

# Advanced Endplate Dummy Bd. Progress Report

LCTPC WP5 MTG on May/20/2010

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# Purpose of the Test with the Dummy AEP Board

- Thermal test (CO<sub>2</sub> cooling).
- Power pulsing test.
- Power pulsing test in magnetic field.

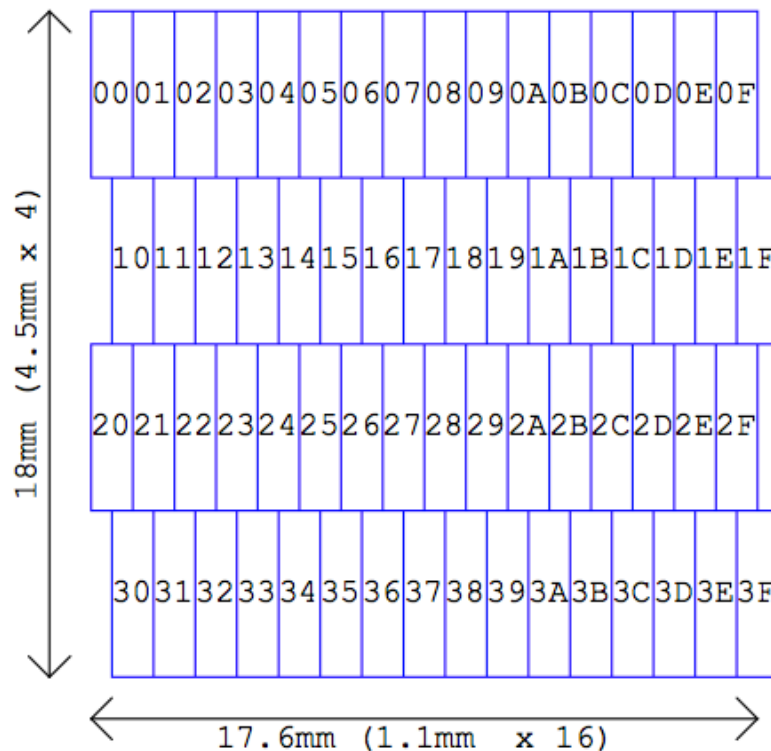
# Current Status

- Schematic design was submitted to a layout designer (company) in Mar/2010.
- However, number of parts were too much to be included in the requested area (64mm x 64mm per module).
- Therefore, I changed or removed some parts.
- Still, the area had to be enlarged (see next slides).
- The final schematic was re-submitted just yesterday! I will put the final schematic sheets somewhere later, so please have a look.
- Layout design is underway based on the final schematics.

# Dimension of Pads

- Because of layout restriction, pad pitch was increased to 1.1mm x 4.5mm (it was 1.0mm x 4.0mm before).

Pad Layout (Top View, i.e., from parts side)



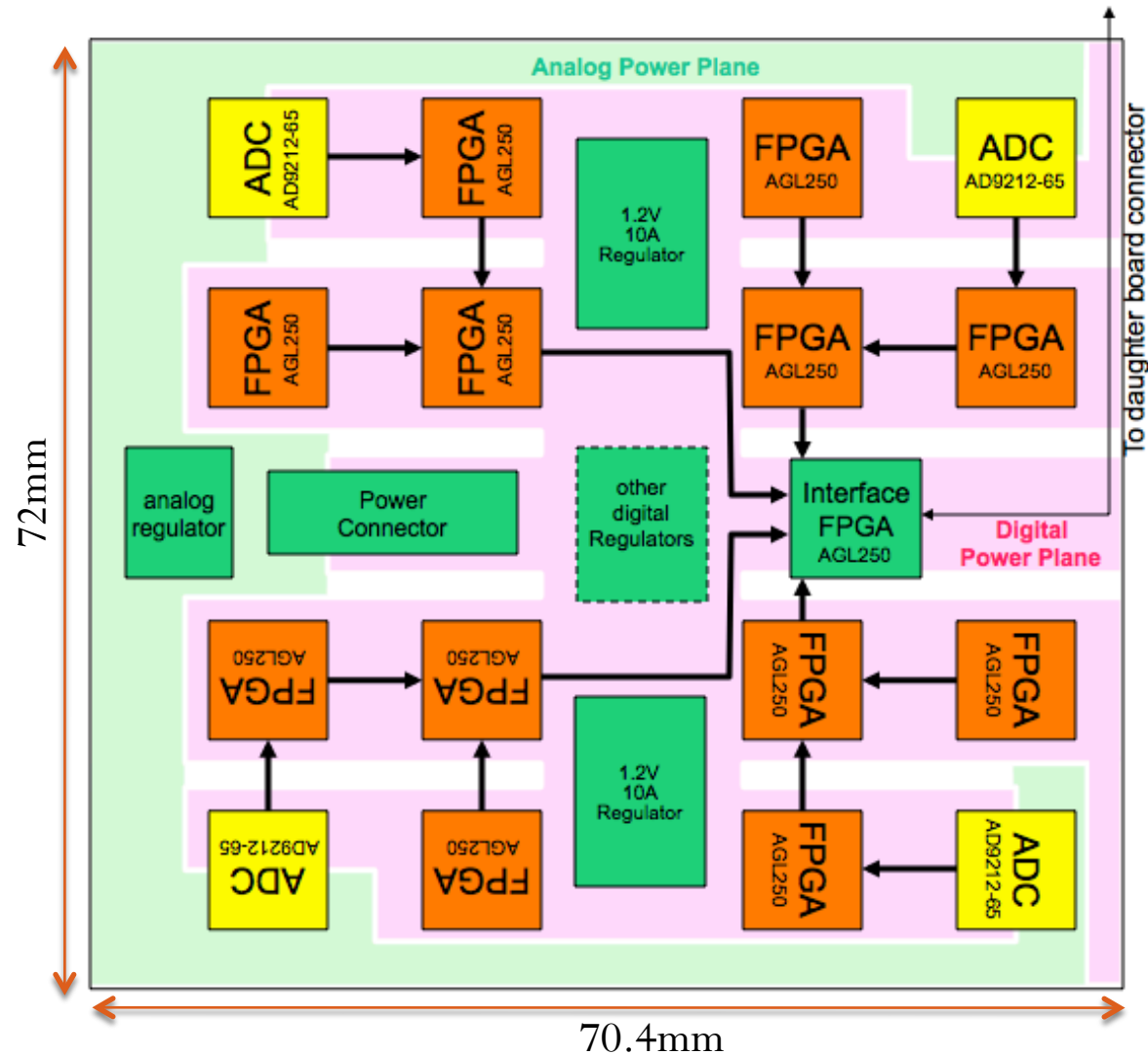
17.6mm x 18mm  
per FPGA chip.



70.4mm x 72mm  
per module.

# Dimension of One Module

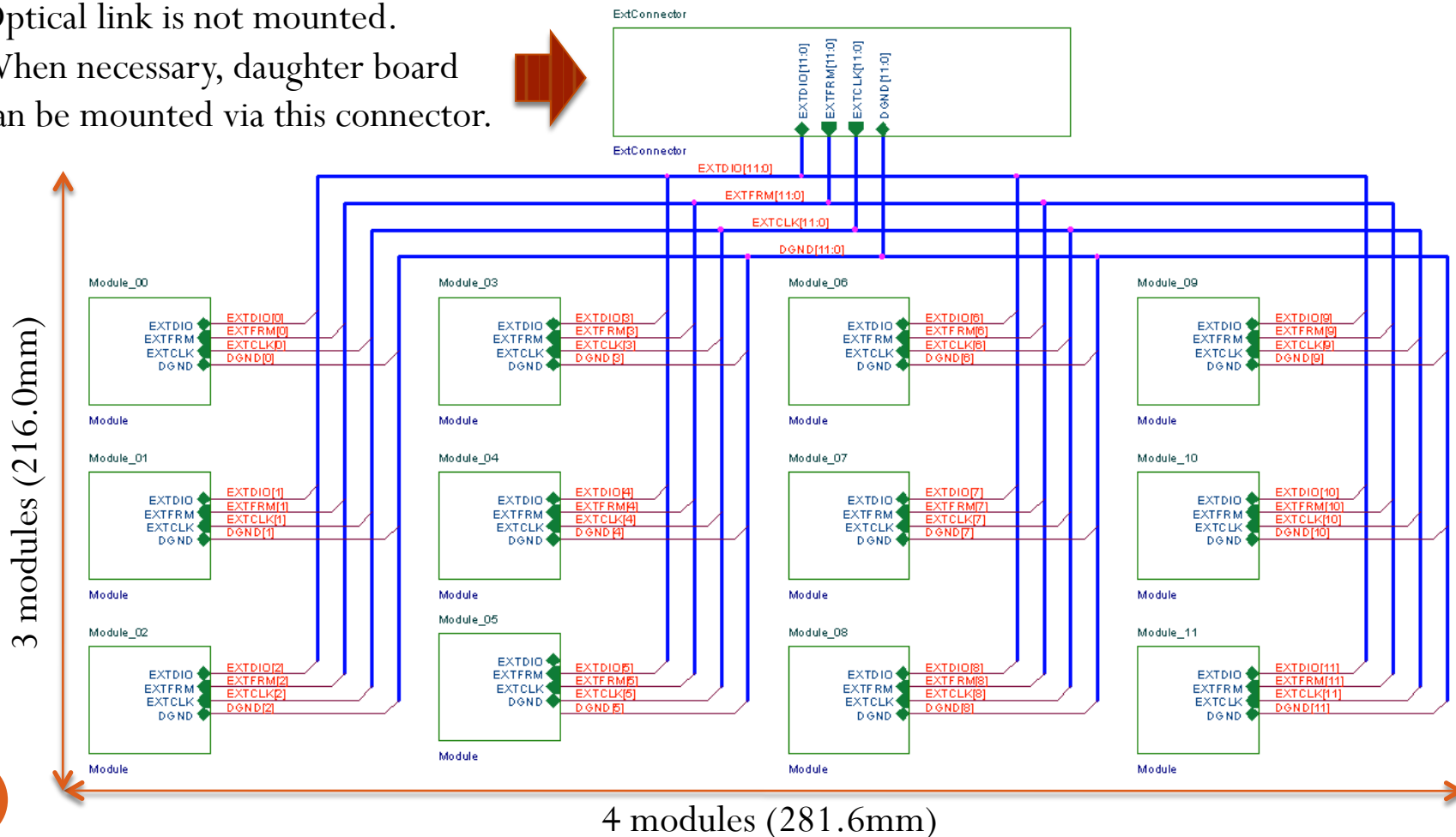
- Concept is not different from before but the size.



# Dimension of the Board

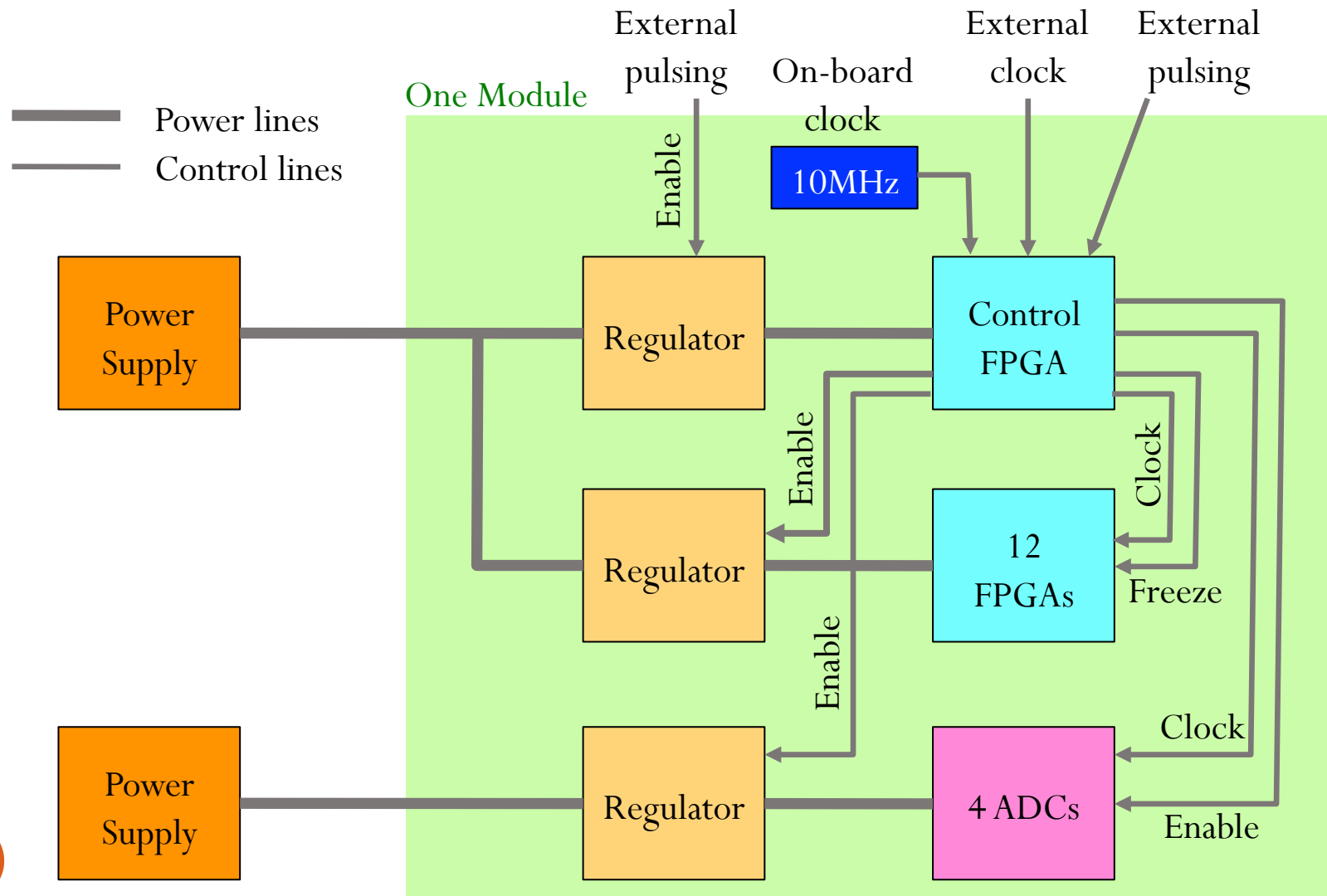
- As the cost is fixed already, number of modules per board is changed to 12 modules/board (it was 16 originally).

Optical link is not mounted.  
When necessary, daughter board  
can be mounted via this connector.



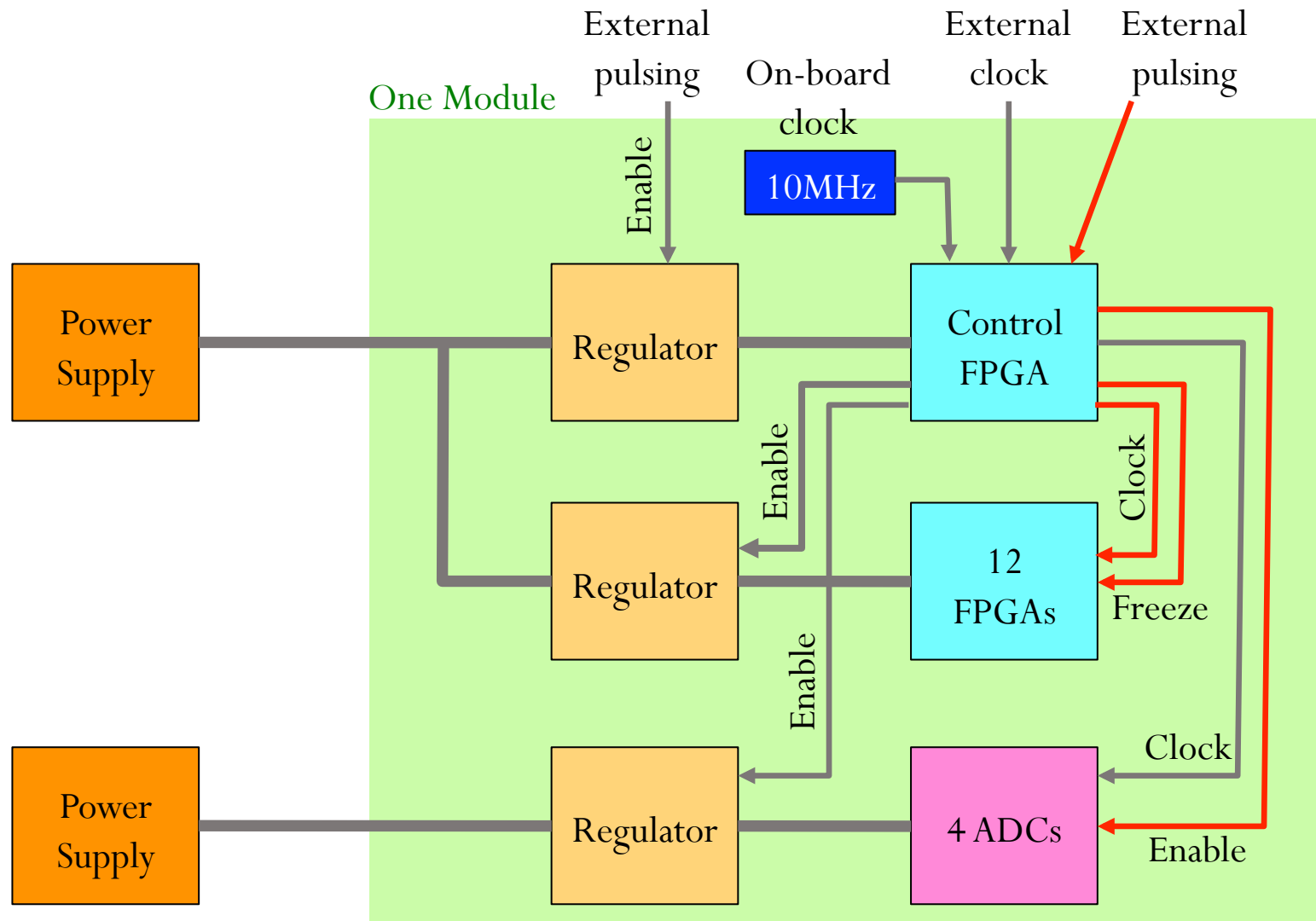
# Power Pulsing Test Options

- Some options are available for pulsing test.



# Power Pulsing Test: Option A

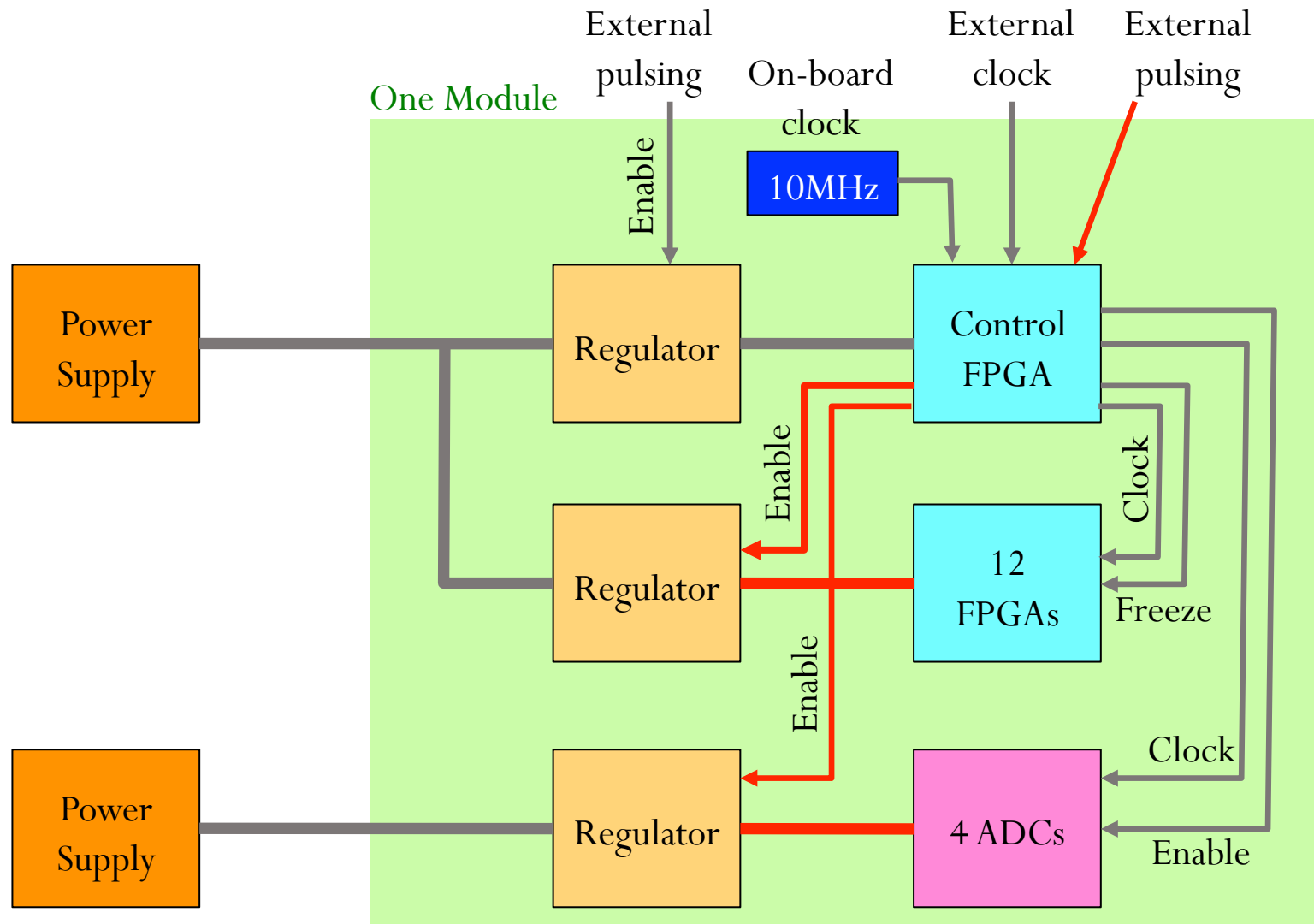
- Switch clock or freeze for FPGA and enable for ADC using control FPGA. Pulsing can be either feed externally or generated by control FPGA.





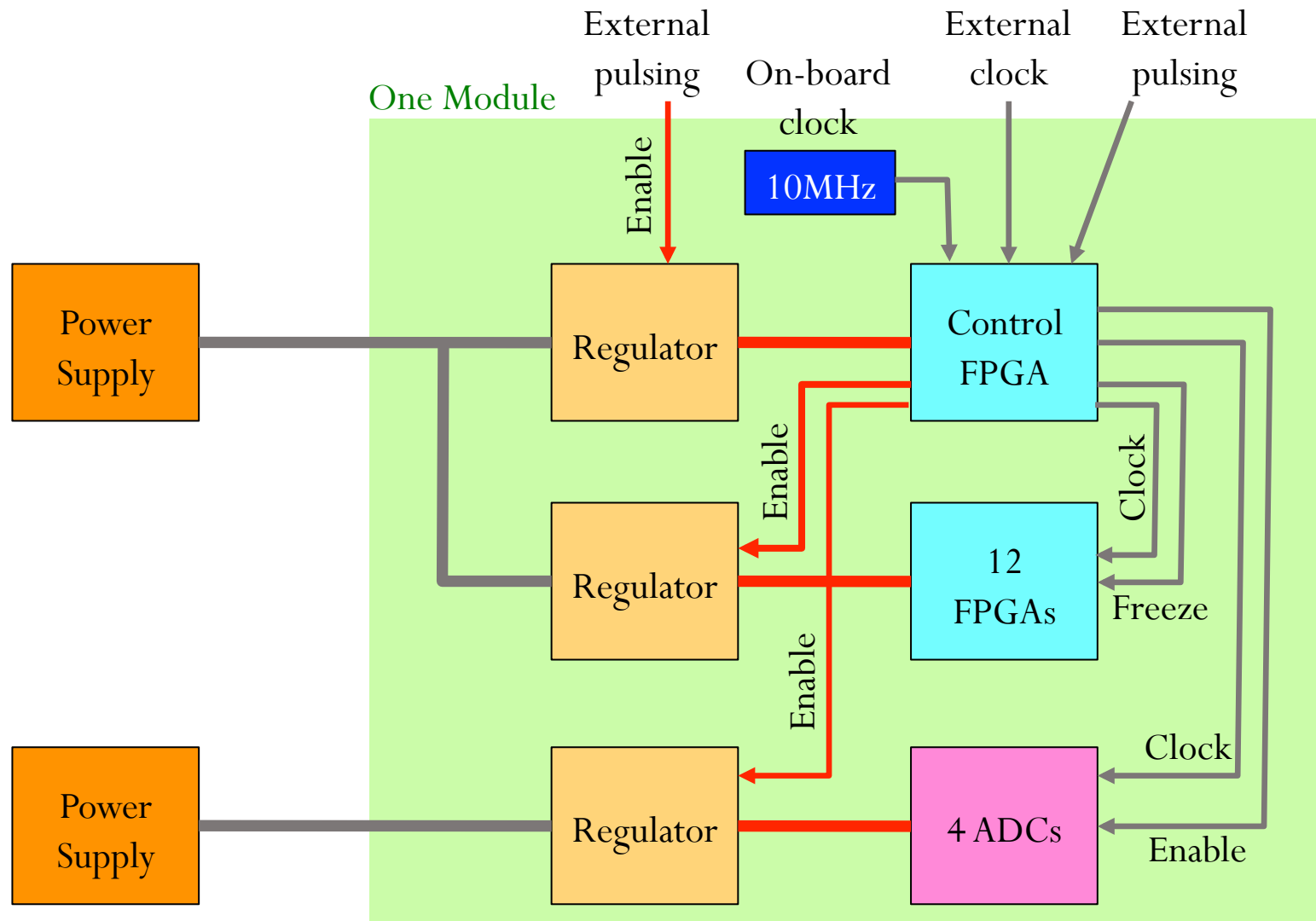
# Power Pulsing Test: Option B

- Power regulators are switched by FPGA via enable pins. Pulsing can be either feed externally or generated by control FPGA.



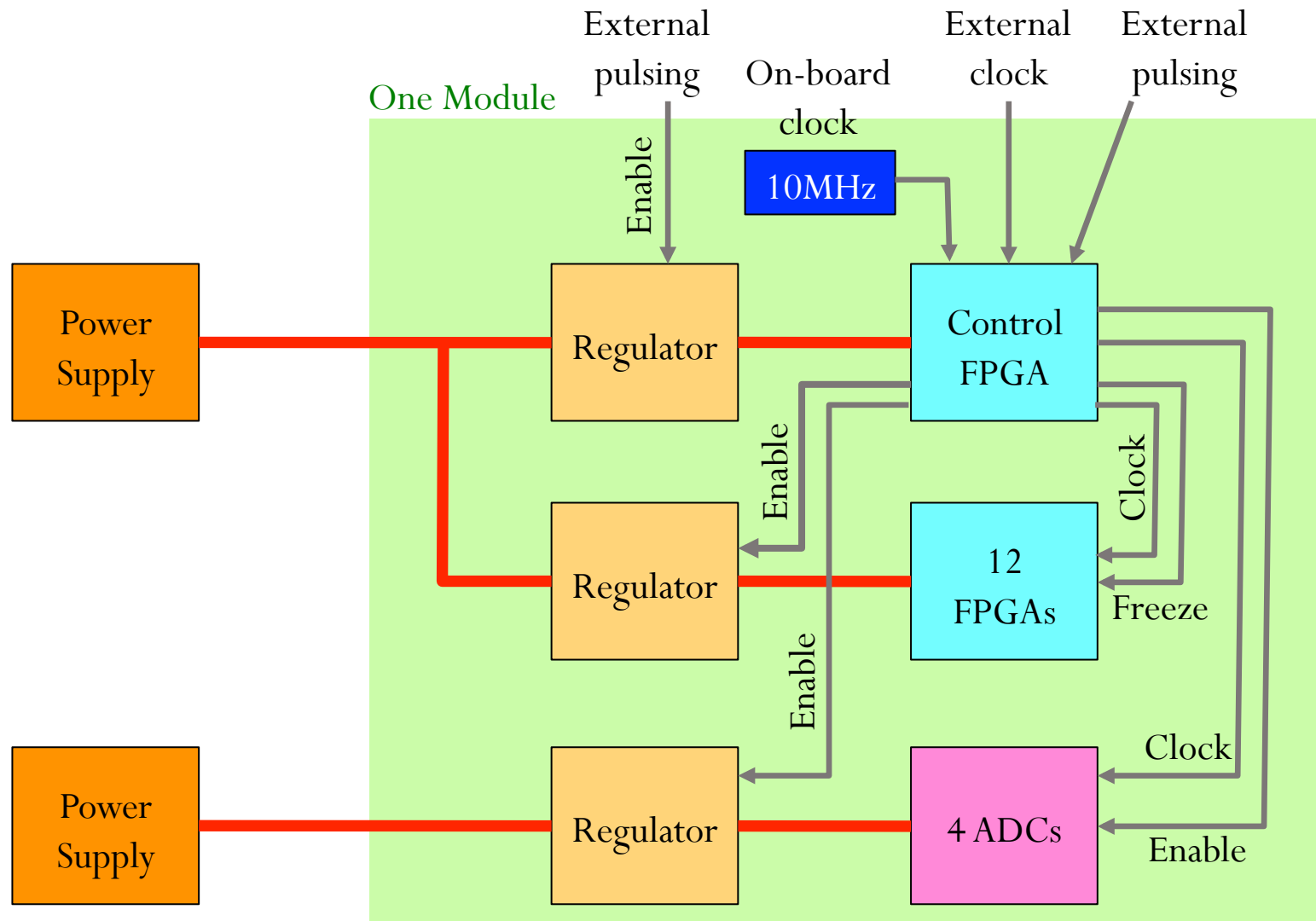
# Power Pulsing Test: Option C

- Regulator for control FPGA is switched by external signal, which turns on/off all regulators and FPGAs/ADCs as a result.



# Power Pulsing Test: Option D

- Switch the power sources.



# Plan

- The board will be available in the end of June or beginning of July.
- Test with normal condition, i.e. water cooling etc., will be performed in July ~ August/2010.
- I hope we can perform CO<sub>2</sub> cooling test at NIKHEF in Autumn this year.