SDR Based Rapid Prototyping

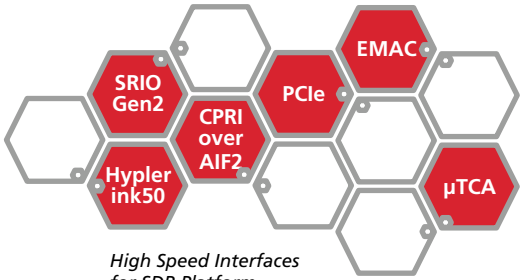
Next Generation Mobile Communication Architectures

- Rapid prototyping for mobile communication architectures
- Reconfigurable platform
- Support for multiple radio bands and standards
- Focusing on LTE-Advanced with support for up to 8x8 MIMO
- Fast algorithm design and optimization of:
  - Accuracy of algorithms
  - Workload flexibility
  - Energy consumption

SDR Platform

Real-time Signal Processing

- Signal processing on latest multi-core DSPs, supporting Texas Instruments DSPs, C66 family
- Algorithm concepts and design for distributed signal processing on multi-core multi-DSP platform in real-time
- LTE Rel. 8 compliant Matlab tool chain for algorithm development and benchmarking as reference design
- FPGA-DSP co-design and implementation of high speed interfaces

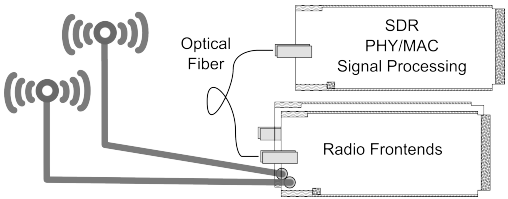


High Speed Interfaces for SDR Platform

SDR Based Rapid Prototyping

Advantages and Focus of SDR

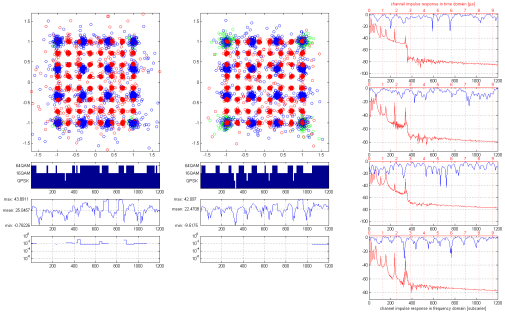
- Low development costs
- High flexibility
- Rapid design and benchmarking of new interfaces
- Real-time evaluation
- Cognitive radio concepts
- Testbed for advanced radio concepts
- Integration with existing radio standards



General SDR Concept

SDR Use Cases

- Carrier aggregation and multi-band transmission
- MIMO systems with large number of antennas
- LTE-A relaying
- Cooperative Multi-point (CoMP) systems
- Beamforming and distributed antenna systems (DAS)
- Algorithm benchmarking against Matlab LTE-Advanced link- and system-level simulations



Matlab LTE-Advanced Simulations