ESP32-S3-DevKitC-1 v1.0 N16R8 – High-Performance WiFi & Bluetooth AIoT Development Board

The **ESP32-S3-DevKitC-1 v1.0 N16R8** is an advanced development board built around the powerful **ESP32-S3 SoC**, offering dual-core performance, AI acceleration, and full wireless connectivity. Designed by **Espressif Systems**, this board is the perfect platform for **AIoT projects**, combining WiFi, Bluetooth 5.0, generous memory, and security features in a compact and reliable package.

Whether you're creating smart home solutions, edge AI applications, wearables, or industrial IoT devices, the **ESP32-S3-DevKitC-1** provides the flexibility and computing power needed to bring your ideas to life.

✨ Key Features:

 High-Performance CPU: Dual-core Xtensa LX7 up to **240 MHz** with vector extensions for AI/ML acceleration.

📡 **Wireless Connectivity**: Integrated **WiFi (802.11 b/g/n)** and **Bluetooth 5.0 LE** for seamless IoT communication.

💾 **Generous Memory**: Comes with **16 MB Flash + 8 MB PSRAM**, enabling complex, memory-intensive applications.

⚡ **Versatile I/O Options**: Rich set of interfaces including **GPIO, SPI, I2C, UART, ADC, PWM, and USB OTG**.

🔒 **Advanced Security**: Built-in features such as **Secure Boot, Flash Encryption, and hardware cryptography** to protect applications and data.

🔌 **USB Type-C**: Convenient for both power and programming, supporting **fast data transfer and debugging**.

Technical Specifications

- **Chipset**: ESP32-S3 SoC with dual-core Xtensa LX7 processor

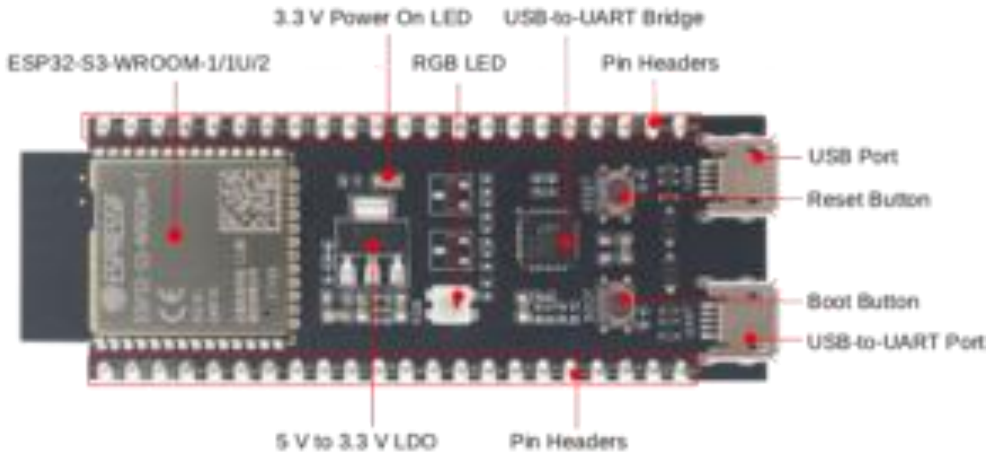
- **CPU Speed**: Up to 240 MHz
- **Memory**: 16 MB Flash + 8 MB PSRAM
- **Connectivity**: WiFi 802.11 b/g/n, Bluetooth 5.0 LE
- **Interfaces**: GPIO, SPI, I2C, UART, ADC, PWM, USB OTG
- **Security Features**: Secure Boot, Flash Encryption, Digital Signature, AES, SHA, RSA, ECC
- **Programming Interface**: USB Type-C
- **Power Supply**: 5V via USB or external supply
- **Form Factor**: Compact DevKitC design, breadboard-friendly

Applications of ESP32-S3-DevKitC-1

1. **AIoT & Machine Learning Projects**
    - Edge AI applications such as image recognition, keyword detection, and gesture control.
2. **Smart Home Devices**
    - Intelligent lighting, security systems, voice assistants, and automation solutions.
3. **Wearables & Consumer Electronics**
    - Fitness trackers, smartwatches, and wireless accessories.
4. **Industrial IoT**
    - Remote monitoring, predictive maintenance, and sensor data processing.
5. **Robotics & Embedded Systems**
    - Autonomous robots, drones, and motor control systems.

Why Choose ESP32-S3-DevKitC-1 v1.0 N16R8?

- **Next-Gen Performance**: Dual-core CPU with AI/ML acceleration capabilities.
- **Future-Proof Connectivity**: WiFi + Bluetooth 5.0 ensure compatibility with modern IoT ecosystems.
- **Developer-Friendly**: Full support for **ESP-IDF, Arduino IDE, MicroPython**, and third-party frameworks.
- **Enhanced Security**: Hardware-level protection for data-sensitive applications.
- **Expandable & Flexible**: Rich I/O interfaces make it ideal for rapid prototyping and scaling projects.



Benefits for Developers & Engineers

The **ESP32-S3-DevKitC-1** is not just a development board—it's a complete solution for innovators. With its **large memory capacity**, **secure features**, and **robust wireless connectivity**, it supports the most demanding IoT and AI workloads. Developers can quickly test, prototype, and deploy applications while benefiting from Espressif's strong documentation and global community support.

From students and hobbyists to professional engineers, this board empowers users to explore everything from **AIoT prototyping** to **commercial IoT product development**.

Conclusion

The **ESP32-S3-DevKitC-1 v1.0 N16R8** sets a new benchmark for **WiFi + Bluetooth AIoT development boards**. With its dual-core CPU, AI acceleration, secure architecture, and ample memory, it is engineered to handle today's most innovative and complex IoT applications.

If you're looking for a reliable, high-performance platform for **AIoT, robotics, or embedded systems**, the **ESP32-S3-DevKitC-1** is the ultimate choice.

☞ Order your **ESP32-S3-DevKitC-1 v1.0 N16R8** today and start building the future of connected devices!