

ECE 230: Microarchitectures for Multimedia Processing (3)

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Architectural features to handle dynamic media data types. SIMD parallelism for multimedia acceleration. Multimedia instructions. Multimedia data (speech, audio, image and video): processing and interfacing requirements. Audio and video compression: algorithms, standards, and hardware designs. Parallelism in multimedia processing.

Prerequisite: ECE 201

(Spring)

Textbooks:

Contents:

1. Processor design for multimedia processing
 2. Static and dynamic data types
 3. SIMD architectures and instructions for multimedia acceleration
 4. System-on-a-chip
 5. Time, area, power, and cost considerations
 6. Audio and video compression
 7. Midterm examination
 8. Multimedia instructions
 9. Multimedia extensions of the desktop/server processors
 10. Multimedia extensions of the embedded RISCs
 11. Simultaneous multithreading?
 12. Standards
 13. One- and two-bus microarchitectures
- Final examination