## Public Domain TeX DVI Driver Family

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At the 1985 summer TeX Users Group meeting at Tufts University, I announced the availability of a family of TeX DVI drivers. This announcement updates the information presented at the meeting.

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These drivers are **public domain** and **not** copyrighted. If you get them and commercialize them, remember that I will be in competition giving them away for free.

Enhancements and ports to new systems are expected to be returned to the author for further redistribution.

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This driver family is written in a highly portable subset of C, with preprocessor conditionals used to select code fragments which are of necessity dependent on the host machine, compiler, or operating system. The code supports a *family* of devices, so that each driver presents a Unix-style command-language interface to the user, and with the exception of \special{} support, produces identical output subject only to variations in device resolution.

Font files in .PXL, .GF, and .PK formats are supported, including invisible fonts (which have broken other DVI driver programs). Default font format lists and directory search paths are established at compile time, but can be overridden at run time on all systems. A font substitution mechanism is also supported to handle the common case of fonts being unavailable in a particular magnification or style.

A new feature added in December '86 is run-time selectable virtual font caching, which maps entire font files into the address space at file open time. This should improve response when font files reside on a networked file system; the many small character packet requests otherwise entail substantial real-time delay across the net.

### Environments

This family is running in these environments:

| Machine | Operating System | Compiler |
|---|---|---|
| DEC-20 | TOPS-20 | PCC-20 |
| IBM-PC | PC-DOS | Microsoft V3,V4 |
| VAX | VMS 4.x | VMS C |
| Unix-Box | Unix | CC |

Unix systems on which this family runs include Sun, Integrated Solutions, 4.xBSD VAX, Gould, and Hewlett-Packard. On the IBM PC, compilers from Lattice, Wizard, and Aztec have also been tried, but have regrettably proved too buggy.

### Devices supported

Screen displays:

| | |
|---|---|
| DVIBIT | Version 3.10 BBN BitGraph terminal |

300dpi laser printers:

| | |
|---|---|
| DVIALW | PostScript (Apple LaserWriter) |
| DVICAN | Canon LBP-A2 |
| DVIIMP | Imagen imPRESS-language family |
| DVIJEP | Hewlett-Packard Laser Jet Plus |

Dot-matrix and other lower-resolution printers:

| | |
|---|---|
| DVIJET | Hewlett-Packard Laser Jet 75 dpi |
| DVIM72 | Apple ImageWriter 72 dpi |
| DVIMAC | Apple ImageWriter 144 dpi |
| DVIMPI | MPI Sprinter 72 dpi |
| DVIO72 | OKIDATA Pacemark 2410 72 dpi |
| DVIOKI | OKIDATA Pacemark 2410 144 dpi |
| DVIPRX | Printronix 60h x 72 dpi |
| DVITOS | Toshiba P-1351 180 dpi |

### Documentation

- 75-page manual in LaTeX (primarily for installers)
- 15-page user documentation in Unix man style (but set by LaTeX), TOPS-20 INFO, and GNU EMACS TeXinfo formats.

### Distribution

Available on IBM PC-DOS floppy disks (about 6), or 1600 bpi 9in mag tape in TOPS-10/20 BACKUP/DUMPER format, VAX VMS BACKUP format, Unix tar format, and ANSI D-format from

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Send tape or floppies for a copy. Financial contributions are always welcome, but not required. The family is also included on my <PLOT79> graphics distribution, since all new documentation for that uses LaTeX.

This distribution is available for Internet anonymous FTP from Utah-Science.Arpa. Login and retrieve the file PS:<ANONYMOUS>OOREADME.TXT; it

contains an introduction to the system and pointers to interesting directories.

To facilitate periodic updating, FTP command files and directory listings in both alphabetic and reverse chronological order are maintained in each distribution directory. TOPS-20 sites can use the FTP UPDATE command instead to get changes with even less effort.

For the benefit of Unix sites, compressed `tar` files are also maintained.

Source plus documentation amounts to about 1.5Mb, and executable code for each device amounts to 80Kb–150Kb, depending on device and host machine; this is probably too large for EMAIL to Bitnet and Usenet sites.

### Future work

Major pieces of work remaining to be done:

(a) merging in support of PostScript resident fonts;

(b) addition of more `\special{}` support to the laser printer drivers; currently only `DVIALW` supports a `\special{}` command;

(c) addition of support for windowing systems on bitmapped workstation displays; X-windows support is in progress locally.

Volunteer contributions are most welcome!

## DVItoVDU 1.7 and PSPRINT 1.1

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### Introduction

DVItoVDU is an interactive page previewer that drives a variety of commonly available terminals. PSPRINT is a PostScript driver for the Apple LaserWriter that can print a DVI file, a raw PostScript program, or an ordinary text file. Both programs run under VAX/VMS and are in the public domain. Copies of the software, including source code and documentation, have been sent to Stanford and Kellerman & Smith for inclusion on their VAX/VMS distribution tapes.

Now that TEX under VAX/VMS seems to have reached its final state, further development of DVItoVDU and PSPRINT is most unlikely. (Another good reason is that I'm leaving my position at the University of Adelaide. If anybody out there needs the services of an experienced

TEXnician, I can be reached at my University address or via electronic mail; my ACSNET address is `akt@uacomsci.ua.oz`. I'm particularly interested in working overseas on a short-term basis.)

### DVItoVDU 1.7

Version 1.5 was described in detail in TUGboat vol. 7, no. 1. Here is a list of the significant changes that have occurred since that release:

- All font-dependent code has been moved out of the main module and into `FontReader`. This module replaces `PXLReader` and can read PXL or PK files. The `/font_directory` and `/dummy_font` values determine which format to use, as well as the location and naming convention of all font files. (I was going to handle GF files as well, but finally decided that any site using such files would eventually switch to the PK format. PK files use about a fifth of the disk space required by PXL files, and interpreting the compressed information only adds about 5% to the processing time. See Tomas Rokicki's article in TUGboat vol. 6, no. 3.)

- The `/font_directory` value is restricted to a single directory rather than a list of directories. The `/dummy_font` file must represent an unmagnified font.

- The main module's Full display routines have been changed to handle a new method of loading character bitmaps into dynamic memory on a demand basis. DVItoVDU is now slightly faster, but tends to use more memory.

- DVItoVDU can now handle all TEX character codes from 0 to 255.

- There are two new `/vdu` values. VT220 is a new implementation by John Mann at Monash University that uses downloaded chunky graphics to get a window resolution of 132 by 100. VIS240 is for a ReGIS VDU with a larger window region.

- The page position and first few bytes of any `\special` commands are now displayed. (Note that PSPRINT allows the use of `\special` to include a file of PostScript commands.)