

SDR comparison

| | KiwiSDR | SDRPlay RSP2 | HackRF One |
|-----------------------|--|--|---|
| Architecture | SDR type | ADC samples antenna input directly. Digital downconversion (DDC) in FPGA | ADC in baseband IC samples analog IF down-mixed by tuner IC. Bypass modes |
| | open source HW | yes | no |
| | open source SW | yes | host software dependent |
| | sync multi-units | no | yes |
| | TX output | no | no |
| Front end | freq range | 0 – 30 MHz | 1 kHz – 2 GHz |
| | inputs | 1x SMA, 1x header block | 2x SMA, 1x header block (hi-Z) |
| | features | TVS protection, all inputs | 2 nd SMA switchable bias tee |
| | filtering | 30 MHz LPF | 2x LPF, 1x HPF, 8x BPF, MW/FM notch |
| | attenuator | no | yes |
| | preamp device | +20 dB, fixed LTC6401-20 | variable gain, 40 dB range MSI001 |
| | | | |
| ADC | # bits | 14 | 12 |
| | SFDR(1) | 90 dB | 67 dB |
| | device | LTC2248 | MSI2500 |
| | MSPS | 66.7, fixed | variable up to 10.66 |
| | clock oscillator | XO, 50 ppm, trimmed via GPS | TCXO, 0.5 ppm, software trimmed |
| | ext ref in | 66.7 MHz, JST(2) | 24 MHz, MCX |
| | ext ref out | no | 24 MHz, MCX |
| DSP | type | FPGA + software | software |
| | FPGA | Xilinx Artix-7 A35, user programmable | no |
| GPS | | yes, integrated | no |
| | type | software defined | |
| | use | ADC clock cal, time sync | |
| | GPSDO | no | |
| | input | SMA, 3.3V bias tee | |
| | # channels | 12 | |
| | front end part | SE4150L | |
| Specs | power | 5V 1.5A, 5.5/2.1mm DC jack | 5V 0.17A, via USB |
| | H W D (mm) | 35 x 90 x 140 | 32 x 86 x 98 |
| Output | wide-band IF output | no, panadapter and audio only | Yes, 8 bandwidths (200k – 8M) and zero IF. Panadapter and audio done in host software |
| | un-demodulated IQ samples | in development | yes |
| | # panadapters | 4, full 30 MHz, 14 level zoom | host software dependent |
| | # receivers | 4, 10 kHz audio bandwidth | host software dependent |
| | PHY | 1x 10/100 Ethernet | 1x USB 2.0 type B |
| | protocol | web sockets, HTML5 | widely supported |
| | | | |
| UI Software(3) | Windows | all browsers except IE | SDRUno, HDSDR, SDR-Console, SDR# |
| | Linux | all browsers | CubicSDR |
| | Mac | all browsers | CubicSDR |
| | iOS, Android | All browsers, but marginally useful. Mobile features are in development | apps |
| | other APIs | in development | ExtIO support |
| | use with other audio processing software, e.g. Fldigi, Multipsk(4) | yes | yes |
| Prices (US\$) | \$299, \$199 board only | \$169 RSP2, \$129 RSP1 | \$299 |
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| Notes | | Version 1.0, March 2017, comments/corrections to support@kiwisdr.com |
| | (1) | SFDR depends on many factors. Consult the data sheets for the full story. Fewer bits means less dynamic range, but not necessarily less sensitivity. |
| | (2) | There are pads for an (uninstalled) JST connector on the PCB. |
| | (3) | New software packages and interfaces are always being added. |
| | (4) | Usually via "virtual audio cable" (VAC) software. |
| Sources | KiwiSDR | http://www.kiwisdr.com https://github.com/jks-prv/Beagle_SDR_GPS |
| | SDRPlay | http://www.sdrplay.com/docs/RSP2_Datasheet.pdf http://www.sdrplay.com/downloads/ |
| | HackRF One | https://greatscottgadgets.com/hackrf/ https://github.com/mossmann/hackrf/wiki |
| | Other | https://en.wikipedia.org/wiki/List_of_software-defined_radios http://www.rtl-sdr.com/review-airspy-vs-sdrplay-rsp-vs-hackrf/ |