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# **COMPANY BLOG**

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# Handling OpenCL with CMake 3.1 and higher

POSTED BY VINCENT HINDRIKSEN ON 25 SEPTEMBER 2015 WITH 2 COMMENTS

There has been quite some "find OpenCL" code for CMake around. If you haven't heard of CMake, it's the most useful cross-platform tool to make cross-platform software.



Put this into CMakeLists.txt, changing the names for the executable.

#Minimal OpenCL CMakeLists.txt by StreamHPC

```
cmake_minimum_required (VERSION 3.1)
project(GreatProject)
# Handle OpenCL
find_package(OpenCL REQUIRED)
include_directories(${OpenCL_INCLUDE_DIRS})
link_directories(${OpenCL_LIBRARY})
add_executable (main main.cpp)
target_include_directories (main PUBLIC ${CMAKE_CURRENT_SOURCE_DIR})
target_link_libraries (main ${OpenCL_LIBRARY})
```

### Then do the usual:

- make a build-directory
- cd build
- cmake .. (specifying the right Generator)

Adding your own CMake snippets and you're one happy dev!

# Cmake 3.7

CMake 3.7 makes it even easier! You can do the following:

```
find_package(OpenCL REQUIRED)
add_executable(test_tgt main.c)
target_link_libraries(test_tgt OpenCL::OpenCL)
```

This automatically sets up the include paths and target library to link against. No need to use the \${OpenCL\_INCLUDE\_DIRS} and \${OpenCL\_LIBRARIES} any more.

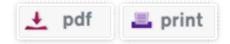
(Thanks Matthäus G. Chajdas for improving this!)

# Getting CMake 3.1 or higher

• Ubuntu/Debian: Get the PPA .

- Other Linux: Get the latest tar.qz and compile.
- Windows/OSX: Download the latest exe/dmg from the CMake homepage.

If you have more tips to share, put them in the comments.



# **Related Posts**



# Install OpenCL on Debian, Ubuntu and Mint orderly

... you read different types of manuals how to compile OpenCL software on Linux, then you can get dizzy of all the LD-parameters. ...



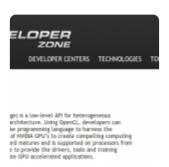
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... for the samples in one zip-file, scroll down. The removed OpenCL-PDFs are also available for download. This sentence "NVIDIA's ...

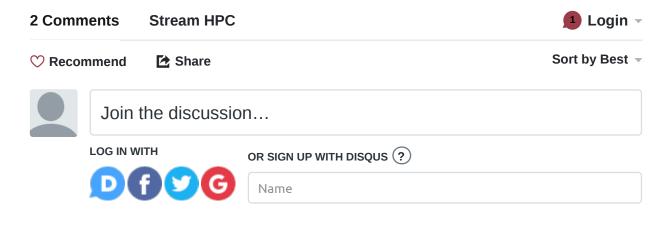




### WRITTEN BY VINCENT HINDRIKSEN

Mr. Vincent Hindriksen M.Sc is the founder of StreamComputing, a collective of performance engineering experts.

Do you need expertise in performance engineering? We have several experts available (HPC, GPGPU, OpenCL, HSA, CUDA, MPI, OpenMP) and solve any kind of performance problem. Contact me via phone or mail to discuss further: +31 854865760 or vincent@streamcomputing.eu





Ruben Dario Guerrero Mancilla • 2 months ago

Hi,

When I use the script avobe, is true that the project compile, but when I execute the resulting binary I get the error:

Failed to load kernel.

What modifications are needed in order to produce the right binary?

**HPC** 

streamcomputing Mod → Ruben Dario Guerrero Mancilla • 2 months ago

It seems that the kernel-file is not there. Easiest option is to copy kernel-files to the build directory during the build, as explained here:

https://stackoverflow.com/g...

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Achwaq Khalid — Nice job □ □ □

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jack — or use CUDA with atomicAdd(float\*,float) if you need good performance. implementation via

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ArrayFire — In our booth we have an OpenCL demo running on Xilinx FPGAs! Come to booth #2229.

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STREAM streamcomputing — Correct. It is explained in more detail at https://www.khronos.org/reg... which is

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OpenCL CPU/GPU Training (4 days) (16 October 2017, Amsterdam)

OpenCL CPU/GPU Training (4 days) (20 November 2017, Amsterdam)

OpenCL CPU/GPU Training (4 days) (18 December 2017, Amsterdam)











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