

2007 Paper 7 Question 1

Comparative Architectures

- (a) Why is branch prediction so important in modern processors? [2 marks]
- (b) Why are saturating, two-bit counters used? [2 marks]
- (c) How does a local branch predictor operate? [2 marks]
- (d) How does a global branch predictor operate? [2 marks]
- (e) How may local and global branch predictors be used together? [3 marks]
- (f) Give an example sequence of branches that will fail to be completely predicted with a branch history of four. [3 marks]
- (g) How can the compiler assist with branch prediction? [3 marks]
- (h) Suggest methods for jump prediction. [3 marks]