RTL Report

Testbench	Pass	(Pass/Failed)
Clock Cycle	12	(ns)
Total Time	2568	(ns)

Synthesis Report

Testbench	Pass	(Pass/Failed)
Clock Cycle	12	(ns)
Cell Area	152569.101180 um^2 (Please report **Total cell area**)	
Total Time	2568	(ns)
Area*Time^2	1.006135856300056*10^12 (um^2*ns^2)	

APR Report

Testbench	Pass	(Pass/Failed)
Clock Cycle	12	(ns)
Cell Area	184100.004 um^2 (Please report **Total area of Core)**	
Total Time	2568	(ns)
Area*Time^2	1.2140703047784 96*10^12 (um^2*ns^2)	

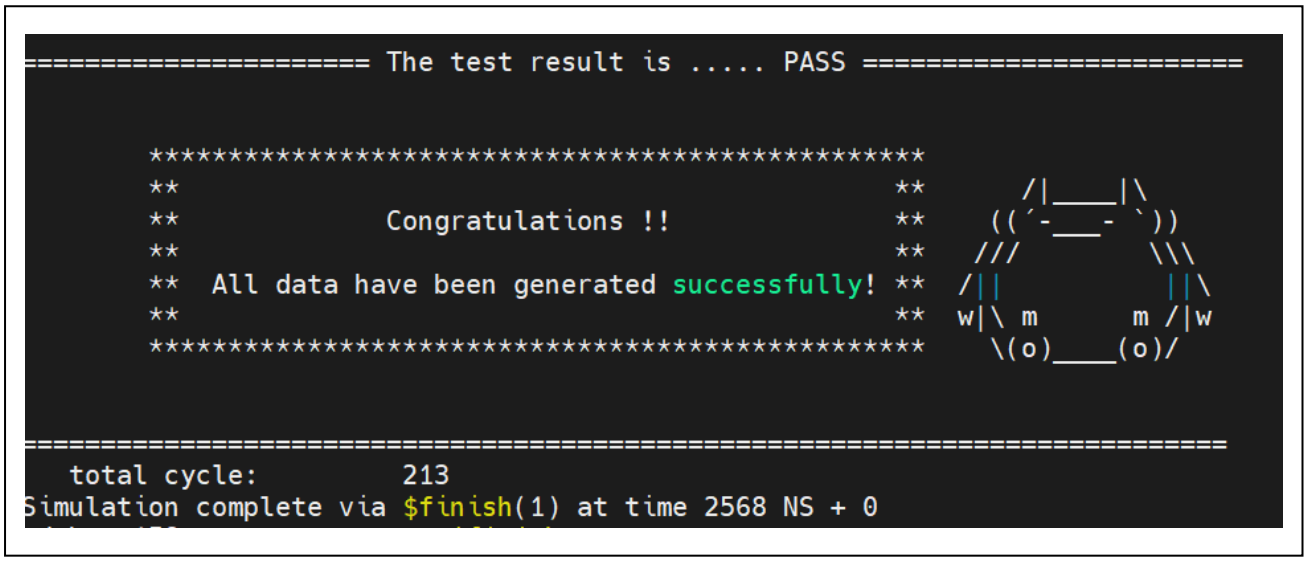
How to report area in Design Vision?

➔ report_area > autoseller_area.txt, find **Total cell area.**

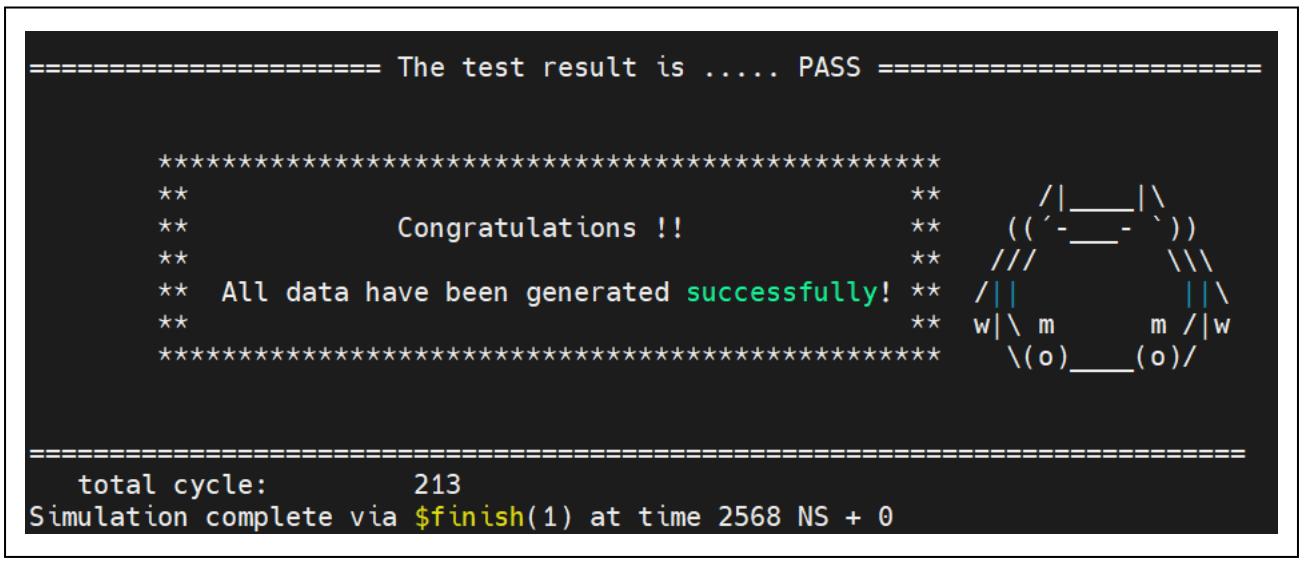
How to report area in Innovus?

➔ File > Report > Summary > choose Text only, file name: **summaryReport.rpt**>OK, find **Total area of Core.**

RTL Simulation Result (截圖)



Synthesis Simulation Result (截圖)



Synthesis Timing Report

```
****************************************
Report : timing
        -path full
        -delay max
        -max_paths 1
        -sort_by group
Design : SW
Version: R-2020.09-SP5
Date   : Thu Jun  9 14:17:32 2022
****************************************

 # A fanout number of 1000 was used for high fanout net computations.

Operating Conditions: slow   Library: slow
Wire Load Model Mode: top

  Startpoint: H_reg[15][1]
              (rising edge-triggered flip-flop clocked by clk)
  Endpoint: queryi_reg[5]
            (rising edge-triggered flip-flop clocked by clk)
  Path Group: clk
  Path Type: max

  Des/Clust/Port     Wire Load Model       Library
  ------------------------------------------------
  SW                 tsmc13_wl10           slow

  Point                                    Incr       Path
  ----------------------------------------------------------
  clock clk (rise edge)                    0.00       0.00
  clock network delay (ideal)              1.00       1.00
  H_reg[15][1]/CK (DFFRHQX8)               0.00 #     1.00 r
H_reg[15][1]/Q (DFFRHQX8)                  0.22       1.22 f
U5689/Y (INVX12)                           0.04       1.26 r
U3950/Y (INVX6)                            0.03       1.30 f
U5773/Y (NAND2BX4)                         0.08       1.38 f
U9655/Y (OAI2BB1X4)                        0.11       1.48 f
U4240/Y (NAND3X4)                          0.05       1.54 r
U9658/Y (OAI2BB1X4)                        0.11       1.65 f
U9624/Y (BUFX20)                           0.09       1.74 r
U5692/Y (INVX20)                           0.05       1.79 f
U3887/Y (OR2X8)                            0.11       1.90 f
U4442/Y (NAND2X6)                          0.07       1.97 r
U7304/Y (AOI2BB1X4)                        0.11       2.08 r
U5758/Y (OAI21X4)                          0.06       2.14 f
U9660/Y (AOI22X4)                          0.12       2.26 r
U4238/Y (BUFX20)                           0.09       2.35 r
U4251/Y (CLKAND2X12)                       0.09       2.45 r
U4259/Y (CLKMX2X8)                         0.24       2.69 f
U4188/Y (INVX6)                            0.05       2.74 r
U5062/Y (NAND2X6)                          0.04       2.78 f
U4831/Y (NAND3X8)                          0.08       2.86 r
U4787/Y (NAND3X8)                          0.09       2.95 f
U9623/Y (NAND3X8)                          0.10       3.04 r
U4243/Y (INVX20)                           0.06       3.10 f
U5179/Y (MX2X8)                            0.18       3.29 f
U3962/Y (CLKINVX8)                         0.04       3.32 r
U9727/Y (OAI211X2)                         0.09       3.41 f
U4852/Y (NAND3X4)                          0.11       3.52 r
U6007/Y (OAI2BB1X4)                        0.15       3.66 r
U3969/Y (INVX20)                           0.06       3.73 f
U4399/Y (MX2X6)                            0.16       3.89 f
U9731/Y (AOI211X2)                         0.16       4.04 r
U9732/Y (OAI222X2)                         0.13       4.17 f
U4300/Y (NAND3X4)                          0.11       4.28 r
U4775/Y (NAND2X6)                          0.05       4.33 f
U4776/Y (NAND2X8)                          0.06       4.39 r
U4777/Y (INVX20)                           0.05       4.44 f
U5653/Y (MX2X4)                            0.14       4.58 f
U9736/Y (AOI211X2)                         0.15       4.73 r
U4860/Y (AOI21X4)                          0.06       4.79 f
U9739/Y (OAI211X2)                         0.17       4.95 r
U5593/Y (NAND2X4)                          0.07       5.03 f
U5343/Y (NAND2X8)                          0.07       5.10 r
U4180/Y (INVX20)                           0.06       5.15 f
U5277/Y (MXI2X4)                           0.09       5.25 f
U5291/Y (OAI2BB1X4)                        0.14       5.39 f
U4217/Y (NOR2X8)                           0.07       5.46 r
U5629/Y (AOI21X4)                          0.04       5.50 f
U9746/Y (OAI211X2)                         0.17       5.67 r
U5824/Y (NAND2X4)                          0.07       5.74 f
U5315/Y (NAND2X8)                          0.07       5.81 r
U4233/Y (INVX20)                           0.05       5.86 f
U5309/Y (MXI2X4)                           0.10       5.96 f
U5896/Y (AOI211X2)                         0.19       6.15 r
U5632/Y (AOI2BB1X4)                        0.07       6.22 f
U9749/Y (OAI211X2)                         0.14       6.36 r
U5120/Y (OAI2BB1X4)                        0.14       6.50 r
U4198/Y (INVX12)                           0.06       6.57 f
U4327/Y (MX2X4)                            0.15       6.71 f
U9751/Y (AOI211X2)                         0.17       6.89 r
U4652/Y (AOI2BB1X4)                        0.09       6.98 f
U4286/Y (NOR2X8)                           0.06       7.04 r
U4285/Y (NOR2X6)                           0.04       7.08 f
U4033/Y (NAND2X8)                          0.04       7.12 r
U3957/Y (NAND2X8)                          0.04       7.16 f
U5448/Y (NAND2X8)                          0.06       7.22 r
U4162/Y (INVX20)                           0.04       7.27 f
U5458/Y (MX2X4)                            0.13       7.40 f
U5226/Y (OAI2BB1X4)                        0.13       7.53 f
U4203/Y (NOR2X8)                           0.07       7.60 r
U5521/Y (AOI21X4)                          0.04       7.64 f
U9758/Y (OAI211X2)                         0.16       7.80 r
U4209/Y (NAND2X4)                          0.07       7.87 f
U5833/Y (NAND2X8)                          0.08       7.95 r
U4204/Y (CLKINVX16)                        0.07       8.02 f
U5198/Y (MXI2X4)                           0.10       8.12 f
U4733/Y (OAI2BB1X4)                        0.13       8.25 f
U5723/Y (NOR2X8)                           0.07       8.32 r
U5852/Y (AOI2BB1X4)                        0.04       8.37 f
U9762/Y (OAI211X2)                         0.14       8.51 r
U9763/Y (AO22X4)                           0.16       8.67 r
U5154/Y (INVX12)                           0.06       8.74 f
U4679/Y (MX2X4)                            0.14       8.88 f
U5518/Y (OAI2BB1X4)                        0.12       9.00 f
U3880/Y (NOR2X8)                           0.06       9.05 r
U4296/Y (AOI2BB1X4)                        0.04       9.10 f
U9766/Y (OAI211X2)                         0.16       9.26 r
U4814/Y (NAND2X4)                          0.07       9.33 f
U4815/Y (NAND2X8)                          0.07       9.40 r
U5510/Y (INVX16)                           0.05       9.45 f
U5513/Y (MX2X4)                            0.14       9.59 f
U5131/Y (OAI2BB1X4)                        0.13       9.71 f
U3838/Y (NOR2X8)                           0.06       9.77 r
U5529/Y (AOI21X4)                          0.04       9.81 f
U9769/Y (OAI211X2)                         0.17       9.98 r
U5590/Y (NAND2X4)                          0.07      10.05 f
U5591/Y (NAND2X8)                          0.06      10.12 r
U4925/Y (INVX16)                           0.05      10.17 f
U5753/Y (MX2X4)                            0.14      10.32 f
U9773/Y (AOI211X2)                         0.15      10.47 r
U9774/Y (AOI2BB1X2)                        0.08      10.55 f
U5188/Y (AOI2BB1X4)                        0.14      10.70 f
U5449/Y (NAND2X6)                          0.06      10.76 r
U3973/Y (NAND2X8)                          0.05      10.80 f
U5446/Y (NAND2X8)                          0.05      10.86 r
U5048/Y (INVX16)                           0.05      10.91 f
U9618/Y (MX2X6)                            0.15      11.06 f
U5684/Y (AOI21X4)                          0.09      11.14 r
U5662/Y (AND2X8)                           0.09      11.23 r
U5276/Y (AOI21X4)                          0.03      11.26 f
U9776/Y (OAI211X2)                         0.16      11.43 r
U5720/Y (NAND2X4)                          0.07      11.50 f
U5847/Y (NAND2X8)                          0.08      11.58 r
U5849/Y (INVX20)                           0.06      11.64 f
U3943/Y (CLKMX2X6)                         0.16      11.80 f
U3942/Y (INVX8)                            0.06      11.86 r
U5135/Y (AOI211X2)                         0.07      11.93 f
U4294/Y (OR2X6)                            0.15      12.08 f
U4173/Y (NAND3X8)                          0.06      12.14 r
U9599/Y (AOI31X2)                          0.07      12.21 f
U5523/Y (NAND2BX4)                         0.13      12.34 f
U4249/Y (AND2X8)                           0.10      12.43 f
U4167/Y (CLKAND2X4)                        0.14      12.57 f
U4191/Y (OR2X8)                            0.11      12.68 f
U4675/Y (AND3X8)                           0.09      12.78 f
U4674/Y (NAND4X4)                          0.05      12.83 r
queryi_reg[5]/D (DFFRX4)                   0.00      12.83 r
data arrival time                                    12.83

clock clk (rise edge)                     12.00      12.00
clock network delay (ideal)                1.00      13.00
clock uncertainty                         -0.10      12.90
queryi_reg[5]/CK (DFFRX4)                  0.00      12.90 r
library setup time                        -0.07      12.83
data required time                                   12.83
----------------------------------------------------------
data required time                                   12.83
data arrival time                                   -12.83
----------------------------------------------------------
slack (MET)                                          0.00
```

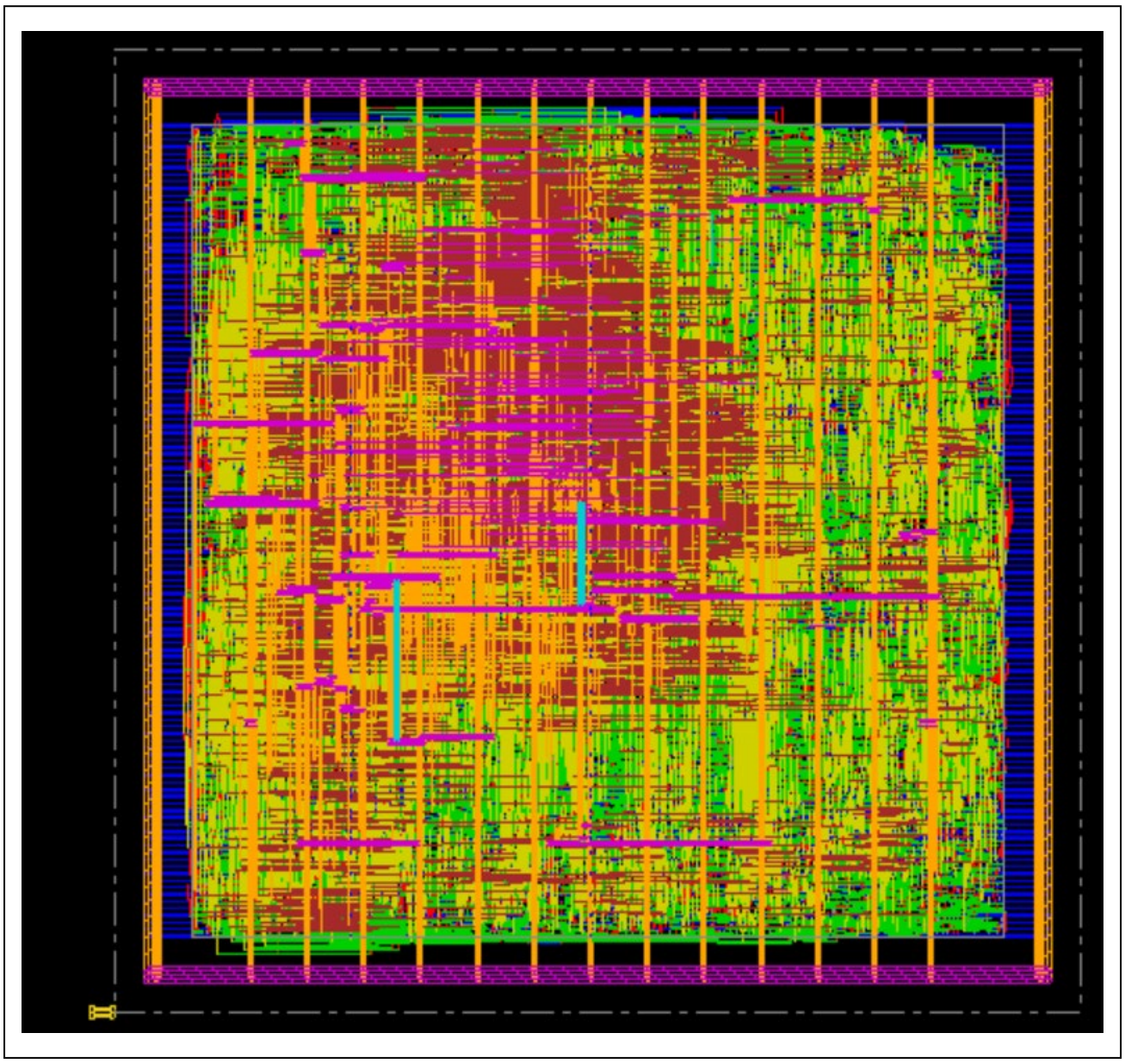
Synthesis Area Report

```
****************************************
Report : area
Design : SW
Version: R-2020.09-SP5
Date   : Wed Jun  8 18:13:44 2022
****************************************

Information: Updating design information... (UID-85)
Warning: Design 'SW' contains 1 high-fanout nets. A fanout number of 1000 will be used for delay calculations involving these nets. (TIM-134)
Library(s) Used:

    typical (File: /home/raid7_2/course/cvsd/CBDK_IC_Contest/CIC/SynopsysDC/db/typical.db)

Number of ports:                         1291
Number of nets:                         13145
Number of cells:                        10942
Number of combinational cells:           9116
Number of sequential cells:              1713
Number of macros/black boxes:               0
Number of buf/inv:                       1648
Number of references:                     258

Combinational area:              96797.630416
Buf/Inv area:                    10439.009883
Noncombinational area:           55771.470764
Macro/Black Box area:                0.000000
Net Interconnect area:         1446767.382629

Total cell area:                152569.101180
Total area:                    1599336.483809
```

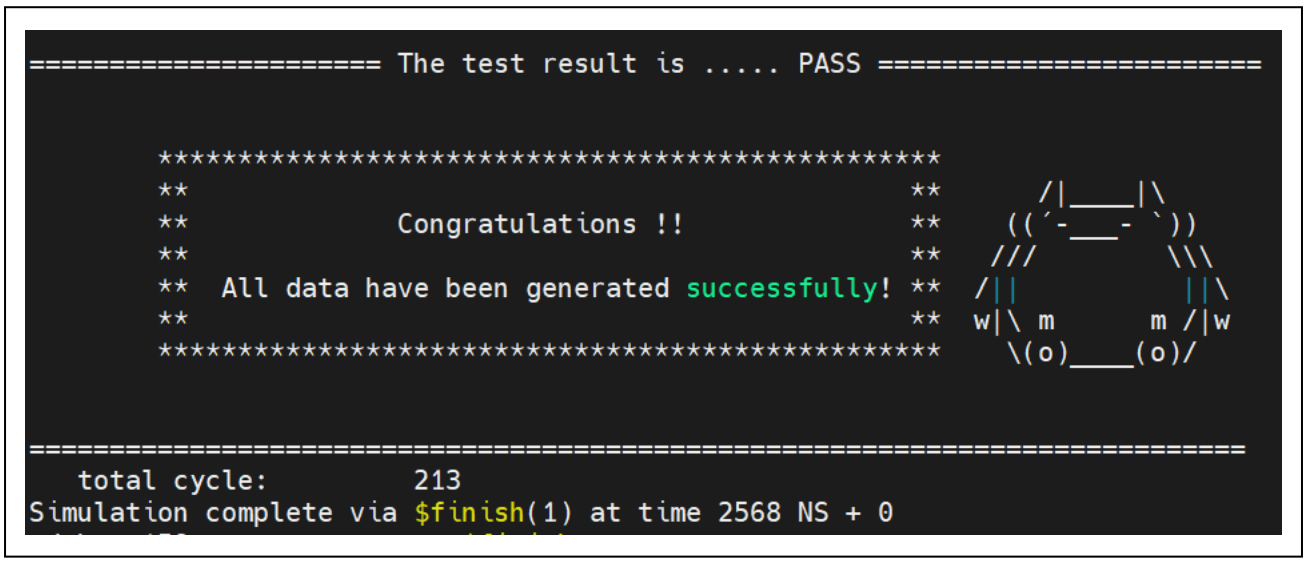
Synthesis Power Report

```
****************************************
Report : power
        -analysis_effort low
Design : SW
Version: R-2020.09-SP5
Date   : Thu Jun  9 14:17:51 2022
****************************************


Library(s) Used:

    typical (File: /home/raid7_2/course/cvsd/CBDK_IC_Contest/CIC/SynopsysDC/db/typical.db)


Operating Conditions: slow   Library: slow
Wire Load Model Mode: top

Design        Wire Load Model            Library
------------------------------------------------
SW                    tsmc13_wl10       slow


Global Operating Voltage = 1.08
Power-specific unit information :
    Voltage Units = 1V
    Capacitance Units = 1.000000pf
    Time Units = 1ns
    Dynamic Power Units = 1mW    (derived from V,C,T units)
    Leakage Power Units = 1pW


  Cell Internal Power  =   4.2368 mW   (87%)
  Net Switching Power  = 620.1718 uW   (13%)
                         ---------
Total Dynamic Power    =   4.8570 mW  (100%)

Cell Leakage Power     =  31.9548 uW


                 Internal         Switching           Leakage            Total
Power Group      Power            Power               Power              Power   (   %    )  Attrs
--------------------------------------------------------------------------------------------------
io_pad             0.0000            0.0000            0.0000            0.0000  (   0.00%)
memory             0.0000            0.0000            0.0000            0.0000  (   0.00%)
black_box          0.0000            0.0000            0.0000            0.0000  (   0.00%)
clock_network      0.0000            0.0000            0.0000            0.0000  (   0.00%)
register           4.0705        7.9914e-02        1.5139e+07            4.1655  (  85.20%)
sequential         0.0000            0.0000            0.0000            0.0000  (   0.00%)
combinational      0.1664            0.5403        1.6816e+07            0.7234  (  14.80%)
--------------------------------------------------------------------------------------------------
Total              4.2368 mW         0.6202 mW     3.1955e+07 pW         4.8890 mW
```

APR NanoRoute Innovus Result (截圖)



APR Simulation Result (截圖)



Report

(If you don’t pass APR, the score will be determined by the completeness of the report below)