Identification

Drum Interrupt Handler
L. J. Lambert

Purpose

The Drum Interrupt Handler is called by the Interrupt
Interceptor when a drum interrupt occurs. Its only task
is to wake up the File System Device Monitor Process (BG.11).

Interrupts

Each drum controller generates three unique interrupts.
The control interrupt is generated whenever a control
fault is detected. Control faults cause the drum to be
disconnected and occur for the following reasons:

1. The memory controller detected an illegal action
   (generally memory parity error) during a control
   sequence memory access.

2. No sector address match or sector mark is found
   within two revolutions.

3. The drum is momentarily or permanently inoperable
   due to power loss.

4. The drum has specified an address beyond the
   present capacity.

5. The memory controller has failed to respond to a
   memory access request within one-two sector times
   during a control word access.

6. A DCW command could not be interpreted as a valid
   command.

A second interrupt type, the data interrupt is signaled
by the drum controller when a data fault condition exists.
Data faults do not cause the controller to disconnect
the drum. The data faults are:

parity fault - A parity error occurred during a read
        or idle DCW. Data parity transmitted from the
        drum did not match parity generated by the controller.

write fault - This fault indicates that data was not
        written in the drum.

transfer timing fault - A transfer timing error occurred
during a read or write DCW. Either data transfer
to or from memory did not occur in time to maintain
synchronism with the drum rotating element or an
illegal action was detected by the memory module
during a data transfer.

The third unique interrupt, the programmed interrupt,
is caused by the DCW commands:

read and interrupt
write and interrupt
idle and interrupt

These conditions do not cause the controller to disconnect
the drum.

Interrupt Handling

The Interrupt Interceptor calls the Drum Interrupt Handler
as follows:

call drum_handler (active_device_number, interrupt_number,
time_ptr).

drum_handler - entry point to the drum interrupt handler

drum_device_number - a unique number (precision 18 bits)
specifying which drum caused the
interrupt. Drums are numbered
sequentially starting at 1.

interrupt_number - a unique number (precision 18 bits)
specifying the interrupt.
= 1, control interrupt
= 2, data interrupt
= 3, programmed interrupt

time_ptr - a pointer to an integer (precision 71 bits)
representing the time that the interrupt was
recognized.

When the Drum Interrupt Handler is entered the handler
determines the system drum causing the interrupt (active
device number) and the interrupt which occurred (interrupt
number). The Drum Interrupt Handler then sets the device
signal for this active device and interrupt number by
calling the device signal table manager. (See BD.8.05).
The Drum Interrupt Handler then calls entry point wakeup
in the Traffic Controller to wakeup the Drum Manager Process.

Drum Interrupt Data Block

This data block contains for each drum three device indexes,
which correspond to the three types of interrupts which
may occur. It is the primary source of information during
a drum interrupt and must be wired down.