



Implementation of an Acquisition and Monitoring Module Based on the PTPv2 Protocol on EAST

¹ZC. ZHANG, ^{1,2}J. ZHANG, ¹QP. YUAN, ² SQ. LIU, ^{1,2}JQ.ZHU

¹Institute of Plasma Physics, Chinese Academy of Sciences, China

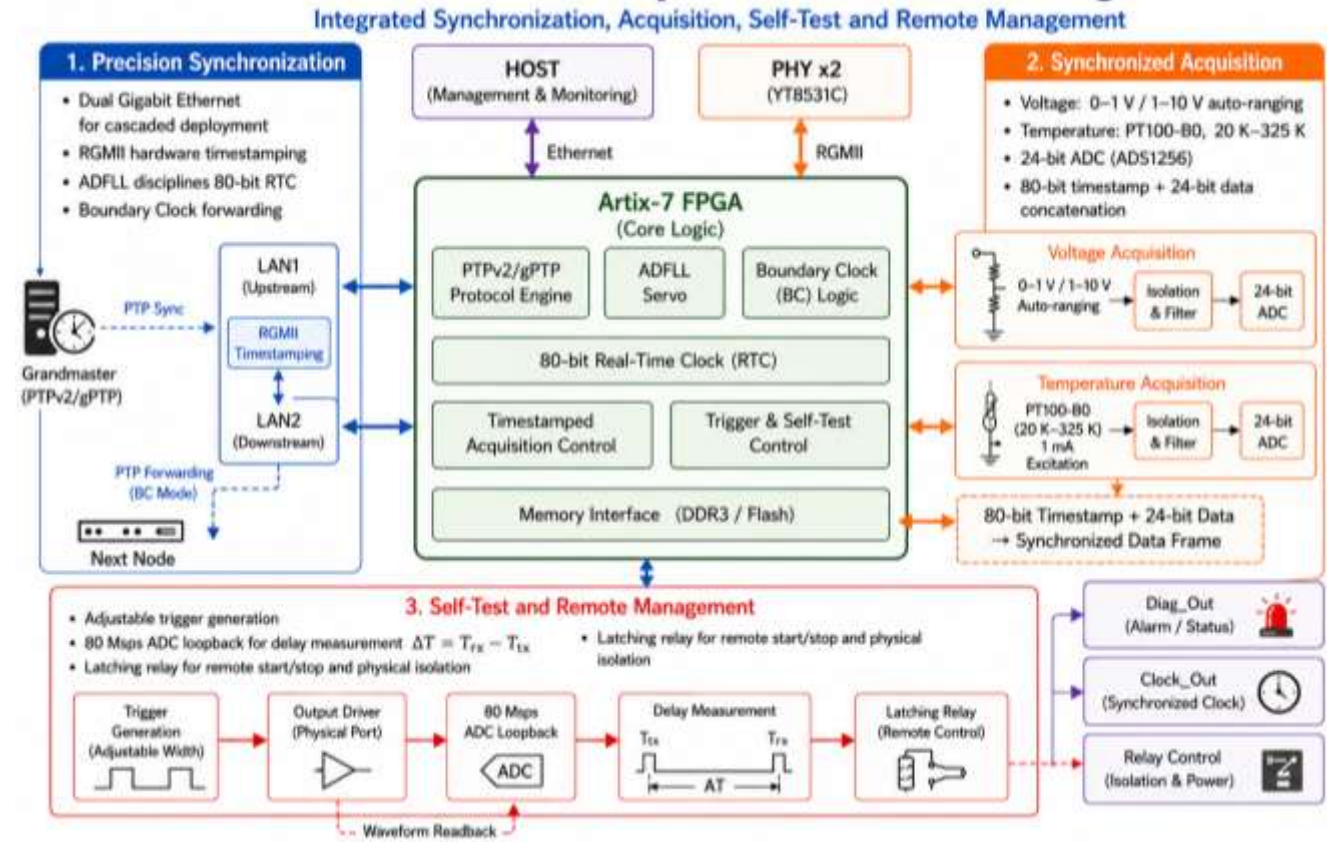
²Institute of Energy, Hefei Comprehensive National Science Center



PO_136 Acquisition and Monitoring Module Based on PTPv2

This paper designs a set of monitoring equipment with FPGA as the core based on the PTPv2 protocol.

- The equipment supports the PTPv2 protocol to ensure consistent timestamps among acquisition and monitoring devices.
- It is equipped with multi-range voltage conditioning and wide-temperature-range temperature acquisition channels, which combined with a high-resolution analog-to-digital conversion module, enable dynamic acquisition and data processing of weak signals.
- The equipment features self-test and remote start-up functions, facilitating remote device management.



Test results show that the synchronization accuracy between devices is better than 50 ns; the voltage measurement accuracy is better than 0.04% F.S. in the low range (0–1 V) and better than 0.02% F.S. in the high range (1–10 V); within the temperature range of 20 K to 325 K, the acquisition error does not exceed 0.13 K. All these indicators meet the design requirements.