Rand
SANTA MONICA, CA. 90406

CALCULUS COMPUTING TECHNOLOGY SYMPOSIUM

ANNOUNCEMENT

On Saturday, September 15, 1979 at The Rand Corporation in Santa Monica, there will be an informal symposium on progress in 20 years of calculus computing technology. Applications, advantages and prospects of the emerging technology will be described throughout the one-day symposium.

The morning session will focus on five years of experience with the PROSE calculus-level programming language and the history of prior calculus languages. PROSE meets the scientist's need for a simpler means of communicating his problem to the computer. Its creation represents a significant contribution to the automation of mathematical software. However, the introduction of the language on conventional computers has handicapped it with relatively high processing overhead. Thus, experience with PROSE has shown that PROSE's great power could be multiplied many times within a new computer architecture--an architecture which optimizes calculus-level operations.

The afternoon session will be devoted to the introduction of a new scientific computer architecture. It is clear today that substantial reductions in calculus-level problem solution times - by factors of 10 to 1000 - will be achieved on scientific computers that evaluate derivatives and integrals in their hardware. Applications involving nonlinear optimization, for example, will be dramatically affected by this new approach.

This new architecture represents the state of the art in calculus computing technology, circa 1980. It consists of a distributed network of microprogrammed processing elements which operate functionally within network configurations but are independent computers capable of any form of data processing. These elements operate simultaneously, performing independent operating functions in association with a hierarchy of memories. The new architecture can be expanded into arbitrary computer networks to support any kind of realtime function or large-scale analysis function that requires large-scale, nonlinear optimization. It permits the direct execution of high level languages such as PROSE or PASCAL.

The symposium begins at 9:00 a.m. in Rand's main conference room. Entrance to the symposium will be through Rand's east lobby which is located at 1700 Main Street in Santa Monica, Refreshments will be served at both morning and afternoon sessions.

If you plan to attend please write or phone Roy Danchick at:

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