Version List

Version	Change List	Date	Author
1.0.0	First Release	2022-3-21	Miller.zhang
1.1.0	1、C91,C93 NC 2、增加R1 3、增加R41,R43	2022-6-10	Miller.zhang
1.2.0	1、C205从10uF改为22uF	2023-3-1	Miller.zhang

Title	01_Cover	
Size: Custom	Document Number: SG2000_SIP_BGA	Rev: 1.0.0
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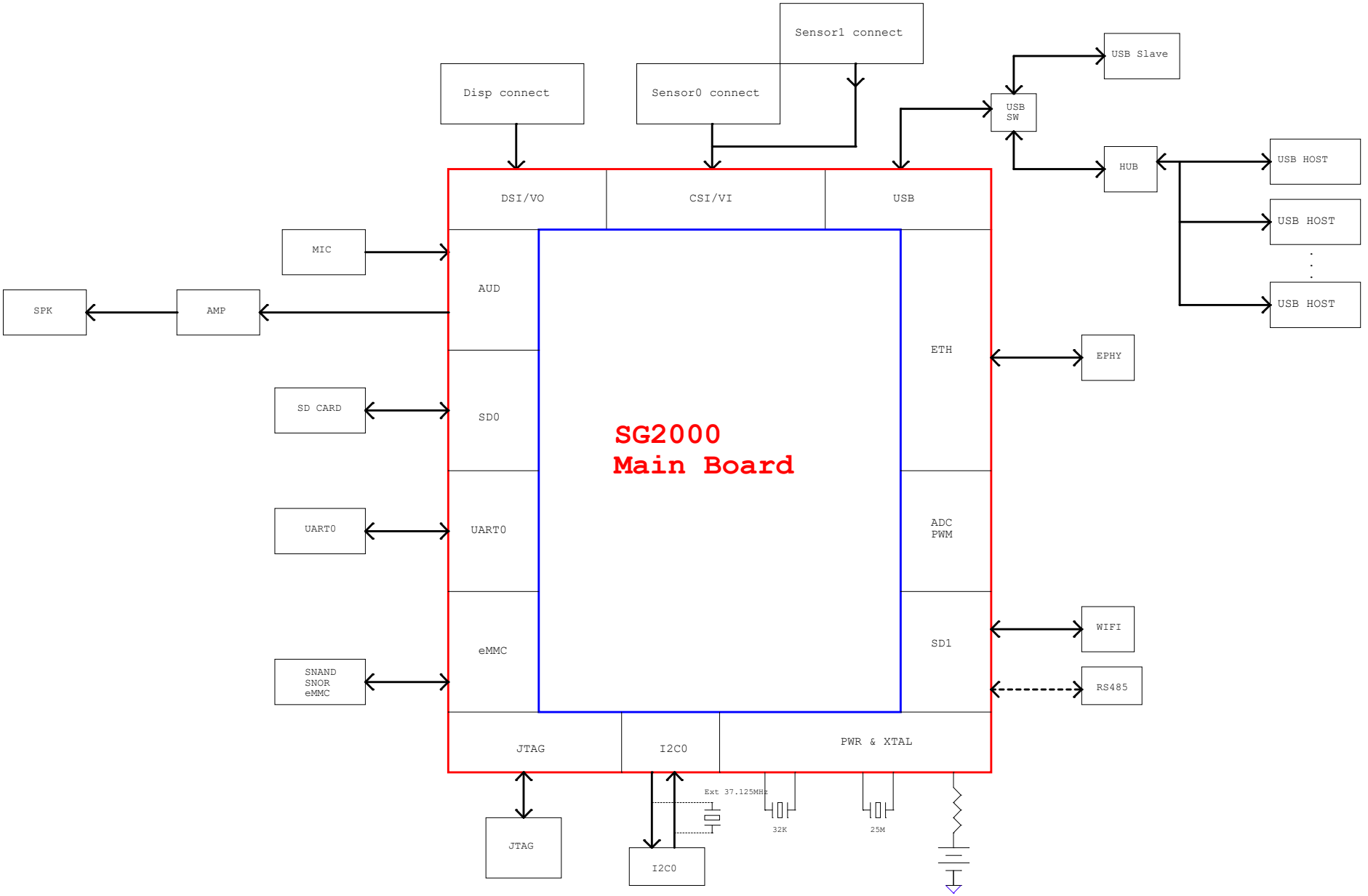
Block Diagram for SG2000



Title	02_Diagram	
Size C	Document Number SG2000_SIP_BGA	Rev 1.0.0
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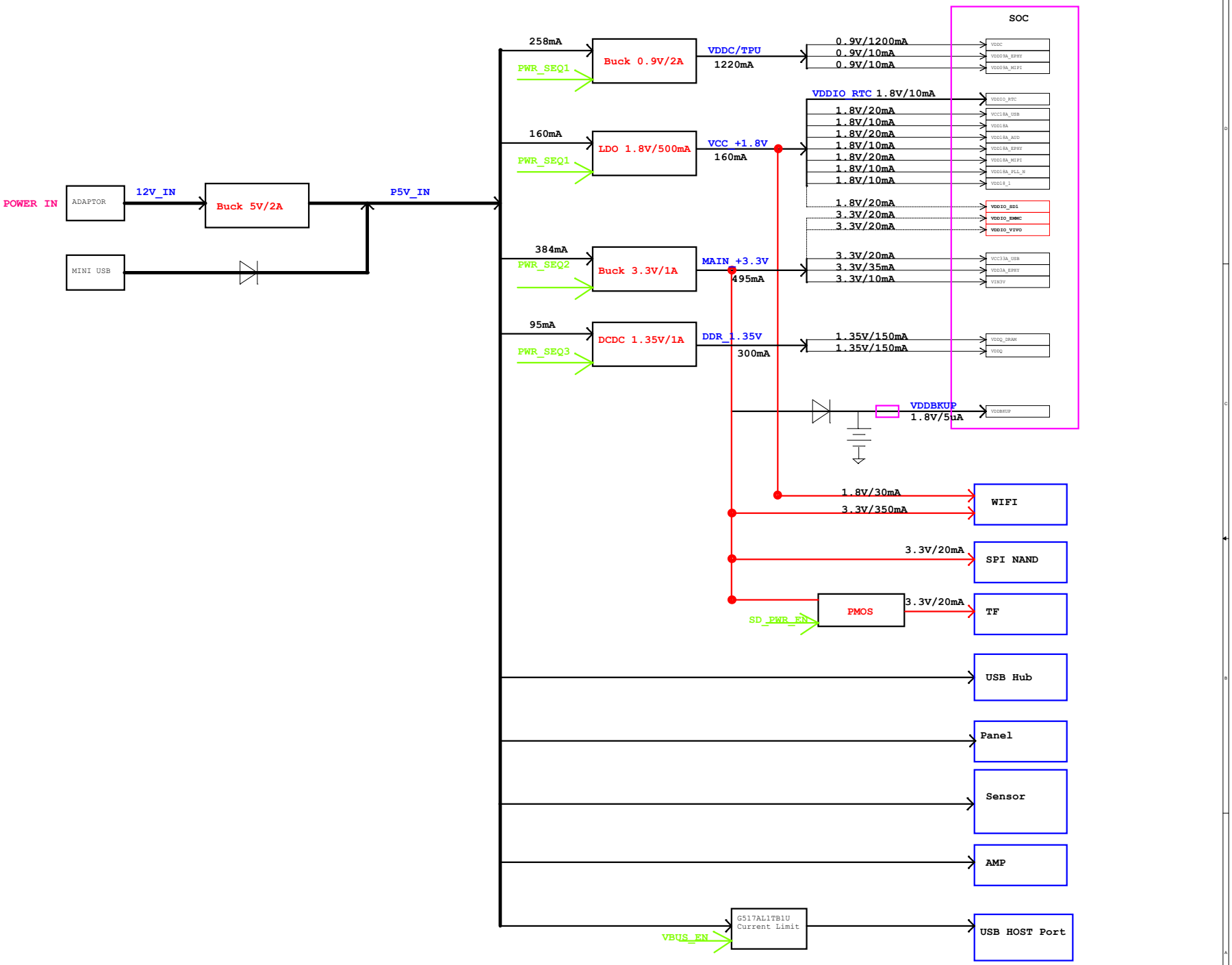

Title	03_Power tree		
Size: Custom	Document Number: SG2000_SIP_BGA		Rev: 3.0.0
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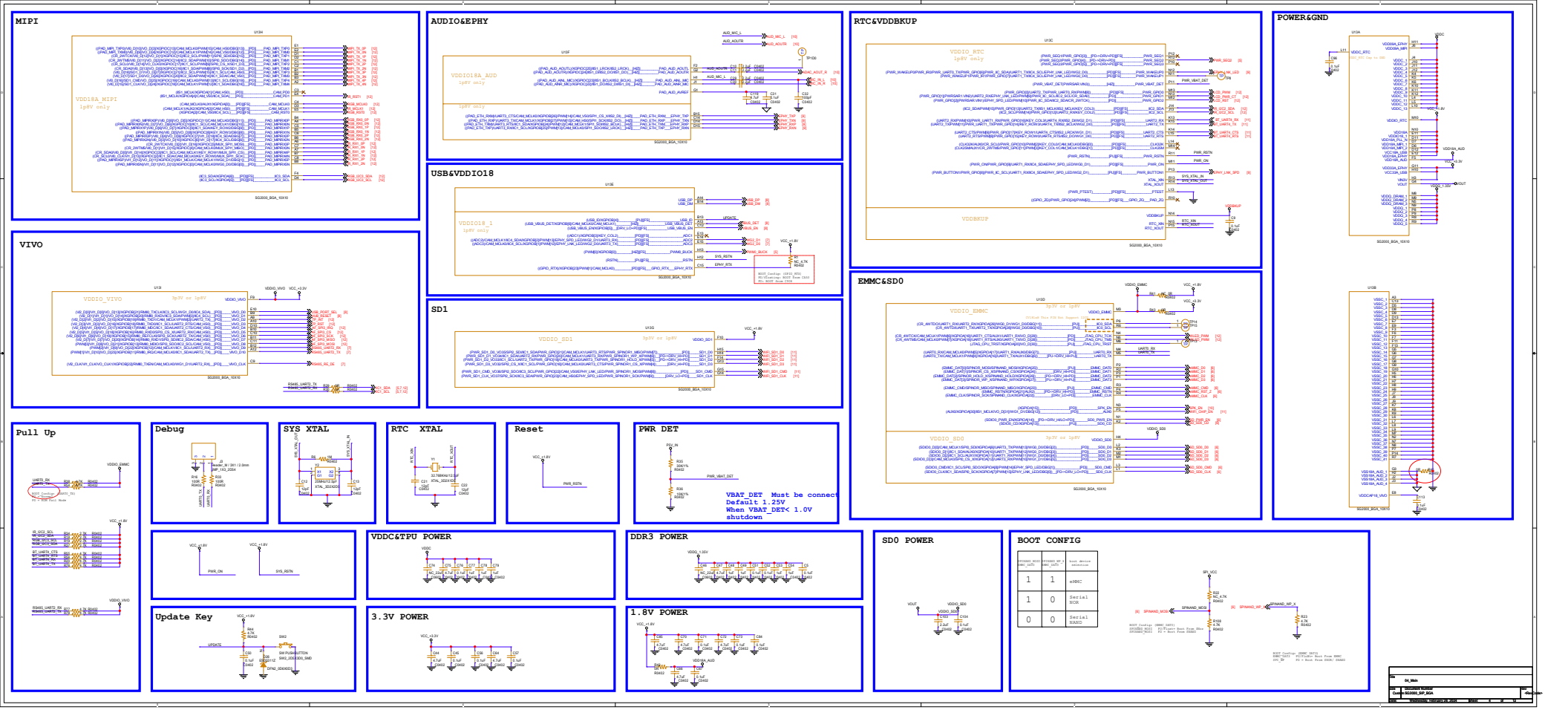
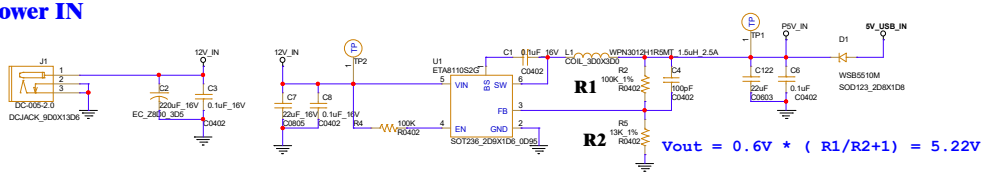
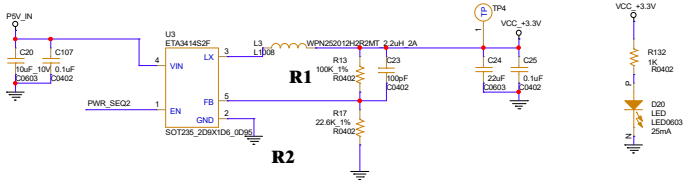

MIPI
AUDIO&EPHY
RTC&VDDBKUP
POWER&GND
VIVO
USB&VDDIO18
EMMC&SD0
SD1
Pull Up
Debug
SYS XTAL
RTC XTAL
Reset
PWR DET
VBAT_DET Must be connect
Default 1.25V
When VBAT_DET< 1.0V
shutdown
VDDC&TPU POWER
DDR3 POWER
SD0 POWER
BOOT CONFIG
Update Key
3.3V POWER
1.8V POWER

Power IN

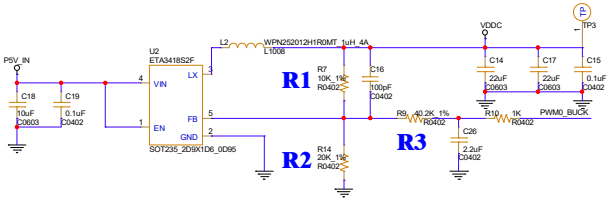


Vout = 0.6V * (R1/R2+1) = 5.22V

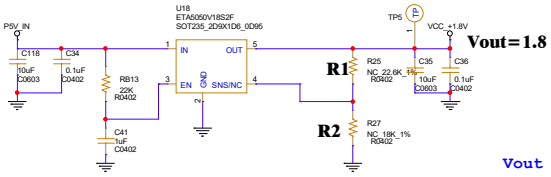
PWR_SEQ02



Vout = 0.6V * (R1/R2+1)=3.25V

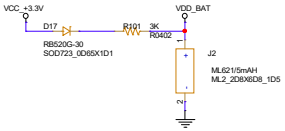


R2≦20kΩ for stability consideration.
Vout = 0.6V * (R1/R2+1) = 0.9V

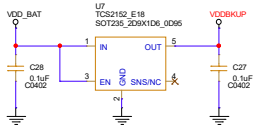


Vout = 0.8V * (R1/R2+1) = 1.8V

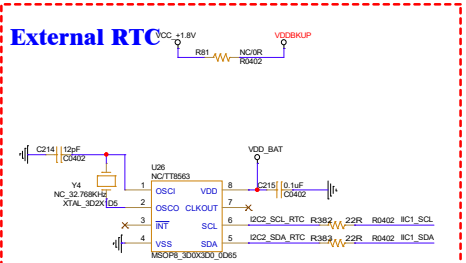
RTC

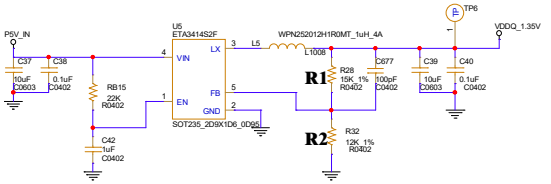


Internal RTC

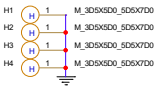


External RTC





Vout = 0.6V * (R1/R2+1) = 1.35V



NET

PWR_SEQ2 → PWR_SEQ2 [4]

PWM0_BUCK → PWM0_BUCK [4]

IIC1_SCL → IIC1_SCL [4,7,12]
IIC1_SDA → IIC1_SDA [4,7,12]

Title	05_SYS_Power		
Size: Custom	Document Number: SG2000_SIP_BGA		Rev: 1.0.0
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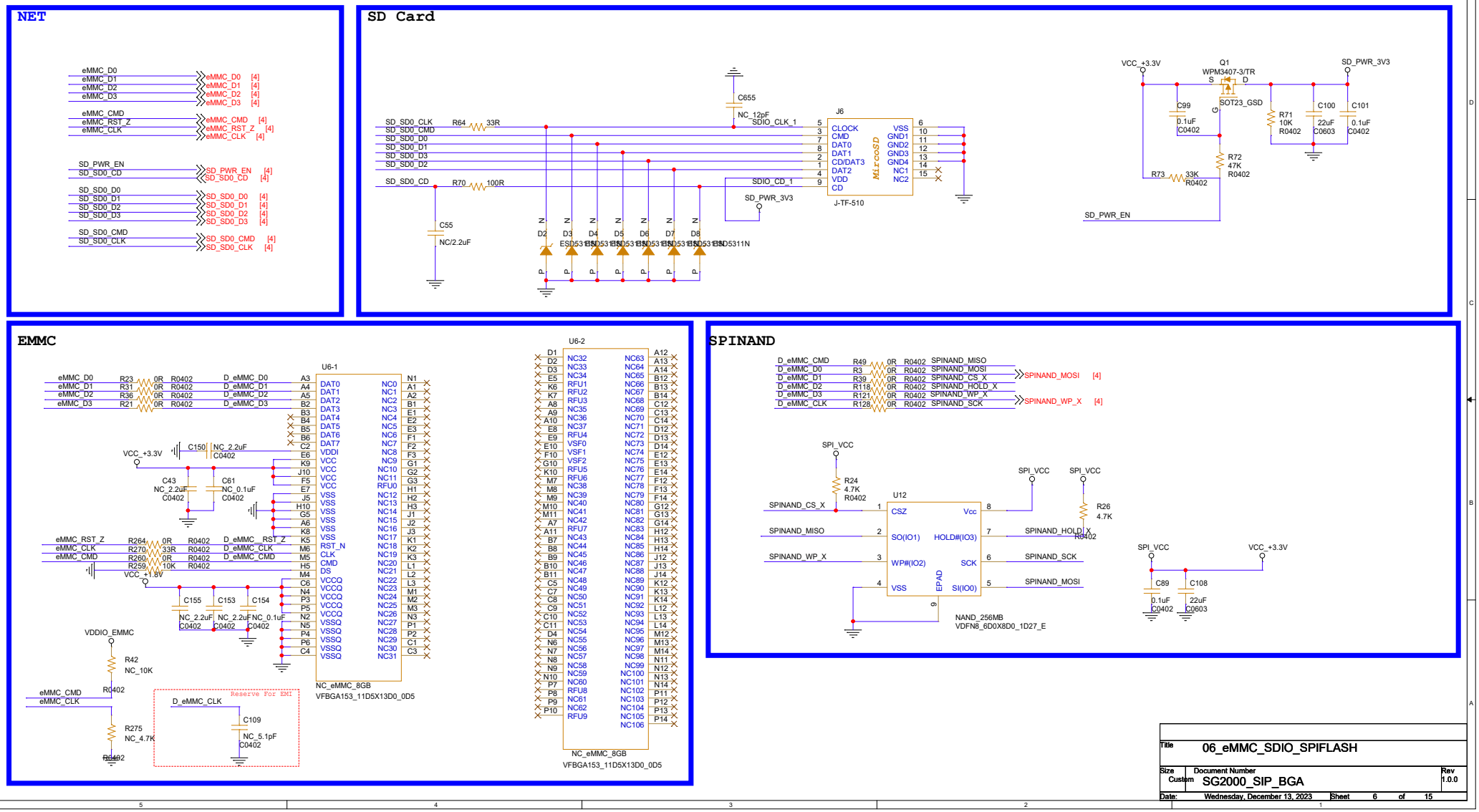
NET
eMMC_D0
eMMC_D1
eMMC_D2
eMMC_D3
eMMC_D0 [4]
eMMC_D1 [4]
eMMC_D2 [4]
eMMC_D3 [4]
eMMC_CMD
eMMC_RST_Z
eMMC_CLK
eMMC_CMD [4]
eMMC_RST_Z [4]
eMMC_CLK [4]
SD_PWR_EN
SD_SD0_CD
SD_PWR_EN [4]
SD_SD0_CD [4]
SD_SD0_D0
SD_SD0_D1
SD_SD0_D2
SD_SD0_D3
SD_SD0_D0 [4]
SD_SD0_D1 [4]
SD_SD0_D2 [4]
SD_SD0_D3 [4]
SD_SD0_CMD
SD_SD0_CLK
SD_SD0_CMD [4]
SD_SD0_CLK [4]
SD Card
SD_SD0_CLK
SD_SD0_CMD
SD_SD0_D0
SD_SD0_D1
SD_SD0_D3
SD_SD0_D2
SD_SD0_CD
R64 33R
R70 100R
C655 NC_12pF
C55 NC/2.2uF
SDIO_CLK_1
SDIO_CD_1
SD_PWR_3V3
J6
CLOCK
CMD
DAT0
DAT1
CD/DAT3
DAT2
VDD
CD
VSS
GND1
GND2
GND3
GND4
NC1
NC2
MicroSD
J-TF-510
D2 ESD5311N
D3 ESD5311N
D4 ESD5311N
D5 ESD5311N
D6 ESD5311N
D7 ESD5311N
D8 ESD5311N
VCC_+3.3V
Q1
WPM3407-3/TR
SOT23_GSD
SD_PWR_3V3
C99 0.1uF C0402
R71 10K R0402
C100 22uF C0603
C101 0.1uF C0402
R72 47K R0402
R73 33K R0402
SD_PWR_EN
EMMC
U6-1
eMMC_D0 R23 0R R0402 D_eMMC_D0
eMMC_D1 R31 0R R0402 D_eMMC_D1
eMMC_D2 R36 0R R0402 D_eMMC_D2
eMMC_D3 R21 0R R0402 D_eMMC_D3
DAT0
DAT1
DAT2
DAT3
DAT4
DAT5
DAT6
DAT7
VDDI
VCC
VCC
VCC
VSS
VSS
VSS
VSS
VSS
RST_N
CLK
CMD
DS
VCCQ
VCCQ
VCCQ
VCCQ
VCCQ
VSSQ
VSSQ
VSSQ
VSSQ
NC0
NC1
NC2
NC3
NC4
NC5
NC6
NC7
NC8
NC9
NC10
NC11
RFU0
NC12
NC13
NC14
NC15
NC16
NC17
NC18
NC19
NC20
NC21
NC22
NC23
NC24
NC25
NC26
NC27
NC28
NC29
NC30
NC31
NC_eMMC_8GB
VFBGA153_11D5X13D0_0D5
VCC_+3.3V
C150 NC_2.2uF C0402
C43 NC_2.2uF C0402
C61 NC_0.1uF C0402
eMMC_RST_Z R264 0R R0402 D_eMMC_RST_Z
eMMC_CLK R270 33R R0402 D_eMMC_CLK
eMMC_CMD R260 0R R0402 D_eMMC_CMD
R259 10K R0402
VCC_+1.8V
C155 NC_2.2uF C0402
C153 NC_2.2uF C0402
C154 NC_0.1uF C0402
VDDIO_EMMC
R42 NC_10K R0402
eMMC_CMD
eMMC_CLK
R275 NC_4.7K R0402
Reserve For EMI
D_eMMC_CLK
C109 NC_5.1pF C0402
U6-2
NC_eMMC_8GB
VFBGA153_11D5X13D0_0D5
SPINAND
D_eMMC_CMD R49 0R R0402 SPINAND_MISO
D_eMMC_D0 R3 0R R0402 SPINAND_MOSI
D_eMMC_D1 R39 0R R0402 SPINAND_CS_X
D_eMMC_D2 R118 0R R0402 SPINAND_HOLD_X
D_eMMC_D3 R121 0R R0402 SPINAND_WP_X
D_eMMC_CLK R128 0R R0402 SPINAND_SCK
SPINAND_MOSI [4]
SPINAND_WP_X [4]
SPI_VCC
R24 4.7K R0402
SPINAND_CS_X
SPINAND_MISO
SPINAND_WP_X
U12
CSZ
SO(IO1)
WP#(IO2)
VSS
Vcc
HOLD#(IO3)
SCK
SI(IO0)
EPAD
SPINAND_HOLD_X
SPINAND_SCK
SPINAND_MOSI
R26 4.7K R0402
NAND_256MB
VDFN8_6D0X8D0_1D27_E
C89 0.1uF C0402
C108 22uF C0603
Title
06_eMMC_SDIO_SPIFLASH
Size
Custom
Document Number
SG2000_SIP_BGA
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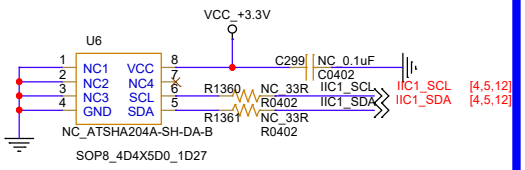
15

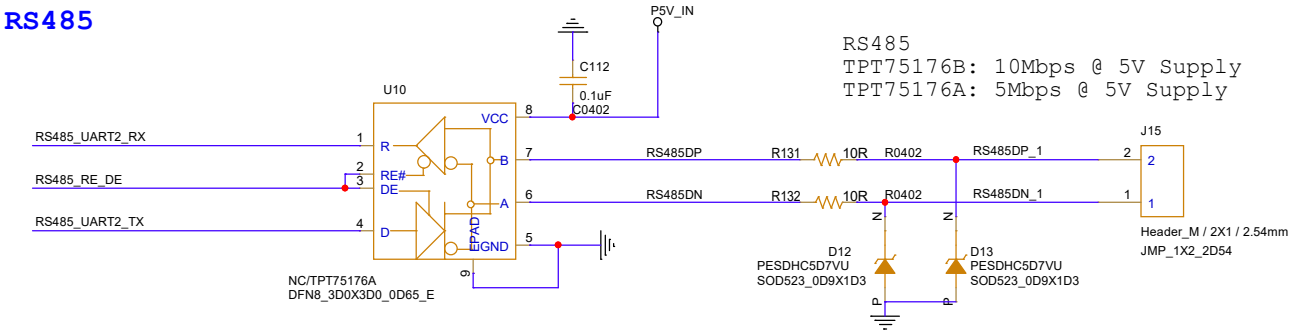
NET

RS485_UART2_RX
RS485_UART2_TX
RS485_RE_DE
WG2_D1
WG2_D0

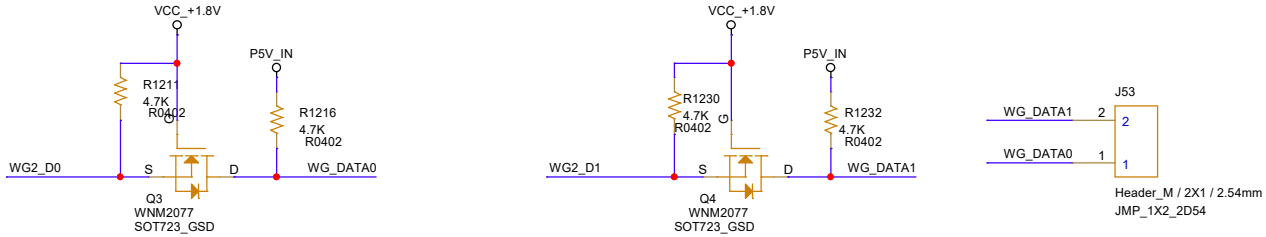
Encryption



RS485



Weigand



Title	07_UART_WG		
Size: Custom	Document Number: SG2000_SIP_BGA		Rev: 1.0.0
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NET

USB_DP
USB_DM
VBUS_DET
VBUS_EN
USB_PORT_SEL
HUB_RESET

Port SEL

OE	S	HSD1	HSD2
0	0	ON	OFF
0	1	OFF	ON
1	X	OFF	OFF

SLAVE

USB 2.0 HUB

USB HUB XTAL

USB2.0 port 1/2/3

Title: 08_USB
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NET

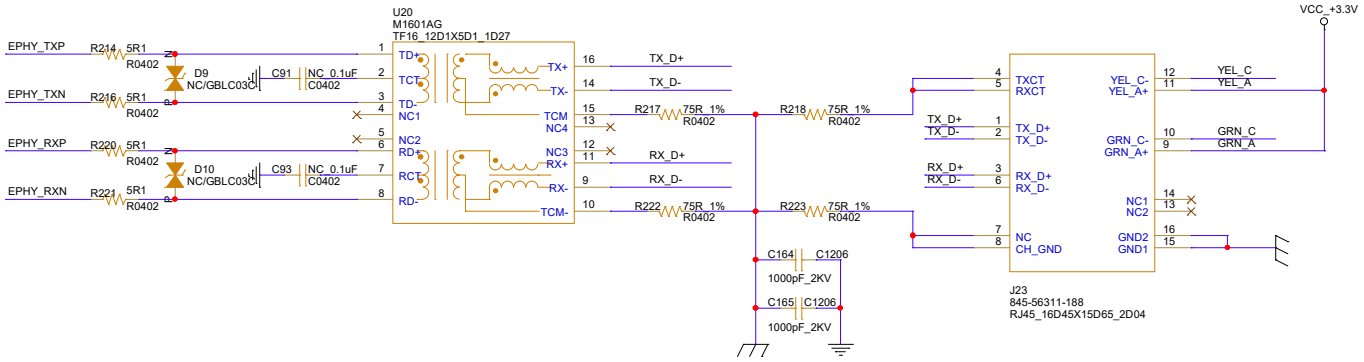
EPHY_TXP
EPHY_TXN
EPHY_RXP
EPHY_RXN

EPHY_TXP [4]
EPHY_TXN [4]
EPHY_RXP [4]
EPHY_RXN [4]

EPHY_LNK_LED
EPHY_LNK_SPD

EPHY_LNK_LED [4]
EPHY_LNK_SPD [4]

ETH



Title	09_RJ45	
Size: Custom	Document Number: SG2000_SIP_BGA	Rev: 1.0.0
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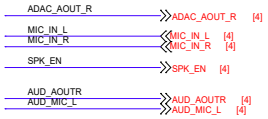
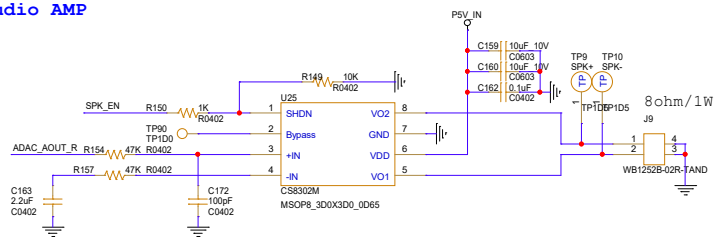
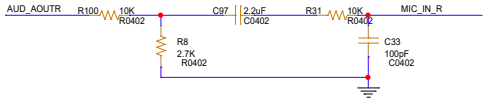
NET



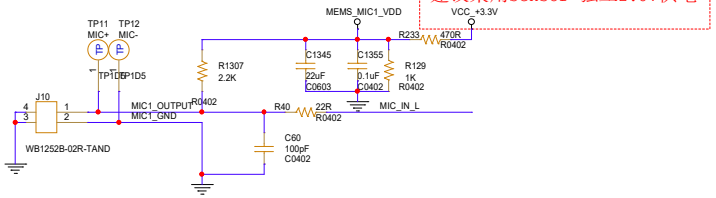
Audio AMP



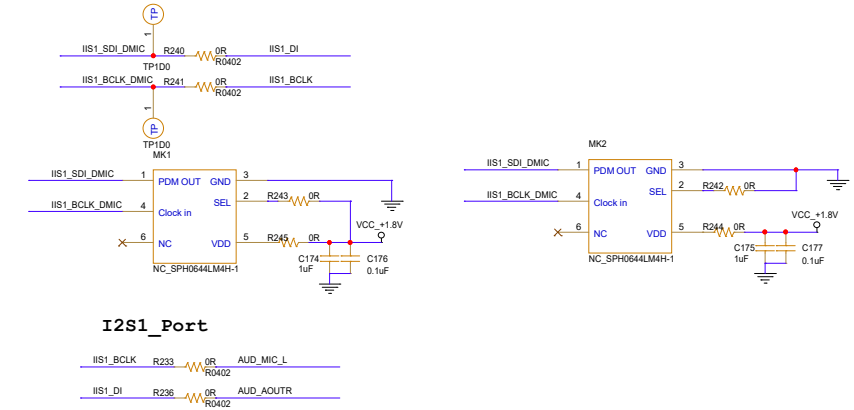
AEC



MIC



DMIC_LR



I2S1_Port

Title	10_AUDIO	
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NET

WIFI_SD1_D0 — WIFI_SD1_D0 [4]
WIFI_SD1_D1 — WIFI_SD1_D1 [4]
WIFI_SD1_D2 — WIFI_SD1_D2 [4]
WIFI_SD1_D3 — WIFI_SD1_D3 [4]

WIFI_SD1_CMD — WIFI_SD1_CMD [4]
WIFI_SD1_CLK — WIFI_SD1_CLK [4]

WIFI_CHIP_EN — WIFI_CHIP_EN [4]

BT_UART4_CTS — BT_UART4_CTS [4]
BT_UART4_RTS — BT_UART4_RTS [4]
BT_UART4_RX — BT_UART4_RX [4]
BT_UART4_TX — BT_UART4_TX [4]

VCC_+3.3V MAX=350mA WIFI_3P3V
R28 0R R0603
C106 22uF C0603
C98 0.1uF C0402

VCC_+1.8V MAX=30mA WIFI_1P8V
R22 0R R0603
C27 4.7uF C0402
C26 0.1uF C0402

U8A
RTL8189:CHIP_EN Need 3.3V Level
WIFI_ANT 2 — WIFI_ANT
WIFI_CHIP_EN 12 — CHIP_EN
TP28 TP 1 — 13 LAN_WAKE_HOST
GND 1, 3, 20, 31, 33, 36
WIFI_3P3V
WIFI_SD1_D2 14 — SD_D2
WIFI_SD1_D3 15 — SD_D3
WIFI_SD1_CMD 16 — SD_CMD
WIFI_SD1_CLK 17 — SD_CLK
WIFI_SD1_D0 18 — SD_D0
WIFI_SD1_D1 19 — SD_D1
VDD33 9
WIFI_1P8V
VDDIO3318 22
26MHz_IN 30
TP78 TP 1
WIFI
WIFI_SD1_CLK R53 33R
R0402
C102 NC_12pF C0402
Reserve for EMI
DZ-S1026_R89S(FTV)
WIFI

U8B
TP64 TP 1 — 6 HOST_WAKEUP_BT
TP93 TP 1 — 7 BT_WAKEUP_HOST
TP65 TP 1 — 35 CHIP_EN
TP66 TP 1 — 34 BT_DIS
TP67 TP 1 — 24 CLK_REQ
UART_RTS 44 — UART_CTS
UART_TX 43 — UART_RX
UART_RX 42 — UART_TX
UART_CTS 41 — UART_RTS
TP68 TP 1 — 28 PCM_SYNC
TP69 TP 1 — 27 PCM_IN
TP70 TP 1 — 26 PCM_CLK
TP77 TP 1 — 25 PCM_OUT
NC13 29, NC12 32, NC11 37, NC10 38, NC9 39, NC8 40, NC7 23, NC6 21, NC5 11, NC4 10, NC3 8, NC2 5, NC1 4
DZ-S1026_R89S(FTV)
WIFI

BT_UART4_CTS — R104 NC_33R R0402 — UART_CTS
BT_UART4_RTS — R105 NC_33R R0402 — UART_RTS
BT_UART4_RX — R106 NC_33R R0402 — UART_RX
BT_UART4_TX — R107 NC_33R R0402 — UART_TX

U3
GND2 4
GND1 3
RF 1
GND0 2
UUS RF
ANTCON_3D0X2D6
R51 0R R0402
WIFI_ANT
C9 NC C0402
C8 NC C0402

Title	11_WIFI_BT		
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NET

MIPI_TX_0P
MIPI_TX_0M
MIPI_TX_1P
MIPI_TX_1N
MIPI_TX_2P
MIPI_TX_2N
MIPI_TX_3P
MIPI_TX_3N
MIPI_TX_4P
MIPI_TX_4N

IIC1_SDA
IIC1_SCL
TP_INT
TP_RST

LCD_PWM
LCD_PWR_CT
LCD_RST

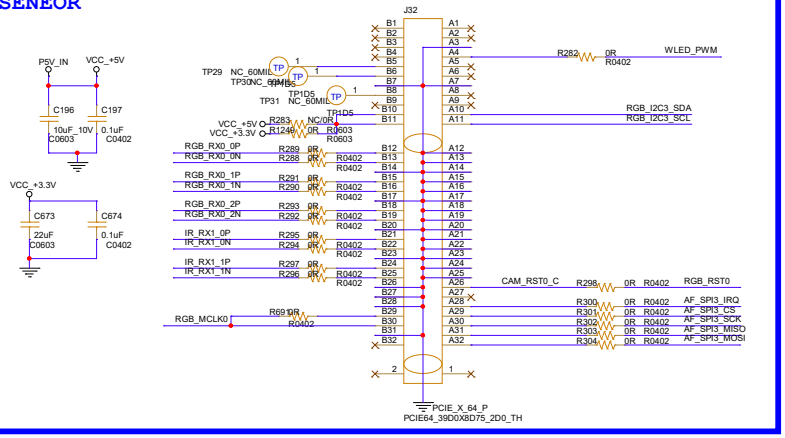
RGB_MCLK0
IR_MCLK1
RGB_RST0
IR_RST1
RGB_I2C3_SDA
RGB_I2C3_SCL
IR_I2C2_SCL
IR_I2C2_SDA

RGB_RX0_0P
RGB_RX0_0N
RGB_RX0_1P
RGB_RX0_1N
RGB_RX0_2P
RGB_RX0_2N
IR_RX1_0P
IR_RX1_0N
IR_RX1_1P
IR_RX1_1N
IR_RX1_2P
IR_RX1_2N

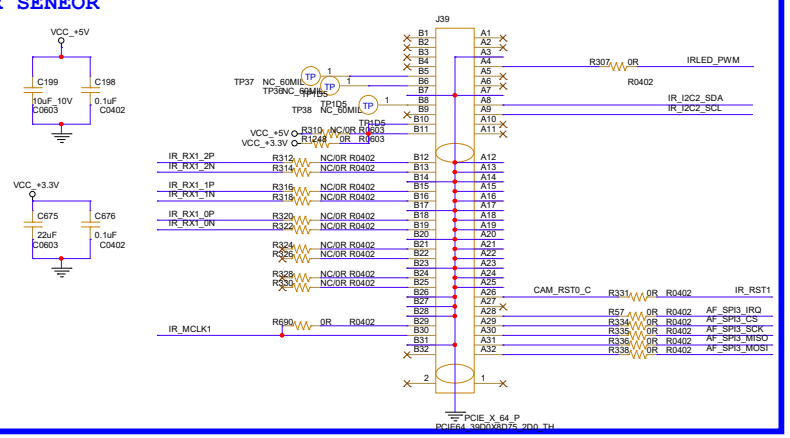
WLED_PWM
IRLED_PWM

AF_SPI3_IRQ
AF_SPI3_CS
AF_SPI3_SCK
AF_SPI3_MISO
AF_SPI3_MOSI

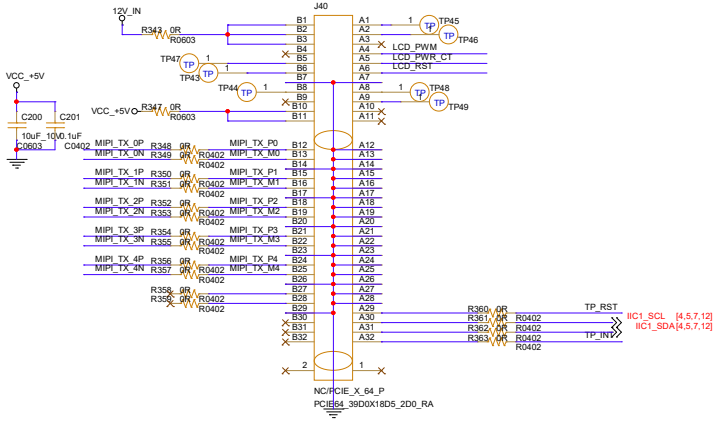
RGB SENEOR



IR SENEOR



PANEL&TP



Title	12_Sensor_Panel		
Size: Custom	Document Number: SG2000_SIP_BGA		Rev: 1.0.0
Date: Wednesday, December 13, 2023	Sheet 12 of 15		