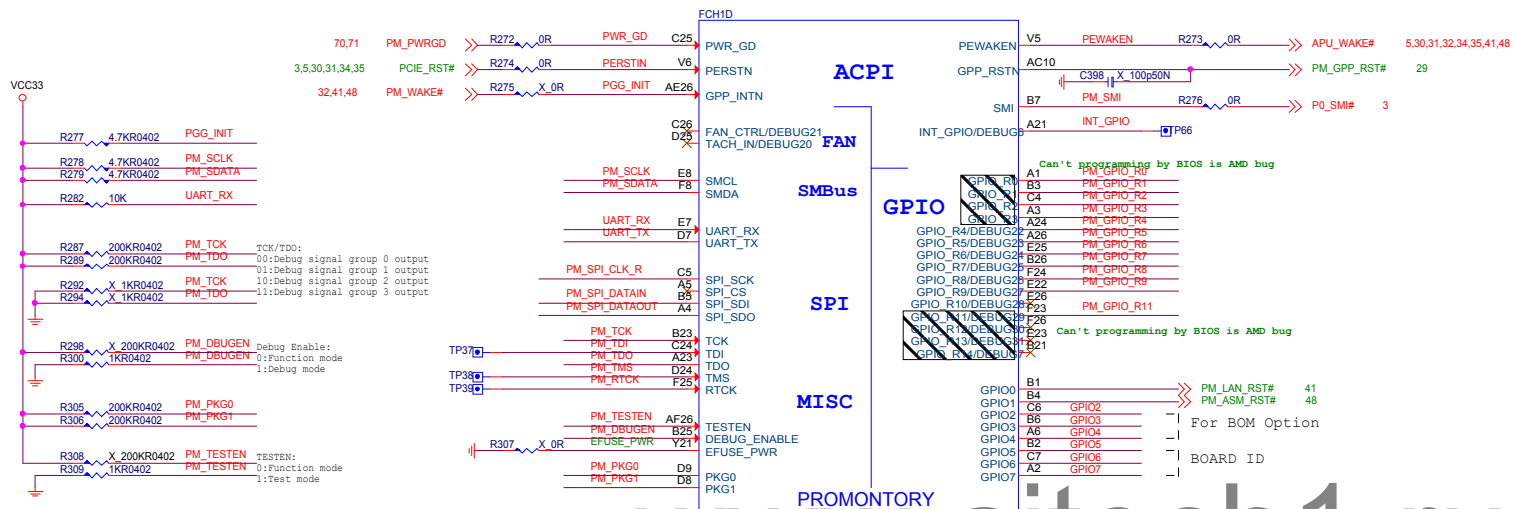
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Date

Thursday, August 10, 2017

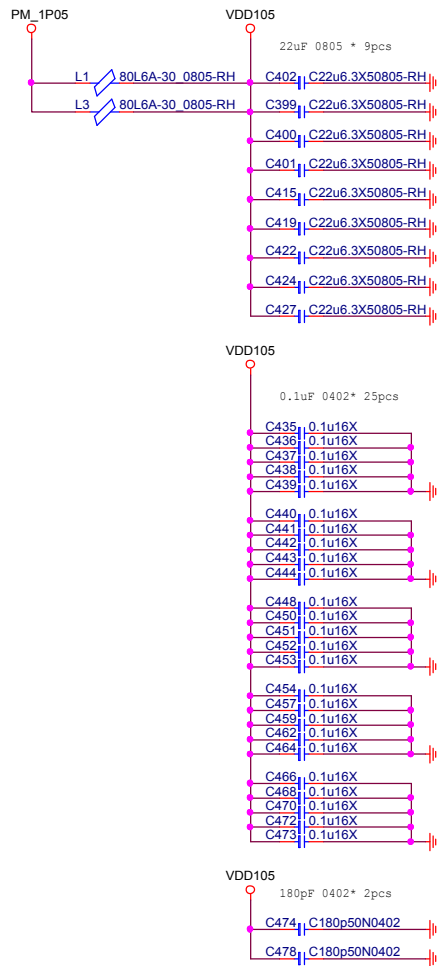
Sheet 23 of 87





GPIO2=0 --> SLG41837
Slave Address:PCB1.0 version
00110000 , Wite , 30
00110001 , Read , 31

GPIO2=1 --> SLG41837
Slave Address:PCB1.1 version
01010000 , Wite , 50
01010001 , Read , 51



5.5A

VDD105



FCH1E

POWER



PROMONTORY

AMD-218-0891007-00-RH

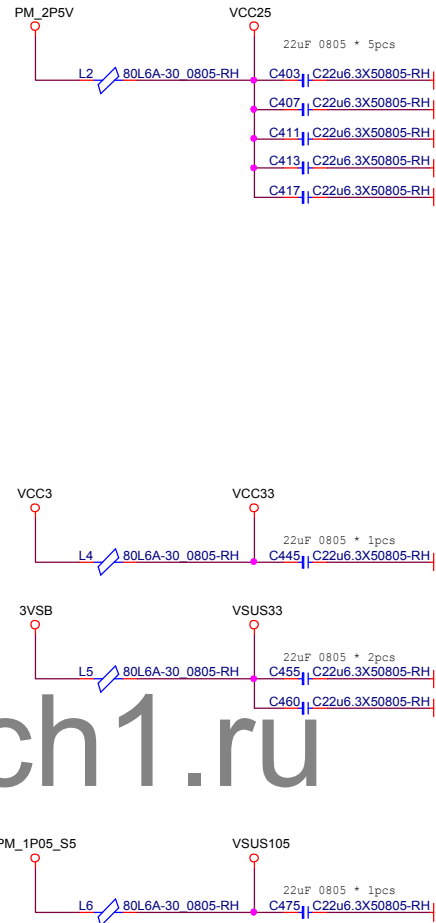
900mA

VCC25

200mA

70mA

50mA



MSI MICRO-START INTERNATIONAL

Link to the future

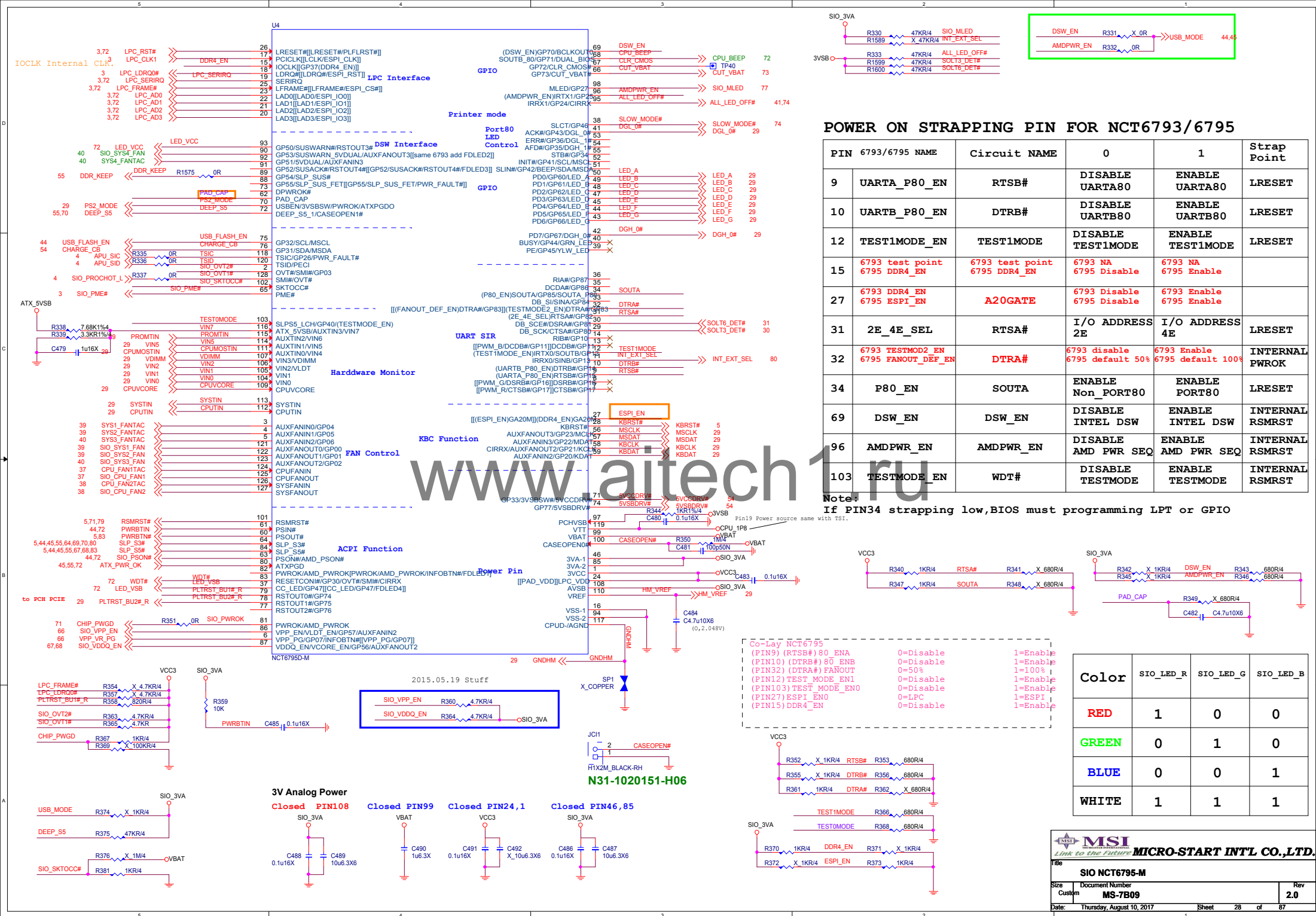
MICRO-START INT'L CO.,LTD.

Title

Promontory POWER

Size Document Number MS-7B09 Rev 2.0

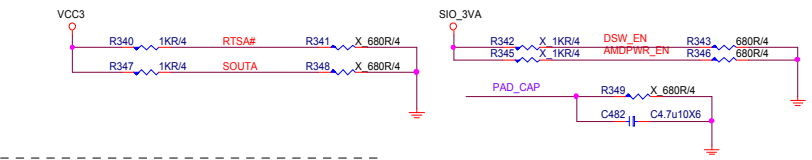
Date: Thursday, August 10, 2017 Sheet 26 of 87



POWER ON STRAPPING PIN FOR NCT6793/6795

PIN	6793/6795 NAME	Circuit NAME	0	1	Strap Point
9	UARTA_P80_EN	RTSB#	DISABLE UARTA80	ENABLE UARTA80	LRESET
10	UARTB_P80_EN	DTRB#	DISABLE UARTB80	ENABLE UARTB80	LRESET
12	TEST1MODE_EN	TEST1MODE	DISABLE TEST1MODE	ENABLE TEST1MODE	LRESET
15	6793 test point 6795 DDR4_EN	6793 test point 6795 DDR4_EN	6793 NA 6795 Disable	6793 NA 6795 Enable	
27	6793 DDR4_EN 6795 ESPI_EN	A20GATE	6793 Disable 6795 Disable	6793 Enable 6795 Enable	
31	2E_4E_SEL	RTSA#	I/O ADDRESS 2E	I/O ADDRESS 4E	LRESET
32	6793 TESTMOD2_EN 6795 FANOUT_DEF_EN	DTRA#	6793 disable 6795 default 50%	6793 Enable 6795 default 100%	INTERNAL PWROK
34	P80_EN	SOUTA	ENABLE Non_PORT80	ENABLE PORT80	LRESET
69	DSW_EN	DSW_EN	DISABLE INTEL DSW	ENABLE INTEL DSW	INTERNAL RSMRST
96	AMDPWR_EN	AMDPWR_EN	DISABLE AMD PWR SEQ	ENABLE AMD PWR SEQ	INTERNAL RSMRST
103	TESTMODE_EN	WDT#	DISABLE TESTMODE	ENABLE TESTMODE	INTERNAL RSMRST

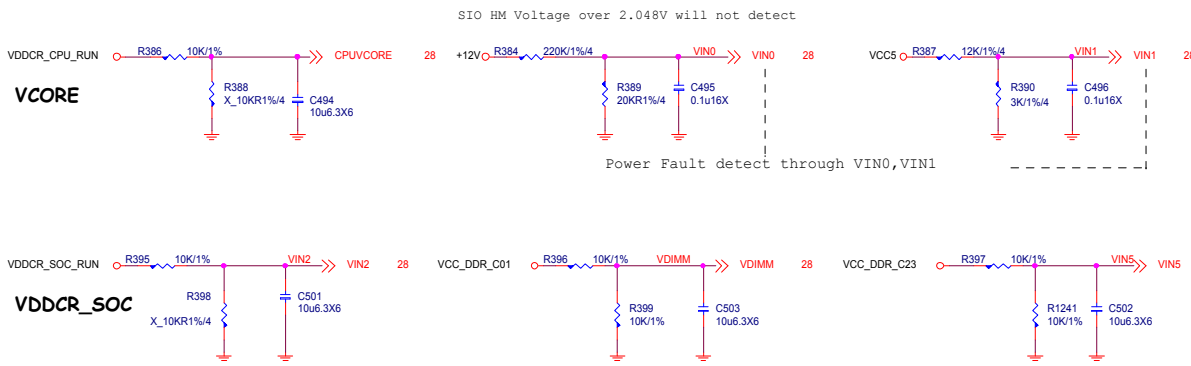
Note:
If PIN34 strapping low, BIOS must programming LPT or GPIO



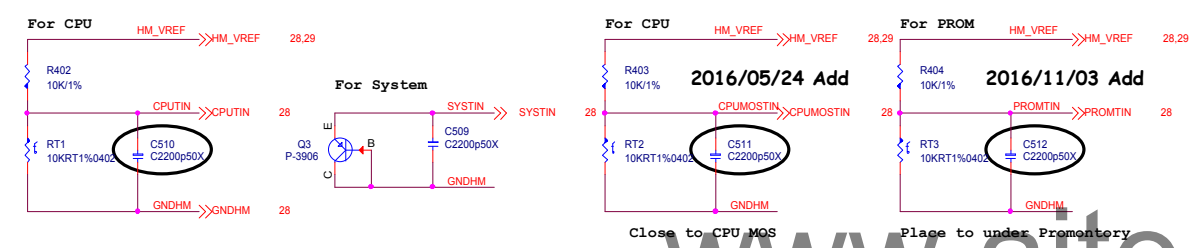
Co-Lay NCT6795
(PIN9) (RTSB#) 80 ENA 0=Disable 1=Enable
(PIN10) (DTRB#) 80 ENB 0=Disable 1=Enable
(PIN32) (DTRA#) FANOUT 0=50% 1=100%
(PIN12) TEST MODE EN1 0=Disable 1=Enable
(PIN103) TEST MODE EN0 0=Disable 1=Enable
(PIN27) ESPI EN0 0=LPC 1=ESPI
(PIN15) DDR4_EN 0=Disable 1=Enable

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

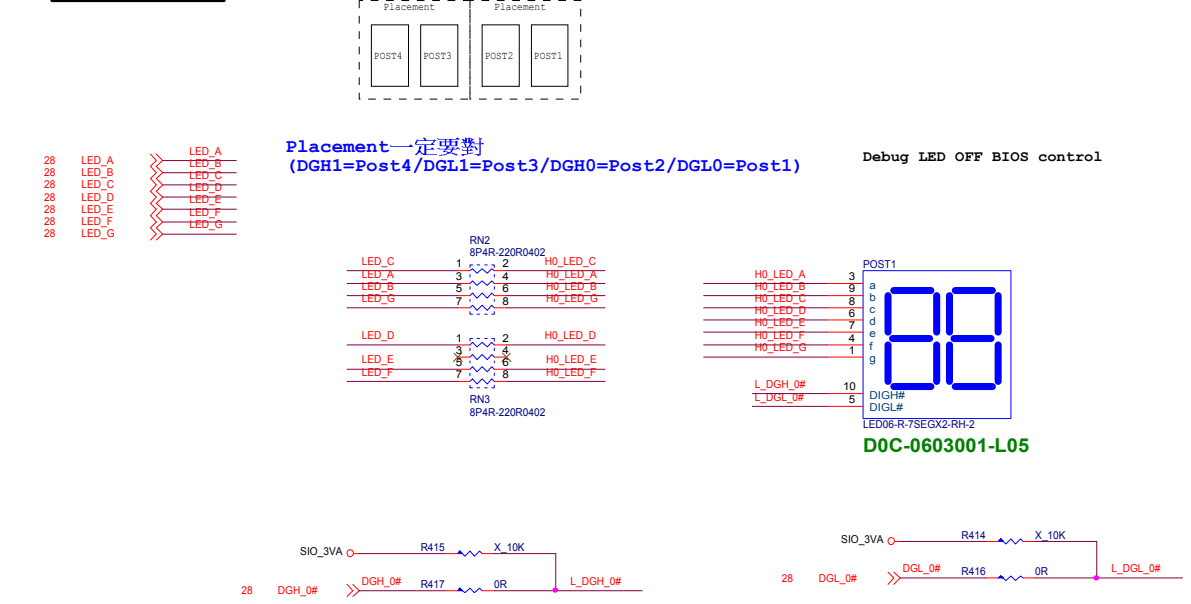
HW Monitor - Voltage



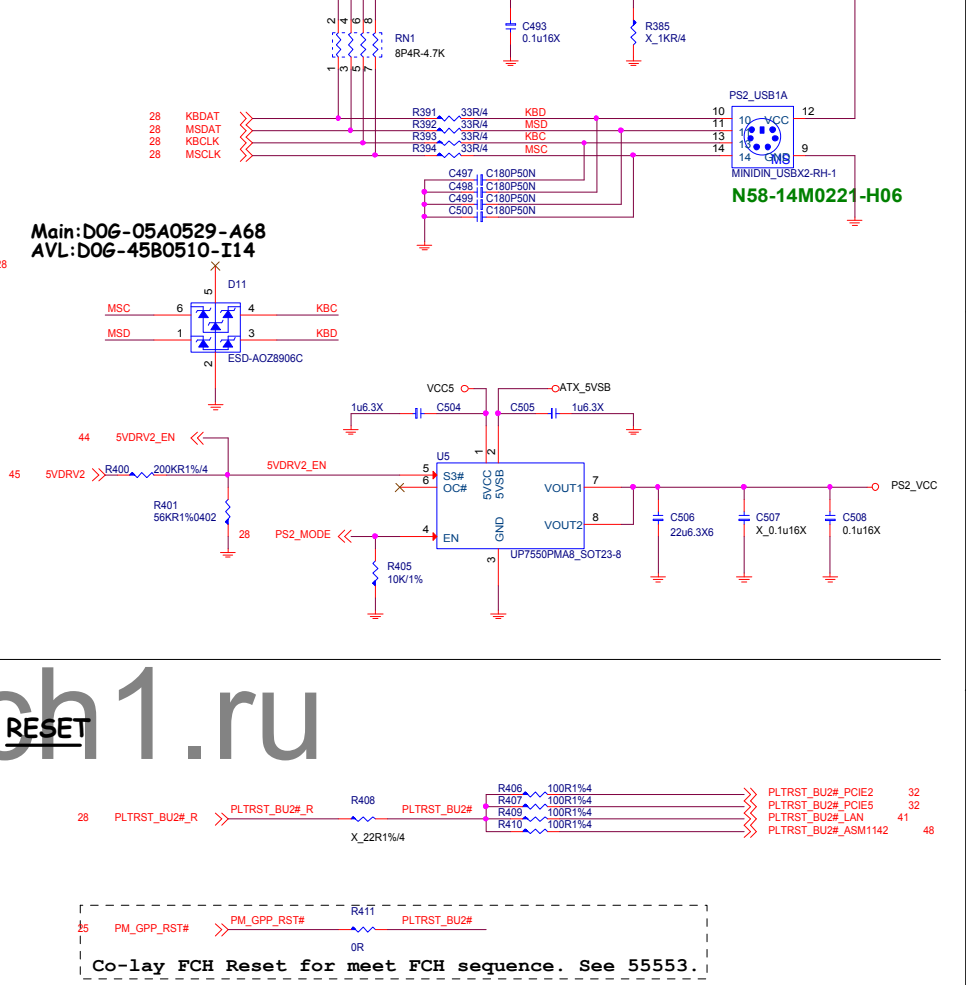
TEMP SENSOR



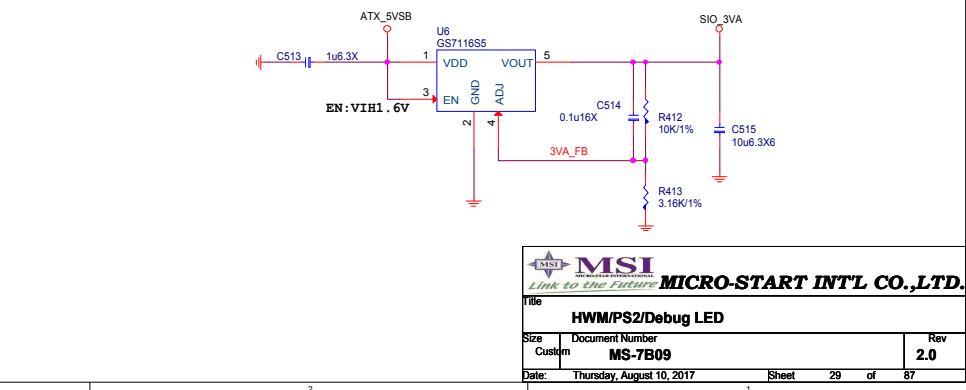
DEBUG LED



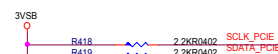
COM PORT



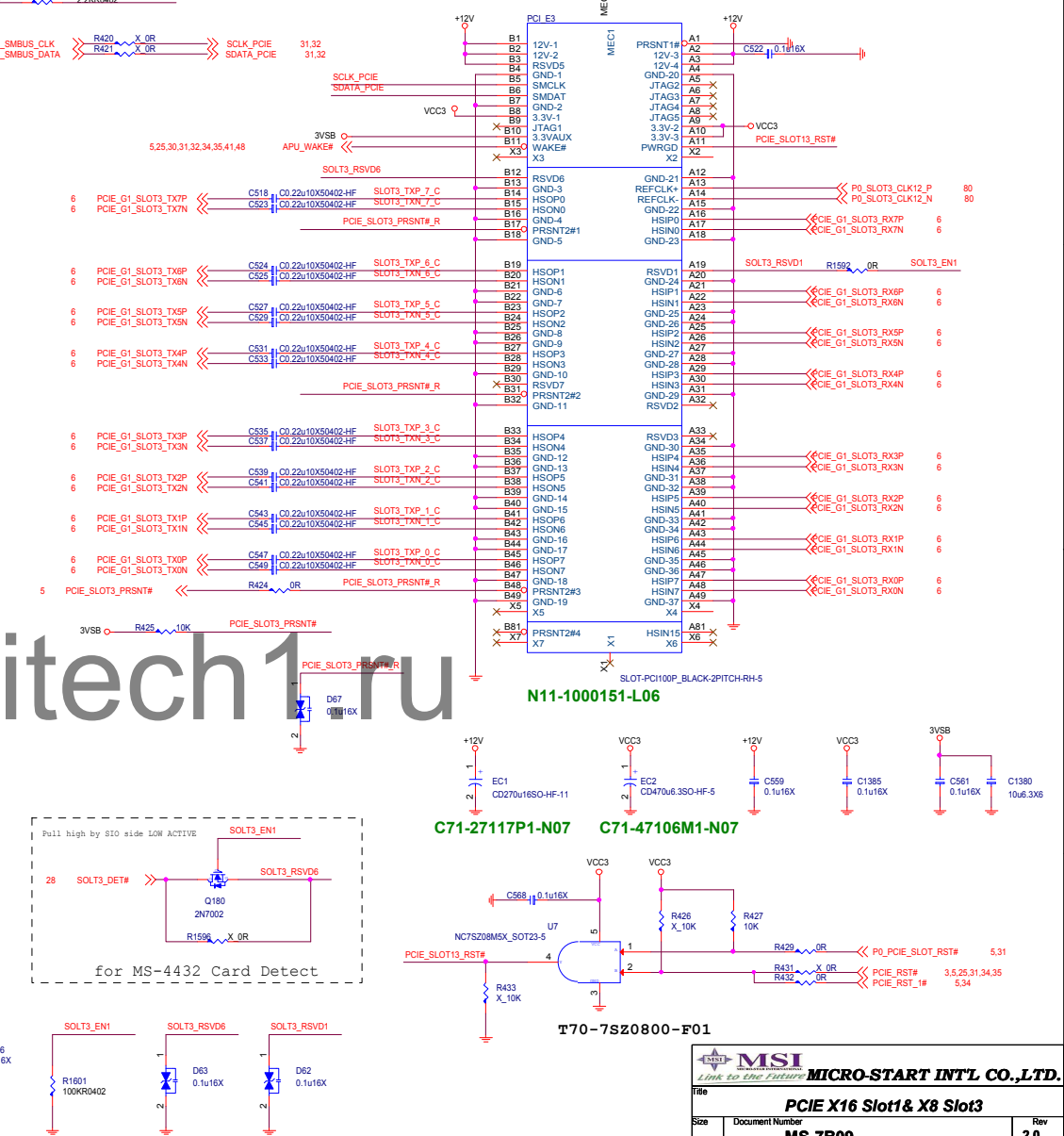
SIO_3VA



PCI EXPRESS X16 SLOT

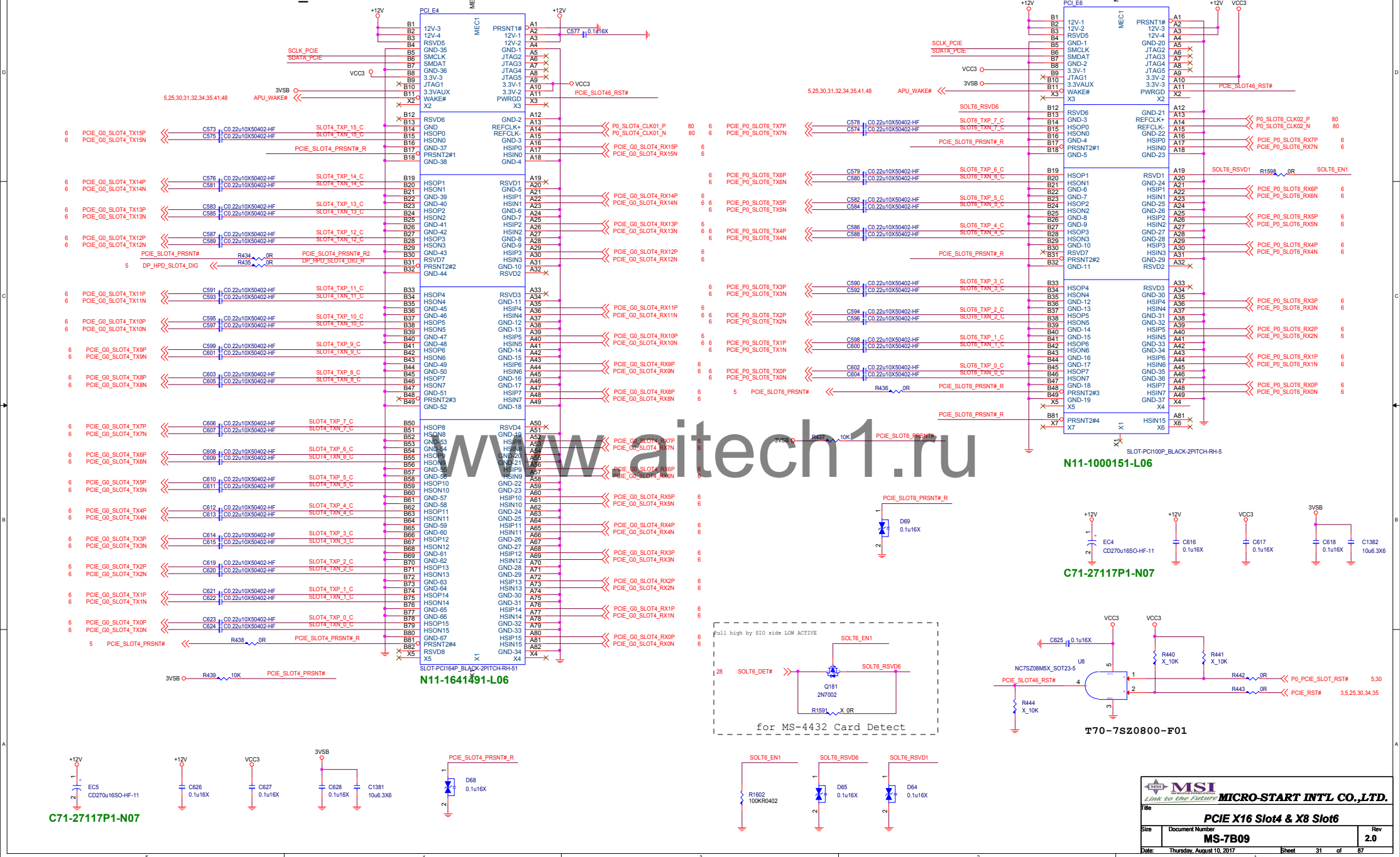


PCI EXPRESS X8 SLOT

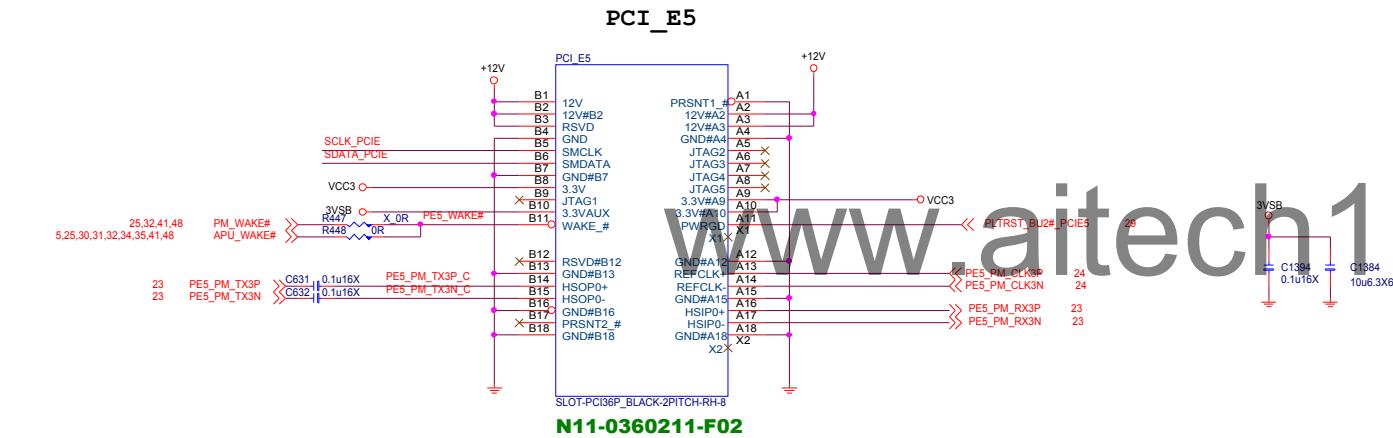
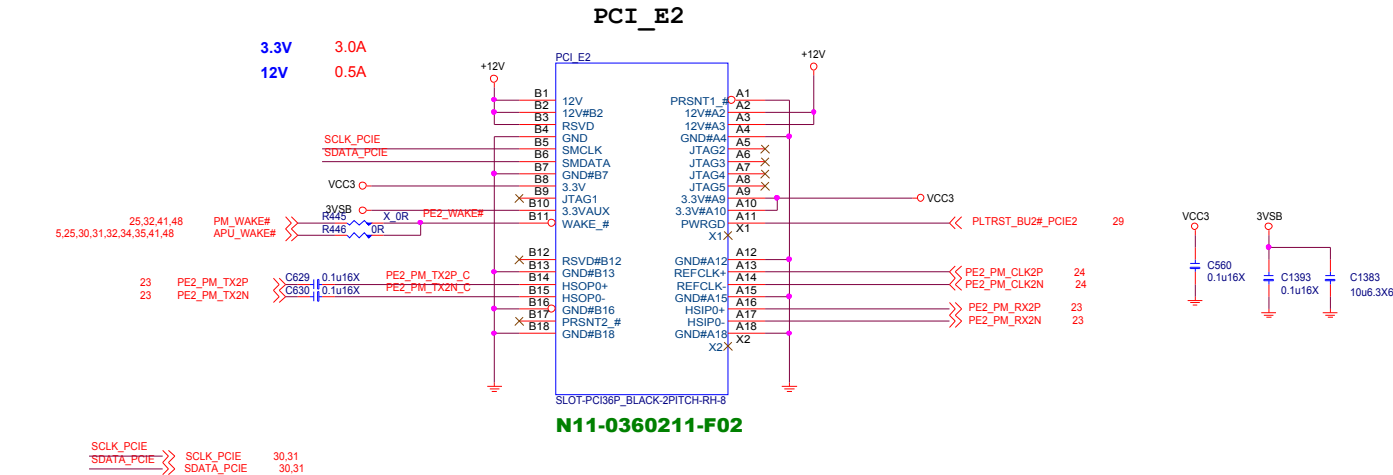


PCI EXPRESS X8 SLOT


PCI E6



PCIEX1 12V 0.5A
3.3V weak 375mA

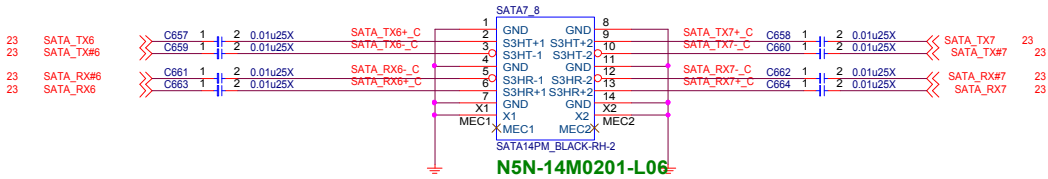
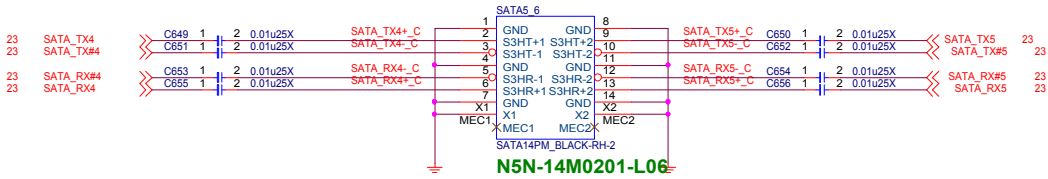
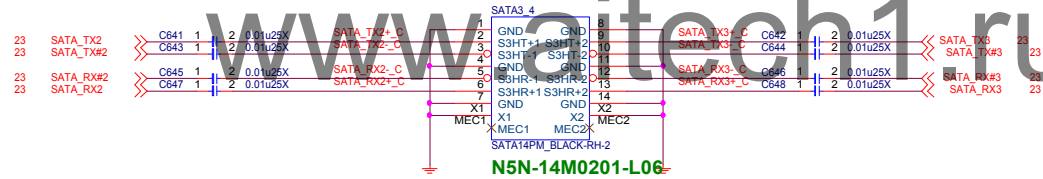
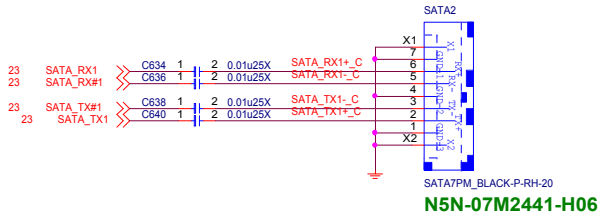
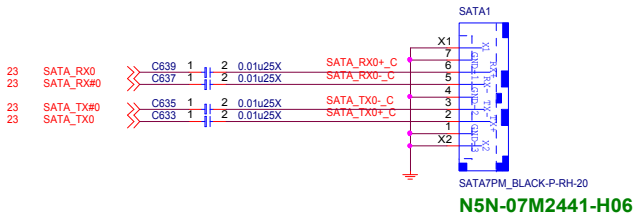


PCI Express X1 slot	
+12V	- 1 A
+3.3Vaux (wake)	- 750mA
+3.3Vaux (no wake)	- 40mA
+3.3V	- 6.0A

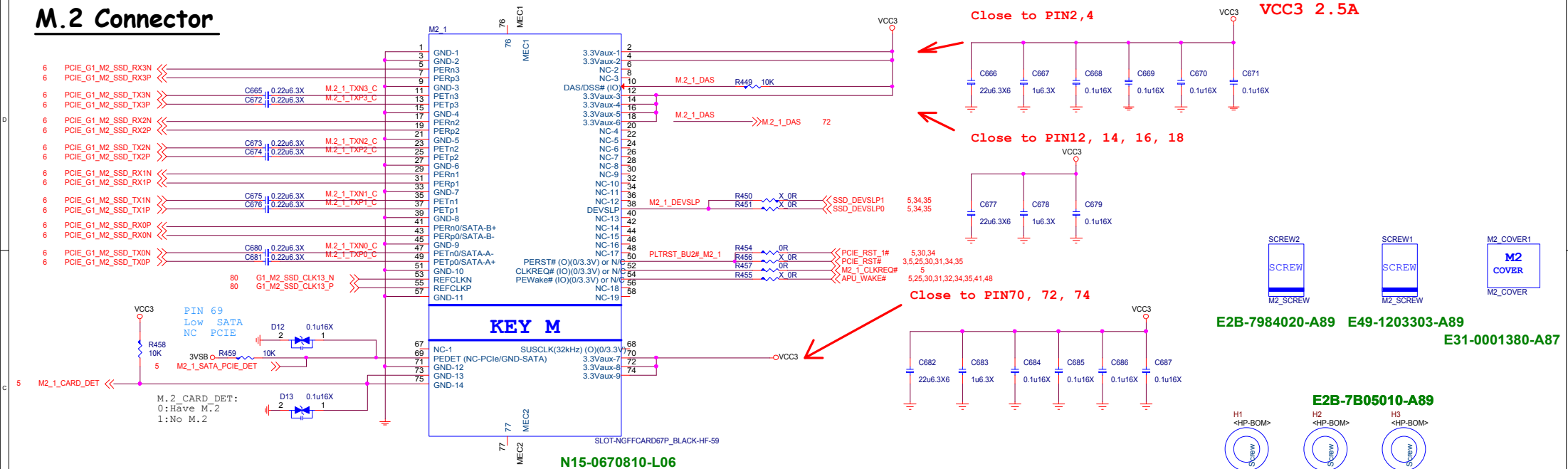
**MSI**
Micro-Star International
MICRO-START INT'L CO.,LTD.

File		MSI X1 & SLOT2&5	
Size	Custom	Document Number	MS-7B09
Date	Thursday, August 10, 2017	Sheet	32 of 87
		Rev	2.0

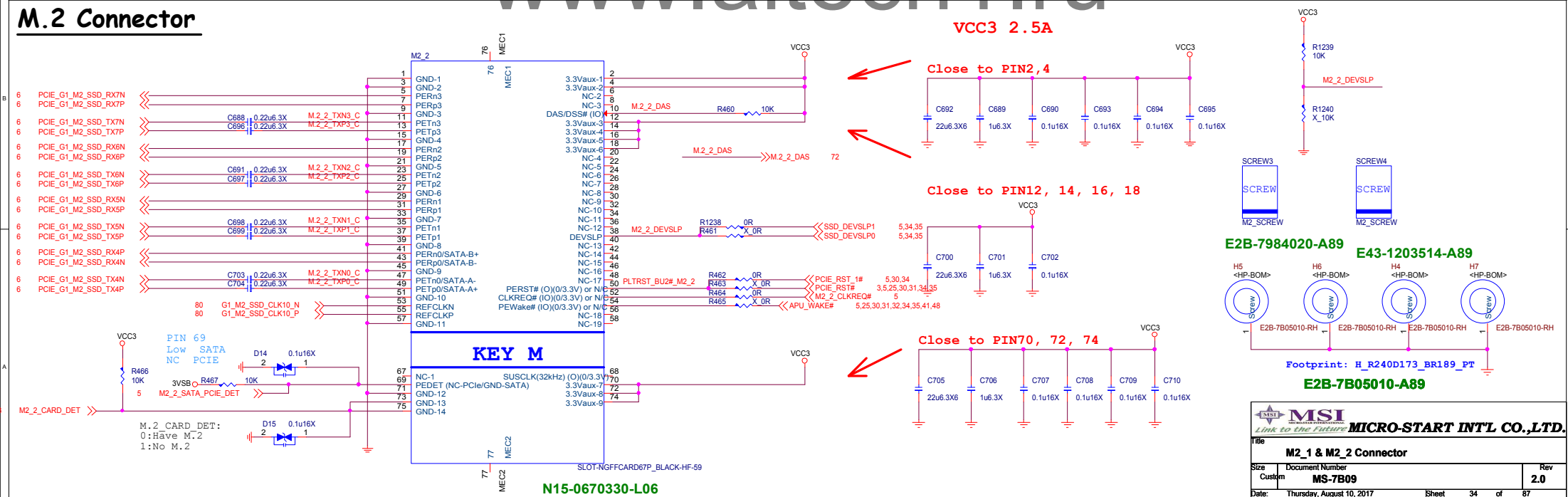
SATA Connector



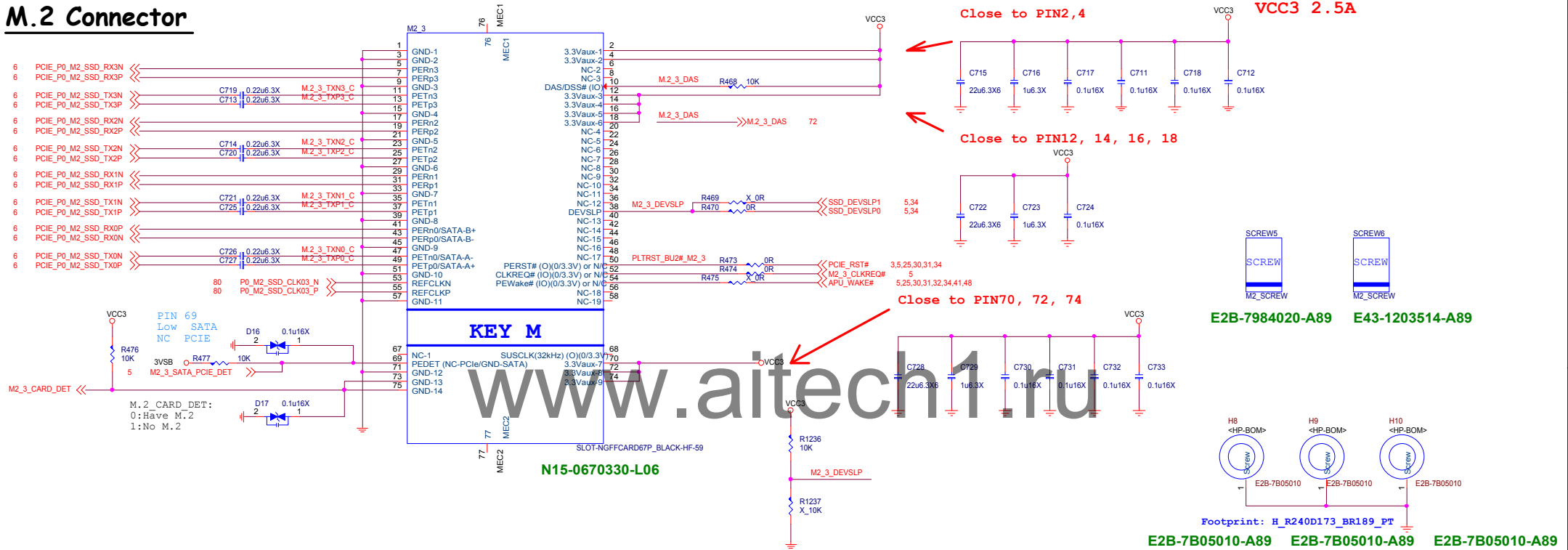
M.2 Connector

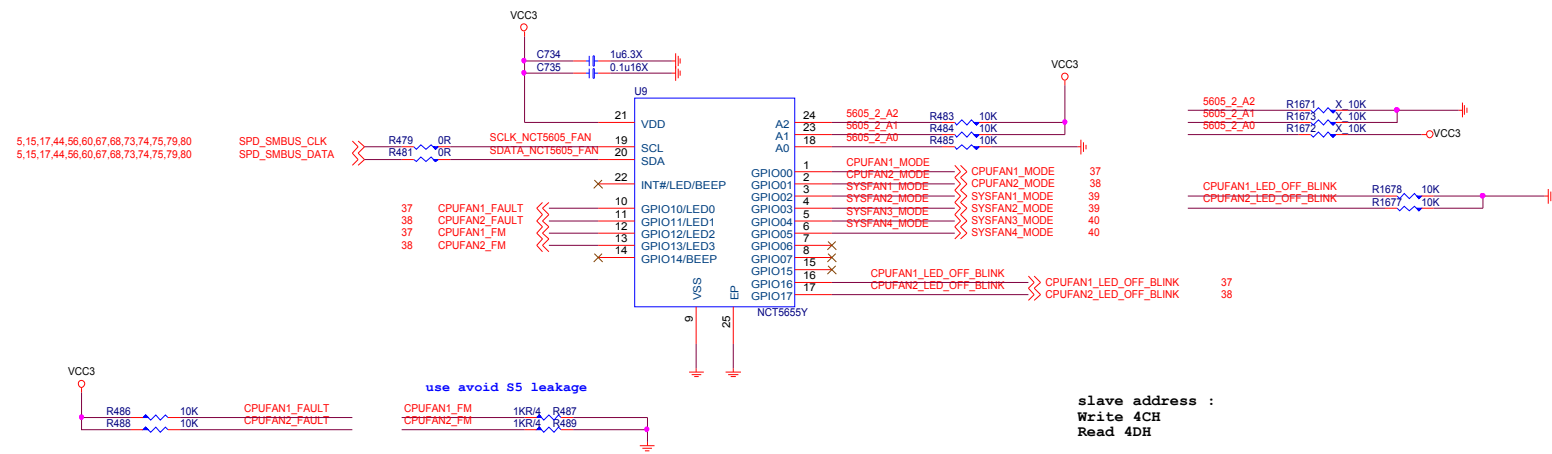


M.2 Connector



M.2 Connector

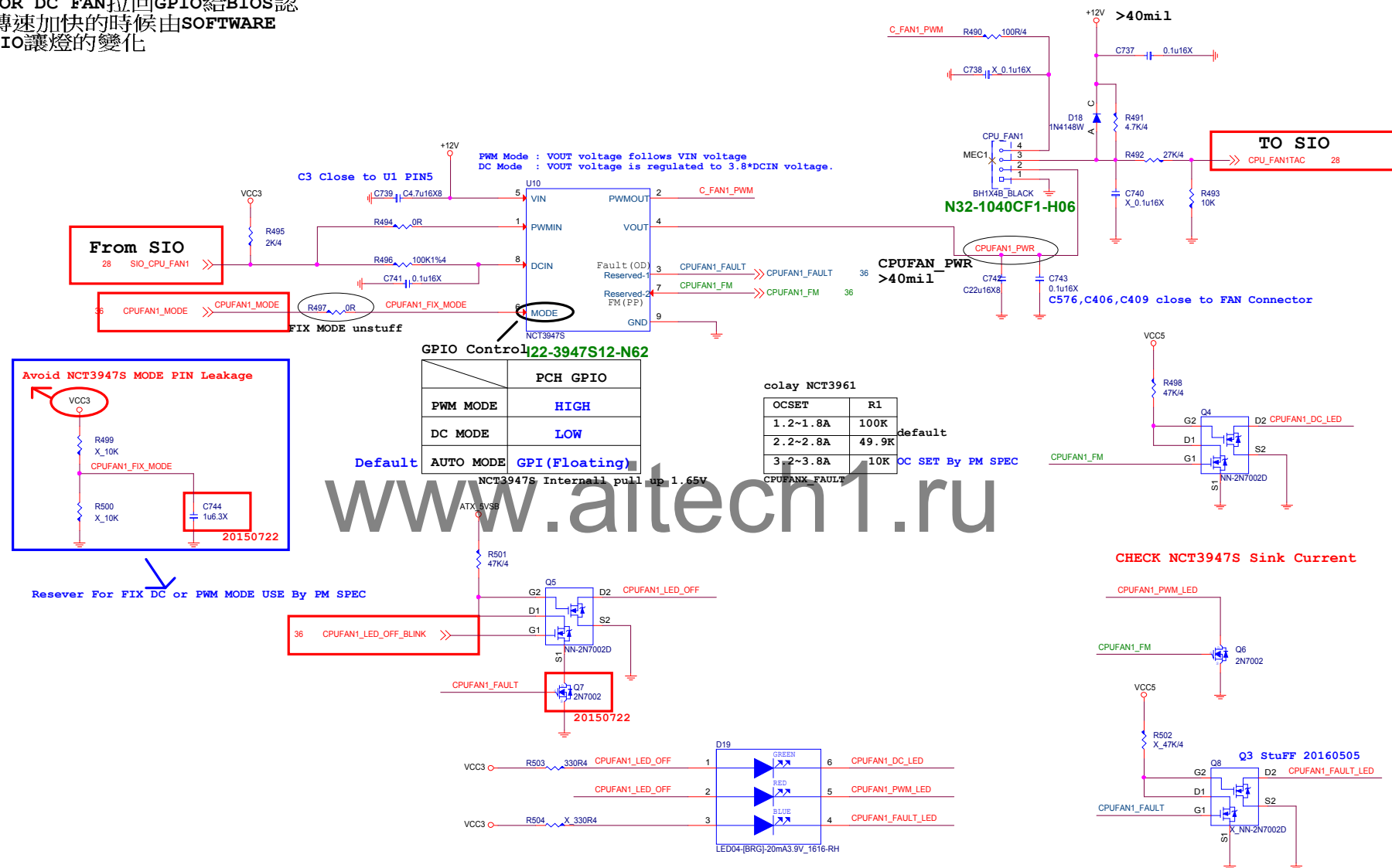




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TYPE J : 4 PIN CPU FAN USE NCT3947S USE PCH GPIO

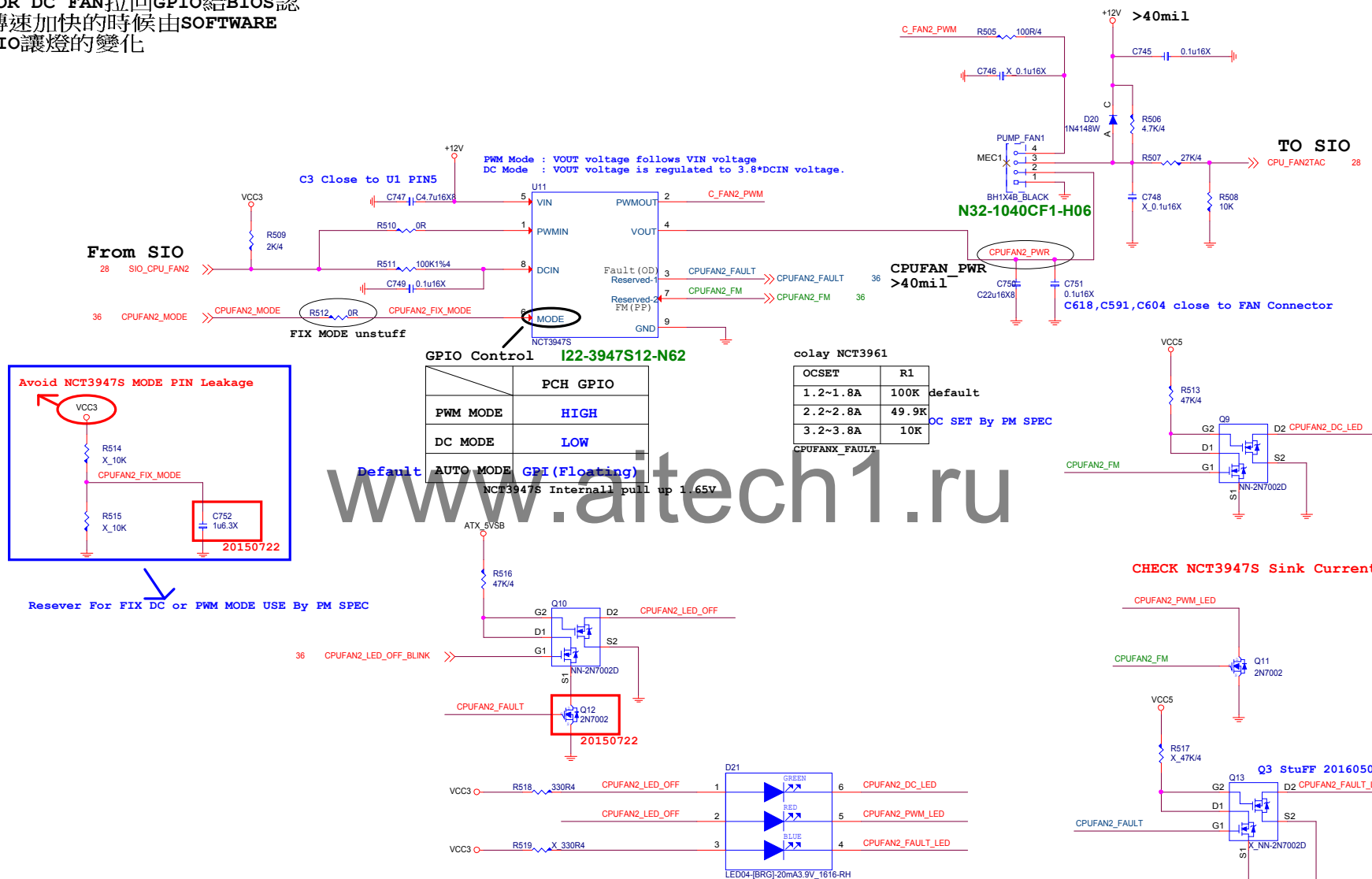
1. PWM/DC/OC LED (現在是改成R/G/B3色LED)
2. GPIO可以由BIOS切換 PWM/DC MODE
3. OCP拉回GPIO給BIOS認
4. PWM OR DC FAN拉回GPIO給BIOS認
5. FAN轉速加快的時候由SOFTWARE控制GPIO讓燈的變化



1. MODE : USE MODE PIN change FAN MODE (PWM or DC FAN)
2. FAULT : USE FAULT PIN Triger OVT/OCP 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 J : 4 PIN CPU FAN USE NCT3947S USE PCH GPIO

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



RGB
DOC-040S400-H91

20161024 Update
DC FAN LED (綠)
PWM FAN LED (藍)
FAN_OCP_LED (紅)

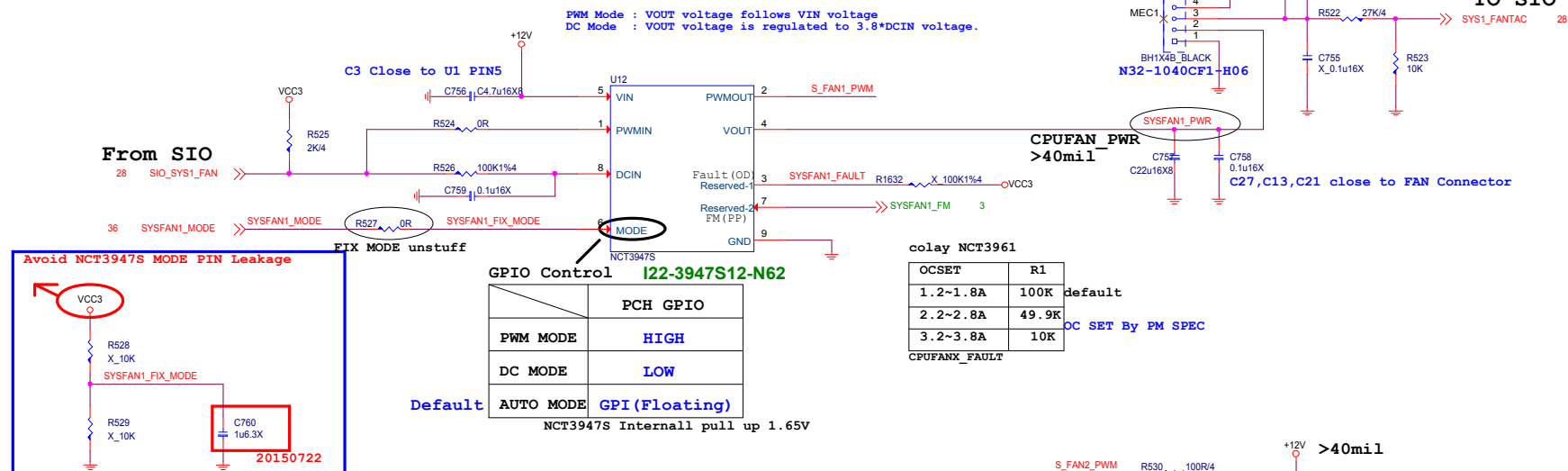
1. MODE : USE MODE PIN change FAN MODE (PWM or DC FAN)
2. FAULT : USE FAULT PIN Trigger OVT/OCF Protection, LOW Active (Reserve NEW IC)
3. FM : USE FM PIN For BIOS USE to Detect PWM or DC FAN & Show information (Reserve NEW IC)

CHECK NCT3947S Sink Current

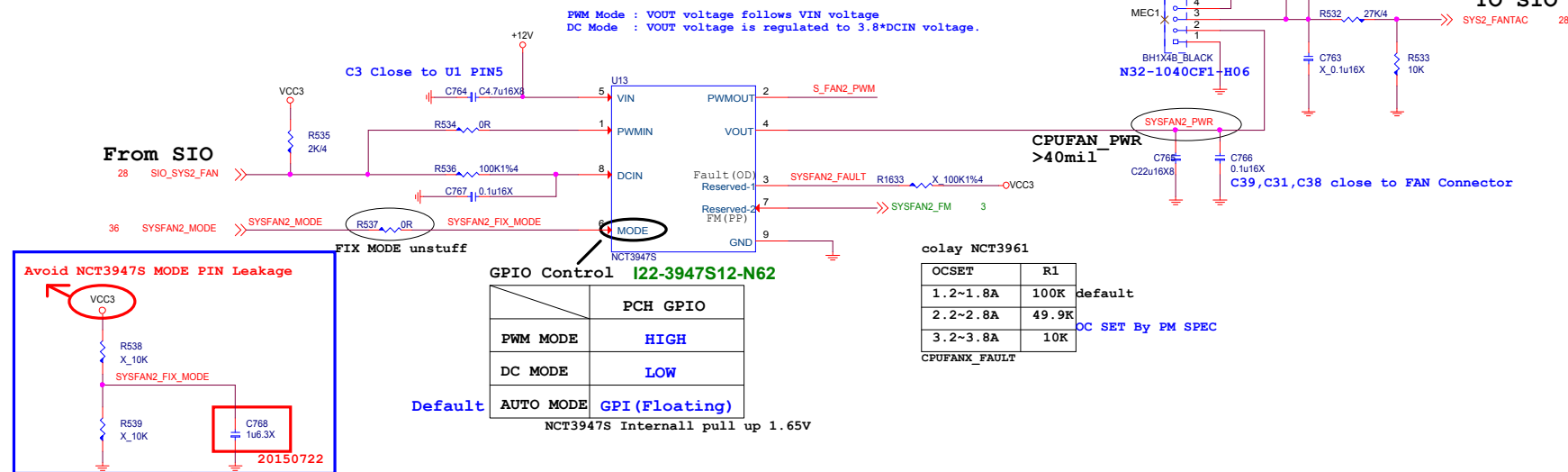
MSI LINK TO THE FUTURE MICRO-START INT'L CO., LTD.		
Title CPU FAN2-TYPE J(PUMP)		
Size Custom	Document Number MS-7B09	Rev 2.0
Date Thursday, August 10, 2017	Sheet 38	of 87

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

1. Mode GPIO BIOS can switch PWM/DC Mode
2. FM:BIOS can read FAN PWM/DC Mode



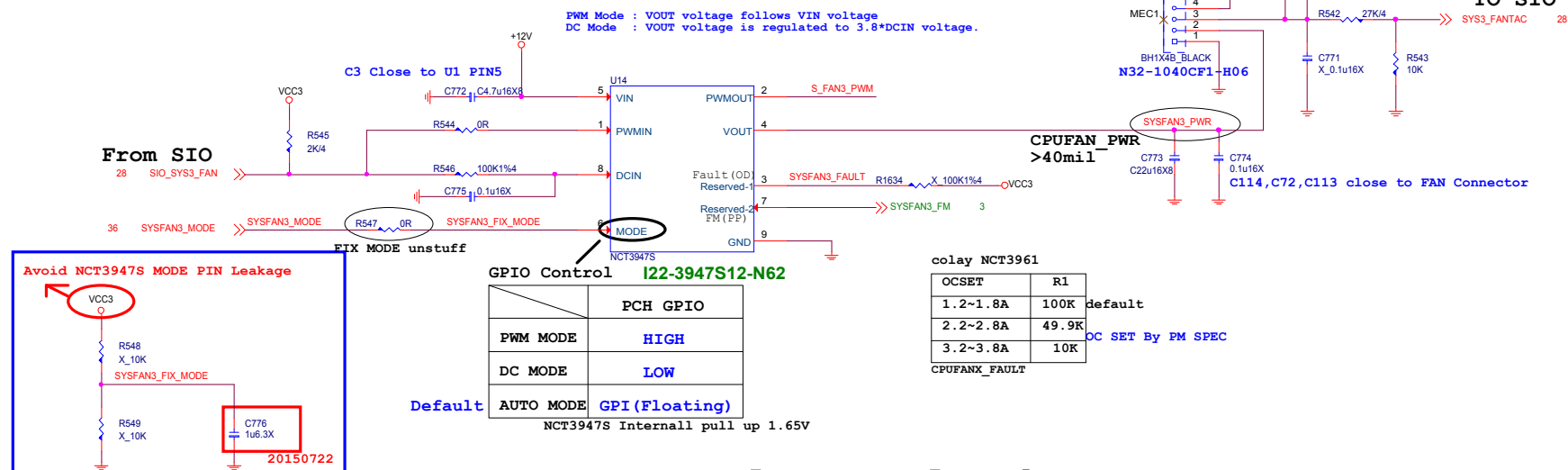
Resever For FIX DC or PWM MODE USE By PM SPEC



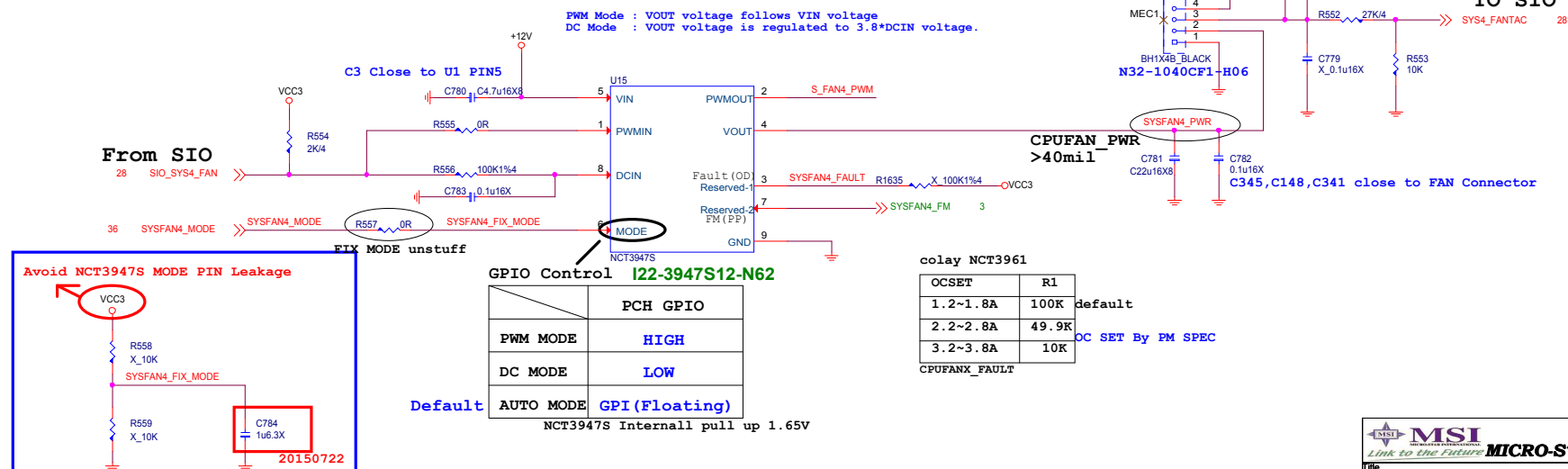
Resever For FIX DC or PWM MODE USE By PM SPEC

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

1. Mode GPIO BIOS can switch PWM/DC Mode
2. FM:BIOS can read FAN PWM/DC Mode

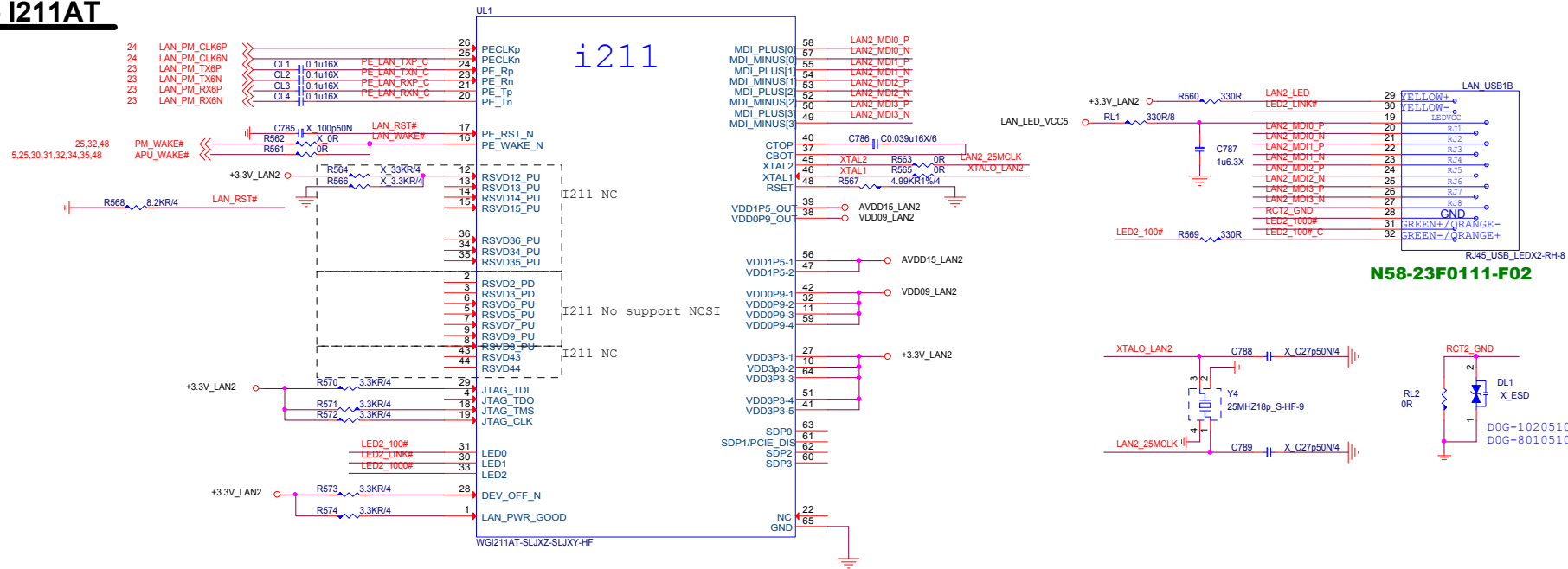


Resever For FIX DC or PWM MODE USE By PM SPEC



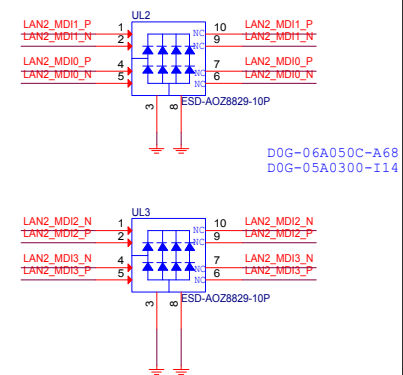
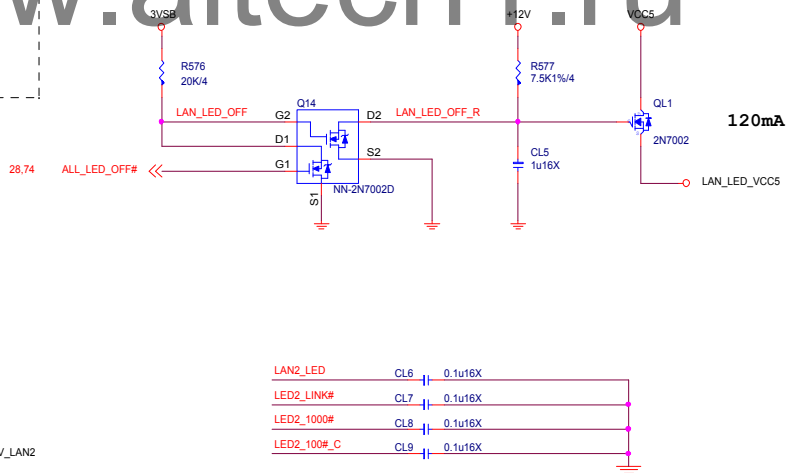
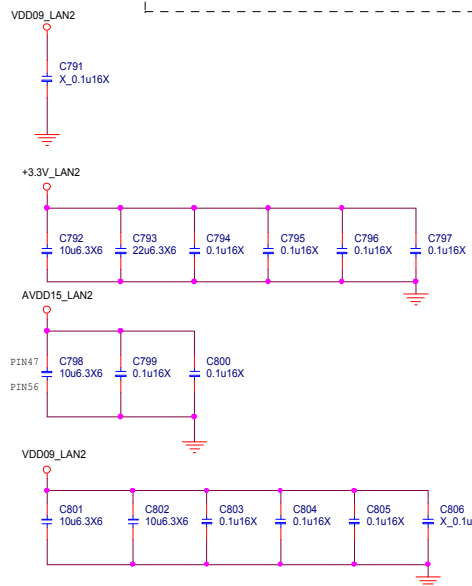
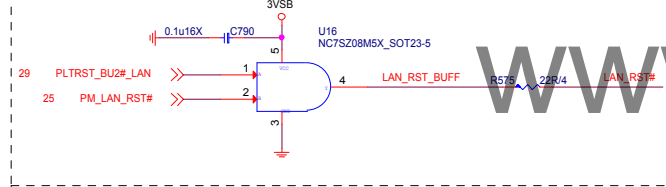
Resever For FIX DC or PWM MODE USE By PM SPEC

LAN-- I211AT



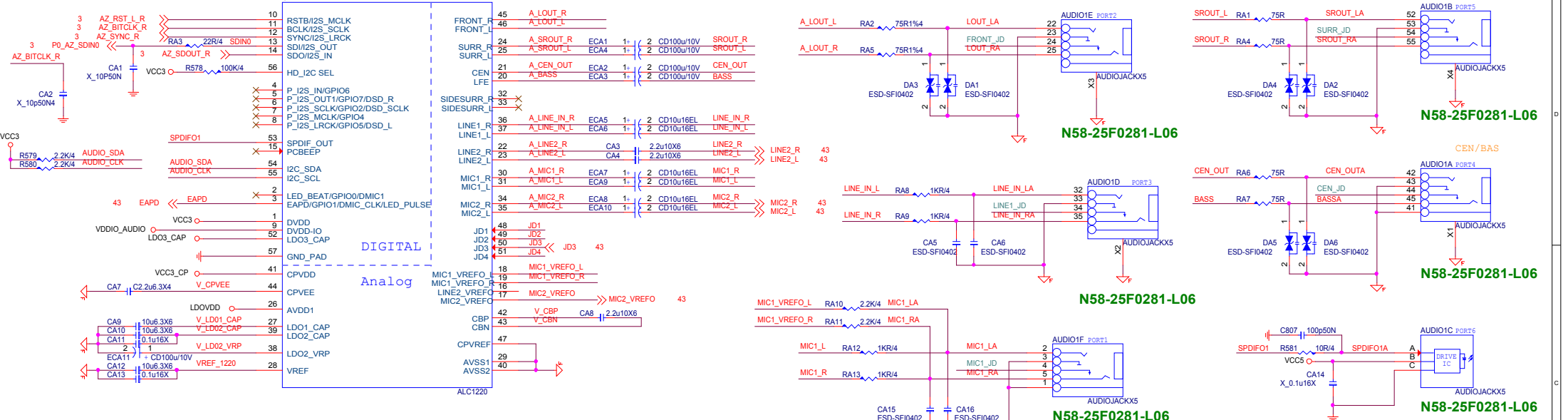
2016.07.21 Add

Disable LAN Function

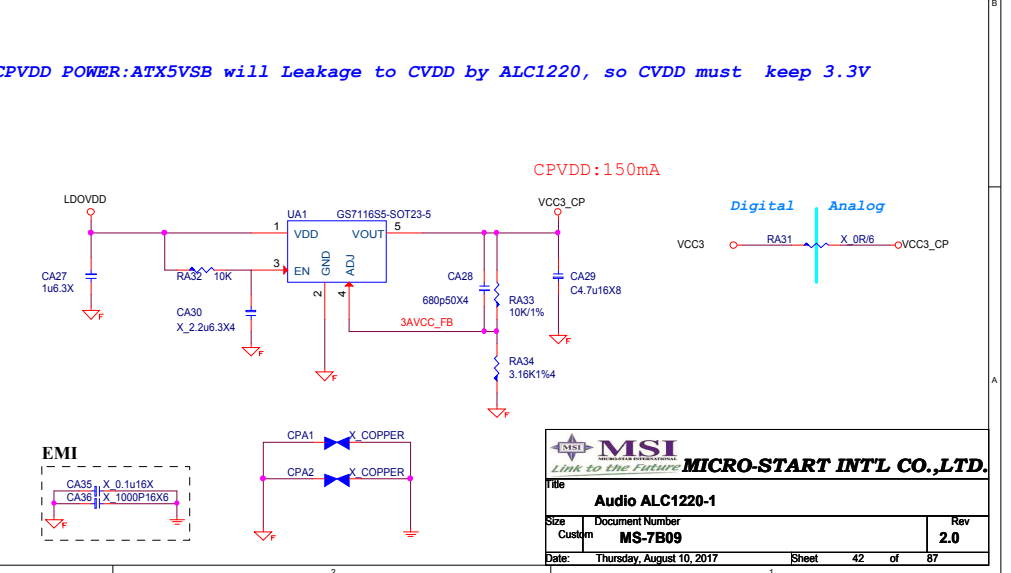
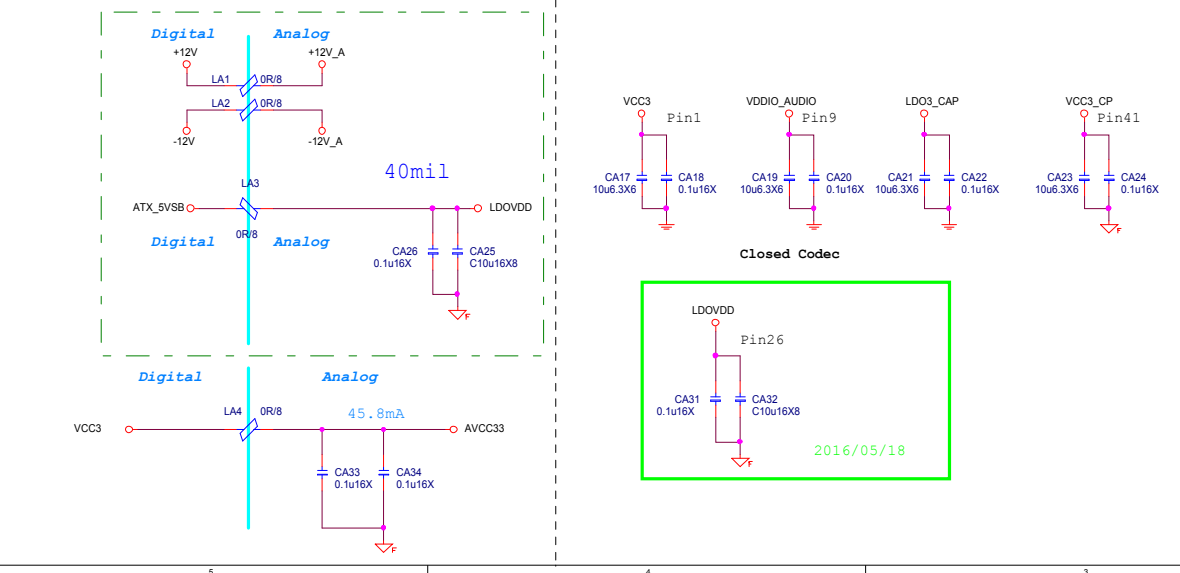
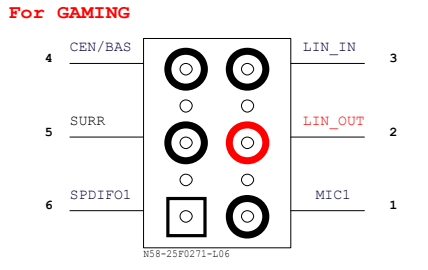
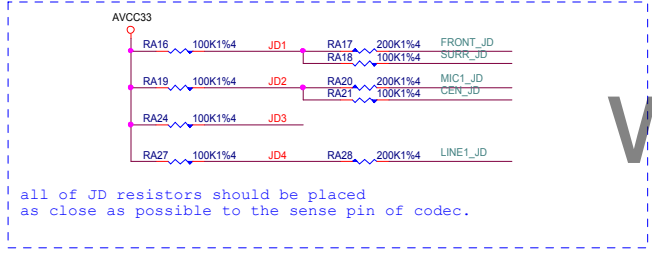


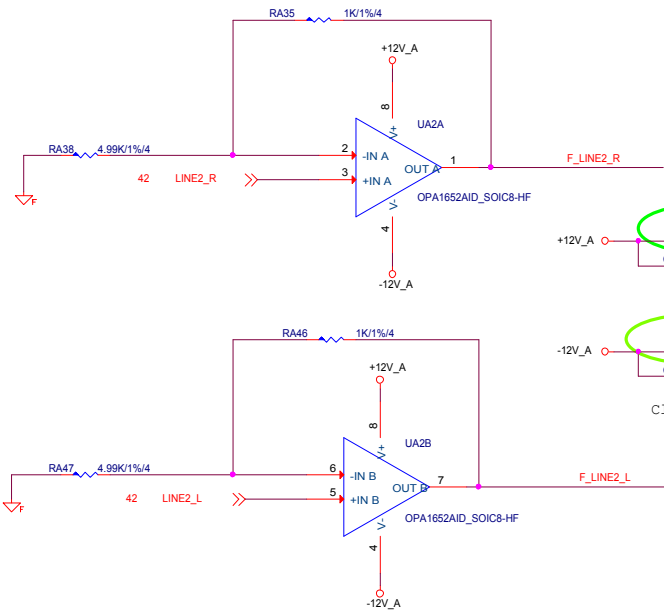
LAN COVER待pm提供

ALC1220



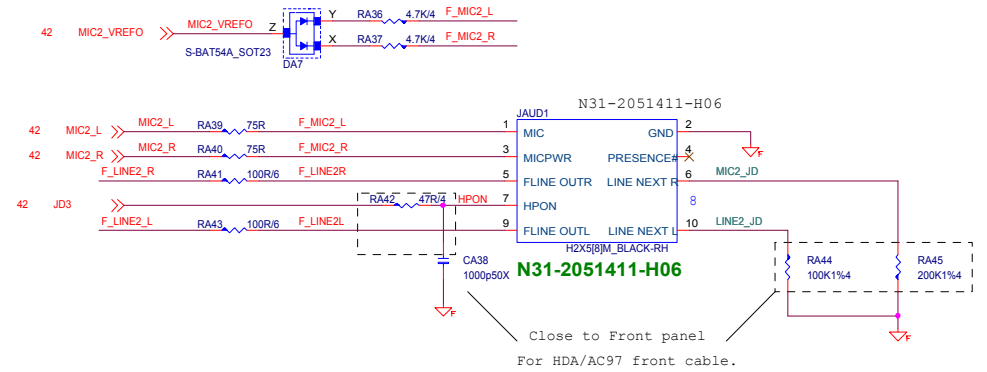
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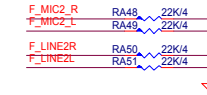
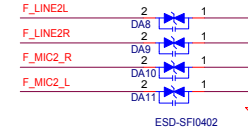
OC : C11-1067514-T04
GAMING: C91-1001611-N10

Close to U3



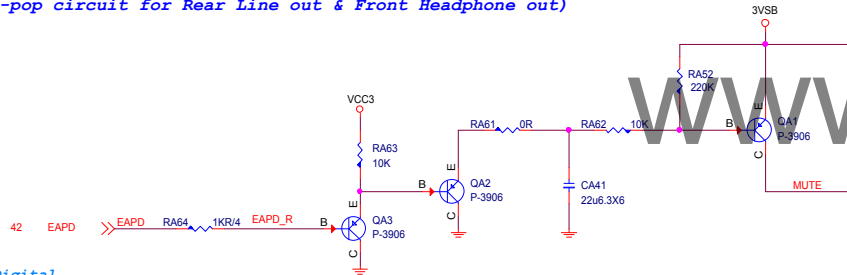
Close to Jack

ESD protect
D0G-2950500-SI0
D0G-3010510-I05



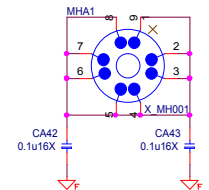
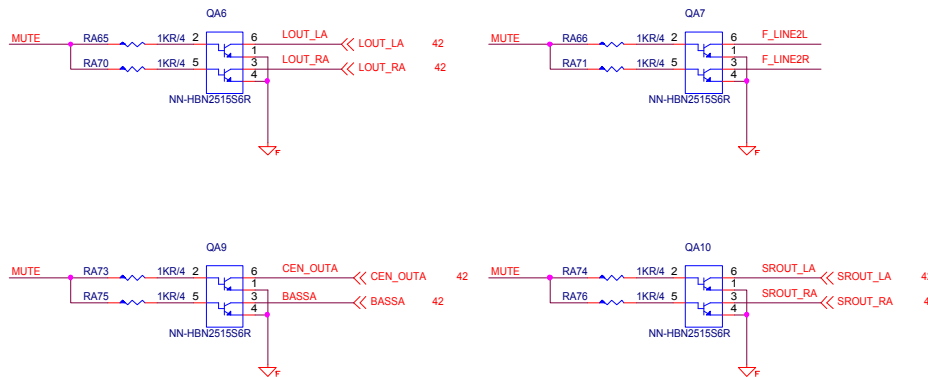
Rear Line OUT De-POP circuit

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



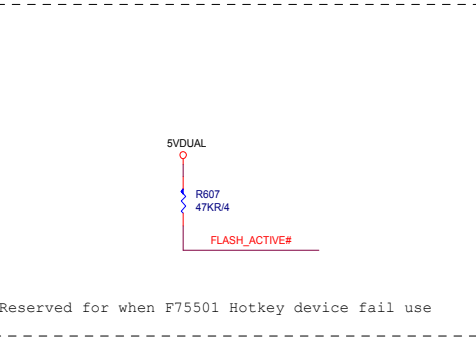
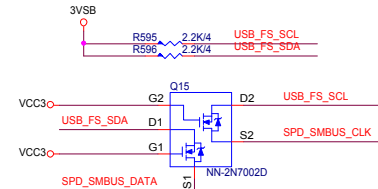
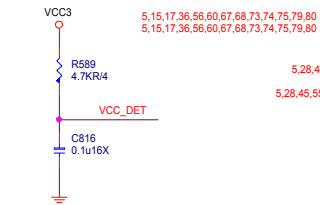
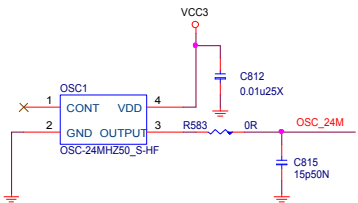
Digital

Analog



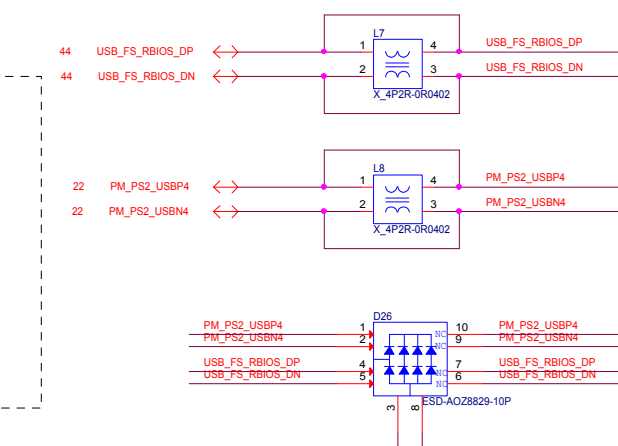
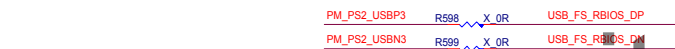
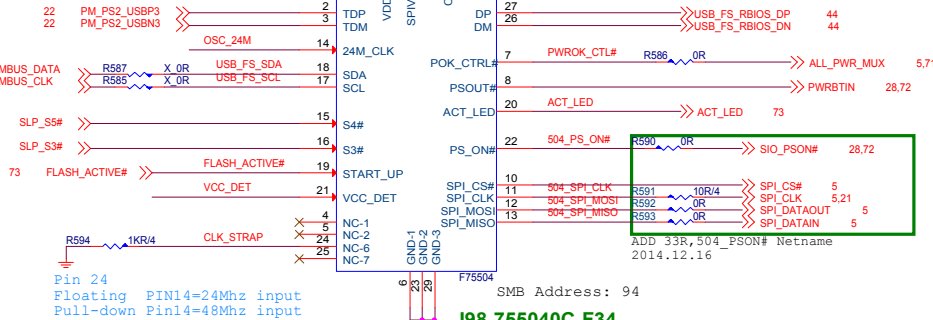
USB Flash BIOS

Host USB connector



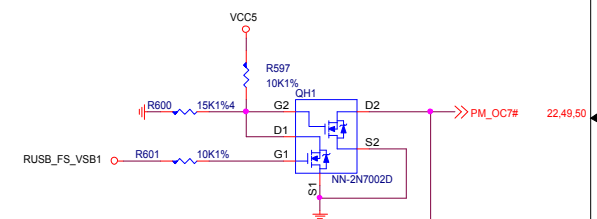
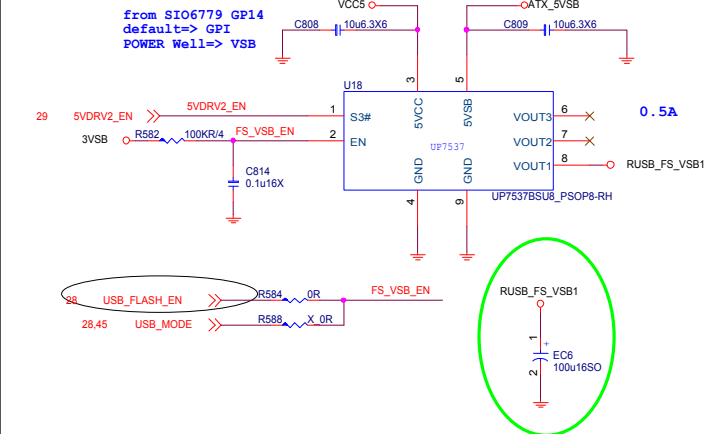
Reserved for when F75501 Hotkey device fail use

* All close to Front IO side



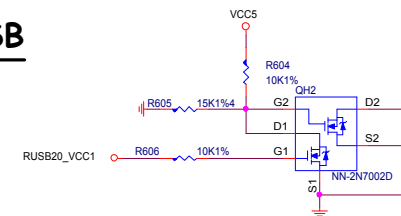
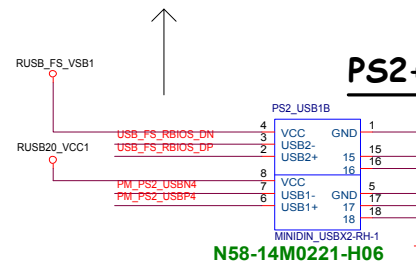
ESD close to connector.
(use usb3.0 ESD for eye diagram)

REAR Flash BIOS USB PORT 9



OC# signal connect to SB OC pin.

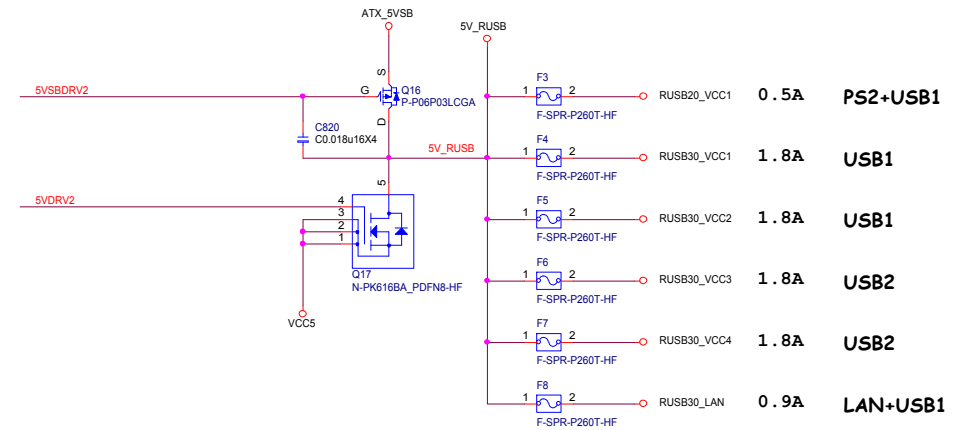
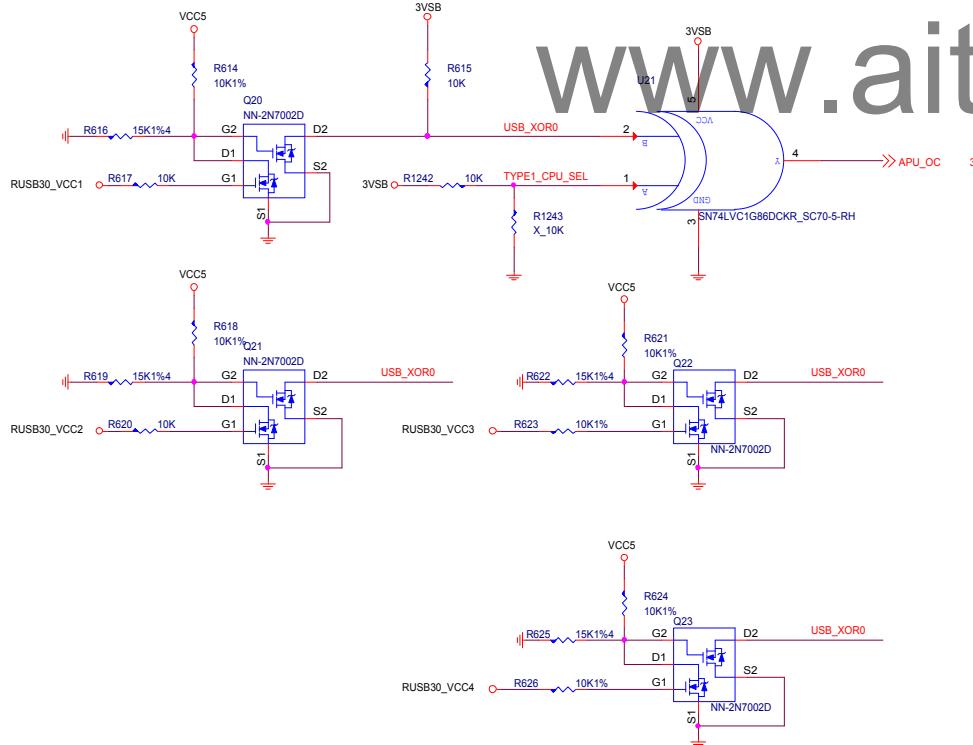
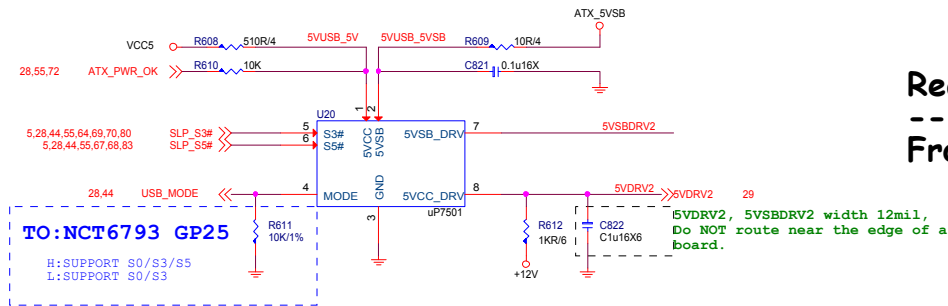
USB Connector power come from UP7537 provide(USB Hotkey Connector same)



OC# signal connect to SB OC pin.

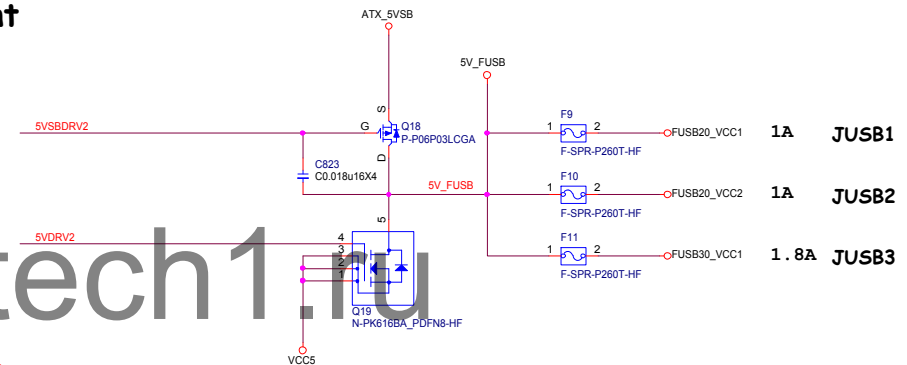
MSI <small>Micro-Start Intl Co., Ltd.</small>		
USB Flash BIOS		
Size	Document Number	Rev
Custom	MS-7B09	2.0
Date:	Thursday, August 10, 2017	Sheet 44 of 87

USB Power



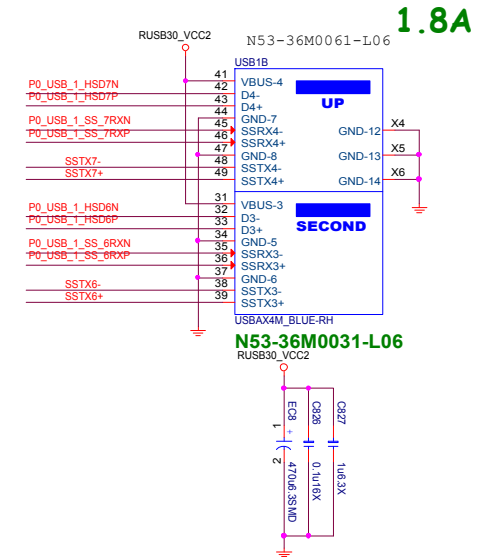
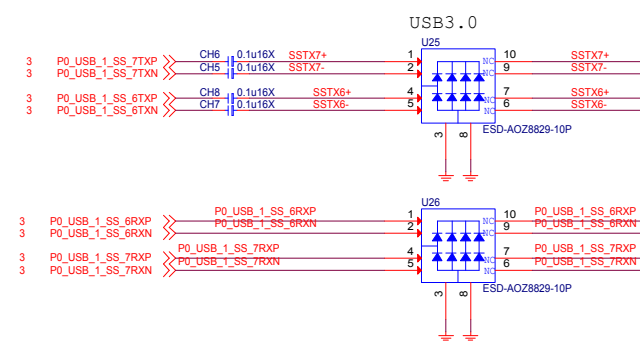
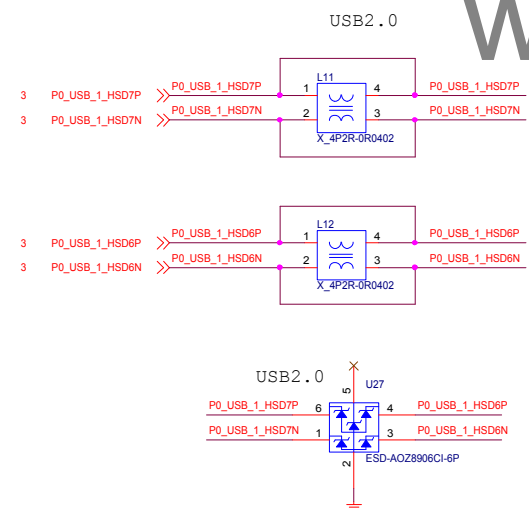
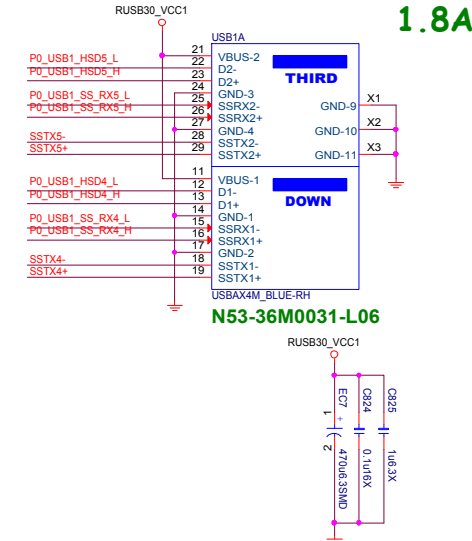
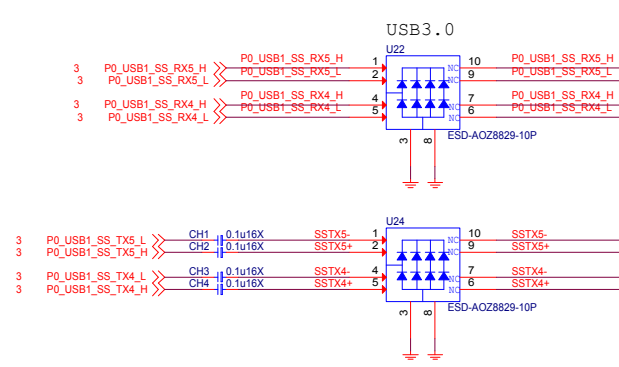
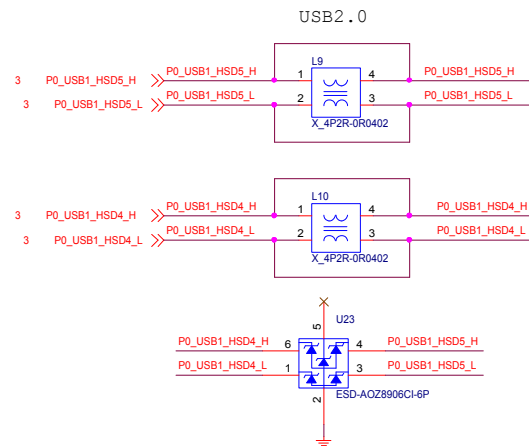
Rear

Front



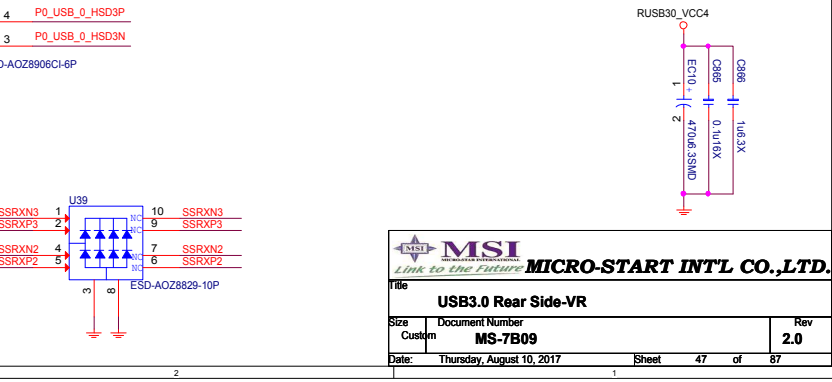
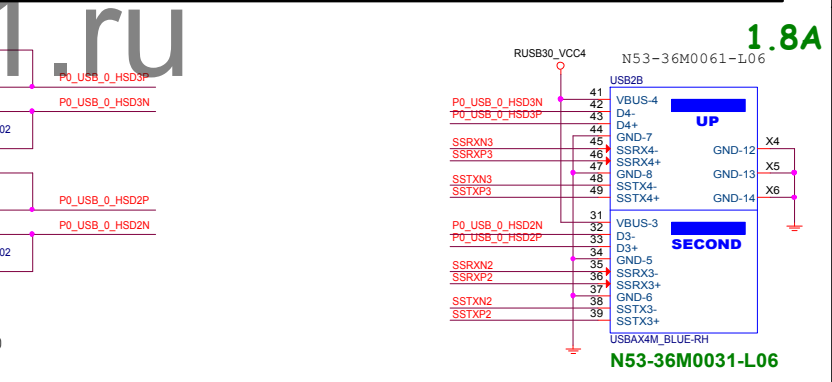
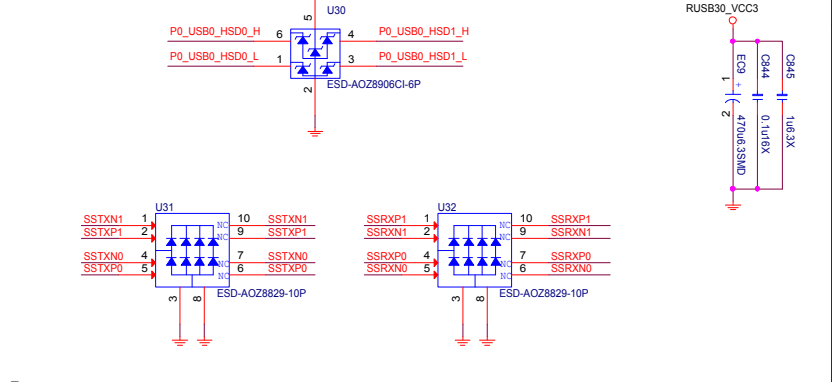
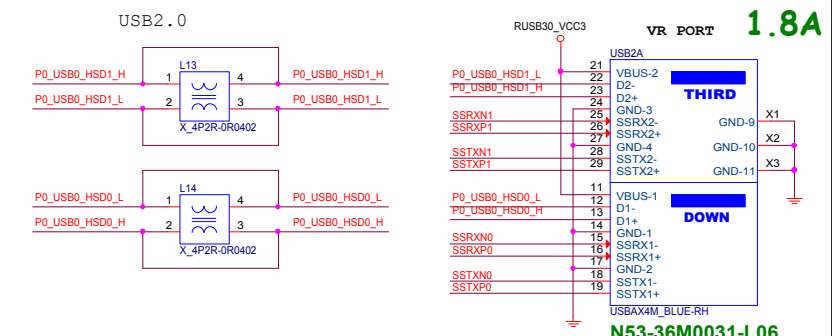
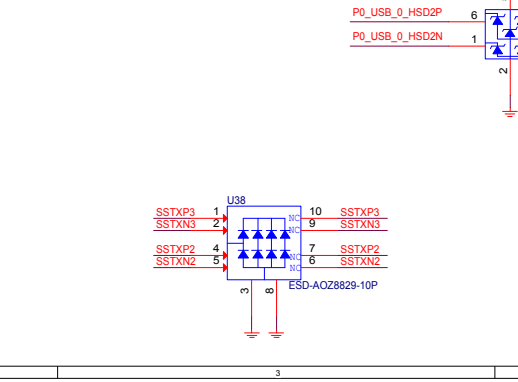
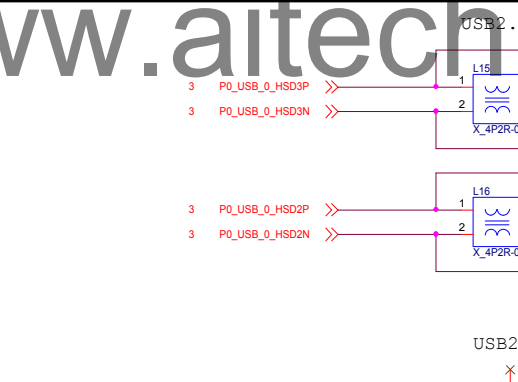
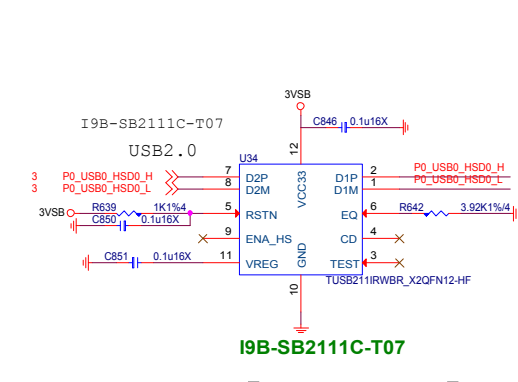
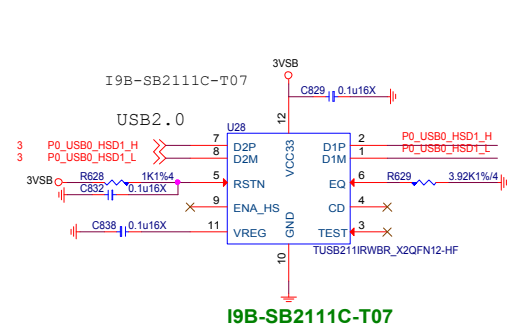
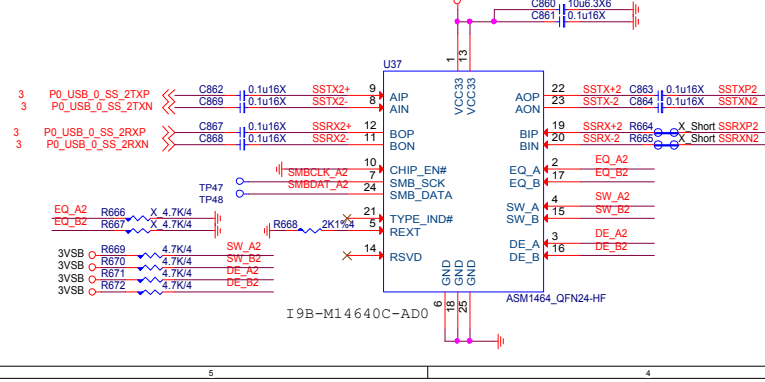
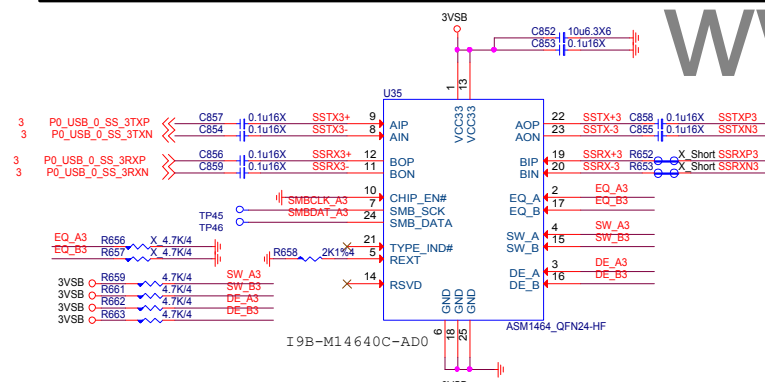
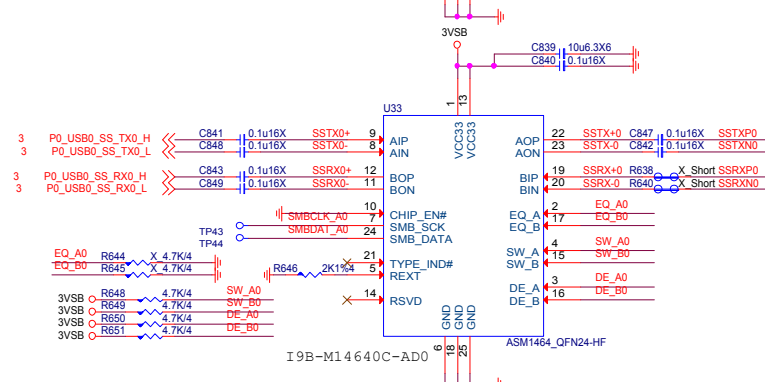
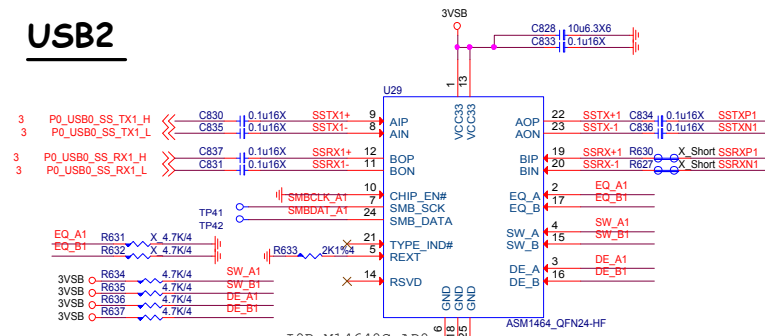
	CORETYPE1(A)	USB_PWR(B)	APU_USB_OC(Y)
BR	0	0	0
Act. Low	0	1	1
SR	1	0	1
Act. High	1	1	0

USB1



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USB2



Use pure PCIE must provide CLK

Minimum gap should be greater of
>15mil with other signal.

Chip to Connector
1.5 inch.

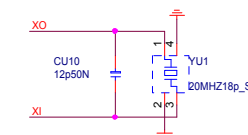
Layout Guide:

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

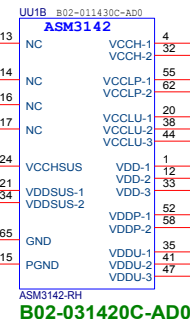
Power Consumption

	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

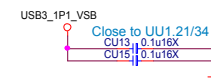
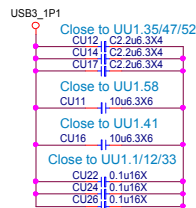
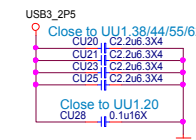
X0/XI (95hm-Diff.Spacing 30mil)
UREXT,PEUREXT(W/S): 10/7
OCIA,OCIB,PPONA,PPONB(W/S): 5/6



SMD Crystal use 3225 size
M:D04-0900900-SC6
S:D04-0901100-T16
S:D04-0901200-F07



ASM3142-RH
B02-031420C-AD0



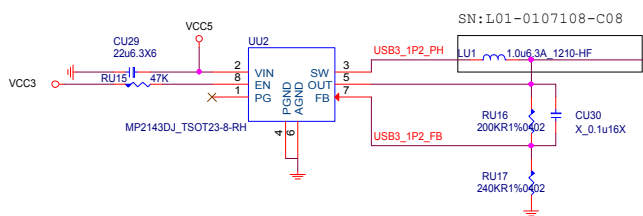
2016.07.21 Add

Disable ASM1142 Function

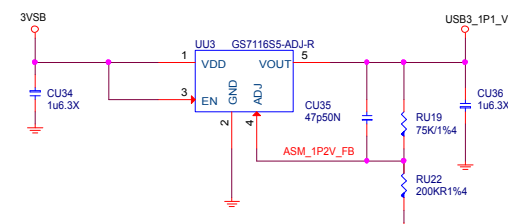
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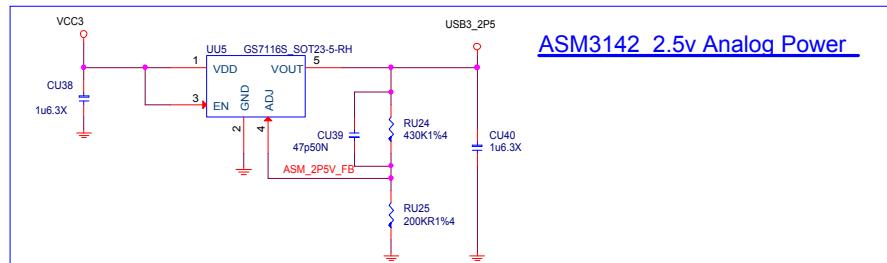
ASM3142 1.1v Core Power



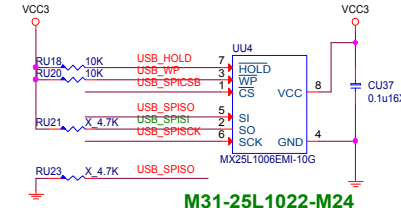
ASM3142 1.1v Suspend Power



ASM3142 2.5v Analog Power



EEPROM



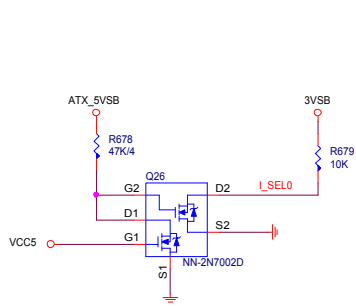
M31-25L1022-M24

M:M31-25L1022-M24 (1M)
S:M31-25X2023-W03 (2M)

MSI
Link to the Future
MICRO-START INTL CO.,LTD.

Title USB3.1 ASM1142-1		
Size Custom	Document Number MS-7B09	Rev 2.0
Date Thursday, August 10, 2017	Sheet 48 of 87	

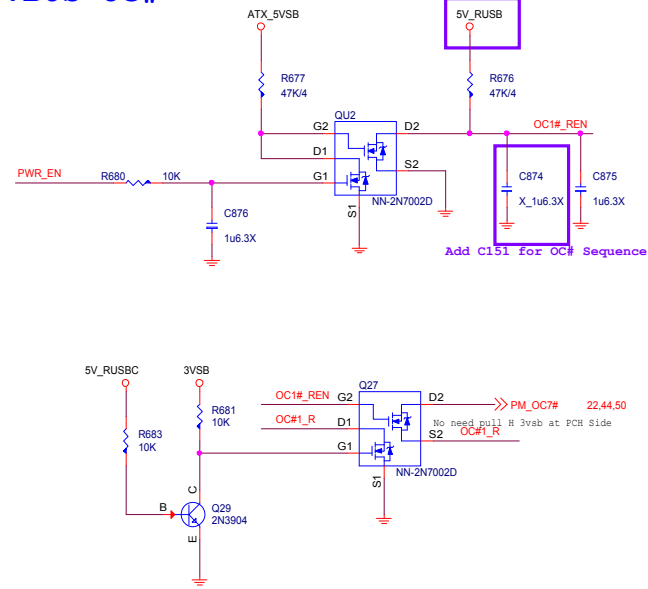
Current Mode



I_SEL0 : I_SEL1	
X 0	Default for 900mA
0 1	1.5A @5V
1 1	3A @5V

1.5A under S3 mode
3A under S0 mode

VBUS OC#

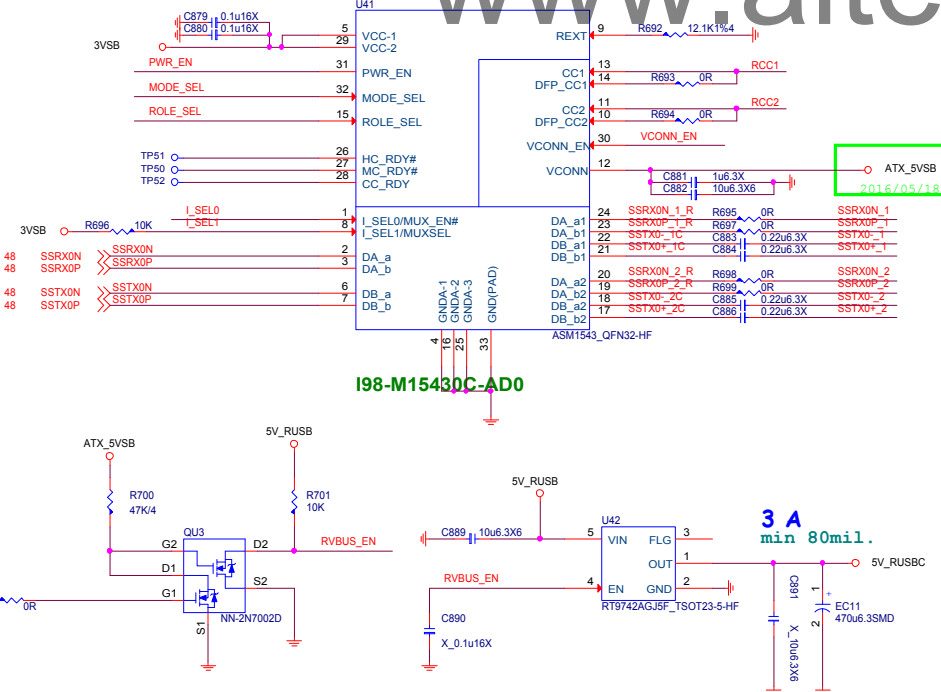


USB Type-C MUX with Configuration Channel (CC)

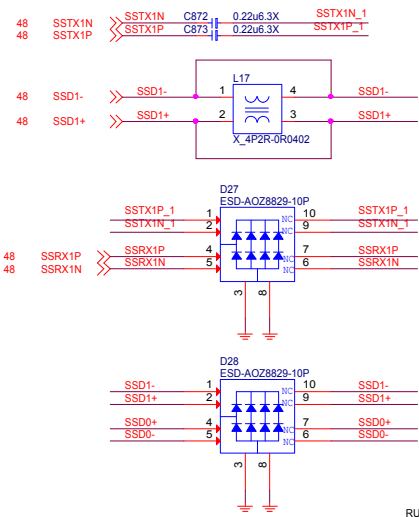
MODE_SEL	
1	CCL MODE (default)
0	Mux MODE

ROLE_SEL	
1	DFP role (default)
0	UFP role

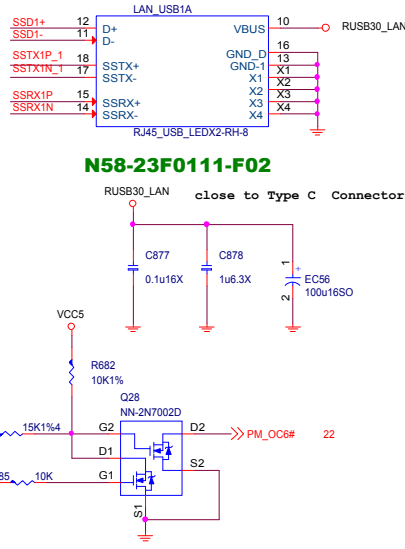
VCONN_EN	
1	enable
0	disable



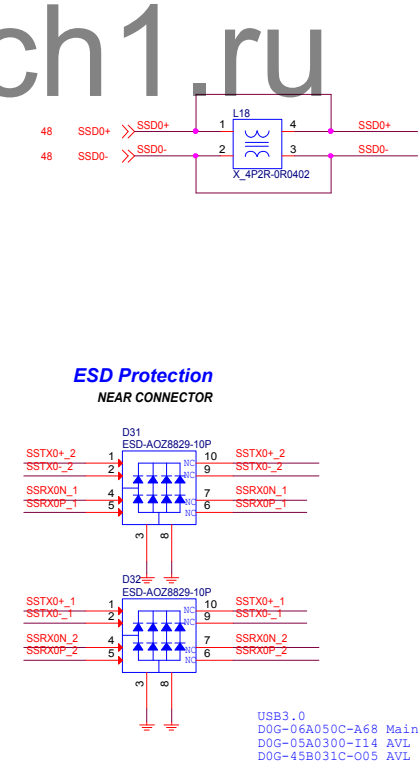
TYPE-A



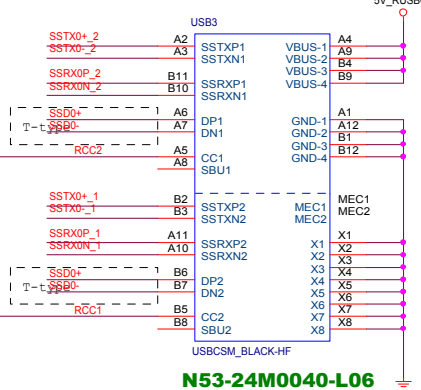
LAN+USB TYPEA



TYPE-C



TYPEC



MSI MICRO-START INTL CO.,LTD.

USB3.0 ASM1142-2

Size: Custom

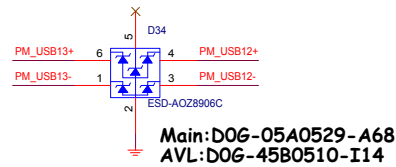
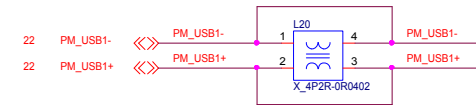
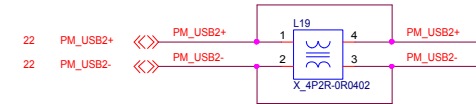
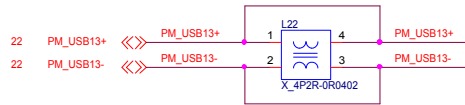
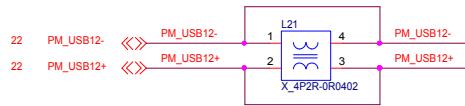
Document Number: MS-7B09

Date: Thursday, August 10, 2017

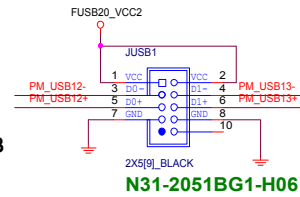
Sheet: 49 of 87

Rev: 2.0

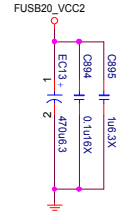
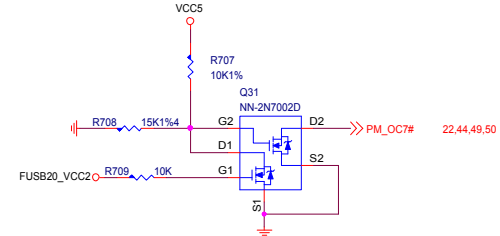
JUSB1+JUAB2



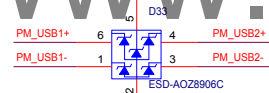
Main:D0G-05A0529-A68
AVL:D0G-45B0510-I14



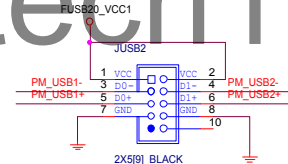
N31-2051BG1-H06



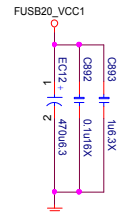
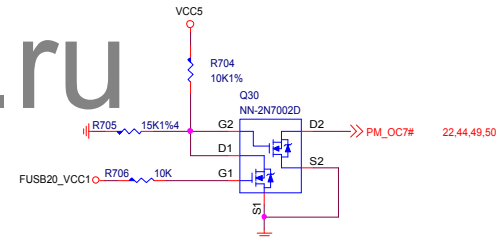
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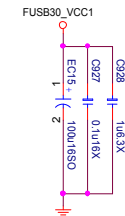
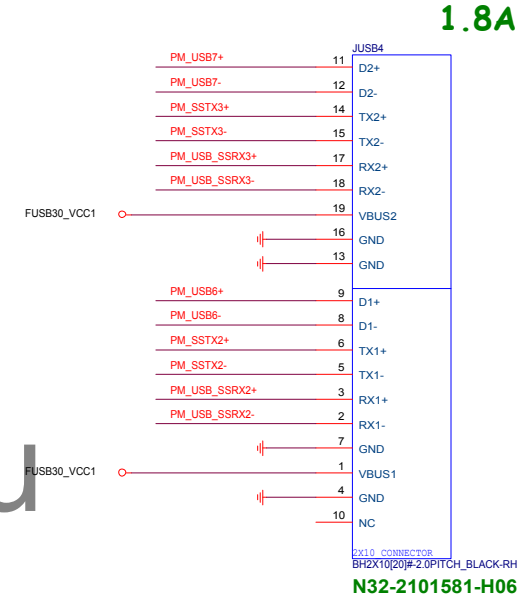
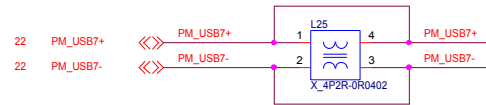
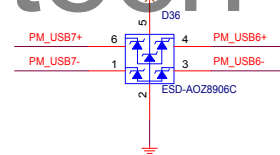
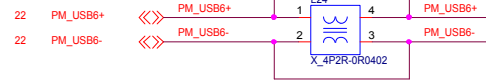
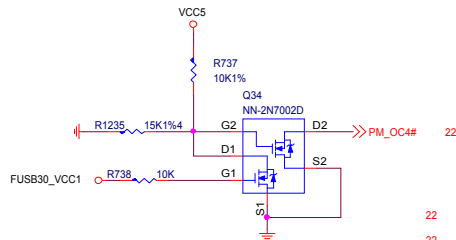
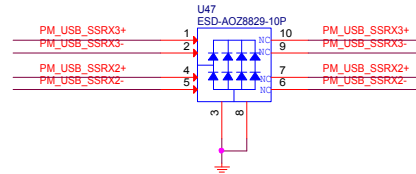
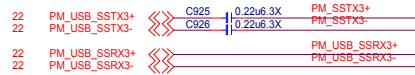
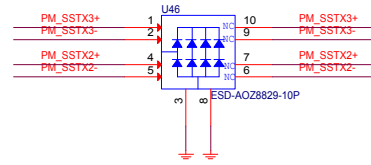
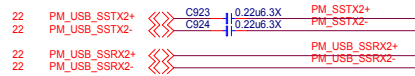
Main:D0G-05A0529-A68
AVL:D0G-45B0510-I14



N31-2051BG1-H06

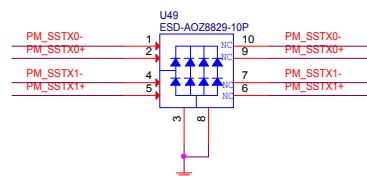
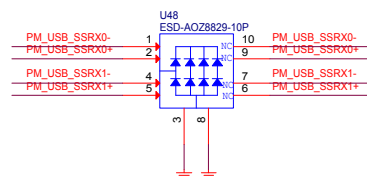


USB 3.0-JUSB4



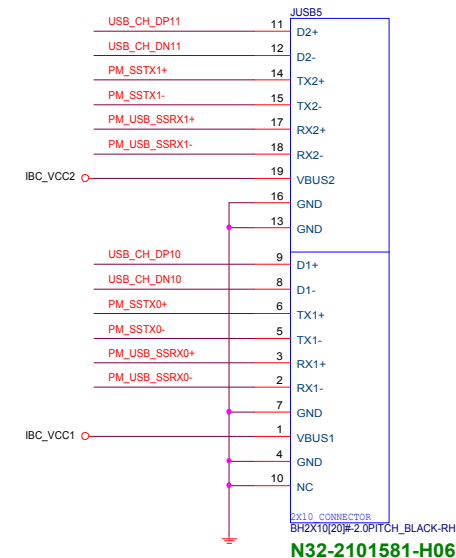
USB 3.0-JUSB5 With Charge(BC1.2)

1.7A+1.7A

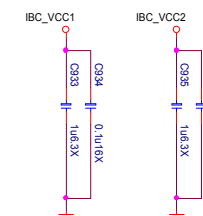
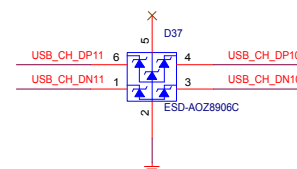
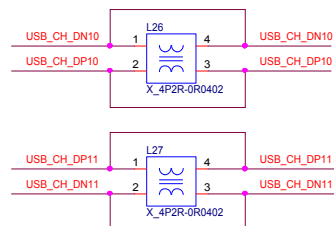


USB3.0
D0G-06A050C-A68 Main
D0G-05A0300-I14 AVL

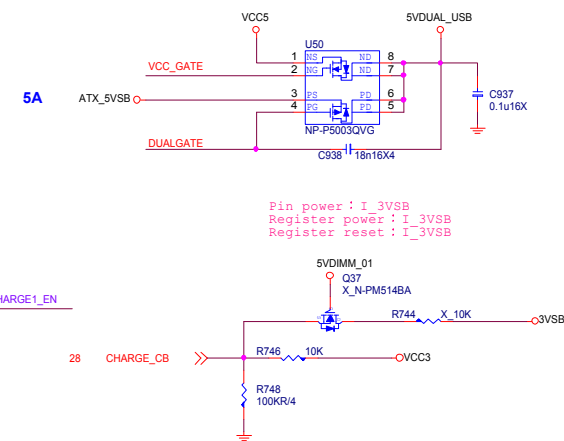
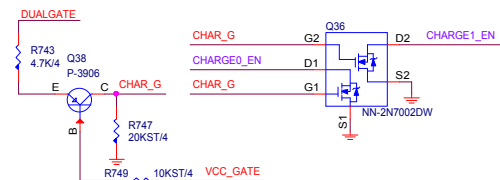
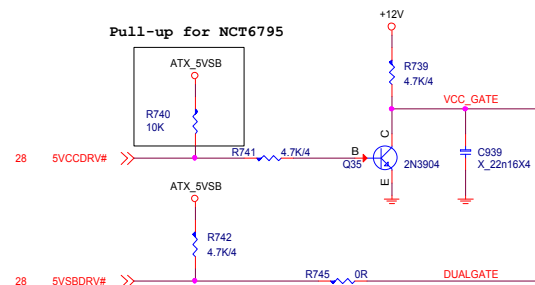
USB2.0
D0G-0200529-A68 Main
D0G-0100619-I05 AVL



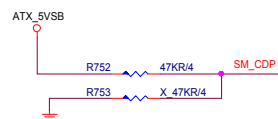
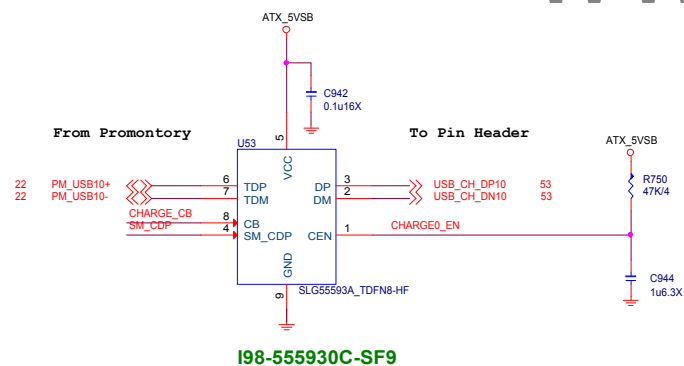
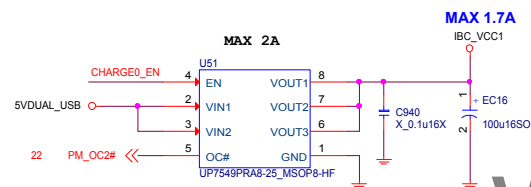
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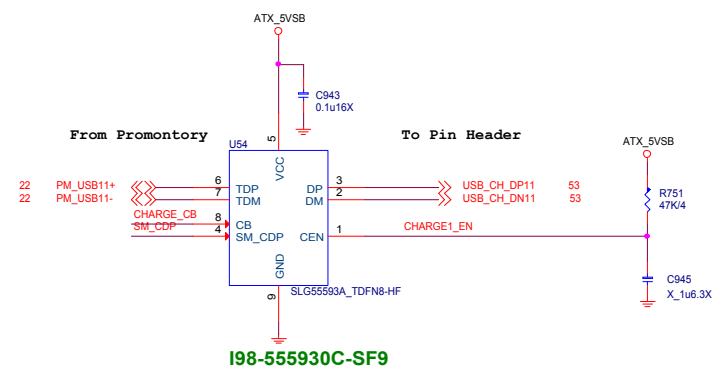
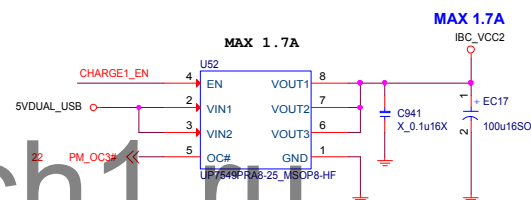
5VDUAL_USB



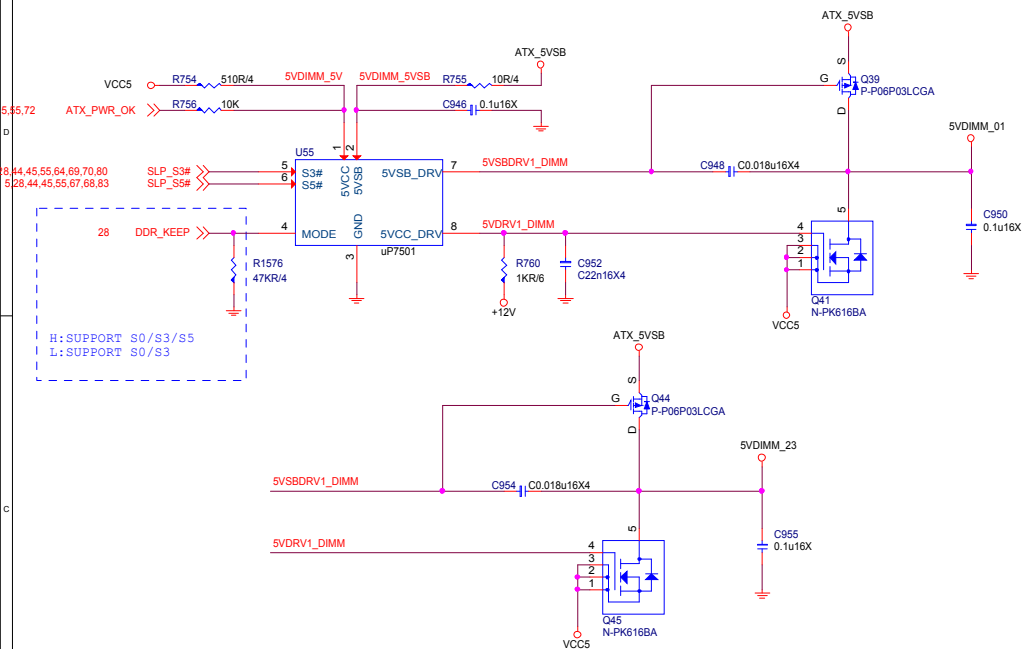
USB POWER PORT 0 For USB Charging



USB POWER PORT 1 For USB Charging

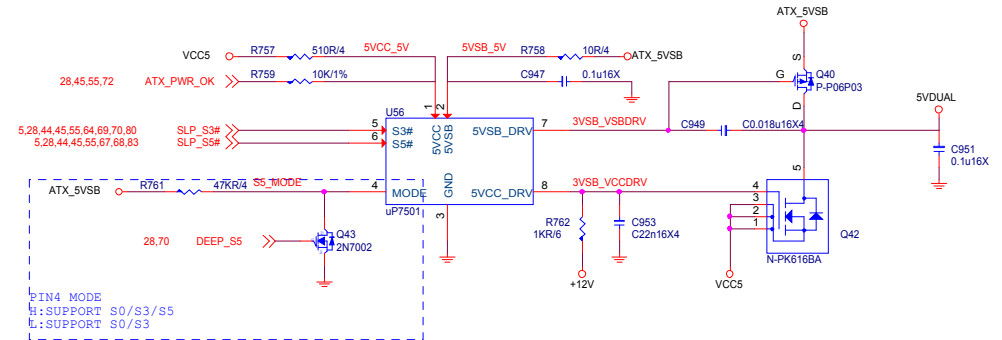


5VDIMM FOR DDR

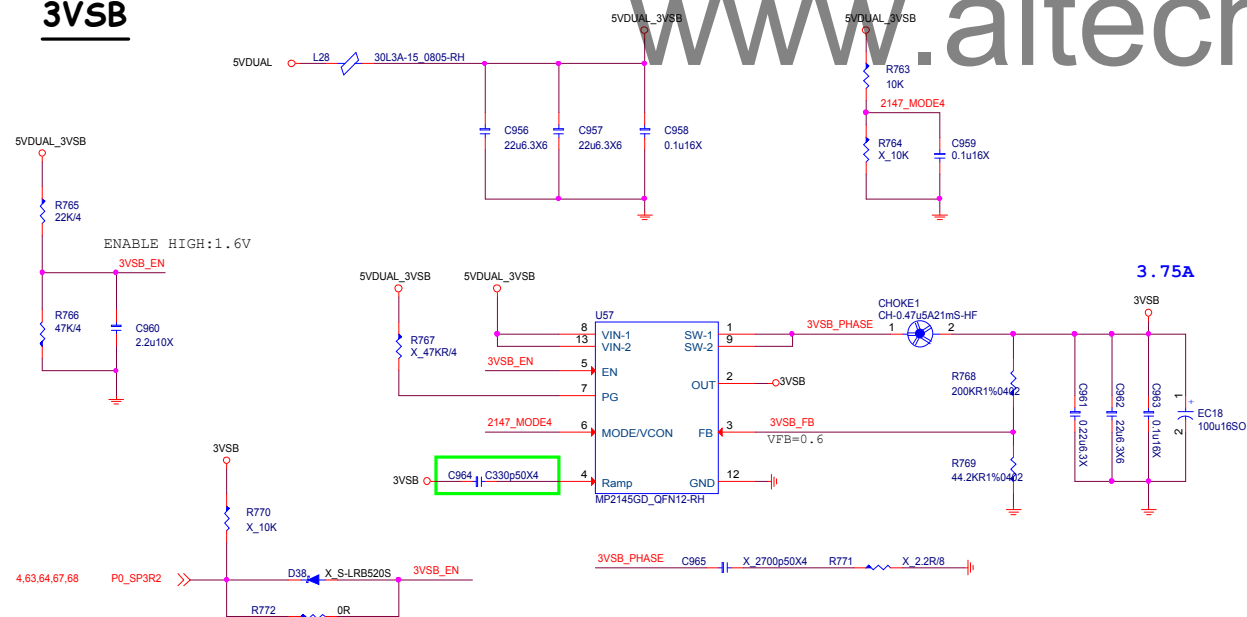


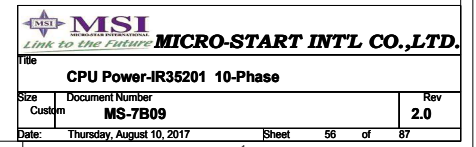
5VDUAL For 3VSB - CPU 1.8V

VDDP



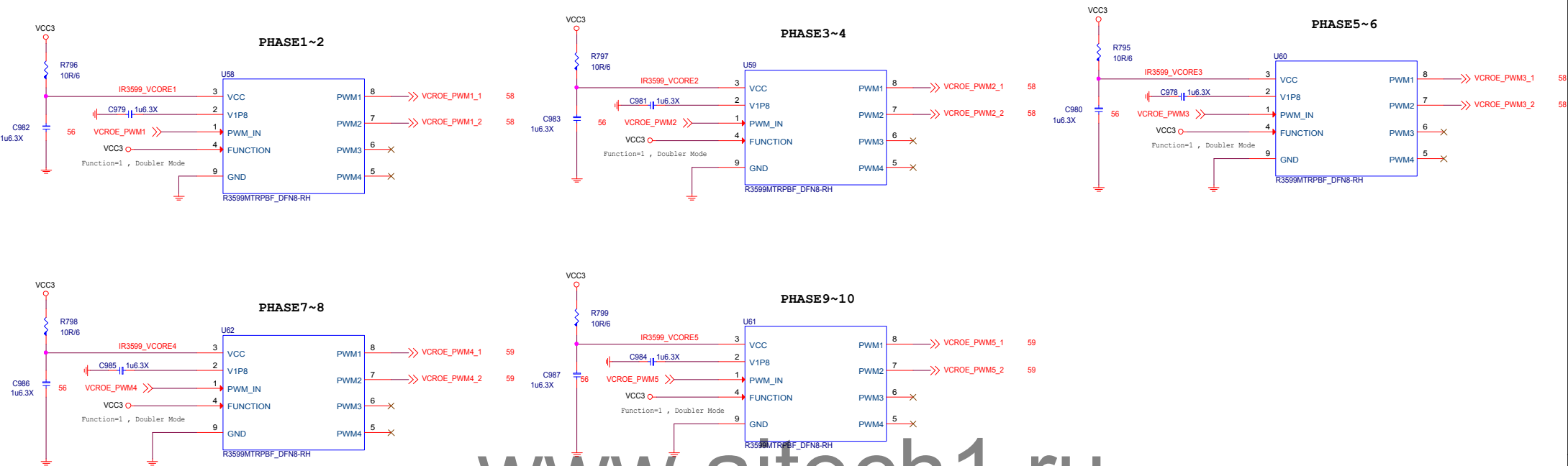
3VSB



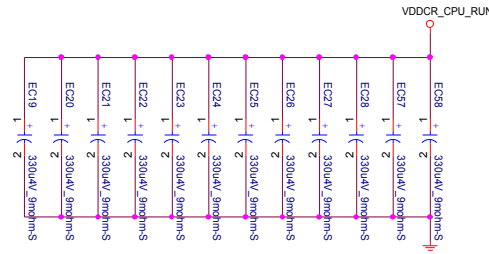
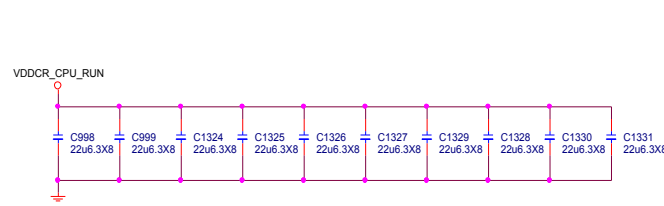
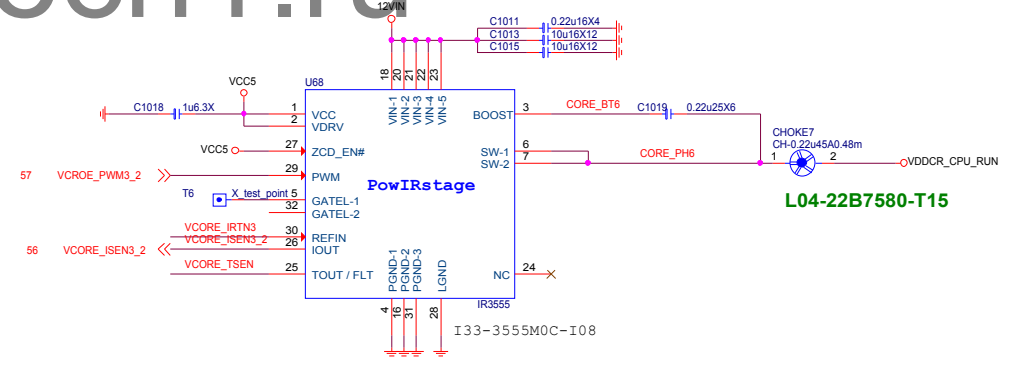
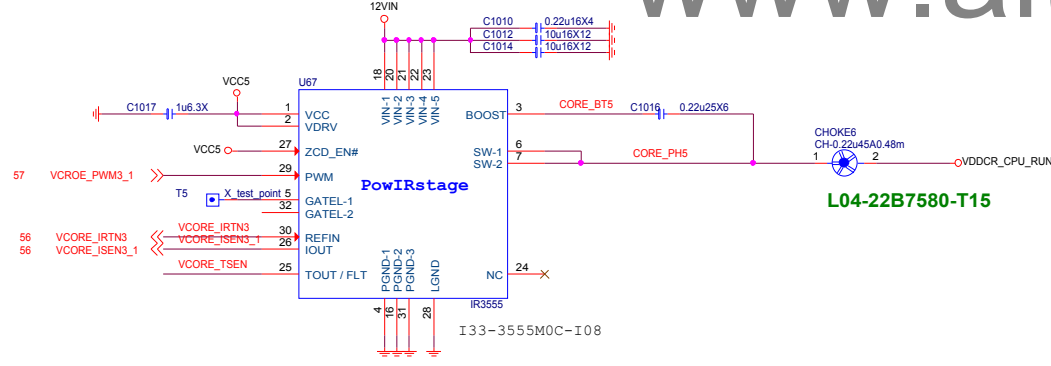
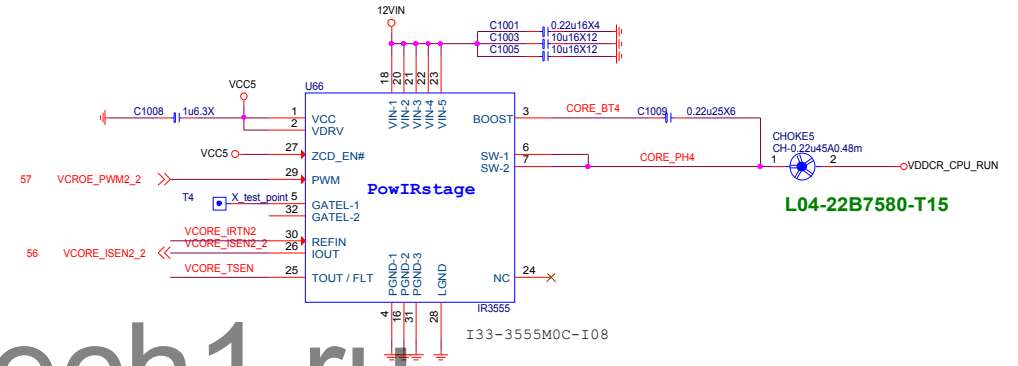
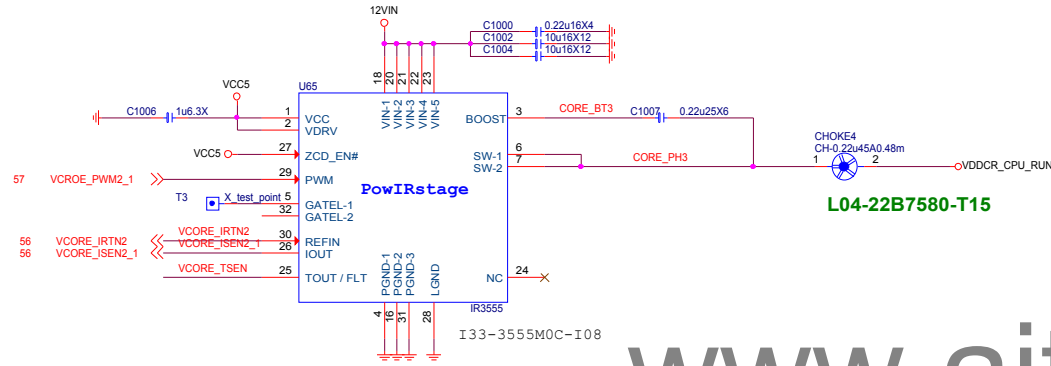
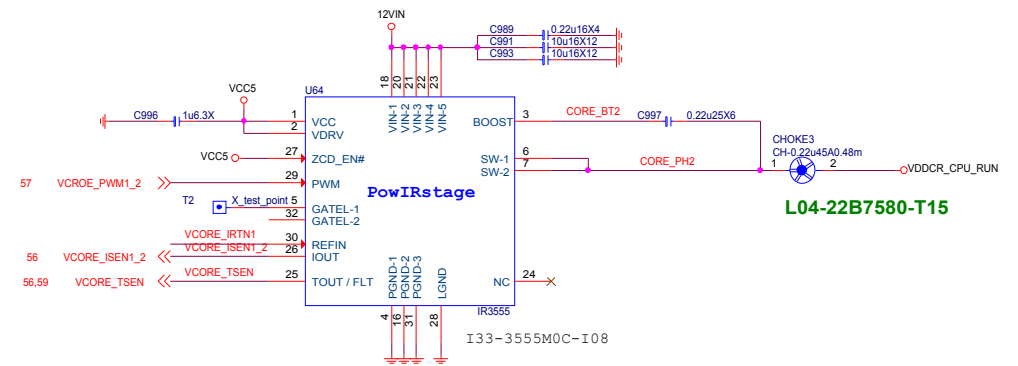
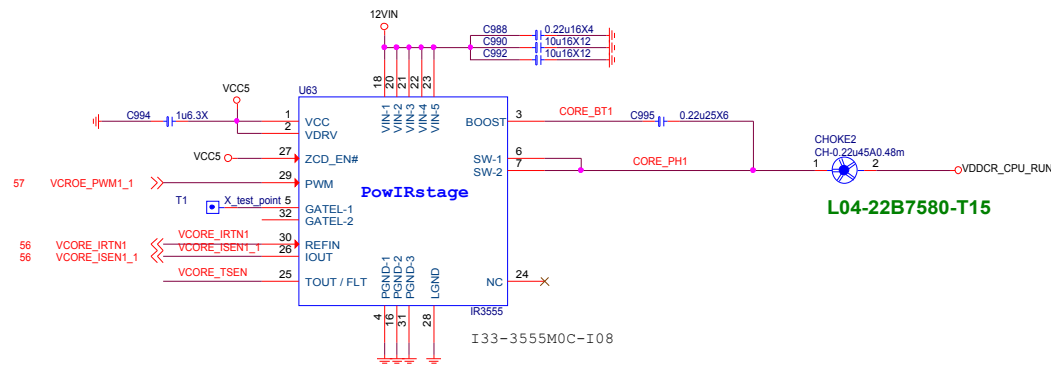
[illegible]

CPU_CORE Driver IC

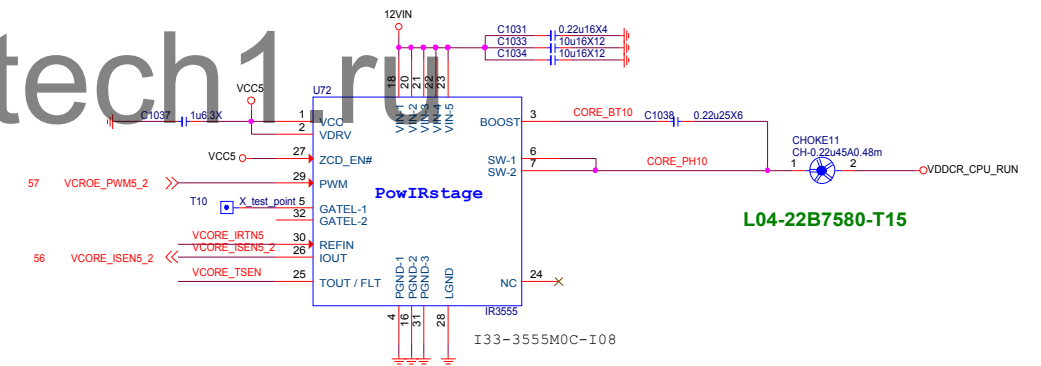
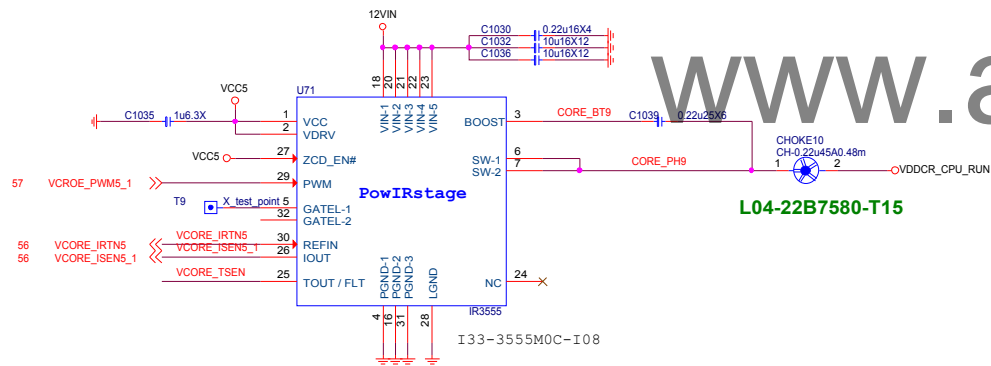
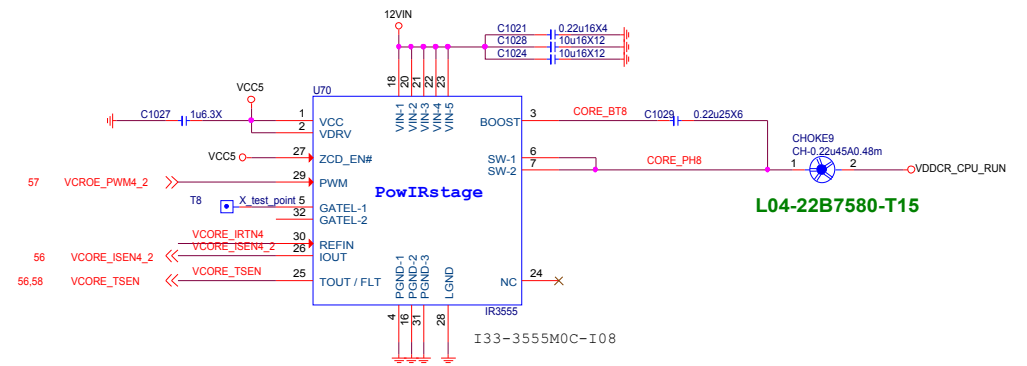
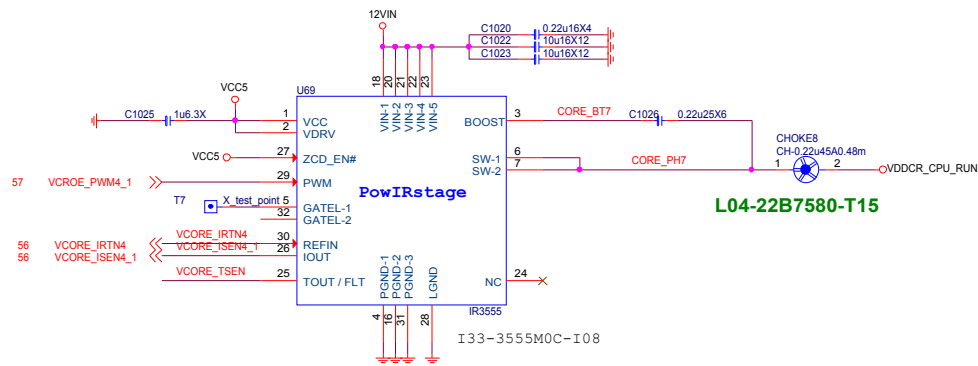
VCORE Double 10-PHASE



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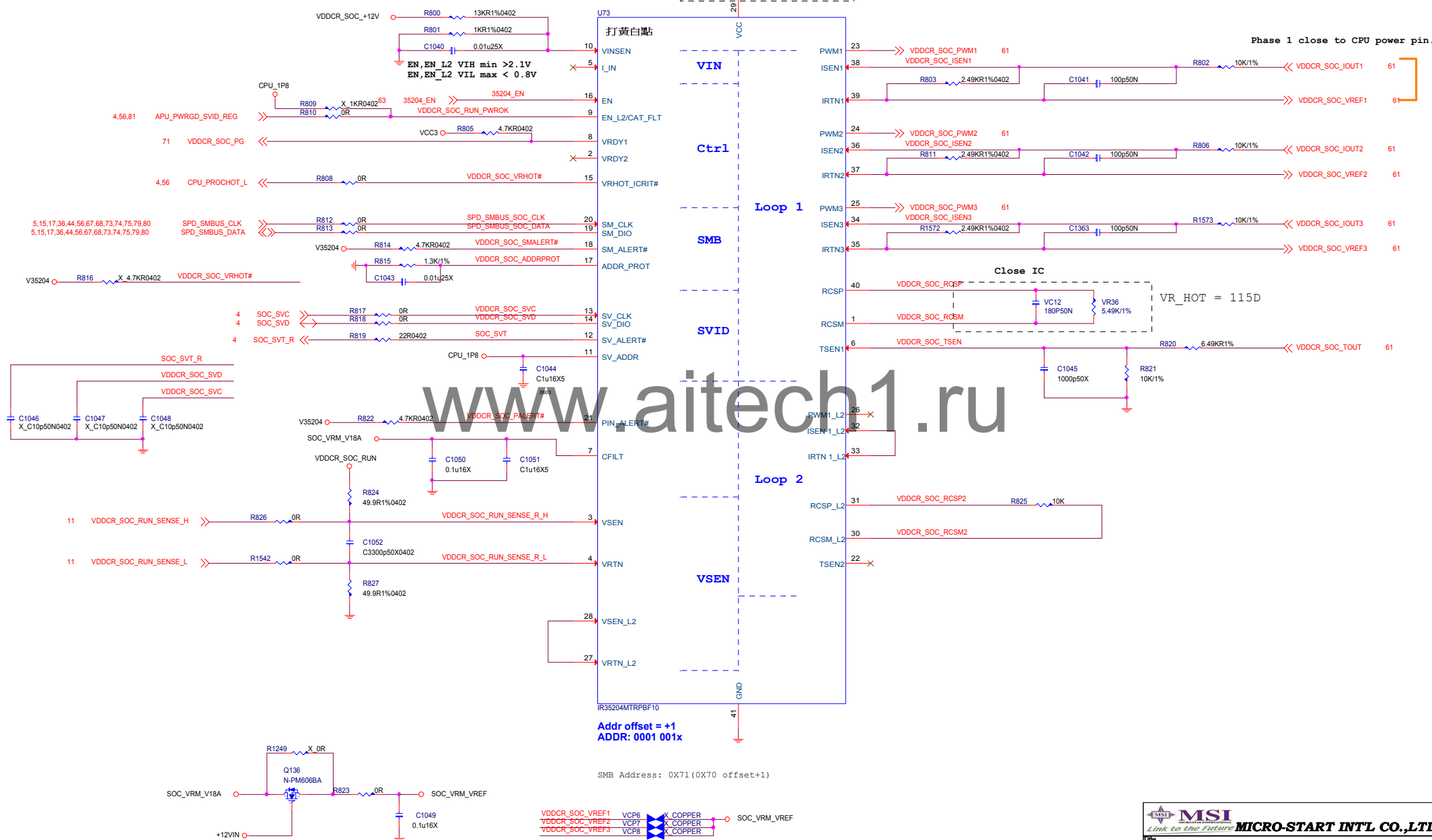


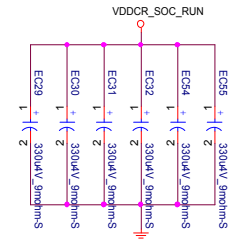
www.aitech1.ru



80A
OCP=120A

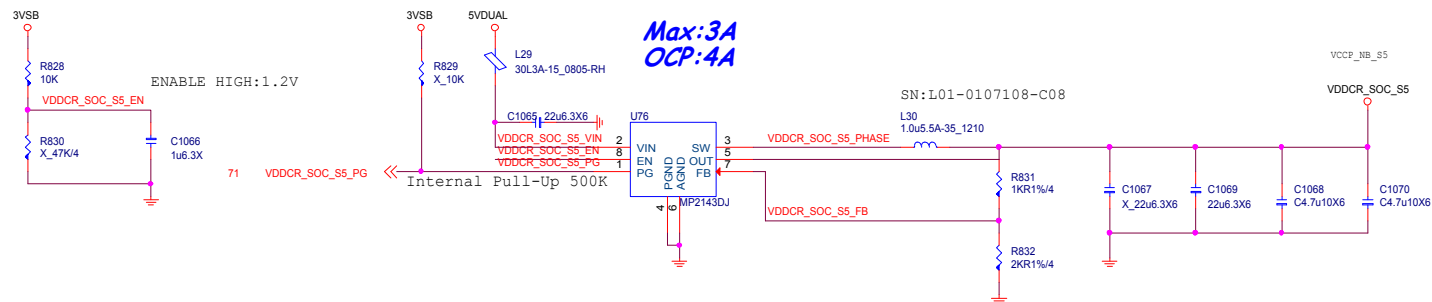
SOC: ICC Max 80A
LL: 0.5 mohm
OCP: 120A





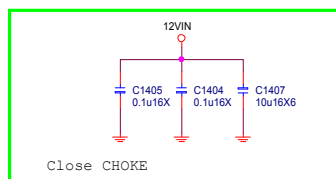
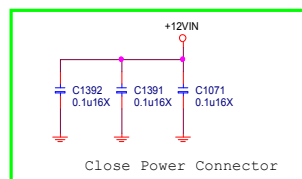
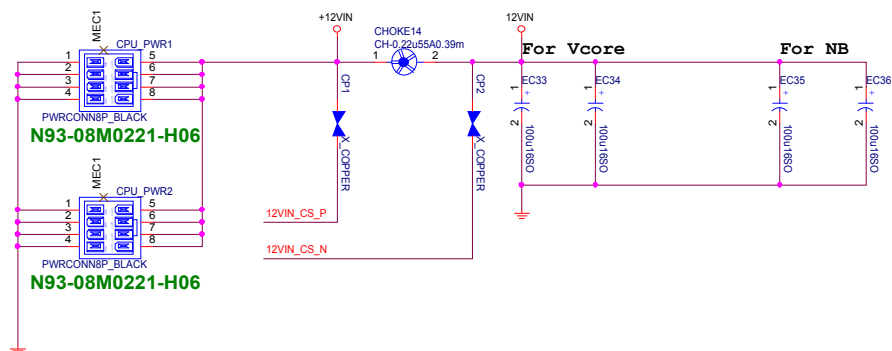
VDDCR_SOC_S5 0.9V

2A

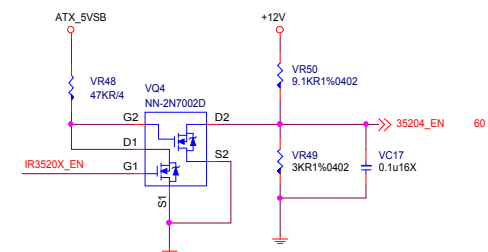
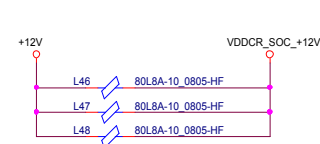
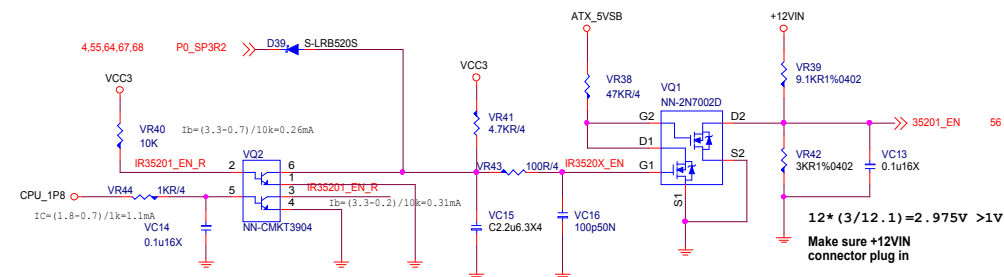


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CPU POWER CONNECTOR

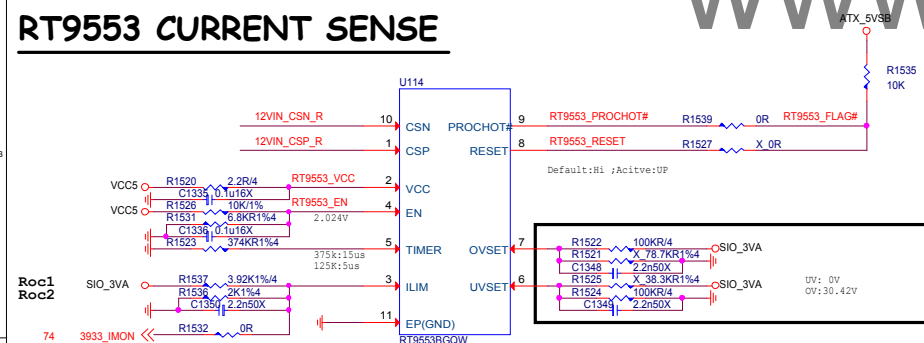


VRM_Enable circuit

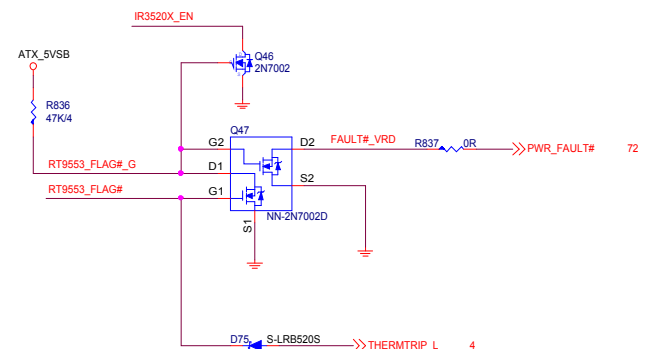
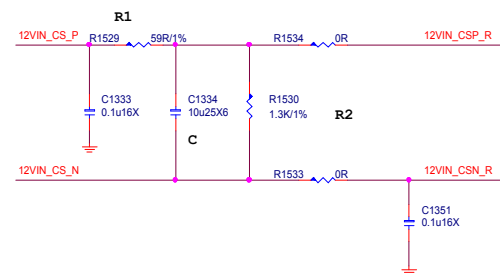


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RT9553 CURRENT SENSE

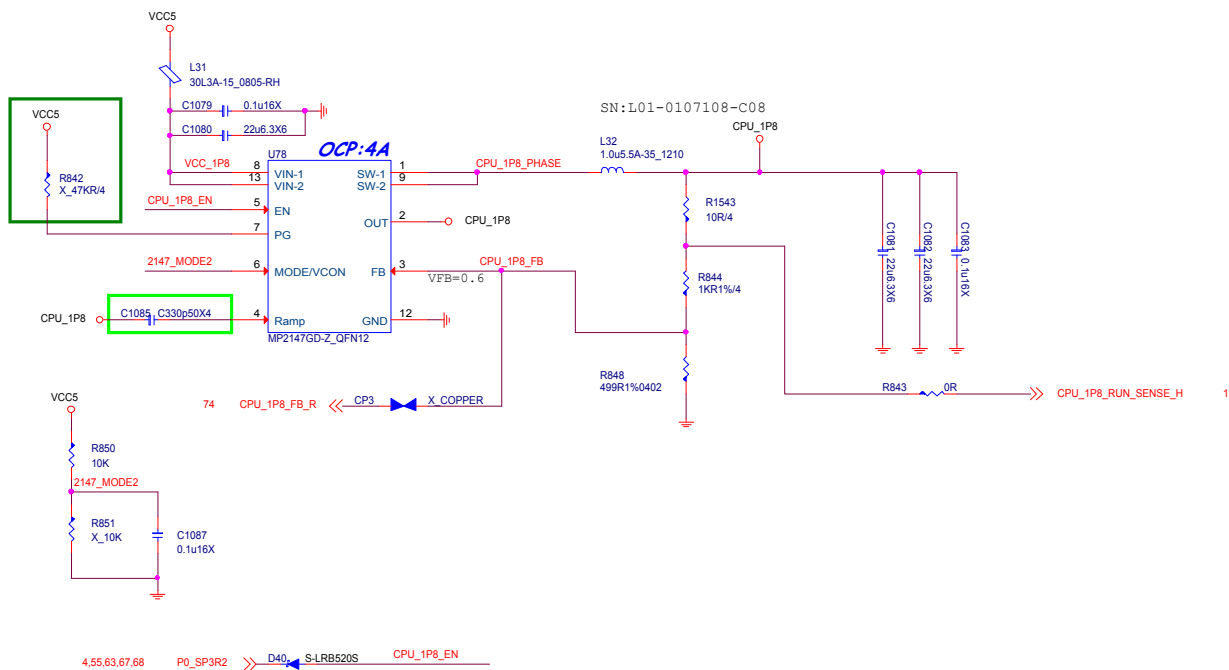
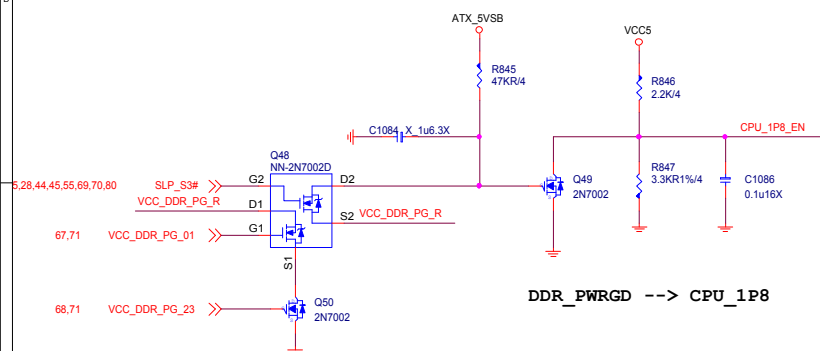


OCP:36A (Without CPU_SOC PWR)
Real OCP:45~59A



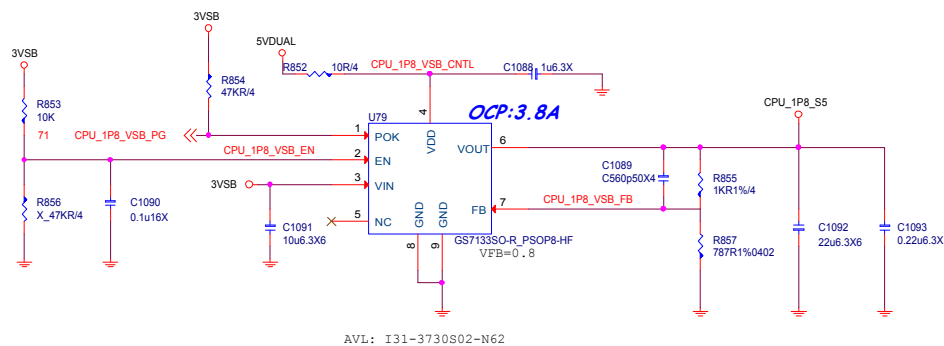
```
I3933_imon*[R17*R18/(R17+R18)]= Istep* Rdcr*100
I3933_imon= 10uA/step
Istep=4.785A
```

3A



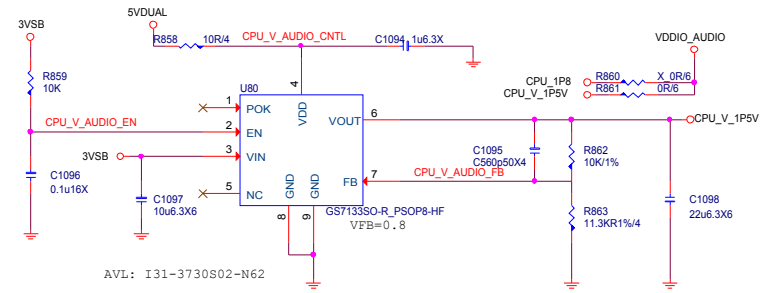
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1A



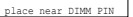
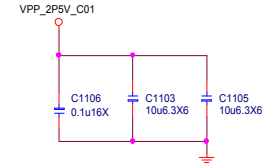
VDDIO_AUDIO Circuit

1.5V
0.25A

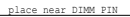
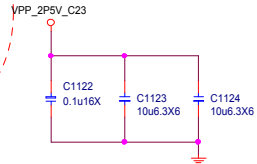
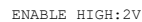
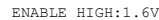


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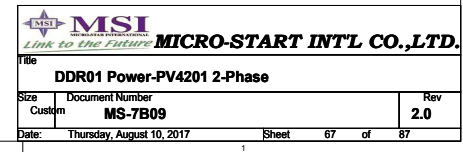
2.5+0.25/-0.125V
JESD79 DDR4 max 3V



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DDR4_1.2V 15A+9.5A+1.2A=26A
15A FOR CPU
9.5A FOR 4DIMM
1.2A FOR DDR VTT
OCP: 50A



OCP: 50A

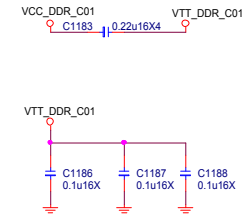
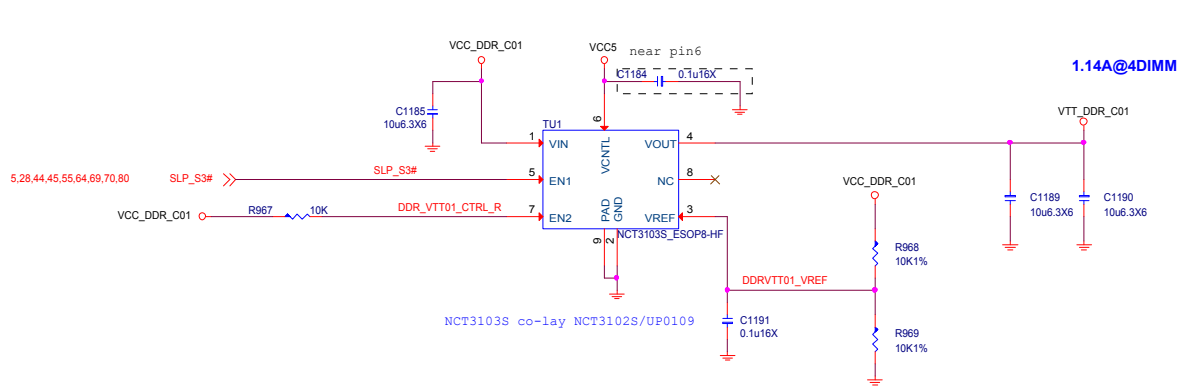
DDR2_BOOT1 R928 2.2R/8 DDR2_BOOT1_R C1159 0.1u16X6 DDR2_PH1A



PROC_ID1	Config	CPU TYPE
1	133K	SKX-X (VR13) (SVID)
0	110K	KBL-X(IMVP8) (non SVID)

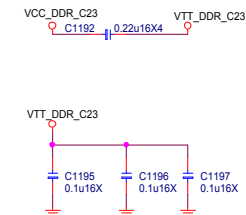
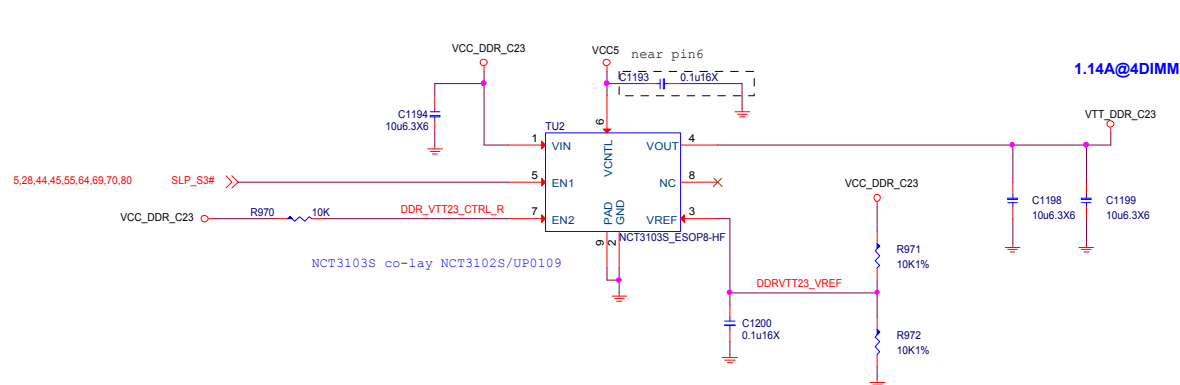
DDR VTT Power

To CPU Copper trace width > 250mils , Fill island behind DIMM > 400mils .



DDR VTT Power

To CPU Copper trace width > 250mils , Fill island behind DIMM > 400mils .



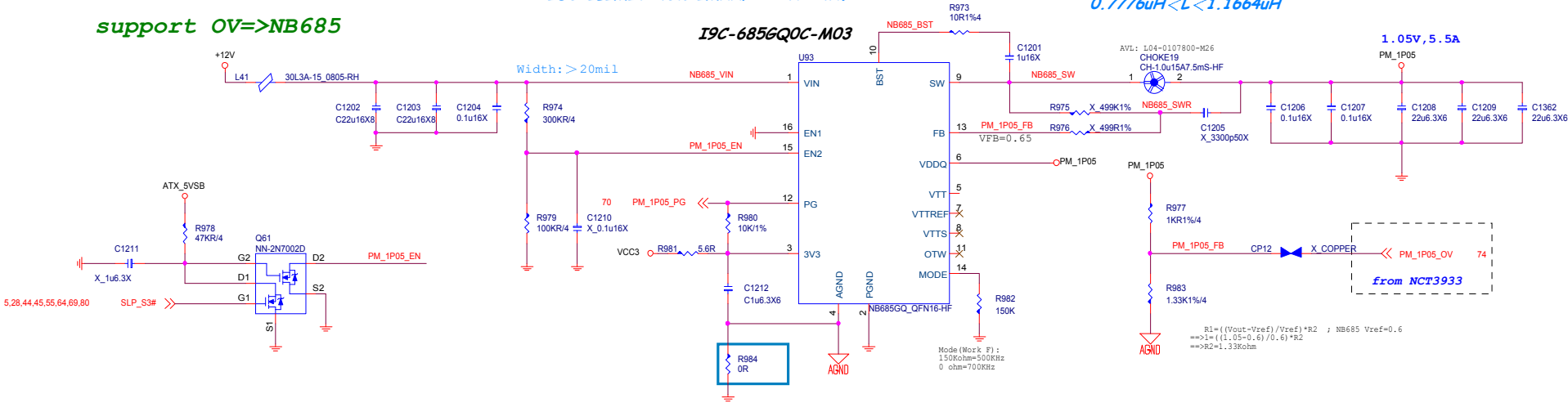
FOR Promontory 1.05V_S0

1.05V
S0:5.5A
S5:0.05A

support OV=>NB685

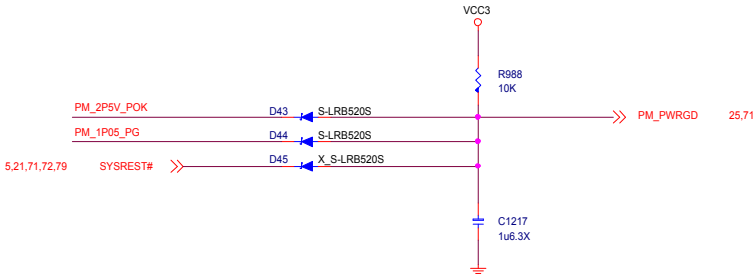
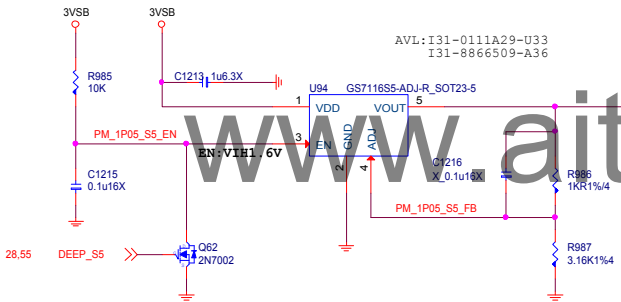
IMAX 10A
ILIMIT=10A~12A
IOC=ILIMIT+40%*IMAX/2=12A~14A.

0.7776uH<L<1.1664uH



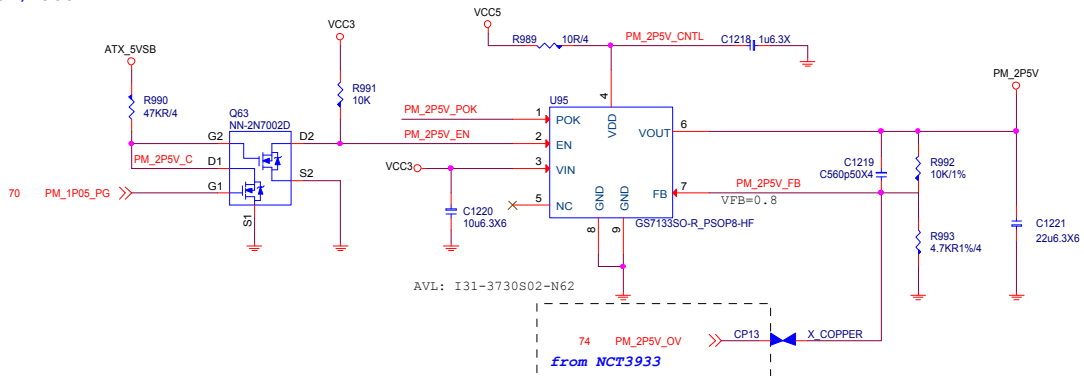
FOR Promontory 1.05V_S5

0.05A

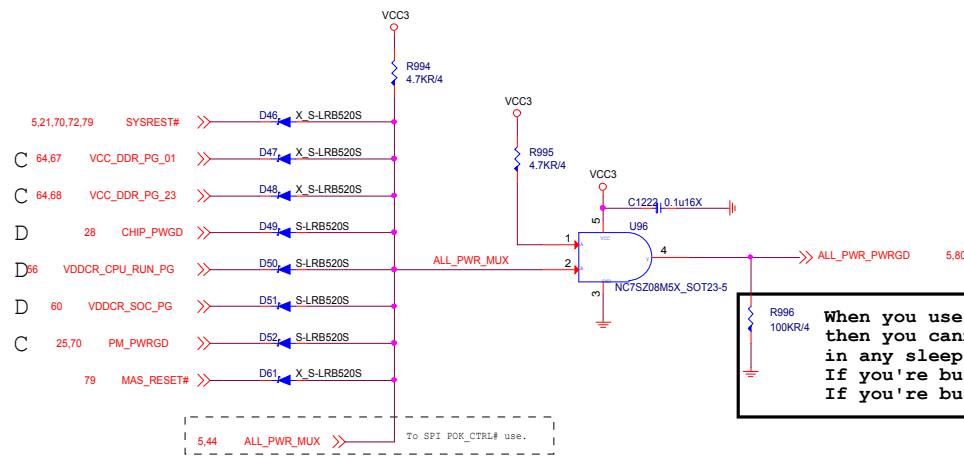


Promontory-2.5V

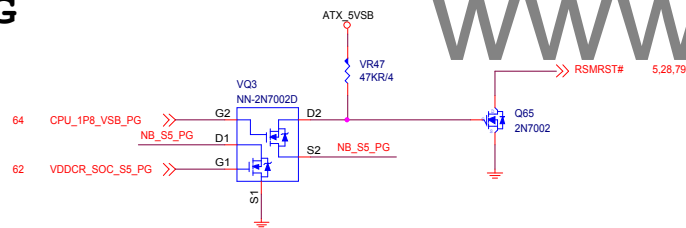
2.5V; 900mA



ALL POWER GOOD MUX

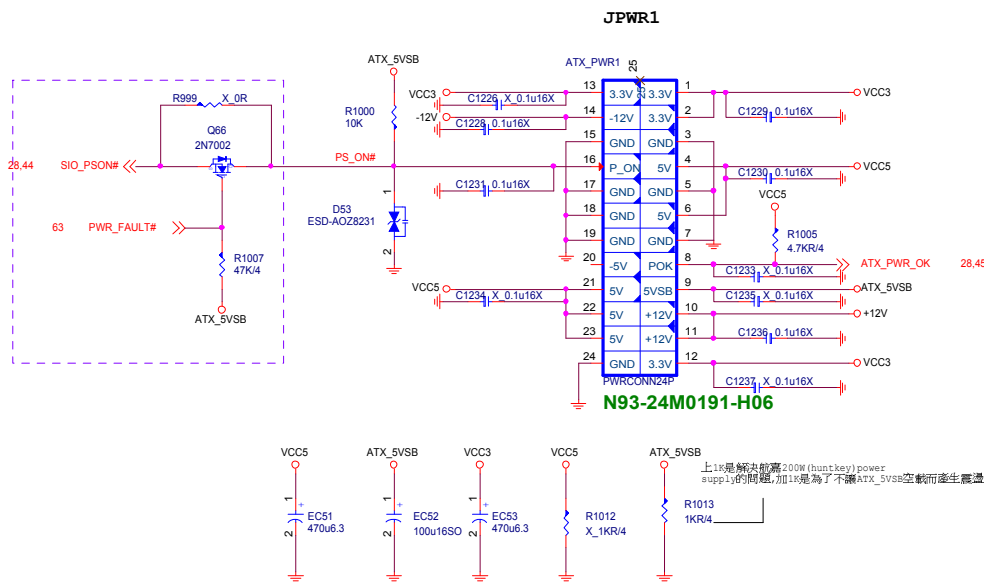


S0 PG
S5 PG

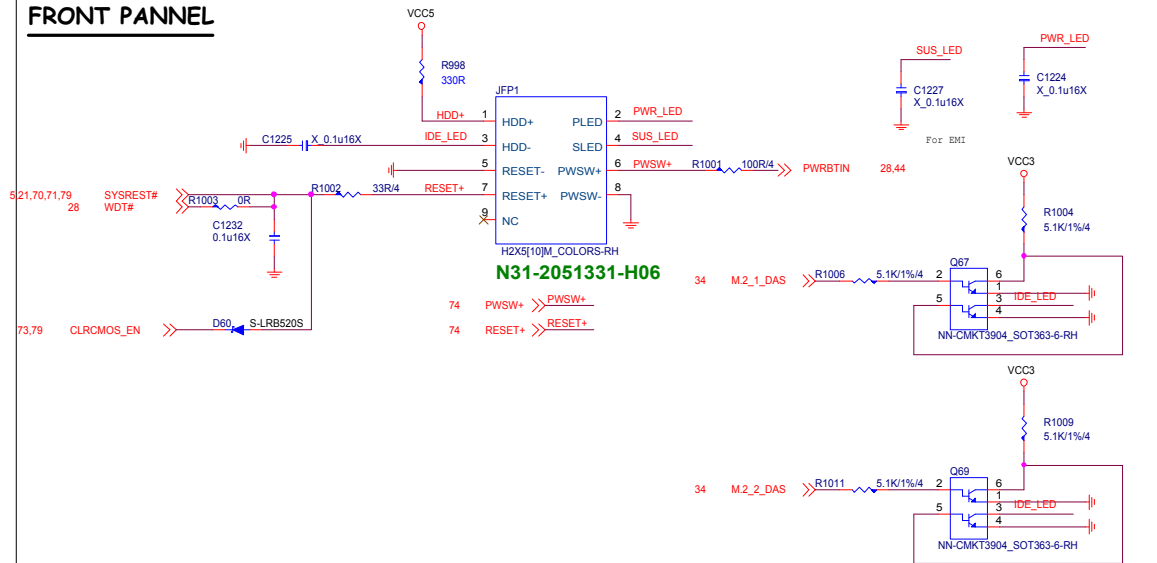


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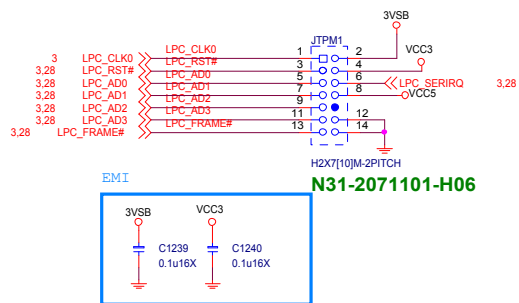
ATX POWER CONNECTOR



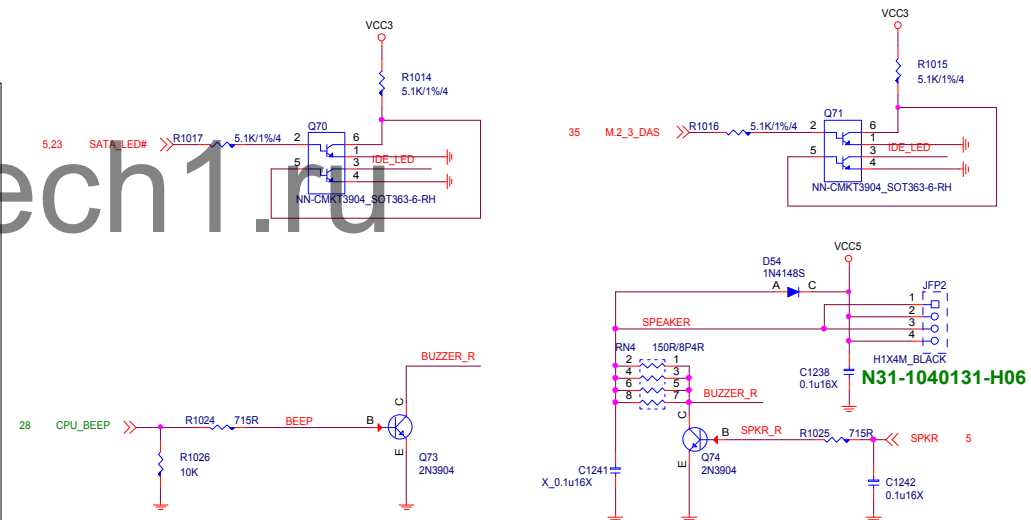
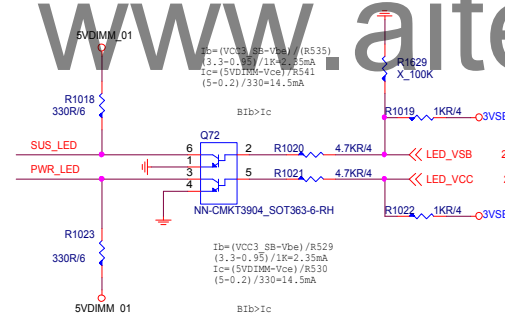
FRONT PANNEL



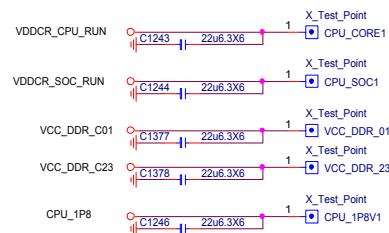
TPM



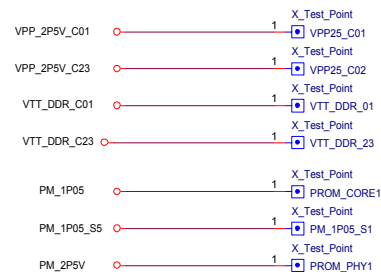
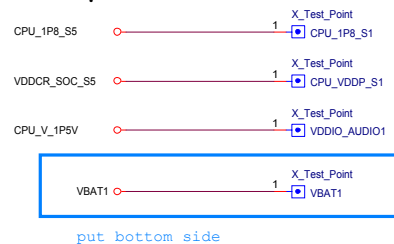
LED (for NCT6795D)



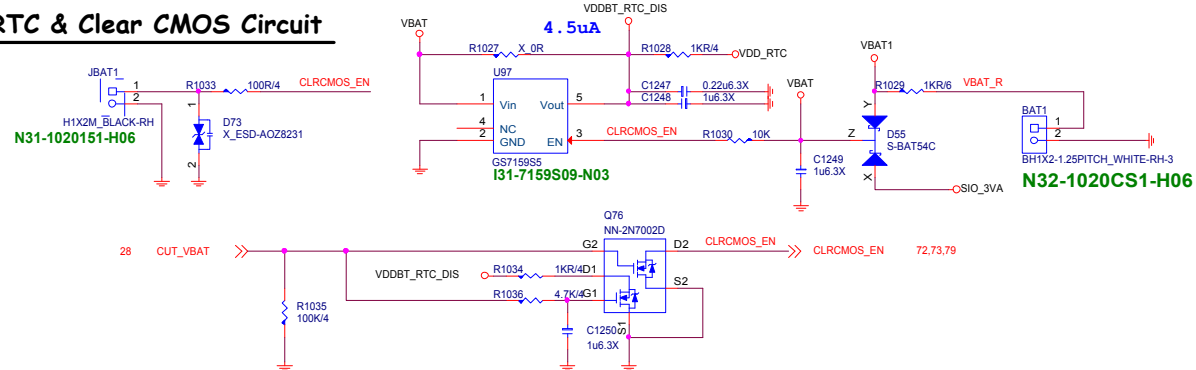
Voltage Measure Point



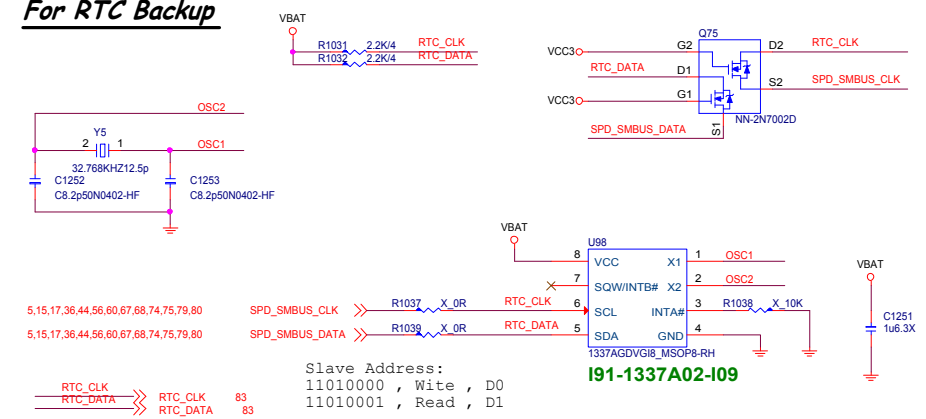
Close to output of IC



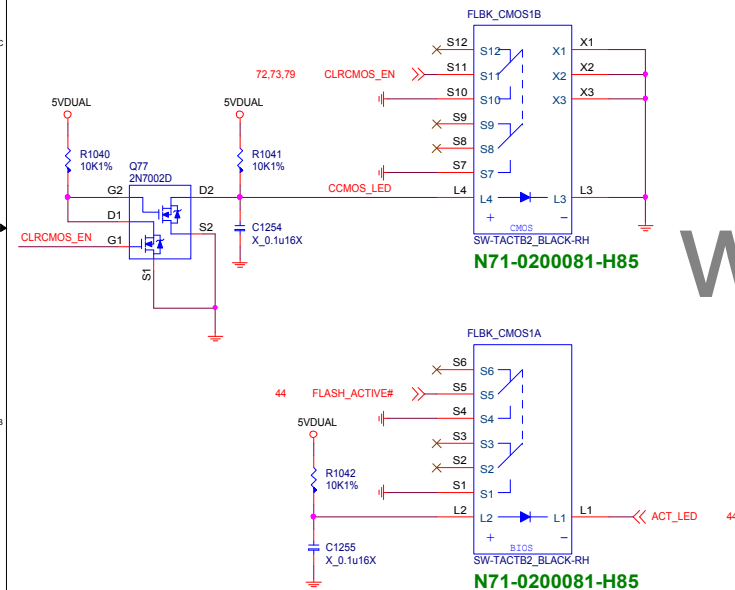
RTC & Clear CMOS Circuit



For RTC Backup

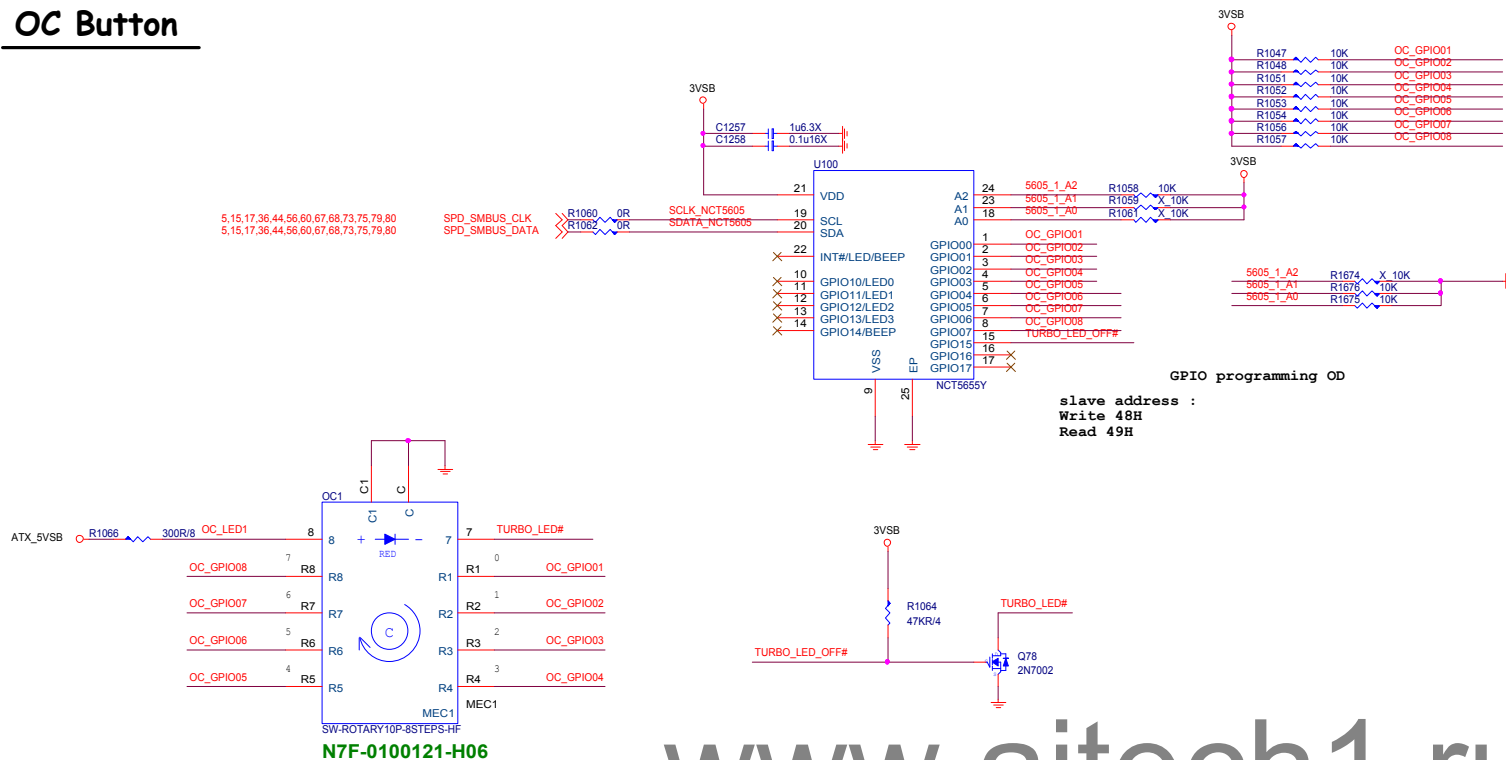


Clear CMOS&Flash Back button

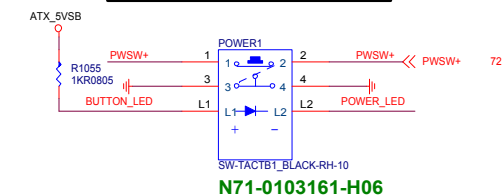


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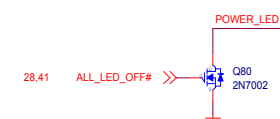
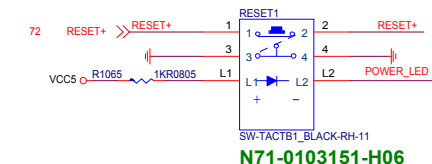
OC Button



Power ON Button

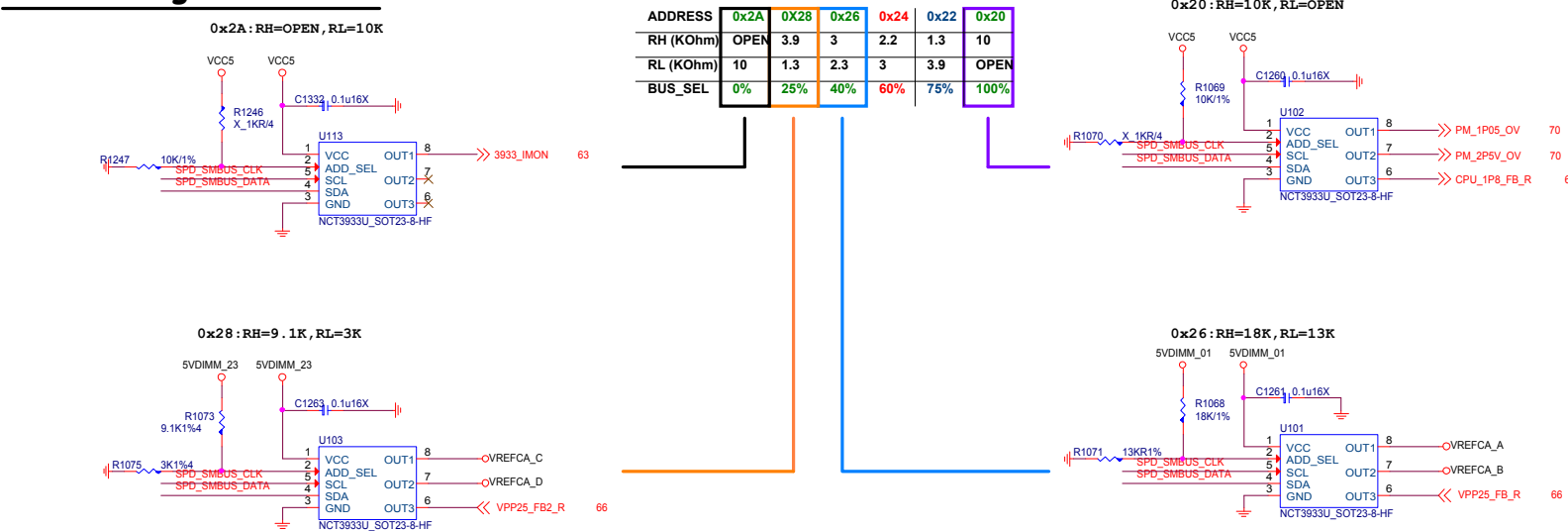


Reset Button

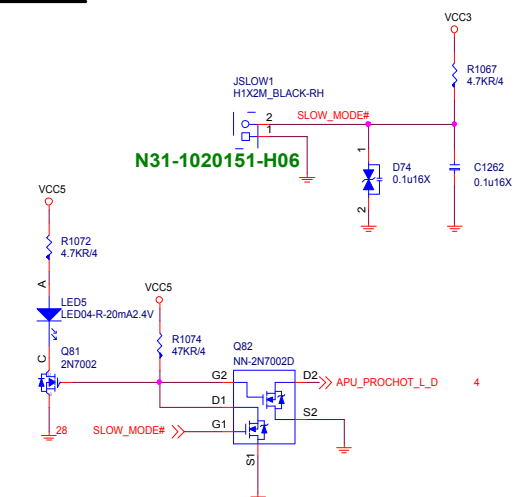


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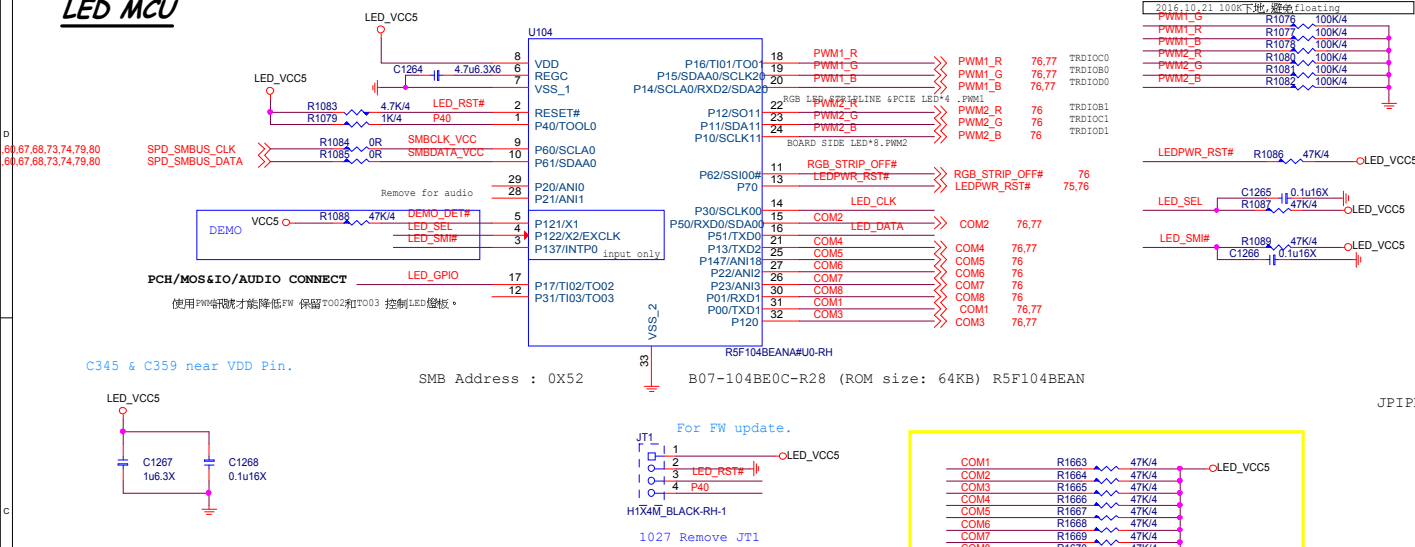
Over Voltage Control IC



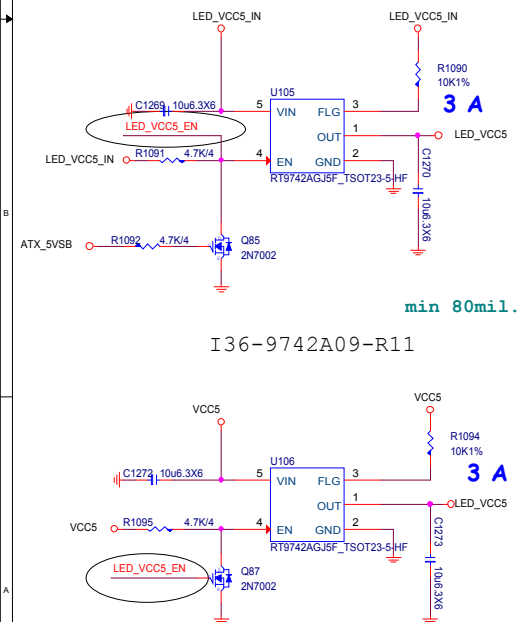
Slow Mode



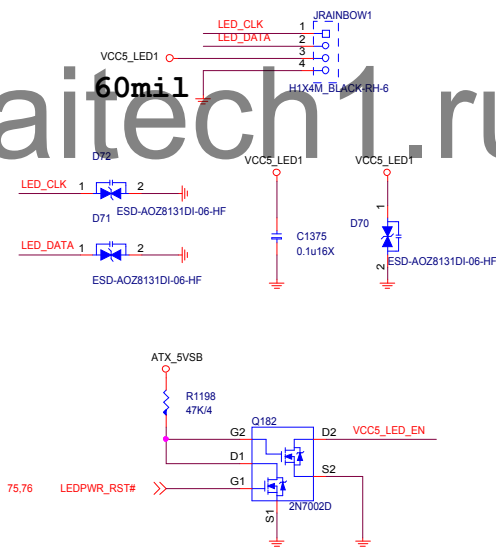
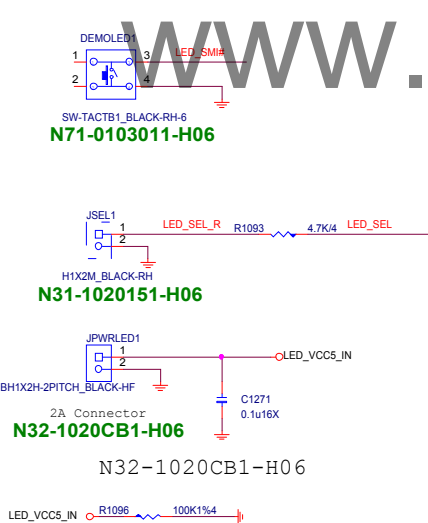
LED MCU



EXTERNAL POWER INPUT

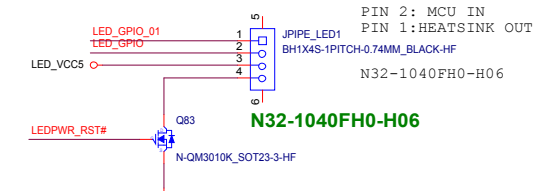


LED Demo Button



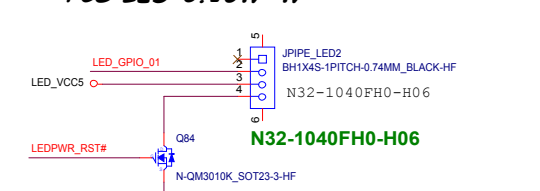
1 PCH HEATSINK LED

PCS LED*0.16W=W

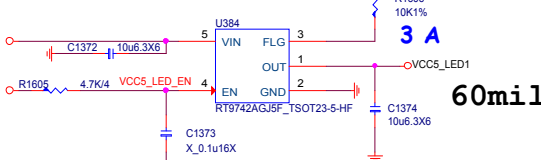


2 AUDIO/IO Cover LED

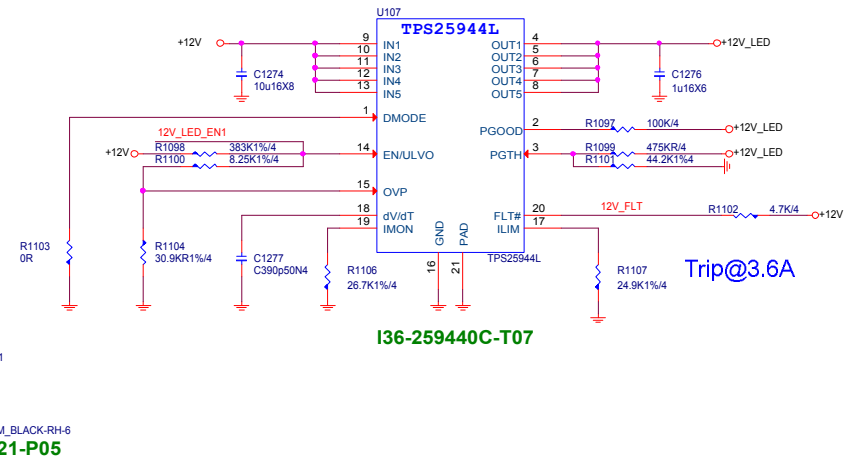
PCS LED*0.16W=W



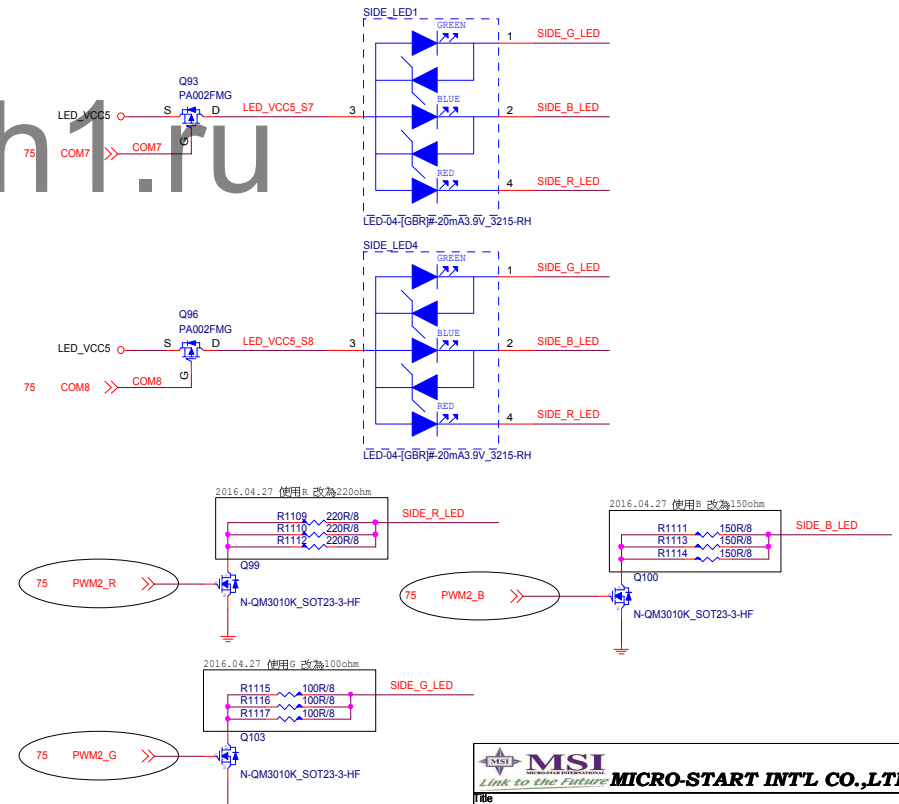
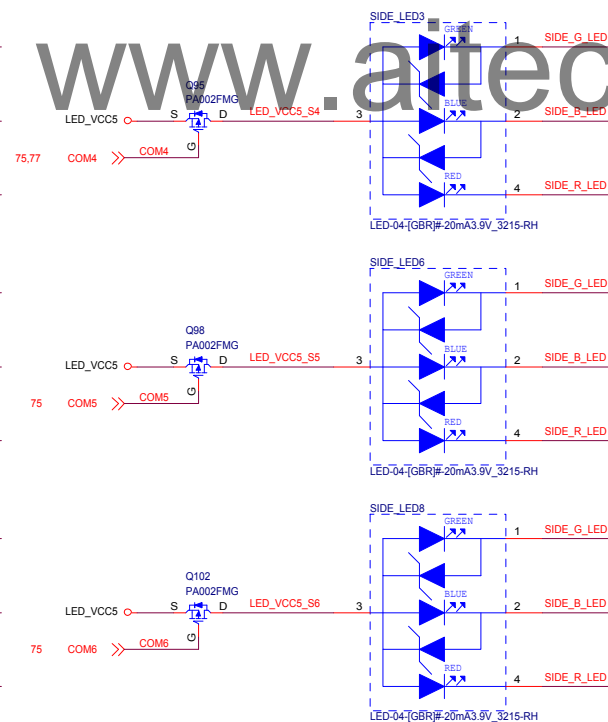
JPIPE_LED3 no SPEC



2016.07.06 only reserve now
2016.08.02 Add +12V_LED 0.1uF 2016.08.02 stuff ESD

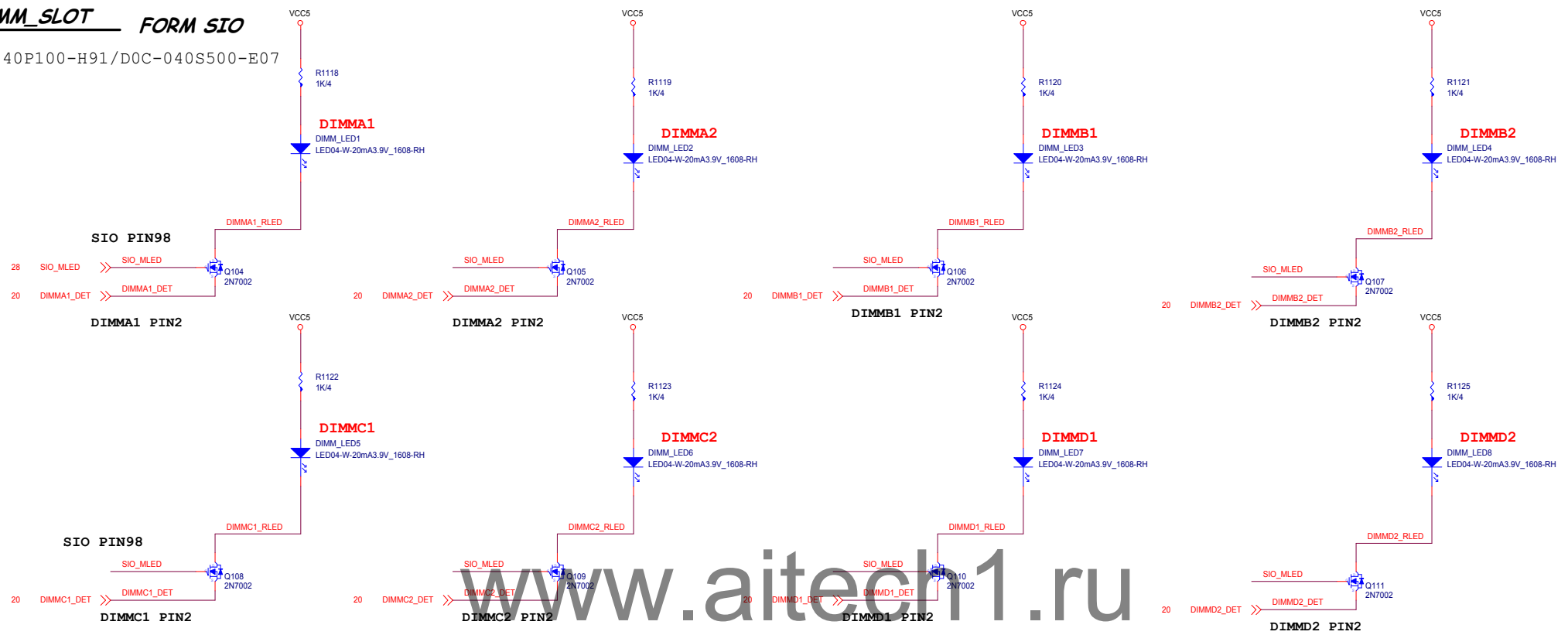


BOARD SIDE LED *8

[illegible]

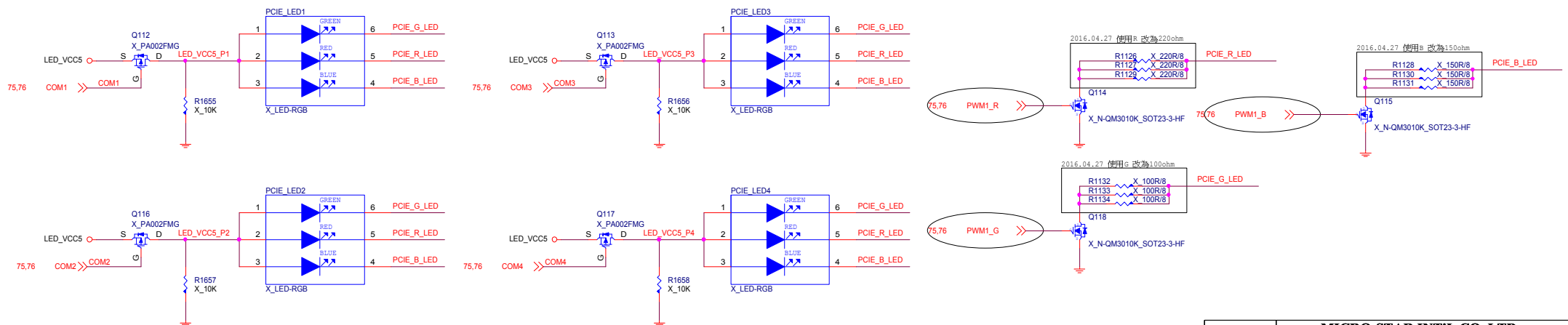
DIMM_SLOT FORM SIO

D0C-040P100-H91/D0C-040S500-E07

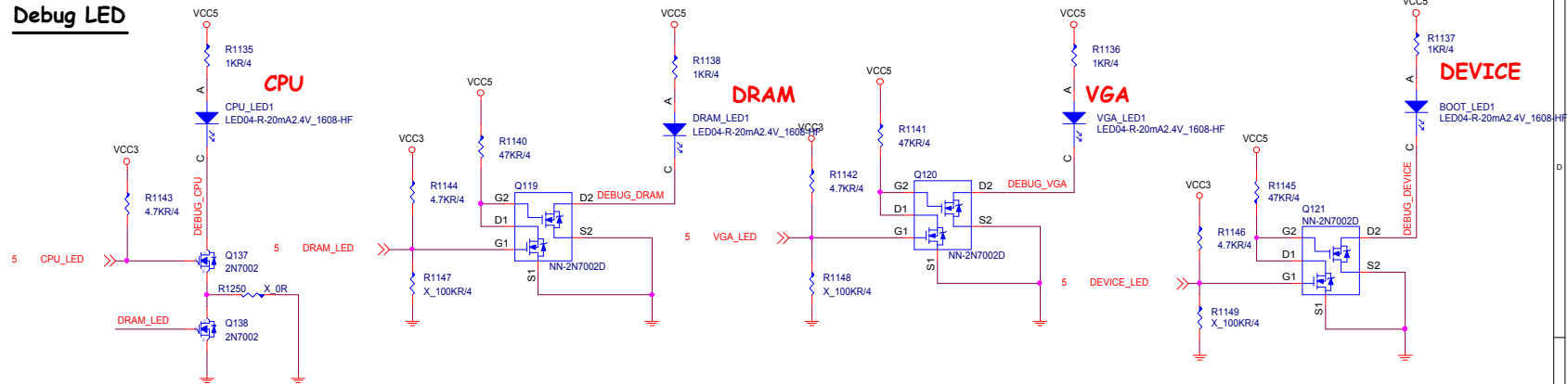


PCIE_SLOT LED*4 FORM MCU

D0C-040S400-H91



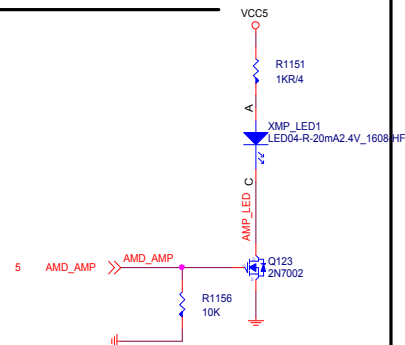
Debug LED



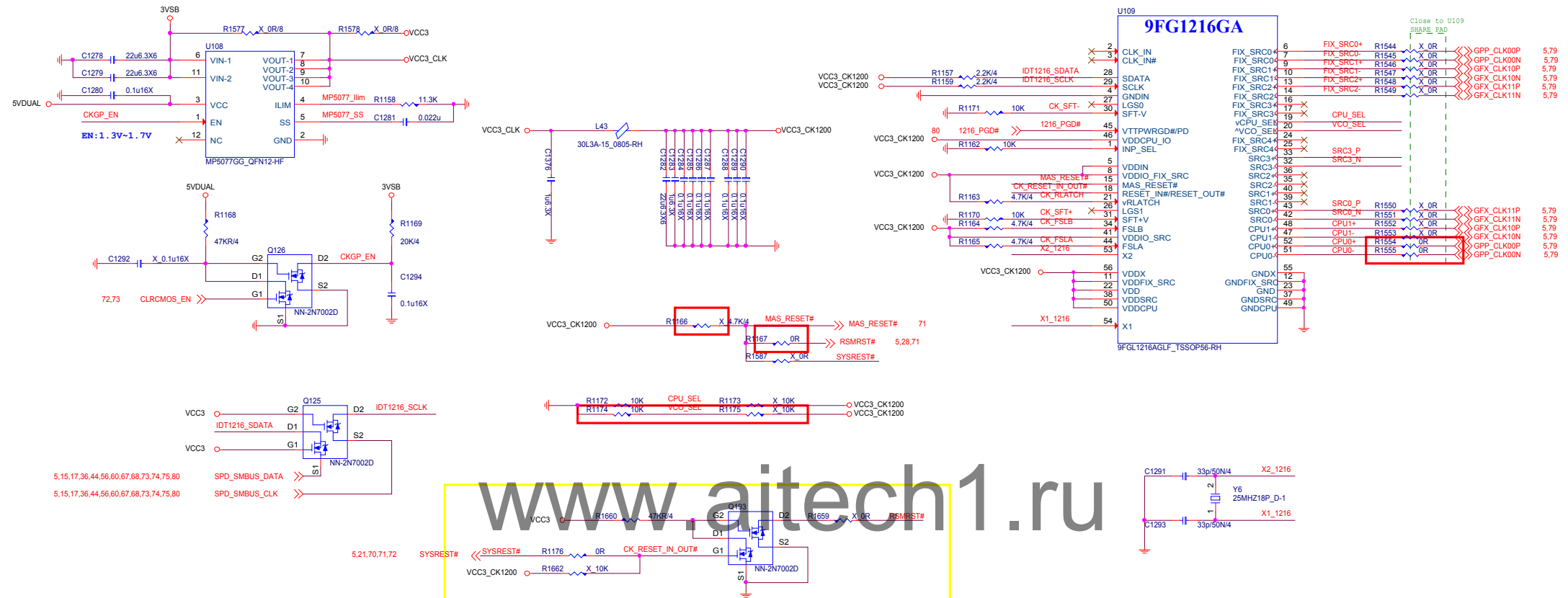
LED	GPIO	AGPIO84_0	AGPIO85_0	EGPIO84_1	EGPIO85_1
亮		GPI PULL HIGH	GPO PO LOW	GPO PO LOW	GPO PO LOW
滅		GPO LOW	GPO HIGH (default HIGH)	GPO HIGH (default HIGH)	GPO HIGH (default HIGH)

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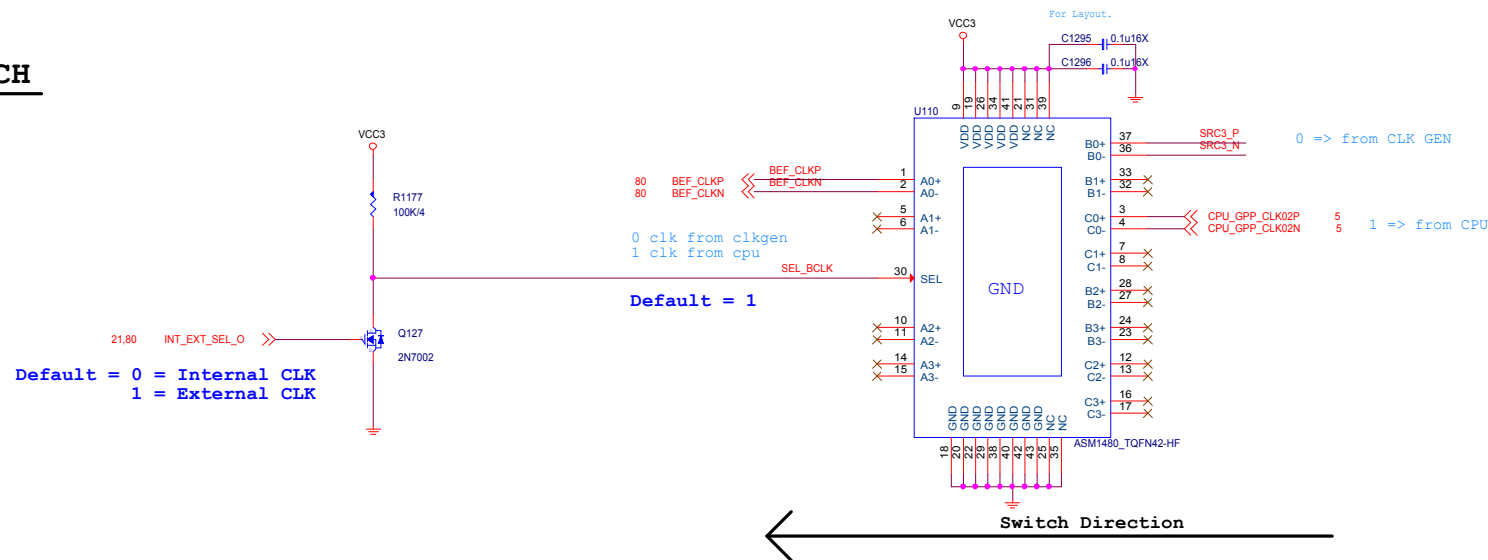
AMD AMP Detect LED



CLOCK GEN



CLOCK SWITCH

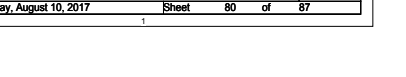
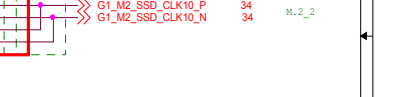
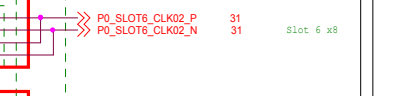
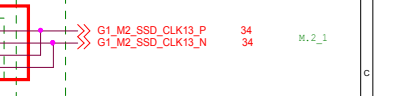
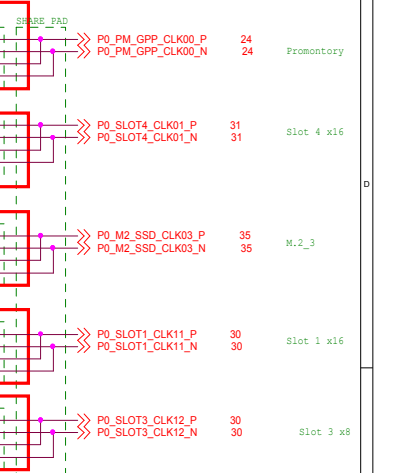
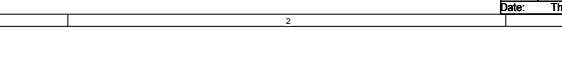
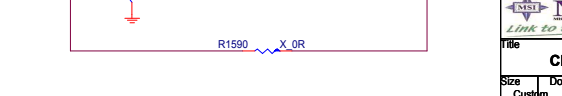
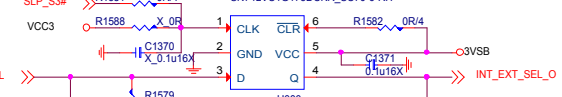
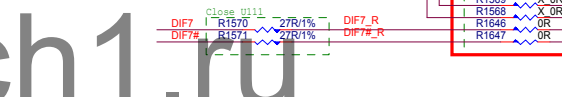
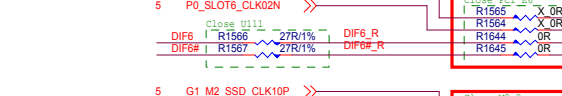
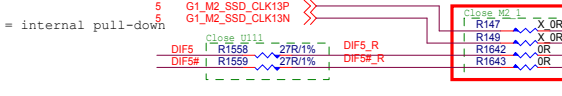
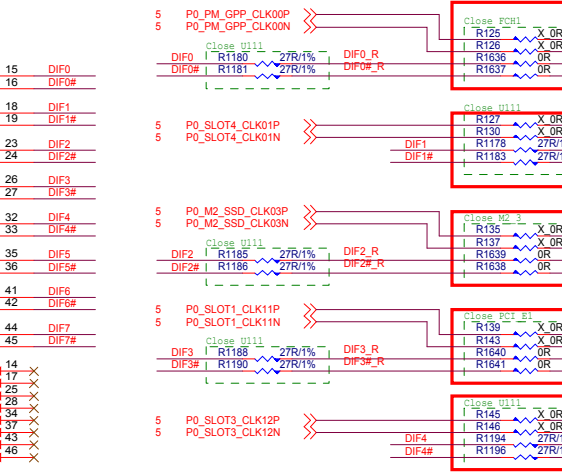
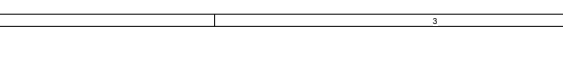
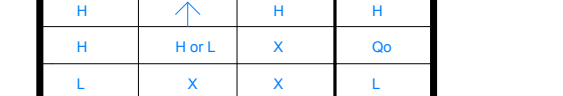
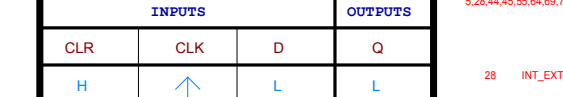
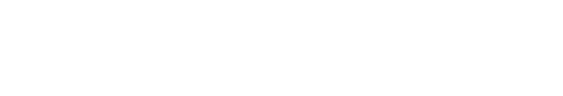
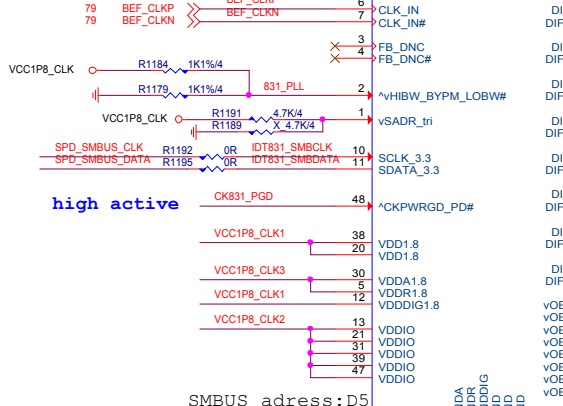
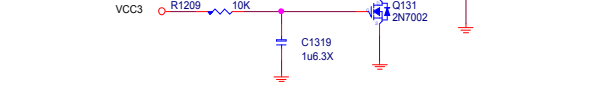
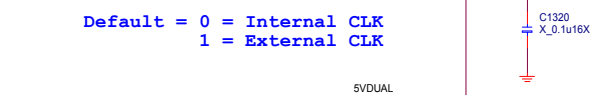
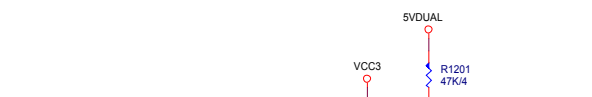
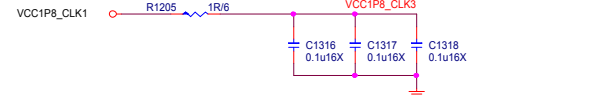
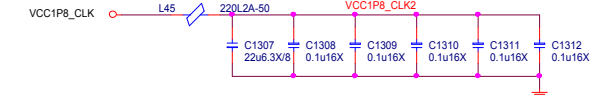
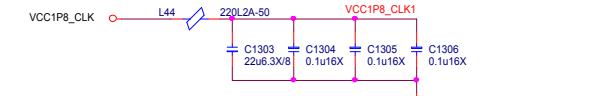
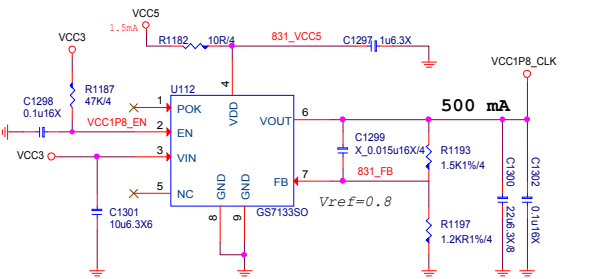


CLOCK BUFFER

5,15,17,36,44,56,60,67,68,73,74,75,79
5,15,17,36,44,56,60,67,68,73,74,75,79

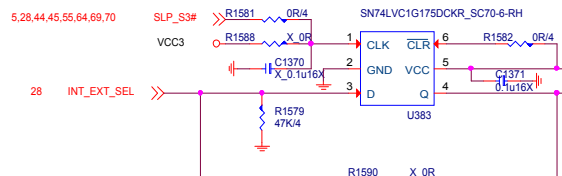
SPD_SMBUS_CLK
SPD_SMBUS_DATA

SPD_SMBUS_CLK
SPD_SMBUS_DATA

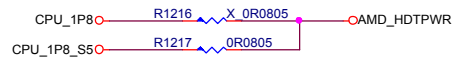


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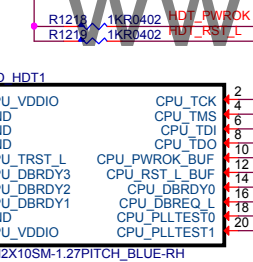
INPUTS			OUTPUTS
CLR	CLK	D	Q
H	↑	L	L
H	↑	H	H
H	H or L	X	Qo
L	X	X	L



Stuff for first model

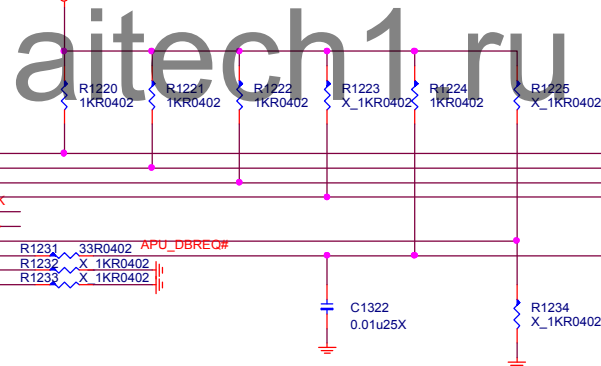


CPU_1P8



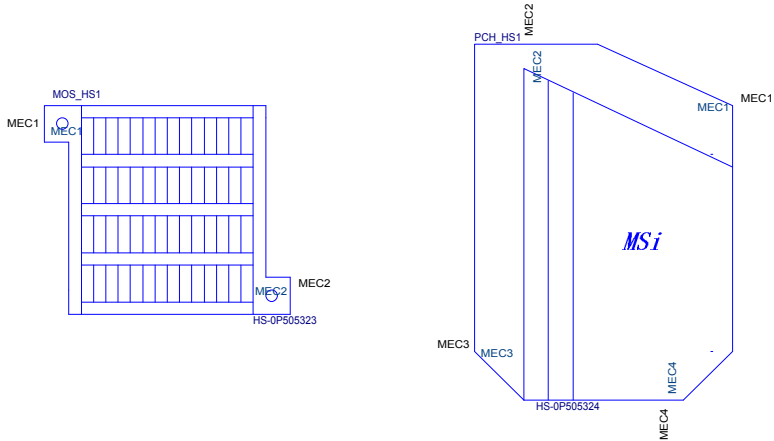
X_H2X10SM-1.27PITCH_BLUE-RH

AMD_HDTPWR

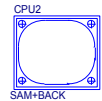


$$\begin{aligned} IB &= (AMD_HDTPWR - V_{be}) / 4.7k \\ (1.8 - 0.95) / 4.7k &= 0.181mA \\ IC &= (V_c - V_{ce}) / 10k \\ (1.8 - 0.2) / 10k &= 0.16mA \\ IB &= (V_b - V_{be}) / 10k \\ (1.75 - 0.95) / 10k &= 0.08mA \\ IC &= (V_c - V_{ce}) / 10k \\ (3.3 - 0.2) / 10k &= 0.16mA \end{aligned}$$
$$\begin{aligned} B * Ib > Ic &= 10 * 0.181 = 1.81 > 0.16 \\ B * Ib > Ic &= 10 * 0.08 = 0.8 > 0.16 \end{aligned}$$

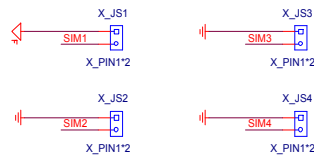
HEAT SINK



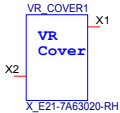
CPU Socket



Simulation



VR COVER



MANUAL PART

AMI1
AMI LABEL
G51-M1SPXXA-A09

MKT1
Label
G51-M1SPM07-Q13

SLI1
Label
Y01-RNVIDIN-000

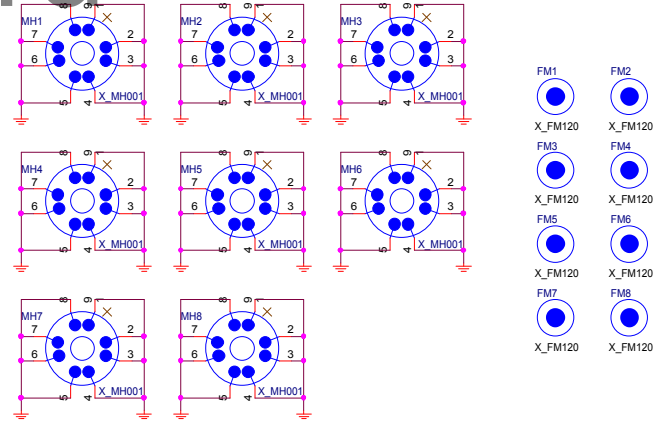
BAT1_X1
BAT-QR2032
D06-0105101-K26



VER: 2.0 --> 601-7B09-03S

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Optics Orientation Holes



Add for EMI

