

TO: Distribution

FROM: Richard A. Barnes

RE: Proposed Change to the PL/I Argument List

DATE: 27 June 75

This is a tentative proposal to shorten the PL/I calling sequence by not generating descriptors (and descriptor pointers) for all arguments to a procedure when only some of its parameters require descriptors. (The argument list would still contain room for all of the descriptor pointers.) Procedures declared options (variable) would still receive a full set of descriptors. Presently the PL/I compiler generates no descriptors if none of the parameters require them, or a full descriptor set if one or more of the parameters has star extents.

The following are positive implications of the proposed change:

- calling sequences to procedures having some but not all parameters requiring a descriptor would be shorter by two words for each parameter not requiring a descriptor.
- compilation of these calls would be faster.

The following are some negative implications of the proposed change:

- some debugging routines such as `print_arg_list` and `list_arg`, used by `trace`, `trace_stack`, and `debug` assume that if descriptors are provided, every argument has a descriptor. If these programs were not changed, they could fault looking for the missing descriptor pointers.

Multics Project internal working documentation. Not to be reproduced or distributed outside the Multics Project.

- certain illegal argument-parameter mismatches that work now would fail causing faults. For example:

```
caller:  proc;
dcl      foo entry(char(*),char(32)varying);
        .
        .
        .
        call foo(a,b);

        end;

foo:     proc(a,b);
dcl      a char(*);
dcl      b char(*)varying;
        .
        .
        .

        end;
```

One solution for the first negative implication would be to have a bit in the argument list header indicate whether an incomplete descriptor list is provided.

Obviously before anything is done to implement this proposal we need more discussion. I would appreciate comments including other positive and negative implications and solutions for negative implications as well as opinions on whether this is even worth doing.