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# GainSpan GS1500M

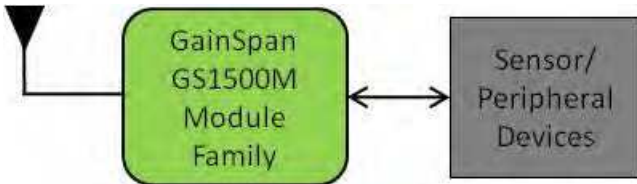
## 802.11b/g/n Low Power Wi-Fi® Module



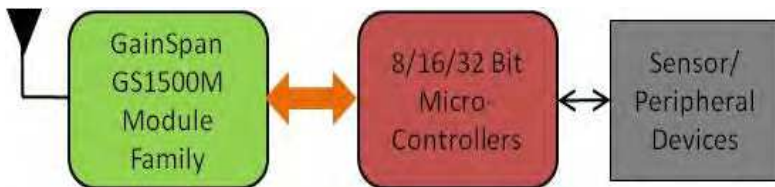
### PRODUCT OVERVIEW

The GS1500M is a fully certified module offering quick, easy and cost effective way for OEMs to enable leading edge Wi-Fi connectivity (802.11b/g/n) in their platforms. The module provides multiple serial UART or SPI interfaces, enabling connection to any embedded design utilizing the 8/16/32-bit microcontroller via simple commands. The GS1500M is an ideal solution for OEMs with limited or no Wi-Fi or RF expertise. The GS1500M solution dramatically reduces development time and eliminates the burden of testing and certification, allowing customers to exclusively focus on their core platforms. The module supports Wi-Fi PHY rates up to 72.2 Mbps and is fully compliant with 802.11b/g/n and meets worldwide regulatory requirements. The GS1500M also provides support for a peer-to-peer networking capabilities allowing Wi-Fi devices to connect to one another without an access point, enabling easy transfer of content anytime, anywhere.

Multiple software configurations are available for running a stack or network services on the module. For applications utilizing a small 8 bit microcontroller host, the module supports a serial to Wi-Fi function and runs the full Wi-Fi and TCP/IP networking stacks, completely offloading the host. For applications utilizing more powerful microcontrollers, the networking stack and services can reside on the host while the module provides the IP to Wi-Fi functionality. In addition, it supports WEP/WPA/WPA2 security, Limited AP mode, Embedded Web Server as well as Wi-Fi Protected Setup (WPS) for ease of provisioning.



*GS1500M based embedded Wi-Fi IO application*



*GS1500M based embedded Serial/IP to Wi-Fi application*

The module SKU is single sided, pin compatible with previous GS1011M modules, with castellation on the edges for I/O connection so module can be soldered down on customer application base-board.

SKU	Power Amplifier	Antenna Option
GS1500M	Internal PA	PCB Trace or External Antenna (uFL)

### BENEFITS

- Brings leading edge Wi-Fi and web connectivity to any platform with a microcontroller and serial HOST interface (UART or SPI)
- Self-contained solution minimizes host processor loading
- Reduces development time while accelerating time to market
- Pin and software compatible with GS1011M
- Operates with standard 802.11b/g/n access points at speeds of up to 72.2 Mbps – Infrastructure/Limited-AP modes
- Easy device provisioning using Limited-AP or Wi-Fi Protected Set-up (WPS)
- Low power consumption through dynamic power management modes
  - Standby, Sleep and Deep Sleep

### FEATURES

- Highly integrated 802.11b/g/n Wi-Fi radio
- Supports peer-to-peer networking
- Two serial UART ports
  - Clock Data rates of up to 921.6kbps
- Two SPI ports (Master and Slave modes)
  - Clock Data rates of up to 3Mbps
- Firmware provides full Wi-Fi and networking stack services including TCP/UDP/IP, HTTP, DNS, DHCP and SSL
- 802.11i Security
  - WEP,
  - WPA/WPA2 Personal,
  - WPA/WPA2 Enterprise

### MODULE HIGHLIGHTS

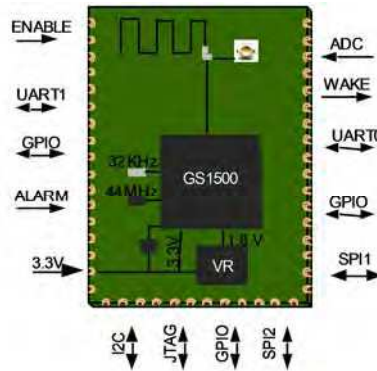
- Single power source of 3.3V
- Certified Modules (FCC/IC/ETSI)
- Rich I/O interfaces such as SPI, UART, GPIO, I2C, ADC and JTAG



**GS1500M MODULE SPECIFICATIONS**

<b>Radio Protocol</b>	Supports IEEE 802.11b, 11g, 11n single stream
<b>RF Output Power (Typical)</b>	14 dBm (802.11b), 12dBm (802.11n)
<b>RF Operating Frequency</b>	2.412 - 2.484 GHz
<b>Supported Data Rates</b>	802.11b (CCK): 1, 2, 5.5, 11 Mbps 802.11g (OFDM): 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n (1x1 HT20): MCS0-7
<b>Antenna Options</b>	PCB Trace or uFL connector for external antenna
<b>Operating Temperature</b>	Industrial (-40° to +85°C)
<b>Security Protocols</b>	WEP, 802.11i WPA/WPA2 Personal Security (AES and TKIP), Enterprise Security (EAP-FAST, EAP-TLS, EAP-TTLS, PEAP)
<b>Networking Protocols</b>	UDP, TCP/IP (IPv4), DHCP, ARP, DNS, SSL, HTTP/HTTPS Client and Server
<b>Certifications and Compliance</b>	FCC, IC, ETSI, RoHS, Wi-Fi Alliance
<b>I/O Interface</b>	UART (2), SPI (2), I2C, ADC (2), WAKE, ALARM (2), GPIOs, PWM, JTAG
<b>Dimensions</b>	1.45 in x 0.9 in
<b>Power Source</b>	3.3V

**GS1500M BLOCK DIAGRAM**



**TARGET APPLICATIONS**

The GainSpan GS1500M module is easily designed into embedded systems, allowing customers to develop a broad array of platforms that will connect to the Internet. In applications such as healthcare and fitness, smart energy, industrial controls, commercial/building automation, and consumer electronics.

