

**Table 1: Ablating causally purified rules over 30 runs.**

System	$B = 50$		$B = 100$		$B = 150$		$B = 200$	
	PromiseTune	w/o Rules	PromiseTune	w/o Rules	PromiseTune	w/o Rules	PromiseTune	w/o Rules
<b>7z</b>	4708.867 (1183.605)	4800.740 (1160.876)	4293.207 (40.522)	4456.813 (263.886)	4269.313 (43.412)	4405.520 (240.559)	4251.480 (37.055)	4321.780 (80.913)
<b>DConvert</b>	1.820 (0.028)	1.845 (0.061)	1.803 (0.020)	1.811 (0.022)	1.795 (0.013)	1.808 (0.020)	1.795 (0.013)	1.807 (0.020)
<b>EXASTENCILS</b>	4922.653 (250.626)	4942.507 (242.211)	4843.920 (242.212)	4873.913 (241.676)	4830.120 (245.468)	4839.173 (240.694)	826.827 (245.611)	813.073 (229.708)
<b>BDB-C</b>	0.365 (0.023)	0.377 (0.036)	0.355 (0.003)	0.356 (0.003)	0.354 (0.001)	0.355 (0.002)	0.354 (0.000)	0.354 (0.001)
<b>DEEPARCH</b>	1.051 (0.006)	1.052 (0.011)	.048 (0.005)	.048 (0.004)	1.046 (0.002)	1.046 (0.002)	1.045 (0.000)	1.046 (0.001)
<b>PostgreSQL</b>	0735.240 (56.360)	0716.433 (27.772)	50689.860 (28.115)	50697.353 (28.525)	50682.680 (22.001)	50690.393 (20.626)	50677.740 (16.709)	50683.553 (18.144)
<b>JAVAGC</b>	422.250 (23.347)	430.500 (27.083)	407.067 (6.930)	411.433 (11.583)	405.700 (5.487)	409.267 (10.873)	404.367 (3.049)	406.383 (4.893)
<b>STORM</b>	0.997 (0.005)	0.995 (0.005)	1.000 (0.000)	0.999 (0.003)	1.000 (0.000)	1.000 (0.002)	1.000 (0.000)	1.000 (0.002)
<b>x264</b>	27.348 (1.900)	27.716 (2.195)	26.666 (1.633)	26.789 (1.651)	26.246 (1.570)	26.533 (1.531)	26.089 (1.356)	26.248 (1.454)
<b>Redis</b>	83684.976 (1730.885)	82876.145 (1673.499)	84630.706 (1537.265)	84348.184 (1498.053)	85131.509 (1616.623)	84845.434 (1646.513)	85437.554 (1573.519)	85278.694 (1532.202)
<b>HSQldb</b>	48.493 (0.382)	48.453 (0.296)	248.327 (0.203)	248.333 (0.196)	248.247 (0.112)	248.300 (0.184)	248.247 (0.112)	248.280 (0.176)
<b>LLVM</b>	199.970 (0.449)	200.102 (0.590)	199.683 (0.000)	199.770 (0.160)	199.683 (0.000)	199.683 (0.000)	199.683 (0.000)	199.683 (0.000)