



# Internship: support the MIPI CSI-2 camera controller in Allwinner SoCs in the Linux kernel

Bootlin

*This document was taken from <https://bootlin.com/blog/2020-internships/>*

## Company overview

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Bootlin proposes development and training services around embedded Linux and its kernel. Founded in 2004 and now employing 12 people, it has gained a strong reputation for its expertise in Linux kernel development and embedded Linux system integration. With a mostly international customer base, Bootlin works for major semiconductor vendors and multiple embedded system makers.

With strong roots in Free Software and Open Source, Bootlin releases all its training materials for free under a free documentation license, and makes a great number of contributions to the Linux kernel and to other community projects. Bootlin often appears in the top 20 worldwide list of companies contributing to the mainline Linux kernel.

Bootlin also invests a lot in the involvement of its engineers in the technical community, which gives them visibility and a good reputation beyond the limits of the company employing them, which is quite rarely offered by other companies throughout the world.

## Internship topic

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Allwinner is a Chinese company designing and producing low-cost ARM system-on-chips, which have become very popular in many embedded applications. In 2012, Maxime Ripard, then engineer at Bootlin, started supporting such processors in the mainline Linux kernel, and since then, such support hasn't stopped improving in projects like Linux and U-Boot.

Some features are not supported yet however, in particular some related to multimedia support. That's the case of the MIPI CSI-2 video capture interface, commonly used to interface cameras with some Allwinner SoCs. This interface is among the most advanced and widely used ones in this area.



Bootlin therefore wished to develop a Linux kernel driver to support the CSI-2 controller and to associate a camera using this interface. This driver will then be submitted for integration in the official version of the Linux kernel.

Such an internship will make you familiar with the Linux kernel contribution process and will allow you to contribute your own patches, in the context of a non-trivial driver. It will let you discover or expand your knowledge of the area of multimedia and cameras, and work on low-level code in direct connection to the hardware.

## Internship supervision

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The internship will be supervised by Paul Kocalkowski, co-developer of the Allwinner VPU driver.

The intern will work in a team of Linux kernel and embedded Linux engineers, with a very strong level of expertise.

## Useful skills

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- Good command of the C language
- Understanding the hardware architecture of a processor
- Basic understanding of Linux kernel development, or at least of low-level development.
- Basic understanding of Git.
- Understanding of the way Open-Source communities organize, and ability to communicate with its members (IRC, e-mail, etc.)

## Practical information

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- Who can apply: all students from the European Union, studying in a European University
- Location:
  - Colomiers, in the Toulouse metropolitan area, France, reachable by train.
- Dates: between February and September 2020
- Gross monthly compensation: between 500 and 1000 EUR, according to profile (end of studies or half-way, experience, etc.)
- Duration: at least 4 months
- How to apply: send your resume and interests to [jobs@bootlin.com](mailto:jobs@bootlin.com)