

Benchmark	$T_{\text{CHA}}(s)$	$T_{\text{PTA}}(s)$	$T_{\text{TFA}}(s)$	$\mathbf{R}_{--\rightarrow}$	$\mathbf{R}_{\sqsubseteq}$	$\mathbf{R}_{\rightarrow}$	$\mathbf{R}_{total}$
check	0.35	69.32	0.86	8232	12417	1836	22485
compiler	0.27	70.34	1.14	7781	11277	1990	21048
compress	0.28	71.73	1.09	7428	10947	1876	20251
crypto	0.25	69.22	1.13	7575	11220	1846	20641
derby	0.31	70.79	1.38	7979	11450	2034	21463
helloworld	0.25	70.44	1.25	7230	10543	1828	19601
mpegaudio	0.25	69.13	1.04	7279	10612	1830	19721
scimark	0.24	71.01	1.15	7451	11344	1845	20640
serial	0.43	69.20	1.07	7683	10977	1886	20546
startup	0.47	134.09	1.46	11597	17870	2651	32118
sunflow	0.25	71.26	1.07	7245	10560	1830	19635
xml	0.45	140.72	1.24	7837	11673	2016	21526

<sup>1</sup>  $\mathbf{R}_{relation}$  denotes different type of relation we generated.