

SOFTWARE OPERATING PROCEDURES



SOFTWARE INPUT/OUTPUT SYSTEM CONFIGURATION

PREREQUISITE SOP MODULES:

Front Panel Procedures Module
Peripheral Equipment



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SOFTWARE INPUT/OUTPUT SYSTEM CONFIGURATION

A peripheral device cannot operate without a utility program in core to activate and control that device. Such a program is called an input/output (I/O) driver.

Each device is identified by an octal number--its select code--that specifies the physical I/O channel into which the device is connected; its driver uses the select code in its instructions to reference the device. The driver is stored in core and when the instructions reference the select code, the computer produces a signal that activates the device. The process of loading a device driver into core locations and assigning a device to the driver is called configuration.

The procedures covered in this SOP module are:

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SOFTWARE INPUT/OUTPUT (SIO) DRIVERS

SIO drivers are the minimum software environment for the HP Assembler, HP FORTRAN, HP ALGOL, Punch-Verify, Symbolic Editor, Cross-Reference Symbol Table Generator, Prepare Tape System, SIO System Dump, System Dump, DOS System Generator, RTE System Generator, and DOS-M System Generator.

These drivers are designed to make efficient use of core. They are not necessarily time-efficient.

SIO drivers are absolute programs that reside in high core, just below the BBL or BBDL. Therefore, there are different sizes of SIO drivers: 4K for use with 4K memory size, 8K for use with 8K memory size, and 16K for use with either 16K, 24K, or 32K memory size.

Before using a computer system, make the device assignments for the SIO drivers. SIO drivers must be configured in the order listed below:

- SIO Teleprinter driver
- SIO Line Printer driver
- SIO Tape Reader driver or SIO Card Reader driver
- SIO Tape Punch driver
- SIO Magnetic Tape driver or SIO Disc/Drum driver

The SIO Teleprinter driver is always required unless program operating instructions state otherwise.

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PROCEDURE 1 SIO MODULES

An SIO module consists of one to five configured SIO drivers (always containing the SIO Teleprinter driver) on one roll of tape. Since SIO drivers are distributed separately, the user must combine the desired drivers into an SIO module. If configuring SIO modules for the Magnetic Tape System, do not include the Magnetic Tape Driver in any of the modules. Make all the SIO modules that are appropriate to your system using this procedure:



1. Use the BBL or BBDL to load the SIO driver.
2. Set up a starting address of 2_8 .
3. Set the high priority I/O address (select code) of the device whose driver is being configured into switch register bits 5 through 0. Bits 15 through 6 are "OFF."

NOTE: For the SIO Teleprinter driver, set switch register bit 15 equal to one if the teleprinter is a 2754B. Bits 14 through 6 of the SWITCH REGISTER are zero.

4. Press RUN.
5. Repeat steps 1 through 4 for each I/O device driver in this order:

SIO Teleprinter driver

Optional { SIO Line Printer driver (see Note 1)
SIO Card Reader driver or SIO Tape Reader driver
SIO High-Speed Tape Punch driver
SIO Magnetic Tape driver or SIO Disc/Drum driver

(see Note 2).

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NOTE 1: If the SIO Line Printer driver is loaded, the High-Speed Tape Punch driver must also be loaded in order to punch paper tape output.

NOTE 2: SIO Disc/Drum drivers require special device assignment procedures. Refer to Procedure 3 in this section.

6. Load the SIO System Dump with BBL or BBDL.
7. Set up a starting address of 2_g.
8. Set all switch register bits to zero.
9. Turn on the teleprinter punch or tape punch (requires Tape Punch Driver).
10. Press RUN. The configured drivers are punched and the computer halts.
11. Additional copies of the SIO module can be obtained by pressing RUN.

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PROCEDURE 2 RECOMMENDED SIO PROGRAM CONFIGURATION

After completing the necessary procedures to produce modules configured with one or more drivers, choose one of the programs listed below:

Assembler

Extended Assembler

HP FORTRAN

4K FORTRAN

ALGOL

Cross Reference Symbol Table Generator

Symbolic Editor

Prepare Tape System

System Dump

Any user program that has properly preset the first word of available memory (105_8) and allocated driver link words 100_8-107_8 .

If any one of these programs is to be used, it is more convenient to combine the SIO drivers and the program onto one tape than to load the two tapes separately each time. Use the following procedure:

1. Load the program tape with BBL or BBDL.
2. Choose one of the SIO module tapes containing the desired SIO drivers. If module not ready, create SIO module now. (Procedure 1)
3. Load SIO module tape with BBL or BBDL.
4. Load SIO System Dump with BBL or BBDL. (Must be same core size as drivers.)
5. Set up a starting address of 2_8 .
6. Set all switch register bits to zero.
7. Set switch register bit 15 to one for a tape containing both the program and the drivers.

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8. Turn on the tape punch or teleprinter punch.
9. Press RUN .
10. Additional copies of the "configured" program can be obtained by pressing RUN.

This tape is a configured SIO program ready to be loaded with BBL and run; i.e., a "configured" Assembler. Now repeat the process for all other programs to be used.

PROCEDURE 3

SIMULATION OF A MAGNETIC TAPE ENVIRONMENT BY AN SIO DISC DRUM DRIVER

The SIO Disc/Drum driver simulates a magnetic tape on the fixed-head disc or drum, enabling a disc to be used instead of a magnetic tape in a magnetic tape environment. This saves time in the generation of the Disc Operating System and Real Time Executive System.

The SIO Disc/Drum driver takes up the same locations in core as the SIO Magnetic Tape drivers; therefore, this driver cannot be used in a Magnetic Tape System.



HOW TO CONFIGURE AN SIO DISC/DRUM DRIVER

NOTE: The SIO Disc/Drum Driver must be the last SIO driver loaded with BBL or BBDL.

1. Load the SIO Disc/Drum driver with BBL or BBDL.
2. Set up a starting address of 2_8 .
3. Set the high priority I/O address (select code) of the disc/drum DATA channel into switch register bits 5 through 0.
4. Set switch register bit 15 to zero, if there are 90 sectors/programming track.
Set switch register bit 15 to one, if there are 128 sectors/programming track.
5. Press RUN. The computer halts with a code of 102001_8 .

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6. Set the first octal track address to be made available to the driver into switch register bits 7 through 0. Set bits 14 through 12 to the logical unit number of the disc. Set bit 15 on if this is the last logical unit to be configured.
7. Press RUN. The computer halts with a halt code of 102002_8 .
8. Set the last octal track address to be made available to the driver into bits 7 through 0.
9. Press RUN. If the computer halts with a code of 102000_8 , the last track for the current logical unit is less than that of the first track address given. Restart driver configuration at step 3.

NOTE: Configuration of the first logical unit sets the other seven logical units to the same configuration in case of premature termination.

10. If bit 15 (step 6) is set to zero, the computer halts with a code of 102001_8 and the user can configure the next logical unit by returning to step 6.
11. If bit 15 (step 6) is set to one or this is the eighth logical unit to be configured, the computer halts with a code of 102077_8 . Configuration is complete. To reconfigure, start at step 2.