

This file has been written by [Cha Horyeon], 2023011240.

Buffer Test

You could test printing multiple bytes on stream.

/

[illegible]

/

```
"aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa  
aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa"
```


[illegible]

```
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"aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
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"aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
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"aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa";

    // 1 character
    start = clock();
    test(file, str1);
    end = clock();
    printf("\n\nTime %lf elapsed for 1 character(s)\n\n", (double)(end -
start) / CLOCKS_PER_SEC * 1000);

    // 10 characters
    start = clock();
    test(file, str10);
    end = clock();
    printf("\n\nTime %lf elapsed for 10 character(s)\n\n", (double)(end -
start) / CLOCKS_PER_SEC * 1000);

    // 110 characters
    start = clock();
    test(file, str110);
    end = clock();
    printf("\n\nTime %lf elapsed for 110 character(s)\n\n", (double)(end -
start) / CLOCKS_PER_SEC * 1000);

    // 1100 characters
    start = clock();
    test(file, str1100);
    end = clock();
```


Main

If it runs, output looks like this.

It looks pretty not.

Let us try to change the stream where the bytes will be written.

So we will not have to see those bunch of 'a's.

Main

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```
        fclose(file);  
    } else {  
        printf("Failed opening file");  
    }  
    return 0;  
}
```

If it runs, output looks like this.

```
● ae2f@fedora:~/Downloads/Toy$ gcc a.c  
● ae2f@fedora:~/Downloads/Toy$ ./a.out  
  
Time 0.050000 elapsed for 1 character(s)  
  
Time 0.031000 elapsed for 10 character(s)  
  
Time 0.021000 elapsed for 110 character(s)  
  
Time 0.018000 elapsed for 1100 character(s)  
  
Time 0.097000 elapsed for 12100 character(s)  
● ae2f@fedora:~/Downloads/Toy$ █
```

The result went interesting.

Not same as my expectation, the time elapsed while writing was not increasing by increase of the number of bytes programme needed to write.

The reason that printing ten characters has the higher speed than printing only a character is predictable. `puts` is for printing an array of chars, not for a single printing.

But the rest of the test cases made me wonder.

d I expect this behaviour is according to an alignment system of C.

To check, I have another test code:

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```

"aaaaaaaaaaaaaaaa" "aaaaaaaaaaaaaaaa" "aaaaaaaaaaaaaaaa"
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"aaaaaaaaaaaaaaaa"

};

for(size_t i = 0; i < sizeof(lpstr) / sizeof(void*); i++) {
    start = clock();
    test(file, lpstr[i]);
    end = clock();
    printf(
        "\n\nTime %lf elapsed for %d character(s)\n\n",
        (double)(end - start) / CLOCKS_PER_SEC * 1000,
        1 <= (i + 1)
    );
}
}

```

In this module, it will print the serial of bytes to stream as usual, but the count of them will be power of four.

This are the average result sample:

```
• ae2f@fedora:~/Downloads/Toy$ gcc ./a.c
• ae2f@fedora:~/Downloads/Toy$ ./a.out

Time 0.055000 elapsed for 1 character(s)

Time 0.030000 elapsed for 4 character(s)

Time 0.022000 elapsed for 16 character(s)

Time 0.032000 elapsed for 64 character(s)

Time 0.020000 elapsed for 256 character(s)

Time 0.017000 elapsed for 1024 character(s)

Time 0.041000 elapsed for 4096 character(s)
```

Not a blank sample

```
• ae2f@fedora:~/Downloads/Toy$ gcc ./a.c
• ae2f@fedora:~/Downloads/Toy$ ./a.out

Time 0.034000 elapsed for 1 character(s)

Time 0.017000 elapsed for 4 character(s)

Time 0.012000 elapsed for 16 character(s)

Time 0.011000 elapsed for 64 character(s)

Time 0.013000 elapsed for 256 character(s)

Time 0.014000 elapsed for 1024 character(s)

Time 0.026000 elapsed for 4096 character(s)
```

From a blank file

Delay of writings had a sort of cycle, and those cycle tends to be broken from printing 1024 bytes.