

SparkLAN WPEA-251N Technical Description

(Qualcomm Atheros AR5B22 Reference Design using AR9462 Single Chip)

General Description

The Qualcomm Atheros AR9462 is a highly integrated, all CMOS combo-chip for 2.4 and 5 GHz 802.11n wireless local area networks (WLANs) and Bluetooth v4.0 solution for PC applications. Its WLAN function integrates a multi-protocol MAC, baseband processor, analog-to-digital/digital-to-analog converters (ADC/DAC), 2x2 MIMO radio transceivers, and PCI Express interface. The AR9462 implements half-duplex OFDM, CCK, and DSSS baseband process, supporting an 802.11n connection at up to 144 Mbps for 20 MHz and 300 Mbps for 40 MHz channel operations respectively, and IEEE 802.11a/b/g data rates. Additional features include Maximal Likelihood (ML) decoding, Low-Density Parity Check (LDPC), Maximal Ratio Combining (MRC), Tx Beamforming (TxBF), Space Time Block Code (STBC), switching regulator and On-Chip One-Time Programmable (OTP) memory to eliminate the need for an external flash and to further reduce the external component count and BOM cost. The AR9462 supports 802.11 wireless MAC protocol, 802.11i security, Rx/Tx filtering, error recovery, and 802.11e quality of service (QoS).

The AR9462 supports up to two simultaneous traffic streams using integrated Tx and Rx chains for high throughput and extended coverage. The AR9462 supports frame data transfer to and from the host using a PCIE interface providing interrupt generation and reporting, power save, and status reporting. Other external interfaces include EEPROM and GPIOs.