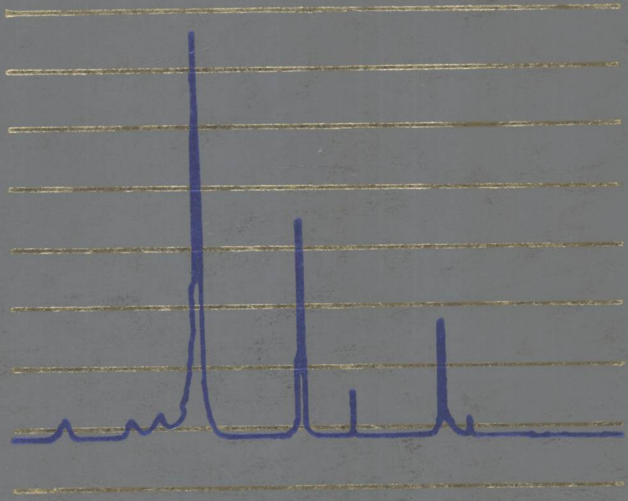
THE LABORATORY MICROCOMPUTER



PROGRAMMING IN PASCAL
AND MC68000 ASSEMBLY LANGUAGE
ON THE IBM SYSTEM 9000

James W. Cooper, Ph.D.

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华南工学院
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PREFACE

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The IBM Instruments CS/9000 provided a new microcomputer system for the scientist, a system that could be programmed in Pascal, a structured high-level language, and that could be used for laboratory data manipulation.

This book gives the scientist a basic introduction to Pascal, shows how to program this computer system, and gives a brief introduction to the assembly language of the Motorola 68000 microprocessor on which this system is based. The book describes algorithms for displays, cursor generation, sorting, and data input and output that the scientist will find convenient to use.

While this book's examples (and indeed its manuscript) were generated on the 9000, much of the book's treatment of Pascal and 68000 assembly language is completely general, and is thus applicable to a number of popular scientific systems now available.

Because the manuscript and all the programs were generated on the CS/9000, all of them have been compiled and run on the 9000 before inclusion in the manuscript, and therefore should run without errors.

This book describes Software Release 1.1 of late 1983. Some reference will be made to earlier versions and to possible future software enhancements.

I first came on the Pascal language while bringing up the UCSD Pascal compiler for Bruker Instruments. At the time I felt that Pascal was a cumbersome "toy" language and not to be taken seriously. However, as I began to work out examples for the instruction manual,

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I was amazed to discover that they all ran the first time! This single fact probably converted me more directly to a Pascal enthusiast than any discussions of "structure" or logic.

Since this manuscript was written, IBM has changed the computer's name from CS/9000 to System 9000. I have not, however, changed all of the text references, since the computer itself is unchanged.

JAMES W. COOPER

Danbury, Connecticut
August 1984

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I would also like to acknowledge the constant help of Dr. Richard Mushlin, Dr. Willy Shih, Steve Goldband, and Dr. Mel Marple of IBM Instruments for the patient way in which they provided streams of detailed information on a large number of subjects.

Finally, I would like to acknowledge the patience of my wife Vicki and my children Vaughn and Nicole while I wrote and thank PC, our Pussy Cat, for her attentive interest in my work.

J.W.C.

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