



FOR IMMEDIATE RELEASE

Solve Combinatorial Optimization Problems Faster and Easier!

Fixstars Amplify AE Gets a Major Update

Accelerating the Resolution of Complex Social Issues with Automated Expert Parameter Tuning and Unrivaled Solving Performance

IRVINE, California – Oct 17, 2025 – Fixstars Corporation (TSE Prime: 3687, US Headquarters: Irvine, CA), a leading company in performance engineering technology, today announced that its group company, Fixstars Amplify Corporation, has released a major update to its GPU-based Ising machine, "Fixstars Amplify Annealing Engine (hereinafter, Amplify AE)," which is available starting today.

The latest version, "Amplify AE v1.0," dramatically improves the performance of solving combinatorial optimization problems through the fusion of proprietary algorithms and advanced GPU utilization technology. Furthermore, it has succeeded in significantly raising the limit on the scale and complexity of solvable problems. This makes it possible to apply the technology to larger and more complex social issues that were previously difficult to approach due to technical constraints. Fixstars will more strongly support the solution of combinatorial optimization problems that exist in numerous business and social issues, including design and production planning in manufacturing, logistics, and finance. All users (free and paid) can utilize Amplify AE v1.0 without any change to their plan or price.

Benchmark Execution Example of a Real-World Problem: Optimization of Company R's Production Plan

Benchmark Execution Example of a Real-World Problem: Optimization of Production Plan



This benchmark addresses a business problem: minimizing production costs within a factory's production schedule. It features a quadratic objective function and 933 linear inequality constraints. The comparison is based on the time required to achieve the optimal solution.

Key Features of Fixstars Amplify AE v1.0

1. Unrivaled Solving Performance

Solving performance for large-scale and complex problems has been greatly improved through the introduction of new algorithms and enhanced GPU parallel processing efficiency. This enables handling of issues where computation time was previously a bottleneck, expanding the scope of practical use.

2. Realizing Usability through Automatic Parameter Tuning

A new feature has been added to automatically tune parameters for constraints, which traditionally required users to repeatedly trial-and-error for problems with many constraints. This allows users to achieve high performance without deep knowledge of mathematical optimization, enabling them to focus on the original goal of solving business challenges.

3. Enhanced Expressiveness with Support for Inequality Constraints and High-Order Polynomials

Support for inequality constraints and high-order polynomials, which were previously difficult to handle, has been strengthened. This makes it easier to apply Amplify AE to problems that previously required complex transformations or ingenious methods. It reduces the burden on users during formulation while realizing more advanced and highly accurate optimization calculations.

Amplify AE Details: <https://amplify.fixstars.com/en/engine>

Background and Achievements of Development

"Combinatorial optimization problems" exist in various business situations for advancing decision-making, such as optimizing production plans in manufacturing, logistics routes, structural design, material blending ratios and manufacturing conditions, and portfolio optimization in the financial sector. Solving these problems traditionally required vast amounts of computation.

Fixstars Amplify has been providing a platform that applies quantum computing technology to solve combinatorial optimization problems since 2021, and it is already used by over 1,000 organizations, including companies and research institutions. Based on feedback from many users, the company is now able to provide this significant update that greatly improves performance and usability at the five-year milestone since its establishment.

Moving toward the social implementation of quantum technology, Fixstars will continue to deepen use cases and technical knowledge across various business operations together with its users, contributing to problem-solving.

About the Quantum Computing Platform "Fixstars Amplify"

Fixstars Amplify is a cloud-based platform consisting of an SDK and execution environment for Ising machines (*1). The SDK is designed to realize simple and efficient application development and supports numerous quantum annealing and Ising machines, mathematical optimization solvers, and gate-model quantum computers. The "Fixstars Amplify Annealing Engine" is an annealing machine uniquely developed based on Fixstars' advanced GPU technology.

*1 An Ising machine is a specialized machine for solving combinatorial optimization problems, with "Quantum Annealing" which uses quantum mechanical effects, drawing attention.

About Fixstars Amplify Co., Ltd.

Fixstars Amplify Co., Ltd. was established in 2021 as a subsidiary of Fixstars Corporation. It addresses social issues through its quantum computing platform business, aiming to be a bridge connecting cutting-edge technologies like quantum computers with society. It will accelerate the journey toward an optimized society through providing services and system development services focused on combinatorial optimization problems, as well as consulting. <https://amplify.fixstars.com/>

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About Fixstars Corporation

Fixstars is a technology company dedicated to accelerating AI inference and training through advanced software optimization solutions. It supports innovation in healthcare, manufacturing, finance, mobility, and other industries. For more information, visit: <https://www.fixstars.com/>

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