

Output Devices

Output Devices and Computers

Table I: Proof-Quality Devices

	Amdahl (MTS)	Apollo	CDC Cyber	DEC10	DEC20	DG MV 8000	Ethernet	HP 1000	HP 3000	HP 9000	IBM (MVS)	IBM (VM)	IBM PC	PERQ	Prime	Siemens (BS2000)	Sun	VAX (Unix)	VAX (VMS)	
C Itoh																				LSU
Canon											GMD			GMD		GMD		Canon		
DEC LN01																		UWash		LSU
DEC Ltr Ptr 100					OSU ^d															
DEC VT125																				INFN
Diablo									TeX ^e T						OSU ^p					
Epson								JDJW					A-W							
Facit 4542																				INFN
Fla.Data					MR													Textset		
GE3000		COS																		
HP2680							Stnfd		TeX ^e T											
HP2688A										HP; CaTch										
IBM APA 6670												SLAC								
Imagen	UBC	OCLC		Stnfd; Vndblt	SRI; Clmbia		Imagen					SLAC	OCLC [‡]				Sun	UCIrv	K&S [†]	
NDK 7700												IAM								
QMS Lasgrfx	Textset	ScnLsr; Textset		Textset	Textset	TAMU					Textset	Textset		GMD	TAMU		Textset	Textset	TAMU	
Qume Sprint 5									TeX ^e T											
screen prevue		Yale; Textset										GMD		GMD		GMD	Textset			Adld
Symbolics					UWash														UWash	Calma
Talaris				Talrs [†]	Talrs [†]														Talrs [†]	Talrs [†]
Tektronix 4014											UMilan									Adld; INFN
Varian					AMS															SciAp
Versatec			UKöln	GATch; Vndblt	UWash						UMilan	Wzmn			Lvmr				UWash	K&S [†]
Xerox Dover					CMU		Stnfd													Stnfd
Xerox 2700II					OSU ^d															
Xerox 9700	UMich; Textset	COS		UDel								UDel							Textset	

Notes:

* Still running T_EX80

† Graphics supported

‡ Computer used only to support output device, not to run T_EX at this installation.

	Amdahl (MTS)	Amdahl (MVS)	Apollo	CDC Cyber	DEC20	HP3000	HP9000	IBM (MVS)	IBM (VM)	Sun	Univac 1100	VAX (Unix)	VAX (VMS)
Agfa P400									IAM				
Alphatype CRS					AMS								
APS-5/Micro-5	Textset	WashStU	COS; Textset		Textset	Textset	HP	Textset	Textset	Textset		Textset	Intergraph [†] ; Textset
Compugraphic 8400						USheffield							K&S [†]
Compugraphic 8600		WashStU		RECAU*							UWis*		
CRTronic													Eire
Harris 7500												SARA	
Linotron 202					Adapt								

Most of the interfaces listed in these charts are not on the standard distribution tapes. Some are considered proprietary. Information regarding these interfaces should be obtained directly from the sites listed.

Output device data is being maintained by Rilla Thedford. Anyone desiring more information or relaying new information can send it to her at the address given on the reverse of the title page or via the Arpanet:

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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, no further information beyond a phone number is given. If the contact is not a current TUG member, the most recent address, and its source, are shown.

Adapt (Adapt, Inc): Marc Berkowitz, 415-393-9500

Adld (Adelaide University, Australia): Andrew Trevorrow, (08) 228 5984

AMS (American Math Society): Ron Whitney, 401-272-9500

A-W (Addison-Wesley): 617-944-3700, ext. 2677

Eire (Bord Fáilte - Irish Tourist Board): James Cumiskey, Dublin 353-1-765871, ext. 1275

Calma:

CalTech: Glen Gribble, 818-356-6988

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

Cmbia (Columbia): Frank da Cruz, 212-280-5126

CMU (Carnegie-Mellon University): Howard Gayle, 412-578-3042

COS (COS Information, Montreal): Kevin Small, 514-738-2191

GATech (G A Technologies): Phil Andrews

GMD (Gesellschaft der Math und Datenfabrik, Bonn, Germany): Dr. Wolfgang Appelt

HP (Hewlett-Packard): Stuart Beatty, 303-226-3800, ext. 2067

IAM (Institut für Angewandte Math, Univ of Bonn, Germany): Bernd Schulze, 0228-733427

Imagen: Dan Curtis, 408-986-9400

INFN (INFN/CNAF, Bologna, Italy):

Maria Luisa Luvisetto, 051-307572

Intgrph (Intergraph): Mike Cunningham, 205-772-2000

JDJW (JDJ Wordware): John D. Johnson, 415-965-3245

K&S (Kellerman & Smith): Barry Smith, 503-222-4234

LSU (Louisiana State University): Neal Stoltzfus, 504-388-1570

Lvmr (Lawrence Livermore Lab):

MR (Math Reviews): Dan Latterner, 313-764-7228

OCCLC: Tom Hickey, 616-764-6075

OSU (Ohio State University): *DEC 20*: John Gourlay, 614-422-6653; *Prime*: John Crawford, 614-422-1741

RECAU (Aarhus University, Regional Computer Center): Benedict Løfstedt, 06-128355

SARA (Stichting Acad Rechenzentrum Amsterdam):

Han Noot, Stichting Math Centrum, Tweede Boerhaavestraat 49, 1091 AL Amsterdam (TUGboat 5#1)

ScanLsr (Scan Laser, England): John Escott

SciAp (Science Applications): L. E. Fields

SLAC: Alan Spragens, 415-854-3300 x2849

SRI:

Stnfd (Stanford):

Sun (Sun, Inc):

TAMU (Texas A&M): Bart Childs, 415-965-3245

TeXt: Lance Carnes, 415-388-8853

Textset (Ann Arbor, Mich.): Bruce Baker, 313-996-3566

Talrs (Talaris): Sonny Burkett, 619-454-3363

UBC (Univ of British Columbia): Afton Cayford, 604-228-3045

UCIrv (Univ of California, Irvine):

UDel (Univ of Delaware): Daniel Grim, 302-451-1990

UKöln (Univ of Köln, Germany): Jochen Roderburg, 0221-/478-5372

UMich (Univ of Michigan): Hal Varian, 313-764-2364

UMilan (Università Degli Studi Milan, Italy):

Tektronix: Dario Lucarella, 02/23.62.441 (329);

Versatec: Giovanni Canzii, 02/23.52.93

USheffield (Univ of Sheffield, England): Ewart North, (0742)-78555, ext. 4307

UWash (Univ of Washington): Richard Furuta, 206-543-7798

UWis (Univ of Wisconsin): William Kelly, 608-262-9501

Vndblt (Vanderbilt University): H. Denson Burnum, 615-322-2357

WashStU (Washington State University): Dean Guenther, 509-335-0411

Wzmn (Weizmann Institute, Rehovot, Israel):

Malka Cymbalista, 08-482443

Yale: Bill Gropp, 203-436-3761

Device drivers included on the UNIX \TeX distribution tape

Richard Furuta

Editor's note: An effort will be made to obtain similar information for other distribution tapes for the next issue of TUGboat.

These device drivers are currently on the Unix \TeX tape. The authors may no longer be where I say they are.

Device	Source language	Authors
Imagen 10/240 and 5/480	C	Pavel Curtis, Cornell Mike Urban, TRW Ralph Campbell, Berkeley
Imagen 8/300	C	Chris Torek, U. Maryland
DEC LN01 and LN01S	C	Samuel Bent, U. Wisconsin; some parts by Scott Jones, MIT
Versatec/Varian	C	Janet Incerpi, Brown Robert Morris, UMass, Boston Richard Furuta, U. Washington Carl Binding, U. Washington Chris Torek, U. Maryland
Symbolics LGP-1	WEB (Pascal)	Richard Furuta, Pierre MacKay, U. Washington

DVI previewers

BBN Bitgraph	C	Mark Senn, Purdue James Schaad, U. Washington
SUN II	C	based on dvibit Norm Hutchinson, U. Washington

We expect to have a new version of the SUN II previewer sometime in the foreseeable future. The current version does not run under Sun's window system. The new version uses the window system. In fact, it runs within a window.

We also hope to have a QMS 1200 (and maybe QMS 800) driver soon. Three have been contributed, and one is in testing—if no major bugs surface, it will be added.

We also can distribute, on request, a copy of our Symbolics LGP-1 driver for for Tops-20:

Device	Source language	Authors
Symbolics LGP-1	WEB (Pascal)	Richard Furuta, Pierre MacKay, U. Washington

Index to Sample Output from Various Devices

Camera copy for the following items in this issue of TUGboat was prepared on the devices indicated, and can be taken as representative of the output produced by those devices. The bulk of this issue, as usual, has been prepared (all with \TeX 82) on the DEC 2060 and Alphatype CRS at the American Mathematical Society.

- Canon CX (300 dpi): G. K. M. Tobin, "A bit of doggerel", p. 12.
- Epson FX-80 (240×216dpi): Addison-Wesley's Micro \TeX announcement, p. 27, and advertisement, p. 42; IBM PC using Micro \TeX .
- HP 2688A Laser Printer (300 dpi): Lance Carnes, "small \TeX ", p. 26; HP 3000.
- Mergenthaler CRTronic 150 (50 lines/mm): James Cumisky, \TeX for tourists! p. 21; VAX 11/750 (VMS).
- QMS Lasergrafix 800 (300 dpi): Textset advertisements, pp. 41 and 44.

A \TeX 82 SPOOLER FOR VT AND DOT MATRIX PRINTERS

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We have been running \TeX 80 on VAX/VMS since fall 1982. Last February we installed \TeX 82 and converted our spooler to DVI version 2. Our institute has different sites all over Italy equipped with VAX/VMS linked through a private network; only some of the sites are equipped with VERSATEC to produce the final output, while most of the sites have graphic terminals and/or dot matrix printers. In order to enable \TeX proofreading at each site, we have developed a general-purpose spooler with the aim of supporting a wide range of graphic devices with special attention to VT displays of any type and price and structured in such a way as to enable easy upgrading of the system if a new device is needed. At present the supported devices are:

1. Tektronix series 4000 (PLOT10)
2. Facit 4542 (Native mode)
3. Digital VT125 (REGIS)

The spooler is written in FORTRAN 77 mainly for two reasons: our institute is concerned with High Energy Physics research and FORTRAN is the official language (and practically the only well known one) and in this way the package can achieve a high degree of modularity through routine libraries both for general purpose routines and for drivers. Therefore it should be easy for other users to develop and include new drivers for output devices different from the distributed ones. In addition our software should have a high degree of portability, as the non-ANSI code is confined in a well defined and small number of routines. Furthermore some debug utilities that were developed at the early stage of the spooler implementation (i.e. programs to print DVI files and to display PXL contents) could be used as already debugged nucleus for the spooler itself and can be distributed with the whole package.

The spooler reads the DVI file keeping always a record ahead in storage and creates a full bit map for a standard T_EX page at a maximum of 300 dots/inch. The bit map is stored in a common array. As PXL information is variable in size and number of PXL files required per run, we have developed a simple method to allocate virtual memory through VAX/VMS facilities. The method takes advantage of the directory structure used to store the same fonts at different magnification and for different resolution devices. For this to work in a most convenient way, we have created a pilot file with names and sizes of font information.

The spooler can accept a certain amount of options (i.e. page selection, output device, magnification, etc.) in the form of VMS qualifiers, both lower and upper case allowed for file names and options. A list of valid qualifiers is printed when HELP is typed at prompt. To change magnification the qualifier /MAG=value is provided (ex. /MAG=1500 will produce a page at 300 dots/inch). If T_EX was run setting the magnification to some value different from 1000, then this value is used, and the /MAG qualifier is ignored. The default value for MAG is 1000, that is 200 dots/inch. By default the output is produced on a disk file (file type .BIT), then the user can plot the page on any of the foreseen devices, using the stand-alone version of the related driver. As already pointed out, the main idea of keeping the driver inside and outside the spooler itself is to enable other users to implement their own drivers for new devices with small effort.

If a device allows two different resolutions (as Tektronix 4014), the driver is able to handle both, with default set to high resolution; if the device

offers a sufficiently high resolution, a complete A4 page width can be displayed, thus providing a reasonable proofreading feature. In the case of VT displays, to speed up the drawing of one page the bit map is plotted using vectors, and the driver signals the end of one page using the bell and waits for the return key before going to the next one. For the printer the driver sets no limit to page length. As VT125 vertical resolution is 480 with odd y emulation (i.e. 240 pixels), the output may seem strange as some lines may look taller than others. The driver for the dot matrix printer has been written making use of the pin adressability feature. To enable the use of the program as a guide line for other similar devices, this driver makes use of one single pin.

Site Reports

HOW TO GET THE LATEST NEWS VIA T_EXHAX

Between issues of TUGboat, T_EX users who have access to the Arpanet, BITnet or CSNet can get up-to-the-minute news of what's happening in the T_EX community via T_EXhax. A number of sites, particularly universities with active local populations of T_EX users, have T_EX bulletin boards that are already plugged into T_EXhax, and most, although not all, of the TUG Site Coordinators are also linked in. To get your name added to the distribution list, send a network message to

TeXhax-request@SU-Score.ARPA

giving your name, full net address, and perhaps an indication of the particular sorts of things you're interested in.

If you have a query, some news, or a response to an earlier T_EXhax message that you want to announce to everyone on the list, send it to

TeXhax@SU-Score.ARPA

Your message will be digested, along with other communications, and broadcast, with occasional editorial comments in [square brackets], by the acting T_EXhax editor, David Fuchs. An attempt will be made to report items of general interest in the next issue of TUGboat.