**GPI-2**: Programming the next generation of supercomputers

- Implements the GASPI specification
- Open source → www.gpi-site.com

**What is GPI?**
- GPI: Global Address Space Programming Interface
- GPI is an industry-quality API to replace MPI for future parallel applications
- One-sided, asynchronous, zero-copy communication with perfect overlap to computation
- GPI is not a new language, it is an API supporting C++, Fortran, C
- GPI is thread-safe and manycore ready
- GPI works with Pthreads, OpenMP or any other threads package

**Advantages of GPI**
- Communication at wire speed
- Separation of data synchronization from data transfer
- GPI is fault tolerant
- Robust and industry proven
- Supports hybrid systems
- Zero-copy communication between NVIDIA GPUs
- Available for Infiniband, Cray Gemini and Aries, Ethernet, Intel Omnipath Architecture (OPA)

**New users**

GPI is easy to use. Optimal scalability is guaranteed for algorithmic designs exploiting GPIs one-sided communication primitives with minimal synchronization overhead and full overlap of communication and computation.
**INDUSTRIAL APPLICATIONS**

**PRE-STACK PRO**

**Statoil**

**DLR**

**Aerospace simulations**  
Deutsches Zentrum für Luft- und Raumfahrt

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**INDUSTRIAL APPLICATIONS**

**Full Survey Pre-Stack Visualization and Data Analysis**

**3D High Resolution Angle Migration**

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**GaspiCxx - The GPI productivity layer**

GaspiCxx is a zero overhead C++ abstraction layer for GPI. In contrast to the native GPI interface, the underlying communication resources do not need to be managed explicitly by the application. This often turns out to be tedious and error-prone. Instead, the GaspiCxx interface provides objects with a transparent management of communication resources. These include groups, queues, segments, data allocation and data synchronization. As such, GaspiCxx increases the productivity of GPI. It allows for a fast and convenient development of new applications and/or porting of existing applications.

**GaspiCxx features**

- GPI C++ interface
- Transparent management of GPI communication resources
- High productivity
- Full performance
- Easy to use

Contact us at gpi@scapos.com for more information on commercial GPI licences and special support for compute centers.

Free download at www.gpi-site.com

**GPI: Efficient – Scalable – Multicore**