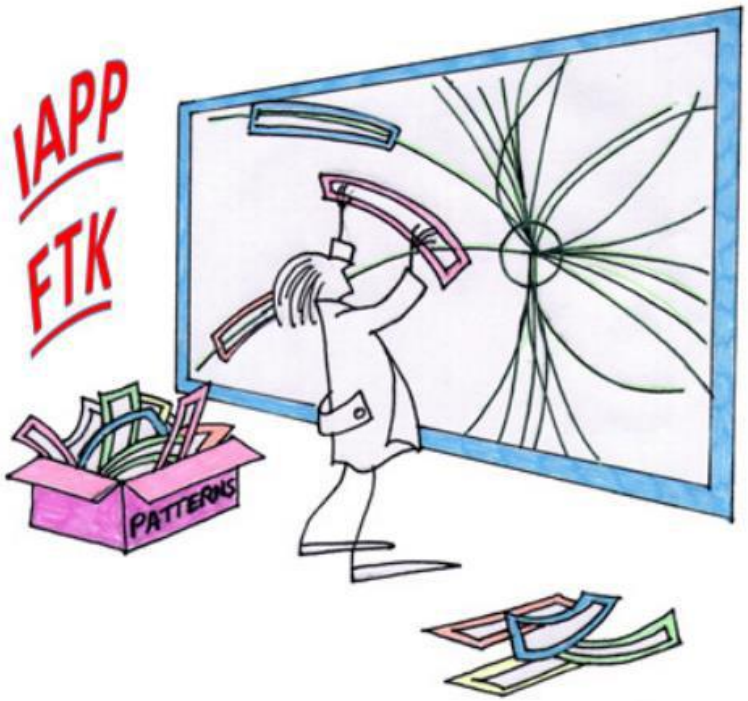


Design of a LAMB adapter board for the Xilinx KC705 board

Andreas Sakellariou – Seconded to AUTH, November-December 2015

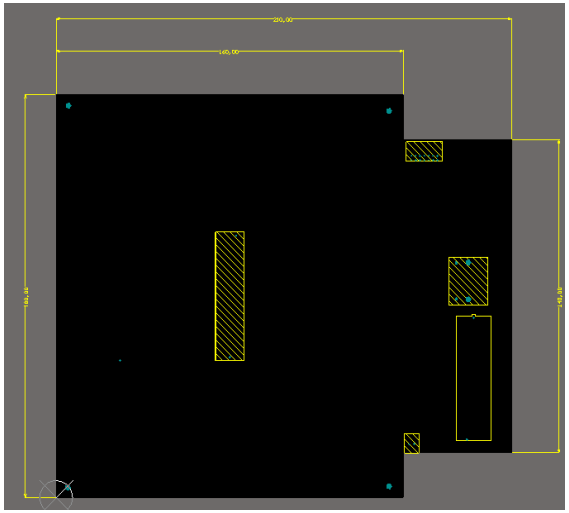
LAMB adapter board

- **A Brief description of the system:**
- The purpose of this design is to provide a small scale testing platform for a LAMB board and the accompanying firmware which resides on the KC-705 Xilinx development board.

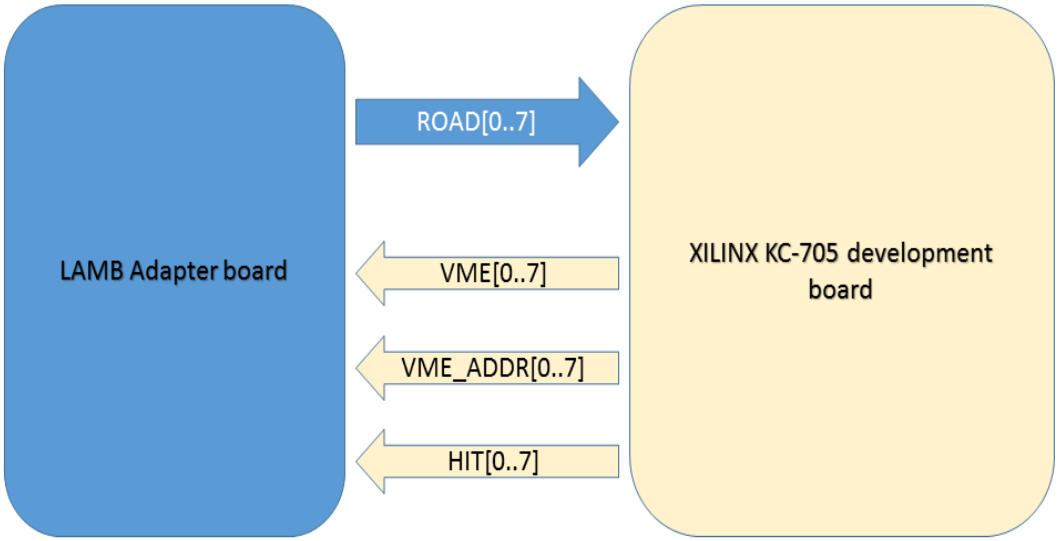
LAMB adapter board

A Brief description of the board (2):

- This testing platform is essentially an interface between the KC705 development kit and a LAMB board.
- One quarter of the full AMBSLP system giving the use the ability to test the functionality of one LAMB board without any VME infrastructure.
- The connection between this board and the Xilinx kit is realized through the 400pin SAMTEC connector.
- The dimensions of the board are 210x180mm.



Board top-level diagram



Power Supply Features

Power Supply main features:

- The board is designed to draw power exclusively from an external source
- The nominal input voltage is 12V and the external power supply must be able to provide 50W of continuous power, to meet the worst case scenario.
- 2 highly efficient switching regulators on board from General Electric

1V/40A rail

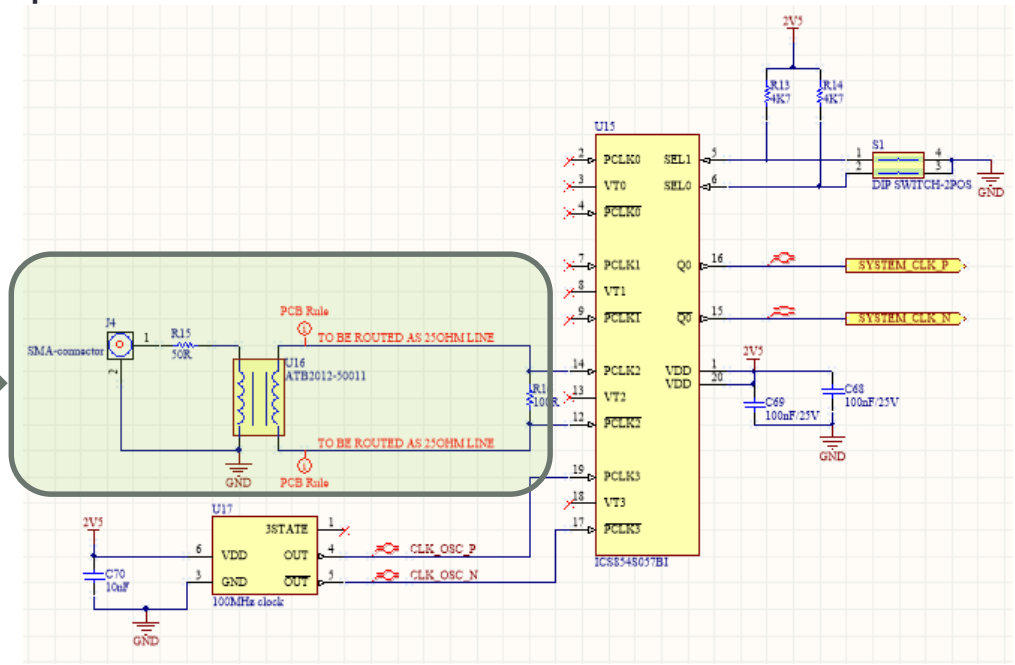
1.2V-2.5V/12A rail

External Clocking

Clocking options:

- The board is designed to accept an external single-ended clocking source
- Or, the clock input from the on-board oscillator

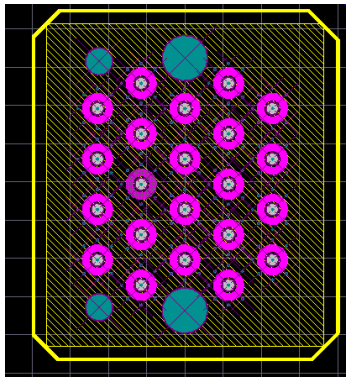
Single ended to differential conversion



Testing Features

Test points on board:

- Various test points for the voltage rails
- Test point for the external clock
- SAMTEC Test point system for high speed differential signals
- The BAR-J-22 test point array provides 22 channels up to 20Ghz/40Gbps



- Optional system, no soldering required can be mechanically attached after the board assembly

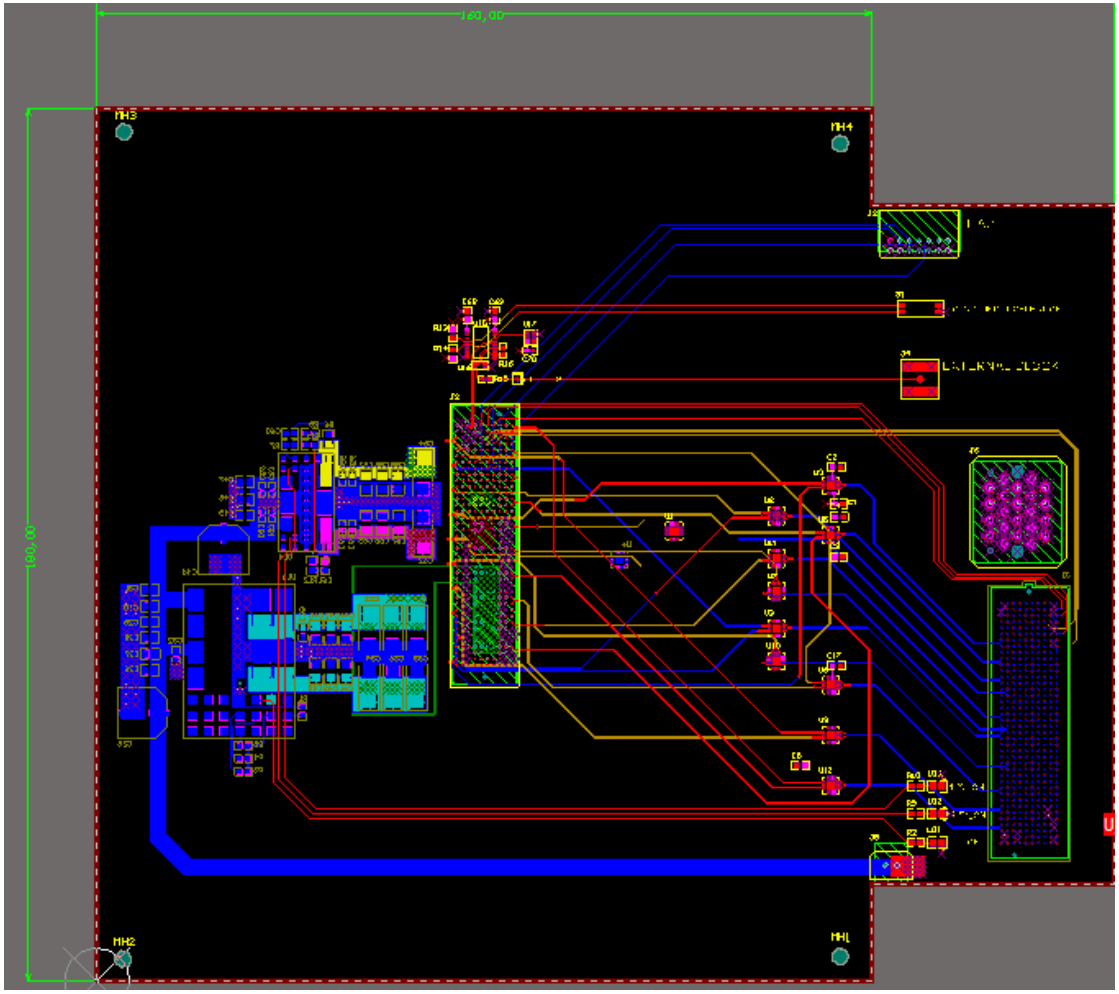
Layout (1)

The main points regarding the physical layout:

- The board stack-up was chose to obtain 100 Ohms differential impedance and 50 Ohm for single-ended signals
- 6 layer board, 3 signal and 3 power planes
- FR-4 material, no buried or blind vias to reduce manufacturing costs

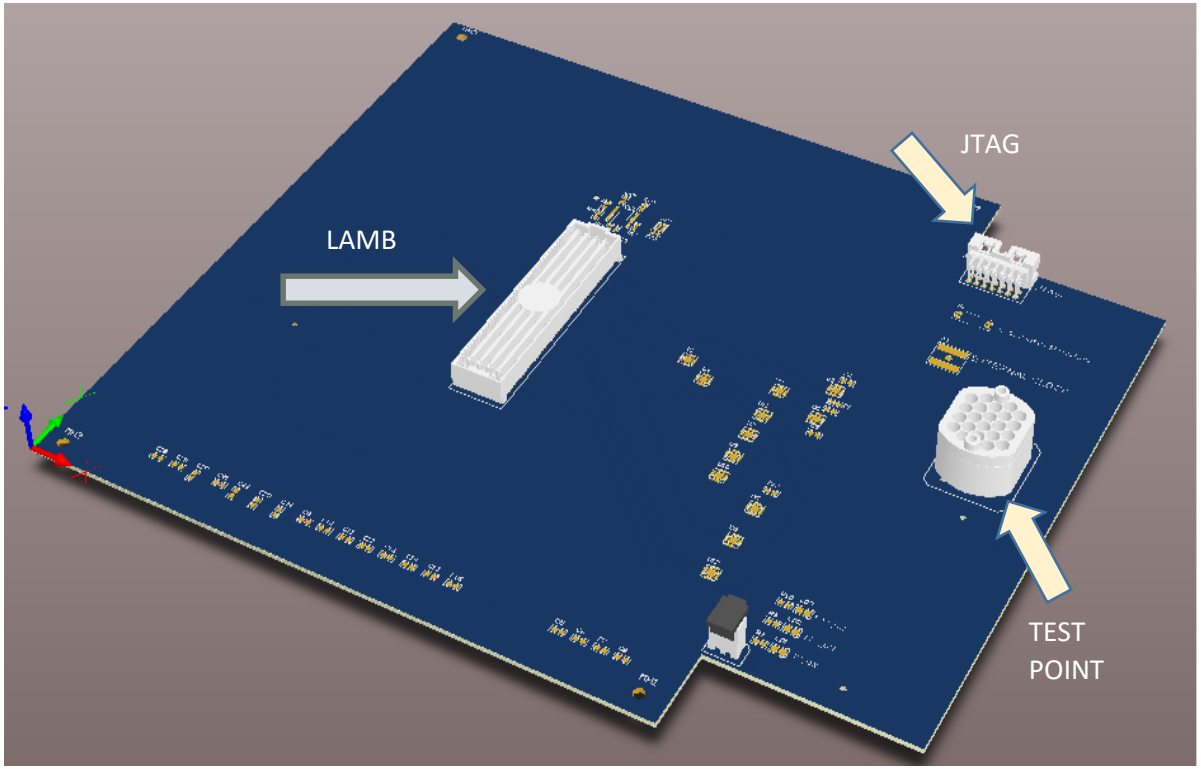
Layout (2)

The main points regarding the physical layout:



Layout (3)

3D View of the board



Thank you!!