

# SPDM Technology

## Scalable Polynomial Delay Model

Access Time of Q[10] vs CLK : (rise)							
	0.010ns	0.050ns	0.100ns	0.200ns	0.400ns	0.600ns	1.000ns
0.000pf	1.2679e-09	1.2628e-09	1.2771e-09	1.3011e-09	1.3390e-09	1.3420e-09	1.3759e-09
0.017pf	1.2843e-09	1.2796e-09	1.2937e-09	1.3178e-09	1.3557e-09	1.3588e-09	1.3925e-09
0.034pf	1.2984e-09	1.2938e-09	1.3078e-09	1.3321e-09	1.3700e-09	1.3730e-09	1.4066e-09
0.062pf	1.3198e-09	1.3151e-09	1.3292e-09	1.3535e-09	1.3915e-09	1.3944e-09	1.4278e-09
0.165pf	1.3944e-09	1.3897e-09	1.4037e-09	1.4281e-09	1.4659e-09	1.4689e-09	1.5021e-09
0.335pf	1.5151e-09	1.5106e-09	1.5245e-09	1.5487e-09	1.5867e-09	1.5898e-09	1.6227e-09
0.675pf	1.7600e-09	1.7556e-09	1.7698e-09	1.7938e-09	1.8318e-09	1.8349e-09	1.8677e-09

Access Time of Q[10] vs CLK : (rise)							
	0.010ns	0.050ns	0.100ns	0.200ns	0.400ns	0.600ns	1.000ns
0.000pf	1.2681e-09	1.2768e-09	1.2872e-09	1.3062e-09	1.3375e-09	1.3599e-09	1.3776e-09
0.017pf	1.2827e-09	1.2913e-09	1.3017e-09	1.3207e-09	1.3519e-09	1.3742e-09	1.3918e-09
0.034pf	1.2971e-09	1.3057e-09	1.3160e-09	1.3350e-09	1.3662e-09	1.3884e-09	1.4059e-09
0.062pf	1.3206e-09	1.3292e-09	1.3395e-09	1.3584e-09	1.3895e-09	1.4116e-09	1.4288e-09
0.165pf	1.4045e-09	1.4130e-09	1.4232e-09	1.4419e-09	1.4727e-09	1.4944e-09	1.5109e-09
0.335pf	1.5343e-09	1.5427e-09	1.5527e-09	1.5711e-09	1.6012e-09	1.6223e-09	1.6375e-09
0.675pf	1.7614e-09	1.7696e-09	1.7793e-09	1.7971e-09	1.8259e-09	1.8457e-09	1.8584e-09

Actual 7x7  
Simulation

SPDM 3x3  
Simulation

Speed-up  
= 7x7 / 3x3  
= 5.4X

**Legend**  
Design Technology

# SPDM Technology

Speed-up = 5.4X and Max Error = 2.12%

	0.010ns	0.050ns	0.100ns	0.200ns	0.400ns	0.600ns	1.000ns
0.000pf	2E-13	1.4E-11	1.01E-11	5.1E-12	-1.5E-12	1.79E-11	1.7E-12
0.017pf	-1.6E-12	1.17E-11	8E-12	2.9E-12	-3.8E-12	1.54E-11	-7E-13
0.034pf	-1.3E-12	1.19E-11	8.2E-12	2.9E-12	-3.8E-12	1.54E-11	-7E-13
0.062pf	8E-13	1.41E-11	1.03E-11	4.9E-12	-2E-12	1.72E-11	1E-12
0.165pf	1.01E-11	2.33E-11	1.95E-11	1.38E-11	6.8E-12	2.55E-11	8.8E-12
0.335pf	1.92E-11	3.21E-11	2.82E-11	2.24E-11	1.45E-11	3.25E-11	1.48E-11
0.675pf	1.4E-12	1.4E-11	9.5E-12	3.3E-12	-5.9E-12	1.08E-11	-9.3E-12

**Actual 7x7  
Simulation**

**Absolute  
Max error  
= 32.5ps**

	0.010ns	0.050ns	0.100ns	0.200ns	0.400ns	0.600ns	1.000ns
0.000pf	0.02%	1.11%	0.79%	0.39%	-0.11%	1.33%	0.12%
0.017pf	-0.12%	0.91%	0.62%	0.22%	-0.28%	1.13%	-0.05%
0.034pf	-0.10%	0.92%	0.63%	0.22%	-0.28%	1.12%	-0.05%
0.062pf	0.06%	1.07%	0.77%	0.36%	-0.14%	1.23%	0.07%
0.165pf	0.72%	1.68%	1.39%	0.97%	0.46%	1.74%	0.59%
0.335pf	1.27%	2.12%	1.85%	1.45%	0.91%	2.04%	0.91%
0.675pf	0.08%	0.80%	0.54%	0.18%	-0.32%	0.59%	-0.50%

**SPDM 3x3  
Simulation**

**Max error  
= 2.12%**