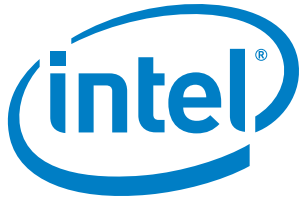

Intel® Trace Analyzer and Collector 7.2 for Windows* and Linux*

In-Depth

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Intel® Trace Analyzer and Collector 7.2 for Windows* and Linux*

Analyze, optimize, and deploy high-performance applications on Intel® processor-based clusters. Intel® Trace Analyzer and Collector provide information critical to understanding and optimizing MPI cluster performance by quickly finding performance bottlenecks with MPI communication. Version 7.2 now includes trace file comparison, counter data displays, and an MPI correctness checking library.

Features

Why Intel Trace Analyzer and Collector 7.2?

Analyze MPI performance. Speed up parallel application runs. Locate hotspots and bottlenecks. Compare trace files with graphics providing extensively detailed analysis and aligned timelines.

- Supported on Linux* and Microsoft* Windows* (Windows Compute Cluster Server* 2003, Windows XP and Windows Server* 2003)
- Intuitive full color customizable GUI with many drill down view options
- Highly scalable with low overhead and efficient memory usage
- Easy run-time loading—or instrument an MPI application executable
- MPI Correctness Checking Library detects many types of errors in communication
- Integrated online help
- Easy installation and full documentation
- Full tracing and/or light-weight statistics gathering

What's New?

- Correctness Checking reports now available in the Intel Trace Analyzer GUI
- Added support for:
  - Intel® Compilers 11.0
  - Microsoft* Windows Vista* and HPC Server 2008

Many features, many options, major performance improvements.

- PIN-based binary instrumentation
- Runtime behavior displayed by function, process, thread, timelines or cluster or node
- Multiple types of filtering (functions, processes, messages) and aggregation
- Performance counter data recording can be displayed as timeline
- Trace data is cached to reduce runtime overhead and memory consumption
- Traces multi-threaded MPI applications for event-based tracing to non-MPI applications
- Fail safe tracing
- Support for MPI-1, SHMEM, MPI-IO, ROMIO
- Distributed memory checking with the MPI Correctness checking library

Trace Collector

- Automated MPI tracing and MPI Correctness Checking
- Generic distributed (non-MPI) and single process tracing
- Thread level tracing with traces created even if the application crashes
- HPM data collection (PAPI, rusage, OS-counters)
- Configurable tracefile parameters
- Feature disabling/enabling
- Tuning parameters
- Distributed Memory checking with Valgrind*
- Binary runtime instrumentation
- Compiler instrumentation
  - Icc/ifort/icpc -tcollect
  - Gcc/g++ -finstrument-functions
- API: source code instrumentation (counter, function, message and collective operation logging)

Trace Analyzer

- Event, Quantitative, Qualitative, and Counter Timelines
- Flexible message and collective operation Profiles
- Function Profile (call graph, call tree, flat and load balance)
- Detailed comparison (of 2 traces)
- Multi-level source code visualization with a full text browser
- Flexible and powerful event tagging and filtering
- Hierarchical grouping and aggregation across function or processes data
- Large set of configuration parameters per chart
- Export profiling data as text; export charts to graphics or printer
- Command line interface

MPI Checking

Included in Intel Trace Analyzer and Collector is a unique MPI correctness checker to detect deadlocks, data corruption, or errors with MPI parameters, data types, buffers, communicators, point-to-point messages and collective operations. By providing checks at run-time, and reporting the errors as they are detected, the debugging process is greatly expedited. The correctness checker also allows debugger breakpoints to help in-place analysis but has a small enough footprint to allow use during production runs. The true benefit of the Intel Trace Analyzer and Collector Correctness Checker is the potential to scale to extremely large systems and the ability to detect errors even among a large number of processes. The checker can be set to view deadlocks regardless of fabric type.

By tracking data types and wrapping MPI calls, the requests and communicators can be reused from the trace collector. (The checking library is compiled from the source code of the performance data collection library.) The Analyzer is able to extremely rapidly unwind the call stack and use debug information to map instruction addresses to source code with and without frame pointers.

With both command line and GUI interfaces the user can additionally set up batch runs or do interactive debugging. The timeline view shows actual function calls and process interactions which highlights excessive delays or errors that stem from improper execution ordering.

See screen shots of various displays including metrics tracking, timeline views and parallel displays at http://www.intel.com/cd/software/products/asmo-na/eng/374084.htm

Instrumentation and Tracing

Intel Trace Analyzer and Collector specializes in low intrusion binary instrumentation. It can create and add this instrumentation to existing statically and dynamically linked binary executables to allow automatic monitoring of MPI as well as function entry and exit points. This includes the capability of tracing and recording performance data from parallel threads in C, C++ and Fortran.

Intel Trace Analyzer and Collector support both MPI applications and distributed non-MPI applications in C, C++, and Fortran. For applications running with Intel® MPI Library this includes tracing of internal MPI states.

Technical Support

With the purchase of Intel® Software Development Products, you will receive one year of technical support and product updates from Intel® Premier Support at https://premier.intel.com/, our interactive issue management and communication Web site. This premium support service allows you to submit questions, download product updates, and access technical and application notes, and other documentation. For more information, visit the Intel Registration Center at: http://www.intel.com/software/products/registrationcenter

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