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Diagnostic Use Case Examples in different form factors (MTCA.4, ATCA, PXIe)

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ITER requires extensive diagnostics to meet the requirements for machine operation, protection, plasma control and physics studies.

Most of the extremely complex ITER diagnostics systems are provided by the ITER Domestic Agencies (DAs) and their partners. On their demand the IO has created several diagnostics use case examples in different form factors (MTCA.4, ATCA, PXIe) to enhance the understanding of diagnostics Plant System I&C and the associated deliverables.

The use cases come complete with documentation and implementation, further helping the DAs, their suppliers and diagnostic responsible officers to meet the ITER diagnostics requirements. In this paper, we present the current status and achievements in implementation and documentation with focus on the MTCA.4 form factor.

Summary

The currently implemented diagnostic use case examples are still under development and testing. In the near term, the IO will add the high performance networks (DAN, SDN, TCN) to neutronics and imaging diagnostic use cases (both in PXIe and MTCA.4 form factor). In the following phase use cases for Thomson scattering / microwave reflectometry and magnetics integrators will be added.

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