

WHY EXEMI

Some R&D needs do not begin with a well-defined job description. They begin with an unexpected behaviour, an incomplete model, a difficult measurement, a technology gap, or an idea that must be tested before a team can commit significant time and budget.

eXemi provides independent engineering support at the intersection of semiconductor physics, materials, modelling, electronics and practical experimentation. The objective is simple: understand what matters, reduce uncertainty and create a technically credible next step.

CHOOSE AN ENTRY POINT

UNDERSTAND When the behaviour is unclear	Device and system interpretation · Measurement-to-physics analysis · Parasitics and package/PCB interactions · Root-cause hypotheses · Failure-analysis strategy
MODEL When decisions need evidence	SPICE and behavioural models · MATLAB/Simulink analysis · Finite-element and electro-thermal reasoning · Sensitivity studies · Model-versus-measurement correlation
DESIGN When an idea needs a circuit	Power-converter and driver architecture · GaN-based concepts · PCB schematic/layout support · Sensor and interface circuits · Design review · Feasibility prototypes
EXPLORE When the solution is not yet known	Technology scouting · Feasibility investigation · Experimental plan · Component and method selection · Rapid learning in adjacent technical domains
BRIDGE When expertise is distributed	Translate between device, package, PCB and system teams · Connect companies with laboratories, universities, suppliers or packaging specialists · Frame and coordinate an external investigation
ENABLE When R&D needs a flexible, private workspace	Linux virtual environments with Proxmox · GPU passthrough · Local-AI experimentation · Reproducible engineering workflows, automation and proof-of-concept infrastructure

Direct expertise where proven. Disciplined investigation where the topic is adjacent. External specialists where the problem requires them.

HOW WE CAN START

A small, well-scoped first step can reveal whether a deeper engagement is useful.

ENGAGEMENT FORMATS

FLASH	Hours to 2 days	Independent technical review, expert discussion or rapid diagnostic.	Memo, annotated review or decision notes
FOCUSED	1-4 weeks	Model, feasibility study, simulation task, design review or investigation.	Model, report, prototype or action plan
EXTENDED	1-6 months	A defined R&D work package, multidisciplinary exploration or development support.	Milestones, technical package and transfer
EMBEDDED	Part-time / recurring	Flexible external R&D capacity alongside an internal engineering team.	Ongoing analysis, reviews and decisions

TYPICAL STARTING QUESTIONS

- “The measurements do not match the expected device or system behaviour.”
- “We need an independent view before committing to a design direction.”
- “Our specialists are fully occupied, but this medium-term R&D question should not wait.”
- “We need a model, a test strategy or a feasibility prototype.”
- “The answer may exist in a university, laboratory or specialised supplier, but the investigation needs an owner.”

EXAMPLES OF USEFUL DELIVERABLES

- Technical problem framing: facts, assumptions, unknowns, risks and decision tree
- Simulation or behavioural model with documented assumptions and validity range
- Design or architecture review with prioritised recommendations
- Measurement and failure-analysis plan, including suitable external capabilities
- Feasibility demonstrator, schematic, PCB support or experimental setup
- Technology landscape and partner/laboratory shortlist for a concrete objective
- Clear transfer package so internal teams can continue independently

TECHNICAL FOUNDATION

Semiconductor devices and SOI · GaN power electronics · Low-power space converters to multi-kW, kV-class architectures · Device/package/PCB parasitics · SPICE · MATLAB/Simulink · CAE/FEA · Altium Designer · Silvaco · Laboratory characterisation · Materials-science perspective · R&D project and partner coordination

eXemi — where eXternal eXpertise meets semiconductors, through modelling, measurement and simulation.

A practical first conversation

Bring a difficult question, an unexpected result or an idea that deserves a structured technical look.

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