

Exercise 1

Compiling and “Hello World!”

(17.10.2025)

Review

- | | |
|--|--|
| 1. Which name of a variable is not an implicit valid name for floats?
☐ MASS
☐ RADIUS
☐ XLum | ☐ an ampersand & in column 6
☐ character C, *, ! in column 1 |
| 2. How can you mark a comment in Fortran 90 (fixed form)?
☐ leading ! | 3. What is not a valid data type in Fortran? (If not sure, just try it.)
☐ INTEGER
☐ FLOAT
☐ DOUBLEPRECISION |

1. Task *A flawless Fortran program* (2 P)

Write and compile the shortest possible Fortran(77) program.

Use, e.g., the `gfortran` compiler. You may also use the `ifort` compiler. To use the latter one, login on the student's cluster (e.g., `bell.stud.physik.uni-potsdam.de`) and execute the following commands in the Bash:

```
source ~htodt/intel/composerxe-2011/bin/compilervars.sh intel64
```

or if you have the C-shell (`tcsh`):

```
source ~htodt/intel/composerxe-2011/bin/compilervars.csh intel64
```

Which shell you are using, can be checked via: `echo $0`

- a) What size has the resulting binary? Does this size depend on the compiler? (1 P)
- b) Inspect the binary with help of the Unix tools `ldd` and `nm`. Which libraries are used, what is the difference between the compilations of different compilers? (1 P)

2. Task *Hello world!* (5 P)

Write a Fortran(77) program that prints out “Hello world!” in the terminal.

- a) with help of `WRITE(*,*)`; (0.5 P)
- b) with help of `WRITE` and the correct format. (1 P)
- c) Which alternative to `WRITE` exists? (0.5 P)
- d) Which differences are between Fortran 90 and FORTRAN 77 regarding the structure of the source code? Write your program for both Fortran versions (two different source files!). Which compiler flags are required? (1 P)
- e) Moreover, the program “Hello world!” should also print out the number `0.75E-3` exactly in this format: `Hello world!0.75E-3`.
The format should be done with help of a `FORMAT` instruction. Where, within the source code, is a good position to put it? (2 P)