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Technical Specification for C++ Extensions for Transactional Memory

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Spécification technique pour les extensions C++ de la mémoire transactionnelle

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Technical Specification for C++ Extensions for Transactional Memory

1 General [intro]

1.1 Scope [general.scope]

1 This Technical Specification describes extensions to the C++ Programming Language (1.3) that enable the specification of Transactional Memory. These extensions include new syntactic forms and modifications to existing language and library.

2 The International Standard, ISO/IEC 14882, provides important context and specification for this Technical Specification. This document is written as a set of changes against that specification. Instructions to modify or add paragraphs are written as explicit instructions. Modifications made directly to existing text from the International Standard use **green** to represent added text and ~~strikethrough~~ to represent deleted text.

3 This Technical Specification is non-normative. Some of the functionality described by this Technical Specification may be considered for standardization in a future version of C++, but it is not currently part of any C++ standard. Some of the functionality in this Technical Specification may never be standardized, and other functionality may be standardized in a substantially changed form.

4 The goal of this Technical Specification is to build widespread existing practice for Transactional Memory. It gives advice on extensions to those vendors who wish to provide them.

1.2 Acknowledgements [general.ack]

1 This work is the result of collaboration of researchers in industry and academia, including the Transactional Memory Specification Drafting Group and the follow-on WG21 study group SG5. We wish to thank people who made valuable contributions within and outside these groups, including Hans Boehm, Justin Gottschlich, Victor Luchangco, Jens Maurer, Paul McKenney, Maged Michael, Mark Moir, Torvald Riegel, Michael Scott, Tatiana Shpeisman, Michael Spear, Michael Wong, and many others not named here who contributed to the discussion.

1.3 Normative references [general.references]

1 The following referenced document is indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

— ISO/IEC 14882:2014, *Programming Languages - C++*

2 ISO/IEC 14882:2014 is hereinafter called the *C++ Standard*. Beginning with section 1.10 below, all clause and section numbers, titles, and symbolic references in [brackets] refer to the corresponding elements of the C++ Standard. Sections 1.1 through 1.5 of this Technical Specification are introductory material and are unrelated to the similarly-numbered sections of the *C++ Standard*.

1.4 Implementation compliance [intro.compliance]

1 Conformance requirements for this specification are the same as those defined in section 1.4 [intro.compliance] of the *C++ Standard*. [*Note:* Conformance is defined in terms of the behavior of programs. — *end note*]

1.5 Feature testing [intro.features]

1 An implementation that provides support for this Technical Specification shall define the feature test macro in Table 1.

Table 1 -- Feature Test Macro

Name	Value	Header
`__cpp_transactional_memory`	201505	*predeclared*