

Supercomputer-in-a-box workgroup solution for finite element analysis

HP BladeSystem Solution Block Sales Battlecard



Solution overview

Finite element analysis (FEA) is a powerful and accurate technique widely used in product design, analysis and development. Designers and engineers in the civil, mechanical, aerospace and electronic industries utilize FEA to develop, refine and optimize product design prior to construction and/or manufacturing, saving significant time and money. FEA enables better understanding of components and assemblies by analyzing the distribution of stress and displacements. In addition to shortening design cycles, FEA enables advancement in product design, advancing product safety and performance.

The Abaqus Unified FEA portfolio from SIMULIA enables use of a common model for insight into challenging engineering problems, and combines implicit and explicit FEA capabilities. Integration of SIMULIA software with the HP Cluster Platform (CP) Workgroup System and HP XC Software, with Platform Computing LSF, provides a compact and complete environment for small teams seeking an affordable, easily deployed solution to accelerate product development.

HP, SIMULIA and Platform value proposition

The Supercomputer-in-a-Box workgroup solution for FEA on HP BladeSystem offers a high-performance clustered solution for customers constrained to single server and/or workstation compute capability. This HP, SIMULIA and Platform Solution Block not only provides the power to deliver up to 8x performance improvement, the HP BladeSystem infrastructure is highly flexible—enabling companies to add computing capacity as necessary over time. The HP CP Workgroup System can be deployed outside the data center, requiring no special power or cooling. The turnkey and HP-supported XC Software, integrating Linux OS, HP-MPI, open source cluster management, and the LSF resource manager, simplifies system administration. The solution can be easily accessed and shared by multiple users on the workgroup's LAN, and the optional HP SB40c storage blade can provide almost a Terabyte of attached storage.

Why we win

- HP, SIMULIA and Platform are leading the industry to bring the capabilities of HPC to midmarket and small sites with an affordable and simple solution, allowing customers to compete with larger enterprises who use HPC extensively in product development
- Accelerated innovation – HP, SIMULIA and Platform combine industry leadership in software and high-performance computing solutions to explore the real-world behavior of products and accelerate innovation.
- Affordable, powerful and easy to deploy outside the data center—leveraging the HP c3000 BladeSystem enclosure—the CP Workgroup System can deliver a TeraFLOP/S of performance in less than 2 square feet
- Workload management – Platform LSF software manages and accelerates batch workload processing for compute and data-intensive applications, simplifying resource scheduling, and simplifying use of system across the workgroup.
- Enhanced efficiencies – XC System Software, including HP-MPI and LSF, provide a complete operating environment with cluster and job management. SIMULIA support and use of HP XC System Software ensures confident deployment and efficient customer support.

Key differentiators

- HP is the market share leader in high-performance computing, Blade-based servers and Linux
- The three companies have leveraged their shared expertise to develop a validated and recommended platform, which can be easily adapted to meet each customer's unique business challenges.
- HP BladeSystem solutions are consolidated from the start, offering substantial cost-saving benefits at all levels—compute, storage, network, power, cooling, floor space.
- Winner of 'Supercomputing Online's Editor's Choice Award', the CP Workgroup System is best choice for implementing HPC in the midmarket: complete, compact, and supported, and easily deployed

What to sell

- Abaqus Unified FEA software – comprehensive product suite offering powerful solutions for both routine and sophisticated engineering problems, covering a vast spectrum of industrial applications
- HP XC System Software – integrated and supported by HP, XC combines best-in-class Linux software components in a turnkey product, including Platform LSF
- HP Cluster Platform Workgroup System – powerful high-performance computing solutions for midsize companies and technology sites, branch offices and workgroups; enables users to handle larger and more complex compute-intensive workloads outside of the data center with limited IT support—giving midsize businesses the power they need to drive new levels of innovation and productivity while reducing costs
- HP BladeSystem – for SMB customers or enterprise customers who need less than 8 slots in an enclosure, position the HP BladeSystem c3000 enclosure and build a “business in a box” with the applications and storage options of HP BladeSystem; when your customers outgrow the 8-slot c3000 enclosure, they can easily upgrade to the HP BladeSystem c7000 enclosure, offering a 16-slot enclosure for even more choice and flexibility
- HP client devices – desktops, notebook PCs, HP iPAQ Pocket PCs, thin clients
- HP StorageWorks storage solutions – SB40c Storage Blades provides attached storage capacity to meet needs of workgroups deploying Abaqus, and can be augmented with cluster file systems such as HP Clustered Gateway and HP Scalable File Share
- HP C&I Services – HP HPC QuickStart services; HP BladeSystem Services; on-site implementation services; optional outsourcing services; IT infrastructure services and support; proactive blade service
- HP Technology Services (HP Care Packs available worldwide) – education, deployment and support; assessment services and proactive support

HP, SIMULIA and Platform advantage

As the market share leader in high-performance computing, HP is advancing innovation with powerful, simple, affordable and reliable solutions. HP Unified Cluster Portfolio (UCP) provides a flexible framework for rapidly deploying an optimized solution for product development. HP, SIMULIA and Platform develop and characterize joint FEA solutions, leveraging our shared expertise. Integration of applications with HP cluster management and tools provides an easy-to-manage environment.

Platform™

DS
SIMULIA

hp®
invent

Company targets/sweet spots

Fortune 500,000 companies – sell the c3000-based infrastructure for the 3–8 server per site configurations; sell the c7000-based infrastructure for enterprise customers with 2–6 IT staff and IT spend of \$100K–2M USD.

Building an Abaqus Unified FEA Solution with HP Cluster Platform Workgroup System

The Workgroup System uses HP BladeSystem c3000, and is built on industry standards—with choice of technologies to precisely fit workload requirements. For Abaqus, HP recommends Intel® Xeon™ dual processor server nodes. The following components comprise basic elements of an HPC BladeSystem cluster:

- **Head (control) node**—One Blade Server will be used as the head node. Recommended node is the ProLiant BL460c, with dual processor dual core processor and 2GB per core. Optionally, add an SB40c Storage Blade to increase local storage for the head node.
- **Compute nodes**—Application performance will drive selection of processor and number of cores. For most applications, half height two processor, dual core BL460c are recommended. Configure 2 GB memory for each core for optimal CFD performance. Select two high-speed 72 GB SAS drive per node for local storage.
- **Network switch**—Gigabit Ethernet is choice for smaller systems, and should be adequate for HP Cluster Platform Workgroup Systems performing materials modeling.
- **HPC Software**—Linux-based HP XC Cluster Software provides an integrated infrastructure for HPC applications, including Abaqus Unified FEA software. HP XC System Software includes Linux, HP-MPI and Platform LSF scheduler, for a complete turnkey and supported HPC platform.
- **SIMULIA Abaqus Unified FEA** —available from SIMULIA. HP resellers can assist in installing and deploying on CP Workgroup System, as needed
- Consider site preparation and local power. Most configurations can be accommodated by 30 AMP outlets, and may require UPS. See CP Workgroup System and c3000 documentation for information

Customer pain points

Pain: Need more powerful capability to model the real-world behavior of products

Solution: The HP, SIMULIA and Platform solution enables designers and engineers to utilize FEA to develop, refine and optimize product design prior to manufacturing. This method saves significant time and money, enabling engineers to discover flaws as early as possible in the design process.

Pain: Need to control rising infrastructure costs

Solution: HP BladeSystem offers an “infrastructure in a box.” With it, users can consolidate their servers, storage, cooling and networking in one system that’s easy to install and use—and reduces costs at every level: purchase, power, licensing, and more. In addition, HP BladeSystem optimizes resource utilization to extend the value of IT investments.

Pain: Customer has workload that can benefit from clustering, but can’t invest the time and resources to develop expertise and/or maintain an environment.

Solution: XC software provides a complete, pre-configured software environment that is fully supported by HP, reducing the need for local team to assemble and maintain an environment with multiple components.

Technology for better business outcomes

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To learn more, visit www.hp.com/go/hptc
www.simulia.com

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Qualification questions

- Do you need to gain faster, better insight into product behavior?
- Do you want the ability to change product design before manufacturing begins?
- Do you need a FEA solution that can scale to meet growing demands?
- Do you need a solution that accelerates workload processing for compute- and data-intensive applications?
- Do you need to increase the flexibility of your IT infrastructure, enabling you to be well prepared for changes in your business and the marketplace?
- Do you need to reduce operating costs at every level, including lowering energy consumption to become more “green”?

Overcoming objections

O1: We’ve never heard of SIMULIA. We want to work with industry leaders.

Response: SIMULIA is a subsidiary of Dassault Systèmes—a world leader in 3D and product lifecycle management (PLM) solutions (including FEA), with more than 100,000 customers in 80 countries. A pioneer in the 3D software market since 1981, Dassault Systèmes develops and markets PLM application software and services that support industrial processes and provide a 3D vision of the entire lifecycle of products from conception to maintenance.

O2: My old FEA solution is working fine. Why should I upgrade to Abaqus FEA on HP BladeSystem?

Response: Supercomputer in-a-box Workgroup Solution for FEA on HP BladeSystem offers a wide range of change, cost and time benefits. With the powerful out-of-the box functionality of the HP, SIMULIA and Platform solution, you can speed implementation and enhance productivity. You can also consolidate computing resources, which will help reduce operating expenses. And using a common model for FEA, your employees can leverage the results of analyses across your organization.

O3: Why should I buy HP hardware when I can get Dell servers cheaper?

Response: HP BladeSystem solutions are designed for budget-minded organizations like yours. The Abaqus FEA and HP BladeSystem solution not only helps reduce costs at every level—including purchase, power, cooling, licensing and more—but the solution also enhances resource utilization to extend the value of your IT investment.

Support tools and resources

HP BladeSystem – www.hp.com/go/bladesystem

HP HPC – http://h20384.www2.hp.com/ServerStorage/cache/566778-0-0121.html?jumpid=reg_R1002_USEN

HP Services – www.hp.com/services/bladesystemsolutions

Platform – <http://www.platform.com/Products/>

Dassault Systèmes – <http://www.3ds.com/home/>

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