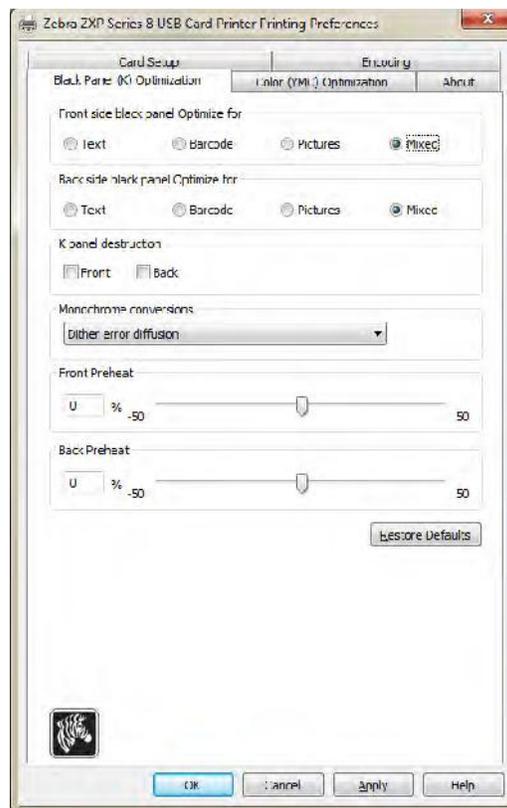


Black Panel (K) Optimization Tab

The Black Panel (K) Optimization tab displays available options to optimize black panel printing for the type of image being printed.

To access the Black Panel (K) Optimization Tab, select *Start > Devices and Printers*. Right click on the *Zebra ZXP Series 8 Card Printer* listing; and select *Printing Preferences > Black Panel (K) Optimization*.

There is a separate optimization for the front and back side of the card.



- **Optimize for:** There is a separate optimization for Text, Barcode, Pictures, and Mixed for the front and back side of the card.
- **K panel destruction:** Renders the used K-panel unreadable.
- **Monochrome conversions:** This section is used to control multi-tone printing when using one color ribbon. The available options are Dither error diffusion (default), Dither 6x6 halftoning, Dither 8x8 halftoning, Dither pure black on white, and Send as grayscale; see next page for details.
- **Front and Back Preheat:** This function controls the intensity of the black panel image. The higher the value, the darker the image and vice versa. Values range from -50 to 50, default = 0.

Monochrome Conversion

The monochrome panels in the ribbon can only print binary (pure on or off) images. Monochrome conversion is used to convert continuous tone 8-bit-per-pixel RGB or gray image content into binary 1-bit-per-pixel content.

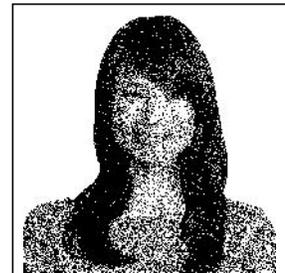
- **Color Image**

The sample image to the right is the original color image used to make the following monochrome conversions.



- **Dither error diffusion (default)**

Error diffusion is used primarily where you have a full color (RGB image with 8 bits per pixel) or full gray (single color but still 8 bits per pixel) that you need to print with binary printing (can only print full-on or full-off; i.e., 1 bit per pixel). Typically preferred over halftoning for most images.



- **Dither 6x6 halftoning and Dither 8x8 halftoning**

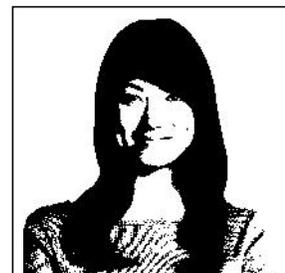
To simulate gray in graphics, halftones are printed. Halftones are arrays of dots arranged in a grid (e.g., 6x6 or 8x8) to represent each image pixel as a shade of gray. For dark gray, more grid dots are black. For light gray, more grid dots are white. As the grid size goes up so does the number of possible output levels, 6x6 cell has 36 possible output levels while 8x8 has 64. But as cell size increases, there is a corresponding decrease in resolution.



- **Dither pure black on white**

This is the simplest method for converting from 8 bits per pixel to 1 bit per pixel.

For example, the input pixel can be a value from 0 to 255. If the threshold is 128, any pixel over 128 becomes full on (1); and any pixel that is less than 128 becomes full off (0). This mode works best for text, barcodes, line art, logos -- everything except continuous-tone pictures.



- **Send as grayscale**

This mode can be used when you have black anti-aliased text. Black anti-aliased text is typically black in the center; but on the edges, it has shades of gray that get lighter as you move out from the center of the text. This anti-aliased text will have a softer looking edge that is less sharp than non anti-aliased text.



For electronic displays and printers that print continuous tones, anti-aliased text looks and prints better. For K-printing, the driver usually performs monochrome conversion to convert the image to binary; but then the printer has to convert it back to gray so it can be run through the imaging path.

With the “send as grayscale” mode enabled, converting the K-panel to binary is skipped so the extra information contained with anti-aliased text is retained; and it prints K with a slightly smoother edge. If the input K text is not anti-aliased, the text will look the same with this mode as it would with the dither pure black and white mode.

SUMMARY

Error diffusion/halftoning: Use on pictures. Image content dictates if error diffusion or halftoning would look best. For the majority of time, error diffusion is better.

Dither pure black and white: Use on text, barcodes, line art, and simple graphics.

Send as grayscale: Use with black anti-aliased text.