



Allinea Tools for Cray Supercomputers

Software tools to analyze, optimize and debug applications

Allinea Software products are used by leading corporations and research institutions across the world; they set the standard for capability, performance and ease of use. Together, Allinea and Cray are working to provide benefits to their mutual customers.

“The right debugger can save everyone time - and that’s what we’re really trying to do with Allinea DDT - improve the time to solution for a development or investigation of a scientific problem.”

Dr. Paul Selwood
UK Met Office

“As core counts have increased, so has the need for tools that can handle these levels of parallelism. Allinea MAP provides us with a scalable way to visualize performance bottlenecks.”

Dr. Mark Parsons
EPCC

“It makes sense to be efficient and to identify and improve poorly performing applications. We used to look at applications in a non-systematic way - trying to spot the ones that use most resources. Now, we just run Allinea Performance Reports, identify the problems and then allocate the time and resources that we need.”

Dr Erwin Laure
KTH PDC

Benefits for Cray users

- Enhanced user experience of Cray systems with modern easy to use tools
- A single coherent development tool suite for Cray systems
- Debugging, profiling and benchmarking tools
- Designed for both expert and novice users.
- Lightning fast and extremely scalable.
- Rapid performance analysis with non-intrusive automatic measurement.
- Modern, capable, complete tools for today’s complex systems.
- Extensive unique built-in support for Cray systems and software.
- Integrated and delivered by Cray ready to use.
- Packaged on-site training available.
- Cross-platform tools for Intel Xeon, Intel Xeon Phi, NVIDIA and ARM processors.

Ideal for Users Who Seek To:

- Develop and deploy robust and efficient software for Cray systems.
- Identify applications with low performance and understand the cause.
- Get more performance from key applications through tuning or code profiling.
- Reduce software development time and risk.
- Fix complex software bugs effortlessly.
- Discover and remove performance bottlenecks.
- Spend more time developing or using code - less time learning complex tools.
- Use capable tools that work at any scale and fit the needs of the problem.
- Free up support staff time to solve real challenges
- Raise efficient cluster utilization with more codes reaching higher scales.



Key joint customers:

- NCSA
- ORNL
- NOAA
- LANL
- NERSC
- CSCS
- UK Met Office
- Australian Bureau of Meteorology
- Governments

- Profile and debug applications quickly and effectively on Cray XC and CS systems.
- Scalable tool suite proven on today's largest systems.
- Two world-leading powerful tools - in one integrated interface.
 - Parallel debugger - **Allinea DDT**
 - Parallel profiler - **Allinea MAP**
- Modern user interface to profile, debug, edit, build and commit - designed for developers and scientists, expert and novice.
- Remote client for Linux, Windows and Mac to connect and work on distant HPC systems.

- Simplifies debugging complexity: aggregate process views, smart highlighting and sparklines plots of data.
- Memory debugging for memory leaks and buffer overruns.
- Line-level profiling of I/O, MPI, OpenMP bottlenecks and instructions types including SIMD vectorization integrated in source code browser.
- Low-overhead profiling - typically 5% or lower.
- Supports OpenMP, MPI, SHMEM, Co-array Fortran, UPC, OpenACC and CUDA.
- **Energy Pack** add-on to profile application energy usage with Cray HSS counters on Cray XC.



- Easy to run, low overhead tool to measure application performance.
- Easy to share, store and use HTML, text or CSV reports.
- Provides guidance to improve application efficiency and boost system throughput.

- Analyzes and reports on I/O, MPI, OpenMP, memory usage and performance, floating point operations, vectorization and work imbalance.
- **Energy Pack** add-on to measure application energy usage and peak power with Cray HSS counters on Cray XC.

Engineered for Cray

Allinea's tools have unrivaled performance at full scale on the largest Cray systems.

The tools are integrated into the Cray environment with unique support for many new leading edge Cray capabilities.

Cray and Allinea Software: Leaders In HPC

Cray offers a comprehensive portfolio of HPC systems and storage delivering unrivaled sustained performance on a wide range of challenging applications.

Allinea Software is the leading supplier of tools for high performance computing (HPC).

The Cray-Allinea solution offers complete support - whether at modest scale or multi-petascale applications on the world's largest supercomputers.



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