Wireless LAN Integrated Medium Access Controller with Baseband Processor

The Intersil ISL3877 Wireless LAN Integrated Media Access Controller with Baseband Processor is part of the PRISM® 5, 5GHz radio chipset. The ISL3877 directly interfaces with the Intersil's ISL3787 1.2GHz IF converter with AGC and synthesizer. Adding Intersil's ISL3687 5GHz RF/IF converter with integrated synthesizer and a Power Amp completes an end-to-end WLAN Chipset solution for the 802.11a 5GHz standard. Protocol and PHY support are implemented in firmware thus, supporting custom WLAN solutions.
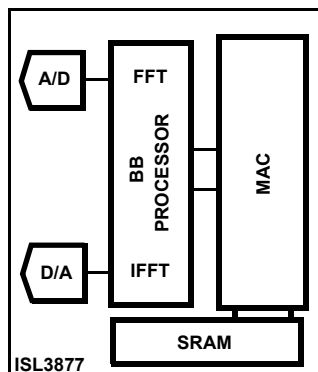
Firmware implements the full IEEE 802.11a Wireless LAN MAC protocol. It supports BSS and IBSS operation under DCF, and operation under the optional Point Coordination Function (PCF). Low level protocol functions such as RTS/CTS generation and acknowledgment, fragmentation and de-fragmentation, and automatic 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.

Orthogonal Frequency Division Multiplex (OFDM) combined with BPSK through 64 QAM modulation of the individual carriers and a variety of convolutional coding rates provides 8 selectable data rates.

Built-in flexibility allows the ISL3877 to be configured for a range of applications. The MAC is based on the ARM 946E processor core that offers a wide variety of code development support tools.

The ISL3877 is housed in a thin plastic BGA package suitable for CardBus or Mini-PCI circuit card applications.

Simplified Block Diagram

Features

- Firmware implements the full IEEE 802.11a Wireless LAN MAC protocol
- Internal WEP Engine allows 64 or 128 bit Encryption
- Start Up Modes Allow the PCI Configuration Registers or the Card Bus Card Information Structure to be Initialized from a small external Serial EEPROM. This allows Firmware to be Downloaded from the Host
- On chip SRAM Memory
- Low Frequency Crystal Oscillator to Maintain Time and Allow High Frequency Clock Source to Power off During Sleep Mode
- Complete OFDM Baseband Processor and 802.11a MAC
- Firmware controlled antenna diversity
- Data Rates . . . . 6, 9, 12, 18, 24, 36, 48, and 54Mbps
- RF Modulation Method. . . . . .OFDM
- Baseband modulations. . BPSK, QPSK, 16 QAM, 64 QAM
- Convolutional coding and interleaving on all rates
- Targeted for Multipath Delay Spreads 100nS at 6Mbps and 100ns at 54Mbps
- Direct interface with the ISL3787 IF Converter
- Balanced differential interconnects to TX and RX

Applications

- High Data Rate Wireless LAN Systems Targeting the IEEE 802.11a Standard
- Cardbus32 Wireless LAN Adapters
- Mini-PCI Wireless LAN Cards
- 3V PCI Wireless LAN Adapters

Ordering Information

PART NUMBER	TEMP. RANGE (°C)	PACKAGE	PKG. NO.
ISL3877IK	-40 to 85	192 Lead BGA	V192.14x14
ISL3877IK-TK	-40 to 85	Tape and Reel	