

Presentation

Title: RECOMS - *Reconfigurable Embedded Configuration System*
*A framework for Software Define Radio and Communication
Peripherals*

Target Audience: developers

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Abstract: Development of a software defined radio or communication peripherals in an embedded system can be a laborious work. The objective of the RECOMS project is to provide a hardware platform and a framework that allow the developer to focus on signal processing design and peripheral specific software development.

The hardware platform is composed of a digital processing board supporting analog front-end modules. Processing board includes a signal processing oriented FPGA, an 32-bit ARM processor, high-speed AD/DA converters and slots for receiver, transmitter or transceiver (COTS or custom) analog modules. Board processor is running Linux OS.

The virtual peripheral framework (VPF) includes a Matlab/Simulink blockset of converter interfaces, control registers and probes for monitoring and debugging. The VPF provides also a set of commands usable in shell scripts and an API(C/C++) for implementing (and instantiating) virtual peripheral services under Linux.

Thanks to the high abstraction level of this framework, the complexity of the Hw/Sw co-design is masked to the developer while providing a high data rate path between the signal processing hardware and the upper software layers. The instantaneous reconfiguration mechanism is the key feature of many potential applications.