



Enhancing biometrics system with a faster, more accurate solution

Innovatrics improves the performance of its fingerprint matching software with a solution based on Intel® Xeon® processor E5-2600 v2 product family, enabling high-speed fingerprint matching with a worldwide reach



"Our fingerprint recognition software, optimized for the Intel® Xeon® processor E5-2600 v2 product family, helps us and our customers significantly reduce time for go-to-market and deployment cycles based on speedy integration and a user-friendly approach."

– Dominik Petro
Marketing Manager
Innovatrics

Founded in 2004, Innovatrics provides fast, accurate, interoperable and sensor-independent fingerprint recognition software suitable for both high-end and low-cost biometric applications. Innovatrics works closely with industry players worldwide to pursue its vision of bringing the ultimate fingerprint recognition software to various biometric market segments and applications such as access control, network security and identification systems. To bring the most efficient fingerprint recognition software to customers, Innovatrics aims to enhance its system to access the global marketplace from a centralized European operation with business locations in Slovakia and the Czech Republic.

Challenges

- **Enhance fingerprint recognition software.** Improve software to meet the demand for a faster, more accurate and highly compatible biometric recognition solution.
- **Customize solution to fit major platforms.** Embrace the challenge of catering to every major platform and operating system (OS) with the highest-quality and most cost-effective fingerprint recognition software development kits.

Solutions

- **Deploy platform based on the Intel® Xeon® processor E5-2600 v2 product family.** Boost fingerprint recognition software's performance by deploying a platform based on the Intel Xeon processor E5-2600 v2 product family, which provides additional cores to achieve a scalable algorithm.
- **Improve interoperability.** Allow fingerprint recognition software to support multiple OS and hybrid environments, as well as export fingerprints in many formats, including image- and template- based.

Technology Result

- **Improved speed.** Delivers first-class performance with fingerprint recognition software that provides speed of 102,862,138 fingerprint matches per second, and addresses workloads needed by large-scale fingerprint matching and identity management projects based a platform running on the Intel Xeon processor E5-2600 v2 product family.
- **Faster response on identification tasks.** Improves performance by up to 31 percent.

Business Value

- **Enhanced overall system performance.** Intel Xeon processor E5-2600 v2 product family helps enhance the performance of the fingerprint recognition software technology and algorithms.
- **Global reach.** The solution based on the Intel Xeon processor E5-2600 v2 product family is ready for worldwide deployment that requires high-speed fingerprint matching, such as elections, national ID cards and passport issuance, border control solutions and others.
- **Lower TCO and more ROI.** With enhanced performance from the fingerprint recognition software, customers significantly reduce time for go-to-market and the number of servers, allowing them to deliver and deploy projects in a shorter period of time, enabling them to utilize their resources more effectively and reduce overall costs.

Biometric solutions are increasingly being incorporated into systems across the board. The demand for faster, more accurate and highly compatible biometric recognition components has challenged software developers to come up with new solutions. Innovatrics has embraced this challenge by offering high-quality, cost-effective fingerprint recognition software development kits (SDKs). With its own state-of-the-art fingerprint algorithm, Innovatrics' fingerprint recognition software works by extracting the fingerprint image and then analyzing it and identifying its minute points that will be then compared quickly against an existing database. Its fingerprint recognition software is used to identify or verify the identity of citizens or government officials, patients or healthcare employees and professionals, parties in financial transactions, customers or bank employees, and the identity of an employee or a traveler for immigration, border and customs procedures.

"Innovatrics holds the lead in speed and accuracy in all its biometric components," said Dominik Petro, marketing manager at Innovatrics. "Having won the standardization contest and holding the highest certifications, Innovatrics supports software developers, providing a deep understanding and expertise in biometric applications and allowing our customers to experience a personalized and flexible approach to meet their business needs."



The Intel® Xeon® processor E5-2600 v2 product family's performance met Innovatrics' expectations for enhanced fingerprint matching speed and identity management capabilities

In keeping with its commitment to provide the most efficient fingerprint recognition technology, Innovatrics wanted to improve its software to boost speed and accuracy, as well as to extend its reach worldwide to serve more customers around the globe while operating from a centralized system.

Improving fingerprint matching speed and accuracy

To provide highly efficient fingerprint recognition technology, overall speed and accuracy are important. To meet this need, Innovatrics deployed a platform based on the Intel Xeon processor E5-2600 v2 product family.

"Intel is the leader in solutions that require high computing performance," explained Petro. "We work with extreme amounts of data that need to be analyzed in seconds. The Intel Xeon processor E5-2600 v2 product family helps us enhance the performance of our technology and algorithms. Our solution based on this platform has revolutionized the national ID systems in the UAE and Gambia, made way for biometric passports in Ghana and Liberia, as well as played a key role in securing the credibility of voters' identification during the 2012 elections in Burkina Faso, Namibia, Nigeria and Mozambique to name a few. We also continue to enable worldwide deployments that require high-speed fingerprint matching, such as border control solutions, license issuance and population registration."

Innovatrics moved from its existing Intel Xeon processor-based platform to one based on the Intel Xeon processor E5-2600 v2 product family for running its identity management solution, WebAFIS*, as well as a high-speed fingerprint matching solution, ExpressID AFIS* 3 (which also works in combination with WebAFIS). These solutions require significant performance. The Intel Xeon processor E5-2600 v2 product family provides additional cores and enhances the overall performance of the system to enable the solutions to analyze and match millions of fingerprints, as well as to manage identity lifecycles.

Innovatrics' identification algorithm improved performance up to 31 percent to deliver faster response on identification tasks and a speed of 102,862,138 fingerprint matches per second on the Intel Xeon processor E5-2600 v2 product family-based platform. This is a significant increase from the 78,013,607 fingerprint matches per second

on the previous platform, based on the Intel Xeon processor E5-2680.

Providing unmatched fingerprint recognition technology

With enhanced performance from the fingerprint recognition software optimized on the Intel Xeon processor E5-2600 v2 product family, Innovatrics can help its customers reduce time for go-to-market and the number of servers for delivering and deploying of projects, based on speedy integration and a user-friendly approach. Since fingerprint matching can now be performed faster, customers in the healthcare, financial services, security and government sectors that require efficient identity verification tools can deliver and deploy projects faster. It also allows them to utilize their resources more effectively and reduce overall costs. The solution helps customers streamline the process of deployment in demanding projects.

To extend its reach worldwide, Innovatrics has a global strategy to set up a smart network of collaborators to compete in the major market segments around the world, supported by a centralized platform powered by the Intel Xeon processor E5-2600 v2 product family.

"Our software solutions are fully compatible with Intel Xeon processor E5-2600 v2 product family," explained Petro, "so our software is ready to address workloads needed by large-scale fingerprint matching and identity management projects. Essentially, the platform based on the Intel Xeon processor E5-2600 v2 product family elevates the quality of the components and ensures better performance overall."

For Innovatrics, Intel is an essential technology provider. Every improvement in Intel® processors helps Innovatrics enhance the performance of its solutions. Petro added, "Intel is clearly a global leader and every improvement in Intel products has an exponential improvement on the performance of our solutions."

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Lessons Learned

- Closely following the improvements Intel makes in its processors has been key for Innovatrics to adapt and develop higher performance in its solutions.
- Regardless of the kind of challenge an organization faces, sticking to best practices and innovative approaches leads the way to success.
- Overall speed and accuracy are the main standardized aspects that fingerprint technologies use as benchmark. Therefore, to benchmark the fingerprint speed matching record provides Innovatrics an important certification to promote its products.
- Intel is an essential hardware provider for Innovatrics' systems. Every improvement in Intel processors helps Innovatrics enhance the performance of its solutions.



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