

ND280 upgrade (LPNHE)

Total Cost Estimate (major expenses in 2019-2020, installation in 2021)

1) **Electronics** (Front-End Cards for the new horizontal TPCs):

80 cards x 850 euros = 68 kEuros

1st prototype + 1 test board = 4 kEuros

2nd prototype + 3 FECs to be distributed to the collaborators = 8 kEuros

Contribution to the infrastructure (in exchange to AFTER chips) = 20 kEuros

Test bench to be delivered to the production factory = 25 kEuros

Cooling system – ??? (cost estimate not available for the time being)

Assuming ~20% security margin

SubTotal: ~150 kEuros

2) **Mechanics** (in progress, but can be canceled in order to allow for an interesting contribution by the LLR group)

Currently concentrate only on the conceptual design of the new suspension system for both TPCs and superFGD

But would like to contribute to the construction phase as well, if possible

SubTotal: ~50 kEuros

TOTAL: ~150 kEuros (or ~200 kEuros with “Mechanics”)