Altair transforms design and decision making by applying simulation, machine learning and optimization throughout product lifecycles.
ALTAIR AT A GLANCE

Founded 1985
Headquartered in Troy, MI US

71 offices
in 24 countries

$333M
2017 Revenue

100+
Software products under our unique, patented licensing model

2,000+
Engineers, scientists and creative thinkers

5,000+
Customer installations globally

60,000+
Users
Easily manage HPC cluster, cloud, and supercomputing environments

For IT administrators and HPC users

Direct sales and support

Also sold by computer hardware companies

Workload Management
Cloud Computing
Remote Visualization
IT Analytics
Cross-domain Security
ALTAIR PBS WORKS™

Cloud HPC Resources

On-Premises HPC Resources

Altair Access™

Altair PBS Professional™
   Altair Accelerator™
   Altair Accelerator Plus™

Altair Control™

Altair SAO
Altair Monitor™

Altair Allocator™

Altair FlowTracer™

Altair Hero™

Engineer or Scientist

HPC Admin
# ALTAIR PBS WORKS™ PRODUCT SUITE

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INDUSTRY-LEADING WORKLOAD MANAGEMENT

- Smart scheduling across broadly distributed resources
- Hierarchical scheduling (10x improvement)
- High throughput and optimized resource utilization
- Million-core scalability
- Market-leading security
- Green provisioning
- Cloud bursting
- GPU and co-processor scheduling
ALTAIR PBS PROFESSIONAL™

Altair’s industry-leading workload manager and job scheduler for high-performance computing (HPC) environments
ALTAIR PBS PROFESSIONAL™ FEATURES

Altair PBS Professional automates job scheduling, management, monitoring, and reporting. It’s the trusted solution — not just for complex systems, but also for smaller clusters.

Highlights

• **Ubiquitous**: open-source and commercial licensing
• **Performant**: million-core scalability, fast throughput
• **Secure**: EAL3+ security certification and MLS (SELinux) support
• **Intelligent**: policy-driven and topology-aware scheduling
• **Scalable**: proven to run millions of jobs per day
• **Green Provisioning™**: power management and control
• **Robust**: known in the industry for stability and support
• **Open Architecture**: implement virtually any new policy
• **Modern**: containers, cloud bursting, parallel scheduling

NASA’s workload manager of choice for all NAS HPC resources

250k+ cores scheduled by one Altair PBS Professional™
ALT AIR PBS PROFESSIONAL™ CAPABILITIES

Altair PBS Professional is a fast, powerful workload manager designed to improve productivity, optimize utilization and efficiency, and simplify administration for HPC clusters, clouds, and supercomputers.

**Policy**
Meet enterprise-wide scheduling and use policies with resource-based scheduling to ensure the right jobs run at the right times on the right resources.

**Utilization**
Maximize ROI and minimize waste, ensuring the best use of hardware, software licenses, energy, and cloud resources.

**Performance**
Fast and scalable execution to meet the needs of even the most demanding enterprises with thousands of users and millions of cores.

**Resilience**
Secure and hardened to minimize downtime; health checks and automatic failover ensures jobs get done despite faults and failures.

**Open**
Extensible plugin framework to meet each site’s unique needs.

Dual-licensed: commercial and open source.
Altair PBS Professional is the industry-leading workload manager and job scheduler for high-performance computing (HPC) environments.

New Features

- **Docker**: automatically run jobs in per-job specified containers, with added security that mitigates the Docker “as-root issue”
- **MultiSched**: multiple schedulers each handle separate partitions, with per-partition scheduling policies, speeding scheduling while retaining a single global view of the whole cluster
- **Cgroups**: provide kernel-level resource isolation, usage limits, and reporting, so jobs sharing nodes run as fast as possible without interfering with each other
- **Job equivalence**: job class optimization improves scheduling speed by an order of magnitude for workloads with many thousands of small jobs
- **Soft walltime resource**: improve backfill calculations and increase utilization
- **Jobs can shrink**: release no-longer-used nodes (e.g., during post-processing or stage-out), effectively increasing utilization
- **New platform support**: ARM64
ALTAIR CONTROL™
HPC administrator control center for managing, optimizing, and forecasting HPC resources
Altair Control is an easy-to-use web application for monitoring and managing jobs and nodes on a high-performance computing (HPC) cluster, with advanced analytics to support data-driven planning and decision-making.

**Highlights**

- **Single pane of glass**: configure, deploy, monitor, burst, manage, troubleshoot, simulate, analyze, and tune
- **Real-time monitoring**: simplify troubleshooting and maintenance
- **Reporting and analytics**: powered by Altair SmartSight™
- **Workload simulator**: simulate and optimize infrastructure sizing
- **Multi-cloud bursting**: burst to any cloud for peak loads
- **Modern UX**: drag-and-drop simplicity
ALTAIR CONTROL™ CAPABILITIES

A platform to easily manage, monitor, analyze, and simulate HPC clusters

Design

Deploy an HPC model in the cloud. Manage cloud bursting by updating HPC details.

Manage

Design an HPC model so that an HPC cluster can use cloud bursting to public and private clouds, adding capacity exactly when needed.

Monitor

Monitor and manage an HPC cluster's nodes and jobs. Monitoring is divided into sub-tabs for easy viewing.

Configure

Configure default WLM server and security settings and manage queues, resource defaults, and limits.

Analyze

Easy-to-use job accounting and reporting solution with advanced analytics to support data-driven planning and decision-making.

Simulate

Run a simulation to perform what-if analysis and determine the most productive way to scale HPC resources.
ALTAIR ACCESS™

Portal for engineers and researchers
ALT AIR ACCESS™ FEATURES

Altair Access gives engineers and researchers a simple, powerful, and consistent interface for submitting and monitoring jobs on remote clusters, clouds, and other resources.

Highlights

• **Novice to expert**: simple and powerful
• **Same UX**: desktop and web
• **Secure**: protected access to HPC resources
• **End-to-end**: submit, monitor progress, steer, fix, and rerun jobs
• **Collaborate**: shared 3D analysis
• **3D remote visualization**
• **Save time**: Simplify job submission and management thanks to a powerful GUI with smart, simplified interfaces
• **Be more productive**: Spend more time focused on work and not IT tasks
• **Increase ROI**: Consolidate access to applications and optimize license availability
• **Reduce errors and improve consistency**: Embed your company’s best-practice know-how directly into application definitions used for job submission
Engineers, scientists, and researchers can easily access portals that provide access to HPC — no IT expertise needed — to run solvers, view progress, manage data, and use 3D remote visualization via web and desktop.

**Files**
Simplify job file submission and management thanks to a powerful GUI with smart, simplified interfaces.

**Jobs**
Easily define and configure applications for job submission via PBS Application Services (PAS).

**Sessions**
Manage 3D remote visualization sessions and data directly from the secure web portal.
On-demand use of cloud resources to maximize efficiency

- Improve responsiveness, adding capacity exactly when needed
- Automatic governance and cost controls via site-defined policies and quotas
- Understands on-premises utilization, ensuring bursting only when cost-efficient
- Vendor-agnostic: no lock-in
- Fast: +1,000 nodes in minutes
ASSET MONITORING FOR OPERATIONAL IMPACT

- Software license monitoring and management
- Optimizes license mix
- Reduces license cost
- Multi-site license allocator
- Real-time license adjustments
- Visibility into license allocation and usage
- What-if simulator

Altair Monitor™
Altair Allocator™
Altair SAO
ALTAIR HYPERWORKS UNLIMITED

Product innovation & simulation platform
ALTAIR HYPERWORKS UNLIMITED

Altair HyperWorks Unlimited is a state-of-the art private cloud appliance available in both physical and virtual formats, with unlimited use of Altair software.

Cloud-based HyperWorks Unlimited appliances provide users with a secure cloud-based platform — either on-premises or off-premises — to run, monitor and manage simulations.

Highlights

- Physical or virtual cloud appliance
- Fully managed, turnkey solution
- Tailored design
- Altair HyperWorks™ simulation platform
- Altair PBS Works™ workload management suite
- Third-party software with BYOL
- 3-year lease and trade-in for a new system (physical appliance)
- Complementary solutions grow with you
ALTAIR HYPERWORKS UNLIMITED

Engineers want to get engineering done. HyperWorks Unlimited lets them focus on their work instead of dealing with the headaches of system and license administration.

Free your engineers from the burdens of:

• Linux system administration
• Writing shell scripts
• Worrying about whether they have enough licenses

Give them the tools to succeed:

• Ability to optimally explore the design space and determine the best possible design
• One phone call to make for support — Altair will take care of you

Altair HyperWorks Unlimited appliances are engineered for simplicity and performance.
HYPERWORKS UNLIMITED PHYSICAL APPLIANCE (HWUL-PA)

- Physical HPC-Optimized Hardware
- Third-Party CAE Solver Integration
- Altair HyperWorks Suite Solvers
- Solution Integration Services
  - Operating System
  - Solver Integration & Tuning Workflow
- Altair PBS Works™ Suite
- Altair HWUL-PA

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Altair PBS Works™ HPC Workload Management Suite

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