



Chapter 3.1: Vector Add

ROCm Tutorial | AMD 2020

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Chapter 3.1: Vector Add

This hands-on tutorial shows how we can compile a simple vector Add application in HIP and execute it.

Preparation

1. In the tutorial repository:
 - `cd 01_HIP_Vector_Add/Vector_Add_GPU`
2. The source code that we covered in the ppt is in the file `vadd_hip.cpp`. It is recommended that you use the information in the slides to understand the code before proceeding.

Compiling and Executing

1. We will be using `hipcc` for compiling the application
2. By default, `hipcc` will be added to your environment variable "PATH" upon a successful ROCm installation.

If not add `/opt/rocm/bin/` to your "PATH" environment variable

3. To compile run the following command:

```
hipcc vadd_hip.cpp -o vadd_hip
```

4. Run the program:

```
./vadd_hip
```

5. You will see the program run to completion as shown in the picture below:

```
Finished allocating vectors on the CPU
Finished allocating vectors on the GPU
Finished copying vectors to the GPU
Launching the kernel on the GPU
Finished executing kernel
Finished copying the output vector from the GPU to the CPU
Printing few elements from the output vector
Output[0]:0.000000
Output[1]:2.000000
Output[2]:4.000000
Output[3]:6.000000
Output[4]:8.000000
Output[5]:10.000000
Output[6]:12.000000
Output[7]:14.000000
Output[8]:16.000000
Output[9]:18.000000
Output[10]:20.000000
Output[11]:22.000000
Output[12]:24.000000
Output[13]:26.000000
Output[14]:28.000000
Output[15]:30.000000
Output[16]:32.000000
Output[17]:34.000000
Output[18]:36.000000
Output[19]:38.000000
Releasing GPU memory
Releasing CPU memory
```

Figure 1: Runtime trace of execution of the vector add application