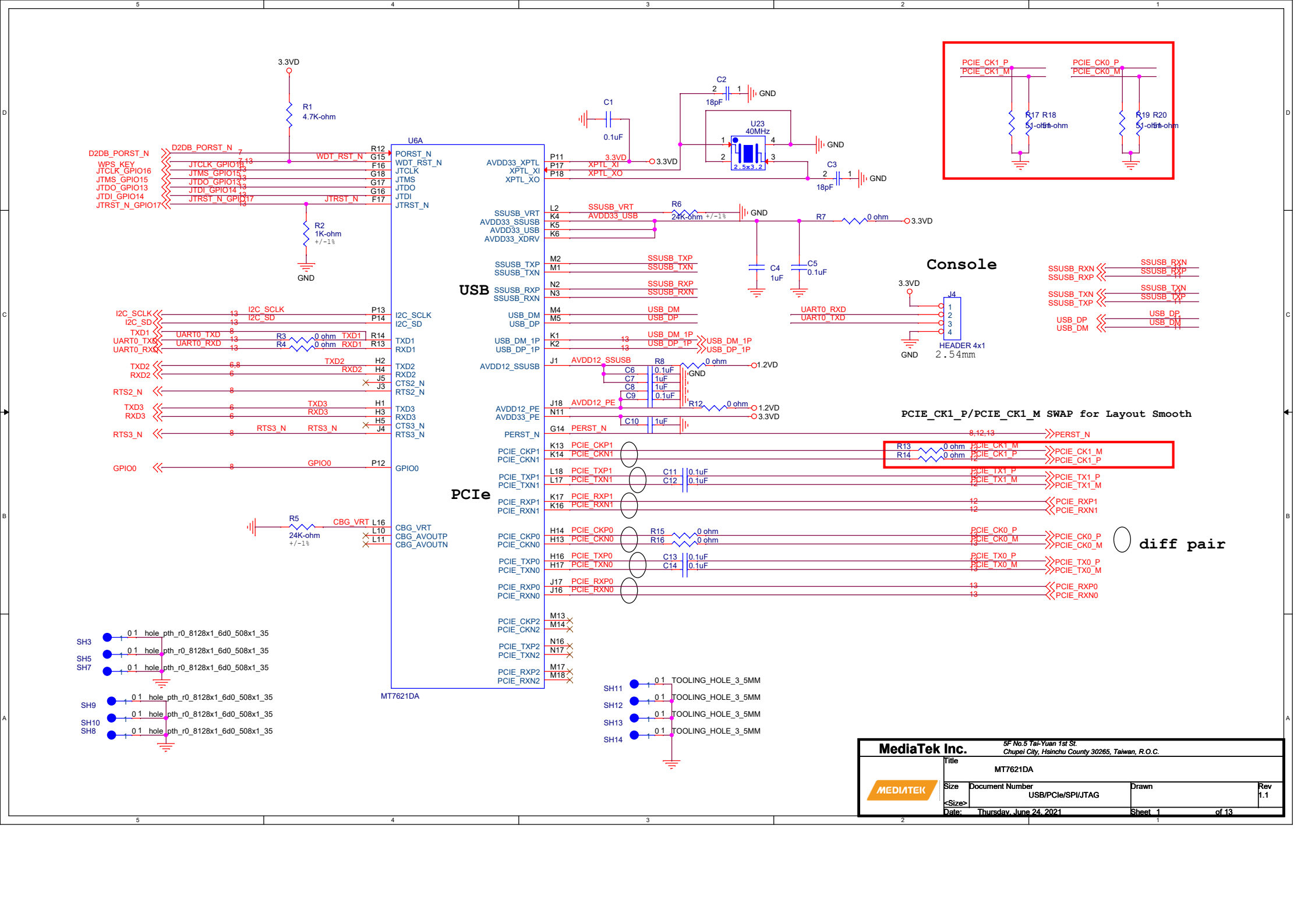
3.3VD
R1
4.7K-ohm
D2DB_PORST_N
WPS_KEY
JTCLK_GPIO16
JTMS_GPIO15
JTDO_GPIO13
JTDI_GPIO14
JTRST_N_GPIO17
WDT_RST_N
JTRST_N
R2
1K-ohm
+/-1%
GND
U6A
PORST_N
WDT_RST_N
JTCLK
JTMS
JTDO
JTDI
JTRST_N
C1
0.1uF
C2
18pF
U23
40MHz
2.5x3.2
C3
18pF
AVDD33_XPTL
XPTL_XI
XPTL_XO
3.3VD
SSUSB_VRT
AVDD33_SSUSB
AVDD33_USB
AVDD33_XDRV
R6
24K-ohm
R7
0 ohm
C4
1uF
C5
0.1uF
USB
SSUSB_TXP
SSUSB_TXN
SSUSB_RXP
SSUSB_RXN
USB_DM
USB_DP
USB_DM_1P
USB_DP_1P
AVDD12_SSUSB
R8
C6
0.1uF
C7
1uF
C8
1uF
C9
0.1uF
AVDD12_PE
AVDD33_PE
R12
C10
1uF
1.2VD
PERST_N
PCIe
PCIE_CKP1
PCIE_CKN1
PCIE_TXP1
PCIE_TXN1
PCIE_RXP1
PCIE_RXN1
C11
0.1uF
C12
0.1uF
PCIE_CKP0
PCIE_CKN0
PCIE_TXP0
PCIE_TXN0
PCIE_RXP0
PCIE_RXN0
R15
R16
C13
0.1uF
C14
0.1uF
PCIE_CKP2
PCIE_CKN2
PCIE_TXP2
PCIE_TXN2
PCIE_RXP2
PCIE_RXN2
MT7621DA
Console
UART0_RXD
UART0_TXD
J4
HEADER 4x1
2.54mm
PCIE_CK1_P
PCIE_CK1_M
PCIE_CK0_P
PCIE_CK0_M
R17 R18
5.1-ohm
R19 R20
5.1-ohm
PCIE_CK1_P/PCIE_CK1_M SWAP for Layout Smooth
R13
R14
0 ohm
diff pair
I2C_SCLK
I2C_SD
TXD1
RXD1
TXD2
RXD2
RTS2_N
TXD3
RXD3
RTS3_N
GPIO0
R3
R4
R5
24K-ohm
CBG_VRT
CBG_AVOUTP
CBG_AVOUTN
SH3
SH5
SH7
SH9
SH10
SH8
hole_pth_r0_8128x1_6d0_508x1_35
SH11
SH12
SH13
SH14
TOOLING_HOLE_3_5MM
MediaTek Inc.
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Title
MT7621DA
Size
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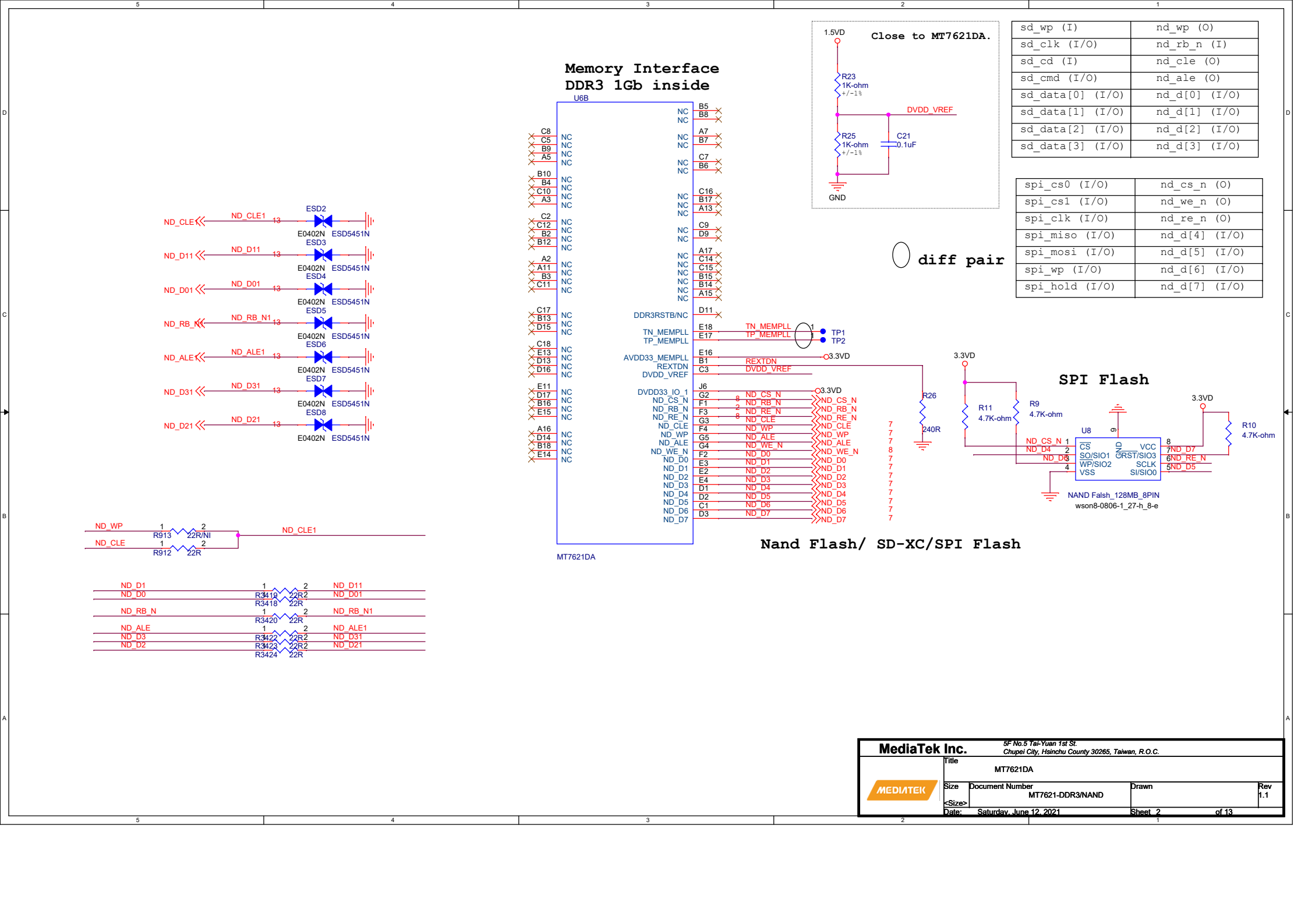
Document Number
USB/PCIe/SPI/JTAG
Drawn
Rev
1.1
Date:
Thursday, June 24, 2021
Sheet 1
of 13


Memory Interface
DDR3 1Gb inside
U6B
MT7621DA
Close to MT7621DA.
1.5VD
R23
1K-ohm
+/-1%
DVDD_VREF
R25
1K-ohm
+/-1%
C21
0.1uF
GND
diff pair
sd_wp (I)
sd_clk (I/O)
sd_cd (I)
sd_cmd (I/O)
sd_data[0] (I/O)
sd_data[1] (I/O)
sd_data[2] (I/O)
sd_data[3] (I/O)
nd_wp (O)
nd_rb_n (I)
nd_cle (O)
nd_ale (O)
nd_d[0] (I/O)
nd_d[1] (I/O)
nd_d[2] (I/O)
nd_d[3] (I/O)
spi_cs0 (I/O)
spi_cs1 (I/O)
spi_clk (I/O)
spi_miso (I/O)
spi_mosi (I/O)
spi_wp (I/O)
spi_hold (I/O)
nd_cs_n (O)
nd_we_n (O)
nd_re_n (O)
nd_d[4] (I/O)
nd_d[5] (I/O)
nd_d[6] (I/O)
nd_d[7] (I/O)
SPI Flash
U8
NAND Falsh_128MB_8PIN
wson8-0806-1_27-h_8-e
R26
240R
R11
4.7K-ohm
R9
4.7K-ohm
R10
4.7K-ohm
3.3VD
TP1
TP2
ESD2
ESD3
ESD4
ESD5
ESD6
ESD7
ESD8
E0402N
ESD5451N
R913
R912
R3419
R3418
R3420
R3422
R3423
R3424
22R/NI
22R
Nand Flash/ SD-XC/SPI Flash
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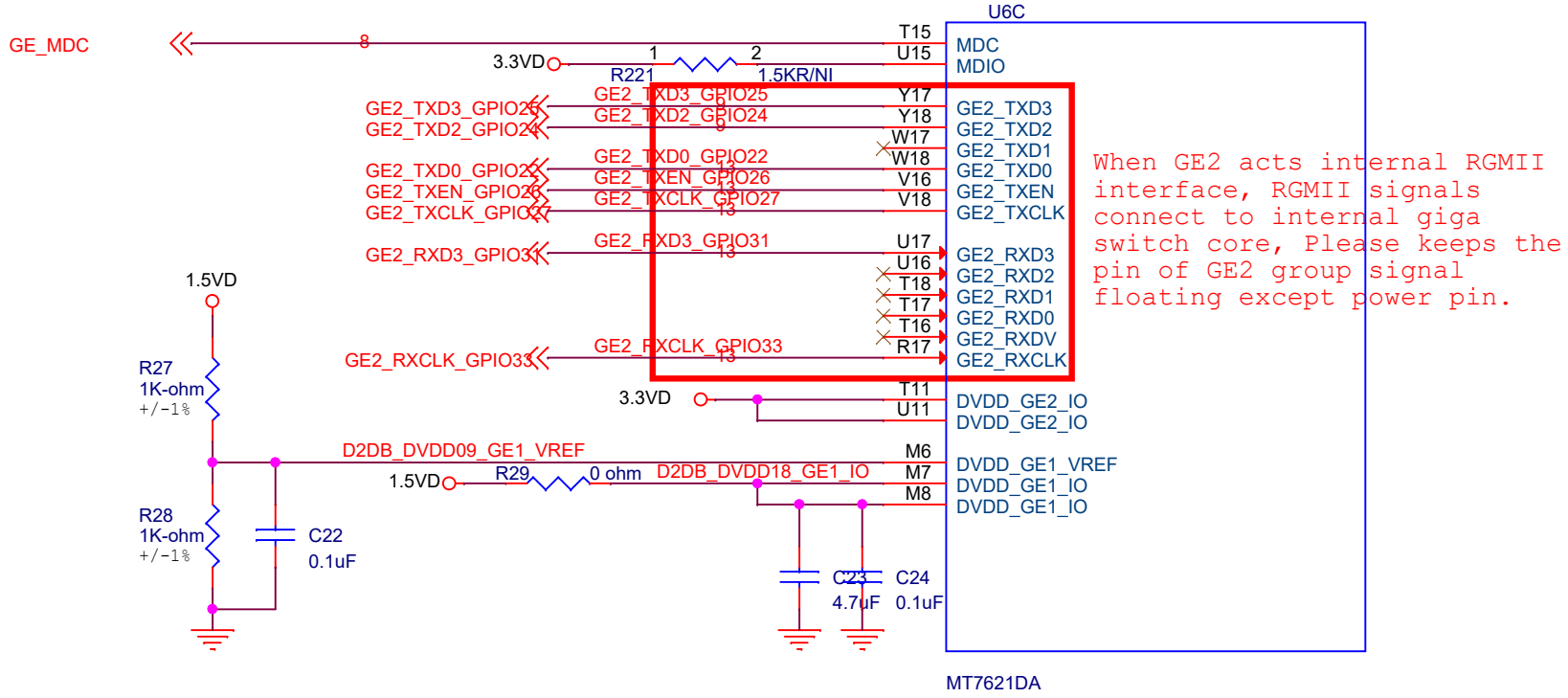
Title
MT7621DA
Size
<Size>
Document Number
MT7621-DDR3/NAND
Drawn
Rev
1.1
Date:
Saturday, June 12, 2021
Sheet 2
of 13

# RGMII Interface





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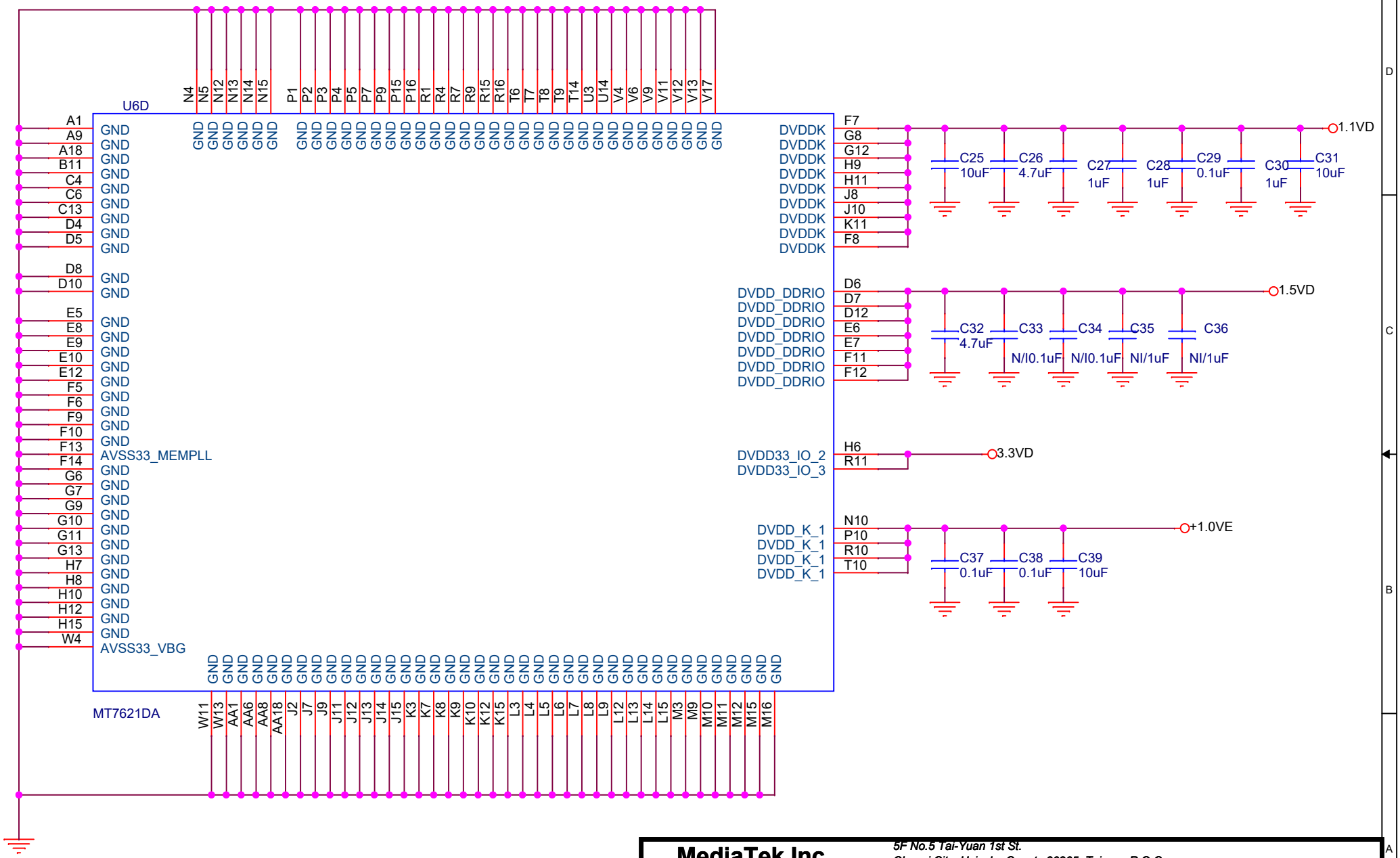
| Date: Saturday, June 12, 2021 | | Sheet 3 | of 13 |

# MT7621 Power

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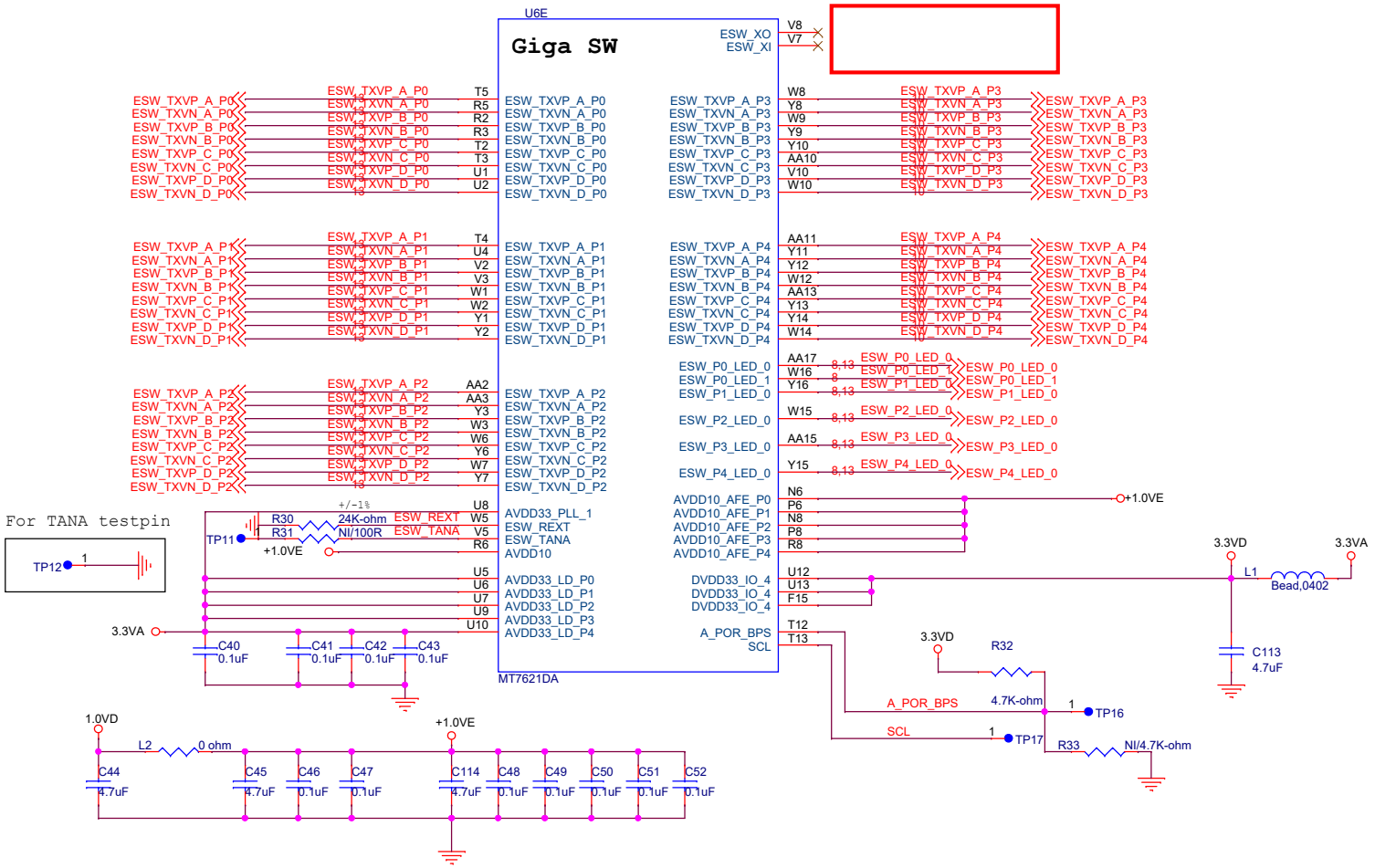
| | Date: Saturday, June 12, 2021 | Sheet 4 of 13 | |

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| MEDIATEK | Title: MT7621DA | | |
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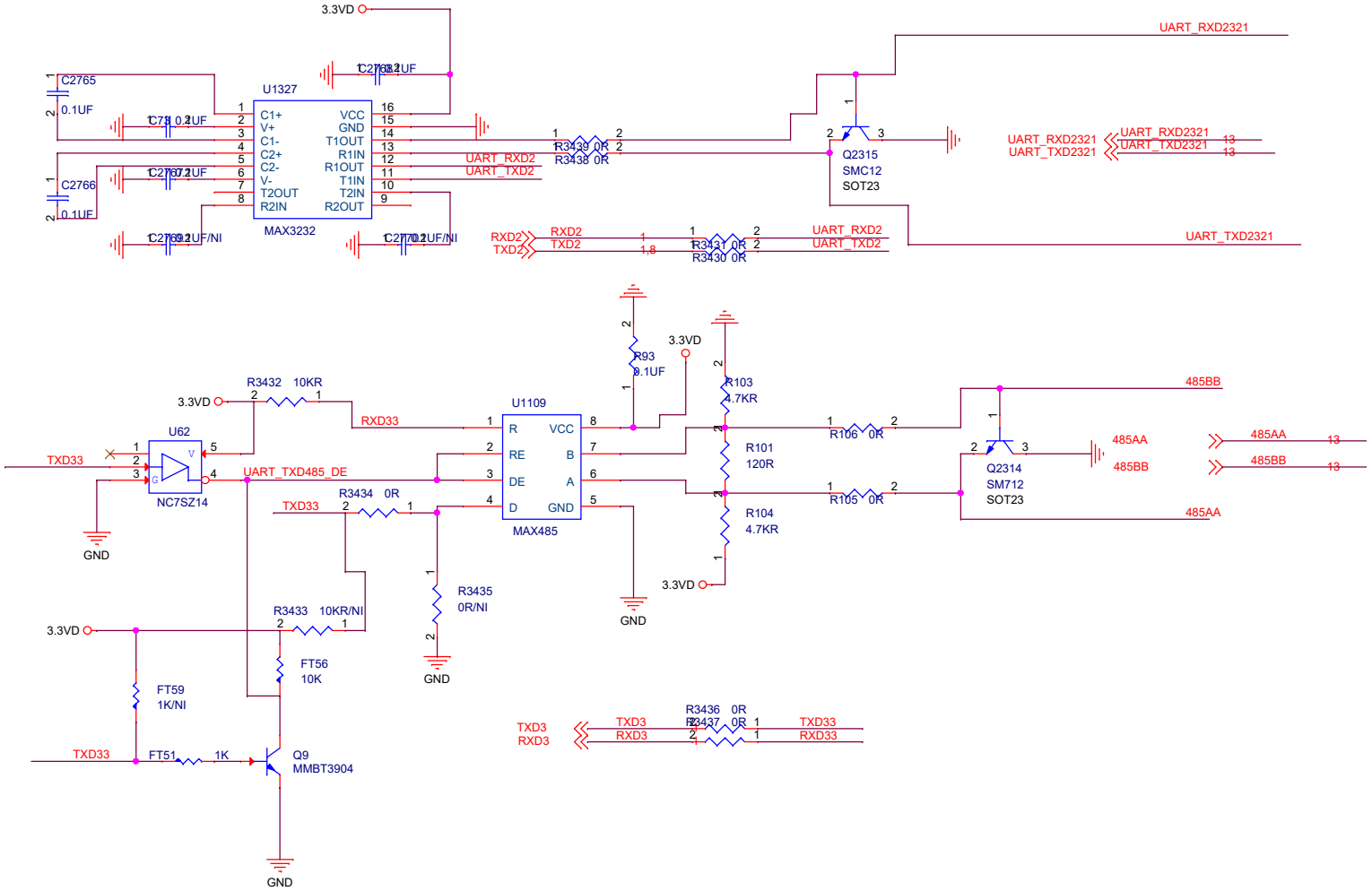
| Date: Saturday, June 12, 2021 | Sheet 5 of 13 | | |

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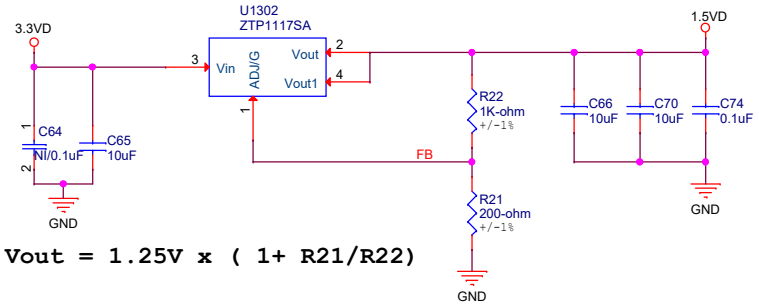
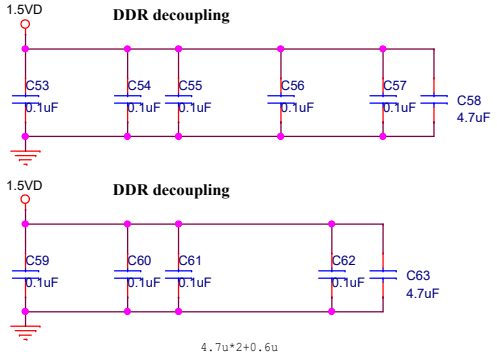
| **MediaTek Inc.** | *5F No.5 Tai-Yuan 1st St. Chupei City, Hsinchu County 30265, Taiwan, R.O.C.* | | |
| | Title: MT7621DA | | |
| | Size: <Size> | Document Number: LED | Drawn | Rev: 1.1 |
| | Date: Saturday, June 12, 2021 | Sheet 6 of 13 | |

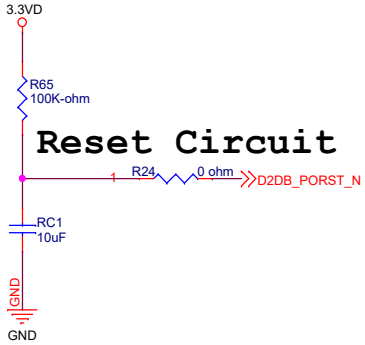
1.5V PMU MUST close MT7621DA for GE2 and DDR3

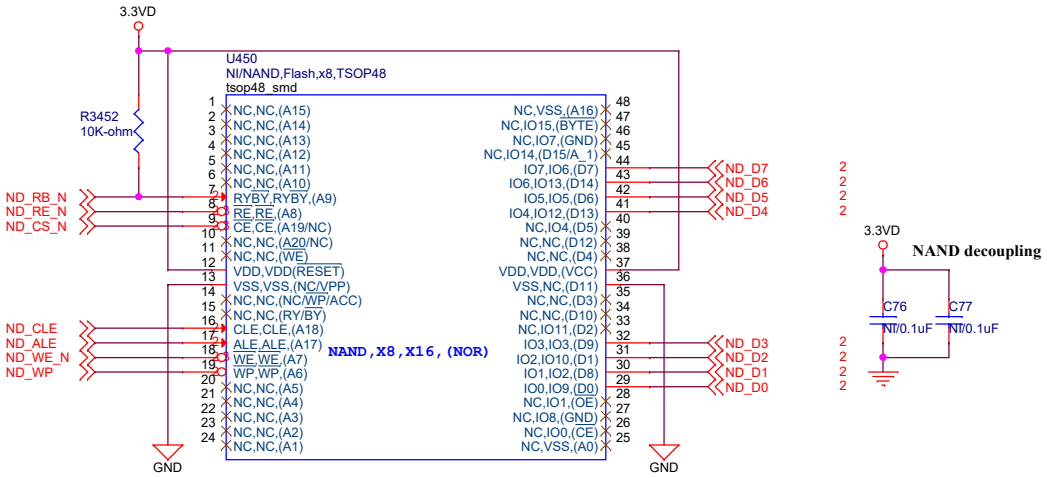
Close to MT7621DA 1.5V power pin
1.5V power trace should wider than MT7621A,
2 Layer PCB can refer MT7621DA board design




Vout = 1.25V x ( 1+ R21/R22)

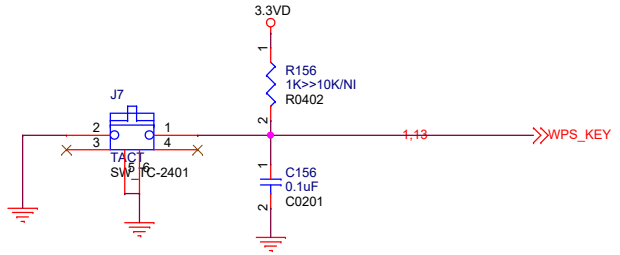









WPS

| | | | |
|---|---|---|---|
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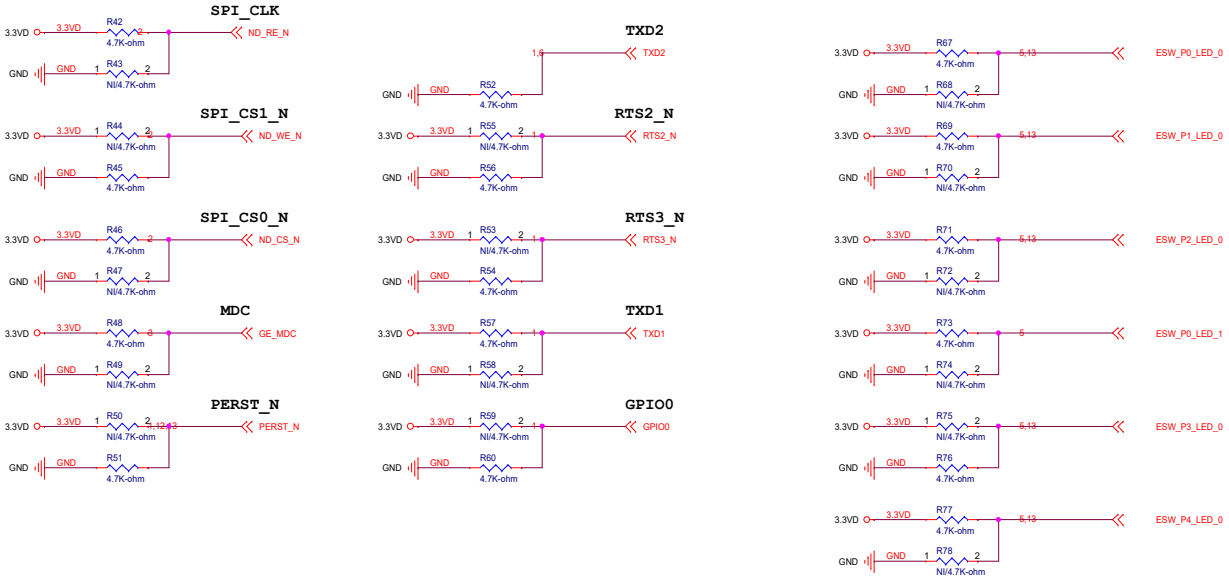
| | Title: MT7621DA | | |
| MEDIATEK | Size: <Size> | Document Number: MEM DDR3/NAND FLASH | Drawn / Rev: 1.1 |
| | Date: Thursday, June 24, 2021 | Sheet 7 of 13 | |

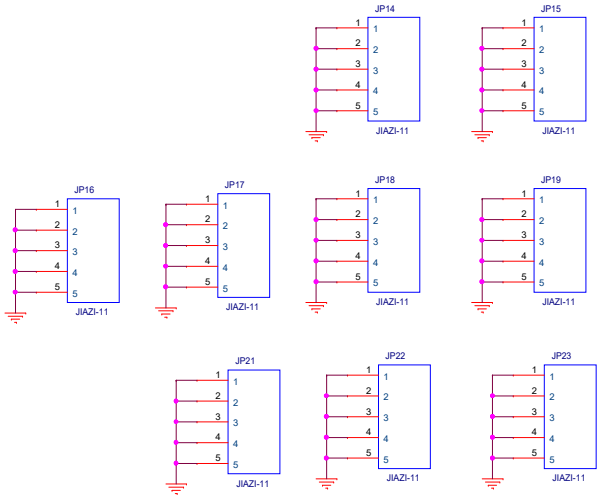
## Boot Strapping

| Pin Name | Description | Value | |
|---|---|---|---|
| SPI_CLK | DRAM_FROM_EE | For non scan mode:<br>0: DRAM/PLL configuration from EEPROM<br>**1: DRAM configuration from Auto Detect** | For FT mode:<br>0: SUTIF<br>1: 3-wire SPI |
| {SPI_CS1_N,<br>SPI_CS0_N,<br>MDC } | XTAL_MODE | 000: 20 MHz, Self Oscillation mode<br>001: 20 MHz, Single end input<br>010: 20 MHz, differential input<br>**011: 40 MHz, Self Oscillation mode** | 100: 40 MHz, Single end input<br>101: 40 MHz, differential input<br>110: 25 MHz, Self Oscillation mode<br>111: 25 MHz, Single end input |
| PERST_N | OCP_RATIO | 0: 1:3<br>**1: 1:4** | |
| TXD2 | DRAM_TYPE | **0: DDR3 (MT7621DA w/DDR3 1Gb)**<br>**1: DDR2** | |
| {RTS2_N,<br>RTS3_N,<br>TXD1,<br>GPIO0} | CHIP_MODE[3:0] | 0000: Normal / Boot from SPI 4-byte address and XTAL clock<br>0001: Normal / Boot from ROM (NAND page 2k+64 bytes)<br>**0010: Normal / Boot from SPI 3-byte address**<br>0011: Normal / Boot from SPI 4-byte address<br>0100: iNIC RGMI / Boot from ROM<br>0101: iNIC MII / Boot from ROM<br>0110: iNIC RVMII / Boot from ROM<br>0111: iNIC PHY / Boot from ROM<br>1000: iNIC RGMII / Boot from ROM and XTAL clock<br>1001: Normal / Boot from internal SRAM<br>1010: Normal / Boot from ROM (NAND page 2k+128 bytes)<br>1011: Normal / Boot from ROM (NAND page 4k+128 bytes)<br>1100: Normal / Boot from ROM (NAND page 4k+224 bytes)<br>1101: Debug mode<br>1110: Scan mode<br>1111: Final Test | |

## Giga Switch Hardware Trap

| Pin Name | Trap | Fuction | Description | Default |
|---|---|---|---|---|
| P0_LED_0 | HWTRAP[0] | HT_CHIP_MODE[0] | chip_mode[3:0]<br>4'b0000: IDDQ mode<br>4'b0001: IOTEST mode<br>4'b0010: NANDTREE mode<br>4'b0011: RING mode (both IO and std-cell)<br>4'b0100: MBIST<br>4'b0101: SCAN mode (internal)<br>4'b0110: SCAN-COMP mode (compression)<br>4'b0111: SCAN-MBIST-OLT mode<br>4'b1000: AFE-OLT mode<br>4'b1001: GPHY ATE mode<br>4'b1010: GPHY ADUMP mode<br>4'b1011: GPHY ADUMP probe mode<br>4'b1100: Reserved<br>4'b1101: Reserved<br>4'b1110: bootup probe mode<br>4'b1111: normal mode | 4'b1111 |
| P1_LED_0 | HWTRAP[1] | HT_CHIP_MODE[1] | | |
| P2_LED_0 | HWTRAP[2] | HT_CHIP_MODE[2] | | |
| P0_LED_1 | HWTRAP[3] | HT_CHIP_MODE[3] | | |
| P3_LED_0 | HWTRAP[9] | HT_XTAL_FSEL[0] | External Crystal Frequency Selection<br>xtal_freq_sel[1:0]<br>2'b01: 20MHz<br>2'b10: 40MHz<br>2'b11: 25MHz | 2'b10 |
| P4_LED_0 | HWTRAP[10] | HT_XTAL_FSEL[1] | | |

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| MediaTek Inc. | 5F No.5 Tai-Yuan 1st St. Chupei City, Hsinchu County 30265, Taiwan, R.O.C. | | | |
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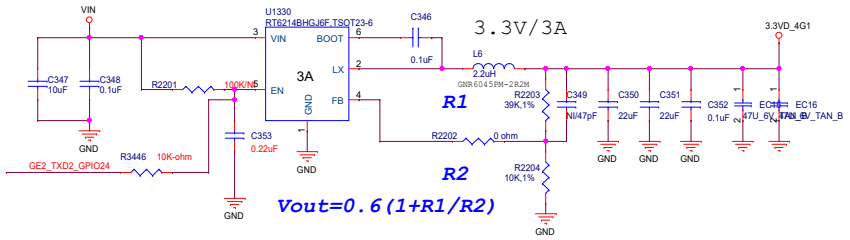
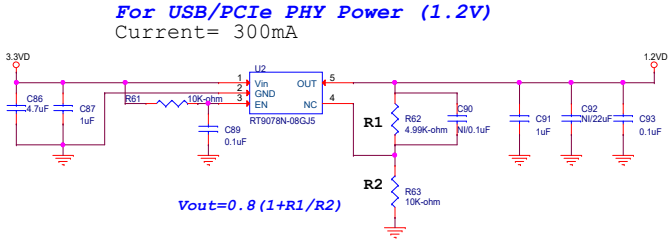
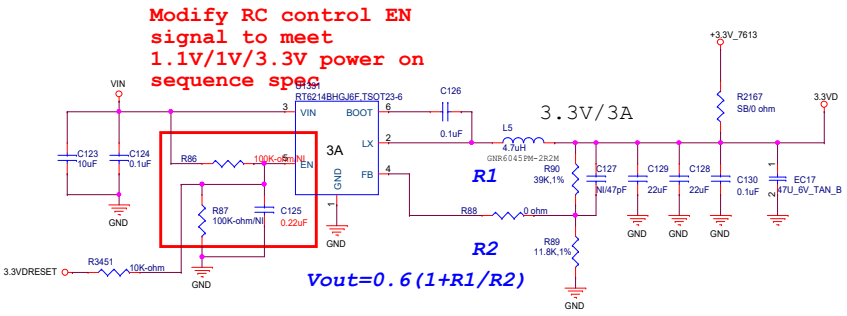
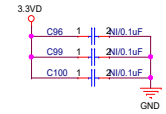
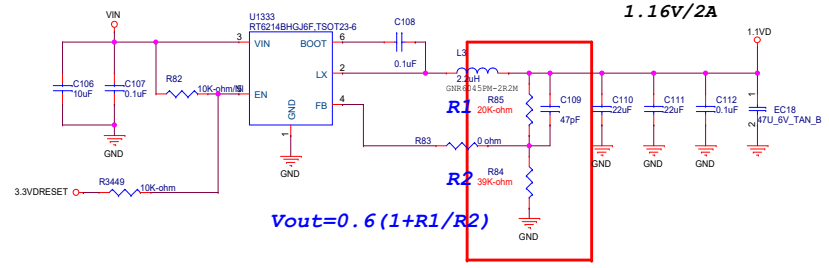
| | Date: Wednesday, June 23, 2021 | Sheet 8 of 13 | | |

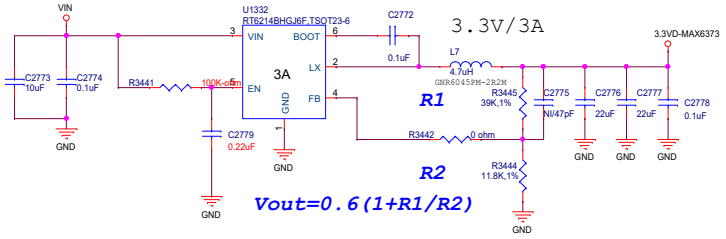


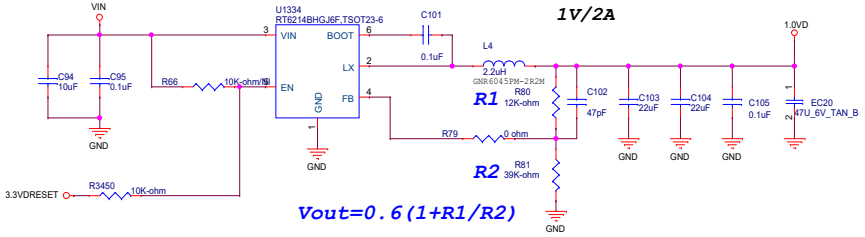



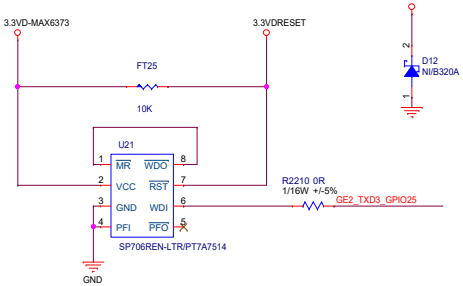



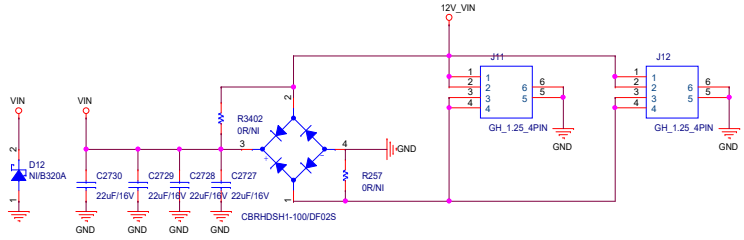





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| MediaTek Inc. | 5F No.5 Tai-Yuan 1st St. Chupei City, Hsinchu County 30265, Taiwan, R.O.C. | | |
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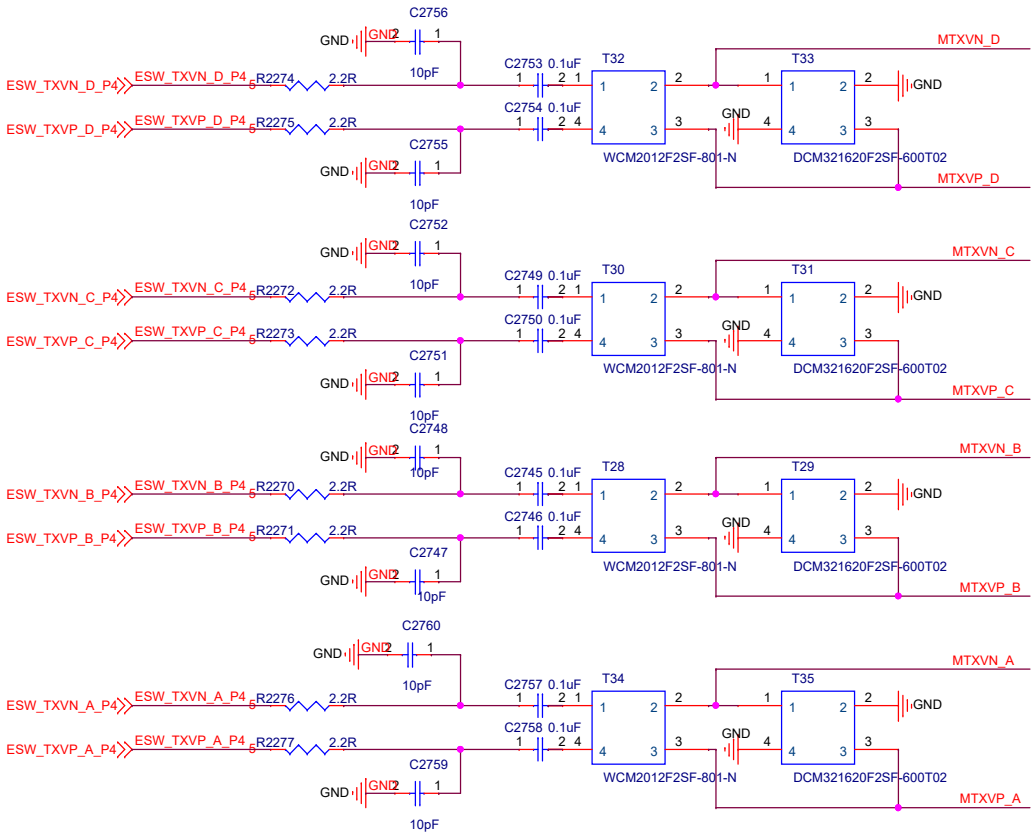
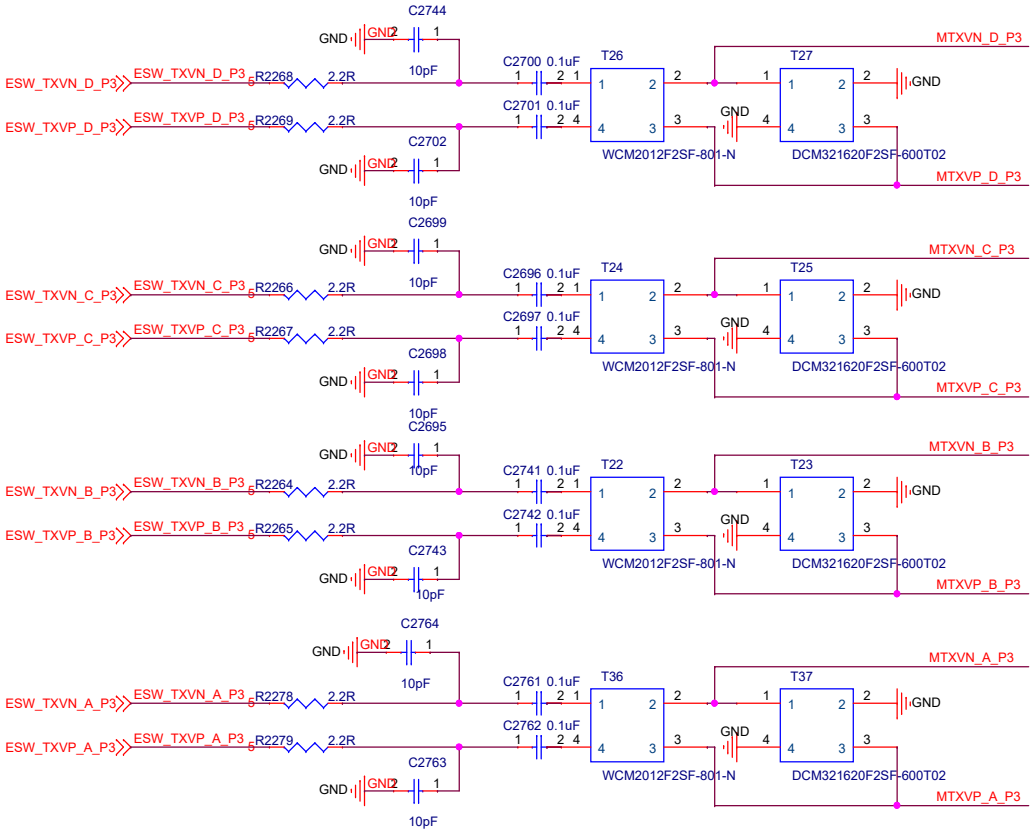
| | Date: Tuesday, July 27, 2021 | Sheet 9 of 13 | |

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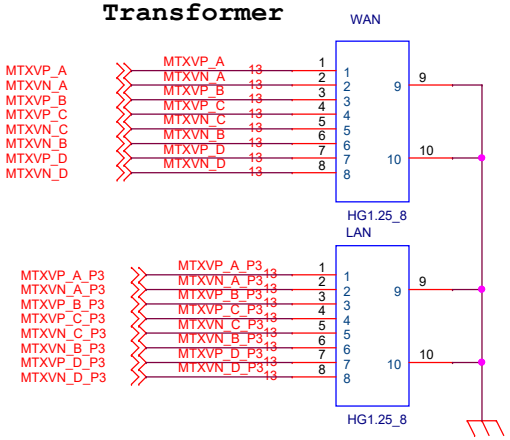


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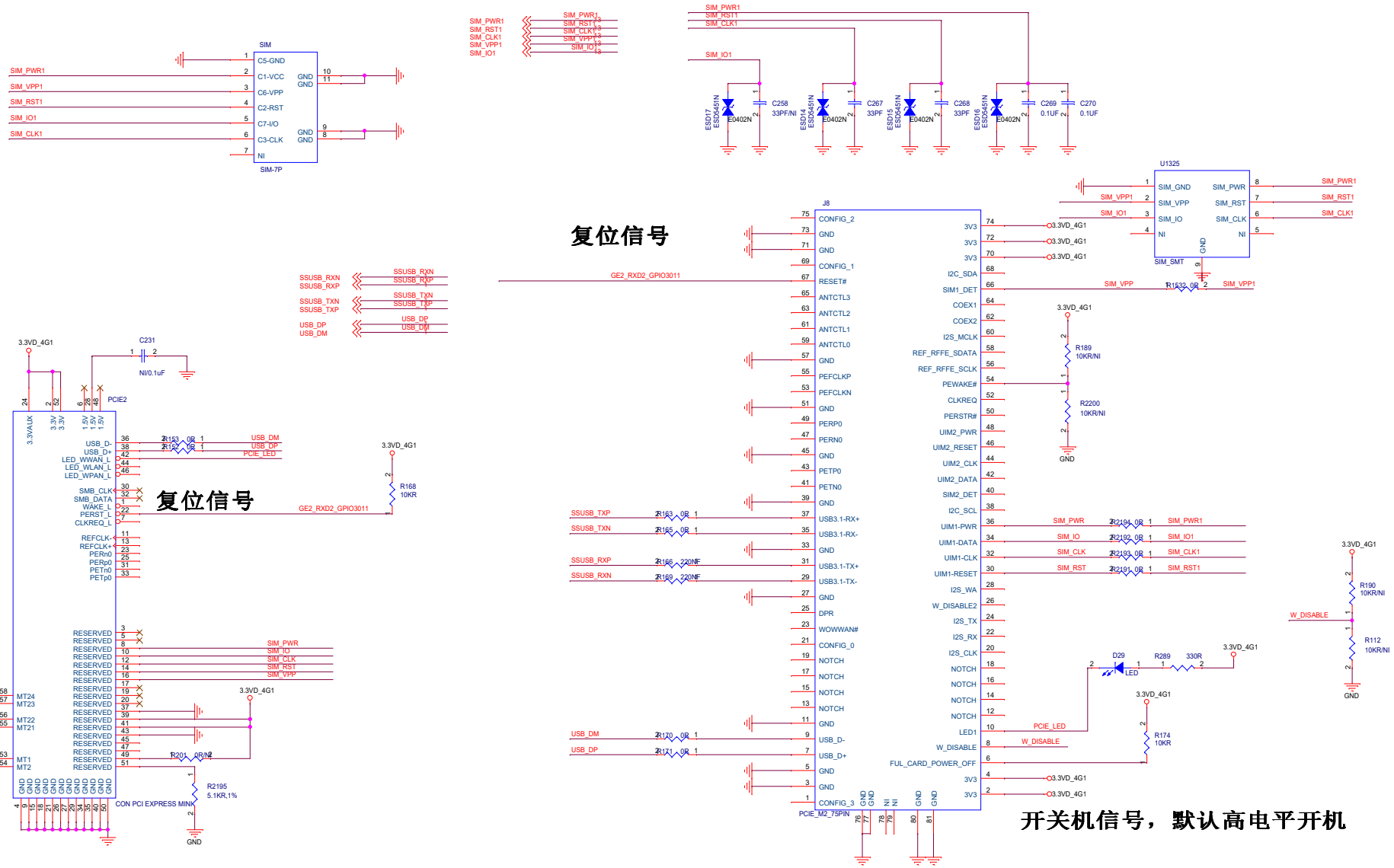
| | Date: Saturday, June 12, 2021 | Sheet 10 of 13 | |

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|---|---|---|---|
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| | Title: MT7621DA | | |
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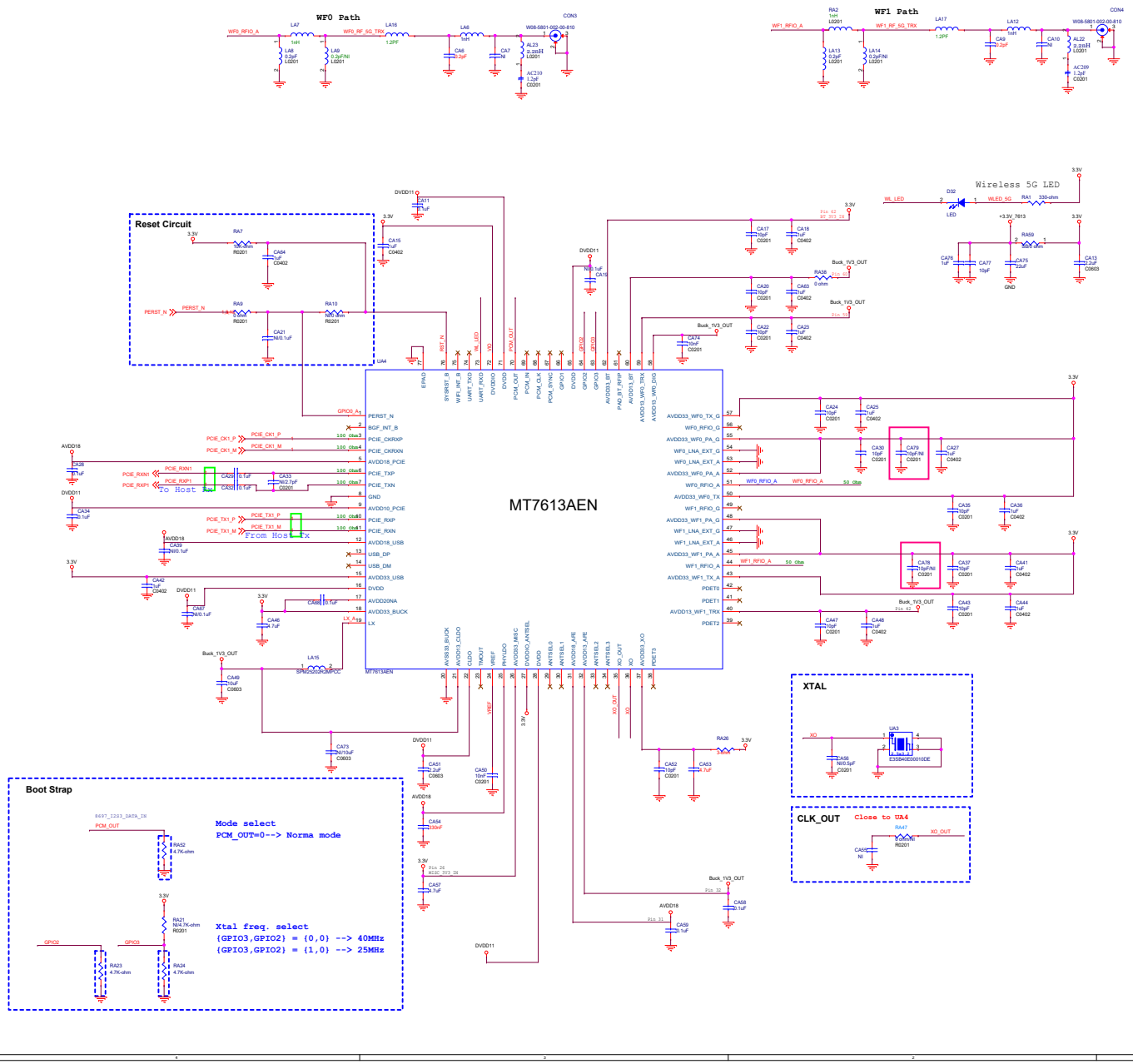
| | Date: Thursday, June 24, 2021 | Sheet 11 of 13 | |

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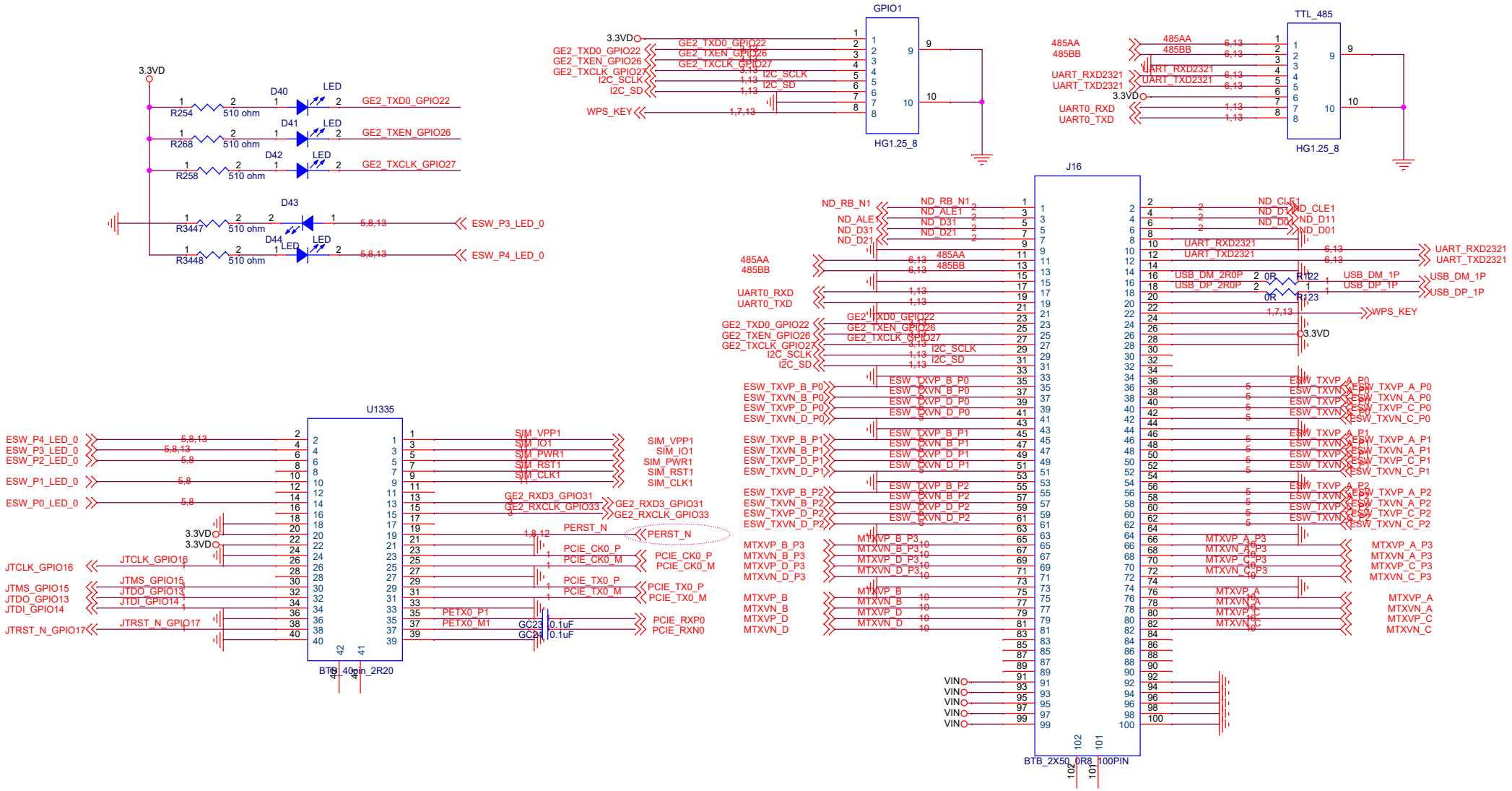
| | Date: Tuesday, July 27, 2021 | | |

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| | Date: Sunday, June 27, 2021 | Sheet 13 of 13 | |