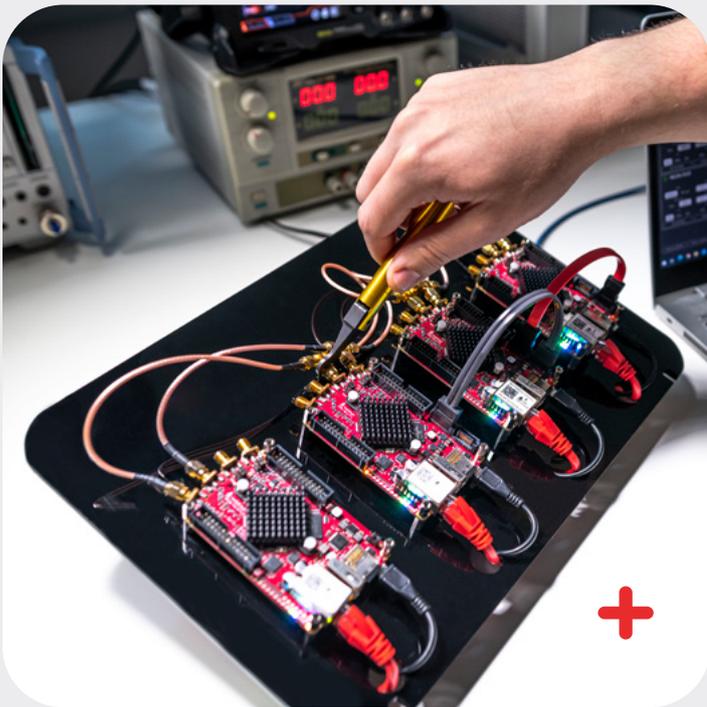




## STEM<sup>lab</sup> 125-14 X-Channel System

STEMlab 125-14 X-Channel System is designed for applications that require multi-channel RF signal acquisition and generation.



It enables the user to stream analog and digital signals from/to the client's PC.

X-Channel System consists of multiple STEMlab 125-14 digitizers that are modified to come with synchronization cables and software that supports multi-channel streaming of RF analog and digital, input and output signals from/to client PC.

### ■ Product description

STEMlab 125-14 X-Channel System consists of multiple Red Pitaya STEMlab 125-14 devices (one master and one or multiple slave units), that are synchronized using SATA cables and software that supports multi-channel RF signal acquisition and generation.

MASTER STEMlab 125-14 provides clock and triggers to SLAVE STEMlab 125-14 devices over SATA cable. With each added STEMlab 125-14 SLAVE device system gains two additional RF inputs and two additional RF outputs.

X-Channel streaming software provides the ability to stream RF analog and digital input and output signals from/to client PC and configure it completely remotely.



### ■ Key features

- Four inputs at 125 MSPS 14-bit
- Internal/external clock selector available
- Performance improvements (less noise & crosstalk)
- Xilinx Zynq 7020 SoC



### ■ Applications

- Designed for applications that require multi-channel RF signal acquisition and generation.
- Consists of multiple STEMlab 125-14 devices
- Open-source multi-channel streaming software available (command line tool and Qt client app)
- Clock and trigger synchronization
- SCPI server support (Python, MATLAB, LabVIEW)

## ■ Technical Specifications per unit

### BASIC

RAM	512 MB (4 Gb)
System memory	Micro SD up to 32 GB

### CONNECTIVITY

Ethernet	1 Gbit
USB	USB 2.0
WIFI	requires WIFI dongle

### RF INPUTS

RF input channels	2
Sample rate	125 MS/s
ADC resolution	14 bit
Input impedance	1M $\Omega$
Full scale voltage range	$\pm 1$ V (LV) and $\pm 20$ V (HV)
Input coupling	DC
Bandwidth	DC - 60 MHz

### RF OUTPUTS

RF output channels	2
Sample rate	125 MS/s
DAC resolution	14 bit
Load impedance	50 $\Omega$
Full scale voltage range	$\pm 1$ V
Short protection	Yes
Typical raising/falling time	2V / 10ns
Bandwidth	DC - 60 MHz

### EXTENSION CONNECTOR

Digital IOs	16
Analog inputs	4
Analog inputs voltage range	0-3,5 V
Sample rate	100 kS/s
Resolution	12 bit
Analog outputs	4
Analog outputs voltage range	0-1,8 V
Communication interfaces	I2C, SPI, UART
Available voltages	+5 V, +3,3 V, -4 V
External ADC clock	Yes

### SYNCHRONIZATION

Trigger input	Through extension connector
Daisy chain connection	Over SATA connection (up to 500 Mbps)
Ref. clock input	N/A