


Page 2: Powering
Page 3: uCOM Connectors
Page 4: Push-buttons and Boot control
Page 5: I2C GPIO Expander and user LEDs and button
Page 6: JTAG Debug Interface and Optional QSPI
Page 7: Parallel LCD interface
Page 8: Expansion Connectors
Page 9: 100/10Mbps Ethernet-PHY Adapter for RT1064 uCOM
Page 10: 100/10Mbps Ethernet-PHY Adapter for RT1176 uCOM
Page 11: MIPI-DSI Display Interfaces
Page 12: MIPI-DSI to HDMI Adapter
Page 13: Camera Interface
Page 14: Ethernet Interface for on-board PHY
Page 15: USB OTG and USB C Interface
Page 16: USB Host Interface and Hub
Page 17: UART-to-USB bridge interfaces
Page 18: Mikrobus/Click Module Interface
Page 19: I2C Connections
Page 20: M.2 (NGFF) Key E Connector
Page 21: PCIe Signal Routing
Page 22: uSD card interface
Page 23: M.2 (NGFF) Key B Connector (USB Host and PCIe Interfaces)
Page 24: MIPI-DSI to HDMI/LVDS Adapter (reference schematic - not included)

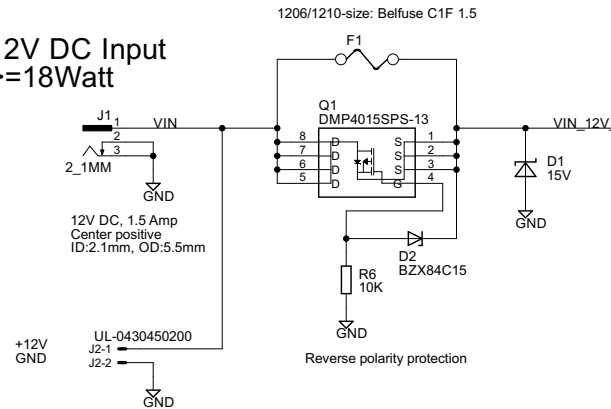
UL = UnLoaded = normally not mounted component.

Default jumper settings are indicated in the schematic.
However, always check jumper positions on actual boards
since there is no guarantee that all jumpers are in default place.

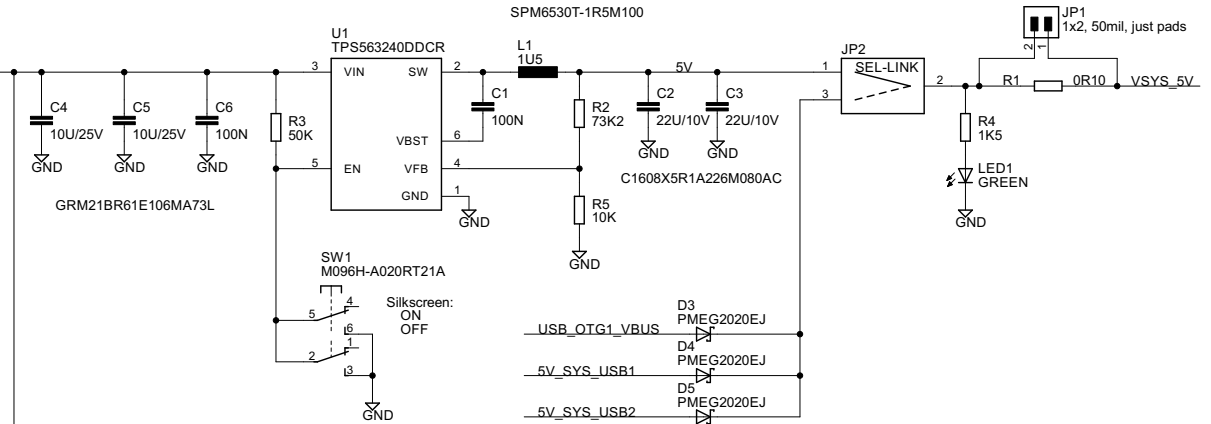
Rev PB1-PB2 Removed one camera interface. Separate power supply to M.2 interfaces. Replaced MIPI-to-LVDS bridge with new design.	
Rev A First release	
 (C) Embedded Artists AB	
TITLE: uCOM Carrier board rev PB2	
Document Number:	
Date: 2021-12-17 12:52:00	Sheet: 1/24

Powering

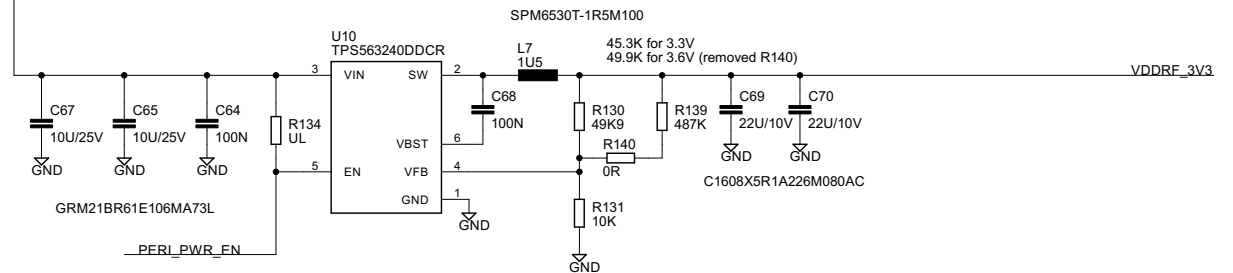
12V DC Input
≥18Watt



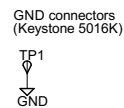
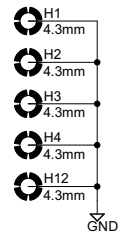
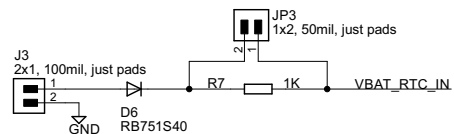
8-17V to 5V/3A for uCOM and USB interfaces



8-17V to 3.3V/3A for M.2 interfaces (wireless modules)



VBAT input



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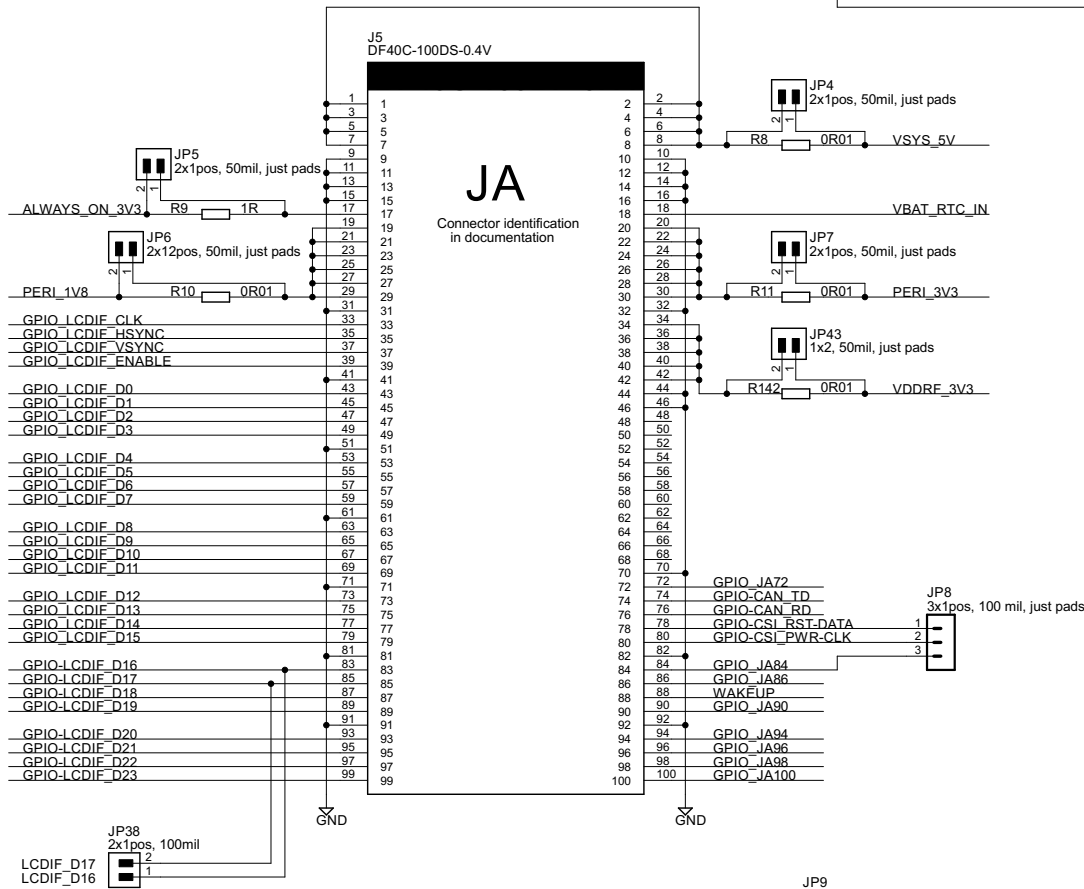
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Document Number:

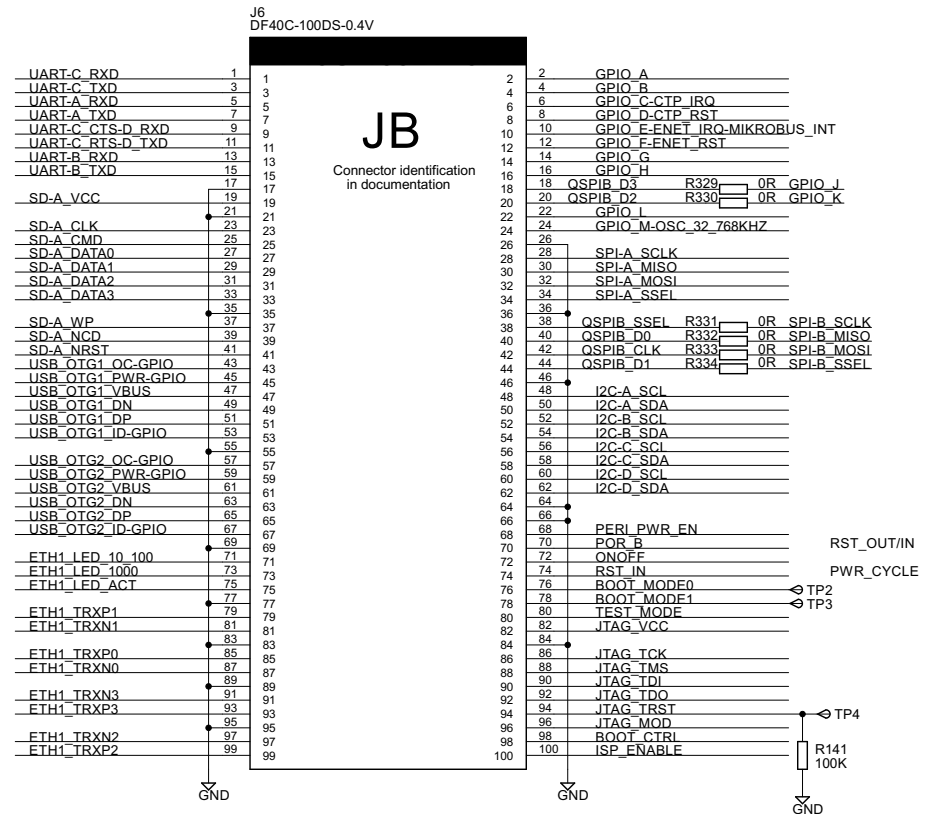
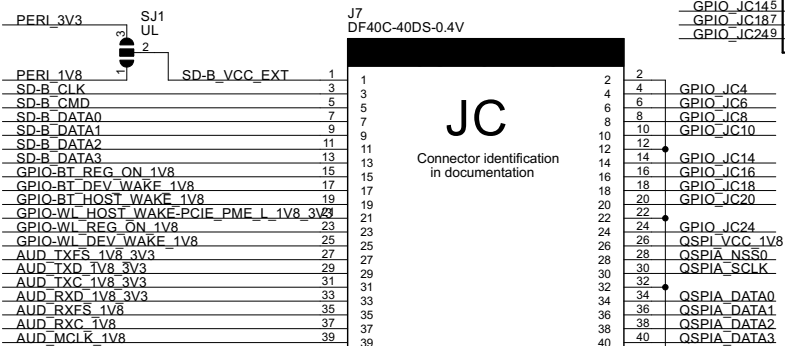
Date: 2021-12-17 12:52:00

Sheet: 2/24

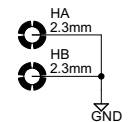
uCOM Connectors



For iMX RT1176 Ethernet: connect to JP37 on adapter board



Mounting Holes "A" and "B"



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TITLE: uCOM Carrier board rev PB2

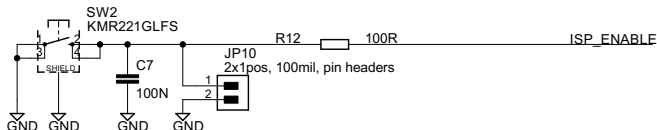
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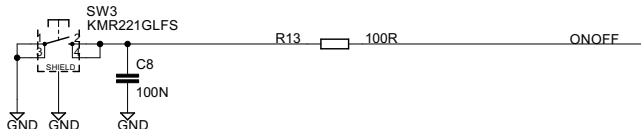
Sheet: 3/24

Push-buttons and Boot control

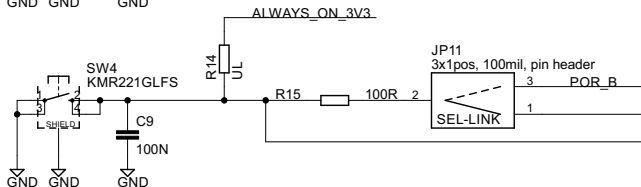
ISP Enable push-button and jumper



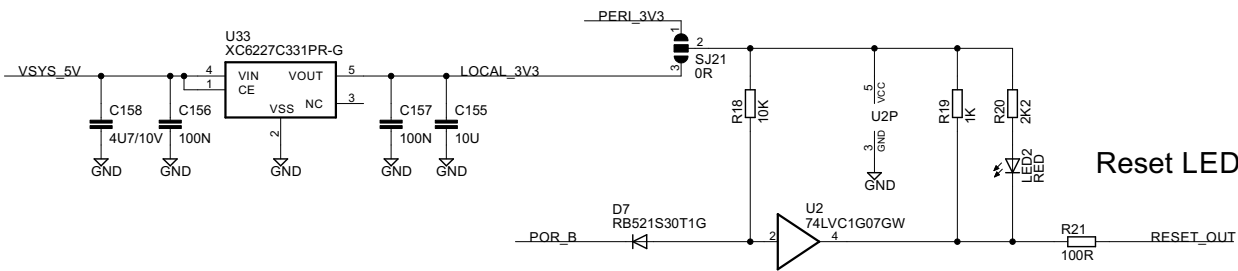
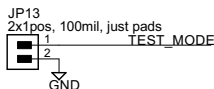
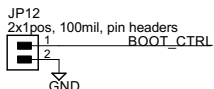
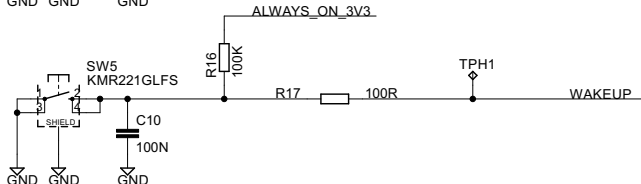
ONOFF push-button



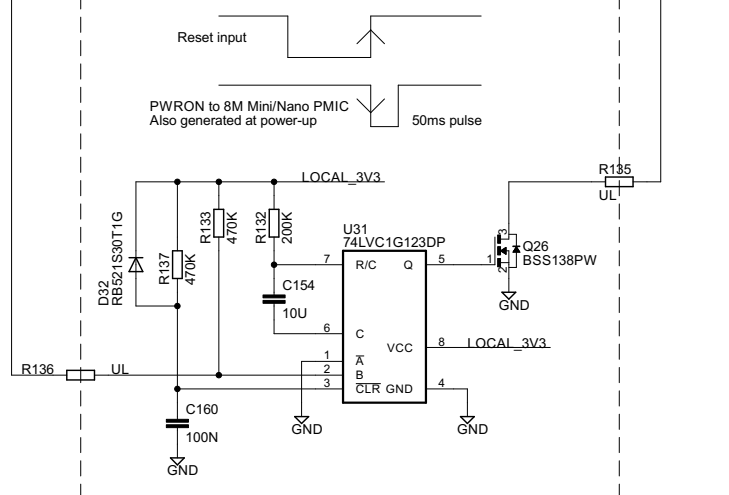
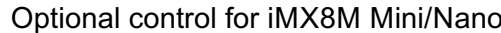
Reset push-button



Wakeup push-button



Can be 1.8 or 3.3V logic level



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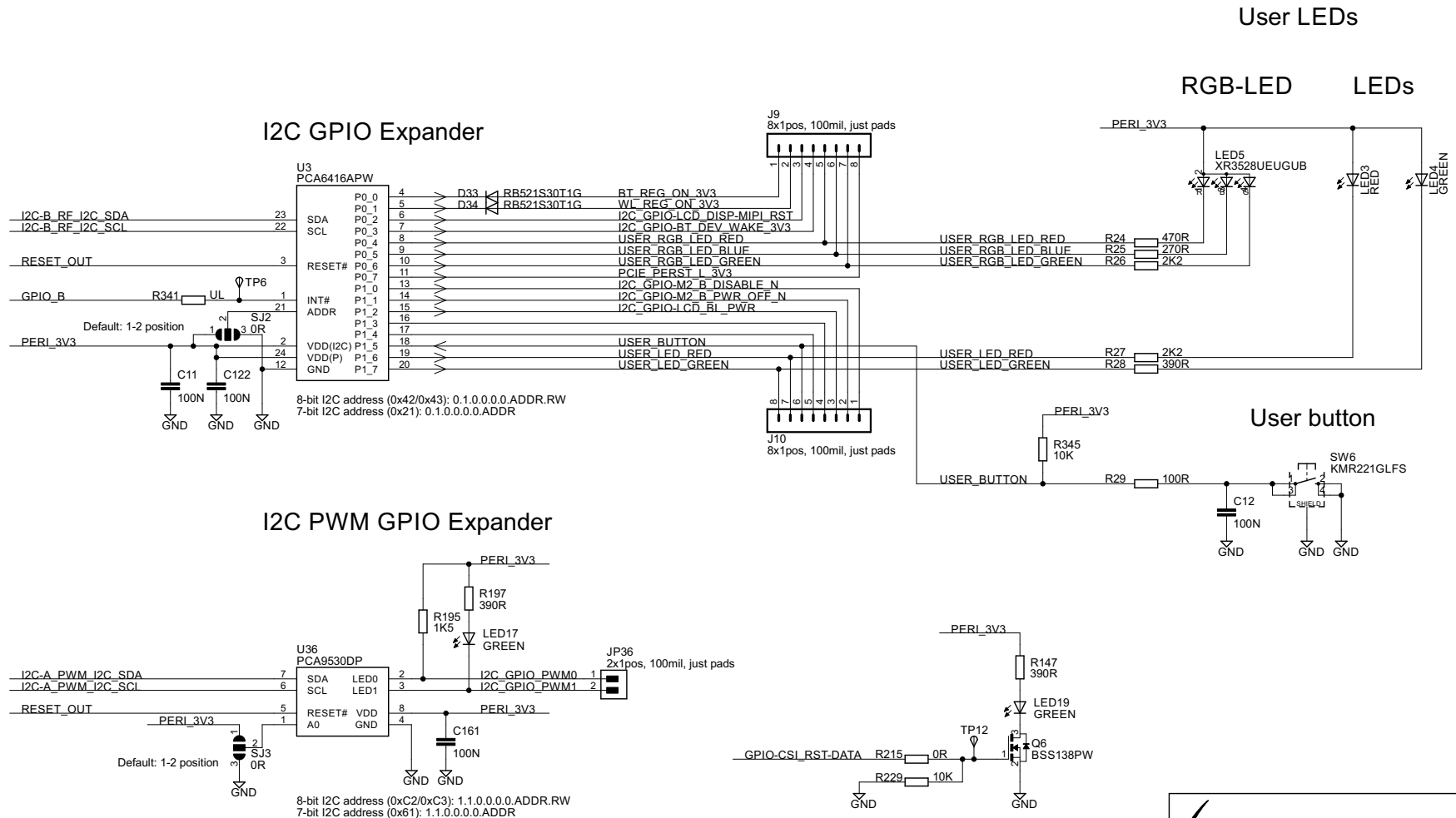
TITLE: uCOM Carrier board rev PB2

Document Number:

Date: 2021-12-17 12:52:00

Sheet: 4/24

I2C GPIO Expander and user LEDs and button



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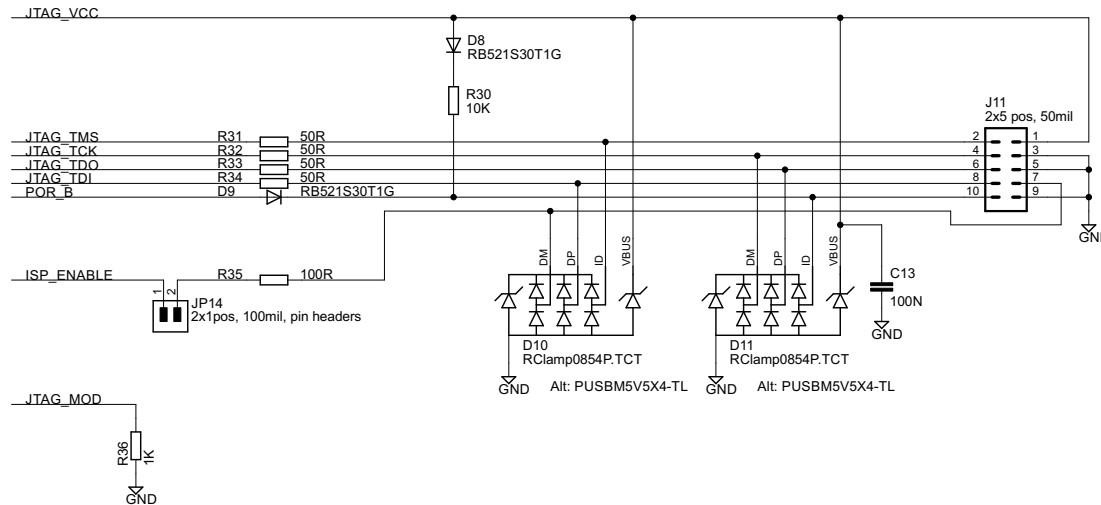
TITLE: uCOM Carrier board rev PB2

Document Number:

Date: 2021-12-17 12:52:00

Sheet: 5/24

JTAG Debug Interface and Optional QSPI



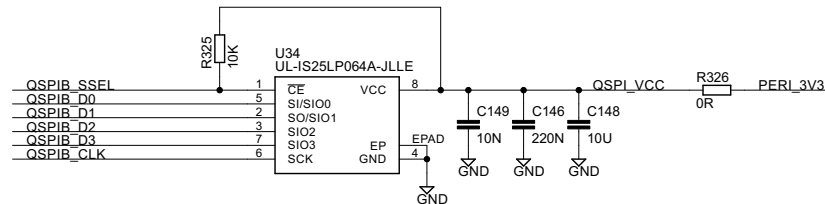
ARM 10-pin interface Serial Wire Mode 10 pos (50 mil pitch) connector

2-SWDIO	1-VCC
4-SWCLK	3-GND
6-SWO	5-GND
8-N/U	7-Optional ISP_ENABLE
10-RESET	9-GND

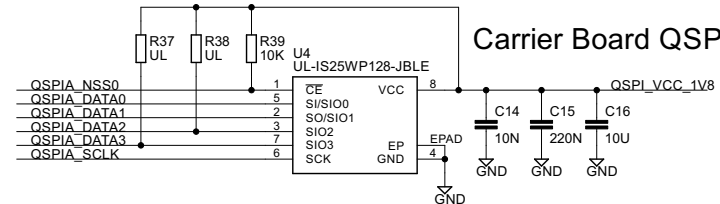
ARM 10-pin interface JTAG Mode

2-TMS	1-VCC
4-TCLK	3-GND
6-TDO	5-GND
8-TDI	7-(RTCK)
10-RESET	9-GND

Pads for carrier board QSPI (for iMX RT1064 uCOM)



Pads for carrier board QSPI (for iMX8M Mini/Nano uCOM)



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TITLE: uCOM Carrier board rev PB2

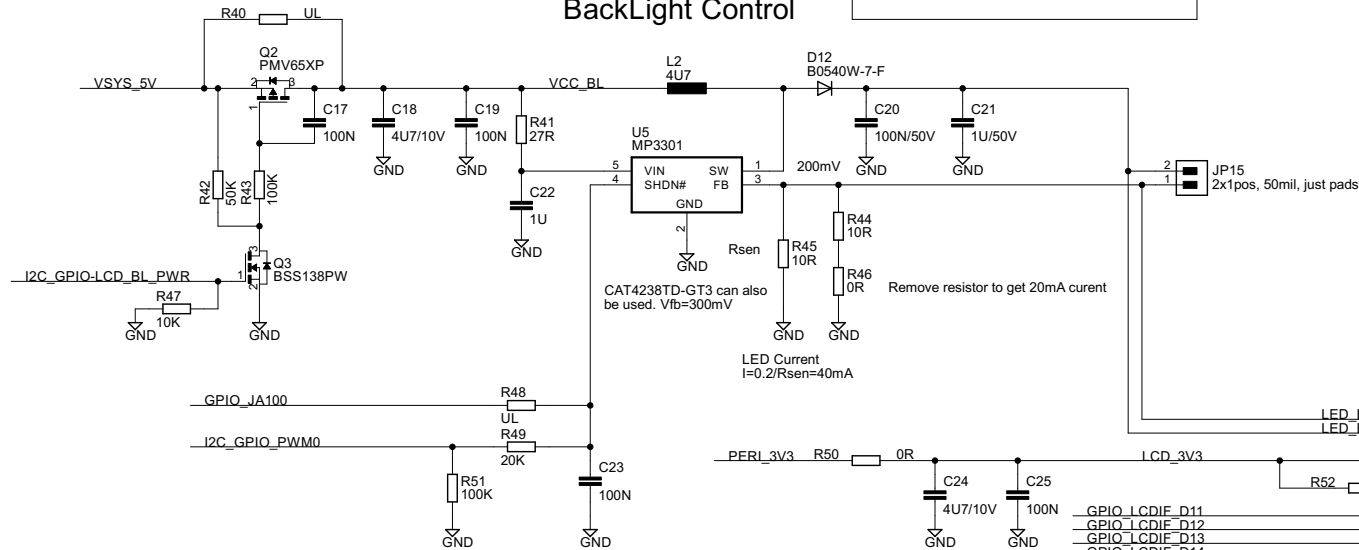
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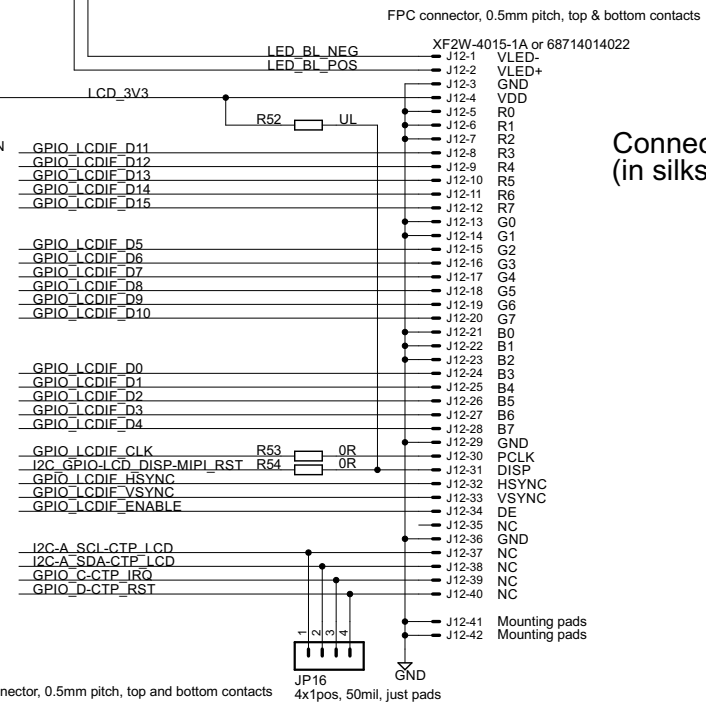
Sheet: 6/24

Parallel LCD interface

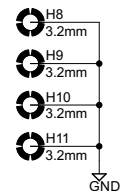
BackLight Control



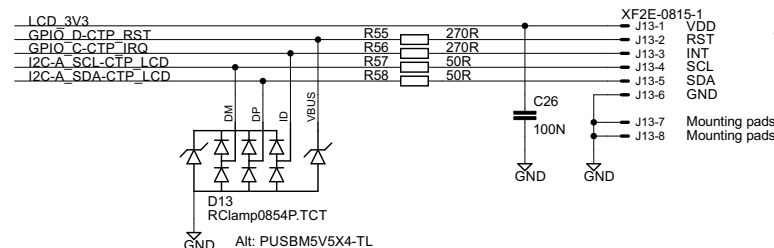
Common Parallel RGB Display pinning



Connector "D"
(in silkscreen on PCB)



Touch controller



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TITLE: uCOM Carrier board rev PB2

Document Number:

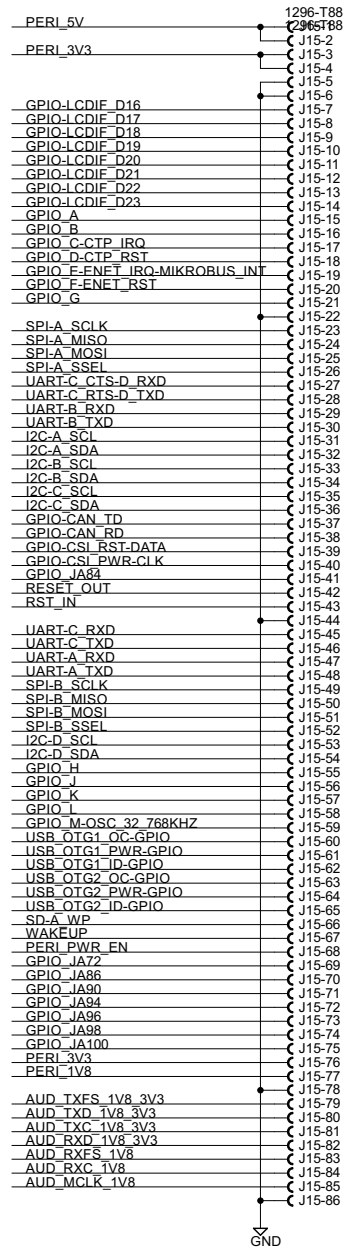
Date: 2021-12-17 12:52:00

Sheet: 7/24

Expansion Connector

Connector "A"
(in silkscreen on PCB)

Dual row xx-pos 50 mil pitch matrix



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TITLE: uCOM Carrier board rev PB2

Document Number:

Date: 2021-12-17 12:52:00

Sheet: 8/24

100/10Mbps Ethernet-PHY Adapter for RT1064 uCOM

Separate adapter board

Connector "D"
(in silkscreen on PCB)
(for RT1064)

0.5mm pitch, top and bottom contacts
XF2W-4015-1A or 68714014022

VLED- J17-1
VLED+ J17-2
GND J17-3
VDD J17-4

ENET_3V3 J17-5
J17-6
J17-7
ENET_TX_CLK J17-8
ENET_RXER J17-9
ENET_RXD0 J17-10
ENET_RXD1 J17-11
ENET_CRS_DV J17-12
J17-13

J17-14
J17-15
ENET_TXD0 J17-16
ENET_TXD1 J17-17
ENET_TXEN J17-18
J17-19
J17-20
J17-21
J17-22
J17-23

J17-24
J17-25
J17-26
J17-27
J17-28
J17-29
J17-30
ENET_MDC J17-31
RESET_OUT J17-32
HSYNC J17-33
VSYNC J17-34
DE J17-35
NC J17-36
GND J17-37
NC J17-38
NC J17-39
NC J17-40
J17-41
J17-42

ENET_MDIO J17-31
ENET_TX_CLK J17-32
ENET_TXD0 J17-33
ENET_TXD1 J17-34
ENET_TXEN J17-35
ENET_RXER J17-36
ENET_RXD0 J17-37
ENET_RXD1 J17-38
ENET_CRS_DV J17-39
ENET_MDC J17-40
RESET_OUT J17-41
HSYNC J17-42
VSYNC J17-43
DE J17-44
NC J17-45
GND J17-46
NC J17-47
NC J17-48
NC J17-49
NC J17-50
J17-51
J17-52

ENET_TXD0 J17-16
ENET_TXD1 J17-17
ENET_TXEN J17-18
ENET_RXER J17-19
ENET_RXD0 J17-20
ENET_RXD1 J17-21
ENET_CRS_DV J17-22
ENET_MDC J17-23
RESET_OUT J17-24
HSYNC J17-25
VSYNC J17-26
DE J17-27
NC J17-28
GND J17-29
NC J17-30
NC J17-31
NC J17-32
NC J17-33
NC J17-34
NC J17-35
NC J17-36
NC J17-37
NC J17-38
NC J17-39
NC J17-40
J17-41
J17-42

ENET_TXD0 J17-16
ENET_TXD1 J17-17
ENET_TXEN J17-18
ENET_RXER J17-19
ENET_RXD0 J17-20
ENET_RXD1 J17-21
ENET_CRS_DV J17-22
ENET_MDC J17-23
RESET_OUT J17-24
HSYNC J17-25
VSYNC J17-26
DE J17-27
NC J17-28
GND J17-29
NC J17-30
NC J17-31
NC J17-32
NC J17-33
NC J17-34
NC J17-35
NC J17-36
NC J17-37
NC J17-38
NC J17-39
NC J17-40
J17-41
J17-42

ENET_TXD0 J17-16
ENET_TXD1 J17-17
ENET_TXEN J17-18
ENET_RXER J17-19
ENET_RXD0 J17-20
ENET_RXD1 J17-21
ENET_CRS_DV J17-22
ENET_MDC J17-23
RESET_OUT J17-24
HSYNC J17-25
VSYNC J17-26
DE J17-27
NC J17-28
GND J17-29
NC J17-30
NC J17-31
NC J17-32
NC J17-33
NC J17-34
NC J17-35
NC J17-36
NC J17-37
NC J17-38
NC J17-39
NC J17-40
J17-41
J17-42

ENET_TXD0 J17-16
ENET_TXD1 J17-17
ENET_TXEN J17-18
ENET_RXER J17-19
ENET_RXD0 J17-20
ENET_RXD1 J17-21
ENET_CRS_DV J17-22
ENET_MDC J17-23
RESET_OUT J17-24
HSYNC J17-25
VSYNC J17-26
DE J17-27
NC J17-28
GND J17-29
NC J17-30
NC J17-31
NC J17-32
NC J17-33
NC J17-34
NC J17-35
NC J17-36
NC J17-37
NC J17-38
NC J17-39
NC J17-40
J17-41
J17-42

ENET_TXD0 J17-16
ENET_TXD1 J17-17
ENET_TXEN J17-18
ENET_RXER J17-19
ENET_RXD0 J17-20
ENET_RXD1 J17-21
ENET_CRS_DV J17-22
ENET_MDC J17-23
RESET_OUT J17-24
HSYNC J17-25
VSYNC J17-26
DE J17-27
NC J17-28
GND J17-29
NC J17-30
NC J17-31
NC J17-32
NC J17-33
NC J17-34
NC J17-35
NC J17-36
NC J17-37
NC J17-38
NC J17-39
NC J17-40
J17-41
J17-42

ENET_TXD0 J17-16
ENET_TXD1 J17-17
ENET_TXEN J17-18
ENET_RXER J17-19
ENET_RXD0 J17-20
ENET_RXD1 J17-21
ENET_CRS_DV J17-22
ENET_MDC J17-23
RESET_OUT J17-24
HSYNC J17-25
VSYNC J17-26
DE J17-27
NC J17-28
GND J17-29
NC J17-30
NC J17-31
NC J17-32
NC J17-33
NC J17-34
NC J17-35
NC J17-36
NC J17-37
NC J17-38
NC J17-39
NC J17-40
J17-41
J17-42

PHY ADDR: 00-010 (2)
Address = 00-xxx

Interface mode: RMII
001 = RMII
101 = RMII Back-to-Back

Isolate more: enabled
Pull-up = Enable
Pull-down (default) = Disable

Nway Auto-Negotiation
Pull-up (default) = Enable
Pull-down = Disable

Speed mode
Pull-up (default) = 100Mbps
Pull-down = 10Mbps

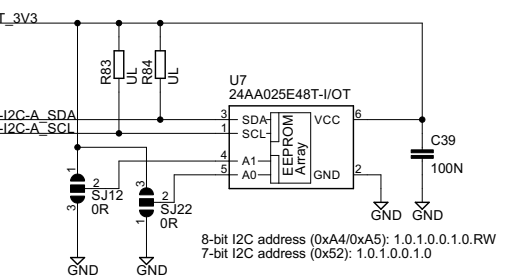
DUPLEX mode
Pull-up (default) = Half Duplex
Pull-down = Full Duplex

Interface mode: RMII
Pull-up = PHY Address 0 set as unique PHY addr
Pull-down (default) = PHY Address 0 set as broadcast PHY addr

NAND Tree Mode
Pull-up (default) = Disable
Pull-down = Enable

RJ45 Connector with
integrated magnetics

1Kbit I2C-E2PROM with EUI-48



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TITLE: uCOM Carrier board rev PB2

Document Number:

Date: 2021-12-17 12:52:00

Sheet: 9/24

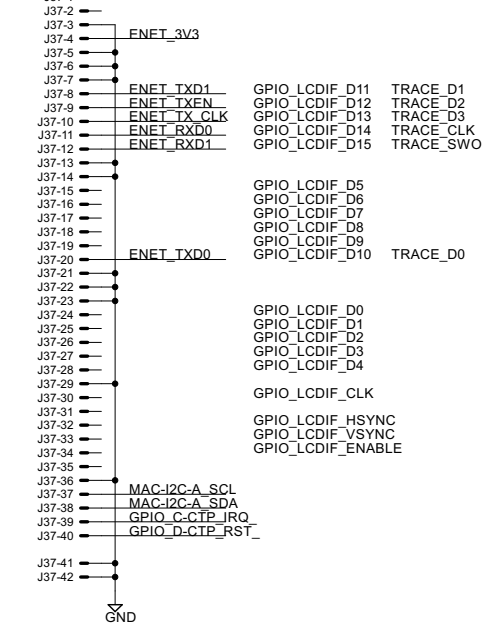
100/10Mbps Ethernet-PHY Adapter for RT1176 uCOM

Separate adapter board (from previous schematic page)

Connector "D"
(in silkscreen on PCB)
(for RT1176)

0.5mm pitch, top and bottom contacts
XF2W-4015-1A or 68714014022

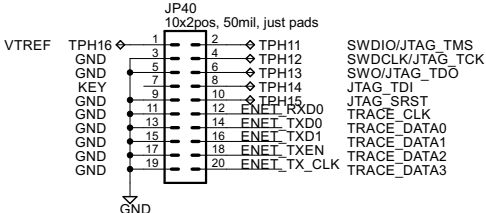
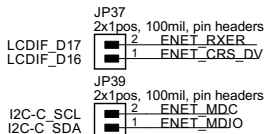
iMX8M Mini	RT1064	RT1176
	Connect to J17 to get second Ethernet I/F	Connect to J37 to get second Ethernet interface
	MDC	
	MDIO	
SAI1_TXD0 BT_CFG8-0		
SAI1_TXD1 BT_CFG9-0	BT_CFG10	
SAI1_TXD2 BT_CFG10-0	BT_CFG11	
SAI1_TXD3 BT_CFG11-1	BT_CFG12	BT_CFG0
SAI1_TXD4 BT_CFG12-0	BT_CFG13	BT_CFG1
SAI1_TXD5 BT_CFG13-1	BT_CFG14	BT_CFG2
SAI1_TXD6 BT_CFG14-0	BT_CFG15	BT_CFG3
SAI1_TXD7 BT_CFG15-0	BT_CFG16	BT_CFG4
	BT_CFG17	BT_CFG5
	TX0 BT_CFG20	BT_CFG6
SAI1_RXD0 BT_CFG0-0	TX1 BT_CFG21	BT_CFG7
SAI1_RXD1 BT_CFG1-1	TX_EN BT_CFG22	BT_CFG8
SAI1_RXD2 BT_CFG2-1	TX_CLKBT_CFG23	TRACE_D0 TX0 BT_CFG9
		TRACE_D1 TX1
SAI1_RXD3 BT_CFG3-0	RX_ER	TRACE_D2 TX_EN BT_CFG10
SAI1_RXD4 BT_CFG4-0	RX0	TRACE_D3 TX_CLKBT_CFG11
SAI1_RXD5 BT_CFG5-1	RX1	TRACE_CLK RX0
SAI1_RXD6 BT_CFG6-1	RX_EN	TRACE_SWO RX1
SAI1_RXD7 BT_CFG7-0		
		RX_EN
		RX_ER



Support access to boot control signals



Support for accessing iMX RT1176 Trace Signals



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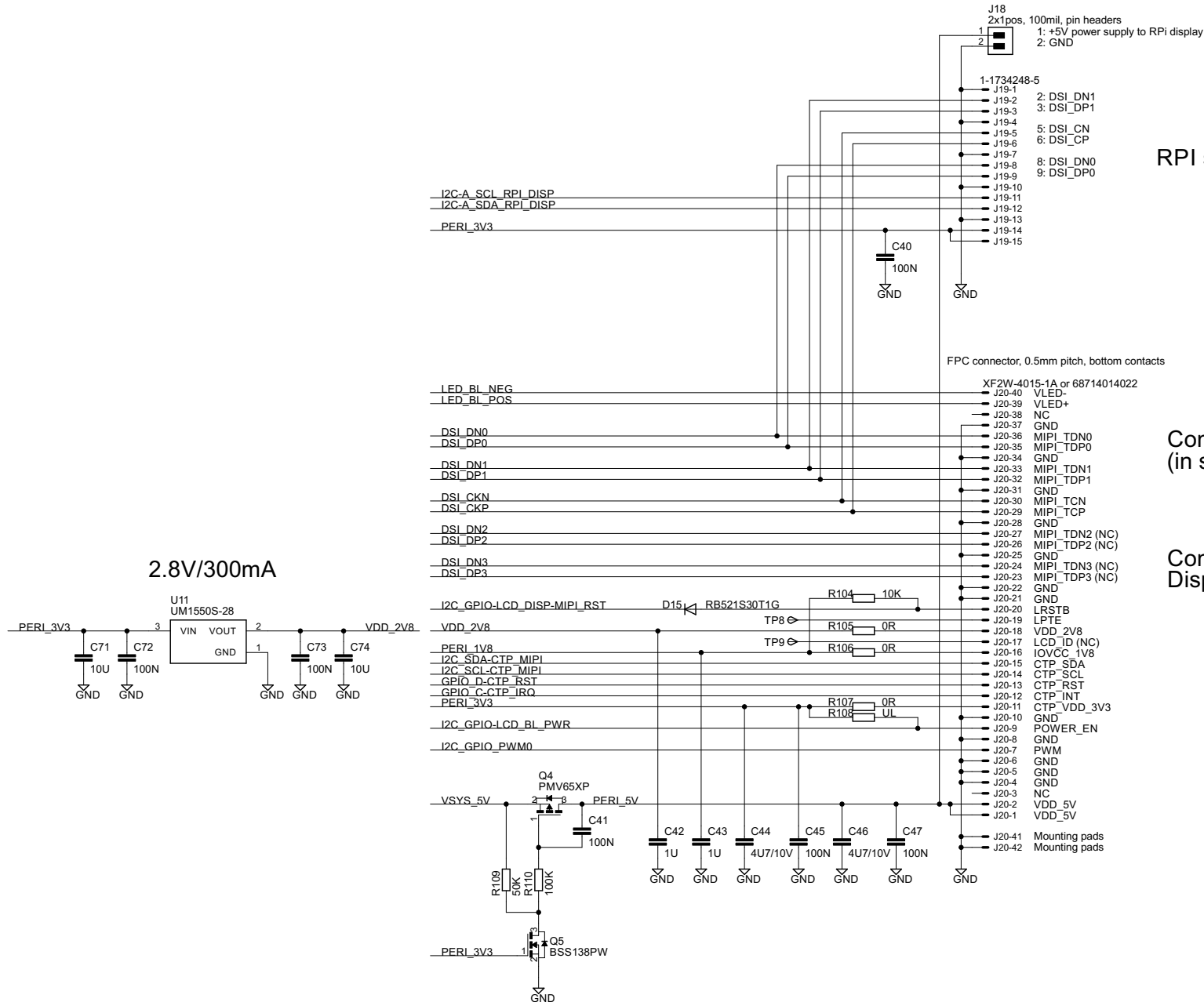
TITLE: uCOM Carrier board rev PB2

Document Number:

Date: 2021-12-17 12:52:00

Sheet: 10/24

MIPI-DSI Display Interfaces



RPI serial display (MIPI)

Connector "C"
(in silkscreen on PCB)

Connects to NXP RK055HDMI4M
Display: RK055AHD091-CTG(720P)



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TITLE: uCOM Carrier board rev PB2

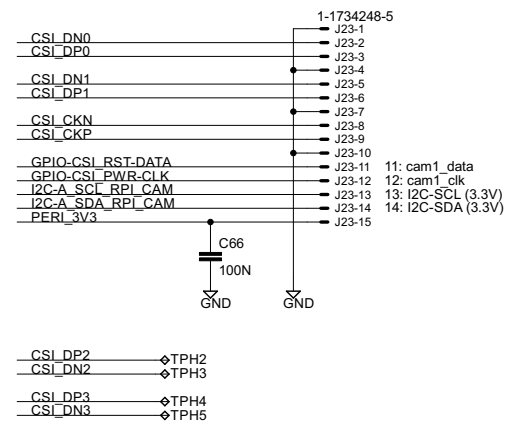
Document Number:

Date: 2021-12-17 12:52:00

Sheet: 11/24

Camera Interface

RPI serial camera (MIPI)



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TITLE: uCOM Carrier board rev PB2

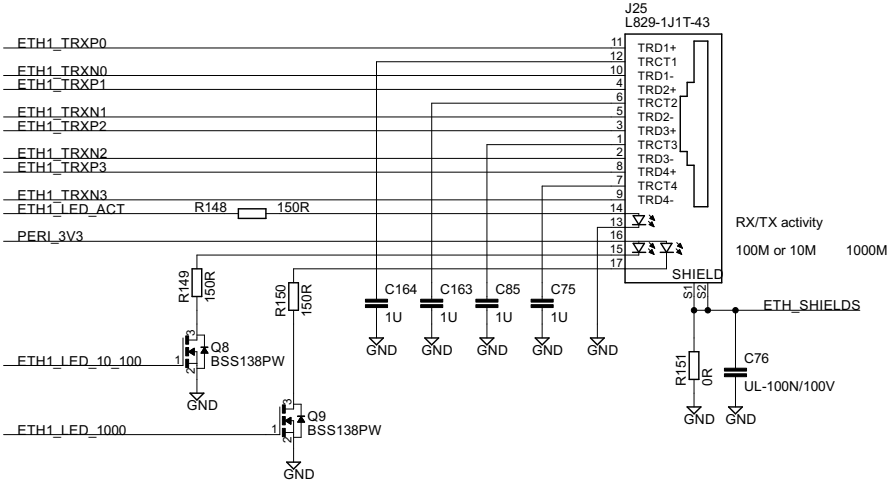
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Date: 2021-12-17 12:52:00

Sheet: 13/24

Ethernet Interface for on-board PHY

Ethernet Interface



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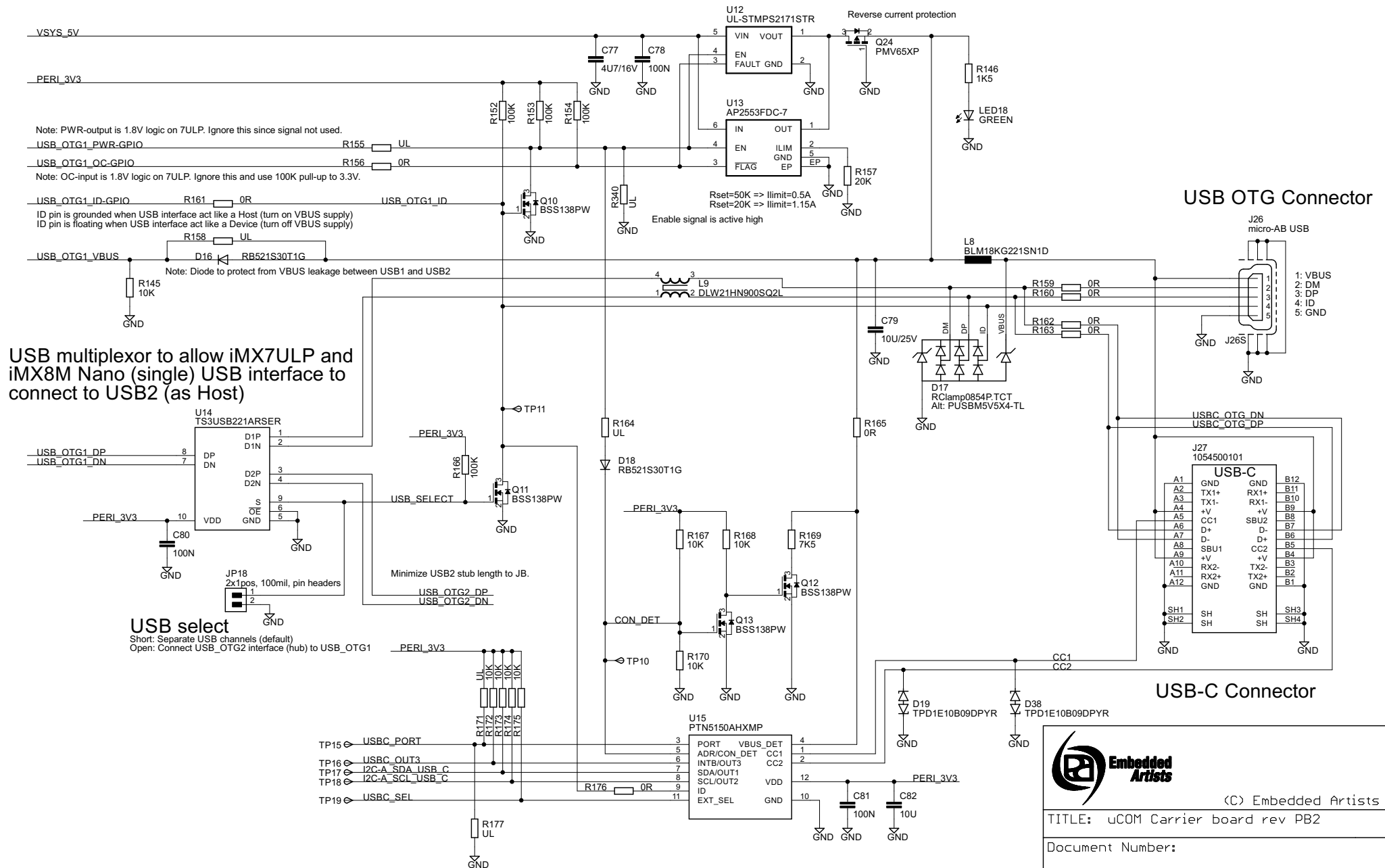
TITLE: uCOM Carrier board rev PB2

Document Number:

Date: 2021-12-17 12:52:00

Sheet: 14/24

USB OTG and USB C Interface



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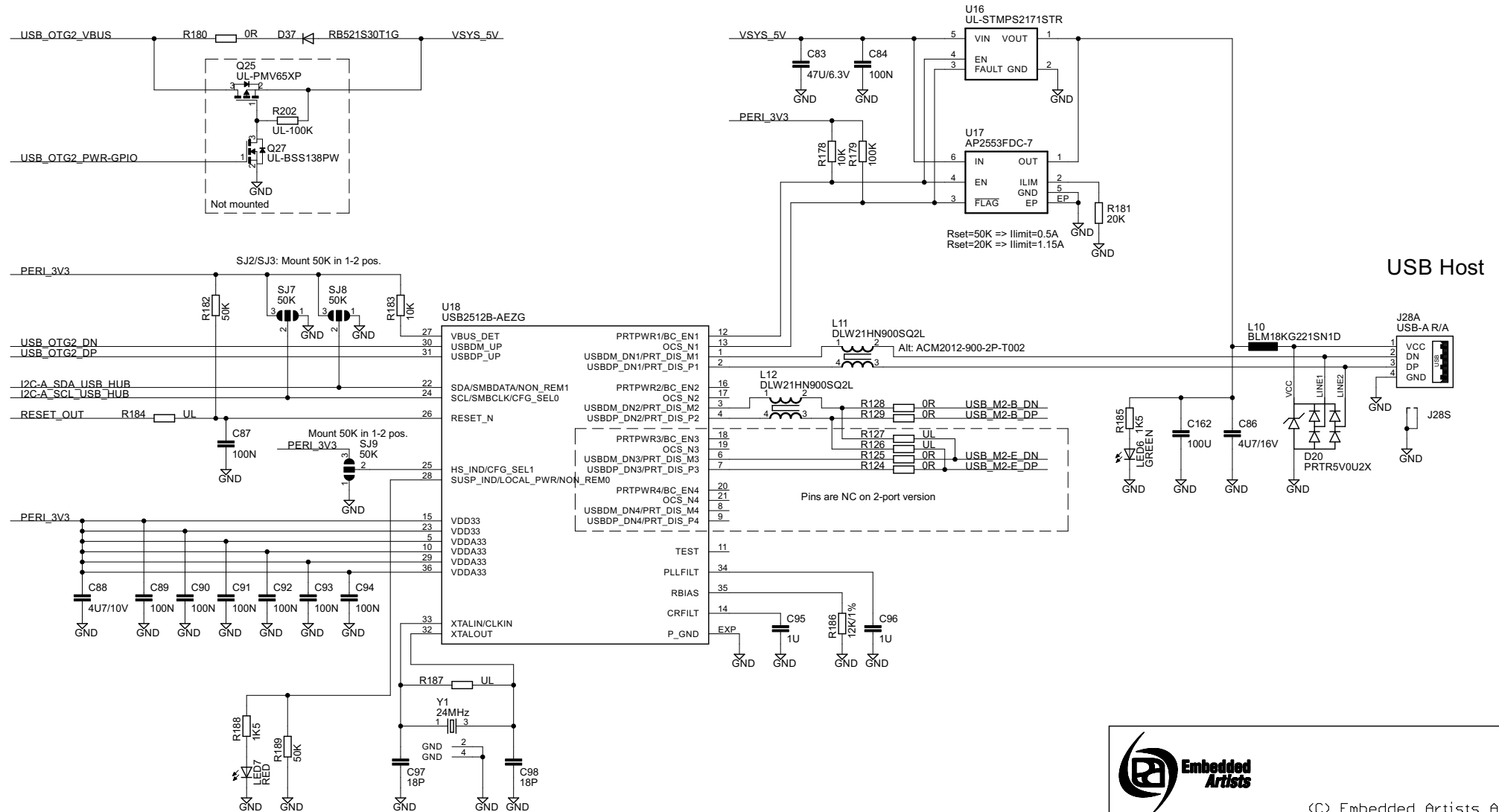
TITLE: uCOM Carrier board rev PB2

Document Number:

Date: 2021-12-17 12:52:00

Sheet: 15/24

USB Host Interface and Hub



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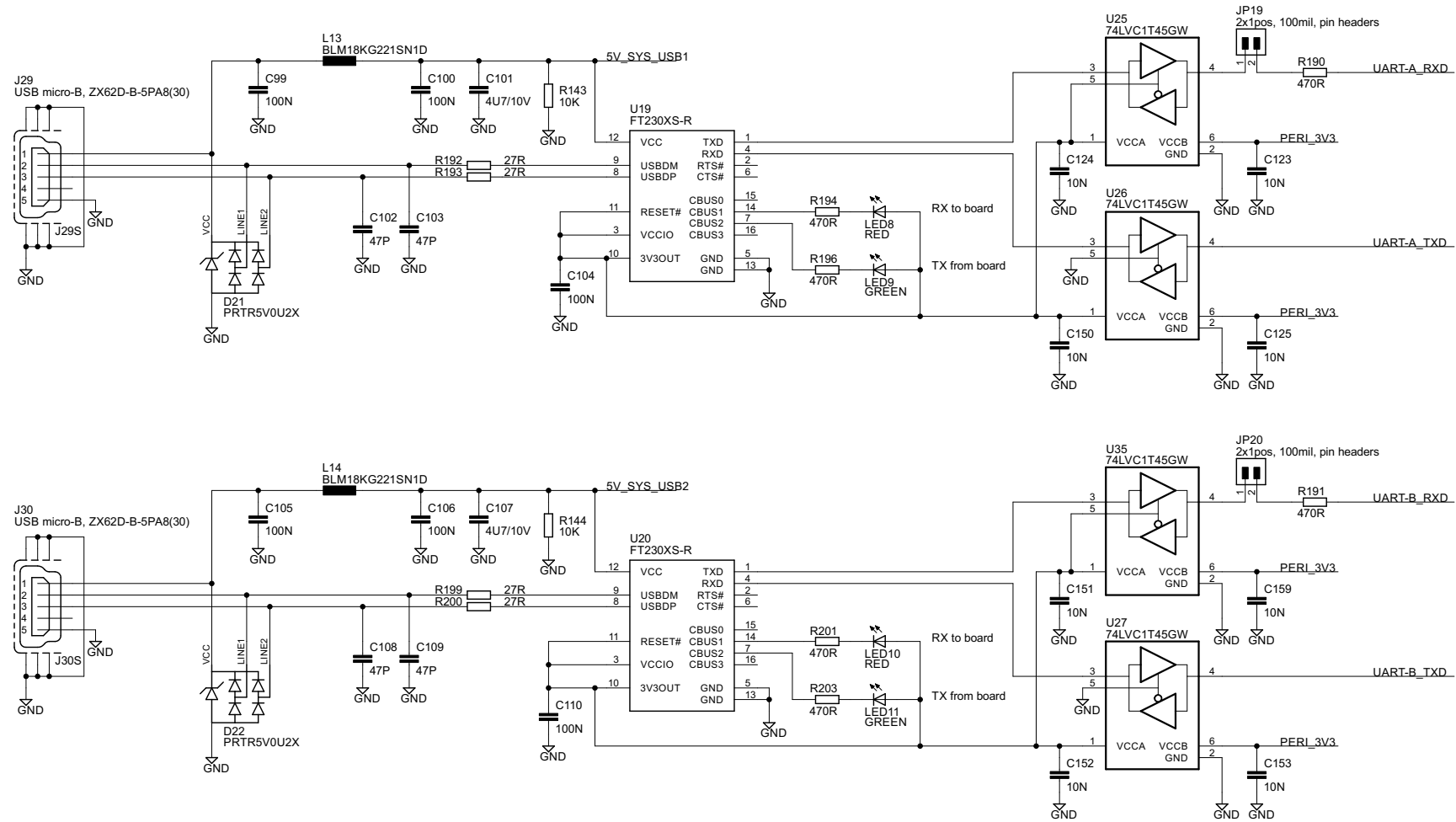
TITLE: uCOM Carrier board rev PB2

Document Number:

Date: 2021-12-17 12:52:00 Sheet: 16/24

Sheet: 16/24

UART-to-USB bridge interfaces



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TITLE: uCOM Carrier board rev PB2

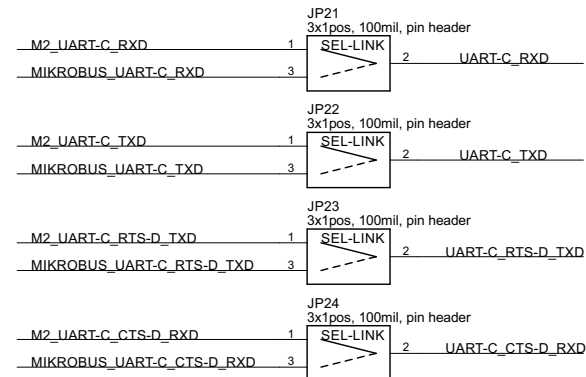
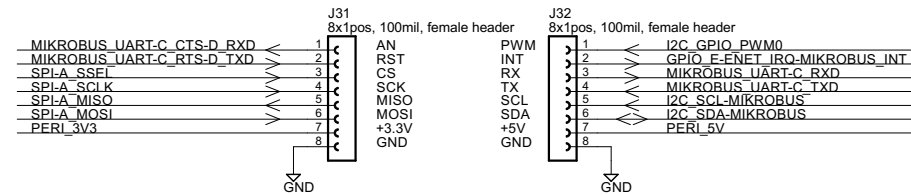
Document Number:

Date: 2021-12-17 12:52:00

Sheet: 17/24

Mikrobus/Click Module Interface

Mikrobus/Click Module Interface



(C) Embedded Artists AB

TITLE: uCOM Carrier board rev PB2

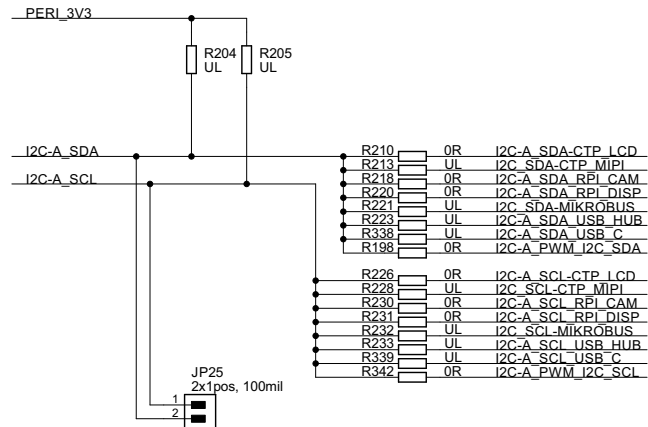
Document Number:

Date: 2021-12-17 12:52:00

Sheet: 18/24

I2C Connections

I2C-A

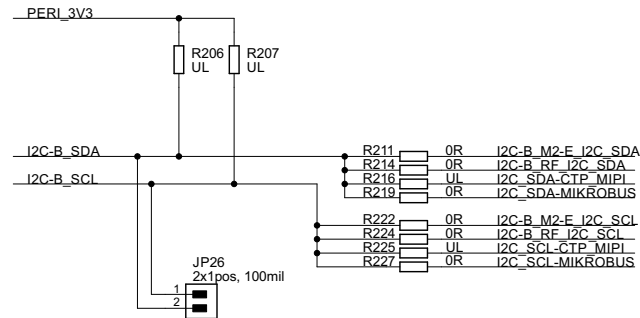


64kbit E2PROM on uCOM: 24LC64
8-bit I2C address (0xAA/0xAB): 1.0.1.0.1.0.1.RW
7-bit I2C address (0x55): 1.0.1.0.1.0.1

Optional 1Kbit I2C-E2PROM with EUI-48: 24AA025E48T
8-bit I2C address (0xA6/0xA7): 1.0.1.0.0.1.1.RW
7-bit I2C address (0x53): 1.0.1.0.0.1.1

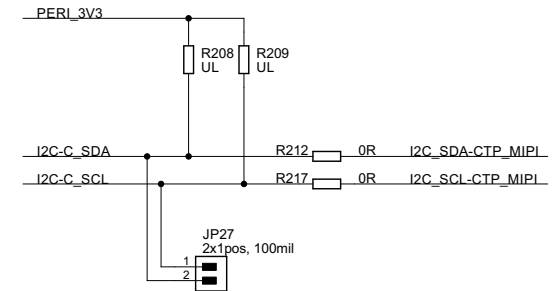
GPIO expander: PCA9530
8-bit I2C address (0xC2/0xC3): 1.1.0.0.0.0.ADDR.RW
7-bit I2C address (0x61): 1.1.0.0.0.0.ADDR

I2C-B

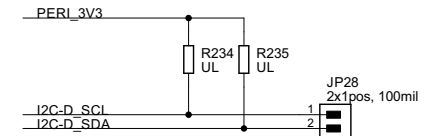


GPIO expander: PCA6416A
8-bit I2C address (0x42/0x43): 0.1.0.0.0.0.ADDR.RW
7-bit I2C address (0x21): 0.1.0.0.0.0.ADDR

I2C-C



I2C-D



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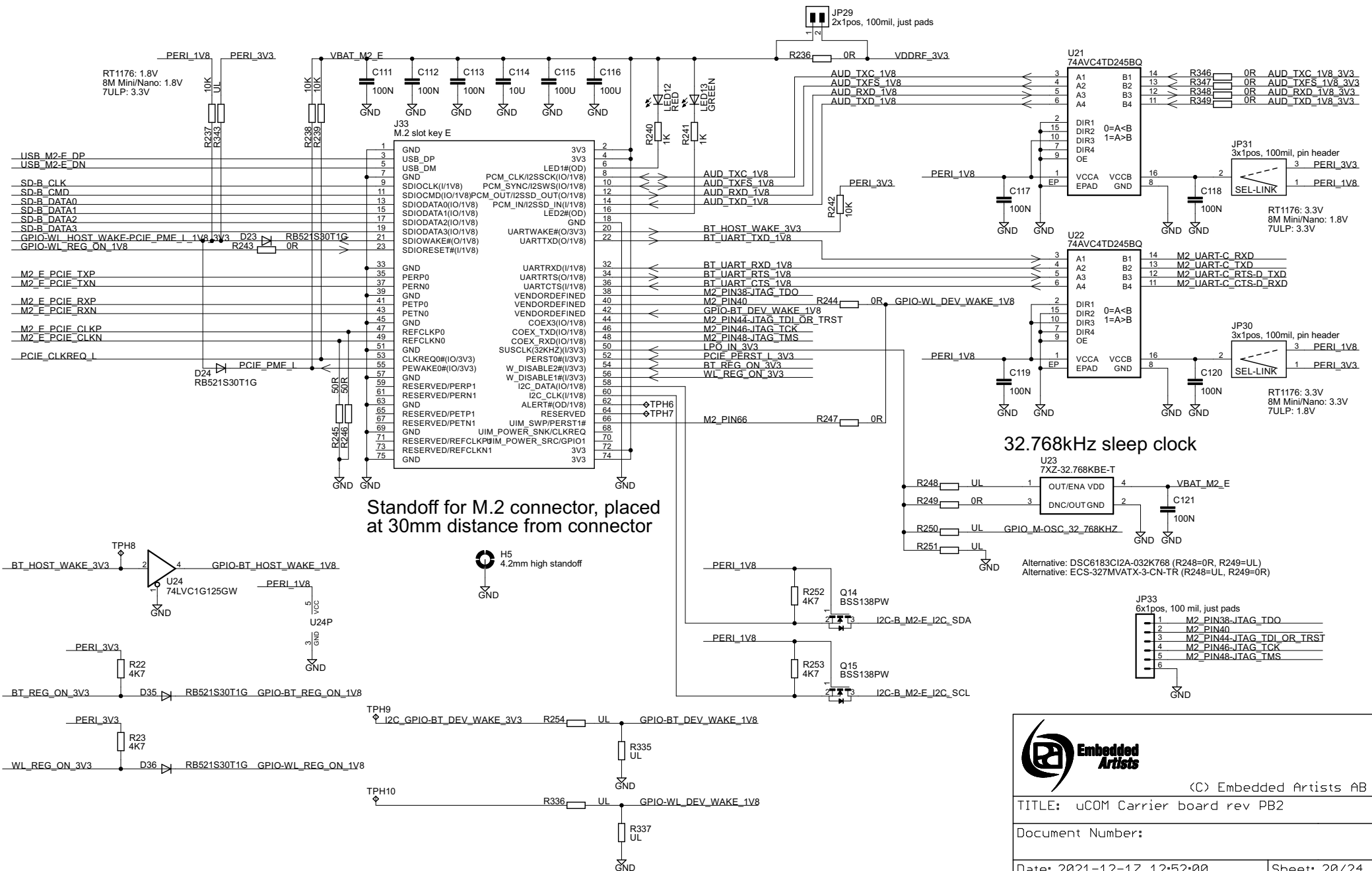
TITLE: uCOM Carrier board rev PB2

Document Number:

Date: 2021-12-17 12:52:00

Sheet: 19/24

M.2 (NGFF) Key E Connector



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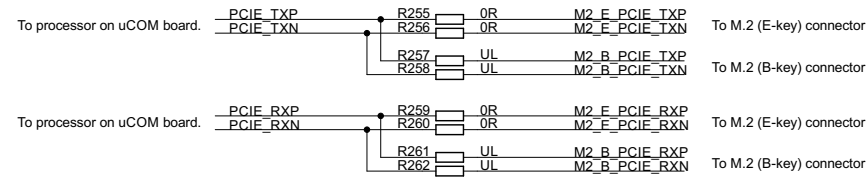
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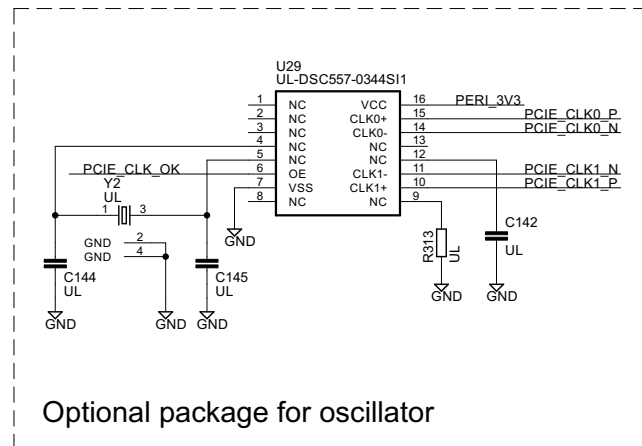
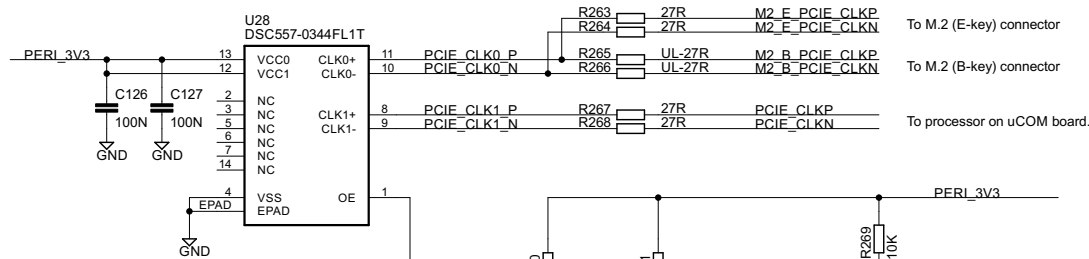
Date: 2021-12-17 12:52:00

Sheet: 20/24

PCIe Signal Routing



100MHz clock generator



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TITLE: uCOM Carrier board rev PB2

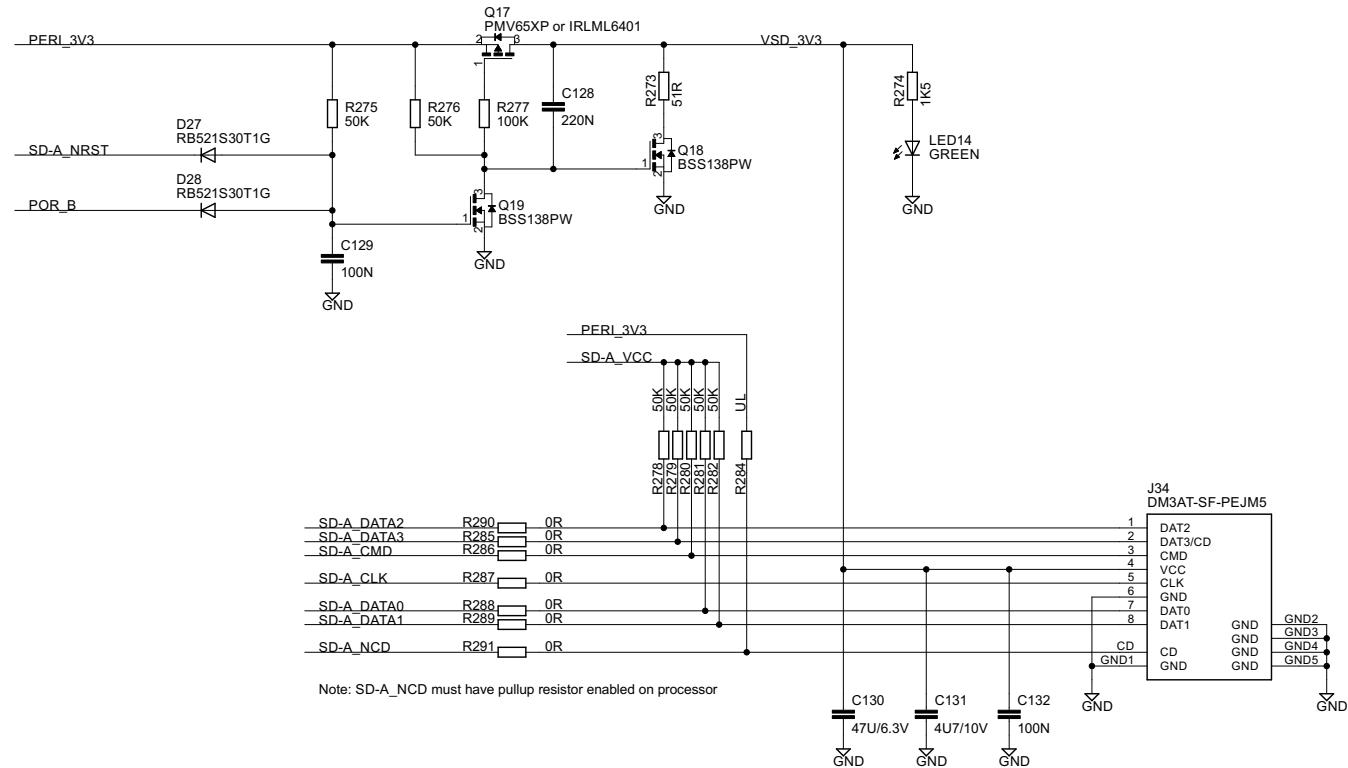
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Date: 2021-12-17 12:52:00

Sheet: 21/24

uSD card interface

Power Switch for SD3.0



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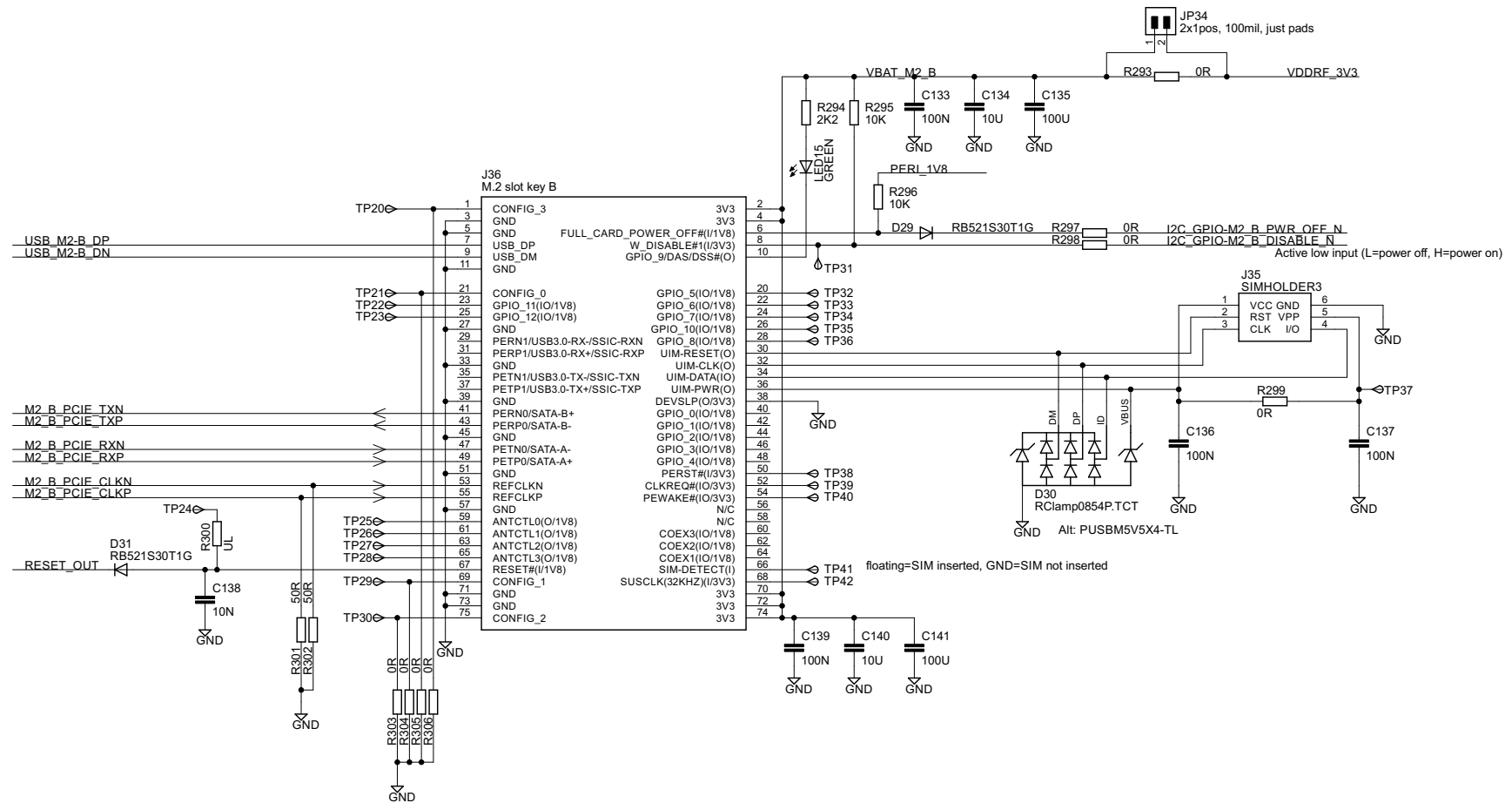
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Document Number:

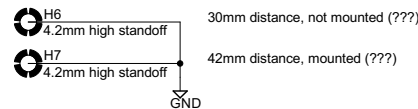
Date: 2021-12-17 12:52:00

Sheet: 22/24

M.2 (NGFF) Key B Connector (USB Host and PCIe Interfaces)



Standoffs for M.2 connector, placed at 30mm and 42mm distance from connector



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Date: 2021-12-17 12:52:00

Sheet: 23/24

