

Qualcomm QCA9531 Network Process Platform

Model: U9531-01

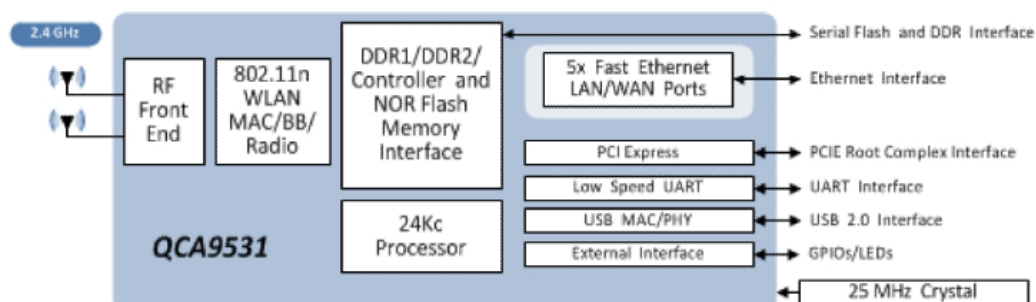
Overview



U9531-01 CPU Qualcomm® XSPAN™ QCA9531 is a highly integrated and feature-rich IEEE 802.11n 2x2 2.4 GHz System-on-a-Chip (SoC) for advanced 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, 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 applications. The QCA9531 supports 802.11n operations up to 144 Mbps for 20 MHz and 300 Mbps for 40 MHz, and 802.11b/g data rates. Additional features include Maximal Likelihood (ML) decoding, Low-Density Parity Check (LDPC) and Maximal Ratio Combining (MRC).

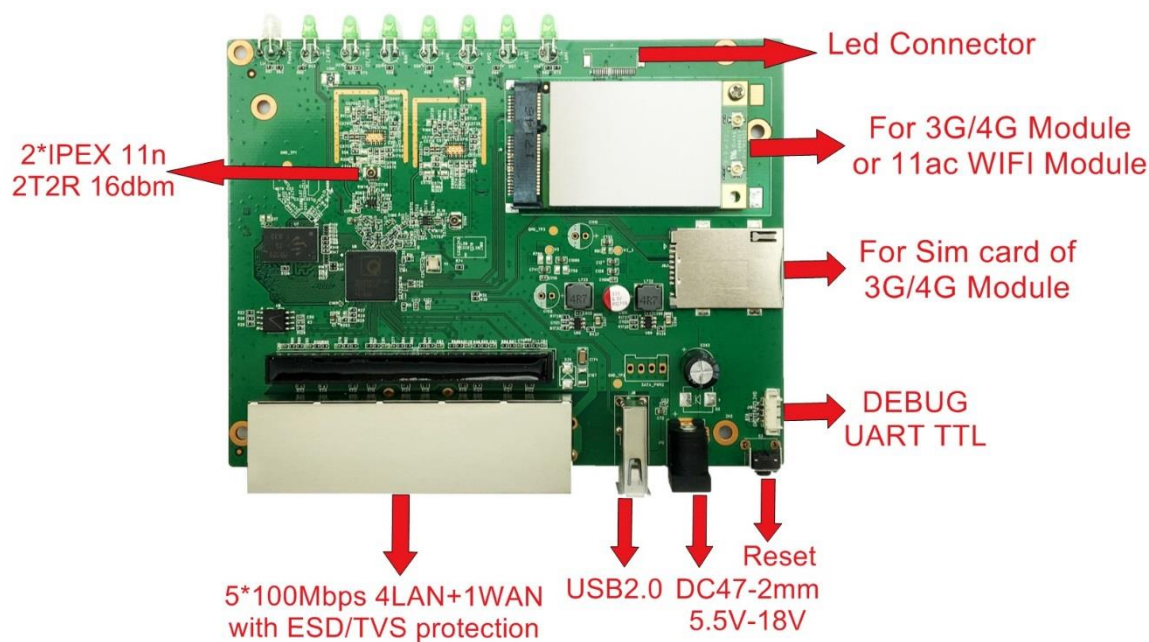
- ★ MIPS24KEc (650 MHz) , 64 KB I-Cache and 32 KB D-Cache
- ★ support both 3G/4G module and 11ac module.
- ★ 2T2R 300Mbps 11n 2.4 GHz with gain (16dbm)
- ★ Low power dissipation and applicable for outdoor and indoor application.
- ★ Low BOM cost

QCA9531 System Block Diagram



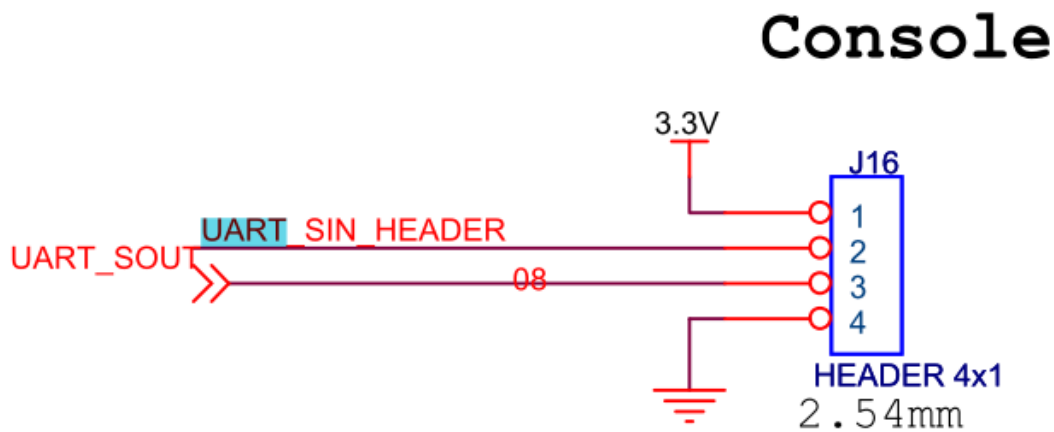
Specifications

Chipset	CPU: Qualcomm QCA9531
System Memory	Default DDR2 128Mbyte (optional 64 Mbytes)
NOR Flash	Default 16Mbyte (optional 8Mbytes)
PCIE	1x PCIE connector for 3G/4G Module or 11ac WIFI Module
Interface	5x100Mbps 4*LAN+1*WAN(Auto MDI-X) 1x Serial Debug Port 4 Pin Connector1 1x USB2.0 connector 2.4G 2T2R 300Mbps 16dBm@B mode
Reset Button	Yes
LED	Indicators: Power LED, LAN, LTE,WIFI,1x GPIO Signal Indicator,
DC Power	1x DC Jack Connector: 12V@1A
Power Consumption	6Watt (Max)
Software	OpenWRT SDK which includes Uboot, Kernel ,Driver and Tool Chain
Certification	Support CE & FCC, RoHS Compliant
Environmental	Temperature: Operating: -20-50 ℃, Storage: -40℃ to 90℃ Humidity (non-condensing): Operating: 5% to 95%, Storage: Max. 90%
CASE	Material: Iron, Dimensions: 154.5x 110.5 x 29 mm
Other Features	Watchdog Timer



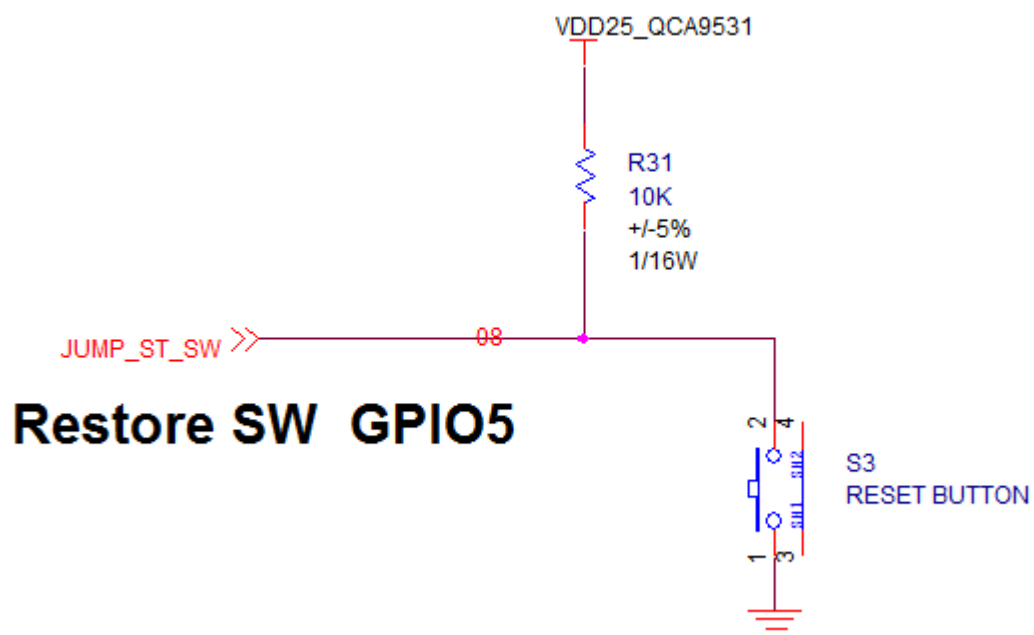
PIN DEFINITION

Debug UART(J16)

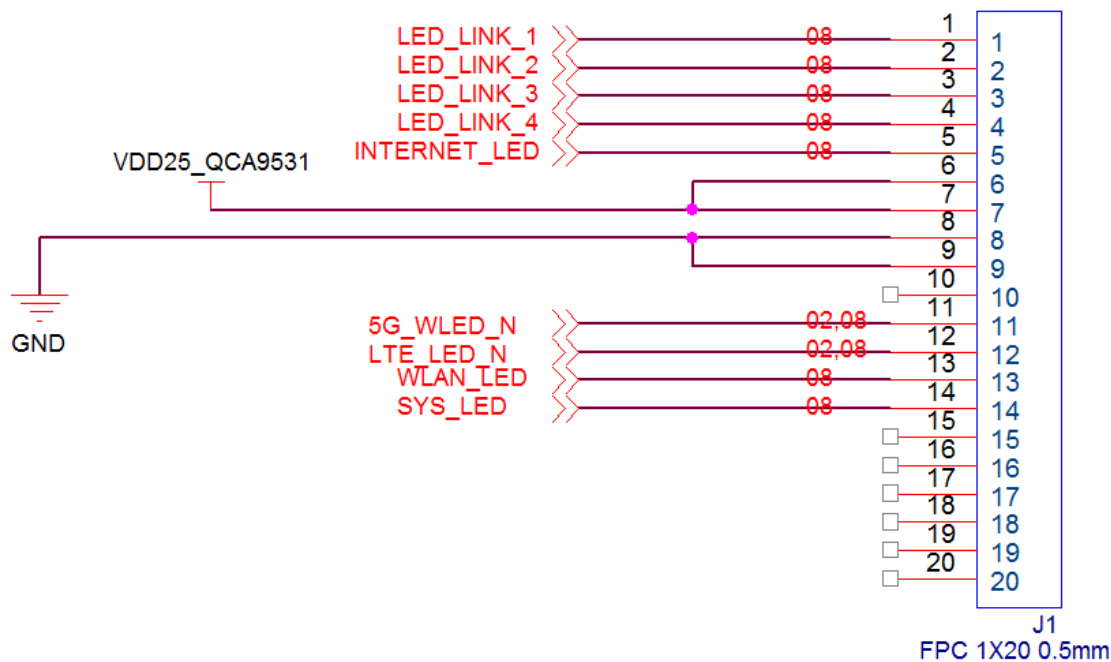


Number	1	2	3	4
PIN DEFINITION	VCC(3.3V)	UART RXD	UART TXD	GND

Reset Button

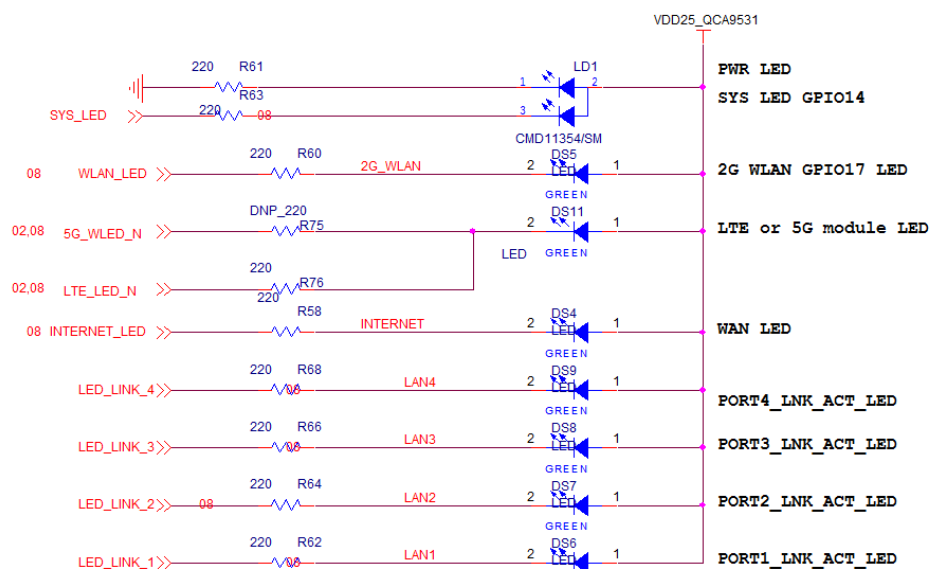


LED EXPAND Connector (J1)



LED Definition

Left	LED1	LED 2	LED 3	LED 4	LED 5
Definition	GPIO14 & POWER	GPIO17	LTE or 11AC WIFI Module(Default LTE)	WAN	LAN4- LAN1
Comments	Dual-color	Green	Green	Green	Green



GPIO Function MAP

GPIO Name	Signal Function
GPIO4	INTERNET_LED
GPIO5	SPI_CS_L
GPIO6	SPI_CLK
GPIO7	SPI_MO_SI
GPIO8	SPI_MI_SO
GPIO9	UART_SIN
GPIO10	UART_SOUT
GPIO11	LED_LINK_4
GPIO12	WLAN_LED
GPIO13	SYS_LED
GPIO14	LED_LINK_3
GPIO15	LED_LINK_2
GPIO16	LED_LINK_1
GPIO17	Factory Reset

RF Parameter

2.4G ITEM	RATE	Value
B Mode Pwr (dBm)	11M	16dBm
G Mode Pwr (dBm)	54M	15dBm
N HT20 Pwr (dBm)	MCS7: 65M	13dBm
N HT40 Pwr (dBm)	MCS7: 135M	12dBm
B Mode EVM (dB)	11M	≤ -10 dB
G Mode EVM (dB)	54M	≤ -26 dB
N HT20 EVM (dB)	MCS7: 65M	≤ -28 dB
N HT40 EVM (dB)	MCS7: 135M	≤ -28 dB
FeqErr (ppm)	Test with TX POWER test	± 5 ppm
B RX sensitivity (dB)	11M	-85dBm
G RX sensitivity (dB)	54M	-75dBm
N HT20 RX sensitivity (dB)	MCS7: 65M	-72dBm
N HT40 RX sensitivity (dB)	MCS7: 135M	-68dBm

Customization Options

We can customize total production for the customer including Chassis, Hardware, Software and Package etc.

U9531-01 can be customized for volume applications. Contact us at sales@unielecinc.com for more detailed info.

Below is hardware Customization options:

Name	Customization Comments	UniElec Customization
Memory	1,Change to 64M Byte DDR2 2,Change to 8M Byte Flash	Supported
WIFI module	Select the right MiniPCIE WIFI module for your application	<ul style="list-style-type: none"> 2T2R High power 11ac module [Full Card]: U7612E-F1 2T2R 11ac module [Half Card]: U7612E-H1 4T4R 11ac Wave2 [Large Card]: U7615E-L1
LTE/3G module	Select the right MiniPCIE LTE/3G module for your application	Supported

Ordering Information

U9531-01

About UniElec

UniElec is engaged in providing professional ODM/OEM service of customized electronic productions. Our R&D team members mostly are from the HUAWEI, LENOVO etc. We have rich hardware and software experience on providing global customers with complete stable and cost-effective products.





Leading Provider of ODM/OEM service

- Software design: BIOS, BSP, Linux driver, Kernel, APP
- Hardware design: Schematic, PCB, Signal Simulation, SI, PI etc.
- Mechanical design: Structure and appearance design, Open Mold

 Consulting
  Principle Design
  Prototype Design
  Testing
  Approval
  Perfect Design
  Mass Production