Computer Systems 414 28 March 2021

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Introduction:

The aim of assignment B is to write a C program in the command line and compile it on a BeagleBone board. The program must trigger an on-board LED to flash ten times before termination.

To achieve this a file containing the state of the led must be toggled to change the state of the LED.

Code:

The following code was found on teachmemicro.com (https://www.teachmemicro.com/beaglebone-black-controlling-user-leds/) and was altered slightly to achieve the assignment specifications. The delayVal char was changed to 100 and the usleep() function had 5.6 million micro seconds as input.

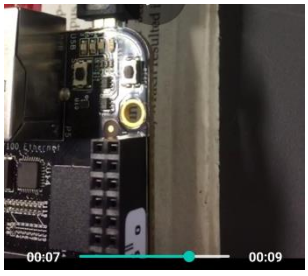
The program opens the *files* trigger and *delay* and changes its values. These values keep the state of LED and trigger event. Thus, changing these values changes the state of each LED. The trigger file tracks the cycle of the internal clock and switches the LED on every 100 ms, LED flashes. The trigger even is turned off after 5.6 seconds when the delay terminates. The LED stops flashing.

```c
#include <unistd.h>
#include <stdio.h>

int main()
{
   FILE *export_file = NULL; //declare pointers
   FILE *IO_direction = NULL;

   char noneTrig[] = "none";
   char delayVal[] = "100";

   char timerTrig[] = "timer";
   //set trigger to none first, just in case
   export_file = fopen ("/sys/class/leds/beaglebone:green:usr2/trigger", "w");
   fwrite (noneTrig, 1, sizeof(noneTrig), export_file);
   fclose (export_file);
   //set trigger to timer
   IO_direction = fopen ("/sys/class/leds/beaglebone:green:usr2/trigger", "w");
   fwrite (timerTrig, 1, sizeof(timerTrig), IO_direction);
   fclose (IO_direction);
   //set timer delay to 1 second and then let the device sleep for 5.6 seconds (flashes the LED ten times)
   export_file = fopen ("/sys/class/leds/beaglebone:green:usr2/delay_off", "w");
   fwrite (delayVal, 1, sizeof(delayVal), export_file);
   fclose (export_file);
   usleep (5600000);
   //set trigger back to none
   IO_direction = fopen ("/sys/class/leds/beaglebone:green:usr2/trigger", "w");
   fwrite (noneTrig, 1, sizeof(noneTrig), IO_direction); //set the pin to LOW
   fclose (IO_direction);
}
```



LED switched off after blinking 10 times.

Proof Of LED flashing.