

Please check the notes appearing in red on the schematic pages. In addition, please check the Errata document of the respective product (the potential issues discovered/reported are going to appear in the Errata first). Follow the guidance provided in the relevant Carrier Board Design Guide. Please carefully review your designs against all of the sections of the Carrier Board Design Guide before proceeding with manufacturing your custom carrier board. The documents referenced are available on our Developer Website.

REVISION HISTORY

1. Design Revision V1.0 : Preliminary design
Date: 15th Oct 2015
2. Design Revision V1.1 :
 - PowerSupply.SchDoc: Power Switch IC15 has been added to ensure unidirectional power flow from USB Client to Power Input. Test point TP7 (GND) has been added.
 - PowerSupply.SchDoc: Power connector (X2) has been replaced with new part (Wurth, 694103107102).
 - DigitalInterface.SchDoc: SODIMM_106 (TOUCH_RESET#), SODIMM_107(TOUCH_INT#), SODIMM_127 (to control Voltage Level Translator OE# signal (IC11 and IC12) as assembly option) have been used in the design.
 - DigitalInterface.SchDoc: Added NOTE 9 in the schematic page " Assemble this resistor if the fourth PWM signal is needed with Colibri PXA3XX modules".
 - Debugger.SchDoc: Open SDA debugger circuit is not assembled.
 - DisplayInterface.SchDoc: Capacitive Touch Interface Connector (X3) has been added.
 - VGA.SchDoc: Video DAC IC (IC10) based circuit has been implemented for the Digital RGB to VGA conversion.
 - ArduinoConnector.SchDoc: Control circuit for voltage level translator OE# signal (IC11 and IC12) has been updated.
 - ArduinoConnector.SchDoc: Added NOTE 11 in the schematic page "SODIMM_95 and SODIMM_134; Colibri VFxx: analog input or GPIO (3.3V voltage level only); Colibri Txx, iMX6, iMX7, PXA: GPIO (3.3V voltage level only)".
 - ArduinoConnector.SchDoc: Added NOTE 12 in the schematic page "IC16 can be used to sequence power up (+3.3V --> VCC_IOREF) and for uni-direction power flow from PWR_IN_FILT or +3.3V to VCC_IOREF".
 - UsbSerialDebug.SchDoc: Added NOTE 10 in the schematic page " FTDI backfeeding: It has been found that the FTDI IC is backfeeding via module RxD signal. So, it is recommended to use an isolation between the Colibri module and FTDI IC (IC2)".Date: 25th October 2016
3. Design Revision V1.1 :
 - PowerSupply.SchDoc: Components (IC15, C52, C53, R6, and R142) are not assembled, as Power Switch (IC15) has been found back-feeding during testing.
 - Debugger.SchDoc: Colibri JTAG header (X6), JTAG pogo pins (X21) and resistor (R51) are assembled.Date: 30th November 2016
4. Design Revision V1.1 :
 - Mechanical.SchDoc: Added shunt jumpers (SJP1, SJP2, SJP3) in the schematic page.Date: 30th May 2017
5. Design Revision V1.1 :
 - PowerSupply.SchDoc : Added NOTE 13 in the schematic page " It is recommended to assemble SMBJ6.0A-13-F for diode D1 instead of SMBJ22CA-13-F".Date: 27th October 2017

IF IN DOUBT ASK

Hardware Architecture Schematic Page
HardwareArchitecture.SchDoc

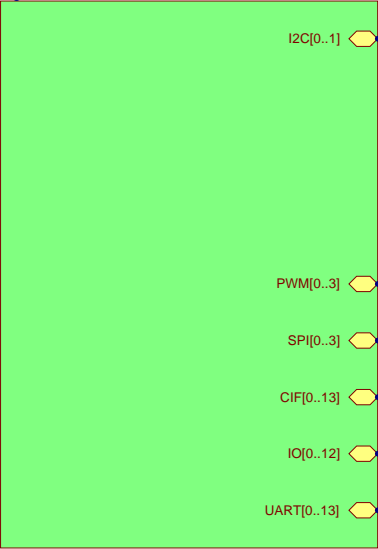


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Date: 8/8/2022	Time: 8:12:11 PM	Sheet 1 of 17	
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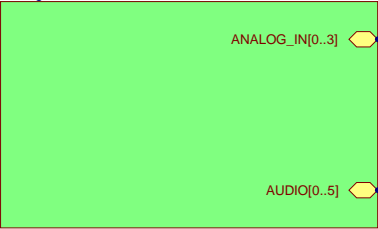
Power Supply Schematic Page
PowerSupply.SchDoc



Colibri Digital Interface Schematic Page
DigitalInterface.SchDoc



Colibri Analog Interface Schematic Page
AnalogInterface.SchDoc



USB Schematic Page
USB.SchDoc



Ethernet Schematic Page
Ethernet.SchDoc



Memory Card Schematic Page
MemoryCard.SchDoc



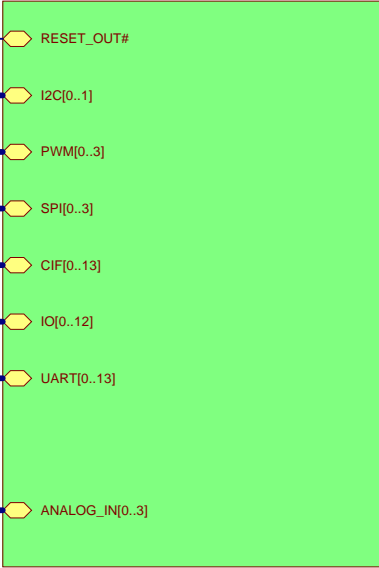
Display Interface Schematic Page
DisplayInterface.SchDoc



External RTC Schematic Page
ExternalRTC.SchDoc



Arduino Headers Schematic Page
ArduinoConnector.SchDoc



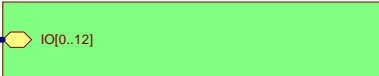
Extension Header Schematic Page
ExtensionConnector.SchDoc



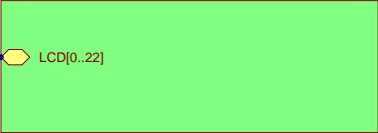
Colibri Serial Debug Schematic Page
UsbSerialDebug.SchDoc



LED (on-board) Schematic Page
Led.SchDoc

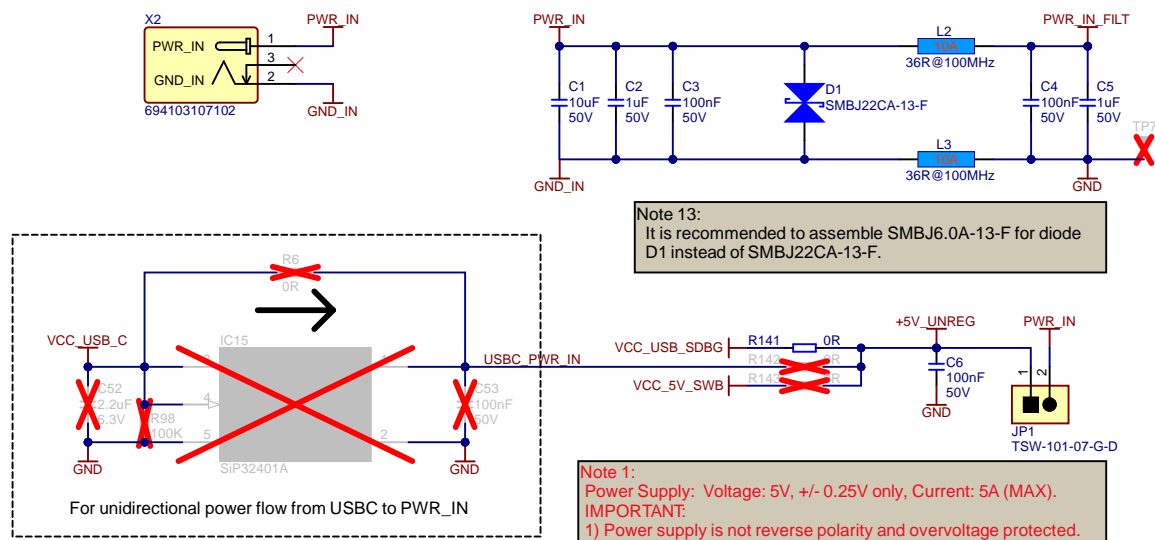


VGA Schematic Page
VGA.SchDoc

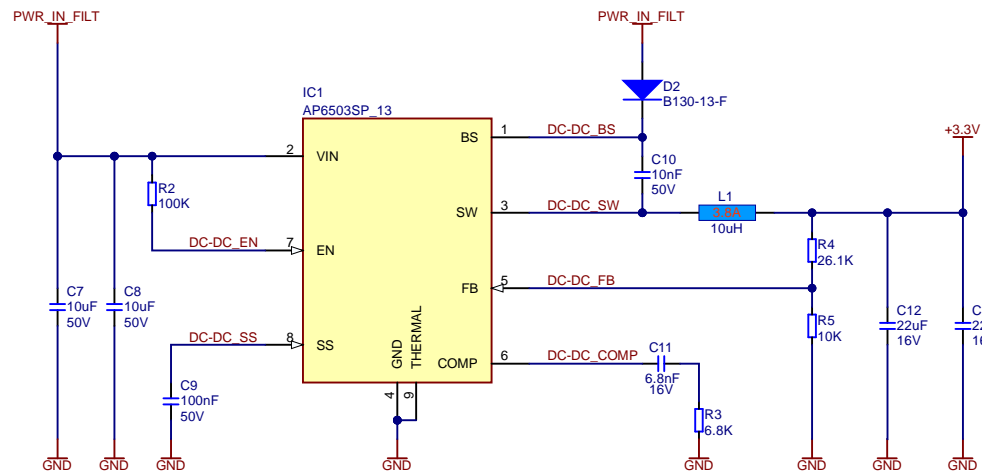


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Size: A3	Number: 2	Revision: V1.1	
Date: 8/8/2022	Time: 8:12:11 PM	Sheet 2 of 17	
File: HardwareArchitecture.SchDoc			

Input Power- Overvoltage Protection and EMI Filter



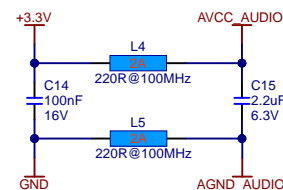
DC/DC Buck Regulator: PWR_IN_FILT to 3.3V, 3A



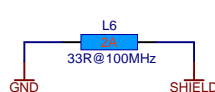
Input Power- Power-On Indication



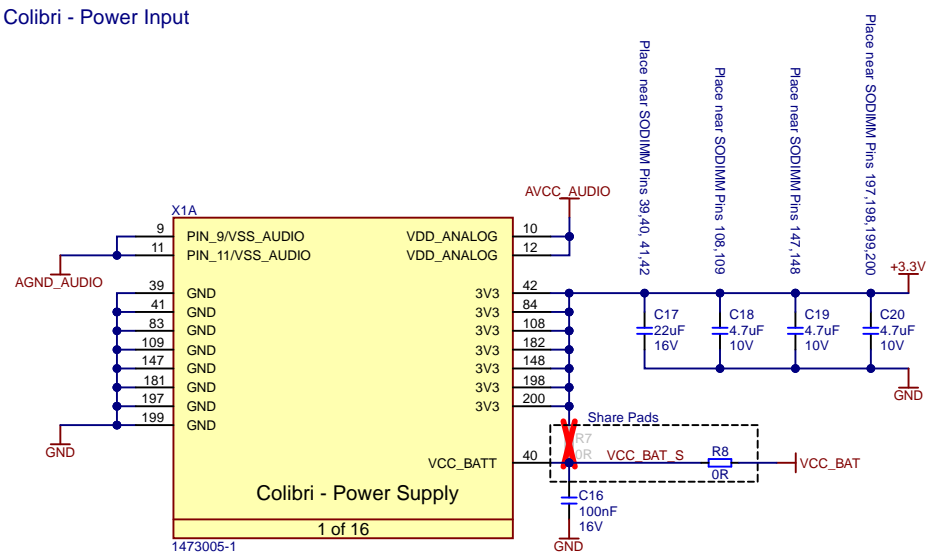
Analogue/Audio Power



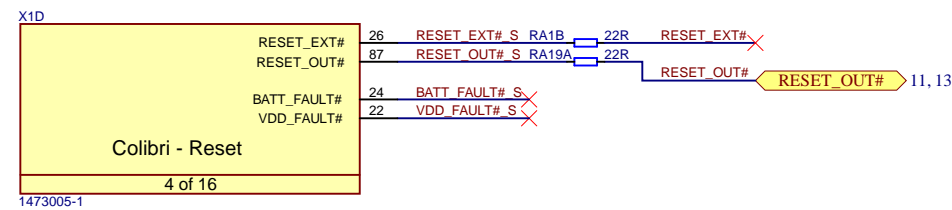
ESD Shield

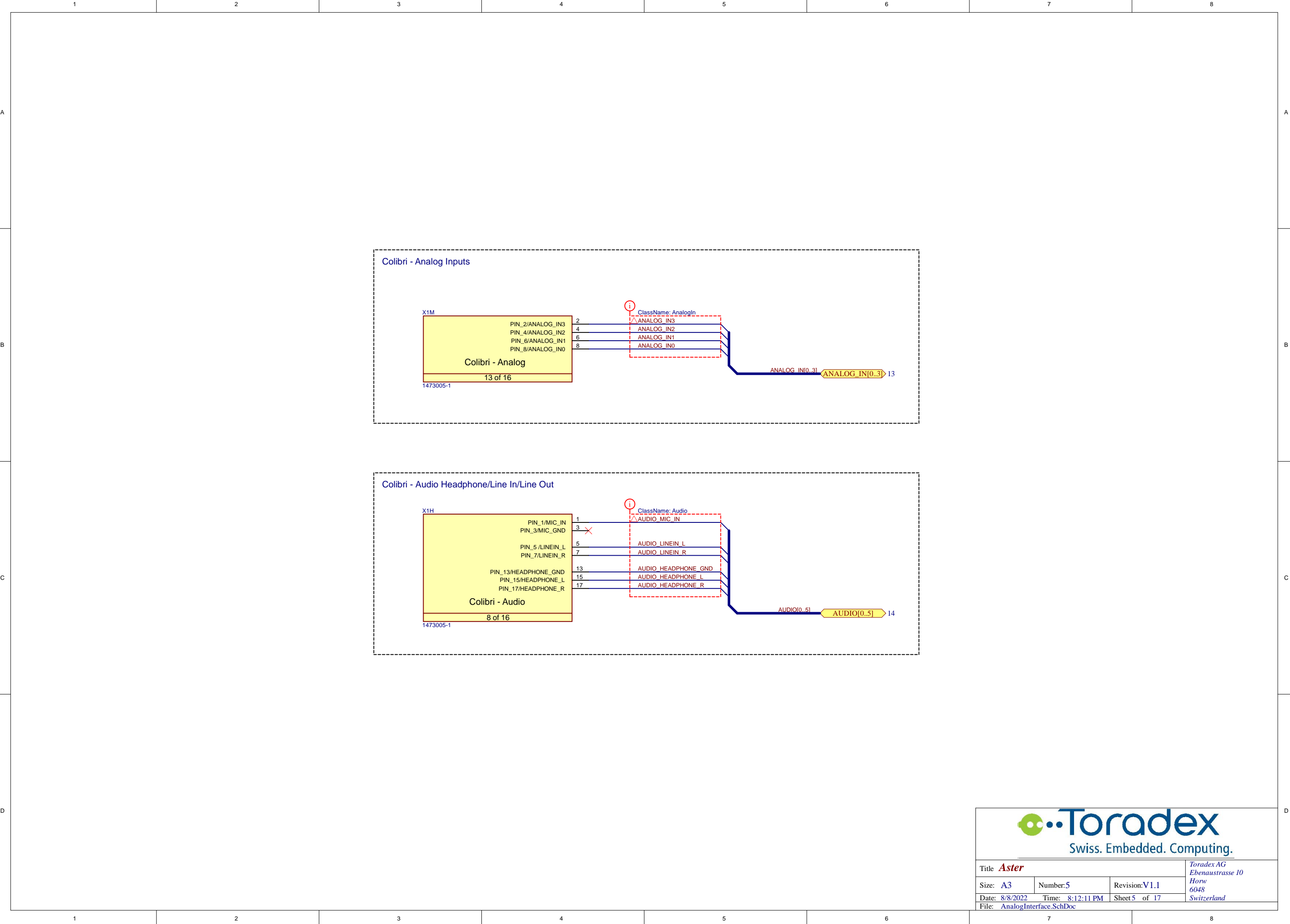


Colibri - Power Input



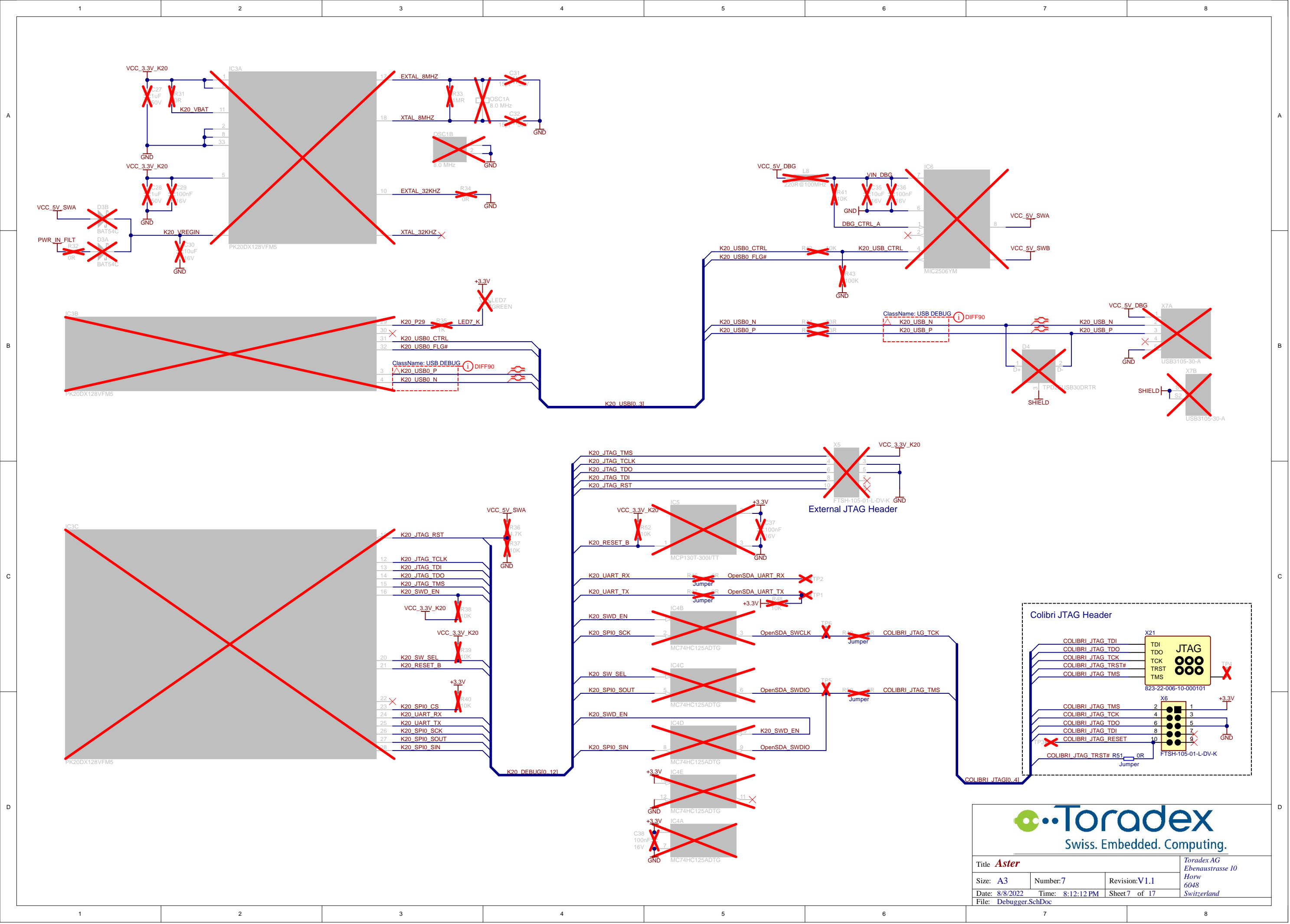
Colibri - Power Reset and Control

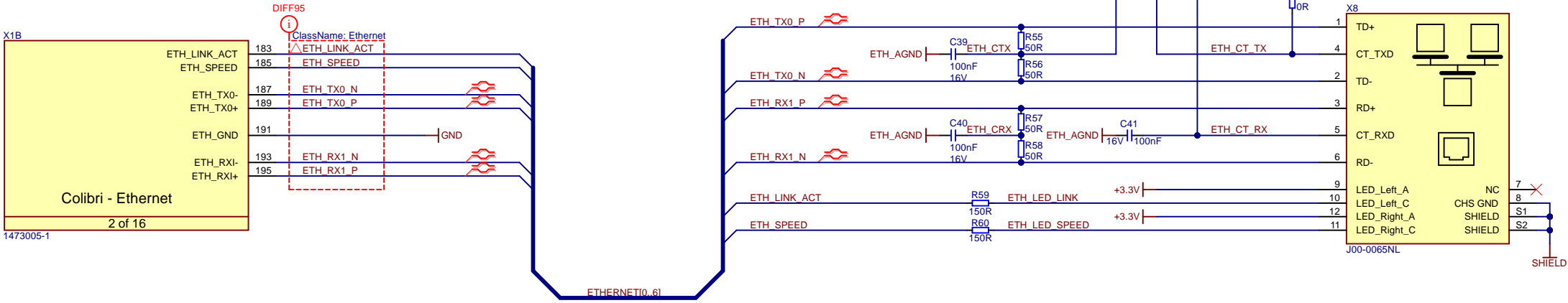




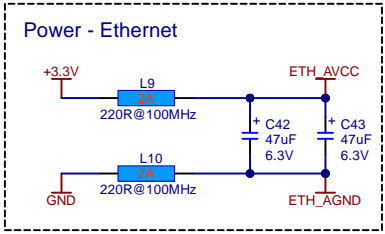


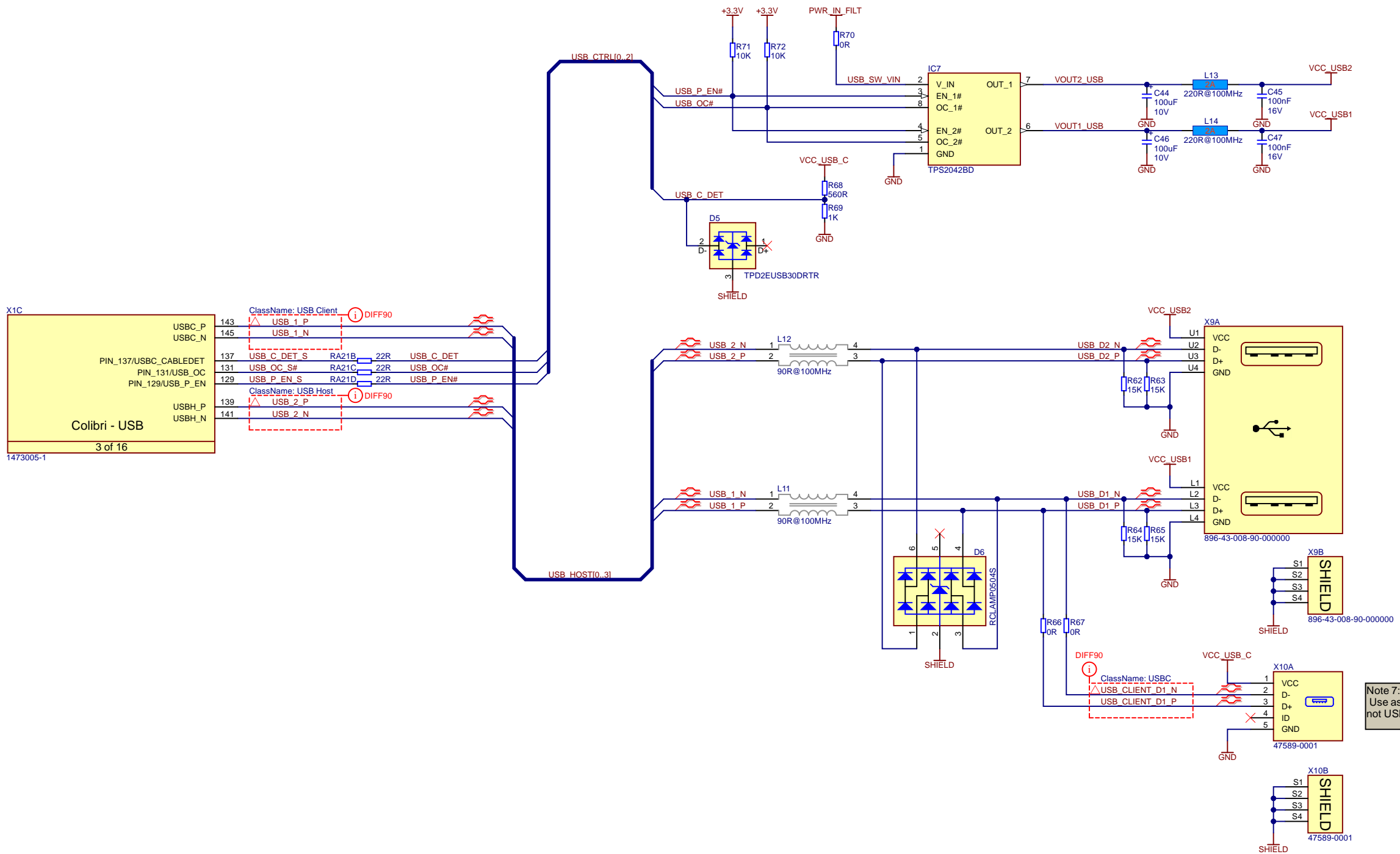
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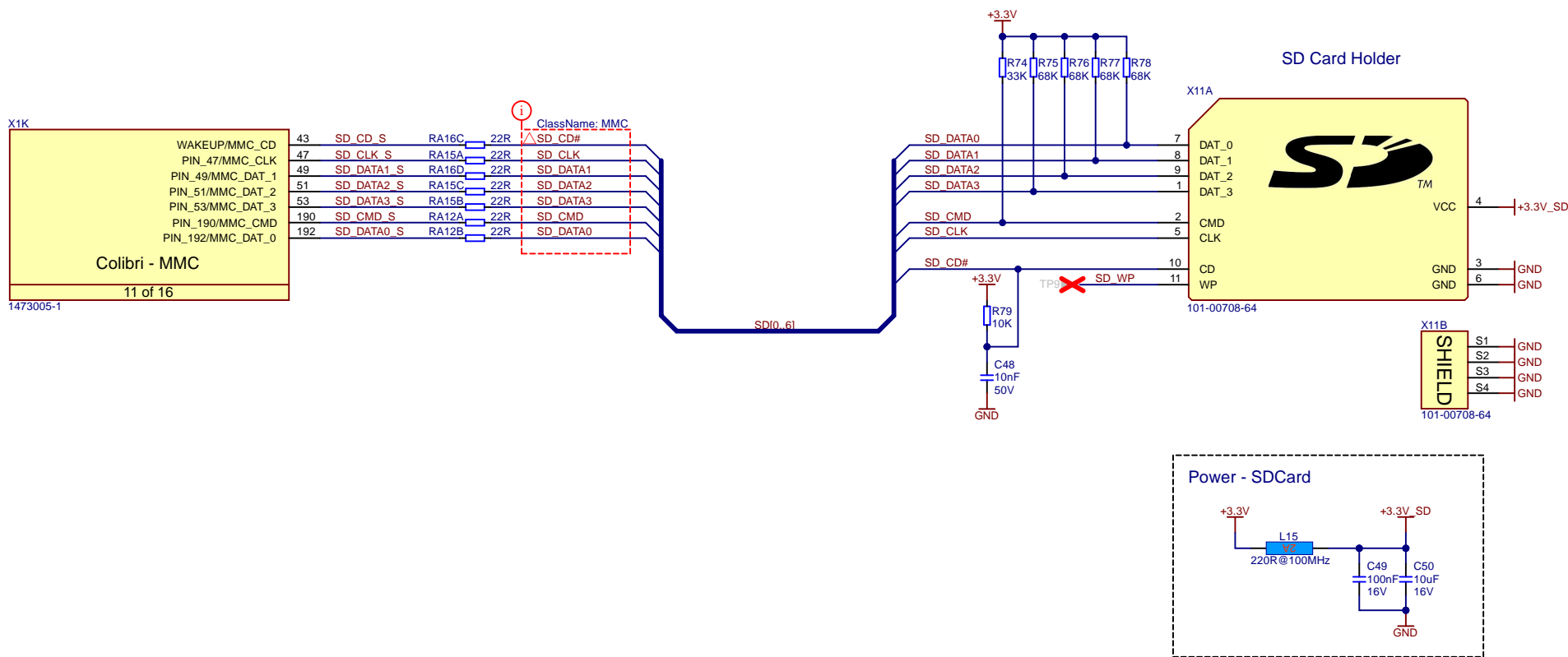


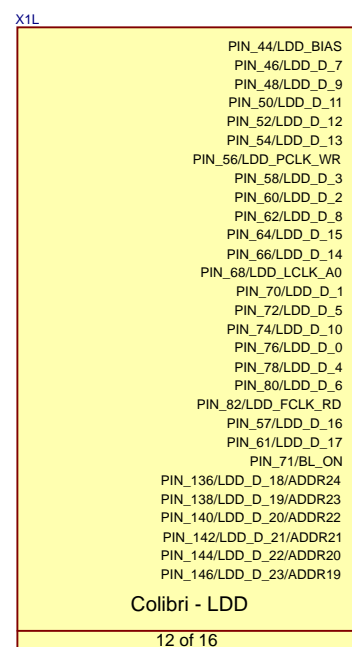


WARNING:
The LED signals are prone to backfeed to the module if the Ethernet PHY rails are powered off while the carrier board rails are still on. Therefore, decoupling the ETH_LINK_ACT and ETH_SPEED signals from the LEDs is recommended. To prevent ETH LED backfeeding issues an external buffer circuit is required. Check the relevant section of the Colibri Carrier Board Design Guide for details.

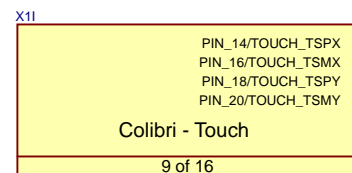








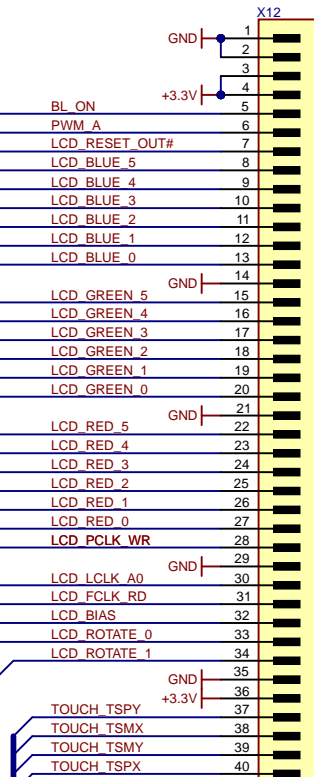
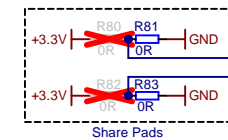
1473005-1
Colibri - RGB Display Signals



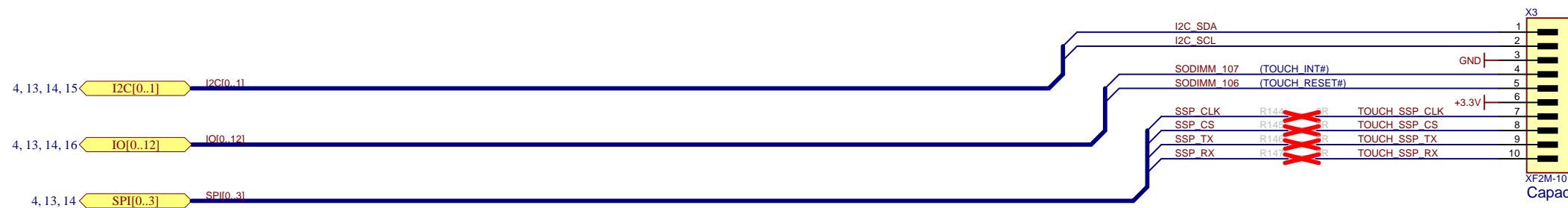
1473005-1
Colibri - Display Touch Signals

LCD COLOR MAPPING 18bps

LCD_D_0_S	-->	LCD_BLUE_0
LCD_D_1_S	-->	LCD_BLUE_1
LCD_D_2_S	-->	LCD_BLUE_2
LCD_D_3_D	-->	LCD_BLUE_3
LCD_D_4_D	-->	LCD_BLUE_4
LCD_D_5_D	-->	LCD_BLUE_5
LCD_D_6_D	-->	LCD_GREEN_0
LCD_D_7_D	-->	LCD_GREEN_1
LCD_D_8_D	-->	LCD_GREEN_2
LCD_D_9_D	-->	LCD_GREEN_3
LCD_D_10_D	-->	LCD_GREEN_4
LCD_D_11_D	-->	LCD_GREEN_5
LCD_D_12_D	-->	LCD_RED_0
LCD_D_13_D	-->	LCD_RED_1
LCD_D_14_D	-->	LCD_RED_2
LCD_D_15_D	-->	LCD_RED_3
LCD_D_16_D	-->	LCD_RED_4
LCD_D_17_D	-->	LCD_RED_5



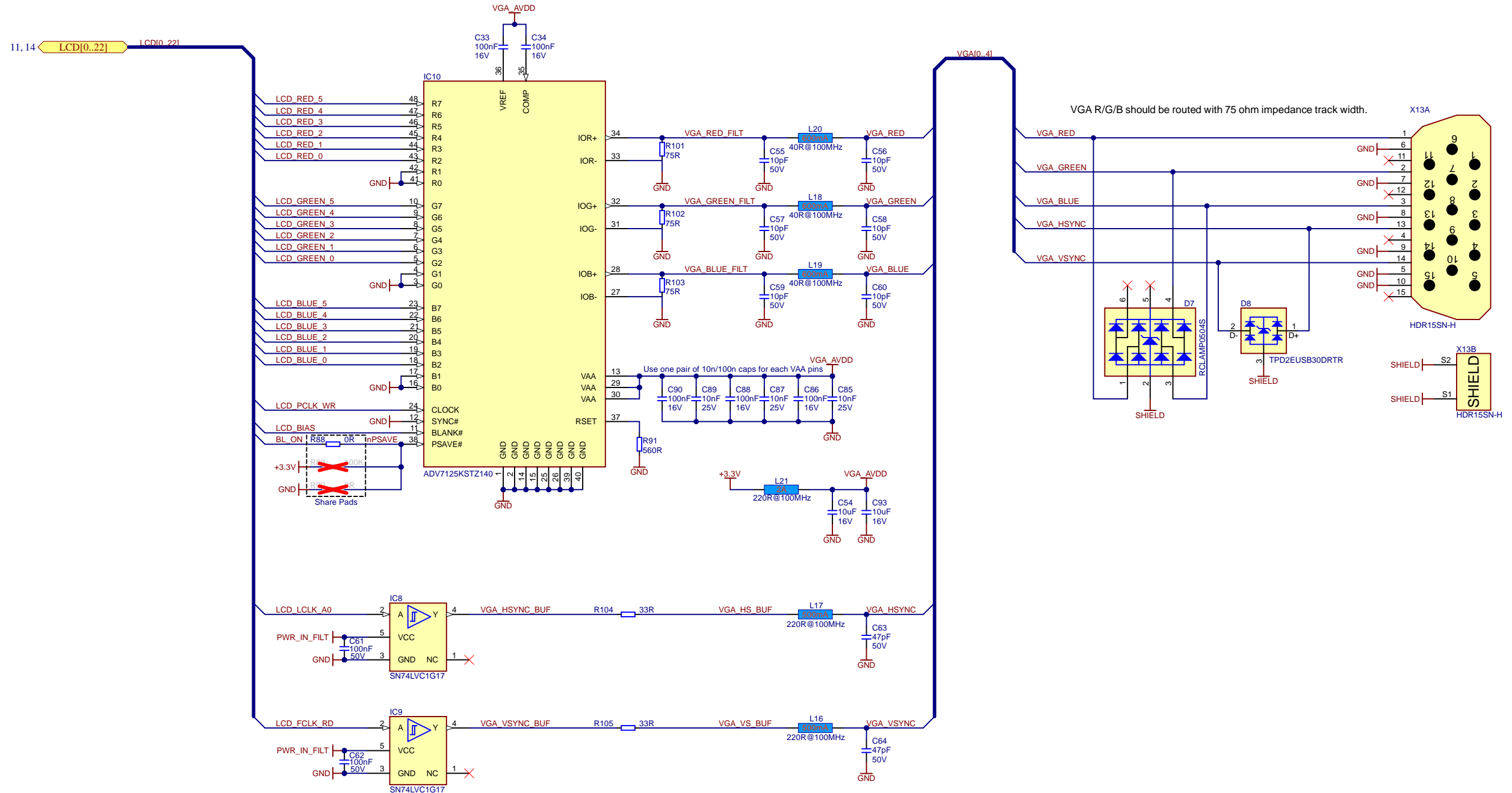
XF2M-4015-1A
Unified Interface Display Connector

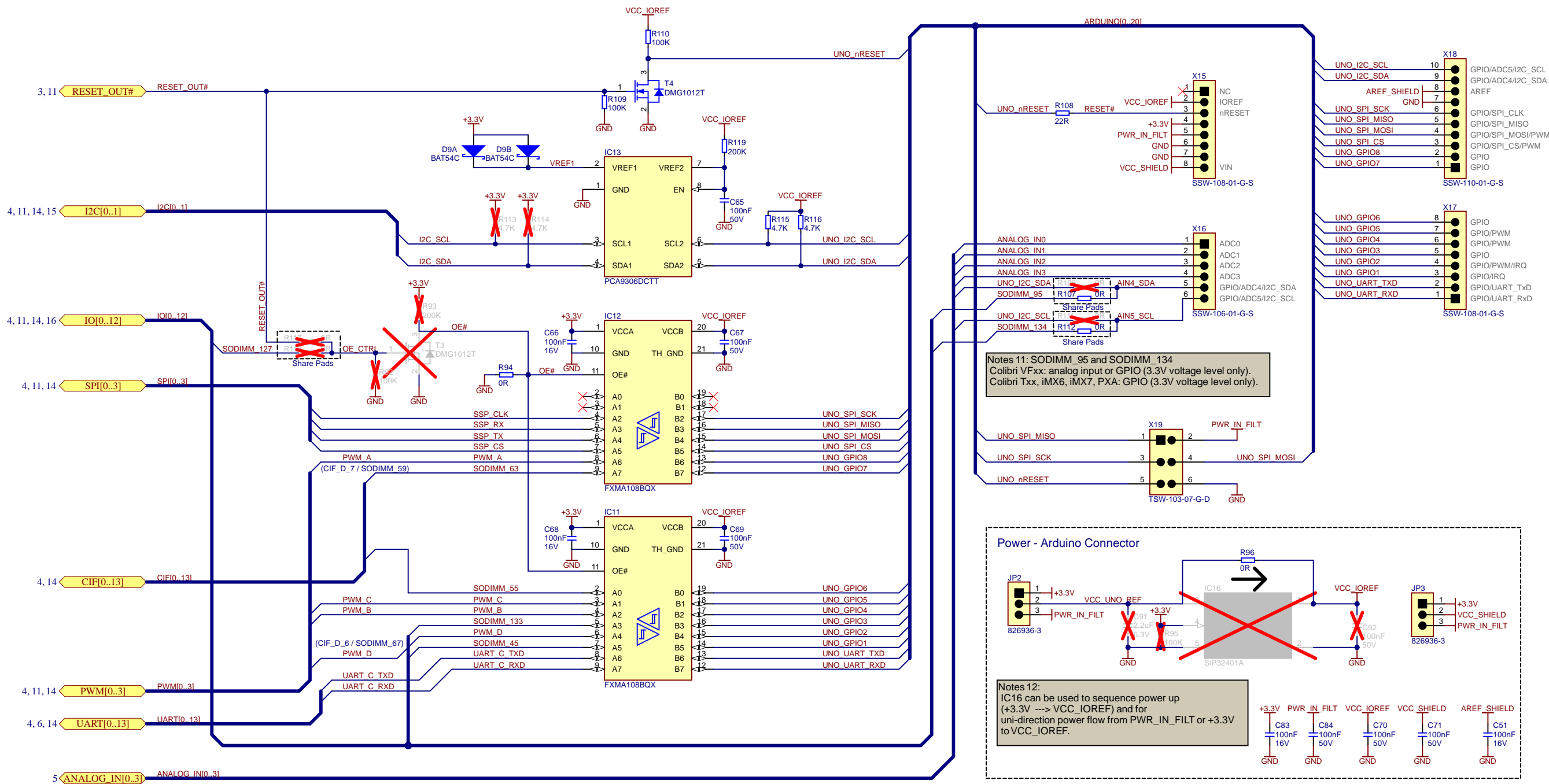


XF2M-1015-1A
Capacitive Touch Interface Connector



Title Aster			Toradex AG Ebenastrasse 10 Horw 6048 Switzerland
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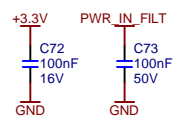
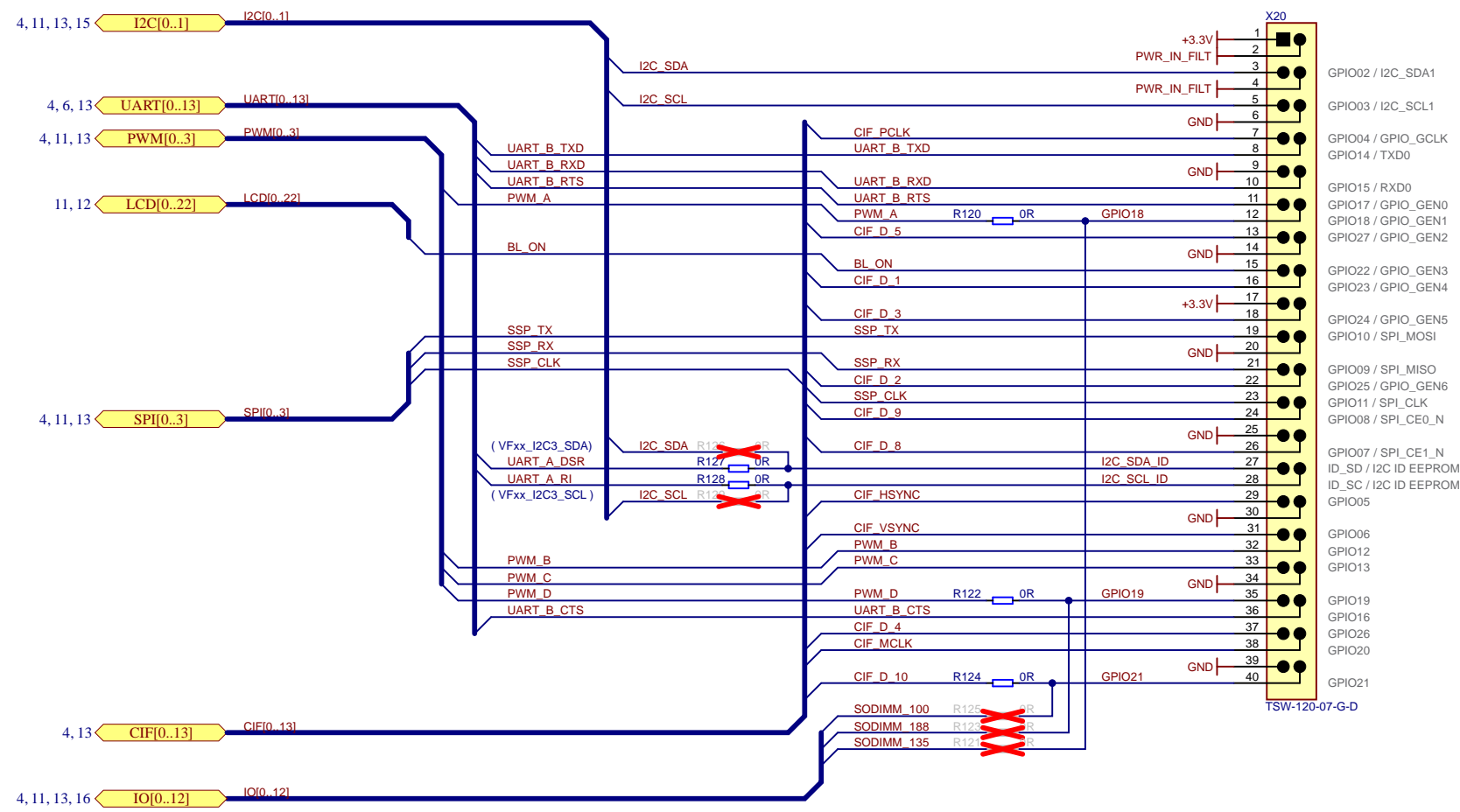
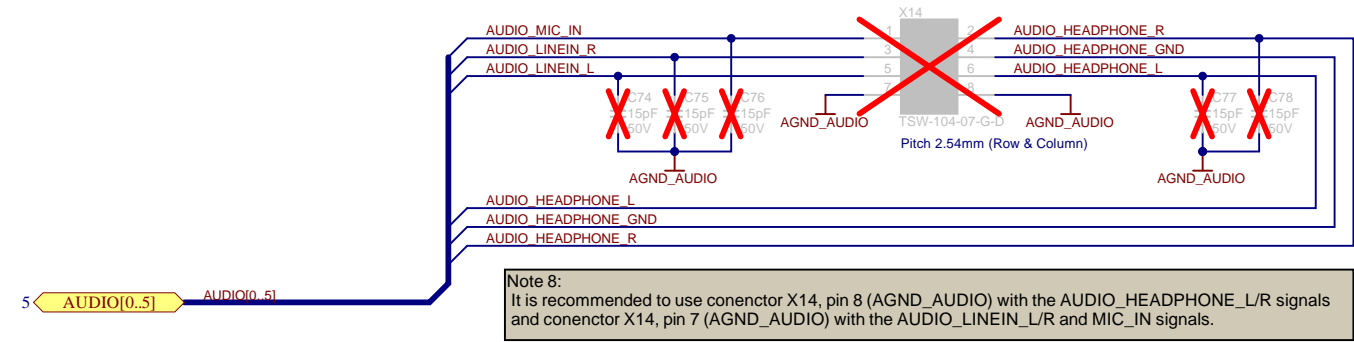


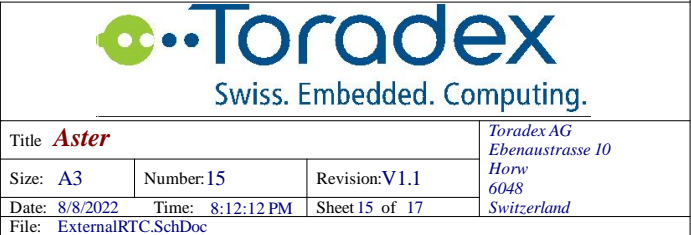


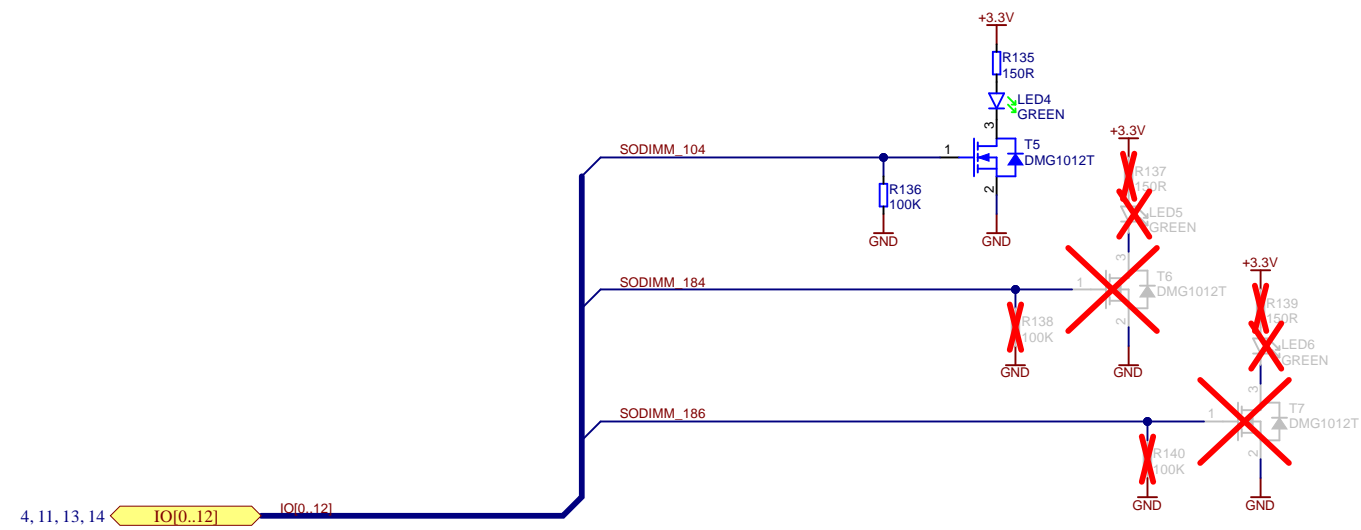
Recommended Power Up: Voltage Level Translator (IC11 and IC12)

- 1) Apply power to the VCCA (side-A)
- 2) Apply power to the VCCB (side-B)
- 3) Drive the OE# input LOW to enable the device

Don't use pull-up or pull-down resistors with the voltage level translator. This device has bus-hold circuits: pull-up or pull-down resistors are not recommended because they interfere with the output state. The current through these resistors may exceed the hold drive and bus hold currents. The bus hold feature eliminated the need for external resistor.







Title <i>Aster</i>			Toradex AG Ebenastrasse 10
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