ESI Group and QLogic High Performance Computing

Courtesy of VW Group

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 both get products to market faster but also at a much lower cost of prototyping and final production.

ESI Group

ESI Group is a world-leading supplier of digital simulation software for prototyping and manufacturing processes that take into account the physics of materials. ESI Group has developed an extensive suite of coherent, industry oriented applications to realistically simulate a product's behavior during testing, to fine-tune manufacturing processes in accordance with desired product performance, and evaluate the environment's impact on product performance. ESI Group's products have a proven track record in manufacturing and have been combined in multi-trade value chains, represent a unique collaborative and open virtual engineering solution known as the Virtual Try-Out Space (VTOS), enabling virtual prototypes to be improved in a continuous and collaborative manner. By significantly reducing costs and development lead times and enabling product/process synergies.

PAM-CRASH 2G

Since the major engineering breakthrough in 1987 with the first full-scale crash simulation of a car, ESI Group has been constantly striving to deliver innovative and state-of-the art technology in crash test and safety simulation. PAM-CRASH 2G is ESI Group's flagship physics-based simulation software. Virtual prototyping plays an increasingly important role in the product development process. Approved by the major players in the industry, it improves quality management and speeds up time-to-market. PAM-CRASH 2G, a fully integrated and efficient solution, allows consideration of manufacturing effects by chaining the simulation of casting, stamping and composites forming processes to crash simulation. PAM-CRASH 2G has become a standard in industries such as automotive, aerospace, shipment, electronics, and material products.

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 which 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 the host adapters and InfiniBand switches that areused 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 product 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 which includes Multi-Protocol Fabric Directors, Edge Fabric Switches, Host Channel Adapters (HCA), 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 Director

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 4 Gb 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 improve application performance for faster time-to-solution
2. Provides fabric and application scaling to 1000s of CPUs
3. Simplify data center design and reduce operating costs
4. Eliminate 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/solutions
ESI Group – www-ESI-Group.com