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Development of the FITS Tools Package for Multiple Software Environments

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The HEASARC is developing a package of general purpose software for analyzing data files in FITS format. This paper describes the design philosophy which makes the software both machine-independent (it runs on VAXs, Suns, and DEC-stations) and software environment-independent. Currently the software can be compiled and linked to produce IRAF tasks, or alternatively, the same source code can be used to generate stand-alone tasks using one of two implementations of a user-parameter interface library. The machine independence of the software is achieved by (1) writing the source code in ANSI standard Fortran or C, (2) using the machine-independent FITSIO subroutine interface for all data file I/O, and (3) using a standard user-parameter subroutine interface for all user I/O. The latter interface is based on the Fortran IRAF Parameter File interface developed at STScI. The IRAF tasks are built by linking to the IRAF implementation of this parameter interface library. Two other implementations of this parameter interface library, which have no IRAF dependencies, are now available which can be used to generate standalone executable tasks. These stand-alone tasks can simply be executed from the machine operating system prompt either by supplying all the task parameters on the command line, or by entering the task name after which the user will be prompted for any required parameters. A first release of this FTOOLS package is now publicly available. The currently available tasks will be described, along with instructions on how to obtain a copy of the software.