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GS2000 Wi-Fi Shield

PRODUCT OVERVIEW

The GS2000 Wi-Fi Shield is a Wi-Fi module-based adapter board derived from and compatible with Arduino form factor. The Shield is available in two versions: One uses the GS2011MIZ module and the other uses the GS2100MIP module. The Wi-Fi Shield is designed to plug into Arduino-compatible boards that contain a microcontroller (MCU), such as the Freedom development kits from Freescale: FRDM-K22F, FRDM-KL25Z, FRDM-KL46Z, FRDM-K64F or boards from other MCU vendors that are derived from Arduino. The Wi-Fi module interfaces to the host MCU using UART or SPI interfaces. The Shield provides the means to evaluate the capabilities of GainSpan's low-power Wi-Fi modules and Serial-to-Wi-Fi embedded software, as well as develop software for MCU host-based Wi-Fi enabled devices. The Shield supports the IEEE 802.11b/g/n protocols.

The modules offer pre-loaded Serial-to-Wi-Fi (S2W) application firmware for the UART serial interface. The firmware supports complete Wi-Fi MAC, an extensive networking stack, the transport layer security (TLS), Wi-Fi and IP network configuration, web pages, as well as Limited AP capability, for ease of provisioning/commissioning. Customers can evaluate using the USB port on the shield and should upgrade the module firmware to the latest version from the SDK Builder. The Builder can also be used to build custom versions of S2W firmware with other serial interfaces such as SPI.

GainSpan has developed reference examples using Freescale KL25Z Freedom Boards that use the SPI interface as default. The latest module firmware using SPI DMA capability can be built from the SDK Builder and used with the Freedom Board reference demo code. The S2W embedded software allows designers to easily add Wi-Fi capabilities with minor impact on the host microcontroller firmware.



BENEFITS

- Plug-in board that adds 802.11b/g/n Wi-Fi connectivity to most Arduino MCU development boards or boards that are derived from Arduino
- Host reference codes of few kilobytes available for most popular MCU's for ease of interfacing to GS2000 based Wi-Fi modules
- Allows quick addition of Wi-Fi functionalities and optional networking stack to an MCU based design using AT commands
- Allows evaluation of GainSpan's Wi-Fi GS2000 based modules

FEATURES

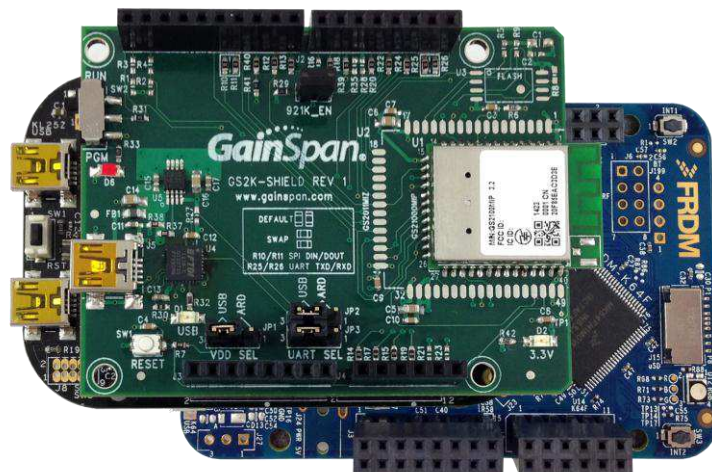
- Can be used in several ways:
 - As a Wi-Fi Shield to Arduino compatible MCU development boards
 - Standalone using USB-UART interface to PC
 - As a microcontroller plus Wi-Fi board to other Arduino compatible shield boards such as sensor boards
- Available with either GS2100MIP or GS2011MIZ Wi-Fi modules
- Host interfaces: UART, SPI
 - UART port (up to 921 kbps) can be used for program loading or as a USB-UART interface to a PC
- Other interfaces: I2C, GPIO
- Pre-loaded with Serial-to-Wi-Fi (S2W) application firmware for a UART serial interface:
 - Stack for S2W includes Wi-Fi security (WPA/ WPA2) , TCP/IP. UDP. HTTP(s), DNS, DHCP servers and clients , TLS/SSL, CoAP, MDNS/ DNS
 - Other applications on more recent firmware are available on GainSpan's portal such as SPI or SDIO interface or IP to Wi-Fi code

WI-FI SHIELD SPECIFICATIONS

| Feature | Description w/ GS2100MIP Module | Description w/ GS2011MIZ Module |
|------------------------|---------------------------------|--|
| RF Module | GS2100MIP Wi-FiModule | GS2011MIZ Ultra-Low Power Wi-Fi Module |
| Radio Protocol | IEEE 802.11 b/g/n, 2.4GHz | |
| Antenna Type | PCB Trace | Ceramic |
| Power Source | MCU Development Board or USB | |
| I/O Interfaces | UART, GPIO, SPI, I2C | |
| ADC | 3-Sigma-Delta ADCs, 16 bits | 2 SAR ADCs, 12 bits |
| Switches | Run/Program, Reset | |
| On-Module Serial Flash | 2 MBytes | 4 MBytes |

WI-FI SHIELD ORDERING INFORMATION

| ITEM | PART NUMBER | Description |
|-----------|------------------|---|
| GS Shield | GS2100MIP-Shield | 802.11b/g/n Wi-Fi Shield Board with a GS2100MIP module |
| GS Shield | GS2011MIZ-Shield | 802.11 b/g/n Wi-Fi Shield Board with a GS2011MIZ module |



Wi-Fi Shield on Freescale Freedom