Contribution ID: **67** Type: **not specified**

4-channel Piezo Driver RTM for Lasers, Fiber Links and LLRF Cavity Tuners

Thursday 12 December 2013 13:15 (13 minutes)

The Digital Rear Transition Module 4-channel Piezo Driver (DRTM-PZT4) is in charge of driving/sensing piezoelectric based actuators/sensors used in the accelerator instrumentation applications, especially to control: synchronization of pulsed lasers, fiber link stabilization and LLRF cavity tuner. The module is complaint to the MTCA.4 standard. The RTM provides high voltage, high current output signals. The Piezo driver accepts low voltage input signals (on-board DAC or external source) which are low-pass filtered and amplified by power amplifiers to drive active piezo elements. The feedback information from piezo sensors is initially conditioned using precision amplifiers, digitized using ADC and sent back to the digital controller (AMC module). The DRTM-PZT4 provides several diagnostic signal readings: DAC output voltages, power amplifier input and output voltages and currents, high voltage power supply and temperature sensors. The on-board switches allows several configurations such power amplifier input source selection and conditioning, programming the analog active filters, changing the actuator/sensor functionality, as well as selecting the input/output voltages range of the DAC/ADC circuits. The power amplifiers can be supplied using internal or external power supply. The RTM is closed inside metal housing to improve EMI and to prevent user protection of touching the high voltages.

Summary

The paper will present first operation experience of DRTM-PZT4 board installed at laser synchronization research facility at DESY. It will also discuss the main sources of the noise that could come from the system and that could cause the regulation bandwidth unstable for the higher frequencies. The first measurements of the laser lock performance and its improvements will be also presented. The remarks for the next revisions of the board will be shortly summerized.

Primary author: Dr PRZYGODA, Konrad (TUL/DESY)

Presenter: Dr PRZYGODA, Konrad (TUL/DESY)

Session Classification: Applications in industry

Track Classification: Applications in industry