

=====	Dictin
	Dictin
PROGRAM DICTIN (Renamed from DICTION to eliminate conflict with	Dictin
UNIX diction command - 12/22/02)	Dictin
=====	Dictin
VERSION 81-1 (SEPTEMBER 1981)	Dictin
VERSION 82-1 (JANUARY 1982)	Dictin
VERSION 83-1 (JANUARY 1983) *KEEP ORIGINAL MOD. NUMBER	Dictin
*NEW, MORE COMPATIBLE I/O UNITS.	Dictin
VERSION 84-1 (SEPTEMBER 1984) *UPDATED TO HANDLE ENDF/B-VI FORMAT.	Dictin
(PROGRAM WILL NOW WORK ON ALL	Dictin
VERSIONS OF THE ENDF/B FORMAT).	Dictin
VERSION 85-1 (AUGUST 1985) *FORTRAN-77/H VERSION	Dictin
VERSION 86-1 (JANUARY 1986) *MAT ORDER CHECK.	Dictin
*IF NO HOLLERITH SECTION COPY MAT.	Dictin
VERSION 88-1 (JULY 1988) *OPTION...INTERNALLY DEFINE ALL I/O	Dictin
FILE NAMES (SEE, SUBROUTINE FILEIO	Dictin
FOR DETAILS).	Dictin
*IMPROVED BASED ON USER COMMENTS.	Dictin
VERSION 89-1 (JANUARY 1989) *PSYCHOANALYZED BY PROGRAM FREUD TO	Dictin
INSURE PROGRAM WILL NOT DO ANYTHING	Dictin
CRAZY.	Dictin
*IMPROVED BASED ON USER COMMENTS.	Dictin
*ADDED LIVERMORE CIVIC COMPILER	Dictin
CONVENTIONS.	Dictin
*UPDATED TO USE NEW PROGRAM CONVERT	Dictin
KEYWORDS.	Dictin
VERSION 92-1 (JANUARY 1992) *UPDATED BASED ON USER COMMENTS.	Dictin
*UP TO 6000 SECTIONS PER TAPE.	Dictin
*CHANGED DEFAULT MOD NUMBER FOR NEW	Dictin
SECTIONS FROM 0 TO 1	Dictin
VERSION 94-1 (JANUARY 1994) *VARIABLE ENDF/B DATA FILENAMES	Dictin
TO ALLOW ACCESS TO FILE STRUCTURES	Dictin
(WARNING - INPUT PARAMETER FORMAT	Dictin
HAS BEEN CHANGED)	Dictin
*CLOSE ALL FILES BEFORE TERMINATING	Dictin
(SEE, SUBROUTINE ENDIT)	Dictin
*ADDED FORTRAN SAVE OPTION	Dictin
VERSION 96-1 (JANUARY 1996) *COMPLETE RE-WRITE	Dictin
*IMPROVED COMPUTER INDEPENDENCE	Dictin
*ALL DOUBLE PRECISION	Dictin
*ON SCREEN OUTPUT	Dictin
*UNIFORM TREATMENT OF ENDF/B I/O	Dictin
*IMPROVED OUTPUT PRECISION	Dictin
VERSION 99-1 (MARCH 1999) *CORRECTED CHARACTER TO FLOATING	Dictin
POINT READ FOR MORE DIGITS	Dictin
*UPDATED TEST FOR ENDF/B FORMAT	Dictin
VERSION BASED ON RECENT FORMAT CHANGE	Dictin
*GENERAL IMPROVEMENTS BASED ON	Dictin
USER FEEDBACK	Dictin
VERS. 2000-1 (FEBRUARY 2000) *GENERAL IMPROVEMENTS BASED ON	Dictin
USER FEEDBACK	Dictin
VERS. 2002-1 (MAY 2002) *OPTIONAL INPUT PARAMETERS	Dictin
*RENAMED dictin TO ELIMINATE CONFLICT	Dictin
WITH UNIX diction COMMAND.	Dictin
*ADDED DOCUMENTATION LINE TO COMMENTS.	Dictin
VERS. 2004-1 (JAN. 2004) *GENERAL UPDATE BASED ON USER FEEDBACK	Dictin
*UP TO 100,000 SECTIONS PER TAPE.	Dictin
VERS. 2007-1 (JAN. 2007) *CHECKED AGAINST ALL ENDF/B-VII.	Dictin
*UP TO 500,000 SECTIONS PER TAPE.	Dictin
	Dictin
OWNED, MAINTAINED AND DISTRIBUTED BY	Dictin
-----	Dictin

THE NUCLEAR DATA SECTION	Dictin
INTERNATIONAL ATOMIC ENERGY AGENCY	Dictin
P.O. BOX 100	Dictin
A-1400, VIENNA, AUSTRIA	Dictin
EUROPE	Dictin
ORIGINALLY WRITTEN BY	Dictin
-----	Dictin
DERMOTT E. CULLEN	Dictin
UNIVERSITY OF CALIFORNIA	Dictin
LAWRENCE LIVERMORE NATIONAL LABORATORY	Dictin
L-159	Dictin
P.O. BOX 808	Dictin
LIVERMORE, CA 94550	Dictin
U.S.A.	Dictin
TELEPHONE 925-423-7359	Dictin
E. MAIL CULLEN1@LLNL.GOV	Dictin
WEBSITE HTTP://WWW.LLNL.GOV/CULLEN1	Dictin
AUTHORS MESSAGE	Dictin
-----	Dictin
THE COMMENTS BELOW SHOULD BE CONSIDERED THE LATEST DOCUMENTATION	Dictin
FOR THIS PROGRAM INCLUDING ALL RECENT IMPROVEMENTS. PLEASE READ	Dictin
ALL OF THESE COMMENTS BEFORE IMPLEMENTATION.	Dictin
AT THE PRESENT TIME WE ARE ATTEMPTING TO DEVELOP A SET OF COMPUTER	Dictin
INDEPENDENT PROGRAMS THAT CAN EASILY BE IMPLEMENTED ON ANY ONE	Dictin
OF A WIDE VARIETY OF COMPUTERS. IN ORDER TO ASSIST IN THIS PROJECT	Dictin
IT WOULD BE APPRECIATED IF YOU WOULD NOTIFY THE AUTHOR OF ANY	Dictin
COMPILER DIAGNOSTICS, OPERATING PROBLEMS OR SUGGESTIONS ON HOW TO	Dictin
IMPROVE THIS PROGRAM. HOPEFULLY, IN THIS WAY FUTURE VERSIONS OF	Dictin
THIS PROGRAM WILL BE COMPLETELY COMPATIBLE FOR USE ON YOUR	Dictin
COMPUTER.	Dictin
PURPOSE	Dictin
-----	Dictin
THIS PROGRAM IS DESIGNED TO CREATE A REACTION INDEX FOR EACH	Dictin
MATERIAL ON AN ENDF/B FORMATTED TAPE AND TO INSERT THIS REACTION	Dictin
INDEX IN FILE 1, SECTION 451 OF EACH MATERIAL.	Dictin
IN THE DESCRIPTION THAT FOLLOWS FOR SIMPLICITY THE ENDF/B	Dictin
TERMINOLOGY---ENDF/B TAPE---WILL BE USED. IN FACT THE ACTUAL	Dictin
MEDIUM MAY BE TAPE, CARDS, DISK, OR ANY OTHER MEDIUM.	Dictin
ENDF/B FORMAT	Dictin
-----	Dictin
THIS PROGRAM ONLY USES THE ENDF/B BCD OR CARD IMAGE FORMAT (AS	Dictin
OPPOSED TO THE BINARY FORMAT) AND CAN HANDLE DATA IN ANY VERSION	Dictin
OF THE ENDF/B FORMAT (I.E., ENDF/B-I, II,III, IV, V OR VI FORMAT).	Dictin
THIS PROGRAM WILL AUTOMATICALLY DETERMINE WHICH VERSION OF THE	Dictin
ENDF/B FORMAT EACH MAT IS IN AND WILL THEN PROPERLY REPLACE THE	Dictin
REACTION INDEX FOR EACH MAT. DIFFERENT MATS ON THE SAME TAPE MAY	Dictin
EVEN BE IN DIFFERENT VERSIONS OF THE ENDF/B FORMAT.	Dictin
IT IS ASSUMED THAT THE DATA IS CORRECTLY CODED IN THE ENDF/B	Dictin
FORMAT AND NO ERROR CHECKING IS PERFORMED. IN PARTICULAR IT IS	Dictin
ASSUMED THAT THE MAT, MF AND MT ON EACH LINE IS CORRECT. SEQUENCE	Dictin
NUMBERS (COLUMNS 76-80) NEED NOT BE PRESENT ON INPUT, BUT WILL BE	Dictin
CORRECTLY OUTPUT ON ALL LINES.	Dictin
ENDF/B FORMAT VERSION	Dictin
-----	Dictin

THE ENDF/B FORMAT CAN BE DETERMINED FROM THE SECOND LINE OF	Dictin
THE HOLLERITH SECTION (MF=1, MT=451).	Dictin
ENDF/B-IV = N1 - LINE COUNT (POSITIVE)	Dictin
ENDFB/-V = N1 = N2 =0	Dictin
ENDF/B-VI = N1 =0, N2= VERSION NUMBER (6 OR MORE)	Dictin
SECTION SIZE	Dictin
-----	Dictin
SINCE THIS PROGRAM ONLY READS THE DATA ONE LINE AT A TIME THERE	Dictin
IS NO LIMIT TO THE SIZE OF ANY GIVEN SECTION, E.G. THE TOTAL	Dictin
CROSS SECTION MAY BE DESCRIBED BY 200,000 DATA POINTS.	Dictin
NUMBER OF SECTIONS PER TAPE	Dictin
-----	Dictin
IT IS ASSUMED THAT THE ENDF/B TAPE CONTAINS 100,000 OR FEWER	Dictin
SECTIONS = 100,000 OR FEWER MAT,MF,MT COMBINATIONS. IF THIS LIMIT	Dictin
IS EXCEEDED THIS PROGRAM WILL TERMINATE EXECUTION. IF NEED BE THIS	Dictin
LIMIT CAN EASILY BE CHANGED BY CHANGING THE DIMENSION STATEMENT	Dictin
BELOW AND RE-DEFINING THE VARIABLE MAXTAB IN THE BELOW DATA	Dictin
STATEMENT. ALTERNATIVELY THE ENDF/B TAPE MAY BE DIVIDED INTO A	Dictin
NUMBER SMALLER TAPES EACH CONTAINING 100,000 OR FEWER SECTIONS.	Dictin
EACH ENDF/B TAPE CAN THEN RUN THROUGH THIS PROGRAM AND THE OUTPUT	Dictin
FOR EACH ENDF/B TAPE CAN THEN BE RE-COMBINED (I.E., MERGED BACK	Dictin
TOGETHER).	Dictin
HOLLERITH SECTION	Dictin
-----	Dictin
IF ANY MATERIAL DOES NOT INITIALLY CONATIN A SECTION MF=1, MT=451	Dictin
A WARNING MESSAGE WILL BE PRINTED AND THE MATERIAL WILL BE COPIED.	Dictin
IF ANY MATERIAL INITIALLY CONTAINS A SECTION MF=1, MT=451 A NEW	Dictin
REACTION INDEX WILL BE CREATED AND INSERTED. THE INITIAL SECTION	Dictin
MF=1, MT=451 MAY OR MAY NOT CONTAIN A REACTION INDEX.	Dictin
IF THE MATERIAL INITIALLY CONTAINS A REACTION INDEX IT WILL BE	Dictin
USED TO DEFINE THE MOD NUMBER FOR CORRESPONDING SECTIONS IN THE	Dictin
NEW REACTION INDEX (I.E. IF A SECTION FROM THE ORIGINAL REACTION	Dictin
INDEX HAS THE SAME MF/MT NUMBERS AS A SECTION IN THE NEW REACTION	Dictin
INDEX THE MOD NUMBER FROM THE ORIGINAL REACTION INDEX WILL BE USED	Dictin
IN THE NEW REACTION INDEX). OTHERWISE THE MOD NUMBER IN THE NEW	Dictin
REACTION INDEX WILL BE SET EQUAL TO ZERO.	Dictin
PROGRAM OPERATION	Dictin
-----	Dictin
THE ENTIRE ENDF/B TAPE IS FIRST READ AND A DICTIONARY ENTRY IS	Dictin
CREATED FOR EACH SECTION OF THE TAPE. THE ENDF/B TAPE IS THEN	Dictin
REWOUND AND READ A SECOND TIME. DURING THIS SECOND PASS THE	Dictin
DICTIONARY OF EACH MAT IS REPLACED. THIS VERSION OF DICTIN	Dictin
DOES NOT USE SCRATCH FILES AND IS MORE EFFICIENT THAN EARLIER	Dictin
VERSIONS OF DICTIN.	Dictin
INPUT LINES	Dictin
-----	Dictin
LINE COLS. DESCRIPTION	Dictin
----	Dictin
1 1-60 ENDF/B INPUT DATA FILENAME	Dictin
(STANDARD OPTION = ENDFB.IN)	Dictin
2 1-60 ENDF/B OUTPUT DATA FILENAME	Dictin
(STANDARD OPTION = ENDFB.OUT)	Dictin
EXAMPLE INPUT NO. 1	Dictin
-----	Dictin
READ \ENDFB6\K300\ENDFB.IN AND WRITE \ENDFB\K300\ENDFB.OUT. THE	Dictin

FOLLOWING 2 INPUT LINES ARE REQUIRED,	Dictin
\ENDFB6\K300\ENDFB.IN	Dictin
\ENDFB6\K300\ENDFB.OUT	Dictin
EXAMPLE INPUT NO. 2	Dictin
-----	Dictin
USE THE DEFAULT FILENAMES TO READ ENDFB.IN AND WRITE ENDFB.OUT.	Dictin
2 BLANK INPUT LINES ARE REQUIRED	Dictin
INPUT FILES	Dictin
-----	Dictin
UNIT DESCRIPTION	Dictin
----	Dictin
2 INPUT PARAMETERS (BCD - 80 CHARACTERS/RECORD)	Dictin
10 ORIGINAL TAPE OF ENDF/B DATA (BCD - 80 CHARACTERS/RECORD)	Dictin
OUTPUT FILES	Dictin
-----	Dictin
UNIT DESCRIPTION	Dictin
----	Dictin
3 OUTPUT REPORT (BCD - 120 CHARACTERS/RECORD)	Dictin
11 FINAL TAPE OF ENDF/B DATA (BCD - 80 CHARACTERS/RECORD)	Dictin
OPTIONAL STANDARD FILE NAMES (SEE SUBROUTINE FILIO1 AND FILIO2)	Dictin
-----	Dictin
UNIT FILE NAME	Dictin
----	Dictin
2 DICTIN.INP	Dictin
3 DICTIN.LST	Dictin
10 ENDFB.IN	Dictin
11 ENDFB.OUT	Dictin
=====	Dictin