

# Installation Notes

## Prepare the environment

You'll need:

- A C++ compiler, preferably g++
- A working SystemC implementation
  - ♦ [?OSCI implementation](#)
  - ♦ SystemCass
- Binutils and GCC for your target CPU, see [Cross Compiler](#)
- A [?Subversion](#) client
- A [?Python](#) interpreter (>= 2.4)
- A bourne-shell compatible, like bash
- [?SDL](#) (for graphic utilities)
- xterm, the X11 terminal emulator

## Getting SoCLib

Please note SVN repository contains `?svn:externals`` references to transparently checkout other repositories within SoCLib's one. This standard feature is well supported by [?vanilla Subversion client](#) but is unsupported by most alternative clients. Please ensure your client does support `externals`.

```
$ cd where/to/put/soclib
$ svn co https://www.soclib.fr/svn/trunk/soclib soclib
```

Put `soclib/bin` in your `$PATH`, preferably add this line in your shell's startup scripts.

```
$ export PATH=$PATH:where/to/put/soclib/utils/bin
```

## Compiling tools

Some tools need compilation before use:

```
$ cd where/to/put/soclib/utils/src
$ make
$ make install
```

## Configuration

### SystemC

You may edit [SoCLib's configuration file](#). Out of the box, the only thing the configuration needs is setting an environment variable pointing to your SystemC implementation. Again this may preferably reside in your shell's startup scripts:

```
$ export SYSTEMC=/path/to/systemc
```

If you want to check, you should have a listing close to this one:

```
$ ls $SYSTEMC
AUTHORS  ChangeLog  LICENSE  README    docs      include
```

## Cross-compilation tools

By default, platform examples expect cross-toolchains compiled as described in [Cross Compiler](#). I.e. it expects `mipsel-unknown-elf-gcc`, `powerpc-unknown-elf-gcc` and `mb-gcc` (Xilinx ships a Microblaze compiler named it this way).

If you already have cross-toolchains compiled on your host, you can declare them in `~/soclib/soft_compilers.conf`. For each architecture in `mipsel`, `powerpc` and `microblaze`, you may define:

```
<arch>_CC_PREFIX = ...
<arch>_CFLAGS = ...
<arch>_LDFLAGS = ...
```

For instance, if you want to use a mips cross-compiler configured for Linux (GNU+Glibc), you can declare:

```
mipsel_CC_PREFIX = mipsel-linux-elf-
mipsel_CFLAGS += -nostdinc
mipsel_LDFLAGS += -nostdlib
```

`nostdinc` and `nostdlib` disable default libraries (Glibc) from compilation and linking.

Pay attention to default values in `/path/to/soclib/utils/conf/soft_flags.mk`, they may be of some usefulness. Don't directly modify `soft_flags.mk` unless you intend to commit your modifications. This is a versioned file!

## Other paths

You should have cross-compilers in your path as well. For instance you should have a generic mipsel compiler toolsuite available as `mipsel-unknown-elf-*`.

If they are not in the `$PATH`, add them in:

```
$ export PATH=$PATH:/path/to/compiler/suite/bin
```

## Testing

Let's compile a simple platform:

```
$ cd /path/to/soclib/soclib/platform/topcells/caba-vgmn-multi_timer-mipsel
$ make
[...]
$ ./simulation.x 1000000
```

If ever this fails, see if [SoCLib's configuration file](#) may help you.

## FAQ

Frequently asked questions: When things goes wrong