



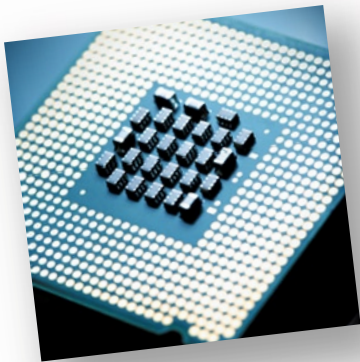
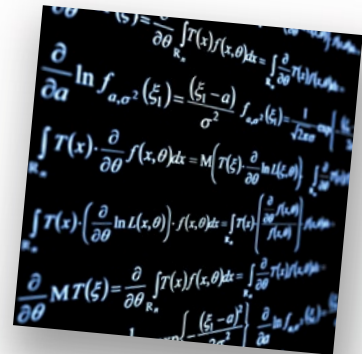
## Integrex High Performance Compute Clusters for Academia and Research

Integrex has been an innovator of engineering technologies for over 40 years, financially self-sufficient and focused on providing unique solutions in whatever market it decides to target.

Our new division is being driven by industry veterans who understand the issues around delivering a cluster solution at minimum cost, yet offering the most comprehensive support package available. Our clusters are based on the latest technologies and deliver the lowest total cost of ownership available.

### Clusters Built for Scientific and Engineering Research

Our clusters are targeted specifically at the academic and research community. Our software distributions contain all components necessary to run a feature rich cluster at either a departmental or multi-disciplinary level.

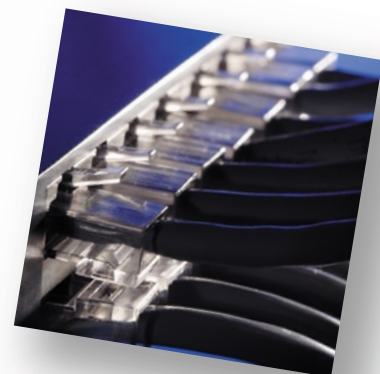


### The Latest Computing Platforms and Architectures

DELL and GATEWAY are our chosen hardware partners. Each company offers compute servers specifically aimed at the high performance computing sector. Up to 24 compute cores are now available on a single motherboard and with up to 4 motherboards per server, give a staggering 96 compute cores in 2U of rack space. Add this to our ability to integrate these nodes into a super low latency MPI infrastructure and suddenly super computer power is available to a research department for minimal cost.

### High Performance Inter-connects

Gigabit Ethernet is offered as our standard inter-connect. For larger systems we can improve inter-connect performance even further by offering infiniband variants such as Connect-X. Our HPC consultants will visit to ascertain the benefits of providing such inter-connects in relation to the nature of your code.



## Cluster Storage and Parallel File Systems

Storage can be offered in a number of ways, either presented as a storage server, a storage array, or as a parallel file store for larger systems. We have access to multiple vendors for these solutions and will recommend the best solution for your application.



### Racks and Power distribution

Racks are available in either 27U or 42U footprints. The racks can be supplied static or can be fitted with heavy castors. All are supplied with vented doors, side panels and optional fans

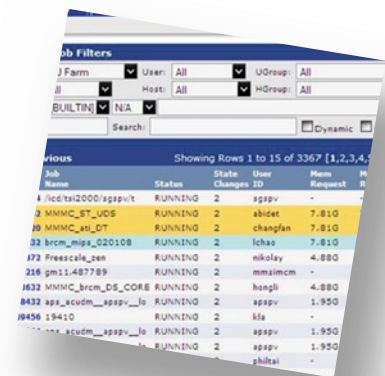
## Cluster Software Environments

Integrex HPC Solutions are based on world-class HPC software from Platform Computing – the global leader in Cluster, Grid and Cloud management software. Platform products are used by leading global organisations in industries such as Electronics, Industrial manufacturing, Oil and Gas, Financial Services, Government and Scientific Research, for their superior performance, stability and scalability. Platform software is the best solution for your HPC Cluster, and is backed by global 24x7 support as standard.

Platform Computing's flagship product – LSF – is widely regarded as the best Scheduling and Workload Management solution available, and is used on many systems in excess of 40,000 CPU Cores, proving its performance and scalability. Now, Platform Computing offers LSF as part of a suite of software for both Workgroup and Enterprise class HPC systems. These solutions bundles provide the most comprehensive HPC Software stack available, and incorporate full Cluster Management and Provisioning, Commercial MPI stack (Formerly HP MPI), enterprise class workload management and scheduling, and adaptive multi-boot functionality.

### Solutions for Workgroup Clusters (Up to 32 Nodes)

Platform HPC Workgroup Edition supports workgroup level clusters up to 32 nodes. It includes Platform Cluster Manager, that provides provisioning and management for Linux® clusters. It also includes Platform LSF Workgroup, a sophisticated workload scheduler for handling job submissions and managing the workload on the cluster. Platform MPI (formerly HP MPI) is the market's fastest and most scalable MPI implementation, and supports complex parallel workloads. A unified management web interface provides an easy to use portal for users to manage the cluster, and Platform Adaptive Cluster gives users the ability to make their clusters dynamic, allowing both Linux and Windows operating Systems to co-exist on the same hardware, and for the workload on the system to determine the profile of the cluster. So for example, if many more Linux jobs are being submitted compared to Windows based jobs, the cluster will provision more nodes to Linux in order to execute the workload.



## Solutions for Enterprise Clusters (Above 32 Nodes)

Platform HPC Enterprise Edition uses the same components as the HPC Workgroup Edition, along with additional capabilities and functionality appropriate for Enterprise Class HPC environments. So, users still have leading cluster provisioning and management with platform Cluster Manager, class-leading MPI, full LSF for workload management, and Adaptive Cluster for multi-boot, multi-OS installations. It also includes the Platform Applications Centre Web Portal, which gives users a very simple interface to the cluster for their job submission and management, shielding them from the complexity of the HPC Cluster. HPC Enterprise Edition also features the Platform Real Time Monitoring tools, giving the administrator a powerful dashboard showing the health and performance of the cluster hardware, and the queues and jobs running on the system.



## World Class Support

All Platform solutions are backed by class-leading support from the Platform Global support organization, which has locations around the globe, providing support on a 24 x 7 basis for any critical software issues.

## As used by....

Platform software is running in many of the largest HPC datacenters in industry. Platform customers include the following organisations:

Hewlett Packard, Procter & Gamble, Fiat, Shell, Audi, Red Bull Technology, JPMorgan Chase, British Gas, Société Générale, MIT, Pratt & Whitney, Nvidia, Northrop Grumman, Hitachi, Nissan, Bombardier, Lockheed Martin, Petrobras, Ford, Rambus, Motorola, AstraZeneca, StatoilHydro, Samsung, BAE Systems, Honda, Fujitsu, Kimberly Clark, DuPont, SAS, Airbus, CERN, Sanger Centre, Canon, Toyota, Toshiba, Eli Lilly, Prudential, Sony and many other leading organisations.



## Compilers

Compilers can be provided from INTEL, PGI, or Pathscale. Open source GCC compilers will be installed on the system as standard.

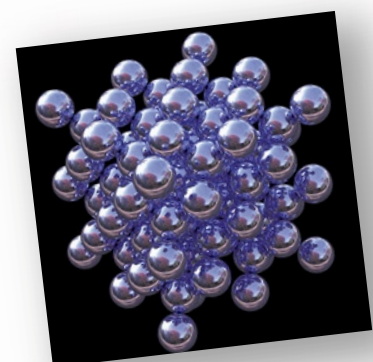
## HPC Libraries

The following HPC libraries will be installed.

- FFTW
- ScaLAPACK / LAPACK
- Blas
- Atlas
- MKL
- ACML
- Goto Blas

## Power Management

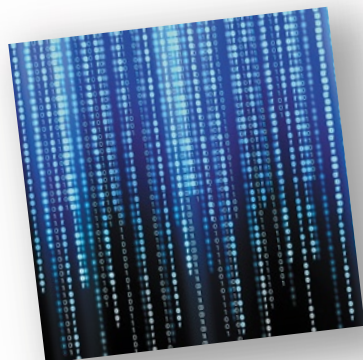
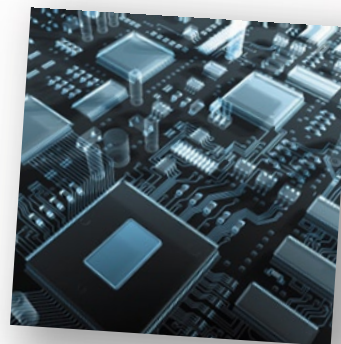
All servers are IPMI enabled to support remote power control. In addition intelligent power supplies can be supplied to enable power control of nodes over the Ethernet network.



## On-Site Hardware Support

All components in the cluster are supplied with either 3 years on-site support or on an advance replacement scheme. Our aim is simple. We wish to minimise the effect to our customers that any hardware failure has on the operation of the cluster. We understand that the system is an important numerical tool for analysing, simulating, calculating and visualising data.

Support events are submitted via email to our support tracking system. We guarantee you will be contacted on the same working day and we will begin the process of solving the issue. This may involve our engineers remotely logging into the system to diagnose the problem quickly.



## Software Support

All clusters are supplied with 3 years email software support for both the operating system and Platform Cluster Management solution. This is provided at no additional cost and is available 24 x 7. This is unheard of within the industry.

## On-Site Integration and Delivery

Integrex HPC aims to deliver your cluster within 10 working days from point of order. Component parts of your cluster are actually drawn from stock for common components. The system will have been built in its entirety at Integrex HPC and tested to the limit to identify any faulty components. Should any components fail, these will be replaced and the system re-tested. The system will be delivered fully functional and an engineer will connect the system to power and network at your location. At this point the system will go live and the engineer will familiarise you with the cluster operation and job submission procedures.



## Why Choose an Integrex HPC Cluster?

Members of our team have been involved in the specification and delivery of some of the largest and most successful cluster solutions ever deployed in the UK. The issues of managing the supply of such systems are known and our procedures have been designed to eliminate these. The combination of best of breed hardware and a world class cluster management solution ensure choosing an Integrex HPC cluster will satisfy the demands of the most demanding research.

To discuss your requirements call

**Tim Cooke, HPC Manager, Integrex HPC Limited**

**Tel: 01283 551551, Mobile: 07525100342**

**email: [tc@integrex.co.uk](mailto:tc@integrex.co.uk)**

**[www.integrex-hpc.co.uk](http://www.integrex-hpc.co.uk)**



Integrex HPC Limited, Church Gresley, Swadlincote, Derbyshire DE11 9PT, UK