



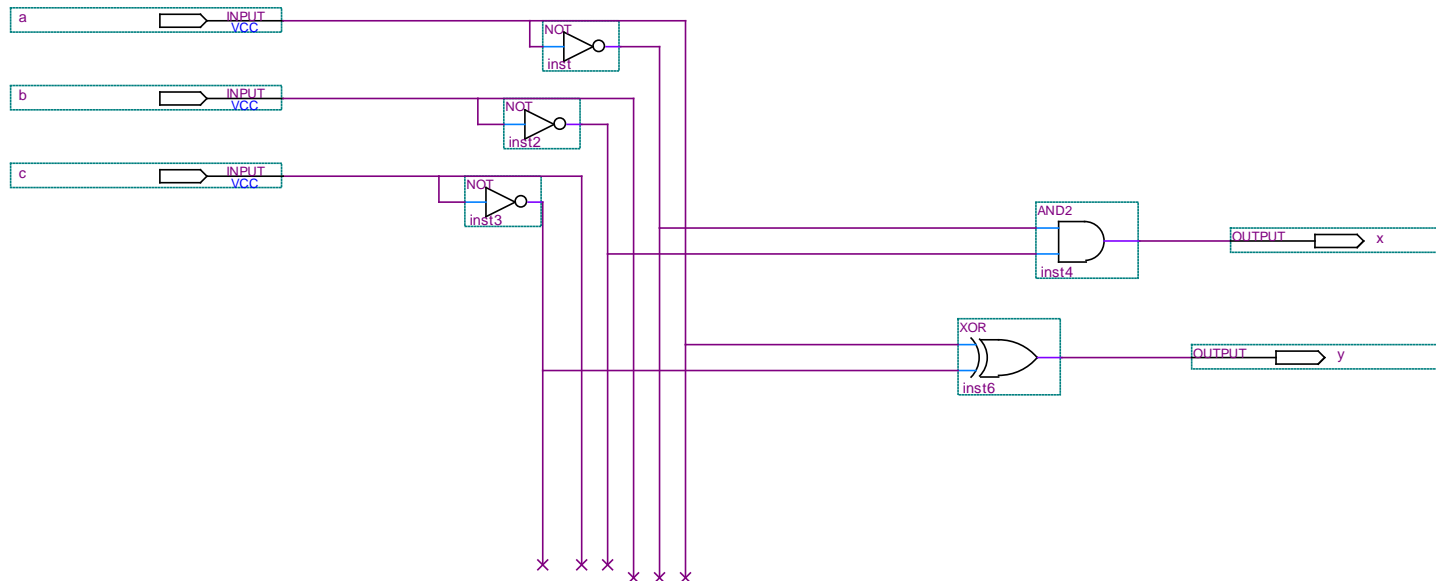


Quartus Cheat Sheet

Quick Tips when using Quartus II:


- Before launching Quartus II, create a directory in Windows where all files for different projects will be stored (ex. D:\Altera\m121234\projects)
 - Each time a new project is started, create a new folder for it within that directory (ex. D:\Altera\m121234\projects\logic1)
- Follow [Altera guide](#) closely especially for first few designs
- Keep names for projects, schematics, waveform files simple
 - Don't use spaces or special characters
 - Use same name for directory, project and schematics
 - Accept default names when saving files
- Use only the cursor tool  when building a schematic instead of changing to the wiring tool  when you need to draw a wire
 - If you need to draw a wire move the cursor to the input/output of a component until this  changes to 
 - If you need to connect from an existing wire to a component input/output, its easier to start at the component
- Create bus lines by extending wires far down the schematic



- Type the name of devices in the component library instead of browsing

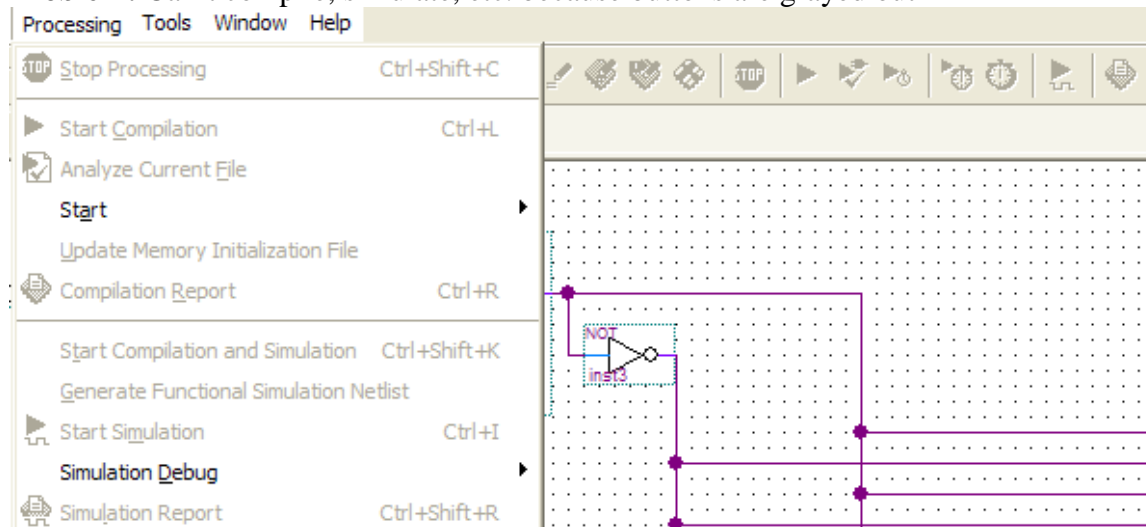
Name:
and2

Device/Gate	Text Entry	Device/Gate	Text Entry
Input	input	JK FlipFlop	jkff
Output	output	D FlipFlop	dff
2 Input AND	and2	T Flip Flop	tff
3 Input AND	and3	Freq Divider	freqdiv
2 Input OR	or2	Nor Latch	norlatch
Inverter	not	Ground (low)	gnd
XOR	xor	Vcc (high)	vcc
2 Input NOR	nor2	7447 bi/hex decoder	7447

- Zoom in with ctrl +space, zoom out with ctrl+shift+space
- Use rubberbanding , allows you to move components but leave the lines attached
- When compiling, warnings are usually not a problem. Errors need to be fixed before continuing.
- If problems persist in compilation, simulation or programming, trying creating a new project in a different directory. You can copy and paste portions of the schematic from the existing project into the new project. Try compiling the new project to see if the same problems are present. Issues are often resolved by this “do-over” technique because it will strip out some of the junk that may have gotten into the previous compilations.

Quartus Common Issues

Problem: Can't compile, simulate, etc. because buttons are grayed out



Solution: Make sure a project file is open not just a schematic (*.bdf) file. If there is just a schematic file open, the menu bar will look like this:

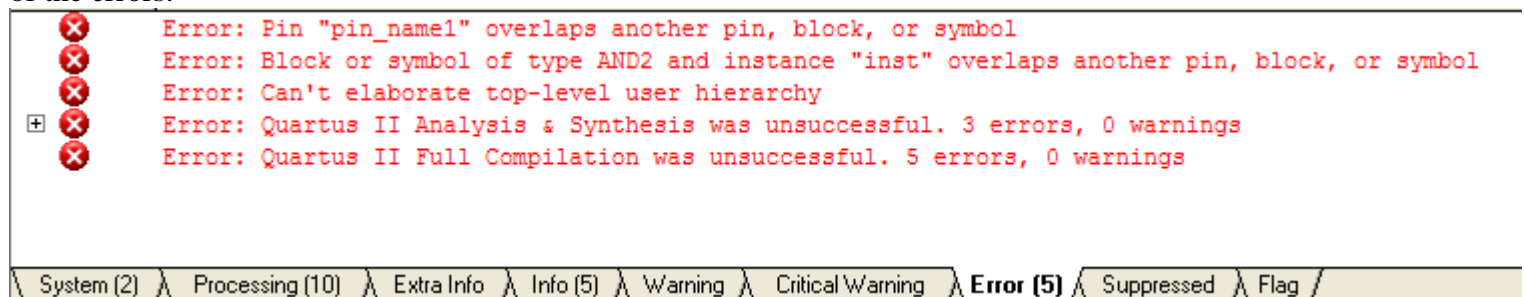


If a project is open, you will see a long path in the menu bar indicating where the directory of the project file is:



Compilation issues

If compilation is unsuccessful, look in the message window for specific errors. Selecting the errors tab will line up all of the errors.



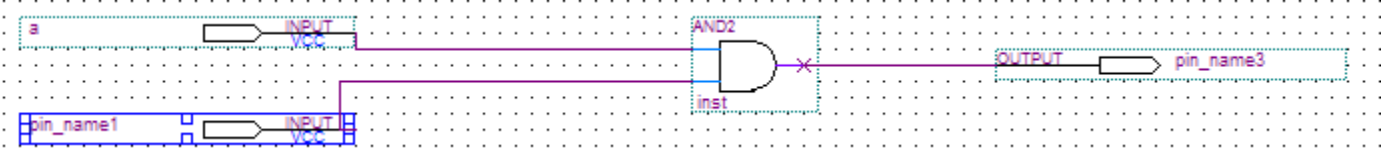
Common Error codes



Error: Pin "pin_name1" overlaps another pin, block, or symbol

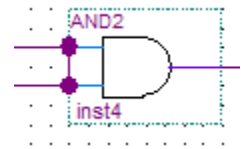
Cause: Sometimes, when placing a component (i.e. input, and, etc.) using repeat insert, said component remains hidden

Solution: Double-click error to highlight where it is in the schematic file, then hit delete to reveal component that was overlapped



Error: Net "gdfx_temp0", which fans out to "inst4", cannot be assigned more than one value

Cause: Often caused when inputs of a gate are “shorted”

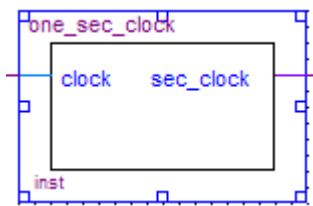


Solution: Try highlighting the gate by double-clicking error. Move cursor between the inputs of a gate until the 4 headed arrow appears on the cursor. Click to highlight the short, then delete it.

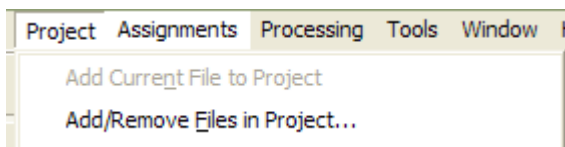


Error: Node instance "inst" instantiates undefined entity "one sec clock"

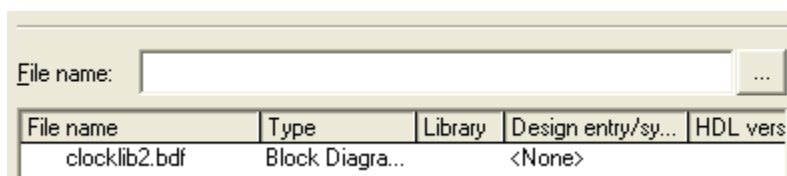
Cause: A file symbol “one sec clock” is in the schematic but is not recognized because it’s not part of the project



Solution: Go to the Projects menu, click on “Add/Remove files in project”

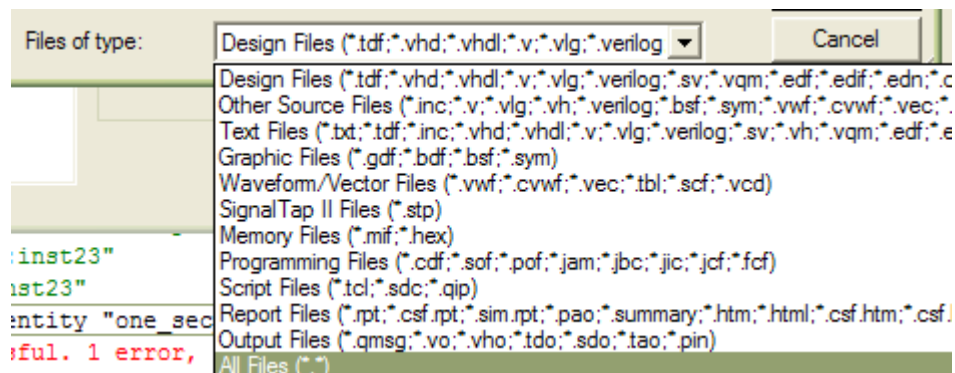


Click the browse button ...

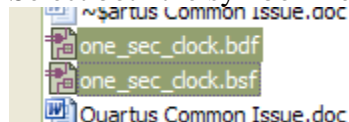


Browse to folder where symbol(*.bsf) and schematic(*.bdf) file associated with the symbol are located.

Click dropdown menu under files of type and select “All Files (*.*)”



Select both the symbol file and schematic file by holding control down and single clicking each file.



Click the “open” button, may need to click the add button in the settings window, then click ok and recompile

Programming issues

Problem: “Found new hardware” password prompt shows up when Altera board is first plugged in. (This should only happen on lab computer, where the user does not have administrative rights)



Cause: The Altera USB blaster driver is not loaded because the program has not been used yet on this machine.

Solution: Enter administrator user name and password at the prompt

Select “Install from a list or specific location (Advanced), then click next

What do you want the wizard to do?

- ☐ Install the software automatically (Recommended)
- ☒ Install from a list or specific location (Advanced)

Have the settings below on the next screen, then click next

☒ Search for the best driver in these locations.

Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.

☐ Search removable media (floppy, CD-ROM...)

☒ Include this location in the search:

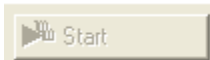
C:\altera\91sp2\quartus\drivers\usb-blaster ▼ Browse

Click “continue anyway”

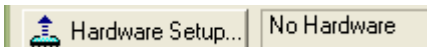
Continue Anyway STOP Installation

After the hardware wizard finishes, USB blaster should now be recognized

Problem: Start button is grayed out in the programming window



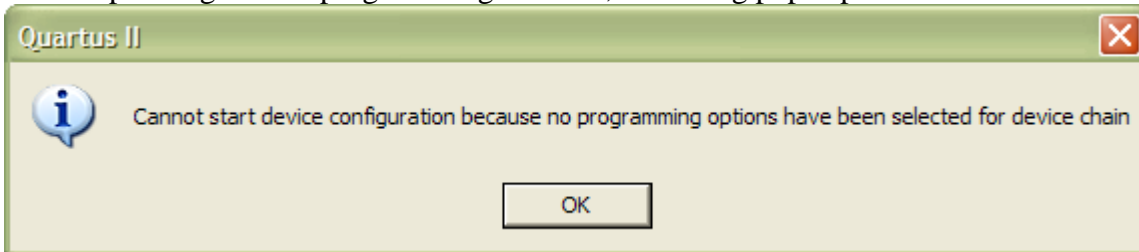
Cause: No Hardware has been selected



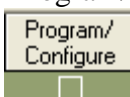
Solution: Click the “Hardware Setup...” button and from the drop-down menu select “USB-Blaster [USB-0]”; then hit close



Problem: After pressing start in programming window, a warning pops up...




Cause: Program/Configure check box is not selected.



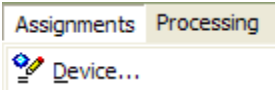
Solution: Select box to make the check mark appear and press the start button again

Programming Errors:

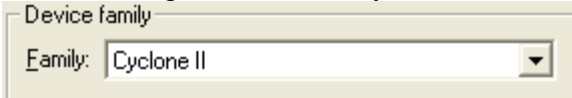
 Error: Can't configure device. Expected JTAG ID code 0x020910DD for device 1, but found JTAG ID code 0x020B30DD.

Causes: Board isn't turned on or switch is in wrong position for the type of programming OR
Wrong processor selected during project set up

Solutions: Check the switch position on Altera board for the type of programming (see Altera reference guide section V or VI) OR
Go to Assignments menu and select device



Make sure right device family is selected (usually Cyclone II)



Make sure appropriate device is highlighted (usually EP2C20F484C7)

EP2C20F484C7	1.2V	18752	315	239616	52	4
EP2C20F484C7	1.2V	18752	315	239616	52	4

Recompile and reprogram