

256-Bin Histogram Using Atomics

1 Overview

1.1 Location `$<APPSDKSamplesInstallPath>\samples\opencl\cpp_cl\`

1.2 How to Run See the *Getting Started* guide for how to build samples. You first must compile the sample.

Use the command line to change to the directory where the executable is located. The default executables are placed in `$<APPSDKSamplesInstallPath>\samples\opencl\bin\x86` for 32-bit builds and `$<APPSDKSamplesInstallPath>\samples\opencl\bin\x86_64` for 64-bit builds.

Type the following command(s).

1. `HistogramAtomics`
Runs with default size 2048 x 2048 x uint4.
2. `HistogramAtomics -h`
This prints the help message.

1.3 Command Line Options Table 1 lists, and briefly describes, the command line options.

Table 1 Command Line Options

Short Form	Long Form	Description
-h	--help	Shows all command options and their respective meaning.
	--device	Devices on which the program is to be run. Acceptable values are <code>cpu</code> or <code>gpu</code> .
-q	--quiet	Quiet mode. Suppresses all text output.
-e	--verify	Verify results against reference implementation.
-t	--timing	Print timing.
	--dump	Dump binary image for all devices.
	--load	Load binary image and execute on device.
	--flags	Specify compiler flags to build kernel.
-p	--platformId	Select platformId to be used (0 to N-1, where N is the number of available platforms).
-d	--deviceId	Select deviceId to be used (0 to N-1, where N is the number of available devices).
-v	--version	AMD APP SDK version string.

Short Form	Long Form	Description
-i	--iterations	Number of iterations for kernel execution.
	--scalar	Run the scalar version of the kernel (Note that the --scalar and -vector options are mutually exclusive.)
	--vector	Run the vector version of the kernel (Note that the --scalar and -vector options are mutually exclusive.)

2 Implementation details

The implementation contains two kernels: a scalar kernel and a vector kernel. The scalar kernel works better on current generation GCN cards. The vector kernel works better on VLIW and previous generation cards. The user can select the kernel using the --scalar or --vector options; otherwise, preferred vector-width for the device is queried and used. If both --scalar and --vector are specified, both the options are ignored and the default vector-width will be used.

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