January 1968

Brief 68-10005

NASA TECH BRIEF

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MOP (Matrix Operation Programs System)

The programming system consists of a set of Fortran IV subroutines which are related through a small common allocation. The system accomplishes all matrix algebra operations plus related input-output and housekeeping details. It was coded for the IBM 7094 DCOS, but the document contains specific instructions for conversion to other computers. It is a convenient and complete programming base for jobs using substantial matrix algebra manipulations, and in no way prevents the user from calling other subroutines.

The means of using the system is to write a main program which calls the MOP system subroutines. After the system is initialized, all matrix algebra operations can be performed. The casual programmer can operate in an automatic nominal mode; the professional programmer has access to all system control flags and may exercise subtle options within the system. The naming of calling sequences and operations is done according to an easily mastered mnemonic scheme.

A simple overlay scheme allows loading of the entire system in 6000 words of core, which, with the system subroutines and a substantial main program, leaves sufficient space for two 50×50 square matrices with four symmetric operators overlaid for flexibility. The sophisticated housekeeping and internal conversions of the system may be loaded if desired, but high efficiency is not claimed for programs desiring only a few calls.

The above applies to double precision word length, but the system can be rapidly converted to single-precision if desired.

Notes:

1. This system is written in Fortran IV for use on the IBM 7094 computer.
2. Timing and program accuracy performance is good, and complete debugging programs are included which automatically test the system.
3. The checkout has been exhaustive, and the document is quite complete.
4. Inquiries concerning this program may be made to:
   COSMIC
   Computer Center
   University of Georgia
   Athens, Georgia 30601
   Reference: B68-10005

Patent status:

No patent action is contemplated by NASA.

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