VIA Networking Technologies, Inc.

VT6656 802.11a/b/g
WLAN BB+MAC
Single Chip Solution

PRODUCT FEATURES
- Compliant with the IEEE 802.11a/b/g standard
- Host interfaces: USB1.1 / USB2.0
- I²C EEPROM interface
- Provide at least 4 GPIO
- Integrated 3.3V to 1.8 regulator control circuit
- Integrated RISC with internal ROM support
- Smart power saving mechanism under USB1.1 connectivity
- Package: 14mmx14mm LQFP-128

BASEBAND FEATURES
- Design target to interface with Multiple RFICs
- Programmable data rates: 54,48,36,24,18,12, 9,6Mbps with OFDM modulation, and 11, 5.5 with CCK modulation, 2, 1Mbps with barker modulation
- Support the interface to access RSSI status & signal quality

MAC FEATURES
- Support adhoc/infrastructure under Distributed Coordination Function (DCF) operation
- Support AP/station Mode
- Support Multicast packet filtering function
- Support advanced power saving solution

SECURITY FEATURES
- Support 802.11i 4.0 Specification. WPA 1.0 / 2.0 specification
- With On-the-flyby WEP 128 bit,WEP 64bit, TKIP and AES CCMP encryption support

Single-chip 802.11a/b/g WLAN controller enables high-speed 54Mbps wireless connections to satisfy the increasing bandwidth needs of the most demanding enterprise, public access and home WLAN users.

VIA Networking VT6656 WLAN Controller, a single chip solution featuring an IEEE 802.11a/b/g media access controller (MAC) and integrated baseband processor to support USB 2.0 host interface. Enabling data rates between wireless devices of up to 54Mbps, WLAN modules based on the VIA Networking VT6656 can deliver the bandwidth necessary for real-time streaming of high-definition digital multimedia content in home networks, and provide high-speed email, web and LAN access to multiple mobile users in corporate environments or public hotspots.
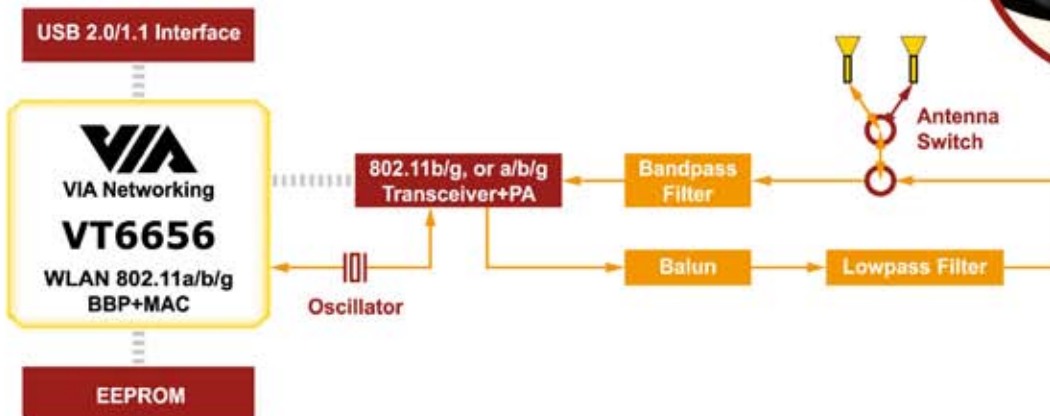
Designed with flexibility in mind, the VIA Networking VT6656 is compatible with USB2.0 and backward compatible with USB1.1 interfaces, and offers seamless compatibility with the leading RF chips currently available, ensuring WLAN module makers benefit from a wider choice of RF vendors and potentially lower development costs. In addition, VT6656 chip supports not only both 802.11a and 802.11g standards, but also backward compatible with 802.11b standard, as such VIA Networking VT6656 based devices enable smooth migration for all 802.11b-based networks, without the need to sacrifice existing WLAN infrastructure.

In addition to providing high-speed wireless communication between devices, the VIA Networking VT6656 ensures optimum data security through the Wi-Fi Protected Access (WPA) specification. The forthcoming WPA 2.0 specification is also supported, which will be enabled through a downloadable software update. The VIA Networking VT6656 is Wi-Fi certified by the Wi-Fi Alliance (formerly WECA), the global organization that oversees the Wi-Fi interoperability certification program. In order to receive official Wi-Fi certification, all IEEE 802.11 products must undergo rigorous independent testing.

"VT6656, VNT's latest dual-band IEEE 802.11a/g solution, provides the greatest flexibility, and highest bandwidth capacity to satisfy the blooming demands of today's Wi-Fi users, especially in high-definition digital multimedia data transfer." commented Dr. Steven S Lee, president of VIA Networking Technologies, Inc. "Wi-Fi certified and backwards-compatible with existing 802.11b infrastructure, the highly integrated, maximum secured, and power efficient VIA Networking VT6656 WLAN controller is the ideal solution to enable the next revolution in ubiquitous broadband wireless life style."

Low power consumption is achieved by a Power Amplifier (PA) Power Detector which monitors and optimizes power usage to ensure stable transmission power, which is particularly beneficial to thin and light notebooks with challenging thermal environments. VT6656 also complies with international passive scanning and radar detection requirement at the 5GHz band. In addition, VIA Networking offers WLAN software programming support to WLAN module vendors, enabling speedy time-to-market for customers.

VT6656 802.11b/g, a/b/g
WLAN USB Demo Modules

USB 2.0/1.1 Interface

VIA Networking
VT6656
WLAN 802.11a/b/g
BBP+MAC

Oscillator

EEPROM

802.11b/g, or a/b/g Transceiver+PA

Bandpass Filter

Antenna Switch

Balun

Lowpass Filter

802.11b/g WLAN Mode	Tx Power	Rx Sensitivity	Throughput
VIA Networking (VT6656) (USB dongle, Embedded USB, minicard)	CCK: 18dBm OFDM: 15.12dBm	CCK: -86dBm OFDM: -72dBm	11b: 5Mbps 11g: 21.3Mbps
Typical performance from other vendors	CCK: 17dBm OFDM: 14dBm	CCK: -80dBm OFDM: -65dBm	11b: 5Mbps 11g: 18Mbps