MS-7882

ATX

Ver: 2.0

Haswell-E Platform

CPU:

Haswell-E

System Chipset:

Wellsburg

Onboard Chip:

HD Audio Codec: ALC1150

LAN-Killer LAN

SIO:NTC6792D

Dual Flash ROM: SPI 64 MB X2

Main Memory:

*DDRIV (1666MHz) * 8 (Dual Channel)*

ACPI:

ISL6388

PWM:

VRD12.5 -ISL6388

Expansion Slots:

PCI Express (X16) Slot1
PCI Express (X8) Slot2
PCI Express (X8) Slot3
PCI Express (X16) Slot4
PCI Express (X8) Slot5

Other:

*SATA3.0 *8*
*USB2.0 *8*
*USB3.1 *1*
*REAL USB3.0 *6*
*FRONT USB2.0 *4*
*FRONT USB3.0 *4*

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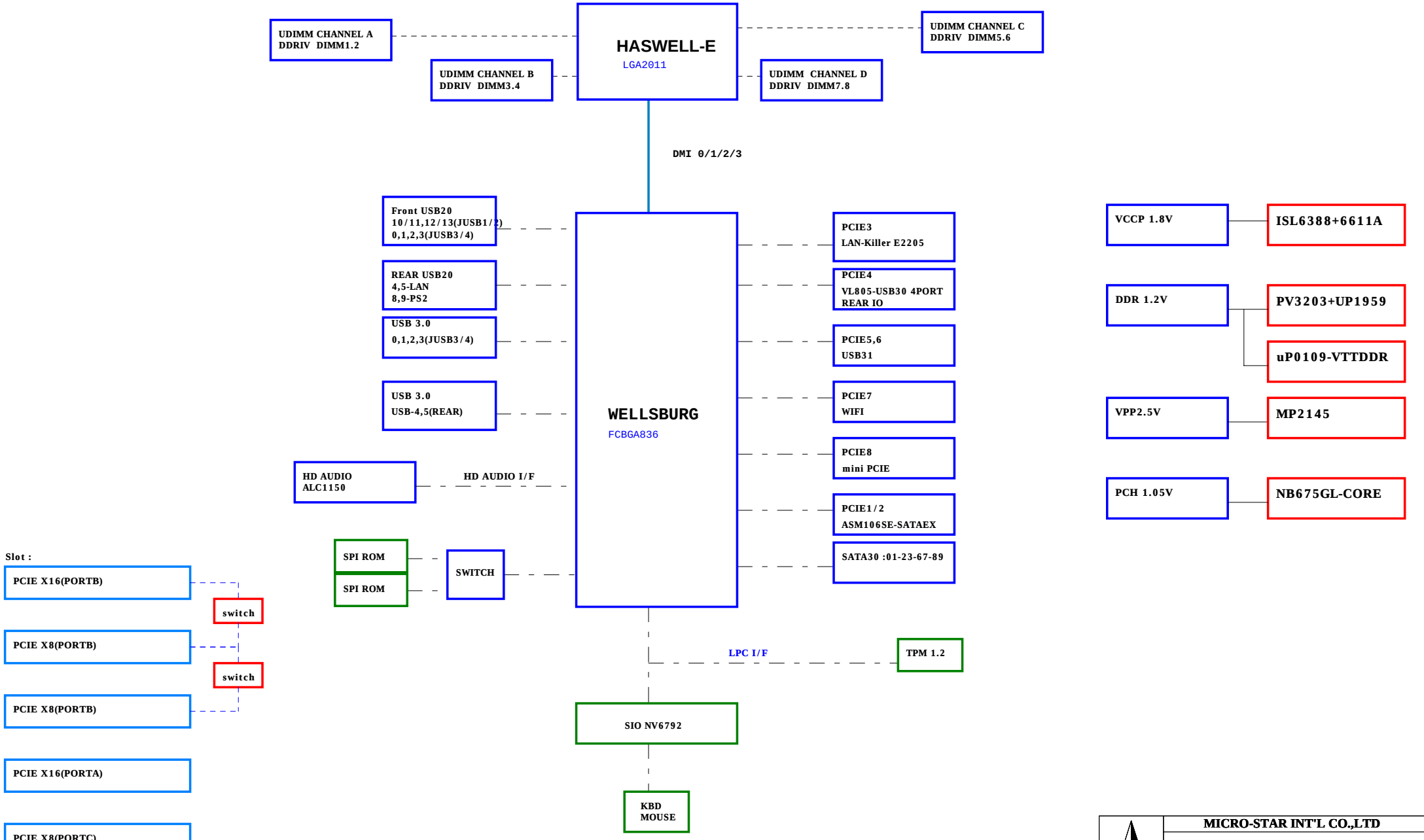
MS-7882 Block Diagram



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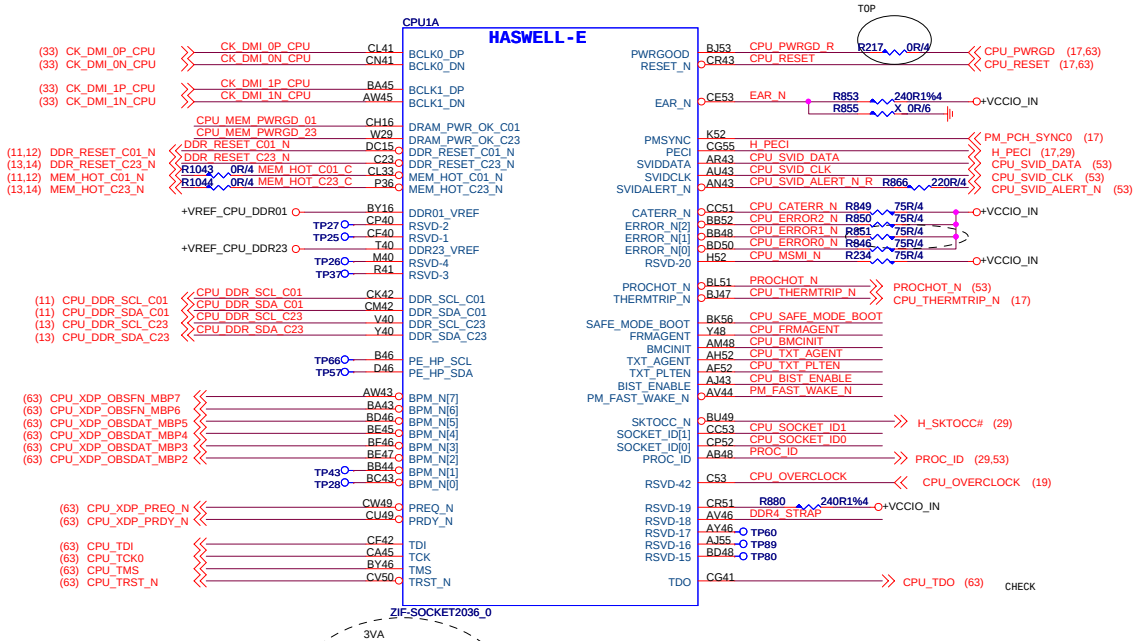
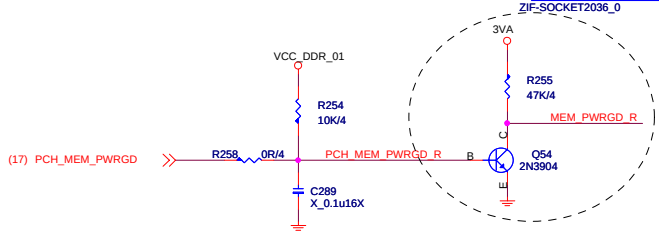
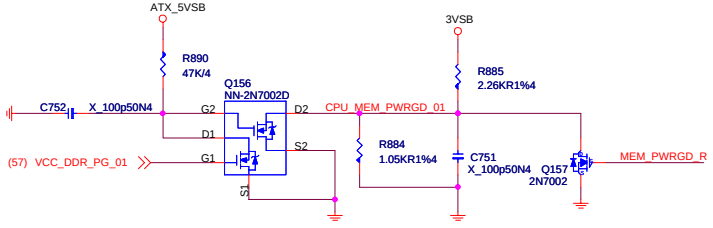
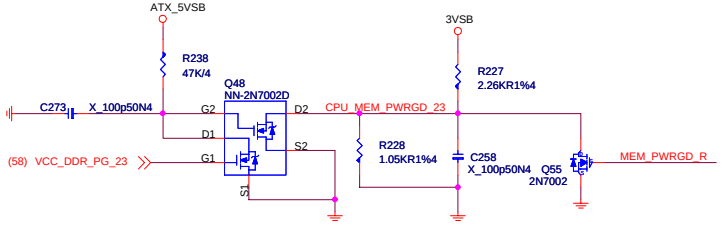
CPU-CLK/Control/MISC

OR:R278 REMOVED

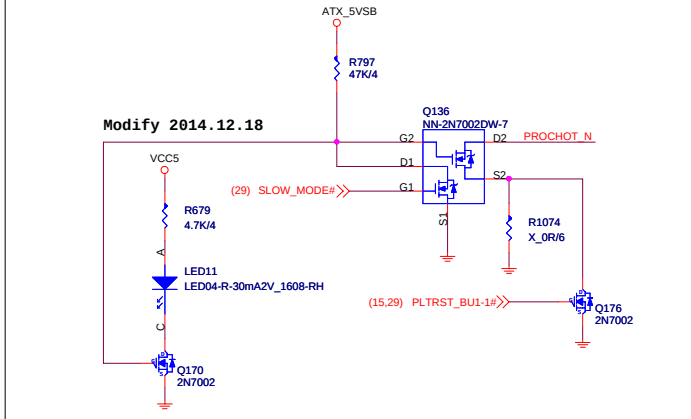


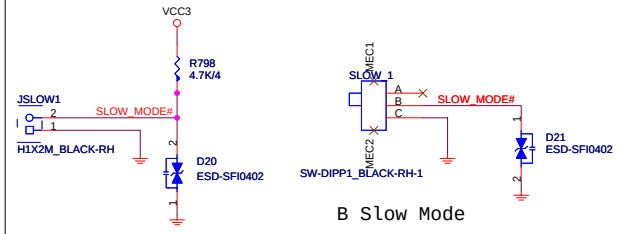




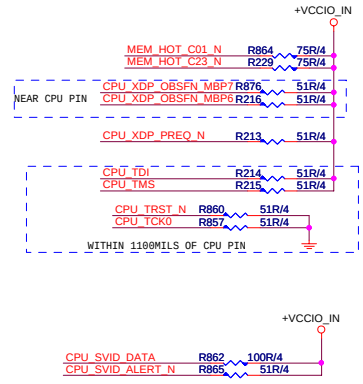


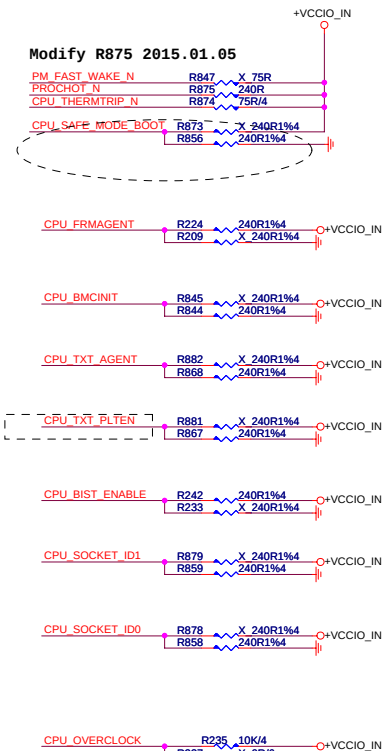
Slow mode circuit





B Slow Mode





PROC_ID	+VCCIO_IN
0	0.95V
1	1.05V

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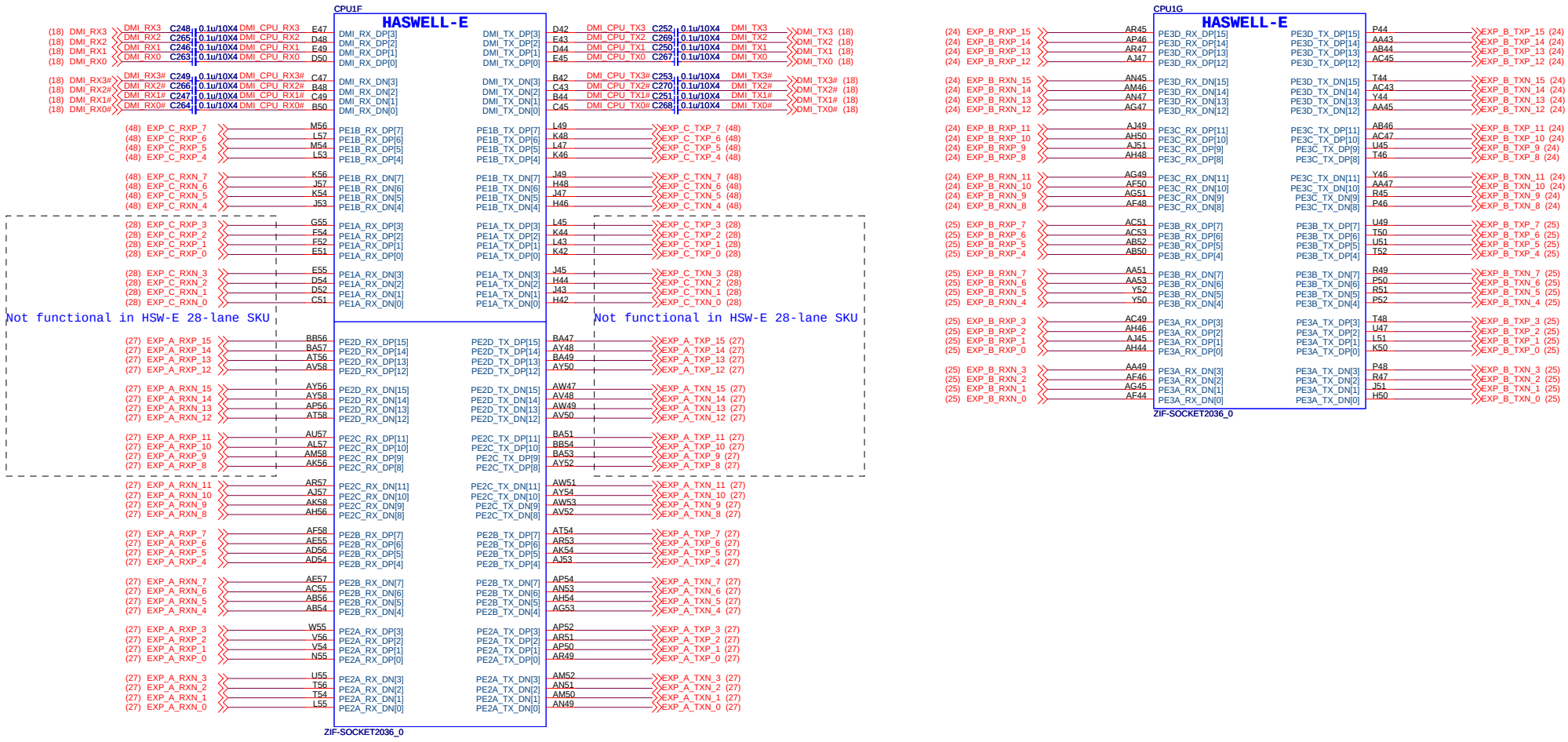
CPU-DMI/PEG



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Size: Custom	Document Description: CPU-DMI/PEG
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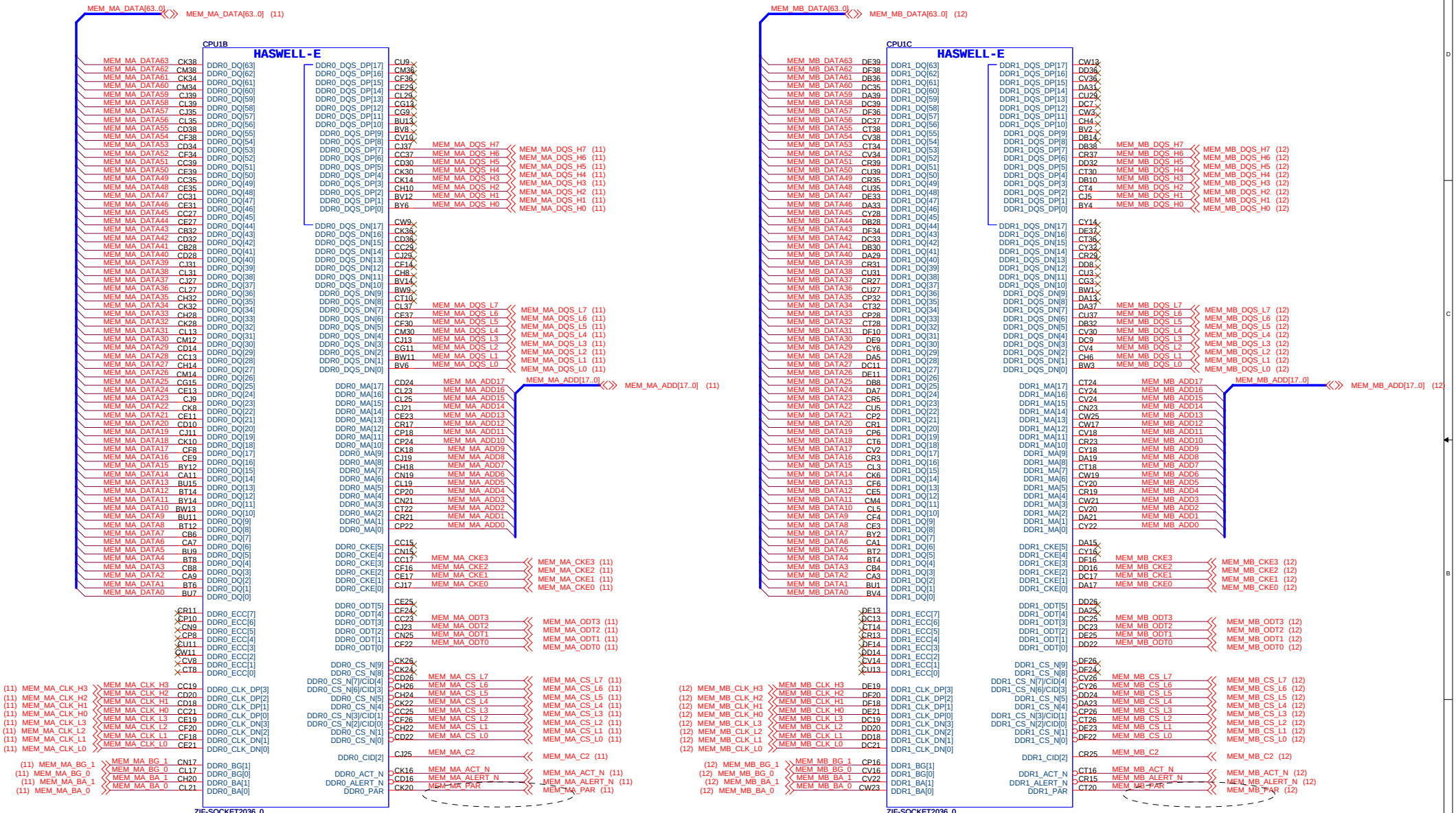
CPU-Memory0/1



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Size: Custom	Document Description: CPU-Memory0/1	Rev: 2.0
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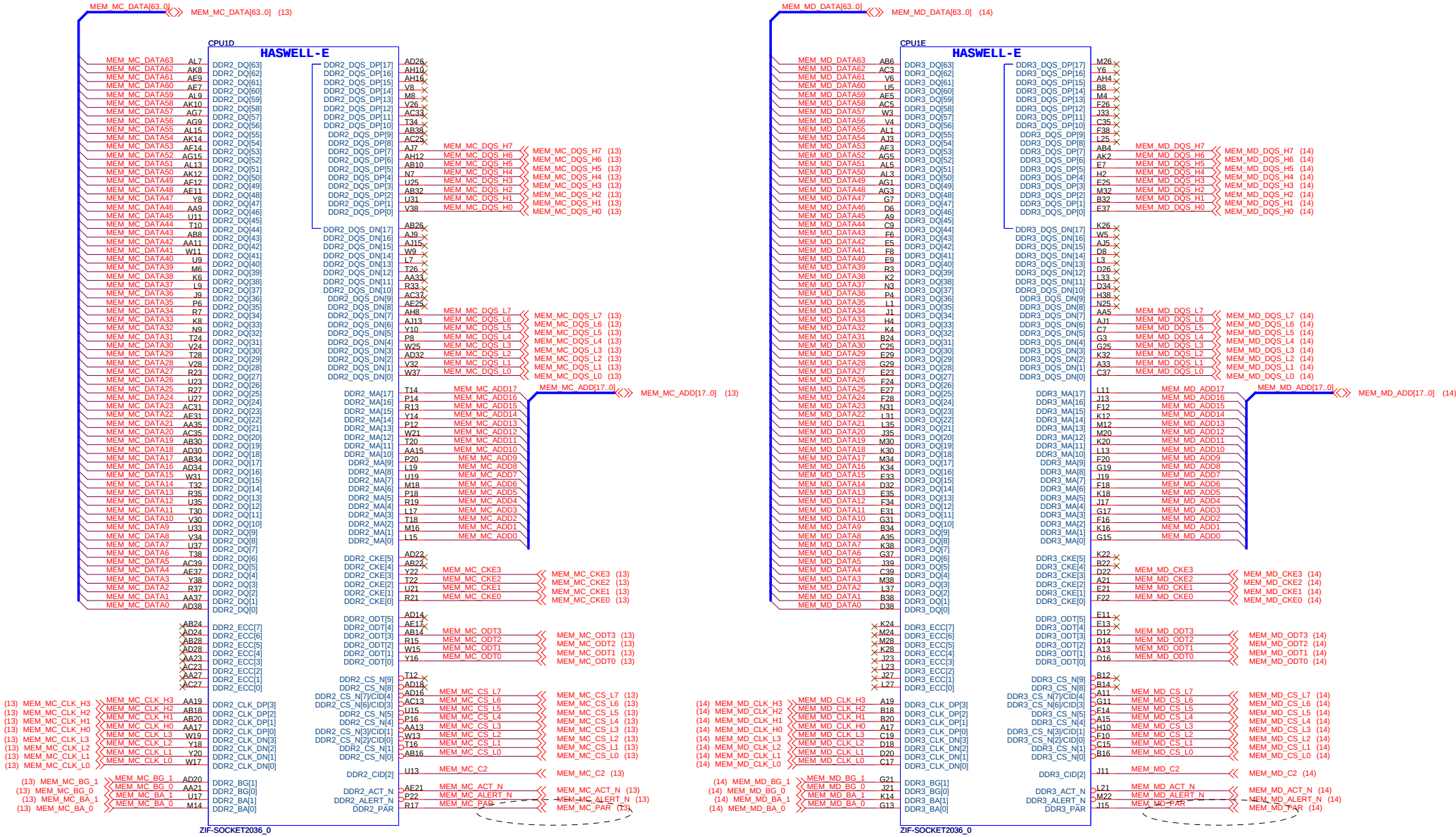
CPU-Memory2/3



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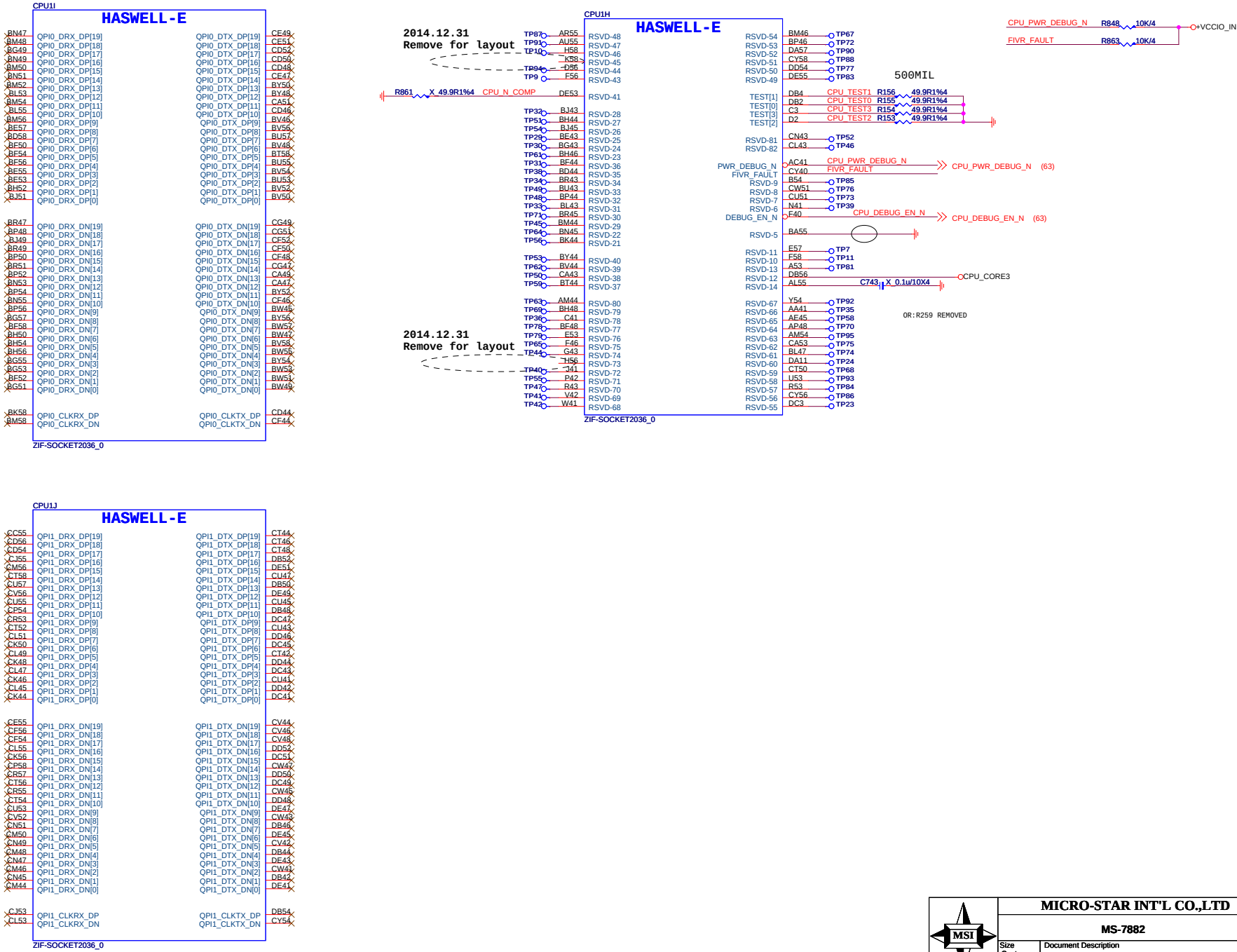
CPU-QPI/RESERVE



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Size: Custom	Document Description: CPU-QPI/RESERVE	Rev: 2.0
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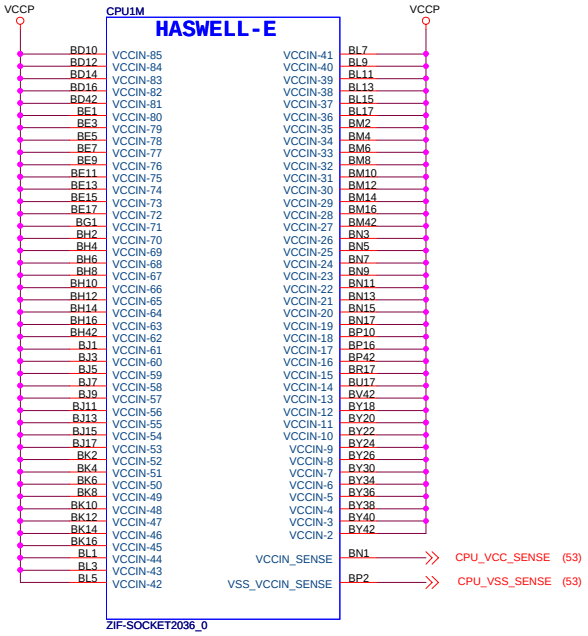
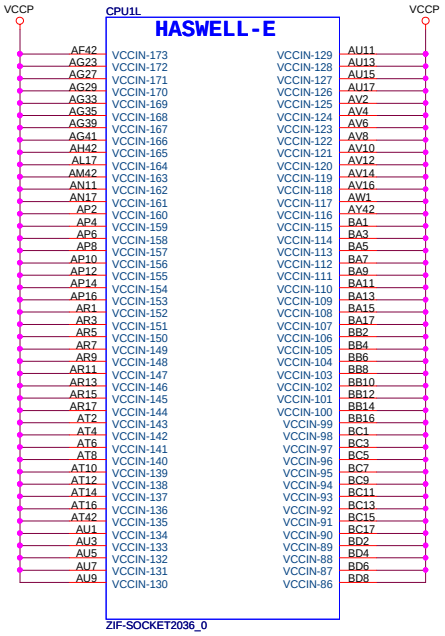
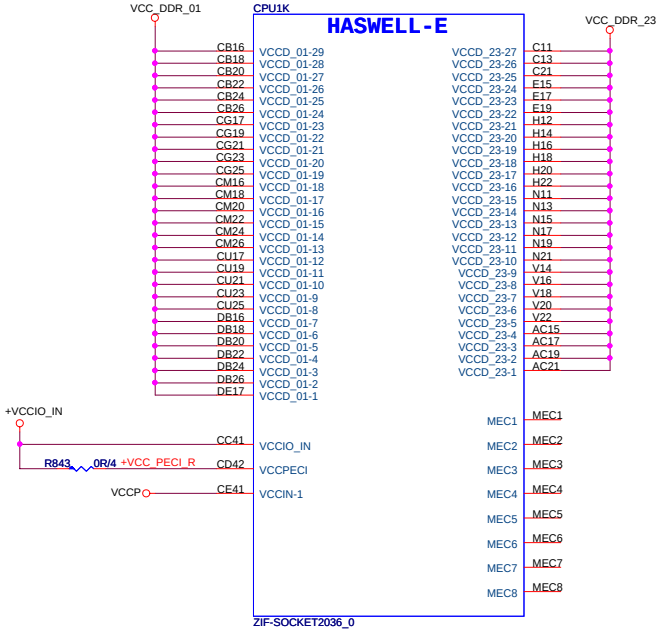
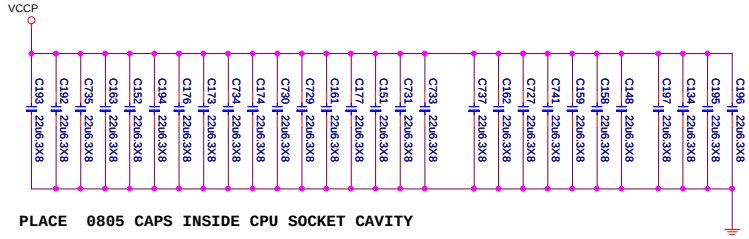
CPU-Power



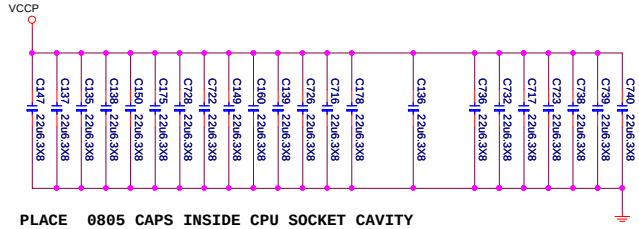




+CPU_VCCP-Decoupling



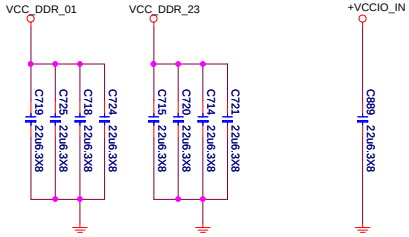
PLACE 0805 CAPS INSIDE CPU SOCKET CAVITY



PLACE 0805 CAPS INSIDE CPU SOCKET CAVITY

Skt cavity caps, place: 28 on top side & 26 on back side.

+CPU_DDR-Decoupling



PLACE 0805 CAPS INSIDE CPU SOCKET CAVITY

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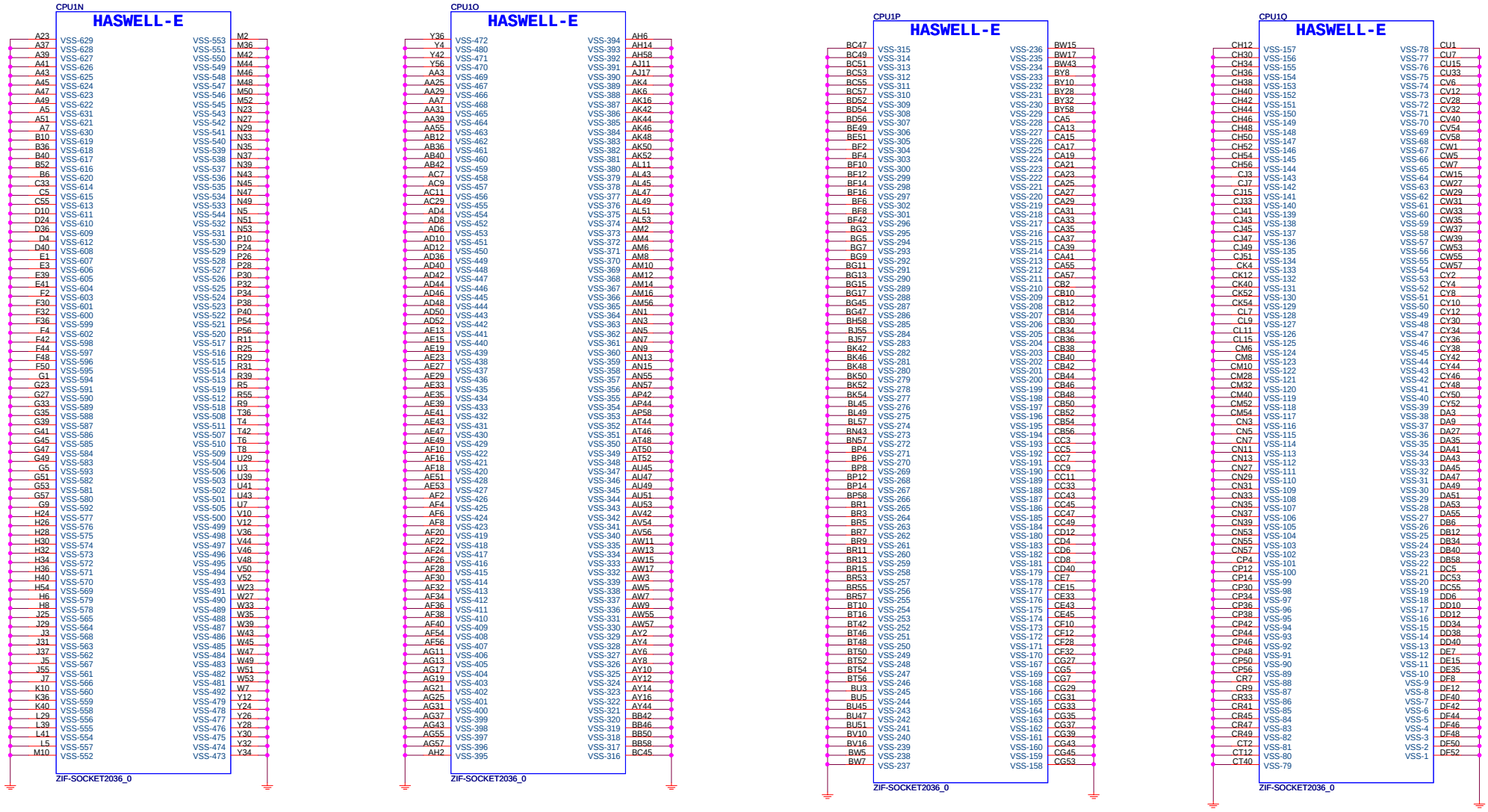
CPU-GND



MICRO-STAR INT'L CO.,LTD		
MS-7882		
Size: Custom	Document Description: CPU-GND	Rev: 2.0
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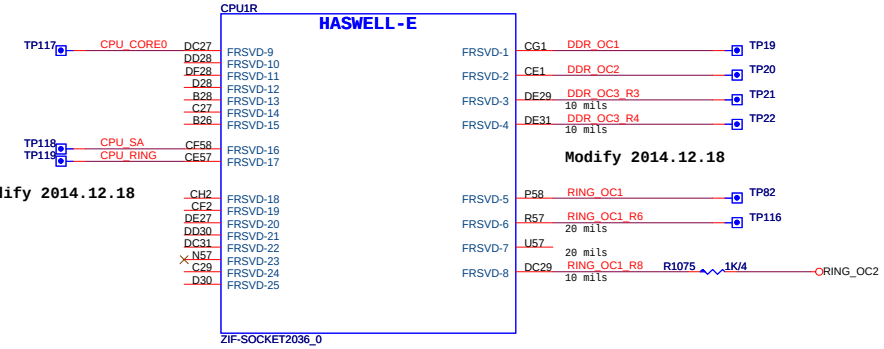
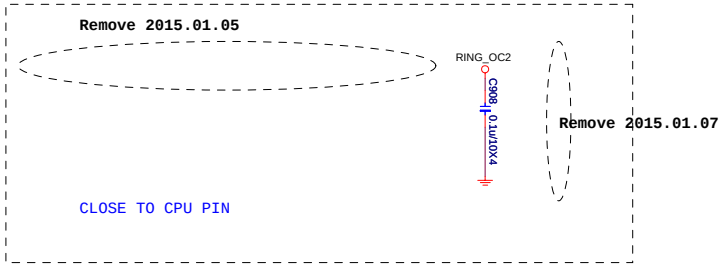
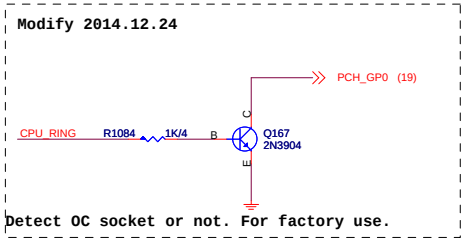
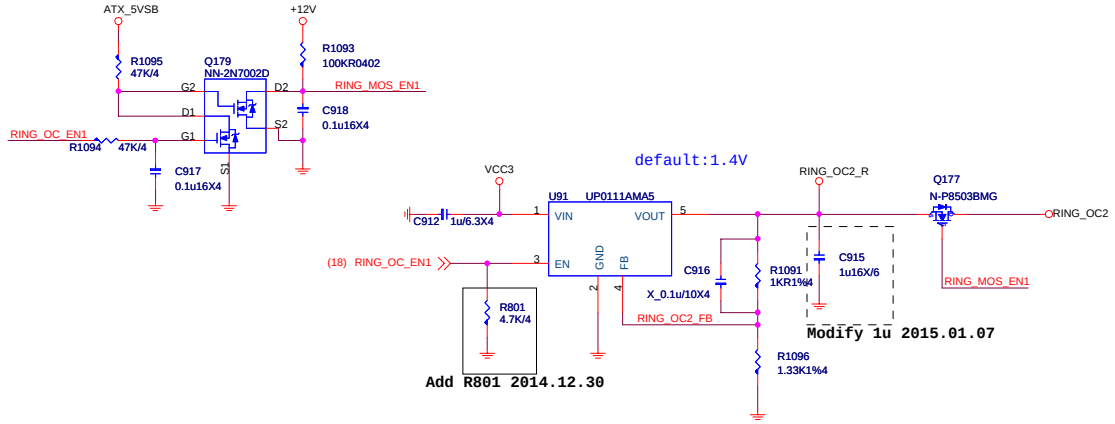
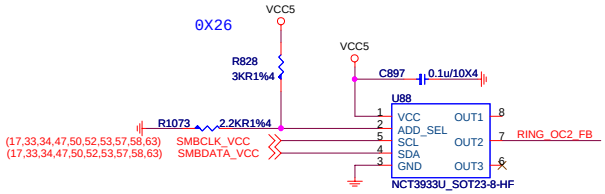


2014.12.18
Remove DDR OC1~3 & RING OC1 circuit.









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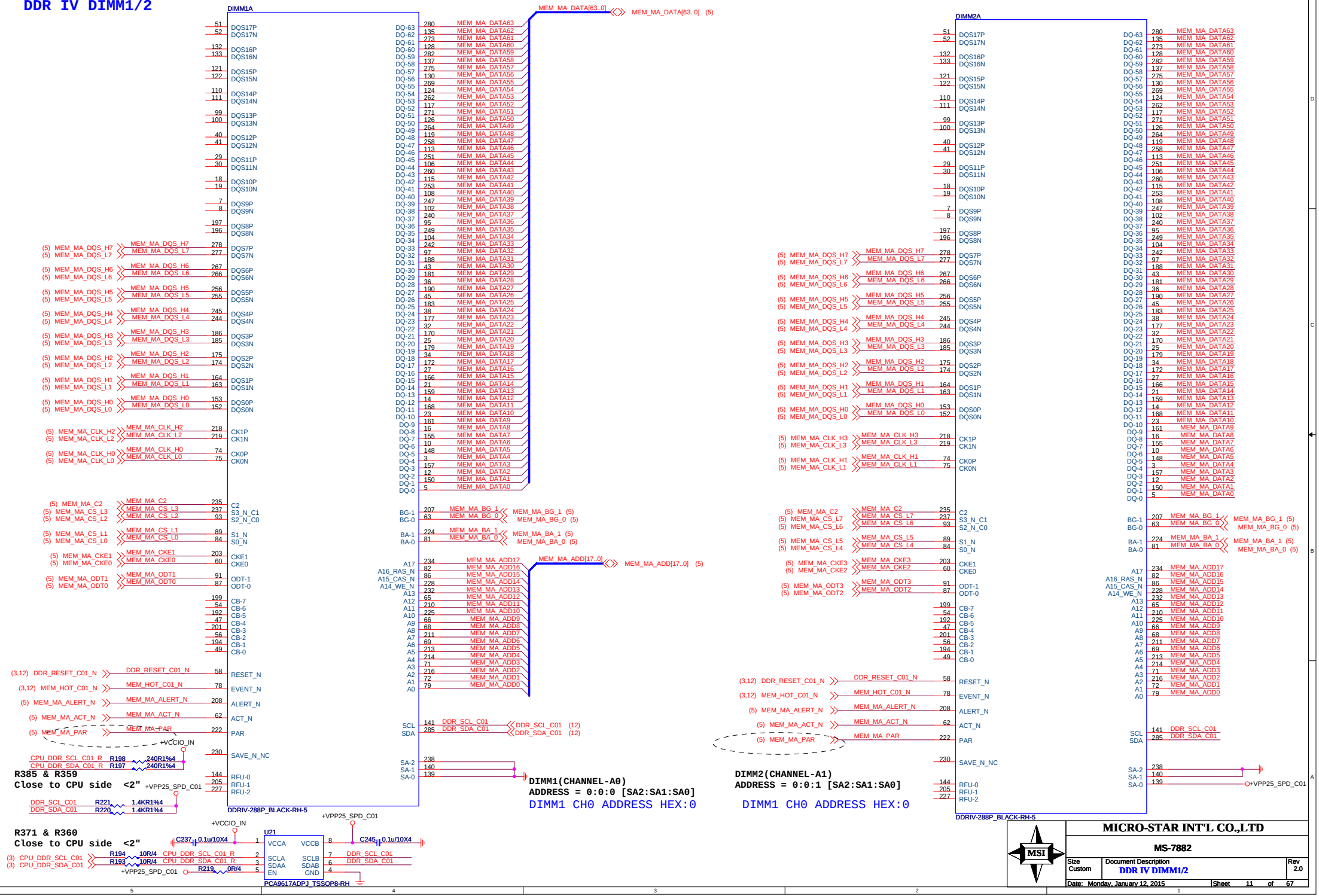
DDR IV DIMM1/2



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Size: Custom	Document Description: DDR IV DIMM1/2
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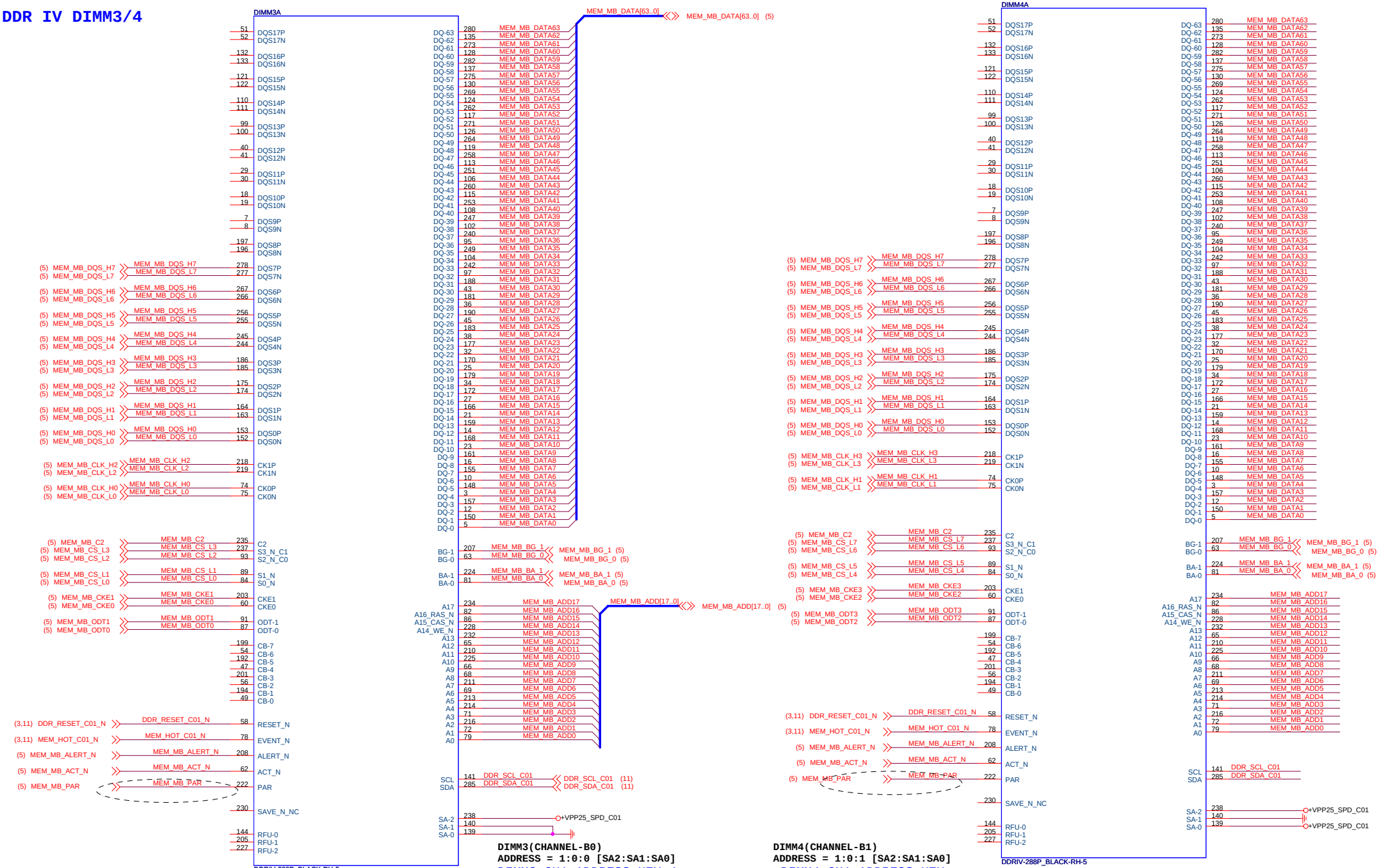
DDR IV DIMM3/4



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MS-7882	
Size: Custom	Document Description: DDR IV DIMM3/4
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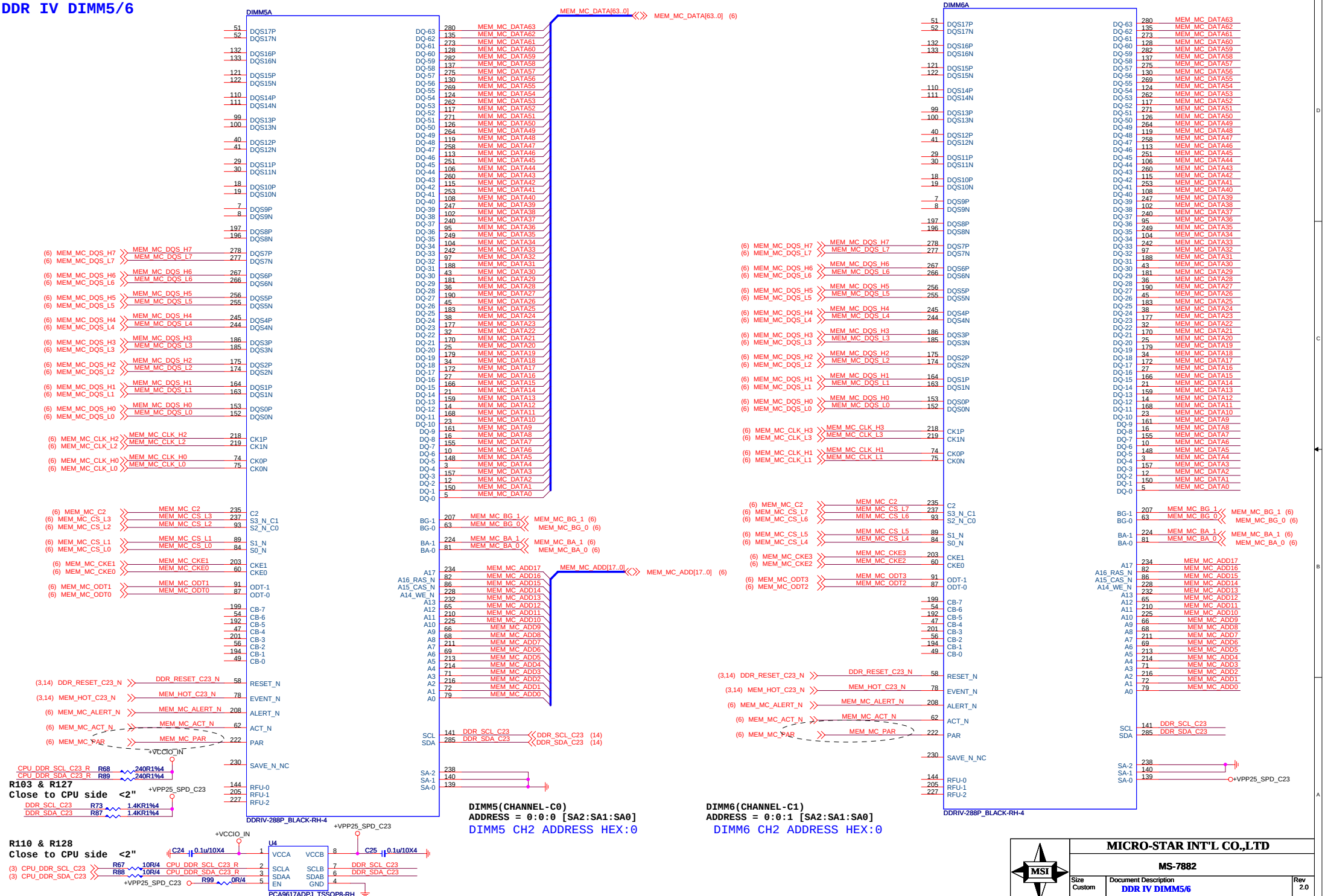
DDR IV DIMM5/6



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Size: Custom	Document Description: DDR IV DIMM5/6
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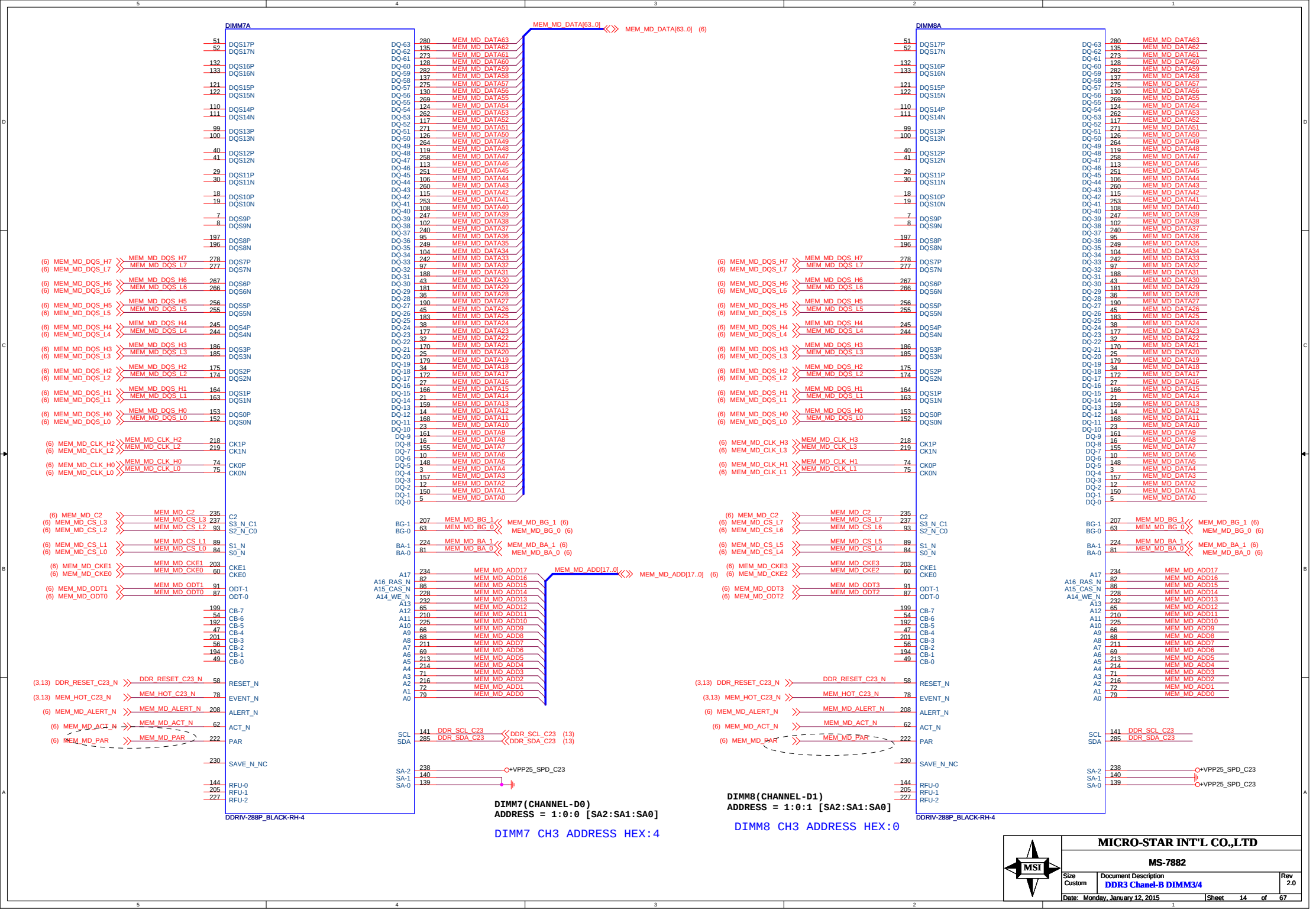

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MS-7882	
Size: Custom	Document Description: DDR3 Chanel-B DIMM3/4
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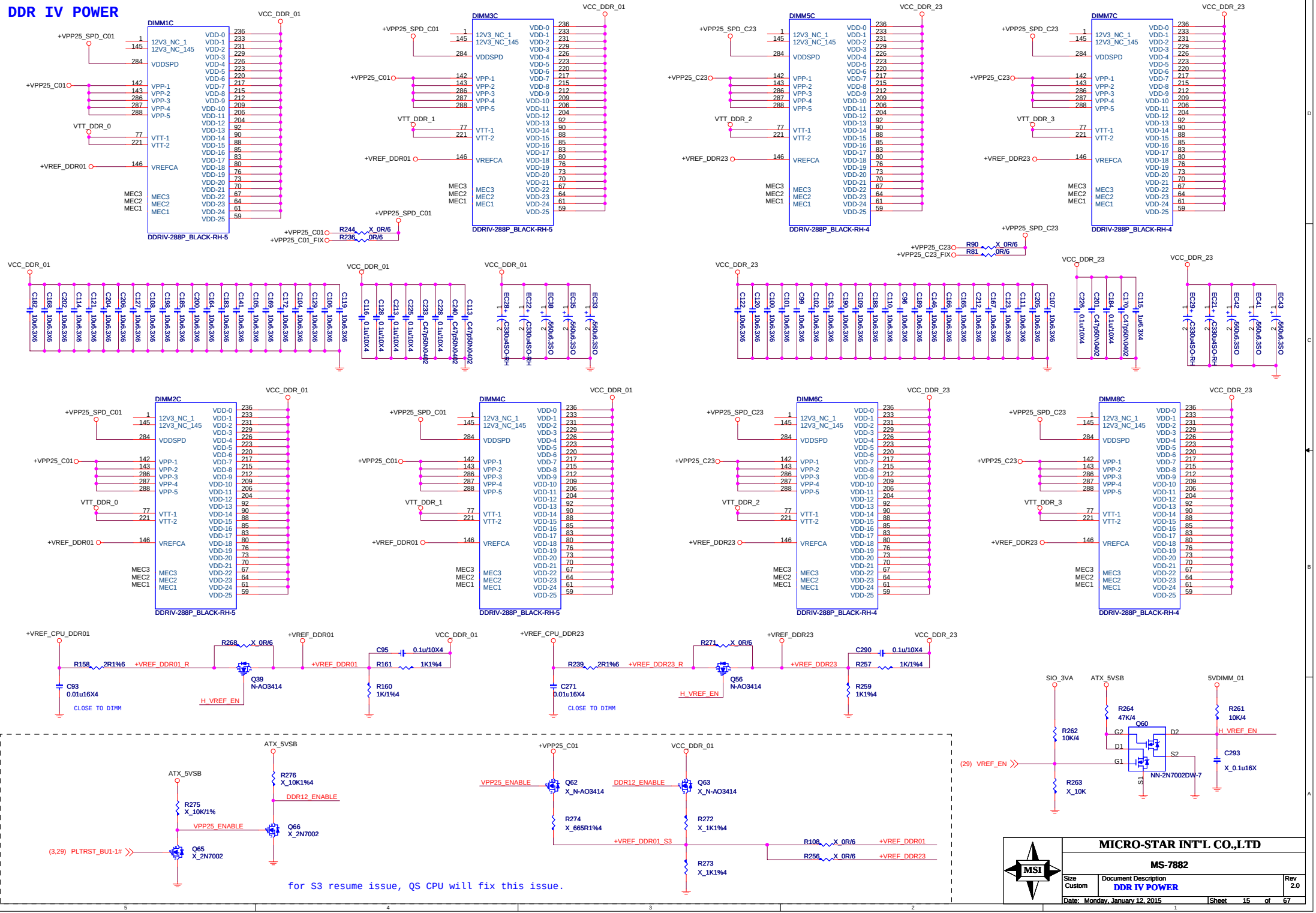
DDR IV POWER



MICRO-STAR INT'L CO.,LTD		
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Size: Custom	Document Description: DDR IV POWER	Rev: 2.0
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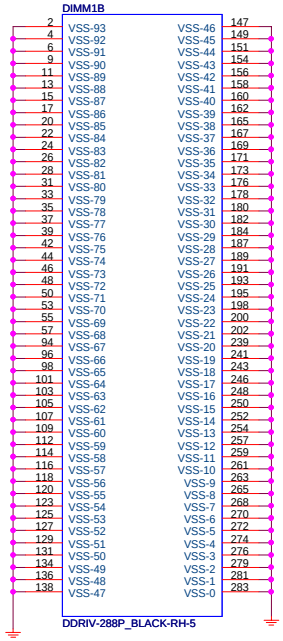
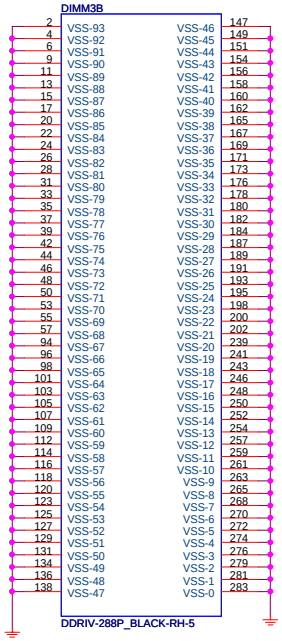
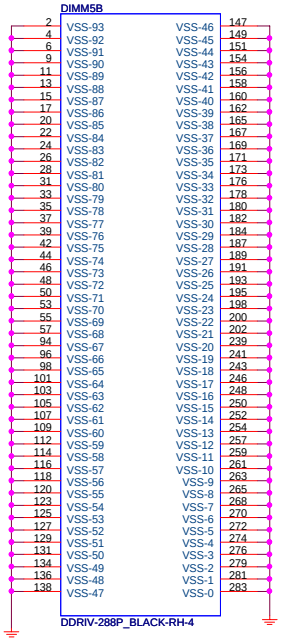
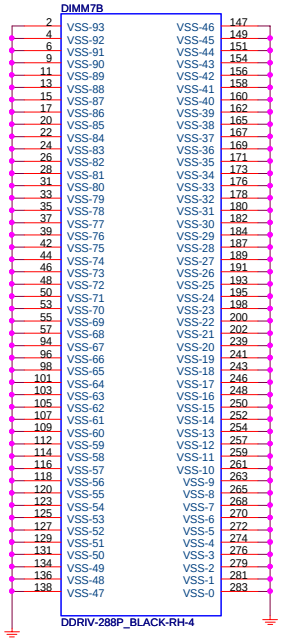
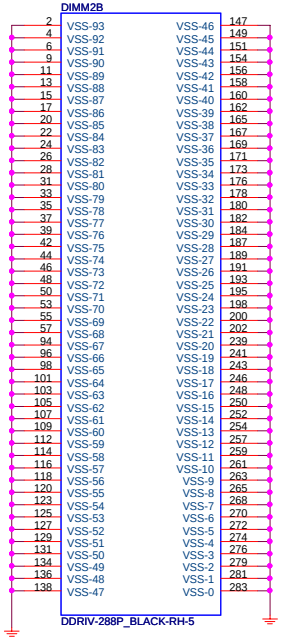
DDR IV GND

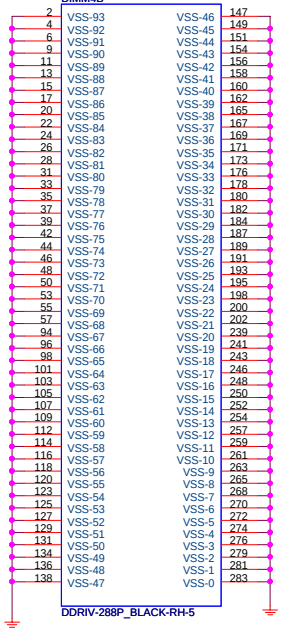


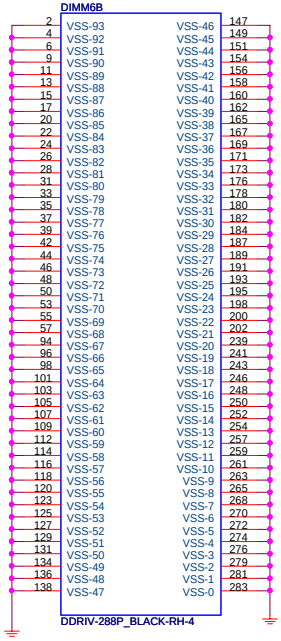


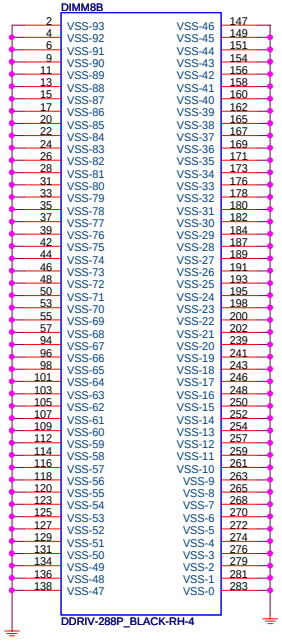












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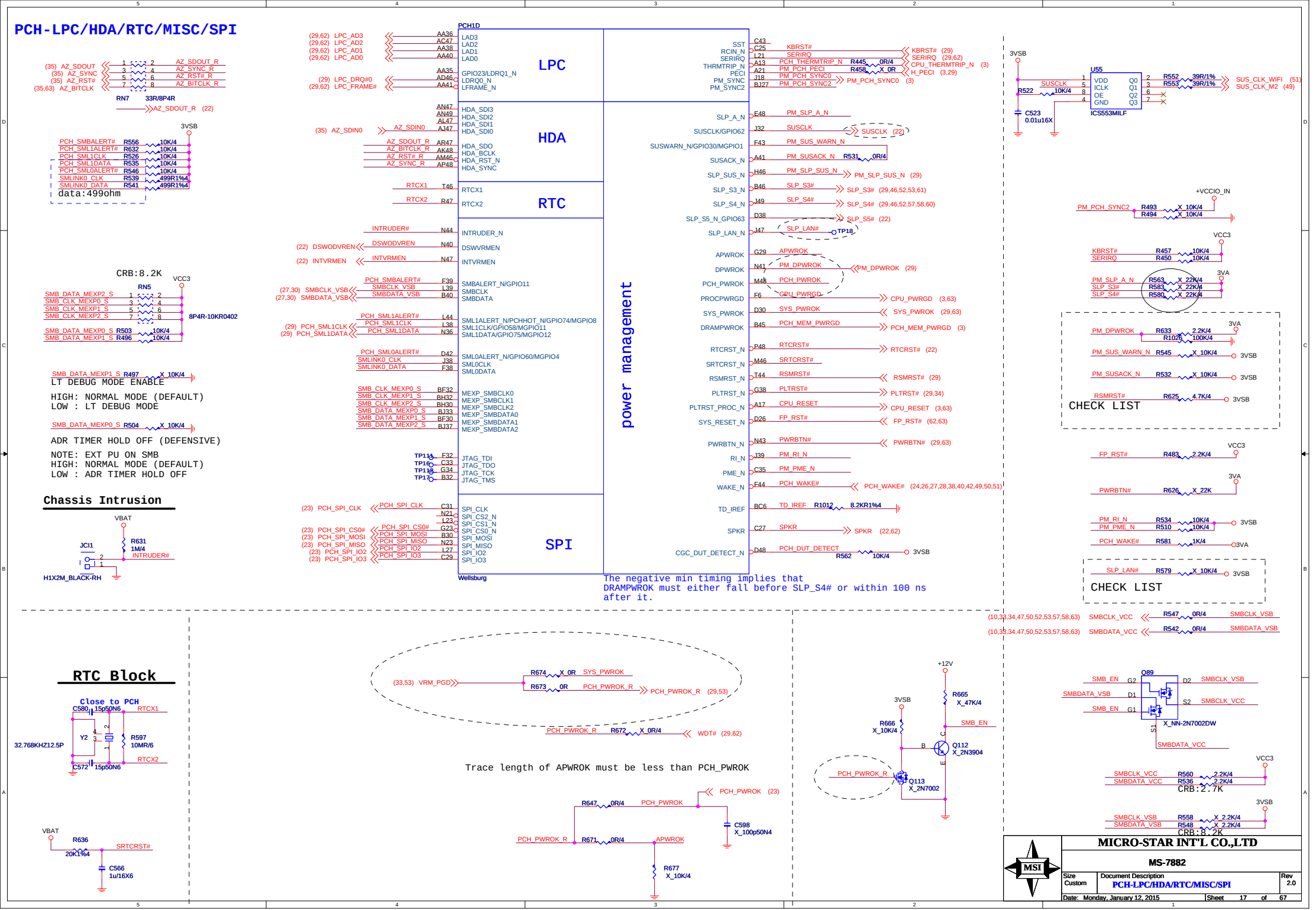
PCH-LPC/HDA/RTC/MISC/SPI



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PCH-DMI/PCIE/USB/SATA

PCH1B

DMI

DMI_TX3 L6 — (4) DMI_TX3
DMI_TX3# J6 — (4) DMI_TX3#
DMI_TX2 N6 — (4) DMI_TX2
DMI_TX2# N7 — (4) DMI_TX2#
DMI_TX1 T9 — (4) DMI_TX1
DMI_TX1# T7 — (4) DMI_TX1#
DMI_TX0 T14 — (4) DMI_TX0
DMI_TX0# T12 — (4) DMI_TX0#
DMI_RCOMP T15 — DMI_RCOMP — R387 7.5K1%4 — PCH_RCOMP_VCC; R386 0R/4
DMI_IREF1P5 V15

DMI_RXP3 DMI_RXN3 DMI_RXP2 DMI_RXN2 DMI_RXP1 DMI_RXN1 DMI_RXP0 DMI_RXN0 DMI_IREF

DMI_TXP3 F4 — DMI_RX3 — (4) DMI_RX3
DMI_TXN3 E2 — DMI_RX3# — (4) DMI_RX3#
DMI_TXP2 H4 — DMI_RX2 — (4) DMI_RX2
DMI_TXN2 H2 — DMI_RX2# — (4) DMI_RX2#
DMI_TXP1 K4 — DMI_RX1 — (4) DMI_RX1
DMI_TXN1 K2 — DMI_RX1# — (4) DMI_RX1#
DMI_TXP0 M4 — DMI_RX0 — (4) DMI_RX0
DMI_TXN0 M2 — DMI_RX0# — (4) DMI_RX0#

PCIE

PERP_8 PERN_8 PERP_7 PERN_7 PERP_6 PERN_6 PERP_5 PERN_5 PERP_4 PERN_4 PERP_3 PERN_3 PERP_2/USB3RP_4 PERN_2/USB3RN_4 PERP_1/USB3RP_3 PERN_1/USB3RN_3

(50) Mini_PCIE_RXP — AU12
(50) Mini_PCIE_RXN — AU10
(51) WIFI_BT_RX — AU7
(51) WIFI_BT_RX# — AU6
(42) PE6_USB31_RX — AP7
(42) PE6_USB31_RX# — AP9
(42) PE5_USB31_RX — AP12
(42) PE5_USB31_RX# — AP14
(40) PE_VIA_USB_RX — AM6
(40) PE_VIA_USB_RX# — AM7
(38) PE_LAN_RX — AM10
(38) PE_LAN_RX# — AM12
(44) MB_USB30_RX5+ — AG15
(44) MB_USB30_RX5- — AG14
(44) MB_USB30_RX4+ — AG7
(44) MB_USB30_RX4- — AG6

PCH_RCOMP_VCC — R1010 7.5K1%4 — R1008 0R/4 — PCIE_RCOMP AG12; PCIE_IREF1P5 AC1

PCIE_RCOMP AG12
PCIE_IREF AC1

PETP_8 AV4 — Mini_PCIE_TXP (50)
PETN_8 AV2 — Mini_PCIE_TXN (50)
PETP_7 AT2 — WIFI_BT_TX (51)
PETN_7 AT4 — WIFI_BT_TX# (51)
PETP_6 AP2 — PE6_USB31_TX (42)
PETN_6 AP4 — PE6_USB31_TX# (42)
PETP_5 AM2 — PE5_USB31_TX (42)
PETN_5 AM4 — PE5_USB31_TX# (42)
PETP_4 AK2 — PE_VIA_USB_TX (40)
PETN_4 AK4 — PE_VIA_USB_TX# (40)
PETP_3 AH2 — PE_LAN_TX (38)
PETN_3 AH4 — PE_LAN_TX# (38)
PETP_2/USB3TP_4 AF2 — MB_USB30_TX5+ — MB_USB30_TX5+ (44)
PETN_2/USB3TN_4 AF4 — MB_USB30_TX5- — MB_USB30_TX5- (44)
PETP_1/USB3TP_3 AD4 — MB_USB30_TX4+ — MB_USB30_TX4+ (44)
PETN_1/USB3TN_3 AD2 — MB_USB30_TX4- — MB_USB30_TX4- (44)

USB

USB3RP6 USB3RN6 USB3RP5 USB3RN5 USB3RP2 USB3RN2 USB3RP1 USB3RN1

(45) MB_USB30_RX3+ — AC9
(45) MB_USB30_RX3- — AC7
(45) MB_USB30_RX2+ — AC12
(45) MB_USB30_RX2- — AC14
(45) MB_USB30_RX1+ — AA15
(45) MB_USB30_RX1- — AA14
(45) MB_USB30_RX0+ — AA6
(45) MB_USB30_RX0- — AA7

USB3TP6 AB4 — MB_USB30_TX3+ — MB_USB30_TX3+ (45)
USB3TN6 AB2 — MB_USB30_TX3- — MB_USB30_TX3- (45)
USB3TP5 Y4 — MB_USB30_TX2+ — MB_USB30_TX2+ (45)
USB3TN5 Y2 — MB_USB30_TX2- — MB_USB30_TX2- (45)
USB3TP2 V4 — MB_USB30_TX1+ — MB_USB30_TX1+ (45)
USB3TN2 V2 — MB_USB30_TX1- — MB_USB30_TX1- (45)
USB3TP1 T4 — MB_USB30_TX0+ — MB_USB30_TX0+ (45)
USB3TN1 T2 — MB_USB30_TX0- — MB_USB30_TX0- (45)

Modify 2014.12.18

(29) SIO_PME_N — J44
(46) OC#6 — L43 — OC7_N/GPIO14
USB3_SMI1 G43 — OC6_N/GPIO10
(40) USB3_SMI1 — OC5_N/GPIO9
(41,43,46) OC#4 — G44 — OC4_N/GPIO43
OC#3 B42 — OC3_N/GPIO42
(44) OC#2 — A37 — OC2_N/GPIO41
(45) OC#1 — B38 — OC1_N/GPIO40
(39) OC#0 — J43 — OC0_N/GPIO59

USB_COMP AP41 — USBRBIAS
R1024 22.6R1%4 — <500mils — USBRBIAS_N AP40

USB2P13 AC38 — MB_USB_13D+ — MB_USB_13D+ (46)
USB2N13 AC36 — MB_USB_13D- — MB_USB_13D- (46)
USB2P12 AC43 — MB_USB_12D+ — MB_USB_12D+ (46)
USB2N12 AC44 — MB_USB_12D- — MB_USB_12D- (46) — Front USB2.0 / OC#6
USB2P11 AC41 — MB_USB_11D+ — MB_USB_11D+ (46)
USB2N11 AC40 — MB_USB_11D- — MB_USB_11D- (46)
USB2P10 AG35 — MB_USB_10D+ — MB_USB_10D+ (46) — Front USB2.0 / OC#5
USB2N10 AG36 — MB_USB_10D- — MB_USB_10D- (46)
USB2P9 AG41 — MB_USB_9D+ — MB_USB_9D+ (46)
USB2N9 AG40 — MB_USB_9D- — MB_USB_9D- (46)
USB2P8 AG44 — MB_USB_8D+ — MB_USB_8D+ (46)
USB2N8 AG43 — MB_USB_8D- — MB_USB_8D- (46) — PS2+USB2.0 / OC4#
USB2P7 AM43
USB2N7 AM44
USB2P6 AJ43 — MB_USB_6D+ — MB_USB_6D+ (51)
USB2N6 AJ44 — MB_USB_6D- — MB_USB_6D- (51) — WIFI+BT / OC#3
USB2P5 AJ41 — MB_USB_5D+ — MB_USB_5D+ (44)
USB2N5 AJ40 — MB_USB_5D- — MB_USB_5D- (44)
USB2P4 AM40 — MB_USB_4D+ — MB_USB_4D+ (44) — Rear USB3.0 / OC2#
USB2N4 AM41 — MB_USB_4D- — MB_USB_4D- (44)
USB2P3 AP43 — MB_USB_3D+ — MB_USB_3D+ (45)
USB2N3 AP44 — MB_USB_3D- — MB_USB_3D- (45) — Front USB3.0 / OC1#
USB2P2 AJ35 — MB_USB_2D+ — MB_USB_2D+ (45)
USB2N2 AJ36 — MB_USB_2D- — MB_USB_2D- (45)
USB2P1 AY46 — MB_USB_1D+ — MB_USB_1D+ (39)
USB2N1 AY48 — MB_USB_1D- — MB_USB_1D- (39)
USB2P0 AV46 — MB_USB_0D+ — MB_USB_0D+ (39) — Front USB3.0 / OC0#
USB2N0 AV48 — MB_USB_0D- — MB_USB_0D- (39)

Wellsburg

3VSB

R598 10K/4 — SIO_PME_N
R582 X_10K/4 — OC#6
R564 X_10K/4 — USB3_SMI1
R600 X_10K/4 — OC#4
R543 10K/4 — OC#3
R518 X_10K/4 — OC#2
R519 X_10K/4 — OC#1
R559 10K/4 — OC#0

PCH_1P5 — R373 0R/8 — R372 X_0R/8 — PCH_1P05
PCH_RCOMP_VCC

PCH1C

SATA

sSATA_RXP_3 sSATA_RXN_3 sSATA_RXP_2 sSATA_RXN_2 sSATA_RXP_1 sSATA_RXN_1 sSATA_RXP_0 sSATA_RXN_0
SATA_RXP_5/PERP_2 SATA_RXN_5/PERN_2 SATA_RXP_4/PERP_1 SATA_RXN_4/PERN_1
SATA_RXP_3 SATA_RXN_3 SATA_RXP_2 SATA_RXN_2 SATA_RXP_1 SATA_RXN_1 SATA_RXP_0 SATA_RXN_0

(47) SATA_RX9 — SATA_RX9 AW39 — sSATA_TXP_3 BF40 — SATA_TX9 — SATA_TX9 (47)
(47) SATA_RX9# — SATA_RX9# BA39 — sSATA_TXN_3 BH40 — SATA_TX9# — SATA_TX9# (47)
(47) SATA_RX8 — SATA_RX8 BC43 — sSATA_TXP_2 BF42 — SATA_TX8 — SATA_TX8 (47)
(47) SATA_RX8# — SATA_RX8# BD43 — sSATA_TXN_2 BH42 — SATA_TX8# — SATA_TX8# (47)
(47) SATA_RX7 — SATA_RX7 BA44 — sSATA_TXP_1 BD46 — SATA_TX7 — SATA_TX7 (47)
(47) SATA_RX7# — SATA_RX7 AW44 — sSATA_TXN_1 BE48 — SATA_TX7# — SATA_TX7# (47)
(47) SATA_RX6 — SATA_RX6 AU43 — sSATA_TXP_0 BB48 — SATA_TX6 — SATA_TX6 (47)
(47) SATA_RX6# — SATA_RX6# AU44 — sSATA_TXN_0 BB46 — SATA_TX6# — SATA_TX6# (47)

(47) SATA_RX5 — SATA_RX5 L11 — SATA_TXP_5/PETP_2 B10 — SATA_TX5 — SATA_TX5 (47)
(47) SATA_RX5# — SATA_RX5# J11 — SATA_TXN_5/PETN_2 D10 — SATA_TX5# — SATA_TX5# (47)
(47) SATA_RX4 — SATA_RX4 G7 — SATA_TXP_4/PETP_1 D8 — SATA_TX4 — SATA_TX4 (47)
(47) SATA_RX4# — SATA_RX4# F7 — SATA_TXN_4/PETN_1 B8 — SATA_TX4# — SATA_TX4# (47)

(47) SATA_RX3 — SATA_RX3 G18 — SATA_TXP_3 D18 — SATA_TX3 — SATA_TX3 (47)
(47) SATA_RX3# — SATA_RX3# F18 — SATA_TXN_3 B18 — SATA_TX3# — SATA_TX3# (47)
(47) SATA_RX2 — SATA_RX2 M18 — SATA_TXP_2 D16 — SATA_TX2 — SATA_TX2 (47)
(47) SATA_RX2# — SATA_RX2# N18 — SATA_TXN_2 B16 — SATA_TX2# — SATA_TX2# (47)
(47) SATA_RX1 — SATA_RX1 L16 — SATA_TXP_1 B14 — SATA_TX1 — SATA_TX1 (47)
(47) SATA_RX1# — SATA_RX1# J16 — SATA_TXN_1 D14 — SATA_TX1# — SATA_TX1 (47)
(47) SATA_RX0 — SATA_RX0 F12 — SATA_TXP_0 D12 — SATA_TX0 — SATA_TX0 (47)
(47) SATA_RX0# — SATA_RX0# G12 — SATA_TXN_0 B12 — SATA_TX0# — SATA_TX0# (47)

PCH_RCOMP_VCC — R1022 7.5K1%4 — R1021 0R/4 — SATAS_RCOMP BC32; SATAS_IREF1P5 BD32
SATA_RCOMP N10
SATA_IREF L12

PCH_RCOMP_VCC — R1389 7.5K1%4 — R1388 0R/4 — SATA_RCOMP; SATA_IREF1P5

SATALED_N J7 — SATA_LED_N — R425 0R/4
SATALED_N BH34 — SATAS_LED_N — R508 0R/4 — SATAS_LED_N_R (62)

sSATA0GP AW32 — sSATA0GP
sSATA1GP BF36 — sSATA1GP
sSATA2GP BH36 — sSATA2GP
sSATA3GP BF38 — sSATA3GP

PWM3 V43
PWM2 V40
PWM1 V35
PWM0 V38

SATA0GP/GPIO21 D4 — PCH_GP21
SATA1GP/GPIO19 B24 — PCH_GP19 — PCH_GP19 (22)
SATA2GP/GPIO36 B5 — PCH_GP36 — PCH_GP36 (22)
SATA3GP/GPIO37 G11 — PCH_GP37 — PCH_GP37 (22)

PCH_GP71 V36 — TACH7/GPIO71
PCH_GP70 V41 — TACH6/GPIO70
PCH_GP69 T43 — TACH5/GPIO69
PCH_GP68 T36 — TACH4/GPIO68
PCH_GP7 T38 — TACH3/GPIO7
PCH_GP6 V44 — TACH2/GPIO6
PCH_GP1 T41 — TACH1/GPIO1
PCH_GP17 T40 — TACH0/GPIO17

SATA4GP/GPIO16/MGPIO9 A9 — PCH_GP16
SATA5GP/GPIO49/MGPIO10 B28 — PCH_GP49

SDATAOUT0/GPIO39 M21 — PCH_GP39
SDATAOUT1/GPIO48 D6 — PCH_GP48
sSDATAOUT0 BH38 — SSDATAOUT0
sSDATAOUT1 BF34 — SSDATAOUT1

PCH_GP22 J12 — SCLOCK/GPIO22
PCH_GP38 G6 — SLOAD/GPIO38

sSLOAD BC29 — SSLOAD
sSCLOCK BD29 — SSCLOCK

Wellsburg

Add GP6 2014.12.18

(10) RING_OC_EN1 — R484 0R/4 — PCH_GP6

Q95 NN-2N7002D
(29,62) GEAR2# — G2
PCH_GP1 — D1
(29,62) GEAR1# — G1
D2 PCH_GP7
S2
S1

PCH_GP39 R427 2KR0402
PCH_GP48 R439 2KR0402
SSDATAOUT0 R521 2KR0402
SSDATAOUT1 R509 2KR0402
SSLOAD R1020 10K/4
SSCLOCK R1019 10K/4
PCH_GP6 R1072 X_10K/4
VCC3

Add GP6 2014.12.18

PCH_GP16 R1053 X_10K/4
PCH_GP49 R1054 X_10K/4
VCC3

(47,49) PCH_M.2_DET — R435 0R/4 — R440 0R/4 — PCH_GP16; PCH_GP49

PCH_GP1 R566 10K/4
PCH_GP7 R574 10K/4
VCC3

RN2
PCH_GP38 1 2
PCH_GP21 3 4
PCH_GP22 5 6
7 8
8P4R-10KR0402

RN10
PCH_GP17 1 2
PCH_GP68 3 4
5 6
7 8
8P4R-10KR0402

RN6
sSATA0GP 1 2
sSATA3GP 3 4
sSATA1GP 5 6
sSATA2GP 7 8
8P4R-10KR0402

PCH_RCOMP_VCC
C807 0.1uF/10X4
C880 0.1uF/10X4
C881 0.1uF/10X4
C882 0.1uF/10X4

GPIO	71	70	69
Default	1	1	1
ACK	1	1	0
U3.1	1	0	1
2.0	1	0	0

option bom

PCH_GP69 R645 X_10K/4
PCH_GP70 R627 X_10K/4
PCH_GP71 R630 10K/4
VCC3

PCH_GP69 R646 10K/4
PCH_GP70 R628 10K/4
PCH_GP71 R629 X_10K/4

	GPIO16	GPIO49
0	PCIE	PCIE
1	SATA (Default)	SATA

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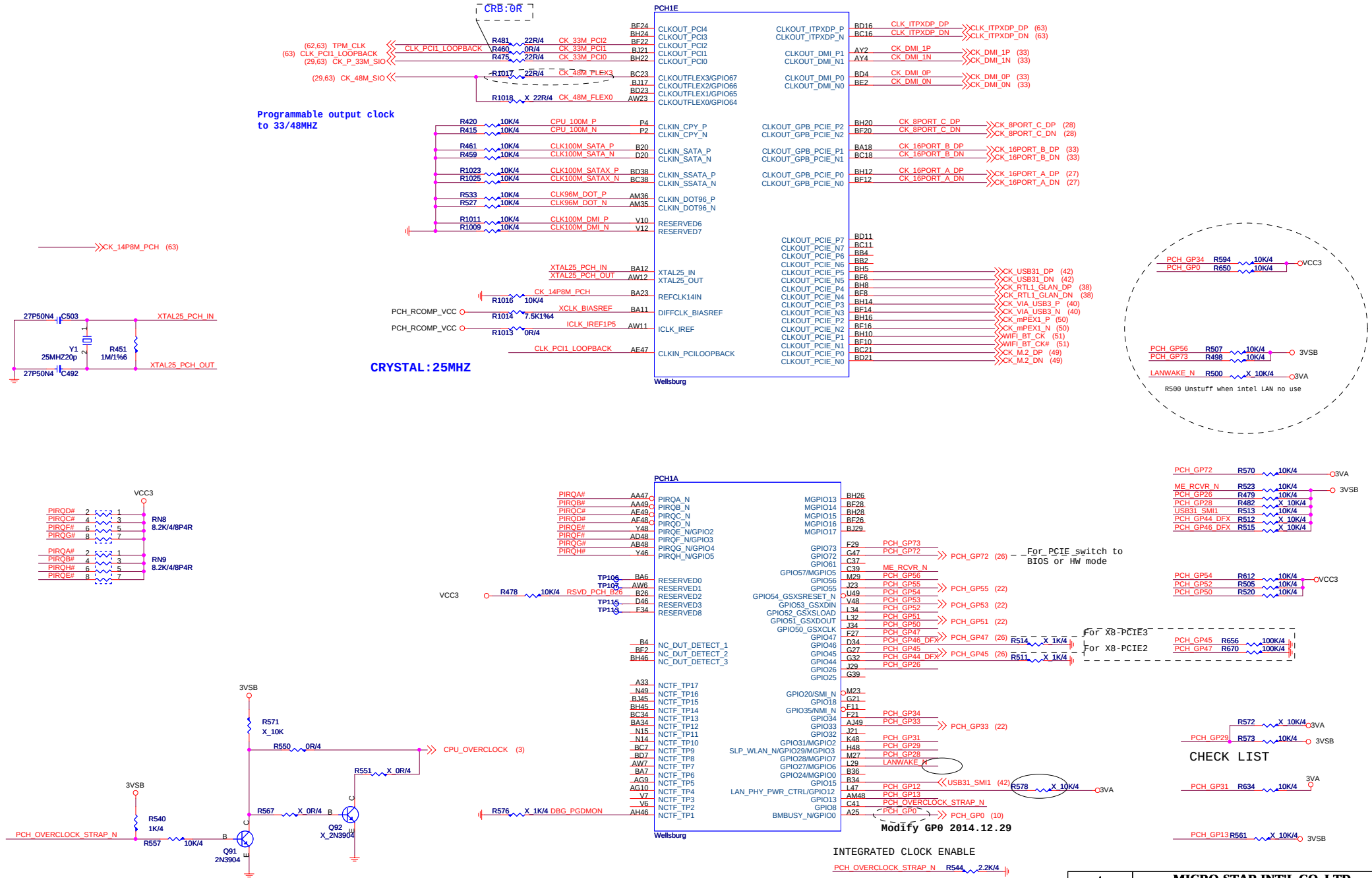
PCH-CLK/GPIO



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PCH-POWER

PCH_1P05:5.83A

+1P05V_ME:0.67A

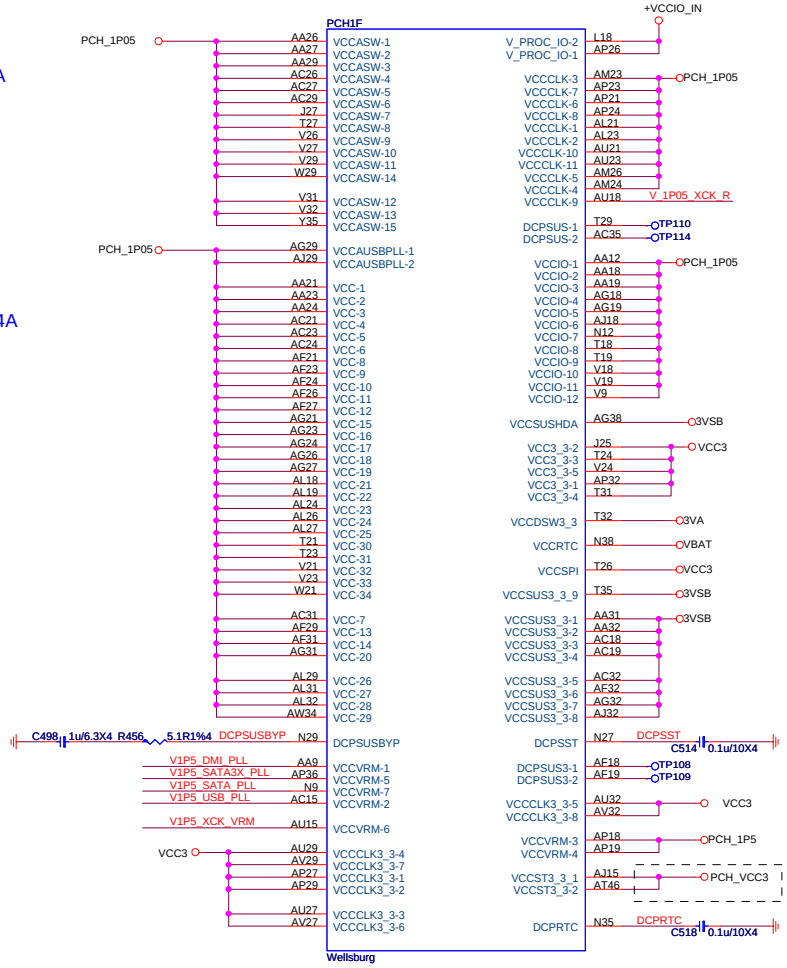
VCC3:0.2A

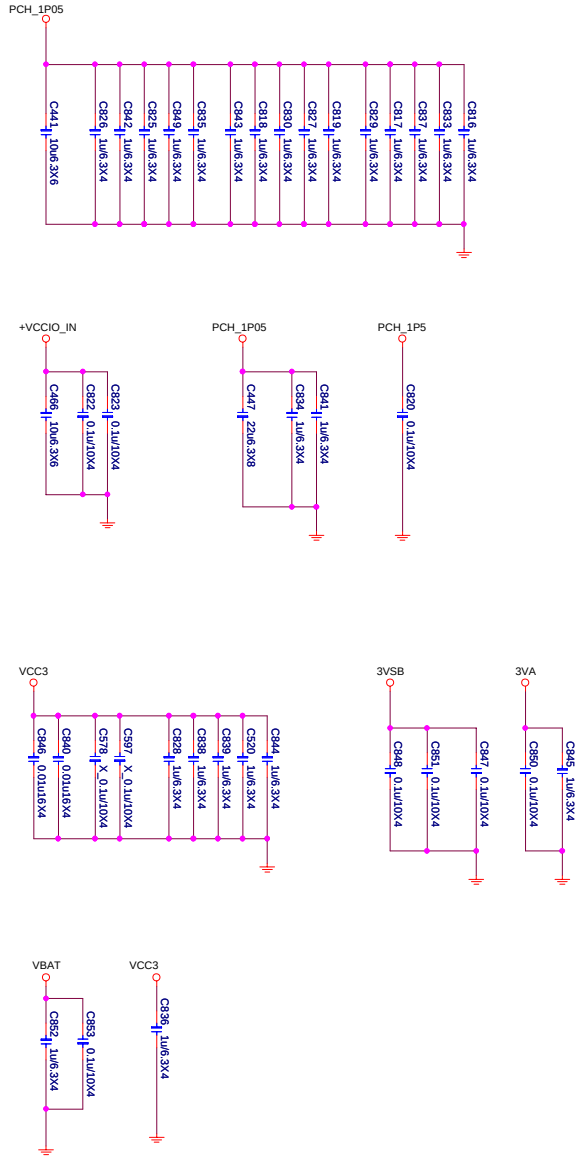
3VSB:0.27A

SPI_VCC3:0.02A

3VA:0.02A

+VCCIO_IN:0.004A





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MS-7882	
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Rev: 2.0	
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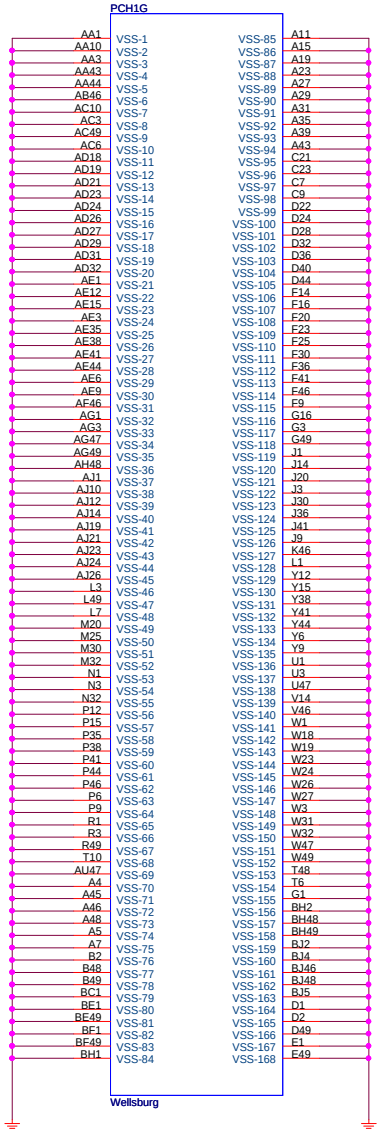
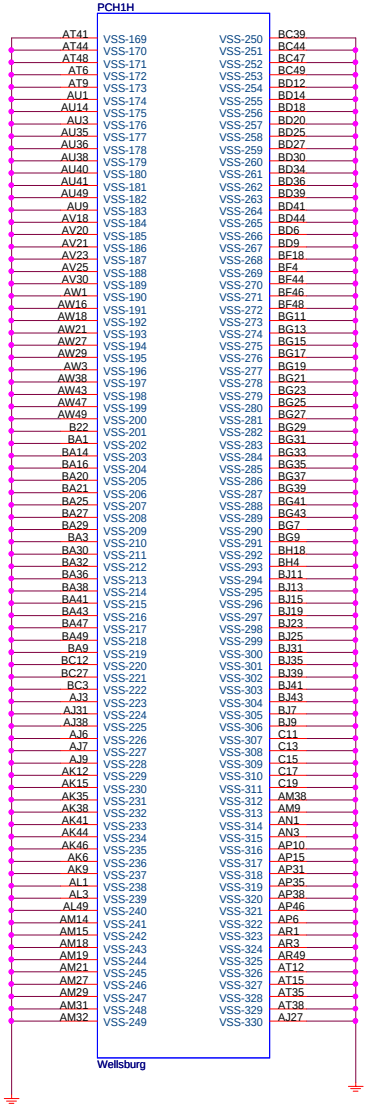
PCH-GND





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PCH Strap/Clear cMOS

	GP19	GP51
SPI	1	1
LPC	0	0

(18) PCH_GP19 — PCH_GP19 — R463 10K/4 — VCC3
R477 X_1K/4

(19) PCH_GP51 — PCH_GP51 — R524 10K/4 — VCC3
R525 X_1K/4

DMI RX Termination

(18) PCH_GP36 — PCH_GP36 — R434 X_1K/4 — R433 X_10K/4 — VCC3

This signal has a weak internal pull-down.
This signal only take effect if DMI is configured in AC-coupled mode.
0 = DMI RX is terminated to VSS.
1 = option not supported.

(18) PCH_GP37 — PCH_GP37 — R431 1K/4 — R430 X_10K/4 — VCC3

TLS CONFIDENTIALITY ENABLE STRAP

HIGH :TLS CONFIDENTIALITY ENABLE (DEFAULT)
LOW : RING OSCILLATOR BYPASS
LOW :TLS CONFIDENTIALITY DISABLE

ATX_5VSB — R590 47K/4
+12V — R565 47K/4
3VSB — R591 1K/4

Q94 (NN-2N7002DW-7): G2, D2, D1, S2, G1, S1
JME1 (X_H1X2M-2PITCH_BLACK-HF)
(29) ME_DIS#
AZ_SDOUT_R — AZ_SDOUT_R (17)

HIGH (1-2):SECURITY MEASURES OVERRIDEN
LOW (0-1) : SECURITY PER FLASH DESCRIPTOR (DEFAULT)

DEEP SLEEP WELL ON-DIE VRM ENABLE

VBAT — R599 390K/4 — DSWODVREN — DSWODVREN (17)

HIGH: ENABLE (INTERNAL SUPPLY) (DEFAULT)
LOW: DISABLE (EXTERNAL SUPPLY)

INTEGRATED SUS 1.05V VRM ENABLE

VBAT — R635 390K/4 — INTVRMEN — INTVRMEN (17)

HIGH: ENABLE (INTERNAL SUPPLY) (DEFAULT)
LOW: DISABLE (EXTERNAL SUPPLY)

PLL ON-DIE VR ENABLE

(17) SUSCLK — SUSCLK — R506 X_22K — R501 X_22K — 3VSB

HIGH :PLL ON-DIE VR ENABLE. INT PU. (DEFAULT)
LOW :PLL ON-DIE VR DISABLE

Top-Block Swap Override

(19) PCH_GP55 — R462 10K/4 — R476 X_10K/4 — VCC3

DMI TX TERMINATION (DEFENSIVE)

(19) PCH_GP33 — PCH_GP33 — R585 X_10K/4 — R575 X_10K/4 — VCC3

This signal has a weak internal pull-down.
This signal only takes effect if DMI is configured in DC-coupled mode.
0 = DMI TX is terminated to VSS.
1 = DMI TX is terminated to VCC/2.

NO REBOOT OPTION STRAP

LOW : REBOOT
HIGH: NO-REBOOT

(17,62) SPKR — R495 1K/4 — VCC3

DMI AC Coupling

CHECK LIST

(19) PCH_GP53 — R586 X_10K/4 — R568 1K/4 — VCC3

This Signal has a weak internal pull-up.
0= Configures DMI for AC coupling mode.
1 = Configures DMI for DC coupling mode.

RTC and CLR_CMOS

SIO_3VA — R749 4.7K/4
SIO_3VA — R744 4.7K/4

(29) CLR_CMOS# — Q132 2N7002 — R750 0R/4 — RTCRST# — RTCRST# (17)
C668 0.1u/10X4

RTCRST# — R755 20K1%4 — VBAT
C665 1u/16X6

Only connector to PCH

RTCRST# — R763 X_0R/4 — RTCRST#_D
co-lay

VBAT — U70 NC7SP125P5X
RTCRST# — RTCRST#_D
RTCRST#_D — RTCRST#_D (29)
connector to other RTCRST#

3VA — D6 S-BAT54C-SOT23 — R316 1K1%4 — BAT1 BAT-2P-RH-1
20mil
Close to PCH

VBAT — JBAT1 H1X2M_BLACK-RH — R789 20K1%4
C689 1u/16X6
C396 1u/16X6

ATX_5VSB — R145 10K/1%4
CLR_CMOS1 (SW-TACTB1-RH-5): MEC1, MEC2, MEC3, MEC4
CCMOS_LED — Q34 2N7002 — C90 X_0.1u16X
CCMOS_LED_R
RTCRST#_D (29)
(17) SLP_S5# — SLP_S5#
(23,29,37,42,44,49,51,62,63) ALL_LED_OFF# — Q36 2N7002

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

tri-state		
INPUT		outout
PIN1	PIN2	pin4
L	H	H
L	L	L
H	X	Z

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(17) PCH_SPI_CS0# PCH_SPI_CS0#

(17) PCH_SPI_MOSI PCH_SPI_MOSI

(17) PCH_SPI_MISO PCH_SPI_MISO

(17) PCH_SPI_CLK PCH_SPI_CLK

(17) PCH_SPI_IO2 PCH_SPI_IO2

(17) PCH_SPI_IO3 PCH_SPI_IO3

PCH_SPI_CS# SPI_SW_SEL

D15 ESD-SFI0402

D16 X_ESD-MLVS0402K14

OPTION BIOS

HW MODE

A BIOS

B BIOS

SW-DIPP1_BLACK-RH-1

BIOS1 MEC1 MEC2

R728 100K/4

R729 1K/4

R723 1K/4

R722 100K/4

SPI1_SW_D SPI1_SW SPI_CS1# Q116 2N7002

SPI2_SW_D SPI2_SW SPI_CS2# Q115 2N7002

R1066 X_0R/4 SPI_SW_SEL

SPI_SW_SEL_R R724 10K1%4 +12V

PCH_SPI_CS#

For TL-624-1.1: Don't stuff R1066
Old Stuff R1066

SPI DEBUG PROT

Close to SPI ROM

VCC3 JSPI1

PCH_SPI_MISO R731 33R/4 PCH_SPI_MISO_TL

PCH_SPI_CS0# R708 0R/4 PCH_SPI_CS#

PCH_SPI_IO2 R733 33R/4 PCH_SPI_IO2_TL

SPI_SW_SEL

PCH_SPI_MOSI_TL R730 33R/4 PCH_SPI_MOSI

PCH_SPI_CLK_TL R732 33R/4 PCH_SPI_CLK

PCH_SPI_IO3_TL R734 33R/4 PCH_SPI_IO3

H2X6[10]M-2PITCH_BLACK-RH-1

Part Number:N31-2061341-H06

(17) PCH_PWROK PCH_PWROK R1065 0R/4 SPI_SW_SEL

2014.06.05 Add for support TL624-1.1

For auto testing in factory. **Modify 2014.12.18**

ATX_5VSB SIO_3VA

R683 47K/4

R695 4.7K/4

DUAL_BIOS# Q168 G2 D2 SPI_SW_SEL_R

D1 S2 G1 S1 NN-2N7002D

(29) DUAL_BIOS

DUAL_BIOS# R684 1K/1% SPI_CS2#

C893 X_0.1u/10X4

R102 X_2N7002 100K/1% Q125

PCH_SPI_CS#

* if you not support Standby power in S5 Status, component "MULTI_BIOS_SWITCH1.B(PIN B) " Pull-high to +12V & Q12/Q13 MOS select 2N7002

* if you support Standby power in S5 Status(Ex; PCH is B75 Chipset) , component "MULTI_BIOS_SWITCH1.B(PIN B)" pull-igh to ATX_5VSB , component Q12/Q13 must select "Vth" under 1V (Component Suggestion as below)

D03-0341409-A68 / D03-0230019-A30

A BIOS

VCC3 R686 2.2K/4

SPI1 CS VCC DO(IO1) HOLD(IO3) WP(IO2) CLK GND DI(IO0) W25Q16DVSSIG-HF

SPI_CS1# PCH_SPI_MISO R709 33R/4 SPI1_MISO PCH_SPI_IO2 R700 33R/4 SPI1_IO2

C637 0.1u/10X4 C636 10u6.3X6

SPI1_IO3 R710 33R/4 PCH_SPI_IO3

SPI1_CLK R711 33R/4 PCH_SPI_CLK

SPI1_MOSI R712 33R/4 PCH_SPI_MOSI

R735 1K/4 VCC3

VCC3 R714 1K/4

16M ROM

B BIOS

VCC3 R685 2.2K/4

SPI2 CS VCC DO(IO1) HOLD(IO3) WP(IO2) CLK GND DI(IO0) W25Q16DVSSIG-HF

SPI_CS2# PCH_SPI_MISO R704 33R/4 SPI2_MISO PCH_SPI_IO2 R703 33R/4 SPI2_IO2

C635 0.1u/10X4 C634 10u6.3X6

SPI2_IO3 R705 33R/4 PCH_SPI_IO3

SPI2_CLK R706 33R/4 PCH_SPI_CLK

SPI2_MOSI R707 33R/4 PCH_SPI_MOSI

SPI FLASH ROM

Place close to SB.

*SPI_CLK & SPI_MOSI must be length matched to within 500mils.
*SPI_CLK & SPI_CS0# must be length matched to within 500mils.

VCC5 R770 4.7K/4 A_BIOS1 LED,20mA Q118 2N7002 SPI1_SW

VCC5 R769 1K/4 B_BIOS1 LED04-G-30mA Q117 2N7002 SPI2_SW

BIOS_LED_OFF

(22,29,37,42,44,49,51,62,63) ALL_LED_OFF# Q109 2N7002

Placement 1

MULTI_BIOS_SWITCH

SPI1 A BIOS SPI2 B BIOS

A_BIOS_LED B_BIOS_LED

Placement 2

SPI1 A BIOS SPI2 B BIOS

A_BIOS_LED B_BIOS_LED

MULTI_BIOS_SWITCH

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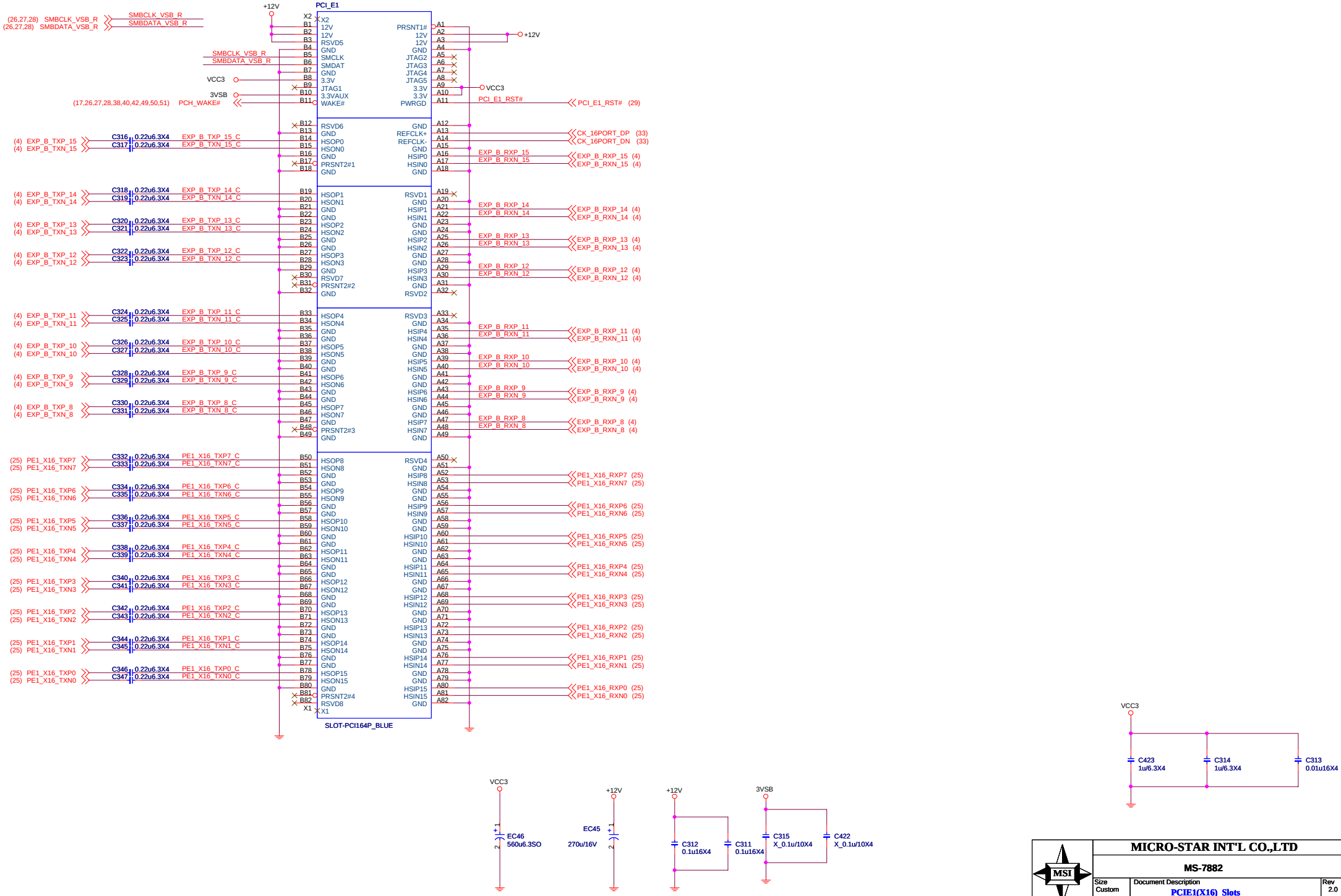
PCIE1(X16) & PCIE2(X1) Slots



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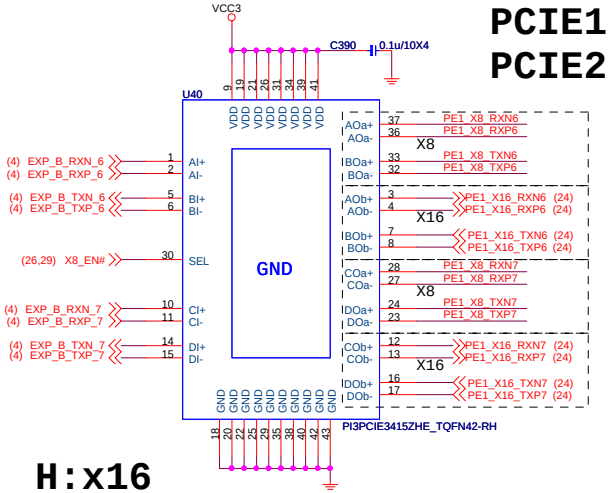
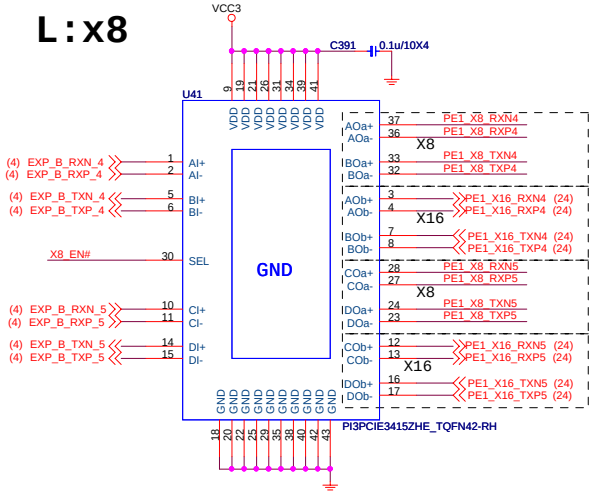
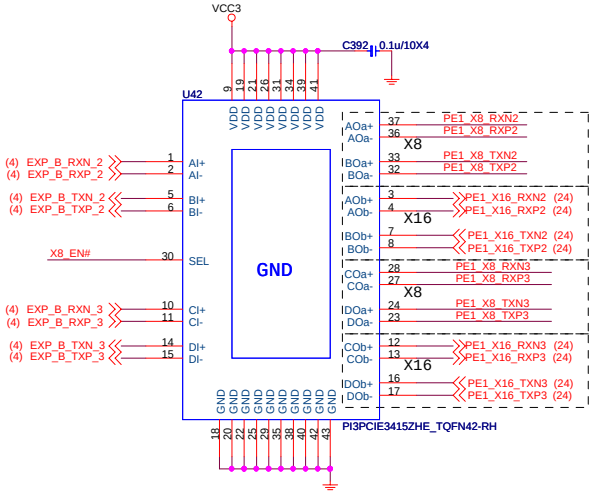
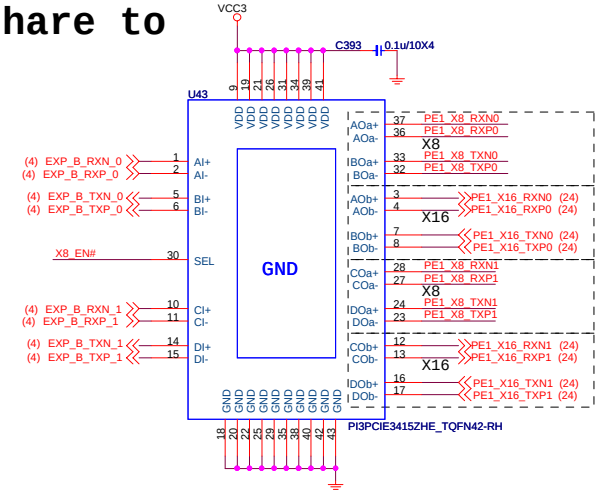
PCIE1(x16) share to PCIE2(x8)

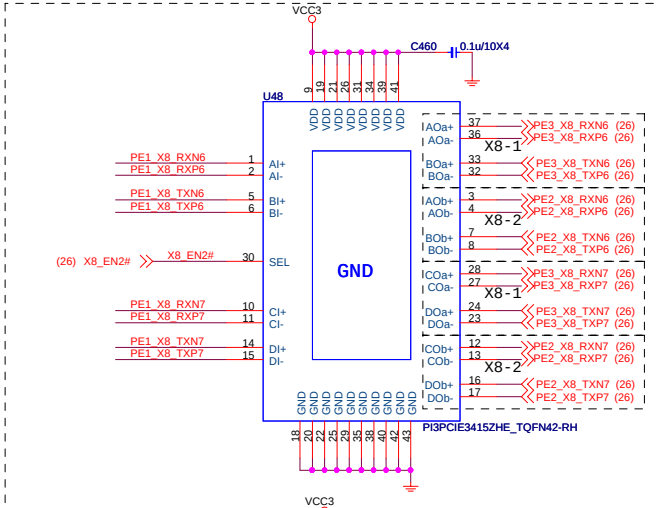
H:x16
L:x8

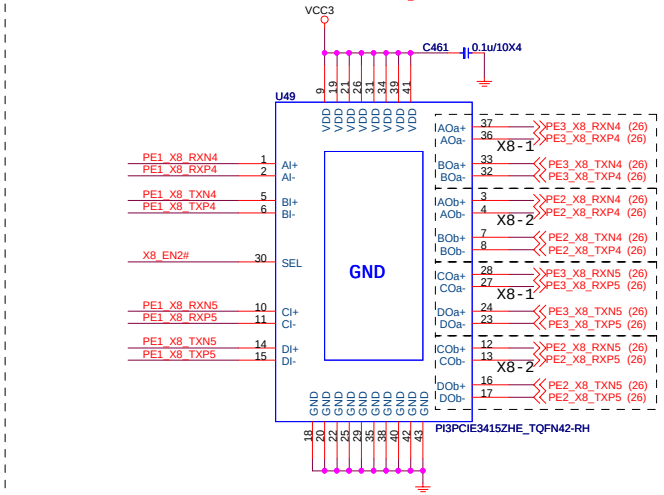






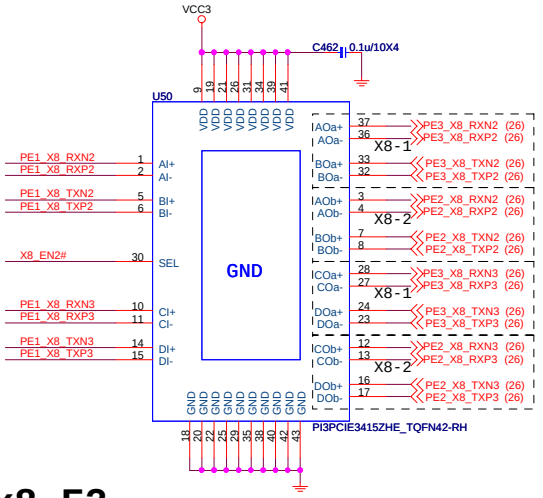


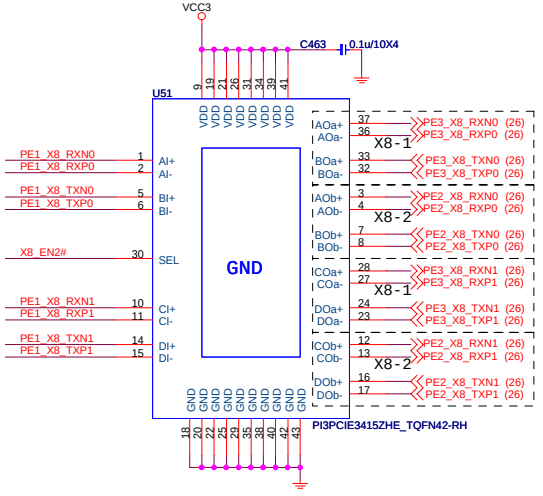




Switch PCIE(x8) for PCIE2 or PCIE3

H:x8-E2
L:x8-E3





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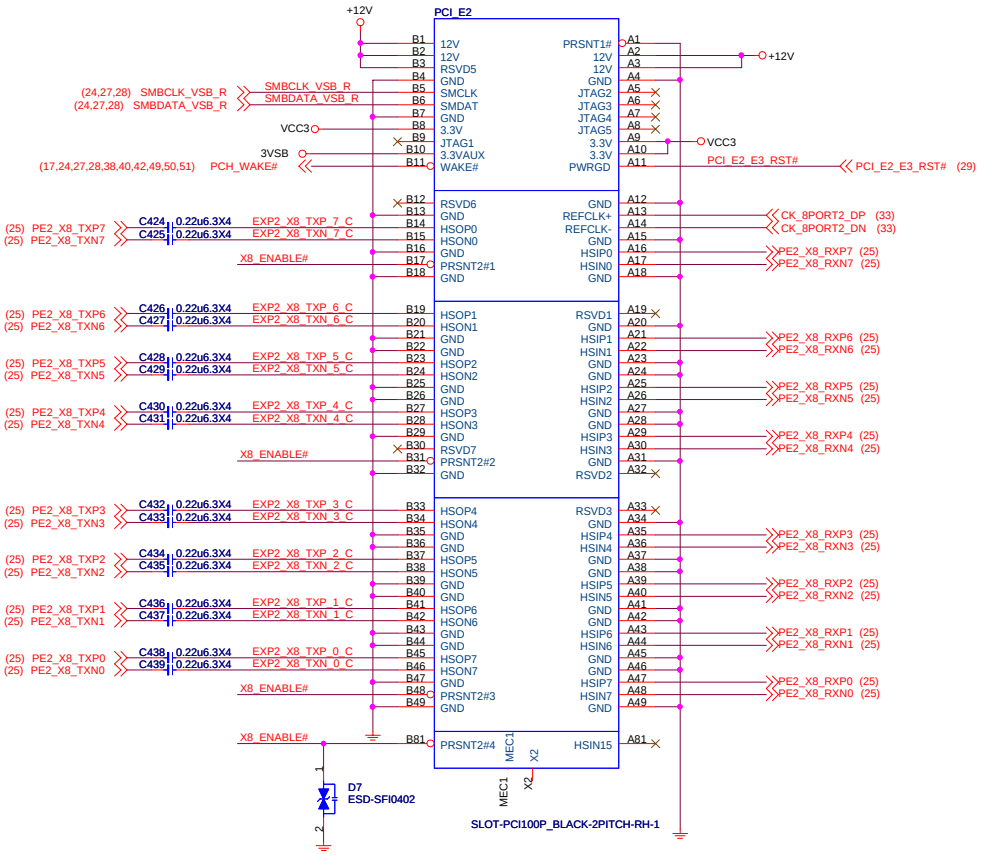
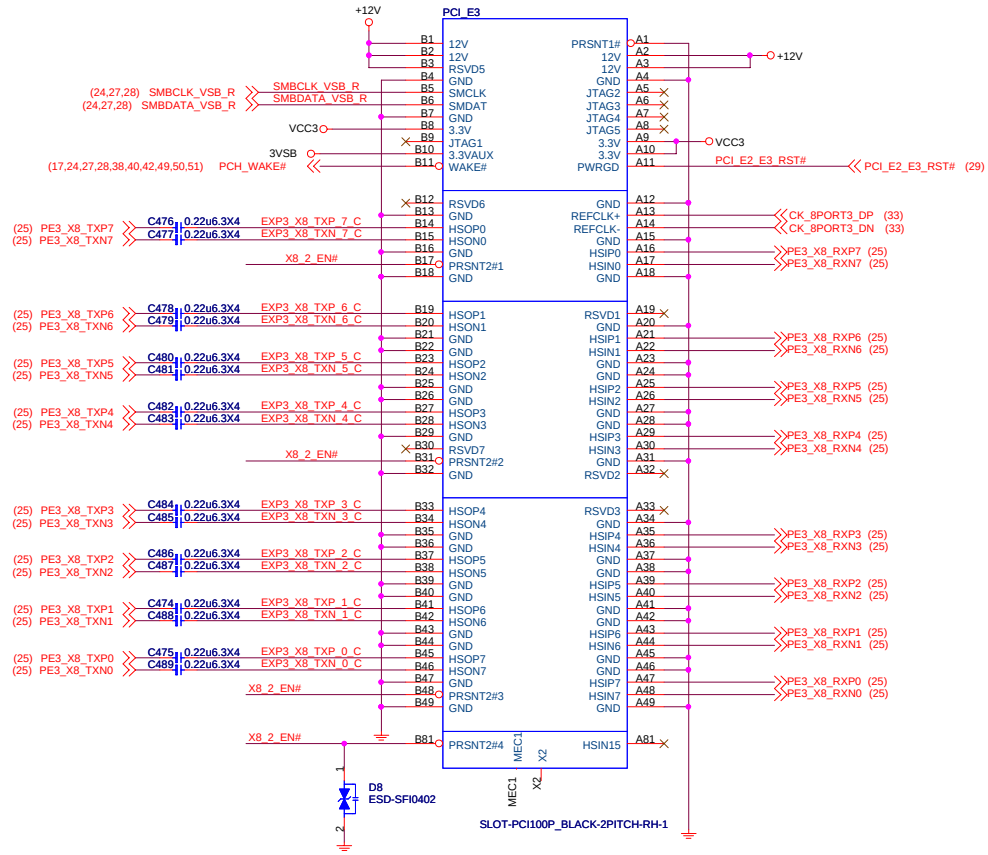
PCIE5(X8) /PCIE3415





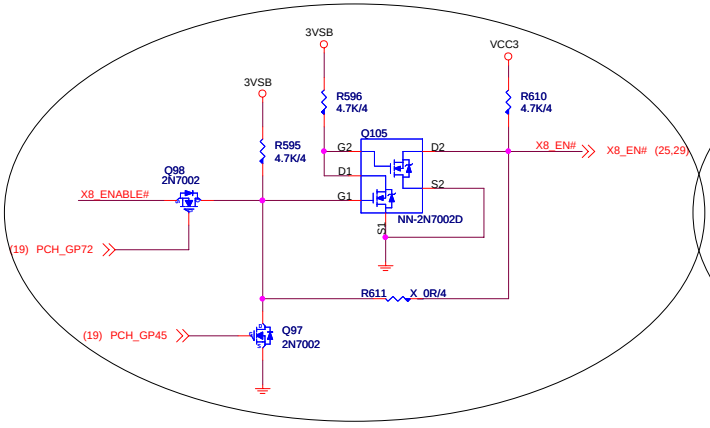
GPIO72

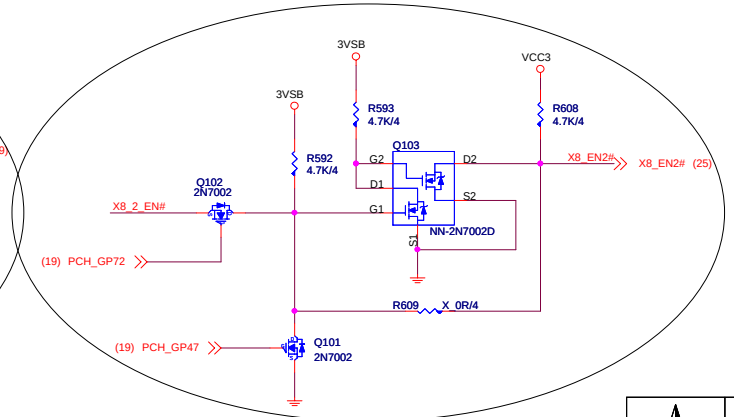
0: BIOS MODE
1: HW MODE

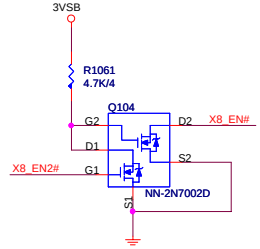
If USE HW MODE
PCH_GPIO45/47 programming to GPI
PCH_GPIO72 programming GPO

If USE BIOS MODE
PCH_GPIO45/47 programming to GPO

PCH Status	GPIO72	GPIO45	GPIO47
AUTO	1	GPI(def:0)	
16,0,0	0	X	X
8,8,0	0	1	0
8,0,8	0	0	1







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Size	Document Description	Rev
Custom	PCIE2&3(X8) /PCIE3415	2.0

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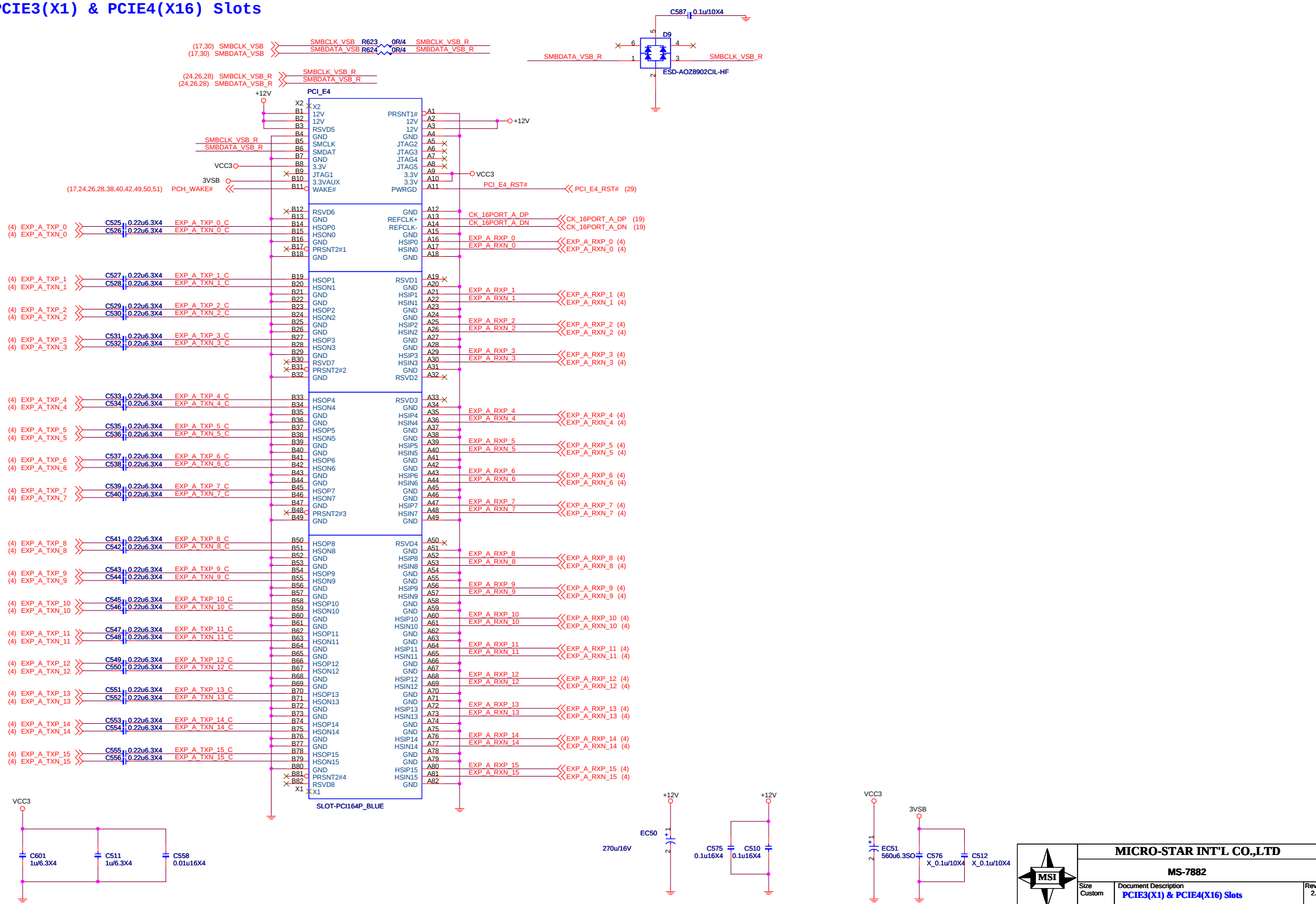
PCIE3(X1) & PCIE4(X16) Slots



MICRO-STAR INT'L CO.,LTD	
MS-7882	
Size: Custom	Document Description: PCIE3(X1) & PCIE4(X16) Slots
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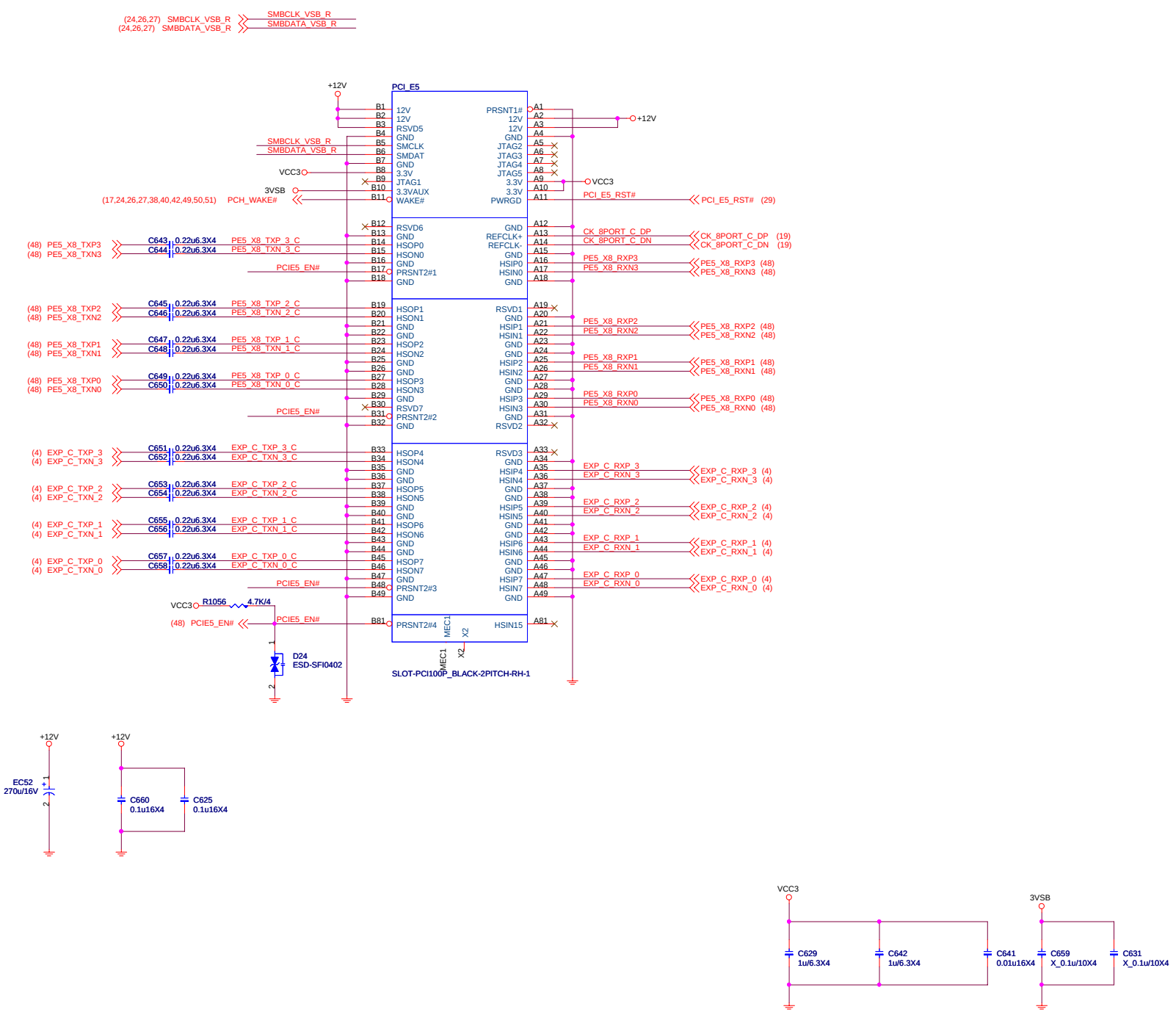
PCIE5(X8) Slots



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MS-7882	
Size: Custom	Document Description: PCIE6(X8) Slots
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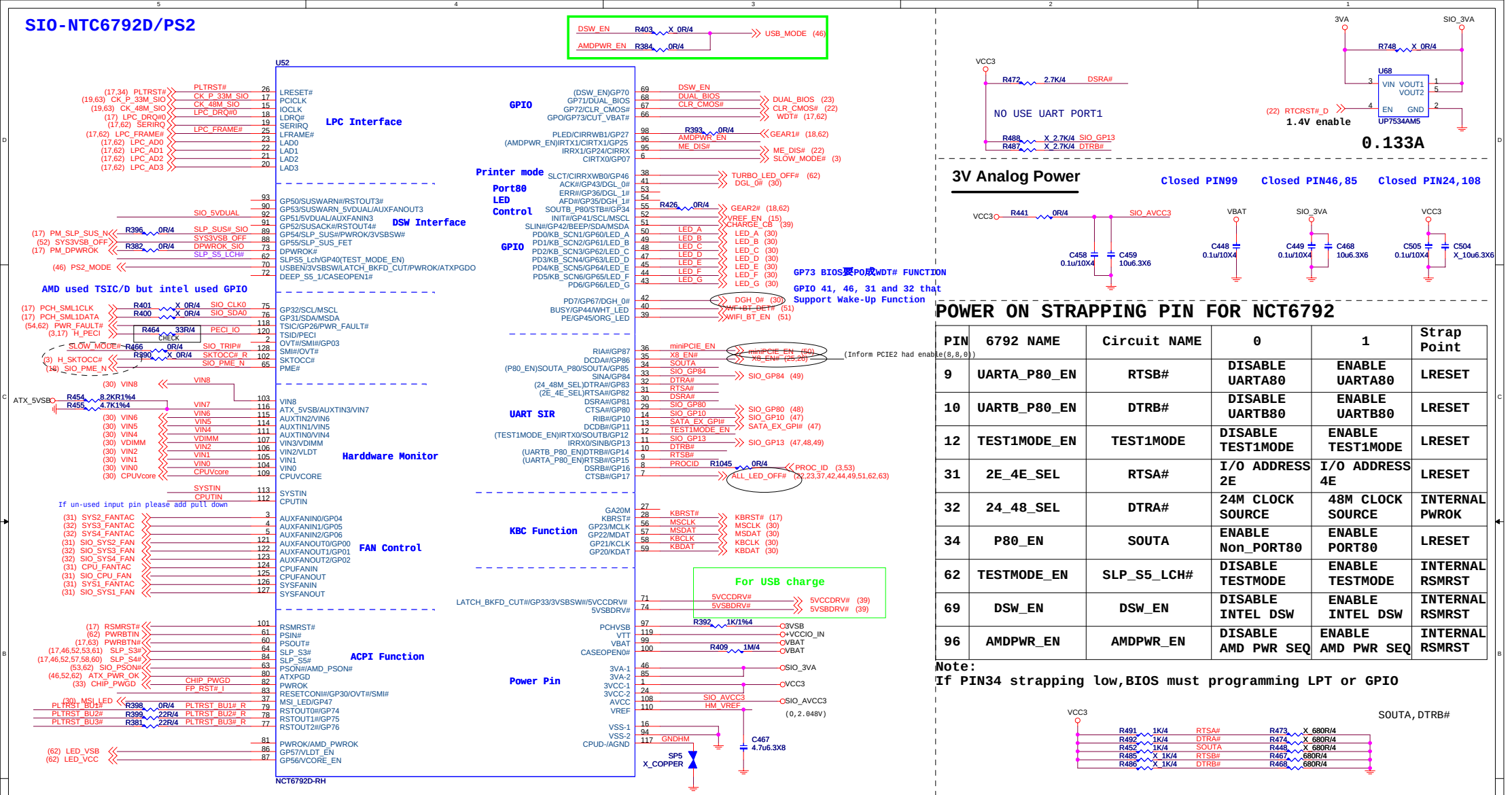
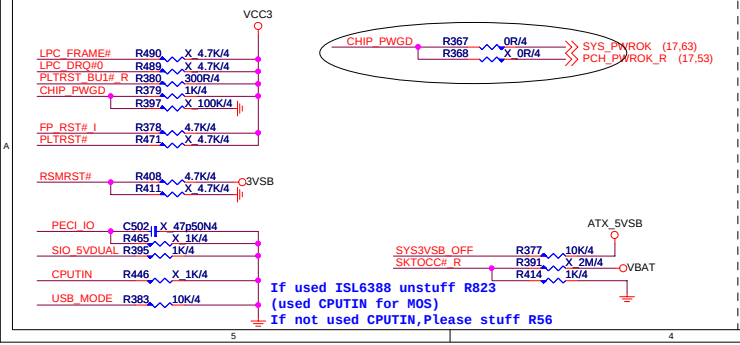
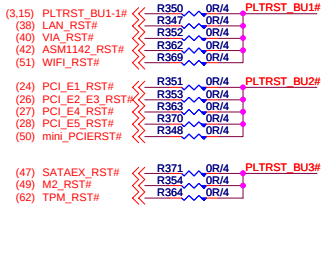
SIO-NTC6792D/PS2

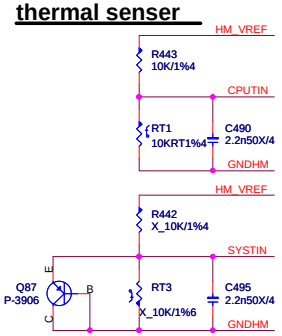




PLTRST Damping R



thermal senser



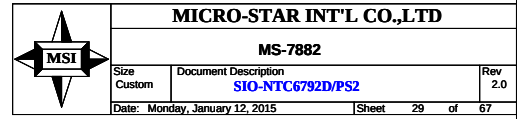
3V Analog Power

Closed PIN99 Closed PIN46,85 Closed PIN24,108

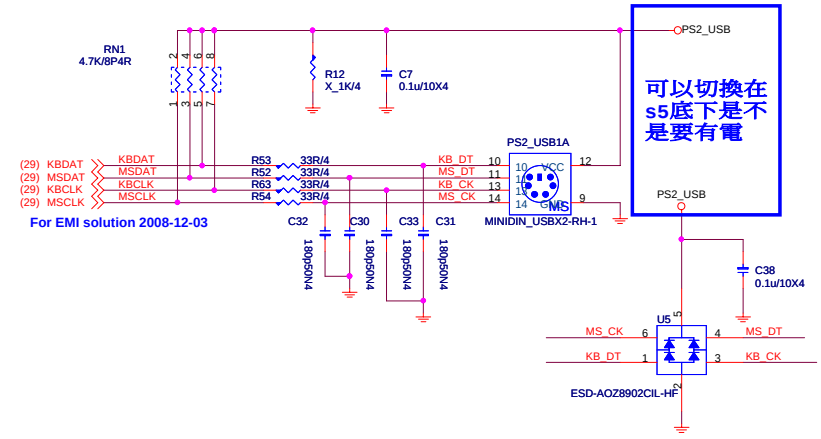
POWER ON STRAPPING PIN FOR NCT6792

PIN	6792 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
31	2E_4E_SEL	RTSA#	I/O ADDRESS 2E	I/O ADDRESS 4E	LRESET
32	24_48_SEL	DTRA#	24M CLOCK SOURCE	48M CLOCK SOURCE	INTERNAL PWROK
34	P80_EN	SOUTA	ENABLE Non_PORT80	ENABLE PORT80	LRESET
62	TESTMODE_EN	SLP_S5_LCH#	DISABLE TESTMODE	ENABLE TESTMODE	INTERNAL RSMRST
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

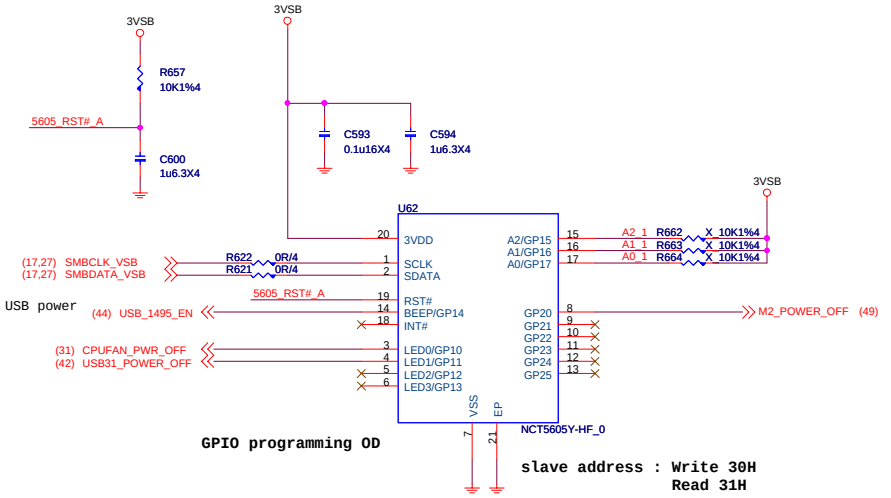
Note:
If PIN34 strapping low,BIOS must programming LPT or GPIO



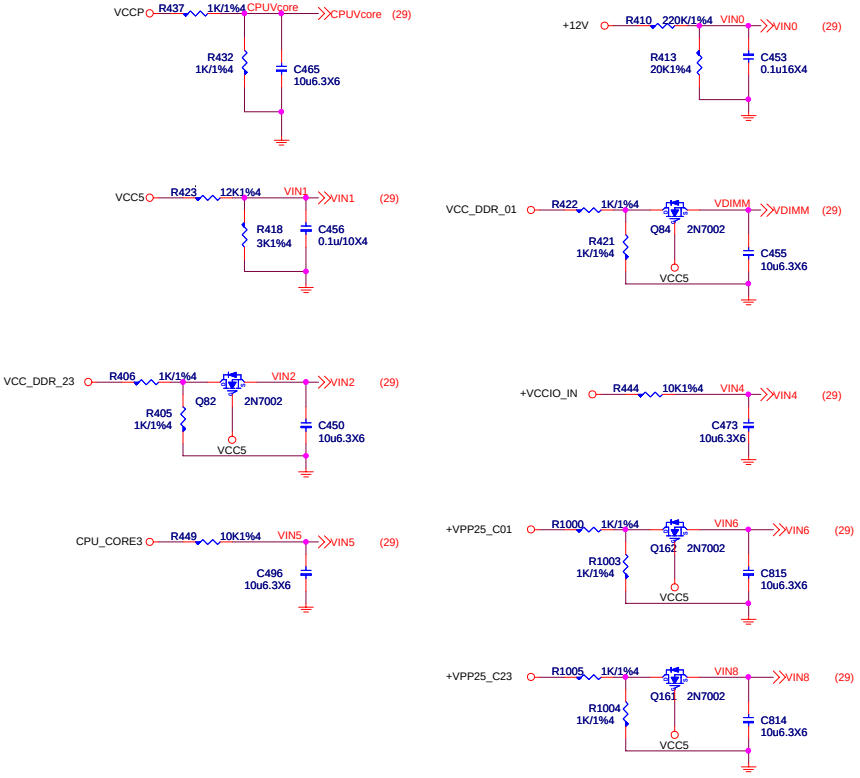
PS2 KEYBOARD & MOUSE CONNECTOR



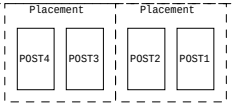
CUT POWER CHIP



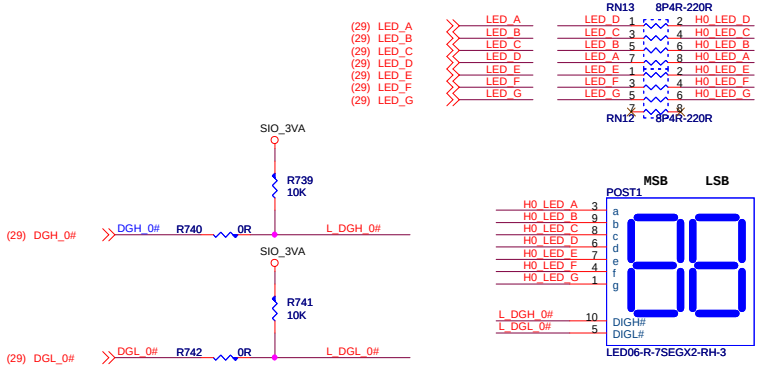
HW Monitor - Voltage



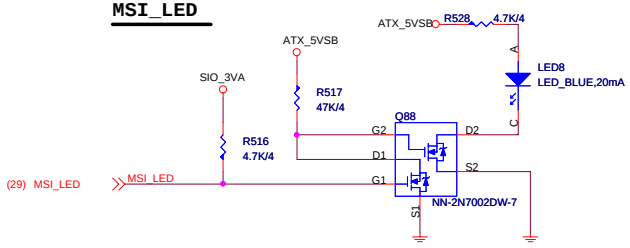
DEBUG LED



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



MSI_LED



MSI	MICRO-STAR INT'L CO.,LTD	
	MS-7882	
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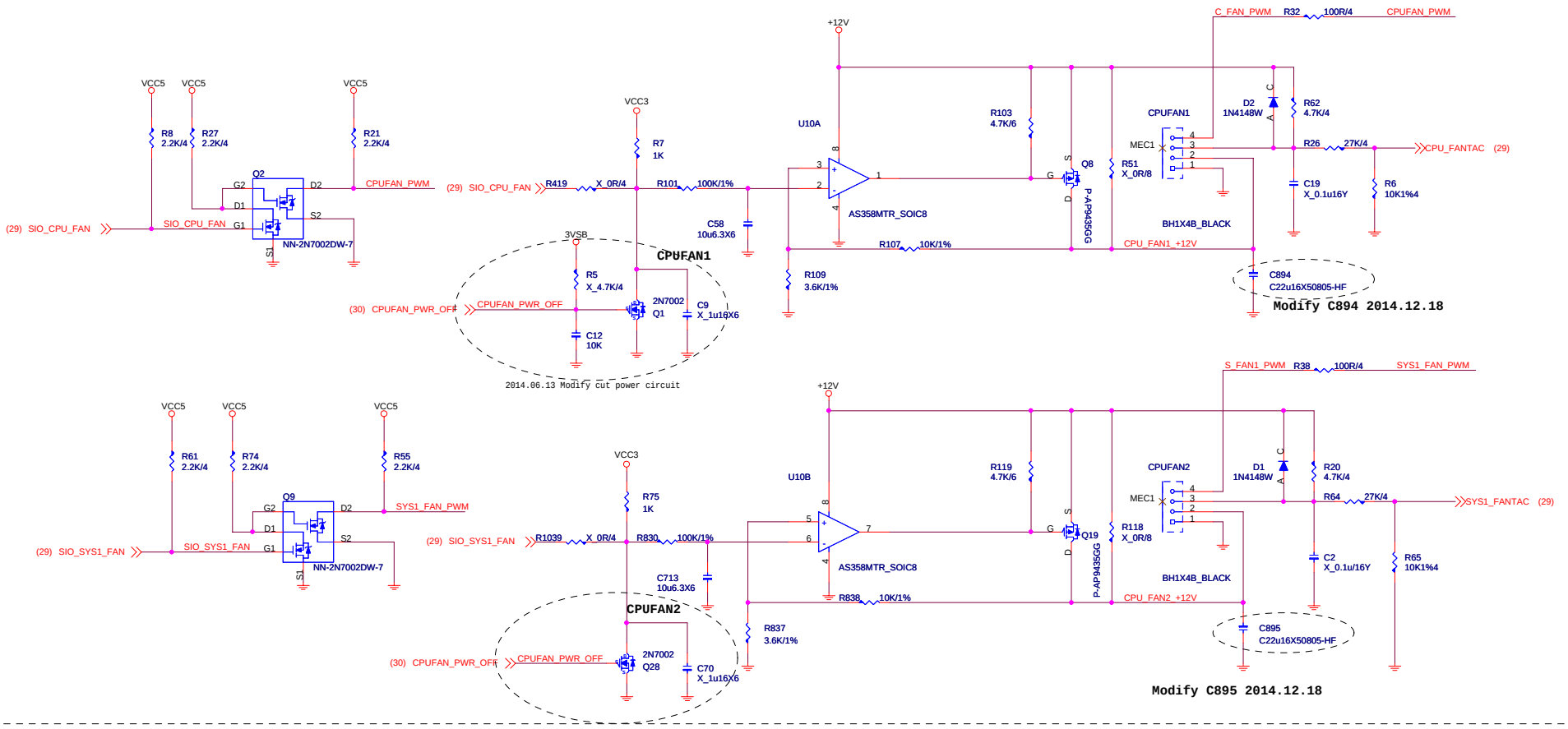
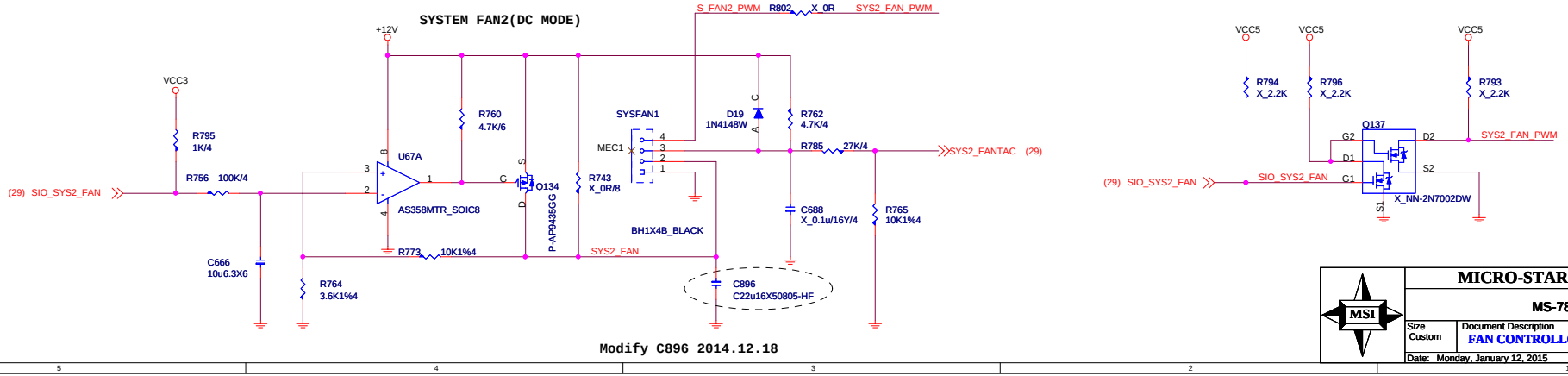
Type E : 4 PIN CPU FAN FROM SIO (Smart Fan/PWM MODE)(FOR NCT6792)



Type F : 4 PIN SYSTEM FAN FROM SIO (Smart Fan/PWM MODE)(FOR NCT6792)



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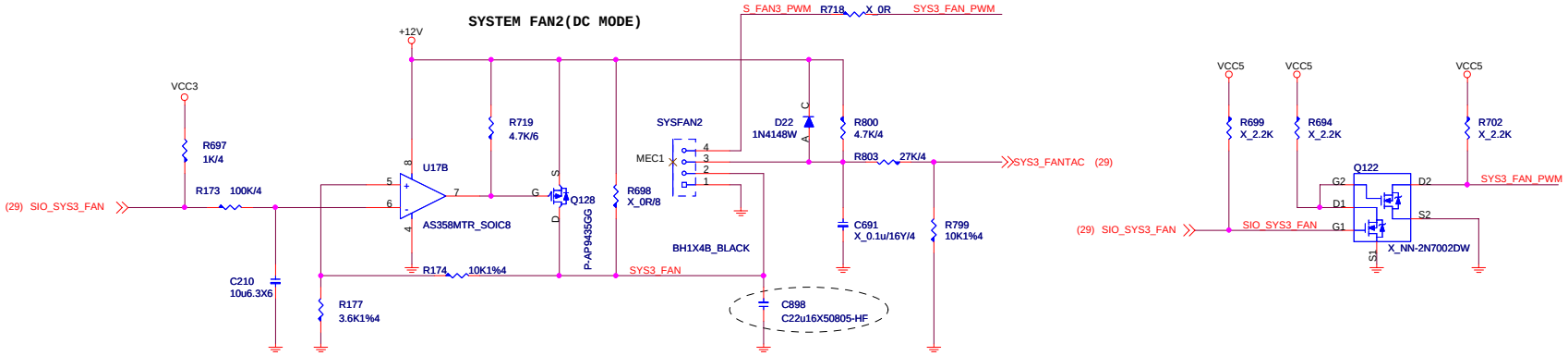
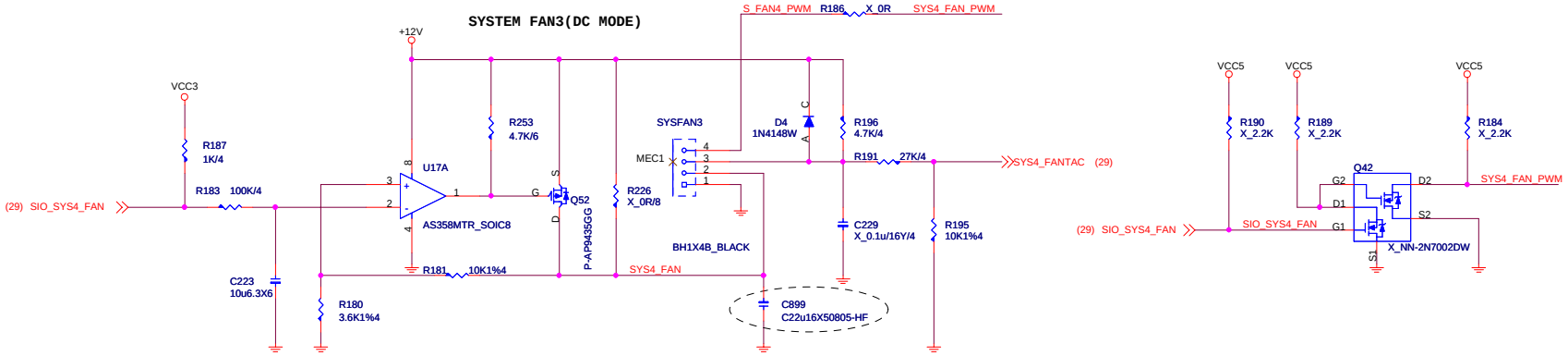
Type F : 4 PIN SYSTEM FAN FROM SIO (Smart Fan/PWM MODE)(FOR NCT6792)



Modify C898 2014.12.18



Modify C899 2014.12.18

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MS-7882		
Size: Custom	Document Description: FAN CONTROLLOR-2	Rev: 2.0
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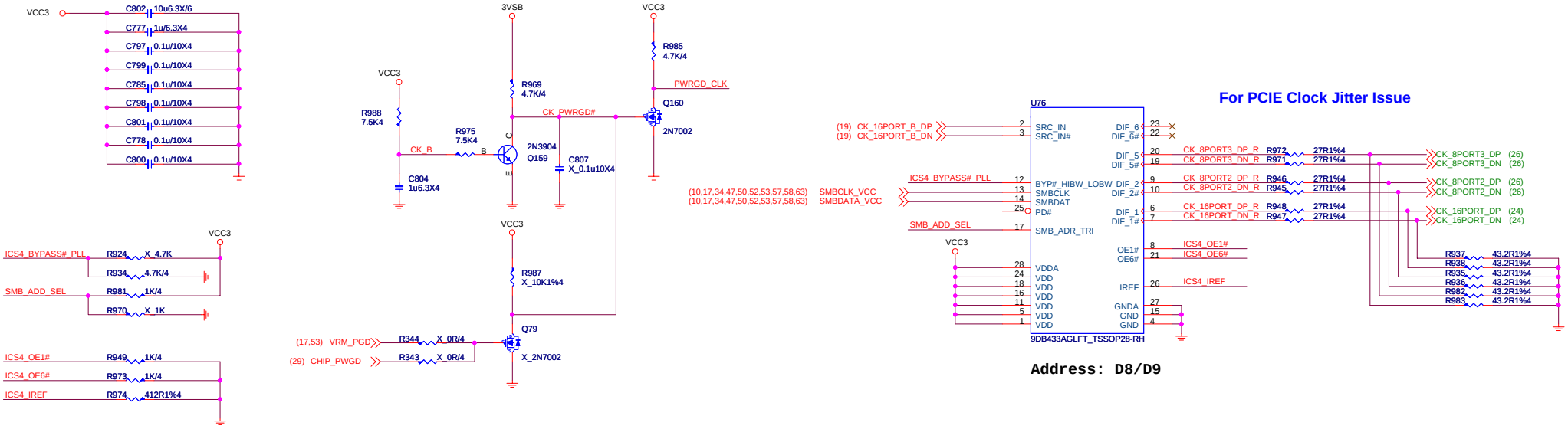
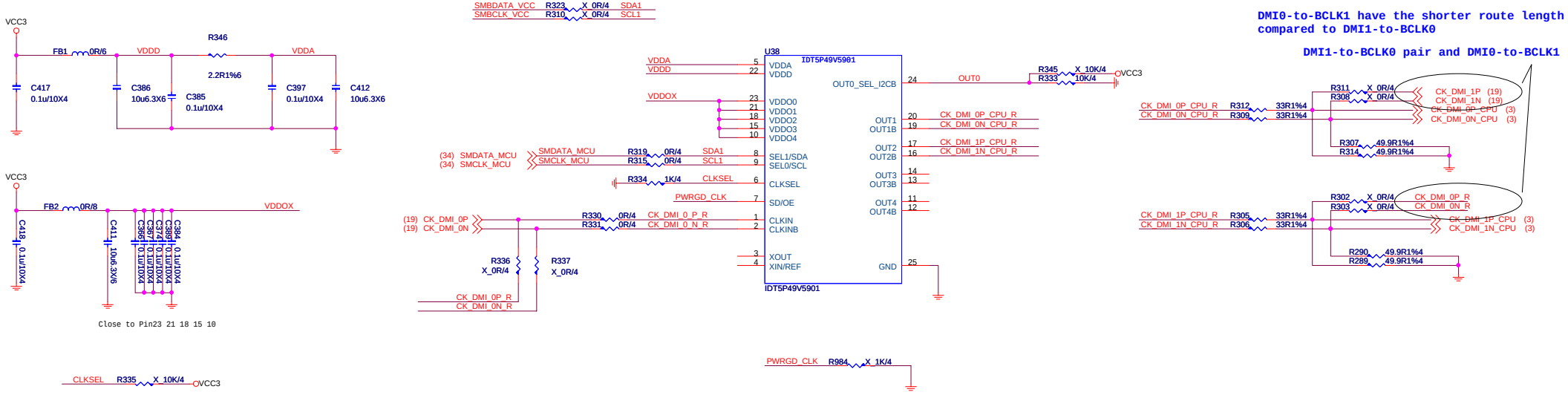
CLK Buffer_9DB433



For PCIE Clock Jitter Issue

Address: D8/D9

CLK GEN-IDT5P49V5901



DMI0-to-BCLK1 have the shorter route length compared to DMI1-to-BCLK0

DMI1-to-BCLK0 pair and DMI0-to-BCLK1

PIN:CLKSEL. Input clock select. Selects the active input reference source in manual switchover mode.
0 = XIN/REF, XOUT (default)
1 = CLKIN, CLKINB

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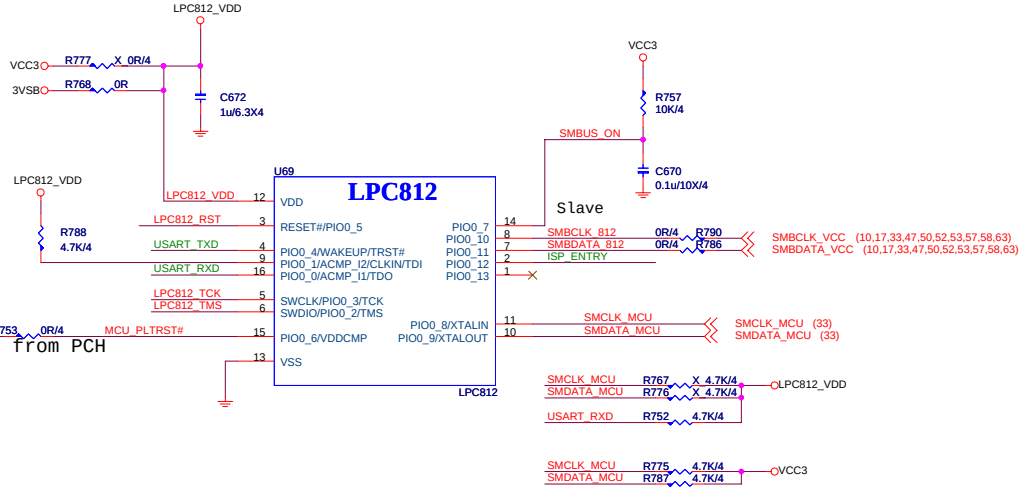
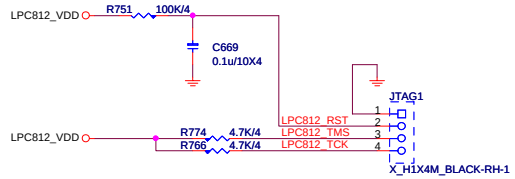
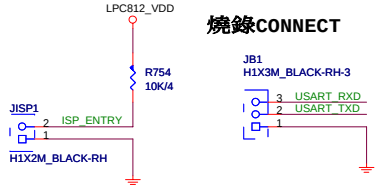
SIO 6792 , GPIO13
default low , active high



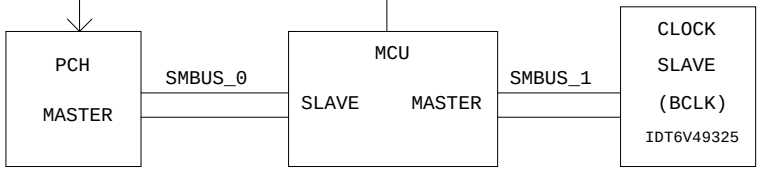
JTAG for SW DEBUG



燒錄CONNECT



Clear CMOS When System Boot Fail



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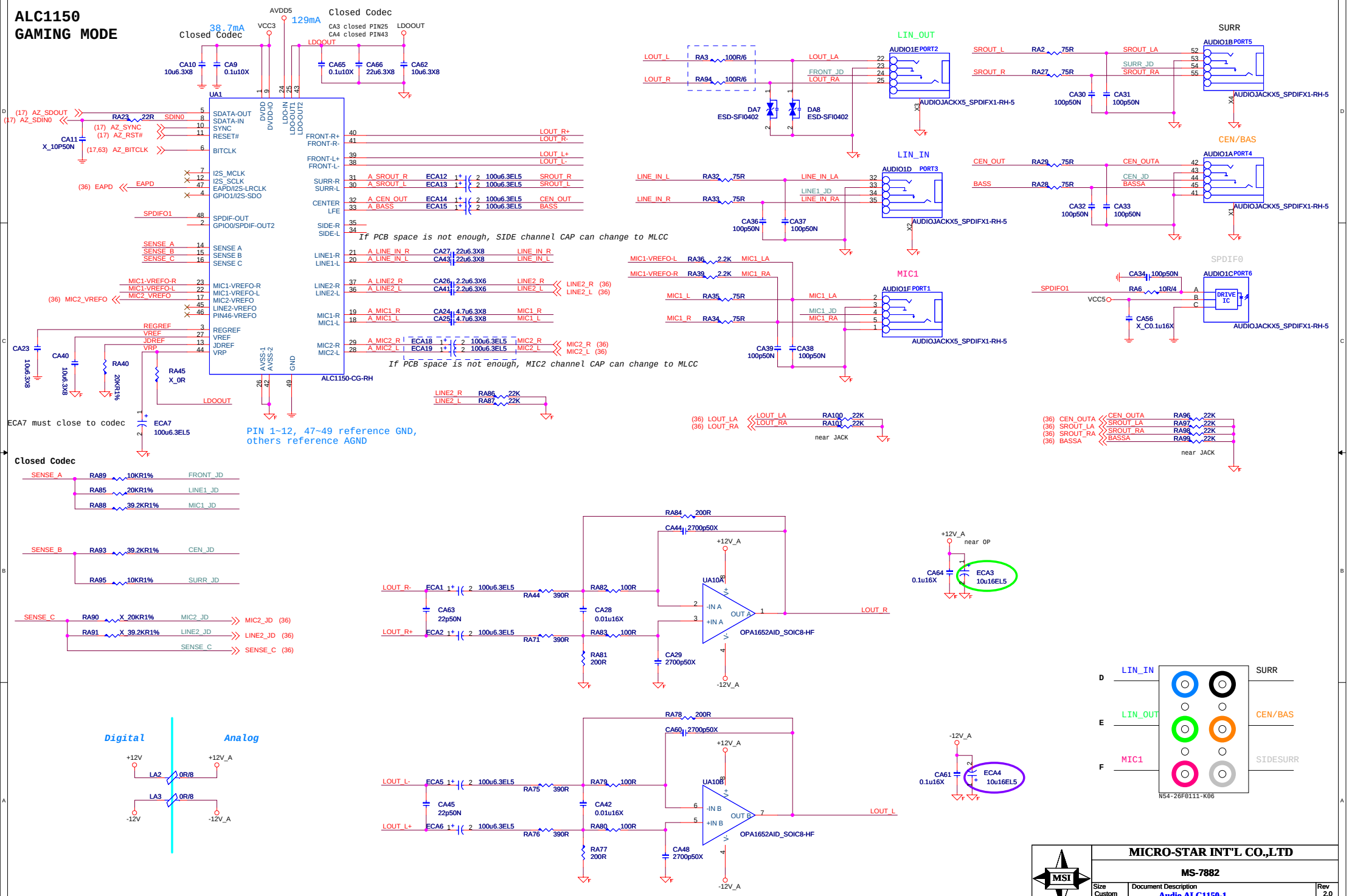
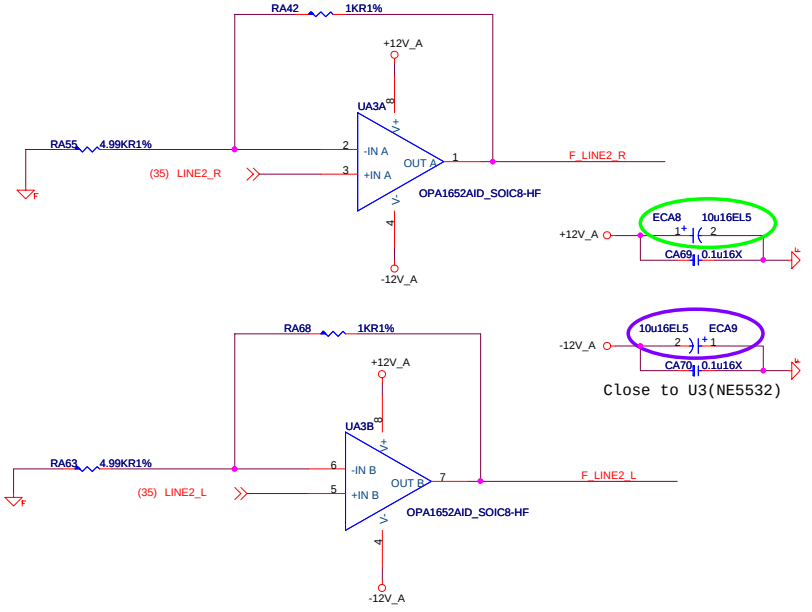
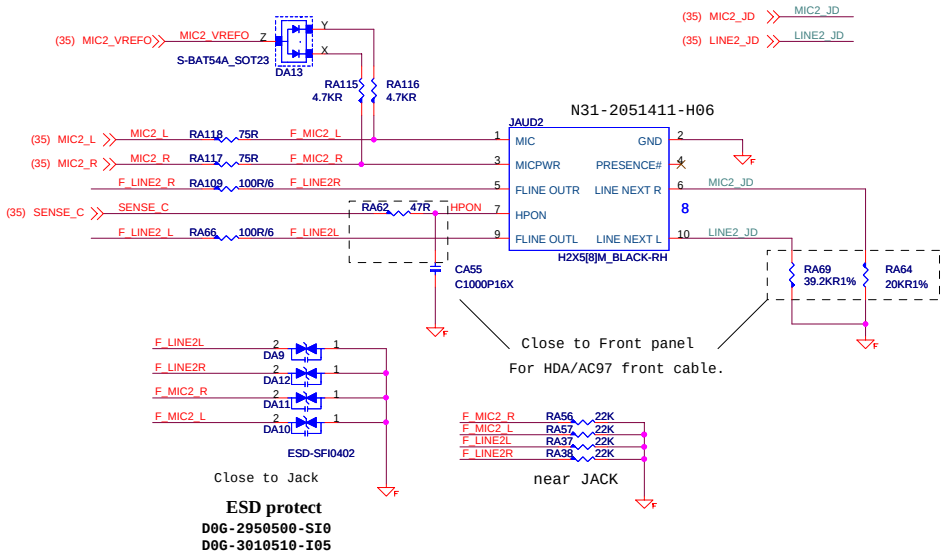
ALC1150
GAMING MODE

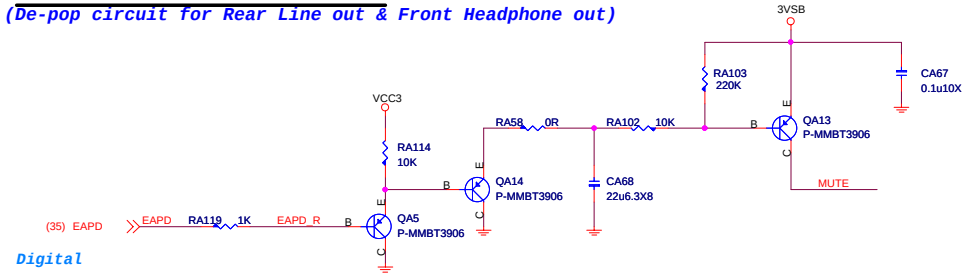






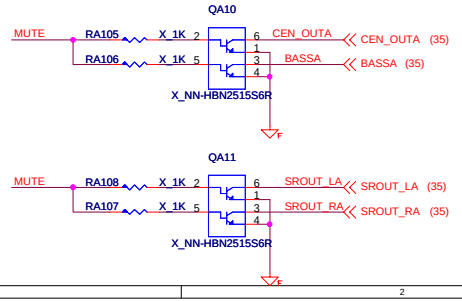
Rear Line OUT De-POP circuit

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

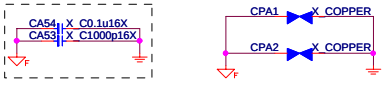


Analog

(add de-pop circuit by PM spec or customer request,
NOTE: add de-pop circuit need to change CA6,CA7, CA12, CA13, CA23, CA24 to TVS)



EMI



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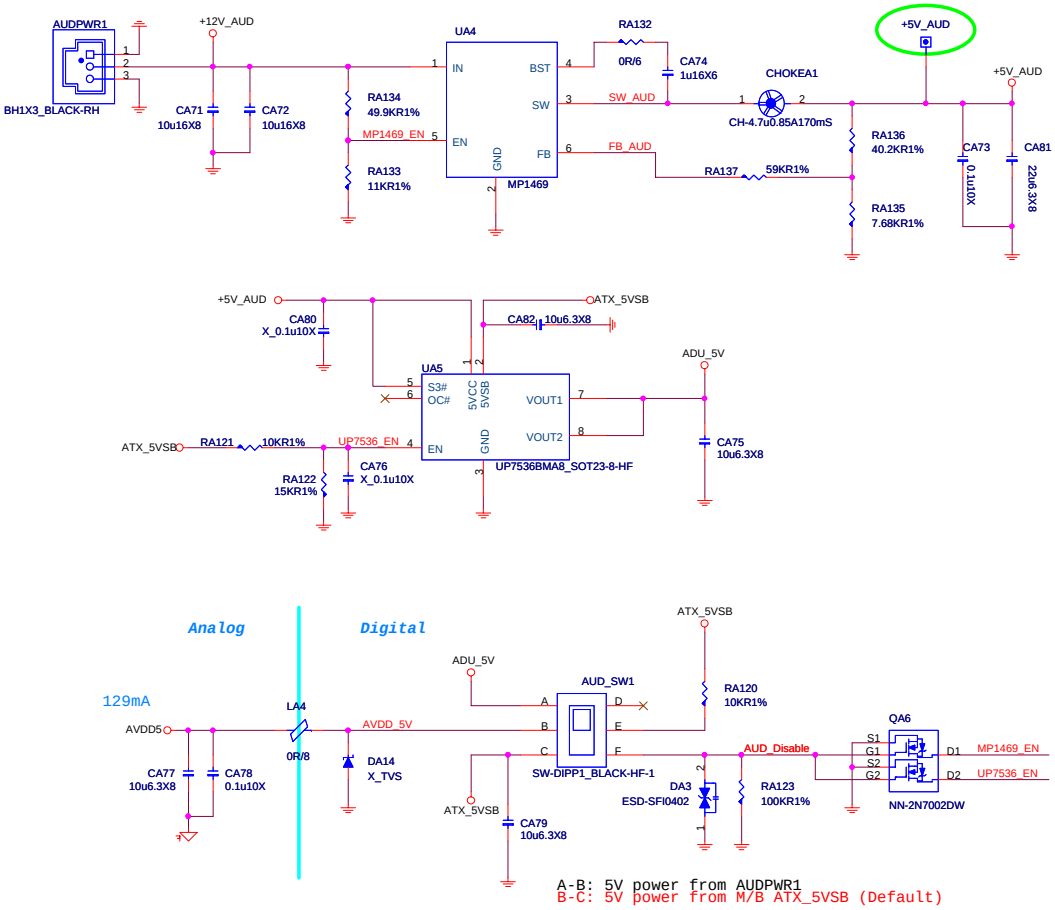
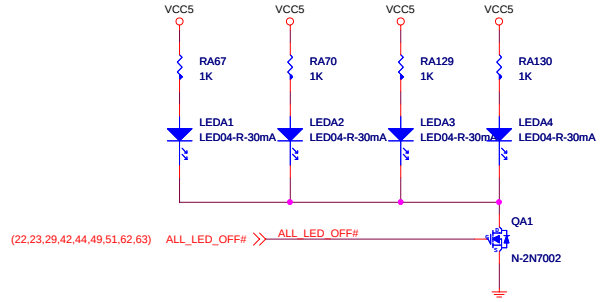
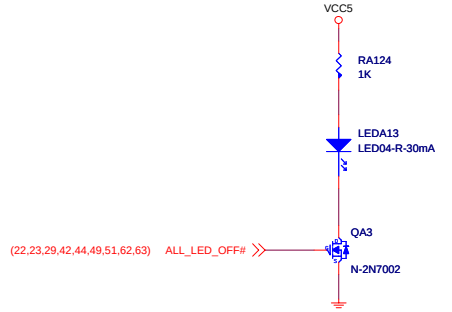
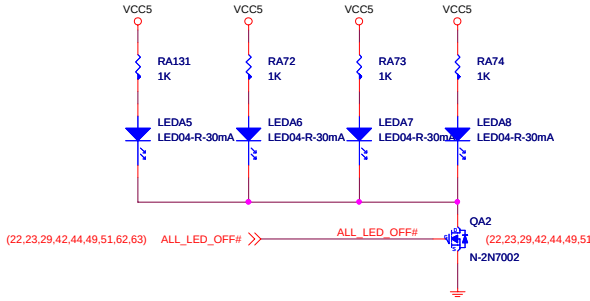
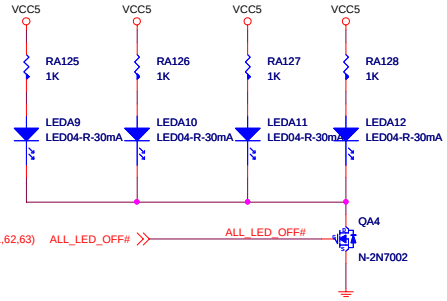


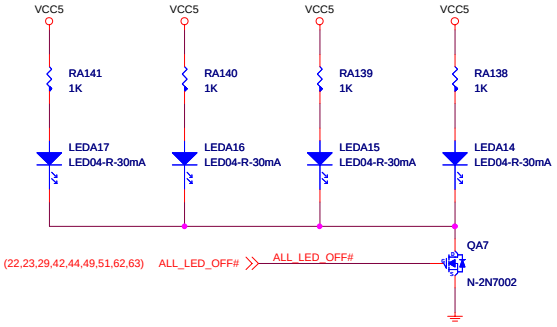
Audio moat is transparent and width 40mil

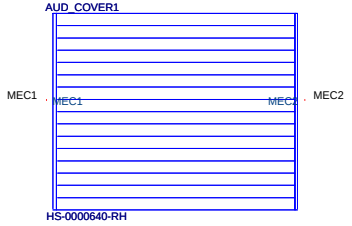












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E2205-B Giga LAN

Pull-up resister RL1 required to either
3.3V suspend or core rail depending on
the power well of the PCH input CLKREQ# buffer.

LED0:
1=hi core voltage(overclocking)
0=low core voltage (non-overclocking)

LED1:
1=SWR mode
0=LDO mode

LED3:
1=25MHz clock
0=48MHz clock

Reserve for strap hi

CHOKEL1:
L04-47A7310-C08
L04-47A7680-T15

LL1:
L02-3018023-C08
L02-3018023-T19

VDD33 power trace should be wider than 30mils;
AVDD33 power trace should be wider than 30mils;
VDD_IO power trace should be wider than 30mils;
VDDIO_REG power trace should be wider than 20mils;
AVDDH power trace should be wider than 20mils;
AVDDL power traces should be wider than 20mils.
DVDDL power traces should be wider than 20mils.

10:
1. Support xD, not support SPI
2. Can support PPS, PPS at LED[0] or LED[1] or LED[2] which is selected by eFus
01:
1. Support SPI, not support xD
2. Can support PPS, PPS at LED[0] or LED[1] or LED[2] which is selected by eFus
11:
1. Not support xD, not support SPI
2. Only support PPS, PPS always at CRIO13.

D0G-1020510-I05
D0G-8010510-SI0

D0G-05A0300-I14
D0G-06A050C-A68

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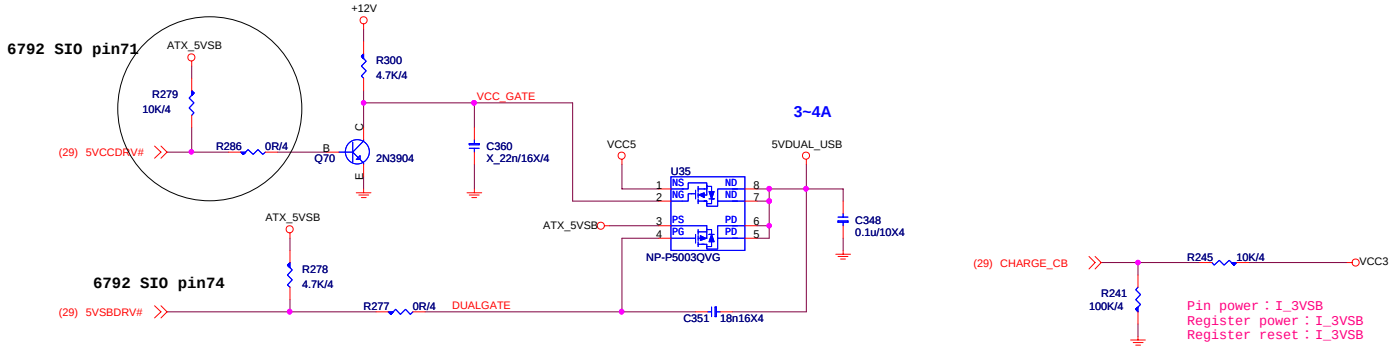
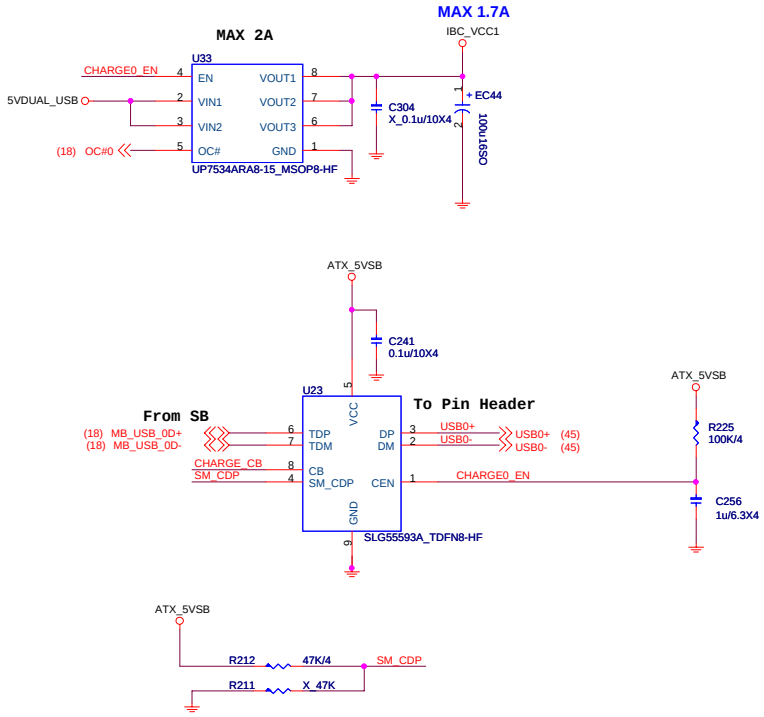
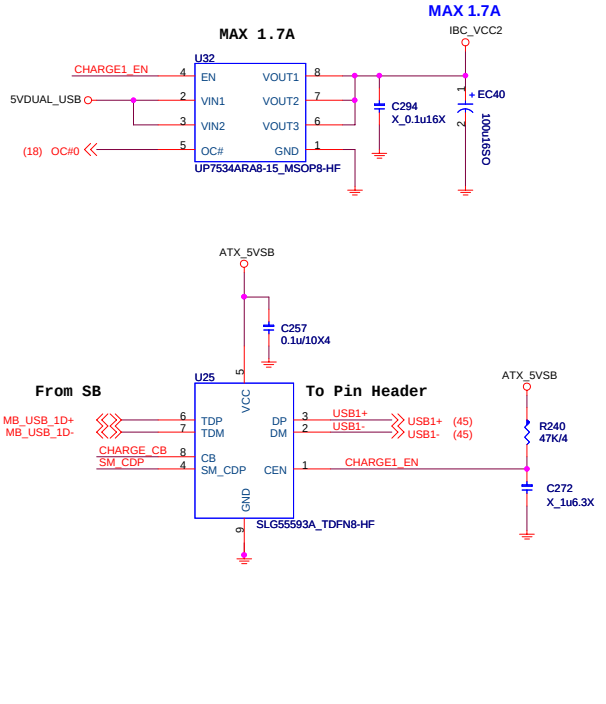
5VDUAL_USB



USB POWER PORT 0 For USB Charging



USB POWER PORT 1 For USB Charging



MSI	MICRO-STAR INT'L CO.,LTD	
	MS-7882	
Size: Custom	Document Description: USB CHARGE_SLG55593A	Rev: 2.0
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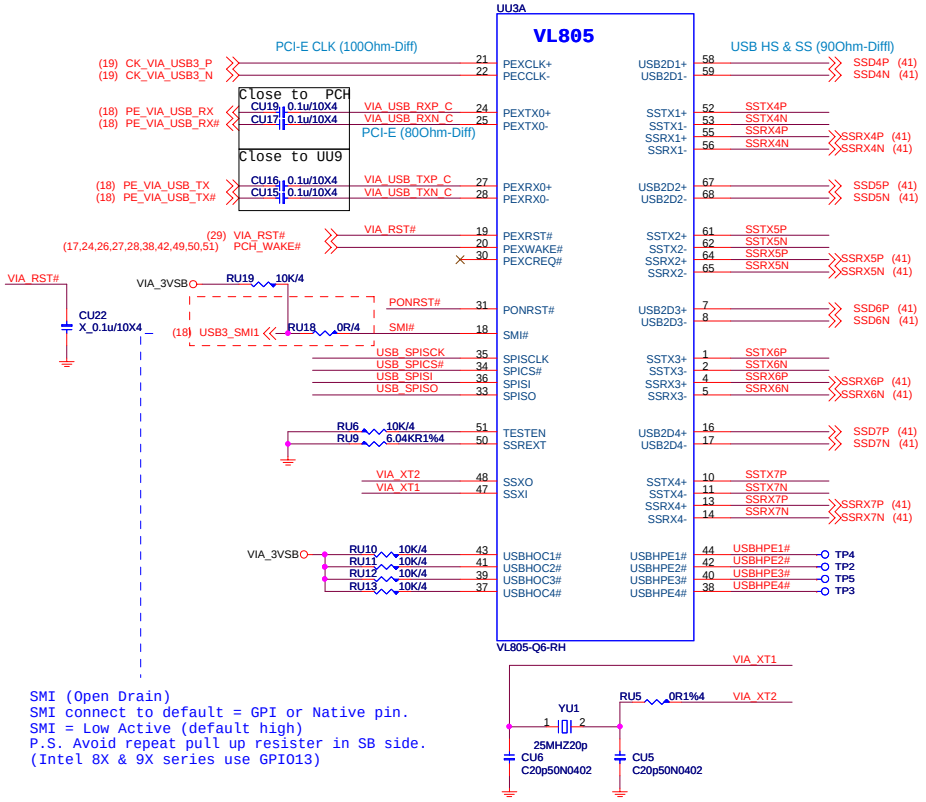
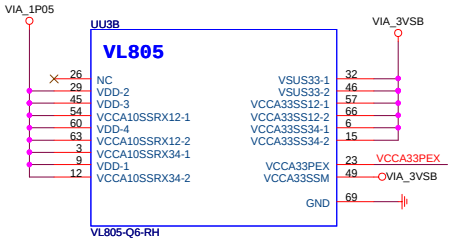
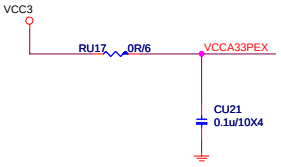
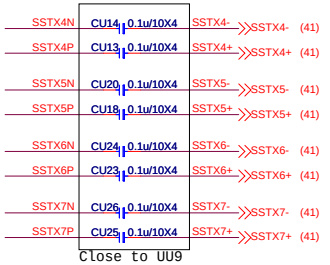
VL805-USB30-4PORT

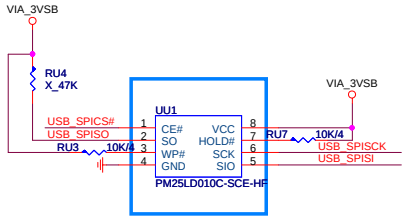


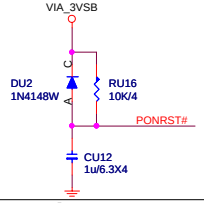






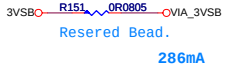
EEPROM

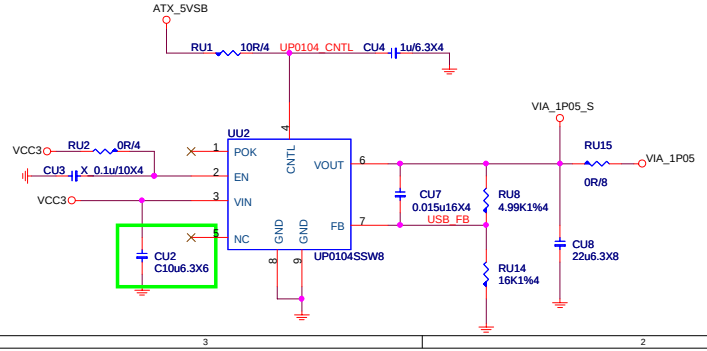


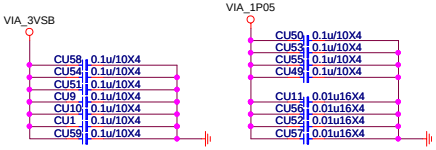


1.05V core Power

Max Power disspation: (3.3 V-1.05V)*0.247A=0.55575W
VIA Core Power: VIA_1P05 247mA







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MS-7882	
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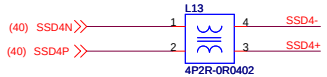
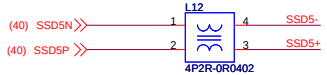
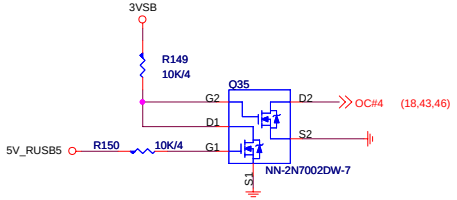
VL805-USB30-4PORT CONN

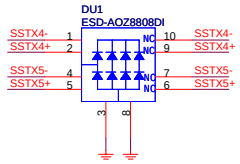
Rear I/O

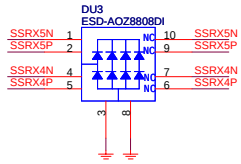
Close to Connector

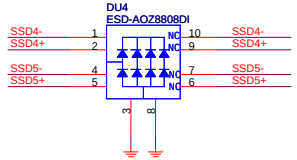


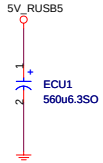


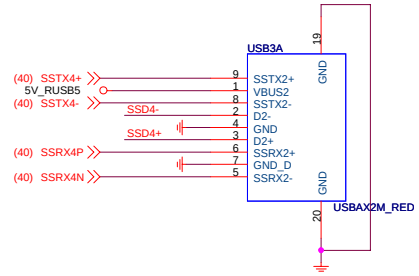


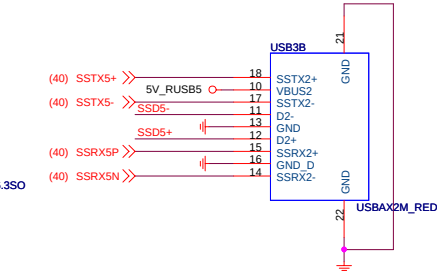


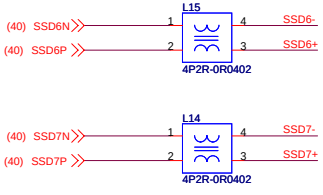


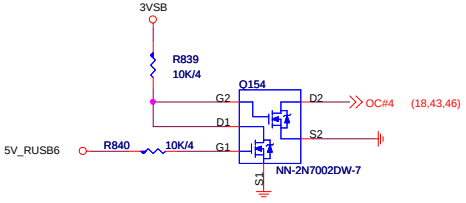


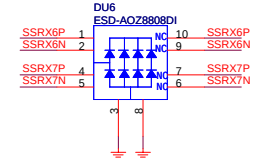


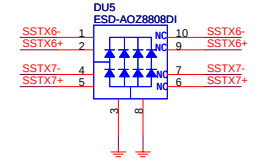


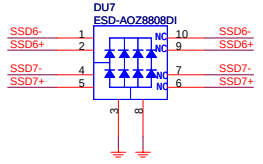


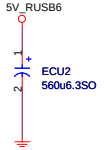


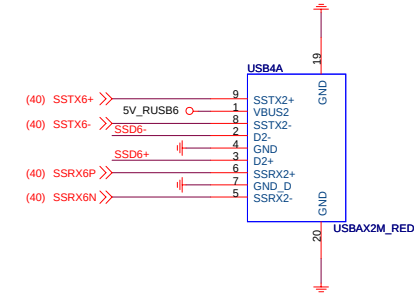


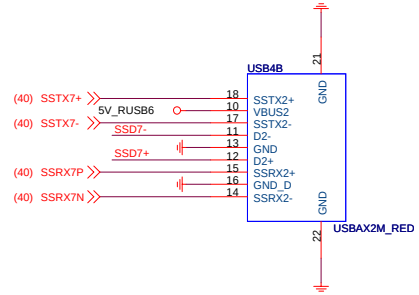












MICRO-STAR INT'L CO.,LTD

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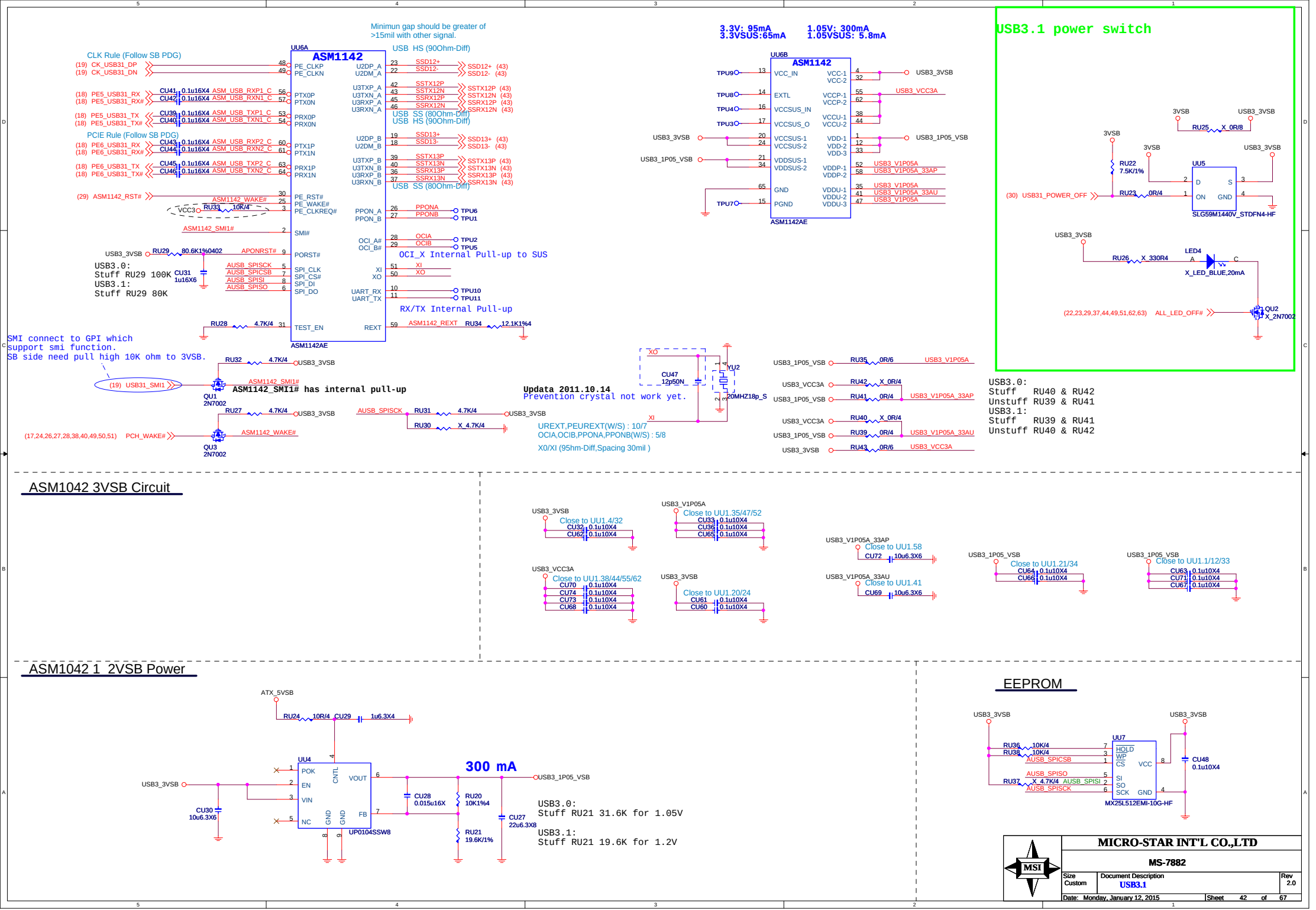
Minimun gap should be greater of
>15mil with other signal.
3.3V: 95mA
3.3VSUS:65mA
1.05V: 300mA
1.05VSUS: 5.8mA
USB3.1 power switch
CLK Rule (Follow SB PDG)
PCIE Rule (Follow SB PDG)
USB HS (90Ohm-Diff)
USB SS (80Ohm-Diff)
USB HS (90Ohm-Diff)
USB SS (80Ohm-Diff)
OCI_X Internal Pull-up to SUS
RX/TX Internal Pull-up
ASM1142
ASM1142AE
USB3.0:
Stuff RU29 100K
USB3.1:
Stuff RU29 80K
SMI connect to GPI which
support smi function.
SB side need pull high 10K ohm to 3VSB.
ASM1142_SMI1# has internal pull-up
Updata 2011.10.14
Prevention crystal not work yet.
UREXT,PEUREXT(W/S) : 10/7
OCIA,OCIB,PPONA,PPONB(W/S) : 5/8
X0/XI (95hm-Diff,Spacing 30mil)
USB3.0:
Stuff RU40 & RU42
Unstuff RU39 & RU41
USB3.1:
Stuff RU39 & RU41
Unstuff RU40 & RU42
ASM1042 3VSB Circuit
ASM1042 1_2VSB Power
300 mA
USB3.0:
Stuff RU21 31.6K for 1.05V
USB3.1:
Stuff RU21 19.6K for 1.2V
EEPROM
MX25L512EMI-10G-HF
SLG59M1440V_STDFN4-HF
MICRO-STAR INT'L CO.,LTD
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USB3.1
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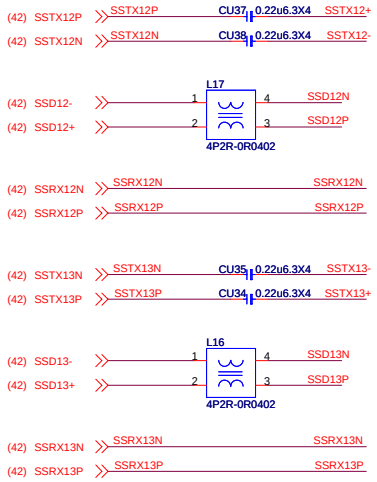
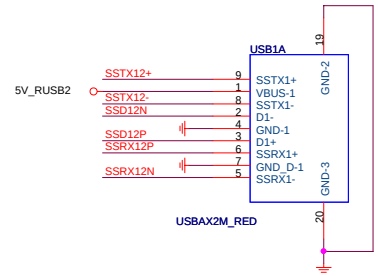
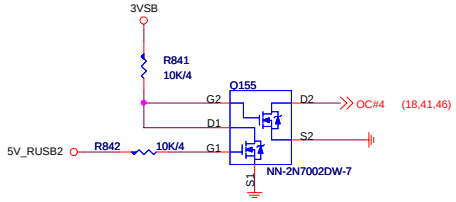
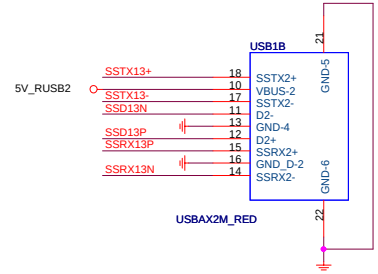
Rear USB3 CONN

Important~~
If USB3.0 signal conect to front pin header,
please must less than 0.6 inch,short trace
has better eye diagram with some bad fly cable by SI customer.



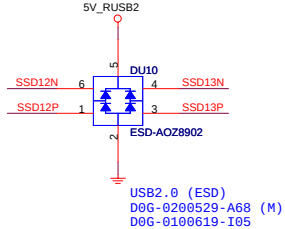


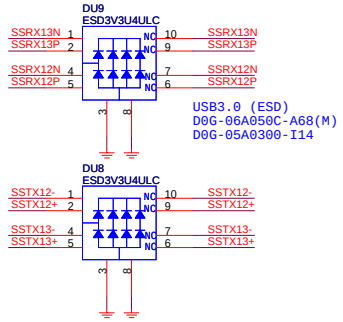


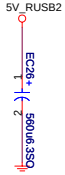


ESD Protection

NEAR CONNECTOR







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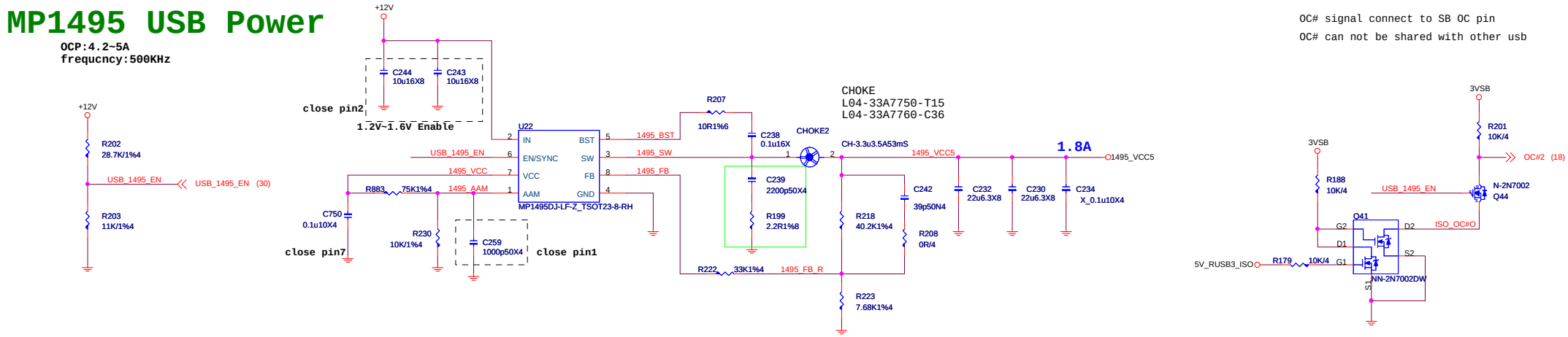
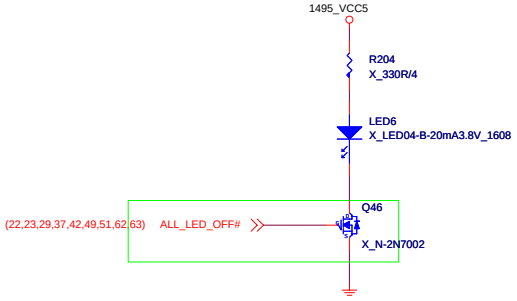
MP1495 USB Power

OCP:4.2~5A
frequcncy:500KHz

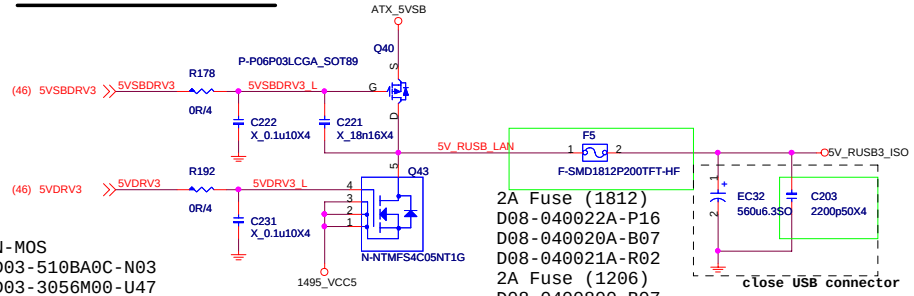
OC# signal connect to SB OC pin
OC# can not be shared with other usb



TO:NCT6792D GP17



REAR USB PORT POWER



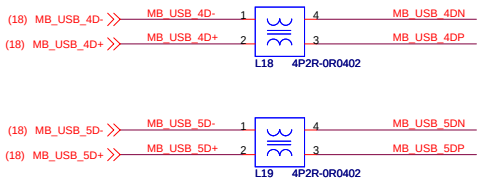
P-MOS
D03-06P0319-N03

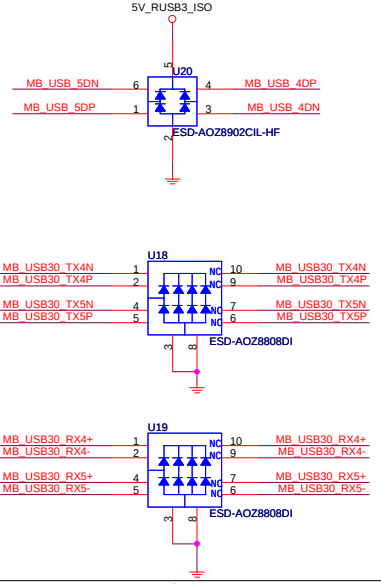
N-MOS
D03-510BA0C-N03
D03-3056M00-U47
D03-4C05N03-O05
D03-3830D09-N47
D03-632BA0C-N03

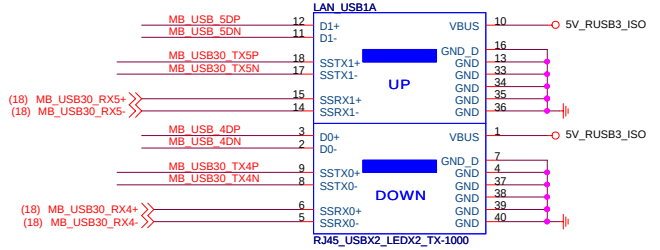
2A Fuse (1812)
D08-040022A-P16
D08-040020A-B07
D08-040021A-R02
2A Fuse (1206)
D08-0400800-B07
D08-0400900-L07

(D03-P500303-N03 N/P MOS can replace Q1/Q2)

USB3.0 Connector







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Document Description: USB3.0 Connector/MP1495
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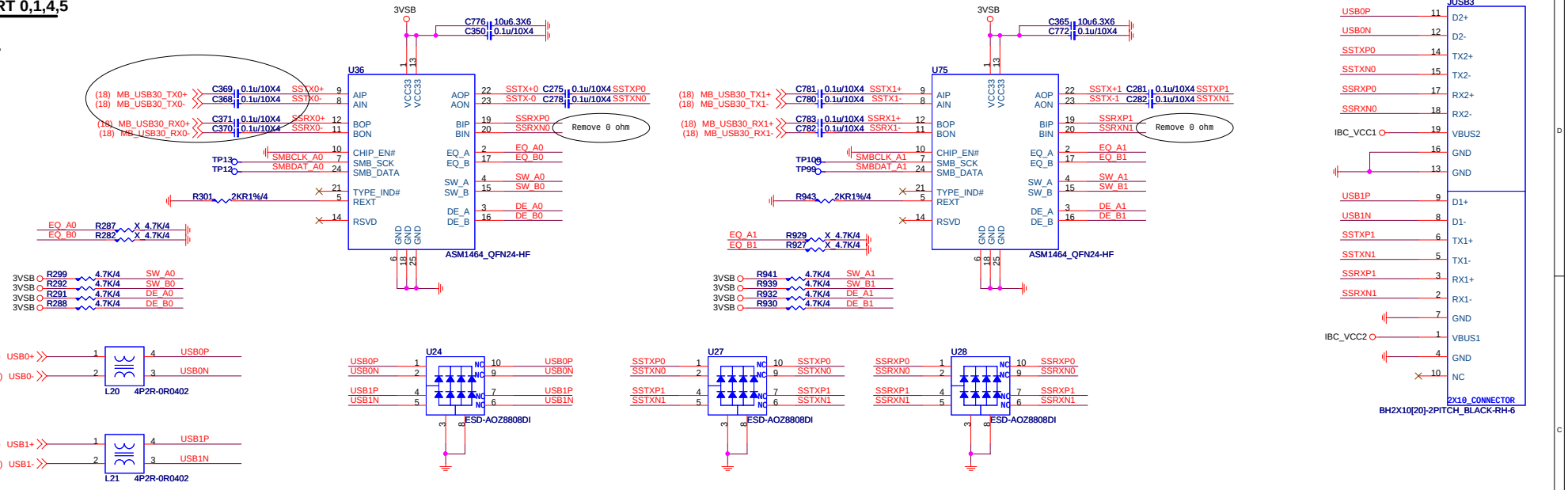
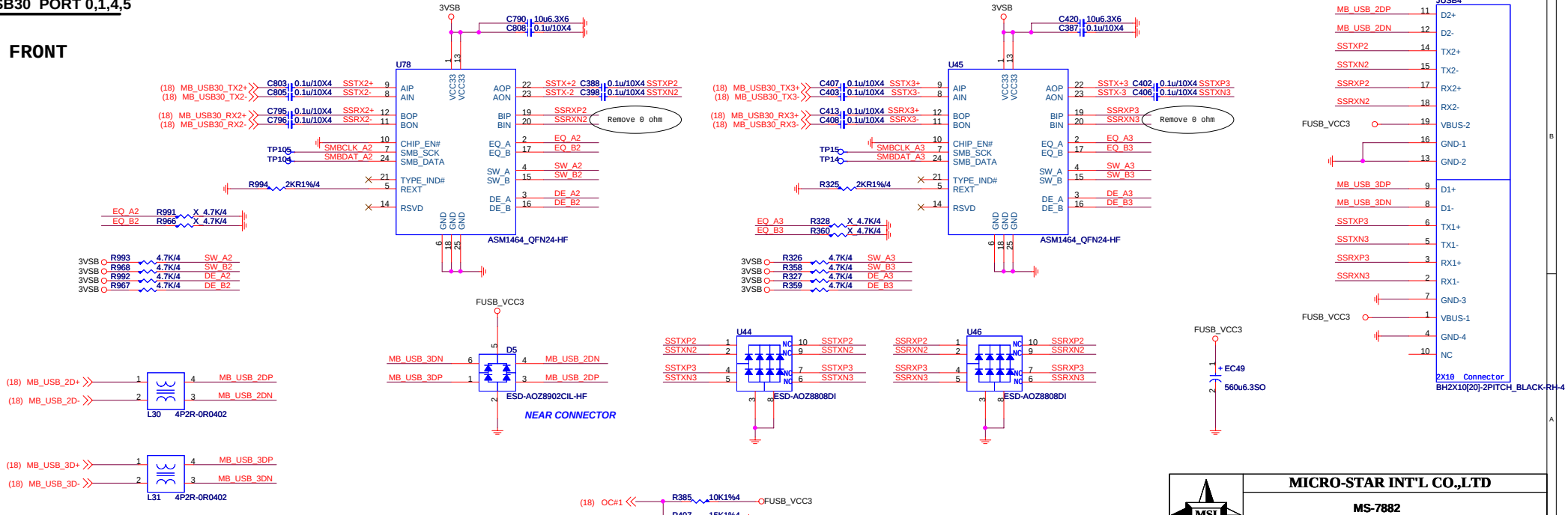
FRONT USB30 PORT 0,1,4,5

USB3.0 FRONT



FRONT USB30 PORT 0,1,4,5

USB3.0 FRONT



MICRO-STAR INT'L CO.,LTD

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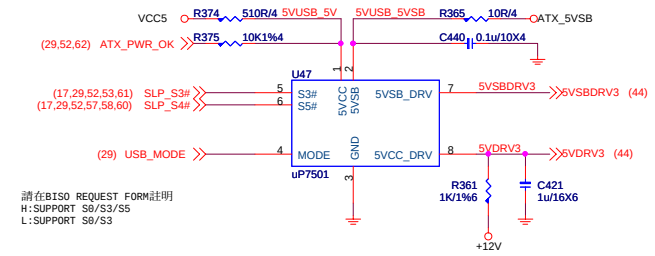
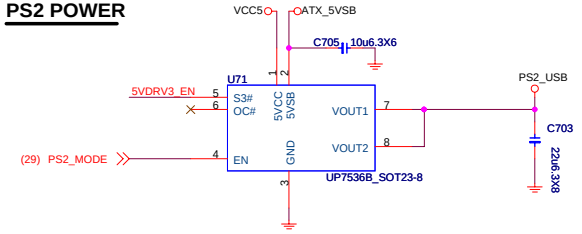
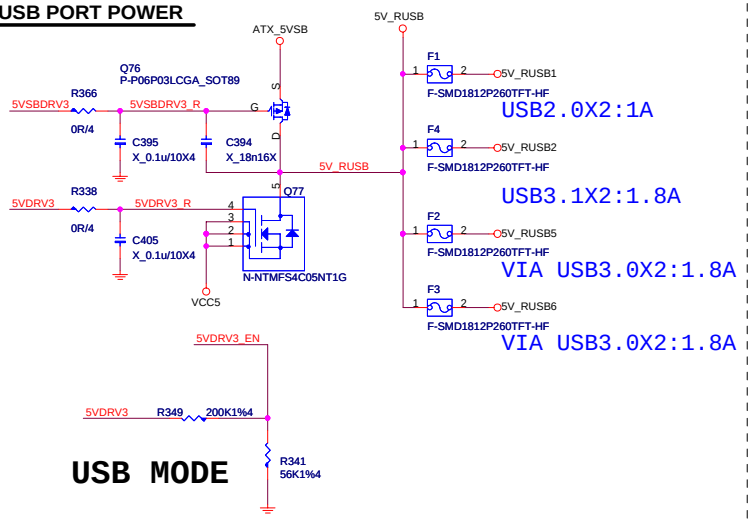
USB POWER



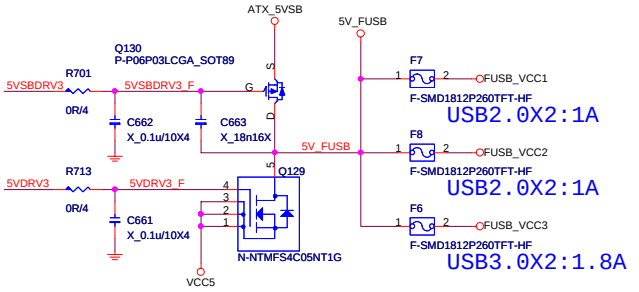
PS2 POWER



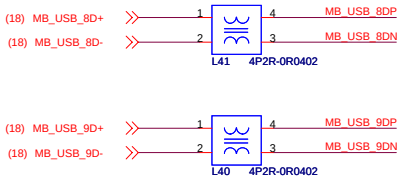
REAR USB PORT POWER

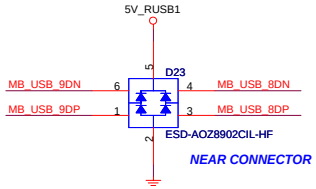


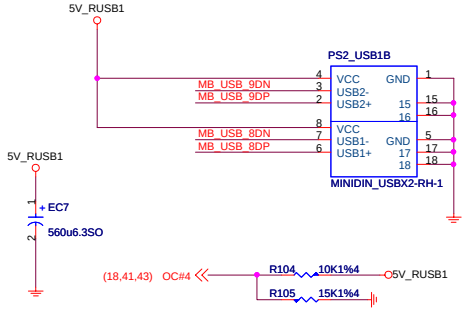
Front USB PORT POWER



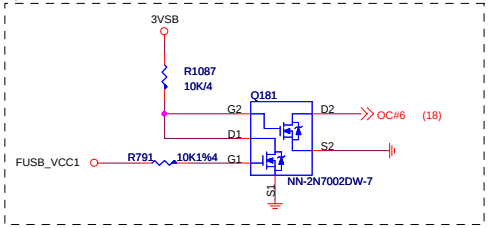
REAR USB PORT 8,9 (With PS2)



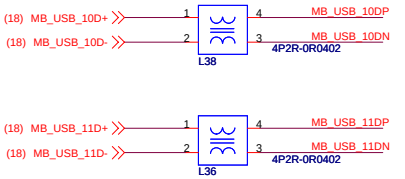


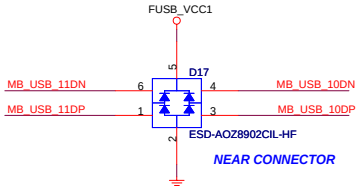


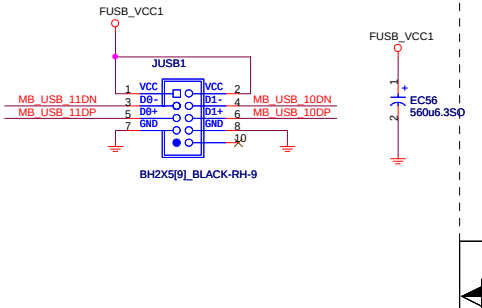
From OC5 to OC6
Update 2014.12.30



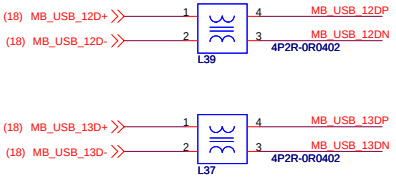
FRONT USB PORT 10.11

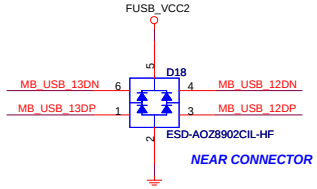


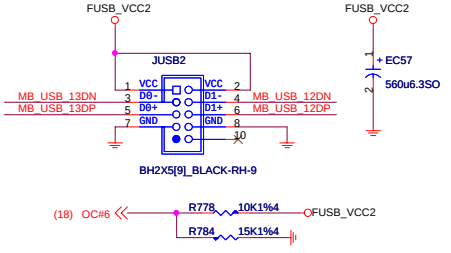




FRONT USB PORT 12,13







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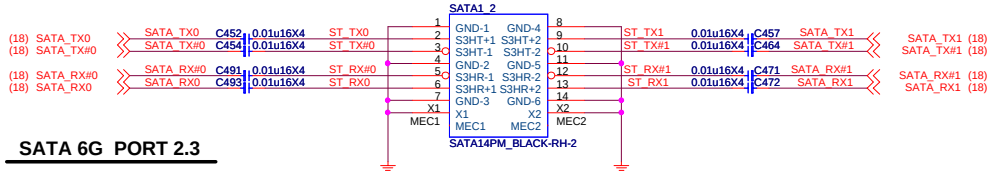
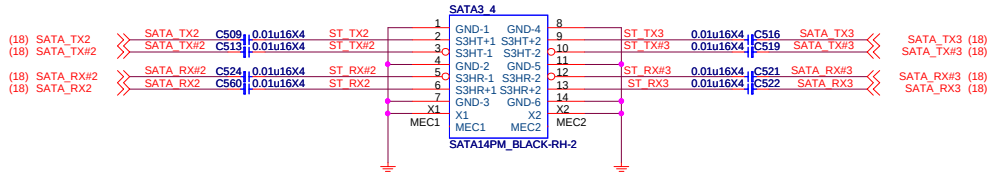
SATA & PCIE Re-driver

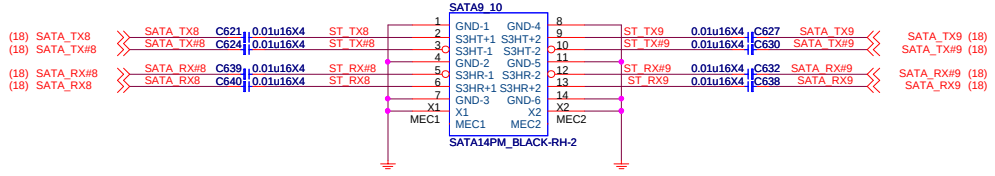
SATA 6G PORT 0.1



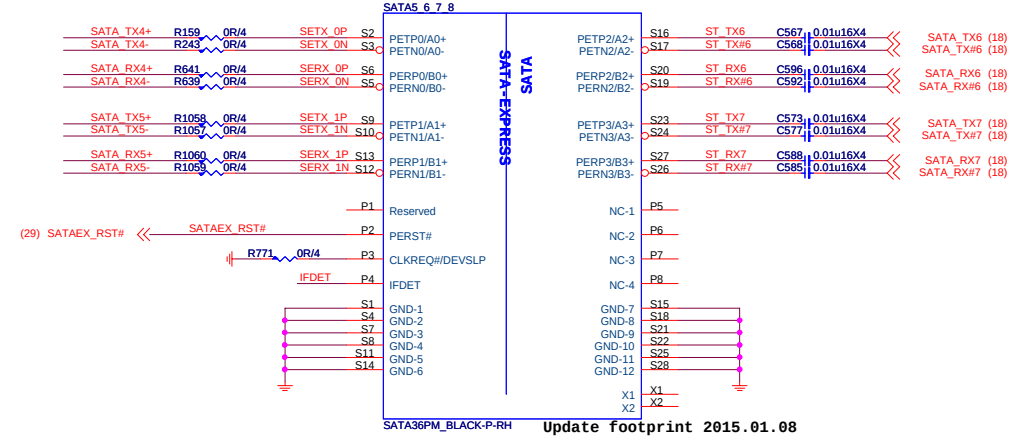
SATA 6G PORT 2.3

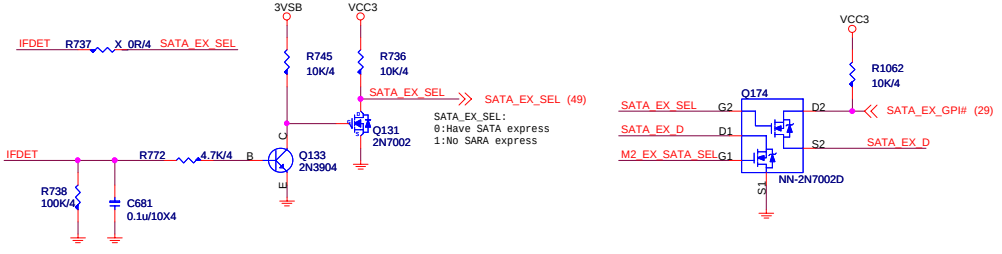


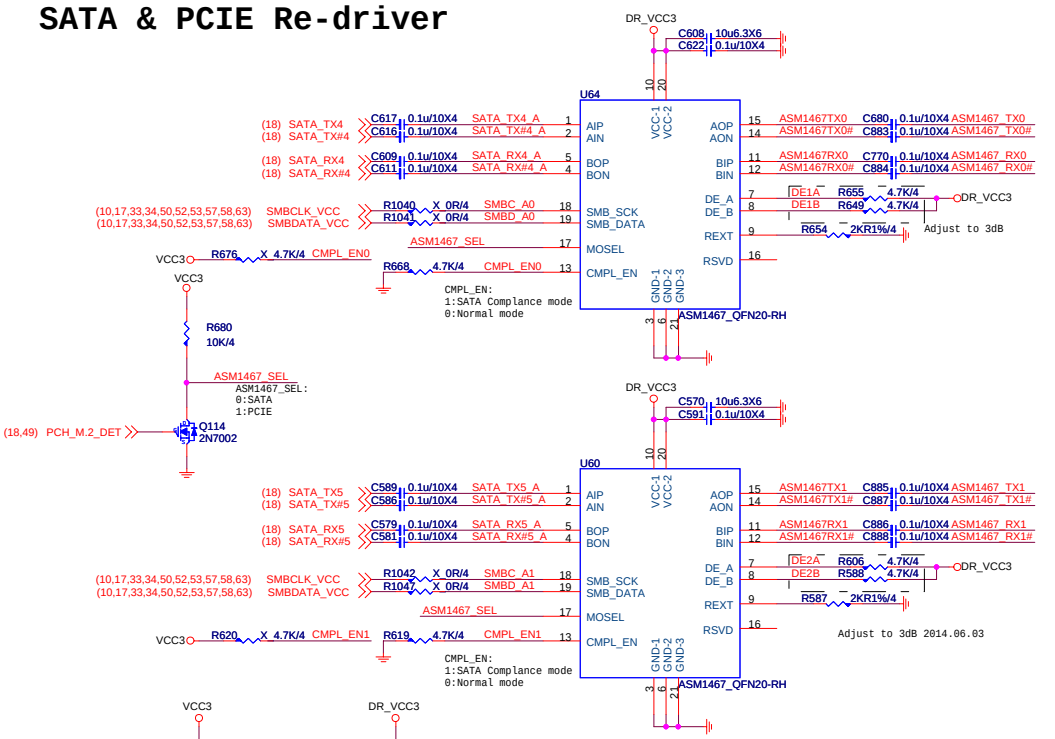
SATA 6G PORT 8.9

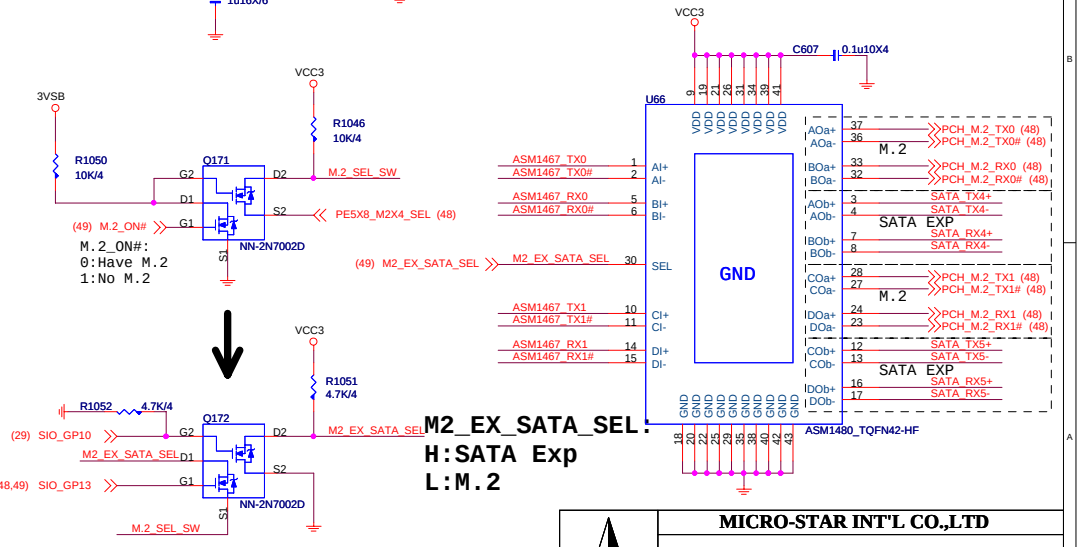


SATA 6G PORT 4.5.6.7 & SATA Express









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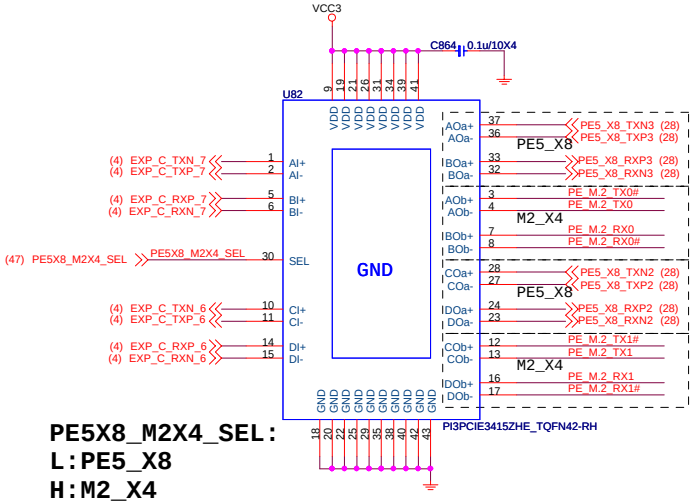
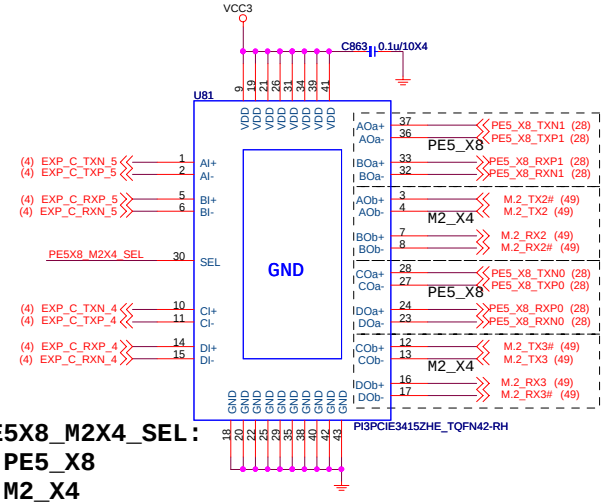
PCIE5 & M.2 Switch

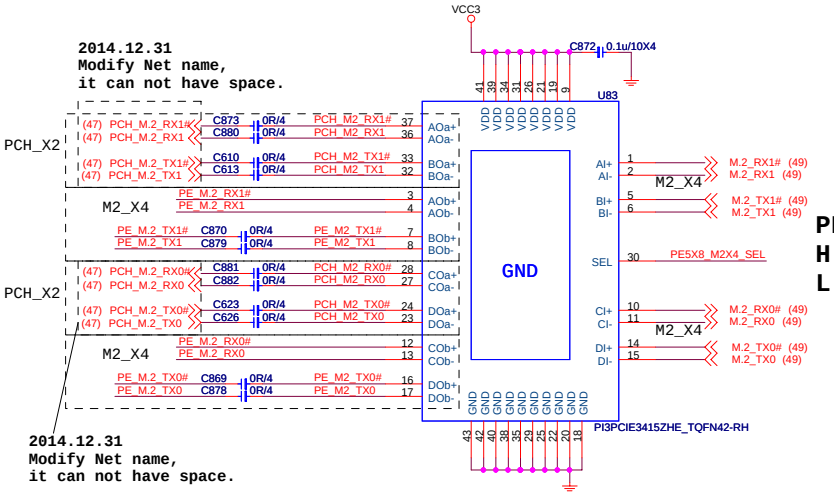


PE5X8_M2X4_SEL:
L:PE5_X8
H:M2_X4



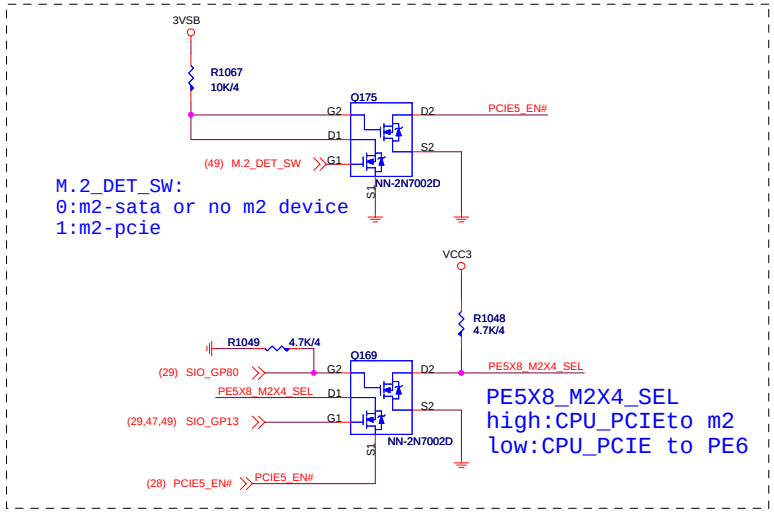
PE5X8_M2X4_SEL:
L:PE5_X8
H:M2_X4

2014.12.31
Modify Net name,
it can not have space.



2014.12.31
Modify Net name,
it can not have space.

PE5X8_M2X4_SEL:
H:PCIE from CPU
L:PCIE from PCH



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BIOS_MODE

SIO_GP10	SIO_GP80	SIO_GP84	SIO_GP13	Mode
1	0	1:PCIE 0:SATA	0	M2-PCH
X	1	X	0	PCIEX8
X	0	X	0	M2-X4
0	X	1:PCIE 0:SATA	X	SATA EXpress
GPI(:0)	GPI(:0)	GPI(:0)	1	AUTO

2014.12.31
Modify Net name,
it can not have space.

M2_1
KEY M
SLOT-NGFFCARD67P_BLACK-HF-4

SATA 要反接

M.2_ON#:
0:Have M.2
1:No M.2

D29,D34 Close to M2 connector

M2 cut power

2.5A

near PIN1
close to pin1,2

U61
APE8937GN2_DFN8-HF

LED9 X_LED_BLUE,20mA

SATA & PCIE SWITCH

Modify 2014.12.18
Update 2014.12.30

SATA_EX_SEL:
0:sata
1:sata_ex

M2_EX_SATA_SEL:
0:to m2
1:to sata_ex

SIO_GP84
0:SATA
1:PCIE

	PCH_M.2_DET
0	PCIE
1	SATA (Default)

Jumper

X	AUTO
2-3	M2-SATA
1-2	M2-PCIE

N31-1030161-H06
For module card detect mode fail

Footprint: H_R240D173_BR189_PT

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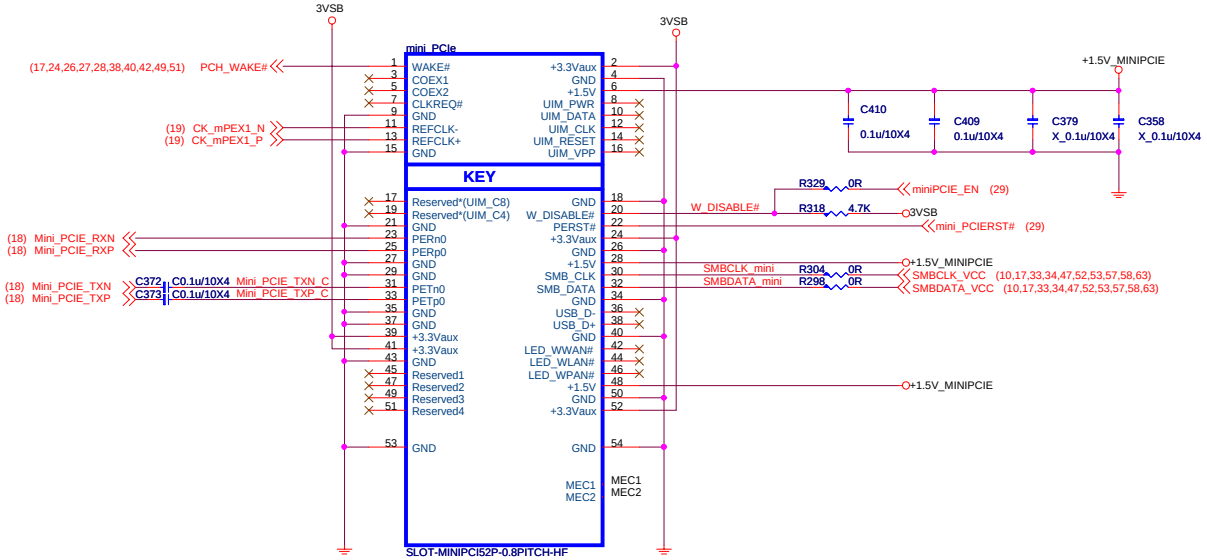
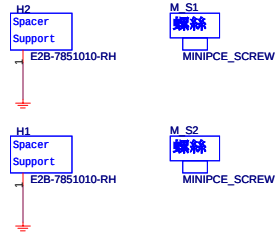
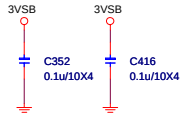
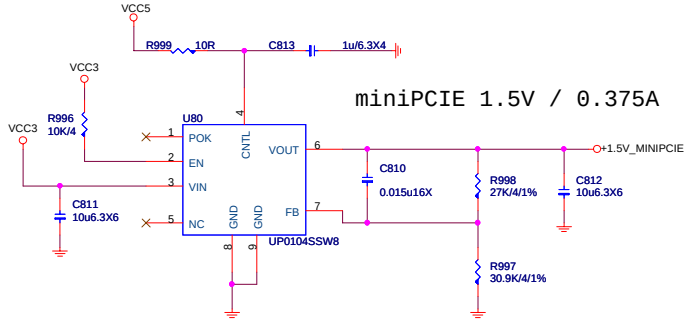
mini PCIE









miniPCIE 1.5V / 0.375A

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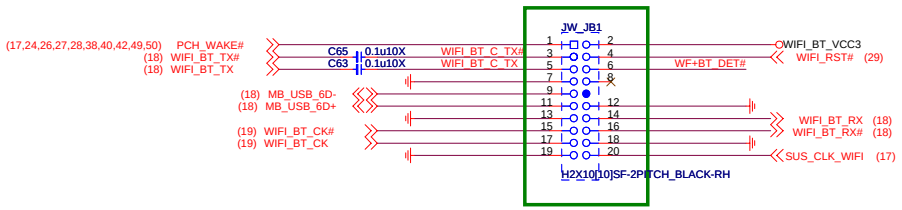
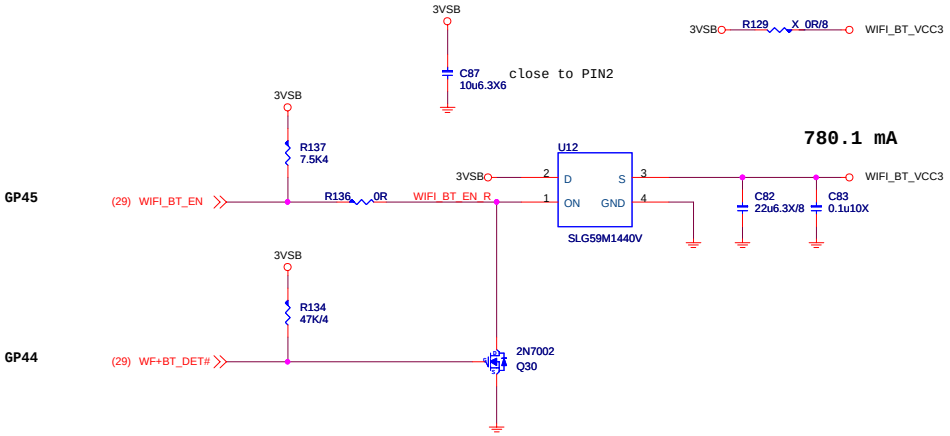
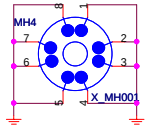
WIFI + Buletooth

2014.02.17

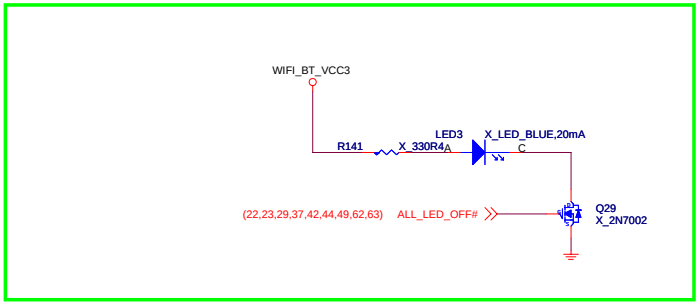


2014.04.02 Update footprint





2014.04.02 Update footprint



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Custom	WIFI+BT Connector	2.0

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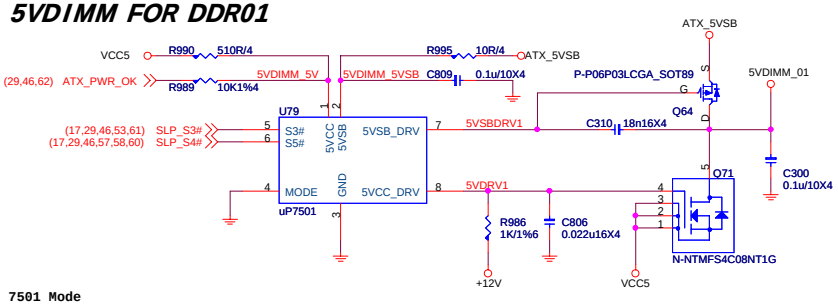
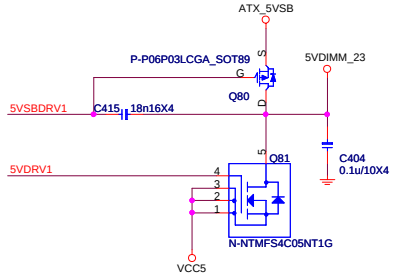
5VDIMM FOR DDR01



7501 Mode
H:Support S0/S3/S5
L:Support S0/S3

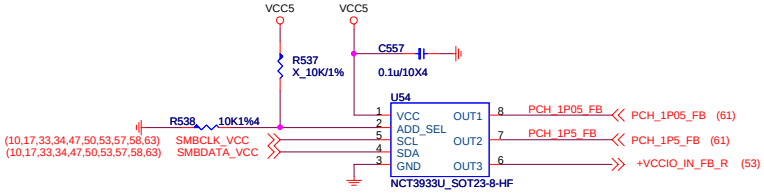
5VDRV1看VCC5起來6-10ms後起來,因為當初挑power

5VDIMM FOR DDR23

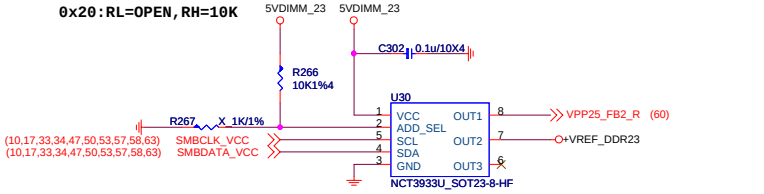


VOLTAGE CONSOLE

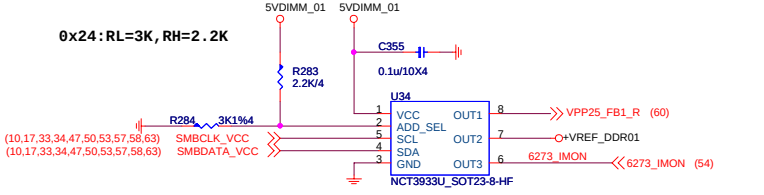
0x2A:RL=10K,RH=OPEN



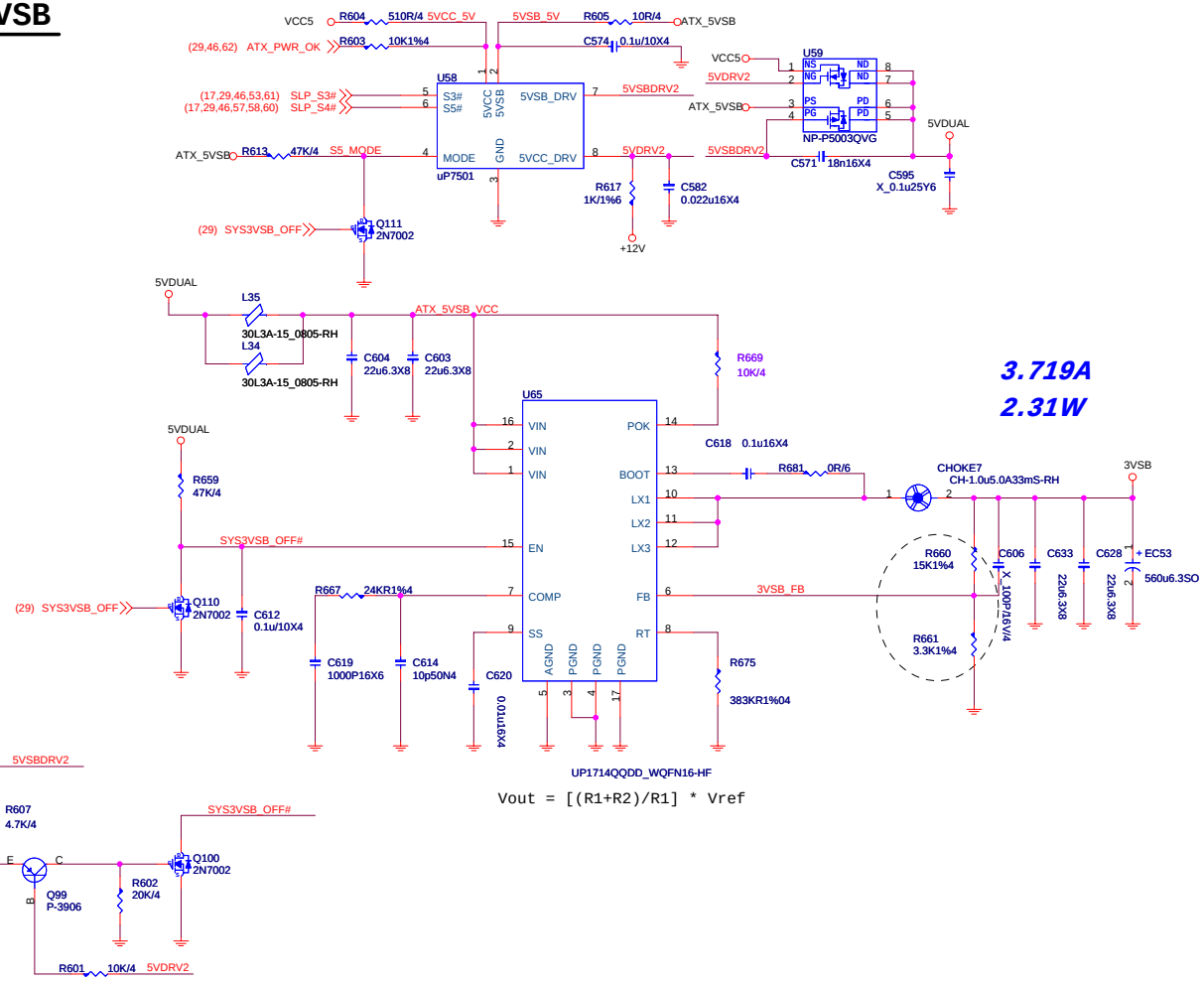
0x20:RL=OPEN,RH=10K



0x24:RL=3K,RH=2.2K

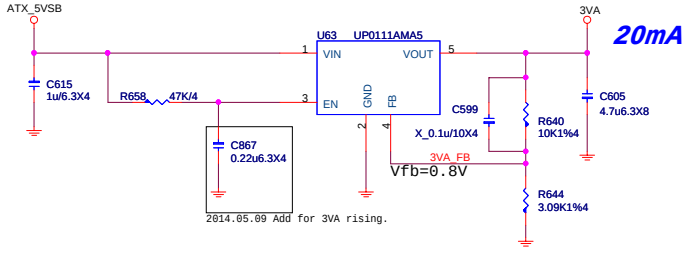


3VSB



防G3-->S5底下5VSBDRV2瞬間有電變沒電,使得下一級電壓爬升有drop

3VA



2014.05.09 Add for 3VA rising.

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CPU Power-ISL6388-8Phase

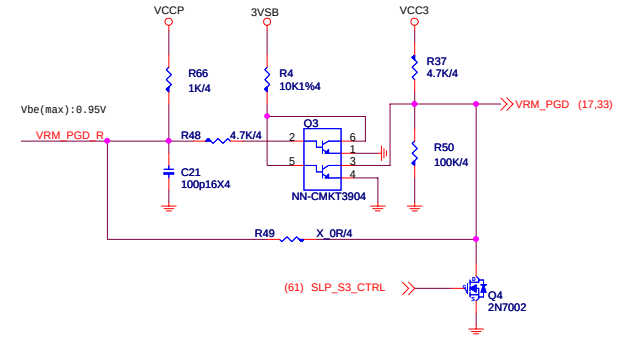
VCCP_1.8V 180A,OC margin 2.5V=240A

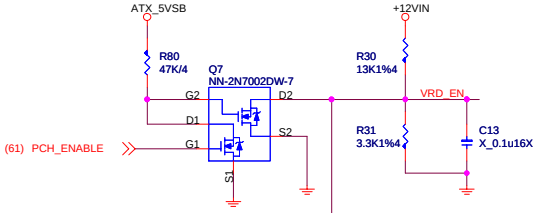
OCP:336A for 8Phase

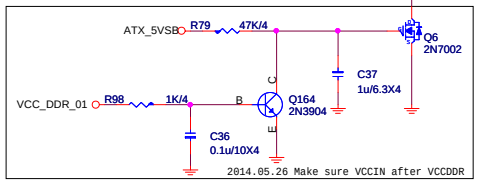
close to VRM

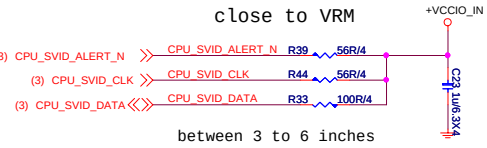
between 3 to 6 inches

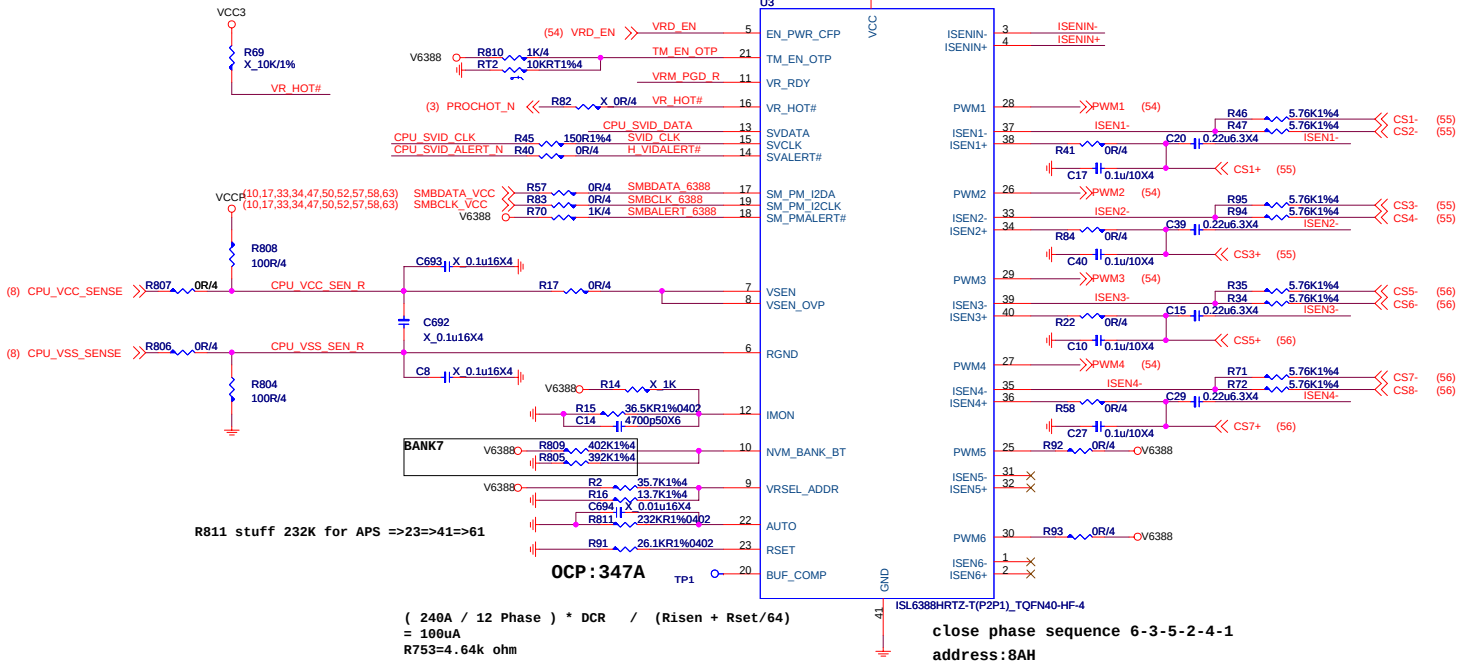
VRMPWRGD LEVEL SHIFT







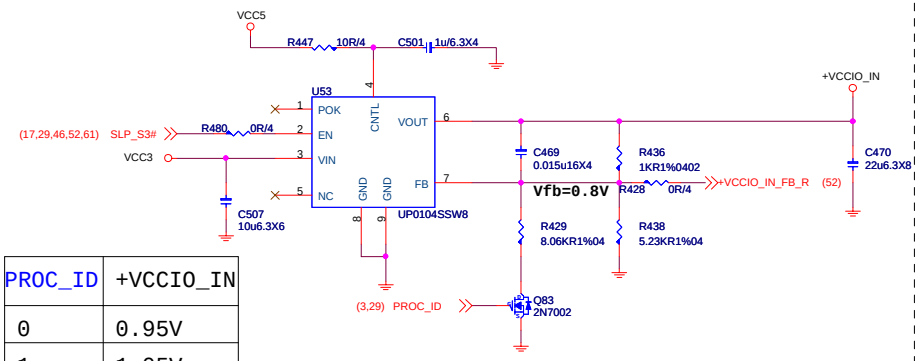




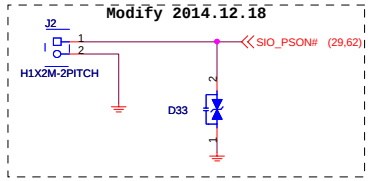
(240A / 12 Phase) * DCR / (Risen + Rset/64)
= 100uA
R753=4.64k ohm

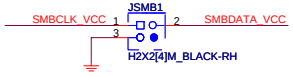
close phase sequence 6-3-5-2-4-1
address:8AH
Golden Point only for 7882

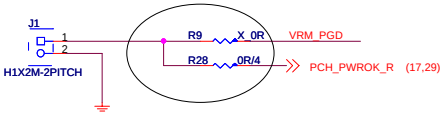
VCCIO_IN_1.05V 431mA,OC margin 1.6V=1A

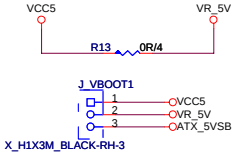


PROC_ID	+VCCIO_IN
0	0.95V
1	1.05V









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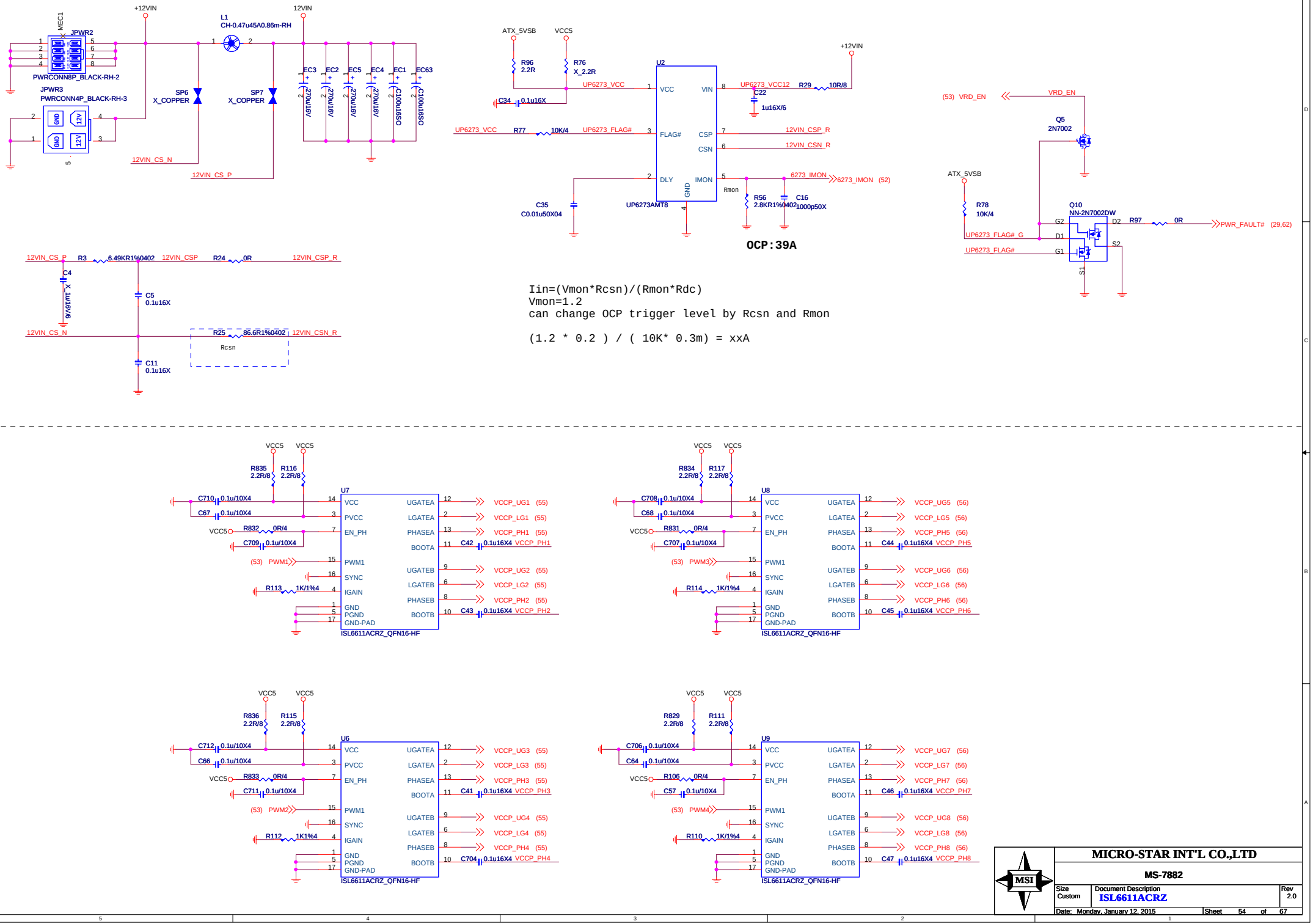
MEC1
JPWR2
PWRCONN8P_BLACK-RH-2
JPWR3
PWRCONN4P_BLACK-RH-3
+12VIN
L1
CH-0.47u45A0.86m-RH
12VIN
SP6
X_COPPER
SP7
X_COPPER
EC3
EC2
EC5
EC4
EC1
EC63
270u16V
C100u16SO
12VIN_CS_N
12VIN_CS_P
ATX_5VSB
VCC5
R96
2.2R
R76
X_2.2R
U2
UP6273_VCC
C34
0.1u16X
UP6273_VCC12
R29
10R/8
C22
1u16X/6
UP6273_FLAG#
R77
10K/4
VCC
VIN
FLAG#
CSP
CSN
DLY
IMON
GND
12VIN_CSP_R
12VIN_CSN_R
6273_IMON
6273_IMON (52)
Rmon
R56
2.8KR1%0402
C16
1000p50X
C35
C0.01u50X04
UP6273AMT8
OCP:39A
(53) VRD_EN
VRD_EN
Q5
2N7002
R78
10K/4
Q10
NN-2N7002DW
G2
D1
G1
D2
S2
S1
R97
0R
PWR_FAULT# (29,62)
UP6273_FLAG# G
C4
1u16V/6
C5
0.1u16X
C11
0.1u16X
R3
6.49KR1%0402
12VIN_CSP
R24
0R
R25
86.6R1%0402
Rcsn
Iin=(Vmon*Rcsn)/(Rmon*Rdc)
Vmon=1.2
can change OCP trigger level by Rcsn and Rmon
(1.2 * 0.2) / (10K* 0.3m) = xxA
U7
U8
U6
U9
R835
R116
R834
R117
R836
R115
R829
R111
PVCC
EN_PH
PWM1
SYNC
IGAIN
PGND
GND-PAD
UGATEA
LGATEA
PHASEA
BOOTA
UGATEB
LGATEB
PHASEB
BOOTB
ISL6611ACRZ_QFN16-HF
VCCP_UG1 (55)
VCCP_LG1 (55)
VCCP_PH1 (55)
VCCP_UG2 (55)
VCCP_LG2 (55)
VCCP_PH2 (55)
VCCP_UG5 (56)
VCCP_LG5 (56)
VCCP_PH5 (56)
VCCP_UG6 (56)
VCCP_LG6 (56)
VCCP_PH6 (56)
VCCP_UG3 (55)
VCCP_LG3 (55)
VCCP_PH3 (55)
VCCP_UG4 (55)
VCCP_LG4 (55)
VCCP_PH4 (55)
VCCP_UG7 (56)
VCCP_LG7 (56)
VCCP_PH7 (56)
VCCP_UG8 (56)
VCCP_LG8 (56)
VCCP_PH8 (56)
(53) PWM1
(53) PWM3
(53) PWM2
(53) PWM4
R113
R114
R112
R110
MICRO-STAR INT'L CO.,LTD
MS-7882
Size
Custom
Document Description
ISL6611ACRZ
Rev
2.0
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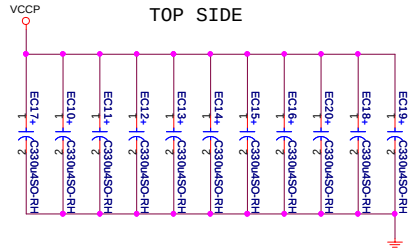
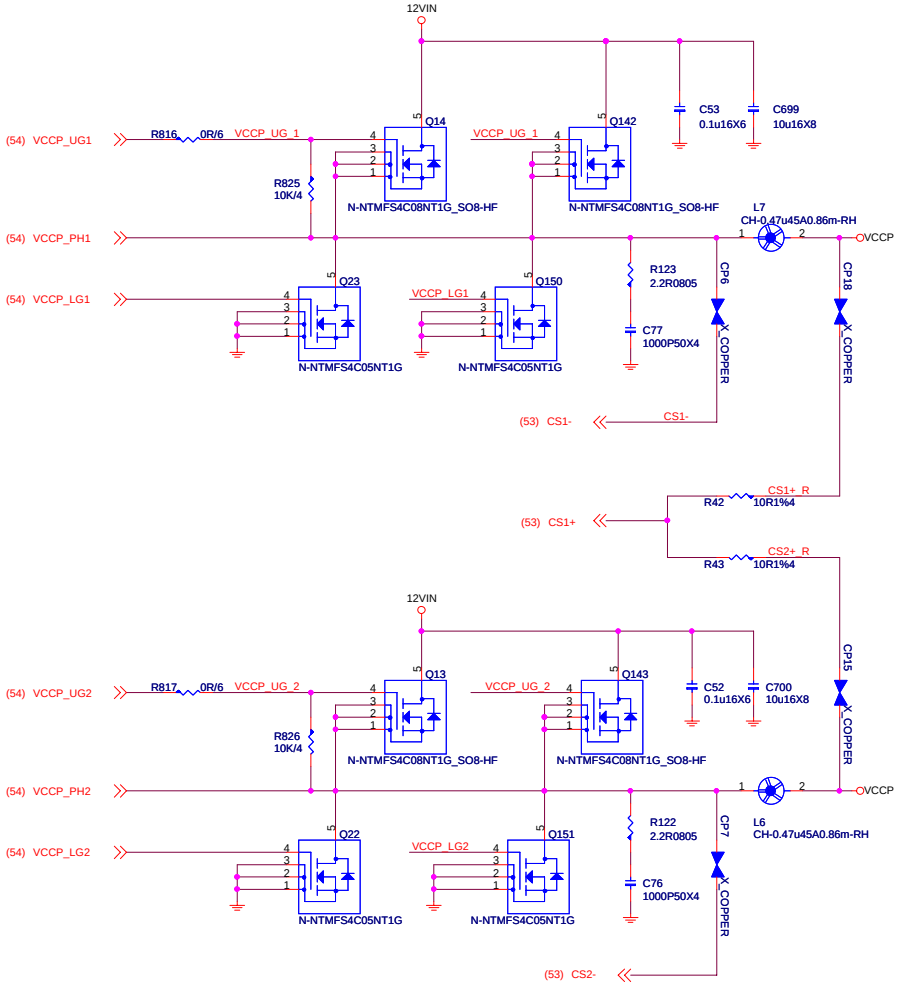
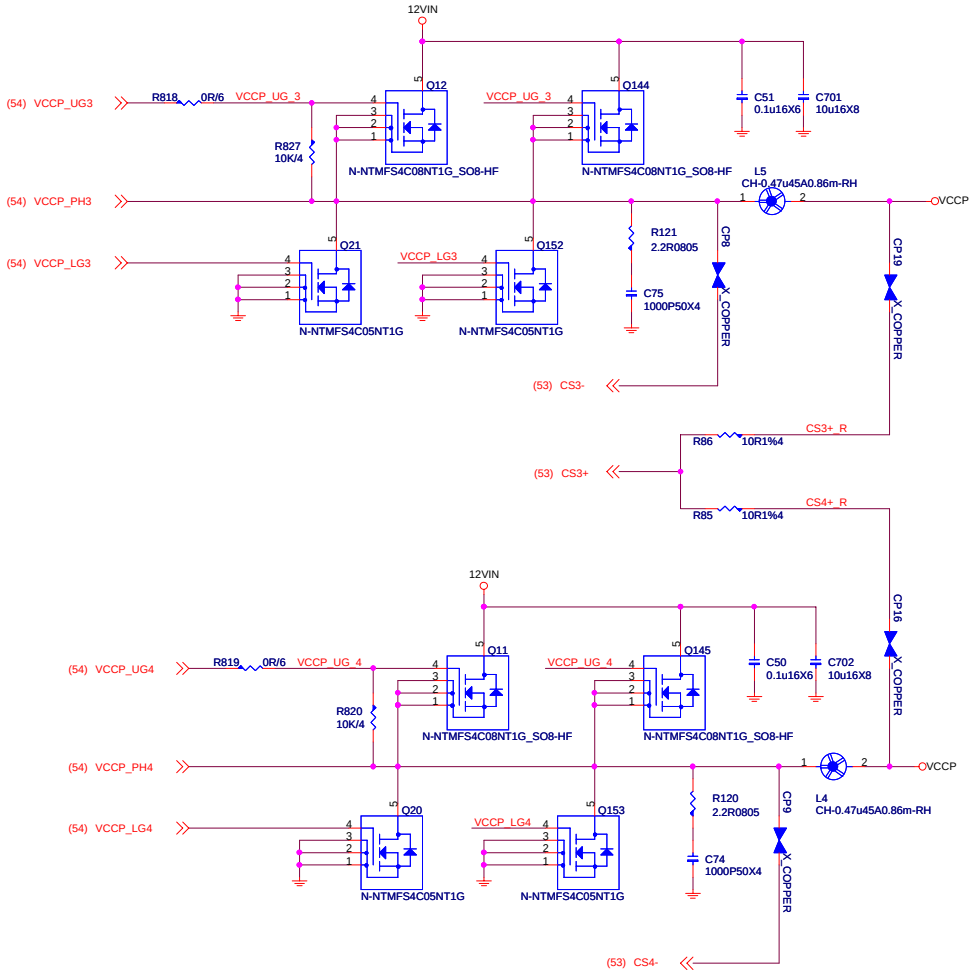
Irms= Iout $\sqrt{D/N-(D)^2}$ = 320 $\sqrt{0.02-(0.16)^2}$ = 23.94A

5000mA*5=25A>23.94A







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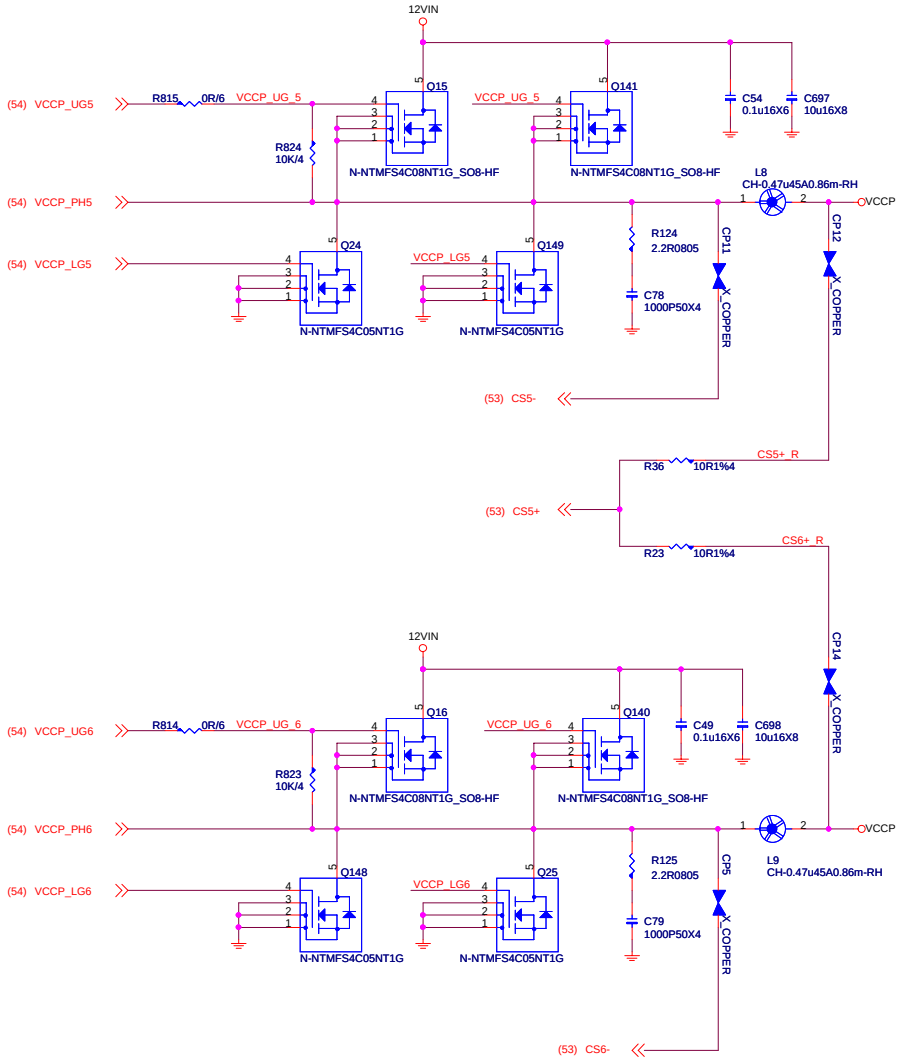

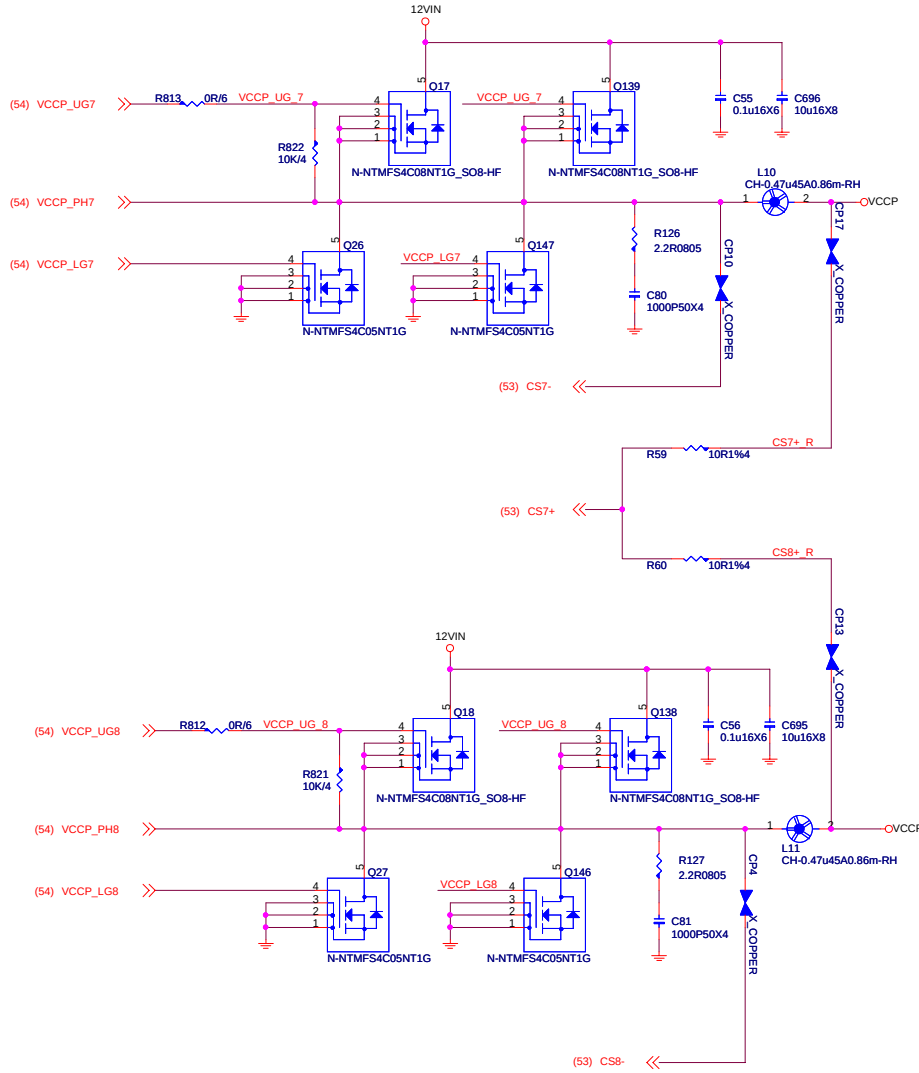

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DDR Power1-PV3203-2-Phase

DDR4_1.2V 11A,OC margin=44A

OCP:66A for 2Phase

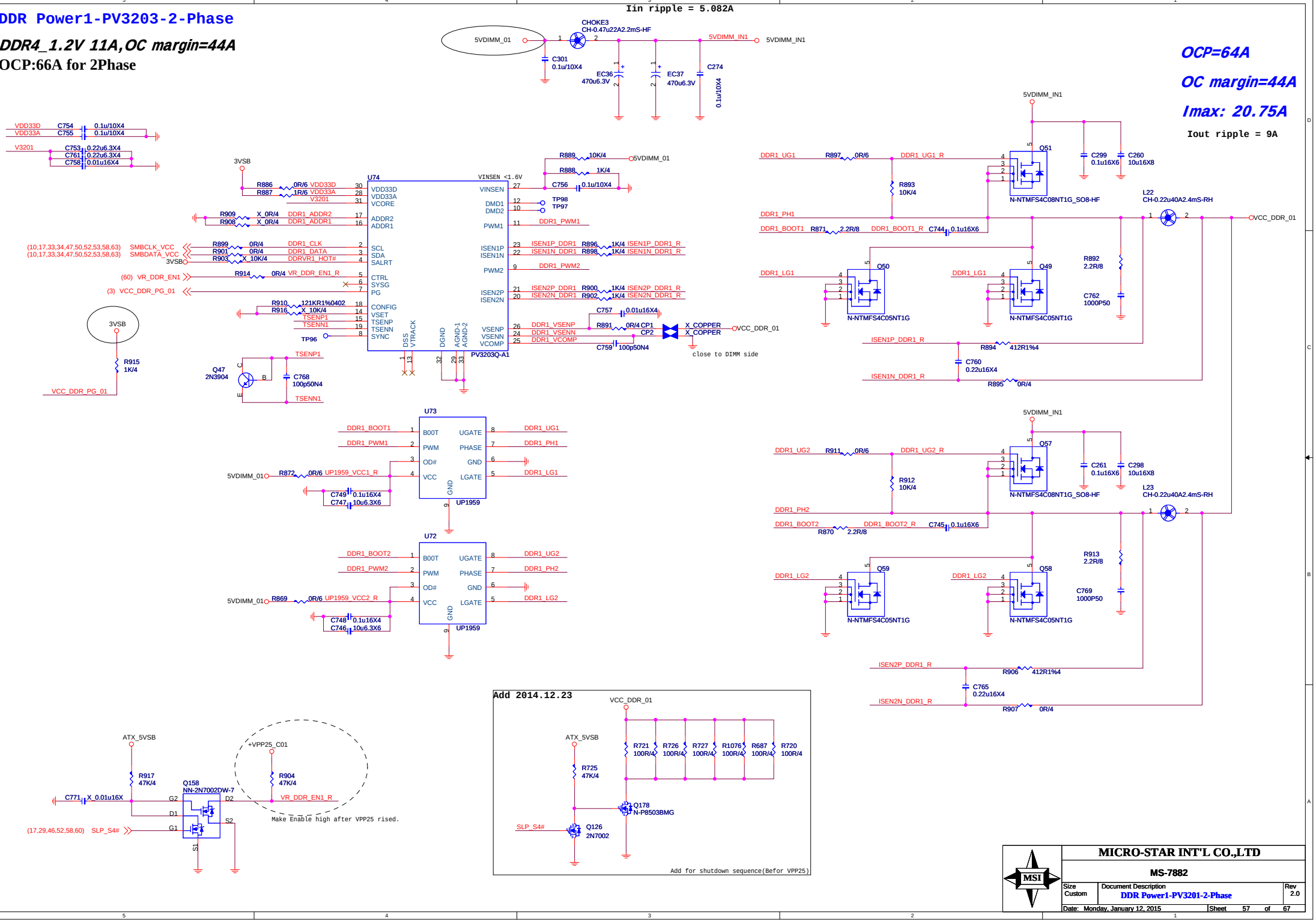
Iin ripple = 5.082A

OCP=64A

OC margin=44A

Imax: 20.75A

Iout ripple = 9A



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DDR Power1-PV3203-2-Phase

DDR4_1.2V 11A,OC margin=44A

OCP:66A for 2Phase

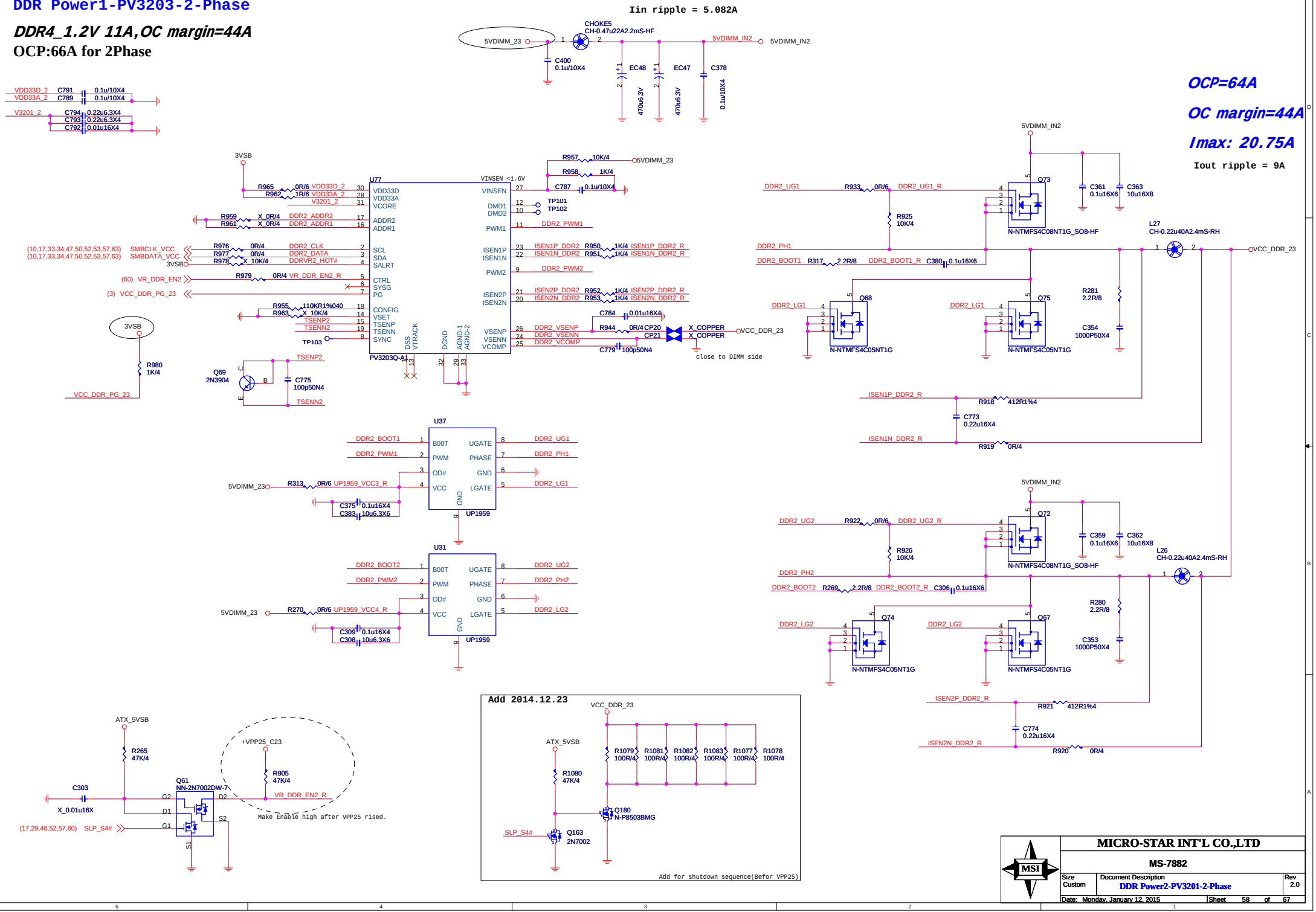
Iin ripple = 5.082A

OCP=64A

OC margin=44A

Imax: 20.75A

Iout ripple = 9A



MICRO-STAR INT'L CO.,LTD		
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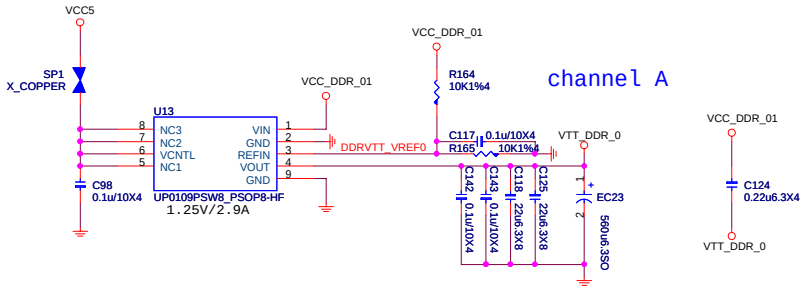
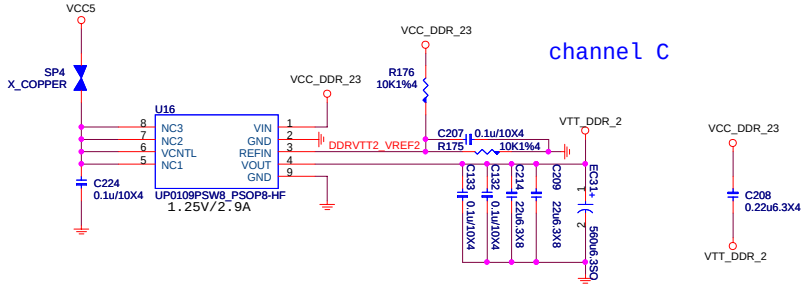
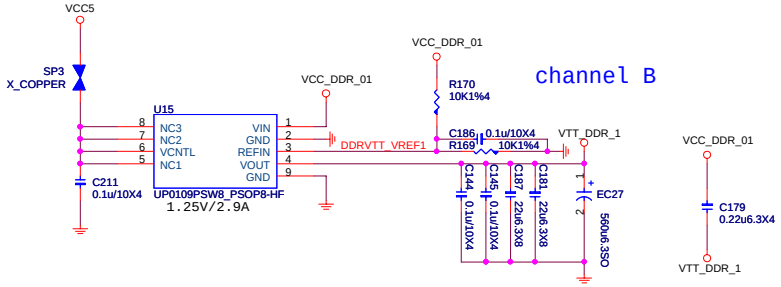
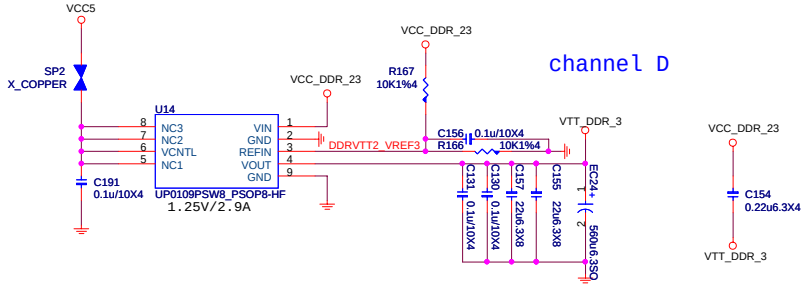
4DIMM :1.2A FOR DDR VTT

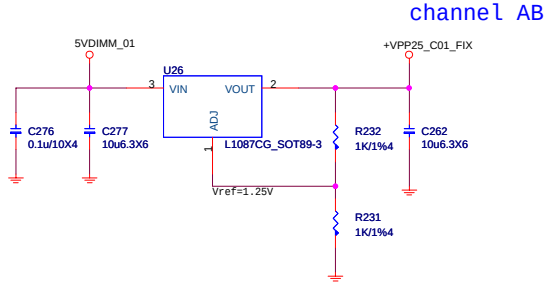
4DIMM :3A FOR OC margin

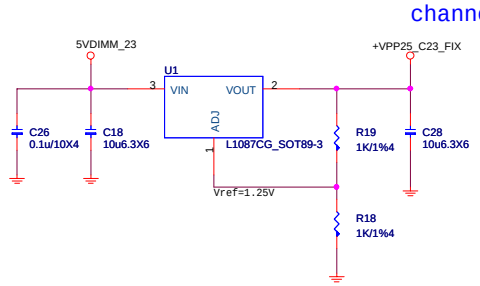












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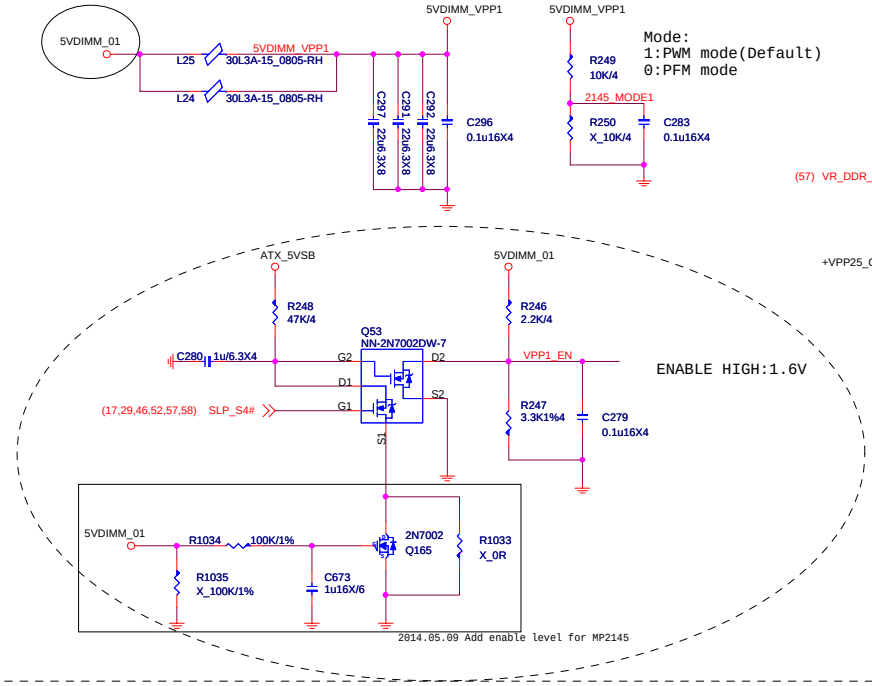
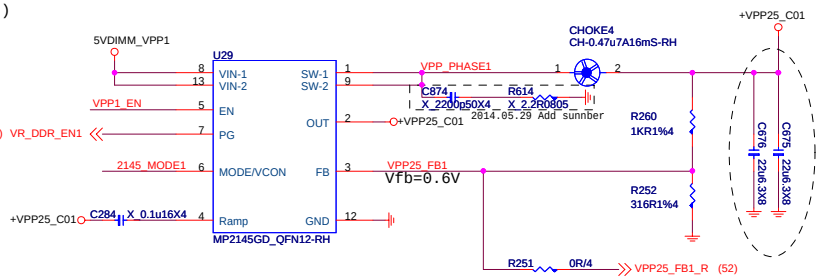
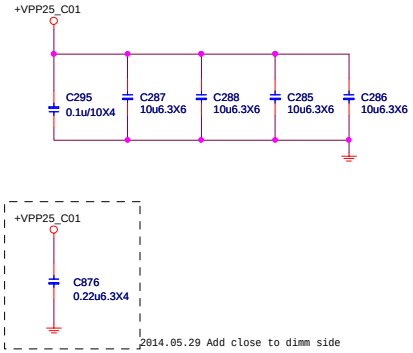
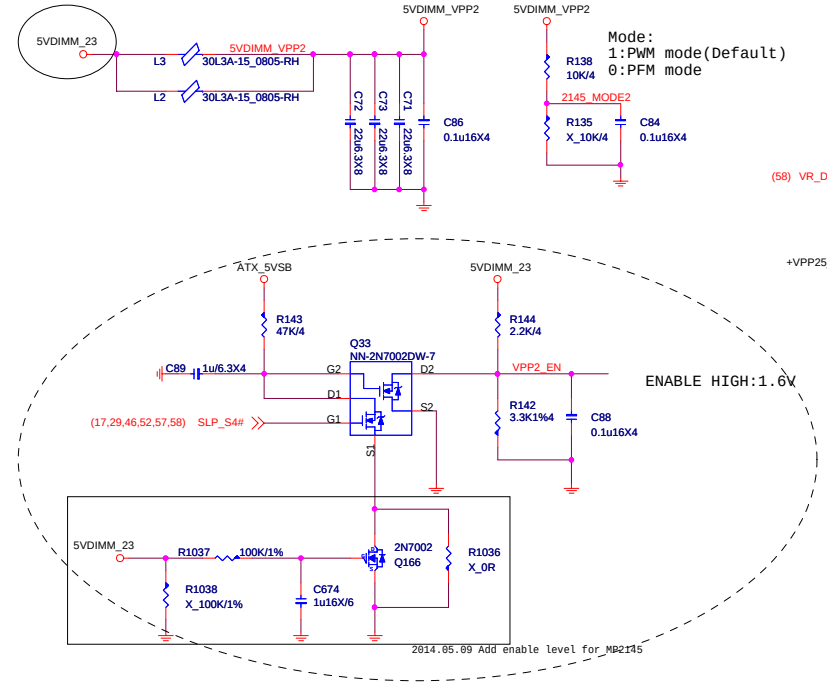
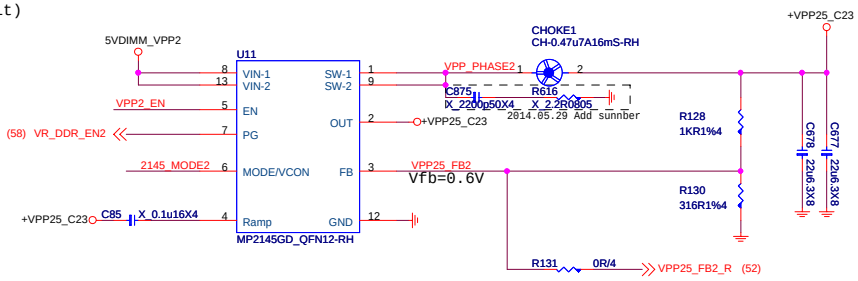
4DIMM :6A FOR DDR VPP

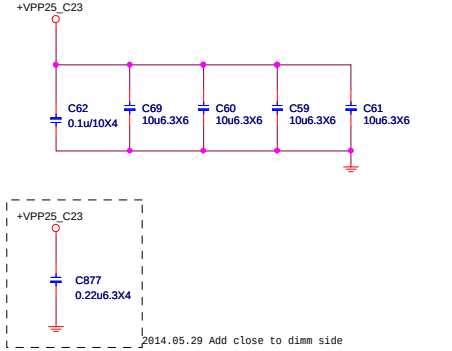












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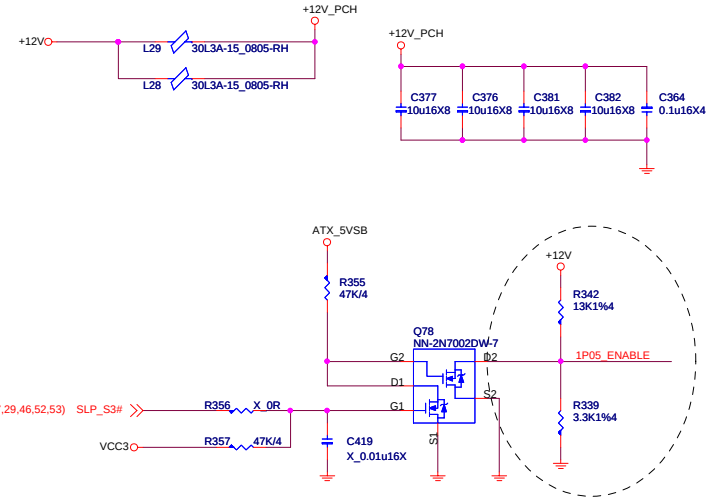
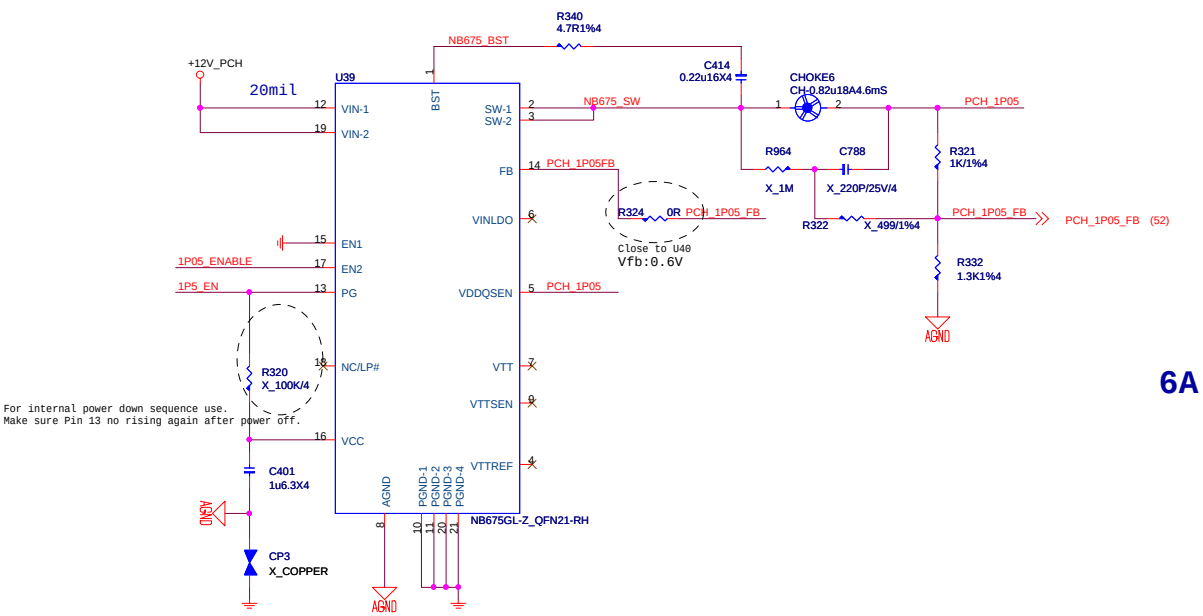
PCH Power:1.05V

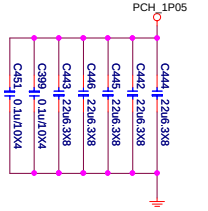
PCH Core 6.504A

MAX 10A

ILIMIT=10A~12A 峰谷

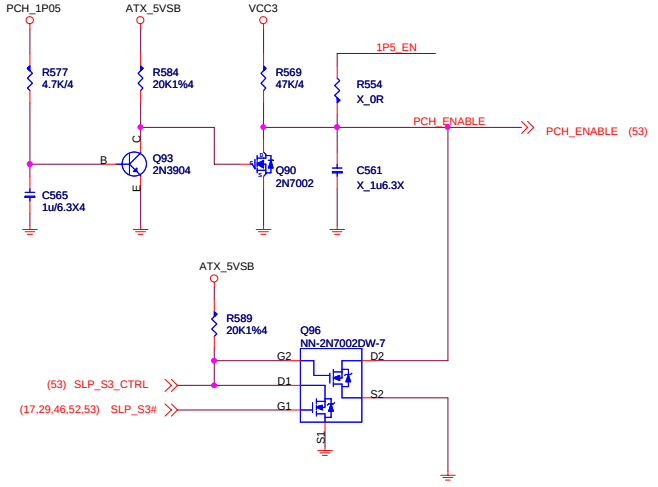


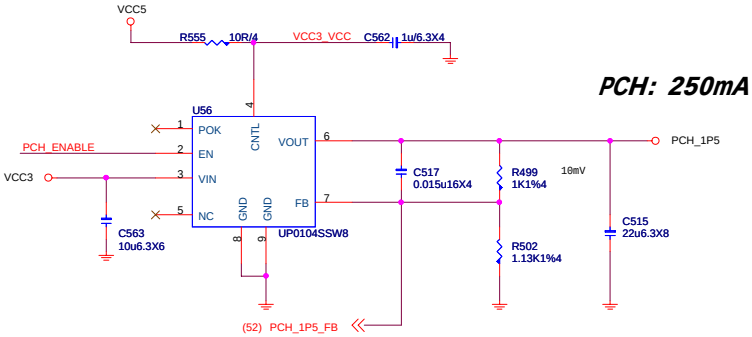




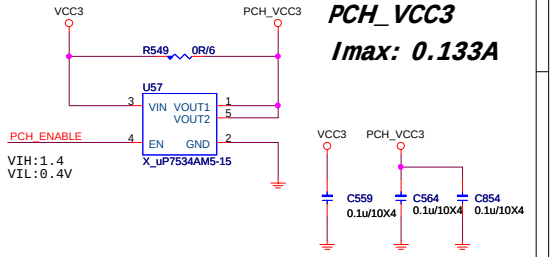
6A

Waitting PCH_1P05 Ready





PCH: 250mA



PCH_VCC3

Imax: 0.133A

C854 close to PCH

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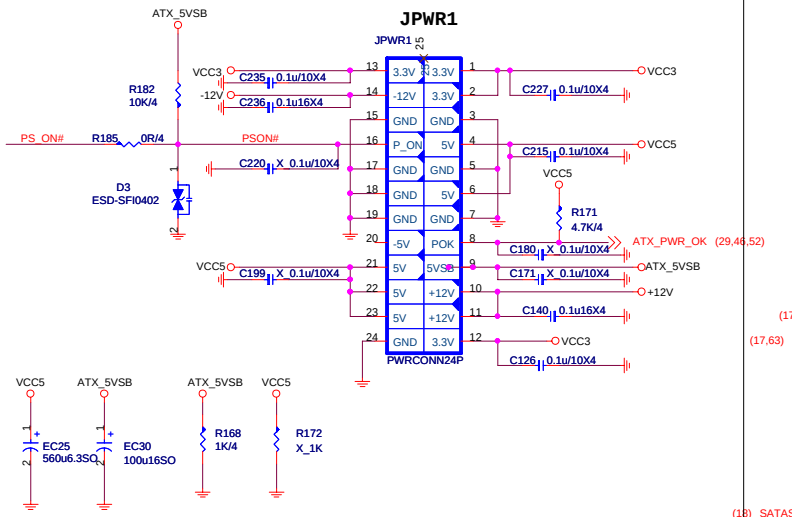
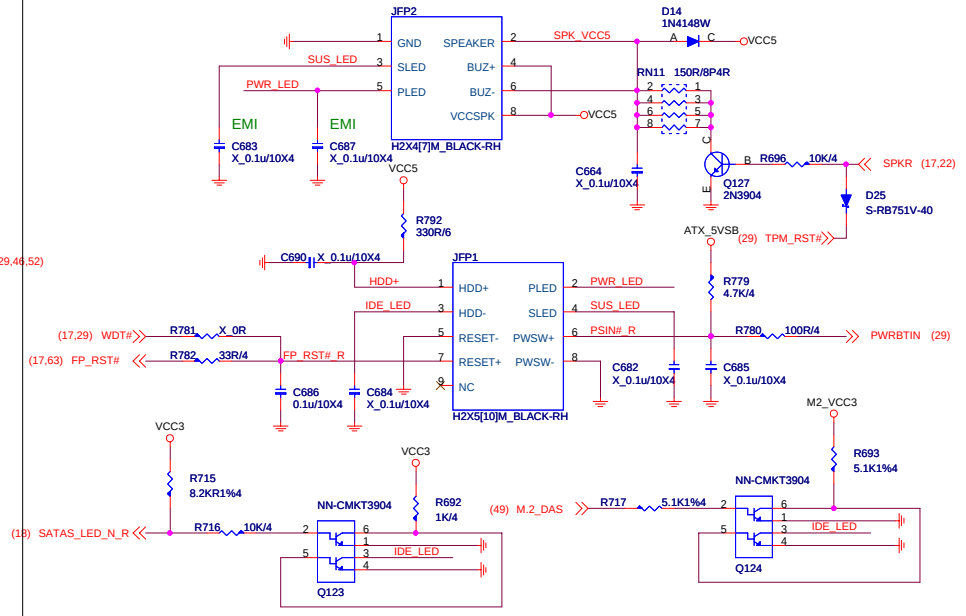
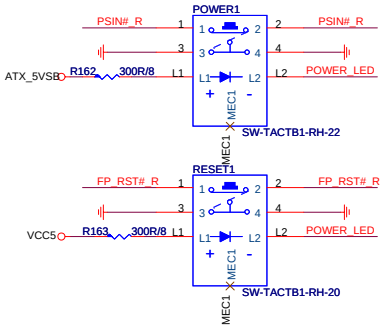
ATX POWER CONNECTOR

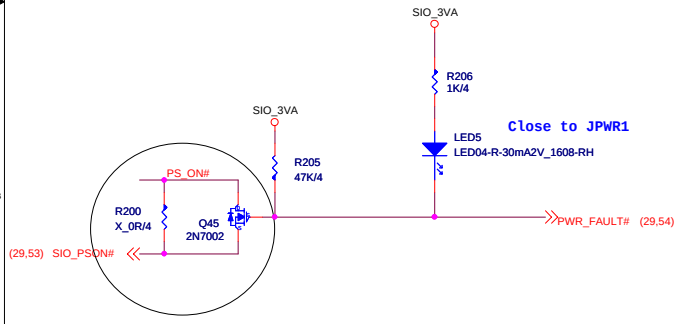


FRONT PANNEL

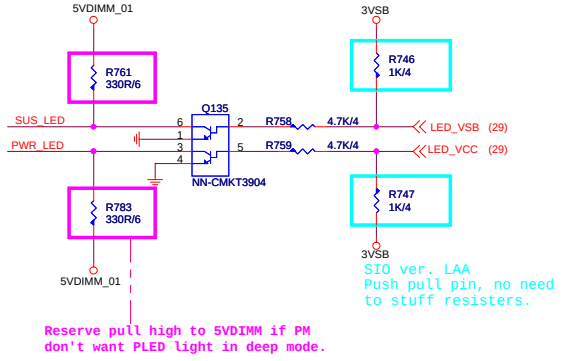


PWR/RST Botton

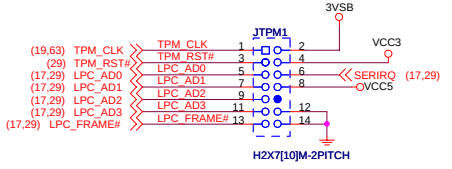


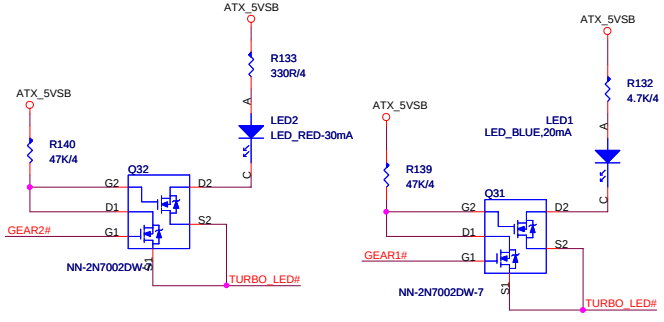


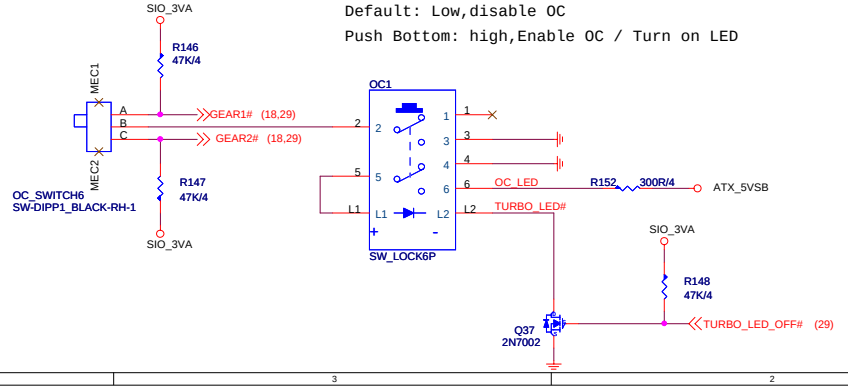
Front Panel LED



TPM

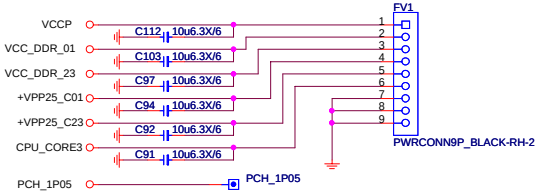






TURBO_MODE#
Default: Low,disable OC
Push Bottom: high,Enable OC / Turn on LED

Voltage test point



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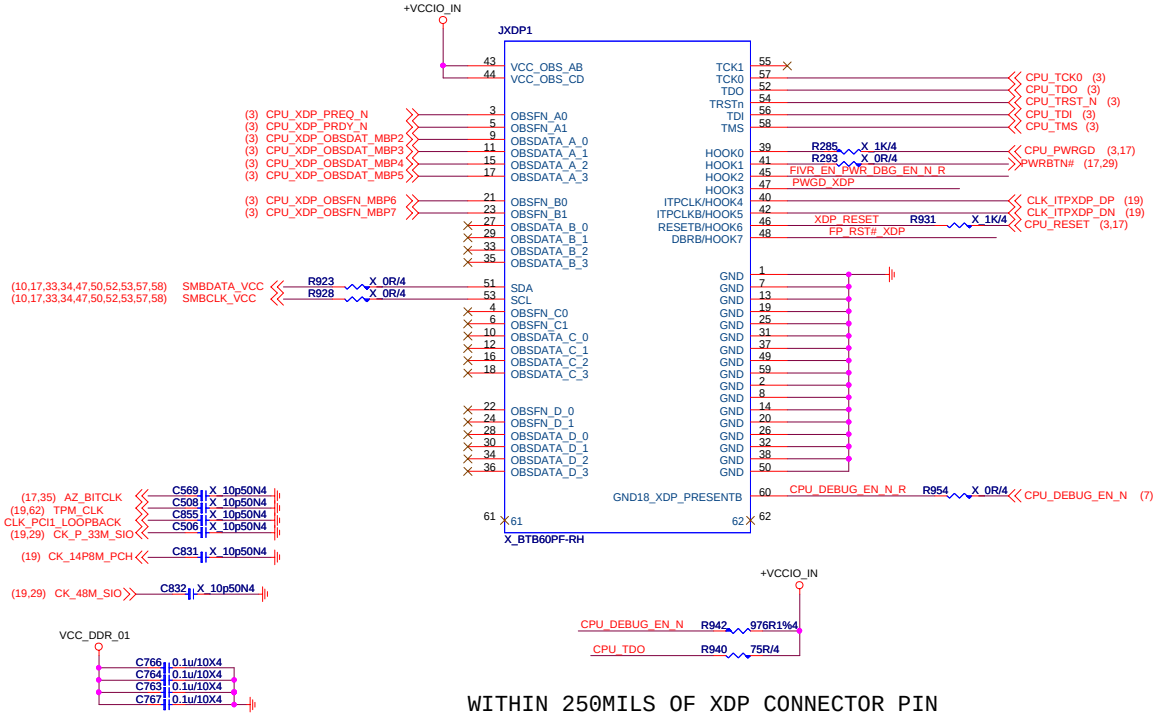
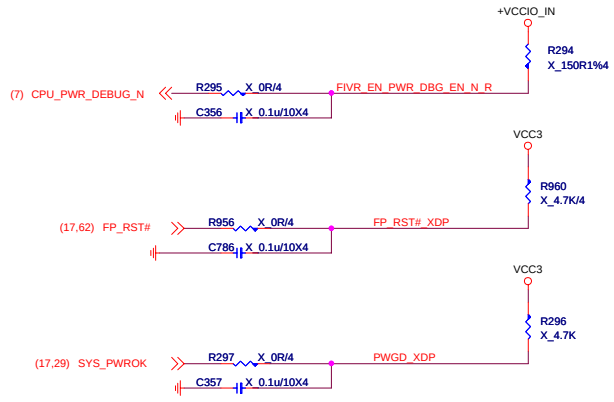
Reserve debug port 5020



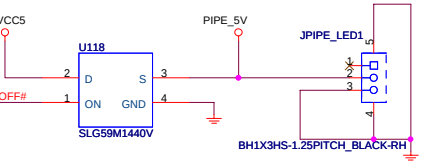
WITHIN 250MILS OF XDP CONNECTOR PIN

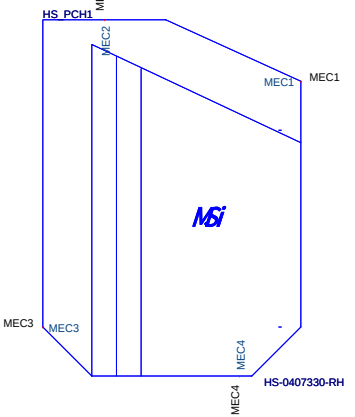
Add for EMI 2015.01.05

VCC_DDR_01 C900 X_47p50N4
VCC_DDR_23 C901 X_47p50N4
+VREF_DDR01 C902 X_47p50N4
+VPP25_C01 C904 X_47p50N4
+VPP25_C23 C905 X_47p50N4



USB3.1 ASM 1142 X_ASM1142
USB3.1-CONN ASM 1142 X_USB3.1-CONNECTOR
RU31-RST 80.6K X_80.6K1%0402
RU31-V 19.6K X_19.6K/1%



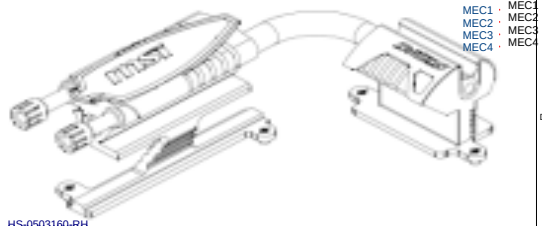


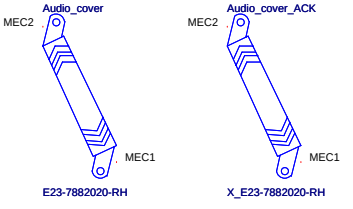
CPU_H1 CPU 鐵座 CPU_H1
BAT1_X1 BAT-BCR2032P-RH
CPU_H2 CPU 鐵座 CPU_H1
mini_card1 mini PCIE Card mini_PCIE_card

LA1 Label USB AUDIO POWER Stick
LA5 Label MKT Name Stick
LA10 Label X_MKT Name Stick
LA6 Label Xsplit
LA7 Label CREATIVE SOUND BLASTER CINEMA2
LA11 Label X_MKT Name Stick
LA8 Label SLI
LA9 Label AMI
LA12 Label USB31

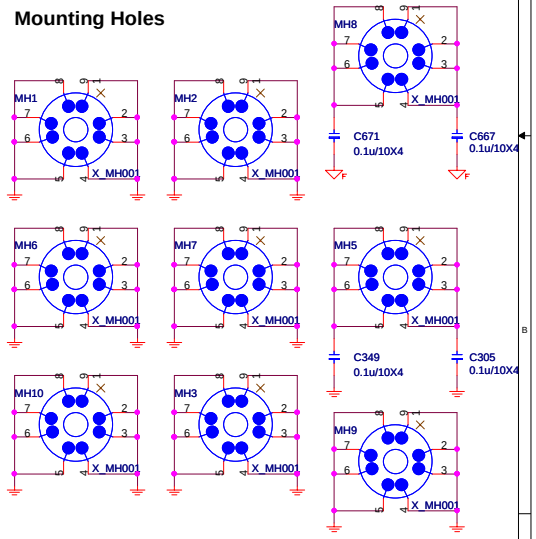
VCCP VCCP
VCC_DDR_01 VCC_DDR_01
VCC_DDR_23 VCC_DDR_23
+VPP25_C01 +VPP25_C01
+VPP25_C23 +VPP25_C23
PCH_1P5 PCH_1P5
3VSB 3VSB
+VCCIO_IN +VCCIO_IN
3VA 3VA
VTT_DDR_0 VTT_DDR_0
VTT_DDR_1 VTT_DDR_1
VTT_DDR_2 VTT_DDR_2
VTT_DDR_3 VTT_DDR_3

HS_MOS1

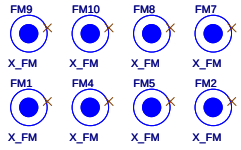




Mounting Holes



Optical Fiducial Marks-120



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