Program Block

Program block

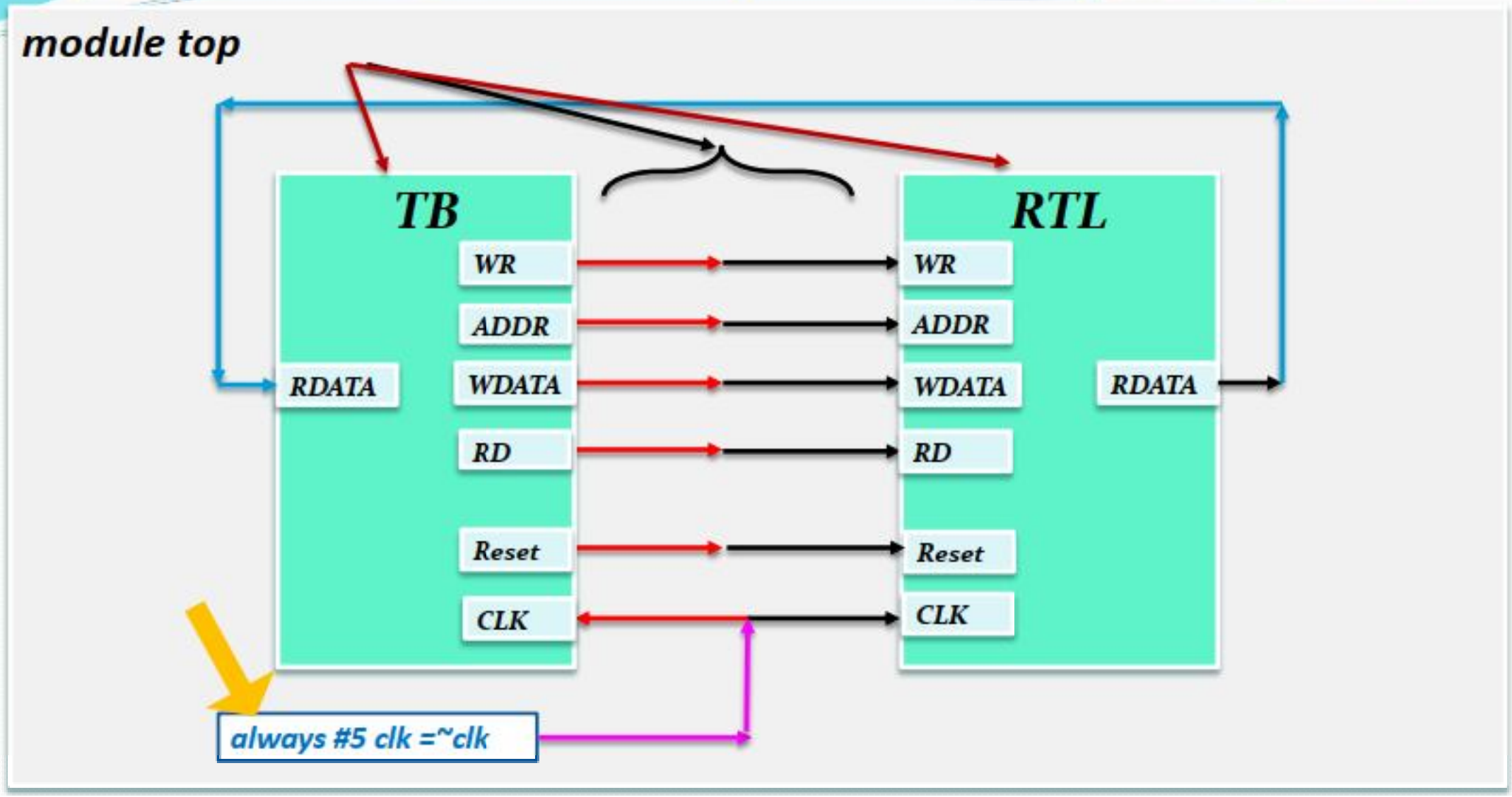
```
program test;

int errors, warnings;

initial begin
... // Main program activity
//Generate Stimulus
end

final
$display("Test done with %0d errors and %0d warnings",
errors, warnings);

endprogram
```

Program

```
program test (input clk,
              output [3:0] addr,
              output [31:0] wdata,
              output rd,wr ,reset,
              input  [31:0] rdata);

initial begin

wr=1;

for(int i=0;i<=15;i++) begin
@(posedge clk);
addr=i;
wdata=$urandom;
end

end//end_of_initial

endprogram
```

```
module RTL (   input clk,
               input [3:0] addr,
               input [31:0] wdata,
               input rd,wr ,reset,
               output  [31:0] rdata);
);
```

Program block and top module



Program block instantiation

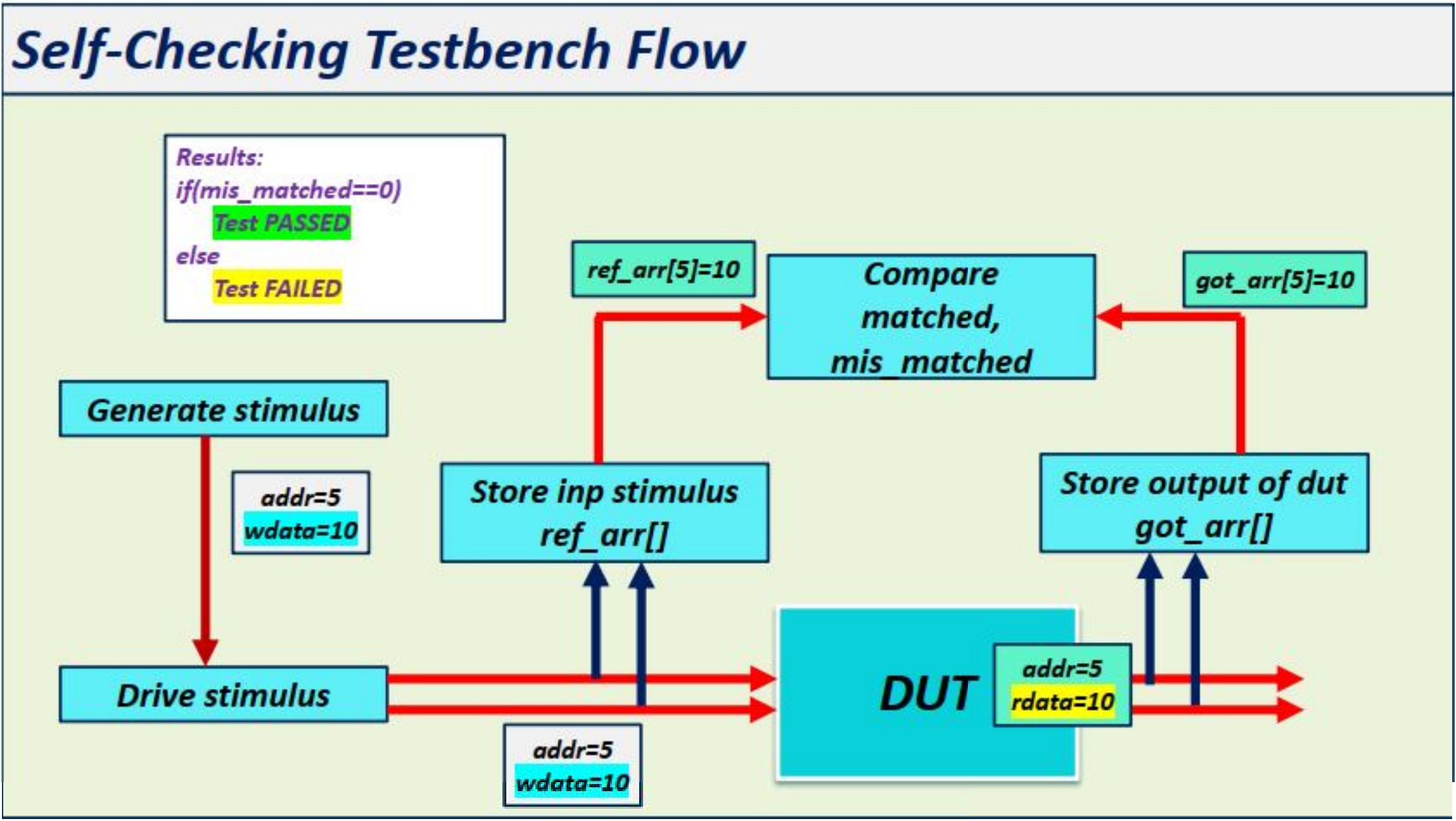
```
module top;
logic clk=0;
logic [31:0] rdata,wdata;
logic rd,wr, reset;
logic [3:0] addr;

always #5 clk = ~clk;

RTL     rtl_inst          (rdata,wdata,rd,wr,addr,clk,reset);

TB      pgm_blk_inst (rdata,wdata,rd,wr,addr,clk,reset);

endmodule
```

Program construct

- A program block may contain one or more initial or final procedures.
- ***Program block shall not contain***
  - ***Always procedures***,
  - ***Primitives***, ***UDP***s,
  - Declarations or ***instances of modules***, ***interfaces***,
  - or other programs
- ***When all initial procedures within a program have reached their end, that program shall immediately terminate the simulation.***
- ***Programs can only be instantiated in design scopes***

- *Type and data declarations within the program are local to the program scope and have static lifetime.*
- *Variables declared within the scope of a program, including variables declared as ports, are called program variables.*
- *Similarly, nets declared within the scope of a program are called program nets.*
- *Program variables and nets are collectively termed program signals.*
- *References to program signals from outside any program block shall be an error*

Self-Checking Testbench Flow



- ***Thank You***