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SUBJ: BSS Loader for the 7094 - Establishing even location

The BSS loader should not load the first entry point
into an even location. This scheme has two distinct dis-
advantages:

a. It violates the basic philosophy of symbolic
programming - that of position independence of words labeled
with symbols. This means that a programmer must decide
what his first entry point will be and must never change it
thereafter.

b. Secondly the assembly listing does not display the
information about even and odd locations in a convenient
manner. In order to find out whether a particular instruction
will be loaded into an even or odd location, the programmer
must examine both the relative address of the first entry
point as well as the relative address of the instruction.

To eliminate these objections and also to permit the easy
incorporation into Fap of a pseudo-operation "EVEN", the
following modifications are proposed:

1. The loader should load all subprograms with an even
origin. In addition, common storage should always
begin at an odd location. The supervisor should load
programs at an even origin.

2. The Fap assembler should guarantee that the first
symbolic instruction has an even location. In order to
do this, Fap must force the length of the transfer vector
plus linkage director to be an even number. If required,
the assembler should generate a word of zeroes between
the transfer vector and the linkage director, or in the
case of main subprograms, between the transfer vector and
the first instruction.

3. Since the assembler could then be sure that the first
instruction will have an even location, the addition of
the following pseudo-operations will be trivial:

a.) EVEN

The program counter will be examined; if and only
if it is odd, an instruction AXT 0,0 will be generated
and both the program counter and the location counter
will be advanced. A symbol in the location field will
be assigned the even location.

b.) EVENC

If the common counter is odd; it will be reduced by 1. A symbol in the location field will be assigned the even location in common.

Note: For compatibility with this scheme, the library routine (FPT) would have to be adjusted so that it can locate the subprogram name in the linkage director relative to the transfer vector.

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