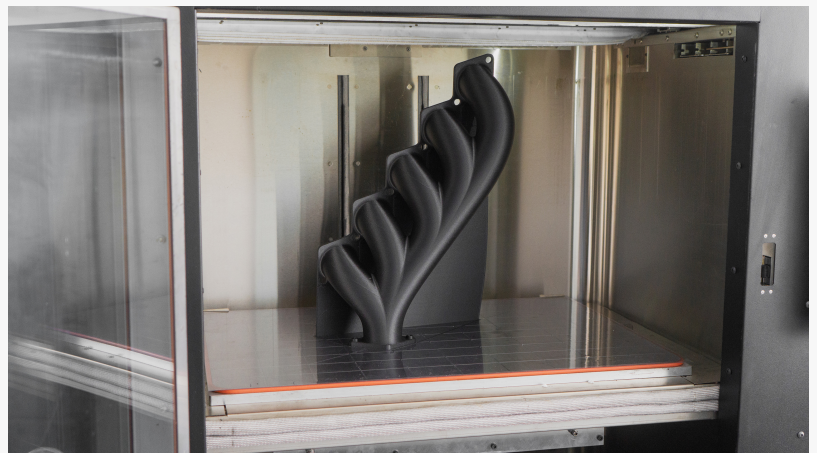


# New Software Cuts 3D Print Times by 54% with Physics-Based Slicing

*Increase throughput and reduce time to part without sacrificing part quality or performance.*

MONTRÉAL, CANADA, November 12, 2025 /EINPresswire.com/ -- For years, throughput has been a sticking point with manufacturers looking to adopt additive manufacturing. Thankfully, a new software feature from AON3D is about to change that — utilizing physics-based G-CODE post-processing, the company was able to cut print times by as much as 54%, without compromising part quality or performance. Representing the first major breakthrough in material extrusion throughput in years, combined with [AON3D Basis'](#) real-time part qualification software, AON3D's additive manufacturing platform is further closing the gap between conventional and additive processes.



A manifold 3D printed in Carbon Fiber Nylon



A micrograph of a laminar ABS extrudate is compared to a bead that was printed too fast and too hot, resulting in melt fracture.

"Until now, polymer physics have been left out of the slicing process, relying solely on trial-and-error tuning — a time-consuming process with variable outcomes. AON3D's Multiphysics Process Optimization changes this, achieving deterministic outcomes and tying predictions to results" – Adrian Muresan, AON3D VP Software Research

## Maximizing Throughput with Polymer Physics

Utilizing a physics-based model of each polymer's rheological and thermal properties, AON3D's Throughput Optimization Module analyzes G-CODE to determine how heat will build and dissipate through a part. The software dynamically adjusts deposition rates based on part geometry to achieve the fastest possible print speeds without exceeding a material's melt-

fracture limits, and before inducing overheating deformation. By coupling rheology and heat transfer properties, the system automatically accelerates when conditions allow and slows down when necessary to maintain surface finish. The result is maximum throughput without compromise: faster prints, consistent layer bonding, and smooth, repeatable parts every time — no trial and error required.

In testing, the software was able to cut 13 hours off a 24-hour print. AON3D's new software feature is a large breakthrough for the utility of additive manufacturing for production applications.

### The Historical Approach and Why it Fails

Other systems on the market achieve faster printing through larger nozzles, which diminish surface finish, and trial-and-error tuning — turning up print speeds, feed rates, and extrusion temperatures until quality begins to fail, then backing off slightly. These settings are applied globally, regardless of part size, geometry, and cooling conditions, treating every print the same. When applied to unique geometries, this one-size-fits-all approach often results in both drooping/poor surface finish, due to overheating, and unpredictable anisotropy due to variations in weld strength.

### About AON3D's Additive Manufacturing Platform

[AON3D Hylo™](#) is a large, high throughput, high temperature industrial 3D printer built for manufacturing — enabling same-day, full-scale production of end-use parts and tooling in the World's high performance polymers, with properties that exceed many metals. The platform is paired with AON3D Basis™, an additive manufacturing software that reduces the inherent complexities of printing high performance polymers. Utilizing Multiphysics Process Optimization (MPO), Basis dynamically tunes print settings based on part geometry and polymer — achieving high quality results with maximized properties in just a few clicks. In addition, Basis features real-time part qualification software with the industry's first in-situ defect detection. Combined, the Hylo and Basis provide:

- Ultra-high throughput
- High quality parts with maximized properties
- Reduced skilled labor requirements
- Ultra-low operating costs (Up to 600% lower OPEX vs. closed material systems)

AON3D will be showcasing their Hylo high temperature industrial 3D printer and Basis software at Formnext 2025. Co-exhibiting with Aether Biomachines, a new filament vendor that engineers enzymes to create new polymer formulations, including a polyamide that can be printed over 2x faster. For questions or demos, find AON3D at Formnext in Hall 11.1 Stand E68 or reach out to AON3D directly at [aon3d.com/contact](https://aon3d.com/contact).

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