

The testbench code is as follows

```
#define N 10
#define M 16

int main() {
    int status = 0;

    bool input;
    bool output;
    bool start;

    bool data[M] = {1, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0};

    std::cout << std::endl;

    start = 1;
    input = 0;
    simple_circuit(start, input, output);
    std::cout << output;

    for (int i = 0; i < N; i++) {
        for (int j = 0; j < M; j++) {
            input = data[j];
            simple_circuit(start, input, output);
            std::cout << output;
        }
    }

    return status;
}
```

And this is the RTL/C co-simulation waveform diagram

