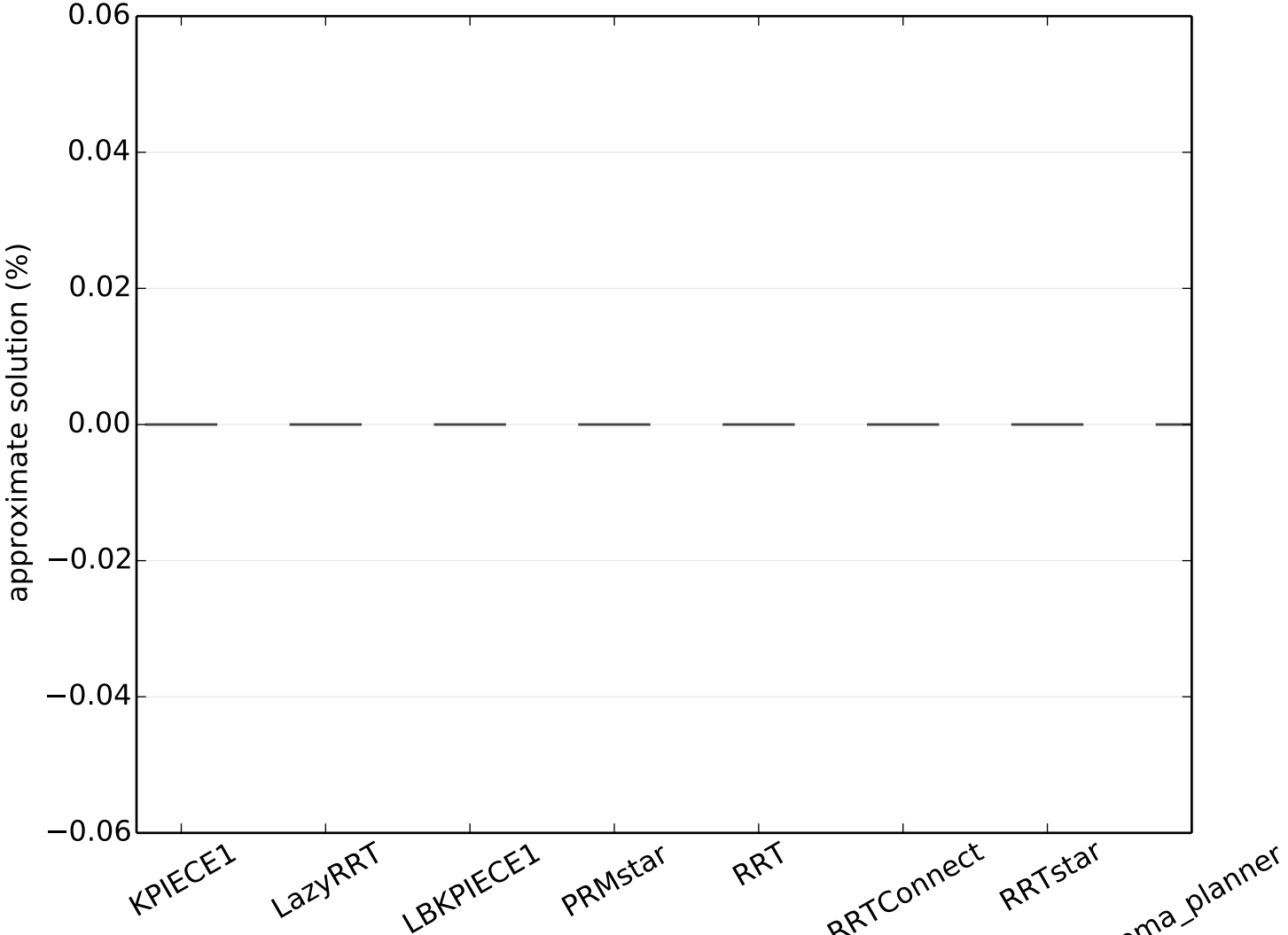
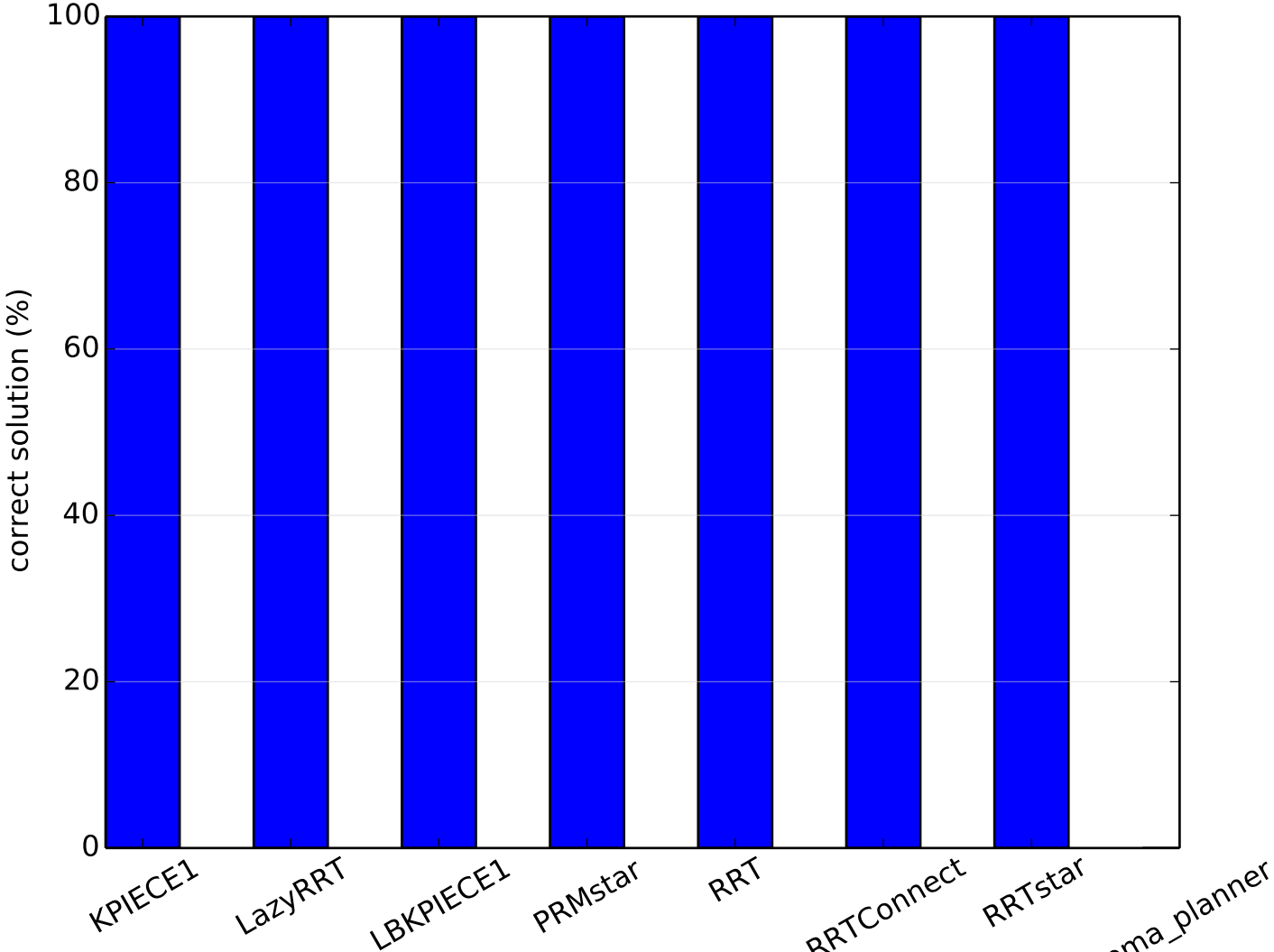
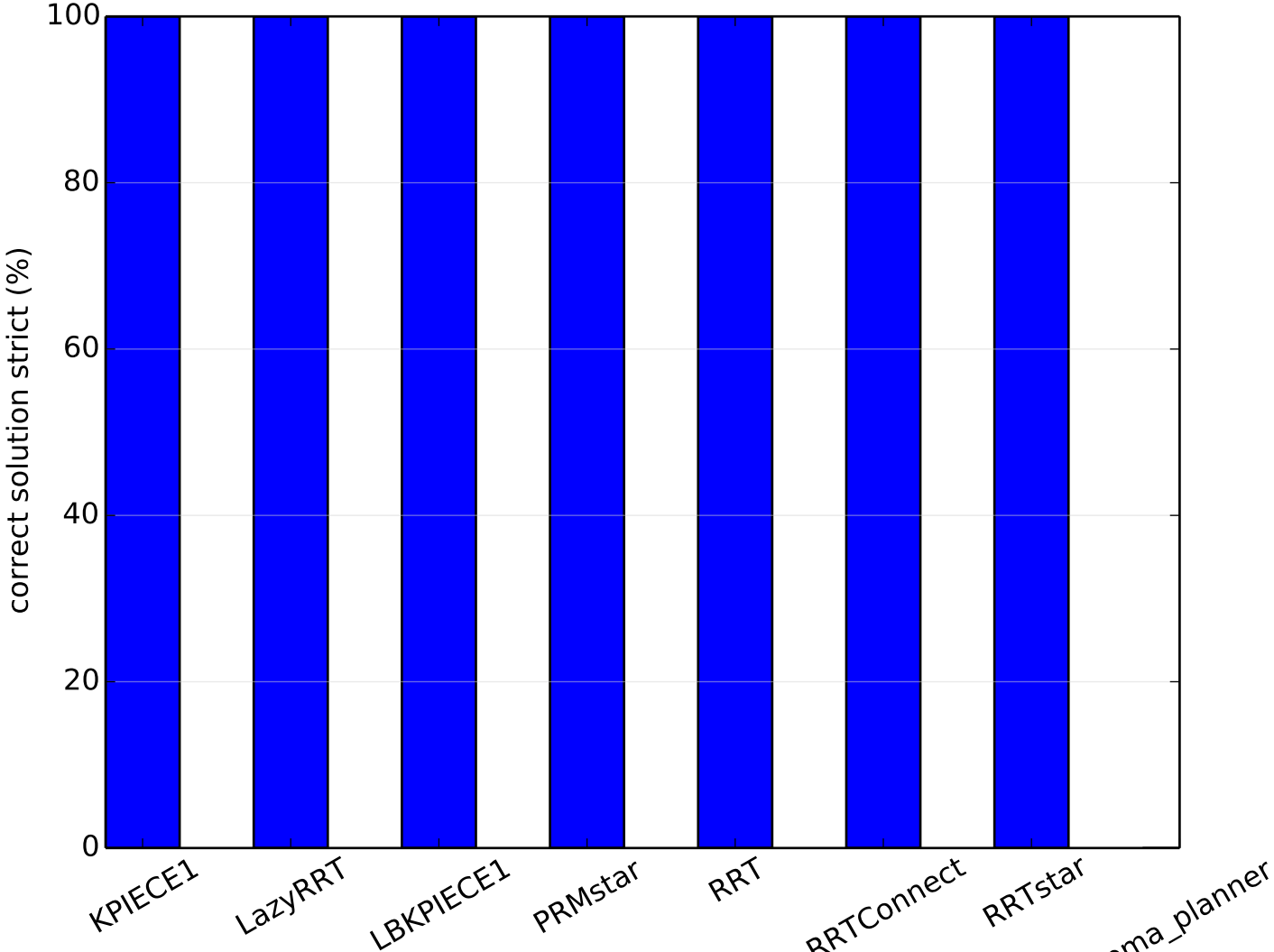
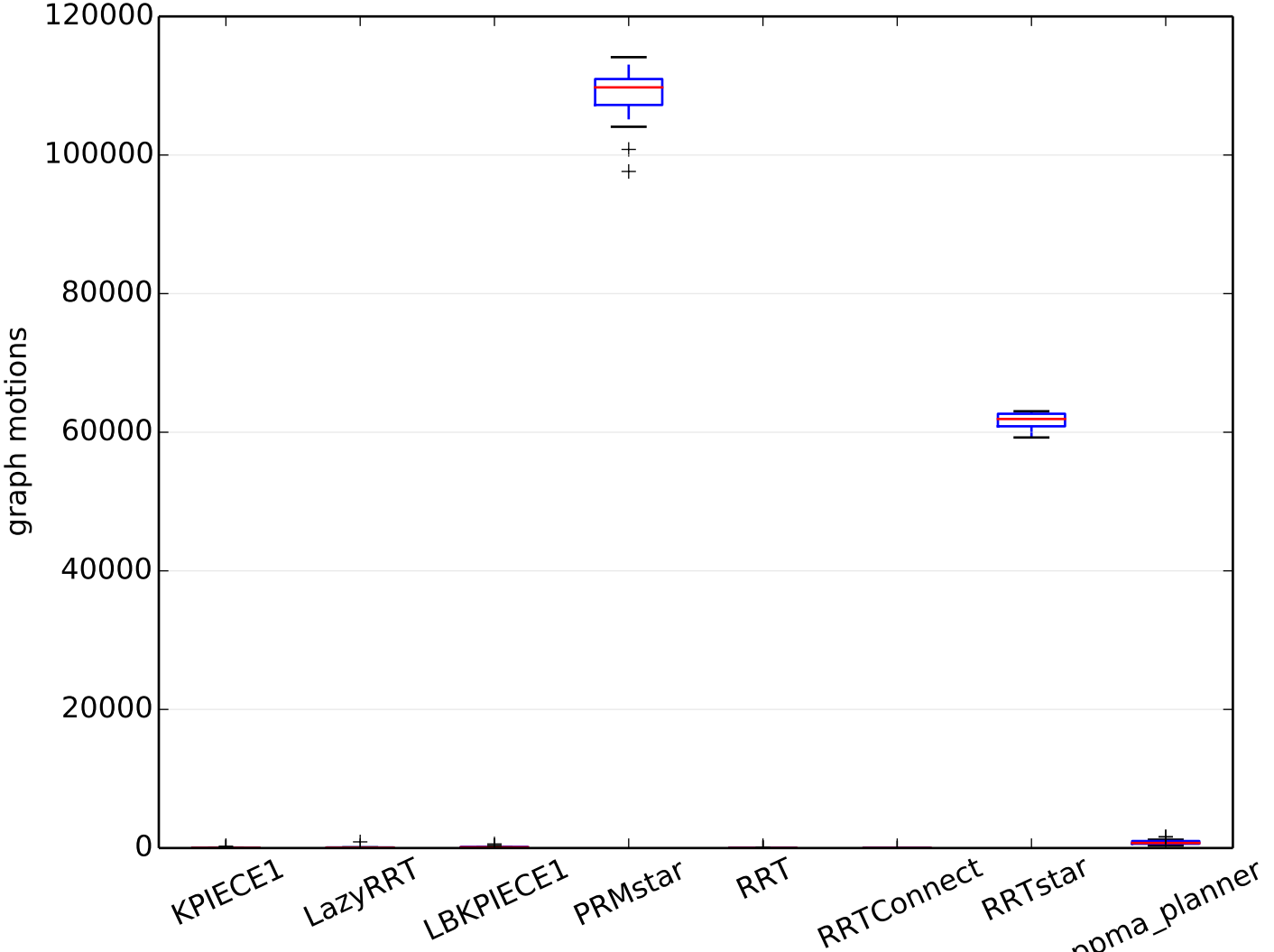
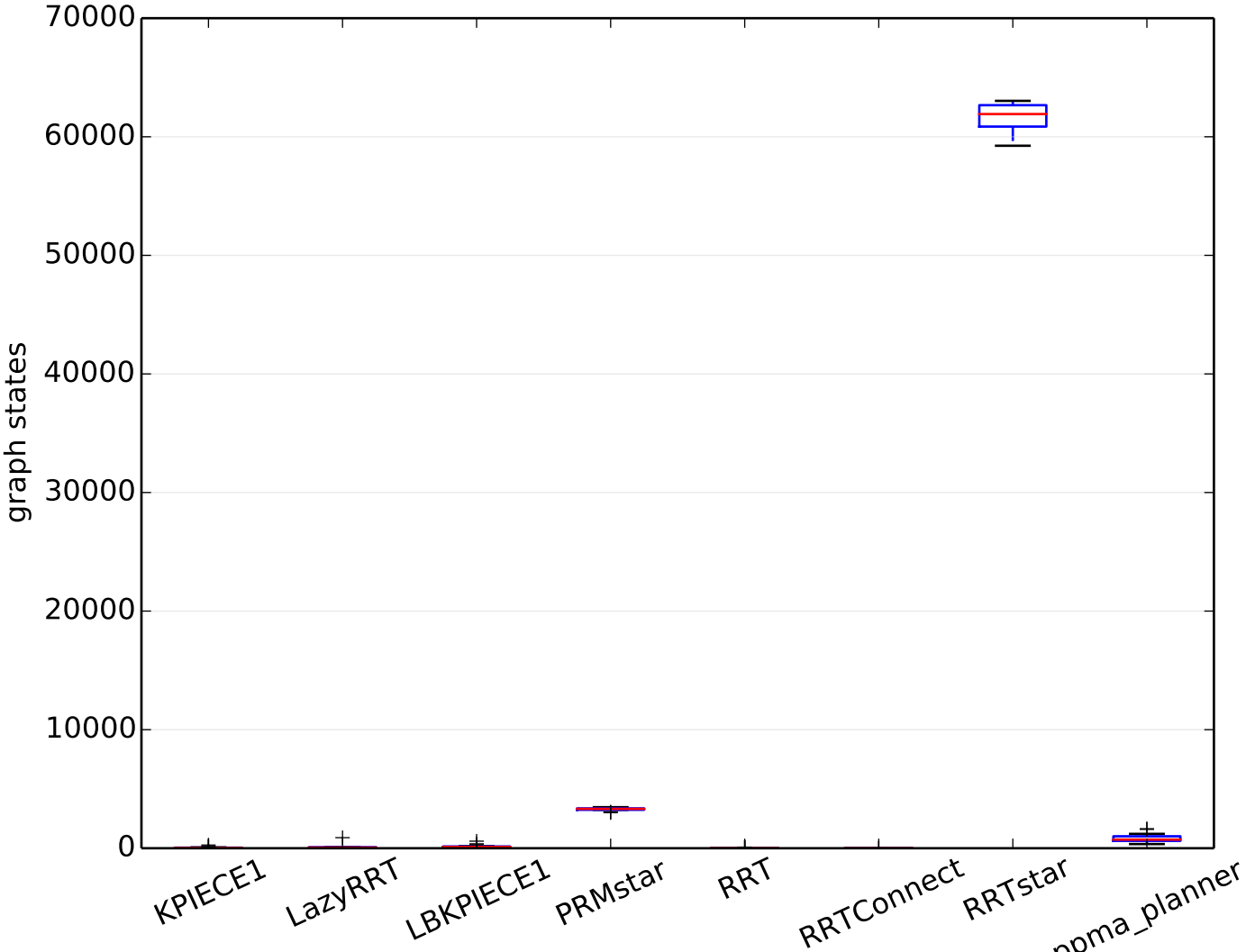
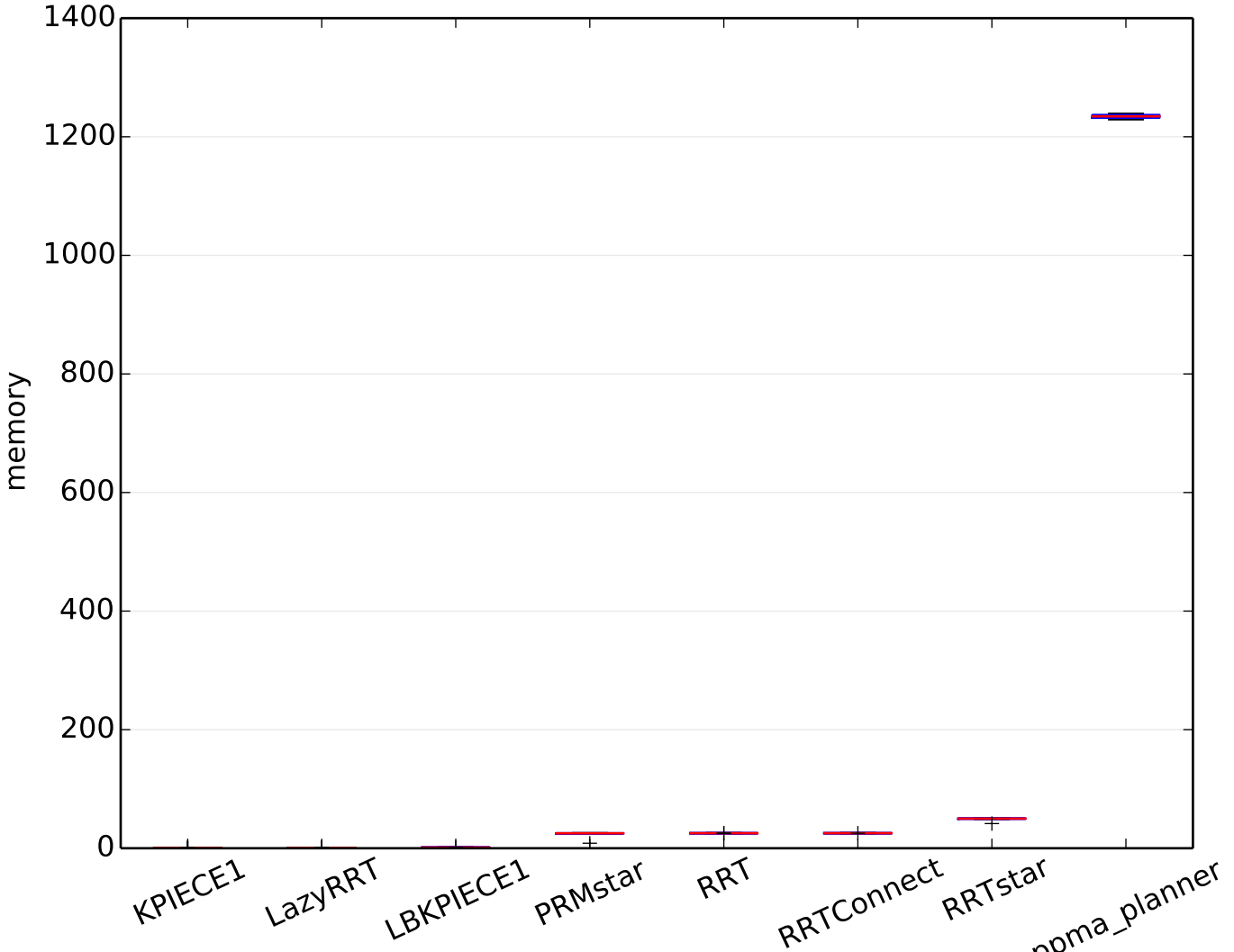

0.06
0.04
0.02
0.00
−0.02
−0.04
−0.06
approximate solution (%)
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ma_planner

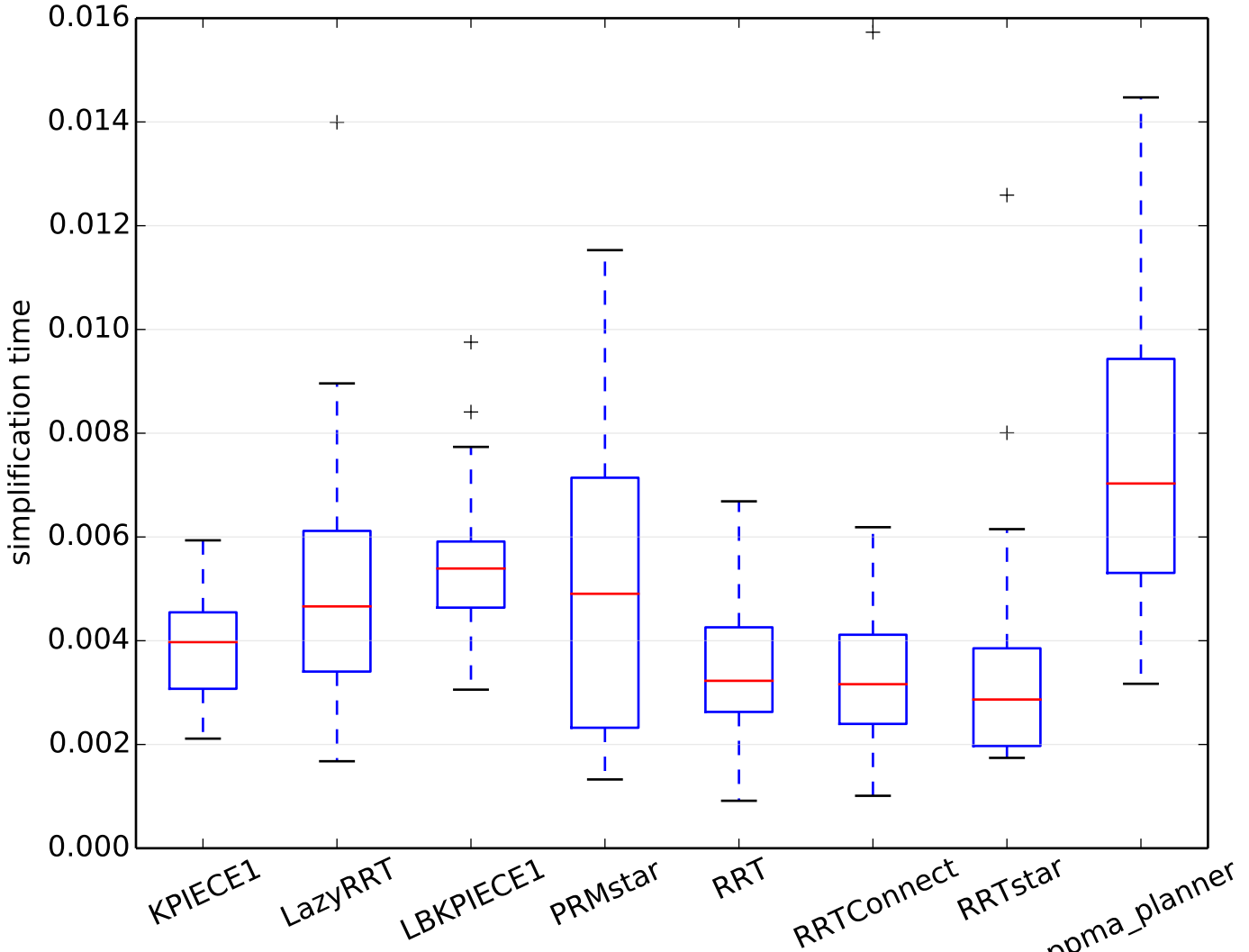

100
80
60
40
20
0
correct solution (%)
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ma_planner

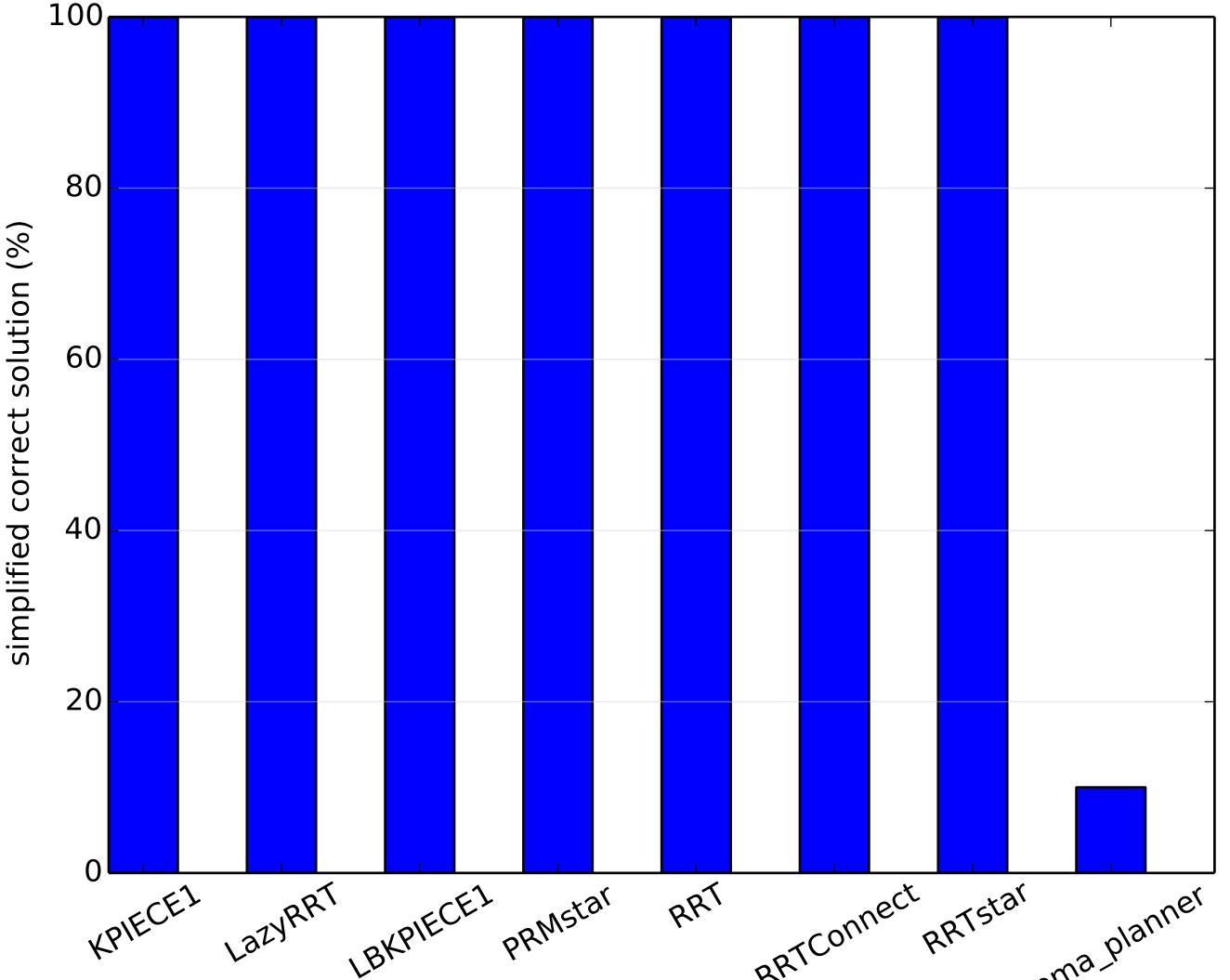

correct solution strict (%)
100
80
60
40
20
0
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ma_planner

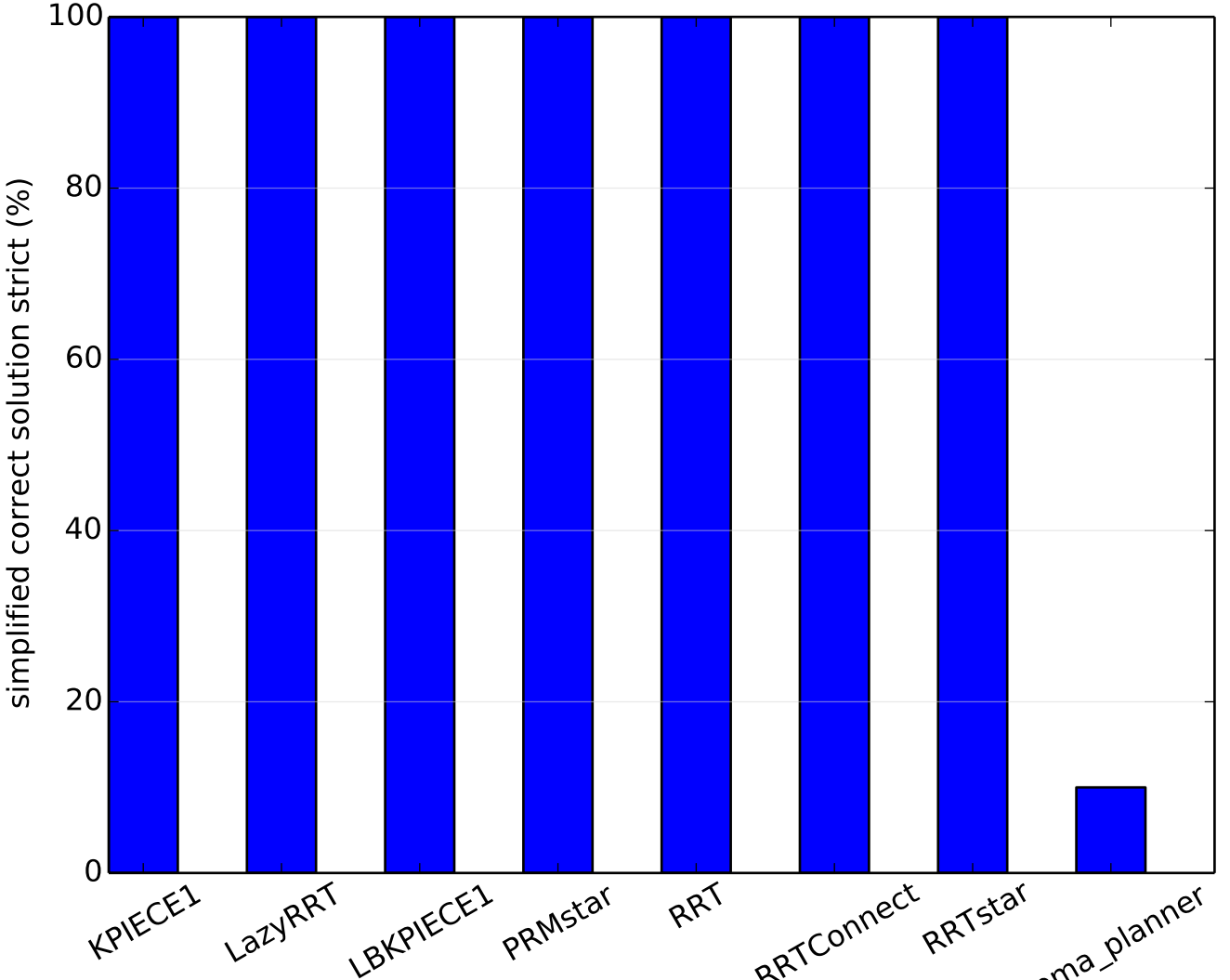

120000
100000
80000
60000
40000
20000
0
graph motions
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ppma_planner

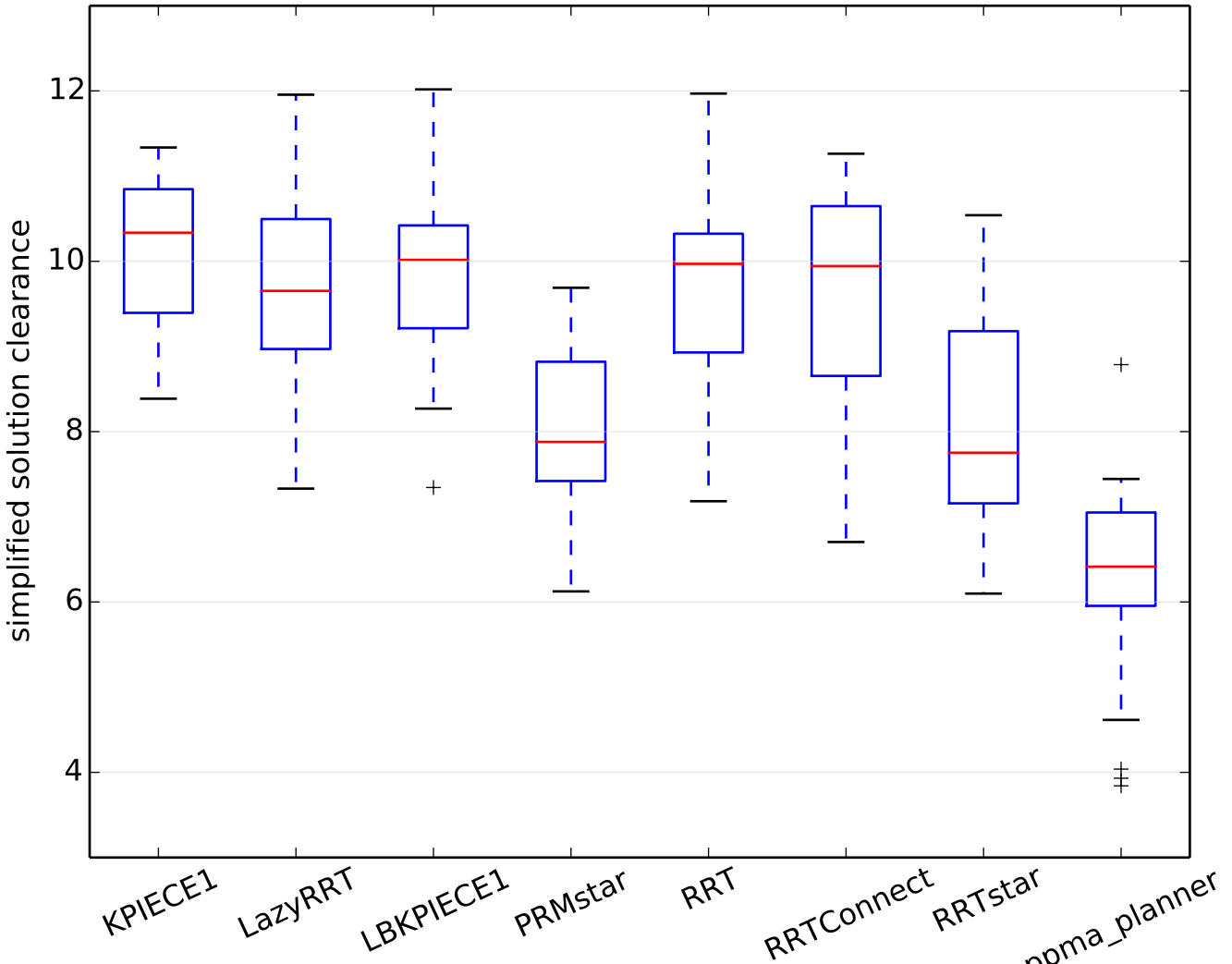

70000
60000
50000
40000
30000
20000
10000
0
graph states
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ppma_planner

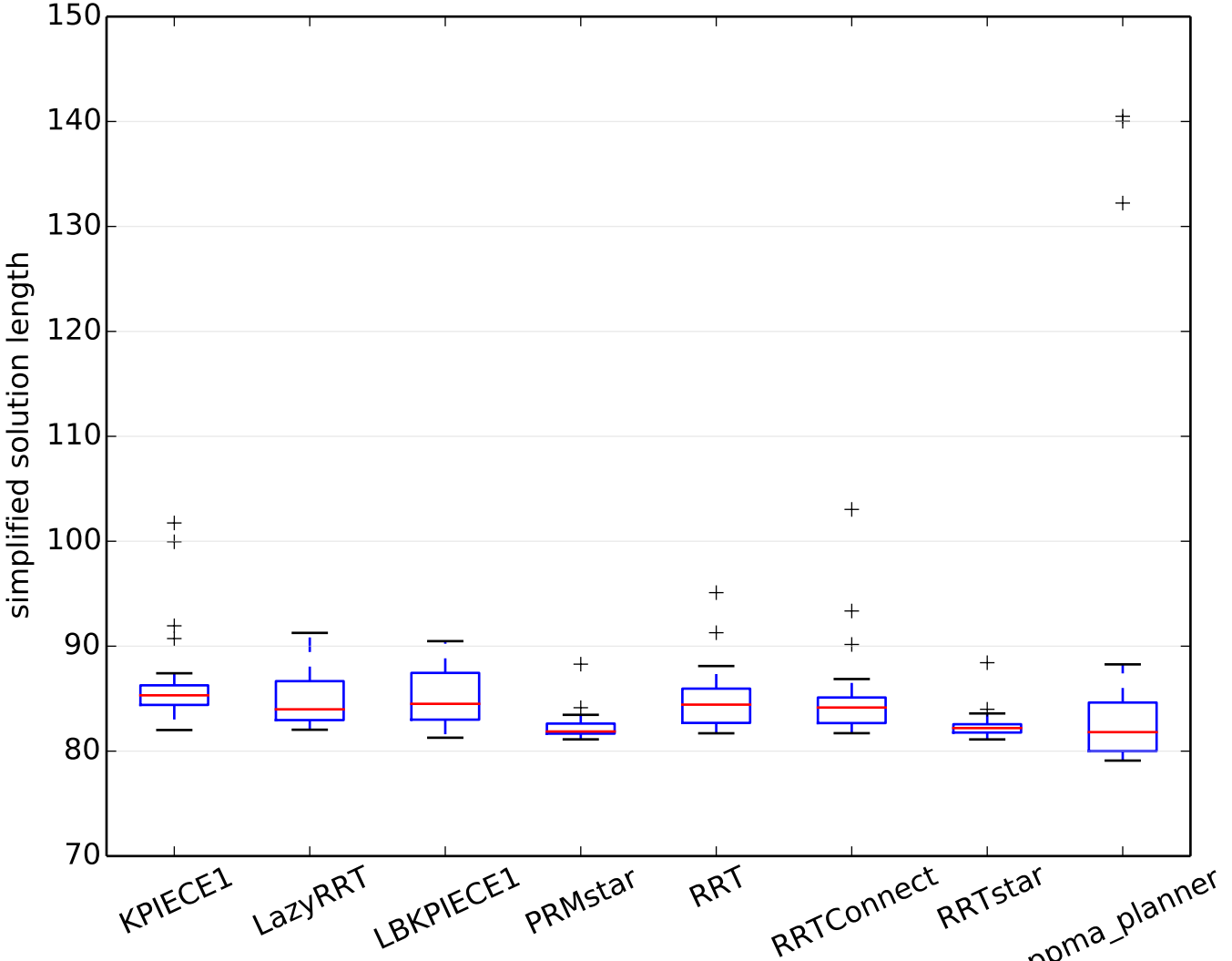

1400
1200
1000
800
600
400
200
0
memory
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ompa_planner

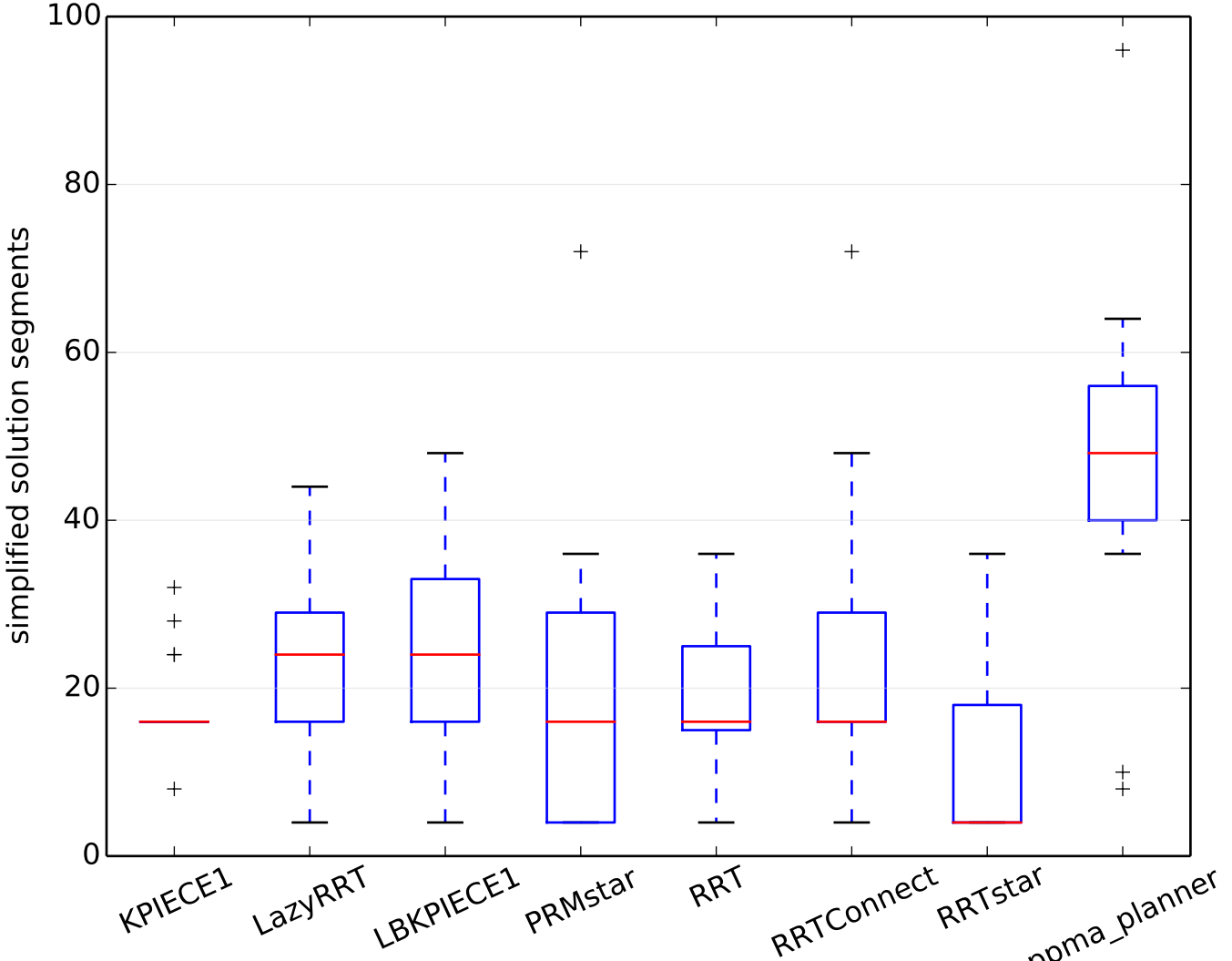

0.016
0.014
0.012
0.010
0.008
0.006
0.004
0.002
0.000
simplification time
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ompa_planner

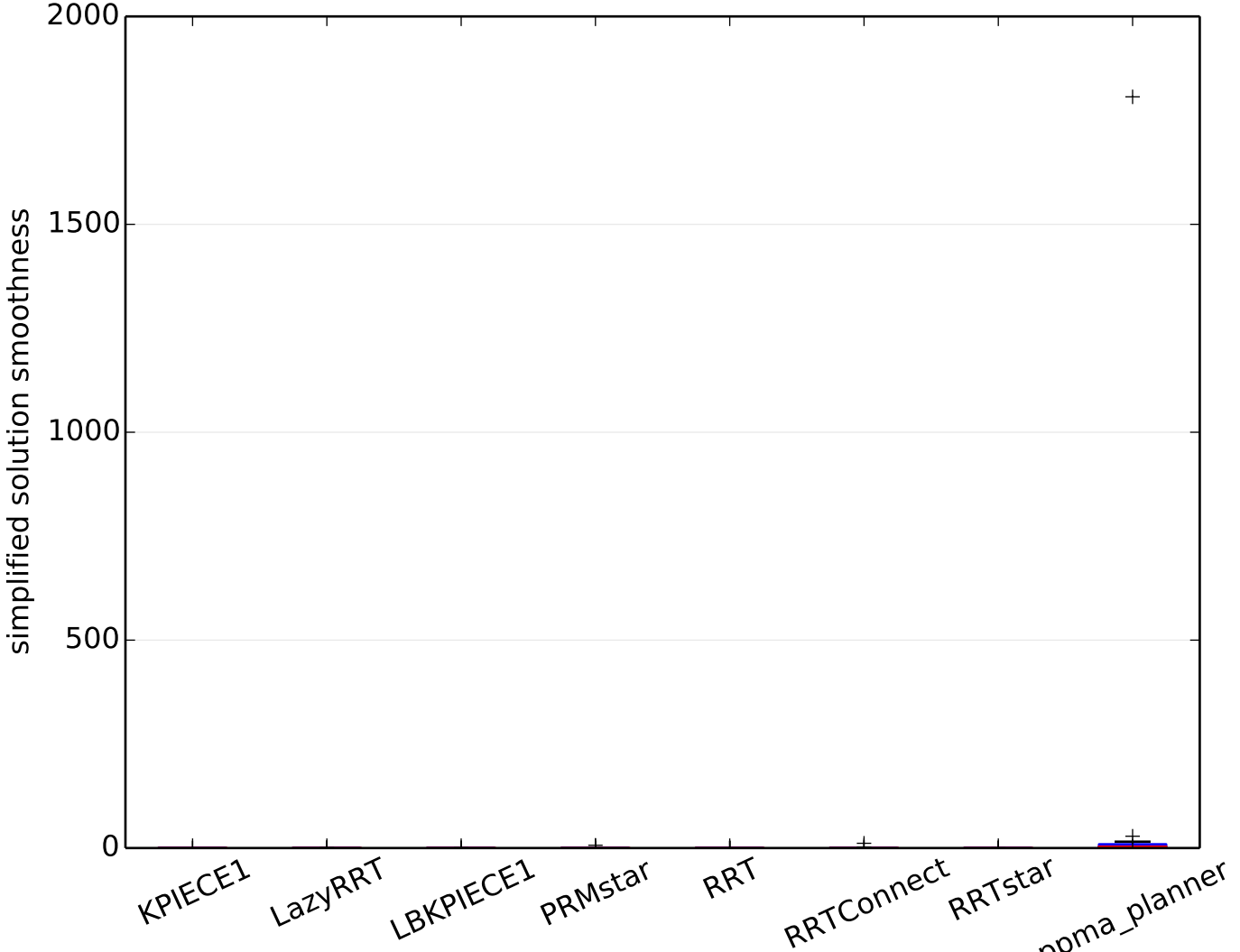

simplified correct solution (%)
100
80
60
40
20
0
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ma_planner

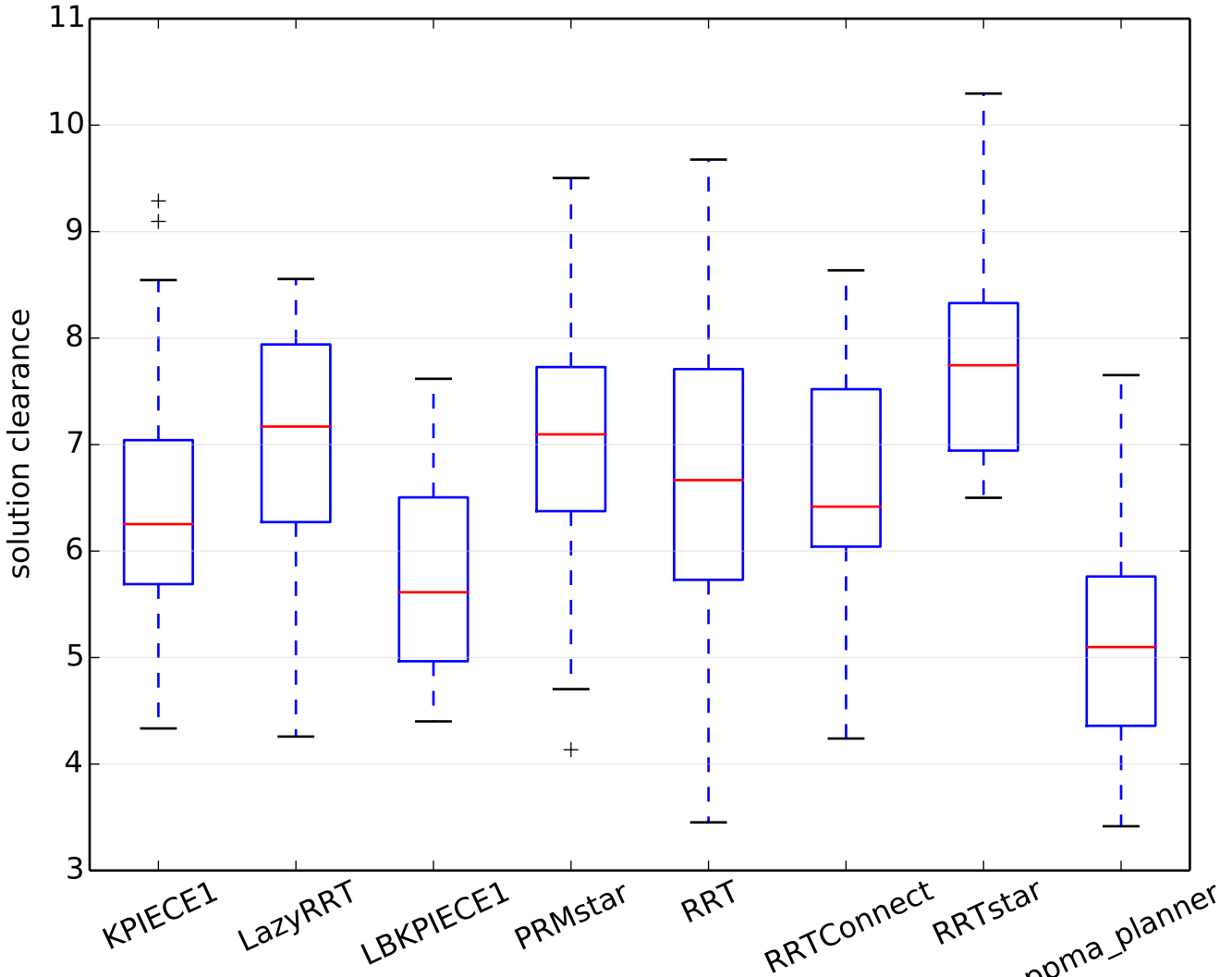

simplified correct solution strict (%)
100
80
60
40
20
0
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ma_planner

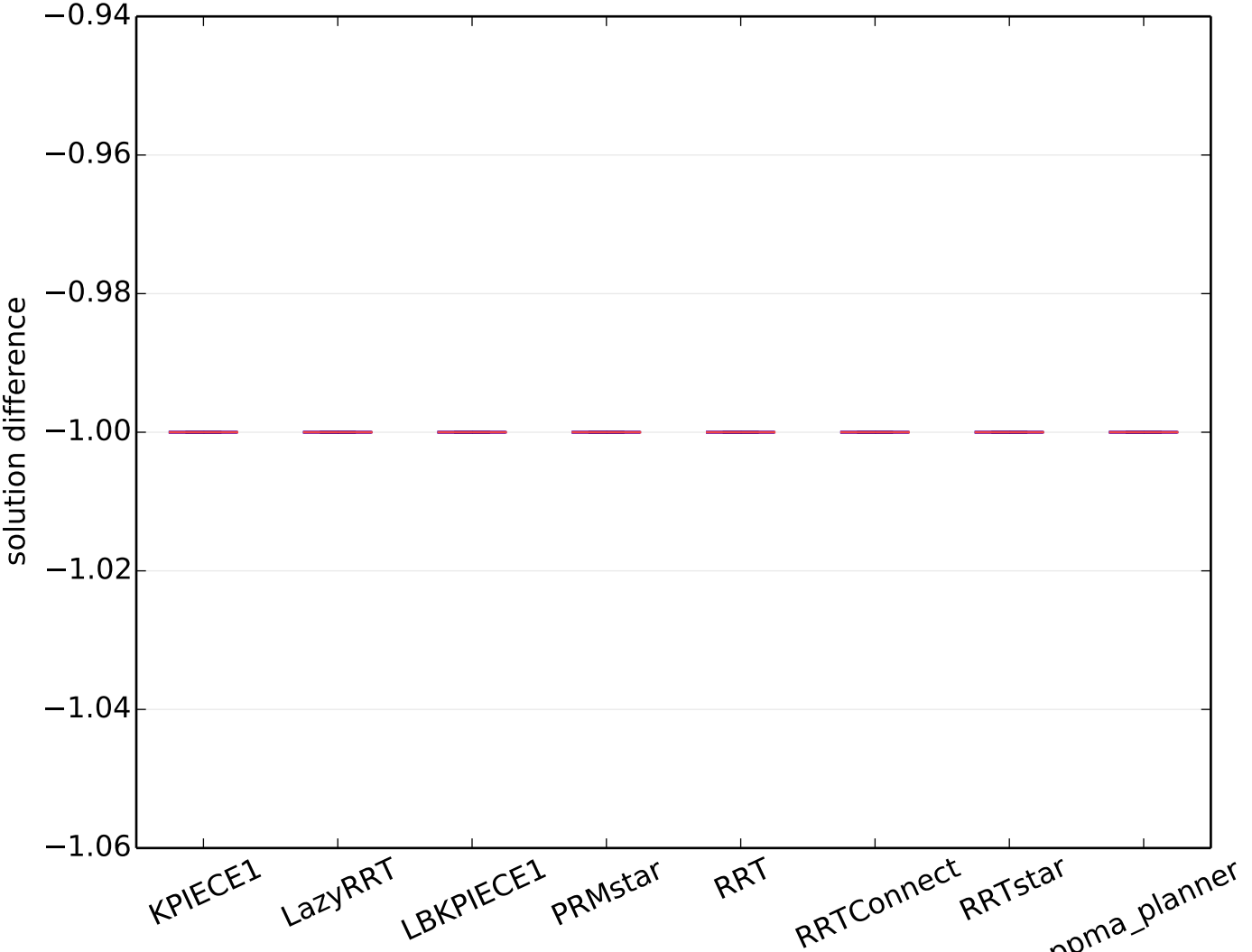

simplified solution clearance
12
10
8
6
4
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ompa_planner

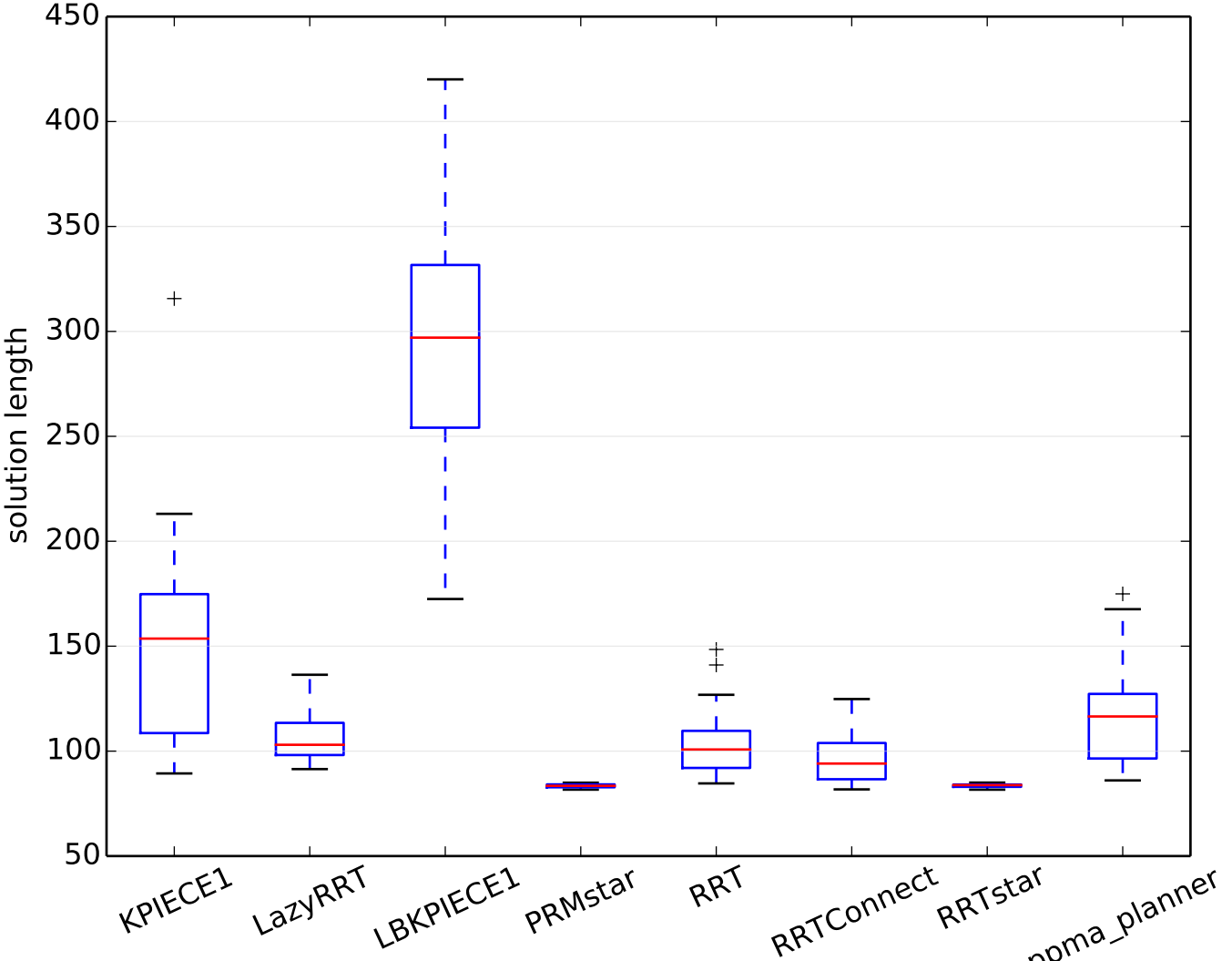

simplified solution length
150
140
130
120
110
100
90
80
70
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ppma_planner

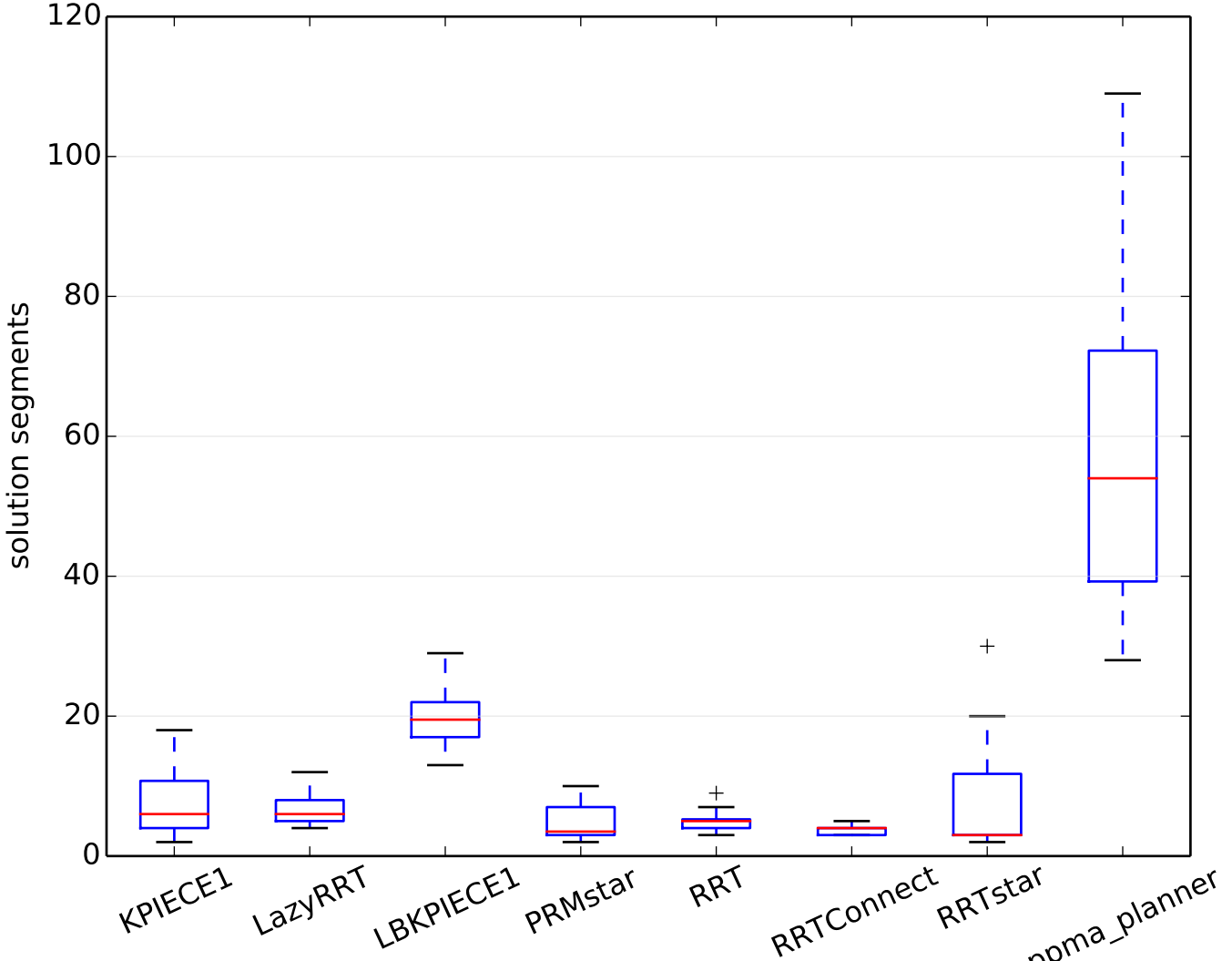

simplified solution segments
100
80
60
40
20
0
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ppma_planner

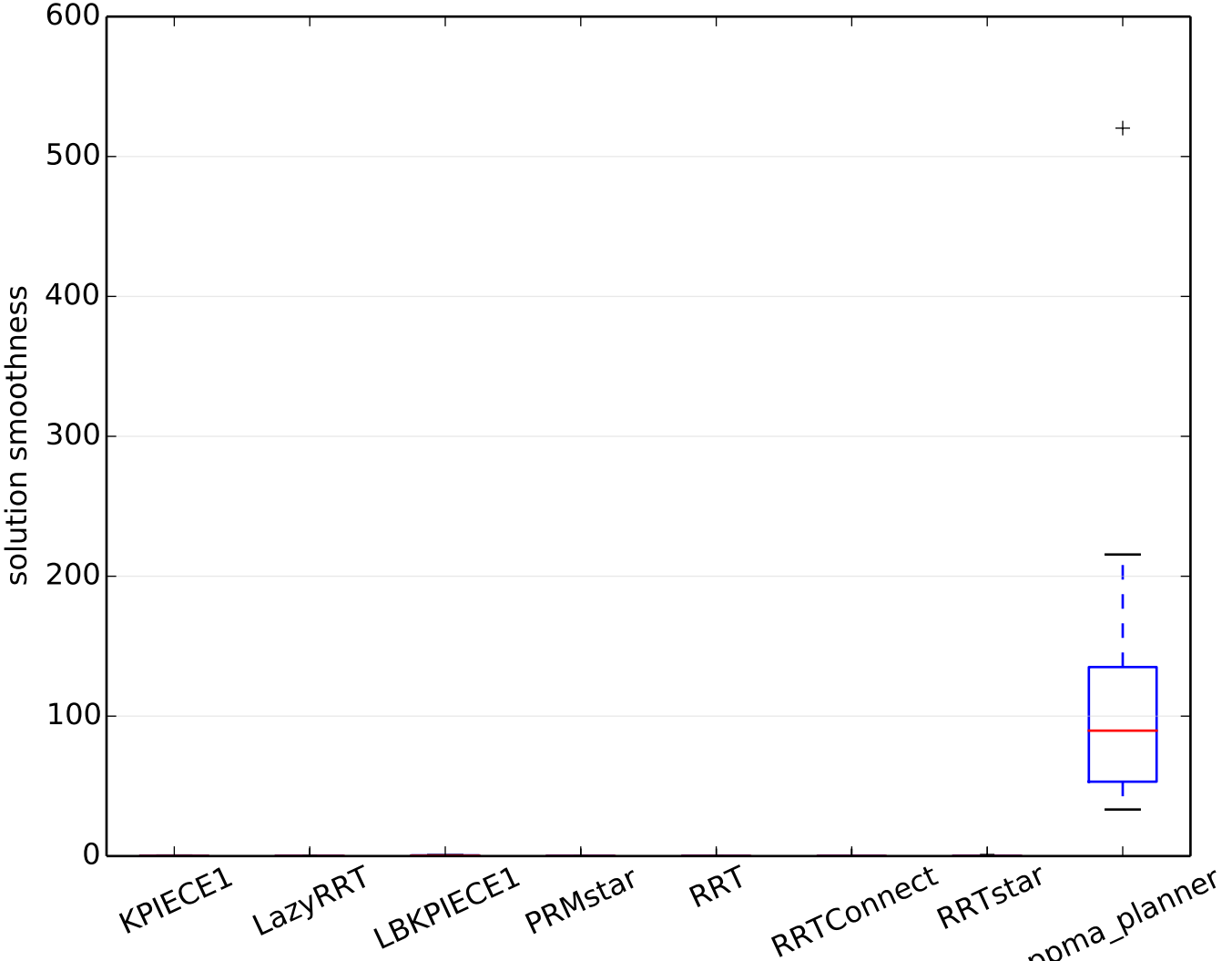

simplified solution smoothness
2000
1500
1000
500
0
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ompa_planner

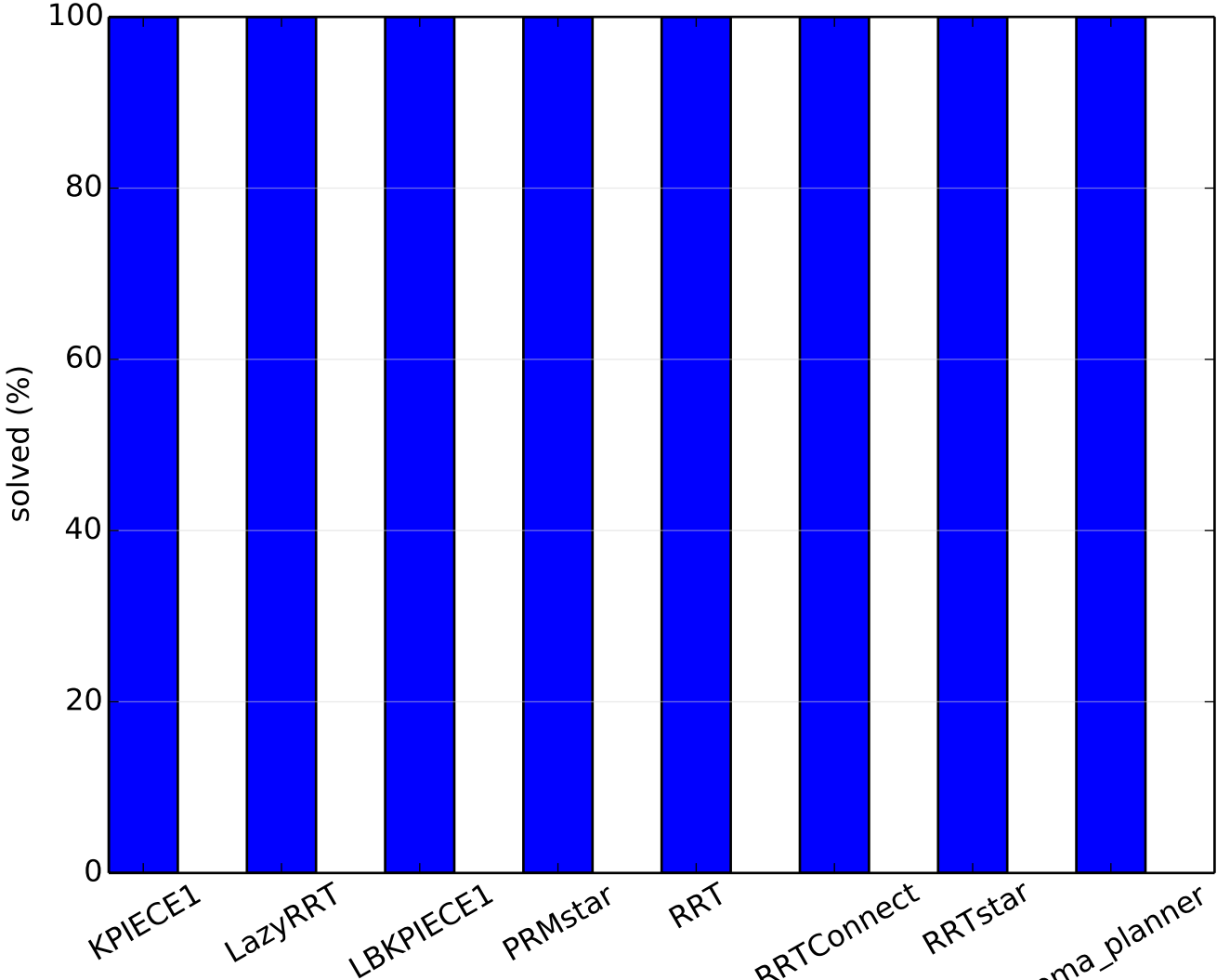

solution clearance
11
10
9
8
7
6
5
4
3
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ppma_planner

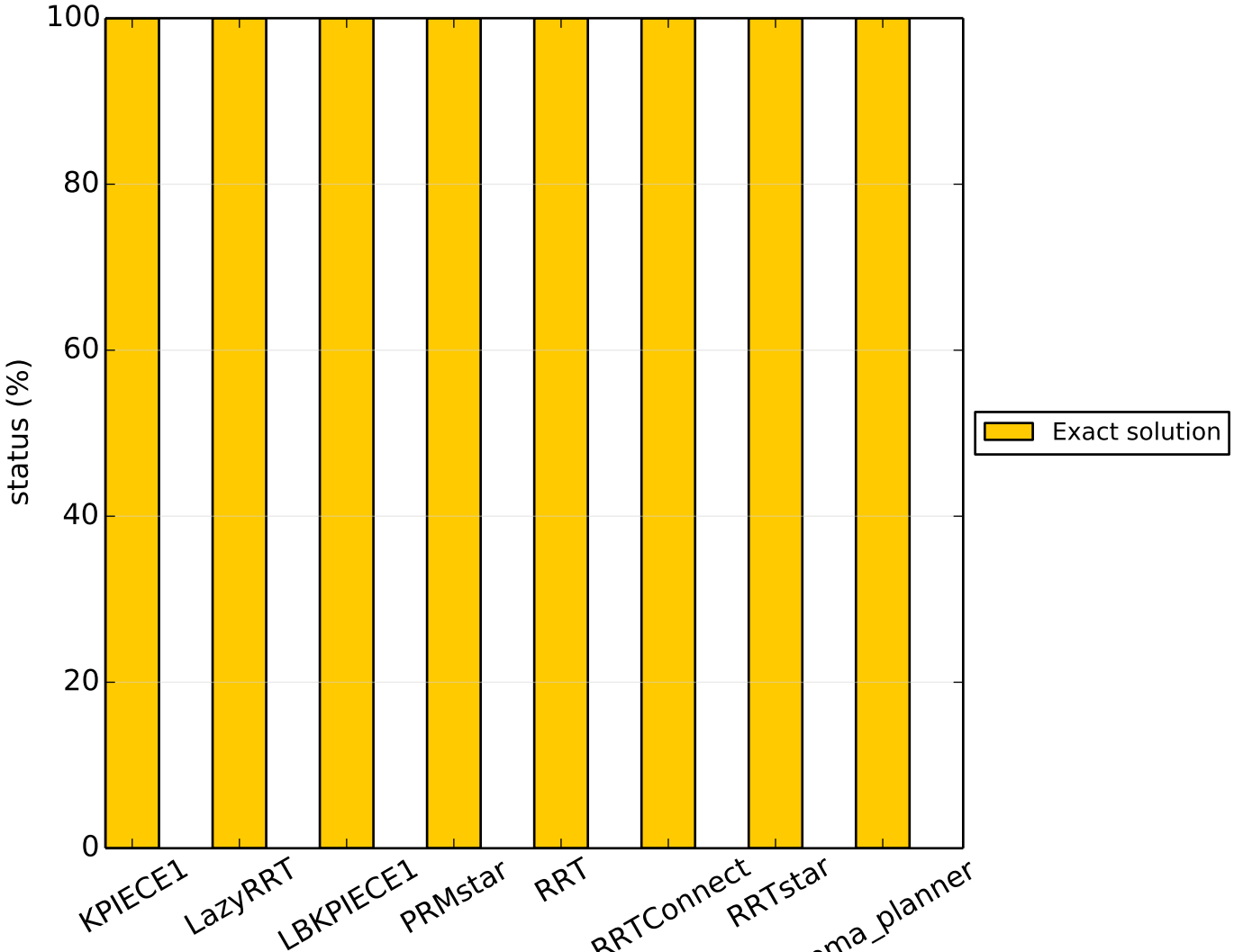

−0.94
−0.96
−0.98
−1.00
−1.02
−1.04
−1.06
solution difference
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ppma_planner

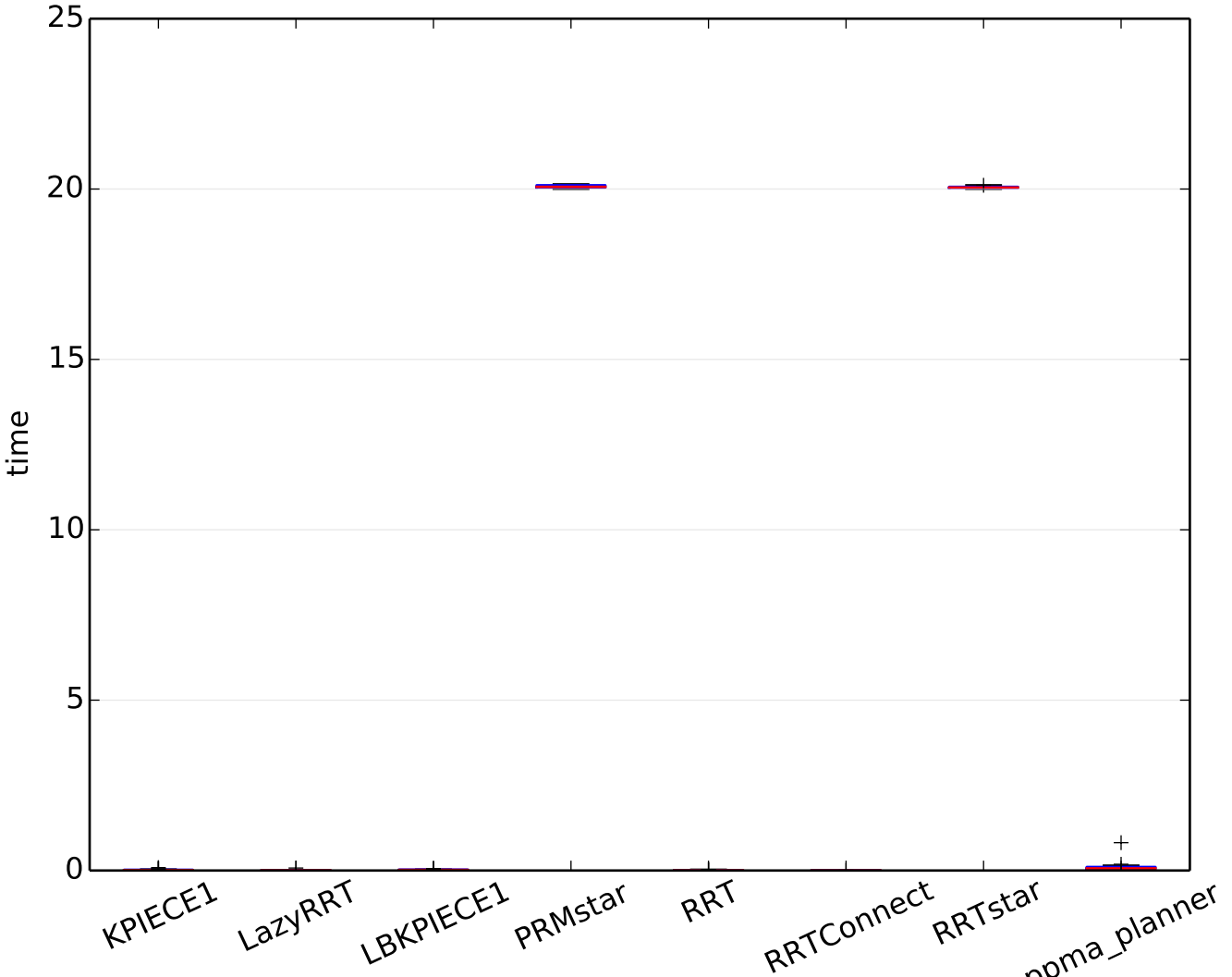

solution length
450
400
350
300
250
200
150
100
50
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ppma_planner

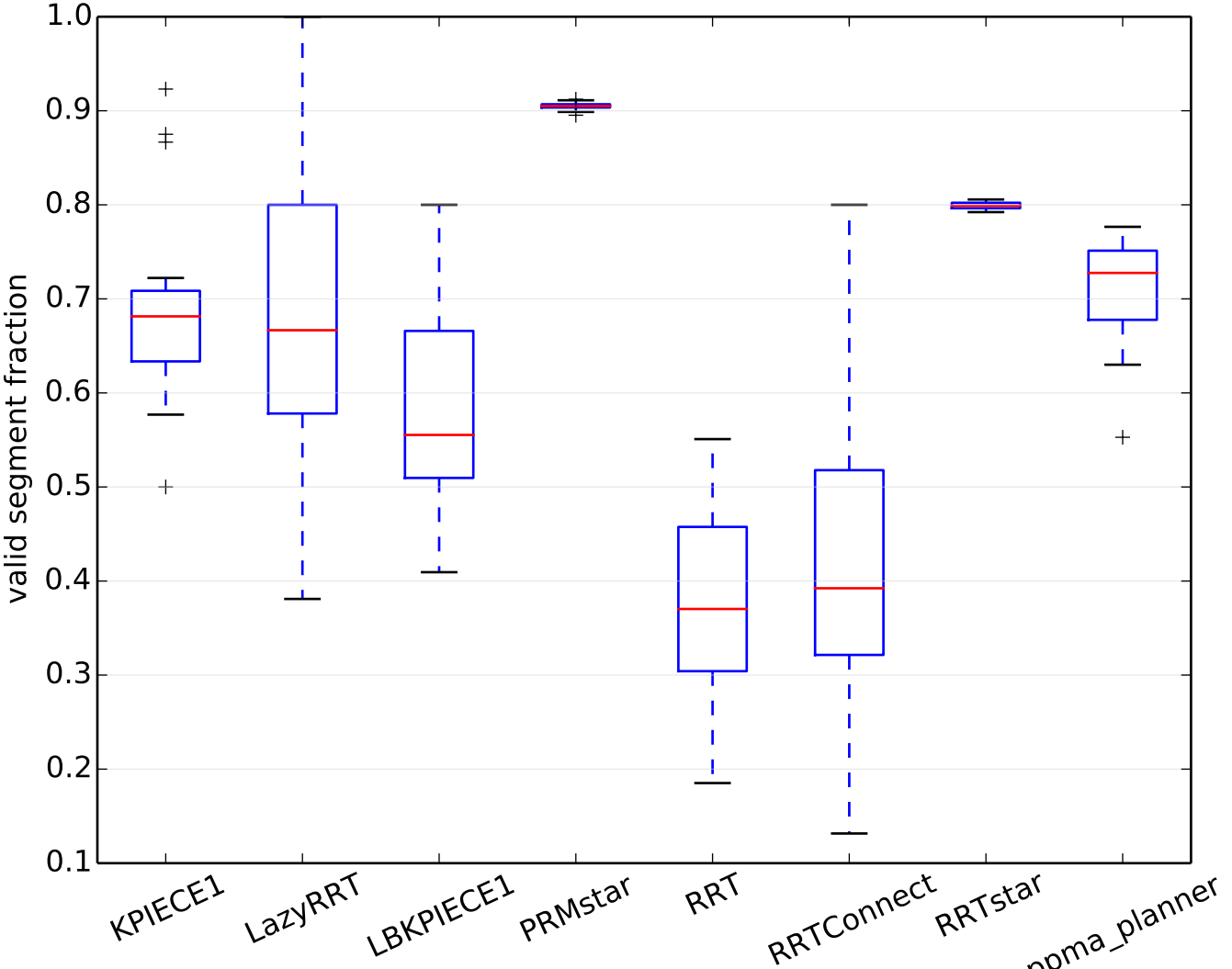

solution segments
120
100
80
60
40
20
0
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ppma_planner

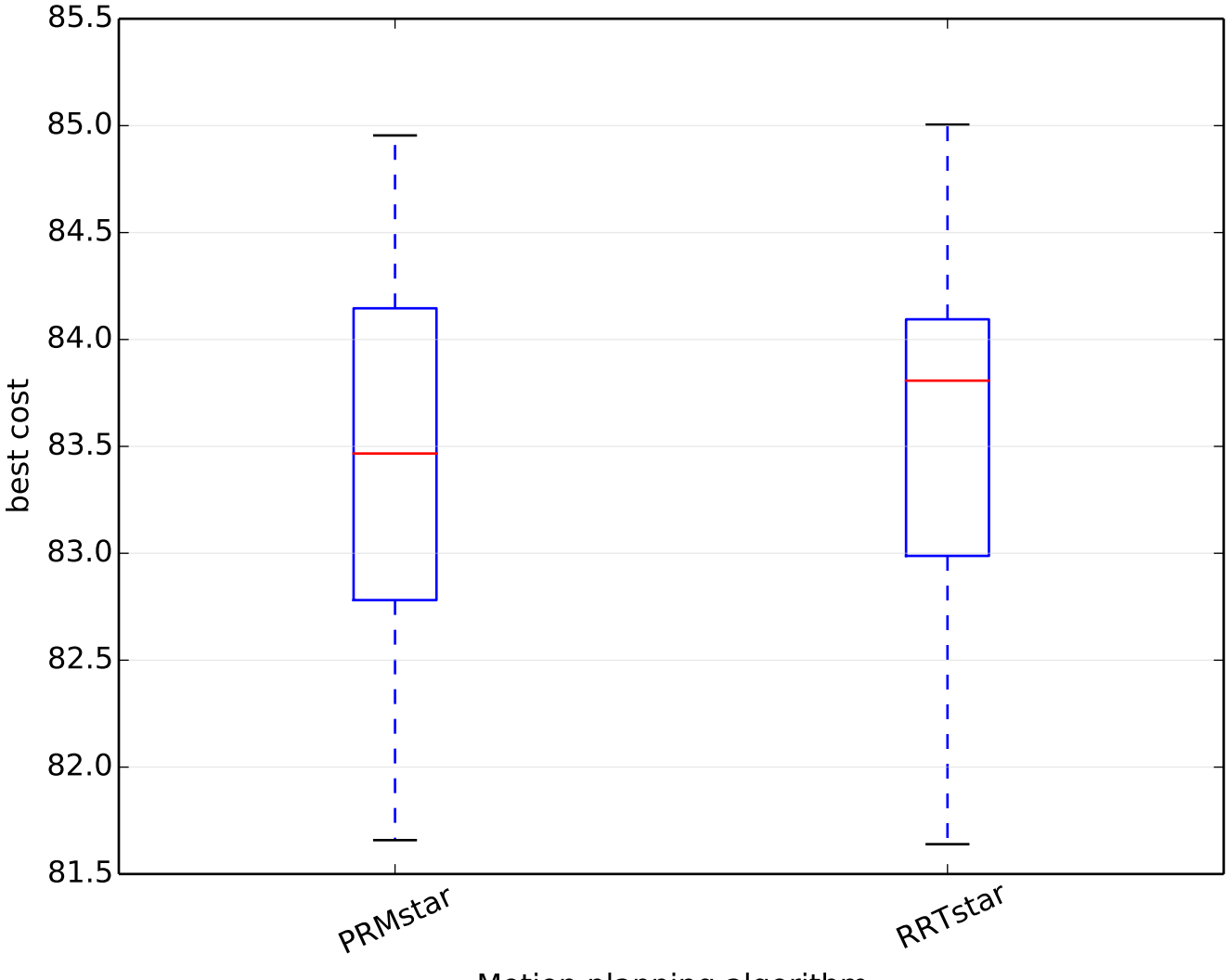

solution smoothness
600
500
400
300
200
100
0
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ppma_planner

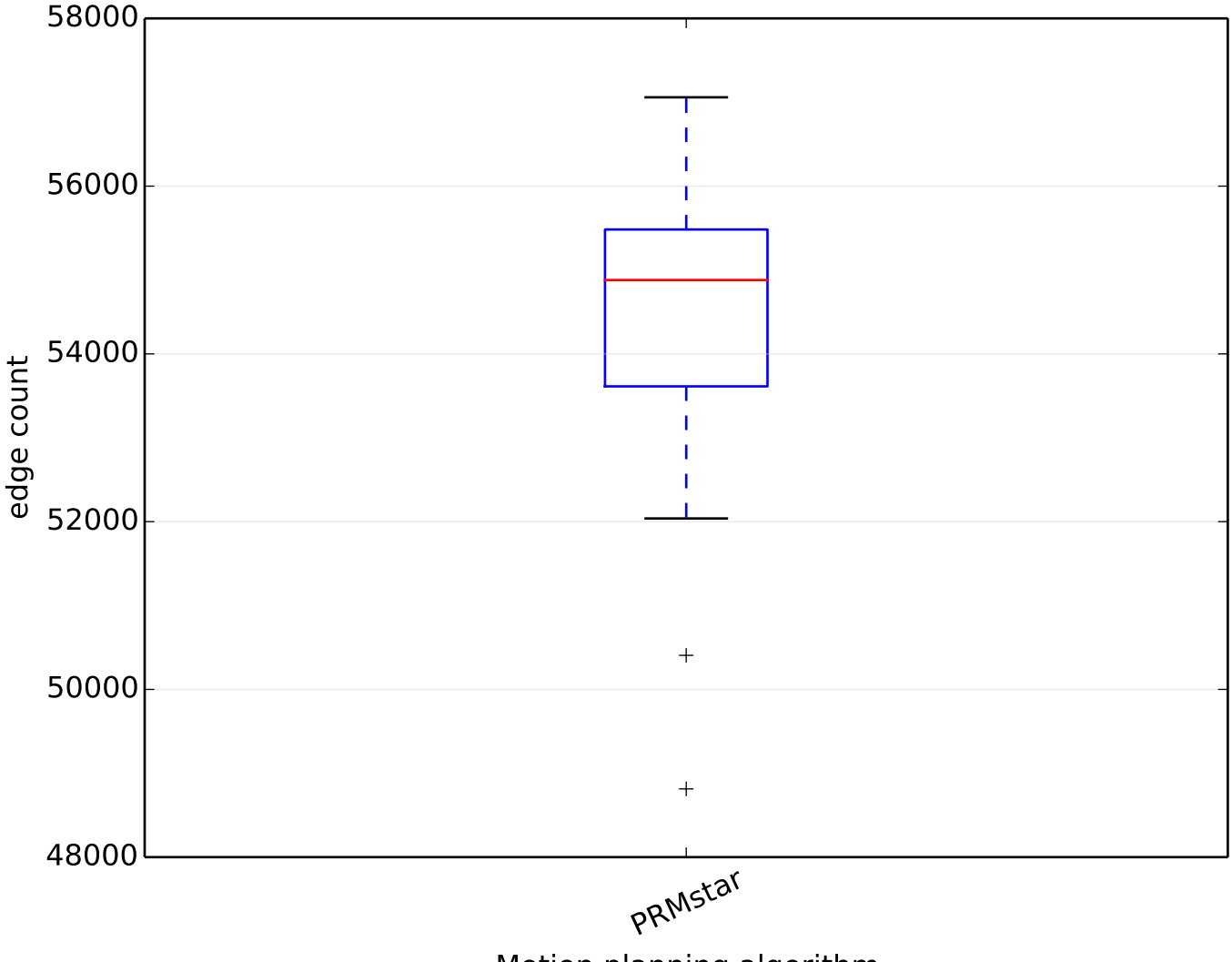

100
80
60
40
20
0
solved (%)
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ma_planner

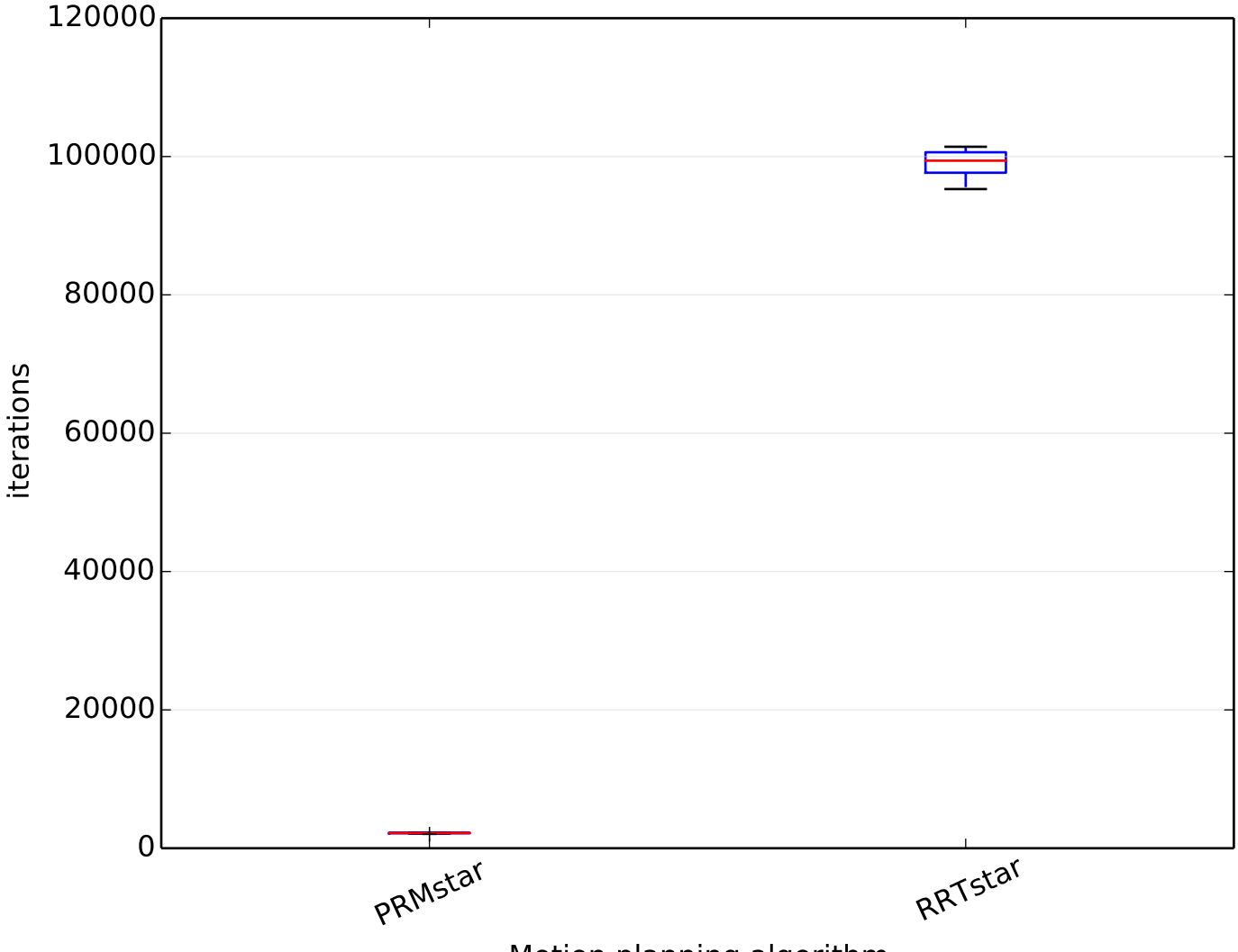

100
80
60
40
20
0
status (%)
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ma_planner
Exact solution

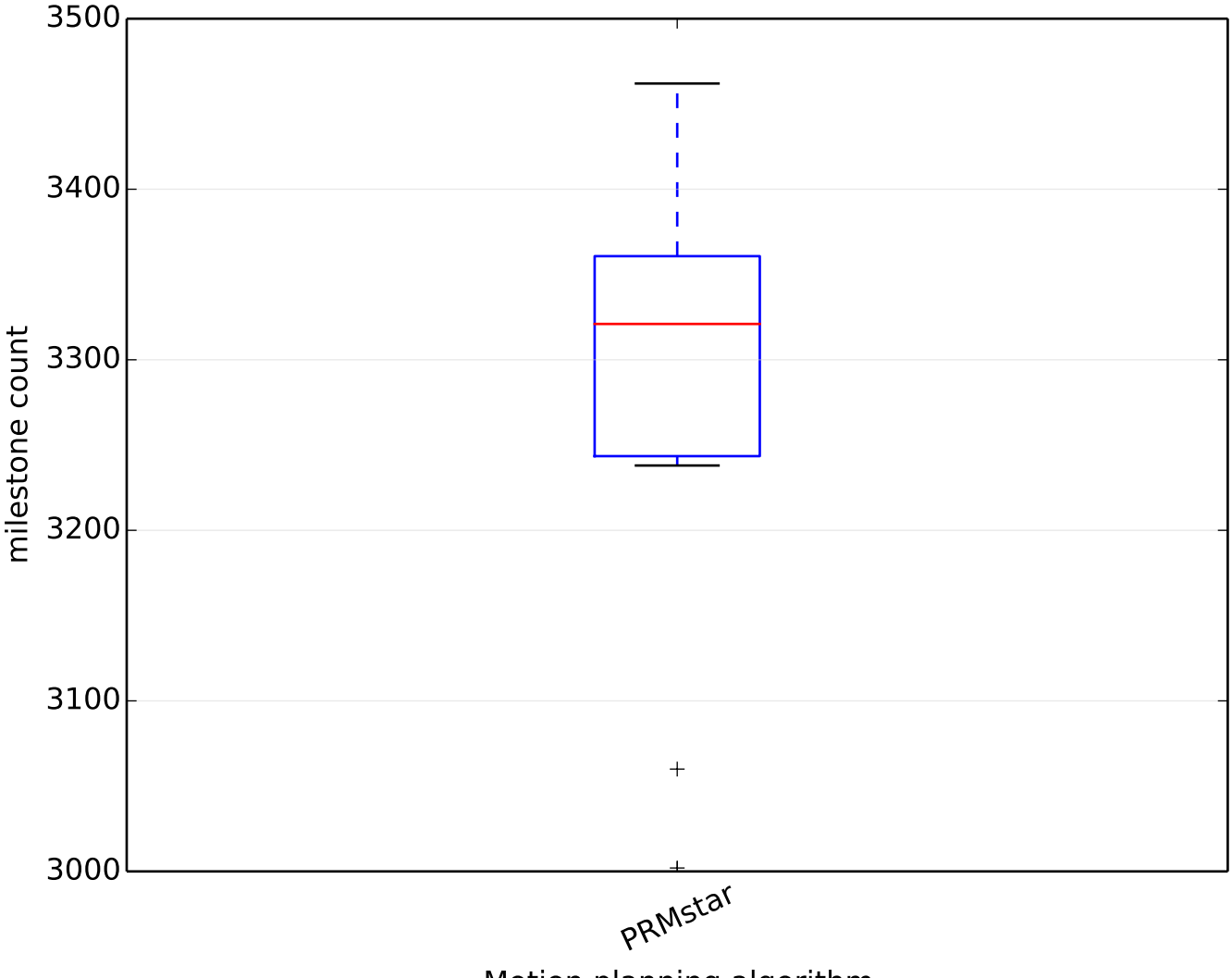

25
20
15
10
5
0
time
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ppma_planner

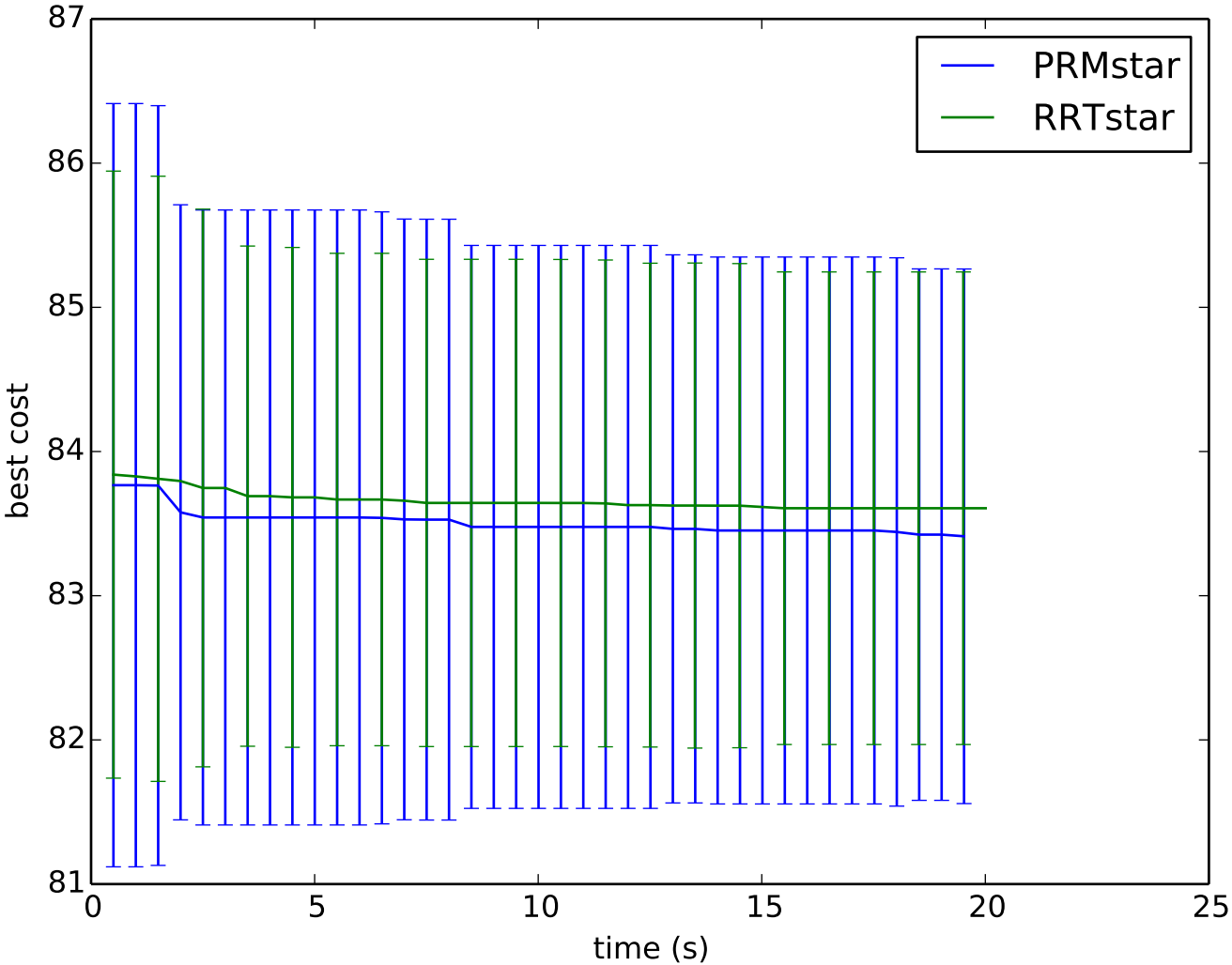

valid segment fraction
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
KPIECE1
LazyRRT
LBKPIECE1
PRMstar
RRT
RRTConnect
RRTstar
ppma_planner

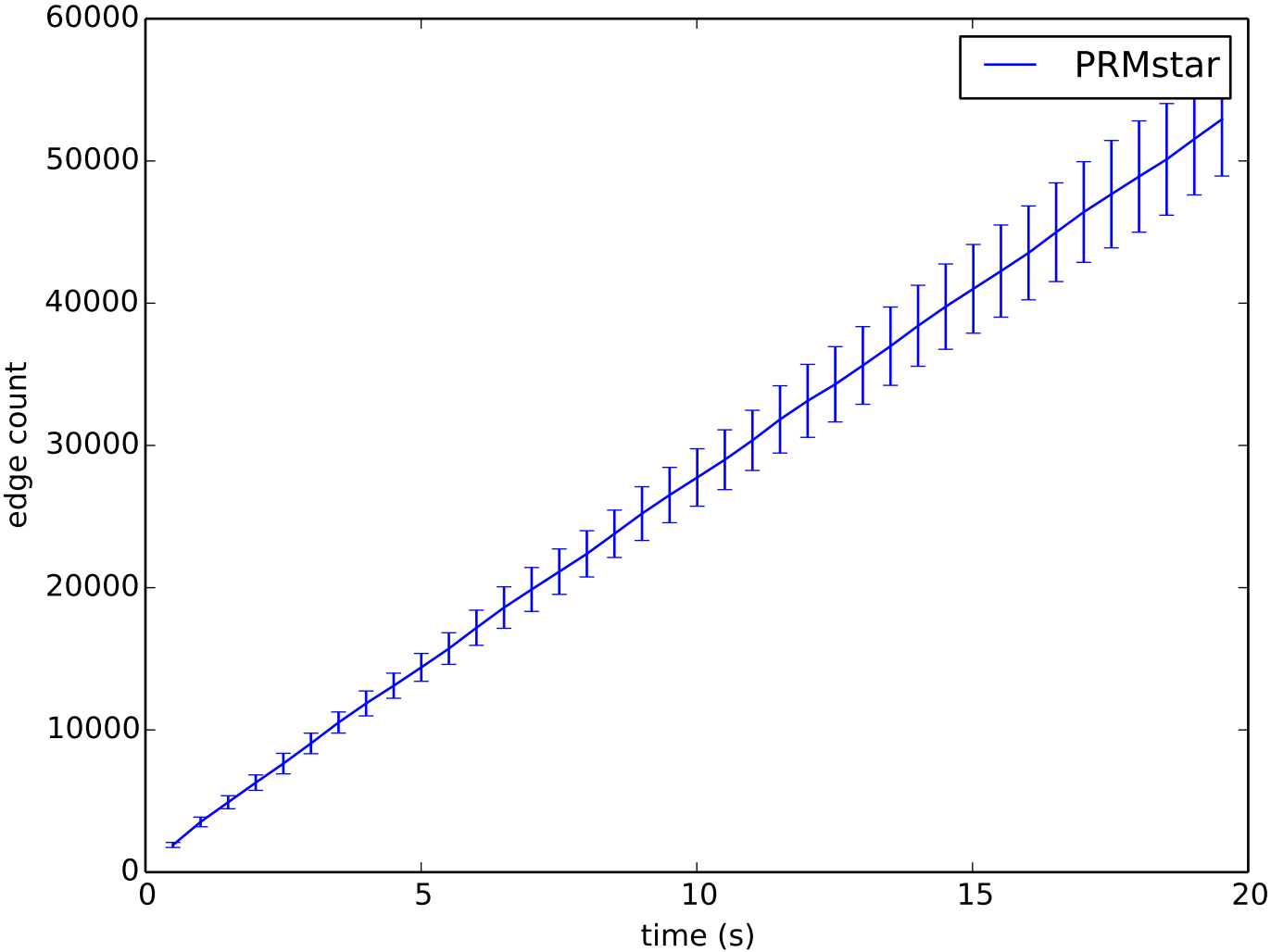

85.5
85.0
84.5
84.0
83.5
83.0
82.5
82.0
81.5
best cost
PRMstar
RRTstar
Motion planning algorithm

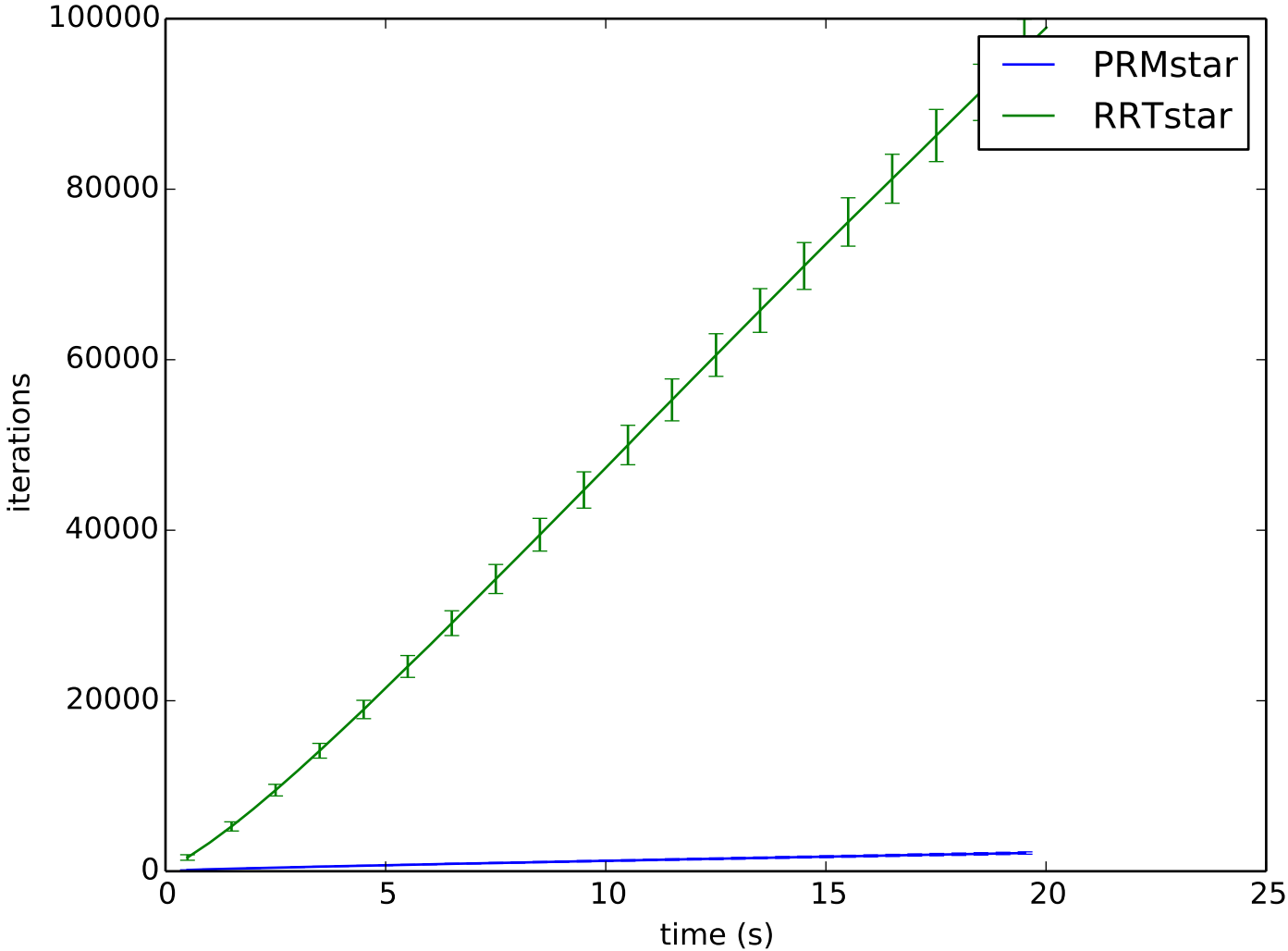

58000
56000
54000
52000
50000
48000
edge count
PRMstar
Motion planning algorithm

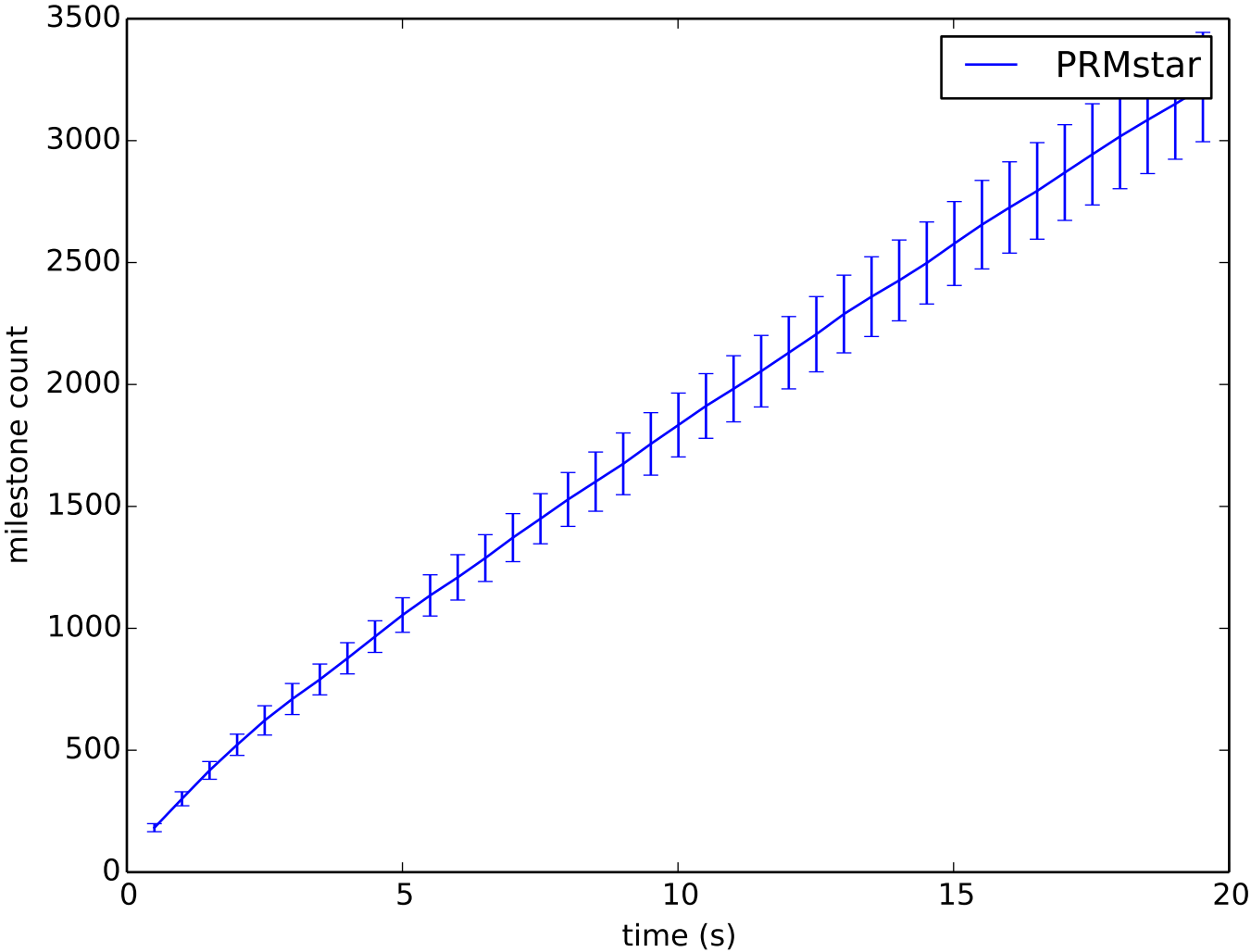

120000
100000
80000
60000
40000
20000
0
iterations
PRMstar
RRTstar
Motion planning algorithm


3500
3400
3300
3200
3100
3000
milestone count
PRMstar
Motion planning algorithm


PRMstar
RRTstar
best cost
time (s)
87
86
85
84
83
82
81
0
5
10
15
20
25


PRMstar
edge count
time (s)
0
10000
20000
30000
40000
50000
60000
0
5
10
15
20


PRMstar
RRTstar
iterations
time (s)
100000
80000
60000
40000
20000
0
0
5
10
15
20
25


PRMstar
milestone count
time (s)
0
500
1000
1500
2000
2500
3000
3500
0
5
10
15
20

Experiment "Passage"

Number of averaged runs: 20

Time limit per run: 20 seconds

Memory limit per run: 10000 MB