

# ECPS 203

# Discussion

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# Agenda

1. Review of Assignment 2
2. Assignment 3

# Mistakes

- Missing initialization for variables
- freeing non-dynamic variables

# Variable Initialization

- local int/char/... variable does not automatically initialize itself
- uninitialized variables may lead to undefined behavior

# Freeing non-dynamic variable

- `free(ptr)`
- if `ptr` is not a dynamic memory allocated by `malloc`, `calloc` and `realloc`, `free(ptr)` causes undefined behavior
- This is because, `free` may free an undefined size of memory

# Assignment 3

due: Wednesday 6:00 p.m. next week

# Assignment 3

Get involved in SystemC

- Build a model for a multiplier in SystemC
- Compile code
- Simulate your model

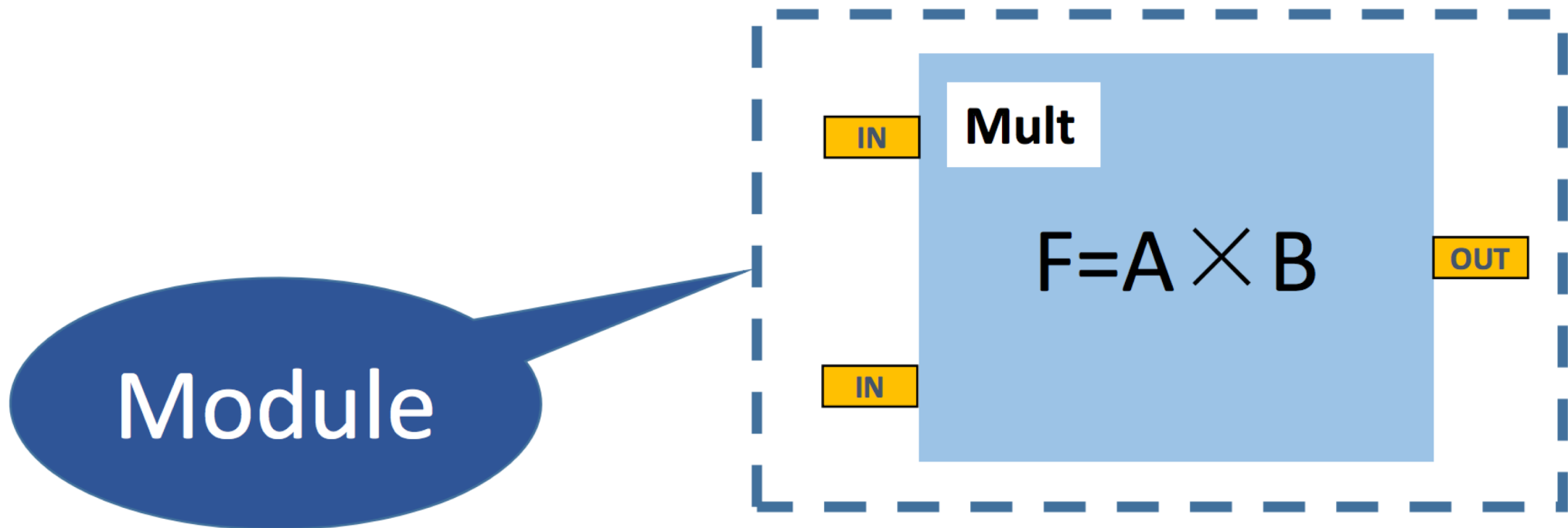
# SC\_THREAD and SC\_METHOD

- SC\_THREAD: the registered function executes only once
- SC\_METHOD: the registered function executes when sensitivity list is triggered



# Multiplier module

- two inputs
- output the multiplication of the inputs

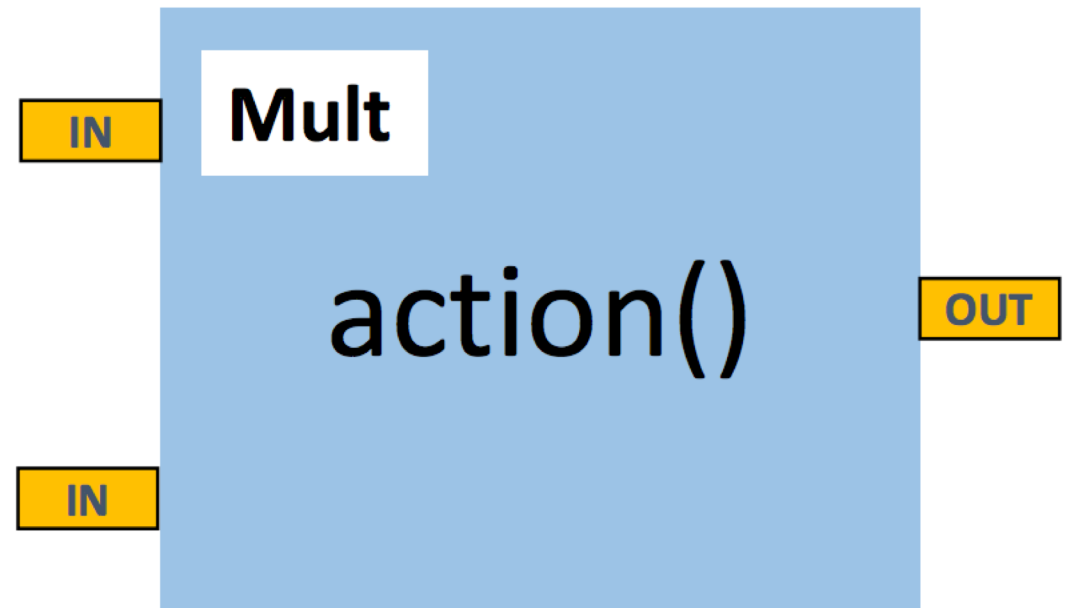


# Multiplier module

```
SC_MODULE(Mult)
{
    sc_in<int> a;
    sc_in<int> b;
    sc_out<int> f;

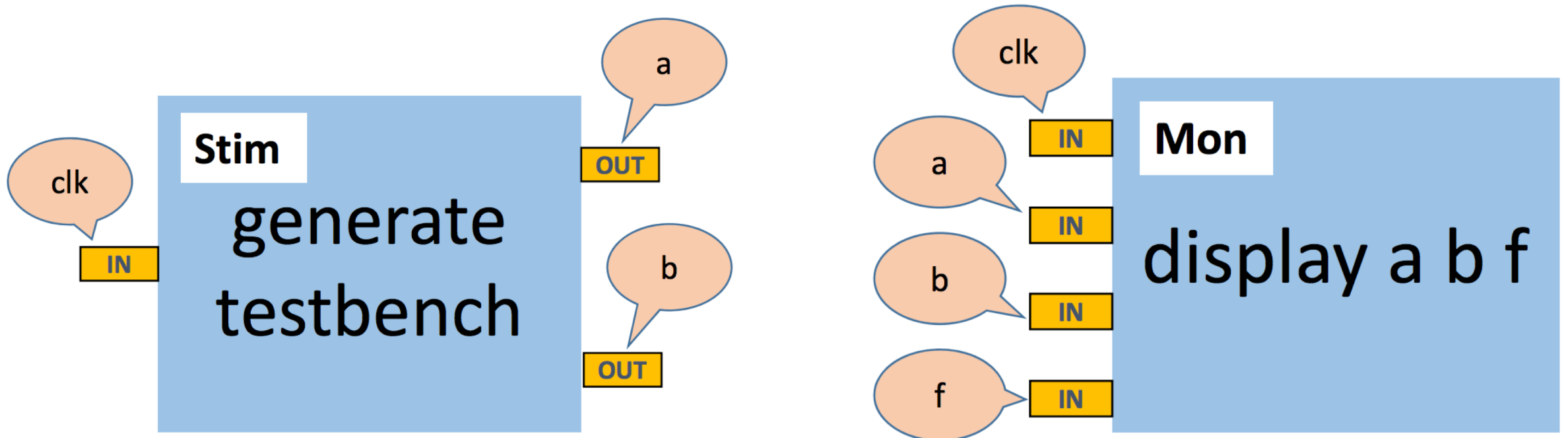
    void action(); //f=a*b

    SC_CTOR(Mult)
    {
        SC_METHOD(action);
        sensitive << a << b;
    }
};
```



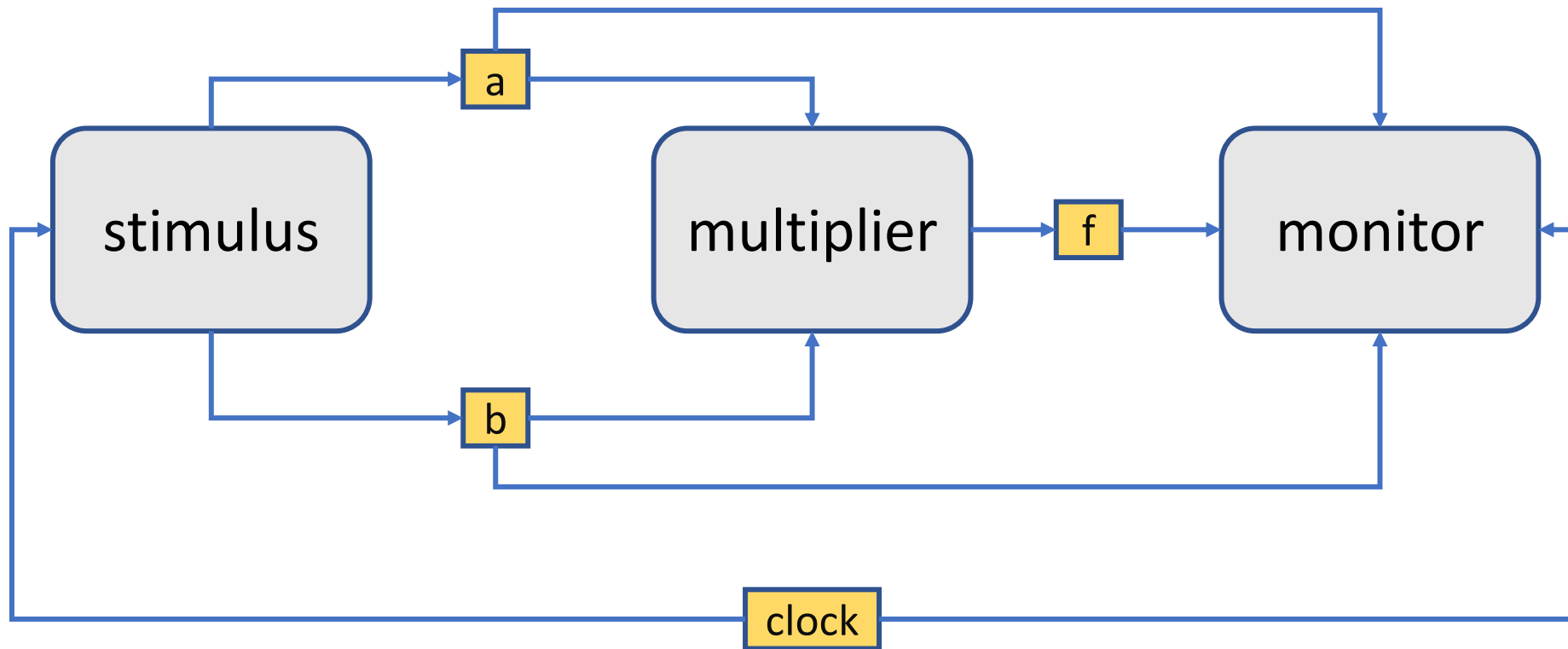
# Stimulus and Monitor

- Stimulus module generates the testbench
- Monitor module displays the result
- Stimulus and Monitor take action when a clock signal is received



# Top level module

- make the connections



# Files

- multiple files

- stim.h

- stim.cpp

- mult.h

- mult.cpp

- mon.h

- mon.cpp

- top.h

- main.cpp

# Compile

- copy the makefile from
  - ❑ `~ecps203/public/Makefile`
- to compile:
  - ❑ `make`
  - ❑ `make test`

# Submission

- create a tarball
- `gtar cvzf hw3.tar.gz README.txt Makefile *.cpp *.h`
- README.txt: describe the troubles you cannot resolve
- and then use the `~ecps203/bin/turnin.sh` script