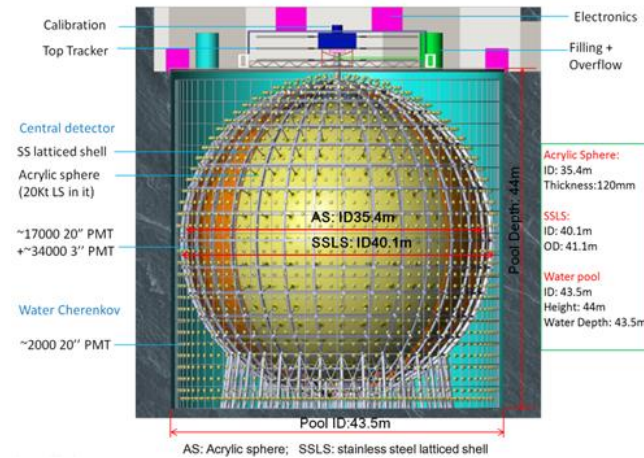




Design of a common verification board for different back-end electronics options of the JUNO experiment



Under water and outside water systems are linked over 100-meters Ethernet cable
Trigger, DAQ, Power, Slow control
20000 channels in total
3 possible schemes

JUNO overview

3 possible schemes

Design of a common verification board

Test results

Design of a common verification board for different back-end electronics options of the JUNO experiment

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23rd IEEE Real Time Conference - Colofon Wittenburg

The JUNO Experiment
JUNO (Jupiter Neutrino Observatory) is a multi-purpose neutrino experiment. It was approved in 2010 for the International Atomic Energy Agency (IAEA) and is currently under construction. The experiment is located in the Daya Bay reactor complex in Shenzhen, China, 26 km from the Daya Bay nuclear power plant site (DNP).

The JUNO detector consists of a large volume of liquid scintillator with 16 photosensors, arranged in a spherical geometry.

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EE scheme
EE scheme: 100 MHz clock, 100 MHz data rate, 100 MHz data rate, 100 MHz data rate.

JF scheme
JF scheme: 100 MHz clock, 100 MHz data rate, 100 MHz data rate, 100 MHz data rate.

BE scheme
BE scheme: 100 MHz clock, 100 MHz data rate, 100 MHz data rate, 100 MHz data rate.

Common verification board implementation

Table:

Scheme	EE scheme	JF scheme	BE scheme
Clock	100 MHz	100 MHz	100 MHz
Data rate	100 MHz	100 MHz	100 MHz
Data format	100 MHz	100 MHz	100 MHz

Test results

Conclusion:

Test results:

Future plan: