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Embedded electronics and data acquisition of a detection node for the European KM3NeT telescope.

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A KM3Net detection node consists of a multi-PMT Digital Optical Module(DOM) containing 31 photomultipliers (PMTs) and the associated electronic for power, readout and control.

The components of the DOM electronic will be reviewed, namely a System-on-chip in charge of the data acquisition and slow control, a power board converter, various instrumentation devices and a Gigabit Ethernet link over an optical network to shore

The PMT front end signals are sampled with TDCs integrated in the SoC. An embedded processor is used for real time data processing and transmission to shore. The off shore electronics receives a bit stream from the optical network which carries both data and a synchronous clock signal used as a timing reference for the SoC. The overall architecture of the SoC and its inner functionalities will be presented in detail.

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