Design and test of a GBTx based board for the upgrade of the ALICE TOF readout electronics

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GBTx test board: picture

- VTRx
- 4.8 Gbps
- GBTx
- E-Links
- IGLOO2
- CONET2

NI USB pod 8451

USB
GBTx loopback tests

GBTx tested in loopback while transmitting fixed patterns (0xAABBB...) at 4.8 Gbps and no errors were found.

multi-mode fiber

eye diagram of the GBTx TX output

GBTx

VTRx

GBTx test board

Igloo2

LVDS

40 diff pairs @ 80 Mb/s

40 diff pairs @ 80 Mb/s

LVDS, SLVS

SLVS

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Measured BER lower than 10^{-14}
Conclusions

• Good testbench for testing the Igloo2 – GBTx – VTRx system
• Very good BER (as low as $10^{-14}$)
• Already used in connection to a PCIe C-RORC board for data acquisition on a PC

200 KHz trigger rate
270 MB/s throughput
Backup
GBTx test board: scheme