

PULSE

```
[0000]: NOP [0000] [0000]
[0001]: LDA [0001] [1110]
[0010]: LDA [0001] [1111]
[0011]: JMP [0110] [0001]

[1110]: xxxxxxxx
[1111]: yyyyyyyy
```

COUNT

```
[0000]: NOP [0000] [0000]
[0001]: LDI [0101] [xxxx]
[0010]: STA [0100] [1111]
[0011]: LDI [0101] [0000]
[0100]: ADD [0010] [1111]
[0101]: OUT [1110] [0000]
[0110]: JMP [0110] [0100]
```

OSCILLATOR

```
[0000]: NOP [0000] [0000]
[0001]: OUT [1110] [0000]
[0010]: ADD [0010] [1111]
[0011]: JC [0111] [0101]
[0100]: JMP [0110] [0001]
[0101]: SUB [0011] [1111]
[0110]: OUT [1110] [0000]
[0111]: JZ [1000] [0001]
[1000]: JMP [0110] [0101]
```

```
[1111]: xxxxxxxx
```

ADDITION (X+Y)

```
[0000]: NOP [0000] [0000]
[0001]: LDA [0001] [1110]
[0010]: ADD [0010] [1111]
[0011]: OUT [1110] [0000]
[0100]: HLT [1111] [0000]
```

```
[1110]: xxxxxxxx
```

```
[1111]: yyyyyyyy
```

SUBTRACTION (X-Y)

```
[0000]: NOP [0000] [0000]
[0001]: LDA [0001] [1110]
[0010]: SUB [0011] [1111]
[0011]: OUT [1110] [0000]
[0100]: HLT [1111] [0000]
```

```
[1110]: xxxxxxxx
```

```
[1111]: yyyyyyyy
```

FIBONACCI

```
int main()
{
    int a = 0;
    int b = 1;
    int c = 0;

    while(c <= 255) {
        c = a + b;
        a = b;
        b = c;
    }

    return 0;
}
```

```
[0000]: NOP [0000] [0000]
[0001]: LDA [0001] [1101]
[0010]: ADD [0010] [1110]
[0011]: STA [0100] [1111]
[0100]: LDA [0001] [1110]
[0101]: STA [0100] [1101]
[0110]: LDA [0001] [1111]
[0111]: STA [0100] [1110]
[1000]: OUT [1110] [0000]
[1001]: JC [0111] [1011]
[1010]: JMP [0110] [0001]
[1011]: HLT [1111] [0000]

[1101]: 00000000 (a)
[1110]: 00000001 (b)
[1111]: 00000000 (c)
```