

TABLE XI: Performance comparison of DLiSA against its variants (i.e., DLiSA-I and DLiSA-II) of over 100 run in system LRZIP. Statistically significant discrepancies are shown in bold ( $\hat{A}_{12}>0.56$  and  $p$  value  $< 0.05$ ), where green cells indicate that DLiSA performs better; or red cells otherwise.

Workload	Algorithm	Mean (Std)	$\hat{A}_{12}$ ( $p$ value)
W1	DLiSA	3.137 (0.041)	
	DLiSA-I	3.158 (0.077)	<b>0.616 (<math>p = 0.003</math>)</b>
	DLiSA-II	3.151 (0.064)	<b>0.626 (<math>p = 0.001</math>)</b>
W2	DLiSA	0.030 (0.000)	
	DLiSA-I	0.030 (0.000)	0.500 ( $p = 1.000$ )
	DLiSA-II	0.030 (0.001)	0.505 ( $p = 0.322$ )
W3	DLiSA	3.308 (0.015)	
	DLiSA-I	3.315 (0.023)	<b>0.595 (<math>p = 0.011</math>)</b>
	DLiSA-II	3.318 (0.030)	<b>0.579 (<math>p = 0.035</math>)</b>
W4	DLiSA	7.131 (0.062)	
	DLiSA-I	7.145 (0.107)	0.530 ( $p = 0.409$ )
	DLiSA-II	7.155 (0.083)	<b>0.582 (<math>p = 0.026</math>)</b>
W5	DLiSA	33.412 (0.109)	
	DLiSA-I	33.507 (0.314)	0.560 ( $p = 0.088$ )
	DLiSA-II	33.496 (0.302)	0.524 ( $p = 0.486$ )
W6	DLiSA	0.973 (0.007)	
	DLiSA-I	0.974 (0.006)	0.525 ( $p = 0.421$ )
	DLiSA-II	0.974 (0.008)	0.512 ( $p = 0.706$ )
W7	DLiSA	0.196 (0.005)	
	DLiSA-I	0.197 (0.005)	0.532 ( $p = 0.350$ )
	DLiSA-II	0.196 (0.005)	0.505 ( $p = 0.887$ )
W8	DLiSA	10.919 (0.029)	
	DLiSA-I	10.921 (0.027)	0.541 ( $p = 0.269$ )
	DLiSA-II	10.918 (0.031)	0.512 ( $p = 0.741$ )
W9	DLiSA	9.152 (0.401)	
	DLiSA-I	9.250 (0.397)	<b>0.606 (<math>p = 0.007</math>)</b>
	DLiSA-II	9.215 (0.453)	0.532 ( $p = 0.419$ )
W10	DLiSA	5.321 (0.137)	
	DLiSA-I	5.333 (0.157)	0.525 ( $p = 0.461$ )
	DLiSA-II	5.399 (0.271)	0.546 ( $p = 0.170$ )
W11	DLiSA	2.113 (0.043)	
	DLiSA-I	2.122 (0.045)	0.572 ( $p = 0.072$ )
	DLiSA-II	2.120 (0.045)	0.548 ( $p = 0.222$ )
W12	DLiSA	3.495 (0.094)	
	DLiSA-I	3.515 (0.103)	0.536 ( $p = 0.307$ )
	DLiSA-II	3.529 (0.111)	<b>0.581 (<math>p = 0.025</math>)</b>
W13	DLiSA	2.532 (0.020)	
	DLiSA-I	2.537 (0.023)	0.564 ( $p = 0.068$ )
	DLiSA-II	2.541 (0.027)	<b>0.582 (<math>p = 0.020</math>)</b>

TABLE VIII: Performance comparison of DLiSA against its variants (i.e., DLiSA-I and DLiSA-II) of over 100 run in system Z3. Statistically significant discrepancies are shown in bold ( $\hat{A}_{12}>0.56$  and  $p$  value  $< 0.05$ ), where green cells indicate that DLiSA performs better; or red cells otherwise.

Workload	Algorithm	Mean (Std)	$\hat{A}_{12}$ ( $p$ value)
W1	DLiSA	5.856 (0.011)	
	DLiSA-I	5.856 (0.011)	0.519 ( $p = 0.582$ )
	DLiSA-II	5.858 (0.012)	0.558 ( $p = 0.095$ )
W2	DLiSA	2.254 (0.608)	
	DLiSA-I	2.120 (0.510)	0.555 ( $p = 0.132$ )
	DLiSA-II	1.998 (0.435)	<b>0.619 (<math>p &lt; 0.001</math>)</b>
W3	DLiSA	0.364 (0.660)	
	DLiSA-I	0.302 (0.617)	0.506 ( $p = 0.861$ )
	DLiSA-II	0.354 (0.627)	0.511 ( $p = 0.770$ )
W4	DLiSA	2.324 (0.150)	
	DLiSA-I	2.313 (0.130)	0.503 ( $p = 0.933$ )
	DLiSA-II	2.303 (0.107)	0.508 ( $p = 0.826$ )
W5	DLiSA	3.150 (0.111)	
	DLiSA-I	3.173 (0.237)	0.532 ( $p = 0.385$ )
	DLiSA-II	3.170 (0.097)	<b>0.629 (<math>p &lt; 0.001</math>)</b>
W6	DLiSA	1.322 (0.130)	
	DLiSA-I	1.313 (0.085)	0.513 ( $p = 0.618$ )
	DLiSA-II	1.387 (0.245)	<b>0.585 (<math>p = 0.006</math>)</b>
W7	DLiSA	0.292 (0.458)	
	DLiSA-I	0.221 (0.004)	0.532 ( $p = 0.102$ )
	DLiSA-II	0.249 (0.152)	0.522 ( $p = 0.365$ )
W8	DLiSA	8.746 (0.005)	
	DLiSA-I	8.746 (0.005)	0.508 ( $p = 0.823$ )
	DLiSA-II	8.806 (0.590)	0.520 ( $p = 0.570$ )
W9	DLiSA	3.181 (0.003)	
	DLiSA-I	3.181 (0.003)	0.515 ( $p = 0.491$ )
	DLiSA-II	3.182 (0.004)	0.530 ( $p = 0.237$ )
W10	DLiSA	6.816 (0.236)	
	DLiSA-I	6.804 (0.222)	0.502 ( $p = 0.953$ )
	DLiSA-II	6.817 (0.246)	0.513 ( $p = 0.746$ )
W11	DLiSA	7.948 (0.654)	
	DLiSA-I	7.940 (0.499)	0.504 ( $p = 0.919$ )
	DLiSA-II	7.940 (0.506)	0.517 ( $p = 0.677$ )
W12	DLiSA	3.878 (0.009)	
	DLiSA-I	3.878 (0.008)	0.507 ( $p = 0.846$ )
	DLiSA-II	3.900 (0.148)	<b>0.595 (<math>p = 0.014</math>)</b>

TABLE XVI: Performance comparison of DLiSA against its variants (i.e., DLiSA-I and DLiSA-II) of over 100 run in system BATLIK. Statistically significant discrepancies are shown in bold ( $\hat{A}_{12}>0.56$  and  $p$  value  $< 0.05$ ), where green cells indicate that DLiSA performs better; or red cells otherwise.

Workload	Algorithm	Mean (Std)	$\hat{A}_{12}$ ( $p$ value)
W1	DLiSA	0.907 (0.014)	
	DLiSA-I	0.914 (0.029)	<b>0.605 (<math>p = 0.004</math>)</b>
	DLiSA-II	0.925 (0.043)	<b>0.631 (<math>p &lt; 0.001</math>)</b>
W2	DLiSA	1.338 (0.019)	
	DLiSA-I	1.342 (0.021)	<b>0.581 (<math>p = 0.023</math>)</b>
	DLiSA-II	1.348 (0.026)	<b>0.617 (<math>p = 0.001</math>)</b>
W3	DLiSA	4.196 (0.056)	
	DLiSA-I	4.209 (0.071)	<b>0.612 (<math>p = 0.004</math>)</b>
	DLiSA-II	4.247 (0.123)	<b>0.691 (<math>p &lt; 0.001</math>)</b>
W4	DLiSA	1.193 (0.026)	
	DLiSA-I	1.197 (0.022)	0.556 ( $p = 0.140$ )
	DLiSA-II	1.204 (0.027)	<b>0.624 (<math>p = 0.001</math>)</b>
W5	DLiSA	2.404 (0.036)	
	DLiSA-I	2.411 (0.037)	<b>0.581 (<math>p = 0.023</math>)</b>
	DLiSA-II	2.432 (0.057)	<b>0.662 (<math>p &lt; 0.001</math>)</b>
W6	DLiSA	3.152 (0.042)	
	DLiSA-I	3.160 (0.052)	0.545 ( $p = 0.224$ )
	DLiSA-II	3.182 (0.081)	<b>0.615 (<math>p = 0.002</math>)</b>
W7	DLiSA	1.137 (0.016)	
	DLiSA-I	1.139 (0.022)	0.532 ( $p = 0.350$ )
	DLiSA-II	1.146 (0.027)	<b>0.626 (<math>p = 0.001</math>)</b>
W8	DLiSA	7.076 (0.077)	
	DLiSA-I	7.090 (0.111)	0.547 ( $p = 0.217$ )
	DLiSA-II	7.151 (0.193)	<b>0.648 (<math>p &lt; 0.001</math>)</b>
W9	DLiSA	1.051 (0.014)	
	DLiSA-I	1.050 (0.013)	0.513 ( $p = 0.730$ )
	DLiSA-II	1.057 (0.018)	<b>0.625 (<math>p = 0.001</math>)</b>
W10	DLiSA	1.117 (0.017)	
	DLiSA-I	1.117 (0.012)	0.530 ( $p = 0.360$ )
	DLiSA-II	1.120 (0.017)	0.553 ( $p = 0.110$ )
W11	DLiSA	1.628 (0.038)	
	DLiSA-I	1.640 (0.049)	<b>0.600 (<math>p = 0.006</math>)</b>
	DLiSA-II	1.650 (0.052)	<b>0.632 (<math>p &lt; 0.001</math>)</b>

TABLE X: Performance comparison of DLiSA against its variants (i.e., DLiSA-I and DLiSA-II) of over 100 run in system X264. Statistically significant discrepancies are shown in bold ( $\hat{A}_{12}>0.56$  and  $p$  value  $< 0.05$ ), where green cells indicate that DLiSA performs better; or red cells otherwise.

Workload	Algorithm	Mean (Std)	$\hat{A}_{12}$ ( $p$ value)
W1	DLiSA	0.933 (0.152)	
	DLiSA-I	1.466 (1.755)	<b>0.697 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	0.941 (0.219)	0.532 ( $p = 0.427$ )
W2	DLiSA	3.496 (0.501)	
	DLiSA-I	5.120 (6.379)	<b>0.702 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	3.637 (0.640)	0.576 ( $p = 0.063$ )
W3	DLiSA	1.313 (0.313)	
	DLiSA-I	2.131 (2.990)	<b>0.616 (<math>p = 0.004</math>)</b>
	DLiSA-II	1.334 (0.275)	0.552 ( $p = 0.206$ )
W4	DLiSA	1.613 (0.373)	
	DLiSA-I	2.277 (2.193)	<b>0.699 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	1.683 (0.389)	<b>0.589 (<math>p = 0.03</math>)</b>
W5	DLiSA	3.185 (0.424)	
	DLiSA-I	4.688 (5.025)	<b>0.668 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	3.256 (0.529)	0.534 ( $p = 0.409$ )
W6	DLiSA	0.100 (0.016)	
	DLiSA-I	0.130 (0.105)	<b>0.678 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	0.102 (0.015)	0.561 ( $p = 0.124$ )
W7	DLiSA	0.589 (0.151)	
	DLiSA-I	0.917 (1.191)	<b>0.626 (<math>p = 0.002</math>)</b>
	DLiSA-II	0.589 (0.125)	0.528 ( $p = 0.495$ )
W8	DLiSA	0.137 (0.022)	
	DLiSA-I	0.187 (0.188)	<b>0.656 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	0.139 (0.024)	0.504 ( $p = 0.922$ )
W9	DLiSA	0.247 (0.034)	
	DLiSA-I	0.283 (0.195)	0.577 ( $p = 0.056$ )
	DLiSA-II	0.251 (0.039)	0.514 ( $p = 0.732$ )

TABLE XIII: Performance comparison of DLiSA against its variants (i.e., DLiSA-I and DLiSA-II) of over 100 run in system JUMP3R. Statistically significant discrepancies are shown in bold ( $\hat{A}_{12}>0.56$  and  $p$  value  $< 0.05$ ), where green cells indicate that DLiSA performs better; or red cells otherwise.

Workload	Algorithm	Mean (Std)	$\hat{A}_{12}$ ( $p$ value)
W1	DLiSA	2.573 (0.828)	
	DLiSA-I	2.644 (0.629)	<b>0.593 (<math>p = 0.023</math>)</b>
	DLiSA-II	2.565 (0.624)	0.546 ( $p = 0.263$ )
W2	DLiSA	0.846 (0.197)	
	DLiSA-I	0.927 (0.252)	<b>0.606 (<math>p = 0.009</math>)</b>
	DLiSA-II	0.908 (0.226)	<b>0.592 (<math>p = 0.025</math>)</b>
W3	DLiSA	1.309 (0.368)	
	DLiSA-I	1.431 (0.384)	<b>0.611 (<math>p = 0.007</math>)</b>
	DLiSA-II	1.380 (0.365)	0.573 ( $p = 0.075$ )
W4	DLiSA	0.642 (0.076)	
	DLiSA-I	0.678 (0.136)	<b>0.582 (<math>p = 0.045</math>)</b>
	DLiSA-II	0.691 (0.141)	<b>0.594 (<math>p = 0.021</math>)</b>
W5	DLiSA	1.045 (0.246)	
	DLiSA-I	1.127 (0.281)	<b>0.642 (<math>p = 0.001</math>)</b>
	DLiSA-II	1.174 (0.378)	<b>0.631 (<math>p = 0.001</math>)</b>
W6	DLiSA	0.298 (0.018)	
	DLiSA-I	0.307 (0.028)	<b>0.622 (<math>p = 0.002</math>)</b>
	DLiSA-II	0.305 (0.033)	0.565 ( $p = 0.099$ )

TABLE IX: Performance comparison of DLiSA against its variants (i.e., DLiSA-I and DLiSA-II) of over 100 run in system XZ. Statistically significant discrepancies are shown in bold ( $\hat{A}_{12}>0.56$  and  $p$  value  $< 0.05$ ), where green cells indicate that DLiSA performs better; or red cells otherwise.

Workload	Algorithm	Mean (Std)	$\hat{A}_{12}$ ( $p$ value)
W1	DLiSA	3.693 (0.772)	
	DLiSA-I	5.958 (3.322)	<b>0.809 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	3.954 (1.016)	<b>0.615 (<math>p = 0.005</math>)</b>
W2	DLiSA	0.012 (0.004)	
	DLiSA-I	0.017 (0.007)	<b>0.688 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	0.012 (0.004)	0.525 ( $p = 0.374$ )
W3	DLiSA	3.582 (0.650)	
	DLiSA-I	5.619 (2.737)	<b>0.776 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	3.786 (0.882)	0.576 ( $p = 0.063$ )
W4	DLiSA	11.001 (3.132)	
	DLiSA-I	18.954 (15.539)	<b>0.785 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	11.113 (2.941)	0.528 ( $p = 0.500$ )
W5	DLiSA	10.406 (2.390)	
	DLiSA-I	16.746 (8.990)	<b>0.809 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	11.480 (3.324)	<b>0.592 (<math>p = 0.025</math>)</b>
W6	DLiSA	1.552 (0.410)	
	DLiSA-I	2.749 (1.397)	<b>0.850 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	1.750 (0.457)	<b>0.646 (<math>p &lt; 0.001</math>)</b>
W7	DLiSA	0.193 (0.010)	
	DLiSA-I	0.230 (0.047)	<b>0.828 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	0.201 (0.018)	<b>0.620 (<math>p = 0.002</math>)</b>
W8	DLiSA	22.957 (5.456)	
	DLiSA-I	34.327 (14.209)	<b>0.775 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	24.631 (7.130)	0.556 ( $p = 0.174$ )
W9	DLiSA	20.050 (4.127)	
	DLiSA-I	35.576 (29.394)	<b>0.811 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	21.464 (5.679)	0.572 ( $p = 0.079$ )
W10	DLiSA	10.280 (2.502)	
	DLiSA-I	16.846 (10.210)	<b>0.811 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	10.978 (3.135)	0.566 ( $p = 0.109$ )
W11	DLiSA	2.604 (0.539)	
	DLiSA-I	3.957 (1.900)	<b>0.782 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	2.858 (0.832)	<b>0.586 (<math>p = 0.035</math>)</b>
W12	DLiSA	5.132 (1.234)	
	DLiSA-I	9.175 (6.526)	<b>0.830 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	5.678 (1.753)	<b>0.588 (<math>p = 0.032</math>)</b>
W13	DLiSA	2.840 (0.573)	
	DLiSA-I	4.112 (1.645)	<b>0.774 (<math>p &lt; 0.001</math>)</b>
	DLiSA-II	3.123 (0.856)	<b>0.586 (<math>p = 0.036</math>)</b>