Atos and IQM study finds 76% of global HPC data centers to use quantum computing by 2023

Munich (Germany), Paris (France) 18 November 2021 – Atos and IQM today announce the findings from the first global IDC study on the current status and future of quantum computing in high performance computing (HPC). Commissioned by IQM and Atos, the study reveals that **76% of HPC data centers worldwide plan to use quantum computing by 2023**, and that **71% plan to move to on-premises quantum computing by 2026**.

One of the key findings from the study is that it is becoming increasingly difficult for users to get the optimal performance out of high-performance computing while ensuring both security and resilience.

110 key decision-makers from high-performance computing (HPC) centers worldwide were surveyed [1]. For the first time, the results provide concrete insights into a technology area that will change Europe and the world significantly.

Investment in quantum computing on the rise

Quantum computing is the number one technology in Europe and among the top three technologies of the top 500 HPC data centers worldwide. 76 percent of HPC centers are already using quantum computing or plan to use them in the next two years. The expected benefits of the introduction of quantum computers are clear for HPC data centers: the survey shows that these are: tackling new problems such as supply chain logistics or challenges related climate change (45 percent) and solving existing problems faster (38 percent) - while at the same time reducing computing costs (42 percent).

Increasing complexity as an opportunity

Cloud is a key part of this HPC architecture, mixing standard elements with custom-developed infrastructure components. Based on the survey responses, hybrid and cloud deployments are especially important in the EMEA region. 50 percent state that a hybrid HPC architecture is top priority, (North America 46 percent; APAC 38 percent). Yet, there is a lack of knowledge about how quantum computing will work alongside a classical HPC infrastructure. Therefore, outsourcing operations and maintenance with partners will continue with the increase in quantum computing.

A market in transition

Developing and testing real-world use cases is critical to the future success of quantum computing. The four most important use cases for quantum computing are currently linked to the analysis of huge amounts of data and solving industry-specific use cases. The top use cases identified by the HPC centers interviewed are:

- Searching databases (59 percent)
- Investment risk analysis (45 percent)
- Molecular modelling (41 percent)
- Asset Management (32 percent)

Dr. Jan Goetz, CEO and Co-Founder of IQM Quantum Computers summarizes: *"We work with some of the leading HPC centers in the world, and we planned this study to provide the quantum industry a thorough understanding of the state of quantum at HPC centers globally. The strong investments for on-premise quantum computers, focus on skills gap and sustainability are very important findings from this study, and it will help IQM, Atos and our ecosystem partners in creating new products and offerings"*

Dr. Stefano Perini, IDC European Quantum Computing Practice Co-lead Spokesperson of IDC, adds: "*Quantum computing has all the credentials to change the way both scientific and business challenges will be addressed. Yet, there is little data on what are the current and future adoption trends of this cutting-edge technology by organizations around the world. The study sheds light on how HPC centers are experimenting with quantum computing and how they're planning to do it in the future. By filling this gap, we have been able to define the key steps to undertake in order for quantum computing to flourish and achieve a significant impact over the next years."*

Udo Littke, Head of Atos Central Europe, summarizes: "*There has never been such a comprehensive study of the opportunities of the quantum technologies for the supercomputing market. Therefore, we conducted this analysis together with IDC and IQM to learn more about the supercomputing market in EMEA and the world. The results show that quantum computing is more important in Europe than in the rest of the world. Europe has a unique ecosystem for quantum computing, which is now showing strong growth. Especially now, it is important to work with strong partners who have already executed various projects and use cases and bring the relevant know-how. IQM is actually part of our Atos Scaler, an accelerator programme creating partnerships with the start-up ecosystem"*

Click here to gain access to the complete study: https://atos.net/en/events/state-of-quantum

###

[1] The study "The State of Quantum Computing in High Performance Computing (HPC)" shows the strategic importance of quantum computing. For the study, 110 of the most important HPC centers worldwide were

surveyed in August 2021. 27 percent of them come from EMEA, 32 percent from North America, 41 percent from APAC.

About Atos
Atos is a global leader in digital transformation with 107,000 employees and annual revenue of over € 11 billion. European number one in cybersecurity, cloud and high performance computing, the Group provides tailored end-to-end solutions for all industries in 71 countries. A pioneer in decarbonization services and products, Atos is committed to a secure and decarbonized digital for its clients. Atos is a SE (Societas Europaea), listed on Euronext Paris and included on the CAC 40 ESG and Next 20 Paris Stock Indexes.

The purpose of Atos is to help design the future of the information space. Its expertise and services support the development of knowledge, education and research in a multicultural approach and contribute to the development of scientific and technological excellence. Across the world, the Group enables its customers and employees, and members of societies at large to live, work and develop sustainably, in a safe and secure information space.

For more information, please visit www.atos.net

Press contacts Atos:
- **Atos - Germany** - Stefan Pieper, Phone: +49 178 4686875, E-Mail: stefan.pieper@atos.net
- **Agency contact – Germany -** PIABO PR, Phone: +49 30 2576 205 - 28, E-Mail: atos@piabo.net
- **Global** – Laura Fau | laura.fau@atos.net | +33 6 73 64 04 18 | @laurajanefau

About IQM
IQM is a pan-European leader in the field of quantum computing.

IQM provides on-site quantum computing for research labs and supercomputing data centers and offers full access to its hardware. For industrial customers, IQM delivers quantum benefits through a unique application-specific co-design approach.

IQM is building Finland's first commercial 54-qubit quantum computer with VTT, and an IQM-led consortium is building Germany's quantum computing system that will be integrated into an HPC supercomputer to create an accelerator for future scientific research. IQM has offices in Bilbao, Munich and Espoo and employs over 130 people. More information: www.meetiqm.com