May 11, Thursday

7:30 – 9:30 AM

4030 SC

35 points and 2 hours

Multiple-choice questions: In a few cases, you have to write a solution
Materials for Examination 2

Everything covered after Exam 1. This includes:

A. Virtual memory and its implementation
   Single and multiple level translation
   The role of TLB

B. Dynamic pipeline scheduling
   Static vs. dynamic pipelines

C. Dynamic branch prediction
   1-bit, 2-bit predictions
   Branch prediction buffer
   Branch target buffer
D. Instruction level parallelism

  Speculative computation
  Loop unrolling
  Software pipelining
  VLIW / EPIC

E. Storage and I/O

  Device addressing
  CPU–device communication
  RAID

F. Classification of multiprocessors

G. Cache coherence

  Snooping cache protocol
  Data consistency

H. Multiprocessor synchronization

  Various implementation of locking