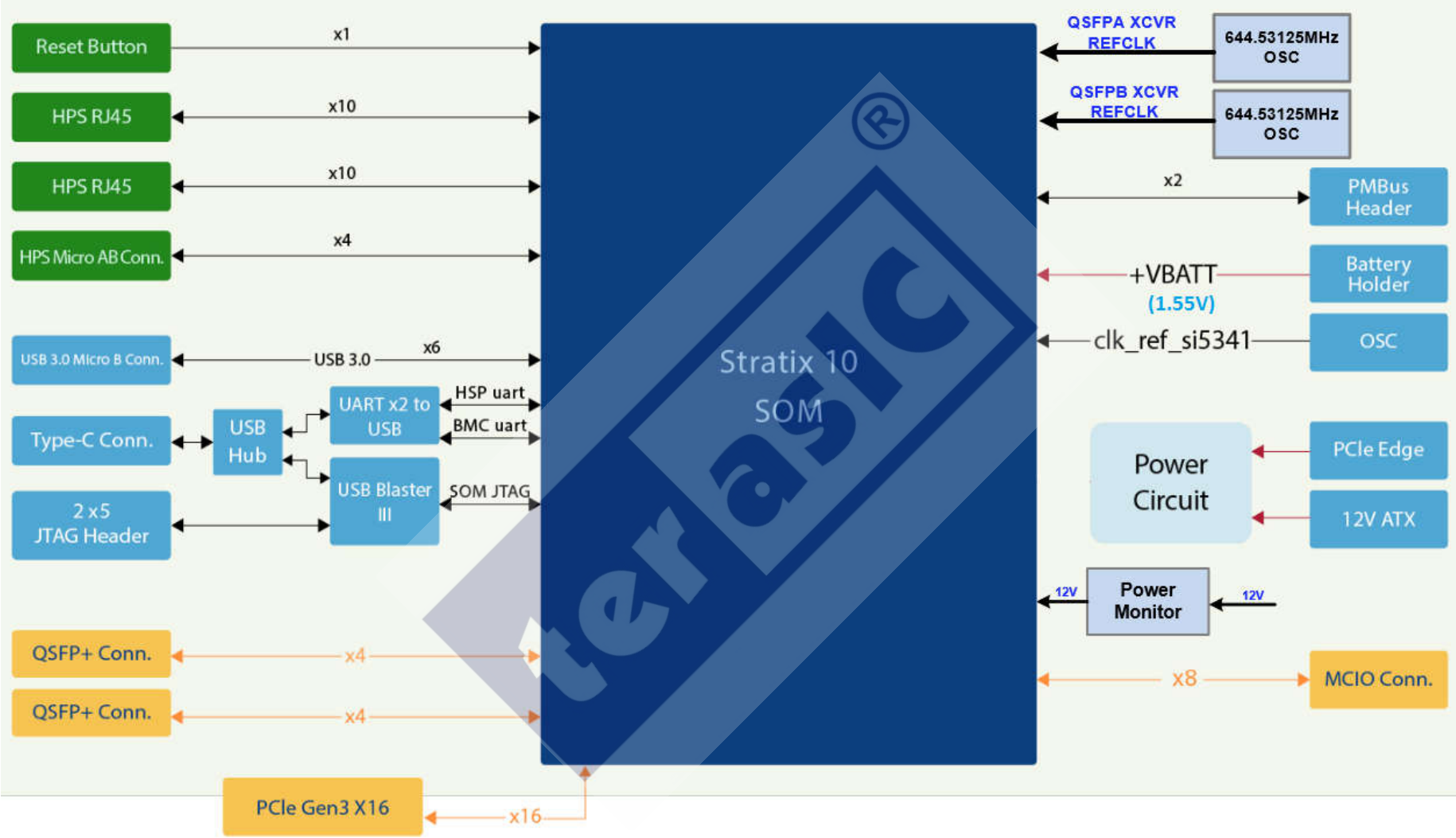
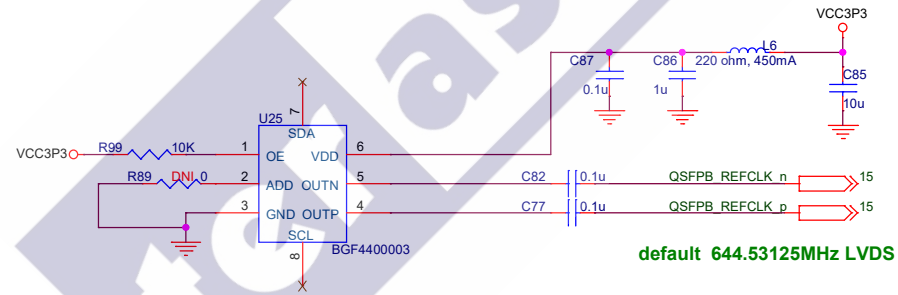
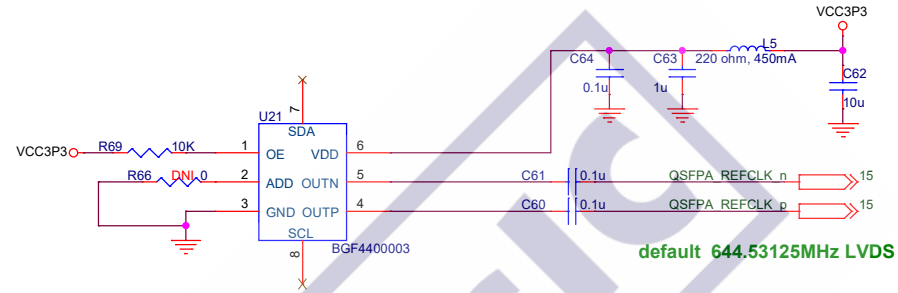
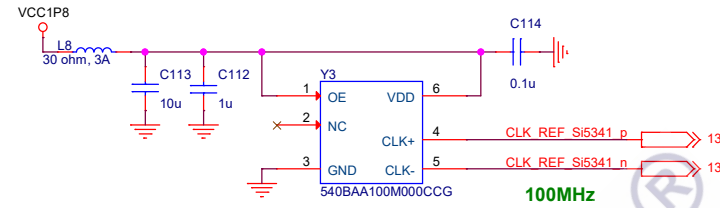


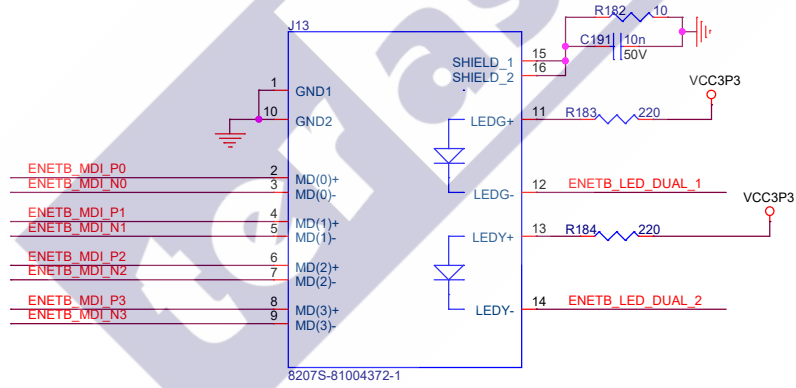
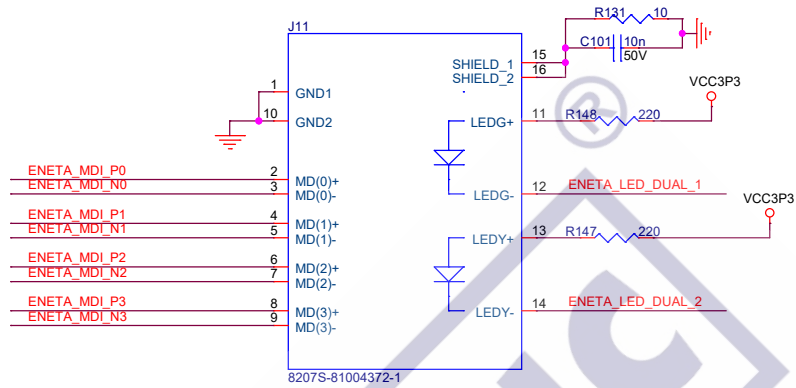
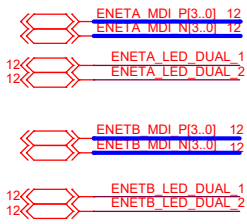
## Titan S10 Carrier

| PAGE | CONTENT                         | PAGE | CONTENT                            |
|------|---------------------------------|------|------------------------------------|
| 1    | Cover Page                      | 14   | FMCL - 1                           |
| 2    | Block Diagram                   | 15   | FMCL - 2                           |
| 3    | Oscillators                     | 16   | Button, Header, LEDs               |
| 4    | Ethernet RJ45 A、B               | 17   | Power - 12V, Power Monitor         |
| 5    | USB 2.0 OTG, USB 3.0 Connectors | 18   | Power - 1.8V, 2.5V, 3.3V, 5V, VBAT |
| 6    | USB Hub, Dual Uart to USB       |      |                                    |
| 7    | USB Blaster III                 |      |                                    |
| 8    | QSFP+ A                         |      |                                    |
| 9    | QSFP+ B                         |      |                                    |
| 10   | PCI Express x 16                |      |                                    |
| 11   | MCIO Connector                  |      |                                    |
| 12   | FMCR - 1                        |      |                                    |
| 13   | FMCR - 2                        |      |                                    |

Block Diagram







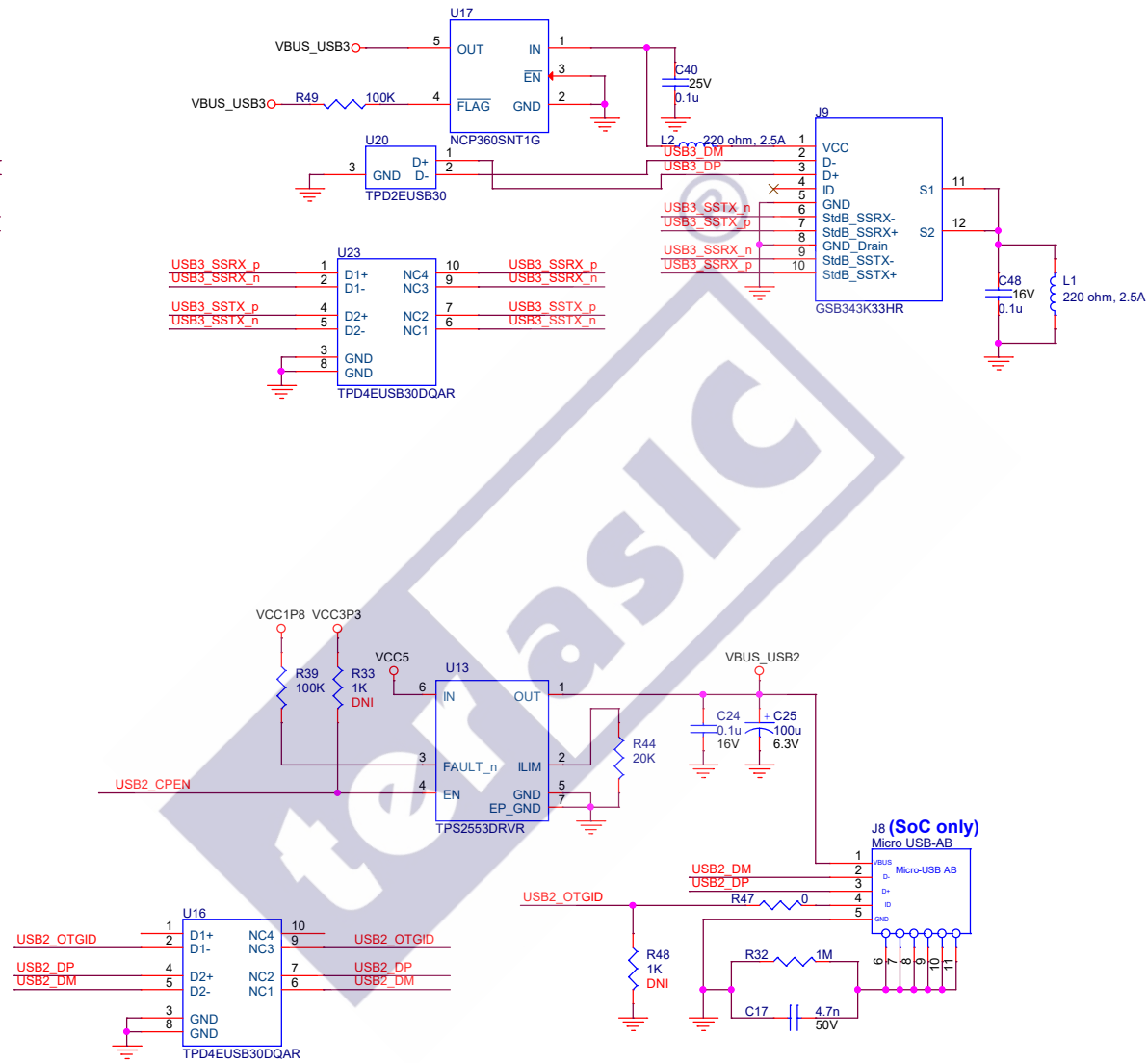
12 USB3 DP  
12 USB3 DM

12 USB3 SSRX p  
12 USB3 SSRX n

12 USB3 SSTX p  
12 USB3 SSTX n

12 USB2 DP  
12 USB2 DM

12 USB2 OTGID  
12 USB2 CPEN



USB UBIII DP 7  
USB UBIII DM 7

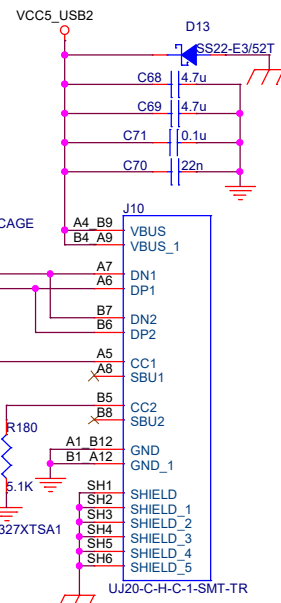
## USB Hub

VCC3P3\_USB VCC3P3\_USB\_VDDA

Pin 36 is VDDA  
in new version datasheet

VCC3P3\_USB VCC3P3\_USB\_VDDA

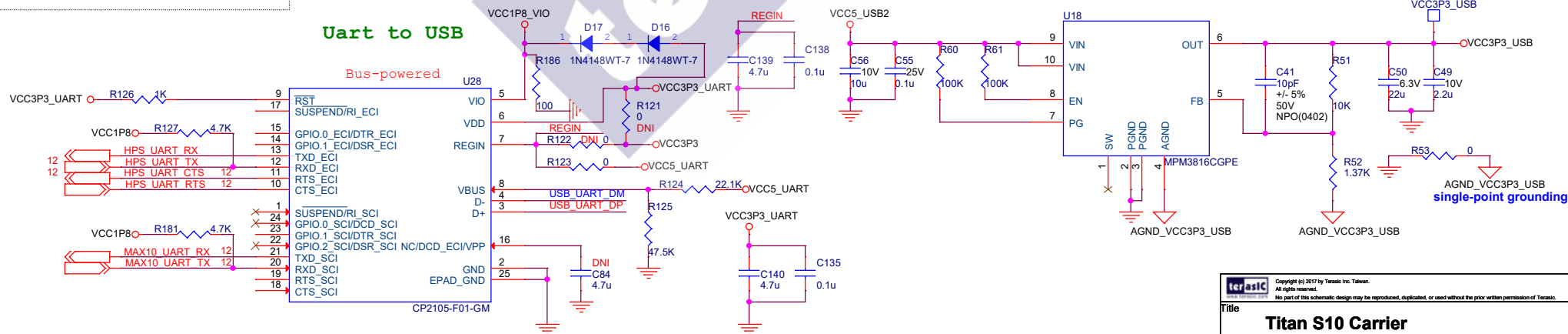
VCC3P3\_USB VCC3P3\_USB\_VDDA



3.3V / 1A  
Ramp Time  
T<sub>soft-start</sub> = 1.8 msec  
Switching Frequency = 2.5MHz

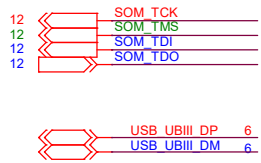
## Uart to USB

Bus-powered

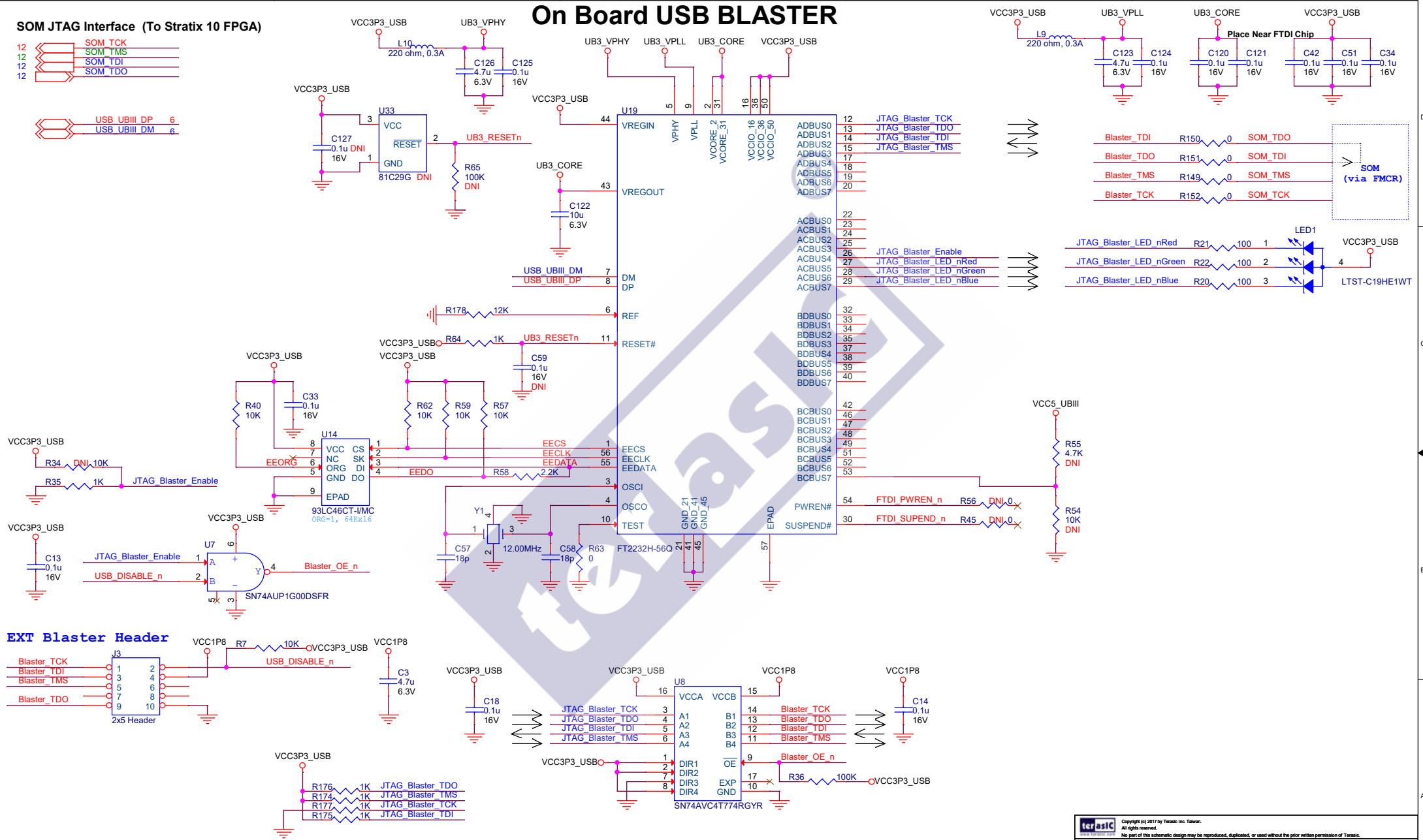


|         |  |  |  |  |  |
|---------|--|--|--|--|--|
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| Title   |  |  | Titan S10 Carrier  |  |  |
| Size    |  |  | Document Number  |  |  |
| B       |  |  | USB Hub, Dual Uart to USB  |  |  |
| Date:   |  |  | Friday, October 31, 2025   |  |  |
|         |  |  | Sheet 6 of 18  |  |  |
|         |  |  | Rev B  |  |  |

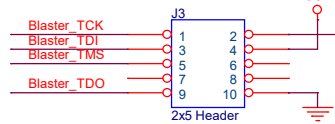
## SOM JTAG Interface (To Stratix 10 FPGA)



## On Board USB BLASTER

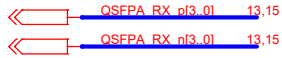
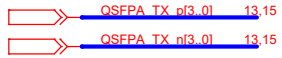


## EXT Blaster Header

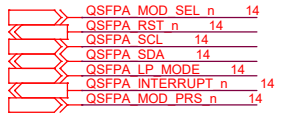


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|--|--------------------------|---------------|
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| Title  |                          |               |
| Titan S10 Carrier  |                          |               |
| Size   | Document Number          | Rev           |
| B  | USB Blaster III          | B             |
| Date:  | Friday, October 31, 2025 | Sheet 7 of 18 |

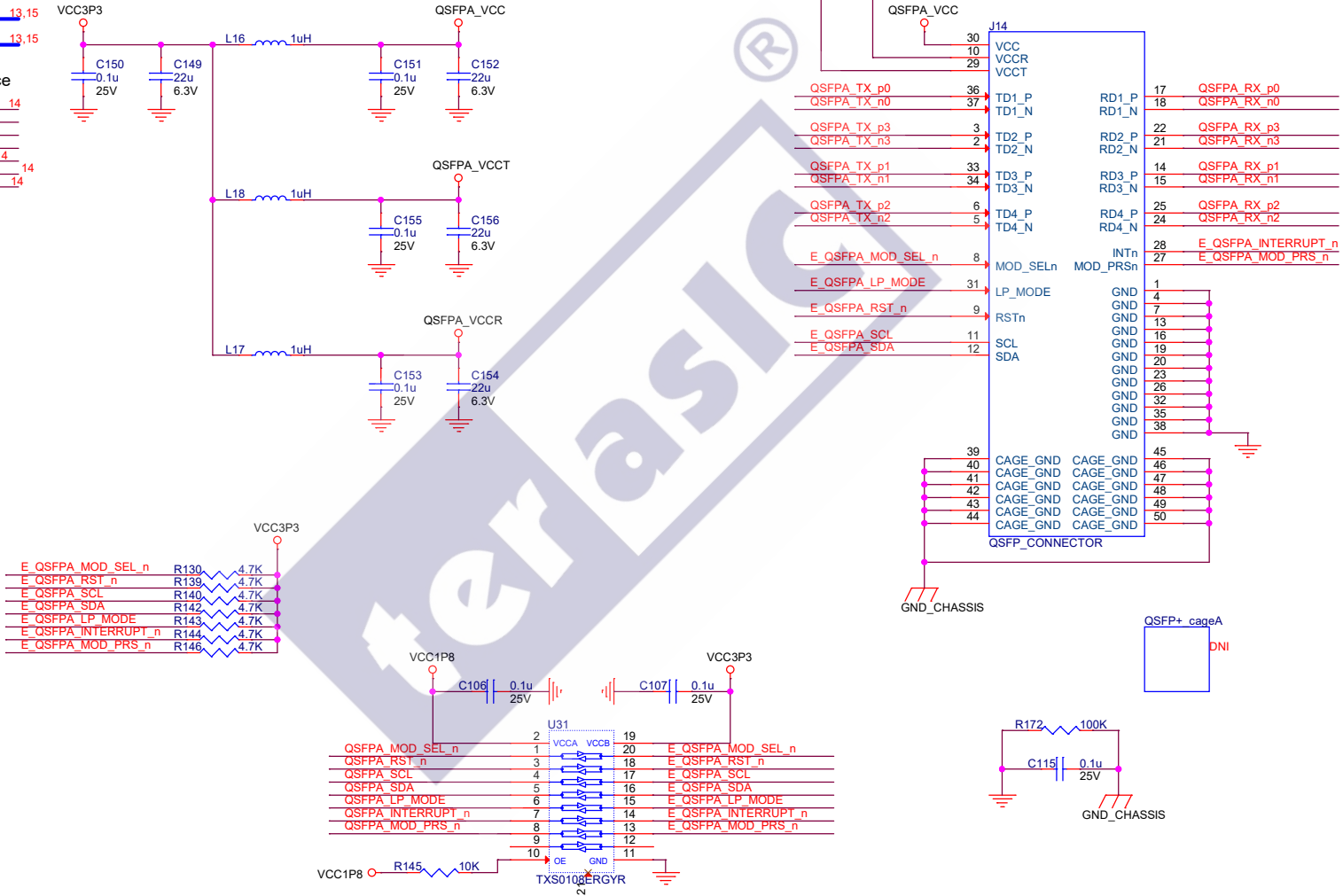
## QSFP+ A Transceivers



## QSFP+ A Control Interface



NOTE 1: Bypass Capacitors should be placed as close to the associated 20-pin connector as possible.  
NOTE 2: Assuming that the SFP RD 100-ohm termination on the Host Board FPGA device will be implemented via the on-chip termination circuit.  
NOTE 3: DC blocking capacitors are in the module for RX and TX.  
NOTE 4: 1uH inductors should have a DC Resistance of less than 0.1-ohm.

































































































































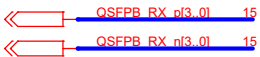




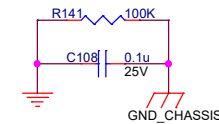
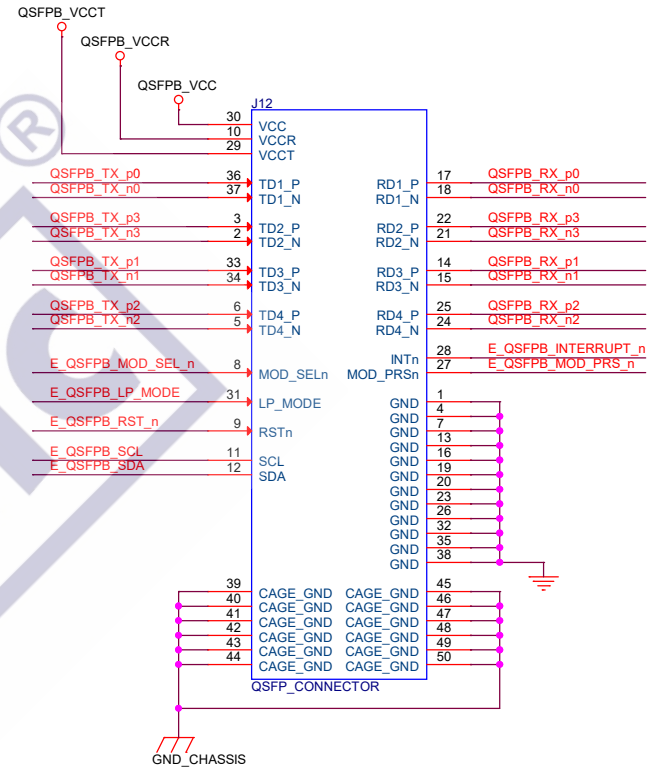
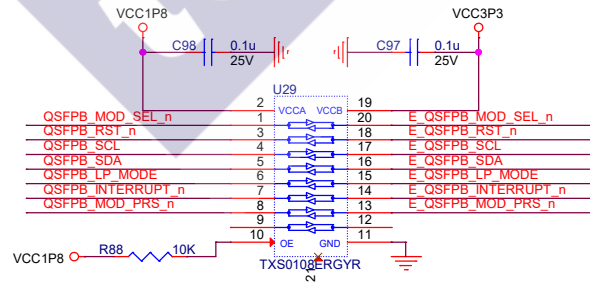
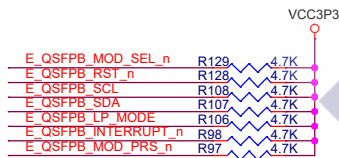




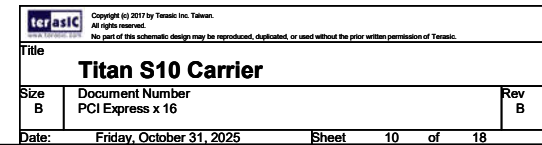




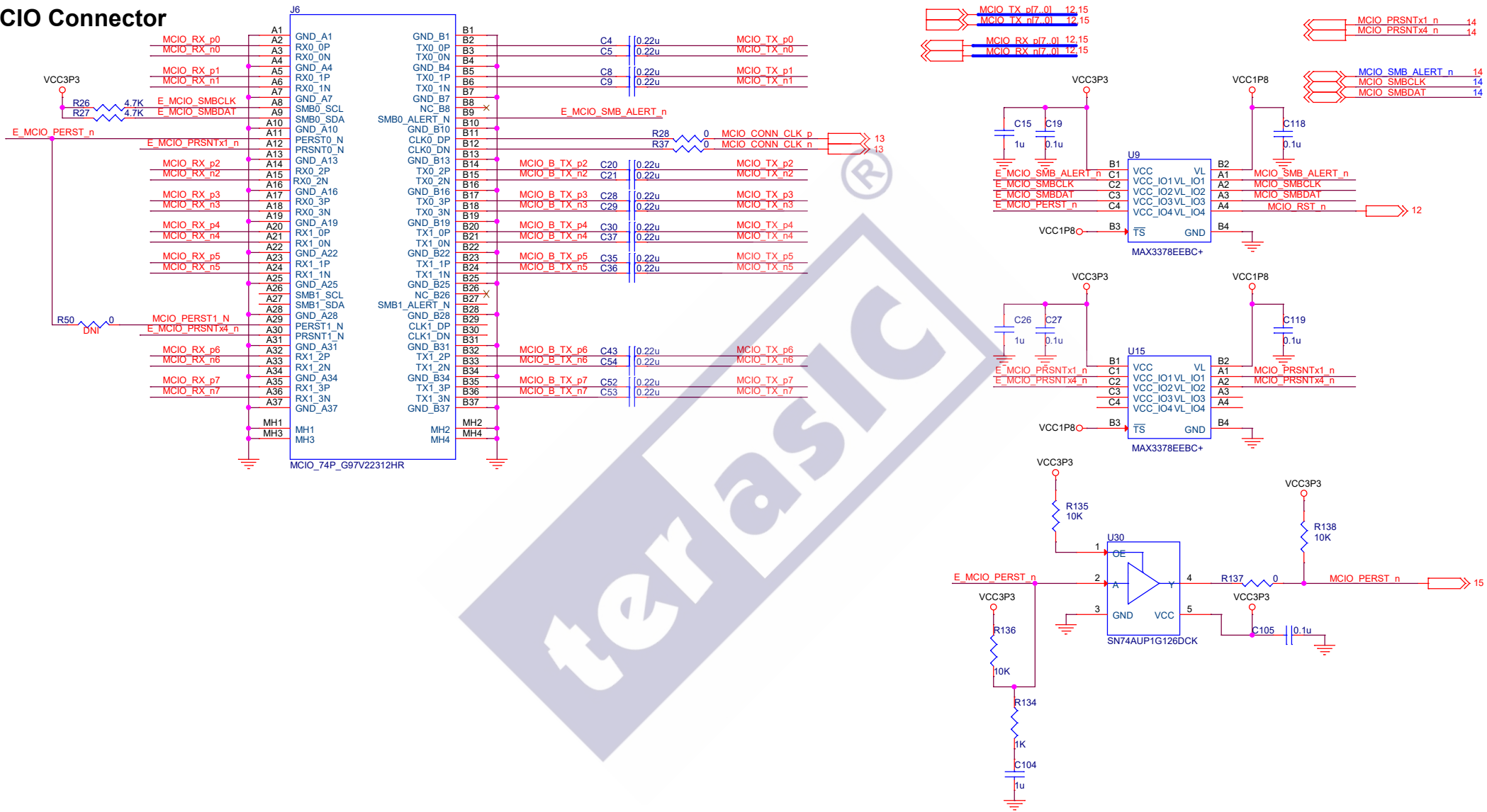
|                   |    |
|-------------------|----|
| QSPFB MOD SEL n   | 14 |
| QSPFB RST n       | 14 |
| QSPFB SCL         | 14 |
| QSPFB SDA         | 14 |
| QSPFB LP MODE     | 14 |
| QSPFB INTERRUPT n | 14 |
| QSPFB MOD PRS n   | 14 |



## PCIe x16 Edge Connector



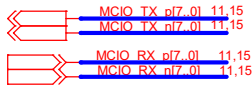
## MCIO Connector



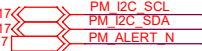
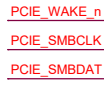
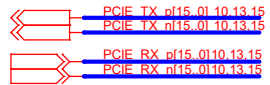
# FMCR PORT INTERFACE

## FMCR - 1

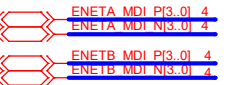
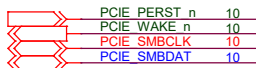
### MCIO Transceivers



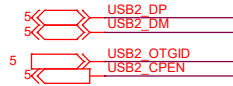
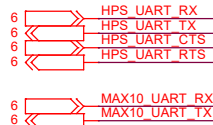
### PCIe Transceiver



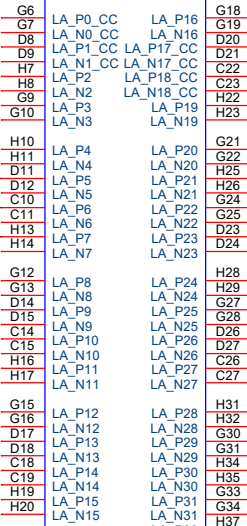
### PCIe Control signal



### UART Interface

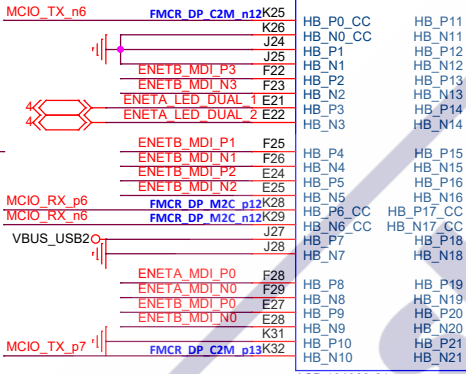


J1A



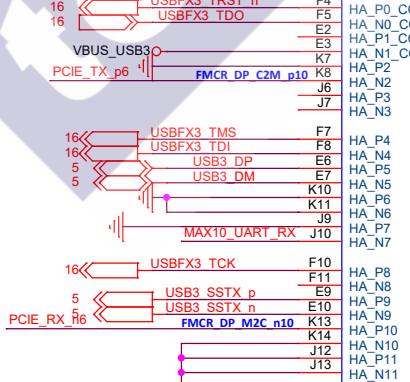
ASP-184329-01

J1C

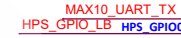
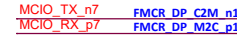
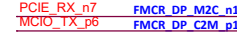
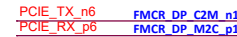


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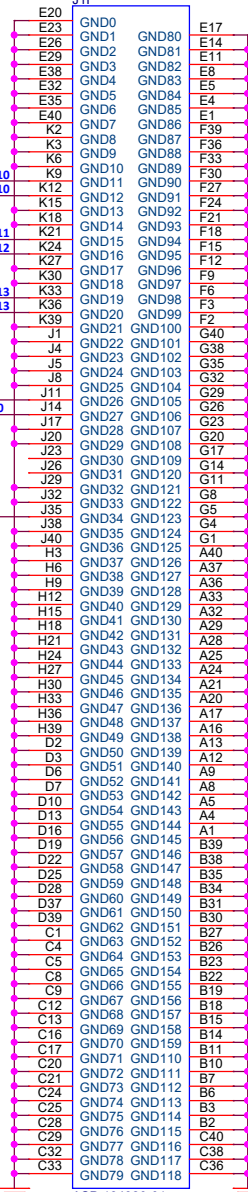
J1B



ASP-184329-01

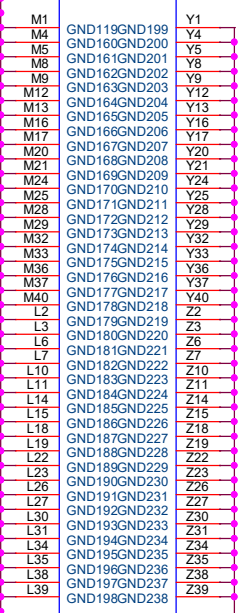


J1F



ASP-184329-01

J1G

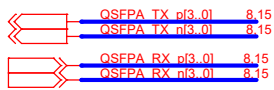


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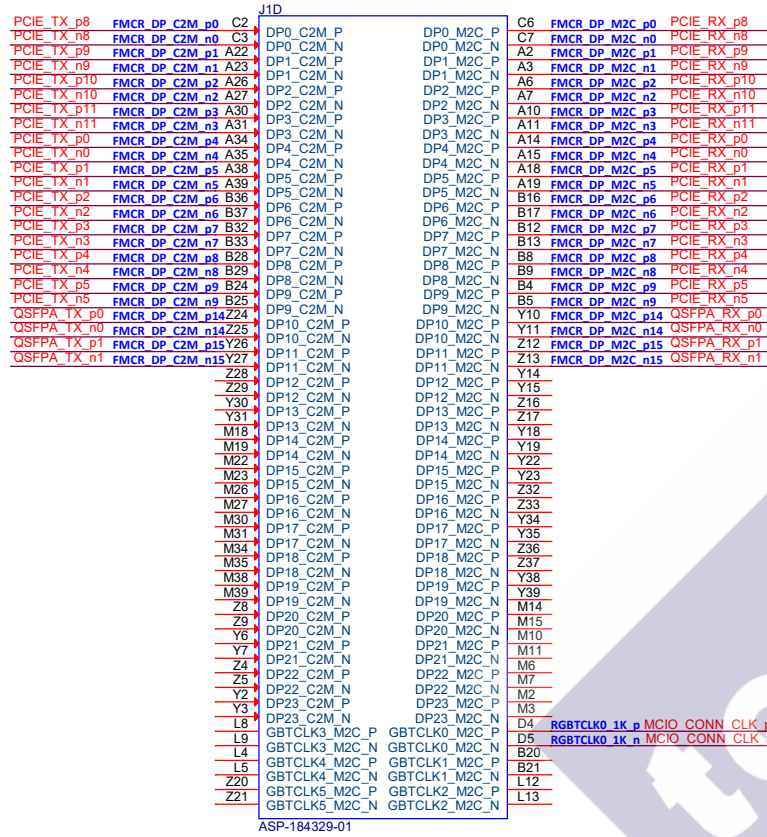
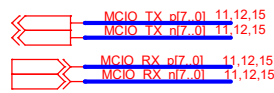
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| <b>Title</b><br>Titan S10 Carrier  |                                    |                 |
| <b>Size</b><br>B   | <b>Document Number</b><br>FMCR - 1 | <b>Rev</b><br>B |
| <b>Date:</b> Friday, October 31, 2025  | <b>Sheet</b> 12                    | <b>of</b> 18    |

**FMCR - 2**

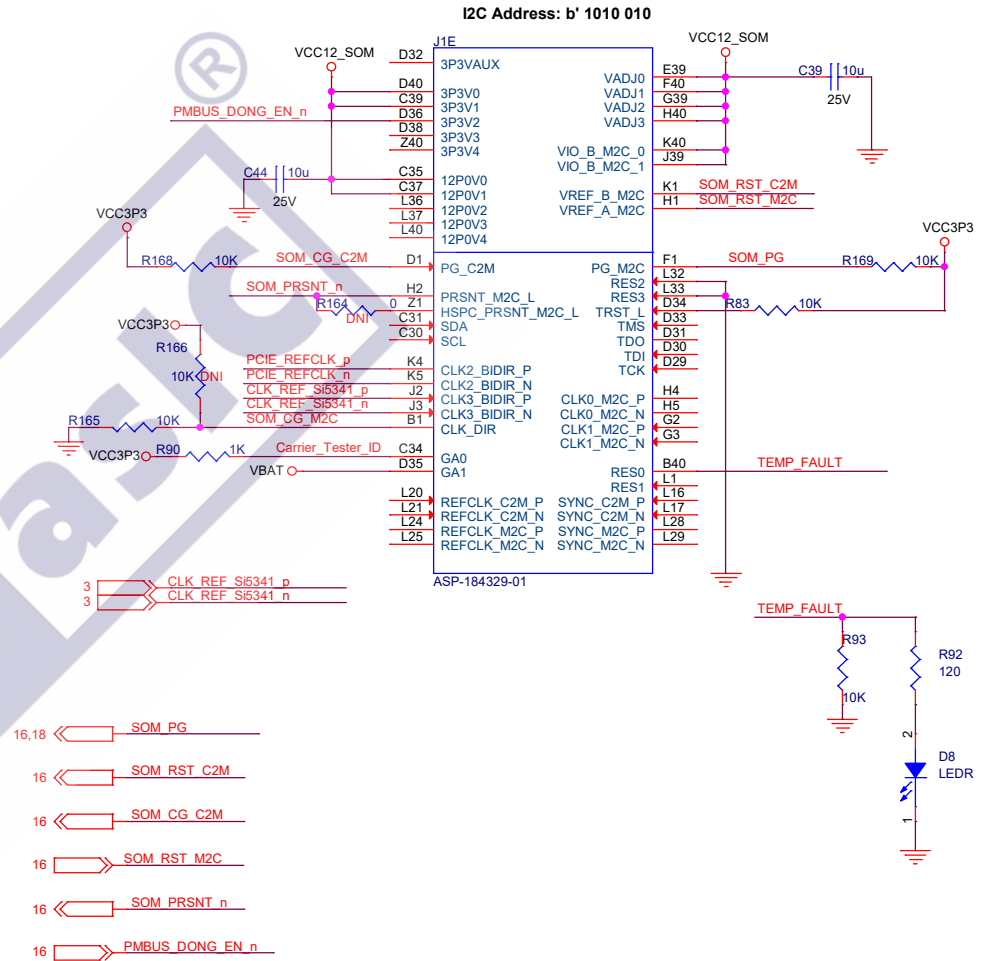
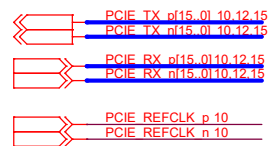
## QSFP+ A Transceivers



## MCIO Transceivers

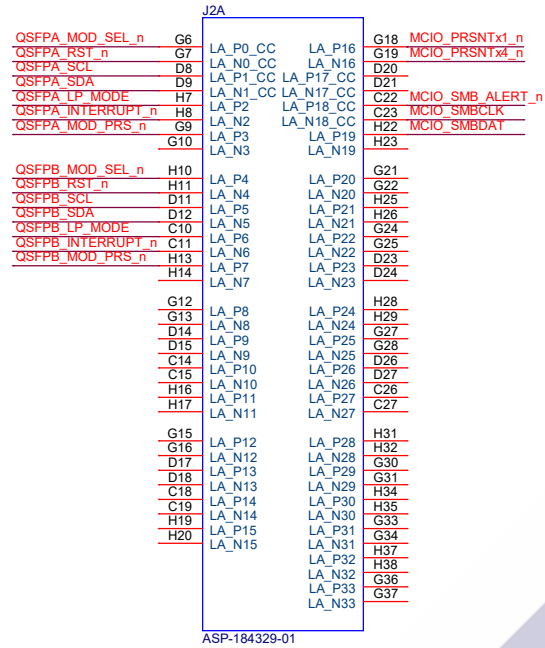


## PCIe Transceiver

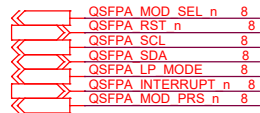




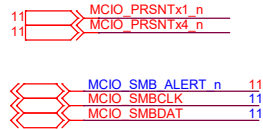
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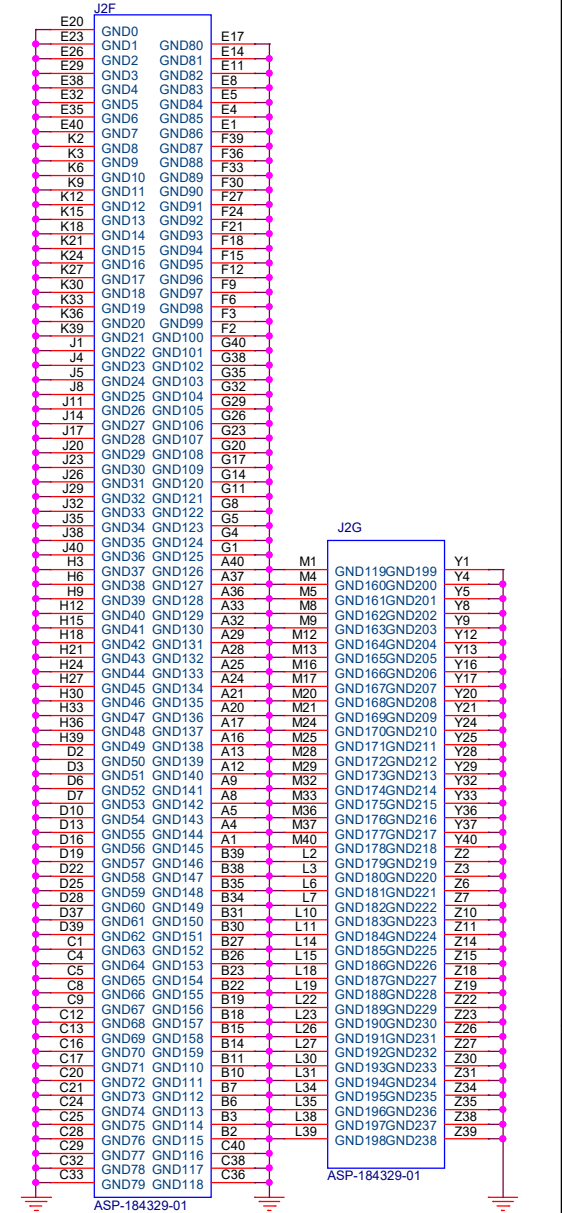
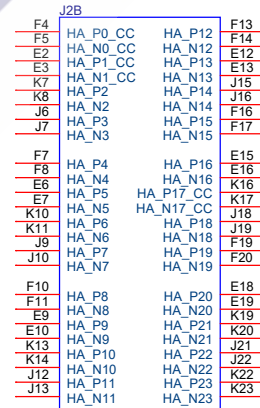
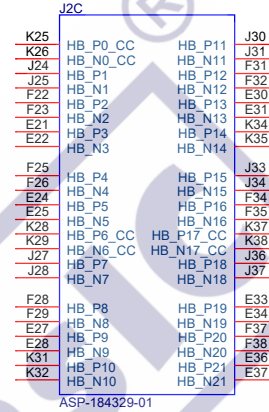
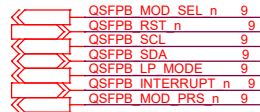
## QSFP+ A Control Interface




## MCIO Control Interface

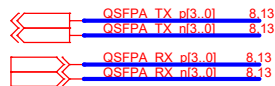


## QSFP+ B Control Interface

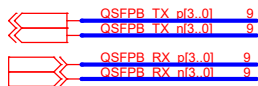


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| <b>Title</b><br><b>Titan S10 Carrier</b>   |                                    |                 |
| <b>Size</b><br>B   | <b>Document Number</b><br>FMCL - 1 | <b>Rev</b><br>B |
| <b>Date:</b> Friday, October 31, 2025  | <b>Sheet</b> 14                    | <b>of</b> 18    |

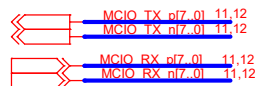
# QSFP+ A Transceivers



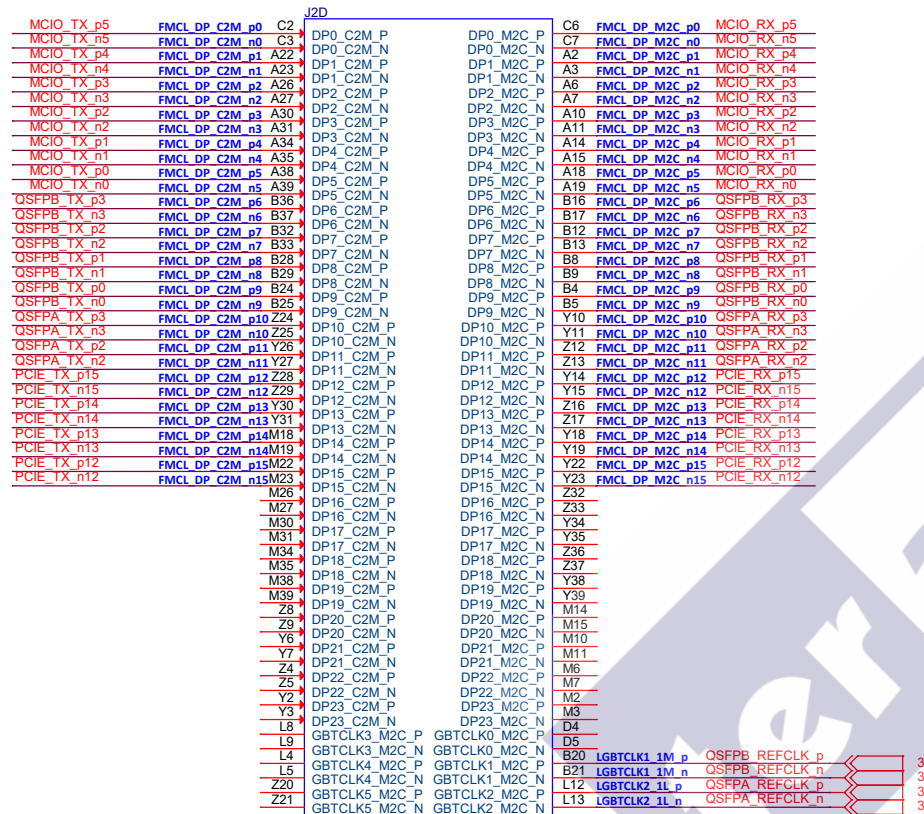
# QSFP+ B Transceivers



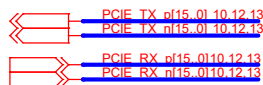
# MCIO Transceivers



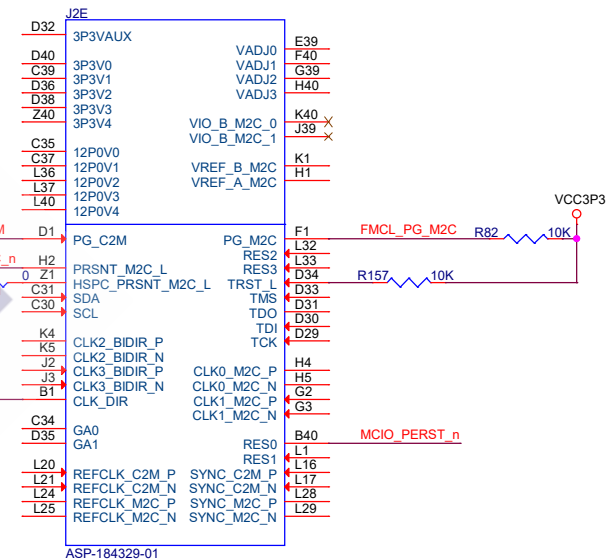
# FMCL - 2



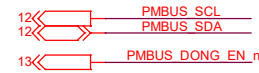
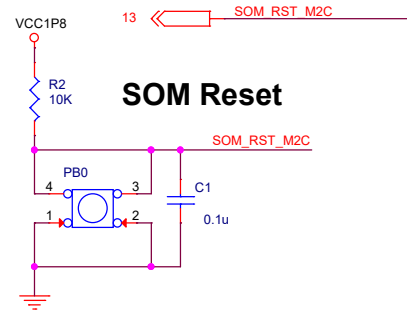
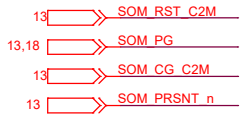
# PCIe Transceiver



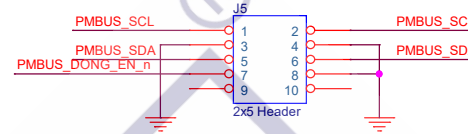
I2C Address: b' 1010 010



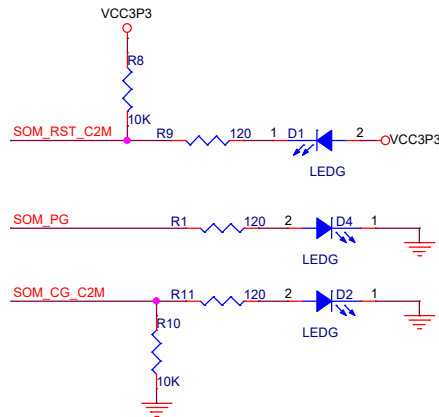
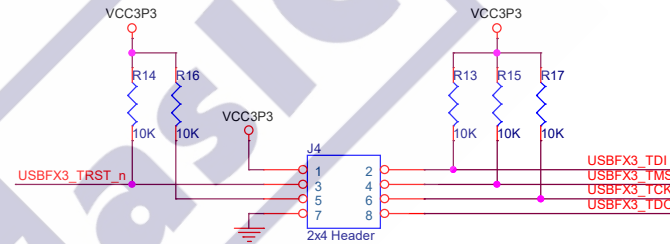
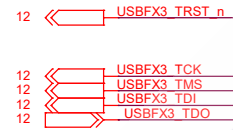
ASP-184329-01




### PMBUS Header

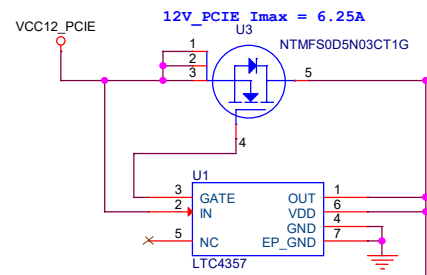


### USB FX3 JTAG Header

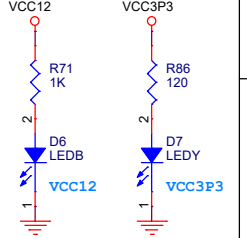
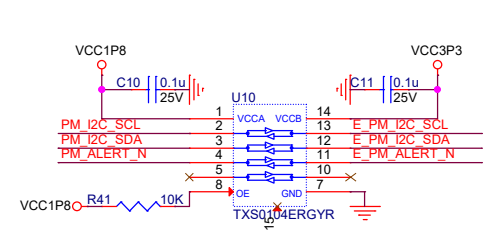
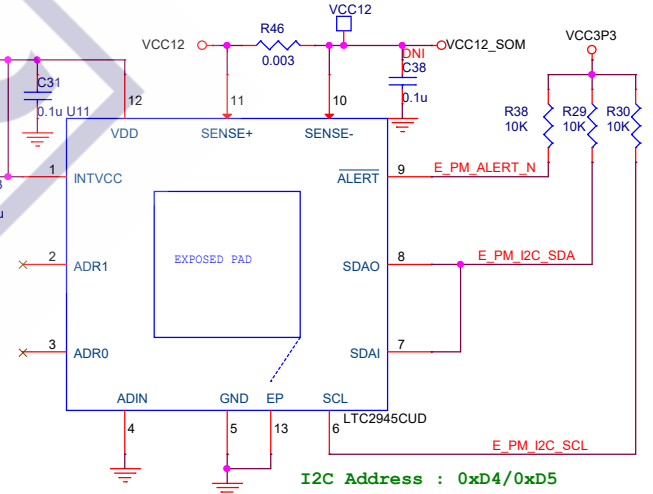
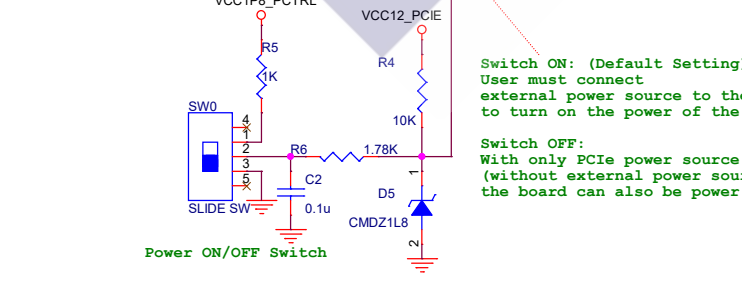
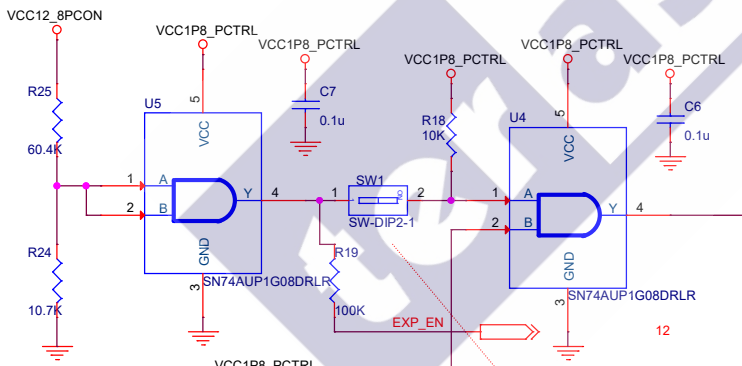
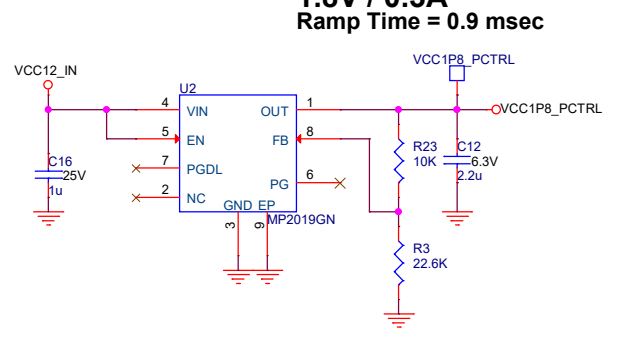
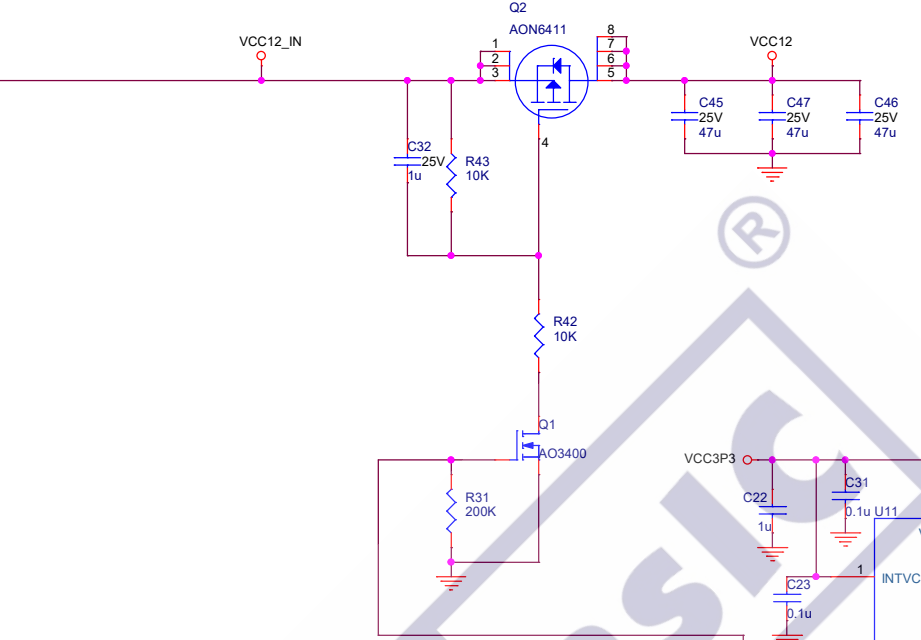
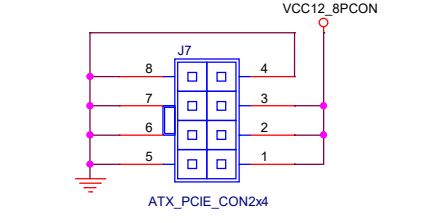
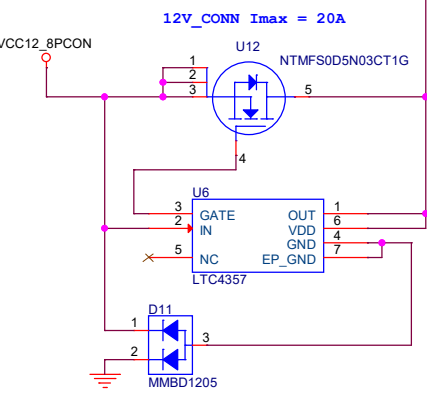


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| Title  |                          |
| <b>Titan S10 Carrier</b>   |                          |
| Size   | Document Number          |
| B  | Button, Header, LEDs     |
| Date:  | Friday, October 31, 2025 |
| Sheet  | 16 of 18                 |
| Rev  | B                        |





PM I2C\_SCL  
PM I2C\_SDA  
PM ALERT\_N



Switch ON: (Default Setting)  
User must connect  
external power source to the board  
to turn on the power of the board

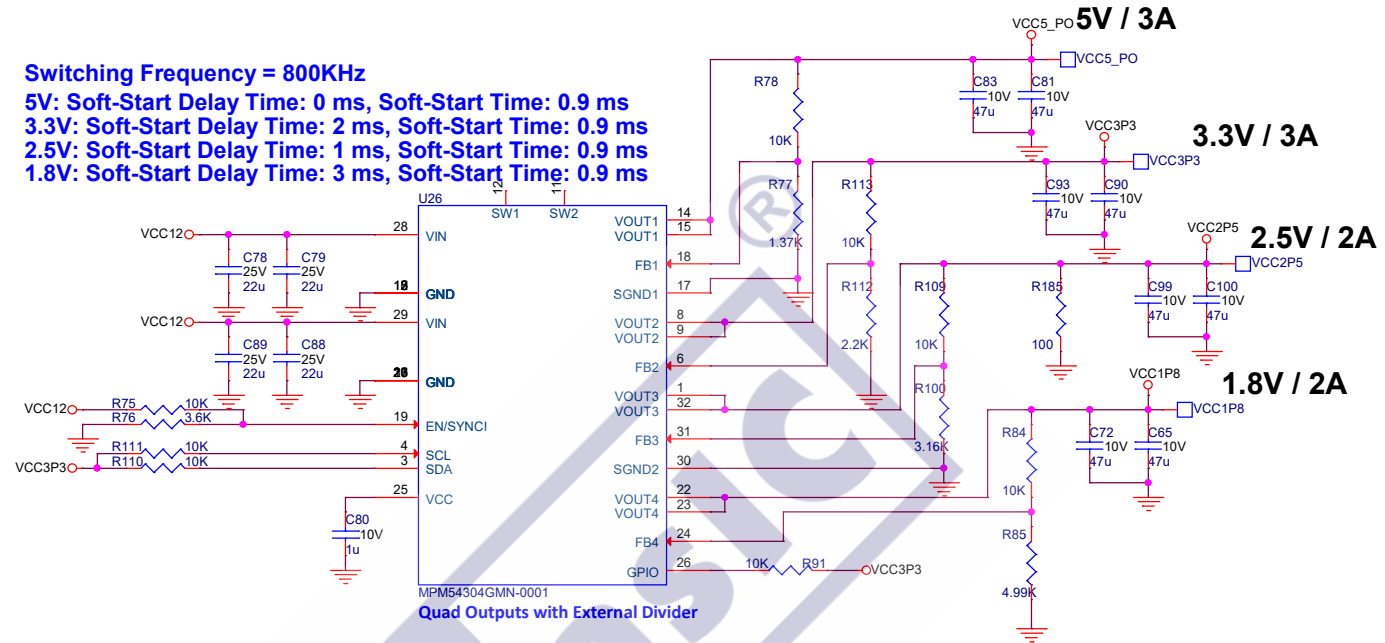
Switch OFF:  
With only PCIe power source  
(without external power source),  
the board can also be power on.

Power ON/OFF Switch

1.8V / 0.3A  
Ramp Time = 0.9 msec

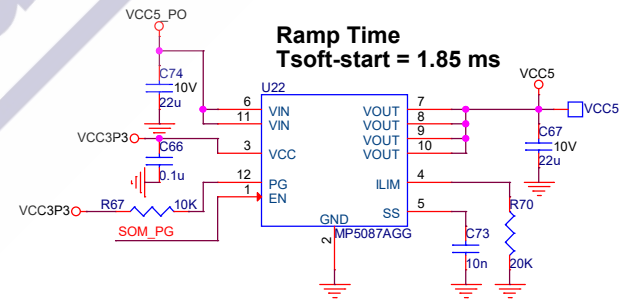
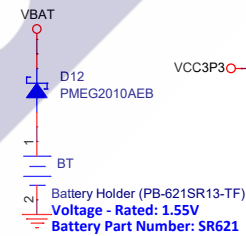
|  |   |          |
|--|---|----------|
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| Title<br><b>Titan S10 Carrier</b>  |   |          |
| Size<br>B  | Document Number<br>Power - 12V, Power Monitor | Rev<br>B |
| Date:<br>Friday, October 31, 2025  | Sheet<br>17                                   | of<br>18 |

Switching Frequency = 800KHz  
 5V: Soft-Start Delay Time: 0 ms, Soft-Start Time: 0.9 ms  
 3.3V: Soft-Start Delay Time: 2 ms, Soft-Start Time: 0.9 ms  
 2.5V: Soft-Start Delay Time: 1 ms, Soft-Start Time: 0.9 ms  
 1.8V: Soft-Start Delay Time: 3 ms, Soft-Start Time: 0.9 ms



Quad Outputs with External Divider

13,16 SOM\_PG



Ramp Time  
Tsoft-start = 1.85 ms

|  |                                    |                |
|--|------------------------------------|----------------|
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| Title  |                                    |                |
| Titan S10 Carrier  |                                    |                |
| Size   | Document Number                    | Rev            |
| B  | Power - 1.8V, 2.5V, 3.3V, 5V, VBAT | B              |
| Date:  | Friday, October 31, 2025           | Sheet 18 of 18 |