AMD **Accelerated** Parallel Processing TECHNOLOGY

AMD APP SDK v2.9.1

Samples Release Notes

1 What's New

All samples, except the samples for APARAPI, now support the `CMake` build tool.

Updated Installer

The AMD APP SDK can now be installed on Linux with root as well as non-root permissions.

Updated samples

- All Bolt samples now work with the latest Bolt 1.2 library.
- All OpenCV-CL samples now work with the latest OpenCV library, OpenCV 2.4.9.
- All the Aparapi samples work with the latest Aparapi trunk source in the link: http://code.google.com/p/aparapi/source/browse/#svn%2Ftrunk.

Updated `CMake` files

- The `CMake` files have been updated to handle the generation of Microsoft Visual Studio 2013 projects on Windows.
- The `CMake` files have been updated to work with `gcc 4.8.1`.

2 Samples

- AMD APP SDK samples are located in the `$<`*`APPSDKSamplesInstallPath`*`>\samples` folder. See the *Installation Notes* and the *Getting Started Guide* for more information. These documents also provide information about using OpenCL, BOLT, C++ AMP, Aparapi, and OpenCV samples.

3 Important Notes

- For a successful build and correct operation of individually downloaded samples, update to the Catalyst 14.4 driver or newer.
- When building on Linux systems, the GL samples require the development files for OpenGL and for the OpenGL utility library. If these are not already installed on your system, install them on your system in order for the sample to build. If required, create a symlink `libGLU.so` to `libGLU.so.1`.
- If the 32-bit version of the APP SDK installer is used on a 64-bit Linux machine, ensure that the following lib32 packages are installed:
  - `libc6:i386`
  - `libstdc++6:i386`

- On Windows, the SDK samples have Microsoft® Visual Studio® 2010 and 2012 projects. To generate Microsoft® Visual Studio® 2013 project files, use the included `CMake` files.
- All the samples in `$<APPSDKSamplesInstallPath>/samples/opencl/benchmark`, as well as GL-based, DirectX, and MultiGPU samples do not work on CPU-only machines.
- Bolt and OpenCV-CL libraries make use of OpenCL kernels that require a workgroup size of 256. Hence APP SDK Bolt and OpenCV-CL samples can be run only on devices that support a workgroup size of 256 or above.
- If GL samples fail on Linux, ensure that the `libGL.so.1` file is linked to `fglrx-libGL.so.1.2`, which for Ubuntu is found in `/usr/lib/fglrx/` and `/usr/lib32/fglrx/`, or for RHEL is found in `/usr/lib64/fglrx/`. The sample fails when linked to `/usr/lib/x86_64-linux-gnu/mesa/libGL.so.1`, `/usr/lib/i386-linux-gnu/mesa/libGL.so.1` in Ubuntu or `/usr/lib/libGL.so.1`, `/usr/lib64/libGL.so.1` in RHEL. For more details, see:
  http://phoronix.com/forums/showthread.php?7351-Does-fglrx-s-libGL-so-1-2-have-wrong-soname
  https://bugs.launchpad.net/ubuntu/+source/mesa/+bug/943162

4 Resolved Issues and Improvements

- The CMake files have been updated to include the OpenGL-related additional libraries X11 and GLU.
- The SimpleDX9 sample works when multiple displays are connected to the system
- The GlobalMemoryBandwidth sample includes memory availability check before allocating the buffer.
- The EigenValue sample has a fix for the soft hang occurring on Linux in the CPU verification code.
- Memory leak issues in several samples have been fixed.
- The HistogramAtomics sample now has a fix for platforms not supporting 256 work-group size.
- The BinomialOptionMultiGPU sample has been updated to handle scenarios in which the input size is not a multiple of the number of devices.
- The ConcurrentKernel sample has been updated to exclude local memory declaration in non-kernel functions and conforms to the OpenCL specification.
- The DCT sample has a fix for a bug in the matrix multiplication code.
- The BinarySearch sample now works for larger input sizes.
- A minor bug in the time measurement utility function in the SDKUtil header file has been fixed.

5 Known Issues

- For correct operation of the samples when using RHEL 5.5 or RHEL 5.8, it may be necessary to build the samples using that OS.
- Mandlebrot: When using the vector version of the kernel, `LocalThread` is divided by four to ensure correct operation.
- SimpleDX9: This sample does not operate correctly when using the MinGW compiler.
- SimpleDX10: This sample does not operate correctly when using the MinGW compiler.

- SimpleDX11: This sample does not operate correctly when using the MinGW compiler.
- The SDK samples provided with this release of the AMD APP SDK are not necessarily tuned for optimal performance. AMD is improving the samples continually; check http://developer.amd.com/tools/heterogeneous-computing/amd-accelerated-parallel-processing-app-sdk/samples-demos/ for new and updated samples.
- If you intend to use OpenCL on supported AMD GPUs, ensure that a supported display driver is installed on your system before running the SDK installer. When running 32-bit samples executables on 64-bit Ubuntu systems, ensure that the `ia32-libs` package is installed. To do this, log in as root and type:

  ```
  sudo apt-get install ia32-libs
  ```

  If the `ia32-libs` package is not installed, running 32-bit samples executables on 64-bit Ubuntu systems can result in the following error message:

  ```
  'clGetPlatformIDs() failed'
  ```

  For more information about this issue, see: http://www.debian-administration.org/articles/534
- Running samples can result in an error if the `TEMP` environment variable contains multi-byte characters.
- The OpenCL NBody may report differences when run with the `--verify` option and a higher number of iterations due to precision differences between the OpenCL and C functions.
- The FluidSimulation2D and NBody samples are the only ones still using glut; thus, they may crash if the “X” button is used to close the application window. This is a known issue in glut64 for all Windows 64-bit operating systems.
- For MinGW64 issues, please read KnowledgeBase article KB125:

  http://developer.amd.com/resources/documentation-articles/knowledge-base/
- Increased error tolerance due to reduced accuracy when using native versions of SIN and COS functions on the AMD Radeon™ HD 6970 and AMD Radeon™ HD 6950 relative to other AMD GPUs.
- Bolt samples, C++AMP samples, as well as SimpleDX10 and FluidSimulation2D cannot be built using the Intel C Compiler.
- Samples that include `cl.hpp` do not build on MinGW. These samples are in the `cpp_cl` folder.
- On a machine with [Intel/AMD CPU + integrated Intel/AMD GPU] + discrete AMD GPU, C++ AMP samples do not run on the discrete GPU when the Power-Express(PX) mode is enabled. This limitation holds true for any DirectX samples as well. On a desktop, to enable running on discrete GPU, connect 2 monitors to both iGPU and dGPU ports. This way DirectX will detect both the cards in power-express mode. In case of a mobile device, such as a laptop, disable iGPU using the BIOS settings. This way DirectX will be use the dGPU.
- Executing samples on Linux using the CPU runtime reports the following message, but continues to execute as expected:

  ```
  FATAL: Module fglrx not found.
  Error! Fail to load fglrx kernel module! Maybe you can switch to root user
  to load kernel module directly
  ```
- The verification of C++AMP samples may fail on Windows 8 64-bit systems when run on the Windows emulator. If the executable is set to "High Performance mode," the verification should pass.

- When the BoltAmpIntro sample is built using Visual Studio 2012, compilation fails. The compilation error is caused by a known issue in the Bolt 1.2 library wherein the compilation of particular modules fails with Visual Studio 2012. However, the sample can be successfully built using Visual Studio 2013.

Contact

Advanced Micro Devices, Inc.
One AMD Place
P.O. Box 3453
Sunnyvale, CA, 94088-3453
Phone: +1.408.749.4000

For AMD Accelerated Parallel Processing:

URL: developer.amd.com/appsdk
Developing: developer.amd.com/
Forum: developer.amd.com/openclforum