**2-Input NAND Cells**

1. **NAND2x1**

Dimesnions:

36 x 120

Original sizing:

Tuned sizing:

Delays:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdf(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 16.3009 | 28.5709 | 50.2015 | 86.8779 |
| **100** | 38.0448 | 49.6206 | 68.3009 | 103.105 |
| **400** | 59.4107 | 79.0528 | 110.979 | 161.335 |
| **800** | 74.5436 | 100.958 | 143.297 | 209.847 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdr(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 14.83 | 22.3041 | 40.6549 | 66.5972 |
| **100** | 38.3526 | 49.2814 | 65.8139 | 94.3863 |
| **400** | 69.1774 | 89.229 | 120.465 | 167.56 |
| **800** | 94.1141 | 121.631 | 164.509 | 229.724 |

Cell Linear Model (Best Fit):

tpdf(ps) = 16.106939999999998 x load(Cinv) + 0.12214785806451611 x slew (ps) -1.4590538709677219

tpdr(ps) = 13.093143260869564 x load(Cinv) + 0.14592007903225804 x slew (ps) -0.15506916374472723

1. **NAND2x2**

Dimesnions:

36 x 120

Original sizing:

Tuned sizing:

Delays:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdf(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 12.5677 | 20.7832 | 36.4311 | 65.3754 |
| **100** | 35.2224 | 43.6537 | 58.0136 | 81.5559 |
| **400** | 57.031 | 71.9347 | 96.3009 | 136.061 |
| **800** | 74.1462 | 94.0258 | 127.441 | 182.802 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdr(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 17.7703 | 18.2125 | 32.0897 | 47.295 |
| **100** | 33.5299 | 41.1023 | 53.5576 | 73.0562 |
| **400** | 57.2574 | 71.0814 | 93.4726 | 128.536 |
| **800** | 74.3455 | 93.3674 | 124.163 | 172.179 |

Cell Linear Model (Best Fit):

tpdf(ps) = 10.120146956521733 x load(Cinv) + 0.10404534193548386 x slew (ps) + 2.818812784011243

tpdr(ps) = 8.441584782608693 x load(Cinv) + 0.10575957741935482 x slew(ps) + 4.660681903927099

1. **NAND2x4**

Dimesnions:

36 x 120

Original sizing:

Tuned sizing:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdf(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 10.1011 | 14.7182 | 23.1935 | 38.7881 |
| **100** | 30.2024 | 35.9522 | 44.4299 | 59.3575 |
| **400** | 48.7202 | 57.4598 | 73.0375 | 98.7133 |
| **800** | 61.9548 | 74.1707 | 95.0327 | 130.527 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdr(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 16.3504 | 17.4154 | 16.4102 | 33.4909 |
| **100** | 30.298 | 34.5094 | 42.0531 | 55.12 |
| **400** | 50.6831 | 59.231 | 73.7086 | 96.8114 |
| **800** | 65.9188 | 77.5671 | 97.3082 | 129.393 |

Cell Linear Model (Best Fit):

tpdf(ps) = 6.226921956521739 x load(Cinv) + 0.08141808870967743 x slew (ps) + 6.210595082398314

tpdr(ps) = 5.357666521739131 x load(Cinv) + 0.08595746774193548 x slew(ps) + 7.989361027349226

**AOI22**

1. **AOI22x1**

Dimesnions:

52 x 120

Original sizing:

Tuned sizing:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdf(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 31.0054 | 42.9685 | 63.5066 | 100.956 |
| **100** | 45.5999 | 55.2127 | 71.7762 | 106.168 |
| **400** | 69.1568 | 83.9672 | 108.829 | 150.292 |
| **800** | 87.9592 | 107.644 | 140.763 | 195.184 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdr(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 28.3009 | 33.0595 | 42.3208 | 64.8352 |
| **100** | 42.723 | 50.5246 | 63.537 | 86.2855 |
| **400** | 71.1008 | 85.2124 | 109.102 | 147.717 |
| **800** | 93.4054 | 112.711 | 144.641 | 196.862 |

Cell Linear Model (Best Fit):

tpdf(ps) = 11.259986304347827 x load(Cinv) + 0.09238230806451608 x slew (ps) + 19.062582487727923

tpdr(ps) = 9.185026304347824 x load(Cinv) + 0.11719066290322579 x slew(ps) + 13.240317165147275

1. **AOI22x2**

Dimesnions:

52 x 120

Original sizing:

Tuned sizing:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdf(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 28.3908 | 34.3915 | 46.8056 | 68.9648 |
| **100** | 41.727 | 47.5349 | 57.3202 | 76.5308 |
| **400** | 62.2836 | 71.24 | 87.0601 | 114.026 |
| **800** | 78.3427 | 90.3286 | 111.31 | 147.234 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **tpdr(ps):** | | | | |
| **input transition (ps)\load (Cinv)** | **1** | **2** | **4** | **8** |
| **0** | 26.6448 | 28.6683 | 34.6877 | 45.4441 |
| **100** | 39.4303 | 44.1436 | 52.5154 | 67.0938 |
| **400** | 65.658 | 74.1952 | 89.3673 | 114.305 |
| **800** | 86.2762 | 97.7751 | 117.895 | 152.25 |

Cell Linear Model (Best Fit):

tpdf(ps) = 6.944980434782608 x load(Cinv) + 0.07728578387096774 x slew (ps) + 21.556606111500713

tpdr(ps) = 5.711884782608695 x load(Cinv) + 0.09791733225806452 x slew(ps) + 17.779161581346422