

Benchmark Report

Result summary

3 benchmarks have failed!

Best score

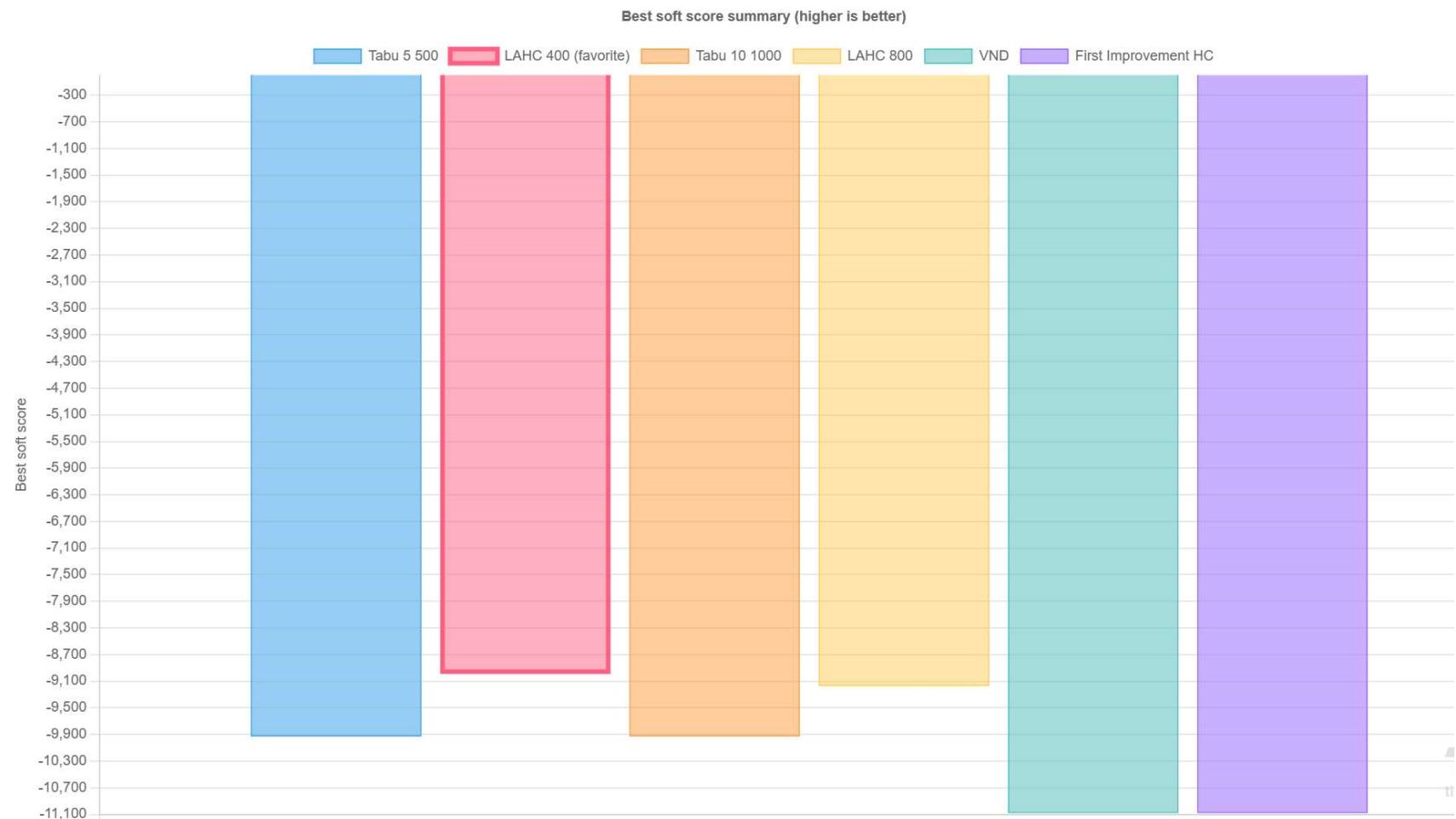
Best score scalability

Best score distribution

Winning score difference

Worst score difference percentage (ROI)

Useful for visualizing the best solver configuration.



Solver	Total	Average	Standard Deviation	Problem
				airport_auto_example_0
Tabu 5 500 2	0hard/-9929soft	0hard/-9929soft	0.0E0/0.0E0	0hard/-9929soft 2
LAHC 400 0	0hard/-8992soft	0hard/-8992soft	0.0E0/0.0E0	0hard/-8992soft 0
Simulated Annealing F				Failed
Great Deluge F				Failed
Tabu 10 1000 2	0hard/-9929soft	0hard/-9929soft	0.0E0/0.0E0	0hard/-9929soft 2
LAHC 800 1	0hard/-9172soft	0hard/-9172soft	0.0E0/0.0E0	0hard/-9172soft 1
VND 4	0hard/-11081soft	0hard/-11081soft	0.0E0/0.0E0	0hard/-11081soft 4
First Improvement HC 4	0hard/-11081soft	0hard/-11081soft	0.0E0/0.0E0	0hard/-11081soft 4
LAHC 400 Entity-focused F				Failed

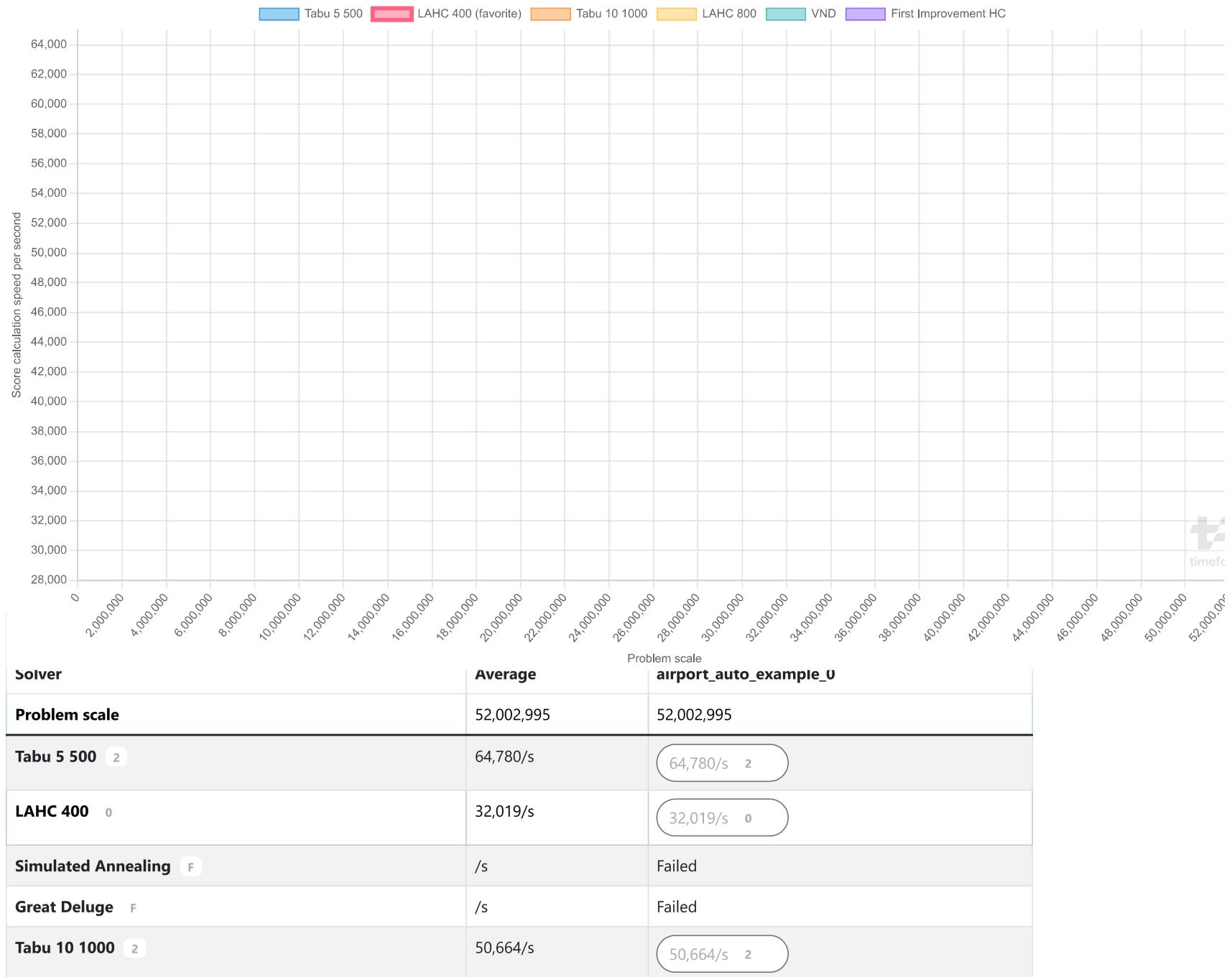
Performance summary

Score calculation speed Move evaluation speed Worst score calculation speed difference percentage Time spent

Time spent scalability Best score per time spent

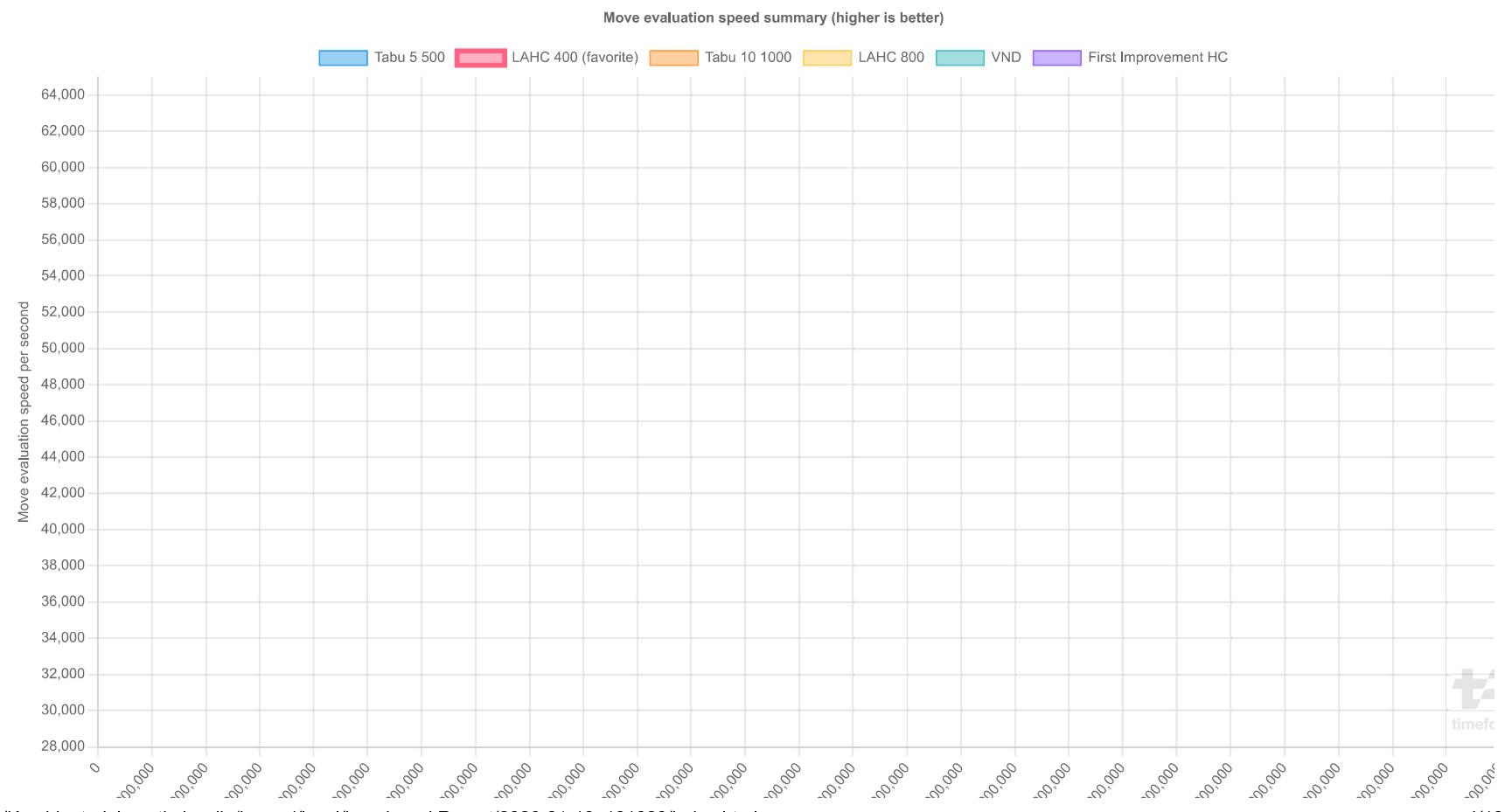
Useful for comparing different score calculators and/or constraint implementations (presuming that the solver configurations do not differ otherwise). Also useful to measure the scalability cost of an extra constraint.

Score calculation speed summary (higher is better)



Solver	Average	Problem
		airport_auto_example_0
Problem scale	52,002,995	52,002,995
LAHC 800 1	28,176/s	28,176/s 1
VND 4	38,669/s	38,669/s 4
First Improvement HC 4	32,768/s	32,768/s 4
LAHC 400 Entity-focused F	/s	Failed

Useful for comparing different score calculators and/or constraint implementations (presuming that the solver configurations do not differ otherwise). Also useful to measure the scalability cost of an extra constraint.



Solver	Average	airport_auto_example_0
Problem scale	52,002,995	52,002,995
Tabu 5 500 2	64,780/s	64,780/s 2
LAHC 400 0	32,019/s	32,019/s 0
Simulated Annealing F	/s	Failed
Great Deluge F	/s	Failed
Tabu 10 1000 2	50,664/s	50,664/s 2
LAHC 800 1	28,176/s	28,176/s 1
VND 4	38,669/s	38,669/s 4
First Improvement HC 4	32,768/s	32,768/s 4
LAHC 400 Entity-focused F	/s	Failed

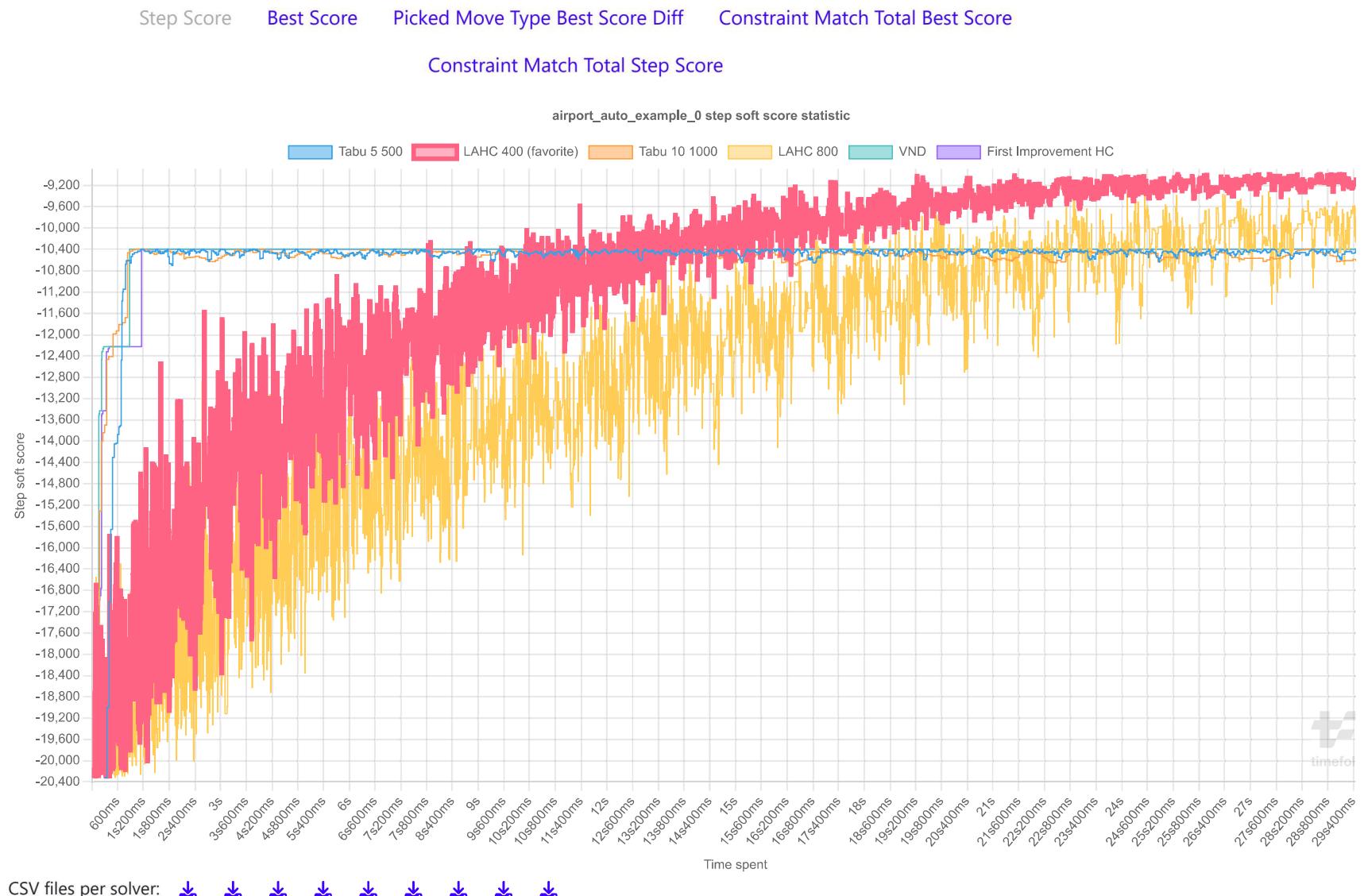
Problem benchmarks

airport_auto_example_0

3 benchmarks have failed!

Entity count	4
Variable count	4
Maximum value count	40
Problem scale	52,002,995
Time to load input solution	0.001 s. (1 ms.)
Memory usage after loading input solution	11,933,708 bytes on average

Only the median sub single run of each solver is shown in the statistics below.



airport_auto_example_0_Tabu 5 500

Only the median sub single run of each solver is shown in the statistics below.

Explanation of score (0hard/-10397soft):**Constraint** matches:

```

-6597soft: constraint (Total delay) has 28 matches:
-1332soft: justified with ([null])
-786soft: justified with ([null])
...
-3800soft: constraint (Company terminal mismatch) has 38 matches:
-100soft: justified with ([null])
-100soft: justified with ([null])
...
0: constraint (Arrival must finish before departure starts) has 0 matches:
0: constraint (Gate type mismatch) has 0 matches:
0: constraint (Must assign gate after scheduled time) has 0 matches:
Indictments (top 5 of 38):
-1432soft: indicted with (null) has 2 matches:
-1332soft: constraint (Total delay)
-100soft: constraint (Company terminal mismatch)
-886soft: indicted with (null) has 2 matches:
-786soft: constraint (Total delay)
-100soft: constraint (Company terminal mismatch)
-770soft: indicted with (null) has 2 matches:
-670soft: constraint (Total delay)
-100soft: constraint (Company terminal mismatch)
-571soft: indicted with (null) has 2 matches:
-471soft: constraint (Total delay)
-100soft: constraint (Company terminal mismatch)
-532soft: indicted with (null) has 2 matches:
-432soft: constraint (Total delay)
-100soft: constraint (Company terminal mismatch)
...

```

airport_auto_example_0_LAHC 400

Only the median sub single run of each solver is shown in the statistics below.

Explanation of score (0hard/-8991soft):**Constraint** matches:

```

-5191soft: constraint (Total delay) has 28 matches:
-626soft: justified with ([null])
-496soft: justified with ([null])
...
-3800soft: constraint (Company terminal mismatch) has 38 matches:
-100soft: justified with ([null])
-100soft: justified with ([null])
...
0: constraint (Arrival must finish before departure starts) has 0 matches:
0: constraint (Gate type mismatch) has 0 matches:

```

```

0: constraint (Must assign gate after scheduled time) has 0 matches:
Indictments (top 5 of 38):
-726soft: indicted with (null) has 2 matches:
  -626soft: constraint (Total delay)
  -100soft: constraint (Company terminal mismatch)
-596soft: indicted with (null) has 2 matches:
  -496soft: constraint (Total delay)
  -100soft: constraint (Company terminal mismatch)
-571soft: indicted with (null) has 2 matches:
  -471soft: constraint (Total delay)
  -100soft: constraint (Company terminal mismatch)
-532soft: indicted with (null) has 2 matches:
  -432soft: constraint (Total delay)
  -100soft: constraint (Company terminal mismatch)
-464soft: indicted with (null) has 2 matches:
  -364soft: constraint (Total delay)
  -100soft: constraint (Company terminal mismatch)
...

```

airport_auto_example_0_Simulated Annealing

3 benchmarks have failed!

airport_auto_example_0_Great Deluge

3 benchmarks have failed!

airport_auto_example_0_Tabu 10 1000

Only the median sub single run of each solver is shown in the statistics below.

```

Explanation of score (0hard/-10397soft):
Constraint matches:
-6597soft: constraint (Total delay) has 28 matches:
  -1332soft: justified with ([null])
  -786soft: justified with ([null])
...
-3800soft: constraint (Company terminal mismatch) has 38 matches:
  -100soft: justified with ([null])
  -100soft: justified with ([null])
...
0: constraint (Arrival must finish before departure starts) has 0 matches:
0: constraint (Gate type mismatch) has 0 matches:
0: constraint (Must assign gate after scheduled time) has 0 matches:

```

```
Indictments (top 5 of 38):
-1432soft: indicted with (null) has 2 matches:
  -1332soft: constraint (Total delay)
  -100soft: constraint (Company terminal mismatch)
-886soft: indicted with (null) has 2 matches:
  -786soft: constraint (Total delay)
  -100soft: constraint (Company terminal mismatch)
-770soft: indicted with (null) has 2 matches:
  -670soft: constraint (Total delay)
  -100soft: constraint (Company terminal mismatch)
-571soft: indicted with (null) has 2 matches:
  -471soft: constraint (Total delay)
  -100soft: constraint (Company terminal mismatch)
-532soft: indicted with (null) has 2 matches:
  -432soft: constraint (Total delay)
  -100soft: constraint (Company terminal mismatch)
...
...
```

airport_auto_example_0_LAHC 800

Only the median sub single run of each solver is shown in the statistics below.

```
Explanation of score (0hard/-9173soft):
Constraint matches:
-5273soft: constraint (Total delay) has 28 matches:
  -552soft: justified with ([null])
  -496soft: justified with ([null])
  ...
-3900soft: constraint (Company terminal mismatch) has 39 matches:
  -100soft: justified with ([null])
  -100soft: justified with ([null])
  ...
0: constraint (Arrival must finish before departure starts) has 0 matches:
0: constraint (Gate type mismatch) has 0 matches:
0: constraint (Must assign gate after scheduled time) has 0 matches:
Indictments (top 5 of 39):
-652soft: indicted with (null) has 2 matches:
  -552soft: constraint (Total delay)
  -100soft: constraint (Company terminal mismatch)
-596soft: indicted with (null) has 2 matches:
  -496soft: constraint (Total delay)
  -100soft: constraint (Company terminal mismatch)
-571soft: indicted with (null) has 2 matches:
  -471soft: constraint (Total delay)
  -100soft: constraint (Company terminal mismatch)
-532soft: indicted with (null) has 2 matches:
  -432soft: constraint (Total delay)
  -100soft: constraint (Company terminal mismatch)
```

```
-464soft: indicted with (null) has 2 matches:  
-364soft: constraint (Total delay)  
-100soft: constraint (Company terminal mismatch)  
...
```

airport_auto_example_0_VND

Only the median sub single run of each solver is shown in the statistics below.

```
Explanation of score (0hard/-10397soft):  
Constraint matches:  
-6597soft: constraint (Total delay) has 28 matches:  
-1332soft: justified with ([null])  
-786soft: justified with ([null])  
...  
-3800soft: constraint (Company terminal mismatch) has 38 matches:  
-100soft: justified with ([null])  
-100soft: justified with ([null])  
...  
0: constraint (Arrival must finish before departure starts) has 0 matches:  
0: constraint (Gate type mismatch) has 0 matches:  
0: constraint (Must assign gate after scheduled time) has 0 matches:  
Indictments (top 5 of 38):  
-1432soft: indicted with (null) has 2 matches:  
-1332soft: constraint (Total delay)  
-100soft: constraint (Company terminal mismatch)  
-886soft: indicted with (null) has 2 matches:  
-786soft: constraint (Total delay)  
-100soft: constraint (Company terminal mismatch)  
-770soft: indicted with (null) has 2 matches:  
-670soft: constraint (Total delay)  
-100soft: constraint (Company terminal mismatch)  
-532soft: indicted with (null) has 2 matches:  
-432soft: constraint (Total delay)  
-100soft: constraint (Company terminal mismatch)  
-499soft: indicted with (null) has 2 matches:  
-399soft: constraint (Total delay)  
-100soft: constraint (Company terminal mismatch)  
...
```

airport_auto_example_0_First Improvement HC

Only the median sub single run of each solver is shown in the statistics below.

```

Explanation of score (0hard/-10397soft):
Constraint matches:
-6597soft: constraint (Total delay) has 28 matches:
-1332soft: justified with ([null])
-786soft: justified with ([null])
...
-3800soft: constraint (Company terminal mismatch) has 38 matches:
-100soft: justified with ([null])
-100soft: justified with ([null])
...
0: constraint (Arrival must finish before departure starts) has 0 matches:
0: constraint (Gate type mismatch) has 0 matches:
0: constraint (Must assign gate after scheduled time) has 0 matches:
Indictments (top 5 of 38):
-1432soft: indicted with (null) has 2 matches:
-1332soft: constraint (Total delay)
-100soft: constraint (Company terminal mismatch)
-886soft: indicted with (null) has 2 matches:
-786soft: constraint (Total delay)
-100soft: constraint (Company terminal mismatch)
-770soft: indicted with (null) has 2 matches:
-670soft: constraint (Total delay)
-100soft: constraint (Company terminal mismatch)
-532soft: indicted with (null) has 2 matches:
-432soft: constraint (Total delay)
-100soft: constraint (Company terminal mismatch)
-499soft: indicted with (null) has 2 matches:
-399soft: constraint (Total delay)
-100soft: constraint (Company terminal mismatch)
...

```

airport_auto_example_0_LAHC 400 Entity-focused

3 benchmarks have failed!

Solver benchmarks

Tabu 5 500	2	LAHC 400	0	Simulated Annealing	F	Great Deluge	F	Tabu 10 1000	2	LAHC 800	1
VND	4	First Improvement HC	4	LAHC 400 Entity-focused	F						

```

<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<solver xmlns="https://timefold.ai/xsd/solver">
  <environmentMode>PHASE_ASSERT</environmentMode>
  <monitoring>
    <metric>STEP_SCORE</metric>

```

```

<metric>BEST_SCORE</metric>
<metric>PICKED_MOVE_TYPE_BEST_SCORE_DIFF</metric>
<metric>CONSTRAINT_MATCH_TOTAL_BEST_SCORE</metric>
<metric>CONSTRAINT_MATCH_TOTAL_STEP_SCORE</metric>
</monitoring>
<solutionClass>lv.lu.eztf.dn.combopt.evlp.domain.EVRPsolution</solutionClass>
<entityClass>lv.lu.eztf.dn.combopt.evlp.domain.Gate</entityClass>
<entityClass>lv.lu.eztf.dn.combopt.evlp.domain.Visit</entityClass>
<scoreDirectorFactory>
  <constraintProviderClass>lv.lu.eztf.dn.combopt.evlp.solver.ConstraintStreamCostFunction</constraintProviderClass>
</scoreDirectorFactory>
<termination>
  <secondsSpentLimit>30</secondsSpentLimit>
</termination>
<constructionHeuristic/>
<localSearch>
  <unionMoveSelector>
    <subListChangeMoveSelector/>
    <listChangeMoveSelector/>
    <listSwapMoveSelector/>
    <kOptListMoveSelector/>
  </unionMoveSelector>
  <acceptor>
    <valueTabuSize>5</valueTabuSize>
  </acceptor>
  <forager>
    <acceptedCountLimit>500</acceptedCountLimit>
  </forager>
</localSearch>
</solver>

```

Environment Information

Name	2026-01-18_131020
Aggregation	false
Failure count	3
Starting timestamp	2026. gada 18. janv. 13:10:20
Warm-up time spent	0.030 s. (30 ms.)
Parallel benchmark count / available processors	1 / 8
Benchmark time spent	09:03.844 s. (543,844 ms.)
Environment mode	PHASE_ASSERT

Logging level for ai.timefold.solver.core	DEBUG
Solver ranking class	TotalScoreSolverRankingComparator
VM max memory (as in -Xmx but lower)	4,217,372,672 bytes
Timefold Solver version	Community Edition v1.27.0
Java version	Java 17.0.16 (Eclipse Adoptium)
Java VM	Java OpenJDK 64-Bit Server VM 17.0.16+8 (Eclipse Adoptium)
Operating system	Windows 11 amd64 10.0
Report locale	Unknown
Report timezone	Europe/Riga

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