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USB-to-UART bridge, RF-module, power supply

UL = UnLoaded = normally not mounted component.

Default jumper settings are indicated in the schematic.  
However, always check jumper positions on actual boards  
since there is no guarantee that all jumpers are in default place.

Rev A

First rev



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TITLE: LPCXpresso Base Board rev A

Document Number:

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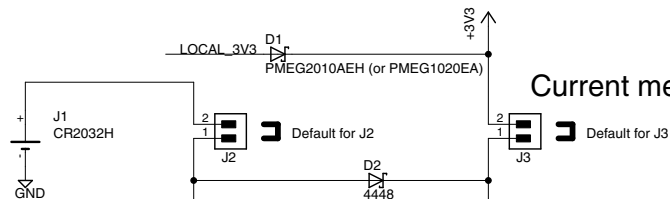
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# LPC-Xpresso and mbed connector (pin naming follow LPC-Xpresso module)

## Battery Connector

Note: battery not included!



## Current measurement

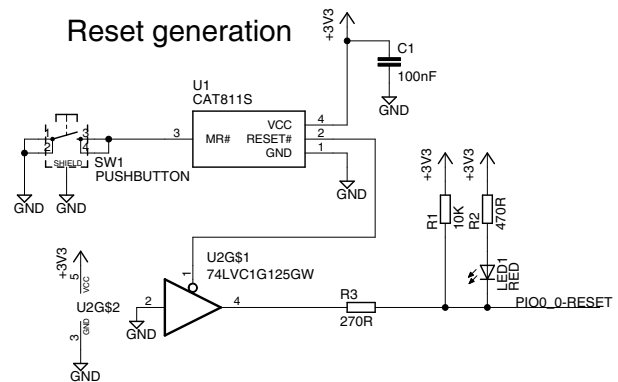
Dual row holes (2x27), 100 mil spacing

mbed module	LPC-Xpresso module
GND	GND
VIN (4.5-14V)	VIN (4.5-5.5V)
VB (battery supply)	not used
nR (reset)	Reset / PIO0_0
SPI1-MOSI	PIO0_9 / MOSI / CT16B0_MAT1 / SWO
SPI1-MISO	PIO0_8 / MISO / CT16B_MAT0
SPI1-SCK	PIO2_11 / SCK
GPIO	PIO0_2 / SSEL / CT16B0_CAP0
UART1-TX / I2C1-SDA	PIO1_7 / TXD / CT32B0_MAT1
UART1-RX / I2C1-SCL	PIO1_6 / RXD / CT32B0_MAT0
SPI2-MOSI	PIO0_7 / CTS
SPI2-MISO	PIO2_0 / DTR
SPI2-SCL / UART2-TX	PIO2_1 / DSR
UART2-RX	PIO2_2 / DCD
AIN0	TDI / PIO0_11 / AD0 / CT32B0_MAT3
AIN1	TMS / PIO1_0 / AD1 / CT32B1_CAP0
AIN2	TDO / PIO1_1 / AD2 / CT32B1_MAT0
AIN3 / AOUT	TRST / PIO1_2 / AD3 / CT32B1_MAT1
AIN4	SWDIO / PIO1_3 / AD4 / CT32B1_MAT2
AIN5	PIO1_4 / AD5 / CT32B1_MAT3 / WAKEUP
	PIO1_5 / RTS / CT32B0_CAP0
	PIO1_8 / CT16B1_CAP0
	PIO0_6 / USB_CONNECT / SCK
	SWCLK / PIO0_10 / SCK / CT16B0_MAT2
	PIO3_0
	PIO3_1
	PIO3_2

GND	J4-1	J4-28
VIN	J4-2	J4-29
VBAT	J4-3	J4-30
PIO0_0-RESET	J4-4	J4-31
PIO0_9-MOSI	J4-5	ETH_RXN J4-32
PIO0_8-MISO	J4-6	ETH_RXP J4-33
PIO2_11-SCK	J4-7	ETH_TXN J4-34
PIO0_2	J4-8	ETH_TXP J4-35
PIO1_7-TXD	J4-9	USB_DM J4-36
PIO1_6-RXD	J4-10	USB_DP J4-37
PIO0_7	J4-11	PIO0_1-BL_EN J4-38
PIO2_0	J4-12	PIO0_3-VBUS_SENSE
PIO2_1	J4-13	PIO0_5-SDA J4-40
PIO2_2	J4-14	PIO0_4-SCL J4-41
PIO0_11	J4-15	PIO1_9 J4-42
PIO1_0	J4-16	PIO1_10 J4-43
PIO1_1	J4-17	PIO1_11 J4-44
PIO1_2	J4-18	PIO2_3 J4-45
PIO1_3	J4-19	PIO2_4 J4-46
PIO1_4-WAKEUP	J4-20	PIO2_5 J4-47
PIO1_5	J4-21	PIO2_6 J4-48
PIO1_8	J4-22	PIO2_7 J4-49
PIO0_6-USB_CONNECT	J4-23	PIO2_8 J4-50
PIO0_10	J4-24	PIO2_9 J4-51
PIO3_0	J4-25	PIO2_10 J4-52
PIO3_1	J4-26	PIO3_3 J4-53
PIO3_2	J4-27	GND J4-54

LPC-Xpresso module	mbed module
VOUT (+3.3V out) if self powered, else +3.3V input	VOUT (3.3V out)
not used	VU (5.0V USB out)
not used	IF+
not used	IF-
not used	RD- (Ethernet)
not used	RD+ (Ethernet)
not used	TD- (Ethernet)
not used	TD+ (Ethernet)
USB_DM PIO2_4 for LPC1114	D- (USB)
USB_DP PIO2_5 for LPC1114	D+ (USB)
PIO0_1 / CLKOUT / CT32B0_MAT2 / USB_FTOGGLE	CAN-RD
PIO0_3 / USB_VBUS	CAN-TD
PIO0_5 / SDA	UART3-TX / I2C2-SDA
PIO0_4 / SCL	UART3-RX / I2C2-SCL
PIO1_9 / CT16B1_MAT0	PWMOUT0
PIO1_10 / AD6 / CT16B1_MAT1	PWMOUT1
PIO1_11 / AD7	PWMOUT2
PIO2_3 / RI	PWMOUT3
PIO2_4 PIO3_4 for LPC1114	PWMOUT4
PIO2_5 PIO3_5 for LPC1114	PWMOUT5
PIO2_6	
PIO2_7	
PIO2_8	
PIO2_9	
PIO2_10	
PIO3_3	
GND	

## Reset generation



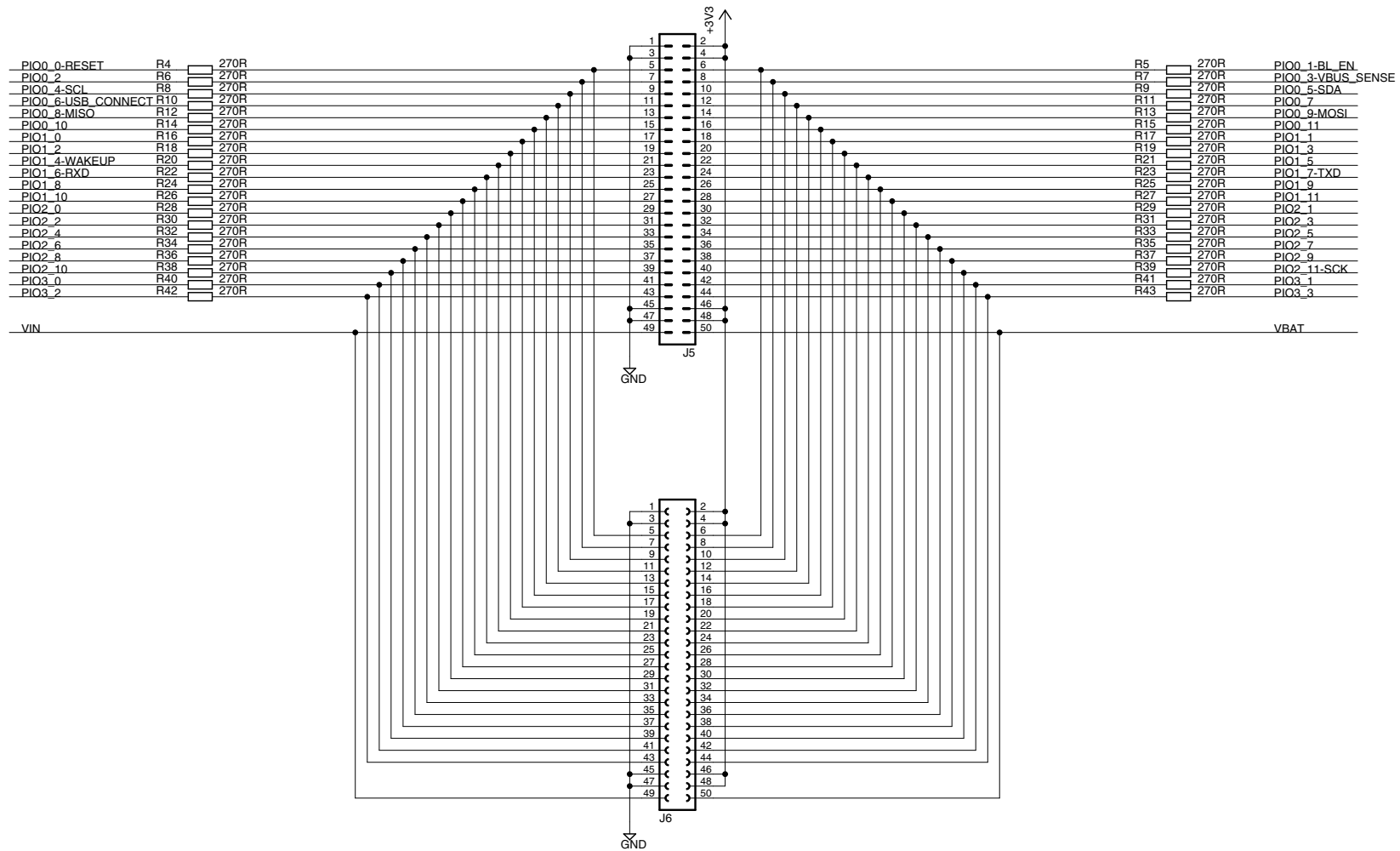
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# Expansion Connector



## Expansion Connector for Breadboard



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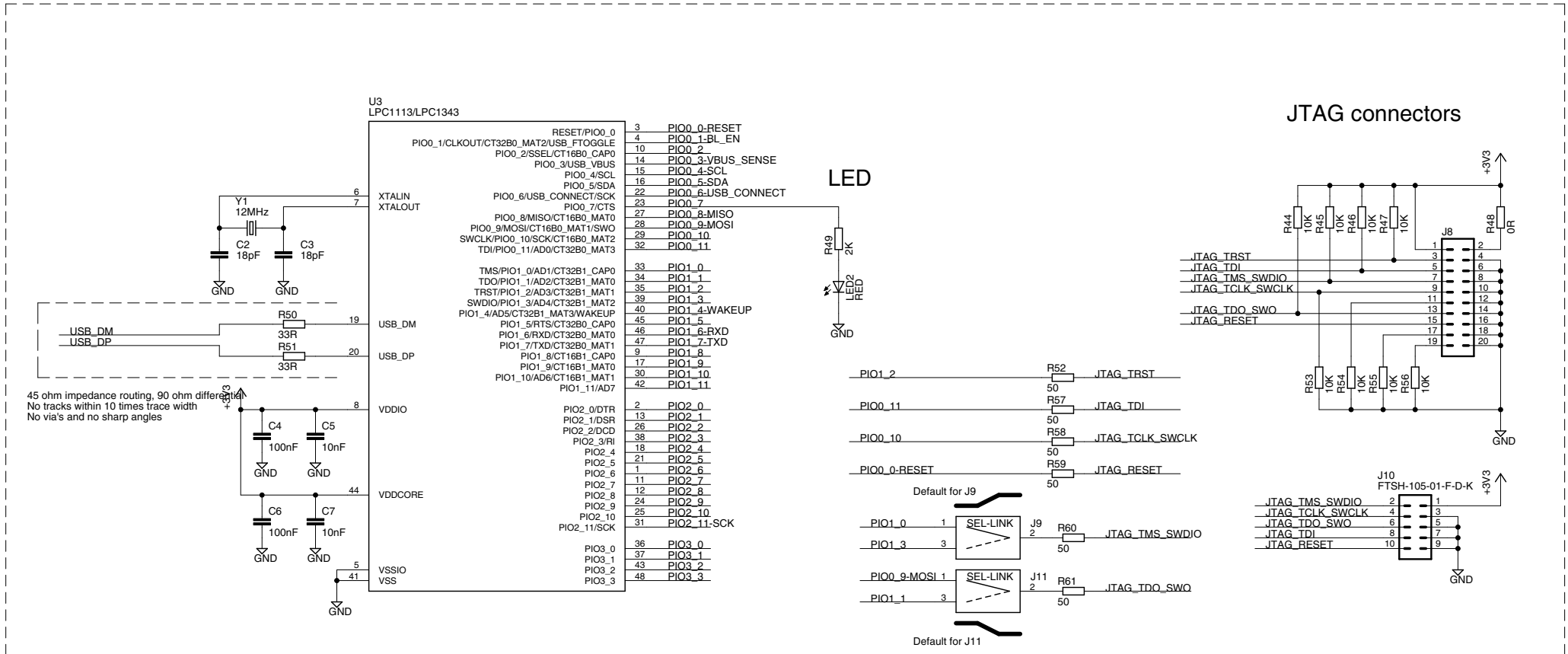
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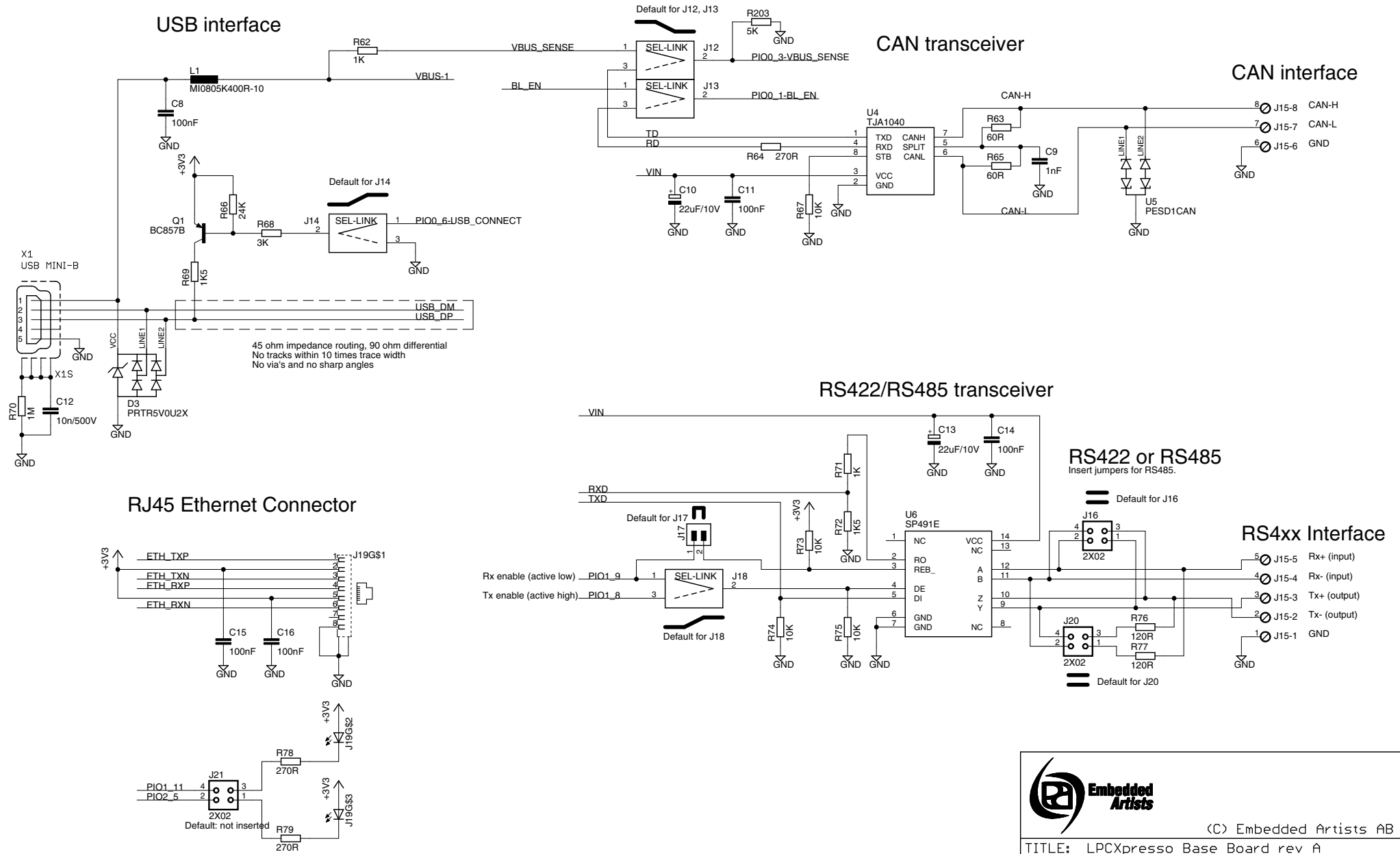

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## Optional LPC1113/LPC1343 for standalone boards (placed inbetween LPC-Xpresso/mbed connector)



# mbed module interfaces (Ethernet and CAN), common USB interface and RS422/485 interface

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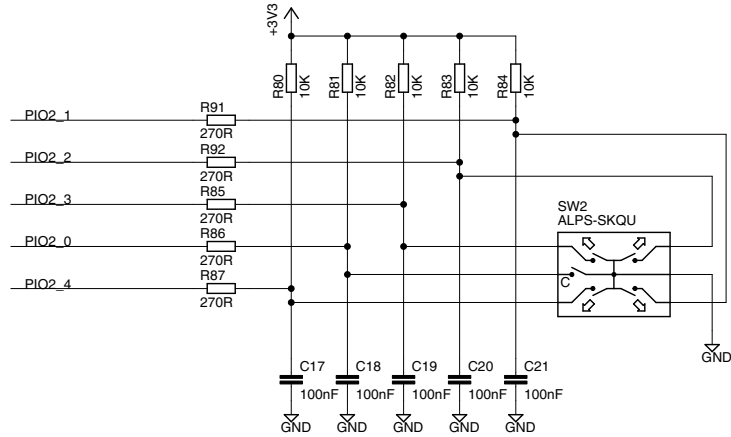
TITLE: LPCxpresso Base Board rev A

Document Number: \_\_\_\_\_ REV: \_\_\_\_\_

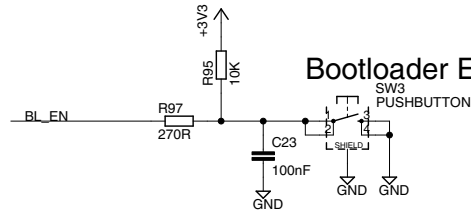
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Direct Digital IO peripherals

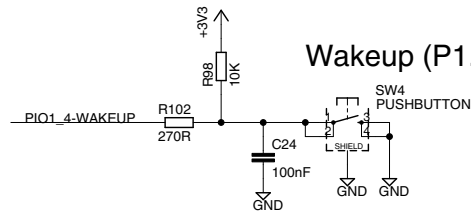
Joystick Switch



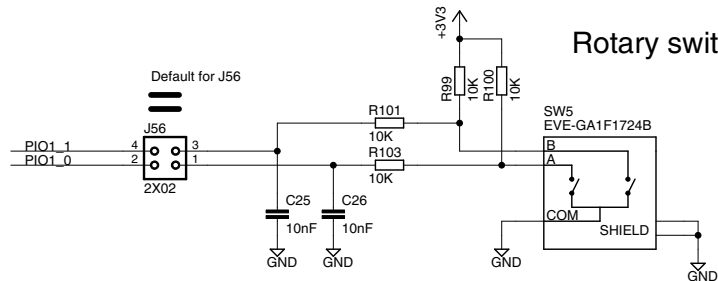
Bootloader Enable (P0.1)



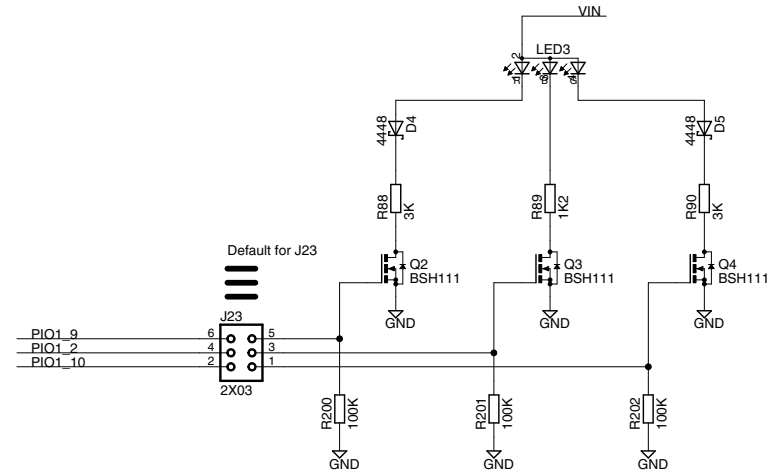
Wakeup (P1.4)



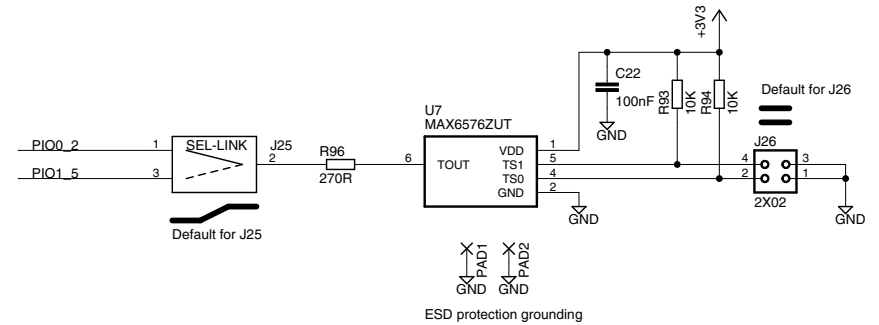
Rotary switch - Quadrature signals



RGB-LED



Temp sensor: MAX6576 (temp-to-period)



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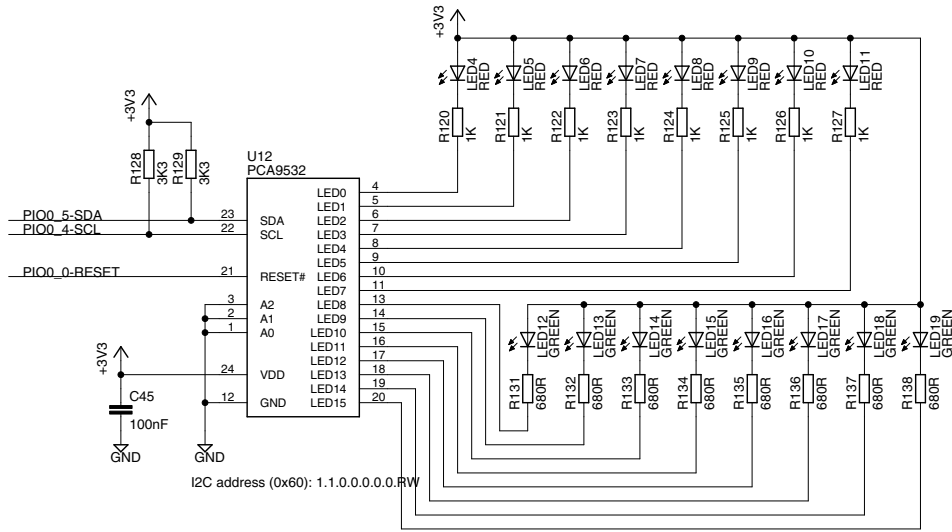
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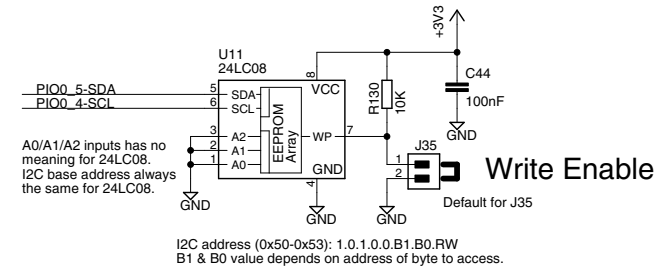


I2C peripherals

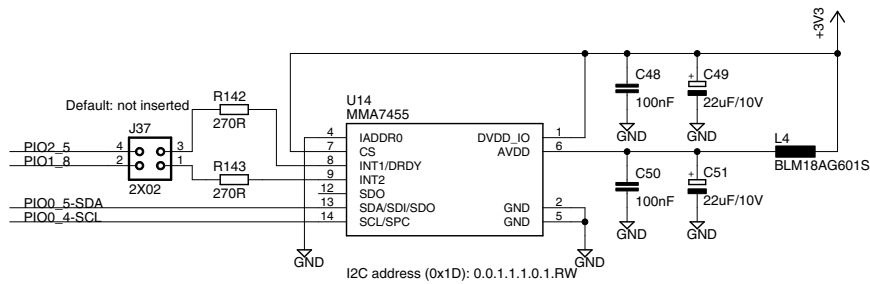
PCA9532 I2C 16-bit Port Expander



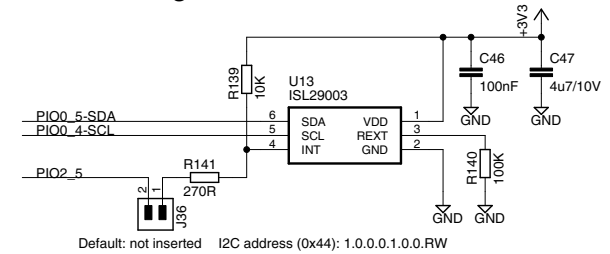
8kbit I2C-E2PROM



MMA7455 Accelerometer with I2C interface



Light Sensor - ISL29003



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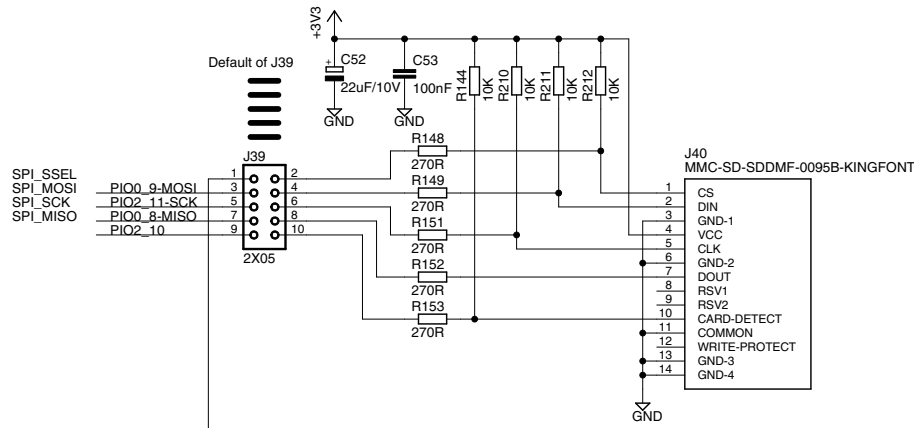
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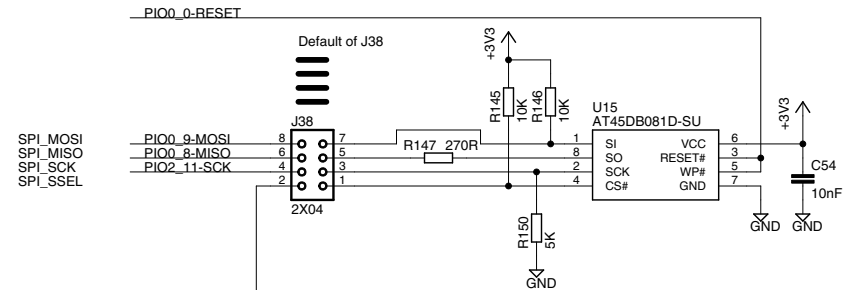


# SPI peripherals

## MMC/SD Memory Card Interface

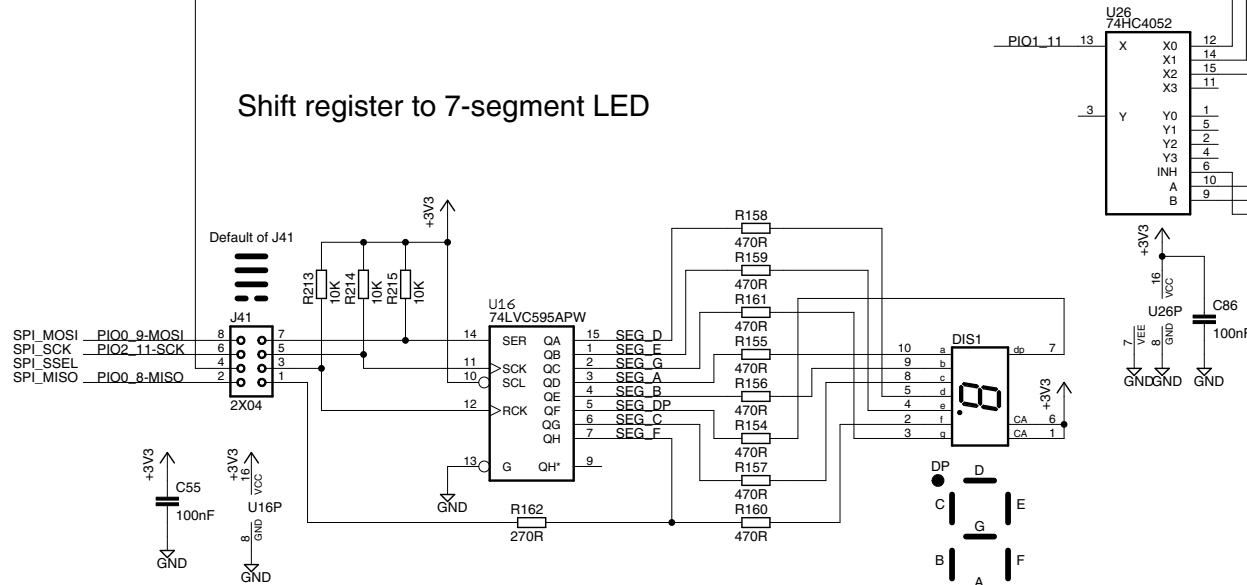


## SPI-FLASH

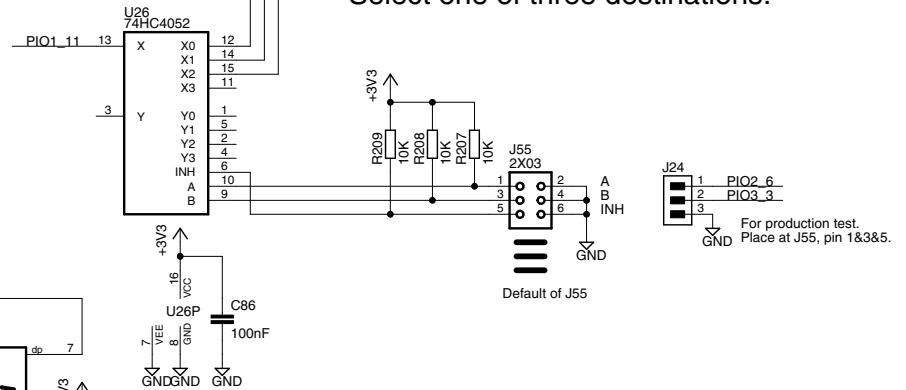
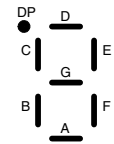


PIO1\_11 used as SSEL for all three circuits.  
Select one of three destinations.

## Shift register to 7-segment LED



How display segments are positioned when looking at board with BNC connector facing towards you.



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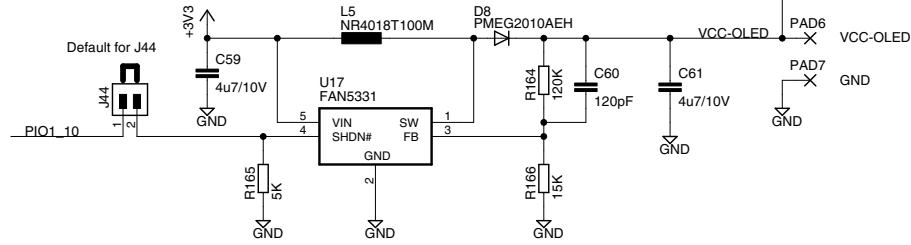
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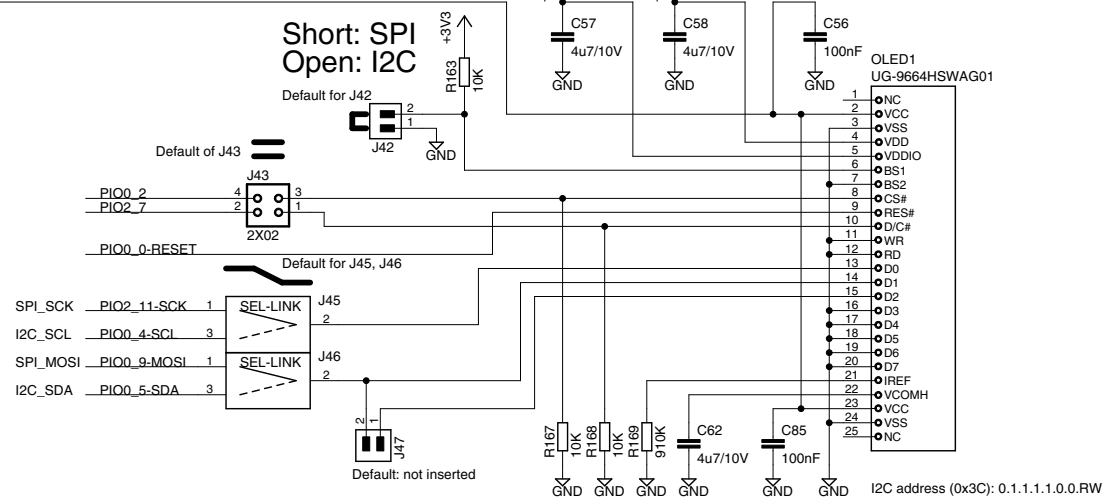
Shared SPI/I2C peripherals

96x64 White OLED with I2C/SPI interface

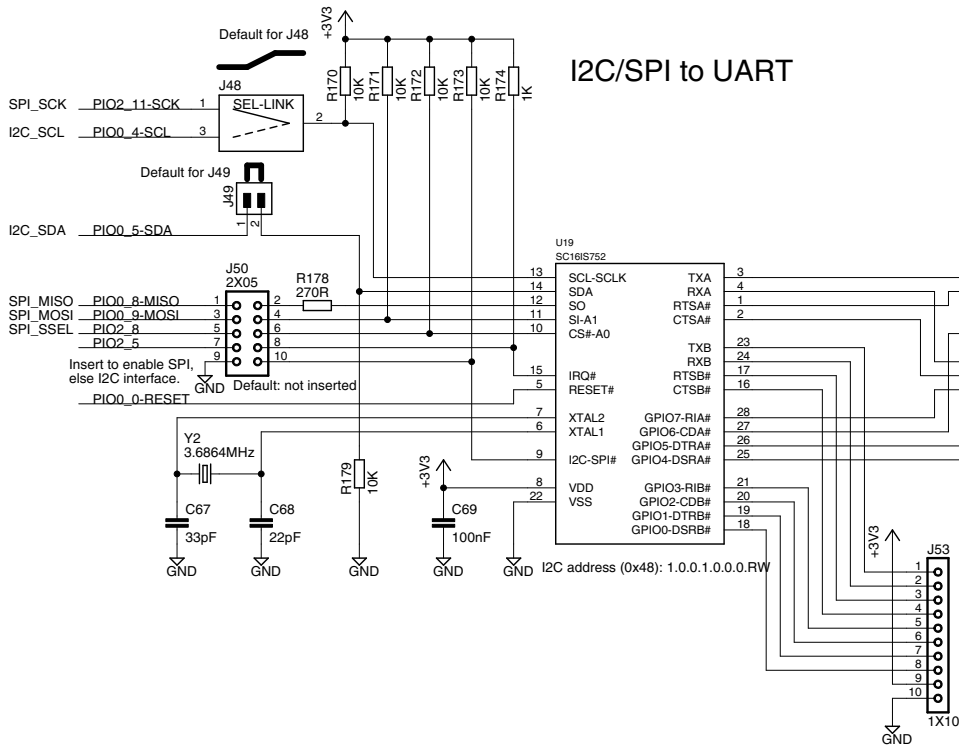
OLED voltage (11V)



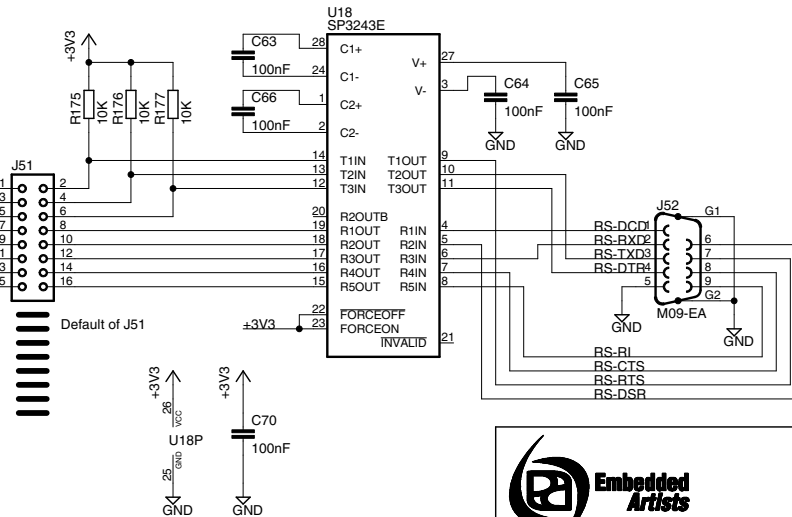
Short: SPI  
Open: I2C



I2C/SPI to UART



UART RS232 Full Modem



Expansion connector for second UART



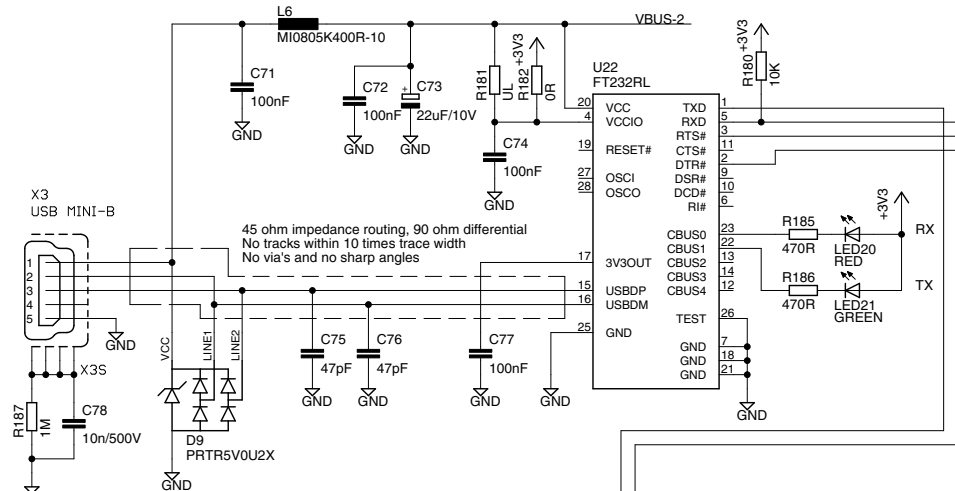
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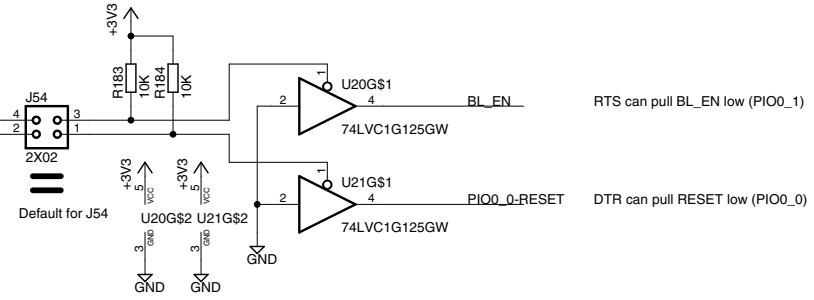
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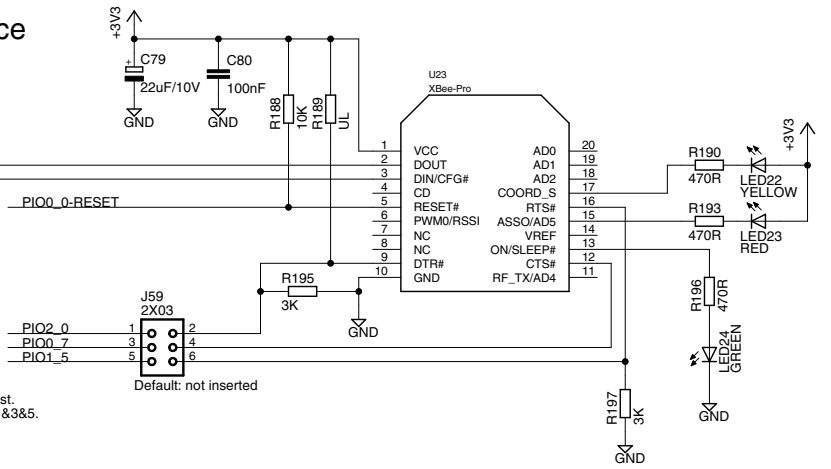
## USB-to-UART bridge interface



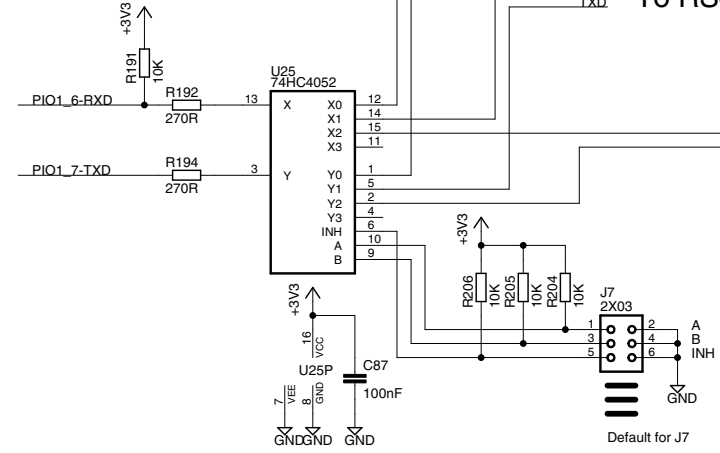
## ISP Functionality



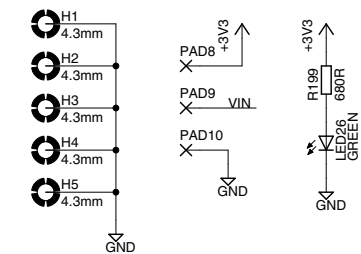
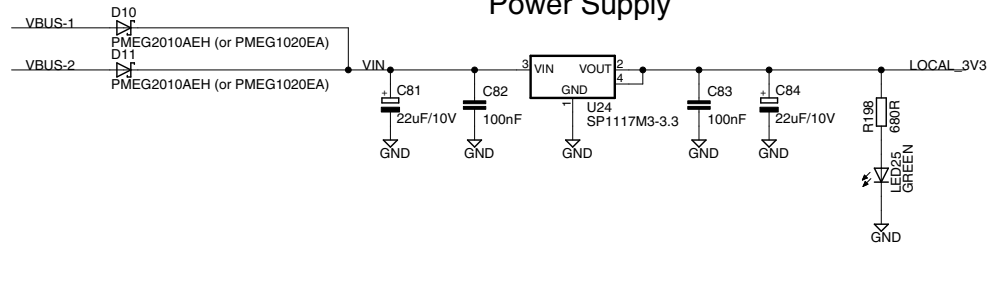
## Digi XBee(R) RF-module




## To RS422/485 interface



## Power Supply





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