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A quick overview and guide

Overview

EXA2PRO targets developers who want to evaluate their applications in **complex heterogeneous systems and clusters** with limited programming effort.

EXA2PRO supports various programming models including:
OpenMP, OpenCL, CUDA, StarPU, MPI

- ◆ Developers who want to try EXA2PRO on a PC/laptop please use the EXA2PRO docker container: <https://hub.docker.com/r/exa2pro/exa2pro-framework>
- ◆ Developers who already applied EXA2PRO in an application and want to deploy it on a large-scale system, please try the EXA2PRO singularity container: <https://cloud.sylabs.io/library/container/606dc8284ad4aa1fdea0c191>
- ◆ The source code of all tools is also available: <https://gitlab.seis.exa2pro.it/public>

What is the effort to apply EXA2PRO?

- The most straightforward way to apply the EXA2PRO to an application is through the **EXA2PRO high-level programming interface**, which is based on SkePU
- Follow the [Getting Started Guide or the User Guide](#) to see whether the application algorithmic pattern matches one of the EXA2PRO skeletons. After applying the skeleton(s), developers can directly evaluate the application on available backends (CPU, GPU, multi-GPU, MPI clusters, ...)
- Experience shows that the **development effort** depends on (i) the extent by which the application algorithm fits with a skeleton and (ii) how well-isolated is the application kernel that the skeleton will replace.
About 2 weeks of programming were required for the EXA2PRO applications
(See Examples and Initial Results on the [EXA2PRO website](#)).
- **Multivariant user functions** can be used in cases the skeletons are not a good fit (see [User Guide](#) section 1.12). Applying **StarPU** can also be considered, especially for applications that follow the task-based programming model (see the [StarPU user guide](#) and [best practices](#))

Guides, examples and tutorials

- ◉ Plenty of material can be found in the EXA2PRO website
- ◉ Examples:
 - ◉ [Materials and Processes for CO₂ capture](#)
 - ◉ [Simulation of Supercapacitors](#)
 - ◉ [Brain Modeling](#)
- ◉ Video Tutorials:
 - ◉ [SkePU](#)
 - ◉ [StarPU](#)
- ◉ User guides for getting started and best practices: <https://exa2pro.eu/#developers>

Thank You!



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Partners

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