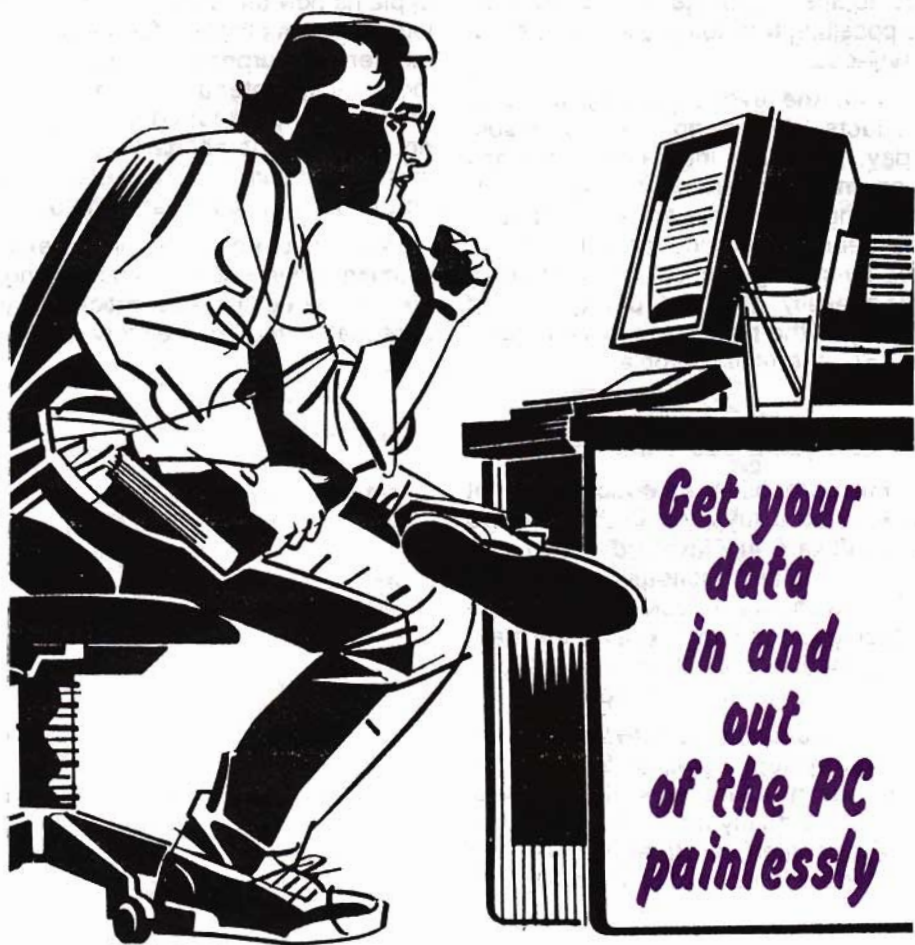


**Electronics
Book Club®**

VOLUME 30 NUMBER 4
MAIN SELECTION

Personal Computer Interfaces

by Michael Hordeski



*Get your
data
in and
out
of the PC
painlessly*

Personal Computer Interfaces

by Michael Hordeski

Bridge the communication gap between your components

In through the keyboard, out to the printer. In through a floppy, out through a modem. All your input/output tasks go through peripherals, making interfacing one of the most important computer-use topics. To make I/O as painless as possible, turn to *Personal Computer Interfaces*.

With the ever-expanding array of products and peripherals available today, computer interfacing becomes even more important for every user. Covering both hardware and software, this ready reference provides clear, step-by-step guidance for interfacing using easily obtained products—and gives you the necessary tools to solve any PC interfacing problem.

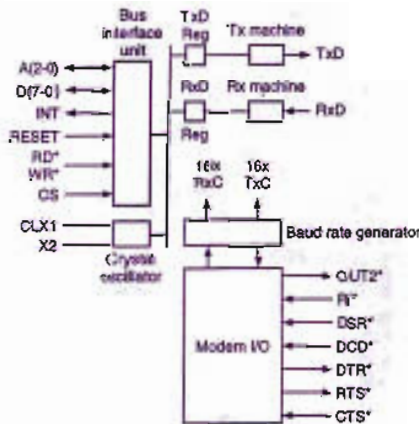
Dispel the fog of confusion about interfaces

Microprocessor interfaces do not have to be a mystery. Both hardware and software are involved, along with engineering and economics. Computer expert Michael Hordeski shows how interfacing is done and explains the standards used in connecting personal computers to a variety of equipment.

Personal Computer Interfaces covers parallel system hookups to the computer bus structure, as well as connections and virtually any type of personal computer interface. Interfaces require detailed knowledge of specific pinouts,

line functions, polarities and timings. The most popular interfaces are described thoroughly. This includes parallel, direct, bus-connected, serial and other examples. In addition, this book explains how the encoding and decoding are accomplished. You'll also examine general-purpose input/output, analog-to-digital interfaces and digital-to-analog interfaces for connecting different types of external hardware such as switches, lamps, LEDs, relays, solenoids, digital circuits, and motors.

With this book, you'll develop a working knowledge of interface connections and concepts. Applications include personal computer security systems,



82050 block diagram

monitoring and control of laboratory experiments, lighting control, data acquisition, machine control, automated testing, material handling, games, simulators and robotics.

From the basics to advanced concepts, it's covered here

Personal Computer Interfaces begins with an introduction to digital electronics. It discusses digital circuits, gates, and integrated circuits. It also examines digital codes, which are the language of interfacing. Basic microprocessor concepts are introduced as are the basic types of interfaces.

Then you'll look at modern microprocessor structure and architecture.

You will learn the differences between memory-mapped and plain I/O. You'll also cover 32-bit microprocessors including the 386 and 486 machines and 64-bit microprocessors such as the Pentium™ Processor. One section is concerned with microcomputer buses that are critical to understanding microcomputer interfaces.

The next portion covers serial interfacing, the oldest type of electrical communication. In practice, these interfaces are more likely to give the computer user more problems, because of the timing requirements. The uninformed user can rarely plug two devices with standard serial interfaces together and get them to communicate the first time. This chapter explains why this can happen and how it can be avoided.

Next, you'll find an explanation of parallel I/O—one of the simpler types of interfaces although some variations of the parallel interface can be quite complex. Integrated circuits have been available for the last several years for making these complex parallel inter-

faces, which are covered in this chapter. You'll also examine analog interfaces.

A section on advanced interfacing concepts looks at interrupts. You'll examine various interrupt schemes and see the differences between hardware and software interrupts. A related chapter also covers one of the most complex concepts in interfacing: direct memory access, or DMA.

Anyone who uses a personal computer will want this readily accessible source. The information provided in *Personal Computer Interfaces* should help you solve all of your interface problems.

Michael Hordeski is an independent consultant specializing in computer and electronic systems. He is the author of many books on computers, microcomputers, and process control.

CONTENTS: Interfacing Basics—Microprocessor Interfaces—32-Bit Microprocessors—Microcomputer Buses—Serial Interfaces—Parallel Interfaces—Analog Interfaces—Interface Scheduling Techniques—Timekeeping.



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