EEE310 Embedded Computer Systems

Revision

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Room EB324

Guidelines – Open Book Exam (1)

- The exam will be conducted for a fixed duration – 3 hours
- Registry will provide central support for the scheduled exam
- There will be no invigilation
- You must prepare desktop computer or Laptop with good internet connection
  - scanner is optional, instead you can take snapshots using mobile devices
- You should not use mobile devices for the exam as mobile OSes may not render the questions properly

Guidelines – Open Book Exam (2)

- All students will start and end the exam at the same time
- Module leader will be available online via BBB or ICE chat
- You will be reminded time left 15 min before end of exam
- Once completed you can either scan or take snapshots of written answers and must convert to one single word/pdf file
- It is your responsibility to ensure the submitted answers correctly correspond to the questions in the single file
- You should use the format “Module code-student ID.file type” to name the files before submitting to ICE

Embedded Processors

- ✓ **Types of Processors**
  - Microcontrollers
  - DSP Processors
  - Graphics Processors
- ✓ **Parallelism**
  - Parallelism vs Concurrency
  - Pipelining
  - Instruction-Level Parallelism
  - Multicore Architectures

Memory Architectures

- ✓ **Memory Technologies**
  - Random Access Memory
  - Non-Volatile Memory
- ✓ **Memory Hierarchy**
  - Memory Maps
  - Register Files
  - Caches
- ✓ **Memory Models**
  - Memory Addresses
  - Stacks
  - Protection Units
  - DMA
  - Memory Model of C

Input and Output

- ✓ **I/O Hardware**
  - Pulse width modulation
  - General-purpose digital I/O
  - Serial Interfaces
  - Parallel Interfaces
  - Buses
- ✓ **Software in a World**
  - Interrupts and exceptions
  - Atomicity
  - Interrupt controllers
  - Modeling Interrupts

Final Example Sheet

1) Discuss the difference between parallelism and concurrency
2) Explain the importance of a memory map
3) Discuss how we interface with peripheral devices
4) Considering an embedded C program explain why you would want to initialize global variables in the body of main
5) Discuss how Pulse Width Modulation is used

See you in the next class (June 04th)…

The End