

# C++ Club Meeting Notes

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2017-11-09

Blog post

# Catch2

- ▶ [Announcement](#)
- ▶ [GitHub](#)

## New:

- ▶ Requires C++11
- ▶ Clara: a composable command line processor, [GitHub](#), [video](#)
- ▶ Commas in assertions

```
1 | REQUIRE( getPair() == std::pair<true, "banana">() );
```

- ▶ Microbenchmarking (experimental)

## Future plans

- ▶ Threading
- ▶ Generators/[property-based testing](#)

*Transwarp* is a header-only C++ library for task concurrency. It enables you to free your functors from explicit threads and transparently manage dependencies. Under the hood, a directed acyclic graph is built that allows for efficient traversal and type-safe dependencies. Use *transwarp* if you want to model your dependent operations in a graph of tasks and intend to invoke the graph more than once (MIT).

► [GitHub](#)

# Don't use C++ auto?

Article

## PDF

*This manual is for advanced programmers and software developers who want to make their software faster. It is assumed that the reader has a good knowledge of the C++ programming language and a basic understanding of how compilers work.*

*The recommendations are based on the x86 family of microprocessors from Intel, AMD and VIA including the 64-bit versions.*

# ULID: Universally Unique Lexicographically Sortable Identifier

- ▶ [GitHub](#)
- ▶ [C++](#) — header-only, MIT
- ▶ 128-bit compatibility with UUID
- ▶  $1.21\text{e}+24$  unique ULIDs per millisecond
- ▶ Lexicographically sortable!
- ▶ Canonically encoded as a 26 character string, as opposed to the 36 character UUID
- ▶ Uses Crockford's *base32* for better efficiency and readability (5 bits per character)
- ▶ Case insensitive
- ▶ No special characters (URL safe)
- ▶ Monotonic sort order (correctly detects and handles the same millisecond)

## GitHub (MIT)

- ▶ Header-only library
- ▶ All functions constexpr, all computation done at compile time
- ▶ Intuitive syntax for initialisation, indexing, augmenting
- ▶ Matrix arithmetic including inverses and linear systems supported
- ▶ Block matrices supported
- ▶ Runtime printing in MATLAB-compatible syntax if required



GitHub (MIT)

Very fast regexp using C++11 templates.

## Timertt 1.2.0: A library for working with timers

- ▶ [Reddit](#)
- ▶ [Source](#) (BSD-3-Clause)
- ▶ Header-only, C++11

- ▶ [Trip report](#)
- ▶ [Pacific++ Conference Website](#) (Christchurch, New Zealand)
- ▶ [Videos](#)

# CppCon 2017: Barbara Geller & Ansel Sermersheim “Unicode Strings: Why the Implementation Matters”

## YouTube

- ▶ Unicode introduction
- ▶ You cannot interpret a sequence of characters without knowing the encoding
- ▶ `std::string` or `std::wstring` have no way to specify encoding
- ▶ MFC, Java, C#, QT: UCS-2, UTF-16
- ▶ .NET `TextField` length is specified in storage units => can crash .NET runtime
- ▶ `CsString`

A library providing Unicode-aware string support for C++.

- ▶ [GitHub](#) (BSD 2-clause)
- ▶ [Docs](#)
- ▶ Header-only, C++11
- ▶ Separates encoding from storage
- ▶ Extensively tested
- ▶ Part of [CopperSpice](#)

# Most-disliked programming languages on [StackOverflow](#)

## How disliked is each programming language?

Based on "likes" and "dislikes" on Stack Overflow Developer Stories. Includes 95% credible intervals

