C23 Update Report

Summary of Changes
R0
- Initial Document

Introduction
This paper is intended to inform WG21 of what features have already been adopted for the upcoming release of C, expected to be C23, as well as what features are actively being pursued but have not yet been adopted. All N-numbered documents in this paper refer to the WG14 document registry.

C23 Marquee Features
Attributes ([N2335, N2554])
Are compatible with C++ syntax and semantics.

TS 18661 integration ([N2314, N2341, N2401])

Features for C++ Compatibility
Harmonizing static_assert with C++ ([N2265])
Querying attribute support ([N2553])

nodiscard attribute ([N2267, N2448])
maybe_unused attribute ([N2270])
deprecated attribute ([N2334])
fallthrough attribute ([N2408])

Two's complement sign representation ([N2412])
u8 character prefix ([N2418])
_Bool definitions for true and false ([N2393])

Allowing unnamed parameters in function definitions ([N2510])
Binary literals ([N2549])
Allow duplicate attributes \(N2557\)

Remove mixed wide string literal concatenation \(N2594\)

digit separators \(N2626\)

**Other Features of Interest**

Lifting some functions from POSIX \(N2349, N2353\)

Adds `mempcpy`, `strdup`, and `strndup`.

**Miscellaneous**

Fixed about 15 defect reports.

Thread-safe time conversion functions \(N2417\)

Removed support for K&R C-style identifier list definitions \(N2432\)

`#elifdef` and `#elifndef` \(N2645\)

**Unadopted Features Being Explored**

Pointer provenance and correcting the C memory and object models

Being explored by the Memory Object Model study group, coordinating with SG12.

`__has_include` \(N2673\)

Being explored for C++ compatibility.

`#embed` \(N2592\)

Concurrently being explored by WG21.

`lambdas` \(N2736, N2737, N2738\)

`nullptr` \(N2692\)

`type inference` \(N2735\)

`typeof` \(N2685\)

Not identical to `decltype`, but covers the same general design space.

`bit-precise integer types` \(N2709\)

`integer-safe arithmetic` \(N2683\)

`defer` and `panic` \(N2589\)