



What do Epson customers need to know about the HP claim of “96-bit” scanning?

The HP ScanJet G4010 and G4050 scanners claim to offer six-color, “96-bit” scanning. Epson customers may wonder whether these scanners deliver improved scans over comparable, popular Epson three-color, 48-bit scanners.

Did You Know?

Here are the facts on HP’s new 96-bit scanning technology:

- A scanner is a hardware device that reads an image or text by “seeing” the image or text and then converting that data into a digital code. The bit size of a scanner refers to the size of the analog-to-digital converter (the “ADC”), which is part of the hardware. A 48-bit scanner scans 16 bits of information for the colors red, green and blue (16 x 3 = 48). HP’s advertising leads the user to believe that the ScanJet G4010 and G4050 use 6-color, 96-bit scanning. In fact these HP scanners are three-color, 48-bit hardware devices.
- So where do six colors and the “96-bits” come from? In the “96-bit” mode, these HP scanners use a 48-bit ADC in a double scanning pass under a red and green lamp. The scanner then combines the two images in an image editing software program. This is not a six color 96-bit scan, but rather two three-color 48-bit scans overlaid. Scan speeds are very slow due to the need for multiple passes and image processing.
- Why is this important? Customers who are not familiar with scanner hardware may be confused and think that the higher the bit depth spec, the better the scanned image. While this would be true if these scanners actually recognized 96-bit depth, in fact the HP 48-bit ADC double pass results in very little additional data available to improve image output. In tests conducted by Epson, there were no perceptible improvements in image output.

The images below were scanned on the HP ScanJet G4050 at 500 dpi, x1



Normal 48-bit scan



96-bit scan

Note: if you chose to view this on your computer monitor versus printing this document, the monitor resolution will prevent you from seeing even the minute differences that are present between these two images.

- Adobe Photoshop is one of the few imaging software programs that can handle 48-bit files. A scanned file in the “96 bit” mode from one of these HP scanners has to be downsampled to a 48-bit file before it can be manipulated in Photoshop. To scan a “96 bit” file, customers have to use the HP Director software in its “wizard” mode, which results in extra clicks and less control over image manipulation. See Notable Quotes below for a real-world review.

SO ... what does this mean for customers?

- Slow speeds in “96-bit” mode
- Use of the “96-bit” mode only with HP software, not in Adobe PhotoShop
- Nearly imperceptible differences in image quality

Notable Quotes

“Performance ranges from decent to interminable. ...I tried to pile on the works, including high resolution, dust and scratch removal, and six-channel scanning, but gave up timing when the first slide was only half done after 10 minutes- definitely a turn-it-on-and-go-to-lunch kind of operation. Keep in mind that these are on my oh-so-real-world work system, a 2.4GHz P4 with 1.25GB RAM, via a USB 2.0 connection. Your mileage may vary.” *HP ScanJet G4050 by Lori Grunin, January 5, 2007, CNET.com*