

**Welcome to the Future of Edge Computing!**

## Meet REN™ - Where innovation meets resilience at the edge of technology!

We invite you to think inside the box, not as a constraint, but as a gateway to unparalleled creativity. Our REN™ Series offers a cutting-edge ecosystem encapsulated in a robust chassis, providing a playground for engineers to explore diverse processors, customisable power configurations, flexible storage options, and an abundance of IO choices, including the versatile Mini PCIe cards.

Here, ingenuity knows no bounds; it's about envisioning your solution within the framework of our meticulously designed boxes. With REN™, you're not just embracing a product; you're adopting a mindset.

**THINK INSIDE THE REN™ BOX, AND EMBARK ON A JOURNEY WHERE YOUR IDEAS EVOLVE, ADAPT AND THRIVE.**



THE REN™ SERIES DOESN'T JUST PROTECT YOUR INNOVATIONS; IT AMPLIFIES THEM

### Your Vision, Our Canvas

REN™ isn't just a product range; it's a vision. A vision that dares to question the status quo, challenge industry norms and empower you to reimagine what's possible. It's a **pre-integrated tool** that adapts, evolves and invites you to pioneer new solutions, unburdened by the constraints of traditional Commercial-of-the-Shelf (COTS) approaches or stifled by budget constraints.



INNOVATE

## The REN™ Advantage - Flexibility

Flexibility is the driving force behind the concept. This is where REN™ steps in as a game-changer. Our range of rugged compute nodes is designed to empower your vision. Imagine having a versatile canvas to craft, adapt and revolutionise your edge solutions. The key benefits are crystal clear:

### 1. Adaptable Excellence

The REN™ Series is more than a product range; Unlike off-the-shelf solutions, it's your platform for creativity. It adapts to your specific needs. Whether you're venturing into IoT, AI, or data processing, REN™ offers a blank slate – a compute node that you can customise for your application. Connectors, IO and processing units – you decide what's inside.

### 2. Future-Proofing Your Innovations

Innovation never stands still and neither does REN™. With an upgradable processor, you're poised for technological leaps. Next-generation CPUs drop right in, ensuring you stay at the forefront of technology without reinventing the wheel.



### 3. Robust, Ready, Rugged

REN™ thrives where others falter. Our fully sealed, conduction-cooled systems are built to withstand extreme conditions. From microgrids to military applications, REN™ ensures your innovations prevail, no matter the challenge.

### 4. Part Integrated Customisable COTS

REN's the vessel for your genius. It's the option to build or finish your system, to experiment, innovate and design solutions your way. The possibilities are endless and REN™ supports you all the way

### 5. Cost-Effective Disruption

In a world of high costs and stiff competition, REN™ is your disruptor. It brings the reliability and ruggedness of traditional MIL-SPEC products to non-military customers at a fraction of the cost. High-end solutions are no longer out of reach.

### 6. Out-of-the-Box Testing

No more waiting. REN's design allows you to start testing your application immediately, saving you valuable time and resources. Get going from the day of delivery, take the lid/IO plate off, plug-in a standard cable set and give it to the software team. In parallel have the hardware team develop other IO, wiring, cables and connectors.

## Dive into the REN™ Series Product Showcase

Are you ready to explore a range of rugged computing solutions that empower your visions for the future?

Dive deeper into the REN™ Series and discover the versatile product options designed to revolutionise your projects.

**REN MINI:** The smallest system with a huge range of IO options way more than standard COTS. We can supply with;

- a). Eagle 6 core i9 CPU.
- b). Blackbird 4 core i7 CPU.
- c). Owl 4 core Apollo Lake ATOM.
- d). Harrier 4 core Apollo Lake ATOM.

Each of the above cards has lots of base card IO, Serial/ USB/ Ethernet/ ADC / DIO/ Multiple Display PORT. We can add single or dual miniPCIe cards to gain multiple Serial/ 10GE/ ADC/ DAC/ 1553/ 429/ WiFi/ LTE.

Now the important point is that the CUSTOMER chooses how to connector and cable the IO they require. We do have a standard set of Fischer MiniMAX connectors/ cables, but they are top shelf and customers are free to organise this themselves. There is a standard blank removable I/O plate, take it off, cut your holes, fit the connectors you want and put it back. If you mess it up, or you want to change later, just buy a new I/O plate. If you think about it, the above makes this box very easy to upgrade.

**REN 19:** Two versions are available a 14 inch deep and a 17 inch deep option. These are 19 inch rack mounting 2U fully sealed server/workstation boxes and offer a versatility and utility to the design engineer that we honestly don't think you can get anywhere else, without building it yourself. They can take combinations of rugged conduction cooled boards and provides a new way of looking at industrial or military systems development and deployment. Specifically on this point it takes away the months of agonising that systems engineers have to go through looking at chassis and connectors for traditional COTS based systems. A semi-custom assembly the REN 19 is for applications were COTS will not do and the customer has to build a custom solution and in this scenario the REN 19 offers a possible solution.

- Up To 3 x quad core i7 or hex core i9 processors.
- Up to 3 x 16 core ATOM Xeons for Server edge applications
- Up to 3x VPX conduction cooled cards in any VPX topology you want including SOSA.
- Additional Ethernet Switch card

Importantly the REN 19 has 4 removable IO Plates that can be used to host any connectors that the customer wishes to use, each plate has 35 x 160 mm usable area.

An IO plate can be removed and special M.2 dog box fitted hosting 4 x removable M.2 cards.

The lid is fitted for, but not with, 6 x Vicor + Filter PSU sites which interchange as SSD sites.

## Coming Soon

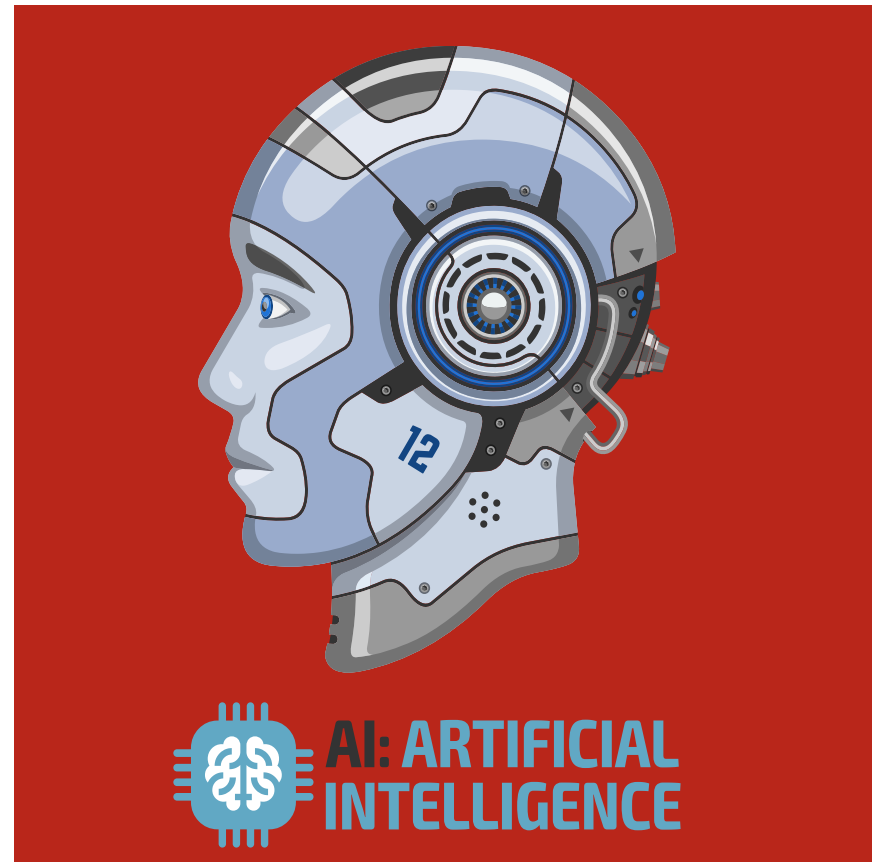
**REN MAXi:** When your vision requires more processing power, the REN™ MAXi steps in. Offering greater capacity, it still maintains the adaptability that defines the REN™ Series. Designed to sit between the 19 and Mini when their designs are either too large or too small.

### Key Features:

- Expanded form factor for more possibilities
- Blank IO plate for customised connectors
- It is sized to take a single VPX card (maybe 2), so that single conduction VPX cards can be deployed in systems. Switches/ Routers/ Processing Engines.
- 4/8 Core CPU or Server ESU
- PC104 dual stack x 2.



**REN MINI-AI:** Add on: The EDL-mPCIe-MA2485 from ADLINK Is an AI Mini PCIe add on card with single or dual Intel Movidius Myriad X MA2485 chips on board. With a -20 to +70C operating temperature this device (or 2 of them) can be fitted inside a REN MINI and provide a easy to use computer vision and deep learning acceleration, able to solve complex AI challenges. Supports Intels OpenVINO toolkit. REN MINI is a high-end embedded edge processing solutions for harsh environments, it allows customers to push their enterprise solutions out into the world and now customers can add the latest Intel AI chips.



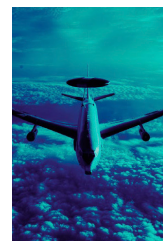
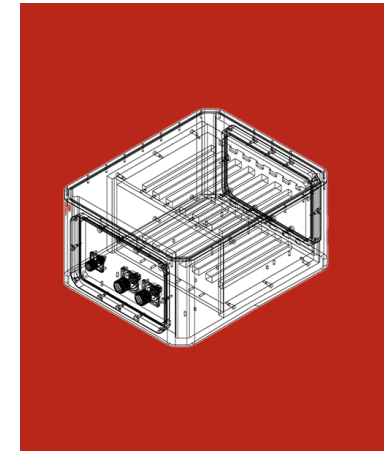
## For Our Military Customers

**REN™ HotBOX:** 4 Slot or 6 Slot VPX conduction cooled chassis designed primarily for ground vehicles and we aim to have the target box price much lower than the current COTS VPX market.

**REN™ VPX FlatPAK:** This REN™ 19 variant offers 2 or 3 VPX cards housed in a "2U FLATPACK" arrangement that interestingly uses Meritec cables as a pseudo backplane. This is our idea and we are developing it now. It will be of interest to engineers because it solves some issues with VPX, most importantly the price.

### REN™ EW: Electronic Warfare, Reinvented

Another suggested use for our REN™ 19 Chassis: For electronic warfare systems, the REN™ EW offers a game-changing solution. Three Pentek 6003 SOM RF SoC Xilinx boards and a 100G E switch make this a conduction-cooled 2U powerhouse.



# Tamper Proof

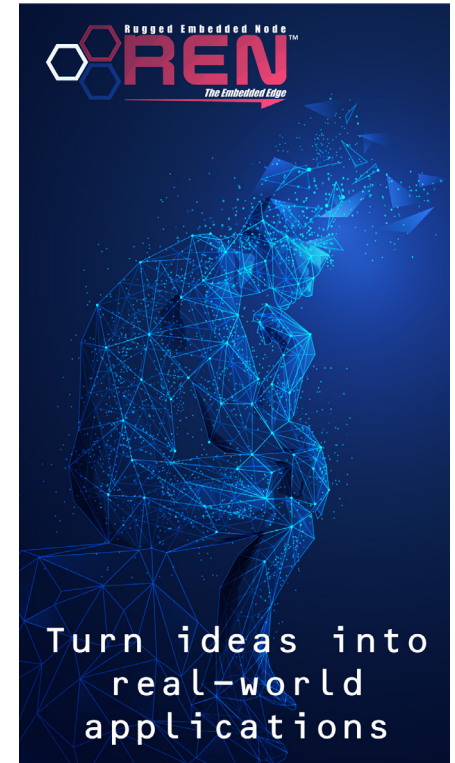


REN™ Series can also be supplied with tamper proof screws, even screws where there's a customer unique pattern/tool for removal. In addition, the use of non-standard PC connectors (customer's choice) means that there is a high-degree of physical security added to the system.



Fully sealed with no moving parts it is conduction cooled with an MTBF greater than 12+ years.

CURRENTLY THE FASTEST  
AND CHEAPEST ROUTE  
TO A DEPLOYED SYSTEM  
AVAILABLE IN THE WORLD!



Turn ideas into  
real-world  
applications

THE PROJECT  
BOX WITH  
A HIGH TRL  
LEVEL

## Who We Empower

**IoT Pioneers:** The REN™ Series empowers IoT pioneers with its robust computing capabilities and versatile I/O options, enabling seamless integration of sensors, actuators, and communication modules. Its rugged design ensures reliable performance in diverse environments, making it an ideal choice for IoT deployments, whether in smart cities, industrial automation or agricultural monitoring.



**Local Authorities:** The REN™ Series revolutionises local authorities' operations by providing resilient computing solutions tailored to smart city initiatives. With its rugged design and adaptable configurations, REN™ ensures continuous data processing even in challenging urban environments. Local authorities can harness its computational power for real-time traffic management, environmental monitoring and public safety applications. REN's diverse I/O options enable seamless integration with IoT devices, enhancing data collection and analysis for informed decision-making. Its reliability and scalability make it an indispensable tool for local authorities striving to build sustainable, efficient and connected urban infrastructures

### AI Innovators:

AI innovators benefit from the REN™ Series' computational prowess, allowing them to deploy sophisticated machine learning models for real-time data analysis. Its edge computing capabilities facilitate on-device processing, reducing latency and enhancing AI-driven applications' responsiveness. With customisable configurations and high-speed interfaces, REN™ provides the computational backbone for AI innovations across various sectors.

**Data Processing Trailblazers:** The REN™ Series is a cornerstone for data processing trailblazers, offering high-speed data processing, customisation options, and edge computing capabilities. Its scalability ensures seamless expansion as data volumes grow, while its diverse I/O options facilitate interoperability with various systems. Enhanced security features and optimised workflows further elevate data processing efficiencies, empowering trailblazers to delve deep into their datasets, innovate with algorithms and achieve unparalleled operational excellence.

**Microgrid Distributors:** The REN™ Series, with its robust and customisable design, serves as the cornerstone for microgrid control systems. By providing a reliable, rugged and adaptable computing solution, REN™ ensures uninterrupted operation of microgrids. Its conduction-cooled chassis guarantees optimal performance even in harsh conditions, making it ideal for deployments in extreme climates or areas prone to natural disasters. The flexibility to choose processors, power configurations, and storage options allows microgrid engineers to tailor the REN™ Series precisely to their project requirements.



Designed and manufactured in Australia by Unitronix the REN™ box series offers an innovative and unique way of looking at how to deploy high-end processing systems into applications such as ; Smart Cities - Microgrids - Water Treatment - Remote Monitoring - Mining - Oil and Gas. Traditionally these type of applications have utilised embedded microcontrollers and small low powered processing platforms in big cabinets. With today's enterprise applications requiring much higher processing power at the application edge, coupled with the demand for cyber secure platforms, the old way of doing things is becoming redundant. The issue is that commercial grade servers and industrial PCs are not rugged and require air conditioning/flow in order to operate. The low mean time before failure (MTBF) for these commercial systems is not in general that which would be considered sound when utilised in remote applications. REN™ boxes utilise Quad Core and Hex Core Xeon E processors as well as 16 core Xeon ATOM boards in single or multiple board configurations. The REN™ box is fully sealed against outside world elements, while conduction cooling transfers processor heat from the source to the REN™ box. REN's MTBF figures are well above the 12 year mark and can provide a reliable processing edge solution for a multiple of applications. With the constant march of technology, you can be assured that the Unitronix REN™ Series box is designed to accommodate the latest in high-end embedded processing technology.

## **Join the REN Revolution today**

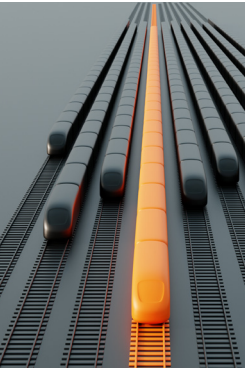
Are you ready to join the REN revolution? It's time to break free from the confines of conventional solutions and embark on a journey of innovation and endless possibilities. Let's redefine the way we engineer the future together.

### **Unleash Your Potential**

**If you're ready to tackle the challenges of emerging technologies head-on and transform your vision into reality, REN™ is here to empower you. Step into the future of engineering, where possibilities are limitless and solutions are boundless.**



**MADE IN  
AUSTRALIA**

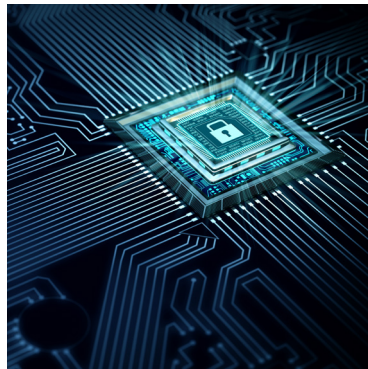


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THE EMBEDDED EDGE