Output Devices

**Output Devices**

**TeX Output Devices**

Don Hosek

The device tables on the following pages list all the TeX device drivers currently known to TUG. Some of the drivers indicated in the tables are considered proprietary. Most are not on the standard distribution tapes: those drivers which are on the distribution tapes are indicated in the listing of sources below. To obtain information regarding an interface, if it is supposed to be included in a standard distribution, first try the appropriate site coordinator or distributor; otherwise request information directly from the sites listed.

The codes used in the charts are interpreted below, with a person's name given for a site when that information could be obtained and verified. If a contact's name appears in the current TUG membership list, only a phone number or network address is given. If the contact is not a current TUG member, the full address and its source are shown. When information on the drivers is available, it is included below.

Screen previewers for multi-user computers are listed in the section entitled “Screen Previewers”. If a source has been listed previously under “Sources”, then a reference is made to that section for names of contacts.

Corrections, updates, and new information for the list are welcome; send them to Don Hosek, Bitnet Dhosek@Hmcvax (postal address, page 115).

**Sources**

**ACC** Advanced Computer Communications, Diane Cast, 720 Santa Barbara Street, Santa Barbara, CA 93101, 805-963-9431 (DECUS, May ’85)

**Adelaide** Adelaide University, Australia

The programs listed under Adelaide have been submitted to the standard distributions for the appropriate computers. The PostScript driver permits inclusion of PostScript files in a TeX file. The driver is described in *TUGboat*, Vol. 8, No. 1.

**AMS** American Mathematical Society, Barbara Beeton, 401-272-9500 Arpanet: BNB@Seed.AMS.com

**Arbor** ArborText, Inc., Bruce Baker, 313-996-3866, Arpanet: BwB@ArborText.com

ArborText's software is proprietary and ranges in price from $150 to $3000. The drivers for PostScript printers, the HP LaserJet Plus, the QMS Lasergrafix, and Imagen printers are part of their DVILASER series. The drivers all support graphics and include other special features such as use of resident fonts or landscape printing when supported by the individual printers.

Printing on the Autologic APS-5 and µ-5 phototypesetters with DVILAPS includes support of Autologic standard library fonts and logo processing.

**Bochum** Ruhr Universität Bochum, Norbert Schwarz, 49 234 700-4014

**Caltech** California Institute of Technology, Chuck Lane, Bitnet: CELSCITHEX

**Canon** Canon Tokyo, Masaaki Nagashima, (03)758-2111

**Carleton** Carleton University, Neil Holtz, 613-231-7145

**CMU** Carnegie-Mellon University, Howard Gayle, 412-578-3042

**Columb.** Columbia University, Frank da Cruz, 212-280-5126

**COS** COS Information, Gilbert Gingras, 514-738-2191

**DEC** Digital Equipment Corporation, John Sauter, 603-881-2301

The LN03 driver is on the VAX/VMS distribution tape.

**ENS** Ecole Normale Superieure, Chantal Durand, Centre de Calcul, Ecole Normale Superieure, 45 rue d’Ulm, 75005 Paris, France

**GA Tech** GA Technologies

**GMD1** Gesellschaft für Mathematik und Datenverarbeitung, Federal Republic of Germany, Ferdinand Hommes, Bitnet: Grstkex@Bngmd21, 0228-303221

**GMD2** Gesellschaft für Mathematik und Datenverarbeitung, Federal Republic of Germany, Dr. Wolfgang Appelt, uucp: seismo!unido!gmdzi!zi.gmd.dbp.de!appelt

**Heidelberg** University of Heidelberg, Federal Republic of Germany, Joachim Lammarsch, Bitnet: Rz92@Dhurdzl

**HMC** Harvey Mudd College, Don Hosek, Bitnet: Dhosek@Ymir

**HP** Hewlett-Packard, Stuart Beatty, 303-226-3800

**INFN** INFN/CNAF, Bologna, Italy, Maria Luisa Luvisetto, 51-498286, Bitnet: Miltext@Iboinfn

The CNAF device drivers are on the VAX/VMS distribution tape.

**Intergraph** Intergraph, Mike Cunningham, 205-772-2000

**JDW** JDJ Wordware, John D. Johnson, 415-965-3245, Arpanet: M.John@Sierra.Stanford.Edu

**Kettler** Kettler EDV Consulting, P. O. Box 1345, D-8172 Lenggries, Federal Republic Germany, +49 8042 8081
The LaserJet driver supports graphics inclusion in device dependent format. PK font files are used. This program is proprietary. Contact Kettler for further information.

**LaserPrint** LaserPrint, P.O. Box 35, D-6101
Frankisch Crumbach, Federal Republic Germany, +49 6164 4044

The driver supports graphics inclusion in device dependent format. PK font files are used. This program is proprietary. Contact LaserPrint for further information.

**LLL** Lawrence Livermore Laboratory

**LSU** Louisiana State University, Neal Stoltzfus, 504-388-1570

**Milan1** Università Degli Studi Milan, Italy, Dario Lucarella, 02/23.62.441

**Milan2** Università Degli Studi Milan, Italy, Giovanni Canzii, 02/23.52.93

**MIT** Massachusetts Institute of Technology, Chris Lindblad, MIT AI Laboratory, 617-253-8828

The drivers for Symbolics Lisp machines use the Symbolics Generic Hardcopy interface as a back end, so it should work on any printer that has a driver written for it. The printers listed in the table indicate drivers the program has been tested on.

The UNIX drivers for PostScript and QMS printers both support landscape printing and graphics inclusion via specials.

**MPAE** Max-Planck-Institut für Aeronomie, H. Kopka, (49) 556-41451, Bitnet: Mio40L0D0606x0d01

**MR** Math Reviews, Dan Lattner, 313-996-5266

**NLS** Northlake Software, David Kellerman, 503-228-3383

The VAX/VMS Imagen driver supports graphics.

**OCLC** OCLC, Thom Hickey, 6565 Frantz Road, Dublin, OH 43017, 614-764-6075

**OSU1** Ohio State University, John M. Crawford, 614-292-1741, Bitnet: Tspo135@ohstvma, Internet: Crawford-j@Ohio-state.edu

**OSU2** Ohio State University, Ms. Marty Marlatt, Department of Computer and Information Science, 2036 Neil Avenue, Columbus, OH 43210

The drivers are distributed on either ANSI or TOPS-20 DUMPER tapes, with hardcopy documentation. There is a $125 service charge (payable to Ohio State University) to cover postage, handling, photocopying, etc.

**Pers** Personal TeX, Inc., Lance Carnes, 415-388-8853

Graphics output is supported on Imagen, PostScript, and QMS printers.

**Philips** Philips Kommunikations Industrie AG, TEKADE Fernmeldeanlagen, Attn. Dr. J. Lenzer, Thurn-und-Taxis-Str., D-8500 Nürnberg, Federal Republic Germany, +49 911 5262019

**PPC** Princeton Plasma Physics Lab, Charles Karney, Arpanet: Karney@PPC.MFENET4NMFEOC.ARPA

Versatec output from TeXspool is produced via the NETPLOT program. TeXspool also produces output for the FR80 camera. Color and graphics primitives are supported through specials.

**Procyon** Procyon Informatics, Dublin, Ireland, John Roden, 351-1-791323

**RTI** Research Triangle Institute, Randy Buckland, Arpanet: rcb@rti.rti.org

The program is available in the comp.sources.misc archives on Arpanet and Usenet.

**Saar** Universität des Saarlandes, Saarbrücken, Federal Republic of Germany, Prof. Dr. Reinhard Wilhelm, uucp: wilhelm@sbsvax.ucp

**SARA** Stichting Acad Rechenzentrum Amsterdam, Han Noot, Stichting Math Centrum, Tweede Boerhaavestraat 49, 1091 AL Amsterdam (see TUGboat, Vol. 5, No. 1)

**Scan** Scan Laser, England, John Escott, +1 638 0536

**Sci Ap** Science Applications, San Diego, CA, 619-458-2616

**SEP** Systemhaus für Elektronisches Publizieren, Robert Schöniger, Arndtstrasse 12, 5000 Köln, Federal Republic of Germany

DVIP400 uses PXL files. Landscape printing is supported in all versions and graphics inclusion in all but the IBM PC version. Source is available on request. Cost varies from 300-1848DM.

**Stanford** Stanford University

The Imagen driver from Stanford is present on most distributions as the file DVILMP.WEB. It provides limited graphics ability.

**Sun** Sun, Inc.

**Sydney** University of Sydney, Alec Dunn, (02) 692 2014, ACSnet: alecd@facet.ee.su.oz

**Talaris** Talaris, Rick Brown, 619-587-0787

All of the Talaris drivers support graphics.

**T A&M1** Texas A&M, Bart Childs, 409-845-5470, CSnet: Childs@TAMU

Graphics is supported on the Data General drivers for the Printronix, Toshiba, and Versatec on the Data General MV. On the TI PC, graphics is supported on the Printronix and Texas Instruments 855 printers. There are also previewers available for both the Data General and the TI.

**T A&M2** Texas A&M, Ken Marsh, 409-845-4940, Bitnet: KMarsh@TAMU

**T A&M3** Texas A&M, Norman Naugle, 409-845-3104

The QMS driver supports inclusion of QUIC graphics commands via specials as well as landscape printing.

**T A&M4** Texas A&M, Thomas Reid, 409-845-8459, Bitnet: TUGboat, Volume 9 (1988), No. 2
The \texttt{mrox} package includes a GF/PK/PXL to Xerox font converter (\texttt{pXerox2}), and utility to build TFM files from licensed Xerox fonts (\texttt{Xetrix}). The programs are all written in C. Fonts not present on the Xerox printers can be printed as bitmaps on printers with the graphics handling option (GHO).

At present the \texttt{mrox} package is being distributed on a twelve-month trial basis; the trial is free for U.S. educational and government institutions. $100 for foreign or commercial institutions. Licensing agreements will be available when the trial offer expires.

THD Technische Hochschule Darmstadt, Klaus Guntermann. Bitnet: \texttt{XITKGGUNDDATHD21}

The program uses PK fonts. The Philips Elpho driver is not public domain. Contact Klaus Guntermann for information on obtaining the program.


The \texttt{Tools} implementation of \TeX{} and the drivers listed are described in \textit{TUGboat}, Vol. 8, No. 1.

\textbf{TRC Finl'd} Technical Research Centre of Finland, Tor Lillqvist, +358 0 4566132, Bitnet: \texttt{tcl@flingate}

\textbf{UBC} University of British Columbia, Afton Cayford, 604-228-3045

\textbf{UCB} University of California, Berkeley, Michael Harrison. Arpanet: \texttt{vortex@berkeley.arpa}

\textbf{UCIrv1} University of California, Irvine, David Benjamin

\textbf{UCIrv2} University of California, Irvine, Tim Morgan. Arpanet: \texttt{Morgan@UCI.ARPA}

\textbf{U Del} University of Delaware, Daniel Grim, 302-451-1990, Arpanet: \texttt{grim@hney.udel.edu}

The distribution includes a program to convert font files generated by METAFONT to Xerox font format.

\textbf{U Ill} University of Illinois, Dirk Grunwald, Arpanet: \texttt{Grunwald@CS.UIC.EDU}

The previewers are available via anonymous FTP in the directory \texttt{pub/iptex.tar.Z} on \texttt{a.cs.uiuc.edu}. The drivers may be obtained via anonymous FTP. For each font. The drivers may be obtained from \	exttt{pub/iptex.tar.Z} on \texttt{a.cs.uiuc.edu}.

\textbf{U Köln} Univ of Köln, Federal Republic of Germany, Jochen Roderburg, 0221-478-5372, Bitnet: \texttt{A0045QDkOrrzkO}

\textbf{U Mass} University of Massachusetts, Amherst, Gary Wallace, 413-545-4296

\textbf{U MD} University of Maryland, Chris Torek, 301-545-7690, Arpanet: \texttt{chris@mimsy.umd.edu}

The UNIX Imagen driver is on the UNIX distribution tape. The drivers may be obtained via anonymous FTP from \texttt{a.cs.uiuc.edu} in the directory \texttt{pub/iptex.tar.Z} or from \texttt{mimsy.umd.edu} in the directory \texttt{tex}.

\textbf{U Mich} University of Michigan, Kari Gluski, 313-763-6069

\textbf{UNL.C} Aarhus University, Regional Computer Center, Denmark

\textbf{U Shef} University of Sheffield, England, Ewart North, (0742)-78555, ext. 4307

\textbf{Utah} University of Utah, Nelson H. F. Beebe, 801-581-5254, Arpanet: \texttt{Beebe@Science.Utah.edu}

All of the Beebe drivers are distributed together. They are available on IBM PC-DOS floppy disks (about 6), or 1600bpi 9-track tape in TOPS-10/20 BACKUP/DUMPER format, VAX/VMS BACKUP format, Unix tar format, and ANSI D-format. Send tape or disks for a copy. The programs are available for anonymous FTP from \texttt{SCIENCE.Utah.EDU} on the Internet; information is in the file \texttt{ps:<ANONYMOUS>OOOREADME.TXT}. A VAX/VMS binary distribution is available for anonymous FTP (password guest) from \texttt{CTRSCI.Utah.EDU}. \texttt{OOOREADME.TXT} in the login directory gives details. On JANET, the programs may be obtained from the directory \texttt{aston.kirk: [public.texdvi210]}. The drivers are available from Listerian on EARN to European Bitnet users. Sending the command \texttt{GET DRIVER FILELIST} (in an interactive message, or as the first line of a mail message) to \texttt{LISTSERV@DHURZ1}. Files are obtained with the command \texttt{GET filename filetype}. Graphics is supported only in the DVIALW (PostScript) driver.

\textbf{U Wash1} University of Washington, Pierre MacKay, 206-543-6250, Arpanet: \texttt{MacKay@June.CS.Washington.edu}

The programs listed under \textbf{U Wash1} are all on the standard UNIX distribution tape.

\textbf{U Wash2} University of Washington, Jim Fox, 206-543-4320, Bitnet: \texttt{fox7632@uwacc}

The QMS driver for the CDC Cyber was written under NOS 2.2 and supports graphics.

\textbf{Vander} Vanderbilt University, H. Denson Burum, 615-322-2357

\textbf{Wash St} Washington State University, Dean Guenther, 509-335-0411, Bitnet: \texttt{Guenther@Wsuvm1}

\textbf{Wash U} Washington University, Stanley Sawyer, 314-889-6703

The IBM PC LN03 driver is a modified version of Flavio Rose's \texttt{DY12LN3}. Graphics support is provided through inclusion of LN03 plotfiles and line drawing specials. All three PXL formats on the PC are supported. The program is available free of charge with the receipt of a blank disk and return mailer.

\textbf{W'mann} Weizmann Institute, Rehovot, Israel, Malka Cymbalist, 08-482443, Bitnet: \texttt{Vumalki@Weizmann}

\textbf{Xerox} Xerox, Margaret Nelligan, Xerox Printing Systems Division, 880 Apollo Street, El Segundo, CA 90245, 213-333-6058

\textbf{Yale} Yale University, Jerry Leichter, Arpanet: \texttt{Leichter-jerry@Yale.Edu}, Bitnet: \texttt{Leichter@Yalevms}

\textbf{DVIDIS} is available for anonymous FTP from \texttt{Venus.Ycc.Yale.Edu}. Log in as anonymous and do a \texttt{CD [.DVIDIS]}. That directory contains the three required
files needed to run the previewer. The image must be transferred using BINARY mode.

**Screen Previewers — Multi User Systems**

- **Data General MV**
  - T A&M1
- **DEC-20**
  - OSU2 ASCII Bitgraph terminal
- **HP9000/500**
  - Utah BBN Bitgraph terminal
- **IBM MVS**
  - GMD GDDM supported devices: IBM 3179, 3192, 3193, and 3279
  - Milan Tektronix 4014
  - IBM VM/CMS
  - HMC Terminals connected through 7171 Protocol converters: Tektronix compatible, VT-640 compatible, GDDM driven IBM 3179 and 3279 terminals, GDDM driven Tektronix 816
  - DVIview may be obtained by sending $30 (to defray duplication costs), a blank tape, and a return mailer to Don Hosek. The program is still in the developmental stages, and enhancements will be made in the future. The program uses PK files.
  - Wash St GDDM driven IBM 3179 and 3279 terminals
  - Uses PXL files at 120dpi. Allows viewing of the page in eight parts normal size or three parts compressed.
  - W'mann IBM 3279, 3179-G
  - Previewing is provided by DVI82, the Weizmann driver for the Versatec plotter. The program uses PXL files.
  - UNIX
  - Talaris Talaris 7800
  - Utah BBN Bitgraph
  - U Wash1 DMD5620
  - Uses GF, PK, or PXL files at 118dpi. dip output is supported. The program consists of two parts: a program running on the host computer and another that is downloaded to the terminal.
  - VAX VMS
  - Adelaide AED 512, ANSI-compatible, DEC ReGIS, DEC VT100, DEC VT220, Tektronix 4014, Visual 500, 550
  - Uses PK or PXL files.
  - INFN DEC ReGIS
  - Uses PK files.
  - Talaris Talaris 7800
  - Utah BBN Bitgraph

**Screen Previewers — Microcomputers and Workstations**

- **Apollo**
  - Arbor
  - Uses GF, PK, and PXL files. Preview is available for $500.
  - U III X-11 Windows System
- **Atari ST**
  - Kettler
  - Tools
  - Cadmus 9200
  - U Köln
- **IBM PC**
  - Arbor, Pers EGA, MCGA, UGA, Hercules, Olivetti, Tecmar, Genius full page, ETAP Neftis, Toshiba 3100, AT&T 6300
  - Uses GF, PK, and PXL files as well as tuned PostScript fonts (the base set available with PostScript printers). Preview of integrated bit map graphics is supported. Preview is available for $175.
  - T A&M3 EGA, CGA, Hercules
  - The cdvi program is available for $175.
- **IBM PC/RT**
  - U III X-11 Windows
- **Integrated Solutions**
  - UCIrv1
  - Utah BBN Bitgraph
  - SUN
  - Arbor
  - Uses GF, PK, and PXL files. Preview is available for $500.
  - UCB
  - UCIrv2
  - U III X-11 Windows, Sunview Window System
  - Uses GF, PK, and PXL files.
- **Vaxstation/Unix**
  - U III X-11 Windows
  - Uses GF, PK, and PXL files.
- **Vaxstation/VMS**
  - Arbor GPX(UIS)
  - Uses GF, PK, and PXL files. Preview is available for $500.
  - INFN GPX(UIS)
  - Uses PXL files.
  - Philips GPX(UIS)
  - RTI GPX(UIS)
  - Uses PK files at 78, 94 and 112dpi. Written in ADA. Source is included.
  - Yale GPX(UIS)
  - Uses PK files at 300dpi.
### Low-Resolution Printers on Multi-User Systems — Laser Xerographic, Electro-Erosion Printers

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<tr>
<th>Printer</th>
<th>Amdahl (MTS)</th>
<th>CDC Cyber</th>
<th>Data General MV</th>
<th>DEC-10</th>
<th>DEC-20</th>
<th>HP9000 500</th>
<th>IBM MVS</th>
<th>IBM VM/CM</th>
<th>IBM VM/UTS</th>
<th>Prime</th>
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**Notes:**
- SEP = System Electronic Products
- MVS = Multiple Virtual Storage
- VM/CM = Virtual Machine/Computer Memory
- VM/UTS = Virtual Machine/Uniprocessor Time-Sharing
- NLS = Network Logical System
- U Del = University of Delaware
<table>
<thead>
<tr>
<th>Printer</th>
<th>CDC Cyber</th>
<th>Cray</th>
<th>Data General MV</th>
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<th>DEC-20</th>
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## Low-Resolution Printers on Microcomputers and Workstations — Laser Xerographic, Electro-Erosion Printers

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