

516 - 73
CC
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NODE I/O SOFTWARE

The easiest way to drive a node on the 516 I/O loop is to use NODTST (516-72). NODTST allows the user to type commands to a node and to loop on a sequence of node commands. A convenient technique for using NODTST is to build a file of NODTST commands, in which the first command is "NODTST,N". This file can then be executed at system level, which avoids retyping whenever the sequence is run. Arguments may also be passed to the file.

If the preceding methods for exercising a node fails to meet the users needs he must resort to writing a program for the 516. Such a program may be written in FSNAP (516-51), but it is probably just as easy to write in assembly language (516-41). There are several 516 system routines which make writing node I/O easy.

JST .RSRIN,*

Reads the status of the node whose number is in .ITERM. The node status is returned in the A register.

JST .RDRIN,*

Reads data from the node specified by .ITERM. Data is returned in the A register.

JST .WDRIN,*

Sends the A register contents as a "write data" to the node specified by .ITERM.

JST .WCRIN,*

Sends the A register contents as a "write command" to the node specified by .ITERM.

These system routines are also used by interrupt handlers; so, to avoid collisions the interrupt must be turned off when these system routines are called. The following is an example of a program to read the status of node 20.

INH		AVOID COLLISIONS
LDA	NODENO	SET UP NODE NO.
STA	.ITERM	ARG. FOR .RSRIN
JST	.RSRIN,*	READ STATUS
ENB		STATUS IN A REG

NODENO:ØCT 20

NODE 20

Here, .ITERM and .RSRIN are system-defined symbols. Minor alterations in the above sequence will change it to "read data", "write data", or "write command". Once the interrupt is turned off and .ITERM is set up, multiple ring transactions can be done. But, each such transaction takes approximately 100 microseconds, and the interrupt must not be turned off for longer than 1/2 millisecond.

Another thing to be careful of is "tying up the 516". A good rule of thumb is to give up control once

every 100 ring transactions, which may be done with the statement:

JST .RDBLK,*

If no other users need the processor, the above roadblock statement will cause a delay of about 1/2 millisecond.