Power sequencing test solution for FPGAs, MCUs and CPUs

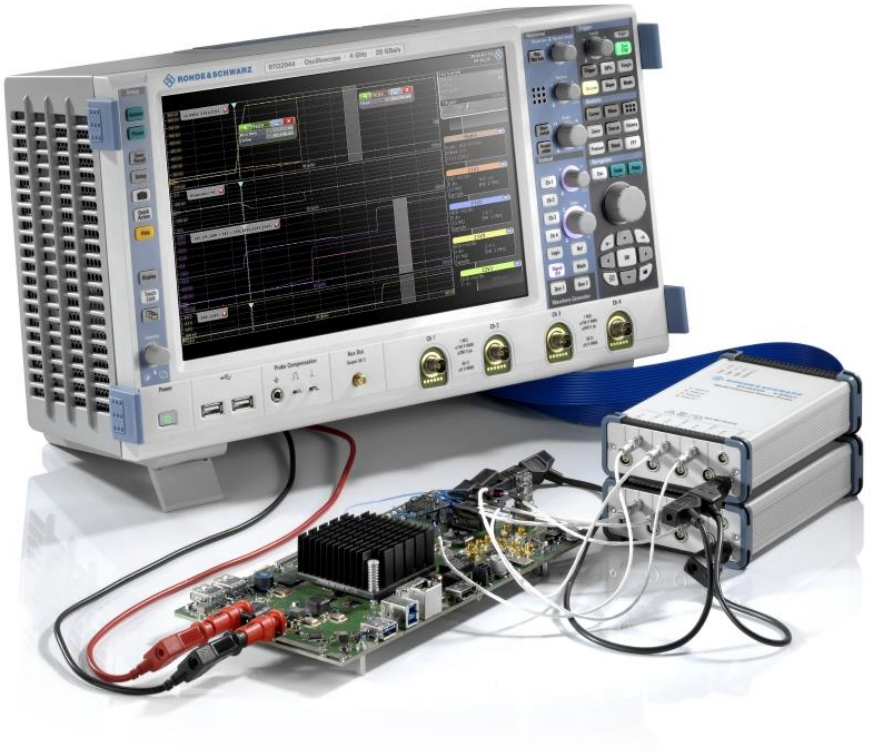
Parallel measurement of up to 20 channels

Challenge

Processing components such as FPGAs, MCUs and CPUs have specific power supply requirements. Their multiple supplies need to power-up and power-down in a specified time sequence in order to avoid damage. The supply voltage tolerances are tight and require a carefully designed power supply. Accurate testing and characterization of the power sequencing and the supply voltage tolerances is necessary to enable an impeccable circuit design and flawless operation of the application.

Solution

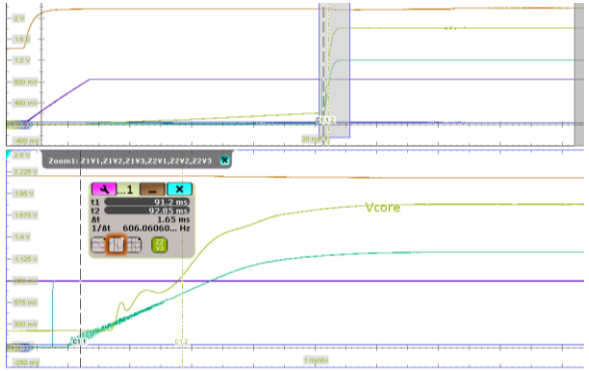
The R&S®RT-ZVC multi-channel probe adds 4 current and 4 voltage channels with 18-bit resolution to an Rohde & Schwarz oscilloscope. A single R&S®RTE or R&S®RTO oscilloscope supports two R&S®ZVC probes, for a total of 20 synchronous channels for power sequence measurements. Thanks to the high accuracy of the R&S®ZVC probes, they can also be used to verify voltage tolerances. This makes it an excellent solution for power-up and power-down testing and for monitoring power stability in both manual and automated test scenarios.



Your benefit	Features
Multiple channels and superior performance	▮ 2/4 current and 2/4 voltage channels (R&S®RT-ZVC02/04) ▮ 18-bit ADC for each input channel ▮ 1 MHz bandwidth, 5 Msample/s sampling rate for each channel
Excellent accuracy	▮ 0.1% voltage and 0.2% current DC measurement accuracy
Full-scale measurement ranges	▮ 4 voltage measurement ranges from 1.88 V to 15 V ▮ 6 current measurement ranges from 4.5 µA to 10 A
Ideal for power sequence testing	▮ Straightforward visualization of ramp-up and ramp-down sequences ▮ Simple delay measurement between individual channels ▮ Validation of inrush current limit ▮ Power rail tolerance verification

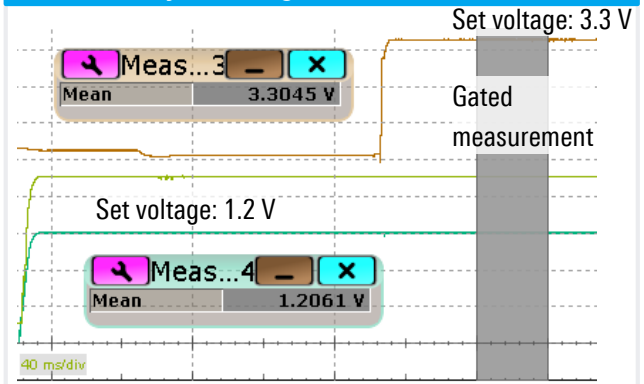
▷ For more information, see www.rohde-schwarz.com/catalog/rt-zvcxx

Up to 20 channels



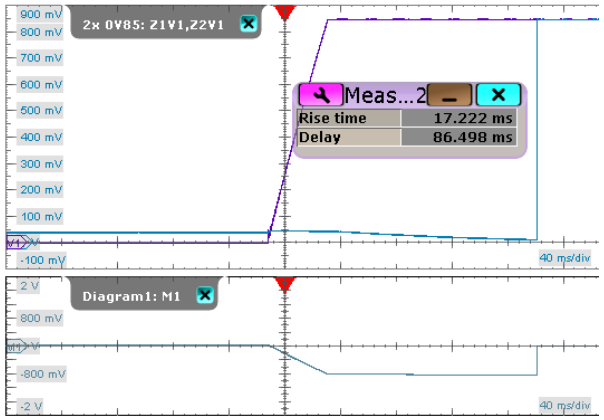
Up to 20 voltages can be analyzed in parallel using two R&S®RT-ZVC probes attached to a 4-channel oscilloscope (current channels operating as high-sensitivity voltmeter in external shunt mode).

0.1% accuracy for voltage tolerance verification



The 0.1% accuracy of the voltage measurement channels allows verification of the tight supply voltage tolerance windows in FPGA and CPU power supplies.

Advanced analysis functions



The integrated analysis and math functions allow detailed monitoring of voltage slew rates, delays and min./max. voltages.

Dedicated accessories for high-quality measurements

Wide range of accessories provides flexibility in contacting on PCB boards or other electronic components. For higher voltage ranges, BNC connector cables are available, which allow the use of standard passive or active differential probes.

Popular options/accessories

Base unit	
Digital oscilloscope, 1 GHz, 10 Gsample/s, 4 channels	R&S®RTO2014
Digital oscilloscope, 500 MHz, 5 Gsample/s, 4 channels	R&S®RTE1054
High performance oscilloscope, 4 GHz, 20 Gsample/s, 4 channels	R&S®RTP044
Multi-channel power probe	
2 × 2 / 2 × 4 18-bit voltage/current probe, for R&S®RTO2000 and R&S®RTE1000	R&S®RT-ZVC02/ R&S®RT-ZVC04
Digital extension port supporting R&S®RT-ZVC02 and R&S®RT-ZVC04 hardware	R&S®RTO-B1E R&S®RTE-B1E R&S®RTP-B1E
Voltage probes	
Extended cable set for R&S®RT-ZVC, PCB probing, 1 current and voltage lead, length: 32 cm	R&S®RT-ZA30
Extended cable set for R&S®RT-ZVC, PCB probing, 1 current and voltage lead, length: 1 m	R&S®RT-ZA35
Extended cable set for R&S®RT-ZVC, 4 mm probing, 1 current and voltage lead, length: 32 cm	R&S®RT-ZA31
Extended cable set for R&S®RT-ZVC, 4 mm probing, 1 current and voltage lead, length: 1 m	R&S®RT-ZA34
Extended cable set for R&S®RT-ZVC, BNC connector, 1 current and voltage lead, length: 16 cm	R&S®RT-ZA37
5 micro clips for reliable contacting	R&S®RT-ZA4

Rohde & Schwarz GmbH & Co. KG | Europe, Africa, Middle East +49 89 4129 12345 | North America 1 888 TEST RSA (1 888 837 87 72)
Latin America +1 410 910 79 88 | Asia Pacific +65 65 13 04 88 | China +86 800 810 82 28 / +86 400 650 58 96
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