



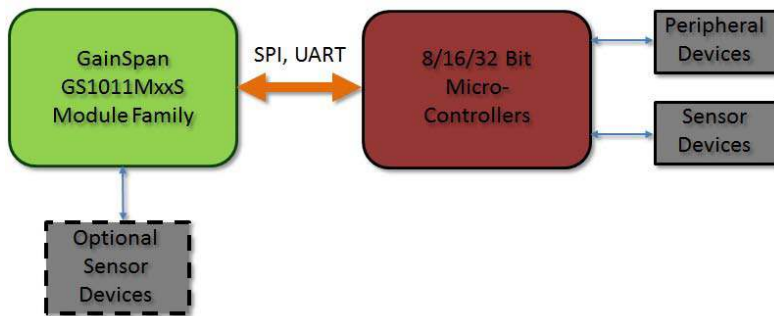
# GainSpan GS1011MxxS, Size-Optimized Low Power Wi-Fi® Module Family



## PRODUCT OVERVIEW

The GS1011MxxS family of size-optimized, fully certified modules offers a quick, easy and cost effective way for device and appliance manufacturers to add Wi-Fi capabilities to their products, while offering a smaller footprint for space constrained application boards. The module dimensions are 28.7mm \* 19.4mm, resulting in board area savings of approximately 34% when compared to the GS1011MEx modules. The GS1011MxxS modules provide multiple serial UART or SPI interfaces, enabling connection to embedded designs utilizing an 8/16/32-bit microcontroller, via simple commands. These are lower pin-count modules (36 pins) compared to full-featured GS1011Mxx modules (48 pins). The GS1011MxxS is an ideal solution for organizations with limited or no Wi-Fi or RF expertise, as it not only dramatically reduces RF design time but also removes the burden of testing and certification, allowing customers to focus on their core application, product or expertise. The module supports data rates up to 11 Mbps, is compliant with 802.11b/g/n wireless networks and meets regulatory and Wi-Fi Alliance requirements.

Multiple software configurations are available for the stack running on the module. For applications utilizing a small 8 bit microcontroller host, the module supports a serial to Wi-Fi function and runs full Wi-Fi and TCP/IP networking stacks, completely offloading the host. In addition, it supports WEP/WPA/WPA2 Security, Ad-hoc and Limited AP modes as well as Wi-Fi Protected Setup (WPS) for ease of provisioning.



### GS1011MxxS Based Embedded Design

The module family consists of three different SKUs for antenna configuration and output power. The module SKUs are single sided, pin compatible, with castellation on the edges for I/O connection so module can be soldered down on customer application base-board.

SKUs	Power Amplifier	Antenna Option
GS1011MIPS	Internal PA	PCB Trace Antenna
GS1011MEPS	External PA	PCB Trace Antenna
GS1011MEES	External PA	External Antenna (u.FL)

## BENEFITS:

- Brings Wi-Fi and web connectivity to any device with a microcontroller and serial HOST interface (UART or SPI)
- Reduces development time, testing and certification burden, accelerating time to market
- Fully contained solution minimizes host processor loading when needed
- Easy device provisioning through Ad-hoc, Limited AP modes or Wi-Fi Protected Set-up (WPS)
- Ultra low power consumption through dynamic power management

## FEATURES:

- Operates with standard 802.11 b/g/n access points at speeds up to 11 Mbps (802.11b)
  - Infrastructure or Ad-hoc mode
- Two serial UART ports
  - Clock rates of up to 921.6kbps
- Two SPI ports
  - Supports SPI Master/Slave modes
  - Clock rates of up to 11 Mbps (master mode) and 1.4Mbps (slave mode)
- Full Wi-Fi stack including WPS and optional networking stack and services
- 802.11i Security - WEP, WPA, WPA2-PSK Personal and Enterprise

## MODULE HIGHLIGHTS

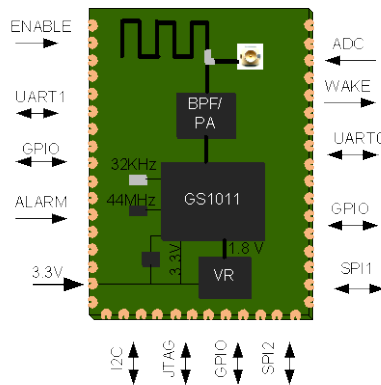
- Single power source of 3.3V
- Planned Certification (FCC/IC, ETSI, Wi-Fi)
- Rich I/O interfaces : SPI, UART, GPIO, I2C, ADC



**GS1011MxxS MODULE SPECIFICATIONS**

<b>Radio Protocol</b>	IEEE 802.11b/g/n Compatible
<b>RF Output Power (Typical)</b>	8 dBm (GS1011MlxS ) 18 dBm (GS1011MExS )
<b>RF Operating Frequency</b>	2.4 - 2.497 GHz
<b>Supported Data Rates</b>	11, 5.5, 2, 1 Mbps (802.11b)
<b>Antenna Options</b>	PCB Trace and U.FL connector for external antenna
<b>Operating Temperature</b>	Industrial (-40° to +85°C)
<b>Security Protocols</b>	WEP, WPA/WPA2 – PSK, Enterprise, EAP-FAST, EAP-TLS, EAP-TTLS, PEAP
<b>Networking Protocols</b>	UDP, TCP/IP (IPv4), DHCP, ARP, DNS, HTTP/HTTPS Client and Server
<b>Certifications and Compliance</b>	Wi-Fi, FCC, IC, ETSI, RoHS
<b>I/O Interface</b>	UART (2), SPI (2), I2C, ADC (1), ALARM (2), GPIOs (20), PWM
<b>Dimensions/Package</b>	28.7mm * 19.4mm * 3.35mm, 36-pin Surface Mount Package
<b>Power Source</b>	3.3V
<b>Standby Power (Typical)</b>	< 7uA * Standby - Lowest power state (RTC Active)

**GS1011MxxS BLOCK DIAGRAM**



**TARGET APPLICATIONS**

The GainSpan GS1011MxxS module is easily designed into embedded systems, allowing customers to develop a broad array of devices and appliances that will connect to the Internet. In applications such as healthcare and fitness, smart energy, industrial controls, commercial/building automation and consumer electronics.

