Dynamo: A Transparent Dynamic Optimization System:
• What is being improved and how is it being improved?
• This is a runtime optimization implemented in software.
• Dynamo generates optimized code for “hot” regions and caches those regions in the fragment cache
• What benefits are obtained by executing the code from the fragment cache?
• What is stored in the fragment cache?

The Filter Cache: An Energy Efficient Memory Structure
• What is the goal of the filter cache? What is being optimized?
• Be able to draw a block diagram of the system. How is it different from a typical system with a cache? How does it change the hit time to the L1 cache?
• How does the filter cache trade lower power consumption for increased performance?
• Is this a hardware or software optimization?
• How is the hit time to the L1 cache changed when the filter cache is added?
• Why is the filter cache so effective given that it is very small compared to a much larger

Evaluation of a High Performance Code Compression Method
• What is the goal of code compression? Reduced program memory size
• What are the overheads involved with code compression?
• Where/where is the code decompressed? How does this affect miss penalty and why?
• What issues or bottlenecks did this paper discuss (there were 2 issues)
• What solutions did they give for the bottlenecks? (1 issue had 2 solutions, the other only had 1)
• How does code compression affect the “critical word first” cache optimization?
• When an instruction needs to be fetched from a compressed memory block, why is it difficult to determine where the instruction is within the compressed block?

Cache Configuration Exploration on Prototyping Platforms
• What two system aspects are being optimized? – performance and energy. How are they optimized? – by changing the cache configuration. Why does changing the configuration save power and/or energy? Why is there a trade off between power and energy?
• What is the benefit of a prototyping platform? How does this differ from a simulation-based environment?
• What are pareto optimal points? Give a graph, show which points are pareto optimal. Why are pareto optimal points important when you have a code optimization that trades off power and energy?

Profile Guided Code Positioning
• Code positioning is the same as code reordering
• What is code reordering? What is its goal? What does it optimize?
• How does code reordering improve cache utilization?
• Discuss the process for applying code reordering to an application
• How is code reordering similar to a trace cache?

A First Look at the Interplay of Code Reordering and Configurable Caches
• How do these two optimizations effect each other and why is exploring their interaction interesting?