



BSI Standards Publication

**Programming Languages — Technical  
Specification for C++ Extensions for Parallelism**

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## National foreword

This Published Document is the UK implementation of ISO/IEC TS 19570:2018. It supersedes PD ISO/IEC TS 19570:2015, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee IST/5, Programming languages, their environments and system software interfaces.

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Published by BSI Standards Limited 2018

ISBN 978 0 539 00604 9

ICS 35.060

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This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 November 2018.

### Amendments/corrigenda issued since publication

Date	Text affected
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TECHNICAL  
SPECIFICATION

**ISO/IEC TS  
19570**

Second edition  
2018-11

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**Programming Languages — Technical  
Specification for C++ Extensions for  
Parallelism**

*Langages de programmation — Spécification technique pour les  
extensions C++ relatives au parallélisme*



Reference number  
ISO/IEC TS 19570:2018(E)

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Published in Switzerland

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# Foreword

# [parallel.foreword]

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- <sup>2</sup> The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).
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- <sup>6</sup> This document was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 22, *Programming languages, their environments and system software interfaces*.
- <sup>7</sup> This second edition cancels and replaces the first edition (ISO/IEC 19570:2015) which has been technically revised.
- <sup>8</sup> The main changes compared to the previous edition are as follows:
  - (8.1) — Eliminate previously standardized functionality.
  - (8.2) — Introduce task block.
  - (8.3) — Introduce vector and wave front policies.
  - (8.4) — Introduce a template library for parallel for loops.
  - (8.5) — Introduce data-parallel vector types.

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# Programming Languages — Technical Specification for C++ Extensions for Parallelism

## 1 Scope

[parallel.scope]

- <sup>1</sup> This document describes requirements for implementations of an interface that computer programs written in the C++ programming language can use to invoke algorithms with parallel execution. The algorithms described by this document are realizable across a broad class of computer architectures.
- <sup>2</sup> There is a possibility of a subset of the functionality described by this document being standardized in a future version of C++, but it is not currently part of any C++ standard. There is a possibility of some of the functionality in this document never being standardized, or of it being standardized in a substantially changed form.
- <sup>3</sup> The goal of this document is to build widespread existing practice for parallelism in the C++ programming language. It gives advice on extensions to those vendors who wish to provide them.