visioneer

On-BoardAcuity

Turn your image processing "up to 11".

On-Board Acuity allows the scanner to deliver optimized and compressed B&W files right from the scanner significantly reducing the amount of data transferred and saving time and processing at the workstation.

Scanners do a great job of creating digital images from our documents. These files however often contain a lot of extra data we don't want or need such as color or grayscale shading. In addition, our originals aren't always in perfect shape so the scanner captures all those stains, tears, creases and other artifacts we'd rather not keep. Typically we just want clean, small, black and white images that take up very little space and are easy to read.

Most departmental scanners have some

The Xerox® DocuMate® 5445 and DocuMate 5460 scanners.

means of taking all this captured data and reducing it down in size, removing unwanted components and delivering just the information we really want. This process is often referred to as image processing (IP). Image processing can take a poor quality document with challenges such as small wrinkles, low-contrast text, and bleed-through and make it a near perfect "10".

Software vs. Hardware Image Processing

On many desktop and departmental scanners most, if not all, of these processes happen in software - typically through the scanner's driver or in the scanning application itself on the PC. The Xerox® DocuMate® scanners are no exception and the full line uses Visioneer Acuity software image processing to ensure those imperfect originals end up as perfect scans.

While using software IP is convenient and can do a great job, the challenge with a software-based solution is that it relies on the workstation's CPU to manage these data-intensive image processes. Often, if the workstation is older, has limited RAM or is being used for other tasks,

the added IP workload can cause the CPU to become bogged-down resulting in a slowdown of the scanner or simply making you wait to view the images while the software finishes up all those image processing tasks. This slowdown can become more prevalent as more and more IP features are enabled. To avoid these delays, users often forego certain image improving enhancements they might otherwise gain benefits from.

The solution?

Offload image processing to the scanner itself and remove the need to overburden the workstation. Performing IP at the scanner level using On-Board Acuity hardware-based image processing allows users to scan images and apply specialized image enhancing processes with no slowdown to the scanning speed or transfer and delivery of image data to the scanning application. In other words, Xerox® DocuMate® scanners with On-Board Acuity now go "up to eleven".

Images are delivered to the driver already improved, enhanced and reduced in size.

On-Board Acuity also brings three unique new features to the suite of Acuity functions:

Line smoothing. When scanning at resolutions of 200 dpi or lower, very close thin lines such as you might find in a barcode or graphical pattern are often slightly altered when converted from grayscale data to a black and white image. These thin lines could potentially merge together into one larger line and compromise the integrity of the barcode. On-Board Acuity now applies special logic to the data prior to and during the thresholding procedure to ensure that multiple thin lines remain clear and separate thereby improving barcode readability and appearance.

Text Brightness Adjustment. The Text Brightness Adjustment is a new feature that improves the visual quality of text on the page when scanning with a halftone or diffused threshold. Normally when there is a photo on a page a user may choose to have a black and white image created with a halftone so as to not lose too much detail. However, when doing so, text is usually washed out and can look altogether poor. The new Text Brightness Adjustment Feature ensures that when performing halftone thresholds, text will still be rendered in a nice dark crisp format thus allowing for good quality photo reproduction and sharp text on the same page.

Enhanced Long Document Support. The upgraded on-board hardware now offers the added ability to scan documents up to 150" at up to 400 dpi in long document. At 600 dpi scanned images up to 100" long are supported. This is an increase of 50% over the previous limit versus using software based Acuity with the DocuMate 5445 and 5460.

On-Board Acuity Features:

- **Automatic Color Detection** – Choose to deliver color images only when a color original is detected.
- **Thresholding** (bit-depth reduction) – Create B&W images prior to delivery across the USB cable thus reducing the overall amount of data that needs to be transmitted.
- **Color Dropout** – Automatically remove specific color elements from images.
- **Automatic Cropping** – Choose to have image files reduced to the size of the original.
- **Automatic straightening** – Choose to have any skew resulting from feeding corrected.
- **De-Speckle** –remove small dots and specks that often derive from bleed-through, wrinkles and dark originals.
- **Remove Blank Pages** – Choose to have any blank pages removed prior to delivery.
- **Image rotation** – Choose to have the image rotated a fixed amount.
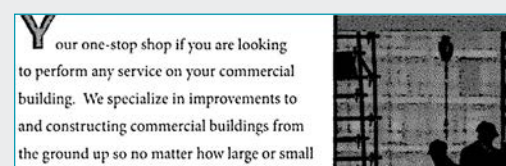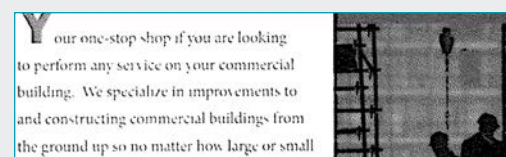
*Other Bi-tonal Acuity features such as edge removal, automatic rotation, image stacking, etc. are still supported via software processes.

Figure A: very small barcode scanned at 200 dpi without any enhancing applied.

Figure B: The same barcode scanned at 200 dpi using the improved line smoothing process.

Comparison of a scan with standard diffusion threshold on top and below it the same image scanned with the text brightness set to maximum darkening. You can clearly see how the algorithm fills in black areas and basically adjusts some of the diffusion to make areas more solid and readable. It is also apparent when you look at the silhouette of the men in the photo portion.

For more information on Visioneer® and Xerox® document scanner solutions please call one of our solutions advisors at **925-251-6399 – Opt. 3**

visioneer

Acuity