Ultra Low Power Wi-Fi® SoC

Full Offload System-on-Chip for IoT Applications

DA16200

Highly Integrated Ultra Low Power Wi-Fi System on Chip

The DA16200 is a highly integrated ultra-low power Wi-Fi system on a chip (SoC), which contains an 802.11b/g/n radio (PHY), baseband processor, media access controller (MAC), on-chip memory, and a host networking applications processor all on a single silicon die. The SoC enables full offload capabilities, running the entire networking stack on chip, so that no external network processor, CPU, or micro-controller is required, though the SoC may optionally be used with a microcontroller.

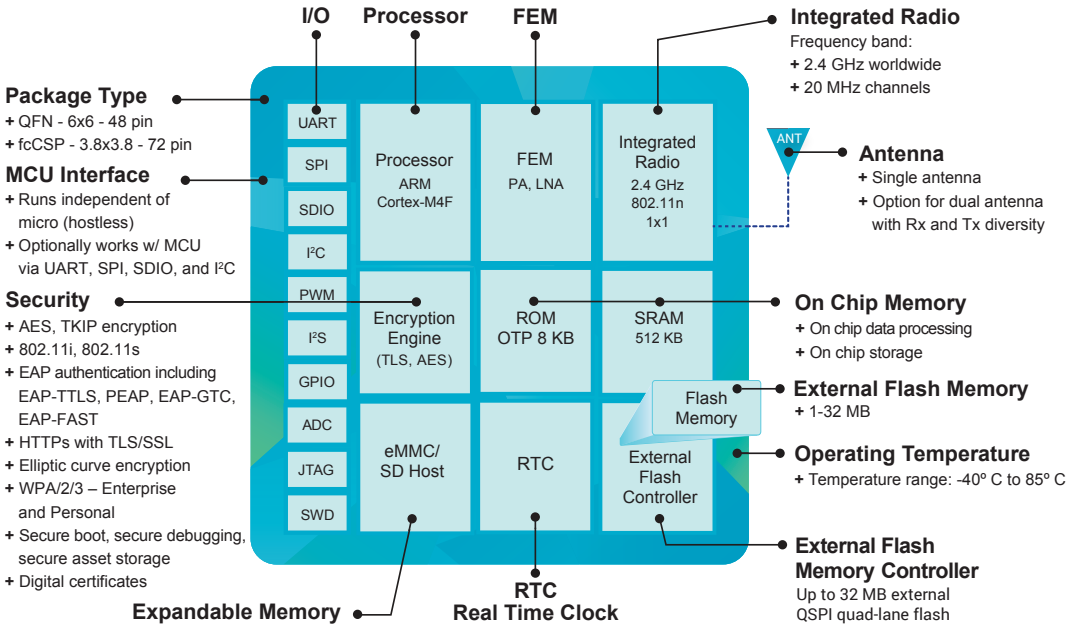
A synthesis of breakthrough ultra low power technologies enables extremely low power operation in the SoC. Low power algorithms shut down every micro element of the chip that is not in use, which allows a near zero level of power consumption when not actively transmitting or receiving data. Such low power operation can typically deliver a year or more of battery life depending on the application. Advanced algorithms enable staying asleep until the exact moment required to wake up to transmit or receive.

The SoC is built from the ground up for the Internet of Things. It is ideal for door locks, thermostats, security video cameras, sensors, and other devices that require Wi-Fi where battery powered operation is desirable.

Evaluation boards and a complete software development kit (SDK) are available. The SDK includes sample applications, provisioning apps, AT command library, power management tools, and more.

A fully staffed, highly trained, worldwide application engineering support team is available to help you quickly integrate the SoC or its associated module into your product.

Block Diagram (SoC)



Wi Fi® CERTIFIED

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Low Power Wi-Fi Solution for Battery Powered IoT

Features	Benefits
Ultra Low Power	• Breakthrough VirtualZero™ technology • Virtually no power consumption in sleep state • Enables year-plus battery life • Ultra low power sensor wake-up
Superior Range	• Industry leading output power and Rx sensitivity for max range
Highly Integrated SoC	• 802.11b/g/n radio PHY, BB/MAC, PA, LNA w/on chip SRAM • Up to 72 Mbps, MCS0-7
Full Offload	• SoC runs full OS & TCP/IP stack
Simple Setup & Provisioning	• Automatically find & configure new devices w/ smartphone app
Complete Software Stack	• Comprehensive networking software stack
Leading Security	• Multiple layers of commercial, industrial, and banking grade security • Hardware accelerated • Digital certificates • Elliptic curve encryption
OTA Firmware Update	• Enables field deployed device firmware updates
Multiple I/Os	• UART, SPI, SDIO, ADC, I²C, PWM, I²S, GPIOs, JTAG and SWD
eMMC/SD Expanded Memory	• Data logging, memory intensive applications

VirtualZero™

Leading Edge Low Power Technology

> 1 Year Battery Life

Three Sleep Modes
1. Unconnected (nanoamp)
2. Connected ultra low (microamp)
3. Connected ultra fast (microamp)

Ultra Fast Wake-up
Ultra Fast Return to Sleep
Extends battery life

Additional Features

Extended Range
> +20 dBm range booster mode
> -100 dBm Rx sensitivity

Highly Integrated SoC
+ No CPU or MCU required
+ Full offload
+ Runs network stack

Networking Capabilities		
	Protocols	Complete software stack including TCP/UDP/IP, HTTP, HTTPs, DHCP client/server, DNS client/server, mDNS, DNS-SD, MQTT, CoAP
	Provisioning	Included smartphone app for iOS & Android; WPS 2.0
	Sensors	ADC: 4-channel SAR 12-bit

Dialog Semiconductor Worldwide Sales Offices

www.dialog-semiconductor.com email:info@diasemi.com

United Kingdom
Phone: +44 1793 757 700

The Netherlands
Phone: +31 73 640 8822

Japan
Phone: +81 3 5769 5100

Hong Kong
Phone: +852 3769 5200

China (Shenzhen)
Phone: +86 755 2981 3669

Germany
Phone: +49 7021 8050

North America
Phone: +1 408 845 8500

Taiwan
Phone: +886 2 80718888

Korea
Phone: +82 2 3469 8200

China (Shanghai)
Phone: +86 21 5424 9058

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