Eclipse Foundation Feedback for revision of the Chips Act

Open hardware (specifications, designs, and code) is a foundation of semiconductor knowledge that is guaranteed to be available for any purpose. It can be used as-is for fabricating chips in the EU. It can also be modified to match the various semiconductor needs of the EU, or to optimise production based on the raw materials available or other constraints. The EU is already using open hardware in some situations to increase resilience, foster innovation, and provide multiple economic benefits, but there are many more opportunities that are not yet being used.

We thank the European Commission for this opportunity to participate in the revision of the Chips Act. Below are our recommendations for how to achieve the Act's goals.

RISC-V

RISC-V is an example of an open hardware ecosystem which is already providing benefits and also clearly has further potential to foster innovation and to grow production capacity and businesses in Europe. Many of the leading researchers on RISC-V are in Europe.

We recommend looking to RISC-V for ideas on how the European Union can form an ecosystem of communities and businesses.

Valuing resilience, security and sovereignty

Chips made from open hardware can contribute to European objectives of resilient supply chains, increased security, and digital sovereignty. But, Europe needs to greatly increase production and that will require investment, which in turn requires customers and demand. If purchasers in Europe take a short-term view and only look at price and technical characteristics, Europe will continue to finance the chip production of other countries and create more dependencies in its supply chains.

Open hardware is an opportunity for Europe to build capacity and expertise and secure its strategic needs in the increasingly important semiconductor market. The EU, as a political entity, has a long-term view and values resilience, security, and sovereignty. EU legislation should look for opportunities to ensure that the full value of open hardware is taken into account during public procurement, and should consider if there are situations where cybersecurity, or other values, requires open hardware. And more broadly, to lead this work toward becoming a self-financing market, investments should be made when opportunities are spotted to remove anything that is blocking the growth of the supply or the demand.

With chips getting more specialised, and products and services becoming increasingly dependent on the availability of specific chips, the issue of chip availability is more important than ever for supply chains. This trend is likely to continue. If digital sovereignty is not given sufficient priority today, it may be more complicated in the future.

Detailed study of Europe's semiconductor needs

The EU needs a detailed analysis with two focuses. The first should be on what chips are needed by Europe, to guarantee the functioning of not only Europe's IT systems but also all the industries which rely on availability of chips as components of what they produce. This data could be used to stimulate supply by giving clarity on what types of chips are in demand in Europe. The EU could also use this to identify which situations have greater impact on resilience, security and sovereignty.

The second focus should be on the designs and specifications that Europe needs for the local production of what is needed. This data could be used to check whether open hardware exists for Europe's various needs. When a need is not currently covered by open hardware, this may be an opportunity for an EU project to create something of value (e.g. interfaces such as PCIe, Ethernet, and PHYs). Where open hardware exists but is not being used, there should be a check to see if there is sufficient awareness and readiness.

A review of funding

There is a perception that EU funding mechanisms in this domain are not efficient enough. First, a lot of EU funding might be going to international companies (or their European branches) who have many goals other than what is in the European Chips Act. Second, a lot of EU funding, regardless of which companies it is granted to, might subsequently be used to make purchases from non-EU companies.

This is a perception, but if it's correct there would indeed be a failure which would need to be addressed. It would be useful to review the end points of current EU funding in this domain. Consideration should be given to funding strategies which would direct funding towards open technologies which will be forever available for use in the EU, and to local research and fabrication capacity with a strategy to ensure the funding supports open technologies.

Fostering an ecosystem

In our discussions with stakeholders, we heard many comments about the costs of collaboration in the EU and a lack of opportunities to form networks. If the Chips Act could help to fill this gap, it would benefit students, start-ups and SMEs, and could also provide a venue where larger companies and investors could meet these other categories. This could be done in many ways, including digital innovation hubs, local networks, online knowledge sharing portals, and online meetings and events.

European Starting points

There are already European projects making significant progress. Projects such as Tristan or Rebecca have been trail blazers and encouraged many, from SMEs to established companies, to take a more detailed look into RISC-V and the related semiconductor ecosystem. What is still missing is deeper exchange and more partnerships between SMEs and big players that share Europe's goals. Open hardware should be the basis for a significant ramping up of chip production that aligns with the EU's short- and long-term goals. Europe already has a lot of expertise in RISC-V and Europeans are established in the RISC-V ecosystem. This should be supported and used as the basis for a robust semiconductors strategy for the EU.

Eclipse Foundation has over 20 years of experience in building project ecosystems. For open hardware and especially for RISC-V we have several European initiatives such as the PULP Platform by ETH Zurich in academia or the OpenHW Foundation (part of the Eclipse Foundation) that hosts collaboration on production ready RISC-V Cores. Having a vendor-neutral, open hardware platform provider which provides a place to develop common building blocks collaboratively would be the easiest and fastest way to improve our access to important hardware designs and know-how. With the huge European user and contributor base of CVA6 (an application-ready RISC-V core, capable of running Linux), or the CVE4 family (which run inside a microcontroller unit), we have already created value that is in constant use by large companies and SMEs.

To build on these existing projects and to foster a business ecosystem in Europe, it would be useful to find ways which encourage more use in commercial products. There may also be benefits to convening European semiconductor companies for discussion on this topic so that experts can demonstrate the quality level of the existing building blocks and discuss questions which companies may have.

Conclusion

We remain at your disposal for further discussion or to provide implementation details for any of the above and we look forward to working with you in the elaboration of this legislative text.

About Eclipse Foundation

Eclipse Foundation provides our global community of individuals and organisations with a mature, scalable, and industry-friendly environment for open source software collaboration and innovation.

Eclipse Foundation hosts widely-used open source projects by the European private and public sector including runtimes, tools, specifications, and frameworks for cloud and edge applications, IoT, AI, automotive, systems engineering, and open processor designs.

We provide stewardship for 415+ projects, including our most widely-used Eclipse software such as Eclipse IDE, Adoptium, Software Defined Vehicle, Jakarta EE, directly downloaded over 430 million times.

Eclipse Foundation last year launched the Open Regulatory Compliance Working Group which now has 50 open source partner organisations, focussed on collaborating to facilitate compliance with recent cyber legislation.