Ferrite: A Judgmental Embedding of Session Types in Rust (Artifact)

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Abstract

This artifact provides a VirtualBox image containing the snapshots of source code for Ferrite and Servo at the time the main paper was published.

2012 ACM Subject Classification Theory of computation → Linear logic; Theory of computation → Type theory; Software and its engineering → Domain specific languages; Software and its engineering → Concurrent programming languages

Keywords and phrases Session Types, Rust, DSL

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Related Article Ruo Fei Chen, Stephanie Balzer, and Bernardo Toninho, "Ferrite: A Judgmental Embedding of Session Types in Rust", in 36th European Conference on Object-Oriented Programming (ECOOP 2022), LIPIcs, Vol. 222, pp. 22:1–22:28, 2022.
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Related Conference 36th European Conference on Object-Oriented Programming (ECOOP 2022), June 6–10, 2022, Berlin, Germany

Evaluation Policy The artifact has been evaluated as described in the ECOOP 2022 Call for Artifacts and the ACM Artifact Review and Badging Policy.

1 Scope

The purpose of this artifact is as follows:

- To allow for review of the Ferrite source code and inspection of the full implementation of the techniques described in the paper.
- To allow experimenting with Ferrite by checking and running the supplied demo session type programs.
- To reproduce the Servo benchmark that is described in Section 7 of the paper.

2 Content

The artifact package includes:

- Ferrite Rust library together with demo session type programs.
- Servo browser, both original and a fork that is modified to use canvas component re-written using Ferrite.
- MotionMark web pages for running canvas benchmark on Servo.

3 Getting the artifact

The artifact endorsed by the Artifact Evaluation Committee is available free of charge on the Dagstuhl Research Online Publication Server (DROPS). In addition, the source code for the artifact is also available on GitHub:

- Ferrite library [1] : `https://github.com/ferrite-rs/ferrite`.
- Servo with modified canvas component: `https://github.com/ferrite-rs/servo/tree/ferrite-canvas`.
- Original Servo [2]: `https://github.com/servo/servo`
  (Commit ID: d551e63b295f0fc713a4545077da6eafed98b573)
- MotionMark [3]: `https://github.com/ferrite-rs/motionmark`

4 Tested platforms

This artifact has been tested on Ubuntu 22.04. For a clean build of the Servo executable from source, it is recommended to run the virtual machine with at least 8 GiB of RAM, 4-core CPU, and 40 GiB of storage space.

Both Ferrite and Servo can also be built on a variety of other platforms. Reader can refer to the respective project pages for detailed instructions.

5 License

Ferrite is available under the Apache v2 license. Servo is an open source project maintained by external contributors under Mozilla Public License 2.0.

6 MD5 sum of the artifact

9099a27f605904dbcb4bc295e674ab52

7 Size of the artifact

17.0 GiB

References

1 Ruo Fei Chen, Stephanie Balzer, and Bernardo Toninho. Ferrite project website. `https://github.com/ferrite-rs/ferrite`.

2 MozillaResearch. Servo project website. `https://github.com/servo/servo`, November 2016.

3 WebKit. MotionMark Homepage. `https://browserbench.org/MotionMark/`, 2021.