

ModelSim Introduction

2017/10/25

Outline

- How to download ModelSim and install it
- Demo

Download ModelSim PE Student Edition 10.4a

- Download from this website
- https://www.mentor.com/company/higher_ed/modelsim-student-edition

ModelSim PE Student Edition

Free download of industry leading ModelSim® HDL simulator for use by students in their academic coursework.

Download Student Edition

RESOURCES

- ModelSim Student Edition
- Curriculum Support
- IC and ASIC Design Kits
- Participating Schools
- Contact Us
- FAQ

About ModelSim PE Student Edition

Highlights <ul style="list-style-type: none">• Support for both VHDL and Verilog designs (non-mixed).• Intelligent, easy-to-use	Target Use and Upgrades <ul style="list-style-type: none">• ModelSim PE Student Edition is intended for use by students in pursuit of	Performance <ul style="list-style-type: none">• Capacity: 10,000 lines of executable code• Performance (up to capacity): 30% of PE
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Registration

- Create your account and fill out the form

使用 LinkedIn 登入

自動填入資料

First Name ●

Last Name ●

Email ●

Phone ●

A valid email address is required.

Company ●

Primary job function ●

Please select a Job Function ▼

Address 1 ●

Address 2

Country ●

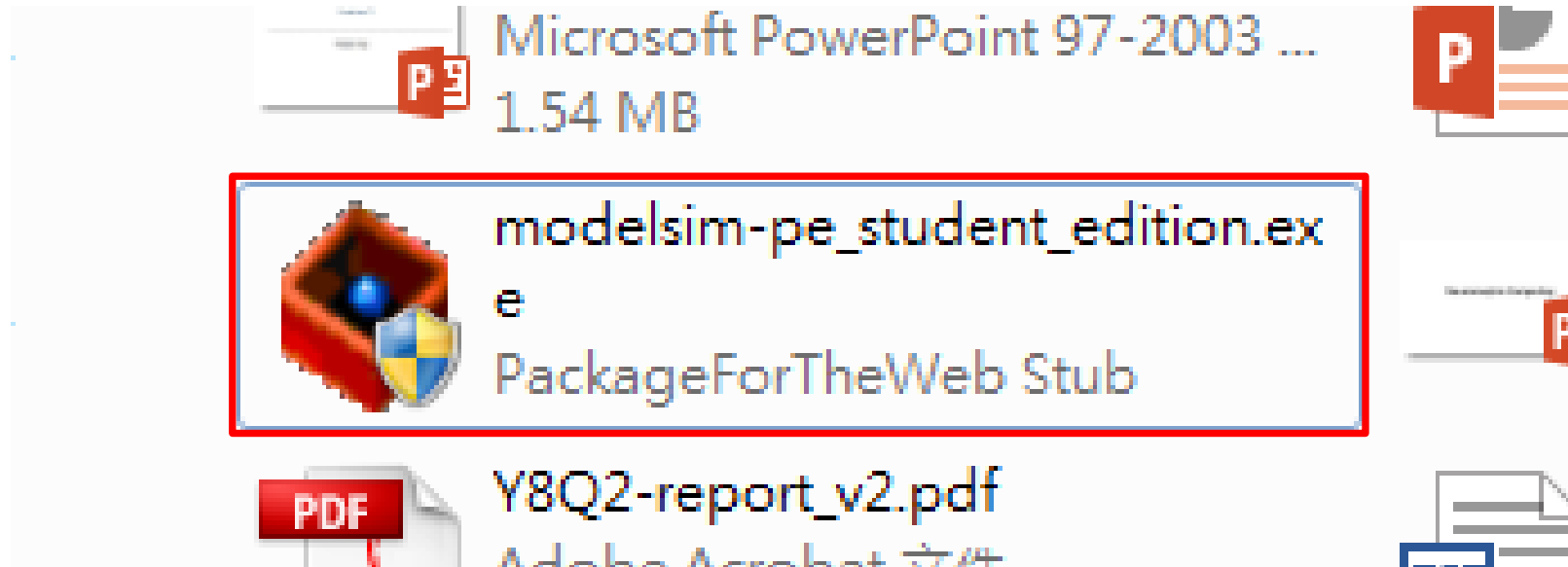
Choose Country ▼

Submit

Mentor Graphics and its agents will protect the information that is gathered on this site as stated in our [privacy policy](#). It will not be shared with, bartered, or sold to any third party.

Install ModelSim

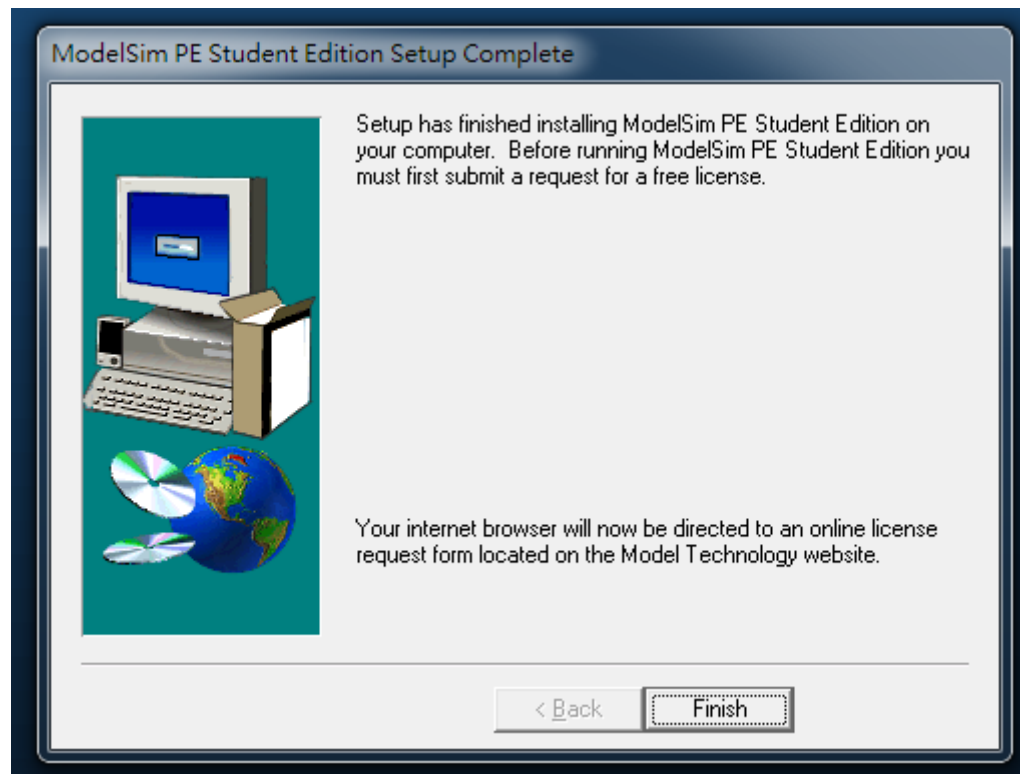
- Execute modelsim-pe_student_edition.exe



Installation Complete

- At the end of the installation process, select Finish and a browser window will open with the License Request form

Please note - clicking on an existing license request link from your browser bookmark or from a link posted on the web - WILL NOT WORK.



Get the License

- Complete the all of the form fields with attention to the email address field and submit the license request form

ModelSim - Advanced x

portal.mentor.com/d/license_request.asp

ModelSim PE Student Edition – License Request

Please complete the form below to have a license file emailed to you.

First Name *	Last Name *
<input type="text"/>	<input type="text"/>
Email *	Phone * (No Dashes or Spaces)
<input type="text"/>	<input type="text"/>
Email (Please Re-enter your email) *	Please verify your email is correct, as the ModelSim Student Edition license file will be emailed to you.
<input type="text"/>	
Address *	Address 2
<input type="text"/>	<input type="text"/>
City *	State/Province (US or Canada Only)
<input type="text"/>	<input type="text"/>
Country *	Zip/PostCode *
<input type="text" value="UNITED STATES"/>	<input type="text"/>

Please tell us about yourself

Please specify your University, College, School, or Institute: *

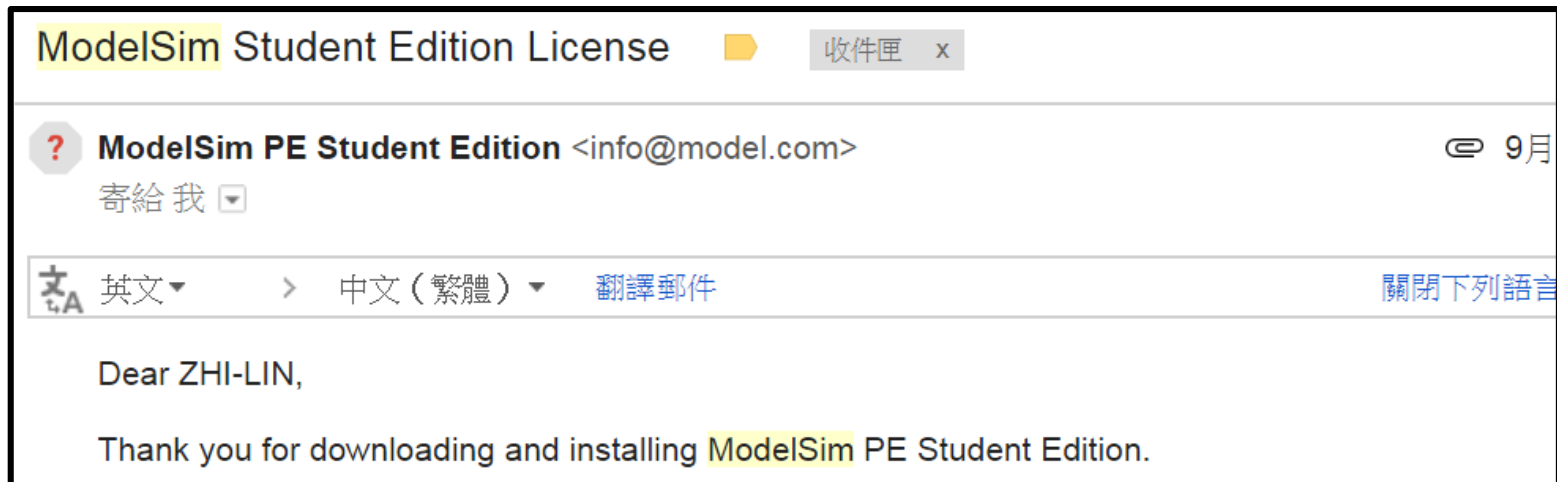
Are you a Student or Instructor? *

☐ Student ☐ Professor / Instructor ☐ Other:

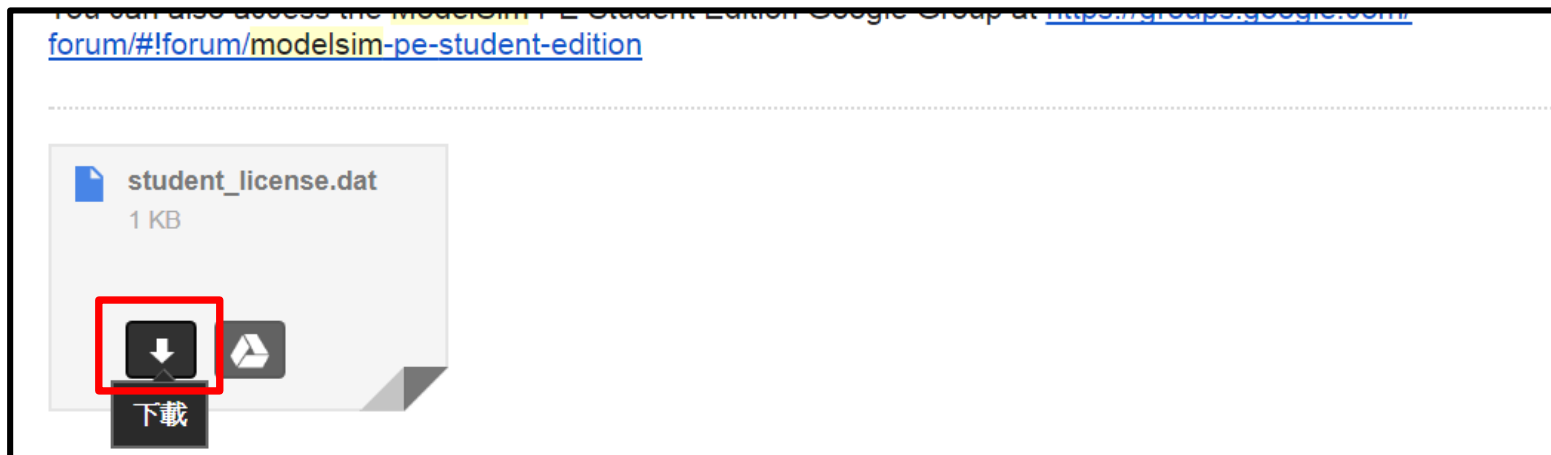
If you are a student:

Please briefly describe the project you will be using ModelSim Student Edition for: *

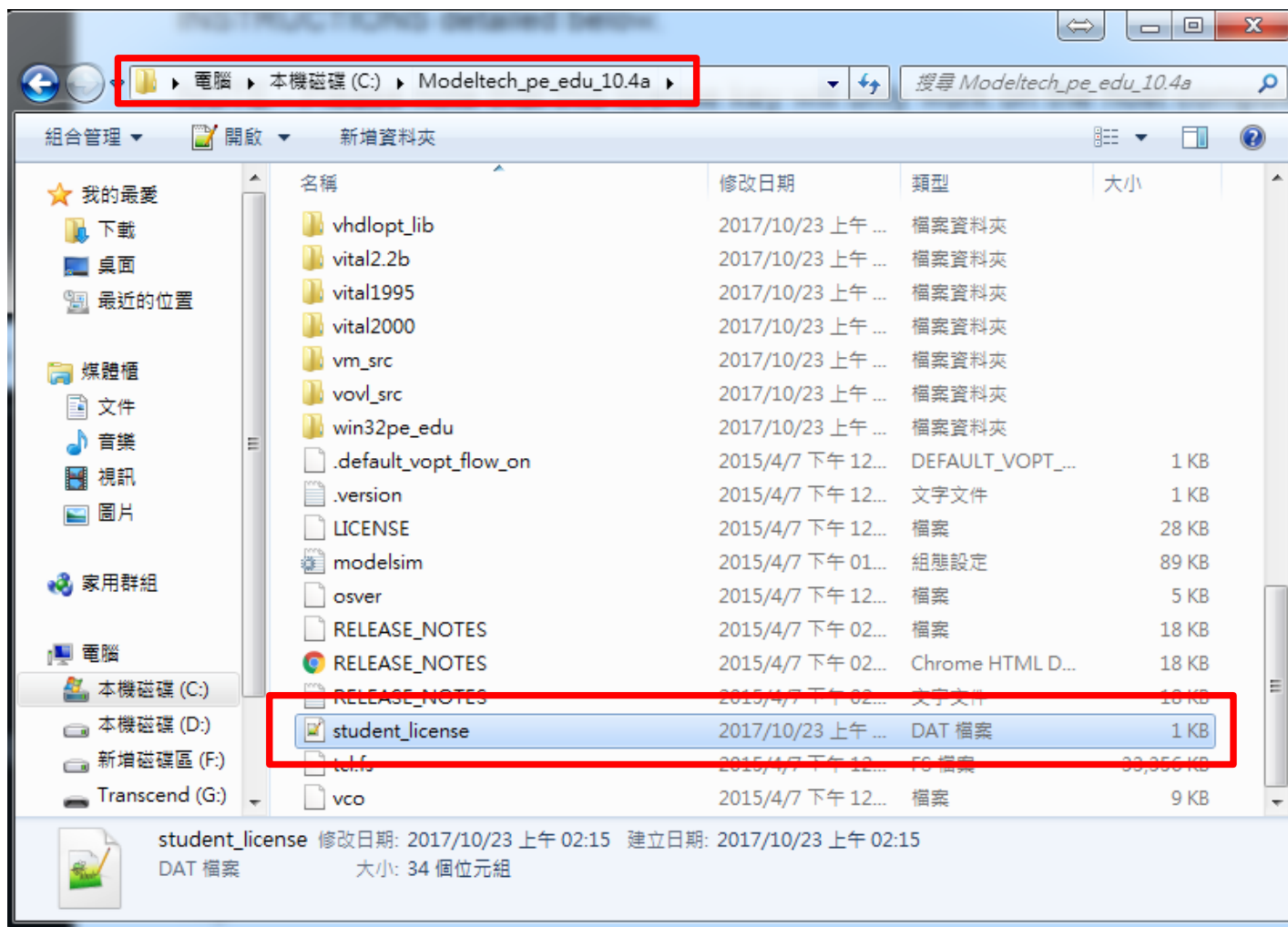
Download the license file from the e-mail box



⋮



Moving the license file to the installation directory

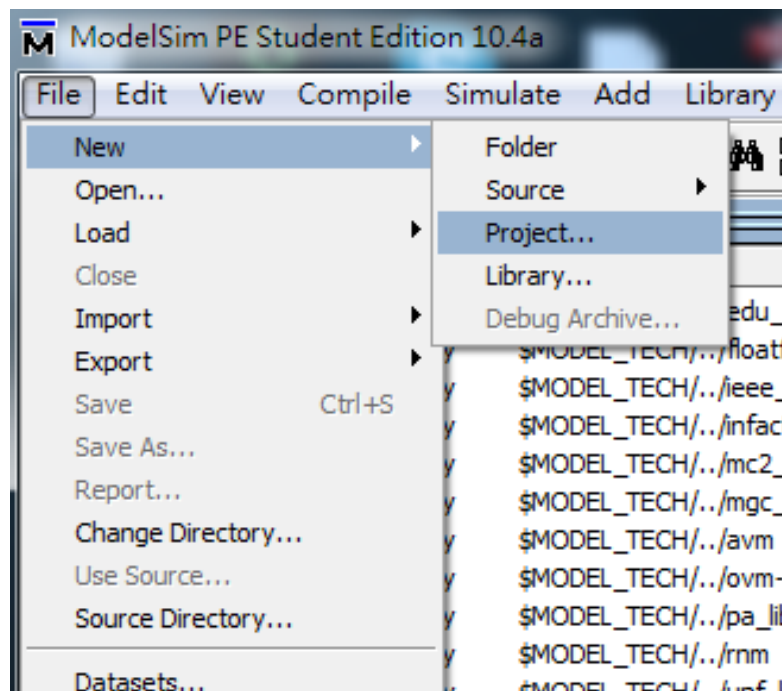


Demo

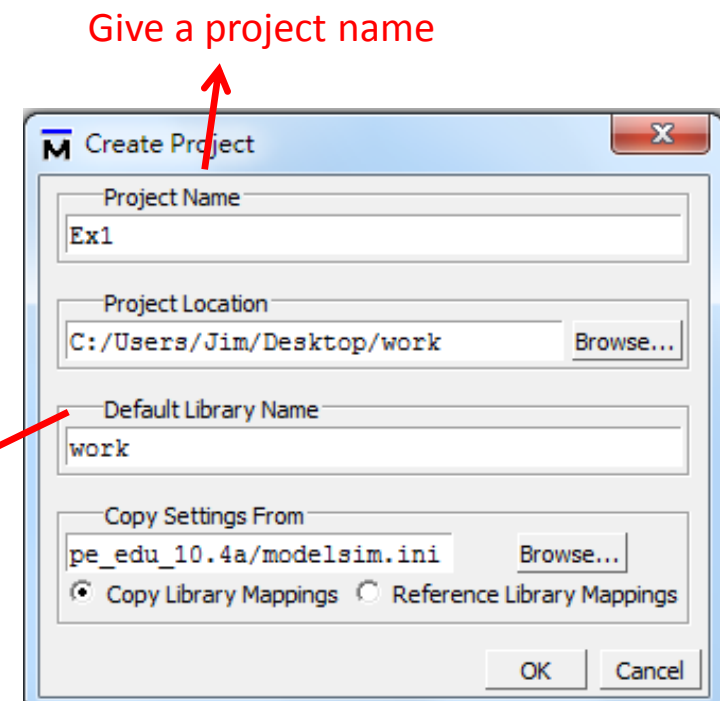
- Create A new project
- Adding or Creating the files into project
- Compiling your code
- Simulation and waveform

Create A New Project

- File->New->Project

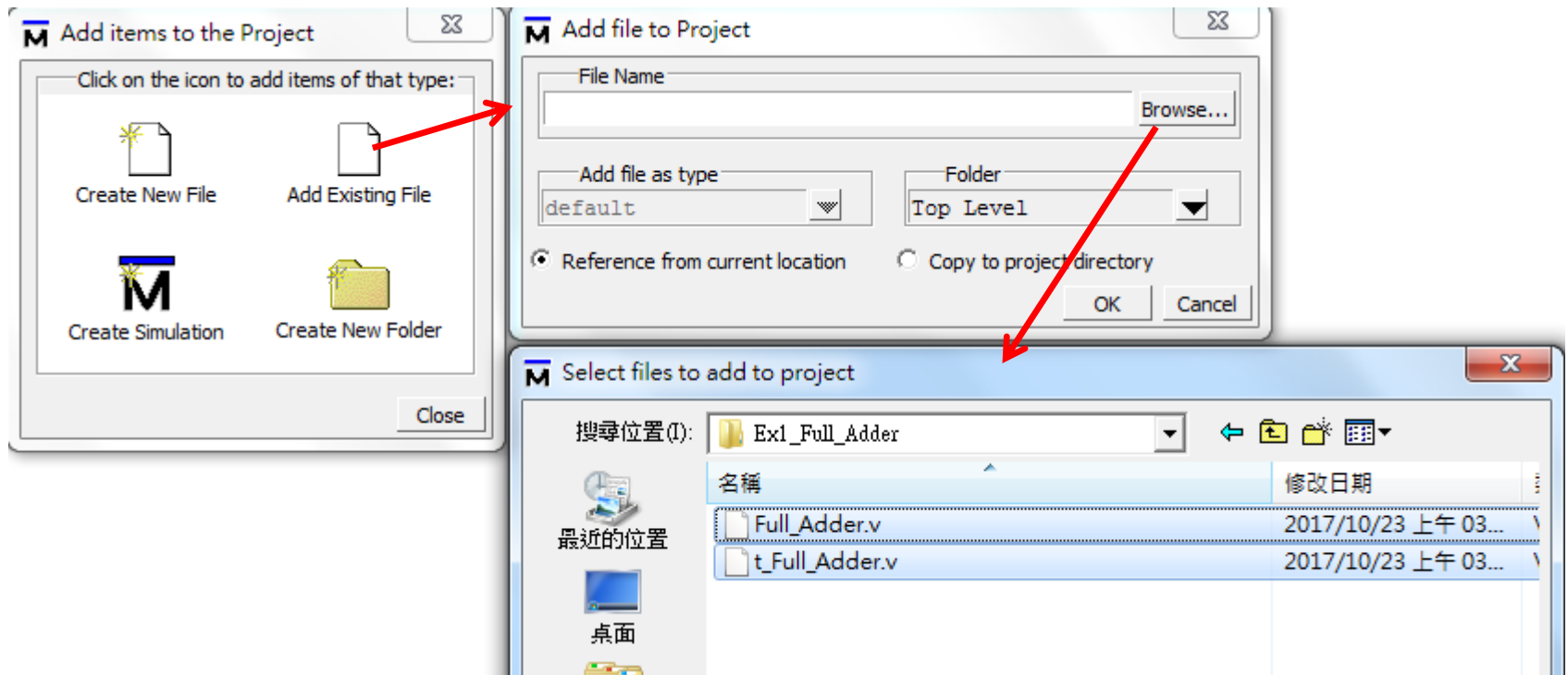


Select working directory for your project file



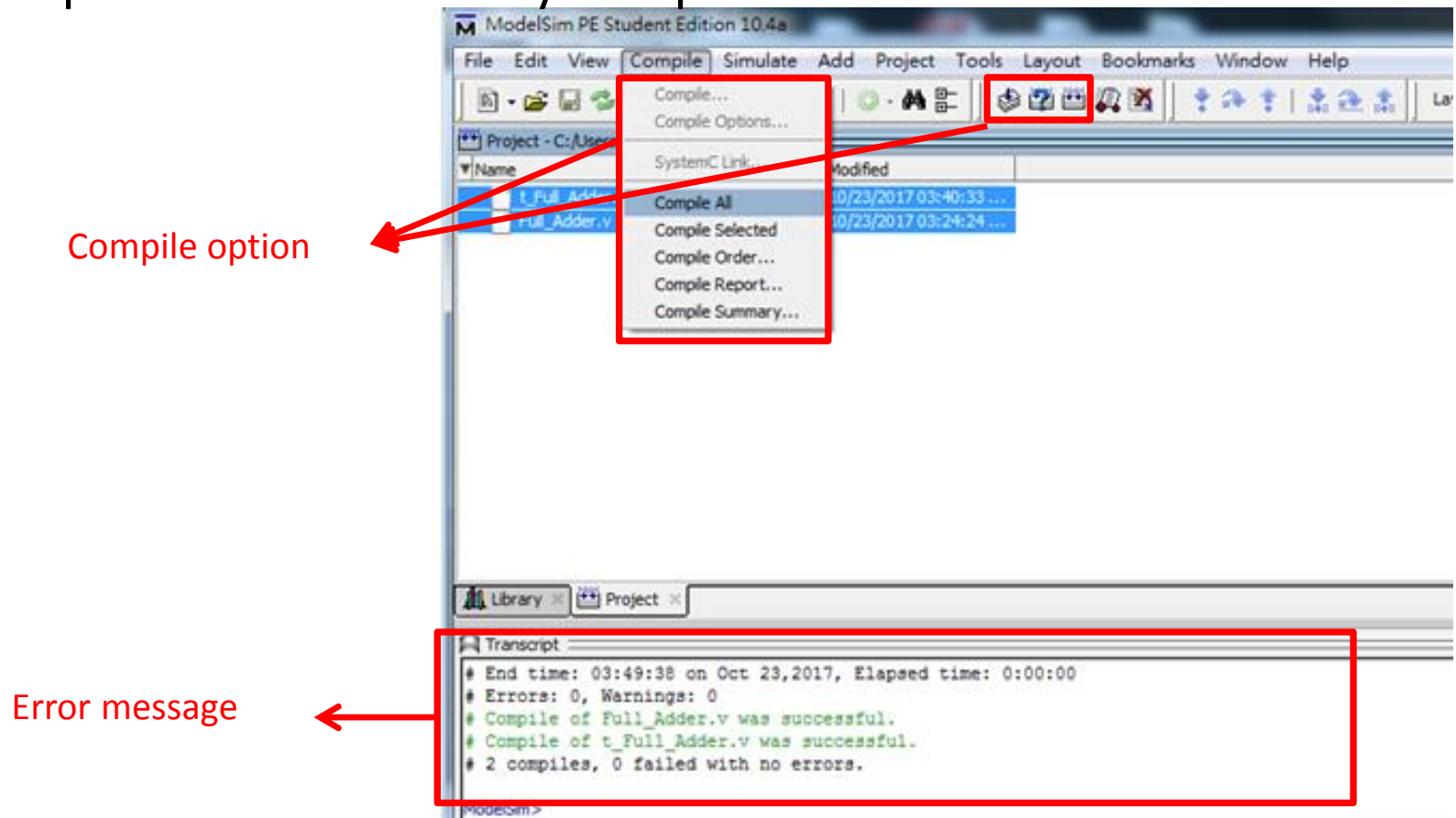
Adding or Creating the files into project

- Add or create files



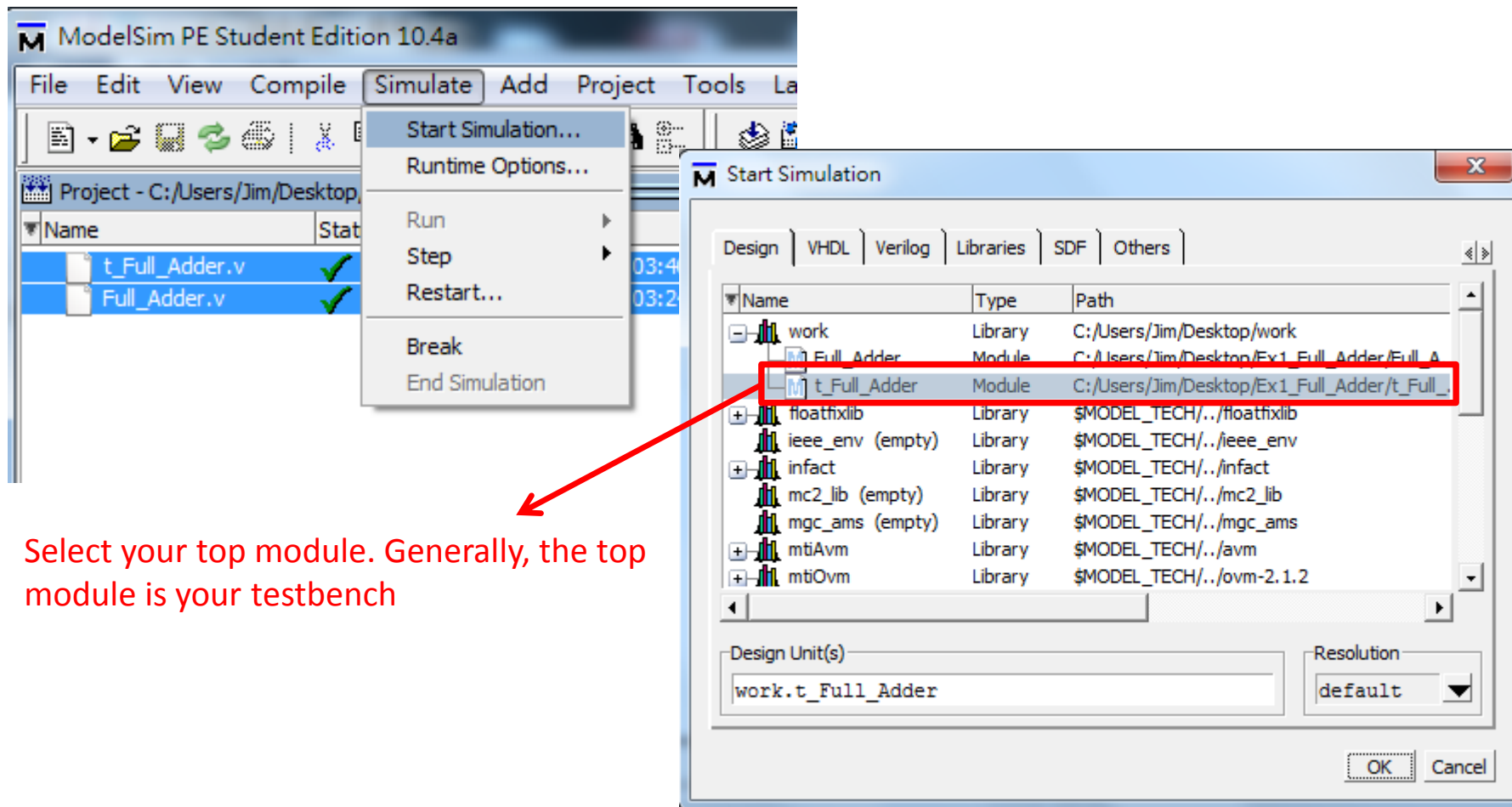
Compiling your code

- Compile all => compile all files of the project
- Compile Selected => Only compile the selected file



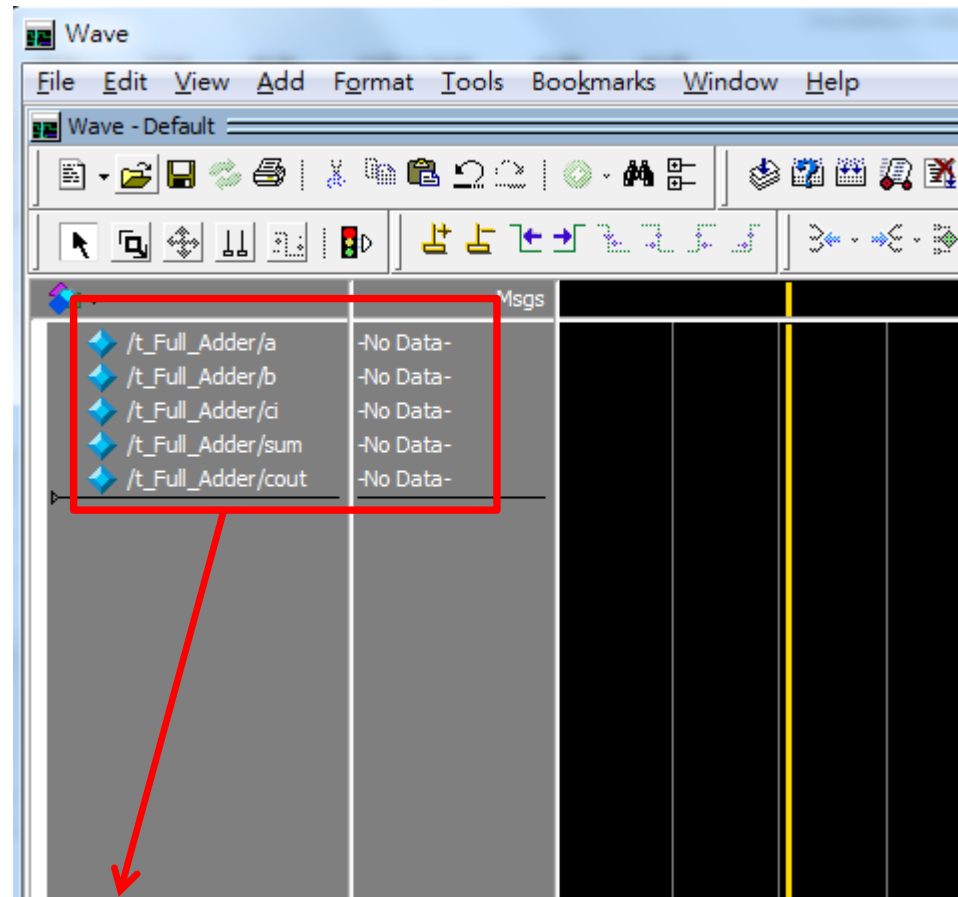
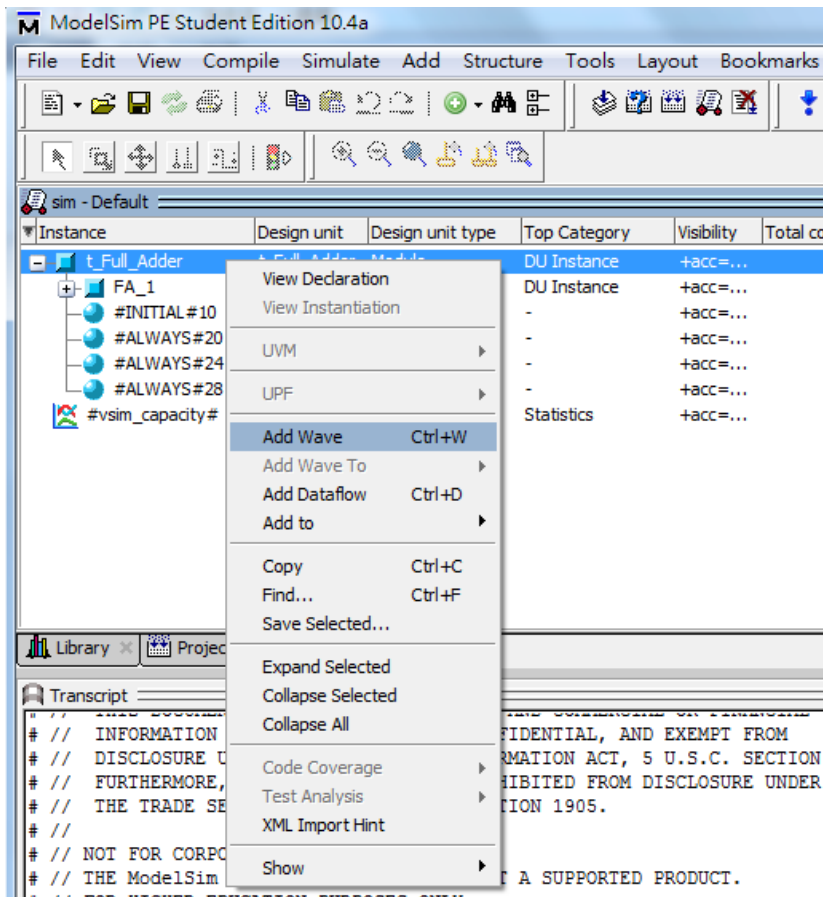
Simulation and Waveform(1/3)

- Simulate->Start Simulation



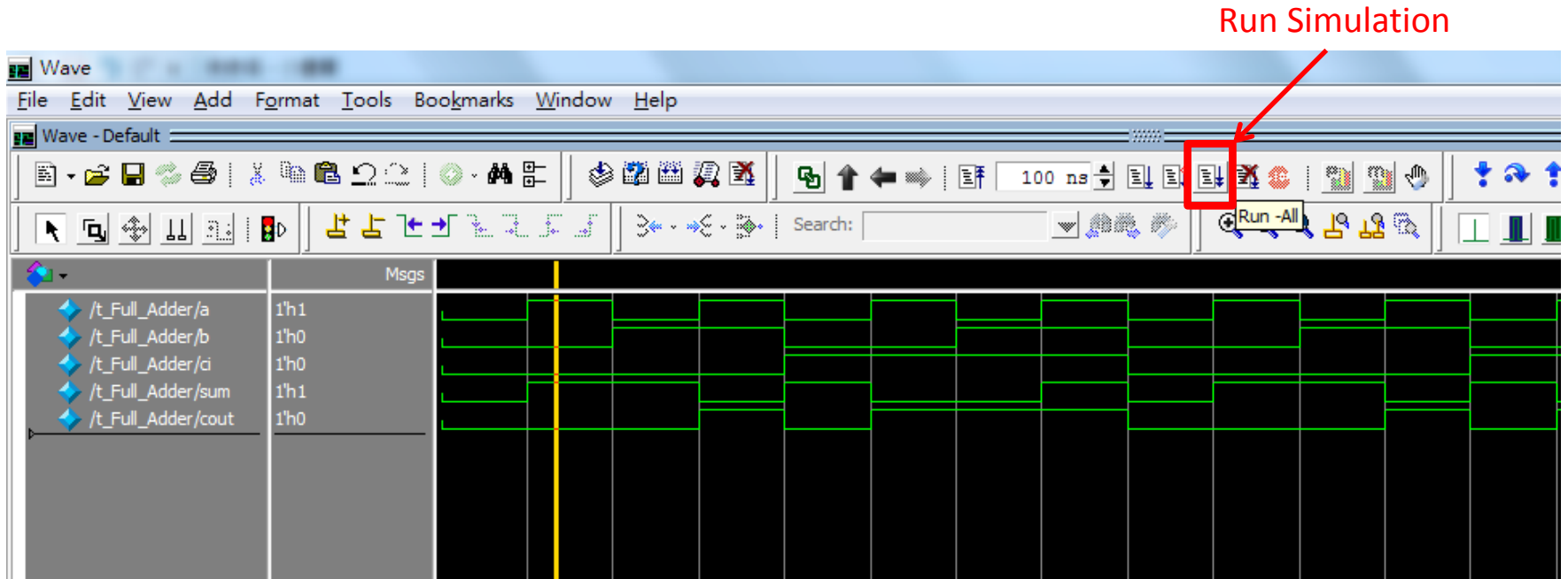
Simulation and Waveform(2/3)

- Add wave form



Select the signal , you want to run waveform

Simulation and Waveform(3/3)



Display the Result after Simulation

- **\$time**
 - System function that returns the current simulation time
- **\$monitor**
 - Display the values of the argument list whenever any of the arguments change
 - Example
 - `$monitor("time %d, %b %h %d %o", $time , shg1, sig2, sig3, sig4);`
- **\$display**
 - Display the message only once

Using \$monitor()

```
$monitor("Time %8d ns, a=%d b=%d ci=%d sum=%d cout=%d", $time, a, b, ci, sum, cout);
```

```
Transcript
# Time 0 ns, a=0 b=0 ci=0 sum=0 cout=0
VSIM 11> restart
VSIM 12> run
# Time 0 ns, a=0 b=0 ci=0 sum=0 cout=0
# Time 50 ns, a=1 b=0 ci=0 sum=1 cout=0
# Time 100 ns, a=0 b=1 ci=0 sum=1 cout=0
# Time 150 ns, a=1 b=1 ci=0 sum=0 cout=1
# Time 200 ns, a=0 b=0 ci=1 sum=1 cout=0
# Time 250 ns, a=1 b=0 ci=1 sum=0 cout=1
# Time 300 ns, a=0 b=1 ci=1 sum=0 cout=1
# Time 350 ns, a=1 b=1 ci=1 sum=1 cout=1
# Time 400 ns, a=0 b=0 ci=0 sum=0 cout=0
# Time 450 ns, a=1 b=0 ci=0 sum=1 cout=0
# Time 500 ns, a=0 b=1 ci=0 sum=1 cout=0
# Time 550 ns, a=1 b=1 ci=0 sum=0 cout=1
# Time 600 ns, a=0 b=0 ci=1 sum=1 cout=0
# Time 650 ns, a=1 b=0 ci=1 sum=0 cout=1
# Time 700 ns, a=0 b=1 ci=1 sum=0 cout=1
# Time 750 ns, a=1 b=1 ci=1 sum=1 cout=1
# Time 800 ns, a=0 b=0 ci=0 sum=0 cout=0
# Time 850 ns, a=1 b=0 ci=0 sum=1 cout=0
# Time 900 ns, a=0 b=1 ci=0 sum=1 cout=0
# Time 950 ns, a=1 b=1 ci=0 sum=0 cout=1
```

If one of them is changed, the message will be printed out.