



NewAE Technology Inc.
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Development board for investigating CHERI security

SONATA-ONE

Product Datasheet

Sonata is a system for evaluating the usage of CHERI IoT Ibex core as a microcontroller for embedded, IoT and Operational Technology applications. The system contains a number of peripherals (I2C, SPI, GPIO, USB, and UART) and the CHERI IoT Ibex core itself.

It is designed for use on FPGA and specifically targets the Sonata FPGA board, but as the entire design (from example PCB to software) is open-source it can be run on any similar system.



This project is designed to look like a normal microcontroller in terms of usability, including SDK, examples, and normal capabilities such as debuggers. But underneath that the CHERI IoT capabilities provides a high level of “default security” that simplifies designing embedded systems in a secure manner. You can see the complete documentation for the project, but note it is under active development so substantial improvements are to be made.

Sonata is part of the Sunburst Project funded by UKRI / DSbD under grant number 107540.

Product Highlights

- Drag-and-drop programming over USB-C
- Expansion headers including Arduino, Raspberry Pi, PMOD, and mikroBUS
- Colour LCD screen controlled via SPI
- RS232 and 485 for industrial application concepts
- SD card slot for edge computing data storage applications

Ordering Summary

NAE-SONATA-ONE FPGA development board for evaluation of CHERI IoT Ibex core

Product Links

Full Product Documentation <https://lowrisc.org/sonata-system/index.html>

Product Schematic & More <https://github.com/newaetech/sonata-pcb/tree/main>

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