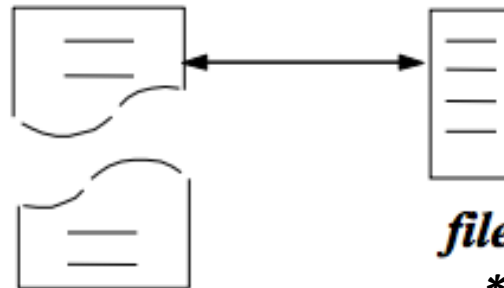


VHDL: Files

File Objects

- Files provides an **interface** (I/O) between the VHDL code and the host environment

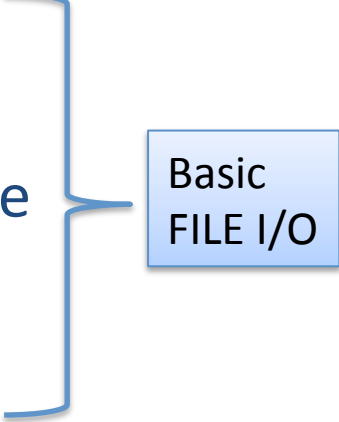
VHDL Program



file:

- * Type***
- * Declaration***
- * Operations***

Basic FILE I/O

- File Type and Declaration
 - Opening and Closing a File of a specified type
 - Reading and Writing from a file
 - Common application of FILE I/O: testbench construction
 - Example:
Read test inputs from a file, applies them to the model under test, and records model outputs for analysis into a file
- 

FILE Type and Declaration

- Files are “characterized” by the type of info. stored
 - `TYPE textFileType IS FILE OF STRING;`
 - `TYPE integerFileType IS FILE OF INTEGER;`
- File declarations: VHDL 1987 style
 - `FILE INFILE: textFileType IS IN “inputdata.txt”;`
 - `FILE OUTFILE: textFileType IS OUT “outputdata.txt”;`
- File declarations: VHDL 1993 style
 - `FILE INFILE: textFileType OPEN READ_MODE IS “inputdata.txt”;`
 - `FILE OUTFILE: textFileType OPEN WRITE_MODE IS “outputdata.txt”;`

FILE operations

Common PROCEDURES:

- READ
- WRITE
- READLINE
- WRITELINE
- HREAD
- HWRITE
- ENDFILE
- FILE_OPEN
- FILE_CLOSE
- etc.

For more details see:

- * section 5.5 and 16.4 of IEEE Std 1076-2008
- * STD.TEXTIO package
- * IEEE.STD_LOGIC_TEXTIO package