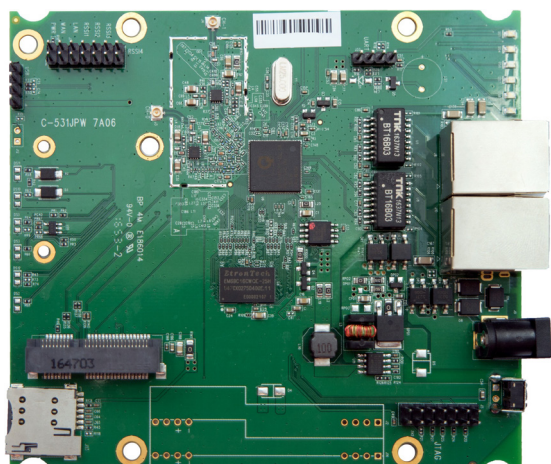


Multi-function QCA9531 Embedded Board with on-board Wireless 650MHz CPU / 2x FE Port / 1x Mini PCI-e / Designed for Dual Band 802.11n

Model: WPJ531 7A06



KEY FEATURES

- Qualcomm Atheros QCA9531 MIPS 24Kc 650MHz CPU
- On-board 2.4GHz max 23dBm output power (per chain)
- IEEE 802.11n compliant & backward compatible with 802.11b/g
- 2x2 On-board radio up to 300Mbps physical data rate
- 1x Mini PCI Express Slot at 9.2mm Height
- 2x FE LAN RJ45 with Auto MDI/X
- Passive 24V Power Over Ethernet
- Integrated 48V IEEE 802.3af available as Option

APPLICATIONS

- Dual Band, Dual Concurrent Access Point
- 802.11b/g/n + 802.11a/n/ac Access Point
- Point-to-Point and Point-to-Multipoint Wireless Bridge
- Wireless Base Station
- Wireless Customer-Premises Equipment (CPE)
- Support for Third Party 3G/LTE Radio Module

Specifications

Chipset	CPU: Qualcomm Atheros QCA9531 650MHz
System Memory	128MB DDR2
NOR Flash	16MB
Wireless	Built in 2.4GHz 802.11b/g/n at 26dBm (aggregate) 2x U.FL connectors
Expansion	1x 9.2mm height Mini PCI-e slot
Interface	2x Fast Ethernet Port (Auto MDI-X) 1x JTAG 14 Pin Connector ¹ 1x Serial Port 4 Pin Connector ²
Reset Button	Yes
LED	6x LED Indicators LED 14 Pin
Power Over Ethernet	Passive PoE 24V (LV version) IEEE 802.3af/at or Passive PoE 24-56V (HV version)
DC Power	1x DC Jack Connector: 9-24V (LV version), 24-56V (HV version)
Power Consumption	6.9 Watt (Max)
Supported Operating System	CompexWRT or OpenWRT/LEDE ³
Certification	FCC & CE Certification, RoHS Compliance
Environmental	Temperature: Operating: -20°C to 70°C, Storage: -40°C to 90°C Humidity (non-condensing): Operating: 5% to 95%, Storage: Max. 90%
ESD Sensitivity	Class 1C
Dimensions (W x H x D)	117 x 105 x 17 mm
Other Features	Surge Suppressor, Watchdog Timer

1. The Serial Port is a 4-pin header (TTL). A Serial Converter is available to change the TTL signals on board to RS-232 signals for debugging.

2. The JTAG Port is a 14-pin header. A JTAG kit is for writing your self-developed loader and firmware directly.

3. For more information on OpenWRT/LEDE, please refer to the Firmware / Software Section.

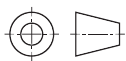
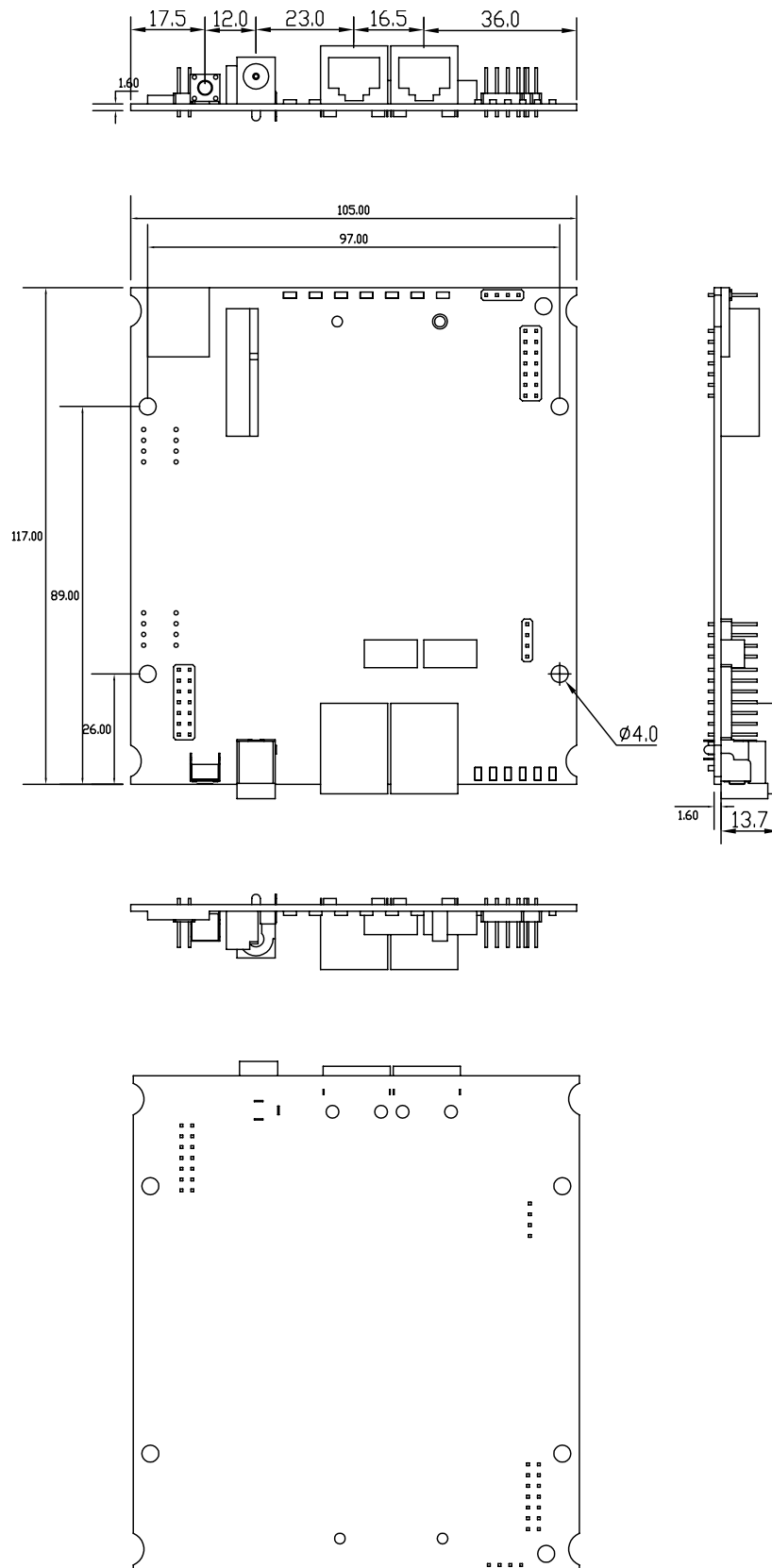
*Configurations are subject to change without notifications.

RF Performance Table

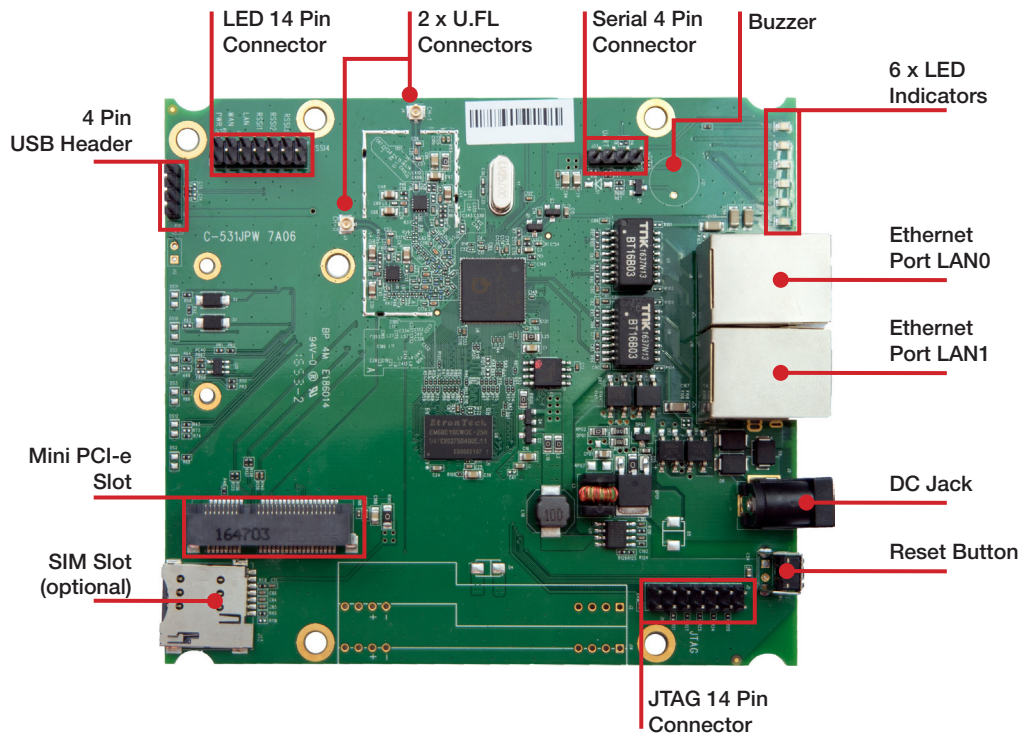
	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
2.4GHz 802.11b	1Mbps	23dBm	26dBm	±2dB
	2Mbps	23dBm	26dBm	±2dB
	5.5Mbps	23dBm	26dBm	±2dB
	11Mbps	23dBm	26dBm	±2dB
2.4GHz 802.11g	6Mbps	23dBm	26dBm	±2dB
	9Mbps	23dBm	26dBm	±2dB
	12Mbps	23dBm	26dBm	±2dB
	18Mbps	23dBm	26dBm	±2dB
	24Mbps	23dBm	26dBm	±2dB
	36Mbps	21dBm	24dBm	±2dB
	48Mbps	20dBm	23dBm	±2dB
	54Mbps	19dBm	22dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	22dBm	25dBm	±2dB
	MCS 1	21dBm	24dBm	±2dB
	MCS 2	21dBm	24dBm	±2dB
	MCS 3	21dBm	24dBm	±2dB
	MCS 4	20dBm	23dBm	±2dB
	MCS 5	19dBm	22dBm	±2dB
	MCS 6	18dBm	21dBm	±2dB
	MCS 7	17dBm	20dBm	±2dB
2.4GHz 802.11n HT40	MCS 0	22dBm	25dBm	±2dB
	MCS 1	21dBm	24dBm	±2dB
	MCS 2	21dBm	24dBm	±2dB
	MCS 3	21dBm	24dBm	±2dB
	MCS 4	20dBm	23dBm	±2dB
	MCS 5	19dBm	22dBm	±2dB
	MCS 6	18dBm	21dBm	±2dB
	MCS 7	17dBm	20dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11b	1Mbps	-94dBm	±2dB
	2Mbps	-92dBm	±2dB
	5.5Mbps	-90dBm	±2dB
	11Mbps	-89dBm	±2dB
2.4GHz 802.11g	6Mbps	-95dBm	±2dB
	9Mbps	-94dBm	±2dB
	12Mbps	-94dBm	±2dB
	18Mbps	-93dBm	±2dB
	24Mbps	-90dBm	±2dB
	36Mbps	-85dBm	±2dB
	48Mbps	-79dBm	±2dB
	54Mbps	-75dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	-94dBm	±2dB
	MCS 1	-93dBm	±2dB
	MCS 2	-90dBm	±2dB
	MCS 3	-87dBm	±2dB
	MCS 4	-84dBm	±2dB
	MCS 5	-79dBm	±2dB
	MCS 6	-79dBm	±2dB
	MCS 7	-75dBm	±2dB
2.4GHz 802.11n HT40	MCS 0	-88dBm	±2dB
	MCS 1	-87dBm	±2dB
	MCS 2	-85dBm	±2dB
	MCS 3	-83dBm	±2dB
	MCS 4	-80dBm	±2dB
	MCS 5	-76dBm	±2dB
	MCS 6	-73dBm	±2dB
	MCS 7	-70dBm	±2dB

Mechanical Dimensions



Component Map



CompexWRT Features

It is developed based on the OpenWRT platform and features the latest Qualcomm Atheros drivers with LuCI web interface. It combines all of the best in one system. It offers many levels of customization.

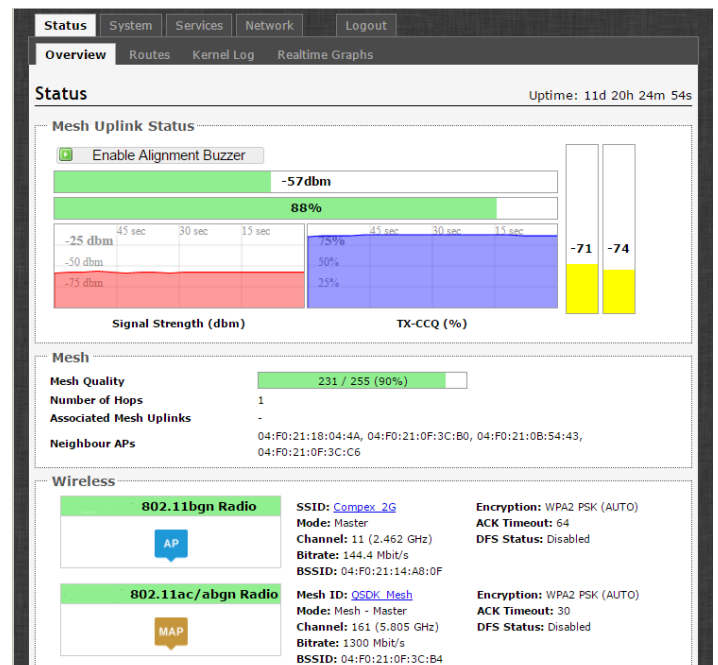
Powerful Wireless Features

- Qualcomm Atheros Drivers
- Native 802.11ac Support
- Distance Optimization for Long Range Point-to-Point (PtP)
- Wireless Distribution System (WDS) AP and Client Mode
- Seamless Mesh Networking

Enhanced Control

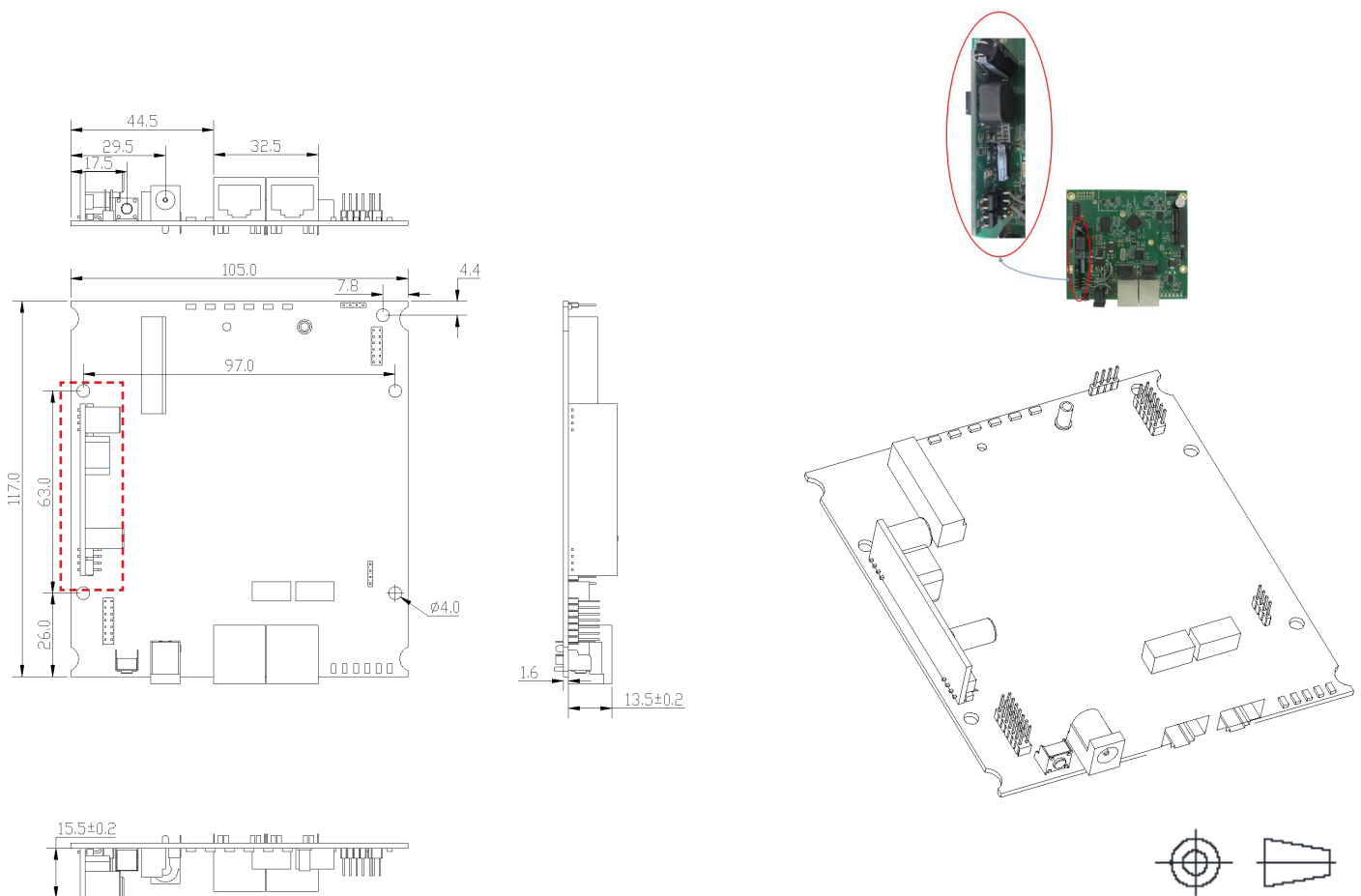
- User-friendly LuCI Graphical User Interface
- Hotspot and Guest Portal Support
- Powerful Network Diagnostic Utilities
- Real-time Network Load Graphs

Find out more at <http://wiki.compex.com.sg/>



Optional Add-on

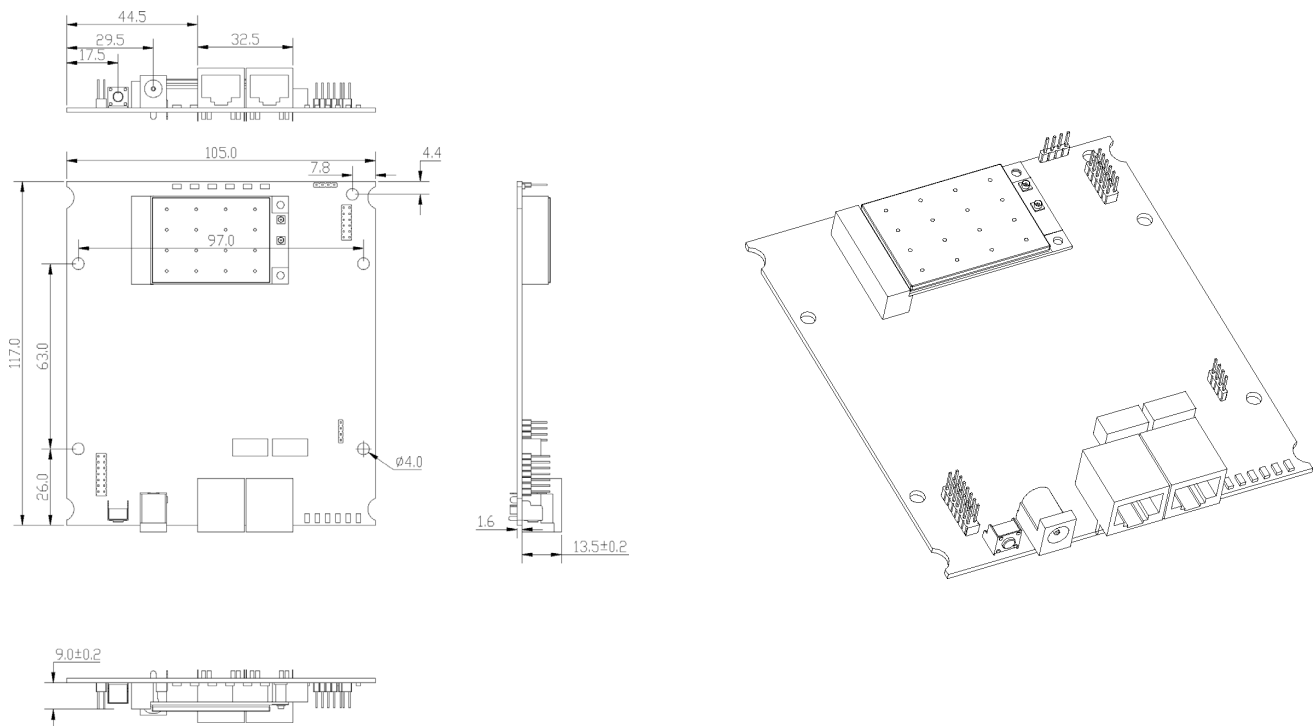
Type	Functionality	Remark
IEEE 802.3af Powered Device Module (P-3AF-M-6A01-SPL)	Enable Support for IEEE 802.3af/at Power Over Ethernet Standards. DC Jack input: 24-48V, Passive PoE: 24- 56V, IEEE 802.3af/at PoE	WPJ531 Dimensions will increased to 117 x 105 x 20 mm



Dimensional Drawing of WPJ531 with IEEE 802.3af Module

Wireless Module Compatibility

Model	Wireless Band	Operating Frequency	Channels	Connector
WLE200N2-23	802.11b/g/n	2.4GHz	2 x 2 MIMO	2 x U.FL
WLE200N5-23	802.11a/n	5GHz	2 x 2 MIMO	2 x U.FL
WLE600VX	802.11a/n/ac	2.4GHz or 5GHz	2 x 2 MIMO	2 x U.FL



Dimensional Drawing of WPJ531 with WLE600VX (Normal Card Form Factor)

Customization Options

The WPJ531 can be customized for volume applications, contact our sales representatives for more information.

Increase System Memory up to 128 MB	Increase NOR Flash up to 32 MB	Adding of Peripherals
Custom Embedded Board layout	Removing of Peripherals	Adding of SIM Slot

For more customization, contact us at sales@compex.com.sg

Firmware / Software

The WPJ531 is shipped with CompexWRT firmware. SDKs with QCA binary drivers are available for software developers.

Supported Operating System	<ul style="list-style-type: none"> CompexWRT Operating System OpenWRT/LEDE Operating System¹
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Supported Mass Management Software

- Compex AP Controller Software²

1. OpenWRT SDK is available without any technical support by Compex unless otherwise stated.

2. AP Controller only compatible with WPJ531 running CompexWRT.

Ordering Options

Item Code	Firmware	Processor	Power Solutions	NOR Flash	Memory
WPJ531LV-A 7A06PO16128AR	CompexWRT	QCA9531	DC: 9-24V Passive PoE 24V	16MB	128MB
WPJ531HV-A 7A06PO16128AR	CompexWRT	QCA9531	DC: 24-56 V IEEE 802.3af/at or Passive PoE 24-56V	16MB	128MB
P-3AF-M-6A01-SPL			IEEE 802.3af Module		
POEGP2408			Gigabit Passive 24V PoE Injector		
JTAG Programmer			JTAG 14 Pin to Parallel Port bridge		
Serial Port Converter			Serial 4 Pin to COM Port bridge		

Packaging Content

Item	Quantity
WPJ531 Embedded Board	1

Packaging Information

Packaging Type	Dimensions
Packaging Box (50pcs)	875 x 330 x 205 mm