Edgecore
ECW7212-L

Wireless Access Point Specification

Revision .01

OPEN Compute Project
## Revision History

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Author</th>
<th>Description</th>
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</thead>
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<tr>
<td>.01</td>
<td>2/29/2016</td>
<td>Jeff Catlin</td>
<td>Initial Release</td>
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<table>
<thead>
<tr>
<th>Description</th>
<th>Manufacturer</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>Broadcom</td>
<td>BCM47452</td>
</tr>
<tr>
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<td>BCM54210</td>
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<td>RF 2.4G</td>
<td>Broadcom</td>
<td>BCM43217</td>
</tr>
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<td>DDR III Memory</td>
<td>Nanya</td>
<td>NT5CC64M16GP-DI 64MX16 1.35V BGA96 LT/LF</td>
</tr>
<tr>
<td>NOR Flash</td>
<td>MXIC</td>
<td>MX25L12835FMI-10G</td>
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<td>NAND Flash</td>
<td>Toshiba</td>
<td>TC58NVG0S3ETAI</td>
</tr>
<tr>
<td>PoE Power Converter</td>
<td>TI</td>
<td>TPS23754</td>
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Accton Technology Corporation, through its subsidiary Edgecore Networks Corporation.

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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

<table>
<thead>
<tr>
<th></th>
<th>Inches</th>
<th>Millimeters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>6.98</td>
<td>177.3</td>
</tr>
<tr>
<td>Width</td>
<td>6.98</td>
<td>177.3</td>
</tr>
<tr>
<td>Height</td>
<td>1.44</td>
<td>36.5</td>
</tr>
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</table>
**Top View**

The top view of the ECW7212-L shows the following
**LEDs**

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

**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 Dimensions

<table>
<thead>
<tr>
<th></th>
<th>Inches</th>
<th>Millimeters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>Width</td>
<td>5.9</td>
<td>110</td>
</tr>
</tbody>
</table>
**PCB major components**

<table>
<thead>
<tr>
<th>Description</th>
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PCB Top view

Note: Not all components shown populated on final product

NAND FLASH 128MB
TC58NVG053ETA10 1Gb 3.3V TSOP48 LT/LF TOSHIBA
(Bottom Layer)

NOR Flash 16MB
FLASH SPI MX25L12835FMI-10G 128Mb 3V SO16 LT/LF MXIC
(TOP Layer)

2x2 802.11b/g/n MAC Radio
BCM43217

Bluetooth BCM20704

2x2 802.11ac/a/n MAC/ CPU Radio BCM47452

DDR III Memory NT5CC64M16GP*2

PHY 1G BCM54210E *2

PoE Power Converter TPS23754PWPR
**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)

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

**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 ECW7220-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)