

Edgecore ECW07220-L

Outdoor Wireless Access Point Specification

Revision .01



OPEN
Compute Project

Revision History

Revision	Date	Author	Description
.01	2/29/2016	Jeff Catlin	Initial Release

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Licenses

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<u>Description</u>	<u>Manufacturer</u>	<u>Part Number</u>
CPU	Broadcom	BCM53016A (Optional BCM5822B)
RF MAC/PHY/Radio 5G	Broadcom	BCM43460
RF MAC/PHY/Radio 2.4G	Broadcom	BCM43431
DDR III Memory	MICRON	MT41K128M16JT-125:K
NOR Flash	MXIC	MX25L25635E
NAND Flash	MICRON	MT29F4G08ABADAWP:D
Watchdog Timer	MAXIM	MAX6369
TPM	Atmel	AT97SC3204T
PoE Power Converter	TI	TPS23754

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This specification is being submitted under the Open Compute Project Hardware License (Permissive)

Scope

This document outlines the technical specifications for the Edgecore ECWO7220-L Outdoor open wireless Access Point submitted to the Open Compute Foundation.

Overview

The ECWO7220-L is an outdoor 802.11a/b/g/n/ac dual-band, dual-radio Access Point with a 3x3 MIMO antenna configuration.

Through its two Gigabit Ethernet ports the 802.11ac dual-band wireless Access Point can connect to the backbone network. The ECWO7220-L supports 802.3at/af PoE which enables the Access Point to be powered remotely by a PoE switch. An AC power adapter option is also included for locations where PoE is not available.

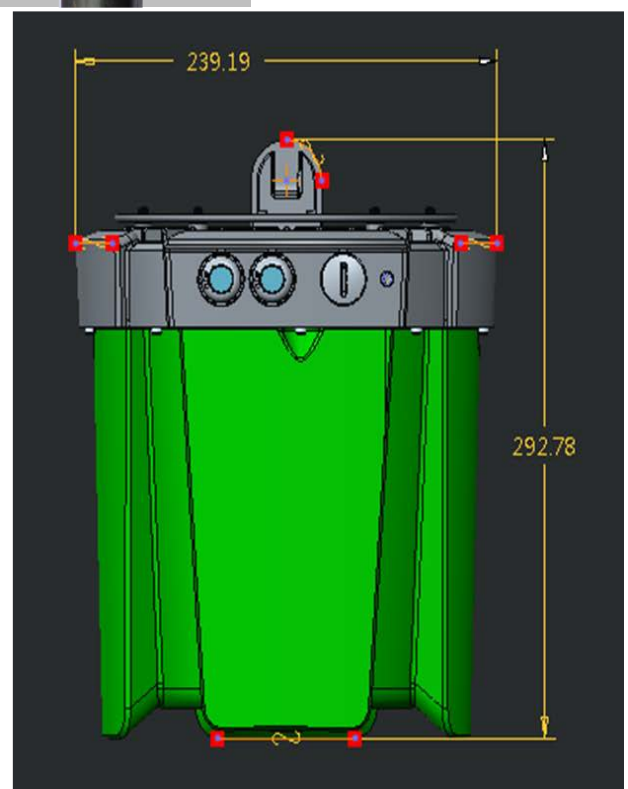
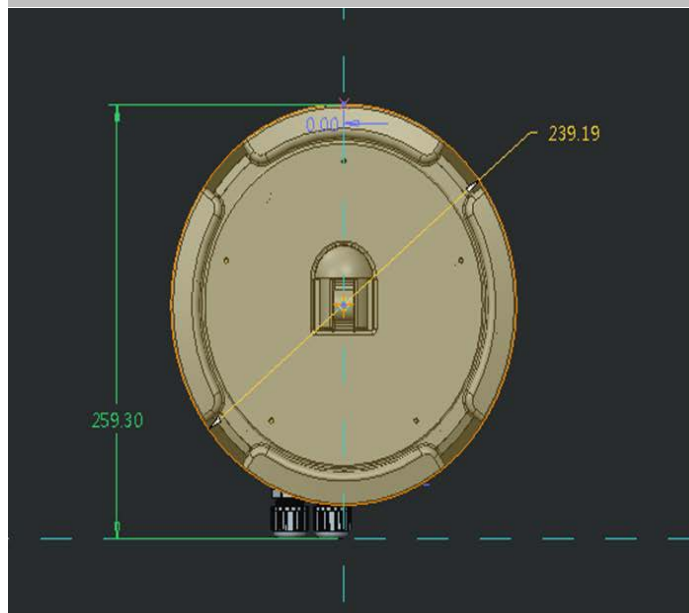
The ECWO7220-L is designed so that it can easily be wall mounted or pole mounted.

Physical Overview

Dimensions

	Inches	Millimeters
Height	11.5	292.78
Width	10.2	259.30





LEDs

LED Name	Description	State
Status	A single led to indicate status of device viewed from bottom of enclosure	Green - Normal Off – No Power Red – System failure

Front View

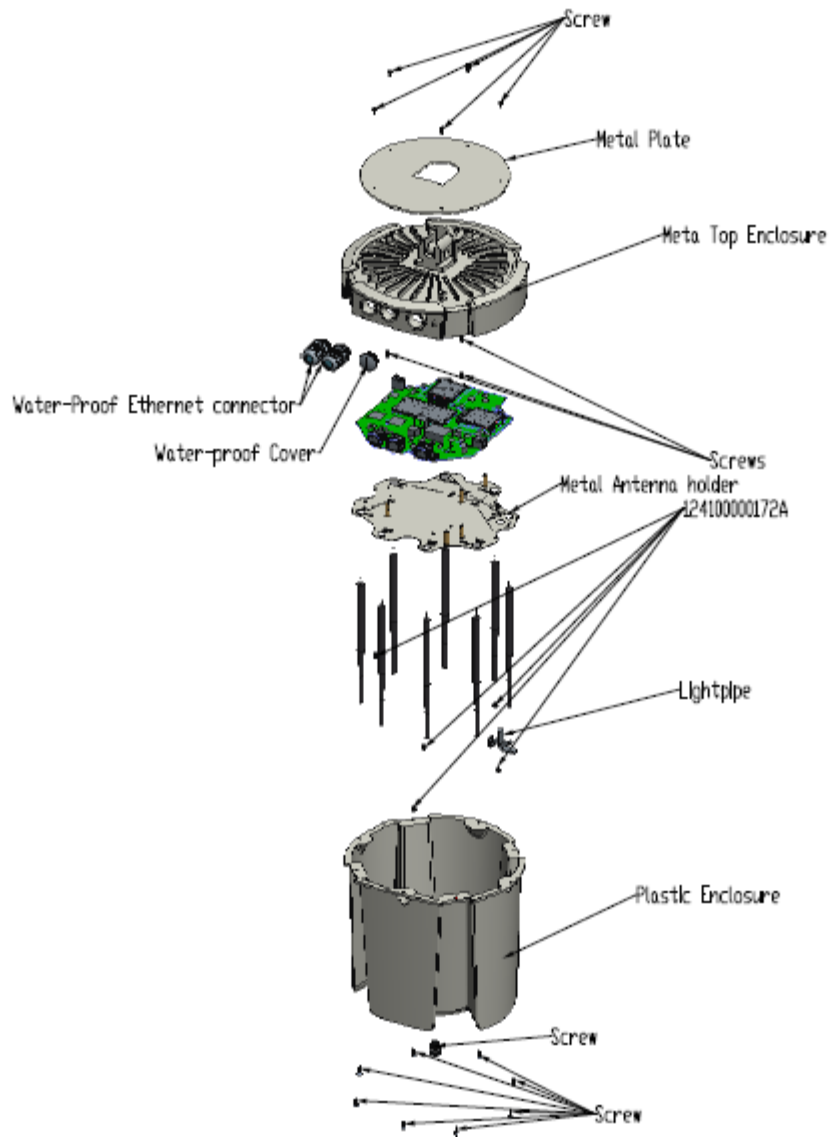


The front panel view of the ECWO7220-L includes the following key components:

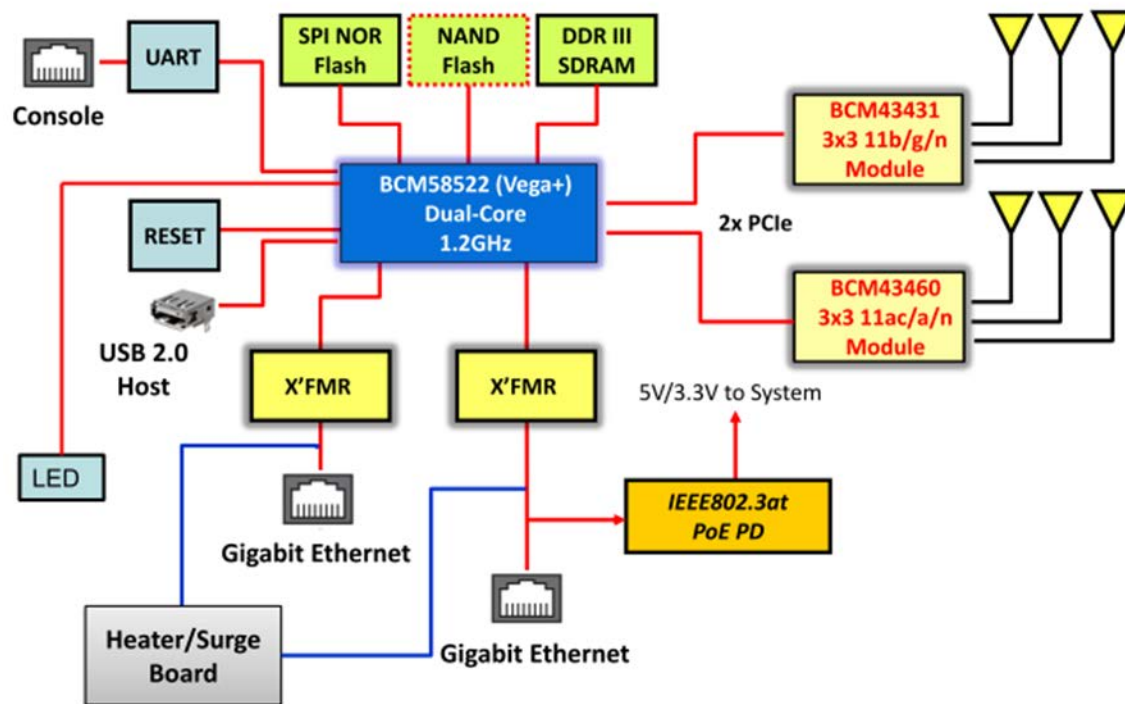
- Eth 1Gb Ethernet port (weatherproof connection)
 - Used for network connectivity
- Eth0/PoE Gb Ethernet port (weatherproof connection)
 - Used for network connectivity and to power device through PoE
- Console port (weatherproof connection)
 - Used for serial communication to the device

System Overview

Exploded system view

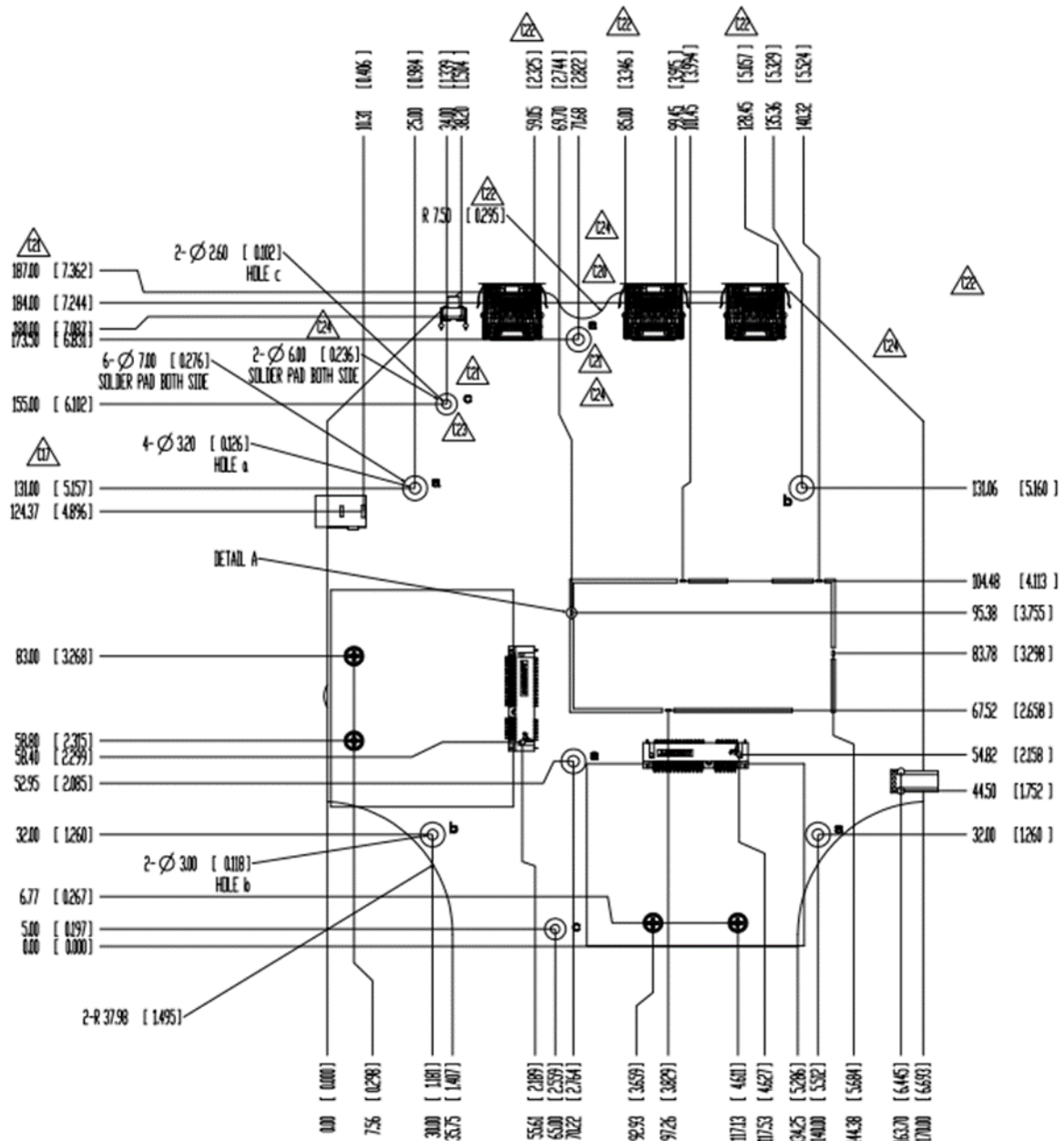


Main PCB Block Diagram



PCB Board mechanical outline

The ECWO7220-L is composed of 6 layer PCB assembly:



PCB

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

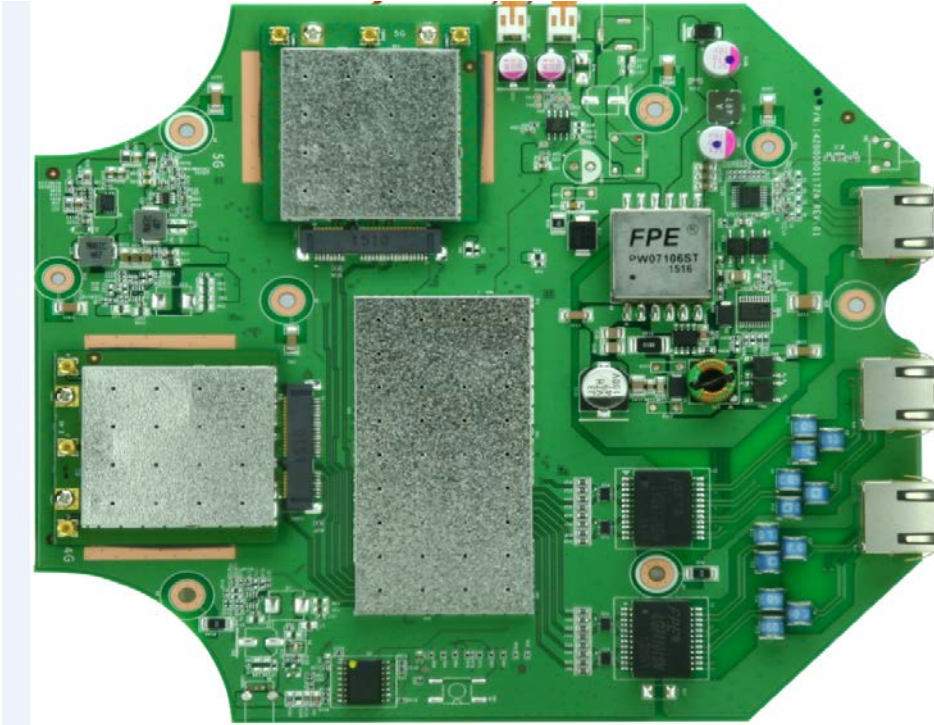
PCB Dimensions

	Inches	Millimeters
7.36	7.36	187
Width	6.70	170

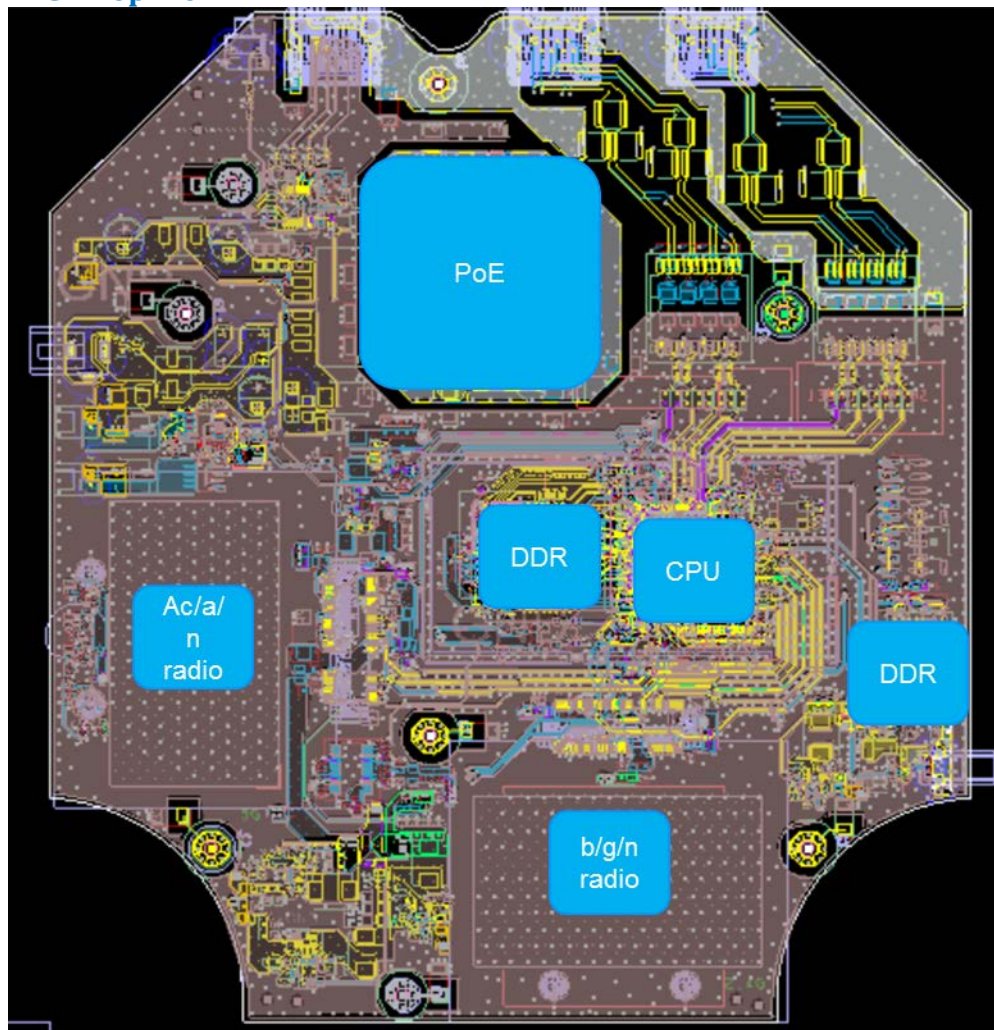
PCB major components

<u>Description</u>	<u>Manufacturer</u>	<u>Part Number</u>
CPU	Broadcom	BCM 53016 (optional BCM5822)
3x3 802.11ac/a/n MAC/PHY Radio	Broadcom	BCM 43460
3x3 802.11b/g/n MAC/PHY Radio	Broadcom	BCM 43431
DDR III Memory	MICRON	MT41K128M16JT-125:K
NOR Flash	Micron	N25Q128A13ESF40F
NAND Flash	MICRON	MT29F4G08ABADAWP:D
Watchdog Timer	MAXIM	MAX6369
Trusted Platform Module (TPM)	Atmel	AT97SC3204T
PoE Power Converter	TI	TPS23754

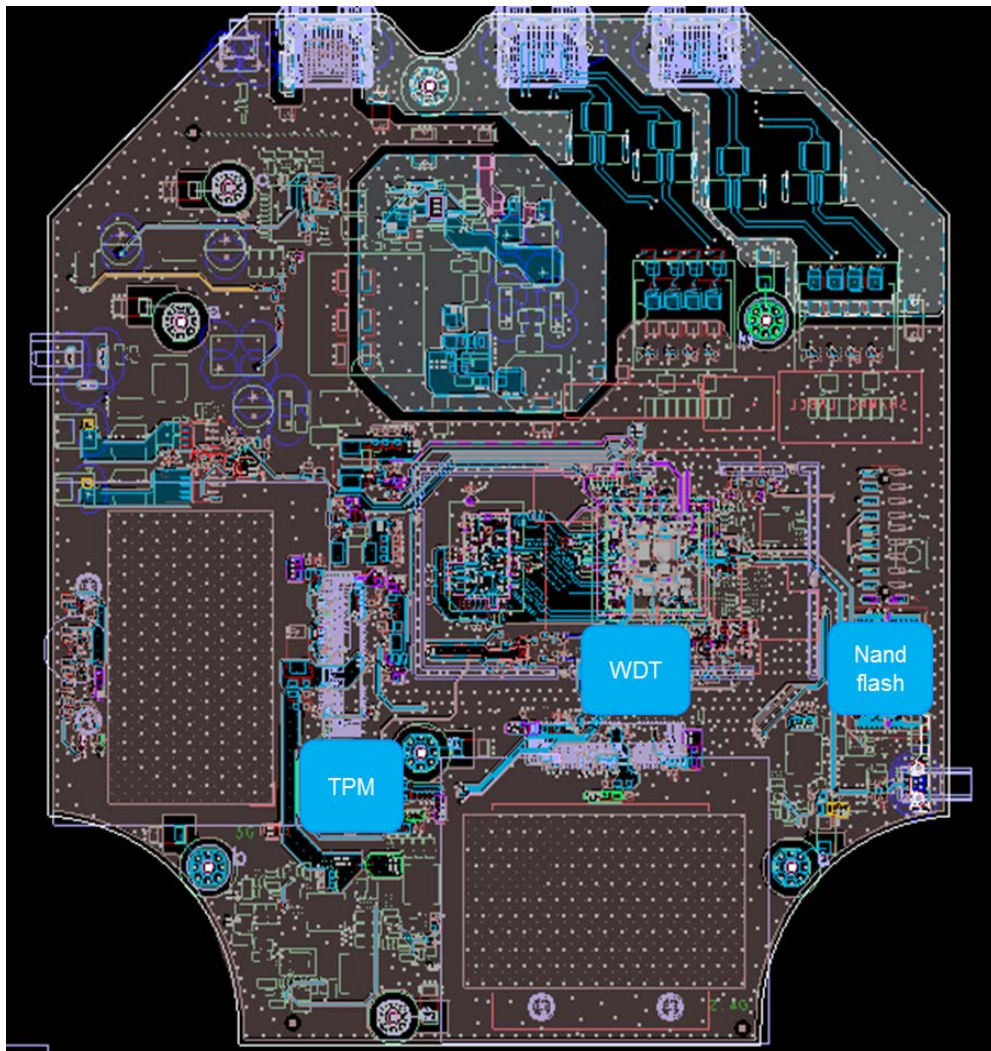
Populated PCB Photograph



PCB Top view



PCB Bottom View



CPU Subsystem

The ECWO7220-L utilizes the Broadcom 53016 communications processor supporting the following:

- NOR Flash 32MBytes
- NAND Flash 512MBytes
- DDR III 256Mbytes

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 ECWO7220-L supports a LM56 thermal sensor used to monitor system temperature.

Watchdog Timer

The ECWO7220-L supports the MAX6369 pin-selectable watchdog timers that supervise microprocessor (μ P) activity and signal when a system is operating improperly. During normal operation, the microprocessor should repeatedly toggle the watchdog input (WDI) before the selected watchdog timeout period elapses to demonstrate that the system is processing code properly. If the μ P does not provide a valid watchdog input transition before the timeout period expires, the supervisor asserts a watchdog (WDO) output to signal that the system is not executing the desired instructions within the expected time frame. The watchdog output pulse can be used to reset the μ P or interrupt the system to warn of processing errors.

TPM

The ECWO7220-L supports the AT97SC3204T which is a fully integrated security module designed to be integrated into embedded systems and implements version 1.2 of the Trusted computing Group (TCG) specification.

Software Support

The ECWO7220-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 ECWO7220-L is ~22Watts. This is based upon worst case power assumptions for traffic and environmental conditions. Typical power consumption will be less.

Emissions

FCC Part 15 Subpart B, Class B
CE

Environmental

Weight 2824g g (6.23 lb.)
Temperature Operating: -40° C to 55° C (with optional heater)
Storage: -40° C to 70° C (-40° F to 158° F)
Humidity Operating: 5% to 95% (non-condensing)
Water / Dust Proof IP67

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)