

EE5311 Tutorial 8 Report - EE22B070

Verilog Codes:

https://drive.google.com/drive/folders/1dkUWmlafb4ngstNoKdhjLE8rhZ9-Tfg4?usp=drive_link

Measurements:

Brent-Kung Adder:

```
40076 =====
40077 report_clock_skew
40078 =====
40079 Clock core_clock
40080 Latency      CRPR      Skew
40081 _206_/CLK ^
40082   0.49
40083 _173_/CLK ^
40084   0.49      0.00      -0.01
40085
40086 skew_report_end
40087 summary_report
40088
40089 =====
40090 report_tns
40091 =====
40092 tns -0.00
40093
40094 =====
40095 report_wns
40096 =====
40097 wns -0.00
40098
40099 =====
40100 report_worst_slack -max (Setup)
40101 =====
40102 worst slack -0.00
40103
40104 =====
40105 report_worst_slack -min (Hold)
40106 =====
40107 worst slack 0.33
40108 summary_report_end
40109 check_nonpropagated_clocks
40110 check_nonpropagated_clocks_end
```

Text Import - [brent_kung_adder.sdc]

Import

Character set: Unicode (UTF-8)

Language: Default - English (USA)

From row: 1

Separator Options

☐ Fixed width ☒ Separated by

☒ Tab ☒ Comma ☒ Semicolon ☐ Space ☐ Other

☐ Merge delimiters ☐ Trim spaces String delimiter: "

Other Options

☐ Format quoted field as text ☐ Detect special numbers

☐ Evaluate formulas

Fields

Column type:

	Standard
1	set_units -time ns
2	create_clock [get_ports clk] -name core_clock -period 4.73

Help Cancel OK

Time period: 4.73 ns

Max. operating Freq: 211.416 MHz

Kogge-Stone:

```
39986 =====
39987 report_clock_skew
39988 =====
39989 Clock core_clock
39990 Latency      CRPR      Skew
39991 _247_/CLK ^
39992   0.48
39993 _217_/CLK ^
39994   0.50      0.00      -0.02
39995
39996 skew_report_end
39997 summary_report
39998
39999 =====
40000 report_tns
40001 =====
40002 tns 0.00
40003
40004 =====
40005 report_wns
40006 =====
40007 wns 0.00
40008
40009 =====
40010 report_worst_slack -max (Setup)
40011 =====
40012 worst slack 0.04
40013
40014 =====
40015 report_worst_slack -min (Hold)
40016 =====
40017 worst slack 0.36
40018 summary_report_end
40019 check_nonpropagated_clocks
40020 check_nonpropagated_clocks_end
```

Text Import - [kogge_stone_adder.sdc]

Import

Character set:

Language:

From row: +

Separator Options

☐ Fixed width ☒ Separated by

☒ Tab ☒ Comma ☒ Semicolon ☐ Space ☐ Other

☐ Merge delimiters ☐ Trim spaces String delimiter:

Other Options

☐ Format quoted field as text ☐ Detect special numbers

☐ Evaluate formulas

Fields

Standard

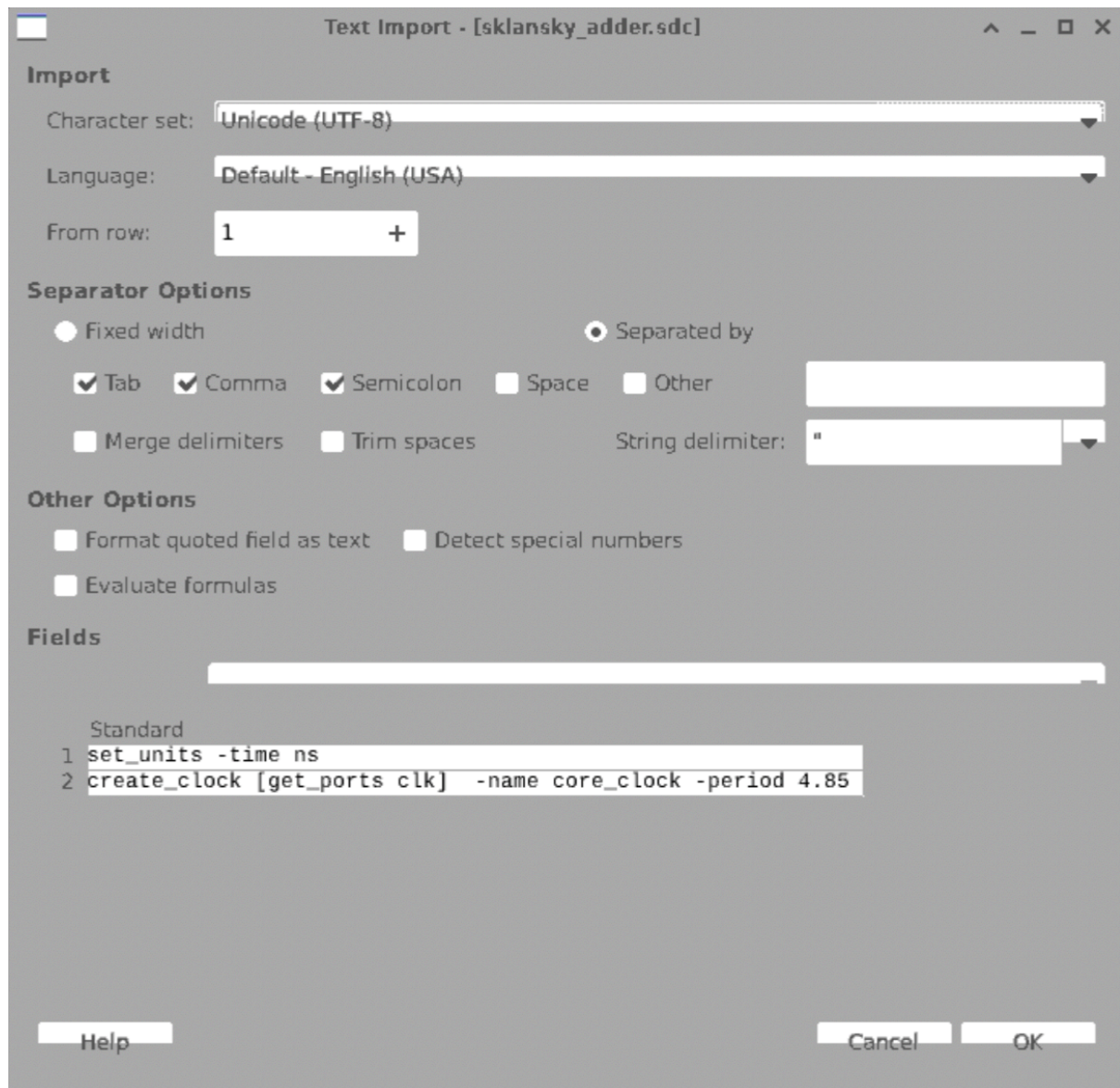
```
1 set_units -time ns
2 create_clock [get_ports clk] -name core_clock -period 4.73
```

Time period: $4.73 - 0.04 \text{ ns} = 4.69 \text{ ns}$

Max. operating Freq: 213.219 MHz

Sklansky Adder:

```
40088 =====
40089 report_clock_skew
40090 =====
40091 Clock core_clock
40092 Latency      CRPR      Skew
40093 _221_/CLK ^
40094   0.48
40095 _188_/CLK ^
40096   0.48      0.00      0.00
40097
40098 skew_report_end
40099 summary_report
40100
40101 =====
40102 report_tns
40103 =====
40104 tns 0.00
40105
40106 =====
40107 report_wns
40108 =====
40109 wns 0.00
40110
40111 =====
40112 report_worst_slack -max (Setup)
40113 =====
40114 worst slack 0.00
40115
40116 =====
40117 report_worst_slack -min (Hold)
40118 =====
40119 worst slack 0.35
40120 summary_report_end
40121 check_nonpropagated_clocks
40122 check_nonpropagated_clocks_end
```



Time period: 4.85 ns

Max. operating Freq: 206.185 MHz