Maximizing the record-breaking computational power of Cray systems requires error-free applications and optimized memory, processors, and threads. Developers of applications for Cray platforms can leverage Rogue Wave tools and components to improve productivity and fully harness the power of the hardware.

**Rogue Wave Development Tools for Cray:**

**TotalView®:** Source code and memory debugger
- A highly scalable debugger that provides troubleshooting for serial, parallel, multi-threaded, multiprocess, and remote applications.
- A GUI-based, source code defect analysis tool for C, C++, and Fortran applications providing unprecedented control over processes and thread execution, as well as visibility into program state and variables.
- Includes sophisticated memory debugging and analysis, reverse debugging, CUDA and OpenACC debugging capabilities.

**ThreadSpotter™:** Cache performance optimization tool
- Automatically analyzes the application as it is running, lists the performance problems in order of importance, suggests fixes, and gives the developer valuable insights and statistics needed to understand cache behavior.
- Makes performance experts more productive and helps less experienced developers become more educated in which techniques work well with the underlying hardware.
- Works in conjunction with most compiled languages and most parallelization paradigms.

**IMSL® Numerical Libraries**
- Provides advanced mathematical and statistical functionality for programmers to embed in applications for C, C++, Python, and Java.
- Developers can save weeks, months, or even years of effort by embedding IMSL algorithms versus building them in-house. Instead of writing hundreds of lines of code to create new algorithms, a developer can make one simple call to a routine that is fully tested, supported, and documented.
Leveraging Rogue Wave Development Tools on Cray:

- TotalView support for the Cray XT™, Cray XE™, and Cray XK™ lines of supercomputers, and NVIDIA® CUDA™ parallel programming environment on the GPU-accelerated Cray XK6™ and Cray XK7™ supercomputers.
- TotalView support for reverse debugging on both serial and parallel (MPI) programs running on the Cray XE line. This support includes Replay on Demand, which allows users to begin recording program execution as needed.
- ThreadSpotter support and comprehensive performance optimization for single and multi-threaded applications on Cray XE systems.
- ThreadSpotter support of ALPS and schedulers/resource managers PBS Pro, MOAB/Torque, and SLURM.

About Cray – The Supercomputing Company:

As a global leader in supercomputing, Cray provides highly advanced systems and solutions and world-class service and support to government, industry, and academia. Cray technology enables scientists and engineers to not only meet existing and future simulation and analytics challenges, but also achieve remarkable breakthroughs by accelerating performance, improving efficiency and extending the capabilities of their most demanding applications.

About Rogue Wave:

Rogue Wave Software, Inc. is the largest independent provider of cross-platform software development tools and embedded components for the next generation of HPC applications. Rogue Wave marries High Performance Computing with High Productivity Computing to enable developers to harness the power of parallel applications and multicore computing. Rogue Wave products reduce the complexity of prototyping, developing, debugging, and optimizing multi-processor and data-intensive applications.

Rogue Wave customers are industry leaders in the Global 2000, ISVs, OEMs, government laboratories and research institutions that leverage computationally-complex and data-intensive applications to enable innovation and outperform competitors. Rogue Wave is a Battery Ventures portfolio company.

For more information, visit www.roguewave.com.