

Color Business Report

Color, Computers, and Reprographics

March 2001

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Lexmark Targets the Workgroup with High-Performance Ink Jet, Laser

On March 22, 2001, **Lexmark International, Inc.** (Lexington, KY) introduced the C720 color laser printer and J110 color ink jet printer, both designed for use by business workgroups. Lexmark will be positioning both printers against the Hewlett-Packard Color LaserJet 4550. The C720, with a street price of \$1,999, is being billed as a color laser with higher print speeds at a similar price point (the Color LaserJet 4550 base model is also available for \$1,999). The J110, which costs \$899, is offered as an ink jet alternative to color laser, with equivalent performance to the HP 4550 at a lower price.

C720

The C720, designed for workgroups of 10 to 20 users, is available in three configurations: the C720 base model, the C720n, which has network connectivity, and the C720dn, which features a duplexing unit. The C720, which resembles Hitachi lasers (Lexmark would not confirm the engine manufacturer), prints 6 ppm in color and 24 ppm in monochrome (the HP Color LaserJet prints 4 ppm in color and 16 ppm in monochrome). It is driven by a 266 MHz MIPS processor, and has 32 MB of RAM. The C720 has a duty cycle rated at 5,000 pages per month, and can handle as many as 35,000 pages per month, if necessary.

The C720 is based on a 600-dpi print engine, but can simulate 2400-dpi output when printing in 2400 Image Quality mode, according to Lexmark. The printer also features Lexmark's Photo Enhancement Technology, which gives prints "near-photographic" quality through dithering, Lexmark claims. The C720 supports PostScript 3, PCL 5, and PCL 6 emulations.

Consumables

The C720 uses four flat, rectangular-shaped toner cartridges. These load into slots on the front of the printer, where most would expect to find the manual feed. Each cartridge is keyed, preventing users from loading cartridges in the wrong position. Lexmark claims that standard capacity black toner cartridges yield 5,000 pages (5% coverage) and that color toner cartridges

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yield 3,000 pages (20% coverage). To transfer toner to paper, the C720 also uses an integrated transfer belt/photoconductor, which loads into the top of the printer.

Paper Handling

The C720 and C720n ship with one 250-sheet paper tray, while the C720dn ships with an additional 500-sheet paper tray and an automatic duplexing unit. Because of the front-loading configuration of the toner cartridges, there is no front manual feed tray, as found on many color lasers. To compensate for this, the main paper tray can feed transparencies, envelopes, labels, and card stock. Output capacity on all three models is 250 sheets.

The Lexmark C720 is available for a street price of \$1,999. The C720n, which features 10/100Base-T Ethernet connectivity and 64 MB of RAM, will be available for \$2,399. The C720dn, which includes the automatic duplexing unit and 500-sheet paper tray, ships for \$2,799.

Lexmark C720: Product Specifications

| | |
|-------------------------------|--|
| Resolution Modes | 600 dpi 2400 Image Quality |
| Print Speed | |
| Black | 24 ppm |
| Color | 6 ppm |
| Duty Cycle | 5,000 pages/month |
| Memory | 32 MB (64 MB on C720n and C720dn) |
| Processor | 266 MHz QED RISC |
| Software Compatibility | PostScript 3 (Lexmark) HP PCL 5 color emulation HP PCL 6 (monochrome) |
| Interface | IEEE-1284 |
| Networking | 10/100Base T (optional on C720) |
| Automatic Duplexing | Optional (standard on C720dn) |
| Paper Handling | Tray 1: 250-sheet input tray Tray 2: 500-sheet input tray (standard on C720dn) |
| Paper Sizes | Letter, Legal, Executive |
| Paper Types | 20 to 43 lb. paper Transparencies, envelopes, labels, card stock up to 100 lb. |
| Size | 19.7"W by 16.1"H by 20.5"D |
| Weight | 86 lb. |
| Street Price | |
| C720 | \$1,999 |
| C720n | \$2,399 |
| C720dn | \$2,799 |

Source: Lexmark International, Inc.

J110

The J110, which Lexmark is billing as a "business class" ink jet printer, appears to be the company's answer to the HP Business Inkjet 2200, introduced in August 2000. Actually, the J110's case closely resembles the HP 2000C, the Business Inkjet 2200's predecessor. Appearances aside, the J110 is primed to compete with not only other ink jets but with color laser printers. It prints faster than both the Business Inkjet 2200 (7.5 ppm in color and 11 ppm monochrome) and the Color LaserJet 4550. The J110, designed for between three and five workgroup users, is a departure for Lexmark—it uses individual ink cartridges and a replaceable print head, a similar configuration has been used for many years by competitor Canon, and more recently by HP and Xerox. The J110 offers laser-like performance, thanks to fast print speeds, a paper preparation system that prevents ink bleed, and a higher paper capacity.

Errors and Omissions

Last month, we got the nozzle count right but the basic configuration wrong in our description of the print heads on the Xerox ColorgrafX X2 large-format ink jet printer. The Xerox ColorgrafX X2 has six 512-nozzle print heads, one for each color, not 12 256-nozzle heads as we stated.

We dropped three zeros on the chart on page 13 detailing total annual color prints and copies made by IKON's customers. The scale for the chart should be millions, not thousands. Thus total print/copy volume for IKON's installed base of color copiers and printers was 1.5 billion in 2000.

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Lexmark J110: Product Specifications

| | | |
|-------------------------------|--|--------------|
| Resolution Modes | 600- by 300-dpi 600 dpi 2400- by 1200-dpi | |
| Print Speed | Color | Black |
| Normal (600 dpi) | 10 ppm | 16 ppm |
| Ink saver (600- by 300-dpi) | 14 ppm | 15 ppm |
| Best (600 dpi enhanced) | 2.3 ppm | 10 ppm |
| Duty Cycle | 10,000 pages/month | |
| Memory | 8 MB | |
| Processor | 100 MHz | |
| Software Compatibility | PCL 3 | |
| Interface | IEEE-1284, USB | |
| Networking | 10/100Base T (optional on J110) | |
| Paper Handling | Tray 1: 250-sheet input tray Tray 2: 250-sheet input tray (standard on J110tn) 10-sheet multipurpose feeder (standard on J110tn) | |
| Paper Sizes | Letter, Legal, Executive | |
| Paper Types | 16 to 32 lb. paper Transparencies, envelopes, labels, card stock. | |
| Size | 20.3"W by 11.7"H by 20.1"D | |
| Weight | 35 lb. | |
| Street Price | | |
| J110 | \$899 | |
| J110tn | \$999 | |

Source: Lexmark International, Inc.

Performance

The J110 can print up to 10 ppm in color and 16 ppm in monochrome at 600 dpi resolution, exceeding the HP Color LaserJet 4550's color print speed of 4 ppm, and matching its monochrome performance. In Draft mode, which Lexmark calls "Ink Saver" mode (600- by 300-dpi), color print speed rises to 14 ppm, but black speed drops to 15 ppm. According to Drew Zande, Product Marketing Manager for Lexmark's Business Printer Division, the black speed drops because the J110 is actually taking time to process an algorithm that selectively subtracts dots to be printed, when printing in Ink Saver mode. By Lexmark's reckoning, Ink Saver mode can save users up to 50% on supplies costs. In "Best" mode, which Zande describes as "600 dpi with advanced color science processing," the J110 prints 2.3 ppm in color and 10 ppm in monochrome. Like many ink jets in Lexmark's product line, the J110 can print photos at up to 2400- by 1200-dpi. However, Lexmark would not quote print speeds at this maximum

resolution. The J110 is driven by a 100 MHz processor, which gives the printer an 8-second first page out time. Lexmark claims that the J110 is robust enough to print up to 10,000 pages per month.

The J110 also marks the debut of a new Lexmark technology, called PerfectFinish, which pre-coats sheets of paper with a thin layer of fluid that dries before printing. Lexmark claims that PerfectFinish produces crisper black text and richer colors, and reduces ink bleed, especially when printing on recycled paper. The PerfectFinish fluid, a formulation developed by Lexmark, is dispensed from a bottle installed in the back of the printer. The printer can coat up to 10,000 pages before the bottle needs to be replaced.

Details about the PerfectFinish system were not forthcoming from Lexmark. However, we were able to learn from the U.S. Patent Office that the company has received a patent for a coating apparatus for use in ink jet printers. U.S. Patent 6,183,079, granted on February 6, 2001, describes the apparatus, which is comprised of rollers and doctor blades. The patent document also gives hints about the coating material, explaining that it must have a "high viscosity such that only a minimum amount of water is introduced onto the substrate," to prevent the paper from curling. The patent says that patent application 9/096,128, entitled "Coating System for Ink Jet Applications," describes "example coating materials."

Separate Ink Cartridges

Until now, most Lexmark ink jet printers have used print cartridges with nozzles and ink supply integrated into a single unit, in a black/tri-color configuration (the early Canon-based Lexmark 4079 did use separate ink tanks and a permanent print head). The benefit of integrated cartridges, according to Lexmark, is that replacing the print head with the ink supply ensures the best possible print quality, because one is essentially replacing the entire print engine. Lexmark's opinion of permanent print heads, such as those used by Epson, is that they tend to deteriorate over the life of the printer, and have a tendency to become clogged.

The debate over separate versus tri-color cartridges is equally simple. Proponents of the individual cartridge system, Canon and Xerox, claim that it reduces waste—colors are replaced as they are depleted, while Lexmark claims that colors generally deplete evenly. Indeed, Xerox commissioned a study to determine how much ink is left over in tri-color cartridges after the first color runs out, finding that on average, 20% of the ink delivered with the cartridge remains (see *Color Business Report*, September 2000). HP and Epson also use tri-color ink cartridges in their printers, but both have introduced models with separate ink cartridge technology—most notably the

(continued on page 4)

Epson Stylus Pro 5000, introduced in March 1998, and the HP 2000C, introduced in May 1998.

In spite of the adoption of separate ink tanks by its competitors, Lexmark has resisted. "Canon claims that you shouldn't have to replace all the colors when you just need to replace the cyan," said Paul Johns, VP of Sales and Marketing for Lexmark's Consumer Printer Division, at a briefing in February 2000. "We find that nine times out of 10, all the colors in the cartridges are emptied uniformly." Perhaps the J110 is meant to address the 10% of Lexmark users who don't believe or actually experience this uniform ink depletion. The J110 uses a configuration similar to Canon's, with a replaceable print head and individual ink tanks. The print head has an expected life of 30,000 pages, each color ink cartridge has a yield of 3,000 pages at 20% coverage, and black ink cartridges yield 3000 pages at 5% coverage. Lexmark claims that black pages printed by the J110 cost \$0.017, assuming 5% coverage, and that color pages cost \$0.090 at 20% coverage. Lexmark would not give us pricing for the print head or ink cartridges, nor would it reveal the capacity of ink cartridges. "The yield on ink cartridges depends on many things other than the volume of ink delivered," explained Drew Zande. "We don't quote ink cartridge volumes because we believe it to be an inaccurate representation of yield."



The Lexmark J110, shown with an open cover to reveal the printer's separate ink cartridges.

Source: Lexmark International, Inc.

Given the investment Lexmark has made in the development and manufacturing of tri-color cartridges, we felt compelled to question the switch to a separate-cartridge model. "Businesses often print more of one particular color," said Drew Zande. "We found that this approach is better for many of our customers." Zande would not say whether Lexmark plans to work separate ink cartridges into other printers in its product line.

Paper Handling

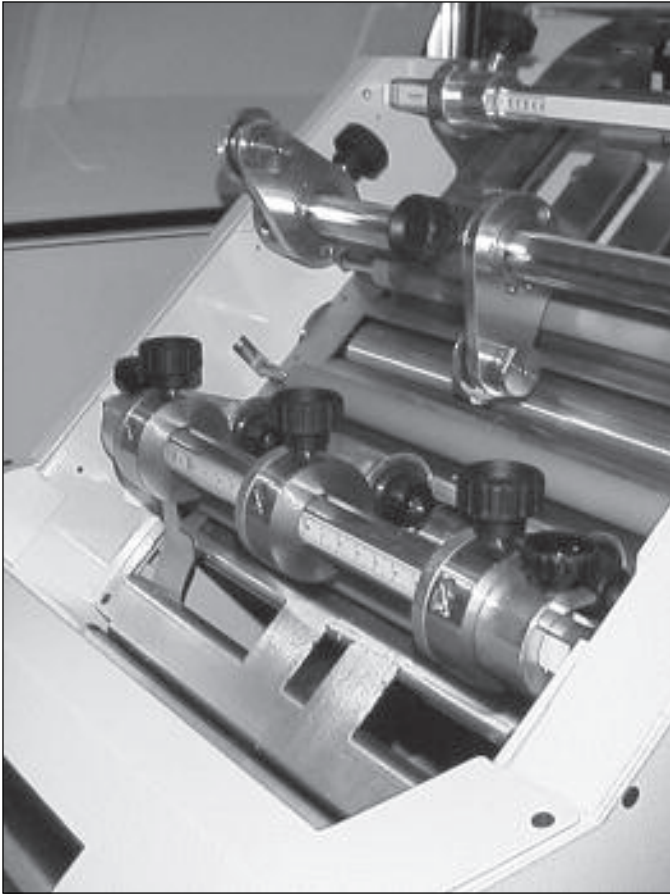
The J110 ships with a 250-sheet paper tray, which feeds paper to the printer from underneath (similar to the HP Business Inkjet 2200). The J110 also has a single-sheet multipurpose feeder, located on the back of the printer, which allows users to feed envelopes or single sheets of letterhead. The J110tn, which features 10/100Base-TX Ethernet connectivity, ships with an additional 250-sheet tray and a 75-sheet multipurpose feeder, available as options on the J110 base model. Output capacity on the J110 is 250 sheets. The J110 is available for a street price of \$899, and the J110tn is available for \$999.◇

Printers

MGI USA Addresses the "Perf, Score, and Trim" Part of Finishing

At On-Demand (New York, NY, Feb 27 - March 2, 2001) we saw a color laser printer with an integrated finishing station which can score, perf, slit and trim, simultaneously. Paper from a stack of cut-sheet pages (or 8 1/2"-wide roll) feed from one side of the Digital Carte Master Color printer from **MGI USA, Inc.** (Melbourne, FL and Paris, France), and full-color printed business cards cut to size are deposited in a tray on the other side. The Hitachi-based print engine, which is probably a 600-dpi device, runs at 4 ppm. MGI's spec sheet states a maximum resolution of 2400 dpi. We have enclosed an event ticket printed at the On Demand Show on the Digital Carte Master Color, so readers can see what the equipment can do. The Digital Carte Master Color has been shipping since spring 1999. MGI sells direct in the U.S., with offices in Atlanta, Los Angeles, Chicago, and New York.

The printer can accommodate an extraordinary range of papers, from 20 lb. bond to 94 lb. cover/140 lb. index (70 gsm to 250 gsm). MGI's sample book includes prints on linen and PPG's Teslin, in addition to a wide range of card stocks. Depending on the paper selection and the trim requirements, the print speed and/or fusing temperature will be modified. Trim requirements affect print speed because the sheet must be stationary when



MGI's built-in finishing station can slit, score, perf, and trim in a single pass. Source: Color Business Report

a guillotine cut is made, and one must prevent a new page from arriving at the guillotine while the previous page is still being cut.

MGI's software examines files to be printed, calculates percent coverage, and provides a supplies cost figure, including the cost of paper. The ticket we have included for subscribers (printed on roll-fed Bristol 94 lb. cover stock) cost \$0.016 to print. The price is slightly higher if cut sheets are used for the same job, since some stock on an 8 1/2" cut sheet is not useable.

The Economics at the Back End

The MGI Digital Carte Master Color can take on work that no other color laser printer can touch, extending the range of jobs that can be considered for digital demand printing. Much has been made of how digital technology changes the economics of pre-press prep work, making short runs possible. The Digital Carte Master Color addresses the economics at the *back end*. Three rails hold perforating, scoring, and slitting wheels (*see photo*). Transverse or horizontal cuts by the 8 1/2" guillotine are automatically adjusted after computer-controlled pattern verification. While the

Digital Carte Master Color changes the economics of post-press, the product does not remove finishing overhead altogether. This is a product for a press room, not an office. Most jobs involve some set-up and testing. With the \$54,000 price of the unit comes three days of operator training, an indication that there is a knack to getting the cuts exactly where one wants them. In addition, the finishing unit is a sophisticated machine. Maintenance is not rigorous, MGI's Michael Abergel explained, but it is very important. Thus a portion of the training is dedicated to making sure that customers are familiar with maintenance procedures.

In addition to the maintenance routines, customers have to learn which media the printer will handle. We spoke with a 7-person commercial printer that has been using an MGI printer for about two years. As long as they stay with a single stock—Hammermill Accent 80 lb. Cover—performance is predictable and reliable. Different stocks perform differently—that is, unpredictably and unreliably. The printing company has yet to do well with highly textured stiff stocks, preferred by many customers, for example. MGI asked to see samples of the troublesome paper, so it could test the material and recommend settings. Since one cannot expect one's print customers to stand by patiently while MGI's technicians experiment, the commercial printer tends to stick to the stocks they know will work well.

MGI has been responsive enough, sending technicians from its U.S. headquarters in Florida to the printer's New England location several times. Nonetheless, discovering the limits of the Digital Carte Master Color one at a time has been daunting enough to have caused the printer to give up. Their Digital Carte Master Color now is used almost exclusively as a business card and post card printer. With such limited use, the company does not feel its investment in the Digital Carte Master Color has paid off.

Nonetheless, MGI has made an important step with the Digital Carte Master Color, since the configuration addresses the ultimate user need for finished documents. A tighter media design specification may have resulted in more predictable performance. (That being said, early Xeikon users complained about the limited media selection. Designers of documents that are to go to commercial printers like to specify the paper, not vice versa.) A more open specification, the path MGI has chosen, provides a product with more latitude on paper, but with more work—both in settings and in testing—for the customer. MGI expects to release another product during the first half of this year. One would expect that lessons learned from servicing the present installed base would provide valuable guidance for subsequent iterations.

(continued on page 6)

How Will HP and Indigo Finish?

Today, the MGI Digital Carte Master Color is unique. During the second half of 2001, HP is expected to introduce the first HP-branded product based on its two-year-old development agreement with Indigo. We expect that the product will be more press-like than anything we have seen from HP. HP's target markets will probably be similar to the ones that MGI has been addressing—quick printers, small commercial printers, and in-plant print operations. (We should leave open the possibility that HP will sell its new Indigo-based product into the office environment, as well.) Press-like performance is the most distinctive characteristic of Indigo's liquid-toner process: in both print quality and media latitude, Indigo-printed pages look like offset prints. We expect that HP has been working with Indigo to reduce the size of the product and enhance its input and finishing capabilities. The chances are that HP will integrate finishing equipment manufactured by a third party. MGI manufactures its own finishing station because none of the manufacturers of slitting and slicing equipment had the necessary functionality on the shelf, and none thought slitting and slicing in a single step was even feasible, according to MGI. MGI could not find a partner ready to develop the necessary capabilities, but HP will not have that problem. To the document finishing equation, we expect HP will bring its characteristic canniness in configuring the product and diligence in ensuring reliability. ♦

On March 20, 2001, **Oki Data Americas, Inc.** (Mount Laurel, NJ) introduced the OKI C9000 color LED printer, based on a single-pass print engine similar to the one used in the C7000, introduced in October 2000 (see *Color Business Report*, November 2000). The C9000, which can handle paper sizes up to 12" by 18", is speedy—it can print 21 ppm in color and 26 ppm in monochrome, at full 600- by 1200-dpi resolution. For



The OKI C9000 can print 21 ppm in color

Source: Oki Data Americas, Inc.

Oki Data OKI C9000 Product Specifications

| | |
|-------------------------------|--|
| Resolution Modes | 600- by 1200-dpi (1200-dpi on C9400dxn) |
| Print Speed | |
| Black | 26 ppm |
| Color | 21 ppm |
| Memory | 128 MB (192 MB on C9200dxn, 320 MB on C9400dxn) |
| Processor | 400 MHz PowerPC (480 MHz PowerPC on C9400dxn) |
| Software Compatibility | Adobe PostScript 3 HP PCL 5 emulation |
| Interface | IEEE-1284, USB |
| Networking | 10/100Base T (optional on C9200) |
| Automatic Duplexing | Optional (standard on C9200dxn and C9400dxn) |
| Paper Handling | Standard: 100-sheet manual feed Tray 1: 550-sheet input tray Optional: Tray 2: 550-sheet input tray (standard on C9200n) Tray 3: 550-sheet input tray (standard on C9200dxn, C9400dxn) Tray 4: 550-sheet input tray (standard on C9400dxn) Tray 5: 1,650-sheet high- capacity feeder (standard on C9400dxn) |
| Paper Sizes | Letter, Legal, Executive, Tabloid, Tabloid Extra |
| Paper Types | Tray 1: 20 to 47 lb. paper Tray 2 - 5: 20 to 28 lb. paper Manual Feed: 20 lb. bond to 110 lb. index |
| Size | 26.2"W by 18.2"H by 23.2"D (C9200) |
| Weight | 155 lb. (C9200) |
| List Price | |
| C9200 | \$5,999 |
| C9200n | \$6,999 |
| C9200dxn | \$7,499 |
| C9400dxn | \$9,599 |

Source: Oki Data Americas, Inc.

image processing, Oki has integrated a 400 MHz PowerPC processor and 128 MB of RAM (expandable to 1,024 MB) into the C9000, giving it a first page out time of 12 seconds for color pages and 10 seconds for monochrome pages. Input paper capacity on the C9000 is 650 sheets, fed by a 550-sheet paper tray or a 100-sheet manual feed. Toner cartridges for the C9000 are expected to yield 15,000 pages each at 5% coverage. The

Oki Data C9000: Supplies and Accessories

| Supplies | List Price |
|--|------------|
| Black Toner (15,000 pages) | \$119 |
| Color Toner (cyan, magenta, or yellow) (15,000 pages) | \$275 each |
| Imaging Drum, Black (39,000 pages) | \$150 |
| Imaging Drum (cyan, magenta, or yellow) (39,000 pages) | \$199 each |
| Fuser (60,000 pages) | \$150 |
| Transfer Belt (50,000 pages) | \$225 |
| Accessories | List Price |
| Auto-Duplex Unit | \$425 |
| Internal Hard Disk (5 GB) | \$595 |
| Second and Third 550-sheet Paper Tray Mechanism | \$495 |
| High-capacity Feeder (1,650 sheets) | \$1,299 |
| Internal Ethernet Print Server Card | \$699 |
| 64 MB Memory Expansion DIMM | \$545 |
| 128 MB Memory Expansion DIMM | \$990 |
| 256 MB Memory Expansion DIMM | \$1,664 |

Source: Oki Data Americas, Inc.

C9000 series printers will be available in April 2001. Four different configurations will be offered, ranging in list price from \$5,999 for the C9200 base model to \$9,599 for the top-of-the-line C9400dxn.◇

On March 20, 2001, **Xerox Corporation's** Office Printing Business Unit (Wilsonville, OR) introduced the Phaser 2135, a color LED printer capable of printing on 12" by 18" paper. Designed for office and graphic arts users, the Phaser 2135 is Xerox's version of the Oki Data C9000 single-pass color printer. Like the Oki, the Phaser 2135 prints 21 ppm in color and 26 ppm in monochrome, and print resolution is 600- by 1200-dpi. Designed to support high-volume printing, the printer has a rated duty cycle of 83,000 pages per month. Xerox has given the Phaser 2135 a fair amount of processing muscle—its 500-MHz Pentium processor and 128 MB of RAM give it a first-page-out time of 17 seconds in color and 13 seconds in monochrome. Network connectivity via 10/100Base-T Ethernet is standard, even on the Phaser 2135N base model.

Standard paper inputs on the Phaser 2135 include a 550-sheet paper tray and a 100-sheet manual feed. The Phaser 2135N is available for a retail price of \$5,999. The Phaser 2135DT, which includes a second 550-sheet paper tray, 192 MB of RAM, a 5 GB internal hard disk, and an automatic duplexing unit, is available for \$7,299. The Phaser 2135DX includes all the features of the DT model, but also includes a 1,650-sheet paper tray and 256 MB of RAM. It is available for \$8,399. Standard-capacity color toner cartridges for the Phaser

2135, with an estimated yield of 7,500 pages, are available for \$189. Standard capacity black cartridges, which also yield 7,500 pages, are available for \$69.◇

On February 28, 2001, **Xerox Corporation** (Stamford, CT) introduced the DocuColor 12 Laser Printer, a printer-only version of its DocuColor 12 copier/printer, first introduced in August 1999 (see *Color Business Report*, September 1999). Like the DocuColor 12, the DocuColor 12 Laser Printer can print 12.5 ppm in color and 50 ppm in monochrome, and can accommodate paper sizes up to 12.6" by 18". However, the printer-only version of the DocuColor 12 carries a significantly lower list price of \$18,995, compared to the copier/printer's \$31,495 price tag. This lower cost may give it a broader appeal, especially in graphics shops that don't need copy functionality. "We found that with the DocuColor 12, a lot of our graphic arts customers didn't really need the copy function," said Jon Renault, Product Manager at Xerox. "Their workflows were digital, for the most part, so we developed the DocuColor 12 LP."

Given that the DocuColor 12 Laser Printer is not a copier, one would expect it to be sold through distribution by Xerox's Office Printing Business Unit; however, the unit will be sold through Xerox's direct sales force instead. "We want to leverage the training we have invested in our salespeople," said John Renault. "Also, the distribution channel for the OPB is attracted to a certain price point, in the \$10,000 range. Although they do carry some graphics products, their focus is networked office printers. In our sales force, we have color specialists with specialized knowledge that will give them an edge when selling to the higher-end graphics market."

Initially, the DocuColor 12 Laser Printer will driven by EFI external controllers: the Fiery X12, available for a list price of \$8,995, or the Fiery XP12, available for \$19,500. Future controller options will include the Imation Matchprint Professional Server, and Splash G-series controllers. The DocuColor 12 Laser Printer will be available in April 2001.◇

On March 20, 2001, **Xerox Corporation's** Office Printing Business Unit (Wilsonville, OR) introduced the DocuColor 2006, a version of the Phaser 790 with copying functionality. Like the Phaser 790, the DocuColor 2006 can print 6 ppm in color and 26 ppm in monochrome, and can accommodate paper as large as 13" by 18". The DocuColor 2006, which gets its copy functionality from a Fuji Xerox 600-dpi flatbed scanner, is driven by an embedded EFI x2e controller with a 266-MHz processor and ships with 64 MB of RAM (expandable to 512 MB). The DocuColor 2006 also

(continued on page 8)

integrates a 6 GB hard drive, and includes 10/100Base-T Ethernet connectivity. Standard paper input capacity is 1,400 sheets, and a 10-bin sorter is available for \$1,499. The DocuColor 2006, which will replace the DocuColor 4 in Xerox's product line, is available for a retail price of \$11,499.◇

On February 12, 2001, **Canon USA Inc.** (Lake Success, NY) introduced the S800 Bubble Jet. The S800 uses Canon's ThinkTank ink cartridge system, which

employs light and a built-in prism to detect ink levels. The S800 also prints at 2400- by 1200- dpi, putting Canon on a par with HP, Lexmark, and Epson, who have all introduced models capable of printing at resolutions of 2400 dpi or better.

The S800, a six-color photo printer, is Canon's replacement for the BJC-8200, introduced in October 1999. Like the BJC-8200, the S800 can fire droplets as small as four picoliters, but is capable of printing up to 49 levels of gradation; the 8200 prints up to 33 levels only. Canon claims that the S800 can print a 4" by 6" photo in one minute, and an 8" by 10" in two minutes. The S800 also integrates a CompactFlash card reader, allowing users to make prints directly from their digital camera media. Having joined the 2400-dpi club with the S800, Canon is also entering the longevity arena—it claims that prints made by the S800 on Canon Photo Paper Pro will resist fading for 25 to 28 years, a rating confirmed by no less an authority than Wilhelm Imaging Research. The S800 will be available in late-March 2001 for a street price of \$299.◇

In December 2000, **Improved Technologies** (Northfield, NH) began shipping its IXIA ink jet printer, designed for fine art and photo printing applications. The IXIA is a modified version of an Iris 3047 ink jet proofer. The IXIA uses the same 300-dpi print engine as the Iris, but positions it horizontally, rather than directly above the print drum. This eliminates the risk that prints will be marred by errant ink droplets. Improved Technologies has also enhanced the Iris by redesigning the print carriage assembly to make it more stable. According to Improved Technologies, these modifications help the IXIA to make prints that are free



The S800 is Canon's first printer to join the 2400-dpi club.
Source: Canon USA Inc.

| Printers | | | | |
|-------------------|------------|---------------|---------|---|
| Announcement Date | Vendor | Product Model | Price | Comments |
| February 13, 2001 | Mitsubishi | CP-8000DW | \$3,995 | Retail price for 304-dpi dye sub photo printer, designed for instant digital photo printing at events, amusement parks, and retail kiosks. Prints a 4" by 6" photo in 22 seconds. Other print sizes include 5" by 7" and 6" by 9". Available in April 2001. |
| February 28, 2001 | Ricoh | AP306D | \$4,995 | Retail price for 1800- by 600-dpi color laser printer with automatic duplex unit, developed by Ricoh. Prints 6 ppm in color and 24 ppm in monochrome. Driven by a Ricoh R4310 controller, which has a 177 MHz processor and 64 MB of RAM. |
| February 28, 2001 | Savin | SLP624d | \$4,995 | Retail price for 1800- by 600-dpi color laser printer, based on Ricoh's AP306D. Features an automatic duplex unit, and prints 6 ppm in color and 24 ppm in monochrome. Driven by a Ricoh R4310 controller, which has a 177 MHz processor and 64 MB of RAM. |

of banding, and that have smoother grey tones. Improved Technologies has also made the ink supplies on the IXIA more readily-accessible. The IXIA, which prints at speeds up to 12 square feet per hour, is available for \$74,900. Current Iris 3047 users can trade up to the IXIA for \$45,000.◇

On February 28, 2001, **Océ Printing Systems USA, Inc.** (Boca Raton, FL) introduced the DemandStream 4030 digital printing system, a highlight color electrophotographic printer designed for printing booklets, instruction manuals, software documentation, and statements. The DemandStream 4030 prints 108 ppm at 600 dpi, and supports several paper sizes, including letter, legal, and tabloid. Standard paper capacity is 5,000 sheets, and the DemandStream 4030's two output trays can accommodate up to 2,400 sheets. Available highlight colors include red, green, and blue, and with the help of Océ's CustomTone service, users can have color toner made to match any custom color, in a process analogous to mixing paint at the hardware store. The DemandStream 4030 is available for \$248,000.◇

Short-Run Printing

On February 28, 2001, **Xeikon America Inc.** (Wood Dale, IL) introduced the DCP 320 Dx digital color press, a 70 ppm version of the 130 ppm DCP 320 D, which was introduced in May 2000. The DCP 320 Dx is designed as an entry-level unit for printers who want to break into the digital color printing market. Indeed, the DCP 320 Dx has a slightly more modest price than the DCP 320—\$249,000 versus \$340,000. Those who decide that faster speed is necessary can opt for a software upgrade to the DCP 320 Dx, allowing it to print of 130 ppm. Included with the DCP 320 Dx is Xeikon's new digital front end, the IntelliStream 3.0, a server that supports



Xeikon's UCOAT UV-coating station, configured with a DCP 500 D digital color press.

Source: Xeikon America Inc.

full-color variable data printing. The IntelliStream 3.0 server integrates dual 866-MHz Intel Pentium III processors and Adobe PostScript 3 RIP.

Also on February 28, 2001, Xeikon introduced the UCOAT, an in-line UV coating station for its digital color presses. The UCOAT station applies a high-gloss UV finish to digital prints as they come out of a Xeikon digital press, giving them the glossy feel and appearance of traditional photographic prints. Other applications for the UCOAT are book covers, direct mail pieces, packaging, and glossy brochures and posters. The UCOAT UV coating station will be available in September 2001 for \$80,000.

On February 12, 2001, Xeikon demonstrated its D2F2 (Dry Digital Foto Finishing) system at the PMA 2001 Imaging Conference and Exhibition (Orlando, FL, February 11 – February 14, 2001). The D2F2 combines a Xeikon DCP 320 D digital color press, IntelliStream 3.0 digital front end, and Xeikon's UCOAT in-line UV coating station, and produces up to 8,000 4" by 6" photographic prints per hour. Xeikon expects the growing adoption of digital photography to generate a high volume of photo printing. The company plans to install beta testing units of the D2F2 later this year. Pricing for the D2F2 has not been determined, but it should fall in the neighborhood of \$420,000, the cost of the DCP 320 D and UCOAT station.◇

On February 15, 2001, **Indigo N.V.** (Maastricht, The Netherlands) introduced three printers to its Photo-e-Print family, designed for photofinishing applications. All three models, the Photo-e-Print ProLab, the Photo-e-Print MetroLab, and the Photo-e-Print 5K, feature Indigo's pigment-based ElectroInk liquid toner technology, and print at 800- by 2400-dpi resolution.

The Photo-e-Print ProLab will be targeted at professional photo labs. It can print 680 12" by 17" photo prints per hour (equivalent to 5,440 4" by 6" prints), which are then trimmed to the user's specifications. The Photo-e-Print MetroLab is designed for installation at retail outlets. It has the same print speed as the ProLab, but delivers cut, stacked, and collated 4" by 6" prints. For the wholesale and central processing labs, Indigo introduced the Photo-e-Print 5K, which also prints 5,440 4" by 6" prints per hour, collecting them on three separate rollers. Indigo could not provide pricing and expected shipping dates for the Photo-e-Print products.◇

Calibration /Color Management

On February 12, 2001, **Epson America, Inc.** (Long Beach, CA) introduced PRINT Image Matching technology for digital cameras and printers. The principal problem

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the software addresses is differences in the appearance of prints of the same image file made with different software packages. In addition, according to Epson, the wider color-space capabilities of many digital cameras is thwarted by capturing images optimized for monitor gamuts, rather than printer gamuts.

With PRINT Image Matching, camera makers can set parameters such as gamma level, color space, contrast, sharpness, brightness, shadow point, highlight point, and color balance. The parameters are saved with each image file. Epson calls this set of parameters “ideal print information.” The “ideal print information” is then used by PRINT Image-Matching-compatible printers when printing. Epson envisions that camera manufacturers will package sets of parameters into shooting modes—such as portrait, landscape, macro, scenery, or sport.

Camera makers who worked with Epson developing PRINT Image Matching include Casio, Konica, Kyocera, Minolta, Olympus, Ricoh, Sony, and Toshiba. Epson plans to deliver PRINT-Image-Matching-capable printers in Spring 2001. Although Epson has contacted other printer manufacturers about using PRINT Image Matching, there have been no announcements yet. There is no fee for integrating PRINT Image Matching into one's products. ♦

Copiers

On February 28, 2001, **Ricoh Corporation** (West Caldwell, NJ) introduced the Aficio Color 6513, a 600-dpi electrophotographic copier/printer that can print color pages at 13 ppm and monochrome pages at 51 ppm. The Aficio Color 6513 is driven by an EFI-based Fiery E-710 controller, which has a 366 MHz Intel Celeron processor, 128 MB of RAM, and an 8.4 GB hard drive. Standard paper inputs on the Aficio Color 6513 include three 500-sheet trays and one 250-sheet tray, which give the machine a total input capacity of 1,750 sheets. Given its print speeds, the Aficio Color 6513 appears to be a prime competitor for the Xerox DocuColor 12, which can print 12.5 ppm in color and 50 ppm in monochrome. The Aficio Color 6513 will be available in April 2001 for \$22,995. The Fiery E-710 controller will be available for \$6,499. ♦

On February 28, 2001, **Danka Business Systems PLC** (St. Petersburg, FL) introduced a cost analysis reporting service for its customers. The system, which uses JASPrint 2 software developed by Danka partner **Network Printing Solutions** (London, England), monitors and controls the use of networked copiers and printers, and performs job accounting functions that enable a chargeback system for printing and copying.

Danka claims that the JASPrint 2 software, which supports Windows 2000, Windows 95/98, and Windows NT operating systems, has the potential to save customers thousands, and in some cases, millions of dollars on printing costs. The JASPrint 2 software is offered as part of Danka's DankaWare software portfolio, which includes software packages from American PrintWare, Objectif Lune, Alto Imaging Technologies, and Network Printing Solutions (see chart). ♦

Controllers/Servers

On February 28, 2001, **Imation Corp.** (Oakdale, MN) introduced the Imation Matchprint Professional Server, an external controller designed specifically to drive the Xerox DocuColor 12 copier/printer. Imation's Color Fidelity Module, which uses ICC profiles to allow the DocuColor 12 to generate color proofs that simulate



Imation's Matchprint Professional Server helps make the Xerox DocuColor 12 a contract proofer.

Source: Imation Corp.

DankaWare Software Providers

Alto Imaging Technologies, Inc. (Mobile, AL)

Alto Imaging provides products and services which constitute full end-to-end document imaging systems with a focus on a true open-systems architecture

- Image Arranger is a capture manager covering a range of requirements for converting paper and film-based information to digital formats. It offers simultaneous multiple document and image viewing with convenient drag and drop, image editing, conversion.
- UltraDoc serves as a database setup and configuration utility which allows users to set up search, view and retrieval configurations. UltraDoc includes a number of other built-in features for creating and initializing standard SQL database tables.
- UltraPrint is designed to provide a number of services for a production-class copier/printer system. It can be scaled in cost and performance to match systems ranging from 40 images per minute to 300+ images per minute. It accepts postscript, PCL and image documents for printing at high speeds (color and monochrome). The printing services also include support for job and queue control as well as full job-ticketing for controlling the production process.
- UltraNet is the printer management component for UltraPrint. It allows a user to identify, connect, and configure network-connected printers.
- UltraCopy presents a familiar copier interface for local "scan-to-print" copying, allowing users to reproduce documents in a variety of forms—paper to paper, paper to digital storage, digital storage to paper, and fax.

American PrintWare, Inc. (San Juan Capistrano, CA)

A product line of server-based software that converts Xerox Legacy XES/UDK and DJDE/Metacode and IBM's IPDS and line printer data to PCL, PostScript and TIFF acceptable formats. PalServe, DJDEServe, 4235Serve, IPDSServe, DocWeaver, DocCluster, DocBuilder, DocSpooler, and SocketPrinting are products specifically designed to assist the corporate user in distributing mainframe generated Xerox and IBM-based printing information across an enterprise-wide distributed data processing network.

Network Printing Solutions, Ltd. (London, England)

NPS Ltd. provides an NT-based software solution for monitoring all print activity on a local network as well as walk-up copier activity. The JASPrint Solutions suite of software applications permits printer auditing, cost recovery, and access control of printers. The software is comprised of three main packages:

- JASPrint is a print auditing system that allows network administrators to monitor and control the use of shared printers.
- JAS Traffic Cop is a print management system that gives network administrators the ability to manage print traffic to individual network printers.
- JAS Document RIP Manager creates reports based on print activity.

Objectif Lune (Rutherford, NJ)

A family of variable data printing products for personalized printing.

- PlanetPress is a PostScript program generator which downloads "intelligent forms" to a printer. While resident in the printer itself, these intelligent forms are capable of parsing, formatting and conditionally displaying images from simple ASCII data stream.
- PlanetImage is a PC-based software that simulates the printer and creates an intelligent form image file from the same data stream. These files are in an industry standard format such as PDF, CCITT, or TIFF.
- PlanetFax is a software that simulates INTELLIGENT FORMS and faxes it through an inexpensive fax-board to a number which is embedded in the data stream. PlanetFax is fast and simple to use. Learn how you can create mass fax mailings from simple data files with all the graphics you want.
- PlanetWatch offers automated PC-based capture, printing and distribution functions to the whole PlanetPress family of products. With PlanetWatch, users can capture data from any platform, and send the data stream with intelligent forms to trigger any network or locally attached printer.

Source: Danka Business Systems PLC

those made by Imation's Matchprint color proofing system, is installed on the Matchprint Professional Server. The system supports Adobe PostScript 3 printing, and Pantone color matching, as well as several press simulations, including SWOP, Euroscale, and

Commercial. The server uses an 800-MHz Intel Pentium III processor; there are 512 MB of RAM and two 9-GB hard drives for memory. It runs on the Windows NT platform, and can be connected to a 10/100Base-T
(continued on page 12)

Ethernet network. The Imation Matchprint Professional Server is available for a list price of \$29,500. It will be marketed and distributed by Xerox.

In conjunction with the release of the Matchprint Professional Server, Imation introduced Imation Matchprint Co-Branded Xerox Color Laser Proofing Paper, a line of specialty proofing media designed for use with the Xerox DocuColor 12. Co-developed by Imation and Xerox, the proofing media is available in three finishes: Publication finish, which simulates papers used by magazine and catalog publishers; SuperWhite finish, which is a bright white sheet designed for the European printing market; and Commercial finish, which simulates Imation's Matchprint halftone proofing system. Imation Matchprint Co-Branded Xerox Color Laser Proofing Paper is available through Xerox in boxes of 100 sheets. List price per 12" by 18" sheet is \$4.25.♦

On February 28, 2001, **Advanced Hi-Tech Corporation** (El Segundo, CA) introduced the AHT Document Server for Canon, a controller designed to drive multiple Canon monochrome imageRUNNER copiers and color copiers, including the CLC 3100, CLC 2400, and CLC 1000. Running on a company's network, the AHT Document Server features a load-balancing function, which allows users to distribute large print jobs to several connected copiers. The system can also be configured to split print jobs that have color and monochrome pages, distributing them to color and monochrome copiers. The AHT Document Server for Canon ships with a Windows NT server, software RIP, and one-year service and support agreement. It supports two Canon imageRUNNER monochrome copiers in its base configuration, which costs \$25,000. An interface kit for a single Canon CLC unit costs \$15,000.♦

On February 28, 2001, **Electronics For Imaging, Inc.** (Foster City, CA) introduced Velocity Balance 2.0, a software application that can manage and distribute print jobs to up to 10 network-connected printers. Velocity Balance 2.0, part of EFI's Velocity suite of workflow software, is designed to be installed on a Windows NT 4.0 server with a minimum of 256 MB of RAM, 10 GB hard drive, and 450 MHz Pentium III processor. The software can automatically split jobs between color and monochrome printers, and can redirect print jobs when a printer is down. Velocity Balance 2.0 supports all EFI Fiery controllers, and an EFI spokesperson told us that it supports almost all print engines that are currently shipping. Velocity Balance 2.0 will be available during the second quarter of 2001. The base software package, which supports two print devices, will be available for \$11,995. Support for more print devices can be added for \$3,395 each.

Also on February 28, 2001, EFI introduced three additional modules to its Velocity workflow software family. Velocity Scan, Velocity Build, and Velocity Estimate are slated for availability during the second quarter of 2001. System requirements for each are the same as those for Velocity Balance 2.0.

- Velocity Scan is designed to enable production scanning of color and black and white photos and documents. It also automates image manipulation functions such as de-speckling, de-skewing, rotation, and masking. Velocity Scan will be available for \$2,495.
- Velocity Build includes an automated page-imposition feature, and allows users to view jobs on screen before they are printed. Using Velocity Build, operators can also edit colors and fonts in PDF documents before printing. Velocity Build will be available for \$4,495.
- Velocity Estimate, which will be available for \$795, allows print-shop managers to estimate print job costs, by factoring in consumables, service, and finishing options. This data can be used to select a print device, estimate turnaround times, and can also be exported to a database for job accounting and tracking.

EFI's Velocity Balance 2.0 workflow software and the three software modules will be available through OEM customers who decide to offer the packages. To date, none have been announced. In addition, EFI will sell the Velocity family of products through distribution. IKON, for one, will offer the software.

EFI has also recently made a significant push into the variable-data printing market. On February 21, 2001, EFI licensed **Pageflex's** (Cambridge, MA) Persona and Mpower variable-data software applications for use in future EFI products. Persona, designed for the variable-data "novice," allows users to easily create personalized documents from the desktop. It includes drivers for PDF and PostScript printing. Mpower software takes customer information, entered via the web or onto a database, and generates personalized documents such as brochures by inserting variable text and image data into onto templates. Mpower supports PostScript, PDF, and PPML (Personalized Print Markup Language) printing.

On February 26, 2001, EFI acquired the Publishing Group of Dutch IT company **FAIR BV** (Amsterdam, The Netherlands). The FAIR Publishing Group will join EFI's Professional Services Group, also based in The

(continued on page 14)

Scanners & Image Capture

| Date | Vendor | Product | Price | Comments |
|-------------------|-----------|-------------------------------|---------|---|
| February 20, 2001 | Canon | CanoScan D1230U | \$349 | Retail price for 1200- by 2400-dpi flatbed scanner. Features a built-in film adapter, which allows users to scan negatives and transparencies in 35mm and 4" by 5" formats. |
| February 26, 2001 | Epson | GT-10000+ | \$1,499 | Street price for 600-dpi document scanner. Scans an 8.5" by 11" color document in 9.5 seconds at 300-dpi , and can scan documents as large as 11" by 17". A 100-page automatic document feeder is available for \$1,499. |
| February 26, 2001 | Epson | GT-30000 | \$4,999 | Street price for 600- by 1200-dpi document scanner. Scans color documents at 15 ppm and monochrome documents at 30 ppm at 300-dpi. Incorporates a 100-page automatic document feeder, and scans documents up to 11" by 17". |
| February 26, 2001 | HP | ScanJet 7400C | \$499 | Street price for 2400-dpi flatbed scanner. Integrates a 600-dpi sensor to allow faster scanning at lower resolutions. Features a lighted transparency adapter for scanning negatives and transparencies up to 5" by 5" and 35mm slides. Available in April 2001. |
| February 26, 2001 | HP | ScanJet 7450C | \$699 | Street price for 2400-dpi flatbed scanner with 50-page automatic document feeder. Integrates a 600-dpi sensor to allow faster scanning at lower resolutions. Features a transparency adapter. Available in April 2001. |
| February 26, 2001 | HP | ScanJet 7490C | \$999 | Street price for 2400-dpi flatbed scanner, designed for sale through HP's commercial channels. Offers same features as the ScanJet 7450C, but ships with a full SCSI kit, CorelDRAW 9 software, and an image-stitching software package that allows users to scan images larger than the scan bed. Available in April 2001. |
| March 6, 2001 | Olympus | Brio D-100 | \$349 | Retail price for 1280- by 960-dpi digital camera. About the size of a cellular telephone, the camera weighs six ounces. Features include 2X digital zoom, a burst mode that allows users to capture two frames per second, and a 1.5" LCD display. Available in May 2001. |
| February 12, 2001 | Polaroid | PhotoMAX PDC 640 Modem Camera | \$250 | Retail price for 640- by 480-dpi digital camera with built-in 56.6 K modem. Allows users to upload digital images stored on the camera to the Internet via telephone lines. Features a three-mode automatic flash and 1.8" LCD display. |
| February 11, 2001 | Samsung | Digimax 210SE | \$1,000 | Retail price for 1600- by 1200-dpi digital camera. Features 3X optical zoom, 2X digital zoom, and 1.8" LCD display. |
| February 12, 2001 | Sony | Mavica MVC-FD75 | \$500 | Retail price for 1.3-megapixel digital camera. Accommodates 3-1/2" floppy disks, and features include 10X optical zoom, automatic flash, and 2.5" LCD display. |
| February 12, 2001 | Sony | Mavica MVC-FD87 | \$400 | Retail price for 640- by 480-dpi digital camera. Accommodates 3-1/2" floppy disks, and features include 3X optical zoom, automatic flash, and 2.5" LCD display. |
| February 12, 2001 | Sony | Mavica MVC-FD92 | \$600 | Retail price for 1.3-megapixel digital camera. Accommodates 3-1/2" floppy disks and Sony Memory Sticks. Features include 8X optical zoom, 16X digital zoom, and 2.5" LCD display. |
| February 12, 2001 | Sony | Mavica MVC-FD97 | \$900 | Retail price for 2.1-megapixel digital camera. Accommodates 3-1/2" floppy disks and Sony Memory Sticks. Features include 10X optical zoom, 16X digital zoom, and 2.5" LCD display. |
| February 26, 2001 | Visioneer | PhotoPort 7700 | \$150 | Retail price for 600- by 1200-dpi flatbed scanner. Features one-touch scanning with buttons for storing, copying, e-mailing, faxing, and uploading images to the Internet. |

Netherlands, to serve as a consulting arm, to help customers implement variable-data printing applications.◇

PDLs/Interpreters

On February 28, 2001, **Harlequin Incorporated** (Waltham, MA) and **Motorola Computer Group** (Tempe, AZ) announced that they are jointly developing board-based RIPs for printing and imaging hardware. The embedded servers will use Harlequin's JawsRIP. In August 2000, Global Graphics, Harlequin's parent, acquired the Digital Publishing software group or 5D Solutions Limited, creator of the Jaws PostScript-compatible interpreter. Global Graphics acquired Harlequin in July 1999. The first board from the joint venture, due this summer, will use Motorola's MTX PowerPC-based ATX-form-factor motherboard. In addition to PostScript 3, Jaws includes PCL and native interpretation of PDFs. Harlequin and Motorola expect to offer peripheral OEMs a range of design and engineering services. The joint venture will help both organizations approach broader office markets. Until now, Harlequin's focus has been software products that support high-end graphic arts workflows. Much of the work Motorola's Computer Group, a business unit within the Integrated Electronic Systems Sector, has addressed the needs of telecommunications industry OEMs.

Although the near-term products of the Harlequin/Motorola team will be embedded controllers for printers and MFPs, the team is positioning itself to help imaging hardware manufacturers participate in the potentially hot market for Bluetooth-based wireless peripherals and accessories.

Web Print Ordering

On February 28, 2001, **Danka Business Systems PLC** (St. Petersburg, FL) announced that it will market an online print procurement and management system from **SMARTworks.com** (Dayton, OH) to its customers. The SMARTworks.com e-procurement system, which links customers to commercial printers, quick printers, forms printers, and office supply companies, incorporates several functions. These include a document repository feature, which allows users to store commonly printed documents in an easily-accessed database, and a supply chain management service, which tracks inventory levels of printed materials. In addition, SMARTworks.com includes collaboration tools, which allow users to transfer document files, make design changes, and negotiate pricing with vendors.◇

Scanners and Image Capture

On February 9, 2001, **Zoran Corporation** (Santa Clara, CA) introduced the CamMini III, a 1.3-megapixel digital camera reference design kit. The kit, which includes a working camera, integrates Zoran's COACH (Camera On a Chip) imaging processor and PixelCam 1.3 megapixel CMOS sensor. According to Zoran, the camera supports rapid shooting of images at full resolution, AVI video capture, and playback of MP3 music files. The CamMini III reference design kit, which also includes software and consulting, is available for \$10,000.◇

Large Format

On March 22, 2001, **NUR Macroprinters** (Lod, Israel) introduced the NUR Fresco 3200, a large-format ink jet printer that accommodates media up to 10.5 feet wide. The NUR Fresco 3200 can print on a variety of media, including PVC banner material, blueback paper, canvas, and cotton fabric, at speeds up to 900 square feet per hour. The printer, which sports a maximum print resolution of 360 dpi, is targeted at commercial printers, sign printers, and service bureaus. The NUR Fresco 3200 is available for a list price of \$499,000.

Also on March 22, 2001, NUR introduced the NUR Salsa Ultima series of eight-color large-format ink jet printers. Designed for printing photo reproductions, the Salsa Ultima printers are capable of printing at speeds of 645 square feet per hour, at resolutions up to 600 dpi. NUR Salsa Ultima printers are available in four carriage widths. The Salsa Ultima 1500 prints on media up to five feet wide, and is available for a list price of \$169,000. The Salsa Ultima 2400, which handles media up to eight feet wide, has a list price of \$225,000. The 10-foot Salsa Ultima 3200 is available for \$299,000, and the top-of-the-line Salsa Ultima 5000, which prints on 16-foot wide media, is available for \$399,000.◇

Supplies

On February 27, 2001, **Océ-USA Inc.** (Chicago, IL) introduced Océ PhotoPerfect, a photobase paper designed for large-format ink jet printers. Océ PhotoPerfect is a 7-mil thick, bright white paper (whiteness rating: 105), available in three finishes, glossy, satin, and matte. It is compatible with dye- and pigment-based inks, and is designed to work with thermal and piezo ink jet printers. Océ PhotoPerfect is available in 100-foot rolls in six widths ranging from 24" to 60". According to Océ, the average "end-user" price for a 36" roll ranges will be between \$100 and \$125.◇

Industry Notes

Announcement

| Date | Vendor | Comments |
|-------------------|--|---|
| February 12, 2001 | Best Buy/Shutterfly | Shutterfly, an online photo sharing service, to develop and manage Best Buy's Online Photo Center. |
| February 12, 2001 | Durst Phototechnik/ Applied Science Fiction | Durst to integrate Applied Science Fiction's Digital ICE image correction technology into its Sigma professional film scanner. |
| February 22, 2001 | E-Color/AXS Technologies | AXS's EyeSpy Image Server, a software application that increases the speed at which digital images are transferred and viewed on the Internet, to integrate E-Color's True Internet Color technology. |
| February 20, 2001 | E-Color/Equilibrium | Equilibrium to integrate E-Color's True Internet Color technology into its MediaRich Publishing Platform, a server-based software package that automates the creation and manipulation of digital images destined for the web. |
| February 26, 2001 | EFI/FAIR | EFI to acquire FAIR's Publishing Solutions Group, which specializes in developing variable data applications. |
| February 12, 2001 | FlashPoint/Sanyo | Sanyo to license FlashPoint's Digma Photivity wireless photo transfer technology, and integrate it with Sanyo digital cameras under development. With Photivity, users can transfer digital images to the Internet via wireless connection. |
| February 27, 2001 | IKON/ImageX | IKON to offer ImageX's online print procurement system to its corporate customers. ImageX, in turn will offer IKON's Digital Express 2000 online print management, production, and distribution system to its customers. |
| February 13, 2001 | Indigo/Printlife | Printlife, a provider of online photofinishing services, to install Indigo digital color presses at its printing facilities in the U.S. and Japan. |
| February 20, 2001 | iPrint/Oracle | iPrint to provide an online print-ordering system for Oracle, allowing Oracle's 25,000 employees to order business cards and stationery items. |
| February 13, 2001 | Kodak/Olympus | Kodak and Olympus to co-develop CCD sensors for digital cameras. In addition, both companies will develop an online photo-sharing and printing service. |
| March 13, 2001 | Monaco/MacDermid ColorSpan | MacDermid ColorSpan to integrate Monaco Color API, a software package that generates ICC profiles, into its ColorMark+ RIP. |
| February 12, 2001 | PhotoAccess/JVC | PhotoAccess to provide online photofinishing services to users of JVC Photo Club, JVC's online digital photo-sharing web site. |
| February 8, 2001 | Pixami/BigNose.com | Pixami, a developer of online imaging technology, to develop an imaging system for BigNose.com users, allowing them to create custom posters and other large format graphics. |
| February 14, 2001 | Polaroid/JoePix | Polaroid to partner with JoePix, a provider of digital photography promotions, to provide digital photography services at sporting events, concerts, and festivals. |
| March 14, 2001 | Scitex/KBA | Scitex to transfer its share of Karat Digital Press, Inc., manufacturer of the 74 Karat digital press, to KBA, in exchange for future performance-related payments. |
| March 6, 2001 | Xerox/Fuji | Xerox to sell half of its stake in Fuji Xerox to Fuji for \$1.3 billion, decreasing Xerox's share in the company to 25 percent. |

On February 11, 2001, **Eastman Kodak Company** (Rochester, NY) introduced two ink jet papers, designed for photo printing applications. Kodak Ultima Picture Paper is available in two finishes, high-gloss and satin. Kodak claims that prints made on Ultima Picture Paper with HP and Epson ink jets will last between 20 and 25 years, and that prints made with the Lexmark-based

Kodak Personal Picture Maker 200 will last over 30 years. Kodak Ultima Picture Paper is available in 15-sheet packages for a retail price of \$19.99. Kodak Premium Picture Paper has a satin finish, and according to Kodak, offers the same longevity as Ultima papers. It is available in 15-sheet packets for \$9.99, and a 50-sheet package is available for \$29.99.◇

Technology Adoption

Study Demonstrates High One-to-one Response Rates

One-to-one marketing can yield three times the response rate of a conventional direct mail program, according to an A-B comparison study conducted by the **IIW Institute of Information Management** (Dortmund, Germany). In the experiment, funded by NexPress, utility business customers were asked to enter into a one-year contract for both gas and electric utilities, "prior to the liberalization of the gas market." In the experiment, two of the four pages of the mailing piece used photos specific to the customer's industry classification. In addition, the customer's name was mentioned in two places, and the pieces were personalized with account and rate information. The personalized piece resulted in 104 contracts returned, a 15.5% order rate for Stradtwerke Dusseldorf AG, the utility (*see chart*). Conventional direct marketing pieces were mailed to 748 customers, and 40 (5.4%) returned a signed contract. A link to a 26-page summary report, *Added-value Analysis of Four-color Digital Printing*, can be found in the News Release section of the NexPress web site (www.nexpress.com). The link is part of a news release dated February 12, 2001, titled, "One-to-One Marketing Study: Personalized Content Boosts Success Rate Nearly 300 Percent - Feb. 2001."

The personalized piece generated three times the telephone inquiry rate, as well. Forty-two recipients (6.3%) of the personalized piece called the company to ask about the program, compared to only 18 (2.1%) of those receiving a conventional marketing piece. The set of phone inquiries generated an additional 38 orders—27 from those who received the personalized mailing, and 11 from those who received the conventional mailing. On a percentage basis, the follow-through order rate on telephone inquiries was

nearly equal for both groups.

In addition to providing compelling evidence of the effects of variable-data printing, the report supplies a step-by-step structure for tracking the costs and results of mailing programs. Further, the report provides a set of tactical considerations for those interested in using one-to-one marketing techniques.

CRM: The Price to Pay for Getting Higher Response Rates

The report recommends that variable-data marketing efforts be undertaken as a tool within a customer relationship management program (CRM): "The presence of a CRM infrastructure is thus a prerequisite and a starting point for further decisions, e.g., relating to the development of marketing campaigns and the technologies and service providers to be used for this purpose." By assuming that companies should practice CRM *anyway*, the report's authors are able separate CRM-related costs from the costs of using communication tactics such as one-to-one marketing. "...decisions relating to communication channels, media and technology are independent of the basic decision to practice CRM. This also means that the costs associated with the basic CRM infrastructure should not be allocated to individual communication channels."

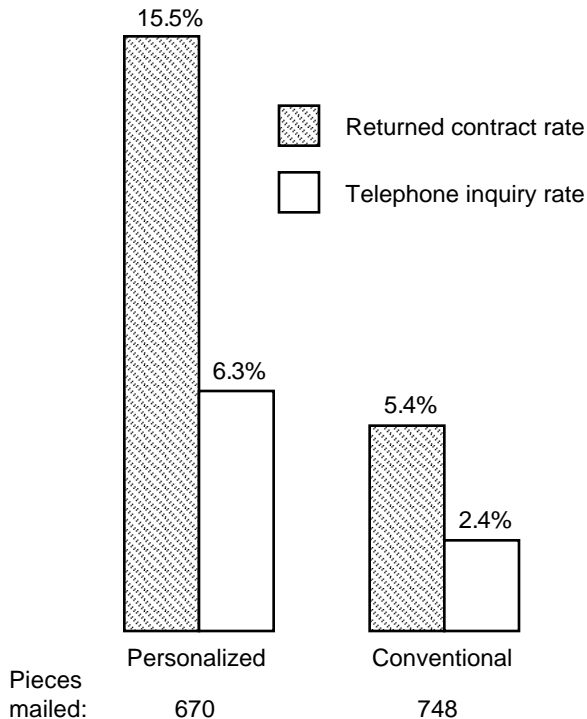
Under the "Observed Implementation Problems" section of the report (page 20), the authors note that "CRM is a marketing concept that pervades the entire company." The IIW Institute of Information Management recommends that CRM be institutionalized and that "dialogs" with customers populate database records. The cost consequences of implementing customer relationship management can be significant. Even if one can rationalize not attributing the costs directly to one's marketing budgets, the company must *still* bear the cost, somehow.

Assuming that customer relationship management is instituted and those who are involved in customer

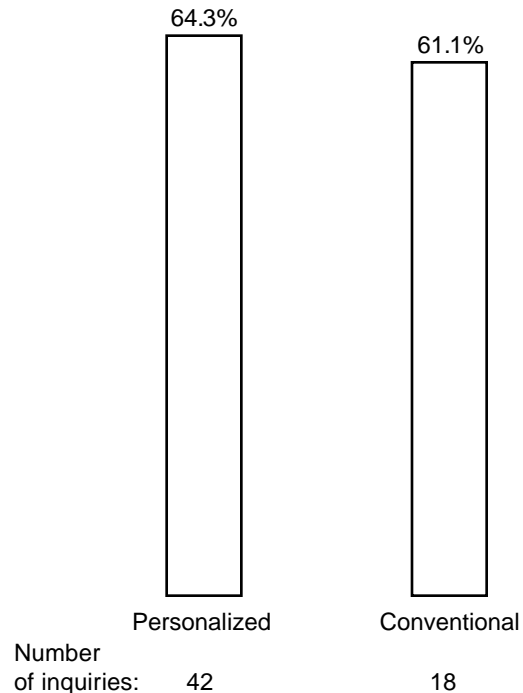
Distribution Notes

Announcement

| Announcement Date | Vendor | Comments |
|-------------------|-----------------------|--|
| February 28, 2001 | Danka/Canon | Danka to market and distribute Canon CLC 5000 color copier/printers. |
| February 28, 2001 | Danka/WorldCrest | WorldCrest, a provider of online procurement for goods and services, to offer Danka's line of copiers and printers from Canon, Toshiba, and Heidelberg to its customers. |
| February 21, 2001 | EFI/Pageflex | EFI to license Pageflex's Mpower and Persona variable data software packages. |
| March 8, 2001 | IBM/Exstream Software | IBM to sell Exstream's Dialogue personalization software with its digital color printers, including the InfoPrint Color 130 Plus. |
| February 12, 2001 | Xerox/Pageflex | Xerox to license and resell Pageflex's Mpower and Persona variable data software packages through its sales channels. |

Response Rates: Personalized vs. Conventional Mailings

Source: IIW Institute of Information Management (www.iw.de)

Telephone Inquiry Conversion Rates

Source: IIW Institute of Information Management (www.iw.de)

contact contribute to the database with accurate information, “as-you-go” database updating may be insufficient for some applications. An assumption about a database is that the information categories, are, to a great extent, predefined. With the exception of information that is mandatory, each field will have an “incompletion” rate, since not all customers will have information in all categories. When the fields *do* contain information, one has to determine whether the information is up to date. Therefore, for a given marketing application, one needs to ascertain if the database has the required information in the first place, and if the information is complete enough and current enough. For Stradtwerke Dusseldorf AG’s one-to-one marketing campaign, the utility’s call center had to verify all addresses and industry classifications. In addition, the utility’s customer databases, which had been developed and maintained for accounting purposes, had to be converted to suit marketing purposes. (The summary report provides no details about the need for this conversion or the nature of the change.) Based on the experience with Stradtwerke Dusseldorf AG, the report concludes, “...it can be said in retrospect that the establishment of an infrastructure (verification of

customer addresses, establishment of a customer database procurement, selection and preparation of content, establishment of customer data record/content links) does not pay off in just one project.”

The more creative one gets about linking customer information with customer communication, the more chance one has of needing to collect or update information in order to launch the campaign. That being said, once a company starts to use one-to-one marketing, a new relationship between an organization’s customer database and the company’s communications efforts will be established. No doubt marketing planners will become skilled at using the “standard” set of data, and will learn how to anticipate the need for enhanced or additional data.

Will the Need for a Long-term View Thwart Adoption?

In practice, most promotional campaigns are indeed asked to stand for themselves in “just one project.” One wants to foster creative ways of communicating, but when the sales motive is behind the effort, the expectation is that the mailing will make a profit. In

(continued on page 18)

Color Business Report

marketing, one tends to do more of what is effective, and one avoids what is not effective. Pilot programs are the experiments that help marketing executives tell the difference. A well-run experiment can help a marketing manager make a decision with confidence. The decision, in such cases, often is to extend the pilot effort to a reachable population with the same characteristics. If the costs of establishing a CRM infrastructure are too much of a burden for a pilot program, won't the costs of extending data collection (address and industry confirmation in the case of this utility) to a larger group also be burdensome? If one looks for return on marketing investment when making a marketing decision, linking one-to-one marketing techniques to broader deployment of a customer relationship management program may act as deterrent to adoption of variable-data marketing.

Extending a pilot program to a larger population is a traditional way of thinking about direct mail marketing. And for the purposes of comparing results with conventional direct mail marketing techniques, the two programs have to be similar. But once the results are proven and the concept of one-to-one marketing is accepted, direct marketing can become quite unconventional. Why not work the economics in reverse, and stop doing mass mailings (anathema to direct mail professionals)? Instead of extending a 1,500-piece test to 150,000 or 1,500,000 pieces, the campaign can be spread out over 100 days, presumably with the same

monetary return. Making direct mail a continuous process rather than a batch process has several advantages. For one, if updating or extending a large database is too expensive, one can key single pieces of outbound mail to the receipt of inbound database updates. Since one controls inbound orders (and telephone inquiries) by controlling outbound mail, orders will come in at a steady rate rather than being compressed in a single time period. In addition, with personalized mailings, incoming orders or calls can be directed to particular call center staffers, fostering the dialog that is implicit with CRM.

Dialog

The concept of dialog marketing is raised in the IIW Institute's report, with the implication that, on a customer-by-customer basis, the fields of a multi-faceted customer database will become populated with information about customers. The information will be available to all who are involved in customer contact, and will be updated as the "dialog" with the customer continues. One-to-one mailing pieces are but one possible application of the information in a very rich customer database. *Added-value Analysis of Four-color Digital Printing* provides evidence of benefits to be derived by using document technology in marketing, while cautioning that achieving results requires both long-term thinking and implementation of customer relationship marketing techniques.◇

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