Main Controller (K22F)

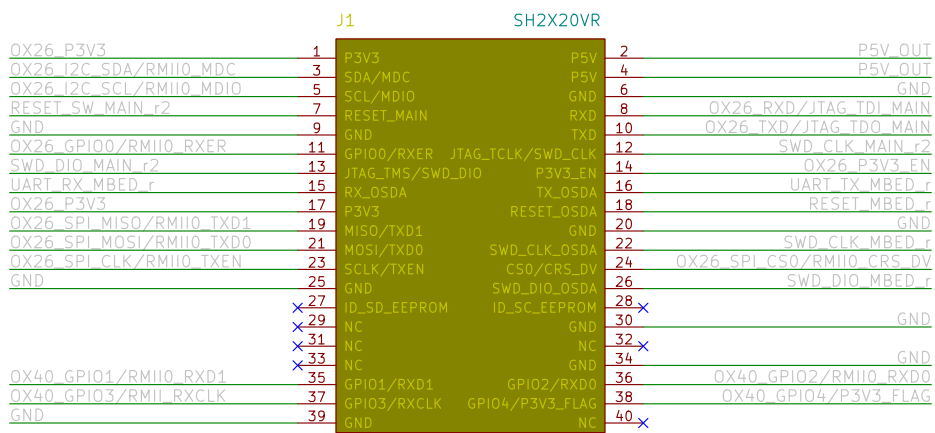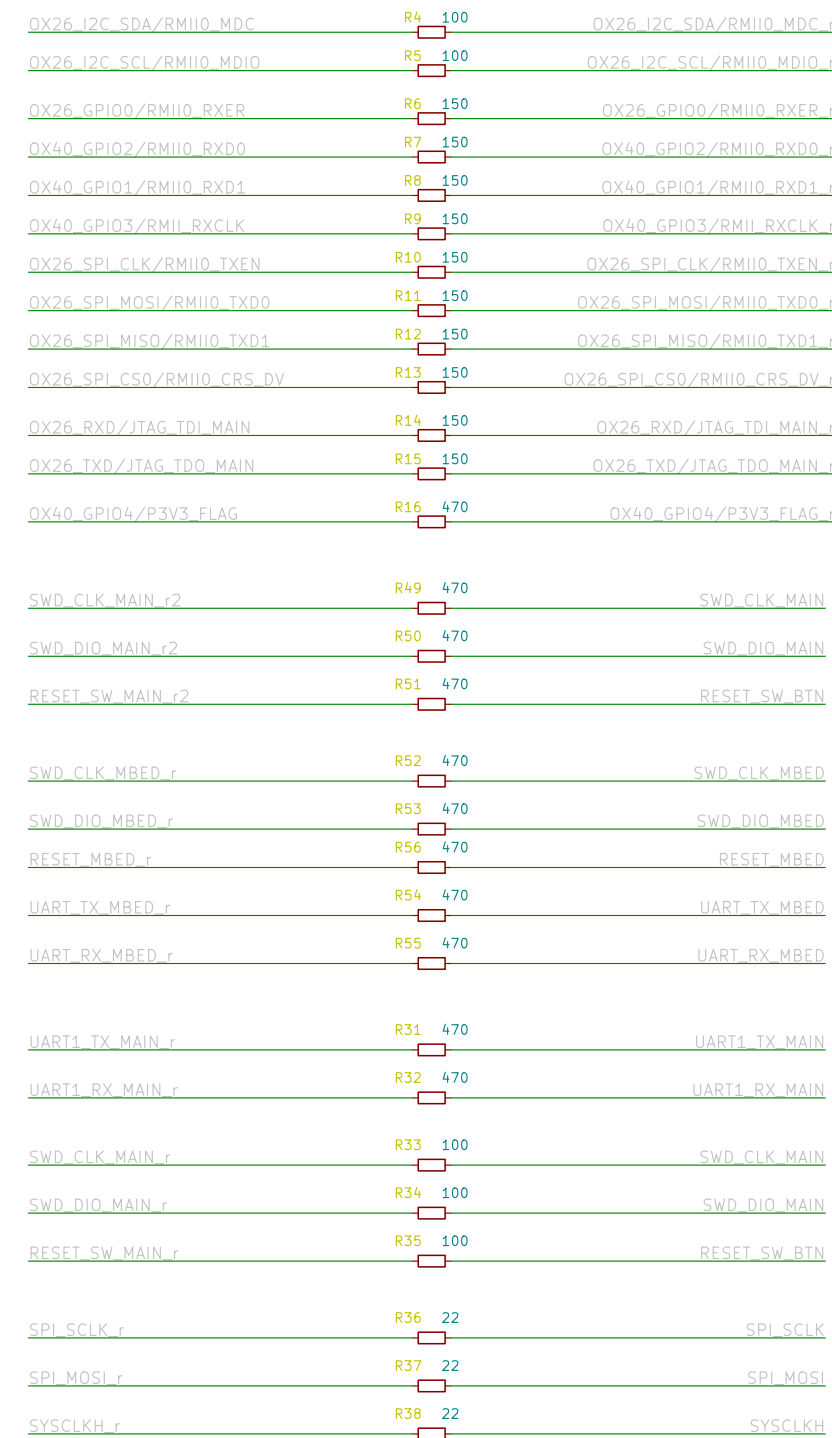Decoupling Caps — Place 0.1UF caps near VDD pads.
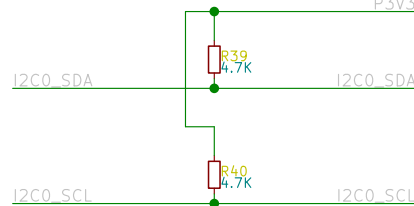
OX40N Connector

OX40N connector is compatible with a Raspberry Pi 26 or 40 pin connector.
It could easily be used with other external controllers and can even power them
via 5V supply and switchable 3.3V supply. It mainly provides I2C, SPI, and UART connections to the main MCU.
N variant pulls out RMIIO connections from the main MCU to allow
compatible ethernet PHY and jack to be connected.

SH2X20VR

Main Reset

Reset is normally high.
Pulled low by mbed, OX40,
button is pressed, or via SWD/JTAG.

BAT545

RESET_MAIN

OX98 Connector

The OX98 connector interfaces the main controller to a modular backplane or single board.

Isolation and Series Load Resistors

I2C Pull-up Resistors

Main USB

MicroUSB-AB

TVS module to
prevent ESD
blowing up
USB and VIN.

32.768kHz

CR2032_CLIP

USB Power

By default, USB will power the 3.3V supply
on the board. If a powered backplane is connected,
the LDO is disabled by pulling the EN pin low.

USB_PWR_DISABLE
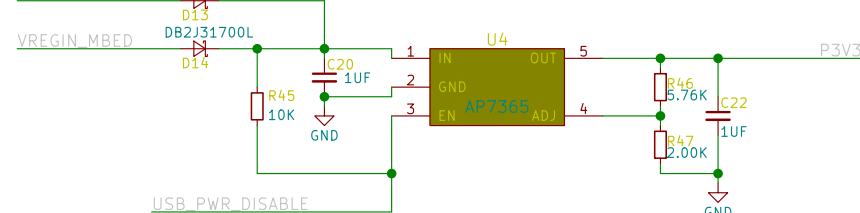
5V Protection

This is based on the RPI HAT spec.
It prevents bad things happening if
USB is plugged into a PI with a different 5V.

DMG2305UX

VCC Isolation

AP2171

Main Controller LEDs

VLMG1500-GS08   PWR LED G
VLMG1500-GS08   SYS LED R
VLMG1500-GS08   SYS LED G
VLMB1500-GS08   SYS LED B

This pin is used for sensing when
a powered USB connection is made.

MicroSD Card Connector

MicroSD_Conn

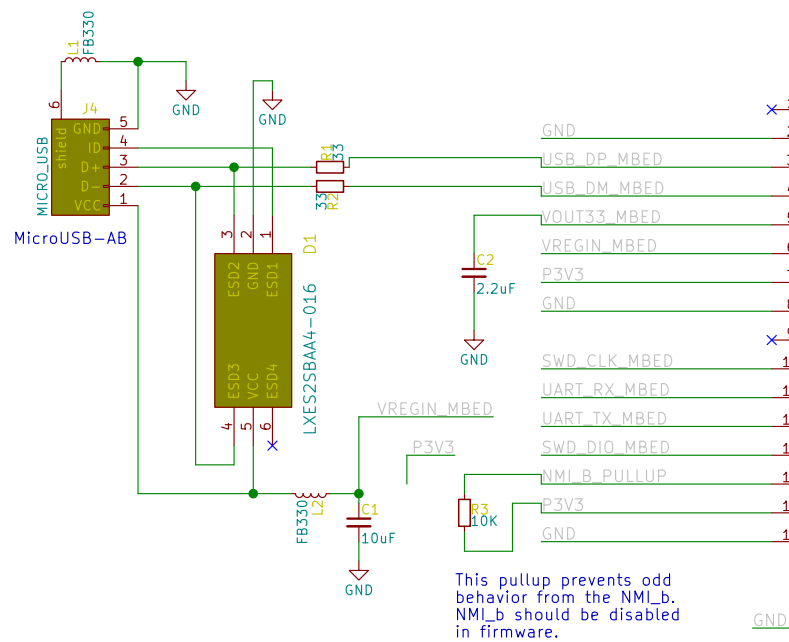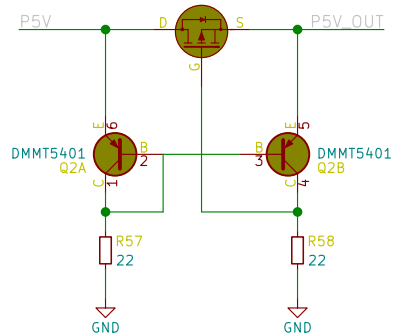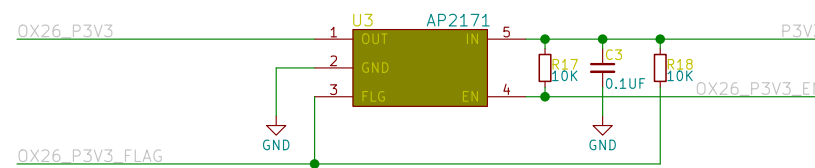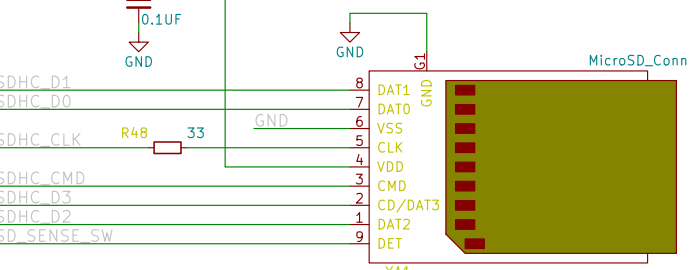## mbed Controller (KL26Z)

This MCU is only for debugging and programming the K22F on this board.
It is running the DAPLink firmware from https://github.com/mbedmicro/DAPLink
to enable mbed compatibility.
It is possible to put other firmware on it via the SWD connector.
The interface is only to the K22F and USB.

Decoupling Caps — Place 0.1UF caps near VDD pads.

MKL26Z128VFM4

DNP if using KL27Z version.
(crystal-free USB operation)

mbed USB

MicroUSB-AB

This pullup prevents odd
behavior from the NMI_b.
NMI_b should be disabled
in firmware.

mbed Reset

Reset is normally high.
Pulled low when USB
is disconnected, button
is pressed, or via SWD.

VLMG1500-GS08
VLMB1500-GS08
VLMG1500-GS08

This pin is used for sensing when
a powered USB connection is made.