Simplifying HPC with Intel® Cluster Ready

Intel and Silicon Mechanics make it simple to increase productivity and solve new problems with HPC

Spotlight on Silicon Mechanics

Silicon Mechanics is a leading provider of rack-mount servers, storage, and high-performance computing solutions. Customers can select and configure certified Intel® Cluster Ready clusters easily from the Silicon Mechanics Web site.

Challenge	▪	**Simplify HPC.** Make it simple for customers to buy, deploy, and manage high-performance computing (HPC) clusters to solve new problems and increase productivity.
	▪	**Enhance reliability.** Give customers the confidence that their applications will run on the clusters they choose.
	▪	**Streamline cluster management.** Reduce administrative complexity so more small organizations can capitalize on the power of HPC.
Solution	▪	**Certified Intel® Cluster Ready cluster.** Silicon Mechanics offers certified Intel Cluster Ready clusters with Intel® Xeon® processors to deliver computing power without complexity.
	▪	**Proof point.** Intel and Silicon Mechanics created a certified Intel Cluster Ready cluster and in a single day loaded and ran six registered applications without rebuilding the cluster.
Impact	▪	**Configuration made simple.** By choosing a certified Intel Cluster Ready cluster for their registered applications, customers know that components and applications will work together, right out of the box.
	▪	**Fast troubleshooting.** Intel® Cluster Checker helps identify and resolve problems fast, increasing cluster reliability, reducing administrative complexity, and minimizing the need for specialized support skills.
	▪	**Reaching new customers.** The Intel Cluster Ready program is making HPC possible for a wider range of organizations.

Systems integrator Silicon Mechanics wanted to make it simple for customers to buy, deploy, and manage high-performance computing (HPC) clusters. By offering certified HPC clusters through the Intel® Cluster Ready program, Silicon Mechanics can reduce the complexity of assembling a cluster and assure customers that their registered applications will run as they should, right out of the box. Intel® Cluster Checker helps customers streamline ongoing management so they can enhance system reliability and minimize the resources required to keep the system running.

Customers look to reduce complexity

For many Silicon Mechanics customers, complexity is the primary obstacle for deploying a new HPC cluster. "Our customers turn to high-performance computing to solve particular problems," says Dave Bryan, executive vice president of products at Silicon Mechanics. "But in many cases, they don't have the IT resources to manage a large, complex infrastructure. Our goal is to make it simple for more customers to experience the power of HPC so they can attack those problems head on."

Intel Cluster Ready makes it simple to buy and deploy HPC clusters

Silicon Mechanics offers certified Intel Cluster Ready clusters to make it easy for customers to configure a cluster. "Most customers don't have the time or resources to research and test all of the hardware and software components in a cluster," says Bryan. "The Intel Cluster Ready program helps ensure that all of the hardware and software components in a cluster work together perfectly, right out of the box. Our customers can buy a cluster with confidence."

Intel and Silicon Mechanics conducted a proof point to demonstrate how the Intel Cluster Ready program works. "We created a certified Hyperform Intel Cluster Ready cluster running Clustercorp ROCKS+* middleware on Intel® Xeon®–based compute nodes," says Kirtan Shah, product manager at Silicon Mechanics. "In just one day, we loaded and ran codes from Abaqus, Fluent, PAM-CRASH, LS-DYNA, Nastran, and STAR-CD—all without having to rebuild the cluster. With the Intel Cluster Ready program, customers can deploy an HPC solution and run applications without in-depth HPC expertise." **To view a video about the proof point, visit www.intel.com/go/cluster/.**

Silicon Mechanics also launched an online configuration tool to further simplify the process of buying a cluster. "Customers can use our dynamic, online configurator to build their own Intel Cluster Ready certified cluster. The configuration tool starts with a base certified system. Customers can then configure processors, memory, hard drives, and secondary switching fabric options. The tool allows for customization of the head node and compute nodes. Customers can also select the number of nodes to meet their application requirements or fit within their budget," says Shah. "No matter which choices customers make, the cluster will still be within the certification."

What is Intel® Cluster Ready?

The Intel Cluster Ready program makes it simple for customers to buy, deploy, and operate an Intel® processor–based HPC cluster. Intel works with system integrators such as Silicon Mechanics as well as hardware and software vendors to create a common basis for HPC clusters. An application written to run on one certified Intel Cluster Ready cluster can run reliably on another certified cluster.

Intel Cluster Ready—Making HPC simple

Intel Cluster Checker reduces troubleshooting from days to hours

As part of the Intel Cluster Ready program, Intel created the Intel Cluster Checker tool to simplify ongoing management. Customers run Intel Cluster Checker regularly to make sure that the cluster is still within certification. The tool can quickly identify problems that might cause performance degradation or system failure.

"Intel Cluster Checker can dramatically reduce the time and resources required to troubleshoot problems," says Bryan. "Technicians might upgrade some software and cause an incompatibility, or there might be a cable connection problem, faulty interconnect, or mismatched interconnect device driver. In other clusters, a driver problem could easily take weeks to diagnose. With Intel Cluster Checker, customers can find and fix problems in a few hours."

Intel Cluster Checker can also help systems integrators and software vendors streamline customer support. "Because we can determine the cause of many problems quickly, we can use our internal resources more efficiently," says Shah. "Using Intel Cluster Checker also means that we can solve many problems using support personnel who aren't engineers with specialized HPC skills."

Intel Cluster Ready makes HPC a reality for new customers

By making it simple to buy, deploy, and manage an HPC cluster, the Intel Cluster Ready program will enable more organizations to capitalize on the power of HPC. "Intel Cluster Ready makes HPC deployment in a department or a small organization truly possible," says Bryan. "Whether you're a design group in a large automotive enterprise, a product packaging organization, or a small oil and gas firm conducting reservoir modeling, Intel Cluster Ready provides a simple way to experience the power of high-performance computing without the complexity of managing a large infrastructure."

For more information, visit www.intel.com/go/cluster to discover which applications are Intel Cluster Ready and where to buy a certified Intel Cluster Ready cluster