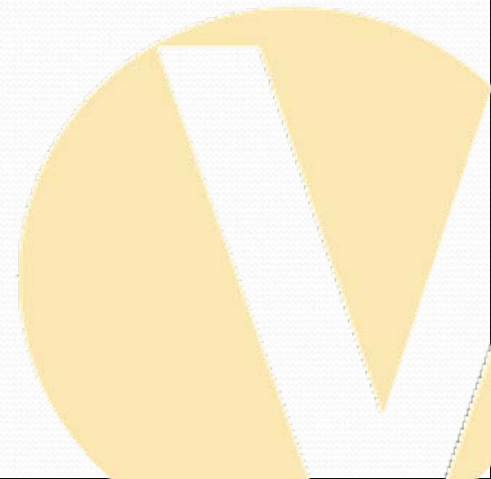


Optimization of Memory Allocation in VSIPL

Jinwoo Suh, Janice O. McMahon,
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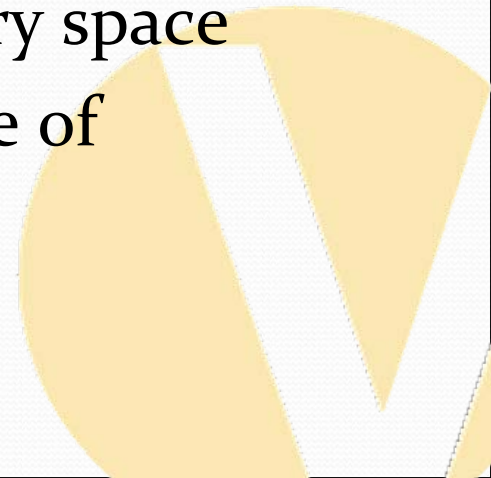
University of Southern California
Information Sciences Institute

September 18, 2007



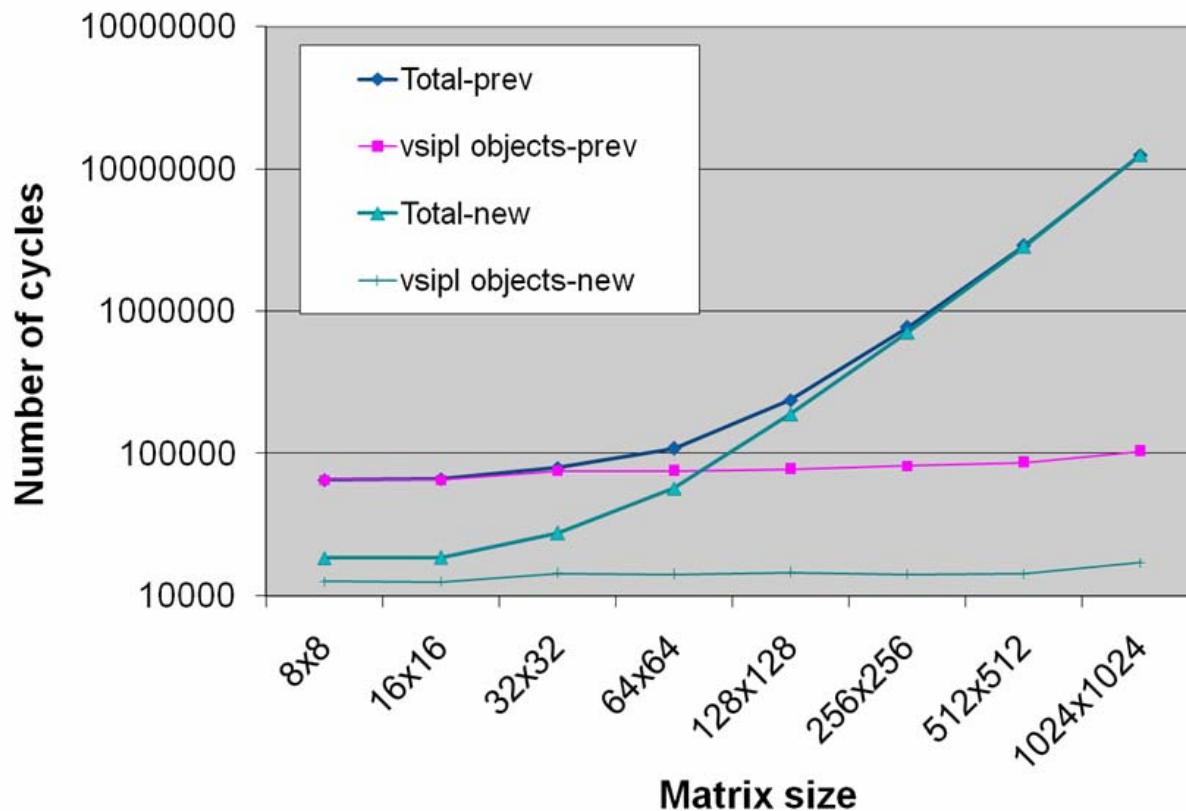
Memory Allocation in VSIPL

- VSIPL: Vector, Signal, and Image Processing Library
- Reference implementation: straightforward memory allocations
 - Uses malloc() and free() handled by operating system
 - Costs many cycles
 - Library overhead for management, bookkeeping, etc.
- Proposed implementation
 - Uses light-weight indexes to manage memory space
 - Emphasis on fast operation over efficient use of memory
 - First-fit-based algorithm



Results for Matrix Addition

- Results on Intel Core 2 Duo E6400 2.1 GHz
- Linux kernel version 2.6.9-5



Results for Matrix Maximum

- Results similar to Matrix Addition

