SIS/TK611 considerations on Contract Assertions

P3849R0
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Audience: EWG, CWG, LWG
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Introduction

The Swedish mirror committee has spent a notable amount of meeting time on the topic of contracts, now named contract assertions.

The outcome is:

- There is little strong support for contract assertions.
- There is considerable resistance to contract assertions.

This split makes a consensus affirmative vote, as we usually have it, unlikely.

Core Considerations Summarization

The main concerns have already been summarized in two papers by other authors:

- P3835R0: Contracts make C++ less safe -- full stop!
- P3829R0: Contracts do not belong in the language

These papers outline safety concerns we share.

Additionally, there are other prominent voices in the community who have publicly stated that contracts, as they are, are problematic.

- Contract assertions need guidelines that the compiler cannot check.

An often-cited guideline is that, beyond runtime cost, contract checks must not change the behavior of a program, regardless of whether they are enabled or disabled.

There is a significant risk that this expectation will not be met in practice. We should not add features to the language that require extra directives to use correctly.

- The impact on (binary) dependency management has not been sufficiently explored.

Contracts introduce several new build configurations, but we have not yet seen concrete examples of how they interact with real-world build systems or complex dependency graphs. Potential problem scenarios are still not laid out, so the risks remain hard to judge.

Summary

Based on the remaining questions, the concerns we have heard, and the friction this topic creates both in our group and across WG21, we believe it would be beneficial to give contract assertions more time. Given these circumstances, exploring the white paper route appears to be the most prudent way to pursue the work without jeopardizing the C++26 schedule.

We do not wish to delay C++26, but we want the record to reflect these concerns and to understand whether other national bodies share them.

Conclusion

- We ask WG21 to gather feedback from other national bodies and address the documented concerns before proceeding.
- We ask WG21 to resolve the outstanding discussions constructively, within the provenances they oversee, and to ensure relevant information is discoverable when needed.
- We ask WG21 to explore moving the topic to a white paper and to collaborate with compiler and tool vendors so we gain implementation experience before standardization.