MCU

CONNECTORS

ADC_IN2 ◇——————◇ ADC_IN2
ADC_IN3 ◇——————◇ ADC_IN3
ADC_IN4 ◇——————◇ ADC_IN4
ADC_IN5 ◇——————◇ ADC_IN5
ADC_IN6 ◇——————◇ ADC_IN6
ADC_IN7 ◇——————◇ ADC_IN7
ADC_IN8 ◇——————◇ ADC_IN8
ADC_IN9 ◇——————◇ ADC_IN9
+5V ◇——————◇ +5V
{I2C1_SDA I2C1_SCL} ◇——————◇ {I2C1_SDA I2C1_SCL}
{I2C2_SDA I2C2_SCL} ◇——————◇ {I2C2_SDA I2C2_SCL}
{UART1_TX UART1_RX} ◇——————◇ {UART1_TX UART1_RX}
{UART2_TX UART2_RX} ◇——————◇ {UART2_TX UART2_RX}
PB[0..7] ◇——————◇ PB[0..7]
PC[0..7] ◇——————◇ PC[0..7]
PD[0..7] ◇——————◇ PD[0..7]
PG[0..7] ◇——————◇ PG[0..7]
{SPI5_SCK SPI5_NSS SPI5_MISO SPI5_MOSI} ◇——————◇ {SPI5_SCK SPI5_NSS SPI5_MISO SPI5_MOSI}

{JTMS JTCK JTDI JTDO JTRST} ◇——————◇ {JTMS JTCK JTDI JTDO JTRST}
{SPI4_SCK SPI4_NSS SPI4_MISO SPI4_MOSI} ◇——————◇ {SPI4_SCK SPI4_NSS SPI4_MISO SPI4_MOSI}
{USB_FS_VBUS USB_FS_DM USB_FS_DP} ◇——————◇ {USB_FS_VBUS USB_FS_DM USB_FS_DP}
{DAC0 DAC1} ◇——————◇ {DAC0 DAC1}

ETH_RMII_CRS_DV ◇——————◇ ETH_RMII_CRS_DV
ETH_RMII_MDC ◇——————◇ ETH_RMII_MDC
ETH_RMII_MDIO ◇——————◇ ETH_RMII_MDIO
ETH_RMII_REF_CLK ◇——————◇ ETH_RMII_REF_CLK
ETH_RMII_RXD0 ◇——————◇ ETH_RMII_RXD0
ETH_RMII_RXD1 ◇——————◇ ETH_RMII_RXD1
ETH_RMII_TXD0 ◇——————◇ ETH_RMII_TXD0
ETH_RMII_TXD1 ◇——————◇ ETH_RMII_TXD1
ETH_RMII_TX_EN ◇——————◇ ETH_RMII_TX_EN
nRST ◇——————◇ nRST
PWM1[0..1] ◇——————◇ PWM1[0..1]
PWM[0..3] ◇——————◇ PWM[0..3]

File: SimsBharath_DAQ_MCU.kicad_sch

File: SimsBharath_DAQ_Connectors.kicad_sch

+5V – +3.3V/1A LDO

U2
MIC37100-3.3WS
OUT
GND_1
IN
GND_2
C23 5.6pF
C24 5.6pF
+3.3V1 TestPoint
+3.3V
+5V1 TestPoint
+5V
GND

5V AND 3.3V LED

R31 1k — D2 LED
R32 220E — D3 LED
+5V
+3.3V
GND

EXTERNAL_HSE_CLOCK

X1
XRCGB25M000F3A16R0
NC_2 XTAL_2
XTAL_1 NC_1
C22 5.6pF
C21 5.6pF
PH0-OSC_IN
PH1-OSC_OUT
GND

EXTERNAL_LSE_CLOCK

C34 5.1pF
C36 5.1pF
R34 0E
R33 0E
X3
CM7V-T1A-32.768KHZ-7PF-20PPM-TA-QC
OSC32_IN
OSC32_OUT
GND

MCU DECAPS

+3.3V
C13 4.7uF C3 0.1uF C4 0.1uF C5 0.1uF C6 0.1uF C7 0.1uF C8 0.1uF C9 0.1uF C10 0.1uF C11 0.1uF C12 0.1uF
VBAT
C14 1uF C15 1uF C17 0.1uF C16 1uF C18 0.1uF C19 2.2uF C20 2.2uF
VDDA VREFP VCAP
2X2.2uF CAP NEAR VCAP PINS
GND GNDA GNDA

U1
STM32H753ZIT6

SPI4_SCK PE2
SPI4_NSS PE3
SPI4_MISO PE4
SPI4_MOSI PE5
PE6
VBAT
PC13
OSC32_IN PC14-OSC32_IN
OSC32_OUT PC15-OSC32_OUT
I2C1_SDA PF0
I2C1_SCL PF1
PF2
ADC_IN5 PF3
ADC_IN9 PF4
ADC_IN4 PF5
VSS_1
VDD_1
ADC_IN8 PF6
ADC_IN3 PF7
ADC_IN7 PF8
ADC_IN2 PF9
ADC_IN6 PF10
PH0-OSC_IN PH0-OSC_IN
PH1-OSC_OUT PH1-OSC_OUT
NRST
PC0
ETH_RMII_MDC PC1
PC2_C
PC3_C
VDD_2
VSSA
VREF+
VDDA
PA0-WKUP
ETH_RMII_REF_CLK PA1
ETH_RMII_MDIO PA2

R3 0E
VBAT +3.3V
VREFP
R1 0E
R2 0E +3.3V GNDA
C2 0.1uF C1 0.1uF
VDDA
GND

VDD_11 PDR_ON PE1 PE0 PB9 PB8 BOOT0 PB7 PB6 PB5 PB4 PB3 PG15 VDD_10 VSS_9 PG13 PG12 PG11 PG10 PG9 PD7 PD6 VDD_9 VSS_8 PD4 PD3 PD2 PD1 PD0 PC12 PC11 PC10 PA15 PA14

+3.3V GND PB[0..7] +3.3V ETH_RMII_TX0 ETH_RMII_TX_EN PC[0..7] +3.3V SPI5_SCK SPI5_NSS SPI5_MISO SPI5_MOSI

R38 10k R39 10k

{JTMS JTCK JTDI JTDO JTRST}
JTMS
JTCK
JTRST
JTDO
JTDI

VDD_8 108 +3.3V
VSS_7 107 GND
VCAP2 106 VCAP
105
PA13 104 USB_FS_DP
PA12 103 USB_FS_DM
PA11
PA10 102
PA9 101
PA8 100
PC9 99 PWM3
PC8 98 PWM2
PC7 97 PWM1
PC6 96 PWM0
VDD33_USB 95 +3.3V
VSS_6 94 GND
PG8 93 PG0
PG7 92 PG1
PG6 91 PG2
PG5 90 PG3
PG4 89 PG4
PG3 88 PG5
PG2 87 PG6
PD15 86 PG7
PD14 85 PD0
VDD_7 84 +3.3V
VSS_5 83
PD13 82 PD1
PD12 81 PD2
PD11 80 PD3
PD10 79 PD4
PD9 78 PD5
PD8 77
PB15 76 UART2_RX
PB14 75 UART2_TX
PB13 74
PB12 73 PD7
PD6 {UART2_TX UART2_RX}
ETH_RMII_TXD1
PD[0..7]
PG[0..7]

[USB_FS_VBUS USB_FS_DM USB_FS_DP]
+5V GND
D1 SMF5.0A
USB_FS_VBUS

PA3 PA4 PA5 PA6 PA7 PC4 PC5 PB0 PB1 PB2 PF11 PF12 PF13 PF14 PF15 PG0 PG1 PE7 PE8 PE9 PE10 PE11 PE12 PE13 PE14 PE15 PB10 PB11 PA15
VSS_2 VDD_3 VSS_3 VDD_4 VDD_5 VSS_4 VDD_6 VCAP1

GND DAC0 DAC1 +3.3V GND I2C2_SCL I2C2_SDA PWM10 GND PWM11 UART1_TX UART1_RX VCAP +3.3V
+3.3V {DAC0 DAC1} ETH_RMII_CRS_DV ETH_RMII_RXD0 ETH_RMII_RXD1 +3.3V {I2C2_SDA I2C2_SCL} +3.3V {UART1_TX UART1_RX} PWM1[0..1] {UART1_TX UART1_RX}
PWM[0..3]

JTAG CONNECTOR

{JTMS JTCK JTDI JTDO JTRST}

J1
Conn_02x05_Odd_Even

+3.3V
JTMS
JTCK
JTDI
JTDO
JTRST
GND

USB_CONNECTOR [OTG_FS]

{USB_FS_VBUS USB_FS_DM USB_FS_DP}

J2
USB1030-GF-P-B-B

USB_FS_VBUS
USB_FS_DM
USB_FS_DP
MH1
MH2

R35
1.5k
+3.3V
GND

R15 10k   ADC3_1   ADC_IN5
R23 10k   ADC3_5   ADC_IN3
+5V   VCC
C35 1uF   C37 1uF
GND   GND

R16 20k   GND
R27 20k   GND

R17 10k   ADC3_2   ADC_IN9
R24 10k   ADC3_6   ADC_IN7

R18 20k   GND
R28 20k   GND

{DAC0 DAC1}

R36 20k   DAC1   M_DAC1
DAC0
C38 1uF

R19 10k   ADC3_3   ADC_IN4
R25 10k   ADC3_7   ADC_IN2

R21 20k   GND
R29 20k   GND

R37 20k   GND   M_DAC0
C39 1uF
GND

R20 10k   ADC3_4   ADC_IN8
R26 10k   ADC3_8   ADC_IN6

R22 20k   GND
R30 20k   GND

PORTS

ADC3_1 ADC3_2 ADC3_3 ADC3_4 ADC3_5 ADC3_6 ADC3_7 ADC3_8 VCC
J3 702471052
GND

{SPI4_SCK SPI4_NSS SPI4_MISO SPI4_MOSI}
J4 702471052
M_DAC0 M_DAC1 PWM0 PWM1 PWM2 PWM3 PWM10 PWM11 VCC
PWM[0..3]
PWM1[0..1]
{SPI5_SCK SPI5_NSS SPI5_MISO SPI5_MOSI}
GND

J5 702471052
SPI4_MOSI SPI4_MISO SPI4_NSS SPI4_SCK SPI5_MOSI SPI5_MISO SPI5_NSS SPI5_SCK VCC
{UART1_TX UART1_RX}
{UART2_TX UART2_RX}
{I2C1_SDA I2C1_SCL}
{I2C2_SDA I2C2_SCL}
GND

J6 702471052
UART1_TX UART1_RX UART2_TX UART2_RX I2C1_SDA I2C1_SCL I2C2_SDA I2C2_SCL VCC
GND

PC0 PC1 PC2 PC3 PC4 PC5 PC6 PC7 VCC
J7 702471052
PC[0..7]
GND

PB0 PB1 PB2 PB3 PB4 PB5 PB6 PB7 VCC
J8 702471052
PB[0..7]
GND

PD0 PD1 PD2 PD3 PD4 PD5 PD6 PD7 VCC
J10 702471052
PD[0..7]
GND

PG0 PG1 PG2 PG3 PG4 PG5 PG6 PG7 VCC
J11 702471052
PG[0..7]
GND

ETHERNET CONNECTOR

+3.3V
L1 600R@100MHz
C31 0.1uF   C30 0.1uF   C29 10uF
GND
GND

R4 12K
TD-
TD+
RD-
RD+
GND

X2
XRCGB25M000F3A16R0
NC_2   XTAL_2
XTAL_1   NC_1
GND   GND

C27 5.6pF
C28 5.6pF
C26 1uF
C25 470pF
GND   GND

U3
LAN8742A-CZ-TR
EP RBIAS RXP RXN TXP TXN VDD1A
VDD2A
LED2/NINT/NPME/NINTSEL
LED1/NINT/NPME/REGOFF
XTAL2
XTAL1/CLKIN
VDDCR
LED2
LED1
TXD1
TXD0
TXEN
NRST
NINT/REFCLKO
MDC
ETH_RMII_TXD1
ETH_RMII_TXD0
ETH_RMII_TX_EN
nRST
ETH_RMII_REF_CLK
ETH_RMII_MDC

RXD1/MODE1
RXD0/MODE0
VDDIO
RXER/PHYAD0
CRS_DV/MODE2
MDIO
ETH_RMII_RXD0
ETH_RMII_RXD1
ETH_RMII_CRS_DV
ETH_RMII_MDIO
+3.3V
GND

R12 50E   R11 50E   R10 50E   R9 50E

U4
H1102NL
TD+   TX+
CT_1   NC_6
TD-   TX-
NC_1   NC_5
NC_2   NC_4
RD+   RX+
CT_2   NC_3
RD-   RX-

TD+
TD-
RD+
RD-

C33 0.1uF   C32 0.1uF
GND

R8 R7 R6 R5
80E 80E 80E 80E
GND

J9
1-406507-5
K_GREEN_1
A_GREEN_1
K_GREEN_2
A_GREEN_2
MH1
MH2
R13 220E   LED1
R14 220E   LED2
GND