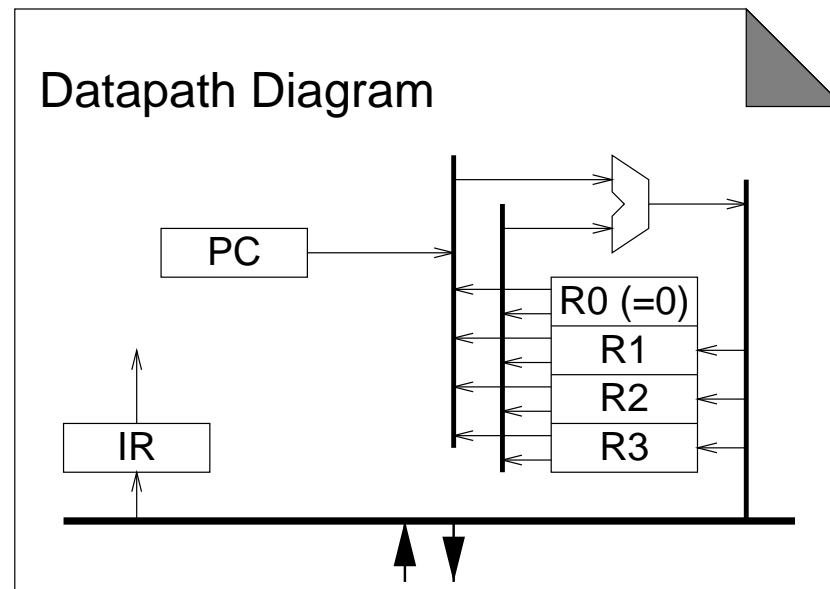
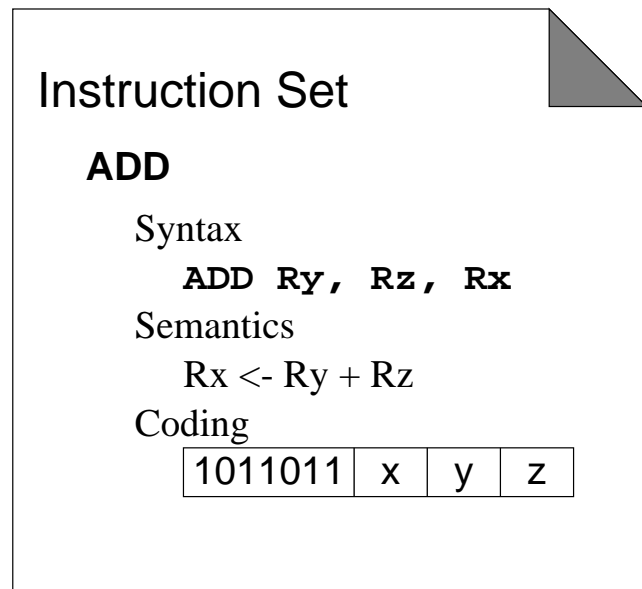


Design and Implement a Novel 16-bit Microprocessor in
 $0.35\mu m$ CMOS

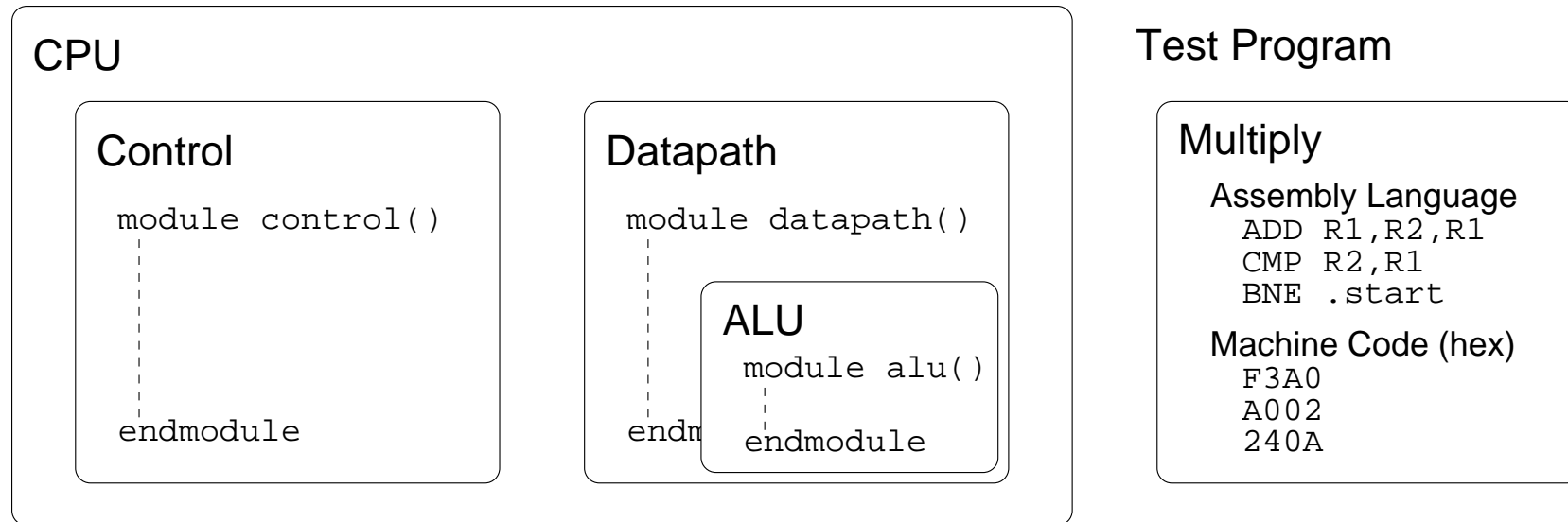
- Complete IC Design Flow
- Complex System
 - Importance of Systematic Approach
 - Modular Design & Test
 - Manage Complexity through Hierarchy
- Team Exercise
- Assessment - 100% Coursework
- Taught by - Iain McNally

To help with the complexity a number of milestone submissions are imposed:

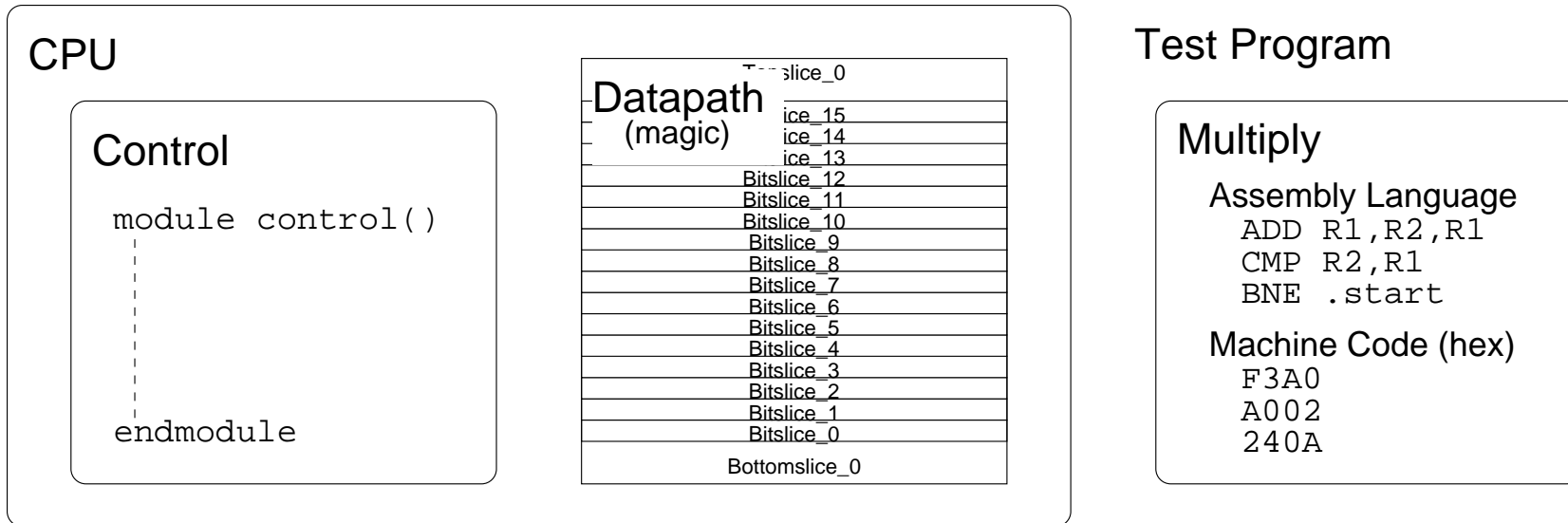
Initial Design



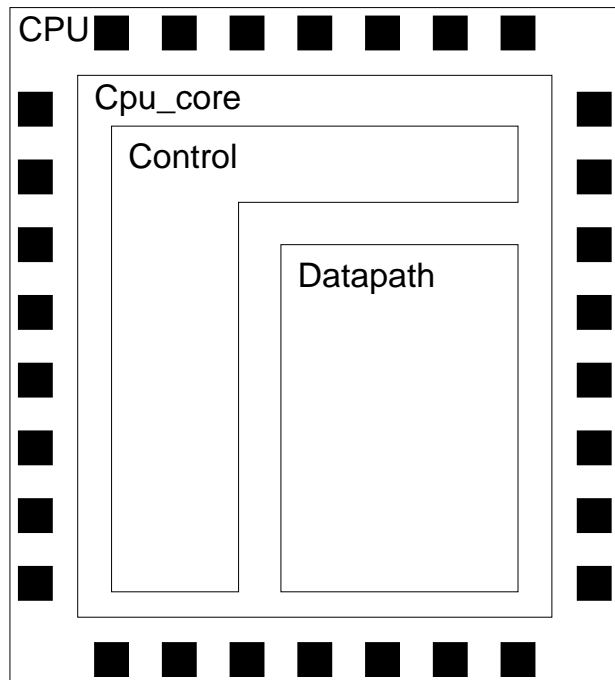
Behavioural Model



Cross Simulation



Final Design



Test Programs

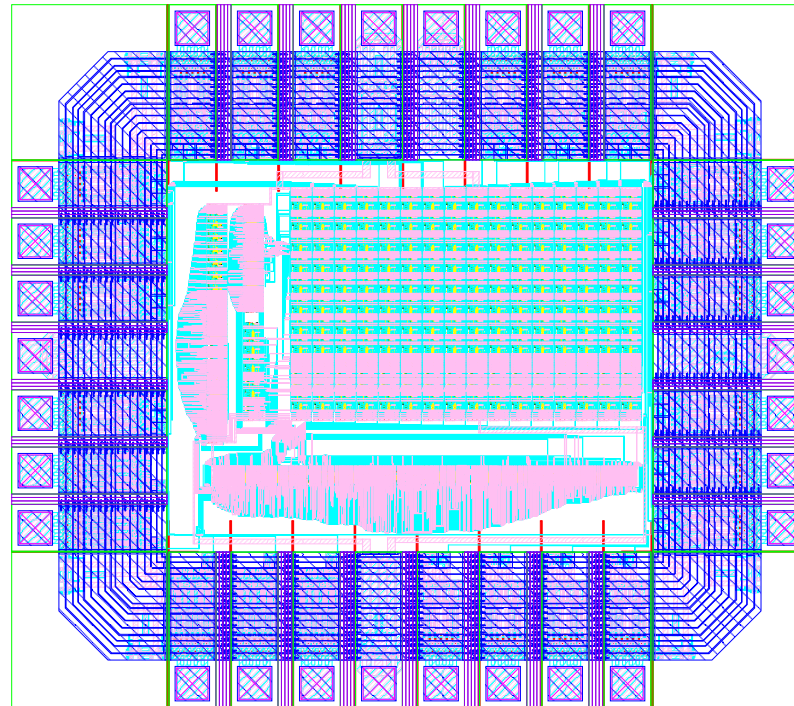
Multiply
Assembly Language
AD
CM
BN
Mach
F3
A0
24

Random
Assembly Language
SR
XO
ST
Mach
1F
44
03

Factorial
Assembly Language
LD [8004],R3
JSR .fact
SBC R2,1,R2
Machine Code (hex)
E220
0010
8004

Programmer's Guide

- Programmer's Model**
- Instruction Set**
- Programming Tips**
- Example Code**



Each year the best design is selected for fabrication. Fabricated chips are used in subsequent projectwork (e.g. part III project to produce an operating system for a computer based around a novel processor).