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DESIGN NOTE:
Example text for debug notes.

DESIGN CONSIDERATIONS

DESIGN NOTE:
Example text for informational design notes.

DESIGN NOTE:
Example text for critical design notes.

DESIGN NOTE:
Example text for cautionary design notes.

LAYOUT NOTE:
Example text for critical layout guidelines.

SYNCBOX

(Block Diagram)

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POWERS

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CPU CONNECTORS



MAGNETICS

Ethernet



SATA



PROTECTION

CPU GPIO



LEVEL SHIFTER

HDMI



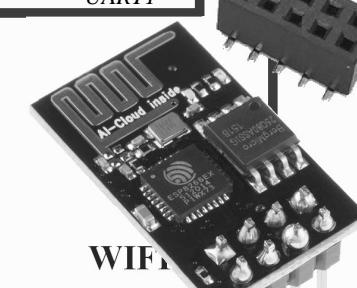
USB PROTECTION

CPU USB 1,2,3,4



RS232 TRANSCEIVER

UART1



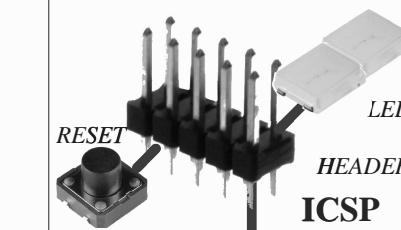
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COM Express Type 10 Connector

I²C
BUS

I²C

Pages 03



Pages 06

ICSP

uController

ICSP

UART1

UART2

UART3

UART4

SWC

SWC

Pages 03,06



DEBUGING

MICRO-CONTROLLER CONNECTORS

ISOLATION



RS232 TRANSCEIVER



RS232 TRANSCEIVER



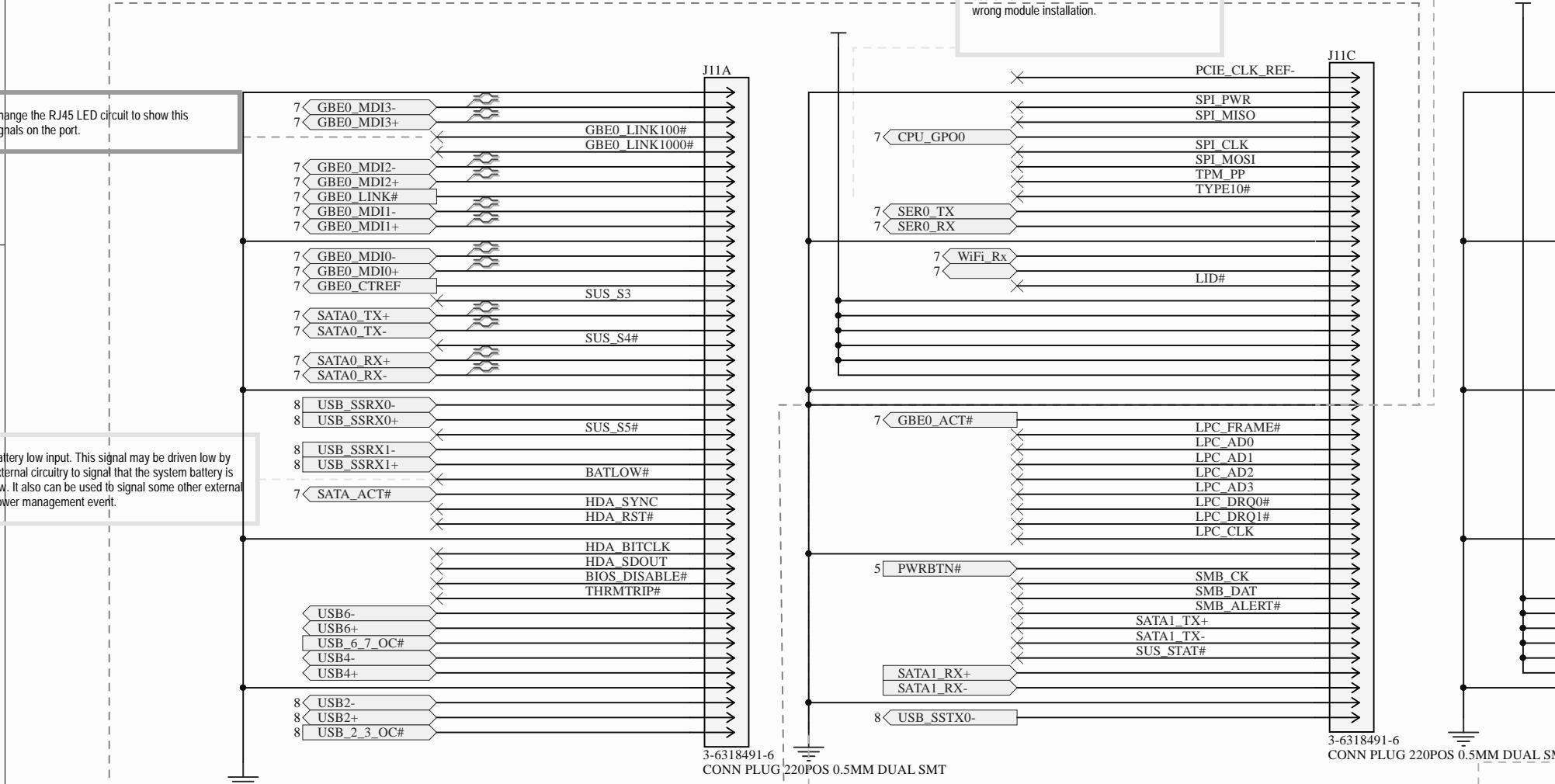
RS485 TRANSCEIVER



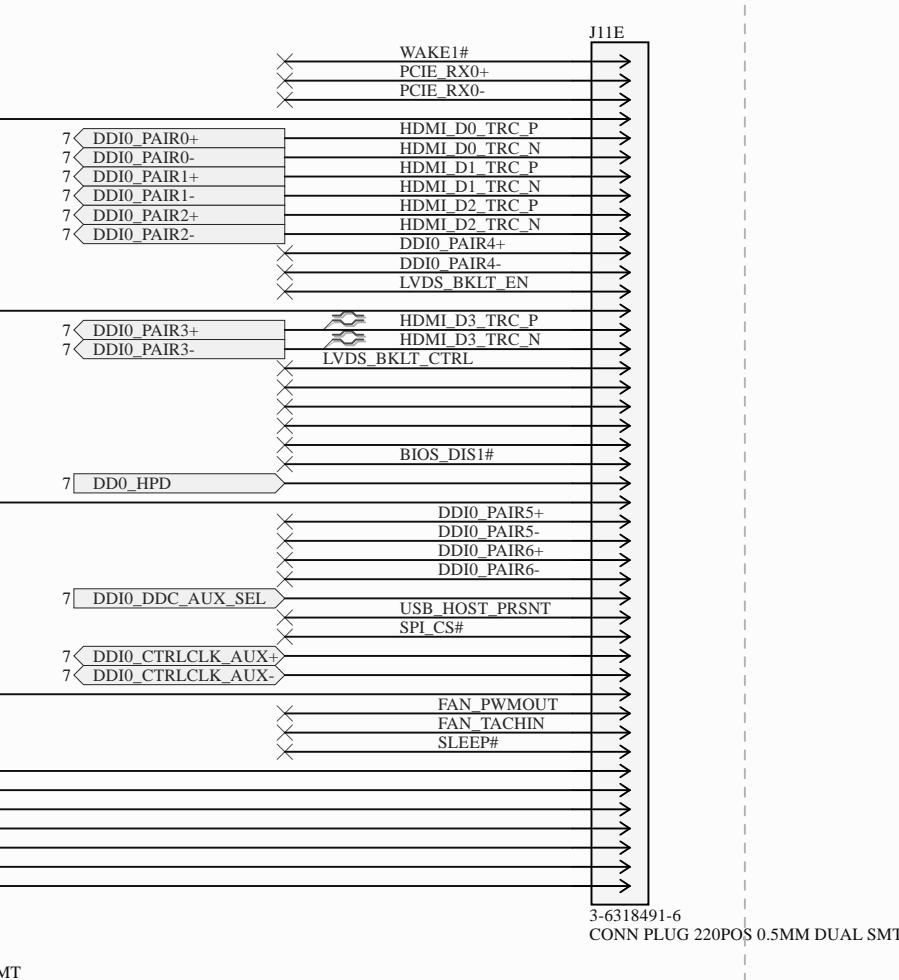
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Date:	3/26/2019	Sheet 2 of 11

COM EXPRESS TYPE 10 CONNECTOR

SIDE A



SIDE B



Connector X1A Row A

Pin	Signal	Description
A1	GND	Power Ground
A2	GBE0_MDI3-	Ethernet Media Dependent Interface 3 -
A3	GBE0_MDI3+	Ethernet Media Dependent Interface 3 +
A4	GBE0_LINK100#	Ethernet Speed LED
A5	GBE0_LINK100#	Ethernet Speed LED
A6	GBE0_MDI2-	Ethernet Media Dependent Interface 2 -
A7	GBE0_MDI2+	Ethernet Media Dependent Interface 2 +
A8	GBE0_LINK8	LAN Link LED
A9	GBE0_MDI1-	Ethernet Media Dependent Interface 1 -
A10	GRFO_MDI1+	Ethernet Media Dependent Interface 1 +
A11	GND	Power Ground
A12	GBE0_MDI0-	Ethernet Media Dependent Interface 0 -
A13	GBE0_MDI0+	Ethernet Media Dependent Interface 0 +
A14	GBE0_CTRREF	Center Tap Reference Voltage
A15	SUS_S3#	Suspend To RAM (or deeper) Indicator
A16	SATA0_RX+	SATA Transmit Pair 0 +
A17	SATA0_RX-	SATA Transmit Pair 0 -
A18	SUS_S4#	Suspend To Disk (or deeper) Indicator
A19	SATA0_RX+	SATA Receive Pair 0 +
A20	SATA0_RX-	SATA Receive Pair 0 -
A21	GND	Power Ground
A22	USB_SSRX0-	USB 3.0 Receive Pair 0 -
A23	USB_SSRX0+	USB 3.0 Receive Pair 0 +
A24	SUS_S5#	Soft Off Indicator
A25	USB_SSRX1-	USB 3.0 Receive Pair 1 -
A26	USB_SSRX1+	USB 3.0 Receive Pair 1 +
A27	BATLOW#	Battery Low
A28	(S)ATAACT#	Serial ATA activity LED
A29	AC/HDA_SYNC	HDA Audio Sync
A30	AC/HDA_RST#	HDA Audio Reset
A31	GND	Power Ground
A32	AL/HDA_B11CLK	HD Audio Bit Clock Output
A33	AC/HDA_SDOUT	HD Audio Serial Data Out
A34	BIO5_DIS0#	BIO5 Selection Strap 0
A35	THRMTrip#	Thermal Trip
A36	USB6-	USB 2.0 Data Pair Port 6 -
A37	USB6+	USB 2.0 Data Pair Port 6 +
A38	USB_6_7_OC#	USB Overcurrent Indicator Port 6/7
A39	USB6-	USB 2.0 Data Pair Port 7 -
A40	USB4+	USB 2.0 Data Pair Port 4 +
A41	GND	Power Ground
A42	USB2-	USB 2.0 Data Pair Port 2 -
A43	USB2+	USB 2.0 Data Pair Port 2 +
A44	USB_2_3_OC#	USB Overcurrent Indicator Port 2/3
A45	USB0-	USB 2.0 Data Pair Port 0 -
A46	USB0+	USB 2.0 Data Pair Port 0 +
A47	VCC_RTC	Real-Time Clock Circuit Power Input
A48	EXCD0_PERST#	Express Card Reset Port 0
A49	EXCD0_CPP#	Express Card Capable Card Request Port 0
A50	LPC_SERIRQ#	Serial Interrupt Request
A51	GND	Power Ground
A52	RSVD	Reserved for future use
A53	RSVD	Reserved for future use
A54	GP10/SD_DATA0	General Purpose Input 0 (shared SD DATA0)
A55	RSVD	Reserved for future use
A56	RSVD	Reserved for future use
A57	GND	Power Ground

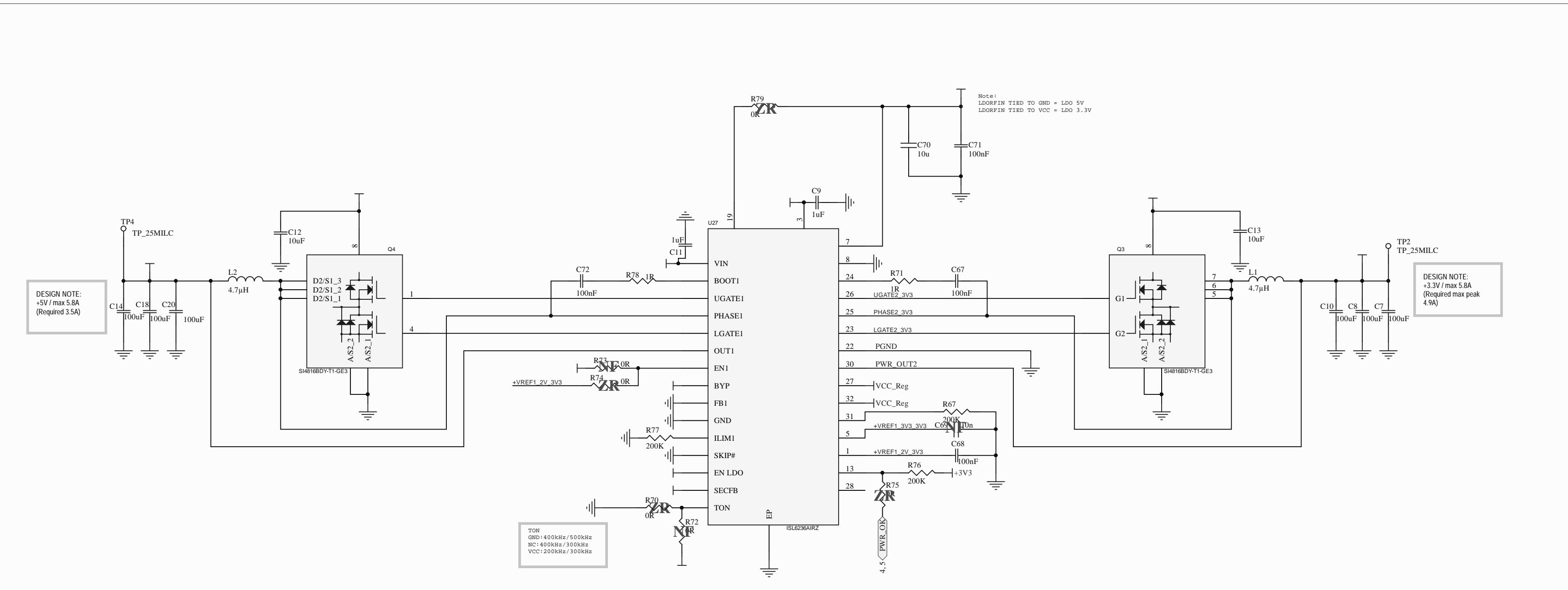
Connector X1A Row B

Pin	Signal	Description
B58	PCIE_RX3+	PCI Express Lane 3 Receive +
B59	PCIE_RX3-	PCI Express Lane 3 Receive -
B60	GND	Power Ground
B61	PCIE_RX2+	PCI Express Lane 2 Receive +
B62	PCIE_RX2-	PCI Express Lane 2 Receive -
B63	GP03/SD_CD#	General Purpose Output 3 (shared SD card detect)
B64	PCIE_RX1+	PCI Express Lane 1 Receive +
B65	PCIE_RX1-	PCI Express Lane 1 Receive -
B66	WAKE#	PCI Express Wake Event
B67	WAKE#	General Purpose Wake Event
B68	PCIE_RX0+	PCI Express Lane 0 Receive +
B69	PCIE_RX0-	PCI Express Lane 0 Receive -
B70	GND	Power Ground
B71	DDIO_PAIR0+	Display Port 0 lane 0 +
B72	DDIO_PAIR0-	Display Port 0 lane 0 -
B73	DDIO_PAIR1+	Display Port 0 lane 1 +
B74	DDIO_PAIR1-	Display Port 0 lane 1 -
B75	DDIO_PAIR2+	Display Port 0 lane 2 +
B76	DDIO_PAIR2-	Display Port 0 lane 2 -
B77	DDIO_PAIR4+	Display Port 0 lane 4 +
B78	DDIO_PAIR4-	Display Port 0 lane 4 -
B79	LVDS/eDP_BKLT_EN	Panel Backlight On
B80	GND	Power Ground
B81	DDIO_PAIR3+	Display Port 0 lane 3 +
B82	DDIO_PAIR3-	Display Port 0 lane 3 -
B83	LVDS_BKLT_CTRL	Backlight Brightness Control
B84	VCC_5V_SBY	5V Standby
B85	VCC_5V_SBY	5V Standby
B86	VCC_5V_SBY	5V Standby
B87	BIOS_DIS1#	BIOS Selection Strap 1
B88	DDIO_HPD	Display Port 0
B89	GND	Power Ground
B90	DDIO_PAIR5+	Display Port 0 lane 5 +
B92	DDIO_PAIR5-	Display Port 0 lane 5 -
B93	DDIO_PAIR6+	Display Port 0 lane 6 +
B94	DDIO_CTRLCLK_AUX+	Multiplexed DDIO Data Channel Clock & AUX +
B95	DDIO_CTRLDATA_AUX-	Multiplexed DDIO Data Channel Data & AUX -
B100	GND	Power Ground
B101	FAN_PWMOUT	Fan PWM Output
B102	FAN_TACHIN	Fan Tach Input
B103	SLEEP#	Sleep Button Input
B104	VCC_12V	Main Input Voltage (8.5-20V)
B105	VCC_12V	Main Input Voltage (8.5-20V)
B106	VCC_12V	Main Input Voltage (8.5-20V)
B107	VCC_12V	Main Input Voltage (8.5-20V)
B108	VCC_12V	Main Input Voltage (8.5-20V)
B109	VCC_12V	Main Input Voltage (8.5-20V)
B110	GND	Power Ground

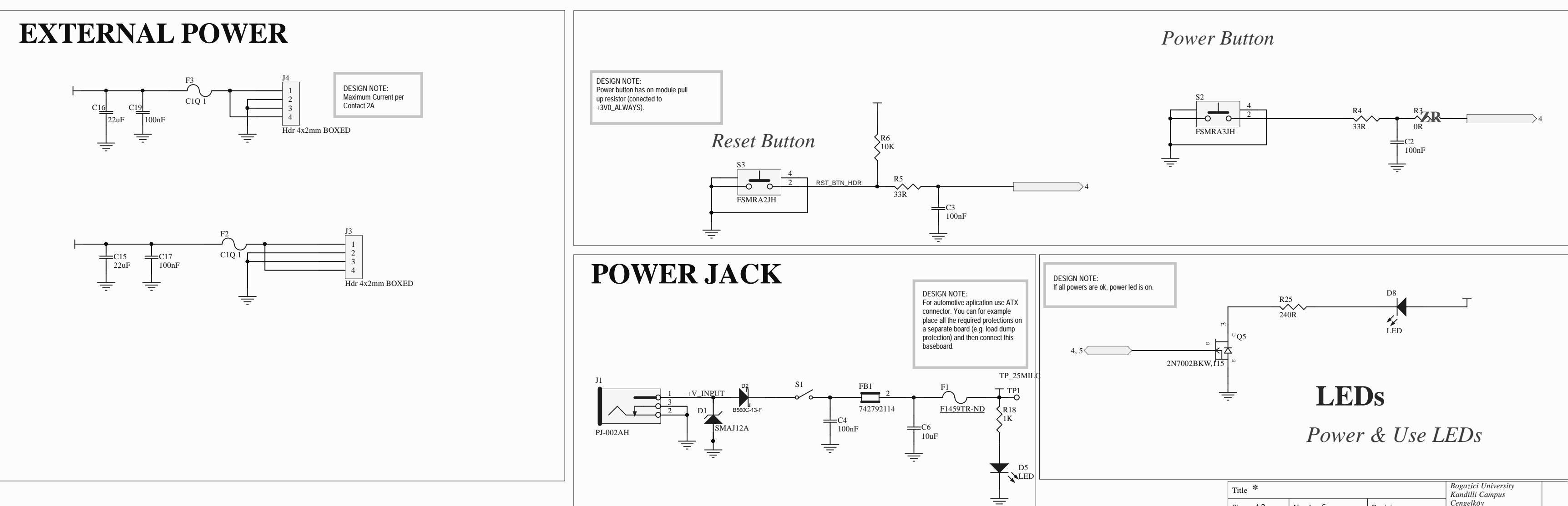
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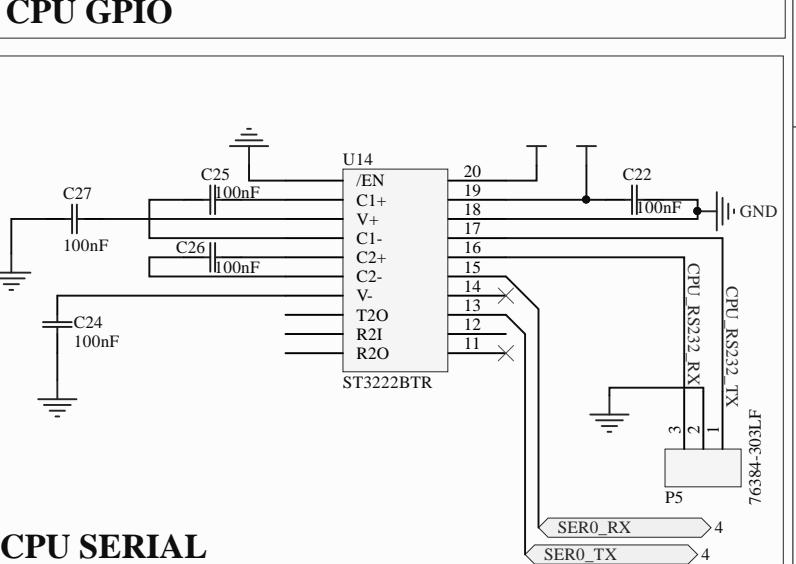
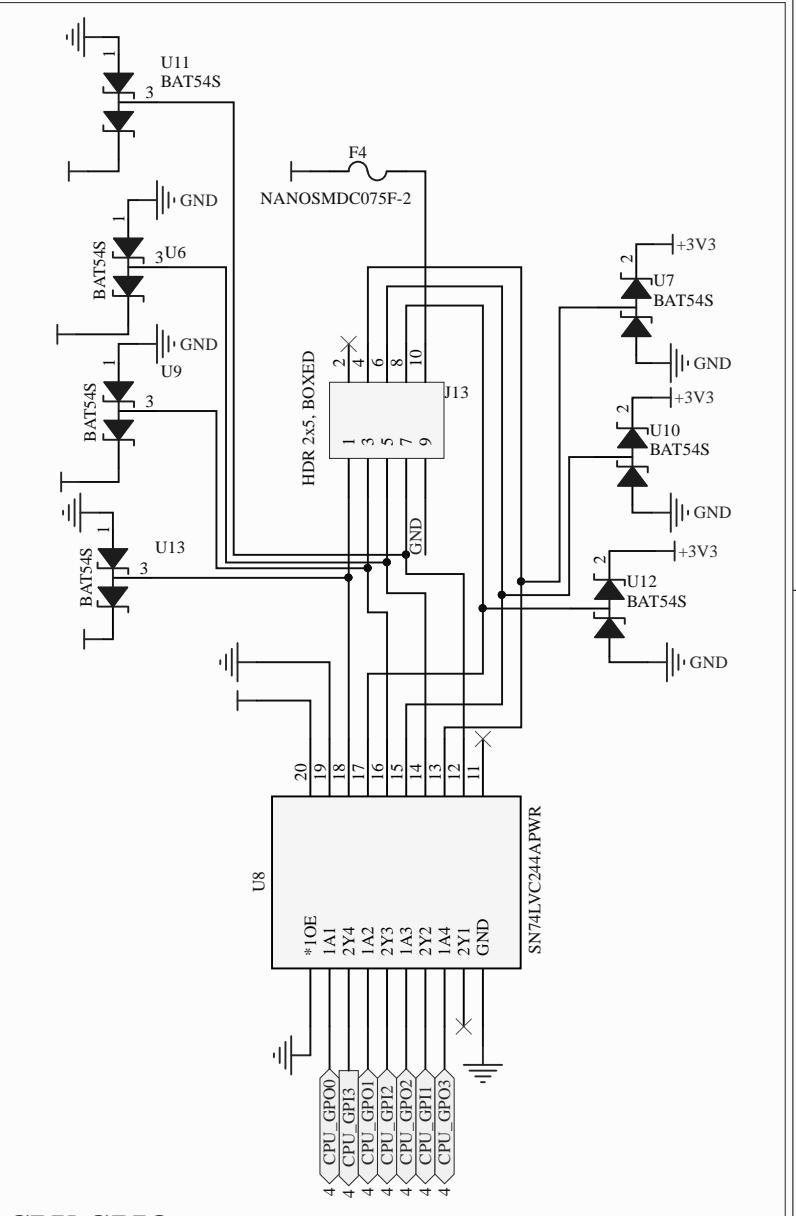
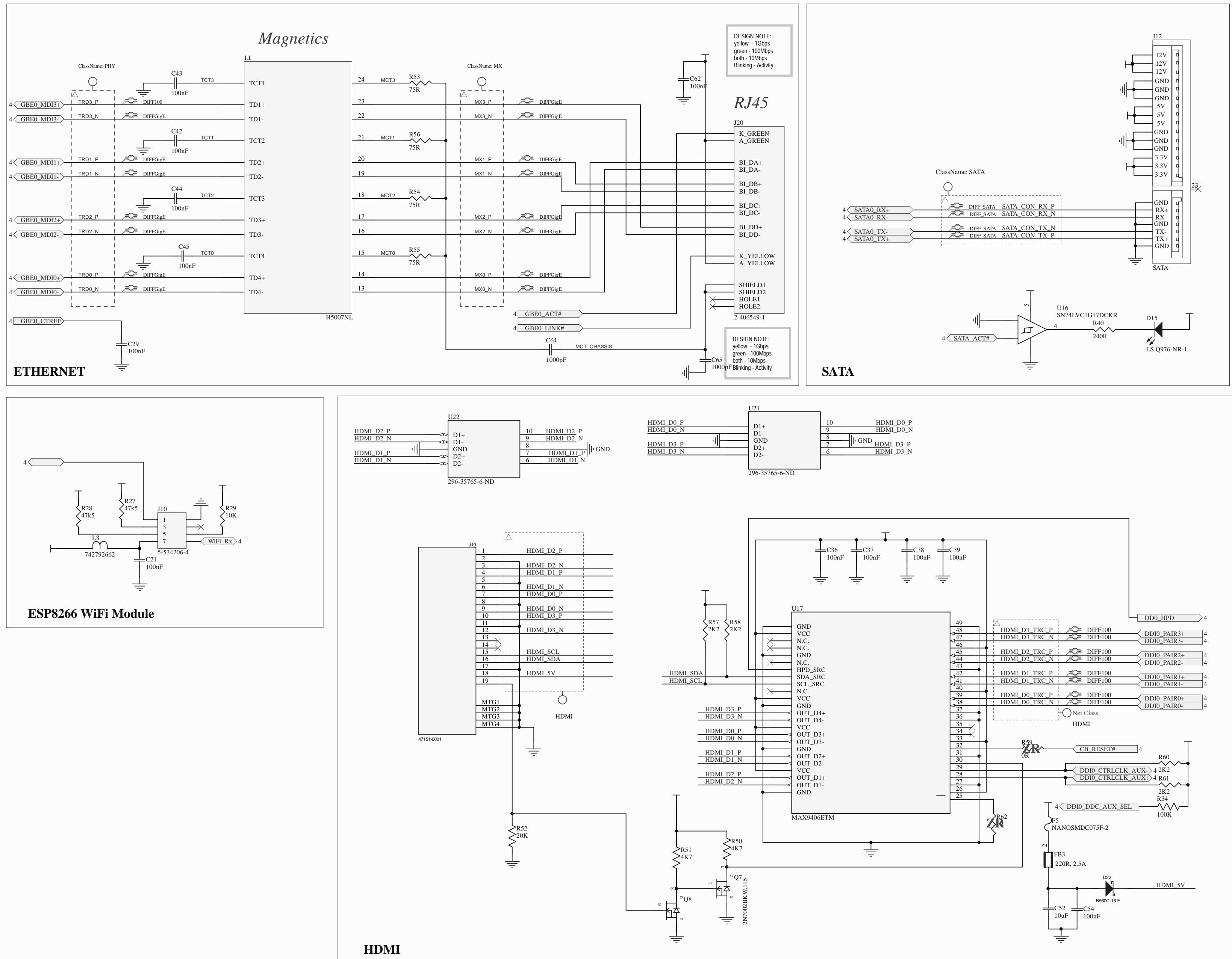


POWER

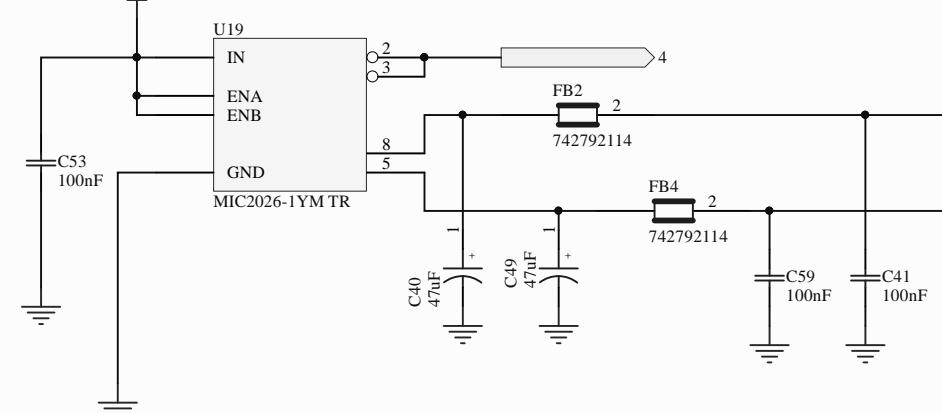


POWER REGULATOR

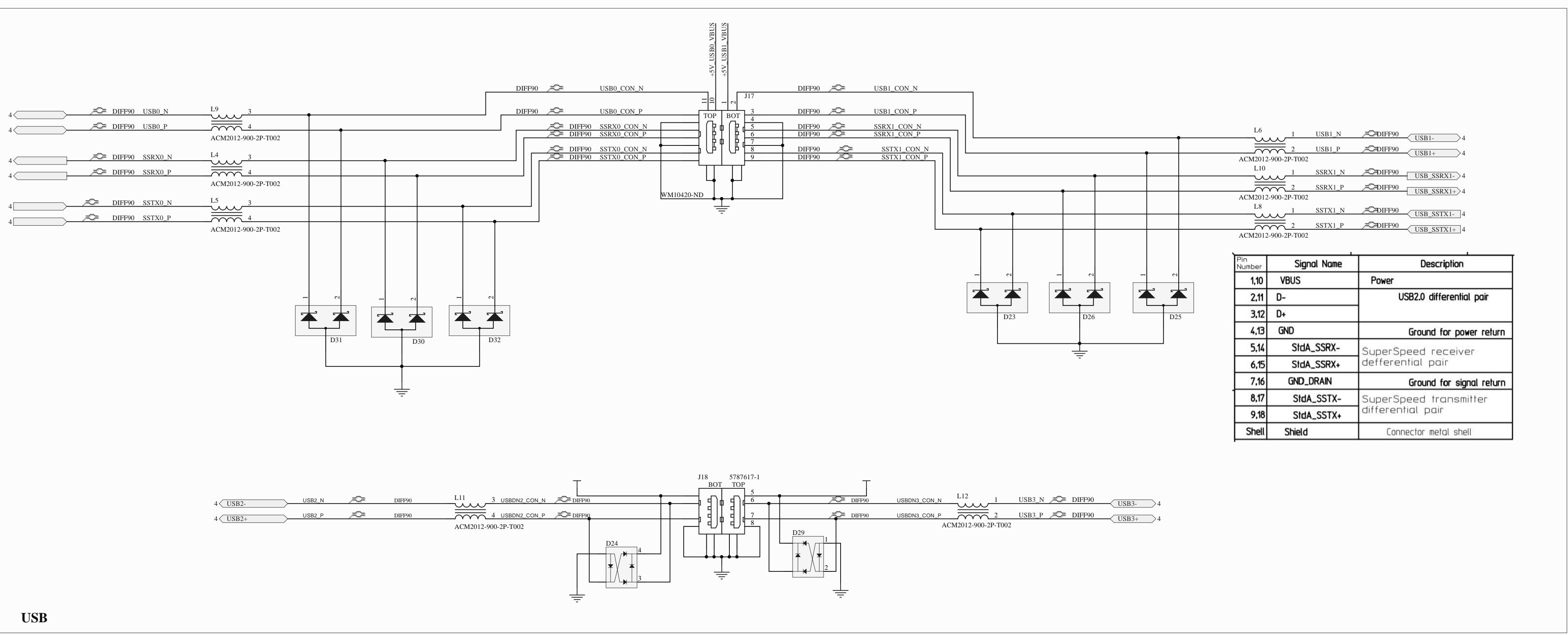
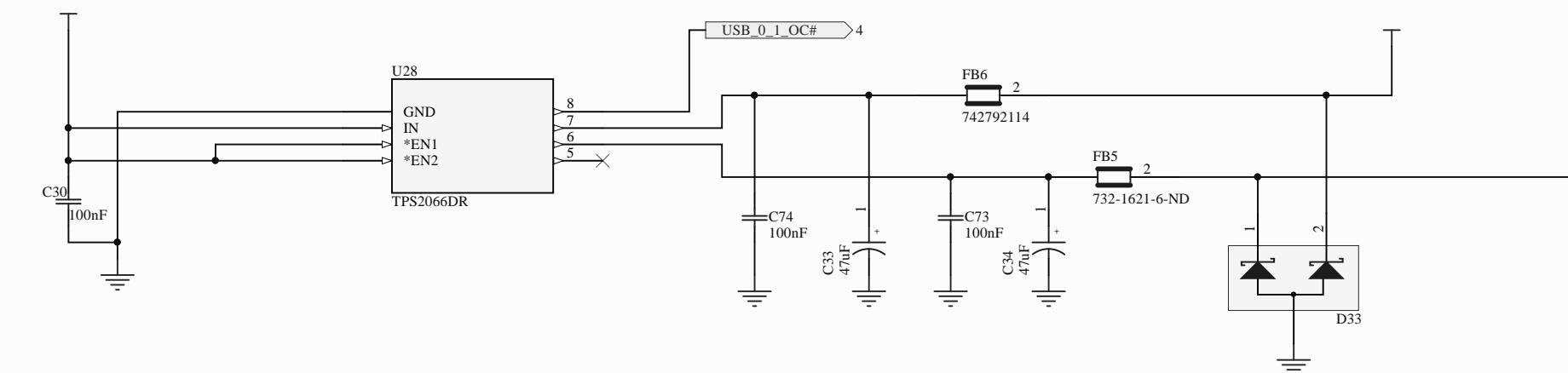




CPU USB



USB SWITCHES



USB