

Hands-on: Building Lmbench

0. Legend

- `[src_dir]` : directory of source
- `[rist_dir]`: this directory

1. Get source files

```
$ cd [rist_dir]
$ bash 00_dl.sh
$ ls
lmbench-3.0-a9.tgz
$ tar -xzvf lmbench-3.0-a9.tgz
```

2. Preparation

2.1 Edit build script

- One needs to modify `LDLIBS` in `[src_dir]/scripts/build`, such as `LDLIBS="${LDLIBS} -lm"`.
- We note that `${LDLIBS}` is set in `[rist_dir]/01_build.sh`.

```
$ cd [src_dir]/scripts
$ ls build
build
$ cp build build.orig # back-up
# Launch any editors, such as vi.
$ vi build
# Please check LDLIBS variable in build and properly modify it.
...
#LDLIBS=-lm          # Original
LDLIBS="${LDLIBS} -lm" # Modified
...
```

2.2 Edit Makefile

- One needs to change `CFLAGS` for rule `lmbench` in `[src_dir]/src/Makefile` from `-O` to the environment variable, such as `CFLAGS="$(CFLAGS)"`.
- We note that `$(CFLAGS)` is set in `[rist_dir]/01_build.sh`.

```
$ cd [src_dir]/src
$ ls Makefile
Makefile
$ cp Makefile Makefile.orig # back-up
# Launch any editors, such as vi.
```

```
$ vi build
# Please check CFLAGS for lmbench and properly modify it.
...
lmbench: $(UTILS)
#       @env CFLAGS=-O (...) all # Original
#       -@env CFLAGS=-O (...) opt # Original
#       @env CFLAGS="$(CFLAGS)" (...) all # Modified
#       -@env CFLAGS="$(CFLAGS)" (...) opt # Modified
...
```

3. Compile

- Check script `01_build.sh` to compile LMbench.
- The benchmark programs may be installed in `[src_dir]/bin/aarch64-linux-gnu` if everything is successful.

```
$ cd [src_dir]/src
$ cp [rist_dir]/01_build.sh .
$ bash 01_build.sh &> 01_build.log # < 2 min.
```