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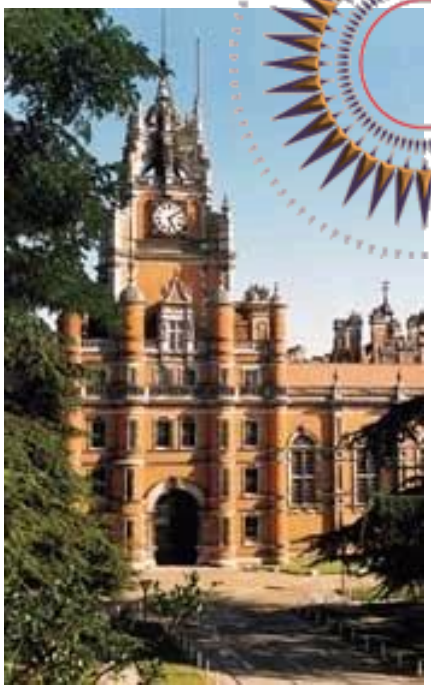

Lecture 1 – Introduction & Course Outline

Karl R. Wilcox

Karl@cs.rhul.ac.uk

Course Lecturer – Karl R. Wilcox

- **Qualifications**
  - BSc (Hons), Computer Systems Engineering
  - (Despite telephone book etc., NOT a doctorate!)
- **Work Experience**
  - 1985-87 Embedded system design / development
  - 1988-90 Development manager
  - 1990-99 Project Manager / Airline IT Consultant
  - 1999-01 Systems Architect, ICL
  - 2001-02 Systems Architect, Honeywell Aerospace

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Course Lecturer – Karl R. Wilcox

- **Teaching Experience**
  - **Technical Design Authority, ICL**
  - **Operating Systems, RHUL**
  - **Computer Engineering, RHUL**
  - **Communications & Networks, Soton & Reading**
  - **Software Engineering, Reading**
  - **Foundation Year Computing, Reading**
  - **COTS Software, Reading**
  - **Dreamweaver, Bracknell Open Learning**

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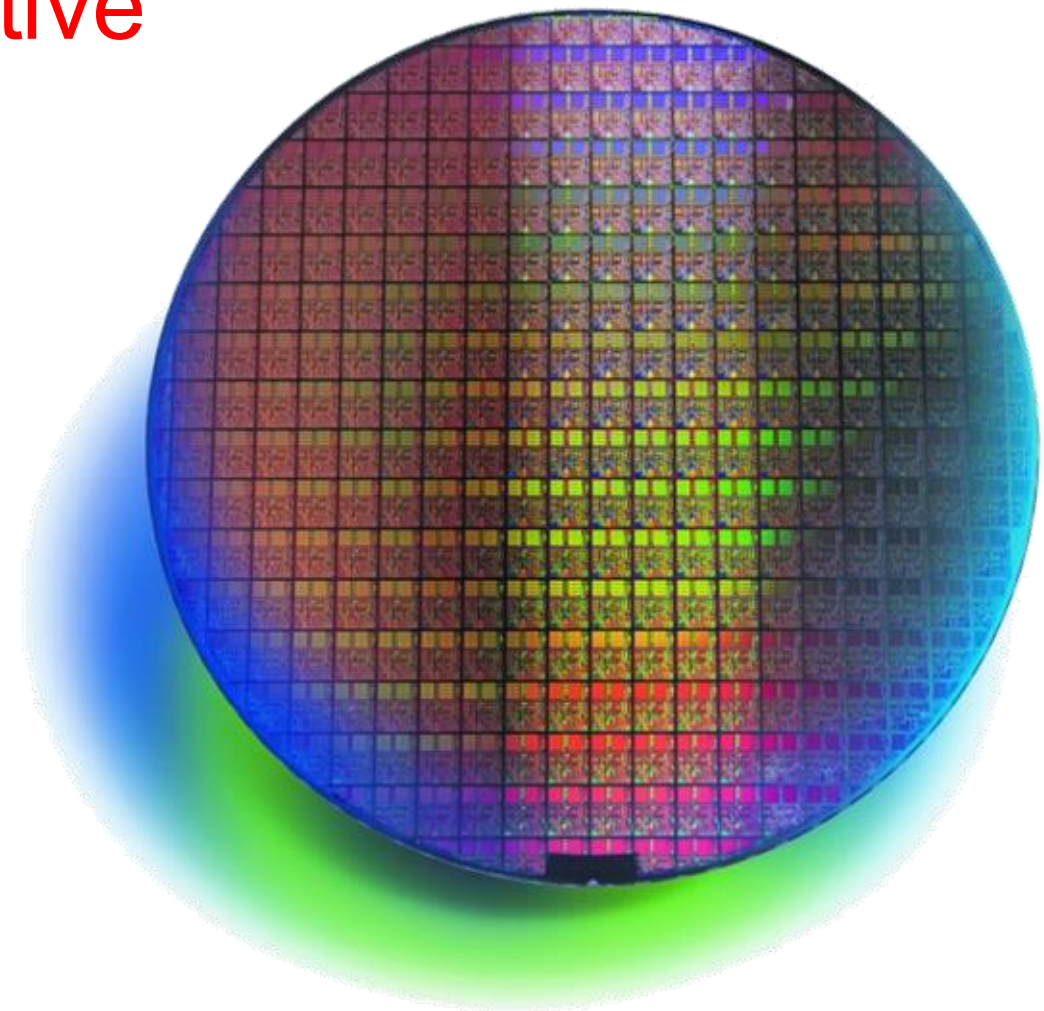
Course Objective



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Aims of the Course

- **Three main strands:**
  - **Digital electronics**
    - **Builds on Computer Engineering I**
  - **Processor design**
    - **Shows how we can build processors using digital logic**
  - **Assembly language compiling**
    - **How to get the best out of the processor**

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Outline of the Course

- **Lectures & Practicals**
  - **Mondays, 11-12 C103 Every Week**
  - **Wednesday 10-11 HLT2 – When notified (on Monday)**
  - **Wednesday 11-12 Tolansky – When notified (as above)**
  - **(May be subject to late cancellation – how to contact you?)**

- **Assessment**
  - **Some coursework, not assessed but must be completed**
  - **The final examination will count for 100% of the mark**

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Resources - 1

- **Course Textbook**
  - **“Computer Organisation & Design”**
  - **Patterson & Hennessy, Morgan Kaufman Publishers**
  - **ISBN 1-55860-491-X**
  - **£32.99 from Amazon, available in library**
- **Printed Notes**
  - **Available from school office in next few weeks**
  - **Watch for announcements**

Resources - 2

- **Software – TkGate**
  - **Digital logic simulator**
  - **http://www.cs.cmu.edu/~hansen/tkgate**
  - **X window based**
  - **Will run on MS Windows using Cygwin**
  - **Available on student Linux host (Need to check this!)**
- **Software – SPIM**
  - **MIPS processor simulator**
  - **www.cs.wisc.edu/~larus/spim.html**
  - **Windows & Linux versions**
  - **As used in Computer Engineering I**

Resources - 3

- **Web site**
  - **Lecture Slides**
    - **In MS Powerpoint Format**
    - **In Adobe PDF format – what layout do you prefer?**
  - **Web links**
  - **Book details**
  - **Assignment details**
  - **Anything that might be useful**
  - **http://www.cs.rhul.ac.uk/~karl/**
- **Site is NOT READY YET!**
  - **Watch for announcements**

Questions / Problems / Help

- **E-mail (preferred)**
  - karl@cs.rhul.ac.uk
  - kwilcox@iee.org
- **Text Messaging**
  - In English please, not txt!
- **Office**
  - Sorry, don't have one
  - Arrange meetings via e-mail or text

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Course Outline - 1

- **Refresher**
  - **Digital Logic**
  - **Assembly Language Programming**
    - **But you will need to revise Computer Engineering I !**
- **Digital Electronics**
  - **State Machines**
  - **State Reduction**
  - **PLDs, PLAs & friends**

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Course Outline - 2

- **Processor Design**
  - Pipelining
  - Caches
  - Memory Architectures
  - Superscalar and Parallel Processors
- **Assembly Language & Compiling**
  - Control Flow Structures
  - Optimisation
  - Code Scheduling

Course Outline - 3

- **Review**
  - **Final lectures will review all material**
  - **We will look at some example questions from past papers**
- **There are approximately 14 hours of lectures**
  - **and 3 revision lectures (more if required)**

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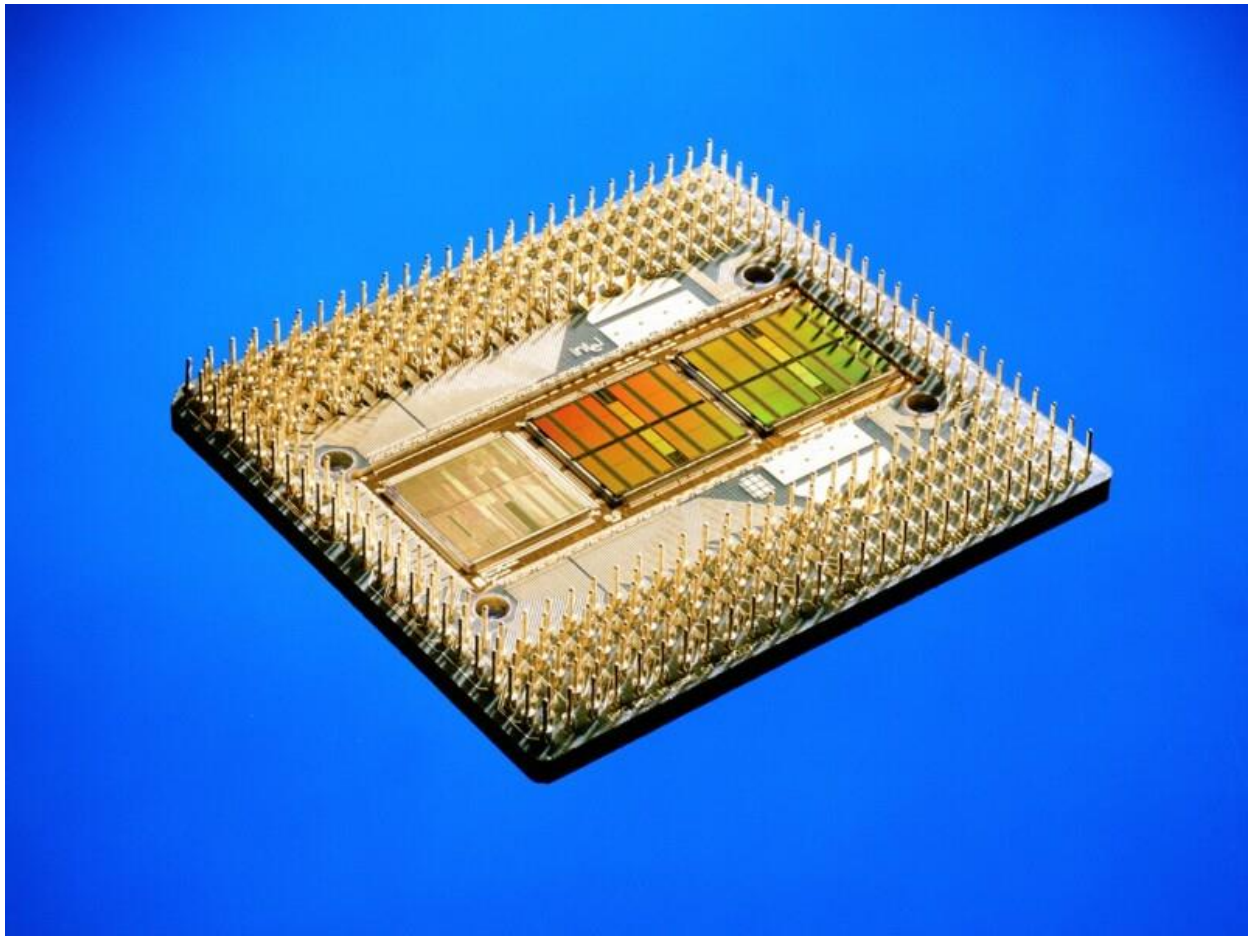
Course Objective



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Next Week

- There is NO lecture this Wednesday

- Next Lecture, Monday, C103
  - Brief review of digital logic
  - State machines

- Questions etc.
  - karl@cs.rhul.ac.uk
  - kwilcox@iee.org