Renodepedia - From Zephyr’s structured data to traceable and testable open hardware

The Zephyr Project, 2022-11-03
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BACKGROUND

- Antmicro’s work spans across a variety of hardware: ARM, RISC-V, other, MCUs, application processors, GPUs, FPGAs, AI accelerators
- The entire company is built around open source and understanding how things work
- The Renode simulator was an internal tool to increase that understanding and give us an edge
- Since its open sourcing it continues to be a big part of our open source hardware story
RENODE

• Open-source, software agnostic hardware simulator framework
• Turns HW into SW!
• Helps build spacecraft, robots, self-driving cars, wearables etc.
• Building block based, reflects structure of hardware
• github.com/renode/renode
ZEPHYR

- Multi-platform, multi-vendor RTOS and ecosystem with a huge community
- Antmicro was an early supporter of Zephyr - Platinum member
- Working on real applications, integration with other frameworks, new platform porting
- Zephyr has structure (just like Renode) - tries to find good abstractions for wide range of HW!
- Helps you understand, reason about platforms in a structured way
- What if we added 2+2 together...
RENODEPEDIA

• The (soon) ultimate hardware resource
• We’ll tell you more about it today: how it came about and how Zephyr was instrumental in building it
• Primary goal: understand hardware, and - thanks to Zephyr and Renode - experience it first-hand without having to physically have it
RENODEPEDIA - THE UFOPAEDIA OF HARDWARE

- The original inspiration for Renodepedia was a feeling I had playing old video games
- Browsing in-game lore, immersion, comparing parameters

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<th>SHOT TYPE</th>
<th>ACCURACY</th>
<th>TU COST</th>
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<tr>
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<tr>
<td>Aimed</td>
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Using Elerium-115 as a power source, the laser rifle is a more powerful and accurate version of the earlier pistol design. However, stronger materials are needed to contain the laser pulse as it builds to full power.
RENODEPEDIA - THE UFOPAEDIA
POKEDEX OF HARDWARE

- [embedded.fm](https://embedded.fm) podcast (airing later today):
  - “Can you tell us more about Renodepedia, or the Pokedex of hardware”
QUESTIONS?

zephyr-dashboard.renode.io/renodepedia

zephyr-dashboard.renode.io

github.com/renode/renode
THANK YOU FOR YOUR ATTENTION!