

# Computerarchitectuur

Praktische informatie

# PC Labo

- **Geen eten en drinken**
- Toegangscode: 5350
- Computers
  - Ubuntu
  - Gebruikersnaam: Student
  - Wachtwoord: Ohey5350
- Na gebruik:
  - Afsluiten
  - Scherm uitzetten
  - Stoel terugzetten
  - Alles netjes houden

# Algemene regels

- De les niet verstoren
- Je bezig houden met de les
- Respectvol omgaan met elkaar
- Geen afval achterlaten
- ...

# Praktische info

- Twee onderdelen
  - Computersystemen
  - Computerarchitectuur
- Oefensessie: elke week
  - Groep A en B: Vrijdag 13u45-18u00 in M.G.025 of M.G.026
  - Groep C: Maandag 8u30-12u45 in M.G.025
  - Altijd SisA/e-mail/MSDL raadplegen voor het correcte uur en lokaal!
- Praktijkassistenten: Kasper Engelen, Viktor Hura, Sam Pieters
- Puntenverdeling: zie MSDL

# Vrijstellingen 2de zit

Score	Action
You passed the course in the 1st session	You do not have to re-take anything
Your score for the theory exam is less than 50%	You have to re-do the theory exam
Your score for the practical exam is less than 50%	You have to re-do the practical exam <b>and</b> the architecture exercises
Your score for the architecture exercises is less than 50%	You have to re-do the architecture exercises <b>and</b> the practical exam
Your score for the systems exercises is less than 50%	You have to re-do the systems exercises

# Opdrachten Computerarchitectuur

- Opdrachten:
  - CA1: Gates & Wires
  - CA2: Adders
  - CA3: ALU
  - CA4: Memory
  - CA5: Simple datapath
  - CA6: Full Datapath
  - CA7: Datapath in action
- Opgaves op MSDL website
- Groepen van twee
- Indienen via Blackboard
- 3 evaluaties met feedback
- **Alle opdrachten moeten worden ingediend (anders AFW)**

# Fraude

- Fraude/plagiaat
  - Gebruik maken van het werk van anderen zonder bronvermelding
  - Aan iemand anders vragen om de opdracht in jouw plaats te maken (“ghostwriting”).
  - Iemand anders helpen met fraude
- Dien enkel je eigen werk in!
- Vermeld altijd alle bronnen die je hebt geraadpleegd!
- Sancties:
  - 0 op dit vak
  - 0 op alle vakken dit semester
  - 0 op alle vakken dit jaar
  - Uitsluiting van inschrijving op de Uantwerpen
  - Uitsluiting van inschrijving op alle universiteiten in Vlaanderen

# MSDL Website

1. Open <https://blackboard.uantwerpen.be/>
2. Cursus “Computersystemen en –architectuur”
3. “Inhoud” -> “MSDL-website”
4. <http://msdl.uantwerpen.be/people/hv/teaching/ComputerSystemsArchitecture>

## Computer Systems and Architecture

On this page you will find information about the course “Computersystemen en -architectuur”

- 1001WETCAR, a compulsory 9-credit course for first-year Bachelor Computer Science students and
- 2500WETCAR, a 6-credit course in the Educational Master

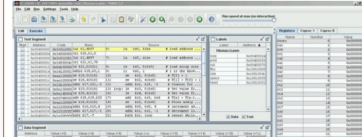
for the first semester of the 2022-2023 academic year at the University of Antwerp.

This page is written in English for the benefit of foreign (Erasmus) students. Note that the course is taught in Dutch however!

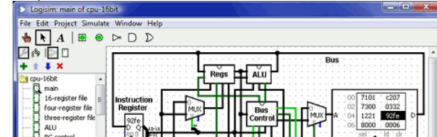
This page is under construction! You will still find some of last year's material.

This course consists of two tightly interwoven parts:

### Computer Systems



### Computer Architecture

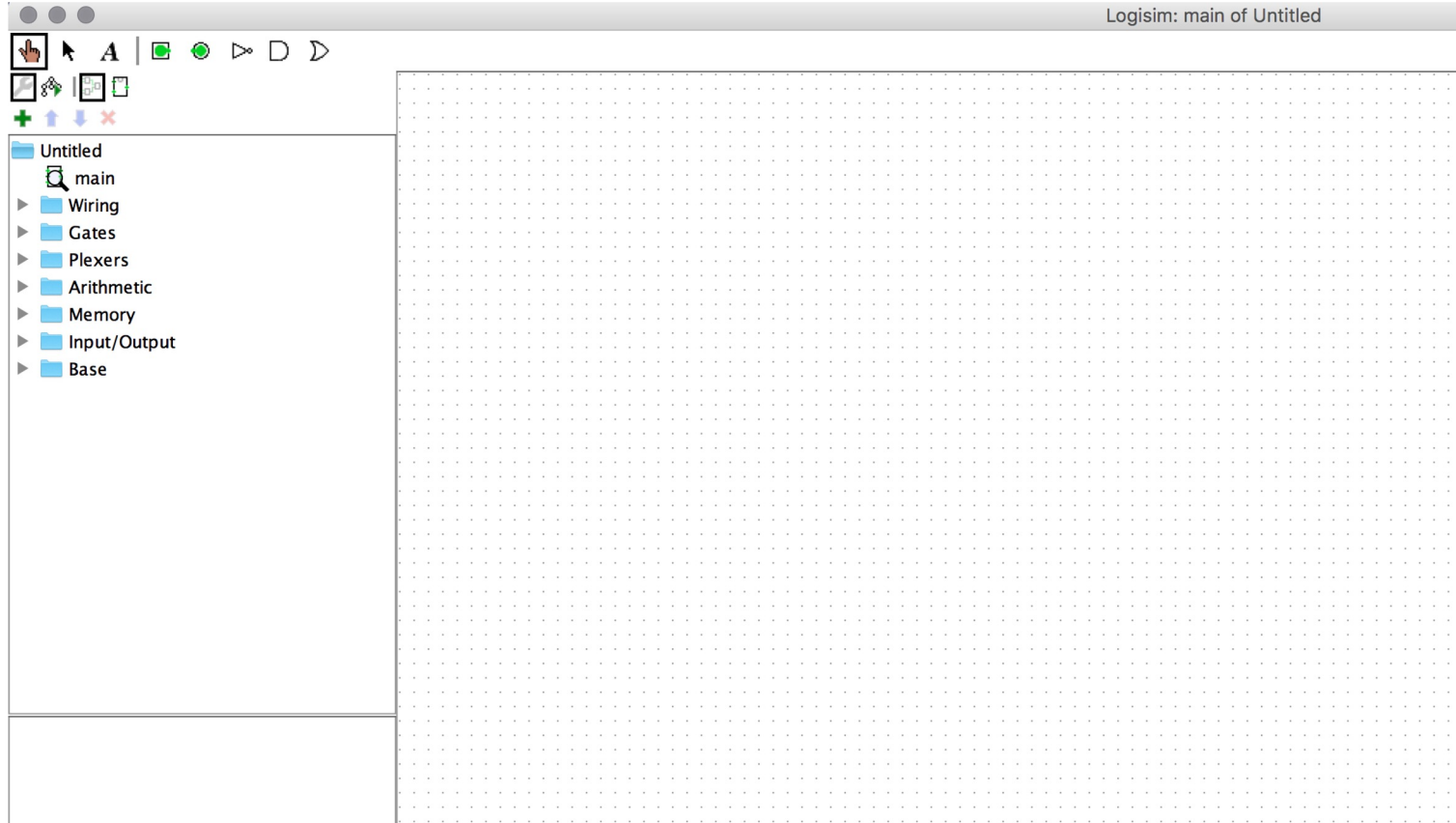




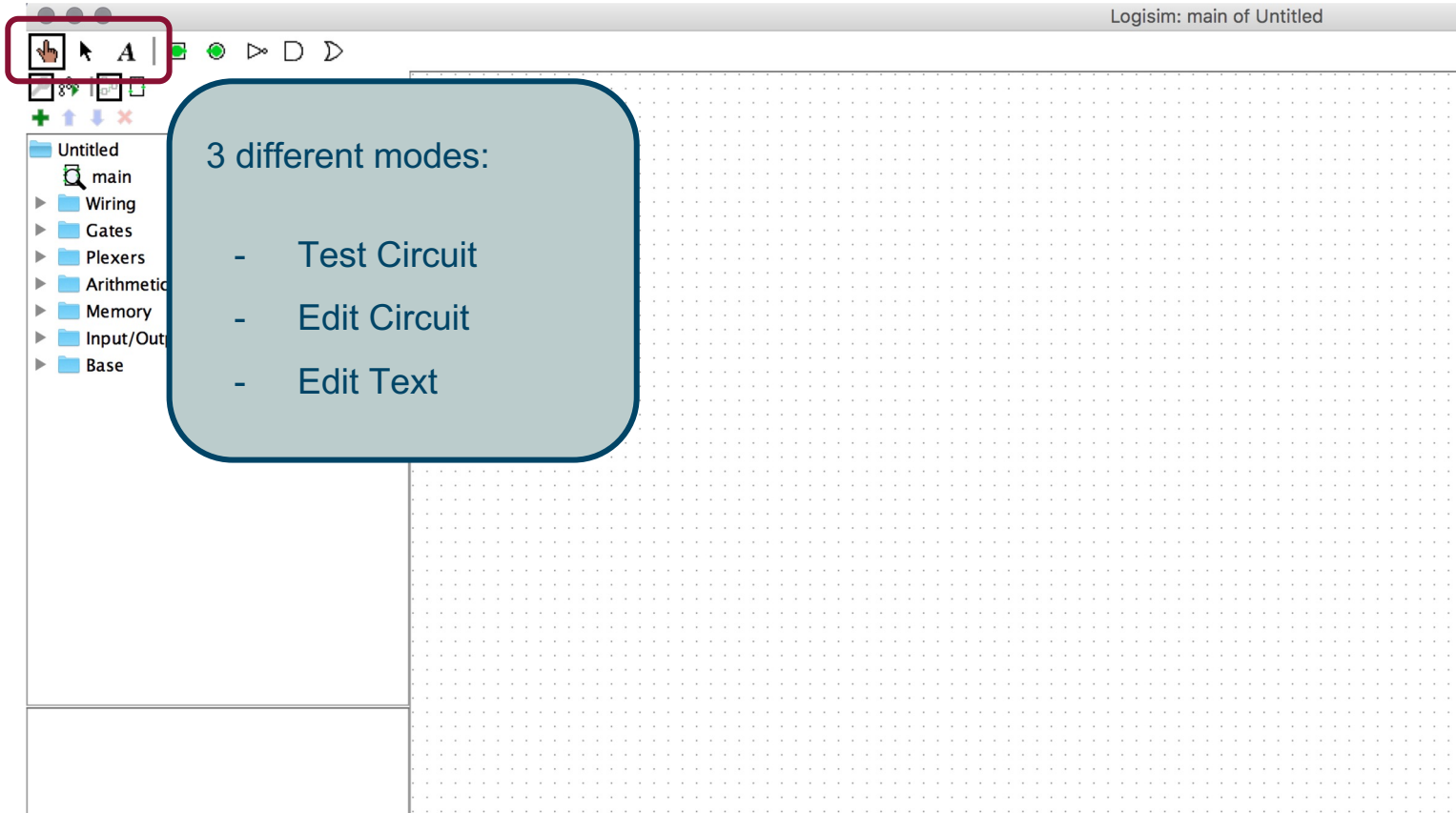
# Computerarchitectuur: Gates and Wires

Logisim

# Logisim



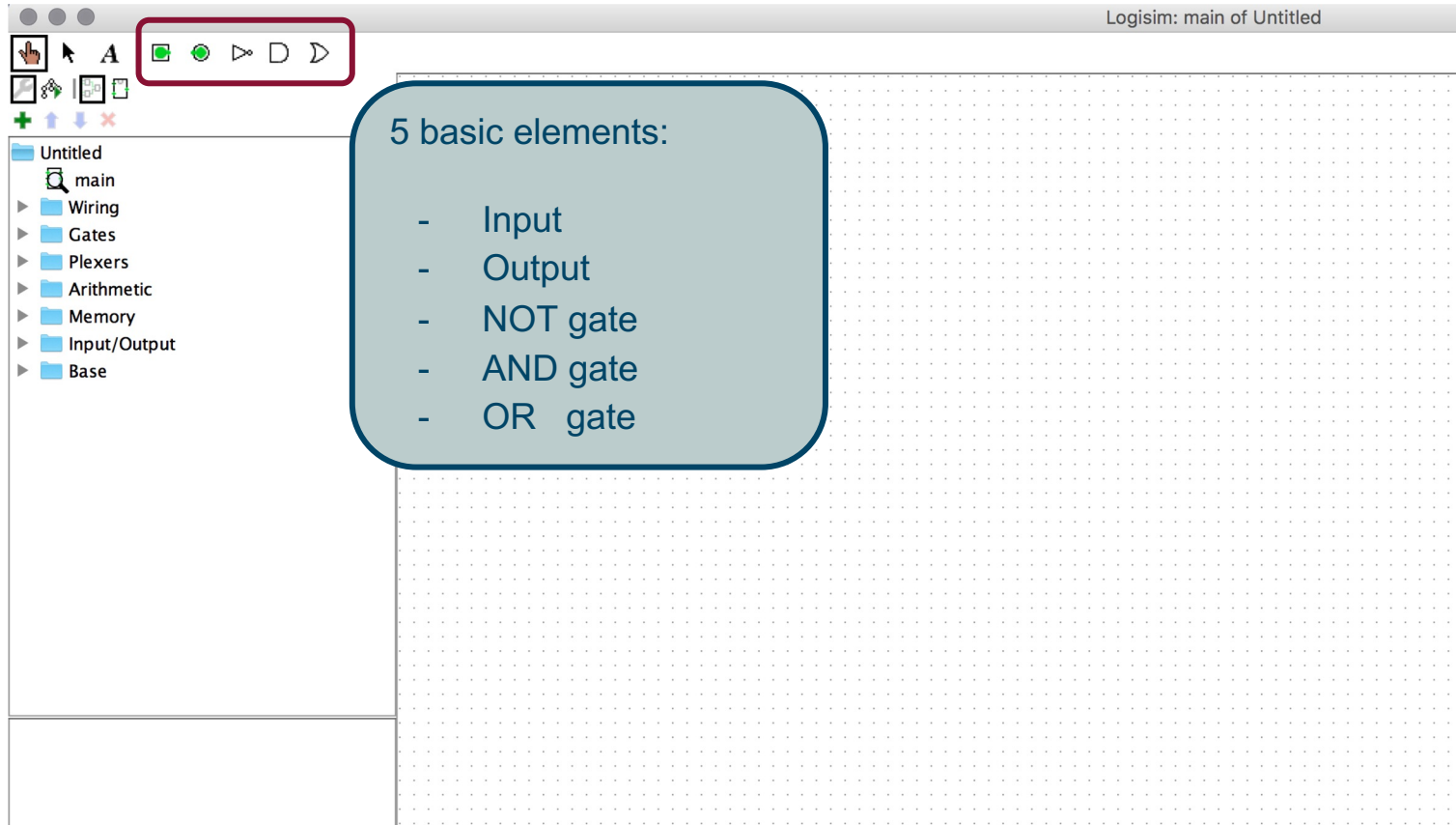
# Logisim



3 different modes:

- Test Circuit
- Edit Circuit
- Edit Text

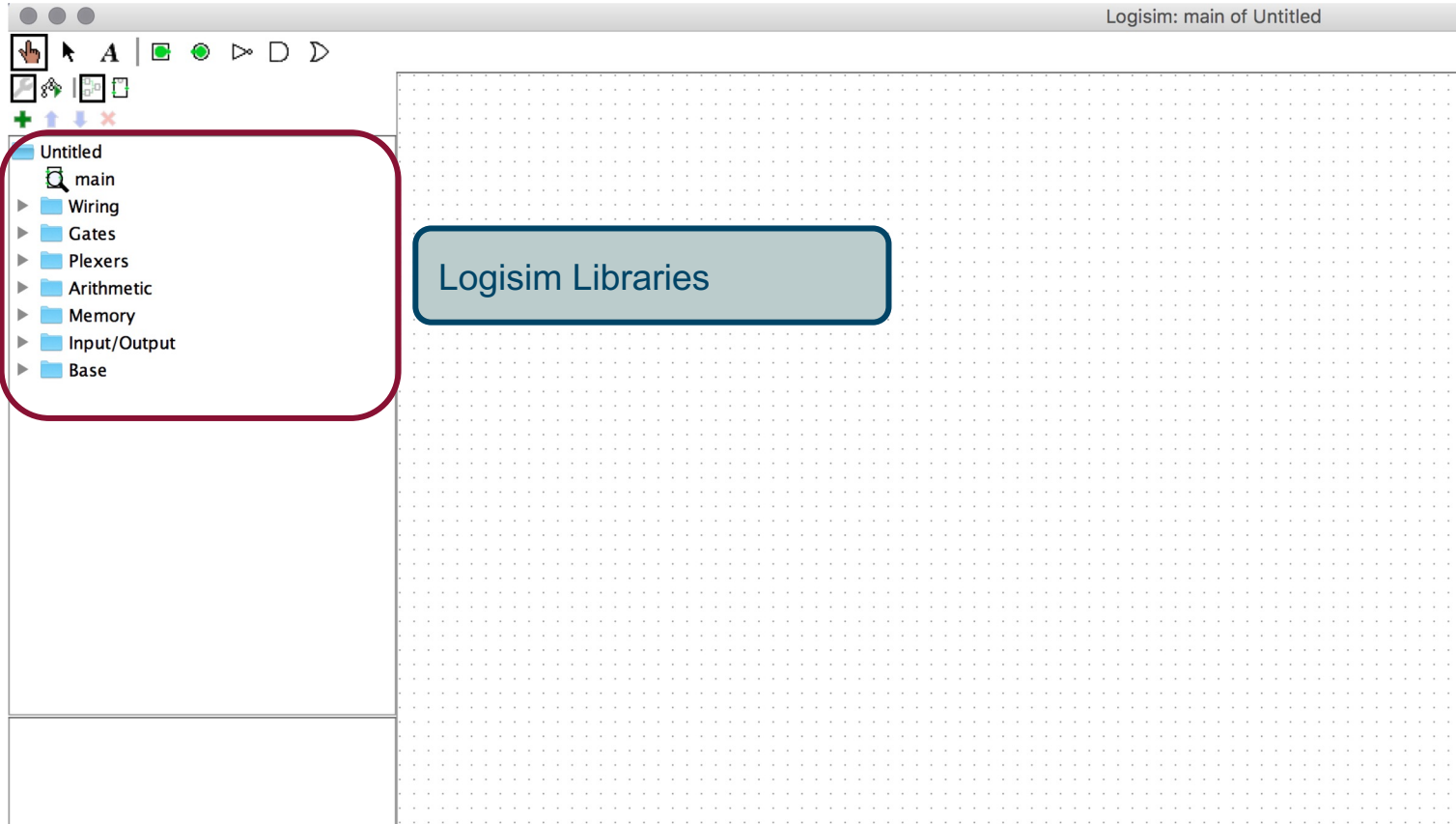
# Logisim

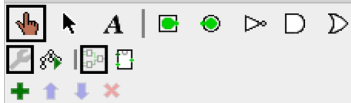


5 basic elements:

- Input
- Output
- NOT gate
- AND gate
- OR gate

# Logisim

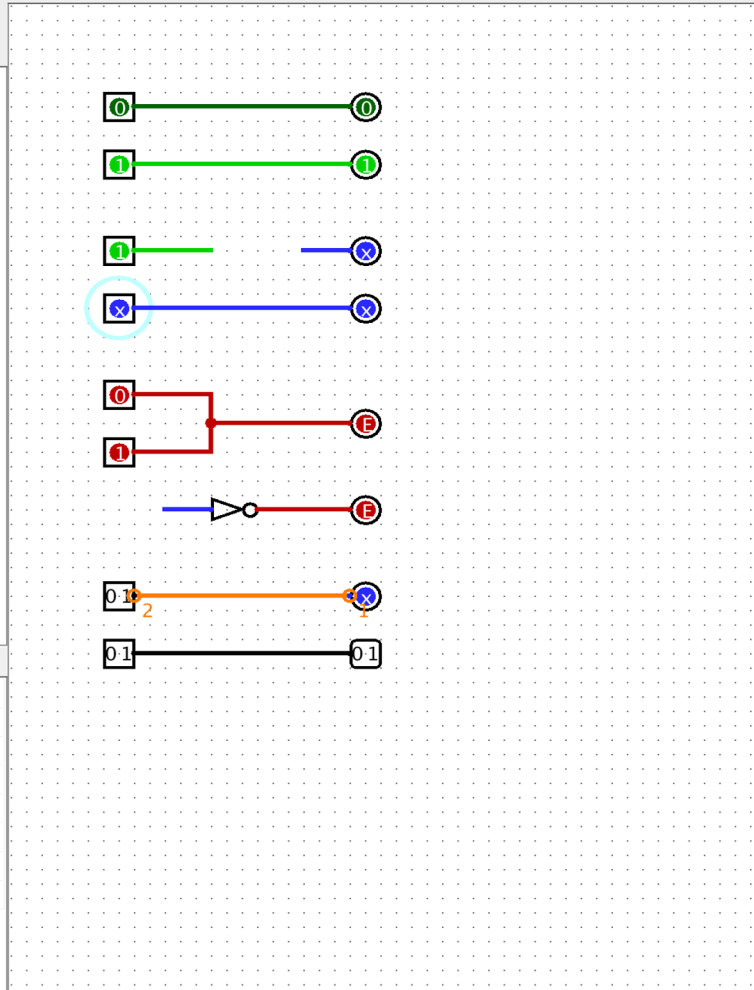


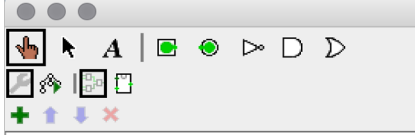


- Untitled\*
- main
- Wiring
- Gates
- Plexers
- Arithmetic
- Memory
- Input/Output
- Base

### Pin

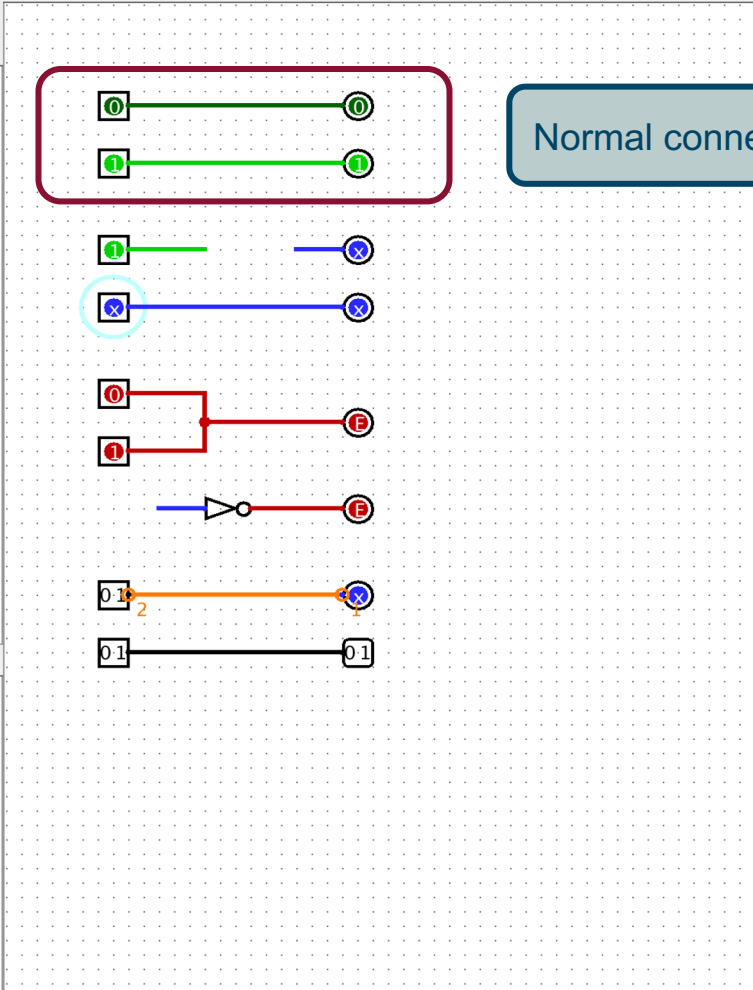
Facing	East
Output?	No
Data Bits	1
Three-state?	Yes
Pull Behavior	Unchanged
Label	
Label Location	West
Label Font	SansSerif Plain 12





- Untitled\*
- main
- Wiring
- Gates
- Plexers
- Arithmetic
- Memory
- Input/Output
- Base

Pin	
Facing	East
Output?	No
Data Bits	1
Three-state?	Yes
Pull Behavior	Unchanged
Label	
Label Location	West
Label Font	SansSerif Plain 12

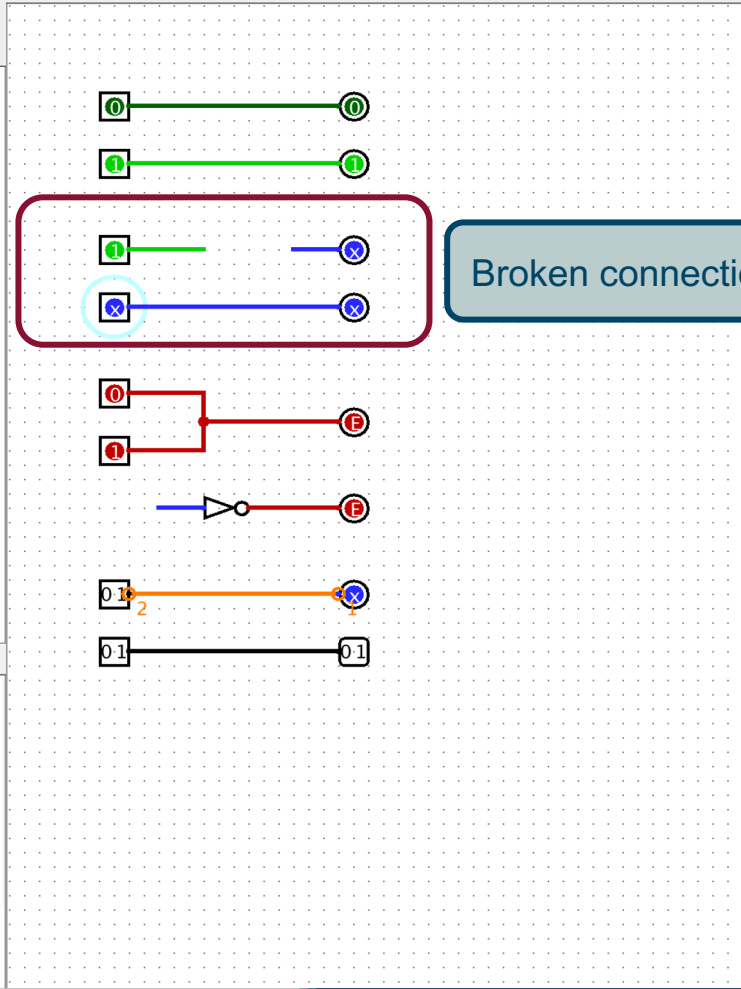


Normal connection: 0 or 1



Untitled\*  
 main  
 Wiring  
 Gates  
 Plexers  
 Arithmetic  
 Memory  
 Input/Output  
 Base

Pin	
Facing	East
Output?	No
Data Bits	1
Three-state?	Yes
Pull Behavior	Unchanged
Label	
Label Location	West
Label Font	SansSerif Plain 12

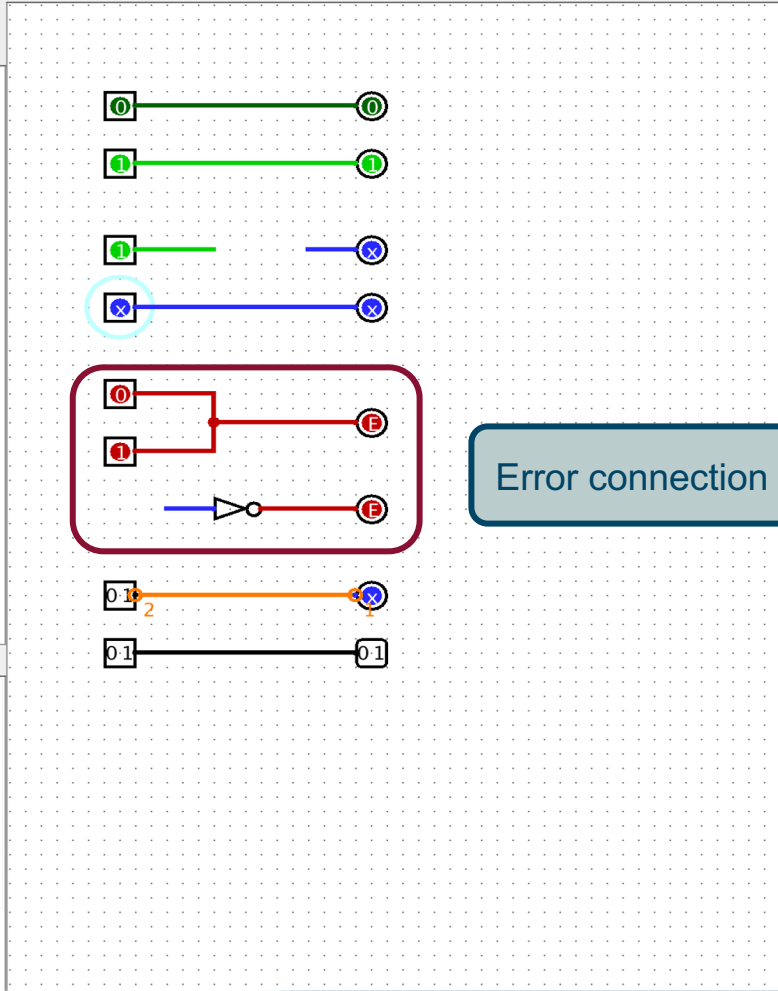


Broken connection



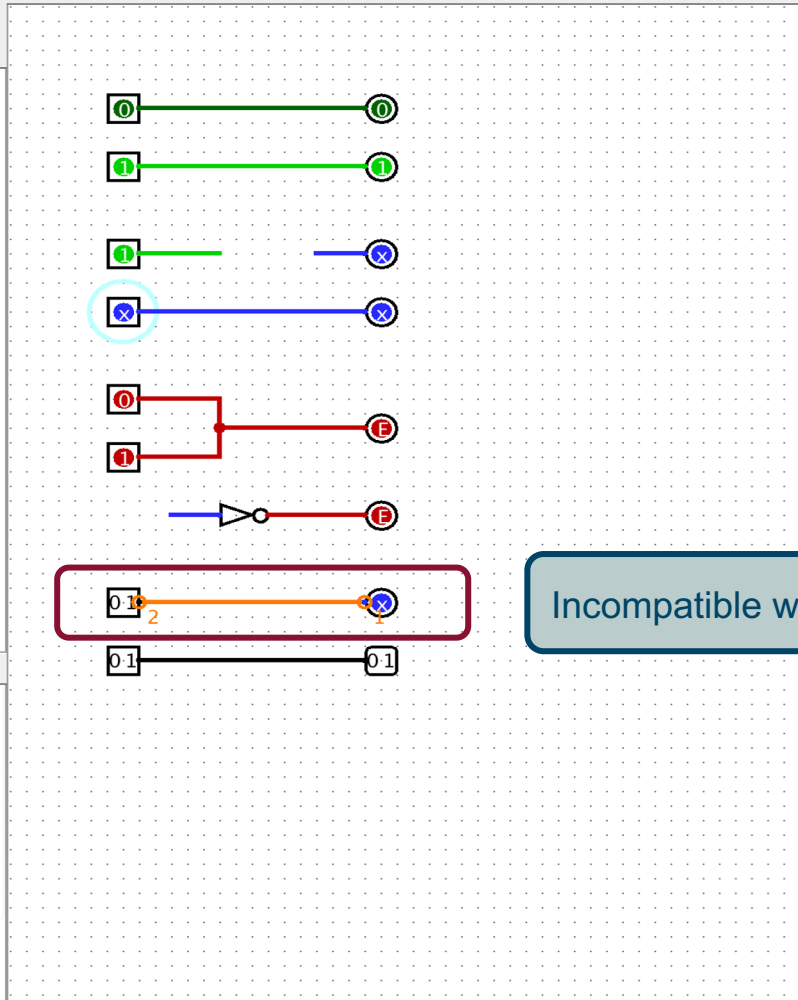
- Untitled\*
  - main
  - Wiring
  - Gates
  - Plexers
  - Arithmetic
  - Memory
  - Input/Output
  - Base

Pin	
Facing	East
Output?	No
Data Bits	1
Three-state?	Yes
Pull Behavior	Unchanged
Label	
Label Location	West
Label Font	SansSerif Plain 12



Error connection

Untitled\*  
 main  
 Wiring  
 Gates  
 Plexers  
 Arithmetic  
 Memory  
 Input/Output  
 Base



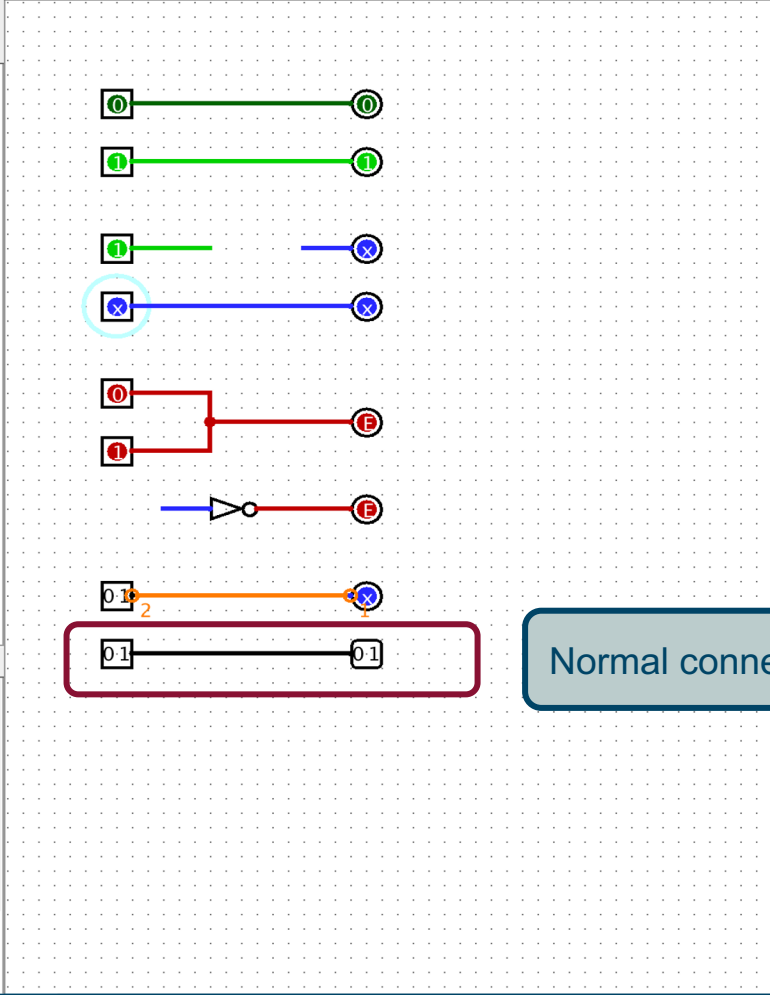
Incompatible width

Pin	
Facing	East
Output?	No
Data Bits	1
Three-state?	Yes
Pull Behavior	Unchanged
Label	
Label Location	West
Label Font	SansSerif Plain 12



Untitled\*  
 main  
 Wiring  
 Gates  
 Plexers  
 Arithmetic  
 Memory  
 Input/Output  
 Base

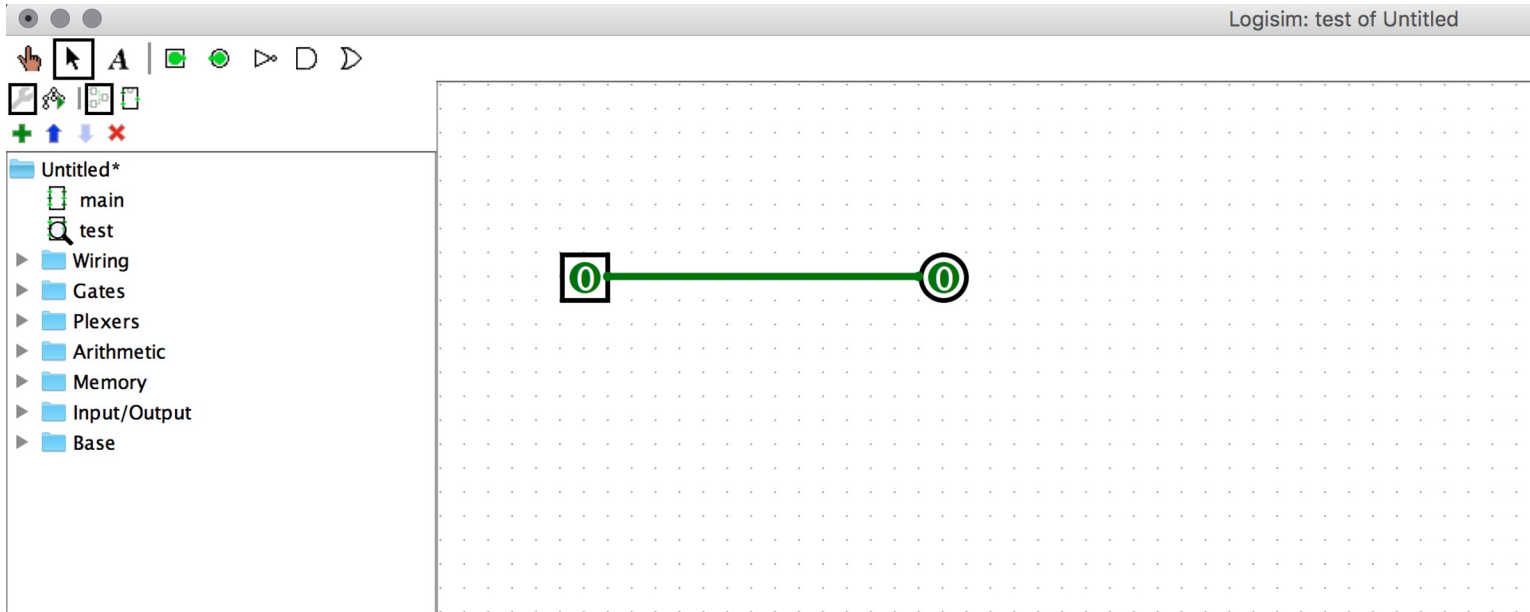
Pin	
Facing	East
Output?	No
Data Bits	1
Three-state?	Yes
Pull Behavior	Unchanged
Label	
Label Location	West
Label Font	SansSerif Plain 12



Normal connection: 2 bit



# Logisim



# Logisim

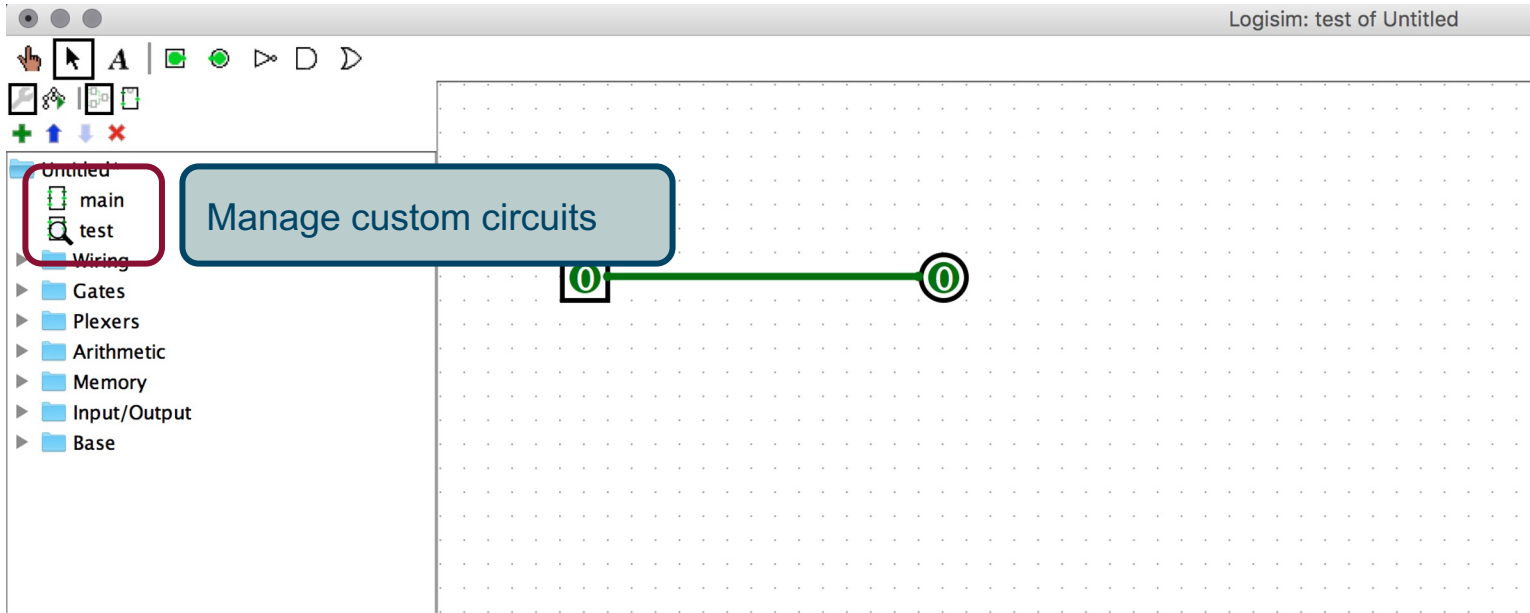
Logisim: test of Untitled

The screenshot displays the Logisim software interface. At the top, the title bar reads "Logisim: test of Untitled". Below the title bar is a toolbar with various icons for file operations and simulation. On the left side, there is a library panel with a tree view containing folders for "main", "test", "Wiring", "Gates", "Plexers", "Arithmetic", "Memory", "Input/Output", and "Base". A red box highlights the top four icons in the library panel: a plus sign, an up arrow, a down arrow, and a red X. A blue callout box with the text "Add custom circuits to library" points to these icons. The main workspace is a grid where a simple circuit is shown, consisting of two circular components connected by a horizontal green wire. Each component has a green "0" inside a square frame.

Add custom circuits to library

main  
test  
Wiring  
Gates  
Plexers  
Arithmetic  
Memory  
Input/Output  
Base

# Logisim



# Logisim

Logisim: test of Untitled

Change circuit appearance

The screenshot displays the Logisim software interface. At the top, the title bar reads "Logisim: test of Untitled". Below the title bar is a toolbar with various icons. A red box highlights the icon representing circuit appearance (a document with a circuit symbol). A blue callout box with the text "Change circuit appearance" points to this icon. On the left side, there is a project tree showing a hierarchy of folders: "Untitled\*", "main", "test", "Wiring", "Gates", "Plexers", "Arithmetic", "Memory", "Input/Output", and "Base". The main workspace is a grid with a simple circuit diagram consisting of two circular components connected by a horizontal green wire. The left component is a square with a circle inside, and the right component is a circle with a circle inside.

# Logisim

