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ATX:200mm*194.5mm

Intel -CoffeeLake-S plamform

CPU:

LGA1151

*CPU POWER PAK *3Phase*

*GT POWER PAK *1 Phase*

System Chipset:

H310C

Onboard Chip:

SIO: NUVOTON 5567
HD Audio Codec: ALC887
LAN: RTL8111H
Flash ROM: SPI 64 MB

PWM:

VCORE - RT3607	*90A*
VGT- RT3607	*30A*
DDR - RT8231	*11.525A*
DDR VPP25- MP2333	*1.12A*
PCH(1.0V) -NB503	*9.65A*
VCCIOSA - RT8125E	*17.5A*

Main Memory:

*DDR4 * 2 (Dual Channel)*

ACPI:

5VDAUL:uP7501

5VDIMM:uP7501

3VSB:GS7133+MOS

3VDSW:GS7133

VCCSTPLL:GS7133

Expansion Slots:

*PCI Express (X16) Slot * 1*

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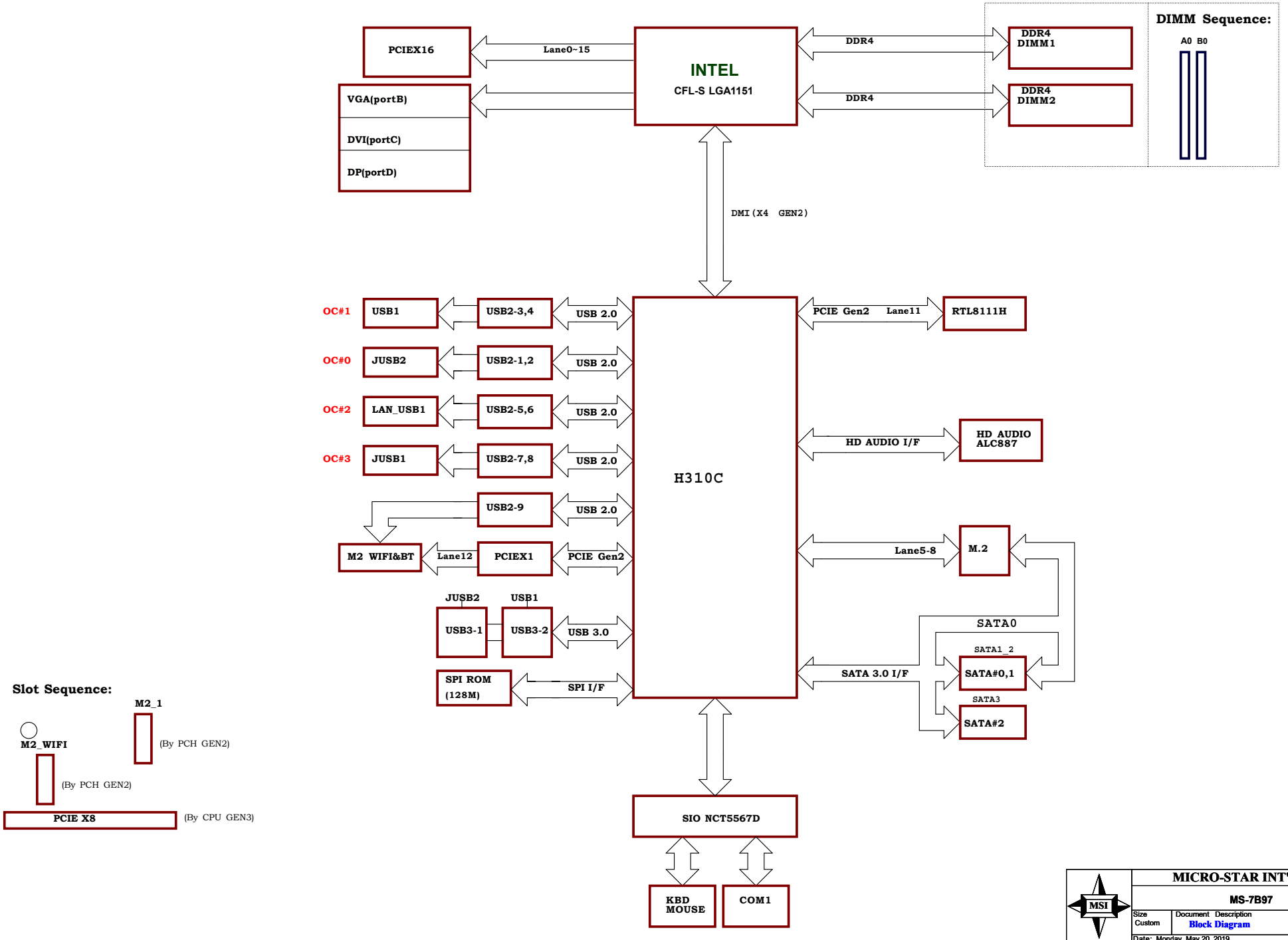
Block Diagram



Slot Sequence:

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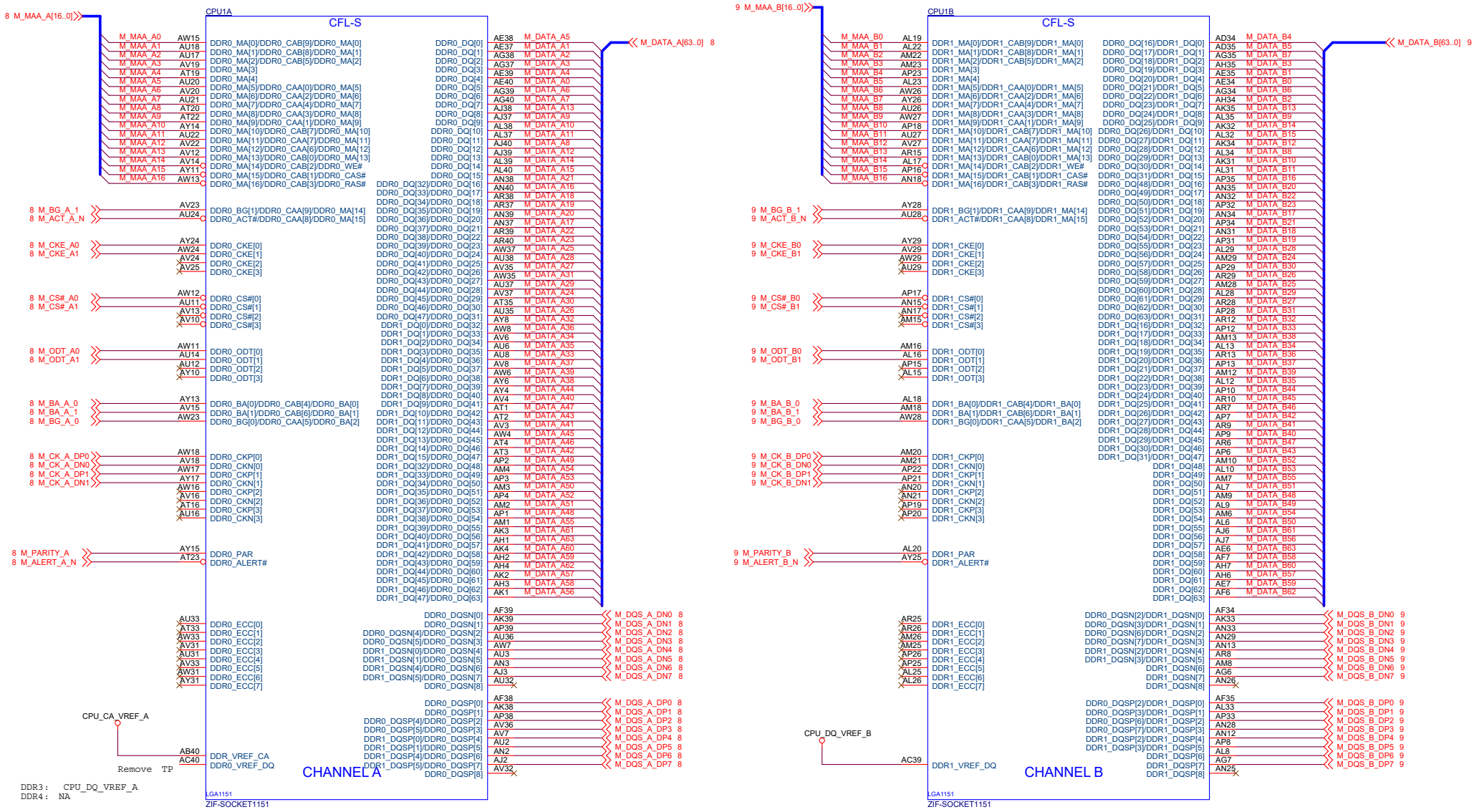

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Size	Document Description	Rev
Custom	CPU-Memory	1.1

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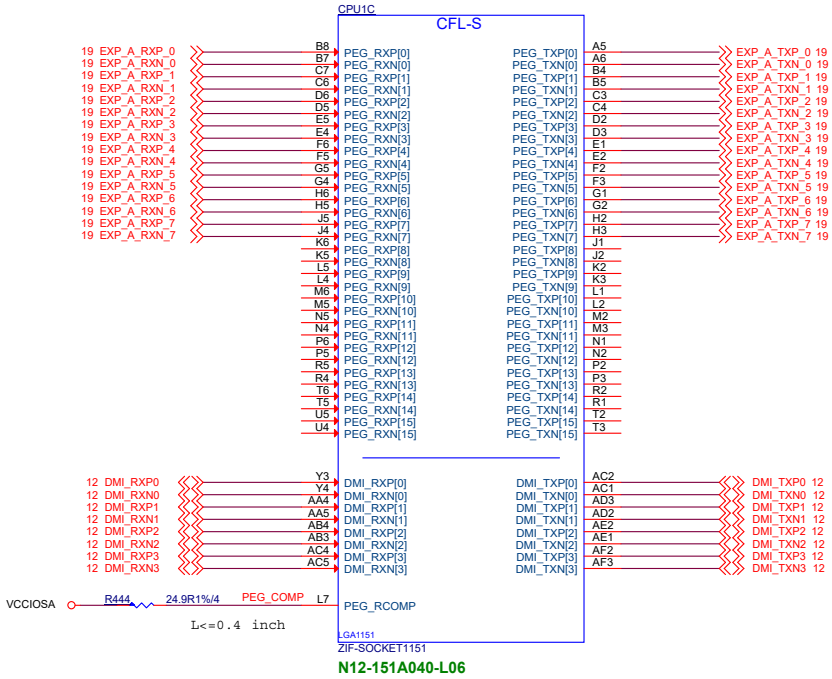

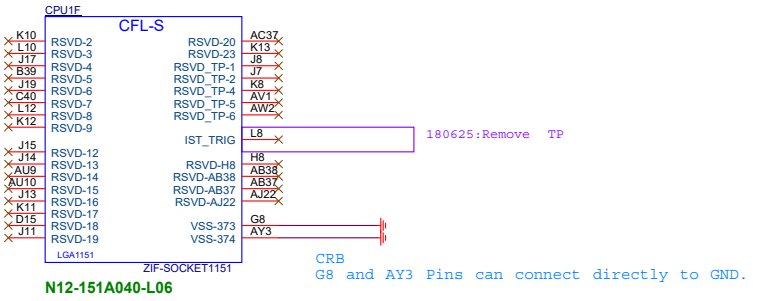

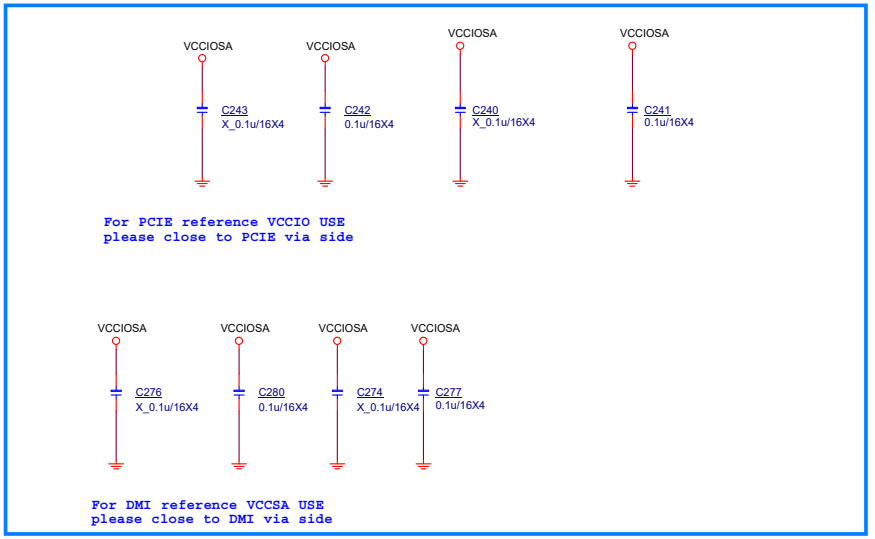

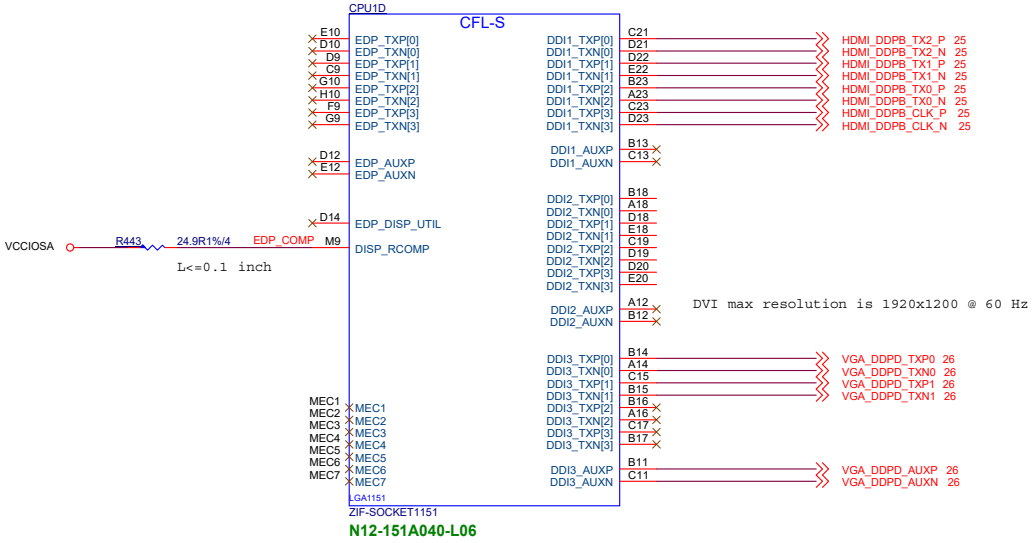

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Size	Document Description	Rev
Custom	CPU-PEG/Display	1.1

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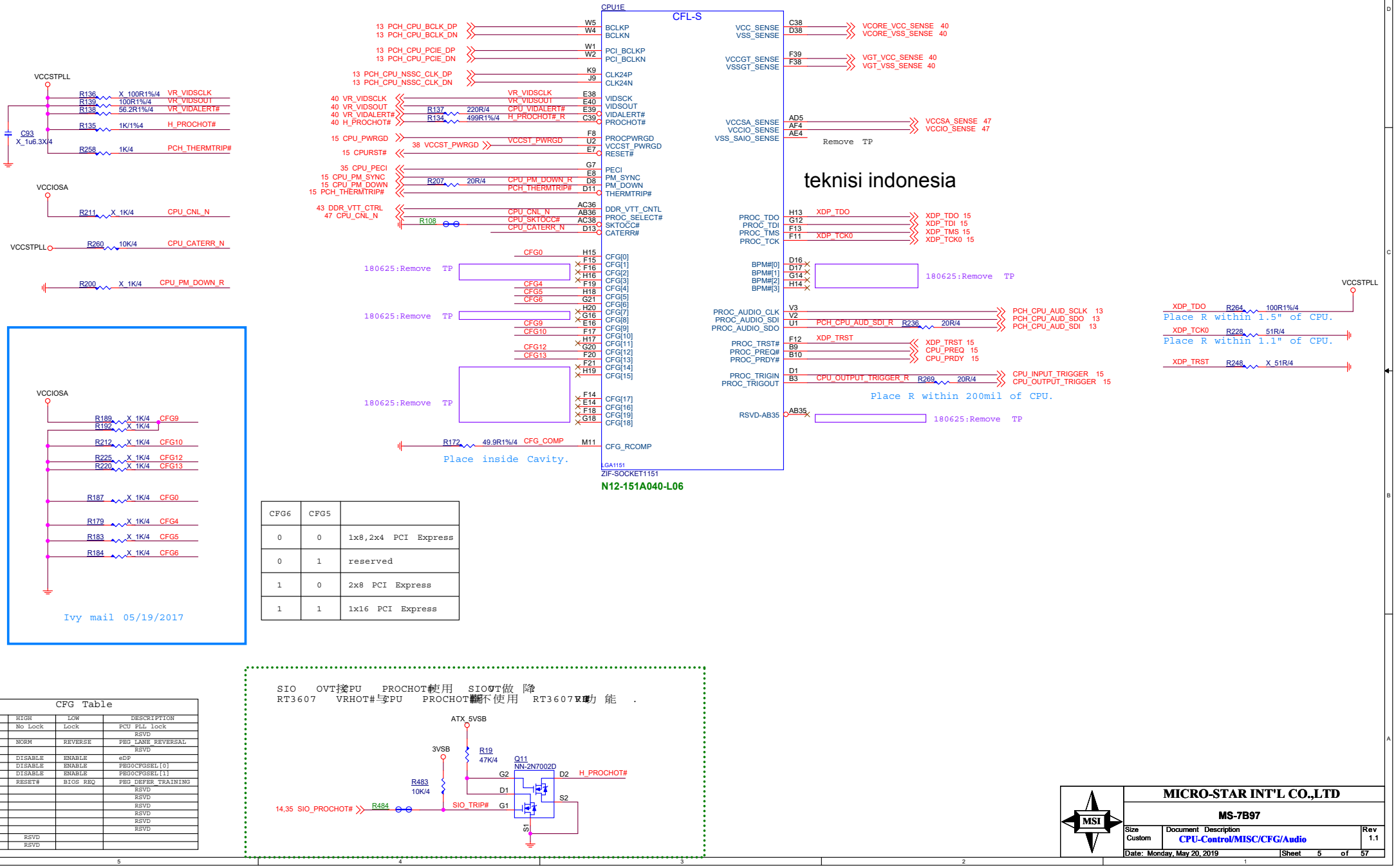

CFG6	CFG5	
0	0	1x8,2x4 PCI Express
0	1	reserved
1	0	2x8 PCI Express
1	1	1x16 PCI Express

Ivy mail 05/19/2017

SIO OVT接CPU PROCHOT使用 SIOVT做 降?
RT3607 VRHOT#与CPU PROCHOT都不使用 RT3607VR功 能 .

CFG Table

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

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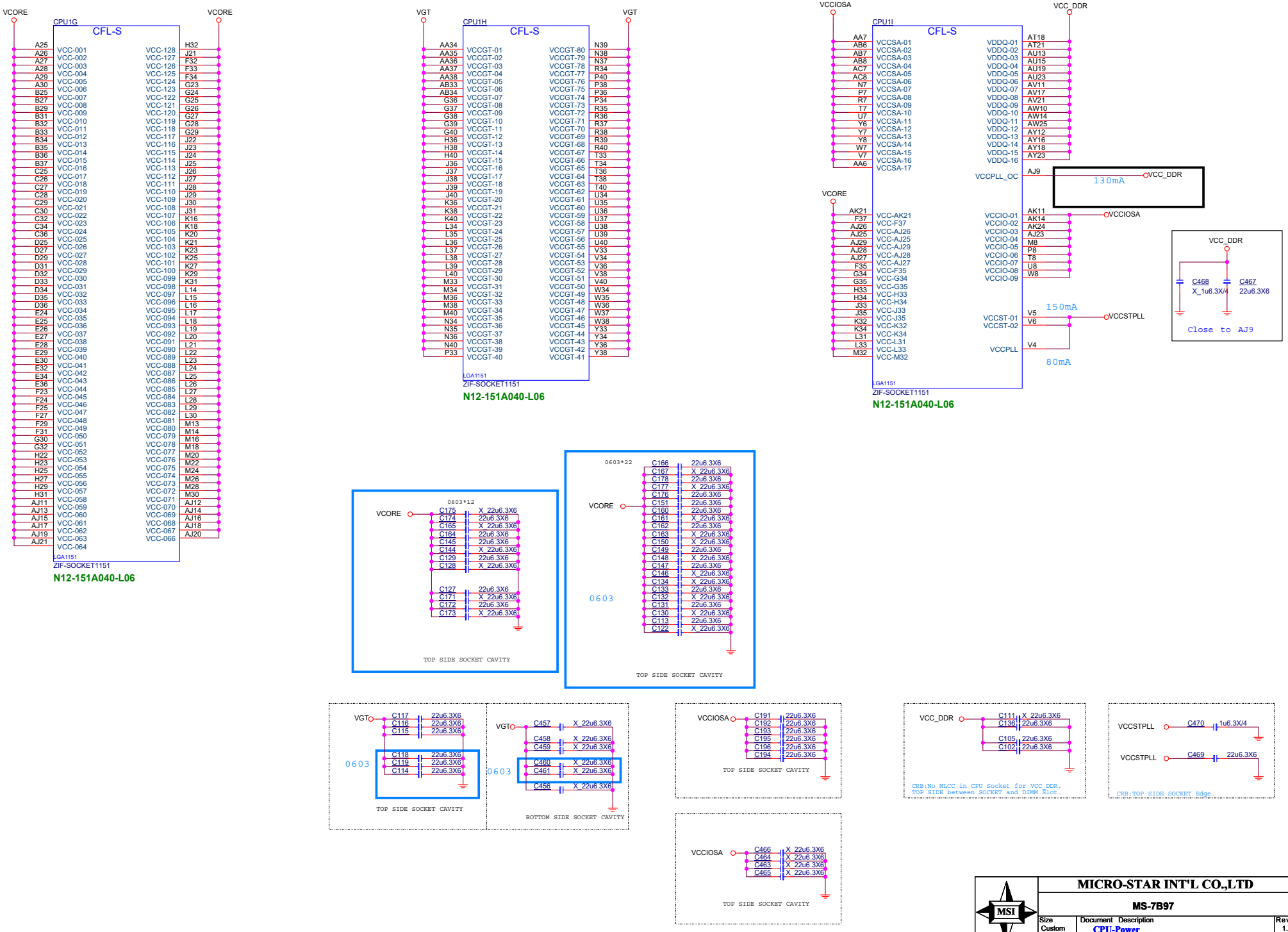
VCORE
CPU1G
CFL-S
VCC-001 VCC-002 VCC-003 VCC-004 VCC-005 VCC-006 VCC-007 VCC-008 VCC-009 VCC-010 VCC-011 VCC-012 VCC-013 VCC-014 VCC-015 VCC-016 VCC-017 VCC-018 VCC-019 VCC-020 VCC-021 VCC-022 VCC-023 VCC-024 VCC-025 VCC-026 VCC-027 VCC-028 VCC-029 VCC-030 VCC-031 VCC-032 VCC-033 VCC-034 VCC-035 VCC-036 VCC-037 VCC-038 VCC-039 VCC-040 VCC-041 VCC-042 VCC-043 VCC-044 VCC-045 VCC-046 VCC-047 VCC-048 VCC-049 VCC-050 VCC-051 VCC-052 VCC-053 VCC-054 VCC-055 VCC-056 VCC-057 VCC-058 VCC-059 VCC-060 VCC-061 VCC-062 VCC-063 VCC-064
VCC-066 VCC-067 VCC-068 VCC-069 VCC-070 VCC-071 VCC-072 VCC-073 VCC-074 VCC-075 VCC-076 VCC-077 VCC-078 VCC-079 VCC-080 VCC-081 VCC-082 VCC-083 VCC-084 VCC-085 VCC-086 VCC-087 VCC-088 VCC-089 VCC-090 VCC-091 VCC-092 VCC-093 VCC-094 VCC-095 VCC-096 VCC-097 VCC-098 VCC-099 VCC-100 VCC-101 VCC-102 VCC-103 VCC-104 VCC-105 VCC-106 VCC-107 VCC-108 VCC-109 VCC-110 VCC-111 VCC-112 VCC-113 VCC-114 VCC-115 VCC-116 VCC-117 VCC-118 VCC-119 VCC-120 VCC-121 VCC-122 VCC-123 VCC-124 VCC-125 VCC-126 VCC-127 VCC-128
LGA1151
ZIF-SOCKET1151
N12-151A040-L06
VGT
CPU1H
CFL-S
VCCGT-01 VCCGT-02 VCCGT-03 VCCGT-04 VCCGT-05 VCCGT-06 VCCGT-07 VCCGT-08 VCCGT-09 VCCGT-10 VCCGT-11 VCCGT-12 VCCGT-13 VCCGT-14 VCCGT-15 VCCGT-16 VCCGT-17 VCCGT-18 VCCGT-19 VCCGT-20 VCCGT-21 VCCGT-22 VCCGT-23 VCCGT-24 VCCGT-25 VCCGT-26 VCCGT-27 VCCGT-28 VCCGT-29 VCCGT-30 VCCGT-31 VCCGT-32 VCCGT-33 VCCGT-34 VCCGT-35 VCCGT-36 VCCGT-37 VCCGT-38 VCCGT-39 VCCGT-40
VCCGT-41 VCCGT-42 VCCGT-43 VCCGT-44 VCCGT-45 VCCGT-46 VCCGT-47 VCCGT-48 VCCGT-49 VCCGT-50 VCCGT-51 VCCGT-52 VCCGT-53 VCCGT-54 VCCGT-55 VCCGT-56 VCCGT-57 VCCGT-58 VCCGT-59 VCCGT-60 VCCGT-61 VCCGT-62 VCCGT-63 VCCGT-64 VCCGT-65 VCCGT-66 VCCGT-67 VCCGT-68 VCCGT-69 VCCGT-70 VCCGT-71 VCCGT-72 VCCGT-73 VCCGT-74 VCCGT-75 VCCGT-76 VCCGT-77 VCCGT-78 VCCGT-79 VCCGT-80
LGA1151
ZIF-SOCKET1151
N12-151A040-L06
VCCIOSA
VCC_DDR
CPU1I
CFL-S
VCCSA-01 VCCSA-02 VCCSA-03 VCCSA-04 VCCSA-05 VCCSA-06 VCCSA-07 VCCSA-08 VCCSA-09 VCCSA-10 VCCSA-11 VCCSA-12 VCCSA-13 VCCSA-14 VCCSA-15 VCCSA-16 VCCSA-17
VDDQ-01 VDDQ-02 VDDQ-03 VDDQ-04 VDDQ-05 VDDQ-06 VDDQ-07 VDDQ-08 VDDQ-09 VDDQ-10 VDDQ-11 VDDQ-12 VDDQ-13 VDDQ-14 VDDQ-15 VDDQ-16
VCCPLL_OC
130mA
VCCIO-01 VCCIO-02 VCCIO-03 VCCIO-04 VCCIO-05 VCCIO-06 VCCIO-07 VCCIO-08 VCCIO-09
VCCSTPLL
150mA
VCCST-01 VCCST-02
VCCPLL
80mA
VCORE
VCC-AK21 VCC-F37 VCC-AJ26 VCC-AJ25 VCC-AJ29 VCC-AJ28 VCC-AJ27 VCC-F35 VCC-G34 VCC-G35 VCC-H33 VCC-H34 VCC-J33 VCC-J35 VCC-K32 VCC-K34 VCC-L31 VCC-L33 VCC-M32
LGA1151
ZIF-SOCKET1151
N12-151A040-L06
C468 X_1u6.3X/4
C467 22u6.3X6
Close to AJ9
0603*12
VCORE
C175 C174 C165 C164 C145 C144 C129 C128 C127 C171 C172 C173
22u6.3X6
X_22u6.3X6
TOP SIDE SOCKET CAVITY
0603*22
VCORE
C166 C167 C178 C177 C176 C151 C160 C161 C162 C163 C150 C149 C148 C147 C146 C134 C133 C132 C131 C130 C113 C122
22u6.3X6
X_22u6.3X6
0603
TOP SIDE SOCKET CAVITY
VGT
C117 C116 C115 C118 C119 C114
22u6.3X6
0603
TOP SIDE SOCKET CAVITY
VGT
C457 C458 C459 C460 C461 C456
X_22u6.3X6
0603
BOTTOM SIDE SOCKET CAVITY
VCCIOSA
C191 C192 C193 C195 C196 C194
22u6.3X6
TOP SIDE SOCKET CAVITY
VCCIOSA
C466 C464 C463 C465
X_22u6.3X6
TOP SIDE SOCKET CAVITY
VCC_DDR
C111 C136 C105 C102
X_22u6.3X6
22u6.3X6
CRB:No MLCC in CPU Socket for VCC_DDR.
TOP SIDE between SOCKET and DIMM Slot.
VCCSTPLL
C470 1u6.3X/4
VCCSTPLL
C469 22u6.3X6
CRB:TOP SIDE SOCKET Edge.
MICRO-STAR INT'L CO.,LTD
MS-7B97
Size Custom
Document Description CPU-Power
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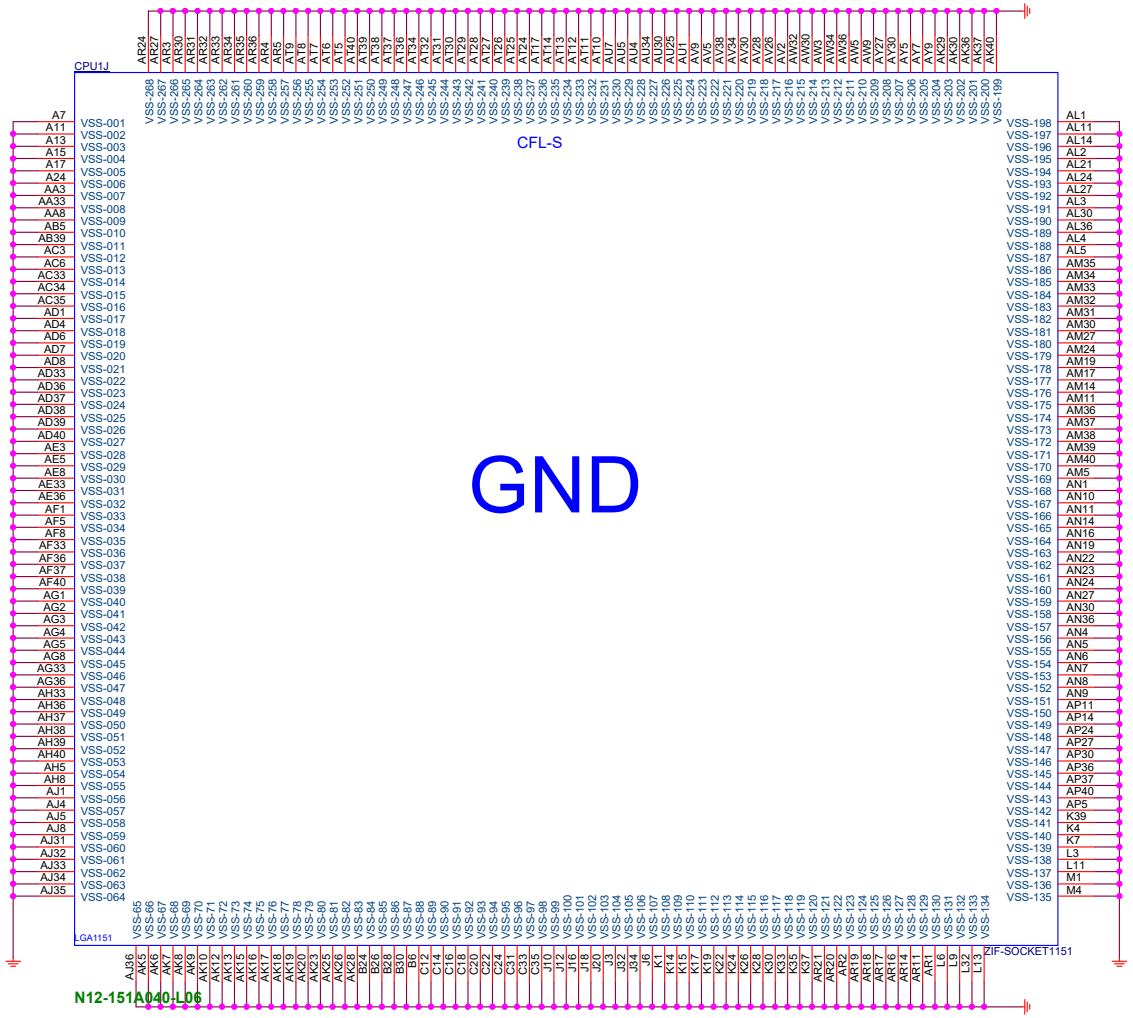

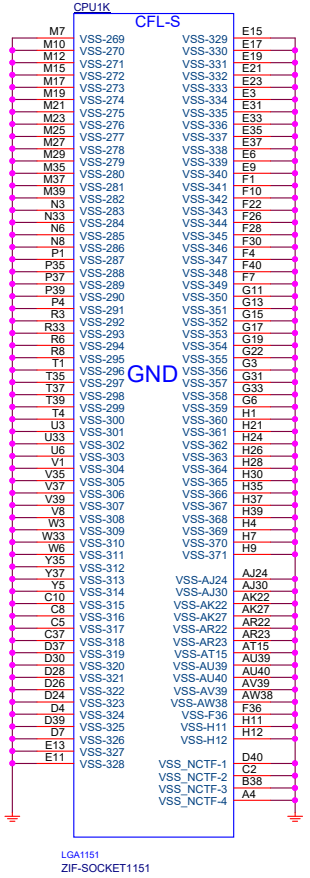

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MS-7B97		
Size: Custom	Document Description: CPU-GND	Rev: 1.1
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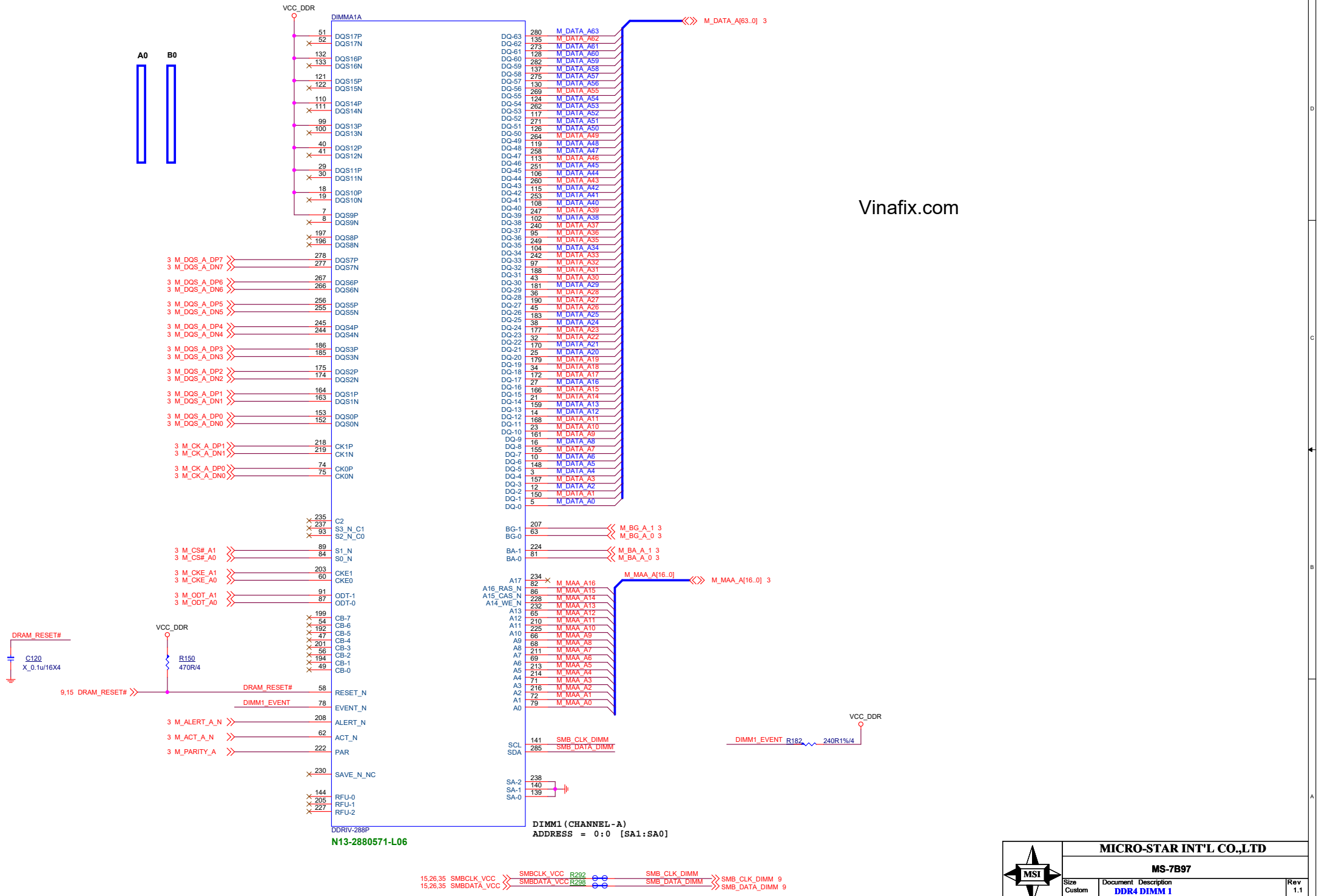
VCC_DDR
DIMMA1A
A0
B0
DQS17P
DQS17N
DQS16P
DQS16N
DQS15P
DQS15N
DQS14P
DQS14N
DQS13P
DQS13N
DQS12P
DQS12N
DQS11P
DQS11N
DQS10P
DQS10N
DQS9P
DQS9N
DQS8P
DQS8N
DQS7P
DQS7N
DQS6P
DQS6N
DQS5P
DQS5N
DQS4P
DQS4N
DQS3P
DQS3N
DQS2P
DQS2N
DQS1P
DQS1N
DQS0P
DQS0N
CK1P
CK1N
CK0P
CK0N
C2
S3_N_C1
S2_N_C0
S1_N
S0_N
CKE1
CKE0
ODT-1
ODT-0
CB-7
CB-6
CB-5
CB-4
CB-3
CB-2
CB-1
CB-0
RESET_N
EVENT_N
ALERT_N
ACT_N
PAR
SAVE_N_NC
RFU-0
RFU-1
RFU-2
DDRIV-288P
M_DATA_A[63..0]
M_BG_A_1
M_BG_A_0
M_BA_A_1
M_BA_A_0
M_MAA_A[16..0]
SMB_CLK_DIMM
SMB_DATA_DIMM
SA-2
SA-1
SA-0
DRAM_RESET#
C120
X_0.1u/16X4
R150
470R/4
DIMM1_EVENT
R182
240R1%/4
SMBCLK_VCC
SMBDATA_VCC
R292
R298
DIMM1(CHANNEL-A)
ADDRESS = 0:0 [SA1:SA0]
N13-2880571-L06
Vinafix.com
MICRO-STAR INT'L CO.,LTD
MS-7B97
Size
Custom
Document Description
DDR4 DIMM 1
Rev
1.1
Date: Monday, May 20, 2019
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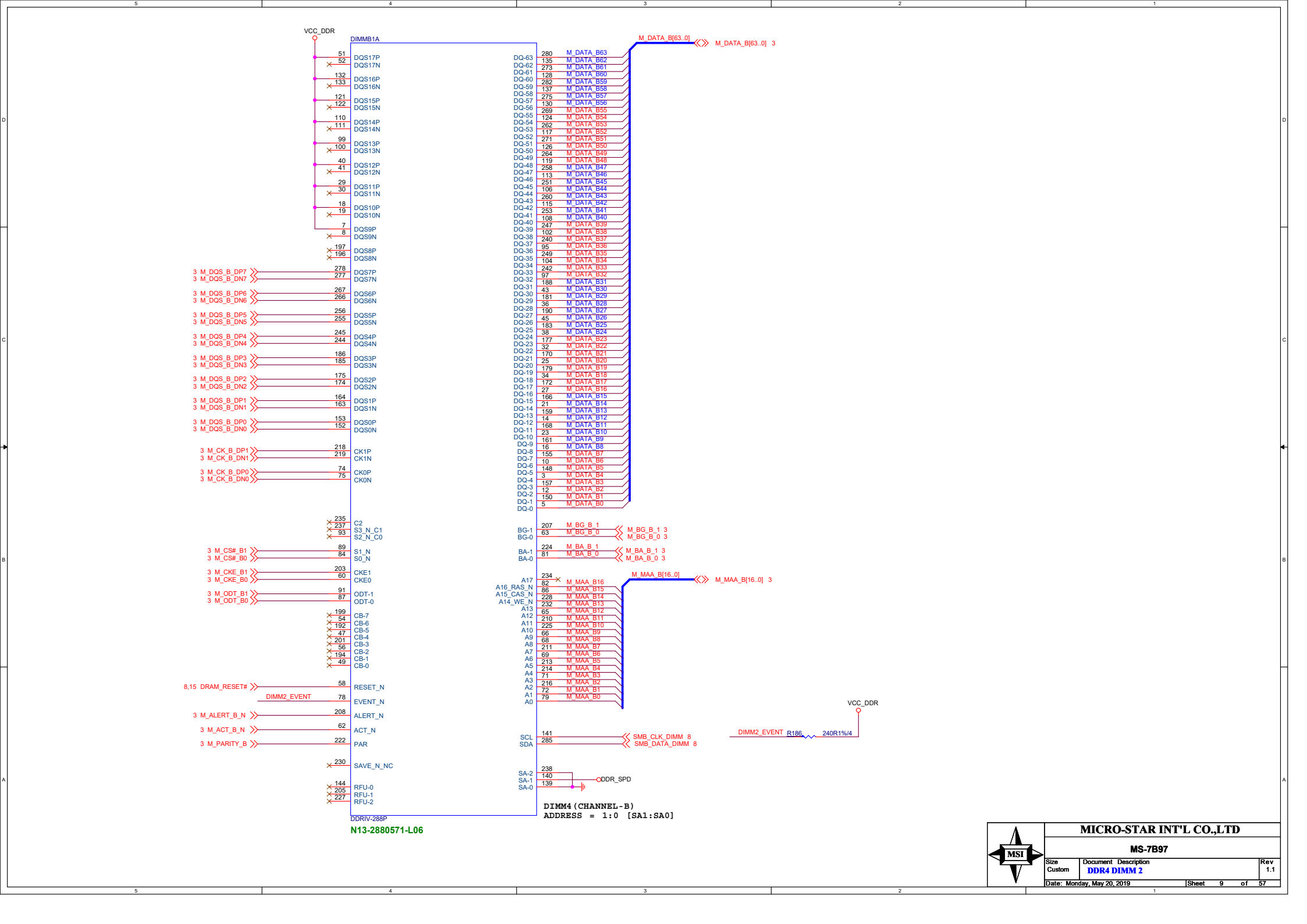
VCC_DDR
DIMMB1A
M_DATA_B[63..0]
M_DATA_B[63..0] 3
M_MAA_B[16..0]
M_MAA_B[16..0] 3
DQS17P
DQS17N
DQS16P
DQS16N
DQS15P
DQS15N
DQS14P
DQS14N
DQS13P
DQS13N
DQS12P
DQS12N
DQS11P
DQS11N
DQS10P
DQS10N
DQS9P
DQS9N
DQS8P
DQS8N
DQS7P
DQS7N
DQS6P
DQS6N
DQS5P
DQS5N
DQS4P
DQS4N
DQS3P
DQS3N
DQS2P
DQS2N
DQS1P
DQS1N
DQS0P
DQS0N
CK1P
CK1N
CK0P
CK0N
C2
S3_N_C1
S2_N_C0
S1_N
S0_N
CKE1
CKE0
ODT-1
ODT-0
CB-7
CB-6
CB-5
CB-4
CB-3
CB-2
CB-1
CB-0
RESET_N
EVENT_N
ALERT_N
ACT_N
PAR
SAVE_N_NC
RFU-0
RFU-1
RFU-2
DDRIV-288P
BG-1
BG-0
BA-1
BA-0
A17
A16_RAS_N
A15_CAS_N
A14_WE_N
A13
A12
A11
A10
A9
A8
A7
A6
A5
A4
A3
A2
A1
A0
SCL
SDA
SA-2
SA-1
SA-0
DDR_SPD
SMB_CLK_DIMM 8
SMB_DATA_DIMM 8
DIMM2_EVENT
R186
240R1%/4
VCC_DDR
DIMM4(CHANNEL-B)
ADDRESS = 1:0 [SA1:SA0]
N13-2880571-L06
MICRO-STAR INT'L CO.,LTD
MS-7B97
Size
Custom
Document Description
DDR4 DIMM 2
Rev
1.1
Date: Monday, May 20, 2019
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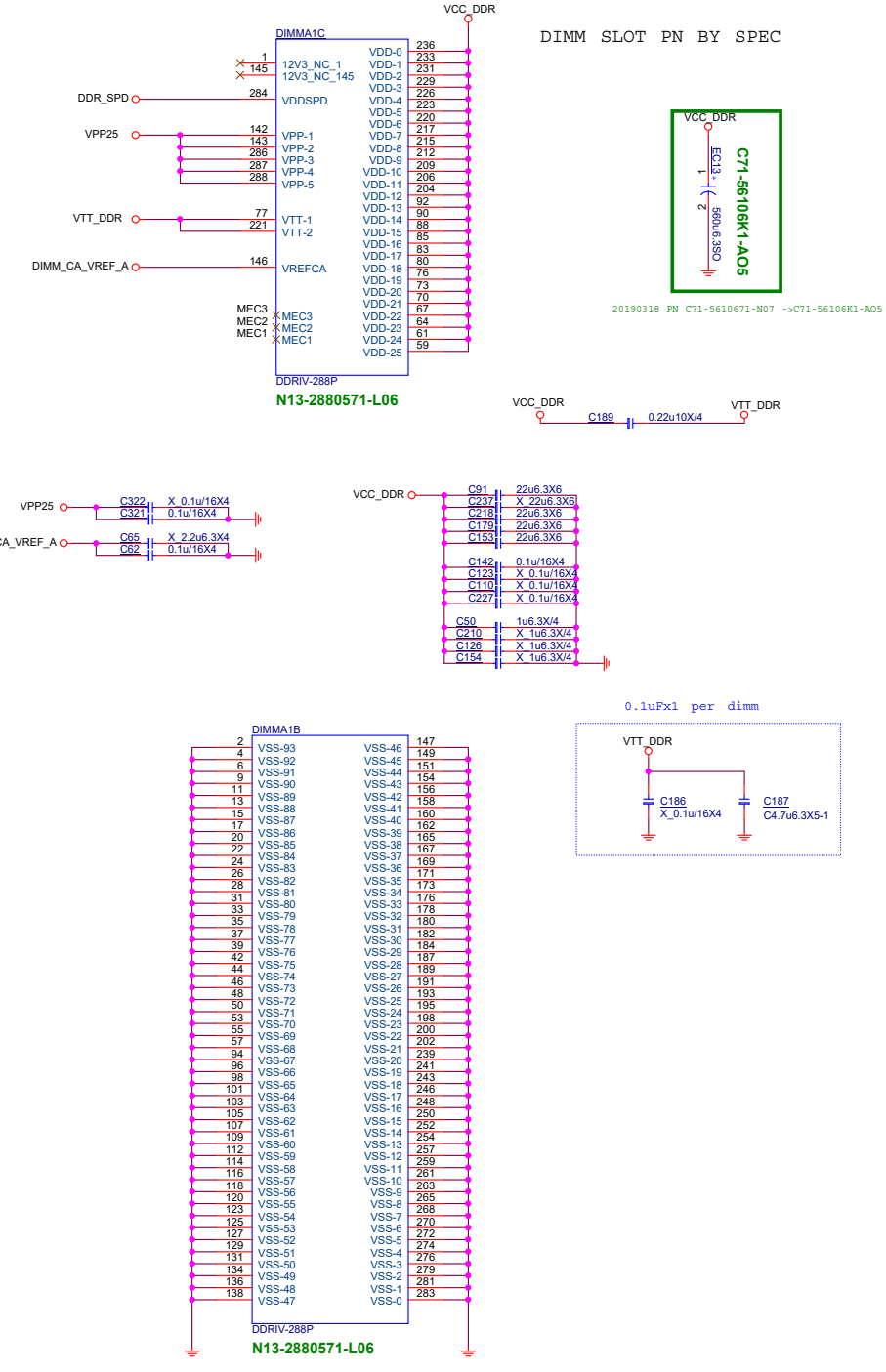

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Size: Custom	Document Description: DDR4-POWER/GND-1	Rev: 1.1
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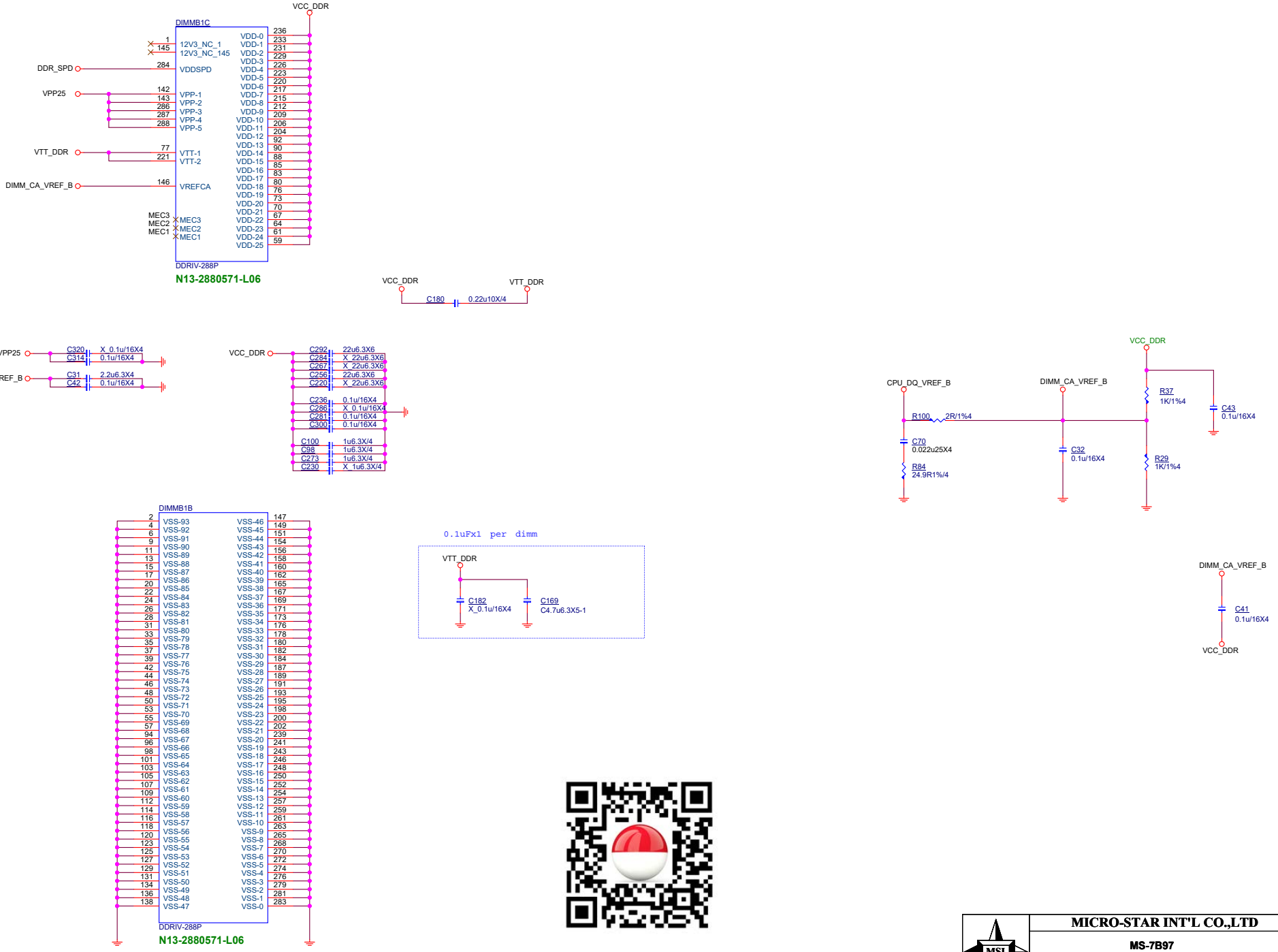

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	MS-7B97	
Size: Custom	Document Description: DDR4-POWER/GND-2	Rev: 1.1
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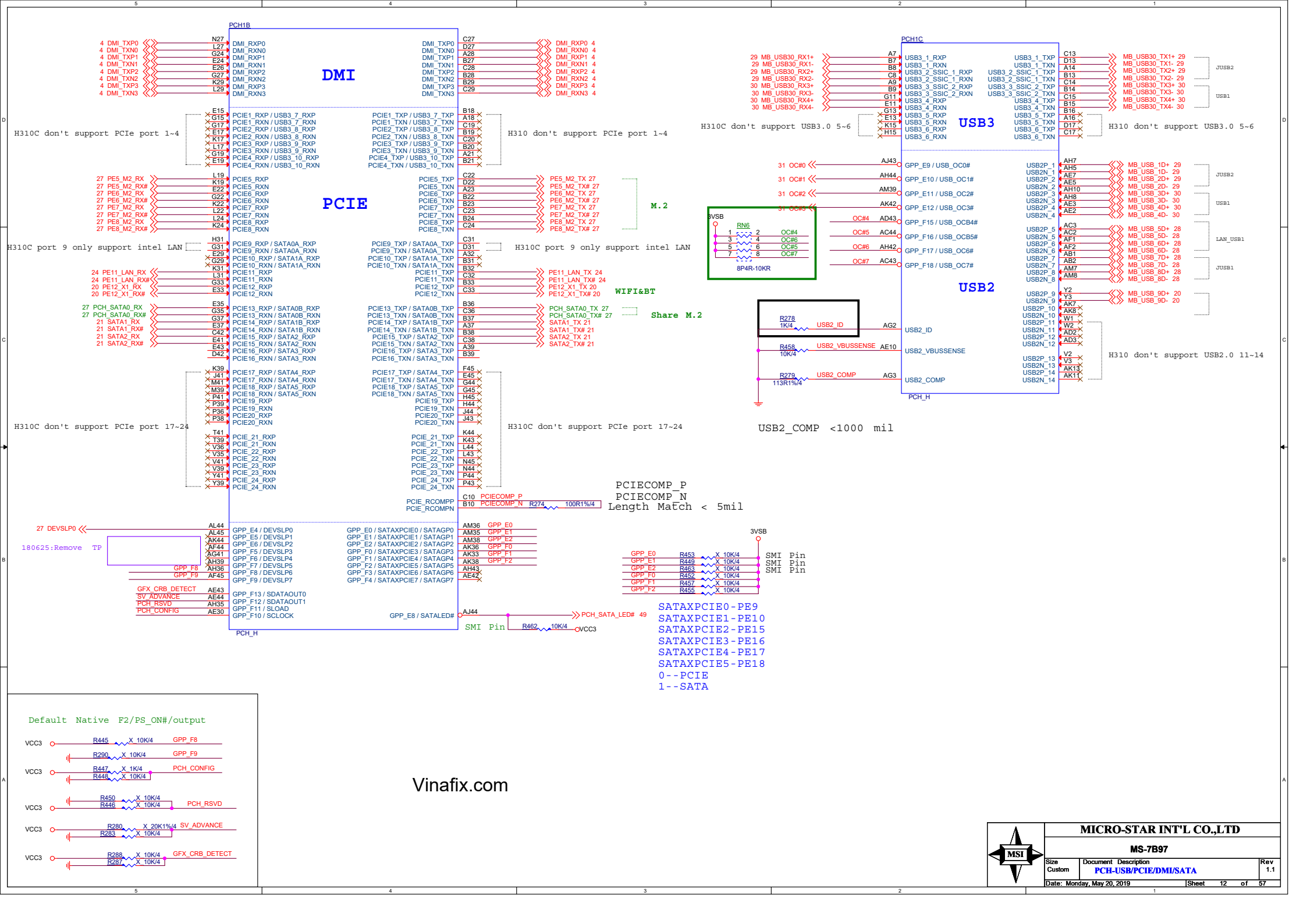
PCH1B
DMI
PCIE
GPP_E4 / DEVSLP0
GPP_E5 / DEVSLP1
GPP_E6 / DEVSLP2
GPP_F5 / DEVSLP3
GPP_F6 / DEVSLP4
GPP_F7 / DEVSLP5
GPP_F8 / DEVSLP6
GPP_F9 / DEVSLP7
GPP_F13 / SDATAOUT0
GPP_F12 / SDATAOUT1
GPP_F11 / SLOAD
GPP_F10 / SCLOCK
GPP_E8 / SATALED#
PCH_H
PCH1C
USB3
USB2
PCH_H
H310C don't support PCIe port 1~4
H310 don't support PCIe port 1~4
H310C don't support USB3.0 5~6
H310 don't support USB3.0 5~6
H310C port 9 only support intel LAN
H310 don't support USB2.0 11~14
H310C don't support PCIe port 17~24
M.2
WIFI&BT
Share M.2
USB2_COMP <1000 mil
PCIECOMP_P
PCIECOMP_N
Length Match < 5mil
SMI Pin
SATAXPCIE0-PE9
SATAXPCIE1-PE10
SATAXPCIE2-PE15
SATAXPCIE3-PE16
SATAXPCIE4-PE17
SATAXPCIE5-PE18
0--PCIE
1--SATA
180625:Remove TP
Default Native F2/PS_ON#/output
Vinafix.com
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MS-7B97
PCH-USB/PCIE/DMI/SATA
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RTC Block

Close to PCH

C353 12p50N/6 RTCX2
Y2
R336 10M/6 <1 inch
C356 12p50N/6 RTCX1
32.768KHZ12.5p
D04-0305901-F07

3VSB R524 10K/4 LAN_CLKREQ#4
3VSB R332 X_10K/4 SLOT2__CLKREQ#0 R327 X_10K/4
3VSB R504 X_10K/4 WIFI_CLKREQ#1 R505 X_10K/4

C289 22p50N4 XTAL_24M_PCH_IN_R1 R270 39R/4 XTAL_24M_PCH_IN
Y1
24MHZ20p_S-HF
R273 1MR1%4
20190325 removed 0R
D04-3902700-F07
AVL : D04-3903800-T16
C290 22p50N4 XTAL_24M_PCH_OUT_R1 R271 XTAL_24M_PCH_OUT

Net need reference GND

35 CLK_SIO_PCI R321 22R/4 CLK_PCH_LPC0 BE15 GPP_A9 / CLKOUT_LPC0 / ESPI_CLK
49 CLK_24M_TPM R515 22R/4 CLK_PCH_24M AY17 GPP_A10 / CLKOUT_LPC1
BC17 GPP_A16 / CLKOUT_48
LPC

RTCX1 BF7 RTCX1
RTCX2 BG7 RTCX2
RTC

XTAL_24M_PCH_IN E1 XTAL24_IN
XTAL_24M_PCH_OUT A5 XTAL24_OUT
24MHZ
PCH_1VSB R275 2.7KR1%4 XCLK_BIASREF F1 XCLK_BIASREF
XCLK_BIASREF < 1000 mil

SLOT2__CLKREQ#0 WIFI_CLKREQ#1
20 WIFI_CLKREQ#1 BE22 GPP_B5 / SRCCLKREQ0# BA24 GPP_B6 / SRCCLKREQ1# BA19 GPP_B7 / SRCCLKREQ2# BE23 GPP_B8 / SRCCLKREQ3# BD22 GPP_B9 / SRCCLKREQ4# BF23 GPP_B10 / SRCCLKREQ5#
24 LAN_CLKREQ#4
CLK_REQ
27 M2_CLKREQ#9 AR29 GPP_H0 / SRCCLKREQ6# AU27 GPP_H1 / SRCCLKREQ7# BG30 GPP_H2 / SRCCLKREQ8# BF30 GPP_H3 / SRCCLKREQ9# BD29 GPP_H4 / SRCCLKREQ10#
PU VCC3 to M.2 slot
BE31 GPP_H5 / SRCCLKREQ11# AY29 GPP_H6 / SRCCLKREQ12# AV29 GPP_H7 / SRCCLKREQ13# BD31 GPP_H8 / SRCCLKREQ14# BF31 GPP_H9 / SRCCLKREQ15#

PCH1E
PCH_H

CLKOUT_CPUBCLK_P H1 → PCH_CPU_BCLK_DP 5
CLKOUT_CPUBCLK_N H2 → PCH_CPU_BCLK_DN 5
100M
CLKOUT_CPUNSSC_P G2 → PCH_CPU_NSSC_CLK_DP 5
CLKOUT_CPUNSSC_N G1 → PCH_CPU_NSSC_CLK_DN 5
24M
CLKOUT_CPUPCIBCLK_P J2 → PCH_CPU_PCIE_DP 5
CLKOUT_CPUPCIBCLK_N J3 → PCH_CPU_PCIE_DN 5
100M
CLKOUT_ITPXDP_P L3
CLKOUT_ITPXDP_N L2

teknisi indonesia

CLKOUT_PCIE_P0 P7 → CK_SLOT2_DP 19
CLKOUT_PCIE_N0 P5 → CK_SLOT2_DN 19
CLKOUT_PCIE_P1 M5 → CK_WIFI_BT_P 20
CLKOUT_PCIE_N1 M7 → CK_WIFI_BT_N 20
x16 WIFI
CLKOUT_PCIE_P2 G7
CLKOUT_PCIE_N2 H7
CLKOUT_PCIE_P3 K5
CLKOUT_PCIE_N3 K7
CLKOUT_PCIE_P4 E4 → CK_PE_LAN 24
CLKOUT_PCIE_N4 E3 → CK_PE_LAN# 24
CLKOUT_PCIE_P5 C6
CLKOUT_PCIE_N5 C5
CLKOUT_PCIE_P6 T7
CLKOUT_PCIE_N6 T8
CLKOUT_PCIE_P7 V7
CLKOUT_PCIE_N7 V5
CLKOUT_PCIE_P8 Y11
CLKOUT_PCIE_N8 Y10
CLKOUT_PCIE_P9 M1
CLKOUT_PCIE_N9 M2 → CLK_M2_1_DP 27, CLK_M2_1_DN 27
CLKOUT_PCIE_P10 P2
CLKOUT_PCIE_N10 P3
CLKOUT_PCIE_P11 T3
CLKOUT_PCIE_N11 T2
CLKOUT_PCIE_P12 U2
CLKOUT_PCIE_N12 U1
CLKOUT_PCIE_P13 AA5
CLKOUT_PCIE_N13 Y7
CLKOUT_PCIE_P14 R2
CLKOUT_PCIE_N14 R3
CLKOUT_PCIE_P15 T11
CLKOUT_PCIE_N15 T13

EMI
AZ_BITCLK
C499 X_10p50N4

PCH1D
PCH_H

22 AZ_SDIN0 BA2 HDA_SDI0
BB1 HDA_SDI1
18 AZ_SDOUT_R
22 AZ_SDOUT R499 33R/4 AZ_SDOUT_R BC3 HDA_SDO
22 AZ_BITCLK AZ_BITCLK R489 33R/4 AZ_BITCLK_LR BB3 HDA_BCLK
22 AZ_RST# R305 33R/4 AZ_RST#_R BC1 HDA_RST#
22 AZ_SYNC R311 33R/4 AZ_SYNC_R BG6 HDA_SYNC

AUDIO

5 PCH_CPU_AUD_SCLK R466 30R/4 PCH_CPU_AUD_SCLK_R AM2 DISPA_BCLK
5 PCH_CPU_AUD_SDO R467 30R/4 PCH_CPU_AUD_SDO_R AM3 DISPA_SDO
5 PCH_CPU_AUD_SDI PCH_CPU_AUD_SDI AN2 DISPA_SDI

Default Native F3/CNV_RF_R_ESET#.
Default Native F3/MODEM_CLKREQ.

AP36 GPP_D5 / I2S0_SFRM
AU43 GPP_D6 / I2S0_TXD
AV44 GPP_D7 / I2S0_RXD
AU42 GPP_D8 / I2S0_SCLK
AP42 GPP_D17 / DMIC_CLK1
AN43 GPP_D18 / DMIC_DATA1
AP38 GPP_D19 / DMIC_CLK0
AM43 GPP_D20 / DMIC_DATA0

PORT B
GPP_I5 / DDPB_CTRLCLK AW5 HDMI_DDPB_CTRLCLK → HDMI_DDPB_CTRLCLK 25
GPP_I6 / DDPB_CTRLDATA AV7 HDMI_DDPB_CTRLDATA → HDMI_DDPB_CTRLDATA 25
GPP_I0 / DDPB_HPD0 AP7 → HDMI_DDPB_HPD 25
SMI Pin

PORT C
GPP_I7 / DDPC_CTRLCLK AT5
GPP_I8 / DDPC_CTRLDATA BA6
GPP_I1 / DDPC_HPD1 AT8 DVI_DDPC_HPD
SMI Pin

PORT D
GPP_I9 / DDPD_CTRLCLK AY1 VGA_DDPD_CTRLCLK
GPP_I10 / DDPD_CTRLDATA AY2 VGA_DDPD_CTRLDATA
GPP_I2 / DDPD_HPD2 AP8 → VGA_DDPD_HPD 26

eDP
GPP_F19 / eDP_VDDEN AC42
GPP_F20 / eDP_BKLTEN AE35
GPP_F21 / eDP_BKLTCTL AE36
Display Port F Detected.
Internal 20K pull down.
GPP_I4 / EDP_HPD BA1 EDP_HPD R304 100K/4
GPP_I3 / DDPE_HPD3 AT7 DDPE_HPD3 R472 10K/4
SMI Pin

VCC3
RN7
VGA_DDPD_CTRLDATA 1 2
VGA_DDPD_CTRLCLK 3 4
HDMI_DDPB_CTRLCLK 5 6
HDMI_DDPB_CTRLDATA 7 8
8P4R-2.2KR
20190318 change to RN

DDI interfaace Disable
no connect

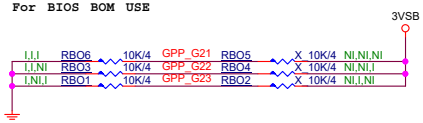
DVI_DDPC_HPD R478 100K/4

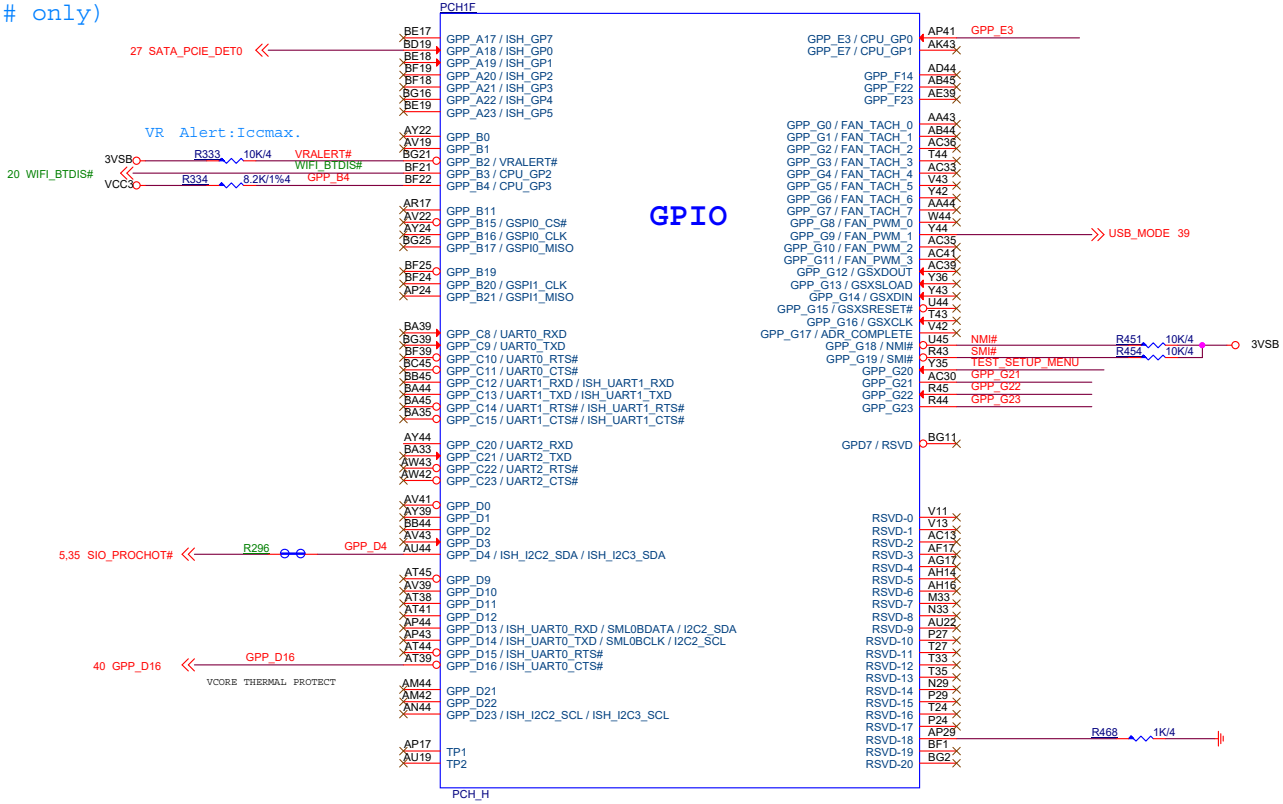
MICRO-STAR INT'L CO.,LTD	
MS-7B97	
Size: Custom	Document Description: PCH-Audio/Display/Clock
Rev: 1.1	
Date: Monday, May 20, 2019	Sheet 13 of 57

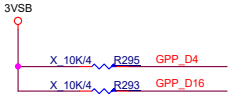
GPIO(SMI/NMI):
GPP_B14,GPP_B20,GPP_B23
GPP_C[23:22]
GPP_D[4:0]
GPP_E[8:0]
GPP_I[3:0]
GPP_G[7:0](Support SMI# only)

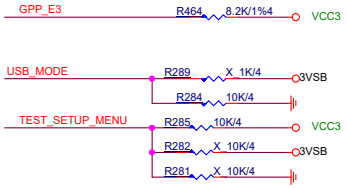
	GPP_I12	GPP_I13	GPP_I14
H310M-S03	0	0	0

For BIOS BOM USE







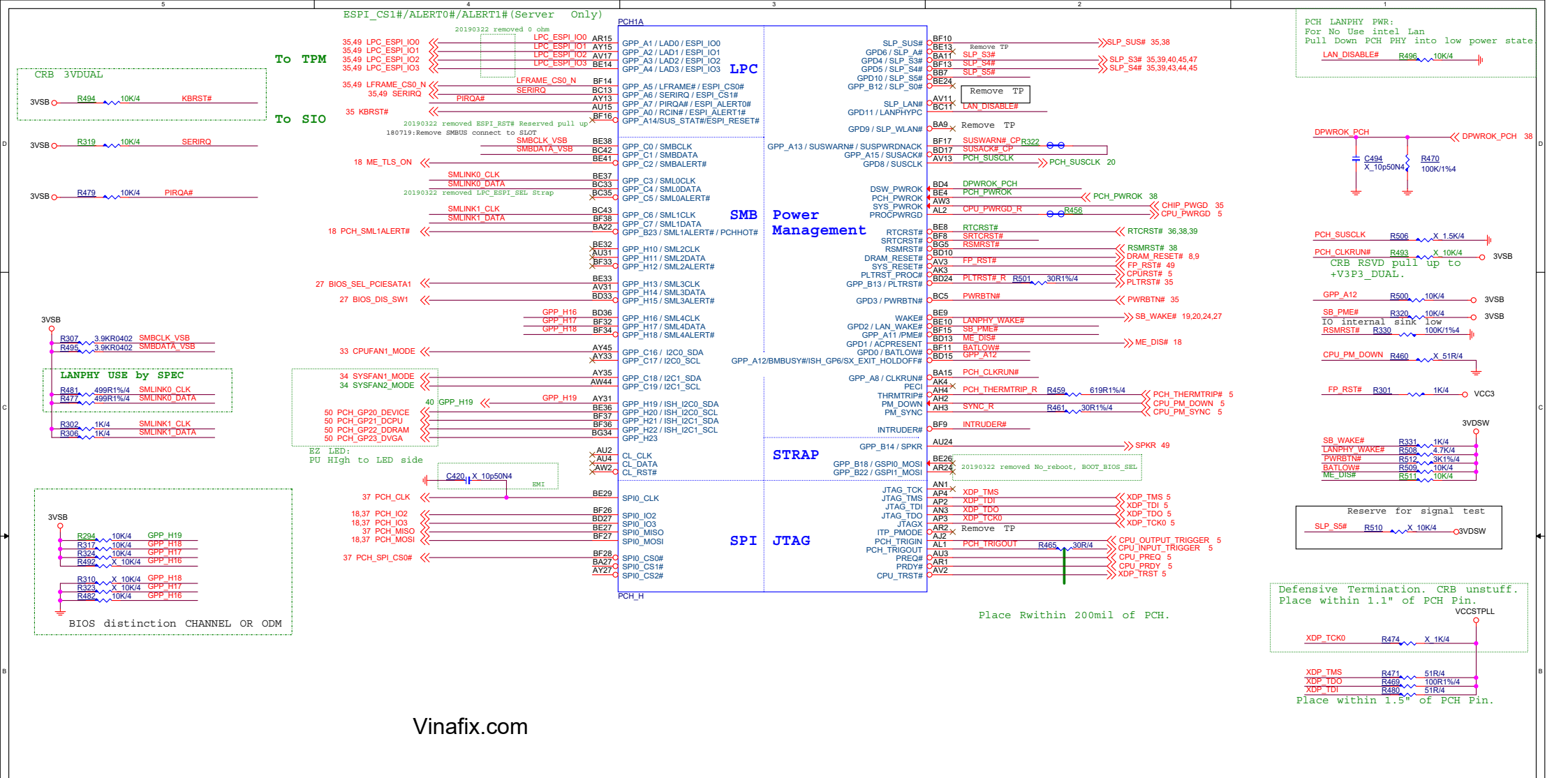


MICRO-STAR INT'L CO.,LTD

MS-7B97

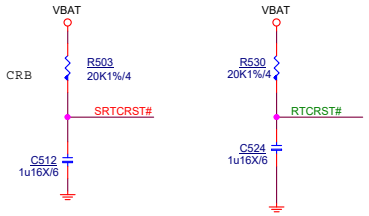
Size	Document Description	Rev
Custom	PCH-GPIO/USBOC#/SATASTRAP	1.1

Date: Monday, May 20, 2019 Sheet 14 of 57

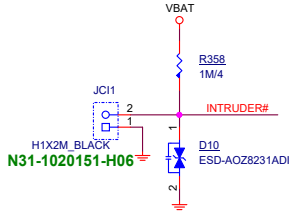


Vinafix.com

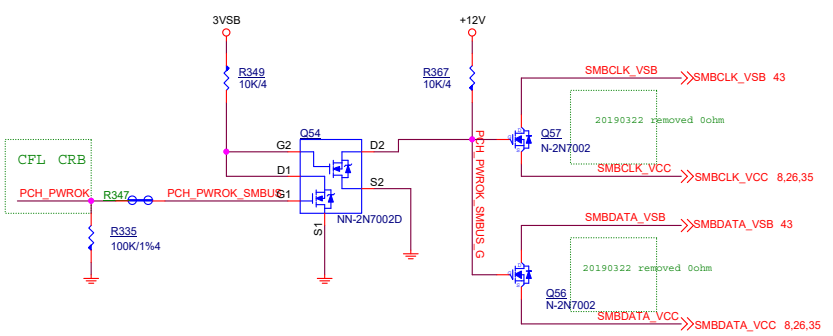
RTC



Chassis Intrusion



擺在一起注意 到 所有的SMBUS的分支)



MICRO-STAR INT'L CO.,LTD

MS-7B97

Size	Document Description	Rev
Custom	PCH-LPC/SPI/SMBUS/MISC	1.1

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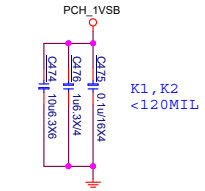
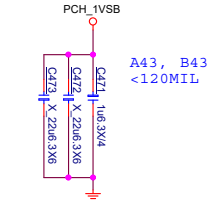
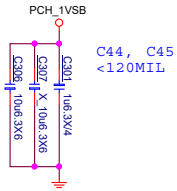
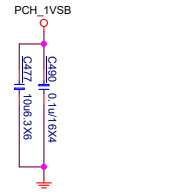
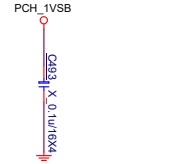
PCH_1VSB 8.72A
VCC3 0.007A
3VSB 0.846A

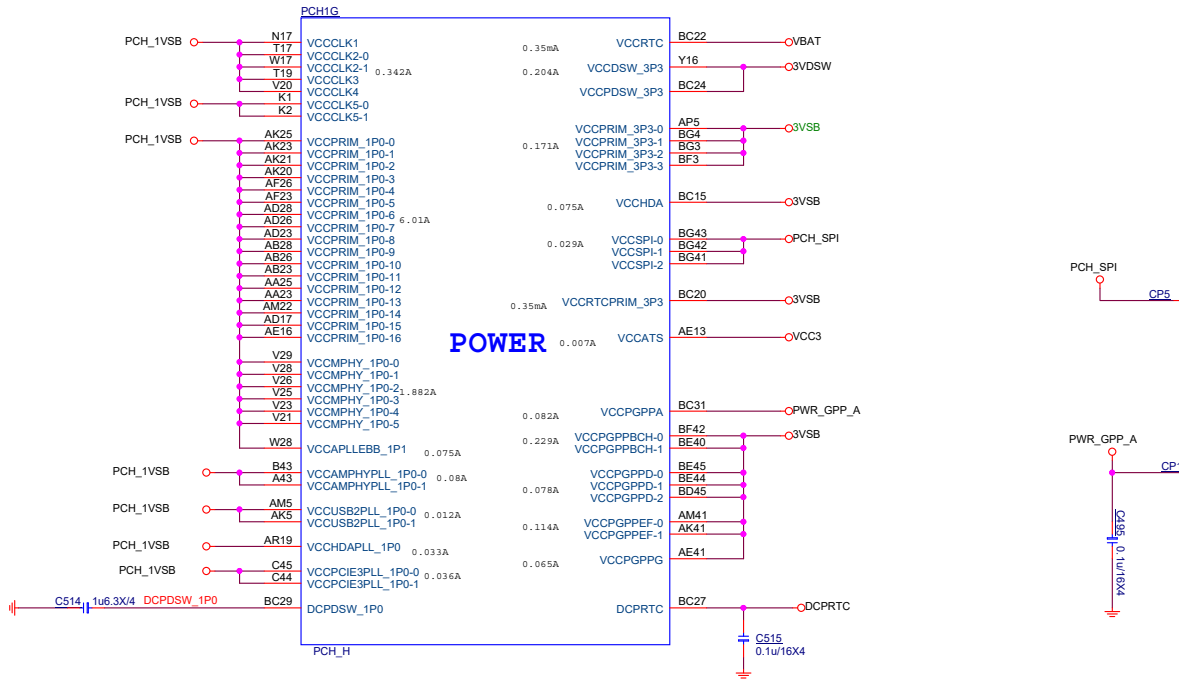


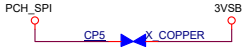


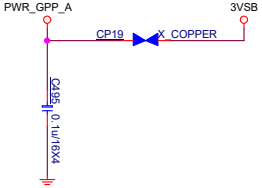


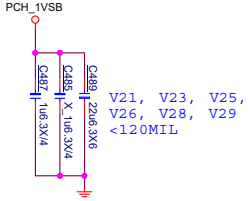


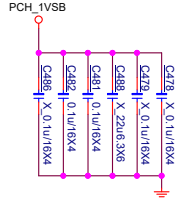


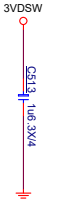


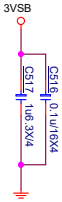


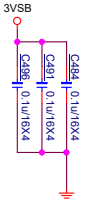


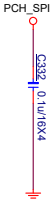












AE13
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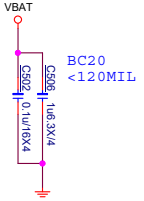

BC20
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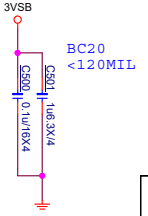

BC20
<120MIL

MICRO-STAR INT'L CO.,LTD

MS-7B97

Size	Document Description	Rev
Custom	PCH-Power	1.1

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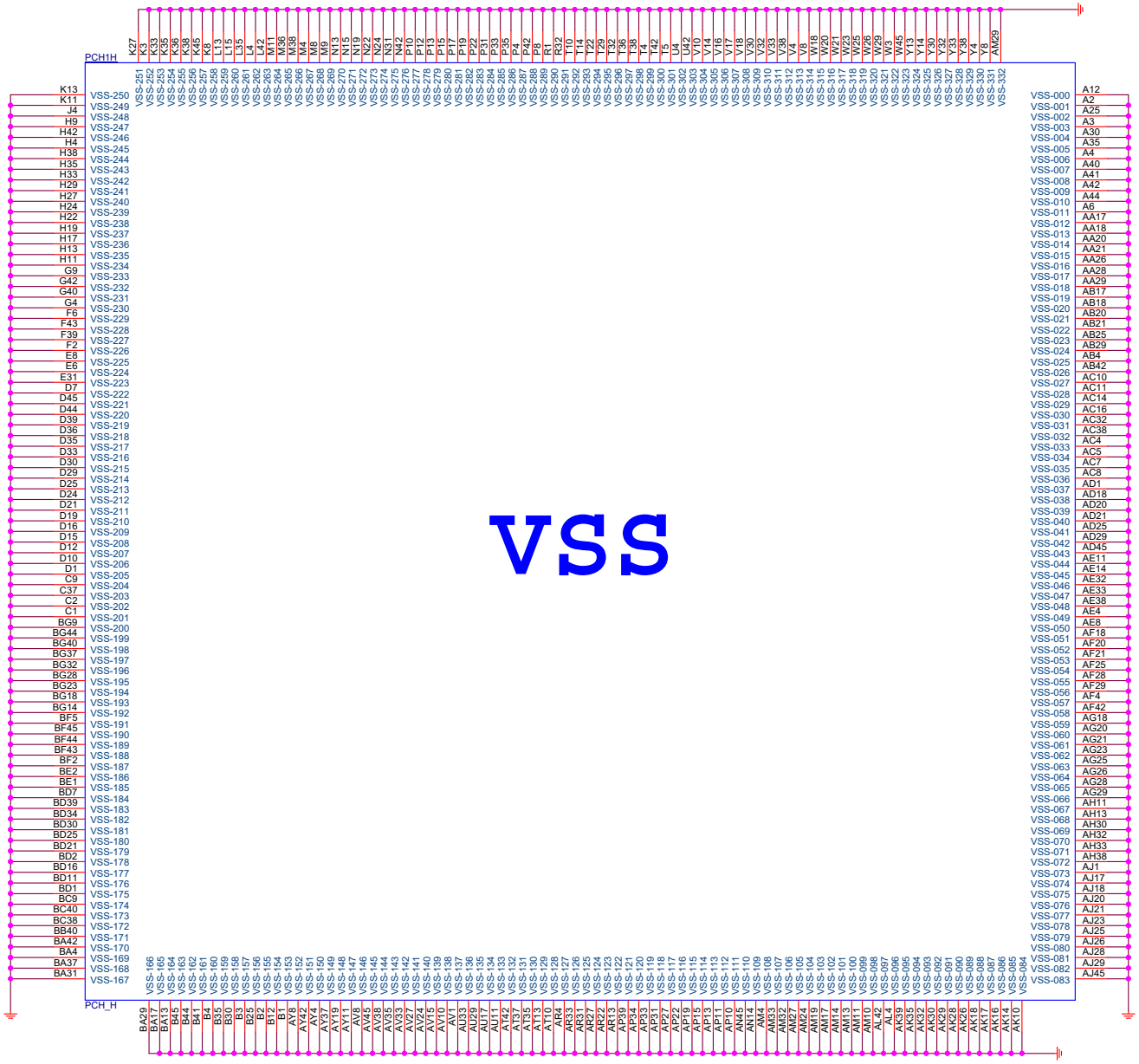


MICRO-STAR INT'L CO.,LTD	
MS-7B97	
Size: Custom	Document Description: PCH-GND
Rev: 1.1	
Date: Monday, May 20, 2019	Sheet 17 of 57

TOP Swap

Internal pull-down 20K is disabled after PLTRST#

LPC eSPI Mode

0 : LPC
1 : eSPI

Internal pull-down 20K is disabled after RSMRST

No Reboot

0 : DISABLE (Default)
1 : ENABLE

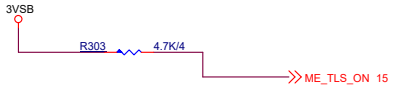
Internal pull-down 20K is disabled after PLTRST#

Boot BIOS

0 : SPI
1 : LPC

Internal pull-down 20K is disabled after PLTRST

AMT and SBA with confidentiality

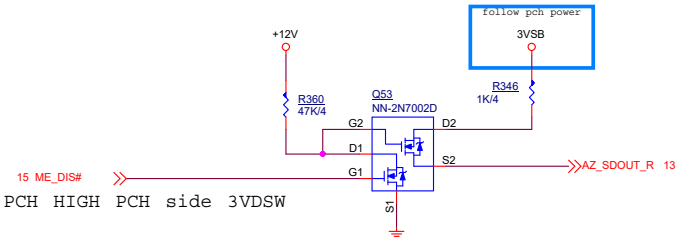


0 : DISABLE
1 : ENABLE (Default)

Internal pull-down 20K is disabled after RSMRST

HDA_SDO

ME flash by GPIO



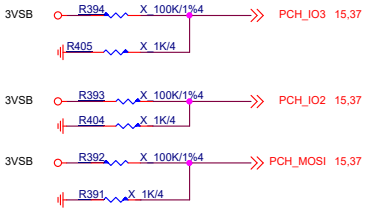
PCH HIGH PCH side 3VDSW

ESPI FLASH SHARING MODE

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

Internal pull-down 20K is disabled after RSMRST

Reserved



MICRO-STAR INT'L CO.,LTD

MS-7B97

Size	Document Description	Rev
Custom	PCH-Strap	1.1

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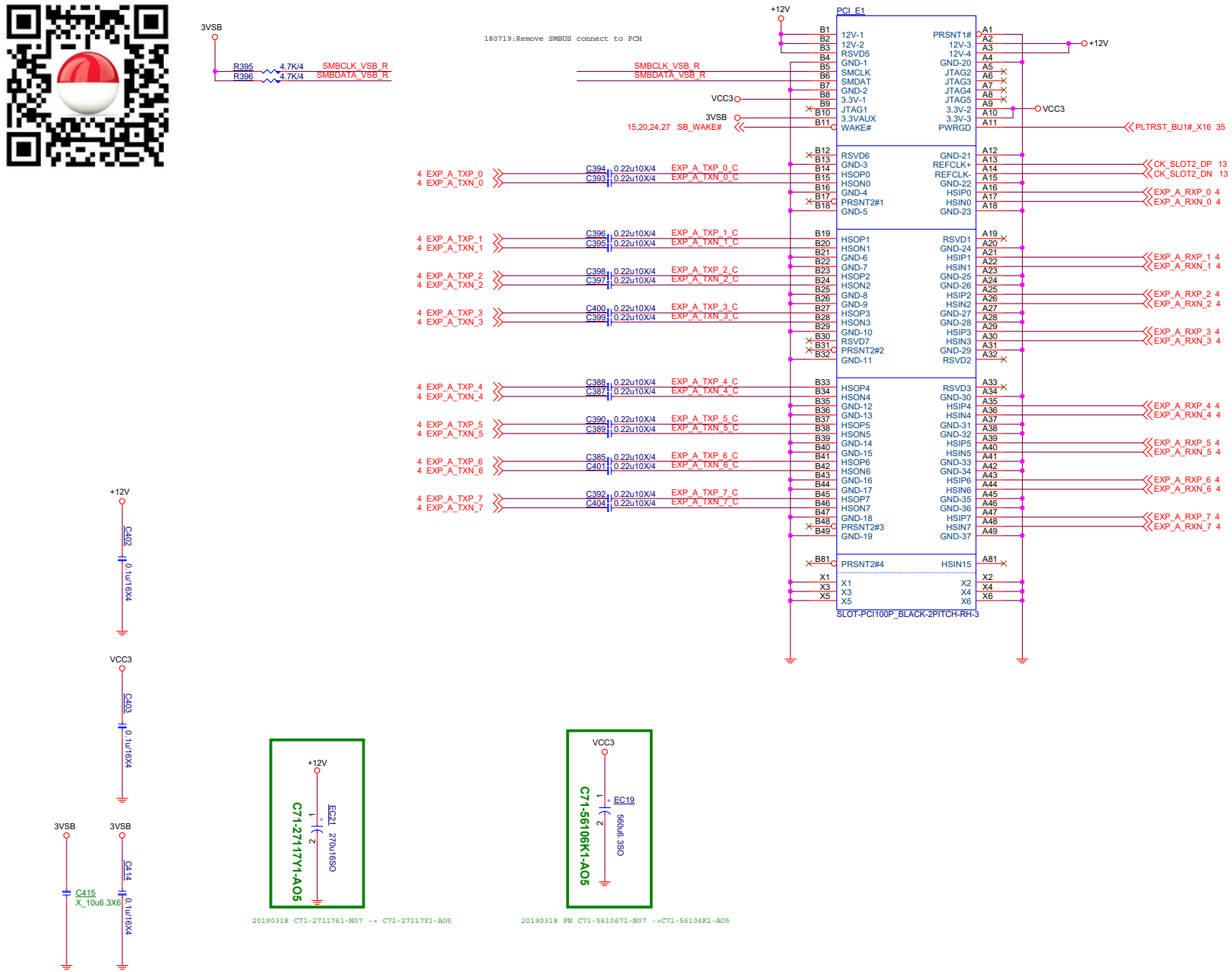
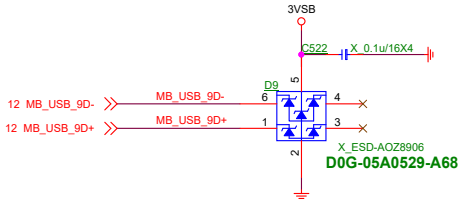
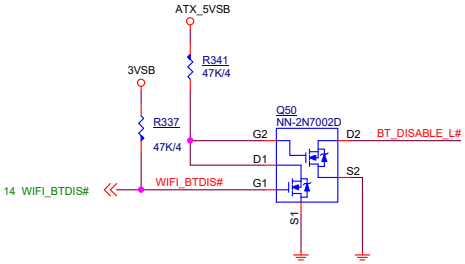
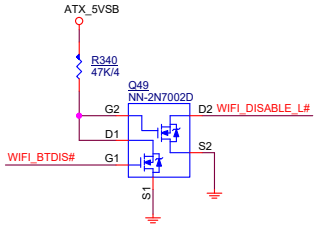
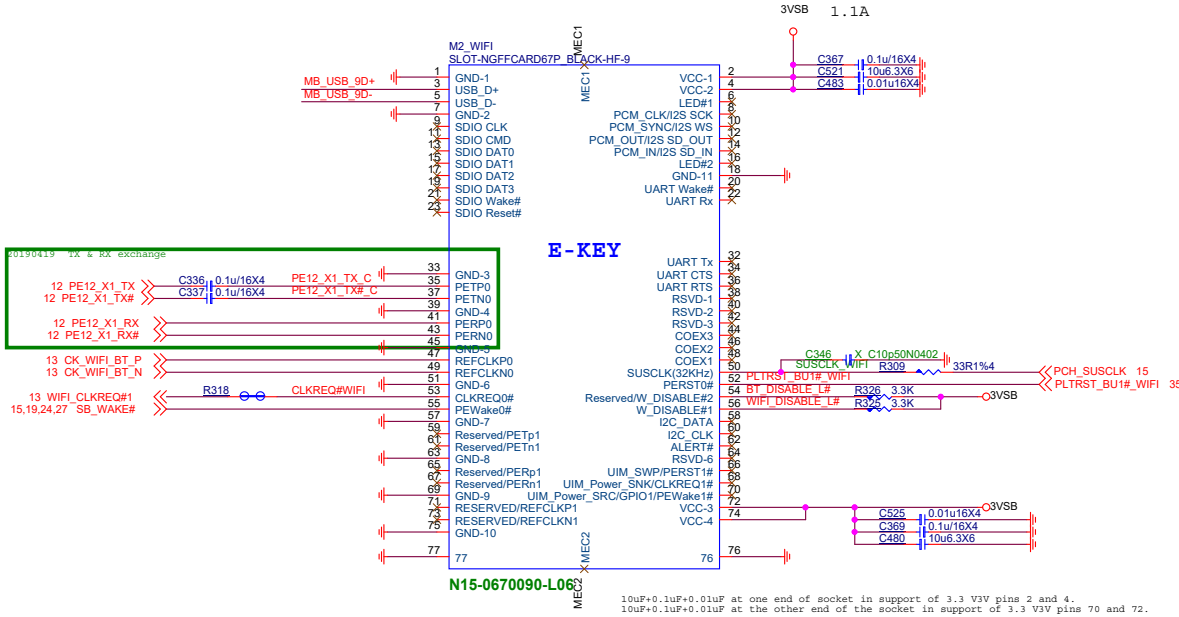


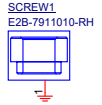
MICRO-STAR INT'L CO.,LTD		
MS-7B97		
Size: Custom	Document Description: PCIE SLOT-CPU(X8)	Rev: 1.1
Date: Monday, May 20, 2019	Sheet 19 of 57	











MSI	MICRO-STAR INT'L CO.,LTD	
	MS-7B97	
Size: Custom	Document Description: M2 WIFI&BT	Rev: 1.1
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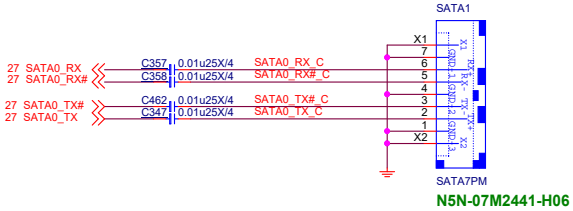
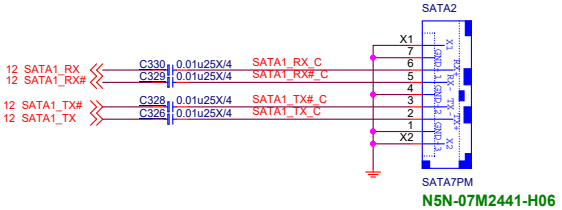
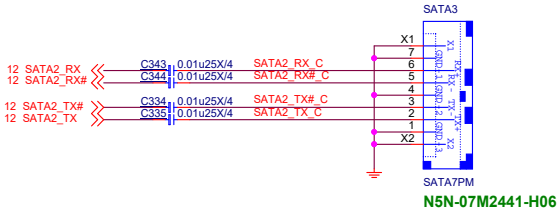
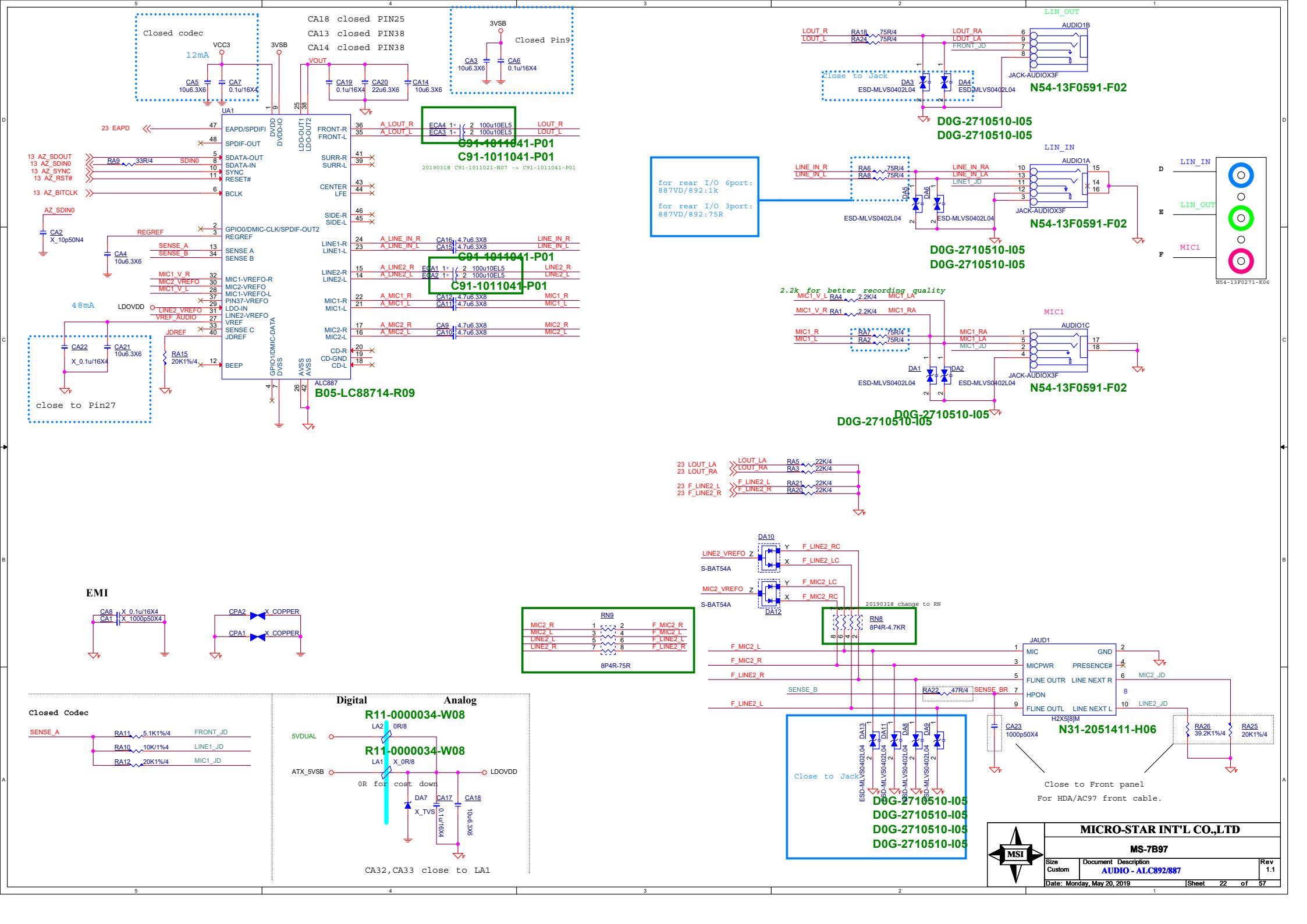
SATA 6G







MSI	MICRO-STAR INT'L CO.,LTD	
	MS-7B97	
Size: Custom	Document Description: SATA connector	Rev: 1.1
Date: Monday, May 20, 2019	Sheet 21 of 57	


Closed codec
12mA
VCC3
3VSB
CA5 10u6.3X6
CA7 0.1u/16X4
CA18 closed PIN25
CA13 closed PIN38
CA14 closed PIN38
VOUT
CA19 0.1u/16X4
CA20 22u6.3X6
CA14 10u6.3X6
Closed Pin9
CA3 10u6.3X6
CA6 0.1u/16X4
UA1
23 EAPD
EAPD/SPDIFI
SPDIF-OUT
13 AZ_SDOUT
13 AZ_SDIN0
13 AZ_SYNC
13 AZ_RST#
RA9 33R/4
SDIN0
SDATA-OUT
SDATA-IN
SYNC
RESET#
13 AZ_BITCLK
BCLK
AZ_SDIN0
CA2 X_10p50N4
REGREF
CA4 10u6.3X6
SENSE_A
SENSE_B
GPIO0/DMIC-CLK/SPDIF-OUT2
SENSE A
SENSE B
MIC1_V_R
MIC2_VREFO
MIC1_V_L
MIC1-VREFO-R
MIC2-VREFO
MIC1-VREFO-L
PIN37-VREFO
48mA
LDOVDD
LINE2_VREFO
VREF_AUDIO
LDO-IN
LINE2-VREFO
VREF
SENSE C
JDREF
CA22 X_0.1u/16X4
CA21 10u6.3X6
RA15 20K1%/4
BEEP
close to Pin27
DVDD
DVDD-IO
LDO-OUT1
LDO-OUT2
GPIO1/DMIC-DATA
DVSS
AVSS
ALC887
B05-LC88714-R09
FRONT-R
FRONT-L
SURR-R
SURR-L
CENTER
LFE
SIDE-R
SIDE-L
LINE1-R
LINE1-L
LINE2-R
LINE2-L
MIC1-R
MIC1-L
MIC2-R
MIC2-L
CD-R
CD-GND
CD-L
A_LOUT_R
A_LOUT_L
ECA4
ECA3
100u10EL5
LOUT_R
LOUT_L
C91-1011041-P01
20190318 C91-1011021-N07 -> C91-1011041-P01
A_LINE_IN_R
A_LINE_IN_L
CA16 4.7u6.3X8
CA15 4.7u6.3X8
LINE_IN_R
LINE_IN_L
A_LINE2_R
A_LINE2_L
ECA1
ECA2
A_MIC1_R
A_MIC1_L
CA12 4.7u6.3X8
CA11 4.7u6.3X8
MIC1_R
MIC1_L
A_MIC2_R
A_MIC2_L
CA9 4.7u6.3X8
CA10 4.7u6.3X8
MIC2_R
MIC2_L
LIN_OUT
LOUT_R
LOUT_L
RA18 75R/4
RA24 75R/4
LOUT_RA
LOUT_LA
FRONT_JD
AUDIO1B
JACK-AUDIOX3F
close to Jack
DA3 ESD-MLVS0402L04
DA4 ESD-MLVS0402L04
N54-13F0591-F02
D0G-2710510-I05
LIN_IN
for rear I/O 6port: 887VD/892:1k
for rear I/O 3port: 887VD/892:75R
LINE_IN_R
LINE_IN_L
RA6 75R/4
RA8 75R/4
LINE_IN_RA
LINE_IN_LA
LINE1_JD
AUDIO1A
DA5
DA6
ESD-MLVS0402L04
D
E
F
MIC1
N54-13F0271-K06
2.2k for better recording quality
MIC1_V_L
MIC1_V_R
RA4 2.2K/4
RA1 2.2K/4
MIC1_LA
MIC1_RA
RA7 75R/4
RA2 75R/4
MIC1_JD
AUDIO1C
DA1
DA2
23 LOUT_LA
23 LOUT_RA
23 F_LINE2_L
23 F_LINE2_R
RA5 22K/4
RA3 22K/4
RA21 22K/4
RA20 22K/4
DA10
S-BAT54A
LINE2_VREFO
MIC2_VREFO
F_LINE2_RC
F_LINE2_LC
F_MIC2_LC
F_MIC2_RC
DA12
20190318 change to RN
RN8 8P4R-4.7KR
RN9
8P4R-75R
EMI
CA8 X_0.1u/16X4
CA1 X_1000p50X4
CPA2 X_COPPER
CPA1 X_COPPER
SENSE_B
RA22 47R/4
SENSE_BR
JAUD1
MIC
GND
MICPWR
PRESENCE#
FLINE OUTR
LINE NEXT R
HPON
FLINE OUTL
LINE NEXT L
H2X5[8]M
MIC2_JD
LINE2_JD
N31-2051411-H06
CA23 1000p50X4
RA26 39.2K1%/4
RA25 20K1%/4
Close to Front panel
For HDA/AC97 front cable.
Close to Jack
DA13
DA11
DA8
DA9
ESD-MLVS0402L04
Closed Codec
SENSE_A
RA11 5.1K1%/4
RA10 10K/1%4
RA12 20K1%/4
FRONT_JD
LINE1_JD
MIC1_JD
Digital
Analog
R11-0000034-W08
LA2 0R/8
LA1 X_0R/8
5VDUAL
ATX_5VSB
LDOVDD
0R for cost down
DA7 X_TVS
CA17 0.1u/16X4
CA18 10u6.3X6
CA32,CA33 close to LA1
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AUDIO - ALC892/887
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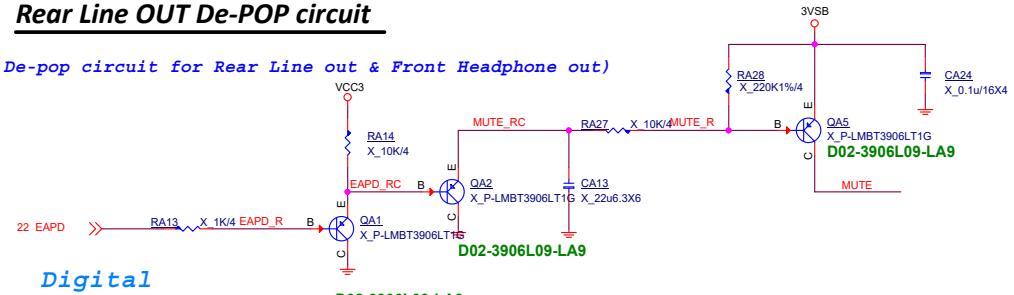
Rear Line OUT De-POP circuit

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



Analog

Audio moat is transparent and width 40mil

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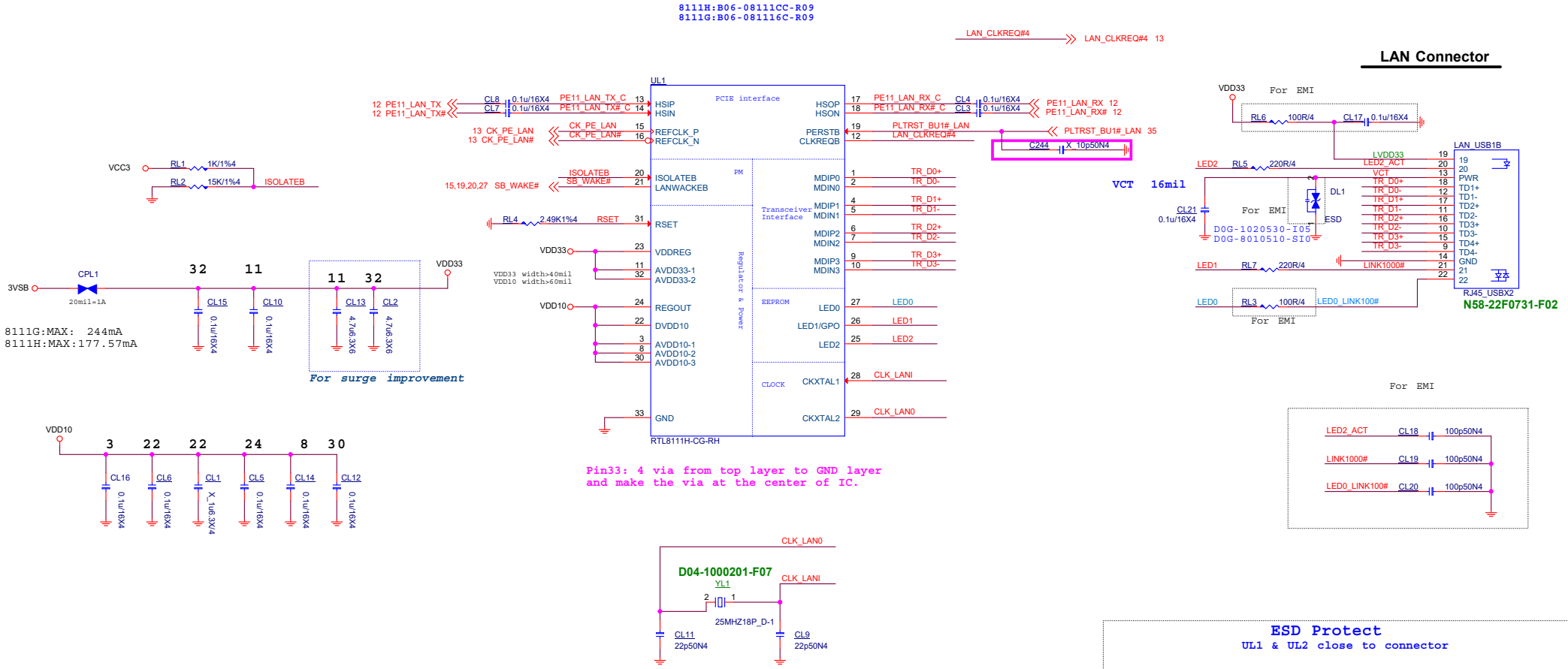
RTL8111G/RTL8111H Giga LAN



8111G POWER Consumption

	3.3V @ mA	mW
10 M Idle/TxRx	17.15/116.7	56.6/385.1
100 M Idle/TxRx	71.45/129.5	235.8/427.4
Giga Idle/TxRx	179.1/243.9	591/804.9
ALDPS	6.41	21.15

8111H POWER Consumption

	3.3V @ mA	mW
10 M Idle/TxRx	9.9/84.69	32.67/279.48
100 M Idle/TxRx	48.11/92.44	158.76/305.05
Giga Idle/TxRx	124.5/177.57	410.85/585.98
ALDPS	5.50	18.15

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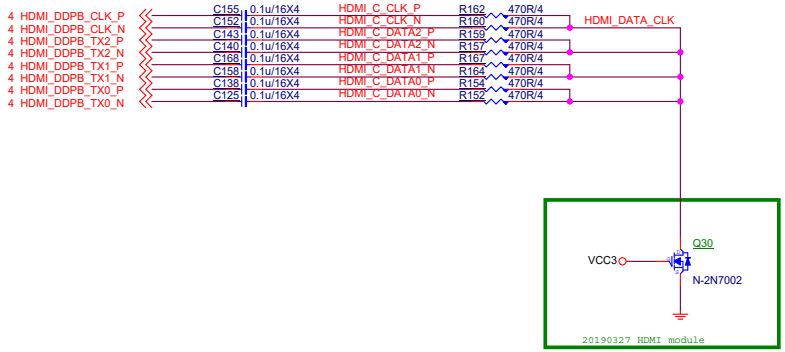
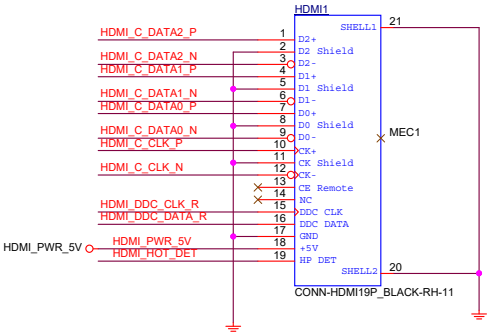
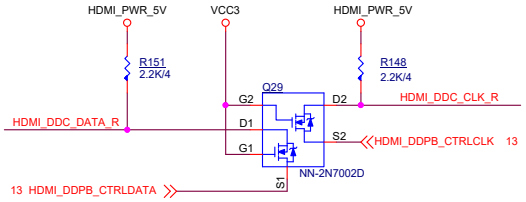
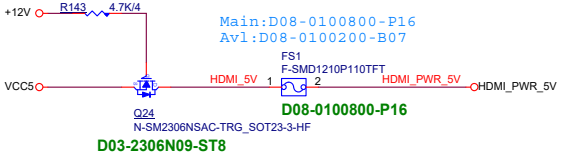
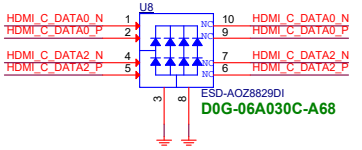
HDMI, DVI : 1920x1200 at 60 Hz (16:10 WUXGA)

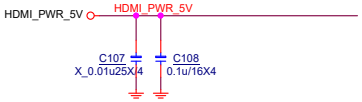


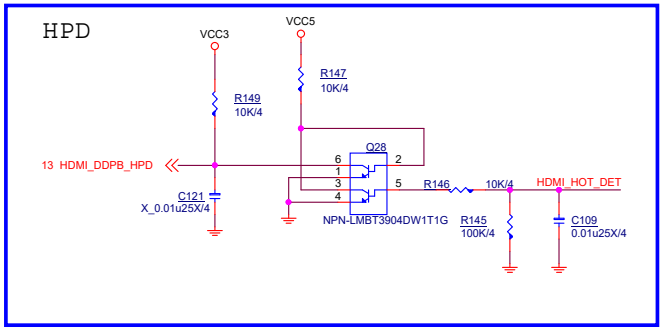


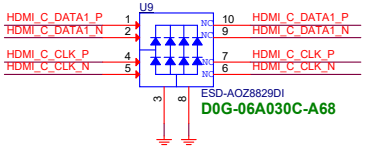


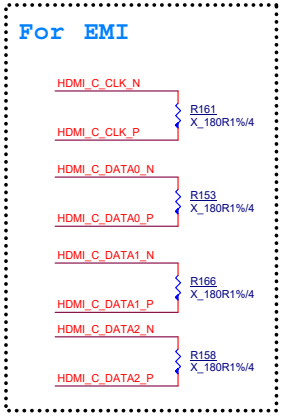


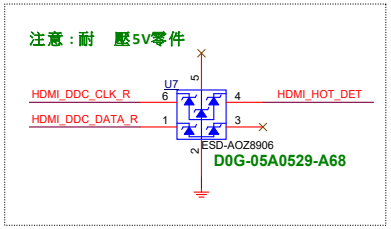












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Custom	HDMI	1.1

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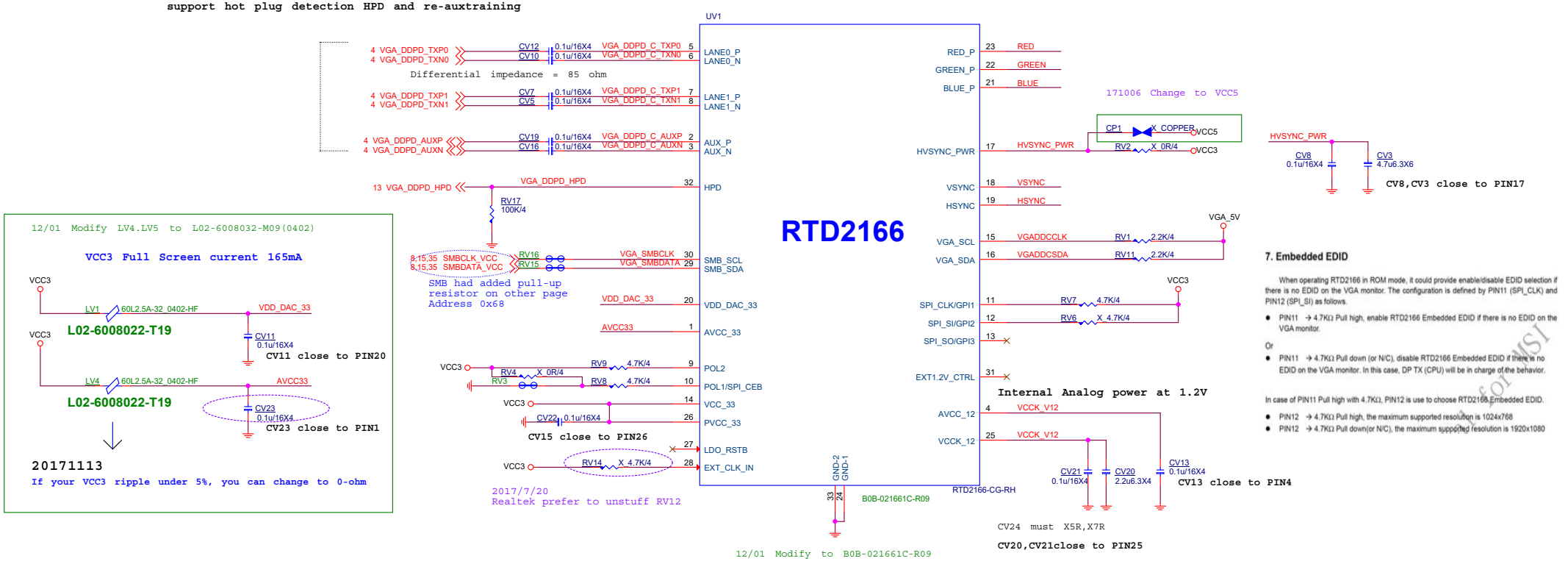
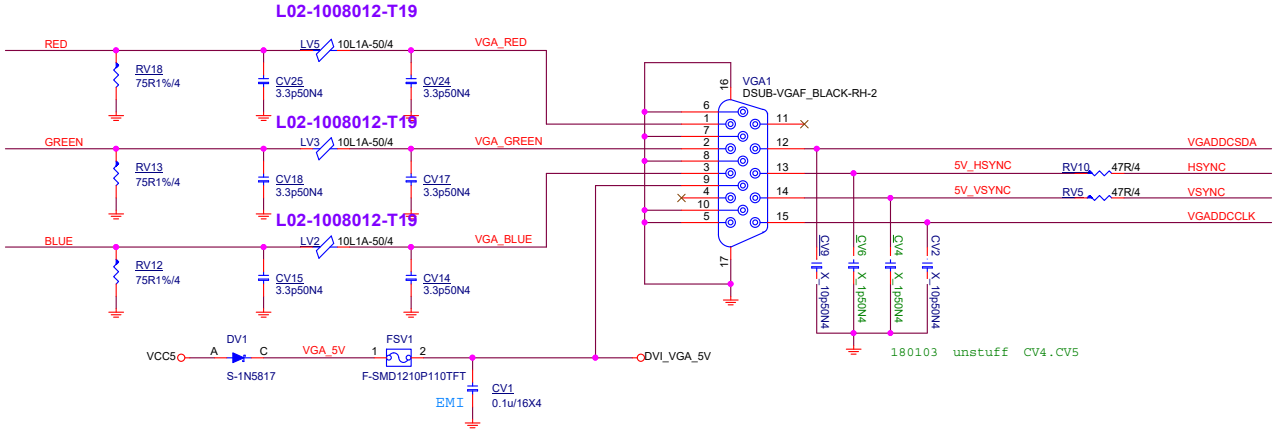
MAX Resolution:1920x1440@60Hz,RB

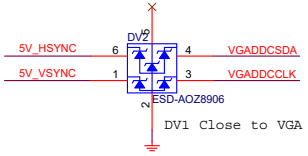
Vinafix.com

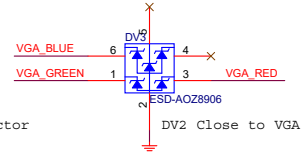
Note:

If connect to eDP port,must confirm whether it support hot plug detection HPD and re-auxtraining









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Custom	VGA - RTD2166	1.1

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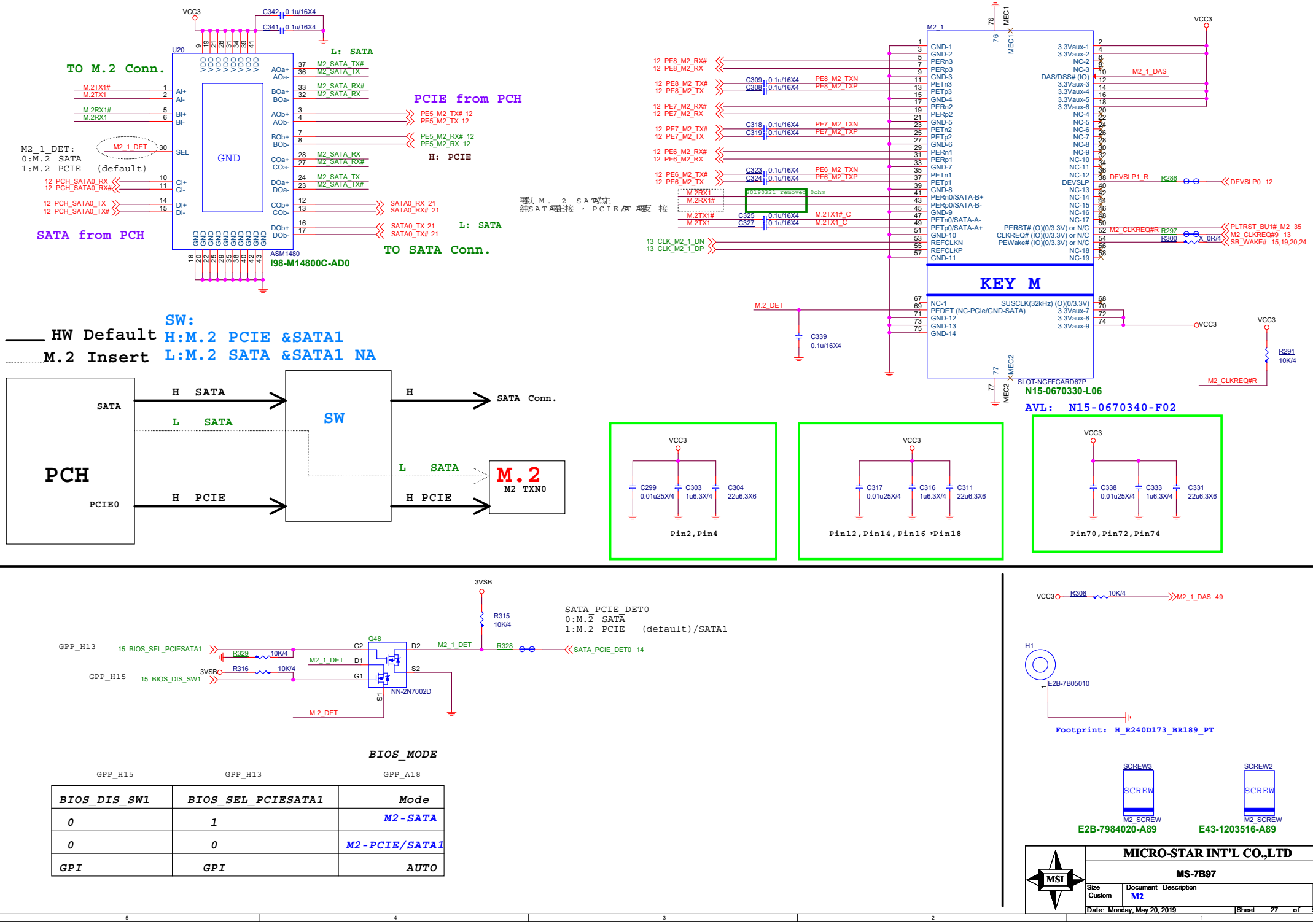

GPP_H15	GPP_H13	GPP_A18
BIOS_DIS_SW1	BIOS_SEL_PCIESATA1	Mode
0	1	M2-SATA
0	0	M2-PCIE/SATA1
GPI	GPI	AUTO

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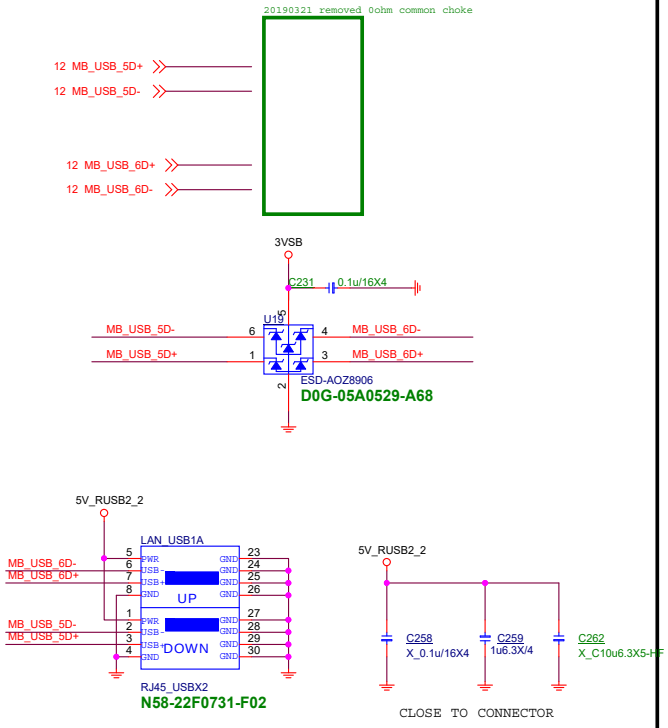
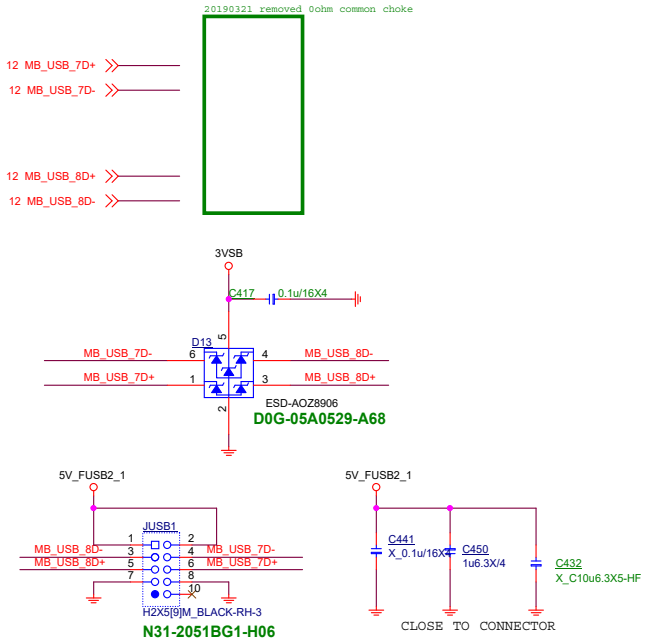
Rear LAN_USB1 port 5,6



JUSB1 PORT 7,8



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	MS-7B97
Size: Custom	Document Description: USB2.0 Connector
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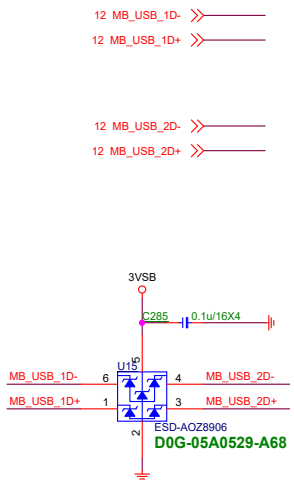
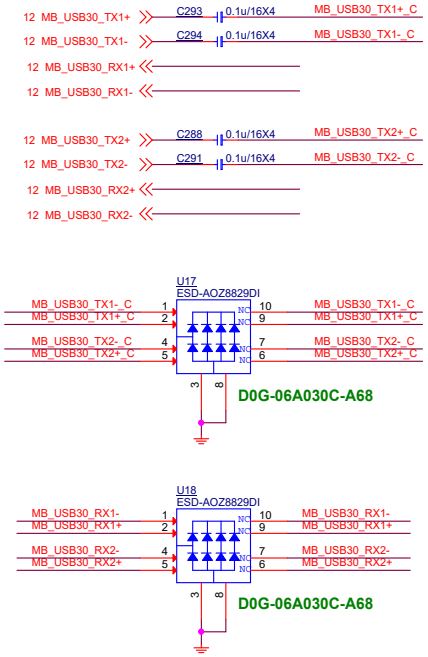
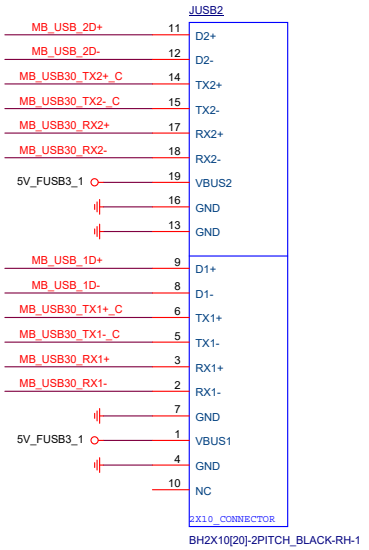
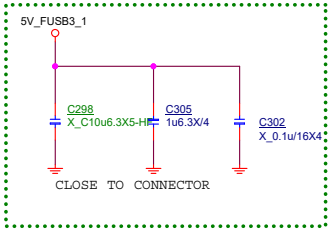
Front JUSB3 port 1,2









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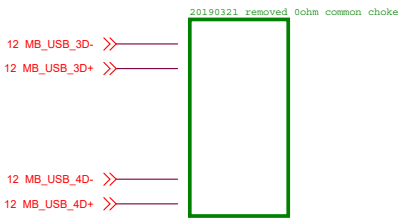
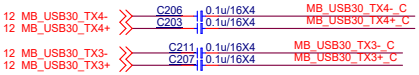
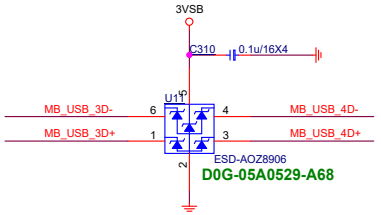
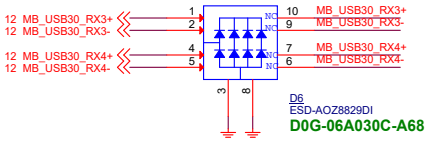
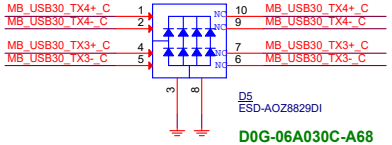
REAR USB1 Connect

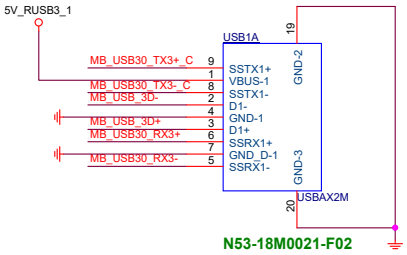


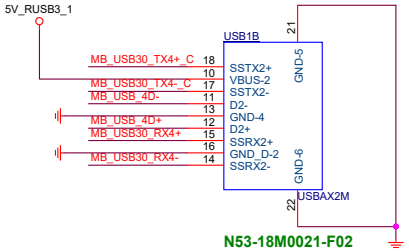


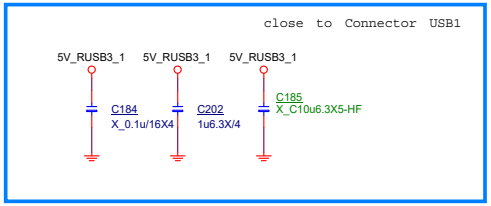












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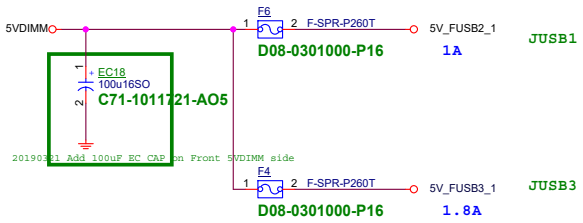
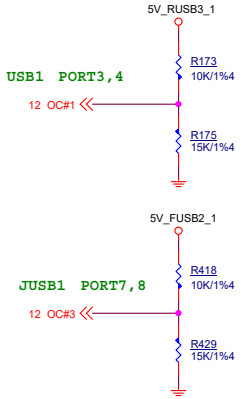
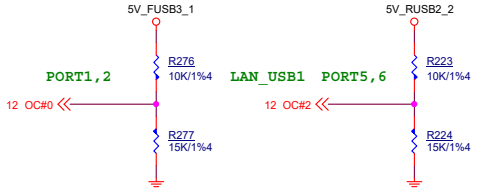
FRONT USB PORT POWER

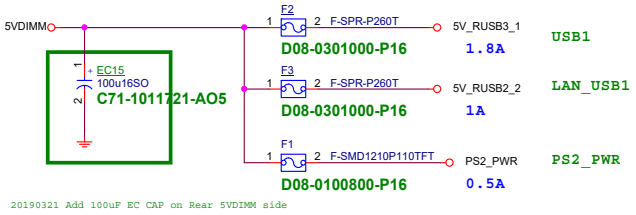






USB CONN	USB POWER	PCH PORT	OC# SIGNAL
USB1	5V_RUSB2_2	Port1,2	OC#0
JUSB3	5V_FUSB3_1	Port3,4	OC#1
LAN_USB1	5V_RUSB3_1	Port5,6	OC#2
JUSB1	5V_FUSB2_2	Port7,8	OC#3

REAR USB PORT POWER



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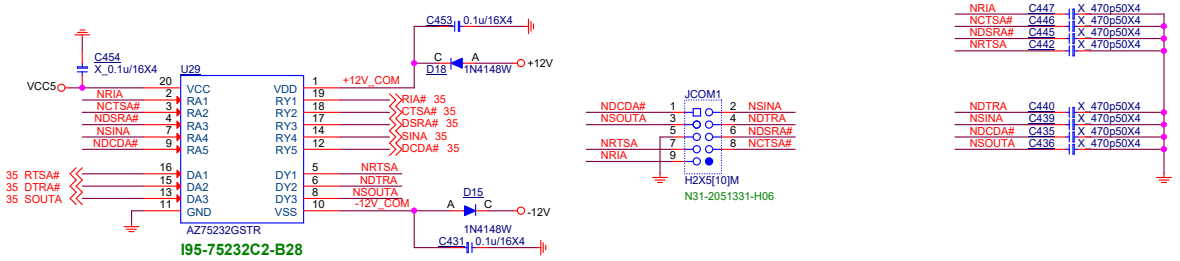
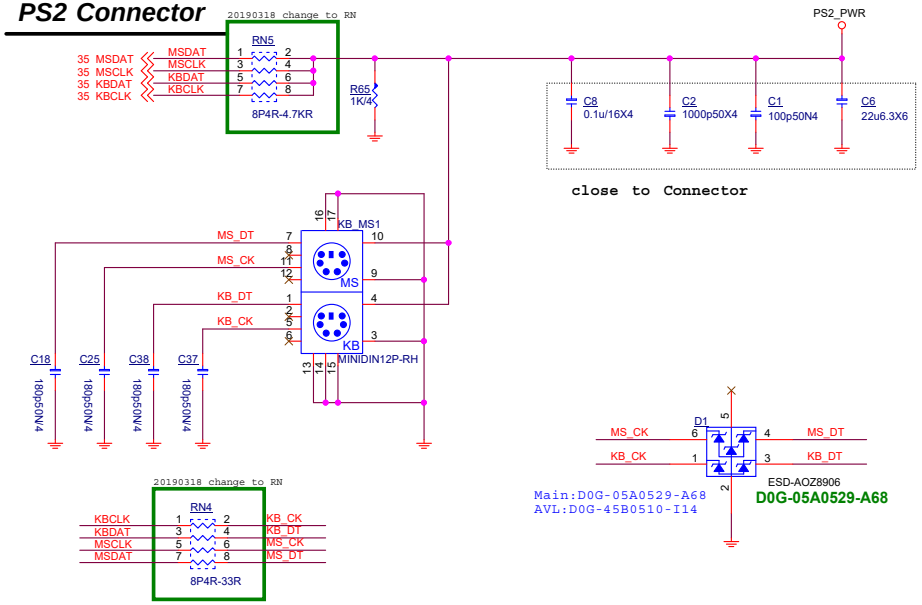
SERIAL PORT 1



PS2 Connector



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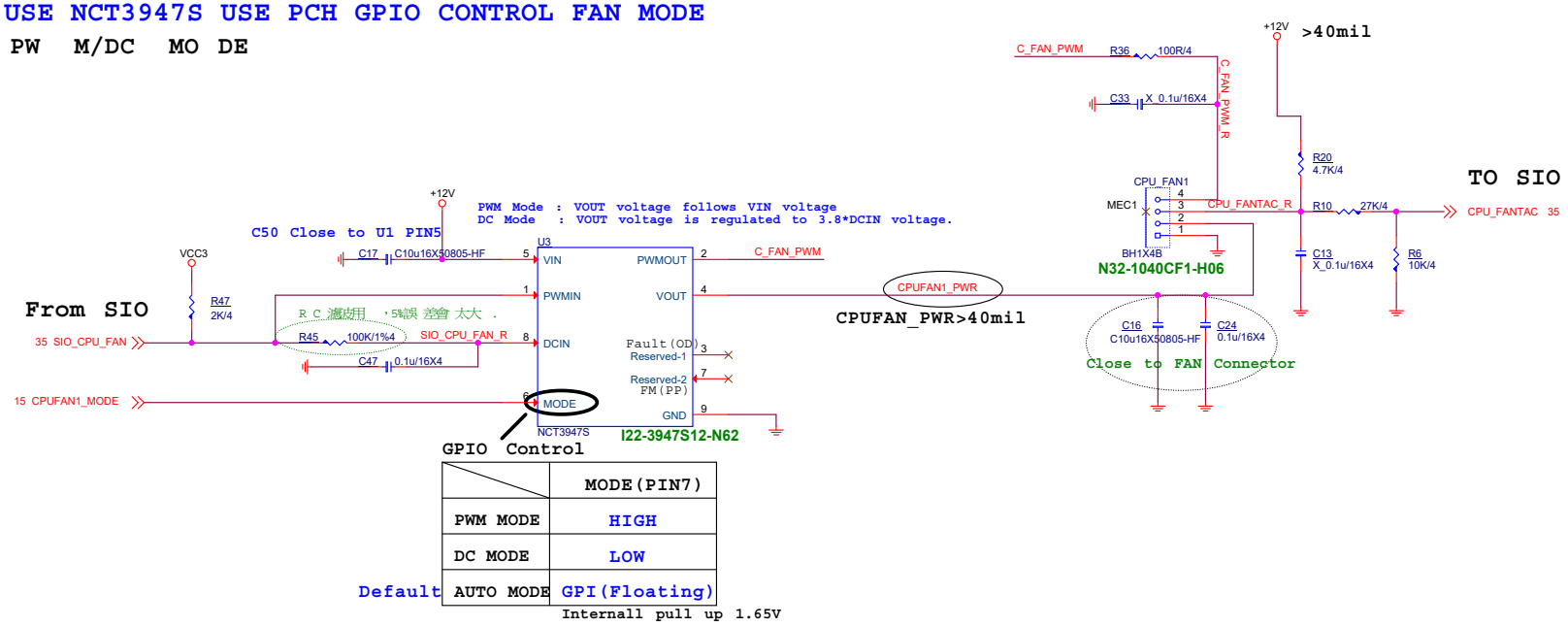
TYPE K : 4 PIN CPU FAN USE NCT3947S USE PCH GPIO CONTROL FAN MODE

GPIO可由BIOS 切換 PWM/DC MODE



GPIO Control

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

Internall pull up 1.65V

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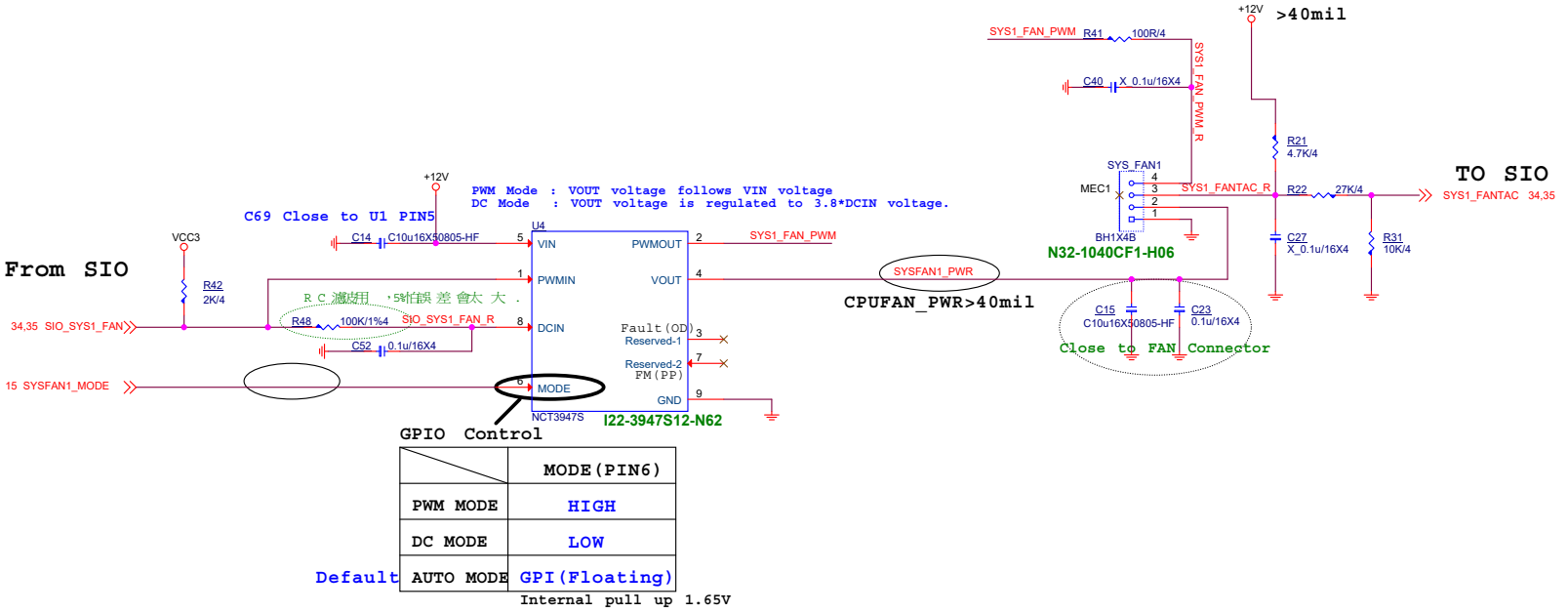
TYPE K : 4 PIN CPU FAN USE NCT3947S USE PCH GPIO CONTROL FAN MODE

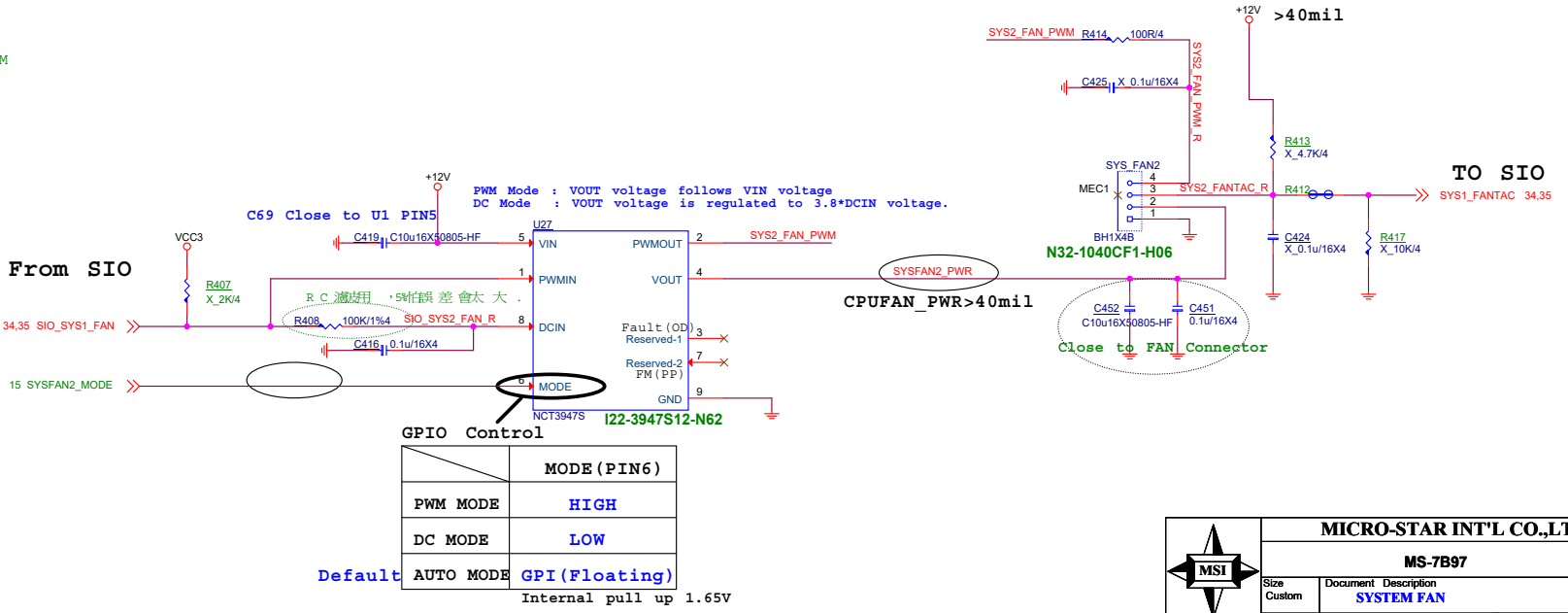


	MODE(PIN6)
PWM MODE	HIGH
DC MODE	LOW
Default AUTO MODE	GPI(Floating)

Internal pull up 1.65V

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

SYS_FAN2 use SYS_FAN1 PWM



	MODE(PIN6)
PWM MODE	HIGH
DC MODE	LOW
Default AUTO MODE	GPI(Floating)

Internal pull up 1.65V

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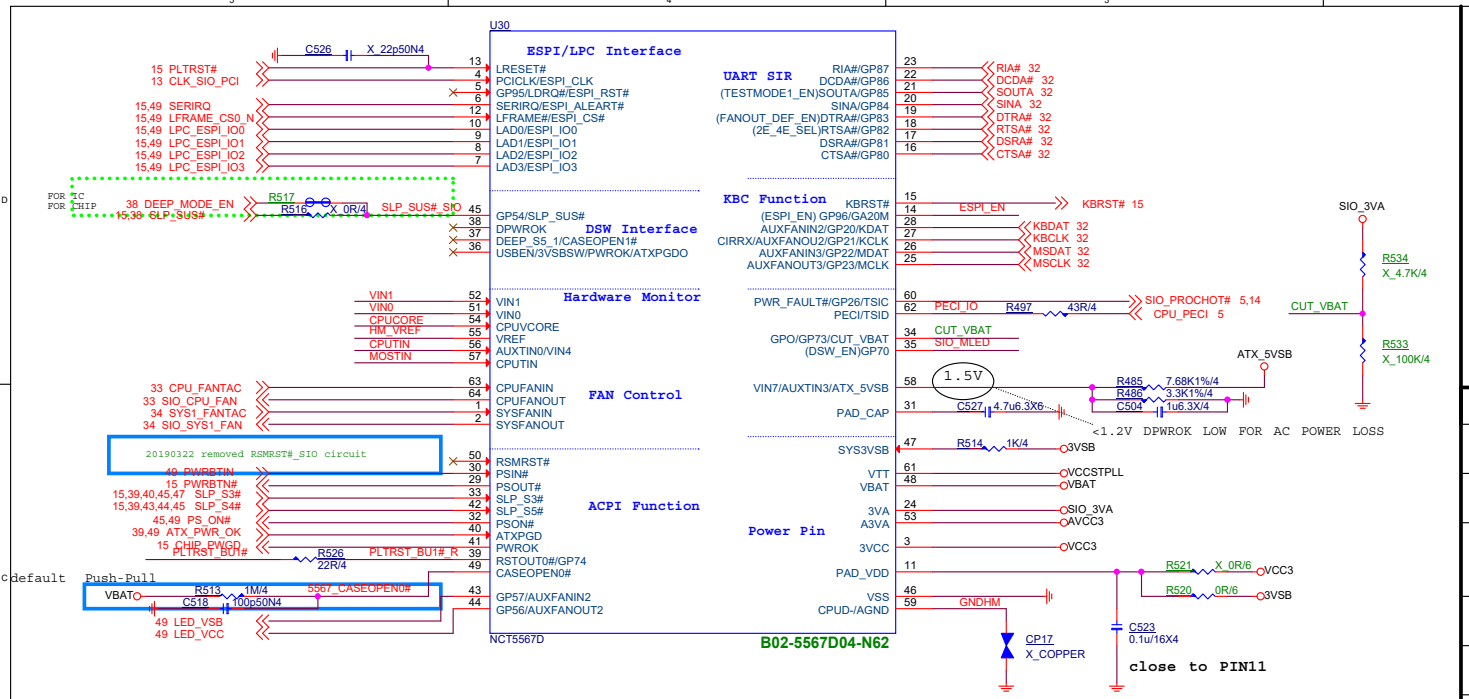
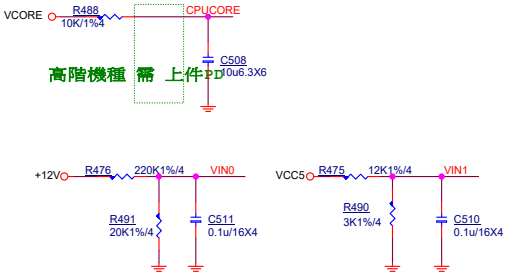
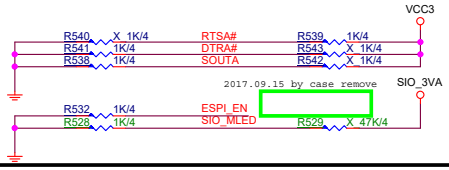


HW Monitor - Voltage



PIN	5567D NAME	Circuit NAME	0	1
18	2E_4E_SEL	RTSA#	I/O ADDRESS 2E	I/O ADDRESS 4E
19	FANOUT_DEF_EN	DTRA#	CPU FANOUT default RPM 50%.	CPU FANOUT default RPM 100%
21	TESTMODE1_EN	SOUTA	DISABLE TEST1MODE	ENABLE TEST1MODE
14	ESPI_EN	GA20M	ENABLE LPC	ENABLE ESPI
35	DSW_EN	DSW_EN	DISABLE	ENABLE DSW_EN



NCT7718W

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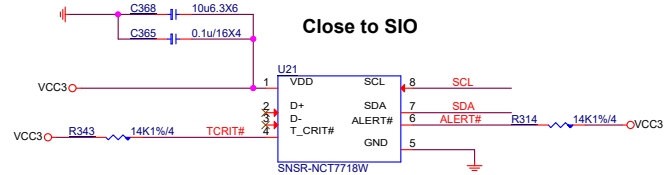
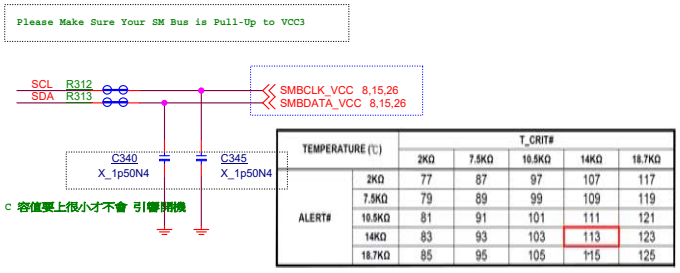
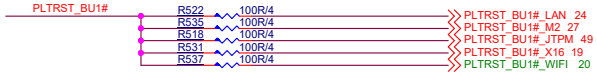
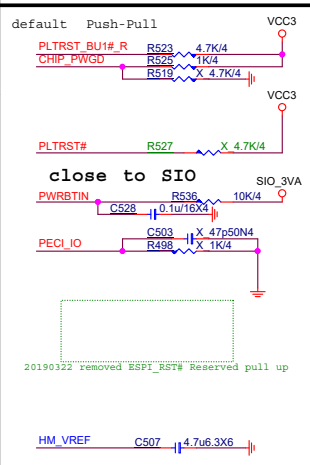


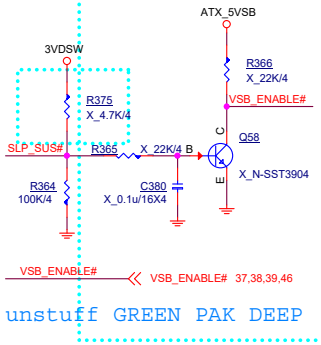


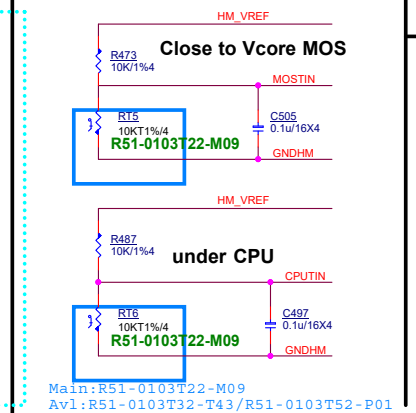
TEMPERATURE (℃)		T_CRIT# 2KΩ	7.5KΩ	10.5KΩ	14KΩ	18.7KΩ
ALERT#	2KΩ	77	87	97	107	117
	7.5KΩ	79	89	99	109	119
	10.5KΩ	81	91	101	111	121
	14KΩ	83	93	103	113	123
	18.7KΩ	85	95	105	115	125

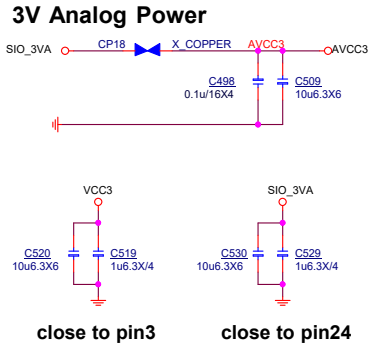
need near SIO











MICRO-STAR INT'L CO.,LTD

MS-7B97

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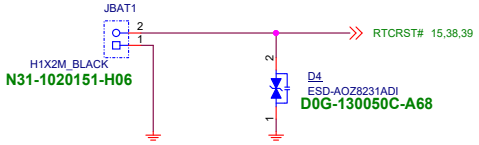
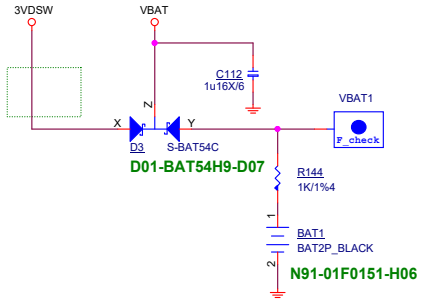
Cut VBAT



VBAT



MICRO-STAR INT'L CO.,LTD		
MS-7B97		
Size: Custom	Document Description: CUT VBAT circuit	Rev: 1.1
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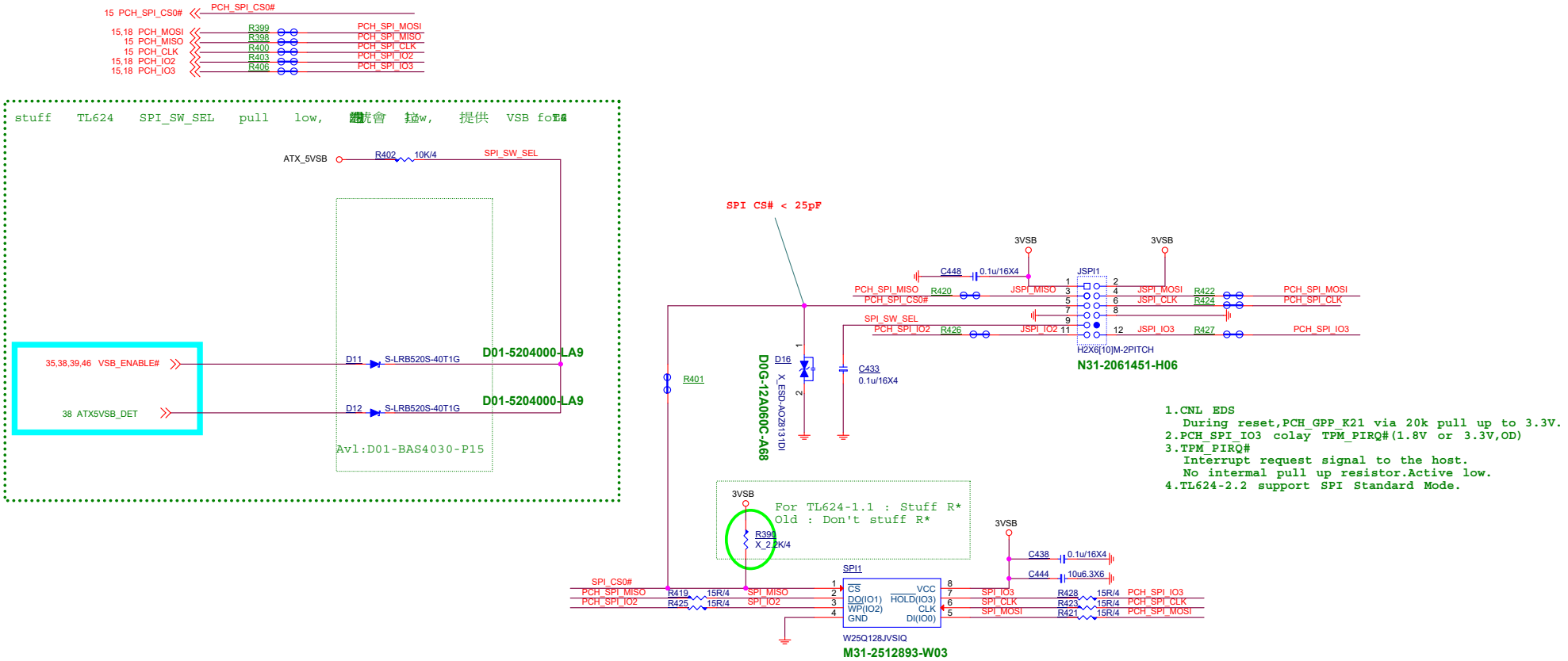

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	MS-7B97	
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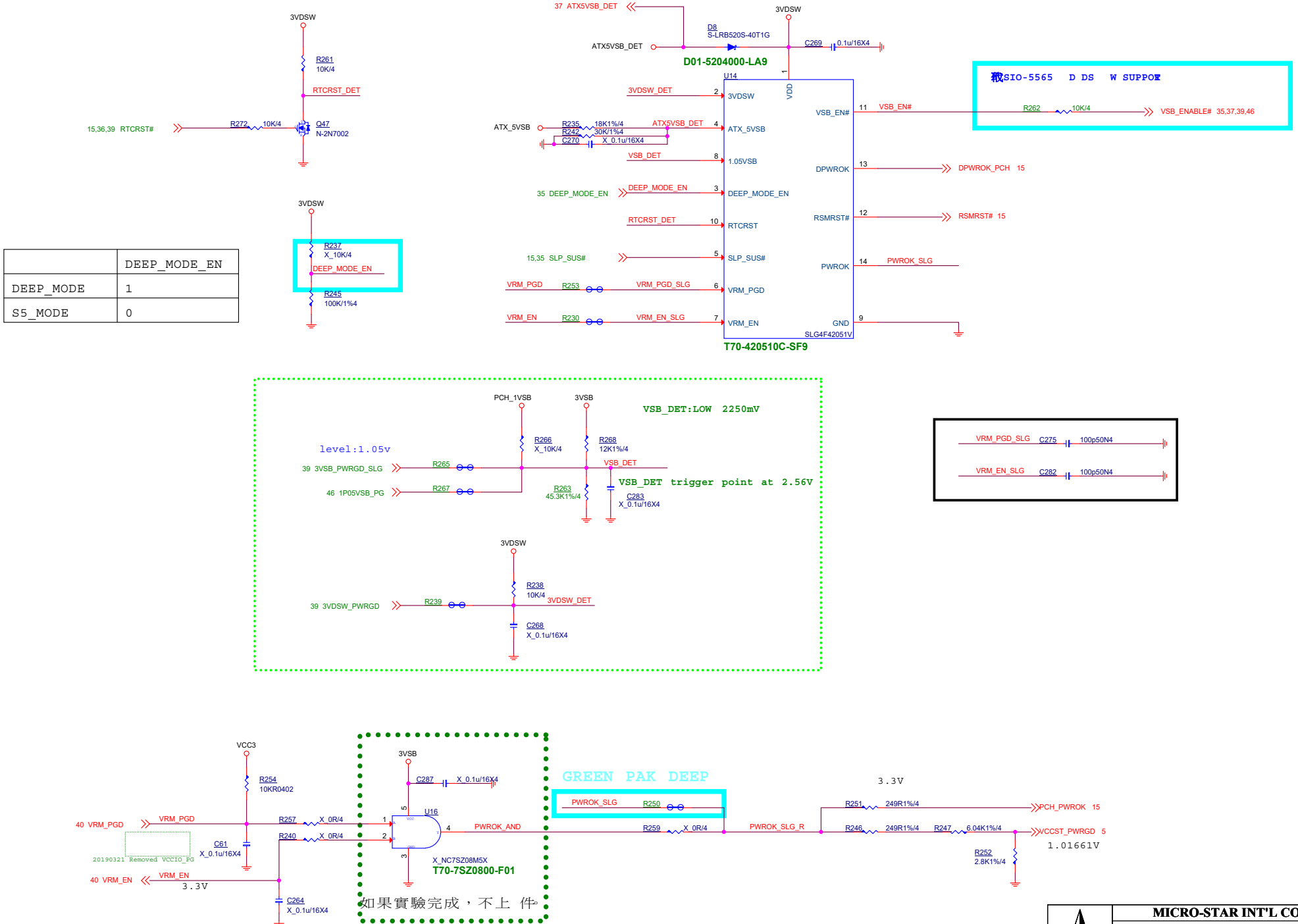

	DEEP_MODE_EN
DEEP_MODE	1
S5_MODE	0

MICRO-STAR INT'L CO.,LTD

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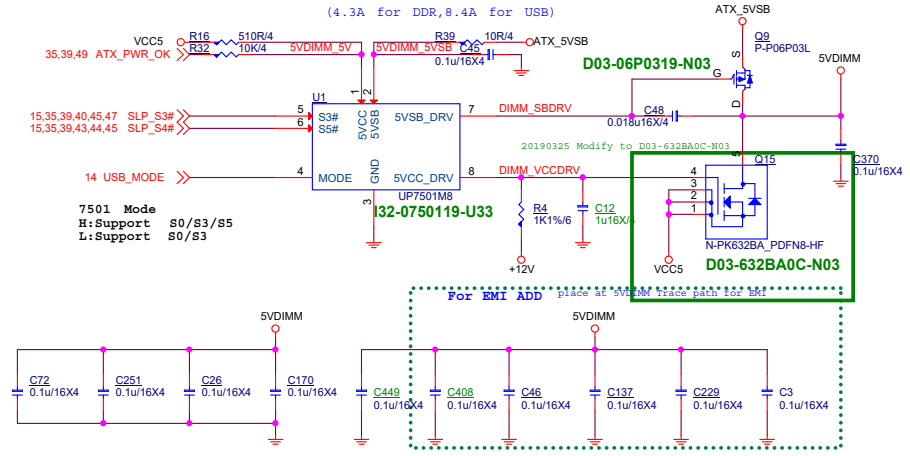
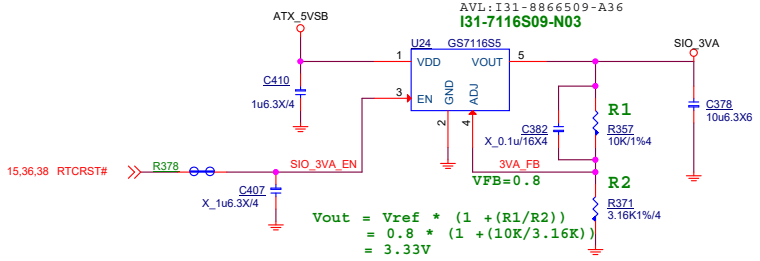
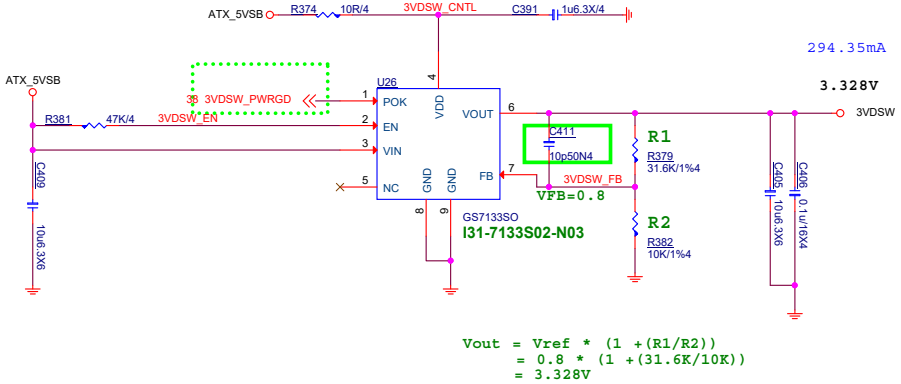
5VDIMM@5V/11.85A



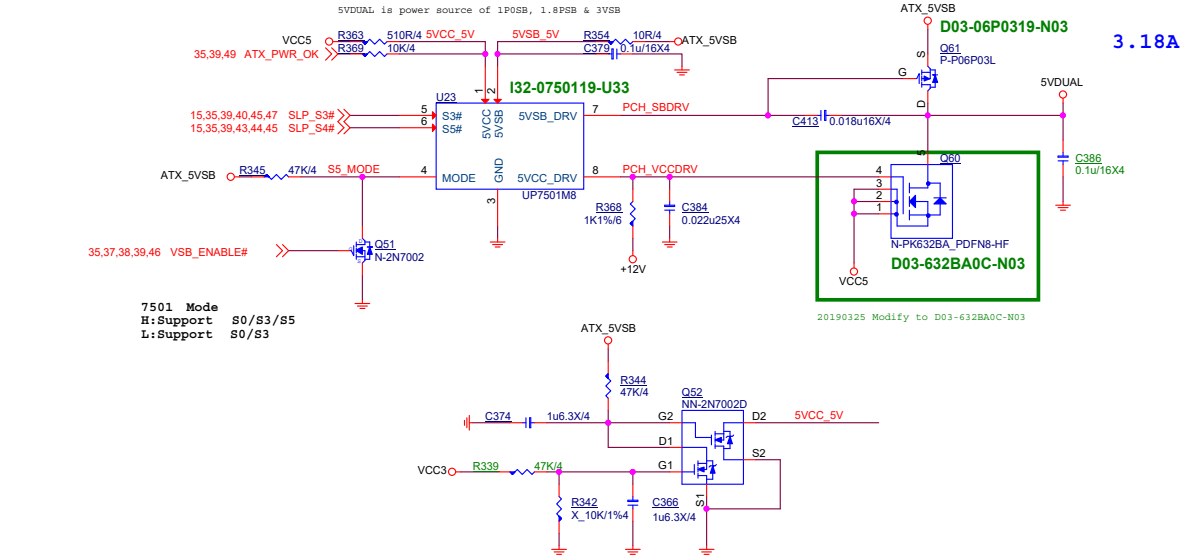
SIO_3VA@3.3V/20mA



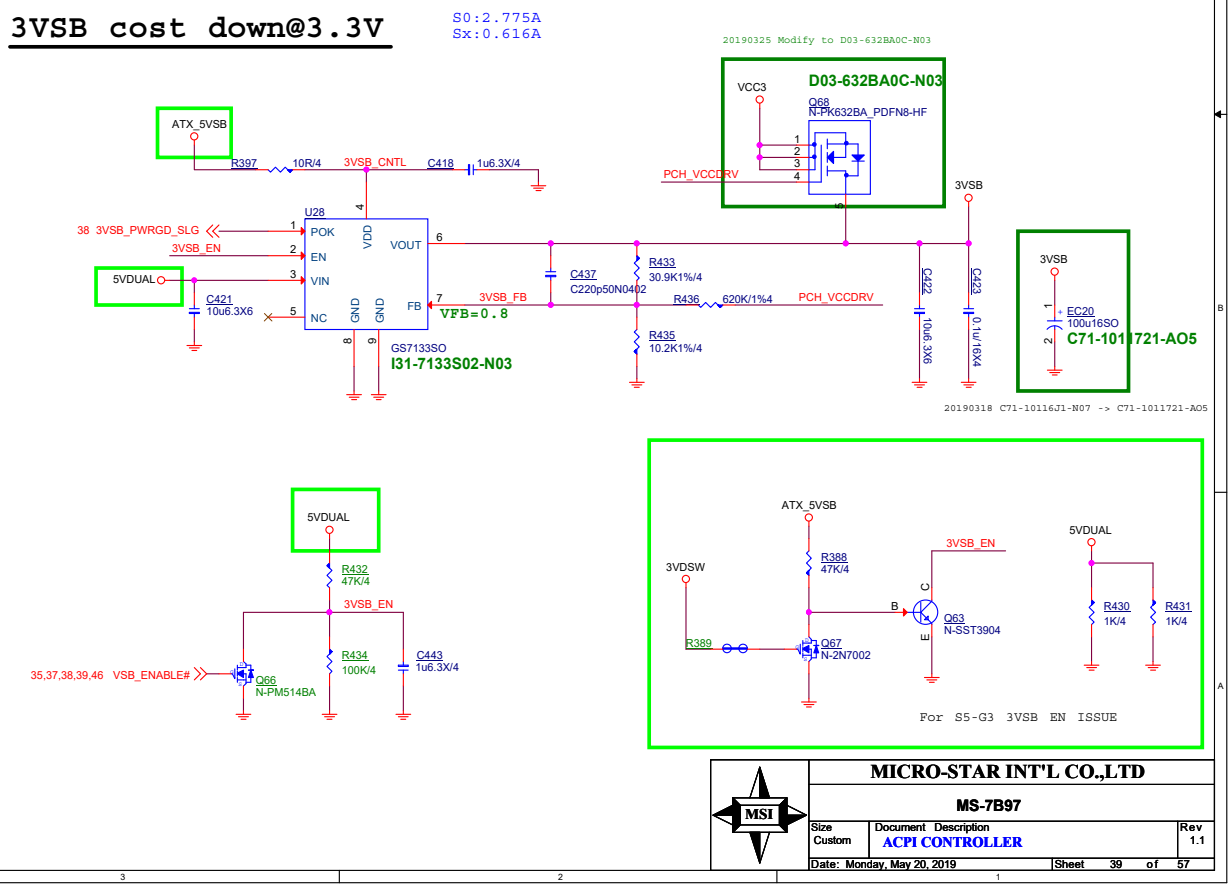
3VDSW@3.3V/294.35mA



5VDUAL@5V/3.18A



3VSB cost down@3.3V



MICRO-STAR INT'L CO.,LTD

MS-7B97

Size	Document Description	Rev
Custom	ACPI CONTROLLER	1.1

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VCORE Iccmax 90A,OCP 117A
LL:2.1mohm

VGT Iccmax 30A,OCP 39A
LL:3.1mohm

SLP_S3# assertion to IMVP VRM_EN deassertion
max:1us

0LL_EN:
Zero load-line function setting.
Connect to 5V can enable 0LL function.

2017.12.05 NICK mail add

VOFS=0.4*(VOFSM-1.7)
-500mV<VOFS<590mV
Disable offset function,OFSM Pin to GND.

VGT Default VR_HOT 120℃ , ALERT 110 ℃

SET1:Iccmax:90A,OCP:130%*Iccmax 117A,DVID 71.67mV
SETA1:Iccmax:30A,OCP:130%*Iccmax,DVID71.67 mV

SET1 control ICCMAX,OCP setting
SET2 control Internal compensation
SET3 control VR address
SETA1 control ICCMAX,OCP setting
SETA2 control Internal compensation

close to phase1 CHOKE

close to phase1 CHOKE

20190321 Removed resistor

2017/07/31
Add ESD protection.
Close to J1

Jumper insert,VCORE/VGT 0.8V.

R2
Default 8.55K

R1
Default 274.32K

2017.09.26 For default thermal alert# 97 ℃

VCORE Thermal Protection Table

GPP_D16	R1	R2	Thermal Alert#	VR_HOT#	SIO_PROCHOT#
GPI(1)	112.45K	11.32K	106℃	NC	115℃
GPI(0) Default	274.32K	8.55K	97℃	NC	115℃

MICRO-STAR INT'L CO.,LTD

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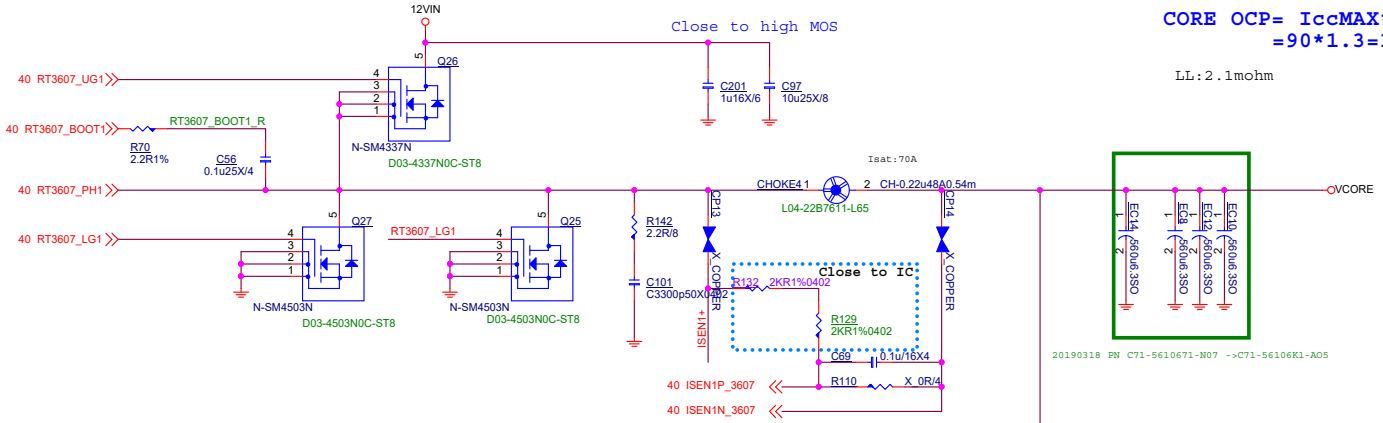
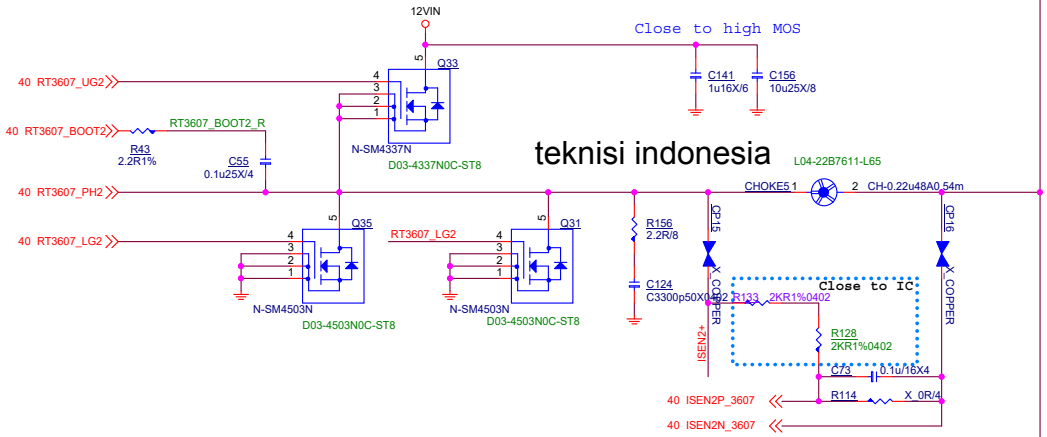
ICCMAX:90A

CORE OCP= IccMAX*1.3
=90*1.3=117A

LL:2.1mohm





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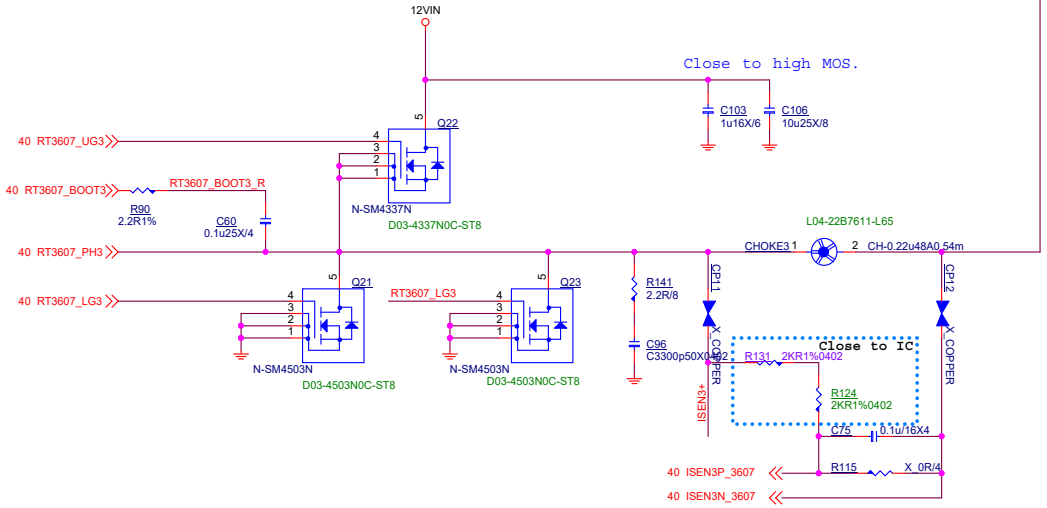
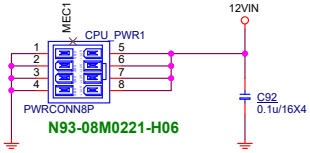
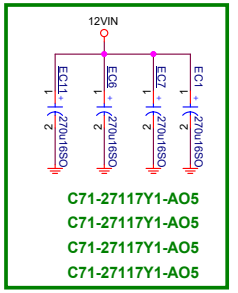




Calculated by ICCMAX,VOUT 0.9V.
Ripple Current VCORE 15.83A,VGT 4.75A.
OS-CON Amount (15.83A+4.75A)/5A=4.116PCS



20190318 C71-2711761-N07 -> C71-27117Y1-AO5

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MS-7B97		
Size: Custom	Document Description: VCORE(P-PAK) PHASE1-4	Rev: 1.1
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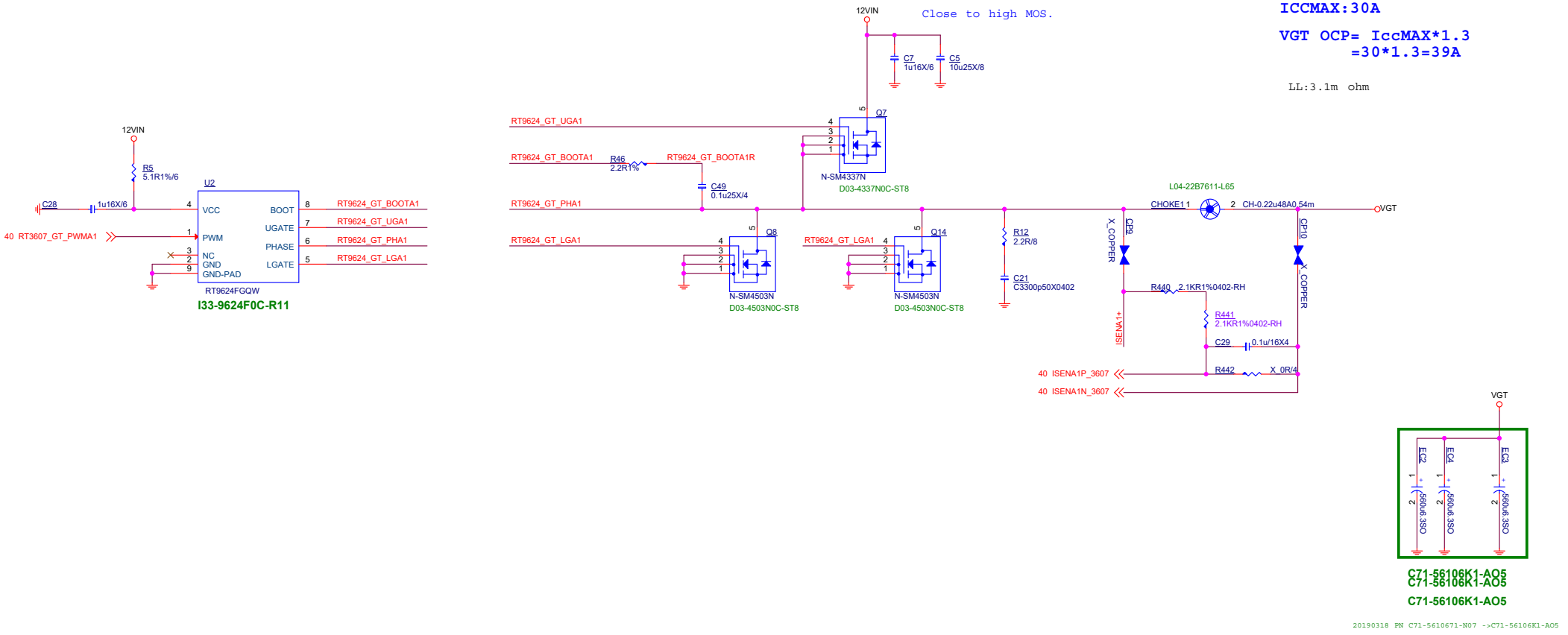

MSI	MICRO-STAR INT'L CO.,LTD	
	MS-7B97	
Size: Custom	Document Description: VGT(P-PAK) PHASE1	Rev: 1.1
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VCC_DDR@1.2V/11.655A

4503 Rdson
10V 2.5~3mohm
4.5V 3.9~5.1mohm

Vout=0.75V/1.65K*(1.65K+1K)=1.204V

NCT3933 source 10uA
Vout=[VREF*(1+R171/R153)]+10uA*R171
=0.75V*(1+1K/1.65K)+10uA*1K=1.204V+0.010V=1.215V

NCT3933 sink 10uA
Vout=[VREF*(1+R171/R153)]-10uA*R171
=0.75V*(1+1K/1.69K)-10uA*1K=1.204V-0.010V=1.195V

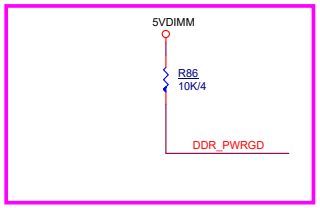
Iin=IOCP*Vout/08/Vin
=19.74A*1.2V/0.8/5V=5.841A

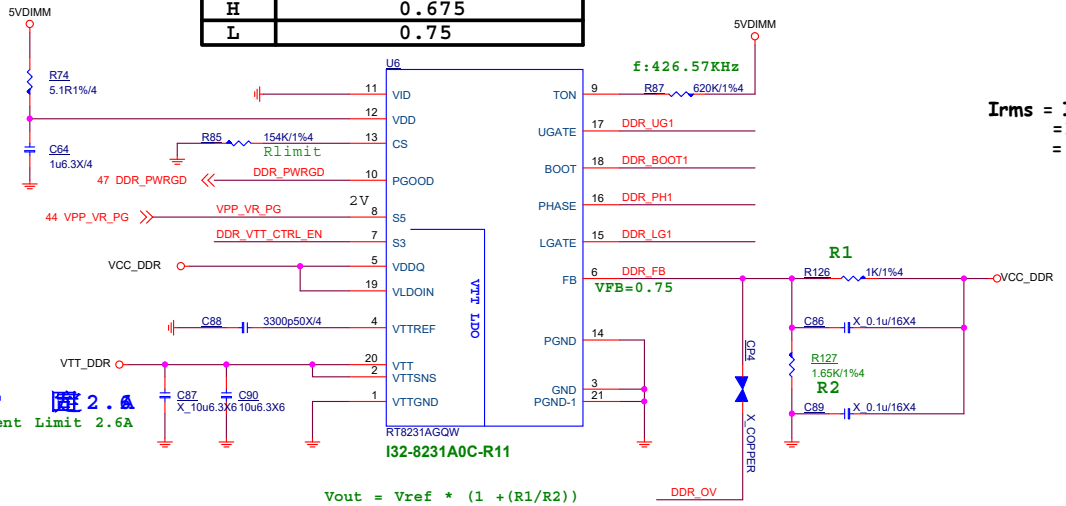
DDR4_1.2V 3.3A+ 7.85A+0.375A=11.655A

3.3A FOR CPU
7.85A FOR 2DIMM DDR4
0.375A FOR VTT_DDR
0.13A FOR PLLOC

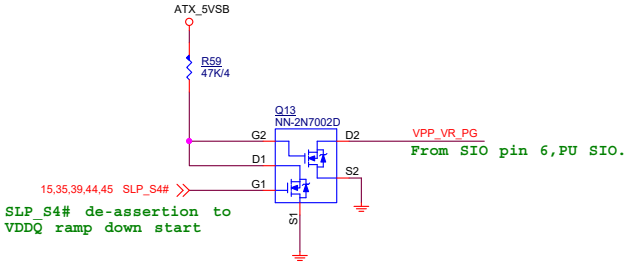
D03-632BA0C-N03 3~4.6mohm/4.5V
Current limit= 154K*5uA/3.9mohm)= 19.74A
Current limit= 154K*5uA/5.1mohm)=15.09A
OUTPUT CHOCKE Isat=32A
Vcs=154K*5uA=0.77V(Spec:0.4V~3V)

VID	Reference Voltage (V)
H	0.675
L	0.75

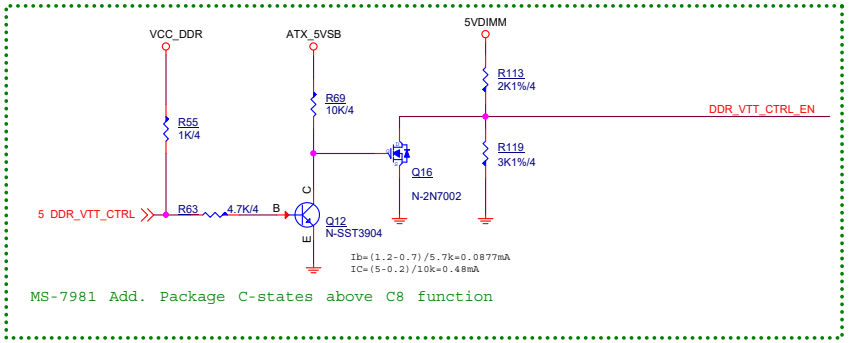


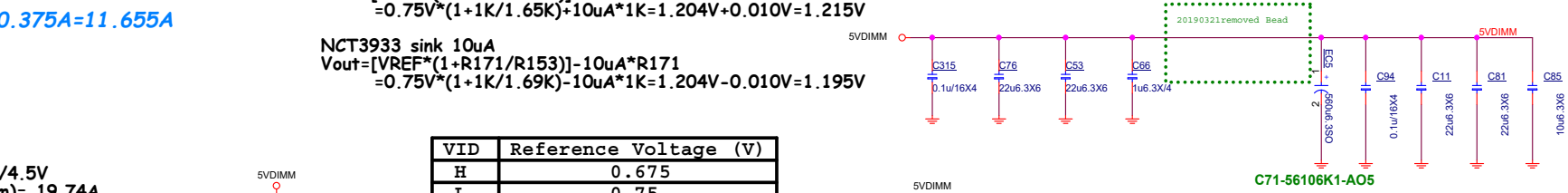


Vout = Vref * (1 +(R1/R2))
= 0.75 * (1 +(1K/1.65K))
= 1.204V



VPP ramp down after VDDQ ramp down



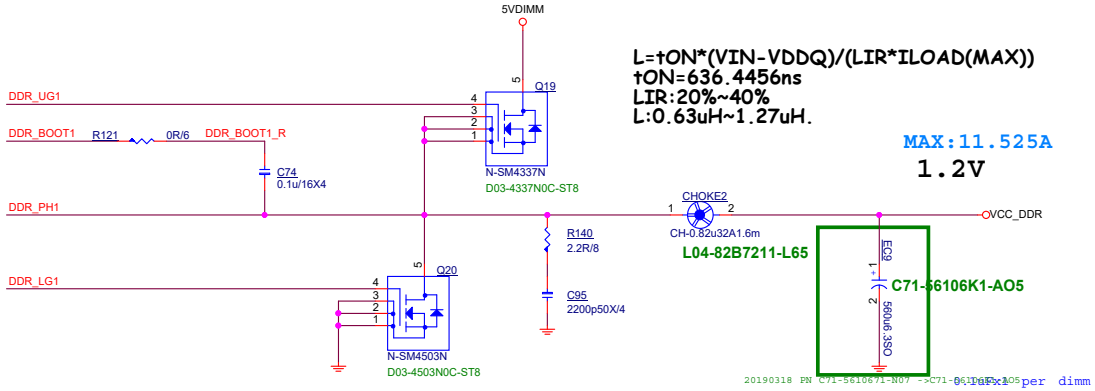


Irms = Iout * SQRT((Vout/Vin) * (1-(Vout/Vin)))
=11.655 * 0.427
= 4.976A

Vinafix.com

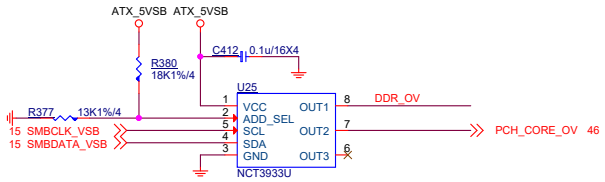
L=tON*(VIN-VDDQ)/(LIR*ILOAD(MAX))
tON=636.4456ns
LIR:20%~40%
L:0.63uH~1.27uH.

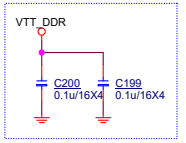
MAX:11.525A
1.2V



UPI VOLTAGE CONSOLE

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





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2DIMM :1.12A FOR DDR VPP2.5V

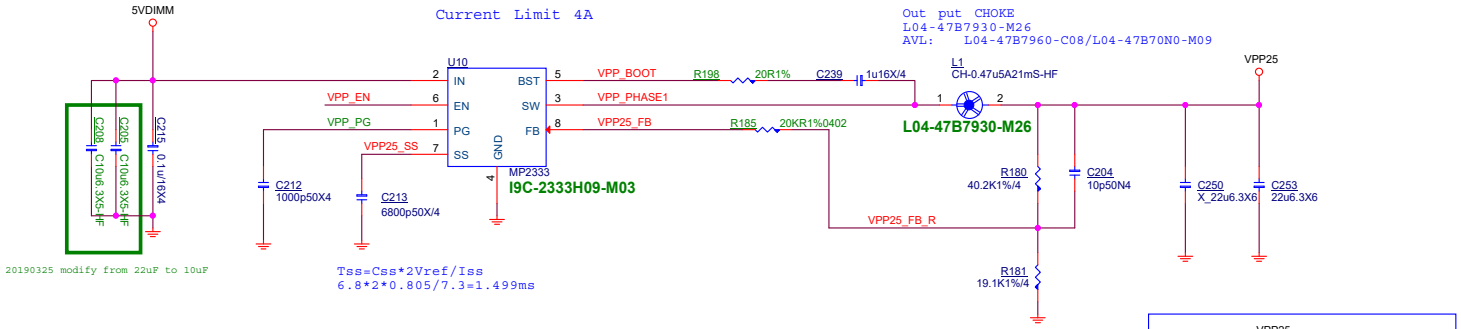
Iin=IOCP*Vout/08/Vin
=4A*2.5V/0.8/5V=2.5A
L02-3008043-M26
Over 85℃ , Rated Current 1.5A

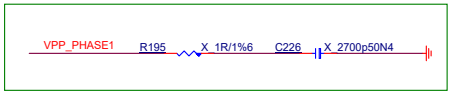
20190321removed Bead

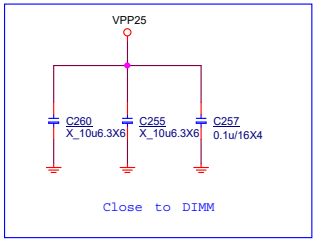
Input Current= Iout*SQRT((Vout/Vin)*(1-Vout/Vin))=1.5A

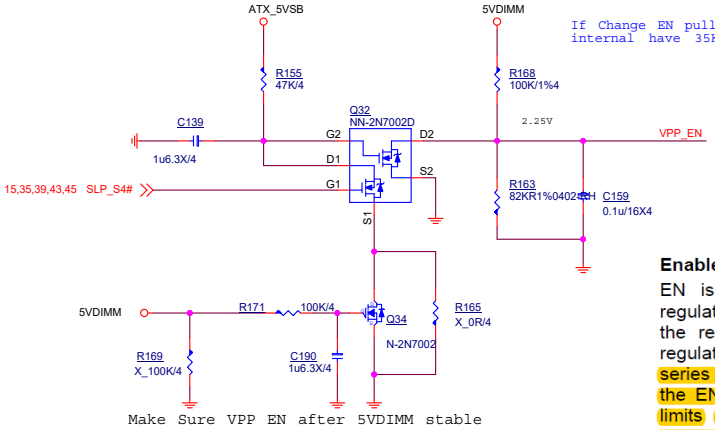
Switch Frequency
Default 650KHz
Current Limit 4A

Out put CHOKE
L04-47B7930-M26
AVL: L04-47B7960-C08/L04-47B70N0-M09

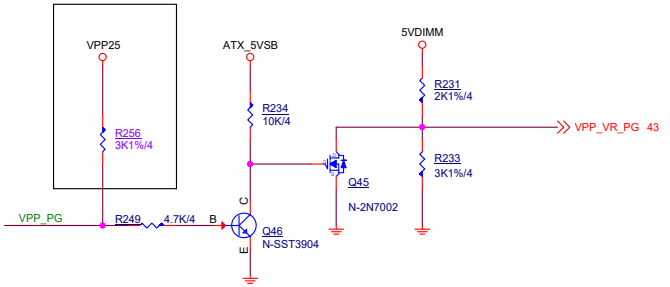








180907:Modify to 3K



Enable (EN) Control

EN is a digital control pin that turns the regulator on and off. Drive EN high to turn on the regulator. Drive EN low to turn off the regulator. EN is clamped internally using a 2.8V series Zener diode (see Figure 2). Connecting the EN input through a pull-up resistor to V_{IN} limits the EN input current below 40µA to prevent damage to the Zener diode. For example, when connecting a 604kΩ pull-up resistor to 12V VIN, I_{Zener} = (12V - 2.8V) / (604kΩ + 35kΩ) = 14µA.

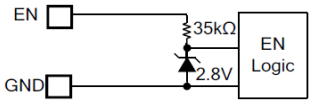


Figure 2: Zener Diode between EN and GND

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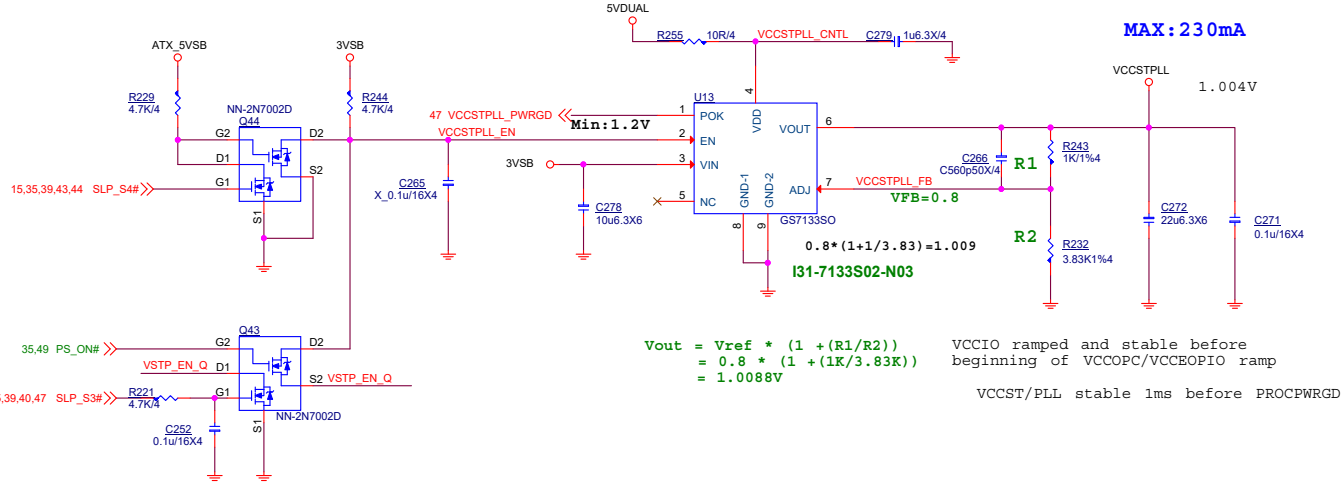
VCCSTPLL@1.05V/230mA

VCCST:80mA,VCCPLL:150mA
VCCSTPLL=80mA+150mA=230mA



Vout = Vref * (1 +(R1/R2))
= 0.8 * (1 +(1K/3.83K))
= 1.0088V

VCCIO ramped and stable before beginning of VCCOPC/VCCEOPIO ramp

VCCST/PLL stable 1ms before PROCPWRGD

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PCH_1VSB@1V/9.65A

```
Input Current = (12A*1V)/5V/0.8 =3A
Choke Isat = 8A
Irms=Iout*SQRT((Vo/Vi)*(1-(Vo/Vi)))
=12*SQRT((1/5)*(1-(1/5))) = 4.8A
Choke Irms =5 A
```

5VDUAL

CHOKE8 — 0.47u5A21mS — L04-47B7930-M26

5VDUAL_PCH_IN

C381 0.1u/16X4 | C363 10u6.3X6 | C361 C10u6.3X6 | C362 10u6.3X6 | C360 1u6.3X/4 | C359 0.1u/16X4

```
L = (Vout/(Fsw*Iripple))*(1-(Vout/Vin))
1/(700K*5*0.3)*(1-(1/5)) = 0.76uH
1/(700K*5*0.5)*(1-(1/5)) = 0.457uH
```

L04-68B7350-T15

CHOKE7 CH-0.68u15A5mS-HF-1

Isat: 22A

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PCH_1VSB

MAX:.9.65A
OCP=16A

U22

1	VIN	BST	10 — PCH_BOOT — C373 C0.22u16X4
PCH_1VSB_EN 15 — EN:1.1V	EN	SW	9 — PCH_PHASE
		FB	13 — PCH_CORE_FB_R
3 — PCH_NB503_3V3	3V3		
12	PG	PGND	2
		GND-1	4
		GND-2	5
		GND-3	6
		GND-4	7
	CLM	NC-1	8
	MODE1		
	MODE2		

NB503-QFN-16

internal LDO 3.3V

VFB=0.6

R348 1MR1%/4 | C375 220p50N4 | R356 499R1%/4

R2666,R2667,C721 Stuff for stability

C351 22u6.3X6 | C350 22u6.3X6 | C349 22u6.3X6 | C372 X_22u6.3X6 | C364 X_22u6.3X6 | C371 X_22u6.3X6 | C348 22u6.3X6 | C354 0.1u/16X4

38 1P05VSB_PG

R361 X_100KR0402 | C355 C1u6.3X5R402-HF | C376 0.1u/16X4

R350 X_0R/4 | R352 PCH_NB503_MODE1 | R353 PCH_NB503_MODE2

I9C-NB5030C-M03

PCH_PHASE — R338 X_1R1%/6 — C352 X_C3300p50X/4

reserve snubber

CLM: 0R	7A
90K	8.5~11.5A
150K	13A
FLOAT	16A

Table 1: MODE1 Selection

State	V_{OUT}	Fs	Resistor to GND
M1	Vo < 3V	700kHz	0Ω
M2	Vo < 3V	1000kHz	90kΩ
M3	Vo ≥ 3V	1000kHz	150kΩ
M4	Vo ≥ 3V	700kHz	>230kΩ or float

NOTE: Vo < 3V mode, V_{REF} = 600mV. Vo = 3V mode, V_{REF} = 1.8V.

Table 2: MODE2 Selection

VCC	MODE2 Set
Internal VCC	0
External VCC	Connect to VIN

ATX_5VSB

R372 47K/4

Q55 — G2 D2 D1 S2 G1 — NN-2N7002D

3VSB — R373 10K/4 — C383 X_0.1u/16X4

5VDUAL

R359 47K/4

PCH_1VSB_EN

C377 X_0.1u/16X4 | R355 100K/4

35,37,38,39 VSB_ENABLE#

Q59 N-2N7002

NB503 Supply voltage(Vcc) 3.15V~3.5V

PCH_1VSB

R1 — R362 1KR1%0402

PCH_CORE_FB_R — CP6 — X_COPPER — PCH_CORE_OV — PCH_CORE_OV 43

R2 — R351 1.5KR1%0402

```
Vout = Vref * (1 +(R1/R2))
     = 0.6 * (1 +(1K/1.5K))
     = 0.999V
```

```
to sink/source over voltage IC.
pin10 sink/source current capability can't over 1mA
So max voltage can't over 1.8V.
                    from NCT3933
```

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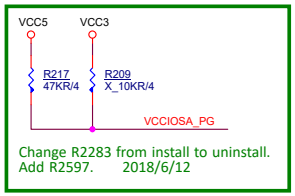
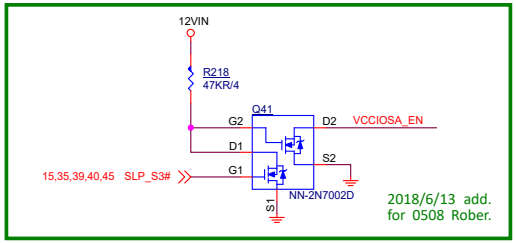
VCCIOSA Power:1.05V,17.5A

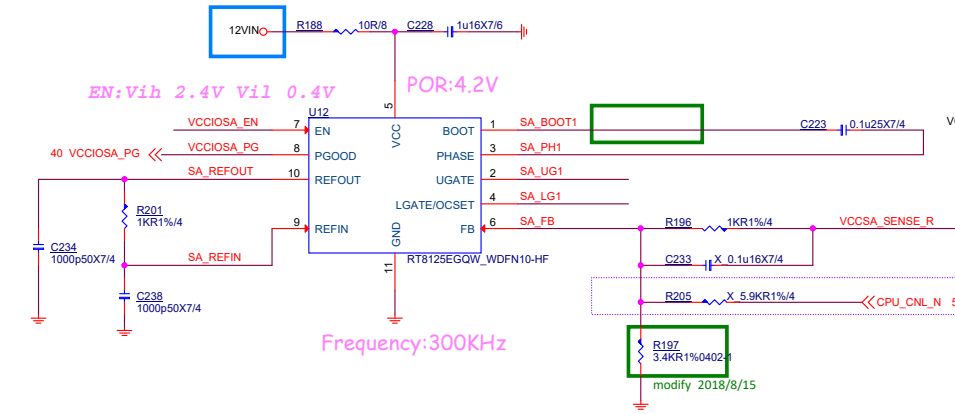
D03-4503N0C-ST8 2.5~3mohm/10V Ciss=1350pF<8nF
Current limit= 6.8K*10uA/3mohm)=22.667A
Current limit= 6.8K*10uA/2.5mohm)=27.2A
CHOKE Isat=22A
From CHOKE I-L Curve,when I=25A, L=0.6uH.
OCP Test Value=21.92A



Change R2283 from install to uninstall.
Add R2597. 2018/6/12

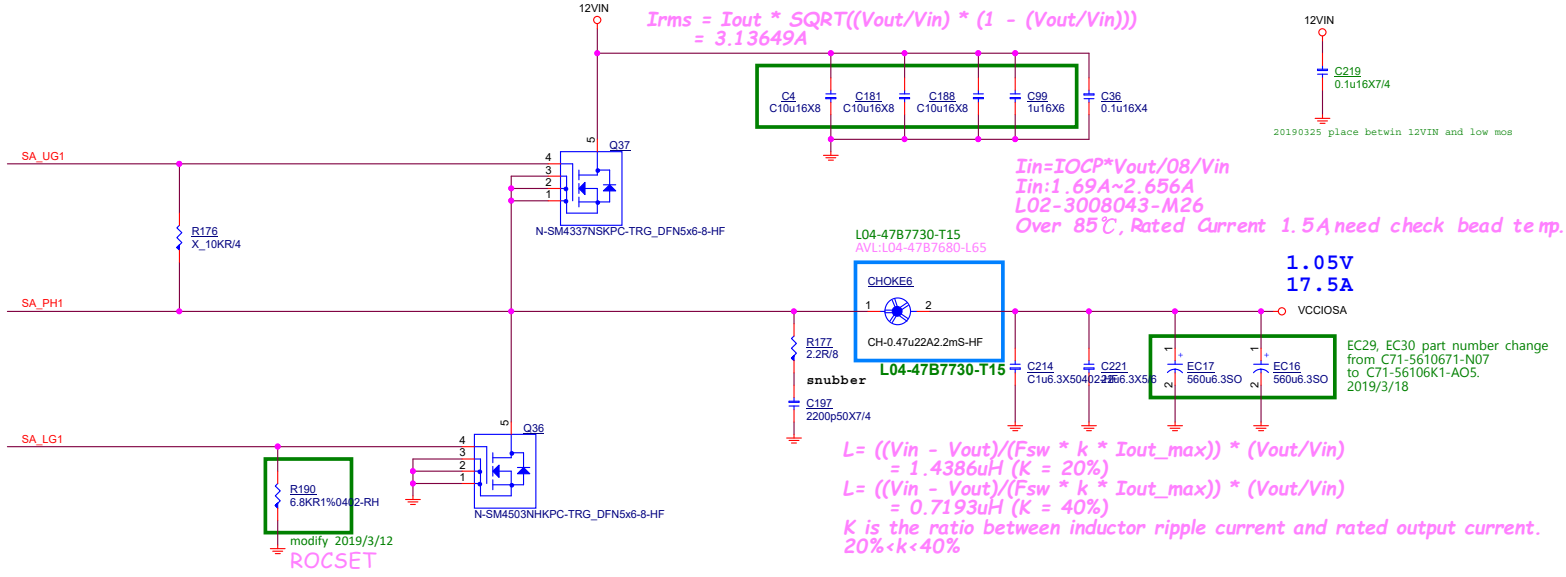


2018/6/13 add.
for 0508 Rober.



CPU_CNL_N come from CPU PROC_SELECT#

Vout=[VREFOUT*(1+R217/R215)]+ΔVout/2
=0.794V*(1+1K/3.16K)+17.76mV/2=1.053V
VREFOUT=0.794V

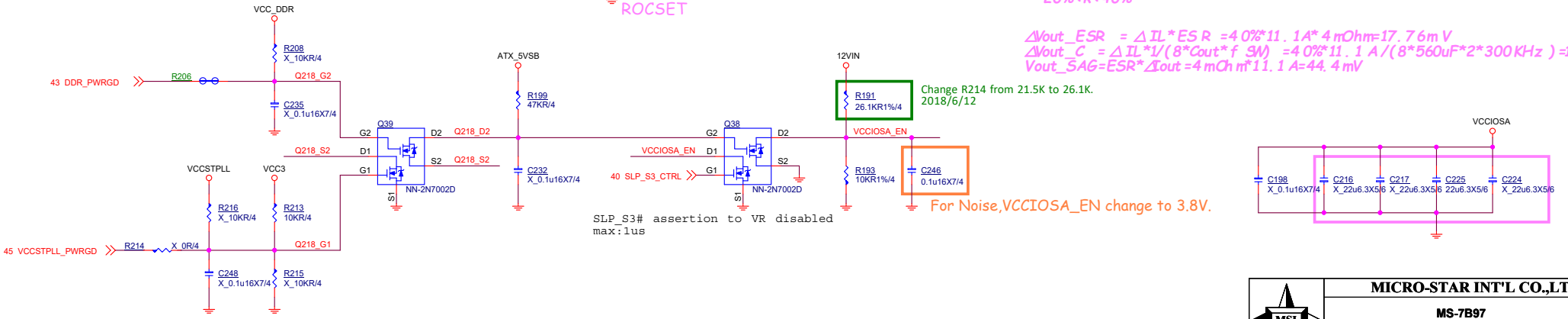


Iin=IOCP*Vout/08/Vin
Iin:1.69A~2.656A
L02-3008043-M26
Over 85℃, Rated Current 1.5A need check bead temp.

EC29, EC30 part number change
from C71-5610671-N07
to C71-56106K1-AO5.
2019/3/18

L= ((Vin - Vout)/(Fsw * k * Iout_max)) * (Vout/Vin)
= 1.4386uH (K = 20%)
L= ((Vin - Vout)/(Fsw * k * Iout_max)) * (Vout/Vin)
= 0.7193uH (K = 40%)
K is the ratio between inductor ripple current and rated output current.
20%<k<40%

ΔVout_ESR = ΔIL*ESR =40%*11.1A*4mOhm=17.76mV
ΔVout_C = ΔIL*1/(8*Cout*f SW) =40%*11.1A/(8*560uF*2*300KHz)=1.65mV
Vout_SAG=ESR*ΔIout=4mOhm*11.1A=44.4mV



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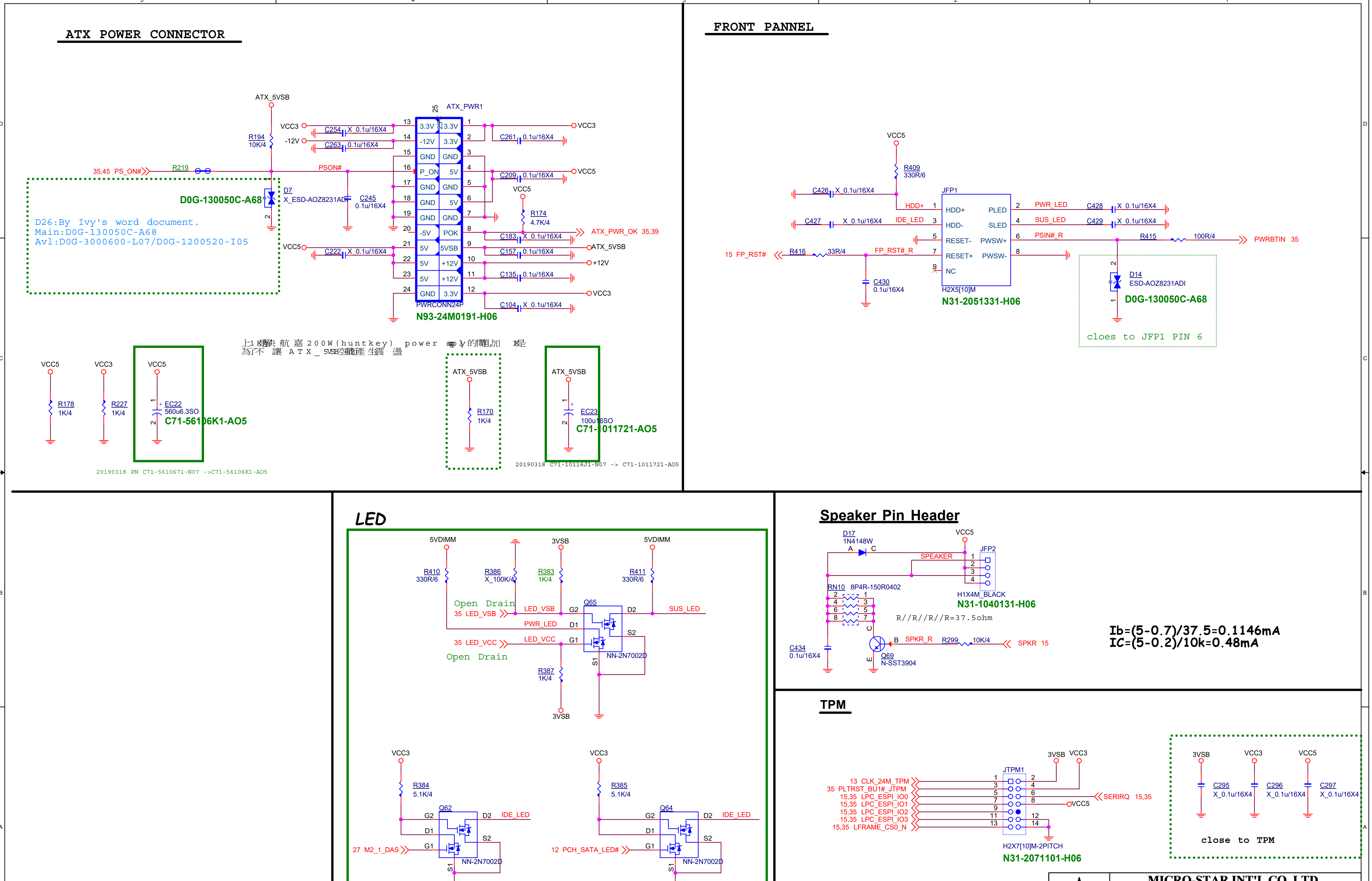

ATX POWER CONNECTOR
ATX_5VSB
R194 10K/4
VCC3
-12V
C254 X_0.1u/16X4
C263 0.1u/16X4
35,45 PS_ON#
R219
PSON#
D7 X_ESD-AOZ8231ADI
C245 0.1u/16X4
D0G-130050C-A68
D26:By Ivy's word document.
Main:D0G-130050C-A68
Avl:D0G-3000600-L07/D0G-1200520-I05
VCC5
C222 X_0.1u/16X4
ATX_PWR1
3.3V 3.3V
-12V 3.3V
GND GND
P_ON 5V
GND GND
GND 5V
GND GND
-5V POK
5V 5VSB
5V +12V
5V +12V
GND 3.3V
PWRCONN24P
N93-24M0191-H06
C261 0.1u/16X4
C209 0.1u/16X4
VCC5
R174 4.7K/4
C183 X_0.1u/16X4
ATX_PWR_OK 35,39
C157 0.1u/16X4
ATX_5VSB
C135 0.1u/16X4
+12V
VCC3
C104 X_0.1u/16X4
R178 1K/4
R227 1K/4
EC22 560u6.3SO
C71-56106K1-AO5
20190318 PN C71-5610671-N07 ->C71-56106K1-AO5
R170 1K/4
EC23 100u16SO
C71-1011721-AO5
20190318 C71-10116J1-N07 -> C71-1011721-AO5
FRONT PANNEL
VCC5
R409 330R/6
C426 X_0.1u/16X4
C427 X_0.1u/16X4
HDD+
IDE_LED
JFP1
HDD+ PLED
HDD- SLED
RESET- PWSW+
RESET+ PWSW-
NC
H2X5[10]M
N31-2051331-H06
PWR_LED
SUS_LED
PSIN#_R
C428 X_0.1u/16X4
C429 X_0.1u/16X4
R415 100R/4
PWRBTIN 35
15 FP_RST#
R416 33R/4
FP_RST#_R
C430 0.1u/16X4
D14 ESD-AOZ8231ADI
D0G-130050C-A68
cloes to JFP1 PIN 6
LED
5VDIMM
R410 330R/6
R386 X_100K/4
3VSB
R383 1K/4
5VDIMM
R411 330R/6
Open Drain
35 LED_VSB
LED_VSB
Q65
SUS_LED
PWR_LED
35 LED_VCC
LED_VCC
Open Drain
NN-2N7002D
R387 1K/4
3VSB
VCC3
R384 5.1K/4
Q62
IDE_LED
27 M2_1_DAS
NN-2N7002D
VCC3
R385 5.1K/4
Q64
IDE_LED
12 PCH_SATA_LED#
NN-2N7002D
20190329 Dual7002 instead of 3904
Speaker Pin Header
D17 1N4148W
VCC5
SPEAKER
JFP2
H1X4M_BLACK
N31-1040131-H06
RN10 8P4R-150R0402
R//R//R//R=37.5ohm
C434 0.1u/16X4
SPKR_R
R299 10K/4
SPKR 15
Q69 N-SST3904
Ib=(5-0.7)/37.5=0.1146mA
IC=(5-0.2)/10k=0.48mA
TPM
3VSB VCC3
JTPM1
13 CLK_24M_TPM
35 PLTRST_BU1#_JTPM
15,35 LPC_ESPI_IO0
15,35 LPC_ESPI_IO1
15,35 LPC_ESPI_IO2
15,35 LPC_ESPI_IO3
15,35 LFRAME_CS0_N
SERIRQ 15,35
VCC5
H2X7[10]M-2PITCH
N31-2071101-H06
3VSB VCC3 VCC5
C295 X_0.1u/16X4
C296 X_0.1u/16X4
C297 X_0.1u/16X4
close to TPM

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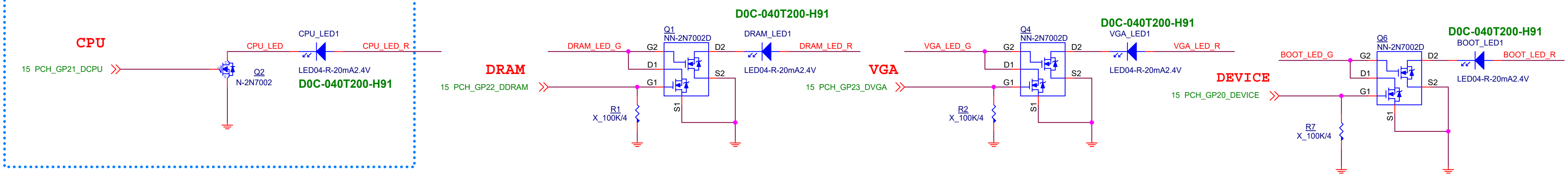
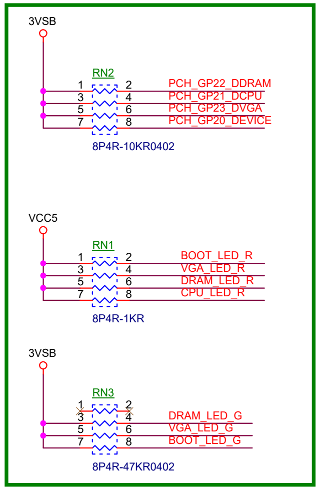
EZ DEBUG LED





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

LED
RED:D0C-040P100-H91
AVL:D0C-040S500-E07

WHI:D0C-040T200-H91
AVL:D0C-040S200-E07

關機斷電狀態下，3個LED先維持default，當開機通電：
1. 首先進行CPU check CPU LED亮，check PASS後則CPU LED滅掉。
2. 接著依序進行Memory /memory LED亮 check PASS後則memory LED滅掉。
3. VGA的check/VGA LED亮，check PASS後則VGA LED滅掉。
4. 因此最後正常順利開機後，三個LED燈都滅掉。
（系統重啟或其他原因造成系統重開機，則仍按照上述行為）

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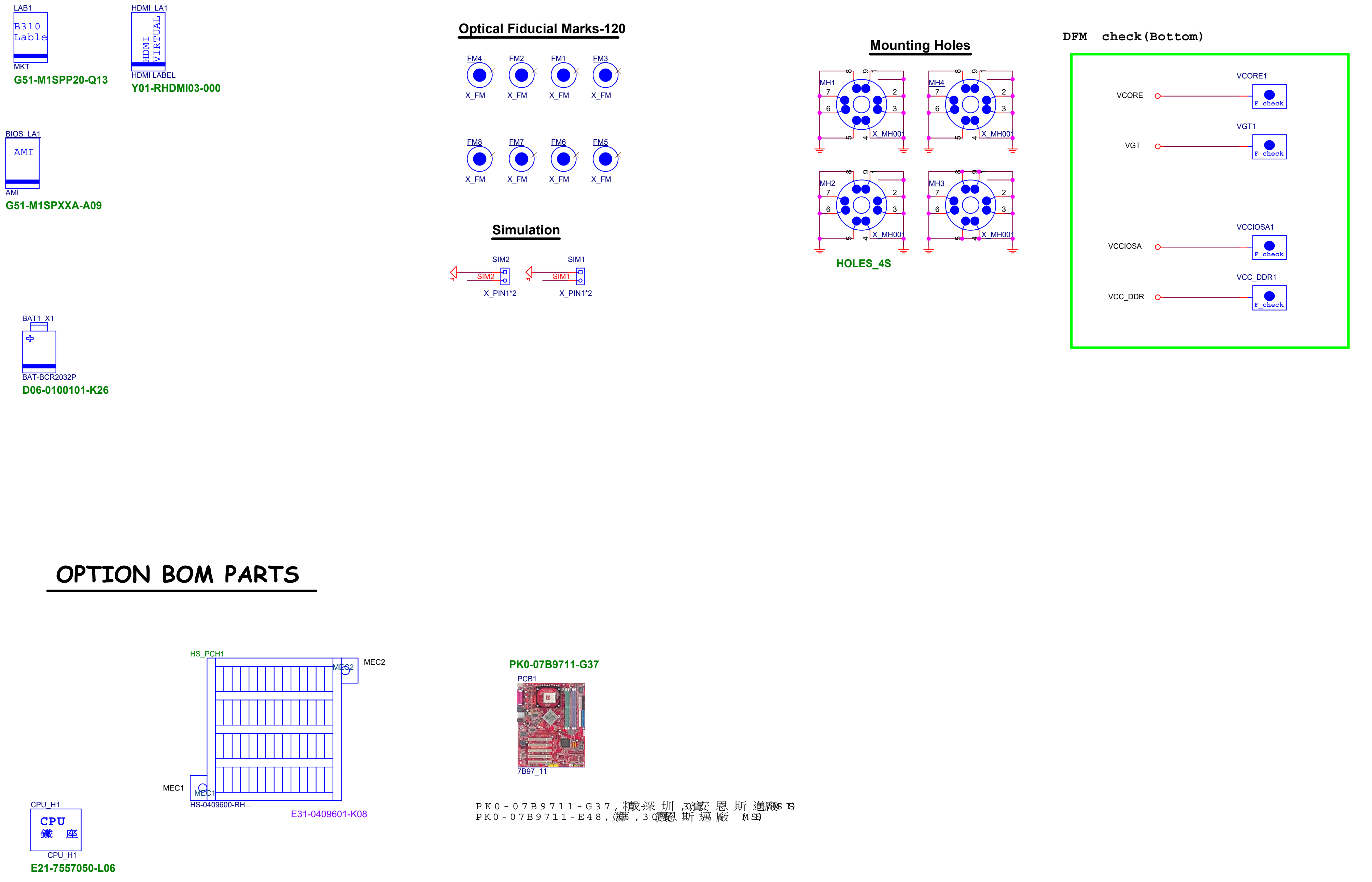

LAB1
B310 Lable
MKT
G51-M1SPP20-Q13
HDMI_LA1
HDMI VIRTUAL
HDMI LABEL
Y01-RHDMI03-000
BIOS_LA1
AMI
AMI
G51-M1SPXXA-A09
BAT1_X1
BAT-BCR2032P
D06-0100101-K26
Optical Fiducial Marks-120
FM4 FM2 FM1 FM3
X_FM X_FM X_FM X_FM
FM8 FM7 FM6 FM5
X_FM X_FM X_FM X_FM
Simulation
SIM2
SIM2
X_PIN1*2
SIM1
SIM1
X_PIN1*2
Mounting Holes
MH1 MH4 MH2 MH3
X_MH001
HOLES_4S
DFM check(Bottom)
VCORE1
VCORE
F_check
VGT1
VGT
F_check
VCCIOSA1
VCCIOSA
F_check
VCC_DDR1
VCC_DDR
F_check
OPTION BOM PARTS
HS_PCH1
MEC2
MEC2
MEC1
MEC1
HS-0409600-RH...
E31-0409601-K08
PK0-07B9711-G37
PCB1
7B97_11
CPU_H1
CPU 鐵 座
CPU_H1
E21-7557050-L06

PK0-07B9711-G37,精技-深圳,30寶安恩斯邁廠(MSI)
PK0-07B9711-E48,華,30寶安恩斯邁廠(MSI)

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