# HydraSDR RFOne

The **HydraSDR RFOne** is an advanced open-source software defined radio receiver capable of sampling **10MHz** of spectrum anywhere between **24 MHz** to **1800 MHz**, with extension capabilities for even broader coverage.

Perfect for **professionals**, **researchers**, and **enthusiasts** alike, the RFOne delivers **laboratory-grade performance** in a compact, user-friendly package.

**Designed and Engineered in France** and **Made in the USA**, this advanced SDR platform combines European RF design expertise with premium professional manufacturing quality.

#### Supported platforms:

- Windows 10, 11 (No drivers required! 100% Plug-and-play), GNU/Linux, macOS
- Works with popular software defined radio applications like SDR++

#### **Technical specifications:**

- Continuous 24 to 1800 MHz native RX range
- Ultra extensible : Same case can contains up to 3 Boards for a unique ultra compact Phase-Coherent Receivers for Radar, Scanner
- **3.5 dB NF** between 42 and 1002 MHz, **4.5 dB NF** on two other Input
- Tracking RF filters
- 35dBm IIP3 RF front end
- 12bit ADC @ 20 MSPS (80dB Dynamic Range, 64dB SNR, 10.4 ENOB)
- 10MSPS / 5MSPS and 2.5MSPS IQ output
  - 5MSPS or 2.5MSPS IQ output for low power devices (Raspberry Pi, Odroid, etc.)
- Experimental packet time-stamping
- Up to 80 MSPS when using custom firmware
- Fully Open Source Firmware Triple Core MCU @ up to 204MHz
- **0.5 ppm** frequency stability, low phase noise clock (calibrated with GPSDO during manufacturing)
- Multiple external clock output (via extension) Ideal to chain multiple Boards
- 10 MHz panoramic spectrum view with up to 9MHz alias/image free
- IQ or Real, 16bit fixed or 32bit float output streams
- No IQ imbalance, DC offset or 1/F noise at the center of the spectrum
- 2 x High Speed ADC inputs (up to 80 MSPS, U-FL, DC coupled)
- 18 x Programmable high speed gpio's up to 100MHz
- 4 x programmable synchronized clock outputs up to 160 MHz
- 1 x **USB Type C** connector for simplicity, more power, better robustness, better shielding & EMC

#### Packing list

- 1x HydraSDR RFOne (with a custom made aluminum case which can contains multiple extensions)
- 1x Custom USB-C to USB-A cable with double ferrite chokes for superior RF isolation and noise reduction

### HydraSDR RFOne



## HydraSDR RFOne Extension up to 3 Boards







#### HydraSDR RFOne R2.1 Main Features (Top Side) USB Type C (on back) 2x Clock Output **1x Clock Input 10 MHz** USB2.0 HS 3v3 CMOS square/sin 3v3 CMOS square/sin 480 Mbit/s 2xUFL (P5/P15 Both sides) 1xSMA and 2xUFL Filter+ESD/Reverse (P13/P14 Both sides) **Current Protection** Debug JTAG LPC4370 P3 LPC4370 Extension Extension P1/P11 (Both sides) P2/P12 (Both sides) MCU LPC4370 (Triple Core MCU) 1x Cortex M4+FPU 2x Cortex M0 **3xRF Input** Up to 204MHz Driven by MCU Fully open source software 1xSMA and 2xUFL P10/P20 (Both sides) **BiasT** P7/P17 (Both sides) (4.5V / 300mA) DO BiasT Driven by MCU

### HydraSDR RFOne R2.1 Main Features (Bottom Side)



## HydraSDR RFOne R2.1 Pin Assignment

