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SAKO—An Automatic Coding System

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SUMMARY—Some properties of SAKO, an Automatic Coding System for the medium-scale digital computers XYZ and ZAM II, are described. This system takes into account specific features of these machines (for instance, the fact that they are fixed-point), and provides for logical operations on machine words. In designing SAKO, the author aimed at a system sufficiently effective to eliminate machine language almost entirely in the whole field of numerical and logical problems.

INTRODUCTION

In view of the growing need for new programs for electronic digital machines, the use of automatic coding systems is particularly helpful. Their purpose is to bring about an essential reduction in the time spent in preparing programs, assuming that the methods to be used to solve the problems are known. Of the systems in use at present, the best known in Poland are FORTRAN, MATH-MATIC and the MANCHESTER AUTOCODING SYSTEM. But their use is still limited. For instance, in problems containing logical operations, when the need arises to use the internal structure of a machine word, these systems are not very suitable. Moreover, in some systems, the efficiency of the object-program is not high, and they are not, therefore, economical, especially in frequently repeated programs.

The SAKO Automatic Coding System was conceived as a basic system which would make the programming of numerical and logical problems in machine language virtually unnecessary. Although instructions written in SAKO may be fairly easily used in conjunction with machine instructions written in SAS (Symbolic Address System),