Advanced Debugging and Analysis with Latest AndeSight™ IDE

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Solution Architecture Division

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Andes at a Glance

Who We Are

Pure-play
CPU IP Company

RISC-V Founding
Premier Member

Stock Exchange
Listed

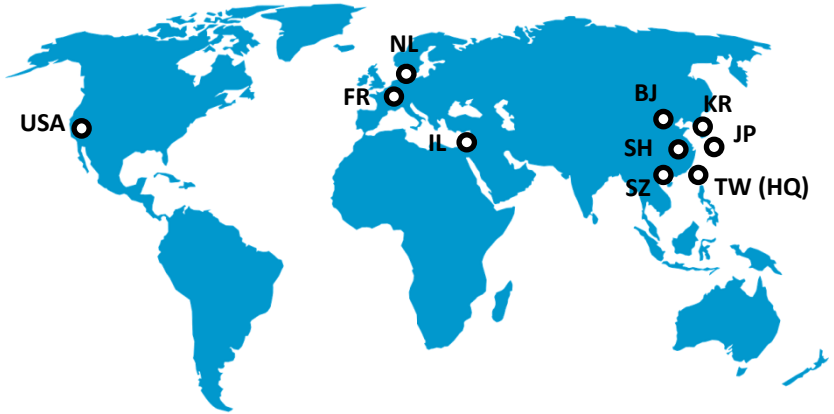
Major Open-Source
Contributor/Maintainer

Board of Directors
Technical Steering Committee
Running Task Groups
Ambassador

Quick Facts

16
years old
company

80%
Engineers



9B+
accumulated Andes-embedded SoC shipped

250+
Licensees
Worldwide

20K+
AndeSight IDE
installation

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Agenda

- AndeSight™ Overview
- Major Features in AndeSight™
- Demo of the Advanced Debugging with AndeSight™
- Demo of the Advanced Analyzing with AndeSight™
- Summary

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AndeSight™ 5.0 Overview

AndeSight™
IDE and AndeSoft™ BSP inside

- GCC/LLVM toolchains and debuggers
- Optimized C library
- Optimized compute library: DSP, Vector
- Fast and near cycle-accurate simulators
- Rich RTOSes and Linux (LTP verified)
- Peripheral drivers for AndeShape™ platform
- Arduino support for Andes Corvette-F1 EVB
- Abundant demos for boosting your development
  - Startup code for AndeCore™ feature
  - Linux demos
  - Vector demos
    - In-line assembly
    - Vector Intrinsic
  - Benchmark programs
  - NN reference models

AndesClarity™
Processor Pipeline Analyzer

AndeSoft™
NN Library for RVP/RVV

Optimized libraries for RISC-V DSP/ SIMD and Vector extensions

AndeSoft™
LLVM for RVV

LLVM compiler infrastructure for RISC-V Vector extensions

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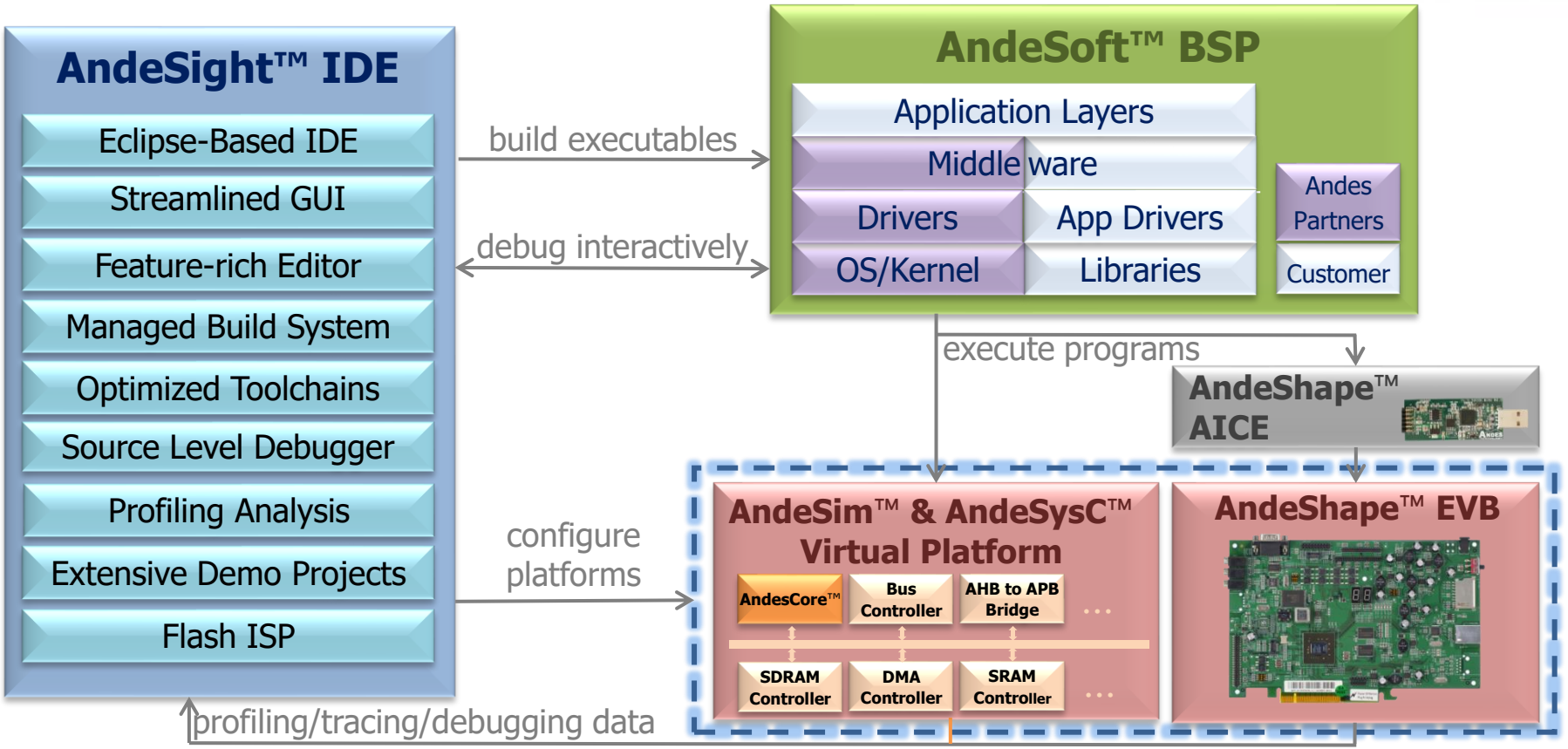
SoC SW Development Environment



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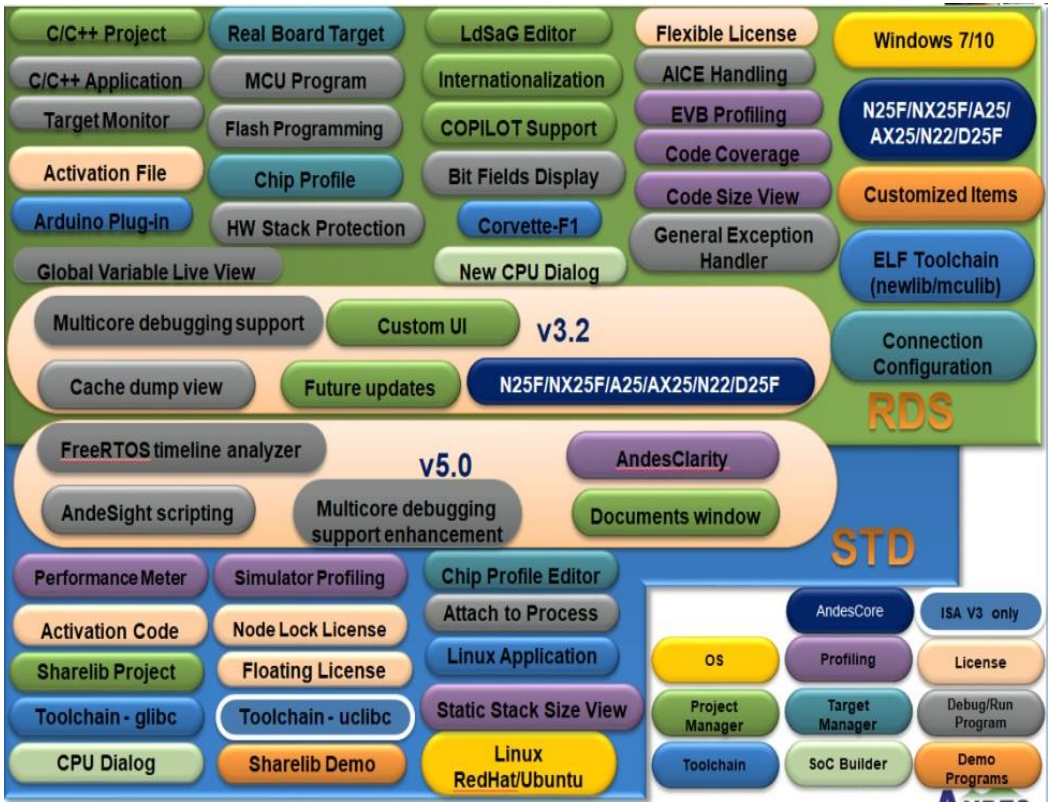
AndeSight™ Major New Features

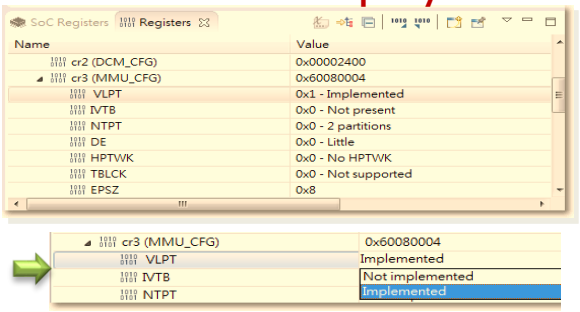
- Multicore Debugging Enhancement
- FreeRTOS Timeline Analyzer
- AndeSight™ Scripting
- Document Window
- AndesClarity™
- Vector Intrinsic Support



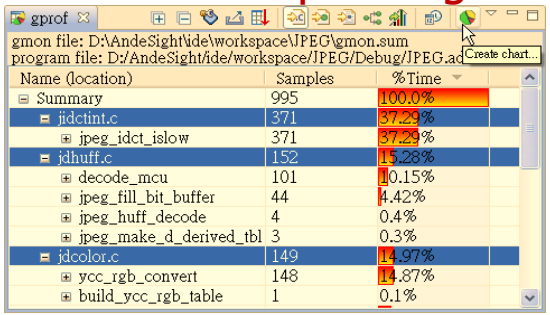
AndeSight™: Professional IDE

- Eclipse-based IDE, enriched from 16-year continuous development

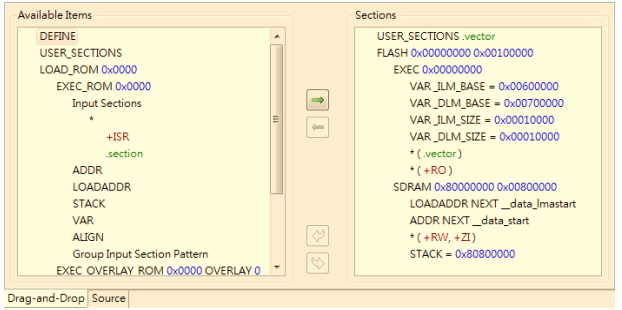
Bit-field display



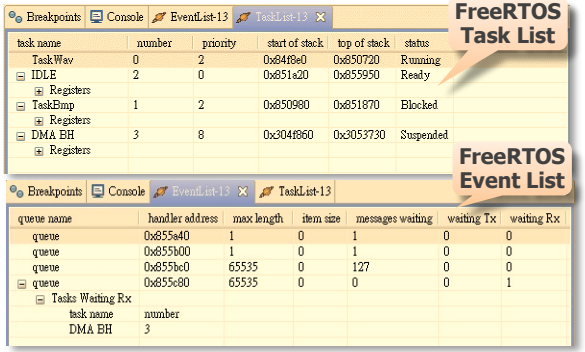
Function profiling



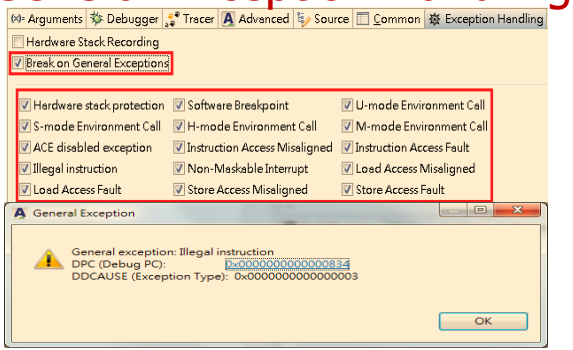
Meta linker script editor



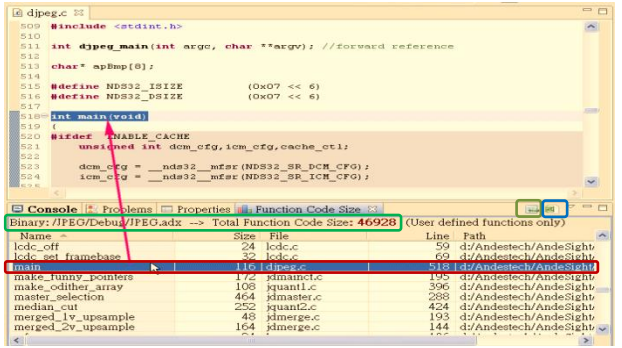
RTOS awareness



General Exception Handling



Function code size



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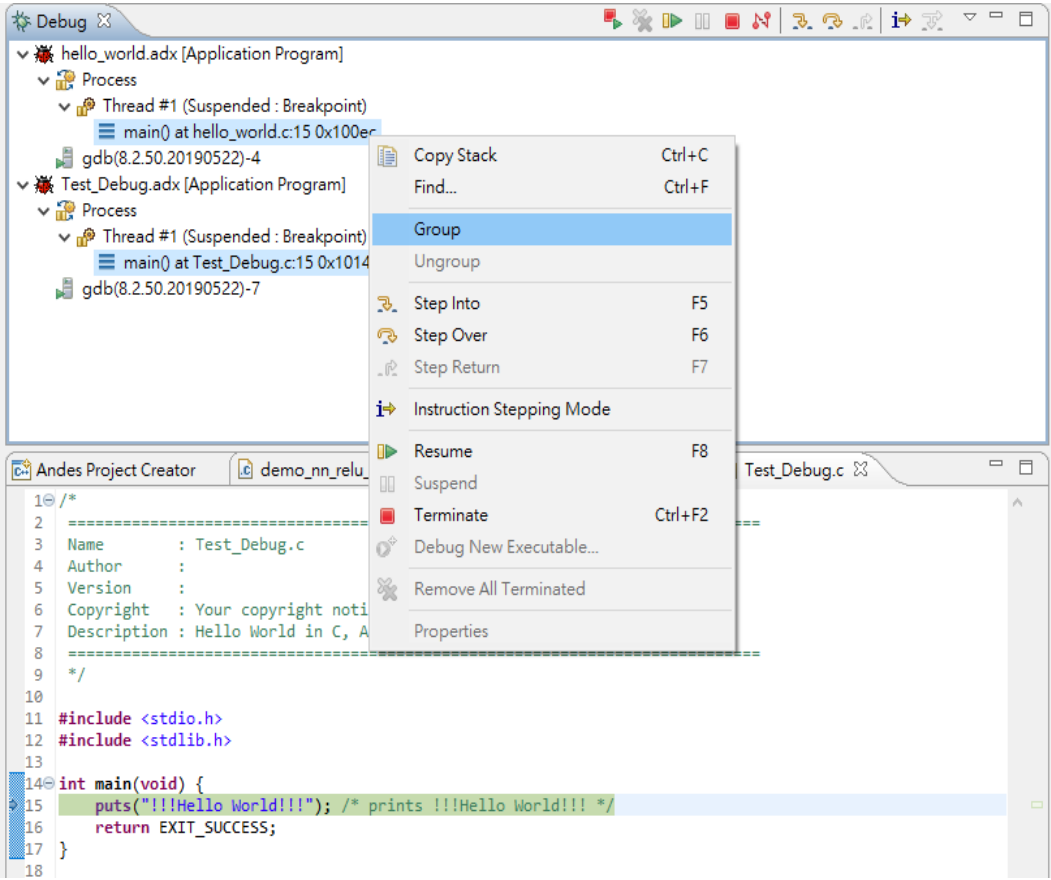
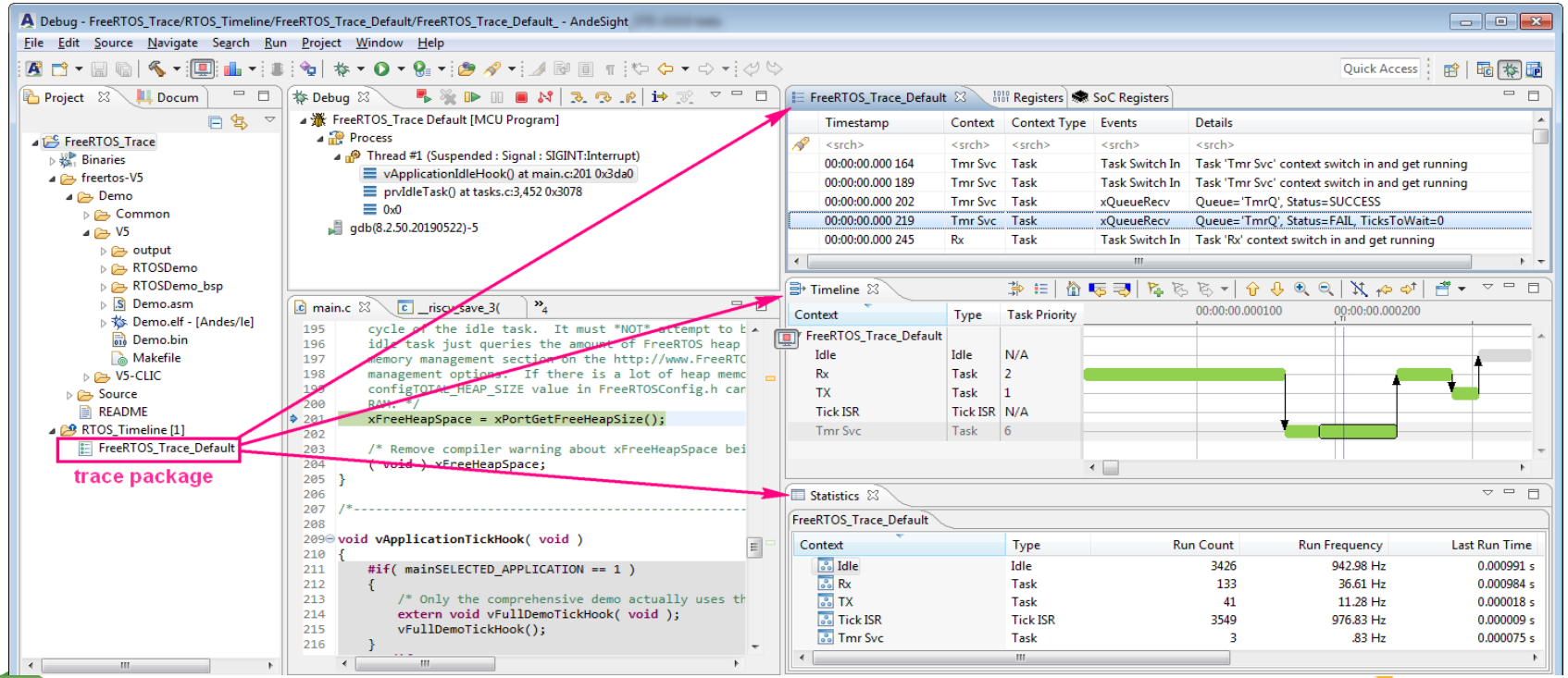
Multicore Debugging Enhancement

- Grouping Cores for Efficient Debugging
  - Debug commands can be sent to a specific set of cores at the same time
  - Configure debug settings for each core
  - Can run different projects on each core



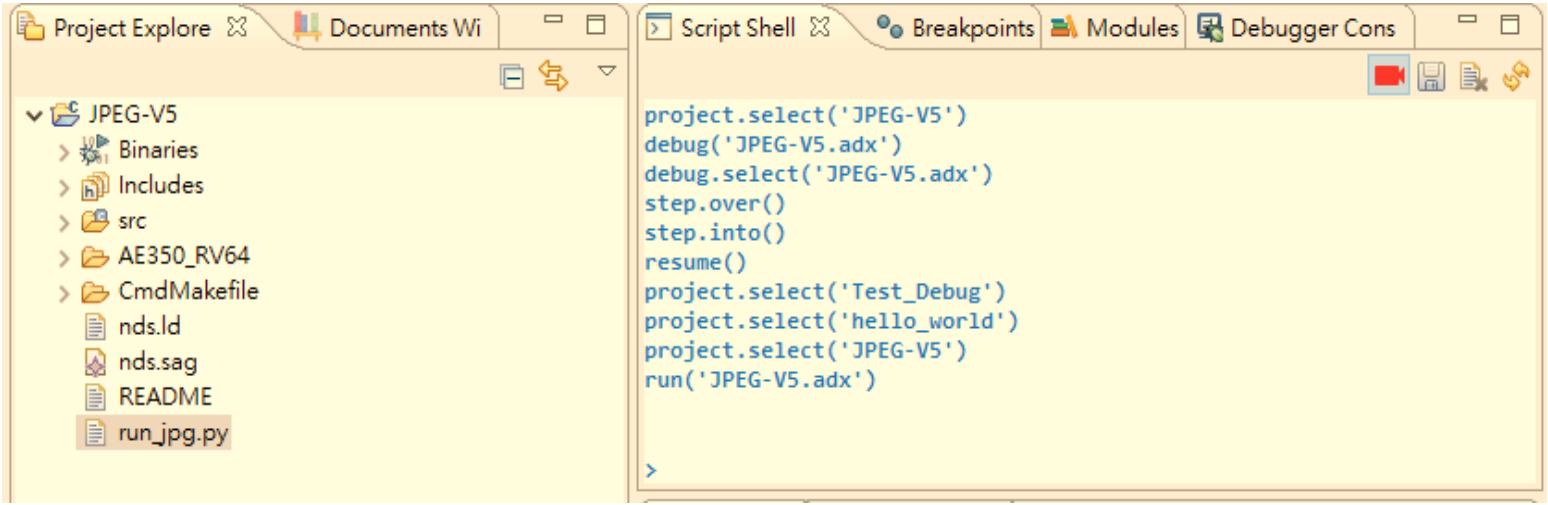
FreeRTOS Timeline Analyzer

- Visualize the insights into runtime behaviors
  - Execution of tasks, interrupts and events within the specified time period



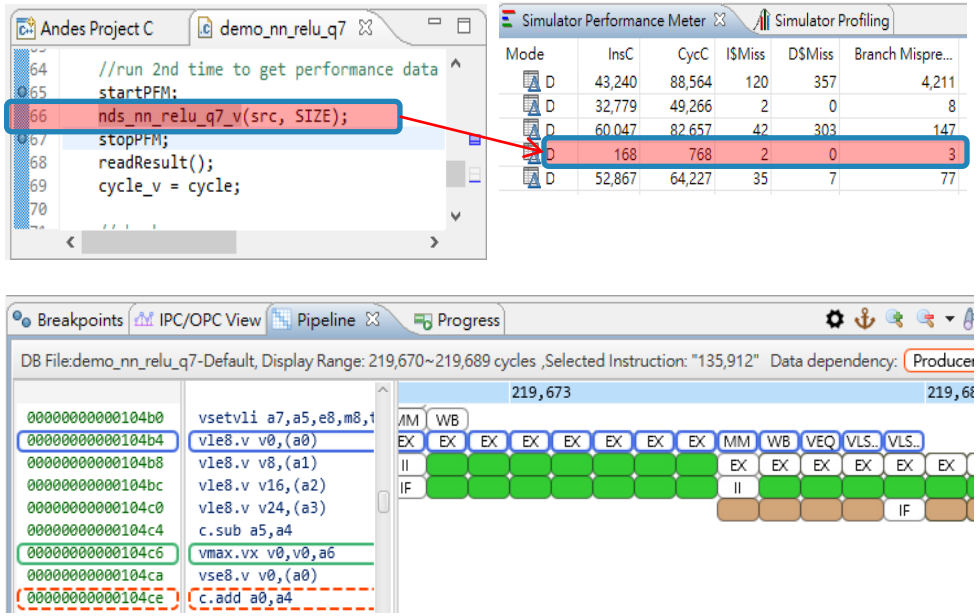
AndeSight™ Scripting

- Record and replay UI operations with Python script
  - Test automations
  - Issue reproductions



AndesClarity™

- A powerful plug-in for AndeSight™
  - Additional license is required
- Visualize performance and resource bottleneck
  - Pipeline view of instructions and functional units
  - Resource view corresponding to instruction usage
  - Stall bubbles with different colors for data dependency



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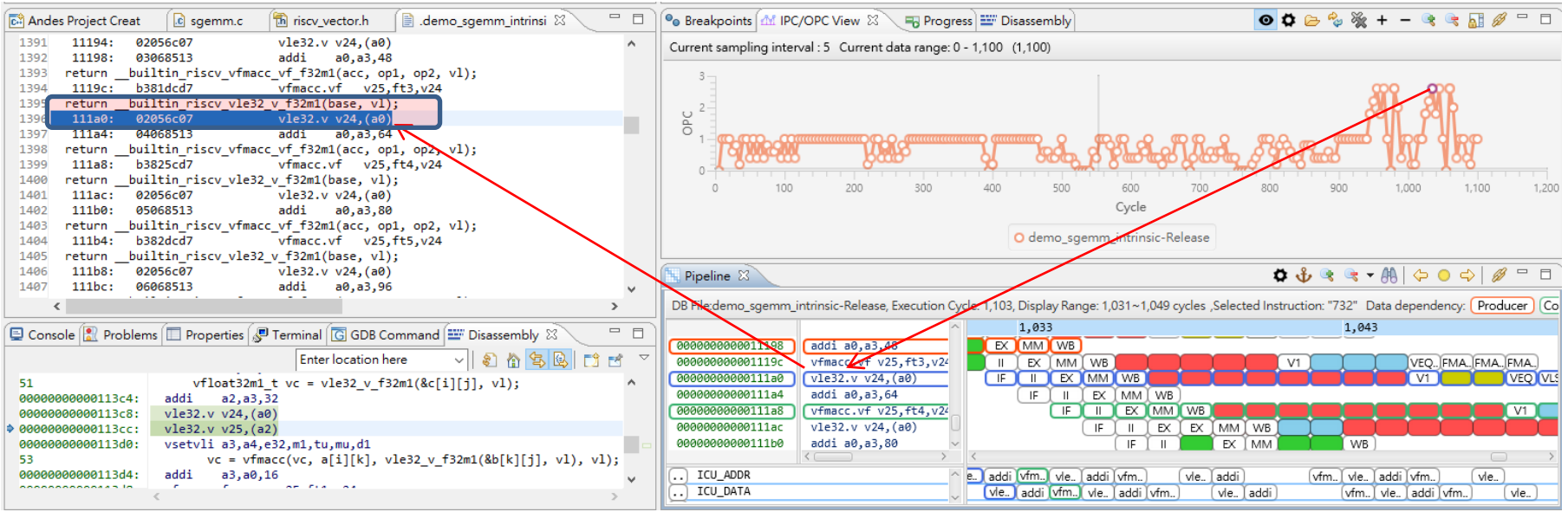
Vector Intrinsic Support

- 3 vector demo with vector intrinsic
- 4 vector demo with in-line assembly

demo_mat_mul_f32.tgz
demo_nn_relu_q7.tgz
demo_sgemm_intrinsic.tgz
demo_vadd_intrinsic.tgz
demo_gaussianblur2d_intrinsic.tgz
demo_nn_conv_HWC_q7.tgz
demo_v_f32_add.tgz



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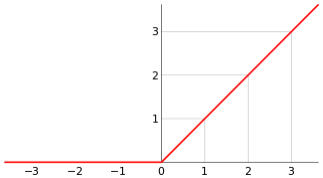
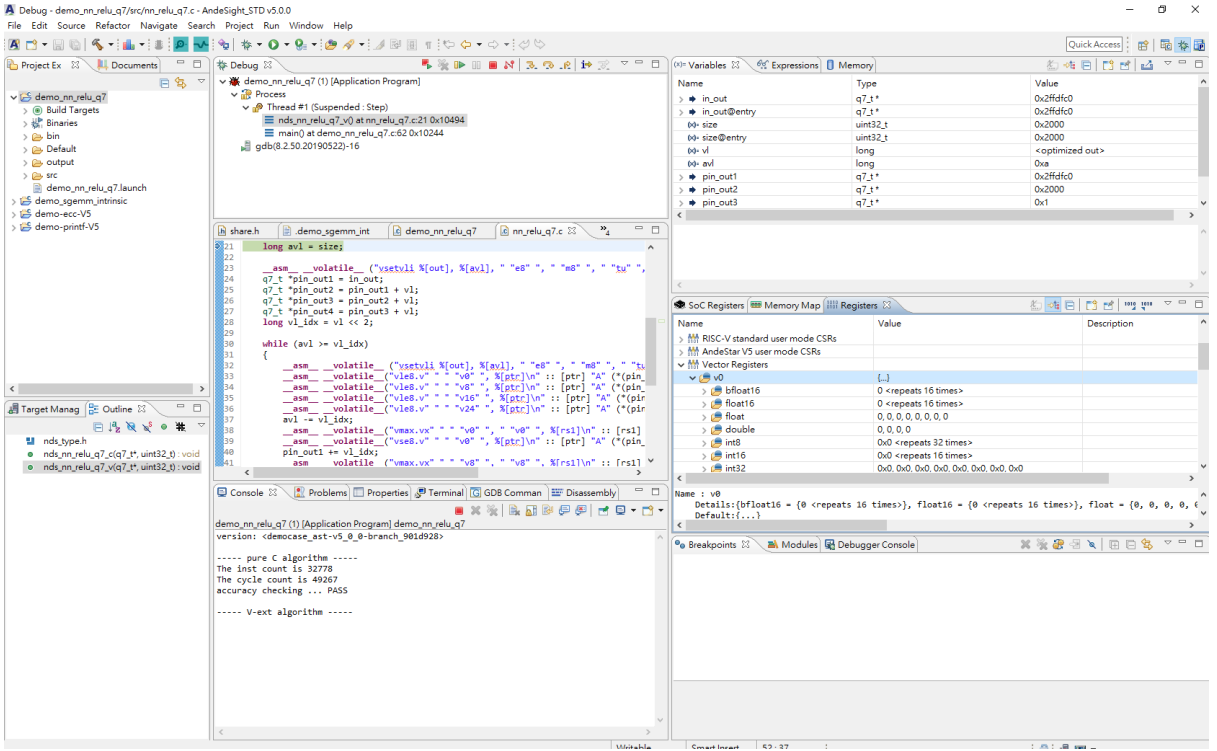
Demo of the Advanced Debugging with AndeSight™

- Use AI Relu function as example

F(x) = max(0, x)





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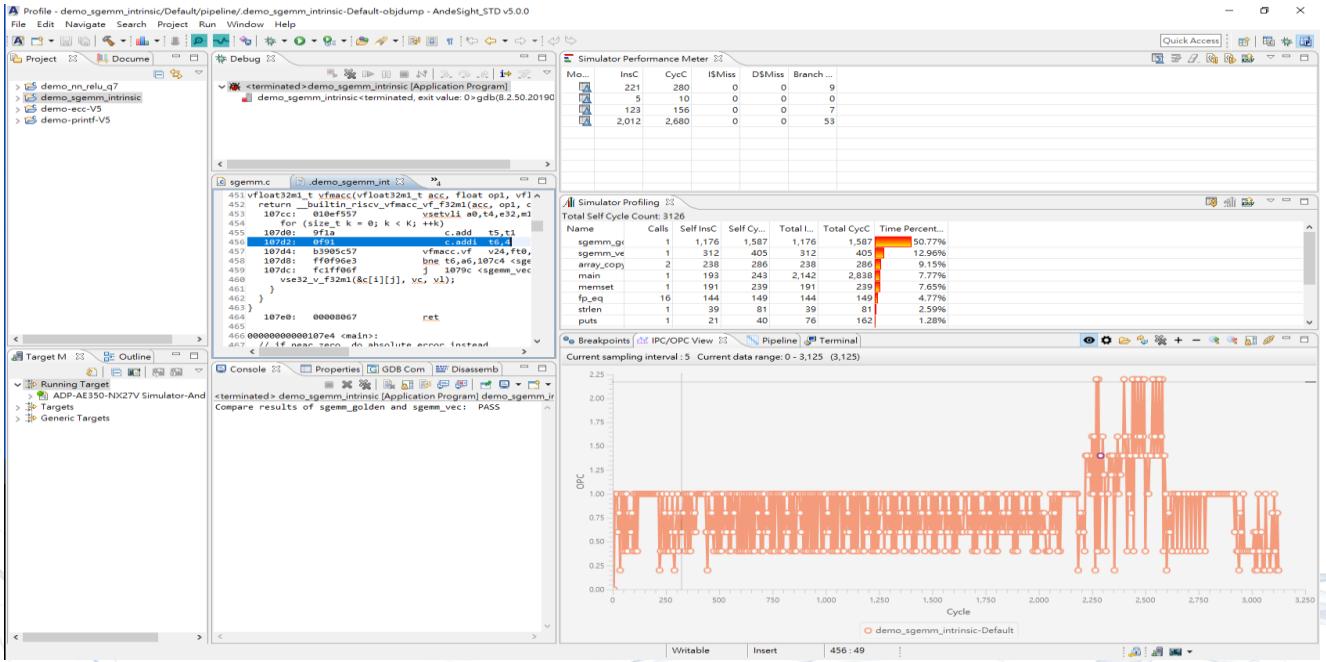
Demo of the Advanced Analyzing with AndeSight™

- Use sgemm (Single precision GEneral Matrix Multiply) as an example



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Summary

- AndeSight™ is user-friendly and easy-to-use IDE
- Powerful debugging tool
- Virtualized analysis to help you ultimately optimize your software
- Accelerate your RISC-V software development with the comprehensive development environment
- Periodic releases to support latest Andes RISC-V Cores

AndeSight™ IDE Free Download

- **AndeSight™ version for evaluation**
- **Three-month time limit**

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Thank you!

ANDES
TECHNOLOGY