

Issue #1

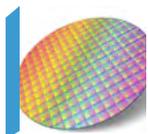
VON BRAUN LABS

WE PROVIDE COMPLETE SOLUTIONS

ULTRA LOW POWER

STATE MACHINE

SOLUTIONS



State Machine
Technology



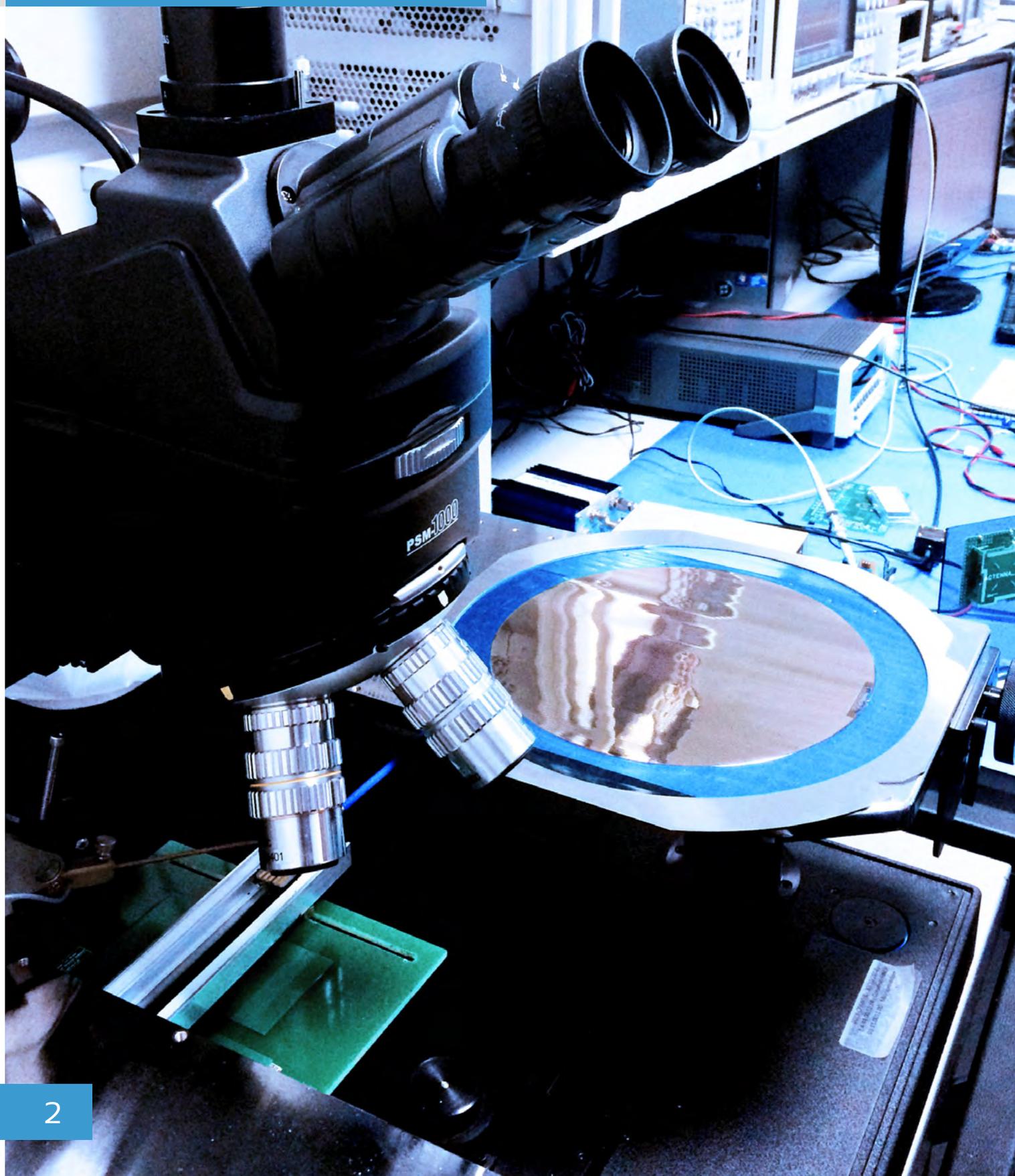
IoT Solutions



Learn more
about our
technologies

OUR LABS

Highly specialized gear at the tip of our hands to provide you complete solutions.



➤ ABOUT US



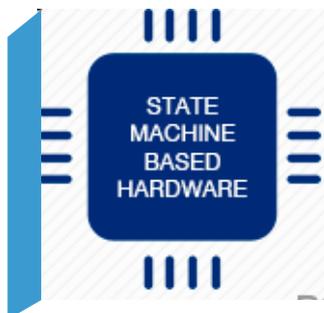
WHO WE ARE

Wernher Von Braun Labs for Advanced Research is a not-for-profit private organization. It provides R&D and Innovation services to Companies and Government institutions. If required, based on the technical novelty it develops for its customers, the Center organizes the associated processes (industrial and others) to make ideas come true as new products, services and businesses to its customers, assisting up to the pilot-implementation phases.

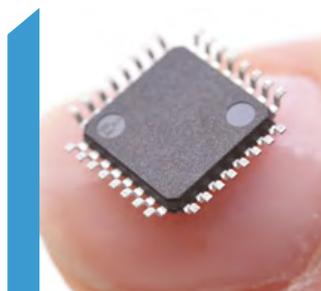
MICROPROCESSORS BELONG IN THE PAST

Besides replacing existing microprocessor in products, this proposal includes the replacement of other peripheral electronic components interfaces in electronic control boards by a single dedicated semiconductor device (ASIC), which emulates the same functionality of the main part of the board but with greater efficiency and lower costs.

This type of semiconductor devices will be the basis for a new world of possibilities. It includes local wireless communication with hand-held devices, which enables the implementation of high-level interfaces and extends hardware capabilities. **Your product** will be aligned with the most modern concepts of Internet of Things (IoT), multiplying applications to a higher level.



P.4
Microprocessor
Killing Machine



P.6
Semiconductor
Development



P.8
Our Technology
In Action

MICROPROCESSOR KILLING MACHINE

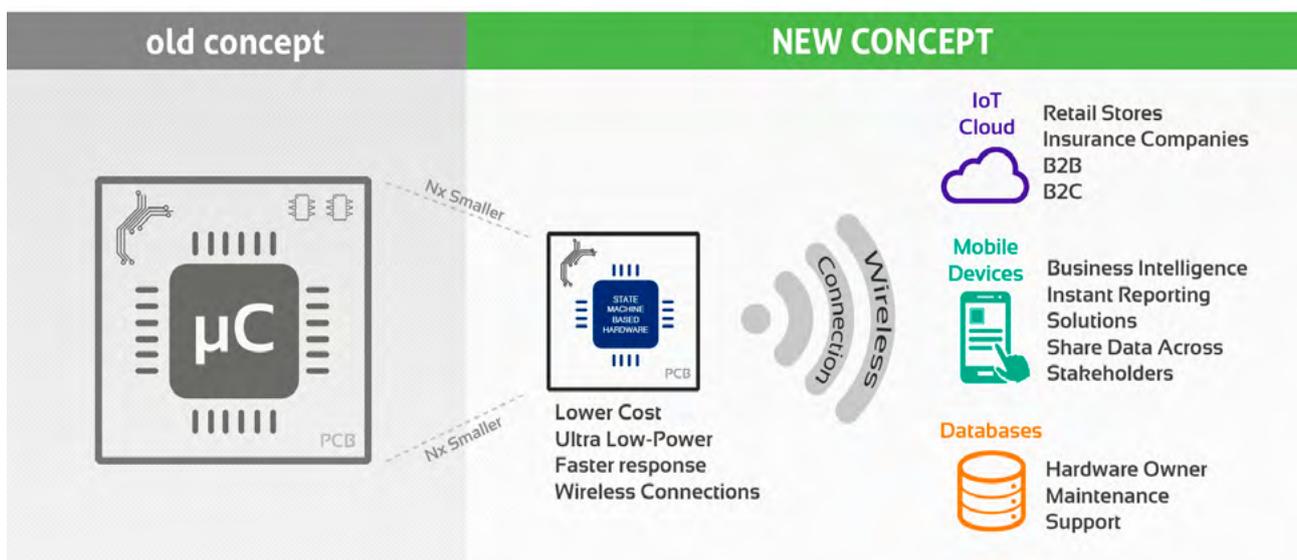
A new project era, turning common devices into smart ones, connecting the world even more and bringing IoT

Embedded electronics are present in every place, from appliances and automobiles in general in the context of smart cities, mobility and IoT. However, in most cases, electronic solutions are composed of oversized semiconductor devices that doesn't fit to the solution.

Moreover, these semiconductor devices do not have wireless communication interfaces for local or Internet connections.

Von Braun Labs is replacing these old platforms, composed by oversized semiconductor devices not oriented to wireless connections, by a complete and innovative system, enabling a significant reduction in the absolute cost of electronic boards and the development of evolutionary high-level interfaces.

CHANGING YOUR BUSINESS FOR GOOD





STRENGTHS OF THE NEW PLATFORM

- Ultra low-power (ULP), State Machine based, controller, recommended for applications requiring improvements in battery life
- Custom memory size, with optional high-security (AES, 3DES, SHA, etc) access channels to guarantee data authenticity and security storage, without efficiency and speed loss
- High-speed processing time by its custom straight forward paths, including security algorithms execution
- Combines standard (UART, I2C, SPI, USB, etc) and wireless (RFID, NFC, WIFI, etc) interfaces creating the bridge from peripheral electronic boards to smart devices, simplifying human-machine interaction
- Simple and easy configurable interaction to economic external sensors and controls
- Sensible reduction in electronics embedded control costs in products at various application areas
- Apps and upgrades available in stores (Android, AppStore, WindowsStore, etc)

SEMICONDUCTOR DEVELOPMENT

Beyond IC design, Von Braun Labs enables innovative products through innovative silicon solutions.

Von Braun Labs has a dedicated microelectronics team for Digital, Analog, RF and Mixed-signal Integrated Circuits (IC) design. The team has experience in the entire chip design flow, from specification to qualification, field application and production support, including embedded software for user application.

Moreover, the team is able to use several EDA tools on a solid computer network. Innovation, proactive and focus on final product are some of the main characteristics of the team.

With large experience, at local and worldwide industry and academic institutions, the team worked on IPs, patents and chips for consumer, medical, automotive and industrial applications.

Some microelectronic's team members are participating and also coordinating the current committee of the Brazilian Technical Commission ABNT/CE-21:031.07, being active members of GS1 EPCglobal UHF Air Interface Working Group and of the ISO/IEC JTC1 SC31 WorkGroups for Radio frequency identification for item management and security.

OUR DIVERSE ENGINEERING TEAM HAS SKILLS ON MANY AREAS

- Digital, Analog and Mixed-signal IP design of low-power RFID, cryptographic solutions (ISO 18000, FIPS197, NIST800-38, etc), power management and embedded interfaces (SPI, I2C, etc)
- Design of IC blocks implementing control logic, encryption algorithms, serial interfaces, encoders/decoders, BIST, ultra low power analog/RF, analog instrumentation/sensing, voltage regulators and reference sources
- VIP development and functional verification of chips and IPs with focus on reusable methodology (eRM, VMM, OVM, UVM based), including mixed-signal simulations
- Complete ASIC and IP design flow, from specification, architecture, Design for Testability (DFT), up to full back-end, chip finishing, Automatic Test Pattern Generation (ATPG), FPGA prototyping
- Hands-on experience using Cadence, Synopsys, Mentor Graphics, Xilinx, Altera, Mathworks, Microcontroller IDE tools, etc. Development of proprietary common design and evaluation environments (work flow customization and automation)
- RF antenna and PCB layout designs and bench validation, in several technologies

SHORTCUT TO SUCCESS

How Von Braun Labs manages to support companies from all over the world and goes beyond to provide systems' solutions



Von Braun Labs is experienced in the development of novel & complex solutions, i.e., solutions that involve multiple technologies precisely combined to an efficient and cost-effective, holistic view of the implementation's aspects of innovation.

It organizes an ecosystem of Companies and institutions in such a way that the end-customer profits not only from the solutions Von Braun developed, but also (and if it's required) from direct

access to Semiconductor Foundries, Contract Manufacturers and alike, already developed by the Center to handle each component of the solution, significantly reducing the cost of a system integration, with huge increase of intelligence over the strategic processes involved.

It is not only the simplification and cost-reduction. The new model allows advanced communication with mobile phones and the whole world of apps on the internet.

VON BRAUN LABS DIFFERENTIALS

- End-To-End Design
- Secured Transactions
- Cutting Edge Verification Methodology
- Ultra Low Power Design
- Brazilian Official GSI/ISO Committees Representative

▶ OUR TECHNOLOGY IN ACTION

Embedding a custom semiconductor VON BRAUN LABS device into any domestic, industrial or consumer appliance has numerous advantages.

Smart Appliances & Vehicles

Smart interface and control, devices' management and decision making in appliances and vehicles are being made by microcontroller at a cost of up to US\$4 in some cases. These devices require dedicated algorithms and have no connectivity.

Our new semiconductor device will cut the costs by around 50%,

not only its own price but putting together other peripheral devices.

Our approach to semiconductor devices cuts the cost by at least 50%, adding other peripheral devices and allowing wireless communication.



THERE ARE MICROCONTROLLERS ON APPLIANCES

YEARNING FOR CONNECTIVITY

Although it is designed to fit your needs, it will be much more efficient, solidly mapped by industry professional patterns and significantly less expensive

Von Braun Labs developed industrial partnerships (foundries and contract manufacturers) in Asia, Europe and in the U.S.A.

Main Features	Microcontroller #1 *	Microcontroller #2 *	VON BRAUN LABS Solution
Application	Consumer	Automotive	All
Required Memory	8 Kbytes	16 Kbytes	1 Kbyte or less
Required Speed	8 MHz	48 MHz	2 MHz
Supply Voltage	5.0V	3.6V	1.8V
Package (Size)	16-pin (SOIC)	36-pin (QFN)	8-pin (QFN)
Op. Temperature	-40°C to 85°C	-40°C to 105°C	-40°C to 125°C
Consumption	25µA	70µA	10µA
Price	- US\$ 5	- US\$ 3	- 50% less
Wireless Interface (IoT)	No	No	Yes

(*) Comparison to microcontroller solutions available in the market today



THERE ARE SEVERAL MICROCONTROLLERS ON A SINGLE CAR

ALL OF THEM ARE YEARNING FOR CONNECTIVITY

GROWTH INTEGRATED FUTURE
DEVELOPMENT TEAMWORK
PRODUCTIVITY
SALES
GLOBAL
SALES STOCK MARKET
INNOVATION
CONCEPTS
ONLINE
PRODUCTIVITY
IDEA
IDEA PROFIT
MOTIVATION
PROFIT
CONNECT
IDEA
FUTURE STRATEGY
BUSINESS INTERNATIONAL
FUTURE DATA
CONCEPTS
IDEA ONLINE
INVESTMENT
FUTURE DATA
SALES
INTERNATIONAL
PROFIT
ADVICE
COMMUNICATION
LEARNING
SEARCHING
PEOPLE
DATA
GROWTH
TEAM
SALES

IDEA
PEOPLE

SUCCESS
PLANS

TE
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ADVICE
SECURITY
MANA
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TI





Headquarters
Campinas - SP
Brazil



2nd Office
São Carlos - SP
Brazil



3rd Office
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WE PROVIDE COMPLETE SOLUTIONS

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