



ClearSpeed Software Developer Kit Installation guide

ClearSpeed software development kit (SDK) installation

This document details the installation guide for the ClearSpeed SDK.

Please refer to the support website for more information:

<http://support.clearspeed.com/>

Downloads are available at:

<http://support.clearspeed.com/downloads/software/>

Documentation can be found at:

<http://support.clearspeed.com/documentation/overview/>

Dependencies

Before installing the SDK you must have a compatible version of the driver installed. The driver is installed with the runtime component of the Base Package.

The SDK uses the FLEXlm license manager. A FLEXlm license server should be set up before installing the SDK because the name of the server is required as part of the installation and setup. See the [Section 3.1: Flexlm Installation](#) for instructions on installing FLEXlm, if necessary, and obtaining a license key.

Before you install:

- Prior to installing a new version of the software, please check the release notes for any changes or limitations in this release.
- You **must** uninstall any previous version of this software before installing this release; see the uninstall instructions.

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1 Linux SDK installation instructions

Note: To install the software for your ClearSpeed SDK you will require root access. We recommend that you uninstall any previous version of the SDK before installing this software; see the uninstallation instructions in [Section 1.6: Uninstalling the components on page 5](#).

1.1 SDK installation

1. Download the Development Package tarball from the ClearSpeed support site:
<http://support.clearspeed.com/downloads/software/>
2. Unpack the contents of the Development Package. This will create a directory called something similar to `csx600_2.xx_developer` containing the components of the package.

The files in this directory have names of the form:

```
csx600_m512_le-<component>-<version>.<target>.rpm
```

where:

`<component>` is the software component, runtime, csxl, and so on.

`<version>` is the release version and the build version of this component, for example: 2.50-1.82.1.49

`<target>` is the target architecture, for example: x86_64

Release notes and other documentation can be found in the docs subdirectory.

For the following steps, you need to be logged in as root.

Note: If you use `su` to log in as root, please ensure you use the command `su -` to ensure that the correct environment and path is set up for the following steps.

3. Change to the directory containing the contents of the Development Package; for example, `cd ~/csx600_2.xx_developer` (note that the actual directory name may vary).

The SDK package is provided as an RPM file and is installed using the `rpm` command:

```
rpm -i csx600_m512_le-cs_sdk-<version>.i386.rpm
```

By default, the SDK will be installed in `/opt/clearspeed/csx600_m512_le/`. You can override this using the `--prefix` option. For example, the following command would install the SDK in `/usr/local`:

```
rpm -i --prefix /usr/local csx600_m512_le-cs_sdk-  
<version>.i386.rpm
```

Release notes and other documentation can be found in the docs directory of the installation.

To use the SDK, your path and some environment variables need to be set up. These variables are set using the `bashrc` file, which is created in the bin subdirectory of the SDK installation (for example, `/opt/clearspeed/csx600_m512_le/bin/`). Before using this file, you need to edit it and insert the location of your FLEXlm server. Add a line of the following form:

```
export CLEARSP_LICENSE_FILE=@server-name
```

where `server-name` is the name of the server running the FLEXlm license manager.

The file can then be sourced (for example, `source /opt/clearspeed/csx600_m512_le/bin/bashrc`) or called from your own `.bashrc` or `.bash_profile` files as appropriate to set up the environment.

1.2 ClearSpeed visual profiler

The visual profiling tool is included with this release for use with the SDK. This can be installed using the `rpm` command:

```
rpm -i csx600_m512_le-csvprof-<version>.i386.rpm
```

Information on the use of the profiler can be found in the `examples` directory of the installation.

The profiler requires the Java runtime Version 5 or later to be installed. See <http://www.java.com/>

1.3 Hardware simulators

Two CSX600 simulators are available for use with the SDK, allowing code development, debug and profiling in the absence of hardware. An instruction level simulator (`isim`) allows code development, while a cycle-accurate simulator (`casim`) allows debug and in-depth profiling.

These can be installed using the `rpm` command:

```
rpm -i csx600_m512_le-simulators-<version>.i386.rpm
```

Information on the use of the simulators is included in the *SDK Reference Manual*.

1.4 Installing the FFT library

The CSDFT library provides acceleration for FFT functions. This can be installed using the `rpm` command:

```
rpm -i csx600_m512_le-csfft-<version>.x86_64.rpm
```

Note: The filename may vary depending on the version.

See the *CSDFT User Guide* in the `docs` directory of the installation for more information on how to use the CSDFT library.

1.5 Installing all components

If you wish to install all the components in the Developer Package, you can use the command:

```
rpm -i *.rpm
```

1.6 Uninstalling the components

The packages can be uninstalled using the `rpm -e` command. Packages must be uninstalled in the reverse of the order in which they were installed. You can get a list of the installed ClearSpeed RPMs with the command:

```
rpm -qa | grep csx
```

2 Microsoft Windows SDK installation instructions

2.1 SDK installation

1. Download the Development Package zip file from the ClearSpeed support site:
<http://support.clearspeed.com/downloads/software/>
2. Unzip the contents of the Development Package, making sure you preserve the directory structure. This will create a directory called something similar to `csx600_2.xx_developer` containing the components of the package.
3. The installer files in this directory have names of the form
`csx600_m512_le-<component>-<version>.<target>.exe`

where:

`<component>` is the software component, runtime, csxl, and so on.

`<version>` is the release version and the build version of this component, for example: 2.50-1.82.1.49

`<target>` is the target architecture, for example: x86_64

Release notes and other documentation can be found in the docs subdirectory.

For the following steps you will need to be logged in as a user with Administrator privileges.

4. Navigate to the directory containing the contents of the Development Package; for example, `csx600_2.xx_developer` (note that the actual directory name may vary).
5. Double-click the installer (for example, `csx600_m512_le-cs_sdk-<version>.i386.exe`) to start the installation process.
6. Follow the on-screen instructions to install the SDK. You will be asked to confirm that you agree to the terms of the license agreement and then for the name of the machine that is running the FLEXlm license server.

2.2 ClearSpeed visual profiler

The visual profiling tool is included with this release for use with the SDK. To start the installation process double-click the installer (for example, `csx600_m512_le-csvprof-<version>.i386.exe`) and follow the on-screen instructions.

Information on the use of the profiler can be found in the examples directory of the installation.

2.3 Hardware simulators

Two CSX600 simulators are available for use with the SDK, allowing code development, debug and profiling in the absence of hardware. An instruction level simulator (`isim`) allows code development, while a cycle-accurate simulator (`casim`) allows debug and in-depth profiling.

To install both simulators double-click the installer. For example:

```
csx600_m512_le-simulators-<version>.i386.exe
```

This will start the installation process.

Information on the use of the simulators is included in the *SDK Reference Manual*.

2.4 Installing FFT library

The CSDFT library provides acceleration for FFT functions. To install the diagnostics package double-click the setup file (for example, `csx600_m512_le-csdft-<version>.i386.exe`) to start the installation.

See the *CSDFT User Guide* in the docs directory of the installation for more information on how to use the CSDFT library.

2.5 Setting up the SDK environment

To use the SDK tools in any command window, a number of environment variables need to be set up. The SDK installation creates a `.bat` file which can be run to set up the environment; for example, running the following command at a command prompt will initialize the SDK environment:

```
C:\Program Files\clearspeed\csx600_m512_le\bin\setup_env
```

The SDK installation will also, optionally, create a shortcut on the desktop called `csx600_m512_le`. Double-clicking this shortcut will open a command window with the environment and path already set up so that the SDK commands can be run.

If you are using Microsoft Visual Studio as an editor and build system, then `msdev` needs to be started with the `/useenv` option in order to pick up the SDK environment variables.

2.6 Uninstalling the components

The SDK can be uninstalled using the **Add or Remove Programs** wizard in the Windows **Control Panel**, or by using the **Uninstall Package** menu command under the **Start** menu.

3 License manager

Use of the SDK tools is controlled by a software license manager called FLEXlm from Macrovision (www.macrovision.com). In order to use the tools you must (a) have the FLEXlm license server running and (b) obtain a valid license key from ClearSpeed.

Full instructions for installing and using FLEXlm and licenses can be found in the manual included with the FLEXlm software.

3.1 Flexlm Installation

If you do not have a FLEXlm server already in your network, you must set one up to manage the software licenses for the tools you are using. You can set up your local machine as the server if you do not have a central server that you wish to use.

The installer required to set up a FLEXlm server is provided as part of the Developer Package. The *FLEXlm Licensing End User Guide* contains full instructions on setting up the FLEXlm server.

If you already have a FLEXlm server, you will still need the ClearSpeed vendor-specific daemon executable, `clearsp`.

3.2 Obtaining a license key

Once you have decided which machine you will be using as your license server you must apply for a license key for the SDK. To do this you will need some information about the machine running the license server. You will need the FLEXlm host ID and the host name. The following commands explain how to obtain this information and what to do with it.

Note: *The following commands must be executed on the machine running the license server, not the machine on which the SDK will be run (if that is different).*

Open a command prompt and change to the directory containing the FLEXlm server software.

Obtain the information required to identify the computer running the license server:

1. Run the FLEXlm command `lmhostid` to obtain the FLEXlm host id. This will print a message similar to the following:

```
lmhostid - Copyright (C) 1989-2002 Globetrotter Software, Inc.  
The FLEXlm host ID of this machine is "0b12131af4ce"
```

2. Get the name of the machine from the appropriate environment variable:

Linux:

```
echo $HOSTNAME
```

Windows:

```
echo %COMPUTERNAME%
```

3. Enter a license request via the ClearSpeed support web site, including the output from these two commands.

You will then be sent an email with a file containing the license key. This file will have a name of the form `hostname.lic`.

4. Save the license key file in the same directory as the FLEXlm server installation.

5. To start the license server manually, use the command:

```
lmgrd -c hostname.lic -l flexlm.log
```

Where `hostname.lic` is the license file provided by ClearSpeed and `flexlm.log` is a file where the license server will write debug information.

The license server can be run manually or automatically at system startup. Instructions for running the server as a daemon, so it starts automatically when the system is booted, can be found in the *FLEXlm Licensing End User Guide*.

The license server should *not* be run as root for security reasons.

4 Revision history

Date	Revision	Changes
July 2007	2.0	Initial version produced in document format.
October 2007	3.00	Updated instructions for the simulator installation. Added section on FFT installation.
January 2008	3.A 3.B	Miscellaneous bug fixes.
January 2008	3.C	New template applied.

Table 1. Document revision history

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