

THE SIMON & SCHUSTER GUIDE TO **COMPUTER PERIPHERALS**

COMPLETE PRODUCT EVALUATIONS FOR:

- PRINTERS ● PLOTTERS ● MONITORS ● TERMINALS
- KEYBOARDS ● MODEMS AND MUCH MORE...



LINDA
GAIL
CHRISTIE

The
Simon & Schuster **GUIDE TO**
COMPUTER PERIPHERALS

by Linda Gail Christie

COMPUTER BOOK DIVISION



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Preface

With so many different products on the market, finding the right personal computer peripherals can be confusing. Generally, you've got to look at dozens of magazines and talk to salespeople and friends just to make one purchase.

This easy-to-use guide will give you a lot of information in one place about all kinds of add-on devices: printers, monitors, terminals, keyboards, modems, auxiliary memory, power protectors, light pens, digital tablets, joysticks, mice, buffers, environmental controllers, voice recognition devices, and music and voice synthesizers—but it doesn't attempt to cover computer-specific items such as boards and local area networks. (All reviewed products can be found in local computer stores.)

The author and her staff personally used and reviewed over 100 peripherals. The reviews appear in alphabetical order after the appropriate chapter. Each product is rated for its performance, ease of use, and application. The author also comments on and rates the documentation for both novices and hackers. Over 75 pictures illustrate the products.

Chapter 1, *Tips for Buying a Printer*, provides a checklist for rating your needs for a letter-quality printer, dot-matrix printer, color printer, and plotter. Printer terminology and printing specifications are deciphered so you'll understand what you're buying.

Chapter 2, *Monitors, Terminals, and Keyboards*, provides a checklist for rating your needs for a television, monochrome monitor, composite color monitor, RGB color monitor, keyboard, and terminal. The pros and cons of each type of device guide you to the best buy.

Chapter 3, *Modems*, provides a checklist for rating your needs for

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a modem. Telecommunication terms are defined to help you sort out communication modes, baud rates, and interfaces.

Chapter 4, *The Expanding World of Mass Storage*, identifies the key differences among tape, stringy floppy, floppy disk, hard disk, streaming tape, and video disk technologies for mass storage. Although you may not buy a separate mass storage device, you may want to rate those provided by computer manufacturers.

Chapter 5, *The World of Input Devices*, explores the cursor controllers such as light pens, mice, digital tablets, joysticks, and trackballs. The unique data entry capabilities of optical cameras, bar-code readers, and voice recognition devices are also investigated. This chapter discusses how input peripherals and personal computers are freeing handicapped users from disabilities.

Chapter 6, *The World of Sound Devices*, takes a look at voice and music synthesis for personal computers.

Chapter 7, *Making Computing Easier*, reviews power protection devices, buffers, and environmental controllers. You can find out how to make both computing and your life more fun.

The appendix contains forms you can use to evaluate these devices during a shopping trip. Feel free to photocopy them for your personal use. A list of manufacturers and addresses by peripheral product(s) will help you obtain additional information.

The glossary gives quick access to new or confusing computer terms.

Chapter **1**

Tips for Buying a Printer

With nearly 100 printers available for personal computers, buying a printer is at best tedious and sometimes confusing. However, most problems are manageable when broken down into smaller, understandable segments. Deciding which printer to buy is no exception.

The first question you should ask is, "How do I plan to use my personal computer printer?" The following checklist will help you answer this question:

1. How much can I afford to pay? \$ _____
2. What computer am I going to connect it to? _____
3. Does my computer have a serial or parallel printer port? _____
4. What physical size/weight should it be? _____
5. What software will drive the printer? _____
6. What print quality do I need? _____
7. What special characters do I need? _____
8. What print sizes do I want? _____
9. What graphics capabilities do I need? _____
10. What size/weight paper do I want to use? _____
11. How fast must it print? _____
12. How many carbon copies must it print? _____

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13. How often and what volume must it print? _____
14. What special paper handling must it perform? _____
15. What noise level is acceptable? _____
16. What is the cost of paper/ribbon/ink? _____
17. How many ink colors do I need? _____
18. What is the short-term/long-term maintenance? _____
19. What warranty do I want? _____
20. What type of service do I need? _____

When evaluating the above features, you might rate the features as essential (+++), desirable (++), and nice but can do without (+). In this way, you'll understand what trade-offs you're willing to make.

This chapter and the following Product Reviews for Printers will help you find a printer that best meets your needs.

How Much Can I Afford to Pay?

The more you want the printer to do, the more the printer costs. In general, better print quality, higher speed, versatility, and durability cost more.

Even if money is no object, don't get carried away. More features could mean more complications and less reliability. The more a machine can do, the more parts there are to break. Be sensible and realistic in evaluating your needs.

Prices for personal computer printers range from \$100 to \$5000. Good quality printers cost from \$500 to \$2000. CAD/CAM quality plotters tend to be more expensive.

What Computer Am I Going to Connect It To?

Unfortunately, computer peripherals are not like stereo components. You can't buy this brand of disk drive, that brand of computer, and another brand of printer and expect that they'll just plug in and work together.

Buying the entire computer system from the same store is an advantage since the store "guarantees" that the software/hardware system is compatible. I put "guarantees" in quotes because it should not be inferred, but verified and preferably put in writing. The best

proof that a system will work is to see it operating before buying.

Adding a printer to an existing system may present a more limited choice. Some printers may not interface (work) with specific computers and programs. The computer dealer should be able to advise you on brands and models which are compatible. If possible, see the printer hooked to the computer and operating with the software before buying.

Buying through mail order may not be as inexpensive as you may think. Special cables, connectors, and software modification may be needed before the computer can communicate with the printer. For example, the Kaypro II computer has both serial and parallel ports, but is designed to work with a parallel printer (more about interfaces later). Interface devices and software modification may cost much more than is saved. The hacker can get away with mail order purchasing—the novice may get stuck.

Does My Computer Have a Serial or Parallel Printer Port?

Most computers and printers have serial or parallel interfaces and some have both. For the novice, *port* refers to the kind of plug and cable that connects one device to the other—a round plug won't fit into a square hole.

An interface is actually a bit more complicated in that it determines the manner in which the printer communicates with the computer. A serial interface allows the information to come to the printer bit by bit. Computer words (characters) are composed of electrical signals which represent 1s and 0s, in the same way that dots and dashes are used in Morse Code. In serial communication the 1s and 0s pass in single file from one device to the other over one wire (it takes two wires to complete the electrical circuit). Since eight bits (1s and 0s) represent a computer word (character), eight 1s and 0s must pass through the wire for the printer to receive one character.

The parallel interface has eight wires (sixteen to complete the electrical circuit). All eight bits of a character travel in parallel through the eight wires and arrive at the printer simultaneously. Parallel transmission is faster; however, the personal computer still generates information many times faster than the printer can print it. Transmission speed is not the deciding factor when selecting serial or parallel interfaces.

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The Centronics and Dataproducts parallel interfaces are commonly used with printers. The RS-232C serial interface and the IEEE-488 standard are also used. Be sure to buy a printer that is compatible with the computer port or be prepared to buy an adaptor (which may be expensive) to allow the computer to communicate with the printer.

The cable that connects the printer to the computer may be a special one. The store should provide a cable for \$25 to \$50, depending on the type and length. Serial cables are less expensive and should be used in applications in which long cables are required.

What Physical Size/Weight Should It Be?

Some printers are so portable that they can be carried in a case like a portable typewriter. Some printers like the Bytewriter are portable typewriters equipped with special computer interface circuits. Although these units are slow and are not designed for heavy use, they do provide unique versatility. You can disconnect the "printer" and use it as an electric typewriter when traveling or away from the computer.

Large printers like the Diablo 620 and MPI Printmate 150 are quite heavy and may need special stands or tables for mounting. If the paper feeds from the bottom of the printer, the printer table must have a hole in its top through which the paper can be threaded.

You should balance portability, durability, and desktop space along with the application for the printer.

What Software Will Drive the Printer?

A printer may feature a variety of printing capabilities. However, the programs or software (computer instructions) may not be able to take advantage of them. For example, a printer may be able to print superscripts and subscripts, but the word processor may lack commands to direct the printer to do so. Another possibility is that the software will drive the printer; however, it takes numerous command statements to accomplish this task. For example, the Microline 92 used with the Ohio Scientific (OSI) word processor requires ^01B^043_____^01B^044 to direct it to begin and end underlining. You might find this series of commands difficult to memorize and time consuming to use. Those who know how to program may be