

## A Process Monitor

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### ABSTRACT

This paper discusses a FORTH implementation for monitoring, control and optimization of a medium-sized chemical process. The 68000 based program routinely collects on-line field data, performs absolute and deviation limit checks and stores data on a hard disk for future retrieval in graphic or tabular form. Routines for lab analysis and product quality management via CUSUM technique are provided. Both field and lab data are used to optimize conversions and yields. To quickly isolate and respond to plant upsets, field variables are organized and displayed as trend charts in groups containing up to eight variables. A top-down tree structure is used so that each variable in a group above is casually related to another group below. FORTH screens are utilized as fill-in shells for customer reports and help files.

Time critical modules are written in assembler. Two byte integer format is used for mass storage with four byte integer arithmetic used for computational accuracy. The resultant package is extremely fast and allows features such as scrolling of trend charts. While non-FORTH commercial programs offer a wide range of features, all of them are hardware specific, with customizing being difficult and laborious. Because of FORTH's transportability, adaptations to other computers are relatively easy. Furthermore, FORTH's modularity makes customizing and "add-on"s quite simple.

