The Implementation of
KSTAR Fast Interlock System using compact-RIO

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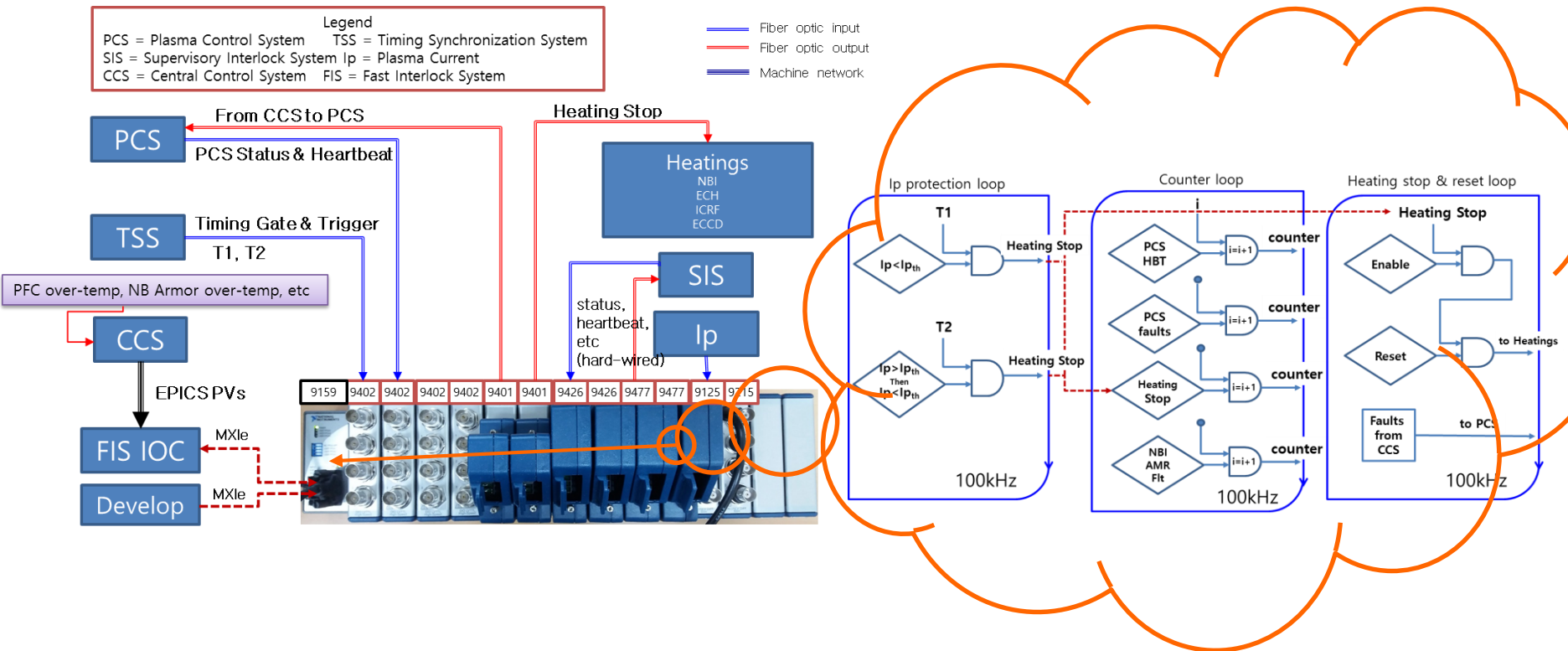and Large Experimental Physics Control Systems

Project Goal

- KSTAR is superconducting tokamak, and its target is 2MA, 300 sec.

- Fast Interlock protects in-vessel components from unexpected heating.

- Previously KSTAR fast interlock has 3 versions of attempts.

- Migrate existing VME VxWorks, easily change logics, high reliability, and compatible with EPICS are required.

- NI compact-RIO was selected as a main controller of KSTAR Fast Interlock System.

Solution outline

How to protect walls from hot plasma?

Heating stop, c-RIO, FPGA, LabVIEW, EPICS,…

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Conclusion

- 4th version of KSTAR Fast Interlock System using compact-RIO was implemented.

- In 2018 operation, full commissioning will be performed.

- Share information using Synchronous Databus Network will be in the long term.