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PRODUCT SPECIFICATION

REV LTR	REVISION ISSUE DATE	APPROVED BY	REVISIONS
A	4/17/80	<i>[Signature]</i>	Original issue - Software Release Level MARK 9.0.
B	1/20/81	<i>[Signature]</i>	<p>Changes for MARK 10.0 Release</p> <p>1-1 Changed revision from "B" to "C" of the Burroughs COBOL74 Corporate Standard.</p> <p>2-2 Changed "ERROR.LINE" to "ERRORS" in Label Equate Information.</p> <p>4-1 Deleted "128 Data dictionary entries" Compiler Limits. Deleted "126 Section priority number" Compiler Limits. Changed "256" to "4095" Compiler Limits.</p> <p>7 Major update to this section.</p> <p>8-1 Updated "Sequential I/O Module", "Relative I/O Module", and "Indexed I/O Module".</p> <p>8-2 Updated "Sort-Merge Module" and "Segmentation Module". Added "Call System" Inter-Program Communications.</p> <p>8-3 Updated "DATABASE MODULE".</p> <p>8-4 Updated "FILE ATTRIBUTES MODULE".</p> <p>9-1 Added the "5" conditions for Table Handling Module.</p>

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INTRODUCTION

This specification describes the COBOL language compiler, based on Revision C of the Burroughs COBOL74 Corporate Standard, which produces COBOL S-Language code for execution on B1800/B1700 systems.

RELATED PUBLICATIONS

TITLE -----	NUMBER -----
COBOL74 Corporate Standard	1283 0022
COBOL74 Compiler Logic	
COBOL74 S-Language	2222 3069
B1800/B1700 COBOL74 Reference Manual	
Compiler Control Images	1955 2959

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GENERAL DESCRIPTION

LANGUAGE

The language acceptable as input to this compiler is based on the Burroughs COBOL74 Corporate Standard.

INPUT

The compiler uses one or more source input files to make a complete, updated COBOL program. Punched cards, disk, diskpack, or magnetic tape can be specified as source language input media for a single input file or for a master file. If two input files are used, the compiler merges them on a sequence number basis.

Records of input files are 80 bytes in length. Default blocking is used for all input files. The format of each 80 byte record is defined in the COBOL74 Corporate Standard.

LIBRARY FILES

COBOL source text which is common to several programs may be included in a program by use of a COBOL COPY statement. A library file is included in the logical program to be compiled but not in a new source language file if one is created.

OUTPUT

NEW SOURCE LANGUAGE FILES

An updated master symbolic output file, acceptable as input to the COBOL Compiler, may be created by use of the Control Card Image (CCI) option NEW.

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OUTPUT LISTINGS

Listings provided by this compiler include:

- Diagnostic messages
- Input source language (may be inhibited)
- Indication of inserted, replaced, or deleted lines
- Generated object code (upon request)
- Summary information
- Cross reference listing (upon request)

GENERATED CODE

The object code generated is written to disk.

LABEL EQUATE INFORMATION

Internal Filename -----	External Filename -----	Function -----
CARD	CARD	Source or update input. Default device is card reader.
SOURCE	SOURCE	Source program input. Default device is disk.
NEWSOURCE	NEWSOURCE	Updated source program output. Default device is disk.
LINE	LINE	Printed output listing. Default device is printer.
CODE	PROGRAM-NAME	Object code file.
ERRORS	ERRORS	Printed diagnostic listing. Default device is printer.

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DEBUGGING AND DIAGNOSTIC FACILITIES

The following compile time facilities are available:

- A. Syntax error messages are printed before the line in error prior to the PROCEDURE DIVISION and after the line in error thereafter. A pointer indicates location of the possible error.
- B. Warning messages are optionally printed before the line in error prior to the PROCEDURE DIVISION and after the line in error thereafter. A pointer indicates the location of the possible error for some of these messages.
- C. Various informational messages are printed.
- D. No code is generated if syntax errors are present.

All error messages are specific and are sufficient to determine the cause of the error.

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COMPILER LIMITS

The following is a list of all currently recognized compiler limits.

16,777,215	Source images
16,383	Data-names - includes all data-names, one for each FD, SD, and CD, and one for each "section" in the Data Division (i.e. WORKING-STORAGE SECTION)
16,383	Procedure-names
1,022	Pseudo data dictionary entries - one per FD, SD, or CD, one per 01 level in the WORKING-STORAGE, LINKAGE, or COMMUNICATIONS SECTION, one per group of contiguous 77's in the WORKING-STORAGE SECTION, one per 77 entry in the LINKAGE SECTION, and one for DEBUG.
128	IPC parameters.
16,383	Referenced field length in digits (note: all 01 levels in the FILE SECTION are referenced).
2,097,151	Unreferenced field length in digits.
1,048,575	Displacement in digits of a referenced field within an unreferenced field.
48	Levels of subscripting.
1,048,575	OCCURS value - maximum for a single OCCURS value and for total accumulated OCCURS values.
126	Code segments.
16,383	Unique PICTURE strings.
4095	Terminal paragraphs of a PERFORM range - PERFORM A THRU C and PERFORM B THRU C count as one terminal paragraph.
98	Alternate keys allowed for Indexed files.
5	Index-names in the INDEXED BY clause of a CD for OUTPUT.

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COMPILER CONTROL IMAGES (CCI)

The CCI (\$) in column 7) is used to control certain options which are available during the compilation process.

Any number of CCIs may be used. With the few exceptions (noted separately) options may appear anywhere in the source files and become active or inactive at that point.

A Boolean option may be "SET" on, "RESET" off, or set to the result of a Boolean expression. For example using Boolean expressions, an option status may be set according to that of other Boolean options and the operations AND, OR, EQV, and NOT may be used.

Temporary Boolean variables may also be created and used during compilation.

A stack is associated with each Boolean option and user declared variable. Whenever a Boolean option or user declared variable is SET or RESET or set to an expression, its old value is pushed into a stack and may be retrieved for later use.

"CLEAR" and "POP" are also used to control the value of Booleans.

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BOOLEAN EXPRESSIONS AND USER DEFINED OPTIONS

Syntax:

```
>- DECLARE - user defined option-1 -- <user defined option-2> ->
  >-- option-1 = <NOT> option-2 ----- AND -----#
                                     |
                                     |-- OR <NOT> option-3 -->|
                                     |
                                     |-- EQV ----->|
```

Semantics:

1. DECLARE allows the definition of a user-defined-options. These option names may be any name that is not already an option. A user-defined-option is Boolean and its default value is false (disabled).
2. Boolean expressions are evaluated from left to right, with all operators having equal precedence.
3. The setting of option-1 is the result of the evaluation of the Boolean expression to the right of the equal sign.

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CCI OPTIONS

The following CCI options have been selected from those specified in the Compiler Control Images Standard.

SET option-1

Sets option-1 to "ON"

option-1

Sets option-1 to "ON"

RESET option-1

Sets option-1 to "OFF"

POP option-1

Sets option-1 to a previously stacked value

option-1 = option-2

Sets option-1 to the same value as option-2

option-1 = NOT option-2

Sets option-1 to the inverse of the value of option-2

CLEAR

Resets all booleans except MERGE and, if the NEW option is on it resets it only if no records have been written to the new source file. All previously stacked settings are discarded.

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NORMAL BOOLEAN OPTIONS

CODE

Lists the object code following each line of source code from point of insertion.

DELETE

Causes the compiler to ignore source language images and CCIs from the secondary (MERGEed) input (disk) until disabled. Images are ignored for compilation purposes and are not made part of a new output SOURCE file.

DOUBLE

Causes the output listing to be printed in a double-spaced format.

LIBRDOLLAR

Allows a CCI which occurs as part of a LIBRARY file to be processed. When RESET, CCIs within a LIBRARY file are ignored.

LIST

Creates an output listing of the source image input during the final phase of compilation with error and warning messages inserted where required. This option is SET on by default and must be RESET if the listing is not wanted.

LIST1

Causes the compiler to print a listing of source images as soon as they read and to print error messages as the errors are detected.

LISTDELETED

When LIST option is set, causes LISTing of DELETED images.

LISTDOLLAR

When LIST option is set, causes LISTing of CCIs. This option is set on by default.

LISTOMITTED

When LIST option is set, causes LISTing of OMITTED images.

LISTP

Causes the compiler to print a listing of images from the primary (CARD) source file as they are read.

MAP

Causes the compiler to include relative addresses of allocated variables in the program listing (the CODE option includes this too). This option is set on by default.

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MERGE

Causes a secondary (usually disk) file to be opened by the compiler and merged with the primary (card) file. Once SET, this option cannot be RESET, POP'ed, SET again, or SET to an expression. CLEAR does not affect this option.

NEW

Creates a NEW output source file with changes, if any, entered through use of the MERGE option and DELETE options. Compiler Control Images are not included in the new file unless they are marked with an additional \$ sign in column 8. Once SET, this option may not be RESET, POP'ed, SET again, or SET to a boolean expression. CLEAR may reset the NEW option but only if no records have yet been written.

NEWID

Causes the "non-numeric literal" associated with this option to be inserted in columns 73-80 of the source language image for program LISTing and in the new source file, if any. When this option is RESET the contents of columns 73-80 of the input source file are left in the corresponding columns of the listing and new source.

NON-NUMERIC LITERAL

Causes the compiler to store the literal information for use with the NEWID option. The default value for this purpose is all blanks.

OMIT

Causes the compiler to ignore source language images and Compiler Control Images from the secondary (MERGE'd) input (disk) until disabled. Images are ignored for compilation purposes but they are included in a new output SOURCE file, if one is being produced.

PAGE

If a LIST is being produced, causes the compiler to skip to the top of the next page. This option is reset automatically as soon as it is used.

SEQCHECK

Causes the compiler to check for sequence errors and print a warning message for each sequence error detected.

SEQUENCE

Causes the compiler to assign new sequence numbers to the source language images accepted for compilation or inclusion in a new source file. Sequence numbers begin with the value of the sequence base integer associated with this option. If the sequence base integer is not specified it begins at 000010. Sequence numbers are incremented by the value of the sequence increment integer associated with this option. If the sequence increment integer is not specified sequence

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numbers are incremented by 10.

INTEGER

Associated with the SEQUENCE option, the integer is assigned to the sequence base.

+INTEGER

Associated with the SEQUENCE option, the integer is assigned to the sequence increment.

STATISTICS

Causes the compiler to print the known statistics of compilation normally included in a LISTing. Needed when LIST is RESET.

SUMMARY

Causes the compiler to print a summary of the information about the compilation normally included as part of a LISTing. Needed when LIST is RESET.

WARNFATAL

Causes the compiler to treat warning messages as syntax errors.

WARNSUPPR

Causes the compiler to not print warning messages.

XREF

Causes the compiler to print a cross-reference listing for the source language accepted for compilation. Unless otherwise specified, cross-reference names are associated by line number.

XSEQ

Used in conjunction with the XREF option, causes cross-reference names to be associated by sequence number.

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MISCELLANEOUS COMPILER CONTROL OPTIONS

FEDLEVEL = integer-1

Causes the compiler to test the COBOL source language code for compliance with Federal standards as described by FIPS Publication 21-1.

Integer-1 may contain a value from 1 to 5, representing the following levels:

1. Low level COBOL
2. Low-intermediate level COBOL
3. High-intermediate level COBOL
4. High level COBOL
5. Burroughs extended level COBOL

When a Federal Level is chosen, COBOL codes that exceed those included in that level are identified with warning messages. This option is set to 5 by default.

VOID [integer-1]

Allowed only in primary (card) file images, this option causes a secondary file image bearing the same sequence number to be ignored for compilation purposes and excluded from the output new source file, if any. If integer-1 is specified subsequent images are also ignored until a secondary (disk) file image is encountered with a sequence number value greater than integer-1.

OPTIONS FOR USE BY COMPILER DEVELOPMENT PERSONNEL

DEBUG ERRMESS

Causes the compiler to print all the error messages it is capable of producing.

DEBUG TIME

Causes the compiler to print a summary of the time spent during each phase of compilation.

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Syntax:

```
>-- DEBUG ---- SET ----- PARSE -----#
      |          |          |          |
      |-- RESET -->|      |----- DICT ----->|
      |          |      |----- DNQUAL ----->|
      |          |      |----- LQUAL ----->|
      |          |      |----- MOIGE ----->|
      |          |      |----- DATSYN ----->|
      |          |      |----- EXPLODE ----->|
      |          |      |----- PROSYN ----->|
      |          |      |----- CODEGEN ----->|
      |          |      |----- FIXUP ----->|
```

Semantics:

Causes the compiler to activate a monitor function during the compilation phase designated.

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FILE ATTRIBUTE MODULE DESCRIPTION

The file attribute module is an extension to COBOL74 to provide a way to define, monitor or change attributes of a particular file. This is accomplished through the use of attribute identifiers. There are three classes of attribute identifiers, alphanumeric, numeric and mnemonic.

An alphanumeric attribute identifier is equivalent to an elementary alphanumeric DISPLAY data item having a size equal to the maximum allowed for the specified attribute. Alphanumeric attributes are allowed as operands of relational conditions and as sending operands of Format 1 MOVE statements. All alphanumeric attributes currently available for the B1800 are:

FAMILYNAME
HOSTNAME
INTNAME
MYHOSTNAME
MYNAME
SERIALNO
TITLE
YOURNAME
YOURUSERCODE

A numeric attribute identifier is equivalent to an elementary data item that represents a signed integer with eight decimal digits. Numeric attributes are allowed as operands of relational conditions and as sending operands of Format 1 MOVE statements. All numeric attributes currently available for the B1800 are:

AREALENGTH
AREAS
BLOCK
BLOCKSIZE
BUFFERS
CENSUS
CHANGEDSUBFILE
CREATIONDATE
CURRENTBLOCK
FILESECTION
FRAMESIZE
LASTRECORD
LASTSUBFILE
MAXCENSUS
MAXRECSIZE
MAXSUBFILES
MINRECSIZE

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NEXTRECORD
 RECORD
 SAVEFACTOR
 USEDATE
 VOLUMEINDEX

Mnemonic attribute identifiers have only mnemonics for values. Mnemonic attributes are allowed as operands of relational conditions. All mnemonic attributes and their associated mnemonic values currently implemented for the B1800 are:

ATTERR	(TRUE, FALSE)
BACKUPKIND	(DISK, PACK, TAPE, DONTCARE)
BACKUPPERMITTED	(DONTBACKUP, DONTCARE, MUSTBACKUP)
BLOCKSTRUCTURE	(FIXED, VARIABLE)
COMPRESSION	(TRUE, FALSE)
DENSITY	(BPI200, BPI556, BPI800, BPI1600, BPI6250)
DEPENDENTSPECS	(TRUE, FALSE)
DIRECTION	(FORWARD, REVERSE)
FILESTATE	(AWAITINGHOST, BLOCKED, CLOSED, CLOSEPENDING, DEACTIVATED, DEACTIVATIONPENDING, OFFERED, OPENED, SHUTTINGDOWN)
EXTMODE	(EBCDIC, ASCII, BINARY)
FILEKIND	(DATA, CODEFILE, INTRINSICFILE, CONTROLDECK)
KIND	(DISK, ODT, PAPERPUNCH, PAPERREADER, PORT, PRINTER, PUNCH, PUNCH80, PUNCH96, READER, READER80, READER96, REMOTE, TAPE, TAPECASSETTE, TAPEPE, TAPE9, TAPE7)
LABEL	(EBCDICLABEL, ASCII LABEL, OMITTED)
MYUSE	(IN, OUT, IO)
NEWFILE	(TRUE, FALSE)
OPEN	(TRUE, FALSE)
OPTIONAL	(TRUE, FALSE)
OTHERUSE	(SECURED, IN, OUT, IO)
PARITY	(ODD, EVEN)
SECURITYTYPE	(PUBLIC, PRIVATE)
TRANSLATE	(FORCESOFT, NOSOFT)
TRANSLATING	(TRUE, FALSE)
UPDATEFILE	(TRUE, FALSE)

The value of an attribute identifier for a particular file may be defined by a clause in the file definition (FD).

VALUE OF alphanumeric-attribute-name IS literal

VALUE OF numeric-attribute-name IS numeric-literal

VALUE OF mnemonic-attribute-name IS mnemonic-value

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The value of some attributes may also be referenced using the phrase

VALUE OF attribute-name IS data-name

The current list of attributes that may be specified with this phrase are:

AREALENGTH
 AREAS
 BLOCKSIZE
 BUFFERS
 INTNAME
 MAXRECSIZE
 MINRECSIZE
 SAVEFACTOR
 SERIALNO
 TITLE
 VOLUMNINDEX

When using a data-name to specify an initial attribute value the data-name must be of the same type as the attribute. The value of the data-name is then assigned to the attribute immediately prior to an OPEN for that file.

An attribute may be monitored within the PROCEDURE DIVISION through the attribute-identifier phrase.

(OF)
 ATTRIBUTE attribute-name () file-name ((subfile-specifier))
 (IN)

A subfile-specifier is required for some attributes associated with subfiles of a port file. Otherwise the subfile-specifier has no meaning. The subfile-specifier must be a numeric literal or data-name. An attribute identifier may be changed through the use of the CHANGE statement in the PROCEDURE DIVISION.

CHANGE attribute-identifier TO {literal }
 { }
 {identifier }
 { }
 {mnemonic-value}

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The following is a description of each of the file attributes.

AREALENGTH

Specifies the number of FRAMESIZE units in an area of a disk file. This attribute may be read anytime or changed when file is closed.

AREAS

Specifies the maximum number of areas that can be allocated for a disk file. This attribute may be read anytime or changed when file is closed.

ATTERR

Indicates whether the last file attribute action was in error. Mnemonic values are TRUE or FALSE. This attribute may be read anytime.

BACKUPKIND

Specifies the device type to be used for backup. Mnemonic values are DISK, PACK, TAPE or DONTCARE.

BACKUPPERMITTED

Specifies whether an intermediate file may be assigned. Mnemonic values are DONTBACKUP, DONTCARE and MUSTBACKUP. This attribute may be read anytime or changed when file is closed.

BLOCK

Indicates the number of the logical block referenced in the last I/O statement. This attribute may be read anytime.

BLOCKSIZE

Specifies the value of the length of a block in FRAMESIZE units. This attribute may be read anytime or changed when file is closed.

BLOCKSTRUCTURE

Specifies the format of records of a file. Mnemonic values are FIXED or VARIABLE. This attribute may be read anytime or changed when file is closed.

BUFFERS

Specifies the number of buffers assigned to a file. This attribute may be read anytime or changed when file is closed.

CENSUS

Indicates the number of messages in a subfile of a PORT file. This attribute may be read when subfile is open.

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CHANGEDSUBFILE

Indicates the number of a subfile whose CHANGEEVENT is true. This port file attribute may be read when one or more subfiles are open.

COMPRESSION

Specifies that data will be compressed for transmission via a subfile of a port file. Mnemonic values are TRUE or FALSE. This attribute may be read anytime or changed when file is closed.

CREATIONDATE

Indicates the creation date of a disk file in the form a string of five characters, (YYDDD). This attribute may be read anytime.

CURRENTBLOCK

Indicates the size in FRAMESIZE units, of the block currently in use. This attribute may be read anytime.

DENSITY

Specifies the recording density of a magnetic tape file. Mnemonic values are BPI200, BPI556, BPI800, BPI1600 or BPI6250. This attribute may be read anytime or changed when file is closed.

DEPENDENTSPECS

Specifies whether the attributes BLOCKSTRUCTURE, MINRECSIZE, MAXRECSIZE, BLOCKSIZE and FRAMESIZE of a logical file are to be changed to agree with corresponding values of an associated permanent file. Mnemonic values are TRUE or FALSE. This attribute may be read anytime or changed when file is closed.

DIRECTION

Specifies the direction in which records of a file will be accessed. Mnemonic values are FORWARD or REVERSE. This attribute may be read anytime or changed when file is closed.

EXTMODE

Specifies the character mode of records within a file. Mnemonic values are EBCDIC, ASCII or BINARY. This attribute may be read anytime or changed when file is closed.

FAMILYNAME

Specifies the identifiers of a disk where the file will reside. The attribute may also read anytime or changed when the file is closed.

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FILEKIND

Specifies the purpose of a disk file. Mnemonic values are DATA, CONTROLDECK, CODEFFILE or INTRINSICFILE. This attribute may be read anytime or changed anytime.

FILESECTION

Specifies the reel number of a tape file. This attribute may be read anytime or changed when file is closed.

FILESTATE

Indicates the current disposition of a subfile of a port file. Mnemonic values are AWAITINGHOST, BLOCKED, CLOSED, CLOSEPENDING, DEACTIVATED, DEACTIVATIONPENDING, OFFERED, OPENED, or SHUTTINGDOWN. This subfile of a port attribute may be read when file is opened.

FRAMESIZE

Specifies the number of bits to be transferred as a unit of data. For B1800 systems FRAMESIZE, by default, is the same as the number of bits required to represent an EBCDIC character, eight. This attribute may be read anytime or changed when file is closed.

HOSTNAME

Specifies the name of the host system on which the file resides. This attribute may be read anytime or changed when file is closed.

INTNAME

Specifies the value of the internal file name. This attribute may be read anytime or changed when file is closed.

KIND

Specifies the device to be associated with the logical file. Mnemonic values are DISK, PAPERPUNCH, PAPERREADER, PORT, PRINTER, PUNCH, READER, READER80, READER96, SPU, TAPE, TAPECASSETTE, TAPEPE, TAPE7 or TAPE9. This attribute may be read anytime or changed when file is closed.

LABEL

Specifies whether or not the file has label records. Mnemonic values are EBCDICLABEL, ASCII LABEL OR OMITTED. This attribute may be read anytime or changed when file is closed.

LASTRECORD

Indicates the record number of the last record in the physical disk file. This attribute may be read only when the file is OPENED.

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LASTSUBFILE

Indicates the subfile number of the last subfile for which an input or output operation has occurred. This attribute may be read only when the port file is OPENed.

MAXCENSUS

Indicates the maximum number of messages that may occur in a subfile of a port file. This attribute may be read when file is open.

MAXRECSIZE

Specifies the maximum size of records in FRAMESIZE units. This attribute may be read anytime or changed when file is closed.

MAXSUBFILES

Specifies the maximum number of subfiles of a port file. This attribute may be read anytime or changed when file is closed.

MINRECSIZE

Specifies the minimum size of records in FRAMESIZE units. This attribute may be read anytime or changed when file is closed.

MYHOSTNAME

Indicates the name of the system from which a port file is transmitting. This attribute may be read anytime.

MYNAME

Indicates the name of a PORT file. This attribute may be read anytime.

MYUSE

Specifies whether the file will be used for input, output, or both. Mnemonic values are IN, OUT or IO. This attribute may be read anytime or changed when file is closed.

NEWFILE

Specifies whether the file is a new or permanent file. Mnemonic values are TRUE or FALSE. This attribute may be read anytime or changed when file is closed.

NEXTRECORD

Indicates the relative record number of the next record to be processed in an I/O statement. This attribute may be read anytime.

OPEN

Indicates whether the file is opened or not. Mnemonic values are TRUE or FALSE. This attribute may be read anytime.

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OPTIONAL

Specifies whether or not the assignment of a permanent file is optional. Mnemonic values are TRUE or FALSE. This attribute may be read anytime or changed when file is closed.

OTHERUSE

Specifies how the file may be used by other programs during the time a program has the file opened. Mnemonic values are SECURED, IN, OUT and IO. This attribute may be read anytime or changed when file is closed. However, the OPEN statement will override any changing of this attribute.

PARITY

Specifies the parity used for TAPE or PAPERTAPE files. Mnemonic values are EVEN or ODD. This attribute may be read anytime or changed when file is closed.

RECORD

Indicates the current relative record number of a file. This attribute may be read anytime.

SAVEFACTOR

Specifies the number of days past the creation date that a tape file will expire. This attribute may be read anytime or changed when file is closed.

SECURITYTYPE

Specifies what kind of security applies to the file. Mnemonic values are PRIVATE or PUBLIC. This attribute may be read anytime or changed when file is closed.

SERIALNO

Specifies the serial number of the labeled tape or base member of the disk family to which the logical file is assigned. The serial number is a EBCDIC string of six characters, left justified in a field of blanks. This attribute may be read anytime or changed when file is closed.

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TITLE

Specifies the external file name with the form "B/C ON A". The "B/C" portion represents the FILENAME which includes a multi-file-id and an optional file-id. The "A" portion represents the optional FAMILYNAME or pack-id. Valid TITLES may be:

B
 B/C
 B ON A
 B/C ON A

This attribute may be read anytime or changed when file is closed.

TRANSLATE

Specifies whether software translation will take place using tables. Mnemonic values are FORCESOFT or NOSOFT. This attribute may be read anytime or changed when file is closed.

TRANSLATING

Indicates when software translation is being performed on the records of the file. Mnemonic values are TRUE or FALSE. This attribute may be read anytime or changed when file is closed.

UPDATEFILE

Specifies whether or not the disk file is used with an update I/O access method. Mnemonic values are TRUE or FALSE. This attribute may be read anytime or changed when file is closed.

USEDATE

Indicates the Julian date of the last use of a disk file. This attribute may be read when file is open.

VOLUMEINDEX

Specifies the reel number of a tape file. This attribute may be read anytime or changed when file is closed.

YOURNAME

Specifies the name of a corresponding subfile of a port file with which this subfile of a port file is to be matched. This attribute may be read anytime or changed when file is closed.

YOURUSERCODE

Specifies the usercode of a corresponding subfile of a port file with which this subfile of a port file is to be matched. This attribute may be read anytime or changed when file is closed.

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FEATURES NOT INCLUDED IN THIS RELEASE

NUCLEUS MODULE

- . Cannot use an item declared in the LINKAGE SECTION with the DISPLAY or ACCEPT statement.

TABLE HANDLING MODULE

- . Everything implemented.

SEQUENTIAL I/O MODULE

- . BREAKOUT and RERUN not implemented.
- . Variable length records not implemented.

RELATIVE I/O Module

- . BREAKOUT and RERUN not implemented.

INDEXED I/O MODLUE

- . BREAKOUT and RERUN not implemented.

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SORT-MERGE MODULE

- . BREAKOUT and RERUN not implemented.
- . SELECT ... SORT WITH DISK AND integer-2 TAPES not implemented. "SORT WITH DISK" or "SORT WITH integer-2 TAPES" supported but not both.
- . Indexed and Relative files not allowed as USING files, and Relative files not allowed as GIVING files.

SEGMENTATION MODULE

- . Everything implemented.

LIBRARY MODULE

- . Everything implemented.
- . For purposes of matching pseudo-text, a comma is considered a separator only if it is immediately followed by a blank (a Burroughs extension relaxed this rule).

DEBUG MODULE

- . Everything implemented.

INTER-PROGRAM COMMUNICATIONS MODULE

- . CALL SYSTEM BREAKOUT not implemented.
- . CALL SYSTEM WFL not implemented.

COMMUNICATIONS MODULE

- . Only one level queue names implemented. Queue names may not exceed 10 characters in length.
- . Partial messages not implemented.
- . EGI and ESI options of SEND not implemented.

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DATA BASE MODULE

- . DB - ALL not implemented.
- . USING clause of INVOKE and INVOKE of sets or subsets not implemented.
- . count-name not implemented.
- . population-name not implemented.
- . DMSTRUCTURE not implemented.
- . FIRST, LAST, and PRIOR not allowed with a key-condition in a selection-expression.
- . GLOBAL DATA not implemented.
- . DMSTATUS(DMERRORTYPE) not implemented.
- . DMSTATUS(DMSTRUCTURE) not implemented.
- . COMPUTE not implemented.
- . DELETE - selection-expression limited to data-set-name.
- . FIND - KEY OF not implemented.
- . GENERATE not implemented.
- . OPEN INITIALIZE not implemented.
- . REMOVE data-set-name not implemented.
- . SET not implemented.
- . USE not implemented.

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FILE ATTRIBUTES MODULE

- VALUE OF subfile-attribute is {data-name/literal} not implemented.

COMPILER CONTROL IMAGES

- INCLNEW, LISTINCL, STATISTICS, and OPTIMIZE not implemented (these are optional features of the CCI Standard).

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IMPLEMENTOR DEFINED ASPECTS

NUCLEUS MODULE

- . If the source string on an INSPECT is signed, the sign character is not inspected.
- . Switch ON STATUS is any non-zero value.
- . In abbreviated relation conditions, an arithmetic expression beginning with a left parenthesis may not be the object of an abbreviation where both the subject and the relational operator are implied. An arithmetic expression may be the object if it doesn't begin with a left parenthesis or if the relational operator is stated.

TABLE HANDLING MODULE

- . SEARCH ALL will not result in a binary search for any of the following conditions:
 1. Sign on key or argument (because PLUS collates lower than minus).
 2. Key length or scale unequal to argument length or scale. This restriction does not apply to shorter literals.
 3. Display items vs. computational items.
 4. Argument is an arithmetic expression.
 5. Use of program collating sequence clause.

LIBRARY MODULE

- . In the statement "COPY literal-3", literal-3 must be a file-name of the form "B", "B/A", "B ON A", OR "B/C ON A".

DEBUG MODULE

- . "SW9" is the debugging switch.

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INTER-PROGRAM COMMUNICATIONS MODULE

- Program names in the CALL and CANCEL statements must be of the form "B", "B/C", "B ON A", "B/C ON A".

COMMUNICATIONS MODULE

- BEFORE/AFTER ADVANCING option of SEND requires a special NDL handler to interpret the advancing information.
- If PASSWORD is defined for an ENABLE statement and an MCS is present, it will be passed to the MCS, otherwise it will be accepted. Note: the PASSWORD must be alphanumeric.
- RECEIVE and SEND are not microcoded and are therefore slower than READ and WRITE of REMOTE files.

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