

174856-2026 - Result

Denmark – Super computer – Trapped-Ion Quantum Computers - cloud emulator and H-Series devices

OJ S 51/2026 13/03/2026

Contract or concession award notice – standard regime

Supplies - Services

1. Buyer

1.1. Buyer

Official name: Danmarks Tekniske Universitet - DTU

Email: aasst@dtu.dk

Legal type of the buyer: Body governed by public law

Activity of the contracting authority: Education

2. Procedure

2.1. Procedure

Title: Trapped-Ion Quantum Computers - cloud emulator and H-Series devices

Description: The research project, for which this quantum computing access is needed, aims to implement Top-ological Quantum Computing (TQC) by operating and testing topological surface codes and other algorithms related to topological quantum field theories (TQFTs) on Quantinuum H-Series processors and emulators. Errors and noise are always a limiting factor, so this project needs to gain access to a machine with industry leading qubit and gate fidelity, which is essential to implementing the non-standard gates that arise from TQFTs and accurately probing various conjectures arising from geometry and topology that might depend sensitively on certain parameters. Moreover, it is essential for this project to have access to hardware with fully connected qubits, which Quantinuum's systems also offer, because such TQFT-based gates often need to be applied to arbitrary pairs of qubits. For example, for unitary representations of the braid group, qubits might encode strands, and it would be necessary to be able apply 2-qubit gates to any pair of qubits. Full connectivity significantly reduces transpilation overhead, which otherwise would drastically limit many TQC and TQFT-based algorithms. This project also needs access to a system which supports mid-circuit measurement, fast qubit re-set, and conditional branching, which opens the door to advanced techniques such as error correction, adaptive circuits, and algorithms requiring classical feedback on the fly, which are essential to many algorithms arising in TQC and TQFT. Mid-circuit measurement also allows for measurement-based gates which could present a potential alternative avenue to implement complex operations. Finally, mid-circuit measurement will increase efficiency of implementations because qubit can be reused if they are no longer needed. Currently, Quantinuum is the only hardware provider offering mid-circuit measurement on a high fidelity trapped-ion machine. To develop proofs of concept that could test potential avenues for quantum advantage, this project needs access to a machine with as many qubits as possible satisfying the above constraints. While Quantinuum's current H2 machine is already industry leading, access to their upcoming Helios QPU could allow for significantly larger calculations owing to its announced approximately 100 qubits. Amount: Quantum/HPC technology Estimated Credits Quantinuum H2 and Helios: 50.000 HQC Quantinuum H-series Emulators: 500.000 eHQC The above HQC estimates represent access to running circuits in Quantinuum's native gate set. However, while not strictly necessary,

direct, pulse-level access to Quantinuum's machine would allow for a more efficient implementation of TQFT-based gates by removing the bottleneck of transpilation to native gate sets. Pulse-level access would allow the project to extract maximum efficiency from the quantum resources at hand.

Procedure identifier: cc88cb66-001b-4a2b-895b-ec37d1baf547

Previous notice: 77e7e0f2-7113-4db1-b843-c5607d93aaa0-01

Internal identifier: 9816

Type of procedure: Negotiated without prior call for competition

2.1.1. Purpose

Main nature of the contract: Supplies

Additional nature of the contract: Services

Main classification (cpv): 30211100 Super computer

2.1.2. Place of performance

Postal address: Campusvej 55

Town: Odense M

Postcode: 5230

Country subdivision (NUTS): Fyn (DK031)

Country: Denmark

Additional information: SDU - University of Southern Denmark Centre for Quantum Mathematics Department of Mathematics and Computer Science (IMADA)

2.1.4. General information

Additional information: DTU (DeIC) is the financing part in this purchase. SDU is the licensee and will be the party that will use the purchase.

Legal basis:

Directive 2014/24/EU

5. Lot

5.1. Lot: LOT-0000

Title: Trapped-Ion Quantum Computers - cloud emulator and H-Series devices

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alternative avenue to implement complex operations. Finally, mid-circuit measurement will increase efficiency of implementations because qubit can be reused if they are no longer needed. Currently, Quantinuum is the only hardware provider offering mid-circuit measurement on a high fidelity trapped-ion machine. To develop proofs of concept that could test potential avenues for quantum advantage, this project needs access to a machine with as many qubits as possible satisfying the above constraints. While Quantinuum's current H2 machine is already industry leading, access to their upcoming Helios QPU could allow for significantly larger calculations owing to its announced approximately 100 qubits. Amount: Quantum/HPC technology Estimated Credits Quantinuum H2 and Helios: 50.000 HQC Quantinuum H-series Emulators: 500.000 eHQC The above HQC estimates represent access to running circuits in Quantinuum's native gate set. However, while not strictly necessary, direct, pulse-level access to Quantinuum's machine would allow for a more efficient implementation of TQFT-based gates by removing the bottleneck of transpilation to native gate sets. Pulse-level access would allow the project to extract maximum efficiency from the quantum resources at hand.

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Country: Denmark

Additional information: SDU - University of Southern Denmark Centre for Quantum Mathematics Department of Mathematics and Computer Science (IMADA)

5.1.3. Estimated duration

Duration: 12 Months

5.1.6. General information

Procurement Project not financed with EU Funds.

The procurement is covered by the Government Procurement Agreement (GPA): yes

Additional information: DTU (DeIC) is the financing part in this purchase. SDU is the licensee and will be the party that will use the purchase.

5.1.10. Award criteria

Criterion:

Type: Quality

Name: Quality

Description: Quality

Category of award weight criterion: Weight (points, exact)

Award criterion number: 100

5.1.15. Techniques

Framework agreement:

No framework agreement

Information about the dynamic purchasing system:

No dynamic purchase system

5.1.16. Further information, mediation and review

Review organisation: Klagenævnet for Udbud

Information about review deadlines: Complaint that the Contracting Authority, contrary to the Public Procurement Act, has concluded a contract without prior publication of a contract notice in the European Union Official Journal must be submitted no later than 30 calendar days from the date after a contract award notice has been published by the Contracting Authority in the European Union Official Journal and that contract award notice includes the grounds for the decision to award the contract directly, cf. lov om Klagenævnet for Udbud (Complaints Board for Tenders) § 7, section 3.

Organisation providing additional information about the procurement procedure: Danmarks Tekniske Universitet - DTU

Organisation providing offline access to the procurement documents: Danmarks Tekniske Universitet - DTU

Organisation providing more information on the review procedures: Konkurrence- og Forbrugerstyrelsen

Organisation whose budget is used to pay for the contract: Danmarks Tekniske Universitet - DTU

Organisation executing the payment: Danmarks Tekniske Universitet - DTU

Organisation signing the contract: Danmarks Tekniske Universitet - DTU

6. Results

Value of all contracts awarded in this notice: 770 000,00 USD

Direct award

:

Justification for direct award: The contract can be provided only by a particular economic operator because of an absence of competition for technical reasons

Other justification: Quantinuum has been identified as a unique provider of both quantum computing hardware and cloud emulation. Quantinuum's H-Series processors are the top of the market for trapped-ion quantum computers and offer not only some of the best fidelity available for gate operations, but also all-to-all connectivity and mid-circuit measurements. Access to Quantinuum through Microsoft Azure is not sufficient, as some of Quantinuum's features are only available through direct access using their specialized software. Moreover, the potential for pulse-level access and direct connections with the experts at Quantinuum are essential to fully realize the research project's goals. The H2 processor has 56 fully-connected qubits and boasts a single-qubit gate fidelity of 99.997% and two-qubit gate fidelity of 99.87%, which will allow to significantly scale computations beyond what can be done classically on simulators. The H2 processor has a proven track record of successfully implementing proofs of concept including for example the creation of non-Abelian topo-logical orders and anyons, which are very closely related to the TQFT (topological quantum field theory). The upcoming Helios processor will have approximately 100 qubits and thus set new standards for trapped-ion computers with all-to-all connectivity. We hope to be able to demonstrate significant advances in several field using this new machine. Quantinuum's processors also allow for mid-circuit measurement unlike the other players in the trapped-ion quantum computing space, which is an essential technical feature for several of the applications in the research project. The other major players with commercially available trapped-ion quantum computers has been contacted in regards to a market dialogue. Some suppliers focuses on rack-mounted, modular machines topping out at 20 qubits, which is insufficient for this project. Others on the other

hand, has a closer offering to Quantinuum. However, some suppliers current best offering has 36 qubits (to Quantinuum's 54) and does not support mid-circuit measurement, which is essential for the project. We note that a supplier has announced a next-generation machine that promises to support mid-circuit measurement, but if this does not come to fruition having chosen this supplier would limit the project's goals and therefore not suffice for the purpose of the research project. Moreover, the suppliers next generation machine promises 64 qubits, while as mentioned above, Quantinuum's promises approximately 100. Ultimately, Quantinuum is the only provider suitable for all the activities in the research project.

6.1. Result lot identifier: LOT-0000

Winner selection status: At least one winner was chosen.

6.1.2. Information about winners

Winner:

Official name: Quantinuum

Tender:

Tender identifier: Offer - Trapped-Ion Quantum Computers - cloud emulator and H-Series devices

Identifier of lot or group of lots: LOT-0000

Value of the tender: 798 000,00 USD

Subcontracting: No

Contract information:

Identifier of the contract: Contract

Date on which the winner was chosen: 06/10/2025

Organisation signing the contract: Danmarks Tekniske Universitet - DTU

6.1.4. Statistical information

Summary of the review requests the buyer received:

Number of complainants: 0

Received tenders or requests to participate:

Type of received submissions: Tenders

Number of tenders or requests to participate received: 1

8. Organisations

8.1. ORG-0001

Official name: Danmarks Tekniske Universitet - DTU

Registration number: 30060946

Department: Danish e-infrastructure Consortium (DeiC)

Postal address: Anker Engelds Vej 1

Town: Kgs. Lyngby

Postcode: 2800

Country subdivision (NUTS): Københavns omegn (DK012)

Country: Denmark

Contact point: Anna Storch

Email: aasst@dtu.dk

Telephone: +45 999999

Internet address: <https://www.dtu.dk>

Buyer profile: <https://eu.eu-supply.com/ctm/company/companyinformation/index/165863>

Roles of this organisation:

Buyer

Organisation providing additional information about the procurement procedure
Organisation providing offline access to the procurement documents
Organisation signing the contract
Organisation whose budget is used to pay for the contract
Organisation executing the payment

8.1. ORG-0002

Official name: Klagenævnet for Udbud
Registration number: 37795526
Postal address: Nævnenes hus, Toldboden 2
Town: Viborg
Postcode: 8800
Country subdivision (NUTS): Østjylland (DK042)
Country: Denmark
Email: klfu@naeveneshus.dk
Telephone: +45 35291000
Internet address: <http://www.klfu.dk>

Roles of this organisation:

Review organisation

8.1. ORG-0003

Official name: Konkurrence- og Forbrugerstyrelsen
Registration number: 10294819
Postal address: Carl Jacobsens Vej 35
Town: Valby
Postcode: 2500
Country subdivision (NUTS): Byen København (DK011)
Country: Denmark
Email: kfst@kfst.dk
Telephone: +45 41715000
Internet address: <http://www.kfst.dk>

Roles of this organisation:

Organisation providing more information on the review procedures

8.1. ORG-0004

Official name: Quantinuum
Size of the economic operator: Large
The organisation is a natural person
Registration number: US981641186
Postal address: 303 S Technology Drive
Town: Broomfield
Postcode: CO 80021
Country: United States

Roles of this organisation:

Tenderer

Winner of these lots: LOT-0000

8.1. ORG-0005

Official name: Merzell Holding ASA
Registration number: 980921565
Postal address: Askekroken 11

Town: Oslo
Postcode: 0277
Country subdivision (NUTS): Oslo (NO081)
Country: Norway
Contact point: eSender
Email: publication@mercell.com
Telephone: +47 21018800
Fax: +47 21018801
Internet address: <http://mercell.com/>

Roles of this organisation:

TED eSender

Notice information

Notice identifier/version: 468886e5-34fc-4242-a47b-77c68cc7d337 - 01

Form type: Result

Notice type: Contract or concession award notice – standard regime

Notice subtype: 29

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