

# How to get sharp\_combine working on a Linux machine

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## ABSTRACT

This is a memo on setting up a Ubuntu computer for sharp\_combine. One will need to install the following software/packages: IDL (need to purchase a license first), CFITSIO (free package from GSFC, NASA) and ICC compiler (free, from Intel) in order to run sharp\_combine.

## 1. Makefile

CC = icc

HDRLIB = /usr/local/cfitsio/include

LIBPATH = /usr/local/cfitsio/lib

LIBS = -L\$(LIBPATH) -lm -lcfitsio

CFLAGS = -I\$(HDRLIB)

OBJS = fitexy.o mnbrak.o zbrent.o nutil.o chixy.o brent.o avevar.o fit.o gammq.o gser.o  
gcf.o gammln.o erfcc.o

SRCS= fitexy.c mnbrak.c zbrent.c nutil.c chixy.c brent.c avevar.c fut.c gammq.c gser.c  
gcf.c gammln.c erfcc.c

CORSOR=brent.c f1dim.c linmin.c mnbrak.c nutil.c powell.c

SHOBS= select.o gaussj.o realft.o four1.o

IDLDIR=/usr/local/itt/idl

IDLBINDIR=\$(IDLDIR)/bin/bin.linux.x86

LDFLAGS= -L\$(IDLBINDIR) -lidl -Wl,-rpath,. -Wl,-rpath \$(IDLBINDIR) \

/usr/lib/libXm.a \

-lXp -L/usr/lib -lXmu -lXext -lXt -lSM -lICE -lX11 -ldl \

-lrt -lm -lpthread -ltermcap \

/usr/lib/libXpm.so.4 -lXinerama

clean:

rm -f chauvenet.o fit2.o dselect.o sharp\_combine.o chi2.o sharpinteg\_2.o

sharcslice: sharcslice.o

\$(CC) \$(CFLAGS) sharcslice.o \$(LIBS) -o sharcslice

sharctau: sharctau.o

\$(CC) \$(CFLAGS) sharctau.o \$(LIBS) -o sharctau

sharptau: sharptau.o

\$(CC) \$(CFLAGS) sharptau.o \$(LIBS) -o sharptau

chi2: chi2.o

\$(CC) \$(CFLAGS) chi2.o \$(LIBS) -o chi2

sharpinteg: sharpinteg.o \$(OBJJS)

\$(CC) \$(CFLAGS) sharpinteg.o \$(OBJJS) \$(LIBS) -o sharpinteg

sharpinteg\_2: sharpinteg\_2.o \$(OBJJS)

\$(CC) \$(CFLAGS) sharpinteg\_2.o \$(OBJJS) \$(LIBS) -o sharpinteg\_2

sharp\_combine\_v5: sharp\_combine\_v5.o fit2.o dselect.o chauvenet.o

\$(CC) \$(CFLAGS) -o sharp\_combine\_v5 sharp\_combine\_v5.o \$(OBJJS) fit2.o dselect.o

chauvenet.o \$(LIBS) \$(LDFLAGS)

sharp\_combine: sharp\_combine.o fit2.o dselect.o chauvenet.o

\$(CC) \$(CFLAGS) -o sharp\_combine sharp\_combine.o \$(OBJJS) fit2.o dselect.o

chauvenet.o \$(LIBS) \$(LDFLAGS)

correlator: correlator.o \$(COROBJJS)

\$(CC) \$(CFLAGS) -o correlator correlator.o \$(COROBJJS) \$(LIBS)

sharpsolve: sharpsolve.o \$(SHOBJJS)

\$(CC) \$(CFLAGS) -o sharpsolve sharpsolve.o \$(SHOBJJS) \$(OBJJS) \$(LIBS)

testchauv: testchauv.o ran1.o chauvenet.o erfcc.o \$(OBJJS)

```
$(CC) $(CFLAGS) -o testchauv testchauv.o ran1.o chauvenet.o erfcc.o $(OBJS)
$(LIBS)
```

## 2. Software installation

### 2.1. IDL

You have to get a license.dat file first.

Download it from:

```
http://www.ittvis.com/Downloads/ProductDownloads.aspx
```

```
mkdir /usr/local/itt
```

```
sudo cp idl71linux.x86.tar.gz /usr/local/itt
```

```
sudo tar -zxvf idl71linux.x86.tar.gz
```

```
sudo ./install
```

```
cp license.dat /usr/local/itt/license
```

```
sudo rm /usr/local/itt/idl71linux.x86.tar.gz
```

```
copy two lib to /usr/local/itt/idl71/lib
```

download bins:

1. IDL fitsio from: <http://idlastro.gsfc.nasa.gov/fitsio.html>

2. SHARP bins from zamin: `~sharp/bin/IDL`

### 2.2. CFITSIO

Download from:

```
http://heasarc.gsfc.nasa.gov/fitsio/
```

```
sudo cp cfitsio3210.tar.gz /usr/local
```

```
cd /usr/local
```

```
sudo tar -zxvf cfitsio3210.tar.gz
```

```
cd cfitsio
sudo ./configure
sudo make
sudo rm ../cfitsio3210.tar.gz
```

### 2.3. ICC

Form:

<http://software.intel.com/en-us/articles/using-intel-compilers-for-linux-with-ubuntu/>

install g++ (from synaptic package)

```
sudo tar -zxvf l_cproc_p_11.1.059_ia32.tgz
```

```
cd l_cproc_p_11.1.059_ia32
```

```
sudo ./install.sh
```

Serial number N5ZS-C4WJTCWM

Skip missing optional pre-requisites

install in the default directory: /opt/intel/Compiler/11.1/059

```
sudo gedit ~/.bashrc
```

Add followings to ~/.bashrc:

```
export PATH=$PATH:/opt/intel/Compiler/11.1/059/bin/ia32
```

```
export LD_LIBRARY_PATH=/opt/intel/Compiler/11.1/059/lib/ia32
```

```
export MANPATH=$MANPATH:/opt/intel/Compiler/11.1/059/man
```

## 2.4. Other packages required for sharp\_combine

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Missing file	Required Packages from synaptic manager
/usr/lib/libXm.a	lesstif2-dev, libmotif-dev
libstdc++.so.5	This package is not available on Ubuntu 9.10 and higher versions Download it from: <a href="http://packages.ubuntu.com/jaunty/i386/libstdc++5/download">http://packages.ubuntu.com/jaunty/i386/libstdc++5/download</a>
-lXmu	libxmu-dev, libxmu6
-ltermcap	libncurses5-dev
-lXinerama	libgtk2.0-dev

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