Random(4000000,2)

# of cores	1	2	3	4	5	6	7	8	16	32	64	128
serial	4.34	—	—	—	—	—	—	—	—	—	—	—
serial_call	3.71 (1.17)	—	—	—	—	—	—	—	—	—	—	—
serial_call_membar	3.69 (1.18)	—	—	—	—	—	—	—	—	—	—	—
Cilk_membar	4.76 (0.912)	2.61 (1.66)	1.74 (2.49)	1.49 (2.91)	1.31 (3.31)	1.11 (3.91)	1.07 (4.06)	1.00 (4.34)	0.604 (7.19)	0.439 (9.89)	0.416 (10.43)	0.485 (8.95)
Cilk_R_membar	4.30 (1.01)	2.38 (1.82)	1.59 (2.73)	1.21 (3.59)	1.01 (4.30)	0.820 (5.29)	0.726 (5.98)	0.642 (6.76)	0.339 (12.80)	0.227 (19.12)	0.298 (14.56)	0.479 (9.06)
Tascell_CLSC_membar	4.17 (1.04)	3.55 (1.22)	1.99 (2.18)	1.76 (2.47)	1.20 (3.62)	0.930 (4.67)	0.895 (4.85)	0.831 (5.22)	0.392 (11.07)	0.210 (20.67)	0.133 (32.63)	0.124 (35.00)
Tascell_LWSC_membar	3.90 (1.11)	3.37 (1.29)	1.89 (2.30)	1.67 (2.60)	1.16 (3.74)	0.882 (4.92)	0.848 (5.12)	0.725 (5.99)	0.349 (12.44)	0.182 (23.85)	0.121 (35.87)	0.122 (35.57)
Tascell_XCCL_membar	4.19 (1.04)	2.18 (1.99)	1.74 (2.49)	1.30 (3.34)	1.06 (4.09)	0.898 (4.83)	0.755 (5.75)	0.661 (6.57)	0.352 (12.33)	0.191 (22.72)	0.141 (30.78)	0.146 (29.73)
Tascell_XCCC_membar	3.86 (1.12)	3.34 (1.30)	1.86 (2.33)	1.52 (2.86)	1.02 (4.25)	0.845 (5.14)	0.880 (4.93)	0.733 (5.92)	0.348 (12.47)	0.185 (23.46)	0.122 (35.57)	0.123 (35.28)
serial_call_800	4.15 (1.05)	—	—	—	—	—	—	—	—	—	—	—
serial_call_membar_800	4.08 (1.06)	—	—	—	—	—	—	—	—	—	—	—
Cilk_membar_800	6.45 (0.673)	2.98 (1.46)	3.09 (1.40)	1.42 (3.06)	1.22 (3.56)	1.35 (3.21)	1.36 (3.19)	0.996 (4.36)	0.911 (4.76)	0.488 (8.89)	0.228 (19.04)	0.197 (22.03)
Cilk_R_membar_800	5.18 (0.838)	2.52 (1.72)	1.66 (2.61)	1.24 (3.50)	0.988 (4.39)	0.859 (5.05)	0.732 (5.93)	0.642 (6.76)	0.359 (12.09)	0.213 (20.38)	0.230 (18.87)	0.608 (7.14)
Tascell_CLSC_membar_800	4.64 (0.935)	2.36 (1.84)	1.44 (3.01)	1.20 (3.62)	1.02 (4.25)	0.864 (5.02)	0.839 (5.17)	0.715 (6.07)	0.358 (12.12)	0.178 (24.38)	0.144 (30.14)	0.249 (17.43)
Tascell_LWSC_membar_800	4.35 (0.998)	2.23 (1.95)	1.36 (3.19)	1.09 (3.98)	1.03 (4.21)	0.808 (5.37)	0.743 (5.84)	0.621 (6.99)	0.318 (13.65)	0.160 (27.12)	0.166 (26.14)	0.362 (11.99)
Tascell_XCCL_membar_800	4.26 (1.02)	2.14 (2.03)	1.76 (2.47)	1.31 (3.31)	1.08 (4.02)	0.883 (4.92)	0.737 (5.89)	0.640 (6.78)	0.323 (13.44)	—	15.4 (0.282)	—
Tascell_XCCC_membar_800	4.33 (1.00)	2.21 (1.96)	1.34 (3.24)	1.29 (3.36)	0.888 (4.89)	0.812 (5.34)	0.715 (6.07)	0.634 (6.85)	0.336 (12.92)	0.160 (27.12)	0.120 (36.17)	0.187 (23.21)

# of cores	1	2	3	4	5	6	7	8	16	32	64	128
serial	5.84	—	—	—	—	—	—	—	—	—	—	—
serial_call	4.74 (1.23)	—	—	—	—	—	—	—	—	—	—	—
serial_call_membar	4.72 (1.24)	—	—	—	—	—	—	—	—	—	—	—
Cilk_membar	6.25 (0.934)	3.88 (1.51)	2.81 (2.08)	2.50 (2.34)	2.23 (2.62)	2.12 (2.75)	2.01 (2.91)	1.93 (3.03)	1.68 (3.48)	1.59 (3.67)	1.62 (3.60)	1.75 (3.34)
Cilk_R_membar	5.30 (1.10)	2.94 (1.99)	1.91 (3.06)	1.48 (3.95)	1.17 (4.99)	1.01 (5.78)	0.861 (6.78)	0.776 (7.53)	0.412 (14.17)	0.244 (23.93)	0.182 (32.09)	0.291 (20.07)
Tascell_CLSC_membar	5.31 (1.10)	2.77 (2.11)	1.85 (3.16)	1.59 (3.67)	1.28 (4.56)	1.11 (5.26)	0.966 (6.05)	0.897 (6.51)	0.481 (12.14)	0.261 (22.38)	0.207 (28.21)	0.144 (40.56)
Tascell_LWSC_membar	5.02 (1.16)	2.62 (2.23)	1.83 (3.19)	1.49 (3.92)	1.21 (4.83)	1.02 (5.73)	0.865 (6.75)	0.782 (7.47)	0.411 (14.21)	0.230 (25.39)	0.158 (36.96)	0.138 (42.32)
Tascell_XCCL_membar	4.93 (1.18)	2.57 (2.27)	1.82 (3.21)	1.45 (4.03)	1.17 (4.99)	0.973 (6.00)	0.872 (6.70)	0.792 (7.37)	0.418 (13.97)	0.237 (24.64)	0.158 (36.96)	0.135 (43.26)
Tascell_XCCC_membar	4.89 (1.19)	2.56 (2.28)	1.79 (3.26)	1.45 (4.03)	1.15 (5.08)	0.985 (5.93)	0.865 (6.75)	0.755 (7.74)	0.402 (14.53)	0.218 (26.79)	0.159 (36.73)	0.134 (43.58)
serial_call_800	4.75 (1.23)	—	—	—	—	—	—	—	—	—	—	—
serial_call_membar_800	4.75 (1.23)	—	—	—	—	—	—	—	—	—	—	—
Cilk_membar_800	6.15 (0.950)	3.87 (1.51)	2.80 (2.09)	2.51 (2.33)	2.24 (2.61)	2.11 (2.77)	2.03 (2.88)	1.92 (3.04)	1.68 (3.48)	1.61 (3.63)	1.60 (3.65)	1.73 (3.38)
Cilk_R_membar_800	5.30 (1.10)	2.90 (2.01)	1.91 (3.06)	1.49 (3.92)	1.18 (4.95)	1.01 (5.78)	0.895 (6.53)	0.783 (7.46)	0.415 (14.07)	0.241 (24.23)	0.189 (30.90)	0.261 (22.38)
Tascell_CLSC_membar_800	5.31 (1.10)	2.79 (2.09)	1.96 (2.98)	1.58 (3.70)	1.29 (4.53)	1.12 (5.21)	1.00 (5.84)	0.900 (6.49)	0.477 (12.24)	0.260 (22.46)	0.226 (25.84)	0.206 (28.35)
Tascell_LWSC_membar_800	5.03 (1.16)	2.63 (2.22)	1.83 (3.19)	1.50 (3.89)	1.21 (4.83)	1.01 (5.78)	0.902 (6.47)	0.791 (7.38)	0.419 (13.94)	0.226 (25.84)	0.167 (34.97)	0.151 (38.68)
Tascell_XCCL_membar_800	4.94 (1.18)	2.70 (2.16)	1.77 (3.30)	1.50 (3.89)	1.33 (4.39)	1.45 (4.03)	1.03 (5.67)	1.35 (4.33)	0.445 (13.12)	20.4 (0.286)	18.8 (0.311)	21.6 (0.270)
Tascell_XCCC_membar_800	4.89 (1.19)	2.57 (2.27)	1.78 (3.28)	1.44 (4.06)	1.17 (4.99)	0.988 (5.91)	0.862 (6.77)	0.772 (7.56)	0.412 (14.17)	0.222 (26.31)	0.143 (40.84)	0.145 (40.28)

2D-torus(2000)

# of cores	1	2	3	4	5	6	7	8	16	32	64	128
serial	1.19	—	—	—	—	—	—	—	—	—	—	—
serial_call	1.36 (0.875)	—	—	—	—	—	—	—	—	—	—	—
serial_call_membar	1.29 (0.922)	—	—	—	—	—	—	—	—	—	—	—
Cilk_membar	3.52 (0.338)	2.11 (0.564)	1.59 (0.748)	1.41 (0.844)	1.29 (0.922)	1.27 (0.937)	1.31 (0.908)	1.38 (0.862)	1.66 (0.717)	1.93 (0.617)	2.24 (0.531)	2.72 (0.437)
Cilk_R_membar	2.21 (0.538)	1.21 (0.983)	0.841 (1.41)	0.637 (1.87)	0.514 (2.32)	0.464 (2.56)	0.427 (2.79)	0.392 (3.04)	0.327 (3.64)	0.386 (3.08)	0.655 (1.82)	1.61 (0.739)
Tascell_CLSC_membar	1.88 (0.633)	1.05 (1.13)	0.878 (1.36)	0.756 (1.57)	0.626 (1.90)	0.550 (2.16)	0.506 (2.35)	0.484 (2.46)	0.317 (3.75)	0.281 (4.23)	0.399 (2.98)	0.725 (1.64)
Tascell_LWSC_membar	1.57 (0.758)	0.878 (1.36)	0.745 (1.60)	0.640 (1.86)	0.523 (2.28)	0.458 (2.60)	0.420 (2.83)	0.403 (2.95)	0.281 (4.23)	0.270 (4.41)	0.372 (3.20)	0.677 (1.76)
Tascell_XCCL_membar	1.40 (0.850)	0.787 (1.51)	0.678 (1.76)	0.630 (1.89)	0.587 (2.03)	0.556 (2.14)	0.553 (2.15)	0.546 (2.18)	0.486 (2.45)	0.466 (2.55)	0.567 (2.10)	0.841 (1.41)
Tascell_XCCC_membar	1.52 (0.783)	0.851 (1.40)	0.719 (1.66)	0.618 (1.93)	0.509 (2.34)	0.445 (2.67)	0.412 (2.89)	0.390 (3.05)	0.265 (4.49)	0.257 (4.63)	0.370 (3.22)	0.658 (1.81)
serial_call_800	1.54 (0.773)	—	—	—	—	—	—	—	—	—	—	—
serial_call_membar_800	1.52 (0.783)	—	—	—	—	—	—	—	—	—	—	—
Cilk_membar_800	3.38 (0.352)	2.00 (0.595)	1.48 (0.804)	1.22 (0.975)	1.10 (1.08)	1.04 (1.14)	0.992 (1.20)	1.07 (1.11)	1.25 (0.952)	1.19 (1.00)	1.13 (1.05)	1.24 (0.960)
Cilk_R_membar_800	2.46 (0.484)	1.35 (0.881)	0.976 (1.22)	0.791 (1.50)	0.675 (1.76)	0.636 (1.87)	0.598 (1.99)	0.602 (1.98)	0.756 (1.57)	0.855 (1.39)	0.944 (1.26)	1.26 (0.944)
Tascell_CLSC_membar_800	2.18 (0.546)	1.33 (0.895)	1.00 (1.19)	0.982 (1.21)	0.948 (1.26)	0.826 (1.44)	0.796 (1.49)	0.787 (1.51)	0.612 (1.94)	0.503 (2.37)	0.474 (2.51)	0.592 (2.01)
Tascell_LWSC_membar_800	1.80 (0.661)	1.07 (1.11)	0.870 (1.37)	1.00 (1.19)	0.732 (1.63)	0.887 (1.34)	0.751 (1.58)	0.838 (1.42)	0.663 (1.79)	0.657 (1.81)	0.605 (1.97)	0.702 (1.70)
Tascell_XCCL_membar_800	1.72 (0.692)	24.3 (0.049)	53.8 (0.022)	41.8 (0.028)	54.1 (0.022)	64.7 (0.018)	42.4 (0.028)	51.8 (0.023)	51.8 (0.023)	60.8 (0.020)	80.0 (0.015)	98.1 (0.012)
Tascell_XCCC_membar_800	1.77 (0.672)	1.07 (1.11)	0.839 (1.42)	0.761 (1.56)	0.616 (1.93)	0.585 (2.03)	0.553 (2.15)	0.526 (2.26)	0.368 (3.23)	0.314 (3.79)	0.290 (4.10)	0.392 (3.04)

Bintree(24)

# of cores	1	2	3	4	5	6	7	8	16	32	64	128
serial	2.54	—	—	—	—	—	—	—	—	—	—	—
serial_call	2.82 (0.901)	—	—	—	—	—	—	—	—	—	—	—
serial_call_membar	2.84 (0.894)	—	—	—	—	—	—	—	—	—	—	—
Cilk_membar	6.22 (0.408)	2.95 (0.861)	2.09 (1.22)	1.58 (1.61)	1.25 (2.03)	1.05 (2.42)	0.901 (2.82)	0.815 (3.12)	0.403 (6.30)	0.210 (12.10)	0.118 (21.53)	0.0823 (30.86)
Cilk_R_membar	5.23 (0.486)	2.63 (0.966)	1.79 (1.42)	1.35 (1.88)	1.06 (2.40)	0.900 (2.82)	0.763 (3.33)	0.670 (3.79)	0.354 (7.18)	0.197 (12.89)	0.168 (15.12)	0.222 (11.44)
Tascell_CLSC_membar	4.45 (0.571)	2.46 (1.03)	2.50 (1.02)	2.01 (1.26)	1.44 (1.76)	1.27 (2.00)	1.13 (2.25)	1.09 (2.33)	0.539 (4.71)	0.279 (9.10)	0.151 (16.82)	0.0858 (29.60)
Tascell_LWSC_membar	3.39 (0.749)	1.89 (1.34)	1.91 (1.33)	1.57 (1.62)	1.15 (2.21)	0.906 (2.80)	0.800 (3.17)	0.773 (3.29)	0.388 (6.55)	0.192 (13.23)	0.108 (23.52)	0.0689 (36.87)
Tascell_XCCL_membar	3.06 (0.830)	1.64 (1.55)	1.30 (1.95)	1.33 (1.91)	0.927 (2.74)	0.785 (3.24)	0.677 (3.75)	0.609 (4.17)	0.320 (7.94)	0.170 (14.94)	0.0989 (25.68)	0.0674 (37.69)
Tascell_XCCC_membar	3.45 (0.736)	1.88 (1.35)	1.90 (1.34)	1.37 (1.85)	1.08 (2.35)	0.925 (2.75)	0.815 (3.12)	0.855 (2.97)	0.392 (6.48)	0.204 (12.45)	0.113 (22.48)	0.0678 (37.46)
serial_call_800	2.82 (0.901)	—	—	—	—	—	—	—	—	—	—	—
serial_call_membar_800	2.84 (0.894)	—	—	—	—	—	—	—	—	—	—	—
Cilk_membar_800	6.20 (0.410)	2.95 (0.861)	2.09 (1.22)	1.58 (1.61)	1.24 (2.05)	1.06 (2.40)	0.892 (2.85)	0.816 (3.11)	0.402 (6.32)	0.211 (12.04)	0.115 (22.09)	0.0759 (33.47)
Cilk_R_membar_800	5.20 (0.488)	2.63 (0.966)	1.80 (1.41)	1.35 (1.88)	1.05 (2.42)	0.899 (2.83)	0.779 (3.26)	0.670 (3.79)	0.357 (7.11)	0.196 (12.96)	0.160 (15.88)	0.230 (11.04)
Tascell_CLSC_membar_800	4.45 (0.571)	2.46 (1.03)	2.50 (1.02)	2.00 (1.27)	1.54 (1.65)	1.27 (2.00)	1.15 (2.21)	1.05 (2.42)	0.546 (4.65)	0.267 (9.51)	0.153 (16.60)	0.0868 (29.26)
Tascell_LWSC_membar_800	3.39 (0.749)	1.89 (1.34)	1.91 (1.33)	1.39 (1.83)	1.05 (2.42)	0.880 (2.89)	0.796 (3.19)	0.823 (3.09)	0.391 (6.50)	0.194 (13.09)	0.111 (22.88)	0.0685 (37.08)
Tascell_XCCL_membar_800	3.06 (0.830)	1.64 (1.55)	1.30 (1.95)	1.24 (2.05)	0.832 (3.05)	0.766 (3.32)	0.663 (3.83)	0.625 (4.06)	0.322 (7.89)	0.172 (14.77)	0.101 (25.15)	0.0730 (34.79)
Tascell_XCCC_membar_800	3.45 (0.736)	1.88 (1.35)	1.90 (1.34)	1.54 (1.65)	1.10 (2.31)	0.936 (2.71)	0.821 (3.09)	0.790 (3.22)	0.399 (6.37)	0.200 (12.70)	0.114 (22.28)	0.0695 (36.55)