GS1010 Ultra Low-Power Wireless System-On-Chip (SOC)

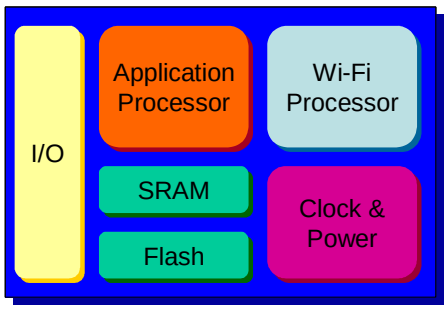
Product Overview

GS1010 device along with its embedded software stack is designed to be a highly integrated ultra low power wireless system-on-a-chip (SOC) which contains an 802.11 radio, media access controller (MAC) and baseband processor, on-chip flash memory and SRAM, and an applications processor all on a single package. It offers a highly scalable, reliable, manageable and secure wireless link to meet the growing demand of wireless sensor networks utilizing the broadly accepted IEEE* 802.11 standards infrastructure. This solution is ideal for use in industrial and commercial building automation and process monitoring applications. In addition, the solution provides capabilities such as location awareness which also make it well suited for logistics and supply chain applications for tracking asset location and status.

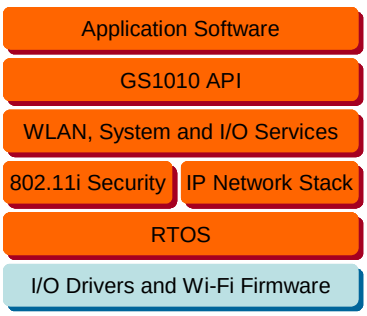
Product Features and Benefits

Features	*Benefits*
Highly Integrated wireless SOC with 802.11 radio, MAC and Baseband, Integrated PA, Application CPU, RTC, SRAM and FLASH	- Reduces system cost of implementing separate devices and lowers design complexity - Ultra small form-factor reduces board space
Supports IEEE 802.11, 802.11d, k, e, and i	- Lowers customer's total cost of ownership (TCO) in network implementation and management - Seamlessly integrates with existing 802.11b/g infrastructure and utilizes the 802.11 security, manageability, ease-of-use, and quality of service
802.11i/WPA2* Authentication, AES* Hardware encryption	- Enterprise level security &reliability for sensor networks
Power Management	- Optimized for battery powered application with very low power consumption for multiple years of battery life
IEEE 1588	- Precision clock synchronization over the network
Location Awareness	- Enables users to trace and monitor assets
Multiple I/O: SPI*, UART, PWM, I2C*, ADC, GPIO	- Provides flexibility in system design for easier integration
Firmware, Device drivers, Reference Application SW, APIs, and SDK	- Reduces customer development time for application software enabling faster time to market

GS1010 System-on-Chip



GS1010 Embedded Software



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GS1010 Specifications

Radio Protocol	IEEE 802.11b/g compatible
Antenna Ports	Balanced 100 Ohm
RF Operating Frequency	2.4 – 2.497 GHz
Application Processor	32-bit ARM* MCU operating @44 MHz
Power Source	1.8V supply voltage
RTC/Watchdog Timer	Operates directly off battery voltage 1.2 – 3.6V 32KHz clock oscillator, Programmable event timers for alarms
I/O	GPIO, I2C, UART, SPI, PWM, ADC
Package	10mm x 10mm, 102-pin dual row QFN Commercial temperature (0° to 70° C Extended temperature (-40° to 85° C) RoHS Compliant
Software	Firmware, Embedded device drivers, API, Application reference SW
Security	WPA2, Authentication, AES Encryption 802.11i
Standards	IEEE 802.11, 802.11i,k,e,d; IEEE 1588

GS1010 Embedded Software Overview

The GS1010 embedded software provides customers with a comprehensive, customizable solution that allows customers to develop applications that will enable usage of GS1010 SOC in different solutions. The software encapsulates the low level hardware details into a well defined Application Programming Interface (API) and demo application software which programmers can use to build target applications for their solution. The software stack consists of the I/O drivers and WLAN Firmware that runs on the WLAN and the rest of the components run on the APP CPU. The table below provides a brief description of the GS1010 software stack.

GS1010 Embedded Software Stack Description

Modules	***Description***
Drivers and WLAN Firmware	Provides WLAN MAC + baseband capabilities, supports over-the-air firmware update for ease of maintenance and future upgrades.
System Services Modules	SNMP manager for interoperability, Device configuration and Power management functions
I/O Services Modules	Enables sensor applications to interact with external sensors
Supplicant (Optional)	Provides enterprise level 802.11i security service for key generation and authentication with server
GS1010 APIs	Reduces complexity and development time for customer application software
Network Stack	Third Party Network stack that supports TCP/IP/ARP/ICMP/DHCP protocols
Real Time Operating System	Third Party Real Time Operating System (RTOS) provides interrupts and timers
Application Software	Customer Sensor application software