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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 It supersedes PD ISO/IEC TS 19570:2015, which is withdrawn.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.

A list of organizations represented on this committee can be obtained on request to its secretary.

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Foreword [parallel.foreword]

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2 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).

3 Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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5 For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

6 This document was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 22, *Programming languages, their environments and system software interfaces.*

7 This second edition cancels and replaces the first edition (ISO/IEC 19570:2015) which has been technically revised.

8 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 wavefront policies.

(8.4) — Introduce a template library for parallel for loops.

(8.5) — Introduce data-parallel vector types.

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TECHNICAL SPECIFICATION **ISO/IEC TS 19570:2018(E)**

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

1 Scope [parallel.scope]

1 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.

2 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.

3 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.

