Tuesday Feb 25, 2014:

A Framework to Analyze Processor Architectures for Next-Generation On-Board Space Computing

1. Briefly define what a computational dwarf is.
2. Why is it beneficial to evaluate systems/devices with space-processing computational dwarfs as compared to using actual applications?

Tuesday, March 11, 2014:

Fast and Flexible High-Level Synthesis from OpenCL using Reconfiguration Contexts

* and *

Design and Implementation of a Heterogeneous High-performance Computing Framework using Dynamic and Partial Reconfigurable FPGAs

3. What are two main advantages that Reconfigurations Contexts enable?
4. What is the main difference between a Reconfiguration Context not using intermediate fabrics (Ifs) and a Reconfiguration Context using IFs?
5. List 3 evaluation metrics used to evaluate context-design heuristics?

Thursday, March 13, 2014:

Low Frequency Versatile Power Transfer

6. What are two disadvantages with RF wireless power transfer for medical devices?
7. What are two advantages of using low-frequency wireless power transfer?
8. What are two disadvantages of using low-frequency wireless power transfer?

Transceiver for Medical Communications

9. How is noise sensitivity reduced in the MICS transceiver?
10. Why is on-off keying used in the transceiver?

FPGA-based Reconfigurable Computing for Pricing Multi-asset Barrier Options

11. What is the role of thread scheduler in the FPGA architecture?
12. Why does speedup obtained with a single FPGA reduce as the number of assets are increased?

Tuesday, March 18, 2014:

Hardware/Software Partitioning and Pipelined Scheduling on Runtime Reconfigurable FPGAs

13. What is one main objective for hardware/software partitioning on a PRTR FPGA? What is one main objective for pipelined scheduling on a PRTR FPGA?
14. Describe what configuration prefetching is and why is it beneficial?

Hardware/Software Codesign

15. What are three advantages of the CPS algorithm (how does it help designers)?
16. What are the three main functions of the task manager?

Thursday, March 20, 2014:

Reconfigurable Platform for Robotics and E-Health Applications

17. What high-level language is this platform's application software written in?
18. What is the main type of processing core used in this platform?

Dynamic Reconfiguration Framework for UAVs

19. What feature detection algorithm is used in the post-disaster assessment case study?
20. What percentage of time was the system in power save mode for the post-disaster assessment case study?

SURF Image Processing on Zynq SOC

21. What is the purpose of the Integral Image calculation stage of the SURF algorithm?
22. What optimization is performed in the SURF implementation in order to obtain the scale-space without having to scale the input image?

Thursday, March 27, 2014

Meeting Points - Using Thread Criticality to Adapt Multicore Hardware to Parallel Regions

23. How does the proposed method in this paper distinguish between critical and non-critical threads?
24. What is the difference between thread delaying and thread balancing techniques?

Thread Shuffling: Combining DVFS and Thread Migration to Reduce Energy Consumption for Multi-core Systems

25. What are 2 reasons that thread delaying is ineffective for SMTs?
26. What is the hardware portion of the thread shuffling algorithm responsible for?

From OpenCL to High-Performance Hardware on FPGAs *and*
OpenCL for FPGAs: Prototyping a Compiler

27. What are two main limitations of traditional HDL approaches when in creating high performance circuits? How does OpenCL solve this problem?
28. Name 1 optimization strategy used in global memory access

Thursday, April 3, 2014

Core Architecture Optimization for Heterogeneous Chip Multiprocessors

29. What does weighted speedup mean?
30. What makes a good heterogeneous multiprocessor? Is it advantageous for homogeneous workloads? If so, why?

Architecture aware mapping and optimization on 1600-core GPU

31. How is kernel splitting implemented in AMD GPUs? What does the CPU do to minimize performance low for handling non-divergent branches?
32. List 2 architectural differences between NVIDIA GPU and AMD GPUs?

DARA: Dynamic Adaptive Redundancy Architecture

33. What is the difference between the hardened and unhardened circuits that were compared in the beam test?
34. What does DARA emulate in order to roll-back and recover from errors?

Tuesday, April 8, 2014

Fixed Segmented LRU Cache Replacement Scheme with Selective Caching

35. State the advantages of Fixed SLRU over normal SLRU?
36. Describe the idea of Selective Caching using SLRU?

Proposed Enhancements to Fixed Segmented LRU Cache Replacement Policy

37. What were proposed enhancements to Fixed SLRU policy in the study?
38. Can a Fixed SLRU scheme be used in applications in Mobile Computing & System-on-chip technology? Why or why not?

A Cache Scheme Based on LRU-Like Algorithm

39. How does the LRU-Like algorithm use an augmented cache scheme?
40. What happens on a cache hit in LRU Block Filtering (LBF) Cache scheme?

Thursday, April 10, 2014

PCI-based reconfigurable system for real-time image processing using reconfigurable hardware

41. What is the main motivation behind the design
42. What is the function of the configuration manager?

Gigapixel-size Real-time Interactive Image Processing with Parallel Computers

43. List two main goals of the research
44. How do Global Arrays used in the work support shared-memory model

Design and Hardware Implementation of a Chaotic Encryption Scheme for Real-time Embedded Systems

45. List 2 factors influencing the design of a good chaotic stream cipher.
46. What particular property makes it difficult to discern the plain text from the cipher text in this chaotic encryption scheme?