

=====		Convert
PROGRAM CONVERT		Convert
=====		Convert
VERSION 75-1 (APRIL 1975)		Convert
VERSION 78-1 (JANUARY 1978)		Convert
VERSION 80-1 (AUGUST 1980) IBM VERSION		Convert
VERSION 80-2 (DECEMBER 1980)		Convert
VERSION 82-1 (JANUARY 1982)		Convert
VERSION 83-1 (JANUARY 1983)		Convert
VERSION 86-1 (JANUARY 1986) *NEW PROGRAM		Convert
*FORTRAN-77/H VERSION		Convert
*MULTIPLE INPUT OPTIONS		Convert
VERSION 88-1 (AUGUST 1988) *OPTION...INTERNALLY DEFINE ALL I/O		Convert
FILE NAMES (SEE, SUBROUTINE FILEIO		Convert
FOR DETAILS).		Convert
*IMPROVED BASED ON USER COMMENTS.		Convert
*ADDED NAMES OPTION TO TURN ON/OFF		Convert
STANDARD FILE NAMES.		Convert
*ADDED REWIND OPTION TO TURN ON/OFF		Convert
REWIND AT START OF PROGRAMS.		Convert
*DELETED HARWELL AND JAERI OPTIONS		Convert
(PREVIOUSLY ONLY REQUIRED FOR GRAPHIC		Convert
INTERFACE. NO LONGER REQUIRED).		Convert
VERSION 89-1 (JANUARY 1989) *PSYCHOANALYZED BY PROGRAM FREUD TO		Convert
INSURE PROGRAM WILL NOT DO ANYTHING		Convert
CRAZY.		Convert
*IMPROVED BASED ON USER COMMENTS.		Convert
*ADDED LIVERMORE CIVIC COMPILER		Convert
CONVENTIONS.		Convert
*UPDATED TO USE NEW PROGRAM CONVERT		Convert
KEYWORDS.		Convert
*ADDED ENDFILE OPTION TO OPTIONALLY		Convert
ALLOW END OF FILE TO BE WRITTEN		Convert
VERSION 91-1 (JUNE 1991) *ADDED FORTRAN SAVE OPTION		Convert
VERSION 92-1 (JANUARY 1992) *ADDED ACTION OPTION - TO CONTROL		Convert
INTERACTIVE INPUT TO CODES		Convert
*ADDED BLANK DELIMITED KEYWORD INPUT		Convert
(REPLACES EARLIER FIXED FIELD INPUT)		Convert
*WARNING...THE INPUT PARAMETER FORMAT		Convert
HAS BEEN GENERALIZED - FOR DETAILS		Convert
SEE BELOW.		Convert
VERSION 94-1 (JANUARY 1994) *VARIABLE PROGRAM FILENAMES		Convert
TO ALLOW ACCESS TO FILE STRUCTURES		Convert
(WARNING - INPUT PARAMETER FORMAT		Convert
HAS BEEN CHANGED)		Convert
*CLOSE ALL FILES BEFORE TERMINATING		Convert
(SEE, SUBROUTINE ENDIT)		Convert
*ADDED KEYWORD CLOSE.		Convert
VERSION 96-1 (JANUARY 1996) *COMPLETE RE-WRITE		Convert
*IMPROVED COMPUTER INDEPENDENCE		Convert
*ALL DOUBLE PRECISION		Convert
*ON SCREEN OUTPUT		Convert
VERSION 99-1 (MARCH 1999) *GENERAL IMPROVEMENTS BASED ON		Convert
USER FEEDBACK		Convert
VERS. 2000-1 (FEBRUARY 2000) *GENERAL IMPROVEMENTS BASED ON		Convert
USER FEEDBACK		Convert
VERS. 2002-1 (MAY 2002) *OPTIONAL INPUT PARAMETERS		Convert
VERS. 2004-1 (MARCH 2004) *GENERAL UPDATE		Convert
VERS. 2007-1 (JAN. 2007) *GENERAL UPDATE		Convert
VERS. 2007-2 (DEC. 2007) *72 CHARACTER FILE NAMES.		Convert
VERS. 2010-1 (Apr. 2010) *General update based on user feedback		Convert
VERS. 2012-1 (Aug. 2012) *Added CODENAME		Convert
*32 and 64 bit Compatible		Convert
*Added ERROR stop		Convert
VERS. 2015-1 (Jan. 2015) *Replaced ALL 3 way IF Statements		Convert
VERS. 2017-1 (May 2017) *Updated based on user feedback.		Convert
VERS. 2018-1 (Jan. 2018) *Added on-line output for ALL ENDERROR		Convert
VERS. 2019-1 (June 2019) *Identical to 2018-1.		Convert
OWNED, MAINTAINED AND DISTRIBUTED BY		Convert

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THE NUCLEAR DATA SECTION	Convert
INTERNATIONAL ATOMIC ENERGY AGENCY	Convert
P.O. BOX 100	Convert
A-1400, VIENNA, AUSTRIA	Convert
EUROPE	Convert
	Convert
ORIGINALLY WRITTEN BY	Convert
-----	Convert
Dermott E. Cullen	Convert
	Convert
PRESENT CONTACT INFORMATION	Convert
-----	Convert
Dermott E. Cullen	Convert
1466 Hudson Way	Convert
Livermore, CA 94550	Convert
U.S.A.	Convert
Telephone 925-443-1911	Convert
E. Mail RedCullen1@Comcast.net	Convert
Website RedCullen1.net/HOMEPAGE.NOW	Convert
	Convert
AUTHORS MESSAGE	Convert
-----	Convert
THE COMMENTS BELOW SHOULD BE CONSIDERED THE LATEST DOCUMENTATION	Convert
FOR THIS PROGRAM INCLUDING ALL RECENT IMPROVEMENTS. PLEASE READ	Convert
ALL OF THESE COMMENTS BEFORE IMPLEMENTATION, PARTICULARLY THE	Convert
COMMENTS CONCERNING COMPUTER DEPENDENT CODING.	Convert
	Convert
AT THE PRESENT TIME WE ARE ATTEMPTING TO DEVELOP A SET OF COMPUTER	Convert
INDEPENDENT PROGRAMS THAT CAN EASILY BE IMPLEMENTED ON ANY ONE	Convert
OF A WIDE VARIETY OF COMPUTERS. IN ORDER TO ASSIST IN THIS PROJECT	Convert
IT WOULD BE APPRECIATED IF YOU WOULD NOTIFY THE AUTHOR OF ANY	Convert
COMPILER DIAGNOSTICS, OPERATING PROBLEMS OR SUGGESTIONS ON HOW TO	Convert
IMPROVE THIS PROGRAM. IN PARTICULAR IF YOUR FORTRAN COMPILER, OR	Convert
COMPUTER HAS A SET OF REQUIREMENTS THAT ARE DIFFERENT FROM THOSE	Convert
OF CDC, CRAY OR IBM PLEASE NOTIFY THE AUTHOR AND THIS PROGRAM WILL	Convert
BE MODIFIED TO CONSIDER YOUR COMPUTER SEPERATELY. HOWEVER, IN	Convert
ORDER TO PREVENT A PROLIFERATION OF CODING IT IS IMPERATIVE THAT	Convert
YOU IDENTIFY EXACTLY HOW YOUR FORTRAN COMPILER OR COMPUTER DIFFERS	Convert
FROM THOSE ALREADY CONSIDERED BY THIS PROGRAM. HOPEFULLY, IN THIS	Convert
WAY FUTURE VERSIONS OF THIS PROGRAM WILL BE COMPLETELY COMPATIBLE	Convert
FOR USE ON YOUR COMPUTER.	Convert
	Convert
PURPOSE	Convert
-----	Convert
THIS PROGRAM IS DESIGNED TO AUTOMATICALLY CONVERT FORTRAN PROGRAMS	Convert
FOR USE ON ANY ONE OF A VARIETY OF,	Convert
(1) COMPUTERS	Convert
(2) COMPILERS	Convert
(3) PRECISIONS (SINGLE OR DOUBLE PRECISION)	Convert
(4) INSTALLATIONS	Convert
(5) STANDARD OR NON-STANDARD FILE NAMES	Convert
	Convert
FORTRAN CODING CONVENTIONS	Convert
-----	Convert
THIS PROGRAM MAY BE USED TO CONVERT ANY PROGRAM WHICH USES THE	Convert
FOLLOWING CONVENTIONS.	Convert
	Convert
ALL FORTRAN STATEMENTS THAT DEPEND ON ANY COMBINATION OF COMPUTER,	Convert
COMPILER, PRECISION AND/OR INSTALLATION AND STANDARD FILE NAMES	Convert
SHOULD BE PRECEDED AND FOLLOWED BY A COMMENT LINE THAT CONTAINS,	Convert
	Convert
C***** DOUBLE ***** ACTIVATE DOUBLE PRECISION (DEFAULT)	Convert
C***** SINGLE ***** ACTIVATE SINGLE PRECISION	Convert
C***** CHARACTER *** TREAT CHARACTER ARRAYS AS CHARACTERS (DEFAULT)	Convert
C***** INTEGER ***** TREAT CHARACTER ARRAYS AS INTEGERS	Convert
C***** STOP ***** ACTIVATE STOP TO TERMINATE PROGRAM	Convert
C***** EXIT ***** ACTIVATE EXIT TO TERMINATE PROGRAM	Convert
C***** PROGRAM ***** ACTIVATE PROGRAM LINE AND CONTINUATIONS	Convert
C***** NAMES ***** ACTIVATE STANDARD FILENAMES	Convert
C***** REWIND ***** ACTIVATE REWIND FILES AT START OF PROGRAM	Convert

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C***** ENDFILE ***** ACTIVATE ENDFILE AT END OF PROGRAM Convert
C***** CIVIC ***** ACTIVATE LIVERMORE CIVIC COMPILER CONVENTIONS Convert
C***** NOID ***** REMOVE LINE ID IN COLUMNS 73-80 (73-80=BLANK) Convert
C***** SAVE ***** SAVE VARIABLES BETWEEN SUBROUTINE CALLS Convert
C***** ACTION ***** ACTIVATE INTERACTIVE INPUT TO CODES Convert
C***** CLOSE ***** ACTIVATE CLOSE ALL FILES BEFORE TERMINATING Convert
Convert
IF THE USER DOES NOT SELECT, Convert
(1) DOUBLE OR SINGLE - THE PROGRAM WILL ACTIVATE DOUBLE Convert
(2) CHARACTER OR INTEGER - THE PROGRAM WILL ACTIVATE CHARACTER Convert
(3) STOP OR EXIT - THE PROGRAM WILL ACTIVATE STOP Convert
Convert
IF THE USER SELECTS, Convert
(1) DOUBLE AND SINGLE - THE PROGRAM WILL ACTIVATE DOUBLE Convert
(2) CHARACTER AND INTEGER - THE PROGRAM WILL ACTIVATE CHARACTER Convert
(3) STOP AND EXIT - THE PROGRAM WILL ACTIVATE STOP Convert
Convert
IF THE USER DOES NOT SELECT PROGRAM, NAMES, REWIND, ENDFILE, Convert
CIVIC, NOID, SAVE OR ACTION THESE OPTIONS WILL BE TURNED OFF. Convert
Convert
WHERE CODING IS COMPUTER OR COMPILER DEPENDENT CODING WILL BE Convert
PRESENT FOR ALL POSSIBLE OPTIONS. THIS PROGRAM WILL ALLOW THE Convert
THE USER TO CONVERT PROGRAMS FOR USE WITH ANY COMBINATION OF Convert
OPTIONS. FOR EXAMPLES OF HOW THIS CONVENTION IS USED SEE THE Convert
LISTING OF THIS PROGRAM AND THE COMMENTS BELOW ON COMPUTER Convert
DEPENDENT CODING. Convert
Convert
INPUT LINES Convert
----- Convert
LINE COLS. DESCRIPTION Convert
----- Convert
1 1-72 BLANK DELIMITED KEYWORDS Convert
2 1-60 ENDF/B INPUT DATA FILENAME Convert
(STANDARD OPTION = ENDFB.IN) Convert
3 1-60 ENDF/B OUTPUT DATA FILENAME Convert
(STANDARD OPTION = ENDFB.OUT) Convert
Convert
*THE FIRST INPUT LINE IS 72 CHARACTERS. Convert
*KEYWORDS MAY BE LOCATED ANYWHERE WITHIN THESE 72 CHARACTERS Convert
*THERE MAY BE ANY NUMBER OF KEYWORDS INPUT Convert
*EACH KEYWORD MUST BE BLANK DELIMITED, E.G., DOUBLE CHARACTER Convert
IS LEGAL INPUT - DOUBLECHARACTER IS NOT LEGAL INPUT. Convert
*THERE MUST BE ONE OR MORE BLANKS BETWEEN KEYWORDS Convert
Convert
*NOTE, THIS NEW INPUT PARAMETER FORMAT (VERSION 92-1) IS COMPLETELY Convert
COMPATIBLE WITH THE OLDER FIXED FIELD FORMAT. SO THAT IF YOU HAVE Convert
INPUT THAT YOU HAVE USED IN THE PAST YOU CAN CONTINUE TO USE IT. Convert
Convert
LEGAL KEYWORDS INCLUDE, Convert
Convert
DOUBLE ACTIVATE DOUBLE PRECISION (DEFAULT) Convert
SINGLE ACTIVATE SINGLE PRECISION Convert
CHARACTER TREAT CHARACTER ARRAYS AS CHARACTERS (DEFAULT) Convert
INTEGER TREAT CHARACTER ARRAYS AS INTEGERS Convert
PROGRAM ACTIVATE PROGRAM LINE AND CONTINUATIONS Convert
NAMES ACTIVATE STANDARD FILENAMES Convert
REWIND ACTIVATE REWIND FILES AT START OF PROGRAM Convert
ENDFILE ACTIVATE ENDFILE AT END OF PROGRAM Convert
CIVIC ACTIVATE LIVERMORE CIVIC COMPILER CONVENTIONS Convert
NOID REMOVE LINE ID IN COLUMNS 73-80 (73-80=BLANK) Convert
SAVE SAVE VARIABLES BETWEEN SUBROUTINE CALLS Convert
ACTION ACTIVATE INTERACTIVE INPUT FOR CODES Convert
CLOSE ACTIVATE CLOSE ALL FILES BEFORE TERMINATING Convert
Convert
EXAMPLE INPUT NO. 1 Convert
----- Convert
TO USE A PROGRAM IN SINGLE PRECISION, USE THE STANDARD FILE NAMES, Convert
REWIND ALL UNITS AT THE START OF THE PROGRAM AND TREAT CHARACTER Convert
ARRAYS AS CHARACTER (FORTRAN-77 CONVENTION). Convert
Convert
READ \PREPRO93\RECENT\RECENT.OLD AND Convert

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WRITE \PREPRO93\RECENT\RECENT.NEW	Convert
THE FOLLOWING 3 INPUT LINES ARE REQUIRED,	Convert
SINGLE NAMES REWIND CHARACTER	Convert
\PREPRO93\RECENT\RECENT.OLD	Convert
\PREPRO93\RECENT\RECENT.NEW	Convert
NOTE, SINCE CHARACTER IS THE STANDARD OPTION THE KEYWORD CHARACTER	Convert
NEED NOT APPEAR ON THE ABOVE INPUT LINE.	Convert
EXAMPLE INPUT NO. 2	Convert
-----	Convert
TO USE A PROGRAM IN DOUBLE PRECISION AND TREAT ALL CHARACTER	Convert
ARRAYS AS INTEGER (FORTRAN-H CONVENTION).	Convert
USE THE STANDARD FILENAMES TO READ = CONVERT.IN AND WRITE =	Convert
CONVERT.OUT (THIS CAN BE DONE BY LEAVING THE SECOND AND THIRD	Convert
INPUT LINES BLANK).	Convert
THE FOLLOWING 3 INPUT LINES ARE REQUIRED,	Convert
DOUBLE INTEGER	Convert
(NOTE, THIS IS A BLANK LINE)	Convert
(NOTE, THIS IS A BLANK LINE)	Convert
NOTE, SINCE DOUBLE IS THE STANDARD OPTION THE KEYWORD DOUBLE	Convert
NEED NOT APPEAR ON THE ABOVE INPUT LINE.	Convert
EXAMPLE INPUT NO. 3	Convert
-----	Convert
TO ACTIVATE THE PROGRAM LINE, USE DOUBLE PRECISION AND TREAT ALL	Convert
CHARACTER ARRAYS AS CHARACTER.	Convert
READ \PREPRO93\RECENT\RECENT.OLD AND	Convert
WRITE THE STANDARD FILENAME = CONVERT.OUT (LEAVE THE THIRD INPUT	Convert
LINE BLANK).	Convert
THE FOLLOWING 3 INPUT LINES ARE REQUIRED,	Convert
PROGRAM	Convert
\PREPRO93\RECENT\RECENT.OLD	Convert
(NOTE, THIS IS A BLANK LINE)	Convert
NOTE, SINCE DOUBLE, CHARACTER AND EXIT ARE THE STANDARD OPTIONS	Convert
THEY NEED NOT APPEAR ON THE ABOVE INPUT LINE AND IN THIS EXAMPLE	Convert
HAVE BEEN OMITTED.	Convert
WARNING	Convert
-----	Convert
(1) THE PROGRAM WILL ALWAYS ACTIVATE DOUBLE OR SINGLE, CHARACTER	Convert
OR INTEGER (AS DESCRIBED ABOVE).	Convert
(2) CODING IN THE PROGRAM FOR ANY KEYWORDS THAT ARE NOT ACTIVATED	Convert
WILL BE CONVERTED TO COMMENT LINES AND AS SUCH WILL EFFECTIVELY	Convert
DISAPPEAR FROM THE PROGRAM. THEREFORE IF THE KEYWORDS PROGRAM,	Convert
NAMES, REWIND, ENDFILE, CIVIC OR NOID ARE NOT INPUT BY THE USER	Convert
THESE OPTIONS WILL BE TURNED OFF AND ANY CODING USING THESE	Convert
KEYWORDS WILL EFFECTIVELY DISAPPEAR FROM THE PROGRAM.	Convert
(3) THE SERIES OF CODES THAT ARE DESIGNED TO BE AUTOMATICALLY	Convert
TRANSLATED BY THIS PROGRAM REQUIRE THAT ALL CALCULATIONS BE	Convert
PERFORMED IN DOUBLE PRECISION ON SHORT WORD LENGTH COMPUTERS	Convert
(E.G., IBM COMPUTERS). THIS PROGRAM WILL ALLOW YOU TO SPECIFY	Convert
EITHER DOUBLE OR SINGLE PRECISION. HOWEVER, IF YOU SPECIFY	Convert
SINGLE PRECISION THIS PROGRAM WILL PRINT A WARNING MESSAGE THAT	Convert
THE CONVERTED PROGRAM SHOULD ONLY BE USED ON LONG WORD LENGTH	Convert
COMPUTERS (E.G., CDC COMPUTERS).	Convert
PROGRAM OPERATION	Convert

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THE PROGRAM WILL SEARCH FOR COMMENT LINES THAT START WITH C**
IN COLUMNS 1-3 FOLLOWED BY ANY ONE OF THE ALLOWED KEYWORDS
IF THE KEYWORD IS THE SAME AS ONE OF THE KEYWORDS INPUT BY
THE USER ALL LINES UP TO THE NEXT LINE WITH C** IN COLUMNS 1-3
FOLLOWED BY THE SAME KEYWORD WILL BE SET ACTIVE BY SETTING COLUMN
1 TO BLANK. IF THE KEYWORDS DIFFERS FROM THAT INPUT BY THE USER
ALL LINES UP TO THE NEXT LINE WITH C** IN COLUMNS 1-3 FOLLOWED BY
THE SAME KEYWORD WILL BE SET INACTIVE BY SETTING COLUMN 1 TO C.

KEYWORDS MAY NOT BE NESTED (I.E., THIS PROGRAM WILL ONLY OPERATE
PROPERLY IF KEYWORDS APPEAR IN PAIRS. ONCE A LINE IS FOUND THAT
CONTAINS A KEYWORD, THE NEXT LINE THAT CONTAINS A KEYWORD MUST
CONTAIN THE SAME KEYWORD).

PROGRAM LINE
-----
THE FORTRAN FILE MAY START WITH A PROGRAM LINE AND CONTINUATIONS.
FOR USE ON CDC-7600 OR CRAY-1 COMPUTERS THIS PROGRAM CAN ACTIVATE
THE PROGRAM LINE AND CONTINUATION LINES. FOR USE ON OTHER TYPES OF
COMPUTERS THIS PROGRAM WILL AUTOMATICALLY DE-ACTIVATE THE PROGRAM
LINE AND CONTINUATION LINES. THIS CONVENTIONS HAS BEEN INTRODUCED
BECAUSE SOME CDC-7600 COMPILERS CONSIDER IT AN ERROR IF THE FIRST
LINE IS NOT A PROGRAM LINE. PRECEDING COMMENT LINES ARE NOT
ALLOWED. THEREFORE THE NORMAL CONVENTION, DESCRIBED ABOVE, OF
USING PRECEDING AND FOLLOWING COMMENT LINES, CANNOT BE USED AT
THE BEGINNING OF THE PROGRAM.

COMMENT LINES
-----
COMMENT LINES MAY APPEAR ON LINES BETWEEN PAIRS OF KEYWORD LINES
ONLY IF THE COMMENT LINES CONTAINS C-- IN COLUMNS 1-3. ANY LINE
THAT CONTAINS ANYTHING ELSE IN COLUMNS 1-3 MAY BE ACTIVATED
BY THIS PROGRAM BY SETTING COLUMN 1 BLANK AND CAN LEAD TO ERRORS
DURING COMPILATION AND/OR EXECUTION.

INPUT FILES
-----
UNIT DESCRIPTION
-----
  2 INPUT LINE (BCD - 80 CHARACTERS/RECORD)
 10 ORIGINAL PROGRAM (BCD - 80 CHARACTERS/RECORD)

OUTPUT FILES
-----
UNIT DESCRIPTION
-----
  3 OUTPUT REPORT (BCD - 120 CHARACTERS/RECORD)
 11 RE-FORMATTED PROGRAM (BCD - 80 CHARACTERS/RECORD)

OPTIONAL STANDARD FILE NAMES (SEE SUBROUTINE FILIO1 AND FILIO2)
-----
UNIT FILE NAME
-----
  2 CONVERT.INP
  3 CONVERT.LST
 10 CONVERT.IN
 11 CONVERT.OUT

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