

Product Review:

MANY PHOTO LAB owners still find this new electronic imaging revolution somewhat confusing due to the explosion of electronic equipment flooding the market. The process of sorting out just what lab equipment you need to maintain a profit and still remain competitive can seem like a full time job. If you take two giant steps back from all of this electronic mumbo-jumbo and look at just the basic structure of electronic imaging, the whole system should be easier to comprehend.

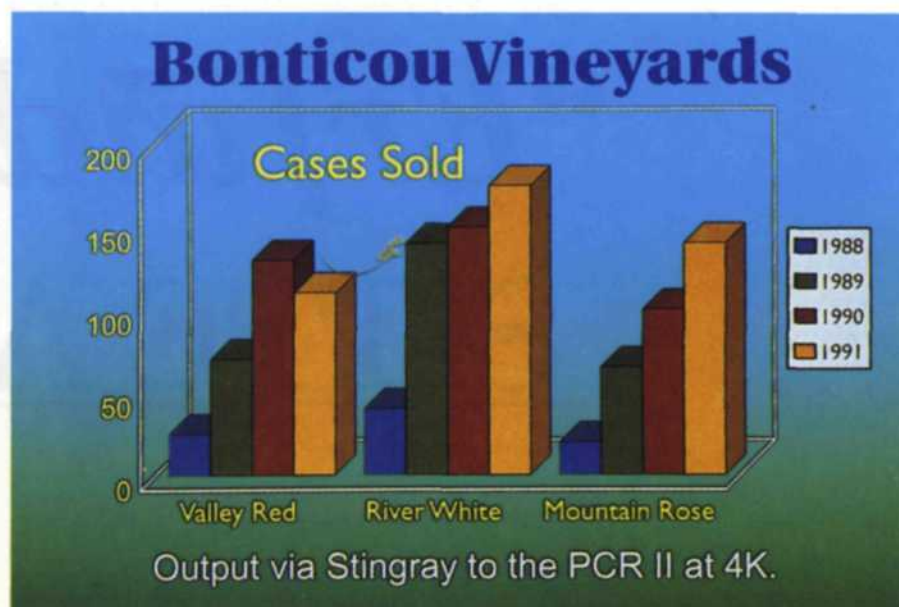
Electronic imaging is simply a matter of input to the computer and output from the computer. Input is usually in the form of a film scanner or camera digitizer, while the output device is generally a color printer or a film recorder.

The number one reason for using a desktop film recorder is to create high quality slide presentations in-house. The ability to image created visuals using a personal computer allows for fast turnaround, a necessity in our "I need it yesterday" world.

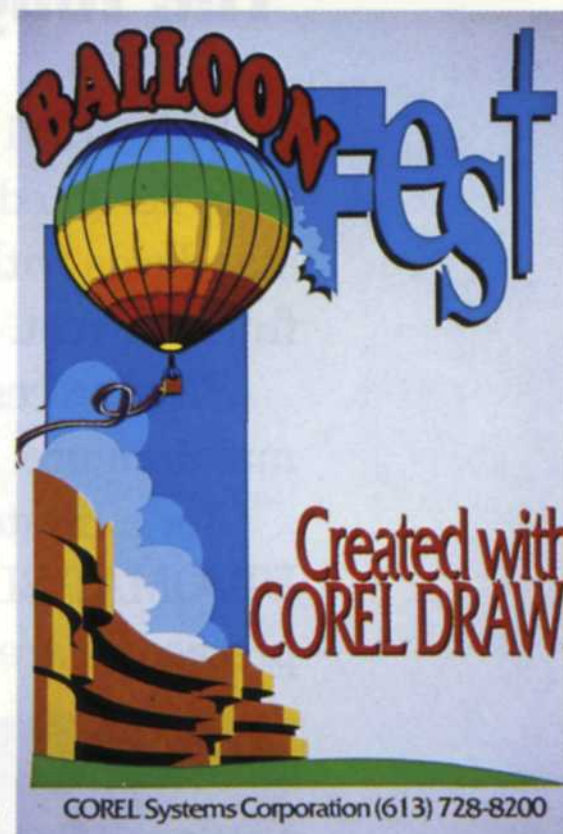
To refresh your memory, a film recorder is an electronic box with a high resolution CRT inside and a camera mounted to one end. When a picture is sent from the computer to the CRT, the camera shutter opens and the picture is projected through the camera lens and onto the film of your choice.

Film recorders can be divided into two major groups: under \$20,000 and over \$20,000. The latter units are Service Bureau film recorders designed to handle a large volume of both vector and bit map graphics at a very high resolution. Reviews of two of these film recorders, Agfa's Forte and the Solitare from Management Graphics can be found in recent issues of *Photo Lab Management*.

In this article we will be reviewing the film recorders under \$20,000, commonly referred to as *desktop film recorders* because of their compact size. We have selected six film recorder companies, and their current models, in order to help you make a wise desktop film recorder purchase. They are listed alphabetically by manufacturer, and full contact information is listed at the end of this article.



Agfa PCR II



Agfa ProColor Premier



Agfa Corporation Pro-Color Premier:

This film recorder is designed for labs that have a small volume of electronic imaging work, and a similar budget for purchases of equipment. The Pro Color Premier is a floor model designed to sit beside the operating computer. Connection to the computer is through the back of the unit, with either a SCSI or GPIB interface to the Macintosh or PC platforms.

An LCD panel on the top of the unit provides direct access to the film recorder's status and functions. Supported 35mm film types include Agfachrome 100, Ektachrome 100, and Polachrome 40. The 35mm back can also be removed and replaced with a Polaroid print back that handles 3 1/4 by 4 1/4 prints. 2k and 4k resolution

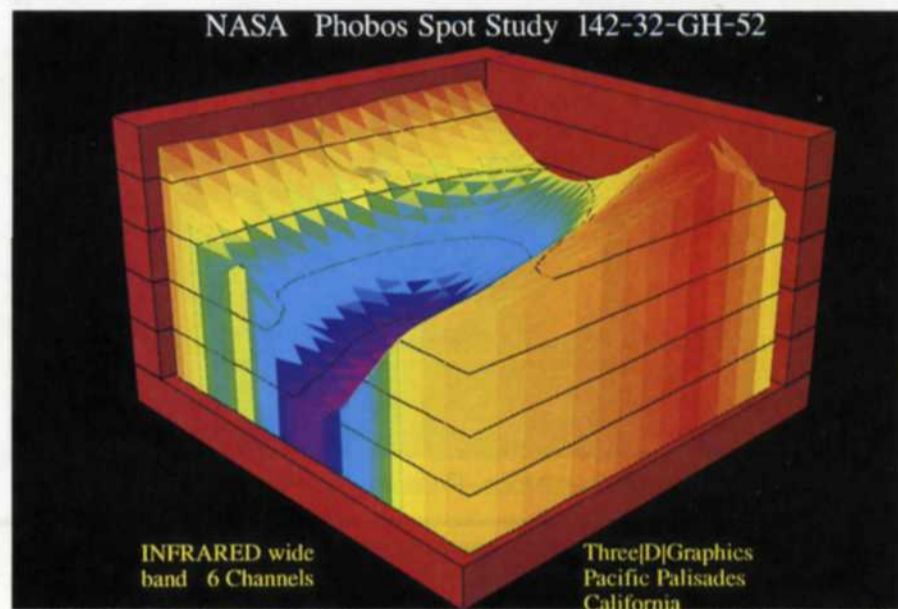
Desktop Film Recorders

Jack and Sue Drafaht



Image Source: KODAK Photo CD

Personal LFR



NASA Phobos Spot Study 142-32-GH-52

INFRARED wide band 6 Channels

ThreeDGraphics Pacific Palisades California

LFR Mark II

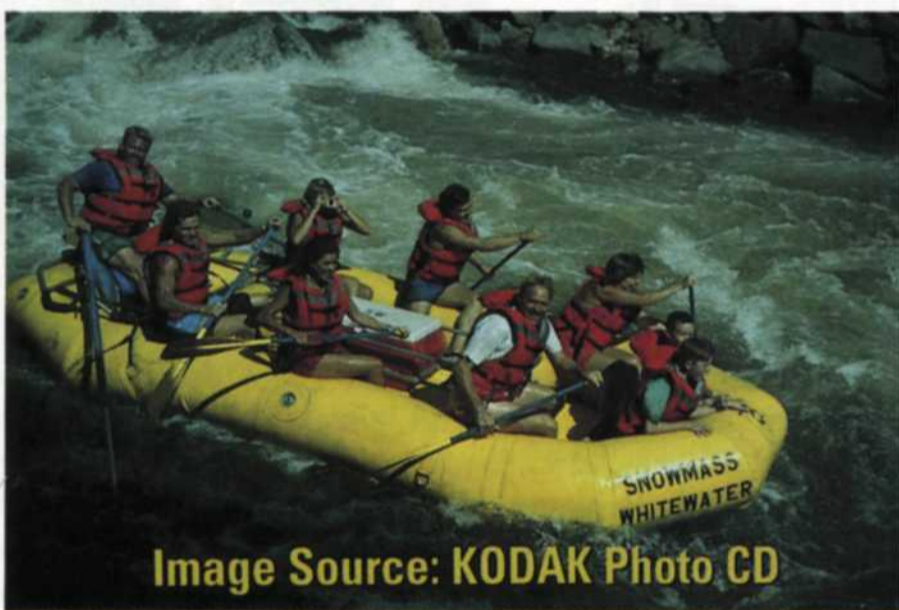
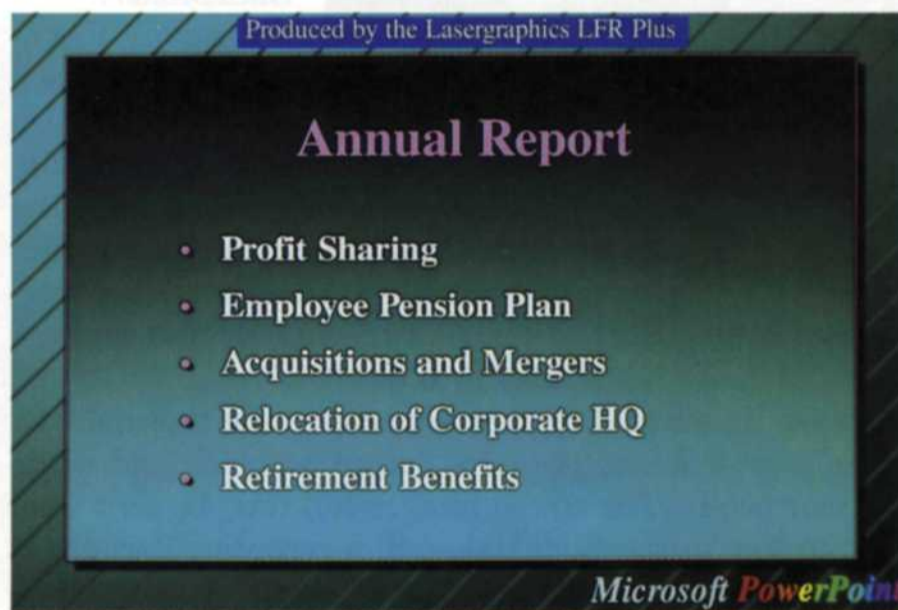


Image Source: KODAK Photo CD

Lasergraphics LFR



Produced by the Lasergraphics LFR Plus

Annual Report

- Profit Sharing
- Employee Pension Plan
- Acquisitions and Mergers
- Relocation of Corporate HQ
- Retirement Benefits

Microsoft PowerPoint

LFR Plus

are both possible, with imaging times at 62 seconds for 4k images. Exposures are made in three passes through red, green, and blue filters that can record 24 bit color images. The ProColor Premier is compatible with a variety of file formats including Post-Script, TARGA, BMP, SCODL, TIFF, PCX, GIF, and over a dozen other formats used today. Price: \$7,495.

PCR II:

If you are looking for more of a service bureau type of film recorder but can't afford the price, Agfa's PCR II may be just your ticket. The PCR II is also a floor model with an imaging speed similar to the ProColor Premier, but the PCR II offers higher image resolution and the versatility of interchangeable



film backs. Output options include 35mm, bulk 35mm, 120, 3 1/4 x 4 1/4, and 4x5 sheet films. The bulk 35mm back is ideal for large jobs of up to 750 images that you can image overnight. The bulk 35mm back is the employer's ultimate answer to employee overtime!

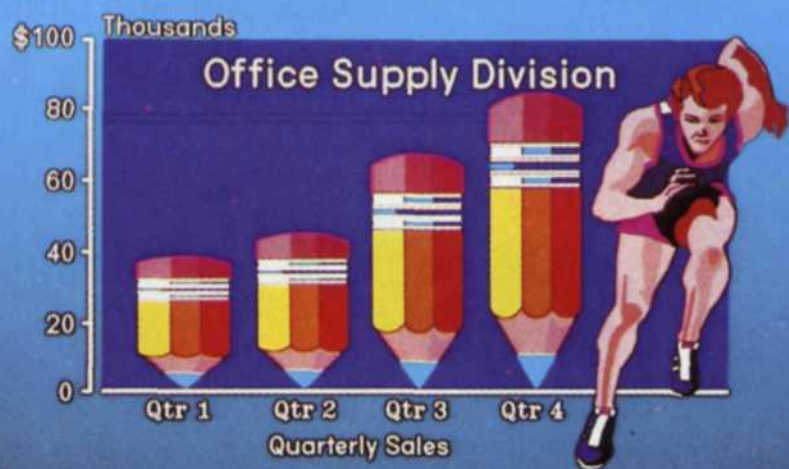
The back of the PCR II has connections for both GPIB and SCSI so that both Macintosh and PC can access the system. Film recorder controls are located on the top of the unit in an LCD display panel. Supported films include: Agfachrome 100 RS Professional; Agfa Optima 125; Kodak Ektachrome 100 Professional; Polaroid Polachrome 40; and, Polaroid 559/669/691 print films. The PCR II handles a variety of file formats from both the Macintosh and PC platforms that include SCODL, PICT, PostScript, TIFF, TARGA, PCX, GIF, and BMP to name a few. Price: \$13,500.

(Continued on page 26)

Film Recorders

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SETTING THE PACE



General Parametrics—PhotoMetric SlideMaker

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Macintosh Persuasion 2.0 and Sapphire Image Recorder

Management Graphics—Sapphire



General Parametrics PhotoMetric SlideMaker:

General Parametric's approach to desktop film recorders is quite different from the other manufacturers. The SpectraStar system includes a color thermal printer and the PhotoMetric SlideMaker desktop film recorder in one package.

PostScript images are sent to the thermal wax color printer where they are output as black and white or color prints. The stored images can then be sent from the printer to the SlideMaker film recorder. Because it shoots images directly from the SpectraStar, your computer is free to do other projects. The entire system is both Macintosh and PC compatible. Price: \$14,990.

If cost is a factor or you don't want to use the PostScript printer with the film recorder, you can opt for only the PhotoMetric SlideMaker film recorder. The PhotoMetric SlideMaker can be operated from a General Parametrics device called a VideoShow or a ColorMetric card. The VideoShow device intercepts the images, and allows you to send them to a video projector or the SlideMaker. Once the images are created, the VideoShow, which has its own disk drive, will send them to the film recorder while you continue to work on other projects on the computer. The ColorMetric card fits directly into your computer, and functions much the same as the VideoShow device, but requires the computer to send the images to the SlideMaker film recorder.

The SlideMaker film recorder can take a variety of films including: Ektachrome 100; Kodacolor 100; Kodachrome 64; Polachrome 40; Polacolor 669; Colorgraph 691; and, Polaroid 339. The SlideMaker uses a 5000 color palette for graphic slides and 100,000 colors for photographic slides. Price: \$4,995.



Lasergraphics

Personal LFR:

The Personal LFR is an entry-level desktop film recorder offering many professional features. It offers 33 bit color and exposes an image in less than 90 seconds at 4k resolution. The Personal LFR can operate from PC, Macintosh, Amiga, and Sun workstations. Status information is displayed with a 16 character liquid crystal display on the front of the unit that gives the user information about film loading, calibration, exposure, and errors.

Supported file formats include Lasergraphics LL, Pict 1 and 2, HPGL, TARGA, and other file formats via file translators. The Personal LFR uses a permanent 35mm film back that can use Ektachrome 100, Kodacolor 100, Polachrome, and several other types of ISO 100 films. Price: \$5,995.

LFR:

The LFR film recorder differs from the Personal LFR in several areas. The overall resolution of the LFR is higher than the Personal LFR, and it can take a variety of interchangeable film backs from 35mm to 8x10 sheet film. A 35mm bulk pin-register back can be attached to the unit so that large groups of slides can be processed overnight. The LFR will operate from any computer capable of creating graphics slides and image a 4k resolution slide in less than 80 seconds. File formats on the LFR include Lasergraphics LL, PostScript, Pict 1 and 2, HPGL and a variety of other formats via file translators. Price LFR: \$8,750

LFR Plus:

The LFR plus is virtually the same as the LFR except that a new CRT produces an even better image quality and the image processing times are 1 1/2 times faster than the LFR. Price LFR Plus: \$13,750.

LFR Mark II:

The LFR Mark II is Lasergraphic's newest, fastest, and highest quality film recorder. It accommodates a variety of interchangeable film backs from 35mm to 8x10 and can utilize the 35mm bulk pin-registered back. With this back, you can process up to 750 exposures without unloading the camera. A 16 character liquid crystal display gives you information about film loading, exposures, calibration, and errors. The LFR Mark II can operate from PC, Macintosh, Amiga, and Sun Workstations via a variety of Lasergraphics processing adapters. A 4k resolution slide takes less than 40 seconds to expose on a standard ISO 100 slide film. The large 6 inch CRT provides very high color resolution images that include 16.7 million colors from a palette of 69 billion colors. Film types include Ektachrome 100, Kodacolor 100, Polachrome, and most other ISO 100 films. Price LFR Mark II: \$14,995



Management Graphics Sapphire:

Management Graphics Inc. recently announced its first slide recorder for the desktop. MGI engineered into Sapphire high quality and innovative features, many of which are found for the first

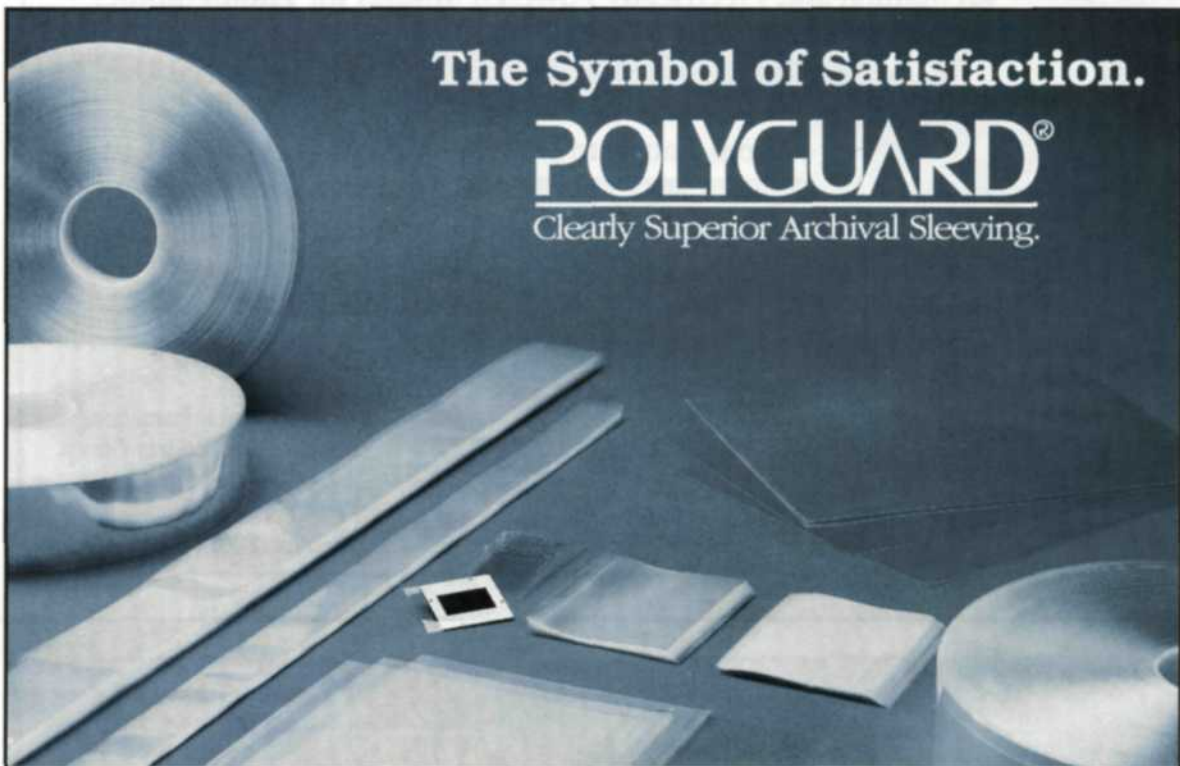
time in a desktop unit.

A unified bulk-load, 35mm cassette film transport lets users choose between long roll or standard cassette without module changes or adapters to insert. A unique straight film path makes threading easy and avoids time-consuming mis-threads.

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into the take-up magazine, which uses a self-winding film system, resulting in the shortest film path in the industry. Another new feature, not previously available on the desktop market, is a color-coded push-button front panel which allows complete control of the image. Users can change color,

(Continued on page 28)



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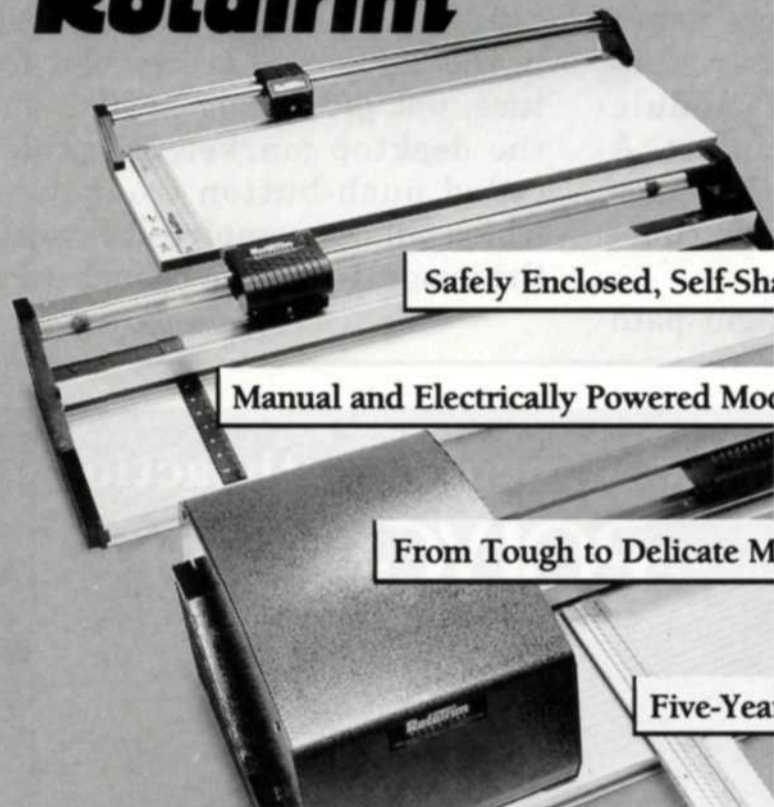


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Film Recorders

(Continued from page 27)

brightness, contrast, and image-size/position, and add a sprocket label for organizing slides. A special lens, small spot size, and large CRT produce razor sharp graphics. Sapphire utilizes Digital Geometry Control, a patented system that automatically manages image settings. This recorder also uses a Digital Pin Registration system for accurate image positioning from frame to frame. Sapphire offers 2k and 4k resolution with PCs, Macs, and Unix workstations via GPIB and SCSI interfaces, and supports all industry-standard file formats. Price: \$19,995.



Mirus Industries Corporation FilmPrinter Turbo II:

The Turbo II is an improved version of the original turbo film recorder that boasts some excellent improvements. The size of the Turbo II is compact, as it is specially designed for imaging 4k resolution 35mm slides in less than 2 minutes. The unit sports an impressive 36 bit color resolution with a possible 16.7 million colors per slide.

Both PC and Macintosh computer systems can access the film recorder without the need for any extra rasterizing computer boards. File formats from the PC include CGM, HPGL, PIC, Targa, ZGM, and a variety of other formats that can be translated to CGM or IMA formats. Images on the Macintosh are sent directly to the Turbo II without any file translation. Communication between the computer and the Turbo II is with SCSI or a parallel printing port. Price: \$7,995.



Polaroid Corporation
CI-3000:

Polaroid's solution to the film recorder dilemma is to offer a film recorder for each specific resolution. The CI-3000 is a 2k film recorder and is the lowest priced film recorder offered in this equipment review. Designed for entry-level computer graphics the unit boasts 24 bit color, 16.7 million colors per image, and exposure times under 2 minutes. At the present time the CI-3000 works only on the PC platform and will image almost every type of file in the PC marketplace. The unit will accept 18 different types of 35mm films, Polaroid 3 1/4 x 4 1/4 color prints, and Polaroid 4x5 color prints or transparencies. The CI-3000 comes with film processor, slide mounter, software, and direct imaging drivers. Price: \$4,495.

CL-5000:

The CI-5000 is virtually the same as the CI-3000 except that it images at 4k resolution and can be operated by either Macintosh or PC platforms. The CI-5000 is directly driven from the Macintosh, and does not need any file conversions. Price CL-5000: \$5,995.

Presentation Technologies
Montage FR2:

The Montage FR2 is a dedicated 2k-4k resolution 35mm film recorder designed for slide presentations in-house using a personal computer system. The PC version operates from a variety of DOS-based programs using direct drivers or from Windows using the

Zenographics SuperPrint driver program. The Macintosh version of the FR2 will image anything that can be printed from the Macintosh. Communication to each computer system is through a SCSI on the back of the FR2. The Macintosh normally comes with this port and a SCSI board is furnished for those using a PC. The FR2 uses 36 bit color with each slide having up

to 16.7 million colors out of a palette of 68 billion colors.

Exposure time for a 4k resolution picture is less than two minutes to image. An LED panel light on the front of the unit displays status, functions, and exposure count. The FR2 is set up for ISO 100 films in both color slide and color negative. If you want to pre-

(Continued on page 30)



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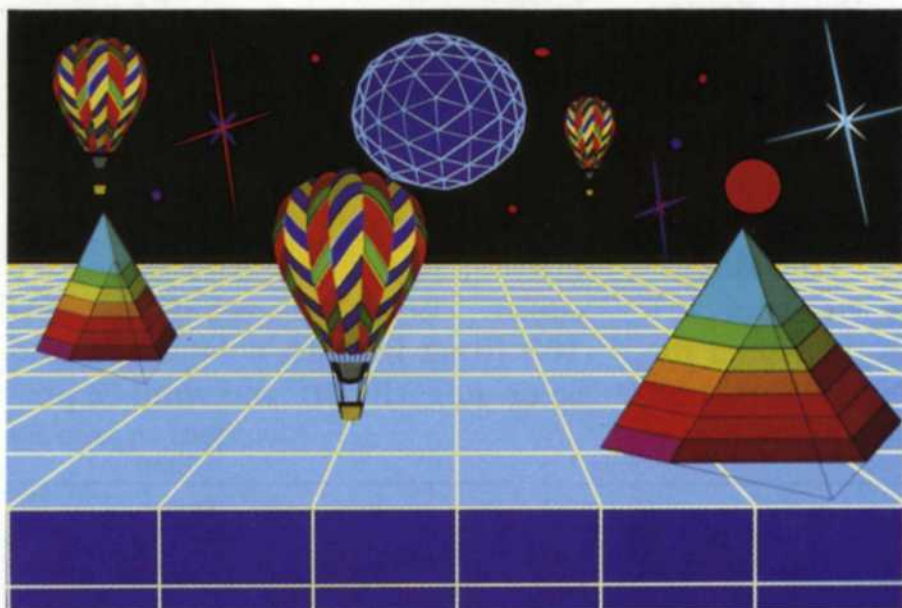
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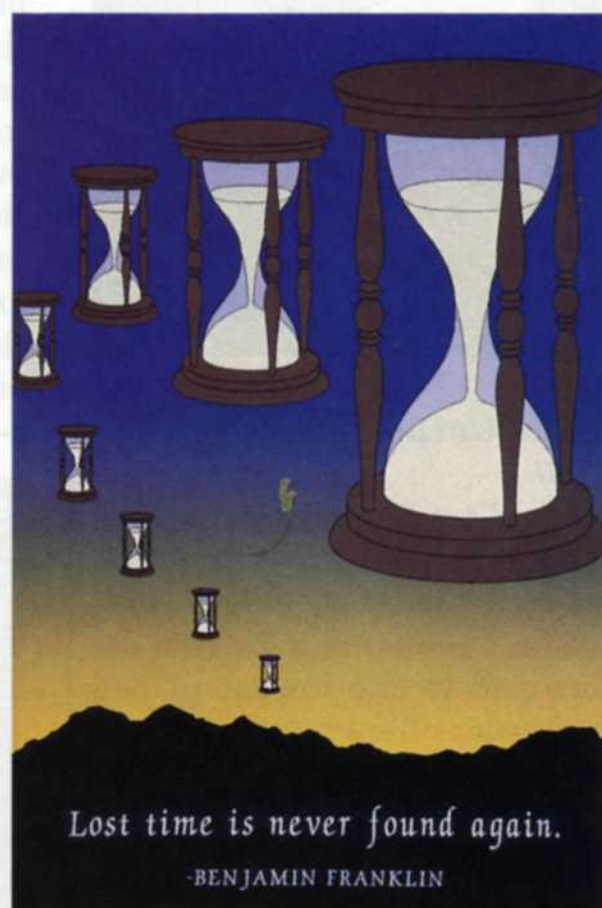
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Mirus-FilmPrinter Turbo II



Polaroid Digital Palette



Presentation Technologies-Montage FR2



view images, you can remove the 35mm back and replace it with the optional TCI print back. This back uses Polaroid 669 print and 69l transparency film. Price: \$6,995.

After reviewing images from all of the desktop film recorders mentioned in this review, we feel that all the units would be acceptable for creating graphic presentation slides. Some units operate faster and have better resolution and color saturation than others, but the price usually reflects the quality of the end image.

Everyone has a different opinion of what they determine satisfactory quality to be. Before you purchase one of these film recorders, determine the quality of presentation slides that you intend to sell. Make sure you get a demo on the film recorder, obtain original images (no dupes) imaged on the unit to scrutinize and compare at least two manufacturers before purchasing.

If your clients are using bitmaps (photographs) in their images, any of these film recorders will provide adequate results for use in slide show projection. If the final slides with bitmaps are to be used in publications, the Agfa PCR II, Lasergraphics LFR Plus, and the Lasergraphics Mark II will give good results as long as the images are to be reproduced small. If the slides are to be used for full page reproduction, you will have to consider the high-end film recorders—in the \$20,000+ range.

If promoted correctly, film recorders can generate a lot of profit in the photo lab. More and more companies are using slide presentations to market products and train new employees. By purchasing a film recorder for your lab, you can capture this lucrative photo market. As a matter of fact, we recommend purchasing one of these film recorders before you invest in a high-end film recorder. See what your market is, and move up only if the customer base will support it.

Film recorders offer low operating cost, high profit margin, and a fast payback. If you're in business to make a profit, then film recorders are a smart move into the electronic revolution.

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