

# What we have to do towards ILC/ILD as AsianTPC group

2014 today

2016 sign approval

Design must be ready here

2018 Money start

2026 completion of ID

2014 today

Gate

Module design

GEM design/structure

**Electronics**/cooling

module boundary

distortion

collection

Momentum resolution

High B test

2016 sign approval

Design must be ready here

which kind of design here  
need ?

# Electronics

The most basic component of module

without specification

very difficult to design

assume sAltro16 ? impossible to 5000ch

sAltro64 ?

GDSP ?

no solution !!

unless we decide to start to make it

Money be after approval (!?)

**But**

**Test using sAltro16 is waiting**

**how can we manage this work with the final design ?**

**MultiChip card is there future ??**

**too many connectors for 5000ch**

**or need design integrated MCC/connector**

**test of Cooling system is important issue of this test**

Another important issue on the other side of board

Mounting method

related ASIAn module concept

without side frame how much we get gain

no test yet

for module boundary

do we test this seriously ????????

multi module test box ( suspended now )

need new module.....???

need old style GEM at least

Ikematsu san takes over this (sim.&hard)

how do we rate this test ?

Rinei's test based on our concept

In order to realize

it may take time

we need to make a production a few times  
to debug

another issue for sAltro16 test

**GEM design/structure**

**Double/Triple**

**# of Division**

**Distortion/ non uniform field collection**

**is on going by other group ??**



**High B test**

**Gate possible to do at Fujikura ?**

**module at FNAL ??**

**Real Production**

**to finish until 2025**

**we need 200 modules/end**

**500 board**

**1000~1500 sheets of GEM**

**10 sheets/day -> only 100days**

**fabrication 5 mod./day -> 100days**

**HV training / test**

**3days/mod.**

**need 15 test bench for 100days**

**each process can overlap**

**we may need 2 years**

**if every thing is ready**

**2024** completion of TPC  
0.5 year cosmic run  
module installation  
1 mod/0.5 hour -> 15 mod. x2 end  
130 days  
0.5 year

**2023**  
module fabrication+GEM+PCB 2 years

**2021** PCB ready  
electronics ready for fab.

**2020** production of chip + check

**2019** electronics final test by module

**2018**

**2017**

**if electronics is replaceable**

**how much can we delay the schedule ?**