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

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The Jiangmen Underground Neutrino observatory (JUNO) is a neutrino medium baseline experiment in construction in China, with the goals to determine the neutrino mass hierarchy and to perform precise measurements of several neutrino mass and mixing parameters. A large liquid scintillator (LS) volume will detect the antineutrinos issued from nuclear reactors. The LS detector is instrumented by 17000 large photomultiplier tubes. One of the innovative aspects of JUNO is its electronics and readout concept. The JUNO electronics readout system consists of two parts: the front-end electronics system performing analog signal processing (the underwater electronics) and after about 100 m cables, the back-end electronics system, outside water, consisting of the DAQ and trigger. One of the main challenges of the whole electronics system is the fast data link (250 Mb/s) combined with power delivery over 100 m Ethernet cables.

Three different options have been considered to connect the front-end and the back-end systems, depending on the DAQ data volume and the way to deliver the power to the underwater system. In order to test the three options in an efficient and fast way, a common baseboard with interfaces to different mezzanine boards has been designed. We will present the 3 options and report on the details of the baseboard design as well as on its performance.

### Minioral

Yes

### Description

Hardware test?

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