



**Personal System/2
and Personal Computer
BIOS Interface
Technical Reference**

First Edition (September 1991)

The following paragraph does not apply to the United Kingdom or any country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This publication could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time.

It is possible that this publication may contain reference to, or information about, IBM products (machines and programs), programming, or services that are not announced in your country. Such references or information must not be construed to mean that IBM intends to announce such IBM products, programming, or services in your country.

Requests for technical information about IBM products should be made to your IBM Authorized Dealer or your IBM Marketing Representative.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the IBM Director of Commercial Relations, IBM Corporation, Purchase, NY 10577.

© Copyright International Business Machines Corporation 1991. All rights reserved.

Note to U.S. Government Users — Documentation related to restricted rights — Use, duplication or disclosure is subject to restrictions set forth in GSA ADP Schedule Contract with IBM Corp.

Special Notices

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program or service is not intended to state or imply that only IBM's product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any of IBM's intellectual property rights or other legally protectible rights may be used instead of the IBM product, program, or service. Evaluation and verification of operation in conjunction with other products, programs, or services, except those expressly designated by IBM, are the user's responsibility.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the IBM Director of Commercial Relations, IBM Corporation, Purchase, NY 10577.

The following terms, denoted by an asterisk (*) in this publication, are trademarks of the IBM Corporation in the United States and/or other countries:

IBM
Micro Channel
Personal Computer
PCjr
Personal Computer XT
PC/XT
Personal Computer AT
AT
Personal System/2
PS/2
Gearbox
Operating System/2

The following term, denoted by a double asterisk (**) in this publication, is a trademark of another company:

Intel

Intel Corporation

Preface

This technical reference provides information about the Basic Input/Output System (BIOS) and Advanced BIOS (ABIOS) interfaces. It is intended for developers who provide hardware or software products to operate with IBM* products.

You should understand the concepts of computer architecture and programming before using this publication.

Warning: The term "Reserved" is used to describe certain signals, bits, and registers. Use of reserved areas can cause compatibility problems, loss of data, or permanent damage to the hardware.

This technical reference is divided into two parts: **BIOS** and **Advanced BIOS**.

BIOS contains the following:

Section 1, "Introduction to BIOS," provides an overview of BIOS, interrupts, parameter passing, data areas, and read-only memory (ROM) tables. It also describes how to determine the system-BIOS version date.

Section 2, "Interrupts," contains detailed information about how interrupts function across the IBM Personal System/2* and Personal Computer* product lines. Exceptions between products are noted.

Section 3, "BIOS Data Areas," contains detailed information about regular data areas.

Section 4, "ROM Tables," contains detailed information about ROM tables for system- and adapter-ROM BIOS.

Section 5, "Additional Information," contains information about sharing interrupts in IBM Personal System/2 and Personal Computer products. It also contains information about adapter-ROM calls, video compatibility, and multitasking provisions.

Section 6, "System Identification," contains information about system-identification bytes.

* IBM, Personal System/2, and Personal Computer are trademarks of the International Business Machines Corporation.

Section 7, "Scan Code/Character Code Combinations," contains information about keyboard keys and scan code/character code combinations.

Advanced BIOS contains the following sections:

Section 1, "Introduction to Advanced BIOS," provides an overview of Advanced BIOS, data structures, initialization, transfer conventions, interrupt processing, and extending BIOS.

Section 2, "Data Structures," contains detailed information on the common data area, function transfer tables, device blocks, and how these BIOS data structures are used.

Section 3, "Initialization," describes the BIOS steps and the operating-system steps that are necessary to make the BIOS interface operational.

Section 4, "Transfer Conventions," describes the methods that are used to transfer control to BIOS-device routines. The request block, the BIOS transfer convention, and the operating-system transfer convention are described.

Section 5, "Additional Information," contains detailed information on interrupt processing; adding, patching, extending, and replacing BIOS; and operating-system implementation considerations.

Section 6, "Interfaces," describes the interfaces that are supported by BIOS.

System-specific hardware- and software-interface information for IBM systems and for IBM diskette drives, fixed disk drives, adapters, and other options is contained in separate technical reference publications.