

HELP & TIPS **RIP's for Large Format Printers**

***What in the world is a RIP?
Why in the world would I need one?***

***This report also includes
General Information for people who are new to
Large Format Inkjet Printers***



Wasatch SoftRIP exhibit at DPI Trade show.

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Introduction

A RIP is a Raster Image Processor. About 80% of the people who send in e-mails asking for help with RIPs are first time users. Based on the most frequently asked questions, we have prepared the following tips to help you face and survive the learning curve.

Don't worry about not understanding what a RIP is and what it does; it is an unknown concept to newcomers to the world of wide format inkjet printing. RIP is software with PostScript capability. RIP software is basically the brain that tells a printer where to place the squirts of ink on the paper to give you a beautiful digital image. (Adobe) PostScript or an Adobe PostScript emulator is software within the RIP that keeps your fonts attractively rendered without the jaggies.

We can understand why you may prefer to print without any PostScript RIP. After all, it adds up to \$3,000. If you got lured into buying Epson's EFI Fiery RIP two years ago for their model 50000 printer you might be short \$5,000. If you buy Xerox's version of the EFI Fiery RIP for their XES Xpress printer you may have paid up to \$7,000. But nowadays people avoid expensive RIPs and get the better RIPs that actually cost less: \$2500 to \$3200 is an average price for a single-user station. PosterJet has a full-featured RIP for under \$2000. This is the one we use at both universities where FLAAR has wide format printer evaluation facilities.



EFI Fiery Hardware RIP

How FLAAR Conducts Evaluations

The task of an independent evaluator is to be forthright, fair, and helpful. Our notes on the occasional aspects of a product that need improvement can provide an asset to that particular company, giving them the opportunity to improve that weakness and make an even better product next time around.

FLAAR is a non-profit organization and is headquartered at Bowling Green State University (BGSU). The evaluators include the professors, technical staff, graduate students, and technical writers. Grants, support for the Web design staff, demonstration equipment, and additional training for the FLAAR staff are supplied from all sides of the spectrum of printer equipment and software engineering companies. Thus, there is no incentive for them to favor one faction over another. Every printer, RIP, ink, or media we have reviewed has had strengths in addition to weaknesses.

The Function of a RIP

Basically, a RIP will tell the printer where and how to lay the random pattern of ink droplets onto a print, making it pleasing to the eye. A good RIP is essential to the output of a printer.

Yet, a RIP has many more functions than just ink droplet placement. A RIP should minimally allow you to do the following:

Select how many passes the printer takes across the image with the printheads.

The number of passes across the paper determines the speed of production as well as the quality of the print. The more passes, the better the image; but of course when you have more passes the print will take more time to finish.

Rotate and change the position, size, and orientation of an image in Photoshop¹ or in any major layout program, such as PageMaker, InDesign, or QuarkXpress.

¹ Warning, some RIPs may claim to allow you to rotate, but in fact you can only rotate simple things and only in some programs. We had two expensive RIPs that, as far as we could figure out, were incapable of rotating a simple Photoshop TIF file

Rotation is a crucial option. Some RIPs can only handle rotation of your image from horizontal to vertical in PageMaker, QuarkXpress, or other layout software. If you attempt to feed our EFI Fiery RIPs a straight Photoshop TIFF file, either the hardware RIP cannot handle rotating it, or I was unable to figure it out. The result is that you waste acres of expensive photo paper. All good software RIPs, such as Wasatch and BEST, include rotating. In comparison, most versions of EFI Fiery RIP (those made up to year 2000) are not up to industry standards with feature sets.

We have not seen any of the newer versions, but we believe that the Fiery for Canon and past Epson printers may lack adequate options. We would hope that the latest EFI Fiery software has finally caught up to the basic features that have been long ago offered by other RIPs. If we had one of the new RIPs we could check that out. We have gone to tradeshow, but people at the booth either are not into wide format RIPs or there is no one to answer questions about RIPs at all. This could be because EFI has gone off mainly into copiers and into non-RIP products such as electronic blackboards.

Alter the dithering pattern.



Sample of Nesting

Nest or group smaller images to fill the paper size and curtail waste.

Nesting is an important option. This way you can gang up lots of letter-sized images across the space of a wide format printer. The software does this automatically if your software RIP offers nesting; most EFI Fiery RIPs for some Encad, Epson 5000, 7000, 9000 series, and HP 2000 and 3000 series printers lack this crucial feature.

Control ink saturation.

Many printers lay down far too much ink, which results in awful looking images and crashed printheads for the end user. This is called oversaturation. You can control ink saturation

from your RIP, unless it's a dedicated RIP. We found that the EFI Fiery RIP on our Encad would not allow us to lower excessive ink usage to a level we would have preferred. Now you know why we do not recommend dedicated RIPs.

Some people are asking if the excessive ink usage, and the lack of an adequate means to reduce such ink wastage via software or hardware, is built into hardware-software packages (such as RIPs) in those RIPs that are bundled with hardware. We have no answer on that, but we can definitely report that some printers are infamous for laying down far more ink than is necessary. In recent times this subject has come up more than once; sooner or later the truth will come out.

Linearize the density of the ink output on every media.

Add ICC color profiles and color management.

You should not have to pay for the ICC color profiles. Besides, you may get better profiles if you do them yourself. FLAAR does not yet offer this training course, but tips on what hardware and software you need is in the FLAAR Report: *Fast Facts on Color Management*. For the students enrolled in the Digital Photography course, information can also be found in the report: *Color Management for Digital Photography and Associated Wide Format Inkjet Printing*.

Select whether you prefer pure black from just K or composite black from CMY.

Tile the sections of an image that is larger than the paper width (you tile adjacent sections of a building wrap or a vehicle wrap).

The more options your RIP offers, the easier printing can be. A good RIP can do everything. This is why it is so disappointing that the EFI Fiery RIPs of the past generations had inadequate options and were not very fast. Epson and Canon are the only companies still stuck with contracts to feature EFI RIPs. HP, Encad, and other companies dropped the EFI RIP bundle about two years ago.

Most users are dissatisfied with a “lite” version of a RIP. Thus, we recommend you get a full-featured version of whatever RIP you select. You may prefer to start with the “lite” version, but do not be surprised if it fails to accomplish everything you need. We classify early EFI Fiery RIPs and all past and current HP RIPs as lite. One definition of lite is a RIP that is hobbled by being tethered to one sole printer. A full RIP allows you the flexibility to run more than one printer, and often more than one printer simultaneously.

There is, however, one variant of a lite RIP that is actually fully featured; it is simply limited to one printer model. PosterJet offers this option, and I am estimating that some other companies do as well. The advantage is that the original, one-printer RIP costs less. Yet, you can update it any time to cover another printer. That was the downside of EFI; they could not be upgraded or switched from one printer to another.

Is a RIP Really Necessary?

Since a good RIP costs about \$2500 to \$3000, is having one really necessary? Yes and no. Some printers, such as Epson, come with a printer driver that will run the printer. So if there is no text or anything that might show the jaggies in your prints, you can avoid buying a RIP. Of course you may have to wait several hours for the printer to even begin the print job while the immature driver chokes on a large file. Since PosterJet can get the printer to begin RIPing in 8 seconds, and because you can buy a 1-printer dedicated version of PosterJet for considerably less than \$3,000, this is one of the software RIPs that we like.

How a RIP affects Print Time

If you have the proper RIP on a network or on a mini-hub (\$60 for 100-baseT Ethernet) your printer will start RIPing after 11 seconds, even a 200 MB file. If you have the incorrect RIP expect it to take an hour. If you have no RIP at all and are just using the printer driver, it may take several hours just to arrive at the printer from your computer. We do not have experience with Epson drivers and how (or whether) they handle really large files. With a 40 MB file an Epson driver with no RIP does just fine. However, we would not certify the slowness of an Epson with a 200 MB file until we have tested that size.

The Epson 7500 printer sent by Epson USA for us to evaluate had no RIP, just the basic Epson printer drivers. The file reached the printer relatively quickly with the USB connection, but had a print error. The driver was too lame-brained to figure out the size of the image without setting it by hand in the software.



ColorGate RIP used with EPSON 7500

However, when properly configured, the speed of sending a file via USB from a Mac to an Epson printer was a pleasant surprise. What was upsetting was that the Epson then proceeded to band badly and then it dropped one color all together. This ruined the quality of the print. However, after many cleaning cycles, we finally got the Epson to print correctly. At this point, the output was gorgeous.

We have been told, but do not have confirmation, that some large files will choke or crash an Epson printer driver, including the newest Epson 10000. The problem could be from setting the dpi too high rather than the actual mass of the file. Since we do not have many Epson printers at either of our two facilities, we can only judge a product by the number of end-users that specifically write us to report pros and cons.

Printing with Printer Drivers

All Epson large format printers include a basic printer driver that allows you to work without a RIP, as long as you do not need PostScript and any of the options or features that a really good RIP offers. This is an excellent feature of an Epson printer, to spare you the cost of a RIP up front. However, sooner or later you will need a RIP if you have captions or other text in your image. Even though the idea of avoiding a RIP sounds tempting, it's not a practical decision in the long run. Many printer manufacturers recognize that 90% of the buyers will either wish for or need a RIP, so they do not bother with developing a usable driver.

HP DesignJet printers can print from Windows operating system on a PC with their native drivers. If you have exclusively a Macintosh facility, then you would probably need a RIP. We use mostly Macs and mostly HP's. They work just fine since we have RIPs for each of our printers, except the Epson. Epson works nicely with a Mac on its own Epson driver. We routinely work with files that are 400 MB or larger. We are doing tabloid sized scans that are 600 MB for example.

Image Orientation and Ink Usage

Most people say, "Well, I have a Photoshop TIFF file and no text, so I do not really need a RIP."

But there are several ways your RIP can potentially save you money:

Nesting images or otherwise situating them on the media can save wasting media.

Lowering ink usage can save lots of expensive ink.

However, if your Photoshop file is long and narrow, the printer driver will tend to run the narrow side first. If your picture is 14 x 36 inches on 36-inch paper, the printer will actually print it 36 inches long rather than 14 inches long by 36 inches wide. In other words, you just wasted about \$5 worth of expensive inkjet media.

If your RIP is unable to rotate a Photoshop TIFF image we suggest any of the better RIPs that have this crucial feature. Remember that rotating a raw TIFF image and rotating a poster in a layout software are two totally different features. You need both.

Nowadays, most good RIPs can rotate a TIFF file, but there are countless other reasons why you would want a RIP. For example, to select either a quick draft to check the positioning of the text, or a slow final print to show the quality of the image. A RIP offers options; a printer driver tends to have few options, if any.

You can print directly from Photoshop, Illustrator, and other comparable programs with most printers. Sometimes you can print with the basic driver that came with the machine. However, such simple driver software will not allow you to select the orientation of the image or nest small images across the full width of the media. You need to get Adobe PageMaker or QuarkXpress to orient your images horizontally or vertically, but only if you select the option to do so. But then it usually takes a RIP software to correctly accept and execute such commands for the printer.

Will a RIP Improve Image Quality?

The answer to this complex question depends on your printer, its drivers, and the RIP. If your printer is capable of 32 passes and its native driver cannot address those higher modes, then a better RIP will give you improved quality with all 32 passes (passing over the paper 32 times).

At the normal viewing distance of 6 feet, a viewer will be unlikely to tell the difference. But some RIPs for the HP DesignJet 2000 and 3000 series could do only 8 passes. Evidently, a few RIPs could generate up to 12 passes. In theory, the RIPs that offered 12 passes would result in better quality. The digital imaging specialist at one place reported that their after-market RIP improved their HP 2500 and HP 3500 in all respects. Yet some users of Epson printers indicate that the dithering pattern of Epson's native driver is better than that of any after-market RIP.

Recently a new RIP reached the market. This is the first RIP that is stated to actually improve the quality of the image over what a native printer driver can accomplish. We cover this new RIP in the FLAAR Report: *New Products at Print '01 Tradeshow*. However we subsequently learned that this RIP did not fully function in its Mac version; it was reportedly only full-featured in the PC version. These are the little tidbits that the ads don't reveal. So what may be the case with one printer brand may not be applicable to another printer brand.

Mac vs. PC Versions of a RIP

Some RIPs offer a Mac version. In the case of PosterJet it is my impression that both versions are full-featured. The Mac version is what we use at FLAAR.

However, some other brands of RIPs, such as BEST, are a PC-based RIP. The BEST for a Mac is a different version with a distinct purpose.

In some cases with other RIPs, the Mac version may simply be incomplete or still in beta stage. We like the potential of ColorByte's PC version, but recommend you wait a bit for their Mac version to catch up. This is based on the report of an end-user's who tried the Mac version and was unable to get it to work satisfactorily. So in this case the original Epson driver evidently worked better.

Most brands of RIP software can be loaded only on a PC. A few brands of RIP can only be loaded onto a Mac. However, none of this affects the ability of the RIP to work with the computer you use to design the image or layout. All modern computer operating systems can communicate with a RIP server irrespective of whether PC or Mac.

Where to Park your RIP

When the RIP software comes pre-loaded into a computer, it is called a "hardware RIP." But if you buy software RIP, you are merely going to load the CD into a PC or Mac and then it also becomes about the same as a hardware RIP. In essence, whether you buy a hardware RIP (EFI Fiery) or a software RIP (everyone else), it all ends up as a "printer server." This is the computer that serves the image to the large format printer.

When the RIP software comes pre-loaded inside your printer, there is no standard term for that. This is probably because HP is the only company who pre-loads a RIP into your large format printer, and (for the HP 800ps and HP 5000ps) adds a processor inside the printer as well. The RIP (called a "ps" by them, meaning PostScript) is already inside the HP 500ps, HP 800ps, and HP 5000ps. The HP DesignJet 2500 and 3500 also have a RIP built in, but it is notoriously slow. The HP 2800 and 3800 have a stand-alone EFI Fiery hardware RIP, but it functions flawlessly within the system and is completely transparent (it's idiot-proof, albeit under-featured, overpriced, and can't be upgraded).

Recently, Encad began to bundle a RIP with their entry-level printer. We have no experience with both that printer and RIP. It is most likely an OEM re-branding of a lite version of a Scanvec-Amiable RIP. It is unlikely that Encad wrote a RIP from scratch. Hardware companies don't tend to be good at creating software.



One of the few software RIPs that can actually go into your own personal computer is PhotoScript from CADLink. This means you do not need a second computer. The advantage of having a separate print server, however, is that the print server handles all the workload. Thus, as soon as your file is transferred through your local area network (LAN) or mini-hub to the printer server, it releases your own computer so you can continue to work. Macintosh OS 9.X is not yet multi-tasking. So if your RIP is parked on your own computer, then you cannot use your computer during the time the RIP is working. Not all RIP products function yet with Mac OS X.

Epson printers lack network cards (now you know why their price is cheaper). This is because Epson printers are usually for home use or people with only one computer. Larger companies will tend to be on a network, but larger companies tend to prefer a Hewlett-Packard printer so they already have a network card built in. With an Epson printer you have to add a network card yourself, a \$400 add-on.

I guess in theory you can plug some large format printers directly into your sole computer, but that is not usually the way it is done, for several reasons. First, if you get any other computer besides the HP you will most likely need a separate computer to hold your RIP. This means your printer is connected to your RIP server. That entails connecting everything via a network already in place or getting a mini-hub. With a Mac you just plug the mini-hub into everything and everything works automatically, without the need for loading software.

Some RIPs really need or prefer dual processors. BGSU provides the FLAAR studio with a dual processor 2.2 GHz Dell computer (4.4 GHz total, so to speak). We were told it was the most powerful workstation on campus outside the university's main servers.

With respect to RAM in your computer, you can never have too much. 512 MB is probably okay; we max all our computers out with 1.5 GB, but that may not always be necessary. We have never bothered to add more RAM to our printers. Perhaps they would receive the images faster if they had more RAM. RAM is much faster than the on-board hard drive.

We strongly advise that you buy your printer and RIP together from the same source, and that you get installation and training bundled with the price. We do not recommend that you attempt to install and configure both the printer and the RIP on your own. Yes, you can indeed do it on your own, but you will need patience and some basic experience.

The reason for getting your RIP and your printer from the same dealer is to assure that you get your ICC color management profiles all pre-loaded. You need an ICC profile for every different media that you use. Some RIP companies charge for these profiles, but if you select a user-friendly RIP and have your dealer install all this for you, then you can avoid the cost of after-market ICC profiles. Recommended sources of the leading RIPs are provided at the end of this report.

RIPs by Brand Name

ColorSpan

Offers its own stand-alone hardware RIPs: ColorMark Pro 1GB and RIPStation 800. They also have an on-board ColorMark lite RIP on some models. After-market Wasatch, ColorGATE and Onyx PosterShop software RIP also work on ColorSpan printers (addressed below).

ColorMark Pro 1GB. We recently tested this ColorSpan hardware RIP and found it easy to learn. The ColorMark Pro RIP was much better and had more features than the two EFI Fiery hardware RIPs that we have for our other printers. None of the EFI Fiery RIPs ever offered this class of computing speed. The ColorSpan produces excellent solid black, something that is evidently tough for Epson piezo printers to accomplish.

FLAAR is acquiring one of these RIPs to run the ColorSpan DisplayMaker XII that arrived last summer. A Mach 12 is being installed in the FLAAR facility this summer to complement the DisplayMaker XII. We like the hardware RIP of the XII sufficiently that we asked that the Mach 12 also come with its hardware RIP.

We recently visited a sign shop and asked what RIPs they used. They had a ColorSpan DisplayMaker XII with the ColorMark RIP. The representative said it was fabulous compared to the software that attempted to run the other printer, a piezo printer. What he most liked about the ColorSpan, other than that it took minutes or less when the other software took up to half an hour, was the versatility of the ColorMark software. He said it accepted files from Illustrator, Freehand, Photoshop, and every other layout software that his clients happened to use.

RIPStation 800. This is another option for the ColorSpan. We prefer the current generation of high-end hardware ColorSpan RIP, the ColorMark Pro 1GB.

MacDermid ColorSpan also has the advantage of training your people, free of charge. You can send your people directly to the company headquarters. FLAAR sent two of our editors to evaluate this course. What a nice opportunity to learn how to operate the RIP and printers.

For more information, email productinfo@colorspan.com. If you wish the FLAAR review report on the ColorSpan printers, just write us and ask for the *FLAAR ColorSpan Report*.



Testing of the ColorSpan RIPStation 800. The monitor of the RIPStation is visible in this photo

3M Cactus

Cactus is from 3M; it was a costly production RIP. This RIP worked wonderfully on the HP DesignJet printers of the 2000, 2500, 2800, 3000, 3500, and 3800 series. All HP large format DesignJet printers are Macintosh friendly, and of course work with all PCs as well.

Cactus RIP, at first, was not updated for the newer HP 5000ps. 3M eventually made a new version, which is actually marketed by Gretag (Onyx PosterShop is another product). Thus, Gretag now sells PosterShop to use on a PC and Cactus to use on a Mac. Océ took over Gretag, so now it is the source of Onyx.

The downside of Cactus RIP is that 3M shows little evidence that it seriously intends to keep this as a top contender. This RIP is hard to find at tradeshow, even at the 3M booth. The “word on the street” is that the heyday of Cactus RIP was about 3 years ago, and is now on a downslide. Thus, we recommend you consider any other RIP that has a large research and development staff of capable software engineers. FLAAR has downgraded its opinion on 3M Cactus as a result of its failure to come out with new versions on time. We have a lack of confidence that you can upgrade this RIP in the future.

For more information on 3M Cactus, contact Jonathan Knecht by email at colorguru@colordna.com. His company sells HP printers, Cactus RIP, ColorGATE RIP, and Heidelberg scanners (our favorite scanner, we have two of them).

Colorbus



Colorbus went for a year or so without upgrading their RIPs for large format, so we have withdrawn our recommendation. Colorbus was unable to do six colors when we checked it out in May 2000 at DRUPA tradeshow, and Colorbus did not exhibit (or was not noticeable) at any of the recent tradeshow in 2001. Their Web site was also moribund for a year or so. However, it seemed like a nice company with pleasant people, so we will update this report if they resurface. Indeed, we saw a Colorbus display at IPEX '02 tradeshow. However, they still seem to be low key compared to three years ago.

ColorByte

ColorByte RIP has a good reputation, but we do not have ColorByte in our facilities so are unable to comment on its capabilities. It is reported that their PC version is more advanced than their Mac version. One person who tried the Mac version said it did not function as he had expected. However, it is our understanding that the PC version is quite nice. LexJet Direct is the source for ColorByte, branded as Spectrum Pro, www.lexjet.com.

ColorGATE

FLAAR recently received ColorGATE RIP for evaluation at our facilities at BGSU. Professor Charles Spontelli is the evaluator. His MA degree in printing is from Rochester Institute of Technology, with a specialty in color management. This eventual report from FLAAR at BGSU is included in the FLAAR Report: *Color Management for Digital Photography and Associated Wide Format Inkjet Printing*.

ColorGATE has recently teamed with GretagMacbeth to produce Eye-One color management software combined with GretagMacbeth color management tools. This allows you to generate your own ICC color profiles.



ColorGATE is a good RIP from a respectable German software company. They have technical support facilities in the USA, and capable people in the USA and in Europe. For additional information on ColorGATE RIP we recommend ColorDNA. Contact by e-mail is colorguru@colordna.com.

Wasatch



Wasatch RIP

Over the last several months we had been hearing good things about the Wasatch RIP. So it was fortunate that Wasatch had a booth at the Big Picture tradeshow. I was surprised to find out how many brands of large format printers the Wasatch can run. Overall, this seems like an excellent RIP to consider. Wasatch also has capabilities to improve your prints on fabrics and textiles. You can buy Wasatch RIP for fine art giclée printing and/or printing photo-realistic quality on canvas, silk, cotton, or other cloth from Improved Technologies (IT). Contact by email at iris@itnh.com.

The newest Wasatch RIP features SpotOn Color Capture. So you can do spot colors, such as corporate logos. This is part of the general trend of RIPs to add color management capabilities.

Wasatch SoftRIP version 4.4 is the #2 RIP in the US, and for good reason: solid company, good product, and ethical people running the corporation.

If you need a direct contact within the company, try Jay Griffin, Vice President. Tel. 801 575-8043, e-mail jgriffin@wasatchinc.com

BESTColor

On the BEST color management software RIP brochures, I noticed they are now expanding beyond their heritage of being a RIP for proofers. They now list graphic arts, photography, fine art, and other uses on the front page of their brochure. BEST can do nesting and tiling, for example. The capable BEST people did some sample prints with their Roland Hi-Fi. The results looked very fine. So if you need precise color matching, BEST is a RIP to consider.

BEST is a growing RIP company, and probably has more software engineers on staff than any other RIP company. I have been to their headquarters in Krefeld, Germany several times. When you see such a substantial company, you know you can trust them to provide upgrades for all the next generation of printers. Lack of timely upgrades is where Cactus, Colorbus, EFI, and other companies have failed; Yarc, Aurelon, and other RIP companies simply went out of business.

Other companies have to farm out their software development. BEST has the pertinent people, in-house and on-staff. Overall, this is the most successful and fastest growing proofing RIP company in the world.

BEST ARTmosphere and *PhotoXposure* are two new products. One seems to still be in beta stage, because we are still waiting for the final working version. Three years ago, FLAAR documented that the fine art and photography market needed special RIPs tailored to their needs. BEST had already learned of the potential of these growing markets from their own staff. Thus, the in-house interest combined with FLAAR suggestions on the size of the fine art and photo markets has resulted in these two new products.



BEST works with Hewlett-Packard DesignJets, including the 5000, Encad, Roland, Canon, Epson, and other leading printers.

The contact for BESTColor by email is ripinfo@bestcolor.com. Their manager is Richard Dannenberg, contact by e-mail is rd@bestcolor.com. If you are from outside the USA, contact Sheldon Nazare by email at sheldon.nazare@bestcolor.com. Contact for BEST in Canada is jmaru@dwinc.com.

O.R.I.S. Color Tuner



Chuck Spontelli, Professor at BGSU, reporting on ProofMaster RIP

O.R.I.S. Color Tuner has a good reputation, but we do not know much about it. With more than 40 RIPs on the market and since we already have BESTColor, ColorGATE, Onyx PosterShop, PosterJet, ErgoSoft, CADLink PhotoScript, HP's ps, and Wasatch, we are rather busy as it is.

Finally, at Print '01 tradeshow in Chicago, it was possible to meet the nice people at O.R.I.S. They have provided a complete package of their software to Chuck Spontelli. Since most of the major RIP companies also sent their RIPs about the same time, it will be months before we have an opportunity to use O.R.I.S., much less to report about it.

PosterJet

PosterJet is ideal for all Canon inkjet printers, Encad, Kodak printers that are relabeled as Encad, Mutoh Falcon I (plus Kodak printers that are re-branded Mutoh generation I), and all recent HP DesignJet printers. In Europe, PosterJet is the featured RIP for Canon's BJ-W9000.

PosterJet's main benefits are: it's very easy to use, and it's super fast. It is so much faster than HP's pokey on-board RIPs. So if you own any HP DesignJet printer, PosterJet is the RIP that you should be using. PosterJet is the ideal RIP to speed up the HP DesignJet 1050, 1055cm, 2500cp, and 3500cp. An added benefit of PosterJet is that it works on Macintosh computers.

PosterJet now has a sales and technical support outlet in the USA, Scarab Graphics. Contact Greg Roberti by e-mail at PosterJetUSA@aol.com or by fax at (805) 684-7090.

In Canada, you can obtain PosterJet from Jay Maru, email is jmaru@dwiinc.com.



PosterJet rip used by Canon printer at CeBIT tradeshow

ProofMaster

To some degree ProofMaster is a successor to Aurelon. Aurelon was an excellent proofing RIP made in the Netherlands. I visited their facility there in March, and realized they had an excellent project.

Now a new company, PerfectProof has adapted this product and is updating it for the American market. BGSU professor Chuck Spontelli has been working with ProofMaster for the last several months. We originally saw the ProofMaster team at Print '01 tradeshow, at the VanSon ink booth. The people seemed pleasant and capable.

As is suggested by its name, this is a RIP specifically for proofing. It uses its own proprietary system, which is different than ICC profiles. After all, most of the places that attempt to use ICC color profiles admit that they don't always work.

Tests at Bowling Green State University document that ProofMaster is a viable alternative for proofing, especially if you value ease of use. Our comments can be found at www.large-format-printers.org.

Contact for PerfectProof in USA is info@perfectproof.com, tel (888) 228-9070. Contact in Europe is +32-(0) 2-253 07 32.

PhotoScript (CADLink)

PhotoScript (CADLink) has the advantage that you can load it on either Mac or PC, and even on the same computer you on which you do your imaging. All other RIPs have to be loaded onto a separate computer, which operates as a print server. I have not seen or heard much about PhotoScript in the last year, but they had a nice booth at ISA tradeshow. We have recently received a PC version of their RIP and will be working on it this summer.

PosterWorks

PosterWorks is a tiling and layout production program for doing billboards from a large format printer, such as an HP DesignJet. It is not a RIP. PosterWorks is recommended and available from S. H. Pierce & Co. Contact by e-mail at mail@posterworks.com.

PosterShop



Press conference given by Robert Eisfeld, Drupa.

PosterShop (not to be confused with PosterJet) is the #1 selling RIP in the world. Someone told us that there is an annual fee once you buy PosterShop, but we do not know if this is true. Our only version is that of Ilford. It is several years old so we do not know whether there is now an annual fee.

PosterJet is from Eisfeld Datentechnik GmbH & Co. KG. PosterShop is from Onyx (Gretag, now Océ). They are two different products from completely different companies. PosterJet costs less and does essentially the same work, but faster and easier. PosterShop is good, especially for complex repro shop environments with trained computer technicians. PosterJet is excellent for starting up, for speed and ease of use when you are stuck doing most of the work yourself.

PosterJet is one of the fastest RIPs around. Their newest updated version 6.3 is now available from PosterJetUSA@aol.com.

EFI Fiery RIP (Electronics for Imaging)

EFI had the most successful PR department of any RIP company. In 1996 through 1998, to have an "EFI Fiery RIP" was equivalent to driving your Encad printer with a BMW or Mercedes. Unfortunately, it took people a while to realize that this software RIP had the power of a Mac truck, the speed of a Porsche, and the price of a Ford. So today (2002), people are not as dependent upon trade magazine articles, which is what sold Fiery in an era when people did not yet understand the pros and cons between hardware and software RIPs. I had two hardware RIPs in this era, and refused to even consider a software RIP. This was until I found out that a software RIP offered more features at less cost, and was upgradeable as well.



EFI Fiery RIP

The advantage of the Fiery is that it's idiot-proof. Presuming you get someone else to install it for you (installing is the only part that is not idiot-proof) this product tends to work, flawlessly. That's because it cannot do very much, so there is little to go wrong. Most EFI Fiery RIPs can never be upgraded and cannot even run any other printer, even though virtually every other software RIP can work with every major brand, interchangeably. The two Fiery RIPs that we have will work with only one lone printer and can never be switched to another, not even to another model of that same brand name. Only now do people find the versions of EFI Fiery RIP of the 1990's costly, under-featured, and overrated.

It took Hewlett-Packard two years to learn that the marketplace preferred software RIPs. So once the HP DesignJet 2800 and 3800 printers and their tethered Fiery RIPs were phased out and replaced by the DesignJet 5000, the EFI Fiery RIP for HP printers sort of petered out. The EFI for the new HP 5000 that I saw at one tradeshow last year was not even functioning yet.

In July 2001, EFI put out an unconvincing press release, which if read by an unwary customer, attempted to sound as though HP had "selected" the EFI Fiery as its favored RIP. However, I am still searching for a significant number of HP dealers who feature EFI anymore. Today, July 2002, the EFI RIP for the HP 5000 is surely finished, but the question is: can it be upgraded? Can it run your next printer or do you have to pay for an entire other RIP next year? We do not have this RIP, so are unable to answer this question. We tried to find information at tradeshows, but either EFI is no longer exhibiting, they exhibit only their other products, or there is not a person that is willing to discuss all the ramifications of RIPs. The general sales story is, "many people are accustomed to the workflow with an EFI Fiery from earlier years, so they want to continue."

In 2001, EFI dropped the entire concept of a hardware RIP, except for with some older Epson and Canon printers. They now offer a software version, albeit requiring an add-on card for your PC. This add-on card tethers your printer to that computer. If this version can be upgraded and if it can run more than one make or model of printer, then it should be considered. Why in the world should you have to buy a new RIP when all the other software RIPs can be moved from one printer to another with ease?

Although EFI finally abandoned the very expensive (\$5,000!) and under-featured hardware RIP for the Epson, the hardware RIP legacy lingers on in the ImagePass-W20 for the Canon large format printer. This is a typically, high-priced EFI Fiery RIP. Check and see what processor it contains. I was unable to find these specs easily on either Canon or EFI Web site in July 2002. You need an Intel Pentium 3 or 4, and a minimum of 1 GHz. I cannot imagine anyone who would put up with a low-end Celeron chip for a RIP to handle large format printers. ColorSpan uses a minimum of 800 MHz, and a 1GHz upgrade is available.

It is worth asking whether an expensive RIP is potentially one reason for the poor sales of the Canon printers in America? In Europe, Canon cleverly uses PosterJet, which costs less and offers more options than the EFI for Encad and HP. Canon sells proportionally more of its nice BJ-W9000 printers in Europe than in the USA. One list price for the EFI was \$ 6,520; yet software RIPs from many other companies run the same Canon for \$2,520. These cheaper software RIPs can also be updated, expanded, and used on other printers.

Last year, the Canon Web site uses illegible colors for the PDF file on the Fiery RIP, so it's not yet possible to see what other options are present or missing. One thing that makes such a RIP potentially obsolete is that the Canon printer is the only printer that this RIP can handle. In Europe, the PosterJet is used for running the identical Canon printer. PosterJet is faster, costs much less than the Fiery, and can do lots more, such as running many different printers.

At least the new version of EFI for the Epson 10000 can finally do nesting. It claims it can do rotation, but I would need to check whether it can rotate all files directly. In the two versions of EFI Fiery RIP that I have (for an Encad and for an HP), I could not figure out how to rotate a raw TIFF file. It would only rotate a PageMaker file.

I do not know whether there is an EFI Fiery RIP for the XES ColorgrafX X2 and if so, I don't know whether it is hardware or software. If it cannot run any other printer, that's not an encouraging sign. If you cannot upgrade to a new version, that's another yellow flag. If it costs more than \$2500, you might want to ask why.

If you purchase a XES ColorgrafX X2, the optimal RIP is Caldera from France. Since we do not have any XES printers, we don't have this RIP. For CAD and GIS we use the HP 1055+ and the HP 800ps.

The Internal ps RIP Provided by Hewlett-Packard



HP 5000 at ISA tradeshow

The on-board "ps" RIP in the HP DesignJet printers has several distinct advantages and three disadvantages. The advantages are:

It works directly from a Mac as well as from a PC.

The HP DesignJet with "ps," works perfectly with Macintosh computers. We use our 800ps and 5000ps both with Macintosh and also with PCs. As Macs tend to do, it froze repeatedly with the HP 5000ps, but these software bugs seem to have been corrected. Macintosh computers tend to freeze and crash no matter what they are connected to. It may not be entirely the fault of the Hewlett-Packard printer or its software. We have made no attempt to contact technical service since the problem only happens about once a day at the most.

You do not need to buy an additional computer just to run this particular RIP.

In reality, the internal ps is a hardware RIP. You do not need to have an external RIP print server. Such an extra computer is needed for virtually every other RIP. With the HP there is a processor built into the printer on the DesignJet 800 and DesignJet 5000 models.

It is so easy to use that you don't have to take a thousand-dollar course to do so.

It has all the ICC color profiles and Pantone certification built in.

But like everything else in life, there are disadvantages. These are similar to the disadvantages of early EFI Fiery RIPs. There is no evidence that this RIP is made by EFI. Its origin is not specified in any HP literature, nor have I seen the origin of this RIP listed in any trade magazine. Thus, we will consider the ps for the 5000ps as an HP product.

The disadvantages are:

It is very slow.

It can't be upgraded.

It can't run any other printer, not even the next HP that you buy.

On the 5000ps model, allow 20 minutes for it to RIP per 100 MB. Since you need 200 to 400 MB for a large poster or small mural, allow between 40 and 60 minutes per image. Once RIPed, however, the actual print speed is relatively fast. If you get an after-market RIP that RIPs-on-the-fly, the RIP speed is reduced to about 7 seconds. Other RIPs can handle 200 MB in about 10 to 15 minutes. If you work at home perhaps the wait is not as crucial. If you are a commercial sign shop, be sure to get a RIP that is fast.

When you go shopping for a RIP, realize that some RIP companies hide their true slowness; we have seen that even in demos at tradeshow. They say they are "loading the image" from your CD, but in fact the RIP should start to work immediately, or else it's a turkey.

Starting to work immediately means that the printer should begin printing within less than 3 minutes even on a 100 MB file. Ideally, the printer should begin printing within 1 minute or less. Now you know why we prefer the RIP we use in our own facilities.

A mural or long banner will have 400 to 600 MB. When we printed 15-foot long images we had to print them unattended overnight, because the on-board "ps" RIP time was over 3 hours on the 5000ps. The actual print time was probably relatively quick; it was the RIP time that was unreasonable. A large sign or poster will need about 200 MB. Who can afford to wait 40 minutes just for the TIFF file to RIP? Or the better question, why wait when there are plenty of other RIPs that are considerably faster?

These were only 36 inches wide; if you are doing a tradeshow display at a full 60 inches wide by many yards long, then you need a good after-market RIP. So far, PosterJet is the fastest RIP I have ever seen. We use PosterJet in our office in Guatemala. In fact, the print operator refuses to use the HP 800ps, because he can get much faster output on the HP 1055 using PosterJet. For reasons we don't yet know, PosterJet is not that fast on the HP 800 when set to top quality photo mode.



Marlon, FLAAR print operator, installing the PosterJet Rip

We have not tested the HP 500ps, but have heard that its mini-RIP is disappointingly slow. If you use this printer for CAD, be absolutely sure you have all the proper cards and drivers for connection and communication. Since this is a CAD printer it is happier with a PC. Otherwise, HP DesignJet large format printers work just fine with a Mac (which is what we use).

If you already have your HP DesignJet 5000 or 5000ps, be absolutely sure you get the new firmware drivers. FLAAR tested the old software in January 2001 and reported far too much yellow. I guess other beta testers did also. In March, new updates were released that corrected the problem to some degree. In October, we updated the firmware for our HP 5000ps again. It's a pain to download; it would be nicer if HP made the upgrades available on a CD.

There were also problems with early versions of Onyx PosterShop on that printer. Keep in mind that the printer itself is just fine. It's only the software that needs upgrading; the fixes are readily available and are free. I am sure that Onyx has been corrected by now (summer 2002).

We recently read an interview with the HP manager for India in a leading trade magazine from India. The HP manager warned that the internal HP RIP was the only functioning solution for the HP printers. It's fairly obvious why he makes statements like this, but not everyone would agree. Indeed, all the leading RIP vendors exhibit inside the HP area at German tradeshow. Obviously, whoever makes the HP RIP knows the insides of HP printers well, but the software engineers who make BEST, PosterJet, ProofMaster, Shiraz, Wasatch, and comparable RIPs are world-class experts.

However, it is logical that certain features, such as Pantone certification, may be easier when you use the on-board ps RIP from HP. This is because HP inks, media, and RIPs are all part of an interrelated system. If you add an after-market RIP you have to add after-market color management also.

Most people who have tried PosterJet, however, find it is so much faster than the internal “ps.” And if you intend to do proofing you will need BEST or ProofMaster. If you seek some color management features that are easy to use, we would recommend Wasatch SoftRIP. Wasatch has a tad more color management features than the version of PosterJet that we have currently.

The Internal Scanvec-Amiable RIP for Roland



Scanvec-Amiable is a large company. When they have a booth at a tradeshow, it is filled with friendly and helpful people.

Roland printers come with their version of Scanvec-Amiable RIP already built in. It is okay, but not one of our favorites. If we have more time to get to know this RIP, then perhaps we could find its better features. Several people have commented that Scanvec-Amiable RIPs cannot handle large files, but we do not know this first-hand. Perhaps it is merely slow with a file over 200 MB. We routinely work with files up to 700 MB in size. The ColorSpan we tried

out handled that size just fine. If you prefer another RIP for your Roland, then you are evidently still paying for the Amiable.

In most cases you can use your favorite RIP to override another RIP that is built in. But a built-in RIP is a needless cost if you know in advance you will eventually need a better RIP.

Each model of Roland comes with a different version of Scanvec-Amiable RIP. The newest Roland printers (8 colors) come with an upgrade. Older models of Roland printers come with the earlier versions of the RIP, which are not recommended. Even the pleasant people at the RIP company admitted these early versions needed improvement.

Since your particular needs may be met better by one RIP than another, you need to contact the RIP company yourself to find out if their RIP does precisely what you need. By the way, once you find out what RIP meets your needs, we always welcome hearing from you so we can provide that information to the next person.

Evidently Scanvec-Amiable is the source for the RIP for the new low-priced Encad NovaJet printer. Actually, we have been told that Scanvec-Amiable is the source for the RIPs of other popular printers, but don't yet have confirmation of that.

Since we do not have a Roland printer we do not yet have personal experience of whether its RIP can do nesting, RIP while printing, or if it can run another printer.

Other RIPs

There are countless other RIPs. If you print inkjet textiles you may wish a special textile RIP. Check out ErgoSoft. We also understand that Wasatch has special features to handle inkjet textiles.

Many RIPs are fine, but we prefer to work with the industry standards. It is easier to get training and support from a RIP company that is an industry standard. Take Aurelon, for example. They have a great RIP, but aside from the fact we are unsure they have survived, they were hard to find even when they still existed. They offer an excellent product, but that does not help if few other prepress shops are using it.

FLAAR is non-profit. So it is not possible to have the staff handle every RIP that exists. It is also not possible to keep up with new releases. That is what a trade magazine does. A trade magazine is paid by each company to publish their PR releases. FLAAR is indeed industry supported, and without subvention we would not be able to provide our services. However, we do not accept banner ads, and we do not reproduce PR releases. We are also very picky about sponsorship. We need to know the individual people behind a product:

Are they honorable and ethical?

Are they are an established part of the industry?

Do they have the background to provide technical assistance?

Can their product and advertising withstand scrutiny?

RIPs for Older Printers

The cheaper, older, and more obsolete the wide format printer, the less chance of finding a RIP that can handle it. Thus, not many good RIPs work with the Encad Chroma 24, except for Shiraz.

Do not presume that an after-market RIP will handle any printer. For example, few RIPs are available for the HP DesignJet 500, but a dozen excellent RIPs are available for its big brother, the HP DesignJet 5000. Thus, you would need to consider the HP DesignJet 500ps option to get the mini, onboard RIP for the HP DesignJet 500. It is the same situation with the HP DesignJet 800. Be safe and double-check with Wasatch, PosterJet, ColorGATE, and other companies to see if their RIPs for the HP DesignJet 800 are out yet. The onboard "ps" is slow; your production will often be much faster if you can find a good after-market RIP to use.

The HP DesignJet 800 with any after-market RIP ought to be faster than the HP DesignJet 800ps (with on-board RIP). The sole advantage of the onboard "ps" RIP is that it's easy to learn and easy to use, but that's because it does not offer many sophisticated features. If you use only HP media, however, the ps version has all those ICC profiles already in its brain. However, the HP DesignJet 800 with PosterJet is very slow when set to top photo quality mode. We prefer the HP DesignJet 5000 for photographs, because it is faster and more versatile.

RIPs for Used Printers



Many older printers have few RIPs available. So be wary of buying any used printer. You may find that absolutely none of the newer and better RIPs run it. If you are considering buying a used printer, consider getting a copy of the FLAAR report entitled: *What to watch out for if you are tempted to buy a used printer.*

Many of the earlier RIPs are no longer made, no longer serviced, or the company has gone bankrupt (like Yarc).

Many of the earlier RIPs (especially EFI Fiery RIP) lack adequate features and cannot be updated, upgraded, nor even run any other printer (besides the original printer for which they were made).

RIPs for Wide Format Inkjet Printers

There are many good RIPs, but it takes a while to try each of them out to the point that we can comment on them. There are several RIPs that we happened to try out several years ago. We really like them and have sort of continued with them ever since. However, as we find other RIPs that are equally good or better, we will note them in future updates of this FLAAR report.

For proofing we recommend you try BEST or ProofMaster.

For speed and ease of use: PosterJet

For a basic RIP that is fast, easy to use, and has added color management features, including spot colors, we recommend Wasatch.

If you are a Fortune 500 company and need a RIP to handle a wide range of situations, and you need training for your operators anywhere and everywhere in the USA, Wasatch is our preference. For example, this RIP can also handle textiles. Textiles are useful for point of sale signs, banners, and tradeshow graphics.

RIPs for Desktop Printers

It is tough to make a RIP for a desktop printer when a full-featured RIP, which is fast and can handle color management, costs more than the printer. Thus, RIPs for desktop printers tend to be lite versions. FLAAR does not yet test RIPs for laser printers or copiers. But we do hear lots about them from end-users.

Strydent makes software to allow your Macintosh to print to the entry-level HP laser printers. Strydent sells PowerPoint in various flavors for different Mac's. There is a major distinction in printer software for desktop laser printers and for wide format inkjet printers.

Birmy RIPs are for desktop printers. We are not sure if they are the same kind of full-featured RIP that you need for a wide format printer; this would depend on your needs and expectations. However, it has been many years since we used a Birmy RIP. It seemed okay for a cheap Epson letter-sized printer. Birmy sort of went out of business a few years ago.

iProof uses the Birmy interface, but has expanded beyond the Birmy RIP into wide format printers. We do not have this RIP, and are not familiar with its feature set.

Adobe PressReady RIP came with some HP desktop printers two years ago, but was phased out. Adobe no longer makes that RIP, which is strange since Adobe makes software in general and PostScript in particular. The newer HP printers, such as the 20ps, have another brand of RIP. The HP 50ps has a different RIP.

Beware of Defunct RIPs. Yarc has gone out of business, so be sure to avoid this RIP.

Questions to ask your RIP Vendor

Black from CMY or black from just K?

Blacks that do not print as acceptable black will depend on your RIP. Some RIPs (such as PosterJet) form black from CMY. There are pros and cons to this approach. So be sure your test file includes a large area of pure black to see how the results look to you.

Encad, ColorSpan, and HP all give excellent rendition of solid black. Indeed, Ilford has a quad-back inkset for its thermal printhead printers. I do not have as much experience doing B&W with piezo printhead systems, but it is worth pointing out that Encad, ColorSpan, and HP are all thermal printhead systems.

ColorSpan's own RIP offers an option to allow you to decide whether you wish pure black, which uses K, or whether you wish rich black, which is a composite of CMY. ColorSpan will shortly offer a quadtone option with new quadtone inks. If this option is lacking in the Epson printer driver, then you are missing a needed tool. I cannot answer that since our Epson 7500 has clogged heads and will not print on after-market media, or adequately on the cheap media that Epson sent along with the printer.

Solid black or wishy-washy black?



Some printers cannot handle B&W printing well; some models of Epson may turn B&W prints a greenish tint unless you do gymnastics in the software to avoid it. I get the impression this may occur with other piezo printers such as Roland, unless you know how to avoid it. These are the things of which you need to keep track. We use PosterJet on our HP DesignJet 1055 and get acceptable blacks from settings within PosterJet.

The greenish tint in B&W problem is widely documented for piezo printhead systems. That leads to the logical question of whether or not B&W might potentially be more secure with a thermal printhead system than with a piezo system. However, even with thermal printers, B&W may have a green or reddish tint if you don't prepare your files properly and use adequate color management. We will continue to investigate this question and update our reports as we have new information.

The newer Epson 7600 and 9600 printers use a light black in an attempt to overcome the problems of their previous generation printers, drivers, and inks. We do not yet have these newer printers.

How large a file do you need for large format printing?

If you have a thermal printer that outputs at 600 dpi, such as Encad and HP, then 120 dpi is the minimum that you can set in your Adobe Photoshop, Image Size option box; 150 dpi is maximum. The RIP will croak if you try to print a file consisting of over 225 dpi. Note that the dpi of your file and the dpi of the printer are totally different measurements: 120 dpi inside your image file will produce 600 dpi on your printer.

The new HP DesignJet prints its full 1200 x 600 dpi from a 150 dpi image file. So 150 dpi in Photoshop is plenty. 225 dpi in Photoshop is about maximum.

If you have a 1440 dpi printer, then you might wish a larger image file of 250 dpi or a bit more. Depends whether you have a RIP or are limited to the printer driver.

Keep in mind that although everyone desires 1440 dpi, few people actually print at 1440 dpi. It's just too slow.

We found out that the more economical paper, included in Epson's printer box, could not activate 1440 dpi on the Epson. We could only use 720 dpi, and the output was unusable. This is why the new HP's six color 1200 dpi model 5000ps is so great. Now you get actual 1200 dpi quality at acceptable speed.

ColorSpan has a helpful "file size output resolution calculator." This table tells you what file size you need depending on the dpi and size of the final image. This information, in turn, lets you know how to scan the original image. I am not sure whether this file-size calculator is on the ColorSpan Web site (www.colors-span.com) or whether it comes with their printer. You can ask at productinfo@colors-span.com.



We recently did some test printing on a ColorSpan using their hardware RIP. This RIP was capable of taking an image of modest dpi and pumping it up to produce a 14-foot long mural in impressive quality. The final file was about 700 MB; the original file was about 200 MB. I am not even sure a Roland RIP could have handled the file at this size.

When you buy your printer, request that your dealer supply you with a table of dpi, which will give you the calculations of what dpi to use at what size and what settings. This kind of table is especially necessary when you use a piezo printer, since they have many levels of dpi.

What about using Genuine Fractals to boost up the dpi? Many people love this software, but generally it's best to have true optical dpi. This implies having a scanner of a large format digital scanning back. If you cannot afford that class of hardware, try the Genuine Fractals, but be sure to compare true optical dpi against smoke and mirrors. Most pros prefer the real thing.

Apparent dpi vs. true dpi?

"Apparent dpi" is when our eyes look at an image and accept it at a quality level that is similar to a particular dpi. The output from a laser color imager, such as Durst Lambda or Cymbolic Sciences Lightjet, has a true dpi of about 300 to 400 dpi, but an apparent dpi of 4000.

Unfortunately, the concept of apparent dpi may be misused by PR firms and ad writers to bamboozle you into thinking their printer has a higher quality than what is technically feasible with their actual printheads.

ColorSpan Displaymaker XII uses 600 dpi HP printheads. 1200 dpi is using 8 colors. 1800 dpi is using 12 colors. The apparent dpi is impressive, because of all the extra colors. It provides a depth of color, which is what gives the apparent dpi. That's why the output from a ColorSpan at eight colors and above is among my favorites. It's great if you want dye ink colors that really pop. Actually, we run our ColorSpan at dual 6-color, and the output is still noteworthy. Our new Mach 12 will be run with 8 colors to start with, adding the other four colored inks when they are available. Might as well have color that is colorful.

Epson printheads are currently rated at 720 dpi. This may mean that “1440 dpi” is apparent. This means that Roland, Mimaki, and Mutoh also have 720 dpi with everything else being smoke and mirrors. Earlier Epson printheads were 360 dpi and even 180 dpi.

HP’s newest printers probably have claim for 1200 dpi, but the “2400 dpi” of the model 800 and 800ps is most likely apparent dpi. I doubt they have a true 2400 dpi printhead.

Most Xaar printheads can produce only 360 dpi or less with Fuji, Xerox Xpress, and many solvent ink systems. Any claims of 720 dpi are to be taken with a grain of salt. I have seen some really awful output with Xaar printheads, claimed as 720 dpi with nary a word about “apparent.” Of course the true dpi of industrial billboard printers is in reality a very low number, but today’s generation of printers can accomplish impressive color with software. An executive from Vutek recently wrote an article for a trade magazine with a title and theme stating, “they are all lying.”

How many colors can your RIP actually control?

In general, keep in mind that not many RIPs can control 8 colors. Few RIPs can handle more than 6 colors. Some RIPs are still stuck with managing only 4 colors, just basic CMYK. So when you drool over those 8 color printers, you may have color matching headaches. If someone tells you it will be “just a few months” before a new RIP is available, that is the infamous vaporware. This is another reason why the on-board “ps” of the HP 800ps, and 5000ps is worth considering, namely that you can be sure those RIPs can actually handle everything those printers were made to do.

Since so few people use 12 color printers, few RIPs can control all 12 colors. However, you can still print with a 12 color ColorSpan just fine.

Is this a lite RIP?

If you have a wide format printer you need a good RIP. Cheap RIPs and “lite” RIPs generally may not have enough features. We are working out a set of test standards so that RIPs can be classified on the basis of feature-sets.



Not all “lite” RIPs admit they are lite. If they cost under \$1200 you might consider asking for the FLAAR report: *FLAAR Standards of Evaluation of RIPs*. This FLAAR Report lists the features that a really good RIP offers. So you can compare and see whether a cheaper product has the features that a professional wide format printer person would expect.

However, there is a special category of low-cost RIPs: these are actually full-featured, but simply work on the one printer you designate. You save about \$1,000, because they work on one printer. However, you can change the designation to another printer later on. PosterJet is the first full-featured RIP that offers this cost savings, at least of which I know.

It is seldom indicated when RIPs are not upgradeable. Two RIPs that cannot be upgraded are the ps from HP and the Fiery from EFI (Electronics for Imaging).

Advantages of a PC as a RIP server?

PCs get faster every few months. Today (July 2002), Intel has a chip at 3 MHz. Mac has stalled since Motorola cannot develop faster chips the way AMD and Intel do for the PCs. FLAAR used Macs for years until other people in graphics and Web design told us that a PC was probably faster in every respect.

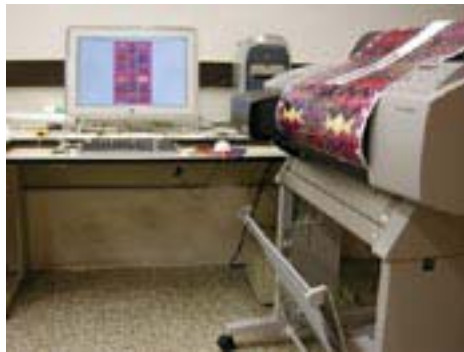
PCs cost much less than a Mac since PCs outsell Macs by an embarrassing number.

PCs still have SCSI built in. For the Macintosh, Steve Jobs got rid of SCSI in order to bamboozle you with FireWire and USB. SCSI drives are countless times faster than FireWire drives. I know this from experience; I have two FireWire drives and a dozen SCSI drives. FireWire is convenient compared only to serial or parallel connections, but bait-and-switch when it comes to raw speed.

A PC can handle really long file names. However, such a long file name will be truncated by the Mac OS, which is limited to 31 characters.

Remember, you really need two new computers when you buy your large format printer: one PC to handle the large mass of dpi, which your new printer will richly reward you for using; the second PC is to handle the RIP software. Thus, the advent of large format digital imaging is a potential bonanza to manufacturers of PCs, though none seem to have recognized the size and growth potential of this market.

Advantages of a Mac as a RIP server?



Apple with 22" cinema display in the Francisco Marroquin University office

A Mac automatically produces a thumbnail of every TIFF image. Old PC's are not as adept at producing thumbnails of images. But new Microsoft operating systems also allow thumbnails. However, on a PC, you have to create the thumbnails manually the first time. So, one by one, PCs take on features that previously only Macs offered.

A Mac is more flexible with file names. A Mac can read a file in PC format. A PC, however, is unable to read a file in Mac format. The difference is the tag, such as .doc for a Microsoft Word document. A PC needs the tag in order to recognize the file type.

It is widely believed that a Mac handles color management better than a PC.

Other than those features, it's tough to find much about a Mac that is better than a PC. Mac's freeze, lock up, and croak daily. Software conflicts are legendary, especially if you attempt to add after-market SCSI to your Mac PowerBook (laptop).

Although I still prefer the Mac cinema display, it's tough to convince any university to buy 20 of them when Dell's with 19" flat panel monitors are such a better deal.



Dell computer in our facilities in Guatemala

Monitor selection?

Pros tend to use Barco or LaCie monitors. However, if you want to save a few thousand dollars, as we do, the ViewSonic monitor is the appropriate choice. If you are doing commercial fine art printing you might prefer one pro monitor and then use ViewSonic or comparable for all the others. Downside is the annoying flicker, unless you have the professional graphics versions and a video card to match.



Monitor size: anything under 19 inches is not realistic. Most studios have 21-inch monitors. We use dual 21-inch monitors and/or the wide-panel Macintosh cinema display at 22 inches across. I prefer the lack of flicker of a flat panel display, but you cannot calibrate a flat panel display the way you can a traditional monitor. A 17-inch monitor is barely large enough even as a backup. Even with a dual monitor system we would not want a 17-inch monitor. If you want to save money at every turn, then you have to put up with a 17-inch monitor.

Recently, we saw the most fabulous monitors ever made. These impressive monitors were in the booth of U.S. Electronics, Inc.

These are described in the FLAAR Report on Print '01 tradeshow. Contact is Madhu Reddy, e-mail USElsales@aol.com, fax (952) 285-5727.

A few months later, IBM showed a monitor that measured over 21 inches at IPEX tradeshow in England. This monitor has twice the resolution of the 23-inch HD cinema display from Apple. As soon as their prices come down, it will be fun to do digital imaging at these resolutions.

Costs of printing?

Ink and paper costs have too many variables for us to predict for your individual needs. Be wary of ink cost estimates based on 360 dpi output. Few people would even consider the awful draft image that 360 dpi tends to produce. Of course, using 360 dpi results in using less ink, which is why the image looks so poor. If a company is basing its ink costs on draft mode, 300 dpi mode, or 360 dpi mode (usually called "production mode"), then it is the old bait-and-switch trick again. Bait the buyer with low prices and then switch to the real costs after the sucker has bought the printer.

Print costs for an Epson may be much higher than you would expect. This is because to clean an Epson head you have to force lots of ink through its nozzles. You cannot use economical media in an Epson printer, especially not in an Epson 7500, 9500, or 10000. Even the lowest priced Epson media is a disaster, because like all cheap paper, it cannot absorb the oversaturation of excess ink. How does FLAAR know this? Simple, we took the paper Epson sent with the printer, and attempted to use it. The paper rippled, crinkled, and bubbled up from the excess ink and wetness—after all, ink is largely colorant and water. We had to throw the print away. Actually, we would have had to throw it away anyway, because the Epson printhead failed one third of the way into the print. Magenta refused to print; after sputtering with horizontal banding tracks it fizzled out. Welcome to piezo printhead technology.

Another problem is media. If your printer uses proprietary inks, it can only use proprietary media, which of course is more expensive.

Another sneaky cost of actual production is wastage. The HP DesignJet printers waste an inordinate amount of media every time they print. They add extra media at the start and at the finish, and automatically slice it off so you cannot rescue it. Although ColorSpan makes a great printer, the DisplayMaker XII wastes media that rivals that of the HP. So far I have not noticed media waste with our Epson 7500.

If you wish additional information on what you need to watch out for when buying a printer, RIP, inks, media, or accessories, just ask for the FLAAR Report: *Survival Guide*.

We have not yet checked the ink usage cost estimates of other printer companies, but speed statistics are uniformly misleading.

Additional Tips

Printheads: Avoid Dry-out and Clogs

Inkjet printheads dry out if you do not use them for more than a few weeks.

Once you have a printer be sure to prime it or use it at least every two weeks. Encad printheads get blocked if left sitting too long. HP heads are rated to last a month without being used; 3 months of no use may cause blockage of the pores, at which point you just replace the printhead. To avoid this, you can either get a "printhead parking garage" or just press the PRIME button once a week. A "printhead parking garage" holds your HP printheads for a month. However, if you prime a thermal system once a week, you can keep the printer in fine condition for many months. So when you hear stories about printheads drying out, it's because people forget the 5 second prime secret. Besides, if under warranty, the company should give you new printheads.

We are learning that piezo printheads may be prone to clogging if they are not frequently used. Our piezo printhead is so clogged that it bands every print, and then drops a color. This means that it no longer prints that color, yet continues to use up all the other inks. We suspect this is because the printer was not used for about 3 weeks, because the media was too expensive. After-market media, which was reasonably priced, does not work with piezo printheads.

How To Store Large Digital Files



Do not use ZIP drives. They were great four years ago, but today they do not hold enough and are overpriced for storage. Get some serious digital storage.

MegaHaus sells storage, but not printers. However, MegaHaus is an ideal source for hard drives, RAID systems, and CD burners. We prefer DVD-RAM for backing up the digital files of the FLAAR Photo Archive. The makes and models change by the season, so its best to contact Robert Groover at MegaHaus and find out what is the current best buy. E-mail rgroover@megahaus.com or look under DVD-RAM, CD or RAID in the index to any of our FLAAR Web sites.



Connections between Computer, RIP, and Printer

Epson printers come with a USB connector. It's fast, but only allows you to connect the printer to one computer. If you have a dozen works from a dozen computers, than a single USB connection is useless. You need a network connection. That requires a network card, for which Epson requires you to pay an extra \$400.

Epson does not make printers for Fortune 500 or large corporations who are on a network. Epson comes from the world of desktop printers for the home, where USB is more common. We had to add a network card to our Epson 7500 to make it usable by everyone in the office.

However, few people in the office actually use it since there isn't much of a media choice available, and the media that is available is expensive. Everyone prefers the HP 1055 or HP 800 that are adjacent to the Epson in our facilities.



Training

With over 20,000 readers a month on a single Web site, please understand that we are physically and mentally unable to provide personal training. Unless you wish to ask for consulting services, which both FLAAR and BGSU each provide.

To get some background, we recommend the following:



For color management training with PostScript RIP software, you might learn from the brief report entitled: *Fast-Facts on Color Management*.

Other training programs are listed on the FLAAR Web site at www.wide-format-printers.org under the index. The index link is on the bottom of every page. In the index, go to Training. Training programs are also listed on other pertinent sites.

If you are looking to buy a printer and RIP, answering your questions is the task of the vendor. That is why low-bid buying on the Internet is a short-term gain that leads to a long-term disappointment. The loss that comes with figuring out how to make everything work is staring you in the face. This struggle will cost far more than if the printer and RIP had been purchased with a value-added training program, whereby an actual human being comes to your home or office to install everything for you.

No matter how low your budget, you need to allow for about \$900 to \$1200 in training costs when you move to large format printing and intend to handle color management with a serious RIP. We have to presume you are mature in the world of hype. Anyone can promise you training, but very few will actually deliver the kind of training you need. Think of it, how many sales people can actually produce fine art giclée prints? These are the reasons why we take the time to search out national companies who know what they are talking about. They do not operate from a P.O. Box, and they are large enough to exhibit at the major tradeshow.

We have now found reputable printer sellers who are also knowledgeable enough to offer an installation service that will result in your being able to produce good prints. After further practice and training, you will be able to produce the kind of stunning prints you see at tradeshowes and art galleries.

The easiest way to get a list of training programs is to ask for the FLAAR report: *Tradeshows, Training Programs, and Conferences*. This is available at no cost from FLAAR. Here is where we evaluate the programs on inkjet printing on textiles, inkjet printhead technology, and conferences with outstanding speakers who cover all the topics that a beginner needs for coming up to speed.



Layout Software

When you upgrade to a wide format printer you may need to upgrade your layout software as well.

Most layout software cannot do poster-sized images. PageMaker and QuarkXpress cannot do more than about 44 inches. This is with the versions of last year; I do not know about new versions.

Adobe InDesign can do images up to 18 feet long. I get the impression that Adobe Photoshop (full version, not the PhotoDeluxe version) can do long murals.

FlexiSign Pro



Since our background is photography and fine art we are not yet as familiar with the software for sign shops. We did, however, receive a message that suggested FlexiSign Pro did not yet have software updates for the UV pigmented inks for the HP 5000ps. However, by now (August 2002) we would hope that FlexiSign has been updated.

We interviewed one sign shop. They had FlexiSign for a Roland CammJet, and ColorMark hardware RIP for their ColorSpan. The Roland had clogged heads, and had needed frequent replacement of the piezo printhead. The sign shop representative said that FlexiSign required the files to be in certain software, whereas the ColorSpan RIP accepted any and every format he could imagine.

FlexiSign Pro (from Scanvec-Amiable) is a software for making signs—it's not a RIP in the normal sense of the word. All these comments are on FlexiSign dated to 2000 and 2001. It's always more realistic to check out their current version, namely for year 2002. Although we have a huge backlog, we will do our best to try out their current version so we can update this section. All the Scanvec-Amiable products just arrived today (July 26, 2002).

SignLab is another competing sign-making software from CADLink Technology. CADLink's RIP for sign-makers is PrismPrint RIP. These are not programs used if you are printing primarily photographs or fine art giclée.

We will be checking out this class of software for signs. On user groups, there are vehement comments about the problems of one or the other. We recommend you check these out. Best of all would be to visit a sign shop in your hometown and ask about their experiences with SignLab vs. FlexiSign.

Summary

If you are a commercial company, whose profits depend on speed and flexibility of options, then you absolutely need a separate after-market RIP.

No printer manufacturer admits how much time it takes to RIP a file in their slick ads. Printer companies only give you the optimal print speeds once the file is finished processing. So no one tells you how long it takes to move the file over the network. However, this is hard to know in advance since every network is different. Also, ads do not admit how many proofs, calibrations, and preliminary tests the printer will do before it the desired result is achieved.

Every FLAAR report is actually based on end-user reports from people who have already begun to use their first large format printer as well as what we find out in our own evaluation centers. To save you the headaches that others have already experienced, we have found appropriate places to get the complete inkjet printer system neatly packaged together. Most of the questions that come to FLAAR are from people that bought their printer one place, but did not realize that each different part of the system needed to be coordinated with the other parts. So, for example, they bought an Epson under the expectation that it would print on its own with no RIP (which it will), but did not realize the countless options and features that are only available with its RIP. So then they bought a RIP from somewhere else, and since the RIP vendor was different than the printer vendor, neither seller was willing to help the buyer. The RIP sales representative said the problem was with the printer, while the printer tech support was unable to answer questions on a RIP that was not from their company.

If you buy your Epson, RIP, and color management tips and training from a dealer who knows fine art and photo printing, then you will not have to write FLAAR and ask for help. We simply cannot handle the requests for training; our program is dedicated to eliminating these headaches from the start. We cannot repair your throbbing head if you fall into the bait-and-switch setup of buying a box and being led to believe that you can produce fine art prints just by plugging in the printer. For this reason, we recommend Parrot Digigraphic if you prefer the Epson line of printers. Parrot will provide you the technical support.

Of course if you had selected an HP 5000ps, then the RIP already together with all the ICC color profiles would be self-contained and included. Same with the HP 1055cm, 2800, and 3800, they all include an on-board mini-RIP. We had our HP model 2800 installed for us, and it produced museum quality prints out of the box. In our other office at UFM, Guatemala, we have our own in-house technician, so we just installed each of the printers with our own crew.



However, at our facilities at UFM, the first prints that came out created a slight problem. Everyone on the university campus wanted the prints to hang on their wall. People would even come running out of their offices when I walked down the corridor to ask for prints. And this was with an HP DesignJet 1055cm, a printer only intended for CAD drawings and GIS maps. Even this HP model was producing desirable photo posters. Now we have the 1200 dpi HP 5000ps and 1800 dpi ColorSpan DisplayMaker XII, and requests for our prints are getting worse, because the images are fully museum quality.

Books You Should Read



Adobe Photoshop and scanning books are available from Peachpit Press: www.peachpit.com.

Adobe software and related digital imaging subjects are covered in selected books by Coriolis, available from www.coriolis.com.

Book reviews and/or training are listed in the indexes of

www.flatbed-scanner-review.org

www.digital-photography.org

www.cameras-scanners-flaar.org

Booklets from AGFA that cover most key topics, an excellent series worth tracking down (listed and reviewed on one of the Web sites in the FLAAR network).

Color management books are available from GATF (Graphic Arts Technical Foundation). GATF/PIA orders can be taken at www.gain.org/servlet/gateway/publications/index.html.

Color Measuring booklet, free from X-Rite. Do not depend only on freebies, go for the larger and more thorough books as well. Listed in the FLAAR report *Fast-Facts on Color Management*.

Computer and software topics are covered in books by IDG Books. Begin your search at www.idg.com.

Fundamentals of Large-Format Color Management, a booklet by Roy Hohnen and Sean O'Leary. International Reprographic Association: www.irga.com/cgi-bin/SoftCart.exe/Store/shophome.html?E+scstore+.

Rich, Jim. (2000). *The Photoshop Grayscale Book*. Rich & Associates.

Contains good advice on B&W imaging in a new book. This book is essential reading even if you scan in color. You want Rich's newest edition, not the earlier co-authored edition by Peachpit Press. The new edition is published directly by Rich himself. Fax Rich & Associates at 301 652-8665.

Trade magazines are listed under "Book Reviews" on www.laser-printer-reviews.org. On our other sites, they are listed under "Trade" or "Magazines". However, it may be easier to find all this information in a single FLAAR report: *Tradeshows, Training Programs, and Conferences*.

Sources and Resources: Where to Buy

BEST has been an industry standard for the last several years. Contact is RIPinfo@bestcolor.com and/or rd@bestcolor.com.

ColorGATE RIP. Contact Color DNA, e-mail Jonathan Knecht at colorguru@colordna.com.

ColorSpan RIPs. If you need information on the RIPs used by ColorSpan, contact productinfo@colorspan.com. FLAAR has a ColorSpan Displaymaker XII and also the Mach 12. We prefer ColorSpan's hardware RIP for that printer since it includes all the necessary profiles.

Improved Technologies. For Roland, Mutoh (I-Jet), and Ixia giclée printers, we recommend Wasatch RIP, which is readily available from Improved Technologies; email iris@itnh.com.

Parrot Digigraphic. To obtain a RIP for Epson printers, we recommend Parrot Digigraphic. Contact imaging@parrotcolor.com. Also, John Lorusso can be contact by e-mail at jlorusso@parrotcolor.com or by fax at (978) 670-7744. They also sell CreoScitex EverSmart scanners.

PosterJet. PosterJet now has a distributor for the America. Contact is PosterJetUSA@aol.com.

FLAAR has several of the principal RIPs. In our wide format inkjet printing facility at Francisco Marroquin University, the lab technician manager prefers PosterJet because it is easy to use and very fast. Also, PosterJet works on both a PC and a Macintosh..

What we like about the HP printers is that they can produce photo-realistic museum quality, fine art giclée prints as well as signs, posters, and banners. Even more helpful is that the HP printers are designed for ease-of-use for first time users, yet has enough features and options to satisfy all the needs of pros. I would estimate that more museums and repro shops use HP DesignJet printers than any other brand. Artists and photographers have told me they keep their HP printers in their home or home studios.

ProofMaster by Perfect Proof. There is a bit of confusion since there is also a RIP named ProofMaster from Dr Wirth Graphic Technologies (in Germany). That other RIP is for color accuracy in digital textile printing. The ProofMaster we are currently evaluating comes from Perfect Proof. One of their Web sites is www.proofmaster.net. Fax 1 888 228 9070. E-mail support@perfectproof.com. Our initial impression is that this is a RIP of professional quality.

Wasatch. For a Wasatch RIP for HP, Encad, or other printers. Contact Jay Griffin, Vice President, tel 801 575-8043, e-mail jgriffin@wasatchinc.com. Wasatch is a nice RIP that is used by all levels, from beginners through full pros at commercial print shops. The people at Wasatch are friendly and helpful.

Sources for Further Help

Once you get started, and already have your printer, look around for a local community college and see if you can take a course in Adobe Photoshop, digital photography, and/or scanning. It's unlikely you will be lucky enough to find a course specifically on large format printing.

Brief Glossary

Banding (on laser print). Bands of tone that appear when a laser printer cannot reproduce a smooth gradation from one color to another. Instead of a smooth gradation, there are noticeable jumps between one value and the next.

Banding (on inkjet print). Banding is called many other things, such as streaking, but it is not a streak, it is a continuous horizontal defect. For more information see FLAAR Report on Piezo vs. Thermal.

Banding on inkjet is more complex than a different kind of banding on desktop office laser printers; several kinds of banding may occur in wide format inkjet output. Most, but not all, banding results from clogged nozzles, especially on piezo printheads and notably on some Roland printers (Epson piezo printheads).



Banding is most noticeable in areas of cyan or blue, such as the sky, or across dark solid colors. Banding may be worse in humid environments and on certain media. Ray Work adds the documentation that banding is also caused by air results in nitrogen forming, which lessens the piezo effect inside piezo printheads.

Calibration. Setting equipment to a standard measure for predictable results.

Continuous tone. An image, such as a photo or a painting, that has a range of tones or a gradation of tones that is pleasing to the eye—when you cannot see the dots per inch that make up a solid color. In the world of wide format printers, “continuous tone” means output that is similar to that of a traditional darkroom photograph.

The digital printers that can produce this quality are mostly desktop dye sublimation resin transfer systems such as: the Kodak 8600, the Fuji Pictography, or digital laser imagers such as: the Cymbolic Sciences LightJet, the Durst Lambda, and others. Most photographers state that you do not achieve continuous tone with Roland and Epson printers.

Density range. The difference between the maximum and minimum density of a single image. Linearization is a test pattern that examines the density range for a given ink on a given media. The ability to do linearization is a good feature for a RIP to have.



DPI. Stands for Dots Per Inch. Dpi is a measurement of scanner, imagesetter, monitor, and printer resolution. The higher the number of dpi, the closer together the dots. This does not necessarily mean better image quality.

Dpi in the images themselves is actually ppi, pixels per inch, since there are no dots in an image on a monitor. Ppi may also be judged as “samples per inch,” based on how many samples a CCD scanner or scan camera has taken of the image.

Dpi is an old-fashioned term that got stuck in the new digital millennium referring to so many kinds of measurement that it has become confusing.

Oversaturation, ink. Too much ink deposited onto a printed image, which causes the media to buckle.

Print server. The computer used solely for RIP software. A print server is important because a personal computer may be too slow. If you are RIPing on your computer then you can't use it for anything else unless you have dual processors and multi-tasking capability. A Macintosh is not multi-tasking unless it has OS X and associated software. Thus, most people who own a Mac are forced to buy a PC to run their RIP.

Quadtone. A grayscale image reproduced using four spot or process colors to add depth and color. B&W quadtone inksets are where you normally see this word.



Advisory



We are quite content with the specific printers, RIPs, inks and media we have in the FLAAR facilities at Bowling Green State University and Francisco Marroquin University. We would never ask for a printer or RIP that we knew in advance would not be good.

We can't guarantee or certify any make or model of printer, RIP, or class of media, because we don't know the conditions under which a these items might be utilized in someone else's facility. We have no way to know whether your inks are fresh, past their date, or whether dust, heat, and humidity are causing adverse affects on your printheads. Also, heat, humidity, dust,

experience level of your workers (whether they are new or have prior experience); these are all factors that will differ in your place of business as compared with our facilities.

Actually, you may have people with even more experience than we do, since we deliberately use students to approximate newbies. FLAAR is devoted to assisting newcomers learn about digital imaging hardware and software. This is why Nicholas Hellmuth is considered the "Johnny Appleseed" of wide format inkjet printers.

Just remember that every printer, RIP, and media has quirks, even the ones we like. However, it may be that the specific kind of printing you need to do may never occasion that shortcoming. Or, it may be that your printer, RIP, or media was manufactured on a Monday and has defects that are atypical, show up more in the kind of media you use which we may not use as often during our evaluations. Equally possible, a RIP and media combination that was a disaster for someone else may work flawlessly for you and be a real moneymaker for your company. Remember also that the "same" RIP on a PC may have different features than that "same" brand RIP on a Macintosh.

Thus, be sure to test a RIP under your own specific work conditions before you buy. If you have an important rush job due Friday, don't presume that a previously untried media will necessarily work on your RIP. Test print quality, drying time, color shift during and after drying, water resistance, lightfastness first. Check with other people in your area, or who are in the same kind of print business as you. Don't rely on references from the reseller or manufacturer (you will get their pet locations, which may be unrealistically gushy). Find someone on your own. Remember that ICC profiles are only generic, they have to be adapted to your specific temperature, humidity, and situation.

Although we have found several kinds of inkjet media with specific makes and models of printers and RIPs to work very well in our facilities, how well they work in your facilities may also depend on your local dealer. Some dealers are excellent; others just sell you a box and can't provide much service after the sale. If you pay low-bid price, you can't realistically expect special maintenance services later on. Indeed, some low-bid Internet sales sources may have no technical backup whatsoever.

And don't forget color management. If you take one single image and print it on ten different kinds of media, you will get ten different color gamuts.

While Dr. Nicholas Hellmuth is a professor at two universities, the statements in this report do not reflect the official or unofficial opinions of either university.

Acknowledgements

FLAAR would like to thank Bowling Green State University and Francisco Marroquin University for their provision of an evaluation facility. This modest support allows us to remain independent, and being independent means we can talk about the pros and cons of each printer openly.

RIPs for Large Format Printers

We would also like to thank Japanese National Museum of Ethnology as well as a private foundation in the USA. The initial funding for our reports came from them.

FLAAR has received printers from ColorSpan, Encad, Epson USA, Parrot Digigraphic, and Hewlett-Packard.

RIPs have been received from about half of the leading RIP manufacturers, including BEST, PerfectProof, PosterJet, Wasatch, and others.

Inkjet media has been received from IJ Technologies, Epson, ColorSpan, HP, Tal, 3P Inkjet Textiles, and other companies.



FLAAR also thanks BEST, PerfectProof, Scarab Graphics, ColorDNA, ColorSpan, Parrot Digigraphic, Improved Technologies, and Hewlett-Packard for funding, which provides the attractive design of the Web sites and improves the navigation through such a large information system. The three full time Web designers and their support staff are a direct result of this funding.

Grants, demonstration equipment, and training are supplied from all sides of the spectrum of printer equipment and software engineering companies. Thus, there is no incentive to favor one faction over another. Every printer, RIP, ink, and media we have reviewed all have good points in addition to weaknesses.



Left: FLAAR review editors attending Print 01 Tradeshow, In the middle: FLAAR crew preparing the data base. Right: studio photography tri-linear scanning back.



Click to view each FLAAR Network site

www.wide-format-printers.org	www.FineArtGicleePrinters.org	www.large-format-printers.org
www.digital-photography.org	www.flatbed-scanner-review.org	www.laser-printer-reviews.org
www.FLAAR.org	www.ctpid.ufm.edu.gt	www.wide-format-printers.NET

LIST OF ALL FLAAR REPORTS ON LARGE FORMAT PRINTERS

[\(click here to see detailed information on each title\)](#)

1. Printers

- List of all wide format printers that ever existed
- Wide Format Printers for CAD, GIS, Maps, Aerial Photographs and 3D Computer Generated Drawings
- Everything your Wide Format Inkjet Printer can Do, Sources of Profit (if you intend to use your inkjet printer commercially) Sources of Enjoyment (if you intend to use your printer for home, hobby or a second part-time business)
- 24" Wide Format Printers Budget and Entry-Level Inkjet Printers For Photo-Realistic and Fine Art Giclee
- Which Large Format Inkjet Printers are optimal for Photo Realistic Quality? Museum Quality Inkjet Printing on Canvas, Photo Glossy and on diverse other Inkjet Media
- Which Wide Format Inkjet Printers are good for producing Fine Art Giclee Prints
- Direct Digital Printing on Fabrics with Wide Format Inkjets Which Inkjet Printers Can accomplish Dye Sublimation for Heat Transfer to T-shirts, other textiles, ceramic tiles, and even metal.
- All the various Kinds of Inks and Colorants used in Large Format Digital Printers plus Frequently Asked Questions about inkjet inks
- Signs, Posters, Banners Which Large Format Printers can best do Indoor Signage, Trade Show Graphics, etc
- Thermal Transfer as an alternative to inkjet printers for signs and other large format needs FLAAR REPORTS on Digital Imaging Hardware, Software, Media, and Inks
- Answers to Frequently Asked Questions on the Hewlett-Packard DesignJet 5000 and 5000ps
- Is it advisable to buy a used Large Format Printer? Or any earlier (obsolete) model even if it is still new?
- How to protect yourself when you buy a Printer How to recognize hype, misleading claims? How to realize ink longevity

claims may be misleading? Survival Guide when you are shopping for a Large Format Printer

- Piezo vs Thermal Printhead Designs Pros and Cons, Fact vs Fiction Is Piezo inkjet best or can you expect more with Thermal Printheads?
- Laminating Equipment For Large Format Inkjet Printing
- Inkjet Printers as Proofers
- Large Format Electrostatic Printers
- Experience with the ColorSpan Esprit And with the ColorSpan DisplayMaker XII
- Short-run Inkjet Printing on Thick and/or Rigid Materials (up to 3 inches thick)

2. Scanners and Digital Photography

- Which Scanner is best to Digitize your Negatives and Transparencies when you need Photo-realistic Perfection and Fine Art Glicee Quality? plus, Part II How to Digitize Works of Art that are too large for a Flatbed Scanner? (scanner vs digital camera on a repro stand)
- Scanners for Pre-press
- Digital Photography and Digital Cameras, review of major kinds, 1-shot, 3-shot, tri-linear, CCD and CMOS.

3. Media and RIP's

- All the different kinds of photo paper, fabric, silk, canvas, vinyl, backlit material, watercolor and artist1s paper, even metal that you can print onto using a large format inkjet printer.
- Suggested Media and Inks for large format Signs, Posters, and Banners.
- Media and Inks for Fine Art Giclee and Photo-Realistic Quality Large Format Printing on Canvas, Watercolor Paper, Photo Glossy, and Matte.
- COLOR MANAGEMENT Where to find training, books, and help on color management.
- RIPs for Large Format Printers: What in

the world is a RIP? Why in the world would I need one? This report also includes general information for people new to large format inkjet printers.

- List of the Main Brands of RIP (Raster Image Processor) RIP is Software including Adobe PostScript to provide additional options for operating your large format printer

4. Actual-Factual end user reports

- Arizona, a Solvent-Ink Printer for Outdoor Signage A report kindly sent to FLAAR by an experienced End-User
- Iris G print (the Iris 3047 used for Fine Art Giclee Printing): A report kindly sent to FLAAR by an experienced End-User

5. Trade Shows

- Large Format Printers, Inks, Media, and RIPs presented at ISA Trade Show Las Vegas, Nevada (March 2001)
- Large Format Inkjet Printers at Graphics of the Americas Trade Show (Feb. 2001, Miami) and PMA Trade Show (Feb. 2001, Orlando) FLAAR REPORTS on Digital Imaging Hardware, Software, Media, and Inks at Trade Shows
- Large Format Printers, Inks, Media, and RIPs presented at CeBIT Trade Show Hannover, Germany (March 2001)
- Large Format Printers at DPI Trade Show April 2001 including comments on printers seen at B.I.G. trade show, May 2001
- Large Format Printers, Inks, Media, and RIPs presented at SEYBOLD Trade Show San Francisco, California (August 2000).
- Large Format Printers, Inks, Scanners and related subjects presented at PHOTOKINA Trade Show Cologne, Germany (September 2000).
- Large Format Printers, Inks, Scanners and related subjects presented at DRUPA Trade Show Duesseldorf, Germany (September 2000).
- Which Trade Shows are Worthwhile Visiting to learn about Scanners and Large Format Printers?

