

• **Stuart Card** • 14 days ago

Come back in one hour to discuss one approach to giving developers a start, not just on getting familiar with seL4, but with building powerful embedded systems for the network edge...

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**Regan Robertson** Mod • 14 days ago

Good Afternoon,

The video will start on this page at 14:00pm, and you may have to hit play or unmute. As a reminder this site works best in a Chrome Browser. You can write in comments through this feature to continue the conversation or ask questions. Please login or sign up for a Disqus account to participate in the discussion boards.

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**Stuart Card** • 14 days ago

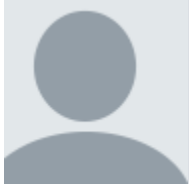
That hour went quickly. Cog Systems talk gave much of the justification for what we are doing, with a somewhat different approach.

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**Jason H Li** • 14 days ago

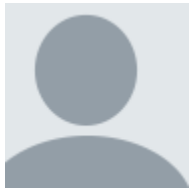
For this board, did you turn on RISC-V PMP to provide MMU-equivalent features?

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**Stuart Card** Jason H Li • 14 days ago

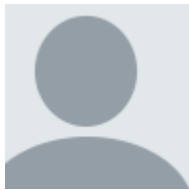
Nathan, maybe you can take this one?

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**Nathan Studer** Jason H Li • 14 days ago • edited

This board has a MMU, so we just used it. Is there a use case you have in mind that uses both the PMPs and the MMU?

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**Jason H Li** Nathan Studer • 14 days ago

Ah OK it's board MMU you are using. I was not thinking both, only in terms of PMP availed by RISC-V. Kriste told me it's optional in the spec and not turned on in many cases.

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**Carl Nerup** • 14 days ago

Sorry, if you already said it - "What is the use case for the solution you are building?"

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**Stuart Card** Carl Nerup • 14 days ago

One example use case is coming later, but we are not building a point solution, rather a platform to give developers a leg up on building application specific systems.

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**Tim Morin** • 14 days ago

Yes Jason. All cores have PMPs

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**Jason H Li** Tim Morin • 14 days ago

So they were not really configured ON, based on Nathan response?

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**Carl Nerup** • 14 days ago

The collaboration between the three of you is impressive. How did you manage to find your way to working together on Icicle?

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**Stuart Card** Carl Nerup • 14 days ago

The PolarFire seemed to me to check all the boxes from a hardware perspective. DornerWorks is doing much of the heavy lifting to bring seL4 to my usual customer base. I am just a small fish, but one with a clear focus and some smart coworkers. :-)



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**Tim Morin** Carl Nerup • 14 days ago

That bar analogy that Stu mentioned at the opening. Sort of like that.



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**Jason H Li** • 14 days ago

Nathan - what's your mapping of seL4 on multi-cores? One seL4 on all cores? one seL4 on one core and one core only? Or something else?

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**Nathan Studer** Jason H Li • 14 days ago

Right now we're only running on a single core/HART.

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**Jason H Li** Nathan Studer • 14 days ago

Thx. That's what I thought.

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**Stuart Card** • 14 days ago

Sorry, apparently a bunch of my words ended up on the cutting room floor. I'll be happy to answer questions, of course, not only on the omitted material, but whatever else as well.

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**Stuart Card** • 14 days ago

There is a lot to building a trustworthy open platform for anything, much less autonomous systems with networking. My current focus is enabling one system that encounters another to know WHO and WHAT they are, and how much they should be trusted in various respects.

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**Renato Levy** • 14 days ago • edited

I can see how a low level implementation of DDS (internal only) in this system could make it really be valuable to drop ROS components on it.

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**Stuart Card** Renato Levy • 14 days ago

Yes. We have had some conversations with RTI, but not recently. Our original related work for Dr. Richards and for AFRL/RI involved `_inter alia_` a pub-sub DDS (no claim for OMG standard compliance) that provided location based information delivery w/o tracking (or even needing to know) destination physical location. Internal is, obviously, a bit easier. ;-)

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**Renato Levy** Stuart Card • 14 days ago

The reason I say that is because in the development of many AS, we develop the higher behaviors over ROS components and simulate. If I can drop these components over a trusted platform, I can quickly cook myself a reliable AS. If they will do the correct behavior, that's a different verification 8^)

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**Fabrizio Bertocci** • 14 days ago

So can I get a board with the PolarFire chip, run seL4+Camkes / Genode and create my applications today? Is the solution discussed in the presentation available or it is still a work in progress?

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**Stuart Card** Fabrizio Bertocci • 14 days ago

Thanks to DW, seL4 is running on the ICICLE board today. We are just getting started on bringing up Genode atop it. So work in progress, but some already usable.

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**Tim Morin** Fabrizio Bertocci • 14 days ago

Icicle kits are on sale at [digi/arrow/future/avnet/crowdupply](https://digi.arrow/future/avnet/crowdupply)

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**Renato Levy** • 14 days ago

30 minute break!

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