

alpaka Parallel Programming – Online Tutorial

Lecture 00 – Getting Started with alpaka

Lesson 04: Installation



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Lesson 04: Installation

How to download alpaka

- Install `git` for your operating system:
 - Linux: `sudo dnf install git` (RPM) or `sudo apt install git` (DEB)
 - macOS: Enter `git --version` in your terminal, you will be asked if you want to install `git`
 - Windows: Download the installer from <https://git-scm.com/download/win>
- Open the terminal (Linux / macOS) or PowerShell (Windows)
- Navigate to a directory of your choice: `cd /path/to/some/directory`
- Download alpaka: `git clone -b release-0.5.0 https://github.com/alpaka-group/alpaka.git`

Lesson 04: Installation

Install alpaka's dependencies

- alpaka only requires Boost and a modern C++ compiler (g++, clang++, Visual C++, ...)
 - Linux:
 - `sudo dnf install boost-devel` (RPM)
 - `sudo apt install libboost-all-dev` (DEB)
 - macOS:
 - `brew install boost` (Using Homebrew, <https://brew.sh>)
 - `sudo port install boost` (Using MacPorts, <https://macports.org>)
 - Windows: `vcpkg install boost` (Using vcpkg, <https://github.com/microsoft/vcpkg>)
- Depending on your target platform you may need additional packages
 - NVIDIA GPUs: CUDA Toolkit (<https://developer.nvidia.com/cuda-toolkit>)
 - AMD GPUs: ROCm / HIP (<https://rocmdocs.amd.com/en/latest/index.html>)

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Preparing alpaka for installation, Part 1

- CMake is the preferred system for building and installing
 - Linux: `sudo dnf install cmake` (RPM) or `sudo apt install cmake` (DEB)
 - macOS and Windows: Download the installer from <https://cmake.org/download/>
- In the terminal / PowerShell, switch to the downloaded alpaka directory:
`cd /path/to/alpaka`
- Create a build directory and switch to it:
`mkdir build`
`cd build`

Lesson 04: Installation

Preparing alpaka for installation, Part 2

- In the `build` directory use CMake for configuration (replace the install prefix with an actual path):

```
cmake -DCMAKE_INSTALL_PREFIX=/some/other/path/ ..
```
- Your alpaka installation will later reside in `/some/other/path/`
- If you are content with the default directories you can omit the install prefix
 - This requires administrator privileges!
 - This will result in a system-wide installation!
 - On Linux and macOS the default directory will be `/usr/local`
 - On Windows the default directory will be `C:\Program Files`

Lesson 04: Installation

Install alpaka

- Execute the installation command (note the dot):
`cmake --install .`
- You should now have a complete alpaka installation in the directory you chose earlier
- Did you encounter problems or errors?
 - Check the documentation: <https://alpaka.readthedocs.io/en/latest/install/instructions.html>
 - Still having problems? Please report them here: <https://github.com/alpaka-group/alpaka/issues>



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