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Scanners

An optical scanner, or just scanner, is a light-sensing input device that reads printed text

and graphics and then translates the results into a form the computer can use. A scanner is similar

to a copy machine except that it creates a file of the document instead of a paper copy. The file

that contains the scanned object then can be stored on a disk, displayed on the screen, printed,

faxed, sent via electronic mail, or included in another document. For example, you can scan a

picture and then incorporate the picture into a brochure using a desktop publishing program.

When a document is scanned, the results are stored in rows and columns of dots called a

bitmap. Each dot on a bitmap consists of one or more bits of data. The more bits used to

represent a dot, the more colors and shades of gray that can be represented. For instance, one bit

per dot is enough to represent simple one-color images, but for colors and shades of gray, each

dot requires more than one bit of data. Today's scanners range from a 24 bit to 45 bit, with the

latter a higher quality, but more expensive.

The density of the dots, known as the resolution, determines sharpness and clarity of the

resulting image. Resolution typically is measured in dots per inch or dpi. It is stated as the

number of columns and rows of dots. For example, a 600 x 1200 dpi scanner has 600 columns

and 1,200 rows of dots (Climber and Morton 134). If just one number is stated, such as 600 dpi,

that number refers to both the number of rows and the number of columns. The more dots, the

better the resolution, and the resulting images are of higher quality.

Some manufactures refer to the actual scanned resolution as the optical resolution,

differentiating it from enhanced or interpolated resolution. The enhanced resolution usually is

higher because it uses a special formula to add dots between those generated by the optical

resolution.

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Most of today's affordable color desktop scanner for the home or small business user have an optical resolution ranging from 300 to 2,000 dpi (*Shelly Cashman Series® Microsoft Word 2002 Project 2*). Commercial scanners designed for power users range from 4,000 to 6,000 dpi. There are three basic types of scanners: flatbed, sheet fed, and drum.

Organizations use many types of scanners for image processing, or imaging, which consists of capturing, storing, analyzing, displaying, printing, and manipulating images or bitmaps. Imaging enables organizations to convert paper documents such as reports, memos, and procedure manuals into an electronic form (Walters 57-59). Once saved electronically, the routing of these documents can be automated. They also can be store and indexed using an imaging processing system.

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