

POST TITLE

Linux kernel software developer

Requesting Unit

BE-CO-HT

Associated Benchmark Job

Computing Engineer

Grade

6-10

Job description

Introduction

In the Beams Department (BE), Controls Group (CO), Hardware and Timing section (HT) you will work in a team of developers of Linux device drivers and other low-level software. The BE-CO group is responsible for providing and supporting the controls infrastructure used to operate the CERN accelerators 24/7. The HT Section is in charge of providing hardware support and maintaining a standard set of modules that can be used to build control systems. This support includes the development or procurement of the hardware and the associated device drivers. The supported platforms include VMEbus and PCI/PCIe (industrial PCs, PXI/PXIe, uTCA), and the Operating system currently in use is Linux.

Functions

You will:

- Take responsibility in new software projects at the level of device drivers, libraries and C/C++ user space code;
- Take responsibility for the maintenance of existing device drivers including the re-programming of obsolete parts and the development of new components;
- Participate in the architecture and design of new systems based on PXI/PXIe and uTCA platforms;
- Participate in the design of software support for platforms based on System-on-Chip (SoC) components;
- Collaborate in a small team of developers, taking over tasks such as requirements gathering, planning, quality assurance, continuous integration, tooling, testing and communication with users in equipment groups;
- Participate in the operational support of the deployed Linux device drivers and low-level libraries;
- Document and present your work as appropriate;

Qualifications

Master's Degree or equivalent in computer science.

Experience

- Extensive experience in and knowledge of low-level software development (Unix, C/C++), in particular Linux device drivers;
- Extensive knowledge of embedded real-time systems programming;
- In-depth knowledge of the Linux kernel;

- Participation in distributed development of Free/Open Source software projects and knowledge of the different licensing options for such projects;
- Knowledge of the PCI/PCIe and VMEbus platforms would be an advantage;
- An understanding of programmable logic design using Hardware Description Languages and SoCs would be an advantage;
- Knowledge of the Python programming language for tooling, CI and testing would be an advantage;

Technical competencies

- Domain: Information and communication technologies
Subdomain: Software
Competency: Development of software for embedded and real-time systems with/without OS
- Domain: Information and communication technologies
Subdomain: Software
Competency: Development of system software (drivers, system configuration and monitoring, etc.)
- Domain: Controls and data acquisition
Subdomain: ICT Architectures
Competency: Architecture and design of ICT systems. Control & data acquisition systems, distributed applications and services.

Behavioural competencies

- Achieving Results: Takes responsibility for achieving quality results. Works in a structured and efficient way. Drives work and projects to a successful outcome.
- Solving Problems: Identifies and analyses the key issues in complex situations. Anticipates issues and seeks all possible relevant information for problem solving and decision-making. Has a disciplined approach to analysing data and situations. Produces a range of innovative and workable solutions.
- Communicating Effectively: Demonstrates an ability to express and explain ideas in a convincing manner. Practises attentive listening and actively promotes mutual understanding. Makes effective oral presentations. Negotiates effectively.

Language skills

Spoken and written English: ability to understand and speak English in professional contexts. Ability to draw-up technical specifications and/or scientific reports and to make oral presentations.

Additional information

Eligibility

Diversity has been an integral part of CERN's mission since its foundation and is an established value of the Organization. Employing a diverse workforce is central to our success. We welcome applications from all Member States and Associate Member States ([CERN: Member States](#)).

Employment Conditions

Contract type: Limited duration contract (**5 years**). Subject to certain conditions, holders of limited-duration contracts may apply for an indefinite contract.

This vacancy will be filled as soon as possible, and applications should normally reach us no later than xx.xx.xxxx.

SPECIAL CONDITIONS WHICH ARE REQUIRED IN A REGULAR BASIS	
	These functions require shift work, including nights, Sundays and official holidays.
	These functions require participation in a regular stand-by duty, including nights, Sundays and public holidays.
	These functions require work during nights, Sundays and public holidays.
	These functions require work in radiation controlled areas.
	These functions require interventions in underground installations.
	A valid driving license is required.

SPECIAL CONDITIONS WHICH MAY BE REQUIRED DEPENDING ON THE NEEDS OF THE ORGANIZATION IN THE FUTURE	
X	Shift work
X	Stand-by duty
X	Work during nights, Sundays and official holidays
X	Work in radiation controlled areas
X	Interventions in underground installations