

Kontron HARAkan-F

VPX Rugged Compact Mission Computer

A rugged high-performance and flexible computer for modern defense computing applications: Vetrionics, C5ISR, Electronic Warfare, Autonomous System, Artificial Intelligence.



SWaP (Size, Weight and Power) - Optimized Embedded Computer

Up to Two 3U VPX Plug-in Cards

Latest Silicon Gen Intel® Core™ or Intel® Xeon® D CPUs

Qualified for Extreme Environment

VPX Rugged Mission Computer

Product Highlights

Kontron HAKKAN-F is a pre-integrated and pre-validated mission computer system, reducing cost, risk, and time to market. Typical applications for the HAKKAN-F system include mission computing, avionics, software defined radio, video capture, AI vision processing, rugged firewall, network gateway and electronic warfare.

Equipped with the latest generations of processors, the Kontron HAKKAN-F flexible and rugged processing system provides the highest functional density available in a small package. This conduction-cooled rugged embedded system is designed for reliable operations in harsh environments with or without the need of forced-air cooling.

Leveraging on Kontron's 3U VPX plug-in cards, the Kontron HAKKAN-F offers a wide range of configurations in terms of functionality, performance and I/Os.

The rugged integrated mission processing system offers two 3U VPX slots, thus enabling several custom configurations.

This approach using 3U VPX plug-in cards aligned to Sensor Open Systems Architecture (SOSA®) Technical Standard allows our customers to build solutions aligned with

Modular Open Systems Approach (MOSA) requirements, ensuring interoperability, maintainability and scalability at systems level.

This MOSA approach integrates technical requirements to support a more rapid evolution of capabilities and technologies throughout the product life cycle via the use of architecture modularity, open systems standards, and appropriate business practices. Ultimately, the aim is to provide the following

- › Reducing costs and timelines for designing a modified Commercial Off-The-Shelf (COTS) product
- › Schedule reduction and rapid deployment for the introduction of a new technology or technical upgrades and refreshes
- › Interoperability, including system of systems interoperability and mission integration

By choosing HAKKAN-F for their most demanding applications, our customers benefit from the latest technology available on the market, while having the option of refreshing their systems mid-program.

Designed and manufactured in Europe, Kontron HAKKAN-F is ITAR and BAFA free.

Typical Applications

Edge AI and Real Time Data Processing

Situational awareness systems accelerating decision-making for troops and command centers.

C4ISR and Sensor Fusion

Gathering and transmitting data from various sources, such as edge data and advanced sensor fusion.

Tactical Cyber Gateway

Secure real-time transmission across distributed command networks.

Advanced Mission Computer

Mission computers for combat vehicles, aircraft, ships, and other defense platforms. handling for EW and ISR payloads.

Electronic Warfare

Collecting and transmitting data from radars and other electromagnetic environmental sources.

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Kontron Scalable Solution for Multiple Programs with a Single Product

The HARAkan F approach, based on 3U VPX plug-in cards aligned with the SOSA® Technical Standard, enables our customers to build multiple system configurations.

These range from a low power solution using an Intel® Core™ i7 CPU in a fanless version, to high performance configurations combining a high-end Intel® Xeon® CPU with a NVIDIA RTX™ GPU in an air-cooled version.

The different configurations share the same design, including identical front I/O and form-factor, allowing customers to deploy them across different use cases while using the same cable connectivity and same software building blocks.

Furthermore, the architecture ensures scalability, enabling CPU or GPU upgrades to meet increased performance requirements or integrate next generation boards.

Kontron Security Solutions and Monitoring Tools

Moreover, all Kontron plug-in cards integrate security elements enabling Hardware root-of-trust (Kontron SEC-Line Element), at a time when cybersecurity is becoming a major issue for critical solutions. Features like TRUSTED BOOT and SECURE BOOT safeguard the system software during boot-up, detecting any alterations by verifying the signed software and scrutinizing the footprint of code fragments loaded during the boot process.

Learn more on the Kontron website:

<https://www.kontron.com/en/products/sec-line-elements/p148947>

Kontron also offers health-monitoring tools at the hardware level: Kontron CMON-Line is a turnkey, extensible and data centric solution for local or remote computer health monitoring. It complements Kontron's Power-On Built In Test (PBIT) which signals any modification made to the computer by comparing against previous computer configuration recording.

Learn more on the Kontron website:

<https://www.kontron.com/en/products/cmon-line/p150265>

For enhanced cyber security measures, Kontron can provide as sanitization solution upon request.

This solution will operate on the premise of purging sensitive contents from all user-accessible non-volatile memories by restoring them to their original factory-state data. The process involves not only overwriting the logical storage locations of files but also encompasses all user-accessible areas. This aligns with the 'clear' method outlined in the NIST SP 800-88 standard.



Kontron Solid Support throughout Product Life Cycle

Kontron HARAkan is available in production for a minimum of 10 years. Beyond the end-of-life date, dedicated Long Term Services are available to guarantee procurement, inform of significant evolutions of monitored frozen configurations, and propose best strategies to protect the future.

It is possible to extend the standard 2-year warranty of the Kontron HARAkan-F by one, two or three extra years, for a maximum total of 5 years.

By choosing Kontron, our customers also enjoy the support of a local technical support team fully dedicated to answering to technical questions and issues.

Deploying with Kontron HARAkan-F is a safe way to support a vast choice of modern defense applications and serve demanding new programs for the next decades, optimizing development efforts and long-term logistic.

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Technical Information HARAkan-F2-2

CPU	10 Core XEON-D	Intel® Xeon® D-1848TER 57W TDP, 15M Cache, up to 3.10 GHz
(GP)GPU	NVIDIA Option	NVIDIA RTX™ 2000 Ada GPU with 3072 CUDA Cores, 96 Tensor Cores, 24 RT Cores
Memory	RAM	32GB DDR4 soldered with ECC
Storage	Internal SSD Removable SSD Option	Internal 256 GB Removable NVMe SSD from 1 TB to 4 TB (Disk with AES-256 HW Encryption on request)
Default I/O	Ethernet USB Serial GPIO Video Output	5x 10/100/1000Base-T; 2x 10G Base-SR 1x USB3.0 / USB2.0 3 x RS232 or 3x 422/485, configurable 1x RS232 (Maintenance simplified serial port) 4x configurable GPIO 1x DP++ (only with Core i7 CPU)
Optional I/O	Video Inputs	2x SDI (please contact Kontron)
Supported OS	BSP	Linux 64 bits (default), Windows 11 IoT (on-request)
Dimensions	W x D x H	Fanless : 154 x 250,2 x 91 mm (6.06 x 9.85 x 3.58 inch) Air-cool: 157 x 324,85 x 92,5 mm (6.18 x 13,79 x 3.62 inch)
Mechanical	IP Level Cooling Method Weight	IP65 (contact us for IP67) Conduction cooled (thru Cold Plate) or/and Natural convection version and air cooled version 4 to 5 kg depending on configuration (8.8 to 11 lbs)
Other Features	RTC Secure Element	Optional Battery for RTC TPM 2.0
Power Supply Unit	DC-DC	Wide range 18-36VDC, MIL-STD1275E compliant
Temperature Range	Operating Storage	-40 °C to +71 °C (depending on configuration) -40 °C to +85 °C
Certifications	Therm/Mech EMC/EMI Others	MIL-STD810 (Optionally according DO-160) MIL-STD461(Optionally according DO-160) CE, REACH / RoHS

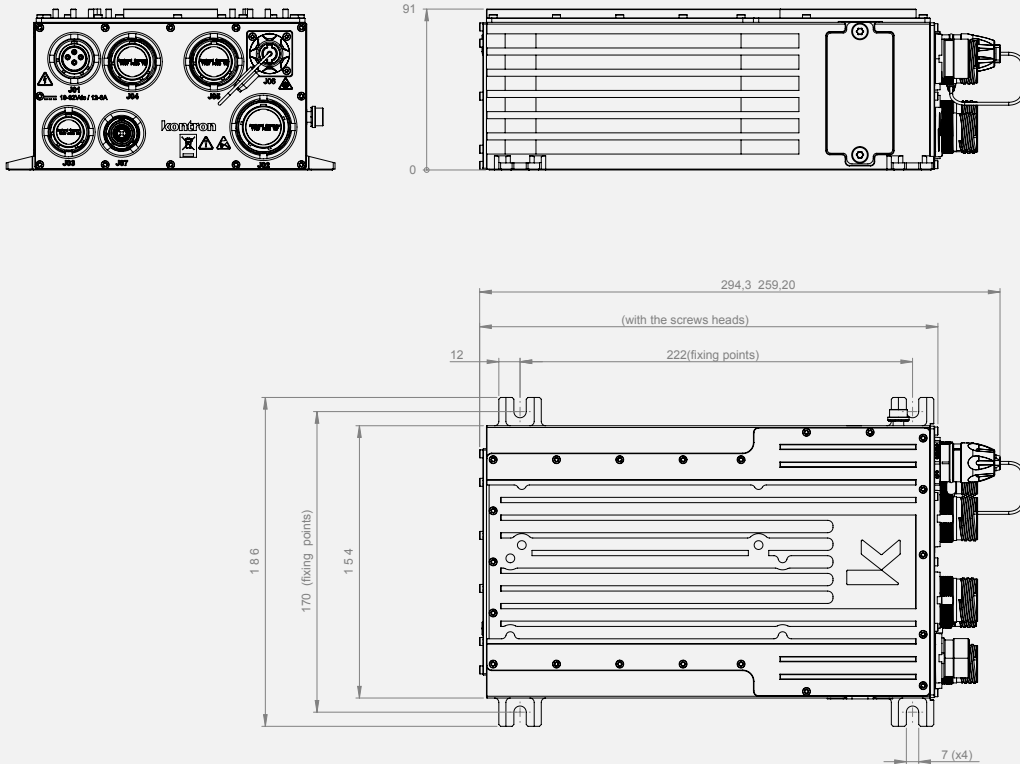
VPX Rugged Mission Computer

Technical Information HAKAN-F2-3

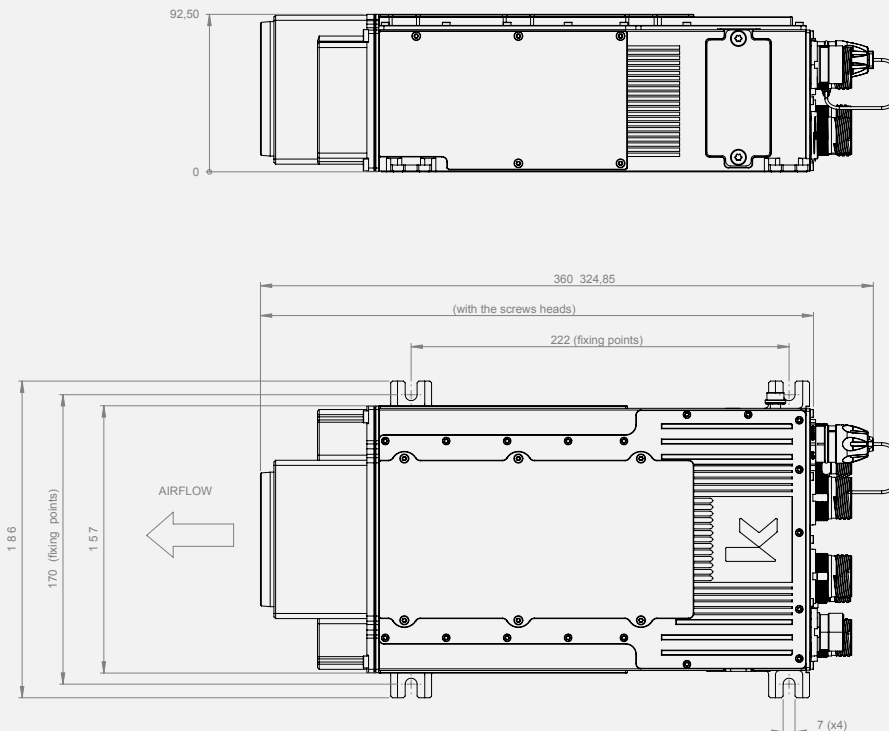
CPU	4-Core i7	Intel® Core™ i7-1185GRE, 12-28W TDP, Quad-Core @1,8GHz Base frequency, configurable up to 2.8GHz
(GP)GPU	Integrated GPU NVIDIA Option	Intel® Iris® Xe Graphics GPU, 32Eus on Core™ i7-1185GRE NVIDIA RTX™ 2000 Ada GPU with 3072 CUDA Cores, 96 Tensor Cores, 24 RT Cores
Memory	RAM	32GB DDR4 soldered with ECC
Storage	Internal SSD Removable SSD Option	Internal 256 GB Removable NVMe SSD from 1 TB to 4 TB (Disk with AES-256 HW Encryption on request)
Default I/Os	Ethernet USB Serial GPIO Video Output	5x 10/100/1000Base-T; 2x 10G Base-SR 1x USB3.0 / USB2.0 3 x RS232 or 3x 422/485, configurable 1x RS232 (Maintenance simplified serial port) 4x configurable GPIO 1x DP++ (only with Core i7 CPU)
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Other Features	RTC Secure Element	Optional Battery for RTC TPM 2.0
Power Supply Unit	DC-DC	Wide range 18-36VDC, MIL-STD1275E compliant
Temperature Range	Operating Storage	-40 °C to +71 °C (depending on configuration) -40 °C to +85 °C
Certifications	Therm/Mech EMC/EMI Others	MIL-STD810 (Optionally according DO-160) MIL-STD461(Optionally according DO-160) CE, REACH / RoHS

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Mechanical Specifications for Fanless Variant



Mechanical Specifications for Air-Cooled Variant



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Ordering Information

Article	Part Number	Description
HARAKAN-FZ-2HA0000-20C211Q	1080-4311	HARAKAN-F - 2 slots - SBC VX307C 10 cores Intel® Xeon® D-1848TER - 64 GB soldered SDRAM with ECC - NVME SSD 256GB with AES & TGC OPAL - No Removable Disk - No GPU - Front I/Os: 5x 10/100/1000Base-T; 2x 10G base-SR; 1x USB3.0; 3 x RS232 or 3x 422/485, full duplex (configurable) ; 1x Maintenance simplified serial port RS232; 4x configurable GPIO; 1x DP++ - No Battery - Conduction cooled (thru Cold Plate) or/and Natural convection - -40 °C to +55 °C - Power input Wide range 18-36VDC, MIL-STD1275E compliant - TPM 2.0 Secure element - PBIT RT & SSD with preloaded Linux
HARAKAN-FZ-3G10000-20C211Q	1080-4312	HARAKAN-F - 2 slots - SBC VX3060-S2 4 cores Intel® Core™ i7-1185GRE - 32 GB soldered SDRAM with ECC - SATA SSD 3D TLC 256GB - No Removable Disk - No GPU - Front I/Os: 5x 10/100/1000Base-T; 2x 10G base-SR; 1x USB3.0; 3 x RS232 or 3x 422/485, full duplex (configurable) ; 1x Maintenance simplified serial port RS232; 4x configurable GPIO; 1x DP++ - No Battery - Conduction cooled (thru Cold Plate) or/and Natural convection - -40 °C to +55 °C - Power input Wide range 18-36VDC, MIL-STD1275E compliant - TPM 2.0 Secure element - PBIT RT & SSD with preloaded Linux

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More
Information

