Edgecore
ECW7212-L

Wireless Access Point Specification

Revision 1.0



OPEN
Compute Project

Revision History

Revision	Date	Author	Description
.01	2/29/2016	Jeff Catlin	Initial Release
1.0	8/4/2017	Jeff Catlin	Minor edits to license text

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Description	**Manufacturer**	**Part Number**
CPU	Broadcom	BCM47452
Ethernet PHY	Broadcom	BCM54210
RF 2.4G	Broadcom	BCM43217
DDR III Memory	Nanya	NT5CC64M16GP-DI 64MX16 1.35V BGA96 LT/LF
NOR Flash	MXIC	MX25L12835FMI-10G
NAND Flash	Toshiba	TC58NVG0S3ETAI
PoE Power Converter	TI	TPS23754

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Scope

This document outlines the technical specifications for the Edgecore ECW7212-L open wireless Access Point contributed to the Open Compute Foundation.

Overview

The ECW7212-L is an indoor 802.11a/b/g/n/ac dual-band, dual-radio enterprise Access Point with a 2x2 MIMO antenna configuration.

Through its one Gigabit Ethernet port the 802.11ac dual-band wireless AP can connect to the backbone network. The ECW7212-L supports 802.3at/af PoE which enables the AP to be powered remotely by a PoE switch. An AC power adapter option is also included for locations where PoE is not available.

The ECW7212-L is designed so that it can easily be wall mounted or ceiling mounted to T-Bars.

Physical Overview

Dimensions

	Inches	Millimeters
Length	6.98	177.3
Width	6.98	177.3
Height	1.44	36.5



Top View

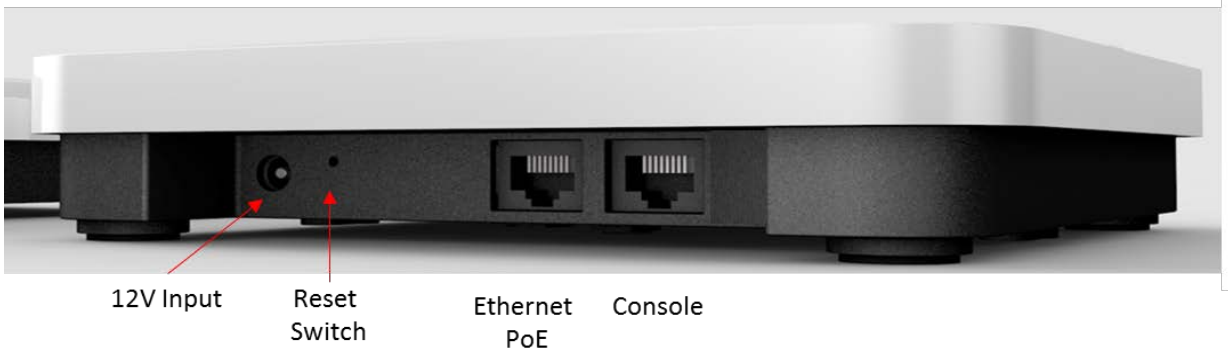
The top view of the ECW7212-L shows the following



LEDs

LED Name	Description	State
Power	Led to indicate status of Power	Amber - Normal Off – No Power
LAN	Led to indicate link status of the Ethernet/PoE port	Green – Valid link Off – No link
2.4-Wi-Fi	LED to indicate radio status	On Green - 2.4GHz radio operation
5G-Wi-Fi	LED to indicate radio status	On Green - 5GHz radio operation

Front View

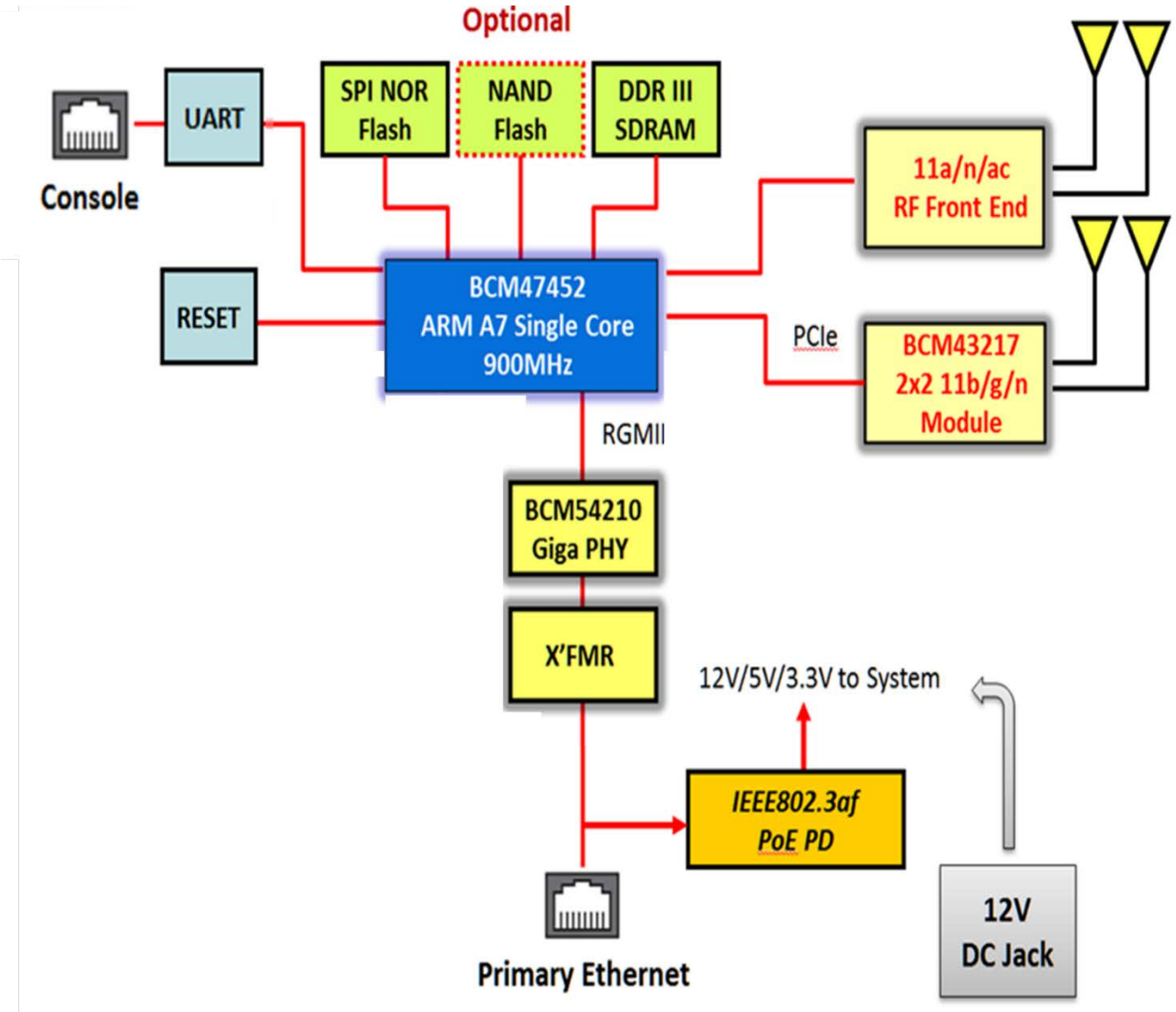


The front panel view of the ECW7212-L includes the following key components:

- Reset button
  - Used to reset the CPU and associated components
- 12V power jack
  - Used with optional external 12V power module
- Eth0/PoE Gb Ethernet port
  - Used for network connectivity and to power device through PoE
- Console Port
  - Used for serial communication to the device

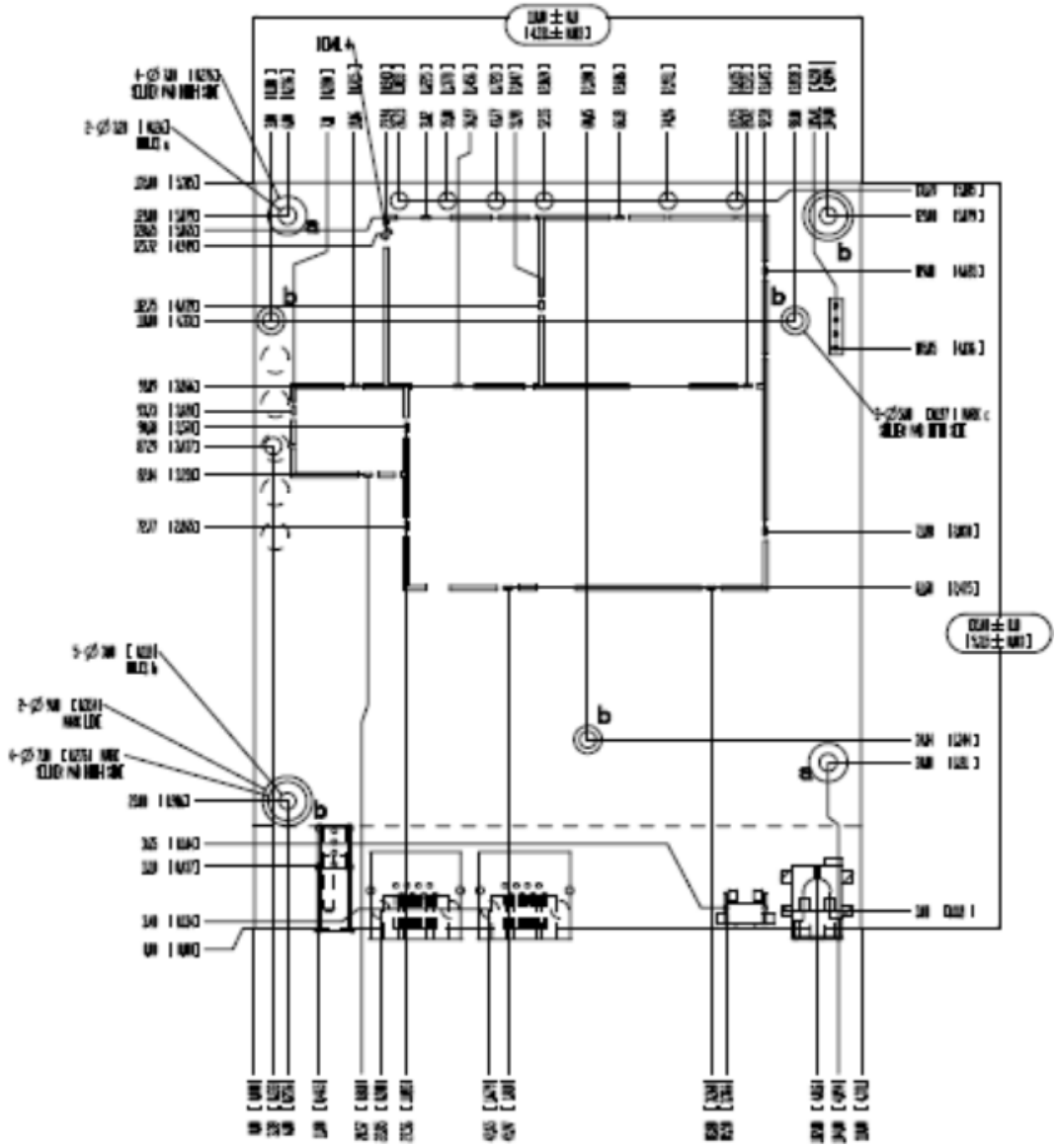
System Overview:

Main PCB Block Diagram



PCB Board mechanical outline

The ECW7212-L is composed of 4 layer PCB assembly:



PCB

The PCB is a four layer board supporting the CPU and radio silicon, front panel networking and management ports, and LEDs.

PCB Dimensions

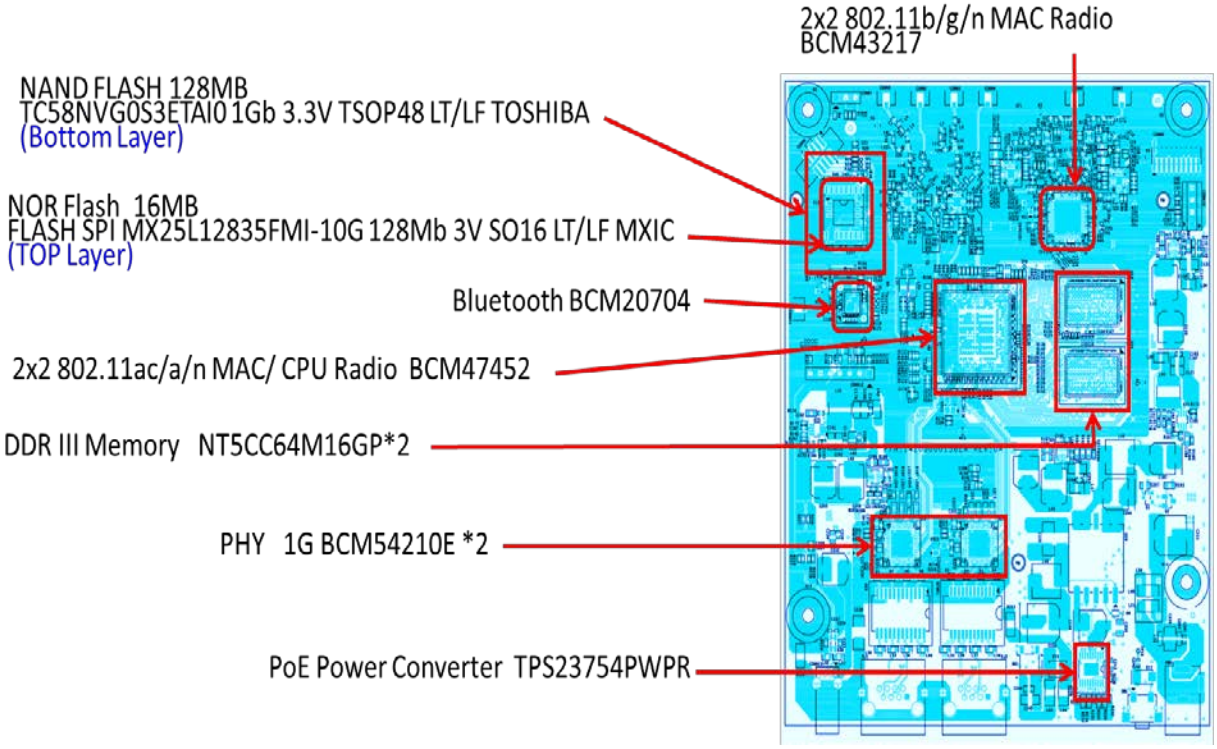
	Inches	Millimeters
Length	135	135
Width	5.9	110

PCB major components

Description	Manufacturer	Part Number
CPU	Broadcom	BCM47452
Ethernet PHY	Broadcom	BCM54210
RF 2.4G	Broadcom	BCM43217
DDR III Memory	Nanya	NT5CC64M16GP-DI 64MX16 1.35V BGA96 LT/LF
NOR Flash	MXIC	MX25L12835FMI-10G
NAND Flash	Toshiba	TC58NVG0S3ETAI
PoE Power Converter	TI	TPS23754

PCB Top view

Note: Not all components shown populated on final product



CPU Subsystem

The ECW7212-L utilizes the Broadcom 47452 communications processor supporting the following:

- NOR Flash 16 Mbytes
- NAND Flash 128 Mbytes
- DDR III 128 Mbytes

Console Port

A RJ45 connector is located on the front panel equips with DTE configuration for console usage. A special cable to translate the RJ45 to DB9 is used with the pin out is shown below. In the list below, the directions 'IN' and 'OUT' are relative to the board. (i.e. 'IN' means input to the board)

RJ45 Pin#	DB9 Pin#	Mnemonic	Detail	Direction	BCM53016 Pin Name
7	1	DCD	Data Carrier Detect	IN	NC
6	2	RXD	Receive Data	IN	UART_RX
3	3	TXD	Transmit Data	OUT	UART_TX
2	4	DTR	Data Terminal Ready	OUT	NC
4,5	5	Sig. GND	Signal Ground	–	GND
-	6	DSR	Data Set Ready	IN	NC
1	7	RTS	Request To Send	OUT	UART_RTS
8	8	CTS	Clear To Send	IN	UART_CTS

Thermal Monitoring

The ECW7212-L supports a LM56 thermal sensor used to monitor system temperature.

Software Support

The ECW7212-L supports a base software package composed of the following components:

U-Boot

The ECWO7220-L Supports U-Boot version 1.4.0.2 or greater

ONIE

Please check http://onie.org/ for the latest supported version

Specifications

Power Consumption

The total estimated system power consumption of the ECW7212-L is ~17 Watts. This is based upon worst case power assumptions for traffic and environmental conditions. Typical power consumption will be less.

Regulatory Compliances

Radio EN 300 328 V1.8.1:2012 (2012-06)
EN 301 893 V1.7.1:2012 (2012-06)
FCC Part 15C 15.247/15.207 (2.4-2.4835 GHz)
FCC Part 15E 15.407 (5.150GHz-5.250 GHz,
5.725-5.850 GHz)

Emissions

EN 55022 2010/ AC: 2011, Class B
FCC Part 15 Subpart B, Class B
ICES-003, Issue 5, Class B

Immunity

EN 55024 : 2010
EN 301 489-1 V1.9.2 (2011-09), Class B
EN 301 489-17 V2.2.1 (2012-09)
AS/NZS CISPR 22: 2009/Amdt 1: 2010, Class B
Safety UL (CSA 22.2 No. 60950-1 & UL60950-1)
CB (IEC/EN60950-1)

Environmental

Weight 750 g (1.65 lb)
Temperature Operating: 0° C to 40° C (32° F to 104° F)
Storage: -40° C to 70° C (-40° F to 158° F)
Humidity Operating: 5% to 95% (non-condensing)

ROHS

Restriction of Hazardous Substances (6/6)

Compliance with Environmental procedure 020499-00 primarily focused on Restriction of Hazardous Substances (ROHS Directive 2002/95/EC) and Waste and Electrical and Electronic Equipment (WEEE)