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                                                                         Endf2c
      Program ENDF2C                                                     Endf2c
      ==============                                                     Endf2c
      Convert ENDF Data to Standard FORTRAN, C and C++ Format.           Endf2c
                                                                         Endf2c
      Version 2014-1 Feb. 2014 * Initial version.                       Endf2c
             2014-2 Oct. 2014 * Changed from D to E exponential form     Endf2c
                                to improve compatibility between         Endf2c
                                computer languages.                      Endf2c
             2015-1 Jan. 2015 * General updates for release with         Endf2c
                                PREPRO2015.                              Endf2c
                              * Changed ENDF data filenames from ENDF2C  Endf2c
                                to ENDFB, to agree with PREPRO default   Endf2c
                                definitions.                             Endf2c
                              * Added code name (to be compatible        Endf2c
                                with PREPRO output), but NOT TIME (to    Endf2c
                                keep this code as computer independent   Endf2c
                                as possible).                            Endf2c
                                                                         Endf2c
      Purpose                                                            Endf2c
      ==================================================================  Endf2c
      This code is designed for,                                         Endf2c
      1) ENDF Data in any ENDF format = ENDF-1 through ENDF-6.           Endf2c
      2) On any type of computer = 32 or 64 bit system/compiler          Endf2c
                                                                         Endf2c
      This code tries to keep things as simple as possible               Endf2c
      1) There are NO INPUT PARAMETERS.                                  Endf2c
      2) It reads  an ENDF formatted file named ENDFB.IN                 Endf2c
      3) It writes an ENDF formatted file named ENDFB.OUT                Endf2c
      4) It writes a report file named         ENDF2C.LST                Endf2c
                                                                         Endf2c
      Author's Message                                                   Endf2c
      ----------------                                                   Endf2c
      I consider insuring that ENDF data is in a standard, officially    Endf2c
      approved format for FORTRAN, C and C++ is SO IMPORTANT this code   Endf2c
      does only one thing - and only one thing - and it does it in the   Endf2c
      simplest possible manner - efficiency is NOT a consideration -     Endf2c
      ONLY accuracy and general utility of the ENDF data is considered.  Endf2c
                                                                         Endf2c
      Method                                                             Endf2c
      ------                                                             Endf2c
      Other codes that attempt to do the same thing - including codes    Endf2c
      written be me decades ago - are very complicated, and therefore    Endf2c
      ERROR PRONE because they try to deal with each and every variant   Endf2c
      in which data can be coded in the ENDF format. Needless to say     Endf2c
      this means that every time the ENDF formats and procedures change  Endf2c
      these codes MUSE also be changed.                                  Endf2c
                                                                         Endf2c
      In contrast, ENDF2C uses my almost 50 years of experience dealing  Endf2c
      with the ENDF format to realize that except for the comments at    Endf2c
      the beginning for each evaluation (MF/MT=1/451), every line of     Endf2c
      ENDF data is IDENTICAL - in every version of the ENDF format, from Endf2c
      the original ENDF to today's ENDF-6. So to translate ENDF data     Endf2c
      into an official format I do not have to consider differences in   Endf2c
      each section (MF/MT) of data.                                      Endf2c
                                                                         Endf2c
      Every line of ENDF is divided into 6 fields, each 11 columns wide. Endf2c
      Each of the 6 fields is either, blank, integer or floating point.  Endf2c
      Floating point fields ALL include a decimal point (.). So that ALL Endf2c
      this code does is convert every floating point field to standard   Endf2c
      format.                                                            Endf2c
                                                                         Endf2c
      In order to insure that this PRESERVES the accuracy of the data    Endf2c
      this is done by reading and writing each ENDF line as characters.  Endf2c
      Blank and integer fields are copied exactly as read. ALL floating  Endf2c
      point number that are read are converted internally from character Endf2c
      to floating point - they are then converted back into characters   Endf2c
      in a standard, officially approved format, for output.             Endf2c
                                                                         Endf2c
      As a last step to insure the accuracy of results the characters    Endf2c
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        to be output are again converted from characters to floating      Endf2c
        point, and the numerical value that is output is compared to the   Endf2c
        numerical value originally read, and if there is ANY DIFFERENCE    Endf2c
        the characters strings read and written are listed in the output:  Endf2c
        the characters strings read and written as well as the difference  Endf2c
        is listed in the output report (ENDF2C.LST) and on the screen.     Endf2c
                                                                           Endf2c
        Running Time                                                       Endf2c
        ------------                                                       Endf2c
        It takes only seconds to translate an ENDF formatted evaluation,   Endf2c
        so running time need not be a consideration. Concentrate on        Endf2c
        keeping it simple and reliable - that should be your focus.        Endf2c
                                                                           Endf2c
        Documentation                                                      Endf2c
        -------------                                                      Endf2c
        ALL of my codes that process ENDF data and change it in ANY WAY    Endf2c
        document what they have done by adding comment lines at the end    Endf2c
        of the comment section (MF/MT=1/451) of each evaluation. This      Endf2c
        allows data users to determine the pedigree of the data they are   Endf2c
        using, by reading these comments. This code documents what is has  Endf2c
        done by adding the following 2 comment lines.                      Endf2c
                                                                           Endf2c
 ***************** Program ENDF2C (Version 2015-1) ***************          Endf2c
         Convert ENDF Data to Standard FORTRAN, C and C++ Format           Endf2c
                                                                           Endf2c
        WARNING - This documentation is IMPORTANT to data users and it     Endf2c
        should not be deleted.                                             Endf2c
                                                                           Endf2c
        Written by                                                         Endf2c
        --------------------------------                                   Endf2c
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                                                                           Endf2c
====================================================================== Endf2c
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