

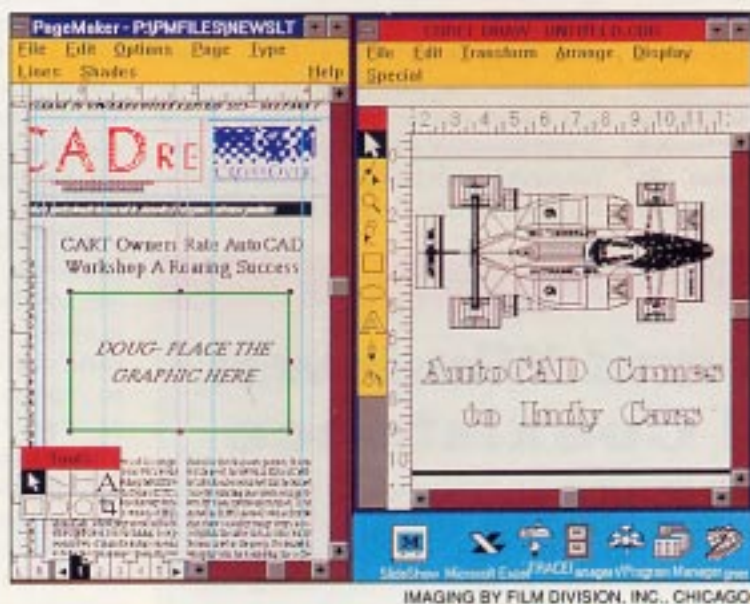
Incorporating AutoCAD drawing files into technical publishing pieces or presentations has always been something of a black art. While sophisticated publishing software, such as IBM Interleaf Publisher, Aldus PageMaker, and Ventura Publisher has existed on PC platforms for the past three years or so, there was still room for improvement, especially in the realms of image editing and final output. These three leading programs, like many of the word processors that now include graphics importation capability (WordPerfect, WordStar 2000, Word for Windows, etc.), only let the user directly import CAD drawings, typically only in HP-GL files (Word for Windows imports files in a TIF format). Thankfully, many new or enhanced software choices round out the serious technical publisher's software tool library, fulfilling virtually any final output requirement.

If there's one product that has opened up the range and power of available software tools, it has been Microsoft Windows 3.0, released last May. Although it can be a trick to run configurations on a single PC for both AutoCAD and Windows, it can be done

(see sidebar). The Windows 3.0 graphical environment, with its much-improved memory management capability, greatly enhances technical publishing. Realistically, it's now possible to have several Windows applications onscreen simultaneously without living in constant fear of the program crashing. Cutting and pasting from graphics-editing programs to either PageMaker or Ventura has been greatly enhanced. Some of the image-editing/enhancement products that work with DXF or HP-GL plot files and fit into this category include Micro Synergy International's ARTmaster, Micrografix Designer 3.1, and Corel Draw 1.21. Additionally, PageMaker 4.0 and versions of Ventura 3.0 that run under Windows and OS/2 should be

Technical Publishing

BY CHRIS MORTON AND DOUG CUNNINGHAM



Using Windows based software, edited images may be easily exported to popular desktop publishing programs like PageMaker and a newly released version of Ventura Publisher. Here, a modified AutoCAD drawing is about to be placed in a PageMaker newsletter.

ously unavailable. Spotted at last June's A/E/C SYSTEMS in Atlanta, ARTmaster permits complete editing and manipulation of any HP-GL or HP-GL/2 file from any source. Graphics may

even be merged from several CAD, graphics (including Harvard Graphics), spreadsheet (Lotus, Excel, etc.), or project management packages into a single entity for incorporation into a complex publishing project.

ARTmaster manipulates files of unlimited size and complexity with ease, without altering the original graphic image in any way. It will automatically split a drawing into multiple pages suitable for paste-up and is capable of changing drawing characteristics such as colors, linetypes, thicknesses, fills, patterns, text sizes, and fonts. Textual annotations can easily be added to graphic output.

ARTmaster has some unique features that are of use to AutoCAD users. First,

available by the time you read this.

Non-Windows software, such as Preco Industries' AutoScript and Grabert Systems' AutoPACK Publisher, work entirely from within AutoCAD to either enhance drawings (AutoScript) or offer complete publishing capabilities (AutoPACK). Both of these programs provide PostScript compatible output.

Let's take a closer look at some of the powerful, feature-laden software available for today's technical publisher.

WINDOWS BASED SOFTWARE

ARTmaster (Ver. 1.01). Available for the past seven months, ARTmaster, from Micro Synergy International, Inc., provides many capabilities that were previ-

hundreds of drawings may be laid out on a single ARTmaster page; you may view any portion at any scale with the click of a mouse button, making this feature useful for drawing archival or quick reference. Next, unlike other editing programs, ARTmaster supports up to eight individual editing windows with objects being easily moved between them. Like AutoCAD, an editing command started in one window may be continued or terminated in another. Finally, ARTmaster's "Journal" feature saves user input to disk that can be replayed later as a macro or as part of a live presentation.

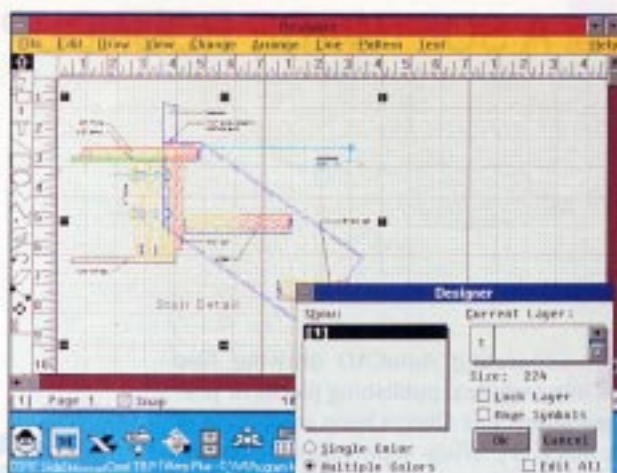
While the present version works only in Windows' real mode and its output capability is limited to HP-GL format, ARTmaster is being rewritten to be fully compatible with Windows 3.0 enhanced-mode and will be able to export files in CGM, TIF, PCX, and EPS (Encapsulated PostScript) formats. In its present configuration, ARTmaster is a particularly useful enhancement tool for readers using IBM Interleaf Publisher, which only imports HP-GL files.

Corel Draw (Ver. 1.21). Corel Systems, of Ottawa, Canada, released this latest version of their award-winning design program last June. Of particular interest is Corel Draw's ability to import and export files in any number of formats. To CADENCE readers, this means importing

Designer has many commands regular AutoCAD users will appreciate, such as displayable grid, object snaps, and an array function. Like Corel Draw and ARTmaster, images may be easily imported from AutoCAD.

AutoCAD drawings in either DXF or HP-GL plot formats, enhancing drawings within Draw, then exporting the completed images in PCX, TIF, or EPS file formats to a page layout program that can accept them (PageMaker and Ventura are included in this group). The program can also export files in DXF, HP-GL, and SCODL (see sidebar).

Corel Draw now comes with an advanced tracing program, Corel Trace, that changes scanned, bitmapped images into vector based images such as those created in AutoCAD. Where applications call for artwork to be brought in from outside sources for use with AutoCAD drawings, this feature can be useful to clean up the jagged appearance of bitmap art. In addition, converted vector based art can be scaled to any size and rotated without distortion, takes



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up less hard disk space, and prints faster.

Designer (Ver. 3.01). Not to be outdone by Corel, Micrografx has bounced back with a version of Designer that belongs in every PC technical publisher's library. More structured than Draw, Designer offers better precision placement of elements on its grid using object snap modes. It also has the ability to change the mouse pointer arrow to crosshairs. Like Draw, Designer offers a host of font choices that may be previewed prior to use in a drawing. Text handling is greatly improved, with facilities now included for kerning and leading, features that are important to those involved in production-quality publishing.

DXF file importation is much faster and is handled better than in Corel Draw, although Designer doesn't have a facility to import plot files. Turning off the "Auto Paste" feature, files larger than 64K may be imported. Designer can send output to a plotter in HP-GL mode and can export files to a page layout program in PCX, TIF, and EPS formats (with a TIF preview mode for viewing the image in your layout package).

Like AutoCAD, Designer includes commands for associate dimensioning, closed polylines and linetypes. Parts of drawings may be saved for repetitive use as symbols in a library, each with a descriptive "Symbol ID" phrase. Parts and symbols may be arrayed, then assigned to different layers; these may be turned on and off as desired. Designer keeps track of the quantity of each symbol used in a drawing; this feature can be useful for basic facilities management applications without tying up a machine that's dedicated to running AutoCAD.

Similar to ARTmaster's Journal feature, Designer includes a SlideShow feature for creating onscreen presentations. Through a new macro facility incorporated in Windows 3.0, the presentation can be automated.

Ventura Publisher (3.0 Gold Series).

AutoCAD and Windows: Peaceful Coexistence

Both Windows 3.0 and AutoCAD 386 use the protected mode environment on 386 based machines. Phar Lap and others are making their DOS extenders match specifications agreed upon at a conference held earlier this year, but until they do, it's not possible to run both programs on the same system running in protected mode.

To overcome this problem, try using CONFIG.CTL, a free program from *PC Magazine* that momentarily stops your CONFIG.SYS long enough for you to toggle device drivers on or off. To run AutoCAD, this means shutting off Windows' HIMEM.SYS and SMARTDRV.SYS drivers. You can download CONFIG.CTL through the PC Magnet service on CompuServe.

A more feature-laden shareware program from a Swiss developer, BOOT.SYS, provides a user-configured menu within the CONFIG.SYS file. Using this

program, you may select a custom system configuration from among several choices that you've established previously. BOOT.SYS also controls your AUTOEXEC.BAT file, so the selection you make upon booting up will determine what corresponding commands are issued in the AUTOEXEC. Another utility, BOOTCON, does much the same thing as BOOT.SYS. It's available from the Programmer's Shop.—CM/DC

Hans Salviusberg
BOOT.SYS
\$38
(800) 242-4775 (orders only)
(713) 524-6394

Programmer's Shop
BOOTCON
\$60
(800) 421-8006

One of Ventura's strong suits has been its ability to handle longer publications with greater control than some of its page layout competitors. Like AutoCAD and IBM Interleaf Publisher, Ventura is somewhat more "structured" than other page layout programs. With Ventura, publication text can be automatically updated when an original word processed document is edited. The program provides for automatic table of contents and indices generation, making it particularly useful for instructional manuals.

This upgrade of Ventura promises to include an improved HP-GL converter, which will serve to enhance AutoCAD drawing importation. It will let the user change pen widths and colors to control final output of imported graphics files. Images may be selectively turned on and off, which will aid in screen redraw times during the publication production phase when it's not critical to have illustrations always visible. Version 3.0 will include advanced manipulation of tabular data and a facility for equation writing, previously found only in Ventura's Professional Extension and Network Server versions. For in-house publication production, duplex printing will be supported for those laser printers that can print on both sides of a sheet of paper. Larger companies that need network publishing capabilities should investigate the Ventura Publisher 3.0 Gold Series package.

NON-WINDOWS SOFTWARE

AutoScript (Ver. 2.25). Standard AutoCAD drawings are generally unsuitable for

Working from within AutoCAD, AutoScript adds PostScript fonts and fills to drawings. Precision artwork may then be sent directly from AutoCAD to a high-resolution PostScript imaging device.

Screen Captures: High-Quality Output

Many technical publishing departments require high-quality, 35mm color slide output from AutoCAD periodically for presentation or publication purposes. For any type of color output of AutoCAD drawings, going to a color slide is probably the best way of obtaining the highest reproduction quality for static presentations or high-quality publication work.

In a previous issue of *CADENCE* ("A Shot in the Dark," April 1989), it was detailed how to shoot images on your monitor with a standard 35mm camera mounted on a tripod. This method requires the right type of camera equipment, a dark room, and a lot of extra effort, often yielding inferior results. At least four software products provide for easy screen capture of AutoCAD images to electronic files that may be transferred via modem or floppy disk for processing at service bureaus across the country.

PICgen, from O'Connor Software, is a memory-resident program that captures AutoCAD drawings by pressing a hotkey. The resulting image is screen dependent, meaning that the quality of the slide will be only as good as the resolution of your monitor/video card combination. **PICgen** also works with all Windows based applications if you select <PrintScreen> as the hotkey. O'Connor's **PICplot**, on the other hand, translates HP-GL compatible plot files with resolutions that are independent of your hardware. Both of the O'Connor software utilities translate your AutoCAD

drawing to the SCODL (SDL) format used by service bureaus equipped with Matrix slide-processing equipment. A listing of these companies may be obtained free of charge by contacting Manitou Marketing at (800) 321-UTIL.

Operating under the Windows 3.0 environment, **Micrografx Designer 3.0** includes a new **TeleGrafx** utility program that allows for direct modem transfer of both SDL and Designer (DRW) files to service bureaus. You may import your AutoCAD drawing into Designer in DXF file format and perform all types of drawing enhancements prior to sending it via **TeleGrafx** to the service bureau.

For quick AutoCAD screen captures when resolution isn't so critical, try **Collage Plus** from Inner Media. **Collage** saves the entire screen, including the menu and command line areas, in a PCX file format ready for importation into a page layout program.—CM/DC

O'Connor Software
PICgen
\$95
8026 Ridgeview Dr.
Houston, TX 77055
(713) 467-9642

Inner Media, Inc.
Collage Plus
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Hollis, NH 03049
(603) 465-3216





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camera-ready art required by technical publishers. It used to be that drawings would have to be entirely recreated in another graphics package or redrawn by hand. AutoScript was created to eliminate these extra time-consuming steps. It is particularly useful in mapping applications and wherever precision-quality production artwork is required from AutoCAD drawings. Examples include graphic control panels, nameplates, and so on.

Working from within AutoCAD and utilizing built-in LISP programs and Preco-supplied menus, AutoScript converts drawing files to EPS format to take advantage of all that PostScript offers. AutoCAD's vector-based text fonts are automatically substituted with PostScript's more than 500 font choices (most must be purchased separately). Areas of AutoCAD drawings may be shaded using a wide range of PostScript gray tones, angle, and screen-line frequencies—Preco's higher end AutoScript Color software can even assign color values to these areas to produce separations ready for the press.

Since PostScript is hardware independent, output files can be directly imported into desktop publishing software or printed to a variety of PostScript compatible devices, including slidemakers and high-resolution imagesetters. Output may be sent directly to film negative using these latter devices. The program corrects line distortions and provides accurate, smooth curves and multiple line weights.

Optionally, Preco offers a logo-scanning module that permits finished logos to be scanned into AutoCAD drawings.

AutoPACK Publisher. Grabert Systems, Inc. is a recent spinoff of Grabert Systemhaus, one of the largest distributors of AutoCAD and hardware systems in Europe. Their AutoPACK Publisher, seen at A/E/C SYSTEMS in Atlanta, is a complete PostScript compatible publishing package that works entirely from within the AutoCAD drawing editor—no additional software is required. AutoPACK includes the

Grabert Systems' newly released AutoPACK Publisher is a complete PostScript compatible publishing packaging that runs entirely within AutoCAD. This screen shot was created using O'Connor Software's PICgen.

standard 35 PostScript fonts, features rotated and arced type capabilities, and supports

color PostScript in addition to grayscale type and backgrounds. Type may be specified in fractional point sizes. AutoPACK Publisher is easy to use because it takes full advantage of AutoCAD's pull-down menus. (P.S. Watch for Grabert's Apogee VGA board, providing virtual 2048 x 2048 resolution for less than \$600!)

There's such a wealth of good, easy-to-use, graphics software available for technical publishing that it's a shame to limit oneself to using strictly AutoCAD and a page layout program. Even if your company's budget forces you into this position, at the very least you should upgrade your page layout software to the latest version, and by all means take a look at Windows 3.0. When you really examine the cost justification factors, you'll discover that big savings are yours if you take the time to properly investigate products like these. Like any other job, selecting and using the proper tools goes a long way toward completing the task more efficiently! □

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Microsoft Corp.
Windows 3.0
\$150
1 Microsoft Way
Redmond, WA 98052-6399
(206) 882-8080

Micro Synergy International, Inc.
ARTmaster Ver. 1.1
\$495
4400 MacArthur Blvd., Ste. 860
Newport Beach, CA 92660
(714) 476-0455

Corel Systems, Inc.
Corel Draw Ver. 1.21
\$595

1600 Carling Ave.
Ottawa, Ontario CANADA K1Z 8R7
(613) 728-8200 • FAX (613) 728-9790

Micrografx
Designer Ver. 3.01
\$99.50
1303 Arapaho
Richardson, TX 75081
(214) 234-1769

Ventura Software
Ventura Publisher 3.0 Gold Series
\$895
15175 Innovation Dr.
San Diego, CA 92128
(619) 673-0172

Preco Industries, Inc.
AutoScript
\$795

9501 Dice Ln.
Lenexa, KS 66215
(913) 541-0066

Grabert Systems, Inc.
AutoPACK Publisher
\$495
4342 N. Civic Center Plaza
Scottsdale, AZ 85251
(602) 949-9722

DTP Hardware: The Basics

For those whose job involves extensive daily use of a computer system for graphics applications, productivity is directly related to the speed in which information is conveyed to the user on the monitor. When talking about hardware requirements, what applies to CAD software also applies to all forms of professional electronic publishing. Unnecessary, momentary delays cost dearly in terms of wasted mental effort and lost concentration over the course of a year. How much is your time worth?

As with any graphics-intensive application, nothing less than a 386SX computer system is recommended for the sake of practicality, not to mention sanity. These days, low-cost 20MHz 386SX units with built-in memory caching, such as the ALR PowerFlex 20CSX, run circles around most 286 based systems at a fraction of the cost of a full 32-bit 386DX computer. Software designed for 386 machines, including AutoCAD 386 and Windows 3.0 running in enhanced mode, offer better speed and far greater memory management facilities.

The basic graphics machine should be outfitted with a minimum of 2Mb of RAM on the motherboard (preferably 4Mb or more) and a quick hard disk in the 14ms to 28ms category with a minimum of 80Mb of storage (graphics files get large and accumulate rapidly). The disk should be low-level formatted with a 1:1 interleave and matched with an appropriate 16-bit controller card. Low-cost, easy-to-use programs, such as SpinRite from Gibson Research, can check the interleave for you and report if your hard disk can be nondestructively low-level formatted to increase performance. Don't forget to regularly run CHKDSK/F (see your DOS manual) and periodically run a file defragmenting utility, such as Norton Utilities' Speed Disk.

Other low-cost speed improvements include disk caching (software or hardware based) and a fast, 16-bit VGA graphics adapter, preferably one with its own memory (512K or more) and video processor onboard. Nothing less than a high-resolution VGA color monitor is recommended for viewing, since it's assumed that having the use of color overlays available on screen is advantageous, even though the publication may not be running in color in its final form. Color also speeds up user interaction, in that software functions can be recognized and implemented more quickly.

For output, the PostScript page description language (PDL) is the accepted industry standard in electronic publishing today and will be for some time, given improvements recently announced by its developer, Adobe Systems. Software using PostScript is device-independent, which means the same file can be sent to a laser printer at 300 dots per inch (dpi) resolution, or to an imagesetting system (Linotronic, Varityper, CompuGraphic, etc.) offering typeset-quality output at 1270 dpi to 2540 dpi, and higher. Many non-PostScript laser printers, including most of those manufactured by Hewlett-Packard and Canon, can be upgraded to run PostScript files with the simple addition of PostScript interpretive software or a PostScript cartridge. Products such as UltraScript, by QMS, or LaserGo's GoScript, handle this task efficiently.

When bundled with LaserPort PS 600 hardware from DP-Tek, UltraScript can provide 600 dpi resolution (a four-fold improvement over standard 300 dpi) from most Hewlett-Packard and Canon laser printers. This kind of capability is great for house organs, other internal publishing, and even some materials for public viewing; it's available for less than the retail cost of many top-

end, PostScript-equipped laser printers that only provide 300 dpi.

More speed and even higher resolution (800 dpi) may be obtained by using a TurboRes laser printer controller board from LaserMaster, albeit at a higher initial cost. All but eliminating the need for outside service bureaus, LaserMaster's 1000 dpi laser printer provides ultra-fast output that's camera-ready for a good majority of professional-quality publications.—CM/DC

Gibson Research Corp.
SpinRight
\$89
22991 La Cadena
Laguna Hills, CA 92653-9704
(714) 830-2200

QMS/Imagen
UltraScript Plus
\$445
2650 San Tomas Expressway
Santa Clara, CA 95052
408-986-9400

LaserGo, Inc.
GoScript
\$149
9235 Trade Place, Ste. A
San Diego, CA 92126
(619) 450-4600

DP-Tek, Inc.
LaserPort PS 600
\$1195
3031 W. Pawnee
Wichita, KS 67213
(316) 945-8600

LaserMaster Corp.
1000 dpi Laserprinter
PC \$7495; MAC \$7995
156 Shady Oak Rd.
Eden Prairie, MN 55344
(612) 944-9330