Identification

Validation-level utility routines
get_level, set_level
M. A. Padlipsky

Purpose

In the context of the Multics protection mechanism, the
"validation level" is a number which represents either
the ring number of the caller in the last inter-ring call
in the process at hand or a number higher than that ring
number. (If the latter, the assumption is that the validation
level was raised by the caller because it was operating
in behalf of a caller of its own which resides in an outer
ring relative to it.) See BD.9.00 for general considerations
regarding possible uses of the validation level, and BD.9.03
for an important specific application. The present (assembly-
language) procedures are provided in order to facilitate
the reading and writing of the fixed location for the
validation level from compiler languages, which do not
in general allow for easy direct reference to the base
of the call-save-return Stack, where the validation level
is stored (at sb|3).

Usage

The calling sequence is

        call get_level(n);

or

        call set_level(n);

with declaration

        dcl n fixed bin (17);

where

        n is the value read from sb|3 in the get_level case,
        and is the value to be written into sb|3 in the
        set_level case.

Comment

The Gatekeeper (see BD.9.01) will not pass a validation
level lower than the calling-ring's number during an inter-
ring call.

Implementation

Procedure get_level returns the contents of sb|3 in its
argument. Procedure set_level writes its argument into
sb|3.