Installing IPPL on EULER

This guide outlines the steps to install the IPPL library on the EULER cluster. Before beginning, ensure you are connected to the ETH-VPN to access the cluster.

Connecting to the EULER Cluster

Use SSH to connect to EULER. Replace '<username>' with your actual username.

```
ssh -Y <username>@euler.ethz.ch
```

The '-Y' flag enables trusted X11 forwarding, necessary for running graphical applications remotely.

Preparing the Environment

Load the New Software Stack: Transition to the new software stack to access the latest dependencies:

```
env2lmod
```

Clean the Environment: Ensure no previous modules are loaded to avoid conflicts:

```
module purge
```

Load Dependencies: Load the required modules for IPPL:

```
module load gcc/11.4.0 cmake/3.26.3 cuda/12.1.1 openmpi/4.1.4
```

Cloning the IPPL Library and Build Scripts

Clone the IPPL library from its repository:

```
git clone https://github.com/IPPL-framework/ippl.git
```

Clone the IPPL build scripts for a simplified installation process:

```
git clone https://github.com/IPPL-framework/ippl-build-scripts.git
```

Building IPPL

Choose from the following options based on your needs. If necessary, you can build multiple versions in separate directories.

Serial Version (for single-node computing)

```
./ippl-build-scripts/999-build-everything -t serial -k -f -i -u
```

OpenMP Version (for multi-threaded computing):

```
./ippl-build-scripts/999-build-everything -t openmp -k -f -i -u
```

CUDA Version (for GPU computing):

```
./ippl-build-scripts/999-build-everything -t cuda -k -f -i -u
```

Testing Your Installation

Launch an interactive job on EULER to test your installation:

```
srun -n 1 --time=1:00:00 --mem-per-cpu=32g --pty bash
```

This command allocates one computing node with 32GB of RAM for 60 minutes.

Task : Execute a miniapp in the '/alpine' folder to verify the installation (don't forget to compile with Make).

Links

Repository for Independent Parallel Particle Layer (IPPL)

```
https://github.com/IPPL-framework/ippl
```

Repository for IPPL Build Scripts

```
https://github.com/IPPL-framework/ippl-build-scripts
```