The Front End Card - status report

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Outline:

• Overview of the final Front End Card
• Preliminary test results
• Remaining Work
The final Front End Card – list of the improvements

✓ Components and layout optimized for the mass production
✓ Improved Ground plane
✓ 2mm. pitch back-end connectors
✓ More reliable power connector
✓ Enhanced power decoupling
✓ New reference voltages distribution
✓ Additional serial EEPROM
✓ Geographical address feature
FEC 3.1 – Ground Plane

ALTRO bus - RCU side

Common GROUND

GTL Transceivers
Board Controller
Clock Drivers

ALTRO-Bus vias

ALTRO’s

PASA’s and ALTRO’s
Reference voltages

PASA’s

FRONT END CONNECTORS
FEC 3.1 – Top View

- **GTL bus Transceivers (backside)**
- **readout bus connectors**
- **I2C EEPROM connector**
- **power connector**
- **LDO Power Regulators**
- **Clock distribution**
- **Current monitor & Supervision**
- **ALTROs**
- **Shaping Amplifiers and Reference Voltages**
- **FE connectors and additional Ground socket**

**Dimensions:**
- Width: 190 mm
- Height: 170 mm

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Stand alone noise measurements - preliminary

Average Value (r.m.s.):

- 0.49 ADC counts (~600 e-)

Frequency Domain:
- Systematic noise over 200 events
  - Noise distribution for the 128 channels

Time Domain:
- Average Value (r.m.s.):
  - 0.49 ADC counts (~600 e-)

0.5
0.0
0.0

ADC counts (rms)
Remaining work

- Characterization of the Card plugged to the detector
- Production of a small series (50 units) to test the Backplane connectivity
- Final choice of the Reference voltage amplifiers and Board Controller