

ESP32-S3 DevKitC-1 N16R8 Development Board





PRODUCT DESCRIPTION

The ESP32-S3 DevKitC-1 N16R8 is a development board based on the ESP32-S3 microcontroller, designed for advanced embedded and IoT applications. It features integrated Wi-Fi and Bluetooth Low Energy connectivity, 16 MB SPI flash, and 8 MB PSRAM. The board provides USB connectivity for programming and power, operates at 3.3 V logic level, and exposes a wide range of GPIO and peripheral interfaces. It is compatible with ESP-IDF and Arduino development environments. Typical applications include IoT devices, edge computing, human-machine interfaces, and embedded AI systems.

FEATURES

- ESP32-S3 MCU: 32-bit dual-core Xtensa LX7 processor
- Wireless Connectivity: Wi-Fi 802.11 b/g/n and Bluetooth Low Energy
- Flash Memory: 16 MB on-board SPI flash
- External RAM: 8 MB on-board PSRAM
- USB Interface: Native USB OTG for programming and communication
- Peripheral Support: GPIO, ADC, PWM, UART, SPI, and I²C
- Logic Level: 3.3 V operation

APPLICATION

1. Internet of Things (IoT) projects
2. Robotics
3. Smart home devices
4. Wearable technology
5. Industrial automation
6. Educational applications
7. DIY projects

SPECIFICATIONS

PRODUCT MODEL

Model

ESP32-S3 DevKitC-1

GENERAL PARAMETER

CPU	XTensa dual-core 32-bit LX7 CPU, frequency up to 240MHz
Wireless Connectivity	2.4 GHz Wi-Fi, IEEE 802.11 b/g/n-compliant Bluetooth, LE: Bluetooth 5, Bluetooth mesh
Flash Memory	16 MB (64Mbit) SPI Flash
ROM	384 KB
SRAM	512 KB
PSRAM	8 MB SPI
SRAM in RTC	16 KB
Communication Interfaces	2 x I2C 2 x I2S 4 x SPI 3 x UART 1 x USB OTG
Security Features	OTP, AES, SHA, RSA, ECC, RNG, Secure boot, Flash encryption, Digital signature, HMAC
USB connectors	Dual Type-C
Buttons	Reset, User/Firmware
LED	RGB WS2812 User Power
USB to Serial Chip	CP2102
Supply Voltage	5V (via USB)
Circuit Voltage	3.0-3.6V
Dimensions	50.1 x 13mm