AMD **Accelerated** Parallel Processing TECHNOLOGY

AMD APP SDK v2.8

Installation Notes

The Microsoft® Windows® installer is delivered as self-extracting executable files for 32- or 64-bit systems. The Linux installer is delivered as gzip-compressed tar archive for 32- or 64-bit systems.

1 Overview

The AMD APP SDK v2.8 is provided to the developer community to accelerate the programming in a heterogeneous environment. The package consists of samples that serve as examples for a wide class of developers on different facets of heterogeneous programming.

The AMD APP SDK package contains the runtime for CPU hardware only. The GPU runtime is included in the Catalyst driver.

There are no changes to the SDK 2.8 Developer or Sample packages installation.

For Microsoft® Windows® platforms, the AMD APP SDK installer installs the following packages on your system by default (unless you choose to customize the install):

1. AMD APP SDK CPU Runtime package.
2. AMD APP SDK Developer package. This includes:
   - the OpenCL™ compiler,
   - pointers to the latest versions of the developer documentation. (See the AMD APP SDK v2 folder in the All Programs panel of Windows Start. This also contains links to the AMD Math Libraries.)
3. AMD APP SDK v2 Samples package. This includes:
   - sample applications,
   - sample documentation.

For Linux® platforms, the AMD APP SDK consists of one package. To ensure proper installation, see Section 3.2, “On Linux Systems,” page 5.

The AMD APP SDK Developer installation includes the following folders:

- `bin` - This includes tools for compiling OpenCL applications, as well as the OpenCL dynamic library for running them.
- `lib` - This contains the base OpenCL CPU runtime library to which the applications link on Windows systems.
- `include` - This contains the header files for the OpenCL runtime.

- `docs` - This contains developer documentation for the AMD APP SDK. Additional developer documentation is available online at: http://developer.amd.com/tools/heterogeneous-computing/amd-accelerated-parallel-processing-app-sdk/documentation/

The AMD APP SDK CPU runtime installation for Windows adds the variable `AMDAPPSDKROOT` to your environment. This points to the location where you have installed the SDK development package. The Windows installer also adds the locations of the OpenCL dynamic libraries to your system `PATH` variable, so applications know where to find it.

The AMD APP SDK Samples installation includes the following folders:

- `bin` - This includes pre-built binaries and dynamic libraries for running AMD APP samples.
- `lib` - This contains AMD APP SDK utility libraries to which sample applications link.
- `include` - This contains the header files for utilities and tools used by the samples.
- `samples` - This contains sample applications for OpenCL 1.1 and OpenCL 1.2, C++ AMP, Bolt, and Aparapi.
- `make` - This contains the definitions and rules for `make`.

The AMD APP SDK Samples installer for Windows adds the variable `AMDAPPSDKSAMPLESROOT` to your environment. This points to the location where you have installed the SDK Samples package.

2 Prerequisites

To install and run the AMD APP SDK v2.8 requires that you have:

- administrative privileges on the system.
- removed from your system any previous version of the AMD APP SDK.
- one of the following:
  - Windows 8
  - the following updates installed on a 32-bit Windows 7 SP1 or Microsoft Windows Vista system.
    - ◊ For Windows Vista only: Windows Vista Service Pack 1 (SP1).
    - ◊ Microsoft .NET Framework Version 2.0 Redistributable Package.
    - ◊ Optionally (for building the Microsoft Visual Studio projects): Microsoft Visual Studio 2008 Professional Edition, 2010 Professional Edition, or Microsoft Visual Studio 2012.
  - the following updates installed on a 64-bit Windows 7 SP1 or Windows Vista system.
    - ◊ For Windows Vista only: Windows Vista Service Pack 1 (SP1).
    - ◊ Microsoft .NET Framework Version 2.0 (x64) Redistributable Package.
    - ◊ Optionally (for building the Microsoft Visual Studio projects): Microsoft Visual Studio 2008 Professional Edition, 2010 Professional Edition, or Microsoft Visual Studio 2012
    - ◊ Bolt samples require Microsoft Visual Studio 2010 or Microsoft Visual Studio 2012.

- ◊ DirectX samples require the installation of the Microsoft DirectX SDK (June 2010). The SDK can be downloaded from http://www.microsoft.com/en-us/download/details.aspx?id=6812
- ◊ C++AMP samples require Microsoft Visual Studio 2012.

- installed the latest version of the AMD Catalyst™ driver on your system in order to take advantage of the AMD GPU's capabilities with OpenCL™. The samples can be run without the Catalyst driver, in which case they will rely on the CPU runtime.

To run pre-built Bolt and C++Amp samples, Microsoft Visual Studio 2012 must be installed on the host operating system.

C++ Amp samples can be built and executed only with Microsoft Visual Studio 2012.

Bolt samples can be built and executed with Microsoft Visual Studio 2012 and Visual Studio 2010.

3 Installing the SDK

- Uninstall any prior AMD APP SDK (pre 2.8) you have on your system. To do this:
  a. Reboot.
  b. Use Programs and Features (Windows Vista or 7 SP1) to uninstall the prior SDK files.
  c. Manually remove any AMD APP directories under My Documents and under Program Files or Program Files (x86).
- Ensure that the previously generated temporary folder is deleted. Paths to this folder are:

  Vista, Win 7 SP1, and Win 8 32-bit: `C:\AMD\SUPPORT\streamsdk_v2_8_win32`

  Vista, Win 7 SP1, and Win 8 64-bit: `C:\AMD\SUPPORT\streamsdk_v2_8_win64`

3.1 On Windows Systems

Step 1. Choose the AMD APP SDK executable appropriate for your system, and double-click it.

- For 32-bit Windows Vista, Windows 7 SP1, and Windows 8 systems, choose `AMD-APP-SDK-v2.8-Windows-32.exe`.
- For 64-bit Windows Vista, Windows 7 SP1, and Windows 8 systems, choose `AMD-APP-SDK-v2.8-Windows-64.exe`.

The extracted files are placed automatically into `C:\AMD\SUPPORT\<`*`name of file you double-clicked`*`>\`.

Step 2. If the setup program does not start automatically after the files have been extracted, access the subdirectory of `C:\AMD\SUPPORT\` with the extracted files, and double-click `Setup.exe`. A welcome screen appears, prompting you to choose a language. The default is English. Click Next. The Select Installation Operation screen appears.

Step 3. Click the install icon. The resulting screen lets you choose the type of installation, as well as the default installation location.

Choosing Express installs:

- AMD APP SDK v2 Developer
- AMD APP SDK v2 Samples
- AMD APP SDK v2 Runtime

Choosing Custom lets you select the components (Developer and Samples) to install. If you select Express, continue with Step 4. If you select Custom, skip to Step 9.

Step 4. If you select Express and click Next, the End User License Agreement appears. Click Accept. This causes a temporary “Analyzing System” screen to appear. The program is detecting the type of graphics hardware and software currently installed on the system. If an older version of one of the components is already installed, a warning appears, indicating that the installation cannot continue before it is removed. (In this case, use Program and Features (in Windows Vista, Windows 7 SP1, or Windows 8) to remove the older version of the component named above the lower progress bar.)

Step 5. When the InstallShield Wizard screen appears, click Next. This results in a prompt to accept the default folder into which the extracted files are placed. Click Next.

Step 6. When the License Agreement appears, first click the button next to “I accept the terms in the license agreement.” Then, click Next.

Step 7. On the next screen, click Install to begin installing the SDK files. A progress bar appears. After the installation is complete, a confirmation screen appears. Click Finish. This completes the installation of the AMD APP SDK v2.8 files.

Step 8. The following steps are only if Custom was selected in Step 3.

Step 9. If you clicked Custom in Step 3., above, and click Next, a temporary “Analyzing System” screen appears. The program is detecting the type of graphics hardware and software currently installed on the system. After several seconds, the Customize Install screen appears. This lets you specify which components you want to install. By default, all components are checked.

Step 10. Select the component(s) you want to install, and click Next. The End User License Agreement appears. Click Accept.

Step 11. When the InstallShield Wizard screen appears, click Next. This results in a prompt to accept the default folder into which the extracted files are placed. Click Next.

Step 12. A progress bar appears, followed by a confirmation screen that the installation is complete. The log file can be seen by clicking on the View Log option. Click Finish to complete the installation.

With SDK 2.8 or later, `clinfo.exe` is copied under `C:\windows\system32\` instead of under `C:\Program Files\AMD APP\` on 32-bit Windows, or C:\Program Files (x86)\AMD APP\ on 64-bit Windows.

Manually Setting Environment Variables

If your environment variables become corrupted, ensure the proper settings for the following.

The `AMDAPPSDKROOT` variable must be set to:

`C:\Program Files\AMD APP`	(for 32-bit systems)
`C:\Program Files (x86)\AMD APP`	(for 64-bit systems)

If the default configuration was not used, modify the value to the location specified during the installation.

The AMDAPPSDKSAMPLESROOT variable must be set to:

C:\Users\<*username*>\Documents\AMD APP\ (for Windows Vista, Windows 7 SP1, or Windows 8)

If the default configuration was not used, modify the value to the location specified during the installation.

The path variable must include:

$(AMDAPPSDKROOT)\bin\x86 (for 32-bit systems)

$(AMDAPPSDKROOT)\bin\x86_64 (for 64-bit systems)

$(AMDAPPSDKSAMPLESROOT)\bin\x86 (for 32-bit systems)

$(AMDAPPSDKSAMPLESROOT)\bin\x86_64 (for 64-bit systems)

3.2 On Linux Systems

Note that the Linux OpenCL runtime is integrated with the Catalyst Linux driver 12.10 or later.

You must have root permissions to install this SDK. Also note that the latest version of the ATI Catalyst™ driver must be installed separately.

1. Untar the SDK to a location of your choice.

   For 32-bit systems, unzip the .tgz file by entering
   tar -xvzf AMD-APP-SDK-v2.8-lnx32.tgz.

   For 64-bit systems, unzip the .tgz file by entering
   tar -xvzf AMD-APP-SDK-v2.8-lnx64.tgz.

2. Run sudo ./Install-AMD-APP.sh.

   Note that this automatically completes the following:

   a. Registers the ICD.

   b. Globally sets the environmental variables. They are reflected to all users.
      It is not necessary to set the library path.
      It is not necessary to export AMDAPPSDKROOT.
      It is not necessary to export the LD_LIBRARY_PATH.

   c. Installs the Linux APP SDK developer and sample files /binaries under /opt/AMDAPP/ .

   d. Installs the Linux APP SDK CPU runtime files under /opt/AMDAPP/lib.

Notes:

a. If the error “path not found” while clearing the cache is generated on OpenSUSE/Ubuntu, ignore it.

b. If you want to install under a different path than /opt/AMDAPP, update the default-install_lnx_32.pl or default-install_lnx_64.pl file, as appropriate, with the path to the new location.

c. To change or update the environment variables:

i. Open etc/profile; then check the `AMDAPPSDKROOT` and `LD_LIBRARY_PATH` settings.

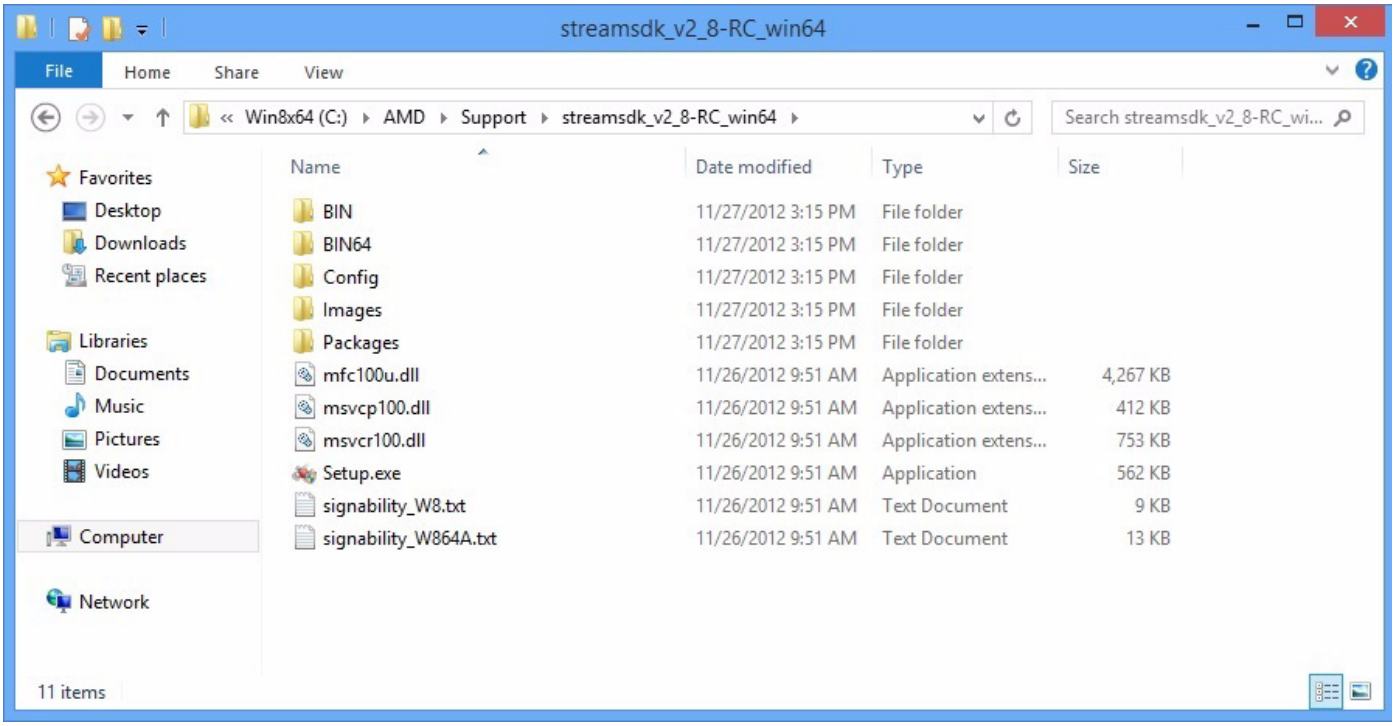
ii. Check `/etc/ld.so.conf.d/amdapp_x86.conf` and `/etc/ld.so.conf.d/amdapp_x86_64.conf` .

4 Uninstalling 2.8 SDK Components

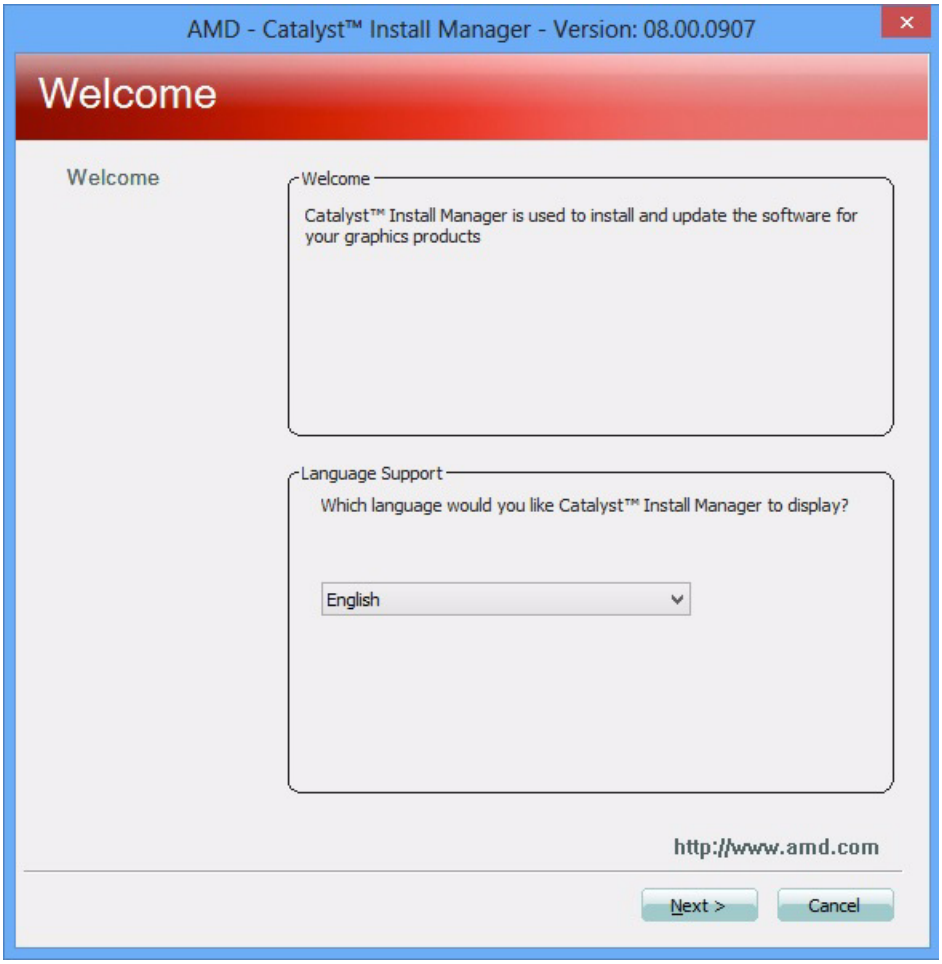
4.1 On Windows Systems

To uninstall any of the packages (Runtime, Developer, Sample, AMD APP Profiler, or AMD APP KernelAnalyzer), use the Catalyst Install Manager (CIM) uninstall option. To do this:

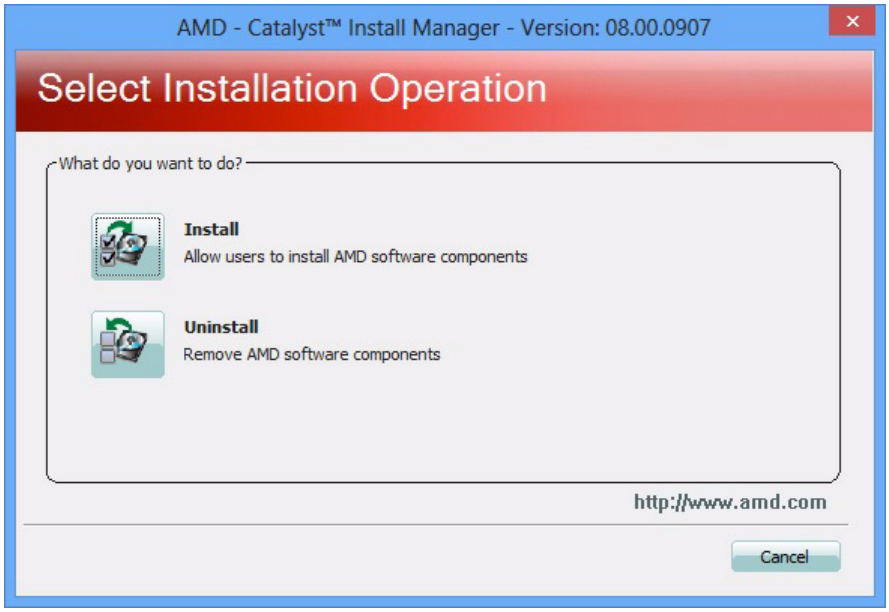
Step 1. Access the directory to which the SDK files were extracted (normally: `C:\AMD\SUPPORT\streamsdk-v2_8_win64` or `C:\AMD\SUPPORT\streamsdk-v2_8_win32`).



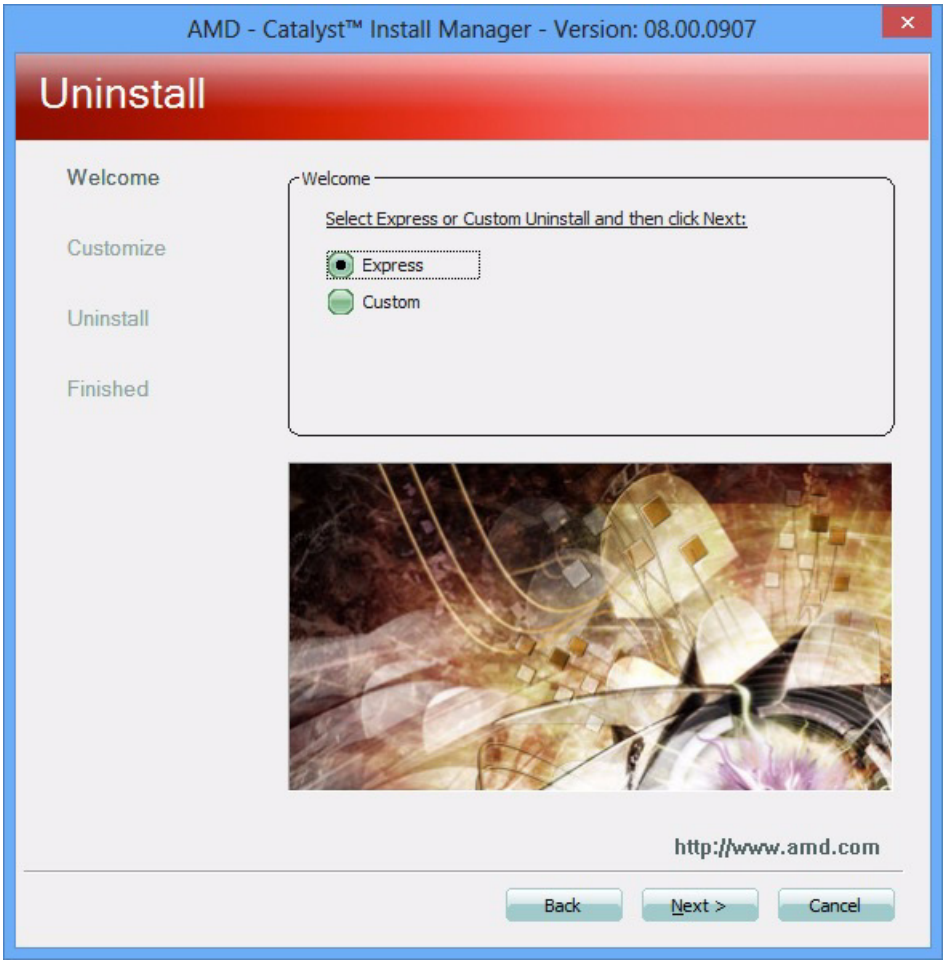
Step 2. Double-click on Setup.exe.



Step 3. Select Next >.



Step 4. Select Uninstall.



Step 5. Select Express (to remove all originally installed SDK packages, including any Catalyst driver components) or Custom (to manually select the packages to be removed).

Step 6. Also, delete any AMD APP directories under My Documents and under Program Files or Program Files (x86) to ensure a clean uninstall.

This leaves temporary or newly created files. To ensure a clean uninstall, verify that the `AMDAPPSDKROOT` and `PATH` environment variables are also reverted.

When uninstalling SDK 2.8, ensure the following link in the Windows Start | All Programs pane is removed: AMD Accelerated Parallel Processing Math Libraries. To do this, right-click on the link, and select Delete.

NOTE: If you install Catalyst Stream Edition 2.8 (or later) and AMD APP SDK 2.8 (or later), then uninstall the Runtime package, the AMD APP environment variables are removed, even though the Developer package remains.

4.2 On Linux Systems

1. Delete the directory pointed to the AMDAPPSDKROOT environment variable.
2. Remove the AMDAPPSDKROOT and LD_LIBRARY_PATH environment variables.
3. Delete the `amdocl`[`32`][`64`].so from `/etc/OpenCL/vendors`.
4. Manually remove temporary and new files created with OpenCL.

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