

Concrete Suggestions for a Forth Floating-Point Standard

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ABSTRACT

Many serious programmers dismiss FORTH as unsuitable for professional work because it lacks standard floating-point (FP) Capability. Proposed here is a word set based upon two years of intensive use of the MMSFORTH words (including FQUANs and "long-addressed" variants) with the 8087 numerical coprocessor, with input from several other approaches.

Most operations are the familiar Forth words preceded by an F, or a C for complex arithmetic. Short words are strongly preferred because of the natural length of FP definitions. Unusual words include -F for negation; -F- and F for FSWAP F- and FSWAP F/, which are single instructions on the 8087; and FRT2 for FROT FROT, symmetrical with FROT and used about as often.

Left open is the choice of FP number indication: a European-style comma, as 123, or 123,4 (which might be confused with the compiling comma); or an embedded period, as 123.0 (which requires that double-length numbers end with a period, as 123.).

A carefully designed FRAND random-number generator is needed. For compatibility, software-FP packages require an 8-deep FP stack. Index registers seem desirable for array manipulations several words deep from a calling loop.

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