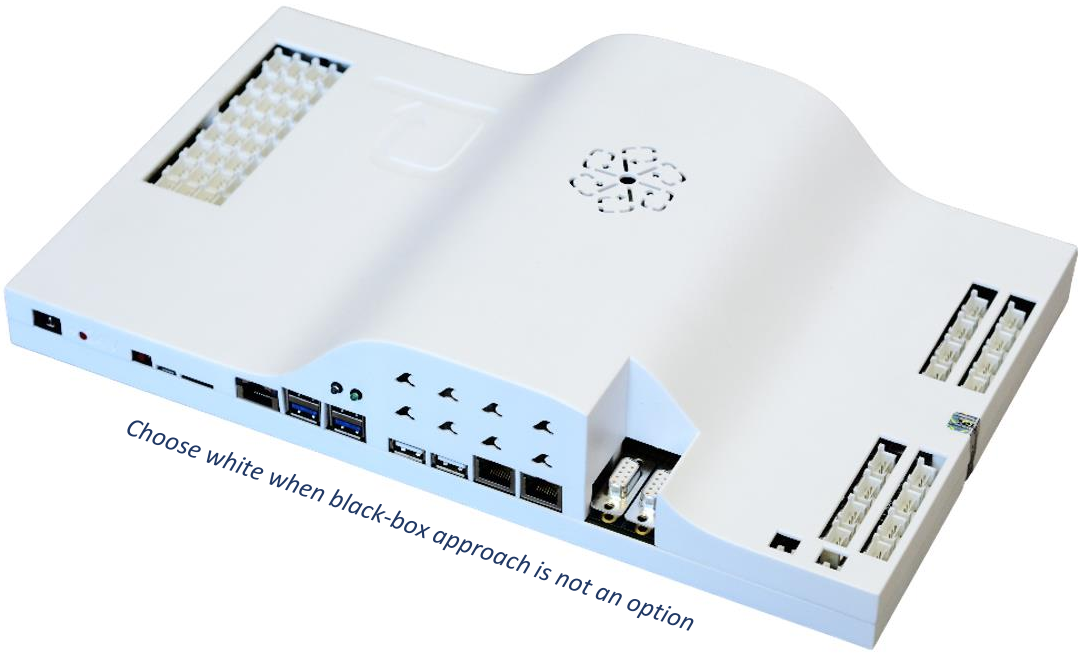
SmartRCP

Rapid Control Prototyping Solution

PSC Power Smart Control SL

Industrial Rapid Control Prototyping for Power Electronics

SmartRCP provides a cutting-edge tailor made technological stable and robust platform to explore and validate converter control techniques



Key features

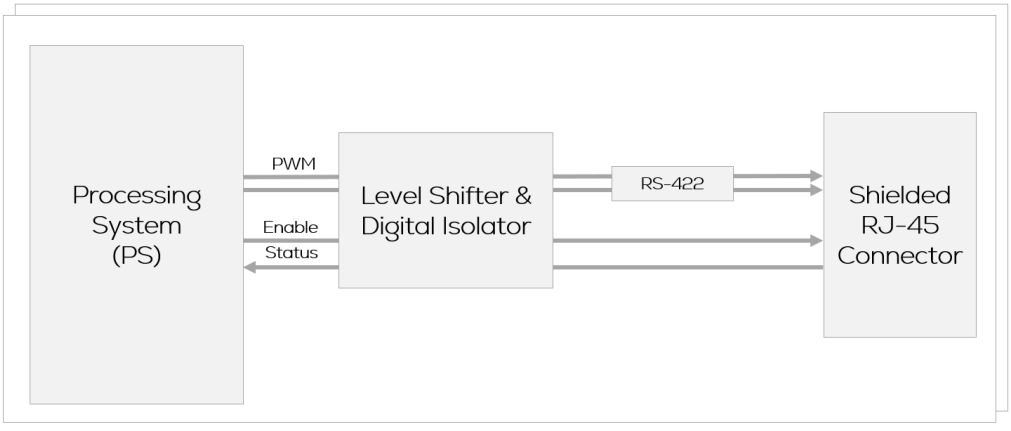
- PWM **modulation features are fully controlled** as they are defined in C or VHDL
- The code validated by RCP can be **exported directly** into the real Control Unit
- **Remote Controlling** capabilities
- Embedded **oscilloscope** & **datalogger** and advanced post-processing tools
- Detailed **documentation** and **application examples** provided
- **Engineering & Consulting** services available
- Suitable for **distributed** control techniques

Detailed connectivity

ANALOG AND DIGITAL FRONT END
32 · Digital inputs 0-24V (Isolated – sampled at 10kHz)
32 · Digital outputs 0-24V (Isolated – updated at 10kHz)
36 · PWM output channels (0-5V – RS422 – Differential - Isolated – sampled at 4ns)
12 · Fast analog input channels (0-5V - 12bits - 3Ms/s)
12 · Slow input analog channels (0-5V - 12bits - 500ks/s)
16 · Analog output channels (0-5V - 16bits – 500ks/s)
HIGH-SPEED SERIAL CONNECTIVITY
1 · Ethernet (1GB - RJ45)
4 · USB 2.0
2 · ETH RJ45 to parallel converters or distributed controlling
INDUSTRIAL CONNECTIVITY
2 · UART (USB converted)
2 · RS485 (Full/Half duplex)
1 · MicroSD card
ADDITIONAL FEATURES
1 · Programming and debugging microUSB
1 · Reset button
POWER REQUIREMENTS
24V – 60W max

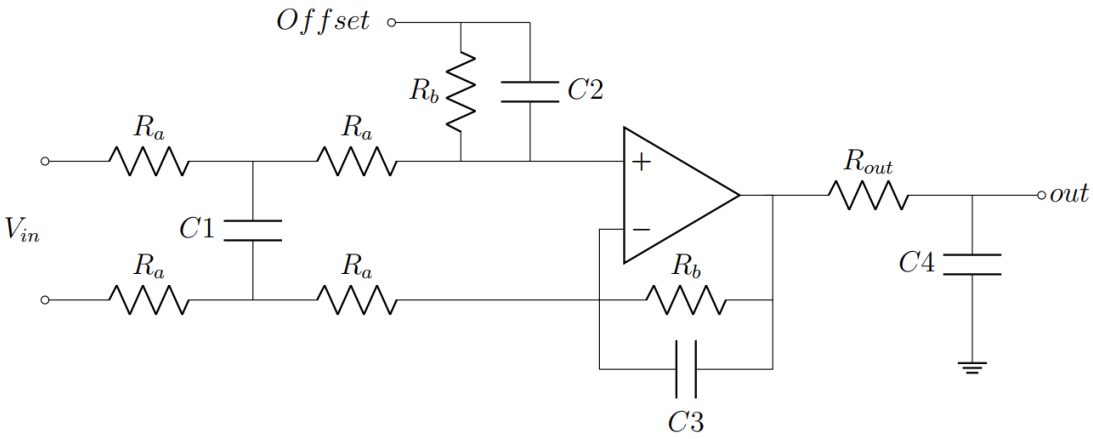
PWM channels chain details

- ✓ PWM channels are fully electrically isolated.
- ✓ To reduce noise susceptibility, a differential RS-422 protocol is used: all connectors are shielded.
- ✓ Additional enable and status/error signals are provided to interface driving circuit.



Analog input chain details

- ✓ All input analog channels share analog chain topology and input spam of 0-5V.
- ✓ Antialiasing filters are tuned at 1,5MHz for fast channels and 200kHz for slow channels.
- ✓ Analog front end provides a differential input with selectable input impedance, low input current and high bandwidth.

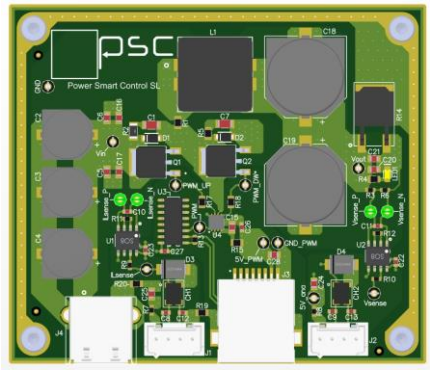


Included in SmartRCP

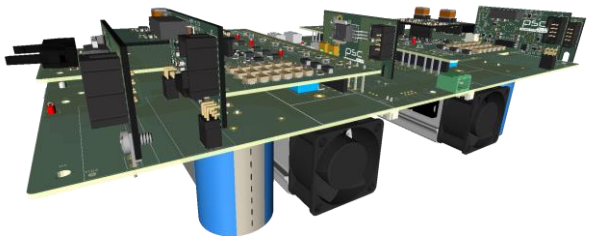
- ✓ SmartRCP device
- ✓ Hardware drivers for all board peripherals fully compiled as an IP core, ready to use.
- ✓ Full example project to test SmartRCP capabilities
- ✓ Complete User Manual including software and hardware descriptions.
- ✓ All Vivado and Vitis configuration template

Additional accessories

- ✓ Embedded waveform viewer
- ✓ Synchronous Buck Converter template and Demo Board for example application.
- ✓ Collection of IP cores ready to use
- ✓ Seamless Connection with a 20kW Rapid Power Prototyping – Coming soon



Synchronous Buck Converter Demo Board



RPP: Rapid Power Prototyping system by PSC → Coming soon

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KRIA K26, the brain of the system

Unlimited access to all **FPGA resources**

6 high-end **ARM microprocessors available:**

- ✓ Quad-core Arm® Cortex®-A53 MPCore™ up to 1.5GHz
- ✓ Dual-core Arm Cortex-R5F MPCore up to 600MHz
- ✓ 4GB of DDR4 RAM

Unbeatable connectivity