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ABSTRACT and CONTENTS

This documents the interface between the phase one pre-processor and both MICS and the MICS user. The MICS interface includes all calls and parameters and the user interface includes all error messages and methods of correction.

The phase one preprocessor interfaces with both the MICS system and the MICS user. The system interface as documented here may undergo minor changes for phase two. The user interface manifests itself in the form of error messages and corrective actions, and will be eliminated in phase two.

SYSTEM INTERFACE

Calls:

```
PPDS (STRING, OPTION);  
PMAIN (FILE, LANGUAGE, OPTION);
```

Formal Parameters:

STRING: Input text string. Must have one and only one CR-LF pair which must be last two characters of string.

FILE: Input file number (teletype = \emptyset).

LANGUAGE: SPL = \emptyset , FORTRAN = 1.

OPTION: This is a packed option word composed of eight 3 bit option fields:

bits	(\emptyset :2)	new symbol definitions, \emptyset = error, 1 = OK. New symbol definitions occur when a symbol is encountered that has not been previously encountered in the same block.
	(3:5)	new block definitions, \emptyset = error, 1 = OK, 2 = ignore. Ignore means to preprocess the line which

Global Parameters:

PLISI and PLITN, indicate where lines are to be inserted. PLITN is a block token number and PLISI is a line symbol index.

<u>PLISI</u>	-	<u>PLITN</u>	<u>Where put</u>
M		N	insert in IB N before line M
∅		N	append to end of IB prior to IB N.
M		∅	error
∅		∅	append to the end of last IB

PLISI1 and PLITN1, when the preprocessor relinquishes control PLISI1 is the line symbol index and PLITN1 the IB token number of the first line preprocessed in that call.

PLISI2 and PLITN2, when the preprocessor relinquishes control PLISI2 is the line symbol index and PLITN2 the IB token number of the last line preprocessed in that call.

PLLNCT, the number of lines inserted during the last call.

PLWDCT, the number of words read from the external file during the last call which read its input from an external file.

Note on inserts:

If a PPDS call is issued with the line insert option set to ignore, an IB must be selected as current prior to the call. The string is then preprocessed as though it belonged in that IB.

Note on print, half print, and edit:

The print and half print formats are precisely explained in the user interface section. Basically, half print will print an error message and the line in error. Full print is identical to half print with the addition of printing the location of the line in error. The editing facility for error correction is also explained in the user interface section.

Note on termination

Normal termination is an SRETURN. RETURN occurs only if an uncorrectable error is encountered or the error option is set for RETURN.

USER INTERFACE

The action taken by the preprocessor when an error is detected is under optional system control as explained in the system interface section. The MICS user, depending upon the system options in force at the time an error is encountered, may have one or two print formats presented to him and may have a type request made. A maximum example might be the following five

lines (␣ = CR-LF):

- (1) ***ERROR PPXXX <NAME>#YYYY ␣
- (2) BBBBBBBB
- (3) CCCCCC␣
- (4) ␣
- (5) !

Line (1) may or may not appear in its entirety, the location part "<NAME>#YYYY" being optional. In any event, XXX is an error number which can be deciphered using the list which appears below. If the location is given it is a pseudo-editor address. If NAME is supplied, YYYY refers to the line number in the NAMED block. If "◇" appears with no NAME, YYYY refers to the line number relative to the first of the group being preprocessed when the error occurred.

Lines (2) and (3) are composed from the line in error with a line-feed inserted at the offending point.

The "!" is a herald which requests that the user correct the line in error and may or may not appear depending upon the current system options (it should be noted that the user has no control of these system options). Once the ! herald appears, control has been given to the line editor and the system awaits some typing action by the user. The line in error is the editor old line. The edit is terminated by B^c and, consequently, the user may supply more than one line

to replace the line in error. Then, too, by typing only B^C, the user can delete the line in error.

The following list explains the meaning of error numbers which you will see from time to time produced by the pre-processor. Error numbers ≥ 200 will never invite corrective action.

PREPROCESSOR ERROR NUMBERS:

- 1: a comment has exceeded the PPTB space
- 2: new symbol definition not allowed
- 3: new block definition not allowed
- 4: end block not allowed
- 5: improper octal integer
- 6: improper decimal integer
- 7: improper octal integer
- 8: imaginary numbers not yet implemented
- 9: double numbers not yet implemented
- 10: real numbers not yet implemented
- 11: improper character constant
- 12: character constant not completed before end of line
- 14: invalid 6 bit character
- 15: invalid 8 bit character
- 16: illegal pseudo character
- 17: invalid D exponent
- 18: invalid E exponent
- 19: attempt to name two blocks with same name

21: identifier too long

23: illegal name for block

24: line encountered outside of block

25: carriage return not followed by line feed

26: string constant malformed

100: preprocessor string overflow, input line too long

101: PPTB overflow

102: line input from line editor too big

200: external file input line too big

201: incorrect insert parameters, bad call

202: line insert not allowed

203: multiple blank character followed by end of string

204: impossible error

205: PPDS called with string too big

206: line doesn't end with carriage return, line feed

207: too many contiguous spaces to code in one space
token