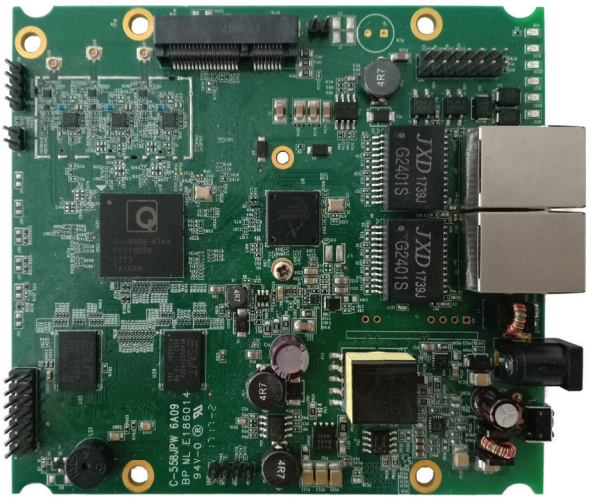
Multi-function QCA9558 Embedded Board with on-board Wireless

700MHz CPU / 2x GE Port / 1 x Mini PCI-e / Designed for 3x3 802.11ac



Model: WPJ558

KEY FEATURES

- Qualcomm Atheros QCA9558 MIPS 74Kc 700MHz CPU
- 128MB System Memory
- 16MB NOR Flash
- On-board 2.4GHz max 23dBm output power (per chain)
- IEEE 802.11n compliant & backward compatible with 802.11b/g
- 3x3 On-board radio up to 450Mbps physical data rate
- 1x Mini PCI Express Slot at 9.2mm Height
- 2x Gigabit LAN RJ45 with Auto MDI/X
- Integrated 48V IEEE 802.3af/at Power Over Ethernet

APPLICATIONS

- Optimized for 802.11ac Module Support
- 802.11b/g/n + 802.11a/n/ac Access Point
- Point-to-Point High Capacity Wireless Bridge
- Point-to-Multipoint High Capacity Wireless Bridge
- Wireless Base Station
- Wireless Customer-Premises Equipment (CPE)
- 3G/LTE AP (Support Third Party 3G/LTE Module)

Specifications

Chipset	CPU: Qualcomm Atheros QCA9558 700MHz
System Memory	128MB DDR2
NOR Flash	16MB
Wireless	Built in 2.4GHz 802.11b/g/n at 28dBm (aggregate) 3x U.FL connectors
Expansion	1x 9.2mm height Mini PCI-e slot
Interface	2x Gigabit 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
Power Over Ethernet	1x IEEE 802.3af/at or Passive PoE input minimum 48V
DC Power	1x DC Jack Connector: 24-56V
Power Consumption	8.6 Watt (Max)
Operating System	CompexWRT or OpenWRT/LEDE[3]
Certification	REACH and 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%
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, please refer to the Firmware / Software Section.

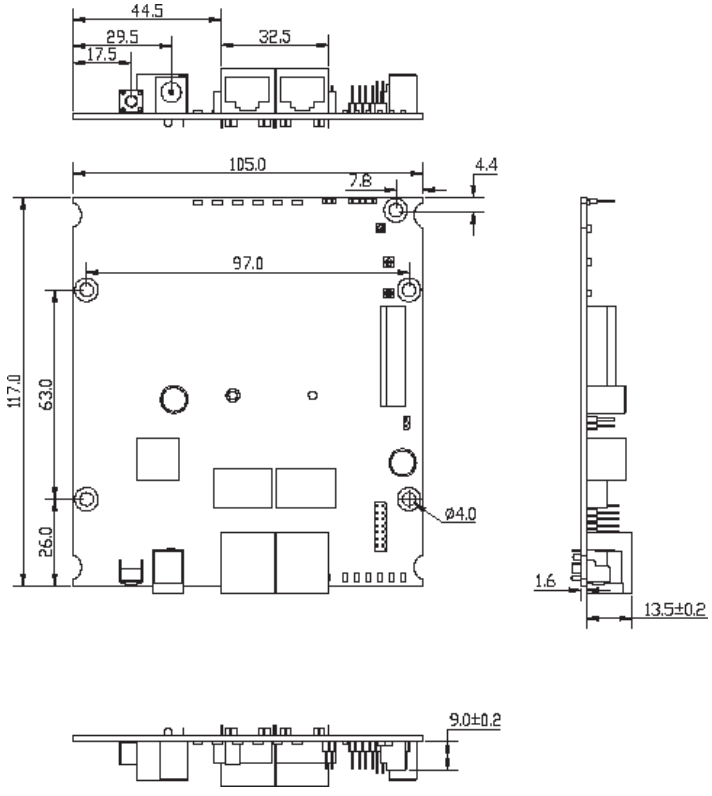
**Configurations are subject to change without notifications.*

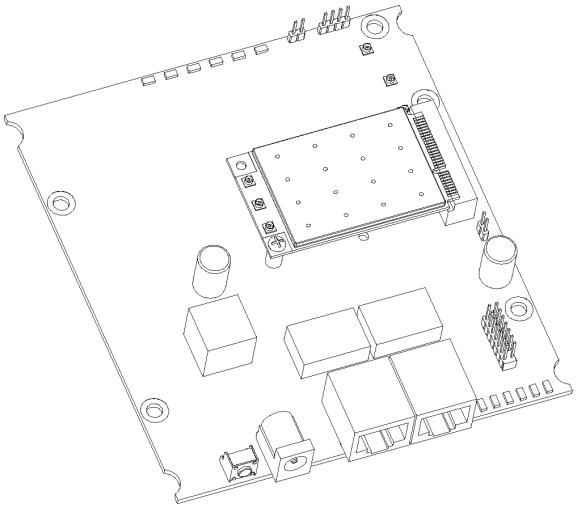
RF Performance Table

	Data Rate	TX Power (per chain)	TX Power (3 chains)	Tolerance
2.4GHz 802.11b	1Mbps	23dBm	28dBm	±2dB
	2Mbps	23dBm	28dBm	±2dB
	5.5Mbps	23dBm	28dBm	±2dB
	11Mbps	23dBm	28dBm	±2dB
2.4GHz 802.11g	6Mbps	23dBm	28dBm	±2dB
	9Mbps	23dBm	28dBm	±2dB
	12Mbps	23dBm	28dBm	±2dB
	18Mbps	23dBm	28dBm	±2dB
	24Mbps	23dBm	28dBm	±2dB
	36Mbps	21dBm	26dBm	±2dB
	48Mbps	20dBm	25dBm	±2dB
	54Mbps	19dBm	24dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	23dBm	28dBm	±2dB
	MCS 1	22dBm	27dBm	±2dB
	MCS 2	22dBm	27dBm	±2dB
	MCS 3	22dBm	27dBm	±2dB
	MCS 4	21dBm	26dBm	±2dB
	MCS 5	21dBm	26dBm	±2dB
	MCS 6	20dBm	25dBm	±2dB
	MCS 7	18dBm	23dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11b	1Mbps	-95dBm	±2dB
	2Mbps	-93dBm	±2dB
	5.5Mbps	-90dBm	±2dB
	11Mbps	-88dBm	±2dB
2.4GHz 802.11g	6Mbps	-94dBm	±2dB
	9Mbps	-94dBm	±2dB
	12Mbps	-93dBm	±2dB
	18Mbps	-93dBm	±2dB
	24Mbps	-90dBm	±2dB
	36Mbps	-86dBm	±2dB
	48Mbps	-82dBm	±2dB
	54Mbps	-79dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	-94dBm	±2dB
	MCS 1	-94dBm	±2dB
	MCS 2	-92dBm	±2dB
	MCS 3	-88dBm	±2dB
	MCS 4	-84dBm	±2dB
	MCS 5	-81dBm	±2dB
	MCS 6	-78dBm	±2dB
	MCS 7	-75dBm	±2dB

Mechanical Dimensions





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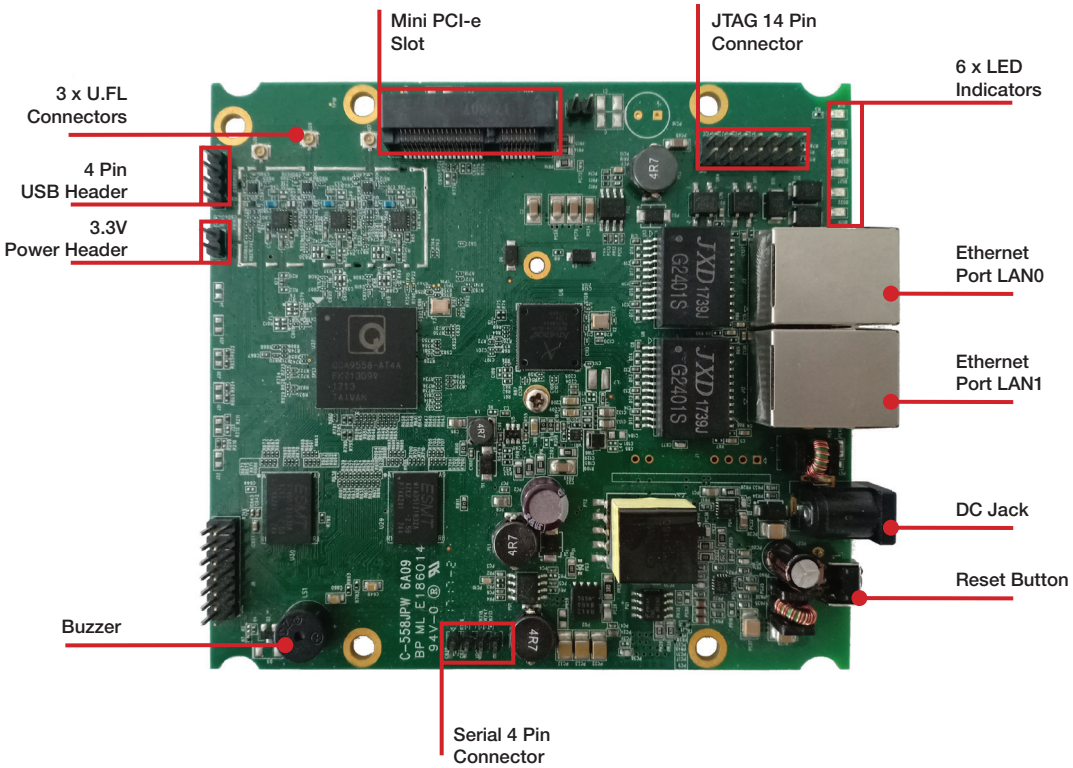
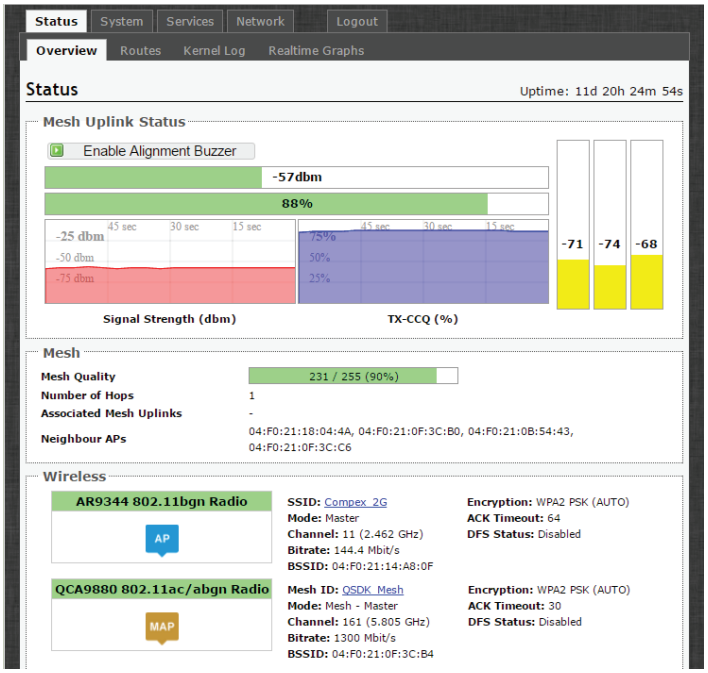
Component and Connector Map



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
- Wireless Distribution System (WDS) AP and Client Mode
- Seamless Mesh Networking

Enhanced Control

- User-friendly LuCI Graphical User Interface
- Works with Compex Network Management System (CNMS)
- Powerful Network Diagnostic Utilities
- Real-time Network Load Graphs

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

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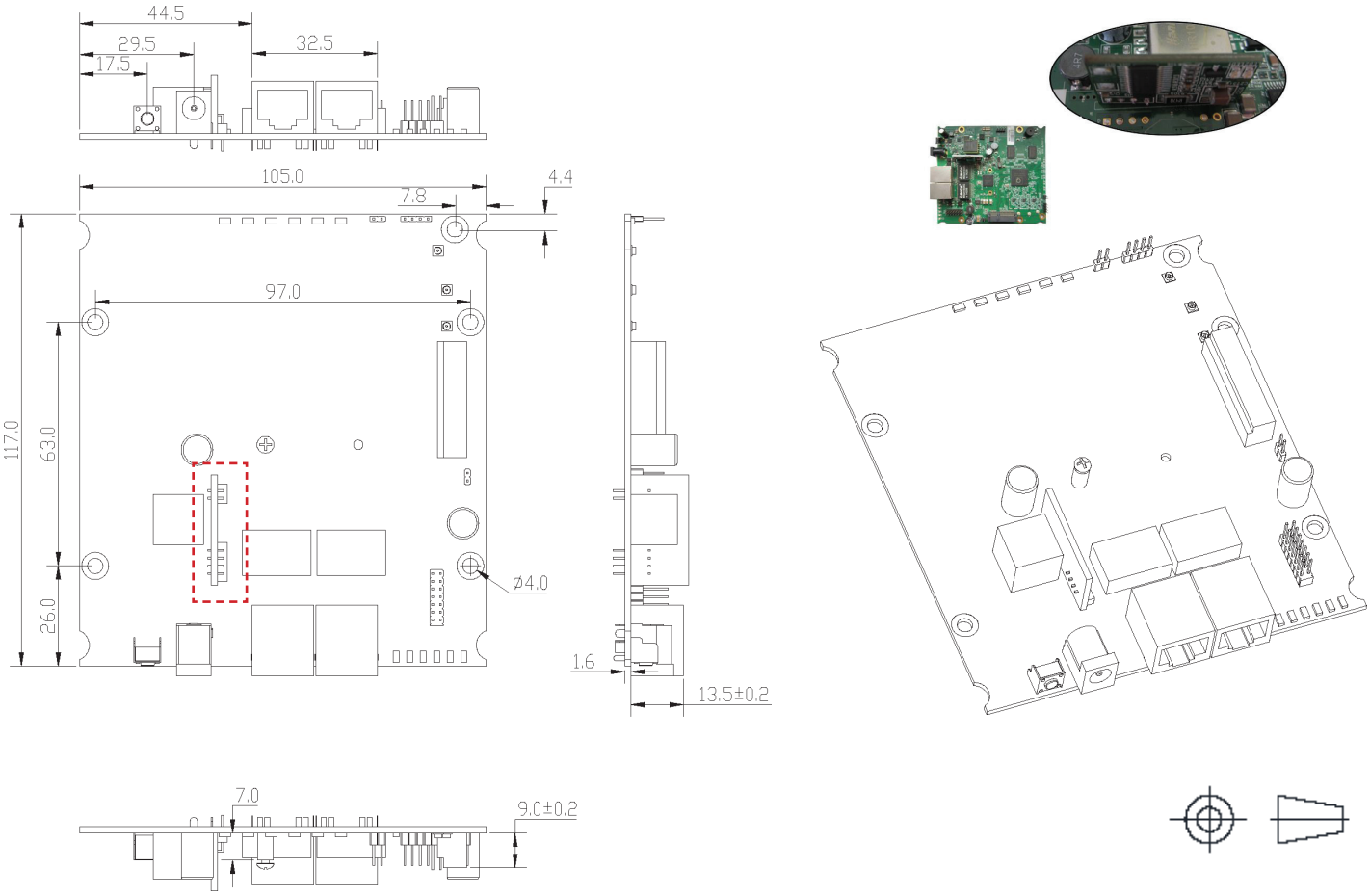
Optional Add-on

Type	Functionality	Remark
Power Sourcing Equipment (PSE) pass-thru module (P-PSE-M-6A03-SPL)	PoE pass-through - allows the second Ethernet port to provide PoE to another device (such as an IP Camera)	WPJ558 Dimensions will increased to 117 x 105 x 20 mm

*Note: When the board operates with the PSE module, please don't apply Passive PoE power to the Ethernet port close to DC jack, otherwise it will be damaged.



Dimensional Drawing of WPJ558 with PSE Pass-Thru Module

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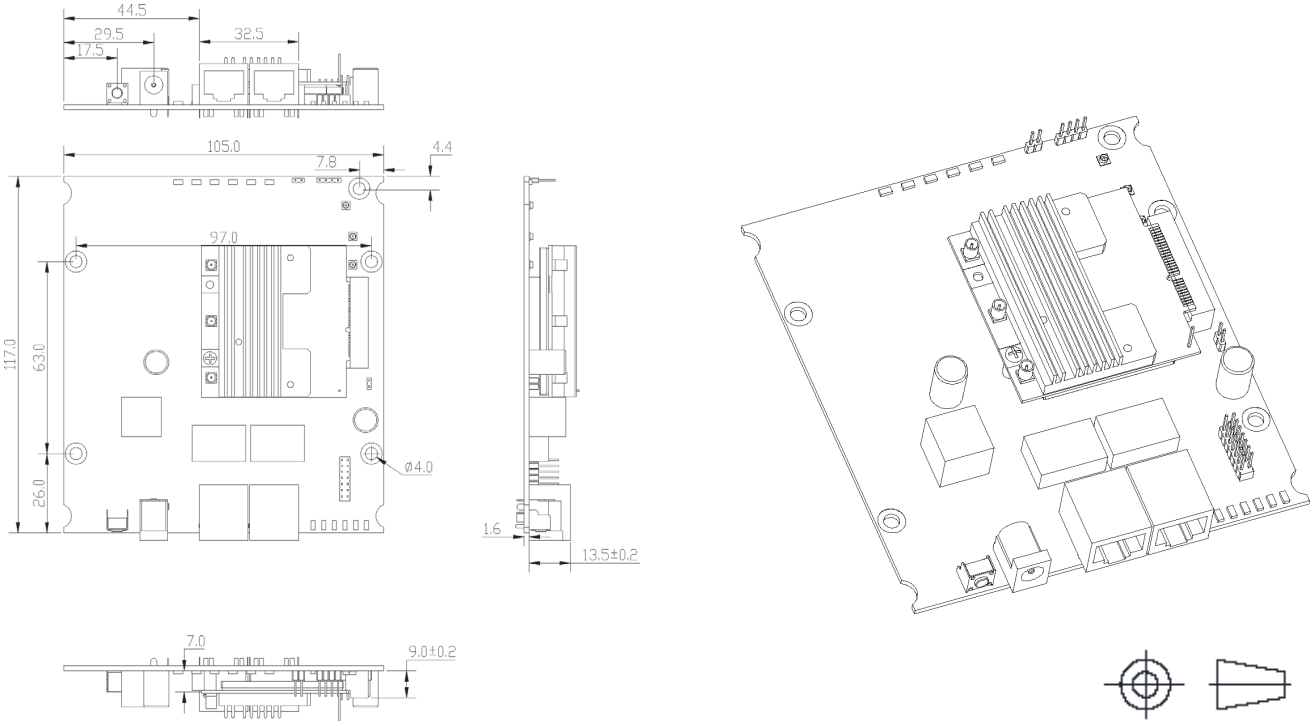
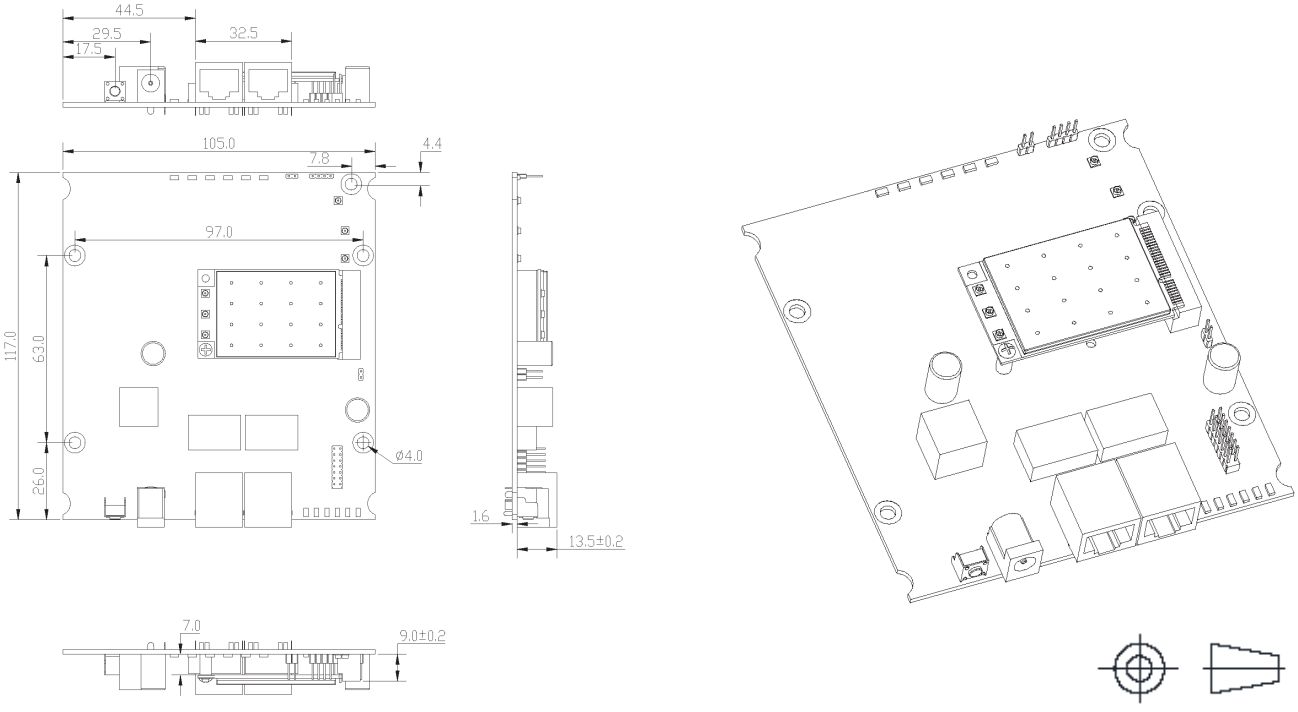
Wireless Module Compatibility

Model	Wireless Band	Operating Frequency	Channels	Connector	Board Dimension
Compex WLE900VX	802.11a/b/g/n/ac	2.4GHz or 5GHz	3 x 3 MIMO	3 x U.FL	117 x 105 x 17 mm
Compex WLE900V5-27	802.11a/n/ac	5GHz	3 x 3 MIMO	3 x MMCX	117 x 105 x 17 mm
Compex WLE600V5-27	802.11a/n/ac	5GHz	2 x 2 MIMO	2 x MMCX	117 x 105 x 17 mm
Compex WLE600VX	802.11a/b/g/n/ac	2.4GHz or 5GHz	2 x 2 MIMO	2 x U.FL	117 x 105 x 17 mm



Dimensional Drawing of WPJ558 with WLE900V5-27 (Fat Card Form Factor)



Dimensional Drawing of WPJ558 with WLE900VX (Normal Card Form Factor)

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Firmware / Software

The WPJ558 is shipped with the versatile CompexWRT firmware.
OpenWRT SDK is provided for further development.
SDKs with QCA binary drivers are available for software developers.

WPJ558 supported Operating System	• CompexWRT Operating System • OpenWRT/LEDE Operating System[1]
WPJ558 supported Mass Management Software	• CNMS AP Controller Software[2]

1. OpenWRT SDK is available without any technical support by Compex unless otherwise stated.
2. CNMS AP Controller only compatible with WPJ558 running CompexWRT.

Ordering Options

Item Code	Firmware	Processor	Power Solutions	NOR Flash	Memory
WPJ558HV-A 6A10PO16128AR	CompexWRT	QCA9558	DC: 24-56V IEEE 802.3af/at PoE	16MB	128MB
WPJ558HV-A 6A09PO16128AR	CompexWRT	QCA9558	DC: 24-56V IEEE 802.3af/at PoE	16MB	128MB
P-PSE-M-6A03-SPL	Power Sourcing Equipment (PSE) PoE Pass Through 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
WPJ558 Embedded Board	1
Read Me First Documentation	1

Packaging Information

Packaging Type	Dimensions	Nett Weight	Gross Weight
Carton Box (50 units)	875 x 330 x 205 mm	5.2 kg	6.7 kg

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