IPN5320 Product Brief

Wireless LAN IC

Integrated Baseband and MAC Solution for IEEE 802.11a,g WLAN

INPROCOMM

Inprocomm, Inc.

FEATURES

- FCC compliant
- 802.11g compliant: 1, 2, 5.5, 11 (DSSS/CCK), 6, 9, 12, 18, 24, 36, 48, 54 (OFDM) Mbps data rates
- 802.11a compliant: 6, 9, 12, 18, 24, 36, 48, 54 (OFDM) Mbps data rates
- 802.11i compliant robust security via hardware support

  AES-CCMP

  WEP/TKIP (64/128/152 bits)
- 802.11e compliant QoS:

  EDCF, HCF support

  Contention-free and Block-Ack support
- Multicasting support
- 802.11h Spectrum Management:

  TPC

  DFS
- On-chip AGC, RSSI, RX noise floor and signal quality indicators
- Superior equalizer for multipath fading and Doppler effect compensation
- Proprietary co-channel narrow-band interference suppression
- Adjacent channel interference rejection support
- Support TX/RX packet-based antenna selection
- Support short preamble option
- Support short (9 μs) slot time
- TX auto rate selection support
- TX auto power stablization support
- DC offset compensation
- RF calibration support
- PCI, MiniPCI and CardBus interfaces with Bus Master DMA

- Flexible RF interface:

  ✓ Direct conversion

  ✓ Superheterodyne

PRODUCT OVERVIEW

IPN5320, the first offer conforming to IEEE 802.11a,g standard from INPROCOMM's AirConn™ family of wireless LAN products, is an IC solution integrating baseband processing and Medium Access Control (MAC) for WLAN. It provides all the needed digital functionalities for IEEE 802.11a,g: baseband processing and MAC protocol support in a single chip.

IPN5320 has on-chip ADC and DAC. Orthogonal Frequency Division Multiplexing (OFDM), along with differential phase shift keying modulation schemes, DBPSK and DQPSK, and Complementary Code Keying (CCK), provides a variety of data rates: from 1 to 54 Mbps. The innovative design provides protection against delay spread due to multipath fading and Doppler effect in indoor environments. Another proprietary design for co-channel narrow-band interference suppression enables IPN5320 to perform well in the presence of other ISM band occupants, such as Bluetooth devices, microwave ovens and cordless phones. IPN5320 supports IEEE 802.11h standard on Transmit Power Control (TPC) and Dynamic Frequency Selection (DFS), enabling its use in the European 5 GHz band. Moreover, IPN5320 supports on-chip AGC, RSSI, RX noise floor and signal quality indicators for system vendors or users to better observe and control the WLAN device.

To meet customers' need to use the best cost-effective solutions available, IPN5320 is designed with the flexibility of using different RF architectures. Customers can easily select either direct conversion or superheterodyne RF front-end solutions for cost or performance purpose.

IPN5320 supports all mandatory functions needed in the 802.11 MAC. To provide uncompromised security for wireless accesses, especially those needed in an enterprise or high-security environment, the hardwired MAC offers the highly robust AES (Advanced Encryption Standard) security mechanism as well as the normal WEP and Wi-Fi WPA.

IPN5320 provides PCI, MiniPCI and CardBus host interfaces. This built-in flexibility allows it to be configured for a wide range of applications.

BLOCK DIAGRAM
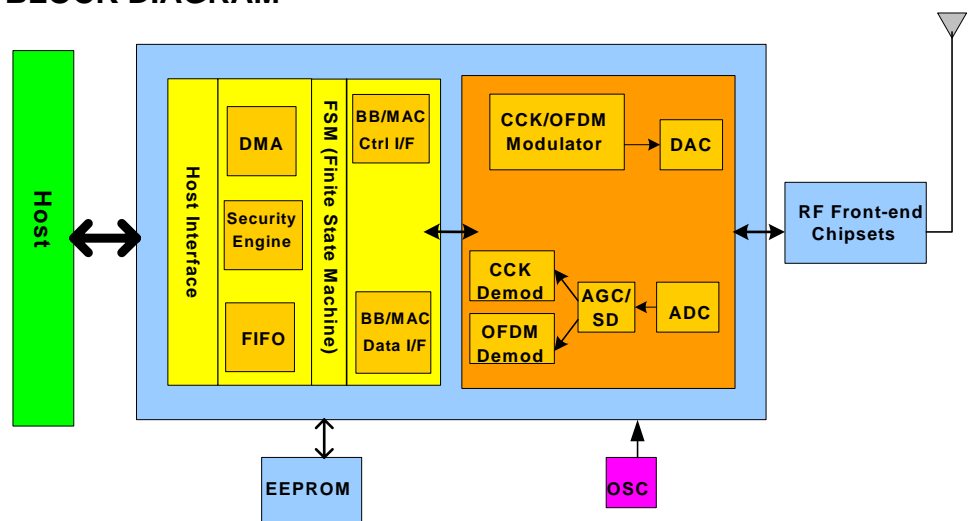
IPN5320 System Block Diagram

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FEATURES

- Client NDIS drivers for Windows 98SE/Me/2000/XP

- AP Drivers for Linux and embedded Linux (kernel v.2.4)

- Compact API modules for embedded processors/OS

- Security compliance applications:
  - ✓ WPA (Wi-Fi Protected Access) security suite (802.1X)

About INPROCOMM

Inprocomm, Inc. (INPROCOMM) was founded in June 2002 and is a leading wireless broadband solutions provider with its design center based in Hsinchu, Taiwan, and sales and marketing offices in Taipei, Taiwan and in Silicon Valley in the San Francisco Bay Area. Using its novel baseband architectures and algorithms, INPROCOMM designs integrated circuits (ICs) and provides innovative system solutions for IEEE 802.11 and IEEE 802.15 standards, BluetoothTM and other broadband wireless communication systems.

INPROCOMM has technical expertise in the areas of Digital Signal Processing, Communication Theory, Algorithm Development, Digital & Analog IC Design, Networking, System Hardware and Software, and its key founders and stakeholders have worked for numerous major international companies over the years. INPROCOMM is an aggressive participant and contributor to several industry standards-setting bodies including IEEE 802.11, IEEE 802.15, BluetoothTM, Wi-Fi Alliance and PCI SIG.

INPROCOMM's solutions have the advantages of configurability and scalability, surmounting limitations faced by competitors that are restricted by traditional approaches. INPROCOMM's unique flexible architectures enable its customers to quickly differentiate their products and dramatically reduce time-to-market.

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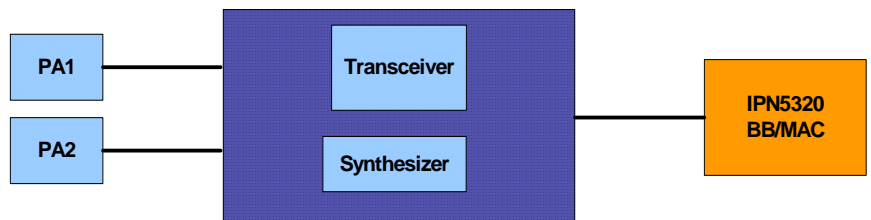**Website:** http://www.inprocomm.com.tw

APPLICATIONS

- Enterprise WLAN systems

- PCI/MiniPCI wireless LAN adaptor module

- CardBus wireless LAN adaptor card

- High data rate wireless LAN systems targeting IEEE 802.11a,g standard

- Wireless LAN access points

- AES enabled wireless applications

RF ARCHITECTURE
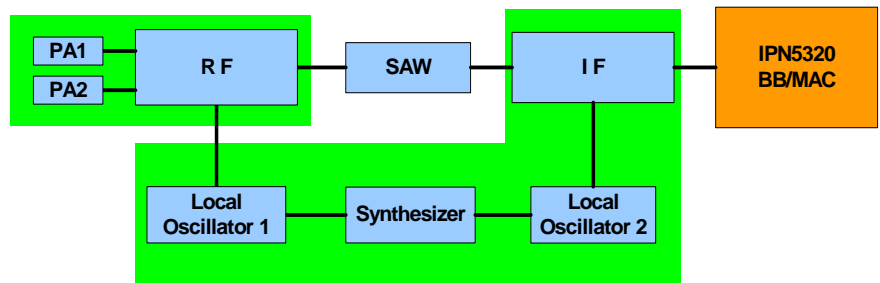
2-Chip Superheterodyne Architecture

Direct Conversion Architecture