

Special Section on Cryoelectronics Technology Related to Quantum Computing: From Circuits and Devices to Applications

The IEICE (Institute of Electronics, Information and Communication Engineers) Transactions on Electronics announces a forthcoming special section entitled “Cryoelectronics Technology Related to Quantum Computing: From Circuits and Devices to Applications,” which will be published in **October 2026**. With the explosive growth in demand for information processing, quantum computing has been positioned at the forefront of game-changing technologies. Quantum computers are anticipated to solve a certain class of the complex problems that would take conventional computers an enormous amount of time to compute. Numerous research projects have been launched worldwide, fueling a global race for technological breakthroughs toward practical quantum computing systems. This special section will explore the cutting-edge cryogenic electronics technologies pertinent to quantum computers, encompassing devices, circuits, architectures, and applications. Papers in superconducting electronics and spanning a diverse range of electronics research disciplines, from fundamental principles to practical applications, are cordially invited. We eagerly anticipate the contributions of numerous esteemed authors.

1. Scope

The major topics of interest include, but not limited to:

- Quantum bits
- Cryogenic devices based on superconductor, semiconductor, etc. for quantum computing
- Digital, analog, and mixed-signal circuits for control and readout
- Modeling and design methodologies for operation in cryogenic environments
- System integration, algorithms, and applications

2. Submission Instructions

The deadline for submission is **extended to November 17, 2025 (Japan Standard Time)**. The standard number of pages is 8 for a Paper. The maximum number of pages of a Brief Paper is 4. The page charges are considerably higher for extra pages. Manuscripts should be prepared according to the guideline in the “Information for Authors.” The latest version is available at the web site, https://www.ieice.org/eng/shiori/mokuji_es.html. The term for revising the manuscript after acknowledgement of conditional acceptance for this special section could be shorter than that for regular issues (60 days) because of the tight review schedule.

This special section will accept only papers by electronic submission. Prospective authors are requested to follow carefully the submission process described below.

Submit a paper using the IEICE web site, https://review.ieice.org/regist/regist_baseinfo_e.aspx. Authors should choose the [Special-SE] “Expanding superconducting digital circuit applications and their design technology” as a “Journal / Section” on the online screen. Do not choose [Regular-EC].

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4. Special Section Editorial Committee

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- * Upon accepted for publication, all authors, including authors of invited papers, should pay the page charges covering partial the cost of publication around March 2026. If payment is not completed by April 15, 2026, your manuscript will be handled as rejection.
- * The accepted papers will be published online soon on the web site of Transactions Online after the payment of page charges has been completed. For detailed information, please visit https://www.ieice.org/eng/shiori/page2_es.html#8.
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