DVIEW:
a TeX .DVI File Viewer

Steve Ward & Ricardo Jenez, October 1989
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DVIEW is a program for IBM PC compatibles for viewing TeX .dvi output files, including those using the MIT graphics extensions. Currently DVIEW supports the CGA, EGA, VGA, and the high-resolution modes of the Toshiba T3100 and AT&T 6300; other displays may be supported in time. DVIEW uses standard DVI, PXL and PK file formats.

1. Overview

DVI files are standard and machine-independent; they may be generated on the PC or downloaded from another source. Viewing them requires DVIEW plus a set of appropriate font files, which again are standard Metafont output (PXL or PK) files and can be downloaded from any of a variety of sources. DVIEW reads each page and builds a virtual bitmap (in RAM), then BITBLTs segments onto your display as you move around the virtual page (using arrow keys). During the building process DVIEW shows its progress via a reduced image of the page; this overview is recoverable by pressing "?" subsequently. The size and shape of the virtual page, as well as a scale factor, are variable via obscure command-line arguments (see below); they default to values which allow most papers to just fit horizontally, requiring scrolling only in the vertical dimension.

2. Font Files

By default, these live in a subtree /PXL on your PC. /PXL contains subdirectories with numeric names like /PXL/480, indicating resolution; entries in the subdirectories are PXL files with names like /PXL/480/CMR10.PXL or /PXL/600/CMR10.PK, indicating the font. You need only to download the specific files used by your paper – a reasonably complete set can run into many megabytes. To help you manage fonts, DVIEW (1) after warning you, will try to substitute a smaller font of the same style for any missing fonts; (2) allows you to review the

font situation using the "f" command; and (3) writes out a file "MISSING.FNT" which indicates the additional fonts you need to download.

Note: In searching for fonts dview now uses the font naming convention for CM fonts, with the result that pxl designations are five times smaller than for AM fonts. An escape has been built in to allow compatibility with previous versions of dview. The feature can be enabled by the -a command line option.

M.I.T. users: doing a `make` in `/active/pxl` on HX from a ZModem-sensitive terminal program will cause MISSING.FNT to be uploaded from the current local directory and the needed fonts to be downloaded. Presumably this situation can be duplicated elsewhere; look on HX for a prototype.

3. Pictures

DVIEW understands the simple M.I.T. extensions for drawing lines, allowing pictures (created e.g. using the now-obsolete GEDIT on the PC) in TeX documents to be viewed. Here's a simple example:
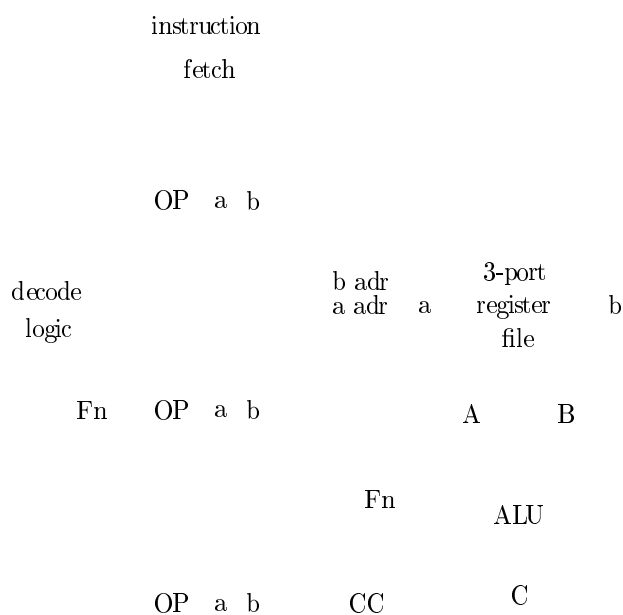
Figure 1: Picture having nothing to do with anything

4. Display types

DVIEW recognises several display configurations, and defaults to the display mode giving the highest monochrome resolution. You can override this choice using the -dx option, where x designates the display type to be assumed. This option shouldn't ordinarily be necessary, unless you'd like to use -dc (CGA) to recall why you spent all that cash for your VGA.

5. Cache file

Because font loading takes some time (a LOT on an old PC, a few seconds even on the T3100) DVIEW offers the "t" command (or "-t" command line option) to cause a dump of its fonts and parameters into a fast-load file DVIEW.TMP. If DVIEW finds DVIEW.TMP on a subsequent invocation, it loads it and presumably restores your parameters (including display type) and fonts. This step is worth taking if you will be repeatedly viewing edited versions of the same file. You can delete DVIEW.TMP and/or make a new one at any point, eg if you change the set of fonts you are using.

As of version 3.0, dview now reads glyph descriptions for each character on a need only basis. This means that a character description that is used in a document will be only loaded at the point that it is used, then will be cached. The result is that dview is slower for the first few pages, until all relevant characters descriptions are read. However, the initial loading of font descriptions is a lot faster. This option will save significant amounts of space when viewing documents with a large number of fonts.

6. Command Summary

Once in DVIEW viewing a page, you can type:

?	HELP information (this summary)
UP	move page up
DOWN	move page down
LEFT	shift page left
RIGHT	shift page right
HOME	top of page
END	bottom of page
PgUp	double step size
PgDn	halve step size
t	write state into DVIEW.TMP
f	show font list

p	Print (low-res) page
$< digit >$	enter new page number
space	next page
backsp	previous page
return	back to page 1
tab	skip to last page
ESC	return to MS-DOS

plus a few which I've probably forgotten. Poke around a little. Note that an up-to-date version of the above info is online.

7. Command line help

When fired up with no arguments, DVIEW gives you the following terse command line help:

```
DVIEW DVI File Viewer   version 3.1   Steve Ward & Ricardo Jenez
DVIEW <options> <dvifile>      [version 3.1]
 <options> or DVIEW envstring may include:
        -x# adjusts horizontal page offset. [default: 25]
        -y# adjusts vertical page offset. [0]
        -R# sets resolution to # [default 96; try 80]
        -F<path> sets font directory to <path> [/pxl]
        -X# set virtual page X size, in BYTES. [90]
        -Y# set virtual page Y size, in LINES. [1000]
        -m# sets page map width to #. [300]
        -dc sets display to type c (c=cga,t=T3100,e=ega, v=vga)[?]
        -t  writes DVIEW.TMP as font/parameter cache
        -t<name>  writes <name> as font/parameter cache
        -a  use pre version 3.0 pxl designations (5 times larger).
        -cx# specifies value of color x (x=a, b, ...)
```

8. Environment variable

When invoked, DVIEW looks for a value bound to the environment variable DVIEW, and interprets it as command line options. Thus, for example, the line

```
set DVIEW = -de -F/tex/fonts/
```

in your AUTOEXEC.BAT file causes DVIEW to assume by default an EGA and the subdirectory tree /TEX/FONTS/... for fonts.

9. Distribution

DVIEW may be freely distributed, and used for any purpose by anybody. If you can figure out how to make money from it despite the fact that I'm giving it away, you're welcome to. I like the idea that free software is free – that is, completely unencumbered.

(end)