To meet market demands for high-performing products in less time, best-in-class aerospace companies must use simulation to gain insight on product behavior from the beginning of the design process. The ability to predict how a technology will perform offers a crucial competitive advantage. But it requires high-fidelity simulation and robust design techniques — all while maintaining tight design schedules. To satisfy these combined demands, aerospace companies depend on scalable, reliable high-performance computing (HPC).

Make smarter decisions and gain a competitive advantage with Cray.

Cray systems deliver extreme CAE application performance and provide industry-leading scalability and reliability to the aerospace industry’s data-intensive and time-sensitive computing tasks. Additionally, Cray offers a complete, single-vendor solution with systems to meet any extreme challenge in computing, storage, and data analysis (“big data”).

HPC users in aerospace get the following advantages with Cray solutions:

**Scalability.** As CAE applications grow in size and complexity, so does the demand for scalability. Cray optimizes hardware and software for scalability and builds systems customized to the application. It means Cray solutions can simulate larger and more detailed physical models faster.

**Reliability.** Interrupting work to identify the source of a computer problem can threaten design schedules. Cray brings seasoned technical expertise to every solution, eliminating integration issues with components that are specifically designed to work together. Combined with Cray’s world-class customer support, Cray systems minimize work interruptions.

**Applications Support.** Active support of CAE applications is critical to maximizing the value of an HPC environment. Cray’s worldwide team of application specialists and Centers of Excellence work directly with ISVs and leading CAE users to increase system performance and architect the best solution for CAE workloads.

**Upgradability.** Time is money and Cray’s adaptive computing and storage architectures are engineered for easy upgrading, meaning you maximize your investment while also deploying new technology and getting back to work quickly.

**HPC Experience.** It takes many years and many generations of technology developments to be a successful HPC provider. With every system, Cray customers get Cray’s decades of HPC experience and intimate understanding of customer needs — from a mature solution delivery system to long-term supportability.
Full Range of Solutions

Computing
Efficient scalability and effective I/O performance are critical to design optimization. As design optimization demands more fidelity, more complete physical models and exploration of design space, so do compute and data requirements. Cray offers a full spectrum of data-intensive computing solutions built and proven to meet scale-up and scale-out computing needs.

The tightly integrated Cray XC30 series supercomputer provides extreme application scalability and sustained real-world performance. In particular, its focus on scalability — highlighted by the custom high-performance Aries interconnect and Dragonfly network topology — make it well-suited to applications challenged by message passing and data movement. With best-in-class hardware and software, the Cray XC30 system delivers greater image fidelity in less time. It excels at large-scale computations involving thousands to tens of thousands of cores and reduces simulation turnaround times. Additionally, the Cray XC30 series boasts an adaptive platform that users can enhance and upgrade quickly. For additional choice, the Cray XC30-AC (air-cooled) supercomputer delivers all the advanced HPC technologies of the high-end Cray XC30 system while economizing the packaging, networking, cooling and power options for a balance of features and footprint.

For scale-out computing needs, the Cray CS300-AC™ (air-cooled) and Cray CS300-LC™ (liquid-cooled) cluster supercomputers offer flexible, industry-standard, and manageable computing. These highly configurable general-purpose platforms are based on industry-standard building block platforms featuring the latest processor, coprocessor and accelerator technologies and can be easily optimized to fit the application.

Storage and Data Management
Cray takes a holistic, system-wide approach to solving data storage and I/O problems at scale, working with researchers to understand their data management constraints. To that end, the company offers a choice of scalable storage solutions — integrated, component-based, and custom — offering flexibility and supporting multiple storage hardware platforms.

The Sonexion scale-out Lustre storage system is Cray's integrated system offering. It comes pre-integrated and scales large I/O performance incrementally from 5 GB/s to 1 TB/s in a single file system.

Tiered Adaptive Storage (TAS) provides a complete and open archiving solution for big data and HPC. Powered by Versity's open storage virtualization technology, data migration policies enable transparent data movement across up to four storage tiers comprised of SSD, disk, and/or tape.

Cray Cluster Connect (C3) is a complete Lustre storage solution for x86 Linux clusters providing a single, trusted point of support. Customers use their Linux compute environment of choice through the Lustre Client by Cray and choose options for data and storage management.

Component-based solutions, built on the customer's choice of storage, can be pre- or onsite integrated. Cray has optimized solutions and best practices for DDN and NetApp E-Series storage and supports a range of configurations that can be optimized for performance or capacity, or can balance performance and capacity for sheer scalability.

Cray's data management platform and services enable data movement, connectivity to third-party archives and HSM systems, systems management, and external development tools — tailored to customer-specific requirements.

Data Analytics
Cray offers a complementary portfolio of products for high-performance data analysis (“big data”) problems. Solutions include knowledge discovery using YarcData’s Urika appliance for graph analytics, the powerful and turnkey Cray cluster supercomputer for Hadoop (an offering paired with the scalable and flexible line of Cray CS300 systems), and fast-data and data-movement capabilities with Cray storage and data management solutions.