

Приложение

Листинги лог файла и файла описания ресурсов

Листинг 1 – Лог файл

```
1 INFO: [v++ 60-1306] Additional information associated with this v++ link can be found at:
2   Reports: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/reports/link
3   Log files: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/logs/link
4 INFO: [v++ 60-1548] Creating build summary session with primary output /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/
   vitis_rtl_kernel/rtl_kernel_wizard_0/vinc.xclbin.link_summary, at Mon Dec 20 01:10:55 2021
5 INFO: [v++ 60-1316] Initiating connection to rulecheck server, at Mon Dec 20 01:10:56 2021
6 INFO: [v++ 60-1315] Creating rulecheck session with output '/iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
   rtl_kernel_wizard_0/_x/reports/link/v++_link_vinc_guidance.html', at Mon Dec 20 01:11:12 2021
7 INFO: [v++ 60-895] Target platform: /opt/xilinx/platforms/xilinx_u200_xdma_201830_2/xilinx_u200_xdma_201830_2.xpfm
8 INFO: [v++ 60-1578] This platform contains Device Support Archive '/opt/xilinx/platforms/xilinx_u200_xdma_201830_2/hw/
   xilinx_u200_xdma_201830_2.dsa'
9 INFO: [v++ 74-74] Compiler Version string: 2020.2
10 INFO: [v++ 60-1302] Platform 'xilinx_u200_xdma_201830_2.xpfm' has been explicitly enabled for this release.
11 INFO: [v++ 60-629] Linking for hardware target
12 INFO: [v++ 60-423] Target device: xilinx_u200_xdma_201830_2
13 INFO: [v++ 60-1332] Run 'run_link' status: Not started
14 INFO: [v++ 60-1443] [01:11:52] Run run_link: Step system_link: Started
15 INFO: [v++ 60-1453] Command Line: system_link --xo /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
   rtl_kernel_wizard_0/rtl_kernel_wizard_0.xo --config /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
   rtl_kernel_wizard_0/_x/link/int/syslinkConfig.ini --xpfm /opt/xilinx/platforms/xilinx_u200_xdma_201830_2/
   xilinx_u200_xdma_201830_2.xpfm --target hw --output_dir /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
   rtl_kernel_wizard_0/_x/link/int --temp_dir /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0
   /_x/link/sys_link
16 INFO: [v++ 60-1454] Run Directory: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/
   run_link
17 INFO: [SYSTEM_LINK 60-1316] Initiating connection to rulecheck server, at Mon Dec 20 01:12:02 2021
18 INFO: [SYSTEM_LINK 82-70] Extracting xo v3 file /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/
   rtl_kernel_wizard_0.xo
19 INFO: [SYSTEM_LINK 82-53] Creating IP database /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/
   _x/link/sys_link/_sysl/.cdb/xd_ip_db.xml
20 INFO: [SYSTEM_LINK 82-38] [01:12:05] build_xd_ip_db started: /data/Xilinx/Vitis/2020.2/bin/build_xd_ip_db -ip_search 0 -sds-pf /
   iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/sys_link/xilinx_u200_xdma_201830_2.
   hpfm --clkid 0 -ip /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/sys_link/iprepo/
   mycompany_com_kernel_rtl_kernel_wizard_0_1_0_rtl_kernel_wizard_0 -o /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/
   vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/sys_link/_sysl/.cdb/xd_ip_db.xml
21 INFO: [SYSTEM_LINK 82-37] [01:12:29] build_xd_ip_db finished successfully
22 Time (s): cpu = 00:00:21 ; elapsed = 00:00:25 . Memory (MB): peak = 1557.898 ; gain = 0.000 ; free physical = 10476 ; free virtual =
   166216
23 INFO: [SYSTEM_LINK 82-51] Create system connectivity graph
24 INFO: [SYSTEM_LINK 82-102] Applying explicit connections to the system connectivity graph: /iu_home/iu7072/workspace/
   Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/sys_link/cfgraph/cfgen_cfgraph.xml
25 INFO: [SYSTEM_LINK 82-38] [01:12:30] cfgen started: /data/Xilinx/Vitis/2020.2/bin/cfgen -nk rtl_kernel_wizard_0:1:vinc0 -slr vinc0:
   SLR2 -sp vinc0.m00_axi:DDR[3] -dmclkid 0 -r /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
   rtl_kernel_wizard_0/_x/link/sys_link/_sysl/.cdb/xd_ip_db.xml -o /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/
   vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/sys_link/cfgraph/cfgen_cfgraph.xml
26 INFO: [CFGEN 83-0] Kernel Specs:
27 INFO: [CFGEN 83-0] kernel: rtl_kernel_wizard_0, num: 1 {vinc0}
28 INFO: [CFGEN 83-0] Port Specs:
29 INFO: [CFGEN 83-0] kernel: vinc0, k_port: m00_axi, sptag: DDR[3]
30 INFO: [CFGEN 83-0] SLR Specs:
31 INFO: [CFGEN 83-0] instance: vinc0, SLR: SLR2
32 INFO: [CFGEN 83-2228] Creating mapping for argument vinc0.axi00_ptr0 to DDR[3] for directive vinc0.m00_axi:DDR[3]
33 INFO: [SYSTEM_LINK 82-37] [01:12:48] cfgen finished successfully
34 Time (s): cpu = 00:00:17 ; elapsed = 00:00:18 . Memory (MB): peak = 1557.898 ; gain = 0.000 ; free physical = 9897 ; free virtual =
   165661
35 INFO: [SYSTEM_LINK 82-52] Create top-level block diagram
36 INFO: [SYSTEM_LINK 82-38] [01:12:48] cf2bd started: /data/Xilinx/Vitis/2020.2/bin/cf2bd --linux --trace_buffer 1024 --input_file /
   iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/sys_link/cfgraph/cfgen_cfgraph.xml
   --ip_db /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/sys_link/_sysl/.cdb/
   xd_ip_db.xml --cf_name dr --working_dir /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/
   link/sys_link/_sysl/.xsd --temp_dir /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/
   link/sys_link --output_dir /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int --
   target_bd pfm_dynamic.bd
37 INFO: [CF2BD 82-31] Launching cf2xd: cf2xd --linux --trace-buffer 1024 -i /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/
   vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/sys_link/cfgraph/cfgen_cfgraph.xml -r /iu_home/iu7072/workspace/Alveo_lab1_kernels/
   src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/sys_link/_sysl/.cdb/xd_ip_db.xml -o dr.xml
38 INFO: [CF2BD 82-28] cf2xd finished successfully
```

```

39 INFO: [CF2BD 82-31] Launching cf_xsd: cf_xsd --disable-address-gen --bd pfm_dynamic.bd --dn dr --dp /iu_home/iu7072/workspace/
    Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/sys_link/_sysl/.xsd
40 INFO: [CF2BD 82-28] cf_xsd finished successfully
41 INFO: [SYSTEM_LINK 82-37] [01:13:00] cf2bd finished successfully
42 Time (s): cpu = 00:00:08 ; elapsed = 00:00:12 . Memory (MB): peak = 1557.898 ; gain = 0.000 ; free physical = 11761 ; free virtual =
    167528
43 INFO: [v++ 60-1441] [01:13:00] Run run_link: Step system_link: Completed
44 Time (s): cpu = 00:00:59 ; elapsed = 00:01:09 . Memory (MB): peak = 1585.129 ; gain = 0.000 ; free physical = 11777 ; free virtual =
    167540
45 INFO: [v++ 60-1443] [01:13:00] Run run_link: Step cf2sw: Started
46 INFO: [v++ 60-1453] Command Line: cf2sw --sdsl /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x
    /link/int/sdsl.dat --rtd /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/cf2sw.
    rtd --nofilter /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/cf2sw_full.rtd --
    xclbin /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/xclbin_orig.xml --o /
    iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/xclbin_orig.l.xml
47 INFO: [v++ 60-1454] Run Directory: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/
    run_link
48 INFO: [v++ 60-1441] [01:13:13] Run run_link: Step cf2sw: Completed
49 Time (s): cpu = 00:00:10 ; elapsed = 00:00:13 . Memory (MB): peak = 1585.129 ; gain = 0.000 ; free physical = 9336 ; free virtual =
    165089
50 INFO: [v++ 60-1443] [01:13:13] Run run_link: Step rtd2_system_diagram: Started
51 INFO: [v++ 60-1453] Command Line: rtd2SystemDiagram
52 INFO: [v++ 60-1454] Run Directory: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/
    run_link
53 INFO: [v++ 60-1441] [01:13:20] Run run_link: Step rtd2_system_diagram: Completed
54 Time (s): cpu = 00:00:00 ; elapsed = 00:00:08 . Memory (MB): peak = 1585.129 ; gain = 0.000 ; free physical = 8380 ; free virtual =
    164133
55 INFO: [v++ 60-1443] [01:13:20] Run run_link: Step vpl: Started
56 INFO: [v++ 60-1453] Command Line: vpl -t hw -f xilinx_u200_xdma_201830_2 --remote_ip_cache /iu_home/iu7072/workspace/
    Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/.ipcache --output_dir /iu_home/iu7072/workspace/Alveo_lab1_kernels/
    src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int --log_dir /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel
    /rtl_kernel_wizard_0/_x/logs/link --report_dir /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
    rtl_kernel_wizard_0/_x/reports/link --config /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
    rtl_kernel_wizard_0/_x/link/int/vplConfig.ini --k /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
    rtl_kernel_wizard_0/_x/link/int/kernel_info.dat --webtalk_flag Vitis --temp_dir /iu_home/iu7072/workspace/Alveo_lab1_kernels/src
    /vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link --no-info --iprepo /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/
    vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/so/ip_repo/mycompany_com_kernel_rtl_kernel_wizard_0_1_0 --messageDb /iu_home/
    iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/run_link/vpl.pb /iu_home/iu7072/workspace/
    Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/dr.bd.tcl
57 INFO: [v++ 60-1454] Run Directory: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/
    run_link
58
59 ***** vpl v2020.2 (64-bit)
60 **** SW Build (by xbuild) on 2020-11-18-05:13:29
61 ** Copyright 1986-2020 Xilinx, Inc. All Rights Reserved.
62
63 INFO: [VPL 60-839] Read in kernel information from file '/iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
    rtl_kernel_wizard_0/_x/link/int/kernel_info.dat'.
64 INFO: [VPL 74-74] Compiler Version string: 2020.2
65 INFO: [VPL 60-423] Target device: xilinx_u200_xdma_201830_2
66 INFO: [VPL 60-1032] Extracting hardware platform to /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
    rtl_kernel_wizard_0/_x/link/vivado/vpl/.local/hw_platform
67 WARNING: /data/Xilinx/Vitis/2020.2/tps/lnx64/jre9.0.4 does not exist.
68 [01:18:24] Run vpl: Step create_project: Started
69 Creating Vivado project.
70 [01:18:51] Run vpl: Step create_project: Completed
71 [01:18:51] Run vpl: Step create_bd: Started
72 [01:20:31] Run vpl: Step create_bd: RUNNING...
73 [01:22:10] Run vpl: Step create_bd: RUNNING...
74 [01:23:53] Run vpl: Step create_bd: RUNNING...
75 [01:25:50] Run vpl: Step create_bd: RUNNING...
76 [01:27:22] Run vpl: Step create_bd: RUNNING...
77 [01:28:07] Run vpl: Step create_bd: Completed
78 [01:28:07] Run vpl: Step update_bd: Started
79 [01:28:09] Run vpl: Step update_bd: Completed
80 [01:28:09] Run vpl: Step generate_target: Started
81 [01:29:53] Run vpl: Step generate_target: RUNNING...
82 [01:31:44] Run vpl: Step generate_target: RUNNING...
83 [01:33:22] Run vpl: Step generate_target: RUNNING...
84 [01:35:13] Run vpl: Step generate_target: RUNNING...
85 [01:37:04] Run vpl: Step generate_target: RUNNING...
86 [01:39:11] Run vpl: Step generate_target: Completed
87 [01:39:11] Run vpl: Step config_hw_runs: Started
88 [01:39:12] Run vpl: Step generate_target: RUNNING...
89 [01:41:00] Run vpl: Step config_hw_runs: Completed
90 [01:41:00] Run vpl: Step synth: Started
91 [01:44:18] Block-level synthesis in progress, 0 of 66 jobs complete, 8 jobs running.
92 [01:45:31] Block-level synthesis in progress, 0 of 66 jobs complete, 8 jobs running.
93 [01:46:48] Block-level synthesis in progress, 0 of 66 jobs complete, 8 jobs running.
94 [01:47:50] Block-level synthesis in progress, 0 of 66 jobs complete, 8 jobs running.
95 [01:48:46] Block-level synthesis in progress, 0 of 66 jobs complete, 8 jobs running.
96 [01:49:28] Block-level synthesis in progress, 1 of 66 jobs complete, 7 jobs running.

```



```

179 [02:50:39] Block-level synthesis in progress, 61 of 66 jobs complete, 2 jobs running.
180 [02:51:25] Block-level synthesis in progress, 61 of 66 jobs complete, 4 jobs running.
181 [02:52:15] Block-level synthesis in progress, 63 of 66 jobs complete, 2 jobs running.
182 [02:53:07] Block-level synthesis in progress, 64 of 66 jobs complete, 1 job running.
183 [02:53:53] Block-level synthesis in progress, 64 of 66 jobs complete, 1 job running.
184 [02:54:39] Block-level synthesis in progress, 64 of 66 jobs complete, 1 job running.
185 [02:55:23] Block-level synthesis in progress, 64 of 66 jobs complete, 1 job running.
186 [02:56:11] Block-level synthesis in progress, 65 of 66 jobs complete, 0 jobs running.
187 [02:56:51] Block-level synthesis in progress, 65 of 66 jobs complete, 0 jobs running.
188 [02:57:39] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
189 [02:58:21] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
190 [02:59:05] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
191 [02:59:51] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
192 [03:00:40] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
193 [03:01:24] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
194 [03:02:27] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
195 [03:03:36] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
196 [03:04:42] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
197 [03:05:36] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
198 [03:06:17] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
199 [03:07:15] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
200 [03:08:00] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
201 [03:09:08] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
202 [03:09:52] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
203 [03:10:41] Block-level synthesis in progress, 65 of 66 jobs complete, 1 job running.
204 [03:11:24] Block-level synthesis in progress, 66 of 66 jobs complete, 0 jobs running.
205 [03:12:04] Block-level synthesis in progress, 66 of 66 jobs complete, 0 jobs running.
206 [03:12:47] Top-level synthesis in progress.
207 [03:13:35] Top-level synthesis in progress.
208 [03:14:16] Top-level synthesis in progress.
209 [03:14:57] Top-level synthesis in progress.
210 [03:15:38] Top-level synthesis in progress.
211 [03:16:24] Top-level synthesis in progress.
212 [03:17:04] Top-level synthesis in progress.
213 [03:17:47] Top-level synthesis in progress.
214 [03:18:29] Top-level synthesis in progress.
215 [03:19:15] Top-level synthesis in progress.
216 [03:19:59] Top-level synthesis in progress.
217 [03:20:41] Top-level synthesis in progress.
218 [03:21:20] Top-level synthesis in progress.
219 [03:22:08] Run vpl: Step synth: Completed
220 [03:22:08] Run vpl: Step impl: Started
221 [04:08:58] Finished 2nd of 6 tasks (FPGA linking synthesized kernels to platform). Elapsed time: 02h 55m 27s
222
223 [04:08:58] Starting logic optimization..
224 [04:14:05] Phase 1 Generate And Synthesize MIG Cores
225 [04:50:07] Phase 2 Generate And Synthesize Debug Cores
226 [05:16:34] Phase 3 Retarget
227 [05:19:23] Phase 4 Constant propagation
228 [05:20:43] Phase 5 Sweep
229 [05:26:54] Phase 6 BUFG optimization
230 [05:29:01] Phase 7 Shift Register Optimization
231 [05:30:27] Phase 8 Post Processing Netlist
232 [05:46:10] Finished 3rd of 6 tasks (FPGA logic optimization). Elapsed time: 01h 37m 12s
233
234 [05:46:10] Starting logic placement..
235 [05:51:27] Phase 1 Placer Initialization
236 [05:51:27] Phase 1.1 Placer Initialization Netlist Sorting
237 [06:05:14] Phase 1.2 IO Placement/ Clock Placement/ Build Placer Device
238 [06:15:29] Phase 1.3 Build Placer Netlist Model
239 [06:27:04] Phase 1.4 Constrain Clocks/Macros
240 [06:28:24] Phase 2 Global Placement
241 [06:28:24] Phase 2.1 Floorplanning
242 [06:31:46] Phase 2.1.1 Partition Driven Placement
243 [06:31:46] Phase 2.1.1.1 PBP: Partition Driven Placement
244 [06:33:54] Phase 2.1.1.2 PBP: Clock Region Placement
245 [06:38:04] Phase 2.1.1.3 PBP: Compute Congestion
246 [06:38:04] Phase 2.1.1.4 PBP: UpdateTiming
247 [06:40:04] Phase 2.1.1.5 PBP: Add part constraints
248 [06:40:44] Phase 2.2 Update Timing before SLR Path Opt
249 [06:41:25] Phase 2.3 Global Placement Core
250 [07:11:56] Phase 2.3.1 Physical Synthesis In Placer
251 [07:23:39] Phase 3 Detail Placement
252 [07:23:39] Phase 3.1 Commit Multi Column Macros
253 [07:24:19] Phase 3.2 Commit Most Macros & LUTRAMs
254 [07:29:05] Phase 3.3 Small Shape DP
255 [07:29:05] Phase 3.3.1 Small Shape Clustering
256 [07:31:10] Phase 3.3.2 Flow Legalize Slice Clusters
257 [07:31:53] Phase 3.3.3 Slice Area Swap
258 [07:36:02] Phase 3.4 Place Remaining
259 [07:36:42] Phase 3.5 Re-assign LUT pins
260 [07:38:02] Phase 3.6 Pipeline Register Optimization

```

```

261 [07:38:02] Phase 3.7 Fast Optimization
262 [07:42:07] Phase 4 Post Placement Optimization and Clean-Up
263 [07:42:07] Phase 4.1 Post Commit Optimization
264 [07:50:21] Phase 4.1.1 Post Placement Optimization
265 [07:51:02] Phase 4.1.1.1 BUFG Insertion
266 [07:51:02] Phase 1 Physical Synthesis Initialization
267 [07:53:46] Phase 4.1.1.2 BUFG Replication
268 [07:57:11] Phase 4.1.1.3 Replication
269 [08:03:31] Phase 4.2 Post Placement Cleanup
270 [08:04:13] Phase 4.3 Placer Reporting
271 [08:04:13] Phase 4.3.1 Print Estimated Congestion
272 [08:05:36] Phase 4.4 Final Placement Cleanup
273 [09:12:03] Finished 4th of 6 tasks (FPGA logic placement). Elapsed time: 03h 25m 53s
274
275 [09:12:03] Starting logic routing..
276 [09:16:57] Phase 1 Build RT Design
277 [09:26:37] Phase 2 Router Initialization
278 [09:26:37] Phase 2.1 Fix Topology Constraints
279 [09:27:19] Phase 2.2 Pre Route Cleanup
280 [09:27:19] Phase 2.3 Global Clock Net Routing
281 [09:29:23] Phase 2.4 Update Timing
282 [09:41:01] Phase 2.5 Update Timing for Bus Skew
283 [09:41:01] Phase 2.5.1 Update Timing
284 [09:45:51] Phase 3 Initial Routing
285 [09:45:51] Phase 3.1 Global Routing
286 [09:50:29] Phase 4 Rip-up And Reroute
287 [09:50:29] Phase 4.1 Global Iteration 0
288 [10:09:43] Phase 4.2 Global Iteration 1
289 [10:15:12] Phase 4.3 Global Iteration 2
290 [10:19:52] Phase 5 Delay and Skew Optimization
291 [10:19:52] Phase 5.1 Delay CleanUp
292 [10:19:52] Phase 5.1.1 Update Timing
293 [10:25:14] Phase 5.2 Clock Skew Optimization
294 [10:25:55] Phase 6 Post Hold Fix
295 [10:25:55] Phase 6.1 Hold Fix Iter
296 [10:25:55] Phase 6.1.1 Update Timing
297 [10:30:36] Phase 7 Route finalize
298 [10:31:18] Phase 8 Verifying routed nets
299 [10:31:58] Phase 9 Depositing Routes
300 [10:36:19] Phase 10 Route finalize
301 [10:37:01] Phase 11 Post Router Timing
302 [10:43:14] Finished 5th of 6 tasks (FPGA routing). Elapsed time: 01h 31m 11s
303
304 [10:43:14] Starting bitstream generation..
305 [12:30:45] Creating bitmap...
306 [13:14:36] Writing bitstream ./pfm_top_i_dynamic_region_my_rm_partial.bit...
307 [13:14:36] Finished 6th of 6 tasks (FPGA bitstream generation). Elapsed time: 02h 31m 22s
308 [13:18:52] Run vpl: Step impl: Completed
309 [13:19:06] Run vpl: FINISHED. Run Status: impl Complete!
310 INFO: [v++ 60-1441] [13:19:40] Run run_link: Step vpl: Completed
311 Time (s): cpu = 00:45:29 ; elapsed = 12:06:20 . Memory (MB): peak = 1585.129 ; gain = 0.000 ; free physical = 65124 ; free virtual = 167443
312 INFO: [v++ 60-1443] [13:19:40] Run run_link: Step rtdgen: Started
313 INFO: [v++ 60-1453] Command Line: rtdgen
314 INFO: [v++ 60-1454] Run Directory: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/
run_link
315 INFO: [v++ 60-991] clock name 'clkwiz_kernel_clk_out1' (clock ID '0') is being mapped to clock name 'DATA_CLK' in the xclbin
316 INFO: [v++ 60-991] clock name 'clkwiz_kernel2_clk_out1' (clock ID '1') is being mapped to clock name 'KERNEL_CLK' in the xclbin
317 INFO: [v++ 60-1230] The compiler selected the following frequencies for the runtime controllable kernel clock(s) and scalable system
clock(s): Kernel (DATA) clock: clkwiz_kernel_clk_out1 = 300, Kernel (KERNEL) clock: clkwiz_kernel2_clk_out1 = 500
318 INFO: [v++ 60-1453] Command Line: cf2sw -a /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/
link/int/address_map.xml -sdsl /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int
/sdsl.dat -xclbin /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/xclbin_orig.
xml -rtd /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/vinc.rtd -o /iu_home/
iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/vinc.xml
319 INFO: [v++ 60-1652] Cf2sw returned exit code: 0
320 INFO: [v++ 60-2311] HPISystemDiagram::writeSystemDiagramAfterRunningVivado , rtdInputFilePath: /iu_home/iu7072/workspace/
Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/vinc.rtd
321 INFO: [v++ 60-2312] HPISystemDiagram::writeSystemDiagramAfterRunningVivado , systemDiagramOutputFilePath: /iu_home/iu7072/workspace/
Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/systemDiagramModelS1rBaseAddress.json
322 INFO: [v++ 60-1618] Launching
323 INFO: [v++ 60-1441] [13:19:54] Run run_link: Step rtdgen: Completed
324 Time (s): cpu = 00:00:12 ; elapsed = 00:00:14 . Memory (MB): peak = 1585.129 ; gain = 0.000 ; free physical = 65139 ; free virtual = 167458
325 INFO: [v++ 60-1443] [13:19:54] Run run_link: Step xclbinutil: Started
326 INFO: [v++ 60-1453] Command Line: xclbinutil --add-section DEBUG_IP_LAYOUT:JSON:/iu_home/iu7072/workspace/Alveo_lab1_kernels/src/
vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/debug_ip_layout.rtd --add-section BITSTREAM:RAW:/iu_home/iu7072/workspace/
Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/partial.bit --force --target hw --key-value SYS:
dfx_enable:true --add-section :JSON:/iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/
link/int/vinc.rtd --append-section :JSON:/iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/
_x/link/int/appendSection.rtd --add-section CLOCK_FREQ_TOPOLOGY:JSON:/iu_home/iu7072/workspace/Alveo_lab1_kernels/src/
vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/vinc.xml.rtd --add-section BUILD_METADATA:JSON:/iu_home/iu7072/workspace/

```

```

Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/vinc_build.rtd —add-section EMBEDDED_METADATA:RAW:/
iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/vinc.xml —add-section
SYSTEM_METADATA:RAW:/iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/
systemDiagramModelSlrBaseAddress.json —output /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
rtl_kernel_wizard_0/./vinc.xclbin
327 INFO: [v++ 60—1454] Run Directory: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/
run_link
328 XRT Build Version: 2.8.743 (2020.2)
329 Build Date: 2020—11—16 00:19:11
330 Hash ID: 77d5484b5c4daa691a7f78235053fb036829b1e9
331 Creating a default 'in-memory' xclbin image.
332
333 Section: 'DEBUG_IP_LAYOUT'(9) was successfully added.
334 Size : 440 bytes
335 Format : JSON
336 File : '/iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/debug_ip_layout.rtd'
337
338 Section: 'BITSTREAM'(0) was successfully added.
339 Size : 42618246 bytes
340 Format : RAW
341 File : '/iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/partial.bit'
342
343 Section: 'MEM_TOPOLOGY'(6) was successfully added.
344 Format : JSON
345 File : 'mem_topology'
346
347 Section: 'IP_LAYOUT'(8) was successfully added.
348 Format : JSON
349 File : 'ip_layout'
350
351 Section: 'CONNECTIVITY'(7) was successfully added.
352 Format : JSON
353 File : 'connectivity'
354
355 Section: 'CLOCK_FREQ_TOPOLOGY'(11) was successfully added.
356 Size : 274 bytes
357 Format : JSON
358 File : '/iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/vinc.xml.rtd'
359
360 Section: 'BUILD_METADATA'(14) was successfully added.
361 Size : 2912 bytes
362 Format : JSON
363 File : '/iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/vinc_build.rtd'
364
365 Section: 'EMBEDDED_METADATA'(2) was successfully added.
366 Size : 2754 bytes
367 Format : RAW
368 File : '/iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/vinc.xml'
369
370 Section: 'SYSTEM_METADATA'(22) was successfully added.
371 Size : 5630 bytes
372 Format : RAW
373 File : '/iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/int/
systemDiagramModelSlrBaseAddress.json'
374
375 Section: 'IP_LAYOUT'(8) was successfully appended to.
376 Format : JSON
377 File : 'ip_layout'
378 Successfully wrote (42640169 bytes) to the output file: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
rtl_kernel_wizard_0/./vinc.xclbin
379 Leaving xclbinutil.
380 INFO: [v++ 60—1441] [13:19:57] Run run_link: Step xclbinutil: Completed
381 Time (s): cpu = 00:00:00.57 ; elapsed = 00:00:03 . Memory (MB): peak = 1585.129 ; gain = 0.000 ; free physical = 65007 ; free virtual
= 167406
382 INFO: [v++ 60—1443] [13:19:57] Run run_link: Step xclbinutilinfo: Started
383 INFO: [v++ 60—1453] Command Line: xclbinutil —quiet —force —info /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
rtl_kernel_wizard_0/./vinc.xclbin.info —input /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
rtl_kernel_wizard_0/./vinc.xclbin
384 INFO: [v++ 60—1454] Run Directory: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/
run_link
385 INFO: [v++ 60—1441] [13:20:01] Run run_link: Step xclbinutilinfo: Completed
386 Time (s): cpu = 00:00:03 ; elapsed = 00:00:03 . Memory (MB): peak = 1585.129 ; gain = 0.000 ; free physical = 65067 ; free virtual =
167467
387 INFO: [v++ 60—1443] [13:20:01] Run run_link: Step generate_sc_driver: Started
388 INFO: [v++ 60—1453] Command Line:
389 INFO: [v++ 60—1454] Run Directory: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/link/
run_link
390 INFO: [v++ 60—1441] [13:20:01] Run run_link: Step generate_sc_driver: Completed
391 Time (s): cpu = 00:00:00.01 ; elapsed = 00:00:00.05 . Memory (MB): peak = 1585.129 ; gain = 0.000 ; free physical = 65053 ; free
virtual = 167454
392 INFO: [v++ 60—244] Generating system estimate report...

```

```

393 INFO: [v++ 60-1092] Generated system estimate report: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/
    rtl_kernel_wizard_0/_x/reports/link/system_estimate_vinc.txt
394 INFO: [v++ 60-586] Created /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/vinc.ltx
395 INFO: [v++ 60-586] Created ./vinc.xclbin
396 INFO: [v++ 60-1307] Run completed. Additional information can be found in:
397     Guidance: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/reports/link/v++
    _link_vinc_guidance.html
398     Timing Report: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/reports/link/imp/
    impl_1_xilinx_u200_xdma_201830_2_bb_locked_timing_summary_routed.rpt
399     Vivado Log: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/logs/link/vivado.log
400     Steps Log File: /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/_x/logs/link/link.steps.log
401
402 INFO: [v++ 60-2343] Use the vitis_analyzer tool to visualize and navigate the relevant reports. Run the following command.
403     vitis_analyzer /iu_home/iu7072/workspace/Alveo_lab1_kernels/src/vitis_rtl_kernel/rtl_kernel_wizard_0/vinc.xclbin.link_summary
404 INFO: [v++ 60-791] Total elapsed time: 12h 9m 31s
405 INFO: [v++ 60-1653] Closing dispatch client.

```

Листинг 2 – Файл описания ресурсов

```
1 =====
2 XRT Build Version: 2.8.743 (2020.2)
3   Build Date: 2020-11-16 00:19:11
4   Hash ID: 77d5484b5c4daa691a7f78235053fb036829b1e9
5 =====
6 xclbin Information
7 -----
8   Generated by:      v++ (2020.2) on 2020-11-18-05:13:29
9   Version:          2.8.743
10  Kernels:          rtl_kernel_wizard_0
11  Signature:
12  Content:          Bitstream
13  UUID (xclbin):    da62d19b-3c9a-498a-98b6-98b5731a7b87
14  Sections:         DEBUG_IP_LAYOUT, BITSTREAM, MEM_TOPOLOGY, IP_LAYOUT,
15                   CONNECTIVITY, CLOCK_FREQ_TOPOLOGY, BUILD_METADATA,
16                   EMBEDDED_METADATA, SYSTEM_METADATA,
17                   GROUP_CONNECTIVITY, GROUP_TOPOLOGY
18 =====
19 Hardware Platform (Shell) Information
20 -----
21   Vendor:          xilinx
22   Board:           u200
23   Name:            xdma
24   Version:         201830.2
25   Generated Version: Vivado 2018.3 (SW Build: 2568420)
26   Created:         Tue Jun 25 06:55:20 2019
27   FPGA Device:     xcu200
28   Board Vendor:    xilinx.com
29   Board Name:      xilinx.com:au200:1.0
30   Board Part:      xilinx.com:au200:part0:1.0
31   Platform VBNV:   xilinx_u200_xdma_201830_2
32   Static UUID:     c102e7af-b2b8-4381-992b-9a00cc3863eb
33   Feature ROM TimeStamp: 1561465320
34
35 Clocks
36 -----
37   Name:            DATA_CLK
38   Index:           0
39   Type:            DATA
40   Frequency:       300 MHz
41
42   Name:            KERNEL_CLK
43   Index:           1
44   Type:            KERNEL
45   Frequency:       500 MHz
46
47 Memory Configuration
48 -----
49   Name:            bank0
50   Index:           0
51   Type:            MEM_DDR4
52   Base Address:    0x4000000000
53   Address Size:    0x400000000
54   Bank Used:       No
55
56   Name:            bank1
57   Index:           1
58   Type:            MEM_DDR4
59   Base Address:    0x5000000000
60   Address Size:    0x400000000
61   Bank Used:       No
62
63   Name:            bank2
64   Index:           2
65   Type:            MEM_DDR4
66   Base Address:    0x6000000000
67   Address Size:    0x400000000
68   Bank Used:       No
69
70   Name:            bank3
71   Index:           3
72   Type:            MEM_DDR4
73   Base Address:    0x7000000000
74   Address Size:    0x400000000
75   Bank Used:       Yes
76
77   Name:            PLRAM[0]
78   Index:           4
79   Type:            MEM_DRAM
80   Base Address:    0x3000000000
81   Address Size:    0x20000
```



```

82 Bank Used: No
83
84 Name: PLRAM[1]
85 Index: 5
86 Type: MEM_DRAM
87 Base Address: 0x3000200000
88 Address Size: 0x20000
89 Bank Used: No
90
91 Name: PLRAM[2]
92 Index: 6
93 Type: MEM_DRAM
94 Base Address: 0x3000400000
95 Address Size: 0x20000
96 Bank Used: No
97 =====
98 Kernel: rtl_kernel_wizard_0
99
100 Definition
101 -----
102 Signature: rtl_kernel_wizard_0 (uint num, int* axi00_ptr0)
103
104 Ports
105 -----
106 Port: s_axi_control
107 Mode: slave
108 Range (bytes): 0x1000
109 Data Width: 32 bits
110 Port Type: addressable
111
112 Port: m00_axi
113 Mode: master
114 Range (bytes): 0xFFFFFFFFFFFFFFFF
115 Data Width: 512 bits
116 Port Type: addressable
117
118 -----
119 Instance: vinc0
120 Base Address: 0x1e00000
121
122 Argument: num
123 Register Offset: 0x010
124 Port: s_axi_control
125 Memory: <not applicable>
126
127 Argument: axi00_ptr0
128 Register Offset: 0x018
129 Port: m00_axi
130 Memory: bank3 (MEM_DDR4)
131 =====
132 Generated By
133 -----
134 Command: v++
135 Version: 2020.2 - 2020-11-18-05:13:29 (SW BUILD: 0)
136 Command Line: v++ --config ./rtl_kernel_wizard_0_ex.cfg --connectivity.nk rtl_kernel_wizard_0:1:vinc0 --connectivity.slr vinc0:
SLR2 --connectivity.sp vinc0.m00_axi:DDR[3] --input_files ./rtl_kernel_wizard_0.xo --link --optimize 0 --output ./vinc.xclbin
--platform xilinx_u200_xdma_201830_2 --report_level 0 --target hw --vivado.prop run.impl_1.STEPS.OPT_DESIGN.ARGS.DIRECTIVE=
Explore --vivado.prop run.impl_1.STEPS.PLACE_DESIGN.ARGS.DIRECTIVE=Explore --vivado.prop run.impl_1.STEPS.PHYS_OPT_DESIGN.
IS_ENABLED=true --vivado.prop run.impl_1.STEPS.PHYS_OPT_DESIGN.ARGS.DIRECTIVE=AggressiveExplore --vivado.prop run.impl_1.
STEPS.ROUTE_DESIGN.ARGS.DIRECTIVE=Explore
137 Options: --config ./rtl_kernel_wizard_0_ex.cfg
138 --connectivity.nk rtl_kernel_wizard_0:1:vinc0
139 --connectivity.slr vinc0:SLR2
140 --connectivity.sp vinc0.m00_axi:DDR[3]
141 --input_files ./rtl_kernel_wizard_0.xo
142 --link
143 --optimize 0
144 --output ./vinc.xclbin
145 --platform xilinx_u200_xdma_201830_2
146 --report_level 0
147 --target hw
148 --vivado.prop run.impl_1.STEPS.OPT_DESIGN.ARGS.DIRECTIVE=Explore
149 --vivado.prop run.impl_1.STEPS.PLACE_DESIGN.ARGS.DIRECTIVE=Explore
150 --vivado.prop run.impl_1.STEPS.PHYS_OPT_DESIGN.IS_ENABLED=true
151 --vivado.prop run.impl_1.STEPS.PHYS_OPT_DESIGN.ARGS.DIRECTIVE=AggressiveExplore
152 --vivado.prop run.impl_1.STEPS.ROUTE_DESIGN.ARGS.DIRECTIVE=Explore
153 =====
154 User Added Key Value Pairs
155 -----
156 <empty>
157 =====

```