Overview anabrid GmbH, Germany:

Founded in	09/2020
Executive board	Dr. Sven Köppel (CTO) Lars Heimann (CEO)
Scientific advisory board	Prof. Dr. Bernd Ulmann Prof. Dr. Dirk Killat
Revenue in 2022	1.5 Mio €
Offices	Headquarter in Berlin CMOS Product Development (Frankfurt am Main) Quantum Research Lab (Ulm, Baden-Württemberg)
Staff right now:	4 founders (in excutive and scientific boards) 10 fulltime employees 4 students 3 freelancers
Who is anabrid right now	German deep-tech startup making hardware World market leader for discrete Analog Computers Delivers full stack Analog Computers
IP / patents	Holding 3 patents 2 patents pending

What anabrid has right now

- Selling standalone analog computer products at shop.anabrid.com (Analog Paradigm Model-1 and The Analog Thing). Projected 25% CAGR not including future projects. These products serve as technology demonstrator for upcoming microchip ventures.
- Owner of two important patents to implement the analog computer on chip (multiplier, structure layout).
- A global customer base (B2C, B2B, more then 1,000 clients in 2022) and an even bigger fanbase and social media presence (more then 10M views on Youtube, more then 2,000 people on The Analog Thing waiting list).
- High attraction for young talents: Diversified team of skilled engineers in electronics, software and science. Distributed team amongst Germany with presence in all major metropolitan areas such as Silicon Saxony, Munich Quantum Valley, Ruhr Metropole, Karlsruhe/Rhein-Neckar, etc.
- Focus on Research & Development with tight connections to leading research institutions. One example is the collaboration with professorial chair for micro-electronics at TU Brandenburg-Cottbus (co-founder Prof. Dr. Dirk Killat). Another example is a Quantum Computing research project with the German Aerospace Institute (DLR).
- A solid foundation in historical attemps thanks to the one-of-a-kind Analog Computer Museum of pioneer and evangelist Prof. Dr. Bernd Ulmann.

Why analog computing?

Need for Power	Cost and Efficiency	It is a mature technology
Computers are an increasingly important pillar for all aspects of today's society. Many important commercial and scientific problems cannot be solved efficiently using conventional digital computers.	Conventional Computing requires enormous amounts of energy while delivering lower output rates than future computing technologies.	Quantum computing bets on successful research on time and budget. In contrast, the analog industry is well established. We need a bridge between analog and digital processors in order to save our planet right now and not in 10 years from now.

Targeting major problems: **Energy, Power and CO2 Limits**
Solution: **Analog Computer on a chip**

Benefits

An integrated circuit with unmatched properties: With typical tasks, our analog processor chip will beat any digital processor in terms of speed by factor 10.000. At the same time, requires only a fraction of 1/100.000 the required energy of a digital processor. Our software-defined electronics approach is the first time in the world this huge potential of computing analog electronics can be exploited.

Use Cases (examples)

Artificial Intelligence accelerators	• Security and compliance through enhanced computer vision • Using analog co-processors for improving speech intelligilibity. for hearing aids through ear level processing using Deep Neural Networks at low energy usage, longer battery life and shorter delays. • Real-time mobile video analytics using analog hybrid computing to run probabilistic models on device, resilient and without depending on cloud computing.
Industrial technology and Internet of Things	• Aviation: Optimized winglet design configuration and real-time adjustment to in-flight conditions using analog co-processors for active winglets increase range and fuel efficiency. • Predictive maintenance: Models for maximizing asset lifetime and operational reliability in factories using in-situ analog data preprocessing and evaluation, saving costs and improving the factory outcome.
MedTech	• Precision medicine like Beam Angle Optimization in Radiotherapy (IMRT) are only possible with analog processors. • Faster Drug Design through Multi-parametric optimization of promising series become possible with analog supercomputing. • Improved Diagnostics for cardiovascular health based on electrocardiogram waves. • Minimized low energy consuming implants like pace maker, insulin pumps.

think hybrid