

# Driving Maximum Productivity and Performance

## Cray Software Environment

Cray takes a comprehensive approach to the software environment for its XC™ series supercomputers and CS™ series cluster supercomputers, delivering a dedicated suite of HPC-optimized programming and management offerings. Cray also works closely with domain experts to deliver a wide variety of partner solutions that help customers make the most of their investment.



### SOFTWARE DEVELOPMENT PRODUCTIVITY FOR HPC APPLICATIONS

Cray's programming environment focuses on user productivity. It includes support for multiple programming languages, programming models, compilers, I/O libraries and optimized scientific libraries. Our work with third parties such as Rogue Wave and Allinea ensures a complete HPC development environment.



### FLEXIBLE PROGRAMMING MODELS

The Cray programming environment suite supports parallel programming models including MPI, Cray SHMEM™, UPC, Co-Array Fortran, OpenMP and OpenACC, the new directives-based approach to accelerators. The MPI implementation is compliant with the MPI standard, and on the XC series, it is optimized to take advantage of Cray's high-performance Aries™ interconnect.



### SYSTEM MANAGEMENT AND WORKLOAD MANAGER SUPPORT

To ensure you get the most workload production out of your supercomputing system, Cray provides a robust system management stack with a broad variety of utilities and support. Additionally, the Cray XC series software environment is tightly integrated with industry-standard workload managers including Altair PBS Professional®, Adaptive Moab® HPC Suite and SLURM.

## A Look Inside

<p><b>Comprehensive Programming Environment Support for Numerous:</b></p>	<ul style="list-style-type: none"> <li>▪ Programming languages</li> <li>▪ Programming models</li> <li>▪ Compilers</li> <li>▪ Tools</li> </ul>	<ul style="list-style-type: none"> <li>▪ I/O libraries</li> <li>▪ Optimized scientific libraries</li> <li>▪ Partner middleware</li> <li>▪ Partner ISV codes and applications</li> </ul>
<p><b>Cray System Management Software Improves:</b></p>	<ul style="list-style-type: none"> <li>▪ System uptime</li> <li>▪ Workload productivity and throughput</li> <li>▪ Efficient upgrades and updates while in operation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Rollback protection, less lost operation or downtime</li> <li>▪ Ease of use in leveraging industry standardization</li> </ul>