UPGRADE THE CONTROL SYSTEM OF HIRFL-CSR BASED-ON EPICS
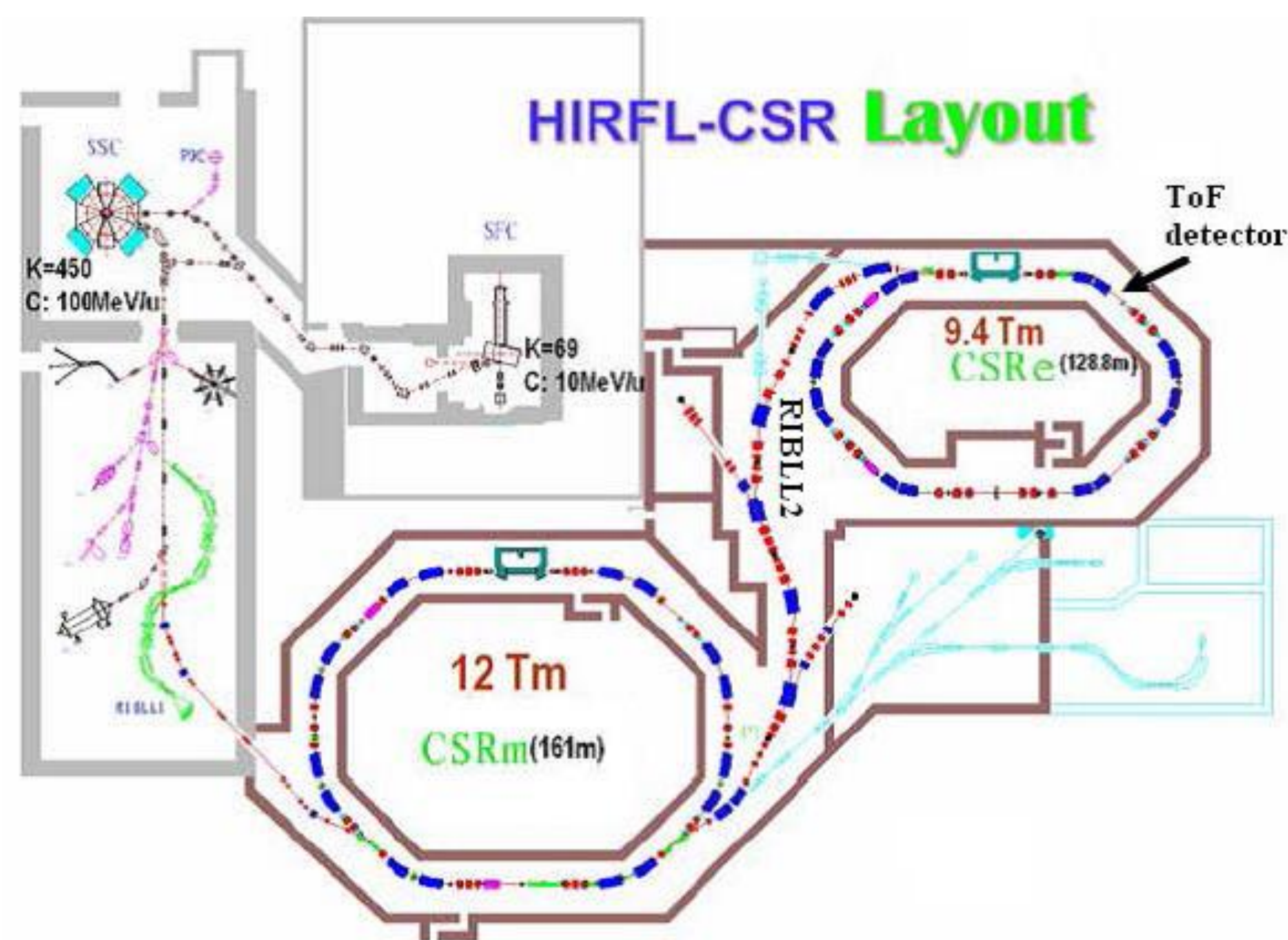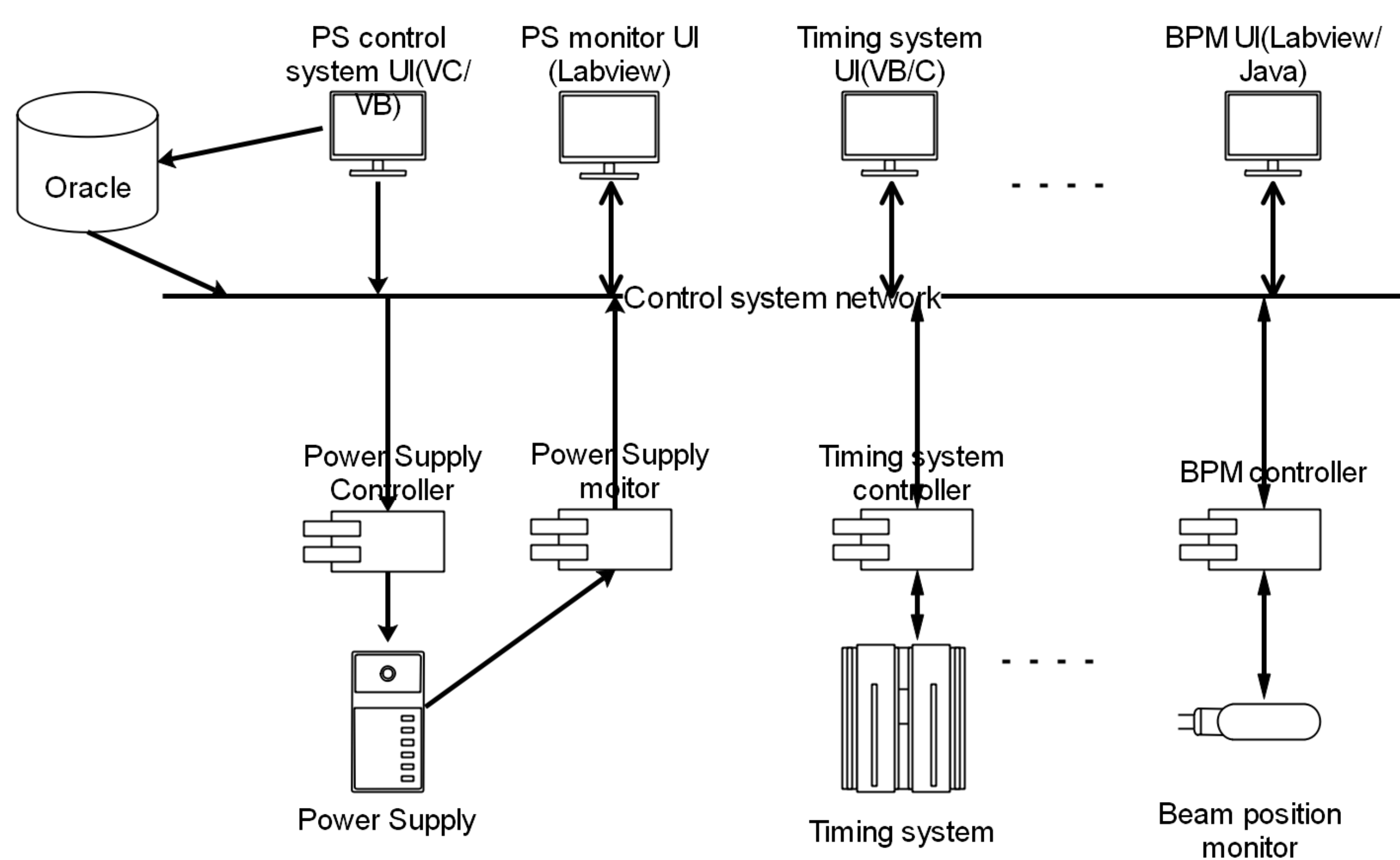
Shi An, Wei Zhang, Xiaojun Liu, Jianjun Chang, Pengpeng Wang, Liang Ge, Yunbin Zhou, Junqi Wu

IMP, Lanzhou, China

HIRFL-CSR Control System

The Cooler-Storage-Ring (CSR) is the post-acceleration system of the Heavy Ion Research Facility in Lanzhou (HIRFL). The control system of HIRFL-CSR consists of many sub systems such as power supply control system, timing system, RF system, beam monitor system and so on. The control system has developed and running over 10 years.
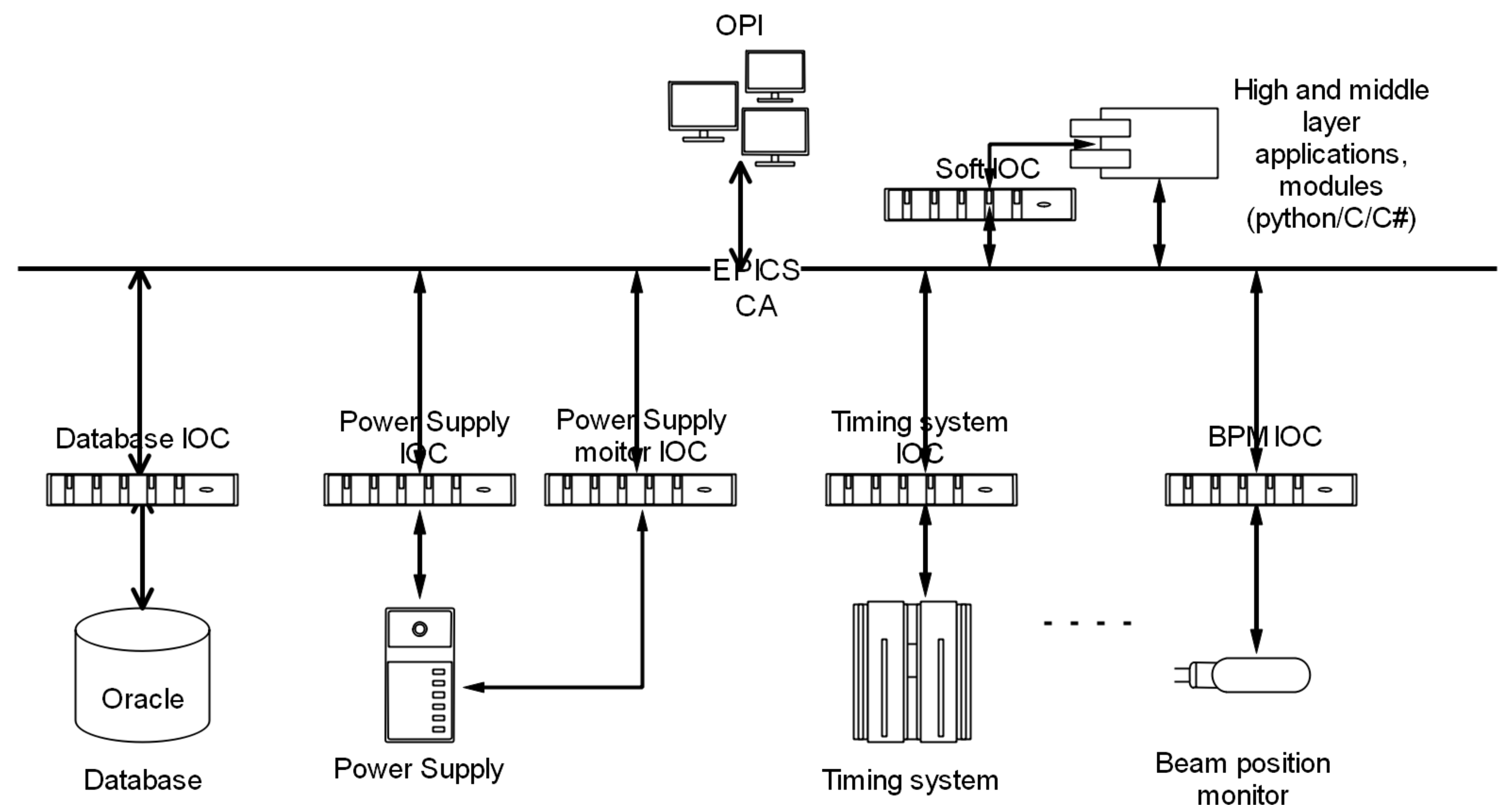

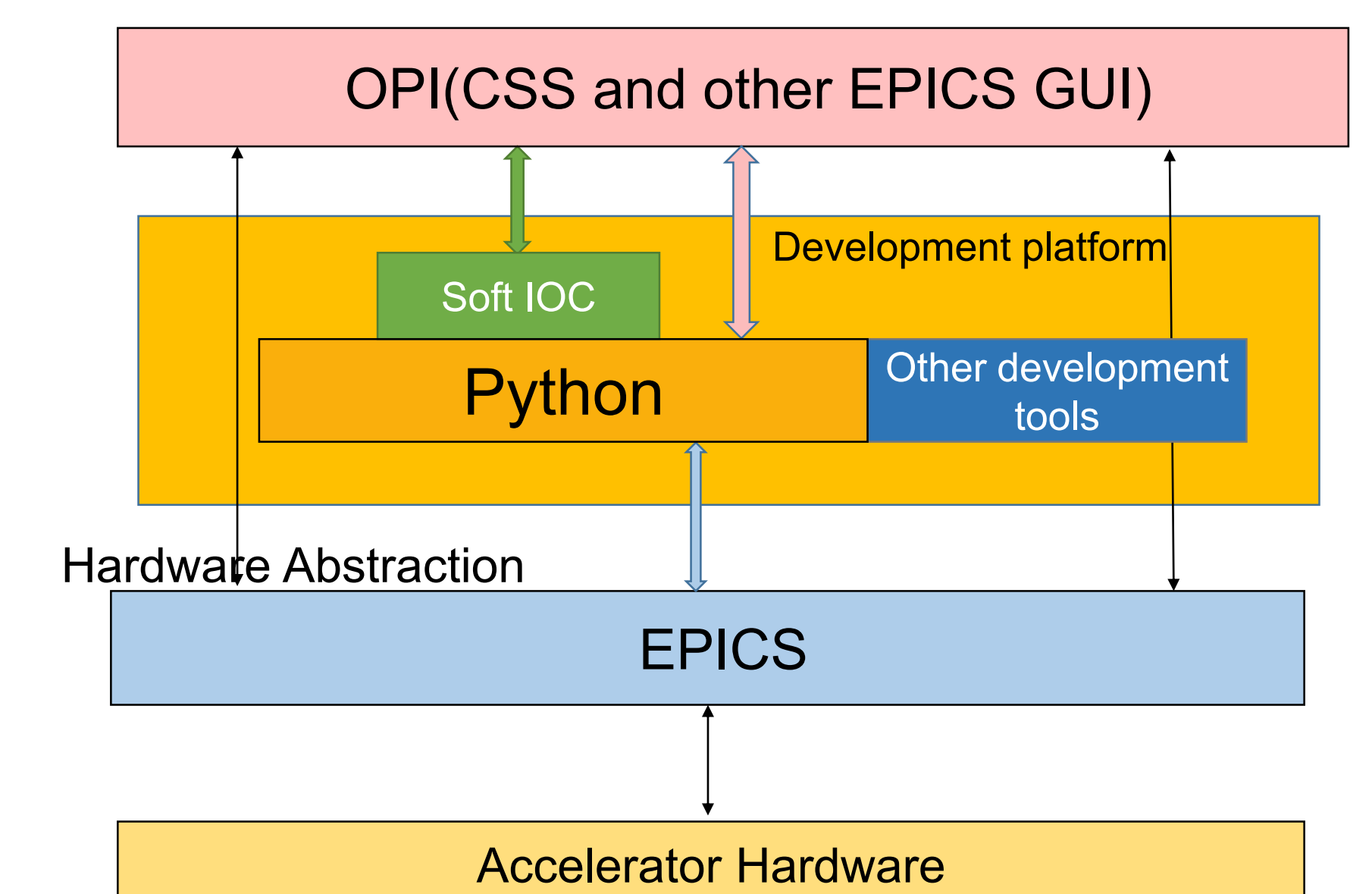
Structure of the original control system

The original structure was not build on a uniform standard and created by different development tools and different user interface. So, the different subsystem cannot communicate with each other, and very difficult to maintain .

New control system

Upgrading the control system of HIRFL-CSR based-on EPICS since 2016. Redesign the whole structure of control system, include the power supply subsystem, timing subsystem, database subsystem, etc. And designed a new modular development platform to create high and middle layer tools, libraries and applications.

Use Python and other development tools to build a modular development platform. Developer who belong to different subsystem could collaborate to create high and middle layer tools, libraries and applications based-on the platform.

Conclusion

The main part of new control system has been tested and successfully running for more than one year. The stability of the new system is greatly improved. After finished building hardware abstraction layer, we plan to deploy the modular development platform with some finished tools and modules in this year.