Instrumenting HPX

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Several tools use same interface to hook into the application

- Intel Amplifier: Performance analysis
  - Sampling
  - Instrumentation
- Intel Inspector: find memory and threading errors
  - Instrumentation

- ITT_NOTIFY
  - Mostly undocumented, but used for TBB – will not go away
Intel Amplifier

- Naming threads
  - worker-thread#0, io-thread#1
- Expose tasks
  - Naming HPX threads (tasks)
  - Task dependencies (not used yet)
  - Creation, deletion, start/stop executing
Naming OS Threads

Names as specified by HPX

HPX threads marked on top of OS threads
Naming HPX Threads (Tasks)

- Task names as specified by HPX
- Start/stop of task execution
- Synchronizing tasks
HPX Threads (Tasks) over Time

Task names as specified by HPX
Intel Inspector

- Naming threads
  - worker-thread#0, io-thread#1
- Memory tracking
  - Internal heaps
- Lock tracking
  - Creation, deletion, lock/unlock
Instrument HPX

- Currently ITT, very rudimentary VS
- Started with APEX
- Many commonalities
  - Create abstraction layer to enable plugging different frameworks
  - Allows independent development, no duplication of work