

Problem 6:

https://drive.google.com/drive/folders/1FtsdEUi1euqiM4ApBG_aDnBq9Vg_M8-9?usp=sharing

Problem 7

```
hello-arm.c hello-arm.o hello-arm-shared hello-arm-static libtest.so Makefile
ubuntu@ubuntu-Inspiron-7573:~/Documents/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ ./hello-arm-shared
./hello-arm-shared: error while loading shared libraries: libtest.so: cannot open shared object file: No such file or directory
ubuntu@ubuntu-Inspiron-7573:~/Documents/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ ./hello-arm-static
Hello from ARM
add_ints
4 + 5 = 9
multiply_ints
4 * 5 = 20
ubuntu@ubuntu-Inspiron-7573:~/Documents/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ ls -l hello-arm-s*
-rwxr-xr-x 1 ubuntu ubuntu 8416 Jan 24 14:36 hello-arm-shared
-rwxr-xr-x 1 ubuntu ubuntu 8528 Jan 24 14:36 hello-arm-static
ubuntu@ubuntu-Inspiron-7573:~/Documents/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ readelf -d hello-arm-static | grep libtest.so
ubuntu@ubuntu-Inspiron-7573:~/Documents/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ readelf -d hello-arm-shared | grep libtest.so
0x0000000000000001 (NEEDED)           Shared library: [libtest.so]
ubuntu@ubuntu-Inspiron-7573:~/Documents/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ 
```

Problem 8:

fig:Arm configurations and build

```
ubuntu@ubuntu-Inspiron-7573:~/Desktop/crosstool-ng$ ./ct-ng show arm-cortex_a8-l
linux-gnueabi
gnmake: *** No rule to make target 'show'. Stop.
ubuntu@ubuntu-Inspiron-7573:~/Desktop/crosstool-ng$ ./ct-ng show-arm-cortex_a8-l
linux-gnueabi
[...]
  arm-cortex_a8-linux-gnueabi
    Languages      :
      C            : C,C++
      OS           : linux-4.19.1
      Binutils     : binutils-2.31.1
      Compiler     : gcc-8.2.0
      C library    : glibc-2.28
      Debug tools  : duma-2.5.15 gdb-8.2.2 ltrace-0.7.3 strace-4.24
      Companion libs: expat-2.2.6 gettext-0.19.8.1 gmp-6.1.2 isl-0.20 libelf-0.8
      .13 libiconv-1.15 mpc-1.1.0 mpfr-4.0.1 ncurses-6.1
      Companion tools: autoconf-2.69 automake-1.16.1
ubuntu@ubuntu-Inspiron-7573:~/Desktop/crosstool-ng$ 
```

fig:Sysroot for ARM

```
ubuntu@ubuntu-Inspiron-7573:~/x-tools/arm-cortex_a8-linux-gnueabihf/arm-cortex_a8-linux-gnueabihf$ cd sysroot/
[...]
etc lib sbin usr var
ubuntu@ubuntu-Inspiron-7573:~/x-tools/arm-cortex_a8-linux-gnueabihf/arm-cortex_a8-linux-gnueabihf/sysroot$ ls 
```

fig:Size compare for ARM

```
ubuntu@ubuntu-Inspiron-7573:~/Desktop/MELP_New_2/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ ls -l hello-arm-s*
-rwxr-xr-x 1 ubuntu ubuntu 12840 Jan 24 14:15 hello-arm-shared
-rwxr-xr-x 1 ubuntu ubuntu 14688 Jan 24 14:15 hello-arm-static
ubuntu@ubuntu-Inspiron-7573:~/Desktop/MELP_New_2/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ 
```

fig:ls l hello-arm -s* for ARM

```
ubuntu@ubuntu-Inspiron-7573:~/Desktop/MELP_New_2/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ readelf -d hello-arm-static | grep libtest.so
ubuntu@ubuntu-Inspiron-7573:~/Desktop/MELP_New_2/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ readelf -d hello-arm-shared | grep libtest.so
0x00000001 (NEEDED)           Shared library: [libtest.so]
ubuntu@ubuntu-Inspiron-7573:~/Desktop/MELP_New_2/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ 
```

fig:Unknown configurations and build

```
ubuntu@ubuntu-Inspiron-7573:~/crosstool-ng$ ./ct-ng show-arm-unknown-linux-gnueabi
bt
[...]
  arm-unknown-linux-gnueabi
    Languages      :
      C,C++       :
      OS           : linux-4.19.1
      Binutils     : binutils-2.31.1
      Compiler     : gcc-8.2.0
      C library    : glibc-2.28
      Debug tools  : duma-2.5.15 gdb-8.2.2 ltrace-0.7.3 strace-4.24
      Companion libs: expat-2.2.6 gettext-0.19.8.1 gmp-6.1.2 isl-0.20 libelf-0.8
      .13 libiconv-1.15 mpc-1.1.0 mpfr-4.0.1 ncurses-6.1
      Companion tools: autoconf-2.69 automake-1.16.1
ubuntu@ubuntu-Inspiron-7573:~/crosstool-ng$ 
```

fig: Size compare for part2

```
ubuntu@ubuntu-Inspiron-7573:~/Desktop/MELP_New/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ ls -l hello-arm-s*
-rwxr-xr-x 1 ubuntu ubuntu 12840 Jan 24 14:15 hello-arm-shared
-rwxr-xr-x 1 ubuntu ubuntu 14688 Jan 24 14:15 hello-arm-static
ubuntu@ubuntu-Inspiron-7573:~/Desktop/MELP_New/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ 
```

fig:ls l hello-arm -s* for part2

```
ubuntu@ubuntu-Inspiron-7573:~/Desktop/MELP_New/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ readelf -d hello-arm-static | grep libtest.so
ubuntu@ubuntu-Inspiron-7573:~/Desktop/MELP_New/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ readelf -d hello-arm-shared | grep libtest.so
0x00000001 (NEEDED)           Shared library: [libtest.so]
ubuntu@ubuntu-Inspiron-7573:~/Desktop/MELP_New/MELP-Chapter02/MELP/Chapter02/library/hello-arm$ 
```