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Identification

Calendar Clock Interrupt Handler
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Purpose

The Calendar Clock Interrupt Handler is called by the Interrupt Interceptor when a calendar clock interrupt occurs. Its only task is to wake up the calendar clock manager process (BK.10.03).

Interrupts

Each system clock generates two unique interrupts. One interrupt signals that the contents of the alarm clock are less than or equal to the calendar clock contents (alarm clock interrupt).

The second interrupt, the trouble interrupt, signals that an error condition exists in the clock. The error conditions which are possible are summarized below:

1. One of the two power sources has failed. The clock is operable.
2. The frequency source has failed.
3. The low order 6 bits of the calendar clock counter have failed.
4. A failure was detected in a register or data path during automatic test (periodic check of major clock registers and data paths).
5. The automatic test cycle did not terminate normally.

These error conditions cannot be segregated by program. The specific cause of the interrupt can be determined only by examining the lights on the control panel.

In the specific situation where all power is lost and then restored, the calendar clock will contain all zeroes. According to current clock documentation there is no interrupt associated with this situation.

Interrupt Handling

The Interrupt Interceptor calls the clock handler as follows:

```
call clock_handler (active_device_number, interrupt_number,
                  time_ptr.)
```

clock_handler	-entry point to the calendar clock interrupt handler.
active_device_number	-a unique number (precision 18 bits) specifying which system clock = 1, system clock 1 = 2, system clock 2
interrupt_number	-a unique number (precision 18 bits) specifying the interrupt type = 1, alarm clock interrupt = 2, system clock trouble interrupt
time_ptr	-a pointer to an integer (precision 71 bits) representing the time that the interrupt was recognized.

Whenever the calendar clock interrupt handler is entered the handler determines the system clock causing the interrupt (active device number) and the interrupt which occurred (interrupt number). The calendar Clock Interrupt Handler then sets the device_signal for the clock and interrupt indicated by calling the device signal table manager. The Calendar Clock Interrupt Handler then calls entry point wakeup in the Traffic Controller to wakeup the Calendar Clock Manager Process (BD.10.03).

Calendar Clock Interrupt Handler Data Block

This data block contains for each system clock two device indexes, which correspond to the two kinds of interrupts which may occur. Since it is the primary source of information during a calendar clock interrupt this data block must be in core at all times.

Note on Trouble Interrupt

The Calendar Clock Interrupt Handler assumes that the Process Exchange will work following a trouble interrupt from the system clock. Therefore trouble interrupts are not handled specially in the Calendar Clock Interrupt Handler but simply passed on to the Calendar Clock Manager Process for action.