Identification

initialization pre-link driver
pre_link_1
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Purpose

pre_link_1 is called by the Multics initializer from bootstrap2 (see Section BL.4.02) and from the segment loader (see Section BL.6.01). It is called after loading the first three collections from the Multics System Tape (see Section BL.1.01) to combine into the appropriate combined linkage segment the linkage just loaded and to "snap" all the links which are defined. To accomplish this, it must make calls to the lot_maintainer in order to copy linkage sections and to set up the linkage offset table (L0T) and calls to pre_link_2 in order to "snap" links. (Some links may point to segments which are not yet loaded. These are ignored; they may be set on a subsequent call to pre_link_1).

Combined Linkage Segments in Multics Initialization

Four combined linkage segments are provided in the Multics initialization environment: Two of these form part of the hard-core supervisor: "wired_sup_linkage" contains linkage sections for all wired-down hard-core supervisor procedures; "loaded_sup_linkage" contains linkage for the remainder of the hard-core supervisor. The other two, "wired_init_linkage" and "loaded_init_linkage", contain the wired and non-wired initialization linkage respectively.

Usage

    call pre_link_1 (slt_man_ptr);

    "slt_man_ptr" is a pointer to <slt_manager>10.

    pre_link_1 executes the following steps:
1. Pointers are obtained to the following segments by calling

\[ \text{slt_manager$\text{get\_seg\_ptr (\text{slt\_manager})]} \]:

   a. slt
   b. lot
   c. lot\_maintainer
   d. pre\_link\_2
   e. loaded\_sup\_linkage
   f. wired\_sup\_linkage
   g. loaded\_init\_linkage
   h. wired\_Init\_linkage

2. All SLT entries are scanned. For each text segment with

   a. If the "pre\_linked\_sw" is on, this entry is skipped.
   b. A pointer to the segment's linkage segment is obtained
      from "text\_link\_segno".
   c. If the "combine\_sw" is on, pre\_link\_1 determines in which
      of the four combined linkage segments the segment's
      linkage section belongs. (This is determined by
      whether the segment is a supervisor or an initializer
      segment and whether it is wired-down or not).
      lot\_maintainer$\text{copy\_linkage (\text{lot\_maintainer})} \]
      is called to copy the linkage section into the appropriate
      combined linkage segment.
   d. lot\_maintainer$\text{set\_lp (\text{lot\_maintainer})} \]
      is called to make an entry in the LOT or the segment and to set
      the linkage section's definitions pointer.
   e. The "pre\_linked\_sw" in the SLT entry is turned on.

3. All SLT entries are scanned. For each text segment with

   a. A pointer to the segment's linkage section is obtained
      by making a call to lot\_maintainer$\text{get\_lp (\text{lot\_maintainer})} \]
   b. pre\_link\_2$\text{scan\_linkage (\text{pre\_link\_2})} \]
      is called to pre-link the segment.

4. Return.