SYSTEM CALL

IMPLEMENTATION OF

CLOCK_GETTIME()

System call

system calls are the interface through which user-level programs request services from the kernel. They allow programs to interact with the operating system, enabling tasks like accessing hardware, managing memory, and performing file operations. Slackware, being a Linux distribution, inherits the same system call mechanisms as other Linux distributions.

There are vast number of system calls for various purposes.

Examples of common system calls:

- open(): Opens a file for reading or writing.
- read(): Reads data from a file or socket.
- write(): Writes data to a file or socket.
- fork(): Creates a new process.
- exec(): Replaces the current process with a new one.
- exit(): Terminate a process

➢ **from those this documentaion will emphasize on clock_gettime() system call and its implementation**

The clock_gettime system call is a successor to the gettimeofday system call with a few key changes: higher precision and the ability to request specific clocks. It fills in a structure containing two fields: a seconds and a nanosecond count of the time since the Epoch (00:00 1 January, 1970 UTC).

Steps for the implementation of clock_gettime()

1. Open the Terminal

In Slackware virtual machine:

- If you're in the desktop (GUI), look for an app called “Terminal”, “Xterm”, or “Konsole”.
- Or press Alt + F2, type xterm, and press Enter.

2. Open a Text Editor (I Use vi)

vi gettime.c

3. Type This Code:

Once inside vi, do the following:

1. Press i (this puts in Insert mode).
2. type this code:

```
#include <stdio.h>
#include <time.h>
int main() {
   struct timespec ts;
   if (clock_gettime(CLOCK_REALTIME, &ts) == -1) {
      perror("clock_gettime");
      return 1;
   }
   printf("Current time: %ld seconds and %ld nanoseconds\n", ts.tv_sec,
ts.tv_nsec);
   return 0;
}
```

3. When it is done, press the Esc key.
4. Then type :wq - to save and exit

4. Compile the Program

Type gcc gettime.c -o gettime –lrt and then press enter

5. Run the Program

Finally run the program ./gettime the output included in the screenshoot.

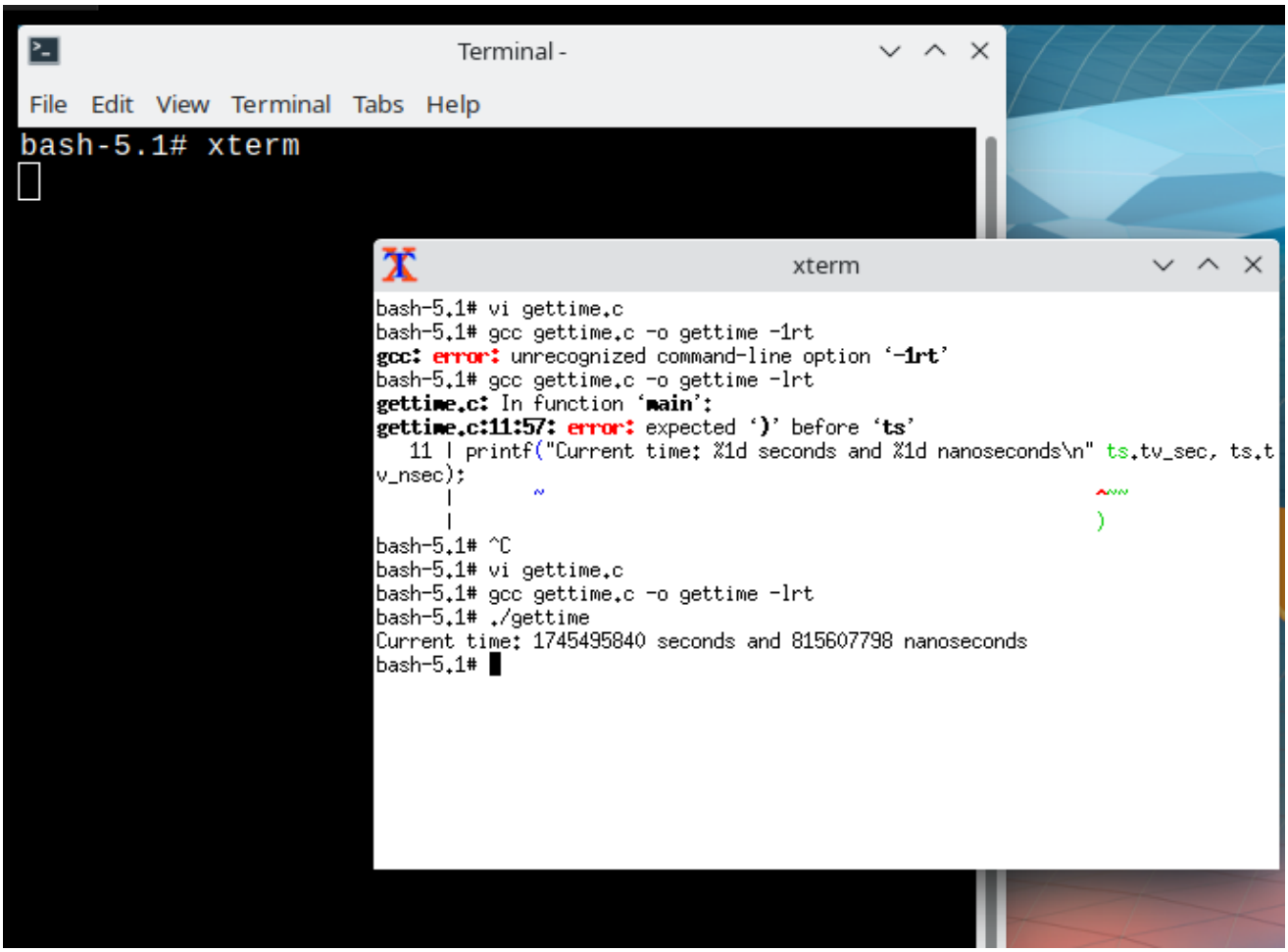

Fig. Clock_gettime() system call implementation