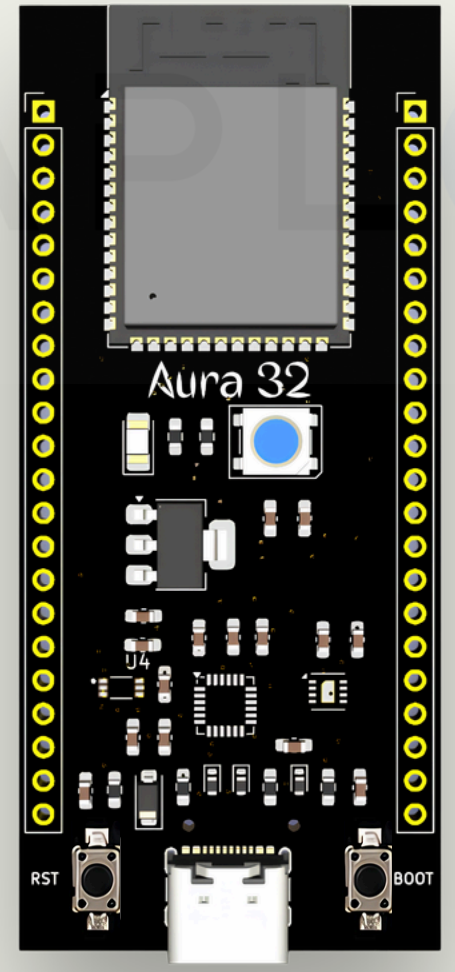
AURA 32

Saplok Development Board

Connect • Innovate • Automate

Simple Hardware. Powerful Possibilities.

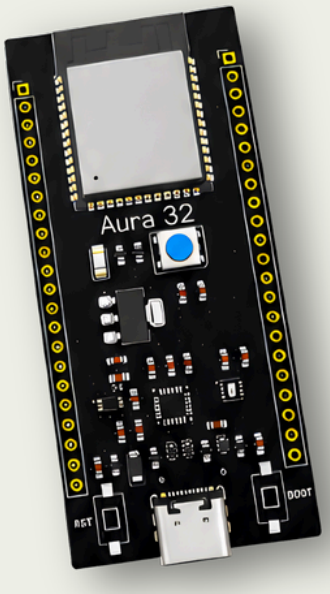


Version 1.0

© 2026 Saplok

AURA 32

MICROCONTROLLER DEVELOPMENT BOARD



INDEX

OVERVIEW 03

BOARD HIGHLIGHTS 04

PROCESSOR 06

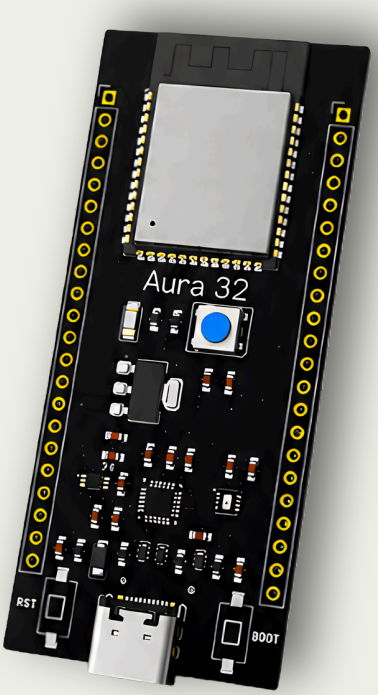
PIN DIAGRAM 07

ONBOARD FEATURES 08

POWER SUPPLY AND MANAGEMENT 10

OVERVIEW

The Aura 32 is a powerful and compact microcontroller development board designed and developed by Saplok for IoT, embedded systems, automation, and smart sensing applications. Built around the high-performance *ESP32-S3 WROOM-1* chipset, the board combines wireless connectivity, onboard environmental and motion sensing capabilities, RGB status indication, and Micro SD data logging into a single developer-friendly platform. Designed to simplify development and accelerate innovation, Aura 32 enables engineers, students, and makers to rapidly build connected and intelligent solutions. Its flexible architecture and rich peripheral support make it suitable for a wide range of applications, from smart monitoring systems and industrial automation to educational projects and rapid prototyping.



Powered by ESP32-S3
Dual-Core | WiFi 2.4GHz | Bluetooth LE 5.0
High Performance | Low Power

BUILD-IN COMPONENTS

MPU6050
Motion Sensor

BH1750
Ambient Light Sensor

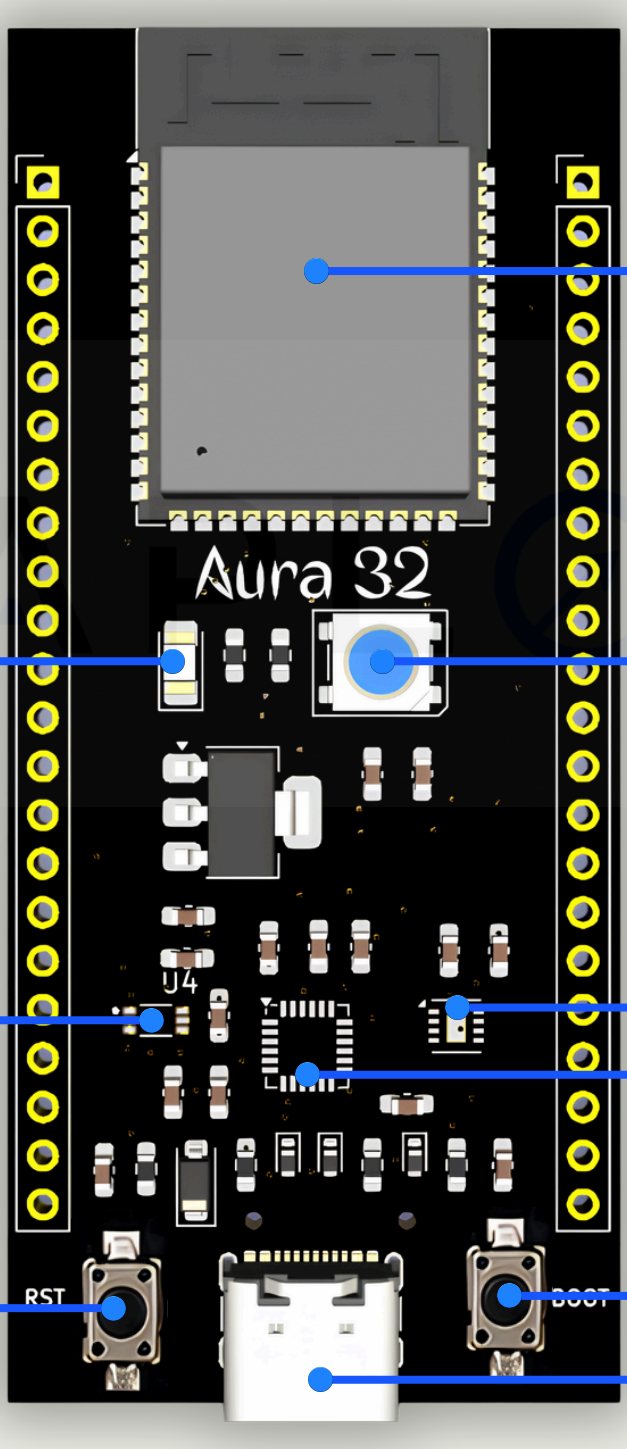
SHT30
Temperature & Humidity

RGB LED
Neo Pixel Status Indicator

Power LED
Power Indicator

Micro SD Card
Data Logging Support

BOARD HIGHLIGHTS



ESP32-S3 WROOM-1

POWER LED

RGB Status LED

BH1750FVI

SHT30

MPU6050

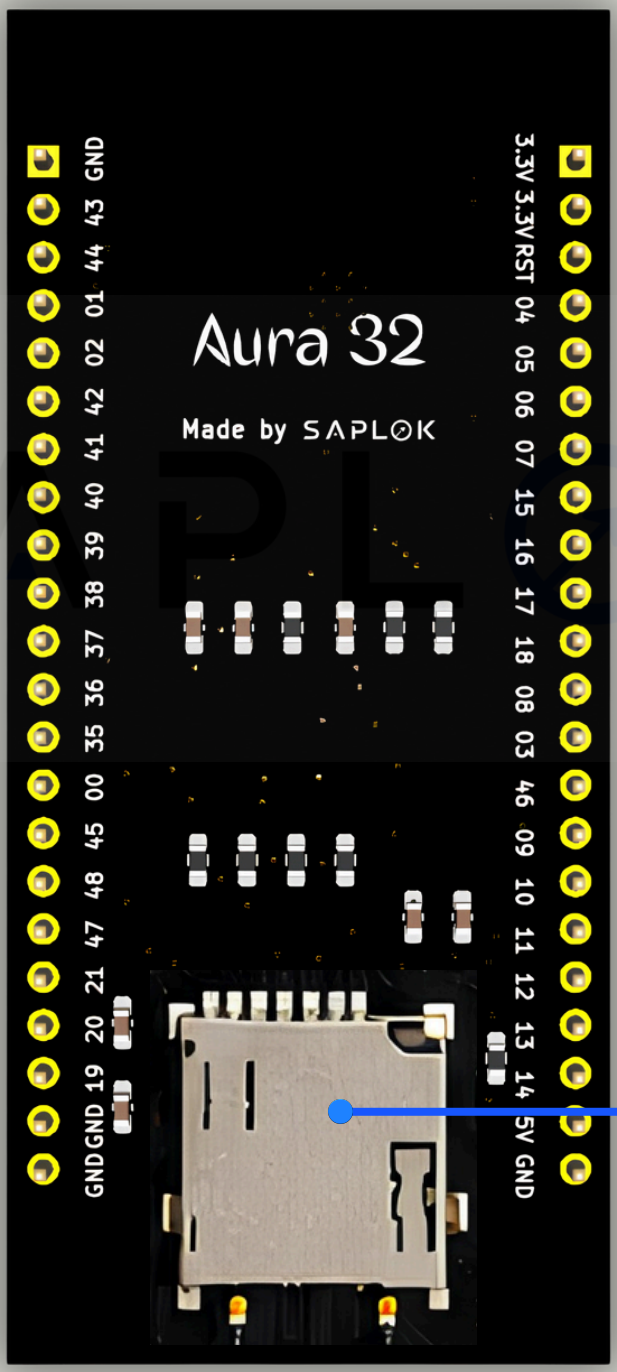
Reset Button

Boot Button

USB Type-C Connector

BOARD HIGHLIGHTS

GPIO COUNT - 36



MicroSD Card Slot

PROCESSOR



ESP32-S3 WROOM-1

Aura 32 is powered by the high-performance ESP32-S3 WROOM-1 microcontroller, delivering powerful processing, advanced connectivity, and efficient power management for a wide range of embedded and IoT applications.

Architecture
Dual-Core Xtensa® LX7

Clock Frequency
Up to 240 MHz (configurable)

On-chip SRAM
512 KB

On-chip ROM
384 KB

Flash Interface
SPI / Octal SPI, up to 80 MHz

WIRELESS CONNECTIVITY

WI-FI Standard
IEEE 802.11 b/g/n (2.4GHz)

WI-FI Throughput
Up to 150 Mbps

Bluetooth
BLE : Bluetooth 5, Bluetooth mesh

BLE Throughput
Up to 2 Mbps

Antenna
Onboard PCB antenna

PSRAM & FLASH

PSRAM
Up to 8 MB (Octal SPI)

Flash
Up to 16 MB (Octal SPI)

VECTOR EXTENSION

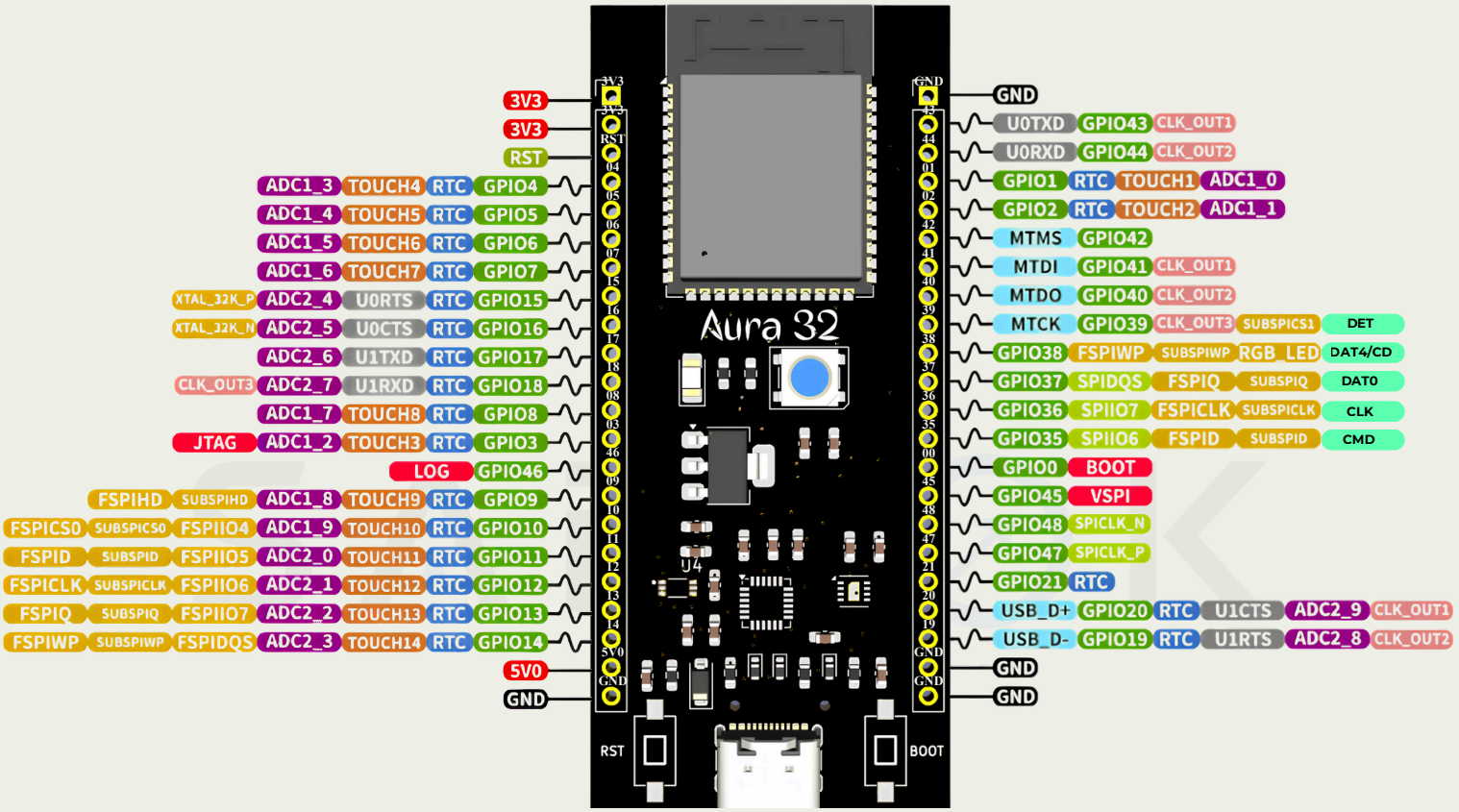
PIE (Processor Instruction Extensions) for AI acceleration

PERIPHERALS

I2C, I2S, SPI, UART, ADC, DAC, PWM, CAN, GPIO Touch, RMT, USB 2.0 and more

A powerful and versatile MCU designed for IoT, automation, robotics, smart sensing, and a wide range of embedded applications.

PIN DIAGRAM



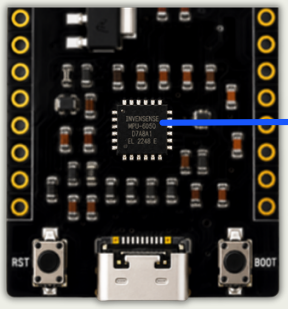
Aura 32 Specs

32-bit Xtensa® dual-core @240MHz
Wi-Fi IEEE 802.11 b/g/n 2.4GHz + BLE 5 Mesh
512 KB SRAM (16 KB SRAM in RTC)
384 KB ROM
36 GPIOs, 4x SPI, 3x UART, 2x I2C,
14x Touch, 2x I2S, RMT, LED PWM, USB-OTG,
TWAI®, 2x 12-bit ADC, 1x LCD interface, DVP

PWM Capable Pin
GPIOX GPIO Input and Output
JTAG/USB JTAG for Debugging and USB
ADCX_CH Analog-to-Digital Converter
TOUCHX Touch Sensor Input Channel
OTHER Other Related Functions
SERIAL Serial for Debug/Programming
STRAP Strapping Pin Functions
RTC RTC Power Domain (VDD3P3_RTC)
GND Ground
PWD Power Rails (3V3 and 5V)
MISC Miscellaneous/SPI functions
CLK_OUTx Clock Output
SD CARD SD Card Pin Functions

ONBOARD FEATURES

MPU6050



MPU6050 (IMU)

6-axis Motion Tracking device

3-axis gyroscope, 3-axis accelerometer and Integrated Digital Motion Processor (DMP) Engine.

INTERFACE
I2C (up to 400 kHz)

I2C ADDRESS
0x68 (default)

ACCELEROMETER RANGE
±2g, ±4g, ±8g, ±16g

GYROSCOPE RANGE
±250°/S, ±500°/S,
±1000°/S, ±2000°/s

SUPPLY VOLTAGE
3.3 V

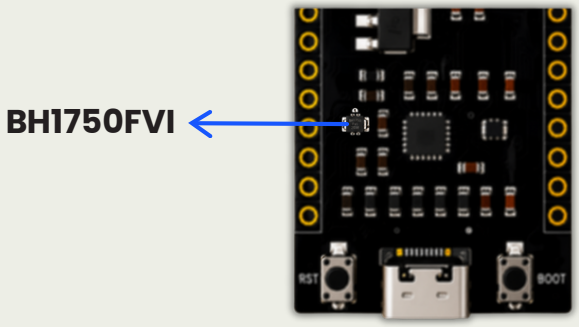
POWER CONSUMPTION
3.9 mA (active)
5 uA (sleep)

BH1750FVI

BH1750FVI

Digital Ambient Light Sensor

Measures ambient light intensity in lux. Ideal for brightness monitoring and automation.



INTERFACE
I2C (up to 400 kHz)

I2C ADDRESS
0x23 / 0x5C

MEASUREMENT RANGE
1 lux to 65,535 lux

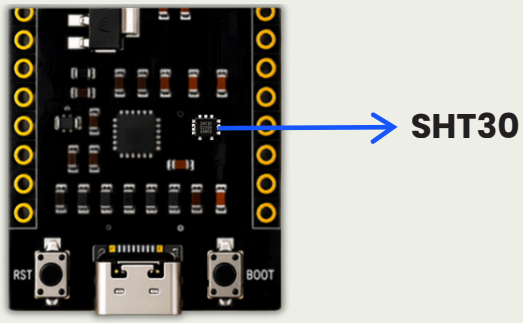
CURRENT CONSUMPTION
190 pA (active)
1 pA (standby)

OPERATING VOLTAGE
3.3 V

POWER CONSUMPTION
0.18 mW (typical)

ONBOARD FEATURES

SHT30



SHT30

Temperature & Humidity Sensor

High accuracy digital sensor for temperature and humidity measurement.

INTERFACE
I2C (up to 1 MHz)

I2C ADDRESS
0x44 (default)

TEMPERATURE RANGE
-40 °C to +125 °C

HUMIDITY RANGE
0% RH to 100% RH

OPERATING VOLTAGE
3.3 V

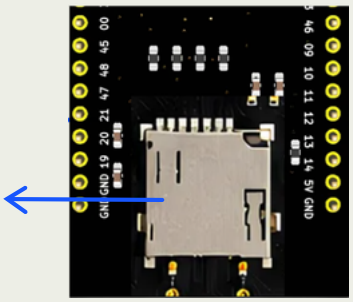
POWER CONSUMPTION
0.1 mW (typical)

MICRO SD CARD SLOT

MICRO SD CARD

Data Storage

Onboard microSD card slot for data logging, file storage and offline applications.



INTERFACE
SPI

I2C ADDRESS
0x44 (default)

PIN CONFIGURATION

cmd	- 35
clk	- 36
dat 0	- 37
dat 3/cd	- 38
det	- 39

OPERATING VOLTAGE
3.3 V

POWER CONSUMPTION
0.1 mW (typical)

POWER SUPPLY & MANAGEMENT

FLEXIBLE POWER
Multiple input options for every scenario

SAFE & RELIABLE
Built-in protection for stable operation

LOW POWER
Optimized for efficient and low-power designs

The AURA 32 is designed to operate from multiple power sources, providing flexibility for bench development, battery-powered prototyping, and USB-tethered deployment.

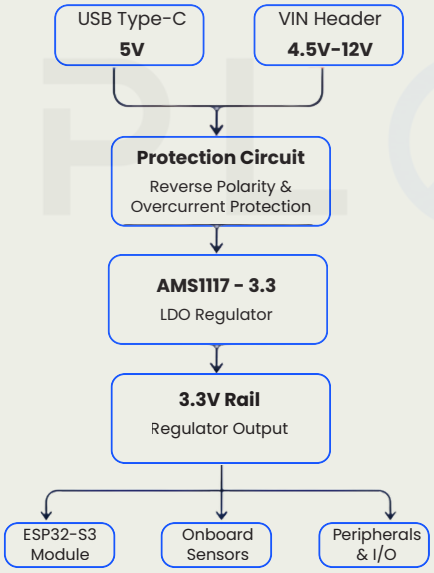
POWER INPUT OPTIONS

USB Type-C
5V
Up to 500 mA (USB 2.0)
1 A (USB PD negotiated)
Power + Programming

VIN Header Pin
4.5 V - 12 V DC
Reverse-polarity protected
External Power Input

3.3V Header Pin
Direct 3.3 V input
Bypasses onboard regulator
Regulated Power Input

POWER FLOW DIAGRAM



ONBOARD REGULATOR



AMS1117-3.3
Low Dropout Voltage Regulator

INPUT VOLTAGE
4.5 V - 12 V

OUTPUT VOLTAGE
3.3V ± 2%

MAX OUTPUT CURRENT
800 mA

DROPOUT VOLTAGE
1.3 V (at 800 mA)

PROTECTION
Overcurrent,
Thermal Shutdown

TYPICAL POWER CONSUMPTION

Active (Wi-Fi TX)	Active (CPU only)	Light Sleep (Wi-Fi)	Deep Sleep	Active Sensors
~500 mA peak	~80 mA	~2 mA	~10 µA	+8 mA (approx. all 3 sensors)