

# Small Device C Compiler: Standard Compliance

<http://sdcc.sourceforge.net>

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# Standards

- C89 / C90
- C94 / C95
- C99
- C11
- C17 / C18
- C2X
- C2Y
- Embedded C
- ELF
- DWARF

## SDCC 4.2.0: C90 and C94

- Nearly complete support
- But
  - Not K&R style function definitions
  - structures and unions can not be assigned, passed as parameters, returned
  - No double or long double

## SDCC 4.2.0: C99

- Good support
- But
  - structures and unions can not be assigned, passed as parameters, returned
  - No double or long double
  - Not VLA types
  - Not VLA objects
  - No compound literals
  - ptrdiff\_t has 16 bits, while the standard requires at least 17 bits.

## SDCC 4.2.0: C11 and C17

- Nearly complete support
- But
  - structures and unions can not be assigned, passed as parameters, returned
  - No double or long double
  - ptrdiff\_t has 16 bits, while the standard requires at least 17 bits.

## SDCC 4.2.0: C2X

- Lots of missing features in SDCC
- Final set of features likely to be decided in July 2022

## SDCC 4.2.0: ELF and DWARF

- ELF / DWARF supported for few backends only
- DWARF broken for various corner cases
- Register numbers: SDCC vs GNU tools

# SDCC-STD-UX

- 6-month Project to improve standard compliance and usability in SDCC
- Funded by BMBF, 47500 €
- <https://sourceforge.net/p/sdcc/wiki/SDCC-STD-UX/>



# SDCC-STD-UX: DONE

- C90-C2X struct / union return
- C90-C2X struct / union parameters
- C11-C2X \_\_Generic fixes
- C90-C2X type system fixes
- C2X assert
- C2X bit-precise integer types
- C90-C17 GCC tests
- C90-C99 QuickC tests
- C90-C99 TinyCC tests
- C23 char8\_t character literal

## SDCC-STD-UX: TODO (selection)

- C99-C2X compound literals
- DWARF debug info fixes
- C2X parser rewrite
- C99-C2X VLA types
- C2X new preprocessor
- C90-C2X fix type range warnings
- C2X typeof
- C2X attributes
- C2X some stuff that will be voted on in July