

Make

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sudo insmod lab7.ko
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sudo ./lab7_user
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root@mycroft-VMware-Virtual-Platform:/home/mycroft/hw7# ./lab7_user
== Kernel Output ==
elapsed: 0 ms
ppid: 4957

Kernel elapsed: 0 ms
Kernel ppid: 4957
User measured elapsed: 0 ms
User getppid(): 4957
```

In this assignment, I implemented a Linux kernel module that registers as a misc character device /dev/lab7dev and provides open() and read() operations. The open() function records the current jiffies value, and the first read() call returns a C-string containing the elapsed time in milliseconds (computed from jiffies) and the parent PID obtained from current->parent->pid. A user-space program was written to open the device, read the kernel-generated data, measure its own elapsed time using gettimeofday(), and compare the kernel-reported parent PID with the result of getppid(). The outputs match correctly, demonstrating proper timing measurement, parent PID retrieval, and user - kernel communication via a misc character device.