

Session 2: Sept. 24, 1:45pm

Advanced Hardware Designs

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Overview

- 5 talks
- Common Themes
 - Parameterize
 - Customize
 - DSP Applications
- Parameterize on ..
 - Floating point format
 - Talks 1, 2, 3
 - Degree of resource sharing
 - Talk 4
- Customize for
 - Power usage minimization
 - Talk 2
 - Area/latency/throughput optimization
 - Talk 4
 - Application system parameters
 - Talks 3, 5

Applications

- Adaptive Beamforming (1)
- Audio Signal Processing (2)
- Unsupervised clustering (3)
- Walsh-Hadamard Transform (4)
- Digital Pulse Compression (5)

Talks

- (1) Adaptive Beamforming using QR in FPGA (Walke)
 - Customized, parameterized floating point, GEDAE
- (2) Power Consumption of Customized Numerical Representations for Audio Signal Processing (Chamberlain)
 - ASIC power analysis
- (3) Library of Parameterized Hardware Modules for FP (Leeser)
- (4) Generation of Custom DSP Transforms (Walsh Hadamard) (Fang)
 - Automatic algebraic transformations to optimize area/latency/throughput
- (5) Comparison of Two Computational Technologies for Digital Pulse Compression (Bonato)