AMD TR4(X399)

Promontry 300-Series

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Title: COVER SHEET

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CPU:
AMD TR4

System Chipset:
Promontory X399
(X399 GAMING PRO CARBON AC)

Main Memory:
DDR IV * 8 MAX:256 GB

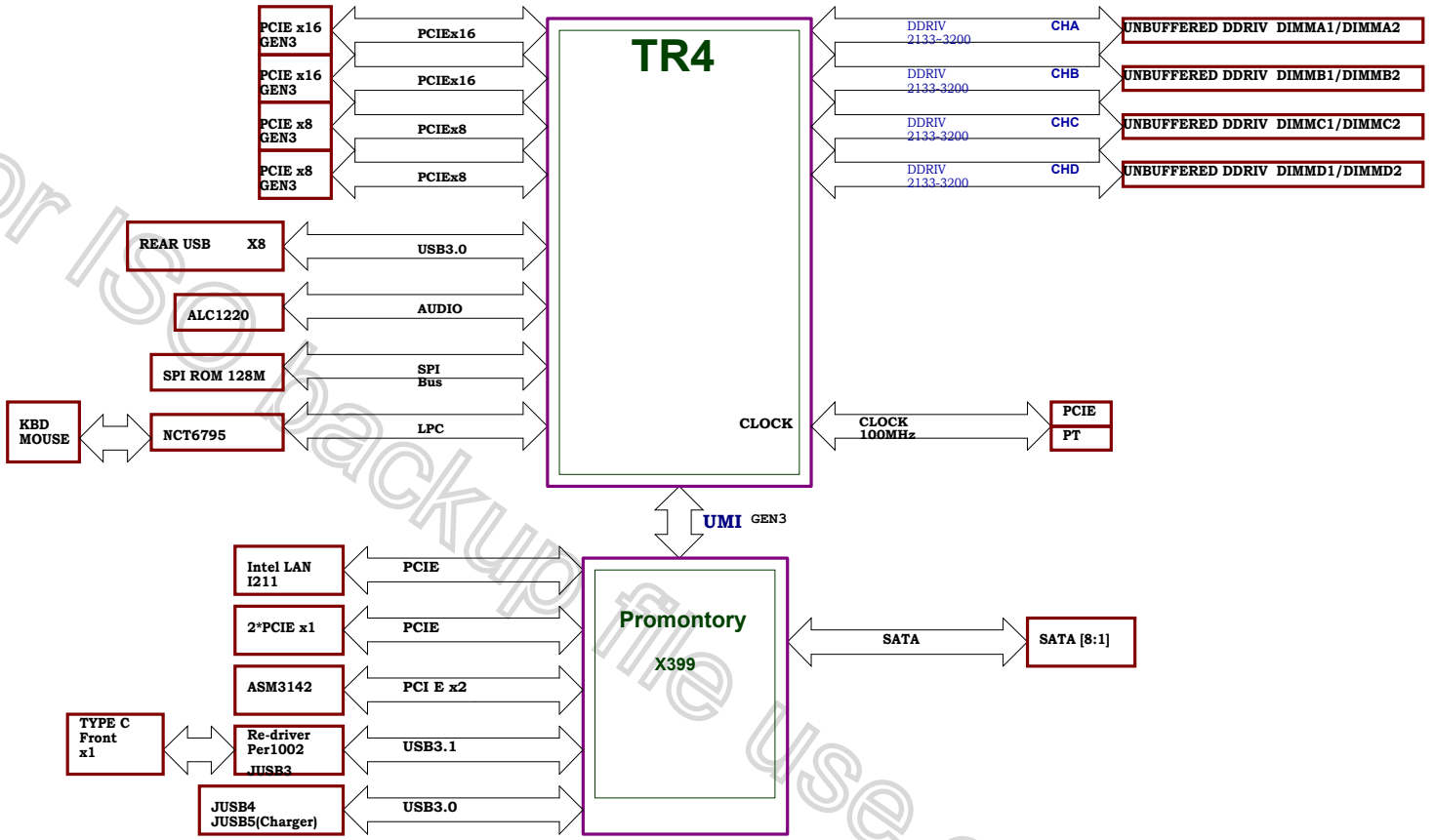
VRM
IR35201-10Phase
IR35201-3Phase

On Board Chipset:
LPC Super I/O --NCT6975
LAN Intel I211
Azalia CODEC - Realtek ALC1220

Expansion Slots:
From CPU
PCI Express X16 Slot * 2
PCI Express X8 Slot * 2

From FCH
PCI Express X1 Slot * 2

X399 BLOCK DIAGRAM



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Title: Block Diagram		
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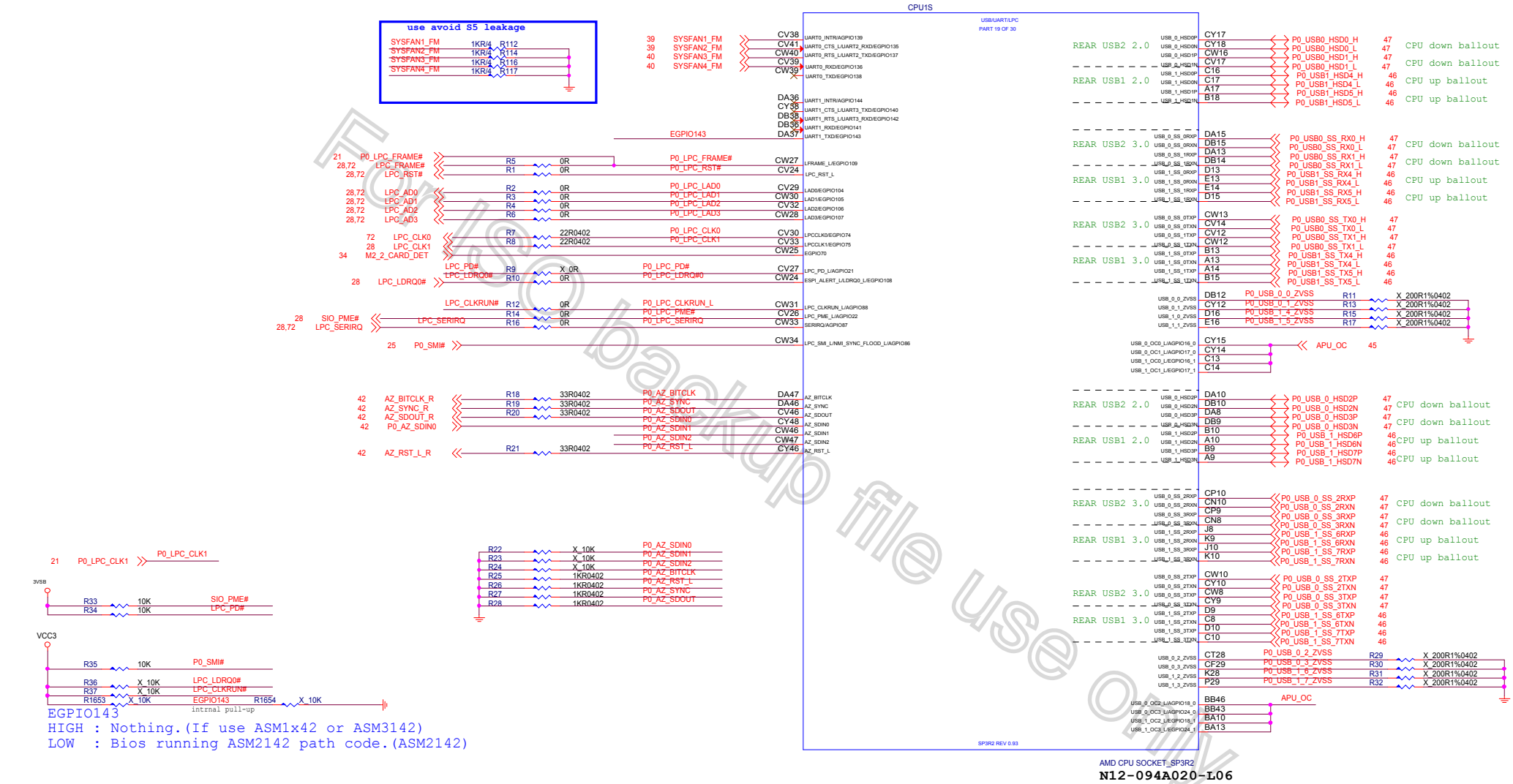
USB/LPC/UART/HDA



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Title: TR USB/LPC/UART/HDA

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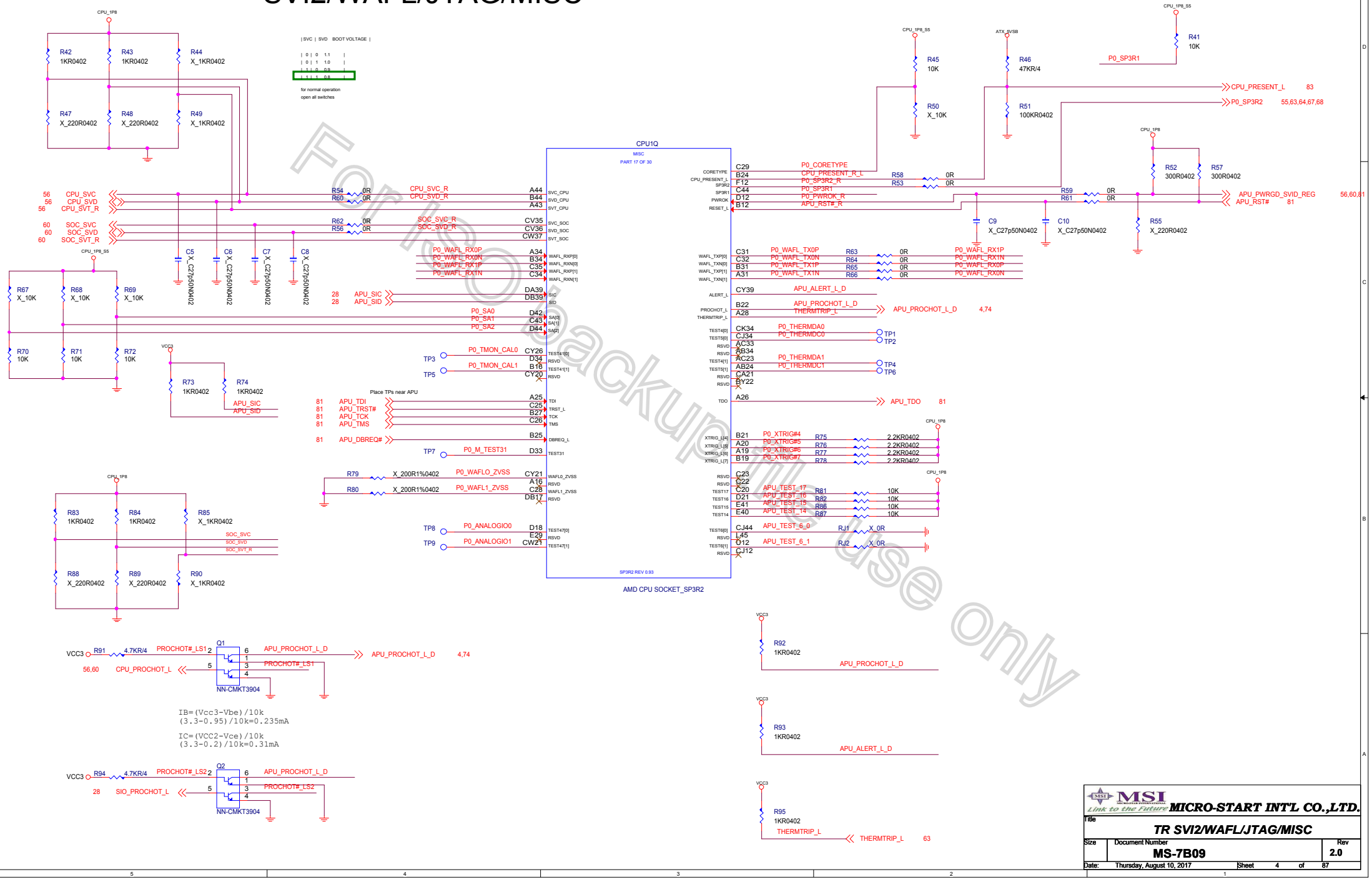
SVI2/WAFL/JTAG/MISC



MICRO-START INT'L CO.,LTD.

Title: TR SVI2/WAFL/JTAG/MISC

Size	Document Number	Rev
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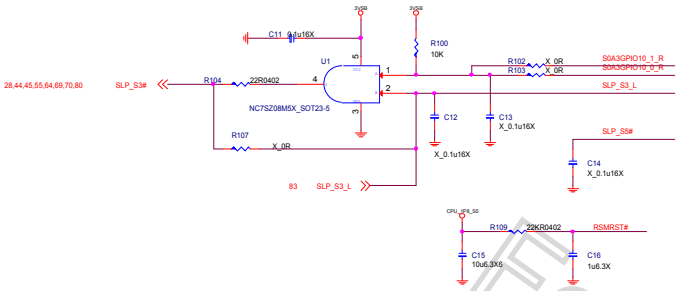
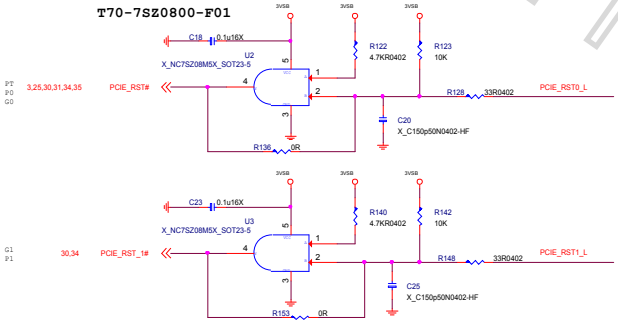
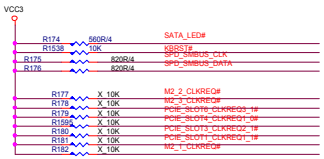
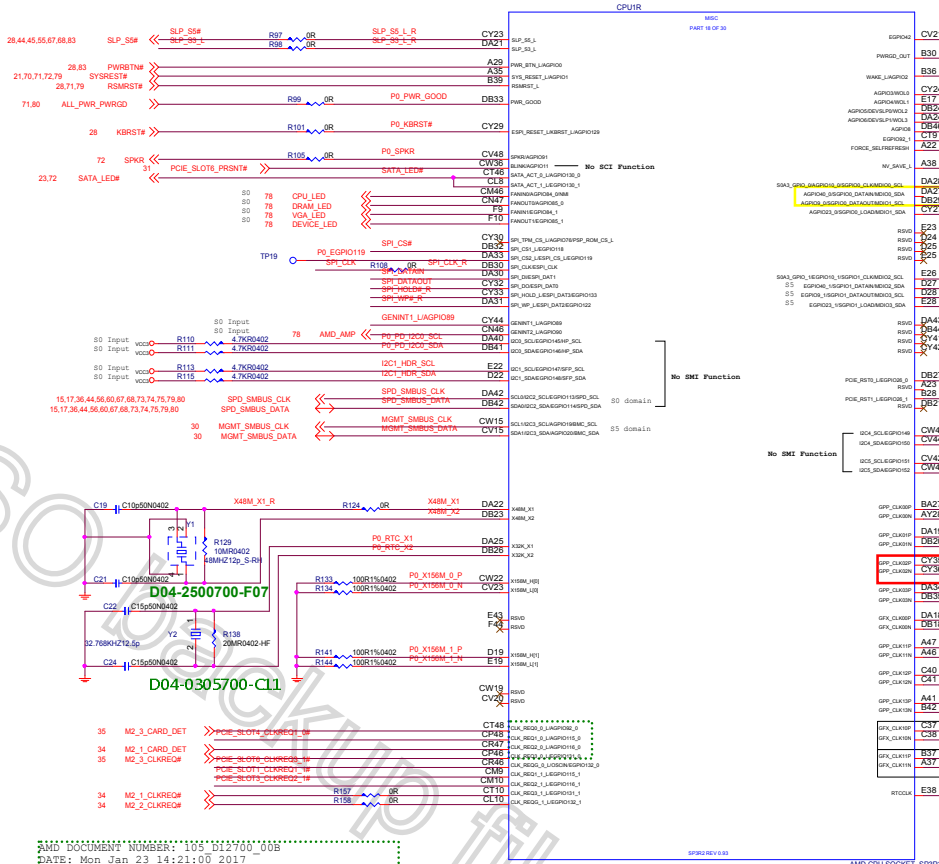
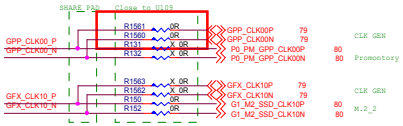
ACPI/SPI/I2C/CLK/GPIO

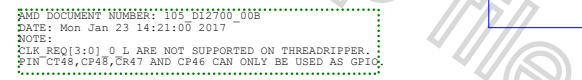




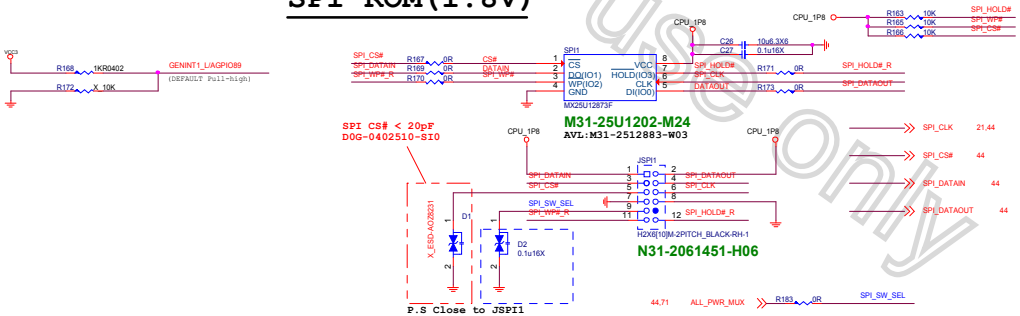








SPI ROM(1.8V)



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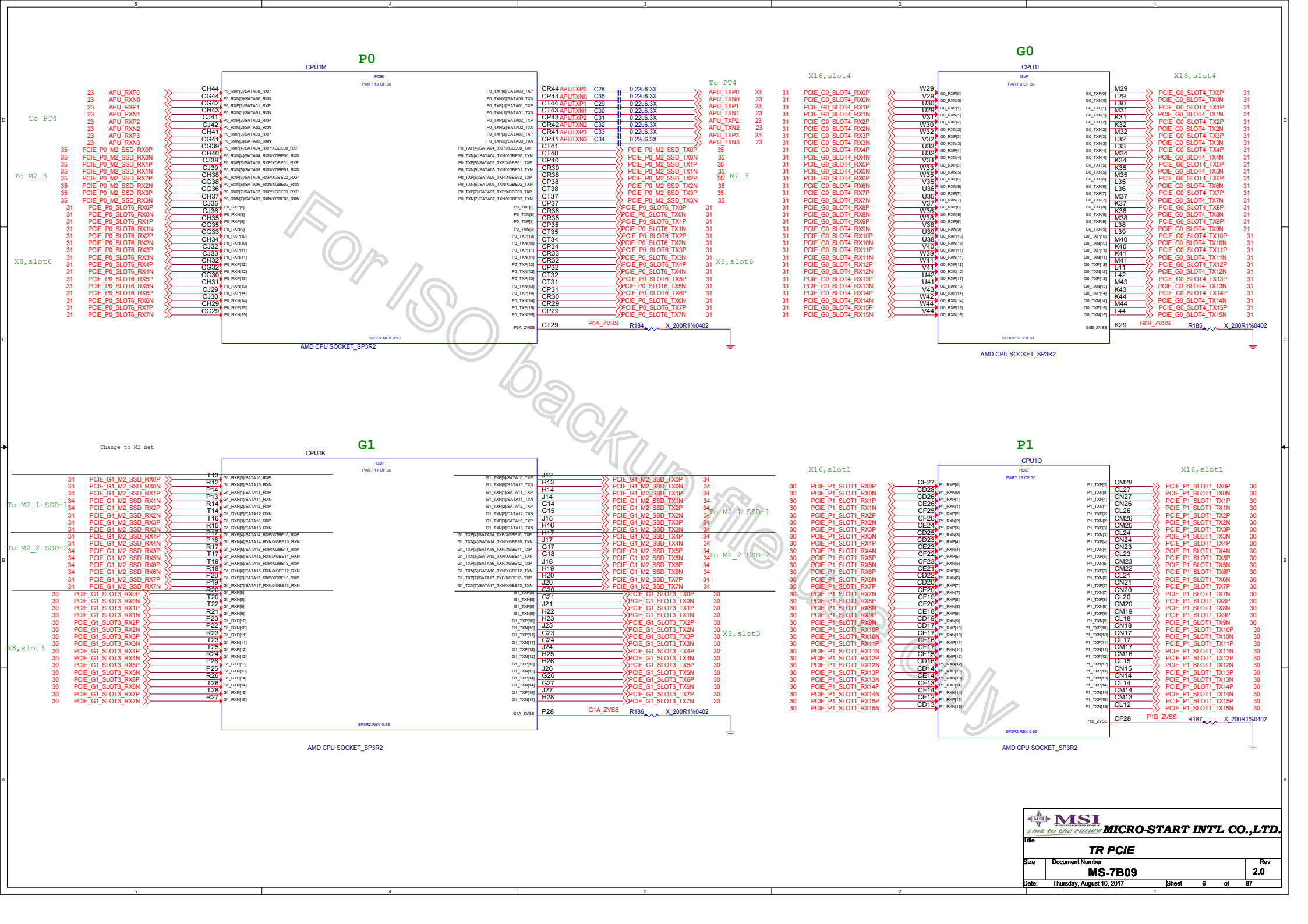

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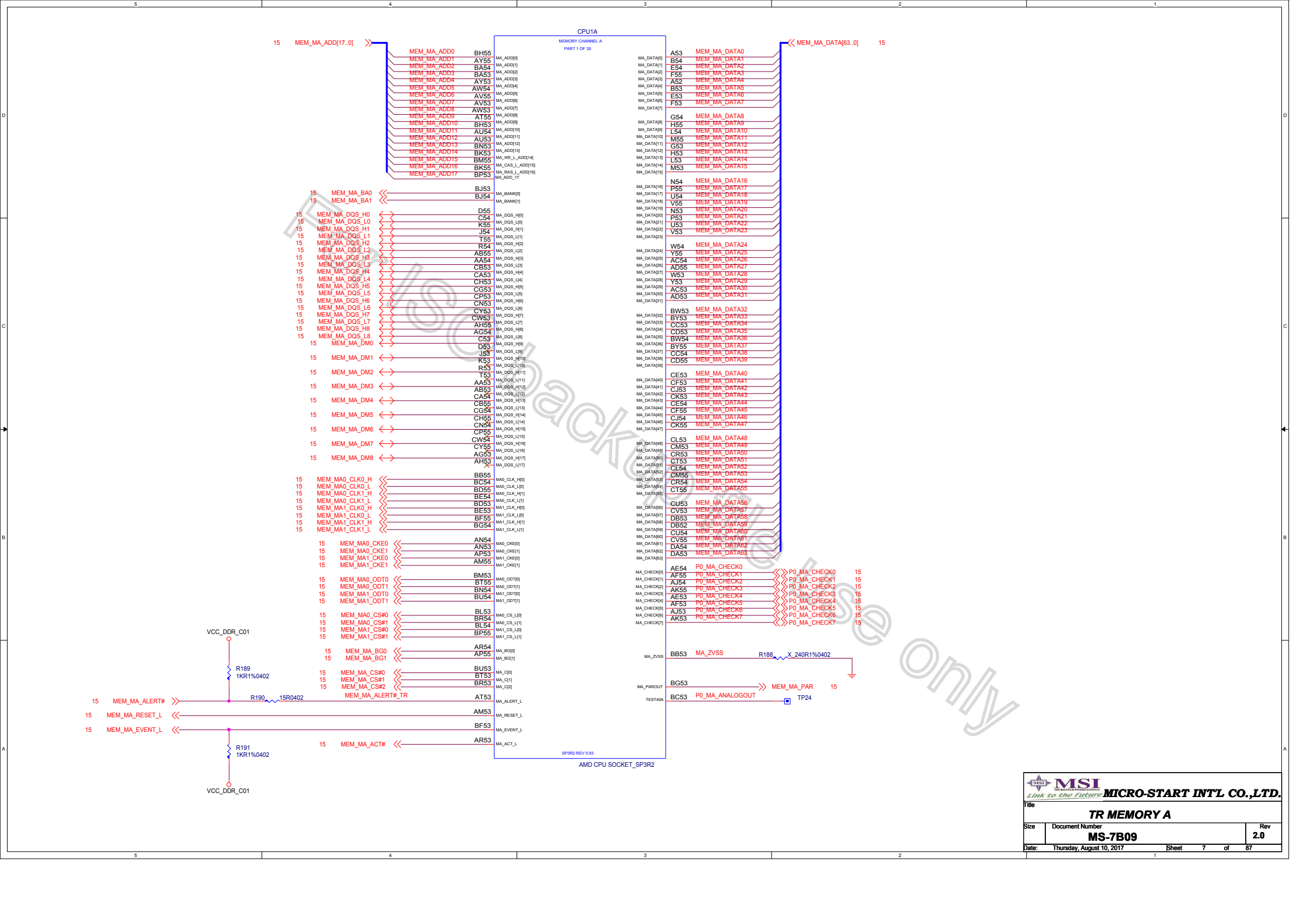

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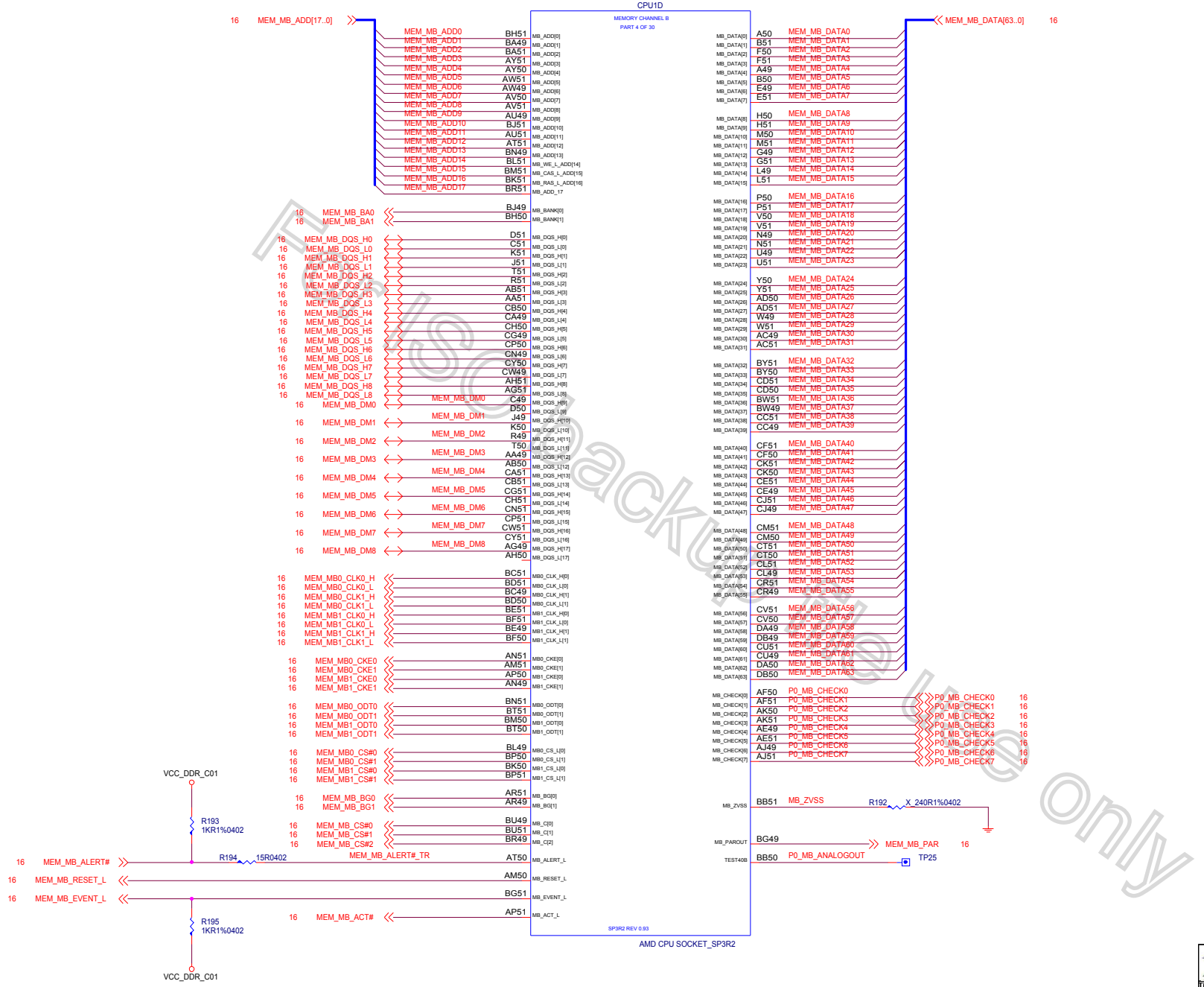

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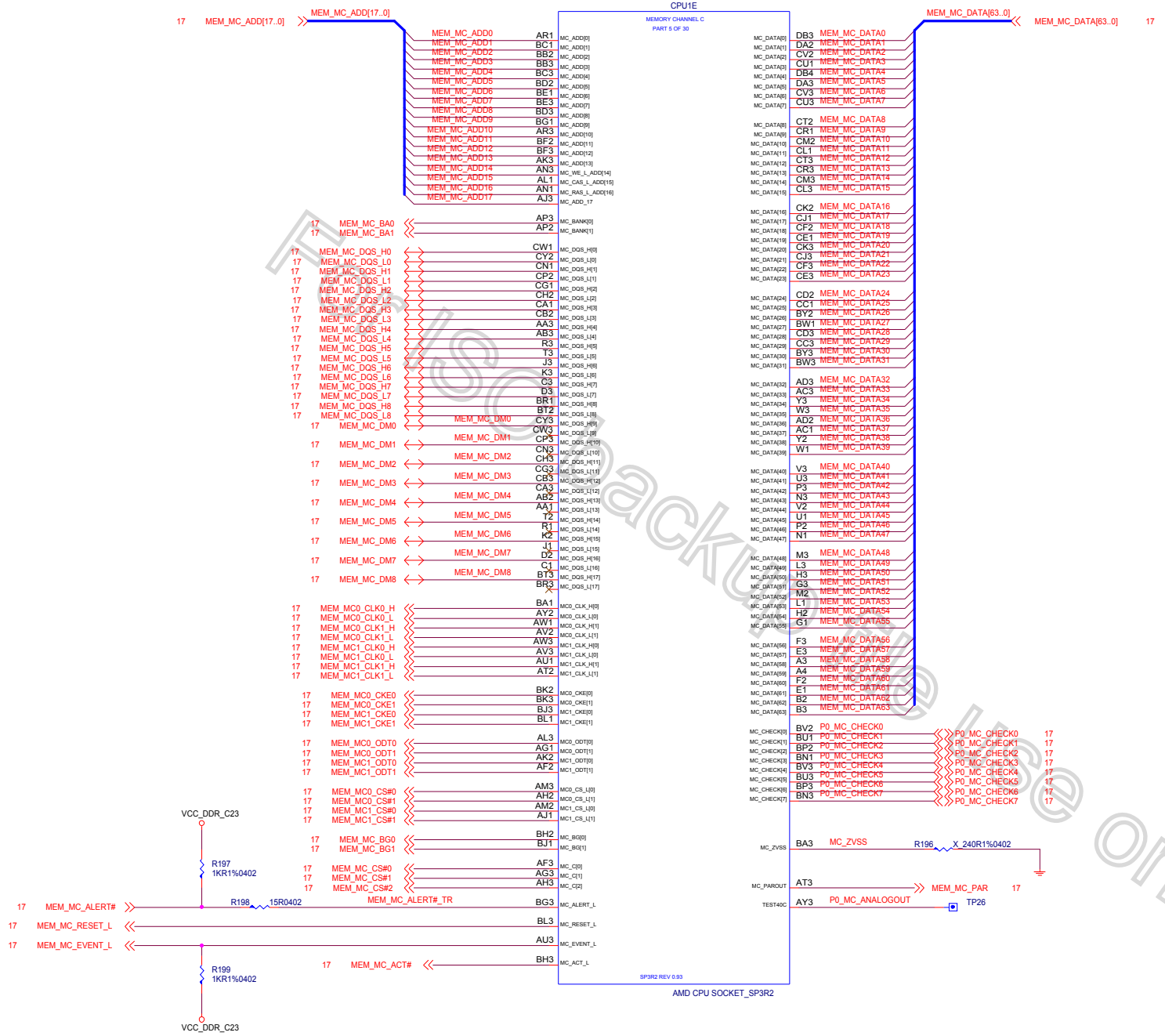

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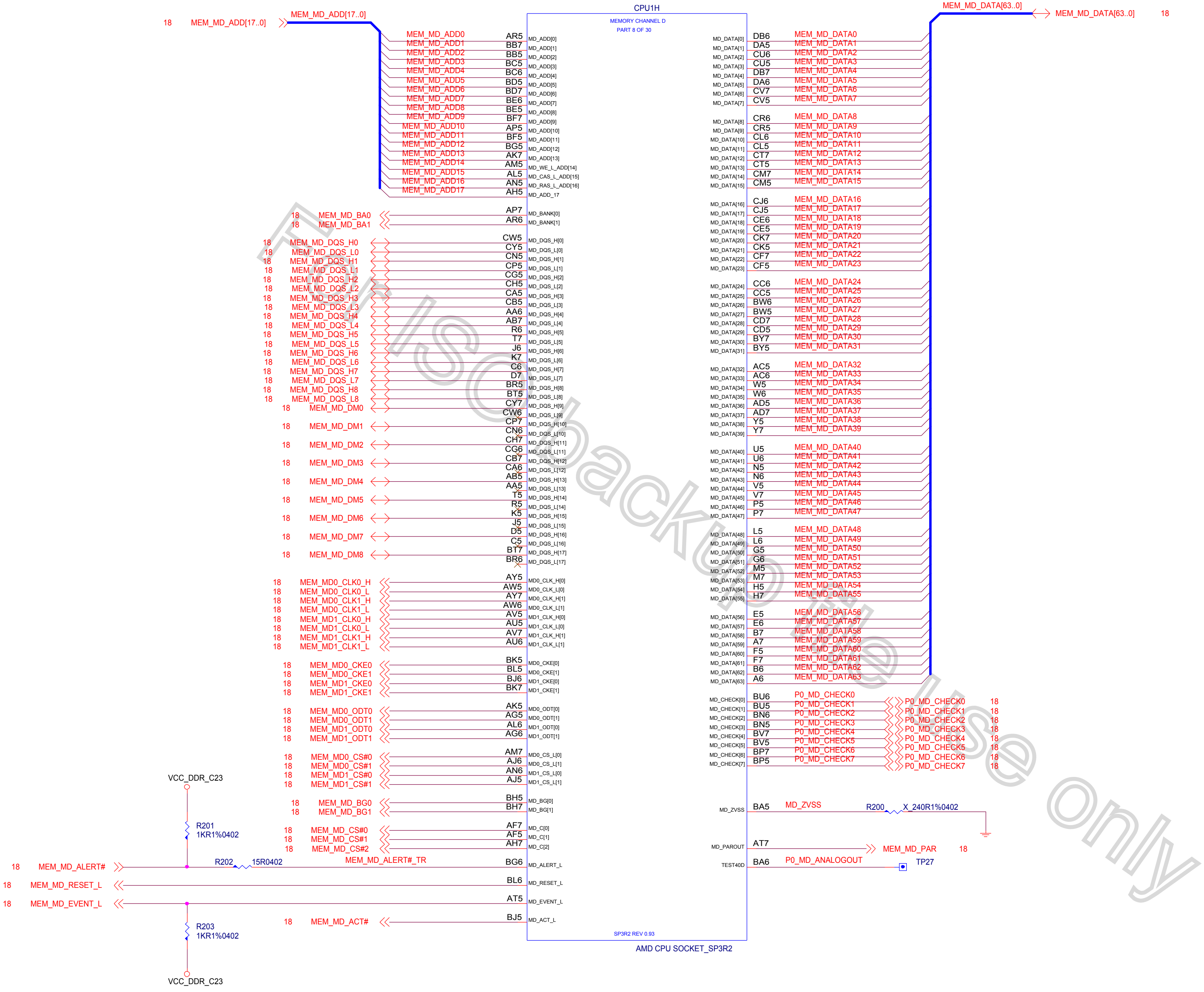
Title	TR MEMORY C	
Size	Document Number MS-7B09	Rev 2.0
Date: Thursday, August 10, 2017	Sheet 9 of 87	



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Title	**TR MEMORY D**	
Size	Document Number **MS-7B09**	Rev **2.0**
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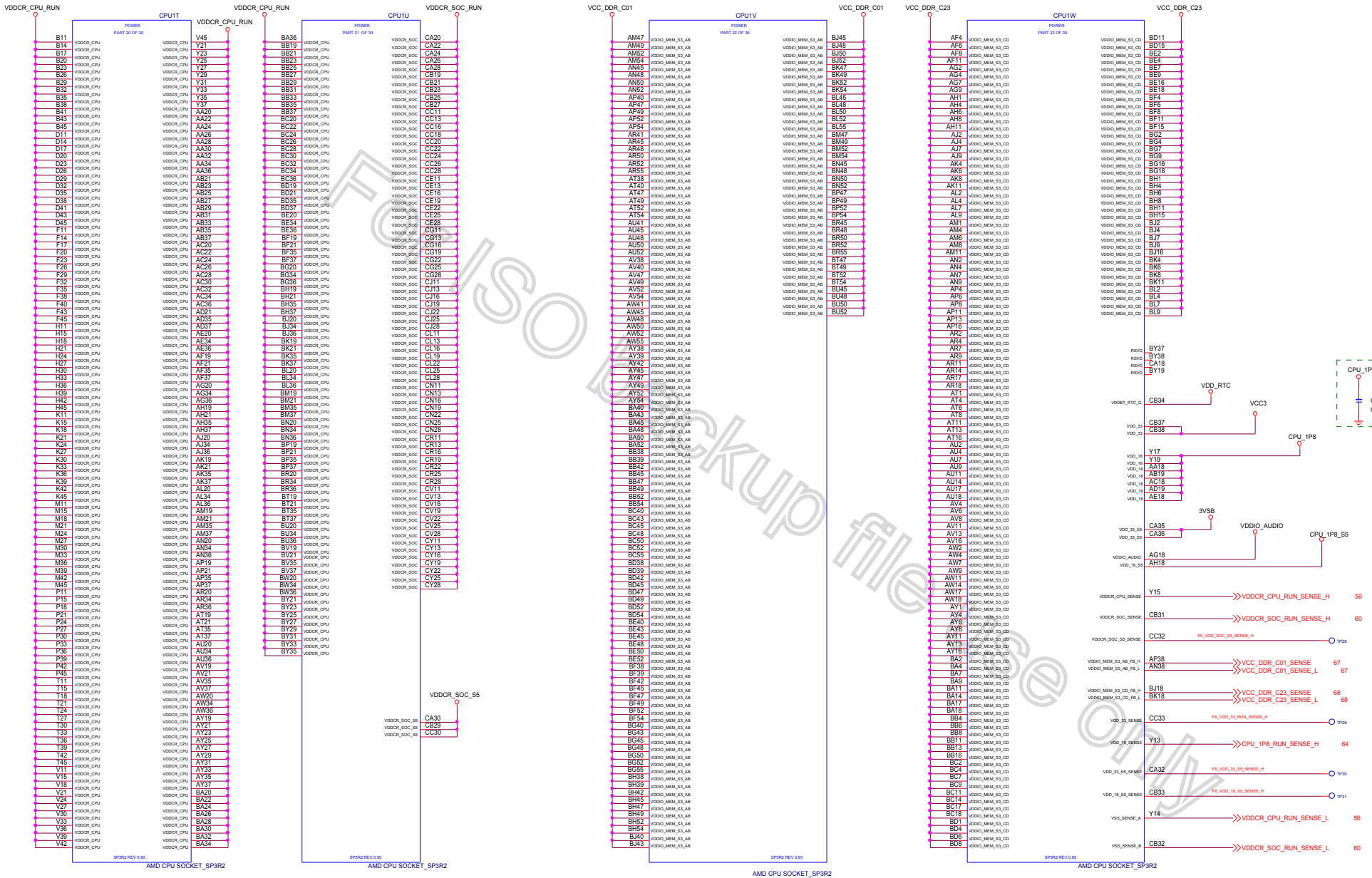
POWER



VDD: 180A(TDC)/240A(EDC);OC:200A(TDC)/264A(EDC)
VDDSOC: 60A(TDC)/80A(EDC)
VDDCR_SOC_S5: 2A(TDC/EDC)
VDDIO_MEM_AB: 15A(TDC/EDC)(CPU)+45A(TDC/EDC)(MEMORY)--EXCEPTED THIS INCLUDES OC
VDDIO_MEM_CD: 15A(TDC/EDC)(CPU)+45A(TDC/EDC)(MEMORY)--EXCEPTED THIS INCLUDES OC
VDD_1.8V: 3A(TDC)/3A(EDC)
VDD_1.8V_S5: 1A(TDC)/1A(EDC)

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Title	TR POWER	
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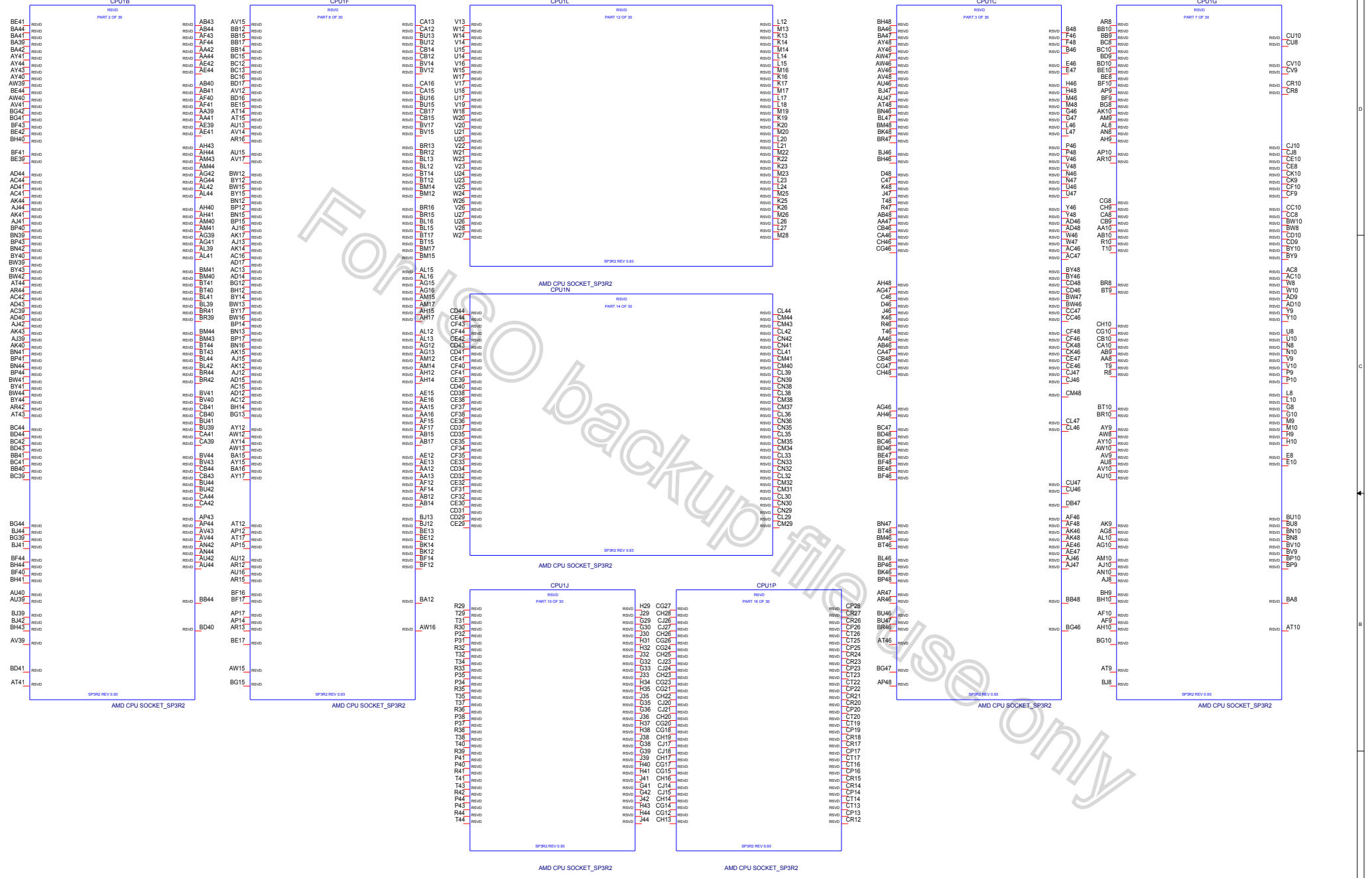

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Title: TR Reserved

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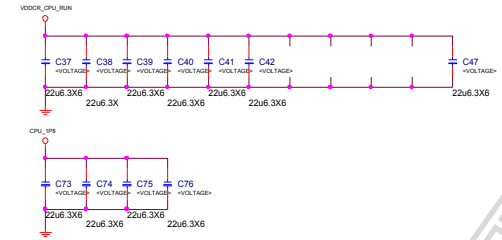
Decoupling Grouped by Placement Location

VDDCR_CPU Bottom Side Decoupling:

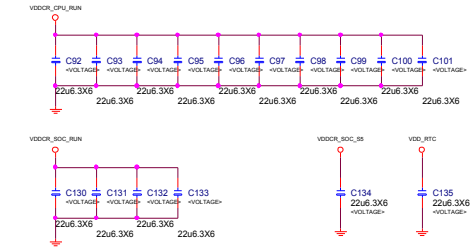
Bottom Side - Mirrored with Top Cavity - North

OEM Skt: 15; SLT Skt: 13



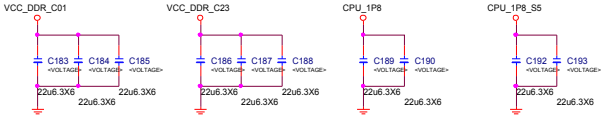
Bottom Side - Mirrored with Top Cavity - South

OEM Skt: 15; SLT Skt: 13



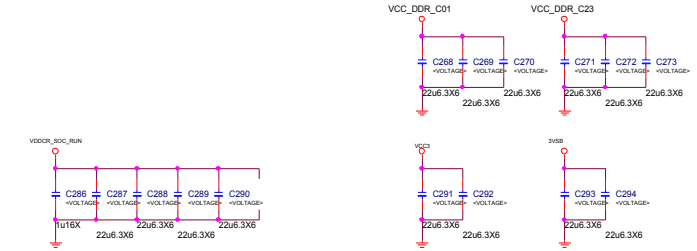
Bottom Side - North

OEM Skt: 24; SLT Skt: 24



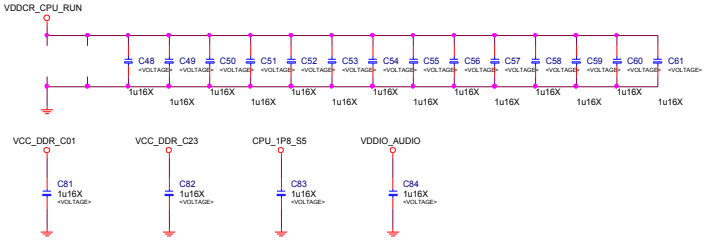
Bottom Side - South

OEM Skt: 24; SLT Skt: 24



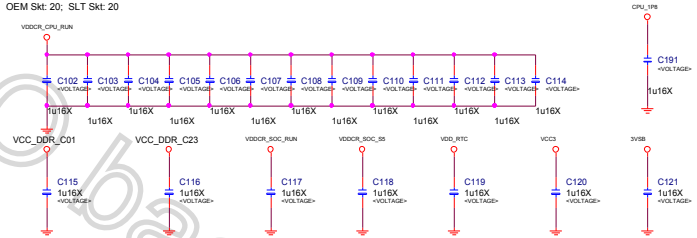
Bottom Side - North

OEM Skt: 20; SLT Skt: 20



Bottom Side - South

OEM Skt: 20; SLT Skt: 20



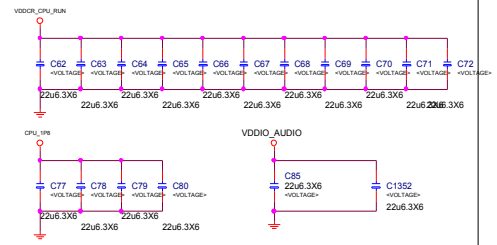
Bottom Side - In the socket split regions

OEM SKT ONLY; NOT AVAILABLE IN SLT; CAN BE USED FOR RESISTORS

Top Side Decoupling:

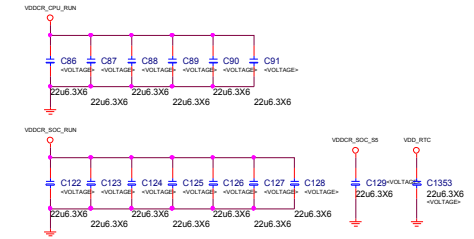
Top Cavity - North Decoupling

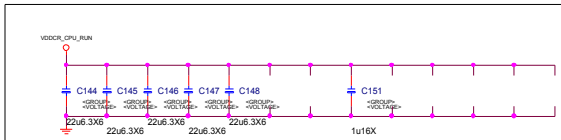
OEM Skt: 15; SLT Skt: 13



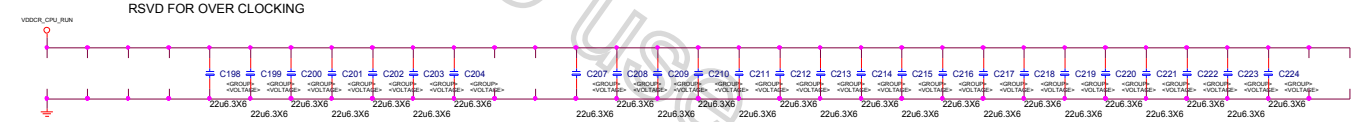
Top Cavity South Decoupling

OEM Skt: 15; SLT Skt: 13





RSVD FOR OVER CLOCKING



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Title	TR DECOUPLING Cap	
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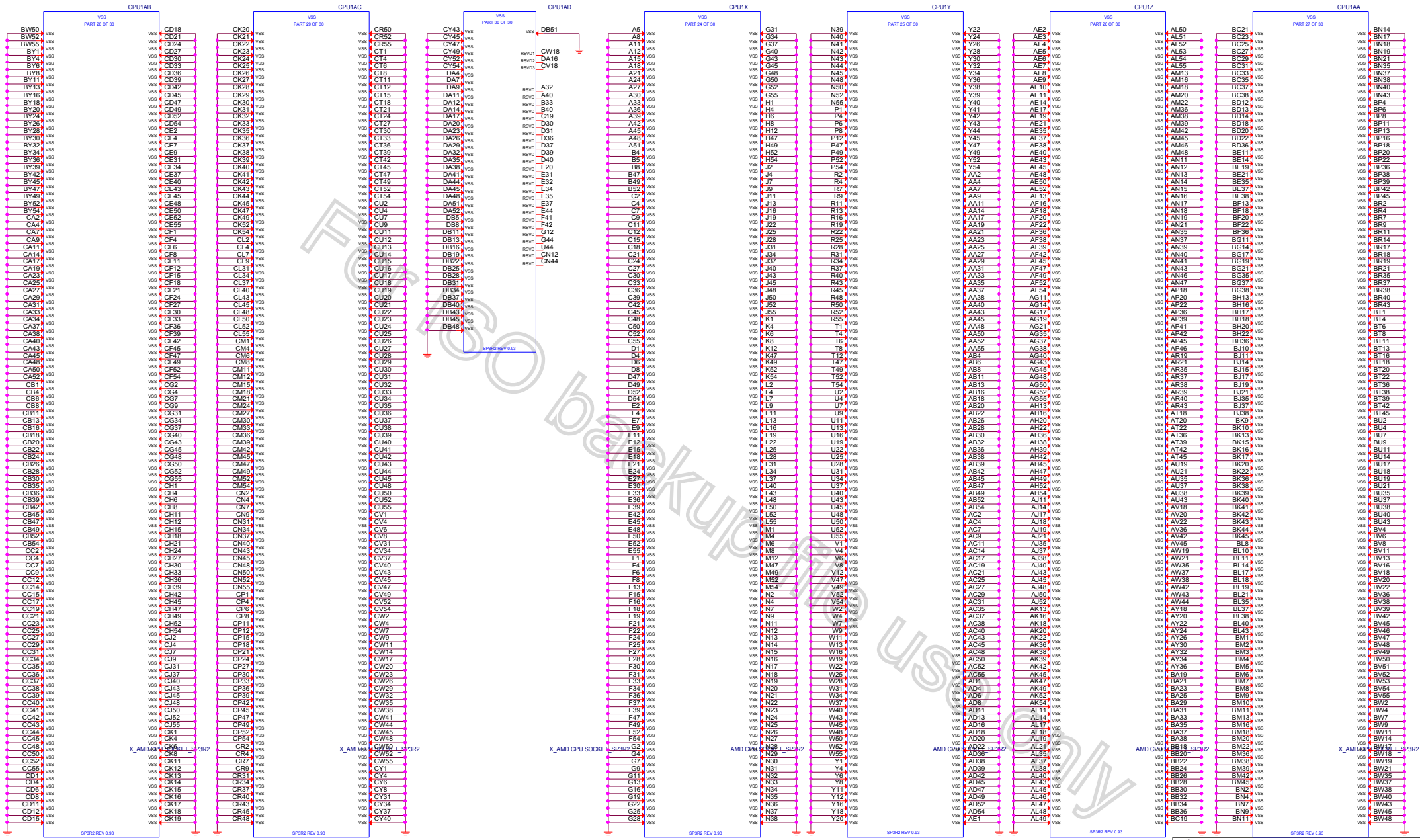

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Title	TR GND	
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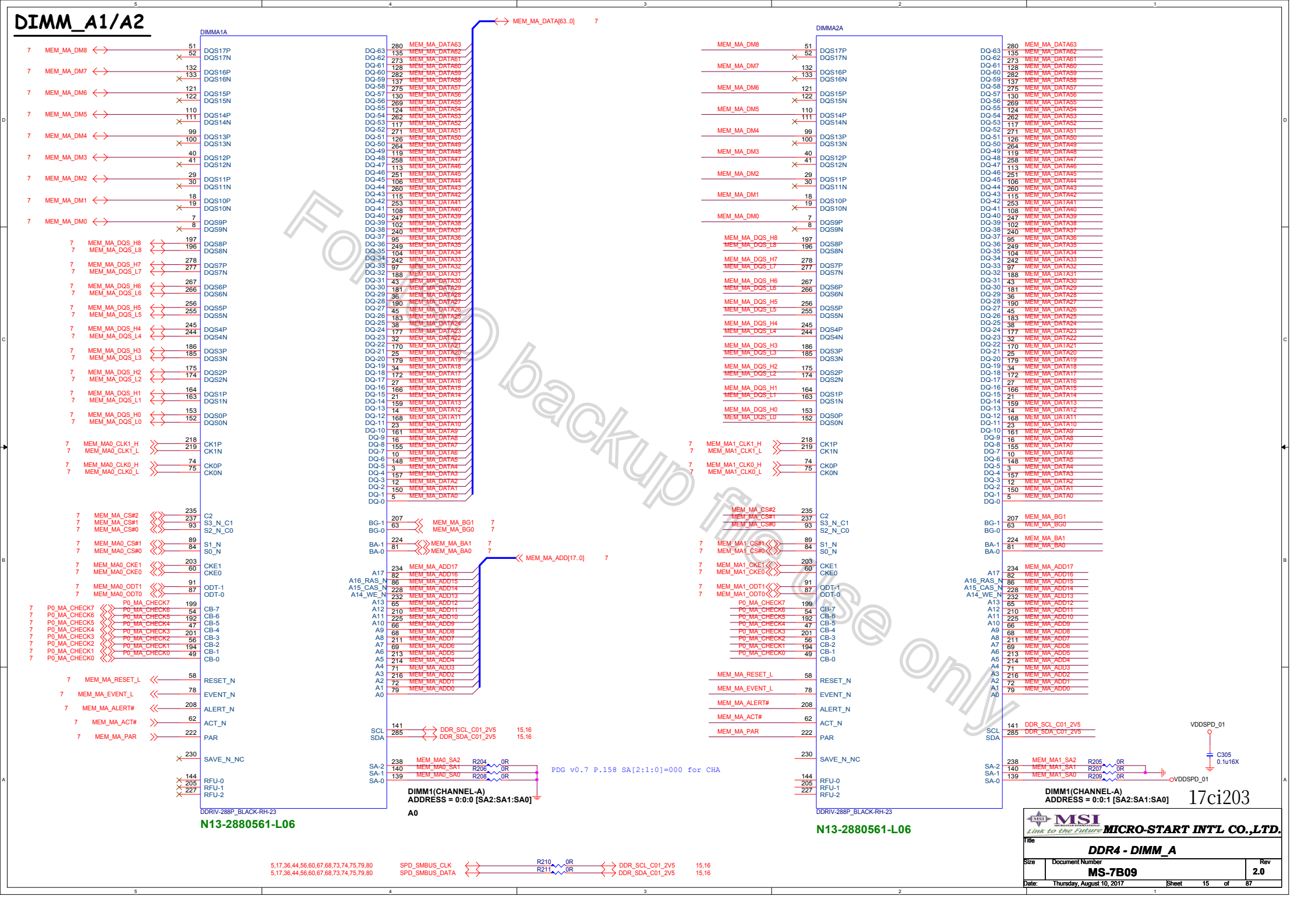
DIMM_A1/A2



N13-2880561-L06

N13-2880561-L06

17ci203

MICRO-START INT'L CO.,LTD.

Title	DDR4 - DIMM_A	
Size	Document Number: MS-7B09	Rev: 2.0
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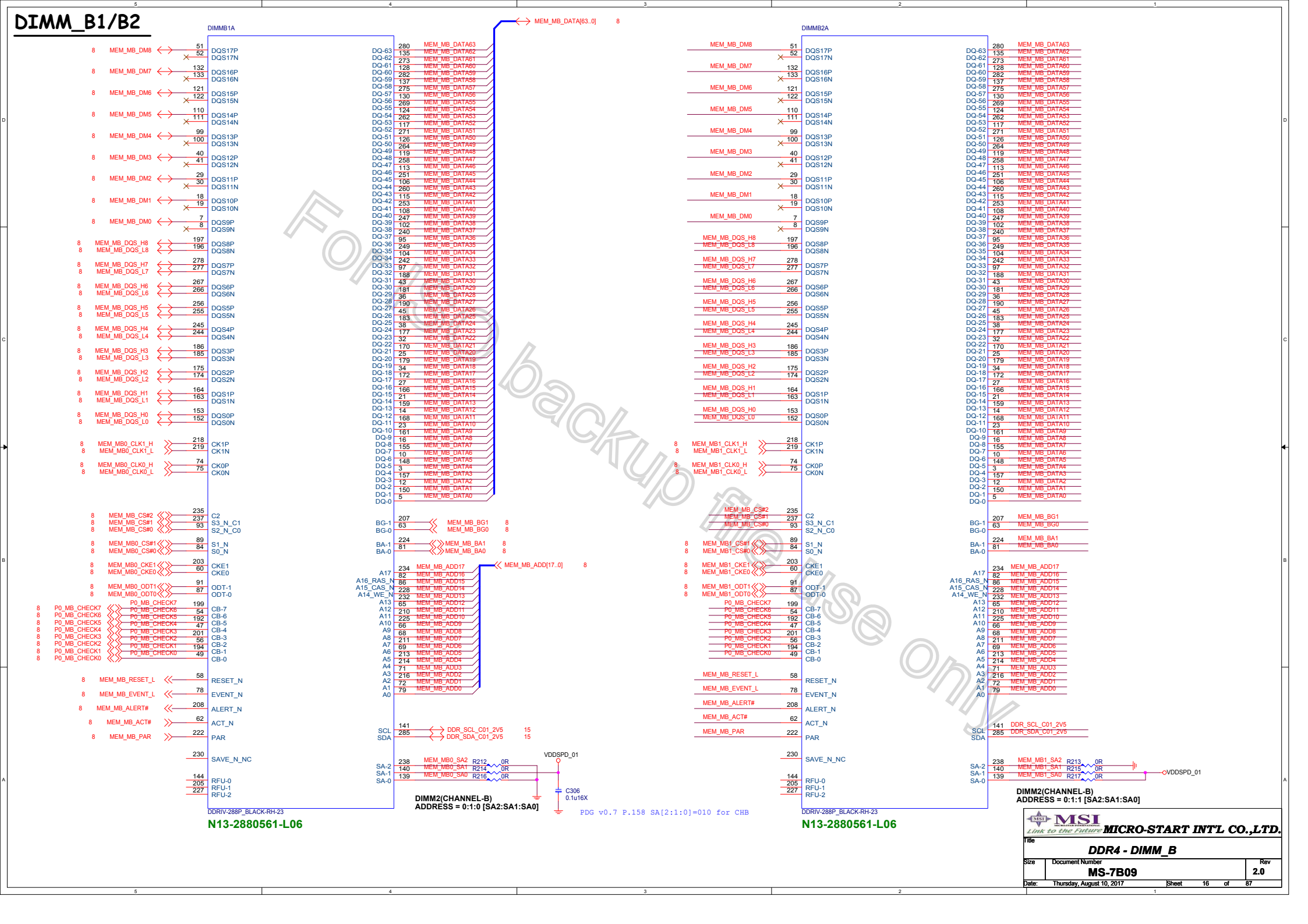
DIMM_B1/B2



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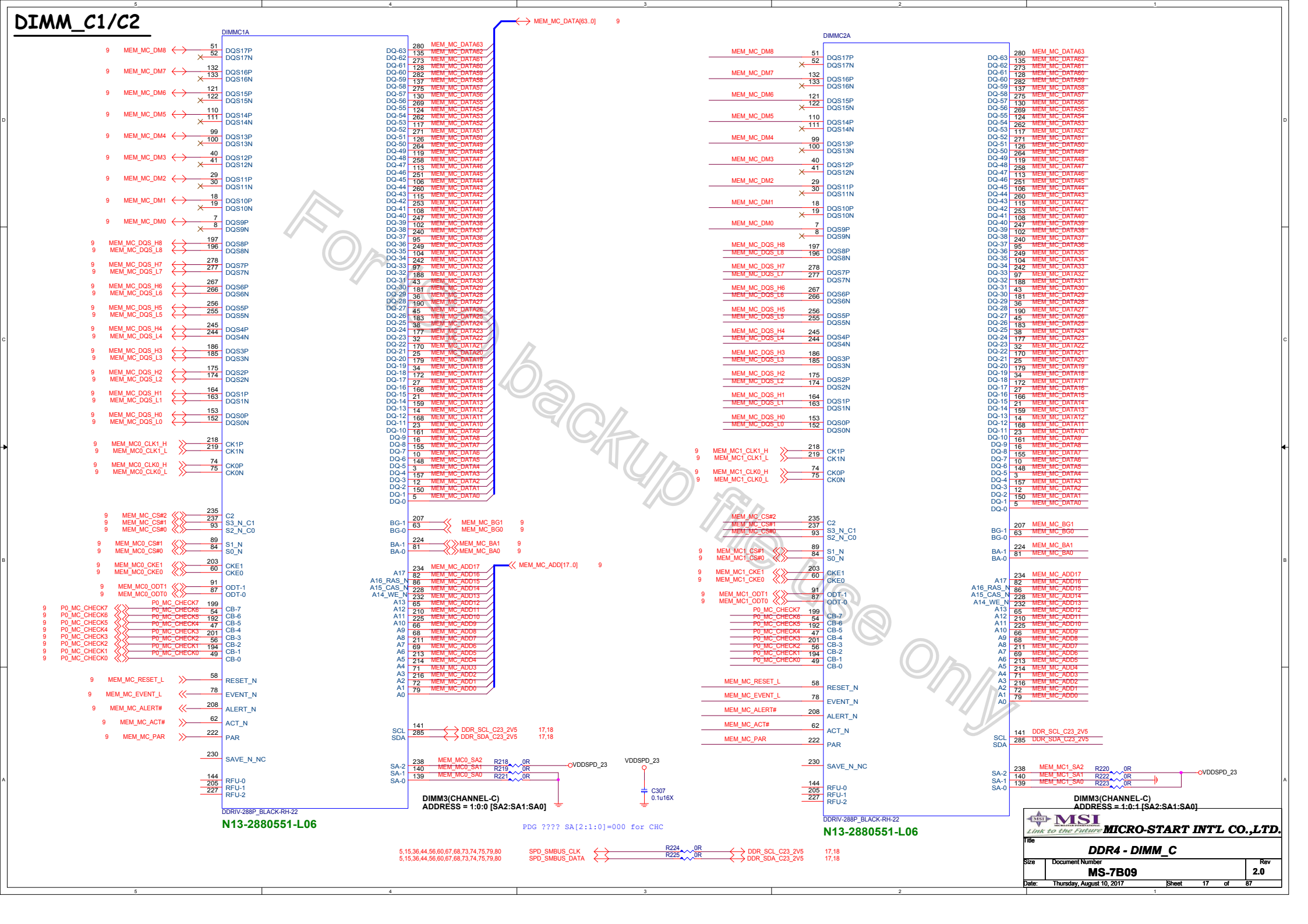
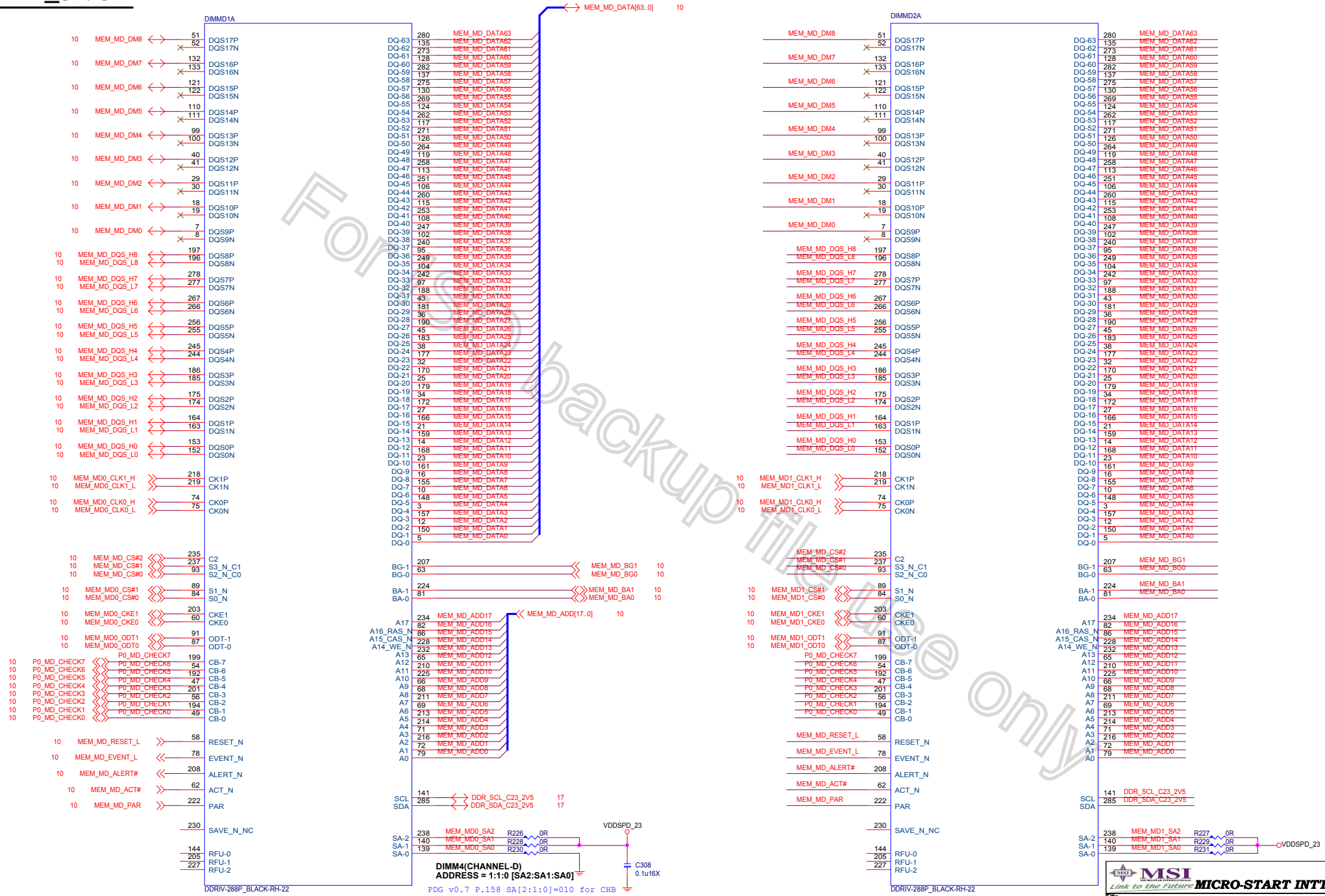
Title	DDR4 - DIMM_B	
Size	Document Number: MS-7B09	Rev: 2.0
Date: Thursday, August 10, 2017	Sheet 16 of 87	

DIMM_C1/C2



DIMM_D1/D2



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Title: DDR4 - DIMM_D

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

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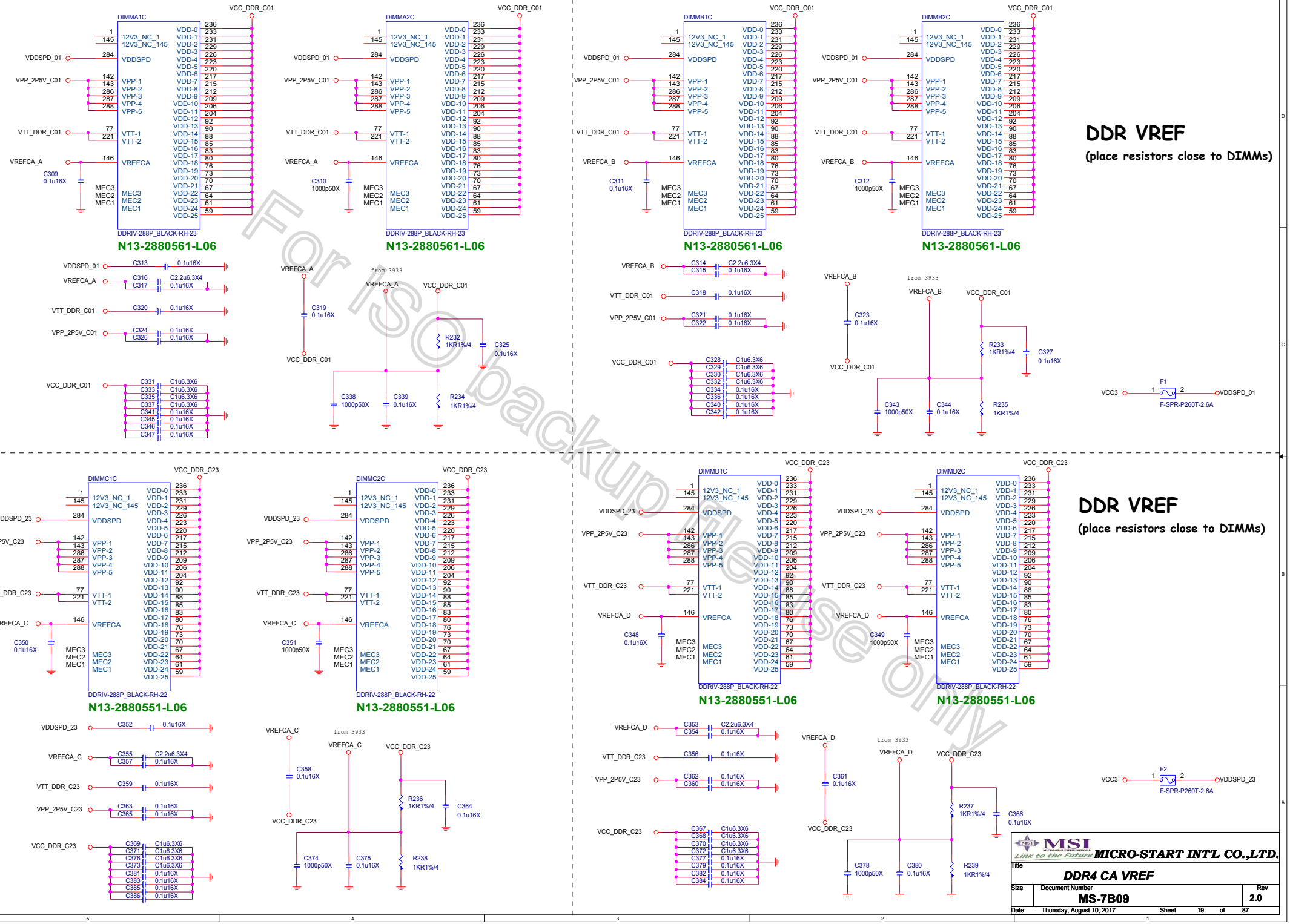

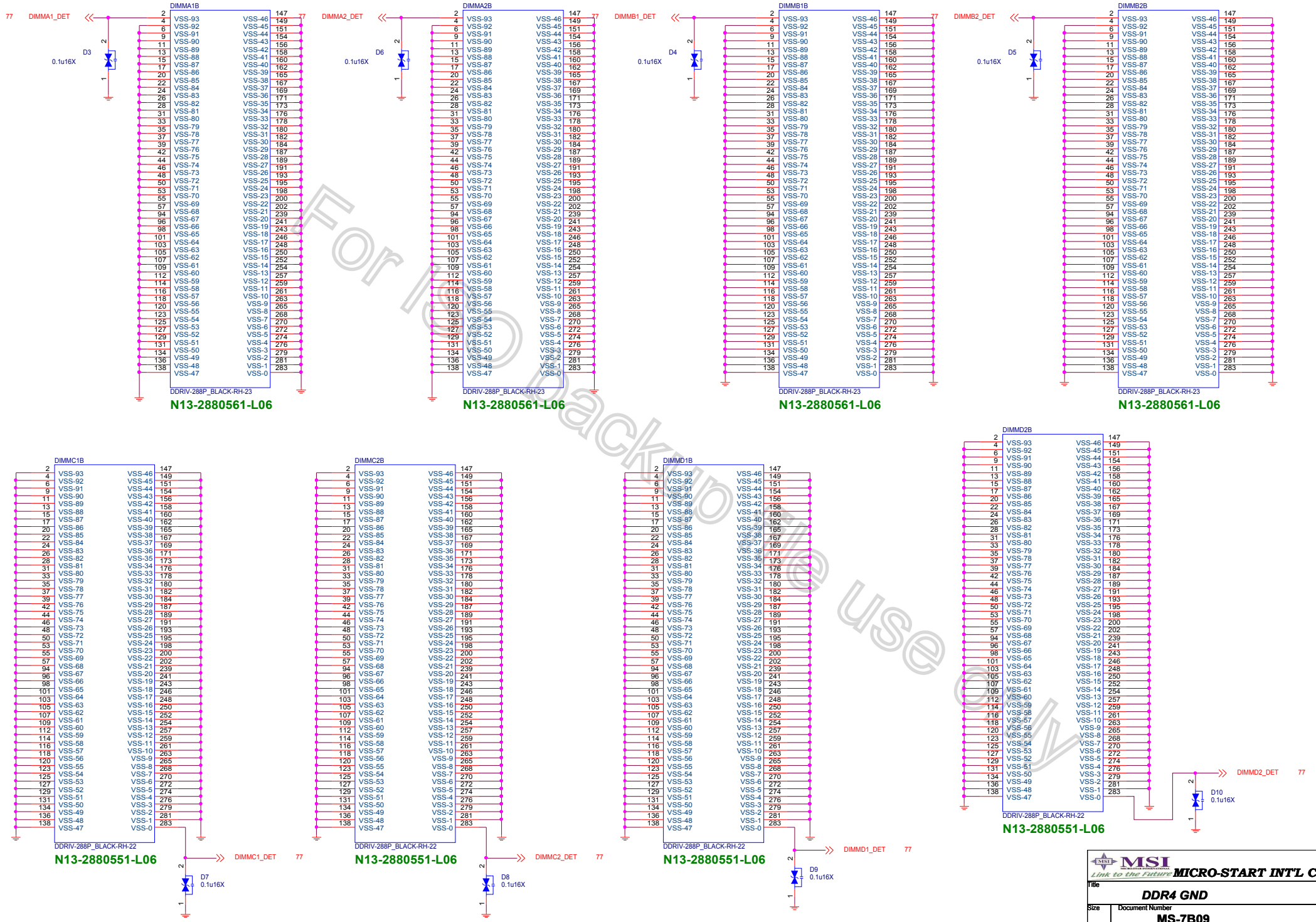

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Title	DDR4 GND	
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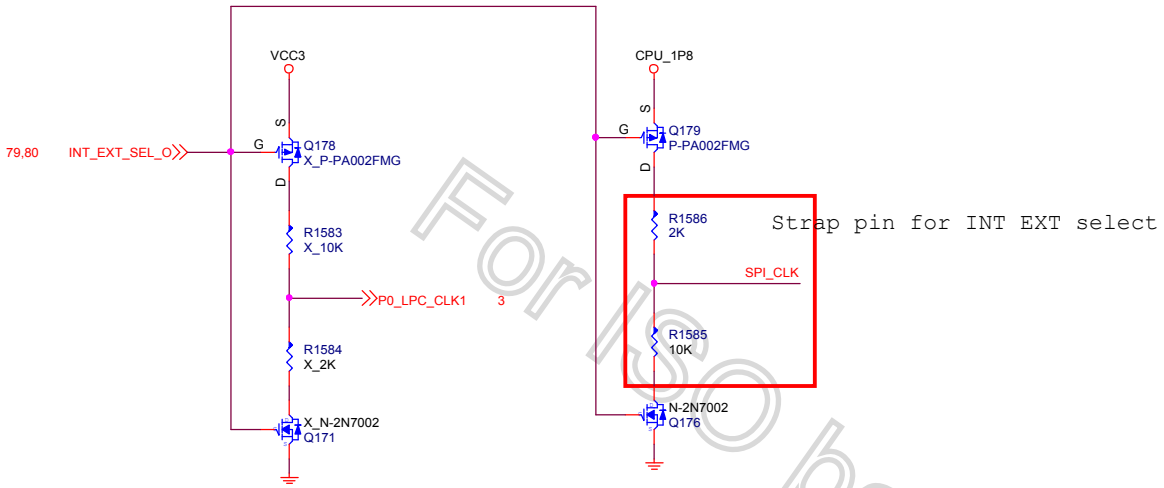
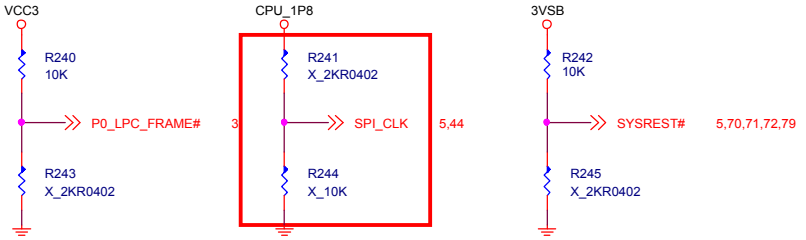


CPU STRAPS

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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Title: CPU STRAPS		
Size	Document Number: MS-7B09	Rev: 2.0
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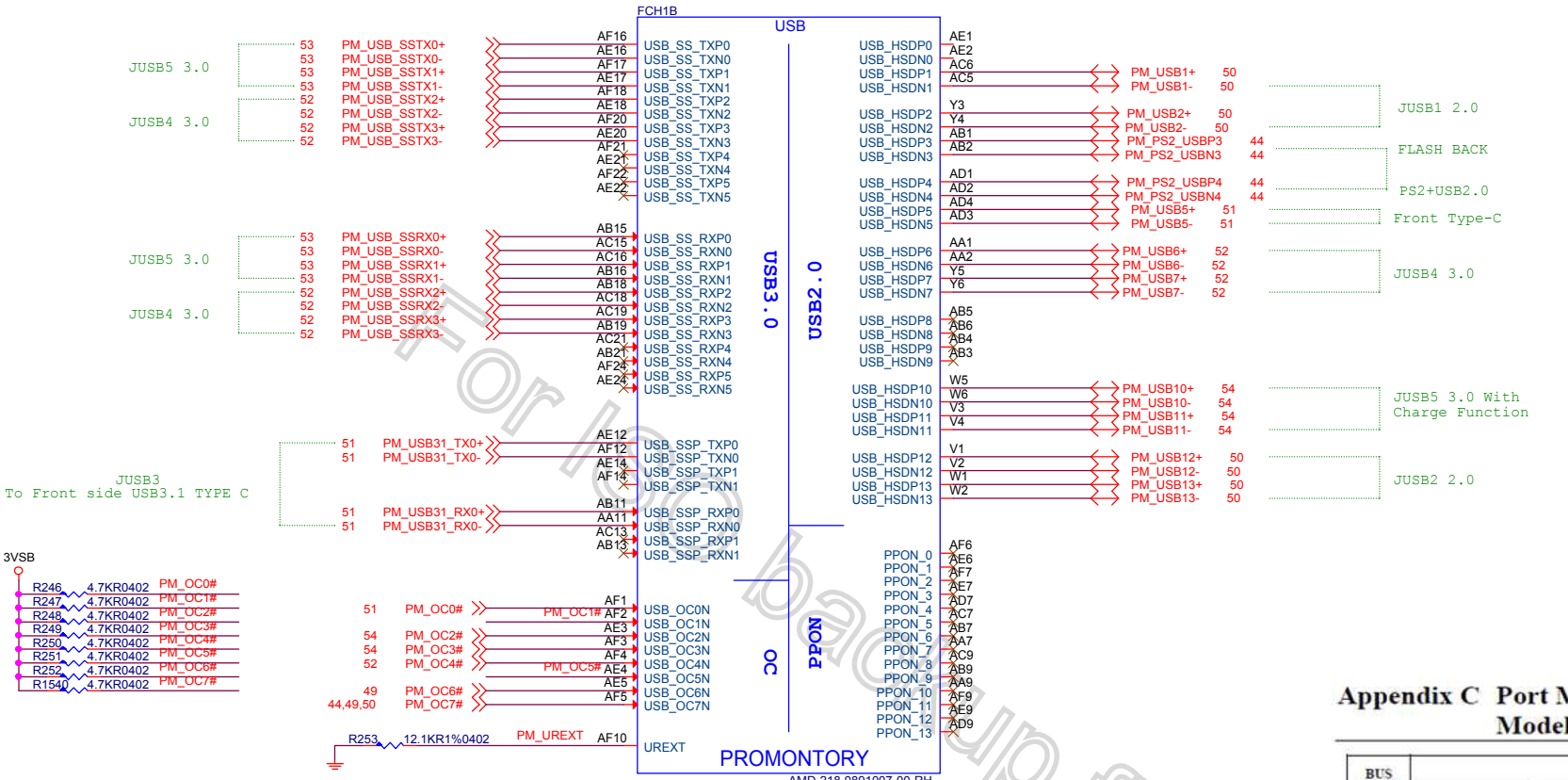

Appendix D USB Port to OC Pin Mapping

USB3.1	USB2.0	USB_OC
USB_SSP_TX/RXP/N[0]	USB_HSDP/N[5]	USB_OC0N
USB_SSP_TX/RXP/N[1]	USB_HSDP/N[0]	USB_OC1N
USB3.0	**USB2.0**	**USB_OC**
USB_SS_TX/RXP/N[0]	USB_HSDP/N[10]	USB_OC2N
USB_SS_TX/RXP/N[1]	USB_HSDP/N[11]	USB_OC3N
USB_SS_TX/RXP/N[2]	USB_HSDP/N[6]	USB_OC4N
USB_SS_TX/RXP/N[3]	USB_HSDP/N[7]	USB_OC5N
USB_SS_TX/RXP/N[4]	USB_HSDP/N[8]	USB_OC6N
USB_SS_TX/RXP/N[5]	USB_HSDP/N[9]	USB_OC7N
	USB_HSDP/N[1]	USB_OC7N
	USB_HSDP/N[2]	USB_OC7N
	USB_HSDP/N[3]	USB_OC7N
	USB_HSDP/N[4]	USB_OC7N
	USB_HSDP/N[12]	USB_OC7N
	USB_HSDP/N[13]	USB_OC7N

Appendix C Port Mapping for Different Bus Models

BUS Model	USB			
	3.1 Gen2 10 Gbps	3.1 Gen1 5 Gbps	2.0	Debug Port
PROM4	USB_SSP Port0~1	USB_SS Port 0~3	USB_HSD Port0~13	USB_SSP Port0
PROM2	USB_SSP Port0~1	USB_SS Port 0~1	USB_HSD Port0~5 USB_HSD Port10~13	USB_SSP Port0
PROM1	USB_SSP Port0	USB_SS Port0 USB_SSP Port1	USB_HSD Port0~5 USB_HSD Port10, 12~13	USB_SSP Port0

BUS Model	SATA 3.0	SATA Express	PCI Express® Gen2 GPP	PCI Express® CLK
PROM4	SATA port0~3	SATAE port0~3	GPP lane0~7	CLK0~7
PROM2	SATA port0~1	SATAE port0~1	GPP lane0~1 GPP lane4~7	CLK0~1 CLK4~7
PROM1	SATA port0~1	SATAE port0~1	GPP lane4~7	CLK4~7

CLK2.3不能用
CLK1-3不能用

MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future

Title	Promontory USB	
Size	Document Number MS-7B09	Rev 2.0
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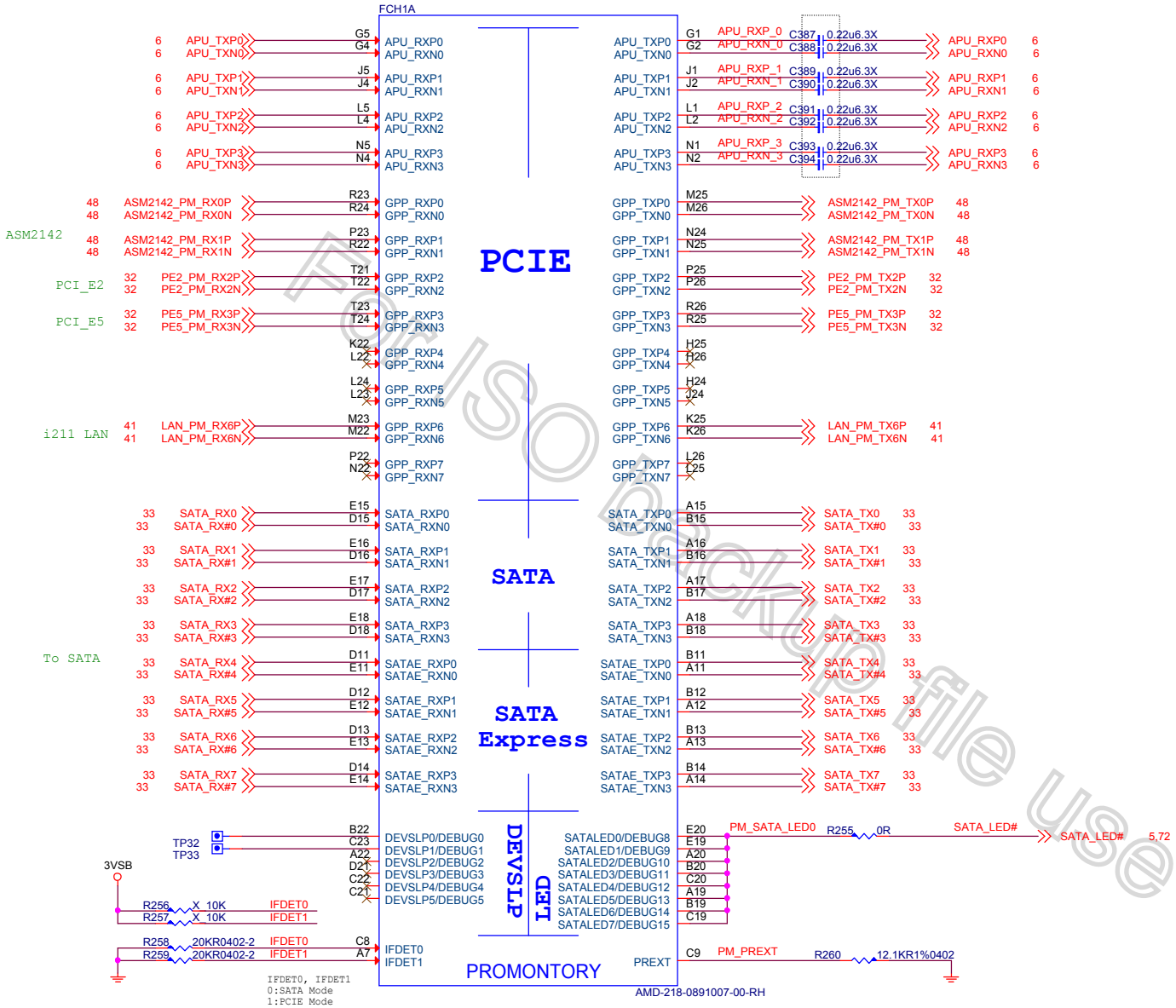

SATA port	DEVSLP signal
SATA_TX/RXP/N[0]	DEVSLP0
SATA_TX/RXP/N[1]	DEVSLP1
SATA_TX/RXP/N[2]	DEVSLP2
SATA_TX/RXP/N[3]	DEVSLP3
SATAE_TX/RXP/N[0]	SATAE_CLKREQ0N
SATAE_TX/RXP/N[1]	DEVSLP4
SATAE_TX/RXP/N[2]	SATAE_CLKREQ1N
SATAE_TX/RXP/N[3]	DEVSLP5

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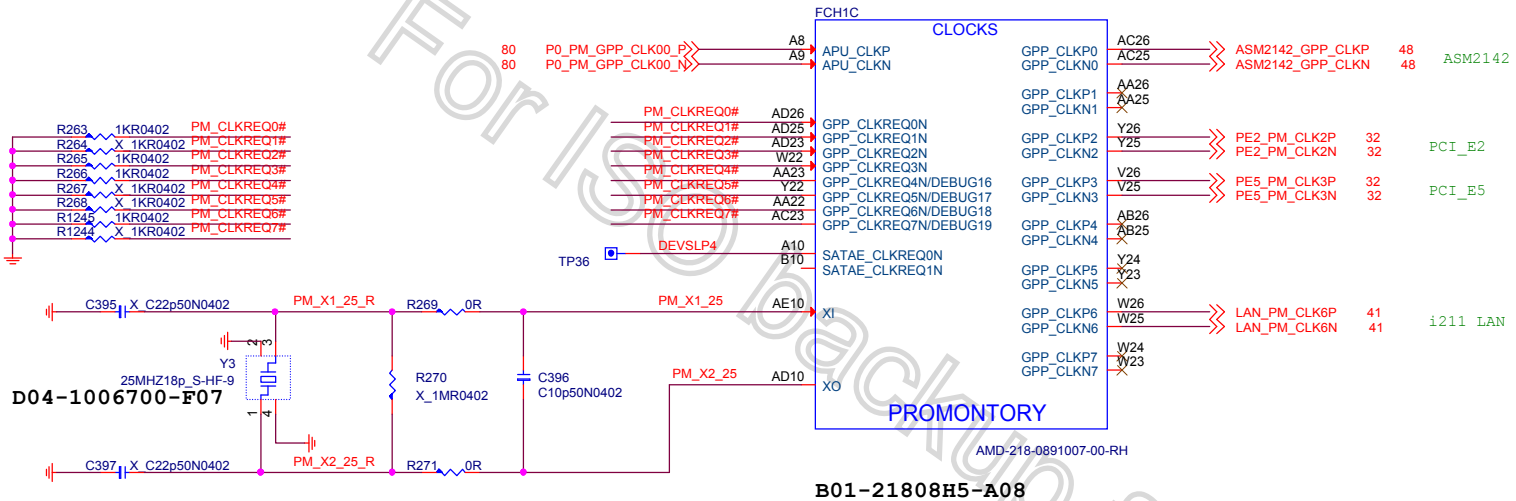
Link to the Future

Title: Promontory PCIE/SATA

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

Date: Thursday, August 10, 2017 | Sheet 23 of 87



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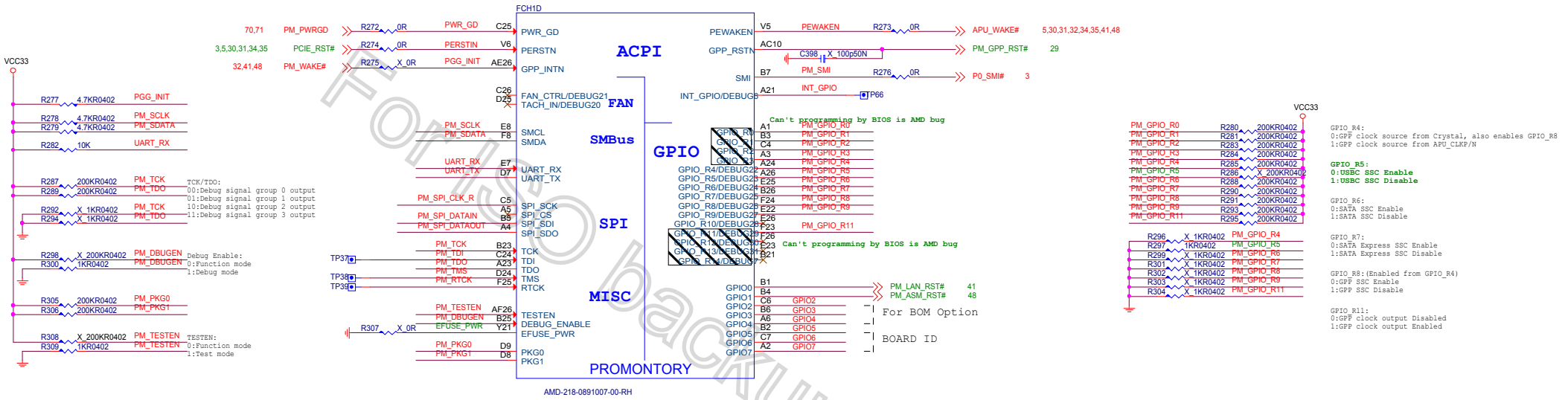
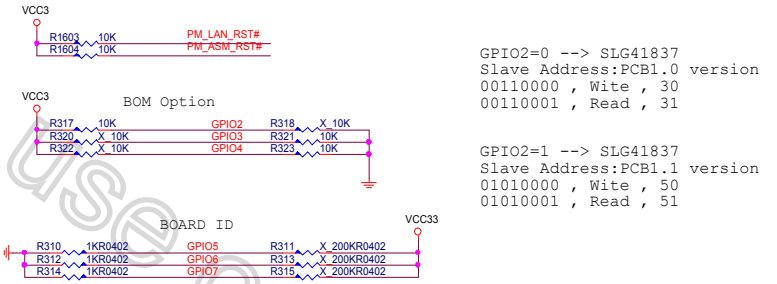
Link to the Future

Title	Promontory CLOCK	
Size	Document Number MS-7B09	Rev 2.0
Date: Thursday, August 10, 2017	Sheet 24 of 87	





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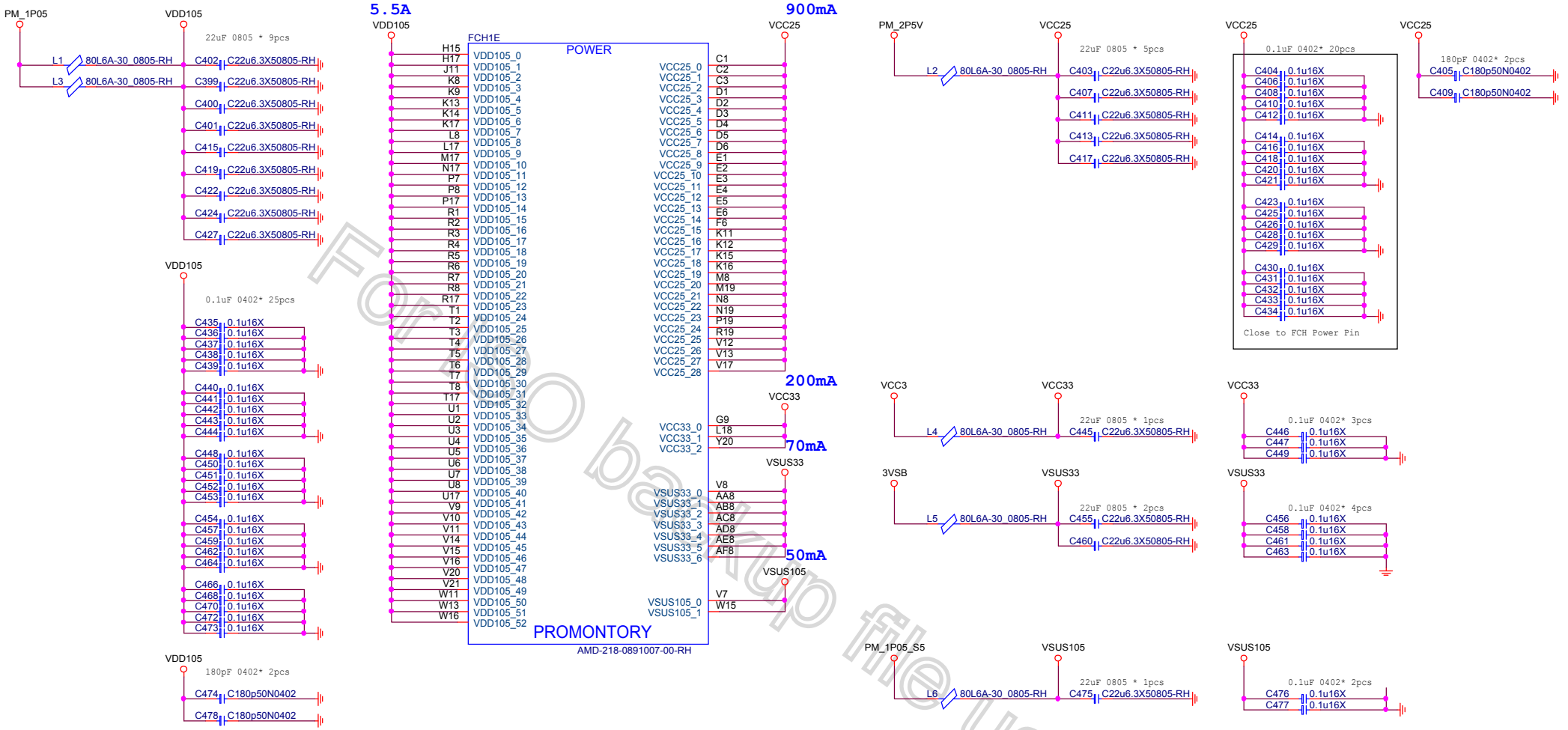
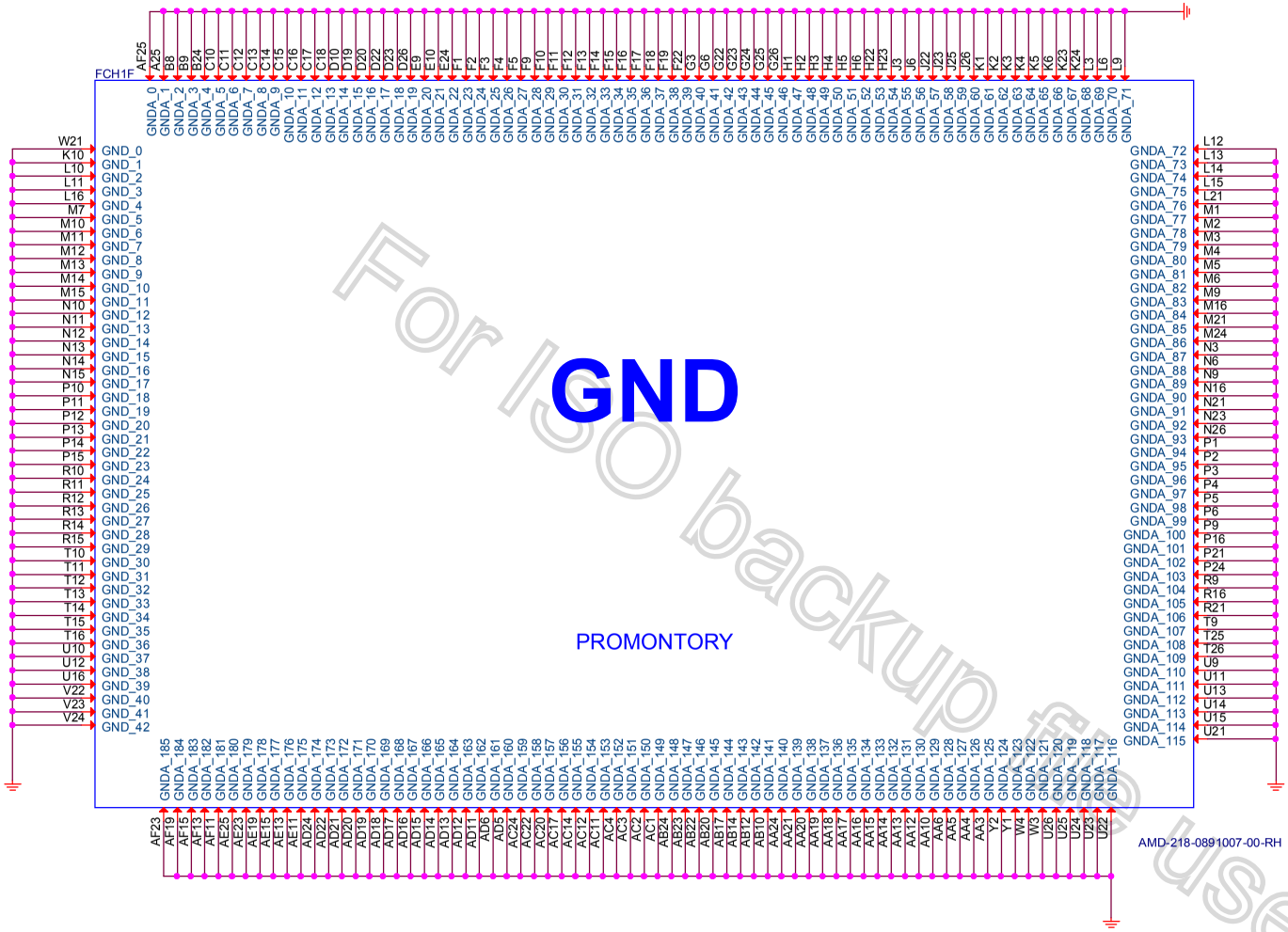
Title	Promontory GPIO/SMB/SPI	
Size	Document Number MS-7B09	Rev 2.0
Date: Thursday, August 10, 2017	Sheet 25 of 87	



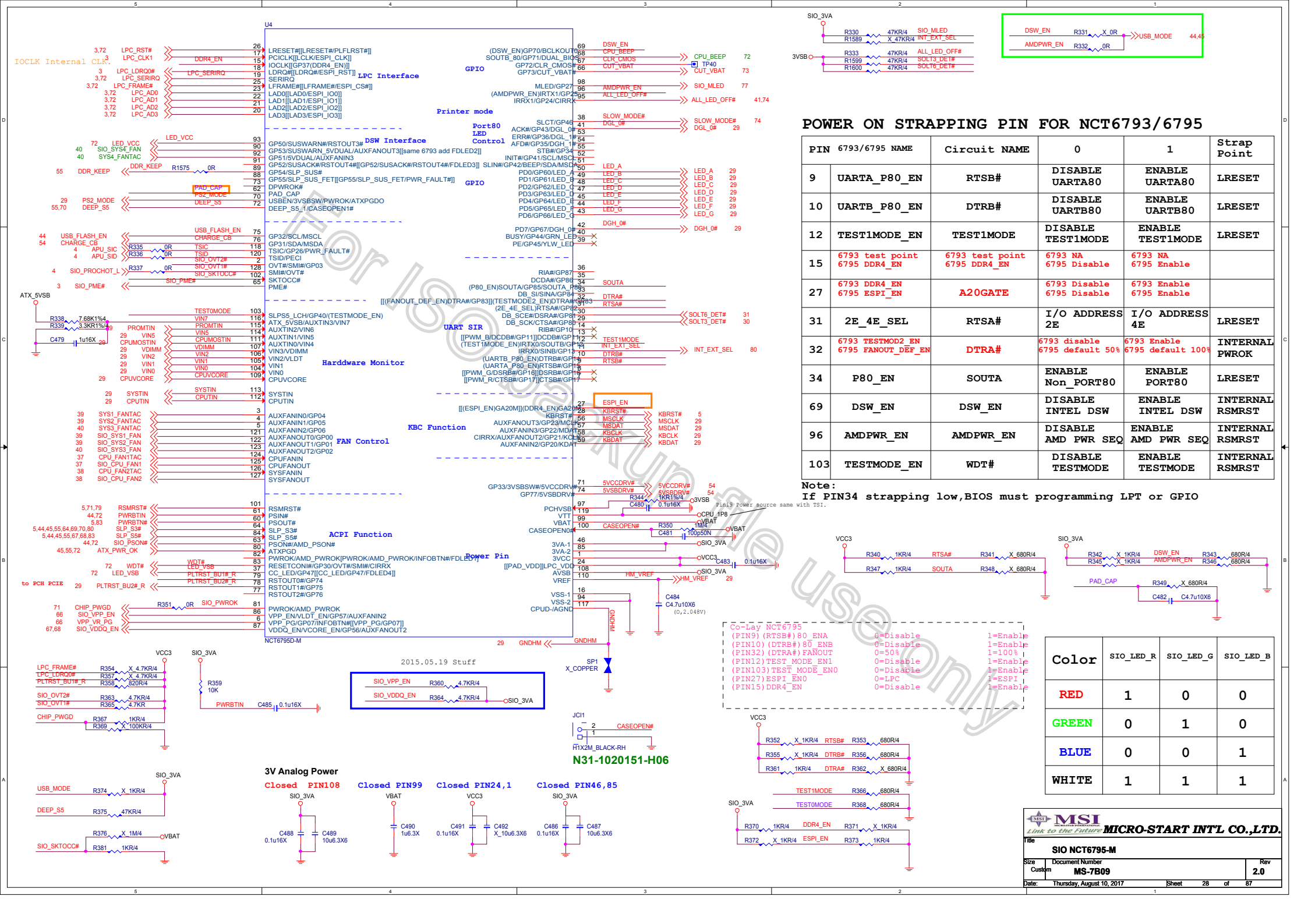
MSI Link to the Future	MICRO-START INT'L CO.,LTD.		
Title	Promontory POWER		
Size	Document Number MS-7B09		Rev 2.0
Date: Thursday, August 10, 2017	Sheet 26 of 87		



MSI MICRO-STAR INTL CO.,LTD.

Link to the Future

Title	Promontory GND	
Size	Document Number: MS-7B09	Rev: 2.0
Date: Thursday, August 10, 2017	Sheet 27 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

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

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Link to the Future

Title	SIO NCT6795-M	
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HW Monitor - Voltage

SIO HM Voltage over 2.048V will not detect

VDDCR_CPU_RUN — R386 10K/1% — CPUVCORE 28

VCORE: R388 X_10KR1%/4, C494 10u6.3X6

+12V — R384 220K/1%/4 — VIN0 — VIN0 28

R389 20KR1%/4, C495 0.1u16X

VCC5 — R387 12K/1%/4 — VIN1 — VIN1 28

R390 3K/1%/4, C496 0.1u16X

Power Fault detect through VIN0,VIN1

VDDCR_SOC_RUN — R395 10K/1% — VIN2 — VIN2 28

VDDCR_SOC: R398 X_10KR1%/4, C501 10u6.3X6

VCC_DDR_C01 — R396 10K/1% — VDIMM — VDIMM 28

R399 10K/1%, C503 10u6.3X6

VCC_DDR_C23 — R397 10K/1% — VIN5 — VIN5 28

R1241 10K/1%, C502 10u6.3X6

TEMP SENSOR

For CPU: HM_VREF — HM_VREF 28,29

R402 10K/1%

CPUTIN — CPUTIN 28

RT1 10KRT1%0402, C510 C2200p50X

GNDHM — GNDHM 28

For System

Q3 P-3906 (E, B, C)

SYSTIN — SYSTIN

C509 C2200p50X

GNDHM

For CPU: HM_VREF — HM_VREF 28,29

R403 10K/1%

2016/05/24 Add

CPUMOSTIN — CPUMOSTIN 28

RT2 10KRT1%0402, C511 C2200p50X

GNDHM

Close to CPU MOS

For PROM: HM_VREF — HM_VREF 28,29

R404 10K/1%

2016/11/03 Add

PROMTIN — PROMTIN 28

RT3 10KRT1%0402, C512 C2200p50X

GNDHM

Place to under Promontory

DEBUG LED

Placement Placement

POST4 POST3 POST2 POST1

28 LED_A … LED_G

Placement一定要對

(DGH1=Post4/DGL1=Post3/DGH0=Post2/DGL0=Post1)

Debug LED OFF BIOS control

RN2 8P4R-220R0402

LED_C LED_A LED_B LED_G — H0_LED_C H0_LED_A H0_LED_B H0_LED_G

LED_D LED_E LED_F — H0_LED_D H0_LED_E H0_LED_F

RN3 8P4R-220R0402

POST1 (a b c d e f g)

H0_LED_A … H0_LED_G

L_DGH_0# L_DGL_0#

DIGH# DIGL#

LED06-R-7SEGX2-RH-2

D0C-0603001-L05

SIO_3VA — R415 X_10K — DGH_0# — R417 0R — L_DGH_0#

28 DGH_0#

SIO_3VA — R414 X_10K — DGL_0# — R416 0R — L_DGL_0#

28 DGL_0#

COM PORT

PS2_VCC

PS2 Connect

RN1 8P4R-4.7K

C493 0.1u16X

R385 X_1KR/4

28 KBDAT, MSDAT, KBCLK, MSCLK

R391 33R/4 KBD

R392 33R/4 MSD

R393 33R/4 KBC

R394 33R/4 MSC

PS2_USB1A

C497 C180P50N

C498 C180P50N

C499 C180P50N

C500 C180P50N

MINIDIN_USBX2-RH-1

N58-14M0221-H06

Main:D0G-05A0529-A68

AVL:D0G-45B0510-I14

28

D11

MSC 6 — 4 KBC

MSD 1 — 3 KBD

ESD-AOZ8906C

VCC5 — ATX_5VSB

1u6.3X C504, C505 1u6.3X

44 5VDRV2_EN

45 5VDRV2 — R400 200KR1%/4 — 5VDRV2_EN

R401 56KR1%0402

28 PS2_MODE

R405 10K/1%

U5 UP7550PMA8_SOT23-8

S3#, OC#, EN, GND, 5VCC, 5VSB, VOUT1, VOUT2

C506 22u6.3X6, C507 X_0.1u16X, C508 0.1u16X

PS2_VCC

RESET

28 PLTRST_BU2#_R — PLTRST_BU2#_R — R408 X_22R1%/4 — PLTRST_BU2#

R406 100R1%4 PLTRST_BU2#_PCIE2 32

R407 100R1%4 PLTRST_BU2#_PCIE5 32

R409 100R1%4 PLTRST_BU2#_LAN 41

R410 100R1%4 PLTRST_BU2#_ASM1142 48

25 PM_GPP_RST# — PM_GPP_RST# — R411 0R — PLTRST_BU2#

Co-lay FCH Reset for meet FCH sequence. See 55553.

SIO_3VA

ATX_5VSB

C513 1u6.3X

U6 GS7116S5 (VDD, VOUT, EN, GND, ADJ)

EN:VIH1.6V

C514 0.1u16X

R412 10K/1%

C515 10u6.3X6

3VA_FB

R413 3.16K/1%

SIO_3VA

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Link to the Future

Title	HWM/PS2/Debug LED	
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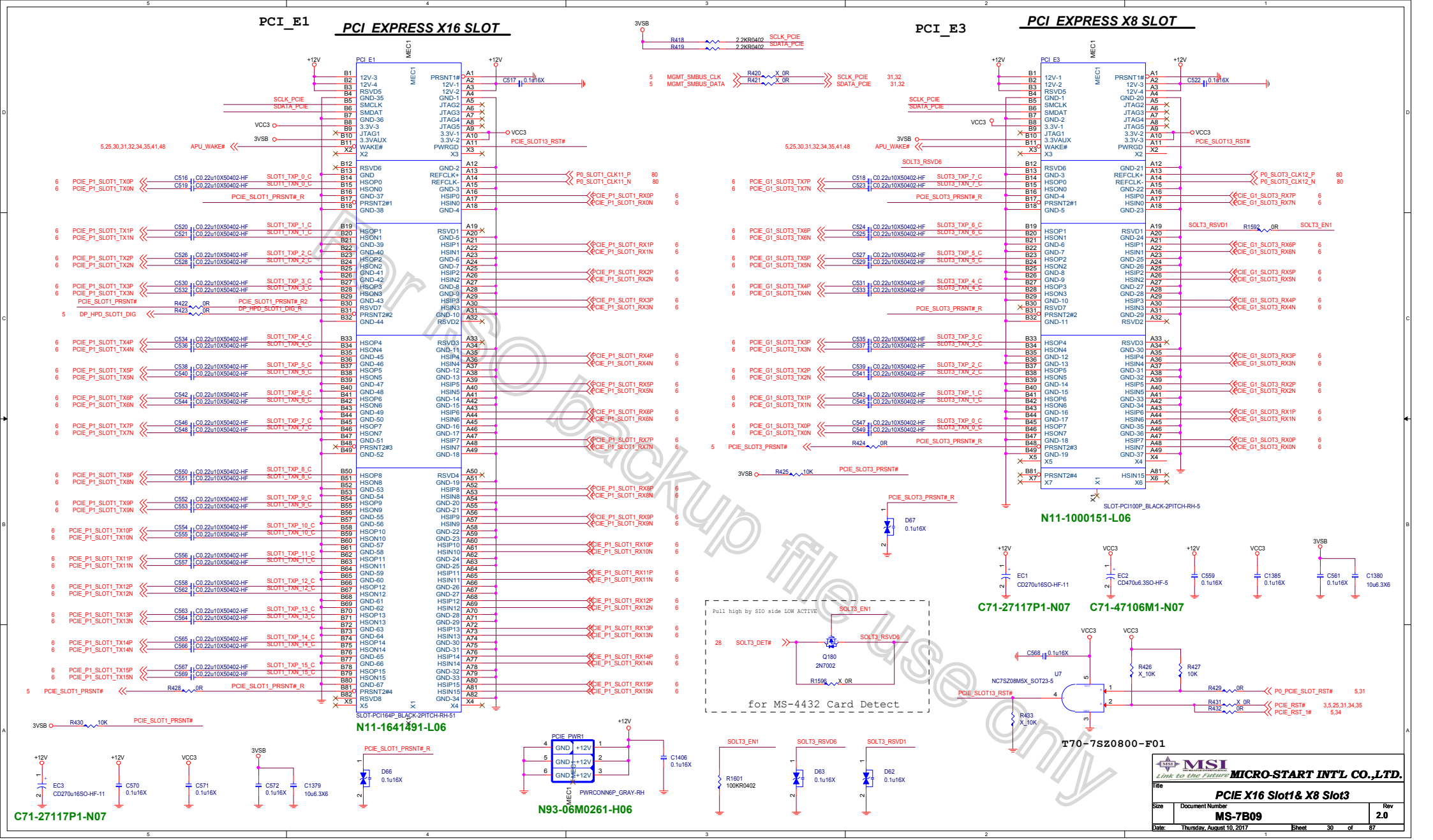
PCI_E1
PCI EXPRESS X16 SLOT
PCI_E3
PCI EXPRESS X8 SLOT
N11-1641491-L06
N11-1000151-L06
C71-27117P1-N07
C71-47106M1-N07
N93-06M0261-H06
T70-7SZ0800-F01
for MS-4432 Card Detect
MICRO-START INT'L CO.,LTD.
PCIE X16 Slot1& X8 Slot3
MS-7B09
2.0
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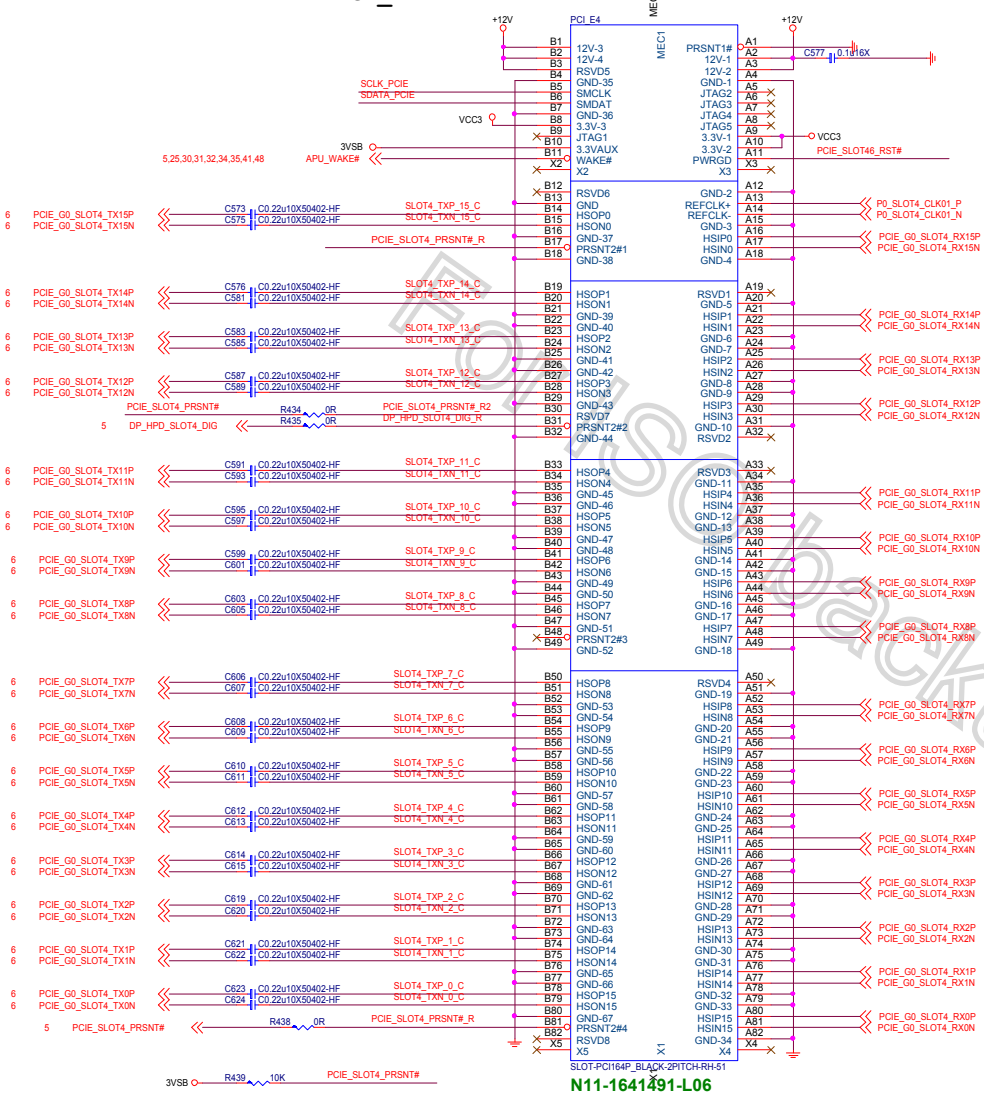
For BIOS backup file use only

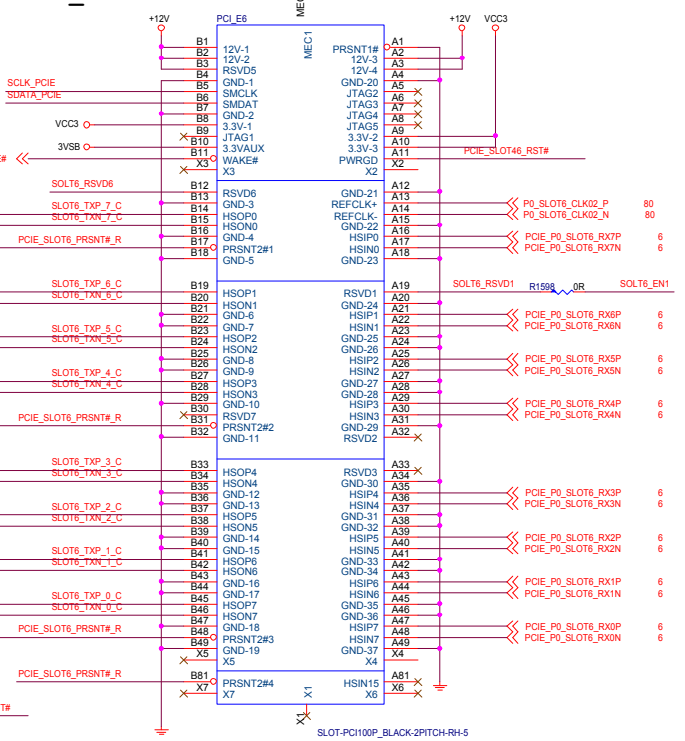
PCI EXPRESS X16 SLOT

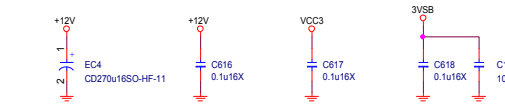
PCI_E4

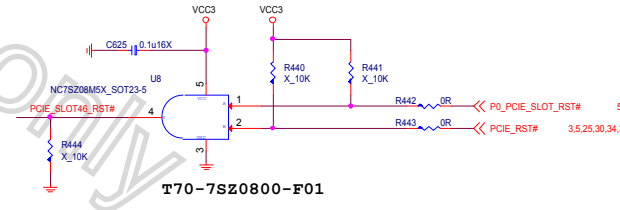


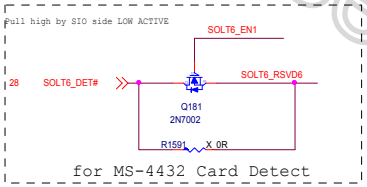
PCI EXPRESS X8 SLOT

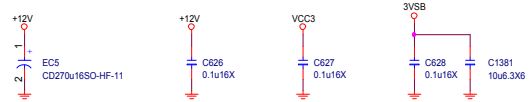
PCI_E6

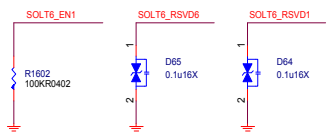












MSI Link to the Future	MICRO-START INT'L CO.,LTD.	
Title	PCIE X16 Slot4 & X8 Slot6	
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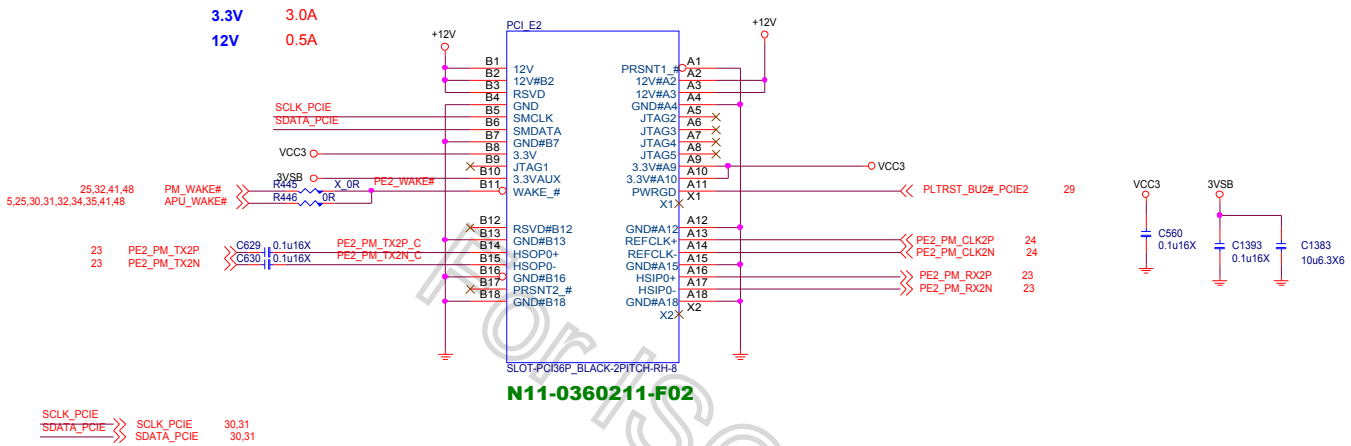
PCIEX1 12V 0.5A
3.3V weak 375mA

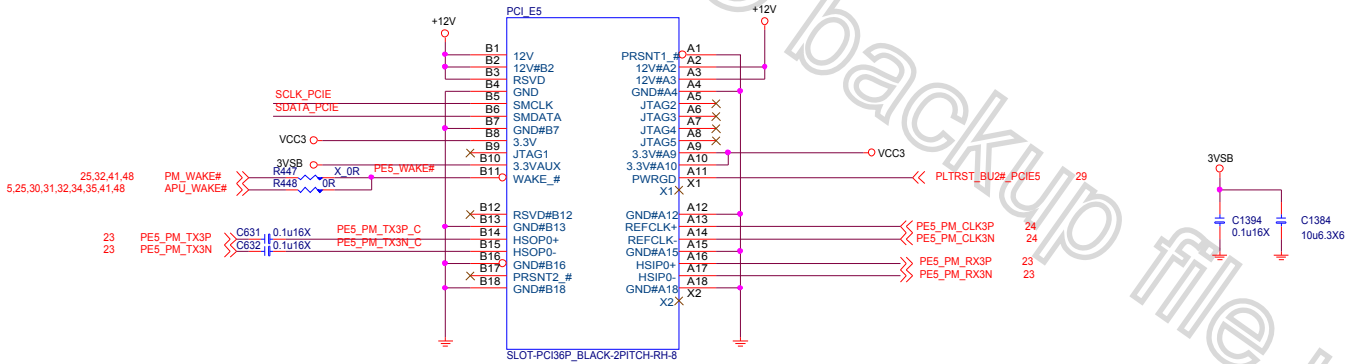
PCI_E2



N11-0360211-F02

SCLK_PCIE
SDATA_PCIE
SCLK_PCIE 30,31
SDATA_PCIE 30,31

PCI_E5



N11-0360211-F02

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

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Link to the Future

Title: PCIE X1 & SLOT2&5		
Size: Custom	Document Number: MS-7B09	Rev: 2.0
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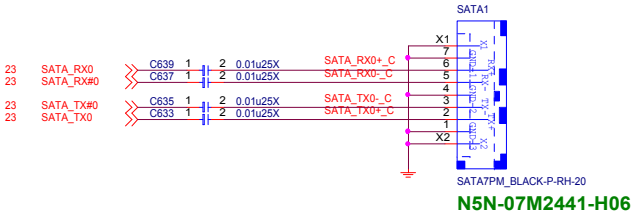
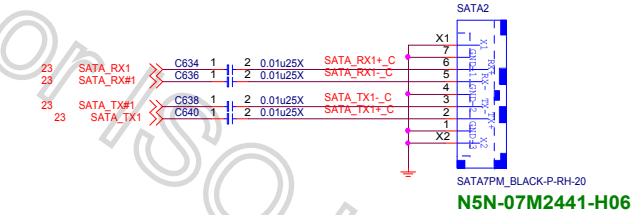
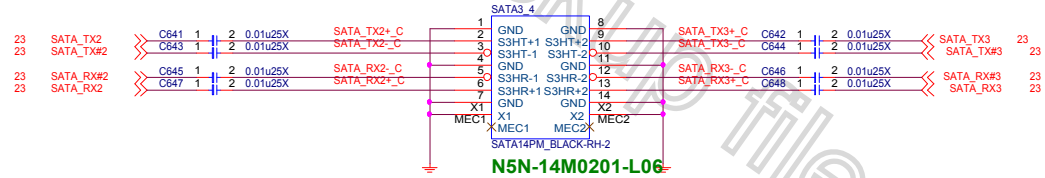
SATA Connector



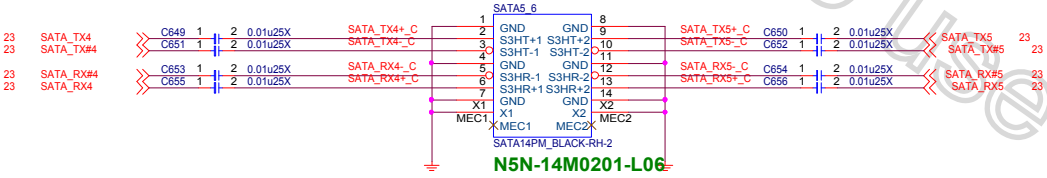
N5N-07M2441-H06



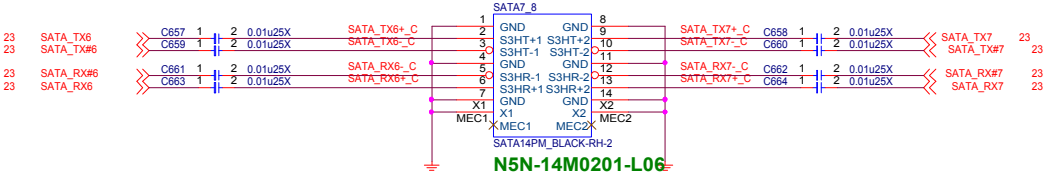
N5N-07M2441-H06



N5N-14M0201-L06



N5N-14M0201-L06



N5N-14M0201-L06

MICRO-STAR INT'L CO.,LTD.

Title: SATA Connector		
Size: Custom	Document Number: MS-7B09	Rev: 2.0
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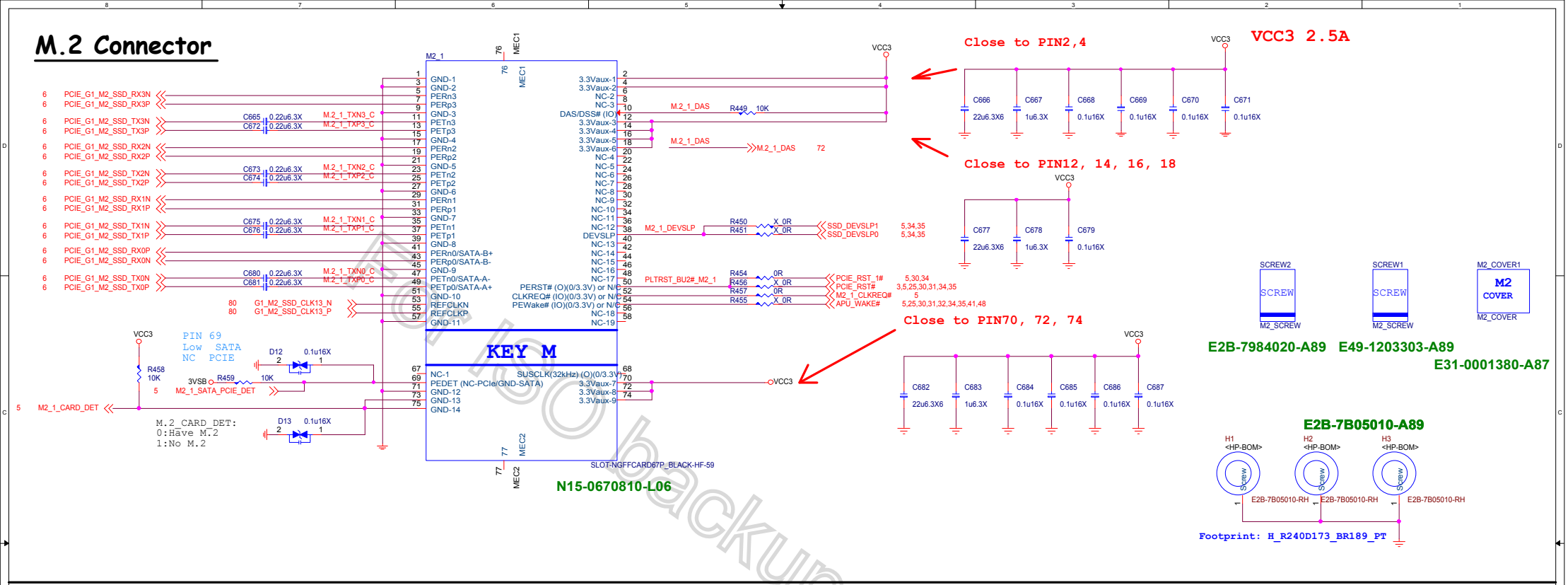
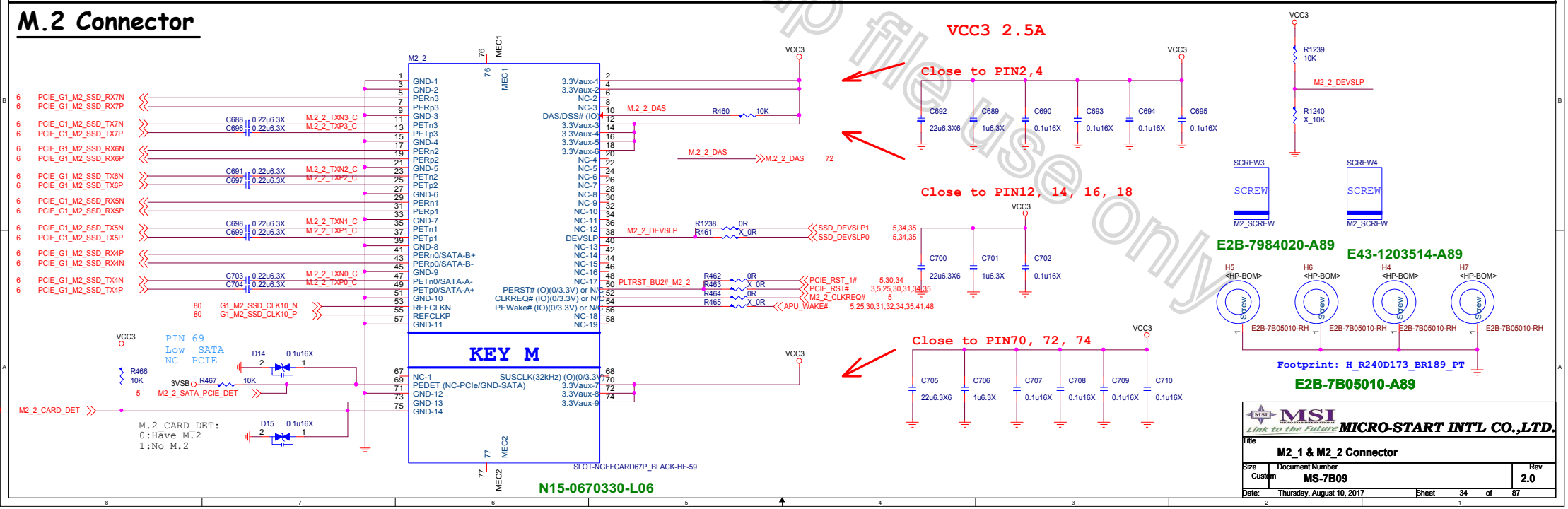
M.2 Connector



M.2 Connector



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

Title: M2_1 & M2_2 Connector

Size: Custom | Document Number: MS-7B09 | Rev: 2.0

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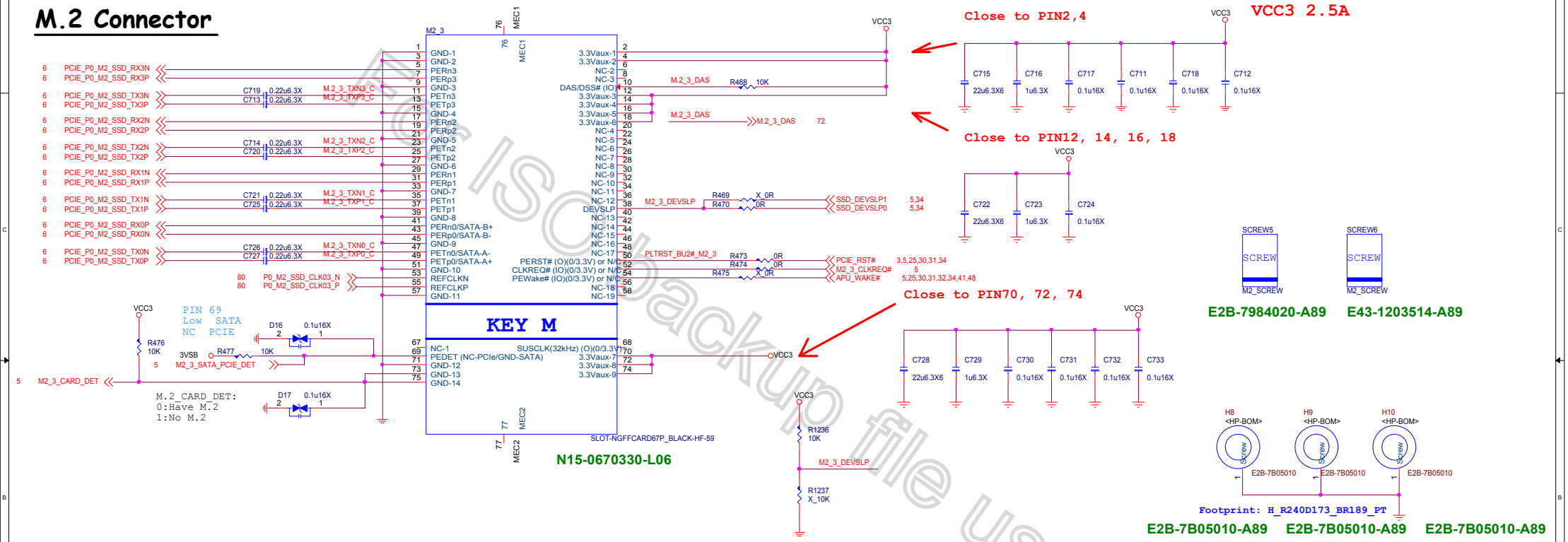
M.2 Connector



MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future

Title	M2_3 Connector	
Size: Custom	Document Number: MS-7B09	Rev: 2.0
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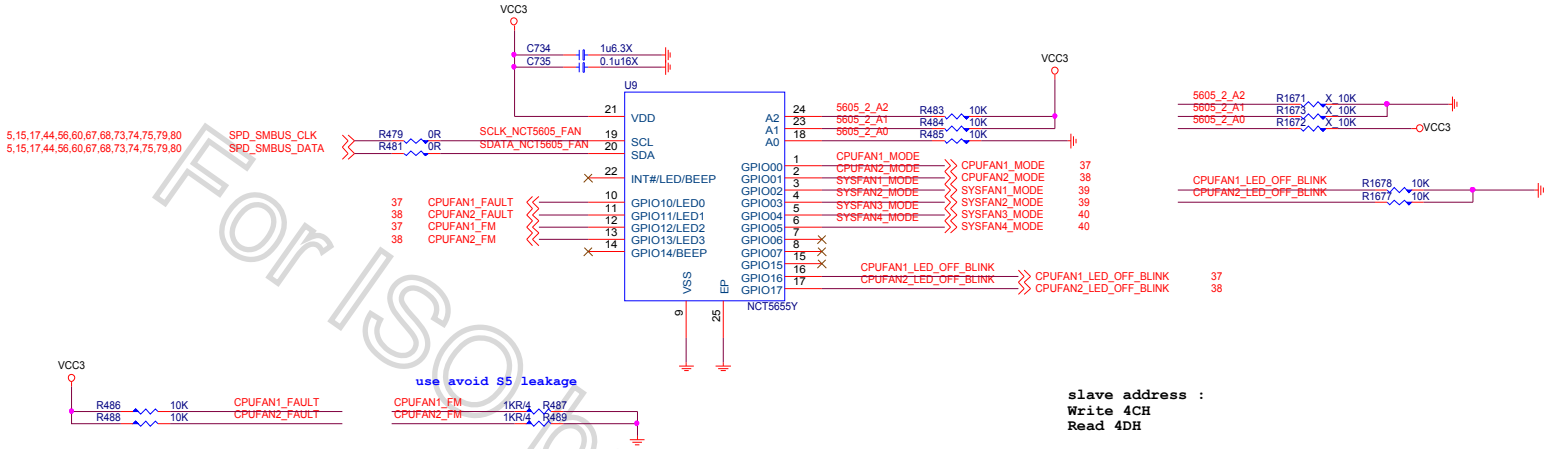

use avoid S5 leakage

slave address :
Write 4CH
Read 4DH

MICRO-START INT'L CO.,LTD.

Title: CPU FAN Control

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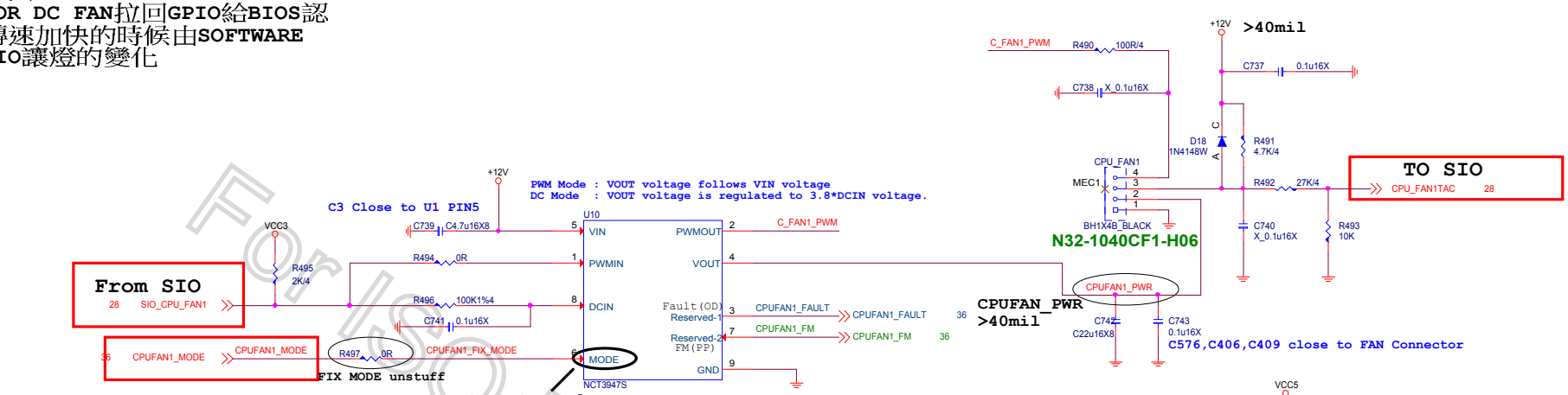
TYPE J : 4 PIN CPU FAN USE NCT3947S USE PCH GPIO

1. PWM/DC/OCP 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 I22-3947S12-N62

	PCH GPIO
PWM MODE	HIGH
DC MODE	LOW
AUTO MODE	GPI(Floating)

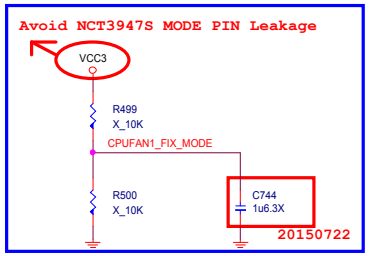
Default

NCT3947S Internall pull up 1.65V

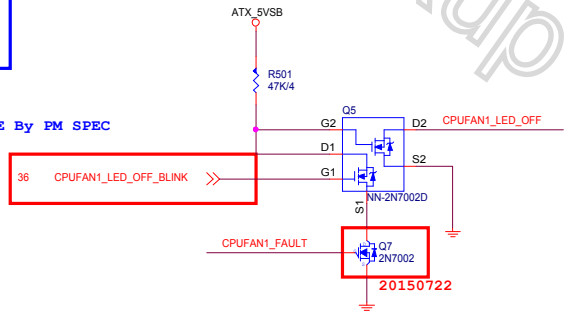
colay NCT3961

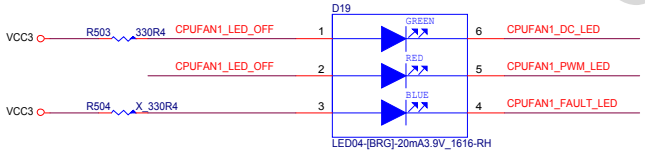
OCSET	R1
1.2~1.8A	100K
2.2~2.8A	49.9K default
3.2~3.8A	10K OC SET By PM SPEC

CPUFANX_FAULT



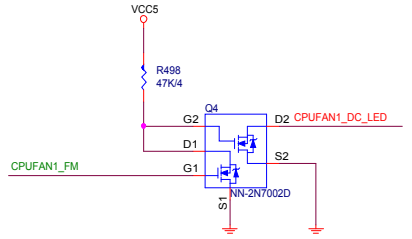
Resever For FIX DC or PWM MODE USE By PM SPEC



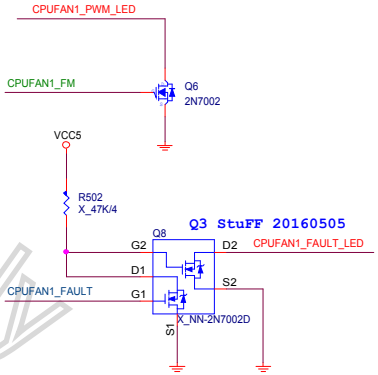


RGB
D0C-040S400-H91

20161024 Update
DC_FAN_LED(綠)
PWM_FAN_LED(藍)
FAN_OCP_LED(紅)



CHECK NCT3947S Sink Current



CHECK NCT3947S Sink Current

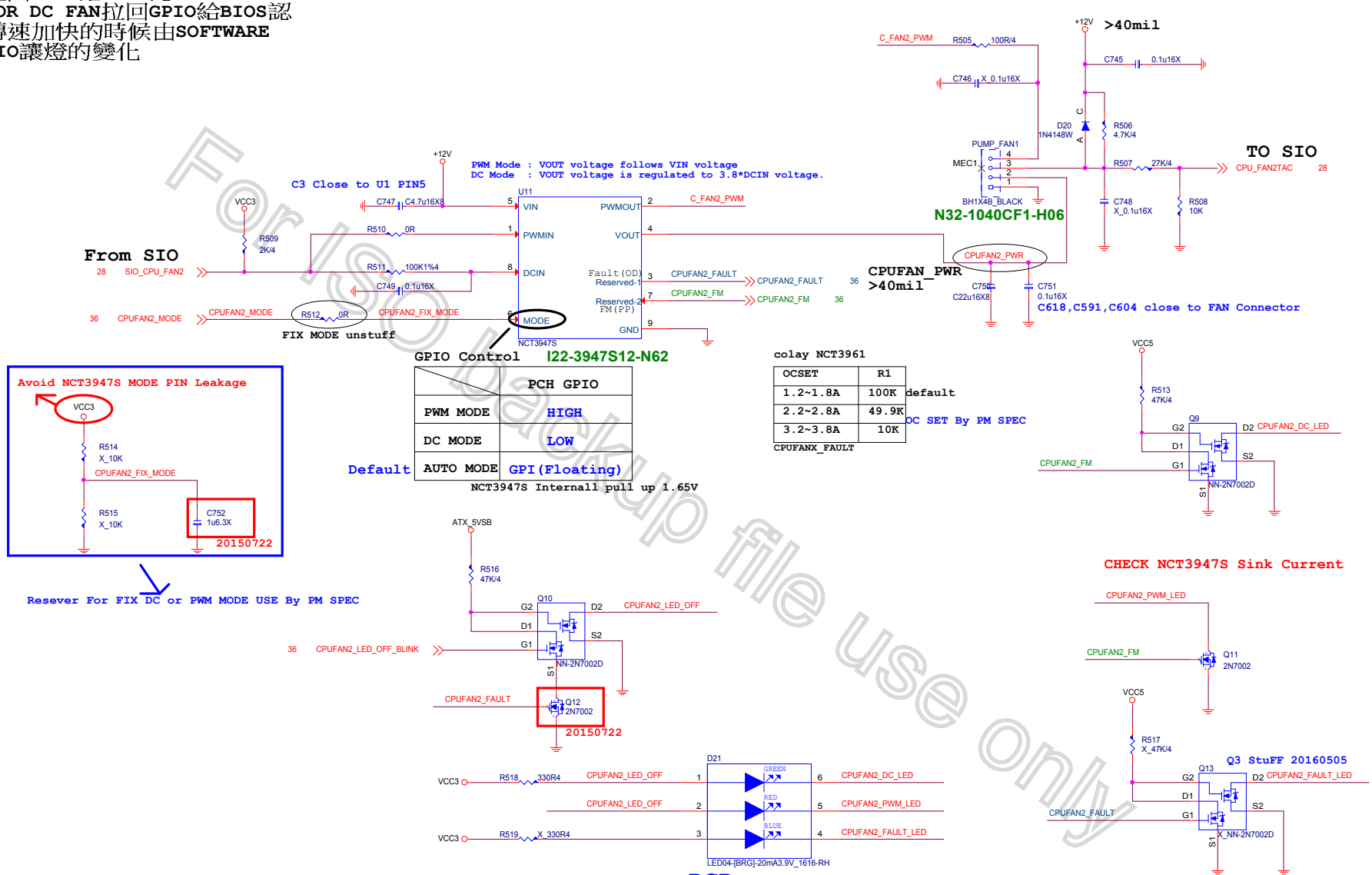
1. MODE : USE MODE PIN change FAN MODE(PWM or DC FAN)
2. FAULT : USE FAULT PIN Triger OVT/OCP Protection,LOW Atcive (Reserve NEW IC)
3. FM : USE FM PIN For BIOS USE to Detect PWM or DC FAN & Show information(Reserve NEW IC)

MICRO-START INT'L CO.,LTD.

Title	CPU FAN1-TYPE J	
Size: Custom	Document Number: MS-7B09	Rev: 2.0
Date: Thursday, August 10, 2017	Sheet 37 of 87	

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

1.PWM/DC/OCP 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



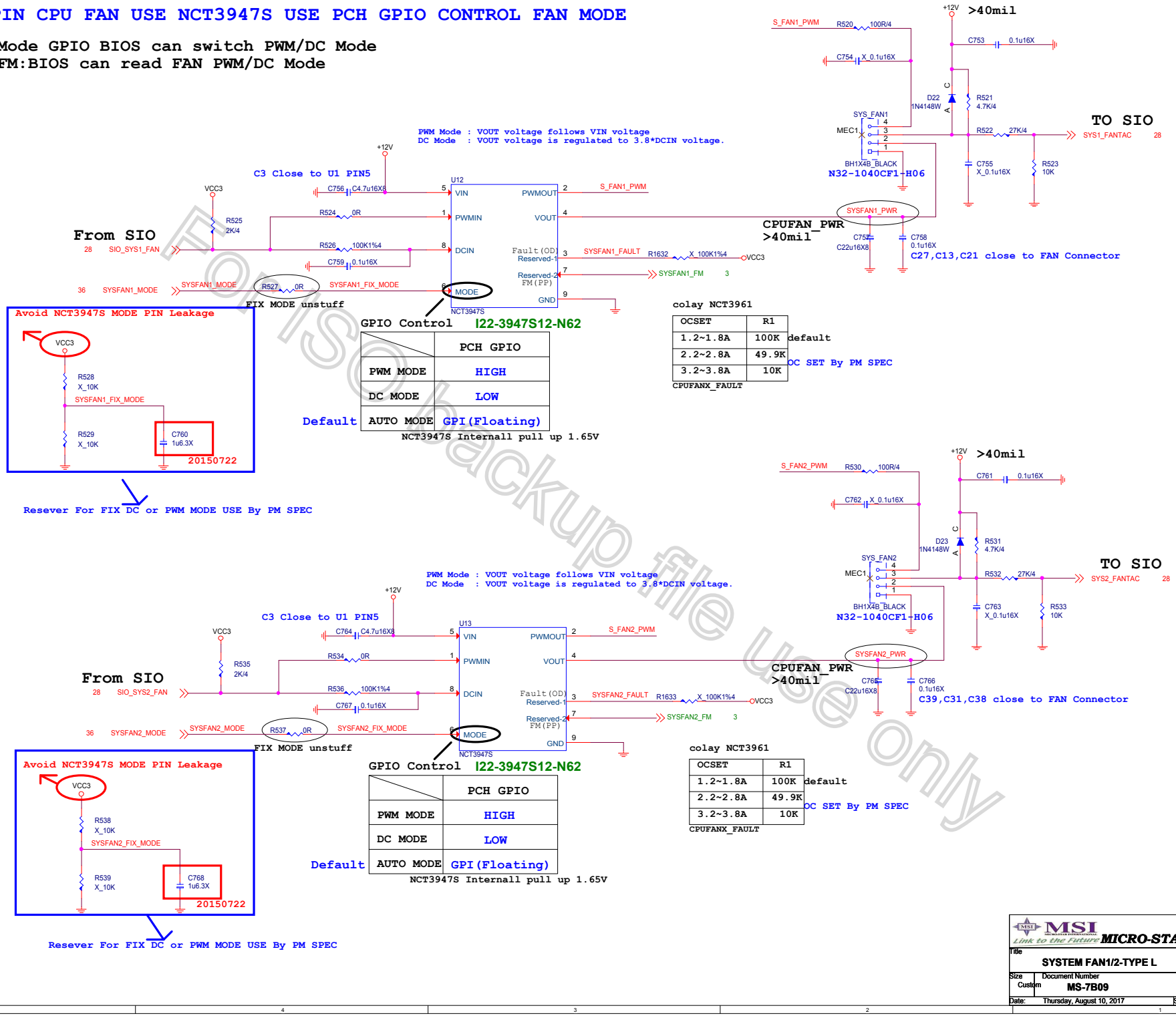
1.MODE : USE MODE PIN change FAN MODE(PWM or DC FAN)
2.FAULT : USE FAULT PIN Triger OVT/OCP Protection,LOW Atcive (Reserve NEW IC)
3.FM : USE FM PIN For BIOS USE to Detect PWM or DC FAN & Show information(Reserve NEW IC)

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

MICRO-START INT'L CO.,LTD.

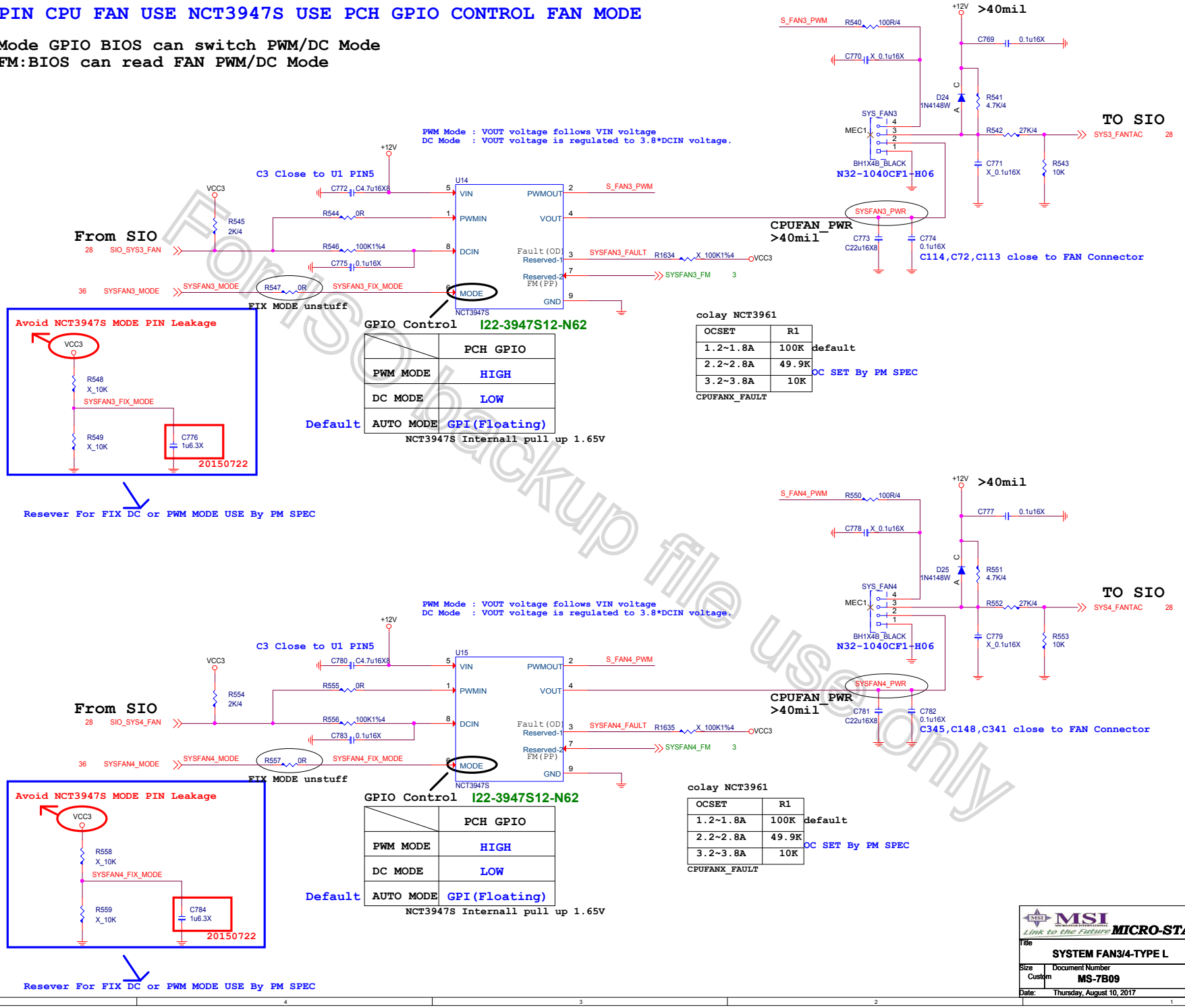
Title: SYSTEM FAN1/2-TYPE L

Size: Custom | Document Number: MS-7B09 | Rev: 2.0

Date: Thursday, August 10, 2017 | Sheet 39 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



MICRO-START INT'L CO.,LTD.

Title: SYSTEM FAN3/4-TYPE L

Size: Custom | Document Number: MS-7B09 | Rev: 2.0

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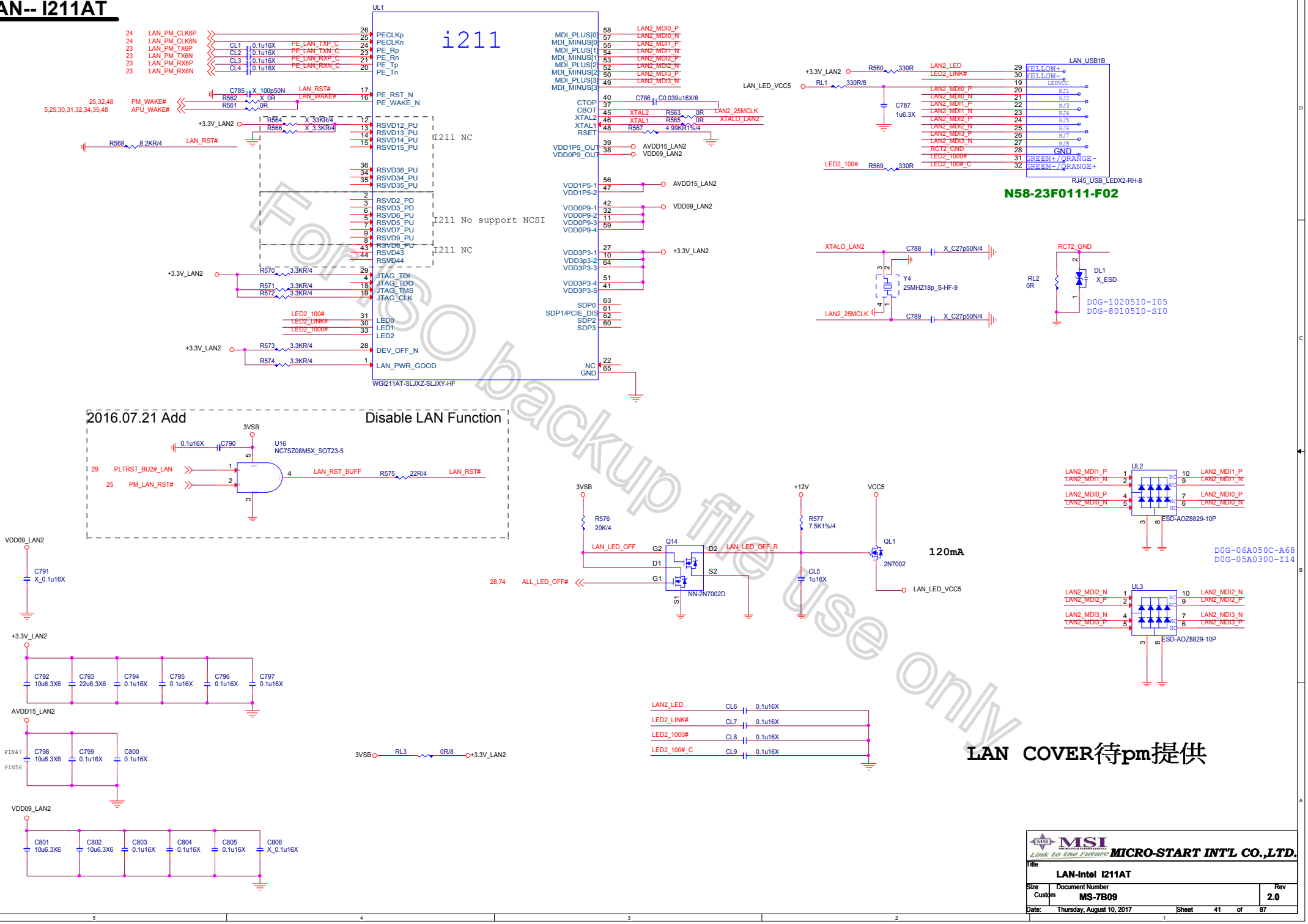
LAN-- I211AT



MICRO-START INT'L CO.,LTD.

Title	LAN-Intel I211AT	
Size: Custom	Document Number: MS-7B09	Rev: 2.0
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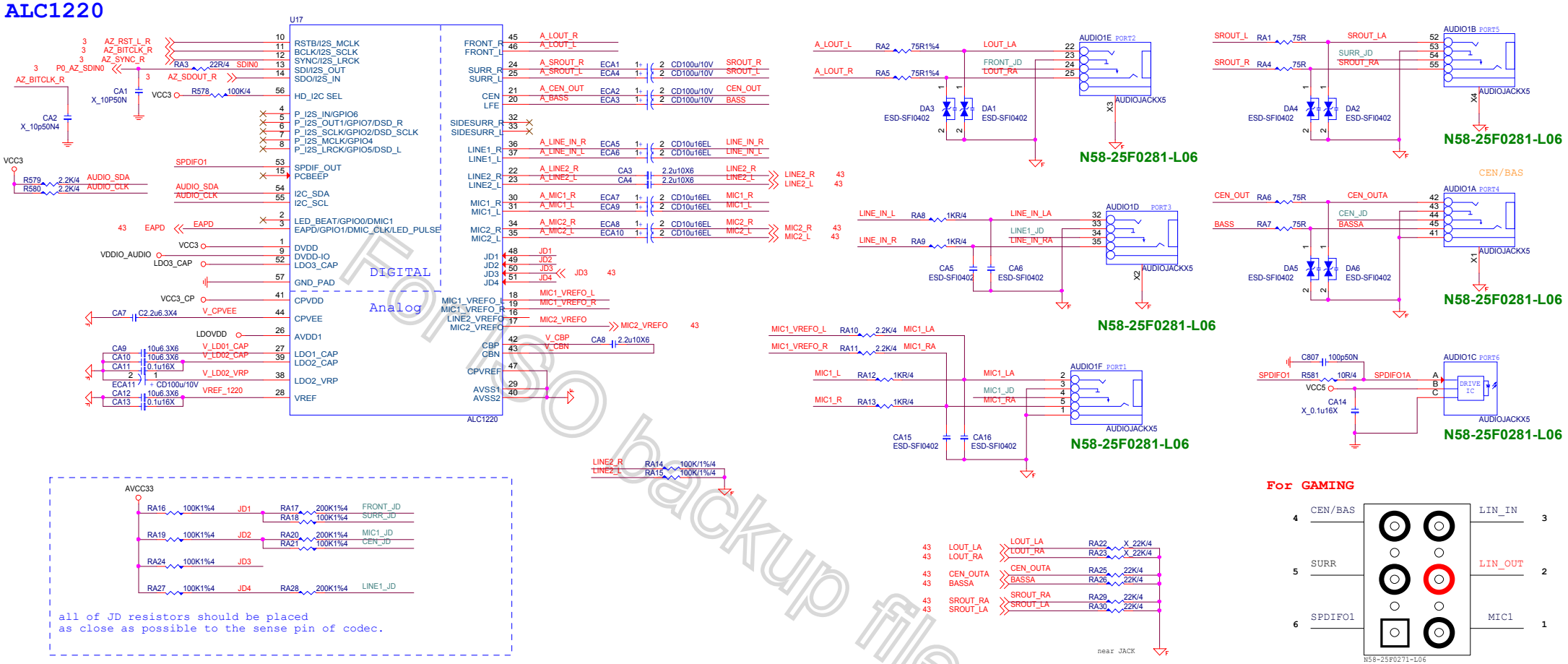
ALC1220



Title	Audio ALC1220-1
Size	Custom
Document Number	MS-7B09
Rev	2.0
Date:	Thursday, August 10, 2017
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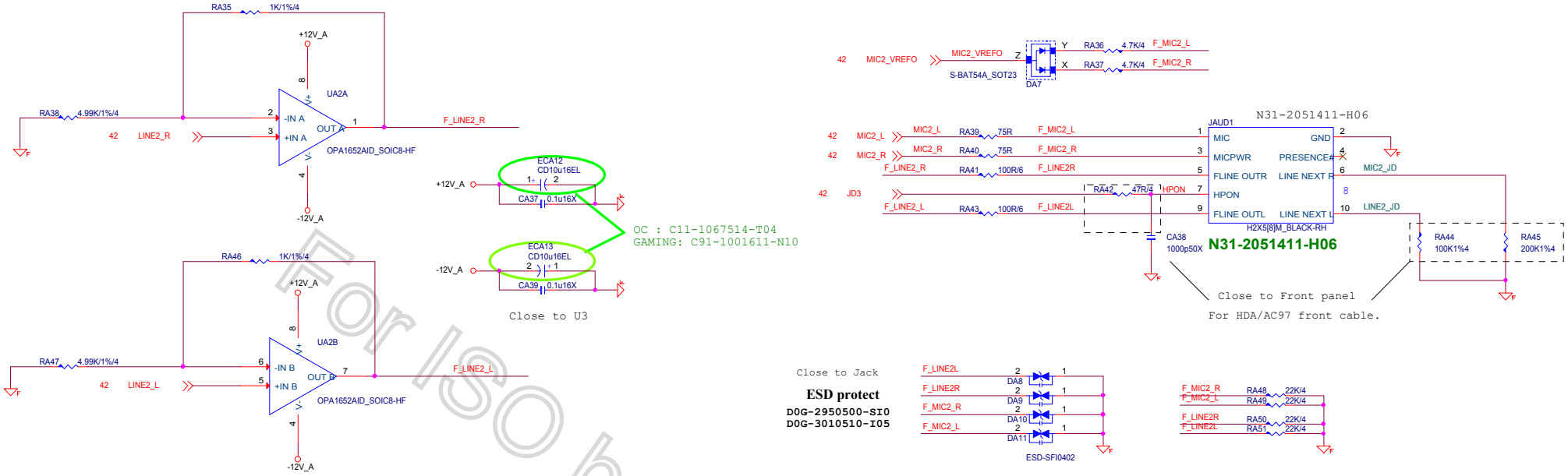
MICRO-START INT'L CO.,LTD.



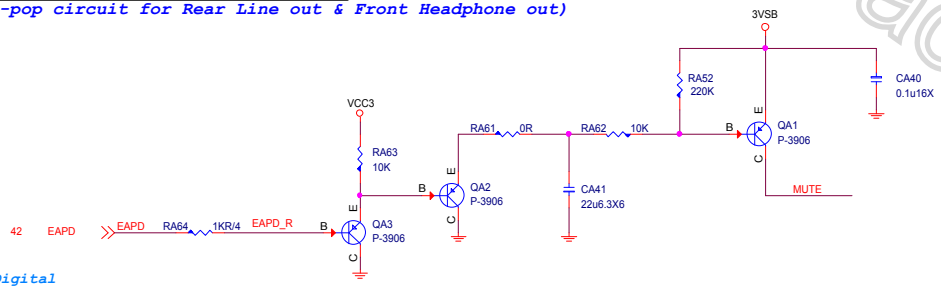
Close to Jack

ESD protect

D0G-2950500-SI0
D0G-3010510-I05

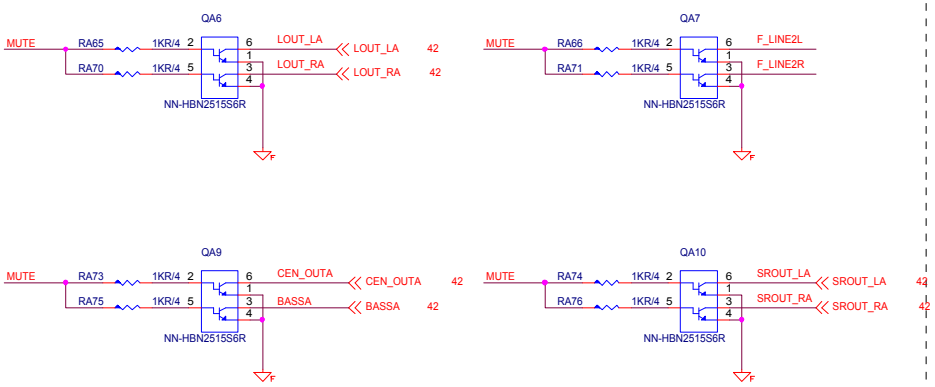
Rear Line OUT De-POP circuit

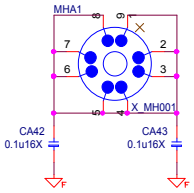
(De-pop circuit for Rear Line out & Front Headphone out)



Digital

Analog





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Link to the Future

Title	Audio ALC1220-2	
Size: Custom	Document Number: MS-7B09	Rev: 2.0
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USB Flash BIOS

Host USB connector

OSC1 OSC-24MHZ50_S-HF
C812 0.01u25X
R583 0R
OSC_24M
C815 15p50N

U19 F75504
5VDUAL CPU_1P8
C813 10u6.3X6
C810 X5R-0.1u16
C811 0.1u16X
TDP TDM VDD5V SPIVDD CAP DP DM
24M_CLK SDA SCL S4# S3# START_UP VCC_DET
POK_CTRL# PSOUT# ACT_LED PS_ON#
SPI_CS# SPI_CLK SPI_MOSI SPI_MISO
NC-1 NC-2 NC-6 NC-7 GND-1 GND-2 GND-3

22 PM_PS2_USBP3
22 PM_PS2_USBN3
OSC_24M
5,15,17,36,56,60,67,68,73,74,75,79,80 SPD_SMBUS_DATA
5,15,17,36,56,60,67,68,73,74,75,79,80 SPD_SMBUS_CLK
R587 X_0R USB_FS_SDA
R585 X_0R USB_FS_SCL
5,28,45,55,67,68,83 SLP_S5#
5,28,45,55,64,69,70,80 SLP_S3#
73 FLASH_ACTIVE#
VCC_DET
R594 1KR/4 CLK_STRAP
USB_FS_RBIOS_DP 44
USB_FS_RBIOS_DN 44
PWROK_CTL# R586 0R ALL_PWR_MUX 5,71
PWRBTIN 28,72
ACT_LED ACT_LED 73
504_PS_ON# R590 0R SIO_PSON# 28,72
504_SPI_CLK R591 10R/4 SPI_CS# 5
504_SPI_MOSI R592 0R SPI_CLK 5,21
504_SPI_MISO R593 0R SPI_DATAOUT 5
SPI_DATAIN 5

ADD 33R,504_PSON# Netname
2014.12.16

Pin 24
Floating PIN14=24Mhz input
Pull-down Pin14=48Mhz input

SMB Address: 94

I98-755040C-F34

VCC3 R589 4.7KR/4 VCC_DET C816 0.1u16X

3VSB R595 2.2K/4 USB_FS_SCL
R596 2.2K/4 USB_FS_SDA

Q15 NN-2N7002D
VCC3 G2 D2 USB_FS_SCL
USB_FS_SDA D1
VCC3 G1 S2 SPD_SMBUS_CLK
SPD_SMBUS_DATA S1

PM_PS2_USBP3 R598 X_0R USB_FS_RBIOS_DP
PM_PS2_USBN3 R599 X_0R USB_FS_RBIOS_DN

REAR Flash BIOS USB PORT 9

from SIO6779 GP14
default=> GPI
POWER Well=> VSB

VCC5 C808 10u6.3X6
ATX_5VSB C809 10u6.3X6
U18 UP7537BSU8_PSOP8-RH
29 5VDRV2_EN
3VSB R582 100KR/4 FS_VSB_EN
C814 0.1u16X
S3# EN 5VCC 5VSB GND GND
VOUT3 VOUT2 VOUT1
0.5A
RUSB_FS_VSB1

28 USB_FLASH_EN R584 0R FS_VSB_EN
28,45 USB_MODE R588 X_0R

RUSB_FS_VSB1 EC6 100u16SO

VCC5 R597 10K1%
R600 15K1%4 QH1 D2 PM_OC7# 22,49,50
RUSB_FS_VSB1 R601 10K1% G1 S2 NN-2N7002D S1

OC# signal connect to
SB OC pin.

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

PS2+USB

RUSB_FS_VSB1
RUSB20_VCC1
PS2_USB1B MINIDIN_USBX2-RH-1
USB_FS_RBIOS_DN USB_FS_RBIOS_DP
PM_PS2_USBN4 PM_PS2_USBP4
VCC USB2- USB2+ USB1- USB1+ GND

N58-14M0221-H06

VCC5 R604 10K1%
R605 15K1%4 QH2 D2
R606 10K1% G1 S2 NN-2N7002D S1
RUSB20_VCC1

OC# signal connect to
SB OC pin.

L7 X_4P2R-0R0402
44 USB_FS_RBIOS_DP
44 USB_FS_RBIOS_DN
USB_FS_RBIOS_DP
USB_FS_RBIOS_DN

L8 X_4P2R-0R0402
22 PM_PS2_USBP4
22 PM_PS2_USBN4
PM_PS2_USBP4
PM_PS2_USBN4

D26 ESD-AOZ8829-10P
PM_PS2_USBP4 PM_PS2_USBN4
USB_FS_RBIOS_DP USB_FS_RBIOS_DN

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

5VDUAL R607 47KR/4 FLASH_ACTIVE#

Reserved for when F75501 Hotkey device fail use

* All close to Front IO side

RUSB_FS_VSB1 C817 0.1u16X
RUSB_FS_VSB1 C818 1u6.3X
RUSB20_VCC1 C819 0.1u16X

MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future

Title	USB Flash BIOS		
Size	Document Number		Rev
Custom	MS-7B09		2.0
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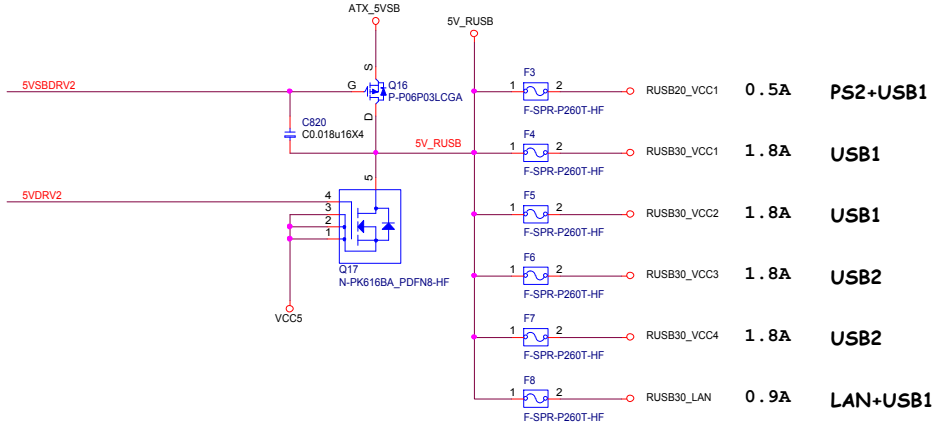
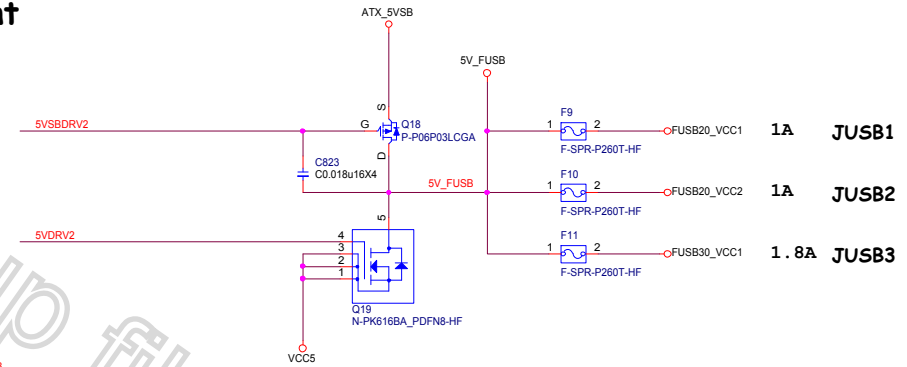
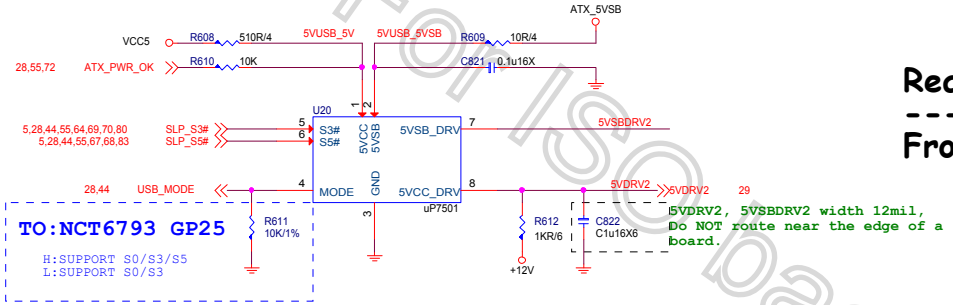
USB Power

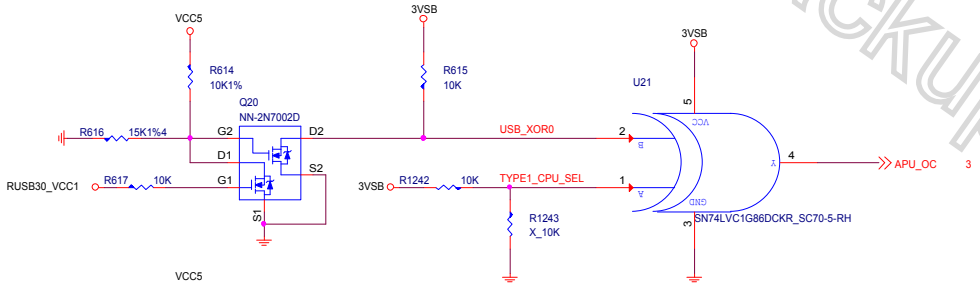


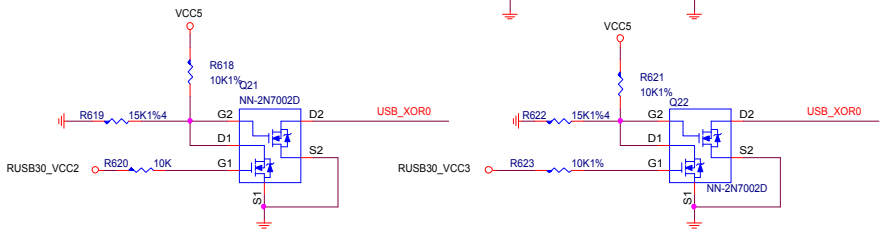
Rear

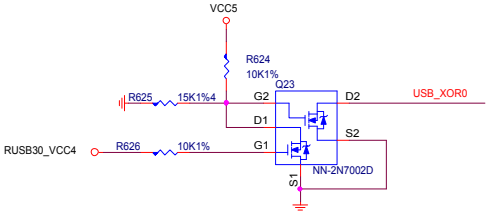
Front









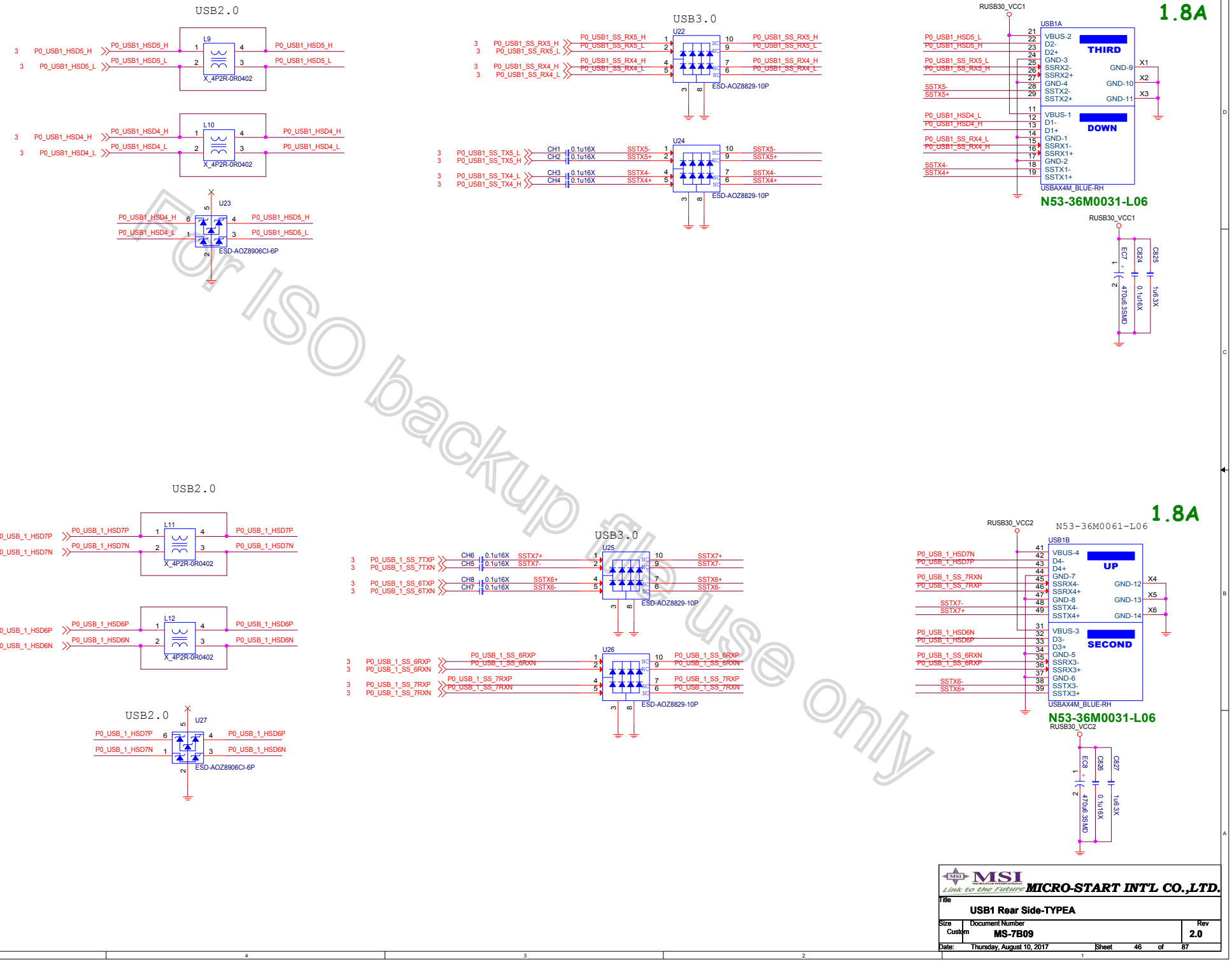


	CORETYPE1(A)	USB_PWR(B)	APU_USB_OC(Y)
BR	0	0	0
Act. Low	0	1	1
SR	1	0	1
Act. High	1	1	0

MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future

Title: USB Power		
Size: Custom	Document Number: MS-7B09	Rev: 2.0
Date: Thursday, August 10, 2017	Sheet 45 of 87	

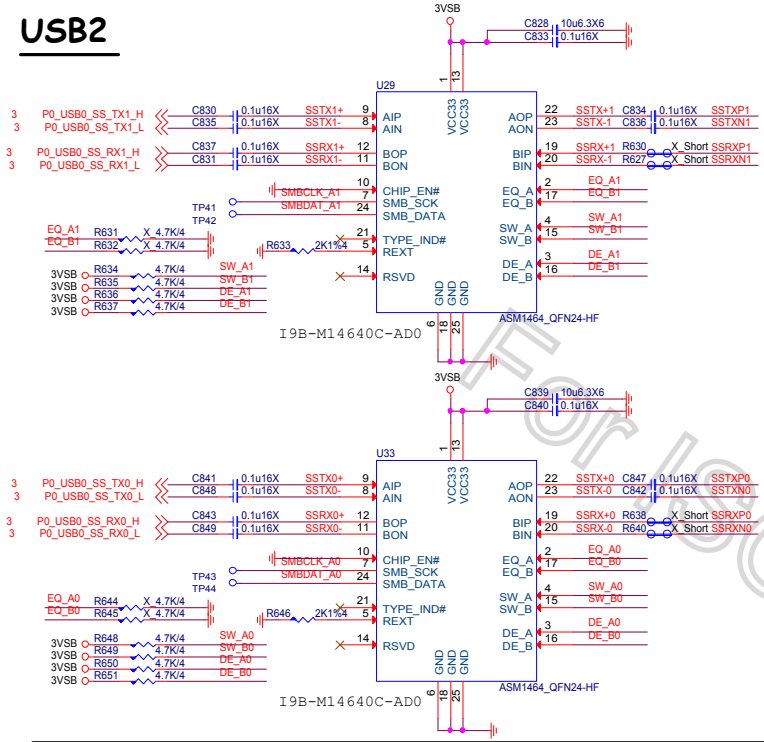
USB1

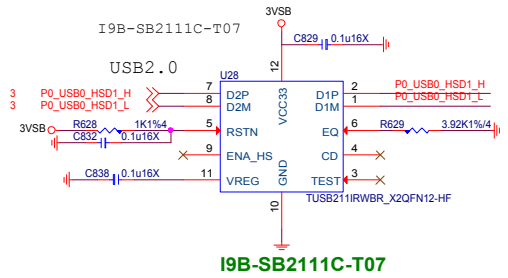


MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future

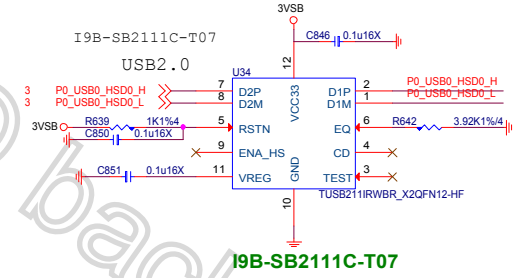
Title	USB1 Rear Side-TYPEA	
Size: Custom	Document Number: MS-7B09	Rev: 2.0
Date: Thursday, August 10, 2017	Sheet 46 of 87	

USB2

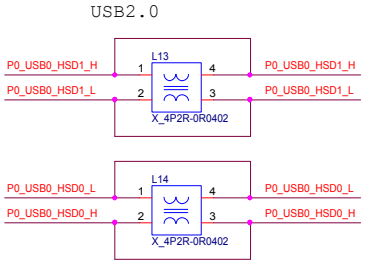


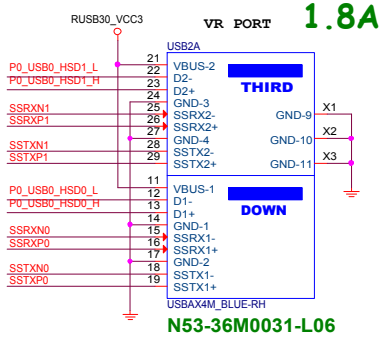


I9B-SB2111C-T07

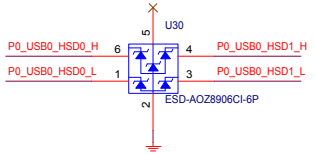


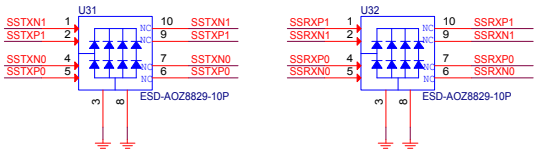
I9B-SB2111C-T07

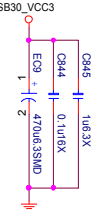


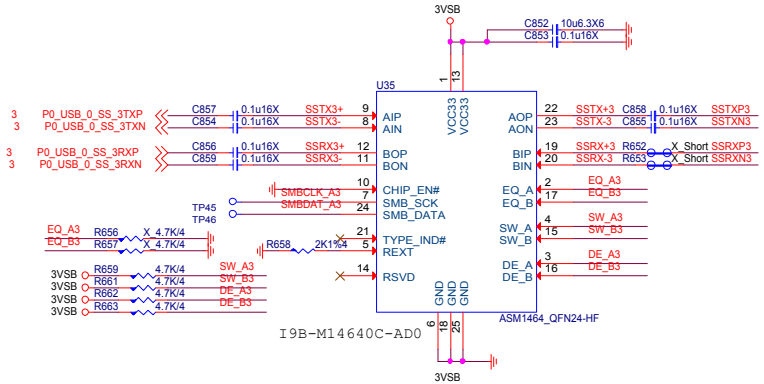


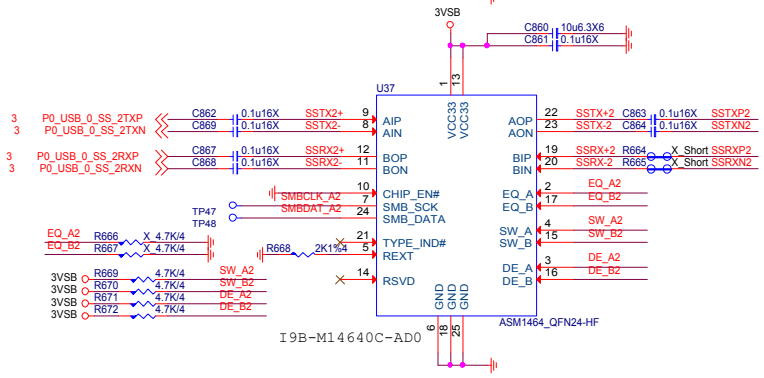
N53-36M0031-L06

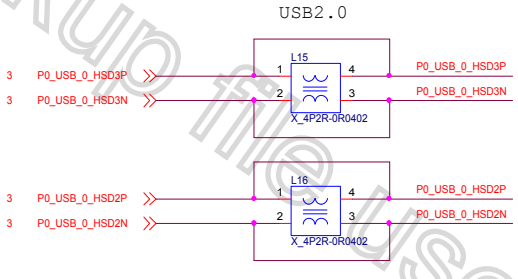


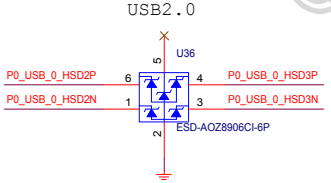


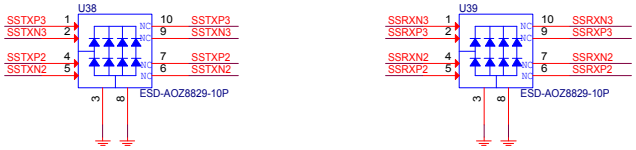


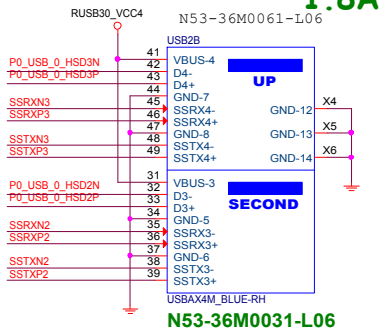




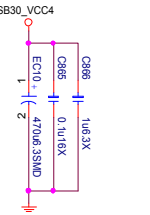








N53-36M0031-L06



MICRO-START INT'L CO.,LTD.

Title: USB3.0 Rear Side-VR

Size	Document Number	Rev
Custom	MS-7B09	2.0

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Use pure PCIE must provide CLK

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

USB HS (90Ohm-Diff)

Chip to Connector ~1.5 inch.

PCIE Rule (Follow PM PDG)

USB SS (80Ohm-Diff)

USB HS (90Ohm-Diff)

USB SS (80Ohm-Diff)

PPON_X Internal Pull-up to VCC3

OCI_X Internal Pull-up to 3VSUS

RX/TX Internal Pull-up

For SRIS mode

ASM3142

B02-031420C-AD0

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)

ASM_SMI has internal Pull-up to VCC
ASM_WAKE has internal Pull-up to VCCSUS

atx5vsb change to vcc5

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) : 5/8

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

2016.07.21 Add

Disable ASM1142 Function

ASM3142 1.1v Core Power

SN:L01-0107108-C08

MP2143DJ_TSOT23-8-RH

ASM3142 1.1v Suspend Power

ASM3142 2.5v Analog Power

EEPROM

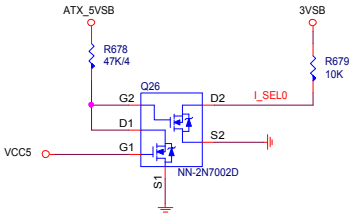
M31-25L1022-M24

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

MICRO-START INT'L 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	

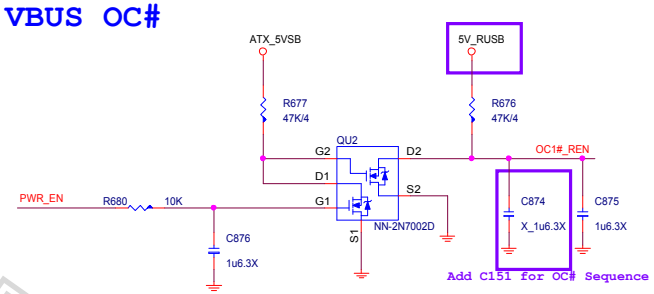
Current Mode

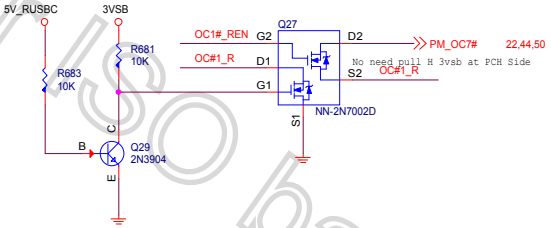


I_SEL0 : I_SEL1		
X	0	Default for 900mA
0	1	1.5A @5V
1	1	3A @5V

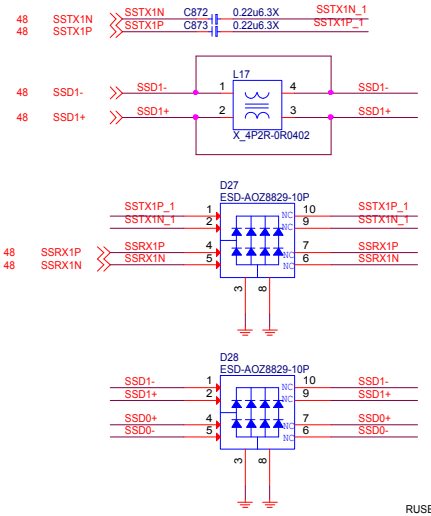
1.5A under S3 mode
3A under S0 mode

VBUS OC#

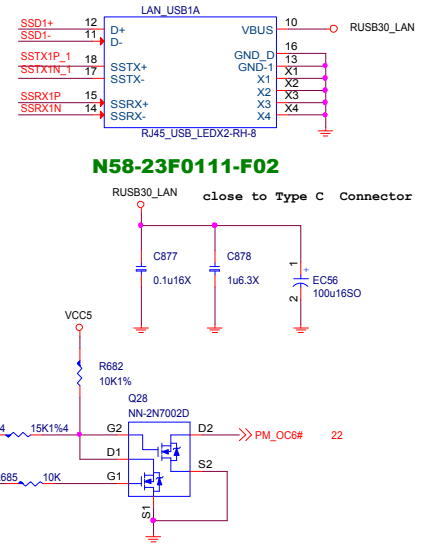




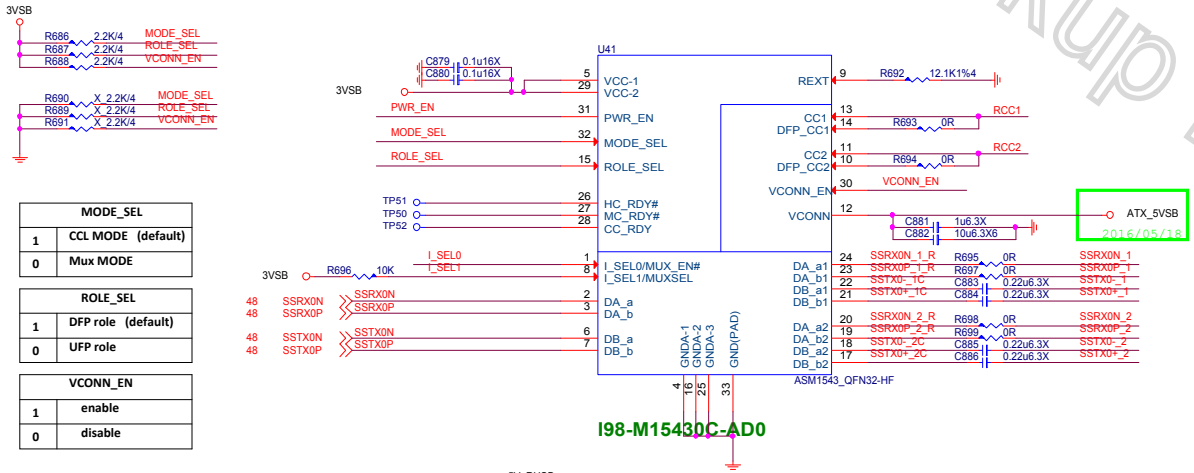
TYPE-A



LAN+USB TYPEA



USB Type-C MUX with Configuration Channel (CC)

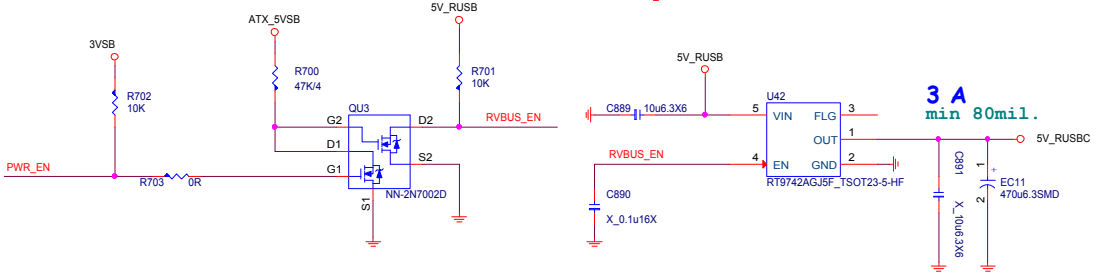


MODE_SEL	
1	CCL MODE (default)
0	Mux MODE

ROLE_SEL	
1	DFP role (default)
0	UFP role

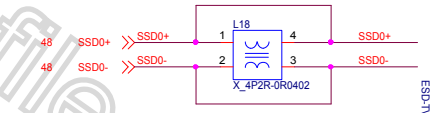
VCONN_EN	
1	enable
0	disable

I98-M15430C-AD0

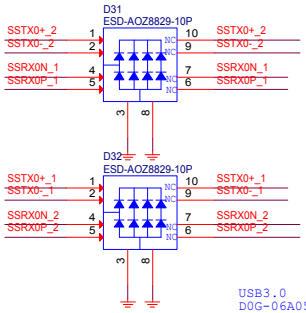


3 A
min 80mil.

TYPE-C



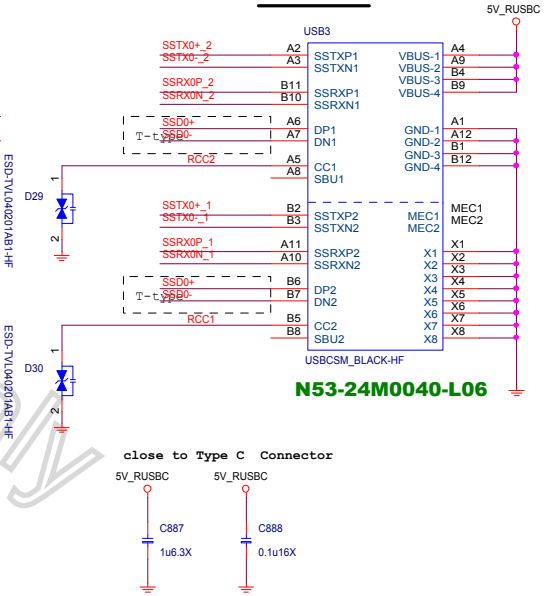
ESD Protection
NEAR CONNECTOR



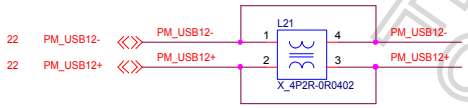
USB3.0
D0G-06A050C-A68 Main
D0G-05A0300-I14 AVL
D0G-45B031C-O05 AVL

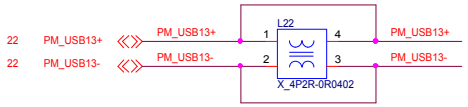
TYPEC

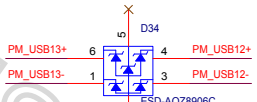
OC#4



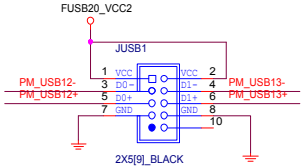
JUSB1+JUAB2



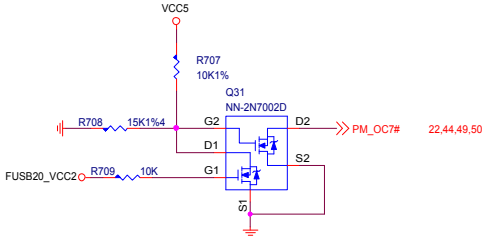


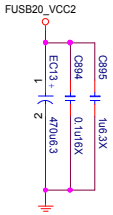


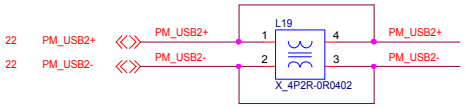
Main:DOG-05A0529-A68
AVL:DOG-45B0510-I14

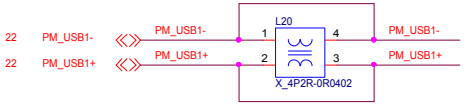


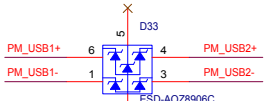
N31-2051BG1-H06



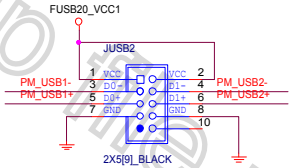




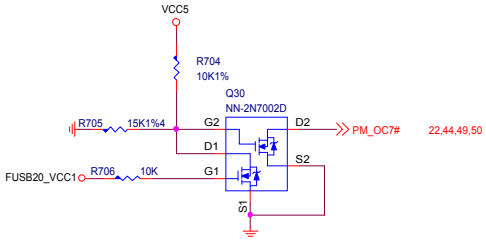


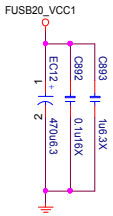


Main:DOG-05A0529-A68
AVL:DOG-45B0510-I14



N31-2051BG1-H06





MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future

Title: USB Front Side-USB2.0		
Size: Custom	Document Number: MS-7B09	Rev: 2.0
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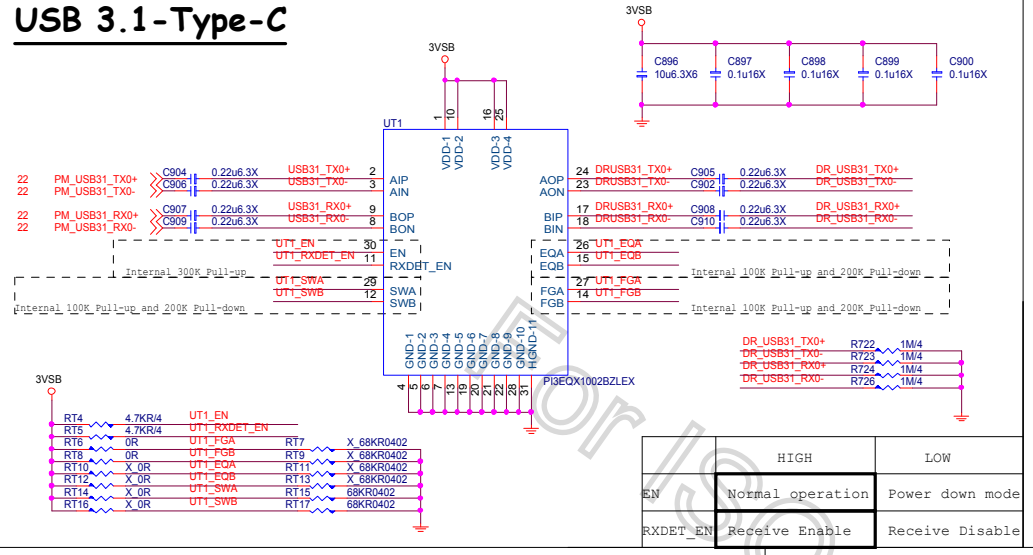
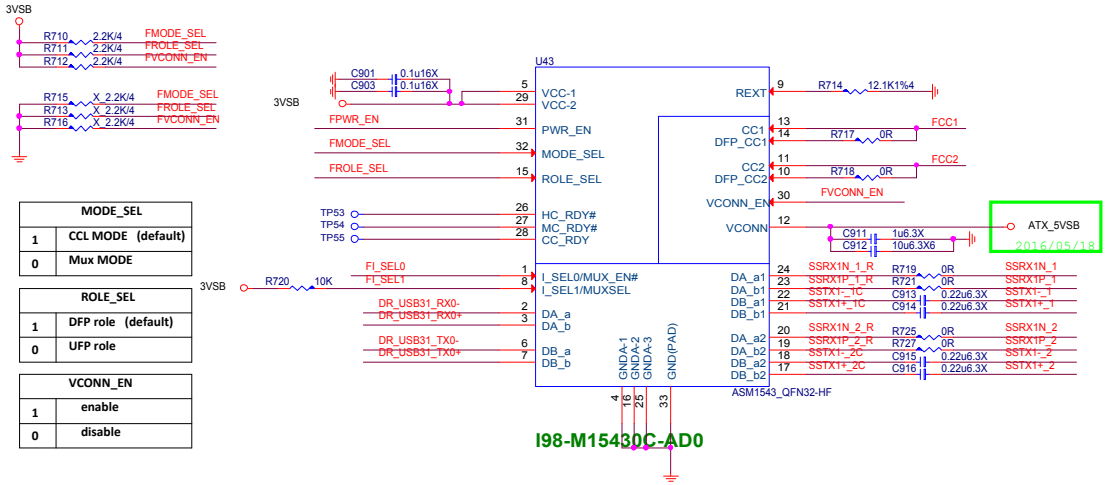
USB 3.1-Type-C



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

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

I98-M15430C-AD0

EQA/B are the selection pins for the equalization selection

	Equalizer setting (dB)	
EQA/B	@2.5GHz	@5GHz
0	5.1	10.9
R	1.9	6.7
F	3.5	8.9 (Default)
1	6.8	13.1

Flat Gain Setting:

FGA/B are the selection bits for the DC gain

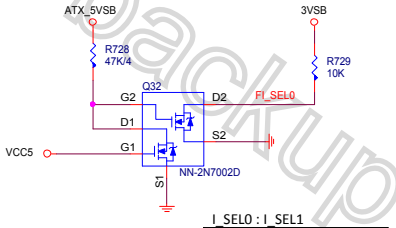
	Flat Gain Settings
FGA/B	dB
0	-3
R	-1.5
F	0 (Default)
1	+2

-1dB compression point linear Swing Setting:

SWA/B are the selection bits for the output linear swing setting

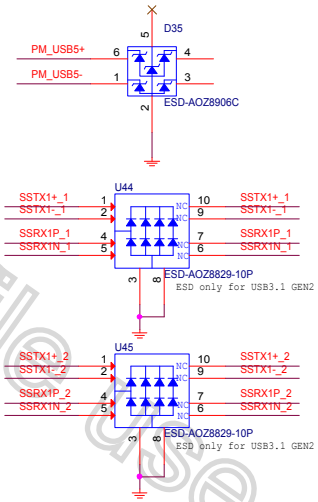
	Output Linear Swing Settings
SWA/B	mVppd
0	800
R	1200
F	1000 (Default)
1	1100

Current Mode

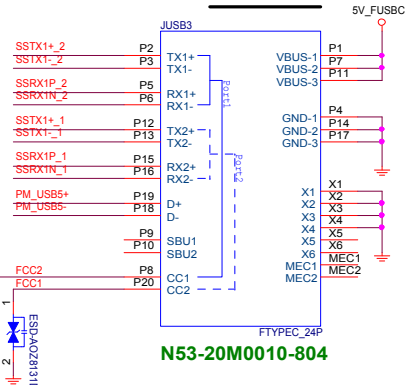


I_SEL0	I_SEL1	
X	0	Default for 900mA
0	1	1.5A @5V
1	1	3A @5V

1.5A under S3 mode
3A under S0 mode

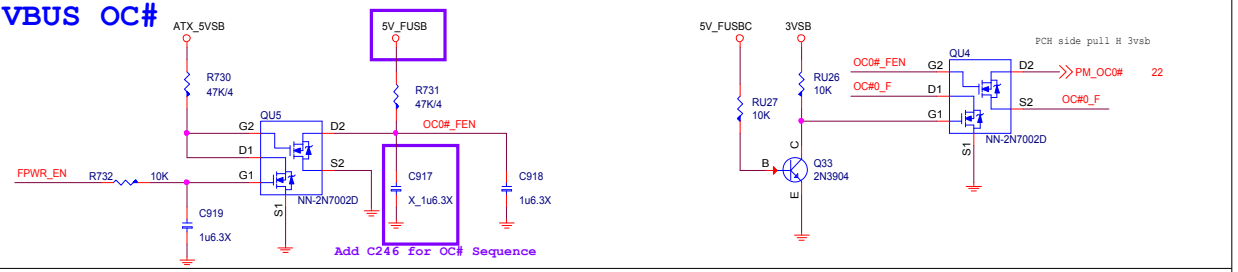


JUSB3

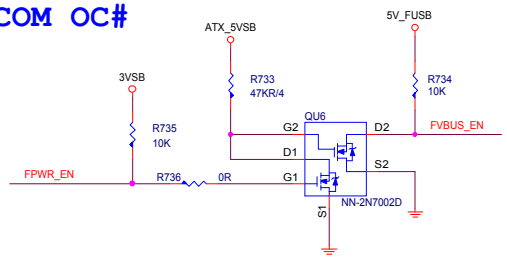


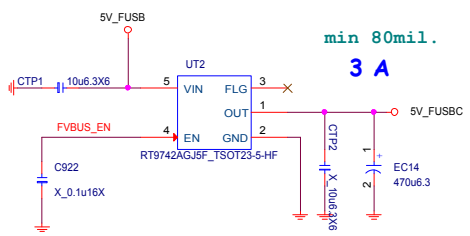
N53-20M0010-804

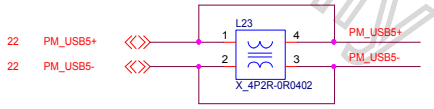
VBUS OC#

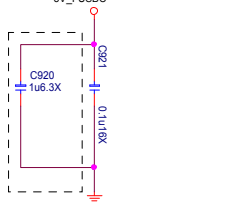


VCOM OC#









MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future

Title	USB3.1 TYPE C-Front	
Size: Custom	Document Number: MS-7B09	Rev: 2.0
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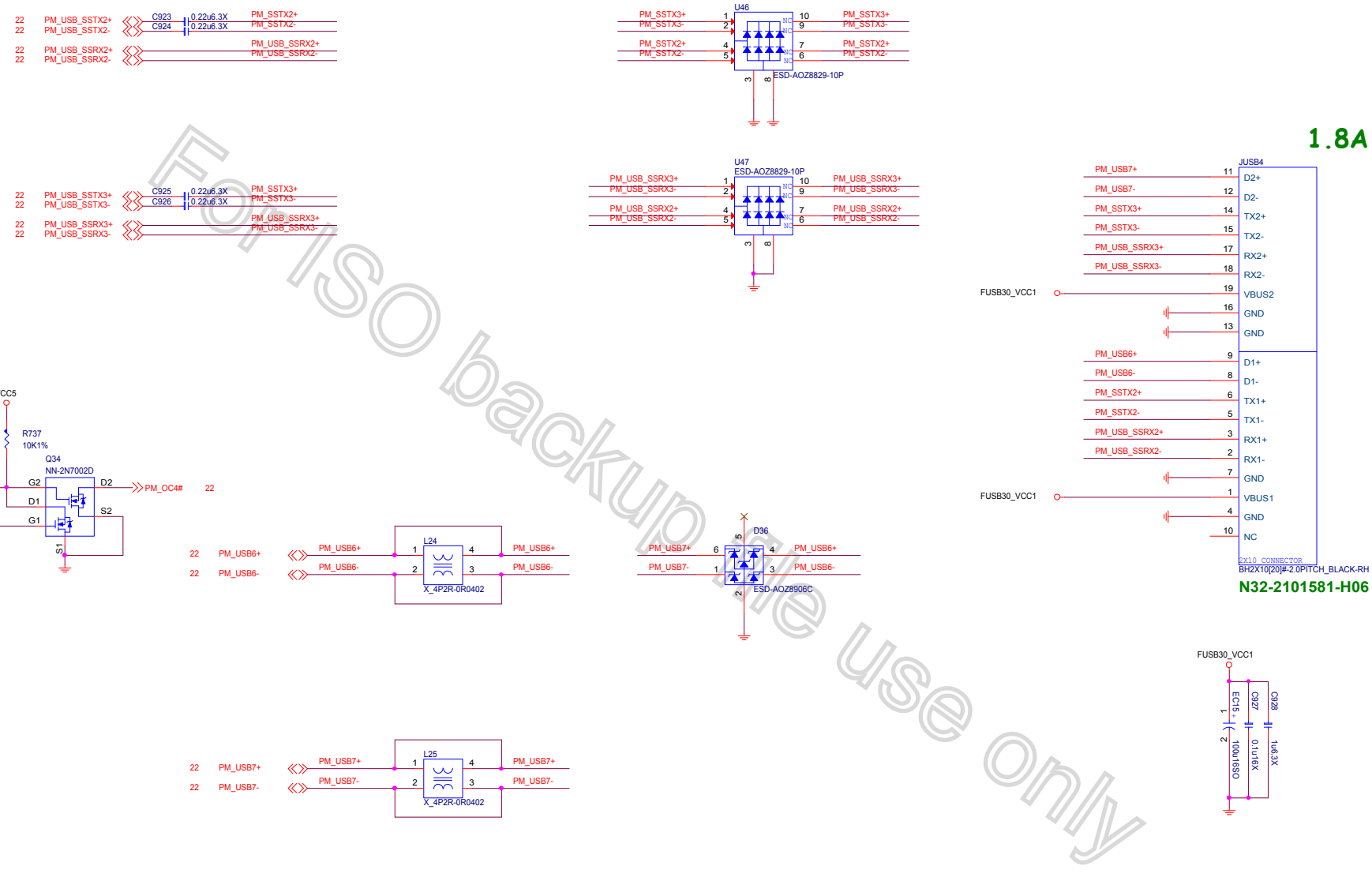
USB 3.0-JUSB4



MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future

Title	USB Front Side-JUSB4	
Size: Custom	Document Number: MS-7B09	Rev: 2.0
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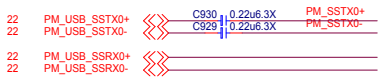
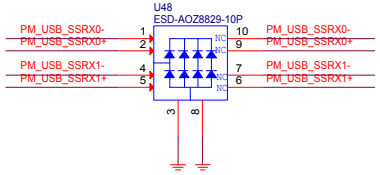
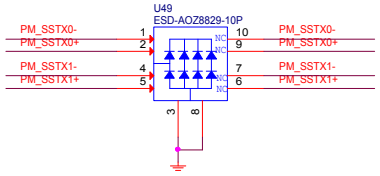
USB 3.0-JUSB5 With Charge(BC1.2)

1.7A+1.7A

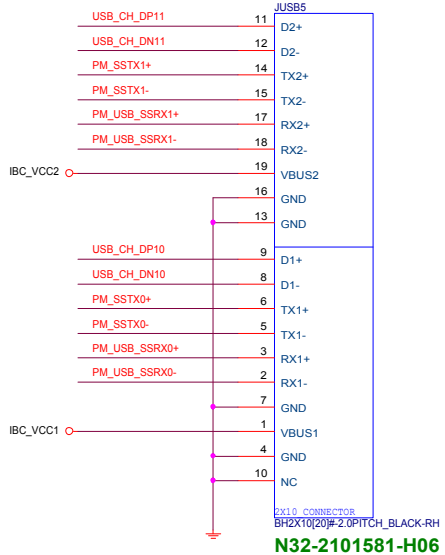




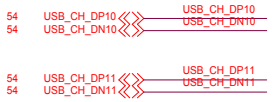


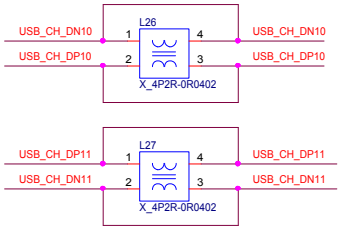
USB3.0
D0G-06A050C-A68 Main
D0G-05A0300-I14 AVL

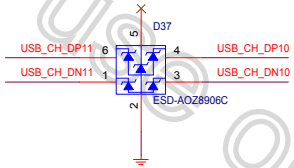
USB2.0
D0G-0200529-A68 Main
D0G-0100619-I05 AVL

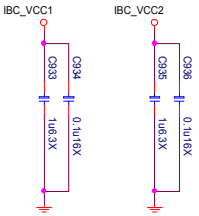


N32-2101581-H06









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Link to the Future

Title: USB Front Side-JUSB5		
Size: Custom	Document Number: MS-7B09	Rev: 2.0
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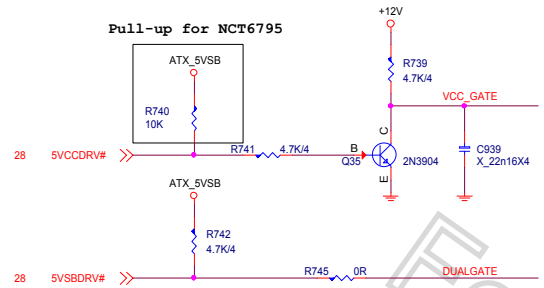
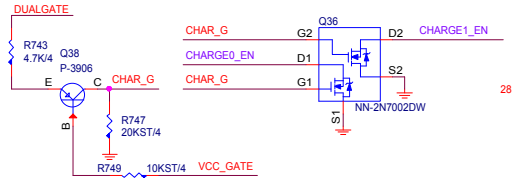
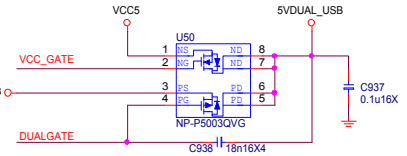
5VDUAL_USB

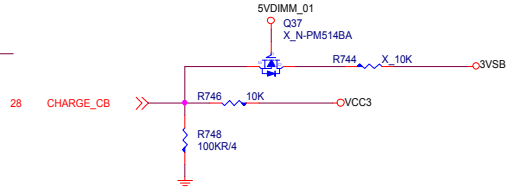




3~4A

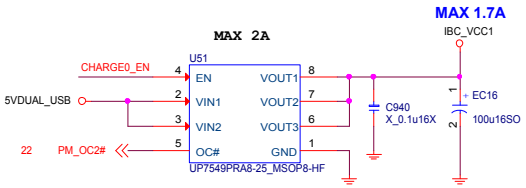


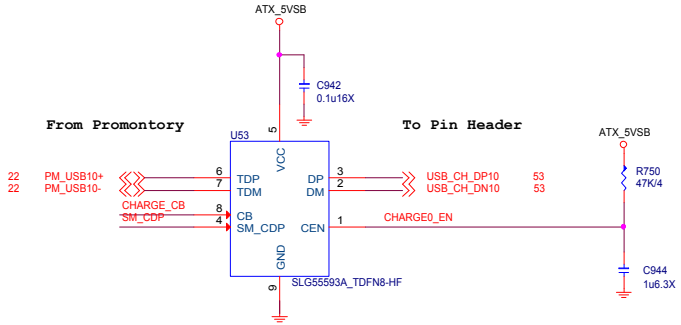
Pin power : I_3VSB
Register power : I_3VSB
Register reset : I_3VSB



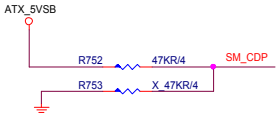
USB POWER PORT 0 For USB Charging

MAX 1.7A



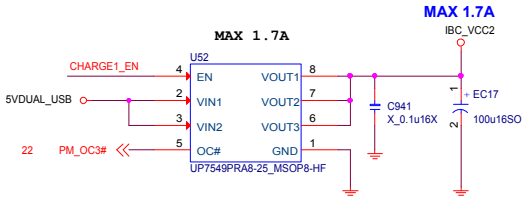


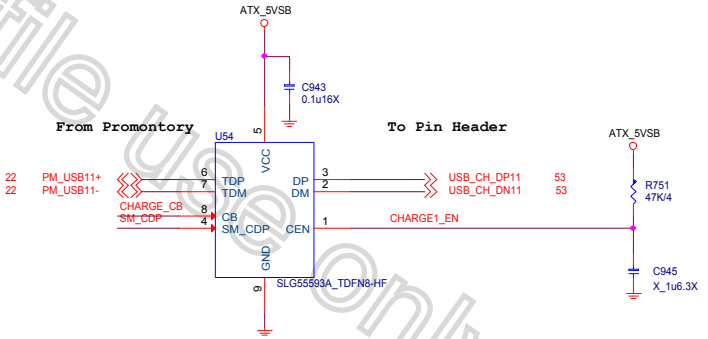
I98-555930C-SF9



USB POWER PORT 1 For USB Charging

MAX 1.7A





I98-555930C-SF9

MICRO-STAR INT'L CO.,LTD.

Title: USB Charger

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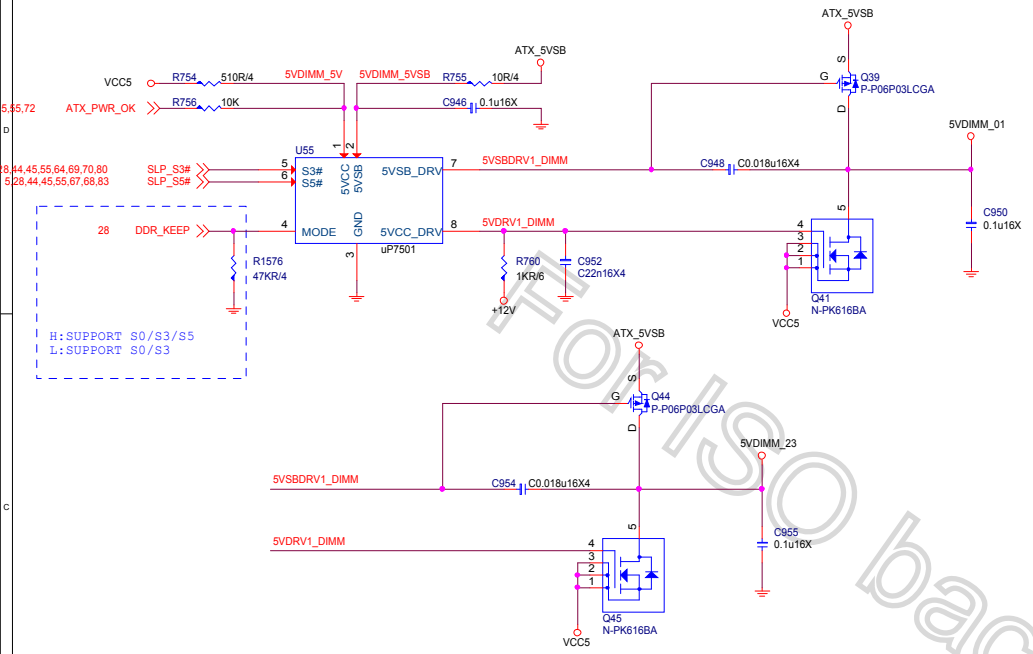
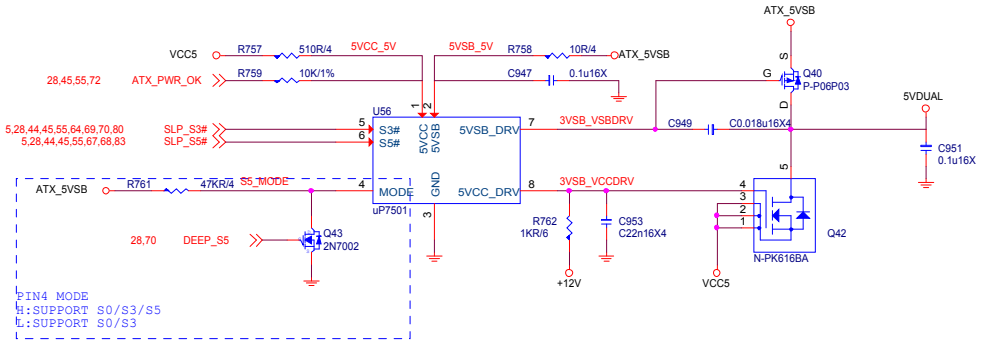
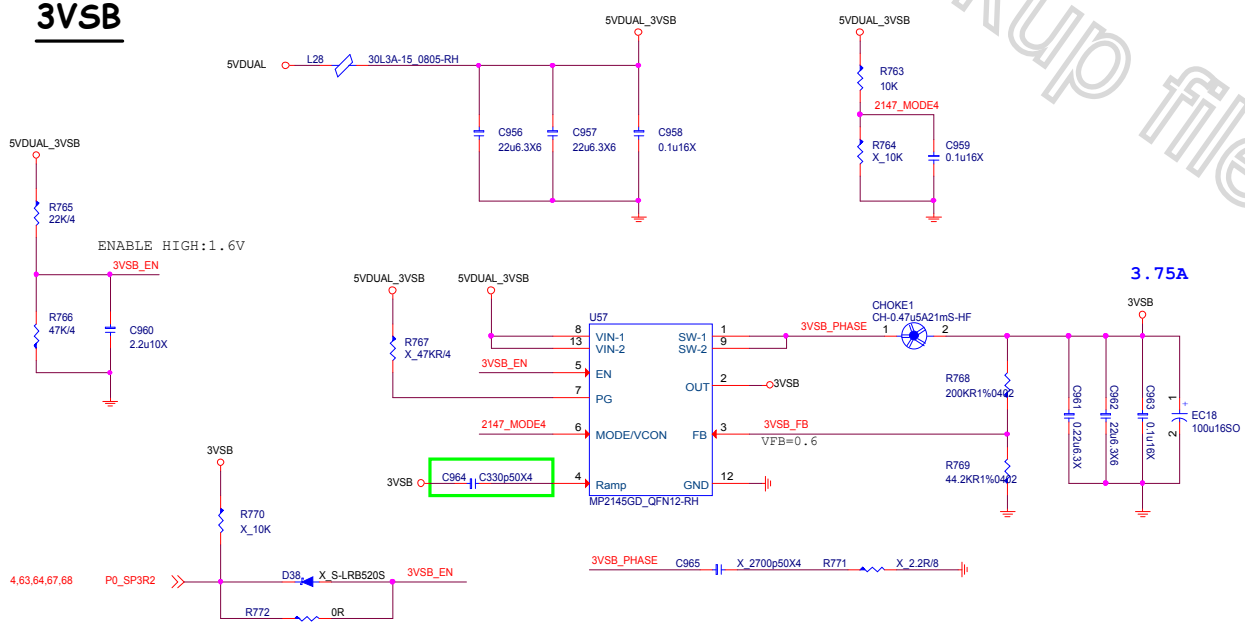
5VDIMM FOR DDR



5VDUAL For 3VSB、CPU 1.8V 、VDDP



3VSB



MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future

Title	ACPI uPI-5VDIMM&3VSB	
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Note: VID Override Circuit

SVC	SVD	BOOT VOLTAGE Pre_PWROK Metal VID
0	0	1.1
0	1	1.0
1	0	0.9
1	1	0.8

Vcore: ICC Max 240A
LL: 0.3 mohm
OCP: 400A

Phase 1 close to CPU power pin.

VR_HOT = 125D

SMB Address: 0X70

N31-2021041-H06

Title	CPU Power-IR35201 10-Phase
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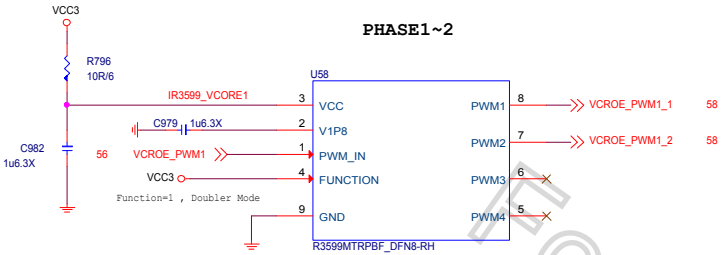
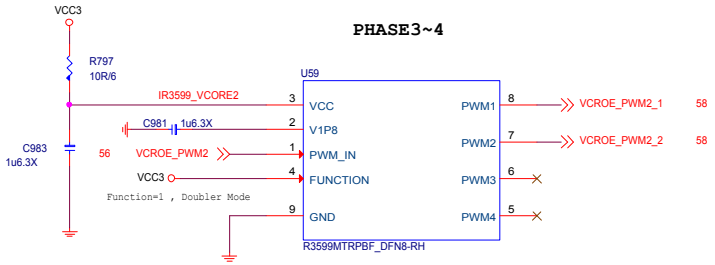
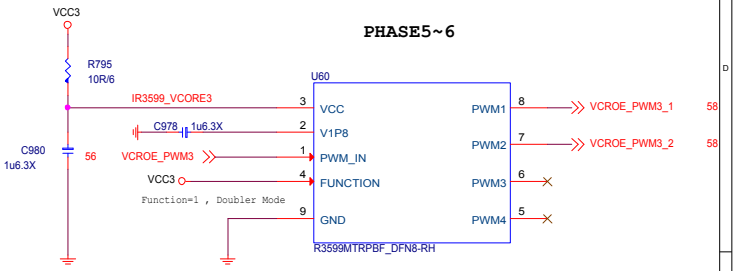
MICRO-START INT'L CO.,LTD.

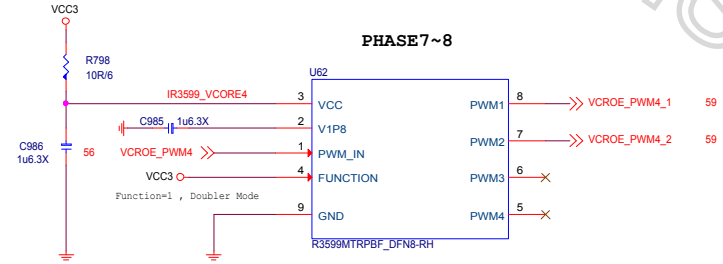
CPU_CORE Driver IC

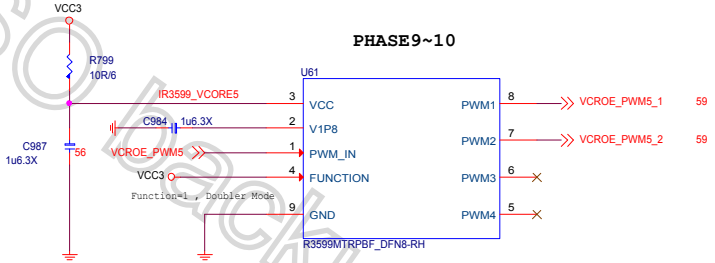
VCORE Double 10-PHASE











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Link to the Future

Title: CPU Power IR3599		
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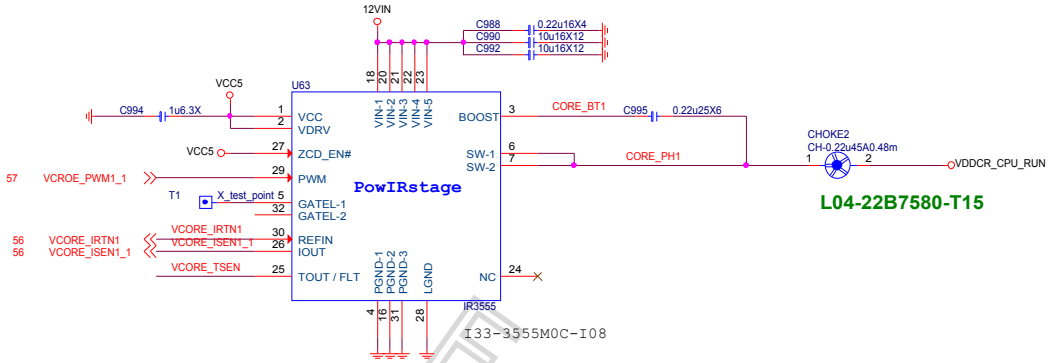

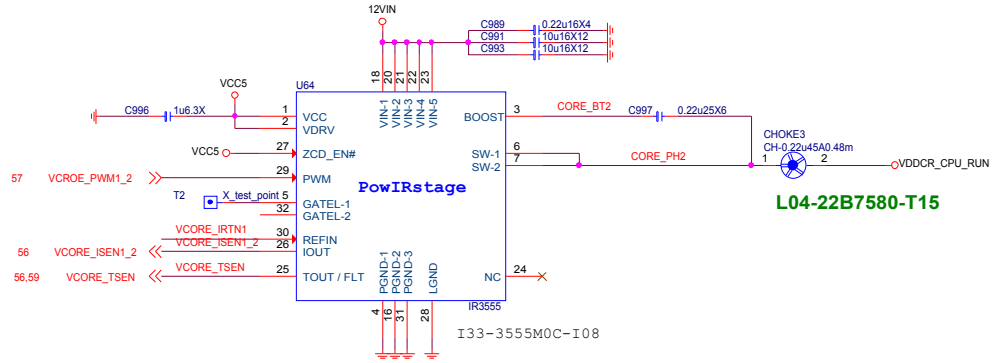

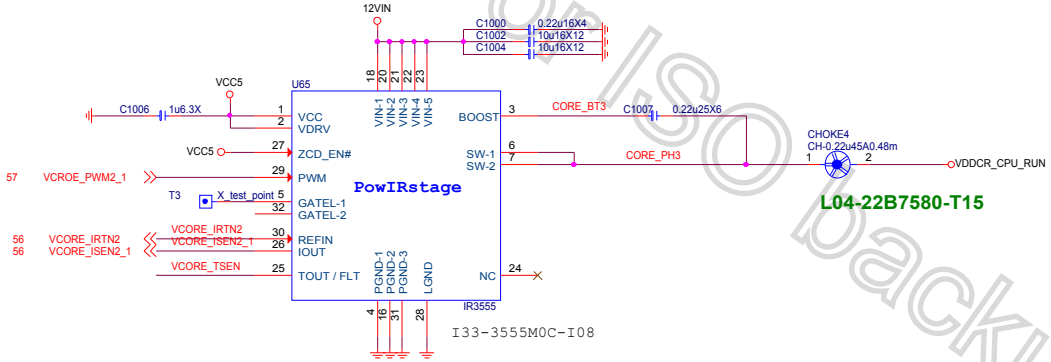

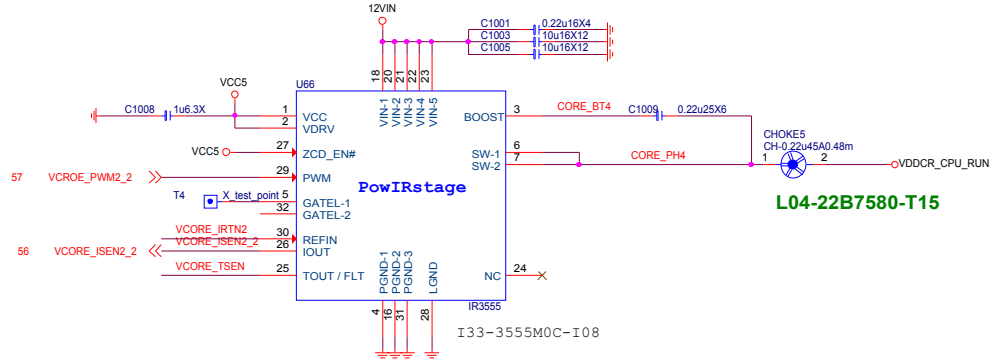

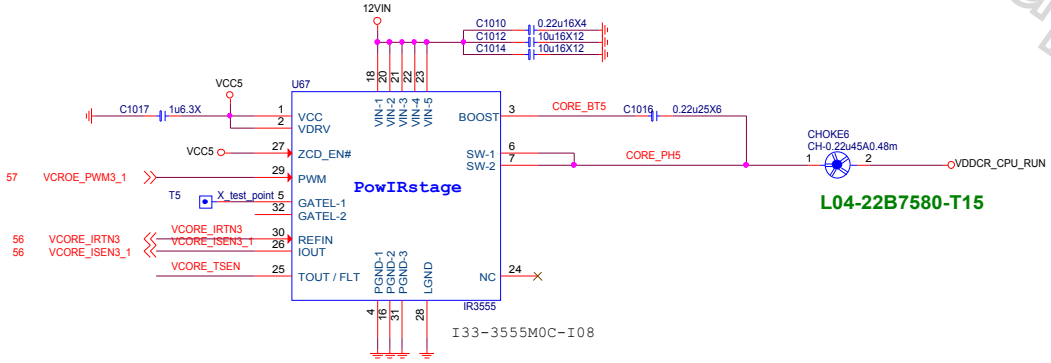

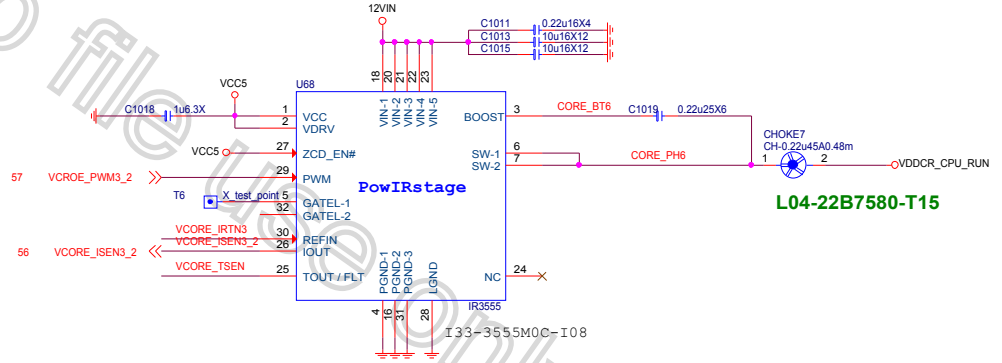

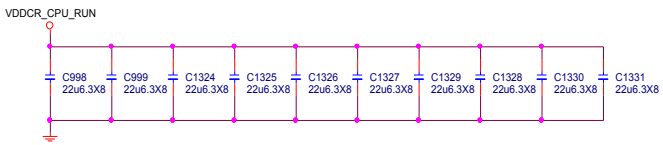

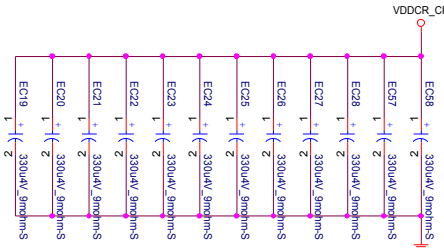

MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future

Title	CPU Power Phase 1-6	
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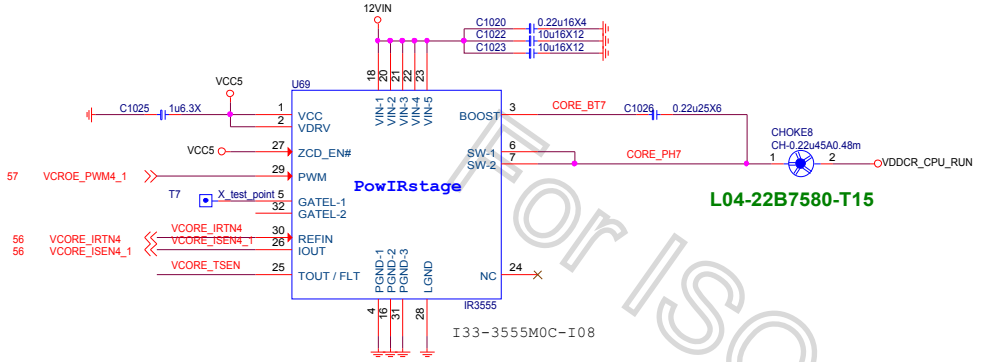

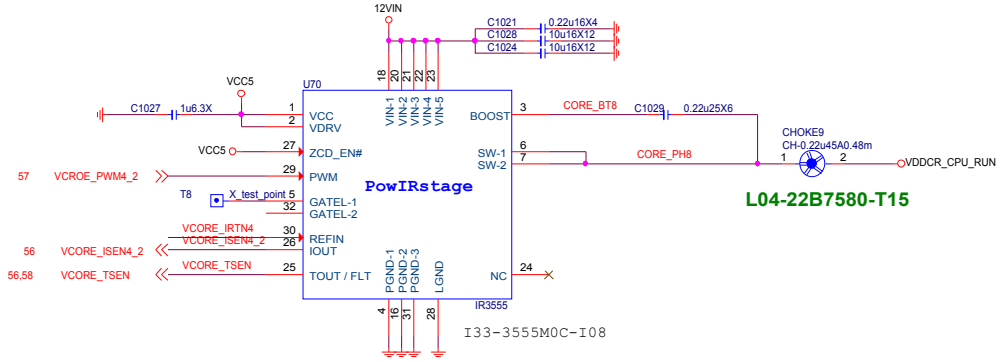

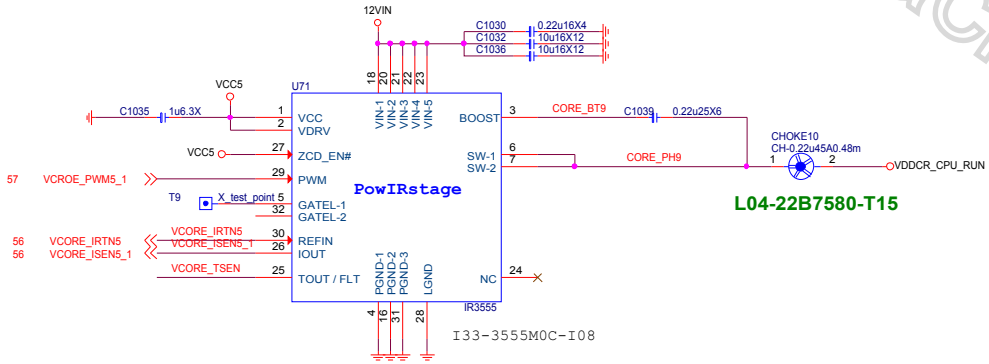

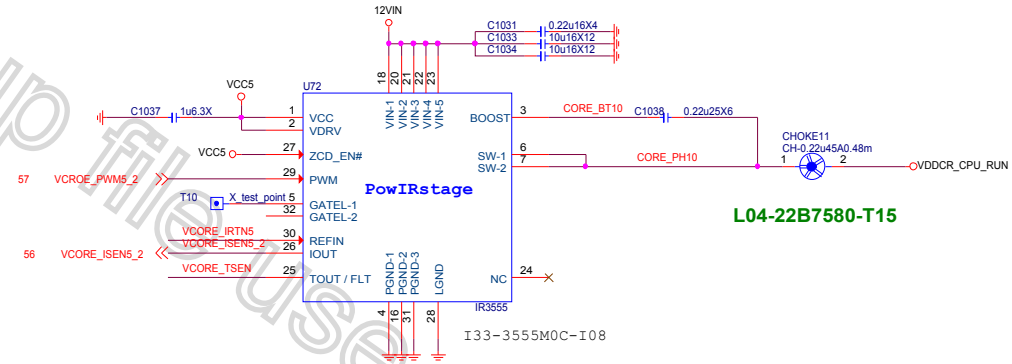

MICRO-START INT'L CO.,LTD.

Title: CPU Power Phase 7-10		
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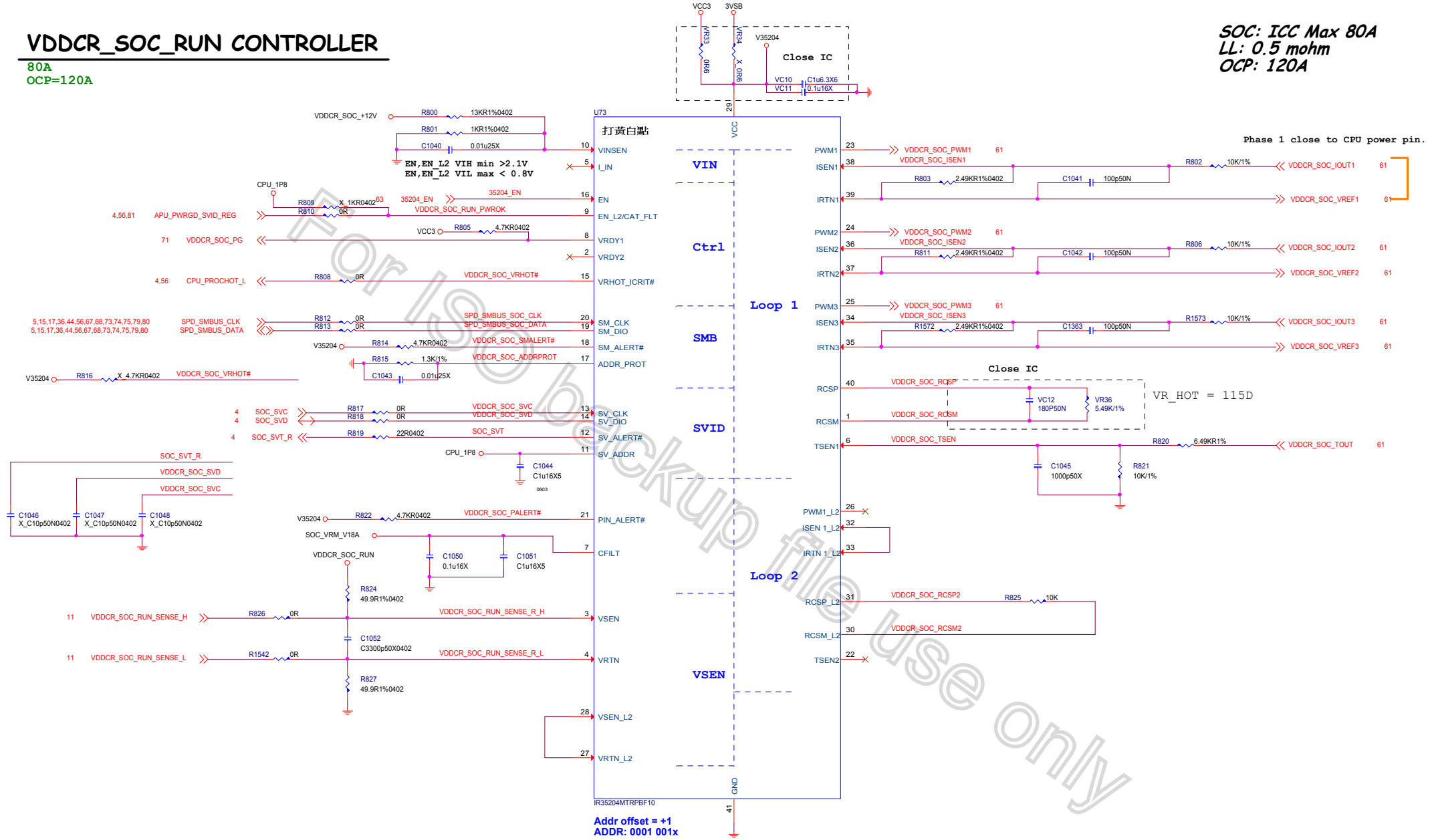
VDDCR_SOC_RUN CONTROLLER

80A
OCP=120A

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



MICRO-START INT'L CO.,LTD.

Title	CPU VDDCR_SOC Power IR35204 3-Phase	
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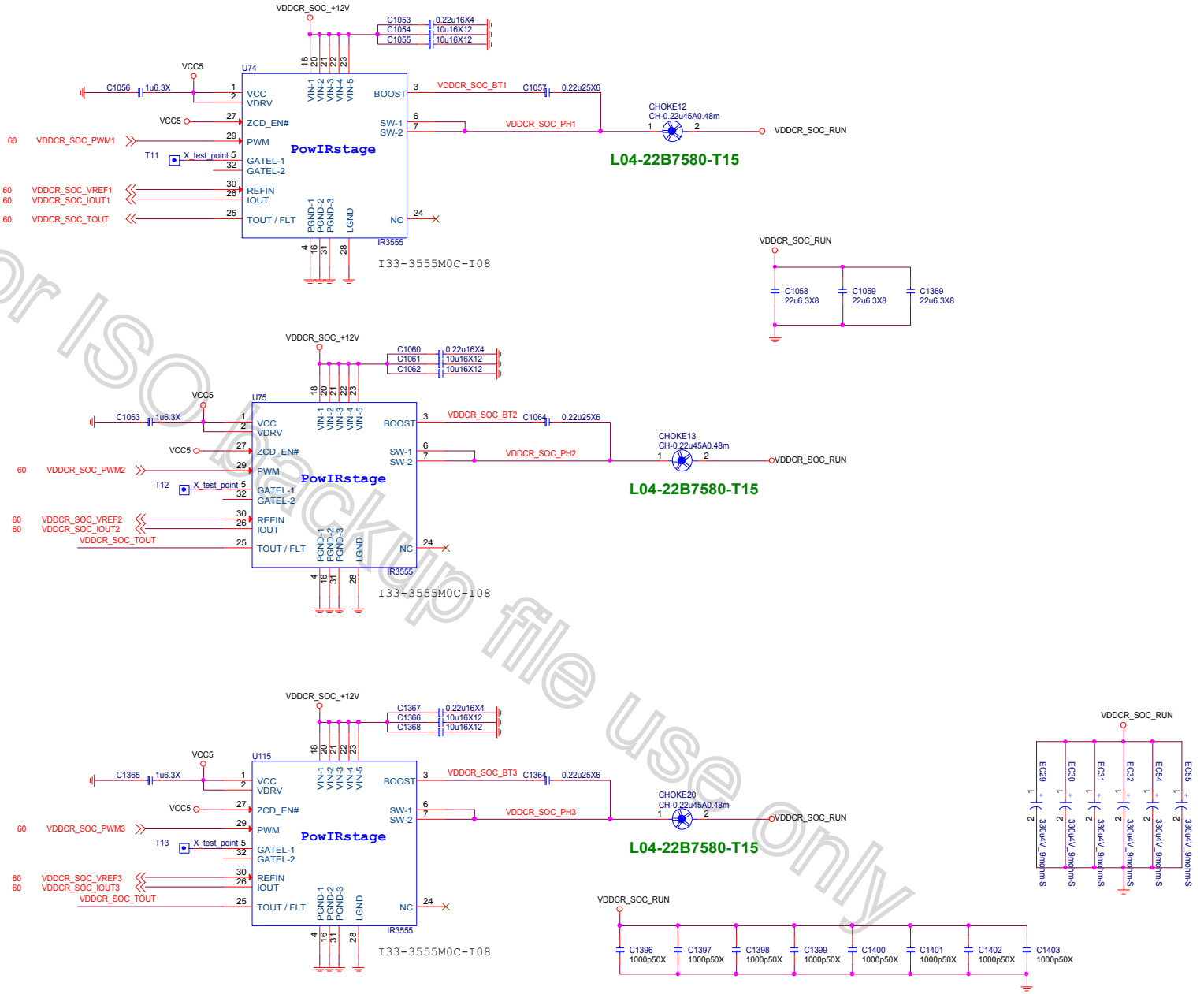
CPU_SOC Driver+MOS IC

3-PHASE



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Link to the Future

Title	CPU VDDCR_SOC Power IR3555 1-3	
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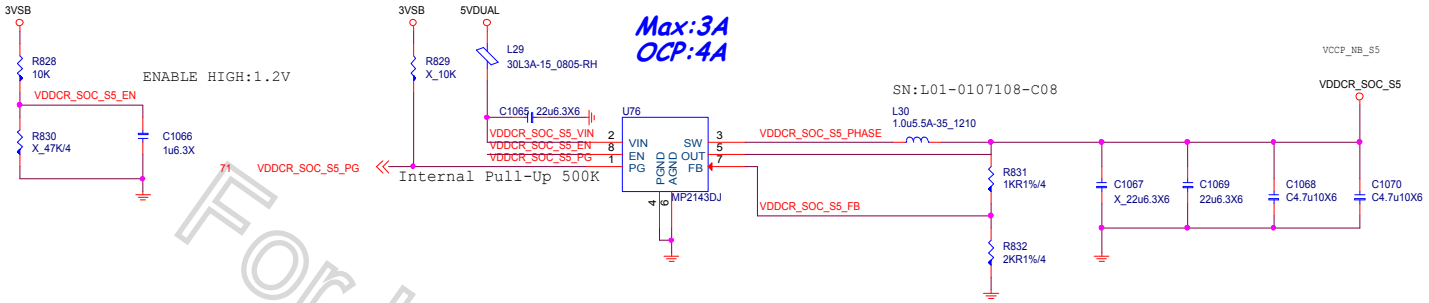
VDDCR_SOC_S5 0.9V

2A



MICRO-START INT'L CO.,LTD.

Title: CPU Power VDDCR_SOC_S5

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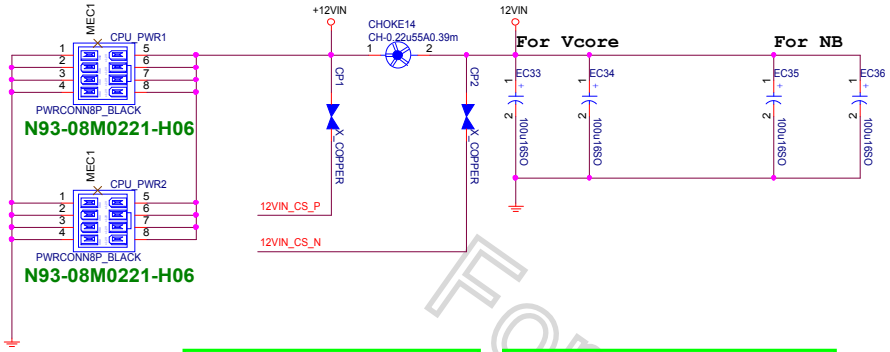
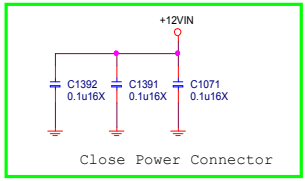
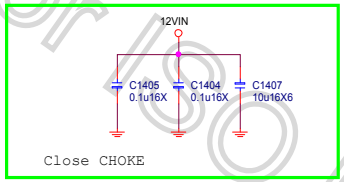
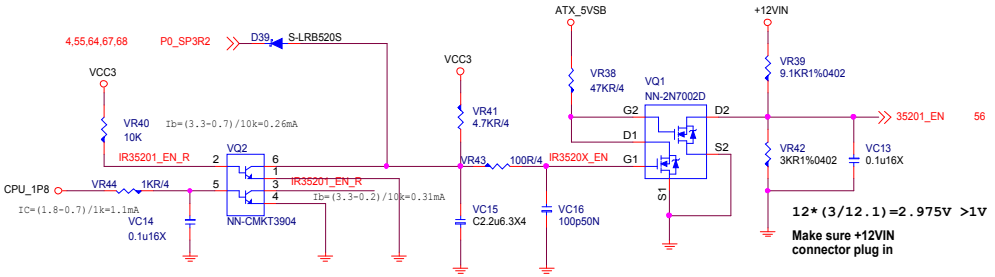
CPU POWER CONNECTOR

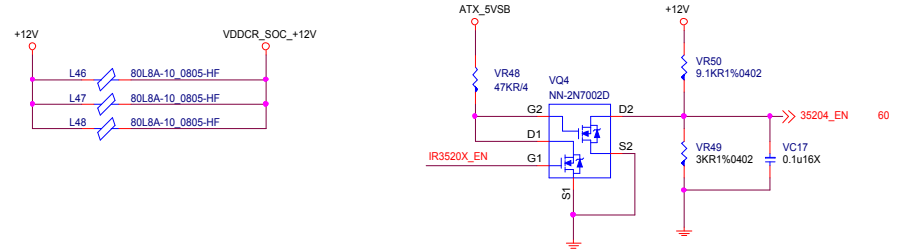




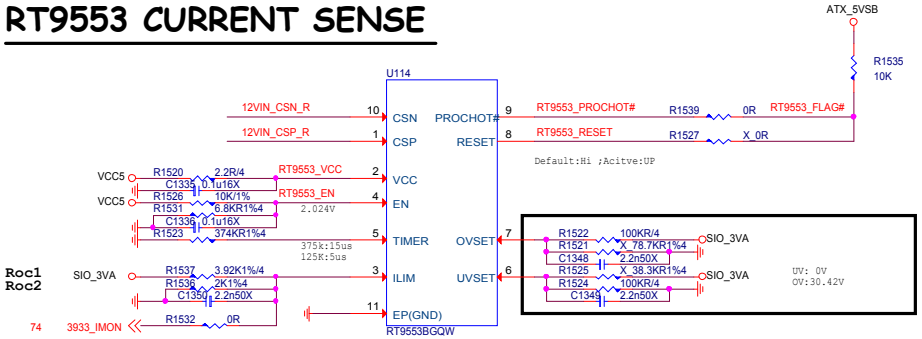


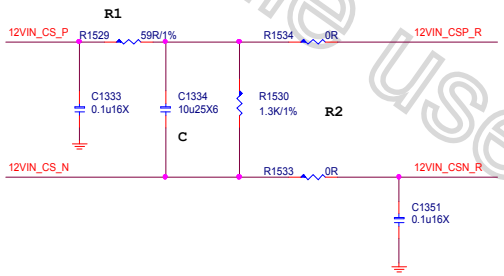
VRM_Enable circuit

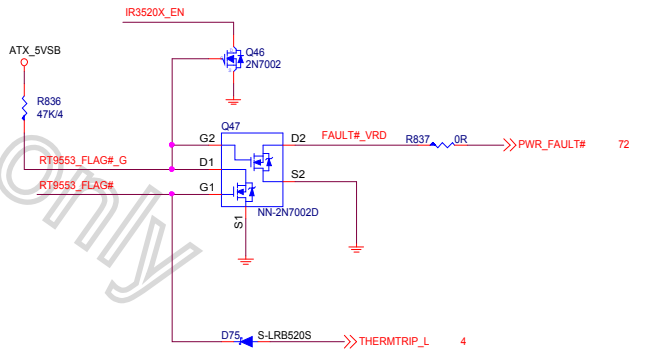




RT9553 CURRENT SENSE







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

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Link to the Future

Title	CPU Power Connector/RT9553B	
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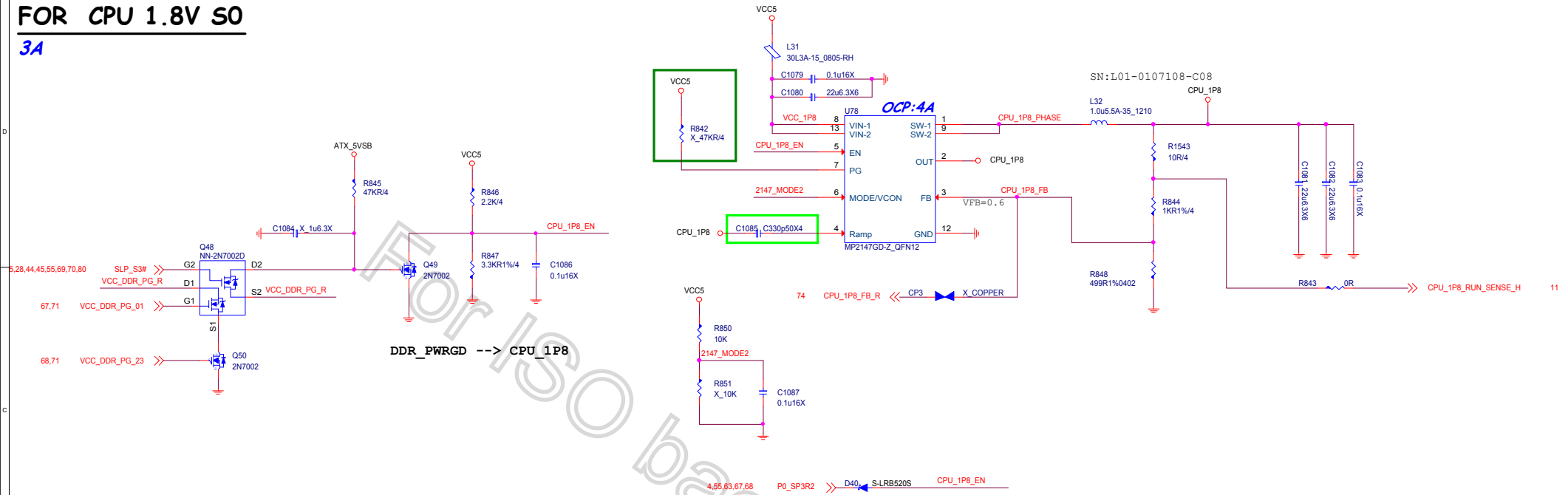
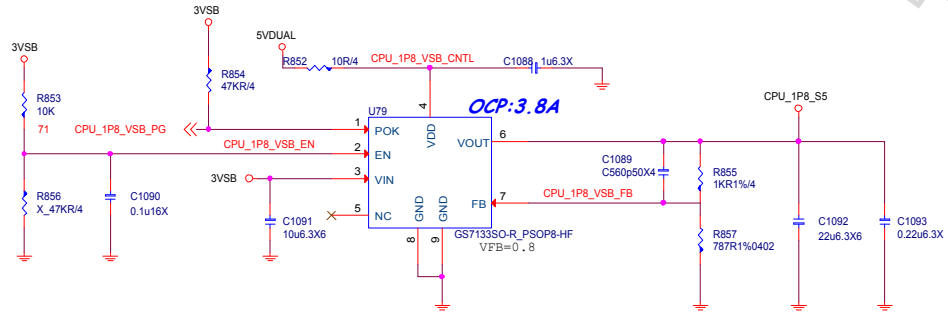
FOR CPU 1.8V S0

3A



FOR CPU 1.8V S5

1A



AVL: I31-3730S02-N62

MICRO-START INT'L CO.,LTD.

Title: CPU Power 1P8V-MP2147		
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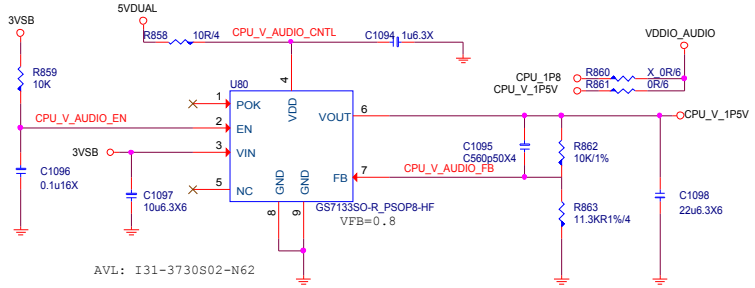
VDDIO_AUDIO Circuit

1.5V
0.25A



MICRO-START INT'L CO.,LTD.

Title: CPU Power Audio-GS7133

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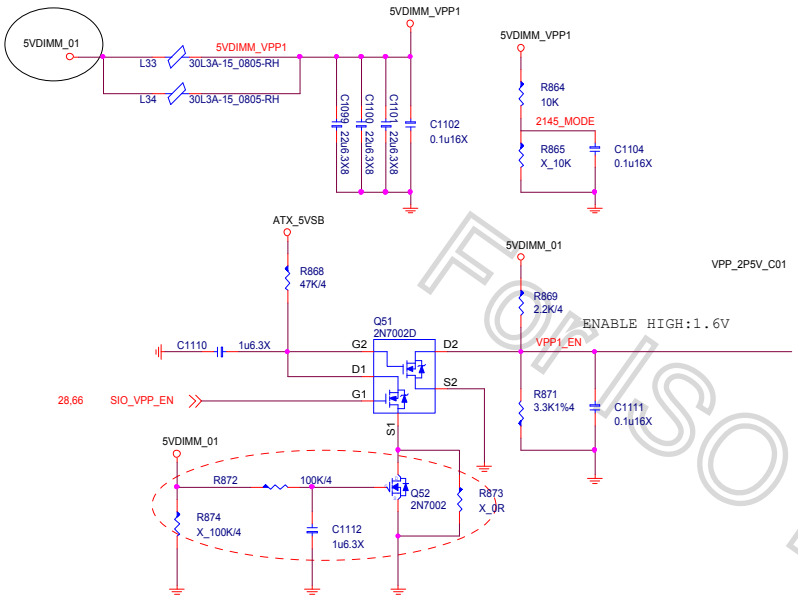
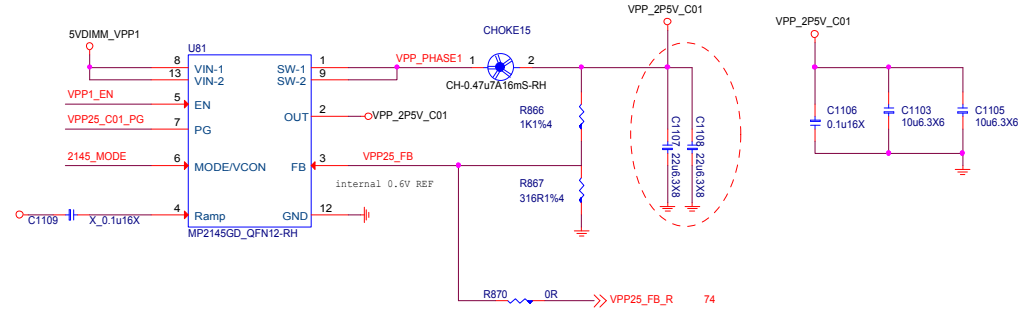
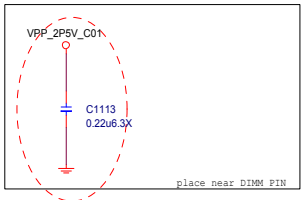
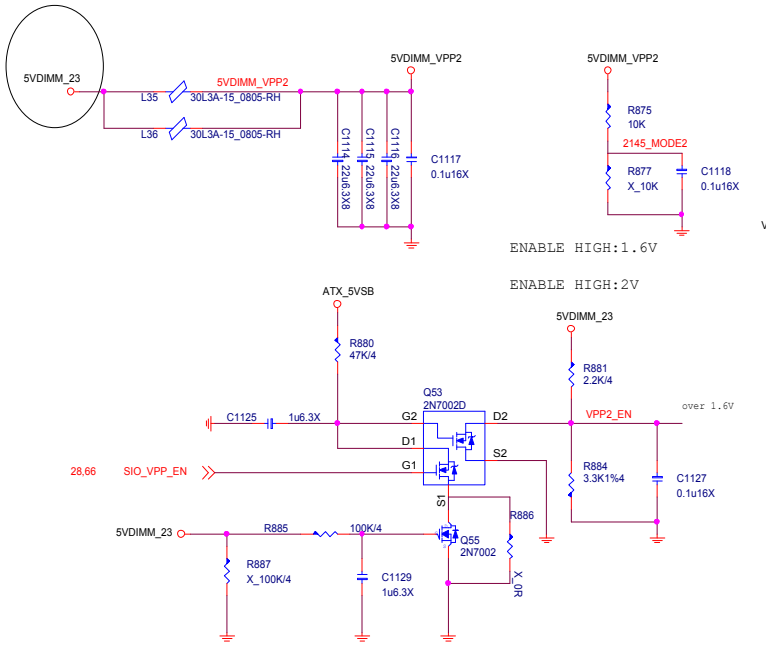
4DIMM :2.24A FOR DDR VPP2.5V

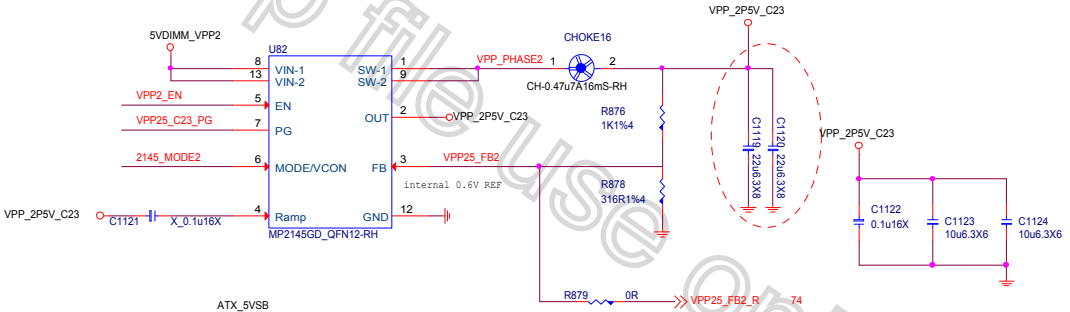
2.5+0.25/-0.125V
JESD79 DDR4 max 3V

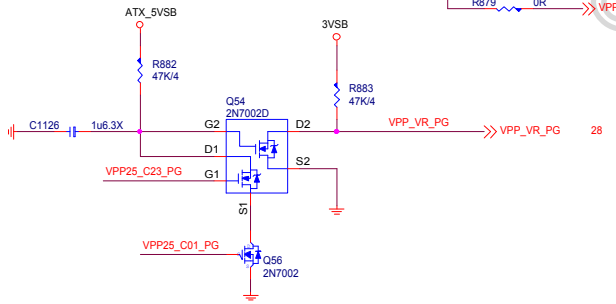


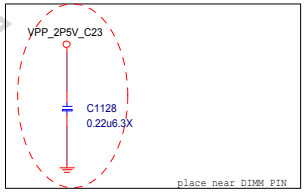












MICRO-START INT'L CO.,LTD.

Title	DDR PWR VPP25/VTT-MP2145	
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DDR Power1-PV4210-2-Phase

DDR4_1.2V 15A+9.5A+1.2A=26A

15A FOR CPU

9.5A FOR 4DIMM

1.2A FOR DDR VTT

OCP: 50A

Iin ripple =5.2A

C71-56106J1-N07

C71-56106J1-N07

I32-421000C-R06

Address=0X42

Title	DDR01 Power-PV4201 2-Phase
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MICRO-START INT'L CO.,LTD.

DDR Power1-PV4210-2-Phase

DDR4_1.2V 15A+9.5A+1.2A=26A

15A FOR CPU

9.5A FOR 4DIMM

1.2A FOR DDR VTT

OCP: 50A

Iin ripple =5.2A

Table6#=1.21V

I32-421000C-R06

Address=0X44

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

Title	DDR23 Power-PV4201 2-Phase
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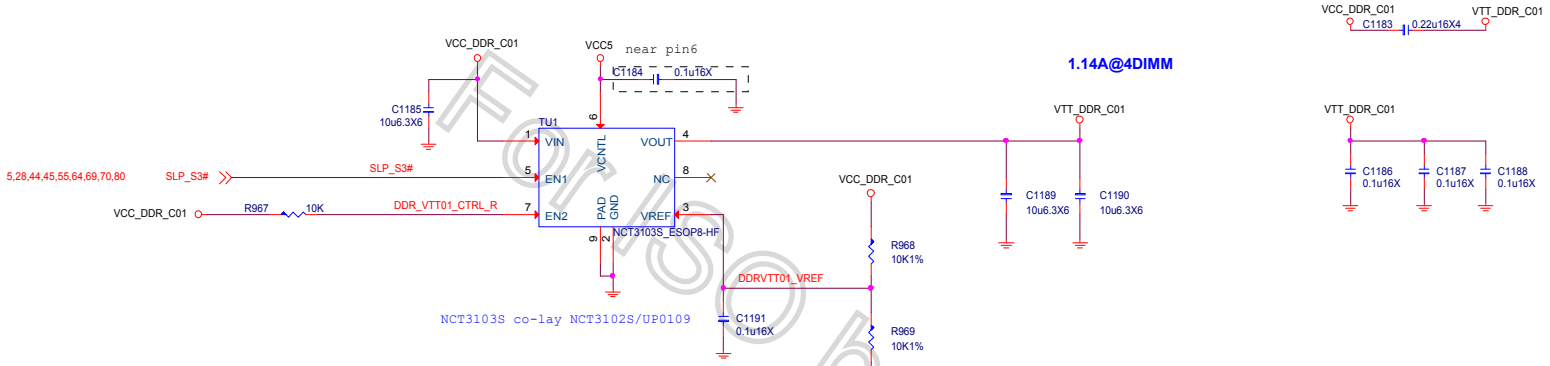
MICRO-START INT'L CO.,LTD.

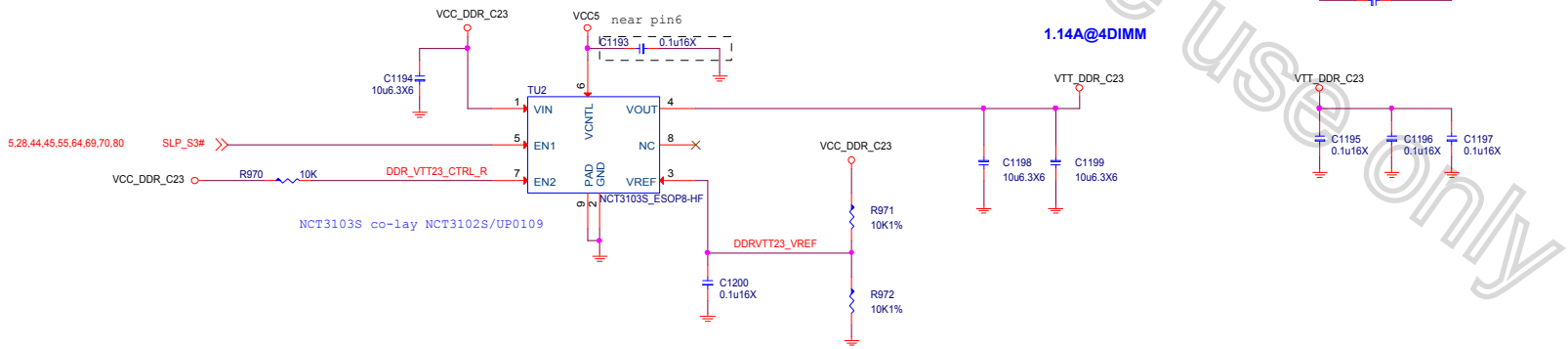
DDR VTT Power

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 .



MICRO-START INT'L CO.,LTD.

Title: VTTDDR		
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FOR Promontory 1.05V_S0

1.05V
S0:5.5A
S5:0.05A

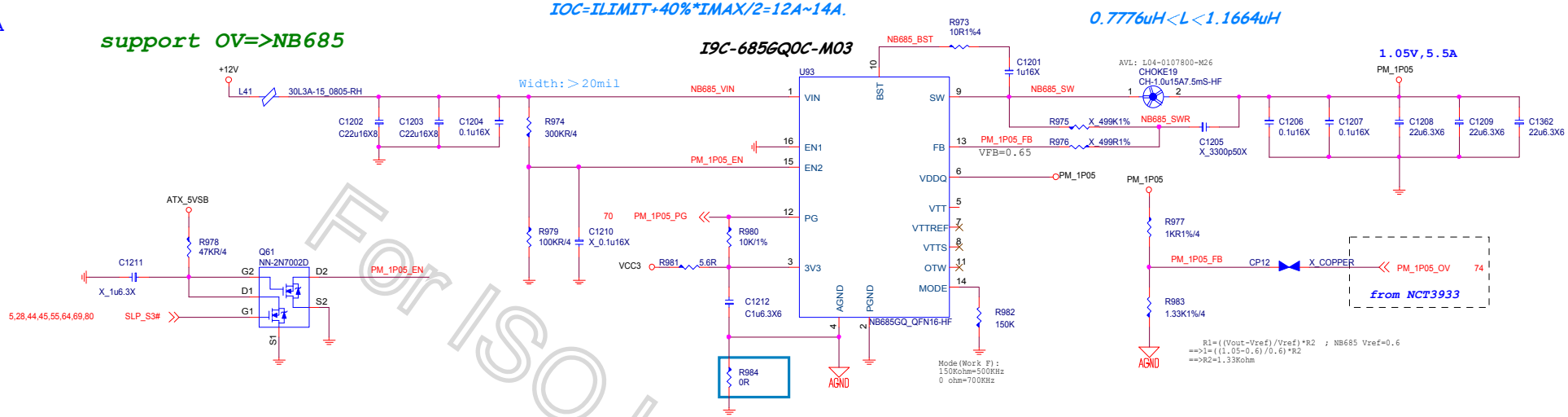
IMAX 10A
ILIMIT=10A~12A
IOC=ILIMIT+40%*IMAX/2=12A~14A.

0.7776uH<L<1.1664uH

support OV=>NB685

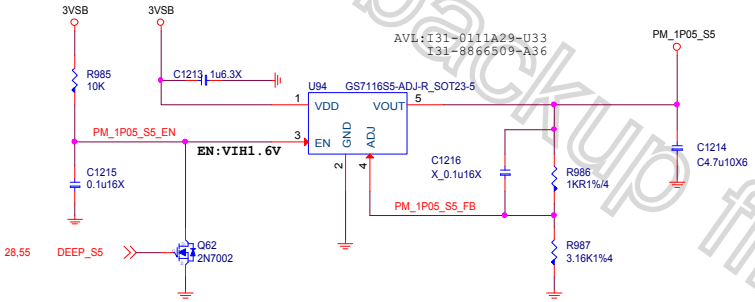
I9C-685GQ0C-M03

1.05V,5.5A



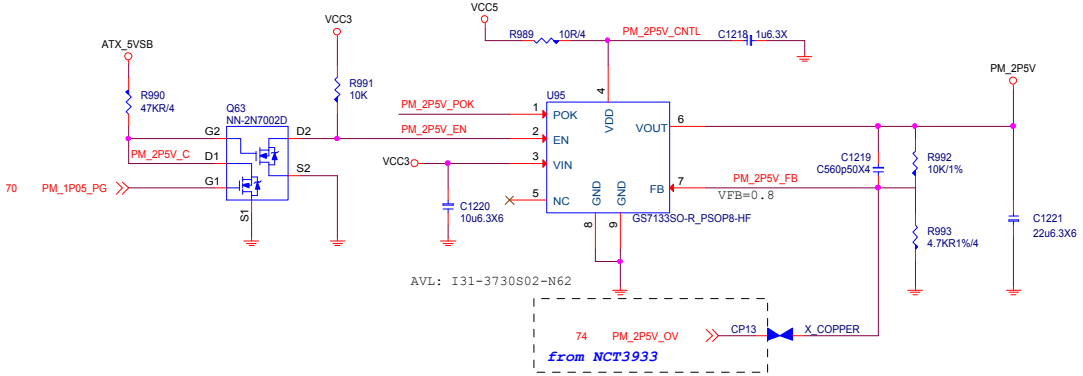
FOR Promontory 1.05V_S5

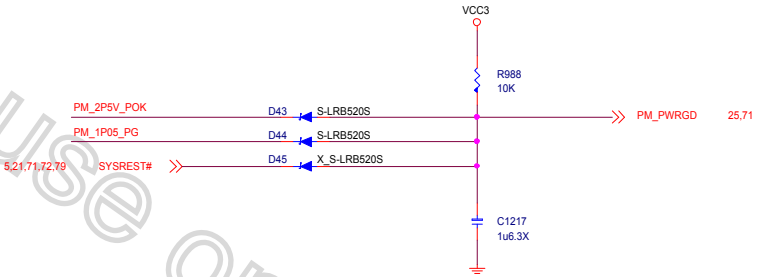
0.05A



Promontory-2.5V

2.5V; 900mA





MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future

Title	Promontory-NB685GQ-1.05V / GS7133-2.5V		
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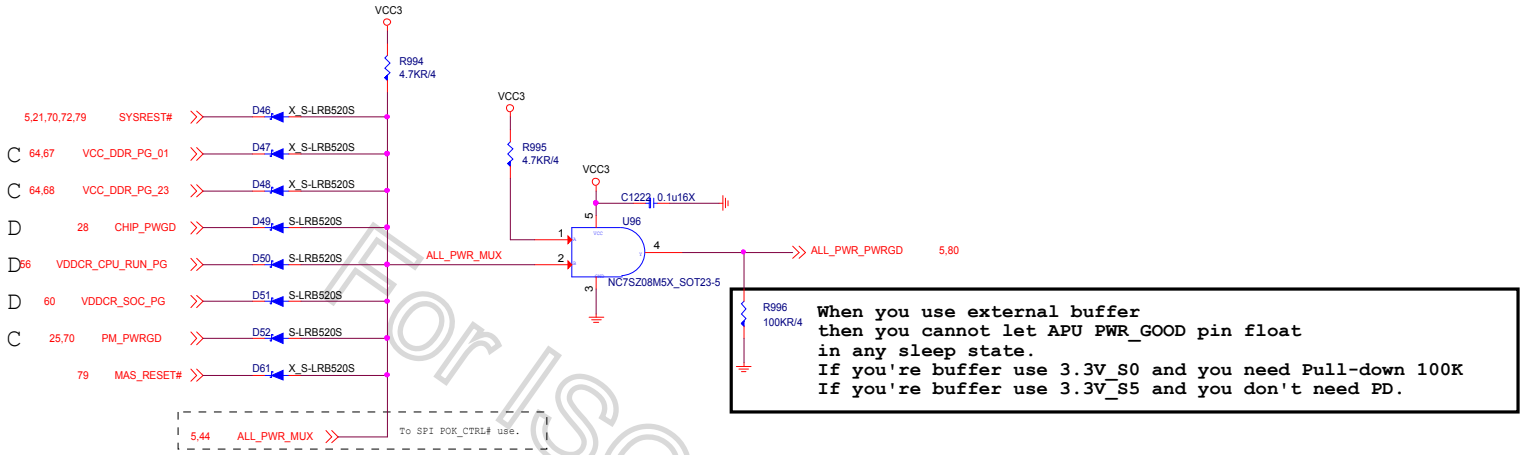
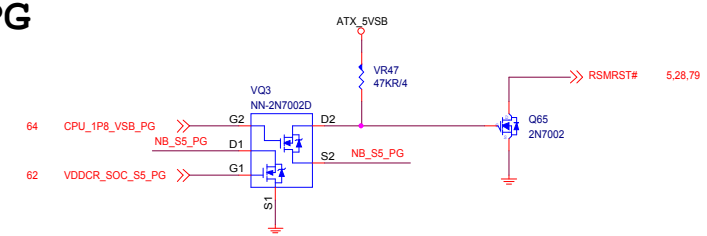
ALL POWER GOOD MUX



When you use external buffer
then you cannot let APU PWR_GOOD pin float
in any sleep state.
If you're buffer use 3.3V_S0 and you need Pull-down 100K
If you're buffer use 3.3V_S5 and you don't need PD.

S0 PG

S5 PG



MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future

Title: CPU Power Good		
Size: Custom	Document Number: MS-7B09	Rev: 2.0
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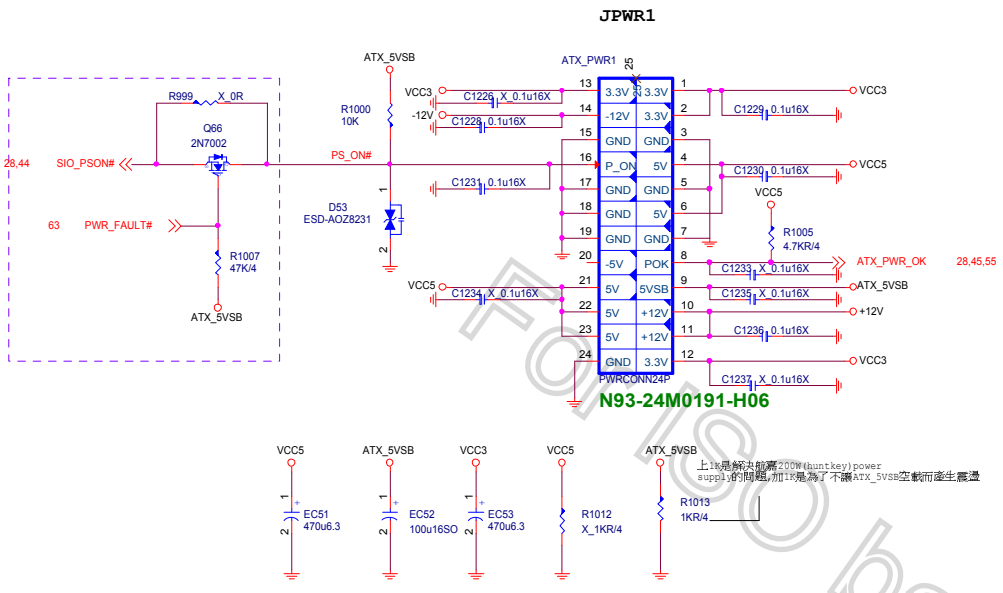
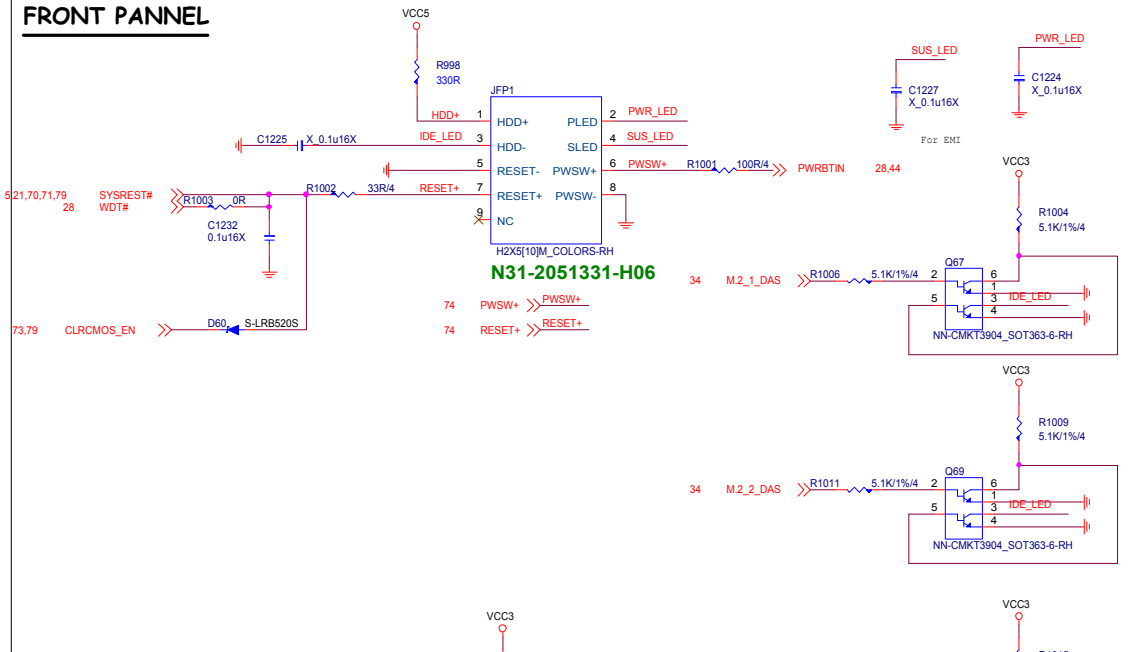
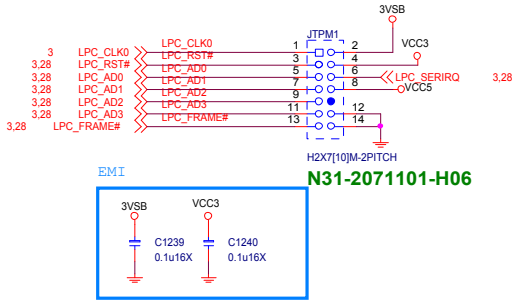
ATX POWER CONNECTOR



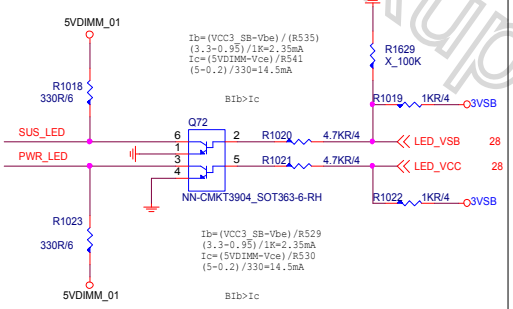
FRONT PANNEL

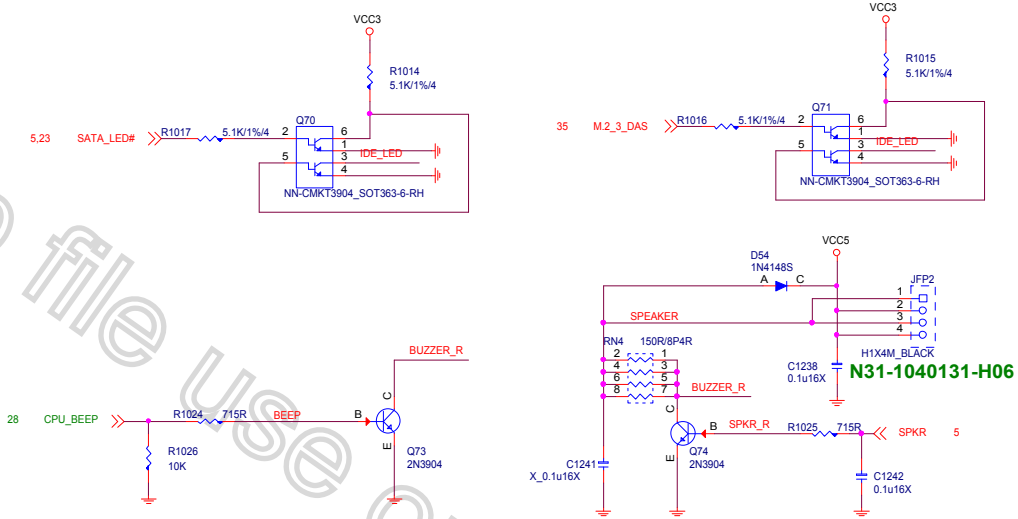


TPM

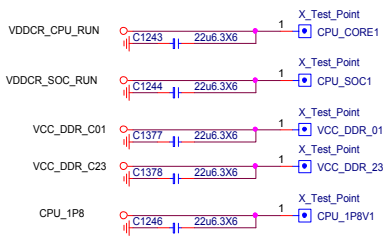


LED (for NCT6795D)

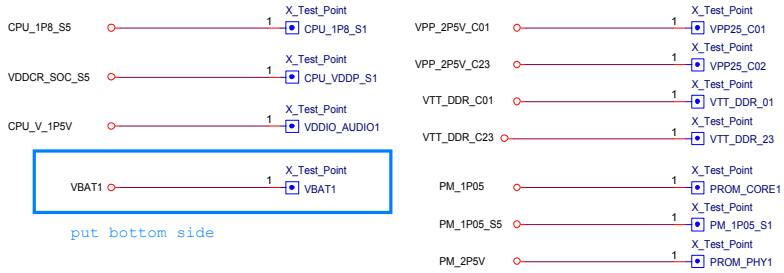




Voltage Mearsure Point



Close to output of IC



MICRO-START INT'L CO.,LTD.

Title	ATX/Front Panel	
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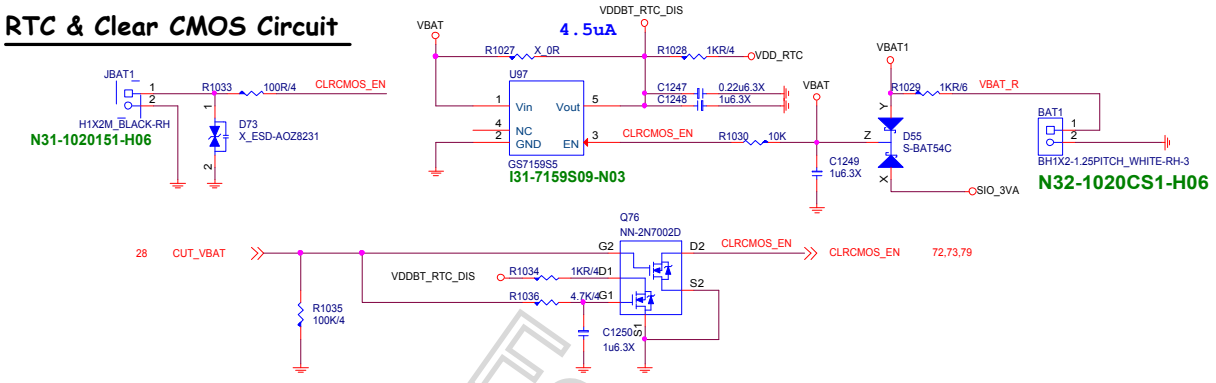
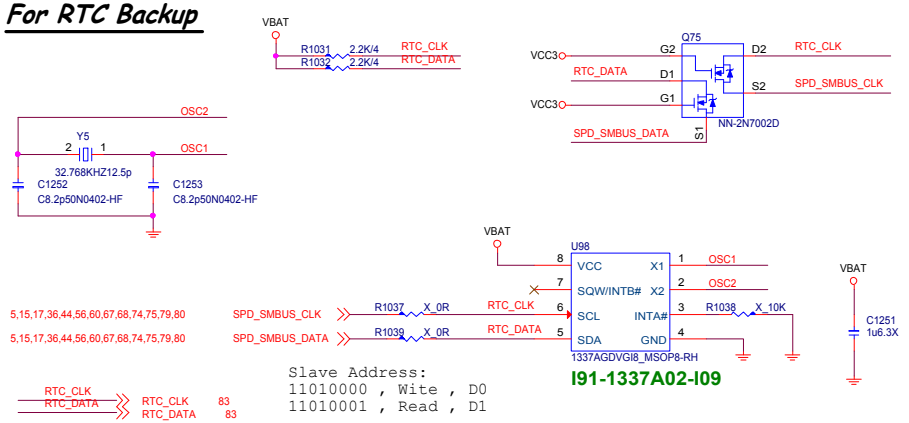
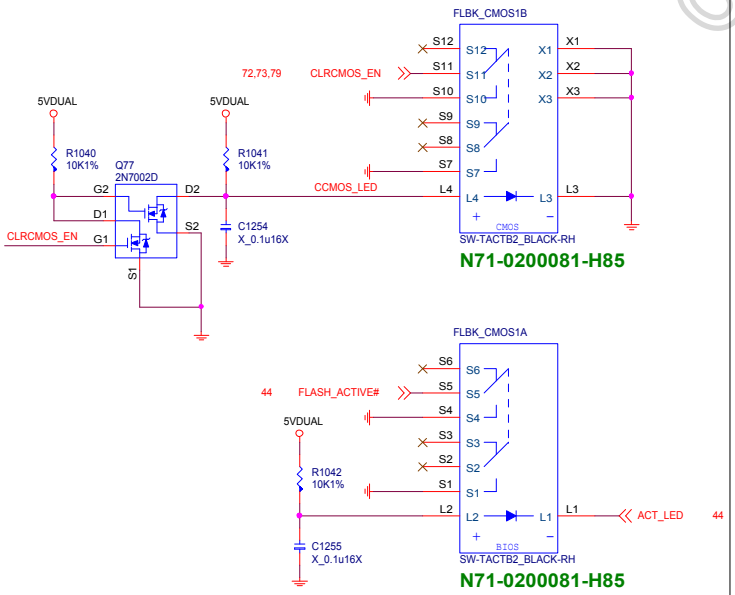
RTC & Clear CMOS Circuit



For RTC Backup



Clear CMOS&Flash Back button



MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future

Title: RTC/Clear CMOS Circuit		
Size: Custom	Document Number: MS-7B09	Rev: 2.0
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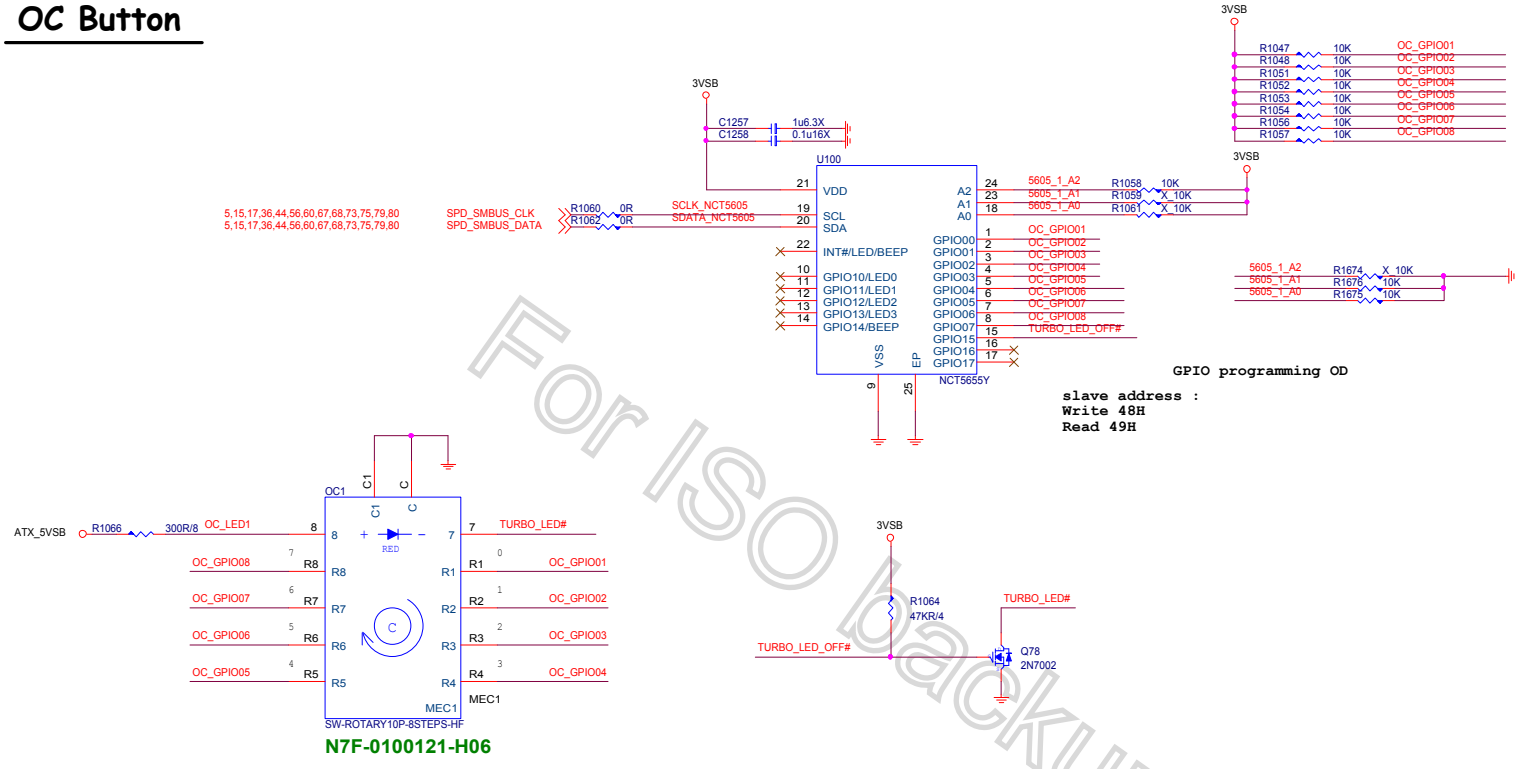
OC Button

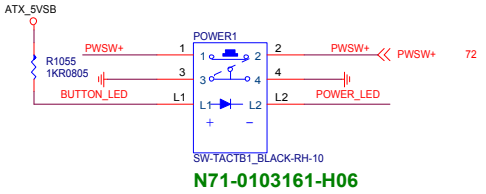


GPIO programming OD

slave address :
Write 48H
Read 49H

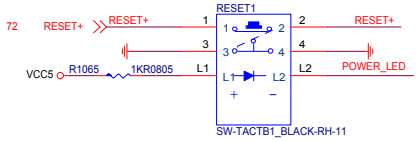
N7F-0100121-H06

Power ON Button

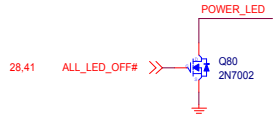


N71-0103161-H06

Reset Button



N71-0103151-H06

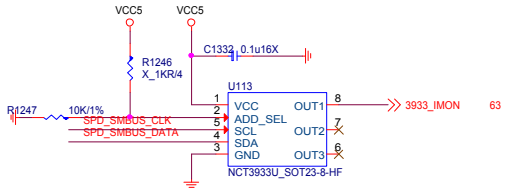


Over Voltage Control IC

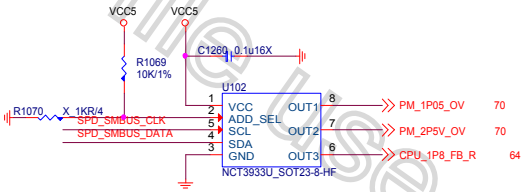
UPI VOLTAGE CONSOLE

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%

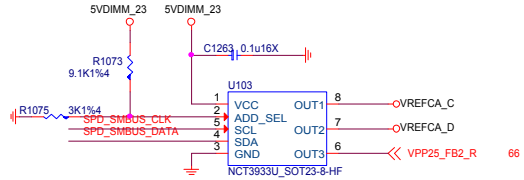
0x2A:RH=OPEN,RL=10K



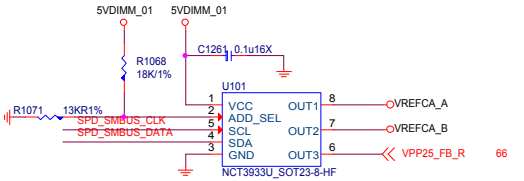
0x20:RH=10K,RL=OPEN



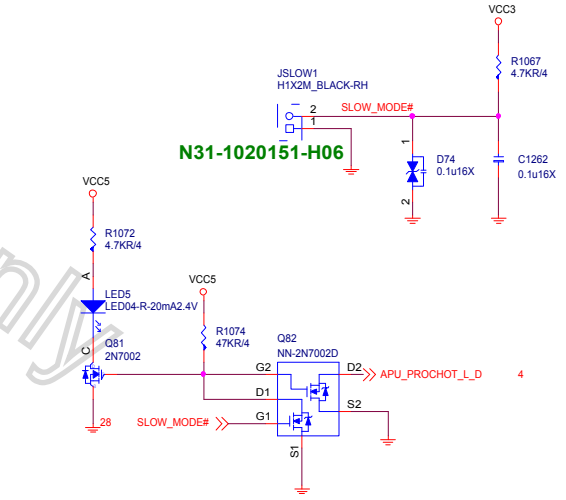
0x28:RH=9.1K,RL=3K



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



Slow Mode



MICRO-START INT'L CO.,LTD.

Title: Button/OV Control/NCT3933

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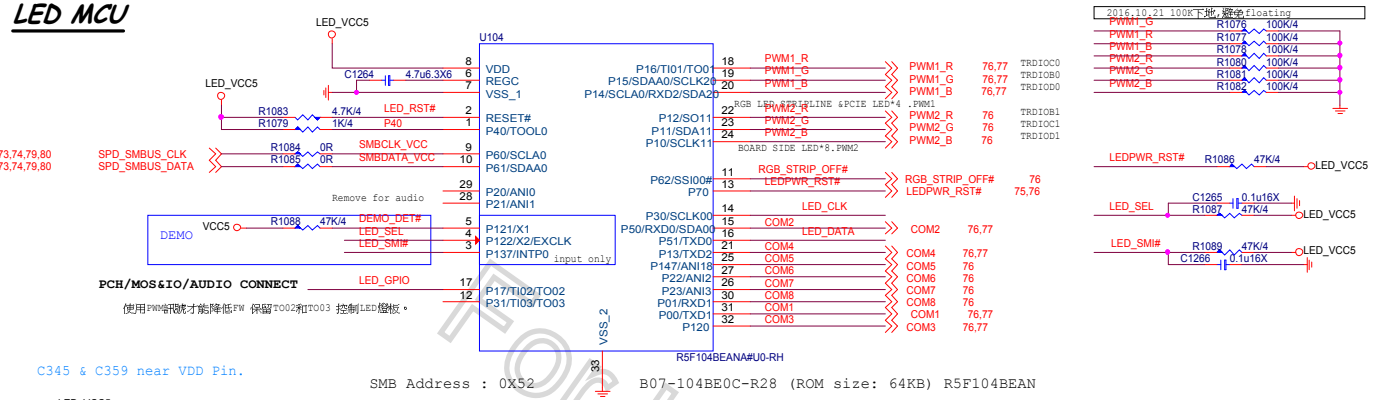
LED MCU

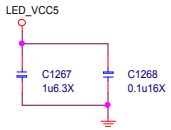


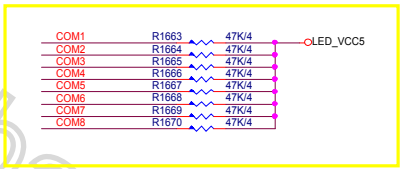
Control	Net Name	PWM USE	Connector
PCH	LED_GPIO	No Use	JPIPE_LED1
AUDIO Cover	LED_GPIO_01	No Use	JPIPE_LED2
MOS/IO cover	LED_GPIO_02	No Use	JPIPE_LED3
LED STRIPLINE	RGB_STRIP_OFF#	PWM1	JLED1
Board Side LED	COM1~8	PWM2	RGB LED
PCIE Side LED	COM1~4	PWM1	RGB LED

C345 & C359 near VDD Pin.

SMB Address : 0X52

B07-104BE0C-R28 (ROM size: 64KB) R5F104BEAN



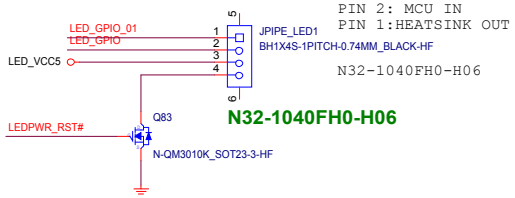


JPIPE:PIN1:output ,PIN2:input

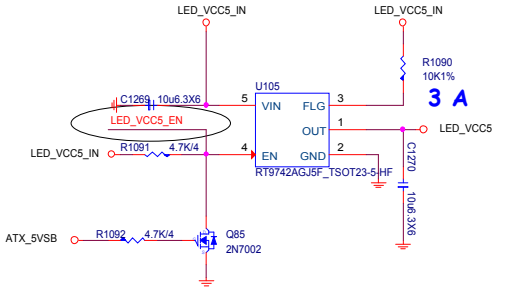
1 PCH HEATSINK LED

PCS LED*0.16W=W

PIN 2: MCU IN
PIN 1:HEATSINK OUT

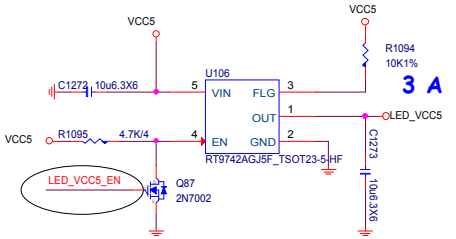


EXTERNAL POWER INPUT

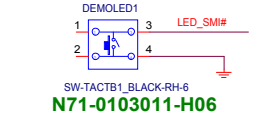


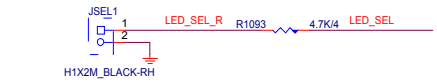
min 80mil.

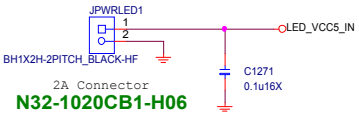
I36-9742A09-R11



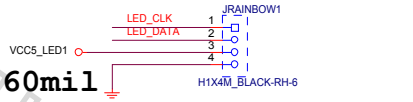
LED Demo Button



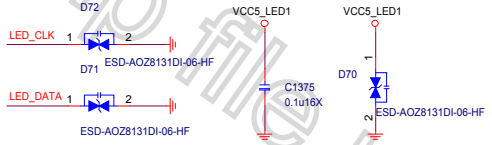


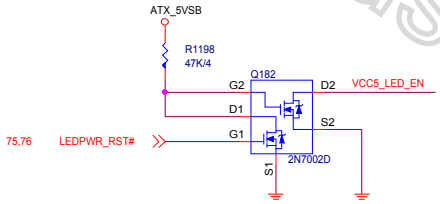


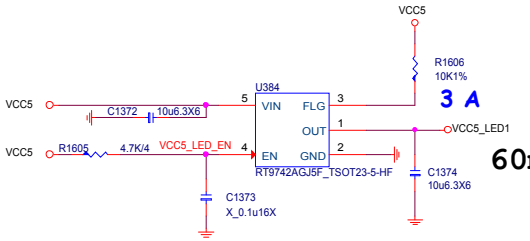
N32-1020CB1-H06



60mil



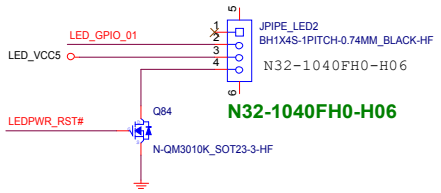




60mil

2 AUDIO/IO Cover LED

PCS LED*0.16W=W



JPIPE_LED3 no SPEC

MSI MICRO-START INT'L CO.,LTD.
Link to the Future

Title	LED MCU Control	
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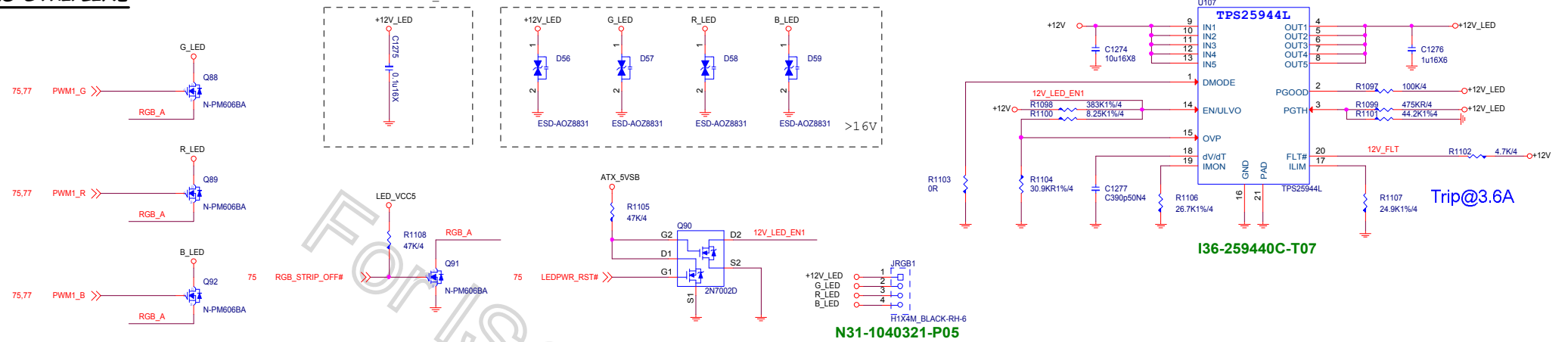
LED STRIPLINE

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



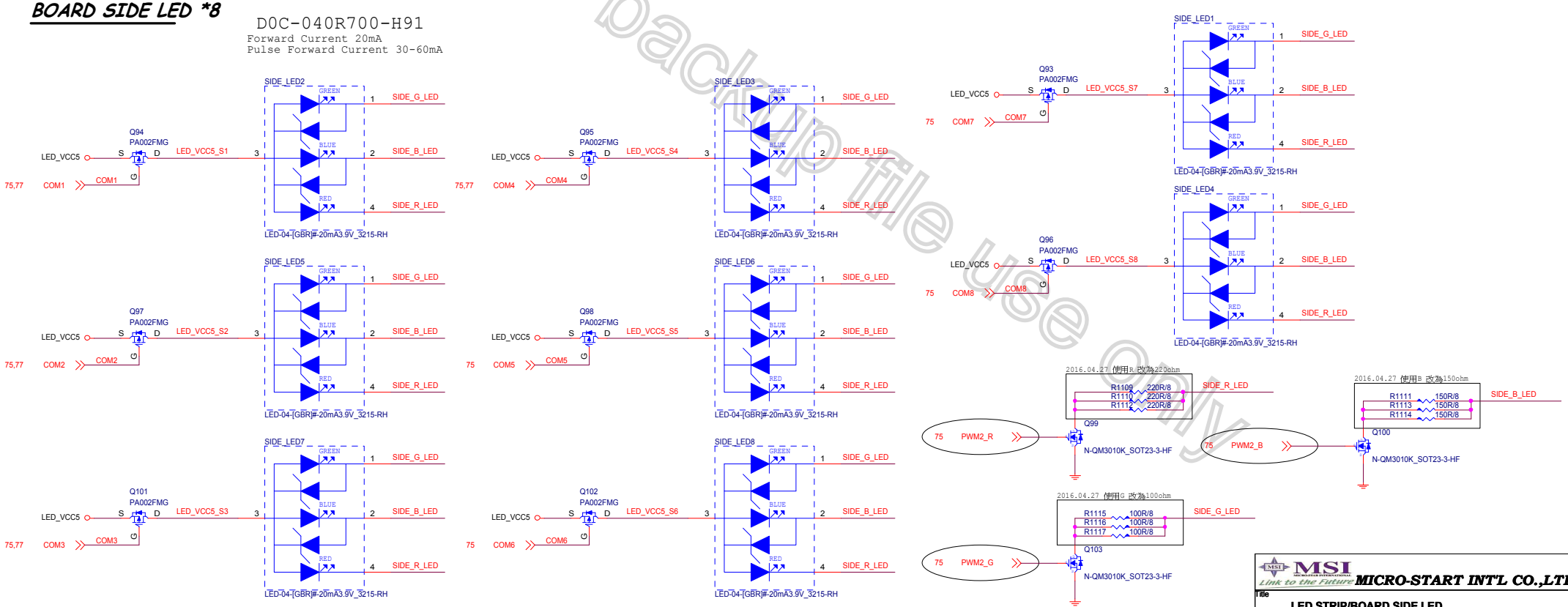
N31-1040321-P05

I36-259440C-T07

外接LED 燈條 (RGB)
---- PCB 文字面 (JLED1)
---- 手冊 註明 RGB 接頭支援標準 5050 RGB LED 燈條 (12V/G/R/B) , 燈條總輸出電流限制為3安培 (12 伏特) ,
長度限制為2公尺 (待7A20驗證)

BOARD SIDE LED *8

D0C-040R700-H91
Forward Current 20mA
Pulse Forward Current 30-60mA



MICRO-START INT'L CO.,LTD.
Link to the Future

Title	LED STRIP/BOARD SIDE LED		
Size: Custom	Document Number: MS-7B09		Rev: 2.0
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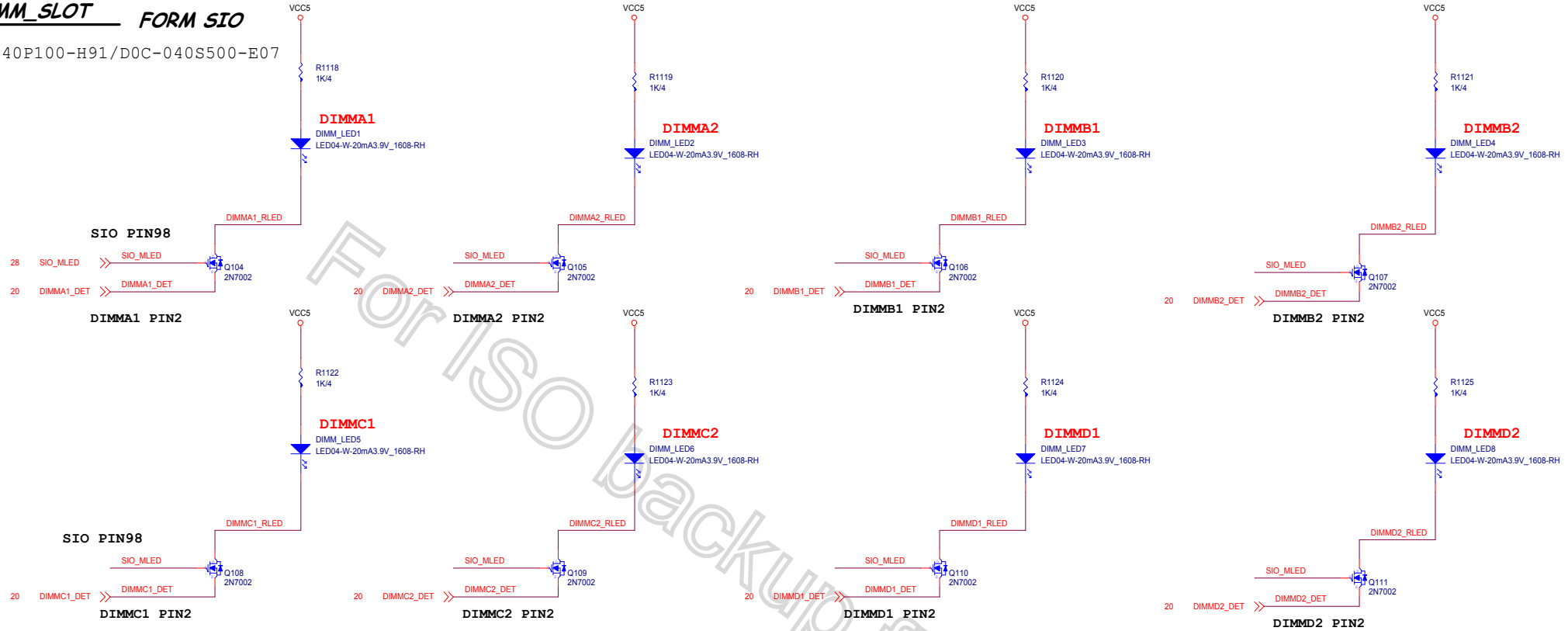
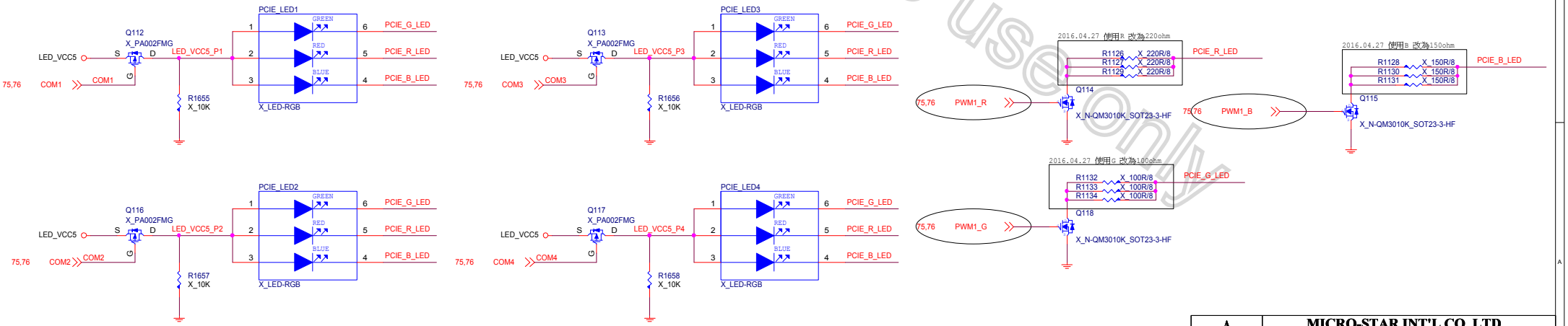
DIMM_SLOT FORM SIO

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



PCIE_SLOT LED*4 FORM MCU

D0C-040S400-H91



MICRO-STAR INT'L CO.,LTD		
MS-7B09		
Size: Custom	Document Description: LED DIMM/PCIE	Rev: 2.0
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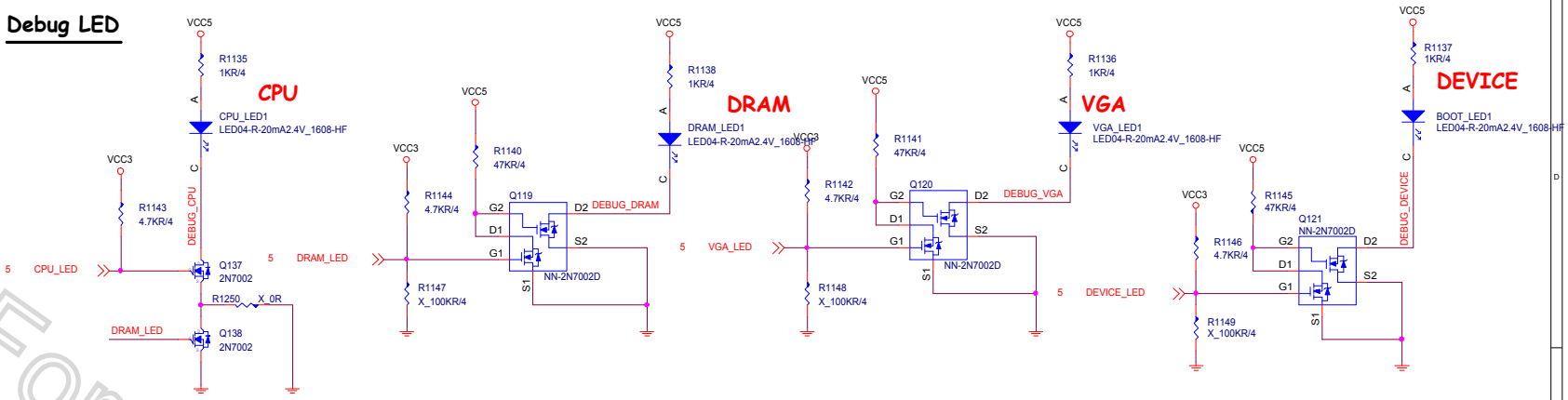
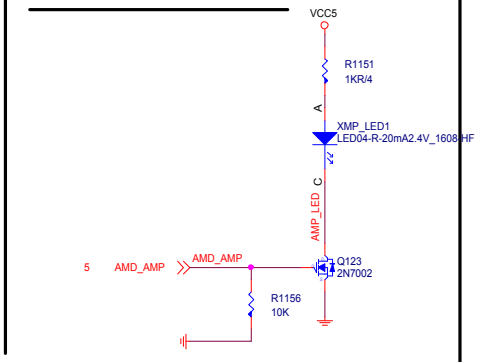
Debug LED



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)

AMD AMP Detect LED



MICRO-STAR INT'L CO.,LTD.

Title: DEBUG LED

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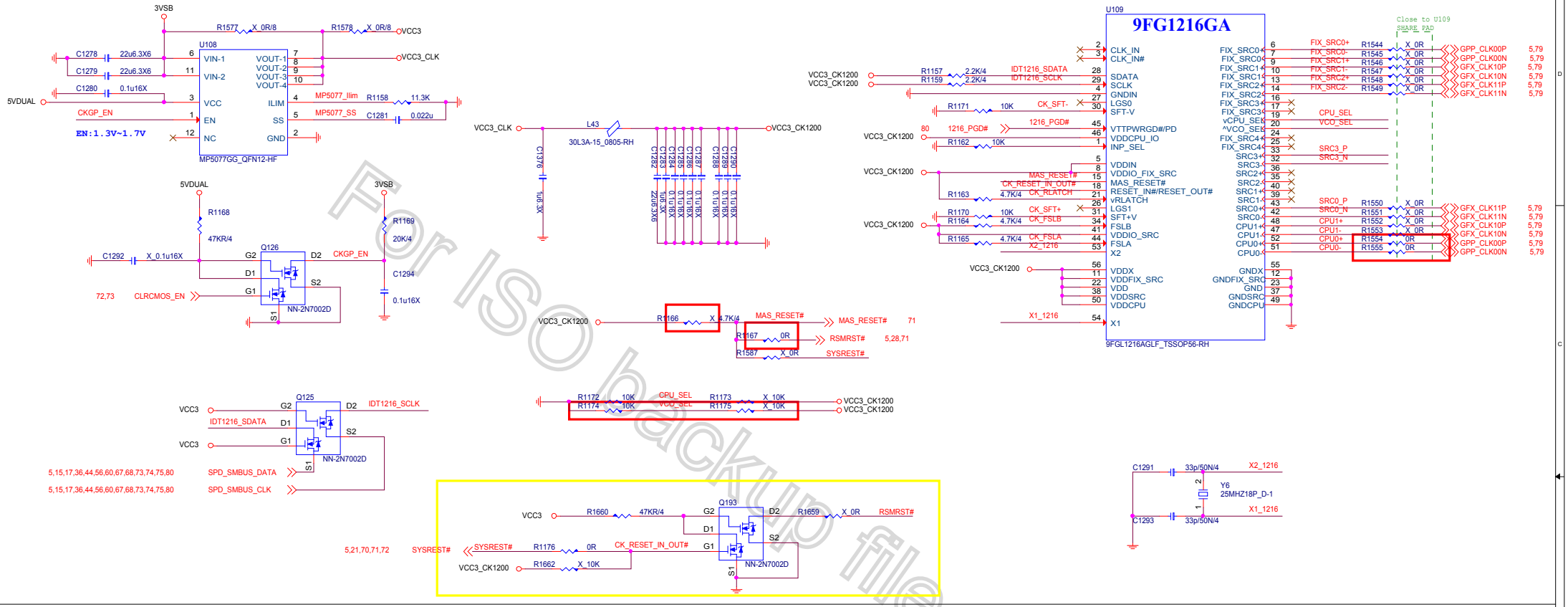
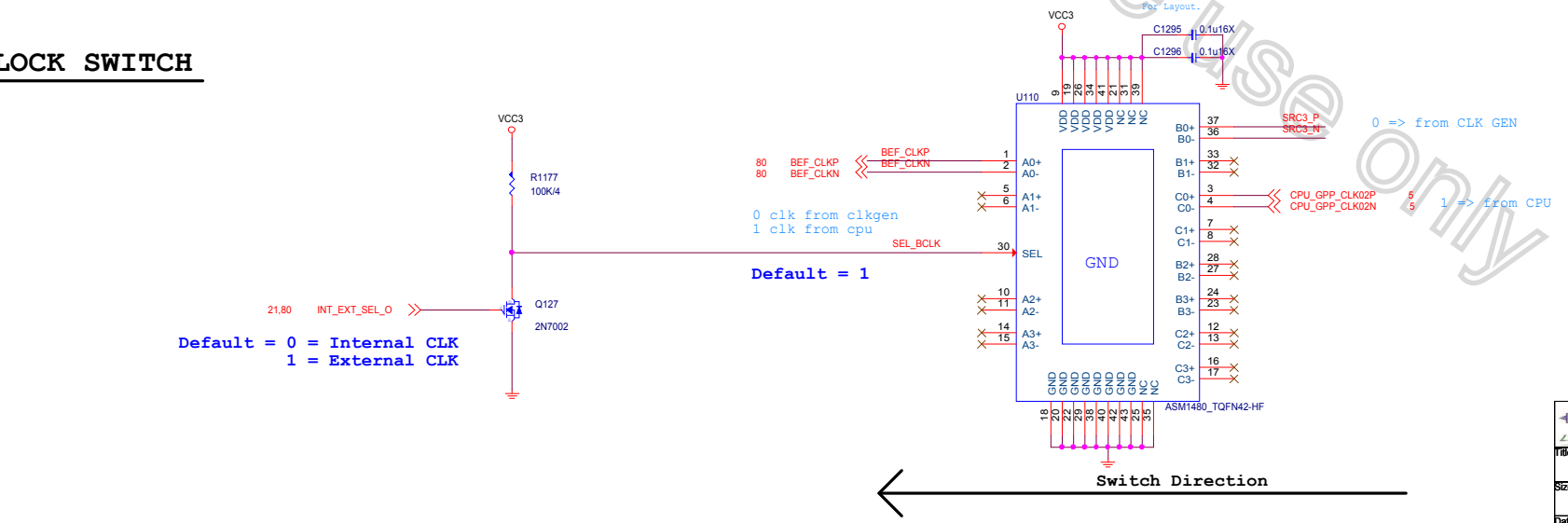
CLOCK GEN



CLOCK SWITCH



MICRO-START INT'L CO.,LTD.

Title	CLOCK GEN1216	
Size	Document Number: MS-7B09	Rev: 2.0
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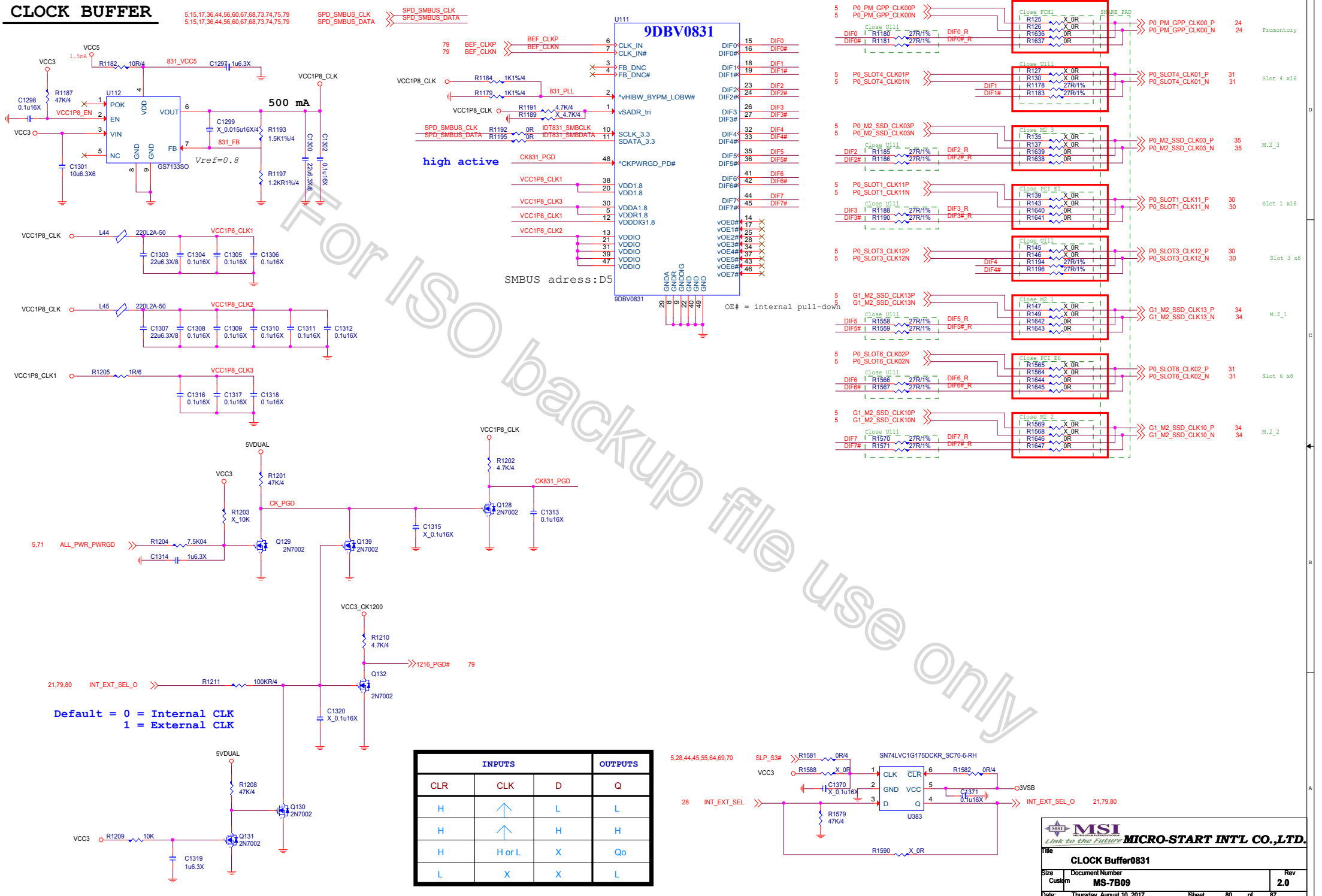
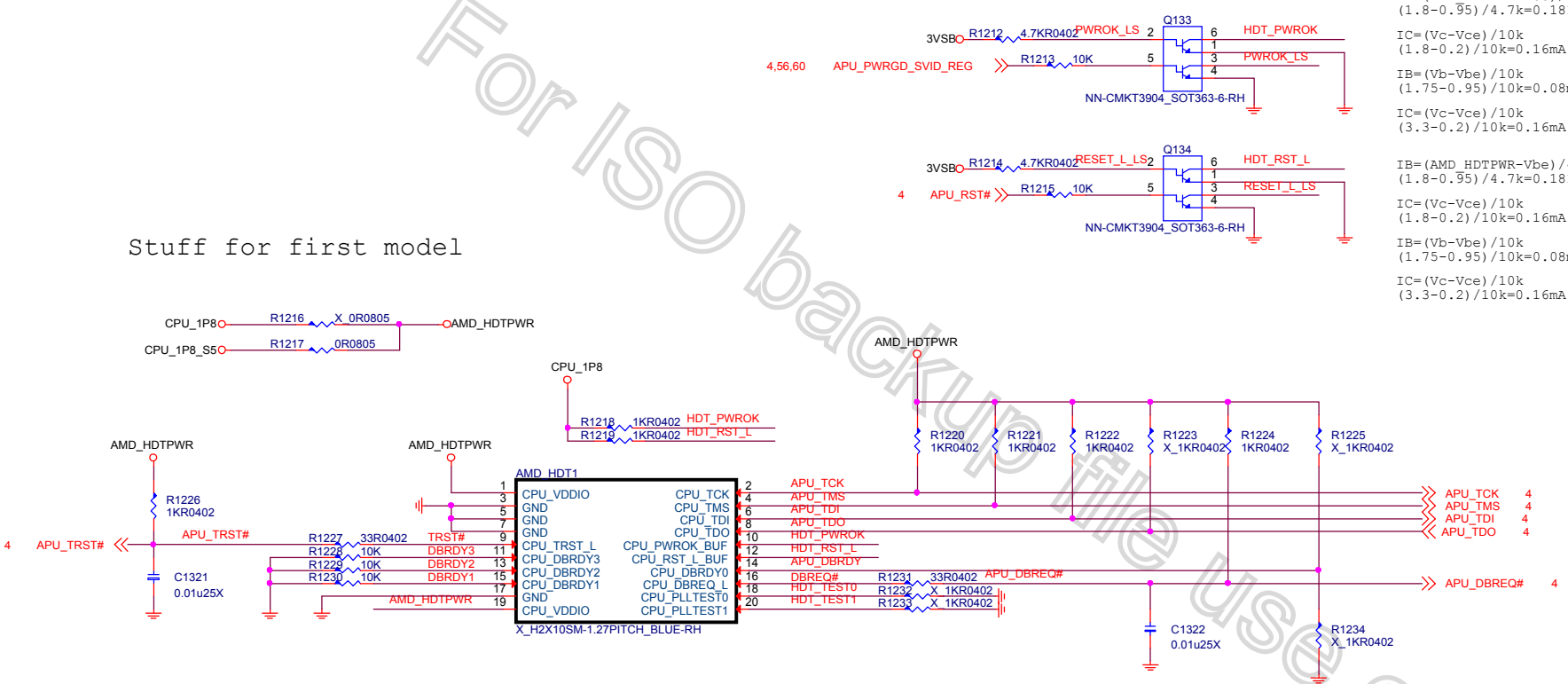
CLOCK BUFFER



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



MICRO-START INT'L CO.,LTD.

Title	APU HDT DEBUG	
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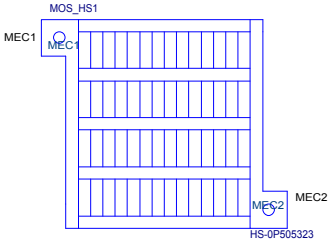
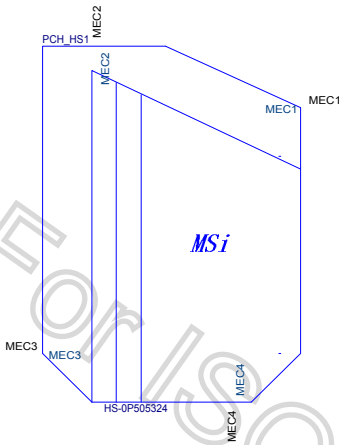
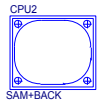
HEAT SINK

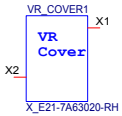




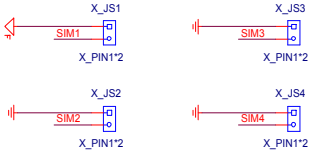
CPU Socket



VR COVER



Simulation



MANUAL PART

AMI1

AMI LABEL

G51-M1SPXXA-A09

MKT1

Label

BUNDLE

MKT

G51-M1SPM07-Q13

SLI1

Label

VIRTUAL

SLI

Y01-RNVIDIN-000

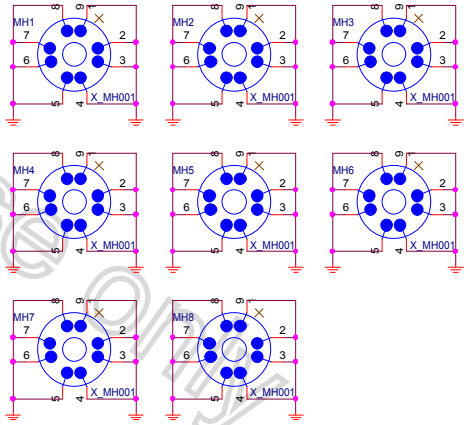
BAT1_X1

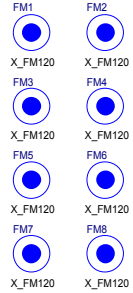
BAT-CR2032

D06-0105101-K26

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

Optics Orientation Holes





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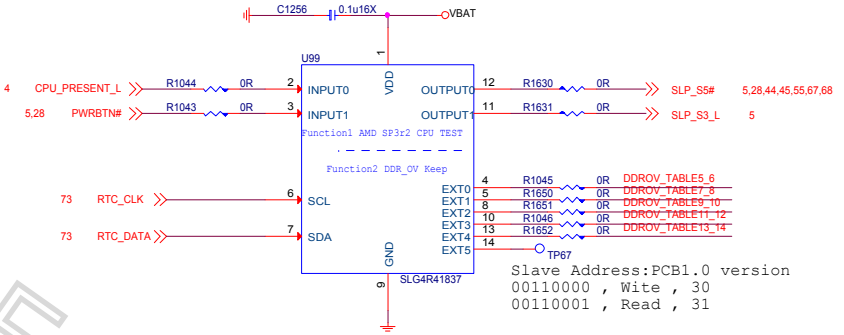
Add for EMI



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00110001 , Read , 31

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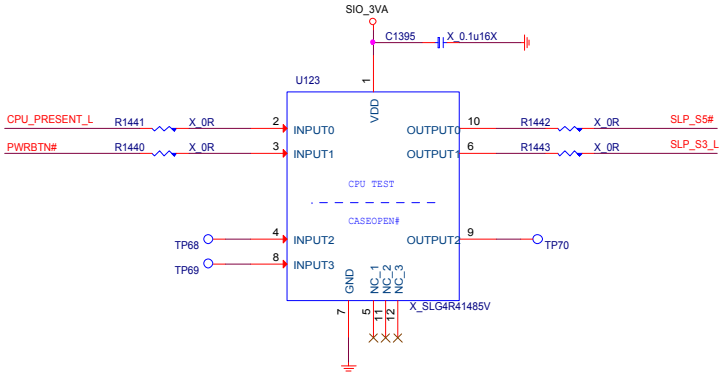

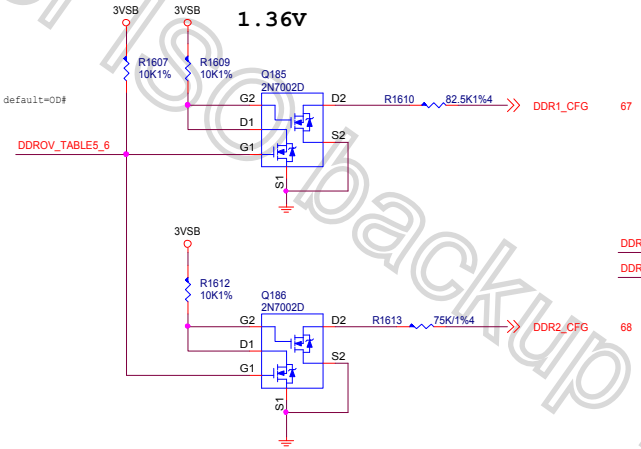

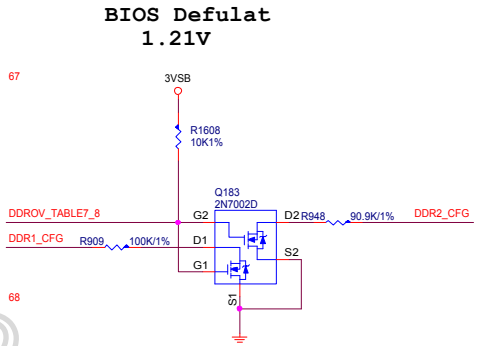

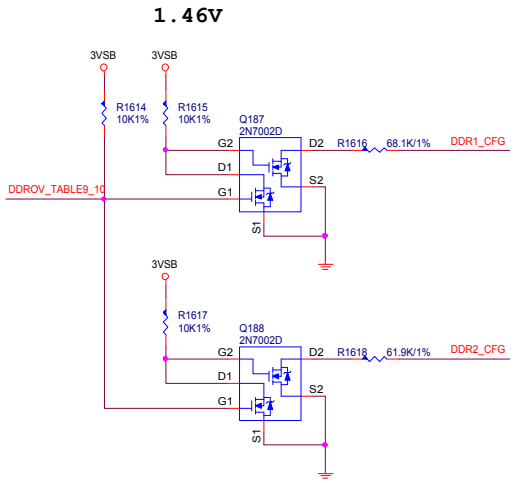

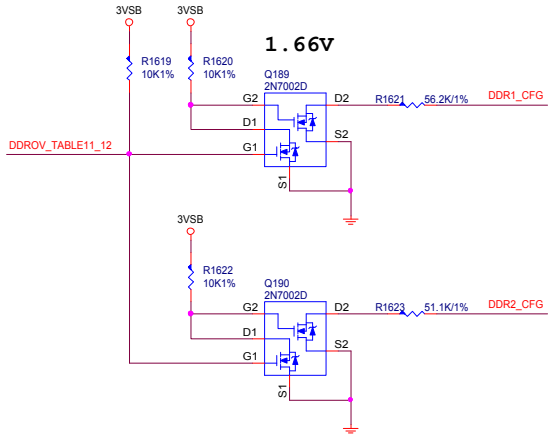

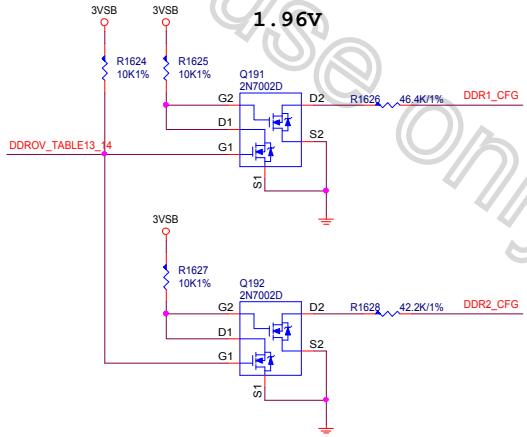

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