**Verilog Tools Installation Guide**

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**Reference**

**For more Verilog tutorials, resources, and hands-on projects, visit our website. Explore comprehensive guides, industry insights, and learning materials to enhance your digital design skills.**

For additional resources and tutorials, visit:

* [**VLSI Design Hub**](https://vlsidesignhub.netlify.app/tools)
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**About**

This document provides a step-by-step guide on installing and using Verilog tools in a Linux environment. It covers essential tools such as **Icarus Verilog (iverilog)** for compilation, **GVim** for code editing, and **GTKWave** for waveform visualization. The instructions help users set up a Verilog development environment, write Verilog programs, compile test benches, and analyze waveforms effectively.

**This guide is designed for students, engineers, and hobbyists interested in digital design, FPGA development, and hardware simulation.**

# **To Install verilog tools in linux**

1. To update Linux distro,
   * Sudo apt-get update
   * Sudo apt-get upgrade
2. To Install iverilog Compiler,
   * Sudo apt install iverilog
3. To Install gvim editor,
   * sudo apt install vim

In this command there is any error,Try the above commands

* + Sudo apt install vim-motif
  + Sudo apt install vim-gtk3

1. To Install gtkwave,
   * Sudo apt install gtkwave

# **To use gvim editor for verilog :**

**1.** First Create the main module file with verilog extension.

* + Ex:

filename.v

**2.** Then Create the test bench module.

* Ex:

tb\_filename.v

**3.** Write a program and save using this commands in gvim,

* Press **Esc** ,then **:W!**

**4.** To see number of lines in a program (or) error occur in particular lines,

* Press Esc, then **:se nu**

**5.** Finally save the program and exit from the gvim editor.

# **To Compile the Program use iverilog tool :**

1. Go to terminal, check the present directory is verilog otherwise change the directory by using below command,

* cd → Change directory
* Ex:

cd verilog

1. Then list the available programs by using list command,

* ls → List the files
* Ex:

ls

1. To compile the programs,

* Ex:

iverilog filename.v tb\_filename.v -o m1

* m1 is just object you can use any other variable also.
* Refer the figure 1.1

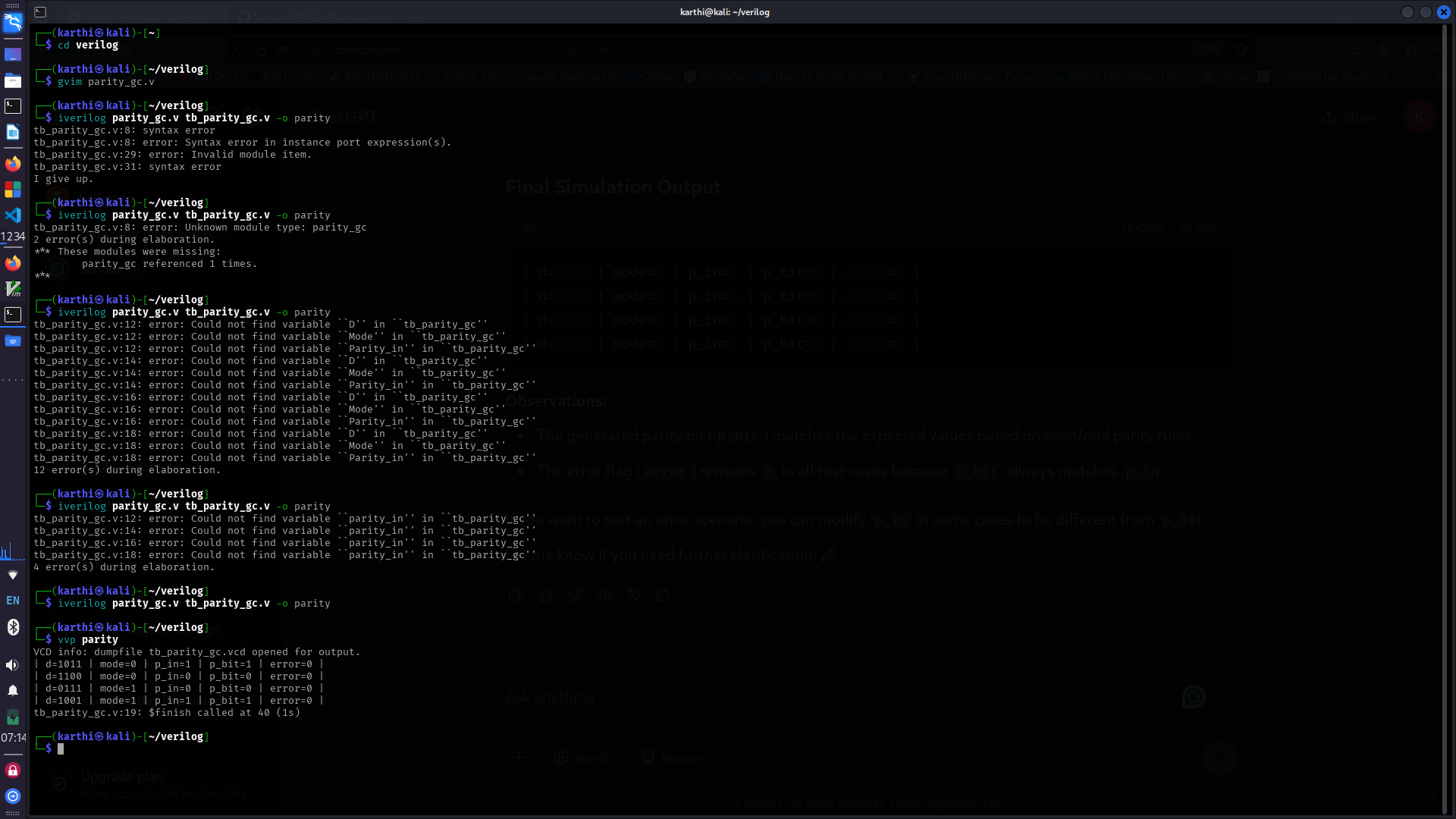


Figure 1.1

4. Execute the programs,

1. Ex:

vvp m1

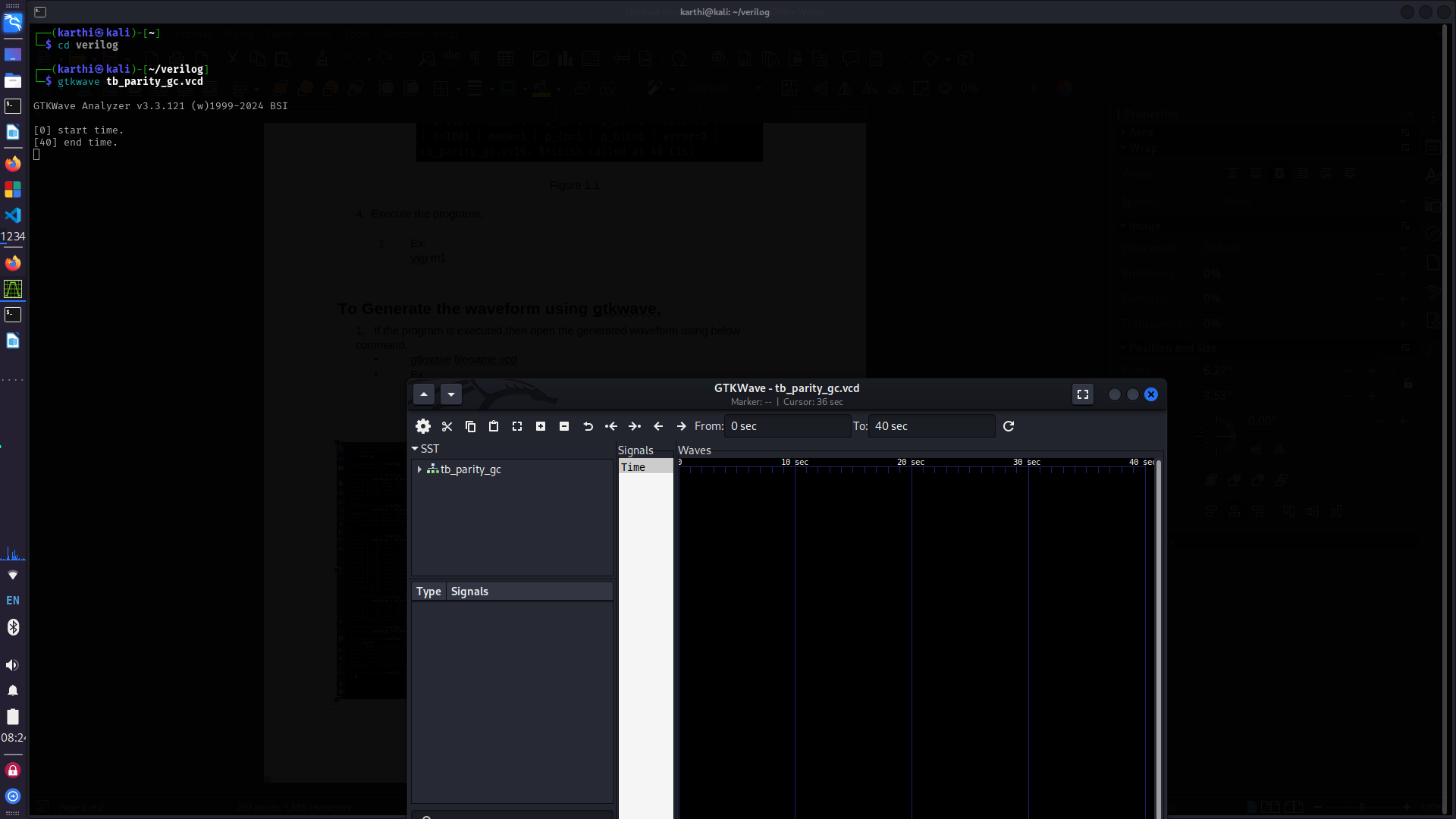
## **To Generate the waveform using gtkwave,**

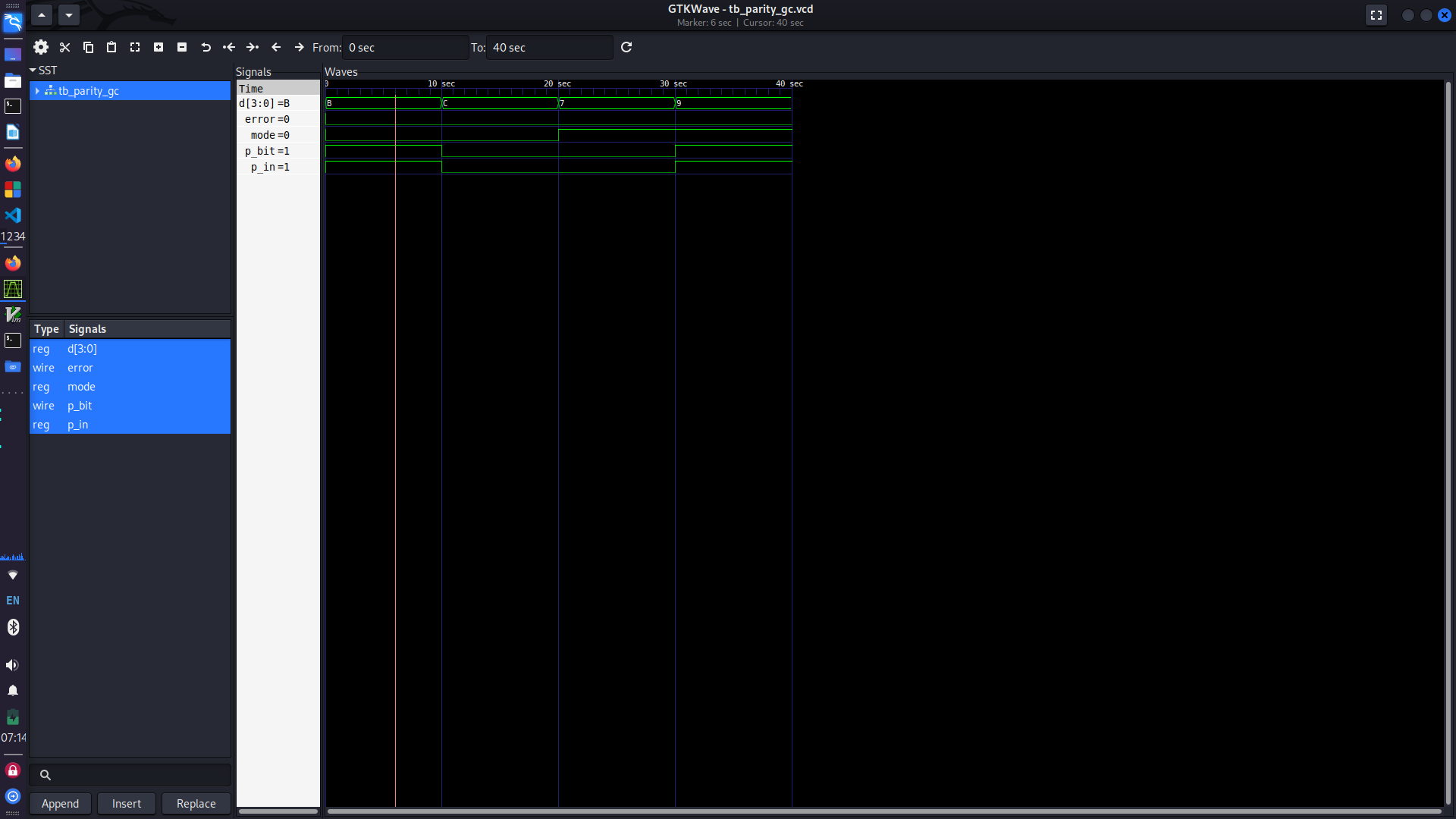
1. If the program is executed,then open the generated waveform using below command,

* gtkwave filename.vcd
* Ex:

gtkwave tb\_parity\_gc.vcd

* Refer the above figure1.2,figure 1.3

Figure 1.2

Figure 1.3