Justin Igmen

ENEL 487

Assignment 4

November 12, 2020

Evaluating CRC code

Measurements:

Time (s) – optimization level 2:

	crcSlow()	**crcFast()**
CCITT	0.002002	0.000742
CRC16	0.001399	0.001001
CRC32	0.002758	0.000994

Size:

CCITT:

```
text    data     bss     dec     hex filename
2304       4       4    2312     908 main.o
```

CRC16:

```
text    data     bss     dec     hex filename
2304       4       4    2312     908 main.o
```

CRC32:

```
text    data     bss     dec     hex filename
2304       4       4    2312     908 main.o
```

Analysis:

Based on the measurements above, we can see that the size of the main file does not change with different algorithms.

The timing however, have slight differences. Since CCITT and CRC16 works with only 16 bits, they must have shorter timing than CRC32. As can be seen with the measurements, this statements is true as it has taken more time to run in crcSlow(). However, for crcFast(), the difference is very little for CRC16 and CRC32. The function speed changes based on whichever algorithm is running.

The library chrono is used instead of the clock library because when I tested clock, I am getting zero timing for every single one. I figured that this is mainly because clock have low resolution. I have found that chrono measures up to nanoseconds hence why it was chosen instead.

As per the code author Michael Barr, the code can be used for any purpose as long as the header comments he added were not removed or changed whatsoever.