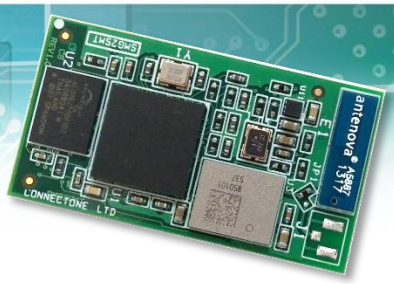
Connect One
The Device Networking Authority

Product Brief

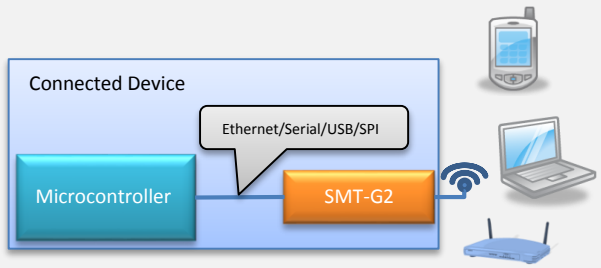
Nano WiReach SMT-G2

Station or Access Point - Switchable
Miniature embedded secured 802.11b/g/n WiFi
SMT module



General Description:

Nano WiReach™ SMT-G2 is a secure embedded Wireless LAN module that easily connects embedded devices to 802.11b/g/n Wireless LAN, 10/100BaseT wired LAN and cellular WAN. It includes the iChip™ CO2144 IP Communication Controller™ chip and a Broadcom BM43362 WiFi baseband. It is packaged in a 37x20mm RoHS-compliant ultra-slim low profile 44-pin SMT module form factor with an on-board or external antenna.



Nano WiReach SMT-G2 makes adding Internet connectivity to embedded devices a breeze. It does not require any kind of WiFi driver development on the host CPU, and its multiple interfaces (UART, SPI, RMII and USB 1.1) minimize the need to redesign the host device hardware.

Connect One's high-level AT+i™ API eliminates the need to add WiFi, LAN or cellular drivers, security and networking protocols or communication tasks to the host application.

Nano WiReach SMT-G2 supports the SSL3/TLS1 protocol for secure sockets, HTTPS and FTPS, WEP, WPA/WPA2 WiFi encryption.

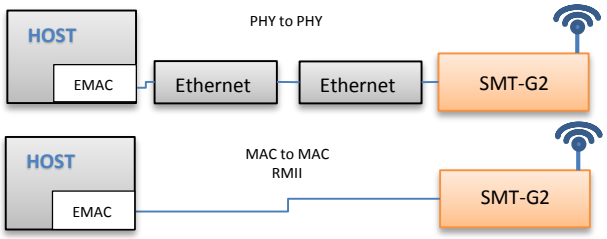
Nano WiReach SMT-G2 firmware and configuration parameters are stored in on-board flash memory. The module is power-efficient: the core operates at 1.2V, while I/Os operate at 3.3V. Power Save mode further reduces power consumption.

Typical applications:

- Adding WiFi to serial embedded devices
- Replacing LAN cable using WiFi (bridge)
- WiFi/LAN/Cellular Router
- Adding SSL security to M2M solutions

Nano WiReach SMT-G2 supports several operation modes:

- LAN to WiFi Bridge - allowing transparent bridging of LAN station over WiFi, using direct RMII connection to existing MAC hardware or direct PHY-to-PHY



connection.

- SerialNet™ Serial to WiFi Bridge - allowing transparent bridging of Serial over WiFi, using fast UART. This is a true plug-and-play mode that eliminates any changes to the host application.
- PPP modem emulation – allowing existing (e.g. modem) designs currently using PPP to connect transparently over WiFi
- Embedded Access Point – WiFi access point. Includes a DHCP server, NAT and port forwarding.
- Embedded Router – Providing routing facilities between a wired LAN subnet a WiFi subnet and a cellular WAN connection. Includes a DHCP server, NAT and port forwarding.
- Full Internet Controller mode – allowing simple MCU to use the Nano WiReach SMT-G2's rich protocol and application capabilities to perform complex Internet operations such as E-mail, FTP, SSL, embedded web server and others. Using our NAT function creates a buffer which providing a security gap between the application and the network.

Connect One Ltd. 20 Atir Yeda Street, Kfar Saba 44643, Israel | Phone: +972-9-766-0456 | Fax: +972-9-766-0461 Email: sales@connectone.com | www.connectone.com

Connect One
The Device Networking Authority

Product Brief

Hardware Description:

- Size: 37.0 x 20.0 x 2.5 mm
- Core CPU: 32-bit RISC ARM7TDMI, low-leakage, 0.13 micron, at 48MHz
- Operating Voltage: +3.3V+/-10%
- Operating Humidity: 90% maximum (non-condensing)
- Operating Temperature Range:
  -30°C to +85°C
  -22°F to 185°F
- Power Consumption (max):
  - Transmit – 350mA@11Mbps, 310mA@54Mbps, 310mA@72Mbps
  - Receive – 130mA
- Optional: On-Board Antenna
- Optional: U.FL RF Connector
- Connection: 44 SMT pads
- Host Interface: Serial, SPI, USB Device
- A/D Input
- Cellular Modem Interface: USB Host
- 10/100 BaseT LAN Interface: RMII (w/ext. PHY)
- RoHS-compliant; lead-free

Wireless Specifications:

- Standards supported: IEEE 802.11b/g/n
- Frequency
  - Europe: 2.412-2.472GHz
  - USA: 2.412-2.462GHz
  - Japan: 2.412–2.484GHz
- Channels
  - Europe: 13 channels
  - USA: 11 channels
  - Japan: 14 channels

Performance Specifications:

- Host Data Rates:
  - UART: Up to 3Mbps
  - SPI: Up to 12Mbps
  - USB 1.1: Up to 6Mbps
- Serial Data Format (AT+i mode): Asynchronous character; binary; 8 data bits; no parity; 1 stop bit
- Serial Data Format (SerialNET mode): Asynchronous character; binary; 7 or 8 data bits; odd, even, or no parity; 1 stop bit
- Flow Control: Hardware (RTS, CTS) and software flow control.

Internet Protocols:

- ARP, ICMP, IP, UDP, TCP, DHCP, DNS, NTP, SMTP, POP3, MIME, HTTP, FTP and TELNET
- Security protocols: SSL3/TLS1, HTTPS, FTPS, RSA, AES-128/256, 3DES, RC-4, SHA-1, MD-5, WEP, WPA/WPA2
- Protocols accelerated in hardware: AES, 3DES and SHA

Application Program Interface:

- AT+i protocol for Internet Controller mode
- SerialNET mode for transparent serial data-to-Internet bridging
- LAN-WiFi transparent bridging
- PPP operation mode for Modem-WiFi conversion
- LAN⇔WiFi; WiFi⇔Cellular; LAN⇔Cellular Routing

Warranty:

- One year

Certifications:

Radio & EMC:

- USA
  - FCC Modular Approval
  - CFR Title 47 FCC Part 15, Subpart C Section 15.247:2013
- Canada
  - Industry Canada Module Approval
  - Industry Canada ICES-003, RSS-Gen issue 3, RSS-210 issue 8
- EU
  - EN 300 328 V1.8.1
  - EN 301 489 V1.9.2 and V2.2.1

Safety:

- EN 60950, Low Voltage Directive

Installation Requirements:

- The Nano WiReach SMT-G2 must be installed within a full-enclosure device that is safety certified.

Connect One Ltd. 20 Atir Yeda Street, Kfar Saba 44643, Israel | Phone: +972-9-766-0456 | Fax: +972-9-766-0461 Email: sales@connectone.com | www.connectone.com

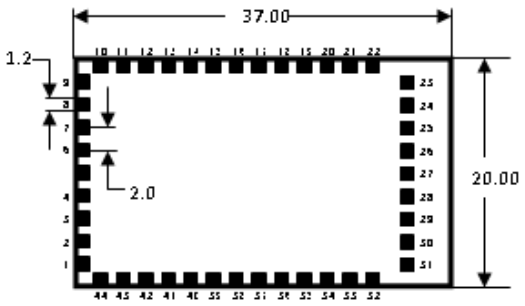
Pin Assignments:

Pin	Signal	Type	Description
1.	GND	PWR	POWER
2.	HDM	ANA	USB HOST
3.	HDP	ANA	USB HOST
4.	RESET	In	ACCESSORY
5.	PIOC4	I/O	ACCESSORY
6.	MSEL	In	ACCESSORY
7.	DATARDY/ PIOC25	Out	ACCESSORY
8.	ETXEN	Out	RMII
9.	REFCLK	In	RMII
10.	ETX0	Out	RMII
11.	ETX1	Out	RMII
12.	CRSDV	In	RMII
13.	ERXD0	In	RMII
14.	ERXD1	In	RMII
15.	ERXER	In	RMII
16.	EMDC	Out	RMII
17.	EMDIO	I/O	RMII
18.	PIOC5	I/O	ACCESSORY
19.	VBUS	Out	ACCESSORY
20.	READINESS/ PIOC2	Out	ACCESSORY
21.	PIOC3	I/O	ACCESSORY
22.	VDD	PWR	POWER

Pin	Signal	Type	Description
23.	GND	PWR	POWER
24.	GND	PWR	POWER
25.	GND	PWR	POWER
26.	GND	PWR	POWER
27.	GND	PWR	POWER
28.	GND	PWR	POWER
29.	GND	PWR	POWER
30.	GND	PWR	POWER
31.	GND	PWR	POWER
32.	RF_LED	Out	ACCESSORY
33.	ACH	ANA	A/D Input
34.	SPI1_CLK	In	SPI4
35.	SPI1_CS	In	SPI3
36.	SPI1_MISO	Out	SPI1
37.	SPI1MOSI	In	SPI2
38.	SPI1INT/ PIOC0	Out	ACCESSORY
39.	TXD0	Out	UART3
40.	RXD0	In	UART2
41.	CTS0	In	UART1
42.	RTS0	Out	UART0
43.	DDM	ANA	USB DEVICE
44.	DDP	ANA	USB DEVICE

Bottom Side Mechanical View:

All measurements are in millimeters:



Ordering Information

Part Number	Description
iW-SMG2SMT-EX	Nano WiReach SMT-G2 module, External Antenna
iW-SMG2SMT-OB	Nano WiReach SMT-G2 module, On-Board Antenna
II-EVB-365-G2	Evaluation board for Nano WiReach SMT-G2 module, On-Board Antenna
iW-CAB-150	Miniature coaxial pigtail cable. U.FL-SMA connectors. 150mm length.
iW-ANT2-BL	2.4GHz WiFi antenna, 2.0dBi, 50Ω, Omni-directional, 1/4 wavelength dipole configuration

Connect One Ltd. 20 Atir Yeda Street, Kfar Saba 44643, Israel | Phone: +972-9-766-0456 | Fax: +972-9-766-0461 Email: sales@connectone.com | www.connectone.com