2000 Paper 12 Question 2

Computer Design

Modern processors exploit instruction level parallelism in order to improve throughput.

(*a*) Control-flow processors use pipelining to improve throughput. What limits throughput in the simple 5-stage pipeline depicted below?   [10 marks]

instruction fetch	decode/ register fetch	execute	memory access	register write back

(*b*) What is the principle of operation of a static data-flow processor and how does it resolve data dependencies?   [10 marks]