MS-G019 Ver: 2.1 mini-ITX : 192 * 180 mm

SOC:

Intel - Braswell M/D

OnBoard Chipset:

AUDIO:REALTEK/ALC662-VD0

LAN:REALTEK/RTL8111G-CG

SIO:NUVOTON/NCT6793D

Flash ROM: 64Mb SPI (SOC)

Main Memory:

DDRIIIL SO-DIMM(1066/1333MHz) * 2 (Dual Channel)

Expansion Slots:

PCI Express (X16) Slot*1
Mini-PCIE connector*1

PWM:

VCCP:ON Semiconductor/NCP81201MNTXG
VGG:ON Semiconductor/NCP81201MNTXG
VNN:TI/TPS51211DSCR
DDR:TI/TPS51216RUKR

Other:

SATA2.0 x2
USB2.0 RearX4 Front X2
USB3.0 RearX4
DP to D-SUB*1/HDMI*1
LPT Header *1
Rear COMPORT *1
Front COMPORT *1

Model type	Function Options	BOM Config	ERP BOM No.	BOM Opt.
		CFG-G019-030	601-G019-	
		CFG-G019-040	601-G019-	A

MICRO-STAR INT'L CO.,LTD.

Title: MS-G019

Size | Document Number: Cover Sheet | Rev: 21

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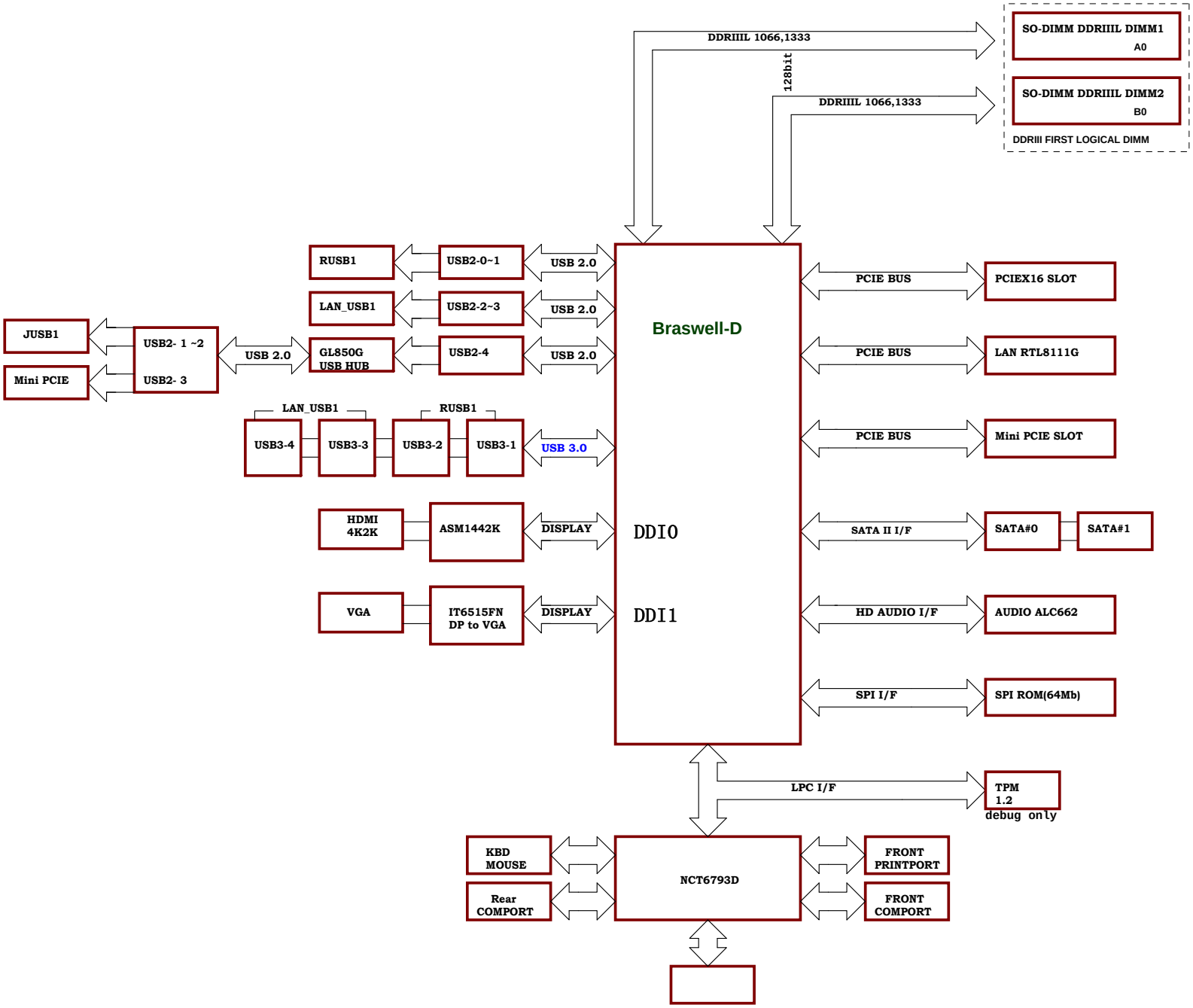

MICRO-STAR INT'L CO.,LTD.		
Title: MS-G019		
Size	Document Number: Block Diagram	Rev: 21
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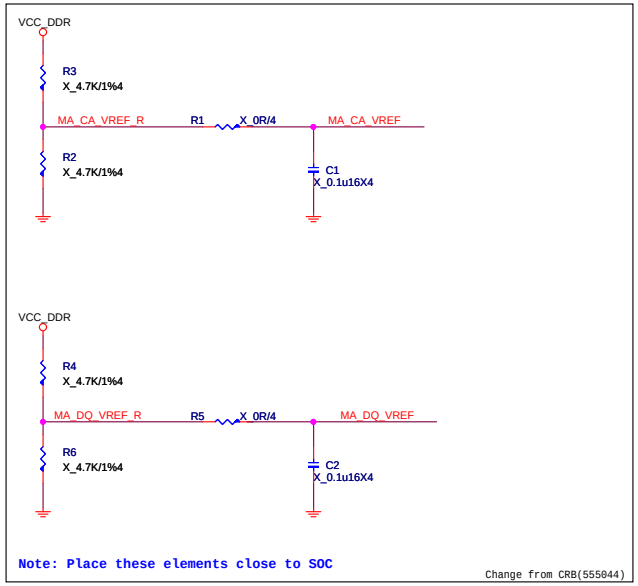

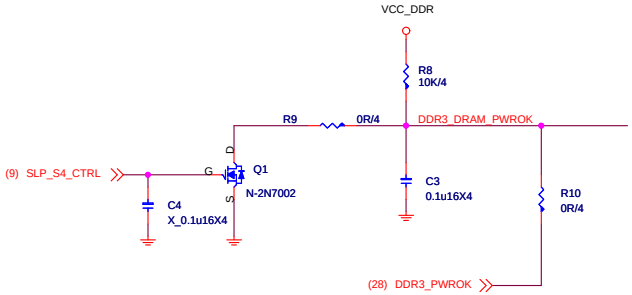

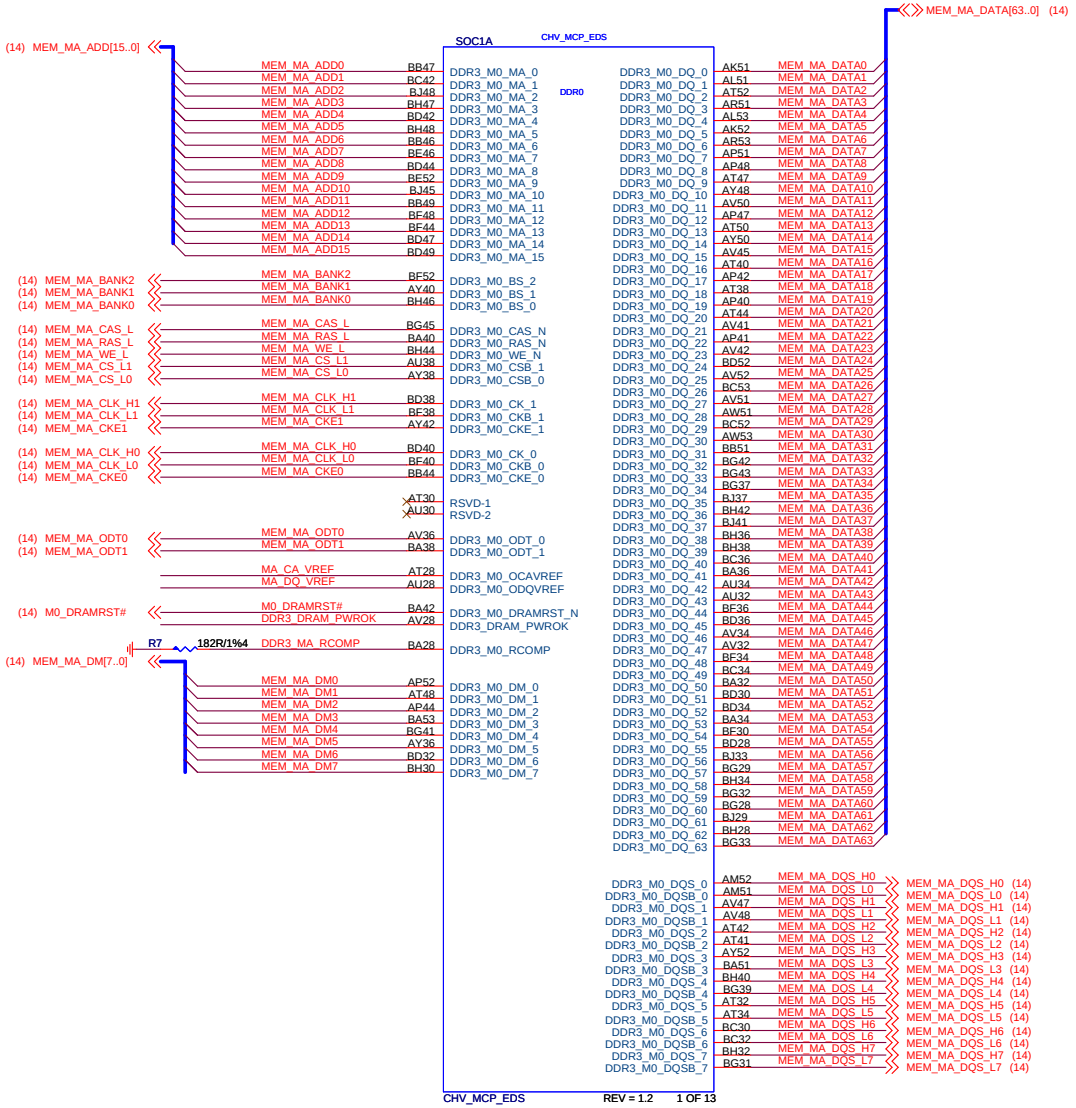

MICRO-STAR INT'L CO.,LTD.			
Title: MS-G019			
Size	Document Number: SOC-1 DDR Channel A		Rev: 21
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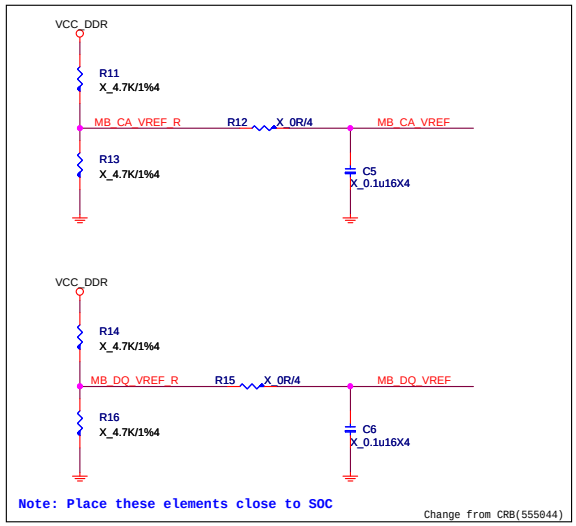

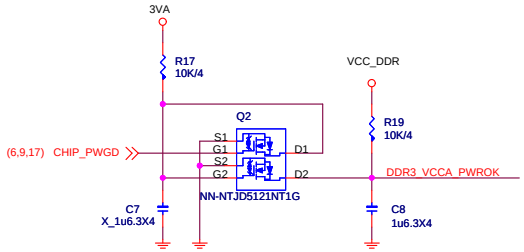

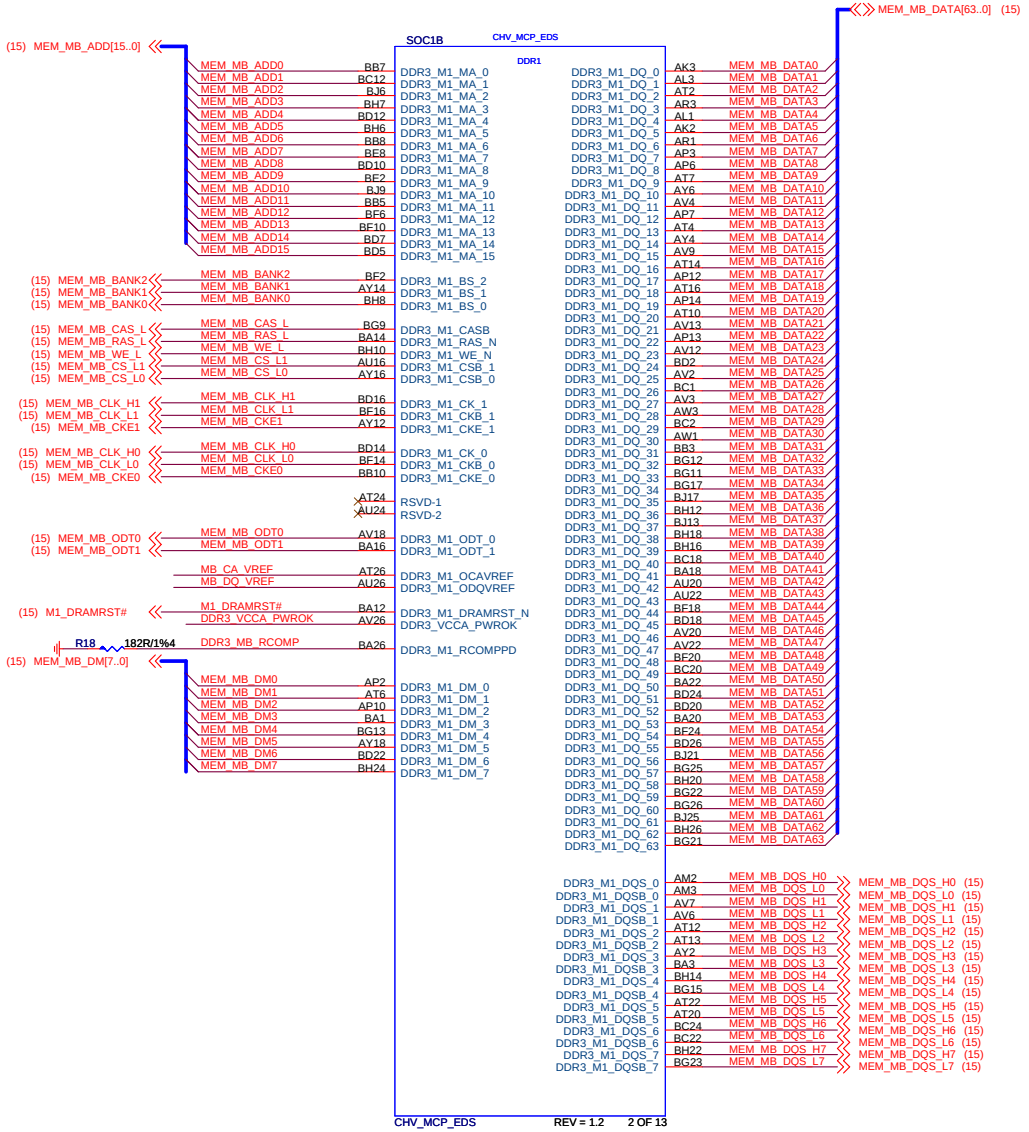

MICRO-STAR INT'L CO.,LTD.

Title: MS-G019

Size | Document Number: SOC-2 DDR Channel B | Rev: 21

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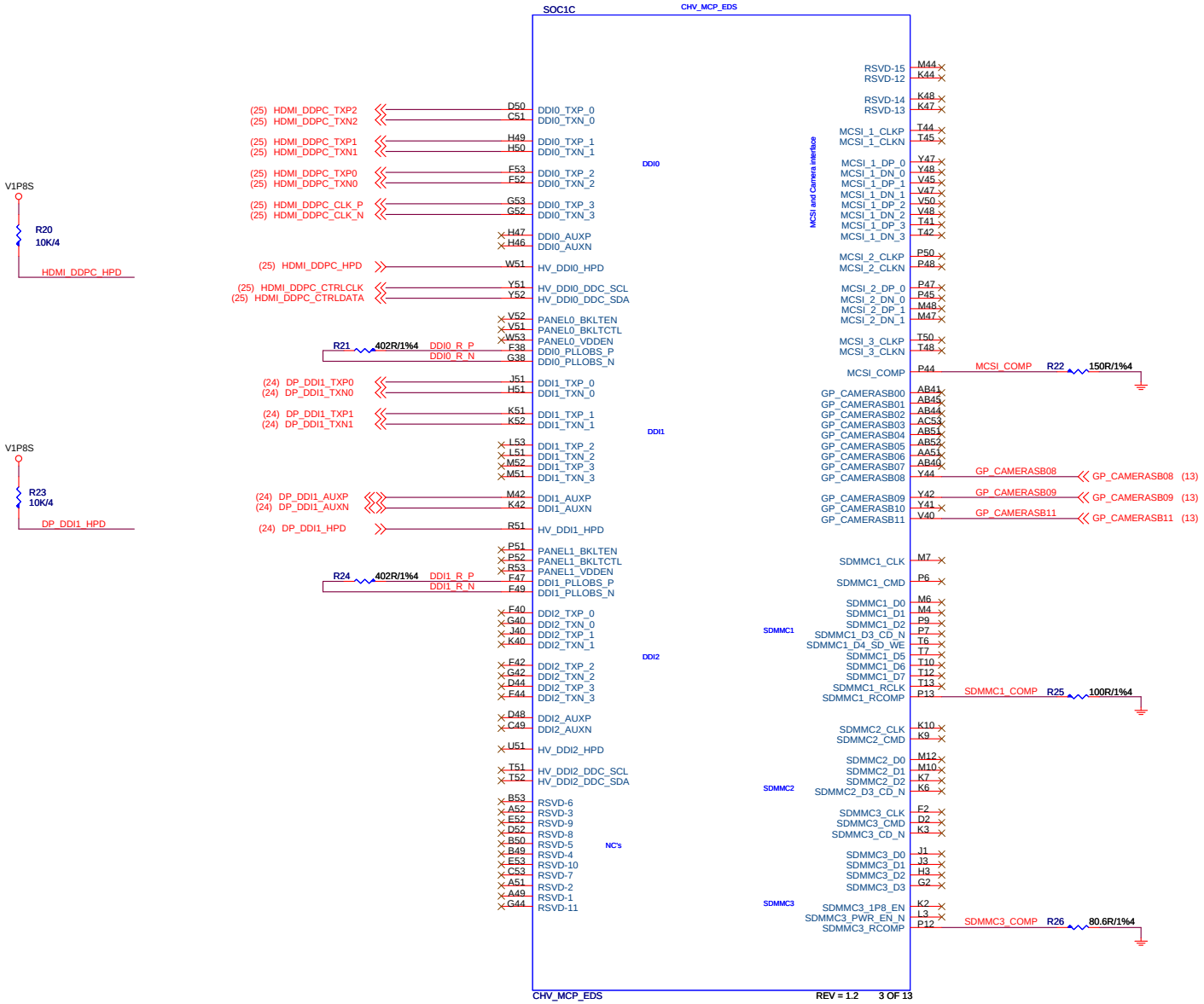

MICRO-STAR INT'L CO.,LTD.		
Title: MS-G019		
Size	Document Number: SOC-3 Display/eMMC/SDMMC	Rev: 21
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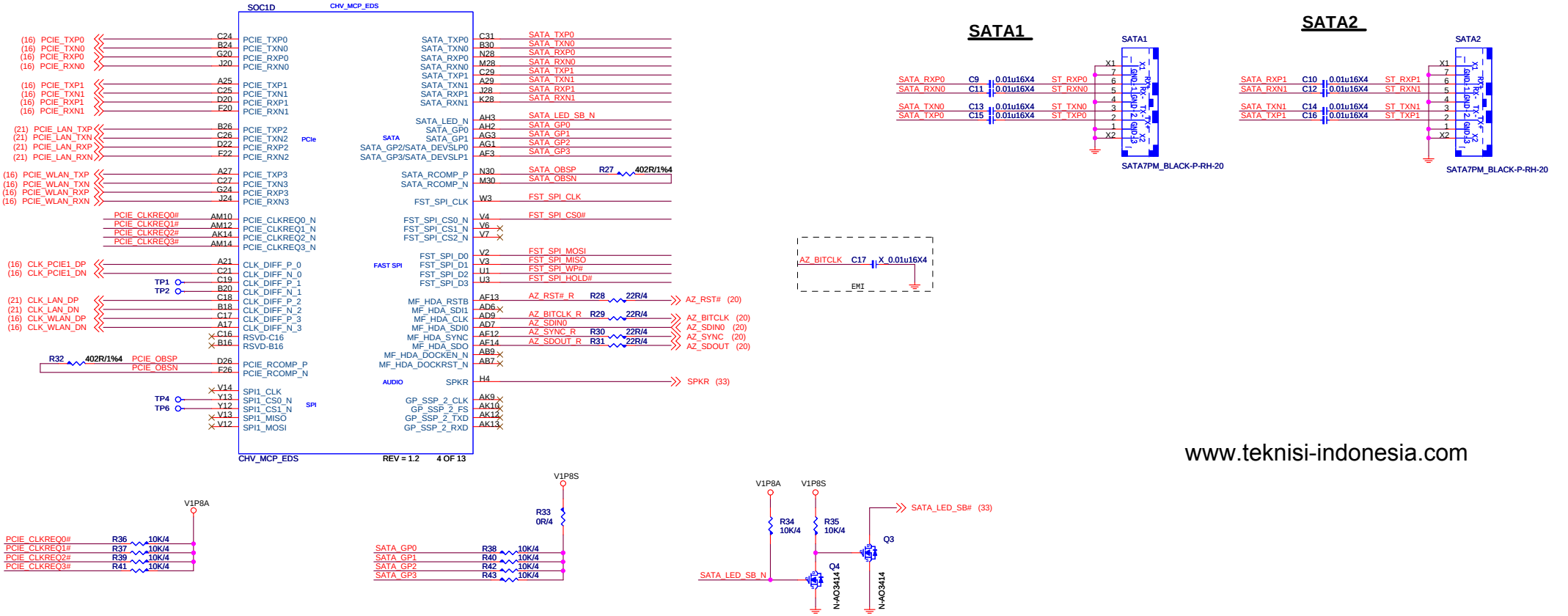
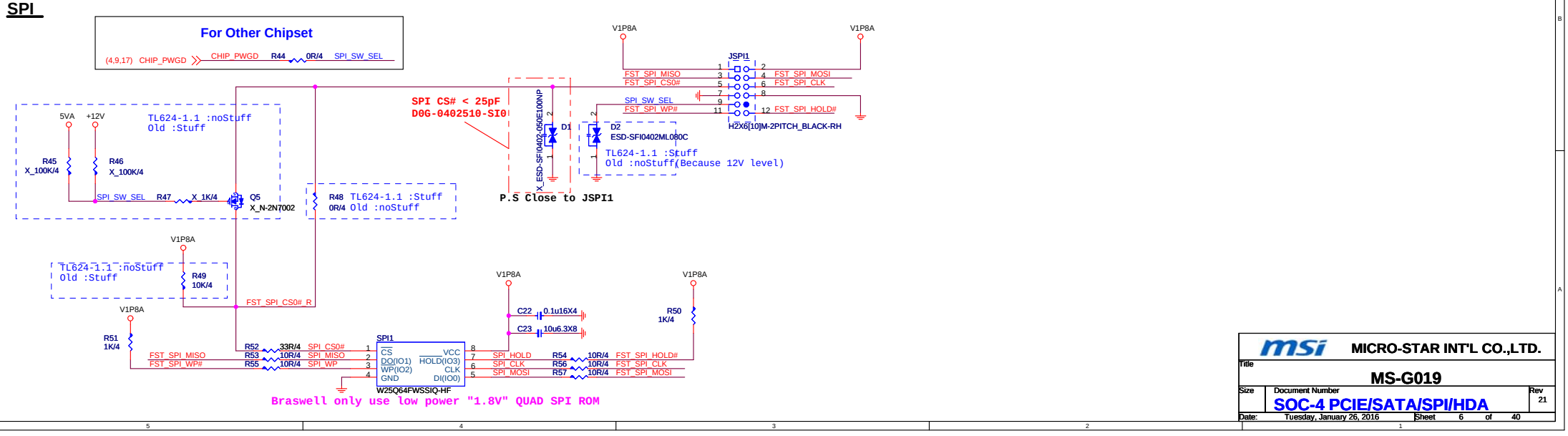

SOC1D
CHV_MCP_EDS
PCIe
SATA
FAST SPI
AUDIO
SPI
PCIE_TXP0
PCIE_TXN0
PCIE_RXP0
PCIE_RXN0
PCIE_TXP1
PCIE_TXN1
PCIE_RXP1
PCIE_RXN1
PCIE_TXP2
PCIE_TXN2
PCIE_RXP2
PCIE_RXN2
PCIE_TXP3
PCIE_TXN3
PCIE_RXP3
PCIE_RXN3
PCIE_CLKREQ0_N
PCIE_CLKREQ1_N
PCIE_CLKREQ2_N
PCIE_CLKREQ3_N
CLK_DIFF_P_0
CLK_DIFF_N_0
CLK_DIFF_P_1
CLK_DIFF_N_1
CLK_DIFF_P_2
CLK_DIFF_N_2
CLK_DIFF_P_3
CLK_DIFF_N_3
RSVD-C16
RSVD-B16
PCIE_RCOMP_P
PCIE_RCOMP_N
SPI1_CLK
SPI1_CS0_N
SPI1_CS1_N
SPI1_MISO
SPI1_MOSI
SATA_TXP0
SATA_TXN0
SATA_RXP0
SATA_RXN0
SATA_TXP1
SATA_TXN1
SATA_RXP1
SATA_RXN1
SATA_LED_N
SATA_GP0
SATA_GP1
SATA_GP2/SATA_DEVSLP0
SATA_GP3/SATA_DEVSLP1
SATA_RCOMP_P
SATA_RCOMP_N
FST_SPI_CLK
FST_SPI_CS0_N
FST_SPI_CS1_N
FST_SPI_CS2_N
FST_SPI_D0
FST_SPI_D1
FST_SPI_D2
FST_SPI_D3
MF_HDA_RSTB
MF_HDA_SDI1
MF_HDA_CLK
MF_HDA_SDI0
MF_HDA_SYNC
MF_HDA_SDO
MF_HDA_DOCKEN_N
MF_HDA_DOCKRST_N
SPKR
GP_SSP_2_CLK
GP_SSP_2_FS
GP_SSP_2_TXD
GP_SSP_2_RXD
CHV_MCP_EDS
REV = 1.2
4 OF 13
SATA1
SATA2
SATA7PM_BLACK-P-RH-20
AZ_BITCLK
EMI
www.teknisi-indonesia.com
V1P8A
V1P8S
SATA_LED_SB#
Q3
Q4
N-AO3414


SPI
For Other Chipset
CHIP_PWGD
SPI_SW_SEL
SPI CS# < 25pF
D0G-0402510-SI0
ESD-SFI0402-050EL00NP
ESD-SFI0402ML080C
TL624-1.1 :noStuff
Old :Stuff
TL624-1.1 :Stuff
Old :noStuff(Because 12V level)
P.S Close to JSPI1
JSPI1
H2X6[10]M-2PITCH_BLACK-RH
Q5
X_N-2N7002
SPI1
W25Q64FWSSIQ-HF
Braswell only use low power "1.8V" QUAD SPI ROM
MICRO-STAR INT'L CO.,LTD.
MS-G019
SOC-4 PCIE/SATA/SPI/HDA
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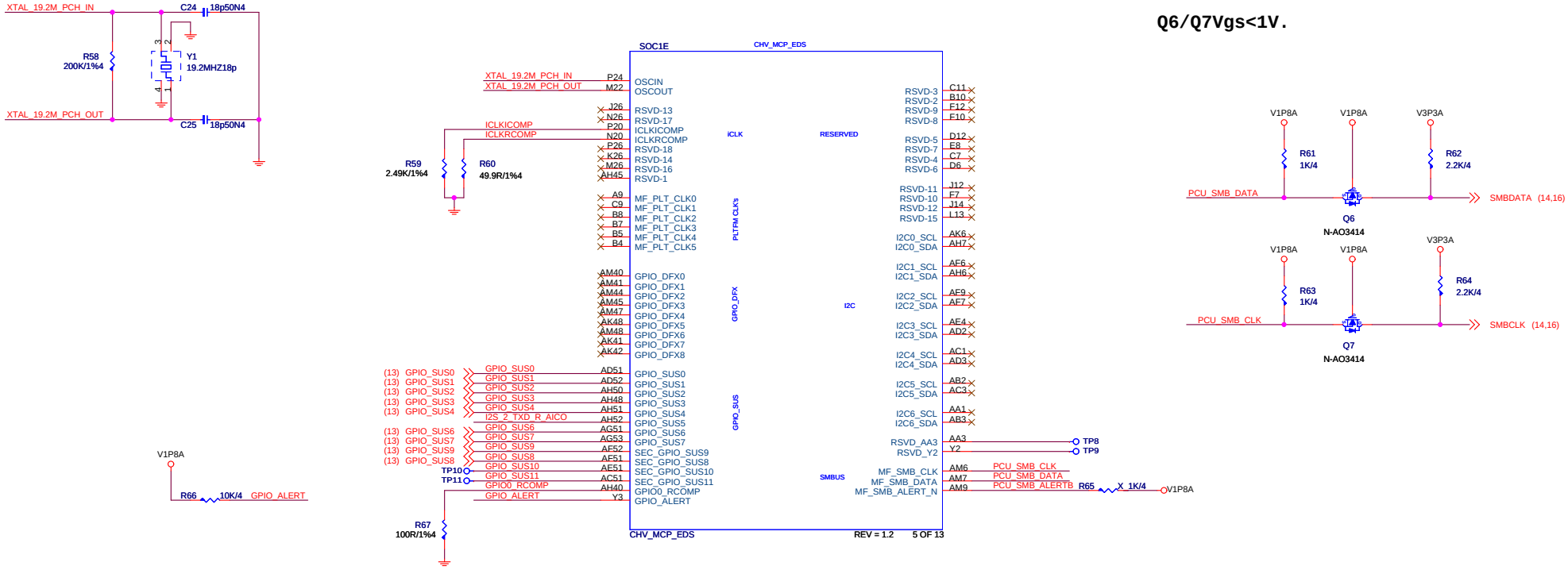
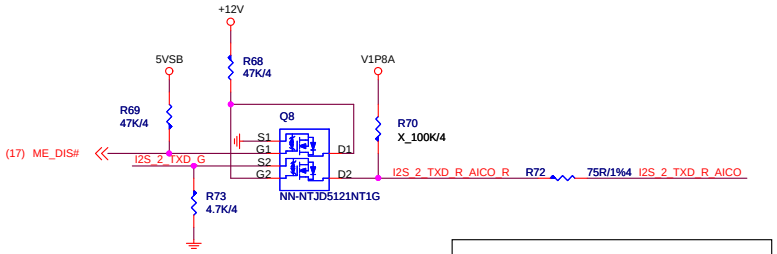
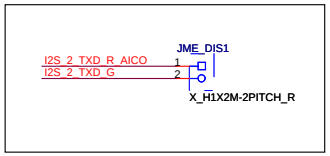
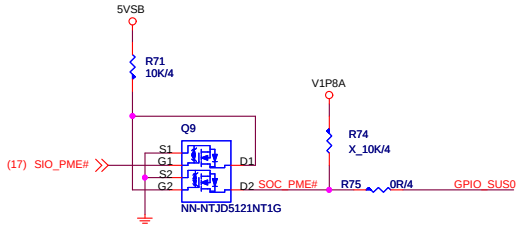
Q6/Q7Vgs<1V.

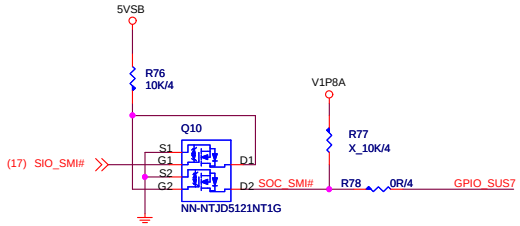






PMC Level shift





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Size | Document Number: SOC-5 Clock/GPIO/I2C/SMBus | Rev: 21

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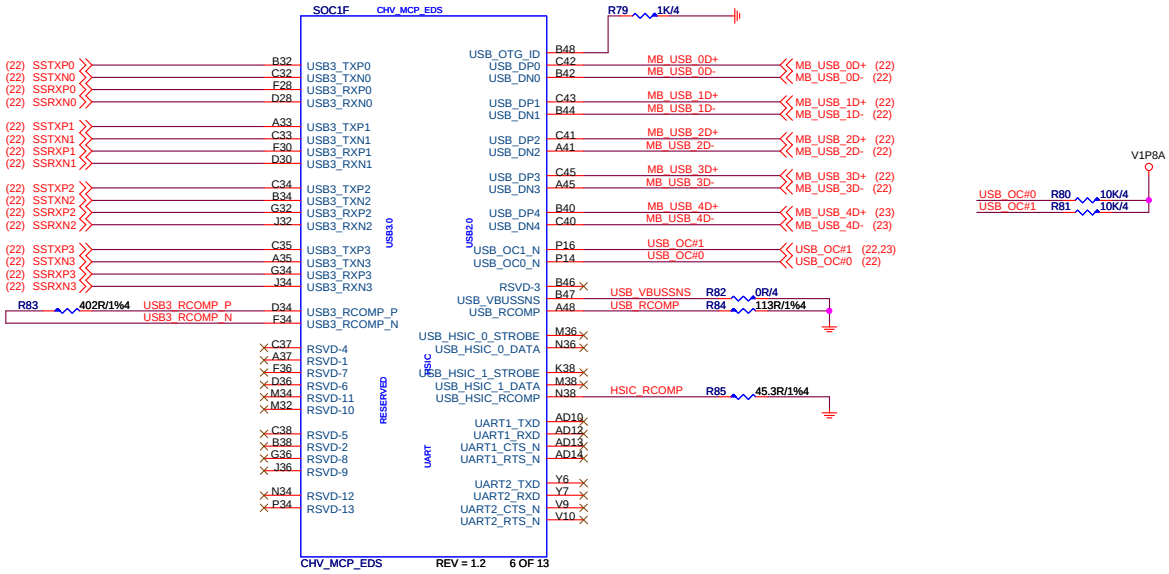

MICRO-STAR INT'L CO.,LTD.

Title: MS-G019

Size | Document Number: SOC-6 USB/UART | Rev: 21

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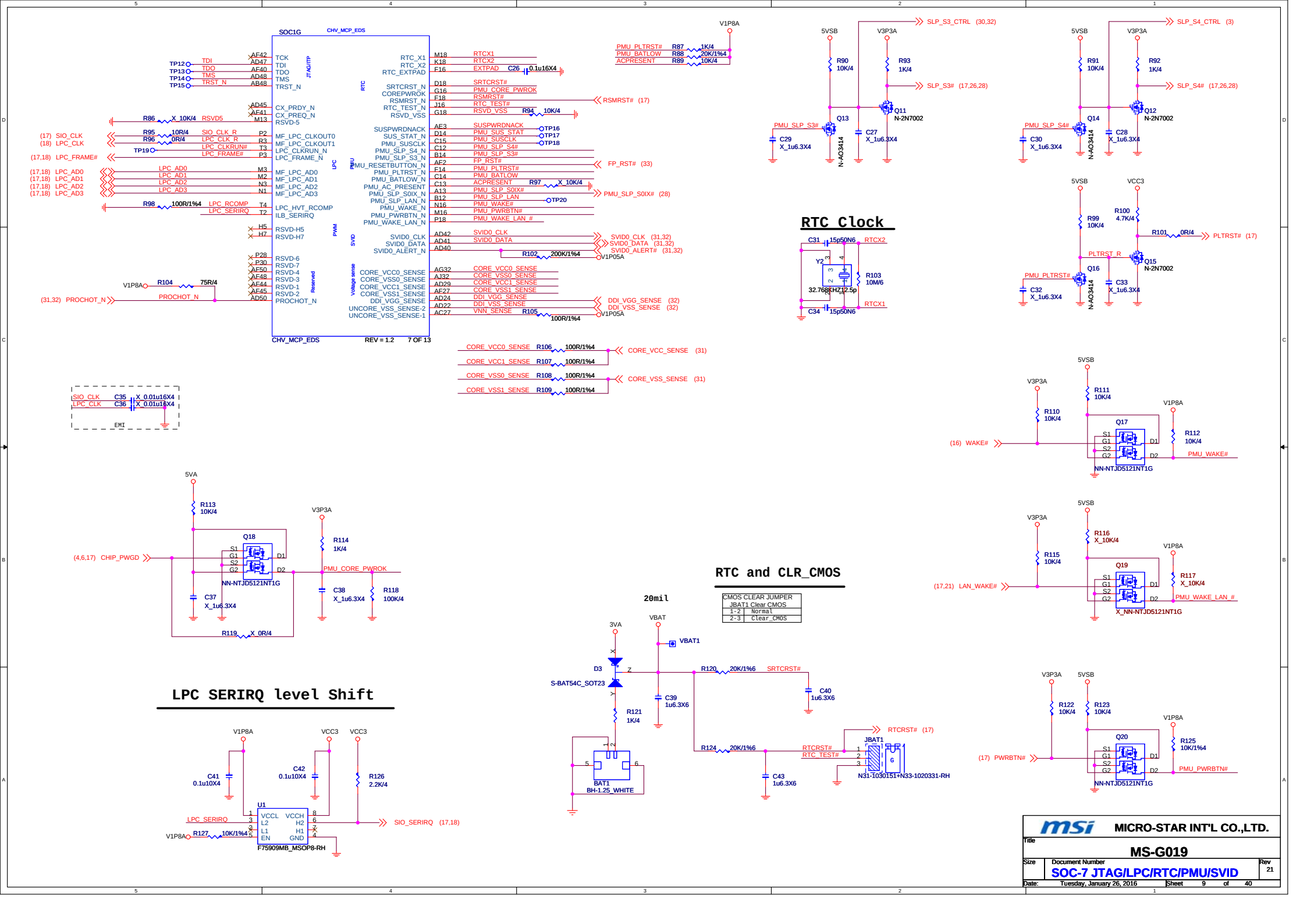
SOC1G
CHV_MCP_EDS
JTAG/ITP
LPC
PMU
SVID
PWM
RTC
Reserved
Voltage sense
TCK
TDI
TDO
TMS
TRST_N
CX_PRDY_N
CX_PREQ_N
RSVD-5
MF_LPC_CLKOUT0
MF_LPC_CLKOUT1
LPC_CLKRUN_N
LPC_FRAME_N
MF_LPC_AD0
MF_LPC_AD1
MF_LPC_AD2
MF_LPC_AD3
LPC_HVT_RCOMP
ILB_SERIRQ
RSVD-H5
RSVD-H7
RSVD-6
RSVD-7
RSVD-4
RSVD-3
RSVD-1
RSVD-2
PROCHOT_N
RTC_X1
RTC_X2
RTC_EXTPAD
SRTCRST_N
COREPWROK
RSMRST_N
RTC_TEST_N
RSVD_VSS
SUSPWRDNACK
SUS_STAT_N
PMU_SUSCLK
PMU_SLP_S4_N
PMU_SLP_S3_N
PMU_RESETBUTTON_N
PMU_PLTRST_N
PMU_BATLOW_N
PMU_AC_PRESENT
PMU_SLP_S0IX_N
PMU_SLP_LAN_N
PMU_WAKE_N
PMU_PWRBTN_N
PMU_WAKE_LAN_N
SVID0_CLK
SVID0_DATA
SVID0_ALERT_N
CORE_VCC0_SENSE
CORE_VSS0_SENSE
CORE_VCC1_SENSE
CORE_VSS1_SENSE
DDI_VGG_SENSE
DDI_VSS_SENSE
VNN_SENSE
UNCORE_VSS_SENSE-2
UNCORE_VSS_SENSE-1
CHV_MCP_EDS
REV = 1.2
7 OF 13
RTCX1
RTCX2
EXTPAD
SRTCRST#
PMU_CORE_PWROK
RSMRST#
RTC_TEST#
RSVD_VSS
SUSPWRDNACK
PMU_SUS_STAT
PMU_SUSCLK
PMU_SLP_S4#
PMU_SLP_S3#
FP_RST#
PMU_PLTRST#
PMU_BATLOW
ACPRESENT
PMU_SLP_S0IX#
PMU_SLP_LAN
PMU_WAKE#
PMU_PWRBTN#
PMU_WAKE_LAN_#
SVID0_CLK
SVID0_DATA
CORE_VCC0_SENSE
CORE_VSS0_SENSE
CORE_VCC1_SENSE
CORE_VSS1_SENSE
DDI_VGG_SENSE
DDI_VSS_SENSE
VNN_SENSE
V1P8A
V1P05A
RSMRST# (17)
FP_RST# (33)
PMU_SLP_S0IX# (28)
SVID0_CLK (31,32)
SVID0_DATA (31,32)
SVID0_ALERT# (31,32)
DDI_VGG_SENSE (32)
DDI_VSS_SENSE (32)
CORE_VCC_SENSE (31)
CORE_VSS_SENSE (31)
PROCHOT_N (31,32)
SIO_CLK (17)
LPC_CLK (18)
LPC_FRAME# (17,18)
LPC_AD0 (17,18)
LPC_AD1 (17,18)
LPC_AD2 (17,18)
LPC_AD3 (17,18)
LPC_RCOMP
LPC_SERIRQ
RSVD5
SIO_CLK_R
LPC_CLK_R
LPC_CLKRUN#
LPC_FRAME#
TP12
TP13
TP14
TP15
TP16
TP17
TP18
TP19
TP20
R86 X_10K/4
R87 1K/4
R88 20K/1%4
R89 10K/4
R90 10K/4
R91 10K/4
R92 1K/4
R93 1K/4
R94 10K/4
R95 10R/4
R96 0R/4
R97 X_10K/4
R98 100R/1%4
R99 10K/4
R100 4.7K/4
R101 0R/4
R102 200K/1%4
R103 10M/6
R104 75R/4
R105 100R/1%4
R106 100R/1%4
R107 100R/1%4
R108 100R/1%4
R109 100R/1%4
R110 10K/4
R111 10K/4
R112 10K/4
R113 10K/4
R114 1K/4
R115 10K/4
R116 X_10K/4
R117 X_10K/4
R118 100K/4
R119 X_0R/4
R120 20K/1%6
R121 1K/4
R122 10K/4
R123 10K/4
R124 20K/1%6
R125 10K/1%4
R126 2.2K/4
R127 10K/1%4
C26 0.1u16X4
C27 X_1u6.3X4
C28 X_1u6.3X4
C29 X_1u6.3X4
C30 X_1u6.3X4
C31 15p50N6
C32 X_1u6.3X4
C33 X_1u6.3X4
C34 15p50N6
C35 X_0.01u16X4
C36 X_0.01u16X4
C37 X_1u6.3X4
C38 X_1u6.3X4
C39 1u6.3X6
C40 1u6.3X6
C41 0.1u10X4
C42 0.1u10X4
C43 1u6.3X6
Y2 32.768KHZ12.5p
Q11 N-2N7002
Q12 N-2N7002
Q13 N-AO3414
Q14 N-AO3414
Q15 N-2N7002
Q16 N-AO3414
Q17 NN-NTJD5121NT1G
Q18 NN-NTJD5121NT1G
Q19 X_NN-NTJD5121NT1G
Q20 NN-NTJD5121NT1G
D3 S-BAT54C_SOT23
BAT1 BH-1.25_WHITE
JBAT1 N31-1030151+N33-1020331-RH
U1 F75909MB_MSOP8-RH
EMI
RTC Clock
RTC and CLR_CMOS
LPC SERIRQ level Shift
20mil
CMOS CLEAR JUMPER
JBAT1 Clear CMOS
1-2 Normal
2-3 Clear_CMOS
SLP_S3_CTRL (30,32)
SLP_S3# (17,26,28)
SLP_S4_CTRL (3)
SLP_S4# (17,26,28)
PMU_SLP_S3#
PMU_SLP_S4#
PLTRST# (17)
PMU_PLTRST#
(16) WAKE#
PMU_WAKE#
(17,21) LAN_WAKE#
PMU_WAKE_LAN_#
(17) PWRBTN#
PMU_PWRBTN#
(4,6,17) CHIP_PWGD
PMU_CORE_PWROK
RTCRST# (17)
SRTCRST#
RTCRST#
RTC_TEST#
SIO_SERIRQ (17,18)
LPC_SERIRQ
5VSB
V3P3A
VCC3
5VA
3VA
VBAT
VBAT1
RTCX2
RTCX1
MICRO-STAR INT'L CO.,LTD.
Title
MS-G019
Size
Document Number
SOC-7 JTAG/LPC/RTC/PMU/SVID
Rev
21
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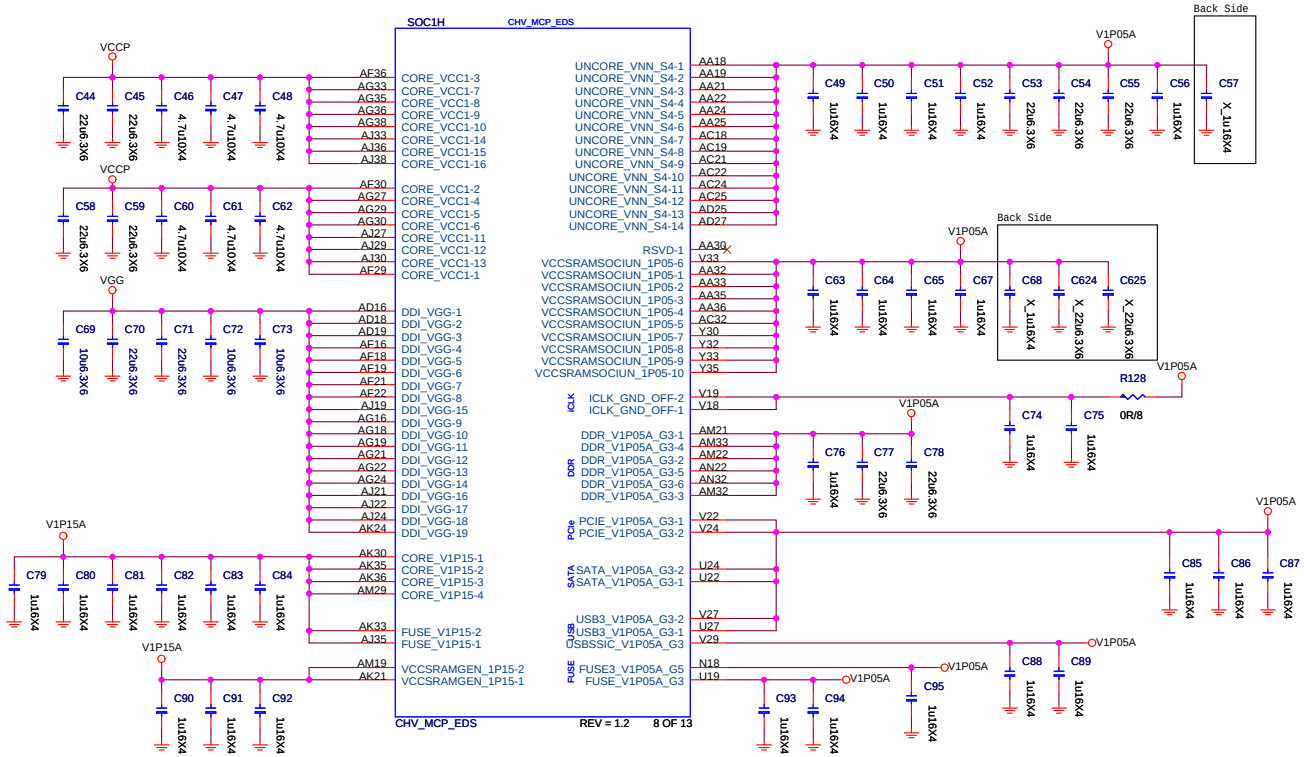

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Title: MS-G019		
Size	Document Number: SOC-8 POWER-1	Rev: 21
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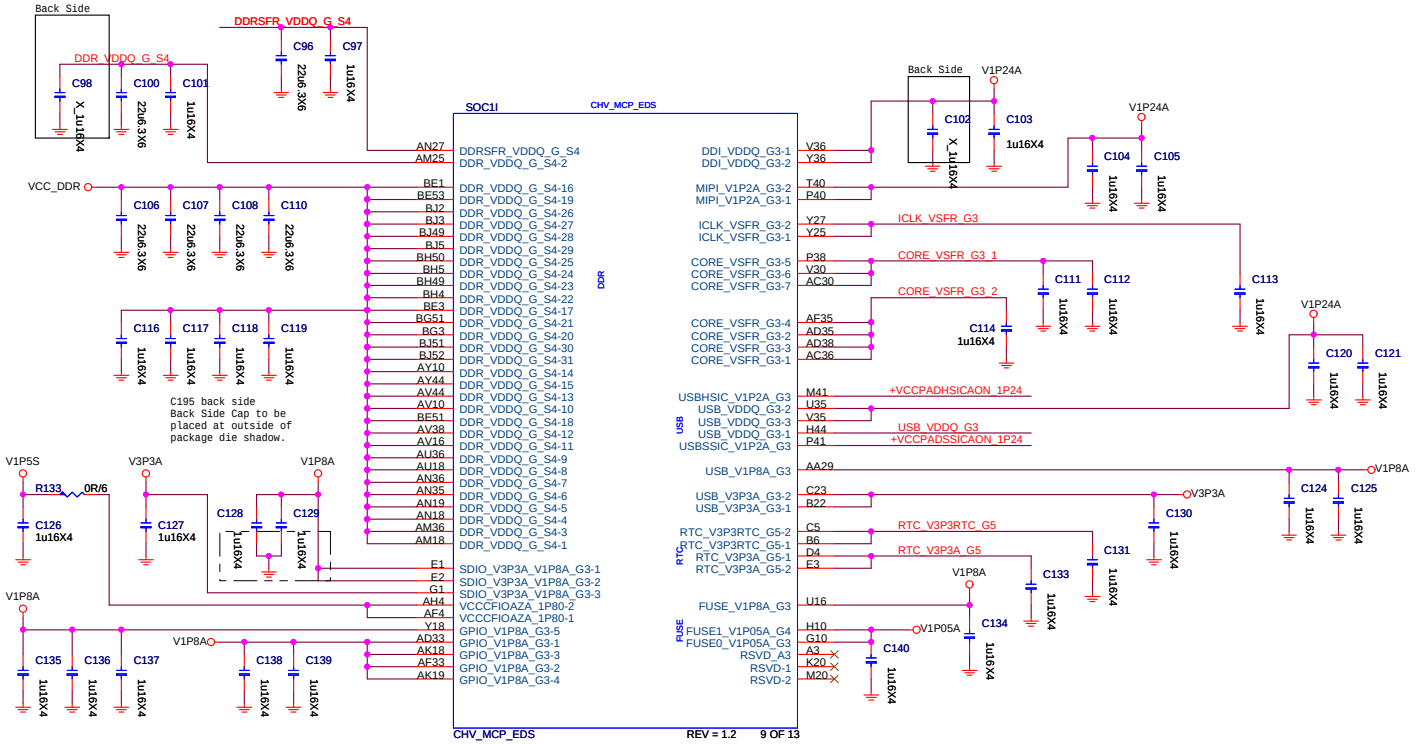
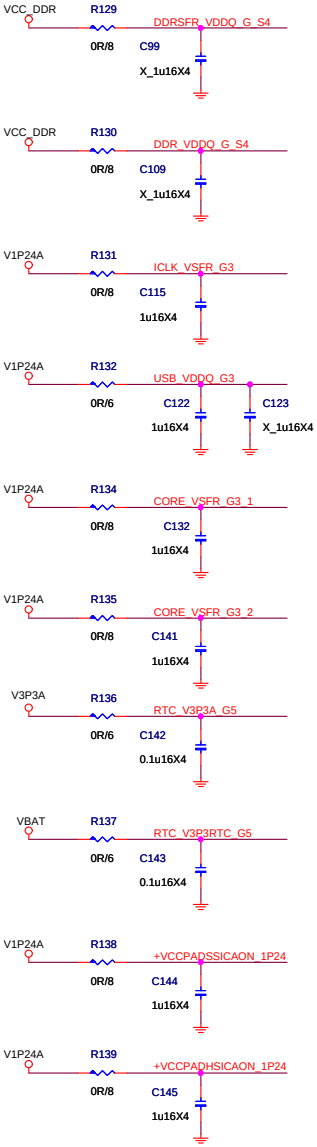


Power Filter



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Size | Document Number: SOC-9 POWER-2 | Rev: 21

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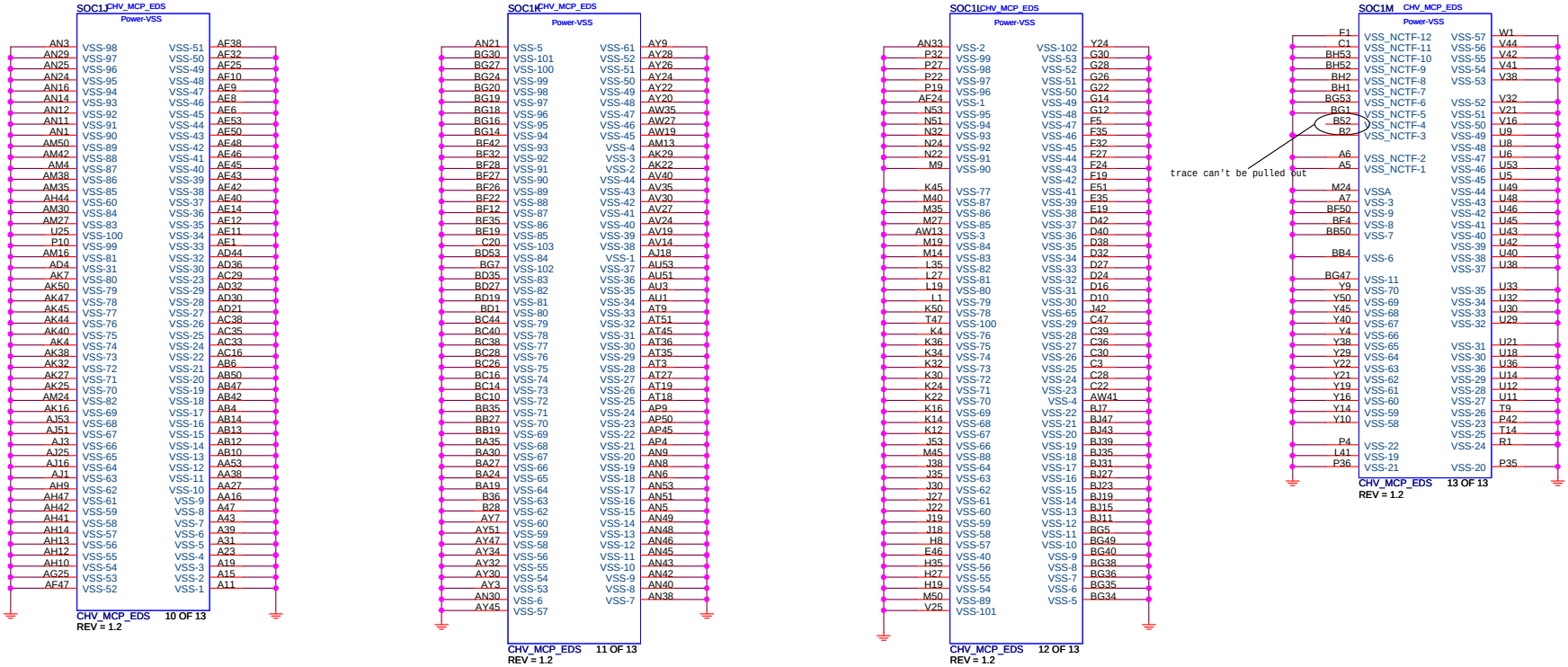

MICRO-STAR INT'L CO.,LTD.		
Title: MS-G019		
Size	Document Number: SOC-10 GND	Rev: 21
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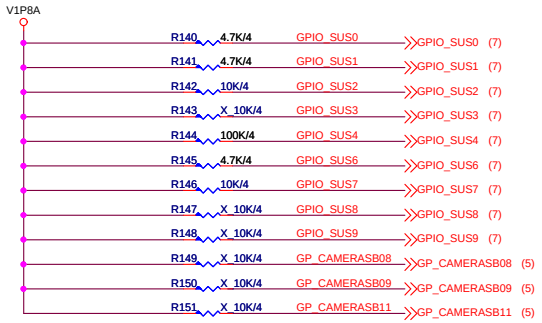

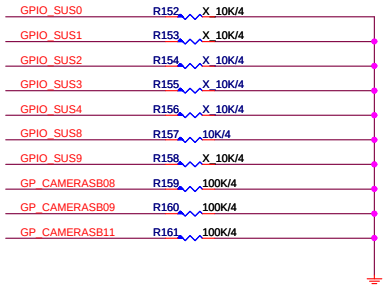

Table 24-1. Digital Display Ports Enable and Disable Guidelines

Port	Strap	How to Enable Port	How to Disable Port
DDI0	GPIO_SUS0	Pull-up to V1P8A with 4.7-KΩ ±5% resistor	N/A, Weak internal pull-down
DDI1	GPIO_SUS1	Pull-up to V1P8A with 4.7-KΩ ±5% resistor	N/A, Weak internal pull-down
Note: DDI2 is always enabled an no Hard Strap is needed.			

Table 2-26. Hard Strap Description and Functionality (Sheet 1 of 2)

Signal Name	Purpose	Pull-Up/Pull-Down	Strap Description
GPIO_SUS[0]	DDI0 Detect	Weak internal (20k PD)	0 = DDI0 not detected 1 = DDI0 detected
GPIO_SUS[1]	DDI1 Detect	Weak internal (20k PD)	0 = DDI1 not detected 1 = DDI1 detected
GPIO_SUS[2]	Top Swap (A16) override	Weak internal (20k PU)	0 = Change Boot Loader address 1 = Normal Operation
GPIO_SUS[3]	MIPI-DSI Display Detect	Weak internal (20k PD)	0 = DSI Port not detected 1= DSI Port detected **Note:** DSI is not POR for BSW. This strap will not enable DSI on BSW. Leave the pin floating if GPIO functionality is not used.
GPIO_SUS[4]	Boot BIOS Strap (BBS)	Weak internal (20k PU)	0 = No SPI (Default) 1 = SPI
GPIO_SUS[5]	Flash Descriptor Security Override	Weak internal (20k PU)	0 = Not supported 1 = Normal Operation
GPIO_SUS[6]	Halt Boot Strap	Weak internal (20k PU)	1= Normal Operation **Note:** This strap **MUST** be High at RSMRST_N de-assert to ensure proper platform operation and use of GPIO_DFX[8:0]
GPIO_SUS[8]	PLLs, ICLK, USB2, DDI SFR Supply Select	Weak internal (20k PU)	0 = Supply is 1.25V 1 = Supply is 1.35V
GPIO_SUS[9]	ICLK, USB2, DDI SFR Bypass	Weak internal (20k PD)	0 = No bypass 1 = Bypass with 1.05V

Table 2-26. Hard Strap Description and Functionality (Sheet 2 of 2)

Signal Name	Purpose	Pull-Up/Pull-Down	Strap Description
GPIO_CAMERASB08	ICLK Xtal OSC Bypass	Weak internal (20k PD)	0 = No Bypass (Default) 1 = Bypass
GPIO_CAMERASB09	CCU SUS RO Bypass	Weak internal (20k PD)	0 = No Bypass (Default) 1 = Bypass
GPIO_CAMERASB11	RTC OSC Bypass	Weak internal (20k PD)	0 = No Bypass (Default) 1 = Bypass

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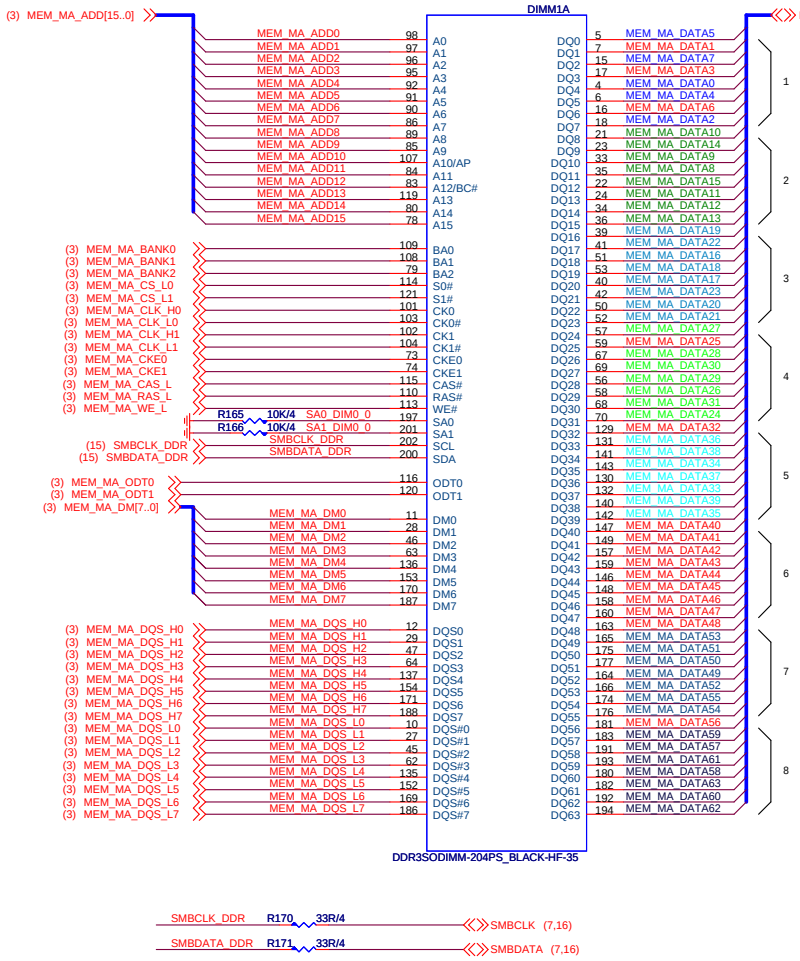
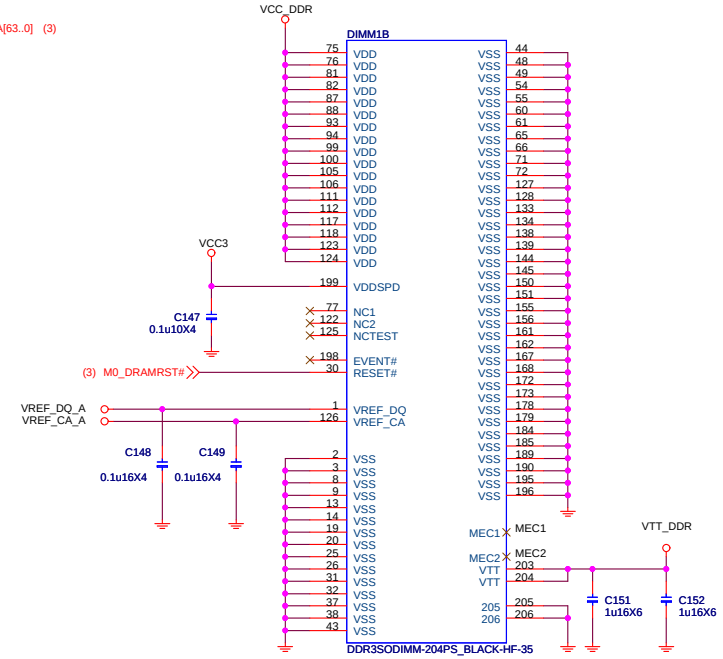
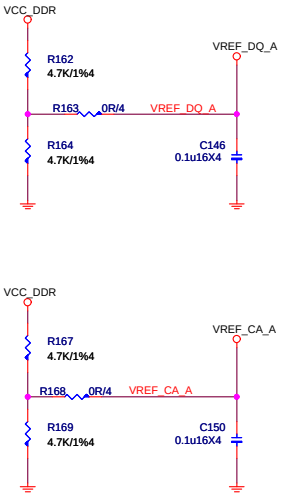
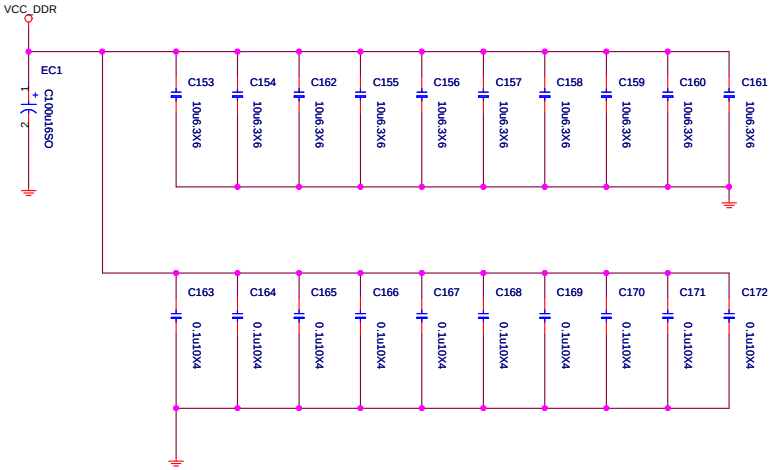
SODIMM #A0 (STD) N13-2040930-CK3 9.2H





Pin 205/Pin 206 PAD





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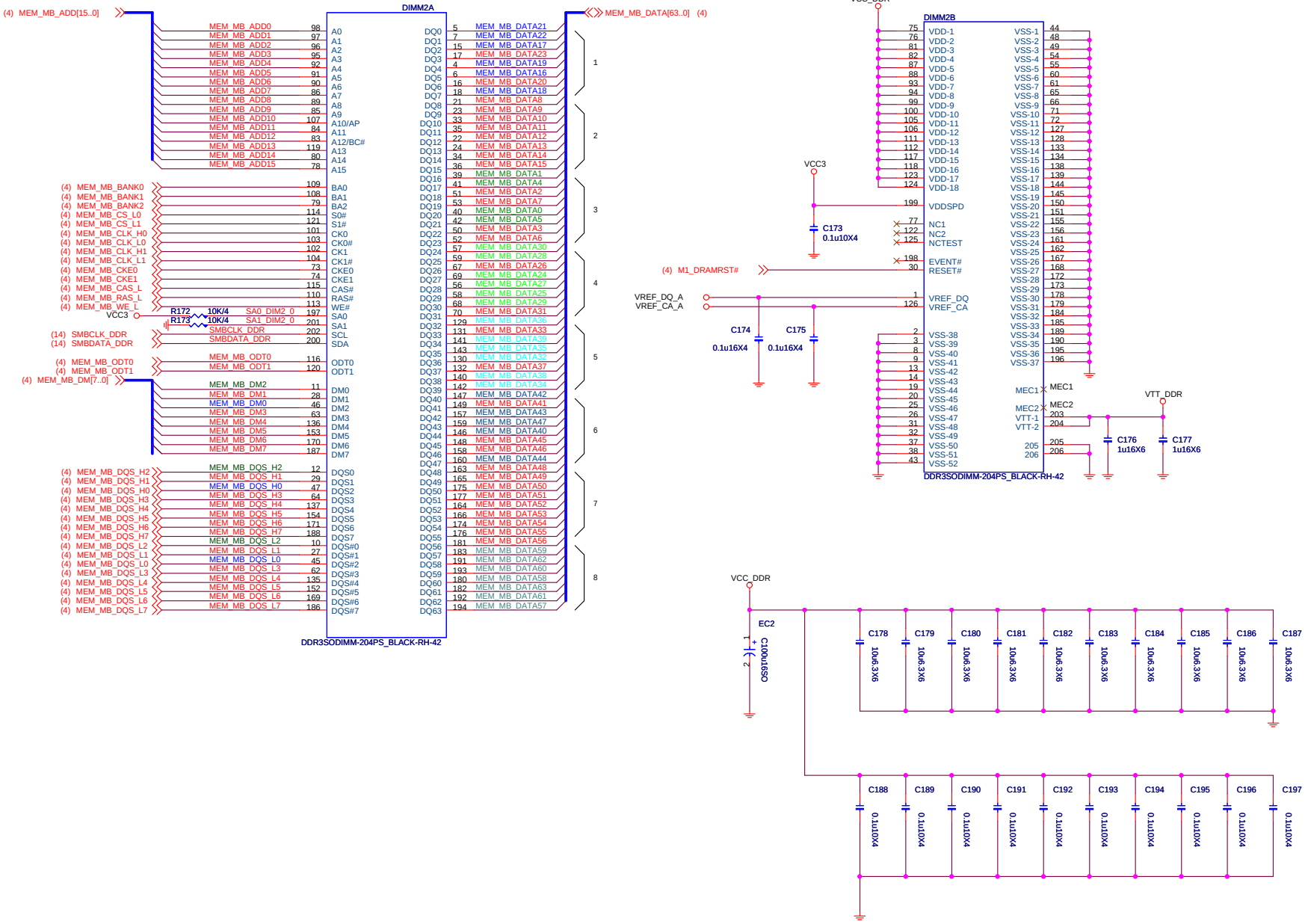
N13-2041200-CK3 9.2H

SODIMM #B0



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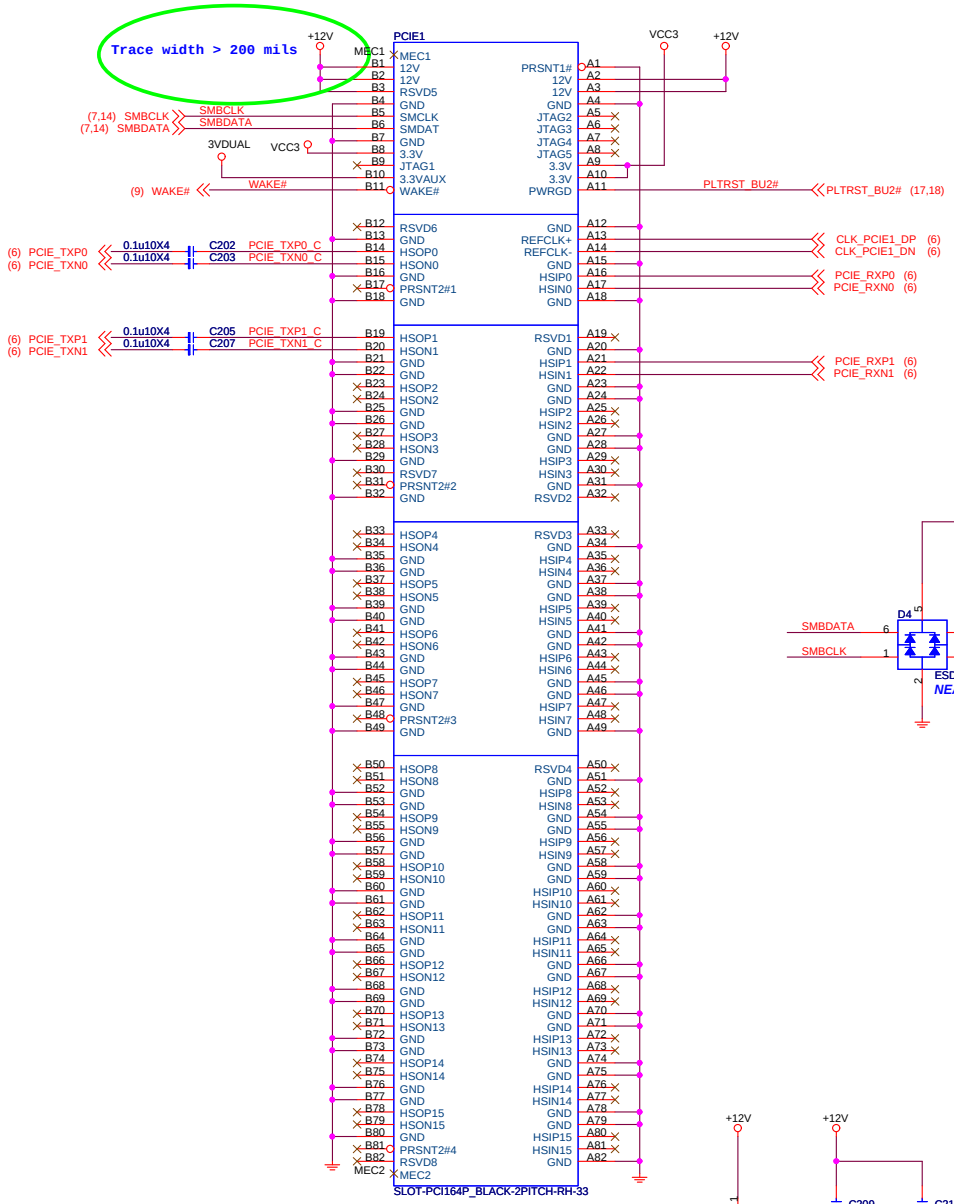
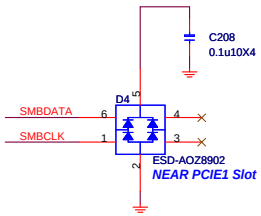
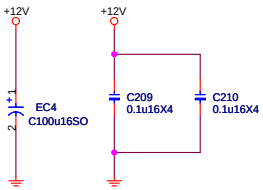
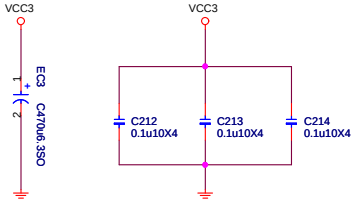
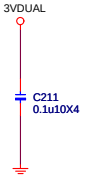
PCI Express X16 Slot



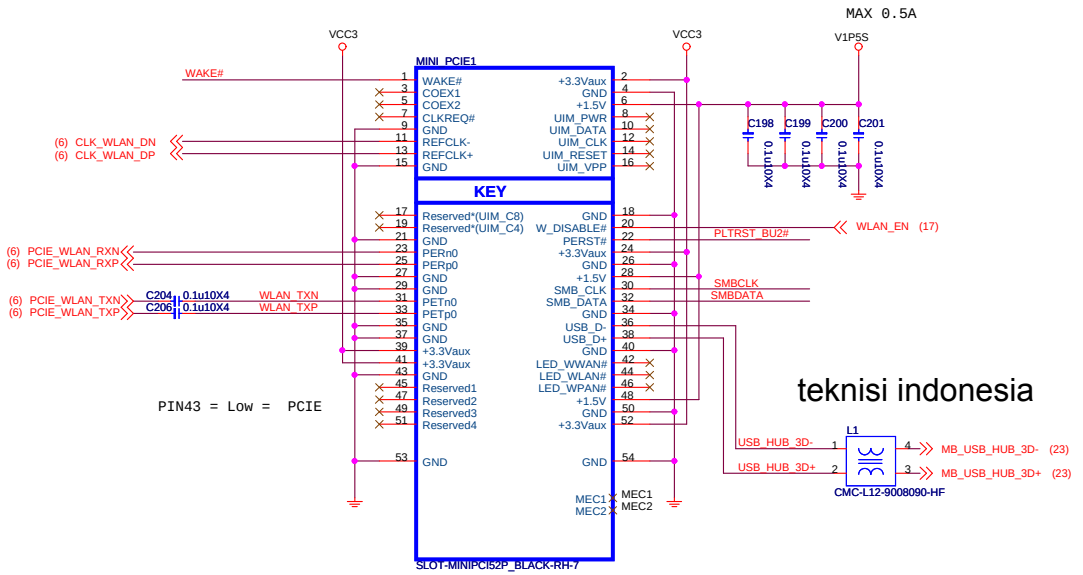


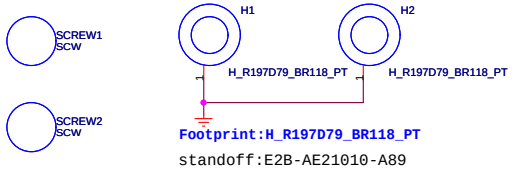






Mini-PCIEX1





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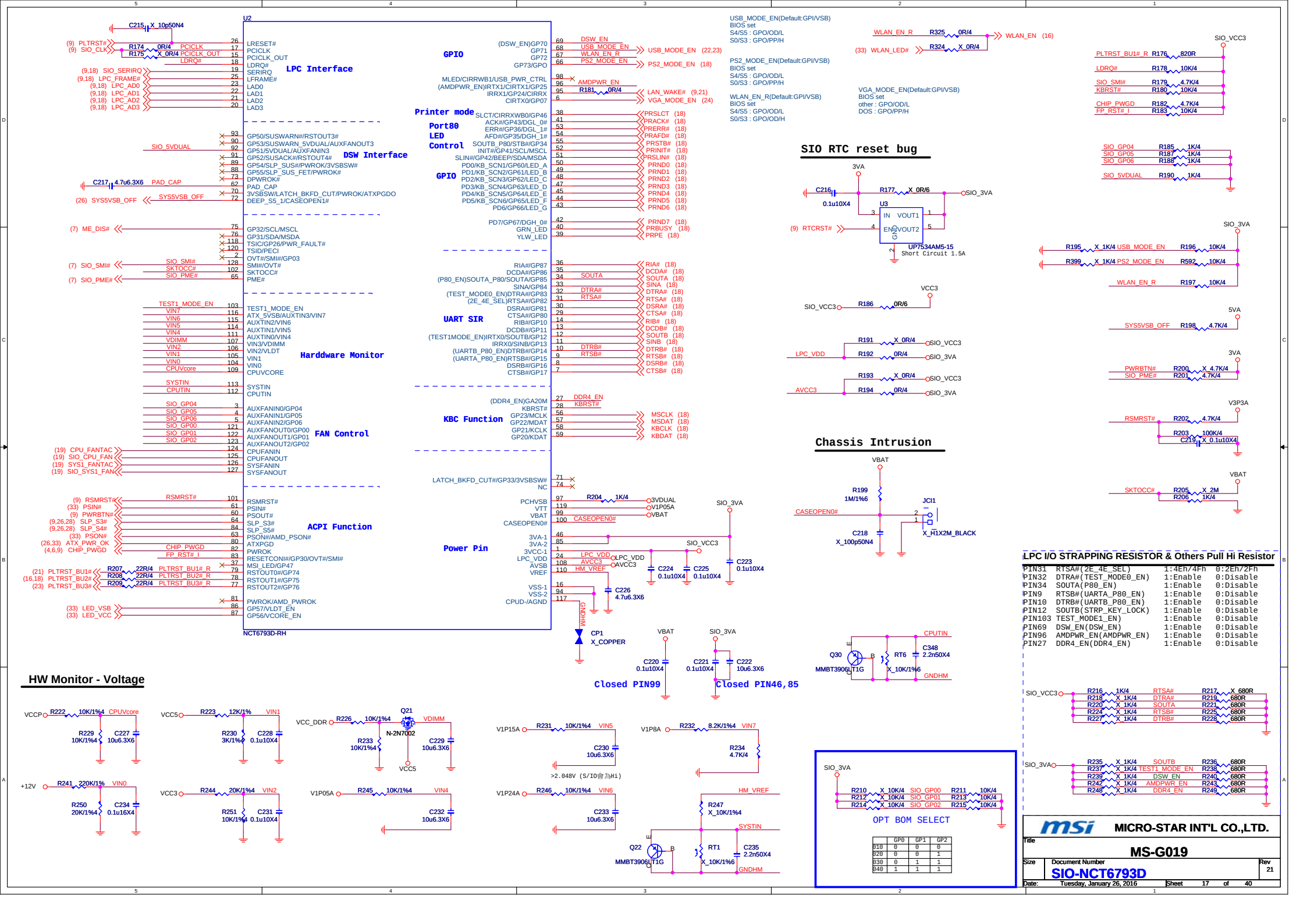
U2
NCT6793D-RH
LPC Interface
DSW Interface
Harddware Monitor
FAN Control
ACPI Function
GPIO
Printer mode
Port80
LED
Control
UART SIR
KBC Function
Power Pin
SIO RTC reset bug
Chassis Intrusion
UP7534AM5-15
Short Circuit 1.5A
JCI1
X_H1X2M_BLACK
HW Monitor - Voltage
Closed PIN99
Closed PIN46,85
OPT BOM SELECT
LPC I/O STRAPPING RESISTOR & Others Pull Hi Resistor
PIN31 RTSA#(2E_4E_SEL) 1:4Eh/4Fh 0:2Eh/2Fh
PIN32 DTRA#(TEST_MODE0_EN) 1:Enable 0:Disable
PIN34 SOUTA(P80_EN) 1:Enable 0:Disable
PIN9 RTSB#(UARTA_P80_EN) 1:Enable 0:Disable
PIN10 DTRB#(UARTB_P80_EN) 1:Enable 0:Disable
PIN12 SOUTB(STRP_KEY_LOCK) 1:Enable 0:Disable
PIN103 TEST_MODE1_EN) 1:Enable 0:Disable
PIN69 DSW_EN(DSW_EN) 1:Enable 0:Disable
PIN96 AMDPWR_EN(AMDPWR_EN) 1:Enable 0:Disable
PIN27 DDR4_EN(DDR4_EN) 1:Enable 0:Disable
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SIO-NCT6793D
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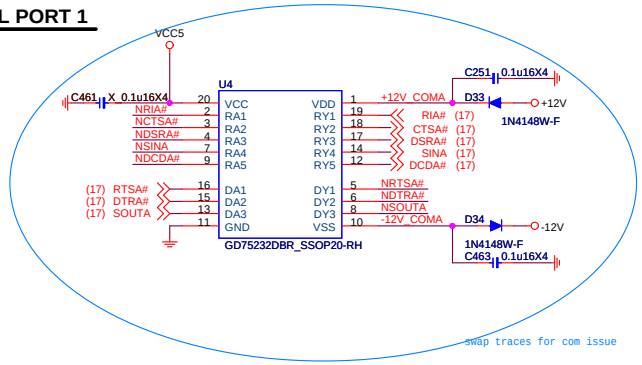
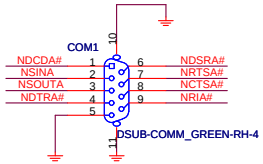
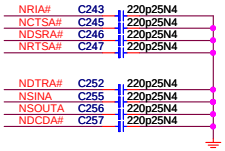
SERIAL PORT 1







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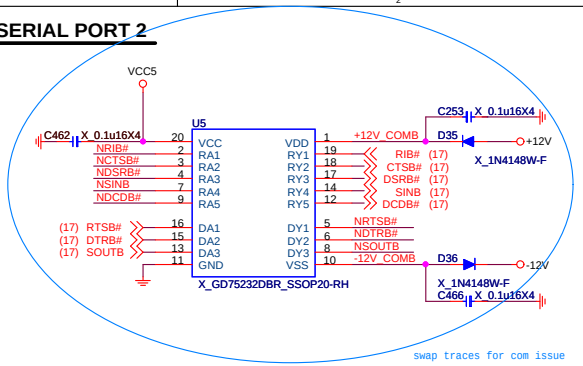

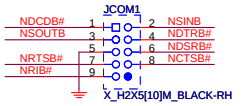

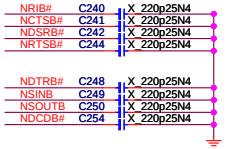

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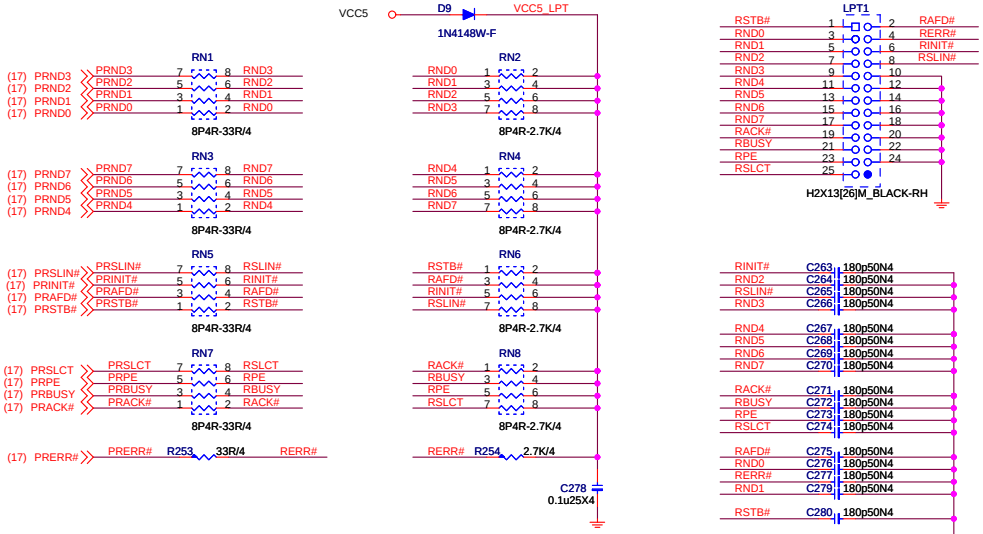
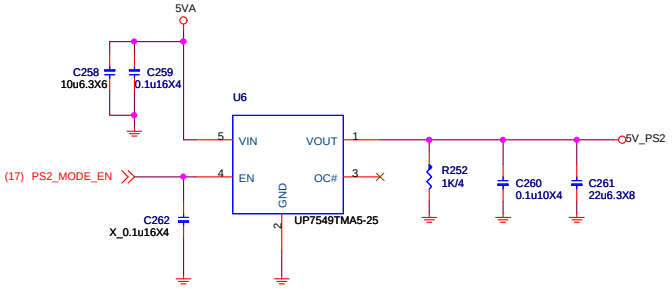
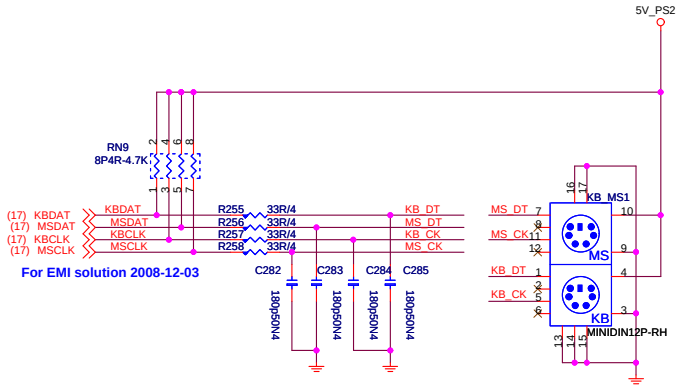
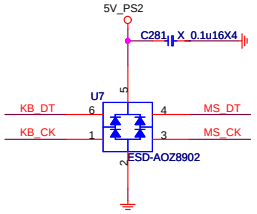
PARALLAL PORT



PS2 KEYBOARD & MOUSE CONNECTOR







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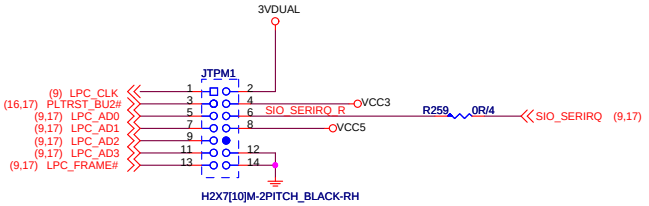

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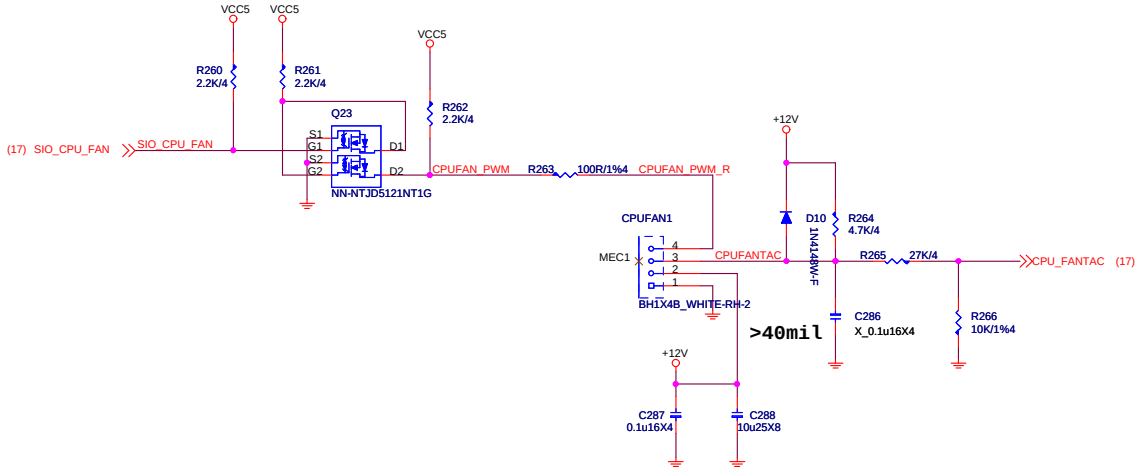
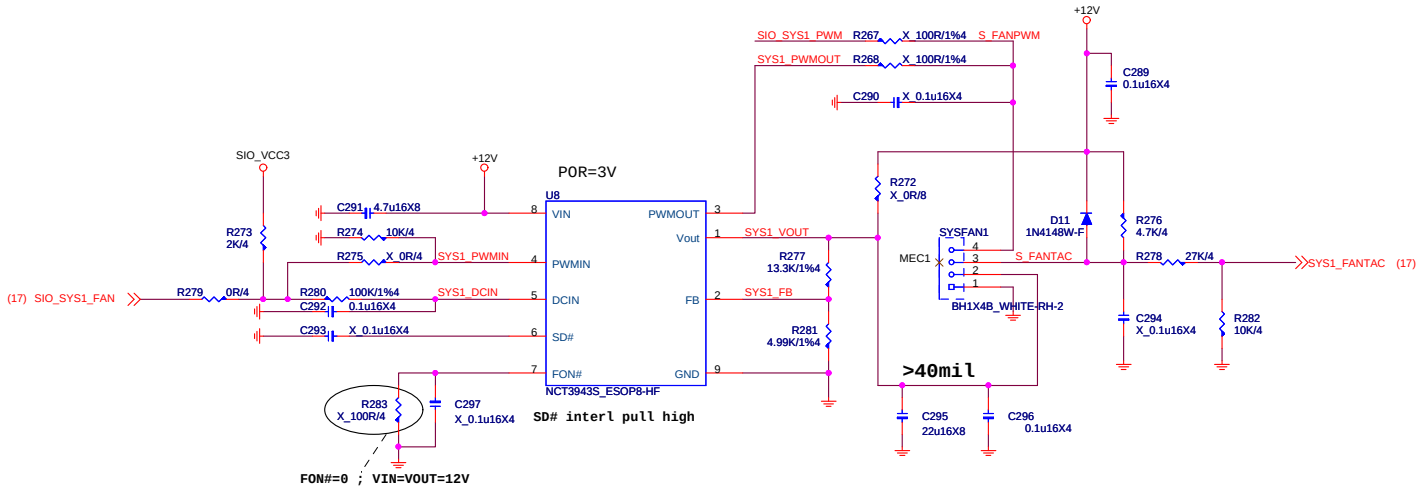
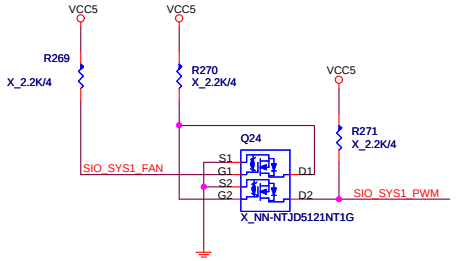
CPUFAN



SYSFAN





SYSFAN_PWR_OFF
SIO control
Close SIO_SYS1_FAN Vout=0

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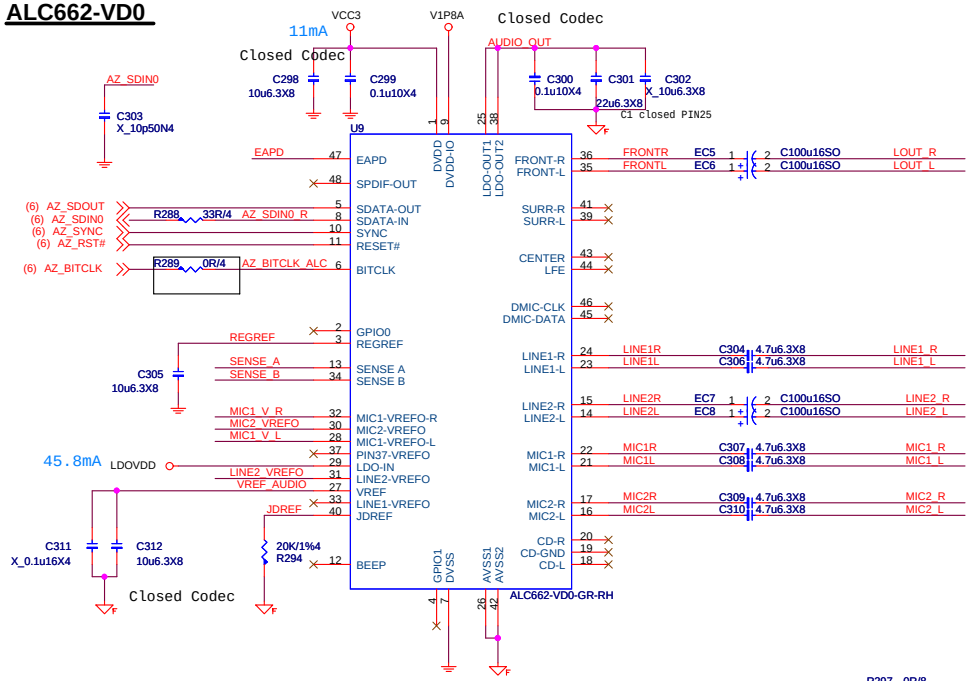
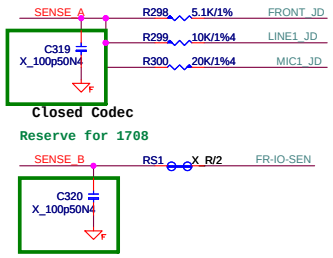
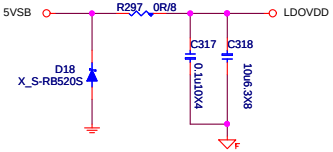
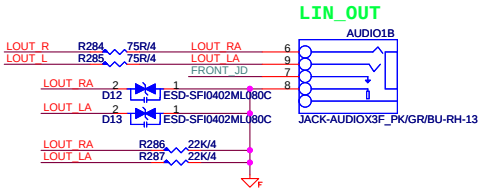
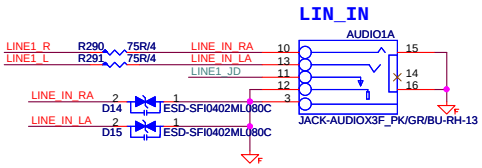
ALC662-VD0

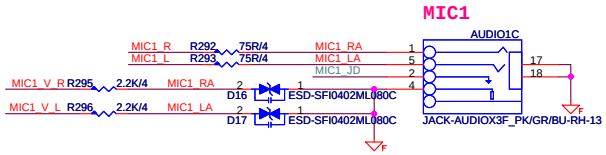


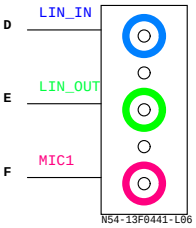


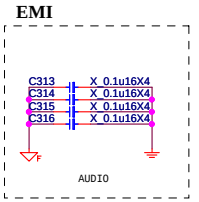


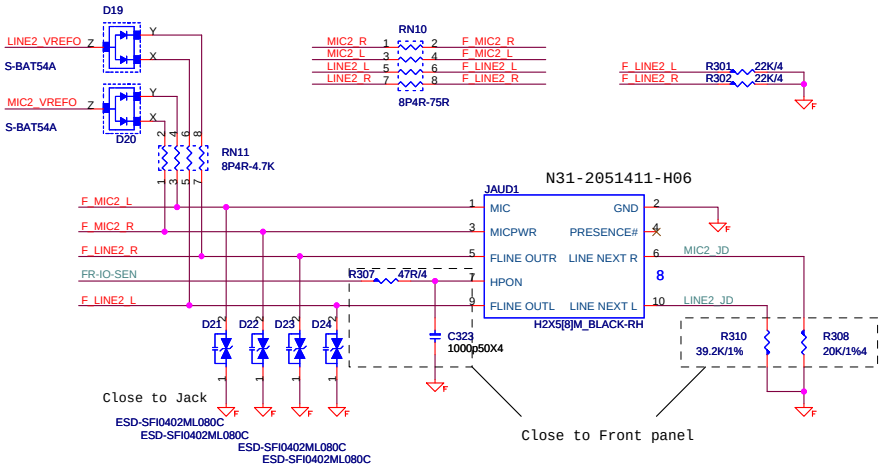






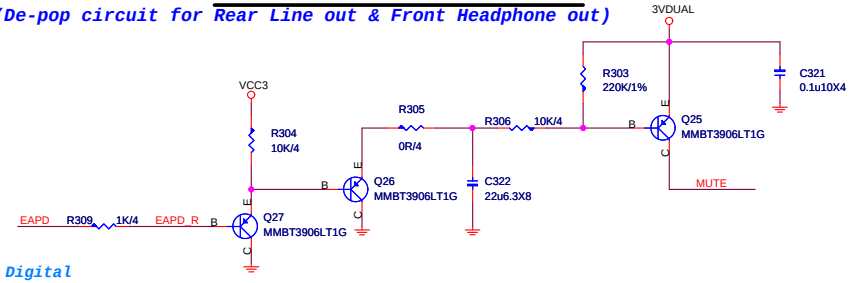






Rear Line OUT De-POP circuit

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



Digital

Analog

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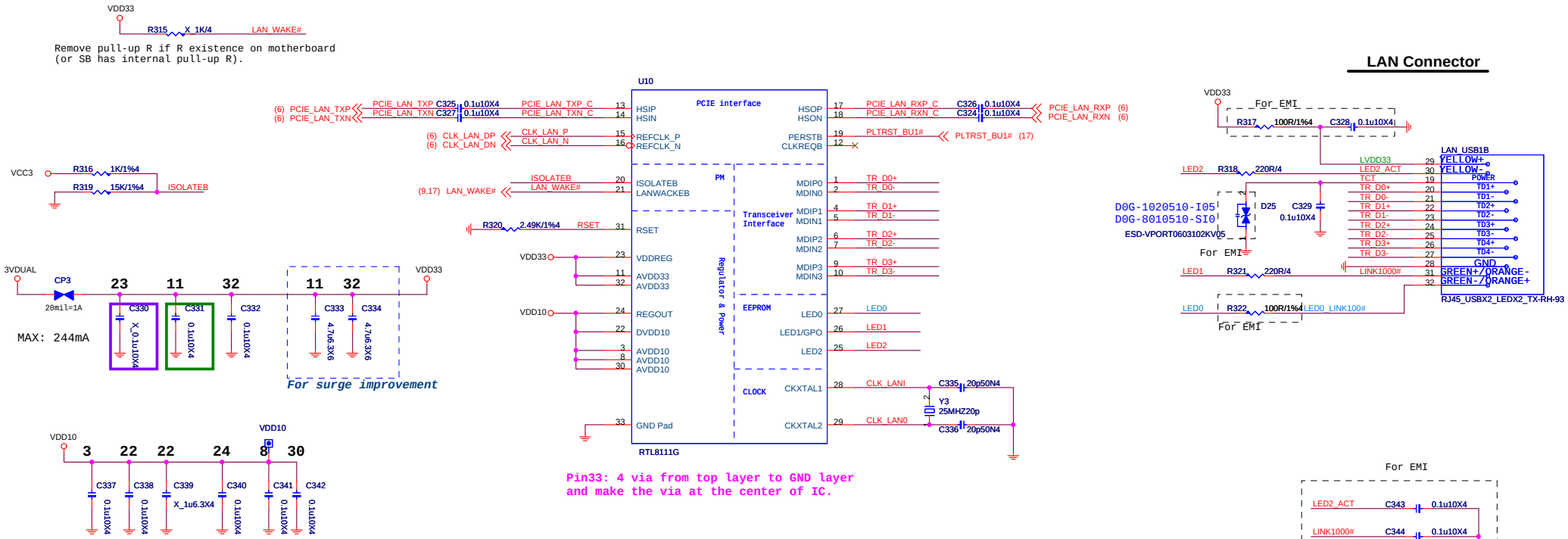
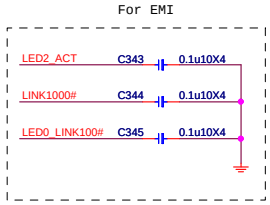
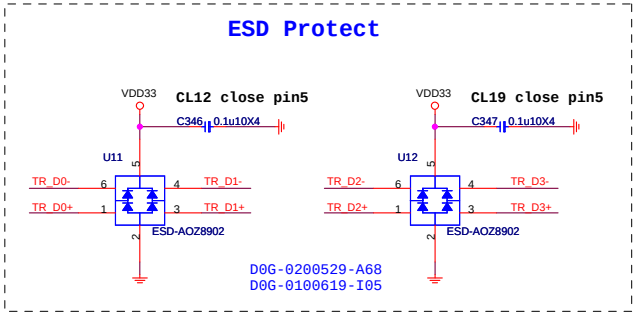
RTL8111G Giga LAN



LAN Connector



ESD Protect



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

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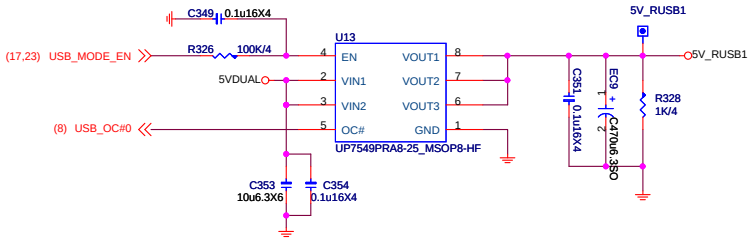
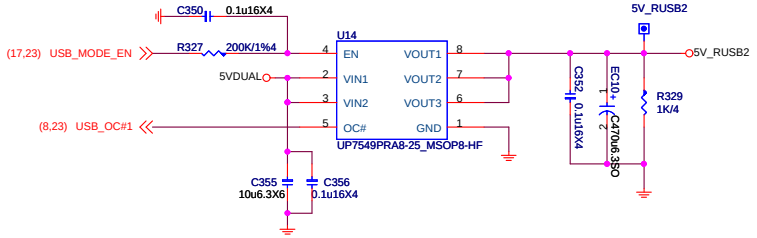
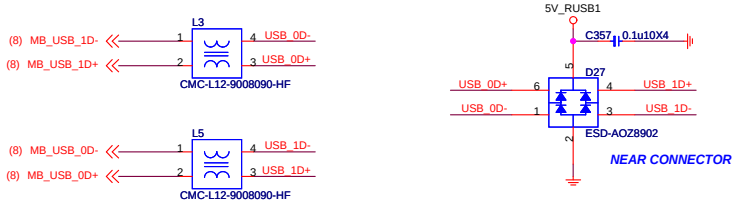
USB POWER: UP7549PRA8-25

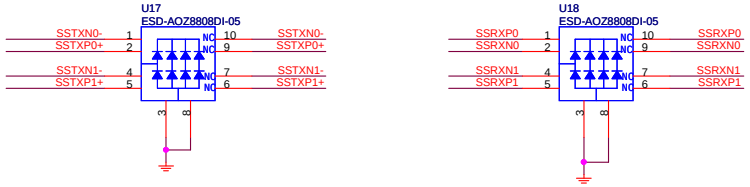


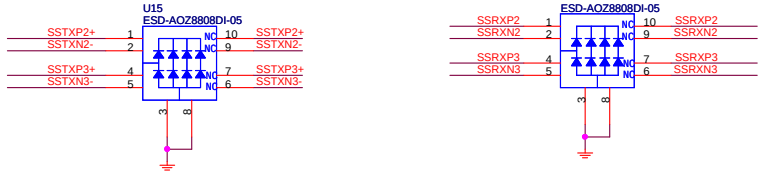


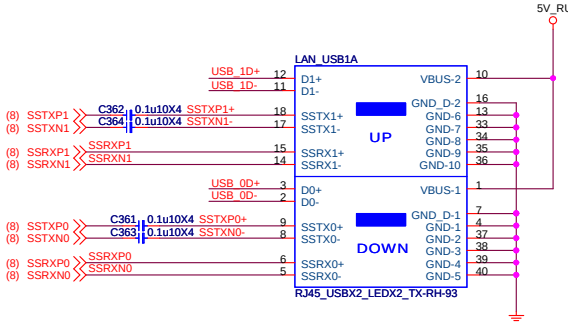
Rear USB PORT 0,1

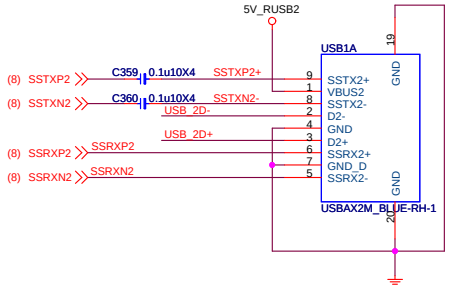


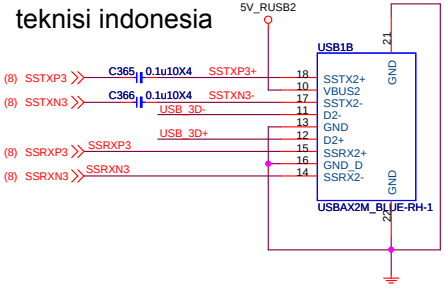
Rear USB PORT 2,3











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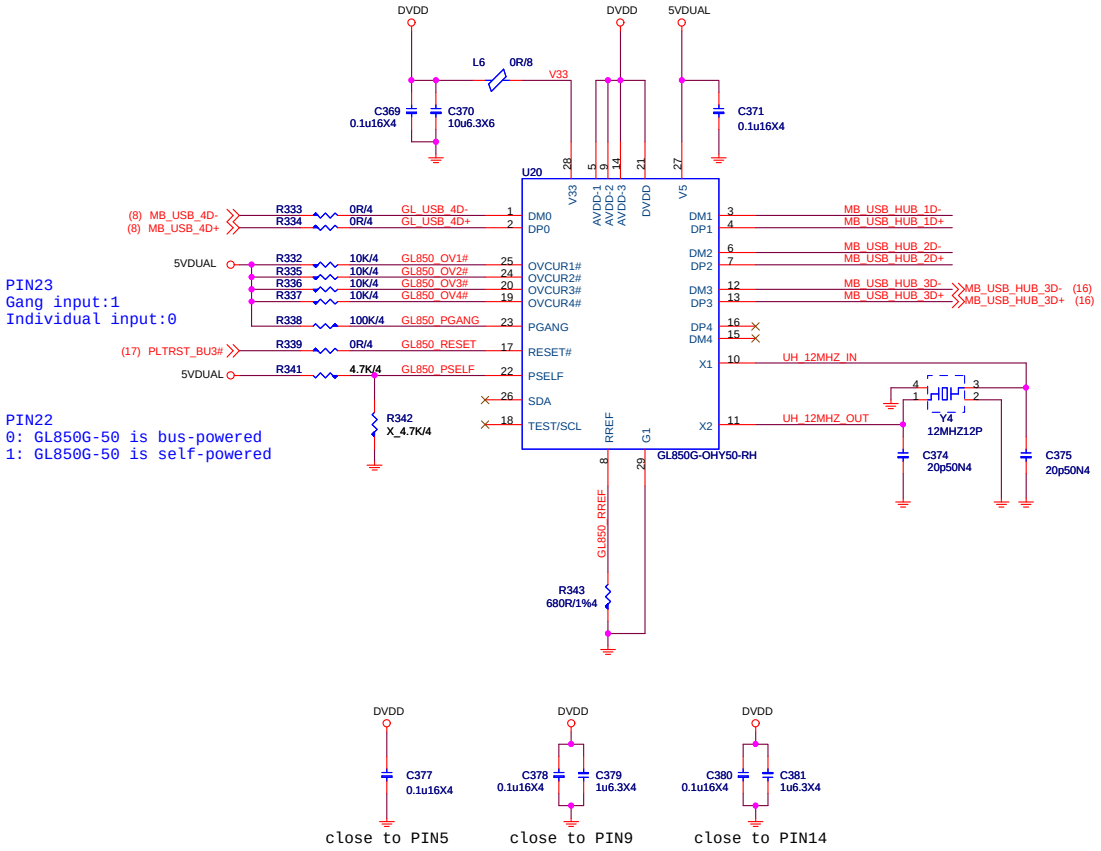
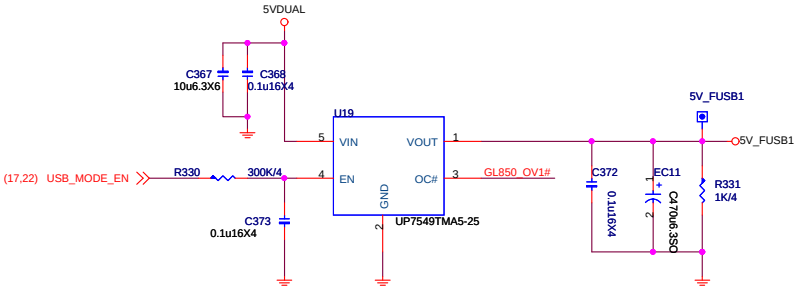
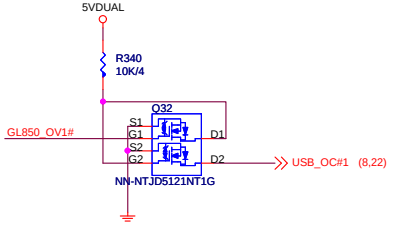
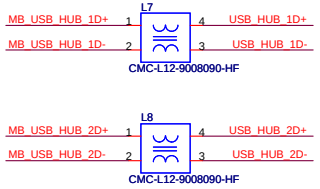
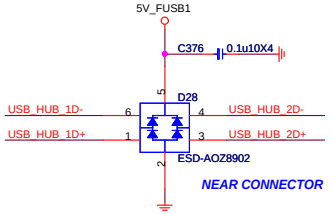
USB HUB

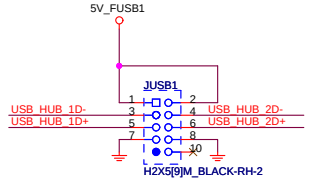












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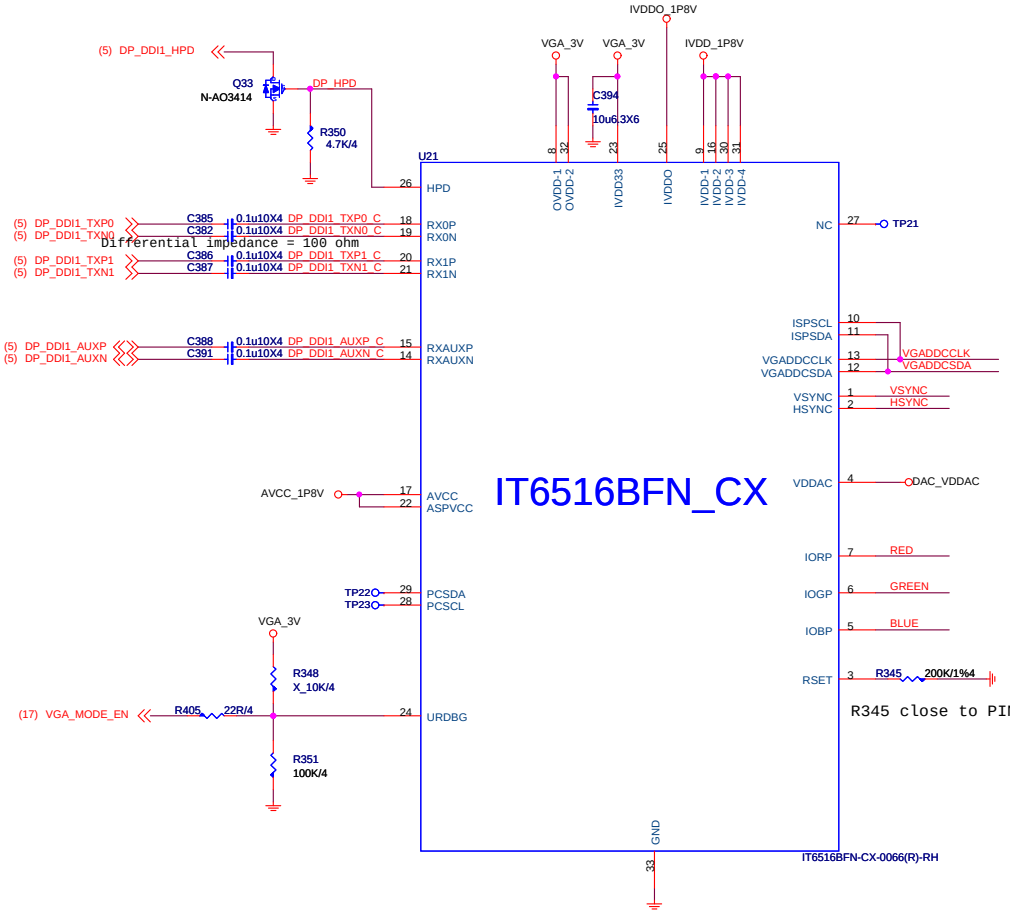
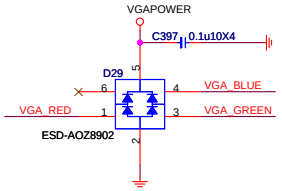
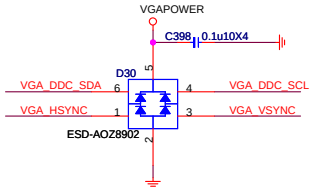
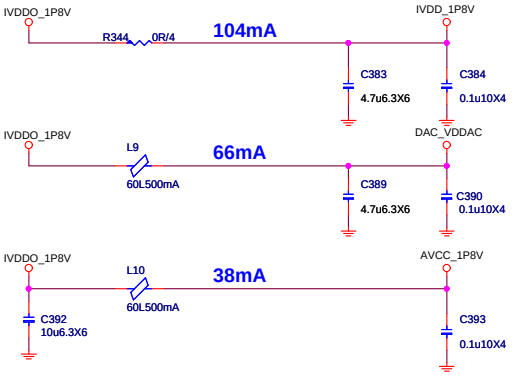
D-Sub

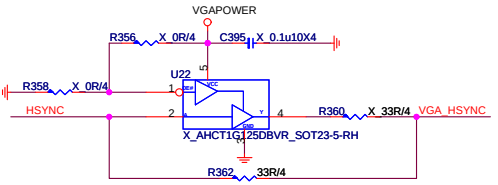


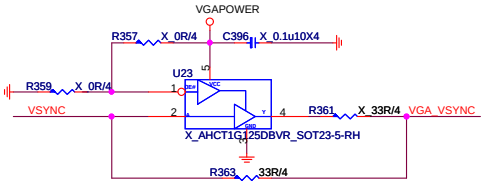




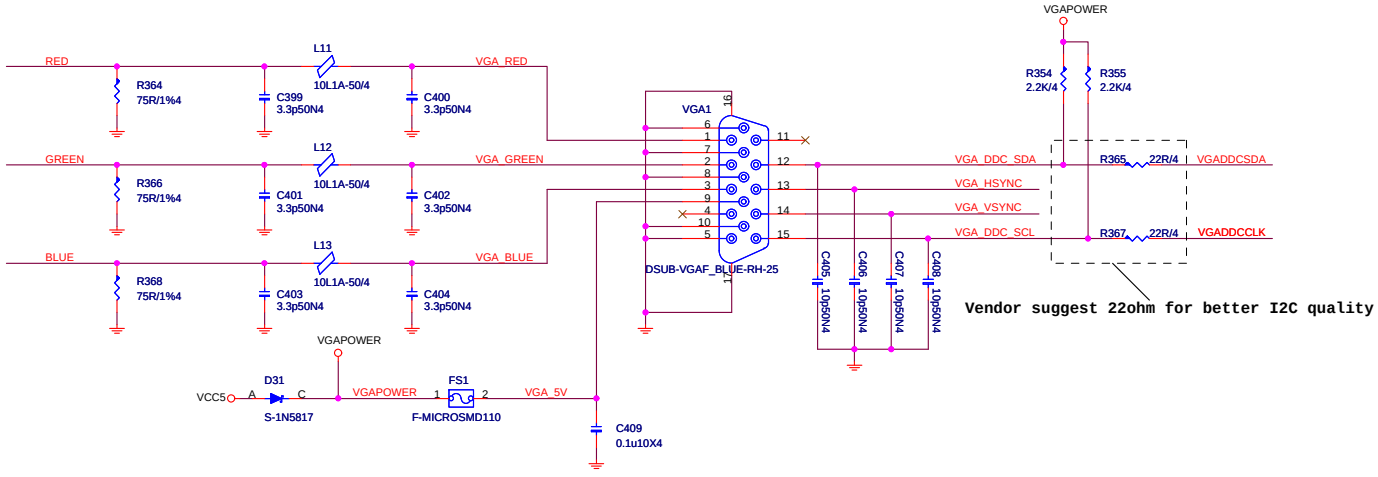


Close to PIN32

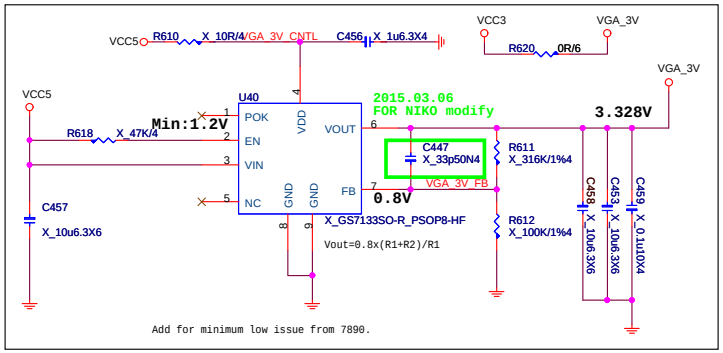




teknisi indonesia



Vendor suggest 22ohm for better I2C quality



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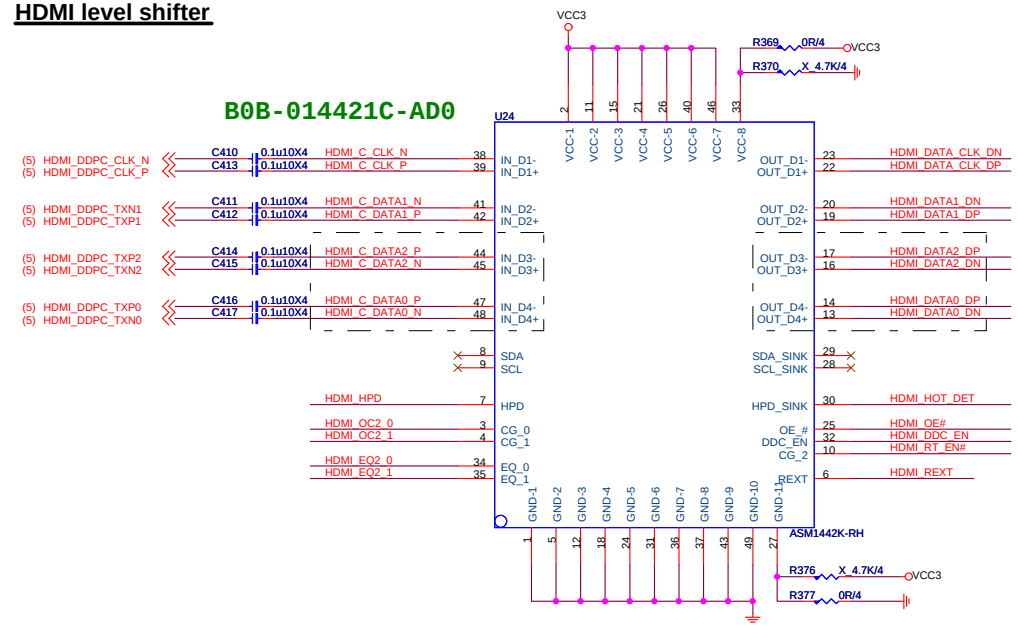
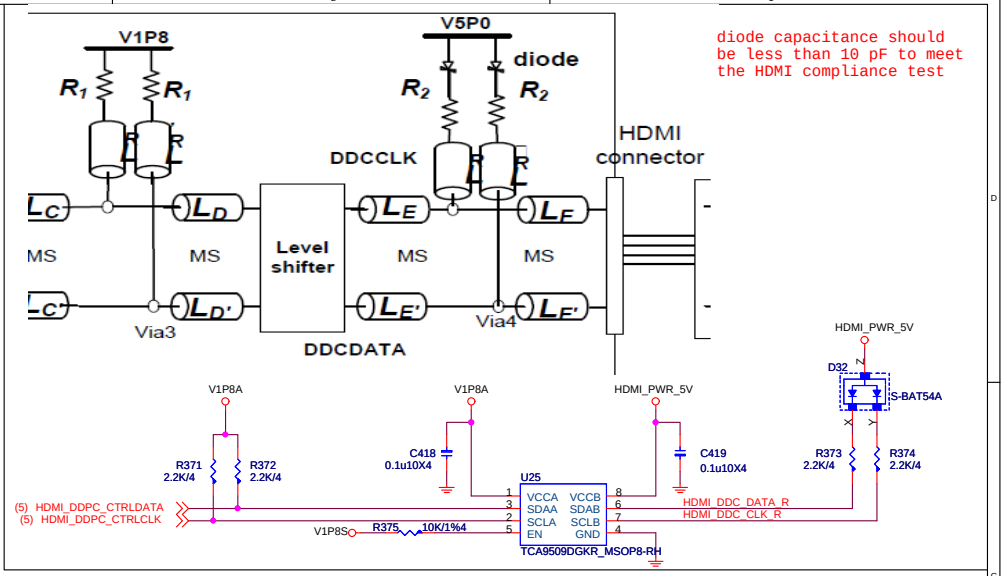
HDMI level shifter

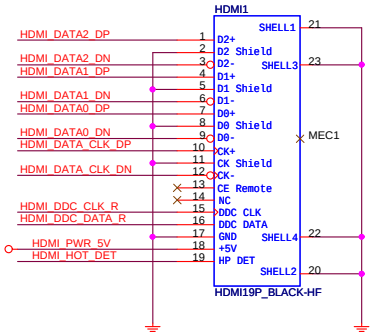
B0B-014421C-AD0





diode capacitance should be less than 10 pF to meet the HDMI compliance test

I9B-9509D12-T07



NXP :9.53K
ASMEDIA:3K

HPD

注意High/Low Detect

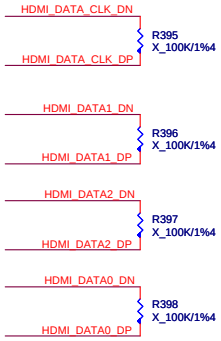
asmedia pull down 20K

	"0"	"1"	note
DDC_EN	DDC level shifter disable	DDC level shifter enable	internal pull-up at ~500K ohm.
RT_EN#	Input 50 ohm termination resistor enable	the input termination ; resistors are set to high impedances	internal pull-down at ~500K ohm.
OE#	enable	the chip is power down and input termination resistors will be at high impedance.	internal pull-down at ~500K ohm.
HPD_SINK	disable	enable	internal pull-down at ~200K ohm; 5V tolerant.
DDCBUF_EN	For DDC level shifitng configuration, please refer to Table.		internal pull-down at ~500K ohm.
REXT			analog current generation.

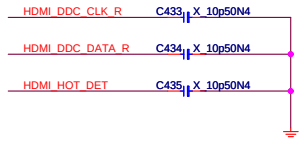
[DDC_EN, DDCBUF_EN, OE#]	DDC Passive Switch	DDC Active Buffer
1, 0, X	On	Off
1, 1, 0	Off	On
1, 1, 1	Off	Off
0, X, X	Off	Off

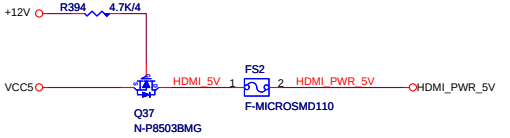
PC1, PC0		note
00	8 dB	internal pull-down at ~500K ohm.
01	4 dB	
10	12 dB	
11	0 dB	

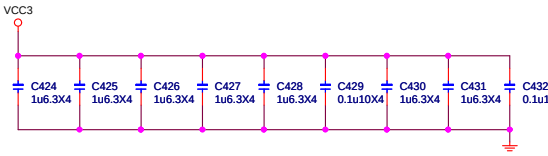
EMI



EMI cap.







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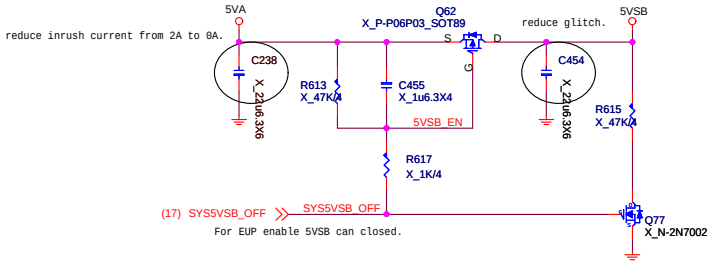
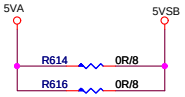
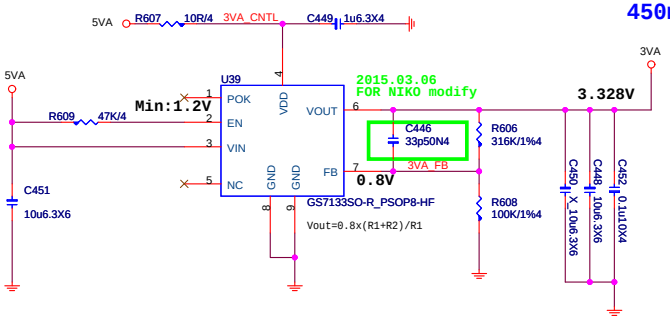
5VSB Power Switch

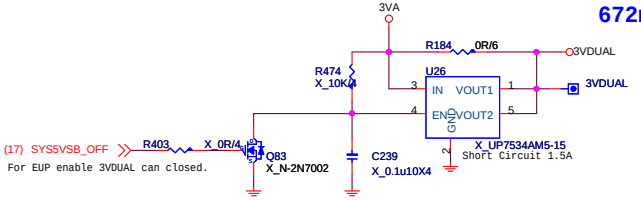




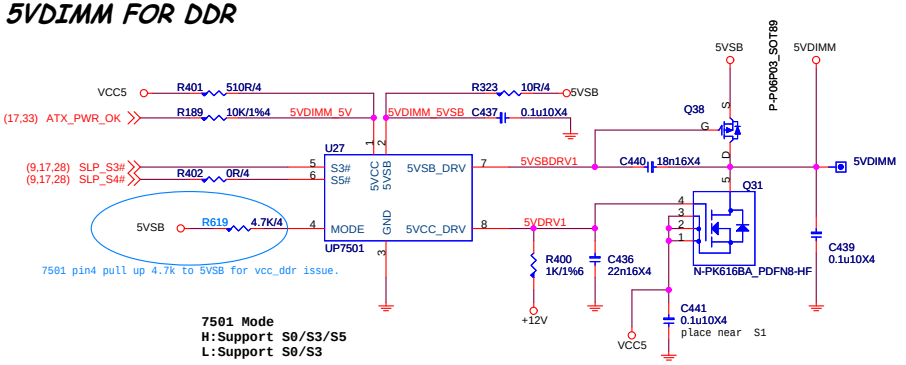
3VA

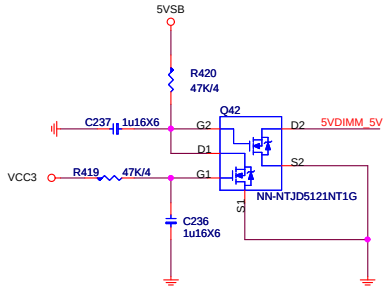


3VDUAL

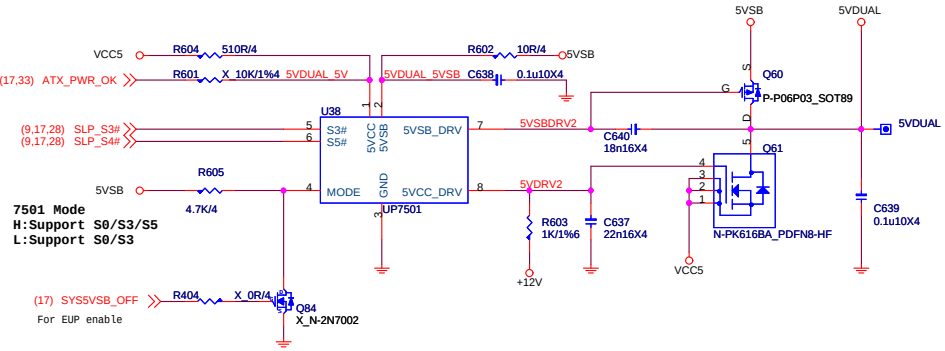


5VDIMM FOR DDR





5VDUAL



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SYSTEM POWER

+5VSUS/+3VSUS/VCC5/VCC3

Remove All.

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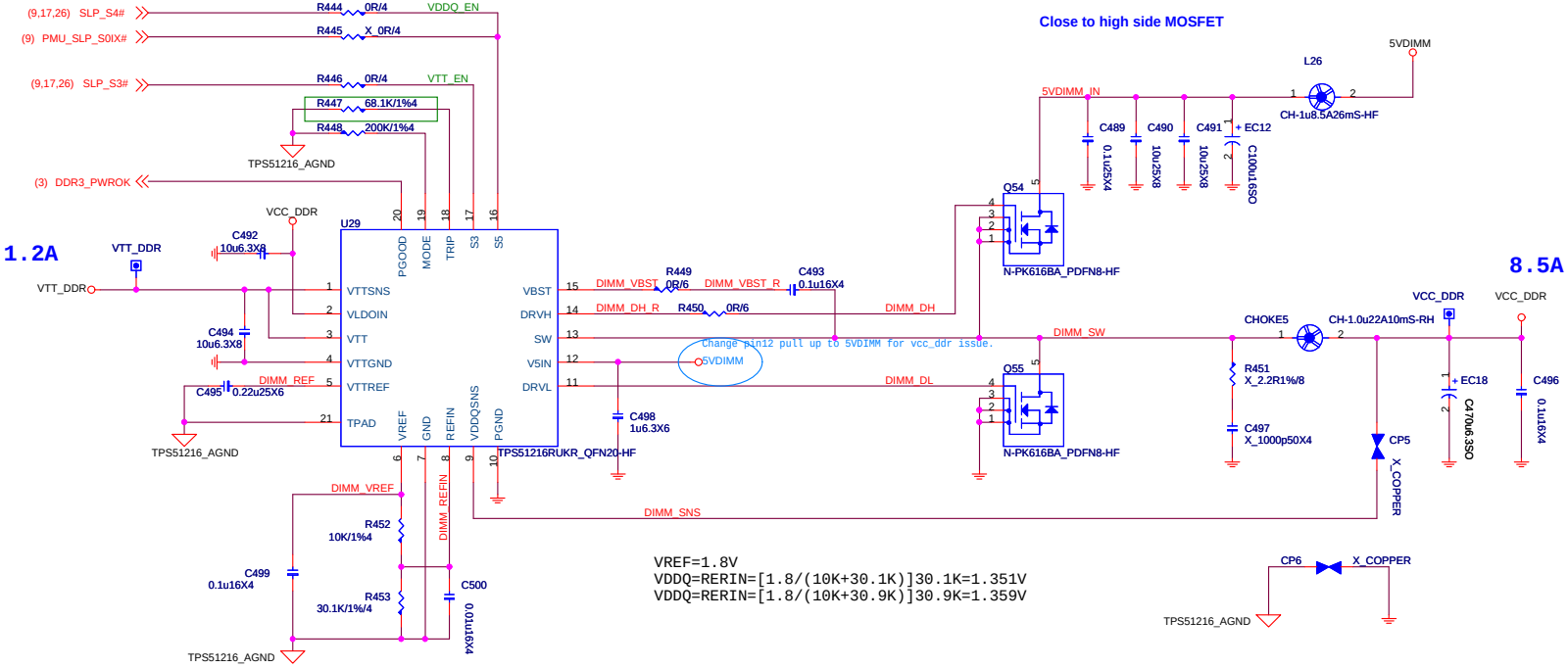
VCC_DDR/VTT_DDR POWER

S3/S5 Power State Control

STATE	S3	S5	VREF	VDDQ	VTTREF	VTT
S0	HI	HI	ON	ON	ON	ON
S3	LO	HI	ON	ON	ON	OFF(High-Z)
S4/S5	LO	LO	OFF	OFF(Discharge)	OFF(Discharge)	OFF(Discharge)



MICRO-STAR INT'L CO.,LTD.

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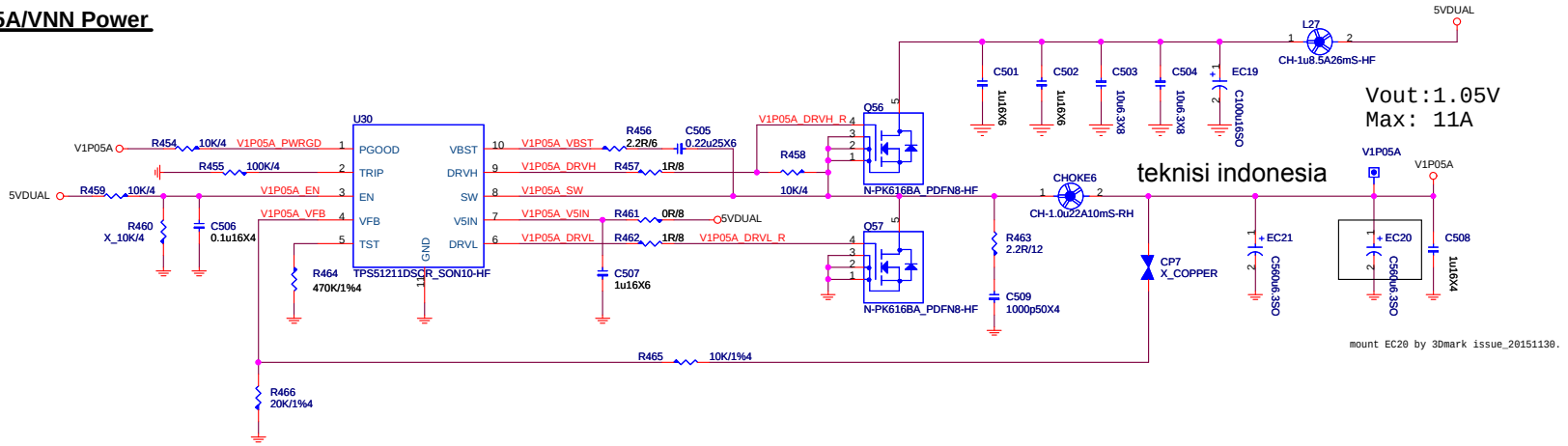
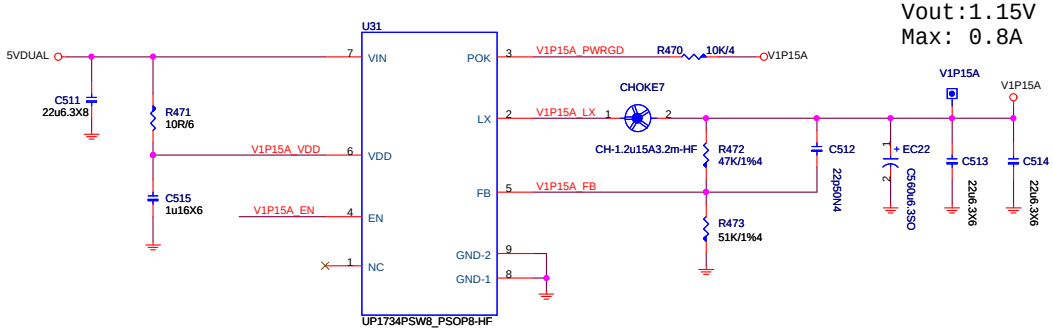
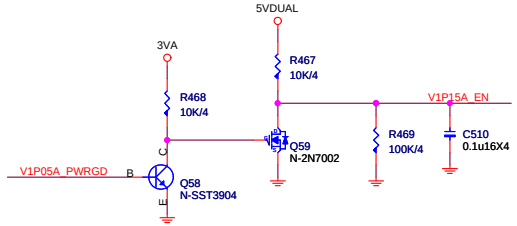
V1P05A/VNN Power

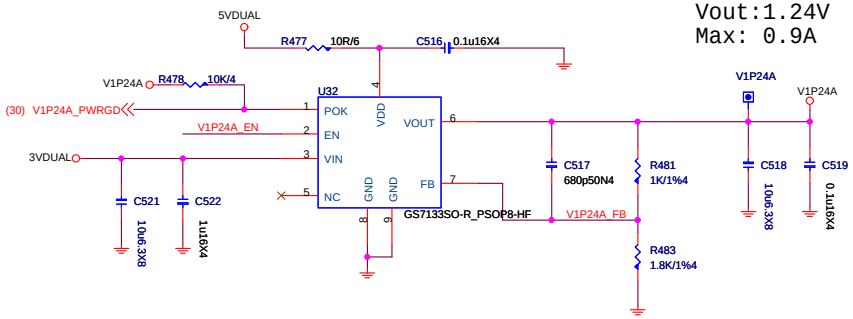


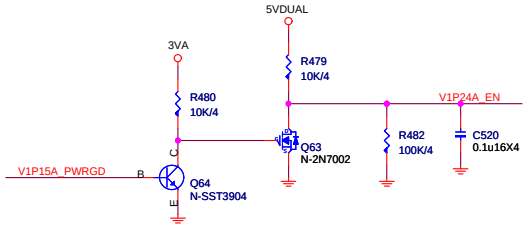
V1P15A Power





V1P24A POWER





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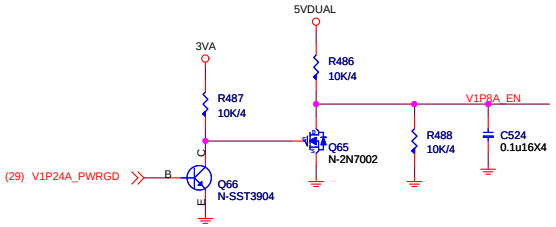
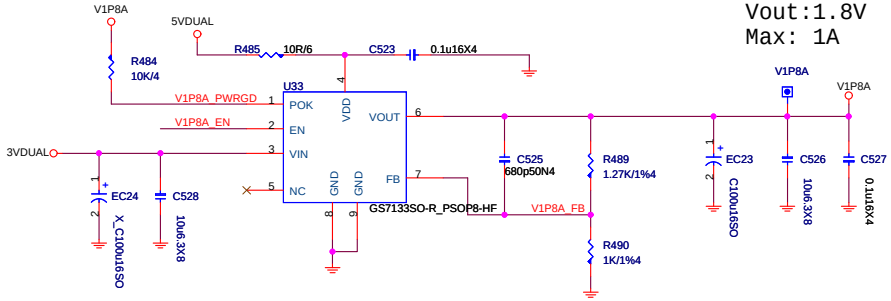
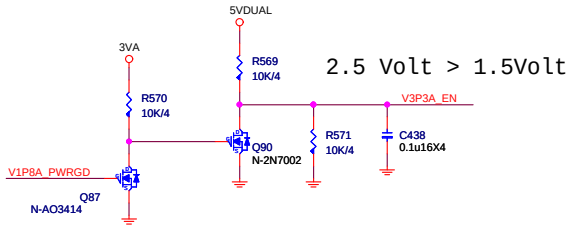
V1P8A POWER



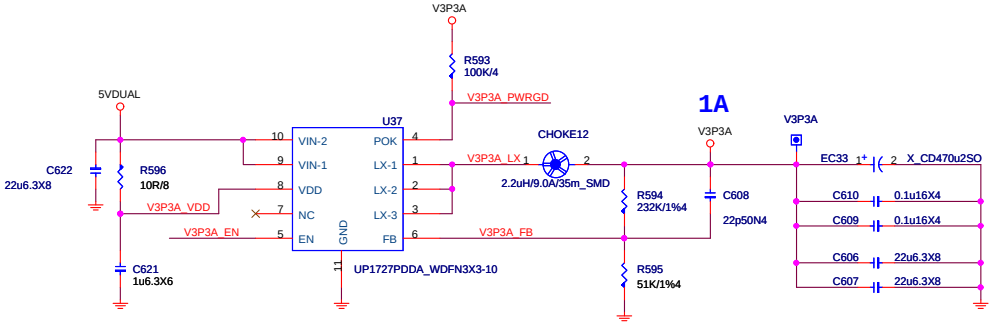


Vout:1.8V
Max: 1A

V3P3A POWER

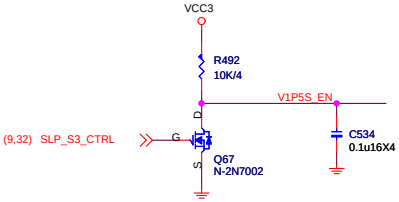


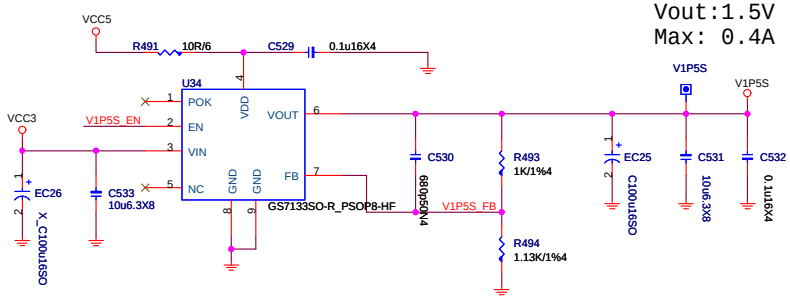
2.5 Volt > 1.5Volt



1A

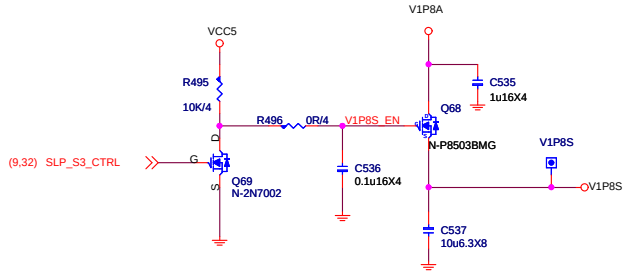
V1P5S Power





Vout:1.5V
Max: 0.4A

V1P8S Power



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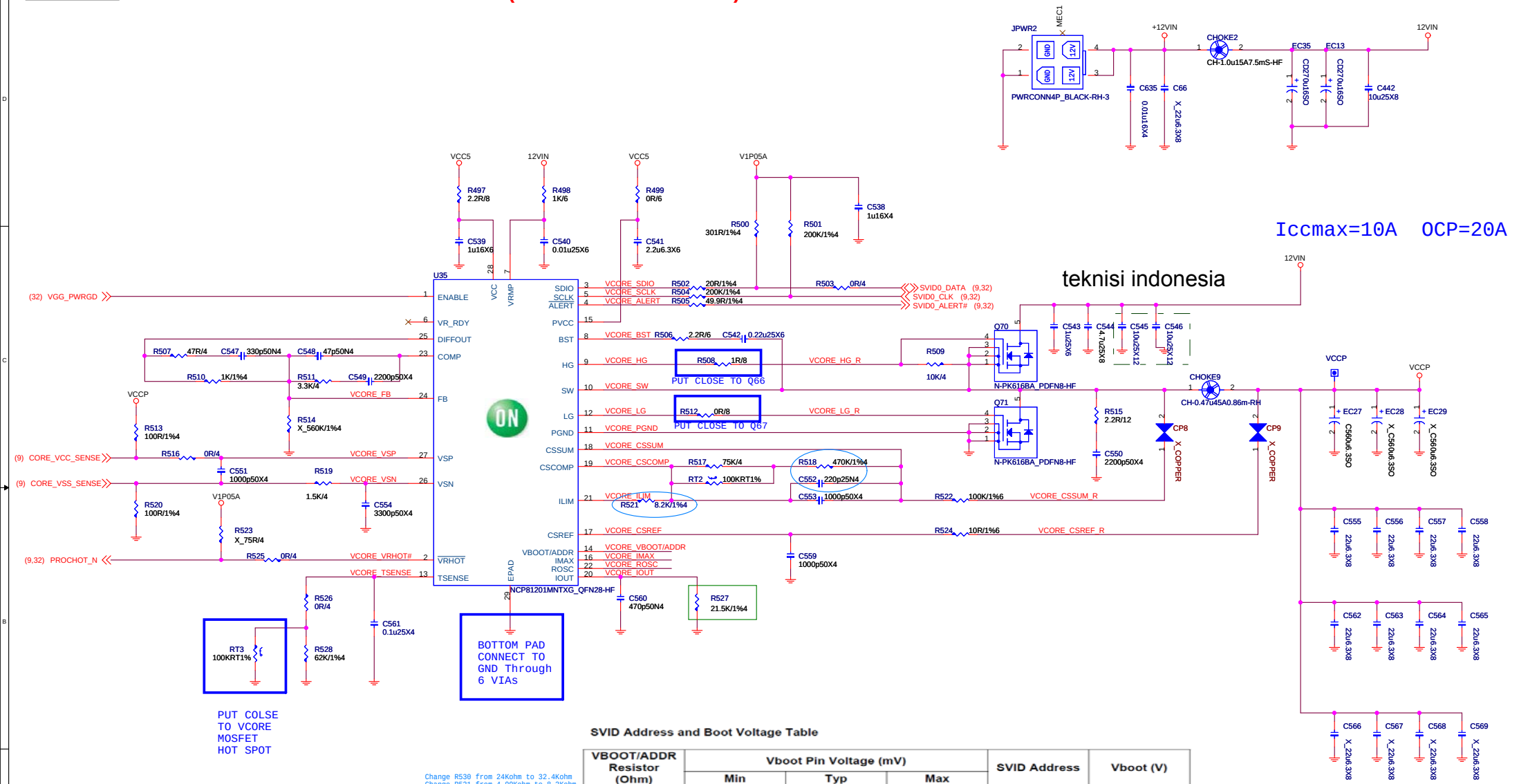
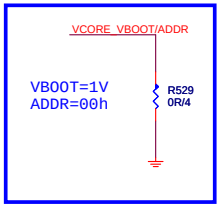
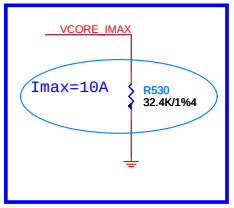
VCCP Power

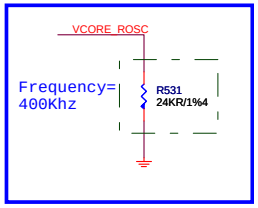
BRASWELL - VCORE (SVID ADDRESS-00h)



Change R530 from 24Kohm to 32.4Kohm
Change R521 from 4.99Kohm to 8.2Kohm
Change R518 from 24Kohm to 470Kohm
Change C552 from 560p to 220p
for SOC(J3710/J3160) support D-step.







SVID Address and Boot Voltage Table

VBOOT/ADDR Resistor (Ohm)	Vboot Pin Voltage (mV)			SVID Address	Vboot (V)
	Min	Typ	Max		
0	0	0	102	0x0	1.0
14.0 k	102	140	180	0x1	1.0
22.1 k	180	219	258	0x2	1.0
30.1 k	258	301	344	0x3	1.0
39.2 k	344	391	438	0x4	1.0
48.7 k	438	484	531	0x5	1.0
57.6 k	531	578	625	0x6	1.0
68.1 k	625	676	727	0x7	1.0
78.7 k	727	781	836	0x8	1.1
88.7 k	836	894	953	0x0	1.1
100 k	953	1007	1062	0x1	1.1
113 k	1062	1125	1188	0x2	1.1
124 k	1188	1250	1312	0x3	1.1
137 k	1312	1378	1445	0x4	1.1
150 k	1445	1511	1578	0x5	1.1
165 k	1578	1648	1719	0x6	1.1
178 k	1719	1789	1859	0x7	1.1
196 k	1859	1950	-	0x8	1.1

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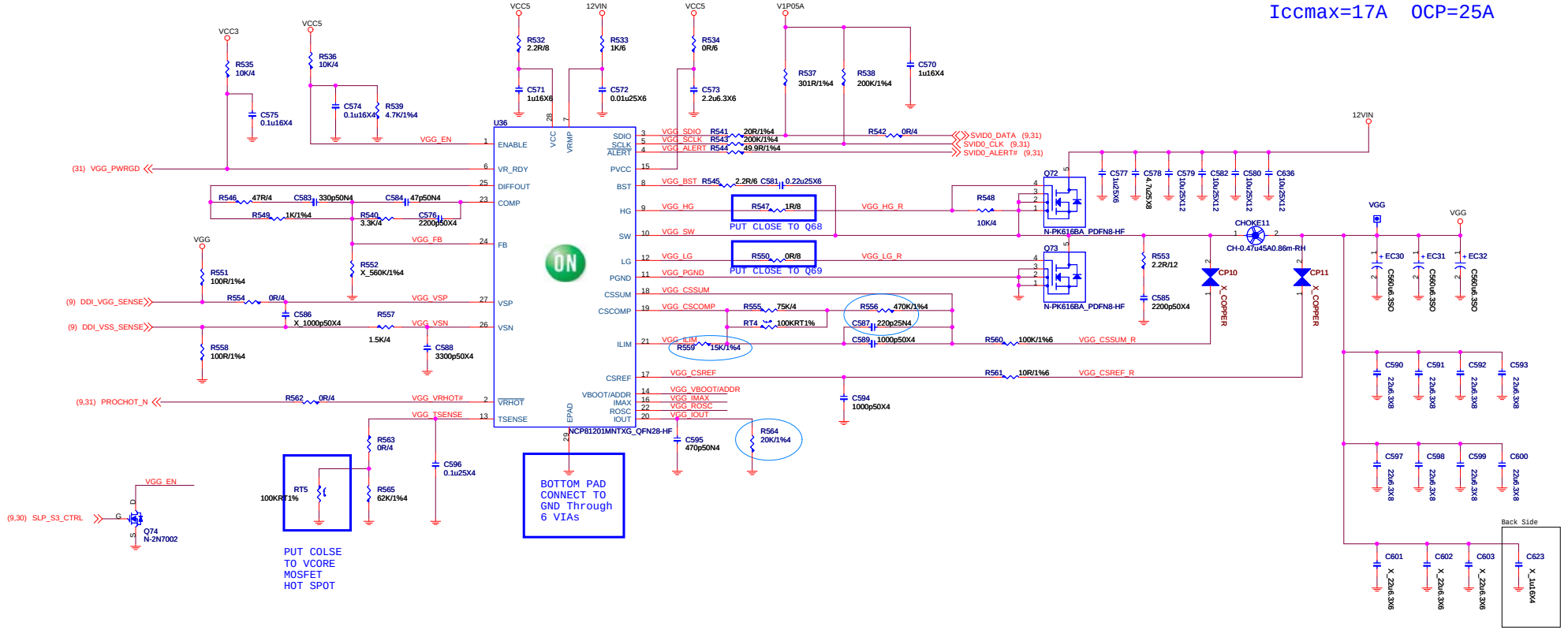
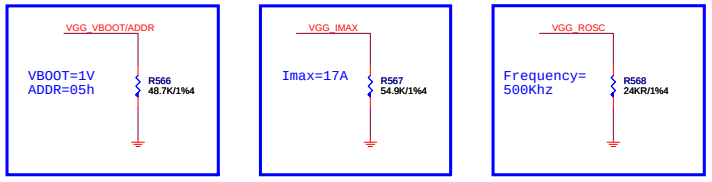
VGG Power

BRASWELL - VGG (SVID ADDRESS-05h)

Iccmax=17A OCP=25A





SVID Address and Boot Voltage Table

VBOOT/ADDR Resistor (Ohm)	Vboot Pin Voltage (mV)			SVID Address	Vboot (V)
	Min	Typ	Max		
0	0	0	102	0x0	1.0
14.0 k	102	140	180	0x1	1.0
22.1 k	180	219	258	0x2	1.0
30.1 k	258	301	344	0x3	1.0
39.2 k	344	391	438	0x4	1.0
48.7 k	438	484	531	0x5	1.0
57.6 k	531	578	625	0x6	1.0
68.1 k	625	676	727	0x7	1.0
78.7 k	727	781	836	0x8	1.1
88.7 k	836	894	953	0x0	1.1
100 k	953	1007	1062	0x1	1.1
113 k	1062	1125	1188	0x2	1.1
124 k	1188	1250	1312	0x3	1.1
137 k	1312	1378	1445	0x4	1.1
150 k	1445	1511	1578	0x5	1.1
165 k	1578	1648	1719	0x6	1.1
178 k	1719	1789	1859	0x7	1.1
196 k	1859	1950	-	0x8	1.1

MICRO-STAR INT'L CO.,LTD.

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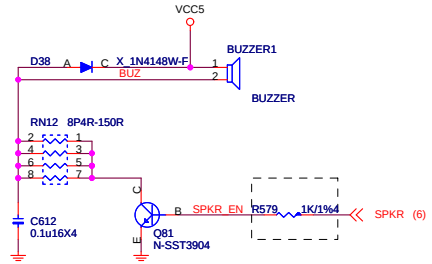
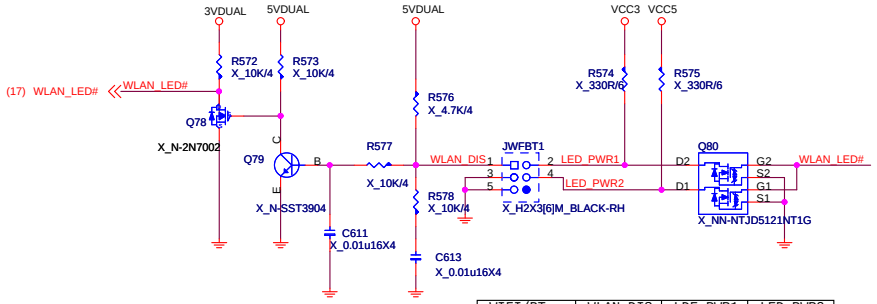
Speaker Pin Header



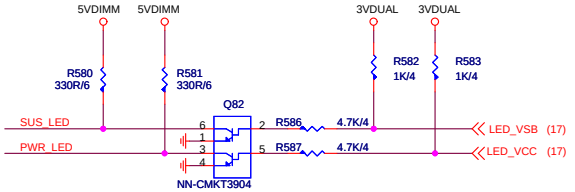
R579change to 1K for spkr signal is 1.8v voltage level

WIFI & BT LED

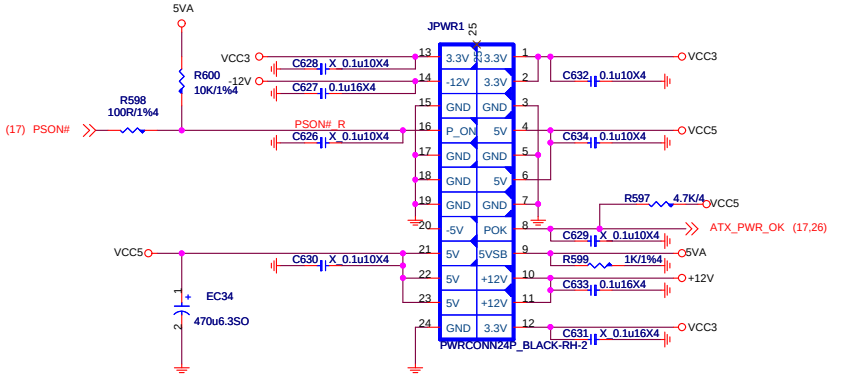


WIFI/BT	WLAN_DIS	LDE_PWR1	LED_PWR2
Enable	H	L	L
Disable	L	H	H

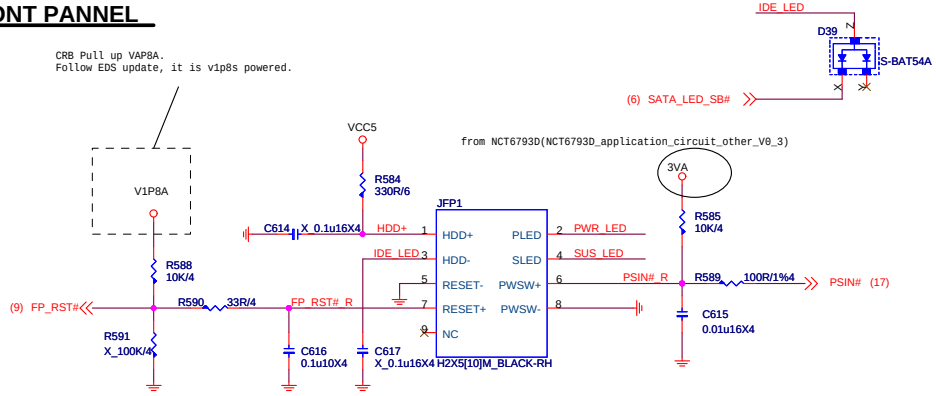
Power LED



ATX POWER CONNECTOR



FRONT PANNEL



EMI

msi	MICRO-STAR INT'L CO.,LTD.	
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LABLE1

Label
BIOS

BIOS_LABLE

LABLE2

Label
HDMI

HDMI LABEL

CPU1

CPU

SOC-OPT

Simulation

5VDUAL

SIM1

SIM1

X_PIN1*2

SIM2

SIM2

X_PIN1*2

SOC

HS_SOC1

MEC1

MEC1

MEC2

MEC2

HSFAN-0800510-RH

Optical Fiducial Marks-120

FM1 FM2 FM3 FM4

X_FM X_FM X_FM X_FM

FM5 FM6 FM7 FM8

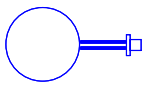
X_FM X_FM X_FM X_FM

PCB1

G019-21

P30-0G01921-E48
P30-0G01921-T53

BAT1_X1



BAT-CR2032

Mounting Holes

MH1

X_MH001

MH2

X_MH001

MH3

X_MH001

MH4

X_MH001

AGND AGND

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