<u>Clock</u> services provided by the supervisor

The Multics supervisor, with the aid of certain hardware devices, provides two fundamentally different types of clock services: real-time services and process time services. ~~The difference is that the the real-time services~~ ~~gives~~ Process time services are those connected with clocks which ~~are~~ "tick" only while the process is in control of a processor. Both real-time and process time services ~~of the hardware~~ include interval measurement and interval remnant interrupts. The precise specification of these services ~~that~~ assume hardware implementation of the physical system of clocks.

Real-Time Services

Three real time services are provided: Calendar time, real-time interval measurement, and real-time interval interrupt. All real-time services utilize variables of 52-bit precision and use a fundamental time unit of microseconds.

1. Calendar Clock and real-time interval measurement The calendar clock contains the number of microseconds since Jan 1, 1900. Although this value may be inaccurate by a week or a second, ~~two successive looks at~~ ~~the calendar clock will~~ the difference between successive looks at the calendar clock will ~~be contained~~ accurate to one part in a million, or 1 μsec, whichever is ~~much~~ greater. ~~The value of the clock is read by a~~ slow-mode ~~special~~ precious instruction; a R/I subroutine will also be ~~provided~~. A supervisor subroutine is available to read the value of the calendar clock:

       call Calendar-clock (I)

sets the 52-bit integer fixed variable I to the current calendar clock value.

2. Real-Time Interval Interrupt. An Interrupt signal ~~may be generated~~ will be sent to a process at a specified time if the process ~~calls~~ requests:

              Calendar-time
    call Set-Time-~~Interrupt~~ ᵗʳᵉⁿᵈᵉ (~~time-interval~~, Interrupt Word)

~~...~~ the process should take care to enable, for ᵗʰᵉ ⁿᵉˣᵗ ᵖʳᵒᵇˡᵉᵐ the ʳᵉᵍᵘᵉˢᵗᵉᵈ ~~time~~ interrupt before it ~~ever~~ occurs.

~~A process may not or may several old~~ set several time interrupts, ~~for different timing if desired~~.

Note that although the interrupt signal to the process will ~~occur~~ at the process time requested, the ᵃ ᵇˡᵒᶜᵏᵉᵈ ~~the~~ process may not gain ˢᶜʰᵉᵈᵘˡᵉᵈ control for some time ~~due to scheduling and swapping~~ depending on system load.

to ʳᵉᵃˡ-ᵗⁱᵐᵉ ⁱⁿᵗᵉʳʳᵘᵖᵗ ʳᵉᵍᵘᵉˢᵗ
 get rid of ~~a time interrupt~~ which has been set, the call
           ʳᵉᵍᵘᵉˢᵗ
    call Delete-time-~~interrupt~~ (Calendar-time) ~~#~~
is provided.

A library package ᵐᵘˢᵗ ᵇᵉ ᵖʳᵒᵛⁱᵈᵉᵈ ᶠᵒʳ Pᴸ I ~~can be provided~~ which will accept ᵐᵘˡᵗⁱᵖˡᵉ stacked ~~multiple~~ ~~of the several time~~ interrupt ʳᵉᵍᵘᵉˢᵗ ~~s~~, ~~and~~ allow selective deletion of these ʳᵉᵍᵘᵉˢᵗᵉᵈ ~~interrupts~~, and convenient enabling of interrupt procedure.