

VAR-MX6CustomBoard



CONTENT

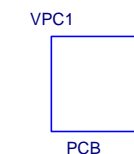
PAGE NO.	SCHEMATIC PAGE
1	Cover
2	Block Diagram
3	VAR-SOM-MX6
4	Display ,Touch
5	USB
6	SATA ,PCIe, G.ETH
7	Peripherals
8	DVK Debug Ethernet & Serial
9	DVK Exp. Connectors
10	Power & Mechanics

Disclaimer:

Schematics are for reference only.
 Variscite LTD provides no warranty for the use of these schematics.
 Schematics are subject to change without notice.

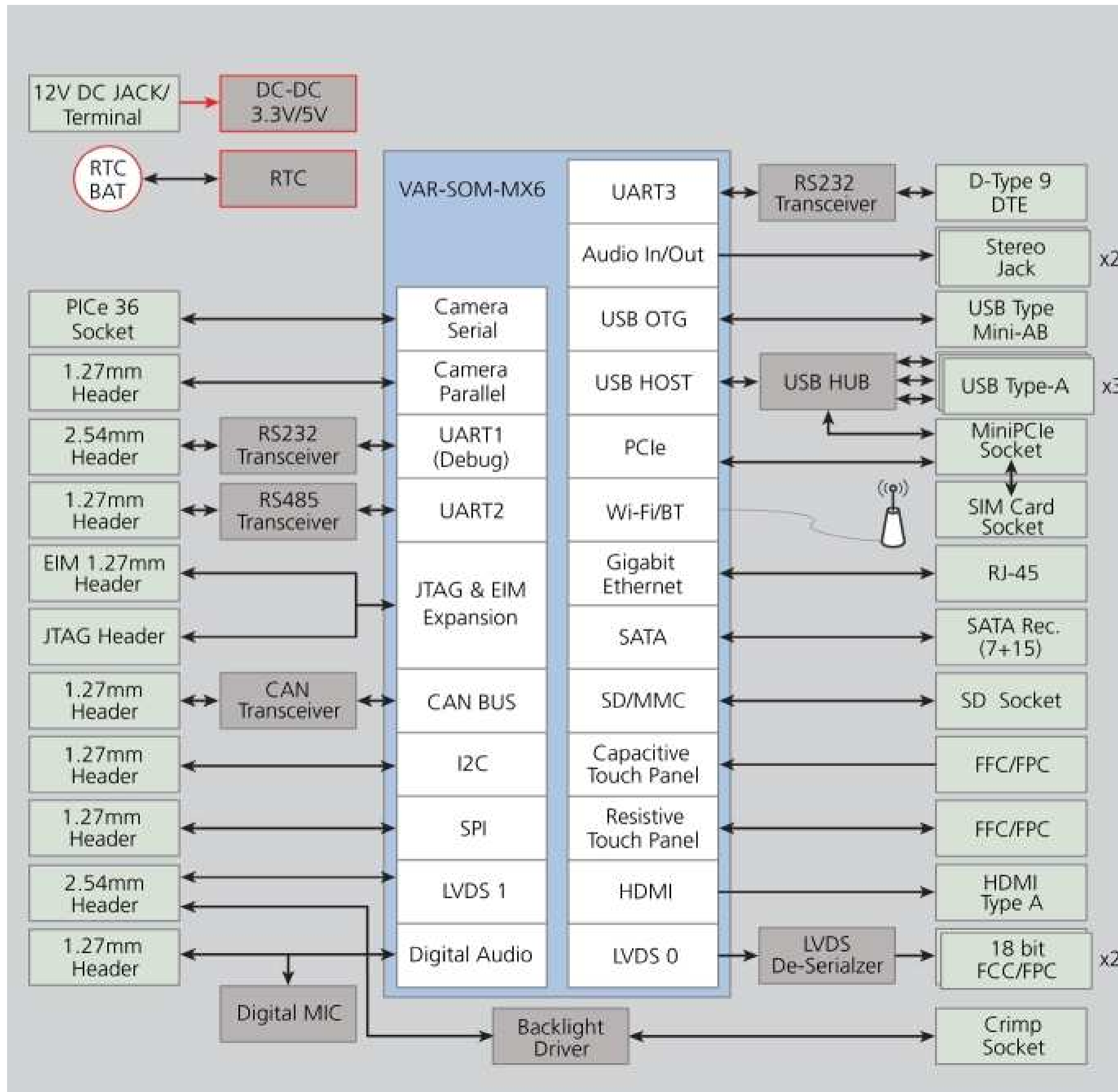
Revision History

Rev 1.02	Initial
Rev 1.02A	U22- NC, short pin 7,8 U17- NC (Accelerometer) SATA Power Limitation Note
Rev 1.1	SD card is powered directly from BASE_PER_3V3 Accelerometer - Removed USB OTG - Connector Changed to Micro USB
Rev 1.1A	USB hub power distribution pull ups removed RX1, RX2 resistor added on L14
Rev 1.1B	Inductor L9 changed to 15uH
Rev 1.1C	Changed: SOM Pin 52: GPIO3(26) SOM Pin 56: GPIO3(24)
Rev 1.1D	Changed: SOM Pin 94: GPIO1(4)
Rev 1.1E	CTS and RTS direction switch UART1, UART3
Rev 1.2	UART1 & UART3 Disable on reset added.
Rev 1.3	U27 PN and connection change R8 Pulled down
Rev 1.3A	R63 Assembled
Rev 1.3B	R63 removed Q2 changed
Rev 1.3B-V2	J25: pins: 40, 68-73 signal & pin rename according to SOM Rev 2.X
Rev 1.3C-V2	D3 P/N change
Rev 1.3D-V2	J25: Disconnected pin 40 from J17.B16 , signal rename



Title 01. Cover			
Size A3	Document Number VAR-MX6CustomBoard	Project VAR-MX6CustomBoard	Rev 1.3D-V2
Designer: <Designer>		Approved By: <Approved By>	
Date: Wednesday, December 17, 2014		Sheet 1 of 9	

02 - Block Diagram



Variscite

Title: 02. Block Diagram			
Size: A3	Document Number: VAR-MX6CustomBoard	Project: VAR-MX6CustomBoard	Rev: 1.3D-V2
Designer: <Designer>		Approved By: <Approved By>	
Date: Wednesday, December 17, 2014		Sheet: 2 of 9	

03. VAR-SOM-MX6

Alert! :

SOM pins 40,42 and 57 are used for boot strapping. Alter pull-up/down only after software is running

Alert! :

UART2_TXD, UART2_RXD - signals can be used only when Bluetooth interface is not used.

UART2_CTS, UART2_RTS - pins are shared with on SOM Bluetooth interface. Pins cannot be used when using a SOM with WiFi/BT module ssembled.

Alert! :

A delay should be added on RESET# signal to ensure RESET# is released after SOM voltage rails have stabilized. See reference design using U24.

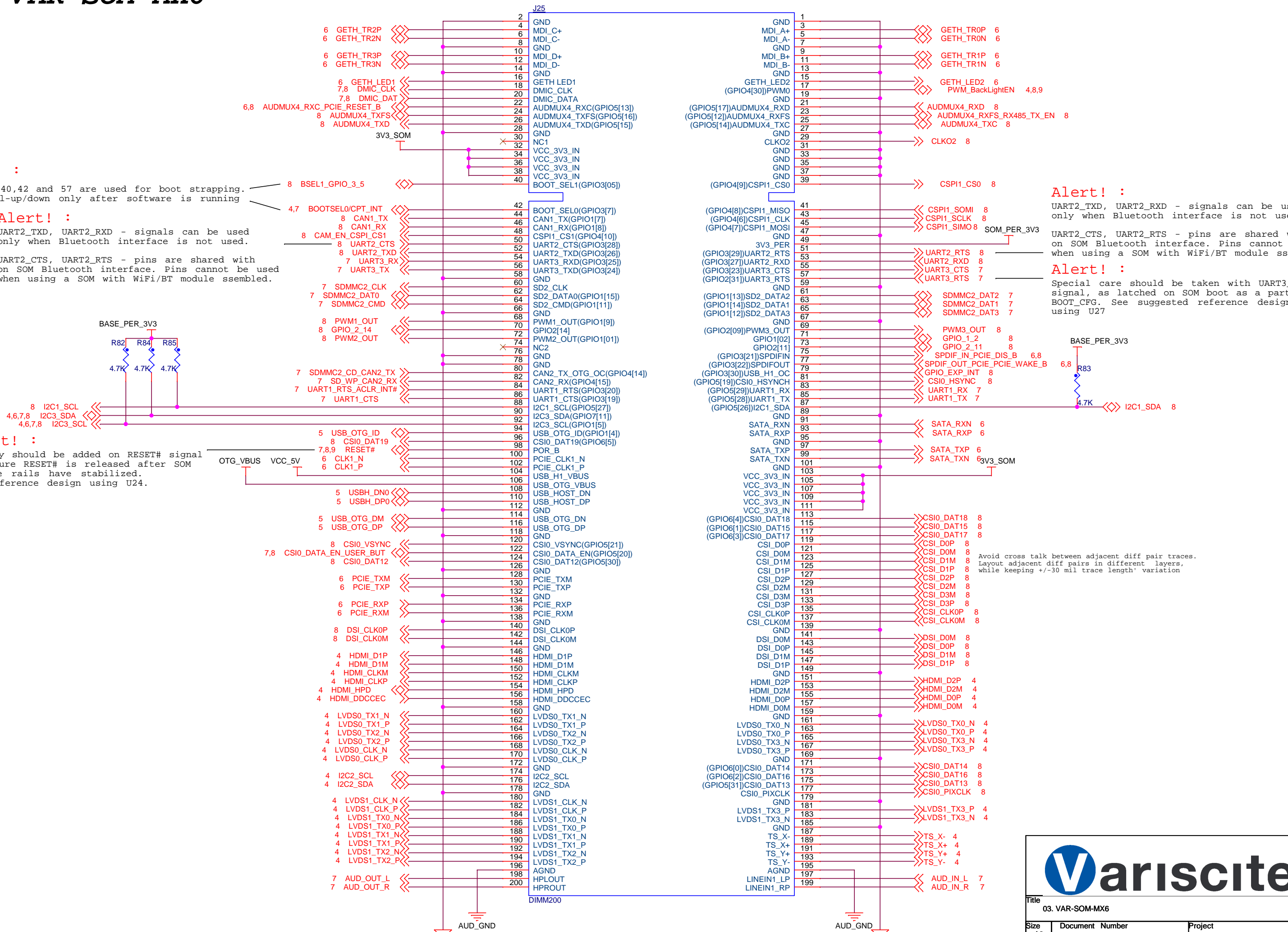
Alert! :

UART2_TXD, UART2_RXD - signals can be used only when Bluetooth interface is not used.

UART2_CTS, UART2_RTS - pins are shared with on SOM Bluetooth interface. Pins cannot be used when using a SOM with WiFi/BT module ssembled.

Alert! :

Special care should be taken with UART3_RTS signal, as latched on SOM boot as a part of BOOT_CFG. See suggested reference design using U27



Avoid cross talk between adjacent diff pair traces. Layout adjacent diff pairs in different layers, while keeping +/-30 mil trace length' variation

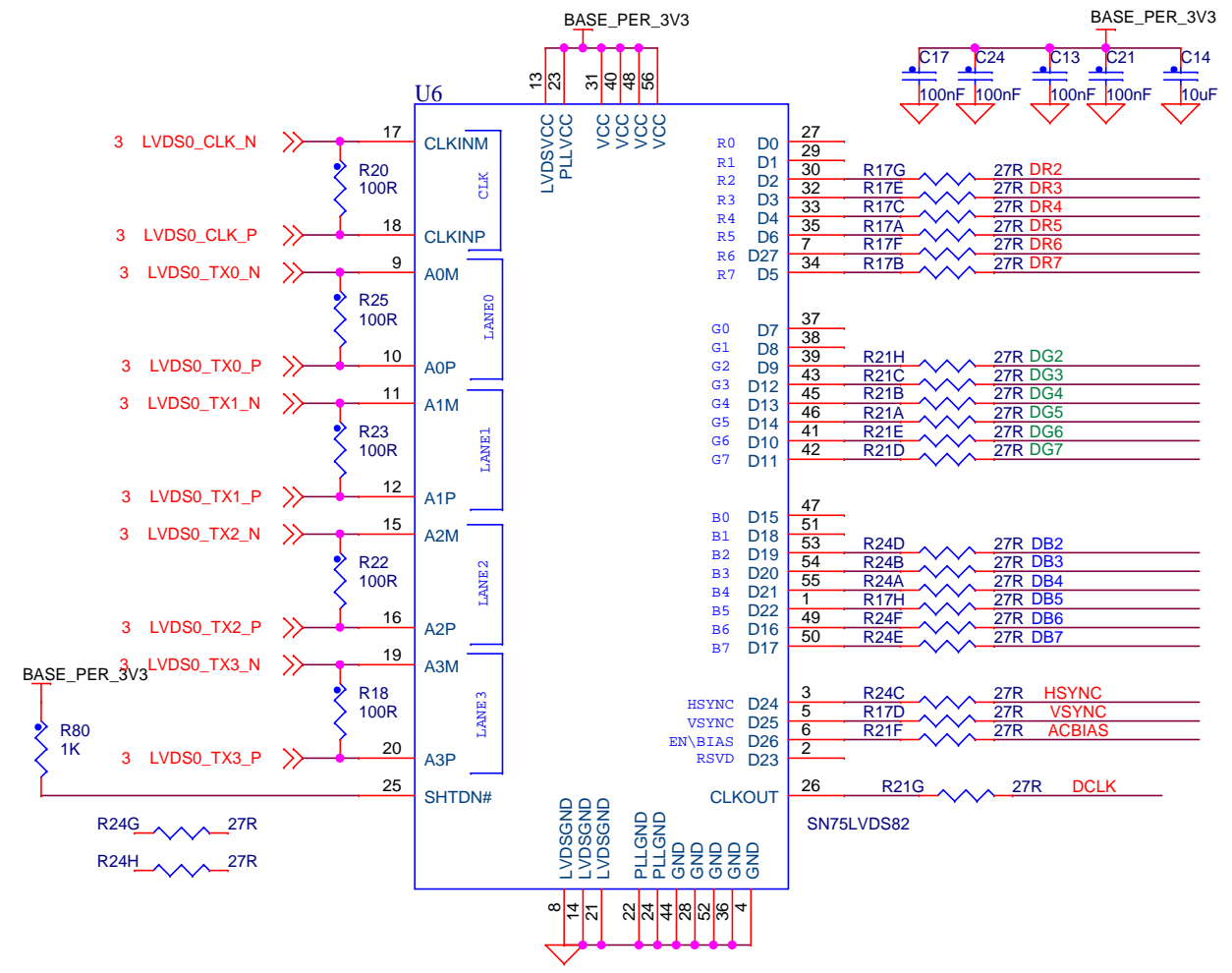
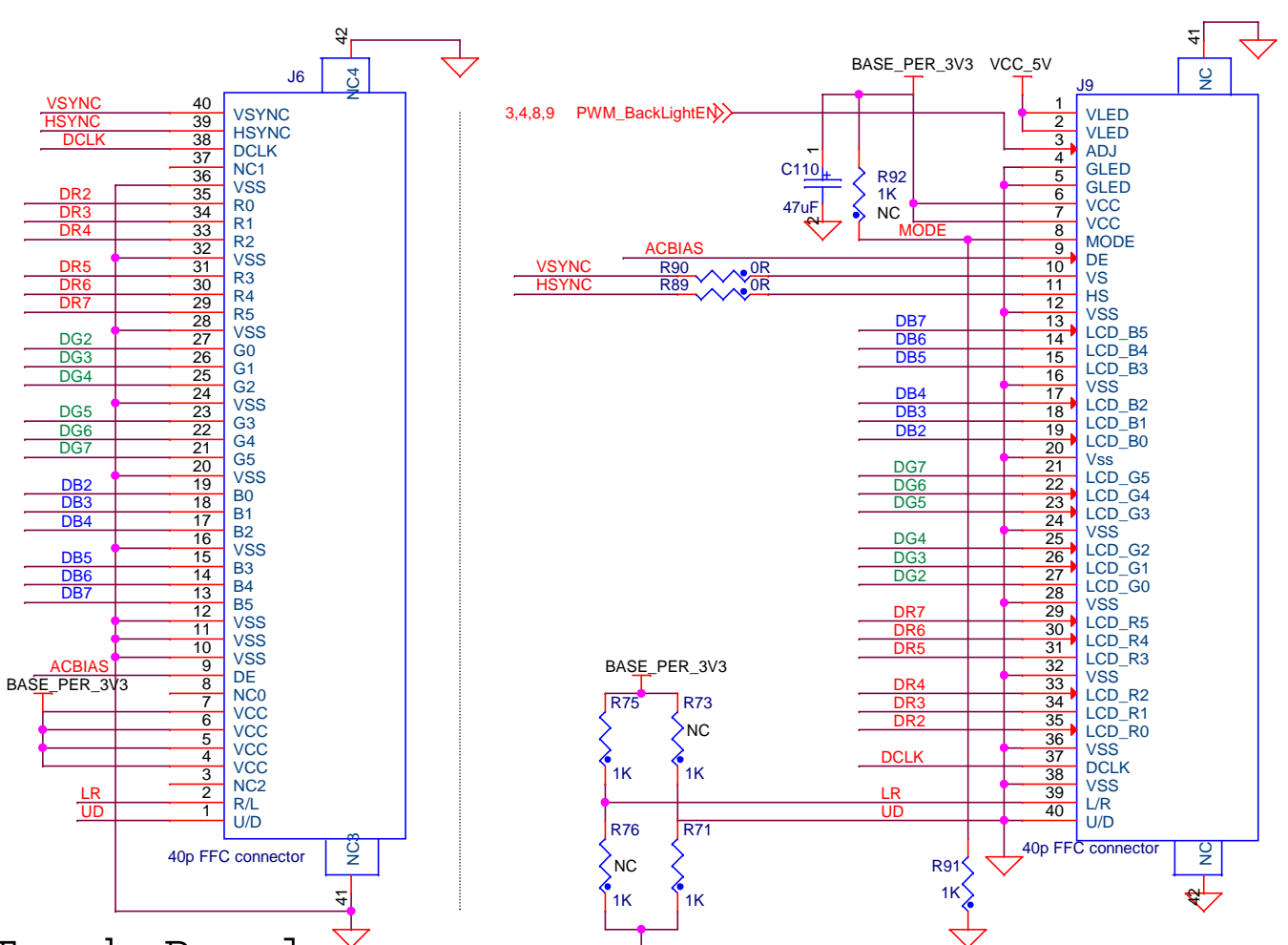


Title 03. VAR-SOM-MX6			
Size A3	Document Number VAR-MX6CustomBoard	Project VAR-MX6CustomBoard	Rev 1.3D-V2
Designer: Date: Wednesday, June 28, 2017	Approved By: Sheet 3 of 9		

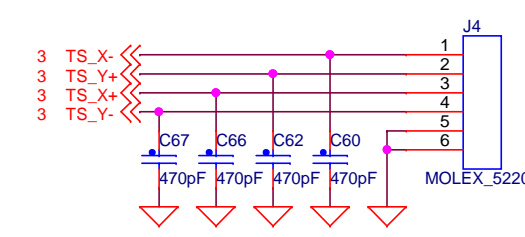
04. Display ,Touch

Parallel RGB (LVDS0)

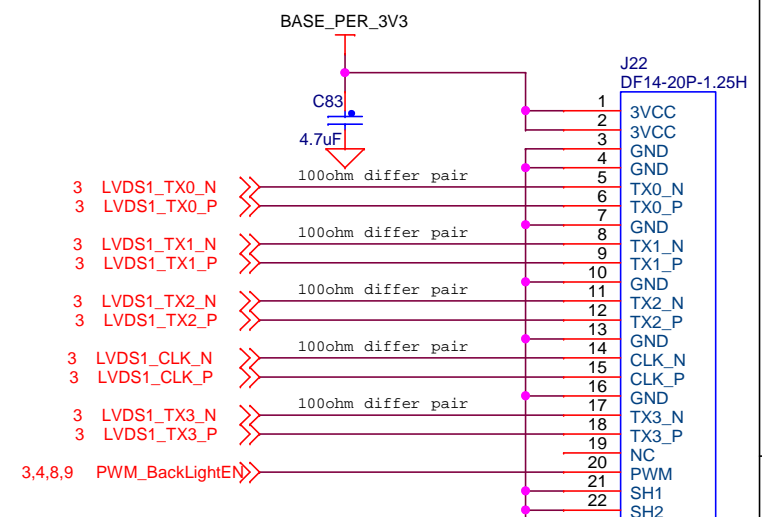
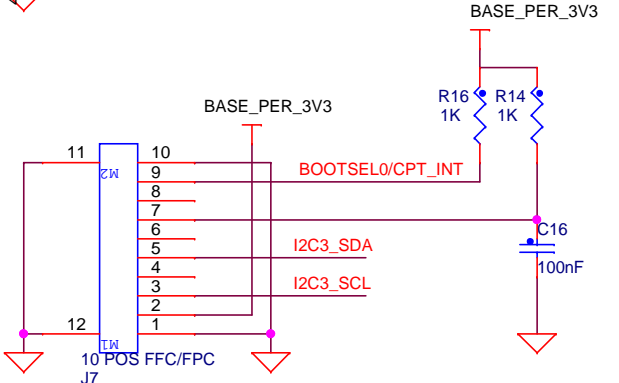
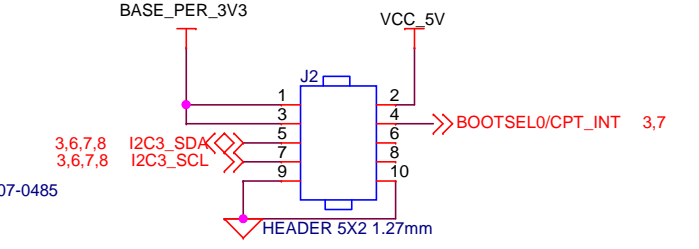
Parallel BUS FCC Connectors



Touch Panel Resistive

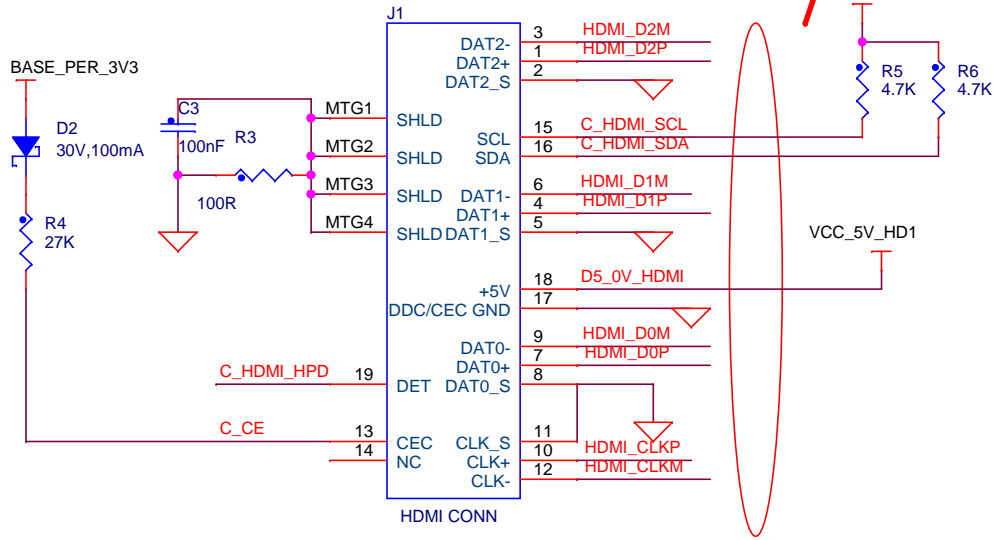


Capacitive



HDMI

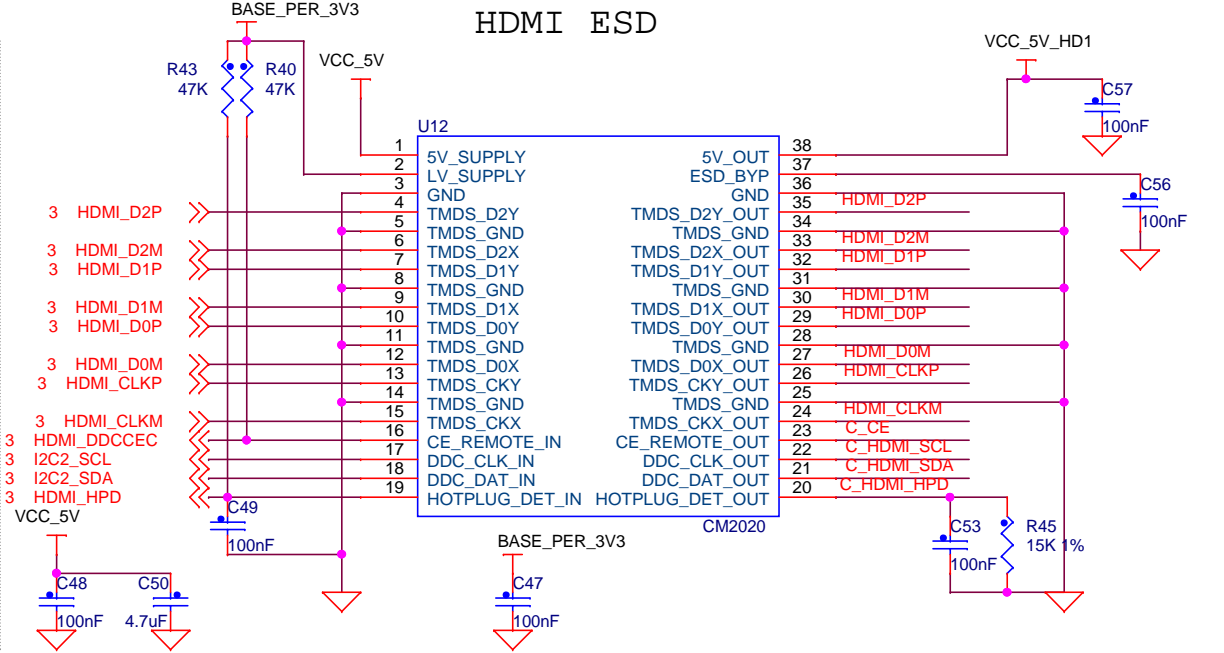
HDMI Connector



LAYOUT NOTE:

HDMI Differential Pairs, Follow HDMI routing guidelines. Differential Impedance: 100 ohms

HDMI ESD

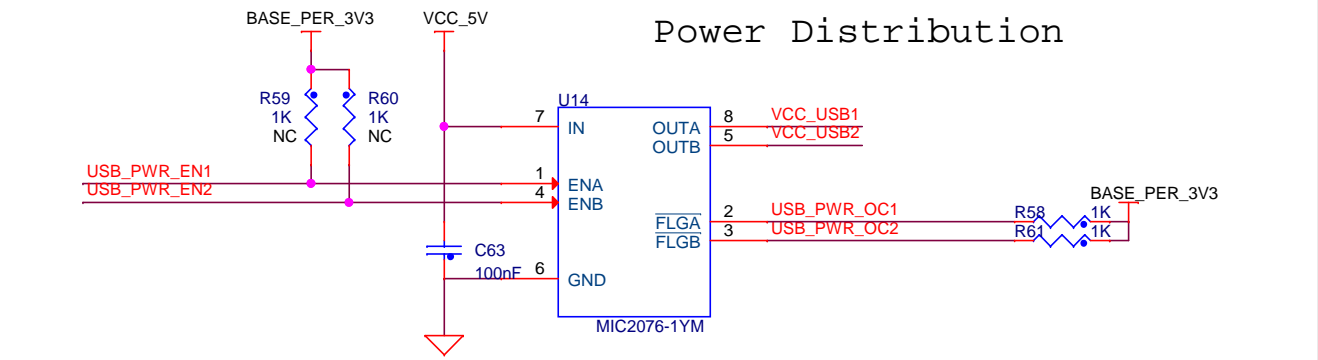
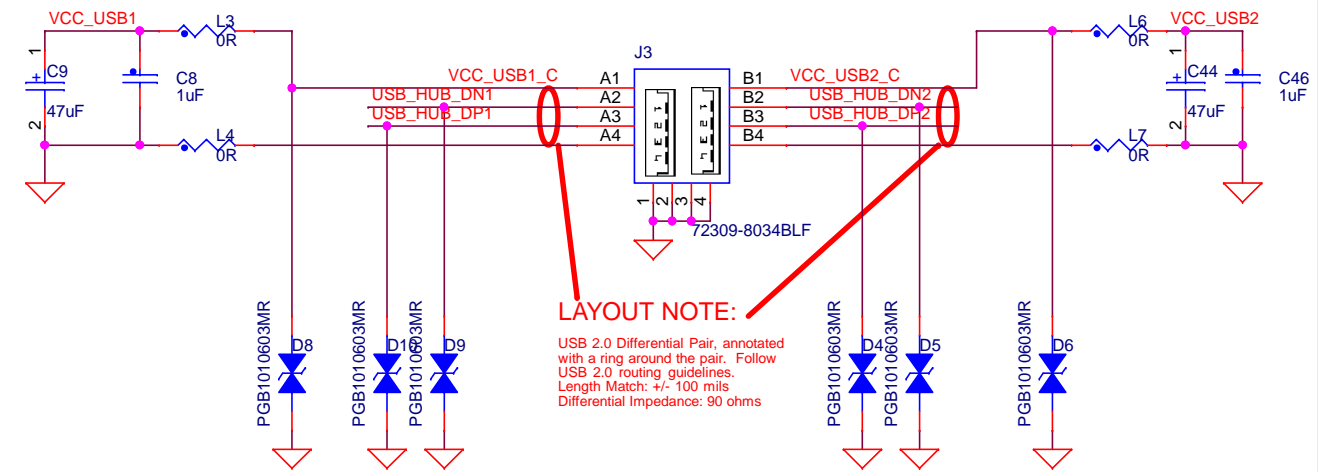


Title 04. Display ,Touch			
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Designer: Date: Thursday, July 23, 2015		Approved By: Sheet 4 of 9	

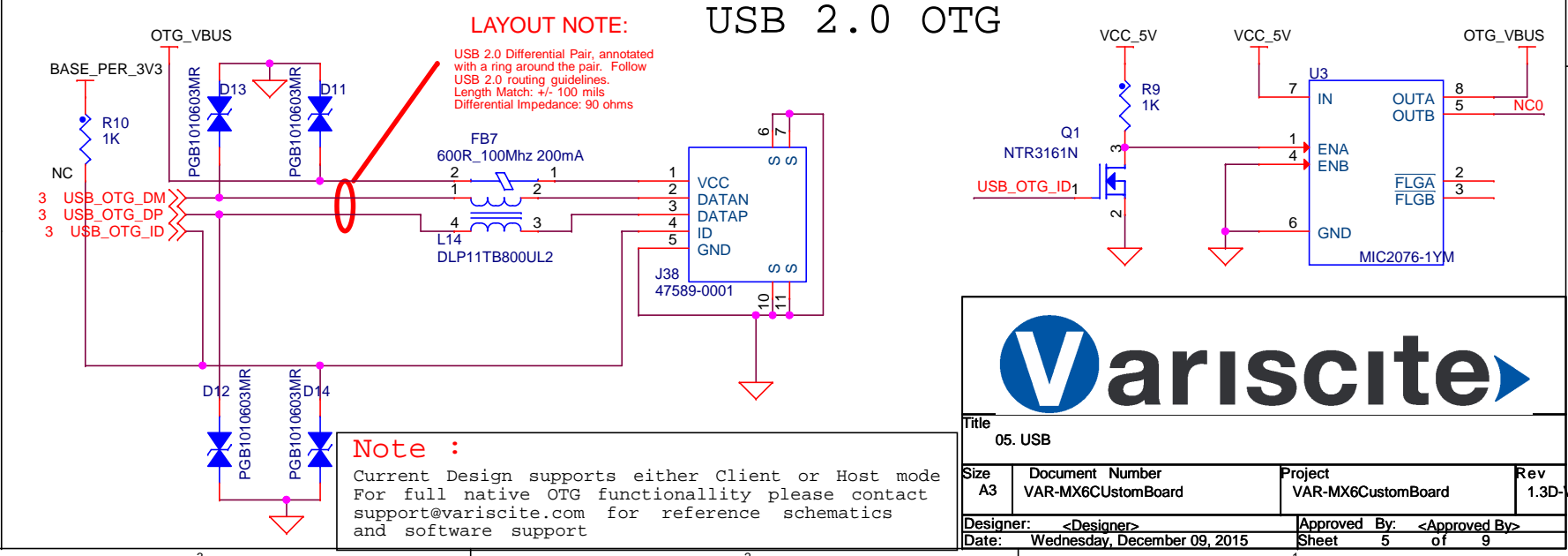
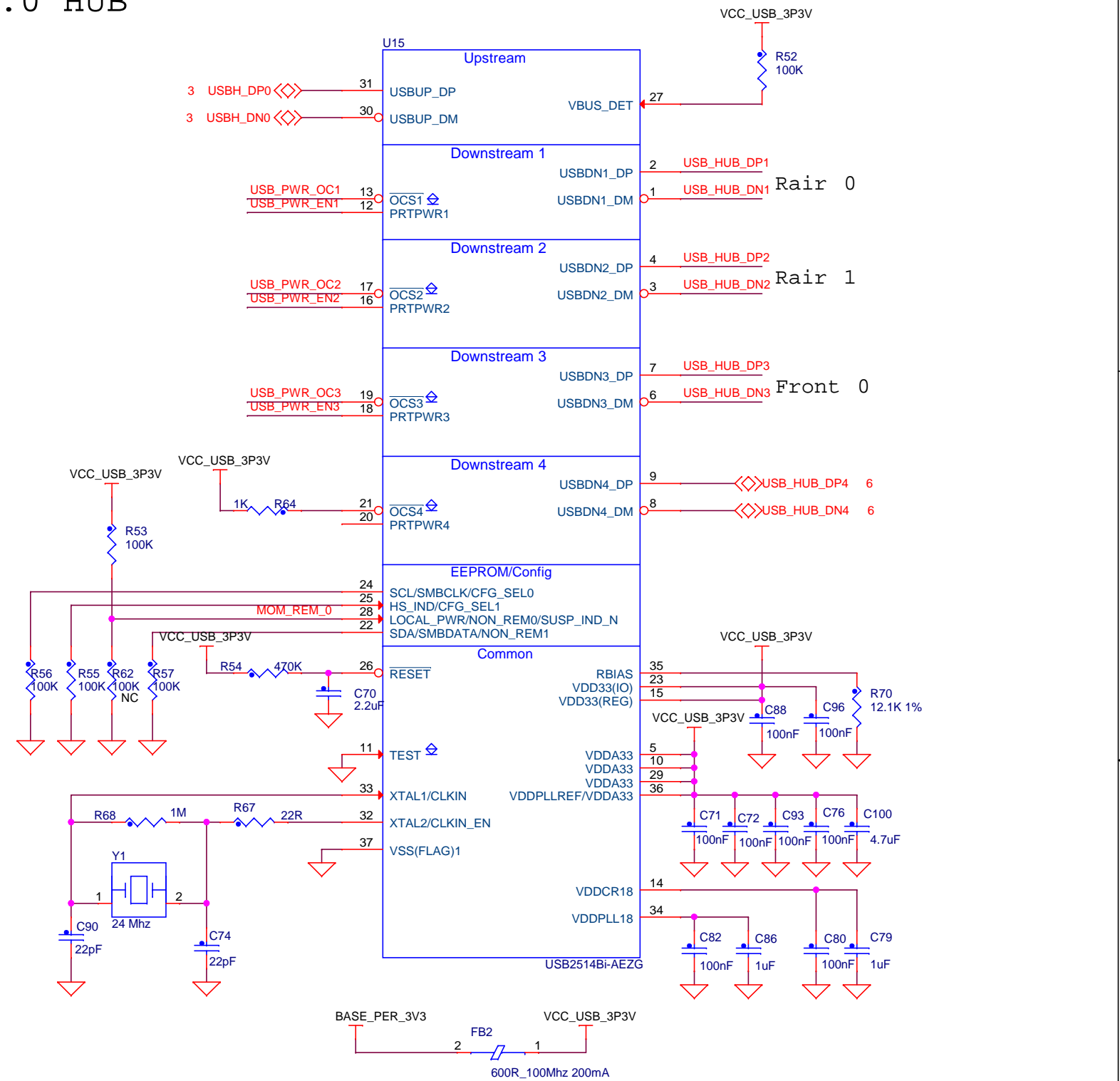
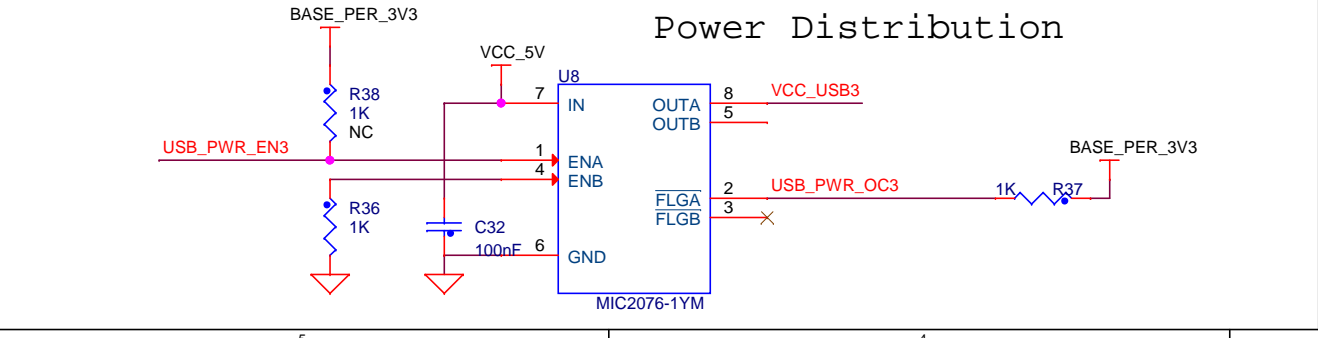
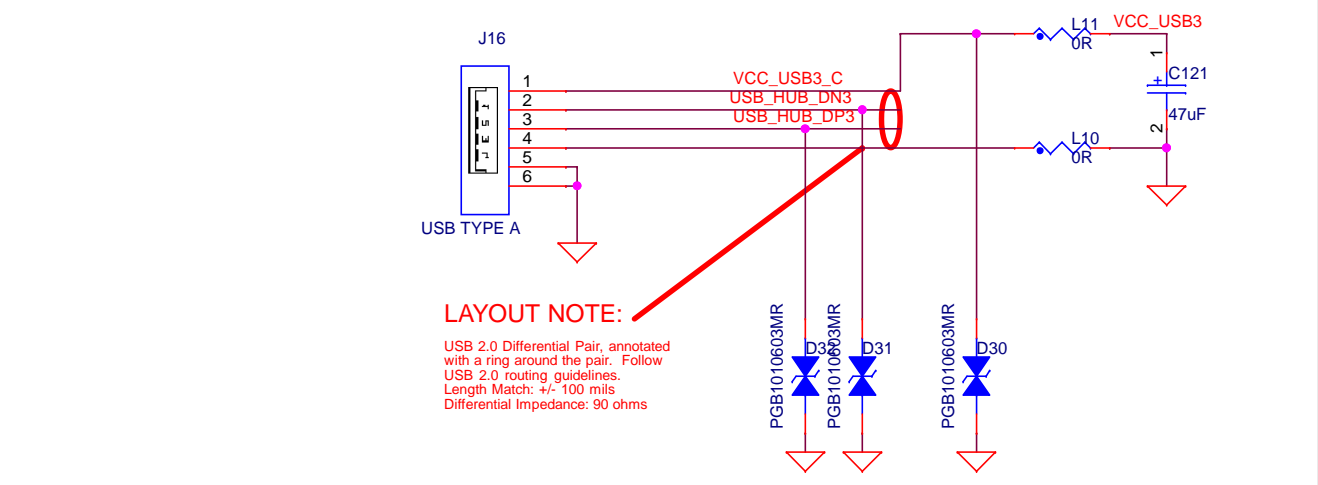
5. USB

USB 2.0 HUB

USB PORT 1-2 : 2 x USB 2.0 Host
Dual Type A Rear Panel



USB PORT 3 : 1 x USB 2.0 Type A Front Panel



05. USB

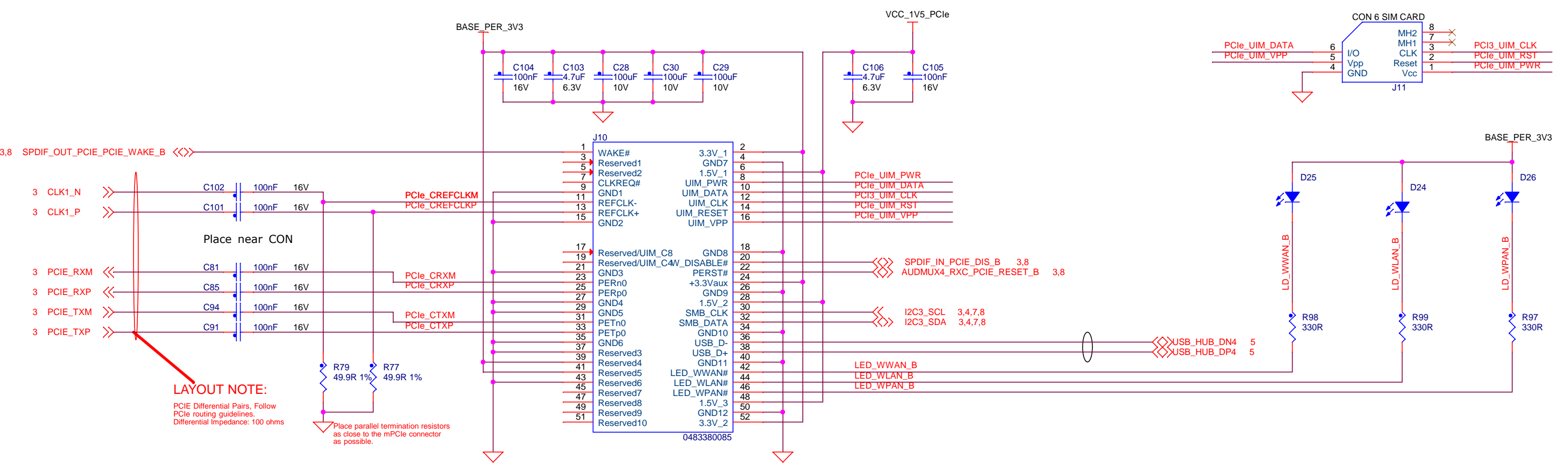
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Designer: <Designer>	Approved By: <Approved By>		
Date: Wednesday, December 09, 2015	Sheet 5 of 9		

06. SATA ,PCIE, G.ETH

Mini-PCIE

USIM Card

1.5V Current is limited to 300mA



LAYOUT NOTE:
PCIE Differential Pairs, Follow PCIE routing guidelines. Differential Impedance: 100 ohms

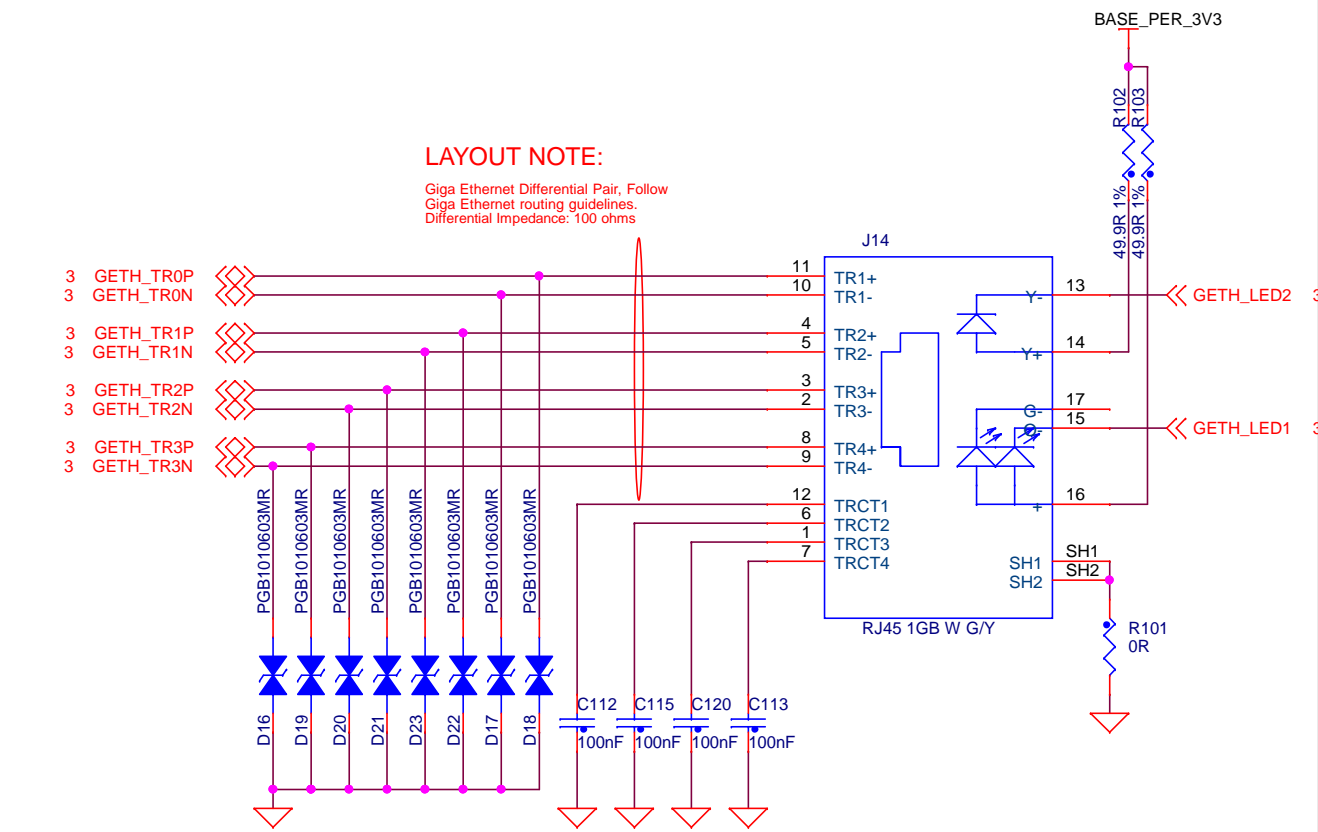
Place parallel termination resistors as close to the mPCIe connector as possible.

Giga Ethernet

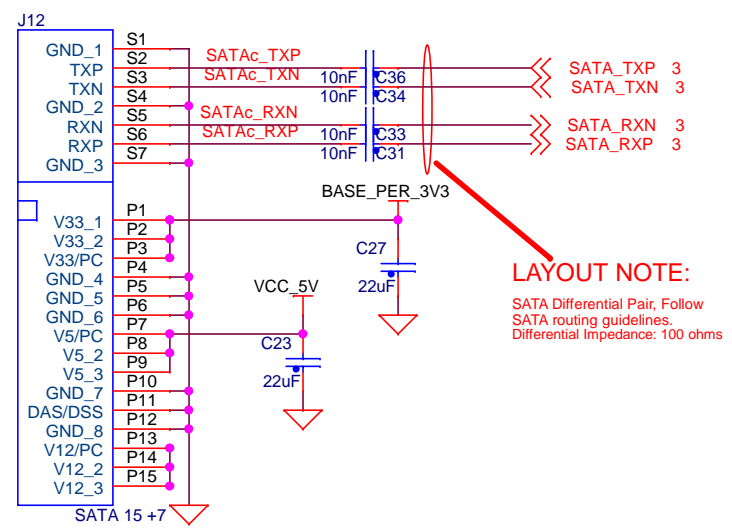
SATA

Customboard's 5V power supply is limited to 3A, shared with Board's USB and SATA devices. Do not connect devices which exceed current limitation.

SATA Connector - Receptacle



LAYOUT NOTE:
Giga Ethernet Differential Pair, Follow Giga Ethernet routing guidelines. Differential Impedance: 100 ohms



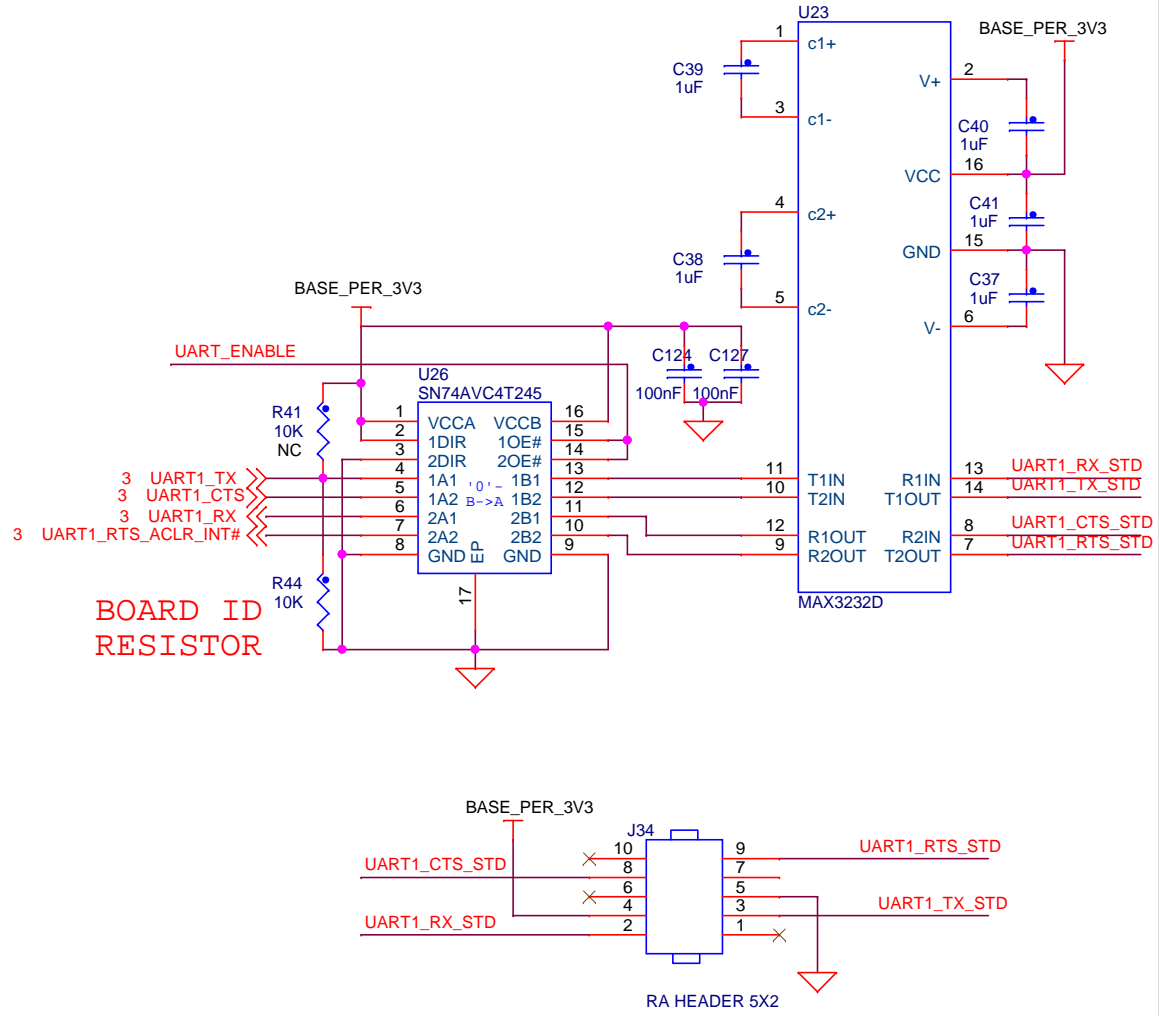
LAYOUT NOTE:
SATA Differential Pair, Follow SATA routing guidelines. Differential Impedance: 100 ohms



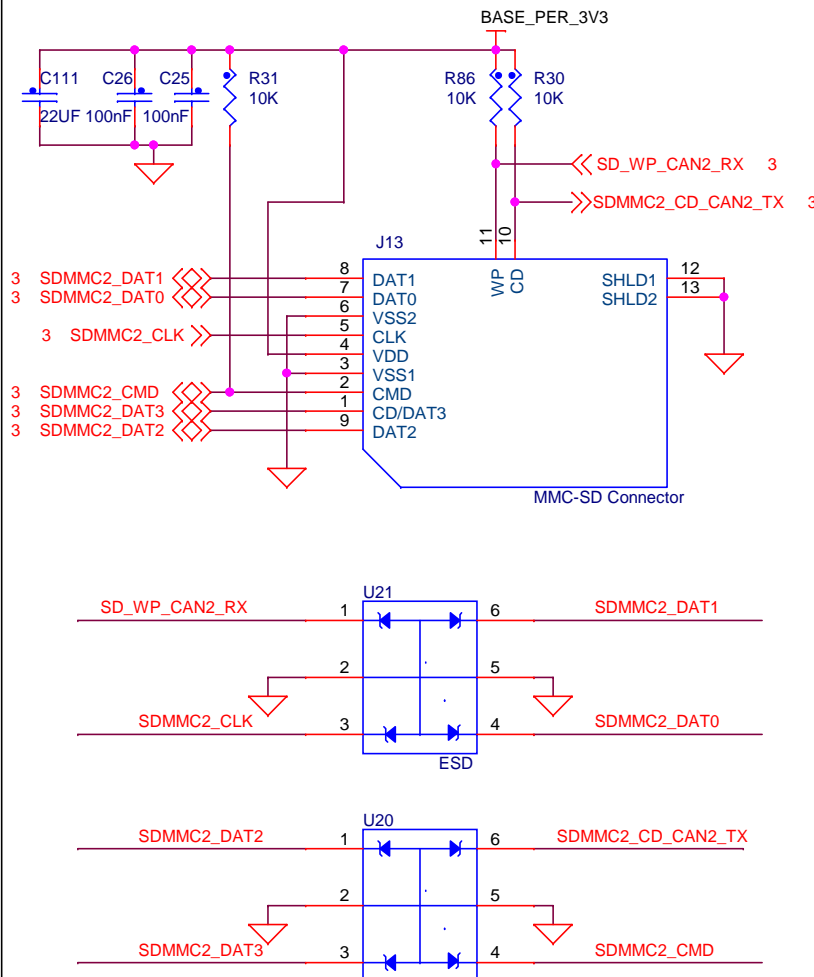
Title 06. SATA ,PCie, G.ETH			
Size A3	Document Number VAR-MX6CustomBoard	Project VAR-MX6CustomBoard	Rev 1.3D-V2
Designer: <Designer>		Approved By: <Approved By>	
Date: Wednesday, December 17, 2014		Sheet 6 of 9	

07. Peripherals

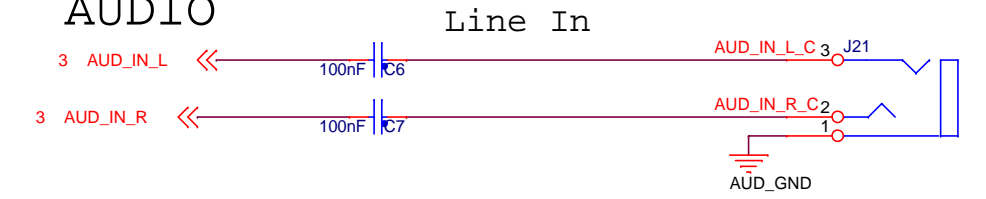
UART1- RS232 Debug



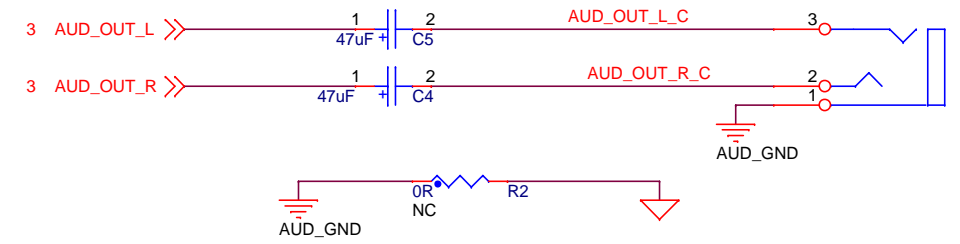
SD-Card



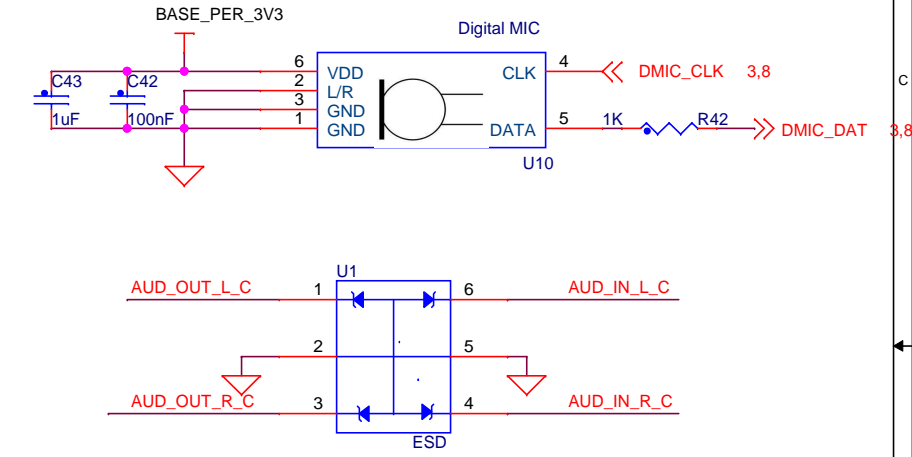
AUDIO



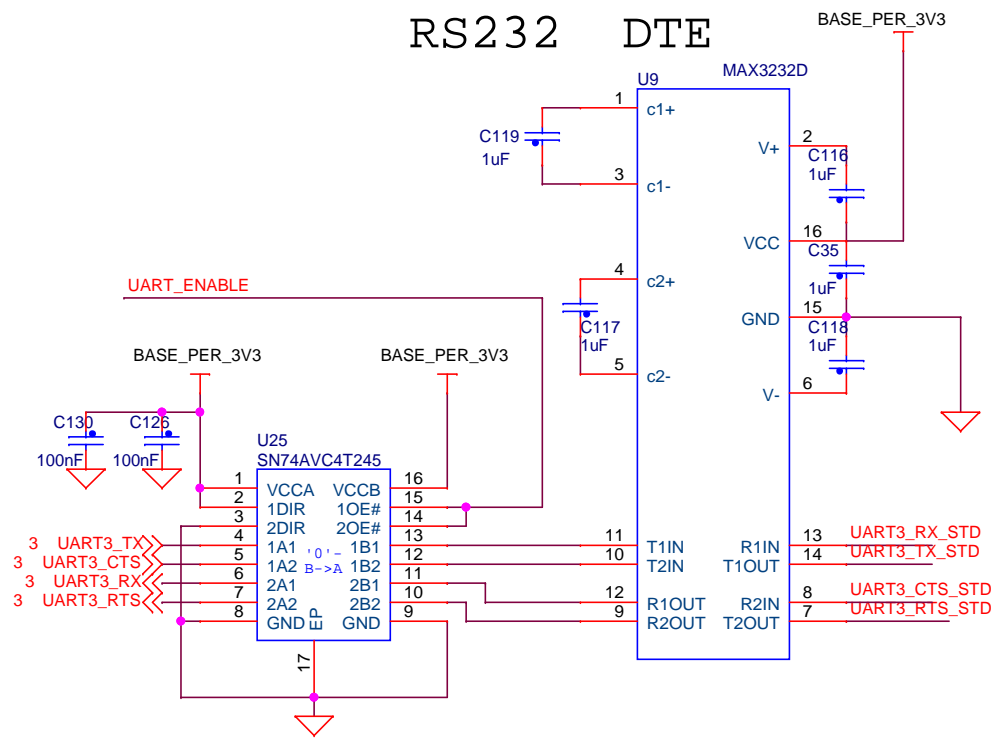
Headphone OUT



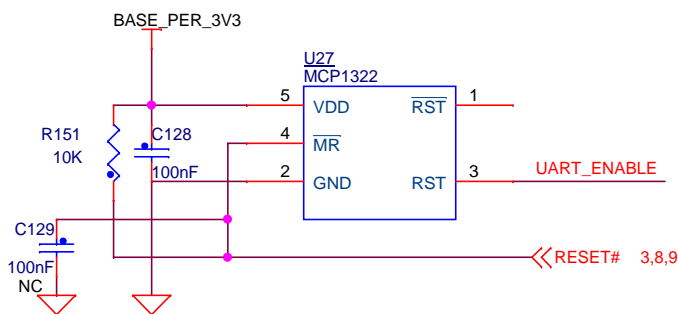
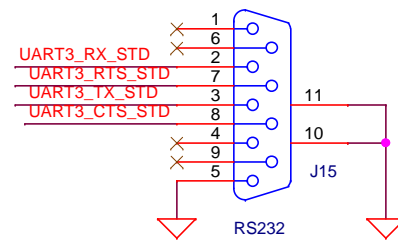
Digital Microphone



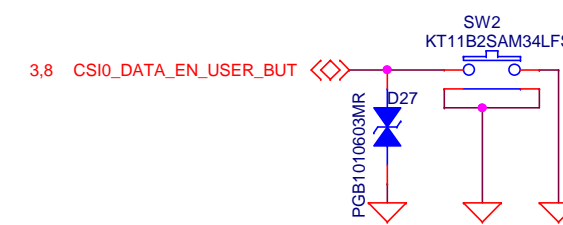
UART3 - RS232 DTE



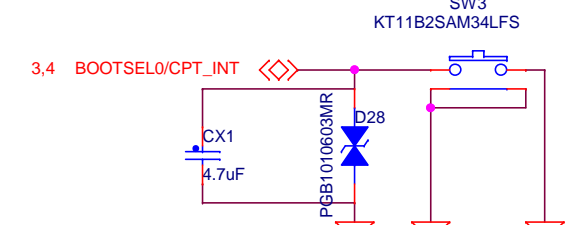
D-Type - Male



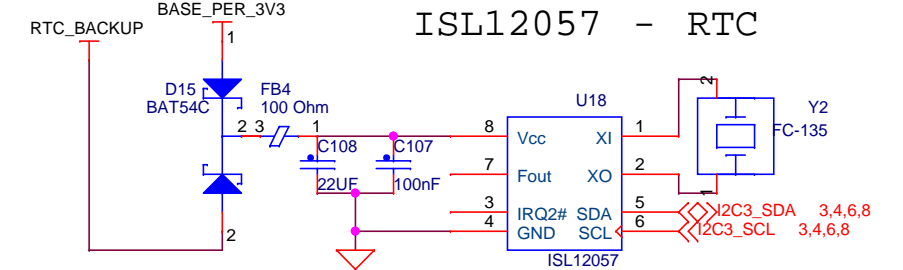
USER



Sys-boot



ISL12057 - RTC

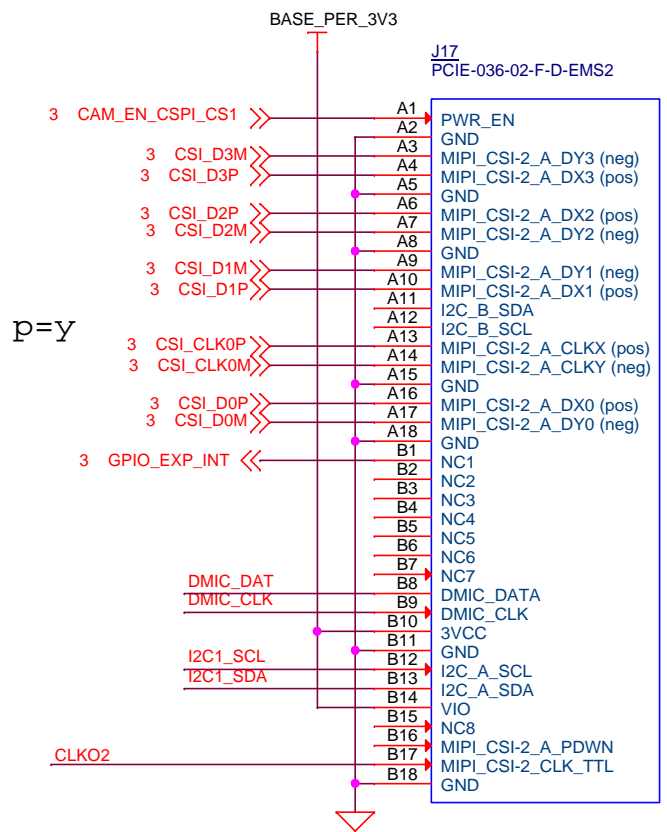


Title 07. Peripherals			
Size A3	Document Number VAR-MX6CustomBoard	Project VAR-MX6CustomBoard	Rev 1.3D-V2
Designer: Date:	<Designer> Wednesday, December 17, 2014	Approved By: Sheet	<Approved By> 7 of 9

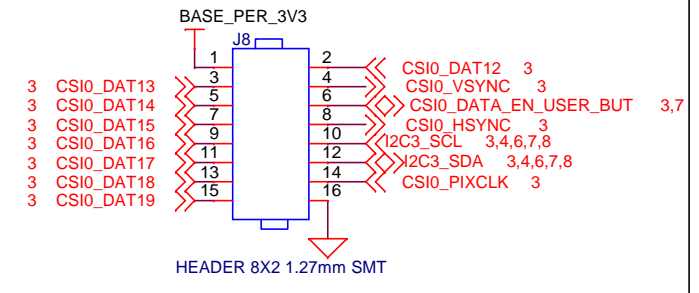
08. DVK Exp. Connectors

EMI & JTAG Fanout

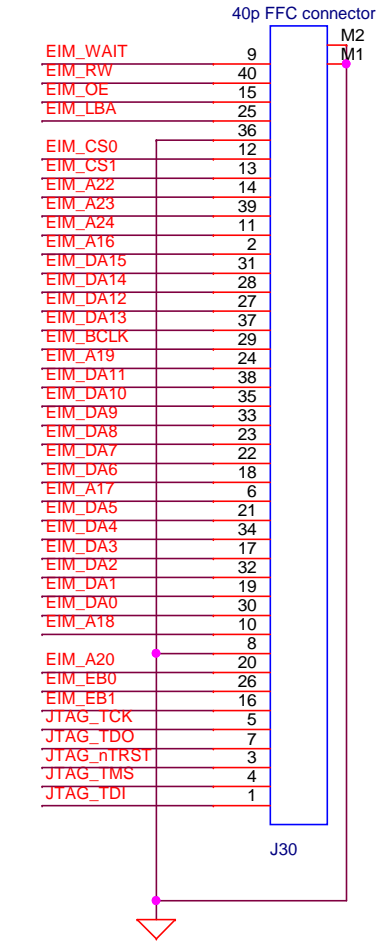
Serial



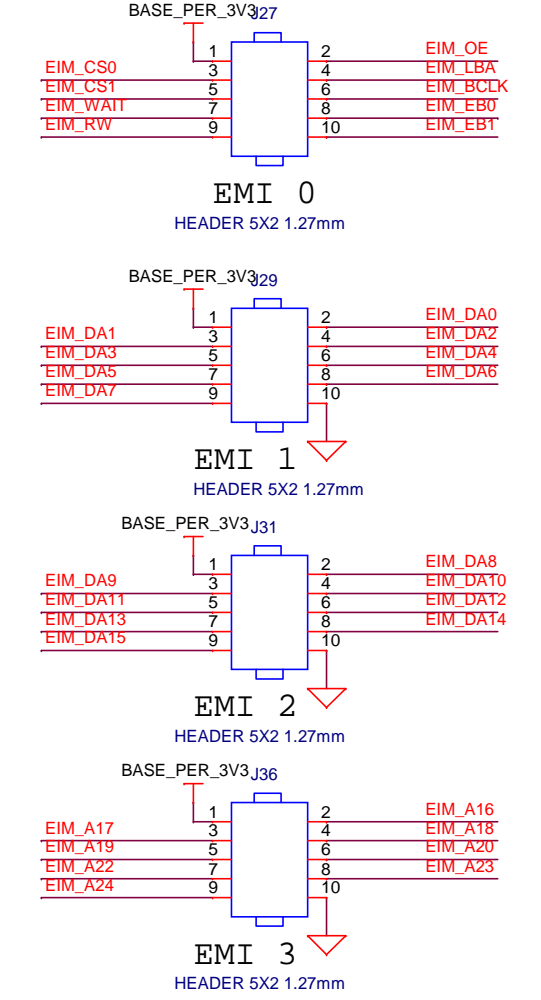
Camera Interface Parallel



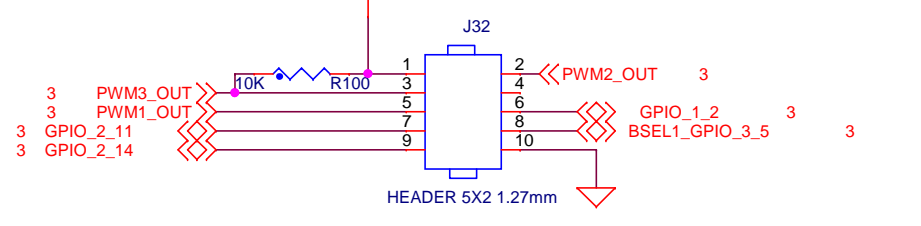
VAR-SOM-MX6 Expansion



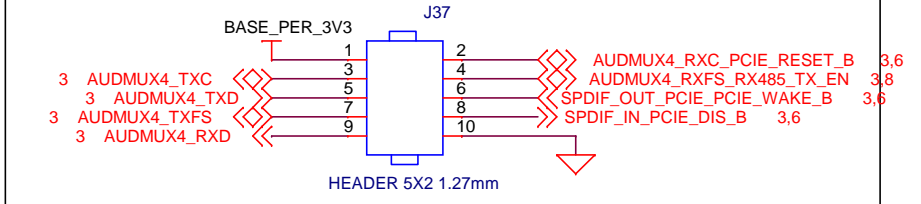
CPU BUS



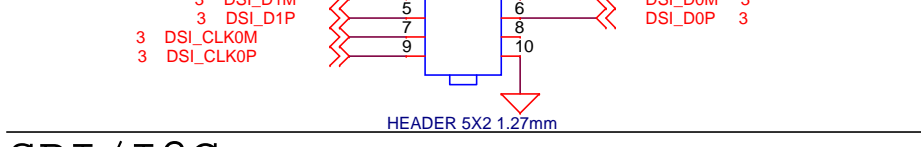
SD/MMC



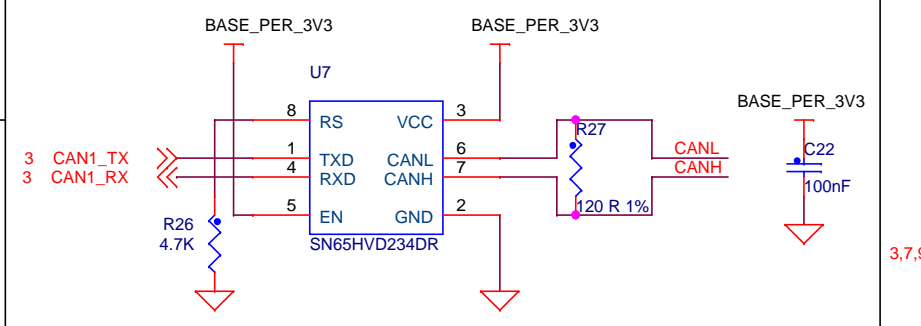
Digital AUDIO (AUDMUX4 /SPDIF)



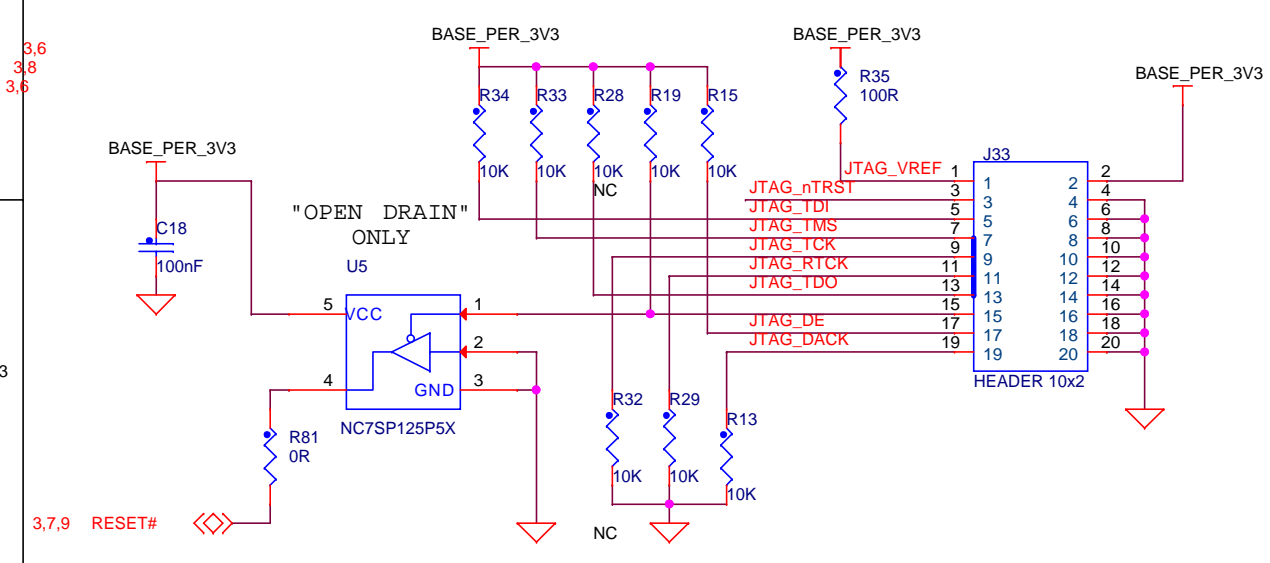
DSI



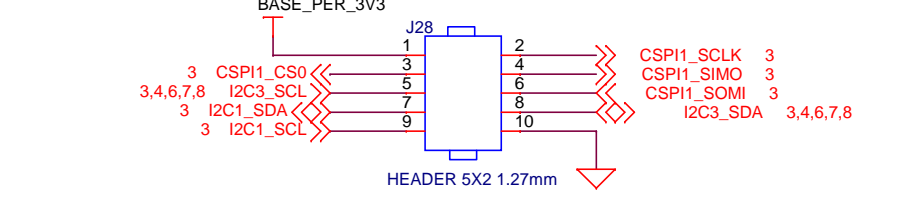
CAN TRX



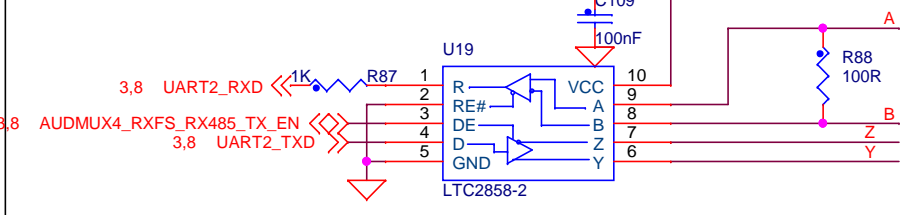
JTAG Connector



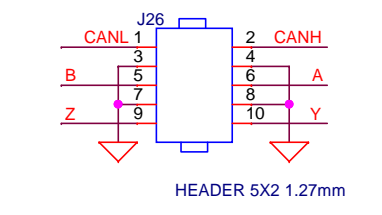
SPI/I2C



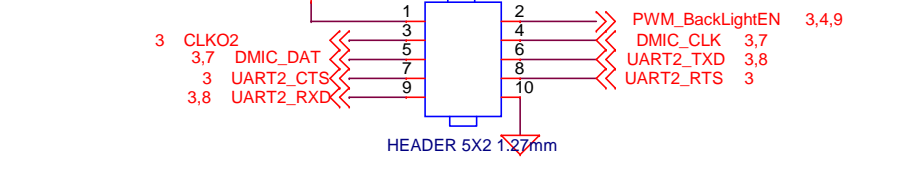
RS-485



Header



MISC



Variscite

Title: 08. DVK Exp. Connectors

Size A3	Document Number VAR-MX6CustomBoard	Project VAR-MX6CustomBoard	Rev 1.3D-V2
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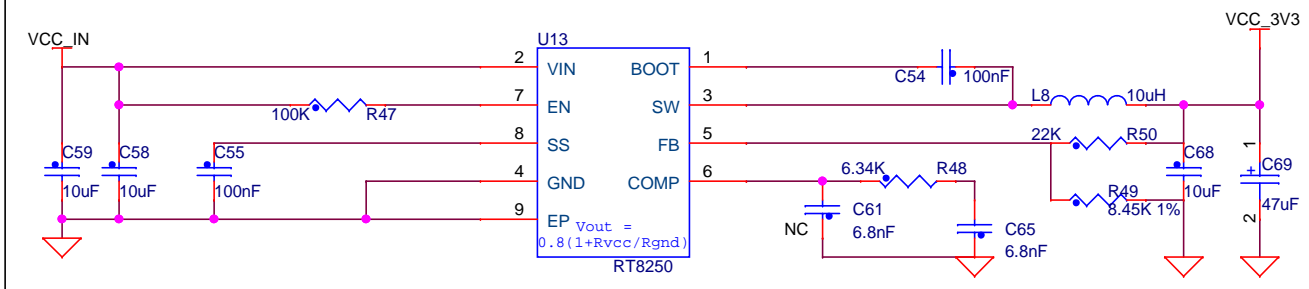
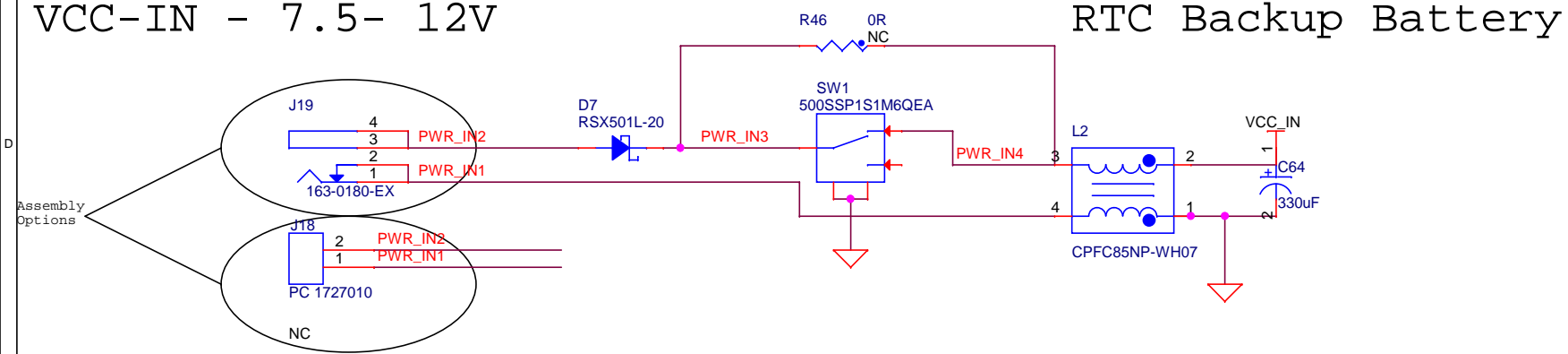
Designer: <Designer> Approved By: <Approved By>
 Date: Wednesday, December 17, 2014 Sheet 8 of 9

09. Power & Mechanics

3.3V Digital 3A

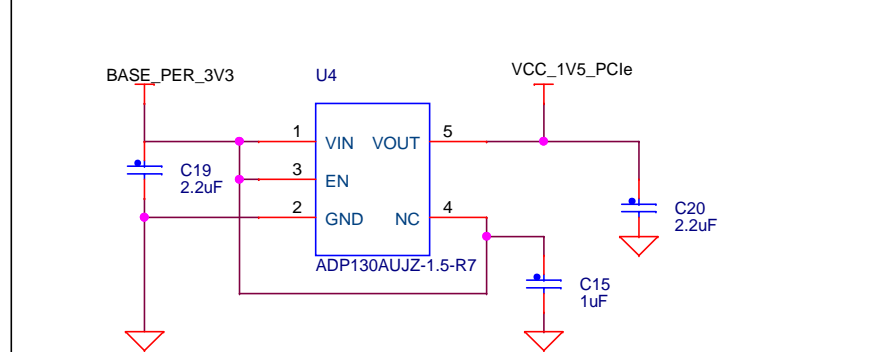
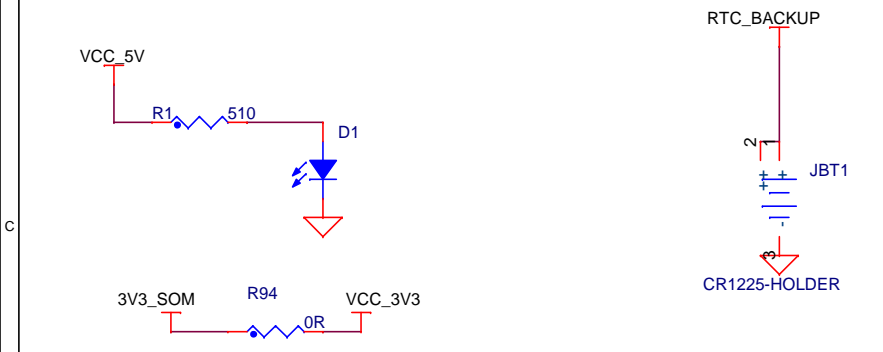
VCC-IN - 7.5- 12V

RTC Backup Battery

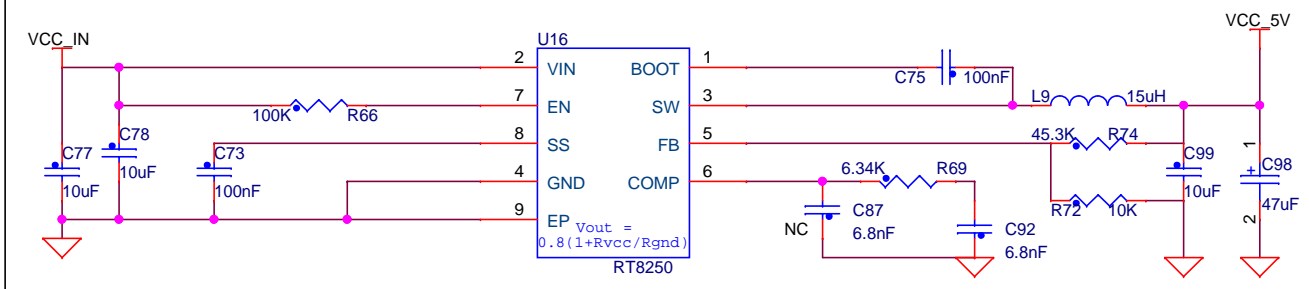


Main Power LED

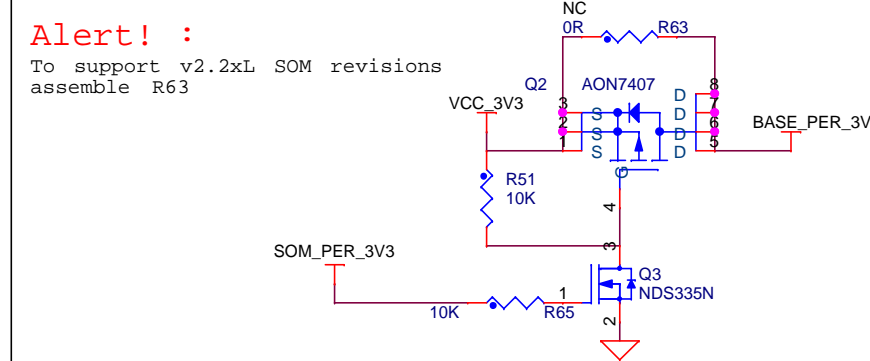
PCIe 1V5 300mA



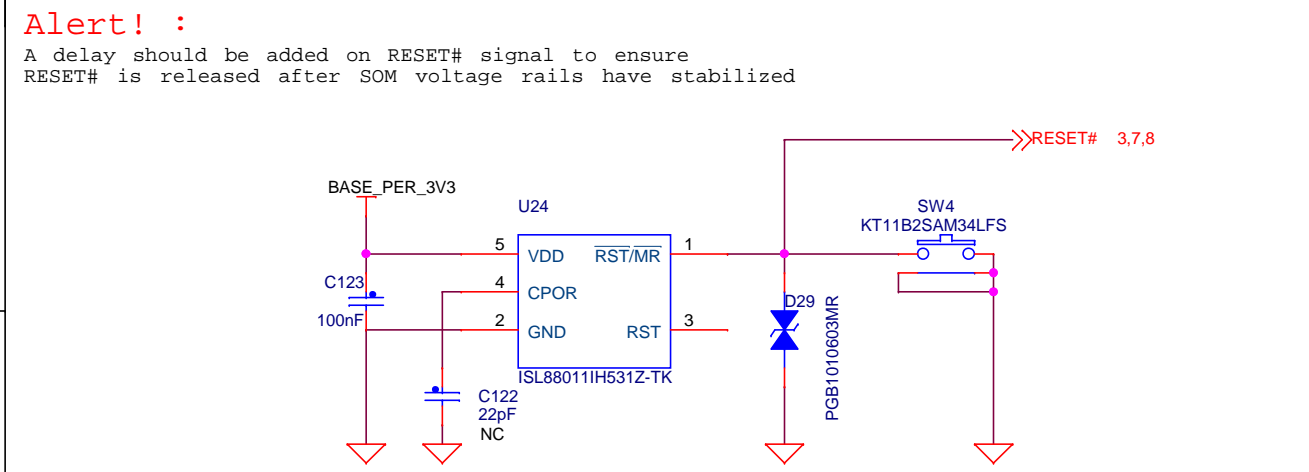
5V Digital 3A



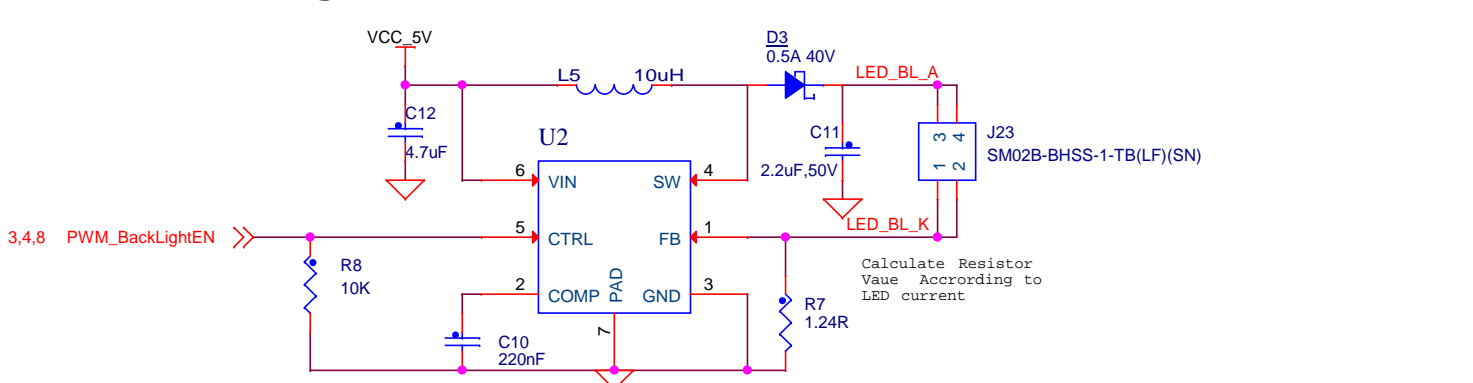
Peripherals Power Control



Reset

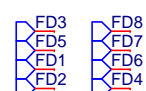


LCD Backlight



2 X SOM Holes

4 X Chassis Holes



Title 09. Power & Mechanics			
Size A3	Document Number VAR-MX6CustomBoard	Project VAR-MX6CustomBoard	Rev 1.3D-V2
Designer: Monday, June 26, 2017		Approved By: Sheet 9 of 9	