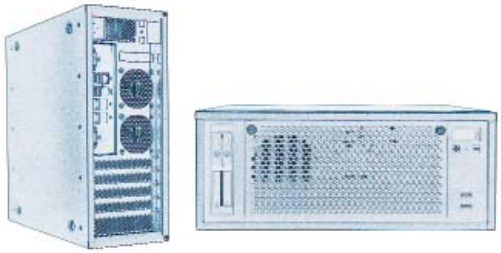
SPECTRA POWERBOX 4000

VERSION 2020|1

EMBEDDED SERVER FOR

ARTIFICIAL INTELLIGENCE, GPU COMPUTING &

MACHINE VISION



spectra
Industrie-PC & Automation

SMALL SIZE – HIGH TECH

Are you looking for a compact and flexibly expandable industrial PC with server power? Then the concept of the Spectra PowerBox 4000 series offers you the right solution.

The Spectra PowerBox 4000 is based on a compact basic housing of just 340 x 330 x 133 mm made of aluminium with a sophisticated heat management system and offers Intel® Xeon® Power with up to 28 cores.

SELECTION GUIDE

Spectra PowerBox 4000AC Equipement versions	TECHNOLOGY										APPLICATION			
Chipset / CPU (Model)	CPU Cores					Ethernet			Graphics			AI	GPU-Computing	Image Processing	Visualization
	6	8	10	14	28	10G	1G	PoE	RTX GPU	8K	4K/5K				
C622 Platin 8276 (KI)					✓	2	4				✓	✓			
C622 Gold 5119T (WS)				✓		2			✓	✓	✓		✓		✓
C622 Silver 4114T (BV)			✓			2	4							✓	
C612 E5-2658v4 (BV)				✓		2	2	4			✓			✓	
C246 i9-9900K (WS)		✓					2		✓	✓	✓		✓		✓
C246 i9-9900K (BV)		✓					2				✓				✓
C246 i7-9700K (BV)		✓					2				✓				✓
C246 E-2176G (BV)	✓						2	4						✓	

Models KI: Artificial Intelligence / WS: Workstation for GPU-Computing / BV: Image Processing & Vision

ALL UNDER CONTROL

CHASSIS

SPACE REQUIREMENT

Extremely compact housing with only 15 litres volume (compared to 4U server: typ. 40 litres. Ideal for space-critical and powerful server and workstation applications.

CONSTRUCTION

Due to the modular design, the housing is easy to maintain and can be flexibly adapted to customer-specific requirements in the event of a project.

THERMAL MANAGEMENT

A highly efficient power supply with low power consumption and the use of three temperature-controlled case fans ensure pleasant temperatures inside the case even under heavy loads.

Due to the extended temperature range from 0°C to 50°C (compared to the 4U server: typ. 5°C to 35°C), the system can be used directly at the machine in the production area.

The large-dimensioned air filter on the front side can be quickly replaced on site without tools.

DISPLAY

The 'intelligent' OLED display mounted on the front of the computer (optionally also mountable on the rear) enables remote monitoring via a web browser independent of the operating system.

VARIABILITY

Depending on requirements, the mounting brackets can be mounted on the front or rear side. This allows flexible mounting.

Additional rear panel cut-outs allow additional interfaces (CANbus) to be routed out without losing slots for plug-in cards.

Wall Mount

Table & Udertable

19"-Rack

POWER SUPPLY

Depending on the application, the Spectra PowerBox 4000 can be configured with a power supply for AC or DC operation.

AC INPUT

A 500 Watt AC power supply unit with 80 Plus Platinum specification ensures economical operation. With support for PMBus 1.2, the power supply unit can be seamlessly integrated into the monitoring of the entire system.

DC INPUT

A 380 Watt DC power supply (optionally upgradeable to 600 Watt) with Ignition Control enables mobile use as high-performance workstations, e.g. in test vehicles.

MANAGEMENT, MONITORING & SECURITY

SYSTEM MANAGEMENT WITH IPMI

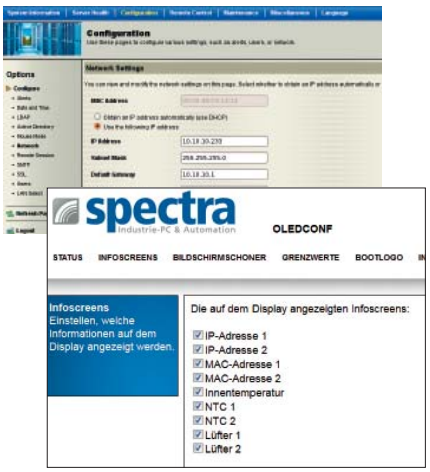
Remote access to the Spectra PowerBox 4000 Embedded Server with Intelligent Platform Management Interface (IPMI)

The Aspeed AST2400/AST2500 baseboard management controller integrated in all Spectra PowerBox 4000 systems, a dedicated LAN interface and the associated IPMI utility make remote monitoring and management simple and easy. IPMI works completely independent of the operating system.

SYSTEM SECURITY THROUGH TPM

Additional protection of the Spectra PowerBox 4000 Embedded Server through Trusted Platform Module (TPM)

The Spectra PowerBox 4000 systems can be equipped with an optionally available Trusted Platform Module according to TCG 2.0.
This module stores information such as keys, passwords, digital certificates and offers additional security functions.



THREE BOARD PLATFORMS

LEGACY APPLICATION

- C612 Chipset
- Broadwell-EP CPU
- 1 PCIe(x16), 2 PCIe(x8), 1 M.2 M

SCALABLE PERFORMANCE

- C622 Chipset
- Skylake-SP CPU
- 2 PCIe(x16), 1 PCIe(x8), 1 M.2 M

WORKSTATION USE

- C246 Chipset
- Coffee Lake-S & Refresh CPU
- 1 PCIe(x16), 2 PCIe(x4-in-x8), 1 M.2 M

NETWORK CONTROLLER OPTIONS

> Dual 10 Gigabit-LAN
> Quad Gigabit-LAN
> Single Gigabit-LAN
> Quad PoE-Gigabit-LAN

GRAPHICS OPTIONS

> Onboard: for simple monitoring
> CPU-integrated: for standard applications
> Profi-cards: for Hi-Q Multi-Display-applications

FURTHER BENEFITS

INCLUDED IN PACKING LIST

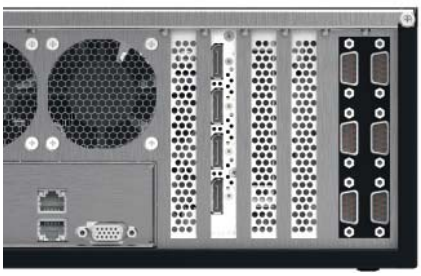
> Mounting brackets for Wall, Table & Undertable mount

OPTIONAL

> 19"-3U-Rack brackets for Rack mount
> TPM-Modul 2.0
> Projects upon request

PROJECT OPTIONS

The modular and variable Spectra PowerBox 4000 system allows a wide range of individual adaptations and modifications to be made on the basis of the three board platforms mentioned above. Ask our experts.



NUMEROUS APPLICATIONS

ARTIFICIAL INTELLIGENCE

Artificial Intelligence (AI) enables machines or robots to perform tasks that were previously only manageable with human intelligence.

These abilities include, for example, the perception and processing of environmental parameters, drawing conclusions from their changes and generalizing them and applying them to future developments.

Two important AI terms are Machine Learning and Deep Learning.

MACHINE LEARNING

Machine learning is based on a large amount of relevant data that is processed using complex mathematical algorithms.

Not only are the examples memorized, but patterns and laws are "recognized" in the learning data.

In addition to the appropriate IT infrastructure and software, this requires suitable computer systems that can process large amounts of data quickly or simultaneously, depending on the requirements.

DEEP LEARNING

If a system is able to link what has been learned with new content again and again, we speak of deep learning.

Mathematical rules for processing and evaluating the data are not sufficient here. The collected data is processed with the help of a neural network.

The multi-layered linking of these neural networks enables an almost "intuitive" evaluation of the information.

This enables machines to make forecasts and decisions.

GPU COMPUTING

The term GPU stands for Graphic Processing Unit. In GPU computing, this high-performance graphics processor handles the calculation of all image data at a high speed. This relieves the CPU and immensely increases the overall computing power of a computer. Typical applications are real-time raytracing or rendering.

REAL-TIME RAYTRACING

Real-time raytracing blurs the boundaries between reality and illusion.
The possibility of imitating the behaviour of light in a realistic way enables an unprecedented attention to detail and maximum photorealism.
Ray Tracing is often used for computer generated images (CGI) in simulation, gaming, film and television.

RENDERING

A detailed visualization of products, machines, plants or entire factories before the construction process requires a high computing power. Product or plant details that are photorealistically implemented in the 3D process enable product improvements, the reduction of development costs and an accelerated market launch.

MACHINE VISION

Machine vision - also known as industrial image processing - is an important component in the optimization and automatic control of production processes.
This includes the processing of image information as well as the visualization of process data.

INDUSTRIAL IMAGE PROCESSING

Industrial image processing has become indispensable in industry. Visual inspection in ongoing production has become an indispensable element. However, image processing is not only used in quality control, but also for reading codes, in robotics, in control engineering and in many other application areas.

VISUALIZATION

High computing power is required for process visualization. The visualization of measured values as well as process and configuration data prevents cost- and time-intensive disturbances in the production process. It is used in the simulation of production processes, in building automation, in quality management, and much more.

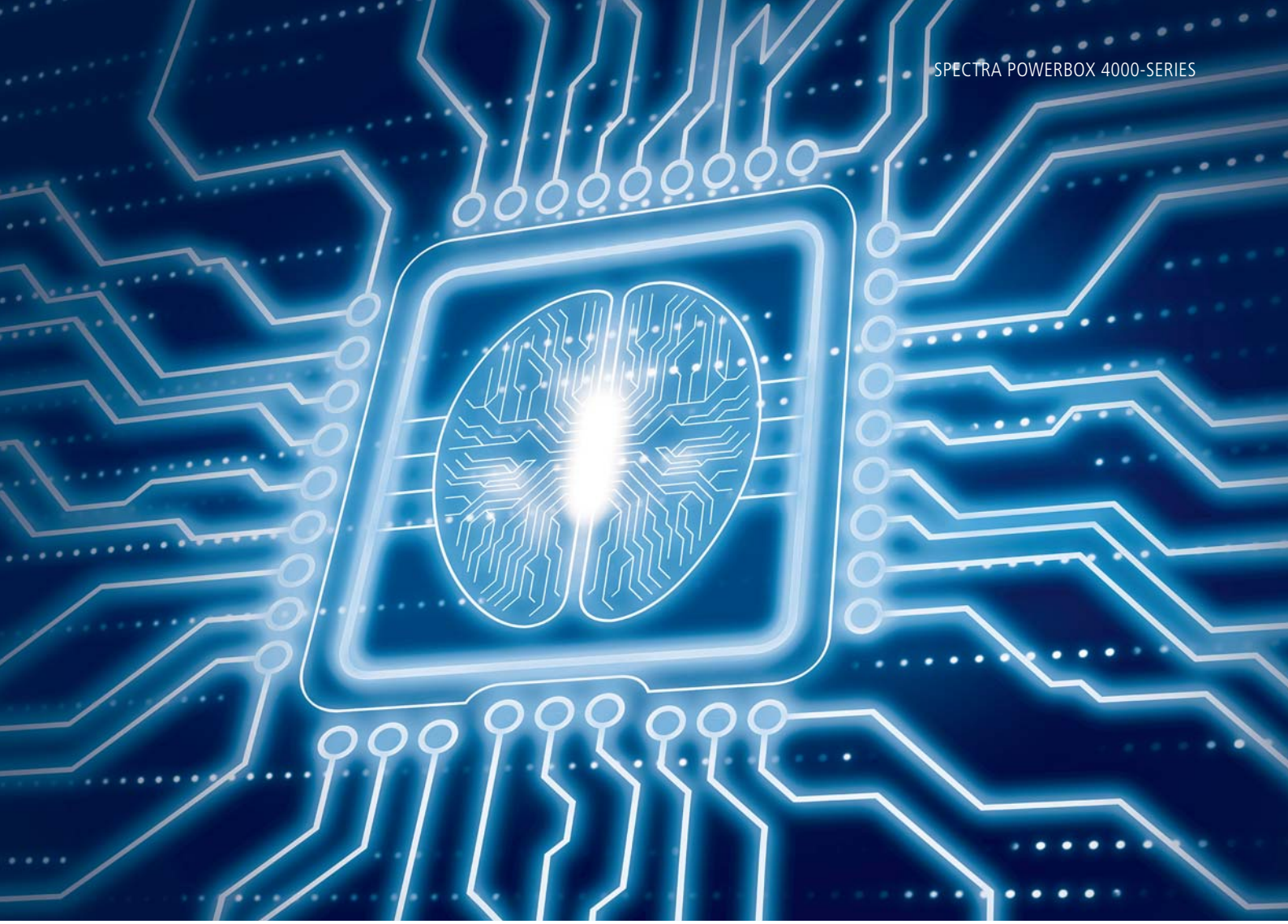
MOBILE

SELF-DRIVING VEHICLES

Everybody is talking about self-driving vehicles. Sensor and camera data, object recognition, etc. must be stored and processed. High temperatures, vibrations and different installation conditions must be taken into account. The Powerbox 4000 is available for both 12 V and 24 V on-board networks and can be conveniently controlled via Ignition.

CAR TESTING

Research and development in the field of self-driving is carried out with a variety of different tools, sensors, field buses and driver assistance systems. Due to its high scalability and compactness, the Powerbox 4000 adapts to the needs of the application. Another advantage is that it can be operated from the rear. Special accessories and special equipment are already available in small quantities.



COMPACT EDGE-PC FOR DEEP LEARNING (AI)

Spectra PowerBox 4000AC C622

Platin 8276 Win10 KI | Art. N° 160277

- Intel® Xeon® Scalable Platinum 8276, 28 Cores, 56 Threads, 768 GB RAM
- PNY Nvidia Quadro P400, 3x DisplayPort 1.4 for 1x 5K or 3x 4K resolution
- 2x Intel® 10Gigabit-LAN
- Further interfaces: 4x USB3.0, 2x USB2.0, 1x RS-232
- 1x PCIe(x16)3.0 and 1x PCIe(x8)3.0 free
- Storage: M.2 NVMe PCIe(x4) SSD
- Windows® 10 Professional for Workstations

COMPACT WORKSTATIONS FOR REAL-TIME RAYTRACING & RENDERING

Spectra PowerBox 4000AC C622
Gold 5119T Win10 WS | Art. N° 158067

- Intel® Xeon® Scalable Gold 5119T, 14 Cores, 28 Threads, max. 768 GB RAM
- PNY Nvidia Quadro RTX4000, 36 Raytracing cores, 288 Tensor cores (AI-Acceleration), 3x DisplayPort 1.4 + VirtualLink (USB-C) for 2x 8K or 4x 4K/5K resolution
- 2x Intel® 10Gigabit-LAN
- Further interfaces: 4x USB3.0, 2x USB2.0, 1x RS-232
- 1x PCIe(x16)3.0 and 1x PCIe(x8)3.0 free
- Storage: M.2 NVMe PCIe(x4) SSD
- Windows® 10 Professional

Spectra PowerBox 4000AC C246
i9-9900K Win10 WS | Art. N° 158074

- Intel® Core™ i9-9900K, 8 Cores, 16 Threads, , max. 128 GB RAM
- PNY Nvidia Quadro RTX4000, 36 Raytracing cores, 288 Tensor cores (AI-Acceleration), 3x DisplayPort 1.4 + VirtualLink (USB-C) for 2x 8K or 4x 4K/5K resolution
- 2x Intel® Gigabit-LAN
- Further interfaces: 6x USB3.1
- 2x PCIe(x4 in x8)3.0 free
- Storage: M.2 NVMe PCIe(x4) SSD
- Windows® 10 Professional

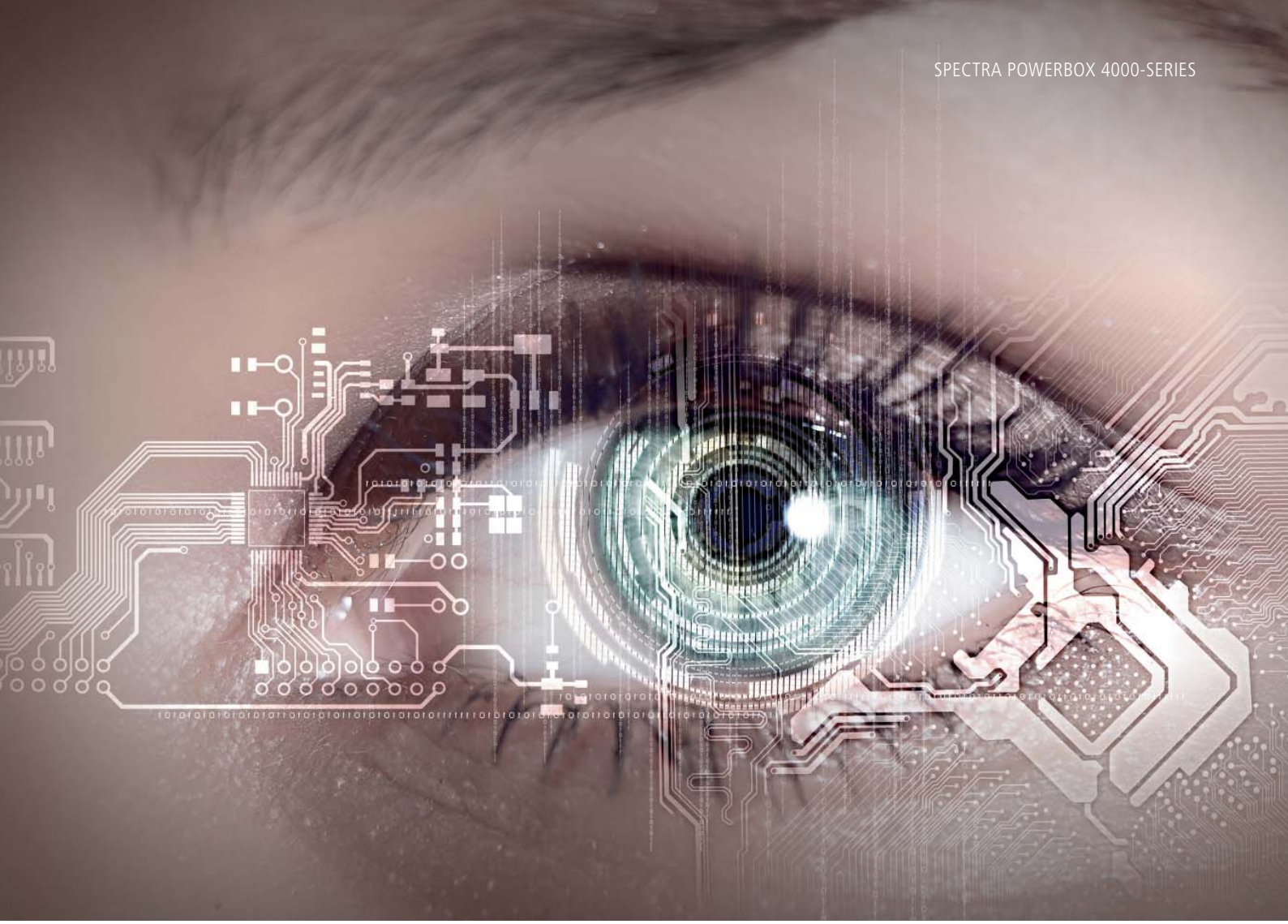
COMPACT-PCS FOR VISUALIZATION

Spectra PowerBox 4000AC C246
i7-9700K Win10 BV | Art. N° 156960

- Intel® Core™ i7-9700K 8 Cores, 8 Threads, max. 128 GB RAM
- PNY Nvidia Quadro P1000, 4x DisplayPort 1.4 for 4x 4K/5K resolution
- 2x Intel® Gigabit-LAN
- Further interfaces: 6x USB3.1
- 2x PCIe(x4 in x8)3.0 free
- Storage: M.2 NVMe PCIe(x4) SSD
- Windows® 10 Professional

Spectra PowerBox 4000AC C246
i9-9900K Win10 BV | Art. N° 158066

- Intel® Core™ i9-9900K 8 Cores, 16 Threads, max. 128 GB RAM
- PNY Nvidia Quadro P1000, 4x DisplayPort 1.4 for 4x 4K/5K resolution
- 2x Intel® Gigabit-LAN
- Further interfaces: 6x USB3.1
- 2x PCIe(x4 in x8)3.0 free
- Storage: M.2 NVMe PCIe(x4) SSD
- Windows® 10 Professional



COMPACT-PCS FOR IMAGE PROCESSING

Spectra PowerBox 4000AC C612
E5-2658v4 Win7 BV | Art. N° 150898

- Intel® Xeon® E5-2658v4, 14 Cores, 28 Threads, max. 512 GB RAM
- PNY Nvidia Quadro P400, 3x DisplayPort 1.4 for 1x 5K or 3x 4K resolution
- 2x Intel® 10Gigabit-LAN
- 4 x PoE (PSE) with 4 x 25,4 W
- Further interfaces: 4x USB3.0, 2x USB2.0, 1x RS-232
- 1x PCIe(x8)3.0 free
- Storage: 2.5" SATA-6G SSD
- Legacy Windows® 7 Professional

Spectra PowerBox 4000AC C622
Silver 4114T Win10 BV | Art. N° 156264

- Intel® Xeon® Silver 4114T, 10 Cores, 20 Threads, max. 768 GB RAM
- 2x Intel® 10Gigabit-LAN
- 4x Intel® Gigabit-LAN
- Further interfaces: 4x USB3.0, 2x USB2.0, 1x RS-232, 1x VGA
- 2x PCIe(x16)3.0 free
- Storage: M.2 NVMe PCIe(x4) SSD
- Windows® 10 Professional

Spectra PowerBox 4000AC C246
E-2176G Win10 BV | Art. N° 158075

- Intel® Xeon® E-2176G 6 Cores,12 Threads, , max. 128 GB RAM
- 2x Intel® Gigabit-LAN
- 4 x PoE (PSE) with 4 x 25,4 W
- Further interfaces: 2x DP, 1x DVI-I; 6x USB3.1
- 1x PCIe(x16)3.0 and 1x PCIe(x8)3.0 free
- Storage: M.2 NVMe PCIe(x4) SSD
- Windows 10 Professional

powered by individuality

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