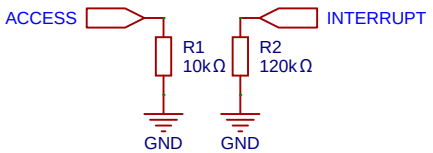
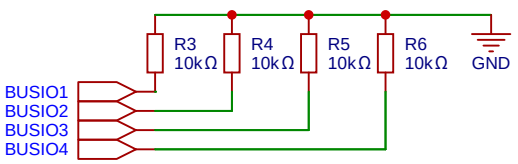
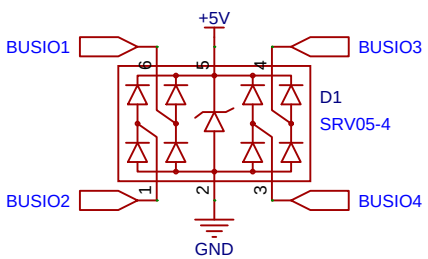
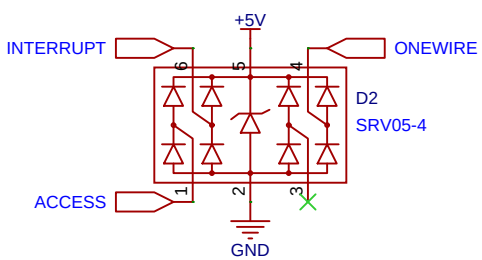
USB Hub Switch
4 port USB 2.0 switch
SL2.1A hub controller
Switch power and data to downstream ports
Overcurrent outputs all assert the interrupt pin
Can switch the ports individually or ganged
i.e. "Smart Switch"

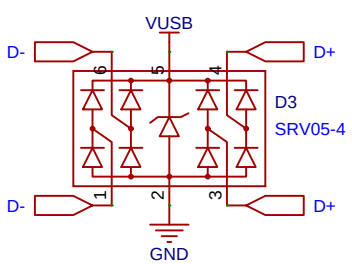


Input Pulldowns & ESD Protection

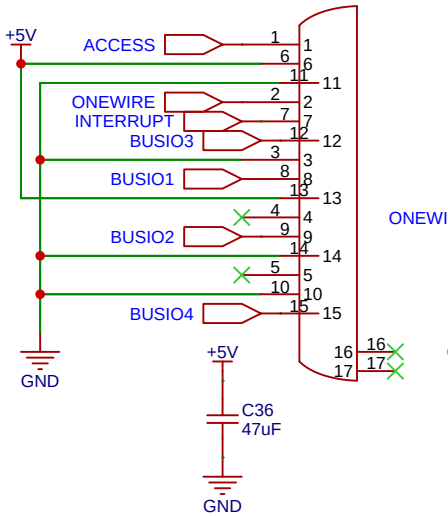




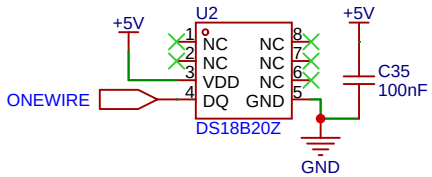


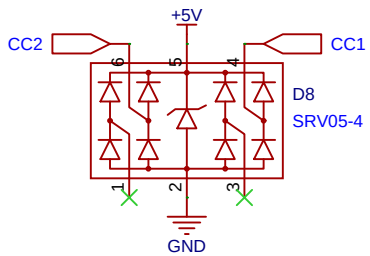


Bus 15P Connection

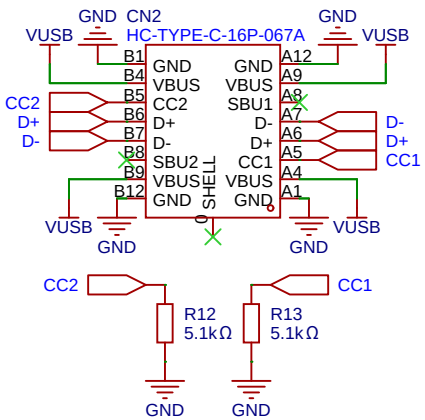


OneWire Temperature & EEPROM

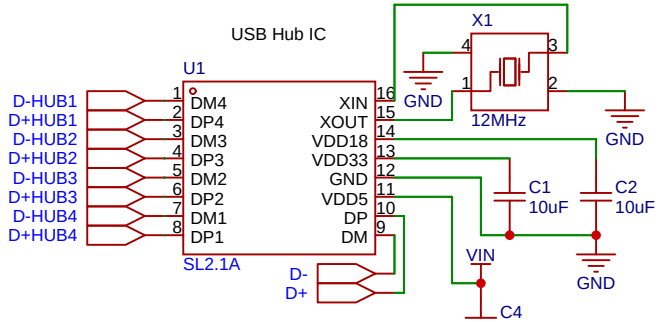




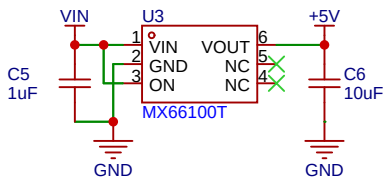
Upstream USB Port



USB Hub IC

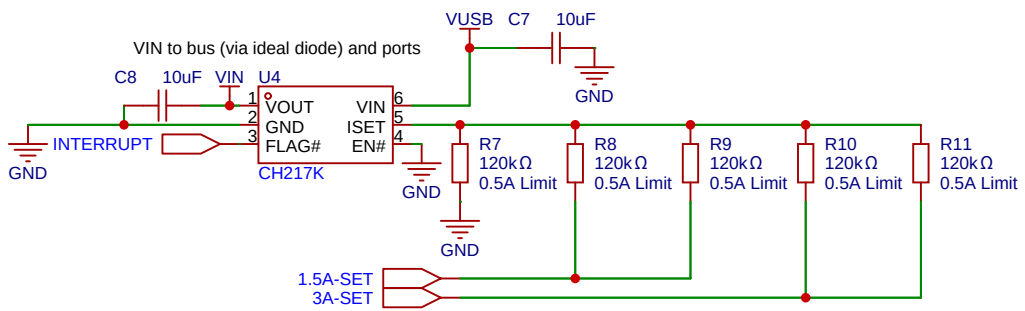


Ideal Diode - to bus and internal control



Input Current Limit (Always On)

VIN to bus (via ideal diode) and ports

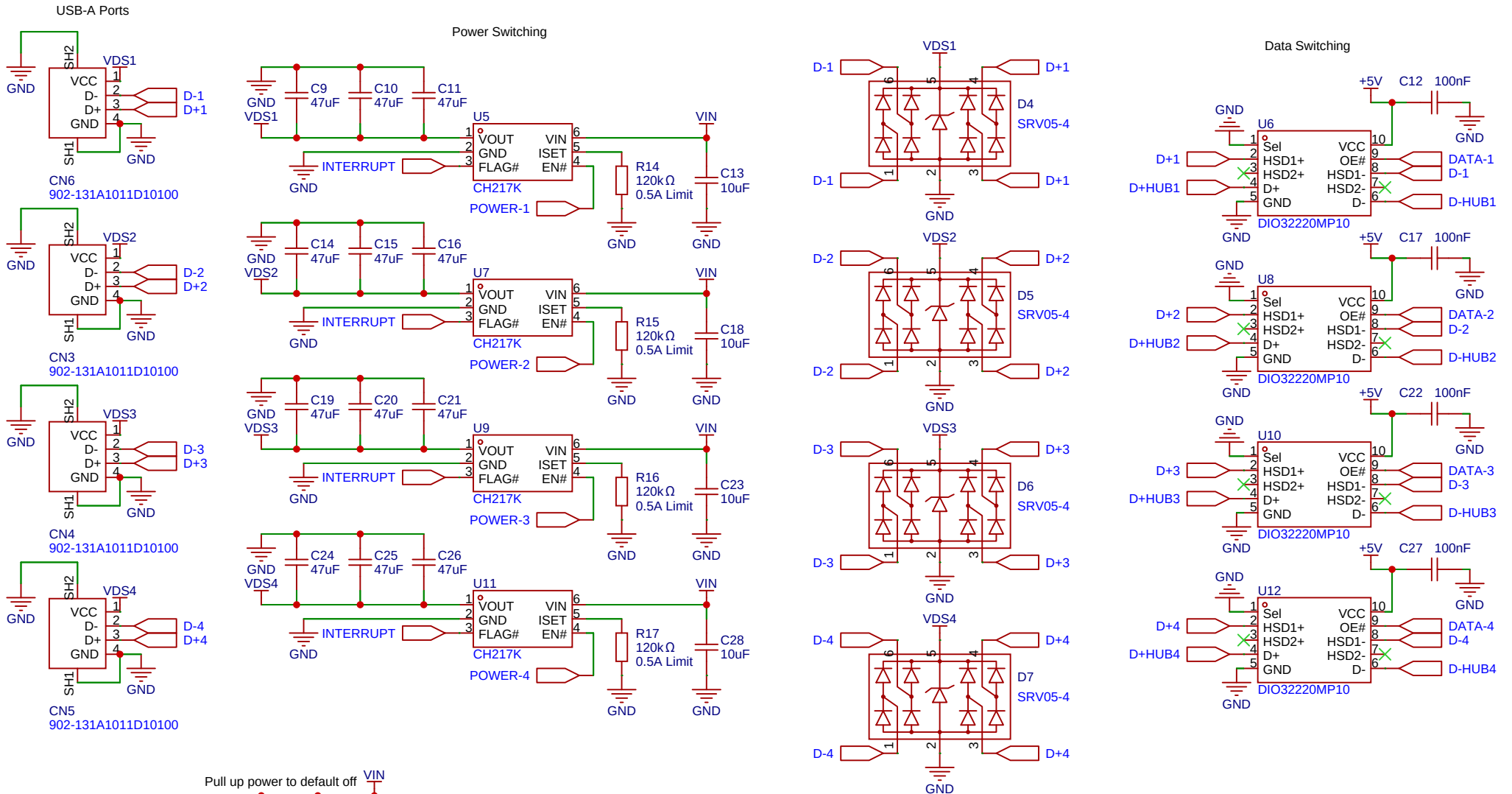


If MCU detects higher USB-C current rating, it can increase the input current limit to 1.5A or 2.5A

Schematic Page	Upstream Ports	Page Number	1
Source Link	https://github.com/rit-construct-makerspace/access-control-hardware	Total Pages	4
Version	3.0.0		

RIT | SHED

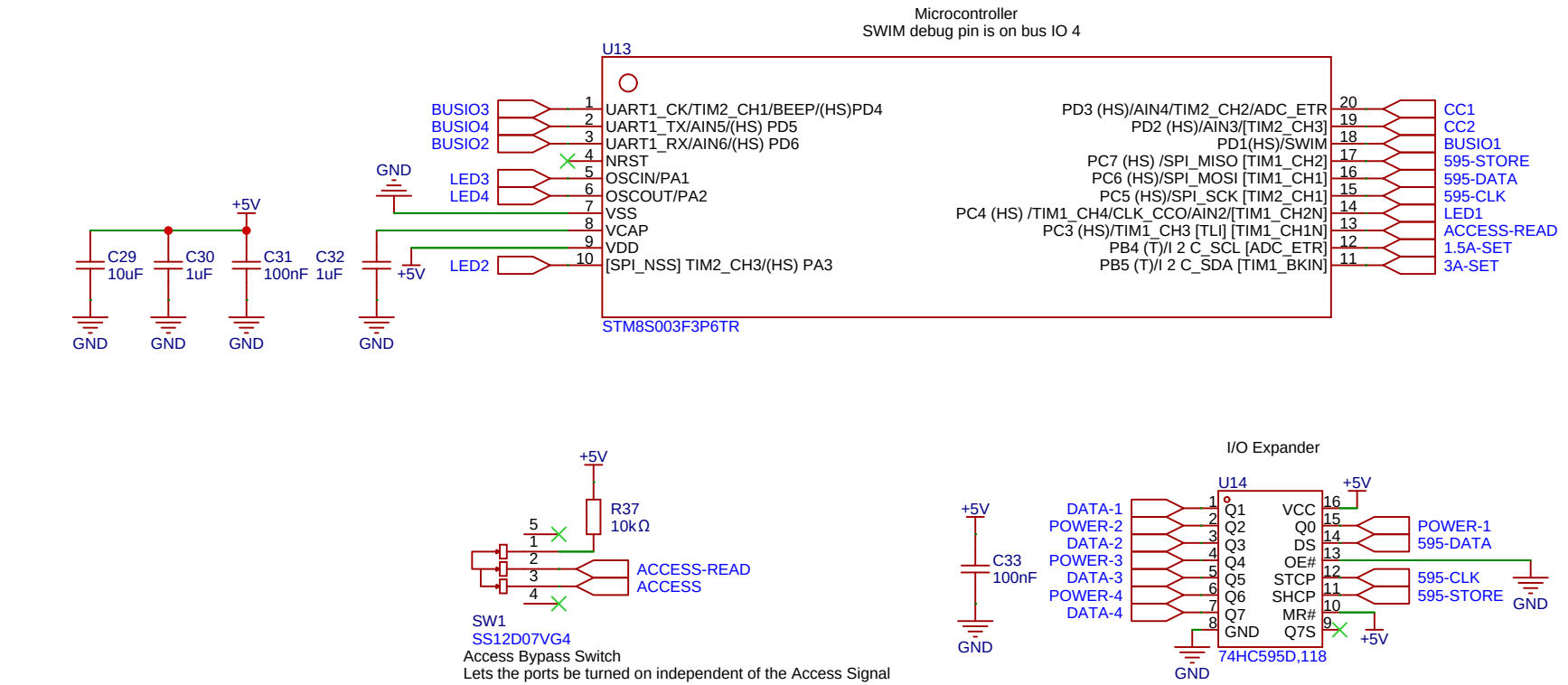
USB Hub Switch
Smart Switch Variant



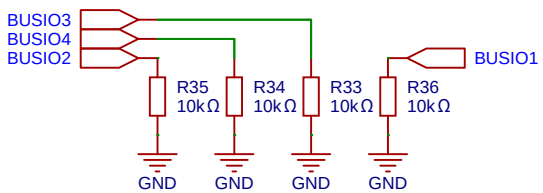
Schematic Page	Downstream Ports	Page Number	2
Source Link	https://github.com/rit-construct-makerspace/access-control-hardware	Total Pages	4
Version	3.0.0		

RIT | SHED

USB Hub Switch
Smart Switch Variant



Access Bypass Switch
Lets the ports be turned on independent of the Access Signal



Schematic Page	Microcontroller	Page Number	3
Source Link	https://github.com/rit-construct-makerspace/access-control-hardware	Total Pages	4
Version	3.0.0		

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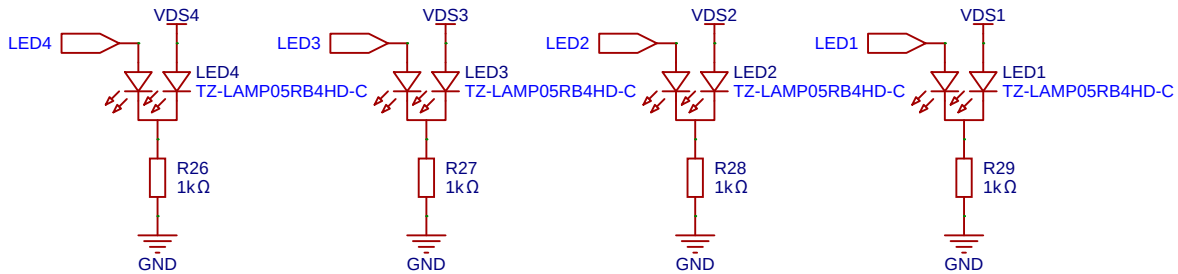
USB Hub Switch
Smart Switch Variant



RED: Device has power but this port is not on
Can also flash red to identify ports if server requests
BLUE: This port is on and powered

Schematic Page	Status LEDs	Page Number	4
Source Link	https://github.com/rit-construct-makerspace/access-control-hardware	Total Pages	4
Version	3.0.0		

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USB Hub Switch
Smart Switch Variant