**======================================================================= Merger**

**Merger**

**PROGRAM MERGER Merger**

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**VERSION 80-1 (JANUARY 1980) Merger**

**VERSION 80-2 (DECEMBER 1980) Merger**

**VERSION 82-1 (JANUARY 1982) Merger**

**VERSION 83-1 (JANUARY 1983)\*NEW, MORE COMPATIBLE I/O UNIT NUMBERS. Merger**

**VERSION 85-1 (AUGUST 1985) \*FORTRAN-77/H VERSION Merger**

**VERSION 86-1 (JANUARY 1986)\*ENDF/B-VI FORMATS Merger**

**VERSION 88-1 (JULY 1988) \*OPTION...INTERNALLY DEFINE ALL I/O Merger**

**FILE NAMES (SEE, SUBROUTINES FILIO1 Merger**

**AND FILIO2 FOR DETAILS). Merger**

**\*IMPROVED BASED ON USER COMMENTS. Merger**

**VERSION 89-1 (JANUARY 1989)\*PSYCHOANALYZED BY PROGRAM FREUD TO Merger**

**INSURE PROGRAM WILL NOT DO ANYTHING Merger**

**CRAZY. Merger**

**\*UPDATED TO USE NEW PROGRAM CONVERT Merger**

**KEYWORDS. Merger**

**\*ADDED LIVERMORE CIVIC COMPILER Merger**

**CONVENTIONS. Merger**

**VERSION 92-1 (JANUARY 1992)\*UPDATED BASED ON USER COMMENTS Merger**

**\*ADDED FORTRAN SAVE OPTION Merger**

**VERSION 92-2 (JULY 1992) \*ALLOW UP TO 99 ENDF/B DATA FILES. Merger**

**(TO ALLOW MANAGEMENT OF THE ENTIRE Merger**

**ENDF/B SYSTEM). Merger**

**VERSION 94-1 (JANUARY 1994)\*VARIABLE ENDF/B DATA FILENAMES Merger**

**TO ALLOW ACCESS TO FILE STRUCTURES Merger**

**(WARNING - INPUT PARAMETER FORMAT Merger**

**HAS BEEN CHANGED) Merger**

**\*ONLY SPECIFY FILENAMES - NO UNIT Merger**

**NUMBERS ON INPUT (WARNING - INPUT Merger**

**PARAMETERS FORMAT HAS BEEN CHANGED) Merger**

**\*CLOSE ALL FILES BEFORE TERMINATING Merger**

**(SEE, SUBROUTINE ENDIT) Merger**

**\*REQUEST LOG DELETED Merger**

**VERSION 96-1 (JANUARY 1996) \*COMPLETE RE-WRITE Merger**

**\*IMPROVED COMPUTER INDEPENDENCE Merger**

**\*ALL DOUBLE PRECISION Merger**

**\*ON SCREEN OUTPUT Merger**

**\*UNIFORM TREATMENT OF ENDF/B I/O Merger**

**\*IMPROVED OUTPUT PRECISION Merger**

**VERSION 99-1 (MARCH 1999) \*GENERAL IMPROVEMENTS BASED ON Merger**

**USER FEEDBACK Merger**

**VERS. 2000-1 (FEBRUARY 2000)\*GENERAL IMPROVEMENTS BASED ON Merger**

**USER FEEDBACK Merger**

**VERS. 2002-1 (MAY 2002) \*OPTIONAL INPUT PARAMETERS Merger**

**VERS. 2004-1 (MARCH 2004) \*ADDED INCLUDE TO DEFINE COMMON Merger**

**\*ADDED TEND LINE IF NO DATA RETRIEVED Merger**

**VERS. 2007-1 (JAN. 2007) \*CHECKED AGAINST ALL ENDF/B-VII. Merger**

**VERS. 2007-2 (JUNE 2007) \*UP, TO 1,000 ENDF/B FILES. Merger**

**\*72 CHARACTER FILE NAMES. Merger**

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

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

**\*32 and 64 bit Compatible Merger**

**\*Added ERROR stop Merger**

**VERS. 2015-1 (Jan. 2015) \*Replaced ALL 3 way IF Statements. Merger**

**VERS. 2017-1 (May 2017) \*Updated based on user feedbck. Merger**

**VERS. 2018-1 (Jan. 2018) \*Added on-line output for ALL ENDERROR Merger**

**VERS. 2019-1 (June 2019) \*Identical to 2018-1 Merger**

**Merger**

**OWNED, MAINTAINED AND DISTRIBUTED BY Merger**

**------------------------------------ Merger**

**THE NUCLEAR DATA SECTION Merger**

**INTERNATIONAL ATOMIC ENERGY AGENCY Merger**

**P.O. BOX 100 Merger**

**A-1400, VIENNA, AUSTRIA Merger**

**EUROPE Merger**

**Merger**

**ORIGINALLY WRITTEN BY Merger**

**------------------------------------ Merger**

**Dermott E. Cullen Merger**

**Merger**

**PRESENT CONTACT INFORMATION Merger**

**--------------------------- Merger**

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**Merger**

**AUTHORS MESSAGE Merger**

**--------------- Merger**

**THE COMMENTS BELOW SHOULD BE CONSIDERED THE LATEST DOCUMENTATION Merger**

**FOR THIS PROGRAM INCLUDING ALL RECENT IMPROVEMENTS. PLEASE READ Merger**

**ALL OF THESE COMMENTS BEFORE IMPLEMENTATION, PARTICULARLY THE Merger**

**COMMENTS CONCERNING MACHINE DEPENDENT CODING. Merger**

**Merger**

**AT THE PRESENT TIME WE ARE ATTEMPTING TO DEVELOP A SET OF COMPUTER Merger**

**INDEPENDENT PROGRAMS THAT CAN EASILY BE IMPLEMENTED ON ANY ONE Merger**

**OF A WIDE VARIETY OF COMPUTERS. IN ORDER TO ASSIST IN THIS PROJECT Merger**

**IT WOULD BE APPECIATED IF YOU WOULD NOTIFY THE AUTHOR OF ANY Merger**

**COMPILER DIAGNOSTICS, OPERATING PROBLEMS OR SUGGESTIONS ON HOW TO Merger**

**IMPROVE THIS PROGRAM. HOPEFULLY, IN THIS WAY FUTURE VERSIONS OF Merger**

**THIS PROGRAM WILL BE COMPLETELY COMPATIBLE FOR USE ON YOUR Merger**

**COMPUTER. Merger**

**Merger**

**PURPOSE Merger**

**------- Merger**

**THIS PROGRAM IS DESIGNED TO SELECTIVELY RETRIEVE DATA OFF OF FROM Merger**

**1 TO 10 ENDF/B DATA TAPES AND TO MERGE THE SELECTED DATA INTO A Merger**

**SINGLE MAT/MF/MT ORDERED FINAL OUTPUT FILE. Merger**

**Merger**

**IN THE DISCUSSION THAT FOLLOWS FOR SIMPLICITY THE ENDF/B Merger**

**TERMINOLOGY---ENDF/B TAPE---WILL BE USED. IN FACT THE ACTUAL Merger**

**MEDIUM USED MAY BE TAPE, CARD, DISK OR ANY OTHER MEDIUM. Merger**

**Merger**

**ENDF/B FORMAT Merger**

**------------- Merger**

**THIS PROGRAM ONLY USES THE ENDF/B BCD OR CARD IMAGE FORMAT (AS Merger**

**OPPOSED TO THE BINARY FORMAT) AND CAN HANDLE DATA IN ANY VERSION Merger**

**OF THE ENDF/B FORMAT (I.E., ENDF/B-I, II,III, IV OR V FORMAT). Merger**

**Merger**

**THE ONLY NUMERICAL DATA THAT THIS PROGRAM READS IS THE ZA FROM THE Merger**

**FIRST CARD OF EACH SECTION AND THE MAT/MF/MT FROM EACH CARD. Merger**

**SEQUENCE NUMBERS ARE IGNORED ON INPUT AND ALL OTHER FIELDS ARE Merger**

**READ AS HOLLERITH. AS SUCH THIS PROGRAM NEED NOT DISTINGUISH Merger**

**BETWEEN DIFFERENT VERSIONS OF THE ENDF/B FORMAT. Merger**

**Merger**

**IT IS ASSUMED THAT THE DATA IS CORRECTLY CODED IN THE ENDF/B Merger**

**FORMAT AND NO ERROR CHECKING IS PERFORMED. IN PARTICULAR IT IS Merger**

**ASSUMED THAT THE MAT, MF AND MT ON EACH CARD IS CORRECT. SEQUENCE Merger**

**NUMBERS (COLUMNS 76-80) ARE IGNORED ON INPUT, BUT WILL BE Merger**

**CORRECTLY OUTPUT ON ALL CARDS. Merger**

**Merger**

**SECTION SIZE Merger**

**------------ Merger**

**SINCE THIS PROGRAM ONLY READS THE DATA ONE CARD AT A TIME THERE Merger**

**IS NO LIMIT TO THE SIZE OF ANY GIVEN SECTION, E.G. THE TOTAL Merger**

**CROSS SECTION MAY BE DESCRIBED BY 200,000 DATA POINTS. Merger**

**Merger**

**SELECTION OF DATA Merger**

**----------------- Merger**

**THE USER MAY CHOOSE TO MERGE ALL DATA OR THE USER MAY SPECIFY Merger**

**THAT ONLY CERTAIN DATA SHOULD BE SELECTED. THE DATA TO BE Merger**

**SELECTED IS DEFINED BY SPECIFYING UP TO 100 MAT/MF/MT OR Merger**

**ZA/MF/MT RANGES. EACH RANGE IS DEFINED BY LOWER AND UPPER LIMITS Merger**

**OF MAT/MF/MT OR ZA/MF/MT. Merger**

**Merger**

**REQUEST LIMITS Merger**

**-------------- Merger**

**IN ORDER TO SIMPLIFY THE INPUT OF SELECTION REQUESTS THE FOLLOWING Merger**

**CONVENTIONS HAVE BEEN INTRODUCED IN ORDER TO DEFINE THE UPPER Merger**

**LIMITS OF REQUESTS IF THEY ARE NOT DEFINED BY INPUT (I.E., IF THEY Merger**

**ARE ZERO). Merger**

**Merger**

**(1) MAT OR ZA - IF THE UPPER LIMIT IS ZERO IT IS SET EQUAL TO THE Merger**

**LOWER LIMIT. Merger**

**(2) MF OR MT - IF THE UPPER LIMIT IS ZERO IT IS SET EQUAL TO THE Merger**

**MAXIMUM POSSIBLE VALUE, 99 OR 999 RESPECTIVELY. Merger**

**Merger**

**WITH THESE CONVENTIONS AN ENTIRE EVALUATION MAY BE SELECTED BY Merger**

**MERELY SPECIFYING THE LOWER LIMIT OF MAT OR ZA. THE UPPER MAT OR Merger**

**ZA LIMIT WILL BE SET EQUAL TO THE LOWER LIMIT, THE LOWER LIMITS OF Merger**

**MF/MT WILL BE 0/0 AND THE UPPER LIMITS OF MF/MT WILL BE SET TO Merger**

**99/999. THIS WILL CAUSE ALL SECTIONS OF A SINGLE EVALUATION TO BE Merger**

**SELECTED. Merger**

**Merger**

**SATISFYING SELECTION CRITERIA Merger**

**----------------------------- Merger**

**IN ORDER FOR A SECTION TO MEET THE SELECTION CRITERIA SPECIFIED Merger**

**BY ONE OF THE RETRIEVAL REQUESTS, EACH OF THE THREE FIELDS ( Merger**

**MAT/MF/MT OR ZA/MF/MT) MUST INDIVIDUALLY SATISFY THE CORRESPONDING Merger**

**LIMITS OF THE REQUEST. IT IS NOT SUFFICIENT THAT THE MAT OF A Merger**

**SECTION LIE BETWEEN THE MINIMUM AND MAXIMUM MATS OF A REQUEST. THE Merger**

**MF AND MT WILL ALSO BE INDIVIDUALLY COMPARED TO THE MF AND MT Merger**

**LIMITS OF THE REQUEST. FOR EXAMPLE, A SECTION WITH MAT/MF/MT= Merger**

**2500/3/2 DOES NOT SATISFY A REQUEST THAT SPECIFIES A REQUEST USING Merger**

**THE RANGE 2000/3/1 THROUGH 3000/3/1. THIS REQUEST SPECIFIES ALL Merger**

**MATERIALS WITH MAT BETWEEN 2000 AND 3000, BUT ONLY THOSE SECTIONS Merger**

**WITH MF/MT=3/1. SIMILARLY A REQUEST FOR 2000/3/1 THROUGH 3000/99/ Merger**

**999 WILL NOT SELECT ANY SECTIONS WITH MF=1 OR 2, SINCE THE Merger**

**REQUEST SPECIFIES ALL MATERIALS WITH MAT BETWEEN 2000 AND 3000, Merger**

**BUT ONLY THOSE SECTIONS WITH MF= 3, OR MORE. Merger**

**Merger**

**DUPLICATE SECTIONS Merger**

**------------------ Merger**

**IF TWO OR MORE SECTIONS WITH THE SAME MAT/MF/MT ARE FOUND EITHER Merger**

**ON THE SAME OR DIFFERENT TAPES, THE SECTION FROM THE TAPE DEFINED Merger**

**EARLIEST IN THE INPUT CARDS WILL BE COPIED TO THE FINAL TAPE AND Merger**

**ALL OTHER SECTIONS WITH THE SAME MAT/MF/MT WILL BE SKIPPED. THE Merger**

**OUTPUT REPORT WILL INDICATE WHICH SECTIONS WERE COPIED FROM WHICH Merger**

**TAPES, AS WELL AS WHICH SECTIONS ARE DUPLICATE AND WERE SKIPPED. Merger**

**Merger**

**REACTION INDEX Merger**

**-------------- Merger**

**THIS PROGRAM DOES NOT UPDATE THE REACTION INDEX IN MF=1, MT=451. Merger**

**FOR EACH MATERIAL THE PROGRAM WILL FOLLOW THE CONVENTIONS Merger**

**DEFINED ABOVE AND ONLY COPY ONE SECTION MF=1, MT=451 AND SKIP Merger**

**ALL OTHERS (IF MORE THAN ONE). THIS CONVENTION HAS BEEN ADOPTED Merger**

**BECAUSE MOST USERS DO NOT REQUIRE A CORRECT REACTION INDEX FOR Merger**

**THERE APPLICATIONS AND IT WAS NOT CONSIDERED WORTHWHILE TO INCLUDE Merger**

**THE OVERHEAD OF CONSTRUCTING A CORRECT REACTION INDEX IN THIS Merger**

**PROGRAM. HOWEVER, IF YOU REQUIRE A REACTION INDEX FOR YOUR Merger**

**APPLICATION AFTER RUNNING THIS PROGRAM YOU MAY USE PROGRAM Merger**

**DICTIN TO CREATE ONE. Merger**

**Merger**

**RETRIEVAL STATISTICS Merger**

**-------------------- Merger**

**THERE WILL ALWAYS BE AN OUTPUT REPORT LISTING INDICATING WHICH Merger**

**SECTIONS WHERE SELECTED, WHICH DUPLICATE SECTIONS WERE SKIPPED, Merger**

**WHICH TAPE THE SECTION WAS ON, WHICH REQUEST (MAT/MF/MT OR Merger**

**ZA/MF/MT RANGE) CAUSED THE SECTION TO BE SELECTED AND HOW MANY Merger**

**CARDS WERE IN THE SECTION. IN ADDITION THE USER MAY OPTIONALLY Merger**

**OBTAIN A FILE CONTAINING THE SAME INFORMATION. THIS FILE MAY BE Merger**

**COMBINED WITH OTHER SIMILAR FILES OUTPUT BY THIS PROGRAM IN ORDER Merger**

**TO ACCUMULATE RETRIEVAL STATISTICS OVER A PERIOD OF TIME. IF Merger**

**SPECIFIED THIS FILE WILL CONTAIN THE FOLLOWING INFORMATION IN Merger**

**6I7 FORMAT. Merger**

**Merger**

**(1) ZA Merger**

**(2) MAT Merger**

**(3) MF Merger**

**(4) MT Merger**

**(5) NUMBER OF CARDS IN SECTION Merger**

**(6) REQUEST NUMBER THAT CAUSED SECTION TO BE SELECTED Merger**

**Merger**

**INPUT FILES Merger**

**----------- Merger**

**UNIT DESCRIPTION Merger**

**---- ----------- Merger**

**2 INPUT CARDS (BCD - 80 CHARACTERS/RECORD) Merger**

**VARY FROM 1 TO 99 ENDF/B DATA FILES (BCD - 80 CHARACTERS/RECORD) Merger**

**Merger**

**OUTPUT FILES Merger**

**------------ Merger**

**UNIT DESCRIPTION Merger**

**---- ----------- Merger**

**3 OUTPUT REPORT LISTING (BCD - 120 CHARACTERS/RECORD) Merger**

**10 MERGED ENDF/B DATA (BCD - 80 CHARACTERS/RECORD) Merger**

**Merger**

**OPTIONAL STANDARD FILE NAMES (SEE SUBROUTINES FILIO1 AND FILIO2) Merger**

**---------------------------------------------------------------- Merger**

**UNIT FILE NAME DESCRIPTION Merger**

**---- ---------- ----------- Merger**

**2 MERGER.INP INPUT PARAMETERS Merger**

**3 MERGER.LST OUTPUT LISTING Merger**

**11 ENDFB.OUT RETRIEVED ENDF/B DATA Merger**

**12 ENDFB.IN1 ENDF/B DATA TO READ...FILENAMES WILL BE DEFINED Merger**

**13 ENDFB.IN2 IN THE ORDER ENDFB.IN1, ENDFB.IN2,...ENDFB.I99 Merger**

**14 ENDFB.IN3 CORRESPONDING TO THE FIRST, SECOND,...99-TH Merger**

**15 ENDFB.IN4 ENDF/B DATA FILE TO READ. Merger**

**16 ENDFB.IN5 Merger**

**17 ENDFB.IN6 Merger**

**18 ENDFB.IN7 Merger**

**. Merger**

**. Merger**

**110 ENDFB.I99 Merger**

**Merger**

**INPUT CARDS Merger**

**----------- Merger**

**CARD COLUMNS FORMAT DESCRIPTION Merger**

**---- ------- ------ ----------- Merger**

**1 1-72 A72 FILENAME FOR MERGED OUTPUT. Merger**

**(LEAVE BLANK FOR STANDARD = ENDFB.OUT) Merger**

**2 1-66 16A4,A2 MERGED FILE LABEL Merger**

**IF BLANK - LABEL FROM FIRST FILE READ WILL Merger**

**BE OUTPUT Merger**

**67-70 I4 MERGED FILE ENDF/B NUMBER Merger**

**IF ZERO - NUMBER OF FIRST FILE READ WILL Merger**

**BE OUTPUT. Merger**

**71-72 I2 RETRIEVAL CRITERIA Merger**

**= 0 - MAT/MF/MT RANGES Merger**

**= 1 - ZA/MF/MT RANGES Merger**

**3-N 1-72 A72 FILENAME FOR FILE TO RETRIEVE DATA FROM Merger**

**(LEAVE BLANK FOR STANDARD..ENDFB.IN1,ETC.) Merger**

**TERMINATE LIST OF FILES WITH A LINE THAT Merger**

**SAYS END OR end Merger**

**VARY 1- 6 I6 LOWER PRIMARY LIMIT (MAT OR ZA) Merger**

**7- 8 I2 LOWER MF LIMIT Merger**

**9-11 I3 LOWER MT LIMIT Merger**

**12-17 I6 UPPER PRIMARY LIMIT (MAT OR ZA) Merger**

**18-19 I2 UPPER MF LIMIT Merger**

**20-22 I3 UPPER MT LIMIT Merger**

**RANGES OF MAT/MF/MT OR ZA/MF/MT TO BE Merger**

**RETRIEVED ARE SPECIFIED BY DEFINING Merger**

**ONE RANGE (LOWER AND UPPER LIMITS) PER Merger**

**CARD. THE USER MAY SPECIFY 0 TO 100 Merger**

**RANGES AND THE LIST OF REQUEST RANGES Merger**

**IS TERMINATED BY A BLANK CARD. IF Merger**

**THE FIRST CARD IS BLANK (0 REQUESTS) Merger**

**ALL DATA WILL BE RETRIEVED. IF THE UPPER Merger**

**PRIMARY CRITERIA (MAT OR ZA) IS LESS THAN Merger**

**THE LOWER PRIMARY CRITERIA, THE UPPER Merger**

**PRIMARY CRITERIA WILL BE SET EQUAL TO Merger**

**THE LOWER PRIMARY CRITERIA. IF THE UPPER Merger**

**MF OR MT LIMIT IS ZERO, OR BLANK, IT Merger**

**WILL BE SET TO THE MAXIMUM POSSIBLE Merger**

**VALUE, I.E. MF=99 OR MT=999 (SEE Merger**

**EXAMPLE INPUT). Merger**

**Merger**

**EXAMPLE INPUT NO. 1 Merger**

**------------------- Merger**

**MERGE ENDF/B DATA ONTO UNIT 10 FROM UNITS 11, 12, 13 AND 14. Merger**

**RETRIEVE DATA BY MAT NUMBER. RETRIEVE MATS 1103, 1106, ALL MATS Merger**

**BETWEEN 1204 AND 1215, MF=1, 3, 4 AND 5 OF MAT 1219 AND MF=3, Merger**

**MT=1 OF MAT 1304. USE STANDARD FILENAMES. Merger**

**Merger**

**THE FOLLOWING 13 INPUT CARDS ARE REQUIRED. Merger**

**Merger**

**ENDFB.OUT Merger**

**EXAMPLE FILE LABEL FOR MERGER 0 0 Merger**

**ENDFB.IN1 Merger**

**ENDFB.IN2 Merger**

**ENDFB.IN3 Merger**

**ENDFB.IN4 Merger**

**END Merger**

**1103 4317 (UPPER LIMIT SET TO 1103/99/999) Merger**

**1106 4317 (UPPER LIMIT SET TO 1106/99/999) Merger**

**1204 1215 4317 (UPPER LIMIT SET TO 1215/99/999) Merger**

**1219 1 1219 1 4317 (UPPER LIMIT SET TO 1219/ 1/999) Merger**

**1219 3 1219 5 4317 (UPPER LIMIT SET TO 1219/ 5/999) Merger**

**1304 3 1 1304 3 1 4317 (UPPER LIMIT COMPLETELY DEFINED) Merger**

**(BLANK CARD TERMINATES REQUESTS) Merger**

**Merger**

**EXAMPLE INPUT NO. 2 Merger**

**------------------- Merger**

**THE SAME AS EXAMPLE 1, EXCEPT SPECIFY FILENAMES Merger**

**Merger**

**\ENDFB6\MERGED.LIB Merger**

**EXAMPLE FILE LABEL FOR MERGER 0 0 Merger**

**ENDFB6.PART1 Merger**

**ENDFB6.PART2 Merger**

**ENDFB6.PART3 Merger**

**ENDFB6.PART4 Merger**

**END Merger**

**1103 4317 (UPPER LIMIT SET TO 1103/99/999) Merger**

**1106 4317 (UPPER LIMIT SET TO 1106/99/999) Merger**

**1204 1215 4317 (UPPER LIMIT SET TO 1215/99/999) Merger**

**1219 1 1219 1 4317 (UPPER LIMIT SET TO 1219/ 1/999) Merger**

**1219 3 1219 5 4317 (UPPER LIMIT SET TO 1219/ 5/999) Merger**

**1304 3 1 1304 3 1 4317 (UPPER LIMIT COMPLETELY DEFINED) Merger**

**(BLANK CARD TERMINATES REQUESTS) Merger**

**Merger**

**======================================================================= Merger**