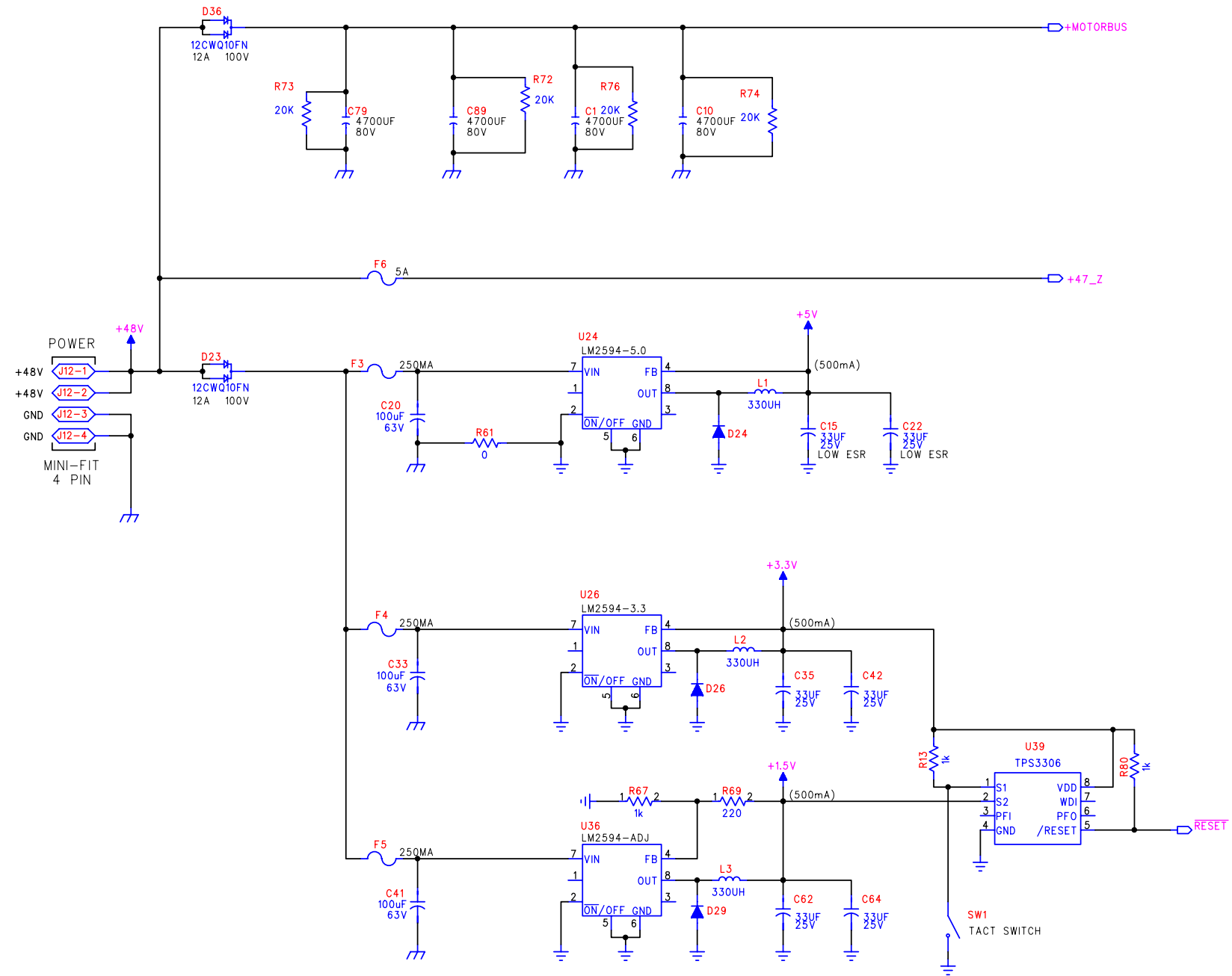


EXTERNAL NETS

- (NONE) → +48V →
- +MOTORBUS →
- +47\_Z →
- +5V →
- +3.3V →
- +1.5V →
- RESET →
- RESET →



LM2594-ADJ NOTE

$$V_{OUT} = V_{REF} \left( 1 + \frac{R_2}{R_1} \right) \quad \text{where } V_{REF} = 1.23V$$

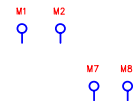
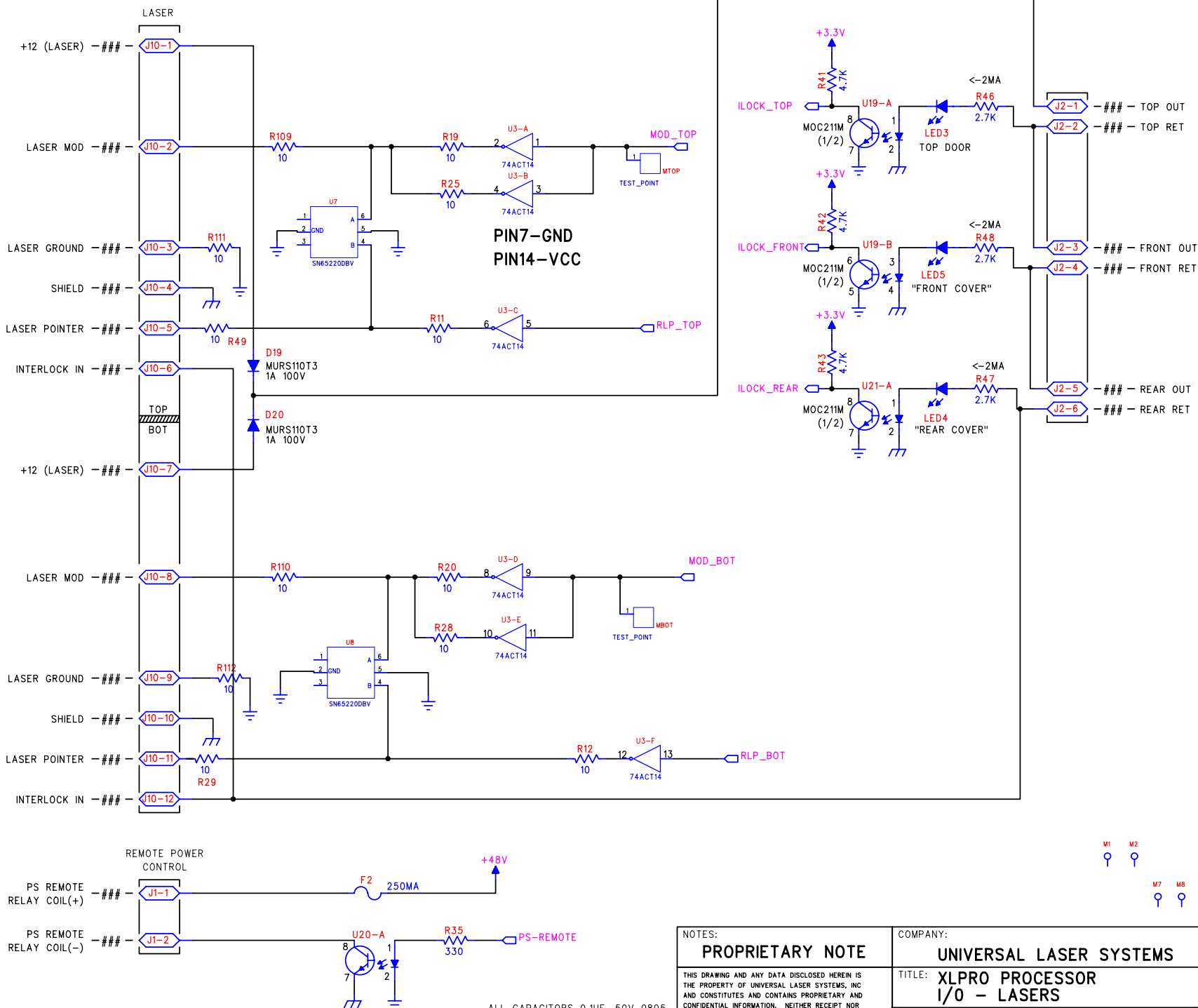
ALL CAPACITORS 0.1UF, 50V 0805  
UNLESS OTHERWISE NOTED  
ALL RESISTORS 0805, 5%  
UNLESS OTHERWISE NOTED

NOTES:  
**PROPRIETARY NOTE**  
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COMPANY:  
**UNIVERSAL LASER SYSTEMS**  
TITLE:  
**XLPRO PROCESSOR POWER SUPPLIES**  
DRAWING NO:  
**150-0300-0**  
REV:  
**F**  
DRAWN: P. Kumarakulasingam SHEET: 1 OF 9

EXTERNAL NETS

- +48V ILOCK\_TOP →
- +3.3V ILOCK\_FRONT →
- RLP\_TOP ILOCK\_REAR →
- MOD\_TOP ILOCK\_THERM →
- RLP\_BOT
- MOD\_BOT
- PS-REMOTE



NOTES:  
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COMPANY:  
**UNIVERSAL LASER SYSTEMS**

TITLE:  
**XLPRO PROCESSOR I/O - LASERS**

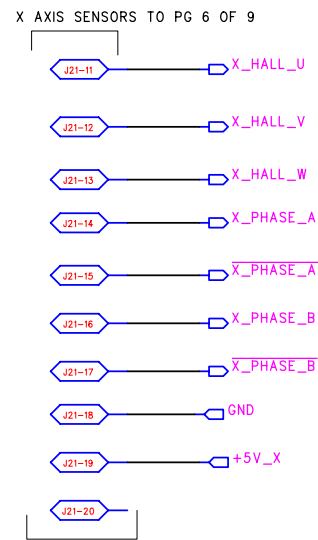
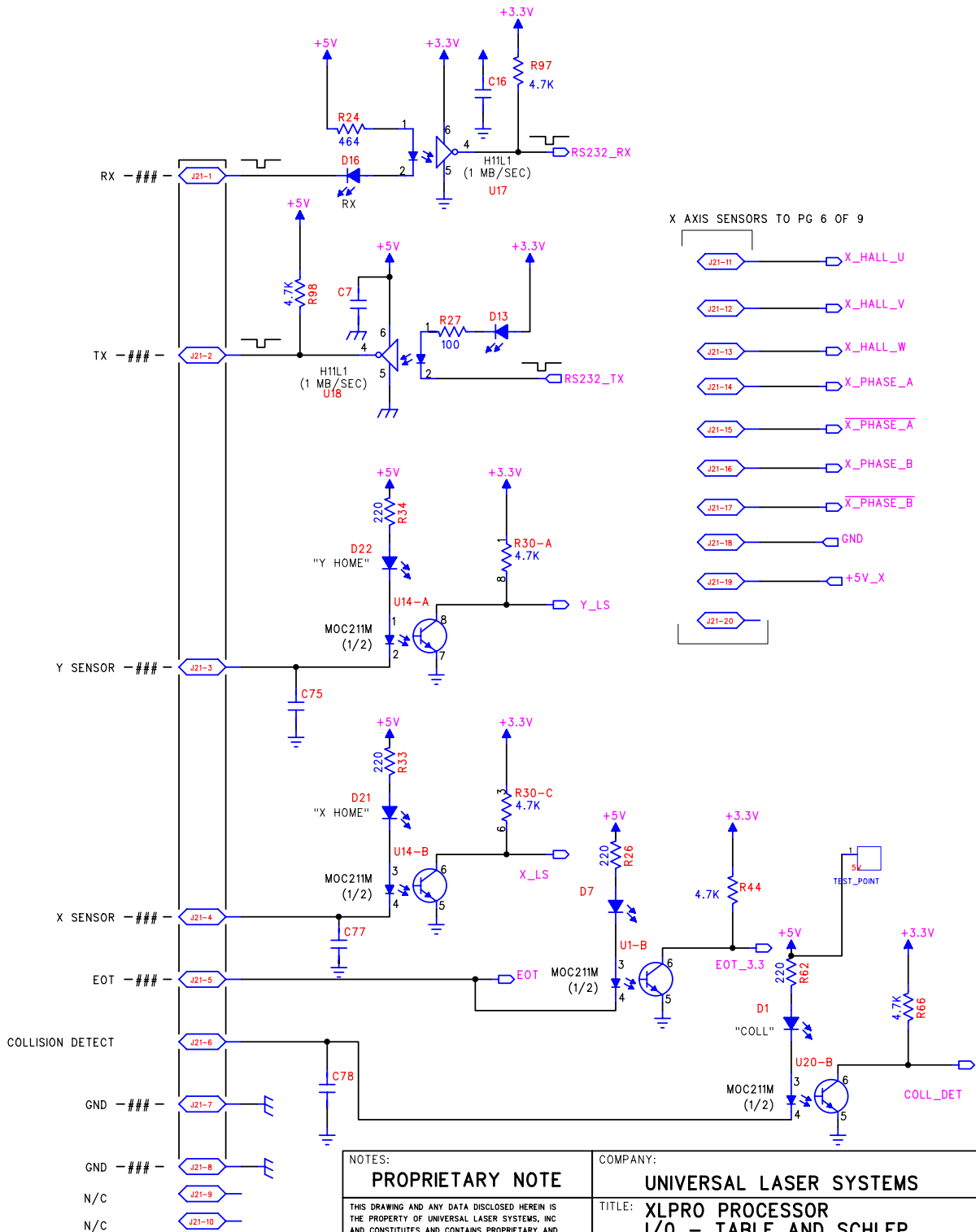
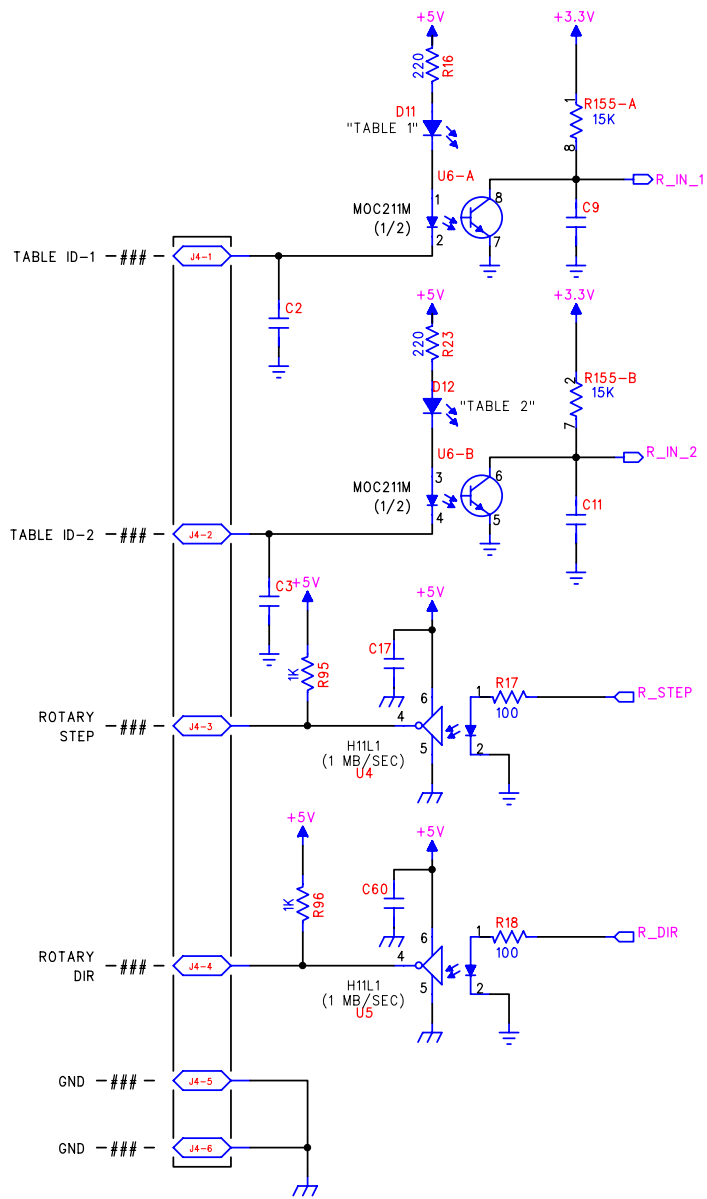
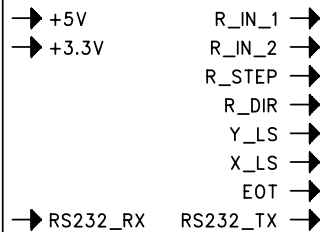
DRAWING NO:  
**150-0300-0**

DRAWN: P. Kumarakulasingam SHEET: 2 OF 9

ALL CAPACITORS 0.1UF, 50V 0805 UNLESS OTHERWISE NOTED  
 ALL RESISTORS 0805, 5% UNLESS OTHERWISE NOTED

REV:  
**F**

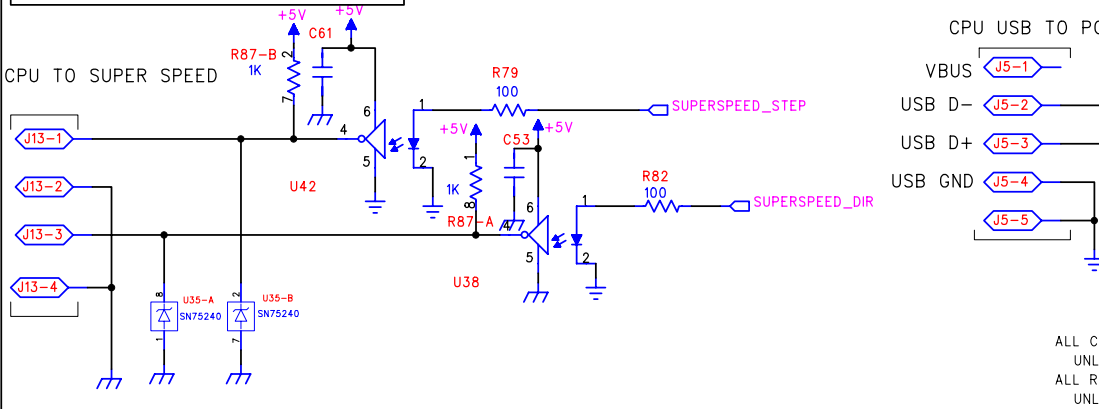
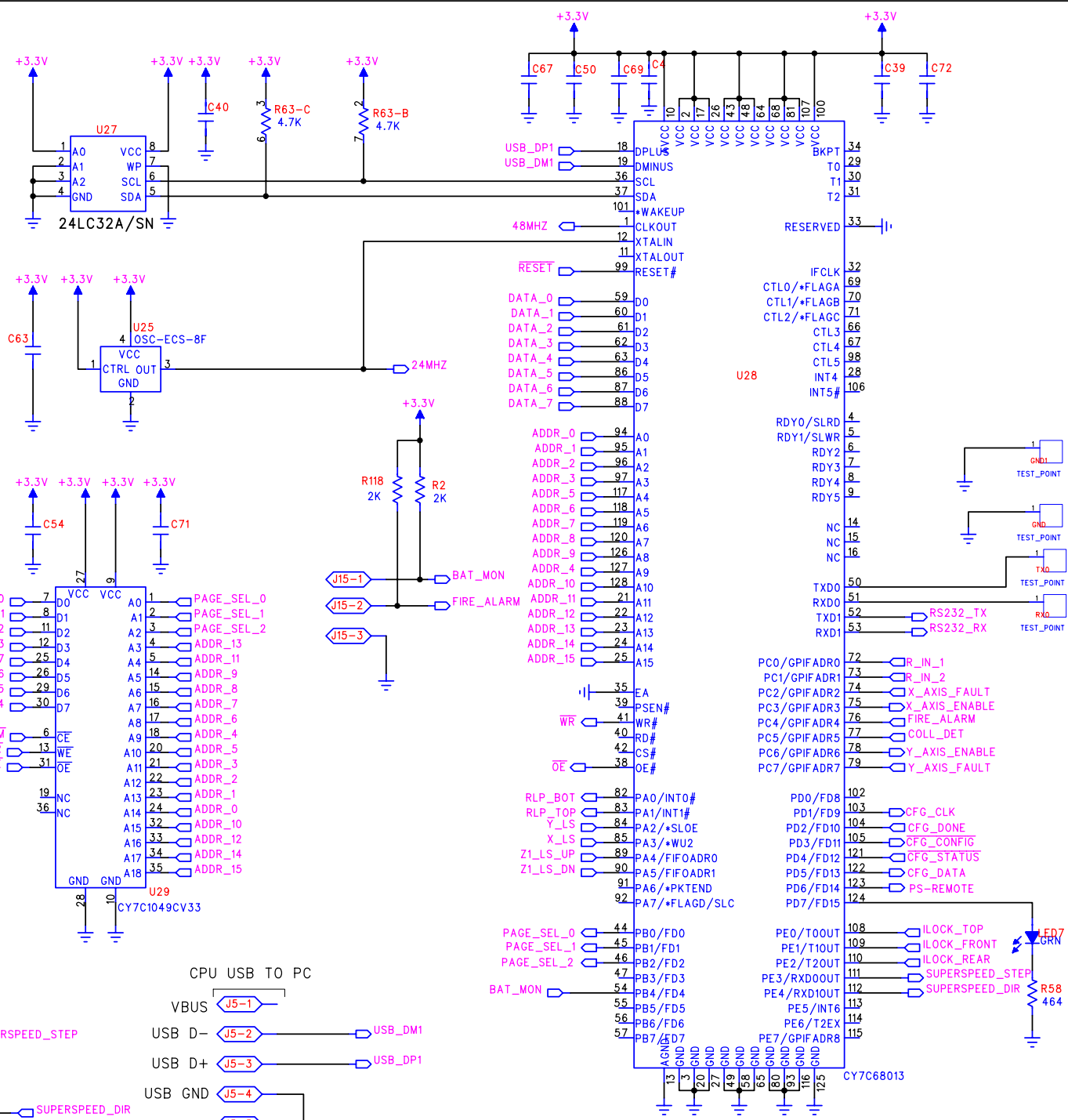
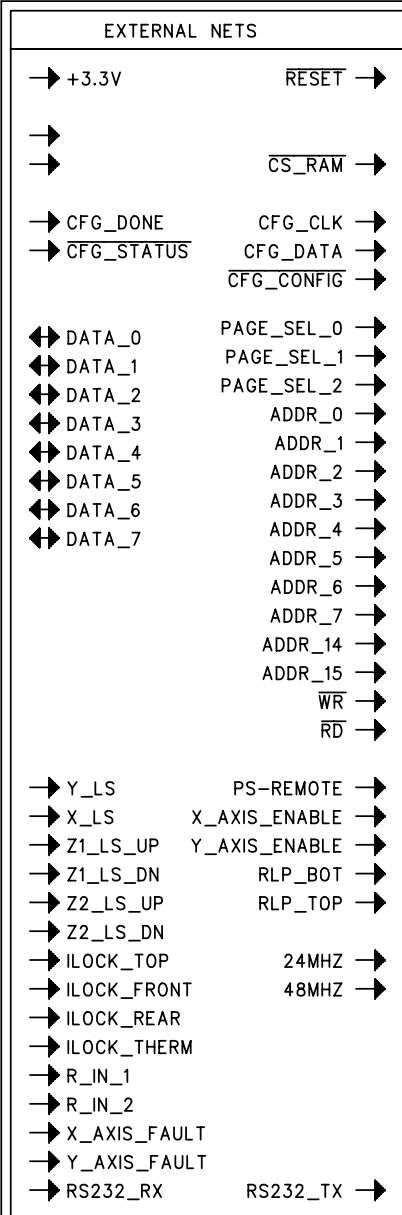
EXTERNAL NETS



NOTES:  
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COMPANY:  
**UNIVERSAL LASER SYSTEMS**  
 TITLE:  
**XLPRO PROCESSOR I/O - TABLE AND SCHLEP**  
 DRAWING NO:  
**150-0300-0**  
 REV:  
**F**  
 DRAWN: P. Kumarakulasingam SHEET: 3 OF 9

ALL CAPACITORS 0.1UF, 50V 0805 UNLESS OTHERWISE NOTED  
 ALL RESISTORS 0805, 5% UNLESS OTHERWISE NOTED



<b>NOTES:</b>		<b>COMPANY:</b>	
<b>PROPRIETARY NOTE</b>		<b>UNIVERSAL LASER SYSTEMS</b>	
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TITLE:		TITLE:	
XLPRO PROCESSOR PROCESSOR		XLPRO PROCESSOR PROCESSOR	
DRAWING NO:		DRAWING NO:	
150-0300-0		150-0300-0	
DRAWN: P. Kumarakulasingam		REV: F	
SHEET: 4 OF 9		SHEET: 4 OF 9	

EXTERNAL NETS

→ PAGE_SEL_0	DATA_0	↔
→ PAGE_SEL_1	DATA_1	↔
→ PAGE_SEL_2	DATA_2	↔
→ ADDR_0	DATA_3	↔
→ ADDR_1	DATA_4	↔
→ ADDR_2	DATA_5	↔
→ ADDR_3	DATA_6	↔
→ ADDR_4	DATA_7	↔
→ ADDR_5		
→ ADDR_6		
→ ADDR_7		
→ ADDR_14		
→ ADDR_15		
→ WR	CS_RAM	→
→ RD		

→ CFG_CLK	CFG_DONE	→
→ CFG_DATA	CFG_STATUS	→
→ CFG_CONFIG		
→ 48MHZ		

→ X_PHA	X_STEP	→
→ X_PHB	X_DIR	→

→ Y_PHA	Y_STEP	→
→ Y_PHB	Y_DIR	→

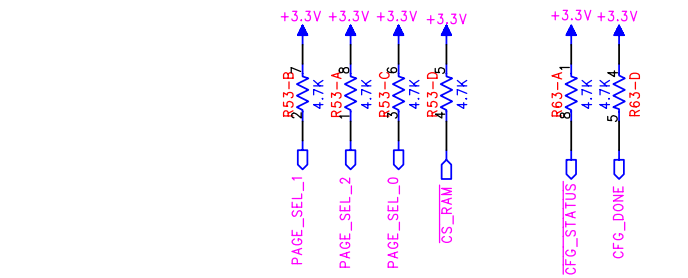
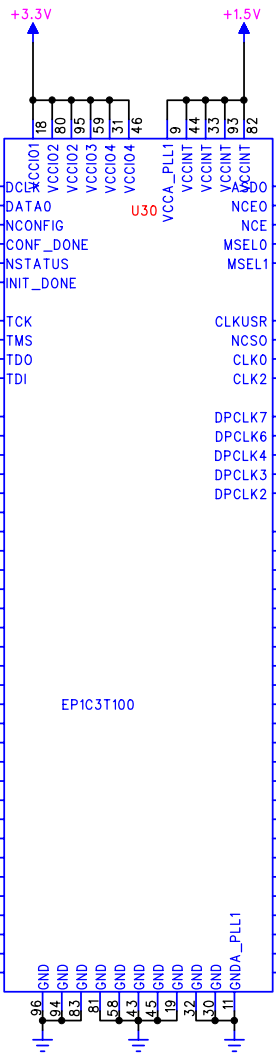
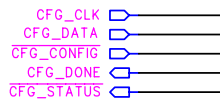
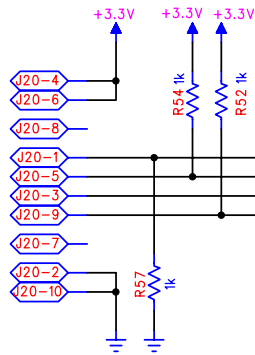
→ Z1_PHA	SPI_CLK_Z1	→
→ Z1_PHB	SPI_DATA_Z1	→
	SPI_SEL_Z1	→
	Z1_PWR	→

→ Z2_PHA	SPI_CLK_Z2	→
→ Z2_PHB	SPI_DATA_Z2	→
	SPI_SEL_Z2	→
	Z2_PWR	→
	Z2_OSC	→

→ R_STEP		→
→ R_DIR		→

→ MOD_TOP		→
→ MOD_BOT		→

ALTERA JTAG DEBUG



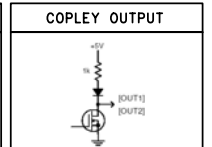
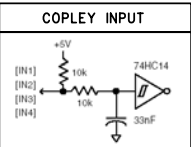
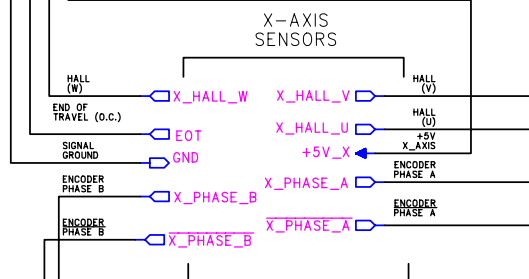
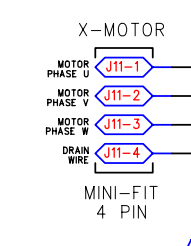
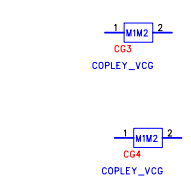
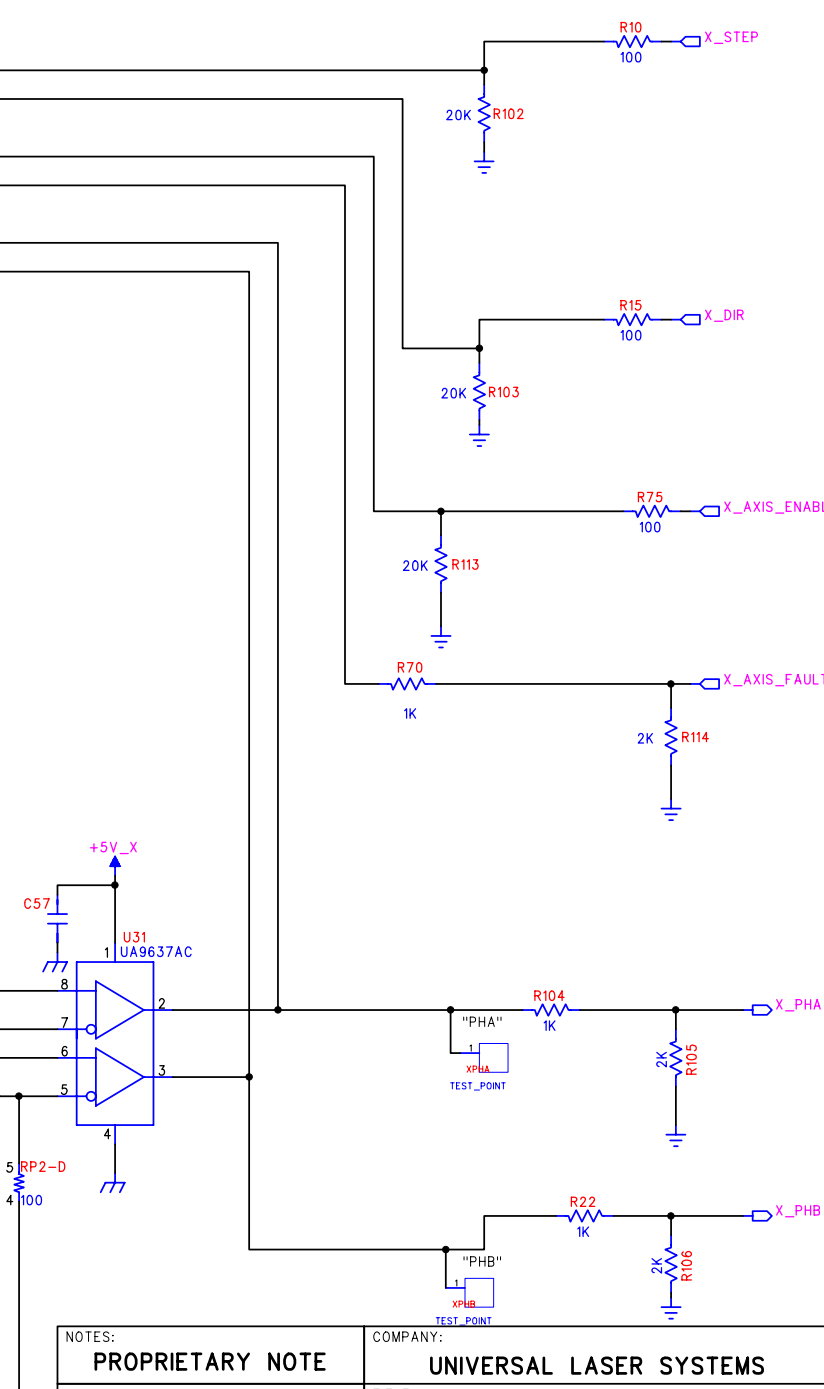
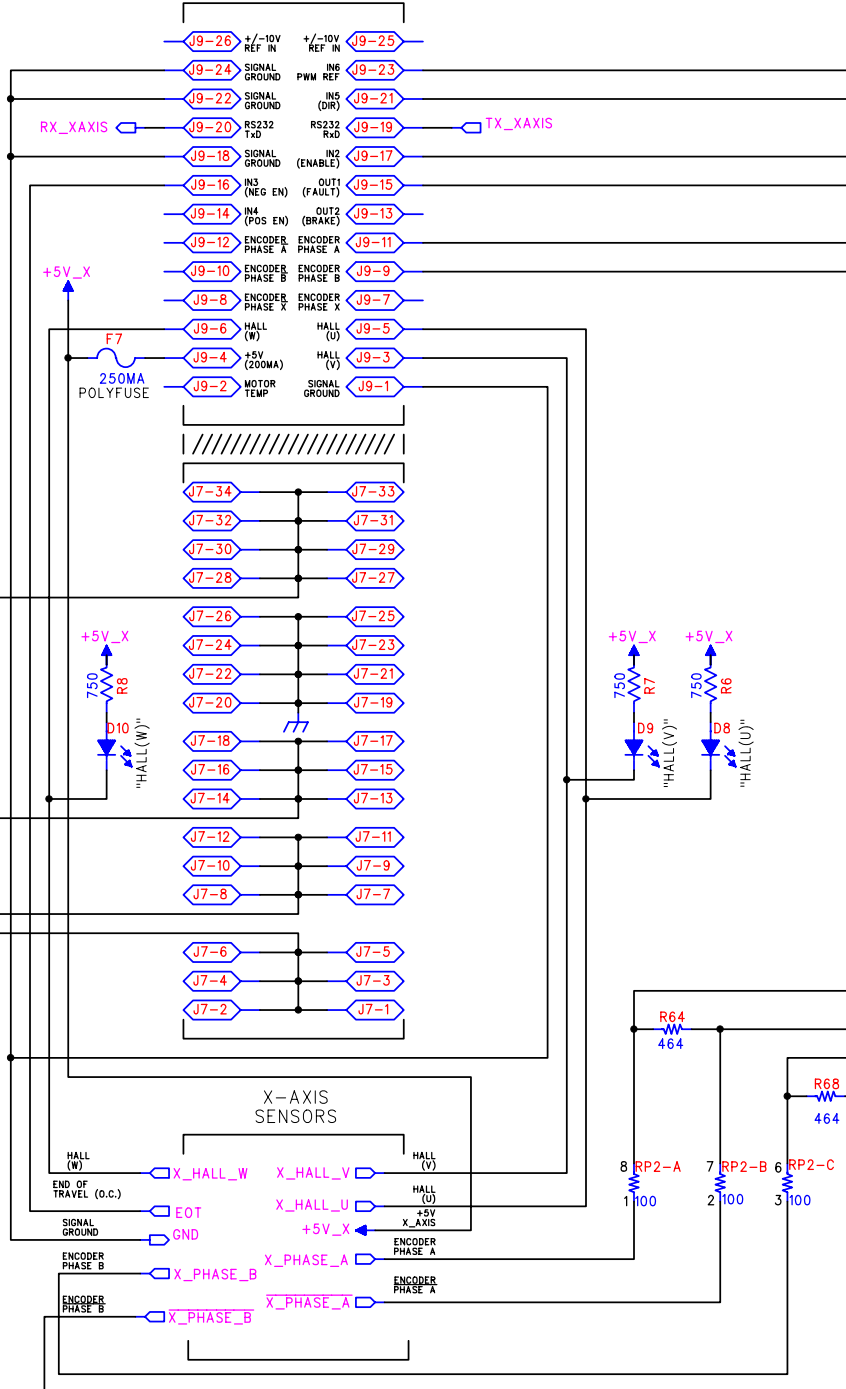
ALL CAPACITORS 0.1UF, 50V 0805  
UNLESS OTHERWISE NOTED  
ALL RESISTORS 0805, 5%  
UNLESS OTHERWISE NOTED

NOTES:  
**PROPRIETARY NOTE**  
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COMPANY:  
**UNIVERSAL LASER SYSTEMS**  
TITLE:  
**XLPRO PROCESSOR ALTERA**  
DRAWING NO:  
**150-0300-0**  
DRAWN: P. Kumarakulasingam  
REV: **F**  
SHEET: 5 OF 9

EXTERNAL NETS	
→ X_STEP	X_FAULT →
→ X_DIR	X_PHA →
→ X_ENABLE	X_PHB →
→ RX_XAXIS	X_EOT →
→ TX_XAXIS	
→ +MOTORBUS	
→ +3.3V	

X-AXIS  
COPLEY ACCELUS  
SERVO CONTROLLER



ALL CAPACITORS 0.1UF, 50V 0805  
UNLESS OTHERWISE NOTED  
ALL RESISTORS 0805, 5%  
UNLESS OTHERWISE NOTED

NOTES:  
**PROPRIETARY NOTE**  
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COMPANY:  
**UNIVERSAL LASER SYSTEMS**  
TITLE:  
**XLPRO PROCESSOR X AXIS SERVO**  
DRAWING NO:  
**150-0300-0**  
REV:  
**F**  
DRAWN: P. Kumarakulasingham  
SHEET: 6 OF 9

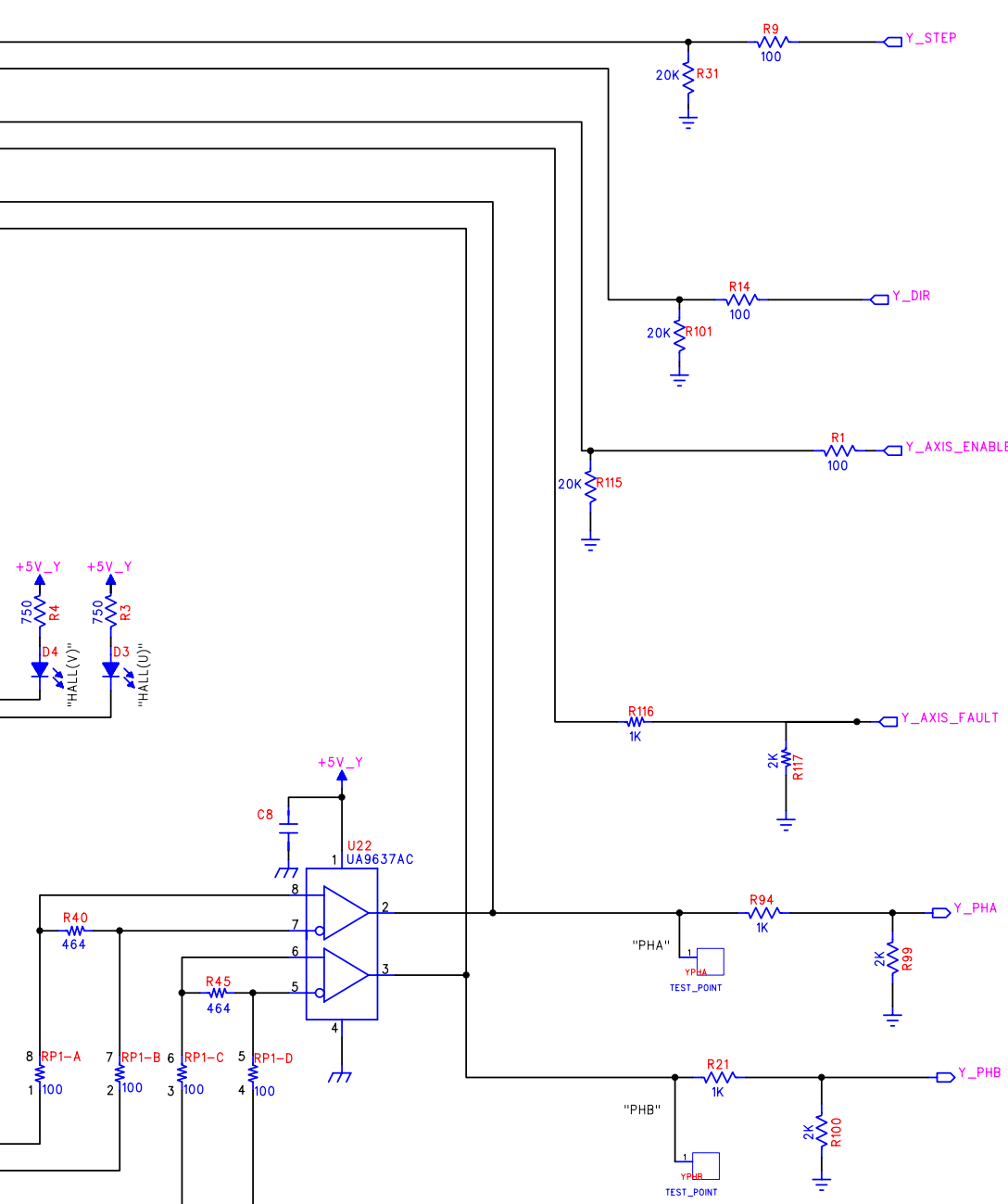
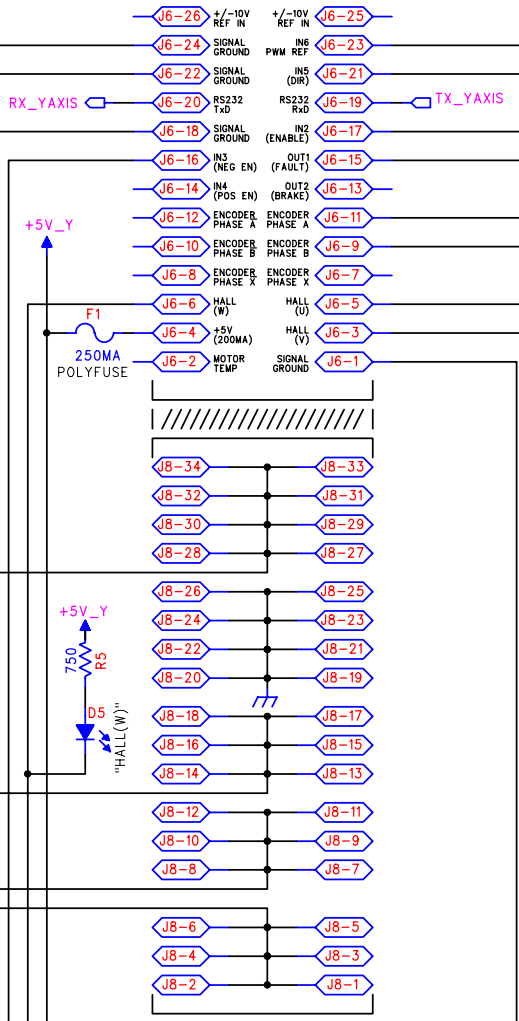
EXTERNAL NETS

- Y\_STEP      Y\_FAULT →
- Y\_DIR        Y\_PHA →
- Y\_ENABLE    Y\_PHB →
- X\_EOT

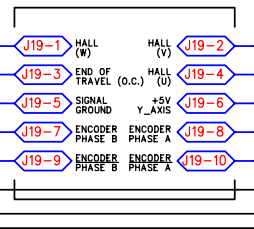
- RX\_Y\_AXIS
- TX\_Y\_AXIS

- +MOTORBUS
- +3.3V

Y-AXIS  
COPLEY ACCELUS  
SERVO CONTROLLER



Y-AXIS SENSORS



-- NOTE --  
LOAD THIS RESISTOR TO ALLOW EITHER THE Y OR Y AXIS AMPLIFIER TO DISABLE THE OTHER

- +5V\_Y
- Z\_ENC\_PHA
- Z\_ENC\_PHB
- Z1L\_UP
- Y\_AXIS\_GND
- Z\_ENC\_PHA
- Z\_ENC\_PHB
- Z1L\_DN

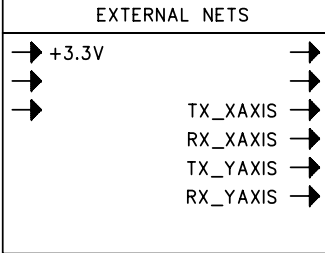
ALL CAPACITORS 0.1UF, 50V 0805  
UNLESS OTHERWISE NOTED  
ALL RESISTORS 0805, 5%  
UNLESS OTHERWISE NOTED

NOTES:  
**PROPRIETARY NOTE**  
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COMPANY:  
**UNIVERSAL LASER SYSTEMS**  
TITLE:  
**VERSALASER PROCESSOR  
Y AXIS SERVO**  
DRAWING NO:  
**150-0300-0**  
REV:  
**F**  
DRAWN: KEVIN HAY  
SHEET: 7 OF 9

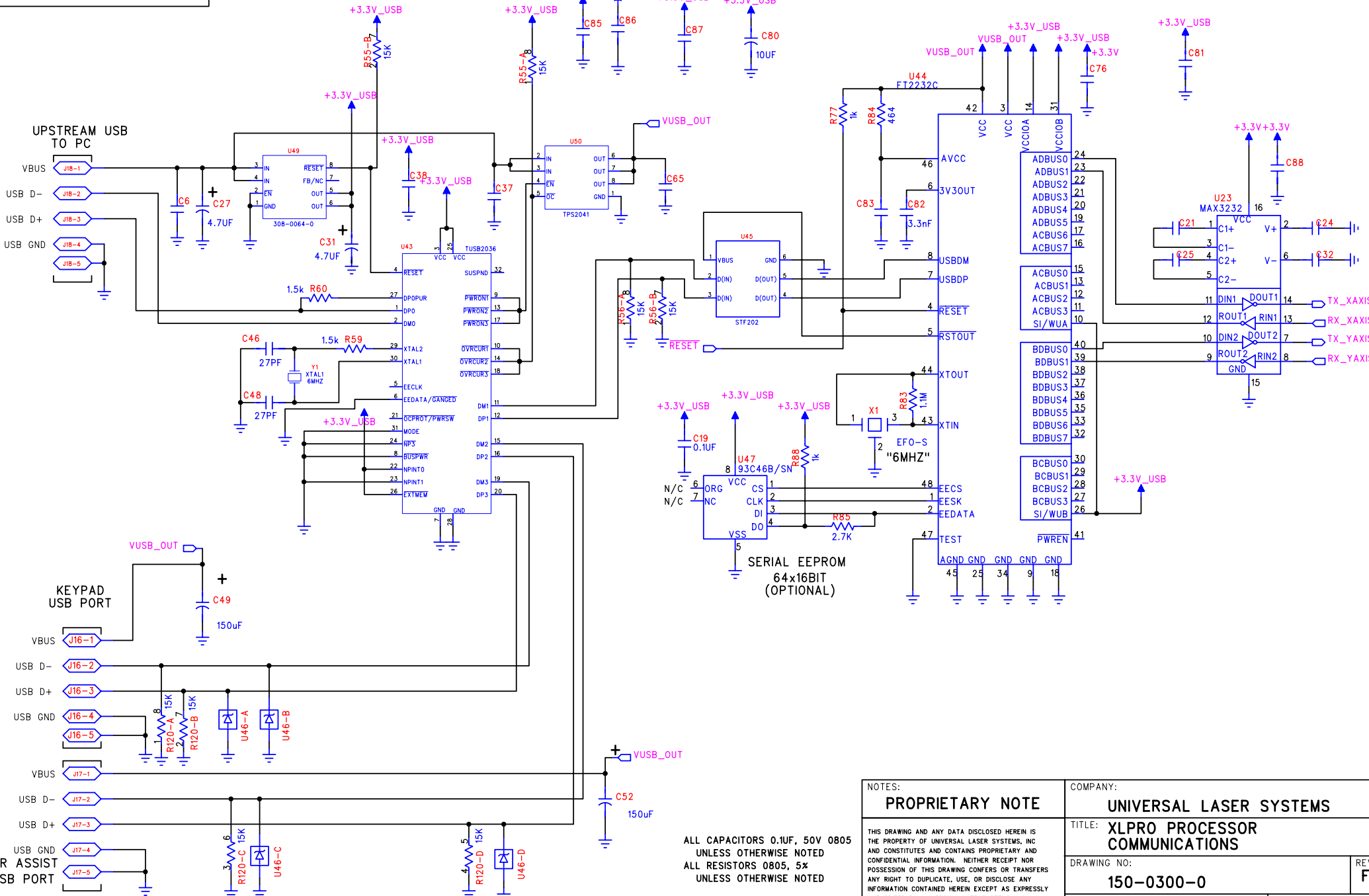






**4 PORT USB HUB**

**USB → RS232 SERIAL PORTS**



NOTES:  
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COMPANY:  
**UNIVERSAL LASER SYSTEMS**  
 TITLE:  
**XLPRO PROCESSOR COMMUNICATIONS**  
 DRAWING NO:  
**150-0300-0**  
 REV:  
**F**  
 DRAWN: P. Kumarakulasingam  
 SHEET: 9 OF 9

ALL CAPACITORS 0.1UF, 50V 0805  
 UNLESS OTHERWISE NOTED  
 ALL RESISTORS 0805, 5%  
 UNLESS OTHERWISE NOTED