XPE-ZU100

REV	DATE	PAGES	DESCRIPTION

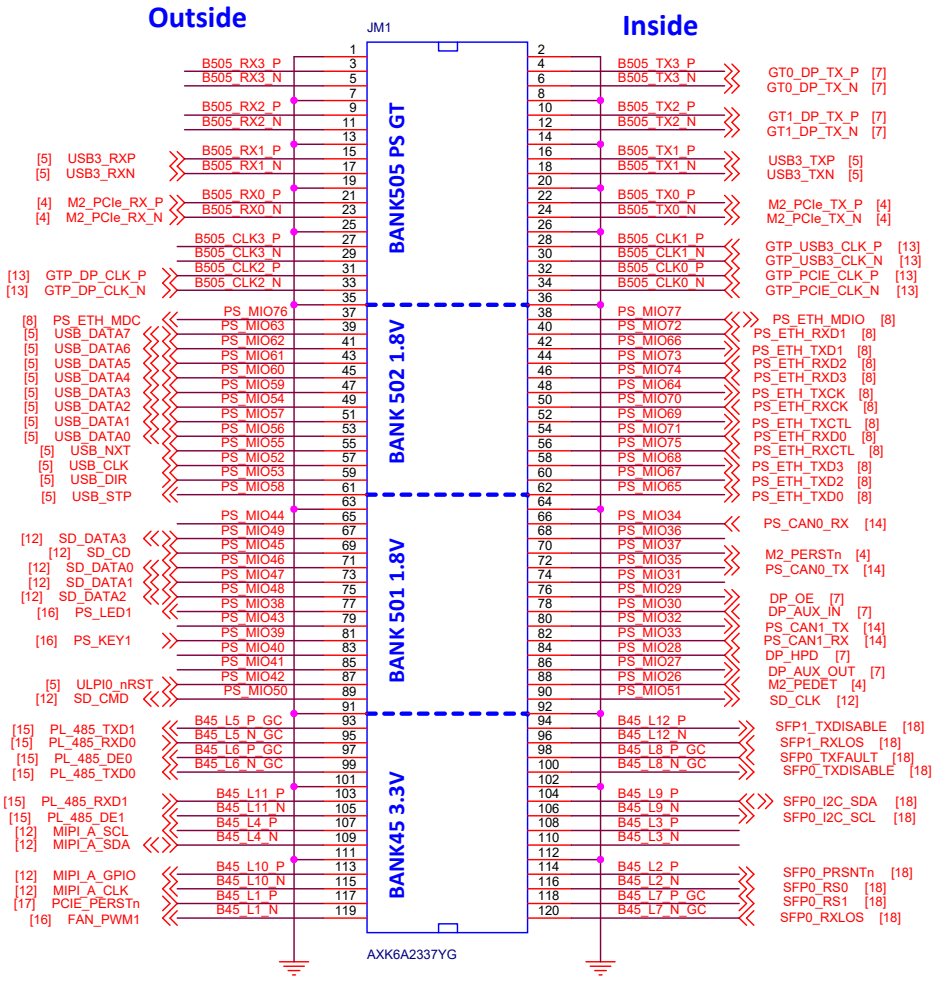
PAGE	DESCRIPTION
1	Title, Notes, Block Diagram, Revision History
2	B2B_JM1
3	B2B_JM3&JM4
4	M.2 Socket
5	USB3.0 HOST
6	USB3.0 CON
7	DP
8	PS ETH0
9	PL ETH1
10	USB-JTAG UART
11	HDMI
12	SD&MIPI&TP&EEPROM
13	CLOCK
14	CAN
15	RS485
16	FAN&KEY&LED
17	PCIE
18	SFP
19	MODE&RTC&GPIO
20	POWER
21	
22	
23	
24	
25	
26	
27	
28	
29	

MicroPhase *MicroPhase Inc. www.microphase.cn*

Title
XPE-ZU100

Size	Document Number	Rev
B	Block Diagram	3.0

Date: Wednesday, November 22, 2023 Sheet 1 of 20

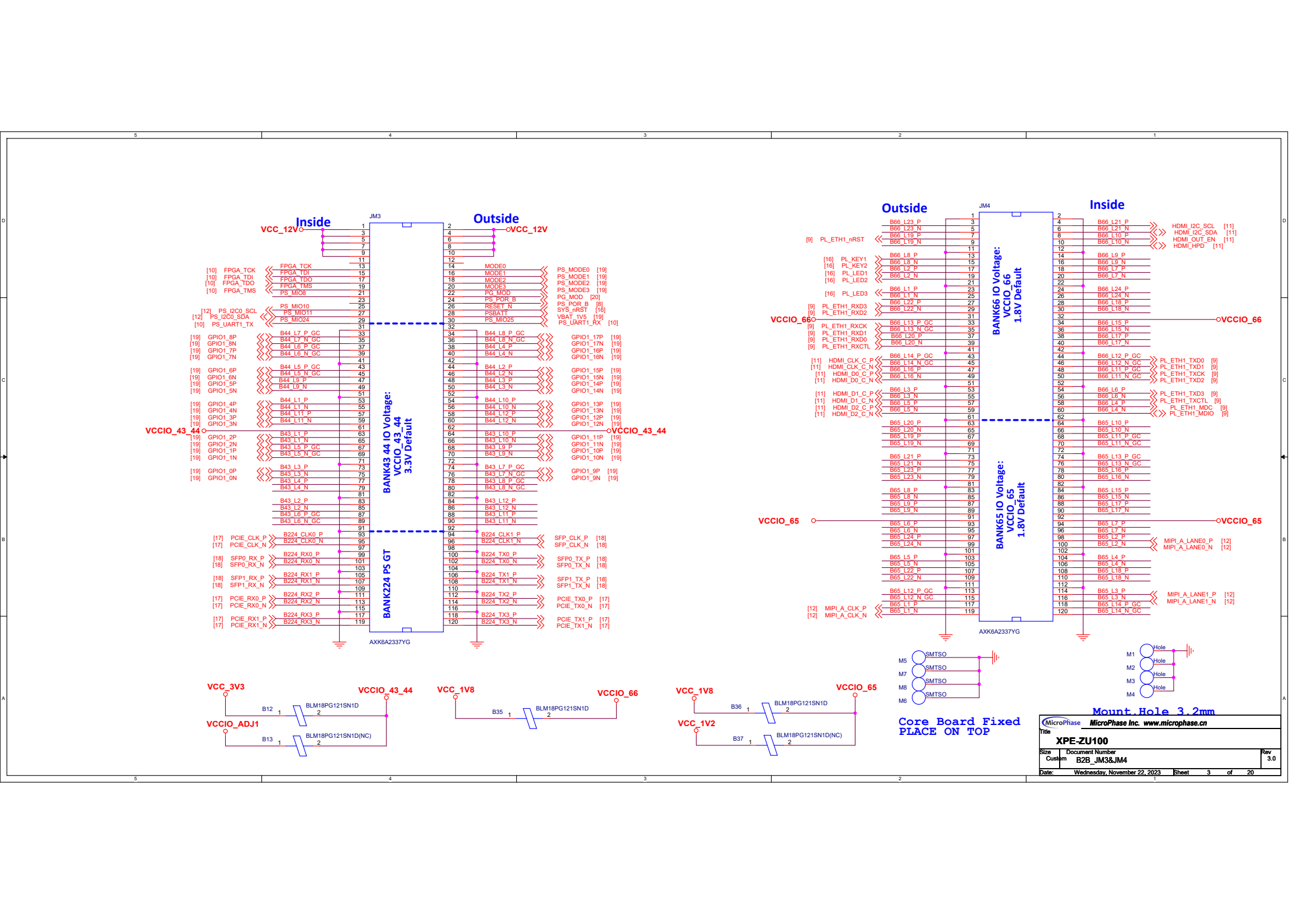


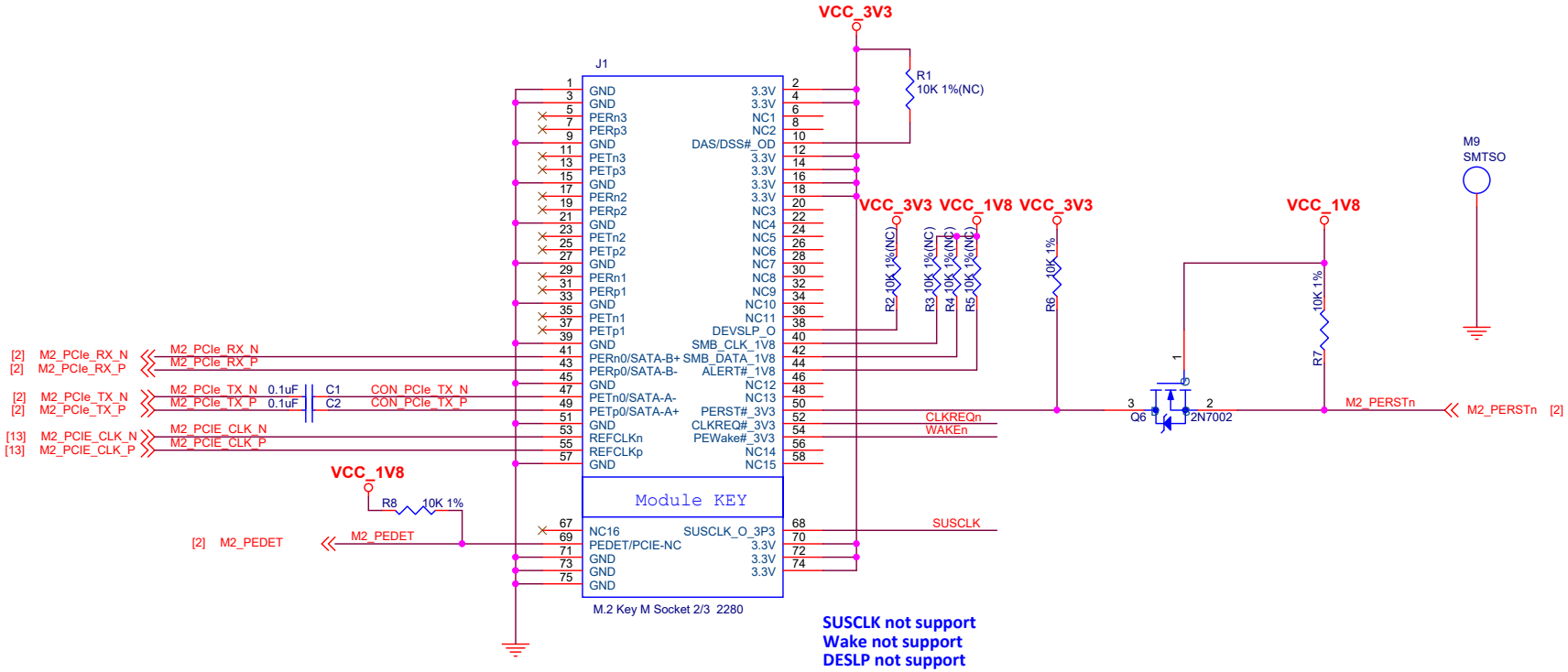
MicroPhase MicroPhase Inc. www.microphase.cn

Title: XPE-ZU100

Size	Document Number	Rev
B	B2B_JM1	3.0

Date: Wednesday, November 22, 2023 Sheet 2 of 20


Inside
Outside
JM3
VCC_12V
VCC_12V
BANK43 44 IO Voltage:
VCCIO_43_44
3.3V Default
BANK224 PS GT
VCCIO_43_44
VCCIO_43_44
AXK6A2337YG
VCC_3V3
VCCIO_43_44
VCCIO_ADJ1
BLM18PG121SN1D
BLM18PG121SN1D(NC)
VCC_1V8
VCCIO_66
BLM18PG121SN1D
Outside
Inside
JM4
BANK66 IO Voltage:
VCCIO_66
1.8V Default
BANK65 IO Voltage:
VCCIO_65
1.8V Default
VCCIO_66
VCCIO_66
VCCIO_65
VCCIO_65
AXK6A2337YG
VCC_1V8
VCCIO_65
VCC_1V2
BLM18PG121SN1D
BLM18PG121SN1D(NC)
SMTSO
Core Board Fixed
PLACE ON TOP
Hole
Mount.Hole 3.2mm
MicroPhase
MicroPhase Inc. www.microphase.cn
Title
XPE-ZU100
Size
Custom
Document Number
B2B_JM3&JM4
Rev
3.0
Date:
Wednesday, November 22, 2023
Sheet
3
of
20

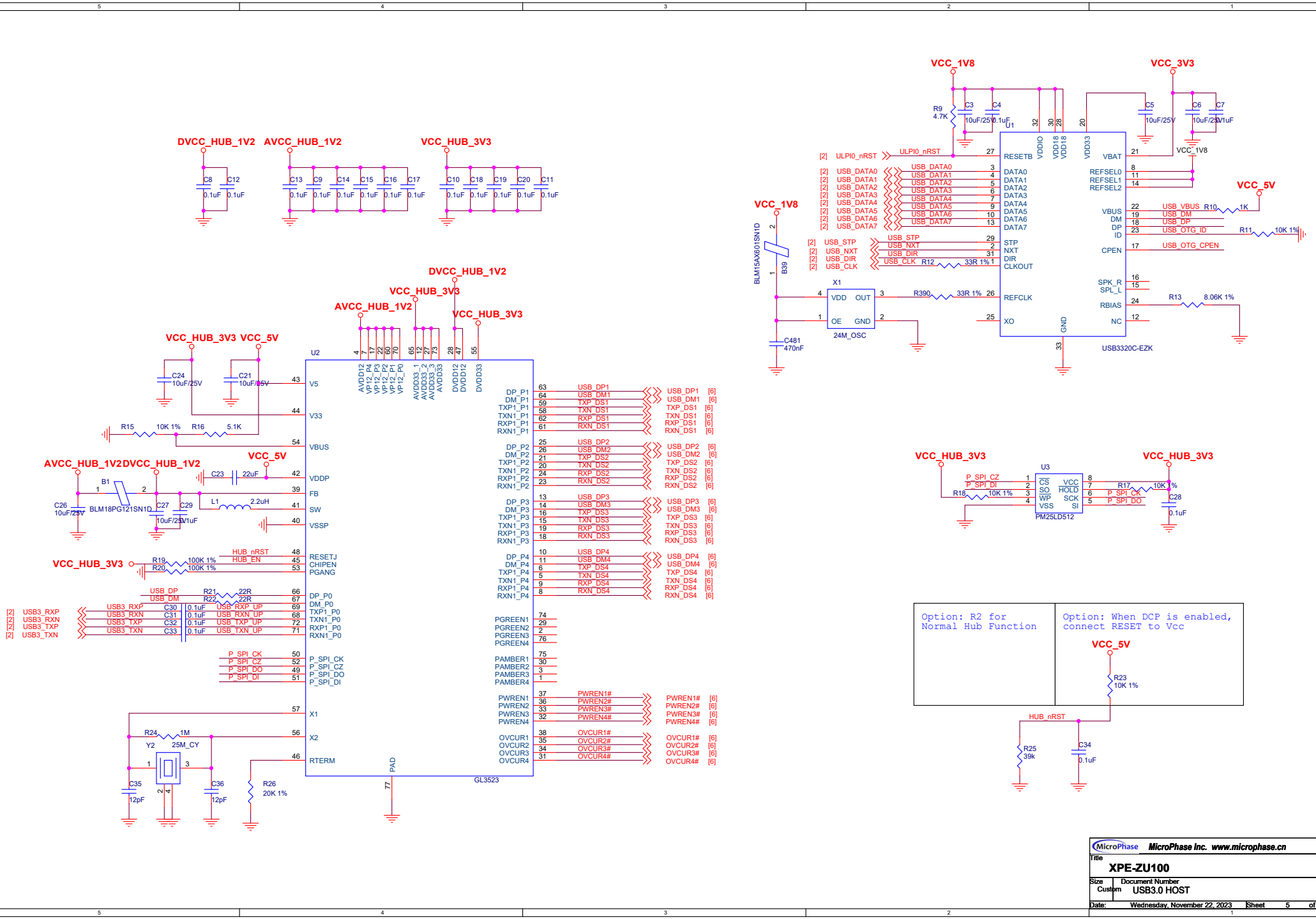


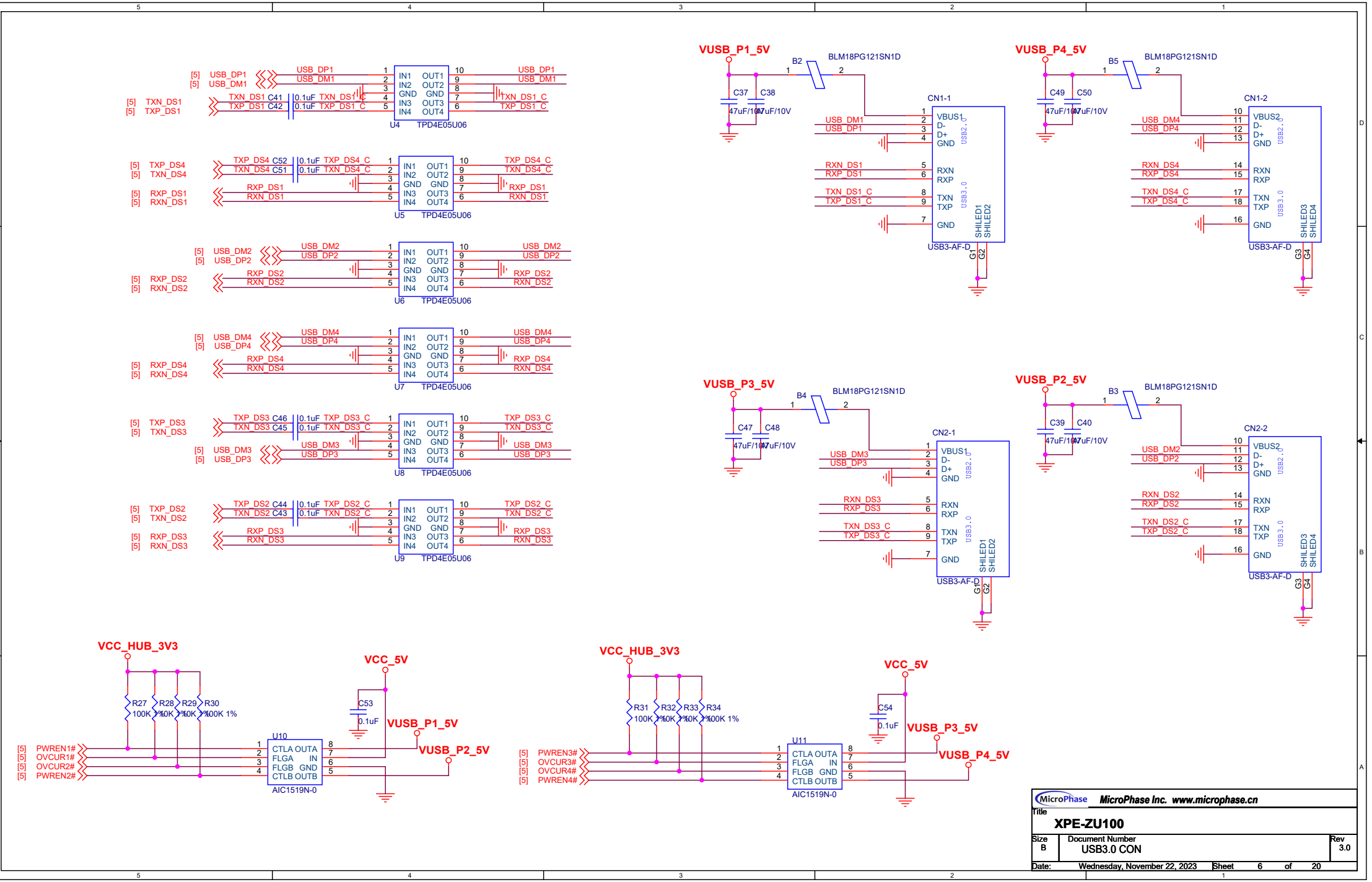
MicroPhase MicroPhase Inc. www.microphase.cn

Title: XPE-ZU100

Size	Document Number	Rev
B	M.2	3.0

Date: Wednesday, November 22, 2023 Sheet 4 of 20


DVCC_HUB_1V2
AVCC_HUB_1V2
VCC_HUB_3V3
C8 C12 0.1uF 0.1uF
C13 C9 C14 C15 C16 C17 0.1uF
C10 C18 C19 C20 C11 0.1uF
VCC_1V8
VCC_3V3
VCC_5V
R9 4.7K
C3 10uF/25V
C4 0.1uF
C5 10uF/25V
C6 10uF/25V
C7 0.1uF
U1
RESETB
VDDIO
VDD18
VDD33
VBAT
DATA0
DATA1
DATA2
DATA3
DATA4
DATA5
DATA6
DATA7
STP
NXT
DIR
CLKOUT
REFCLK
XO
GND
REFSEL0
REFSEL1
REFSEL2
VBUS
DM
DP
ID
CPEN
SPK_R
SPL_L
RBIAS
NC
USB_VBUS R10 1K
USB_DM
USB_DP
USB_OTG_ID
R11 10K 1%
USB_OTG_CPEN
R13 8.06K 1%
USB3320C-EZK
ULPI0_nRST
USB_DATA0
USB_DATA1
USB_DATA2
USB_DATA3
USB_DATA4
USB_DATA5
USB_DATA6
USB_DATA7
USB_STP
USB_NXT
USB_DIR
USB_CLK R12 33R 1%
BLM15AX601SN1D
B39
X1
VDD
OUT
OE
GND
24M_OSC
R390 33R 1%
C481 470nF
U2
AVDD12
VP12_P4
VP12_P3
VP12_P2
VP12_P1
VP12_P0
AVDD33_1
AVDD33_2
AVDD33_3
AVDD33
DVDD12
DVDD12
DVDD33
V5
V33
VBUS
VDDP
FB
SW
VSSP
RESETJ
CHIPEN
PGANG
DP_P0
DM_P0
TXP1_P0
TXN1_P0
RXP1_P0
RXN1_P0
P_SPI_CK
P_SPI_CZ
P_SPI_DO
P_SPI_DI
X1
X2
RTERM
PAD
GL3523
C24 10uF/25V
C21 10uF/25V
R15 10K 1%
R16 5.1K
C23 22uF
B1
BLM18PG121SN1D
C26 10uF/25V
C27
C29 10uF/25V 0.1uF
L1 2.2uH
HUB_nRST
HUB_EN
R19 100K 1%
R20 100K 1%
USB_DP
USB_DM
R21 22R
R22 22R
USB3_RXP
USB3_RXN
USB3_TXP
USB3_TXN
C30 C31 C32 C33 0.1uF
USB_RXP_UP
USB_RXN_UP
USB_TXP_UP
USB_TXN_UP
R24 1M
Y2 25M_CY
C35 12pF
C36 12pF
R26 20K 1%
DP_P1 DM_P1 TXP1_P1 TXN1_P1 RXP1_P1 RXN1_P1
DP_P2 DM_P2 TXP1_P2 TXN1_P2 RXP1_P2 RXN1_P2
DP_P3 DM_P3 TXP1_P3 TXN1_P3 RXP1_P3 RXN1_P3
DP_P4 DM_P4 TXP1_P4 TXN1_P4 RXP1_P4 RXN1_P4
USB_DP1 USB_DM1 TXP_DS1 TXN_DS1 RXP_DS1 RXN_DS1
USB_DP2 USB_DM2 TXP_DS2 TXN_DS2 RXP_DS2 RXN_DS2
USB_DP3 USB_DM3 TXP_DS3 TXN_DS3 RXP_DS3 RXN_DS3
USB_DP4 USB_DM4 TXP_DS4 TXN_DS4 RXP_DS4 RXN_DS4
PGREEN1 PGREEN2 PGREEN3 PGREEN4
PAMBER1 PAMBER2 PAMBER3 PAMBER4
PWREN1 PWREN2 PWREN3 PWREN4
PWREN1# PWREN2# PWREN3# PWREN4#
OVCUR1 OVCUR2 OVCUR3 OVCUR4
OVCUR1# OVCUR2# OVCUR3# OVCUR4#
U3
P_SPI_CZ
P_SPI_DI
R18 10K 1%
CS
SO
WP
VSS
VCC
HOLD
SCK
SI
PM25LD512
R17 10K 1%
P_SPI_CK
P_SPI_DO
C28 0.1uF
Option: R2 for Normal Hub Function
Option: When DCP is enabled, connect RESET to Vcc
R23 10K 1%
R25 39k
C34 0.1uF
MicroPhase MicroPhase Inc. www.microphase.cn
Title
XPE-ZU100
Size Custom
Document Number USB3.0 HOST
Rev 3.0
Date: Wednesday, November 22, 2023
Sheet 5 of 20

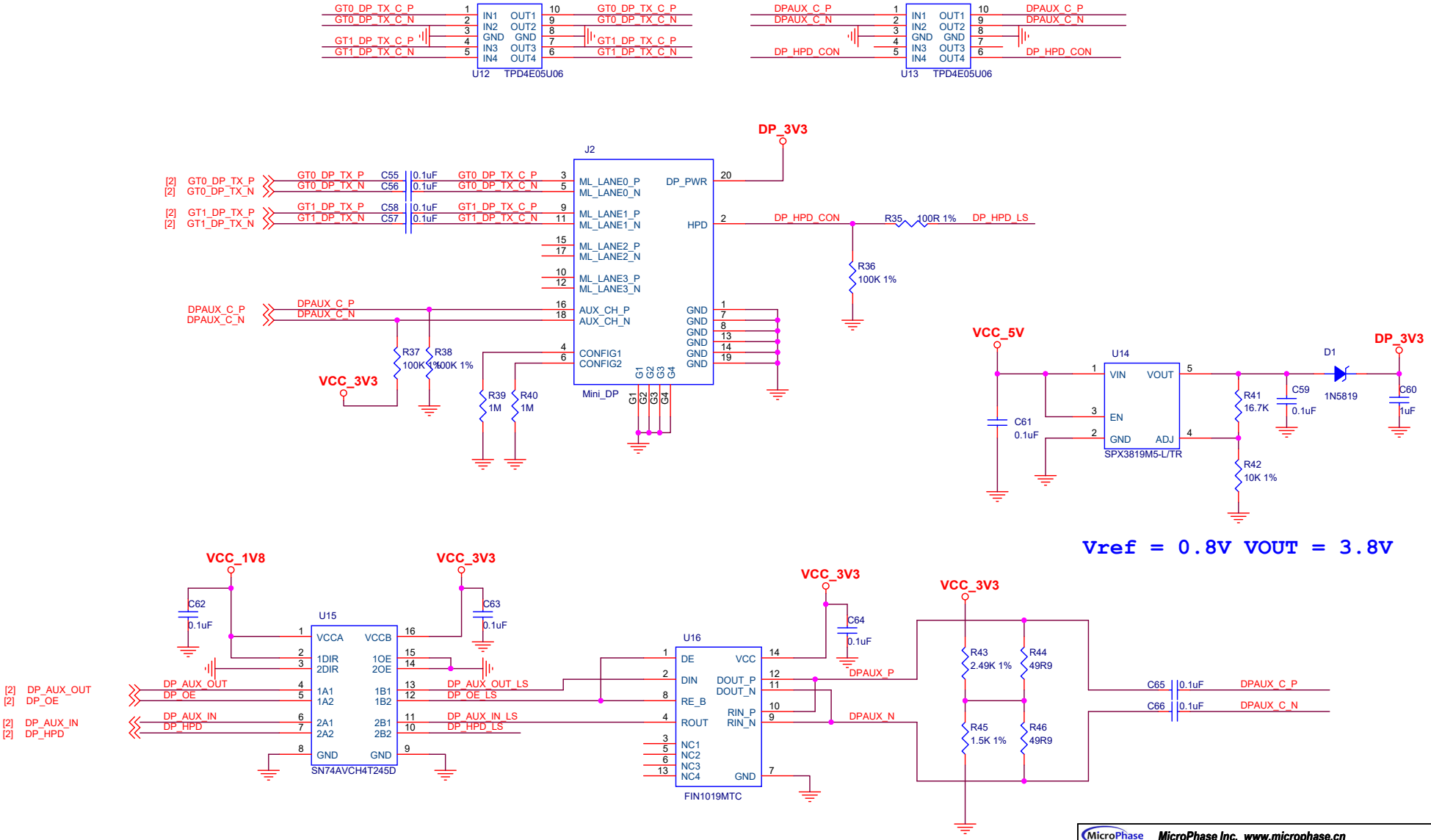


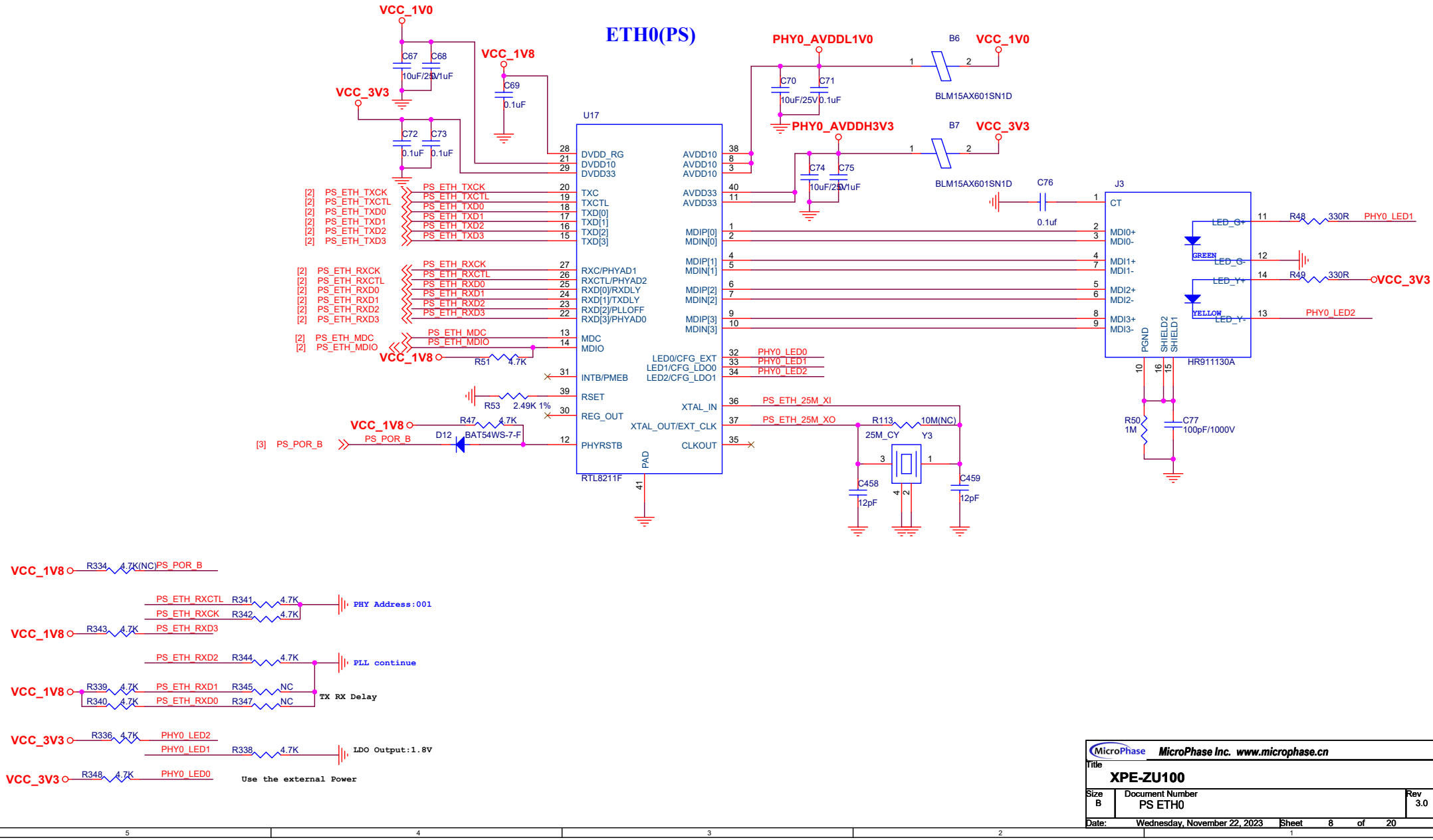
MicroPhase MicroPhase Inc. www.microphase.cn

Title: XPE-ZU100

Size	Document Number	Rev
B	USB3.0 CON	3.0

Date: Wednesday, November 22, 2023 Sheet 6 of 20


GT0_DP_TX_C_P
GT0_DP_TX_C_N
GT1_DP_TX_C_P
GT1_DP_TX_C_N
U12 TPD4E05U06
DPAUX_C_P
DPAUX_C_N
DP_HPD_CON
U13 TPD4E05U06
DP_3V3
J2
ML_LANE0_P
ML_LANE0_N
ML_LANE1_P
ML_LANE1_N
ML_LANE2_P
ML_LANE2_N
ML_LANE3_P
ML_LANE3_N
AUX_CH_P
AUX_CH_N
CONFIG1
CONFIG2
DP_PWR
HPD
Mini_DP
R35 100R 1%
R36 100K 1%
R37 100K 1%
R38 100K 1%
R39 1M
R40 1M
VCC_3V3
VCC_5V
U14
SPX3819M5-L/TR
D1
1N5819
R41 16.7K
R42 10K 1%
C59 0.1uF
C60 1uF
C61 0.1uF
Vref = 0.8V VOUT = 3.8V
VCC_1V8
U15
SN74AVCH4T245D
C62 0.1uF
C63 0.1uF
DP_AUX_OUT
DP_OE
DP_AUX_IN
DP_HPD
DP_AUX_OUT_LS
DP_OE_LS
DP_AUX_IN_LS
DP_HPD_LS
U16
FIN1019MTC
C64 0.1uF
DPAUX_P
DPAUX_N
R43 2.49K 1%
R44 49R9
R45 1.5K 1%
R46 49R9
C65 0.1uF
C66 0.1uF
MicroPhase MicroPhase Inc. www.microphase.cn
Title
XPE-ZU100
Size B
Document Number DP
Rev 3.0
Date: Wednesday, November 22, 2023
Sheet 7 of 20

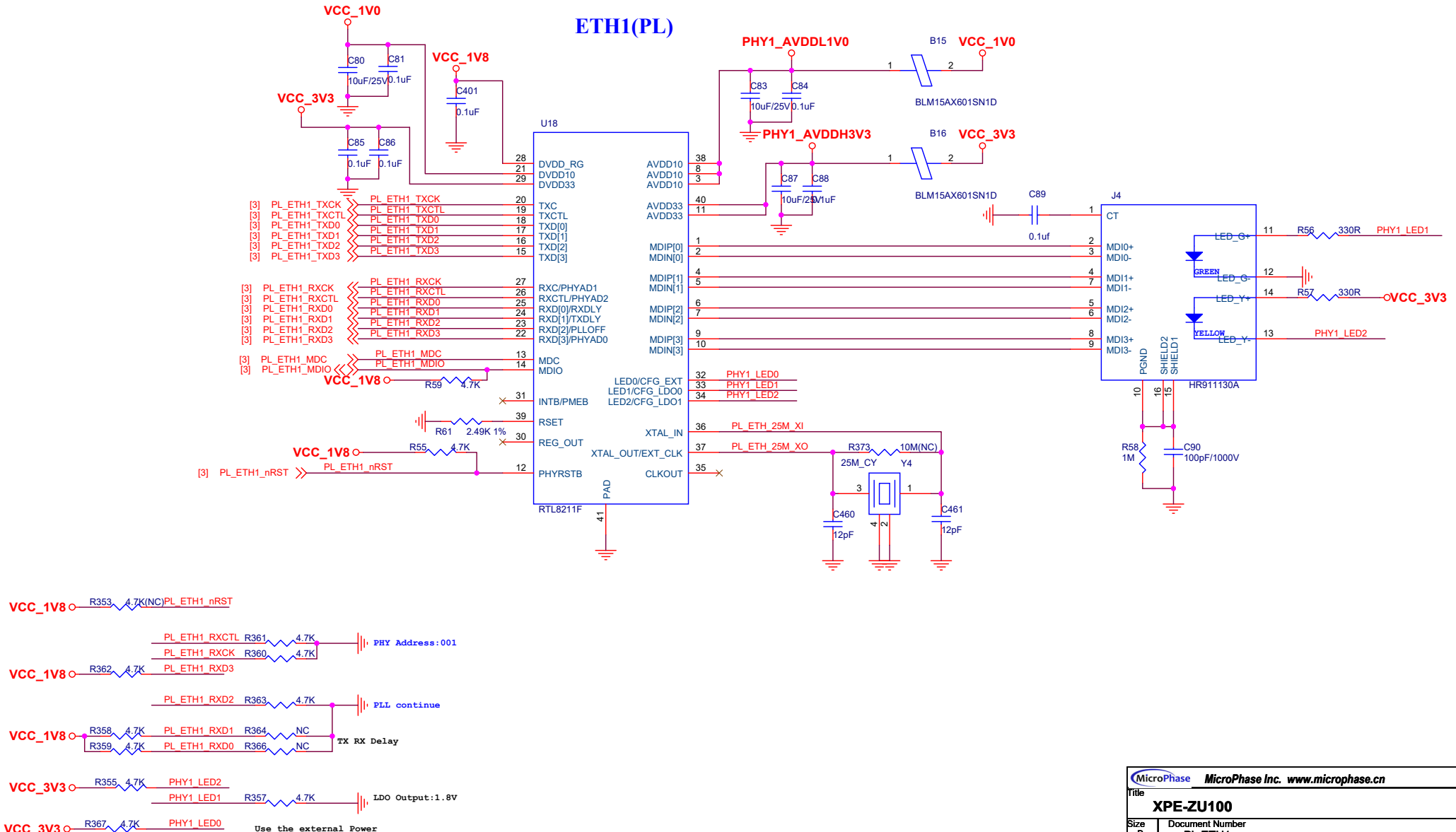


MicroPhase MicroPhase Inc. www.microphase.cn

Title: XPE-ZU100

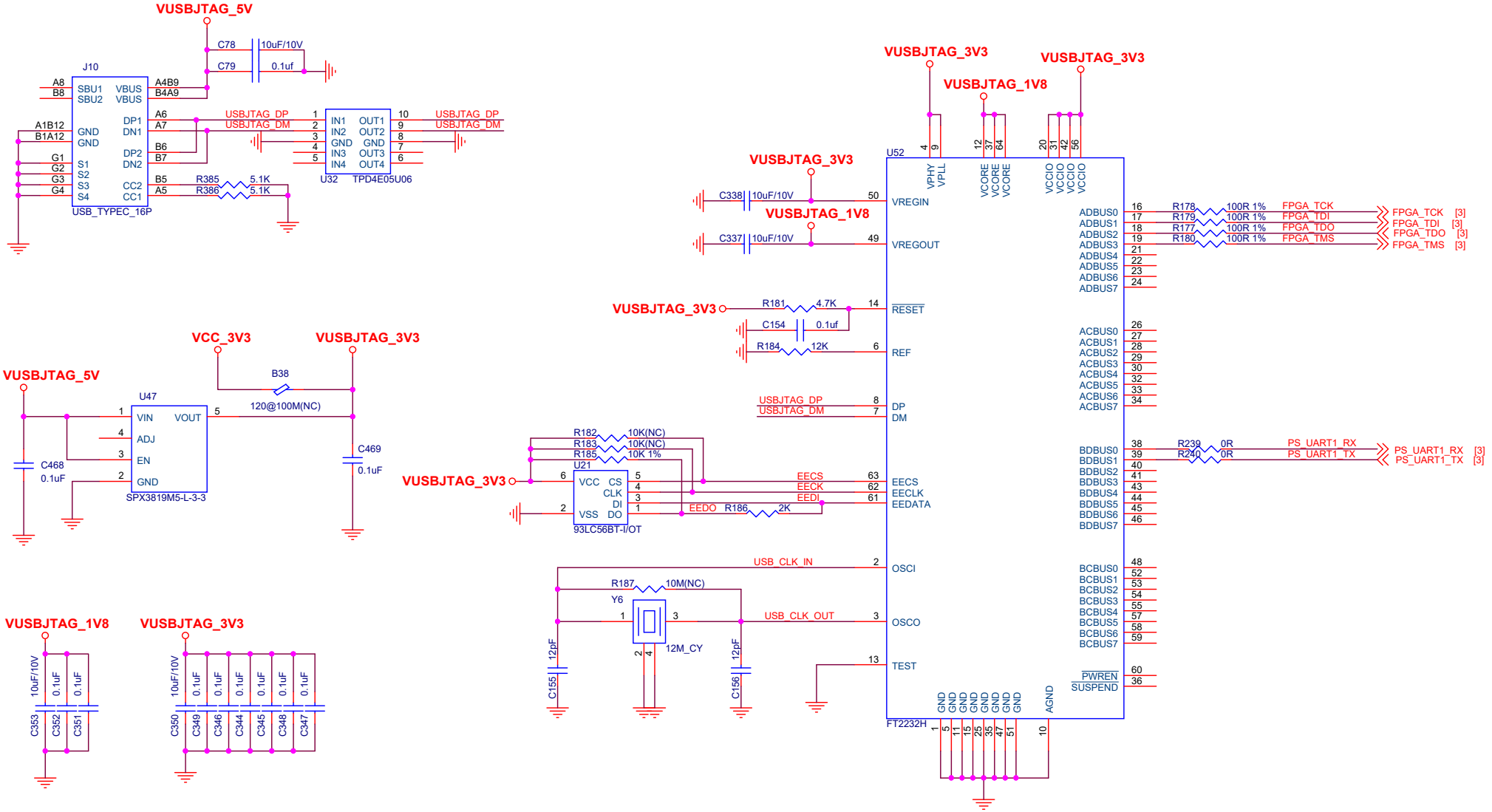
Size	Document Number	Rev
B	PS ETH0	3.0

Date: Wednesday, November 22, 2023 Sheet 8 of 20



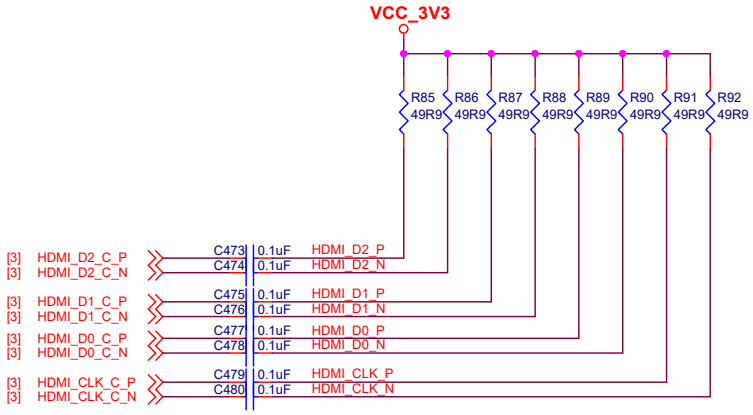
MicroPhase	MicroPhase Inc. www.microphase.cn	
Title	XPE-ZU100	
Size B	Document Number PL ETH1	Rev 3.0
Date: Wednesday, November 22, 2023	Sheet 9 of 20	

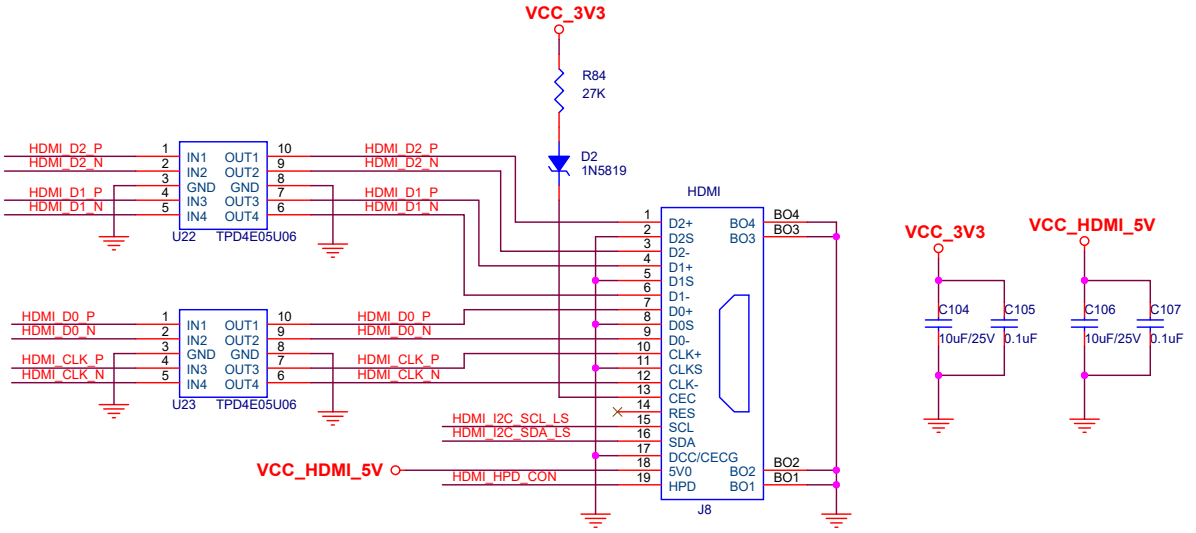
USB-JTAG&UART

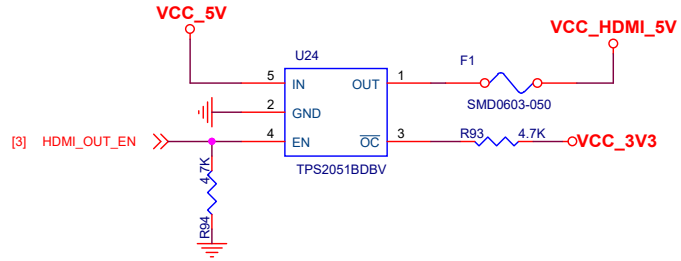


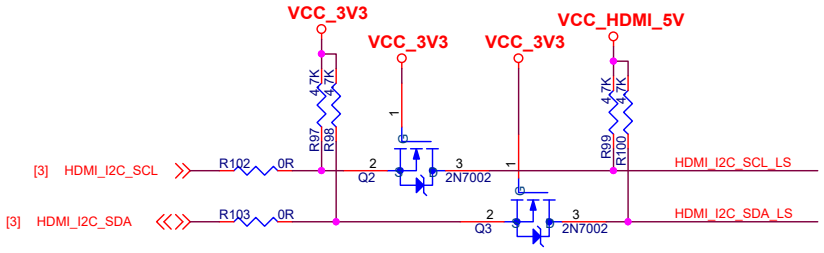
MicroPhase	MicroPhase Inc. www.microphase.cn		
Title	XPE-ZU100		
Size B	Document Number USB-JTAG&UART		Rev 3.0
Date: Wednesday, November 22, 2023	Sheet 10 of 20		

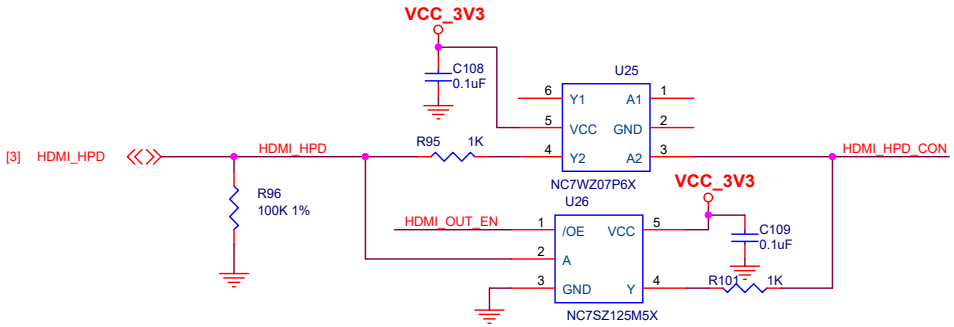
PL HDMI-TX











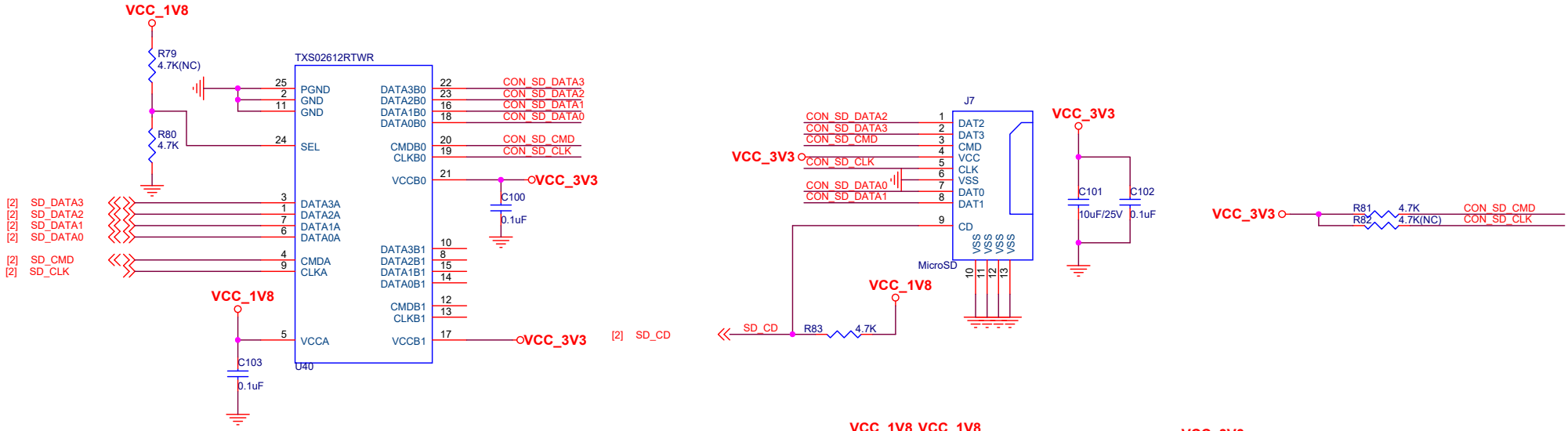
MicroPhase MicroPhase Inc. www.microphase.cn

Title: XPE-ZU100

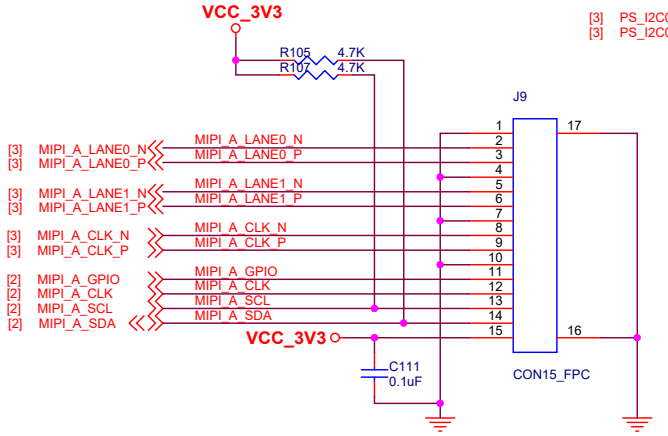
Size	Document Number	Rev
B	HDMI	3.0

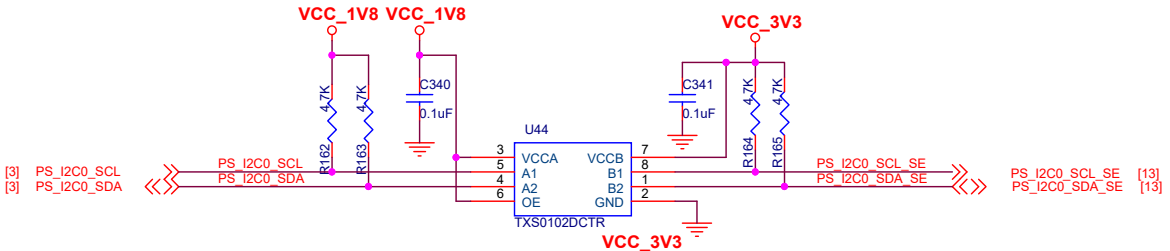
Date: Wednesday, November 22, 2023 Sheet 11 of 20

PS SD Card

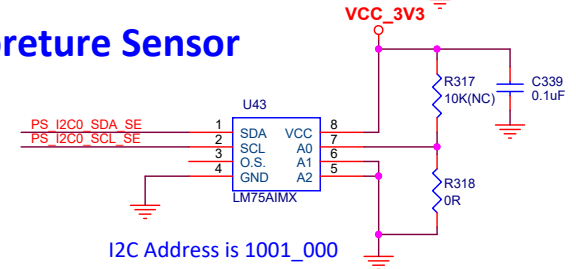


MIPI



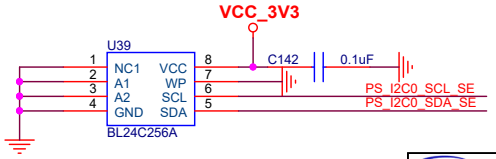


Tempreture Sensor



I2C Address is 1001_000

EEPROM



I2C Address is 1010_000

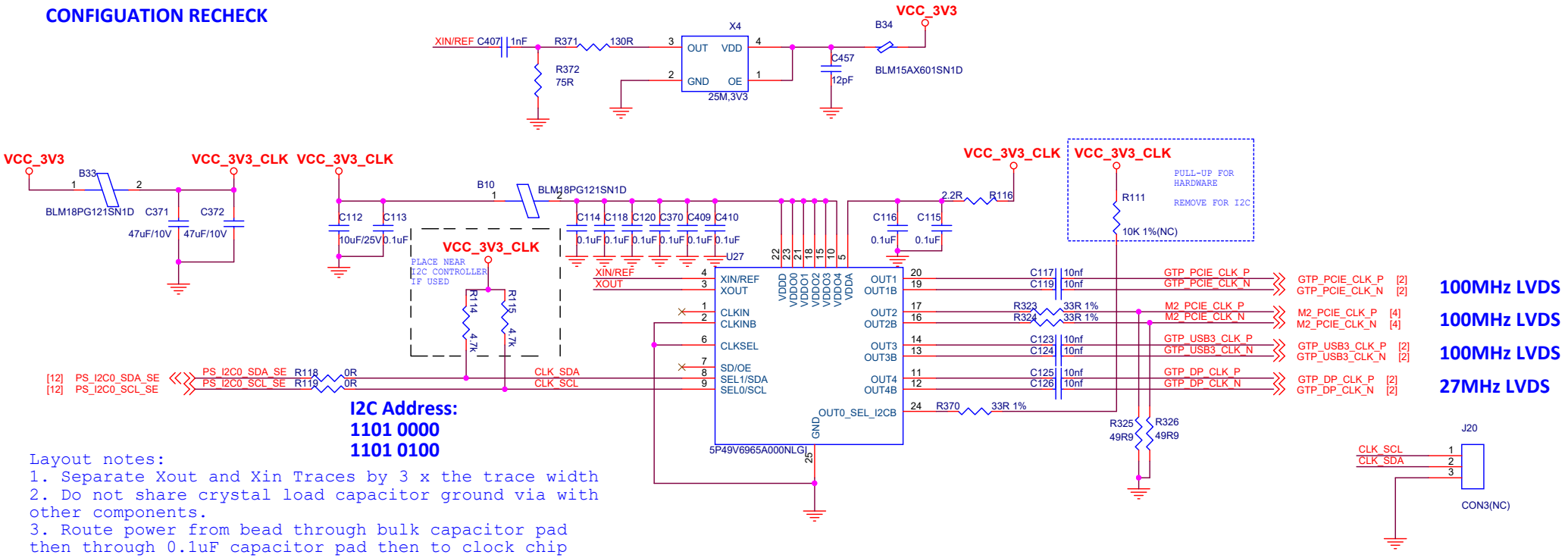
MicroPhase MicroPhase Inc. www.microphase.cn

Title: XPE-ZU100

Size	Document Number	Rev
B	SD&MIPI&TP&EEPROM	3.0

Date: Wednesday, November 22, 2023 Sheet 12 of 20

CONFIGUATION RECHECK

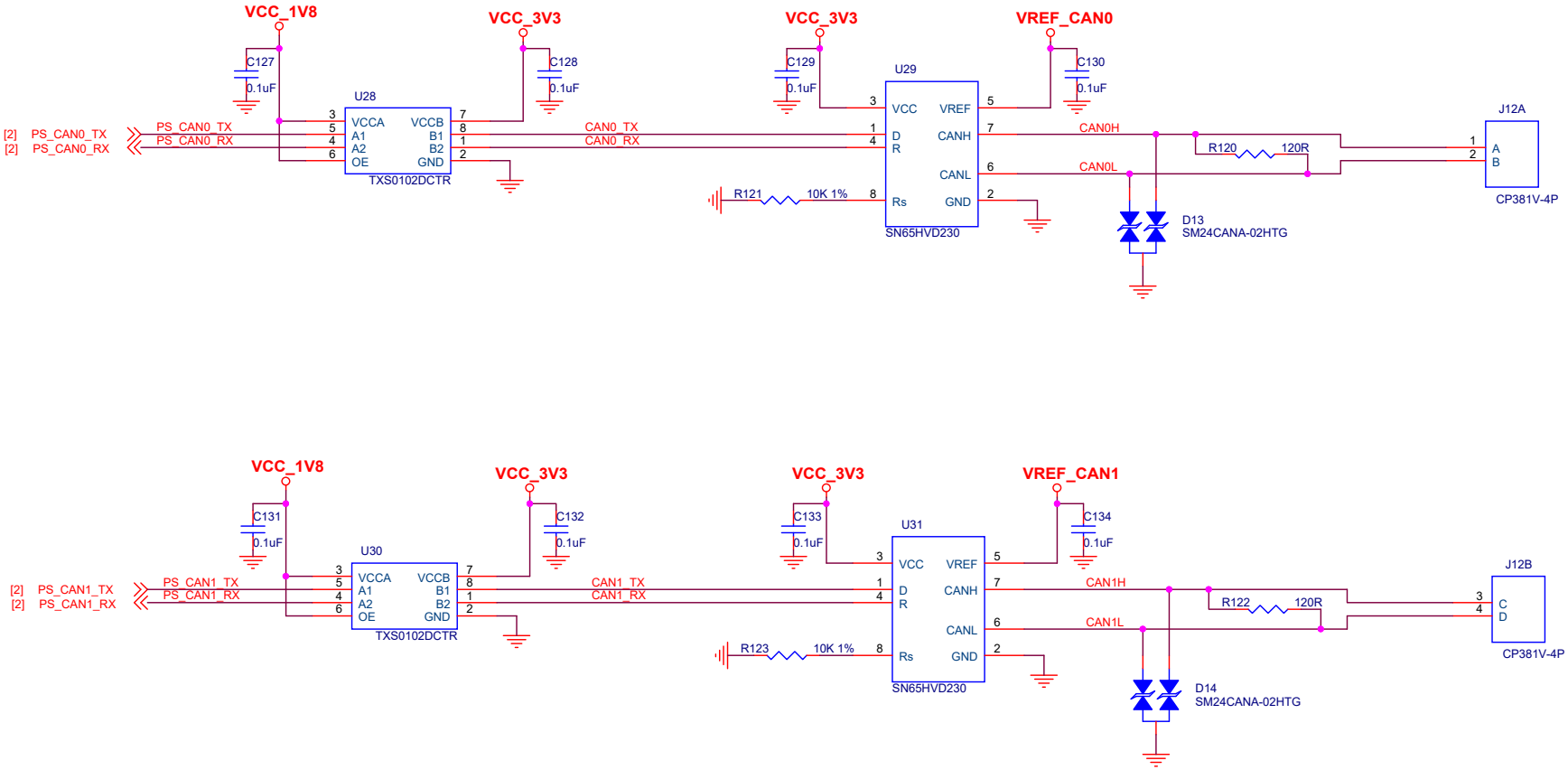


I2C Address:
1101 0000
1101 0100

Layout notes:
1. Separate Xout and Xin Traces by 3 x the trace width
2. Do not share crystal load capacitor ground via with other components.
3. Route power from bead through bulk capacitor pad then through 0.1uF capacitor pad then to clock chip Vdd pad.
4. Do not share ground vias. One ground pin one ground via.

OUT0_SEL_I2CB at POR	SEL1	SEL0	I^2C Access	REG0:7	Config
1	0	0	No	0	0
1	0	1	No	0	1
1	1	0	No	0	2
1	1	1	No	0	3
0	X	X	Yes	1	I^2C defaults
0	X	X	Yes	0	0

MicroPhase MicroPhase Inc. www.microphase.cn
Title: XPE-ZU100
Size: B | Document Number: CLOCK | Rev: 3.0
Date: Wednesday, November 22, 2023 | Sheet 13 of 20

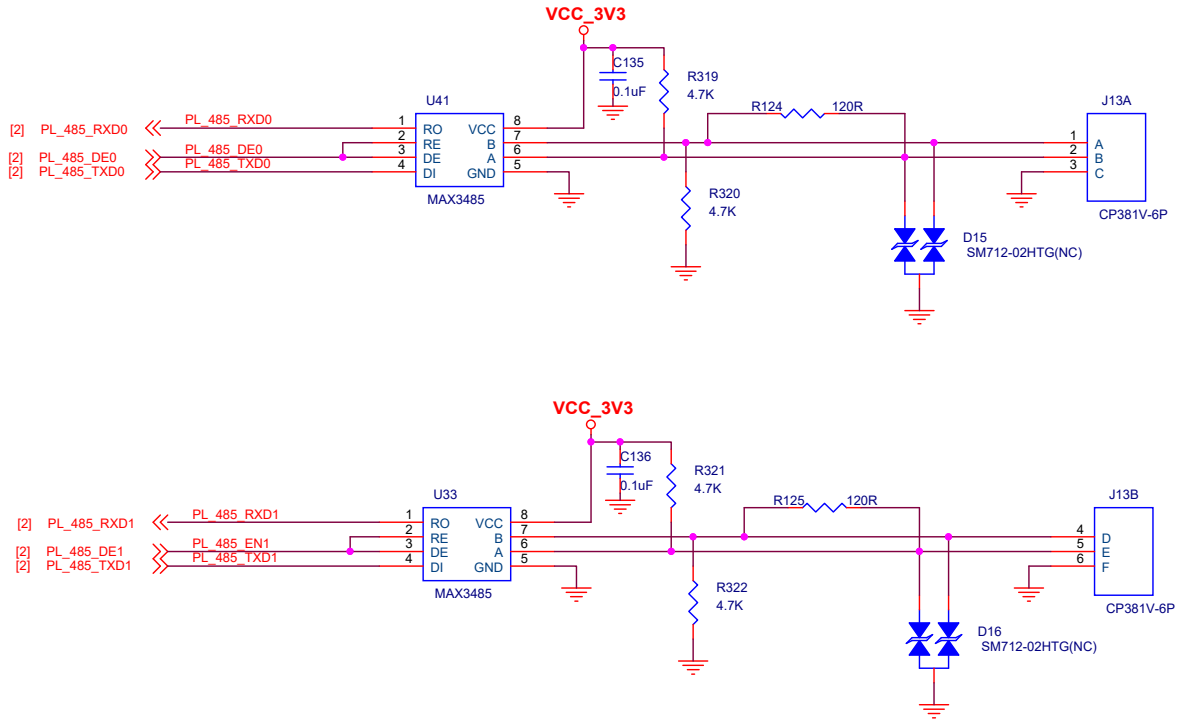


MicroPhase MicroPhase Inc. www.microphase.cn

Title: XPE-ZU100

Size	Document Number	Rev
B	CAN	3.0

Date: Wednesday, November 22, 2023 Sheet 14 of 20



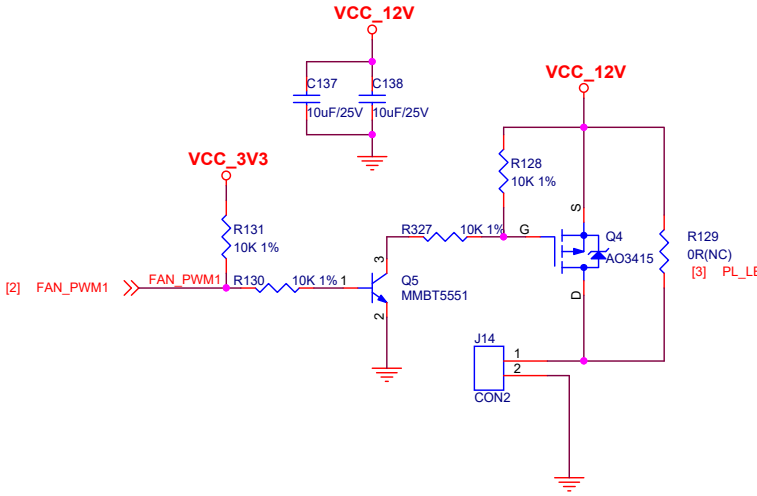
MicroPhase MicroPhase Inc. www.microphase.cn

Title: XPE-ZU100

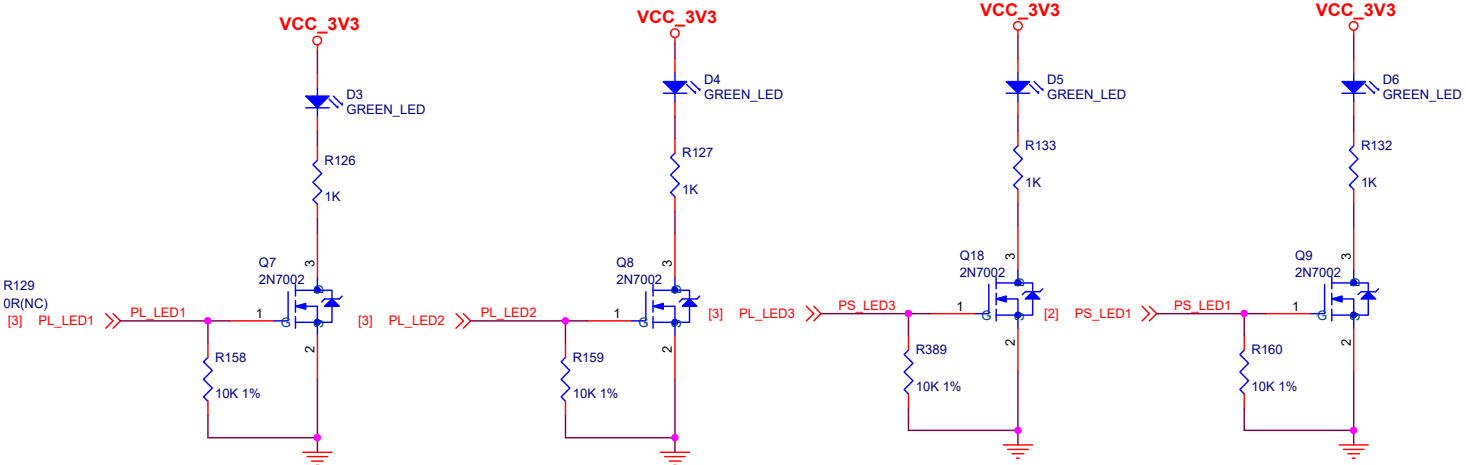
Size	Document Number	Rev
B	RS485	3.0

Date: Wednesday, November 22, 2023 Sheet 15 of 20

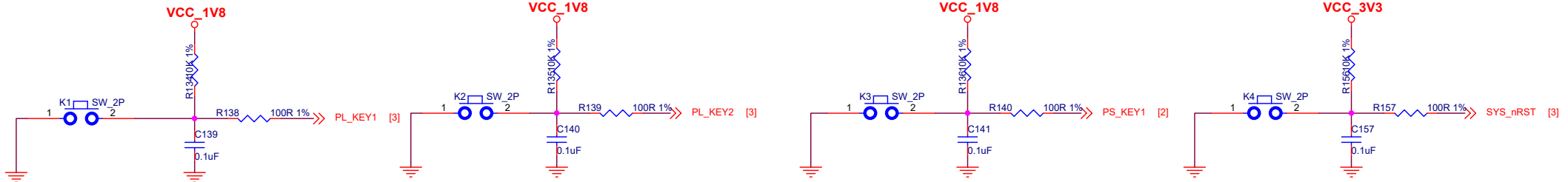
FAN



LED



KEY

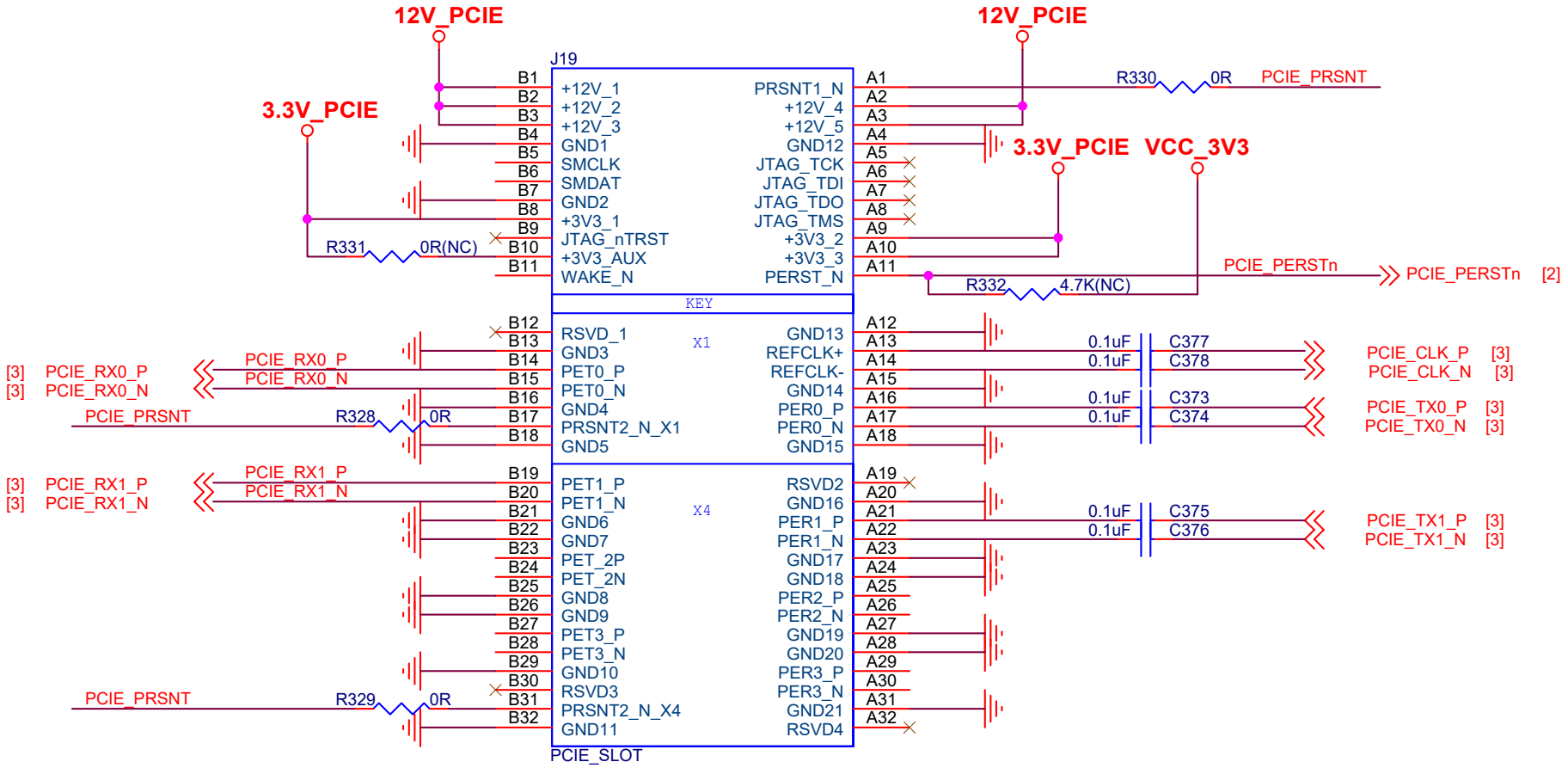


MicroPhase MicroPhase Inc. www.microphase.cn

Title: XPE-ZU100

Size	Document Number	Rev
B	FAN&KEY&LED	3.0

Date: Wednesday, November 22, 2023 Sheet 16 of 20

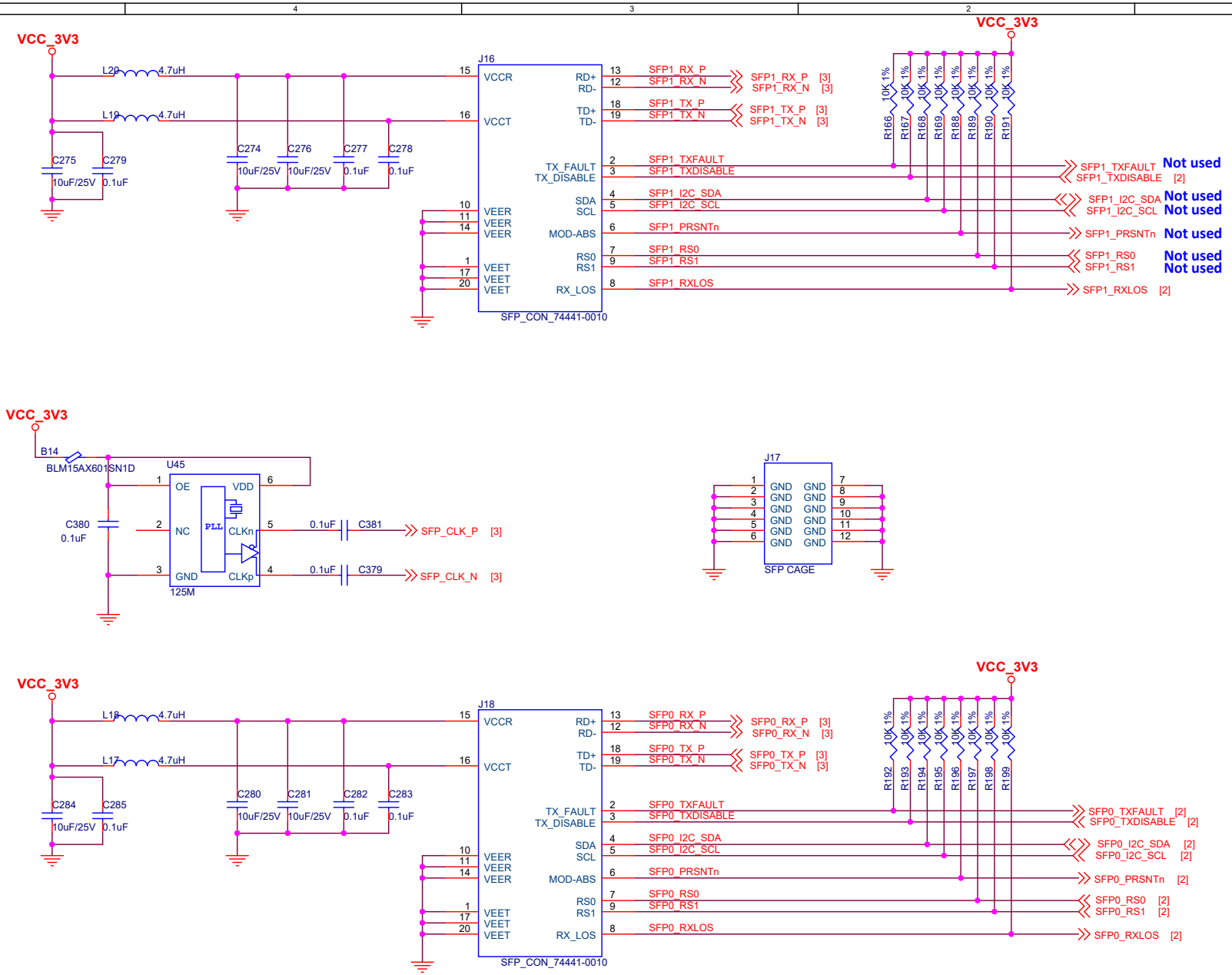


MicroPhase MicroPhase Inc. www.microphase.cn

Title
XPE-ZU100

Size	Document Number	Rev
A	PCIE	3.0

Date: Wednesday, November 22, 2023 Sheet 17 of 20



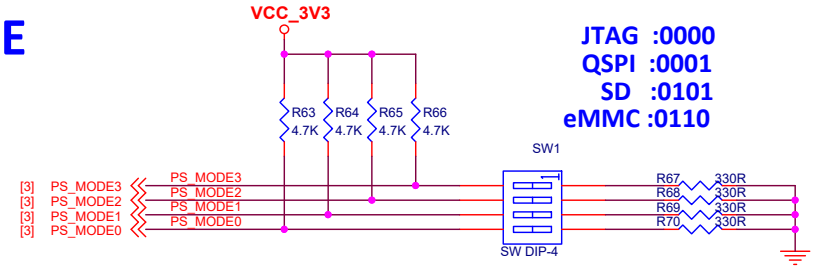
MicroPhase MicroPhase Inc. www.microphase.cn

Title: XPE-ZU100

Size	Document Number	Rev
B	SFP	3.0

Date: Wednesday, November 22, 2023 Sheet 18 of 20

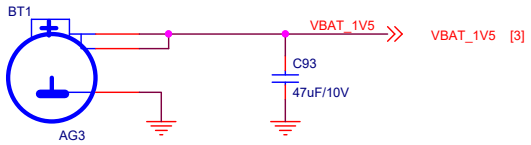
MODE



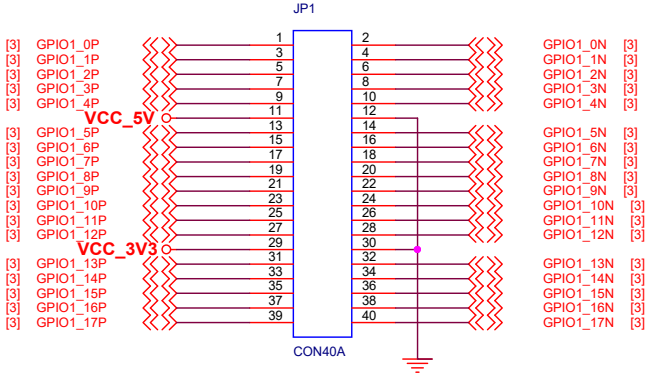
JTAG :0000
QSPI :0001
SD :0101
eMMC :0110

Boot Mode	Mode Pins [3:0]	MIO Location	Non-Secure	Secure	Signed	Mode	Description
JTAG	0x0	JTAG	Yes	No	No	Slave	Dedicated PS interface.
QSPI24	0x1	MIO[12:0]	Yes	Yes	Yes	Master	24-bit addressing. Supports single and dual parallel configurations. Stack and dual stack is not supported.
QSPI32	0x2	MIO[12:0]	Yes	Yes	Yes	Master	32-bit addressing. Supports single and dual parallel configurations. Stack and dual stack is not supported.
SD0	0x3	MIO[25:13]	Yes	Yes	Yes	Master	Supports SD 2.0.
NAND	0x4	MIO[25:09]	Yes	Yes	Yes	Master	Requires 8-bit data bus width
SD1	0x5	MIO[51:38]	Yes	Yes	Yes	Master	Supports SD 2.0.
eMMC_18	0x6	MIO[22:13]	Yes	Yes	Yes	Master	Supports eMMC 4.5 at 1.8V.
USB 0	0111b	MIO[52:63]	Yes	Yes	Yes	Slave	Supports USB 2.0 and USB 3.0.
PJTAG_0	0x8	MIO[29:26]	Yes	No	No	Slave	PS JTAG connection 0 option.
PJTAG_1	0x9	MIO[15:12]	Yes	No	No	Slave	PS JTAG connection 1 option.
SD1-LS	0xE	MIO[51:39]	Yes	Yes	Yes	Master	Supports SD 3.0 with a required SD 3.0 compliant level shifter.

RTC



GPIO

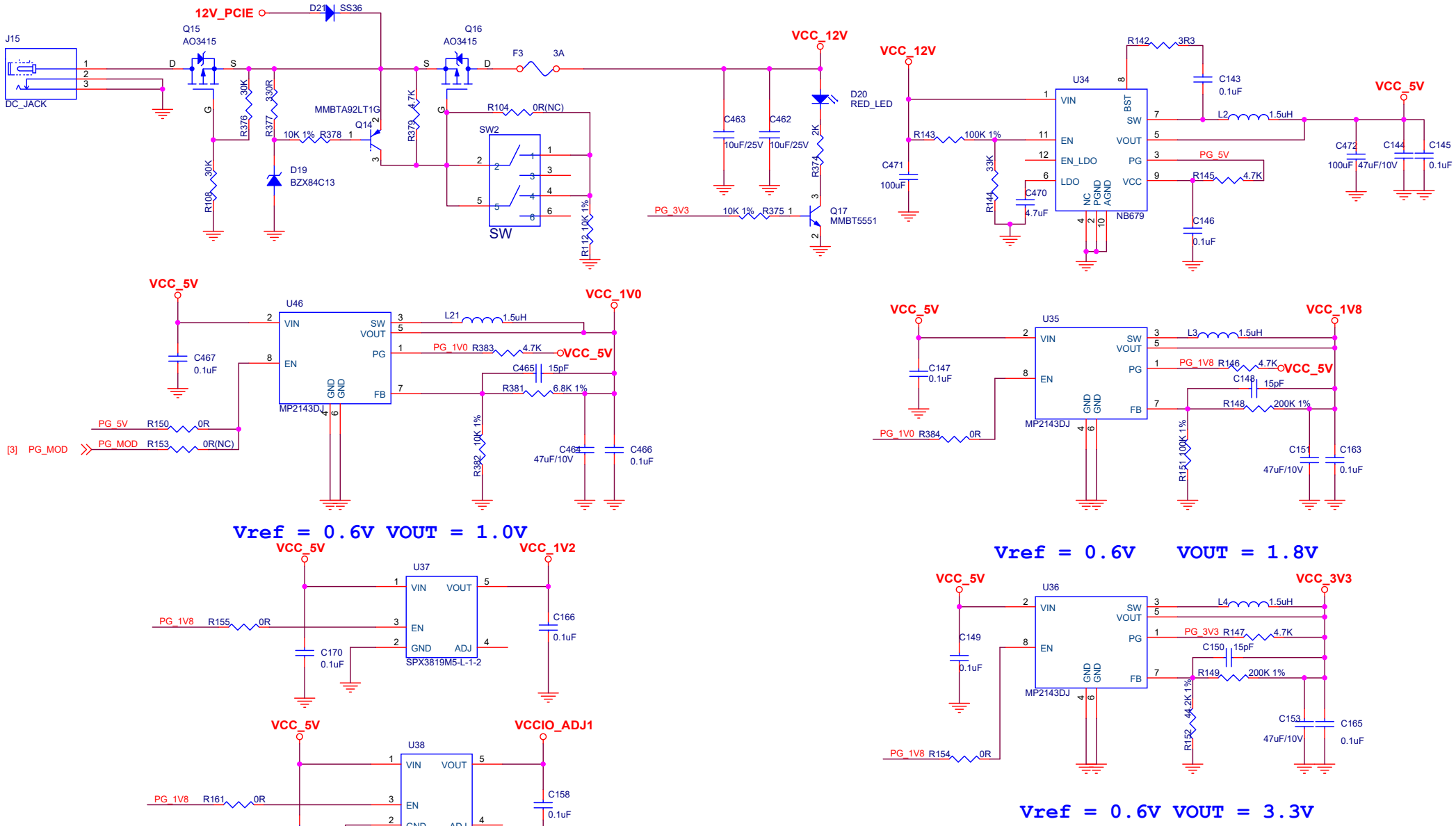


MicroPhase MicroPhase Inc. www.microphase.cn

Title: XPE-ZU100

Size: B | Document Number: MODE & RTC & GPIO | Rev: 3.0

Date: Wednesday, November 22, 2023 | Sheet 19 of 20



MicroPhase MicroPhase Inc. www.microphase.cn

Title: XPE-ZU100

Size	Document Number	Rev
B	POWER	3.0

Date: Wednesday, November 22, 2023 Sheet 20 of 20