

MPI, OpenMP, and Profiling tutorial

Dear attendee,

Welcome and thank you for registering for the tutorial.

In this note, you will find some useful information about the tutorial which will take place on Tuesday, December 7th between 1:00 PM and 5:15 PM.

Prerequisites

To get the most from this tutorial you have to have basic knowledge of the C programming language and a basic familiarity with Linux. No prior knowledge in Parallel Computing is assumed.

Agenda

The tutorial will consist of 5 chapters:

- 1) A general introduction to Parallel Processing.
- 2) An introduction to the Message Passing Interface (MPI).
- 3) An introduction to OpenMP.
- 4) Profiling parallel programs.
- 5) Hands-on: practicing all of the above.

The computing environment

We will have access to the Weizmann Institute of Science HPC cluster.

I assume that you already had received instructions on how to connect to the cluster using Virtual Private Network (VPN).

In addition, I prepared a Virtual Machine (VM) image with all the relevant software already pre-installed, which you can download and import into [Virtualbox](#) as a guest machine. This is a convenient platform for educational purposes but it is not an HPC platform. The image size is quite large (15GB) and it expands up to about an additional 40GB of disk space. In addition, the VM requires about 5.5GB of RAM, so it may not fit older computers with limited resources. For those of you who are interested in trying this VM, it is recommended to install it prior to the tutorial. The password to login to the VM is: `hpc_in_vbox`

A few links

- Get the example programs from here: <https://tel-zur.net/PRACE2021/PRACE2021.tar.gz>
- Download the VM: https://gtz-vm-bucket.s3.amazonaws.com/HPC_VM_2021.12.ova
Use `wget` to download it from the terminal. The password for the default user `hpc-user` is `hpc_in_vbox`.
- The tutorial slides will be available by Tuesday at the tutorial website: <https://tel-zur.net/PRACE2021>

I am looking forward to seeing you on Tuesday!

Take care and best wishes

Dr. Guy Tel-Zur

Email: gtelzur@bgu.ac.il