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Starlink Project
Starlink User Note 227.5

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CFITSIO — Disk FITS Input/Output Functions v3.13

Abstract

The CFITSIO package is a series of C functions that provide easy access to FITS files on disk. It was written by William D. Pence of HEASARC (High Energy Astrophysics Science Archive Research Center) at the Goddard Space Flight Center, USA. Starlink is grateful to William Pence for giving his permission for CFITSIO to be released on Starlink.

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1 Linking with the CFITSIO Library

CFITSIO is a series of C functions, built into a object library. All C programs using the CFITSIO library will need to include the `fitsio.h` include file at the beginning of the program, thus:

```
/* Example C program using CFITSIO */
#include <stdio.h>
#include "fitsio.h"
.
.
```

To compile and link a C program with the CFITSIO library, include `/star/include` in the include file search directives and include the command `'cfitsio_link'` in the list of libraries. For example (assuming you have `/star/bin` in your PATH):

```
% cc -I/star/include -O myprog.c -o myprog -L/star/lib 'cfitsio_link' -lm
```

On Solaris systems you will need to add `-lsocket` and `-lnsl` to the list of libraries after `-lm`.

The CFITSIO library can also be used from Fortran programs because each function has a Fortran wrapper routine that can be called from Fortran.

To link a Fortran program with the CFITSIO library, include the command `'cfitsio_link'` in your list of libraries, as for C programs. For example:

```
% f77 -O myprog.f -o myprog -L/star/lib 'cfitsio_link'
```

On Solaris systems you will need to add `-lsocket` and `-lnsl` to the list of libraries after `'cfitsio_link'`.

2 More Information

This Starlink User Note is a brief introduction to the CFITSIO package.

For more detailed information on using CFITSIO from C there is a User's Guide:

"CFITSIO User's Guide – An Interface to FITS Format Files for C Programmers, v3.0 (MUD/166)"

For more detailed information on using CFITSIO from Fortran, there is a User's Guide:

"FITSIO User's Guide – A Subroutine Interface to FITS Format Files for Fortran Programmers, v3/0 (MUD/167)"

There is also a Quick Start Guide:

“CFITSIO Quick Start Guide (MUD/162)”

These documents by William Pence have been issued as Starlink Miscellaneous User Documents: MUD/166, MUD/167 and MUD/162 respectively. The sources are also available in the documents directory (/star/docs on Starlink systems) as mud166.tex, mud167.tex and mud162.tex.

3 Release Information

The latest information about the CFITSIO release and bug fixes, changes and enhancements may be found in file:

```
/star/share/cfitsio/cfitsio_changes.txt
```

Users are advised to read the release information file at each new release.