//NOTE - this is an installation tutorial for simplescalar and cross-compiler for ubuntu 9.04 (jaunty-jackalope), 32 bit machine ...
it uses gcc-3.4 but you donot need to uninstall the native gcc with this ubuntu installation (gcc-4.3). all steps are commented for clarity. keep a track of which directory you are in ...

the steps are as follows -
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1) install ubuntu 9.04 (jaunty jackalope)

//NOTE - wubi installation is easiest ...

2) update installation by -
$sudo apt-get update

3) get required applications using -
$ sudo apt-get install flex-old bison

//NOTE - gedit is not needed as it is bunbled with this version

4) start extraction by doing -
$mkdir /tmp/simplescalar
$cd /tmp/simplescalar/
$wget http://csrl.unt.edu/downloads/simplescalar.tgz
$tar xvfz simplescalar.tgz

//NOTE - directories in /tmp in ubuntu are deleted once you restart your computer, so if you're using these steps, make sure u keep a backup of your files. else once you're comfortable with the installation, change the path to some other directory. but even with this path, simplescalar and cross-compiler will work even after restarting ...

5) install gcc-3.4 -
$sudo apt-get install gcc-3.4
$export CC="gcc-3.4";

//NOTE - no need to install g++-3.4, this installation works even without it ...

6) setting up installation -
$export HOST=i686-unknown-linux
$export TARGET=sslittle-na-sstrix
$export IDIR=/opt/simplescalar

//NOTE - if you're processor is old or if you're not sure of the architecture, do $uname -a ... this will give the processor architecture as i686, i486 etc.

7) Simplescalar tools -

$cd /tmp/simplescalar
$tar xvfz simpletools-2v0.tgz
$rm -rf gcc-2.6.3
$sudo mkdir -p /opt/simplescalar
$sudo mv f2c-1994.09.27/ glibc-1.09/ ssbig-na-sstrix/ sslittle-na-sstrix/ /opt/simplescalar/

8) Simplescalar utils -
$cd /tmp/simplescalar
$tar xvfz simpleutils-990811.tar.gz
$cd /tmp/simplescalar/simpleutils-990811
$./configure --host=$HOST --target=$TARGET --with-gnu-as --with-gnu-ld --prefix=$IDIR
$sudo make CC=gcc-3.4
$sudo make install CC=gcc-3.4

9)final Simplescalar installation step -
$cd /tmp/simplescalar
$tar xvfz simplesim-3v0d.tgz
$cd simplesim-3.0
$sudo make config-pisa
$sudo make CC=gcc-3.4

//NOTE - if all steps go through, you should not get any errors and you will get a message at this point -
"My work is done here"

10) testing the installation -
$./sim-safe tests/bin.little/test-math

//NOTE - this should give some statistics like cache hits, misses etc.

11) cross-compiler installation -
$cd /tmp/simplescalar
$sudo mv simplesim-3.0 /opt/simplescalar

$cd /tmp/simplescalar/
$tar xvfz gcc-2.7.2.3.ss.tar.gz
$cd /tmp/simplescalar/gcc-2.7.2.3
$export PATH=$PATH:$IDIR/sslittle-na-sstrix/bin
$./configure --host=$HOST --target=$TARGET --with-gnu-as --with-gnu-ld --prefix=$IDIR
$sudo make LANGUAGES="c c++" CFLAGS=-O3 CC=gcc-3.4

//NOTE - this will give several errors about '\' missing in insn-output.o. to resolve them, do -
$sudo gedit insn-output.o
and add a \ (backslash) at the end of lines 675, 750, and 823. then try again -

$sudo make LANGUAGES="c c++" CFLAGS=-O3 CC=gcc-3.4

//NOTE - this should give errors about libgcc2.a ... to resolve them, do -
$sudo gedit Makefile
and add -I/usr/include to the end of line 130. additional errors that might come up in this step -
>malloc error/conflict ... for this - remove lines 2978-2979 in file cxxmain.c ... IF NEEDED !!!
>error in decl.c, saying "invalid lvalue in increment" ... for this - edit obstack.h at line 341 and change
*((void **)__o->next_free)++=((void *)datum);\
with
*((void **)__o->next_free++)=((void *)datum);\
>Edit line 60 of protoize.c, and replace "#include <varargs.h>" with "#include <stdarg.h>" ... IF
NEEDED !!!

12) Copy some files -
sudo cp patched/sys/cdefs.h /opt/simplescalar/sslittle-na-sstrix/include/sys/
sudo cp ../sslittle-na-sstrix/lib/libc.a ../lib/
sudo cp ../sslittle-na-sstrix/lib/crt0.o ../lib/

//NOTE - you might need to verify source and destination paths for the last 2 cp commands. once done,
try again -

$sudo make LANGUAGES="c c++" CFLAGS=-O3 CC=gcc-3.4

//NOTE - now you should not get any errors ...

13) make inquire - ???
$sudo make enquire CC=gcc-3.4
$sudo /opt/simplescalar/simplesim-3.0/sim-safe ./enquire -f > float.h-cross

//NOTE - unsure what these commands do. always got a permission denied, but the installation should
work even without it ...
then do -

$sudo make install LANGUAGES="c c++" CFLAGS=-O3 CC=gcc-3.4
PATH=$PATH:/opt/simplescalar/bin

//NOTE - this should go through without any errors ...

14) testing the installation -
$cd /tmp/simplescalar
$/opt/simplescalar/bin/sslittle-na-sstrix-gcc hello.c

//NOTE - the above command compiles the c file made by the user and makes the a.out file. hello.c
should be in the opt/simplescalar/bin folder ...

$/opt/simplescalar/simplesim-3.0/sim-safe a.out

//NOTE - the above command runs the a.out file ... "hello world" should be displayes in the terminal

with simplescalar details like hits, misses etc.

reference -
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1) http://stackoverflow.com/questions/2219728/installation-of-gcc-for-simplescalar-on-ubuntu-9-04
2) http://harryscode.blogspot.com/2008/10/installing-simplescalar.html
3) http://www.kth.se/polopoly_fs/1.17172!simplescalar-installation-instructions.pdf