EOS S3

IC1 EOS-S3-QFN

VCCIOA, VCCIOA, VCCIOB, VCCIOB, VCCIOB, AVDD, LDO_VIN, LDO_VIN, VDD1, VDD2, SYS_RSTn, XTAL_I, XTAL_O, ADC0, ADC1, FSOURCE, STM, GND, AGND

C14 4u7, C16 4u7, VDD2, VDD1, +3V3
R6 10k, TP1 VDD1, TP2 VDD2
X1 ECS-_327-12_5-34B-TR
C6 12p, C7 12p, GND

BANK A:
FBIO2, FBIO4, FBIO5/SDA_0_DPU, FBIO7, FBIO11, FBIO12, FBIO13, FBIO_15/SW_DP_IO, FBIO_14/SW_DP_CLK, FBIO_10, FBIO_9, FBIO_8, USR_BUTTON, FBIO_6/FCLK, FBIO3/SENSOR_INT_0, SDA_0, SCL_0

S3IO_2, S3IO_4, S3IO_5, S3IO_7, S3IO_11, S3IO_12, S3IO_13, SWD_IO, SWD_CLK, S3IO_10, S3IO_9, S3IO_8, USR_BUTTON, IMU_INT, I2C_SDA, I2C_SCL

TP4
J7 / J1 61300211121 +3V3
R14 10k, R15 10k, GND

BANK B:
FBIO_16/SPI_SLAVE_CLK, FBIO_17/SPI_SLAVE_MISO, FBIO_20/SPI_SLAVE_SSn, FBIO_19/SPI_SLAVE_MOSI, FBIO_23, FBIO_24, FBIO_25, FBIO_28, FBIO_29, FBIO_30, FBIO_31, FBIO_34/SPI_MASTER_CLK, FBIO_36/SPI_MASTER_MISO, FBIO_32, FBIO_38/SPI_MASTER_MOSI, FBIO_39/SPI_MASTER_SSn, FBIO_43/AP_INTERRUPT, FBIO_44/SW_DP_IO, FBIO_45/SW_DP_CLK, FBIO_18, FBIO_21, FBIO_37, FBIO_40/M_SSn1, FBIO_41, FBIO_42

SPI_SLV_CLK, SPI_SLV_MISO, SPI_SLV_CSn, SPI_SLV_MOSI, I2S_WCLK, I2S_DOUT, S3IO_25, PDM_DATA, PDM_CKO, S3IO_30, I2S_CLK, SPI_MST_CLK, SPI_MST_MISO, SPI_MST_MOSI, SPI_MST_SS, HEADER_P6, HEADER_TX, HEADER_RX, Q_LED_B, Q_LED_G

Q_LED_R, ADC0_EN, SPI_MST_CS2, S3IO_32_I2C1, S3IO_33_I2C1, S3IO_35_SPI_MST_CS3, PU_CTRL_USBP, S3IO_40
R27 1k5 DNP, USB_D_N, R7 22R, R11 22R, USB_D_P, R9 1k5
S3_USB_D_N, S3_USB_D_P
TP5, TP6

R23 10k, R31 10k, R22 10k, R21 10k DNP, DNP
Mount R23 for debug mode, otherwise R22

+3V3
C12 100n, C13 100n, C15 100n, C17 100n, GND

FBIO_8 and FBIO_9 are bootstrap pins for HS oscillator.
They should be pulled-down for internal HSO
FBIO_19 and FPIO_20 are bootstrap pins for SPI flash boot.
They must be pulled low

Maximum power consumption for A and B rails:
LDO mode: 65mA (VCCIOA) 114mA (VCCIOB)
LDO bypass mode: 77mA (VCCIOA) 269mA (VCCIOB)

Flash memory (16Mbit)

U3 GD25Q16CWIGR
+3V3, R10 10k, R8 10k
SPI_MST_MOSI — SI(IO0)
SPI_WP — WP(IO2)
SPI_HOLD — HOLD(IO3)
SPI_MST_SS — CS
SPI_MST_CLK — SCLK
SO(IO1) — SPI_MST_MISO
VSS
C8 100n, +3V3, GND

operating current max. 20 mA

This flash can be replaced with a 64Mbit one (GD25Q64CWIGR)

Buttons, LEDs

S2 KMR2
USR_BUTTON, SYS_RST
D4 ASMB-MTB1-0A3A2
VCC Blue Green Red
R24 100R LED_B, R26 100R LED_G, R25 220R LED_R
Q2 2N7002PV, Q3 2N7002PV
Q_LED_R, LED_R, Q_LED_B, LED_B, Q_LED_G, LED_G
GND

Battery charger and battery voltage measurement

U2 MCP73831T-2ACI_OT
+VBUS, +VBAT
PROG VDD VBAT STAT
R2 4k7, R3 1k5, D2 LG_L29K-G2J1-24-Z, C2 4u7, GND
212mA charge current
PG, C19 1u, Q4 DMG1012T-7
R12 100k, Q1 NX3008CBKV, +VBAT
ADC0_EN, R16 200k, R17 100k, ADC0
R37 10k, GND

USB

J5 0473460001
USB_D_N, USB_D_P, USB_ID, +VBUS
D3 TPD2EUSB30DRTR
R36 10k DNP, C5 4u7, GND

Supply

+VBUS, +VBAT
D1 MBR0520LT1G
R1 1M5, U1 TPS62821DLCR
VIN SW, EN, PG, FB, AGND, PGND
L1 DFE201610E-R47M=P2
C3 100p, R4 453k, C4 22u, R5 100k, +3V3
C1 4u7, PG
+VBAT, GND
S2B-PH-SM4-TB_LF_SN J4

Microphone

+3V3
R13 100R
MIC1 IM69D130
VDD, DATA, CLOCK, SELECT, GND
PDM_DATA, PDM_CKO
C9 100n, +3V3, GND

Pressure sensor

+3V3
U4 DPS310
VDDIO, VDD, SDI, SDO, SCK, CSB, GND, GND
I2C_SDA, I2C_SCL
C10 100n, +3V3, GND
I2C slave addr: 0x77

Accelerometer

U5 MC3635
+3V3
R18 4k7, R19 10k, R20 4k7
VDD, VDDIO, DOUT_A1, DIN_SDA, IMU_INT, INTN, CSN, SCK_SCL, GND, VPP, NC
I2C_SDA, I2C_SCL
C11 100n, +3V3, GND
operating current for 1V8 supply max. 36mA
low-power mode: max. 2.8mA
I2C slave addr: 0x4C

Headers

J6 FTSH-105-01-L-DV-K
+3V3, R32 10k, R34 10k
SWD_IO, SWD_CLK, SYS_RST
C18 100n, D6 SD05C.T.CT, GND

D11 TPD2EUSB30DRTR, SWD_SO, SYS_RST
D5 TPD2EUSB30DRTR, SWD_IO, SWD_CLK

J3 1x16_pinhead
SYS_RST, HEADER_3V3
ADC1 22R R28, S3IO_30 22R R29, S3IO_25 R30, S3IO_13, S3IO_2, SPI_MST_CLK, SPI_MST_MOSI, SPI_MST_MISO, HEADER_RX, HEADER_TX
R30 EXB2HV220JV
GND

J2 1x12_pinhead
SPI_MST_CS2 R38, S3IO_32_I2C1 R39, S3IO_33_I2C1 R40
SPI_SLV_CSn, SPI_SLV_MOSI, SPI_SLV_MISO, SPI_SLV_CLK, HEADER_P6, IMU_INT, I2C_SCL, I2C_SDA
R41 EXB2HV220JV
HEADER_BAT
+VBAT

J8 2x8_pinhead
J8.1–J8.16
R33 EXB2HV220JV
PDM_DATA, PDM_CKO, I2S_WCLK, I2S_DOUT, I2S_CLK, S3IO_11, S3IO_12, S3IO_4
R42 EXB2HV220JV
S3IO_5, USR_BUTTON, S3IO_7, S3IO_8, S3IO_10, S3IO_40
DNP, GND

M1 mounting_pad
M2 mounting_pad
M3 mounting_pad
M4 mounting_pad

Logo N1 oshw_logo
Logo N2 qL_logo

open source hardware
antmicro
QuickLogic