

National Instruments Electronic Design Specialty Program



development and production services for industrial electronics,
embedded computing with LabVIEW and laser based rail measuring technology



Company Profile

Schmid Elektronik AG is an internationally active solution provider of electronics, services for development, production and system integration, graphically programmable embedded computing solutions with LabVIEW and laser based measurement devices for rail maintenance. The independent SME is specialized for small and medium sized series and prototypes and stands for speed, flexibility, creativity and industrial grade quality (ISO9001:2008). From stationary power electronics to mobile low-power and standby applications. From computer boards and OEM modules to complete turn key solutions. From electronics/mechatronics, automation/robotics and transportation/railway, building and security technology to medical/MIL/avionics.

Schmid Elektronik Profile

Legal Name Schmid Elektronik AG

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Corporate Private Stock company, Family Owned SME.

History Production since 1972 , Engineering since 1992
ZBrain since 2002, Railmonitor since 2002

Strategic Partners Alliance Member of National Instruments
Collaborative Partner of Analog Devices
SwissT.net association around Embedded Computing and EMS

Employees Currently 46 (4x in Management and sales, 4x head of strategic business units, 8x engineers, 30x production staff)

Management and strategic business units Martin Schnider, chairman of the board
Marco Schmid, board member and CEO (CLAD)
Silvio Schmid, board member
Urs Steinmann, CEO
Mischa Leber, head of development (CLAD)
Luigi Viola, head of production
Armin Brühwiler, head of zbrain hardware (CLD)
Benjamin Ammann, head of zbrain software (CLD)

Certifications ISO9001:2008 since 1992, including process and project management

Engineering Model A combination of the traditional "V" model (requirement based) with the agile spiral model focusing on rapid prototyping, complete design flow from requirements gathering, analysis and design, implementation, test and review to verification/validation.

Production Model Surface mounted, through-hole and mixed technology boards in small (5) to medium (5000) sized volumes, quick and in industrial grade quality, fast prototyping services.

Yearly Turnover 6-7 Mio CHF in average

Business units Electronic Design Unit, Production Unit, ZBrain (= LabVIEW Embedded solutions) Unit, Railmonitor (= Rail measuring devices) Unit

Brands & Patents ZBrain & Railmonitor are registered trademarks in switzerland, EU and US. Schmid holds a patent to deflect a laser beam to measure rail switches and rail head heights within Germany, Austria and Switzerland.

Schmid Elektronik Boiler Plates

- Engineering** Microprocessor mixed signal platforms mainly based on the blackfin family , microcontrollers (e.g. ATMEL, SCILABS, ARM-Cortex-M3) and FPGA's. From low-power designs to power-electronics based on SMT, through-hole technology and mixed technology. For the industrial, mil, avionic, medical and commercial markets
- Production** 3 independant assembly lines, 2x high-precision stencil printers, 3x mimot assembly machines, 2x vapour phase reflow soldering machines, SMD technology from fine pitch QFP, fine pitch BGA and 0201 to large scale power devices such as cooling components and power semiconductors. Through hole component assembly line. Mixed technology line including SMD double side with through hole components. Extending processes such as conformal coating, washing, and laser marking. Along with board production, Schmid also offers OEM system and subsystem manufacturing including cable confection and electromechanical assembly.
- Logistic** Fully automated purchasing/stock process with state of the art ERP that seamlessly links with the design group.
- Test** Functional testing, automated visual testing of SMD assembled boards, incircuit tests.

Schmid Elektroniks Knowhow in NI Products

**PXI
Project
Successes
that combined
COTS PXI
with
customized
solution**

- Test system for battery batches that consisted of a main PXI controller, I/O-Plug-In-Modules and a custom specific circuit board to adapt to the batteries upfront.
- Long term test system for super luminescent light emitting diodes (SLEDs) with a dual core PXI. On one runs a 20hrs test, on the other is a windows UI. A custom specific circuit board again interfaced to the very specific sensor I/O.
- Standalone measuring system for a railway track monitoring system. Includes an FPGA that connects to several event triggered sensors, 2x high-speed cameras to capture a visual of the rail surface, a NMEA interface to get the real-time location and a comfortable GUI on the windows core.

**cRIO
Experience**

- Standalone rail profile measuring system with 2x laser scanners connected with CAN, 1x rugged handheld (WLAN) and 1x ethernet link to the main controller. This system extends Schmid Elektroniks established rail measuring device "Railmonitor" with a future oriented and highly dynamic OEM-subsystem for vehicles such as grinding and measuring machines.

**SBRIO in
strategic
Product**

- Series version of the rail profile measuring device that was based on cRIO
- A motion compensation device for an ultrasonic FAHRDRAHT measuring unit.

**ANSI-C-Code-
GEN**

On the basis of the earlier "LabVIEW Embedded Module for Blackfin", Schmid Elektronik powered, realized and supported several series products. Schmid bundeled the C-Gen with its SDK for Blackfin and sells an out-of-the-box development package worldwide. By 2011, 35 full seats have been sold worldwide. Success stories can be found here: www.schmid-elektronik.ch/success.

**LabVIEW for
ARM**

Schmid sold 2x seats to industrial companies and several evaluation boards to academia. To access education efficiently, Schmid partnered with the NI Academia group in munich and Qfix robotics (www.qfix.de) to leverage graphical embedded application programming to an easy to use education platform. Schmid delivers the hardware (ARMBoard, Blackboard), Qfix Robotics the toolboxes and NI provides the necessary examples.