‘ and ’ both become ' (the single straight quote symbol at code '015 in CMTT). Similarly, on output, ‘--’ becomes ‘-’ and ‘---’ becomes ‘--’.

The upshot is that one can code up a document in normal TEX fashion and then, by setting the fonts to be Hosek's Pica, it will print out looking as though it had been typed, with 'italic' text underlined and 'bold' text under-squiggled, etc. Merely reset the fonts to CMR (or whatever) and it will be properly typeset with all the variety of fonts and refinement of punctuation of which TEX is capable.

12.2 Non-standard sizes of CM

John Sauter reported in *TUGboat* 7.3 (1986), 151–152, that he has re-parameterized CM so that any of the existing Computer Modern family may be created with any design size. For example, most of us, when requiring an 11pt CMR will use CMR10 at \magstep half. Apparently this is not satisfactory to the most discerning, and Sauter's algorithms permit one to generate a true CMR11 face. They go further, of course, and permit the generation of any of the CM faces in any (reasonable) point size. This is done by algorithms that interpolate or extrapolate from the values used by Knuth in the METAFONT parameter files for CM. If a standard value, such as 10pt, is chosen, then Sauter's algorithms will produce CM fonts identical to the standard ones. The TFM files for all sizes match exactly.

Don Hosek's TEXMaG, volume 2, number 4 gives further details of Sauter's work, and notes that some of the fonts may start looking bad at larger sizes, lacking inter-character space, and so on. Don has prepared a version of Sauter's work tailored for use on a PC, which is available from him. See the TEXMaG article for details.

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 229).

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@Math.AMS.com

Arbor ArborText, Inc., Bruce Baker, 313-996-3566, 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

OCLC OCLC, Thom Hickey, 6565 Frantz Road, Dublin, OH 43017, 616-764-6075

OSU1 Ohio State University, John M. Crawford, 614-292-1741, Bitnet: Ts0135@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.

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.MFENET@NMFECC.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, 353-1-791323

PTI Personal TEX, Inc., Lance Carnes, 415-388-8853

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

Rad Eye Radical Eye Software, Tom Rokicki, Box 2081, Stanford, CA 94309, 415-326-5312

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.UUCP

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 Schöninger, 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 DVIIMP.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, Sam Hassabo, Talaris Systems, Inc., 6059 Cornerstone Court West, San Diego, CA 92121, 619-587-0787

All of the Talaris drivers support Tektronix graphics. Device-dependent special fonts are used for each device.

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@TAMNIL

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: X066TR@TAMVM1

The TEXrox package includes a GF/PK/PXL to Xerox font converter (PXLrox2), and utility to build TFM files from licensed Xerox fonts (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 TEXrox 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.

TEXsys TEXsys, Joachim Schrod, Kranichweg 1, D-6074 Rödermark, Federal Republic Germany, +49 6074 1617

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

THD Technische Hochschule Darmstadt, Klaus Guntermann, Bitnet: XITIKGUN@DDATHD21

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

Tools Tools GmbH Bonn, Edgar Fuß, Kessenicher Straße 108, D-5300 Bonn 1, Federal Republic of Germany

The Tools implementation of TEX and the drivers listed are described in *TUGboat, Vol. 8, No. 1.*

TRC Finl'd Technical Research Centre of Finland, Tor Lillqvist, +358 0 4566132, Bitnet: tml@fingate

UBC University of British Columbia, Afton Cayford, 604-228-3045

UCB University of California, Berkeley, Michael Harrison, Arpanet: vortex@berkeley.arpa

UCIrv1 University of California, Irvine, David Benjamin

UCIrv2 University of California, Irvine, Tim Morgan, Arpanet: Morgan@UCI.ARPA

U Del University of Delaware, Daniel Grim, 302-451-1990, Arpanet: grim@huey.udel.edu

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

U Ill University of Illinois, Dirk Grunwald, Arpanet: Grunwald@M.Cs.Uiuc.Edu

The previewers are available via anonymous FTP in the directory pub/iptex.tar.Z on a.cs.uiuc.edu.

U Köln Univ of Köln, Federal Republic of Germany, Jochen Roderburg, 0221-/478-5372, Bitnet: AO045@DkOrrzkO

U Mass University of Massachusetts, Amherst, Gary Wallace, 413-545-4296

U MD University of Maryland, Chris Torek, 301-454-7690, Arpanet: chris@mimsy.umd.edu

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

U Mich University of Michigan, Kari Gluski, 313-763-6069

UNI.C Aarhus University, Regional Computer Center, Denmark

URZ University of Heidelberg, Federal Republic of Germany, Joachim Lammarsch, Bitnet: Rz92@Dhdurdz1

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

Utah University of Utah, Nelson H. F. Beebe, 801-581-5254, Arpanet: 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; there is a $100 fee for this service.

The programs are available for anonymous FTP from SCIENCE.UTAH.EDU on the Internet; information is in the file PS:<ANONYMOUS>OOREADME.TXT. A VAX/VMS binary distribution is available for anonymous FTP (password guest) from CTRSCI.UTAH.EDU. OOREADME.TXT in the login directory gives details.

On JANET, the programs may be obtained from the directory aston.kirk::[public.texdvi210]. The drivers are available from Listserv on EARN to European Bitnet users. Send the command GET DRIVER FILELIST (in an interactive message, or as the first line of a mail message) to LISTSERV@DHDURZ1. Files are obtained with the command GET *filename filetype*. Graphics is supported only in the DVIALW (PostScript) driver.

U Wash1 University of Washington, Pierre MacKay, 206-543-6259, Arpanet: MacKay@June.CS.Washington.edu

The programs listed under U Wash1 are all on the standard UNIX distribution tape.

U Wash2 University of Washington, Jim Fox, 206-543-4320, Bitnet: fox7632@uwacdc

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

Vander Vanderbilt University, H. Denson Burnum, 615-322-2357

Wash St Washington State University, Dean Guenther, 509-335-0411, Bitnet: Guenther@Wsuvm1

Wash U Washington University, Stanley Sawyer, 314-889-6703

The IBM PC LN03 driver is a modified version of Flavio Rose's DVI2LN3. 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.

W'mann Weizmann Institute, Rehovot, Israel, Malka Cymbalista, 08-482443, Bitnet: Vumalki@Weizmann

Xercx Xerox, Margaret Nelligan, Xerox Printing Systems Division, 880 Apollo Street, El Segundo, CA 90245, 213-333-6058

XOrbit XOrbit, P.O. Box 1345, D-8172 Lenggries, Federal Republic Germany, +49 8042 8081

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

Yale Yale University, Jerry Leichter, Arpanet: Leichter-jerry@Cs.Yale.Edu, Bitnet: Leichter@Yalevms

DVIDIS is available for anonymous FTP from Venus.Ycc.Yale.Edu. Log in as anonymous and do a 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 Output

Utah BBN Bitgraph terminal

- **HP9000/500**

Utah BBN Bitgraph terminal

▪ **IBM MVS**

GMD GDDM supported devices: IBM 3179, 3192, 3193, and 3279

Milan1 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**

Utah BBN Bitgraph

U Wash1 DMD5620

Uses GF, PK, or PXL files at 118dpi. `tpic` 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, Visual 500, 550

Uses PK or PXL files.

DECUS Tektronix 4014

Uses PK, GF, or PXL files.

INFN DEC ReGIS

Uses PXL files.

Talaris Talaris 7800

Utah BBN Bitgraph

Screen Previewers — Microcomputers and Workstations

▪ **Amiga**

Rad Eye

Uses PK files. Included with AmigaTEX.

▪ **Apollo**

Arbor

Uses GF, PK, and PXL files. Preview is available for $500.

U Ill X-11 Windows System

▪ **Atari ST**

TEXsys

Tools

▪ **Cadmus 9200**

U Köln

▪ **IBM PC**

Arbor, PTI 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, font substitution, magnification on the fly, two-up display of pages, and searching for character strings are supported. Preview is available for $175.

Aurion, PTI EGA, CGA, VGA, Hercules Graphics Card, Wyse WY/700, Genius VHR Full Page Display, AT&T 6300

Uses fonts from the laser printer driver in PK or PXL format to display text. Magnification may be set on entry. Maxview is available for $125.

PTI

Uses fonts in GF, PK, or PXL format. On the fly magnification, on the fly inclusion of DVI files, font substitution, and 256 character fonts are supported. PTIVIEW is available for $149.

T A&M3 EGA, CGA, Hercules

The `cdvi` program is available for $175.

▪ **IBM PC/RT**

U Ill 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 Ill X-11 Windows, Sunview Window System

Uses GF, PK, and PXL files.

▪ **Vaxstation/Unix**

U Ill 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

	Amdahl (MTS)	CDC Cyber	Data General MV	DEC-10	DEC-20	HP9000 500	IBM MVS	IBM VM/CMS	IBM VM/UTS	Prime	Siemens BS2000	Sym-bolics Lisp	UNIX	VAX VMS
Agfa P400							SEP	SEP			Saar		Saar SEP	SEP
Canon					Utah	Utah							Canon Utah	Utah
DEC LN03					Utah	Utah							Utah	DEC NLS Procyon Utah
Golden Laser 100					Utah	Utah							Utah	Utah
HP LaserJet Plus					Utah	T A&M2 Utah				OSU1			Arbor Utah	Arbor LasrPrt Utah
IBM 38xx, 4250, Sherpa							GMD1 URZ	GMD1 Wash St						
Imagen	Arbor UBC		T A&M1	Stanford Vander	Columb. Utah	Utah	Arbor	Arbor W'mann				MIT	Arbor U Md Utah	Arbor NLS Utah
Kyocera													MPAE	LasrPrt MPAE
PostScript printers					Utah	Arbor Utah		Arbor		OSU1		MIT	Arbor Carleton MIT Utah	Arbor DECUS Sydney Utah
QMS Lasergrafix	Arbor	U Wash2	T A&M1			T A&M2	Arbor GMD1	Arbor GMD1		OSU1 T A&M3	GMD1	MIT	Arbor MIT U Wash1	Arbor GA Tech T A&M3
Talaris														Talaris
Xerox Dover					CMU								Stanford	
Xerox 2700II		Bochum			OSU2 Xerox			ENS					Xerox	
Xerox 9700	Arbor U Mich						Arbor T A&M4	Arbor T A&M4	T A&M4				U Del	ACC Arbor T A&M4

Low-Resolution Printers on Multi-User Systems — Impact and Electrostatic Printers

	CDC Cyber	Cray	Data General MV	DEC-10	DEC-20	HP9000 500	IBM MVS	IBM VM	Prime	UNIX	VAX VMS
Apple ImageWriter					Utah	Utah				Utah	LSU Utah
DEC LA75, LP100					OSU2 Utah	Utah				Utah	Utah
Epson FX/RX					Utah	Utah				Utah	Utah
Facit 4542											INFN
Florida Data					MR						
MPI Sprinter					Utah	Utah				Utah	Utah
Okidata					Utah	Utah				Utah	Utah
Printronix			T A&M1		Utah	Utah				Utah	Utah
Toshiba			T A&M1		Utah	Utah				Utah	Procyon Utah
Varian											Sci Ap
Versatec	U Köln	PPC	T A&M1	GA Tech Vander	U Wash1		GMD1 U Milan2	W'mann	LLL	U Wash1	Caltech NLS

Low-Resolution Printers on Microcomputers and Workstations — Laser Xerographic, Electro-Erosion Printers

	Amiga	Apollo	Atari ST	HP1000	HP3000	HP9000 200	IBM PC	Integrated Solutions	Sun
Agfa P400							SEP		
Canon			Utah				Utah	Utah	Utah
Cordata LP300							PTI		
DEC LN03			Utah				Utah Wash U	Utah	Utah
Golden Laser 100			Utah				Utah	Utah	Utah
HP 2680				JDJW	PTI				
HP 2688A				JDJW		HP			
HP LaserJet Plus	Rad Eye	Arbor	TEXsys Tools	TRC Finl'd		MPAE	Arbor LasrPrt MPS,PTI Utah XOrbit	Utah	Utah
Imagen		Arbor OCLC	Utah				Arbor PTI Utah	Utah	Arbor Sun U Md Utah
Kyocera			LasrPrt				LasrPrt		
PostScript printers	Rad Eye	Arbor				Arbor	Arbor MPS PTI Utah	Utah	Arbor MIT Utah
QMS Kiss, Smartwriter	Rad Eye								
QMS Lasergrafix		Arbor Scan					Arbor PTI		Arbor MIT U Del
Xerox 9700		COS Scan							T A&M4

Low-Resolution Printers on Microcomputers and Workstations — Impact and Electrostatic Printers

	Amiga	Apollo	Atari ST	Cadmus 9200	HP1000	HP3000	IBM PC	Integrated Solutions	Sun
Apple ImageWriter	Rad Eye		Utah				MR Utah	Utah	Utah
Citizen 120-D	Rad Eye								
DEC LA75, LP100			Utah				Utah	Utah	Utah
Diablo						PTI			
Epson FX/RX	Rad Eye		TEXsys Tools Utah		JDJW	U Shef	Milan1 PTI U Shef Utah	Utah	Utah
Epson LQ	Rad Eye		TEXsys				PTI		
Fujitsu			TEXsys	U Köln					
GE 3000		COS							
HP DeskJet	Rad Eye								
MPI Sprinter			Utah				Utah	Utah	Utah
NEC	Rad Eye								
Okidata	Rad Eye		Utah				Utah	Utah	Utah
Printronix			Utah				T A&M1 Utah	Utah	Utah
Texas Instruments 855							T A&M1		
Toshiba			Utah				PTI Utah	Utah	Utah
Versatec									U Md

Typesetters

	Apollo	CDC Cyber	HP3000	IBM MVS	IBM PC	IBM VM/CMS	Siemens BS2000	Sperry 1100	Sun	UNIX	VAX VMS
Allied Linotype CRTronic											Procyon
Allied Linotype L100, L300P					PTI						
Allied Linotype L202					PTI						Procyon
Autologic APS-5, Micro-5	COS Scan				Arbor PTI				Arbor	Arbor	Arbor Interg'ph
Compugraphic 8400			U Shef		Arbor PTI						NLS
Compugraphic 8600		UNI.C			Arbor PTI	Wash St		U Wisc			NLS
Compugraphic 8800					Arbor						
Harris 7500										SARA	
Hell Digiset				GMD2			GMD2				