
USRP User's and Developer's Guide

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This guide explains both basic usage of the USRP as well as how to expand it.

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Introduction

The Universal Software Radio Peripheral, or USRP (pronounced "usurp") is designed to allow general purpose computers to function as high bandwidth software radios. In essence, it serves as a digital baseband and IF section of a radio communication system. In addition, it has a well-defined electrical and mechanical interface to RF front-ends (daughterboards) which can translate between that IF or baseband and the RF bands of interest.

The basic design philosophy behind the USRP has been to do all of the waveform-specific processing, like modulation and demodulation, on the host CPU. All of the high-speed general purpose operations like digital up- and downconversion, decimation and interpolation are done on the FPGA.

It is anticipated that the majority of USRP users will never need to use anything other than the standard FPGA configuration. However, for those users that wish to, the FPGA design may be changed or replaced. All of the interfaces are well defined and documented.

Figure 1. USRP with Daughterboards

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