Summary
DBMSs on a Modern Processor: Where Does Time Go?
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1 To be completed before class

What are the problems solved by this paper? (50 words)
Recent processors use various techniques to improve the overlap of computing and memory operations. Recent studies have shown that the faster processors do not improve the performance of databases as expected. Most of the studies evaluate the performance of one database workload on a platform and thereby do not capture the memory behavior.

What are the approaches attempted by this paper? (50 words)
The authors test 3 simple workloads on 4 commercial database systems. They test the applications on Intel Pentium2 Xeon processor workstations and measure the various reasons for stalls such as I-cache misses, D-cache misses, branch predicts. They employ the Intel Performance counters to perform the study.

What are the main conclusions of this paper? (50 words)
The main conclusions were that DBMS designers should optimize L2 data cache placement (to improve data locality and avoid L2 misses) and L1 instructions cache placement (to reduce I-cache and I-TLB misses) and should address subtle implementation issues as branch predictions (to increase number of instructions retired).

2 To be completed after class

Did this paper address an important issue? Explain. (100 words)

Are the proposed approaches valid? Describe its strength and weakness. (100 words)

Do the results support the conclusions? Explain. (100 words)

Describe the potential future works? (100 words)