Initial Scaling Studies

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Problem Setup

- $S_6$ Problem
- Single Energy Group
- 64x64x64 grid for strong scaling study
  - Grid size varies in weak scaling
Strong Scaling Results

Observed sweep time per iteration for 64 cube problem

- Vol
- KBA
- Hybrid
- Ext_Hyb

Sweep Time per Iteration (ms)

Number of processors

$10^2$ $10^3$ $10^4$
Strong Scaling Results
Weak Scaling Results

Efficiency on MCR, Weak Scaling, Work per processor: KBA: 8x8x256, Hyb: 16x8x128, kz=1

Efficiency (Y-axis) vs. Number of Processors (X-axis)
Weak Scaling Results

Grind Times on MCR, Weak Scaling. Work per processor: KBA:8x8x256, Hyb:16x8x128, kz=1

- KBA
- Hybrid
Weak Scaling Results

Grind Times Speedups on MCR, Weak Scaling, Work per processor: KBA:8x8x256, Hyb:16x8x128, kz=1

- KBA
- Hybrid
Setup for Performance over Time

- **Sequential Input 1**
  - 8x8x8 Grid
  - $S_6$ problem
  - 12 energy groups
  - No Aggregation

- **Sequential Input 2**
  - Same Grid, Angles, and Energy groups
  - Aggregation
    - 6 angles per angleset
    - 12 energy groups per groupset
Sequential Performance History
Setup for Parallel Performance

- 8 processor job
  - MCR
- 16x16x40 grid
- 12 energy groups
- $S_6$ problem
- No aggregation of angles or energy groups
Parallel Performance History

![Graph showing parallel performance history over weeks since 12-13-2003]