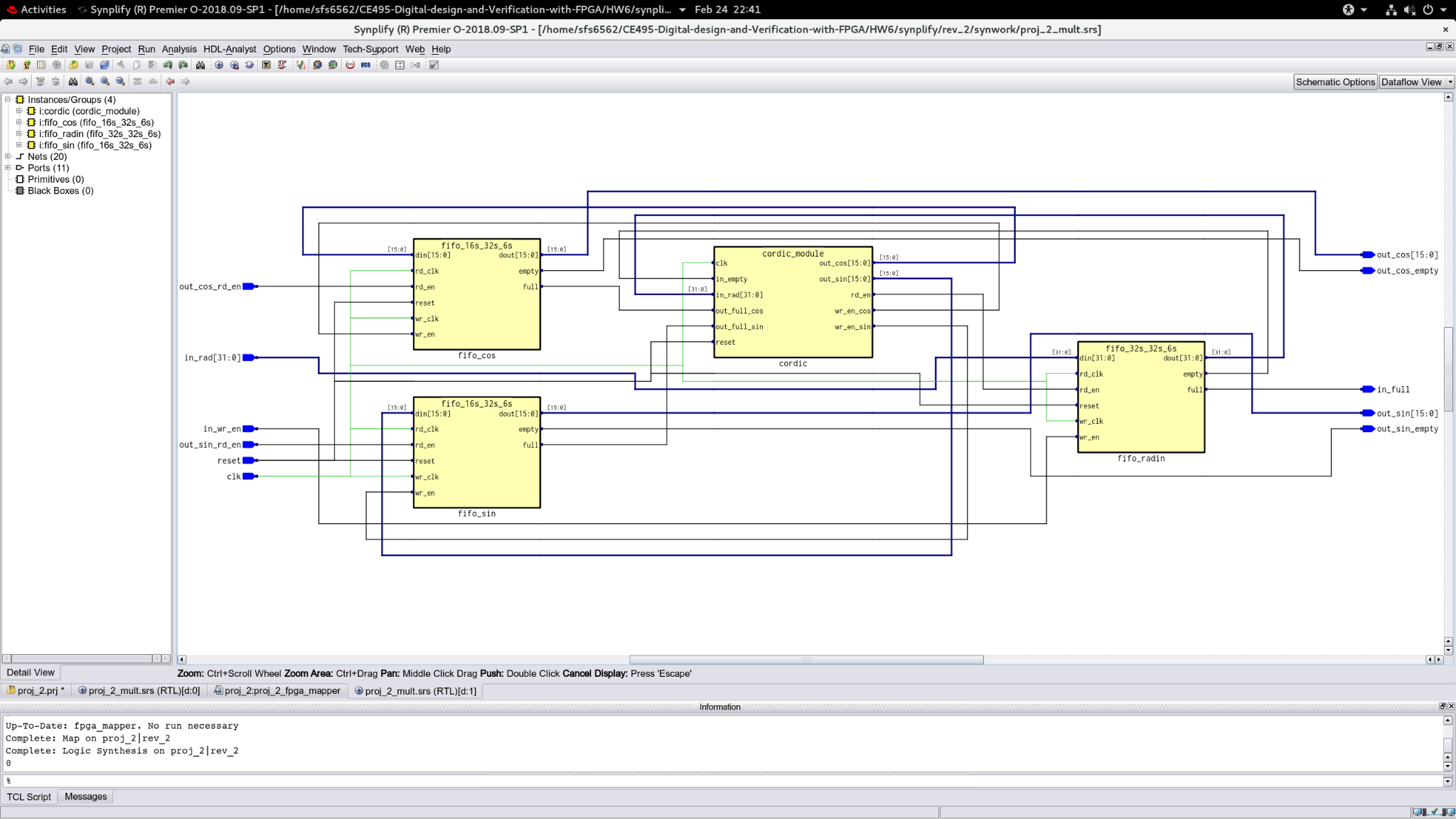
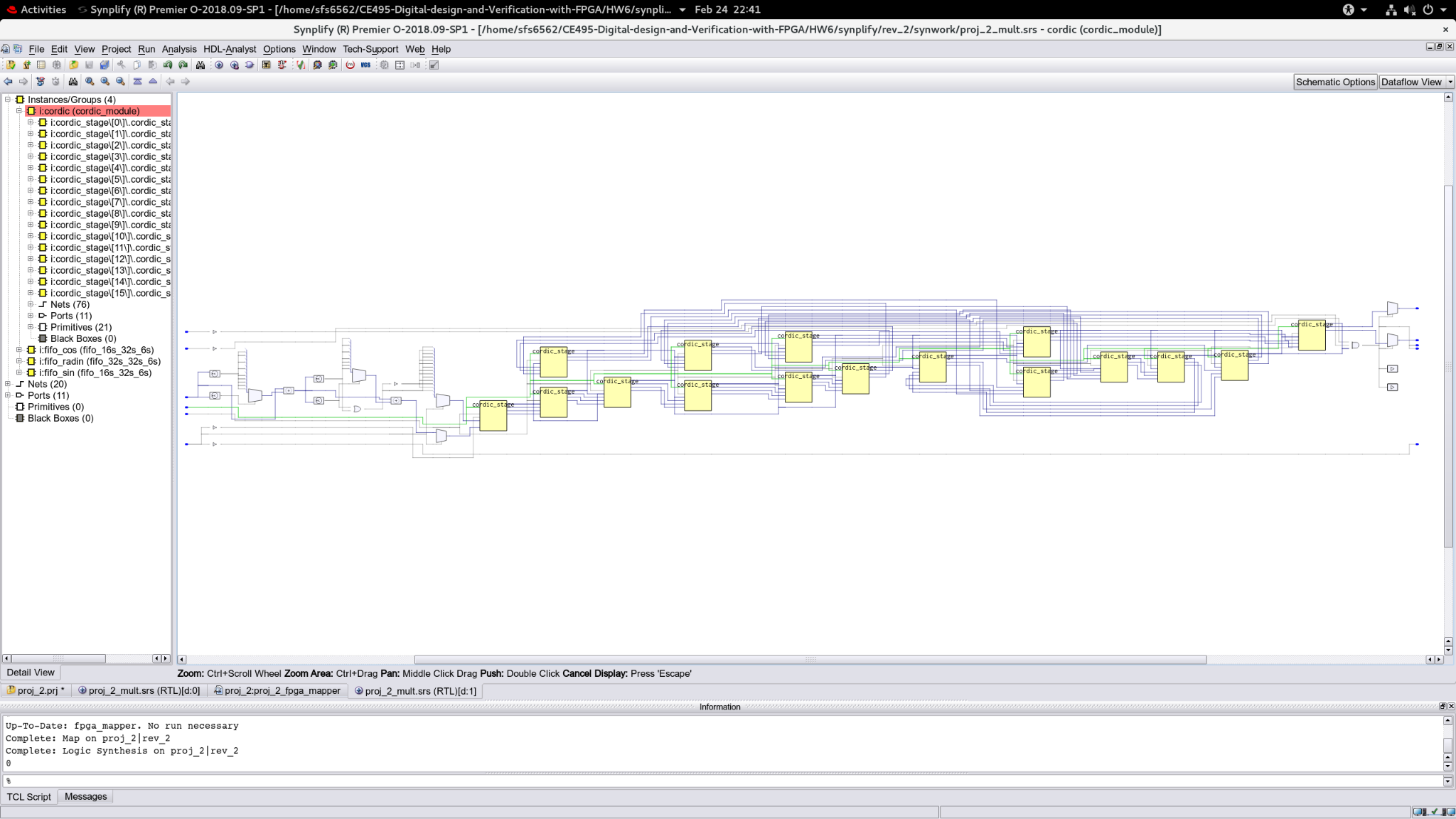
Clock period: 10ns

Total time: 7625ns

Sampling rate: 1\*10^9/7625\*721=94557377.049



Whole structure of design



structure of 16 stages pipeline

##### START OF AREA REPORT #####[

Design view:work.cordic\_top(verilog)

Selecting part EP4CE6E22A7

@N:FA174 : | The following device usage report estimates place and route data. Please look at the place and route report for final resource usage.

Total combinational functions 1726 of 6272 (27%)

Logic element usage by number of inputs

4 input functions 93

3 input functions 23

[=2 input functions 1610

Logic elements by mode

normal mode 393

arithmetic mode 1333

Total registers 750 of 6272 (11%)

I/O pins 72 of 180 (40%), total I/O based on largest package of this part.

Number of I/O registers

Input DDRs :0

Output DDRs :0

DSP Blocks: 0 (0 nine-bit DSP elements).

DSP Utilization: 0.00% of available 15 blocks (30 nine-bit).

ShiftTap: 0 (0 registers)

Ena: 0

Sload: 0

Sclr: 0

Total ESB: 2048 bits

##### END OF AREA REPORT #####]

##### START OF TIMING REPORT #####[

# Timing Report written on Sat Feb 24 21:07:07 2024

#

Top view: cordic\_top

Requested Frequency: 70.4 MHz

Wire load mode: top

Paths requested: 5

Constraint File(s):

@N:MT320 : | This timing report is an estimate of place and route data. For final timing results, use the FPGA vendor place and route report.

@N:MT322 : | Clock constraints include only register-to-register paths associated with each individual clock.

Performance Summary

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Worst slack in design: -2.507

Requested Estimated Requested Estimated Clock Clock

Starting Clock Frequency Frequency Period Period Slack Type Group

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

cordic\_top|clk 70.4 MHz 59.8 MHz 14.205 16.712 -2.507 inferred Autoconstr\_clkgroup\_0

========================================================================================================================

Clock Relationships

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Clocks | rise to rise | fall to fall | rise to fall | fall to rise

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

Starting Ending | constraint slack | constraint slack | constraint slack | constraint slack

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

cordic\_top|clk cordic\_top|clk | 14.205 -2.507 | No paths - | No paths - | No paths -

=======================================================================================================================

Note: 'No paths' indicates there are no paths in the design for that pair of clock edges.

'Diff grp' indicates that paths exist but the starting clock and ending clock are in different clock groups.

Interface Information

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

No IO constraint found

====================================

Detailed Report for Clock: cordic\_top|clk

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Starting Points with Worst Slack

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Starting Arrival

Instance Reference Type Pin Net Time Slack

Clock

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fifo\_radin.fifo\_buf cordic\_top|clk synplicity\_altsyncram\_RAM\_R\_W q\_b[5] dout\_cordicin\_5 4.154 -2.507

fifo\_radin.fifo\_buf cordic\_top|clk synplicity\_altsyncram\_RAM\_R\_W q\_b[4] dout\_cordicin\_4 4.154 -2.501

fifo\_radin.fifo\_buf cordic\_top|clk synplicity\_altsyncram\_RAM\_R\_W q\_b[6] dout\_cordicin\_6 4.154 -2.493

fifo\_radin.fifo\_buf cordic\_top|clk synplicity\_altsyncram\_RAM\_R\_W q\_b[20] dout\_cordicin\_20 4.154 -2.328

fifo\_radin.fifo\_buf cordic\_top|clk synplicity\_altsyncram\_RAM\_R\_W q\_b[17] dout\_cordicin\_17 4.154 -2.322

fifo\_radin.fifo\_buf cordic\_top|clk synplicity\_altsyncram\_RAM\_R\_W q\_b[19] dout\_cordicin\_19 4.154 -2.322

fifo\_radin.fifo\_buf cordic\_top|clk synplicity\_altsyncram\_RAM\_R\_W q\_b[16] dout\_cordicin\_16 4.154 -2.316

fifo\_radin.fifo\_buf cordic\_top|clk synplicity\_altsyncram\_RAM\_R\_W q\_b[21] dout\_cordicin\_21 4.154 -2.314

fifo\_radin.fifo\_buf cordic\_top|clk synplicity\_altsyncram\_RAM\_R\_W q\_b[28] dout\_cordicin\_28 4.154 -2.314

fifo\_radin.fifo\_buf cordic\_top|clk synplicity\_altsyncram\_RAM\_R\_W q\_b[18] dout\_cordicin\_18 4.154 -2.308

================================================================================================================================

Ending Points with Worst Slack

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Starting Required

Instance Reference Type Pin Net Time Slack

Clock

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cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[15] cordic\_top|clk dffeas d tz\_add13 14.732 -2.507

cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[14] cordic\_top|clk dffeas d tz\_add12 14.732 -2.430

cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[13] cordic\_top|clk dffeas d tz\_add11 14.732 -2.369

cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[12] cordic\_top|clk dffeas d tz\_add10 14.732 -2.303

cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[11] cordic\_top|clk dffeas d tz\_add9 14.732 -2.237

cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[10] cordic\_top|clk dffeas d tz\_add8 14.732 -2.171

cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[9] cordic\_top|clk dffeas d tz\_add7 14.732 -2.105

cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[8] cordic\_top|clk dffeas d tz\_add6 14.732 -2.039

cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[7] cordic\_top|clk dffeas d tz\_add5 14.732 -1.973

cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[6] cordic\_top|clk dffeas d tz\_add4 14.732 -1.907

===========================================================================================================================

Worst Path Information

View Worst Path in Analyst

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Path information for path number 1:

Requested Period: 14.205

- Setup time: 0.086

+ Intrinsic clock delay: 0.613

+ Clock delay at ending point: 0.000 (ideal)

= Required time: 14.732

- Propagation time: 17.239

- Clock delay at starting point: 0.000 (ideal)

= Slack (critical) : -2.507

Number of logic level(s): 67

Starting point: fifo\_radin.fifo\_buf / q\_b[5]

Ending point: cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[15] / d

The start point is clocked by cordic\_top|clk [rising] on pin clock0

The end point is clocked by cordic\_top|clk [rising] on pin clk

Instance / Net Pin Pin Arrival No. of

Name Type Name Dir Delay Time Fan Out(s)

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

fifo\_radin.fifo\_buf synplicity\_altsyncram\_RAM\_R\_W q\_b[5] Out 4.154 4.154 -

dout\_cordicin\_5 Net - - 0.340 - 3

cordic.r\_imm13lto10\_d\_2 cycloneive\_lcell\_comb datab In - 4.494 -

cordic.r\_imm13lto10\_d\_2 cycloneive\_lcell\_comb combout Out 0.443 4.937 -

r\_imm13lto10\_d\_2 Net - - 0.326 - 1

cordic.r\_imm13lto10\_1\_a cycloneive\_lcell\_comb datad In - 5.263 -

cordic.r\_imm13lto10\_1\_a cycloneive\_lcell\_comb combout Out 0.155 5.418 -

r\_imm13lto10\_1\_a Net - - 0.326 - 1

cordic.r\_imm13lto10\_1 cycloneive\_lcell\_comb datad In - 5.744 -

cordic.r\_imm13lto10\_1 cycloneive\_lcell\_comb combout Out 0.155 5.899 -

r\_imm13lto10\_1 Net - - 0.333 - 2

cordic.un1\_in\_rad\_add0\_RNO\_0 cycloneive\_lcell\_comb datac In - 6.232 -

cordic.un1\_in\_rad\_add0\_RNO\_0 cycloneive\_lcell\_comb combout Out 0.429 6.661 -

un1\_m2\_0\_a2 Net - - 0.326 - 1

cordic.un1\_in\_rad\_add0\_RNO cycloneive\_lcell\_comb datad In - 6.986 -

cordic.un1\_in\_rad\_add0\_RNO cycloneive\_lcell\_comb combout Out 0.155 7.141 -

un1\_m2 Net - - 0.326 - 1

cordic.un1\_in\_rad\_add0 cycloneive\_lcell\_comb datab In - 7.467 -

cordic.un1\_in\_rad\_add0 cycloneive\_lcell\_comb cout Out 0.509 7.976 -

un1\_in\_rad\_carry\_0 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add1 cycloneive\_lcell\_comb cin In - 7.976 -

cordic.un1\_in\_rad\_add1 cycloneive\_lcell\_comb cout Out 0.066 8.042 -

un1\_in\_rad\_carry\_1 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add2 cycloneive\_lcell\_comb cin In - 8.042 -

cordic.un1\_in\_rad\_add2 cycloneive\_lcell\_comb cout Out 0.066 8.108 -

un1\_in\_rad\_carry\_2 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add3 cycloneive\_lcell\_comb cin In - 8.108 -

cordic.un1\_in\_rad\_add3 cycloneive\_lcell\_comb cout Out 0.066 8.174 -

un1\_in\_rad\_carry\_3 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add4 cycloneive\_lcell\_comb cin In - 8.174 -

cordic.un1\_in\_rad\_add4 cycloneive\_lcell\_comb cout Out 0.066 8.240 -

un1\_in\_rad\_carry\_4 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add5 cycloneive\_lcell\_comb cin In - 8.240 -

cordic.un1\_in\_rad\_add5 cycloneive\_lcell\_comb cout Out 0.066 8.306 -

un1\_in\_rad\_carry\_5 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add6 cycloneive\_lcell\_comb cin In - 8.306 -

cordic.un1\_in\_rad\_add6 cycloneive\_lcell\_comb cout Out 0.066 8.372 -

un1\_in\_rad\_carry\_6 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add7 cycloneive\_lcell\_comb cin In - 8.372 -

cordic.un1\_in\_rad\_add7 cycloneive\_lcell\_comb cout Out 0.066 8.438 -

un1\_in\_rad\_carry\_7 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add8 cycloneive\_lcell\_comb cin In - 8.438 -

cordic.un1\_in\_rad\_add8 cycloneive\_lcell\_comb cout Out 0.066 8.504 -

un1\_in\_rad\_carry\_8 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add9 cycloneive\_lcell\_comb cin In - 8.504 -

cordic.un1\_in\_rad\_add9 cycloneive\_lcell\_comb cout Out 0.066 8.570 -

un1\_in\_rad\_carry\_9 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add10 cycloneive\_lcell\_comb cin In - 8.570 -

cordic.un1\_in\_rad\_add10 cycloneive\_lcell\_comb cout Out 0.066 8.636 -

un1\_in\_rad\_carry\_10 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add11 cycloneive\_lcell\_comb cin In - 8.636 -

cordic.un1\_in\_rad\_add11 cycloneive\_lcell\_comb cout Out 0.066 8.702 -

un1\_in\_rad\_carry\_11 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add12 cycloneive\_lcell\_comb cin In - 8.702 -

cordic.un1\_in\_rad\_add12 cycloneive\_lcell\_comb cout Out 0.066 8.768 -

un1\_in\_rad\_carry\_12 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add13 cycloneive\_lcell\_comb cin In - 8.768 -

cordic.un1\_in\_rad\_add13 cycloneive\_lcell\_comb cout Out 0.066 8.834 -

un1\_in\_rad\_carry\_13 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add14 cycloneive\_lcell\_comb cin In - 8.834 -

cordic.un1\_in\_rad\_add14 cycloneive\_lcell\_comb cout Out 0.066 8.900 -

un1\_in\_rad\_carry\_14 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add15 cycloneive\_lcell\_comb cin In - 8.900 -

cordic.un1\_in\_rad\_add15 cycloneive\_lcell\_comb cout Out 0.066 8.966 -

un1\_in\_rad\_carry\_15 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add16 cycloneive\_lcell\_comb cin In - 8.966 -

cordic.un1\_in\_rad\_add16 cycloneive\_lcell\_comb cout Out 0.066 9.032 -

un1\_in\_rad\_carry\_16 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add17 cycloneive\_lcell\_comb cin In - 9.032 -

cordic.un1\_in\_rad\_add17 cycloneive\_lcell\_comb cout Out 0.066 9.098 -

un1\_in\_rad\_carry\_17 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add18 cycloneive\_lcell\_comb cin In - 9.098 -

cordic.un1\_in\_rad\_add18 cycloneive\_lcell\_comb cout Out 0.066 9.164 -

un1\_in\_rad\_carry\_18 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add19 cycloneive\_lcell\_comb cin In - 9.164 -

cordic.un1\_in\_rad\_add19 cycloneive\_lcell\_comb cout Out 0.066 9.230 -

un1\_in\_rad\_carry\_19 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add20 cycloneive\_lcell\_comb cin In - 9.230 -

cordic.un1\_in\_rad\_add20 cycloneive\_lcell\_comb cout Out 0.066 9.296 -

un1\_in\_rad\_carry\_20 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add21 cycloneive\_lcell\_comb cin In - 9.296 -

cordic.un1\_in\_rad\_add21 cycloneive\_lcell\_comb cout Out 0.066 9.362 -

un1\_in\_rad\_carry\_21 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add22 cycloneive\_lcell\_comb cin In - 9.362 -

cordic.un1\_in\_rad\_add22 cycloneive\_lcell\_comb cout Out 0.066 9.428 -

un1\_in\_rad\_carry\_22 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add23 cycloneive\_lcell\_comb cin In - 9.428 -

cordic.un1\_in\_rad\_add23 cycloneive\_lcell\_comb cout Out 0.066 9.494 -

un1\_in\_rad\_carry\_23 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add24 cycloneive\_lcell\_comb cin In - 9.494 -

cordic.un1\_in\_rad\_add24 cycloneive\_lcell\_comb cout Out 0.066 9.560 -

un1\_in\_rad\_carry\_24 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add25 cycloneive\_lcell\_comb cin In - 9.560 -

cordic.un1\_in\_rad\_add25 cycloneive\_lcell\_comb cout Out 0.066 9.626 -

un1\_in\_rad\_carry\_25 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add26 cycloneive\_lcell\_comb cin In - 9.626 -

cordic.un1\_in\_rad\_add26 cycloneive\_lcell\_comb combout Out 0.000 9.626 -

un1\_in\_rad\_add26 Net - - 0.432 - 2

cordic.z\_inter\[0\]3lto30\_6 cycloneive\_lcell\_comb datab In - 10.057 -

cordic.z\_inter\[0\]3lto30\_6 cycloneive\_lcell\_comb combout Out 0.443 10.500 -

z\_inter\[0\]3lto30\_6 Net - - 0.326 - 1

cordic.z\_inter\[0\]3lto30\_11 cycloneive\_lcell\_comb datad In - 10.826 -

cordic.z\_inter\[0\]3lto30\_11 cycloneive\_lcell\_comb combout Out 0.155 10.981 -

z\_inter\[0\]3lto30\_11 Net - - 0.326 - 1

cordic.z\_inter\[0\]3lto30 cycloneive\_lcell\_comb datac In - 11.307 -

cordic.z\_inter\[0\]3lto30 cycloneive\_lcell\_comb combout Out 0.429 11.736 -

z\_inter\[0\]3lto30\_1z Net - - 0.348 - 4

cordic.z\_inter\[0\]3lto30\_RNI6KQ31 cycloneive\_lcell\_comb datac In - 12.083 -

cordic.z\_inter\[0\]3lto30\_RNI6KQ31 cycloneive\_lcell\_comb combout Out 0.429 12.512 -

un1\_in\_rad\_1\_b\_0[11] Net - - 0.385 - 7

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add1 cycloneive\_lcell\_comb datab In - 12.897 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add1 cycloneive\_lcell\_comb cout Out 0.509 13.406 -

tz\_6\_carry\_1 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add2 cycloneive\_lcell\_comb cin In - 13.406 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add2 cycloneive\_lcell\_comb cout Out 0.066 13.472 -

tz\_6\_carry\_2 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add3 cycloneive\_lcell\_comb cin In - 13.472 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add3 cycloneive\_lcell\_comb cout Out 0.066 13.538 -

tz\_6\_carry\_3 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add4 cycloneive\_lcell\_comb cin In - 13.538 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add4 cycloneive\_lcell\_comb cout Out 0.066 13.604 -

tz\_6\_carry\_4 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add5 cycloneive\_lcell\_comb cin In - 13.604 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add5 cycloneive\_lcell\_comb cout Out 0.066 13.670 -

tz\_6\_carry\_5 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add6 cycloneive\_lcell\_comb cin In - 13.670 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add6 cycloneive\_lcell\_comb cout Out 0.066 13.736 -

tz\_6\_carry\_6 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add7 cycloneive\_lcell\_comb cin In - 13.736 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add7 cycloneive\_lcell\_comb cout Out 0.066 13.802 -

tz\_6\_carry\_7 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add8 cycloneive\_lcell\_comb cin In - 13.802 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add8 cycloneive\_lcell\_comb cout Out 0.066 13.868 -

tz\_6\_carry\_8 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add9 cycloneive\_lcell\_comb cin In - 13.868 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add9 cycloneive\_lcell\_comb cout Out 0.066 13.934 -

tz\_6\_carry\_9 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add10 cycloneive\_lcell\_comb cin In - 13.934 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add10 cycloneive\_lcell\_comb cout Out 0.066 14.000 -

tz\_6\_carry\_10 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add11 cycloneive\_lcell\_comb cin In - 14.000 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add11 cycloneive\_lcell\_comb cout Out 0.066 14.066 -

tz\_6\_carry\_11 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add12 cycloneive\_lcell\_comb cin In - 14.066 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add12 cycloneive\_lcell\_comb cout Out 0.066 14.132 -

tz\_6\_carry\_12 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add13 cycloneive\_lcell\_comb cin In - 14.132 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add13 cycloneive\_lcell\_comb cout Out 0.066 14.198 -

tz\_6\_carry\_13 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add14 cycloneive\_lcell\_comb cin In - 14.198 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add14 cycloneive\_lcell\_comb cout Out 0.066 14.264 -

tz\_6\_carry\_14 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add15 cycloneive\_lcell\_comb cin In - 14.264 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add15 cycloneive\_lcell\_comb combout Out 0.000 14.264 -

tz\_6\_add15 Net - - 0.513 - 9

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add1 cycloneive\_lcell\_comb datab In - 14.777 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add1 cycloneive\_lcell\_comb cout Out 0.509 15.286 -

tz\_0\_carry\_1 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add2 cycloneive\_lcell\_comb cin In - 15.286 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add2 cycloneive\_lcell\_comb cout Out 0.066 15.352 -

tz\_0\_carry\_2 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add3 cycloneive\_lcell\_comb cin In - 15.352 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add3 cycloneive\_lcell\_comb cout Out 0.066 15.418 -

tz\_0\_carry\_3 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add4 cycloneive\_lcell\_comb cin In - 15.418 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add4 cycloneive\_lcell\_comb cout Out 0.066 15.484 -

tz\_0\_carry\_4 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add5 cycloneive\_lcell\_comb cin In - 15.484 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add5 cycloneive\_lcell\_comb cout Out 0.066 15.550 -

tz\_0\_carry\_5 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add6 cycloneive\_lcell\_comb cin In - 15.550 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add6 cycloneive\_lcell\_comb cout Out 0.066 15.616 -

tz\_0\_carry\_6 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add7 cycloneive\_lcell\_comb cin In - 15.616 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add7 cycloneive\_lcell\_comb cout Out 0.066 15.682 -

tz\_0\_carry\_7 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add8 cycloneive\_lcell\_comb cin In - 15.682 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add8 cycloneive\_lcell\_comb cout Out 0.066 15.748 -

tz\_0\_carry\_8 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add9 cycloneive\_lcell\_comb cin In - 15.748 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add9 cycloneive\_lcell\_comb cout Out 0.066 15.814 -

tz\_0\_carry\_9 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add10 cycloneive\_lcell\_comb cin In - 15.814 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add10 cycloneive\_lcell\_comb cout Out 0.066 15.880 -

tz\_0\_carry\_10 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add11 cycloneive\_lcell\_comb cin In - 15.880 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add11 cycloneive\_lcell\_comb cout Out 0.066 15.946 -

tz\_0\_carry\_11 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add12 cycloneive\_lcell\_comb cin In - 15.946 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add12 cycloneive\_lcell\_comb cout Out 0.066 16.012 -

tz\_0\_carry\_12 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add13 cycloneive\_lcell\_comb cin In - 16.012 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add13 cycloneive\_lcell\_comb cout Out 0.066 16.078 -

tz\_0\_carry\_13 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add14 cycloneive\_lcell\_comb cin In - 16.078 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add14 cycloneive\_lcell\_comb cout Out 0.066 16.144 -

tz\_0\_add14\_cout Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add14\_term cycloneive\_lcell\_comb cin In - 16.144 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add14\_term cycloneive\_lcell\_comb combout Out 0.000 16.144 -

tz\_0\_carry\_14 Net - - 0.652 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add13 cycloneive\_lcell\_comb datab In - 16.796 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add13 cycloneive\_lcell\_comb combout Out 0.443 17.239 -

tz\_add13 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[15] dffeas d In - 17.239 -

=================================================================================================================================================

Total path delay (propagation time + setup - ICD at endpoint) of 16.712 is 11.756(70.3%) logic and 4.956(29.7%) route.

Path delay compensated for clock skew. Clock skew is added to clock-to-out value, and is subtracted from setup time value

Path information for path number 2:

Requested Period: 14.205

- Setup time: 0.086

+ Intrinsic clock delay: 0.613

+ Clock delay at ending point: 0.000 (ideal)

= Required time: 14.732

- Propagation time: 17.233

- Clock delay at starting point: 0.000 (ideal)

= Slack (non-critical) : -2.501

Number of logic level(s): 67

Starting point: fifo\_radin.fifo\_buf / q\_b[4]

Ending point: cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[15] / d

The start point is clocked by cordic\_top|clk [rising] on pin clock0

The end point is clocked by cordic\_top|clk [rising] on pin clk

Instance / Net Pin Pin Arrival No. of

Name Type Name Dir Delay Time Fan Out(s)

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fifo\_radin.fifo\_buf synplicity\_altsyncram\_RAM\_R\_W q\_b[4] Out 4.154 4.154 -

dout\_cordicin\_4 Net - - 0.340 - 3

cordic.r\_imm13lto10\_d\_2 cycloneive\_lcell\_comb dataa In - 4.494 -

cordic.r\_imm13lto10\_d\_2 cycloneive\_lcell\_comb combout Out 0.437 4.931 -

r\_imm13lto10\_d\_2 Net - - 0.326 - 1

cordic.r\_imm13lto10\_1\_a cycloneive\_lcell\_comb datad In - 5.257 -

cordic.r\_imm13lto10\_1\_a cycloneive\_lcell\_comb combout Out 0.155 5.412 -

r\_imm13lto10\_1\_a Net - - 0.326 - 1

cordic.r\_imm13lto10\_1 cycloneive\_lcell\_comb datad In - 5.738 -

cordic.r\_imm13lto10\_1 cycloneive\_lcell\_comb combout Out 0.155 5.893 -

r\_imm13lto10\_1 Net - - 0.333 - 2

cordic.un1\_in\_rad\_add0\_RNO\_0 cycloneive\_lcell\_comb datac In - 6.226 -

cordic.un1\_in\_rad\_add0\_RNO\_0 cycloneive\_lcell\_comb combout Out 0.429 6.655 -

un1\_m2\_0\_a2 Net - - 0.326 - 1

cordic.un1\_in\_rad\_add0\_RNO cycloneive\_lcell\_comb datad In - 6.980 -

cordic.un1\_in\_rad\_add0\_RNO cycloneive\_lcell\_comb combout Out 0.155 7.135 -

un1\_m2 Net - - 0.326 - 1

cordic.un1\_in\_rad\_add0 cycloneive\_lcell\_comb datab In - 7.461 -

cordic.un1\_in\_rad\_add0 cycloneive\_lcell\_comb cout Out 0.509 7.970 -

un1\_in\_rad\_carry\_0 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add1 cycloneive\_lcell\_comb cin In - 7.970 -

cordic.un1\_in\_rad\_add1 cycloneive\_lcell\_comb cout Out 0.066 8.036 -

un1\_in\_rad\_carry\_1 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add2 cycloneive\_lcell\_comb cin In - 8.036 -

cordic.un1\_in\_rad\_add2 cycloneive\_lcell\_comb cout Out 0.066 8.102 -

un1\_in\_rad\_carry\_2 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add3 cycloneive\_lcell\_comb cin In - 8.102 -

cordic.un1\_in\_rad\_add3 cycloneive\_lcell\_comb cout Out 0.066 8.168 -

un1\_in\_rad\_carry\_3 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add4 cycloneive\_lcell\_comb cin In - 8.168 -

cordic.un1\_in\_rad\_add4 cycloneive\_lcell\_comb cout Out 0.066 8.234 -

un1\_in\_rad\_carry\_4 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add5 cycloneive\_lcell\_comb cin In - 8.234 -

cordic.un1\_in\_rad\_add5 cycloneive\_lcell\_comb cout Out 0.066 8.300 -

un1\_in\_rad\_carry\_5 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add6 cycloneive\_lcell\_comb cin In - 8.300 -

cordic.un1\_in\_rad\_add6 cycloneive\_lcell\_comb cout Out 0.066 8.366 -

un1\_in\_rad\_carry\_6 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add7 cycloneive\_lcell\_comb cin In - 8.366 -

cordic.un1\_in\_rad\_add7 cycloneive\_lcell\_comb cout Out 0.066 8.432 -

un1\_in\_rad\_carry\_7 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add8 cycloneive\_lcell\_comb cin In - 8.432 -

cordic.un1\_in\_rad\_add8 cycloneive\_lcell\_comb cout Out 0.066 8.498 -

un1\_in\_rad\_carry\_8 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add9 cycloneive\_lcell\_comb cin In - 8.498 -

cordic.un1\_in\_rad\_add9 cycloneive\_lcell\_comb cout Out 0.066 8.564 -

un1\_in\_rad\_carry\_9 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add10 cycloneive\_lcell\_comb cin In - 8.564 -

cordic.un1\_in\_rad\_add10 cycloneive\_lcell\_comb cout Out 0.066 8.630 -

un1\_in\_rad\_carry\_10 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add11 cycloneive\_lcell\_comb cin In - 8.630 -

cordic.un1\_in\_rad\_add11 cycloneive\_lcell\_comb cout Out 0.066 8.696 -

un1\_in\_rad\_carry\_11 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add12 cycloneive\_lcell\_comb cin In - 8.696 -

cordic.un1\_in\_rad\_add12 cycloneive\_lcell\_comb cout Out 0.066 8.762 -

un1\_in\_rad\_carry\_12 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add13 cycloneive\_lcell\_comb cin In - 8.762 -

cordic.un1\_in\_rad\_add13 cycloneive\_lcell\_comb cout Out 0.066 8.828 -

un1\_in\_rad\_carry\_13 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add14 cycloneive\_lcell\_comb cin In - 8.828 -

cordic.un1\_in\_rad\_add14 cycloneive\_lcell\_comb cout Out 0.066 8.894 -

un1\_in\_rad\_carry\_14 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add15 cycloneive\_lcell\_comb cin In - 8.894 -

cordic.un1\_in\_rad\_add15 cycloneive\_lcell\_comb cout Out 0.066 8.960 -

un1\_in\_rad\_carry\_15 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add16 cycloneive\_lcell\_comb cin In - 8.960 -

cordic.un1\_in\_rad\_add16 cycloneive\_lcell\_comb cout Out 0.066 9.026 -

un1\_in\_rad\_carry\_16 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add17 cycloneive\_lcell\_comb cin In - 9.026 -

cordic.un1\_in\_rad\_add17 cycloneive\_lcell\_comb cout Out 0.066 9.092 -

un1\_in\_rad\_carry\_17 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add18 cycloneive\_lcell\_comb cin In - 9.092 -

cordic.un1\_in\_rad\_add18 cycloneive\_lcell\_comb cout Out 0.066 9.158 -

un1\_in\_rad\_carry\_18 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add19 cycloneive\_lcell\_comb cin In - 9.158 -

cordic.un1\_in\_rad\_add19 cycloneive\_lcell\_comb cout Out 0.066 9.224 -

un1\_in\_rad\_carry\_19 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add20 cycloneive\_lcell\_comb cin In - 9.224 -

cordic.un1\_in\_rad\_add20 cycloneive\_lcell\_comb cout Out 0.066 9.290 -

un1\_in\_rad\_carry\_20 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add21 cycloneive\_lcell\_comb cin In - 9.290 -

cordic.un1\_in\_rad\_add21 cycloneive\_lcell\_comb cout Out 0.066 9.356 -

un1\_in\_rad\_carry\_21 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add22 cycloneive\_lcell\_comb cin In - 9.356 -

cordic.un1\_in\_rad\_add22 cycloneive\_lcell\_comb cout Out 0.066 9.422 -

un1\_in\_rad\_carry\_22 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add23 cycloneive\_lcell\_comb cin In - 9.422 -

cordic.un1\_in\_rad\_add23 cycloneive\_lcell\_comb cout Out 0.066 9.488 -

un1\_in\_rad\_carry\_23 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add24 cycloneive\_lcell\_comb cin In - 9.488 -

cordic.un1\_in\_rad\_add24 cycloneive\_lcell\_comb cout Out 0.066 9.554 -

un1\_in\_rad\_carry\_24 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add25 cycloneive\_lcell\_comb cin In - 9.554 -

cordic.un1\_in\_rad\_add25 cycloneive\_lcell\_comb cout Out 0.066 9.620 -

un1\_in\_rad\_carry\_25 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add26 cycloneive\_lcell\_comb cin In - 9.620 -

cordic.un1\_in\_rad\_add26 cycloneive\_lcell\_comb combout Out 0.000 9.620 -

un1\_in\_rad\_add26 Net - - 0.432 - 2

cordic.z\_inter\[0\]3lto30\_6 cycloneive\_lcell\_comb datab In - 10.051 -

cordic.z\_inter\[0\]3lto30\_6 cycloneive\_lcell\_comb combout Out 0.443 10.494 -

z\_inter\[0\]3lto30\_6 Net - - 0.326 - 1

cordic.z\_inter\[0\]3lto30\_11 cycloneive\_lcell\_comb datad In - 10.820 -

cordic.z\_inter\[0\]3lto30\_11 cycloneive\_lcell\_comb combout Out 0.155 10.975 -

z\_inter\[0\]3lto30\_11 Net - - 0.326 - 1

cordic.z\_inter\[0\]3lto30 cycloneive\_lcell\_comb datac In - 11.301 -

cordic.z\_inter\[0\]3lto30 cycloneive\_lcell\_comb combout Out 0.429 11.730 -

z\_inter\[0\]3lto30\_1z Net - - 0.348 - 4

cordic.z\_inter\[0\]3lto30\_RNI6KQ31 cycloneive\_lcell\_comb datac In - 12.077 -

cordic.z\_inter\[0\]3lto30\_RNI6KQ31 cycloneive\_lcell\_comb combout Out 0.429 12.506 -

un1\_in\_rad\_1\_b\_0[11] Net - - 0.385 - 7

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add1 cycloneive\_lcell\_comb datab In - 12.891 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add1 cycloneive\_lcell\_comb cout Out 0.509 13.400 -

tz\_6\_carry\_1 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add2 cycloneive\_lcell\_comb cin In - 13.400 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add2 cycloneive\_lcell\_comb cout Out 0.066 13.466 -

tz\_6\_carry\_2 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add3 cycloneive\_lcell\_comb cin In - 13.466 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add3 cycloneive\_lcell\_comb cout Out 0.066 13.532 -

tz\_6\_carry\_3 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add4 cycloneive\_lcell\_comb cin In - 13.532 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add4 cycloneive\_lcell\_comb cout Out 0.066 13.598 -

tz\_6\_carry\_4 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add5 cycloneive\_lcell\_comb cin In - 13.598 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add5 cycloneive\_lcell\_comb cout Out 0.066 13.664 -

tz\_6\_carry\_5 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add6 cycloneive\_lcell\_comb cin In - 13.664 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add6 cycloneive\_lcell\_comb cout Out 0.066 13.730 -

tz\_6\_carry\_6 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add7 cycloneive\_lcell\_comb cin In - 13.730 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add7 cycloneive\_lcell\_comb cout Out 0.066 13.796 -

tz\_6\_carry\_7 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add8 cycloneive\_lcell\_comb cin In - 13.796 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add8 cycloneive\_lcell\_comb cout Out 0.066 13.862 -

tz\_6\_carry\_8 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add9 cycloneive\_lcell\_comb cin In - 13.862 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add9 cycloneive\_lcell\_comb cout Out 0.066 13.928 -

tz\_6\_carry\_9 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add10 cycloneive\_lcell\_comb cin In - 13.928 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add10 cycloneive\_lcell\_comb cout Out 0.066 13.994 -

tz\_6\_carry\_10 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add11 cycloneive\_lcell\_comb cin In - 13.994 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add11 cycloneive\_lcell\_comb cout Out 0.066 14.060 -

tz\_6\_carry\_11 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add12 cycloneive\_lcell\_comb cin In - 14.060 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add12 cycloneive\_lcell\_comb cout Out 0.066 14.126 -

tz\_6\_carry\_12 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add13 cycloneive\_lcell\_comb cin In - 14.126 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add13 cycloneive\_lcell\_comb cout Out 0.066 14.192 -

tz\_6\_carry\_13 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add14 cycloneive\_lcell\_comb cin In - 14.192 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add14 cycloneive\_lcell\_comb cout Out 0.066 14.258 -

tz\_6\_carry\_14 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add15 cycloneive\_lcell\_comb cin In - 14.258 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add15 cycloneive\_lcell\_comb combout Out 0.000 14.258 -

tz\_6\_add15 Net - - 0.513 - 9

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add1 cycloneive\_lcell\_comb datab In - 14.771 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add1 cycloneive\_lcell\_comb cout Out 0.509 15.280 -

tz\_0\_carry\_1 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add2 cycloneive\_lcell\_comb cin In - 15.280 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add2 cycloneive\_lcell\_comb cout Out 0.066 15.346 -

tz\_0\_carry\_2 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add3 cycloneive\_lcell\_comb cin In - 15.346 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add3 cycloneive\_lcell\_comb cout Out 0.066 15.412 -

tz\_0\_carry\_3 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add4 cycloneive\_lcell\_comb cin In - 15.412 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add4 cycloneive\_lcell\_comb cout Out 0.066 15.478 -

tz\_0\_carry\_4 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add5 cycloneive\_lcell\_comb cin In - 15.478 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add5 cycloneive\_lcell\_comb cout Out 0.066 15.544 -

tz\_0\_carry\_5 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add6 cycloneive\_lcell\_comb cin In - 15.544 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add6 cycloneive\_lcell\_comb cout Out 0.066 15.610 -

tz\_0\_carry\_6 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add7 cycloneive\_lcell\_comb cin In - 15.610 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add7 cycloneive\_lcell\_comb cout Out 0.066 15.676 -

tz\_0\_carry\_7 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add8 cycloneive\_lcell\_comb cin In - 15.676 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add8 cycloneive\_lcell\_comb cout Out 0.066 15.742 -

tz\_0\_carry\_8 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add9 cycloneive\_lcell\_comb cin In - 15.742 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add9 cycloneive\_lcell\_comb cout Out 0.066 15.808 -

tz\_0\_carry\_9 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add10 cycloneive\_lcell\_comb cin In - 15.808 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add10 cycloneive\_lcell\_comb cout Out 0.066 15.874 -

tz\_0\_carry\_10 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add11 cycloneive\_lcell\_comb cin In - 15.874 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add11 cycloneive\_lcell\_comb cout Out 0.066 15.940 -

tz\_0\_carry\_11 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add12 cycloneive\_lcell\_comb cin In - 15.940 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add12 cycloneive\_lcell\_comb cout Out 0.066 16.006 -

tz\_0\_carry\_12 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add13 cycloneive\_lcell\_comb cin In - 16.006 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add13 cycloneive\_lcell\_comb cout Out 0.066 16.072 -

tz\_0\_carry\_13 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add14 cycloneive\_lcell\_comb cin In - 16.072 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add14 cycloneive\_lcell\_comb cout Out 0.066 16.138 -

tz\_0\_add14\_cout Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add14\_term cycloneive\_lcell\_comb cin In - 16.138 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add14\_term cycloneive\_lcell\_comb combout Out 0.000 16.138 -

tz\_0\_carry\_14 Net - - 0.652 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add13 cycloneive\_lcell\_comb datab In - 16.790 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add13 cycloneive\_lcell\_comb combout Out 0.443 17.233 -

tz\_add13 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[15] dffeas d In - 17.233 -

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Total path delay (propagation time + setup - ICD at endpoint) of 16.706 is 11.750(70.3%) logic and 4.956(29.7%) route.

Path delay compensated for clock skew. Clock skew is added to clock-to-out value, and is subtracted from setup time value

Path information for path number 3:

Requested Period: 14.205

- Setup time: 0.086

+ Intrinsic clock delay: 0.613

+ Clock delay at ending point: 0.000 (ideal)

= Required time: 14.732

- Propagation time: 17.228

- Clock delay at starting point: 0.000 (ideal)

= Slack (non-critical) : -2.496

Number of logic level(s): 67

Starting point: fifo\_radin.fifo\_buf / q\_b[5]

Ending point: cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[15] / d

The start point is clocked by cordic\_top|clk [rising] on pin clock0

The end point is clocked by cordic\_top|clk [rising] on pin clk

Instance / Net Pin Pin Arrival No. of

Name Type Name Dir Delay Time Fan Out(s)

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fifo\_radin.fifo\_buf synplicity\_altsyncram\_RAM\_R\_W q\_b[5] Out 4.154 4.154 -

dout\_cordicin\_5 Net - - 0.340 - 3

cordic.r\_imm13lto10\_d\_2 cycloneive\_lcell\_comb datab In - 4.494 -

cordic.r\_imm13lto10\_d\_2 cycloneive\_lcell\_comb combout Out 0.443 4.937 -

r\_imm13lto10\_d\_2 Net - - 0.326 - 1

cordic.r\_imm13lto10\_1\_a cycloneive\_lcell\_comb datad In - 5.263 -

cordic.r\_imm13lto10\_1\_a cycloneive\_lcell\_comb combout Out 0.155 5.418 -

r\_imm13lto10\_1\_a Net - - 0.326 - 1

cordic.r\_imm13lto10\_1 cycloneive\_lcell\_comb datad In - 5.744 -

cordic.r\_imm13lto10\_1 cycloneive\_lcell\_comb combout Out 0.155 5.899 -

r\_imm13lto10\_1 Net - - 0.333 - 2

cordic.un1\_in\_rad\_add0\_RNO\_0 cycloneive\_lcell\_comb datac In - 6.232 -

cordic.un1\_in\_rad\_add0\_RNO\_0 cycloneive\_lcell\_comb combout Out 0.429 6.661 -

un1\_m2\_0\_a2 Net - - 0.326 - 1

cordic.un1\_in\_rad\_add0\_RNO cycloneive\_lcell\_comb datad In - 6.986 -

cordic.un1\_in\_rad\_add0\_RNO cycloneive\_lcell\_comb combout Out 0.155 7.141 -

un1\_m2 Net - - 0.326 - 1

cordic.un1\_in\_rad\_add0 cycloneive\_lcell\_comb datab In - 7.467 -

cordic.un1\_in\_rad\_add0 cycloneive\_lcell\_comb cout Out 0.509 7.976 -

un1\_in\_rad\_carry\_0 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add1 cycloneive\_lcell\_comb cin In - 7.976 -

cordic.un1\_in\_rad\_add1 cycloneive\_lcell\_comb cout Out 0.066 8.042 -

un1\_in\_rad\_carry\_1 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add2 cycloneive\_lcell\_comb cin In - 8.042 -

cordic.un1\_in\_rad\_add2 cycloneive\_lcell\_comb cout Out 0.066 8.108 -

un1\_in\_rad\_carry\_2 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add3 cycloneive\_lcell\_comb cin In - 8.108 -

cordic.un1\_in\_rad\_add3 cycloneive\_lcell\_comb cout Out 0.066 8.174 -

un1\_in\_rad\_carry\_3 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add4 cycloneive\_lcell\_comb cin In - 8.174 -

cordic.un1\_in\_rad\_add4 cycloneive\_lcell\_comb cout Out 0.066 8.240 -

un1\_in\_rad\_carry\_4 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add5 cycloneive\_lcell\_comb cin In - 8.240 -

cordic.un1\_in\_rad\_add5 cycloneive\_lcell\_comb cout Out 0.066 8.306 -

un1\_in\_rad\_carry\_5 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add6 cycloneive\_lcell\_comb cin In - 8.306 -

cordic.un1\_in\_rad\_add6 cycloneive\_lcell\_comb cout Out 0.066 8.372 -

un1\_in\_rad\_carry\_6 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add7 cycloneive\_lcell\_comb cin In - 8.372 -

cordic.un1\_in\_rad\_add7 cycloneive\_lcell\_comb cout Out 0.066 8.438 -

un1\_in\_rad\_carry\_7 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add8 cycloneive\_lcell\_comb cin In - 8.438 -

cordic.un1\_in\_rad\_add8 cycloneive\_lcell\_comb cout Out 0.066 8.504 -

un1\_in\_rad\_carry\_8 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add9 cycloneive\_lcell\_comb cin In - 8.504 -

cordic.un1\_in\_rad\_add9 cycloneive\_lcell\_comb cout Out 0.066 8.570 -

un1\_in\_rad\_carry\_9 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add10 cycloneive\_lcell\_comb cin In - 8.570 -

cordic.un1\_in\_rad\_add10 cycloneive\_lcell\_comb cout Out 0.066 8.636 -

un1\_in\_rad\_carry\_10 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add11 cycloneive\_lcell\_comb cin In - 8.636 -

cordic.un1\_in\_rad\_add11 cycloneive\_lcell\_comb cout Out 0.066 8.702 -

un1\_in\_rad\_carry\_11 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add12 cycloneive\_lcell\_comb cin In - 8.702 -

cordic.un1\_in\_rad\_add12 cycloneive\_lcell\_comb cout Out 0.066 8.768 -

un1\_in\_rad\_carry\_12 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add13 cycloneive\_lcell\_comb cin In - 8.768 -

cordic.un1\_in\_rad\_add13 cycloneive\_lcell\_comb cout Out 0.066 8.834 -

un1\_in\_rad\_carry\_13 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add14 cycloneive\_lcell\_comb cin In - 8.834 -

cordic.un1\_in\_rad\_add14 cycloneive\_lcell\_comb cout Out 0.066 8.900 -

un1\_in\_rad\_carry\_14 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add15 cycloneive\_lcell\_comb cin In - 8.900 -

cordic.un1\_in\_rad\_add15 cycloneive\_lcell\_comb cout Out 0.066 8.966 -

un1\_in\_rad\_carry\_15 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add16 cycloneive\_lcell\_comb cin In - 8.966 -

cordic.un1\_in\_rad\_add16 cycloneive\_lcell\_comb cout Out 0.066 9.032 -

un1\_in\_rad\_carry\_16 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add17 cycloneive\_lcell\_comb cin In - 9.032 -

cordic.un1\_in\_rad\_add17 cycloneive\_lcell\_comb cout Out 0.066 9.098 -

un1\_in\_rad\_carry\_17 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add18 cycloneive\_lcell\_comb cin In - 9.098 -

cordic.un1\_in\_rad\_add18 cycloneive\_lcell\_comb cout Out 0.066 9.164 -

un1\_in\_rad\_carry\_18 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add19 cycloneive\_lcell\_comb cin In - 9.164 -

cordic.un1\_in\_rad\_add19 cycloneive\_lcell\_comb cout Out 0.066 9.230 -

un1\_in\_rad\_carry\_19 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add20 cycloneive\_lcell\_comb cin In - 9.230 -

cordic.un1\_in\_rad\_add20 cycloneive\_lcell\_comb cout Out 0.066 9.296 -

un1\_in\_rad\_carry\_20 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add21 cycloneive\_lcell\_comb cin In - 9.296 -

cordic.un1\_in\_rad\_add21 cycloneive\_lcell\_comb cout Out 0.066 9.362 -

un1\_in\_rad\_carry\_21 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add22 cycloneive\_lcell\_comb cin In - 9.362 -

cordic.un1\_in\_rad\_add22 cycloneive\_lcell\_comb cout Out 0.066 9.428 -

un1\_in\_rad\_carry\_22 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add23 cycloneive\_lcell\_comb cin In - 9.428 -

cordic.un1\_in\_rad\_add23 cycloneive\_lcell\_comb cout Out 0.066 9.494 -

un1\_in\_rad\_carry\_23 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add24 cycloneive\_lcell\_comb cin In - 9.494 -

cordic.un1\_in\_rad\_add24 cycloneive\_lcell\_comb cout Out 0.066 9.560 -

un1\_in\_rad\_carry\_24 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add25 cycloneive\_lcell\_comb cin In - 9.560 -

cordic.un1\_in\_rad\_add25 cycloneive\_lcell\_comb cout Out 0.066 9.626 -

un1\_in\_rad\_carry\_25 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add26 cycloneive\_lcell\_comb cin In - 9.626 -

cordic.un1\_in\_rad\_add26 cycloneive\_lcell\_comb combout Out 0.000 9.626 -

un1\_in\_rad\_add26 Net - - 0.432 - 2

cordic.z\_inter\[0\]3lto30\_6 cycloneive\_lcell\_comb datab In - 10.057 -

cordic.z\_inter\[0\]3lto30\_6 cycloneive\_lcell\_comb combout Out 0.443 10.500 -

z\_inter\[0\]3lto30\_6 Net - - 0.326 - 1

cordic.z\_inter\[0\]3lto30\_11 cycloneive\_lcell\_comb datad In - 10.826 -

cordic.z\_inter\[0\]3lto30\_11 cycloneive\_lcell\_comb combout Out 0.155 10.981 -

z\_inter\[0\]3lto30\_11 Net - - 0.326 - 1

cordic.z\_inter\[0\]3lto30 cycloneive\_lcell\_comb datac In - 11.307 -

cordic.z\_inter\[0\]3lto30 cycloneive\_lcell\_comb combout Out 0.429 11.736 -

z\_inter\[0\]3lto30\_1z Net - - 0.348 - 4

cordic.z\_inter\[0\]3lto30\_RNI6KQ31 cycloneive\_lcell\_comb datac In - 12.083 -

cordic.z\_inter\[0\]3lto30\_RNI6KQ31 cycloneive\_lcell\_comb combout Out 0.429 12.512 -

un1\_in\_rad\_1\_b\_0[11] Net - - 0.385 - 7

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add1 cycloneive\_lcell\_comb datab In - 12.897 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add1 cycloneive\_lcell\_comb cout Out 0.509 13.406 -

tz\_6\_carry\_1 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add2 cycloneive\_lcell\_comb cin In - 13.406 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add2 cycloneive\_lcell\_comb cout Out 0.066 13.472 -

tz\_6\_carry\_2 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add3 cycloneive\_lcell\_comb cin In - 13.472 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add3 cycloneive\_lcell\_comb cout Out 0.066 13.538 -

tz\_6\_carry\_3 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add4 cycloneive\_lcell\_comb cin In - 13.538 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add4 cycloneive\_lcell\_comb cout Out 0.066 13.604 -

tz\_6\_carry\_4 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add5 cycloneive\_lcell\_comb cin In - 13.604 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add5 cycloneive\_lcell\_comb cout Out 0.066 13.670 -

tz\_6\_carry\_5 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add6 cycloneive\_lcell\_comb cin In - 13.670 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add6 cycloneive\_lcell\_comb cout Out 0.066 13.736 -

tz\_6\_carry\_6 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add7 cycloneive\_lcell\_comb cin In - 13.736 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add7 cycloneive\_lcell\_comb cout Out 0.066 13.802 -

tz\_6\_carry\_7 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add8 cycloneive\_lcell\_comb cin In - 13.802 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add8 cycloneive\_lcell\_comb cout Out 0.066 13.868 -

tz\_6\_carry\_8 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add9 cycloneive\_lcell\_comb cin In - 13.868 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add9 cycloneive\_lcell\_comb cout Out 0.066 13.934 -

tz\_6\_carry\_9 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add10 cycloneive\_lcell\_comb cin In - 13.934 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add10 cycloneive\_lcell\_comb cout Out 0.066 14.000 -

tz\_6\_carry\_10 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add11 cycloneive\_lcell\_comb cin In - 14.000 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add11 cycloneive\_lcell\_comb cout Out 0.066 14.066 -

tz\_6\_carry\_11 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add12 cycloneive\_lcell\_comb cin In - 14.066 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add12 cycloneive\_lcell\_comb cout Out 0.066 14.132 -

tz\_6\_carry\_12 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add13 cycloneive\_lcell\_comb cin In - 14.132 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add13 cycloneive\_lcell\_comb cout Out 0.066 14.198 -

tz\_6\_carry\_13 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add14 cycloneive\_lcell\_comb cin In - 14.198 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add14 cycloneive\_lcell\_comb cout Out 0.066 14.264 -

tz\_6\_carry\_14 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add15 cycloneive\_lcell\_comb cin In - 14.264 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add15 cycloneive\_lcell\_comb combout Out 0.000 14.264 -

tz\_6\_add15 Net - - 0.513 - 9

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add1 cycloneive\_lcell\_comb datab In - 14.777 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add1 cycloneive\_lcell\_comb cout Out 0.509 15.286 -

tz\_0\_carry\_1 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add2 cycloneive\_lcell\_comb cin In - 15.286 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add2 cycloneive\_lcell\_comb combout Out 0.000 15.286 -

tz\_0\_add2 Net - - 0.652 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add0 cycloneive\_lcell\_comb dataa In - 15.938 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add0 cycloneive\_lcell\_comb cout Out 0.498 16.436 -

tz\_carry\_0 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add1 cycloneive\_lcell\_comb cin In - 16.436 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add1 cycloneive\_lcell\_comb cout Out 0.066 16.502 -

tz\_carry\_1 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add2 cycloneive\_lcell\_comb cin In - 16.502 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add2 cycloneive\_lcell\_comb cout Out 0.066 16.568 -

tz\_carry\_2 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add3 cycloneive\_lcell\_comb cin In - 16.568 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add3 cycloneive\_lcell\_comb cout Out 0.066 16.634 -

tz\_carry\_3 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add4 cycloneive\_lcell\_comb cin In - 16.634 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add4 cycloneive\_lcell\_comb cout Out 0.066 16.700 -

tz\_carry\_4 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add5 cycloneive\_lcell\_comb cin In - 16.700 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add5 cycloneive\_lcell\_comb cout Out 0.066 16.766 -

tz\_carry\_5 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add6 cycloneive\_lcell\_comb cin In - 16.766 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add6 cycloneive\_lcell\_comb cout Out 0.066 16.832 -

tz\_carry\_6 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add7 cycloneive\_lcell\_comb cin In - 16.832 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add7 cycloneive\_lcell\_comb cout Out 0.066 16.898 -

tz\_carry\_7 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add8 cycloneive\_lcell\_comb cin In - 16.898 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add8 cycloneive\_lcell\_comb cout Out 0.066 16.964 -

tz\_carry\_8 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add9 cycloneive\_lcell\_comb cin In - 16.964 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add9 cycloneive\_lcell\_comb cout Out 0.066 17.030 -

tz\_carry\_9 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add10 cycloneive\_lcell\_comb cin In - 17.030 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add10 cycloneive\_lcell\_comb cout Out 0.066 17.096 -

tz\_carry\_10 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add11 cycloneive\_lcell\_comb cin In - 17.096 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add11 cycloneive\_lcell\_comb cout Out 0.066 17.162 -

tz\_carry\_11 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add12 cycloneive\_lcell\_comb cin In - 17.162 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add12 cycloneive\_lcell\_comb cout Out 0.066 17.228 -

tz\_carry\_12 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add13 cycloneive\_lcell\_comb cin In - 17.228 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add13 cycloneive\_lcell\_comb combout Out 0.000 17.228 -

tz\_add13 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[15] dffeas d In - 17.228 -

============================================================================================================================================

Total path delay (propagation time + setup - ICD at endpoint) of 16.701 is 11.745(70.3%) logic and 4.956(29.7%) route.

Path delay compensated for clock skew. Clock skew is added to clock-to-out value, and is subtracted from setup time value

Path information for path number 4:

Requested Period: 14.205

- Setup time: 0.086

+ Intrinsic clock delay: 0.613

+ Clock delay at ending point: 0.000 (ideal)

= Required time: 14.732

- Propagation time: 17.228

- Clock delay at starting point: 0.000 (ideal)

= Slack (non-critical) : -2.496

Number of logic level(s): 67

Starting point: fifo\_radin.fifo\_buf / q\_b[5]

Ending point: cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[15] / d

The start point is clocked by cordic\_top|clk [rising] on pin clock0

The end point is clocked by cordic\_top|clk [rising] on pin clk

Instance / Net Pin Pin Arrival No. of

Name Type Name Dir Delay Time Fan Out(s)

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fifo\_radin.fifo\_buf synplicity\_altsyncram\_RAM\_R\_W q\_b[5] Out 4.154 4.154 -

dout\_cordicin\_5 Net - - 0.340 - 3

cordic.r\_imm13lto10\_d\_2 cycloneive\_lcell\_comb datab In - 4.494 -

cordic.r\_imm13lto10\_d\_2 cycloneive\_lcell\_comb combout Out 0.443 4.937 -

r\_imm13lto10\_d\_2 Net - - 0.326 - 1

cordic.r\_imm13lto10\_1\_a cycloneive\_lcell\_comb datad In - 5.263 -

cordic.r\_imm13lto10\_1\_a cycloneive\_lcell\_comb combout Out 0.155 5.418 -

r\_imm13lto10\_1\_a Net - - 0.326 - 1

cordic.r\_imm13lto10\_1 cycloneive\_lcell\_comb datad In - 5.744 -

cordic.r\_imm13lto10\_1 cycloneive\_lcell\_comb combout Out 0.155 5.899 -

r\_imm13lto10\_1 Net - - 0.333 - 2

cordic.un1\_in\_rad\_add0\_RNO\_0 cycloneive\_lcell\_comb datac In - 6.232 -

cordic.un1\_in\_rad\_add0\_RNO\_0 cycloneive\_lcell\_comb combout Out 0.429 6.661 -

un1\_m2\_0\_a2 Net - - 0.326 - 1

cordic.un1\_in\_rad\_add0\_RNO cycloneive\_lcell\_comb datad In - 6.986 -

cordic.un1\_in\_rad\_add0\_RNO cycloneive\_lcell\_comb combout Out 0.155 7.141 -

un1\_m2 Net - - 0.326 - 1

cordic.un1\_in\_rad\_add0 cycloneive\_lcell\_comb datab In - 7.467 -

cordic.un1\_in\_rad\_add0 cycloneive\_lcell\_comb cout Out 0.509 7.976 -

un1\_in\_rad\_carry\_0 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add1 cycloneive\_lcell\_comb cin In - 7.976 -

cordic.un1\_in\_rad\_add1 cycloneive\_lcell\_comb cout Out 0.066 8.042 -

un1\_in\_rad\_carry\_1 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add2 cycloneive\_lcell\_comb cin In - 8.042 -

cordic.un1\_in\_rad\_add2 cycloneive\_lcell\_comb cout Out 0.066 8.108 -

un1\_in\_rad\_carry\_2 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add3 cycloneive\_lcell\_comb cin In - 8.108 -

cordic.un1\_in\_rad\_add3 cycloneive\_lcell\_comb cout Out 0.066 8.174 -

un1\_in\_rad\_carry\_3 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add4 cycloneive\_lcell\_comb cin In - 8.174 -

cordic.un1\_in\_rad\_add4 cycloneive\_lcell\_comb cout Out 0.066 8.240 -

un1\_in\_rad\_carry\_4 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add5 cycloneive\_lcell\_comb cin In - 8.240 -

cordic.un1\_in\_rad\_add5 cycloneive\_lcell\_comb cout Out 0.066 8.306 -

un1\_in\_rad\_carry\_5 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add6 cycloneive\_lcell\_comb cin In - 8.306 -

cordic.un1\_in\_rad\_add6 cycloneive\_lcell\_comb cout Out 0.066 8.372 -

un1\_in\_rad\_carry\_6 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add7 cycloneive\_lcell\_comb cin In - 8.372 -

cordic.un1\_in\_rad\_add7 cycloneive\_lcell\_comb cout Out 0.066 8.438 -

un1\_in\_rad\_carry\_7 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add8 cycloneive\_lcell\_comb cin In - 8.438 -

cordic.un1\_in\_rad\_add8 cycloneive\_lcell\_comb cout Out 0.066 8.504 -

un1\_in\_rad\_carry\_8 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add9 cycloneive\_lcell\_comb cin In - 8.504 -

cordic.un1\_in\_rad\_add9 cycloneive\_lcell\_comb cout Out 0.066 8.570 -

un1\_in\_rad\_carry\_9 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add10 cycloneive\_lcell\_comb cin In - 8.570 -

cordic.un1\_in\_rad\_add10 cycloneive\_lcell\_comb cout Out 0.066 8.636 -

un1\_in\_rad\_carry\_10 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add11 cycloneive\_lcell\_comb cin In - 8.636 -

cordic.un1\_in\_rad\_add11 cycloneive\_lcell\_comb cout Out 0.066 8.702 -

un1\_in\_rad\_carry\_11 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add12 cycloneive\_lcell\_comb cin In - 8.702 -

cordic.un1\_in\_rad\_add12 cycloneive\_lcell\_comb cout Out 0.066 8.768 -

un1\_in\_rad\_carry\_12 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add13 cycloneive\_lcell\_comb cin In - 8.768 -

cordic.un1\_in\_rad\_add13 cycloneive\_lcell\_comb cout Out 0.066 8.834 -

un1\_in\_rad\_carry\_13 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add14 cycloneive\_lcell\_comb cin In - 8.834 -

cordic.un1\_in\_rad\_add14 cycloneive\_lcell\_comb cout Out 0.066 8.900 -

un1\_in\_rad\_carry\_14 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add15 cycloneive\_lcell\_comb cin In - 8.900 -

cordic.un1\_in\_rad\_add15 cycloneive\_lcell\_comb cout Out 0.066 8.966 -

un1\_in\_rad\_carry\_15 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add16 cycloneive\_lcell\_comb cin In - 8.966 -

cordic.un1\_in\_rad\_add16 cycloneive\_lcell\_comb cout Out 0.066 9.032 -

un1\_in\_rad\_carry\_16 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add17 cycloneive\_lcell\_comb cin In - 9.032 -

cordic.un1\_in\_rad\_add17 cycloneive\_lcell\_comb cout Out 0.066 9.098 -

un1\_in\_rad\_carry\_17 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add18 cycloneive\_lcell\_comb cin In - 9.098 -

cordic.un1\_in\_rad\_add18 cycloneive\_lcell\_comb cout Out 0.066 9.164 -

un1\_in\_rad\_carry\_18 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add19 cycloneive\_lcell\_comb cin In - 9.164 -

cordic.un1\_in\_rad\_add19 cycloneive\_lcell\_comb cout Out 0.066 9.230 -

un1\_in\_rad\_carry\_19 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add20 cycloneive\_lcell\_comb cin In - 9.230 -

cordic.un1\_in\_rad\_add20 cycloneive\_lcell\_comb cout Out 0.066 9.296 -

un1\_in\_rad\_carry\_20 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add21 cycloneive\_lcell\_comb cin In - 9.296 -

cordic.un1\_in\_rad\_add21 cycloneive\_lcell\_comb cout Out 0.066 9.362 -

un1\_in\_rad\_carry\_21 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add22 cycloneive\_lcell\_comb cin In - 9.362 -

cordic.un1\_in\_rad\_add22 cycloneive\_lcell\_comb cout Out 0.066 9.428 -

un1\_in\_rad\_carry\_22 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add23 cycloneive\_lcell\_comb cin In - 9.428 -

cordic.un1\_in\_rad\_add23 cycloneive\_lcell\_comb cout Out 0.066 9.494 -

un1\_in\_rad\_carry\_23 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add24 cycloneive\_lcell\_comb cin In - 9.494 -

cordic.un1\_in\_rad\_add24 cycloneive\_lcell\_comb cout Out 0.066 9.560 -

un1\_in\_rad\_carry\_24 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add25 cycloneive\_lcell\_comb cin In - 9.560 -

cordic.un1\_in\_rad\_add25 cycloneive\_lcell\_comb cout Out 0.066 9.626 -

un1\_in\_rad\_carry\_25 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add26 cycloneive\_lcell\_comb cin In - 9.626 -

cordic.un1\_in\_rad\_add26 cycloneive\_lcell\_comb combout Out 0.000 9.626 -

un1\_in\_rad\_add26 Net - - 0.432 - 2

cordic.z\_inter\[0\]3lto30\_6 cycloneive\_lcell\_comb datab In - 10.057 -

cordic.z\_inter\[0\]3lto30\_6 cycloneive\_lcell\_comb combout Out 0.443 10.500 -

z\_inter\[0\]3lto30\_6 Net - - 0.326 - 1

cordic.z\_inter\[0\]3lto30\_11 cycloneive\_lcell\_comb datad In - 10.826 -

cordic.z\_inter\[0\]3lto30\_11 cycloneive\_lcell\_comb combout Out 0.155 10.981 -

z\_inter\[0\]3lto30\_11 Net - - 0.326 - 1

cordic.z\_inter\[0\]3lto30 cycloneive\_lcell\_comb datac In - 11.307 -

cordic.z\_inter\[0\]3lto30 cycloneive\_lcell\_comb combout Out 0.429 11.736 -

z\_inter\[0\]3lto30\_1z Net - - 0.348 - 4

cordic.z\_inter\[0\]3lto30\_RNI6KQ31 cycloneive\_lcell\_comb datac In - 12.083 -

cordic.z\_inter\[0\]3lto30\_RNI6KQ31 cycloneive\_lcell\_comb combout Out 0.429 12.512 -

un1\_in\_rad\_1\_b\_0[11] Net - - 0.385 - 7

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add1 cycloneive\_lcell\_comb datab In - 12.897 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add1 cycloneive\_lcell\_comb cout Out 0.509 13.406 -

tz\_6\_carry\_1 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add2 cycloneive\_lcell\_comb cin In - 13.406 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add2 cycloneive\_lcell\_comb cout Out 0.066 13.472 -

tz\_6\_carry\_2 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add3 cycloneive\_lcell\_comb cin In - 13.472 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add3 cycloneive\_lcell\_comb cout Out 0.066 13.538 -

tz\_6\_carry\_3 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add4 cycloneive\_lcell\_comb cin In - 13.538 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add4 cycloneive\_lcell\_comb cout Out 0.066 13.604 -

tz\_6\_carry\_4 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add5 cycloneive\_lcell\_comb cin In - 13.604 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add5 cycloneive\_lcell\_comb cout Out 0.066 13.670 -

tz\_6\_carry\_5 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add6 cycloneive\_lcell\_comb cin In - 13.670 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add6 cycloneive\_lcell\_comb cout Out 0.066 13.736 -

tz\_6\_carry\_6 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add7 cycloneive\_lcell\_comb cin In - 13.736 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add7 cycloneive\_lcell\_comb cout Out 0.066 13.802 -

tz\_6\_carry\_7 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add8 cycloneive\_lcell\_comb cin In - 13.802 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add8 cycloneive\_lcell\_comb cout Out 0.066 13.868 -

tz\_6\_carry\_8 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add9 cycloneive\_lcell\_comb cin In - 13.868 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add9 cycloneive\_lcell\_comb cout Out 0.066 13.934 -

tz\_6\_carry\_9 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add10 cycloneive\_lcell\_comb cin In - 13.934 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add10 cycloneive\_lcell\_comb cout Out 0.066 14.000 -

tz\_6\_carry\_10 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add11 cycloneive\_lcell\_comb cin In - 14.000 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add11 cycloneive\_lcell\_comb cout Out 0.066 14.066 -

tz\_6\_carry\_11 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add12 cycloneive\_lcell\_comb cin In - 14.066 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add12 cycloneive\_lcell\_comb cout Out 0.066 14.132 -

tz\_6\_carry\_12 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add13 cycloneive\_lcell\_comb cin In - 14.132 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add13 cycloneive\_lcell\_comb cout Out 0.066 14.198 -

tz\_6\_carry\_13 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add14 cycloneive\_lcell\_comb cin In - 14.198 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add14 cycloneive\_lcell\_comb cout Out 0.066 14.264 -

tz\_6\_carry\_14 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add15 cycloneive\_lcell\_comb cin In - 14.264 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add15 cycloneive\_lcell\_comb combout Out 0.000 14.264 -

tz\_6\_add15 Net - - 0.513 - 9

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add1 cycloneive\_lcell\_comb datab In - 14.777 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add1 cycloneive\_lcell\_comb cout Out 0.509 15.286 -

tz\_0\_carry\_1 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add2 cycloneive\_lcell\_comb cin In - 15.286 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add2 cycloneive\_lcell\_comb cout Out 0.066 15.352 -

tz\_0\_carry\_2 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add3 cycloneive\_lcell\_comb cin In - 15.352 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add3 cycloneive\_lcell\_comb combout Out 0.000 15.352 -

tz\_0\_add3 Net - - 0.652 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add1 cycloneive\_lcell\_comb dataa In - 16.004 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add1 cycloneive\_lcell\_comb cout Out 0.498 16.502 -

tz\_carry\_1 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add2 cycloneive\_lcell\_comb cin In - 16.502 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add2 cycloneive\_lcell\_comb cout Out 0.066 16.568 -

tz\_carry\_2 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add3 cycloneive\_lcell\_comb cin In - 16.568 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add3 cycloneive\_lcell\_comb cout Out 0.066 16.634 -

tz\_carry\_3 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add4 cycloneive\_lcell\_comb cin In - 16.634 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add4 cycloneive\_lcell\_comb cout Out 0.066 16.700 -

tz\_carry\_4 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add5 cycloneive\_lcell\_comb cin In - 16.700 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add5 cycloneive\_lcell\_comb cout Out 0.066 16.766 -

tz\_carry\_5 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add6 cycloneive\_lcell\_comb cin In - 16.766 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add6 cycloneive\_lcell\_comb cout Out 0.066 16.832 -

tz\_carry\_6 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add7 cycloneive\_lcell\_comb cin In - 16.832 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add7 cycloneive\_lcell\_comb cout Out 0.066 16.898 -

tz\_carry\_7 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add8 cycloneive\_lcell\_comb cin In - 16.898 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add8 cycloneive\_lcell\_comb cout Out 0.066 16.964 -

tz\_carry\_8 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add9 cycloneive\_lcell\_comb cin In - 16.964 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add9 cycloneive\_lcell\_comb cout Out 0.066 17.030 -

tz\_carry\_9 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add10 cycloneive\_lcell\_comb cin In - 17.030 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add10 cycloneive\_lcell\_comb cout Out 0.066 17.096 -

tz\_carry\_10 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add11 cycloneive\_lcell\_comb cin In - 17.096 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add11 cycloneive\_lcell\_comb cout Out 0.066 17.162 -

tz\_carry\_11 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add12 cycloneive\_lcell\_comb cin In - 17.162 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add12 cycloneive\_lcell\_comb cout Out 0.066 17.228 -

tz\_carry\_12 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add13 cycloneive\_lcell\_comb cin In - 17.228 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add13 cycloneive\_lcell\_comb combout Out 0.000 17.228 -

tz\_add13 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[15] dffeas d In - 17.228 -

============================================================================================================================================

Total path delay (propagation time + setup - ICD at endpoint) of 16.701 is 11.745(70.3%) logic and 4.956(29.7%) route.

Path delay compensated for clock skew. Clock skew is added to clock-to-out value, and is subtracted from setup time value

Path information for path number 5:

Requested Period: 14.205

- Setup time: 0.086

+ Intrinsic clock delay: 0.613

+ Clock delay at ending point: 0.000 (ideal)

= Required time: 14.732

- Propagation time: 17.228

- Clock delay at starting point: 0.000 (ideal)

= Slack (non-critical) : -2.496

Number of logic level(s): 67

Starting point: fifo\_radin.fifo\_buf / q\_b[5]

Ending point: cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[15] / d

The start point is clocked by cordic\_top|clk [rising] on pin clock0

The end point is clocked by cordic\_top|clk [rising] on pin clk

Instance / Net Pin Pin Arrival No. of

Name Type Name Dir Delay Time Fan Out(s)

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fifo\_radin.fifo\_buf synplicity\_altsyncram\_RAM\_R\_W q\_b[5] Out 4.154 4.154 -

dout\_cordicin\_5 Net - - 0.340 - 3

cordic.r\_imm13lto10\_d\_2 cycloneive\_lcell\_comb datab In - 4.494 -

cordic.r\_imm13lto10\_d\_2 cycloneive\_lcell\_comb combout Out 0.443 4.937 -

r\_imm13lto10\_d\_2 Net - - 0.326 - 1

cordic.r\_imm13lto10\_1\_a cycloneive\_lcell\_comb datad In - 5.263 -

cordic.r\_imm13lto10\_1\_a cycloneive\_lcell\_comb combout Out 0.155 5.418 -

r\_imm13lto10\_1\_a Net - - 0.326 - 1

cordic.r\_imm13lto10\_1 cycloneive\_lcell\_comb datad In - 5.744 -

cordic.r\_imm13lto10\_1 cycloneive\_lcell\_comb combout Out 0.155 5.899 -

r\_imm13lto10\_1 Net - - 0.333 - 2

cordic.un1\_in\_rad\_add0\_RNO\_0 cycloneive\_lcell\_comb datac In - 6.232 -

cordic.un1\_in\_rad\_add0\_RNO\_0 cycloneive\_lcell\_comb combout Out 0.429 6.661 -

un1\_m2\_0\_a2 Net - - 0.326 - 1

cordic.un1\_in\_rad\_add0\_RNO cycloneive\_lcell\_comb datad In - 6.986 -

cordic.un1\_in\_rad\_add0\_RNO cycloneive\_lcell\_comb combout Out 0.155 7.141 -

un1\_m2 Net - - 0.326 - 1

cordic.un1\_in\_rad\_add0 cycloneive\_lcell\_comb datab In - 7.467 -

cordic.un1\_in\_rad\_add0 cycloneive\_lcell\_comb cout Out 0.509 7.976 -

un1\_in\_rad\_carry\_0 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add1 cycloneive\_lcell\_comb cin In - 7.976 -

cordic.un1\_in\_rad\_add1 cycloneive\_lcell\_comb cout Out 0.066 8.042 -

un1\_in\_rad\_carry\_1 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add2 cycloneive\_lcell\_comb cin In - 8.042 -

cordic.un1\_in\_rad\_add2 cycloneive\_lcell\_comb cout Out 0.066 8.108 -

un1\_in\_rad\_carry\_2 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add3 cycloneive\_lcell\_comb cin In - 8.108 -

cordic.un1\_in\_rad\_add3 cycloneive\_lcell\_comb cout Out 0.066 8.174 -

un1\_in\_rad\_carry\_3 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add4 cycloneive\_lcell\_comb cin In - 8.174 -

cordic.un1\_in\_rad\_add4 cycloneive\_lcell\_comb cout Out 0.066 8.240 -

un1\_in\_rad\_carry\_4 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add5 cycloneive\_lcell\_comb cin In - 8.240 -

cordic.un1\_in\_rad\_add5 cycloneive\_lcell\_comb cout Out 0.066 8.306 -

un1\_in\_rad\_carry\_5 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add6 cycloneive\_lcell\_comb cin In - 8.306 -

cordic.un1\_in\_rad\_add6 cycloneive\_lcell\_comb cout Out 0.066 8.372 -

un1\_in\_rad\_carry\_6 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add7 cycloneive\_lcell\_comb cin In - 8.372 -

cordic.un1\_in\_rad\_add7 cycloneive\_lcell\_comb cout Out 0.066 8.438 -

un1\_in\_rad\_carry\_7 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add8 cycloneive\_lcell\_comb cin In - 8.438 -

cordic.un1\_in\_rad\_add8 cycloneive\_lcell\_comb cout Out 0.066 8.504 -

un1\_in\_rad\_carry\_8 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add9 cycloneive\_lcell\_comb cin In - 8.504 -

cordic.un1\_in\_rad\_add9 cycloneive\_lcell\_comb cout Out 0.066 8.570 -

un1\_in\_rad\_carry\_9 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add10 cycloneive\_lcell\_comb cin In - 8.570 -

cordic.un1\_in\_rad\_add10 cycloneive\_lcell\_comb cout Out 0.066 8.636 -

un1\_in\_rad\_carry\_10 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add11 cycloneive\_lcell\_comb cin In - 8.636 -

cordic.un1\_in\_rad\_add11 cycloneive\_lcell\_comb cout Out 0.066 8.702 -

un1\_in\_rad\_carry\_11 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add12 cycloneive\_lcell\_comb cin In - 8.702 -

cordic.un1\_in\_rad\_add12 cycloneive\_lcell\_comb cout Out 0.066 8.768 -

un1\_in\_rad\_carry\_12 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add13 cycloneive\_lcell\_comb cin In - 8.768 -

cordic.un1\_in\_rad\_add13 cycloneive\_lcell\_comb cout Out 0.066 8.834 -

un1\_in\_rad\_carry\_13 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add14 cycloneive\_lcell\_comb cin In - 8.834 -

cordic.un1\_in\_rad\_add14 cycloneive\_lcell\_comb cout Out 0.066 8.900 -

un1\_in\_rad\_carry\_14 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add15 cycloneive\_lcell\_comb cin In - 8.900 -

cordic.un1\_in\_rad\_add15 cycloneive\_lcell\_comb cout Out 0.066 8.966 -

un1\_in\_rad\_carry\_15 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add16 cycloneive\_lcell\_comb cin In - 8.966 -

cordic.un1\_in\_rad\_add16 cycloneive\_lcell\_comb cout Out 0.066 9.032 -

un1\_in\_rad\_carry\_16 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add17 cycloneive\_lcell\_comb cin In - 9.032 -

cordic.un1\_in\_rad\_add17 cycloneive\_lcell\_comb cout Out 0.066 9.098 -

un1\_in\_rad\_carry\_17 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add18 cycloneive\_lcell\_comb cin In - 9.098 -

cordic.un1\_in\_rad\_add18 cycloneive\_lcell\_comb cout Out 0.066 9.164 -

un1\_in\_rad\_carry\_18 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add19 cycloneive\_lcell\_comb cin In - 9.164 -

cordic.un1\_in\_rad\_add19 cycloneive\_lcell\_comb cout Out 0.066 9.230 -

un1\_in\_rad\_carry\_19 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add20 cycloneive\_lcell\_comb cin In - 9.230 -

cordic.un1\_in\_rad\_add20 cycloneive\_lcell\_comb cout Out 0.066 9.296 -

un1\_in\_rad\_carry\_20 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add21 cycloneive\_lcell\_comb cin In - 9.296 -

cordic.un1\_in\_rad\_add21 cycloneive\_lcell\_comb cout Out 0.066 9.362 -

un1\_in\_rad\_carry\_21 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add22 cycloneive\_lcell\_comb cin In - 9.362 -

cordic.un1\_in\_rad\_add22 cycloneive\_lcell\_comb cout Out 0.066 9.428 -

un1\_in\_rad\_carry\_22 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add23 cycloneive\_lcell\_comb cin In - 9.428 -

cordic.un1\_in\_rad\_add23 cycloneive\_lcell\_comb cout Out 0.066 9.494 -

un1\_in\_rad\_carry\_23 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add24 cycloneive\_lcell\_comb cin In - 9.494 -

cordic.un1\_in\_rad\_add24 cycloneive\_lcell\_comb cout Out 0.066 9.560 -

un1\_in\_rad\_carry\_24 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add25 cycloneive\_lcell\_comb cin In - 9.560 -

cordic.un1\_in\_rad\_add25 cycloneive\_lcell\_comb cout Out 0.066 9.626 -

un1\_in\_rad\_carry\_25 Net - - 0.000 - 1

cordic.un1\_in\_rad\_add26 cycloneive\_lcell\_comb cin In - 9.626 -

cordic.un1\_in\_rad\_add26 cycloneive\_lcell\_comb combout Out 0.000 9.626 -

un1\_in\_rad\_add26 Net - - 0.432 - 2

cordic.z\_inter\[0\]3lto30\_6 cycloneive\_lcell\_comb datab In - 10.057 -

cordic.z\_inter\[0\]3lto30\_6 cycloneive\_lcell\_comb combout Out 0.443 10.500 -

z\_inter\[0\]3lto30\_6 Net - - 0.326 - 1

cordic.z\_inter\[0\]3lto30\_11 cycloneive\_lcell\_comb datad In - 10.826 -

cordic.z\_inter\[0\]3lto30\_11 cycloneive\_lcell\_comb combout Out 0.155 10.981 -

z\_inter\[0\]3lto30\_11 Net - - 0.326 - 1

cordic.z\_inter\[0\]3lto30 cycloneive\_lcell\_comb datac In - 11.307 -

cordic.z\_inter\[0\]3lto30 cycloneive\_lcell\_comb combout Out 0.429 11.736 -

z\_inter\[0\]3lto30\_1z Net - - 0.348 - 4

cordic.z\_inter\[0\]3lto30\_RNI6KQ31 cycloneive\_lcell\_comb datac In - 12.083 -

cordic.z\_inter\[0\]3lto30\_RNI6KQ31 cycloneive\_lcell\_comb combout Out 0.429 12.512 -

un1\_in\_rad\_1\_b\_0[11] Net - - 0.385 - 7

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add1 cycloneive\_lcell\_comb datab In - 12.897 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add1 cycloneive\_lcell\_comb cout Out 0.509 13.406 -

tz\_6\_carry\_1 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add2 cycloneive\_lcell\_comb cin In - 13.406 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add2 cycloneive\_lcell\_comb cout Out 0.066 13.472 -

tz\_6\_carry\_2 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add3 cycloneive\_lcell\_comb cin In - 13.472 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add3 cycloneive\_lcell\_comb cout Out 0.066 13.538 -

tz\_6\_carry\_3 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add4 cycloneive\_lcell\_comb cin In - 13.538 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add4 cycloneive\_lcell\_comb cout Out 0.066 13.604 -

tz\_6\_carry\_4 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add5 cycloneive\_lcell\_comb cin In - 13.604 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add5 cycloneive\_lcell\_comb cout Out 0.066 13.670 -

tz\_6\_carry\_5 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add6 cycloneive\_lcell\_comb cin In - 13.670 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add6 cycloneive\_lcell\_comb cout Out 0.066 13.736 -

tz\_6\_carry\_6 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add7 cycloneive\_lcell\_comb cin In - 13.736 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add7 cycloneive\_lcell\_comb cout Out 0.066 13.802 -

tz\_6\_carry\_7 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add8 cycloneive\_lcell\_comb cin In - 13.802 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add8 cycloneive\_lcell\_comb cout Out 0.066 13.868 -

tz\_6\_carry\_8 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add9 cycloneive\_lcell\_comb cin In - 13.868 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add9 cycloneive\_lcell\_comb cout Out 0.066 13.934 -

tz\_6\_carry\_9 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add10 cycloneive\_lcell\_comb cin In - 13.934 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add10 cycloneive\_lcell\_comb cout Out 0.066 14.000 -

tz\_6\_carry\_10 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add11 cycloneive\_lcell\_comb cin In - 14.000 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add11 cycloneive\_lcell\_comb cout Out 0.066 14.066 -

tz\_6\_carry\_11 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add12 cycloneive\_lcell\_comb cin In - 14.066 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add12 cycloneive\_lcell\_comb cout Out 0.066 14.132 -

tz\_6\_carry\_12 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add13 cycloneive\_lcell\_comb cin In - 14.132 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add13 cycloneive\_lcell\_comb cout Out 0.066 14.198 -

tz\_6\_carry\_13 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add14 cycloneive\_lcell\_comb cin In - 14.198 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add14 cycloneive\_lcell\_comb cout Out 0.066 14.264 -

tz\_6\_carry\_14 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add15 cycloneive\_lcell\_comb cin In - 14.264 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_6\_add15 cycloneive\_lcell\_comb combout Out 0.000 14.264 -

tz\_6\_add15 Net - - 0.513 - 9

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add1 cycloneive\_lcell\_comb datab In - 14.777 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add1 cycloneive\_lcell\_comb cout Out 0.509 15.286 -

tz\_0\_carry\_1 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add2 cycloneive\_lcell\_comb cin In - 15.286 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add2 cycloneive\_lcell\_comb cout Out 0.066 15.352 -

tz\_0\_carry\_2 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add3 cycloneive\_lcell\_comb cin In - 15.352 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add3 cycloneive\_lcell\_comb cout Out 0.066 15.418 -

tz\_0\_carry\_3 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add4 cycloneive\_lcell\_comb cin In - 15.418 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_0\_add4 cycloneive\_lcell\_comb combout Out 0.000 15.418 -

tz\_0\_add4 Net - - 0.652 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add2 cycloneive\_lcell\_comb dataa In - 16.070 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add2 cycloneive\_lcell\_comb cout Out 0.498 16.568 -

tz\_carry\_2 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add3 cycloneive\_lcell\_comb cin In - 16.568 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add3 cycloneive\_lcell\_comb cout Out 0.066 16.634 -

tz\_carry\_3 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add4 cycloneive\_lcell\_comb cin In - 16.634 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add4 cycloneive\_lcell\_comb cout Out 0.066 16.700 -

tz\_carry\_4 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add5 cycloneive\_lcell\_comb cin In - 16.700 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add5 cycloneive\_lcell\_comb cout Out 0.066 16.766 -

tz\_carry\_5 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add6 cycloneive\_lcell\_comb cin In - 16.766 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add6 cycloneive\_lcell\_comb cout Out 0.066 16.832 -

tz\_carry\_6 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add7 cycloneive\_lcell\_comb cin In - 16.832 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add7 cycloneive\_lcell\_comb cout Out 0.066 16.898 -

tz\_carry\_7 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add8 cycloneive\_lcell\_comb cin In - 16.898 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add8 cycloneive\_lcell\_comb cout Out 0.066 16.964 -

tz\_carry\_8 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add9 cycloneive\_lcell\_comb cin In - 16.964 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add9 cycloneive\_lcell\_comb cout Out 0.066 17.030 -

tz\_carry\_9 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add10 cycloneive\_lcell\_comb cin In - 17.030 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add10 cycloneive\_lcell\_comb cout Out 0.066 17.096 -

tz\_carry\_10 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add11 cycloneive\_lcell\_comb cin In - 17.096 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add11 cycloneive\_lcell\_comb cout Out 0.066 17.162 -

tz\_carry\_11 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add12 cycloneive\_lcell\_comb cin In - 17.162 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add12 cycloneive\_lcell\_comb cout Out 0.066 17.228 -

tz\_carry\_12 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add13 cycloneive\_lcell\_comb cin In - 17.228 -

cordic.cordic\_stage\[0\]\.cordic\_stage.tz\_add13 cycloneive\_lcell\_comb combout Out 0.000 17.228 -

tz\_add13 Net - - 0.000 - 1

cordic.cordic\_stage\[0\]\.cordic\_stage.z\_out[15] dffeas d In - 17.228 -

============================================================================================================================================

Total path delay (propagation time + setup - ICD at endpoint) of 16.701 is 11.745(70.3%) logic and 4.956(29.7%) route.

Path delay compensated for clock skew. Clock skew is added to clock-to-out value, and is subtracted from setup time value

##### END OF TIMING REPORT #####]