01	`#CAMB Makefile`
02	
03	`#Set FISHER=Y to compile bispec`
04	`FISHER=`
05	
06	`#Edit for your compiler`
07	`#Note there are many old ifort`
08	
09	
10	`#Intel , -openmp toggles mutli-`
11	`#note version 10.0 gives wrong`
12	`F90C    = ifort`
13	`FFLAGS = -openmp -fast -WO -WB`
14	`## This is flag is passed to th`

001	`#CAMB Makefile`
002	
003	`#Set FISHER=Y to compile bispe`
004	`FISHER=`
005	
006	`#native optimization does not`
007	`CLUSTER_SAFE ?= 1`
008	`ifneq ($(CLUSTER_SAFE), 0)`
009	`NONNATIVE = 1`
010	`endif`
011	
012	`#Will detect ifort/gfortran or`
013	`ifneq ($(COMPILER),gfortran)`
014	`ifortErr = $(shell which ifort`
015	`else`
016	`ifortErr = 1`
017	`endif`
018	`ifeq "$(ifortErr)" "0"`
019	
020	`#Intel compiler`
021	`F90C    = ifort`
022	`FFLAGS = -WO -WB -fpp`
023	`DEBUGFLAGS = -g -check all -ch`
024	
025	`ifeq ($(shell uname -s),Darwin`
026	`SFFLAGS = -dynamiclib -fpic`
027	`else`
028	`SFFLAGS = -shared -fpic`
029	`endif`

```
030
031        ifdef NONNATIVE
032        FFLAGS+=-O3 -ipo -axCORE-AVX2
033        else
034        FFLAGS+=-fast
035        endif
036
037        ifortVer_major = $(shell ifort
038        ifeq ($(shell test $(ifortVer_
039        FFLAGS+= -qopenmp
040        DEBUGFLAGS+= -qopenmp
041        else
042        FFLAGS+= -openmp -vec_report0
043        DEBUGFLAGS+= -openmp
044        endif
045
046        # This is flag is passed to th
```

```
15    F90CRLINK = -cxxlib          047    F90CRLINK = -cxxlib
                                    048    MODOUT = -module $(OUTPUT_DIR)
                                    049    SMODOUT = -module $(DLL_DIR)
16    ifneq ($(FISHER),)           050    ifneq ($(FISHER),)
17    FFLAGS += -mkl               051    FFLAGS += -mkl
18    endif                        052    endif
19                                 053
                                   054    else
                                   055    gfortErr = $(shell which gfort
                                   056    ifeq "$(gfortErr)" "0"
                                   057    COMPILER = gfortran
20    #Gfortran compiler:          058    #Gfortran compiler:
21    #The options here work in v4.5,   059    #The options here work in v4.6
```

```
22  #if pre v4.3 add -D__GFORTRAN__
23  #With v4.6+ try -Ofast -march=n
24  #On my machine v4.5 is about 20
25  #F90C      = gfortran
26  #FFLAGS =  -O3 -fopenmp -ffast-
27

28

29  #Old Intel ifc, add -openmp for
30  #F90C      = ifc
31  #FFLAGS = -O2 -Vaxlib -ip -W0 -
32  #some systems can can also add

33
34  #G95 compiler
35  #F90C    = g95
36  #FFLAGS = -O2
37
38  #SGI, -mp toggles multi-process
39  #F90C      = f90
40  #FFLAGS  = -Ofast -mp
```

```
060  F90C     = gfortran
061  SFFLAGS =   -shared -fPIC

063  FFLAGS =   -O3 -ffast-math -fma
064  DEBUGFLAGS = -cpp -g -fbounds-
065  MODOUT = -J$(OUTPUT_DIR)
066  SMODOUT = -J$(DLL_DIR)
067
068  ifeq ($(shell uname -s),Darwin
069  NONNATIVE = 1
070  endif
071  ifndef NONNATIVE
072  #Note this seems to make code
073  FFLAGS+=-march=native
074  endif
075  endif
076  endif
077
078  IFLAG = -I
079
080  #G95 compiler
081  #F90C    = g95
082  #FFLAGS = -O2
083
084  #SGI, -mp toggles multi-proces
085  #F90C      = f90
086  #FFLAGS  = -Ofast -mp
```

41		087	
42	#Digital/Compaq fortran, -omp t	088	#Digital/Compaq fortran, -omp
43	#F90C = f90	089	#F90C = f90
44	#FFLAGS = -omp -O4 -arch host	090	#FFLAGS = -omp -O4 -arch host
45		091	
46	#Absoft ProFortran, single proc	092	#Absoft ProFortran, single pro
47	#F90C = f95	093	#F90C = f95
48	#FFLAGS = -O2 -cpu:athlon -s -l	094	#FFLAGS = -O2 -cpu:athlon -s -
49		095	
50	#NAGF95, single processor:	096	#NAGF95, single processor:
51	#F90C = f95	097	#F90C = f95
52	#FFLAGS = -DNAGF95 -O3	098	#FFLAGS = -DNAGF95 -O3
53		099	
54	#PGF90	100	#PGF90
55	#F90C = pgf90	101	#F90C = pgf90
56	#FFLAGS = -O2 -DESCAPEBACKSLASH	102	#FFLAGS = -O2 -DESCAPEBACKSLAS
57		103	
58	#Sun V880	104	#Sun V880
59	#F90C = mpf90	105	#F90C = mpf90
60	#FFLAGS = -O4 -openmp -ftrap=%	106	#FFLAGS = -O4 -openmp -ftrap=
61		107	
62	#Sun parallel enterprise:	108	#Sun parallel enterprise:
63	#F90C = f95	109	#F90C = f95
64	#FFLAGS = -O2 -xarch=native64	110	#FFLAGS = -O2 -xarch=native64
65	#try removing -openmp if get bu	111	#try removing -openmp if get b
66		112	
67	#IBM XL Fortran, multi-processo	113	#IBM XL Fortran, multi-process
68	#F90C = xlf90_r	114	#F90C = xlf90_r
69	#FFLAGS = -DESCAPEBACKSLASH -D	115	#FFLAGS = -DESCAPEBACKSLASH -
70		116	

71	#Settings for building camb_fit	117	#Settings for building camb_fi
72	#Location of FITSIO and name of	118	#Location of FITSIO and name o
73	FITSDIR ?= /home/cpac/cpa	119	FITSDIR ?= /usr/local/li
74	FITSLIB = cfitsio	120	FITSLIB = cfitsio
75	#Location of HEALPIX for buildi	121	#Location of HEALPIX for build
76	HEALPIXDIR ?= /home/cpac/cpa	122	HEALPIXDIR ?= /usr/local/he
77		123	
78	ifneq ($(FISHER),)	124	ifneq ($(FISHER),)
79	FFLAGS += -DFISHER	125	FFLAGS += -DFISHER
80	EXTCAMBFILES = Matrix_utils.o	126	EXTCAMBFILES = $(OUTPUT_DIR)/M
81	else	127	else
82	EXTCAMBFILES =	128	EXTCAMBFILES =
83	endif	129	endif
		130	
		131	DEBUGFLAGS ?= FFLAGS
		132	Debug: FFLAGS=$(DEBUGFLAGS)
84		133	
85	include ./Makefile_main	134	include ./Makefile_main
86		135	