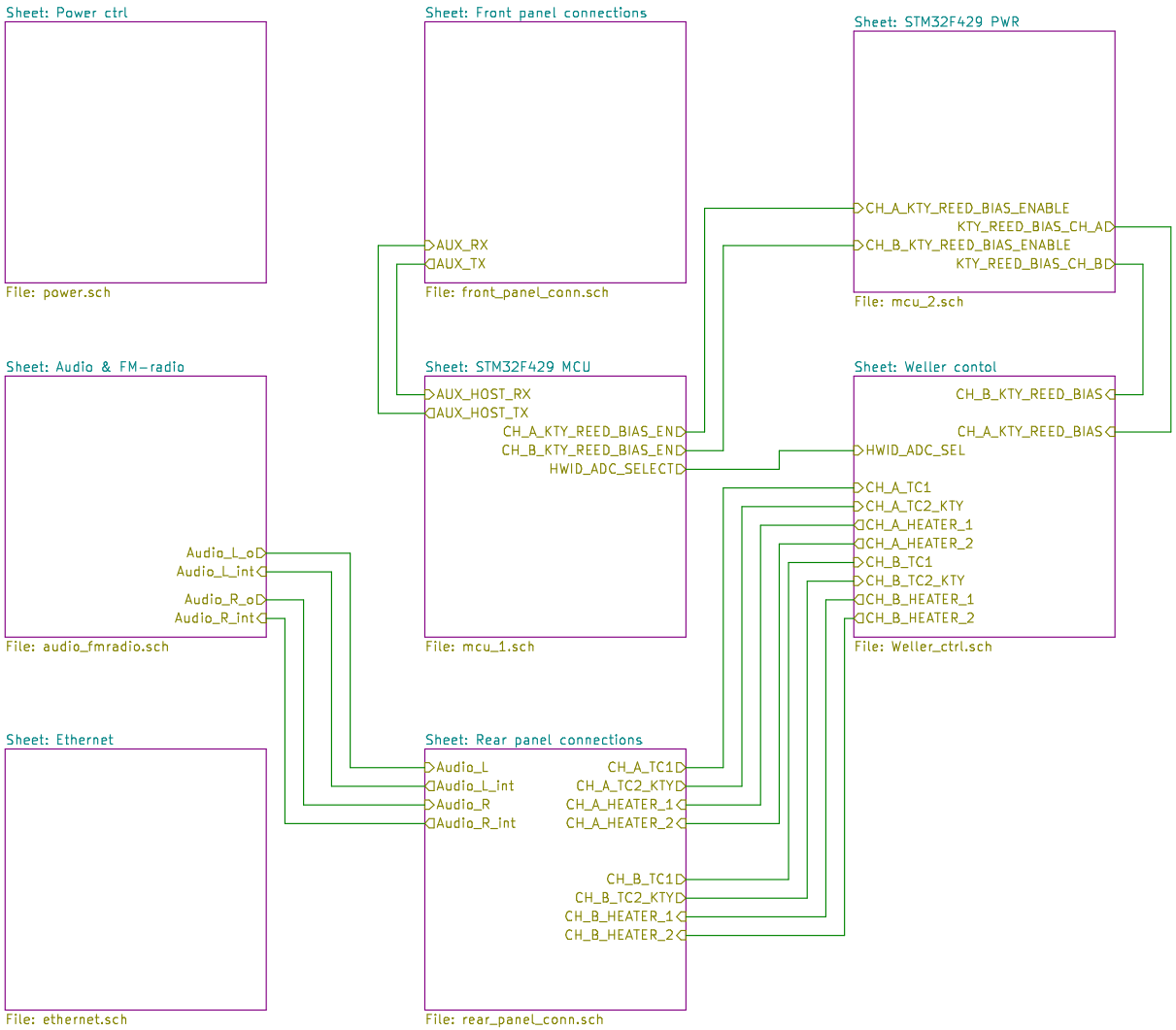


I2C-addresses (on I2C1)

TMP100 (temperature sensors) :

- 1001000 (Front panel, outside left)
- 1001010 (FP, outside right)
- 1001100 (FP, inside left)
- 1001101 (FP, inside middle)
- 1001110 (FP, inside right)
- 1001001 (Main board #1)
- 1001011 (MB #2)
- 1001111 (MB #3)

INA226 (power-channel current sensors) :

- 1000000 (ch A, heater 1)
- 1000001 (ch A, heater 2)
- 1000100 (ch B, heater 1)
- 1000101 (ch B, heater 2)

SI4735 (FM-radio rx) :

- 0010001 (if $\overline{\text{SEN}}$ pulled low [default])
- 1100011 (alternative, if SEN pulled high)

DS3231 (TCXO RTC module) :

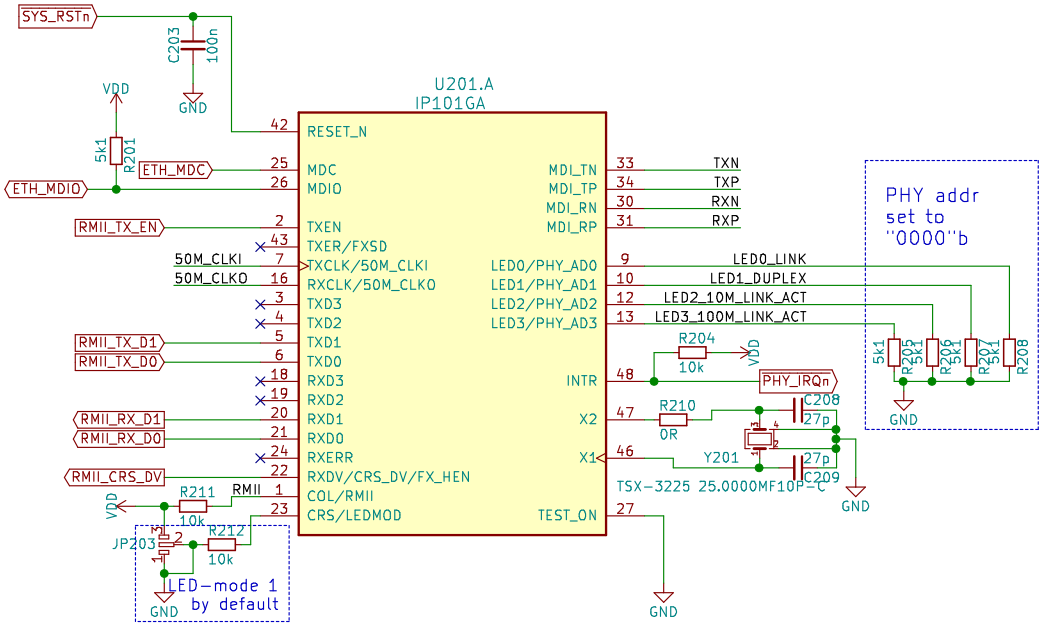
- 1101000 (DS3231)
- 1010--- (24C32, addr customized with A2-A0)
- 1010111 (24C32, default (A2-A0 open))

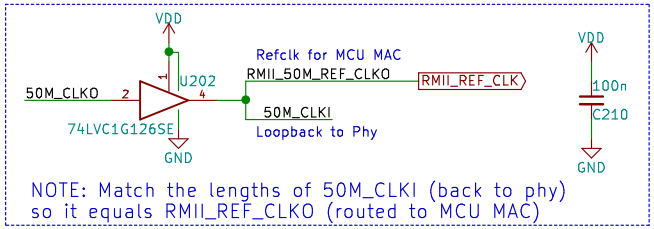
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

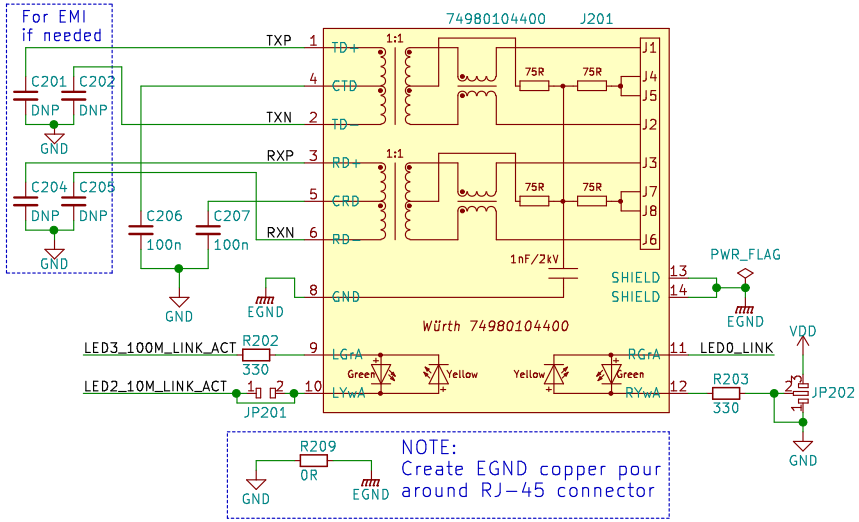
Sheet: /
File: solderstn_mb.sch

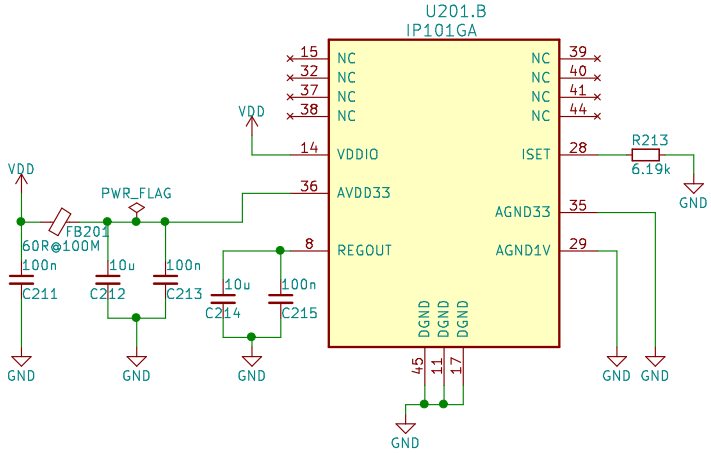
Title: DIY Soldering station, top level

Size: A4	Date: 2020-04-26	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 1/22

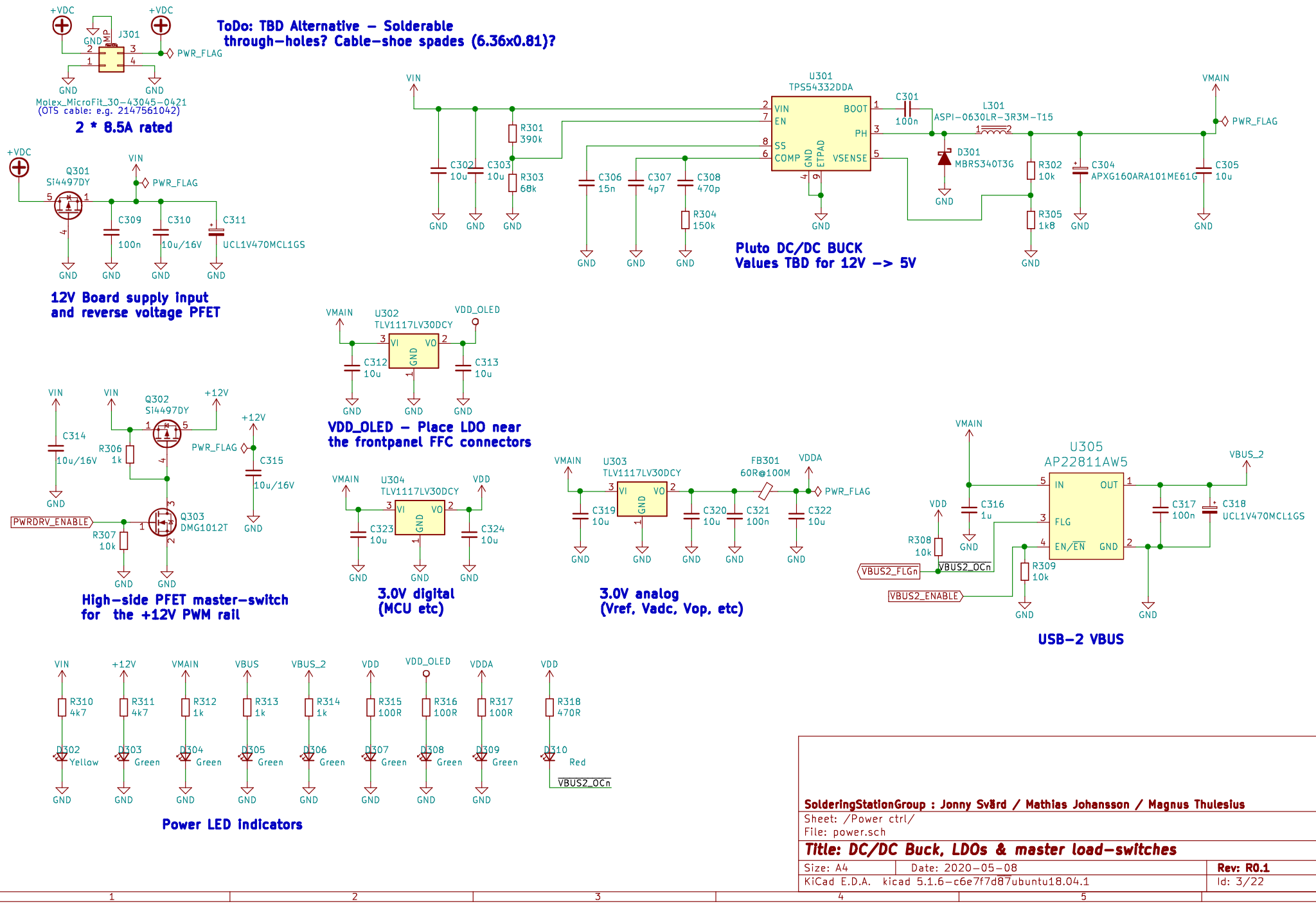


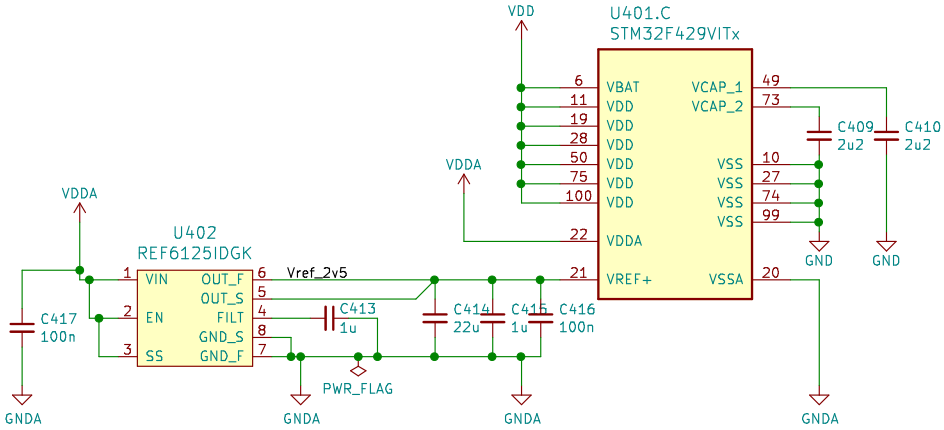




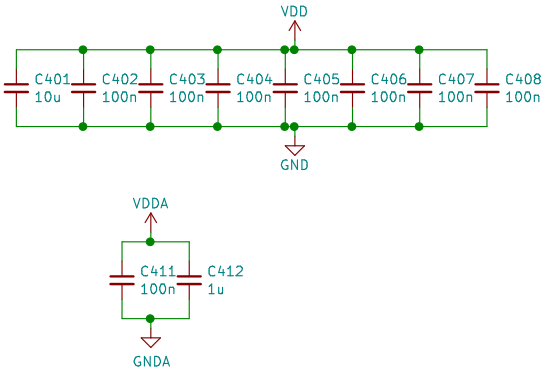


SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius		
Sheet: /Ethernet/		
File: ethernet.sch		
Title: Ethernet PHY & connector		
Size: A4	Date: 2020-05-03	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 2/22

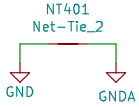

ToDo: TBD Alternative – Solderable through-holes? Cable-shoe spades (6.36x0.81)?
+VDC
J301
PWR_FLAG
GND
Molex_MicroFit_30-43045-0421
(OTS cable: e.g. 2147561042)
2 * 8.5A rated
Q301
Si4497DY
VIN
C309
100n
C310
10u/16V
C311
UCL1V470MCL1GS
12V Board supply input
and reverse voltage PFET
U301
TPS54332DDA
VIN
EN
SS
COMP
BOOT
PH
GND
ETPAD
VSENSE
R301
390k
R303
68k
C302
10u
C303
10u
C306
15n
C307
4p7
C308
470p
R304
150k
C301
100n
L301
ASPI-0630LR-3R3M-T15
D301
MBRS340T3G
R302
10k
R305
1k8
C304
APXG160ARA101ME61G
C305
10u
VMAIN
Pluto DC/DC BUCK
Values TBD for 12V -> 5V
U302
TLV1117LV30DCY
VDD_OLED
C312
10u
C313
10u
VDD_OLED – Place LDO near
the frontpanel FFC connectors
Q302
Si4497DY
+12V
C314
10u/16V
R306
1k
C315
10u/16V
PWRDRV_ENABLE
Q303
DMG1012T
R307
10k
High-side PFET master-switch
for the +12V PWM rail
U304
TLV1117LV30DCY
VDD
C323
10u
C324
10u
3.0V digital
(MCU etc)
U303
TLV1117LV30DCY
FB301
60R@100M
VDDA
C319
10u
C320
10u
C321
100n
C322
10u
3.0V analog
(Vref, Vadc, Vop, etc)
U305
AP22811AW5
IN
OUT
FLG
EN/EN
C316
1u
C317
100n
C318
UCL1V470MCL1GS
R308
10k
R309
10k
VBUS2_FLGn
VBUS2_OCn
VBUS2_ENABLE
USB-2 VBUS
R310
4k7
R311
4k7
R312
1k
R313
1k
R314
1k
R315
100R
R316
100R
R317
100R
R318
470R
D302
Yellow
D303
Green
D304
Green
D305
Green
D306
Green
D307
Green
D308
Green
D309
Green
D310
Red
Power LED Indicators
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius
Sheet: /Power ctrl/
File: power.sch
Title: DC/DC Buck, LDOs & master load-switches
Size: A4
Date: 2020-05-08
Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1
Id: 3/22

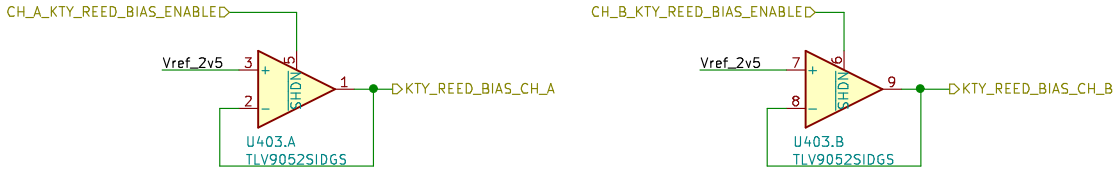


Precisin Vref. Place close to MCU. See REF6125 ds for layout suggestions.



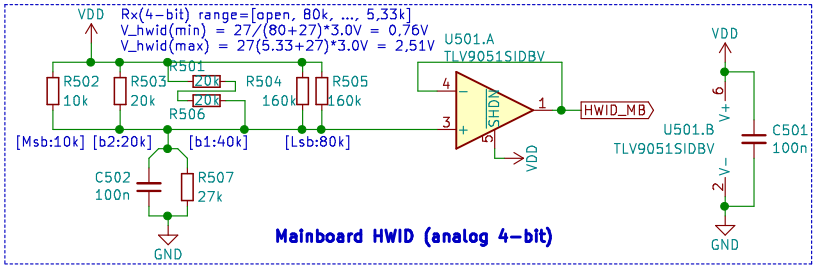
MCU decoupling – place close to MCU power pins



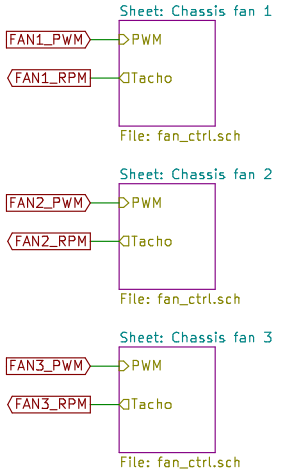


Switchable Vref for biasing KTY sensors (for cold-junction compensation), one per channel. The KTY's can then be meassured through the ordinary TC amps.

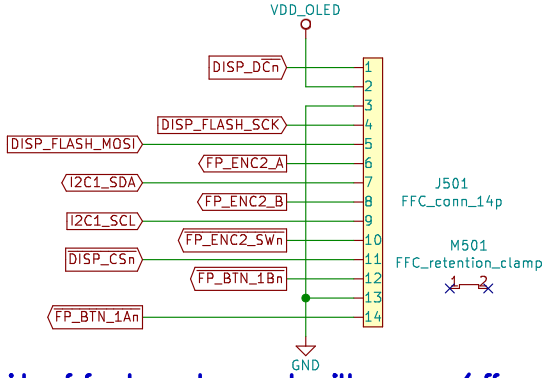
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius		
Sheet: /STM32F429 PWR/ File: mcu_2.sch		
Title: STM32F429 MCU power, decoupling, Vref		
Size: A4	Date: 2020-04-26	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 4/22



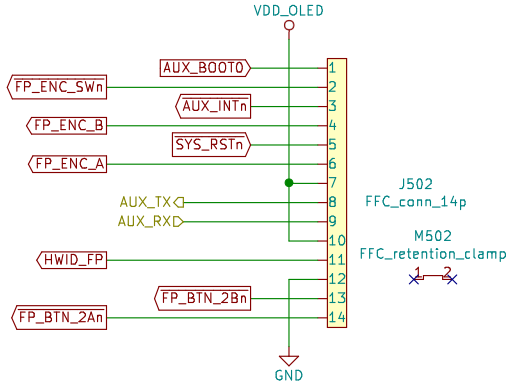
Mainboard HWID (analog 4-bit)

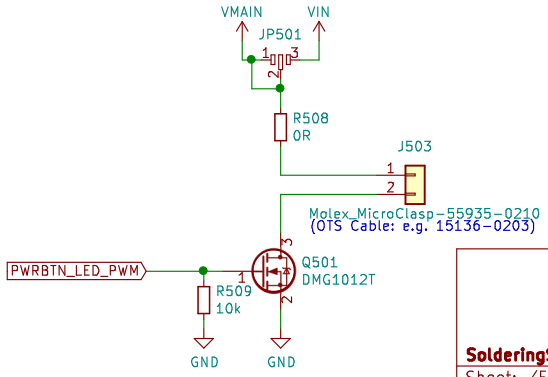


Place vDD_OLED LDO close to FFC connectors

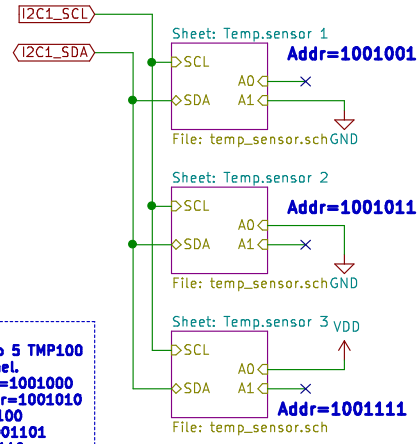


The left-side of front panel supports either an on/off Power-button OR optionally a 2nd rotary encoder. HWID_FP should be used to indicate which option is chosen





FancyBtn LED connector (PWM ctrl low-side; 5V/12V selectable V+)



Note:
There're additional up-to 5 TMP100 sensors on the front panel.
Display-side, left : addr=1001000
Display-side, right : addr=1001010
inside, left : addr=1001100
inside, middle : addr=1001101
inside, right: addr=1001110

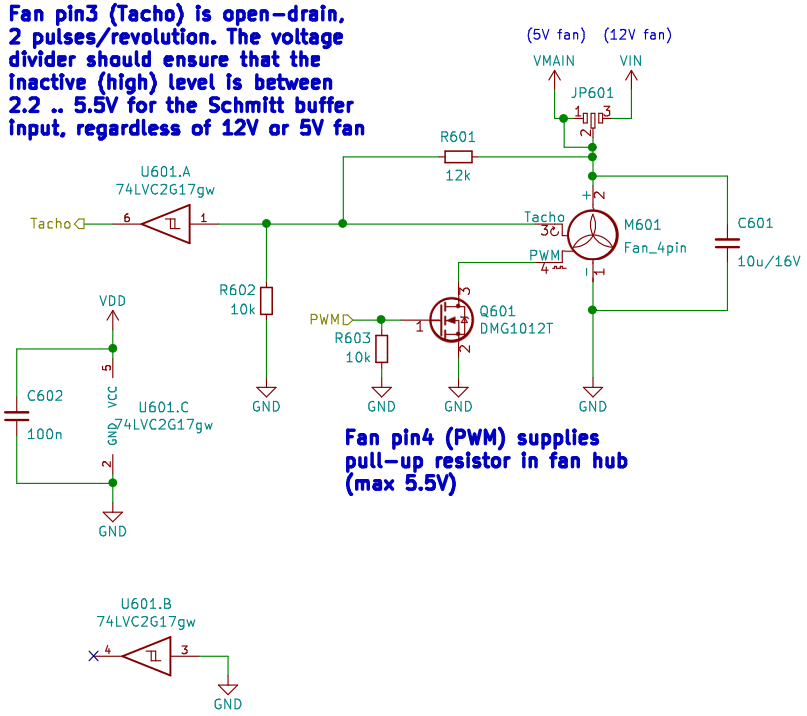
Ambient temperature sensors (TMP100)

SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Front panel connections/
File: front_panel_conn.sch

Title: Front-side and internal connectors

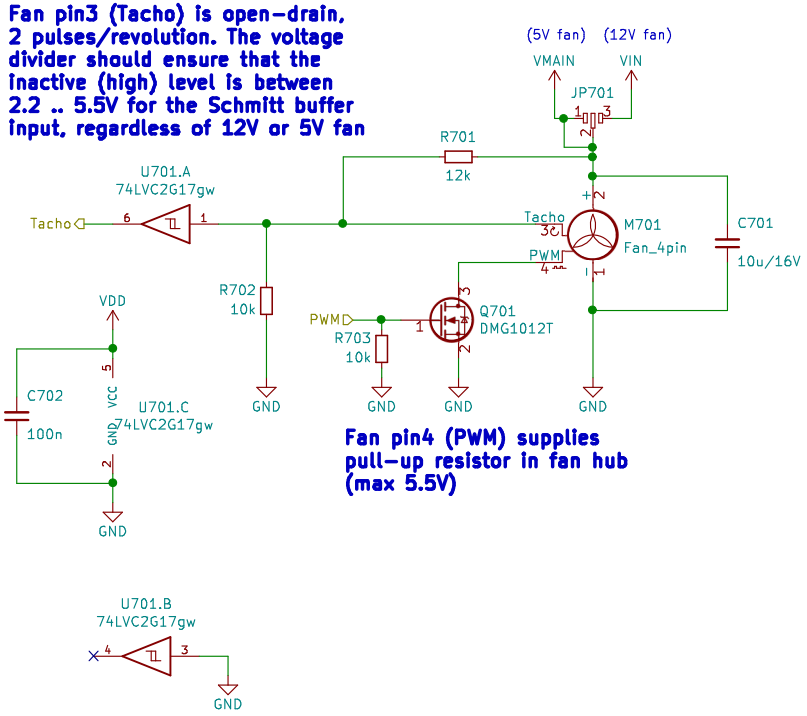
Size: A4	Date: 2020-08-03	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 5/22



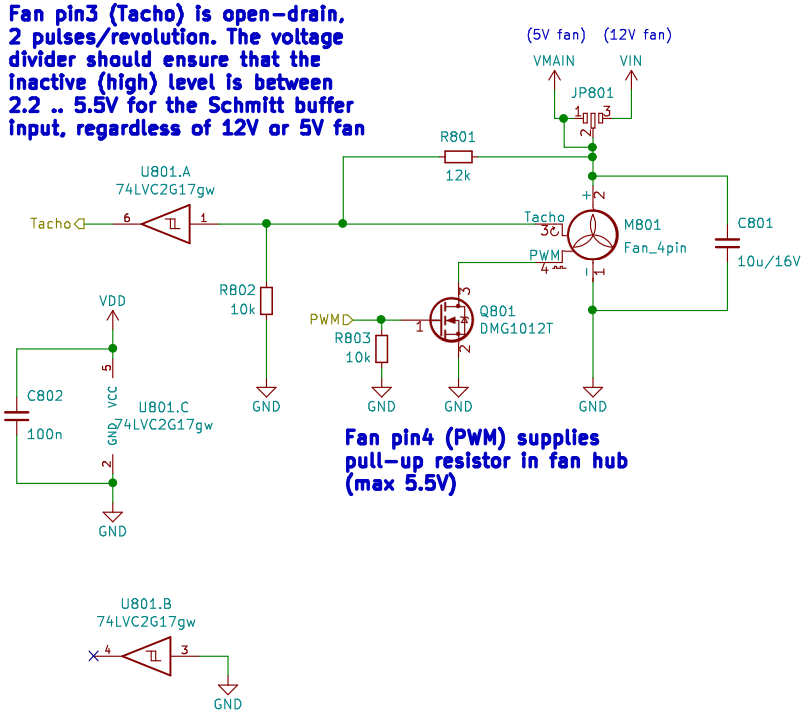
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius	
Sheet: /Front panel connections/Chassis fan 1/	
File: fan_ctrl.sch	
Title: Fan controller	
Size: A4	Date: 2020-08-09
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1	Id: 6/22

Rev: R0.1

Fan pin3 (Tacho) is open-drain,
2 pulses/revolution. The voltage
divider should ensure that the
inactive (high) level is between
2.2 .. 5.5V for the Schmitt buffer
input, regardless of 12V or 5V fan

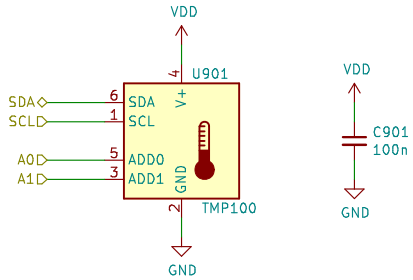


SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius		
Sheet: /Front panel connections/Chassis fan 2/		
File: fan_ctrl.sch		
Title: Fan controller		
Size: A4	Date: 2020-08-09	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 7/22



SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius	
Sheet: /Front panel connections/Chassis fan 3/	
File: fan_ctrl.sch	
Title: Fan controller	
Size: A4	Date: 2020-08-09
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1	Id: 8/22

Rev: R0.1

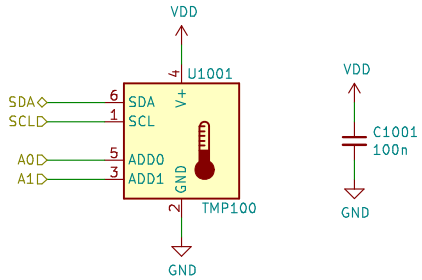


SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Front panel connections/Temp.sensor 1/
File: temp_sensor.sch

Title:

Size: A4	Date:	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 9/22

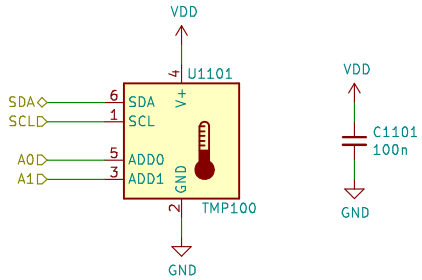


SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Front panel connections/Temp.sensor 2/
File: temp_sensor.sch

Title:

Size: A4	Date:	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 10/22



SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Front panel connections/Temp.sensor 3/
File: temp_sensor.sch

Title:

Size: A4	Date:	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 11/22

Notes:
RJ45 ethernet – located on ethernet page

Audiojack 3.5mm (sub-PCB)
DBGUART / SWD (dsub-9?)
FM-ant? (AM-ferrit extern..?)
USB1 (device)
USB2 (host)
Force Bootloader/rst
2x Amphenol Weller-jacks!

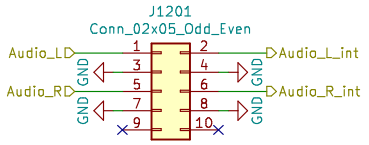
ToDo:

CH_A_HEATER_1
CH_A_HEATER_2
4x solderable quick-disconnect cable tabs (6.35x0.81), right-angle:
HT1 / GND / HT2 / GND

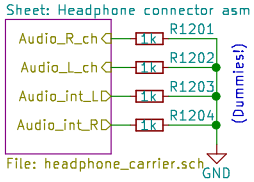
CH_A_TC1
CH_A_TC2_KTY
5x1 or 4x1 pin picoblade/pico-clasp/micro-clasp..?
gnd/tc1_reed/gnd/tc2_kty/(ESD ref. pin 5?)

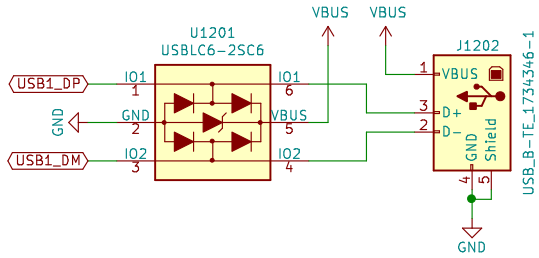
CH_B_HEATER_1
CH_B_HEATER_2
4x solderable quick-disconnect cable tabs (6.35x0.81), right-angle:
HT1 / GND / HT2 / GND

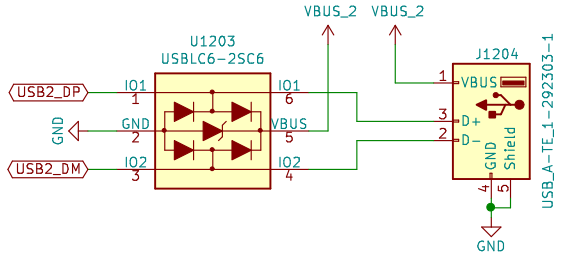
CH_B_TC1
CH_B_TC2_KTY
5x1 or 4x1 pin picoblade/pico-clasp/micro-clasp..?
gnd/tc1_reed/gnd/tc2_kty/(ESD ref. pin 5?)

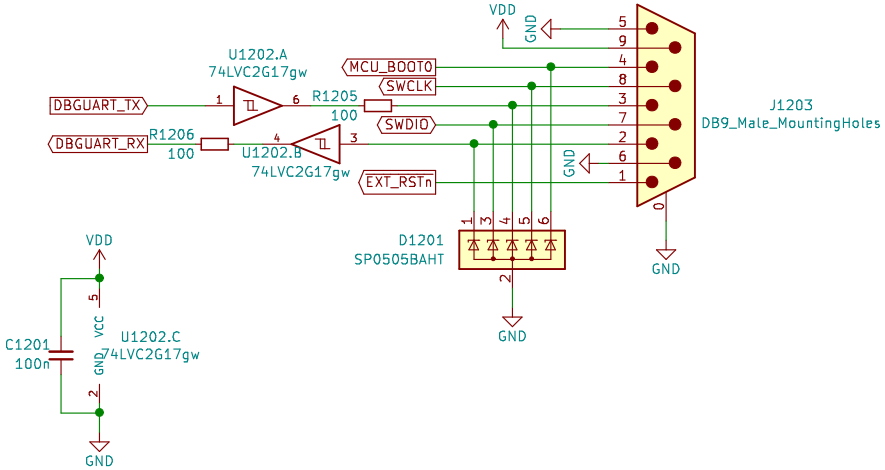


Headphone 3.5mm connector on a break-away sub-PCB. Audio signals get routed out to the 3.5mm connector, through the plug-switches and optionally back to internal speakers conns if there's no plug inserted







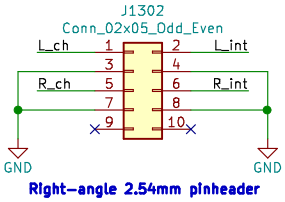


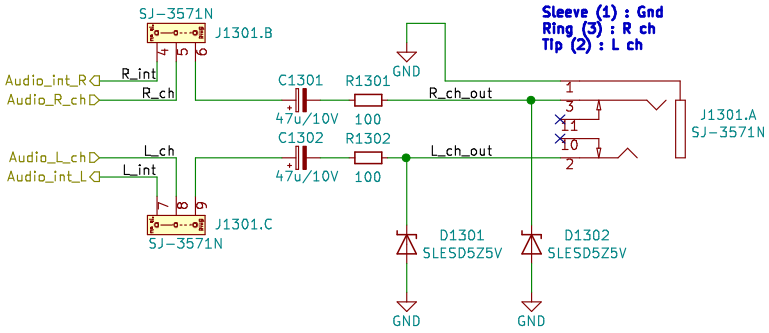
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Rear panel connections/
File: rear_panel_conn.sch

Title: Backside connectors

Size: A4	Date: 2020-08-14	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 12/22

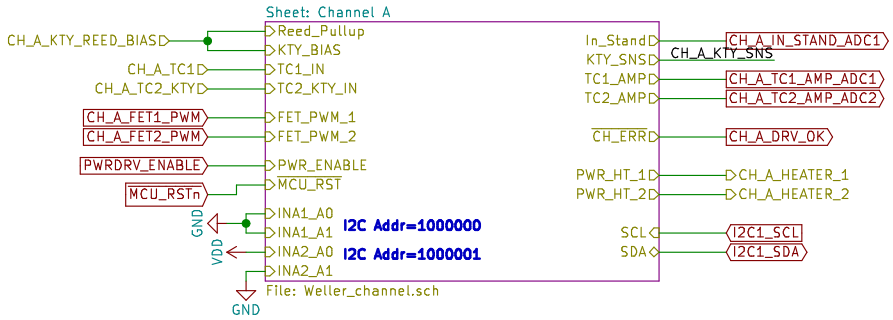


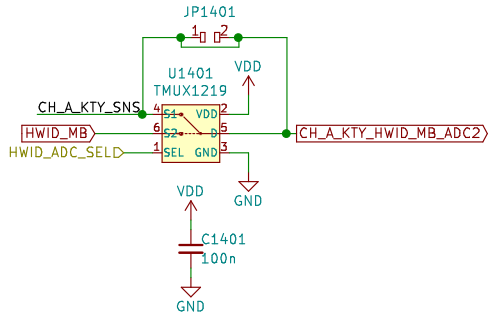


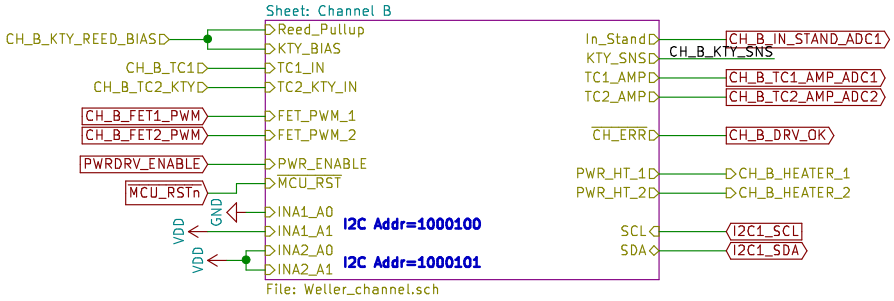
Sheet: /Rear panel connections/Headphone connector asm/
File: headphone_carrier.sch

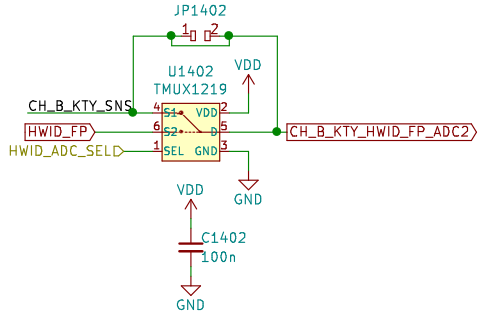
Title: Rearpanel headphone assembly

Size: A4	Date: 2020-08-19	**Rev:**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 13/22







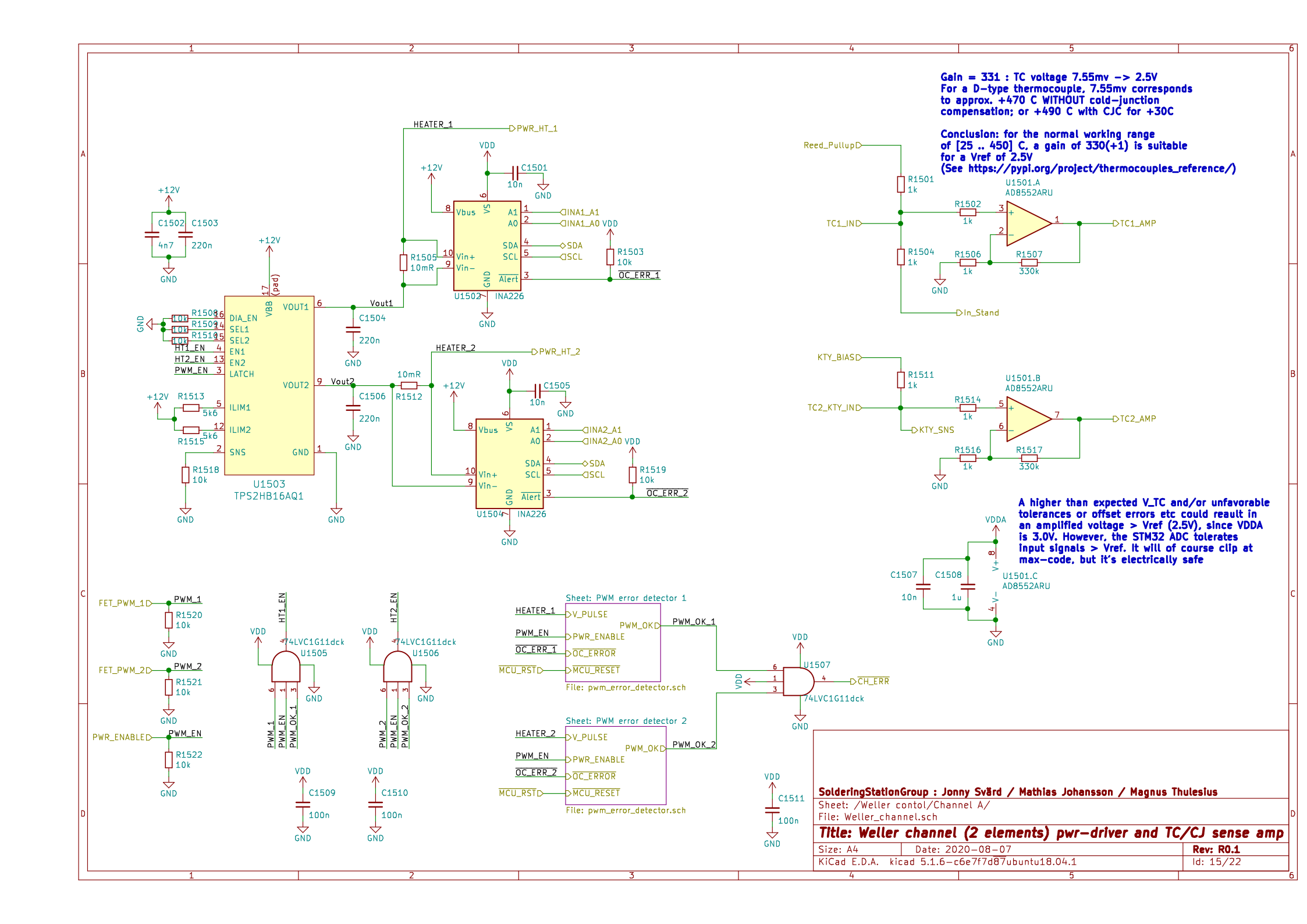


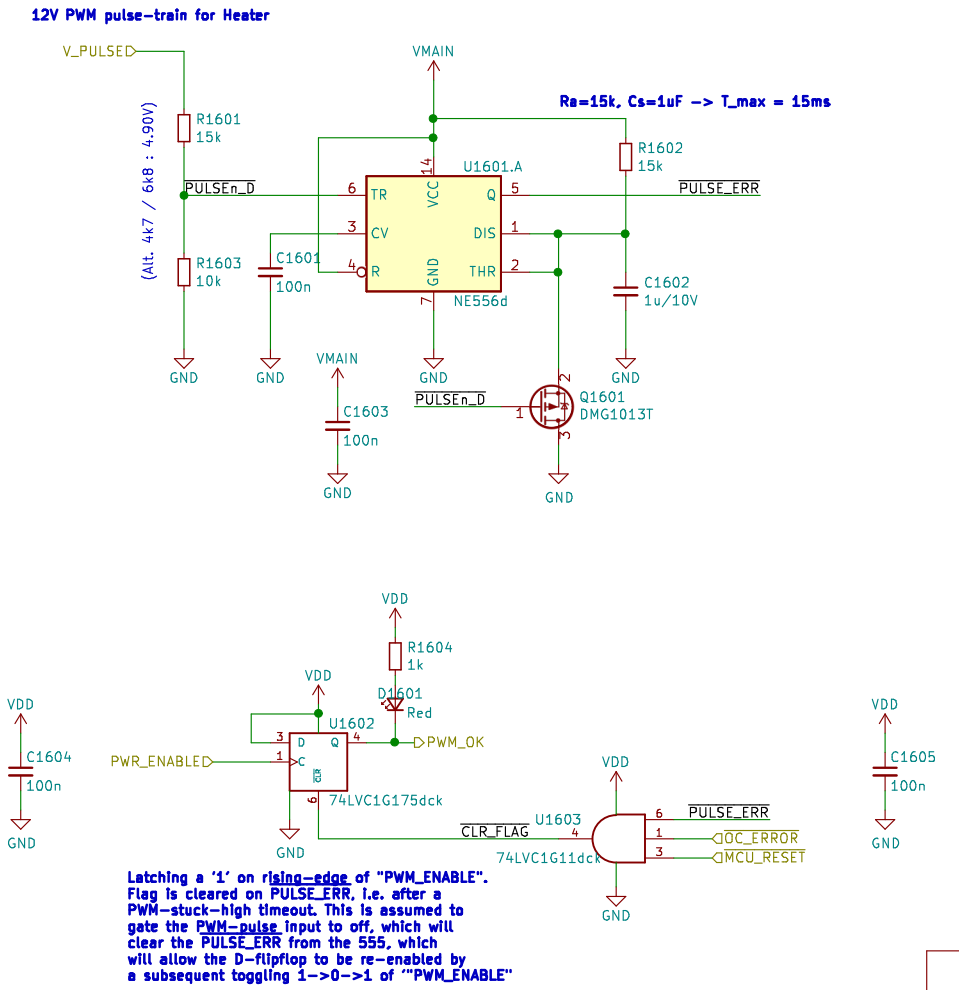
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Weller contol/
File: Weller_ctrl.sch

Title: Dual Weller WMRP or WMRT capable channels

Size: A4	Date: 2020-08-07	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 14/22


Gain = 331 : TC voltage 7.55mv -> 2.5V
For a D-type thermocouple, 7.55mv corresponds
to approx. +470 C WITHOUT cold-junction
compensation; or +490 C with CJC for +30C
Conclusion: for the normal working range
of [25 .. 450] C, a gain of 330(+1) is suitable
for a Vref of 2.5V
(See https://pypi.org/project/thermocouples_reference/)
A higher than expected V_TC and/or unfavorable
tolerances or offset errors etc could reault in
an amplified voltage > Vref (2.5V), since VDDA
is 3.0V. However, the STM32 ADC tolerates
input signals > Vref. It will of course clip at
max-code, but it's electrically safe
U1503
TPS2HB16AQ1
U1502
INA226
U1504
INA226
U1501.A
AD8552ARU
U1501.B
AD8552ARU
U1501.C
AD8552ARU
U1505
74LVC1G11dck
U1506
74LVC1G11dck
U1507
74LVC1G11dck
Sheet: PWM error detector 1
File: pwm_error_detector.sch
Sheet: PWM error detector 2
File: pwm_error_detector.sch
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius
Sheet: /Weller contol/Channel A/
File: Weller_channel.sch
Title: Weller channel (2 elements) pwr-driver and TC/CJ sense amp
Size: A4
Date: 2020-08-07
Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1
Id: 15/22



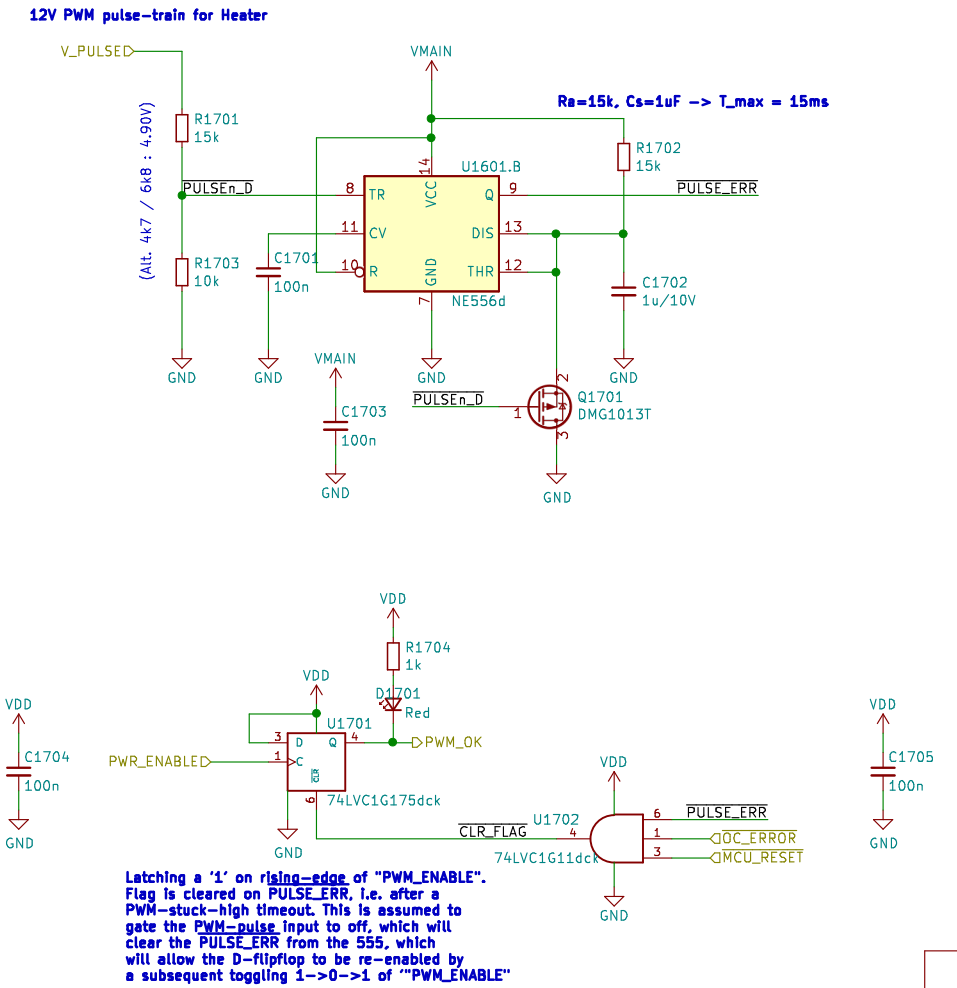
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Weller contol/Channel A/PWM error detector 1/

File: pwm_error_detector.sch

Title: HW PWM stuck-high detection with latched flag

Size: A4	Date: 2020-08-12	Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 16/22



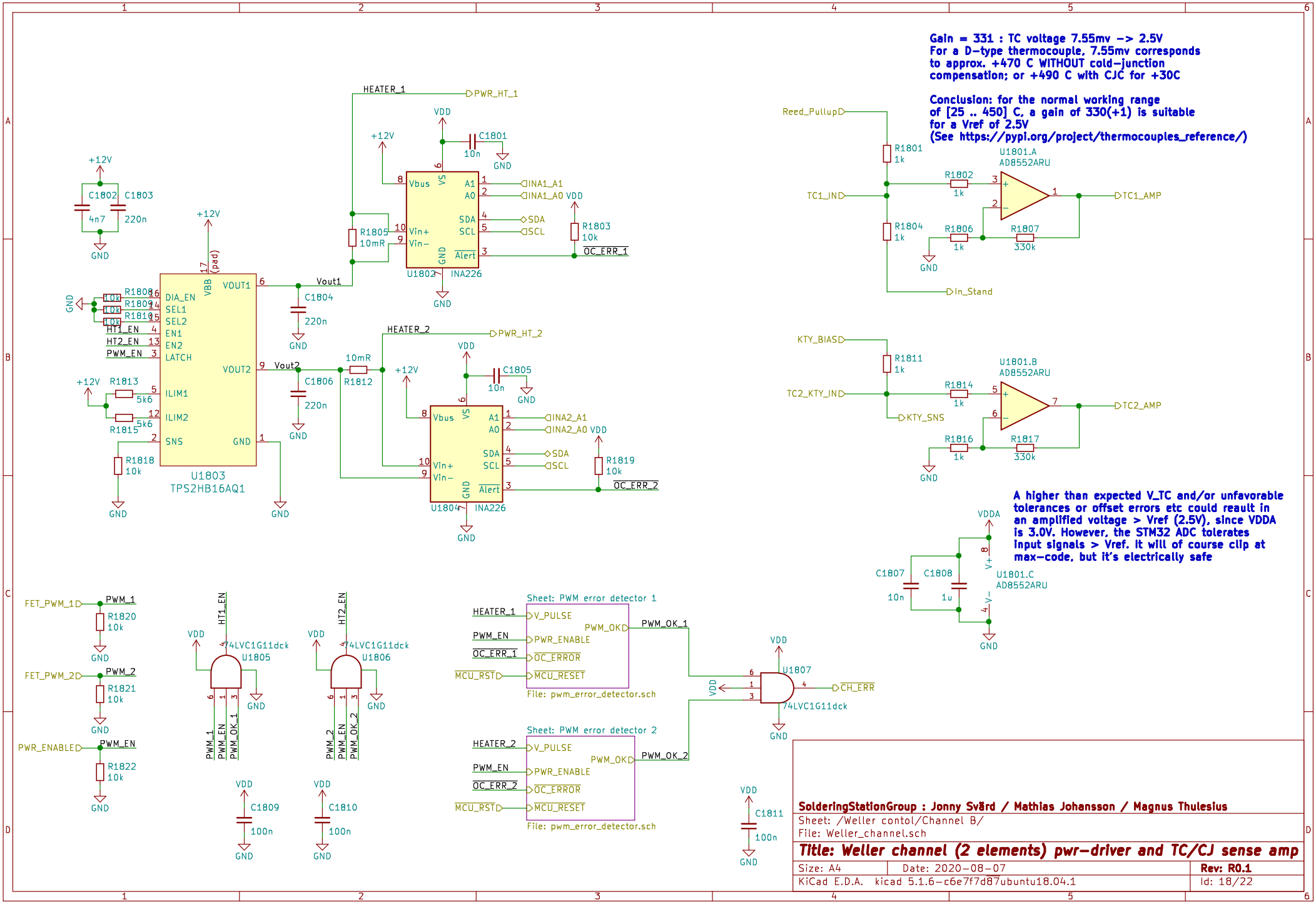
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

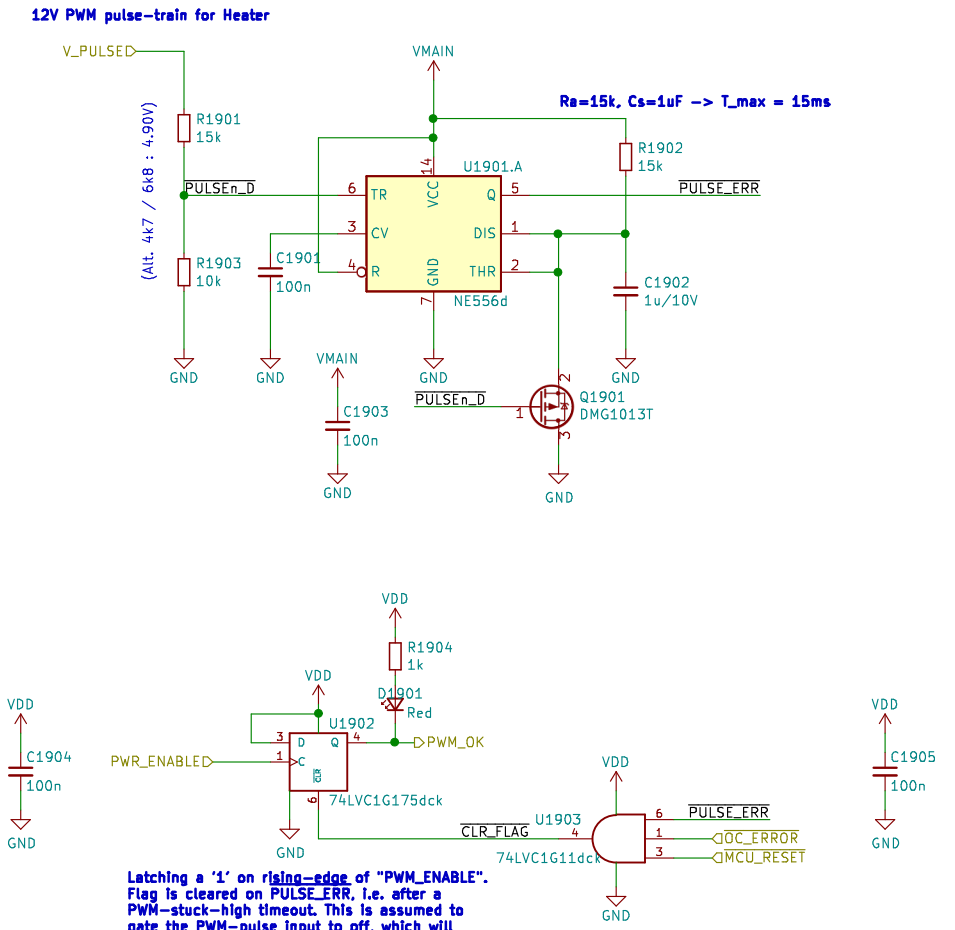
Sheet: /Weller contol/Channel A/PWM error detector 2/

File: pwm_error_detector.sch

Title: HW PWM stuck-high detection with latched flag

Size: A4	Date: 2020-08-12	Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 17/22


Gain = 331 : TC voltage 7.55mv -> 2.5V
For a D-type thermocouple, 7.55mv corresponds to approx. +470 C WITHOUT cold-junction compensation; or +490 C with CJC for +30C
Conclusion: for the normal working range of [25 .. 450] C, a gain of 330(+1) is suitable for a Vref of 2.5V
(See https://pypi.org/project/thermocouples_reference/)
A higher than expected V_TC and/or unfavorable tolerances or offset errors etc could reault in an amplified voltage > Vref (2.5V), since VDDA is 3.0V. However, the STM32 ADC tolerates input signals > Vref. It will of course clip at max-code, but it's electrically safe
HEATER_1
PWR_HT_1
HEATER_2
PWR_HT_2
U1803
TPS2HB16AQ1
U1802
INA226
U1804
INA226
U1801.A
AD8552ARU
U1801.B
AD8552ARU
U1801.C
AD8552ARU
U1805
74LVC1G11dck
U1806
74LVC1G11dck
U1807
74LVC1G11dck
Sheet: PWM error detector 1
File: pwm_error_detector.sch
Sheet: PWM error detector 2
File: pwm_error_detector.sch
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius
Sheet: /Weller contol/Channel B/
File: Weller_channel.sch
Title: Weller channel (2 elements) pwr-driver and TC/CJ sense amp
Size: A4
Date: 2020-08-07
Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1
Id: 18/22



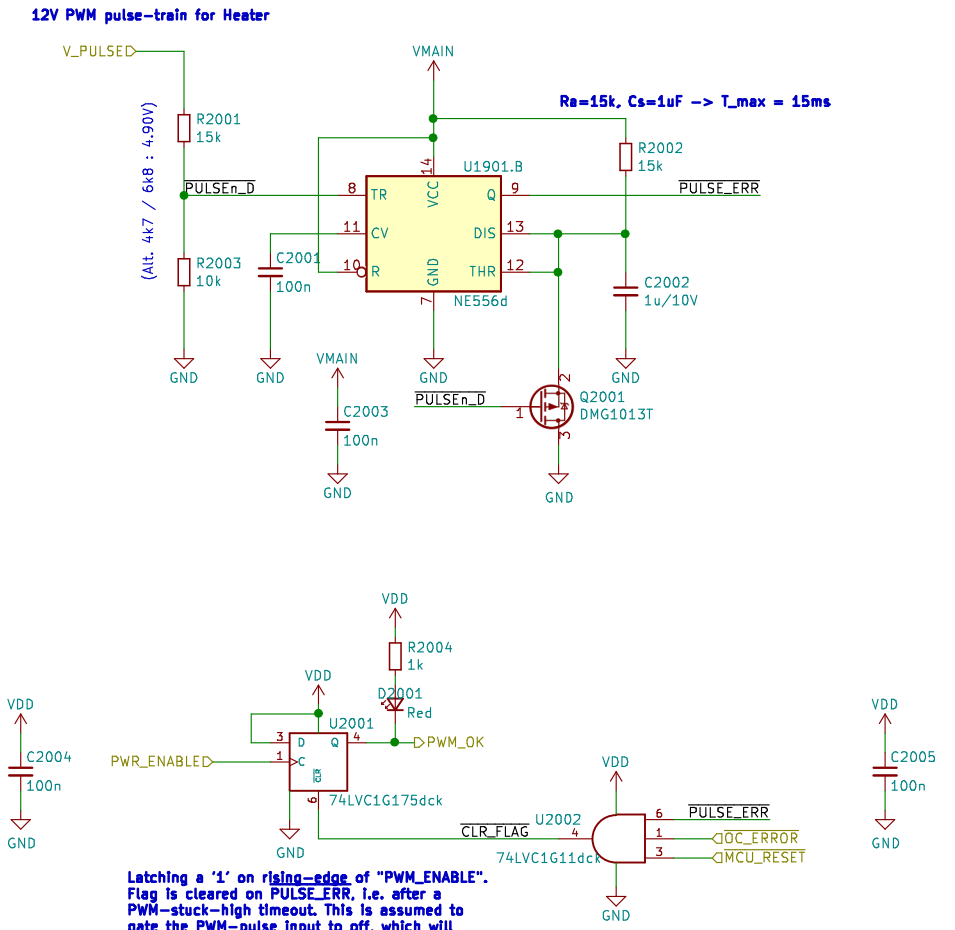
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Weller contol/Channel B/PWM error detector 1/

File: pwm_error_detector.sch

Title: HW PWM stuck-high detection with latched flag

Size: A4	Date: 2020-08-12	Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 19/22



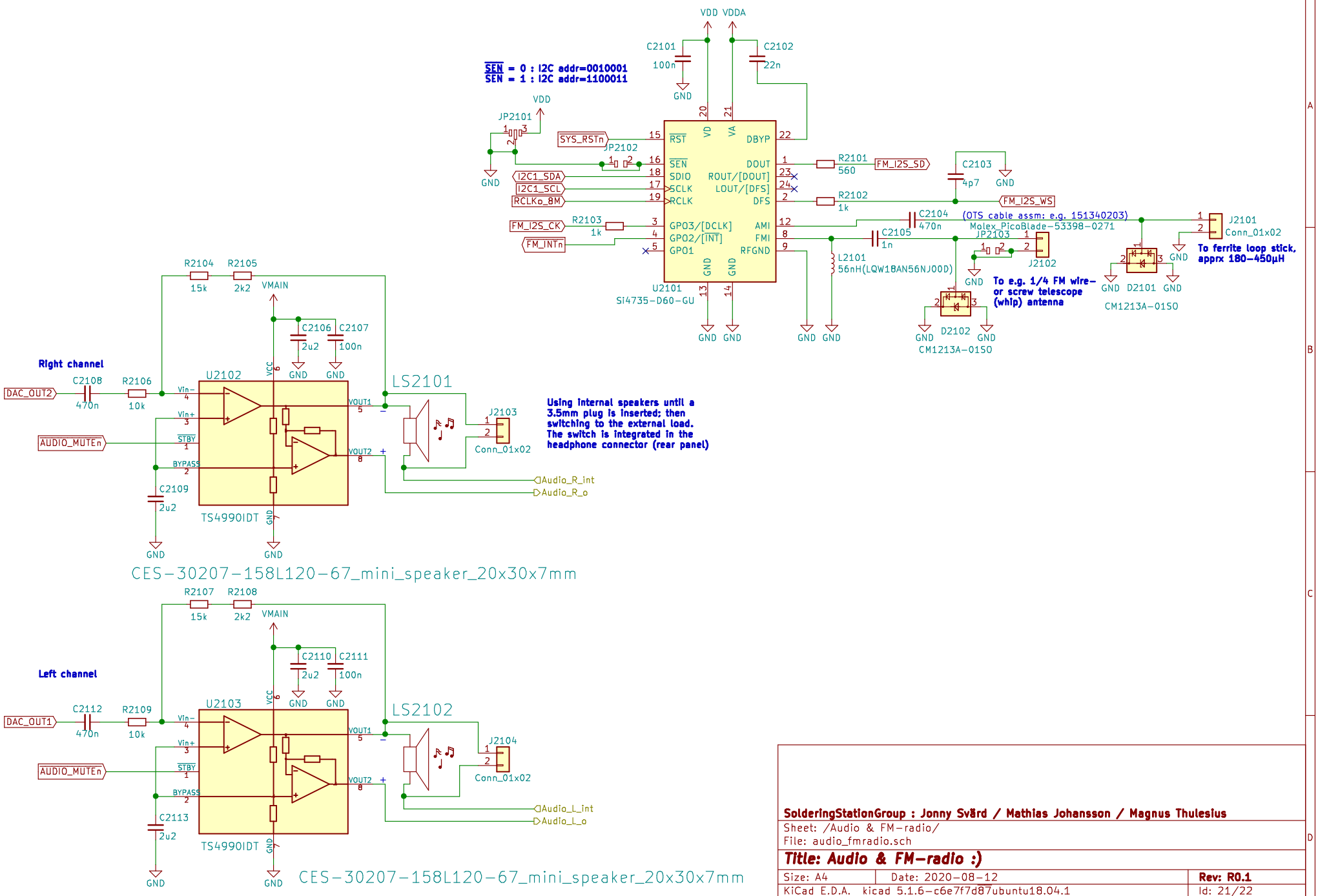
Latching a '1' on rising-edge of "PWM_ENABLE".
Flag is cleared on PULSE_ERR, i.e. after a
PWM-stuck-high timeout. This is assumed to
gate the PWM-pulse input to off, which will
clear the PULSE_ERR from the 555, which
will allow the D-flipflop to be re-enabled by
a subsequent toggling 1->0->1 of '"PWM_ENABLE"

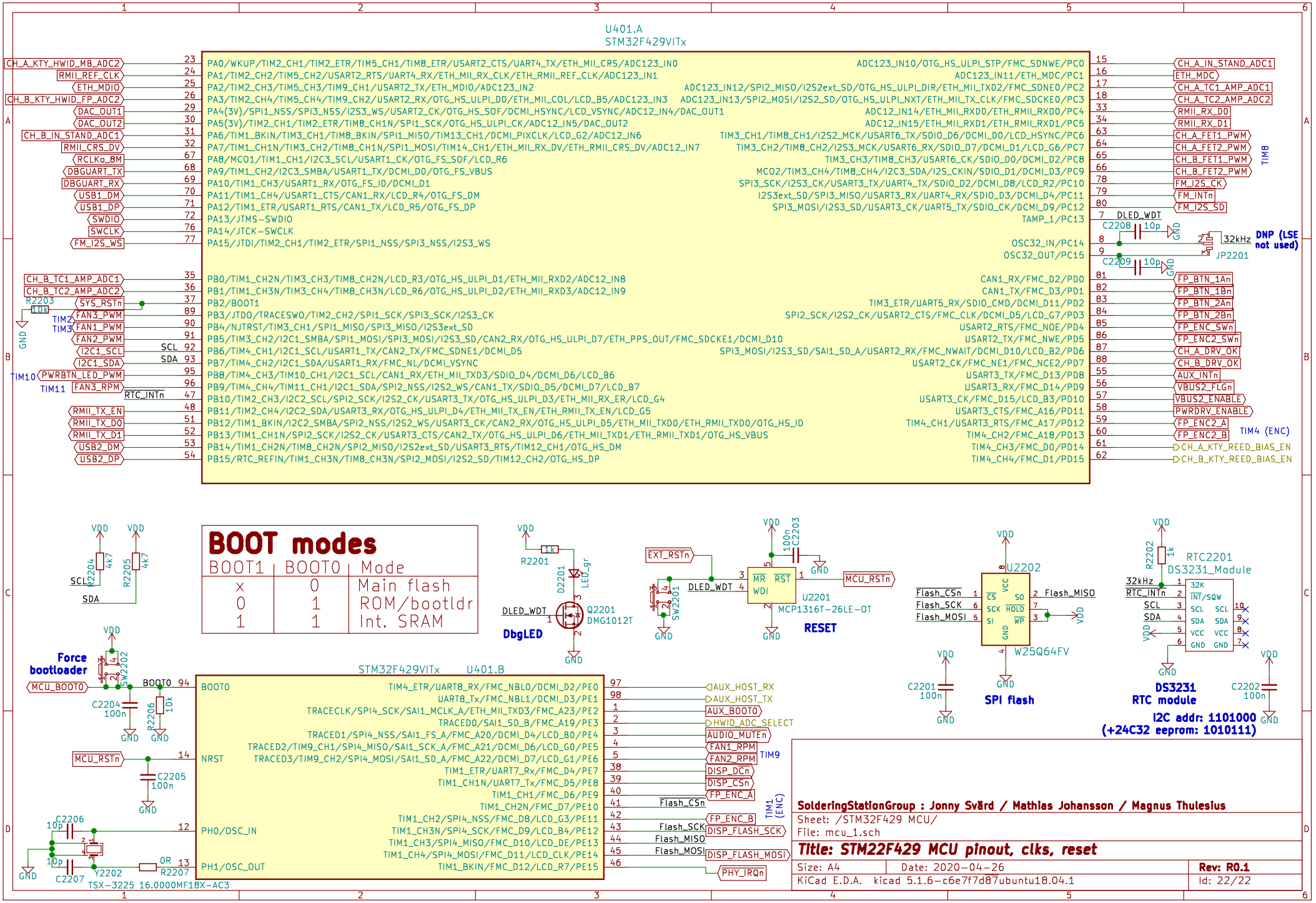
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Weller contol/Channel B/PWM error detector 2/
File: pwm_error_detector.sch

Title: HW PWM stuck-high detection with latched flag

Size: A4	Date: 2020-08-12	Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 20/22


SEN = 0 : I2C addr=0010001
SEN = 1 : I2C addr=1100011
VDD VDDA
C2101 100n
C2102 22n
JP2101
JP2102
SYS_RSTn
I2C1_SDA
I2C1_SCL
RCLKo_8M
FM_I2S_CK
FM_INTn
R2103 1k
U2101
SI4735-D60-GU
RST
SEN
SDIO
SCLK
RCLK
GPO3/[DCLK]
GPO2/[INT]
GPO1
VD
VA
DBYP
DOUT
ROUT/[DOUT]
LOUT/[DFS]
DFS
AMI
FMI
RFGND
GND
R2101 560
FM_I2S_SD
R2102 1k
FM_I2S_WS
C2103 4p7
C2104 470n
C2105 1n
L2101 56nH(LQW18AN56NJ00D)
(OTS cable assm: e.g. 151340203)
Molex_PicoBlade-53398-0271
JP2103
J2102
To e.g. 1/4 FM wire- or screw telescope (whip) antenna
D2102
CM1213A-01SO
D2101
CM1213A-01SO
J2101
Conn_01x02
To ferrite loop stick, apprx 180-450µH
Right channel
R2104 15k
R2105 2k2
VMAIN
C2106 2u2
C2107 100n
DAC_OUT2
C2108 470n
R2106 10k
U2102
Vin-
Vin+
STBY
BYPASS
VCC
VOUT1
VOUT2
TS4990IDT
C2109 2u2
AUDIO_MUTEn
LS2101
J2103
Conn_01x02
Audio_R_int
Audio_R_o
Using internal speakers until a 3.5mm plug is inserted; then switching to the external load. The switch is integrated in the headphone connector (rear panel)
CES-30207-158L120-67_mini_speaker_20x30x7mm
Left channel
R2107 15k
R2108 2k2
VMAIN
C2110 2u2
C2111 100n
DAC_OUT1
C2112 470n
R2109 10k
U2103
TS4990IDT
C2113 2u2
AUDIO_MUTEn
LS2102
J2104
Conn_01x02
Audio_L_int
Audio_L_o
CES-30207-158L120-67_mini_speaker_20x30x7mm
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius
Sheet: /Audio & FM-radio/
File: audio_fmradio.sch
Title: Audio & FM-radio :)
Size: A4
Date: 2020-08-12
Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1
Id: 21/22


U401.A
STM32F429VITx
PA0/WKUP/TIM2_CH1/TIM2_ETR/TIM5_CH1/TIM8_ETR/USART2_CTS/UART4_TX/ETH_MII_CRS/ADC123_IN0
PA1/TIM2_CH2/TIM5_CH2/USART2_RTS/UART4_RX/ETH_MII_RX_CLK/ETH_RMII_REF_CLK/ADC123_IN1
PA2/TIM2_CH3/TIM5_CH3/TIM9_CH1/USART2_TX/ETH_MDIO/ADC123_IN2
PA3/TIM2_CH4/TIM5_CH4/TIM9_CH2/USART2_RX/OTG_HS_ULPI_D0/ETH_MII_COL/LCD_B5/ADC123_IN3
PA4(3V)/SPI1_NSS/SPI3_NSS/I2S3_WS/USART2_CK/OTG_HS_SOF/DCMI_HSYNC/LCD_VSYNC/ADC12_IN4/DAC_OUT1
PA5(3V)/TIM2_CH1/TIM2_ETR/TIM8_CH1N/SPI1_SCK/OTG_HS_ULPI_CK/ADC12_IN5/DAC_OUT2
PA6/TIM1_BKIN/TIM3_CH1/TIM8_BKIN/SPI1_MISO/TIM13_CH1/DCMI_PIXCLK/LCD_G2/ADC12_IN6
PA7/TIM1_CH1N/TIM3_CH2/TIM8_CH1N/SPI1_MOSI/TIM14_CH1/ETH_MII_RX_DV/ETH_RMII_CRS_DV/ADC12_IN7
PA8/MCO1/TIM1_CH1/I2C3_SCL/USART1_CK/OTG_FS_SOF/LCD_R6
PA9/TIM1_CH2/I2C3_SMBA/USART1_TX/DCMI_D0/OTG_FS_VBUS
PA10/TIM1_CH3/USART1_RX/OTG_FS_ID/DCMI_D1
PA11/TIM1_CH4/USART1_CTS/CAN1_RX/LCD_R4/OTG_FS_DM
PA12/TIM1_ETR/USART1_RTS/CAN1_TX/LCD_R5/OTG_FS_DP
PA13/JTMS-SWDIO
PA14/JTCK-SWCLK
PA15/JTDI/TIM2_CH1/TIM2_ETR/SPI1_NSS/SPI3_NSS/I2S3_WS
ADC123_IN10/OTG_HS_ULPI_STP/FMC_SDNWE/PC0
ADC123_IN11/ETH_MDC/PC1
ADC123_IN12/SPI2_MISO/I2S2ext_SD/OTG_HS_ULPI_DIR/ETH_MII_TXD2/FMC_SDNE0/PC2
ADC123_IN13/SPI2_MOSI/I2S2_SD/OTG_HS_ULPI_NXT/ETH_MII_TX_CLK/FMC_SDCKE0/PC3
ADC12_IN14/ETH_MII_RXD0/ETH_RMII_RXD0/PC4
ADC12_IN15/ETH_MII_RXD1/ETH_RMII_RXD1/PC5
TIM3_CH1/TIM8_CH1/I2S2_MCK/USART6_TX/SDIO_D6/DCMI_D0/LCD_HSYNC/PC6
TIM3_CH2/TIM8_CH2/I2S3_MCK/USART6_RX/SDIO_D7/DCMI_D1/LCD_G6/PC7
TIM3_CH3/TIM8_CH3/USART6_CK/SDIO_D0/DCMI_D2/PC8
MCO2/TIM3_CH4/TIM8_CH4/I2C3_SDA/I2S_CKIN/SDIO_D1/DCMI_D3/PC9
SPI3_SCK/I2S3_CK/USART3_TX/UART4_TX/SDIO_D2/DCMI_D8/LCD_R2/PC10
I2S3ext_SD/SPI3_MISO/USART3_RX/UART4_RX/SDIO_D3/DCMI_D4/PC11
SPI3_MOSI/I2S3_SD/USART3_CK/UART5_TX/SDIO_CK/DCMI_D9/PC12
TAMP_1/PC13
OSC32_IN/PC14
OSC32_OUT/PC15
PB0/TIM1_CH2N/TIM3_CH3/TIM8_CH2N/LCD_R3/OTG_HS_ULPI_D1/ETH_MII_RXD2/ADC12_IN8
PB1/TIM1_CH3N/TIM3_CH4/TIM8_CH3N/LCD_R6/OTG_HS_ULPI_D2/ETH_MII_RXD3/ADC12_IN9
PB2/BOOT1
PB3/JTDO/TRACESWO/TIM2_CH2/SPI1_SCK/SPI3_SCK/I2S3_CK
PB4/NJTRST/TIM3_CH1/SPI1_MISO/SPI3_MISO/I2S3ext_SD
PB5/TIM3_CH2/I2C1_SMBA/SPI1_MOSI/SPI3_MOSI/I2S3_SD/CAN2_RX/OTG_HS_ULPI_D7/ETH_PPS_OUT/FMC_SDCKE1/DCMI_D10
PB6/TIM4_CH1/I2C1_SCL/USART1_TX/CAN2_TX/FMC_SDNE1/DCMI_D5
PB7/TIM4_CH2/I2C1_SDA/USART1_RX/FMC_NL/DCMI_VSYNC
PB8/TIM4_CH3/TIM10_CH1/I2C1_SCL/CAN1_RX/ETH_MII_TXD3/SDIO_D4/DCMI_D6/LCD_B6
PB9/TIM4_CH4/TIM11_CH1/I2C1_SDA/SPI2_NSS/I2S2_WS/CAN1_TX/SDIO_D5/DCMI_D7/LCD_B7
PB10/TIM2_CH3/I2C2_SCL/SPI2_SCK/I2S2_CK/USART3_TX/OTG_HS_ULPI_D3/ETH_MII_RX_ER/LCD_G4
PB11/TIM2_CH4/I2C2_SDA/USART3_RX/OTG_HS_ULPI_D4/ETH_MII_TX_EN/ETH_RMII_TX_EN/LCD_G5
PB12/TIM1_BKIN/I2C2_SMBA/SPI2_NSS/I2S2_WS/USART3_CK/CAN2_RX/OTG_HS_ULPI_D5/ETH_MII_TXD0/ETH_RMII_TXD0/OTG_HS_ID
PB13/TIM1_CH1N/SPI2_SCK/I2S2_CK/USART3_CTS/CAN2_TX/OTG_HS_ULPI_D6/ETH_MII_TXD1/ETH_RMII_TXD1/OTG_HS_VBUS
PB14/TIM1_CH2N/TIM8_CH2N/SPI2_MISO/I2S2ext_SD/USART3_RTS/TIM12_CH1/OTG_HS_DM
PB15/RTC_REFIN/TIM1_CH3N/TIM8_CH3N/SPI2_MOSI/I2S2_SD/TIM12_CH2/OTG_HS_DP
CH_A_KTY_HWID_MB_ADC2
RMII_REF_CLK
ETH_MDIO
CH_B_KTY_HWID_FP_ADC2
DAC_OUT1
DAC_OUT2
CH_B_IN_STAND_ADC1
RMII_CRS_DV
RCLKo_8M
DBGUART_TX
DBGUART_RX
USB1_DM
USB1_DP
SWDIO
SWCLK
FM_I2S_WS
CH_B_TC1_AMP_ADC1
CH_B_TC2_AMP_ADC2
SYS_RSTn
FAN3_PWM
FAN1_PWM
FAN2_PWM
I2C1_SCL
I2C1_SDA
PWRBTN_LED_PWM
FAN3_RPM
RTC_INTn
RMII_TX_EN
RMII_TX_D0
RMII_TX_D1
USB2_DM
USB2_DP
CH_A_IN_STAND_ADC1
ETH_MDC
CH_A_TC1_AMP_ADC1
CH_A_TC2_AMP_ADC2
RMII_RX_D0
RMII_RX_D1
CH_A_FET1_PWM
CH_A_FET2_PWM
CH_B_FET1_PWM
CH_B_FET2_PWM
FM_I2S_CK
FM_INTn
FM_I2S_SD
TIM8
DLED_WDT
C2208 10p
C2209 10p
32kHz
JP2201
DNP (LSE not used)
FP_BTN_1An
FP_BTN_1Bn
FP_BTN_2An
FP_BTN_2Bn
FP_ENC_SWn
FP_ENC2_SWn
CH_A_DRV_OK
CH_B_DRV_OK
AUX_INTn
VBUS2_FLGn
VBUS2_ENABLE
PWRDRV_ENABLE
FP_ENC2_A
FP_ENC2_B
TIM4 (ENC)
CH_A_KTY_REED_BIAS_EN
CH_B_KTY_REED_BIAS_EN
R2203 10k
GND
TIM2
TIM3
TIM10
TIM11
SCL
SDA
VDD
R2204 4k7
R2205 4k7
BOOT modes
BOOT1 | BOOT0 | Mode
x | 0 | Main flash
0 | 1 | ROM/bootldr
1 | 1 | Int. SRAM
R2201 1k
D2201 LED_gr
Q2201 DMG1012T
DbgLED
EXT_RSTn
DLED_WDT
SW2201
C2203 100n
U2201 MCP1316T-26LE-OT
MR RST WDI
MCU_RSTn
RESET
U2202 W25Q64FV
Flash_CSn
Flash_SCK
Flash_MOSI
Flash_MISO
SPI flash
C2201 100n
C2202 100n
R2202 1k
RTC2201 DS3231_Module
32kHz
RTC_INTn
SCL
SDA
DS3231 RTC module
I2C addr: 1101000 (+24C32 eeprom: 1010111)
Force bootloader
MCU_BOOT0
SW2202
BOOT0
R2206 10k
C2204 100n
STM32F429VITx U401.B
BOOT0
NRST
PH0/OSC_IN
PH1/OSC_OUT
TIM4_ETR/UART8_RX/FMC_NBL0/DCMI_D2/PE0
UART8_Tx/FMC_NBL1/DCMI_D3/PE1
TRACECLK/SPI4_SCK/SAI1_MCLK_A/ETH_MII_TXD3/FMC_A23/PE2
TRACED0/SAI1_SD_B/FMC_A19/PE3
TRACED1/SPI4_NSS/SAI1_FS_A/FMC_A20/DCMI_D4/LCD_B0/PE4
TRACED2/TIM9_CH1/SPI4_MISO/SAI1_SCK_A/FMC_A21/DCMI_D6/LCD_G0/PE5
TRACED3/TIM9_CH2/SPI4_MOSI/SAI1_SD_A/FMC_A22/DCMI_D7/LCD_G1/PE6
TIM1_ETR/UART7_Rx/FMC_D4/PE7
TIM1_CH1N/UART7_Tx/FMC_D5/PE8
TIM1_CH1/FMC_D6/PE9
TIM1_CH2N/FMC_D7/PE10
TIM1_CH2/SPI4_NSS/FMC_D8/LCD_G3/PE11
TIM1_CH3N/SPI4_SCK/FMC_D9/LCD_B4/PE12
TIM1_CH3/SPI4_MISO/FMC_D10/LCD_DE/PE13
TIM1_CH4/SPI4_MOSI/FMC_D11/LCD_CLK/PE14
TIM1_BKIN/FMC_D12/LCD_R7/PE15
AUX_HOST_RX
AUX_HOST_TX
AUX_BOOT0
HWID_ADC_SELECT
AUDIO_MUTEn
FAN1_RPM
FAN2_RPM
TIM9
DISP_DCn
DISP_CSn
FP_ENC_A
Flash_CSn
FP_ENC_B
Flash_SCK
DISP_FLASH_SCK
Flash_MISO
Flash_MOSI
DISP_FLASH_MOSI
PHY_IRQn
TIM1 (ENC)
MCU_RSTn
C2205 100n
C2206 10p
C2207 10p
Y2202
R2207 0R
TSX-3225 16.0000MF18X-AC3
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius
Sheet: /STM32F429 MCU/
File: mcu_1.sch
Title: STM22F429 MCU pinout, clks, reset
Size: A4
Date: 2020-04-26
Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1
Id: 22/22