

Wireless LAN Integrated Medium Access Controller with Baseband Processor



The Intersil ISL3872 Wireless LAN Integrated Medium Access Controller with Integrated Baseband Processor is part of the PRISM® III, 2.4GHz

radio chipset. The ISL3872 directly interfaces with the Intersil's RF Front End (ISL3684). Adding Intersil's Power Amp (ISL3984) offers the designer a complete end-to-end WLAN Chipset solution. Protocol and PHY support are implemented in firmware thus, allowing customization of the WLAN solution.

Firmware implements the full IEEE 802.11 Wireless LAN MAC protocol. It supports BSS and IBSS operation under DCF, and operation under the optional Point Coordination Function (PCF). Low level protocol functions such as RTS/CTS generation and acknowledgment, fragmentation and de-fragmentation, and automatic beacon monitoring are handled without host intervention. Active scanning is performed autonomously once initiated by host command. Host interface command and status handshakes allow concurrent operations from multi-threaded I/O drivers.

The ISL3872 has on-board A/D and D/A converters for analog I and Q inputs and outputs, for which the ISL3684 Zero-IF QMODEM is recommended. Differential phase shift keying modulation schemes DBPSK and DQPSK, with data scrambling capability, are available along with Complementary Code Keying to provide a variety of data rates. Both Receive and Transmit AGC functions with 7-bit AGC control obtain maximum performance in the analog portions of the transceiver.

Built-in flexibility allows the ISL3872 to be configured through a general purpose control bus, for a range of applications.

The ISL3872 is designed to provide maximum performance with minimum power consumption. External pin layout is organized to provide optimal PC board layout to all user interfaces including mini PCI.

The ISL3872 is housed in a thin plastic BGA package suitable for mini PCI board applications.

Ordering Information

PART NUMBER	TEMP. RANGE (°C)	PACKAGE	PART NUMBER
ISL3872IK18	-40 to 85	256 BGA	V256.17x17A
ISL3872IK18-TK	-40 to 85	Tape and Reel	1000 Units /Reel

Features

- Firmware implements the full IEEE 802.11 Wireless LAN MAC protocol
- Improved Performance of Internal WEP Engine
- Improvements to Debug Mode Support Tracing Execution From on Chip Memory.
- New Start Up Modes Allow the PCI and mini PCI Configuration Registers to be Initialized From a Serial EEPROM. This Allows Firmware to be Downloaded from the Host, Eliminating the Parallel Flash Memory Device
- Firmware Can be Loaded from Serial Flash Memory
- Zero Glue Connection to 16-Bit Wide SRAM Devices
- Low Frequency Crystal Oscillator to Maintain Time and Allow Baseband Clock Source to Power off During Sleep Mode
- Programmable MBUS Cycle Extension Allows Accessing of Slow Memory Devices Without Slowing the Clock
- Complete DSSS Baseband Processor
- RAKE Receiver with Decision Feedback Equalizer
- Processing Gain FCC Compliant
- Programmable Data Rate 1, 2, 5.5, and 11Mbps
- Modulation Methods. DBPSK, DQPSK, and CCK
- Supports full or half duplex operations
- On-chip A/D and D/A converters for I/Q data, AGC, and adaptive power control
- Targeted for Multipath Delay Spreads 100ns at 11Mbps, 250ns at 5.5Mbps
- Supports Short Preamble and Antenna Diversity

Applications

- High Data Rate Wireless LAN Systems Targeting IEEE 802.11b Standard
- Mini PCI and 3V PCI Wireless LAN Adapters
- PCN / Wireless PBX / Wireless Local Loop
- Wireless LAN Access Points and Bridge Products
- Spread Spectrum WLAN RF Modems
- TDMA or CSMA Packet Protocol Radios