

# ANSYS CFX and QLogic High Performance Computing



## Overview

Today's challenging economic climate and globally competitive markets make lowering manufacturing costs more critical than ever. Whether you're an aerospace engineer designing a new wing for the latest commercial jet or an automotive engineer simulating multi-car crashes for the next generation of SUVs, the ability to run simulations faster will increase productivity, speed time-to-market, and improve your company's bottom line.

Companies in aerospace, automotive, consumer electronics, and high-tech machinery can realize significant benefits utilizing QLogic high performance computing solutions. QLogic's products enable companies to perform process simulation, modeling, and optimization at a highly increased rate so that customers can get products to market faster at a much lower cost of prototyping and final production.

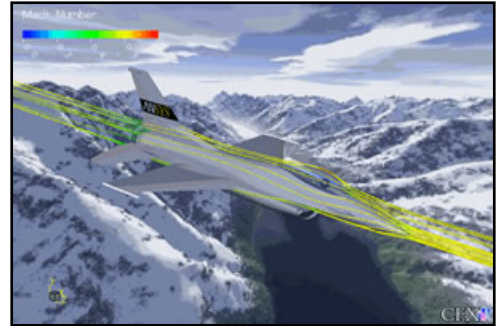
## ANSYS

ANSYS, Inc. develops and globally markets engineering simulation software and technologies widely used by engineers and designers across a broad spectrum of industries. The company focuses on the development of open and flexible solutions that enable users to analyze designs directly on the desktop, providing a common platform for fast, efficient, and cost-conscious product development, from design concept to final-stage testing and validation. The company and its global network of channel partners provide sales, support, and training for customers.

## ANSYS CFX

ANSYS CFX software delivers powerful computational fluid dynamics (CFD) technology for simulations of all levels of complexity. CFX is one of the many computer-aided engineering (CAE) tools available within the ANSYS Workbench platform. ANSYS CFX takes advantage of data and information common to many simulations. This begins with common geometry: Users can link to existing native computer-aided design (CAD) packages as well as create and/or modify CAD models in an intuitive solid modeling environment. Complementing the common geometry model is a suite of meshing tools, designed to ensure easy generation of the most appropriate mesh for the given application. ANSYS CFX tools then guide the user through the setup of operating conditions, selection of materials, and definition of models.

The ANSYS CFX solver uses the most modern solution technology with a coupled algebraic multi-grid solver and extremely efficient parallelization to help ensure that solutions are ready for analysis quickly and reliably. Solution analysis with the ANSYS CFX post-processor then gives users the power to extract any desired quantitative data from the solution; it also provides a comprehensive set of flow visualization options.



## Solution Highlights

### Complete Simulations Faster

When running optimization programs that refine a design, reducing the time-to-information is critical for any company in these competitive industries. Interconnecting your cluster computing network using QLogic solutions can reduce this time interval — the end result is faster time-to-market and higher product quality levels.

### Improve Product Designs

QLogic solutions enable companies to build larger node size clusters, run larger data sets, and expand simulation complexities in computer-aided design.

### Reduce or Eliminate Costs

By better leveraging cluster compute and storage resources, industrial engineering customers utilizing QLogic's high performance switching and virtual cluster fabric solutions can reduce the costs and complexities of deploying and operating design and simulation data centers.

### More Efficient Operations

QLogic solutions also enable the deployment of grid computing architectures that allows for the pooling of compute and storage resources across multiple research teams resulting in better overall IT infrastructure utilization and lower overall cost of product design.

## QLogic Corporation

QLogic is a leading supplier of high performance clustering and storage networking solutions, which include host adapters and InfiniBand switches that are used by major corporations and government facilities. The company delivers a broad and diverse portfolio of products that includes InfiniBand switches and InfiniBand host channel adapters for the fast growing, high performance computing market. The company is also a leading supplier of Fibre Channel HBAs, blade server embedded Fibre Channel switches, Fibre Channel stackable switches, iSCSI HBAs, and iSCSI routers. QLogic products are delivered to small-to-medium businesses and large enterprises around the world via its channel partner community. QLogic products are also powering solutions from leading companies like Cisco, Dell, EMC, Hitachi Data Systems, HP, IBM, Network Appliance and Sun Microsystems. QLogic is a member of the S&P 500 Index.

## QLogic – High Performance Cluster Technology

QLogic offers a comprehensive end-to-end product portfolio that includes Multi-Protocol Fabric Directors, Edge Fabric Switches, Host Channel Adapters (HCAs), and a complete software suite to install, operate, and maintain your high performance interconnect fabric. QLogic offers the most comprehensive and flexible interconnect fabric solutions on the market. Application requirements from 12 to 288 InfiniBand ports can be supported in a single chassis. Multi-chassis fabrics that support thousands of host nodes can be constructed to meet the most demanding compute cluster requirements. This offering, combined with the industry's only Fabric Management tools that enable an administrator to install and boot a fabric in minutes, helps to satisfy the growing demand for high-performance computational clusters and grids.

### High Capacity Multi-Protocol Directors

- 11.52Tb/s throughput in a single chassis
- InfiniBand DDR supported across full switching portfolio
- Support for 20Gb/s node-to-node
- Up to 60Gb/s switch-to-switch bandpass
- Single wire support for InfiniBand, Ethernet, and Fibre Channel

### Comprehensive Fabric Management

- Centralized configuration and fabric initialization
- Accelerated fabric deployment and verification
- Fabric health and performance monitoring
- Fabric-wide diagnostics and maintenance
- Centralized management of virtual fabric services

### Multi-Protocol Gateways

- Virtual I/O Controller (VIC) functionality
- 10Gb Ethernet and 4Gb Fibre Channel
- Scale I/O and servers independently
- Pool and share I/O between servers

### Widest Range of Host InfiniBand Adapters

- Widest choice of adapters
- SDR and DDR capable
- PCI-X and PCIe

### Compatible Plus Software Stacks

- OpenFabrics / OFED
- Optional value-added capabilities
- Accelerated standard MPI stacks

## QLogic InfiniBand Benefits

1. Significantly improves application performance for faster time-to-solution
2. Provides fabric and application scaling to 1000s of CPUs
3. Simplifies data center design and reduce operating costs
4. Eliminates the need for separate physical server connections to storage and network resources
5. Scale servers and I/O independently pool and share I/O between servers

### To Learn More:

**QLogic:** [www.qlogic.com](http://www.qlogic.com)

**ANSYS:** [www.ansys.com](http://www.ansys.com)