

Gurobi 9.0 Performance Benchmarks



GUROBI
OPTIMIZATION

The World's Fastest Solver

Thank You for Your Interest in Gurobi



- The Gurobi Optimizer was designed from the ground up to be the fastest and most powerful solver available for your mathematical optimization problems.
- Gurobi solves problems of the following types:
 - Mixed-Integer Programming (MIP)
 - Linear Programming (LP)
 - Quadratic Programming (QP) and Quadratically-Constrained Programming (QCP)
- Gurobi has a long history of winning standard public benchmark tests and has the fastest overall solve times for all model types evaluated in the tests.

And, as problems get harder, our relative performance gets even better.

Benchmark Testing

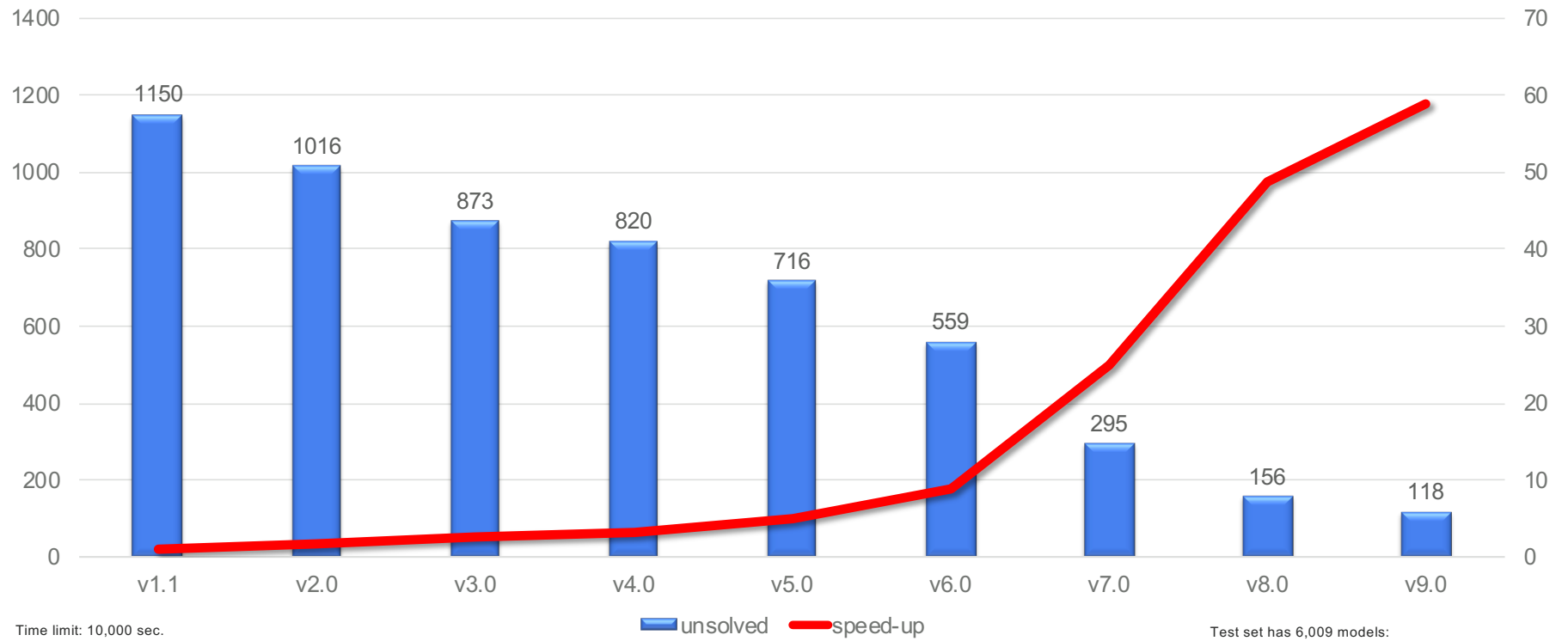
- **Primary Objectives**
 - Robustness testing
 - Compare version-to-version improvements
- **Test Bank**
 - Internal library of over 10,000 models from industry and academia

On the next slides, we will share some specific results from our own internal testing. Every model is different, so we invite you to [try Gurobi for yourself](#) or [contact us](#) with any questions.

Gurobi Keeps Getting Better



Comparison of Gurobi Versions (PAR-10)



Time limit: 10,000 sec.
Intel Xeon CPU E3-1240 v5 @ 3.50GHz
4 cores, 8 hyper-threads
32 GB RAM

Test set has 6,009 models:
- 473 discarded due to inconsistent answers
- 1,580 discarded that none of the versions can solve
- Speed-up measured on >100s bracket: 2,197 models

Faster Than Ever

- **Gurobi Version 9.0 delivers significant performance improvements across LP, MIP, and MIQP problem types compared to Version 8.1.**
 - LP – 7% faster in default settings.
 - Barrier – 7% faster, and an additional 4% faster with computers supporting AVX-512.
 - MIP – 18% faster overall, and 26% faster on difficult models that take more than 100 seconds to solve.
 - MIQP – 24% faster.

Isn't It Time to Upgrade to Gurobi?



- You can get a free academic license at www.gurobi.com/academia.
- You can request a free commercial evaluation license by contacting us at info@gurobi.com.
- We are happy to help you benchmark your models with Gurobi Version 9.0. Please [submit a Gurobi support ticket](#) to get started.