# ALTAIR® PBS PROFESSIONAL® FOR FUJITSU HPC SYSTEMS

Fujistu is an Altair global authorized reseller, offering PBS Professional on all Fujitsu PRIMEHPC systems. The PRIMEHPC series is equipped with the same A64FX CPU used in the supercomputer Fugaku, developed by Fujitsu and Japan's leading research institute, RIKEN. The integrated solution improves productivity for Fujitsu users seeking practical and efficient HPC solutions.

## About PBS Professional

PBS Professional is a fast, powerful workload manager designed to improve productivity, optimize utilization and efficiency, and simplify administration for clusters, clouds, and supercomputers — from the biggest HPC workloads to millions of small, high-throughput jobs. PBS Professional automates job scheduling, management, monitoring, and reporting, and it's the trusted solution for complex Top500 systems as well as smaller clusters, proven for over a decade at thousands of customer sites.


Cloud-ready with static and dynamic bursting capabilities

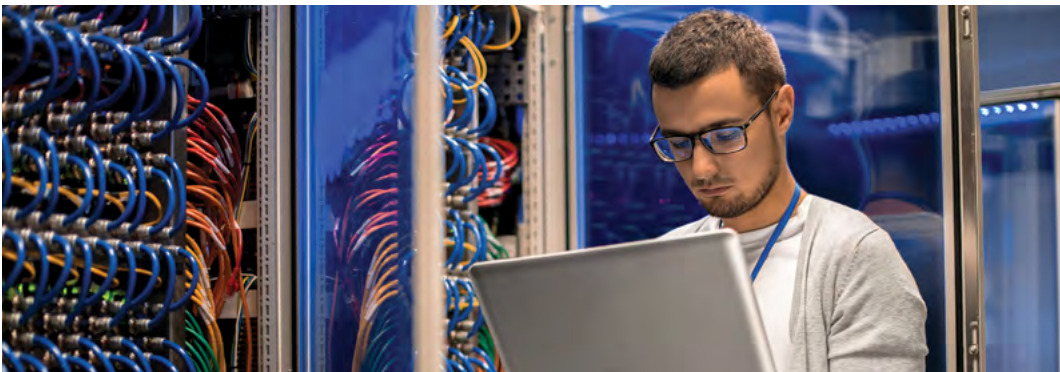## Benefits for Fujitsu Administrators and Users

With PBS Professional, Fujitsu users and admins get industry-leading job scheduling and workload management, scalability to millions of cores, seamless integration with Fujitsu HPC systems, and unparalleled power management capabilities. Altair provides unbeatable global service and support with local experts in over 25 countries. Fujitsu and Altair collaborate closely for tight, seamless implementation and performance tuning.


EAL3+ certified security with SELinux support



**Superior Job Scheduling and Workload Management** – PBS Professional efficiently distributes workloads across Fujitsu high-performance computing platforms to drive optimal system utilization. PBS Professional supports multiple users and applications with an efficient queue management system that allows Fujitsu administrators to track usage and set user priorities and policies. It also supports hierarchical scheduling for increased throughput.

**Industry-leading Scalability** – PBS Professional scales easily to millions of cores.

**Seamless Deployment and Integration** – PBS Professional is optimized for use with Fujitsu high-performance computing systems.

**Expert Support** – Altair supports Fujitsu customers through a network of global experts. This close business collaboration means users can expect high-value, seamless deployments.

**Unparalleled Security** – PBS Professional is the only workload manager with EAL3+ security certification and SELinux support.

**Comprehensive Cloud Readiness** – PBS Professional comes with a built-in GUI that enables administrators to extend HPC resources to public and private clouds including Oracle Cloud Infrastructure, Google Cloud Platform, Microsoft Azure, and Amazon Web Services (AWS). Dynamic bursting makes it easy to manage peak-time workloads.

**Allocation and Budget Management** – Manage budgets across an entire enterprise and for multiple clusters by allocating users credits for PBS Professional workloads. Credits can be provided in one or more customizable currencies. For visibility into HPC usage, PBS Professional includes full reporting of credit consumption by groups and by individual users.
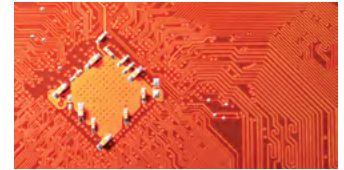
**Forecasting and Simulation** – The simulator included with PBS Professional helps admins understand in detail and quickly evaluate situational issues and potential policy changes on workload execution.



Efficiently distributes workloads across Fujitsu platforms



Manages budgets across an entire enterprise

### Key Features
- GPU/co-processor scheduling prioritizes use and manages access to all types of accelerators, 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 changes 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 run sooner
- Efficiently distributes workloads for maximum return on investment (ROI)
- Virtually unlimited scalability supports configurations from clusters to the largest 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 and resource ("vnode") architecture allows you to write job requirements once and automatically optimizes placement
- Job status with history (via "qstat -x"), means you'll never lose track of jobs
- Python is available everywhere, allowing one script to be used across all architectures
- Preemption and checkpointing allows you to immediately run high-priority work

### Fujitsu and Altair: Leaders in HPC
Building on a successful track record spanning the past 40+ 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 helps 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 HPC experts.