



MISSION READY **PROTOTYPING**

Design, develop and deploy your system faster

The **REN 19-17 VPX** is a project box designed for **easy benchtop application development**, with **four available CPU locations**. It provides **ample internal space** for interconnecting cables and supports external connectivity via **four removable I/O plates** for custom connectors. Its flexible design allows customers to **thermally bond their own front-end solutions** or additional processing elements alongside those pre- or partially integrated by Unitronix.

Once development is complete, the REN 19-17 VPX can be fully assembled into a **sealed cocoon-style heatsink**, providing robust protection for the internal cards. This makes it suitable for deployment in rugged environments, supporting advanced prototype development and **low-rate initial production (LRIP) at TRL 4**.

This product is designed to accelerate development cycles, allowing engineers to **prototype and deploy systems in just 6 to 9 months**, compared to the traditional **2–3 year** timeline.

It is particularly well-suited to **Electronic Warfare applications**, where **RF front-end components** need to be integrated with **digitiser and backend processing cards**.

REN™ 19-17 VPX - Data Sheet

What is a REN 19 VPX?

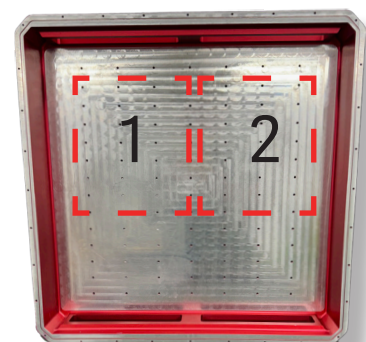
A 19 Inch rack mounted project box that offers benchtop prototyping and then deployment of the system at TRL 4 or 5, allowing for mission ready prototyping of the system.

- Effectively a large heatsink for VPX modules processing in extremely rugged and harsh environments where traditional air-cooled equipment just won't do the job.
- Is an item of utility for engineers who would normally build these systems themselves, but due to a lack of project time and low quantity requirements, an off-the-shelf solution is a more viable option.
- Fully O-Ring sealed enclosure against Water - EMC - EMI.
- Is flexible in its design. Any VPX module can be used. Inside the case there is room for 4 VPX FlatPAK Assemblies. Plus if required industrial embedded processors and customers own cards.
- Allows customers to develop with the lid OFF and the IO plates OUT. Once you have the software going, you then figure out what actual signals you need to connect out of the box and how they will be arranged on the IO plate. Fit the required connectors, bolt everything down and go and use.
- **Move rapidly from bench to field**

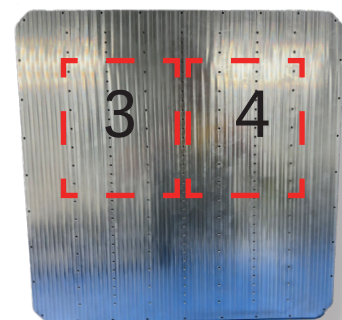
The lid on the REN 19-17 VPX is much heavier than on our Standard version and has the same hole pattern as the base, both of which are configured to host either our VPX FlatPAK 1 slot assemblies or VersaLogic's ESU, EPU, PCIe104 modules.



Processor Areas - Base



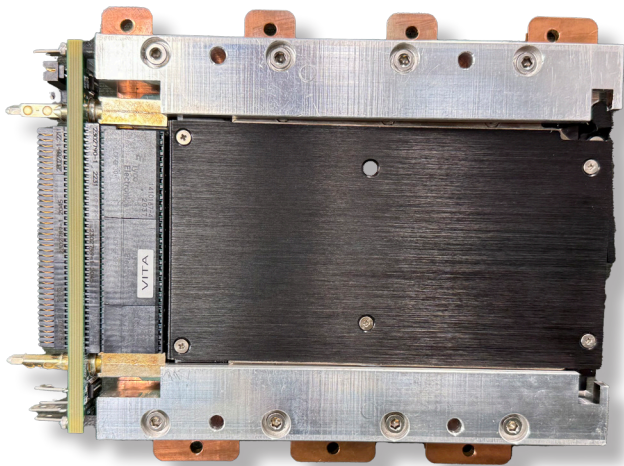
Processor Areas - Lid





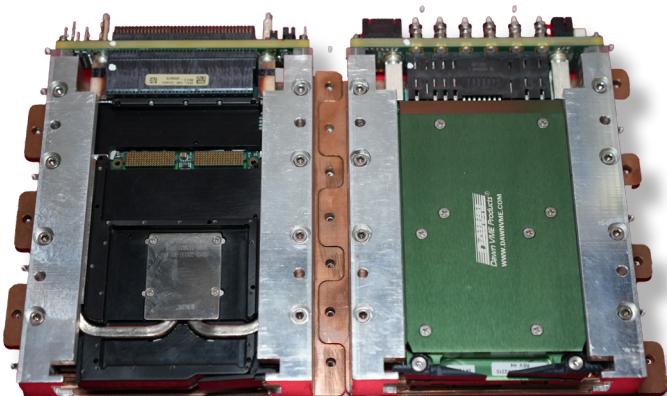
REN™ 19-17 VPX - Data Sheet

REN VPX FLATPAK ASSEMBLY



REN VPX FlatPAK is a single slot VPX card carrier, it can be supplied for 3U and 6U VPX cards and can be used on its own or in clusters. It uses 1-slot VPX backplanes in the SOSA format along with VITA 62 PSU backplanes to provide a modular way of utilising VPX cards.

Request data sheet for more information.



What sort of applications would run on REN 19 VPX?

It is not a traditional industrial embedded processing computer. It is for applications that need a high powered processing engine or cluster of engines, and will need to run those processors at a high ambient (external) temperature (60°-70°C) whilst completely sealing itself from the environment it is in.

Types of applications are:

Defence and next generation of Industrial, Energy, Robotics and Public Sector applications utilising AI, Data Analytics, IoT.

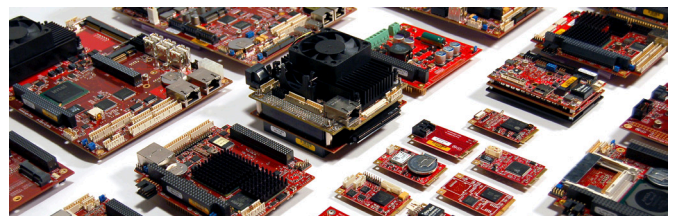
Get developing quickly.

As soon as you receive your REN™ 19 you can remove the lid, remove the blank I/O plate's and plug-in the development cable kit to be up-and-running developing the application. In parallel, customers can design their own I/O plate configuration and test whilst not interfering with application development.

Internal Card Configurations:

- 4x VPX Cards
- 4x EPU/ ESU
- Any combination of the above

Note: The cards heat dissipation will dictate the usable ambient temperature.



Remote Water Treatment

REN™ 19-17 VPX - Data Sheet

Unitronix manufactures a heat spreader plate for mounting these example cards inside the chassis.

EPU	DESCRIPTION
BLACKBIRD	4 core SkyLake CPU i7-6822EQ, SBC with TPM, tested to MIL STD 202.
SWIFT	6 core Xeon E Coffee Lake CPU E-2276ML ECC, TPM 2.0, tested to MIL STD 202.
EAGLE	6 core Xeon-E-2276ML, SBC with TPM 2.0, tested to MIL STD 202.
GRIZZLY	ESU 16 core server class processor and IPMI 2.0, dual 10GE, tested to MIL STD 202.
SABERTOOTH	PCIe104 6 core Xeon E-2276ML/ 4 core i7-9850HL/ 4 core i3-9100HL, tested to MIL STD 202.
SABERTOOTH AI	As above with NVIDIA RTX 2000 ADA GPU, tested to MIL STD 202. Note: Over 100 Watts so care must be taken in systems design.

VPX EXAMPLES	DESCRIPTION
CHAMP-XD3	3U VPX Ice Lake 10 core Xeon D-1700 HPEC and Cognitive DSP, SOSA Aligned
VPX3-1262	3U 100GbE Enabled SBC with Raptor Lake 14 core Processor, SOSA Aligned.
VPX3-E320	Ettus USRP E320 2CH Software Defined Radio , SOSA Aligned.
VPX6-485	Dual 20 core Xeon D-2700 and Cognitive DSP processors, SOSA Aligned.

REN™ 19-17 VPX - Data Sheet

Why doesn't REN™ have fins to help with cooling?

The design for REN™ series boxes is based on the assumption of no secondary cooling. The case uses thermal mass to absorb and regulate the CPU temperature for applications that would be following a pulsed processing profile. ie one where the CPU would be heavily used but not continuously. For customers where weight is an issue or they have other requirements we can fin and pocket the case side wall.

Cables

Unitronix can supply a set of test cables to go with REN in the VersaLogic configurations. These items will be ordered separately, as some customers may only want one or two sets before building their own cable harness. As each customer will be using REN for their own specific application, it is down to the customer to define their own external cable harness.

Security

The processing board has trusted platform module (TPM 2.0) installed, Secure Key, Execute Disable Bit, Secure Boot. REN Mini can also be supplied with tamper proof screws and even screws where there is 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.

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Dimensions - Above



Dimensions - Side View



Smart Agriculture

REN™ 19-17 VPX - Data Sheet

Unitronix are an innovative engineering-capable distributor and manufacturer of rugged, embedded computing solutions for military, aerospace and high-end industrial applications.

Established in Australia 1984, we have supplied and supported civil and defence programmes with reliable equipment needed to survive in some of the harshest environments.

In addition we design, develop and manufacture our own innovative Rugged Embedded Nodes - REN. These fully sealed project boxes have a high TRL and are aimed at new commercial industries such as: IoT, AI, Smart Grids, Data Analytics & Enterprise at the EDGE.

REN boxes are reusable, reconfigurable, recyclable, cutting carbon footprint and saving cost.

REN™ products are designed in Australia by Unitronix. REN™ boxes are made in Australia by Unitronix.
REN™ Systems are built and tested in Australia by Unitronix.
For UK customers in the future we will look at designing and manufacturing new designs in UK

Product Statement:

UNITRONIX provides an item of engineering utility of a generalised nature, COTS (commercial off-the-shelf). It is the customers responsibility to decide if this product is suitable and safe to use in the application they will be using the equipment. Customers are entirely responsible for the testing and subsequent performance of this equipment in their application. All sales are subject to Unitronix's general terms and conditions.

REN SERIES

REN MINi
REN MAXi
REN 19-14 STD
REN 19-17 STD
REN 19 EW
REN 19-14 VPX
REN 19-17 VPX
REN Ai
REN VPX 4 Slot
REN VPX 6 Slot
REN VPX FlatPAK Assembly

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