FITIVISION TECHNOLOGY INC.
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WIRELESS LAN MODULE
QCA9531

USER'S MANUAL

1. Overview

The Qualcomm Atheros QCA9531 is highly integrated and feature-rich IEEE 802.11n 2x2 2.4GHz System-on--a-Chip(SoC) for advances WLAN platforms.
It includes a MIPS 24Kc processor ,one PCI Express 1.1 Root Complex interface, five port IEEE 802.3 Fast Ethernet Switch With MAC/PHY, one USB 2.0 MAC/PHY, and external memory Interface for serial Flash,DDR1 or DDr2,SDRAM,UART,and GPIOs that can be used for LED controls or other general purpose interface configurations.

The QCA9531 PCIE root complex interface can be used to connect to an endpoint such as the Qualcomm Atheros single-chip MAC/BB/radio for dual concurrent WLAN application. The QCA9531 supports 802.11n operations up to 144 Mbps for 20 MHz Likelihood(ML) decoding, Low-Density Parity Check(LDPC) and Maximal Ratio Combining(MRC).

The QCA9531 supports booting from NOR flash.

2. Features

- 24Kc MIPS processor with 64KB I-Cache and 32KB D-Cache, operating at up to 550MHz
- External 16-bit DDR1,operating at up to 200 MHz,DDR2 operating at up to 275MHz
- External SDRAM interface operating at 166 MHz
- SPI NOR Flash memory support
- 10/100 Ethernet Switch with four IEEE 802.3 Ethernet LAN ports and one WAN post
- 802.3az Energy Efficient Ethernet compliant
- PCI Express 1.1 Root Complex interface
- One USB 2.0 controller with built-in MAC/PHY supports Host mode
- One low-speed UART(115 Kbps) and multiple GPIO pins for general purpose I/O
- Fully integrated RF Front-End including Pas and LNAs
- Optional external LNA/PA
- 25 MHz reference clock input
- 1.2V switching regulator
- Advanced power management with dynamic clock switching for ultra-low power modes
- 156-pin 12mmx12mm DRQFN package

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

FCC Caution:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Non-modification Statement:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Limited Channels fixed for use in the US:

IEEE 802.11b or 802.11g or 802.11n(HT20) operation of this product in the U.S. is firmware-limited to Channel 1 through 11. IEEE 802.11n(HT40) operation of this product in the U.S. is firmware-limited to Channel 3 through 9.

This device is intended only for OEM integrators under the following conditions:

1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: “Contains FCC ID: YFXQCA9531”. The grantee's FCC ID can be used only when all FCC compliance requirements are met.

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.