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Identification

The Interim PRT202 DIM
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Purpose

This section describes the use of the interim PRT202 DIM to generate printed output. This program operates with the standard ("new") Multics printer drum. It will be replaced by a description of the standard Multics PRT202 DIM when that module is operative.

General

Until the standard printer modules are completed, output line printing on the 645 under MULTICS will be accomplished by the interim PRT202 DIM. This module combines functions ultimately to be found in the Code Conversion Module, DSM, and DCM. Only three of the standard I/O system outer calls are accepted --attach, write, and detach. The restrictions on the calls are detailed below.

The Attach Call

```
call dim202$attach(ioname, type, descr, mode, status);
```

1. ioname is ignored.
2. type is ignored.
3. descr is ignored.
4. mode is ignored.
5. status will always be returned as a "11111" followed by 139 zeros except when errors are signalled by the GIM. See BF.20.05 for a catalog of such errors. The GIM errors are returned as "000011" followed by 138 zeros.

The Write Call

```
call dim202$write(ioname, wkspace, nelem, nelemt, status);
```

1. ioname is ignored.
2. wkspc is a pointer (EPL declaration;ptr) to an ASCII character string.
3. nelemt is interpreted as the number of nine-bit ASCII characters pointed to by wkspc.
4. nelemt, upon return, will contain the number of ASCII characters which were printed.
5. status may describe the following types of errors:
 - a) GIM errors as per BF.20.05. These cause bits five and six of status to be set.
 - b) device errors; major status in 109-112, minor status in 113-118. Bits five and nine and either bit six or seven will also be set.

The Detach Call

call dim202\$detach(ioname, ioname2, disposal, status);

Ioname, ioname2 and disposal are ignored. Only GIM errors will be noted. The GIM pseudo-lists are released and allocated buffers are freed.

The ASCII Interface

The interim DIM accepts all nine-bit characters. All non-ASCII characters are escaped as a four character sequence: "hooked overbar" followed by three octal digits. The table below shows the treatment of the seven bit ASCII set. The left-hand column gives the nine-bit octal ASCII representation and the right-hand side details the treatment.

<u>Octal</u>	<u>Treatment</u>
0-10	escaped
11 (HT)	horiz. tab stops simulated at 11, 21, ..., 131
12 (NL)	ends printed line; causes slew of one line.
13 (BS)	escaped
14 (NP)	next line begins on new page.
15-37	escaped
40-133	printed
134 (/)	escaped
135-176	printed
177 (del)	escaped

Note that the backspace character is escaped. Therefore there can be no overstriking via backspaces on the PRT202. Any tab going beyond position 131 will be escaped.

Non-standard items

The interim DIM operates in non-standard fashion in several ways, the most flagrant of which is its use of static storage. It has the ability to operate independently of the I/O switch and the CCM. It can also operate with them; if used with the CCM, raw mode must be specified so that the ASCII characters are passed through to the interim DIM.

Restrictions

Input character strings are processed up to a new-line or new-page character, to the length specified, or to 136 graphics whichever comes first (for this purpose, a character which will be escaped counts as one graphic). If it is a NL or NP character, then the appropriate slew is added and processing of the input string continues. If the length specified occurs first, then the line received is printed without a slew. The next line written will be printed on the same line beginning in column one. If 136 graphics are reached first, then a new-line character is inserted into the text at that point.

The interim DIM was not designed to deal with lines which attempt to print more than 136 print positions on a single line. Consequently, some information can be lost in the printing of such lines. After escape processing and suitable filling in of blank space, another limit is imposed. Any character which would be printed past print-position 136 on the printer causes a slew to be inserted before it. That character and others following it are printed on the next line from print-position one. Note that this may cause a loss of blank space since blanks between position 136 and the position of the character causing the slew insertion will be ignored.