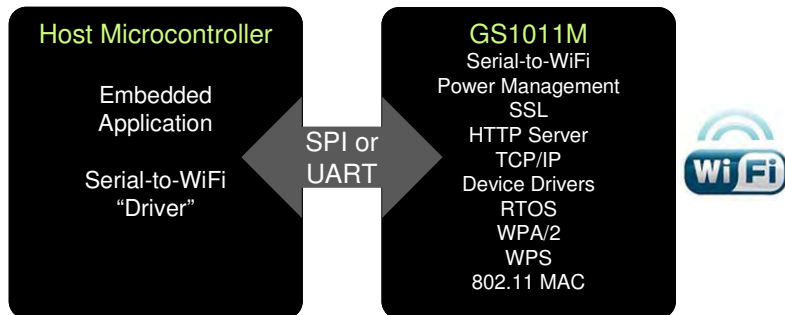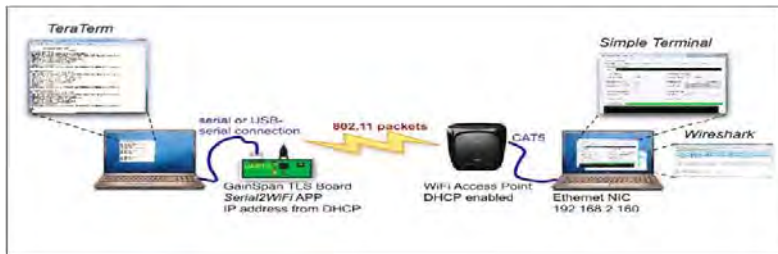# GainSpan GS1011M EVK Mrk II Evaluation Kit

PRODUCT OVERVIEW

The GS1011M EVK Mrk II Evaluation Kit provides GainSpan customers the means to evaluate capabilities of the GS1011 ultra-low power wireless system-on-a-chip and the Serial-to-WiFi embedded software for Wi-Fi networks. The Serial-to-WiFi embedded software allows devices and appliances manufacturers to easily add Wi-Fi capabilities to their products with minimal impact on host microcontroller firmware.

The GS1011M EVK Mrk II Evaluation Kit provides all the hardware and software necessary to quickly set up a serial (UART or SPI) based link to a PC or external microcontroller. In order to evaluate the ease of adding secure Wi-Fi communications to a product using the GainSpan AT command set, the kit includes all the software tools necessary for configuration of Serial-to-Wi-Fi and GS1011M modules, data transfer using "AT" command-set and protocol analyzer for validation of packet & frame fields. For additional details on the module features, please refer to the GS1011M module product briefs.

The GS1011M EVK Mrk II Evaluation Kit enables GainSpan customers to develop software on their existing microcontrollers to support the "AT" command set, and connect it to either the UART or SPI interface on the evaluation kit reference board.

BENEFITS:

- **GS1011M highly integrated ultra- low power 802.11b Wi-Fi radio Family of modules**
- **Easy integration of Wi-Fi and web connectivity to devices with existing microcontroller and UART or SPI interface**
- **Easy device provisioning through Limited-AP (embedded web pages) or Wi-Fi Protected Set-up (WPS)**
- **Serial to Wi-Fi firmware allows easy addition of Wi-Fi capabilities to embedded system**
- **Offloads Wi-Fi and TCP/ IP networking from smaller host microcontrollers**
- **Simple AT commands for configuration and data communication**
- **Support for over the air firmware updates using external flash**

FEATURES:

- **Supports Infrastructure, Limited AP and Adhoc networking**
- **Two UART and SPI ports. Clock Data rates are**
  - **UART: up to 921 Kbps**
  - **SPI: up to 3 Mbps**
- **Push button for Alarms and Firmware Restore from External Flash**
- **Full Wi-Fi and networking stack services including TCP/UDP/IP, DNS, DHCP, HTTP and SSL**
- **Wi-Fi Security**
  - **WEP, WPA/WPA2 Personal**
  - **WPA/WAP2 Enterprise**
  - **Wi-Fi Protected Setup (WPS 2.0)**
- **Power Save Modes – PS-Poll, Sleep, Deep Sleep, Standby**

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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 abstract the complexity of IP networking and Wi-Fi communication from the embedded application, allowing complete control.

Types	Commands
Serial Interface Configuration	Set Serial Parameters (baud rate, flow control)
Profile Management	Load/Save/Restore profiles
Wi-Fi Interface	Scan/associate/disassociate
Security	Enable/set security
Network Management	Static or DHCP client/server, DNS client/server
Connection management	UDP/TCP/HTTP client/server
Power management	Enable/disable PS-Poll, deep sleep and standby
Services	Upgrade firmware

EVALUATION BOARD SPECIFICATIONS

Feature	Description
Radio Protocol	IEEE 802.11b (IEEE 802.11 b/g/n Compatible)
RF Module	GS1011M Ultra-Low Power Module Family (GS1011MIP, GS1011MIE, GS1011MEP, GS1011MEE)
RF Output Power (Typical)	8 dBm (GS1011MIx), 18 dBm (GS1011MEx)
Radio Frequency	2.412 – 2.484 GHz
Antenna Type	PCB Trace (GS1011MxP) or u.FL connector for external antenna (GS1011MxE)
I/O Port	6-pin serial UART interface, 15540 compatible; DB9 RS232 Connector; SPI
Power Source	1.5 V Lithium Batteries (2x) or External Power Adapter
GS1011M Firmware	Serial to Wi-Fi (default); Temperature and light sensor (TLS) Application
Dimensions	3.5 in X 3.0 in (includes module and RS232 connector)

EVALUATION KIT CONTENTS

ITEM	Description
GS1011M Evaluation Board	Evaluation board based on low power GS1011M module
USB Memory Stick	Installation software for firmware, Documentation, Tools and Utilities
Batteries	Two 1.5V Lithium AA Batteries
Wi-Fi Access Point	Off the Shelf Wi-Fi Access Point for out of box functionality
Cable	6-pin serial UART to USB cable to connect to host PC
Software Tools	TeraTerm --- Open Source Serial Terminal Emulator Wireshark --- Open Source, Network Protocol Analyzer GSDemo – GainSpan tool to demonstrate TLS application GS Flash Program --- GainSpan tool for Firmware Upgrade
Documentation	Quick Start Guide, Programmers Guide, Schematics

EVALUATION KIT ORDERING INFORMATION

ITEM	PART NUMBER	Description
GS1011M EVK Mrk II Evaluation Kit	GS1011MIP-EVK2-S2W-WEB GS1011MEP-EVK2-S2W-WEB GS1011MIE-EVK2-S2W-WEB GS1011MEE-EVK2-S2W-WEB	Serial to Wi-Fi Evaluation kit based on the ultra-low power GS1011M module base board. The Serial to Wi-Fi firmware supports embedded web-server for provisioning