

2001 Paper 13 Question 2

Computer Design

- (a) What is a *data cache* and what properties of data access does it exploit? [5 marks]
- (b) What is a *direct mapped cache* and under what conditions will it exhibit poor performance? [5 marks]
- (c) Under what circumstances might a word of data in main memory be simultaneously held in two separate first-level cache lines? [5 marks]
- (d) A *translation look aside buffer* is a specialised cache. What does it typically store and why is it often a factor of 1000 smaller than a data cache? [5 marks]