LOADING THE PDS-1

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A boostrap loader is either toggled or hard wired between forty and seventy-seven. The only function of this program is to read a block reading program into the last 100_8 addresses in memory (7700-7777 in a 4K computer).

The bootstrap reader jumps to the start of the block reader immediately after the latter is completely read into memory. As a standard practice the block loader precedes the "object program" on the paper tape, magnetic tape, disk, or whatever. Thus one who is using an auto load sequence need never become aware that two reading programs are used. It seems as though the bootstrap loader is adequate for entering the "object program" into memory.

Many programs will have an "auto start" feature. In this case, a patch of information will follow the object program, which will be read over a portion of the block reader causing it to jump to the start of the object program. This patch destroys that portion of the block reader, but of course, leaves the bootstrap intact.

FOUR DIFFERENT SEQUENCES

1. The fastest way to load the PDS-1 is by means of a photo-electric tape reader. In this sequence the bootstrap reader looks at the PETR only. The block reader thus entered is also receptive to PETR only.

2. Our TTY sequence is structured the same as the PETR sequence, but it ignores the PETR and looks for input from the TTY. Information coming from a remote computer through an acoustical coupler and information stored on magnetic tape can be loaded into the PDS-1 by means of this loading sequence.

3. Reception to the same inputs or series #2 is our "Special Time Sharing" loader. However, it is receptive to a somewhat different format. See "Special TTY Reader for Loading PDS-1 via Time-Sharing".

4. The serial bit bootstrap and block loader read information from a cassette recorder/player at about 1000 baud. The program cassette still consists of a block loader followed by the program in block format.

* USE A BOOTSTRAP WHICH IS COMPATIBLE WITH THE PROGRAM TO BE LOADED

IF THE BOOTSTRAP IS NOT HARD WIRED, TOGGLE IT IN.

WHEN LOADING AN AUTO START DISPLAY PROGRAM, BIT 0 OF DATA SWITCHES SHOULD BE ON.

PHOTOELECTRIC TAPE READER - PUT THE TAPE IN THE PETR, PUT THE PETR ON RUN, AND START THE COMPUTER AT 40 (PETR BOOTSTRAP).

TELETYPE OR MAGNETIC TAPE - START THE COMPUTER AT 40 (TTY BOOTSTRAP), START TTY LOADER OR MAGNETIC TAPE DRIVE.

SPECIAL TTY LOADER - START THE COMPUTER AT 40 (SPECIAL T. S. BOOTSTRAP), RECEIVE ON LINE INFORMATION.

SERIAL BIT LOADER-INSERT PROGRAM CASSETTE IN PLAYER-START PLAYER-WAIT ABOUT 5 SECONDS-START PDS-1 AT 40.

PTR BOOTSTRAP

```
060077    LAC   7
020010    DAC   1
104076    LWC   7
020020    DAC   2
001061    HON
100011    CAL
002400    HSF
010046    JMP   4
001051    HRB
074075    SAM   7
010045    JMP   4
002400    HSF
010053    JMP   5.
001051    HRB
003003    RAL 3
003003    RAL 3
003002    RAL 2
102400    HSN
010061    JMP   61
002400    HSF
010063    JMP   63
001051    HRB
120010  I DAC   10
102400    HSN
010067    JMP   67
100011    CAL
030020    ISZ   20
010053    JMP   53
110076  I JMP   76
000002
037700
037677
```

TTY BOOTSTRAP

```
40  060077    LAC   77
41  020010    DAC   10
42  104076    LWC   76
43  020020    DAC   20
44  001032    RCF
45  100011    CAL
46  002040    RSF
47  010046    JMP   46
50  001031    RRB
51  074075    SAM   75
52  010044    JMP   44
53  002040    RSF
54  010053    JMP   53
55  001033    RRC
56  003003    RAL 3
57  003003    RAL 3
60  003002    RAL 2
61  002040    RSF
62  010061    JMP   61
63  001033    RRC
64  120010  I DAC   10
65  100011    CAL
66  030020    ISZ   20
67  010053    JMP   53
70  110076  I JMP   76
71  000000
72  000000
73  000000
74  000000
75  000002
76  037700
77  037677
```

SPECIAL TTY BOOTSTRAP

```
40  001032    RCF
41  104101    LWC   101
42  020010    DAC   10
43  020020    DAC   20
44  104004    LWC   4
45  020021    DAC   21
46  100011    CAL
47  020022    DAC   22
50  100011    CAL
51  002040    RSF
52  010051    JMP   51
53  001033    RRC
54  020023    DAC   23
55  044075    AND   75
56  074076    SAM   76
57  010050    JMP   50
60  060023    LAC   23
61  044077    AND   77
62  024022    XAM   22
63  003003    RAL 3
64  003001    RAL 1
65  050022    IOR   22
66  020022    DAC   22
67  030021    ISZ   21
70  010050    JMP   50
71  120010  I DAC   10
72  030020    ISZ   20
73  010044    JMP   44
74  110000  I JMP   0
75  000160
76  000100
77  000017
```

SERIAL BIT BOOTSTRAP

```
40  060077    LAC   77
41  020010    DAC   10
42  104076    LWC   76
43  020020    DAC   20
44  001014    IOT   14
45  010044    JMP   44
46  001024    IOT   24
47  010044    JMP   44
50  104020    LWC   20
51  020021    DAC   21
52  100011    CAL
53  020022    DAC   22
54  001014    IOT   14
55  010054    JMP   54
56  060022    LAC   22
57  003001    RAL 1
60  001024    IOT   24
61  010063    JMP   63
62  100004    IAC
63  020022    DAC   22
64  030021    ISZ   21
65  010054    JMP   54
66  120010  I DAC   10
67  030020    ISZ   20
70  010050    JMP   50
71  110076  I JMP   76
72  000000
73  000000
74  000000
75  000000
76  037700
77  037677
```

BOOTSTRAP PRECEDER

The information on bootstrap preceder tape is coded as first contents, second contents,...,$76_{(8)}{}^{th}$ contents ($101_{(8)}{}^{th}$ contents for special TTY bootstrap). Each of these sets of contents uses two tape frames. The first non-zero frame of preceder tape is assumed, by the bootstrap in 40, to be the first frame of the first contents.

The information on a preceder tape is the block format loader and is automatically read into the last $100_{(8)}$ registers of memory.

BLOCK FORMAT TAPE

The information on block format is coded as word count, starting address, contents of first address, contents of next memory location, ..., last contents, sumcheck.

The word count uses only one frame and is the number of sets of contents of the block. The starting address uses two frames as do the contents and sumcheck word. The sumcheck word is the sum of all the contents modulo 77777. The left portions of all two frame quantities are punched first.

BLOCK FORMAT TAPE FOR:

address	contents
7700	001061
7701	100011
7702	023775
7703	037765