

Industrial Linecard

Commercial and Industrial Components

50 Years
HighRel

Protec
HighRel Components

Rev. 1.1 / January 2025

founded in 1976 and is successful in the sales of High Reliability components.

We are particularly specialised in highly qualified components for industrial, military and space applications.

In instances of obsolescence and supply problems, we can also offer our customers effective solutions with our extensive product and market knowledge.

Our customer oriented warehouse, equipped with a modern ESD protection system, guarantees reliable component supply.

With our design-in and market oriented expertise, we can provide long term support for your projects and applications.

Through our distributor and rep strategy, we are the "extended arm" of our Manufacturers. When required we will put you directly in touch with our manufacturer's specialists.

Our first priority is a long term, successful partnership with our customers and manufacturers.




Responsibilities by Country / Manufacturer	DACH			Nordic				BeNeLux							Czech Republic	Hungary	Poland	Romania	
	Germany	Austria	Switzerland	Denmark	Sweden	Norway	Finland	France	Italy	Spain	Portugal	UK & Ireland	Belgium	Luxembourg					Netherlands
AEM Inc.	•	•	•	•	•	•	•	•		•	•		•	•	•	•	•	•	•
AirBorn	•	•	•	•	•	•	•					•							
Avalanche Techn.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Axtal	•	•	•	•	•	•	•	•				•	•	•					
CalRamic	•	•										•	•	•	•	•	•	•	•
HOLT	•	•	•	•	•	•	•					•	•	•					
Macom	•	•	•			•		•		•	•	•	•	•	•				
Q-Tech	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
SMC	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Smiths Canada	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
VMI	•	•												•	•	•	•	•	•
VPT	•	•	•																
Viking Technology	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

a specialized distributor of high quality products for the electronics industry, particularly for the Space, Avionic, High Voltage, High Temperature and niche industrial markets.

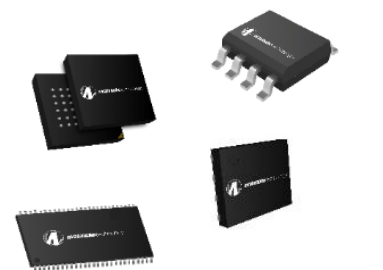
We support customers and manufacturers with our expertise in:

- EUS requirements and licensing processes
- CoC requirements
- Design in support
- Export classifications and rules
- Product trainings


Support and understanding of terms like SLDC, LOT acceptance, PIND, TID, ELDRS, SEE, SEU, SEL, Proton testing and many more industry specific terms.

Nano D	Nano-D metal shell - exceed MIL-DTL-32139	9-91 contacts
Micro D / High Speed	Micro-D metal shell - exceed MIL-DTL-32139	9-128 contacts
Macro D	(3A up to 42A per contact)	8-150 contacts
High Speed Rectangular	Vertical board-mount, right angle board-mount, cable I/O, and flex circuit mounting	40-500 contacts
Slnergy	Modular hybrid solution 1-5 configurable bays	up to 25Gbps
Stackable	High-density, board-to-board stacking	28-200 contacts
Rectangular R&Z Series	PCB Connectors	10-604 contacts
Z-Axis Interposer	High-density, board-to-board or flex circuit stacking	20-175 contacts
Circular	Micro-miniature circular - similar performance as D38999 connectors more compact & lighter package	up to 10G
Flexible Assemblies	Highly reliable, flexible, printed circuit assembly single-sided, double-sided, multi-layer, rigid-flex	
Cable / Harness	Copper, RF and more — terminated with any connector	

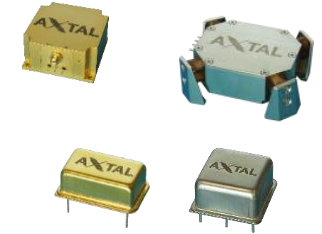
Serial High Performance	1Mb / 4Mb / 8 Mb/ 16Mb	1.8V / 3.0V
Serial SPI	1Mb / 4Mb / 8 Mb/ 16Mb	3.0V
High-Rel Serial SPI	16Mb	1.8V / 3.0V
Parallel x8	1Mb / 4Mb / 8Mb / 16Mb / 32Mb	3.0V
Parallel x16	1Mb / 4Mb / 8Mb / 16Mb / 32Mb / 64Mb	3.0V
High-Rel Parallel x16	16Mb / 32Mb / 64Mb	3.0V

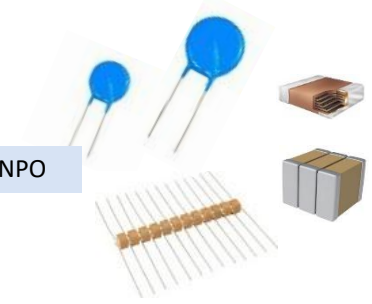
XO	CMOS, TTL, LVDS, LVPECL – HighTemp Versions also avaiable	15kHz - 250MHz
TCXO	HCMOS, Sine	3MHz - 100MHz



OCXO	±0,005ppm / Ultra Low Noise	10MHz to 150MHz
TCXO	±0,5ppm	1MHz to 2,5GHz
VCXO	±5ppm / Low Noise	1MHz to 1,5GHz
SAW Oscillator	±350ppm	500MHz to 1,6GHz
Quartz Filter	±1ppm	10MHz to 100MHz
PRECISION CRYSTALS	SC, IT and AT-cut crystals for frequency control, instrumentation	



High Voltage Disc	3kV to 20kV / HighTemp Versions available	X7R / X5R / X5U / Z5U / NPO
High Voltage Multilayer	500V to 10kV	X7R / NPO



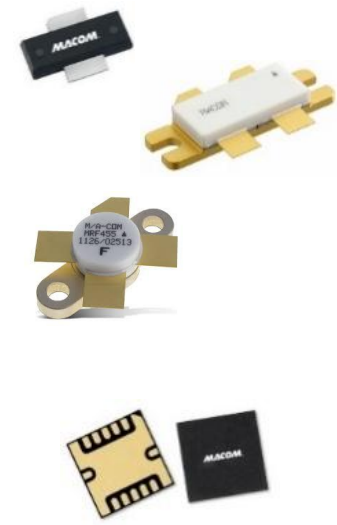
CAN	Controller, Transceiver, HighTemp	High Temperature up to 200°C
Discrete to Digital	6/8/16/32-Channels	Level 3 Lightning Protection
Analog Switch	up to 200°C	
RS-485/RS-422	up to 200°C	
Ethernet PHY	up to 125°C	



TVS Diodes	0.2W - 30KW	5V - 400V
Schottky Diodes	10mA - 120A	10V - 200V
Ultrafast Rectifiers	1A - 60A	200V - 1200V
SiC Fets & Diodes	3 - 50A	650 and 1200V
Chips	Silicon Chips for all devices we make	




LightABLE SM	12.5Gbps / 4TRx or 12Tx / 12Rx	Pluggable
LightABLE SL	12.5Gbps / 4TRx or 12Tx / 12Rx	LGA / interposer
LightABLE28 SL	28Gbps / 4TRx or 12Tx / 12Rx	LGA / interposer
LightCONEX	12.5Gbps / 4TRx or 12Tx / 12Rx	LGA / interposer

RF - Amplifiers	Gain Blocks, Low Noise, RF Power, Linear, Transimpedance	
RF - Attenuators	Digital, Fixed, Voltage Variable	
RF - Capacitors	Beam Lead, Binary Chip, Bypass, HighQ, MNS, MNOS	
RF - Couplers	Hybrid, Stripline, Broadband	
RF - Diodes	PIN, Step Recovery, Schottky, Varactor Tuning	
RF - Filters	Band Pass, MoCA, Horizontal & Vertical, Low Pass, Diplex, Triplex Filters	
RF - Frequency Conversions	Down Converter, Up Converter, Multipliers, Mixer, Receivers, Transceivers	
RF - Frequency Generation	Comb, Voltage Controlled	
RF - Limiters	C-Band to V-Band	
RF - Switches	Drivers, DPDT, Limiter, SPST, SPDT to SP8T	
RF - Magnetics	Inductors, Baluns, Transformers	
Optical - Clock and Data Recovery	VCEL Driver, DML Driver with CDR / TIA / EML	
Optical - Receiver Modules	APD Photoreceivers, PIN Photoreceivers, HighSpeed Photodetectors and Receivers	
Optical - Laser	Distributed Feedback Lasers, Fabry-Perot Lasers	2,5G, 10G, 25G
Optical - Modulator Drivers	NRZ, PAM, Coherent	Up to 58Gbps
Optical - Post Amplifiers	Limiting Amplifier	
Optical - Photodiodes	APD Photodiode, PAM4 PIN Photodiodes	10G, 25G, 50G, 100G
Optical - Transimpedance	Client Side, Coherent	
Networking - Crosspointswitch	Crosspoint Switches and Signal Conditioners	
Networking - Equalizers	Linear Equalizers 56 / 112 Gbps	2 and 4 Channel
Networking - Processors	Single or Dual-Core Power™ Processor	



HV Diodes	2 to 20kV / 30 to 3000ns / 10mA to 3.5A / Axial & SMD	High Temp available
HV Assemblies	HV Stacks & Bridges	
HV Opto	10kV and 15kV Optodiode & Optocouplers up to 25kV	

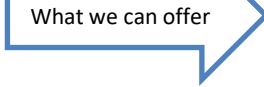
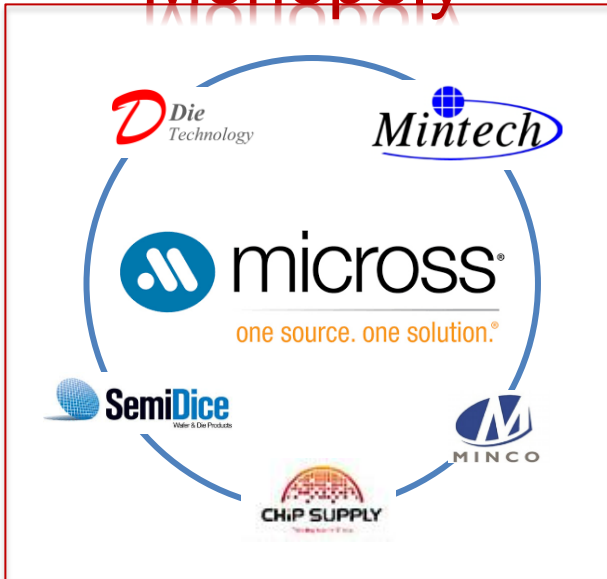


DRAM Modules	DDR5 (coming soon), DDR4, DDR3, DDR2, DRAM	up to 32GB
STORAGE (Flash/SSD)	2.5 in. SSD, 1.8 in. SSD, M.2 SSD, slimSATA, etc.	
Rugged Memory	ParallelCell MCP, ParallelSSD	
Persistent Memory	DDR4 NVDIMM, Energy SubSystems (ESS)	



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Monopoly



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INFINEON

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VPT COMPONENTS

MICROSEMI

DIE DEVICES

VISHAY

EPIGAP

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Proven Performance.

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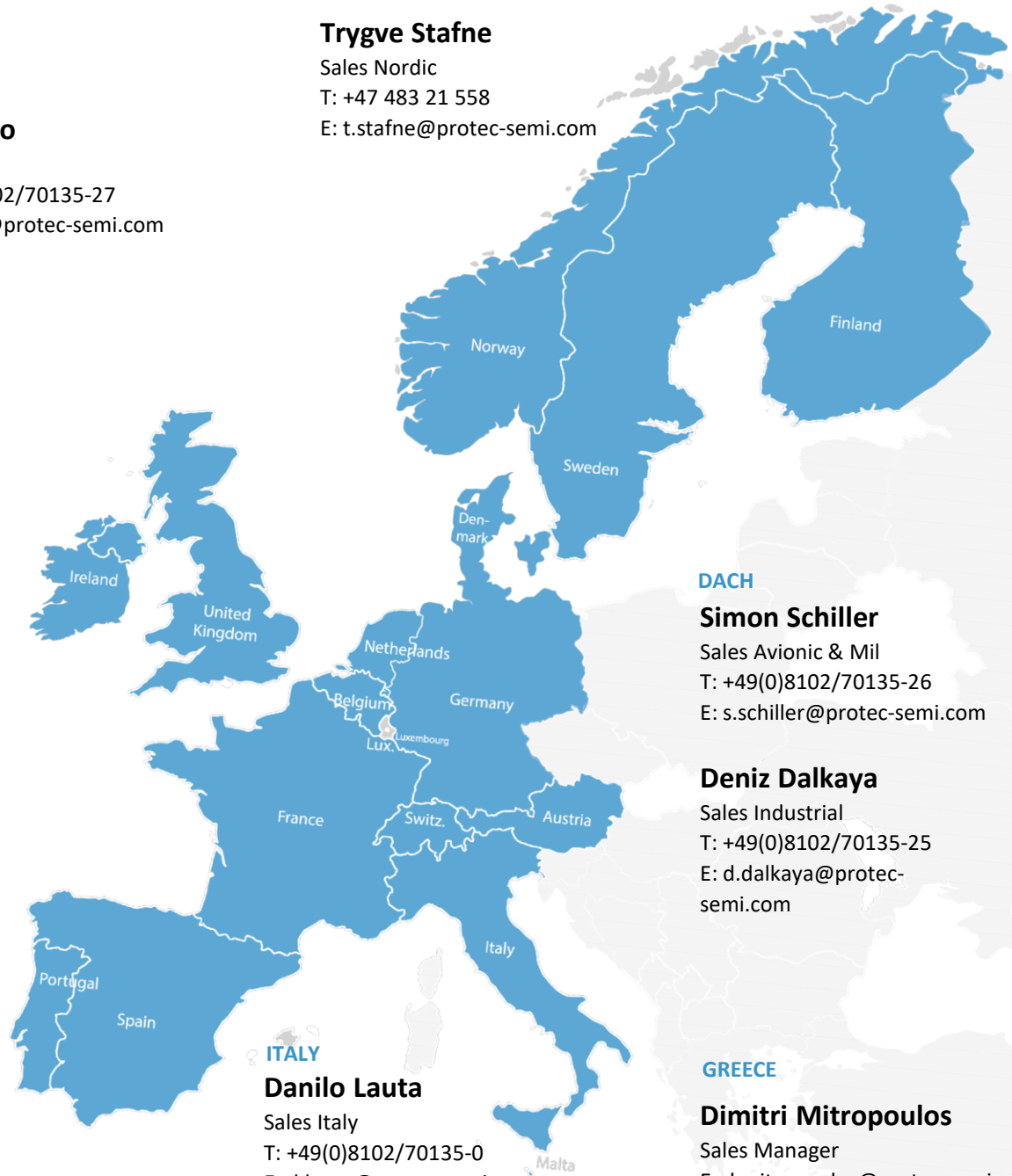
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DEFENSE AND SPACE

NAVITAS®

ONSEMI

TEXAS INSTRUMENTS



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GREECE

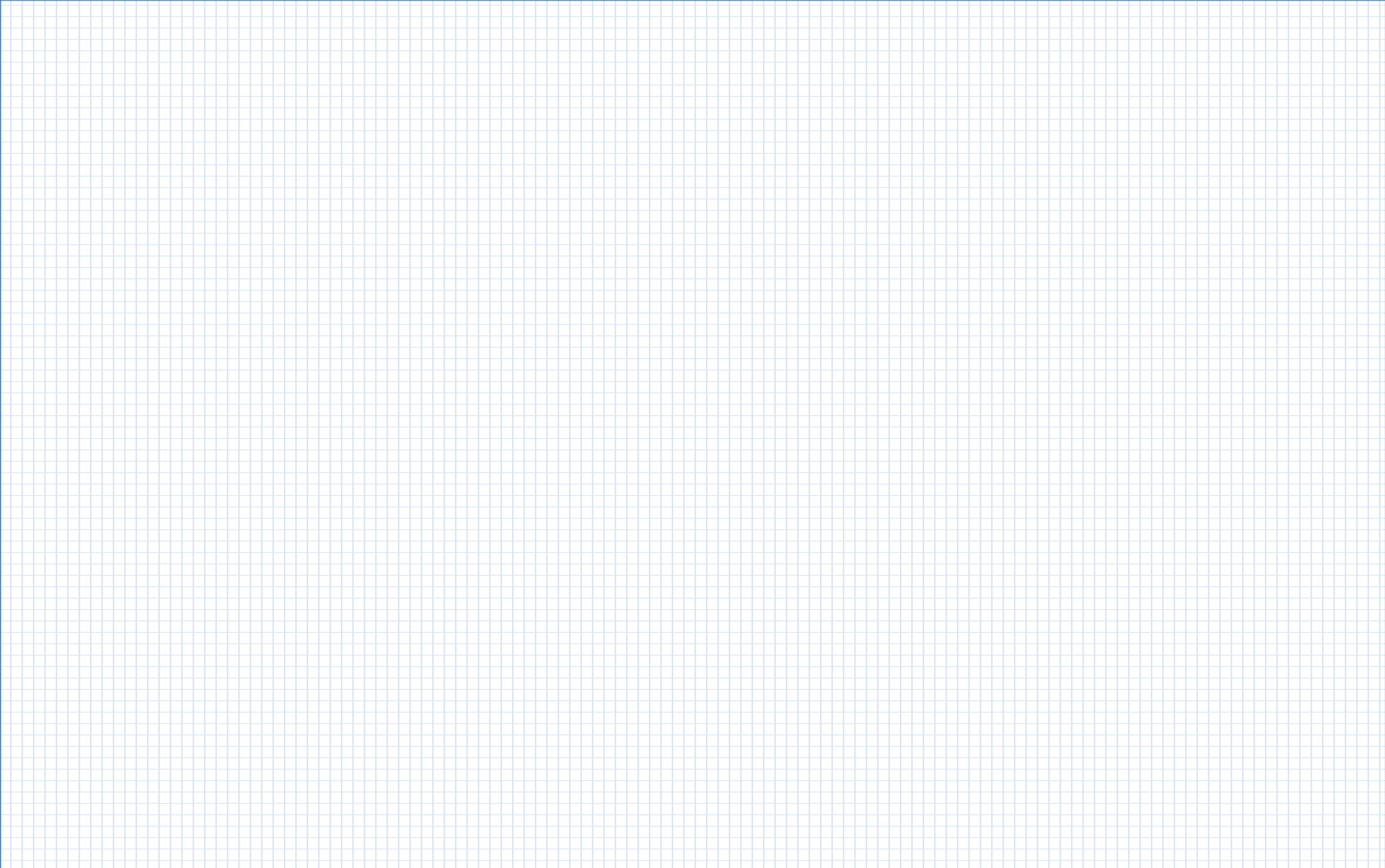
Dimitri Mitropoulos

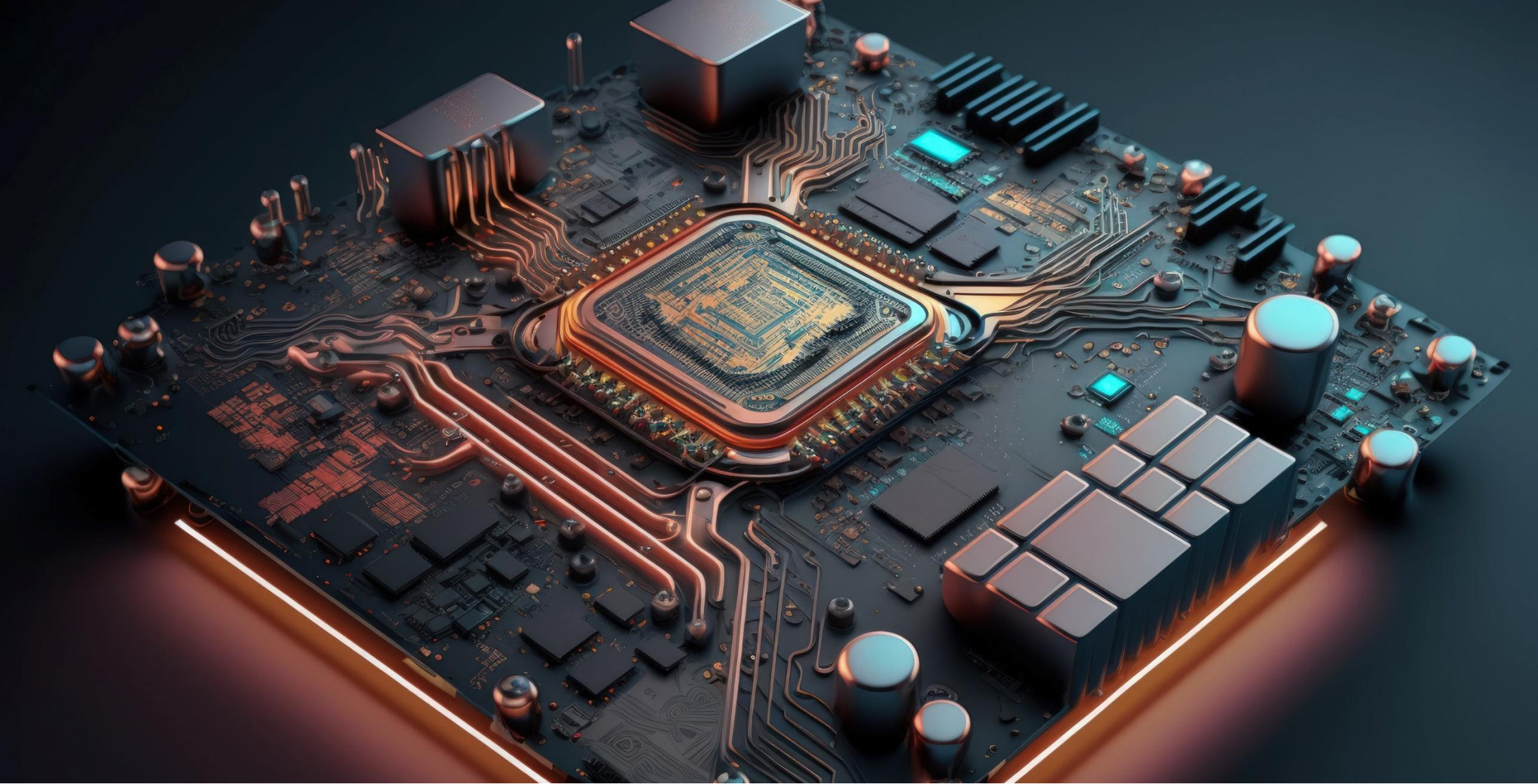
Sales Manager
E: d.mitropoulos@protec-semi.com

Room for your Notes:

A large rectangular area filled with a light blue grid pattern, intended for taking notes. The grid consists of small squares and is enclosed by a thin blue border.

Room for your Notes:

A large rectangular area filled with a light blue grid pattern, intended for taking notes. The grid consists of small, uniform squares.



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