Index

Symbols

-InterfaceRoutines option, 117

A

-Add option, 38
aliasing from above, 79
ALIGN, directive, 66, 90
ALL, intrinsic, 62, 142
-ansi option to Sun **f77**, 74
ANY, intrinsic, 62, 144
array allocation, dynamic, 99
  CMAX utility package for, 104
  in CM Fortran, 102
  reference summary, 126
  simulating in Fortran 77, 99
array arguments, 31, 32, 79, 97
  assumed-size dummies, 35, 77
  "hidden", 33
  home mismatches, 30
  reshaping, 97
  with elided axes, 34
  with scalar subscripts, 33, 98
array notation, 20
array operations, 20, 61
  elemental, 21
array promotion, 24, 84
array sections, 135
array syntax, 133
arrays
  allocatable, 102
  assumed-size, 77
  automatic, 62, 102
  CM, 29
  declaring consistently, 18
  front-end, 29, 31
  homes of, 3, 7, 29, 31
arrays, *cont'd.*
  in **COMMON**, 31, 36, 43, 76, 79, 91, 100
  pointer, 102
  references out of bounds, 77
  slices of, 34

B

BART program, 4, 5

C

C preprocessor **cpp**, 45, 82
CHARACTER type, 31
-CharForContinuation option, 42, 118
circular shift utility
  reference summary, 128
  using, 108
cloned procedures. *See* procedure variants
cmax command. *See* invoking CMAX
CMAX library
  linking with, 124
  reference summary, 124
  using, 104, 108
CMAX subdirectory, 40
CMAX viewer, 129
cmax.h, header file, 104, 108, 124
CMAX_ALLOCATE_*rank,* utility routine, 104, 126
CMAX_CSHIFT_*rank,* utility routine, 108, 128
CMAX_DEALLOCATE, utility routine, 105, 126
CMAX_I_ALLOCATE_*rank,* internal routine, 127
CMAX_MEMORY, in allocation package, 104, 126

Copyright © 1994 Thinking Machines Corporation

cmax-buffer, EMACS command, 131
cmax-subprogram, EMACS command, 131
cmax-viewer, EMACS command, 129
CMF_CM_ARRAY_FROM_FILE, utility procedure, 92
CMF_CM_ARRAY_TO_FILE, utility procedure, 92
CMF_FE_ARRAY_FROM_CM, utility procedure, 169
CMF_FE_ARRAY_TO_CM, utility procedure, 169
CMF_SCAN_, utility procedure, 163
CMF_SEND_, utility procedure, 168
-CMFortran option, 72, 117
CMMD, message-passing library, 29, 46, 110
COMMON, directive, 66
COMMON arrays. *See* arrays in **COMMON**
conditional conversion, 45, 46, 82
conditionalizing, for library routines, 19
conditionals in loops, 12, 23, 60
-ContentsList option, 40
continuation characters, 42
continued statements, 44
converting conditionally, 45
converting iteratively, 72
converting part programs, 46
COUNT, intrinsic, 62, 146
cpp preprocessor, 45, 82
CSHIFT, intrinsic, 62, 109

D

-DefineSymbols option, 45, 82
-DeleteFiles option, 40
DEPENDENCE, directive, 63, 123
-Dependence option, 61, 119
dependences, loop-carried, 15, 22
  apparent, 21
  complicated, 27
  idiomatic expressions of, 16, 22, 64
descriptors, of arrays, 32
DIAGONAL, intrinsic, 62
directives, reference summary, 121
distributed memory, 29, 31, 78, 90
DLBOUND, intrinsic, 62
DOTPRODUCT, intrinsic, 62, 148
DOUBLE COMPLEX type, 74
DSHAPE, intrinsic, 62
DUBOUND, intrinsic, 62
dusty decks, 2

E

efficiency notes, 43
EMACS utilities, 129
-EntryPoint option, 59, 117
EOSHIFT, intrinsic, 62
EQUIVALENCE statement, 31, 94

F

filenames
  CMAX input, 38, 116
  CMAX output, 42
firewalls, 48
FIRSTLOC, intrinsic, 62
FORALL, statement, 138
Fortran 77 extensions, 74
  See also array operations
Fortran 90 notation, 61
front-end processor, 29
function references, in loops, 27

G

global CM Fortran, 29, 110
GO TO statement, 27, 60

H

-Help option, 38
HOMER program, 101
homes of arrays. *See* arrays, homes of

I

I/O operations, 92
#include directives, 85
include files, 85

Version 2.0, May 1994
Copyright © 1994 Thinking Machines Corporation

INCLUDE lines, 85
interative conversion, 72
-InterfaceRoutines option, 48
interprocedural analysis, 37, 59
invoking CMAX, 3, 37, 41
  for information, 38, 116
  for package operation, 40, 116
  for package translation, 40, 117
  reference summary, 114
  table of options, 39, 115

K

keywords, CM Fortran reserved, 62

L

LASTLOC, intrinsic, 62
LAYOUT, directive, 66, 86, 90, 110
layout directives, scalability convention, 18
libcmax.a, library file, 124
libraries, conversion of, 59
library routines, scalability conventions, 19
linear memory assumptions, 17, 94
linearizing multidimensional arrays, 78
-LineMapping option, 42, 118
-LineWidth option, 44, 118
LISA program, 103
-ListingFile option, 43, 118
locality of reference, scalability convention, 13
loop fissioning, 25
loop pushing, 26, 61

M

MAGGIE program, 8
make files, 46, 47
make utility, 46, 56
MARGE program, 106
MATMUL, intrinsic, 62, 149
MAXLOC, intrinsic, 62, 151
MAXVAL, intrinsic, 62, 153
MERGE, intrinsic, 62
messages during translation, 43
MINLOC, intrinsic, 62, 155
MINVAL, intrinsic, 62, 157
MVBITS, intrinsic, 62

N

nodal CM Fortran, 29, 46, 110
NODEPENDENCE, directive, 28, 63, 123
nonstandard Fortran 77, 74, 76
NOPERMUTATION, directive, 63, 123
NOPUSH, directive, 63, 122
-noRestructureCode option, 60
NOVECTORIZE, directive, 63, 122
numerical stability, scalability convention, 13

O

optimizations, outmoded, 80
options. *See* invoking CMAX
out-of-bounds array references, 77
-OutputExtension option, 42, 56, 72, 119
-OutputFile option, 42, 72, 119

P

PACK, intrinsic, 62
packages, 3, 37, 38, 117
-PackagesList option, 38
partial-program conversion, 48, 58
partition manager, 29
-PermitArraySyntax option, 61, 118
-PermitAutomaticArrays option, 61, 118
-PermitKeywordsCMF option, 62, 119
PERMUTATION, directive, 63, 123
-Permutation option, 61, 120
preprocessing input, 45
procedure variants, 31, 33, 34, 35, 86
PRODUCT, intrinsic, 62, 159
PROJECT, intrinsic, 62
PUSH, directive, 63, 122
-Push option, 61, 120

Copyright © 1994 Thinking Machines Corporation

R

RANK, intrinsic, 62
-RemovePackage option, 40
REPLICATE, intrinsic, 62
RESHAPE, intrinsic, 62
-RestructureCode option, 120
RETURN statement, 27
root node of input, 59

S

SAVE variables, 86
scalable Fortran 77
  conventions of, 11
  defined, 7, 9
scalar promotion, 23, 134
sequence association, 17
serial axes, 11, 19
-ShortLoopLength option, 60, 110, 120
-ShortVectorLength option, 31, 60, 110, 120
Simpson programs, 4, 5, 8, 101, 103, 106
sourcefiles, 38
SPREAD, intrinsic, 62
statement splitting, 25
-StatementBufferSize option, 44, 118
STOP statement, 27
storage association, 17
strip-mining, 80
SUM, intrinsic, 62, 161
switches. *See* invoking CMAX

T

-TranslatePackage option, 38, 40
TRANSPOSE, intrinsic, 62
triplet notation, 20, 61
.ttab files, 42

U

uninitialized variables, 77
-UnknownRoutinesSafe option, 59, 110, 120
UNPACK, intrinsic, 62
unrolling loops, 81

V

variants of procedures. *See* procedure variants
vector units, 29
vectorization
  defined, 3
  illustrated, 6
  inhibiting, 63
  limits on, 27, 36
  techniques of, 21
VECTORIZE, directive, 63, 122
-Vectorize option, 61, 120
-Verbose option, 43, 119

W

WHERE
  construct, 137
  statement, 136

Z

-ZeroArrays option, 43, 77, 120

Version 2.0, May 1994
Copyright © 1994 Thinking Machines Corporation