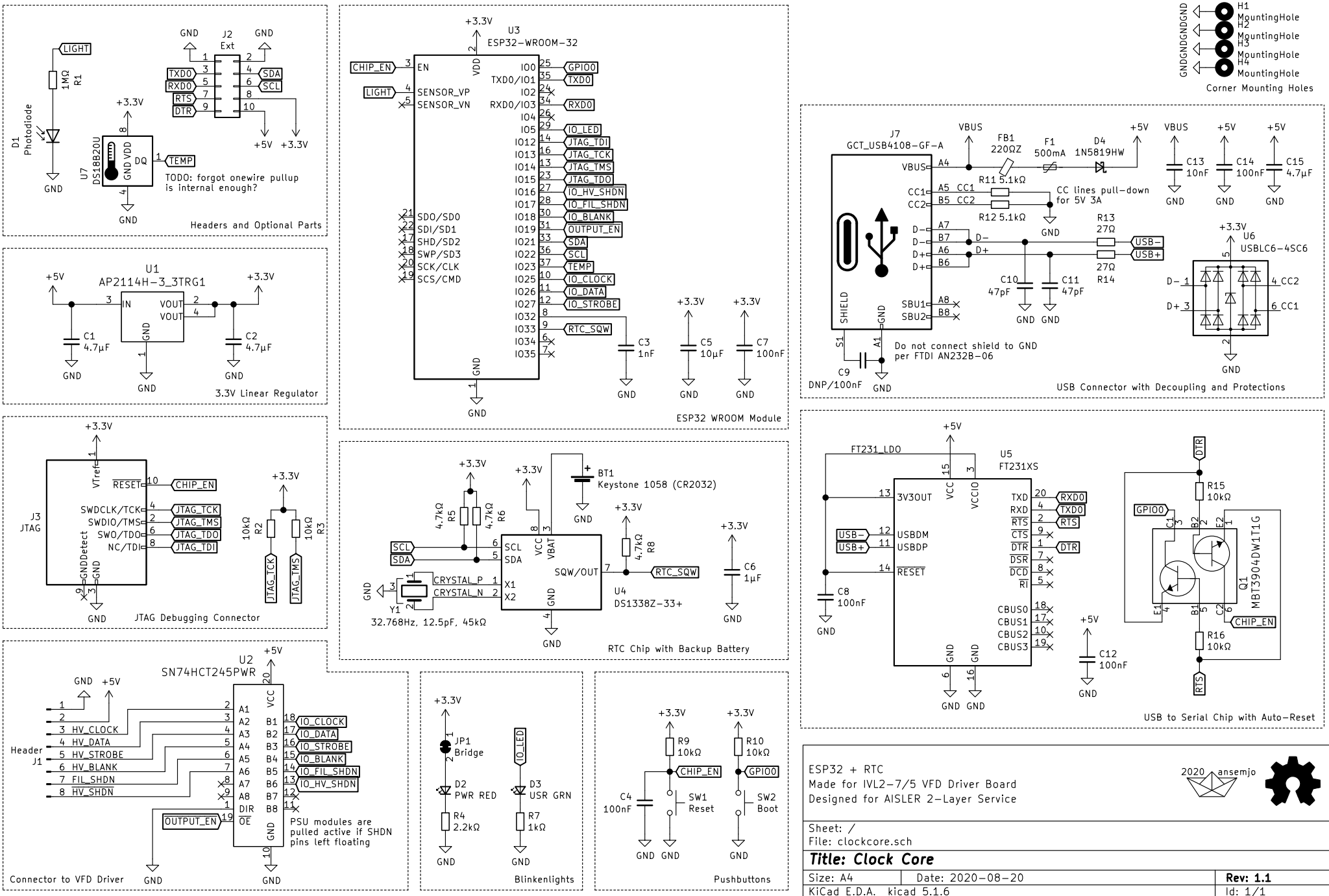
Headers and Optional Parts
LIGHT
R1 1MΩ
D1 Photodiode
J2 Ext
TXD0
RXD0
RTS
DTR
SDA
SCL
U7 DS18B20U
TEMP
TODO: forgot onewire pullup is internal enough?
3.3V Linear Regulator
U1 AP2114H-3_3TRG1
C1 4.7µF
C2 4.7µF
ESP32 WROOM Module
U3 ESP32-WROOM-32
CHIP_EN
LIGHT
SENSOR_VP
SENSOR_VN
SDO/SD0
SDI/SD1
SHD/SD2
SWP/SD3
SCK/CLK
SCS/CMD
GPIO0
IO_LED
JTAG_TDI
JTAG_TCK
JTAG_TMS
JTAG_TDO
IO_HV_SHDN
IO_FIL_SHDN
IO_BLANK
OUTPUT_EN
IO_CLOCK
IO_DATA
IO_STROBE
RTC_SQW
C3 1nF
C5 10µF
C7 100nF
Corner Mounting Holes
H1 MountingHole
H2 MountingHole
H3 MountingHole
H4 MountingHole
USB Connector with Decoupling and Protections
J7 GCT_USB4108-GF-A
FB1 220ΩZ
F1 500mA
D4 1N5819HW
R11 5.1kΩ
R12 5.1kΩ
CC lines pull-down for 5V 3A
R13 27Ω
R14 27Ω
C10 47pF
C11 47pF
C13 10nF
C14 100nF
C15 4.7µF
U6 USBLC6-4SC6
Do not connect shield to GND per FTDI AN232B-06
C9 DNP/100nF
JTAG Debugging Connector
J3 JTAG
R2 10kΩ
R3 10kΩ
RTC Chip with Backup Battery
BT1 Keystone 1058 (CR2032)
R5 4.7kΩ
R6 4.7kΩ
R8 4.7kΩ
Y1 32.768Hz, 12.5pF, 45kΩ
U4 DS1338Z-33+
C6 1µF
USB to Serial Chip with Auto-Reset
U5 FT231XS
FT231_LDO
C8 100nF
C12 100nF
R15 10kΩ
R16 10kΩ
Q1 MBT3904DW1T1G
Connector to VFD Driver
U2 SN74HCT245PWR
Header J1
HV_CLOCK
HV_DATA
HV_STROBE
HV_BLANK
FIL_SHDN
HV_SHDN
PSU modules are pulled active if SHDN pins left floating
Blinkenlights
JP1 Bridge
D2 PWR RED
R4 2.2kΩ
D3 USR GRN
R7 1kΩ
Pushbuttons
R9 10kΩ
R10 10kΩ
C4 100nF
SW1 Reset
SW2 Boot
ESP32 + RTC
Made for IVL2-7/5 VFD Driver Board
Designed for AISLER 2-Layer Service
2020 ansemjo
Sheet: /
File: clockcore.sch
Title: Clock Core
Size: A4
Date: 2020-08-20
Rev: 1.1
KiCad E.D.A. kicad 5.1.6
Id: 1/1