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Identification

645 Segment Dump
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Purpose

The 645 Segment Dumper is used as a completely self-contained facility to take core dumps of segmented memory. This program is independent of GECOS and/or the process that exists in memory. The program is loaded from a card deck, uses the descriptor segment as a guide and dumps directly on the on-line printer. Provision is made to feed parameters to the dumper to control output. The output format is similar to that of the 64.5 Segment Dumper.

General Information

The dump is a card deck which is bootloaded into memory. It either proceeds to take the dump when loading is complete, or it stops. It can be left resident and "started" at a later time. If the dump is bootloaded, the contents of all the index registers, a, q, ic, and indicators are lost to the bootload process. The appending registers are preserved. If the dump is started when resident, the above named registers are available but other information is lost because the use of the execute interrupt button causes initialization to take place in the processor.

The contents of the processor data switches is used to communicate dumping information; the execute interrupt button is used to start dumping. The program is self-relocating and may be placed anywhere in memory. It requires 6000 (8) words of contiguous memory.

When dumping is initiated, the program attempts to find which printer has a ready status. It loops between trying printer a and printer b until one of them is ready. In the case of any printer error, the program continues to attempt to print the same line until the printer signals ready status. Duplicate line suppression is used throughout the dump.

Operating Procedure

Loading the Dump Program

1. Halt processor if not already in such a state.

2. Load deck in card reader which is to be used for bootloading.
3. Choose place in core to load program
 - a. Set processor base switches to 00XX0.
 - b. Set bootload base switches to 00XX1.
 - c. Set GIOC mailbox base switches to 00XX2.
4. If it is desired to not take a dump at the termination of loading, set processor data switches 30-35 to 1; e.g., 77 (8). If the dump is desired at least one of switches 30-35 must be off.
5. Press bootload button

With switches 30-35 not set to 77 (8), the dumper will dump all segments contained in the descriptor segment which is identified by the contents of the dbr upon loading. Then using sp and sb it attempts to "unstack" the stack.

When the dump completes its requested operation it halts the processor with a dis whose address bits are 444444. Any other configuration indicates an error situation.

Using the dump program

To use the dump program after it has been loaded:

1. Halt processor if necessary.
2. Set processor base switches and mailbox switches to values that they were set to when program was loaded.

For each action for dump program to take, set processor data switches and press the execute interrupt button.

The possible switch settings are as follows, where 30-35 contains the action code:

- | | |
|----|--|
| 00 | Print all registers, use current dbr value to find descriptor segment and dump all segments. |
| 77 | Stop. |
| 24 | Use the value on switches 0-28 as a dbr value and dump all segments. |

- 62 Using the last dbr value (that coming from 24, that saved upon loading, or that saved with switches set to 00) dump segment whose segment number is in switches 0-17.
- 46 Take a straight octal dump from location FFFF00 to location TTTT77 where FFFF is the contents of switches 0-11 and TTTT is the contents of switches 12-23.
- 23 Using the last dbr value, starting with the segment whose number is in switches 0-17 continue dumping the rest of the segments.

If the switches 0-17 contain 0, the dump will continue with the segment number one higher than that last dumped.
- 42 Using the contents of switches 0-17 as a segment number, treat the segment as a stack segment and "unstack" it, going forward starting at frame 0.

For any dumping mode where more than one segment is to be dumped if switches 27-29 are not all on, 7 (8), pure procedures will not be dumped. After all segments are dumped, a stack trace is attempted.

The switches may be set and the execute interrupt button may be depressed at any time.

Additional Information

1. If no printer is ready, program will keep looping.
2. This program will not work when the bootload program in the GIOC diodes is changed.
3. When the system is changed so that different memory controllers send interrupts to different interrupt vectors then the bootload base must be set appropriately.
4. The GIOC mailbox base need not be set as stated above; the restriction is that the full address be mod 200 (8).
5. Segments with many 1024 word pages or blocks are truncated unless the dump request was a "dump 1 segment only".
6. Both the printer and the card reader must be on the same GIOC.