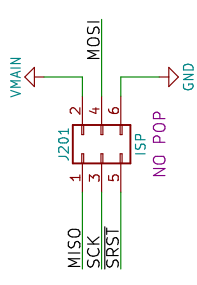
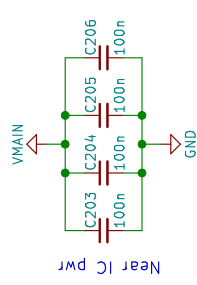
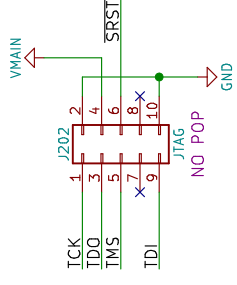


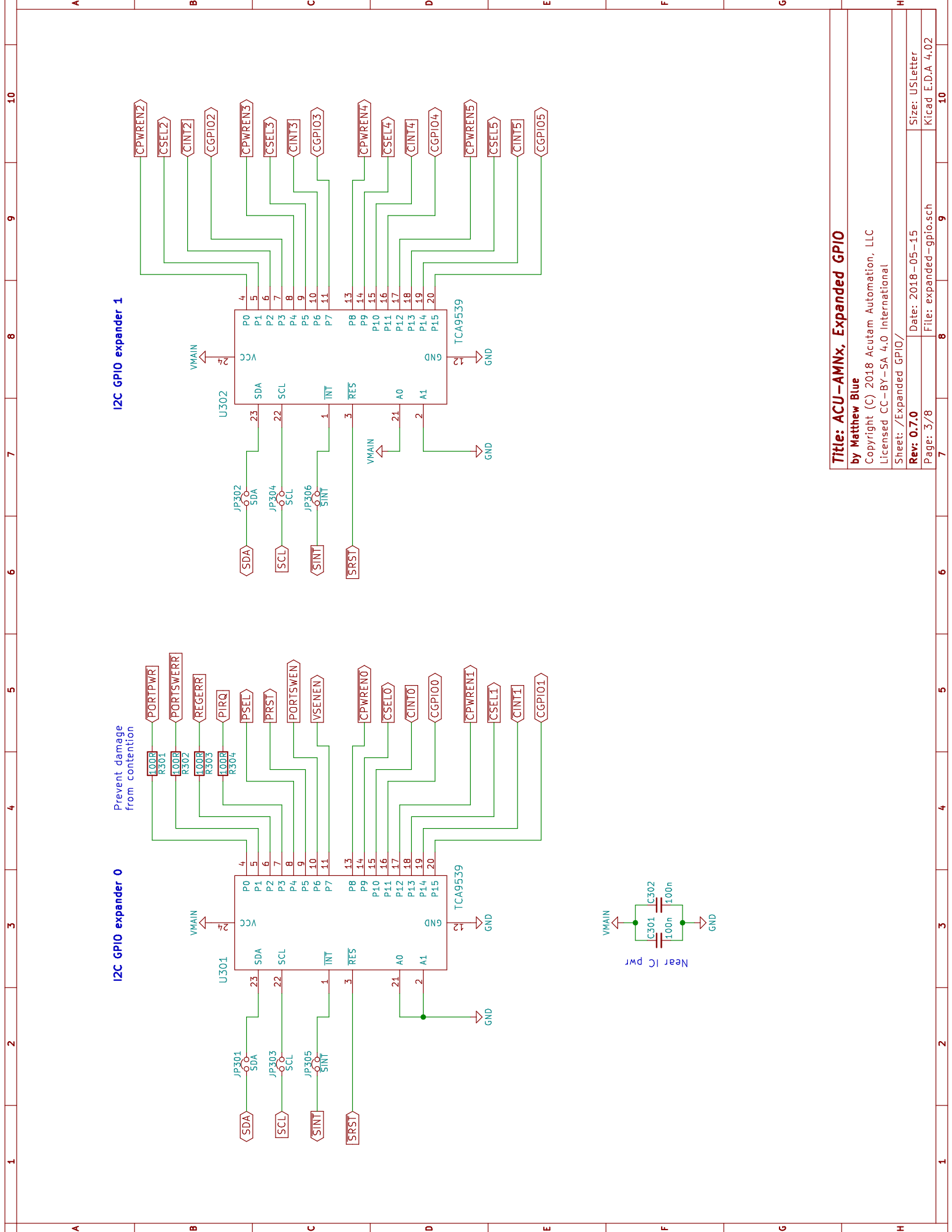
Development ISP



Diagnostic JTAG



Title: ACU-AMNx, Microcontroller
 by Matthew Blue
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 Sheet: /MCU/
 Rev: 0.7.0
 Date: 2018-05-15
 File: mcu.sch

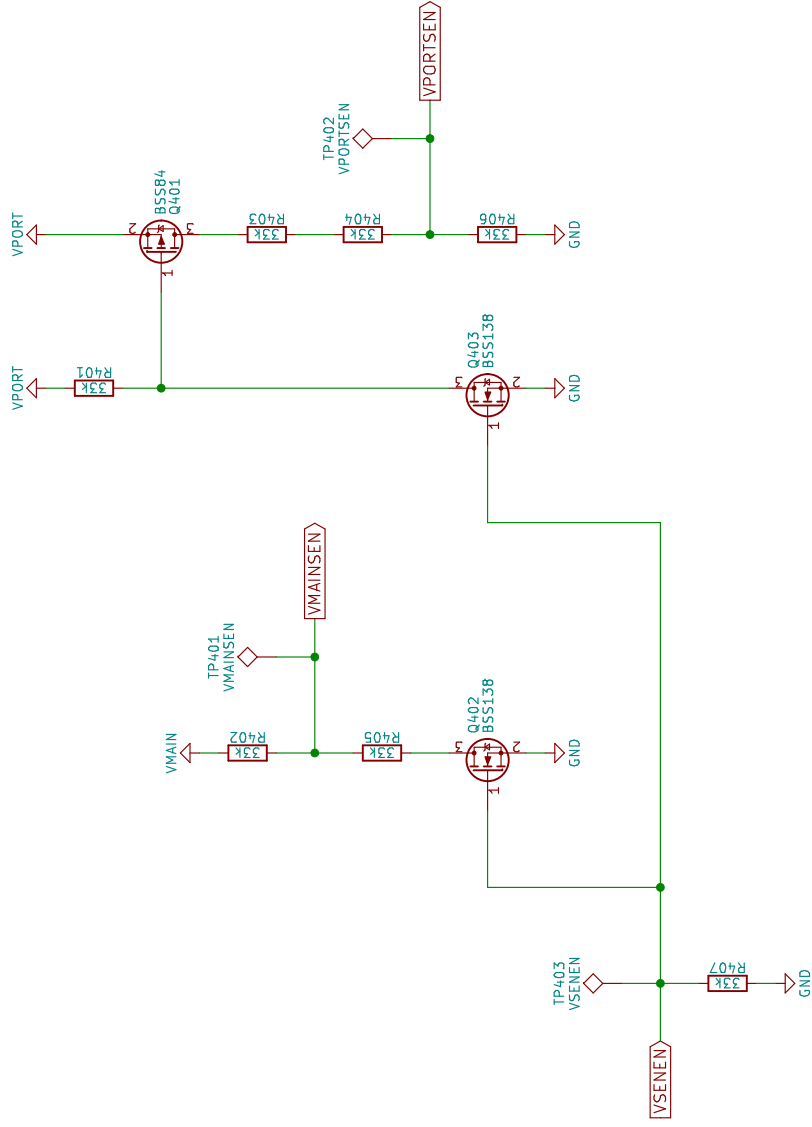


I2C GPIO expander 1

I2C GPIO expander 0

Prevent damage from contention

Title: ACU-AMNx, Expanded GPIO
 by **Matthew Blue**
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Rev: 0.7.0 Date: 2018-05-15
 Page: 3/8 File: expanded-gpio.sch



Title: ACU-AMNx, Analog Sense

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Sheet: /Analog Sense/

Date: 2018-05-15

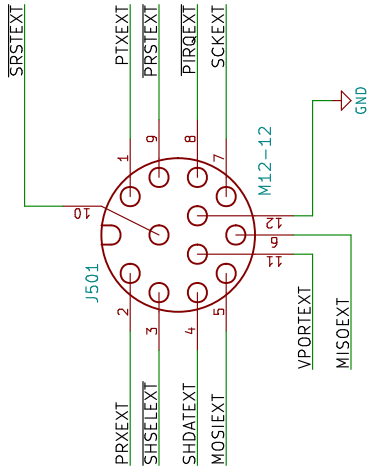
Page: 4/8

File: analog-sense.sch

Size: USLetter

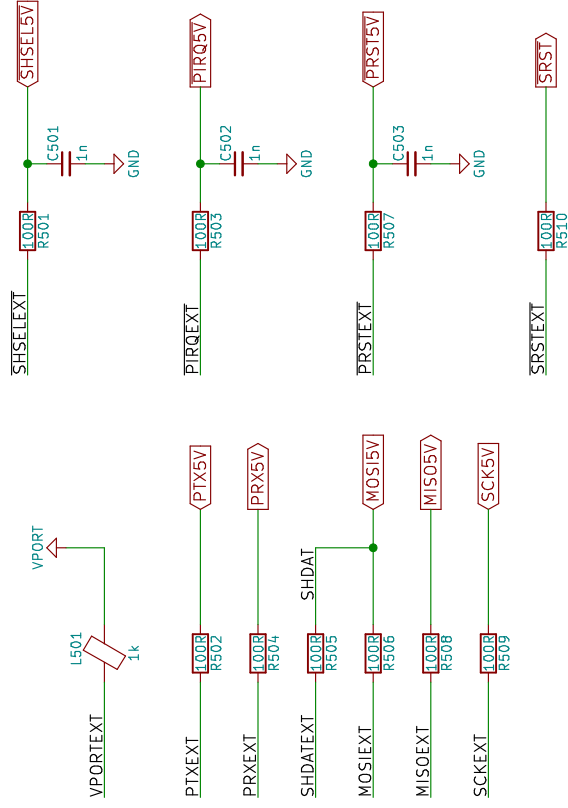
Kicad E.D.A 4.02

External port

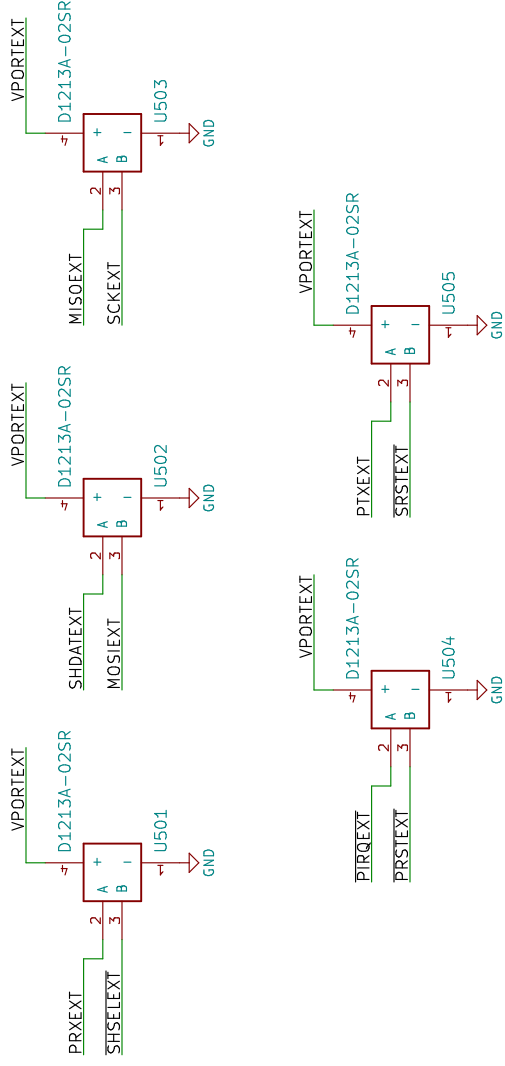


Series impedances

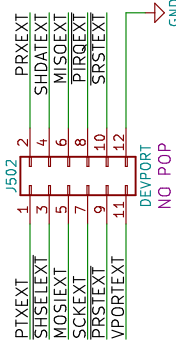
Suppress builtin TVS. series termination. EMI suppression, prevent damage from contention



ESD, EFT, surge protection



Development external port header



Signal key:
 PTX – Port TX (system STDOUT)
 PRX – Port RX (system STDIN)
 SHSEL – Select shift register select
 SHDAT – Select shift register data
 MOSI – Shared SPI MOSI
 MISO – Shared SPI MISO
 SCK – Shared SPI SCK
 PIRQ – Port interrupt request
 PRST – Port reset (for programming downstream)
 SRST – System reset (for programming the AMN board)

Title: ACU-AMNx, External Port

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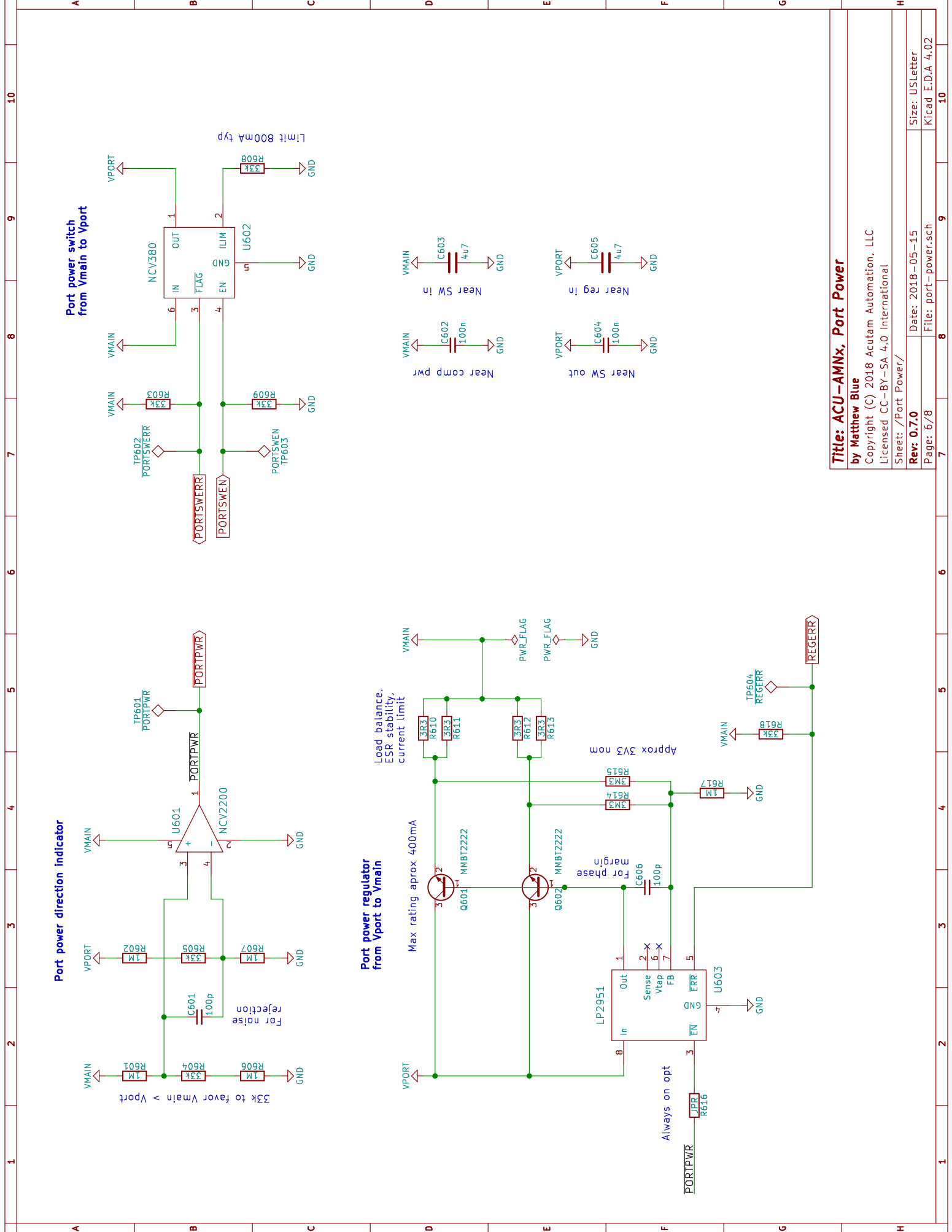
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Rev: 0.7.0 Date: 2018-05-15

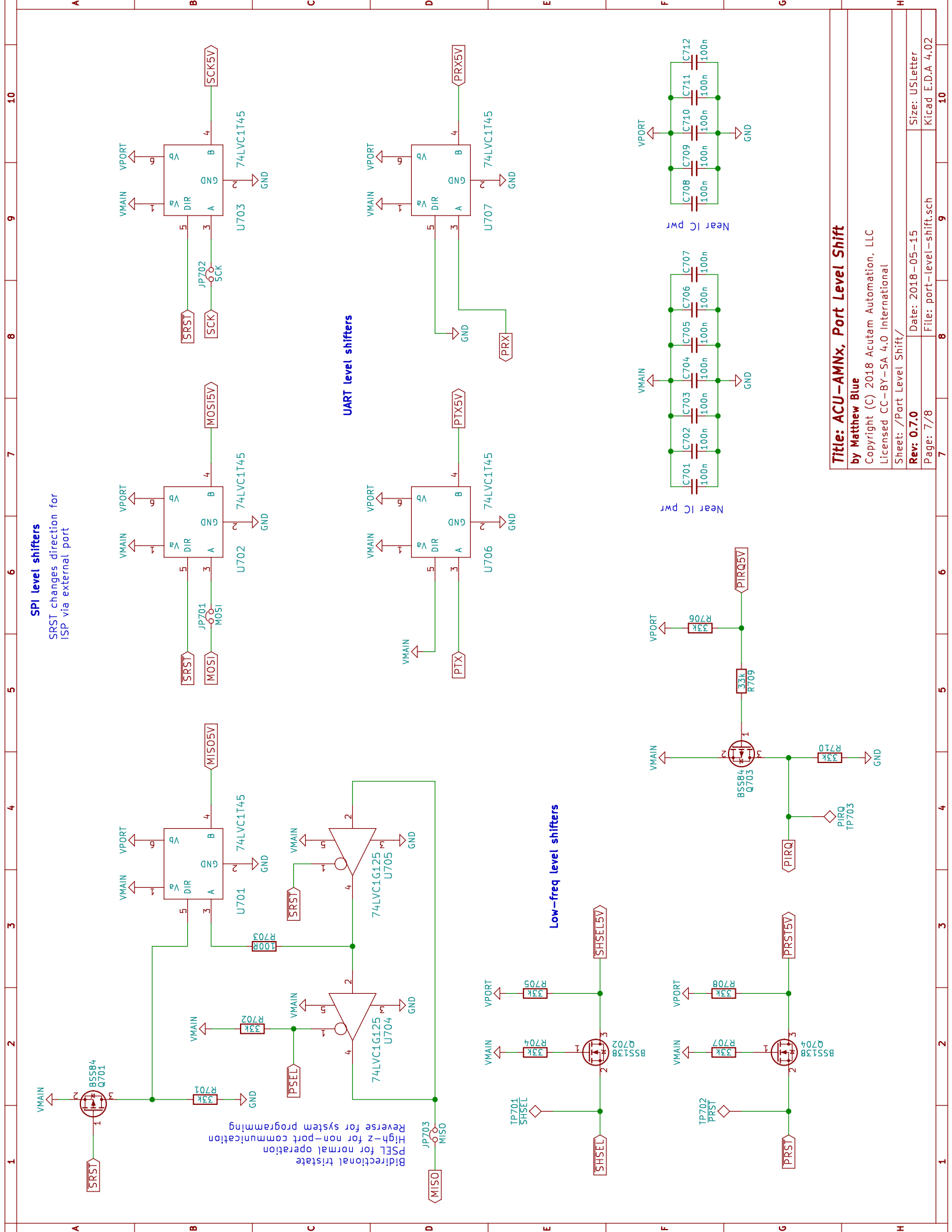
Page: 5/8 File: external-port.sch

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 Rev: 0.7.0
 Date: 2018-05-15
 File: port-power.sch



SPI level shifters

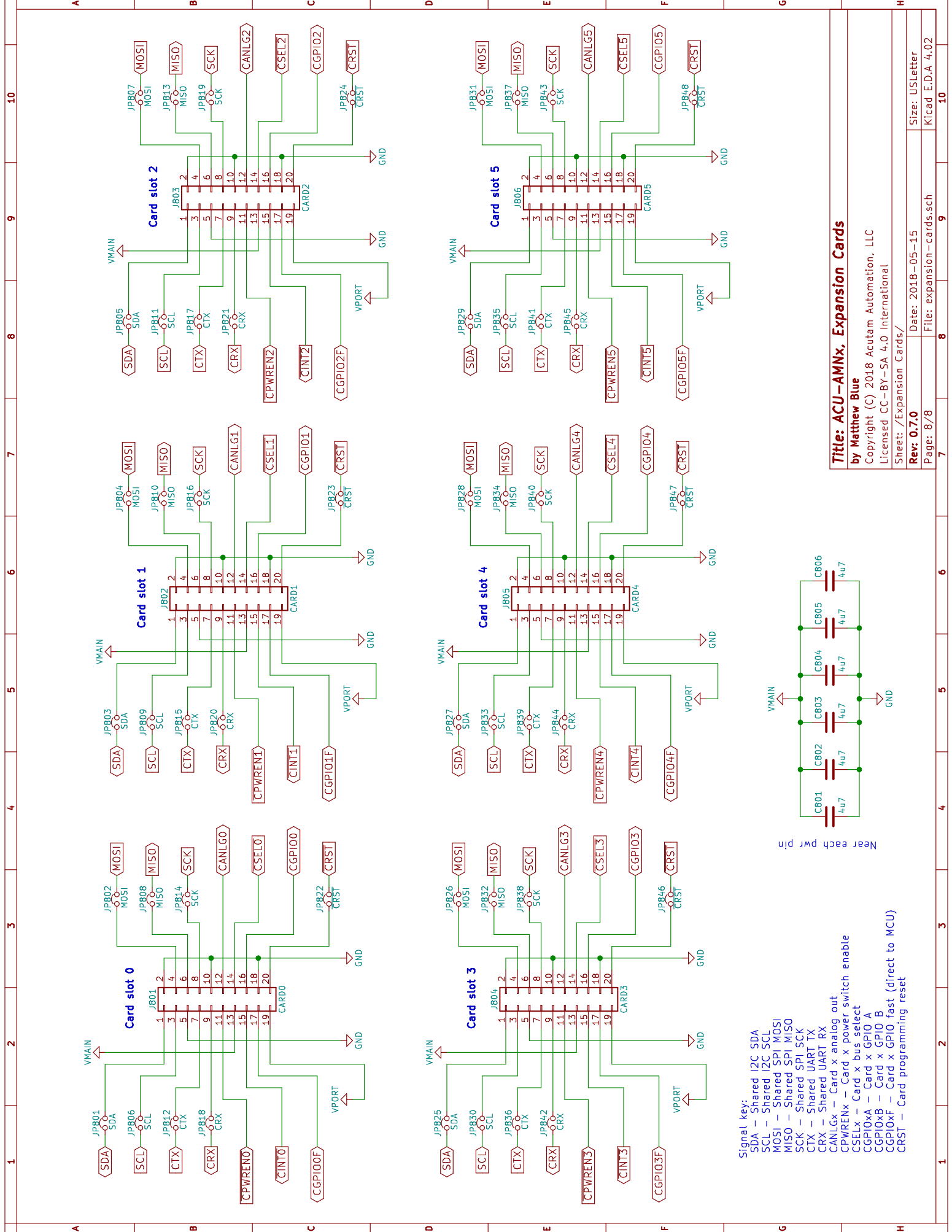
SRST changes direction for ISP via external port

UART level shifters

Low-freq level shifters

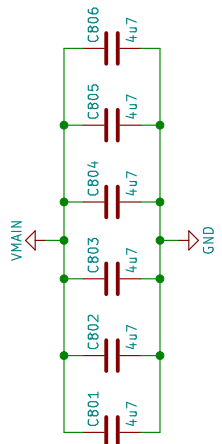
Title: ACU-AMNx, Port Level Shift

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Signal key:
 SDA – Shared I2C SDA
 SCL – Shared I2C SCL
 MOSI – Shared SPI MOSI
 MISO – Shared SPI MISO
 SCK – Shared SPI SCK
 CTX – Shared UART TX
 CRX – Shared UART RX
 CANLgX – Card x analog out
 CPWRENx – Card x power switch enable
 CSELx – Card x bus select
 CGPIOxA – Card x GPIO A
 CGPIOxB – Card x GPIO B
 CGPIOxF – Card x GPIO fast (direct to MCU)
 CRST – Card programming reset

Near each pwr pin



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 Page: 8/8