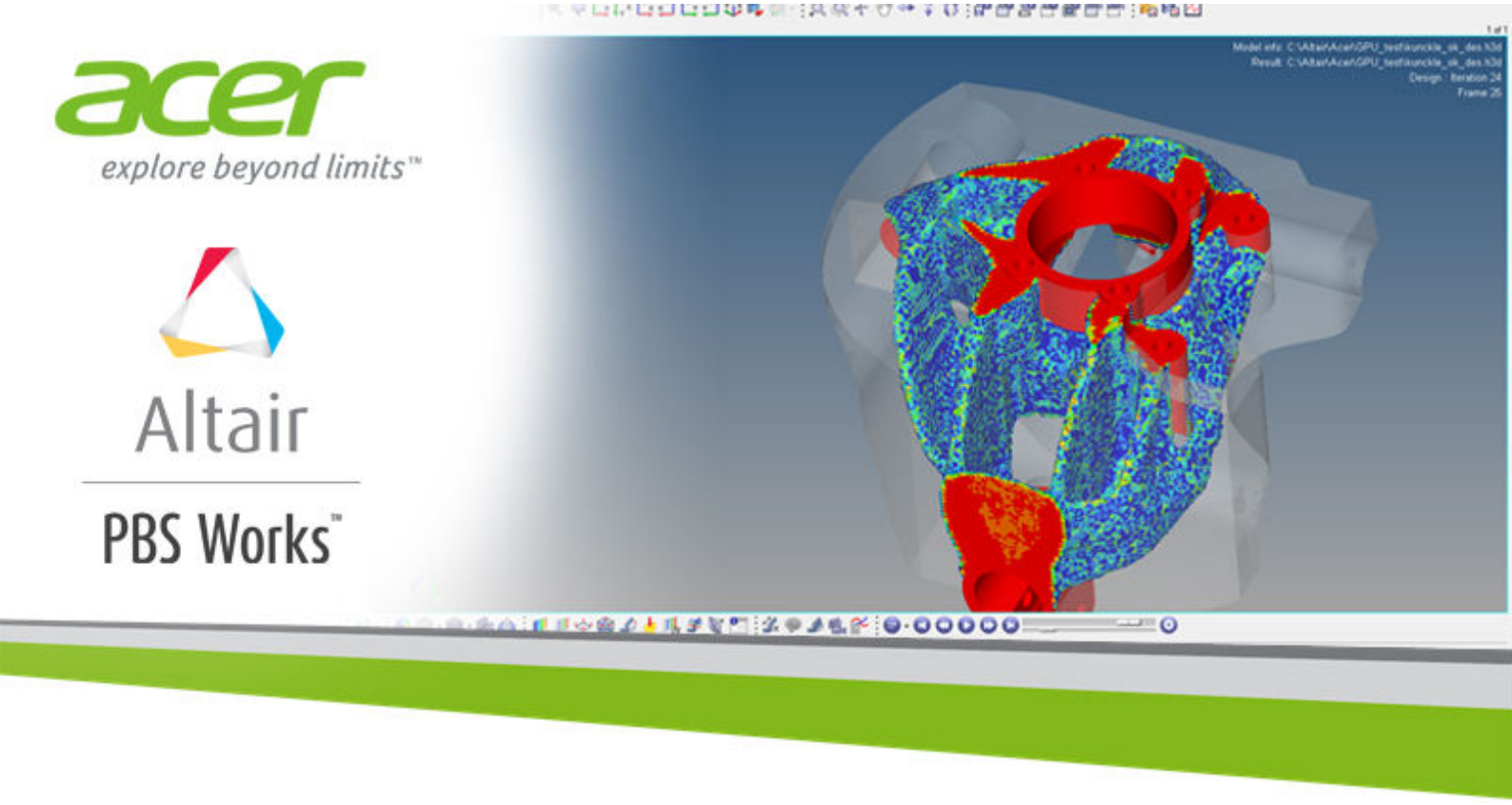

Acer and Altair Professional Cluster Development

Acer and Altair offer users the power of professional cluster management tools and robust hardware solutions to satisfy the complex needs of manufacturers and researchers alike.

Acer for HPC

Acer provides its partners with robust hardware and software solutions for their high performance computing needs. Not simply a system provider, Acer offers tested solutions which are proven to work on any number of configurations and software stacks. A member of Intel Cluster Ready, Acer specializes in scaling cluster stacks to fit customer needs and can provide meaningful insights to customers looking to build their first or next clustered system.

"With PBS Professional, Acer users now have a proven, secure platform for HPC resource and workload management that frees them from the burdens of the underlying IT infrastructure."

--CTO, PBS Works, Altair

Leveraging its partnership with Altair as reseller of PBS Professional (Altair's leading workload manager for HPC), Acer is able to provide its customers with a robust system for automatically scaling and handling multiple HPC jobs across the system.

Solution features include:

- **Superior Job Scheduling:** PBS Professional efficiently distributes workload across Acer platforms, from clusters to the largest supercomputing systems.
- **Industry-leading Scalability:** PBS Professional scales easily to tens of thousands of nodes, supporting Acer users as computing moves to exascale.
- **Enhanced Cluster Lifecycle Management:** PBS Professional is integrated with Acer and Bright Cluster Management for OS provisioning, enhanced power management and seamless upgrades.

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- **Comprehensive Enterprise Solution Set:** PBS Works provides an application aware, web-based job submission and management portal (Compute Manager) plus PBS Analytics for job accounting and reporting – providing everything a user needs for HPC workload management.
- **Seamless Deployment:** Acer resells PBS Professional on all HPC systems.
- **Comprehensive Cloud Readiness:** Proven as the backbone for multiple HPC cloud services, including Altair's HyperWorks On-Demand, PBS Professional combined with Altair's portal and analytics software offers Acer customers a complete stack for deploying HPC private clouds.
- **Green Provisioning™:** Monitor, shutdown, and restart resources based on your workload requirements to support energy conservation initiatives. Validated by several leading sites, Altair has lowered customer energy use by up to 30 percent.

"Acer relies on support from key technological partners such as Altair.

Thanks to this partnership, Acer is able to offer professional-grade job scheduling to customers seeking robust performance in their clustered environment."

--Business Development Manager EMEA-Technical & Productivity Computing, Acer

PBS Professional gives Acer cluster users a more efficient, reliable solution for HPC workload management. As an Acer-integrated product, PBS Professional optimizes job scheduling on Altos clusters to achieve the highest levels of system utilization. PBS Professional is also integrated with Acer Altos servers and Bright Cluster Management to ensure easier cluster deployment and management for users.

PBS Professional Features for Acer Users

- GPU / co-processor scheduling prioritizes and manages use 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 "plugins" 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 plugins" 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 available everywhere allowing one script to be used across all architectures
- Preemption and check-pointing allow you to immediately run high-priority work

And many more. Visit http://www.pbsworks.com/acer-altair.html for a detailed list of technical features.

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