======================================================================= 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

VERS. 2007-2 (DEC. 2007) \*72 CHARACTER FILE NAMES. Dictin

VERS. 2010-1 (Apr. 2010) \*General update based on user feedback Dictin

VERS. 2012-1 (Aug. 2012) \*Added CODENAME Dictin

\*32 and 64 bit Compatible Dictin

\*Added ERROR stops Dictin

VERS. 2015-1 (Jan. 2015) \*Corrected END = it was saying ERROR. Dictin

\*Replaced ALL 3 way IF Statements. Dictin

**VERS. 2015-2 (Mar. 2015) \*Corrected Seqence Numbers Dictin**

**1) Restart at 1 for each MAT/MF/MT. Dictin**

**2) 99999 on section end, MT=0 Dictin**

**3) 0 on MF = 0 Dictin**

**Dictin**

**2015-2 Acknowledgment Dictin**

**===================== Dictin**

**I thank Jean-Christophe Sublet (UKAEA) for contributing MAC Dictin**

**executables and Bojan Zefran (IJS, Slovenia) for contributing Dictin**

**LINUX (32 or 63 bit) executables. And most of all I must thank Dictin**

**Andrej Trkov (NDS, IAEA) for overseeing the entire PREPRO project Dictin**

**at IAEA, Vienna. This was a truly International team who worked Dictin**

**together to produce PREPRO 2015-2. 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

Dictin

ORIGINALLY WRITTEN BY Dictin

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Dictin

AUTHORS MESSAGE Dictin

--------------- Dictin

THE COMMENTS BELOW SHOULD BE CONSIDERED THE LATEST DOCUMENATION Dictin

FOR THIS PROGRAM INCLUDING ALL RECENT IMPROVEMENTS. PLEASE READ Dictin

ALL OF THESE COMMENTS BEFORE IMPLEMENTATION. Dictin

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 APPECIATED 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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Dictin

\ENDFB6\K300\ENDFB.IN Dictin

\ENDFB6\K300\ENDFB.OUT Dictin

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

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

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

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

======================================================================= Dictin