

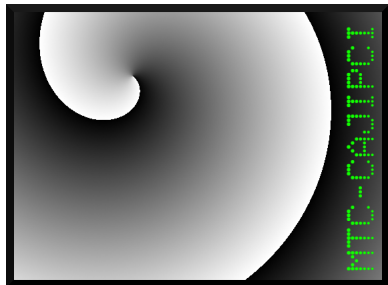
# mTC-CAJIPCI

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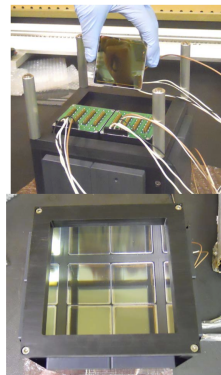
May 3, 2012

- 1 Introduction
- 2 Motivation
- 3 Specifications
- 4 Layout
- 5 Loop Filter
- 6 Firmware
- 7 Schedule



## mini Time Cube:

- Directionality of low-energy neutrino events.
- Fast timing and high spatial resolution for track reconstruction.
- Compact and portable.



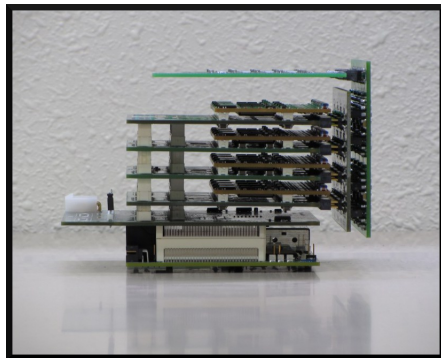
March 30, '11

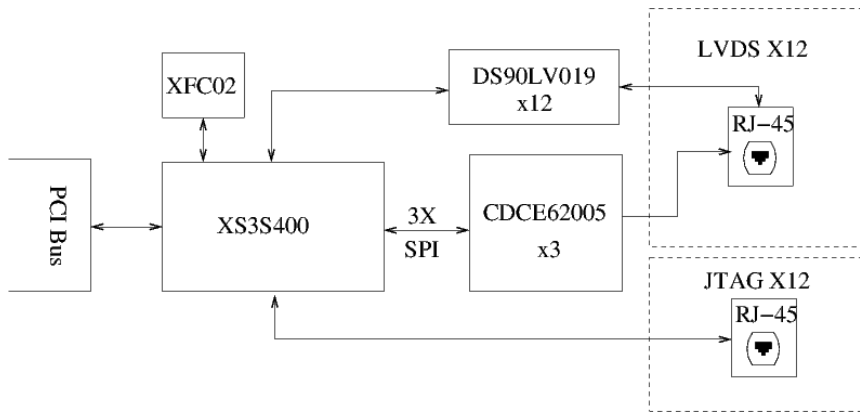
mTC Commissioning

1

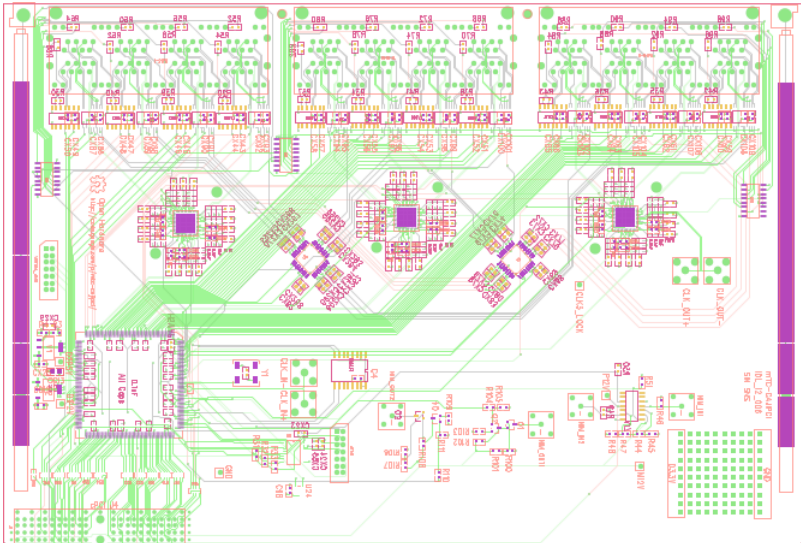
## Motivation:

- Provide a sampling clock for the frontend.
- Simplify debugging of the frontend.
- Act as a level two trigger and allow for external trigger.





mTC-CAJPCI Block Diagram.

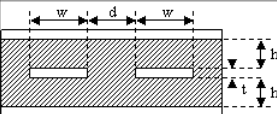


### Differential Stripline Impedance Calculator

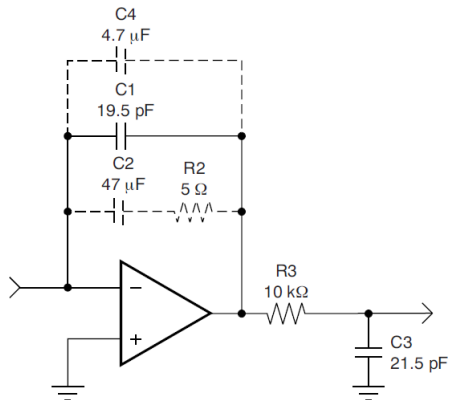
$$Z_d = \frac{120}{\sqrt{\epsilon_r}} \ln \left( \frac{1.9(2h+t)}{0.8w+t} \right) \left( 1 - 0.347 \exp \left( -2.9 \frac{d}{2h+t} \right) \right)$$

Note: valid for (w/h) from 0.1 to 2.0 and (t/h) less than 0.25

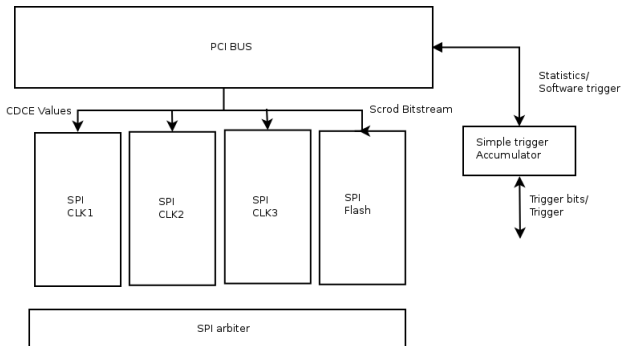
Dimensional units: mm mils

w (trace width) =	6
d (trace separation) =	6
t (trace thickness) =	1.4
h (dielectric thickness) =	12
er (relative dielectric constant) =	4.8
	
Zd (Impedance, Ohms) =	92.736

- Dashed line shows external components.
- 100Hz Bandwidth reference implementation.
- Recommended for input jitter  $> 1ps$ .







- Components arrived.
- Board arrives Friday or Monday.
- A week to put together.
- firmware...