



"By providing our HPC users with first-rate workload management products like PBS Professional, Fujitsu is maintaining its leadership in simplified, reliable HPC computing solutions. Altair is a leader in HPC software and services, and PBS Professional is the default product for commercial-grade workload management."

Fujitsu

"The Fujitsu-Altair integrated solution offers a great alternative for application users who need to get up and running quickly with a high-performance system that just works."

Bill Nitzberg, PBS Works CTO

PBS Professional® for Fujitsu

Advanced workload management for PRIMERGY HPC Systems

As an Altair global authorized reseller, Fujitsu offers PBS Professional on all PRIMERGY systems. PBS Professional is also the **default workload manager** for Fujitsu's high-performance computing (HPC) Cluster Suite (HCS) Advanced Edition, the **premier Fujitsu offering** for HPC computing customers. The integrated solution will improve productivity for Fujitsu users seeking **practical and efficient** HPC solutions.

Fujitsu Users Gain:

- **Superior Job Scheduling:** One of the most popular workload managers in existence, PBS Professional efficiently distributes workload across Fujitsu high-performance computing platforms
- **Advanced Cluster Solution:** Fujitsu has selected PBS Professional as the default workload manager for its HPC Cluster Suite (HCS) Advanced Edition, with extended features such as large cluster support and high availability, plus support for multiple clusters at a single site
- **Industry-leading Scalability:** PBS Professional scales easily to thousands of users, hundreds of thousands of CPUs, and millions of jobs
- **Comprehensive Cloud Readiness:** Proven in multiple HPC cloud services, including Altair's HyperWorks On-Demand, PBS Professional offers Fujitsu users a reliable backbone for deploying HPC private clouds
- **Green Provisioning™:** Monitor, shutdown, and restart resources based on workload requirements to conserve energy conservation. Validated by several leading sites, Altair has lowered customer energy use by up to 30 percent

Ideal for Users Who Seek To:

- Add security and reliability to workload (PBS Professional is the only workload management solution to be EAL3+ certified)
- Reduce risk by minimizing and automatically recovering from hardware failures
- Maximize end-user productivity and decision making, ensuring service level agreements (SLAs) are met
- Lower operational costs by minimizing wasted hardware, software, and electrical power
- Implement business priorities by ensuring the most important work runs first and completes on-time
- Add global technical support to meet expectations with personal, one-on-one attention (Altair offers local experts in 18+ countries)



Why PBS on Fujitsu?

- **Industry-leading workload management**
 - Proven for over a decade at thousands of customer sites
 - Scalability to hundreds of thousands of CPUs
 - Support for GPUs and co-processors (Intel® Xeon Phi™)
- **Tight Fujitsu integration**
 - Offered on all PRIMERGY systems
 - Default scheduler for Fujitsu HPC Cluster Suite (HCS) Advanced Edition
 - Driven through the Fujitsu HPC Gateway web user environment that simplifies the HPC experience
- **Proven expertise and support**
 - Altair and Fujitsu integrated solutions are designed to ease the transition from workstation to cluster environments
 - Altair is an HPC leader with local experts in 19 countries

Key PBS Professional Features & Benefits

- GPU / co-processor scheduling prioritizes use and manages access to all types of accelerators (NVIDIA, AMD) as well as the Intel® Xeon Phi™ coprocessor, with full access control and accounting
- 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 automatically change OS 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; plus, jobs actually run sooner.
- Efficiently distributes workloads for maximum return on investment (ROI)
- Virtually unlimited scalability supports configurations from workgroup clusters to the largest single-system image supercomputers
- Job arrays allow for maximum throughput to schedule, execute and manage unlimited jobs
- User, group, and project limits to implement fine grained policy adjustments
- Tunable scheduling formula defines any policy, including on-the-fly "exceptions"
- User customizable "runjob hooks" ensures allocation management limits are strictly enforced
- Advance resource reservations guarantee resources for recurring needs
- Unified job & resource ("Vnode") architecture allows you to write job requirements once and automatically optimizes placement
- Job status with history (via "qstat -x"), allowing you to 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

And many more. Visit www.pbsworks.com for a detailed list of technical features.

The Premier Choice for Fujitsu Clusters

The Fujitsu HPC Cluster Suite (HCS) is a comprehensive, purpose-built software stack that includes a set of fully validated components for x86 clusters. The stack combines best-of-breed open source and proprietary software and tools to ensure optimal usage of Fujitsu PRIMERGY hardware, with ease of management and use.

One of the most popular workload managers in existence, PBS Professional has been selected by Fujitsu for their HCS Advanced Edition, with extended features such as high availability, with support for multiple clusters at a single site. Fujitsu customers can use PBS Professional by choosing the HCS Advanced Edition or by requesting PBS Professional for any PRIMERGY server.

Fujitsu and Altair: Leaders in HPC

Building on a successful track record spanning the past 30 years, Fujitsu has developed and delivered state-of-the-art solutions across the widest range of applications. With core skills in all HPC design layers – including interconnects, operating system software, middleware and compilers, and an expertise-based HPC user interface – Fujitsu is ideally positioned to help clients maximize return on their HPC investments. Altair has served the HPC market for decades with award-winning workload management, engineering, and cloud computing software. The joint Fujitsu-Altair solution provides a superior option for users seeking a reliable cluster stack supported by proven experts in HPC.



Altair Engineering, Inc.
1820 E. Big Beaver Rd., Troy, MI 48063-2031 USA
Phone: +1.248.614.2400 • Fax: +1.248.614.2411
www.altair.com • info@altair.com

For more information about PBS Professional, visit www.pbsworks.com to request a quote or view a demo.

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