ESBuild

ESBuild is **an extremely fast, next-generation JavaScript and CSS bundler and minifier**, designed to significantly improve build tool performance in web development. It is known for being 10 to 100 times faster than other popular bundlers like Webpack or Rollup due to its architecture and use of the Go programming language.

Key Features

Extreme Speed: Achieves blazing-fast build times without needing a cache by using parallelism and compiling to native code.

Built-in Support: Handles JavaScript, TypeScript, JSX, and CSS out of the box with minimal configuration.

APIs: Offers straightforward command-line interface (CLI), JavaScript, and Go APIs for flexible integration into various workflows.

Module Bundling: Supports both ES modules and CommonJS modules, and performs tree-shaking to remove unused code.

Development Features: Includes a local development server, watch mode for automatic rebuilding on file changes, and live reloading for CSS.

Plugins: Features an experimental plugin API that allows the community to extend its functionality, such as adding support for Sass or PostCSS.

Why is it so fast?

The primary reasons for esbuild's speed are:

Written in Go: Unlike most other bundlers written in JavaScript, esbuild is written in Go, a compiled language that produces native machine code.

Heavy Parallelism: Algorithms are designed to fully utilize all available CPU cores for tasks like parsing and code generation.

Efficient Memory Usage: It uses a compact and efficient data representation internally, minimizing expensive data transformations and memory overhead.

Usage in the Ecosystem

esbuild is widely adopted by other tools and frameworks due to its performance benefits. It is used internally by the popular front-end build tool Vite for dependency pre-bundling, included as a bundler for **Angular** since v17, and integrated into frameworks like Ruby on Rails and Phoenix.

For more details, you can check the official **esbuild documentation**.

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