

## Product Brief HDG204, Wireless LAN 802.11b/g System in Package – Preliminary, Optimized for High Volume

### INTRODUCTION

The HDG204 is a complete Wireless LAN System in-Package (SiP) with ultra low power consumption, optimized for embedded devices. The HDG204 Wi-Fi solution is supported on leading Microcontroller platform and is optimal for developers that want to build wireless internet connected devices for the Smart Home, Clean Tech, Multimedia and Industry automation market!

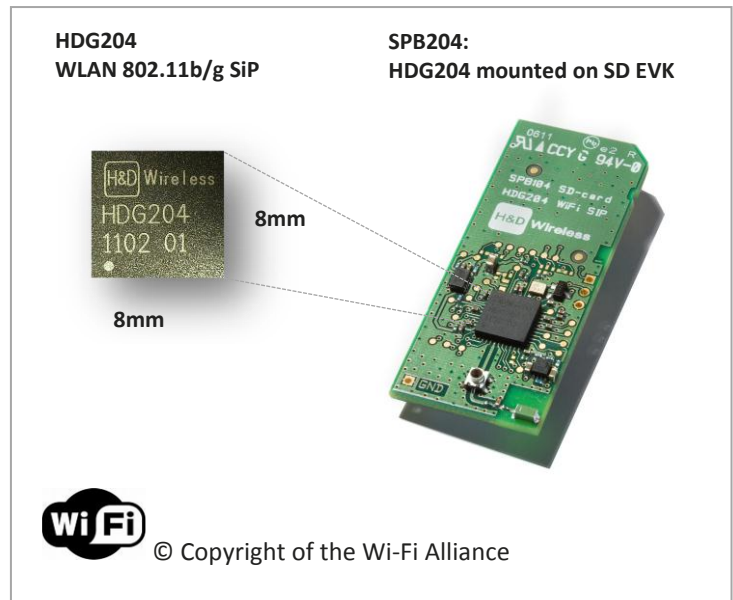
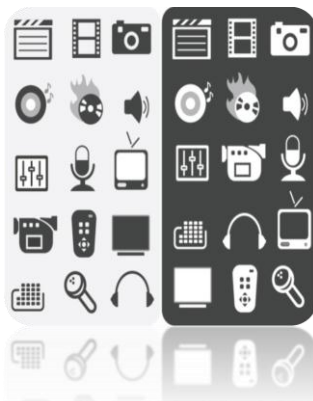
With the HDG204 developers are targeting wireless sensors for industrial and home control, AMR for smart and green energy control, remote device management such as location tracking and the growing segment of equipment and consumer electronic devices such as Portable Media devices, IP-radio, home security, wireless speakers and IP audio devices.

The HDG204 SiP format, with its complete system functionality, means quicker design cycles, lower risk and simplified manufacturing, all in a very small package (8 × 8 mm). Lack of external components simplifies assembly test and reduces yield loss. The HDG 204 SiP delivers a complete and fully tested and trimmed implementation of 802.11b/g functionality. The HDG204 solution is Pre- tested, calibrated and certified resulting in lowest possible production and system cost.

**"Things will be IP-numbered"**

That wireless communication will be built into a new category of products to make internet access possible and that embedded Wi-Fi will be the natural choice. Re-use your existing standard Wi-Fi infrastructure for a new variety of devices.

H&D Wireless will propel your application!

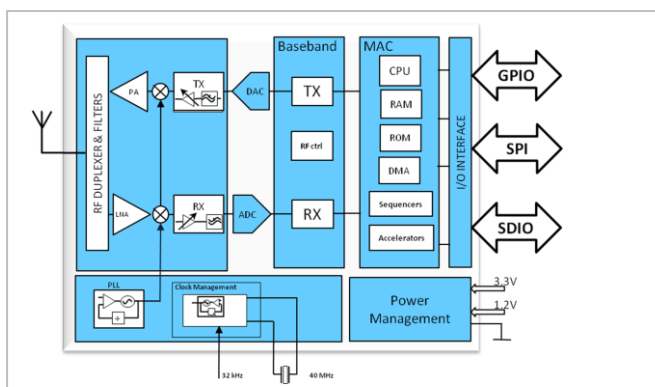


### KEY FEATURES – HDG204

- ✓ Ultra low power consumption solution for embedded applications.
- ✓ Low Cost.
- ✓ External interfaces SDIO and SPI
- ✓ High RF output TX power (+17dBm) and RX sensitivity
- ✓ Supports multiple SW features incl 802.11e/i (Security, Quality of Service)
- ✓ Low number of external discrets needed: 19 + antenna
- ✓ External chips:40MHz (or from system)
- ✓ Pre-calibrated and programmed with MAC address.
- ✓ No RF trimming needed
- ✓ 32KHz from host CPU or internal
- ✓ WEP and AES hardware encryption accelerator up to 128 bit for WEP and WPA2 support.
- ✓ On-chip RF filter for the ISM band 2.4GHz
- ✓ An internal 32 kHz oscillator maintains real time in power save mode, allows the high frequency clock to be turned off.
- ✓ Extensive DMA hardware support for data flow to reduce CPU load.
- ✓ On-board 160 kB SRAM and 1 kB EEPROM eliminates need for external FLASH or RAM.
- ✓ Internal Boot-ROM. This allows firmware to be downloaded into SRAM from the host.
- ✓ Calibration data stored in internal EEPROM
- ✓ RoHS Compliant

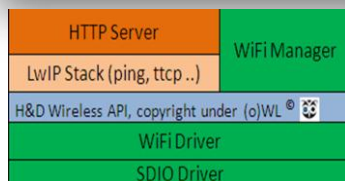
[www.hd-wireless.se](http://www.hd-wireless.se)

## HDG204 Block diagram



## Software

H&D Wireless provides a unique Software API, SDK oWL® - A complete programming interface for embedded Wi-Fi applications



### Software Key features – WiFi API SDK oWL

- Smallest size: 1 40KB ( 2KB in pico version)
- Preintegrated with Lw-ip
- WiFi manager - Reference design for configuration of Wi-Fi incl GUI

\* SoftAP included in H&D Software suite.

### Evaluation Package

H&D Wireless provides an adapter solution to the HDG204 –SD evaluation card SPB204 mounted with HDG204, fully supported on AVR/ARM/Cortex-M3 platforms. A host driver, the oWL SDK is included.

### Partners:

Atmel® Corp. Wi-Fi partner



## Specifications

Wireless Network Standard Support	IEEE 802.11b/g
Frequency Band	2.412-2.484 GHz
Modulation Techniques	QPSK, 16QAM, 64QAM DBPSK, DQPSK, CCK, OFDM with BPSK
Hardware interfaces	SPI SDIO GPIO
WLAN functions, QoS	Power save modes, automatic roaming, Ad-hoc, Soft AP* and Infrastructure mode
Wireless Security	✓ WEP-64 ✓ WEP-128 ✓ WPA-PSK ✓ WPA2-PSK
Hardware dimensions	8x8x1,2mm
Power consumption	TX: 590mW, RX 220mW Power save: 0,4mW (2s listen interval) Sleep:0,2mW
Supply Voltage	2.75-3.6V
Operating Temperature, degrees C	-40° - + 85° (industrial)

## Order Information

Part Number#	Description	Image
HDG204-DN-2	Wi-Fi SiP 802.11b/g component in 44-pin QFN, SDIO, SPI. Surface mounting	
SPB204-AL-1	SD card format Wi-Fi board, SDIO. SPI support has HDG204 mounted. Chip antenna + ext RF test port	

For additional information please contact [sales@hd-wireless.se](mailto:sales@hd-wireless.se)  
© Copyright 2012, H&D Wireless AB. All Rights Reserved

## Distribution:



**Headquarters**  
H&D Wireless AB  
Norgegatan 1  
164 32 Kista, Sweden  
Tel: +46-8-7509977  
Fax:+46-8-7509977  
E-mail:  
sales@hd-wireless.se  
info@hd-wireless.se

**International**  
**North America**  
H&D Wireless AB  
21 Ship Rock Road  
North Hampton, NH  
03862, USA  
Tel: +1 (603)379-2304  
E-mail: art.ryder@hd-wireless.se

**APAC Regional Office**  
Hong Kong  
E-mail: sales@hd-wireless.se

### Global Presence & Distribution

- NORTH AMERICA
- EUROPE
- ASIA
- MIDDLE EAST
- AUSTRALIA
- SOUTH AMERICA

### Technical Support

Software drivers  
Wi-Fi Integration  
Reference designs  
Documentation

### Turnkey Solutions

The reference designs provided are turnkey solutions that will work first time and can be modified and used for customers own products.

© H&D Wireless AB .  
All rights reserved.

Web site:

[www.hd-wireless.se](http://www.hd-wireless.se)