

# **Sourcery CodeBench Lite**

**MIPS ELF**

**Sourcery CodeBench Lite 2014.11-21**

**Installation Manual**



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# **Sourcery CodeBench Lite: MIPS ELF: Sourcery CodeBench Lite 2014.11-21: Installation Manual**

Mentor Graphics, Inc.

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## **Abstract**

This guide explains how to install Sourcery CodeBench Lite, CodeSourcery's customized and validated version of the GNU Toolchain.

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# Preface

This preface introduces the Sourcery CodeBench Lite Installation guide.

# 1. Intended Audience

This guide is written for people who will install Sourcery CodeBench Lite. This guide provides a step-by-step guide to installing Sourcery CodeBench Lite. Parts of this document assume that you have some familiarity with using the command-line interface.

# 2. Organization

This document is organized into the following chapters:

Chapter 1, “Installation and Configuration”	This chapter describes how to download, install and configure Sourcery CodeBench Lite. This section describes the available installation options and explains how to set up your environment so that you can build applications.
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# Chapter 1

## Installation and Configuration

This chapter explains how to install Saurcery CodeBench Lite. You will learn how to:

1. Verify that you can install Saurcery CodeBench Lite on your system.
2. Download the appropriate Saurcery CodeBench Lite installer.
3. Configure your environment so that you can use Saurcery CodeBench Lite.
4. Install Saurcery CodeBench Lite.

## 1.1. Terminology

Throughout this document, the term *host system* refers to the system on which you run Sourcery CodeBench while the term *target system* refers to the system on which the code produced by Sourcery CodeBench runs. The target system for this version of Sourcery CodeBench is `mips-sde-elf`.

If you are developing a workstation or server application to run on the same system that you are using to run Sourcery CodeBench, then the host and target systems are the same. On the other hand, if you are developing an application for an embedded system, then the host and target systems are probably different.

## 1.2. System Requirements

### 1.2.1. Host Operating System Requirements

This version of Sourcery CodeBench supports the following host operating systems and architectures:

- Microsoft Windows Vista, Windows 7 and Windows 8 systems using IA32, AMD64, and Intel 64 processors.
- GNU/Linux systems using IA32, AMD64, or Intel 64 processors, including Debian 5 (and later), Red Hat Enterprise Linux 5 (and later), SuSE Enterprise Linux 10 (and later), and Ubuntu 8.04 (and later).

Sourcery CodeBench is built as a 32-bit application. Therefore, even when running on a 64-bit host system, Sourcery CodeBench requires 32-bit host libraries. If these libraries are not already installed on your system, you must install them before installing and using Sourcery CodeBench Lite. Consult your operating system documentation for more information about obtaining these libraries.

### 1.2.2. Host Hardware Requirements

The amount of disk space required for a complete Sourcery CodeBench Lite installation directory depends on the host operating system and the number of target libraries included. When you start the graphical installer, it checks whether there is sufficient disk space before beginning to install. Note that the graphical installer also requires additional temporary disk space during the installation process. On Microsoft Windows hosts, the installer uses the location specified by the `TEMP` environment variable for these temporary files. If there is not enough free space on that volume, the installer prompts for an alternate location. On Linux hosts, the installer puts temporary files in the directory specified by the `TMP` environment variable, or `/tmp` if that is not set.

## 1.3. Registering with the Sourcery CodeBench Portal

If you do not already have a Sourcery CodeBench Portal account, you must register for one now. You must have an active Sourcery CodeBench Lite subscription to download an installer. Evaluation subscriptions are available at no charge and also give you access to support from CodeSourcery.

If you purchased Sourcery CodeBench Lite directly from Mentor Graphics, you already have an account, and you may skip ahead to the next section. However, if you received Sourcery CodeBench Lite with a hardware development kit or from a distributor, you probably do not have an account.

To register for an account, visit the Sourcery CodeBench Portal<sup>1</sup>. Click on the link to register for an evaluation subscription. Follow the instructions on the web site to create your account. Then, once your account is active, click the button to request an evaluation subscription.

You should request an evaluation version of Sourcery CodeBench that matches the version you received with your development kit. Select the host system where you will install Sourcery CodeBench, and MIPS ELF as the target system where you will run applications. Then click the Request Evaluation button.

If there are newer versions of Sourcery CodeBench Lite than the one provided with your development kit, they will be visible through the Sourcery CodeBench Portal once your evaluation subscription is active. CodeSourcery recommends that you first work with the version of Sourcery CodeBench that came with your development kit, since CodeSourcery and the manufacturer have tested that particular combination of hardware and software. However, you may also wish to experiment with newer versions.

## 1.4. Downloading an Installer

If you have received Sourcery CodeBench Lite on a CD, or other physical media, then you do not need to download an installer. You may skip ahead to Section 1.5, “Installing Sourcery CodeBench Lite”.

Once you have navigated to the appropriate web site, download the installer that corresponds to your host operating system. For Microsoft Windows systems, the Sourcery CodeBench installer is provided as a compressed archive with the .zip extension. For GNU/Linux systems Sourcery CodeBench Lite is provided as an executable installer package with the .bin extension.

On Microsoft Windows systems, save the installer to the desktop. On GNU/Linux systems, save the download package in your home directory.

## 1.5. Installing Sourcery CodeBench Lite

The method used to install Sourcery CodeBench Lite depends on your host system and the kind of installation package you have downloaded.

### 1.5.1. Using the Sourcery CodeBench Lite Installer on Microsoft Windows

If you have received Sourcery CodeBench Lite on CD, insert the CD in your computer. and double click on the CD. If you downloaded Sourcery CodeBench Lite, double-click on the installer. Extract the .zip. Browse to the folder where you extracted the installer and run the installer executable.

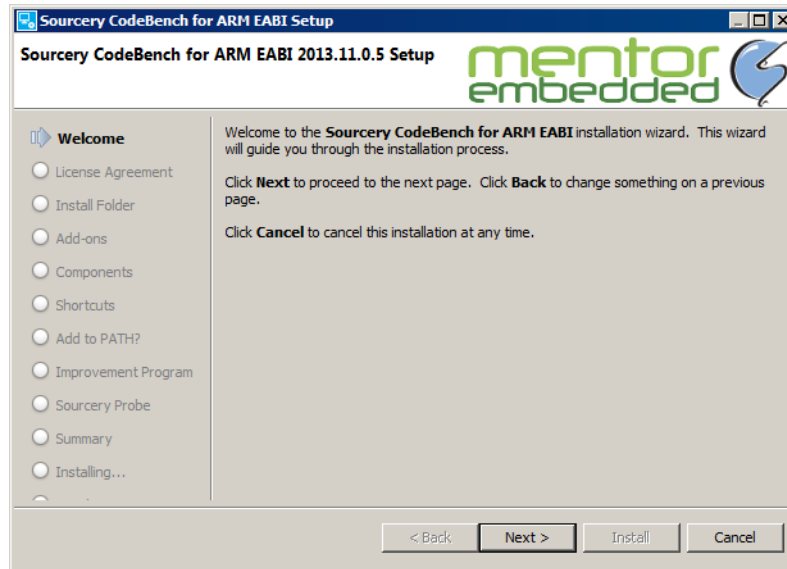
If you have an existing installation, select whether you want to install to a different location or upgrade the existing one.

After the installer starts, follow the on-screen dialogs to install Sourcery CodeBench Lite. The installer is intended to be self-explanatory and on most pages the defaults are appropriate.

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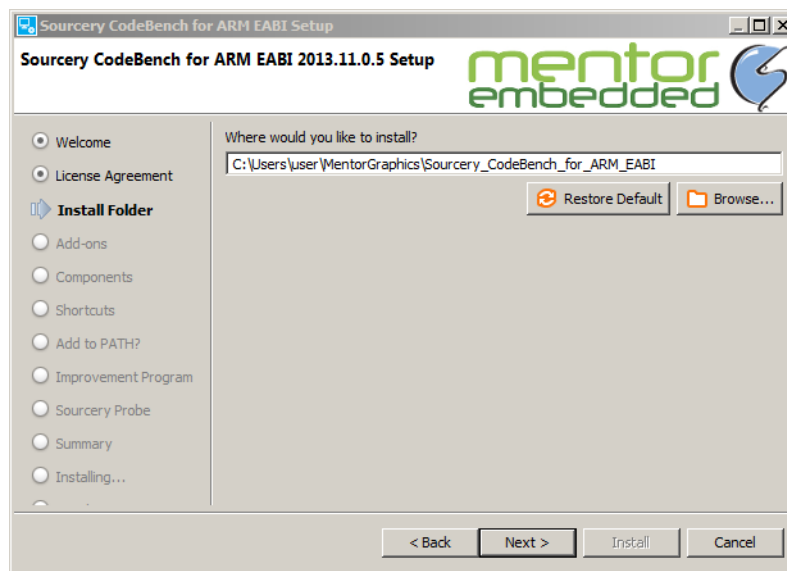
<sup>1</sup> <https://sourcery.mentor.com/GNUToolchain/>





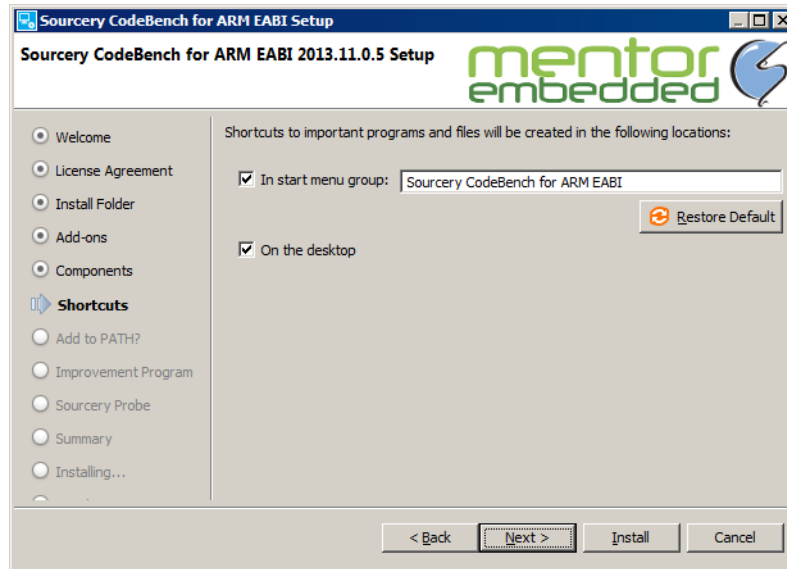
**Running the Installer.** The graphical installer guides you through the steps to install Sourcery CodeBench Lite.

You may want to change the install directory pathname and customize the shortcut installation.



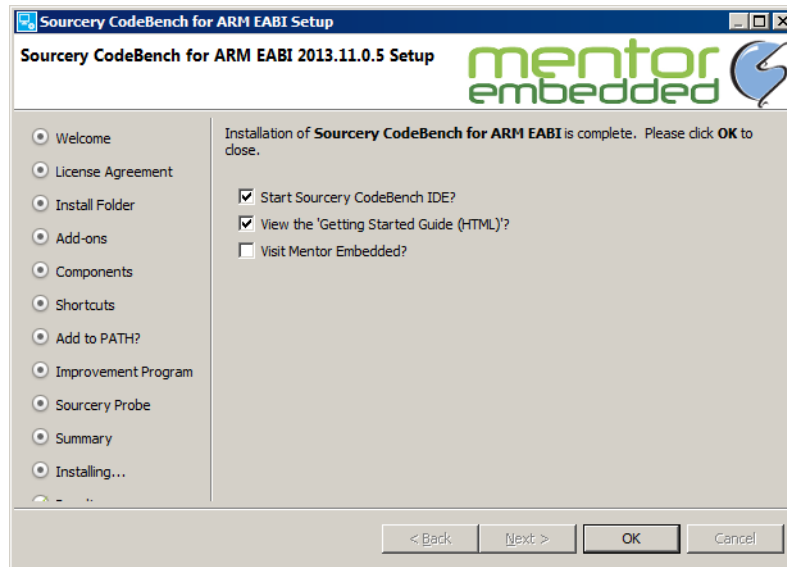
**Choose Install Folder.** Select the pathname to your install directory.

If you want to install add-ons, enter your Sourcery CodeBench Portal login information.



**Choose Shortcut Folder.** You can customize where the installer creates shortcuts for quick access to Sourcery CodeBench Lite.

When the installer has finished, it asks if you want to launch a viewer for the Getting Started guide, or visit Mentor Embedded.



**Install Complete.** You should see a screen similar to this after a successful install.

If you prefer, you can run the installer in console mode rather than using the graphical interface. To do this, invoke the installer with the `-console` command-line option. For example:

```
> /path/to/package.exe -console
```

### 1.5.2. Using the Sourcery CodeBench Lite Installer on GNU/Linux Hosts

Start the graphical installer by invoking the executable shell script:

```
> /bin/sh ./path/to/package.bin
```

The installer gets extracted into the default temporary directory. If you want to specify the directory for installer extraction, change the `P2_INSTALLER_TEMP_PATH` variable.

After the installer starts, follow the on-screen dialogs to install Sourcery CodeBench Lite. For additional details on running the installer, see the discussion and screen shots in the Microsoft Windows section above.

If you prefer, or if your host system does not run the X Window System, you can run the installer in console mode rather than using the graphical interface. To do this, invoke the installer with the `-console` command-line option. For example:

```
> /bin/sh ./path/to/package.bin -console
```

### 1.5.3. Installing Sourcery CodeBench Lite from a Compressed Archive

You do not need to be a system administrator to install Sourcery CodeBench Lite from a compressed archive. You may install Sourcery CodeBench Lite using any user account and in any directory to which you have write access. This guide assumes that you have decided to install Sourcery CodeBench Lite in the `$HOME/CodeBench` subdirectory of your home directory and that the filename of the package you have downloaded is `/path/to/package.tar.bz2`. After installation the toolchain will be in `$HOME/CodeBench/sourceryg++-2014.11`.

First, uncompress the package file:

```
> bunzip2 /path/to/package.tar.bz2
```

Next, create the directory in which you wish to install the package:

```
> mkdir -p $HOME/CodeBench
```

Change to the installation directory:

```
> cd $HOME/CodeBench
```

Unpack the package:

```
> tar xf /path/to/package.tar
```

## 1.6. Installing Sourcery CodeBench Lite Updates

If you have already installed a Sourcery CodeBench Lite for MIPS ELF version 2013.11 or later, it is not necessary to uninstall it before using the installer to unpack a new version in the same location. The installer detects that it is performing an update in that case.

You must uninstall any Sourcery CodeBench Lite versions prior to 2013.11 before unpacking a new version in the same location.

If you are installing an update from a compressed archive, it is recommended that you remove any previous installation in the same location, or install in a different directory.

Note that the names of the Sourcery CodeBench commands for the MIPS ELF target all begin with `mips-sde-elf`. This means that you can install Sourcery CodeBench for multiple target systems in the same directory without conflicts.

## 1.7. Setting up the Environment

As with the installation process itself, the steps required to set up your environment depend on your host operating system.

### 1.7.1. Setting up the Environment on Microsoft Windows Hosts

#### 1.7.1.1. Setting the `PATH`

The graphical installer for Sourcery CodeBench Lite does this setup for you, however it may not take effect until you next log in.

In order to use the Sourcery CodeBench tools from the command line, you should add them to your `PATH`. In the instructions that follow, replace *installdir* with the full pathname of your Sourcery CodeBench Lite installation directory, including the drive letter.

To set the `PATH` on a Microsoft Windows Vista system, use the following command in a `cmd.exe` shell:

```
> setx PATH "%PATH%;installdir\bin"
```

To set the `PATH` on a system running Microsoft Windows 7, from the desktop bring up the Start menu and right click on Computer. Select Properties and click on Advanced system settings. Go to the Advanced tab, then click on the Environment Variables button. Select the `PATH` variable and click Edit. Add the string `;installdir\bin` to the end, and click OK.

To set the `PATH` on a system running Microsoft Windows 8, navigate to the Charms menu. Click on Search then type Control Panel. Select System and click on Advanced system settings. Go to the Advanced tab, then click on the Environment Variables button. Select the `PATH` variable and click Edit. Add the string `;installdir\bin` to the end, and click OK.

You can verify that your `PATH` is set up correctly by starting a new `cmd.exe` shell and running:

```
> mips-sde-elf-gcc -v
```

Verify that the last line of the output contains: Sourcery CodeBench Lite 2014.11-21.

#### 1.7.1.2. Working with Cygwin

Sourcery CodeBench Lite does not require Cygwin or any other UNIX emulation environment. You can use Sourcery CodeBench directly from the Windows command shell. You can also use Sourcery CodeBench from within the Cygwin environment, if you prefer.

The Cygwin emulation environment translates Windows path names into UNIX path names. For example, the Cygwin path `/home/user/hello.c` corresponds to the Windows path `c:\cygwin\home\user\hello.c`. Because Sourcery CodeBench is not a Cygwin application, it does not, by default, recognize Cygwin paths.

If you are using Sourcery CodeBench from Cygwin, you should set the `CYGPATH` environment variable. If this environment variable is set, Sourcery CodeBench Lite automatically translates Cygwin path names into Windows path names. To set this environment variable, type the following command in a Cygwin shell:

```
> export CYGPATH=cygpath
```

To resolve Cygwin path names, Sourcery CodeBench relies on the `cygpath` utility provided with Cygwin. You must provide Sourcery CodeBench with the full path to `cygpath` if `cygpath` is not in your `PATH`. For example:

```
> export CYGPATH=c:/cygwin/bin/cygpath
```

directs Sourcery CodeBench Lite to use `c:/cygwin/bin/cygpath` as the path conversion utility. The value of `CYGPATH` must be an ordinary Windows path, not a Cygwin path.

### 1.7.2. Setting up the Environment on GNU/Linux Hosts

The graphical installer for Sourcery CodeBench Lite does this setup for you, however it may not take effect until you next log in.

Before using Sourcery CodeBench Lite you should add it to your `PATH`. The command you must use varies with the particular command shell that you are using. If you are using the C Shell (`csh` or `tcsh`), use the command:

```
> setenv PATH installdir/bin:$PATH
```

If you are using Bourne Shell (`sh`), the Korn Shell (`ksh`), or another shell, use:

```
> PATH=installdir/bin:$PATH
> export PATH
```

If you are not sure which shell you are using, try both commands. In both cases, replace *installdir* with the full pathname of your Sourcery CodeBench Lite installation directory.

You may also wish to set the `MANPATH` environment variable so that you can access the Sourcery CodeBench manual pages, which provide additional information about using Sourcery CodeBench. To set the `MANPATH` environment variable, follow the same steps shown above, replacing `PATH` with `MANPATH`, and `bin` with `share/doc/mips-mips-sde-elf/man`.

You can test that your `PATH` is set up correctly by running the following command:

```
> mips-sde-elf-gcc -v
```

Verify that the last line of the output contains: Sourcery CodeBench Lite 2014.11-21.

## 1.8. Uninstalling Sourcery CodeBench Lite

The method used to uninstall Sourcery CodeBench Lite depends on the method you originally used to install it. If you have modified any files in the installation it is recommended that you back up these changes. The uninstall procedure may remove the files you have altered. In particular, the `mips-sde-elf` directory located in the install directory will be removed entirely by the uninstaller.

### **1.8.1. Using the Sourcery CodeBench Lite Uninstaller on Microsoft Windows**

You should use the provided uninstaller to remove a Sourcery CodeBench Lite installation originally created by the graphical installer. Start the graphical uninstaller by invoking the Uninstall executable located in your installation directory, or use the uninstall shortcut created during installation. After the uninstaller starts, follow the on-screen dialogs to uninstall Sourcery CodeBench Lite.

You can run the uninstaller in console mode, rather than using the graphical interface, by invoking the Uninstall executable found in your Sourcery CodeBench Lite installation directory with the `-console` command-line option.

To uninstall third-party drivers bundled with Sourcery CodeBench Lite, first disconnect the associated hardware device. Then use `Uninstall a program` (Vista and newer) or `Add or Remove Programs` (older versions of Windows) to remove the drivers separately. Depending on the device, you may need to reboot your computer to complete the driver uninstall.

### **1.8.2. Using the Sourcery CodeBench Lite Uninstaller on GNU/Linux**

You should use the provided uninstaller to remove a Sourcery CodeBench Lite installation originally created by the executable installer script. Start the graphical uninstaller by invoking the executable Uninstall shell script located in your installation directory. After the uninstaller starts, follow the on-screen dialogs to uninstall Sourcery CodeBench Lite.

You can run the uninstaller in console mode, rather than using the graphical interface, by invoking the Uninstall script with the `-console` command-line option.

### **1.8.3. Uninstalling a Compressed Archive Installation**

If you installed Sourcery CodeBench Lite from a `.tar.bz2` file, you can uninstall it by manually deleting the installation directory created in the install procedure.