

# Carl's Computer Column

by Carl Kass, Cragsmoor NY

## Question 1a: What Printer?

In my first column, I gave an overview of the types of personal computers available in the market. In this month's column, we will investigate the types of printers that are available and which one might best suit your needs.

When looking at printers, there are five basic parameters: technology, media limitations, color vs. monochrome, media handling options, and connectivity options. (Naturally, there are many other printer options that may be available, but the limitations of space make it impossible to detail each and every one; I will limit my discussion to those that would prove most useful to the majority of the readers.)

➤ The *technology* is the method of getting the ink onto the paper. Common technologies include inkjet (sometimes called bubble jet) and laser.

➤ The *media limitations* includes such parameters as the minimum and maximum paper sizes that can be handled by the printer, the weight limitations of the paper (typically expressed in pounds), and the type of the media (paper, overhead projector foils, glossy paper).

➤ You may consider a printer that can only put black ink on paper (*monochrome*), or you may want one that can print in full color.

➤ *Media handling* options include the ability to duplex (print onto both sides of the page), collating, stapling, and how close to the edge of the paper the printer can apply ink.

➤ *Connectivity* options permit a print job to be sent to the printer from a computer via a number of different types of wires, directly or indirectly from a digital camera, from a network of computers, or wirelessly (via a radio signal or an infrared port on the printer).

When it comes to choosing a printer, as with most things in life, a choice has to be made between features and price. In general, the more features a printer offers the higher the price. Also affecting the price is the print speed (expressed as pages per minute – ppm), duty cycle (expected maximum pages per month), and the image quality (expressed as dots per inch – dpi).

An entry level inkjet typically costs about \$150. Higher quality, higher volume inkjet printers run from about \$250 to \$400. An entry level, monochrome laser printer can be had for as little as \$200, whereas higher volume, feature rich, monochrome printers cost from about \$400 to \$2000 or significantly more. Entry level color laser printers range from \$700 to \$900. Higher volume, feature rich, color laser printers cost from \$1500 to \$4000 or significantly more.

[Editor's note: The quoted hardware prices seem to reflect "suggested retail" range. Various online and discount sources, particularly those with sale, discontinued, recertified, refurbished, and rebated items, may run significantly lower.]

Another significant determinant when choosing a printer is the cost of consumables, that is the cost of the things that are consumed by the printer when it puts ink (toner) onto a page. A typical inkjet costs about 10 to 15 cents per page, whereas a typical laser printer costs much less, in the range 1.5 to 3 cents per page when operated in monochrome (black & white) mode and 5 to 10 cents per page when operated in color mode. Older laser printers can cost significantly more to operate since their consumables typically are much more expensive. (All costs exclude the cost of paper, which can vary significantly, and assume typical text and limited photographs on 8.5 by 11-inch paper.)

Thus, if an inkjet printer is used for 100 pages per

month, it will cost on the order of \$12.50 per month to operate. A laser printer could print those same 100 pages for \$2.25 (monochrome) or \$7.50 (color). However, if 1000 pages were printed per month the cost of consumables would increase dramatically: inkjet would be about \$125.00, laser \$22.50 (monochrome) or \$75.00 (color). When taken over a printer's lifetime, the cost of consumables could easily dominate the cost of purchasing the printer.

Finally, one might consider a printer that can also do other things: scan, copy, or even fax a document. These units are called multi-function printers (MFPs), or all-in-one printers. MFPs generally make sense for consumers in a small office, or who want the ability to photocopy. The cost of a color inkjet MFP is typically \$250-500, whereas a monochrome laser MFP (with color scanning) ranges from \$500 to \$700. Color laser MFPs are not currently available.

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