

It isn't every day that a product is released with capabilities enabling new applications for existing technologies. Welcome Rimage's Everest printer. The ability to apply attractive permanent CD and DVD labels conveniently has long been a practical barrier to innovations from vending kiosks to low-run optical disc business card production. Now, the Everest answers the call by bringing previously unheard-of abilities, such as indelible photographic quality output and white and hub printing all in a robust commercial-grade design.

Currently, the Everest is only available as part of one of Rimage's automated disc labeling (AutoPrinter) or publishing (Amigo II, Protégé II, Autostar II) systems. For this review, the Everest was evaluated using Rimage's computer-attached AutoPrinter, which is compatible with PCs running Windows NT 4.0 and 2000, as well as Macintosh systems using Mac OS 8.6 or higher.

Rimage AutoEverest

Hugh Bennett



The Everest weighs 44 pounds and measures 9.5" H x 9.5" W x 15.35" D. Front controls are bare minimum, consisting of one button (motorized tray open/close) and four indicator lights (error, disc present, active, power). Computer connection on the back is limited to a single USB port, and an 8-pin connector allows attachment to compatible disc autoloading systems. Consumables are conveniently changed by opening the side of the unit and sliding out the appropriate carrier.

re-transfer printing process

The Everest is the product of a long and involved development collaboration between Rimage and Alps Electric, an electronic component manufacturer best known for digital photo printers and as parent of car audio notable Alpine Electronics.

Employing Alps' proprietary "Micro Dry" technology, the Everest is classified by Rimage as a thermal "re-transfer" printer. Also referred to in the printing industry as "intermediate transfer," re-transfer systems are more commonly used to decorate everything from fabrics (T-shirts) and ceramics (mugs) to metal (signs) and plastic (identification cards). To accomplish its task, the Everest uses two separate consumable items, an ink ribbon—monochrome black, Cyan/Magenta/Yellow (CMY), or CMY/White (CMYW)—and a transfer film, in its multistage printing process. The first step involves applying heat (from a thermal print head) and pressure (from a roller) to deliver solid-colored resins from the ink ribbon, advancing between its supply and take-up spool, onto the similarly configured roll of intermediate transfer film. CMY and CMYW ribbons contain separate panels for each colored resin and the transfer roll advances and rewinds for as many passes as are necessary to form the image.

Once the transfer roll contains the completely assembled image, labeling takes place by pressing the roll to the surface of the disc. Through the combination of heat (from a halogen lamp) and pressure (from a roller) the resins on the transfer roll are conveyed to the surface of the disc as a sliding tray moves the disc past the fuser assembly. During the process, the transfer film also surrenders layers that bind and protect the resins resulting in a completely smooth, water-proof, and extremely durable laminated finish.

printing quality

In addition to their permanency, Everest labels are photo-realistic, akin to those created by offset printing. Putting conventional thermal transfer and commercial silkscreen production to shame, the Everest forms images composed of variable-sized dots with an output resolution equivalent to 160 lines per inch (LPI).

Test-printing several hundred discs over the course of this Everest evaluation largely confirmed these expectations. Using various combinations of photographs, vector and bit-map graphics, and text, the Everest performed admirably by printing stunning labels with dense fields of color, photo-realistic images, and attractive text.

As with any new product, the Everest did exhibit some issues with various shortcomings brought to light depending upon the colors and graphic types used. Shades of yellow were often contaminated with small red dots, sky blues seemed faded, and other colors sometimes lacked warmth. Many of these shortcomings were subsequently addressed in a new version of the Everest's printer driver, which added new features permitting more fine control over the printing process. For example, several new controls were added including a threshold setting to

limit how light a shade of a color would print, a fixed dot mode for reducing noise in solid colors, and contrast and saturation controls for improving warmth. Even beyond these changes Rimage pledges itself to continuing refinement. One challenge that may be more troublesome to overcome is the partial lack of color matching. Although Everest ICC and ColorSync color profiles exist, none are available (or perhaps even practical) for the various brands of discs, thereby making precise color matching difficult.

Beyond producing photo-realistic images, the Everest has several capabilities never before seen in desktop disc-labeling systems. The most dramatic is white printing (using the optional CMYW ribbon) on silver surface media. Significantly expanding visual possibilities, white may be printed by itself or as a background to which other colors can be applied. Testing the Everest with a CMYW ribbon took some adjustment, but with practice yielded extremely striking and attractive results with labels combining white, multiple colors, and exposed silver. Disappointingly, however, the white resin was not dense enough to mask completely the color-shifting effects of darker disc surfaces (such as gold).

Rimage AutoEverest		price \$9750
<p>synopsis: The first truly innovative disc-labeling product to emerge in the past six years, the Everest fills a significant void in the market and sets new quality standards with its photo-realistic output, unmatched label durability and white and hub printing abilities. Clearly not for every user or every task, the Everest represents, however, the last piece of the puzzle for many applications and, like any revolutionary product, empowers new ones.</p>		<p>info for more information, contact:</p> <p>Rimage Corporation 7725 Washington Avenue South, Minneapolis, MN 55439; 952/944-8144; www.rimage.com</p>

Also unique to the Everest is its ability to print in the disc-clamping (hub) area, allowing labels to cover the entire surface. Beyond appearance, hub printing is useful in some applications for marking discs with serial numbers or other identification information.

Unlike the forgiving nature of run of the mill inkjet printers, the Everest is demanding and, as with most high-end printing devices, requires graphic arts knowledge and patience to learn the nuances of the system.

time is money

Quality is one thing, but time is money in any production environment. On the whole, the Everest proved during testing to be slower than thermal transfer printers, but faster than some popular inkjet units.

With a CMY ribbon installed, the Everest took (including tray movement) 95 seconds to print a single, full-surface disc. Labeling subsequent discs with the same image took only 60 seconds, thanks to the Everest's built-in memory and ability to begin printing on the transfer roll before the next blank disc is inserted. Each new image takes 95 seconds to process, so the Everest is most efficient when performing large runs using the same label. When operating with the CMYW ribbon, the printer makes an additional printing pass to the transfer roll, which slows the process to 113 seconds for the first disc and 81 seconds for subsequent discs using the same image. Printing with the black ribbon proved the speediest, proceeding at 58 seconds for the first disc and 42 seconds for each identical one following.

everest-compatible discs

During the Everest's development, and even for sometime after its release, Rimage expressed confidence that the unit would print on a wide variety of disc surfaces, including low-cost lacquer-coated media. Unfortunately, experience has proven such expectations to be overly optimistic.

The Everest works by conveying colored resins from its printer ribbon onto its transfer roll and then fusing those resins along with donor layers of the transfer material onto the surface of the disc. For the resins and donor material forming the label image to be successfully conveyed from the intermediate film to the disc surface, printing conditions must be such that the printed label favors adhering to the disc surface rather than the transfer film. This means that printing success or failure depends upon such factors as the chemical (composition of material, etc.) and mechanical (texture, flatness, etc.) properties of the disc surface. Given the complexity of these variables, it shouldn't come as a surprise that only certain types of surfaces are suitable for printing with the Everest.

Generally speaking, lacquer coatings do not work with the Everest, a fact confirmed during testing when several discs from a couple of different

manufacturers had reflective layers and lacquer coatings torn from their substrates. Media topped with clear "crystal" coatings, including discs from Mitsui and Maxell, fared better during the evaluation and are the best choice when printing using either the monochrome black or CMYW ribbons. Inkjet media from some manufacturers, including Verbatim, Taiyo Yuden, MBI, and Kodak, also worked with the Everest, but had a rough texture that detracted from the final result.

For printing jobs using CMY ribbons, most users will opt for discs featuring white surfaces specially optimized for thermal transfer printing. Tests using such products from Kodak, Mitsui, MBI, Verbatim, and Prodisc yielded outstanding results, with the Mitsui discs exhibiting the smoothest and most attractive surfaces. The Everest also encountered no trouble labeling the bare polycarbonate plastic surface of the dummy substrate of



Color big as life

Everest™, the pinnacle of CD printing technology.

With Everest's revolutionary print technology, you can create images so realistic, you'll feel like you've been there. Your CD and DVD labels will come to life with photo-quality, color-rich, indelible images.

Let Everest come to you. To get your **free sample CD**, visit our website at www.rimage.com/everest and enter the code word: **Color**.

Everest, the only print technology of its kind, is available on the Rimage Producer II line of Automated CD and DVD Publishers. Call **1-877-218-5901** and we'll help you select a Rimage™ product best suited for your data publishing, duplication, storage or printing needs.





◀ Using various combinations of photographs, vector and bitmap graphics, and text, the Everest performed admirably by printing stunning labels with dense fields of color, photo-realistic images, and attractive text.

▶ Also unique to the Everest is its ability to print in the disc-clamping (hub) area, allowing labels to cover the entire surface. Beyond appearance, hub printing is useful in some applications for marking discs with serial numbers or other identification information.



a dozen Mitsui DVD-R discs and, unlike the older Prism printer, was not affected by the presence of the hub ring. It should be noted, however, that some brands of DVD-R discs use a clear protective overcoat that was partially stripped off during testing.

Given these caveats, it would be prudent to try a selection of products from a variety of manufacturers to determine what's best for your application. Keep in mind, however, that all manufacturers do not impose rigid specifications for their surface coatings nor have tested for the Everest.

the price of beauty

As is the case with any printer, the true cost of owning an Everest has less to do with the price of the hardware than with the materials the unit consumes. When calculating costs to print a disc, remember that the Everest uses several consumable items including the colored ribbon (black, CMY, or CMYW) and the transfer roll. The cost and number of discs processed by colored ribbons varies according to their type, but transfer rolls are priced at \$91.95 and label 1,000 discs.

Black ribbons are priced at \$73.95 and print 1,000 CDs, so, when adding the price of the transfer roll, it will cost roughly 17 cents to print a monochrome black label. In the case of color, 500 CDs can be printed from each \$184.95 CMY ribbon. Including the transfer roll, that translates to approximately 46

cents per three color label. CMYW printing is an even more expensive proposition, with only 375 CDs labeled per each \$198.95 ribbon for a cost, including transfer roll, of roughly 62 cents per disc.

For those experienced with Rimage's older Prism printer (where print heads are also consumable items with limited lifespans), it should be noted that the Everest's print head is much longer-lived (35,000+ discs versus 12,000 passes) and, therefore, not typically factored into price per disc calculations. On the downside, unlike the Prism, for the Everest there are no third-party ribbon offerings currently available to help lower operating costs.

Putting things into perspective, labeling discs with the Everest doesn't come cheap. For example, printing a monochrome black label using an Everest costs at least twice as much as it does using a Prism (8 cents). And unlike the Prism (which prints monochrome labels on less expensive lacquer-coated CD-R media), the Everest requires discs with compatible surfaces. When it comes to color quality, the Prism may not hold a candle to the Everest, but is more than sufficient for basic spot-color work and, at 35 cents per disc, does the job more cost-effectively. Inkjet systems are a more fair comparison to the Everest for producing high-quality color work and average around 30 to 42 cents per high-resolution fully-printed disc, although suffer from inherent smudge limitations.

other companies mentioned in this article

Eastman Kodak Company
343 State Street, Rochester,
NY 14650; 716/724-4513;
www.kodak.com

Maxell Corporation of America
22-08 Route 208, Fair Lawn,
NJ 07410; 800/533-2836;
201/794-5900;
www.maxell-data.com

MBI
(Glyphics Media subsidiary)
333 Metro Park, Rochester, NY
14623; 716/272-1360;
www.glyphicsmedia.com

Mitsui Advanced Media, Inc.
10045 Federal Drive, Colorado

Springs, CO 80908;
888/626-2377;
www.mitsuicdr.com

Verbatim Corporation
1200 W.T. Harris Boulevard,
Charlotte, NC 28262;
800/421-4188,
704/547-6500;
Fax 704/547-6609;
www.verbatim.com

Prodisc Technology, Inc.
No. 13, Wu-Chuan 7th Road,
Wu-Ku County, Taipei Hsien
12345 Taiwan, R.O.C.;
+886-2-2299-2255;
www.prodisc.com.tw

the bottom line

Unlike blinding increases in recording speeds, advances in handling robotics, and improvements to control software, the options available for seriously printing unique and low runs of attractive-looking discs have remained inadequate. The first truly innovative disc-labeling product to emerge in the past six years, the Everest fills a significant void in the market and sets new quality standards with its photo-realistic output, unmatched label durability and white and hub printing abilities. Clearly not for every user or every task, the Everest represents, however, the last piece of the puzzle for many applications and, like any revolutionary product, empowers new ones.

Hugh Bennett (hugh_bennett@compuserve.com), an EMedia contributing editor and columnist for *The CD Writer*, is president of Forget Me Not Information Systems (www.forgetmenot.on.ca), a reseller, systems integrator, and industry consultant based in London, Ontario, Canada.

Comments? Email us at letters@onlineinc.com, or check the masthead for other ways to contact us.