Xeon Phi Recommendor Process - 1

1. Optimize CPU Performance
2. Optimize Vectorization Performance
3. Choose Xeon Phi Native, Symmetric, or Offload Mode, or “not”
Xeon Phi Recommendor Process - 2

- Use PerfExpert & MACPO
- Focus on vectorization, scaling, & finding optimal task/thread count per node
- Determine execution time of each function at optimal task/thread count

Optimize CPU Performance
Optimize Vectorization Performance
Choose Xeon Phi Native, Symmetric, or Offload Mode, or not
Xeon Phi Recommendor Process - 3

- **Assess Degree of Vectorization**

- **Optimize Vector Processing**
Xeon Phi Recommendor Process - 4

Study Native Mode Scaling

Run optimized app in Native Mode (Simple!) using different core/thread counts - try 30, 60, 90, 120 & 240

Any run w/ exec time << optimized CPU exec time?

Yes

Choose Native (or Symmetric) Mode

Re-optimize (New PerfExpert for Phis coming in Fall 2013!)

No

Evaluate Symmetric Mode & Cost of Data Movement

Data partitioned across CPUs & Phis
Use transfer time tables (contact PerfExpert Team)

Evaluate Symmetric Mode & Cost of Data Movement

>=1 run w/ exec time <= optimized CPU exec time?

Yes

No

Cost > Benefit?

Run in Symmetric Mode

No

Run in Symmetric Mode

Cost > Benefit?

Run in Offload Mode

Evaluate Offload Mode for these functions & thread counts

Run optimized app in Native Mode (Simple!) using different core/thread counts - try 30, 60, 90, 120 & 240

Functions w/ exec time << CPU execution time?

Yes

No

Run in on CPU

Cost > Benefit?

Run in on CPU

No

Run in Offload Mode

Yes

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