**Tri-state Inverter Cells**

1. **Tri-state\_Inv1x1**

Dimensions:

32 x 120

Original sizing:

Tuned sizing:

Delays:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdf(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 9.7447 | 22.9794 | 47.0259 | 89.5328 |
| **100** | 43.256 | 55.2455 | 74.142 | 109.78 |
| **400** | 66.9721 | 87.1351 | 119.307 | 170.129 |
| **800** | 85.59 | 112.653 | 155.839 | 223.553 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdr(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 26.6005 | 35.6638 | 51.7644 | 82.9706 |
| **100** | 41.4898 | 52.8217 | 71.3456 | 104.429 |
| **400** | 69.3167 | 90.5932 | 123.416 | 173.251 |
| **800** | 91.1759 | 120.089 | 165.245 | 233.228 |

Cell Linear Model (Best Fit):

tpdf(ps) = 13.630289195652 x load(Cinv) + 0.121987059516 x slew (ps) + 1.295963048562

tpdr(ps) = 12.824176956522 x load(Cinv) + 0.128435241935 x slew (ps) + 6.005395284011

**Tri-state Inverter Cells**

1. **Tri-state\_Inv1x2**

Dimensions:

32 x 120

Original sizing:

Tuned sizing:

Delays:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdf(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 5.0846 | 12.9253 | 27.1775 | 53.0062 |
| **100** | 38.3431 | 45.2848 | 57.6464 | 78.6011 |
| **400** | 58.2494 | 71.3255 | 92.6652 | 127.187 |
| **800** | 74.8861 | 92.3463 | 121.279 | 167.138 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdr(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 13.9281 | 21.6212 | 35.8019 | 54.8468 |
| **100** | 35.5106 | 42.6033 | 54.3002 | 74.655 |
| **400** | 56.7102 | 70.145 | 92.5554 | 126.63 |
| **800** | 72.4306 | 91.1549 | 121.688 | 169.078 |

Cell Linear Model (Best Fit):

tpdf(ps) = 8.791845478261 x load(Cinv) + 0.104035883226 x slew (ps) + 3.415509908135

tpdr(ps) = 8.673623478261 x load(Cinv) + 0.099461361290 x slew (ps) + 6.002669537167

**Tri-state Inverter Cells**

1. **Tri-state\_Inv1x4 (folded once)**

Dimensions:

52 x 120

Original sizing:

Tuned sizing:

Delays:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdf(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 0.0364 | 5.0229 | 12.9207 | 26.5537 |
| **100** | 32.4268 | 37.2244 | 44.5771 | 57.4279 |
| **400** | 48.0835 | 55.568 | 68.9296 | 90.5434 |
| **800** | 59.4251 | 69.7687 | 87.5846 | 116.999 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdr(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 19.5353 | 18.4158 | 14.2886 | 37.6977 |
| **100** | 31.6098 | 35.4553 | 42.7855 | 54.8236 |
| **400** | 50.7012 | 58.8874 | 72.6658 | 94.5729 |
| **800** | 65.7671 | 76.9164 | 95.7863 | 126.697 |

Cell Linear Model (Best Fit):

tpdf(ps) = 5.341614309348 x load(Cinv) + 0.080762916789 x slew (ps) + 4.539232802365

tpdr(ps) = 5.192401956522 x load(Cinv) + 0.082538662903 x slew (ps) + 9.741283469495

**Tri-state Inverter Cells**

1. **Tri-state\_Inv1x8 (folded twice)**

Dimensions:

68 x 120

Original sizing:

Tuned sizing:

Delays:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdf(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 0.0298 | 2.21676 | 6.5139 | 14.3631 |
| **100** | 30.187 | 33.5348 | 37.7987 | 45.365 |
| **400** | 44.5632 | 49.1362 | 56.6956 | 70.3184 |
| **800** | 55.4174 | 61.0788 | 71.6832 | 89.8294 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdr(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 19.2333 | 13.9621 | 12.7469 | 26.9591 |
| **100** | 29.0423 | 31.5309 | 35.5971 | 42.9029 |
| **400** | 45.9042 | 50.3988 | 58.691 | 72.2328 |
| **800** | 58.6622 | 64.9037 | 76.0945 | 95.5172 |

Cell Linear Model (Best Fit):

tpdf(ps) = 3.166618755435 x load(Cinv) + 0.069705353427 x slew (ps) + 7.266642146958

tpdr(ps) = 3.077615217391 x load(Cinv) + 0.065978674194 x slew (ps) + 12.914561321879

1. **NOR2x1**

Dimensions:

40 x 120

Original sizing:

Tuned sizing:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdf(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 22.4137 | 31.9445 | 50.7488 | 88.8281 |
| **100** | 45.9354 | 58.1761 | 78.7352 | 117.203 |
| **400** | 72.5289 | 92.6713 | 126.269 | 180.115 |
| **800** | 92.6652 | 118.732 | 162.223 | 232.582 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdr(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 36.0891 | 51.8592 | 80.3181 | 138.696 |
| **100** | 46.9898 | 62.3231 | 89.5433 | 149.176 |
| **400** | 74.9019 | 98.4489 | 138.165 | 201.459 |
| **800** | 97.4153 | 129.512 | 181.422 | 262.463 |

Cell Linear Model (Best Fit):

tpdf(ps) = 13.601546086957 x load(Cinv) + 0.124370819355 x slew (ps) + 6.809385883590

tpdr(ps) = 17.533884565217 x load(Cinv) + 0.115508985484 x slew (ps) + 11.631368848177