QTREX



HIGH-DENSITY CRYOGENIC I/O INFRASTRUCTURE

Manufactured for quantum scale

Supports up to 17,280 coaxial lines per cryogenic stage

THE CONNECTIVITY WALL

Scaling qubits requires scaling cryogenic control infrastructure

Control, readout and cryogenic connections must keep pace with growing qubit counts.

THERMAL LOAD
Every line carries heat toward the cold stage.

RF PERFORMANCE
Loss, reflections and crosstalk become harder to control.

DENSITY
Thousands of channels must pass through limited cryostat space.

RELIABILITY
Every cable, connector and interface adds a potential failure point.

QTREX manufactures the interconnect as one integrated structure, not a cable-by-cable assembly.

THE AME PLATFORM

Manufactured, not assembled

Additively Manufactured Electronics (AME) prints conductor, insulation, shielding and routing together as one monolithic structure. Software-defined geometry enables closed coaxial shields and customer-specific routing inside the part.

CONVENTIONAL ASSEMBLY

Cable → Connector → Thermal anchor → Connector → Cable

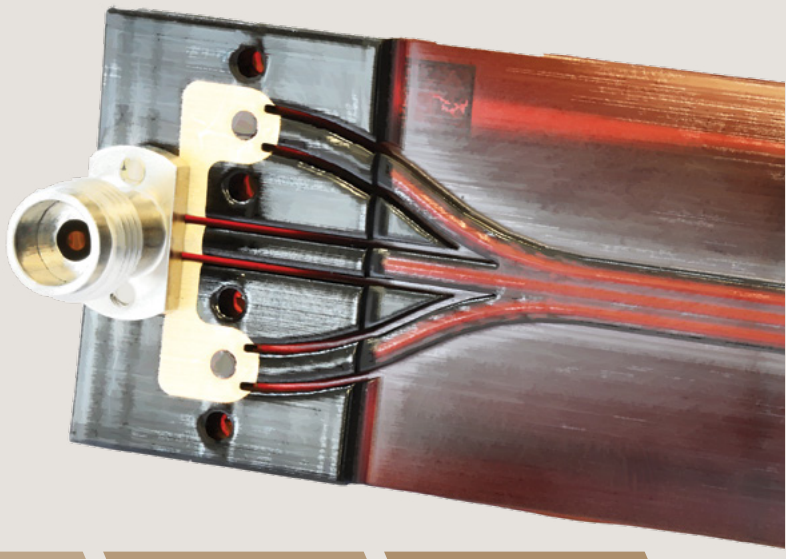
QTREX | AME

ONE INTEGRATED STRUCTURE

contains: conductor, dielectric, shielding, routing

THE QUANTUM INTERCONNECT

One structure, from cryostat stage to processor interface



Coaxial lines and thermal interface formed as one AME component.

300 K → 50 K → 4 K → Still → Cold plate → mK / QPU

Designed for thermal anchoring across cryogenic stages.

BEYOND CONNECTIVITY

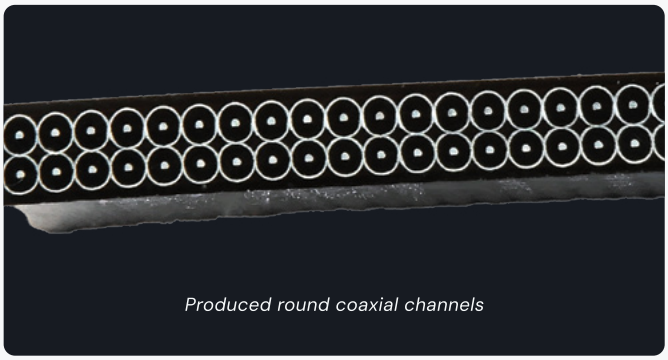
Shielding and materials can be engineered into the part

Selected areas of printed insulation can be laser-converted into conductive, graphene-like carbon that absorbs stray radiation without added shielding. Patent pending; cryogenic and high-frequency validation underway.

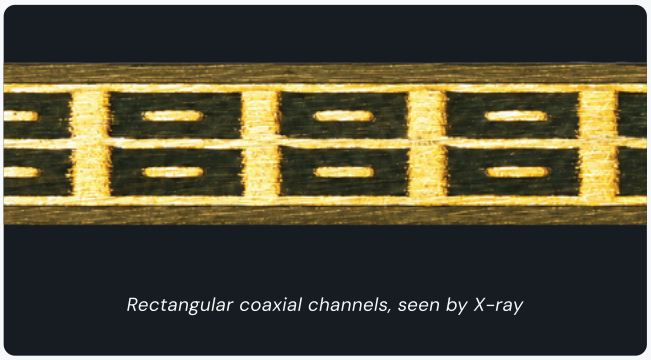
THE EVIDENCE

Measured consistency. Scalable architecture.

QTREX has produced a 54-channel AME coaxial interconnect. The full-scale architecture is designed to use both the perimeter and plate area of a cryogenic stage; lower-profile rectangular coax enables denser stacking.



Produced round coaxial channels



Rectangular coaxial channels, seen by X-ray

54 Coaxial channels produced	**≥68 dB** Crosstalk suppression	**10 MHz–20 GHz** Characterized bandwidth
<0.3 Ω Impedance spread	**0.33 dB** Insertion-loss variation	**4.4 ps** Average skew above 1 GHz

ROOM-TEMPERATURE RF CHARACTERIZATION

Cryogenic RF, thermal-load and reliability qualification is underway.

CRYOGENIC QUALIFICATION ROADMAP

RF performance	Thermal load per channel	Thermal cycling	Mechanical stability	Channel-to-channel consistency	Materials characterization

Next-generation materials: QTREX is developing superconducting materials for future AME cryogenic RF and quantum interconnect applications.

BUILD WITH QTREX

Configured around your quantum hardware

Your system defines the geometry, routing, shielding, grounding, thermal contact and qualification plan. QTREX turns those inputs into an engineering configuration and a commercial proposal.

PROCESSOR | CRYOSTAT | CHANNELS | RF | THERMAL | GEOMETRY

DISCUSS YOUR CRYOGENIC I/O REQUIREMENTS WITH QTREX

Share your processor and cryostat details, channel count, RF requirements, thermal budget and geometry.

WHAT WE SUPPLY

01

Digitally manufactured coaxial lines

High-density, monolithic AME structures for dilution cryostats.

02

Cryogenic rigid and flexible interconnect components

Including the single-build cryogenic chip carrier at the processor interface.

03

Customer-specific development & manufacturing

Components built for your geometry and quantum hardware architecture.



QTREX cryogenic I/O infrastructure, manufactured as one integrated structure

QTREX

q-trex.com

info@q-trex.com

linkedin.com/company/q-trex/

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QTREX Quantum Ltd. (Nasdaq: QTEX) is a technology company focused on advanced connectivity and electronics manufacturing solutions for next-generation hardware markets.
Following its acquisition of the AME platform, the Company is developing high-density, thermally optimized quantum connectivity solutions for dilution cryostats and advancing AME applications for defense, aerospace, missile, space, and other mission-critical environments.