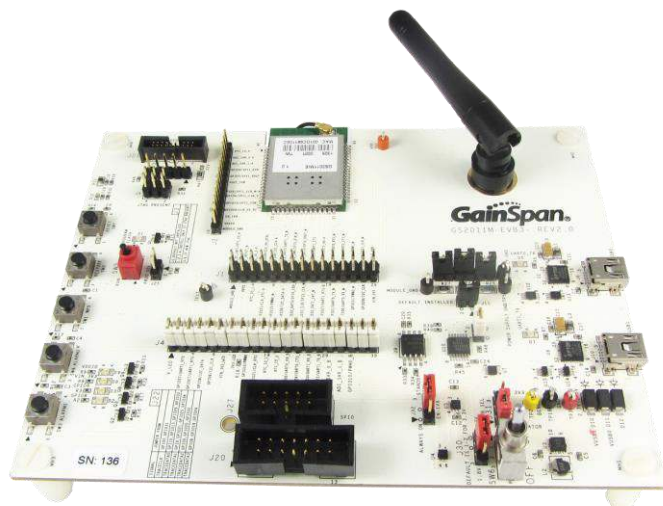# GS2011M/GS2100M Evaluation Board (EVB)

PRODUCT OVERVIEW

The GainSpan GS2011M and GS2100M Evaluation Boards (EVB) are flexible hardware platforms to evaluate the capabilities of GainSpan's ultra-low power Wi-Fi SoC GS2000 and enable development of hosted or hostless application software. They provide a quick, easy, and cost-effective platform for customers to add Wi-Fi capabilities to their products with minor impact on the host microcontroller firmware. Users can use the Serial-to-WiFi software packaged with the EVB to build a hosted application or program the board with custom binaries built using the GainSpan SDK Builder or GS2000 SDK.

The EVBs bring out all the pins of the GS2011M/GS2100M modules, and exposes features such as high-speed SPI and SDIO interfaces that support high throughput audio and video streaming applications, a high resolution 16-bit ADC for energy measurements in smart energy applications, temperature and light sensors for quick development of sensor applications, I2C interface for sensors and I2S interface to external DAC for audio applications. The EVB is part of the GS2000 SDK and supports the JTAG interface for software development. It also provides a daughter card connector that customers can use to connect to their host processor board or custom application boards.

The EVB works in conjunction with the Serial-to-WiFi software, but it can be used for development of hostless applications as well, built using the GS2000 SDK or the SDK Builder.

The GS2011M/GS2100M EVB provides all the hardware and software necessary to quickly set up a serial (UART or SPI) based link to a PC or external microcontroller. It has various jumpers, switches, push buttons and LEDs that provide support for evaluating different features and configurations based on the firmware loaded.

BENEFITS:

- Flexible hardware platforms for evaluation of capabilities of the GS2000 SoC and enable customer application development

- Exposes all the features of the GS2011M/GS2100M Wi-Fi modules, allowing faster development of applications

- Easy integration of Wi-Fi and web connectivity to embedded devices with microcontroller, over UART or SPI interface

- Serial-to-WiFi software allows easy addition of Wi-Fi capabilities to hosted embedded system

FEATURES:

- Supports highly integrated 802.11b/g/n GS2011M and GS2100M Wi-Fi modules
- Supports multiple serial ports
  - UART: up to 921 Kbps
  - SPI: up to 30MHz (master mode) 10MHz (slave mode)
  - SDIO: up to 40MHz

- High resolution sensing and energy measurements for smart energy applications

- Temperature and light sensors for quick development of sensor applications

- Comes programmed with Serial-to-WiFi software including full Wi-Fi stack - Wi-Fi security (WEP, WPA/2), WPS and networking stack including TCP/UDP/IP, DNS, DHCP, HTTP/s, DTLS, CoAP, TLS/SSL

- Push button for WPS, Alarms, Factory Restore, and Reset

- JTAG interface for software development

- Daughter card connector for connection to host processor or application boards

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AT COMMAND SET

The 'AT' command set supports the full range of capabilities provided by the underlying GainSpan network services software that abstracts the complexity of IP networking and Wi-Fi communication from the embedded application while giving it complete control over the AT command set. The table below lists some of the commands. Please refer to the GS2000 Application Programmers Reference Guide for a more complete list and descriptions of all the commands.

Types	Commands
Serial Interface Configuration	Set Serial Parameters Hardware flow control
Profile Management	Load/Save/Restore profiles
Wi-Fi Interface	Set/query MAC address Scan/associate/disassociate
Security	Enable/set security
Network interface	Static or DHCP DNS lookup
Connection Management	TCP client/server Open sockets Close connections
Power Management	Enable/disable deep sleep and standby
Services	Upgrade firmware, Provisioning

EVALUATION BOARD SPECIFICATIONS

Feature	Description
RF Module	GS2011MIE/GS2100MIE – Ultra-Low Power Module
Radio Protocol	IEEE 802.11 b/g/n, 2.4GHz
Antenna Type	External antenna (u.FL connector)
Power Source	Mini-USB Connectors USB0 or USB1
I/O Interfaces	UART (16450/16550 compatible), SPI. SDIO, GPIO, I2C, I2S (GS2011M only), ADC (12-bit) (GS2011M only), and JTAG (Debugging)
On/Off Switch	Power ON/OFF switch
Push Buttons	Alarms, WPS, Factory Restore, and Reset
Program/Run Switch	Switching between run and programming modes
Power Measurement Jumpers	Power measurement in various power save modes
LEDs	Power, Run/Program, UART, and GPIOs
Sensors	Temperature and Light (GS2011M only)
ADC Connector	Analog to Digital Converter (16-bit) resolution sensor and measurement devices (GS2100M only)
Dimensions	GS2011M/GS2100M – 4.358 in. (110.7mm) x 5.594 in. (142.1mm)
Daughter Board Connector	Connect daughter boards such as hosts, sensors, memory devices

EVALUATION BOARD ORDERING INFORMATION

ITEM	PART NUMBER	Description
GS2011M Evaluation Board	GS2011MIE-EVB3-S2W	Serial-to-WiFi Evaluation Board with GS2011MIE module
GS2100M Evaluation Board	GS2100MIE-EVB3-S2W	Serial-to-WiFi Evaluation Board with GS2100MIE module