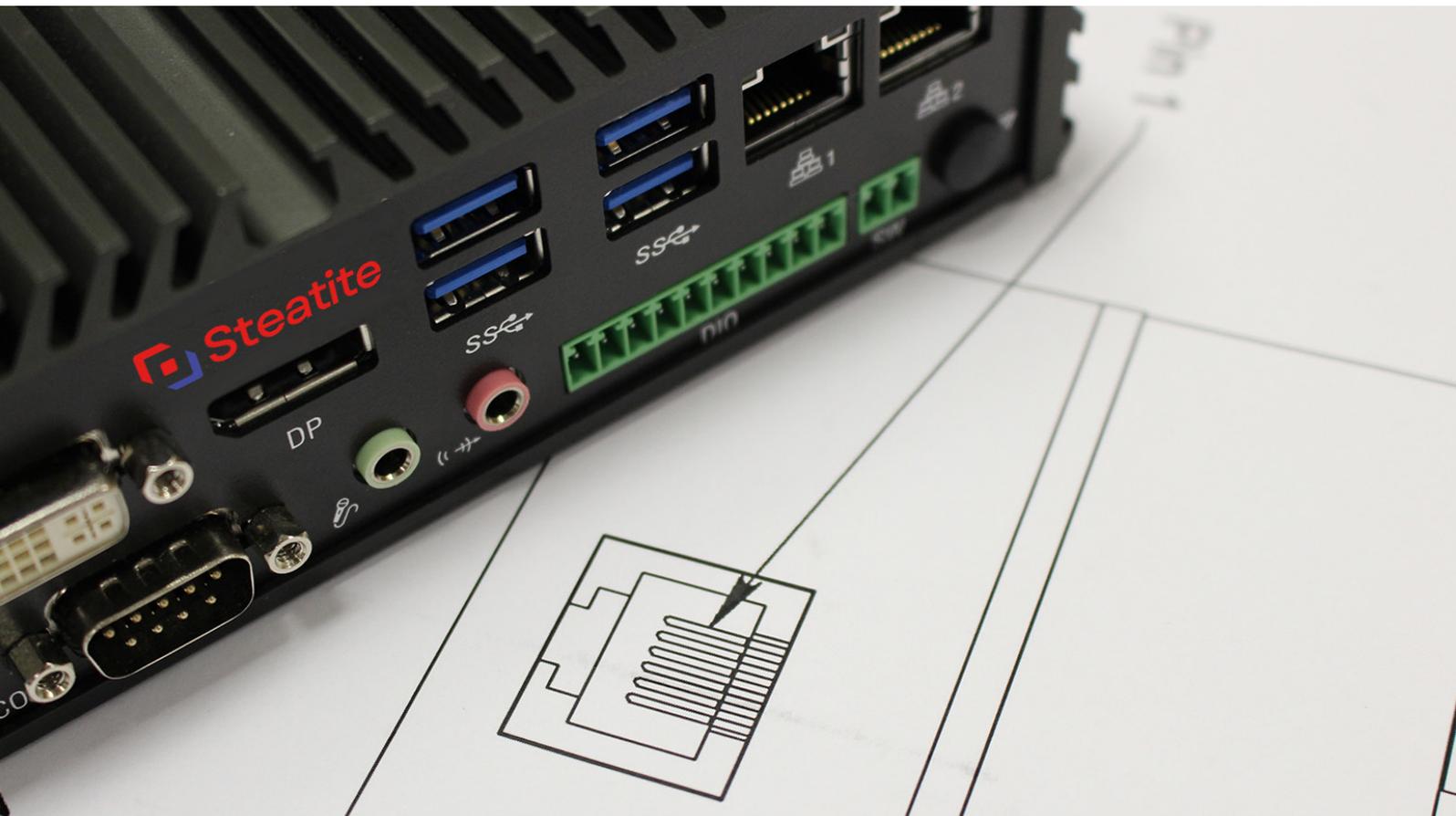


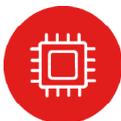


STEATITE SYSTEMS PRODUCT EXAMPLES



TECHNOLOGY FOR EXTREME ENVIRONMENTS

WWW.STEATITE.CO.UK



COMPUTING



BATTERIES



COMMUNICATIONS



ANTENNAS



IMAGING



STEATITE COMPUTING

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Steatite offers computing, power, communications, antenna and imaging technology for a range of challenging applications.

With full system integration capabilities, our team of designers, engineers and specialists can assist with projects of any size and complexity, from start to finish (and beyond). Steatite products are designed and manufactured in-house using our state-of-the-art production and testing facilities across the UK and US.

Engineers need components that will continue to deliver high-performing, reliable solutions which remain available for many years. Steatite understands this, and our products can be customised to meet the specific requirements of each application, and easily added to or upgraded when needed.

Steatite is the perfect fit for projects which require expertise across multiple disciplines without compromising on dedicated support.



Designed and built to provide reliable operation in demanding environments, our computers can **withstand shock, vibration, dust, moisture and extremes of temperature** which would normally cause the rapid failure of conventional computer hardware.

This makes them ideal for **security, defence and surveillance** environments where reliable operation and portability are key. Our systems also deliver powerful processing and flexible I/O options to **industrial, transportation and medical** applications. Many of our units are modular and all are customisable to suit any computing demand.

High-Performance, Ruggedised Computers

When your application faces these challenges, you need a reliable, trusted solution:

- **System is subject to shock and vibration** – Steatite military grade computers are designed to meet MIL-STD-810G and DEF STAN 59-411 standards for shock and vibration.
- **Target industry is highly regulated, such as medical and transportation sectors** – many of our products are certified to medical standards including EN 60601, EN 50155 for rail, and IEC60945 for marine as well as environmental standards such as UK DEF-STAN 00-35 and EMC standards including 59-411 and MIL-STD-461.
- **Extremes of temperature, such as those experienced in the field** – most of our units will operate reliably between 0°C and +50°C, and beyond for some components: -20°C to +70°C in some cases and even -40°C to +85°C.
- **Exposure to dust and moisture** – housings are custom built to keep critical components protected from particle and water ingress. Relative humidity up to 75% is no problem, and minimising moving parts further enhances durability. Our rugged computers are salt mist tested and certified to IP65/66/67 as required.
- **Long-term availability of parts is required** – Our partnerships with trusted suppliers means that our computers will remain in production for many years, and forward-thinking compatibility means they can be easily upgraded or swapped out without requiring a larger system overhaul.

Military Grade 1U Rack Mount Computer

Built for use in RADAR & Below Decks Communications Systems, the small 1U form factor also meets the requirements of power-hungry, high-speed industrial systems.



Military Grade 1U 15" 8 Port Keyboard/Video/Mouse (KVM)

Encompassing a 1024 x 768 LCD display and 8 port HDMI/USB switch specifically for communications & distributed computing. In addition to supporting military communications, it also enables faster industrial networking and mobile computing.



1U Shallow Depth Industrial Rack Mount computer with Intel Core i3/i5/i7/i9 CPU

The RM-1000-CL is one of the smallest industrial 1U computers that offers powerful 10th gen Core i9 CPU performance and dual PCIe x8 expansion.



2U Shallow Depth Industrial Rack Mount Server With Dual Xeon Scalable v2 CPUs

The RM-2200-LB is possibly the shallowest 2U server available that supports dual Xeon CPUs, redundant power and full length, dual slot graphics cards.



LM-1000-CL Low Magnetic Signature Fanless Industrial Computer

A high-performance embedded computer powered by an 8th/9th gen Core i3/i5/i7 CPU and up to 64GB DDR4 memory capacity for unprecedented performance to fulfil high-end computing requirements.



Industrial Graphics GPGPU Workstation with 8th/9th Gen Intel® Core™

The Steatite GW-2000 is a high-performance graphics/ GPGPU workstation designed for use in industrial graphics, surveillance and AI applications. It features extensive I/O plus further expansion options.



High Attenuation Smart Enclosure (HASE)

Steatite's HASE is designed to house power and provide full connectivity to a standard laptop, tablet or other electronic device and provide TEMPEST level protection for operation in a wide range of non-secure environments.



Steatite's battery business unit, Custom Power, is a specialist supplier of **custom-built lithium battery packs, portable power and energy storage systems** for industrial and defence applications. Our partnerships with world-class battery manufacturers and component suppliers provide us with access to the best technologies available.

With vast experience and a strong heritage, we work closely with our customers to develop safe solutions including **battery protection circuits, safety devices and circuits** that incorporate safety features, energy remaining calculation and life data.

Our batteries are designed for high reliability in the most demanding environments, for sectors as diverse as **oil & gas, oceanography and robotics**. We provide uninterrupted power supplies for critical use in **medical, military and transport** applications.

High-Performance Power Systems

With over 30 years' experience creating power solutions for worldwide applications, we deliver reliable, safe and long-life solutions.

- **High capacity** – with energy densities up to 730Wh/L or 270Wh/kg, our lithium-ion batteries offer the highest energy in the smallest space and for the lowest weight.
- **Next-generation technology** – higher energy densities are available for selected applications, accommodating ultra-high-capacity cells and additional functionality.
- **UN 38.3 tested** – all Custom Power high-power lithium-ion batteries have passed tests as per UN38.3 regulations and are safe for transport.
- **Custom battery design** – power packs to fit any space are designed from the ground up by our expert engineers.
- **Optimal cell chemistries** – We have access to cells covering chemistries from lithium-ion (NMC, NCA, LFP etc.) to nickel metal hydride (NiMH) and alkaline to lithium thionyl chloride (Li-SOCI₂), and we understand which will be the best option for each application.
- **Power in critical environments** – Our R&D specialists create solutions for delivering power in extreme temperatures, hazardous applications and uninterrupted supplies.
- **Environmentally-aware solutions** – Custom Power's Electric Powertrain Combustion Engine Replacement Programme (CERP) will provide an off-the-shelf electric powertrain for the conversion of internal combustion engine powered machinery to a clean, powerful and reliable drive system.
- **More than just batteries** – Custom Power expertise includes cutting-edge control electronics, enclosures, testing and transportation.

Lithium-Ion Standard Battery Packs

Using quality lithium-ion 18650 cylindrical cells from manufacturers including Panasonic, and incorporating industry-standard safety PCBs, Steatite CP lithium-ion batteries offer high capacity in a safe and convenient package. Our standard battery packs can also be customised to suit specific requirements without the need for a complete bespoke battery pack design.



Custom Lithium-Ion power modules

Custom Power modular battery packs are meticulously designed for reliable, continuous daily use in harsh environments where shock, vibration and varying temperatures are likely to be experienced. They are intended for medium to high power applications, such as those outlined under our Combustion Engine Replacement Programme (CERP). Our custom design service allows customers to stipulate the required shape, size and electrical requirements of bespoke power packs.



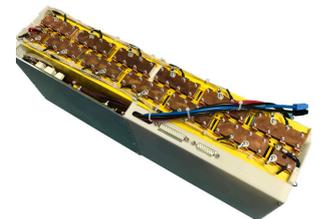
Flowmeter Single Use and Rechargeable Batteries

Flowmeter batteries use proven alkaline and high-capacity lithium battery technology to offer extended life batteries suitable for long-term deployments with a low total cost of ownership. With options for standard, 5-year and 10-year design life, Steatite flowmeter batteries increase the operational flexibility of ABB AquaMaster systems.



Pressure-tolerant battery solutions

Extensive research and development ensures that we stay at the forefront of battery technology innovation. For example, we initiated the development of a pressure tolerant lithium sulphur (Li-S) battery pack capable of powering Marine Autonomous Systems (MAS) at depths of up to 6,000m.



Steatite is a supplier of secure **military grade radio technology**. The company is widely regarded as the UK and Europe's leading technology expert in the use of **advanced MIMO communication systems** for tactical applications. Our team of communication specialists can tailor entire systems around the requirements of an individual project, making our solutions **flexible and highly reliable**.

Used widely in **military and defence** environments, our communication technology is also suitable for use in **transportation, maritime, emergency services, UAV, UGV and USV** applications.

What does Steatite bring to your communication network?

Our products leverage the power of Persistent Systems' cutting-edge Wave Relay® MANET technology to meet these challenges:

- **Operating in harsh environments** – all the durability and rugged reliability required for operation in extremes of temperature, vibration, moisture and electromagnetic interference.
- **Communicating consistently with dismounted users** – products with optimised Size, Weight and Power (SWaP). Network your users with land, air and sea assets to provide a unified operational picture, maximising soldier safety and speeding up decision making.
- **Scaling up your mobile network** – long-range, high-throughput MIMO radio systems combined with industry-leading multi-hop routing capability (**Wave Relay®**).
- **Sending and receiving critical communication** – our products deliver crystal clear voice, video and situational awareness data, combined with powerful computing and processing capability.
- **Creating your own private network anywhere** – our systems can be built to cover a large geographic area and have beyond-line-of-sight interface capability keeping all your assets connected.
- **Training your users to optimise mission performance** – Steatite is Europe's leading provider of training services for the Wave Relay® product range.

Universal Command & Control Terminal (CRiB)

Developed by Steatite to be highly mobile, easy to use and quick to deploy, the CRiB provides a smart command and control system ideal for tactical operations. With the ability to maintain full connectivity whilst on the move, the CRiB ensures that commanders keep up with the battle picture.

Playing an integral part of any Mobile Ad Hoc Network (MANET), the CRiB provides an instant viewing terminal for full motion video (FMV), situational awareness and other sensor data, all from one convenient HQ management platform. The integrated MPU5 radio provides the CRiB with an instant reach back to headquarters as well as providing secure access to enterprise services from across the globe.



Wi-Fi Dongle

New from Steatite, the dongle can be plugged directly into Persistent Systems' dual Push-To-Talk module and offers a customised web management interface. It features a built-in smart omnidirectional antenna, Wi-Fi speeds up to 150Mbps and power consumption of less than 1W. Adapter cables offer further flexibility.



Mountable Mobile Communications Unit (MMCU)

The MMCU is a high-throughput, secure and scalable for HQ and FOB comms solution predominately designed for use in ships, RHIBs and mast-mounted applications. It can also be used in vehicles and other land-based solutions. It delivers solid and reliable wireless connectivity for deployed users' USVs, ships and vehicles, far surpassing typical mesh networks.



GVR5 (Ground Vehicle Radio 5)

The GVR5 is a Dual Band Wave Relay® MANET solution, enabled with Wave Relay technology from Persistent Systems. Designed to integrate with your existing vehicle LAN, intercom system, and SATCOM/LTE networks making the GVR5 perfect for tracked and wheeled ground vehicles as well as aircraft.



With almost 50 years of microwave engineering, design and manufacturing expertise of **ultra-wideband single and dual linear receive and transmit antennas and subsystems**, Steatite Antennas has a proven capability to provide a wide range of high-quality antenna products.

Steatite's wideband antennas are suitable for a range of applications, including **surveillance and spectrum management, ELINT and COMINT, radar warning receivers, test and measurement** and **meteorological sensors**.

In-house test facilities include a state-of-the-art Spherical Near-field RF Test Chamber. This fully anechoic chamber measures 7m x 5m and is 6m in height, making it one of the largest in the UK. This superb facility enables full far-field measurements to be derived without the need to use a large-scale external test range.

What can we do for you?

Along with an extensive catalogue of 'off the shelf' antennas we have a back catalogue of bespoke design experience to draw on that means we can develop specialist, high-specification, custom-designed antennas from concept through to manufacture.

- **Exceptional design capabilities** – our team has been at the forefront of antenna design since 1973. The energetic and experienced engineers work with CST Microwave Suite, SolidWorks and practical prototyping, providing all the necessary skill sets to take a concept through to deliverable.
- **Consultancy** – our team can assist your design teams by undertaking technical concept studies, development studies or simulation work to validate your own design performance. Detailed RF and mechanical reports can be taken through to chamber-measured prototypes.
- **Extensive testing facilities** – to be sure your antenna will operate in the field as expected, we have our own RF test chamber capable of accommodating antennas ranging from hand-held horns up to 3m diameter dishes. Our antennas are therefore proven to withstand extremes of temperature, vibration, humidity and changes in altitude. The chamber is also available for contract hire to test and validate non-Steatite antenna designs with full data deliverable.
- **Experience with civil and military requirements** – we support applications as diverse as university laboratory testing, through airborne communications, direction-finding arrays to complete multi-antenna positioner mounted electronic warfare simulation test systems for naval or airborne systems.

EMC and HiRF Antennas

Our EMC antennas allow multi-octave frequency sweeps with a single unit, whilst high gain antennas offer low side lobes and consistent performance. Our products include wideband waveguide COTS antennas 400 MHz to 40 GHz and bespoke antenna solutions for precision EMC radiated immunity and emissions testing. The demand for high field strengths is catered for by a suite of HiRF antennas that produce field strengths of 3000 V/m with near-field gains of >20dBi.



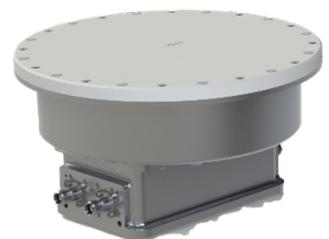
Spiral Antennas

Steatite spiral antennas provide broad beamwidth with a low squint, smooth radiation patterns and purity of circular polarisation. Typical airborne and ground-based applications include 360° direction finding, spectrum management, RWR and ESM. Steatite provides custom designed spiral antennas and, if required, can integrate lensed radomes to improve performance.



Sinuuous Antennas

With the capability to sense two orthogonal linear (V & H) or dual circular (RHCP & LHCP) polarisations simultaneously combined with wide bandwidth and broad beamwidth, Steatite's range of antennas provides fantastic intercept opportunities for a wide range of arbitrarily polarised signals making them ideal candidates for DF, RWR and ESM applications amongst many others. With a new 4-pole antenna offering V/H and 2 slant 45° polarisations from a single antenna, we are pioneering a new era in commercial sinuous antenna design.



Reflector Antennas

With a full portfolio of Prime Focus and Offset designs from 0.2m to 3m as COTS, we have a solution to suit your application, each of which further provides building blocks for more complex or bespoke designs. Feed horns in single or dual polar polarisation from 0.5GHz to 40GHz provide a vast number of options without considering where the reflector itself will be Aluminium solid, dual or quad split for transportability or indeed multi segment Carbon fibre. Combine any of the reflectors with an RH or LH CP feed and the permutations extend even further. Portable designs are supported by specialist MIL-STD packing cases including engineered internal foam support.



Our imaging business unit, Active Silicon has extended our capabilities to include imaging products and embedded vision systems. We provide **cameras and camera electronics** for image data transmission, **frame grabbers** for data acquisition and **embedded systems** for image processing and machine control.

Active Silicon products have applications in many areas of science and industry, including **manufacturing, life sciences, medical imaging, security and defence**. From space missions to large scale deployment of industrial vision systems, our computer vision experts **design, prototype, manufacture and support** components for cutting-edge image processing around the world.

Smarter, faster imaging

What can leading-edge imaging add to your application or machine vision system?

- **Add extra flexibility to your system with an autofocus-zoom camera** – select from a broad range of full HD and 4K cameras, choose between global or rolling shutter, powerful optical zoom from 10x up to 40x and very compact camera solutions. A wide variety of video output options include LVDS, 3G/HD-SDI, USB, HDMI, MIPI CSI-2 and IP H.264 Ethernet to suit any application.
- **Benefit from Harrier and BlueBird technology for long cable lengths** – superior cameras and interface boards enable digital video transmission over twisted pair cables up to 150m and coax cables up to 700m, with fiber optic offering the option of many kilometers.
- **Experience high-speed, high-resolution imaging with the fastest CoaXPress and Camera Link frame grabbers on the market** – data rates of up to 50 Gbps (CXP-12) with 24/7 reliability and precise, real-time triggering capability.
- **Reduce the processing load on the CPU with a GPU** – integrate a high-speed frame grabber in combination with a GPU to enable filter, convolution and matrix-vector operations to be performed by the GPU directly without the need to be processed by system buffers or by the CPU.
- **Enhance reliability and performance** – our custom embedded vision systems are designed for a specific imaging task, tailoring powerful image capture and transmission for use in demanding applications to reduce cost and increase dependability.

Harrier Autofocus-Zoom Cameras

Harrier cameras bring high-performance, compact vision solutions to industrial inspection, surveillance, transport applications and medical imaging. Using HD-VLC™ technology, high-resolution images can be transmitted over very long cables, up to 500m or more, enabling real-time video capture and processing to remote monitoring and pipe inspection.



Harrier Camera Interface Boards and Bluebird Adapters

Camera interface boards take data from the proprietary block camera interface and convert into industry standard formats such as 3G/HD-SDI, USB3, HDMI, MIPI CSI-2 and IP Ethernet. The BlueBird adapter provides host-end video acquisition and format conversion.



All modules feature very low clock jitter and stable outputs over a wide temperature range and are suited to many applications in broadcast, medical, industrial, security and defence applications.

Embedded Systems

Active Silicon designs and manufactures custom embedded systems, integrating leading-edge image acquisition technology. The embedded vision systems meet various safety, quality and medical standards as appropriate. Designed for a long product life, they retain the same fit, form and function for many years. Active Silicon systems are employed in various OEM applications such as medical devices, surveillance, industrial automation and robotics.



Frame Grabbers

CoaXPress and Camera Link frame grabbers provide high-speed, high-resolution image capture and processing. Compatible with market-leading software providers and computing platforms, the boards allow easy integration into your vision system. Active Silicon frame grabbers are used widely in industrial and PCB inspection, life science and research projects, surgical imaging and defence applications.





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