



Intelligent HPC Workload Management



Moab® HPC Suite for Cray

Super Productivity and Service Level Performance for Cray Supercomputers

With Moab HPC Suite from Adaptive Computing, Cray users get the highest workload productivity and service levels from systems. Intelligent workload management automates the optimized scheduling, resource utilization, uptime, service level enforcement and usage accounting for HPC workloads. It all means Cray systems can focus on what they do best—tackling massive Big Data challenges.

Optimized for Cray Systems

Moab HPC Suite's comprehensive range of workload management capabilities increases the speed and amount of results customers get from their Cray systems while also balancing resource sharing among many competing groups, projects and priorities. Only Moab offers such a complete range of scheduling and service level optimization policies combined with usage accounting capabilities and massive multi-point scalability that can handle the large volume of jobs or large systems today's data-intensive computing requires. Optimized for Cray systems, Moab HPC Suite manages 80 percent of the company's highest performing customer systems. With the introduction of Version 7.1 and the new Cray-aware architecture enhancements developed through our close partnership with Cray, Adaptive Computing can now offer even faster job scheduling with higher uptime and availability.

Drive Higher ROI from Your HPC System

Moab HPC Suite provides the ultimate intelligent workload management for Cray customers who need to accelerate productivity, automate uptime and ensure service level agreements (SLAs) and priorities are met. It enables Cray users to maximize the value of their investments by quickly delivering powerful benefits that drive more ROI and competitive advantage from their HPC system including:

- Higher job throughput
- Massive scalability for faster response and extensibility
- Optimum utilization of 90-99 percent on a consistent basis
- Fast, simple job submission and management to increase productivity
- Reduced cluster management and support costs
- Improve user and organization satisfaction through consistent SLA delivery

"Cray is focused on helping our customers solve the most challenging scientific and engineering problems. We see great potential for the new Cray workload management enhancements Adaptive Computing has delivered in Moab HPC Suite 7.1. They are designed to help our mutual customers rapidly develop solutions and opportunities with high-speed, reliable job scheduling and streamlined administration across Cray systems of all sizes."

Peg Williams
Senior Vice President
High Performance Computing Systems,
Cray Inc.





Cray and Adaptive Computing: Solving the Toughest Computing Challenges

Adaptive Computing maximizes the value of your Cray investments to help you solve the toughest computing challenges. Together we help you scale to leverage new technology and tackle the most complex Big Data challenges. Adaptive Computing's unmatched Moab policy intelligence engine ensures multiple groups get the agreed upon level of shared resource usage at the right priority and manages their multiple usage budgets and reporting. Moab HPC Suite can help you maximize the utilization of your Cray computational resources to get more results completed faster and automate improved uptime for your workload processing.

Managing your Cray workloads with Moab HPC Suite means you solve more challenging problems, get more results faster and turn data and ideas into competitive advantage more quickly. It does all this while boosting satisfaction and collaboration among your internal and external user groups.

Why Moab on Cray?

Together, Cray and Adaptive Computing are powering the world's largest and most robust supercomputers. Cray offers a comprehensive portfolio of HPC systems and storage systems delivering unrivaled sustained performance on a wide range of challenging applications. Adaptive Computing's patented Moab intelligence engine uses multi-dimensional policies that work together to accelerate running workloads at the optimal time across the ideal combination of diverse resources. The streamlined Cray-aware architecture between Moab HPC Suite and Cray ALPS enables faster, more reliable deployment, scheduling and optimization:

- **Faster, dedicated Moab scheduling node** outside of the Cray system maximizes scheduling throughput and speed
- **Faster deployment on Cray systems** with streamlined integration with Cray ALPS architecture
- **Topology-based scheduling capabilities** speed job processing up to 200 percent
- **Dual-domain job scheduling** speeds job submission and results by scheduling a single job to run simultaneously across both Cray cluster and non-Cray compute nodes
- **High availability for workloads** and the ability to submit and query jobs during maintenance or unexpected outages
- **Cray SDB processes insulated from impact** of increased demands on Moab
- **Auto-detection of Cray nodes, accelerators and GPGPUs**
- **Superior ALPS reservation cleanup** to drive optimal utilization

Key Capabilities Deliver Superior Performance

- **Massive multi-point scalability** to accelerate job response and throughput, to support one million jobs, 10,000+ nodes, and 1,000+ users
- **Workload-optimized allocation policies and provisioning** to get more out of resources
- **Optimized, intelligent scheduling** packs workloads and backfills around priority jobs and reservations while balancing SLAs
- **Simplified job submission and management** with advanced job arrays, self-service portal, and templates
- **Administrator dashboards and reporting tools** reduce management complexity and time
- **Intelligent resource placement to prevent job failures** and with granular resource modeling to meet workload requirements and avoid at-risk resources
- **Auto-response to failures and events** with configurable actions to pre-failure conditions, amber alerts, or other metrics and monitors
- **Workload-aware future maintenance reservations scheduling** that helps maintain a stable HPC system without disrupting workload productivity
- **Usage accounting and budget enforcement** that reports usage in line with resource sharing agreements and budgets
- **SLA and priority policies** that make sure the highest priority workloads are processed first
- **Continuous plus future scheduling** ensures priorities and guarantees are met as conditions and workload changes

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