SimpleScalar Setup

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1 Build and Install SimpleScalar

We strongly recommend you to build the following tools on Redhat 9.0, otherwise it may cause some errors due to the version conflict. If you encounter any problems during your installation, feel free to contact us for help.

1. Create a new directory: simplescalar/ in your home directory.
2. Copy these three files to $HOME/simplescalar
   simplesim-3v0d.tgz
   simpletools-2v0.tgz
   simpleutils-2v0.tgz
3. Execute the commands below to unzip and untar the tarballs
   tar xzvf simplesim-3v0d.tgz
   tar xzvf simpletools-2v0.tgz
   tar xzvf simpleutils-2v0.tgz

   You will get these directories:
   binutils-2.5.2/ /* binary utilities source tree */
   f2c-1994.09.27/ /* FORTRAN to C translator code */
   gcc-2.6.3/ /* GNU C compiler source tree */
   glibc-1.09/ /* GNU libc code */
   simplesim-3.0/ /* SimpleScalar simulator source tree */
   ssbig-na-sstrix/ /* install directory for big endian tools */
   sslittle-na-sstrix/ /* install directory for small endian tools */

4. Because SimpleScalar needs an older versions of GCC and GLIBC, we need to modify part of the source files.

Changes made to the source file:

(a) File: binutils-2.5.2/libiberty/functions.def
Line: 36
Action: comment out
Line: 56
Action: comment out
(b) File: gcc-2.6.3/cccp.c
Line: 194
Action: comment out
(c) File: gcc-2.6.3/cp/g++.c
Line: 90
Action: comment out

(d) File: gcc-2.6.3/sdbout.c
Line: 56
Action: replace the whole line with ”#if 0”
(e) File: gcc-2.6.3/gcc.c
Line: 172
Action: comment out

5. Build & install binary utility, execute:

```
cd $HOME/simplescalar/binutil-2.5.2
./configure --host=i386-unknown-linux \
--target=sslittle-na-sstrix \
--with-gnu-as --with-gnu-ld \
--prefix=$HOME/simplescalar
make
make install
```

6. Build & Install SimpleScalar simulator, execute:
   (a) cd $HOME/simplescalar/simplesim-3.0
   (b) make config-pisa
   (c) make
7. Build & Install GNU C compiler, execute:

```
cd $HOME/simplescalar/gcc-2.6.3
./configure --host=i386-unknown-linux \
--target=sslittle-na-sstrix \
--with-gnu-as --with-gnu-ld \
--prefix=$HOME/simplescalar
make LANGUAGES=c
../simplesim-3.0/sim-safe ./enquire -f >! float.h-cross
make install
```

8. Check what we have done: In $HOME/simplescalar/bin, you should find:
   (a) sslittle-na-sstrix-ar
   (b) sslittle-na-sstrix-as
   (c) sslittle-na-sstrix-c++filt
   (d) sslittle-na-sstrix-gasp
   (e) sslittle-na-sstrix-gcc
   (f) sslittle-na-sstrix-ld
   (g) sslittle-na-sstrix-nm
   (h) sslittle-na-sstrix-objcopy
   (i) sslittle-na-sstrix-objdump
   (j) sslittle-na-sstrix-ranlib
   (k) sslittle-na-sstrix-size
   (l) sslittle-na-sstrix-strings
   (m) sslittle-na-sstrix-strip
   This is the complete list of the binary utilities and C compilers.

2 Generating SimpleScalar Binaries

Try your SimpleScalar now!

1. Compiling a C program, e.g., sslittle-na-sstrix-gcc -g -O -o foo foo.c
2. Compiling a Fortran program, e.g., sslittle-na-sstrix-f77 -g -O -o foo foo.f
3. Compiling a SimpleScalar assembly program, e.g., sslittle-na-sstrix-gcc -g -O -o foo foo.s
4. Running a program, e.g., sim-safe [-sim opts] program [-program opts]
5. Disassembling a program, e.g., sslittle-na-sstrix-objdump -x -d foo
6. Building a library, use sslittle-na-sstrix-ar,ranlib

3 Further Reading

You may refer to The SimpleScalar Tool Set, Version 2.0 to learn more about SimpleScalar Tool. It would be much helpful for your work.