

## 1 Overview

**1.1 Location** `${APPSDKSamplesInstallPath}\samples\opencl\cl\`

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

Use the command line to change to the directory where the executable is located. The pre-compiled sample executable is at `${APPSDKSamplesInstallPath}\samples\opencl\bin\x86\` for 32-bit builds, and `${APPSDKSamplesInstallPath}\samples\opencl\bin\x86_64\` for 64-bit builds.

Type the following command(s).

1. `ImageOverlap`  
This executes a copy operation using the GPU texture unit (Image), as well as fill operations on the image object.
2. `ImageOverlap -h`  
This prints the help file.

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

**Table 1 Command Line Options**

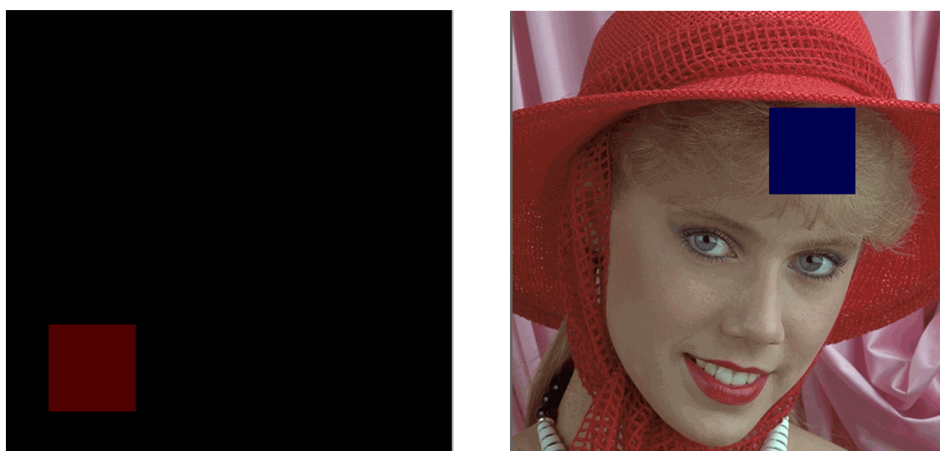
Short Form	Long Form	Description
-h	--help	Shows all command options and their respective meaning.
	--device	Devices on which the program is to be run. Acceptable values are <code>cpu</code> or <code>gpu</code> .
-q	--quiet	Quiet mode. Suppresses all text output.
-e	--verify	Verify results against reference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

Short Form	Long Form	Description
-d	--deviceId	Select device Id to be used (0 to N-1, where N is the number of available devices).
-v	--version	AMD APP SDK version string.
-i	--iterations	Number of iterations for kernel execution.

## 2 Introduction

This sample shows how to load a .bmp file into the GPU using `image_2d`. It also shows how to fill a certain location with one color using `clEnqueueFillImage`. The kernel execution overlaps two images by adding the RGB value of every pixel:  $(R1 + R2)$   $(G1 + G2)$   $(B1 + B2)$ .

Figure 1 shows the two images before overlapping.



**Figure 1** Images Before Overlapping

Figure 2 shows the result of the overlapping of the two images in Figure 1.



**Figure 2** Resulting Overlapped Images

### 3 Implementation Details

Copy one image into the GPU using `clCreateImage`. Then, fill a 100x100 blue block on the image using `clEnqueueFillImage`. Fill an empty image with a red block. Use `clEnqueueMarkerWithWaitList` to wait until the two fill operations are completed; then, overlap the two images.

### 4 Environment

This Sample must run in the OpenCL 1.2 environment. The following APIs are from OpenCL 1.2:

- `clCreateImage`  
Creates a 1D image, 1D image buffer, 1D image array, 2D image, 2D image array and 3D image object, based on different flags.
- `clEnqueueFillImage`  
Enqueues a command to fill an image object with a specified color.
- `clEnqueueMarkerWithWaitList`  
Enqueues a marker command that waits for a list of events to complete. If the list is empty, it waits for all commands previously enqueued in command queue to complete before it completes.

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