

Zig (programming language)

Zig is an imperative, general-purpose, statically typed, compiled system programming language designed by Andrew Kelley.^{[3][4]} The language is designed for "robustness, optimality and maintainability",^{[5][6]} supporting compile-time generics and reflection, cross-compilation and manual memory management.^[7] A major goal of the language is to improve upon the C language,^{[8][9]} while also taking inspiration from Rust,^{[10][11]} among others. Zig has many features for low-level programming, notably: packed structs (structs without padding between fields), arbitrary width integers^[12] and multiple pointer types.^[13]

The stage 1 compiler is written in Zig and C++, using LLVM 11^[14] as a back-end,^{[15][16]} supporting many of its native targets.^[17] The compiler is open source under the MIT License.^[18] The Zig compiler exposes the ability to compile C and C++ similarly to Clang with the commands "zig cc" and "zig c++",^[19] providing many headers including libc and libcxx for many different platforms, allowing Zig's cc and c++ sub-commands to act as cross compilers out of the box.^{[20][21]}

Zig development is funded by the Zig Software Foundation (ZSF), a non-profit corporation with Andrew Kelley as president, which takes in donations and hires multiple full-time employees.^{[22][23][24]}


Contents
<u>Examples</u>
<u>Hello World</u>
<u>Generic linked list</u>
<u>See also</u>
<u>References</u>
<u>External links</u>

Examples

Hello World

```
const std = @import("std");

pub fn main() !void {
    const stdout = std.io.getStdOut().writer();
```

Zig	
	
<u>Paradigms</u>	<u>Multi-paradigm</u> : <u>imperative</u> , <u>concurrent</u> , <u>procedural</u> , <u>functional</u>
<u>Designed by</u>	Andrew Kelley
<u>First appeared</u>	8 February 2016 ^[1]
<u>Preview release</u>	0.8.1 ^[2] / 7 September 2021
<u>Typing discipline</u>	<u>Static</u> , <u>strong</u> , <u>inferred</u> , <u>structural</u> , <u>generic</u>
<u>Platform</u>	x86-64, <u>ARM</u> , <u>MIPS</u> , <u>IA-32</u> , <u>WebAssembly</u> , <u>RISC-V</u>
<u>OS</u>	<u>Cross-platform</u>
<u>License</u>	<u>MIT License</u>
<u>Filename extensions</u>	.zig, .zir
<u>Website</u>	<u>ziglang.org</u> (<u>https://ziglang.org/</u>)
<u>Influenced by</u>	
<u>C</u> , <u>C++</u> , <u>LLVM IR</u> , <u>Go</u> , <u>Rust</u> , <u>JavaScript</u>	

```
    try stdout.print("Hello, {}!\n", .{"world"});
}
```

Generic linked list

```
pub fn main() void {
    var node = LinkedList(i32).Node {
        .prev = null,
        .next = null,
        .data = 1234,
    };

    var list = LinkedList(i32) {
        .first = &node,
        .last = &node,
        .len = 1,
    };
}

fn LinkedList(comptime T: type) type {
    return struct {
        pub const Node = struct {
            prev: ?*Node,
            next: ?*Node,
            data: T,
        };

        first: ?*Node,
        last: ?*Node,
        len: usize,
    };
}
```

See also

- [C](#)
- [C++](#)
- [Nim](#)
- [Rust](#)
- [D](#)

References

1. Kelley, Andrew. "Introduction to the Zig Programming Language" (<https://andrewkelley.me/post/intro-to-zig.html>). *andrewkelley.me*. Retrieved 8 November 2020.
2. "0.8.1 Release Notes" (<https://ziglang.org/download/0.8.1/release-notes.html>).
3. "Zig has all the elegant simplicity of C, minus all the ways to shoot yourself in the foot" (<http://jaxenter.com/zig-language-kelley-interview-138517.html>). *JAXenter*. 2017-10-31. Retrieved 2020-02-11.
4. "Tired of C? New programming language Zig aims to be more pragmatic and readable" (<http://jaxenter.com/replace-c-zig-language-138242.html>). 2017-10-19. Retrieved 2020-04-22.
5. Yegulalp, Serdar (2016-08-29). "New challenger joins Rust to topple C language" (<https://www.infoworld.com/article/3113083/new-challenger-joins-rust-to-topple-c-language.html>). *InfoWorld*. Retrieved 2020-02-11.
6. "Zig language and C" (<https://tech.sina.com.cn/digi/2020-07-12/doc-iirczymm1886067.shtml>). *Sina Corp*. 2020-07-12. Retrieved 2020-08-12.
7. "The Zig Programming Language" (<https://ziglang.org/>). *ziglang.org*. Retrieved 2020-02-11.

8. "Mozilla's Observatory, the Zig programming language, and uSens' VR/AR SDK—SD Times news digest: Aug. 29, 2016" (<https://sdtimes.com/ar/mozillas-observatory-zig-programming-language-usens-vrar-sdk-sd-times-news-digest-aug-29-2016/>). *SD Times*. 2016-08-29. Retrieved 2020-02-11.
9. "The Zig Programming Language" (<https://ziglang.org/#Zig-competes-with-C-instead-of-depending-on-it>). *ziglang.org*. Retrieved 2020-02-11.
10. Company, Sudo Null. "Sudo Null - IT News for you" (<https://sudonull.com/post/3683-Zig-programming-language>). *SudoNull*. Retrieved 2020-02-11.
11. Kelley, Andrew. "Unsafe Zig is Safer Than Unsafe Rust" (<https://andrewkelley.me/post/unsafe-zig-safer-than-unsafe-rust.html>). *andrewkelley.me*. Retrieved 2020-02-11.
12. Tim Anderson 24 Apr 2020 at 09:50. "Keen to go _ExtInt? LLVM Clang compiler adds support for custom width integers" (https://www.theregister.co.uk/2020/04/24/llvm_project_adds_support_for/). *www.theregister.co.uk*. Retrieved 2020-04-24.
13. "Documentation - The Zig Programming Language" (<https://ziglang.org/documentation/master/>). *ziglang.org*. Retrieved 2020-04-24.
14. "SD Times news digest: C++20 concepts in Visual Studio 2010 version 16.3, Bootstrap to drop IE support, and Zig 0.60 released" (<https://sdtimes.com/softwaredev/sd-times-news-digest-c20-concepts-in-visual-studio-2010-version-16-3-bootstrap-to-drop-ie-support-and-zig-0-60-released/>). *SD Times*. 2020-04-14. Retrieved 2020-04-19.
15. "A Reply to _The Road to Zig 1.0_" (<https://www.gingerbill.org/article/2019/05/13/a-reply-to-the-road-to-zig/>). *www.gingerbill.org*. 2019-05-13. Retrieved 2020-02-11.
16. [ziglang/zig](https://github.com/ziglang/zig) (<https://github.com/ziglang/zig>), Zig Programming Language, 2020-02-11, retrieved 2020-02-11
17. "The Zig Programming Language" (<https://ziglang.org/#Tier-System>). *ziglang.org*. Retrieved 2020-02-11.
18. "[ziglang/zig](https://github.com/ziglang/zig)" (<https://github.com/ziglang/zig>). *GitHub*. Retrieved 2020-02-11.
19. "0.6.0 Release Notes · The Zig Programming Language" (<https://ziglang.org/download/0.6.0/release-notes.html#zig-cc>). *ziglang.org*. Retrieved 2020-04-19.
20. "'zig cc': a Powerful Drop-In Replacement for GCC/Clang - Andrew Kelley" (<https://andrewkelley.me/post/zig-cc-powerful-drop-in-replacement-gcc-clang.html>). *andrewkelley.me*. Retrieved 2021-05-28.
21. "Zig Makes Go Cross Compilation Just Work" (<https://dev.to/kristoff/zig-makes-go-cross-compilation-just-work-29ho>). *DEV Community*. Retrieved 2021-05-28.
22. "<https://twitter.com/kubkon/status/1377146321136537602>" (<https://twitter.com/kubkon/status/1377146321136537602>). *Twitter*. Retrieved 2021-05-28. External link in |title= (help)
23. "Announcing the Zig Software Foundation ⚡ Zig Programming Language" (<https://ziglang.org/news/announcing-zig-software-foundation/>). *ziglang.org*. Retrieved 2021-05-28.
24. "Sponsor ZSF ⚡ Zig Programming Language" (<https://ziglang.org/zsf/>). *ziglang.org*. Retrieved 2021-05-28.

External links

- [Official website](https://ziglang.org/) (<https://ziglang.org/>)
 - [Zig on GitHub](https://github.com/ziglang/zig) (<https://github.com/ziglang/zig>)
 - [Movie: Introducing Zig](https://www.youtube.com/watch?v=Z4oYSByyRak) (<https://www.youtube.com/watch?v=Z4oYSByyRak>)
 - [Movie: The Road to 1.0](https://www.youtube.com/watch?v=Gv2I7qTux7g) (<https://www.youtube.com/watch?v=Gv2I7qTux7g>)
-

Retrieved from "[https://en.wikipedia.org/w/index.php?title=Zig_\(programming_language\)&oldid=1056737969](https://en.wikipedia.org/w/index.php?title=Zig_(programming_language)&oldid=1056737969)"

This page was last edited on 23 November 2021, at 07:47 (UTC).

Text is available under the Creative Commons Attribution-ShareAlike License; additional terms may apply. By using this site, you agree to the Terms of Use and Privacy Policy. Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a non-profit organization.