# AUTONETICS PLANNED PRODUCTION LINE EVALUATION SIMULATOR (APPLES)

P.J. Moore, Autonetics Division, North American Rockwell

Production line evaluation at Autonetics for the manufacture of electronic and electro-mechanical aerospace products, is facilitated by APPLES, a model written in GPSS/360 Version 5. The model may be applied to a large variety of production lines with differing configurations through the use of standard data forms. It is designed for use by production engineers that are unskilled in GPSS. A simulation analyst provides consulting services to the engineer as input data are prepared and assists as necessary in the experimentation. However, each user is sufficiently briefed that he is able to submit his data and conduct his study independently.

APPLES is primarily intended for specialized production lines which are to be treated as systems or subsystems in the study of their production capability. Facility dedications, manpower availabilities, work assignments and scheduling alternatives are readily evaluated wherein productivity, yield, and process times are the major stochastic variables. The basic program is easily adaptable to any unique application by the addition of subroutines that simulate the unique relationships. Thus, a single development activity has provided a generally useful tool that can quickly and directly solve ordinary problems and shortcut the development of very complex models.

The content and format of the output reports generated by APPLES are designed to relate performance reasults to production cost factors. A cost per unit index is calculated for each experimental run.

The paper describes the simulator's design, illustrates its applicability and discusses the experience achieved at Autonetics.