

VTC

System for functional testing and validation of VMM3a hybrids

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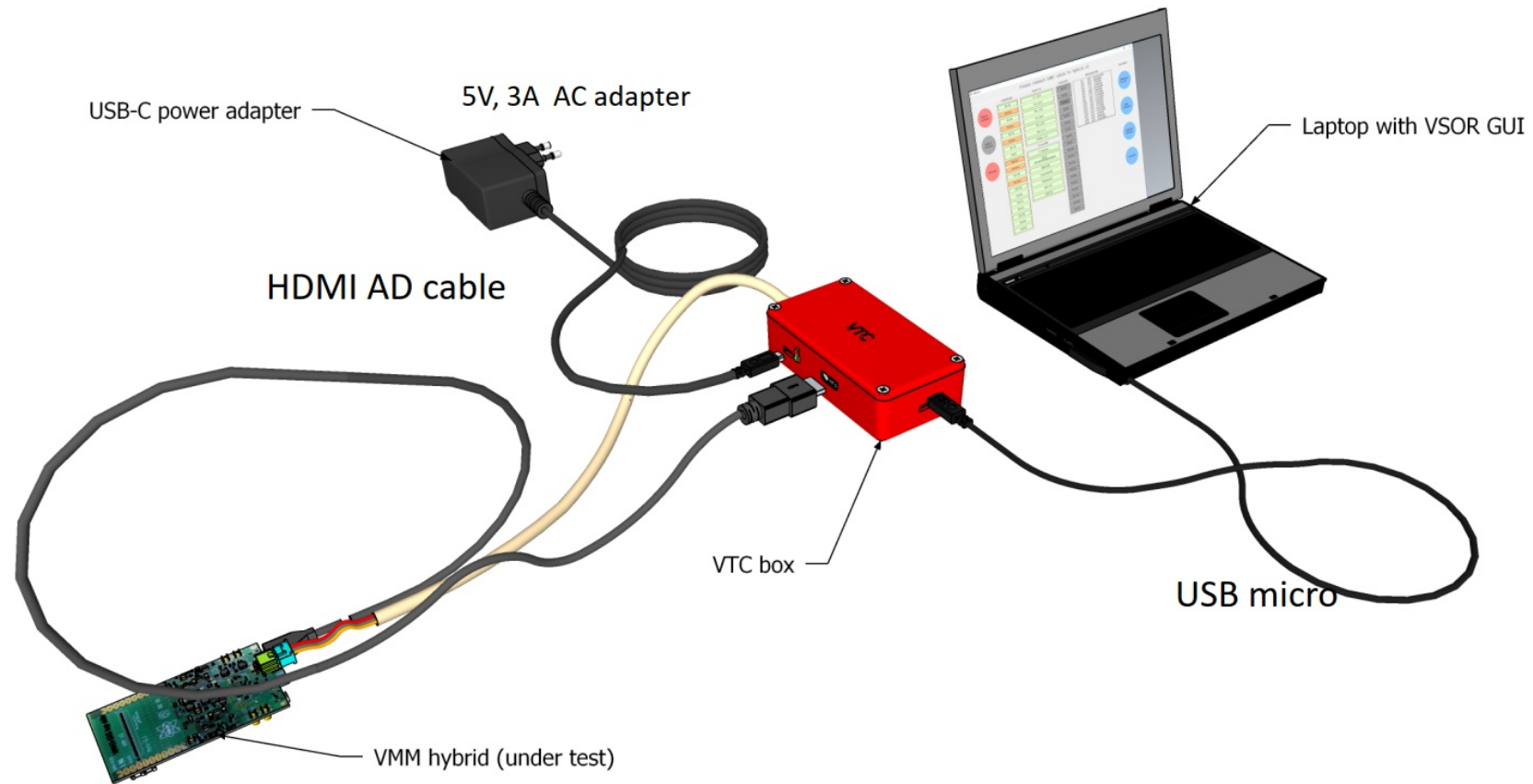
Overview

- System for functional testing and validation
- Easy to setup – only laptop, VTC box, electric socket and a few cables needed
- Useful for initial sorting of non-working hybrids
 - These can be then diagnosed further
 - Working ones can be more thoroughly tested with more complicated setups
- Saving results to SQLite database
- Printing of results to label that fits on the cooler
- Programming the Spartan firmware

Tested parameters

- Resistances of all HDMI pins
- Current consumption
- Presence of I2C devices
- Baseline values of all channels

Testing setup



picture by Hans Muller

Testing setup



Label

Name: Chosen-name1
Id: 0602ca4a00a000e1
Date: 06:10:20
Baselines 0: < 175.2 mV
Baselines 1: < 172.1 mV



VTC check OK

Name: Chosen-name2
Id: 0602ca4a00a000e1
Date: 06:10:20
Baselines 0: < 175.1 mV
Baselines 1: < 172.0 mV



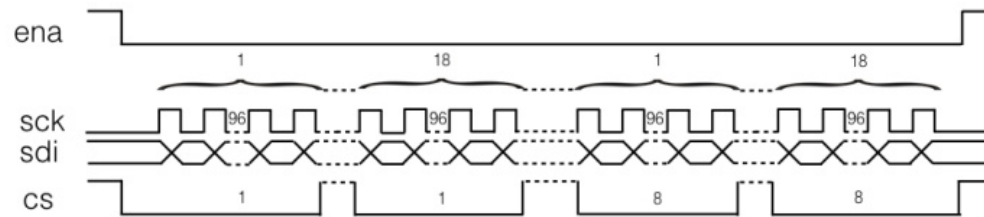
Nr. bad channels: 1
Bad chans: 19
Power errs:
I2C errs:
HDMI errs:

I2C registers on the Spartan

- Control register (8b)
 - Command to send configuration data to VMMs
 - Reset error counter
 - Indication of completion and success of reconfiguring VMMs
- 8b10b encoding error counter (32b)
- Access to BRAM with VMM configuration (8b)
- Bitstream version (16b)

Checking of configuration loading

- VMM configuration loaded over SPI-like interface



source: VMM3a manual

Figure 9: Configuration timing diagram of 8×VMMs.

- SDO output from VMM puts out at the same time the previous configuration
- Configuration sent twice, second time checked whether returned data is the same as the one sent to VMM

Demo

- User guide to VTC uploaded to Indico

Thank you for your attention!