EU Fusion for ITER Applications

Bringing a comprehensive framework and e-infrastructure to the fusion modelling community oriented to the development

Objectives
- Unified access to Grid and HPC platforms
- Architecture design in contact with omi-europe
- Adaptation and Optimization of Fusion Codes
- Porting to Grid and/or HPC
- Integration of Grid and HPC
- Workflow management
- Mixed Workflows
- Inter Process Communication across platforms

Grid
Fusion
HPC

Work Plan

Migrating Desktop:
- **Key** Integration Platform
- Kepler:
  - Runs within Migrating Desktop
  - Workflow engine
  - Roaming Access Server (RAS):
    - Provides Web services Interface
    - Integrates many grid backends

RAS Server

Client
Migrating Desktop

Kepler application server

NX Client

Kepler actor

Submission

UXCORE middleware

glide middleware

WMS

HPC

Central

The CENTRE code is fully vectorized (optimized for parallel processing). All the modules it includes were written in Fortran 77 and were debugged extensively. The code is still under development and is being constantly improved. Optimization of the code is ongoing, and better performance is expected in the near future.

IMF (Interface Model for Transport) is a fully vectorized particle code with load balancing and distributed memory support.

SOLPS (Solar Probe) is a suite of plasma and magnetic field models that are used to simulate the propagation of plasma waves and plasma flows in astrophysical and laboratory plasmas. The code is optimized for parallel processing and is designed to run on a wide range of computer architectures.

KERNEL (Kerberos) is a fully vectorized particle code that is designed to run on a wide range of computer architectures. The code is optimized for parallel processing and is designed to run on a wide range of computer architectures.

UPF (Unstructured Parallel Federated) is a suite of plasma and magnetic field models that are used to simulate the propagation of plasma waves and plasma flows in astrophysical and laboratory plasmas. The code is optimized for parallel processing and is designed to run on a wide range of computer architectures.

GRID (Grid) is a fully vectorized particle code that is designed to run on a wide range of computer architectures. The code is optimized for parallel processing and is designed to run on a wide range of computer architectures.

OME (Open Model Environment) is a suite of plasma and magnetic field models that are used to simulate the propagation of plasma waves and plasma flows in astrophysical and laboratory plasmas. The code is optimized for parallel processing and is designed to run on a wide range of computer architectures.

OMI (Open Model Interface) is a suite of plasma and magnetic field models that are used to simulate the propagation of plasma waves and plasma flows in astrophysical and laboratory plasmas. The code is optimized for parallel processing and is designed to run on a wide range of computer architectures.

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