The AMD Alchemy™ Solutions
Am1772™ Wireless LAN Chipset

AMD
Alchemy™

AMD's next generation
of wireless LAN solutions

A cost-effective wireless LAN solution optimized to deliver high performance for low power, small form-factor applications.

Overview
The AMD Alchemy™ Solutions Am1772™ wireless LAN chipset is the first offering from AMD's next generation of wireless LAN solutions.

An optimized IEEE 802.11b Wi-Fi™ based wireless LAN solution that combines low-power consumption with a small form factor, the Am1772 wireless chipset is the first building block in a long-term wireless strategy from AMD. By listening to the needs of wireless LAN solution providers, we've created a compact design that enables highly cost-effective, small form factor solutions. The two-chip, direct-down conversion design also allows the Am1772 chipset to be used in conjunction with other wired and wireless technologies to create innovative system solutions.

Highlights
The Am1772 chipset has been designed to help:

Preserve board space
The Am1772 requires a minimal number of additional components. The AMD Alchemy™ Solutions Am1770™ wireless product is a world-class, Zero-IF, 2.4GHz DSSS transceiver that features a highly integrated design. By eliminating the need for external VCOs and an Rx/Tx filter—and requiring a single external 44MHz oscillator—the Am1770 transceiver conserves precious board space and reduces the Bill of Materials.

Lower power consumption
The Am1772 chipset is optimized for low-power consumption solutions, combining a CMOS RF transceiver and medium access controller baseband processor.

Improve performance
The AMD Alchemy™ Solutions Am1771™ wireless product incorporates a pioneering low-noise digital interface to the Am1770 transceiver, which allows the development of high performance and low component count WLAN solutions. It also features on-chip MAC hardware acceleration to help minimize CPU utilization compared to today's technology.

The descriptor-based DMA architecture also eliminates the need for external SRAM and Flash memory, and is designed to improve system efficiency while providing an easy path for host CPU software enhancements to support future WLAN security and QoS requirements.

At a Glance
Am1770™ Zero-IF Transceiver
- No external VCO, tank circuitry, loop and SAW filter
- Digital interface to Am1771 BB/MAC
- Automatic calibration of filter cut-off frequencies
- Self-contained AGC requires no BB intervention
- Automatic Tx Power Level Control (APLC), including level adjustment
- High receiver sensitivity designed to increase performance and range

Am1771™ Integrated Baseband/MAC
- Eliminates external SRAM and Flash memory
- PCI and CardBus host bus interface
- On-chip MAC hardware acceleration resulting in low CPU utilization
- Advanced low-power CMOS process lowers operating current
- Full support of all 802.11b long and short header modes
- State-of-the-art channel equalizer provides robust and stable performance in a variety of environments

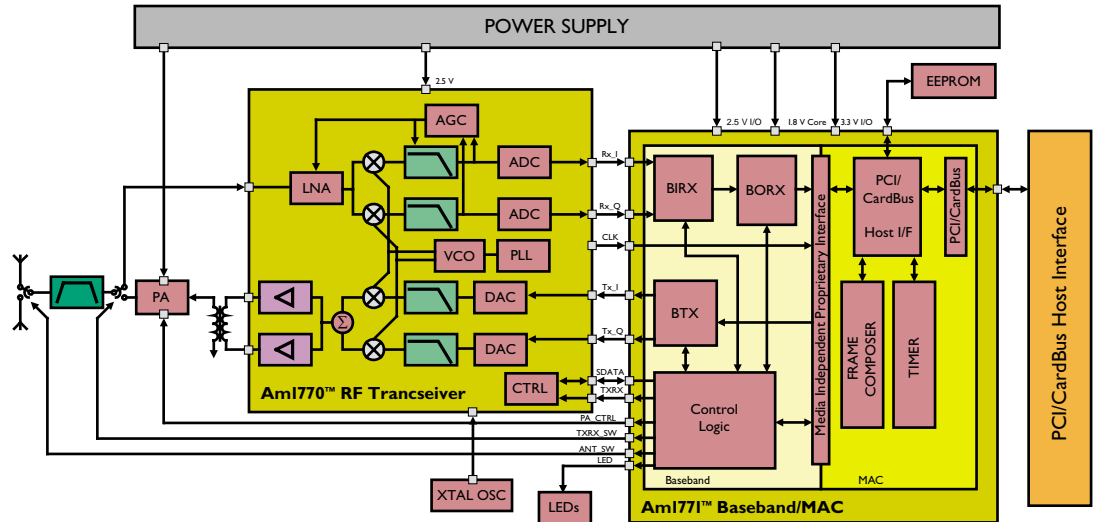# AMD Alchemy™ Solutions Am1772 Wireless LAN Chipset

Package

Am1770

Zero-IF Transceiver (7x7)mm

48-pin LQFP

Am1771

BB/MAC Controller (13x13)mm

176-ball LFBGA

Specifications

IEEE standard support	802.11b compliant
Variable data rates	11, 5.5, 2, and 1 Mbps (short and long header modes)
Frequency band	ISM-band (2400MHz—2484MHz)
Receive sensitivity (8% PER)	-87dBm (@11Mbps)
	-90dBm (@5.5Mbps)
	-92dBm(@2.0Mbps)
	-95dBm(@1.0Mbps)
Security WEP	WEP 40- and 128-bit, TKIP + WPA*
Operating temperature	-40°C to +85°C for Am1771
	-20°C to +80°C for Am1770
Power supply	Am1770: 2.5V
	Am1771: 1.8V, 2.5V, 3.3V

*Software enhancements planned for TKIP + WPA in the future

Power consumption in (mW)

	Am1770	Am1771
	Transceiver	MAC/BB
Tx mode	≤ 175mW	≤ 40mW
Rx mode	≤ 210mW	≤ 85mW
Listen mode	N/A	≤ 45mW
Sleep mode	≤ 7.5mW	≤ 30mW

System documentation

- User guide
- Data sheets
- Application notes
- Complementary drivers and utilities

Operating system support

- Windows® 98
- Windows ME
- Windows 2000
- Windows XP
- Windows NT®
- Linux

Reference design kits (RDKs)

- Mini PCI type IIIb
- PC card (CardBus)

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