

Altair PBS Professional™ for HPE

World-Class HPC Workload Management

Altair PBS Professional™



Altair PBS Professional gives Hewlett Packard Enterprise (HPE) cluster users an efficient, reliable solution for HPC workload management. As an HPE-integrated product, PBS Professional optimizes job scheduling on HPE Apollo, HPE ProLiant DL, and HPE SGI 8600 systems to achieve the highest levels of system utilization. PBS Professional is also integrated with HPE Performance Cluster Manager, ensuring easy cluster deployment and management for administrators.

Product Highlights

- Industry-leading job scheduling and workload management
- Proven for over a decade at thousands of customer sites, including many Top500 installations
- Scalability to millions of cores
- Seamless integration with all HPE HPC systems
- Unparalleled power management capabilities
- Unbeatable services and support
- Global PBS support with local experts in over 25 countries
- Close HPE-Altair collaboration for tight, seamless implementation and performance tuning

Learn more:
pbsworks.com

"It was a clear choice to go with PBS Professional... It offers the most robust and flexible management of our diverse user policies and requirements, and it's simple to install and use. In addition, Altair's expertise and dedication to implementation success is unbeatable."

*Dr. Mark Vilensky, Scientific Computing Manager,
Chemical Physics Department, Weizmann Institute*

HPE Administrators and Users Gain:

- **Superior Job Scheduling:** PBS Professional efficiently distributes workloads across HPE platforms, from clusters to the largest super-computing systems.
- **Industry-Leading Scalability:** PBS Professional scales easily to millions of cores.
- **Seamless Deployment & Integration:** PBS Professional is optimized so it can be used for all HPE high-performance computing systems.

- **Expert Support Team:** Altair supports HPE customers through a network of global experts and our close business collaboration means users can expect high-value, seamless deployments.
- **Comprehensive Cloud Readiness:** Proven as the backbone for multiple HPC cloud services, Altair's software stack for physical and virtual cloud appliance computing — featuring Altair HyperWorks™ Unlimited and Altair PBS Works™ — combined with HPE Performance Cluster Manager offers HPE customers an attractive solution for HPC in the cloud.
- **Power Management Capabilities:** Altair offers unparalleled power awareness capabilities with the integration of HPE Performance Cluster Manager and PBS Professional. Available today for HPE SGI 8600 clusters, the solution includes capabilities for power capping, per-job power profiles, energy accounting, and more.
- **Unparalleled Security:** PBS Professional is the only workload manager with EAL3+ security certification and SELinux support.

Ideal for HPE Customers Who Want to Support Cloud:

- Maximize value from all HPE HPC system investments.
- Reduce costs by minimizing wasted hardware, software, and electrical power.
- Increase workload security and reliability. PBS Professional is the only workload manager with EAL3+ certification and SELinux support.
- Improve end-user productivity and decision-making, ensuring you're meeting service-level objectives.
- Implement business priorities by ensuring high-priority work runs first and completes on time.
- Support cloud deployments. No other vendor offers proven capabilities in all major cloud areas — applications supplier, middleware supplier, SaaS offering, and HPC user.

Job Scheduling and Workload Management on HPE Clusters

HPE Apollo, HPE ProLiant DL servers, and HPE SGI 8600 clusters integrate with the PBS Professional workload manager to drive the highest system utilization levels. PBS Professional supports multiple users and applications with an efficient queue management system that enables jobs, both batch and interactive, to be presented to the system based on site-defined policies and priorities. It uses a scheduling system to make optimal use of available hardware and software resources. With PBS Professional, administrators of the HPE clusters can set user priorities and policies, track usage, and provide a queuing system for job submissions.

Key Features and Benefits

- GPU/co-processor scheduling prioritizes use and manages access to all types of accelerators, with full access control and accounting.
- Supports the latest versions of RHEL, CentOS, and SLES on all Intel® Xeon®, AMD EPYC™, and 64-bit Arm®-based HPE HPC systems.
- Estimated job-start times enable you to plan your workflows and meet deadlines.
- Backfill TopN scheduling eliminates wasted cycles without delaying any work.
- Dynamic provisioning via HPE Performance Cluster Manager changes the OS and/or application operating environment to match changing workload demands.
- Submission filtering “hooks” to change/augment capabilities on site, on the fly.
- Shrink-to-fit jobs boost utilization, especially before planned system outages, and they run sooner.
- Workloads are distributed efficiently for maximum return on investment (ROI).
- Virtually unlimited scalability supports configurations from workgroup clusters to the largest supercomputers.
- User, group, and project limits allow fine-grained policy adjustments.
- Job arrays allow for maximum throughput to schedule, execute, and manage unlimited jobs.
- Tunable scheduling formula defines any policy, including on-the-fly exceptions.
- User-customizable “runjob hooks” ensure allocation management limits are strictly enforced.
- Advance resource reservations guarantee resources for recurring needs.
- Unified job and resource (“vnode”) architecture lets you write job requirements once and automatically optimizes placement.
- Job status with history (via “qstat -x”) means you'll never lose track of jobs.
- Python, the portable modern scripting language, is available everywhere, allowing one script to be used across all architectures.
- Preemption and checkpointing allows you to immediately run high-priority work.

Visit pbsworks.com for a detailed list of technical features.

Read more about HPE & Altair offering at: hpe.com/software/altairpbs

HPE and Altair: Leaders in HPC

HPE leads the HPC market, offering the broadest spectrum of high-performance computing solutions from workgroup and departmental servers to systems designed for engineering enterprises and supercomputing centers. Altair has served the HPC market for decades with award-winning workload management, engineering, and cloud computing software. Together, HPE and Altair deliver innovative, industry-standard solutions that are optimized for scalability, performance, and cost-effectiveness.

Read more about the Altair PBS integration with HPE Performance Cluster Manager at:

pbsworks.com/hpcm-pbspro-connector