

Advanced Computer Architecture- Assignment

1. Mention two categories of parallel computers and explain them with their architectures
2. Explain different types of data dependence with the help of each
3. Trace out the following program to detect parallelism using Bernstein's conditions:

P1: $C = D * E$

P2: $M = G + C$

P3 : $A = B + C$

P4: $C = L + M$

P5: $F = G / E$

4. Define the following terms:
 - i. Grain Packing
 - ii. Coarse Grain
 - iii. Fine Grain
5. Discuss and compare the characteristics of RISC & CISC architectures.
6. Discuss and compare the following
 - i. Super scalar processing
 - ii. Pipelining Techniques
7. Write short notes on:
 - i. VLIW architecture
 - ii. Arithmetic pipelining design
 - iii. Control flow vs Data Flow
8. What are major hazards in a pipelining? Explain data hazard and methods to minimize data hazard with help of an example.
9. Define Amdahl's law.
10. Explain how pipelining is implemented in MIPS.