

Ideas

Innovations

Solutions

**CATO**

MIKROELEKTRONIK  
SYSTEMENTWICKLUNG



# Welcome to CATO

Our field of activities is the development and production in all areas of microelectronics.

First priority is a useful and feasible customer orientation.

**CATO** made the idea of 'customer focus' to its principle.

We offer a complete package of services, from planning to realisation.

Main focus of our hardware and software development is the process measuring and control technology.

We are always up to date for our customers.

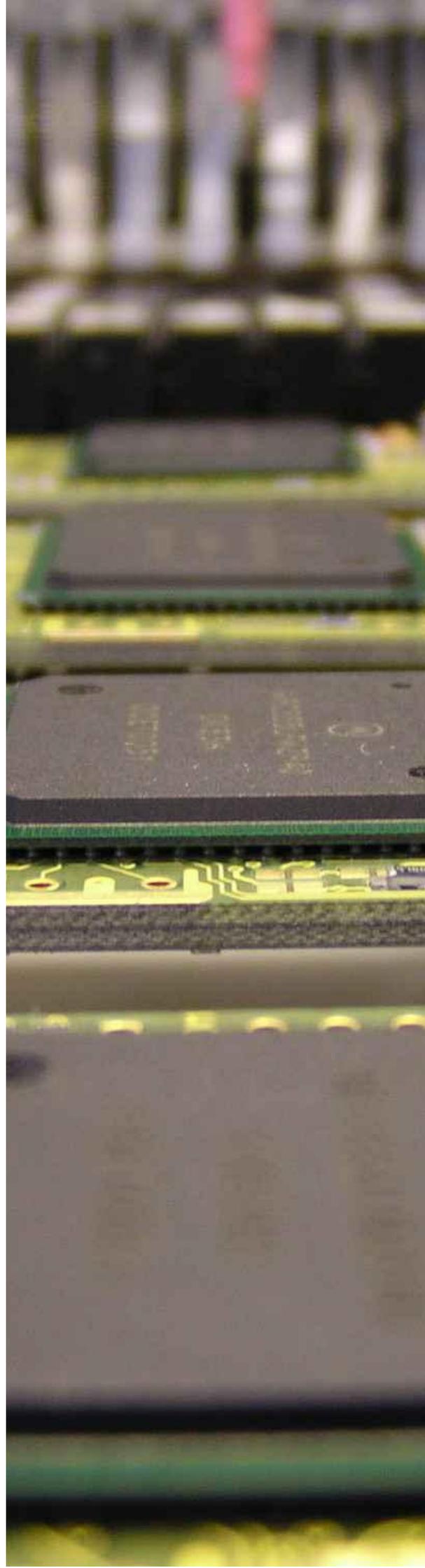


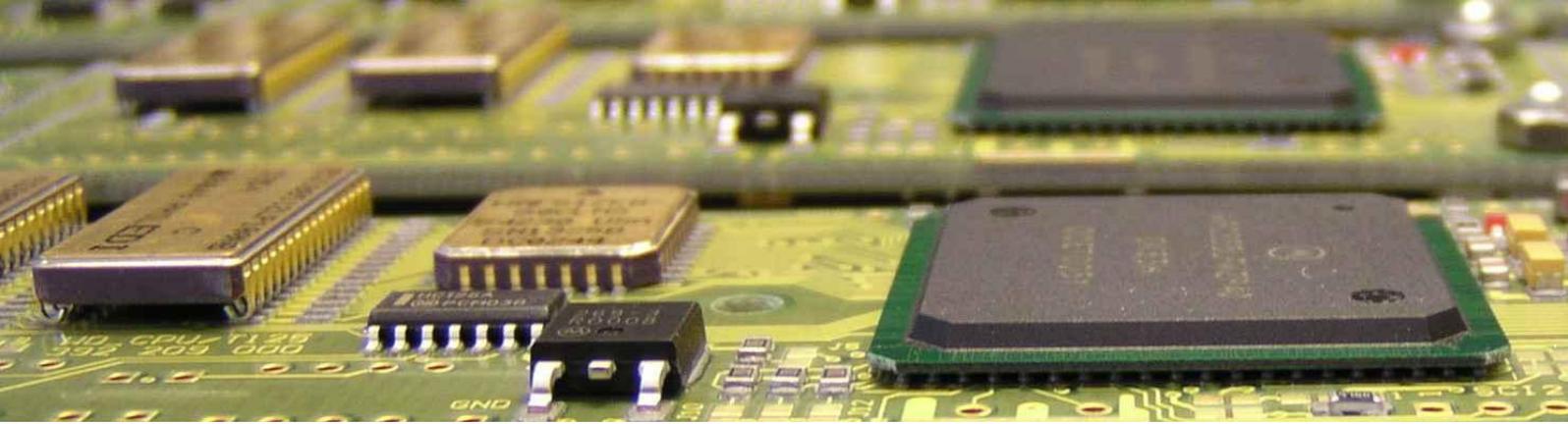
Carsten Schassan



Tomas Golz

Management of CATO GmbH





**CATO** was founded 1992 as a private company (GbR).

In 1998 CATO GmbH took over the business of CATO GbR.

**CATO** offers innovative solutions for demanding microelectronics.

**CATO** is your ideal partner in case of capacity constraint or missing possibility of development.

We advise and support you in all questions of microelectronics.

Projects will be quickly completed due to flexible order handling.

**CATO** is a trademark of CATO GmbH.

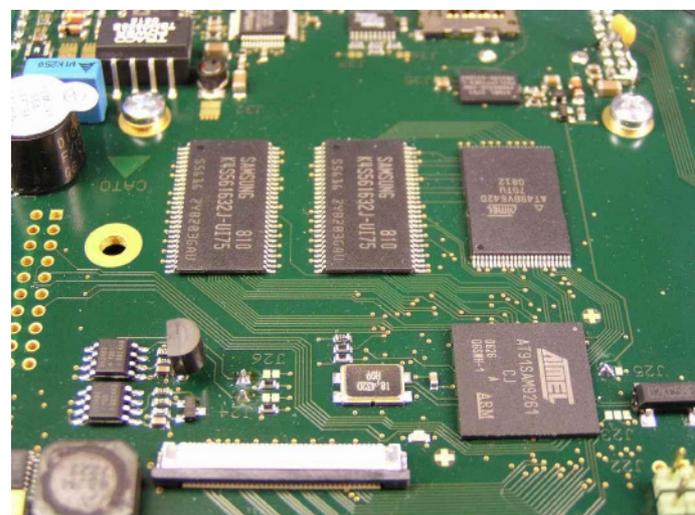
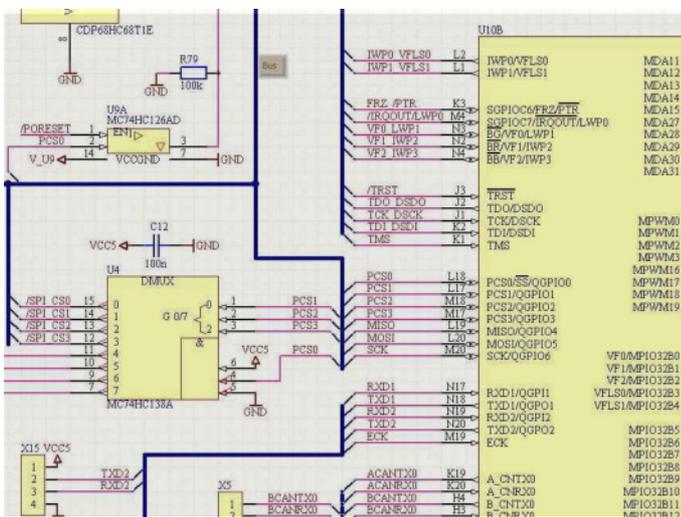


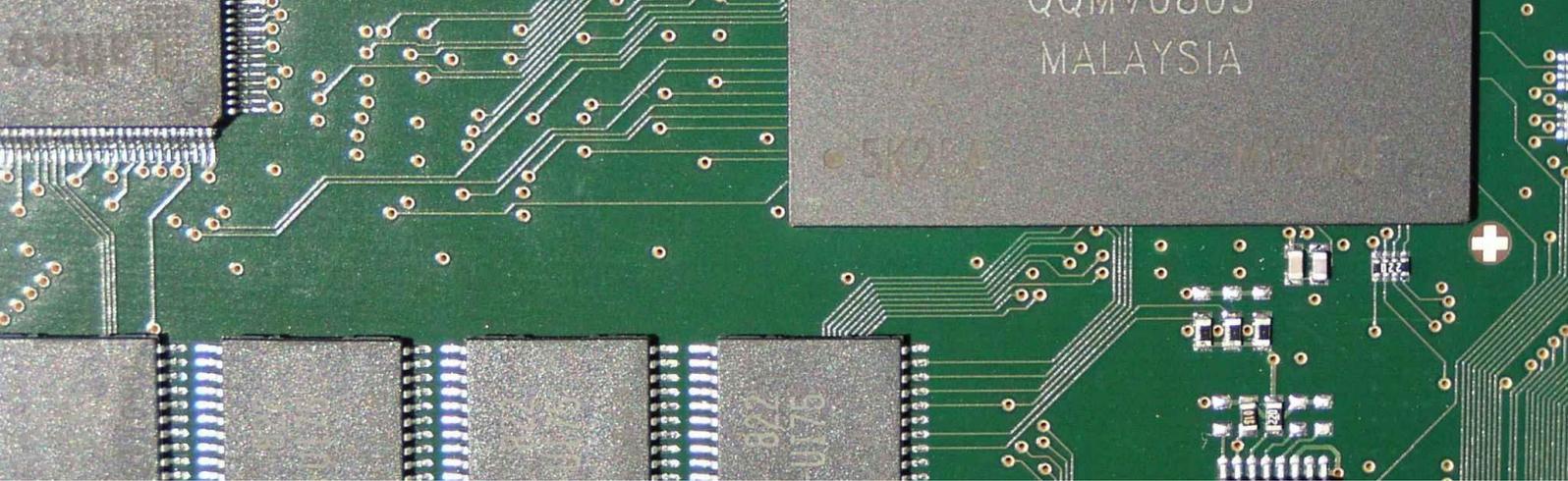
# Hardware Development

According to your specifications the team of **CATO** develops electronic devices and systems.

The spectrum of our offer ranges from concept, schematic and board design to production and implementation.

For tests under real and extreme conditions we use advanced measuring equipment and perform environment simulations using a climatic chamber and an EMC test system.





## Digital Technology

- Discrete and complex logic
- PLD-Design

## Analog Technology

- A/D converter
- D/A converter
- HF technology
- Measuring amplifier
- Filter
- Sensor adaption

## FPGA Design

- XILINX Spartan etc.

## Bus Systems

- VME-Bus
- PCI-Bus
- ISA-Bus
- CAN-Bus
- Arcnet
- Profibus etc.



## DSP

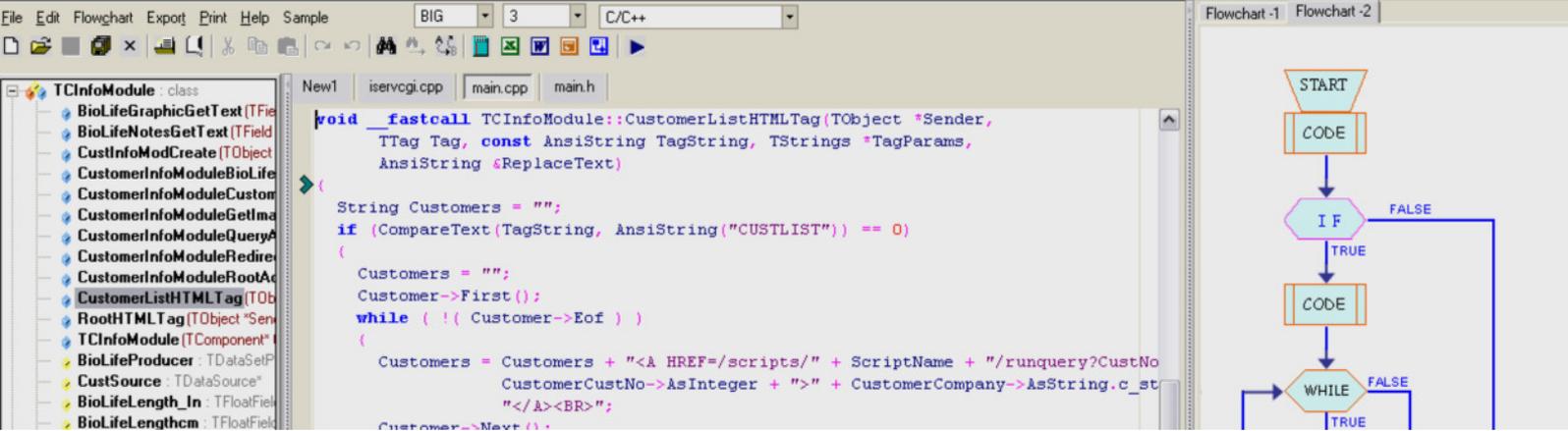
- TI TM320xxx
- Freescale



## Microprocessors

- Freescale
- PowerPC
- Atmel
- Intel
- ARM
- NEC
- Fujitsu etc.





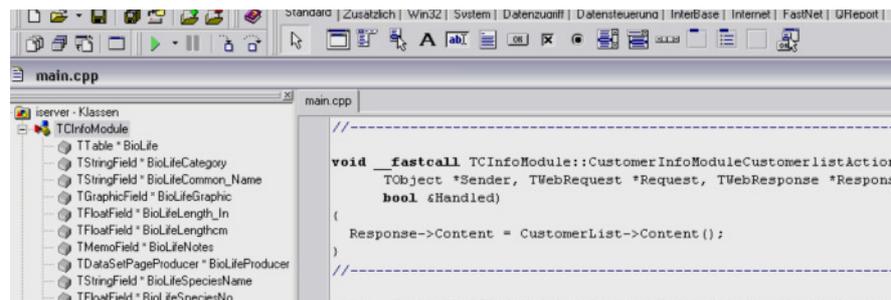
# Software Development

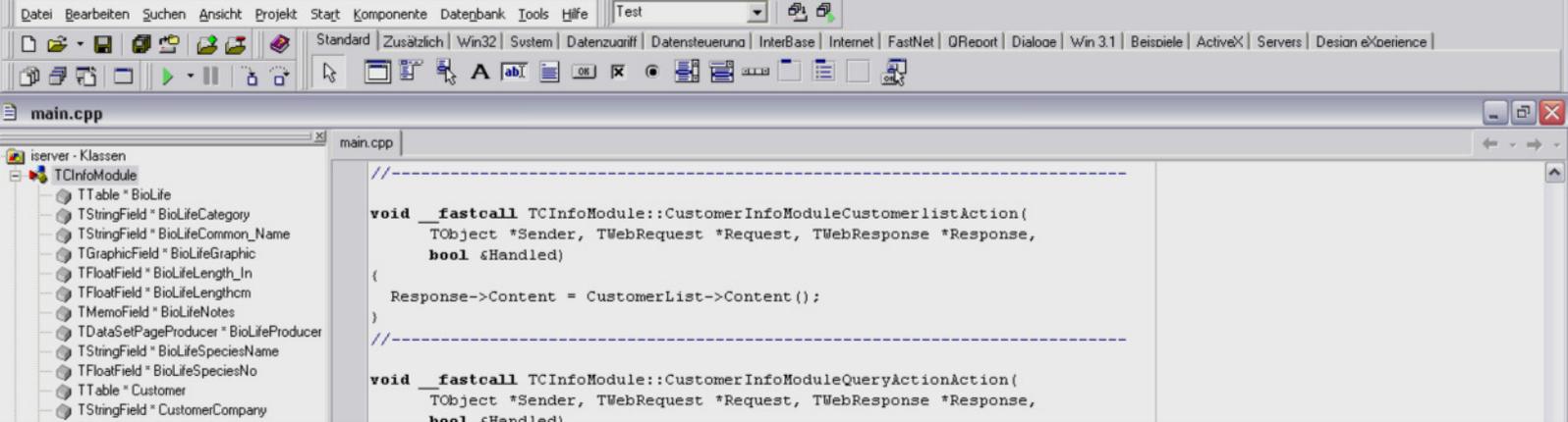
Microprocessors or Microcontrollers are often part and the core of a product.

Analysis and processing of measuring data is usually done with the help of a personal computer.

We develop firmware for the devices as well as application programs and device driver for the PC.

We offer experience in programming of processors and DSPs using C++, C and Assembler both with and without operating system.





## Programming with operating systems

Real time operating systems:

- pSOS+ for VME-BUS system
- MQX for M68k, CPU32+, PowerPC
- OS9000 for MC68k, PowerPC, x86, ARM
- Jaluna-1 for PowerPC

Multitasking system WindowsCE

OSCAN, ASCET

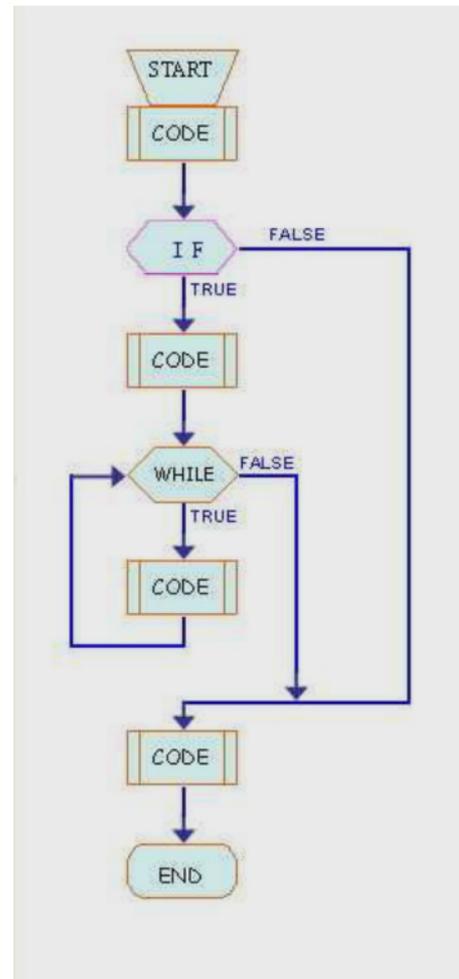
Embedded Linux for PowerPC and x86

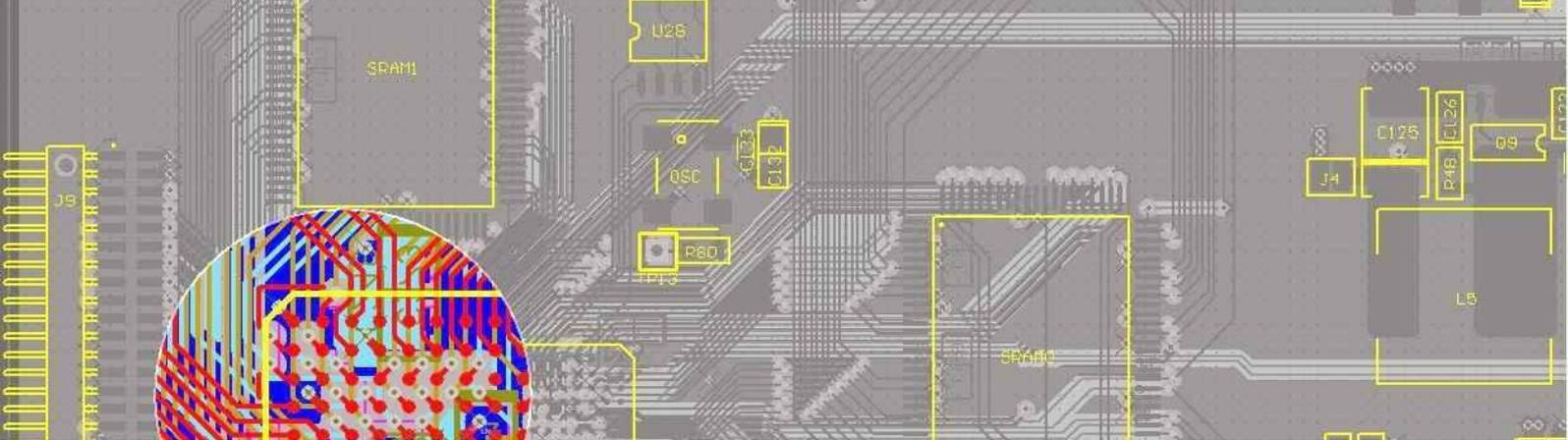
## Programming for IBM-compatible PCs

- MS-DOS
- Windows 9x
- Windows NT
- Windows 2000
- Windows XP
- SUSE Linux

## Networks

- CAN-Bus
- Interbus-S
- Profibus
- ARCNET
- SERCOS
- Ethernet





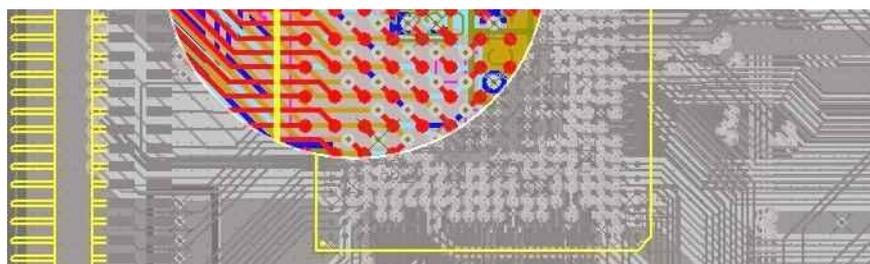
# Printed Board Design

Starting with the idea, the schematic diagram and board layout are steps to the final product.

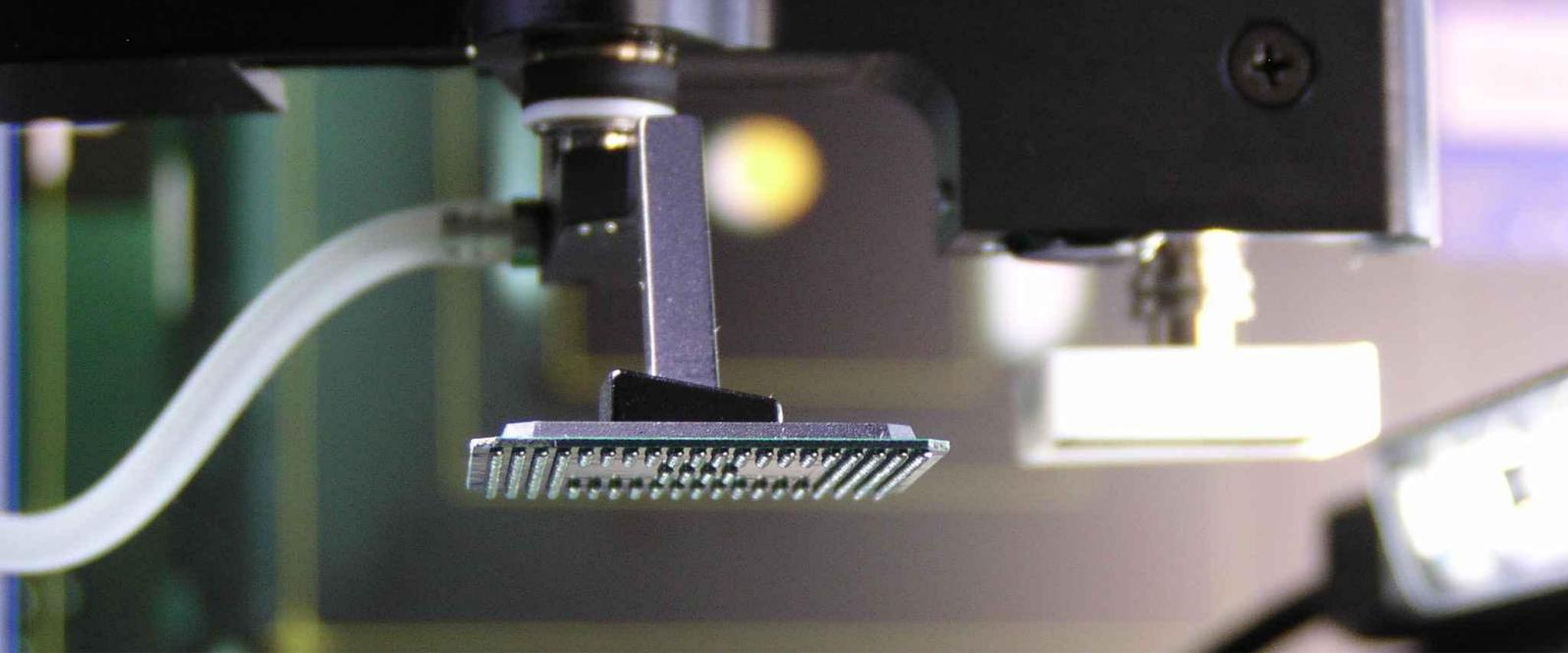
Board and FPGA designs are realised with latest EDA tools from ALTIUM.

The integrity of the whole design project is ensured by an automatic synchronisation in between the single design steps.

Data transfer from other design systems is possible.







## Production

In the area of board and modul production we are equipped for prototypes, small and middle sized production series.



## Board Assembly

- SMD and through hole components
- Reliable soldering method due to vapour phase process
- Leaded and lead-free



## Rework

- Rework and repair of assembled boards with camera-guided rework station and auto-vision / auto-place technique





## Device Assembly

- Completion up to the finished product

## Cable Assembly

- Production of cables for the devices

## Mechanic

- Case processing
- Production of front panels including printing
- Construction of special tools

## Implementation

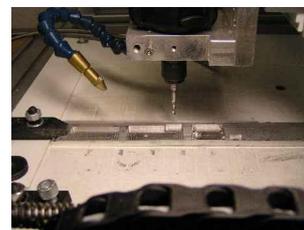
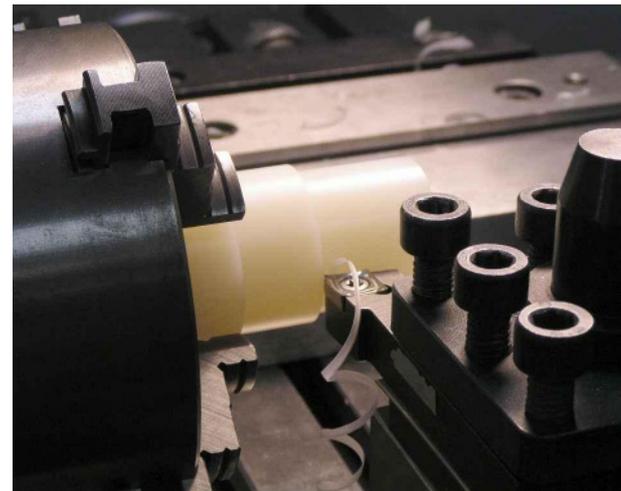
- Functional tests, alignment and calibration according to customer specification

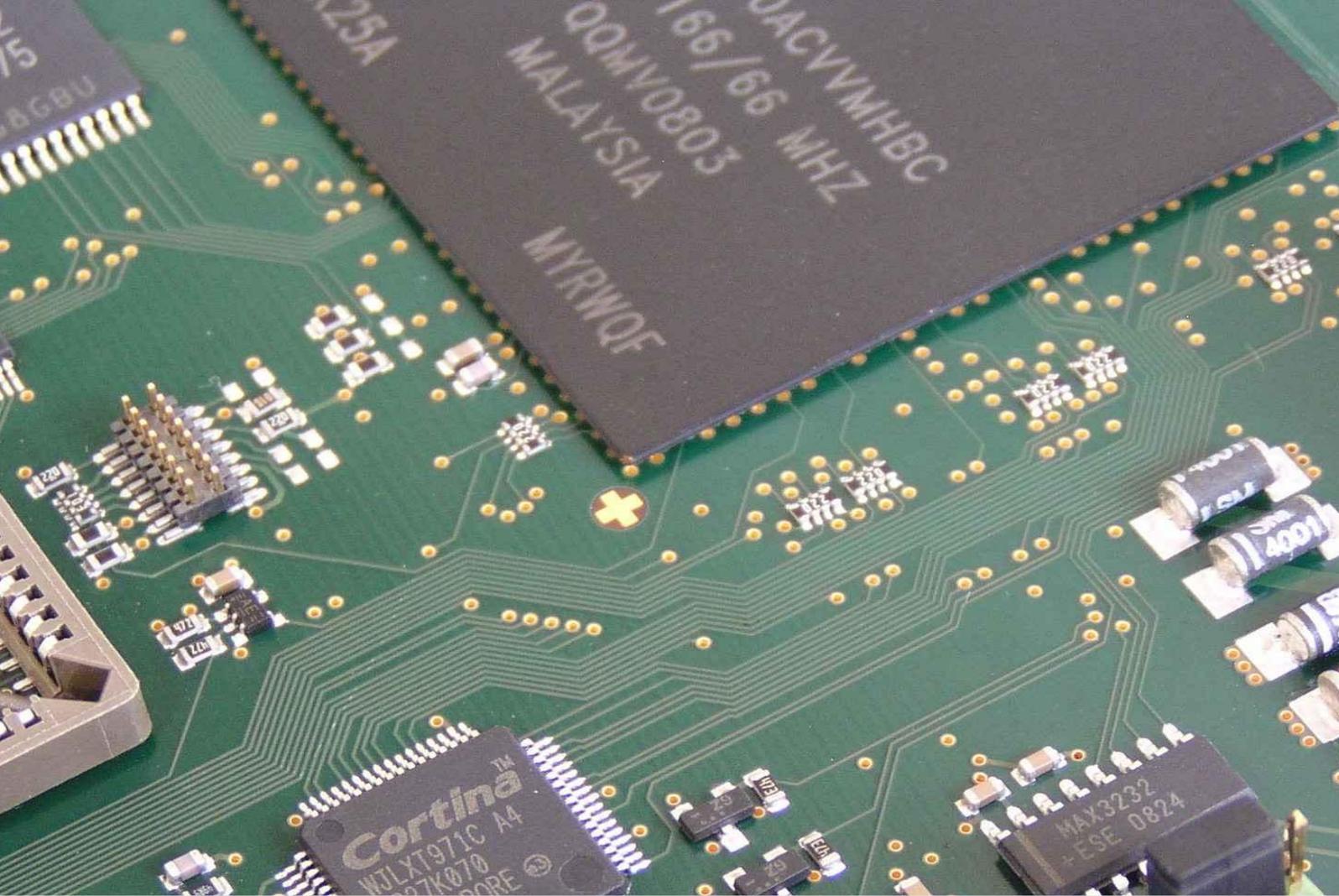
## Environmental Simulation

- Climatic chamber for temperature and humidity
- EMC test and measuring station

## Material Procurement

- Purchasing of production material





**Contact:**

CATO GmbH  
Duesselder Landstr. 17  
47249 Duisburg  
Germany

Tel.: +49 203 440895-00  
Fax: +49 203 440895-29

[info@cato-gmbh.de](mailto:info@cato-gmbh.de)  
[www.cato-gmbh.de](http://www.cato-gmbh.de)

