VT

PDP-11 DOS Compatible
Driver for Tektronix 4010
Graphics Display Terminal

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Program Abstract

VT is a DOS compatible driver which allows the use of a Tektronix 4010 Graphics Display Terminal as an alphanumeric input device and as both an alphanumeric and graphics output device. This driver may be edited into the DOS CIL (Core Image Library) so that the Tektronix terminal may be accessed via the standard DOS I/O macros.

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109

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Introduction

The VT (Visual Terminal) DOS driver was written to allow communication to or from a Tektronix 4010 terminal. Since this terminal is logically similar to the LA30 DEC writer, the starting point for this program was the DEC-supplied KB driver. This routine was substantially modified to allow output of graphic information. The potential user should be aware that the VT driver communicates with the 4010 terminal via a DEC DL11-A teletype driver interface card with interrupt vectors at locations 300 and 304. The DL11-A was conditioned so that its device registers occupy locations 776500, 776502, 776504 and 776506. Deviations from this configuration will require minor changes in the driver code.

Implementation

The VT driver is supplied as a MACRO source file to be edited if necessary and assembled. We are currently using this driver with both DOS V08-08 and DOS V09-19. The assembly of the VT module requires the file PRAMTR.MAC which contains the addresses of certain key locations in the DOS monitor. This file should be obtained from the DOS distribution kit for your installation.

The driver is assembled with the following command string:

```
RUN MACRO
```

```
VT [,VT/NL:TTM/CRF] <PRAMTR [.MAC], VT [.MAC]
```

(text within [] is optional)

From here on the insertion into the CIL should follow the notes in the DOS Systems Managers Guide. In particular the CIL configuration table must be changed to reflect the addition of a new driver; this is accomplished by editing the file SYSTEM.MAC supplied with the DOS distribution kit and reassembling. We experienced some difficulty with the Insert command for the CILUS program in DOS V08-08 and therefore suggest that the new library be created with the BUILD command instead. The CILUS program does handle Replace commands correctly so once a driver has been inserted in a library it may be modified without going through the time-consuming BUILD procedure. This problem with CILUS does not occur under DOS V09-19.

Operation

The VT driver may be accessed through the DOS I/O Macro calls .INIT, .OPEN, .READ, .WRITE etc. We have not tested the driver for .TRAN operation but see no reason why this will not also work. Detailed notes on the driver operation appear in the VT source code and so will not be reproduced here. In general the driver expects all output characters to be alphanumeric until a GS or ESC character is detected at which point the output is assumed to be graphic. Alphanumeric operation is resumed after the US or CR characters or the ESC,FF sequence (page sequence).

In alphanumeric mode, when a FF character appears in the output stream the driver issues a series of characters to move the cursor to the bottom of the screen and set the Tektronix

page lockout flipflop. This inhibits further output until the PAGE key is depressed which gives a convenient and natural formatting for reading long files.

On input the VT driver behaves similarly to the KB driver for the LA-30 DEC writer. Thus TAB echoes by blank filling an eight character field, RUBOUT deletes the last character, and CONTROL-U purges the entire current line of text. The EOT character (CONTROL-D) is interpreted as an end of file mark and terminates further input. This feature is only active when the driver is awaiting characters to satisfy a current input request; in look-ahead mode EOT is ignored. GIN input mode has not been implemented. Note the restriction that terminal output cannot proceed if the driver is in use waiting for VT keyboard input.