TEX DVI Driver Family Status

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1 Introduction

This document summarizes the status of the TEX DVI driver family distribution. It describes

- the current versions of documentation and software;
- what operating systems, compilers, and output devices are supported;
- how to obtain the distribution from Utah and several other sources;
- work in progress; and
- the DVI electronic newsletter.

Since the informal announcement of this software at the 1986 TEX Users Group meeting at Tufts University and the formal announcement in the April 1987 TUGboat, demand has exploded; the author estimates that over 1000 sites in 28 countries are now running this software. Our initial attempts at providing the software for free, or in return for a donation, proved economically infeasible (we ran seriously in the red), and consequently, a fixed distribution charge was instituted in the spring of 1988. The burden of exact cost accounting for each order would be too great to manage; a fixed fee results in some being subsidized at the expense of others, but not excessively so.

The distribution tapes contain not only the driver family, but also an extensive collection of Computer Modern fonts (itself requiring over 100 hr of

DEC-20/60 time to generate), additional TEX-related support software, and for VAX VMS, the latest GNU Emacs release, so it remains a bargain.

Since the driver family is in the public domain, those who obtain distributions may freely re-distribute what they get. Local user groups are encouraged to share the software (we are doing this on a national scale in Poland).

In the interests of the end users, however, it must be recognized that this is an active software development project, and periodically returning to the source at Utah, or one of the official redistribution channels, should be rewarding.

2 Documentation

Documentation for the TEX DVI driver family was last updated 15 April 1987 for Revision 2.07; it is now slightly out-of-date, and will be updated for release 2.11. It consists of

- a large manual entitled *A TEX DVI Driver Family* contained in source files `dvidriver.*` intended for people who are installing the family on a new operating system, or adding support for a new device; it need not be read by people who just use the drivers;
- a Unix manual page file, `dvi.1l`;
- a GNU and TOPS-20 Emacs info file, `dviman.`;
- a GNU Emacs TEXinfo file, `dviman.texinfo`, used to produce the previous info file; and
- a LATEX document, `dviman.ltx`, that prints in a similar style to a Unix manual page.

The last four contain essentially the same information, but in different formats. They are intended to provide end-user documentation, with details of what drivers are available, how to run them, and what command-line options are available.

3 DVI Driver Versions

The version history of the family is given in Table **??**. Starting with 2.10.12, an edit number will be appended to the major and minor version numbers; edit number 12 reflects 12 edits applied since 2.10(.00) was released. Major versions will appear at long intervals. Minor versions will appear every few months, and will generally add new drivers or new operating system support. Edits fix small bugs, or make small cosmetic changes that improve the user interface.

Table 1: Version history (reverse chronological order).

2.10.12	[01-Sep-88]
2.10	[01-Nov-87]
2.09	[23-Sep-87]
2.08	[15-Aug-87]
2.07	[15-Apr-87]
2.06	[1986-1987]

Note: Version 2.10 incorporated a major rewrite of dvialw **and** dvijep**, the two most popular drivers, to make much better use of the limited memory on the laser printers, and to permit arbitrary numbers and sizes of fonts. Users running older versions are urged to update to 2.10 or later.**

4 Host Operating Systems and Compilers

The operating systems supported are given in Table **??**. The drivers will port to almost any other Unix system not listed in the table with relatively little effort.

Table 2: Operating systems supported.

Operating System	Compiler(s)
Gould Unix	cc
Sun Unix	cc, gcc
Hewlett-Packard Unix	cc
PC-DOS	Microsoft C 3, 4, 5 cl
TOPS-20	kcc-20, pcc-20
VAX Unix	cc, gcc
VAX VMS	cc, gcc

On PC-DOS, only the Microsoft C compilers have so far been found usable. Microsoft C 5.1 has been ordered; I have had one report so far of code generation errors with it that affect the DVI driver family. Turbo C 1.5 is definitely *not* usable for the DVI drivers because of completely erroneous floating-point code generation. Turbo C 2.0 resolves the floating-point problems, andI in November, 1988, I developed work-arounds for several new bugs in the compiler and the library.

For programs that have no floating-point code, I have found Turbo C 1.5 quite usable; it compiles about 5–7 times faster than the Microsoft C 5.0 com-

piler. Version 2.0 remains as fast, but examination of the assembly code generated for the string primitives shows that, when optimization is selected in both compilers, the Microsoft C compiler produces substantially better object code. In the large memory model required for the DVI drivers, the inner loops for `strchr()` and `strrchr()` have 11 instructions each with Turbo C 2.0 when the `-O` option is chosen, and 5 and 7 respectively with Microsoft C 5.0 with `-Oailt`.

gcc is the GNU Project C compiler, which generates code for these architectures:

- Motorola 68xxx (Sun 2 and 3, HP 9000/300 and 320, AT&T 3B1, Integrated Solutions, Sony News, NeXT),
- Intel 386 (Compaq 386, Sequent 386),
- VAX (Unix and VMS),
- Sun SPARC (Sun 4), and
- National Semiconductor 32xxx (Sequent, Encore, NS Genix).

That is a remarkable record surpassed only by pcc, but that was never available for diverse systems from one set of master sources. gcc is also *free*. On the Sun 3, it produces code about 10% more compact, and 10% faster than the native Sun cc compiler. It is the standard C compiler on the new NeXT workstation.

Version 2.11 is expected to add support for the operating systems in Table **??**. These are not in the 2.10 distribution, but pre-releases from the development directories can be made available by special arrangement on tape or for ANONYMOUS FTP; IBM PC floppy distributions will not be offered. Contact the author for details and current status.

Table 3: New operating systems supported.

Vendor	Operating System
Acorn	Archimedes
IBM	VM/CMS
Prime	Primos

5 Output Devices Supported

Devices supported by the TEX DVI driver family at version 2.10 are given in Table **??**. The dvitype program is not strictly part of the distribution; it should be a standard part of every TEX distribution. Similarly, there are programs dvitty and dvidoc which attempt to display DVI files on ASCII printers and

terminals; they are included in the tape and ANONYMOUS FTP distributions, but are not members of the family.

Table 4: Supported output devices.

Program	Output Device
dvialw	PostScript (Apple LaserWriter)
dvibit	Version 3.10 BBN BitGraph terminal
dvica2	Canon LBP-8 A2 laser printer (fast experimental version)
dvican	Canon LBP-8 A2 laser printer
dvie72	Epson 9-pin family 60/72 dpi matrix printer
dvieps	Epson 9-pin family 240/216 dpi matrix printer
dvigd	Golden Dawn Golden Laser 100 printer
dviimp	Imagen imPRESS-language laser printer family
dvijep	Hewlett-Packard LaserJet Plus
dvijet	Hewlett-Packard LaserJet
dvil3p	DEC LN03 Plus laser printer
dvil75	DEC LA75 144 dpi printer
dvim72	Apple Imagewriter 72 dpi printer
dvimac	Apple Imagewriter 144 dpi printer
dvimpi	MPI Sprinter 72 dpi printer
dvio72	OKIDATA Pacemark 2410 72 dpi printer
dvioki	OKIDATA Pacemark 2410 144 dpi printer
dviprx	Printronix 60h $\times$ 72v dpi printer
dvitos	Toshiba P-1351 180 dpi printer
dvityp or dvitype	DVI Translator for human-readable output

New devices for which support should be available in 2.11 are given in Table **??**. By special arrangement, copies of these can be made available on tape or for ANONYMOUS FTP; IBM PC floppy distributions will not be offered.

In addition, the TOPS-20 PostScript spooler program, lw78.c, has now been ported to Unix.

6 DVI Driver Distribution

Distributions of the DVI driver family are available from a number of sources; they are described in this section.

Table 5: New device drivers scheduled for future release. Names are subject to change before final release.

Program	Output Device
dviadx	Anadex Silent Scribe 72 and 144 dpi dot matrix printer
dvicon	IBM RT 6150 and 6155 console preview
dvidsk	Hewlett-Packard DeskJet 300 dpi ink jet printer
dviep2	Epson 9-pin family 120/216 dpi dot matrix printer
dvielq	Epson LQ 24-pin family 180 dpi dot matrix printer
dvigp	Phillips GP 72 dpi and 144 dpi dot matrix printer
dvihl8	Brother HL-8 with brain-damaged Hewlett-Packard LaserJet emulation
dviibm	IBM 4202 120 dpi dot matrix printer
dvilzr	Data Products laser printers (1230 and 1260) with brain-damaged Hewlett-Packard LaserJet emulation
dvisun	Sun Windows screen display previewer
dviupc	AT&T Unix PC screen display previewer
dvivga	IBM PC VGA display previewer

The master files reside on the author's main host machine, science.utah.edu, a DEC-20/60 TOPS-20 system. ANONYMOUS FTP (any password) to that machine can retrieve the file 00readme.txt which tells how to find the DVI distribution, and much else, on local machines. Distribution formats of individual files, compressed Unix tar files, and IBM PC `.arc` files are available on science.utah.edu. It is important to read the `00readme.txt` file carefully and follow its instructions about what files to retrieve, and how; otherwise you risk getting corrupted, or incomplete, data.

VAX VMS backup save sets of the DVI family, Computer Modern fonts, a PostScript printer spooler, and several TEX-related programs are available on ctrsci.utah.edu, a VAX 8600 running VMS 4.4, where again a `00readme.txt` file gives retrieval details. The ANONYMOUS FTP password is *GUEST*; no other string will be accepted.

Distribution from Utah must be requested in writing, either by postal mail, or by electronic mail to the author. A telephone number and street address should be provided to facilitate resolution of questions, and delivery by express freight companies (who cannot deliver to postal boxes). Telephone orders will be accepted only in unusual circumstances.

Nine-track tape (1600 bpi, and for VMS only, 6250 bpi), Sun $1/4in$ cartridge tape, and IBM PC floppy distributions are available from Utah for a fixed US$100 charge, which includes documentation, media, and shipping. Shipping is by UPS ground service within the lower 48 states, or airmail to Alaska, Hawaii, and international destinations. Do *not* send tapes or floppies with your request. Prepayment in checks drawn on a US bank, or international postal money orders, is preferred because it reduces paperwork. Purchase orders will be accepted when prepayment is not possible; an invoice will accompany the shipment.

Faster shipment by UPS, DHL, Federal Express or Airborne Express is possible by special arrangement, *provided our local staff has the time to handle the order*. It carries a surcharge equal to the approximate freight charges.

We try to fill orders within one to two weeks of receipt, but it sometimes takes longer because of our local responsibilities, or because an order is missing information, like tape format and density, that we need before it can be completed.

Distributions are available from the following other channels; allow up to 2 months after release of new versions for these to be available. All of these are volunteers, and have full-time commitments elsewhere. They are updated by net distribution where possible, but it still takes them some effort for them to incorporate the changes in their local distribution mechanism.

Peter Abbott
Aston University
Computing Services
Aston Triangle
Birmingham B47 ET

England
Email: AbbottP%uk.ac.aston.mail%uk.ac.rl.gb@nss.cs.ucl.ac.uk
or
Email: PAbbott@nss.cs.ucl.ac.uk
[only net retrieval]

Massimo Calvani
Department of Astronomy
University of Padova
Vicolo dell'Osservatorio
35122 Padova
Italy
Email: Calvani%vaxfpd.infnet%iboinfn.bitnet@cunyvm.cuny.edu
[only net retrieval]

Lance Carnes
Personal TEX, Inc.
12 Madrona Ave
Mill Valley, CA 94941
Email: "well!pti"@lll-lcc.arpa
[only IBM PC floppies]

Edgar M. Cooke
Software Research Assoc. Inc.
1-1-1 Hirakawa-cho
Chiyoda-ku
Tokyo 102
Japan
Email: kddlab!srava.sra.junet!cooke@uunet.uu.net
[only net retrieval]

Richard J. Kinch
Kinch Computer Co.
501 S Meadow St
Ithaca, NY 14850
Email: -unknown-
[only IBM PC floppies]

Mark Kosten
LaTrobe University

Bundoora, Victoria
Australia
Email: "munnari!latvax8.lat.oz.au!ccmk"@uunet.uu.net
[net retrieval and tape distribution]

Joachim Lammarsch
Universität Heidelberg
Rechenzentrum - Im Neuenheimer Feld 293
Heidelberg 6900
West Germany
Email: $rz92%dhdurz1.bitnet@cunyvm.cuny.edu
[only net retrieval]

Jon Radel
Rt 2 110 Sydnor Dr
Leesburg, VA 22075
Email: jonradel%icecream.princeton.edu@princeton.edu
[only IBM PC floppies]

We would prefer that IBM PC floppy distributions be handled through Personal TEX or Jon Radel; their prices are also lower. Preparation of floppies takes substantial personal time for the author which would be better spent on other activities.

7 Electronic Newsletter

A network mailing list is maintained for the issuance of newsletters; there were 241 subscribers on [12-Oct-88]. Requests for addition or deletion should be sent to the author at the address on the first page of this document. Users on any network reachable from the Internet can be included; that includes at least Arpanet, CSnet, MILnet, NSFnet, and SPAN (mainly US), Bitnet (US, Canada, and Europe), NetNorth (Canada), EARNnet (Europe), JUNET (Japan), Janet (Britain), Usenet (worldwide), and national university nets in Australia and New Zealand. A total of 17 newsletter issues have so far appeared. Back issues are included in all DVI distributions as the files `00mail.*`.

Regrettably, local staffing and funding do not permit postal mailings of the newsletter; if there is a demand for it, and subscribers are willing to pay for it, it could be arranged in the future.

There is a smaller related electronic list for beta testing of a powerful LATEX editing mode in GNU Emacs; this will probably become part of the standard GNU Emacs distribution in early 1989. It contains many useful functions, and

recognizes *every* macro in the LaTeX *User's Guide and Reference Manual*. Send requests for addition to the list to the author at the same address as for the newsletter. The code is also included in the VAX VMS distribution tapes in the file [.emacs-18-52.lisp]latex-mode.el.