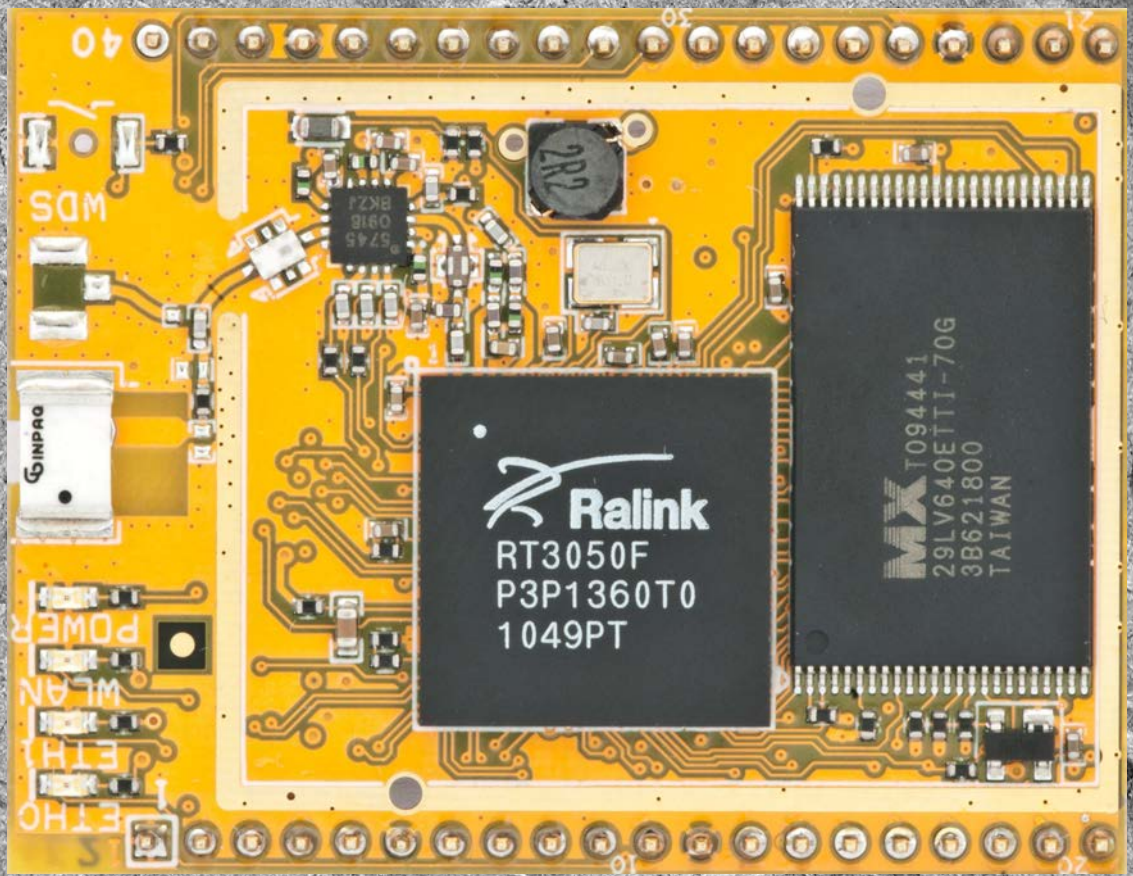




# Carambola

Embeddable 802.11N module



Datasheet

8DEVICES



## Introduction

8devices Carambola is a tiny 35x45 mm, low cost, open-source and Linux friendly, easy embeddable module which allows adding extensive wireless and wired networking capabilities to any device around us in the upcoming era of the Internet things. Module can be supplied with an open source design development

board which provides easy access to all Carambola functionality and can be a good starting point for quick time to market product development. Development board schematics, layout and BOM are published on downloads section of 8devices WEB site.



## Quick specs

- 802.11 b/g/n, 2.4 GHz, 1x1 SISO, 150Mbps max data rate, 21.5 dB output power
- Built in chip antenna and U.FL connector options
- 8MB FLASH, 32 MB RAM
- Linux friendly , OpenWRT flash image and source codes are available for download on [www.8devices.com/wiki\\_carambola/doku.php](http://www.8devices.com/wiki_carambola/doku.php)
- CPU – RT3050, 320 MHz clock speed
- 35 by 45 mm Size – small and easy to embed
- 4 green LED's – Power, Ethernet0, Ethernet1, WLAN
- 2x20 pins, 2mm spacing
- Power supply – 3.3v single voltage, max power consumption on heavy duty download – 1.5 W
- FCC certified

## OpenWRT image

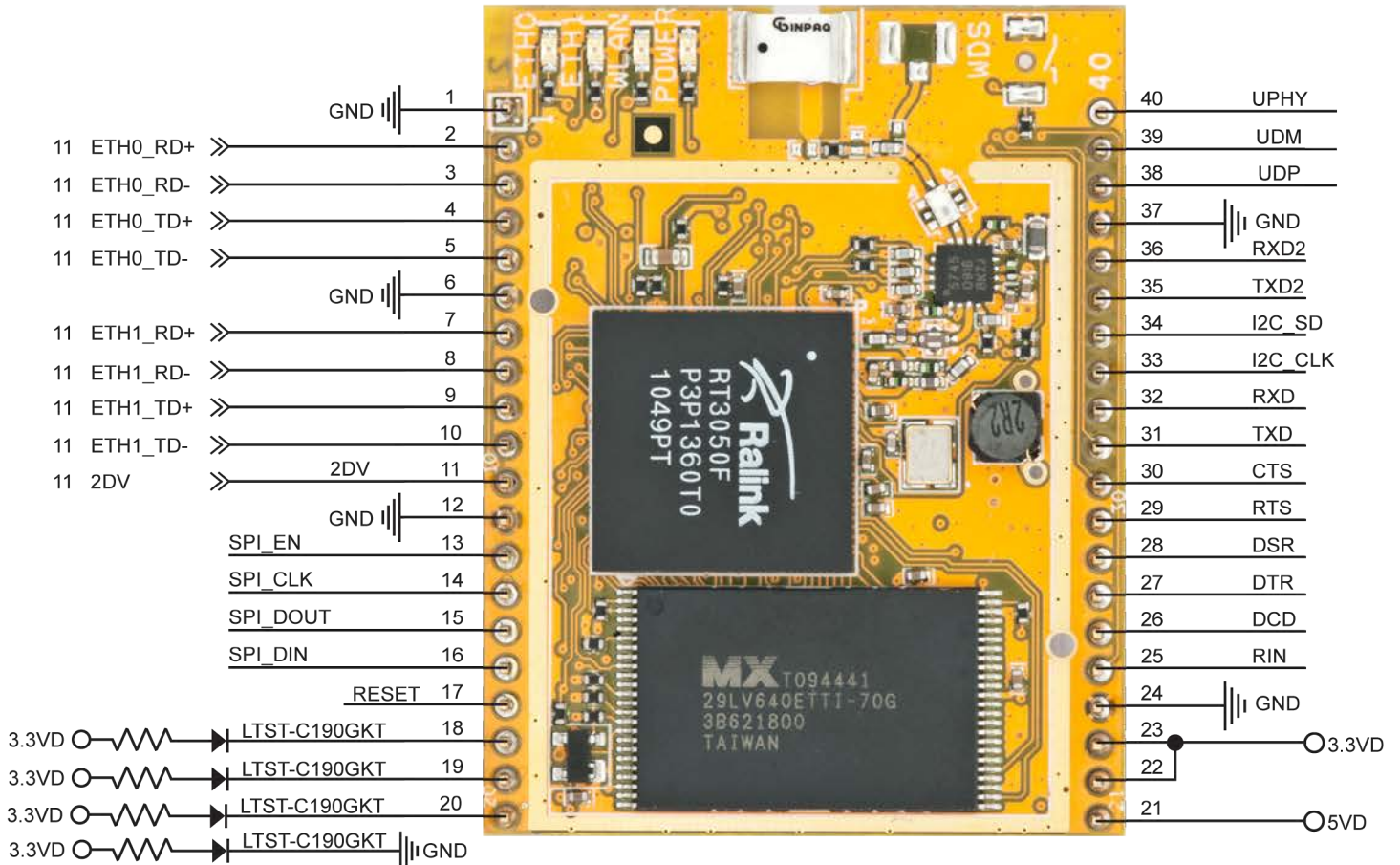
Carambola 802.11n module supports OpenWrt linux distribution for embedded devices. Openwrt comprises a set of about 2000 software packages. For easily installing and uninstalling packages it relies on the Opkg package management system. OpenWrt is using the command-line interface of BusyBox for the control, but also comes installed with the web interface LuCi.

OpenWrt support makes Carambola an ideal device for prototyping quick time to market solutions and a large variety of different packages makes it a very flexible platform. It is possible to find some project

examples done with a Carambola module including weather sensor, weather station, MySQL client, music server and many more available on 8devices Carambola WIKI pages. OpenWrt for Carambola is hosted on Github and available for download here: <https://github.com/8devices>.

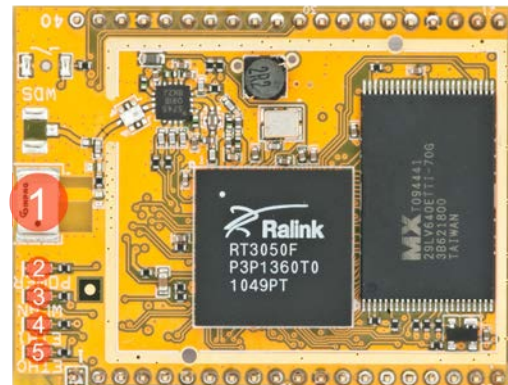


## Pinout information



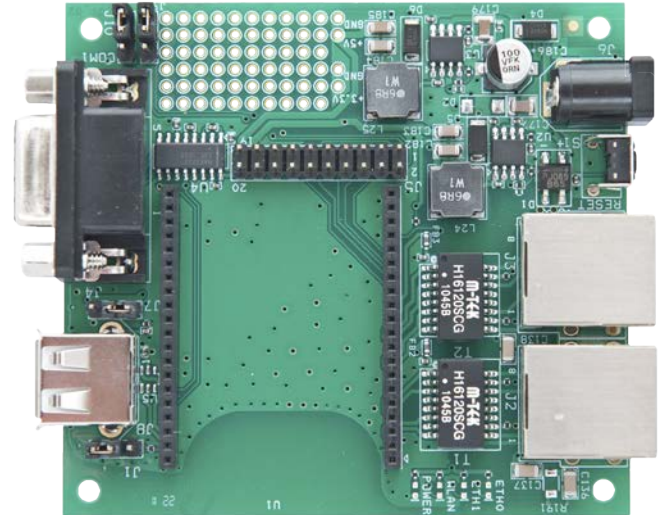
## Carambola details

- 1) Integrated antenna (optional)
- 2) Power LED
- 3) WLAN LED
- 4) ETH 1 LED
- 5) ETH 0 LED



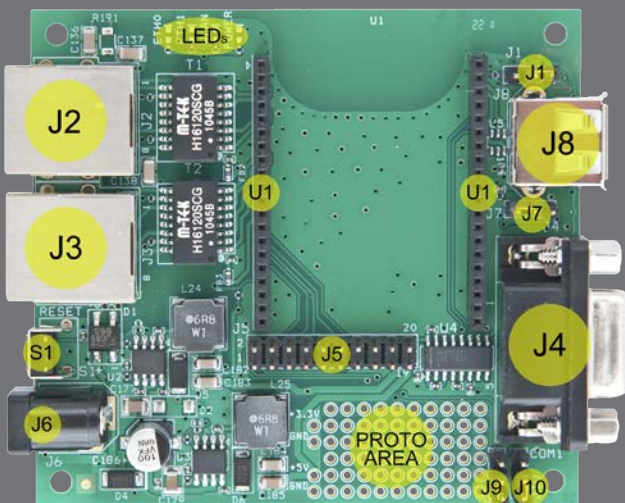
## Carambola development board

Development board for Carambola module provides variety of external interfaces including RS-232, USB type A socket and two LAN ports. One of the LAN ports is equipped with passive PoE 9V-24V. Development board has an easy prototyping area with 2.54mm pitch for thru-hole components with easy access to Carambola embedded interfaces via pin headers located near by the prototyping area. Open-source design files including schematics, PCB layout and BOM of the development are published on downloads section of 8devices WEB site.



## Development board details

- J1** - USB HOST/SLAVE mode selection (1-2 USB host, 2-3 USB slave mode)
- J2** - ETH0 LAN port with polarity-agnostic 9-24V passive PoE on 5,6 and 7,8 RJ45 pins
- J3** - ETH1 LAN port
- J4** - RS232 DB9 female
- J5** - 2.54mm pitch pin header for easy accessing, I2C, SPI, GPIO, I2S, serial ports
- J6** - 7. Power jack 9-24V DC
- J7** - enable/disable USB 5V power (1-2 enable USB power)
- J8** - 1. USB type A socket
- J9** - serial port RX selection for DB9 (1-2 ttyS0, 2-3 ttyS1)
- J10** - serial port TX selection for DB9 (1-2 ttyS0, 2-3 ttyS1)
- S1** - Hardware reset button
- U1** - 2x20 2mm pitch female headers for Carambola module
- PROTO AREA** - 6x10 holes 2.54mm pitch prototyping area
- LEDs** - Optional LED's for power, 2x LAN and WLAN activity





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