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Aurora G-Station
The Ultimate GPU machine

With record breaking **energy efficiency** the G-Station works with **low noise** and can be deployed in a **data center** or directly in **the office**

intel inside Xeon · intel inside Xeon Phi · **NVIDIA.**

Get the most compact, silent and efficient performance ever!

- High performance acceleration
- Compact, silent, vibration less
- Based on Intel® Xeon™
- Nvidia® Kepler™ GPU accelerated
- Intel Phi™ accelerated
- Water cooled
- Provided with software stack

Supercomputing performance

The Aurora G-Station is a supercomputer in a box. Small and compact, easily deployable with no need of infrastructure and extensive HPC knowledge. Available in different configurations, pre-loaded with the software stack, the G-Station is silent thanks to its liquid cooling, has no messy cabling and generate no heat inside the room, so it can even be deployed in an office environment. Aurora G-Station is ideal for whoever needs easy high performance everywhere

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Accelerate your business!

The Aurora G-Station is the ultimate GPU machine! Equipped with the powerful Nvidia Kepler GPUs,
it offers extraordinary power to process the heaviest computational loads in:

- computer graphics and digital media
- scientific computing
- industrial applications (EDA, CAE, signal processing...)
- business applications (computational finance, cyber security, forensic...)
- software development.

Examples of Accelerated Applications

Application	Area	Description	Supported features	Speed Up
Altair AcuSolve	CAE	General purpose CFD flow solver	Linear equation solver	2X
ANSYS Fluent	CAE	General purpose CFD software based on FVM	Radiation heat transfer model, AMG solver (beta)	10X
RADIOSS Implicit	CAE	Simulation and analysis tool for structural mechanics	Direct and iterative solvers	2-4x
CATIA V6-Live Rendering	CAD	Photorealistic rendering	Interactive. Fully integrated in CATIA V6. Network rendering	3-9x
Bunkspeed Pro Suite 2012	CAD	Easy to use photorealistic rendering software	Iray-based ray-tracing. Animation support. Network rendering	3-6x
Delcross Savant	EDA	Simulation tool for installed antenna performance and antenna-to-antenna coupling	High-frequency solver	20-50x
Autodesk Maya	Rendering	3D modeling, animation, and rendering	Increased model complexity, larger scenes	10x
Autodesk 3ds Max + NVIDIA iray	Rendering	3D modeling, animation, and rendering	iray interactive, photorealistic and physically correct rendering	6-10x
Murex MACS Analytics Library	Finance	Analytics library for modeling valuation and risk for derivatives across multiple asset classes.	Market standard models for all asset classes paired with the most efficient resolution methods (Monte Carlo simulations and Partial Differential Equations)	4-200 X
Acceleware AxRTMAxKTM	Oil&gas	Seismic Processing	RTM, Kirchhoff, control source, electromagnetism, forward modeling	14X
AMBER	Molecular Dynamics	Suite of programs to simulate molecular dynamics on biomolecule	PMEMD: explicit and implicit solvent	89.44 ns/day JAC NVE
GROMACS	Molecular Dynamics	Simulation of biochemical molecules with complicated bond interactions	Implicit (5x), Explicit(2x) solvent	165 ns/Day DHFR
COSMO	Weather Forecasting	Regional atmospheric model	Entire model	3x Dynamics

Squeeze a rack under your desk

Easy to implement water cooling for LESS noise and MORE efficiency

dimensions H 65cm, W 65cm, D 70cm
           H 26", W 26", D 27"

dimensions H 80cm, W 65cm, D 80cm
           H 31", W 26", D 31"

FEATURES

Powerful – Aurora G-Station is able to perform at 21 Tflop/s per rack. It has fast Infiniband interconnects.

Compact – Remarkable density, storing 16 powerful Xeon processors and 16 Nvidia Kepler GPUs/Intel Phi in a 9U (or 14U with incorporated heat exchanger) rack.

Energy efficient – Aurora G-Station marks a record in energy efficiency with 3.15 GFlop/s per Watt.

Reliable – No moving parts eliminate vibrations. Direct water cooling avoids hot spots.

Scalable and easy – The G-Station doesn't have complicated and messy cabling. It easily scales joining more modules together.

Water cooled – The Aurora G-Station is water cooled, but it doesn't need an expensive infrastructure to be deployed.

Aurora G-Station

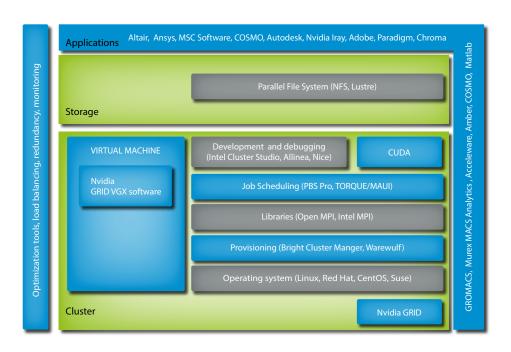|	
Architecture	Each G-Station mounts 1 Aurora HPC 25-20 chassis with 8 slots with up to 8 Aurora HPC 20-23 blades
Computing power	Up to 21 Tflop/s per rack
Processor	up to 16 Intel Xeon E5-26xx series
Accelerators	up to 16 Nvidia Kepler K20 Up to 16 Intel Xeon Phi 5120D
Visualization	NVIDIA's Kepler™ based GRID K1 and K2

Aurora Cube (CPU only version)

Architecture	Each Cube mounts 1 Aurora HPC 25-10 chassis with 16 slots with up to 16 Aurora HPC 20-13 blades
Computing power	Up to 5.5 Tflop/s per rack
Processor	up to 32 Intel Intel Xeon E5-26xx series

Storage

Local storage (x server)	up to 2 TB GB 2,5" Sata Disk or up to 512 GB TB 1,8" microSATA SSD Expandable to 6 TB (1.5 TB)
Storage (optional)	up to 75 TB Infiniband fast storage (expandable)

Software

Optimization tools, load balancing, redundancy, monitoring

Applications — Altair, Ansys, MSC Software, COSMO, Autodesk, Nvidia Iray, Adobe, Paradigm, Chroma

Parallel File System (NFS, Lustre)

Storage

VIRTUAL MACHINE

Nvidia GRID VGX software

Development and debugging (Intel Cluster Studio, Allinea, Nice)

CUDA

Job Scheduling (PBS Pro, TORQUE/MAUI)

Libraries (Open MPI, Intel MPI)

Provisioning (Bright Cluster Manger, Warewulf)

Operating system (Linux, Red Hat, CentOS, Suse)

Cluster

Nvidia GRID

GROMACS, Murex MACS Analytics , Acceleware, Amber, COSMO, Matlab

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NVIDIA.
TESLA

Nvidia powered acceleration

Nvidia Kepler
Nvidia GRID technology
Nvidia Iray
Nvidia CUDA