



Space Linecard



Rev. 1.9 / July 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.



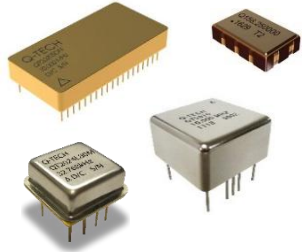
	DACH			Nordic										BeNeLux									
	Germany	Austria	Switzerland	Denmark	Sweden	Norway	Finland	France	Italy	Spain	Portugal	Greece	UK & Ireland	Belgium	Luxembourg	The Netherlands	Czech Republic	Hungary	Poland	Romania	Israel	Turkey	
AEM Inc.	•	•	•	•	•	•	•	•		•	•			•	•	•	•	•	•	•			
AirBorn	•	•	•	•	•	•	•						•										
Arquimea	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•			
Avalanche Techn.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
Axtal	•	•	•	•	•	•	•	•			•	•	•	•	•	•							
BAE Systems	•	•	•	•	•	•	•				•												
FLUX	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
GSI Technology	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
Honeywell	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•			
Infineon / IR HighRel	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	
NanoXplore	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
Macom	•	•	•			•		•		•	•		•	•		•							
Q-Tech	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•			
Semicoa (OSI)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
Skyworks DS	•	•	•	•	•	•	•										•	•	•	•			
Smiths Canada	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•			
SSSI	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
TAS DPC	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
Teledyne e2v	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•			
VMI / CalRamic	•	•									•	•				•	•	•	•	•			
VPT Components	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
VPT	•	•	•																				
Weeroc	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•			
ZES	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		

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

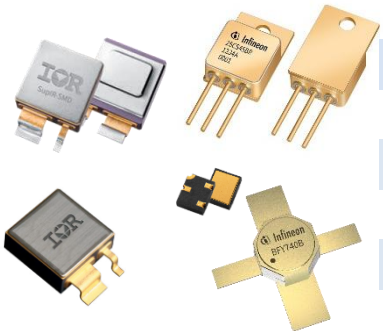
We support customers and manufacturers with our expertise in:

- 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.



XO	CMOS, TTL, LVDS, LVPECL	Single & Multiple Outputs
TCXO	HCMOS, Sine	±0,5ppm
VCXO	HCMOS, Sine	
OCXO	CMOS, Sine	±10ppb
SAW	Sine 400MHz to 1,3GHz - low phase noise	300krad
MCXO	CMOS or Sine 5 to 80MHz 1pps	50krad
New Space XO	QT780, QT723 and QT735 Series	50krad



N-channel MosFet	Single, Dual or Quad / 30V to 600V	100-500krad
P-channel MosFet	Single, Dual or Quad -30V to -200V	100-600krad
Diodes	Schottky, ultra fast Rectifiers	
Power ICs	MosFET Driver	100krad / 82MeV
Solid State Relays		100krad
RF Diodes		ESA QPL Parts
RF Transistors	8GHz to 42GHz	ESA QPL Parts



DCDC Converters	1.5W, 6W, 15W, 30W, 100W - Single & Dual	up to 100krad / 85MeV
POL	$I_{out} = 6-15A$ $V_{in} = 3 \text{ to } 7V$ $V_{out} = 0.8 \text{ to } 5V$	up to 100krad / 85MeV
GaN Converter	400W $V_{in} = 100V \text{ or } 120V$	100krad / 85MeV
RF Receiver Power	SLNP17-100CQ, Low-Noise, Quad-Output	100krad

SEMICOA

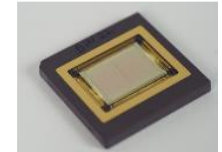
A DIVISION OF OSI OPTOELECTRONICS

Transistors	2N3810, 2N2920, 2N2857, 2N2369, 2N3637 and more	up to JANSR/F
Diodes	1N5802, 1N5804, 1N5806, 1N5614, 1N5615	JANS & HC / KC die



NanoXplore

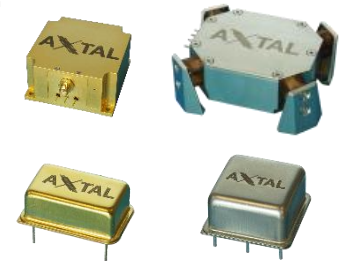
NG-Medium	SpW & DDR 2 PHY	34KLUT
NG-Ultra	Quadcore ARM R52 @ 600MHz / 32 HSSL @ 12.5 Gbps / SpW & DDR 3&4 PHY	500KLUT
NG-Ultra300	16 HSSL @ 12.5 Gbps / SpW & DDR 3&4 PHY / Embedded ADCs & DACs	290KLUT



AXTAL

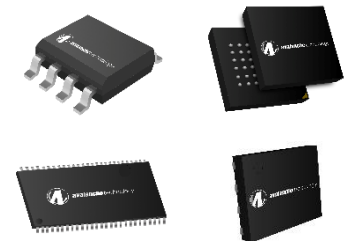
a Q-TECH Company

OCXO	$\pm 0,005\text{ppm}$ / Ultra Low Noise	10MHz to 150MHz
TCXO	$\pm 0,5\text{ppm}$	1MHz to 2,5GHz
VCXO	$\pm 5\text{ppm}$ / Low Noise	1MHz to 1,5GHz
SAW Oscillator	$\pm 350\text{ppm}$	500MHz to 1,6GHz
Quartz Filter	$\pm 1\text{ppm}$	10MHz to 100MHz
PRECISION CRYSTALS	SC, IT & AT-cut crystals for instrumentation , defense, space & other markets	Compliant to ESCC3501



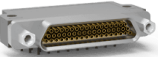
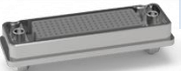
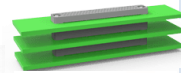
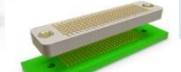
avalanche technology

Parallel x32 (Gen 3)	1Gb / 4Gb	75/300krad
Serial D-QSPI (Gen 3)	1Gb / 2Gb / 4Gb / 8Gb	75/300krad
Serial QSPI (Gen 1)	4Mb / 8Mb	75/300krad
Serial (Gen 2)	16Mb	75/300krad
Parallel x16 (Gen 2)	16MB / 32Mb / 64Mb	75/300krad



AirBorn



	Nano D	Rugged Nano-D metal shell - exceed MIL-DTL-32139	9-91 contacts
	Micro D / High Speed	Rugged Micro-D metal shell - exceed MIL-DTL-32139	9-128 contacts
	Macro D	Rugged (3A up to 42A per contact)	8-150 contacts
	High Speed Rectangular	Rugged - vertical board-mount, right angle board-mount, cable I/O, and flex circuit mounting	40-500 contacts
	SInergy	Rugged - 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	Rugged - 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	
	Active Optical Cables	fully-qualified, Space-Rated Active Optical Cable (SAOC®) & a Rugged Active Optical Cable (RAOC®)	

AEM

	HighRel Fuses	50 - 180 V	125mA - 20A
	HighRel Chip Beads	30 - 1000Ω	200mA - 4A
	TWM	RoHs to Tin Lead Conversion	

FLUX



	Inductors	ESA Technology Flow Qualified	Custom & Standard
	Transformers	ESA Technology Flow Qualified	Custom & Standard
	Inductors	ESA Technology Flow Qualified	Custom & Standard



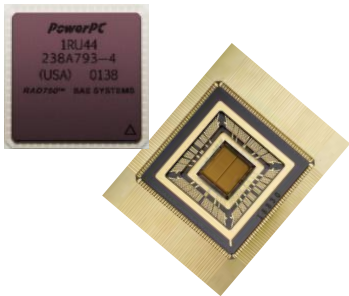
DPC G1	16bit openMSP430 – Digital Programmable Controller >60krad / SEL >72.2MeV / SEU >40MeV / 16 ADCs / 3DAC / 108 IO / PLL / PWM / Low Power 3x 30MIPS / MIL-1553 / CAN / UART / -55 to 125°C	µController
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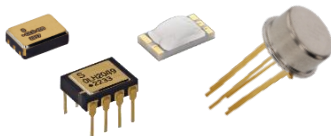
Transistors	NPN and PNP Small Single and Power BJTs	up to JANSR/F
Diodes	Zener, TC Zener, Schottky, Ultra Fast, Rectifier	up to JANS



SRAM	4M / 16M / 20M / 64M / 320M	100 / 300krad
PROM	256k	100 / 300krad
C-RAM	2M / 4M	100 / 300krad
Processor	RAD750 Power PC & RAD55xx SoC	100 / 200krad



Optocouplers	Many different types available like (OLS049 or OLS249) acc. to MILPRF19500 or MILPRF38534	
RF Diodes	PIN, Schottky, Varactor, Limiter	up to JANS equiv.
SPDT	SPDT and ST4T	up to 5GHz
RF Amplifiers LNA	Small QFM Packages 2x2mm	up to 6GHz
Other RF parts	Combined LNA with switch in one package, Gain Blocks	



ZES

ZERO-ERROR SYSTEMS

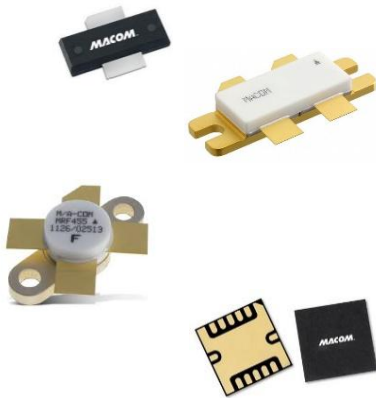
3A PoL (Point of Load)	V_{in} 2,5 to 5V / V_{out} 0.8 to V_{in} -0,5V	100krad/110MeV
ZES100 (LDAP)	Latchup Detection and Protection / EP Package QFN32L	300krad/110MeV
ZSOM-M01	System on Module (ARM M0+ Module for LEO Missions)	RadTolerant
ZES400 Quad Voter	1,8 to 5V Supply / EP Package QFN28L	300krad/110MeV

MACOM

Partners from RF to Light



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 Oscillator	
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	

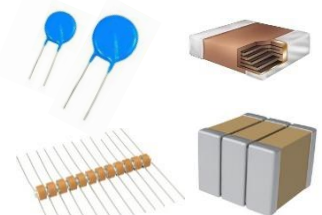





LVDS	EPPL → Quad Driver / Receiver and Dual Transceiver	
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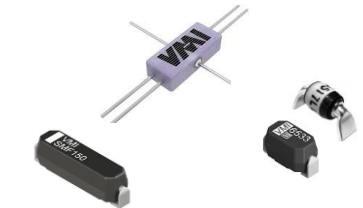



High Voltage Disc	3kV to 20kV / MIL-PRF-49467 Option	X7R / X5R / X5U / Z5U / NPO
High Voltage Multilayer	500V to 10kV / MIL-PRF-49467 Option	X7R / NPO



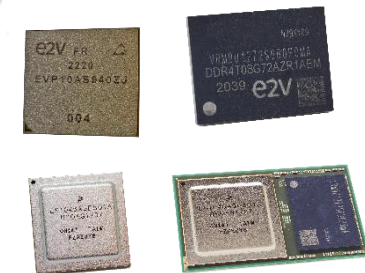


HV Diodes	2 to 20kV / 30 to 3000ns / 10mA to 3.5A / Axial & SMD	QPL available
HV Assemblies	HV Stacks & Bridges	
HV Opto	10kV and 15kV Optodiode & Optocouplers up to 25kV	





ADC	Base-Band up to Ka-Band	35GHz 12.8GSps
DAC	Base-Band up to Ka-Band	12b 12GSps
DDR4	4GB and 8GB, 100krad >60MeV	Up to ECSS Class 1
Processors	LS1046-Space (ARM A72 @ 1.8GHz) Power PC P2020 and P8548	
SiP Modules	QLS1046 and DDR4 Module	




Service Provider	Final Source Inspection or Pre-Cap Inspection	To combine with PO
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smiths interconnect



SpaceABLE 28G SL Series	4TRX, 12TX, and 12RX	FM
SpaceABLE 10G SL Series	4TRX, 12TX, and 12RX	FM
SpaceABLE 10G SM Series	4TRX, 12TX, and 12RX	FM
LightABLE 28G LL Series	4TRX, 12TX, and 12RX	EM
LightABLE 10G LL Series	4TRX, 12TX, and 12RX	EM
LightABLE 10G LM Series	4TRX, 12TX, and 12RX	EM

weeroc



Photodetector Read-Out	Series of 5 Chips, for LIDAR, Scientific Instrumentation and Mixed Signal Readout with ADC and TDC	
Dual E-Circuit Breaker & Current Limiter Controller	Programmable and fail-safe power control on rail from 20V to 130V with a current limitation up to 12A	

EPSON



Inertial Measurement Unit (IMU)	Low Noise, High Stability, Wide Dynamic Range (New Space)	
Vibration sensor	High performance Vibration sensors (New Space)	
Accelerometer	High dynamic range, low drift & digital output (New Space)	

GSI TECHNOLOGY

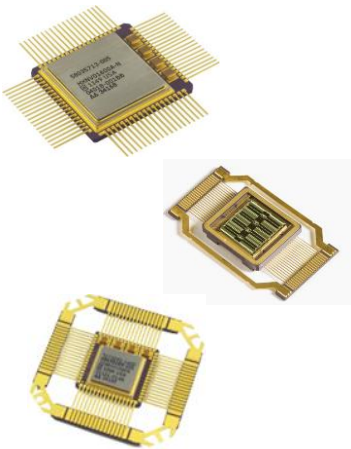


SRAM also RadTolerant	SigmaQuad-II+ (x18 / x32 configuration) 350 MHz	288M / 144M / 72M
SRAM also RadTolerant	SyncBurst & NBT (x18 / x32 configuration) 333 MHz	144M / 72M / 36M
APU	High Speed Parallel Computing for SAR, Imaging and AI Applications	

Honeywell



SRAM	QML-Q and V (x8 or x32 configurations)	256k to 64M
MRAM	QML-Q and V (x8 or x16 configuration)	16M / 1M
SER/DES	1-4 Lines or 1-8 Lines	up to 3,125GB/s
RS422	Quad Driver and Receiver	20Mb/s
LVDS	Quad Driver and Receiver	100MHz
Processors	HX1750 & HXRHPPC Microprocessor	
Logic	Quad 2-input NAND	
ADC	12 Bit Monolithic / Low Power	20 MSPS
DAC	12 Bit Monolithic	
Comparator	Common mode 0V to 5V / Input Offset Voltage +/-24mV	
Analog MUX	8-Channel	R _{ON} < 60Ω



Chip & Die Supplier for Hybrids

Monopoly



What we can offer

And many more, just ask us about your needs for Chips / Die and we will get you a competitive Quote

The grid contains the following logos:

- MACOM**
- DIODES INCORPORATED**
- POGEE SEMICONDUCTOR**
- MICROCHIP**
- MPS**
- Innoscience**
- BAE SYSTEMS INSPIRED WORK**
- SMC DIODE SOLUTIONS**
- Microsemi**
- die devices**
- infineon IOR**
- VPT COMPONENTS**
- VISHAY**
- EPIGAP**
- TELEDYNE e2v HIREL ELECTRONICS Everywhere you look**
- EPSON EXCEED YOUR VISION**
- SEMICOA A DIVISION OF OSI OPTOELECTRONICS**
- ES COMPONENTS Proven Quality. Proven Performance.**
- GeneSiC SEMICONDUCTOR**
- SKYWORKS DEFENSE AND SPACE**
- Navitas**
- onsemi**
- ISSI**
- TEXAS INSTRUMENTS**

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ITALY

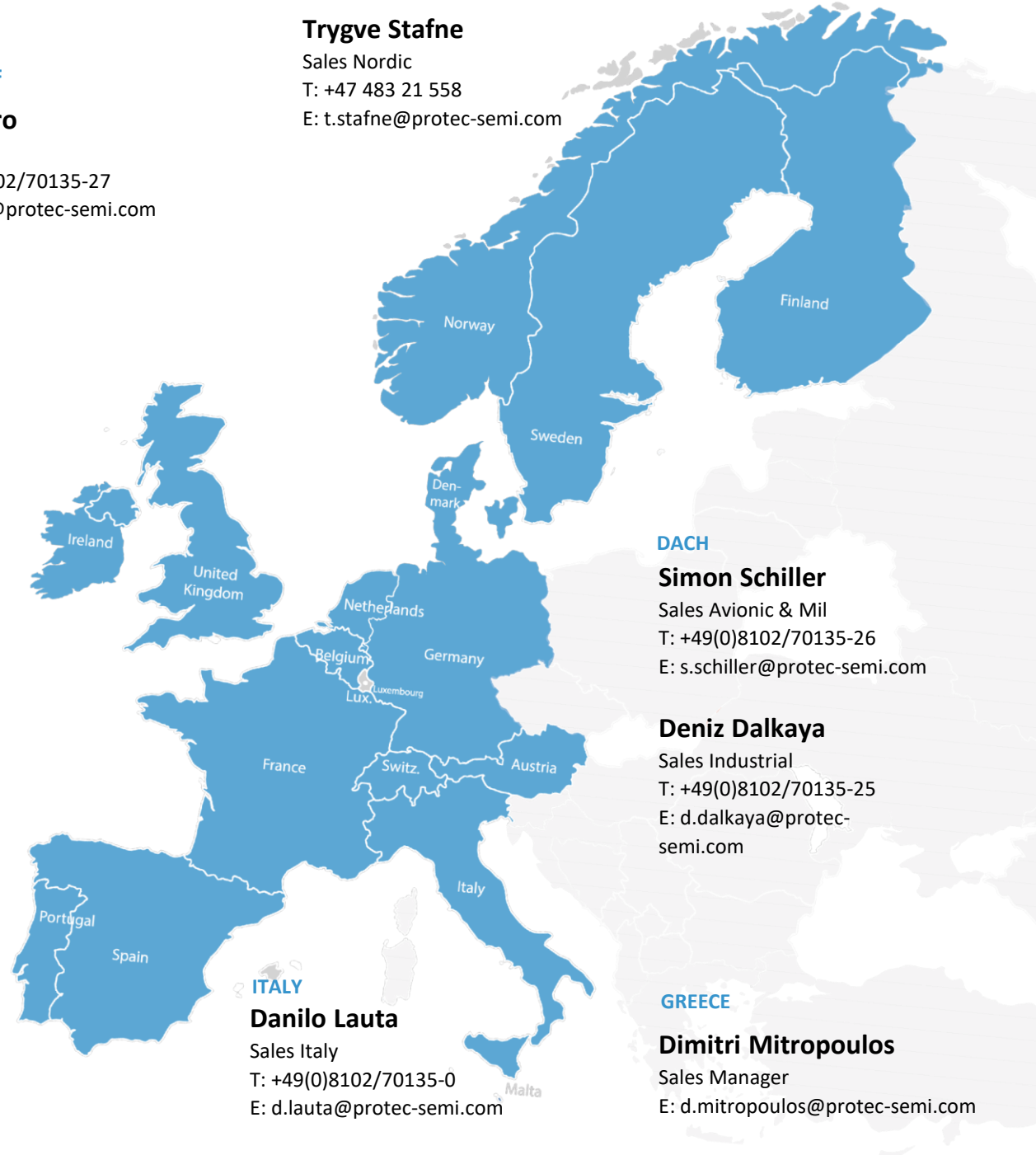
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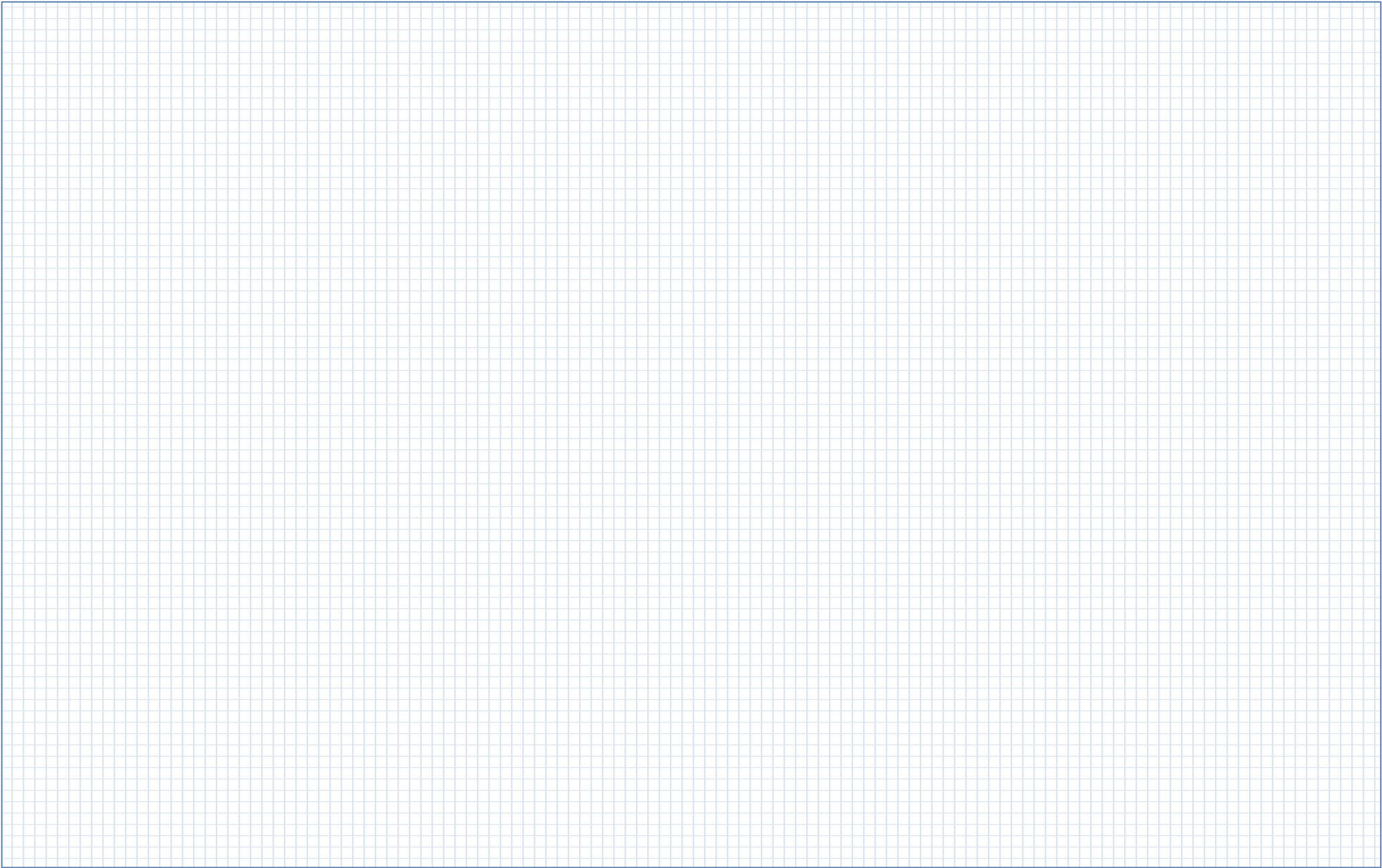
GREECE

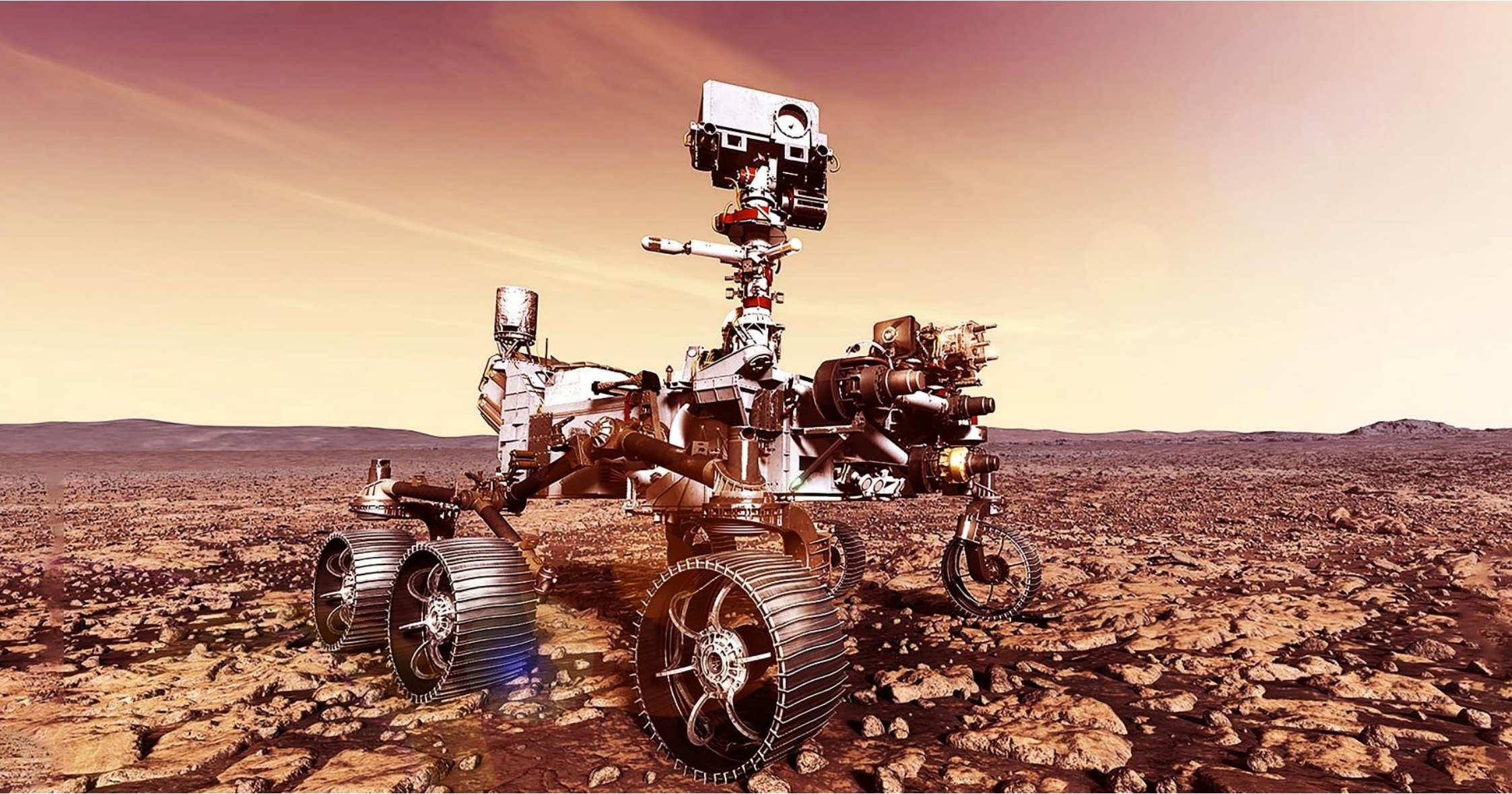
Dimitri Mitropoulos

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E: d.mitropoulos@protec-semi.com



Space for your Notes:

A large rectangular area filled with a light blue grid pattern, intended for taking notes. The grid consists of small squares, with slightly thicker lines forming a larger grid structure.



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