



**WF111: 802.11 b/g/n MAC/PHY module**

**Product Presentation**

## Topics

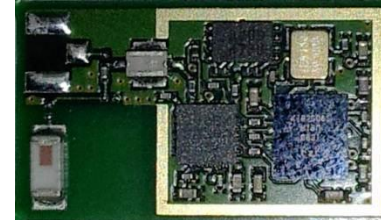
- **Key features**
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# Key features

## WF111: Key features

- **802.11 b/g/n compliant**
  - 2.4GHz single spatial stream
  - Physical rate up to 72.2Mbps
  - Client and soft AP modes
  - Wi-Fi direct support
- **802.11 MAC/PHY interface**
  - High speed SDIO and SPI physical interfaces
- **Single antenna**
  - Integrated chip
  - U.FL or
  - 50 ohm RF pin
- **Operating system drivers**
  - Linux
  - Windows
- **Small size**
  - 11.6 x 17.1 x 2.5 mm
- **Wi-Fi, CE, FCC and IC and Telec qualified**

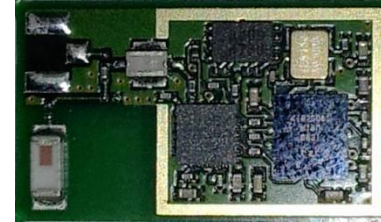




# Benefits

## WF111: Benefits

- **Fully integrated 802.11 radio solution**
  - Lower cost
  - Faster time to market
- **Good radio performance**
  - Long range and robust connections
  - Programmable TX power
- **Fully qualified**
  - Proven interoperability
  - No qualification costs
- **Wi-Fi certified\***
  - Wi-Fi
  - WMM, WMM power save
  - Wi-Fi direct
- **Comes with operating systems drivers**
  - No driver development needed
- **Low cost for devices with operating systems and TCP/IP stack**



\*) Q4/2011

# **WF111 overview**

# WF111: Radio

- **2.4GHz, 802.11 b/g/n Single spatial stream**
- **Operating freq. (ISM):** 2402 – 2480 MHz
- **Data rates:**
  - IEEE 802.11n : 72.2, 65, 58.5, 57.8, 52, 43.3, 39, 28.9, 26, 21.7, 19.5, 14.4, 13, 7.2, 6.5Mbps
  - IEEE 802.11g : 54, 48, 36, 24, 18, 12, 9, 6Mbps
  - IEEE 802.11b : 11, 5.5, 2, 1Mbps
- **Channels**
  - North America: 11 channels
  - Europe: 13 channels
  - Japan: 14 channels CCK, 13 channels OFDM
- **Quality-of-Service**
  - WMM, WMM Power Save (WMM-PS)
  - IEEE 802.11e (including Admission Control)
  - Dynamic Power Saving



## WF111: Radio

- TX power: +17 dBm
- RX sensitivity: -88 dBm
- Modulation methods: CCK  
DSSS  
OFDM  
BPSK  
QPSK  
16-QAM  
64-QAM

# WF111: Interfaces

## Host interfaces

- SDIO
- SPI

## Radio co-existence interfaces

- 3-wire Unity 3
- 4-wire Unity 4
- 5-wire Unity+

## Programming & Debug

- 802.11 debug SPI

## Configurable GPIO ports

- 6 configurable IO ports (wake-up, sleep etc.)

## WF111: Power supplies

**VDD\_REGIN** : 802.11 core voltage

- 1.8V (1.45-2.0V)

**VDD\_PA** : Front-end power supply

- 2.7 – 3.6V

**VDD\_IO** : Digital lines

- 1.8V logic levels (1.45-2.0V) or
- 3.3V logic levels (2.7-3.6V)

**VDD\_SDIO** : SDIO reference volatege

- 1.8V logic levels (1.45-2.0V) or
- 3.3V logic levels (2.7-3.6V)

## WF111: Power consumption

**Continuous transmit : +18dBm, OFDM modulation**

- 345 mA

**Continuous receive: OFDM modulation**

- 143 mA

**Sleep mode**

- 70uA

# Operating system drivers

## WF111: Operating system drivers

### Linux:

- Driver for 2.6 kernels
- WPAc supplicant patch
- SDIO transport driver
- Configuration application

### Windows CE/Mobile

- SDIO transport driver
- Wi-Fi driver'

### Windows XP/Vista

- SDIO transport driver
- Wi-Fi driver

# Evaluation tools

## WF111: Evaluation tools

### SDIO reference board:

- WF111 module
- SDIO form factor
- Debug port
- Current measurement port

### Drivers and documentation

- Linux OS drivers
- Set-up instructions





# Certifications

## Certifications

- Wi-Fi® certified
- CE
  - EN300328
  - EMC330489
- FCC
  - Modular approval - 15.21,15.105(b)
- Industry Canada (IC)
- Telec (Japan)
- Australia and New Zealand



# Use cases

## Portable computers

- Tablets
- PDAs
- Point-of-sale terminals



## Consumer electronics

- Digital TVs
- Portable multimedia devices
- Digital cameras



## Wireless audio and video

- Internet radios
- Wireless video cameras
- Wireless audio devices



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**Thank you**

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