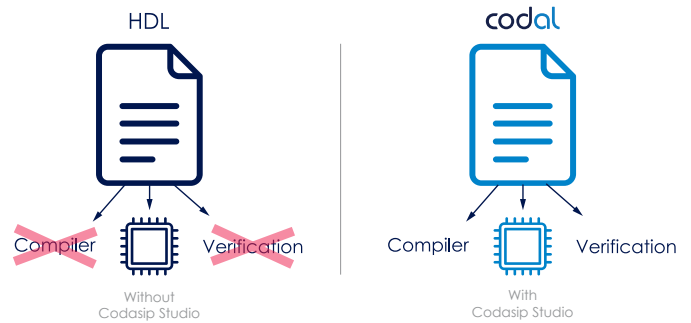


CODASIP STUDIO DESIGN & CUSTOMIZATION TOOLSET

Codasip Studio is a complete set of Electronic Design Automation (EDA) tools for processor design and customization. The level of automation is unmatched on the market and makes it possible to save considerable effort, time, and costs in all stages of processor development while achieving superior results.

Traditionally, processor development is a complex and challenging process that takes months or years and ties up specialized and expensive resources. With Codasip Studio, many of the steps are highly automated which significantly reduces both design time and cost. Codasip Studio makes it possible to design complex processors from scratch or to improve PPA of existing designs quickly, easily, and with reduced risk.

description is written in **CodAL**, a high-level processor description language similar to C. Everything needed to implement, verify, and write software for the processor is generated from the CodAL description automatically.



Processor design and development.

CODASIP STUDIO BENEFITS

- ✓ Comprehensive processor description
- ✓ Description in familiar C-based language
- ✓ Fully automated SDK generation
- ✓ Analyze software using in-built profiler
- ✓ Clean, human-readable RTL generated
- ✓ Automatically generated verification environment
- ✓ Fully automated design flow

Codasip Studio is also based on open standards and tools such as Eclipse, LLVM, Verilog, SystemVerilog, and UVM to ensure compatibility and longevity.

Complete Toolchain

Codasip Studio automatically generates a complete HDK and SDK customized for the processor. The SDK enables you to develop, debug, and execute firmware on the target platform well ahead of silicon availability.

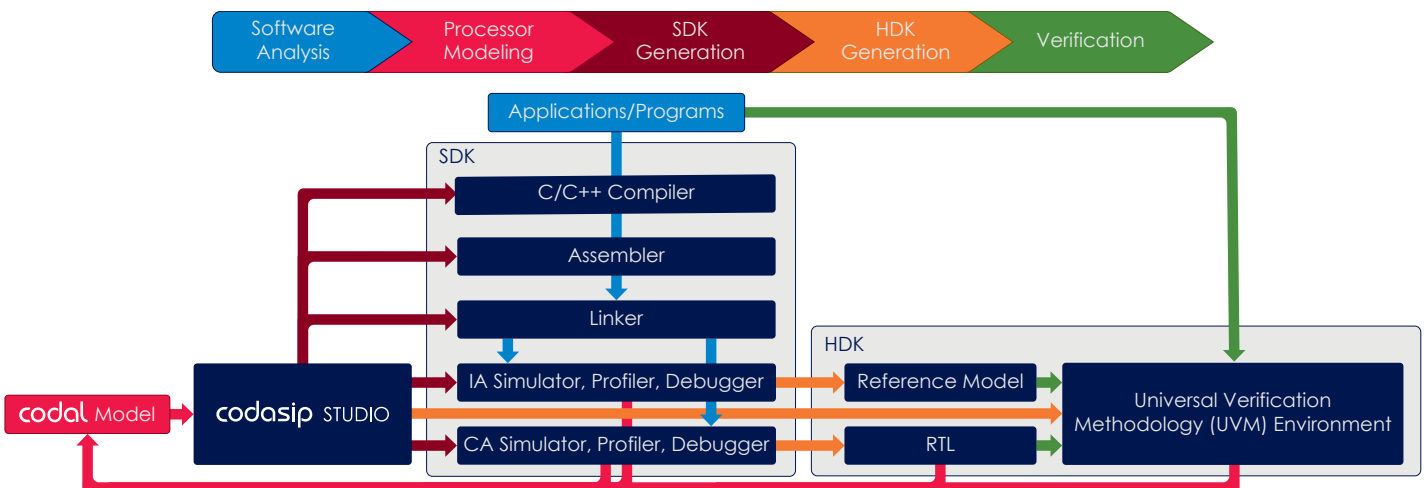
Superior Results

Codasip Studio adds domain-specific instructions natively into the processor pipeline and features powerful high-level processor synthesis technology. The performance of generated processors exceeds hand-optimized designs.

Codasip Studio's advanced profiling capabilities allow for analyzing the application code to determine potential optimizations and achieve the best possible PPA.

PATENTED TECHNOLOGY

Codasip employs a revolutionary approach to processor design and development: We automate it by using a single description of the processor capabilities. The



Codasip Studio design methodology.

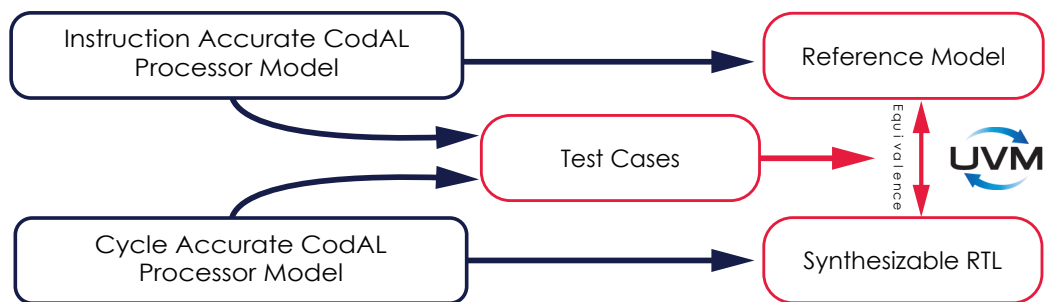
RIGOROUS VERIFICATION

Strong verification methodology employed by Codalisp Studio combines a standardized approach, simulation, and static checking for reliable results.

Codalisp Studio provides a consistency checker, random assembler program generation, and an automatically generated UVM environment.

UVM allows the generated RTL for your processor to be checked against your instruction-accurate reference

model. Multiple model formats are available to ensure that at each step of the verification, you have the best trade-off between viability and performance. From virtual prototyping to detailed system debug, Codalisp Studio generates the models you need.



Verification in Codalisp Studio.

WAYS TO USE CODASIP STUDIO

Codalisp Studio is both powerful and versatile, enabling you to use it in a way that best suits your needs:

1. Getting started is easy when you select any of our **ready-made Codalisp RISC-V Processors** as a quick-start base for your own custom design.
2. You can also **start from scratch** and create a fully custom processor of any type (RISC, CISC, VLIW, DSP and others).
3. You can optimize your **existing core** described in CodAL, too.
4. Or you can use Codalisp Studio just for painless **maintenance** of your legacy proprietary processor's SDK.

Customer Examples

Equalization algorithms for audio processing

Design exploration in Codalisp Studio suggested starting with RV32I instructions and extending the set with M and custom DSP instructions:

- Final result 56.24x throughput of original design
- Gatecount 2.43x greater than original design

- Codesize 3.62x smaller than in original design
- Significant saving in mask-making costs by targeting older coarser technology node

Quantum-resistant security for low resource devices

Accelerating a digital signature algorithm was achieved by adding one instruction to a Codalisp RISC-V Processor:

1. Final result 2.8x faster than the original design
2. Gatecount 1.02x greater than original design
3. Codesize 1.32x smaller than in original design

Processor for a unique AI compute platform

To achieve low power AI computation in a compact chip, Codalisp Studio added custom extensions to a Codalisp RISC-V processor (B, DSP, zero-overhead loops, and coprocessor interface instructions) to perform:

- ✓ General purpose tasks
- ✓ Domain specific tasks
- ✓ Offloading part of the DSP work

Happy customers include