\*\*\* Running vivado

with args -log Lab06\_clk.vdi -applog -m64 -product Vivado -messageDb vivado.pb -mode batch -source Lab06\_clk.tcl -notrace

\*\*\*\*\*\* Vivado v2018.3 (64-bit)

\*\*\*\* SW Build 2405991 on Thu Dec 6 23:36:41 MST 2018

\*\*\*\* IP Build 2404404 on Fri Dec 7 01:43:56 MST 2018

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CRITICAL WARNING: [Common 17-741] No write access right to the local Tcl store at '/home/jinson/.Xilinx/Vivado/2018.3/XilinxTclStore'. XilinxTclStore is reverted to the installation area. If you want to use local Tcl Store, please change the access right and relaunch Vivado.

source Lab06\_clk.tcl -notrace

Command: link\_design -top Lab06\_clk -part xc7a100tcsg324-1

Design is defaulting to srcset: sources\_1

Design is defaulting to constrset: constrs\_1

INFO: [Netlist 29-17] Analyzing 4 Unisim elements for replacement

INFO: [Netlist 29-28] Unisim Transformation completed in 0 CPU seconds

INFO: [Project 1-479] Netlist was created with Vivado 2018.3

INFO: [Device 21-403] Loading part xc7a100tcsg324-1

INFO: [Project 1-570] Preparing netlist for logic optimization

Parsing XDC File [/home/jinson/vivado/Lab06\_clk/Lab06\_clk.srcs/constrs\_1/new/Lab06\_clk.xdc]

Finished Parsing XDC File [/home/jinson/vivado/Lab06\_clk/Lab06\_clk.srcs/constrs\_1/new/Lab06\_clk.xdc]

INFO: [Opt 31-138] Pushed 0 inverter(s) to 0 load pin(s).

Netlist sorting complete. Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 1511.527 ; gain = 0.000 ; free physical = 190 ; free virtual = 2719

INFO: [Project 1-111] Unisim Transformation Summary:

No Unisim elements were transformed.

7 Infos, 0 Warnings, 0 Critical Warnings and 0 Errors encountered.

link\_design completed successfully

Command: opt\_design

Attempting to get a license for feature 'Implementation' and/or device 'xc7a100t'

INFO: [Common 17-349] Got license for feature 'Implementation' and/or device 'xc7a100t'

Running DRC as a precondition to command opt\_design

Starting DRC Task

INFO: [DRC 23-27] Running DRC with 4 threads

INFO: [Project 1-461] DRC finished with 0 Errors

INFO: [Project 1-462] Please refer to the DRC report (report\_drc) for more information.

Time (s): cpu = 00:00:00.91 ; elapsed = 00:00:01 . Memory (MB): peak = 1565.543 ; gain = 50.016 ; free physical = 183 ; free virtual = 2712

Starting Cache Timing Information Task

INFO: [Timing 38-35] Done setting XDC timing constraints.

Ending Cache Timing Information Task | Checksum: 1ecd46533

Time (s): cpu = 00:00:06 ; elapsed = 00:00:06 . Memory (MB): peak = 1990.043 ; gain = 424.500 ; free physical = 111 ; free virtual = 2335

Starting Logic Optimization Task

Phase 1 Retarget

INFO: [Opt 31-138] Pushed 0 inverter(s) to 0 load pin(s).

INFO: [Opt 31-49] Retargeted 0 cell(s).

Phase 1 Retarget | Checksum: 1ecd46533

Time (s): cpu = 00:00:00.01 ; elapsed = 00:00:00.03 . Memory (MB): peak = 2067.043 ; gain = 0.000 ; free physical = 116 ; free virtual = 2266

INFO: [Opt 31-389] Phase Retarget created 0 cells and removed 0 cells

Phase 2 Constant propagation

INFO: [Opt 31-138] Pushed 0 inverter(s) to 0 load pin(s).

Phase 2 Constant propagation | Checksum: 1ecd46533

Time (s): cpu = 00:00:00.01 ; elapsed = 00:00:00.03 . Memory (MB): peak = 2067.043 ; gain = 0.000 ; free physical = 116 ; free virtual = 2266

INFO: [Opt 31-389] Phase Constant propagation created 0 cells and removed 0 cells

Phase 3 Sweep

Phase 3 Sweep | Checksum: 1ebbcb792

Time (s): cpu = 00:00:00.01 ; elapsed = 00:00:00.03 . Memory (MB): peak = 2067.043 ; gain = 0.000 ; free physical = 114 ; free virtual = 2266

INFO: [Opt 31-389] Phase Sweep created 0 cells and removed 0 cells

Phase 4 BUFG optimization

Phase 4 BUFG optimization | Checksum: 1ebbcb792

Time (s): cpu = 00:00:00.01 ; elapsed = 00:00:00.04 . Memory (MB): peak = 2067.043 ; gain = 0.000 ; free physical = 114 ; free virtual = 2266

INFO: [Opt 31-662] Phase BUFG optimization created 0 cells of which 0 are BUFGs and removed 0 cells.

Phase 5 Shift Register Optimization

Phase 5 Shift Register Optimization | Checksum: 1b7099c20

Time (s): cpu = 00:00:00.03 ; elapsed = 00:00:00.07 . Memory (MB): peak = 2067.043 ; gain = 0.000 ; free physical = 120 ; free virtual = 2274

INFO: [Opt 31-389] Phase Shift Register Optimization created 0 cells and removed 0 cells

Phase 6 Post Processing Netlist

Phase 6 Post Processing Netlist | Checksum: 1b7099c20

Time (s): cpu = 00:00:00.04 ; elapsed = 00:00:00.07 . Memory (MB): peak = 2067.043 ; gain = 0.000 ; free physical = 120 ; free virtual = 2275

INFO: [Opt 31-389] Phase Post Processing Netlist created 0 cells and removed 0 cells

Opt\_design Change Summary

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-------------------------------------------------------------------------------------------------------------------------

| Phase | #Cells created | #Cells Removed | #Constrained objects preventing optimizations |

-------------------------------------------------------------------------------------------------------------------------

| Retarget | 0 | 0 | 0 |

| Constant propagation | 0 | 0 | 0 |

| Sweep | 0 | 0 | 0 |

| BUFG optimization | 0 | 0 | 0 |

| Shift Register Optimization | 0 | 0 | 0 |

| Post Processing Netlist | 0 | 0 | 0 |

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Starting Connectivity Check Task

Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 2067.043 ; gain = 0.000 ; free physical = 120 ; free virtual = 2275

Ending Logic Optimization Task | Checksum: 1b7099c20

Time (s): cpu = 00:00:00.04 ; elapsed = 00:00:00.07 . Memory (MB): peak = 2067.043 ; gain = 0.000 ; free physical = 120 ; free virtual = 2275

Starting Power Optimization Task

INFO: [Pwropt 34-132] Skipping clock gating for clocks with a period < 2.00 ns.

Ending Power Optimization Task | Checksum: 1b7099c20

Time (s): cpu = 00:00:00 ; elapsed = 00:00:00.03 . Memory (MB): peak = 2067.043 ; gain = 0.000 ; free physical = 118 ; free virtual = 2274

Starting Final Cleanup Task

Ending Final Cleanup Task | Checksum: 1b7099c20

Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 2067.043 ; gain = 0.000 ; free physical = 118 ; free virtual = 2274

Starting Netlist Obfuscation Task

Netlist sorting complete. Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 2067.043 ; gain = 0.000 ; free physical = 118 ; free virtual = 2274

Ending Netlist Obfuscation Task | Checksum: 1b7099c20

Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 2067.043 ; gain = 0.000 ; free physical = 118 ; free virtual = 2274

INFO: [Common 17-83] Releasing license: Implementation

23 Infos, 0 Warnings, 0 Critical Warnings and 0 Errors encountered.

opt\_design completed successfully

opt\_design: Time (s): cpu = 00:00:07 ; elapsed = 00:00:09 . Memory (MB): peak = 2067.043 ; gain = 551.516 ; free physical = 116 ; free virtual = 2274

Netlist sorting complete. Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 2067.043 ; gain = 0.000 ; free physical = 114 ; free virtual = 2274

INFO: [Timing 38-480] Writing timing data to binary archive.

Writing placer database...

Writing XDEF routing.

Writing XDEF routing logical nets.

Writing XDEF routing special nets.

Write XDEF Complete: Time (s): cpu = 00:00:00.02 ; elapsed = 00:00:00.01 . Memory (MB): peak = 2099.059 ; gain = 0.000 ; free physical = 112 ; free virtual = 2275

Netlist sorting complete. Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 2099.059 ; gain = 0.000 ; free physical = 111 ; free virtual = 2273

INFO: [Common 17-1381] The checkpoint '/home/jinson/vivado/Lab06\_clk/Lab06\_clk.runs/impl\_1/Lab06\_clk\_opt.dcp' has been generated.

INFO: [runtcl-4] Executing : report\_drc -file Lab06\_clk\_drc\_opted.rpt -pb Lab06\_clk\_drc\_opted.pb -rpx Lab06\_clk\_drc\_opted.rpx

Command: report\_drc -file Lab06\_clk\_drc\_opted.rpt -pb Lab06\_clk\_drc\_opted.pb -rpx Lab06\_clk\_drc\_opted.rpx

INFO: [IP\_Flow 19-234] Refreshing IP repositories

INFO: [IP\_Flow 19-1704] No user IP repositories specified

INFO: [IP\_Flow 19-2313] Loaded Vivado IP repository '/tools/Xilinx/Vivado/2018.3/data/ip'.

INFO: [DRC 23-27] Running DRC with 4 threads

INFO: [Coretcl 2-168] The results of DRC are in file /home/jinson/vivado/Lab06\_clk/Lab06\_clk.runs/impl\_1/Lab06\_clk\_drc\_opted.rpt.

report\_drc completed successfully

Command: place\_design

Attempting to get a license for feature 'Implementation' and/or device 'xc7a100t'

INFO: [Common 17-349] Got license for feature 'Implementation' and/or device 'xc7a100t'

INFO: [DRC 23-27] Running DRC with 4 threads

INFO: [Vivado\_Tcl 4-198] DRC finished with 0 Errors

INFO: [Vivado\_Tcl 4-199] Please refer to the DRC report (report\_drc) for more information.

Running DRC as a precondition to command place\_design

INFO: [DRC 23-27] Running DRC with 4 threads

INFO: [Vivado\_Tcl 4-198] DRC finished with 0 Errors

INFO: [Vivado\_Tcl 4-199] Please refer to the DRC report (report\_drc) for more information.

Starting Placer Task

INFO: [Place 30-611] Multithreading enabled for place\_design using a maximum of 4 CPUs

Phase 1 Placer Initialization

Phase 1.1 Placer Initialization Netlist Sorting

Netlist sorting complete. Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 2107.062 ; gain = 0.000 ; free physical = 121 ; free virtual = 2230

Phase 1.1 Placer Initialization Netlist Sorting | Checksum: 16d8d6e89

Time (s): cpu = 00:00:00 ; elapsed = 00:00:00.01 . Memory (MB): peak = 2107.062 ; gain = 0.000 ; free physical = 121 ; free virtual = 2230

Netlist sorting complete. Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 2107.062 ; gain = 0.000 ; free physical = 121 ; free virtual = 2230

Phase 1.2 IO Placement/ Clock Placement/ Build Placer Device

INFO: [Timing 38-35] Done setting XDC timing constraints.

Phase 1.2 IO Placement/ Clock Placement/ Build Placer Device | Checksum: a6d2e692

Time (s): cpu = 00:00:00.54 ; elapsed = 00:00:00.49 . Memory (MB): peak = 2109.059 ; gain = 1.996 ; free physical = 127 ; free virtual = 2217

Phase 1.3 Build Placer Netlist Model

Phase 1.3 Build Placer Netlist Model | Checksum: e77824b1

Time (s): cpu = 00:00:00.57 ; elapsed = 00:00:00.52 . Memory (MB): peak = 2109.059 ; gain = 1.996 ; free physical = 122 ; free virtual = 2217

Phase 1.4 Constrain Clocks/Macros

Phase 1.4 Constrain Clocks/Macros | Checksum: e77824b1

Time (s): cpu = 00:00:00.57 ; elapsed = 00:00:00.53 . Memory (MB): peak = 2109.059 ; gain = 1.996 ; free physical = 123 ; free virtual = 2218

Phase 1 Placer Initialization | Checksum: e77824b1

Time (s): cpu = 00:00:00.57 ; elapsed = 00:00:00.53 . Memory (MB): peak = 2109.059 ; gain = 1.996 ; free physical = 122 ; free virtual = 2218

Phase 2 Global Placement

Phase 2.1 Floorplanning

Phase 2.1 Floorplanning | Checksum: e77824b1

Time (s): cpu = 00:00:00.58 ; elapsed = 00:00:00.54 . Memory (MB): peak = 2110.059 ; gain = 2.996 ; free physical = 118 ; free virtual = 2216

WARNING: [Place 46-29] place\_design is not in timing mode. Skip physical synthesis in placer

Phase 2 Global Placement | Checksum: 103f6b3ec

Time (s): cpu = 00:00:01 ; elapsed = 00:00:00.86 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 114 ; free virtual = 2206

Phase 3 Detail Placement

Phase 3.1 Commit Multi Column Macros

Phase 3.1 Commit Multi Column Macros | Checksum: 103f6b3ec

Time (s): cpu = 00:00:01 ; elapsed = 00:00:00.87 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 114 ; free virtual = 2206

Phase 3.2 Commit Most Macros & LUTRAMs

Phase 3.2 Commit Most Macros & LUTRAMs | Checksum: 139d8052a

Time (s): cpu = 00:00:01 ; elapsed = 00:00:00.88 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 114 ; free virtual = 2205

Phase 3.3 Area Swap Optimization

Phase 3.3 Area Swap Optimization | Checksum: 1fdcd9551

Time (s): cpu = 00:00:01 ; elapsed = 00:00:00.88 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 114 ; free virtual = 2205

Phase 3.4 Pipeline Register Optimization

Phase 3.4 Pipeline Register Optimization | Checksum: 1fdcd9551

Time (s): cpu = 00:00:01 ; elapsed = 00:00:00.89 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 114 ; free virtual = 2205

Phase 3.5 Small Shape Detail Placement

Phase 3.5 Small Shape Detail Placement | Checksum: e969b423

Time (s): cpu = 00:00:01 ; elapsed = 00:00:01 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 118 ; free virtual = 2211

Phase 3.6 Re-assign LUT pins

Phase 3.6 Re-assign LUT pins | Checksum: e969b423

Time (s): cpu = 00:00:01 ; elapsed = 00:00:01 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 118 ; free virtual = 2211

Phase 3.7 Pipeline Register Optimization

Phase 3.7 Pipeline Register Optimization | Checksum: e969b423

Time (s): cpu = 00:00:01 ; elapsed = 00:00:01 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 118 ; free virtual = 2211

Phase 3 Detail Placement | Checksum: e969b423

Time (s): cpu = 00:00:01 ; elapsed = 00:00:01 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 118 ; free virtual = 2211

Phase 4 Post Placement Optimization and Clean-Up

Phase 4.1 Post Commit Optimization

Phase 4.1 Post Commit Optimization | Checksum: e969b423

Time (s): cpu = 00:00:01 ; elapsed = 00:00:01 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 118 ; free virtual = 2211

Phase 4.2 Post Placement Cleanup

Phase 4.2 Post Placement Cleanup | Checksum: e969b423

Time (s): cpu = 00:00:01 ; elapsed = 00:00:01 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 119 ; free virtual = 2214

Phase 4.3 Placer Reporting

Phase 4.3 Placer Reporting | Checksum: e969b423

Time (s): cpu = 00:00:01 ; elapsed = 00:00:01 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 119 ; free virtual = 2214

Phase 4.4 Final Placement Cleanup

Netlist sorting complete. Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 2151.074 ; gain = 0.000 ; free physical = 119 ; free virtual = 2214

Phase 4.4 Final Placement Cleanup | Checksum: e969b423

Time (s): cpu = 00:00:01 ; elapsed = 00:00:01 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 119 ; free virtual = 2214

Phase 4 Post Placement Optimization and Clean-Up | Checksum: e969b423

Time (s): cpu = 00:00:01 ; elapsed = 00:00:01 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 119 ; free virtual = 2214

Ending Placer Task | Checksum: b9ad0d43

Time (s): cpu = 00:00:01 ; elapsed = 00:00:01 . Memory (MB): peak = 2151.074 ; gain = 44.012 ; free physical = 129 ; free virtual = 2224

INFO: [Common 17-83] Releasing license: Implementation

41 Infos, 1 Warnings, 0 Critical Warnings and 0 Errors encountered.

place\_design completed successfully

Netlist sorting complete. Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 2151.074 ; gain = 0.000 ; free physical = 128 ; free virtual = 2223

INFO: [Timing 38-480] Writing timing data to binary archive.

Writing placer database...

Writing XDEF routing.

Writing XDEF routing logical nets.

Writing XDEF routing special nets.

Write XDEF Complete: Time (s): cpu = 00:00:00.03 ; elapsed = 00:00:00 . Memory (MB): peak = 2151.074 ; gain = 0.000 ; free physical = 130 ; free virtual = 2226

Netlist sorting complete. Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 2151.074 ; gain = 0.000 ; free physical = 129 ; free virtual = 2225

INFO: [Common 17-1381] The checkpoint '/home/jinson/vivado/Lab06\_clk/Lab06\_clk.runs/impl\_1/Lab06\_clk\_placed.dcp' has been generated.

INFO: [runtcl-4] Executing : report\_io -file Lab06\_clk\_io\_placed.rpt

report\_io: Time (s): cpu = 00:00:00.08 ; elapsed = 00:00:00.16 . Memory (MB): peak = 2151.074 ; gain = 0.000 ; free physical = 114 ; free virtual = 2218

INFO: [runtcl-4] Executing : report\_utilization -file Lab06\_clk\_utilization\_placed.rpt -pb Lab06\_clk\_utilization\_placed.pb

INFO: [runtcl-4] Executing : report\_control\_sets -verbose -file Lab06\_clk\_control\_sets\_placed.rpt

report\_control\_sets: Time (s): cpu = 00:00:00.04 ; elapsed = 00:00:00.09 . Memory (MB): peak = 2151.074 ; gain = 0.000 ; free physical = 119 ; free virtual = 2225

Command: route\_design

Attempting to get a license for feature 'Implementation' and/or device 'xc7a100t'

INFO: [Common 17-349] Got license for feature 'Implementation' and/or device 'xc7a100t'

Running DRC as a precondition to command route\_design

INFO: [DRC 23-27] Running DRC with 4 threads

INFO: [Vivado\_Tcl 4-198] DRC finished with 0 Errors

INFO: [Vivado\_Tcl 4-199] Please refer to the DRC report (report\_drc) for more information.

Starting Routing Task

INFO: [Route 35-254] Multithreading enabled for route\_design using a maximum of 4 CPUs

Checksum: PlaceDB: 3cf36bb0 ConstDB: 0 ShapeSum: 7cb9a193 RouteDB: 0

Phase 1 Build RT Design

Phase 1 Build RT Design | Checksum: c37e97ff

Time (s): cpu = 00:00:21 ; elapsed = 00:00:19 . Memory (MB): peak = 2290.125 ; gain = 139.051 ; free physical = 119 ; free virtual = 2062

Post Restoration Checksum: NetGraph: 1e2e89af NumContArr: a5500e50 Constraints: 0 Timing: 0

Phase 2 Router Initialization

INFO: [Route 35-64] No timing constraints were detected. The router will operate in resource-optimization mode.

Phase 2.1 Fix Topology Constraints

Phase 2.1 Fix Topology Constraints | Checksum: c37e97ff

Time (s): cpu = 00:00:21 ; elapsed = 00:00:19 . Memory (MB): peak = 2297.121 ; gain = 146.047 ; free physical = 103 ; free virtual = 2046

Phase 2.2 Pre Route Cleanup

Phase 2.2 Pre Route Cleanup | Checksum: c37e97ff

Time (s): cpu = 00:00:21 ; elapsed = 00:00:19 . Memory (MB): peak = 2297.121 ; gain = 146.047 ; free physical = 108 ; free virtual = 2046

Number of Nodes with overlaps = 0

Phase 2 Router Initialization | Checksum: c82795dd

Time (s): cpu = 00:00:21 ; elapsed = 00:00:19 . Memory (MB): peak = 2308.387 ; gain = 157.312 ; free physical = 117 ; free virtual = 2035

Phase 3 Initial Routing

Phase 3 Initial Routing | Checksum: 12b71e295

Time (s): cpu = 00:00:22 ; elapsed = 00:00:19 . Memory (MB): peak = 2314.242 ; gain = 163.168 ; free physical = 119 ; free virtual = 2037

Phase 4 Rip-up And Reroute

Phase 4.1 Global Iteration 0

Number of Nodes with overlaps = 0

Phase 4.1 Global Iteration 0 | Checksum: e452ae86

Time (s): cpu = 00:00:22 ; elapsed = 00:00:19 . Memory (MB): peak = 2314.242 ; gain = 163.168 ; free physical = 119 ; free virtual = 2037

Phase 4 Rip-up And Reroute | Checksum: e452ae86

Time (s): cpu = 00:00:22 ; elapsed = 00:00:19 . Memory (MB): peak = 2314.242 ; gain = 163.168 ; free physical = 119 ; free virtual = 2037

Phase 5 Delay and Skew Optimization

Phase 5 Delay and Skew Optimization | Checksum: e452ae86

Time (s): cpu = 00:00:22 ; elapsed = 00:00:19 . Memory (MB): peak = 2314.242 ; gain = 163.168 ; free physical = 119 ; free virtual = 2037

Phase 6 Post Hold Fix

Phase 6.1 Hold Fix Iter

Phase 6.1 Hold Fix Iter | Checksum: e452ae86

Time (s): cpu = 00:00:22 ; elapsed = 00:00:19 . Memory (MB): peak = 2314.242 ; gain = 163.168 ; free physical = 119 ; free virtual = 2037

Phase 6 Post Hold Fix | Checksum: e452ae86

Time (s): cpu = 00:00:22 ; elapsed = 00:00:19 . Memory (MB): peak = 2314.242 ; gain = 163.168 ; free physical = 119 ; free virtual = 2037

Phase 7 Route finalize

Router Utilization Summary

Global Vertical Routing Utilization = 0.000696349 %

Global Horizontal Routing Utilization = 0.00106564 %

Routable Net Status\*

\*Does not include unroutable nets such as driverless and loadless.

Run report\_route\_status for detailed report.

Number of Failed Nets = 0

Number of Unrouted Nets = 0

Number of Partially Routed Nets = 0

Number of Node Overlaps = 0

Congestion Report

North Dir 1x1 Area, Max Cong = 4.5045%, No Congested Regions.

South Dir 1x1 Area, Max Cong = 1.8018%, No Congested Regions.

East Dir 1x1 Area, Max Cong = 2.94118%, No Congested Regions.

West Dir 1x1 Area, Max Cong = 7.35294%, No Congested Regions.

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Reporting congestion hotspots

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Direction: North

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Congested clusters found at Level 0

Effective congestion level: 0 Aspect Ratio: 1 Sparse Ratio: 0

Direction: South

----------------

Congested clusters found at Level 0

Effective congestion level: 0 Aspect Ratio: 1 Sparse Ratio: 0

Direction: East

----------------

Congested clusters found at Level 0

Effective congestion level: 0 Aspect Ratio: 1 Sparse Ratio: 0

Direction: West

----------------

Congested clusters found at Level 0

Effective congestion level: 0 Aspect Ratio: 1 Sparse Ratio: 0

Phase 7 Route finalize | Checksum: e452ae86

Time (s): cpu = 00:00:22 ; elapsed = 00:00:19 . Memory (MB): peak = 2314.242 ; gain = 163.168 ; free physical = 119 ; free virtual = 2037

Phase 8 Verifying routed nets

Verification completed successfully

Phase 8 Verifying routed nets | Checksum: e452ae86

Time (s): cpu = 00:00:22 ; elapsed = 00:00:19 . Memory (MB): peak = 2314.242 ; gain = 163.168 ; free physical = 119 ; free virtual = 2038

Phase 9 Depositing Routes

Phase 9 Depositing Routes | Checksum: 142b928f3

Time (s): cpu = 00:00:22 ; elapsed = 00:00:19 . Memory (MB): peak = 2314.242 ; gain = 163.168 ; free physical = 118 ; free virtual = 2038

INFO: [Route 35-16] Router Completed Successfully

Time (s): cpu = 00:00:22 ; elapsed = 00:00:19 . Memory (MB): peak = 2314.242 ; gain = 163.168 ; free physical = 136 ; free virtual = 2057

Routing Is Done.

INFO: [Common 17-83] Releasing license: Implementation

54 Infos, 1 Warnings, 0 Critical Warnings and 0 Errors encountered.

route\_design completed successfully

route\_design: Time (s): cpu = 00:00:23 ; elapsed = 00:00:21 . Memory (MB): peak = 2314.242 ; gain = 163.168 ; free physical = 129 ; free virtual = 2058

Netlist sorting complete. Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 2314.242 ; gain = 0.000 ; free physical = 126 ; free virtual = 2058

INFO: [Timing 38-480] Writing timing data to binary archive.

Writing placer database...

Writing XDEF routing.

Writing XDEF routing logical nets.

Netlist sorting complete. Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 2314.242 ; gain = 0.000 ; free physical = 119 ; free virtual = 2055

Writing XDEF routing special nets.

Write XDEF Complete: Time (s): cpu = 00:00:00.05 ; elapsed = 00:00:00.06 . Memory (MB): peak = 2314.242 ; gain = 0.000 ; free physical = 119 ; free virtual = 2056

INFO: [Common 17-1381] The checkpoint '/home/jinson/vivado/Lab06\_clk/Lab06\_clk.runs/impl\_1/Lab06\_clk\_routed.dcp' has been generated.

INFO: [runtcl-4] Executing : report\_drc -file Lab06\_clk\_drc\_routed.rpt -pb Lab06\_clk\_drc\_routed.pb -rpx Lab06\_clk\_drc\_routed.rpx

Command: report\_drc -file Lab06\_clk\_drc\_routed.rpt -pb Lab06\_clk\_drc\_routed.pb -rpx Lab06\_clk\_drc\_routed.rpx

INFO: [IP\_Flow 19-1839] IP Catalog is up to date.

INFO: [DRC 23-27] Running DRC with 4 threads

INFO: [Coretcl 2-168] The results of DRC are in file /home/jinson/vivado/Lab06\_clk/Lab06\_clk.runs/impl\_1/Lab06\_clk\_drc\_routed.rpt.

report\_drc completed successfully

INFO: [runtcl-4] Executing : report\_methodology -file Lab06\_clk\_methodology\_drc\_routed.rpt -pb Lab06\_clk\_methodology\_drc\_routed.pb -rpx Lab06\_clk\_methodology\_drc\_routed.rpx

Command: report\_methodology -file Lab06\_clk\_methodology\_drc\_routed.rpt -pb Lab06\_clk\_methodology\_drc\_routed.pb -rpx Lab06\_clk\_methodology\_drc\_routed.rpx

INFO: [Timing 38-35] Done setting XDC timing constraints.

INFO: [DRC 23-133] Running Methodology with 4 threads

INFO: [Coretcl 2-1520] The results of Report Methodology are in file /home/jinson/vivado/Lab06\_clk/Lab06\_clk.runs/impl\_1/Lab06\_clk\_methodology\_drc\_routed.rpt.

report\_methodology completed successfully

INFO: [runtcl-4] Executing : report\_power -file Lab06\_clk\_power\_routed.rpt -pb Lab06\_clk\_power\_summary\_routed.pb -rpx Lab06\_clk\_power\_routed.rpx

Command: report\_power -file Lab06\_clk\_power\_routed.rpt -pb Lab06\_clk\_power\_summary\_routed.pb -rpx Lab06\_clk\_power\_routed.rpx

WARNING: [Power 33-232] No user defined clocks were found in the design!

Resolution: Please specify clocks using create\_clock/create\_generated\_clock for sequential elements. For pure combinatorial circuits, please specify a virtual clock, otherwise the vectorless estimation might be inaccurate

INFO: [Timing 38-35] Done setting XDC timing constraints.

Running Vector-less Activity Propagation...

Finished Running Vector-less Activity Propagation

66 Infos, 2 Warnings, 0 Critical Warnings and 0 Errors encountered.

report\_power completed successfully

INFO: [runtcl-4] Executing : report\_route\_status -file Lab06\_clk\_route\_status.rpt -pb Lab06\_clk\_route\_status.pb

INFO: [runtcl-4] Executing : report\_timing\_summary -max\_paths 10 -file Lab06\_clk\_timing\_summary\_routed.rpt -pb Lab06\_clk\_timing\_summary\_routed.pb -rpx Lab06\_clk\_timing\_summary\_routed.rpx -warn\_on\_violation

INFO: [Timing 38-91] UpdateTimingParams: Speed grade: -1, Delay Type: min\_max.

INFO: [Timing 38-191] Multithreading enabled for timing update using a maximum of 4 CPUs

WARNING: [Timing 38-313] There are no user specified timing constraints. Timing constraints are needed for proper timing analysis.

INFO: [runtcl-4] Executing : report\_incremental\_reuse -file Lab06\_clk\_incremental\_reuse\_routed.rpt

INFO: [Vivado\_Tcl 4-1062] Incremental flow is disabled. No incremental reuse Info to report.

INFO: [runtcl-4] Executing : report\_clock\_utilization -file Lab06\_clk\_clock\_utilization\_routed.rpt

INFO: [runtcl-4] Executing : report\_bus\_skew -warn\_on\_violation -file Lab06\_clk\_bus\_skew\_routed.rpt -pb Lab06\_clk\_bus\_skew\_routed.pb -rpx Lab06\_clk\_bus\_skew\_routed.rpx

INFO: [Timing 38-91] UpdateTimingParams: Speed grade: -1, Delay Type: min\_max.

INFO: [Timing 38-191] Multithreading enabled for timing update using a maximum of 4 CPUs

INFO: [Common 17-206] Exiting Vivado at Thu Apr 25 18:40:33 2019...

\*\*\* Running vivado

with args -log Lab06\_clk.vdi -applog -m64 -product Vivado -messageDb vivado.pb -mode batch -source Lab06\_clk.tcl -notrace

\*\*\*\*\*\* Vivado v2018.3 (64-bit)

\*\*\*\* SW Build 2405991 on Thu Dec 6 23:36:41 MST 2018

\*\*\*\* IP Build 2404404 on Fri Dec 7 01:43:56 MST 2018

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CRITICAL WARNING: [Common 17-741] No write access right to the local Tcl store at '/home/jinson/.Xilinx/Vivado/2018.3/XilinxTclStore'. XilinxTclStore is reverted to the installation area. If you want to use local Tcl Store, please change the access right and relaunch Vivado.

source Lab06\_clk.tcl -notrace

Command: open\_checkpoint Lab06\_clk\_routed.dcp

Starting open\_checkpoint Task

Time (s): cpu = 00:00:00.02 ; elapsed = 00:00:00.08 . Memory (MB): peak = 1374.262 ; gain = 0.000 ; free physical = 656 ; free virtual = 2982

INFO: [Netlist 29-17] Analyzing 4 Unisim elements for replacement

INFO: [Netlist 29-28] Unisim Transformation completed in 0 CPU seconds

INFO: [Project 1-479] Netlist was created with Vivado 2018.3

INFO: [Device 21-403] Loading part xc7a100tcsg324-1

INFO: [Project 1-570] Preparing netlist for logic optimization

INFO: [Timing 38-478] Restoring timing data from binary archive.

INFO: [Timing 38-479] Binary timing data restore complete.

INFO: [Project 1-856] Restoring constraints from binary archive.

INFO: [Project 1-853] Binary constraint restore complete.

Reading XDEF placement.

Reading placer database...

Reading XDEF routing.

Read XDEF File: Time (s): cpu = 00:00:00.07 ; elapsed = 00:00:00.13 . Memory (MB): peak = 1992.258 ; gain = 0.000 ; free physical = 125 ; free virtual = 2298

Restored from archive | CPU: 0.120000 secs | Memory: 1.017517 MB |

Finished XDEF File Restore: Time (s): cpu = 00:00:00.07 ; elapsed = 00:00:00.14 . Memory (MB): peak = 1992.258 ; gain = 0.000 ; free physical = 125 ; free virtual = 2298

Netlist sorting complete. Time (s): cpu = 00:00:00 ; elapsed = 00:00:00 . Memory (MB): peak = 1992.258 ; gain = 0.000 ; free physical = 125 ; free virtual = 2299

INFO: [Project 1-111] Unisim Transformation Summary:

No Unisim elements were transformed.

INFO: [Project 1-604] Checkpoint was created with Vivado v2018.3 (64-bit) build 2405991

open\_checkpoint: Time (s): cpu = 00:00:07 ; elapsed = 00:00:10 . Memory (MB): peak = 1992.258 ; gain = 617.996 ; free physical = 124 ; free virtual = 2298

Command: write\_bitstream -force Lab06\_clk.bit

Attempting to get a license for feature 'Implementation' and/or device 'xc7a100t'

INFO: [Common 17-349] Got license for feature 'Implementation' and/or device 'xc7a100t'

Running DRC as a precondition to command write\_bitstream

INFO: [IP\_Flow 19-234] Refreshing IP repositories

INFO: [IP\_Flow 19-1704] No user IP repositories specified

INFO: [IP\_Flow 19-2313] Loaded Vivado IP repository '/tools/Xilinx/Vivado/2018.3/data/ip'.

INFO: [DRC 23-27] Running DRC with 4 threads

WARNING: [DRC CFGBVS-1] Missing CFGBVS and CONFIG\_VOLTAGE Design Properties: Neither the CFGBVS nor CONFIG\_VOLTAGE voltage property is set in the current\_design. Configuration bank voltage select (CFGBVS) must be set to VCCO or GND, and CONFIG\_VOLTAGE must be set to the correct configuration voltage, in order to determine the I/O voltage support for the pins in bank 0. It is suggested to specify these either using the 'Edit Device Properties' function in the GUI or directly in the XDC file using the following syntax:

set\_property CFGBVS value1 [current\_design]

#where value1 is either VCCO or GND

set\_property CONFIG\_VOLTAGE value2 [current\_design]

#where value2 is the voltage provided to configuration bank 0

Refer to the device configuration user guide for more information.

INFO: [Vivado 12-3199] DRC finished with 0 Errors, 1 Warnings

INFO: [Vivado 12-3200] Please refer to the DRC report (report\_drc) for more information.

INFO: [Designutils 20-2272] Running write\_bitstream with 4 threads.

Loading data files...

Loading site data...

Loading route data...

Processing options...

Creating bitmap...

Creating bitstream...

Bitstream compression saved 27757152 bits.

Writing bitstream ./Lab06\_clk.bit...

INFO: [Vivado 12-1842] Bitgen Completed Successfully.

INFO: [Project 1-120] WebTalk data collection is mandatory when using a WebPACK part without a full Vivado license. To see the specific WebTalk data collected for your design, open the usage\_statistics\_webtalk.html or usage\_statistics\_webtalk.xml file in the implementation directory.

CRITICAL WARNING: [Common 17-570] Unable to write the webtalk settings file. Please check that the appropriate environment variable (APPDATA or HOME) is properly set.

CRITICAL WARNING: [Common 17-570] Unable to write the webtalk settings file. Please check that the appropriate environment variable (APPDATA or HOME) is properly set.

INFO: [Common 17-83] Releasing license: Implementation

22 Infos, 1 Warnings, 2 Critical Warnings and 0 Errors encountered.

write\_bitstream completed successfully

write\_bitstream: Time (s): cpu = 00:00:07 ; elapsed = 00:00:13 . Memory (MB): peak = 2434.094 ; gain = 441.836 ; free physical = 388 ; free virtual = 2239

INFO: [Common 17-206] Exiting Vivado at Thu Apr 25 18:41:11 2019...