![b-plus news logo]

TAILORED FOR
PERFORMANCE

19" Car Server DATALynx ATX4

Tailored for Performance

b-plus Develops Custom DATALynx ATX4 System

Edge computing is revolutionizing data processing, but it also comes with its own set of challenges. From limited hardware resources and strict latency requirements to the need for high scalability, companies must find ways to process vast amounts of data efficiently at the source. This is where b-plus steps in: „With the DATALynx ATX4, we have developed a solution that not only tackles these challenges head-on but also sets new benchmarks for performance, flexibility, and future readiness," says Roland Peindl, Product Manager at b-plus.

Picture: 19" Car Server DATALynx ATX4

Space and Energy Efficiency

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Performance Without Compromise

Another crucial factor in edge computing is performance. As data volumes grow and applications become more complex, edge systems must deliver high computational power with minimal latency. To meet these challenges, the DATALynx ATX4 is equipped with state-of-the-art hardware and is ideally suited for very demanding applications. The ATX4 specializes in complex data processing and data analysis, raw data recording, as well as high-performance AI applications. Its high graphics performance with multi-GPU systems enables the efficient processing of complex AI models and ensure fast and reliable computing power directly on site.

Unmatched Stability for In-Vehicle Applications

The DATALynx ATX4 is the only system in its performance class capable of directly operating on a 12V vehicle power network. Designed specifically for automotive environments, it supports a wide voltage range from 6V to 32V, ensuring reliable operation even under fluctuating power conditions. Unlike conventional systems, the ATX4 is built to withstand voltage drops, spikes, and transient loads, meeting the strict LV124 standard. This makes it resilient to challenges like start-stop cycles and jump-start events, providing uncompromised stability and performance in demanding vehicle applications.

Picture: Demo Car MAX equipped with b-plus Hardware and Software

Ultimate Precision Timing

Timing is critical in distributed multi-sensor systems but also highly complex. From signal generation to storage, data packets pass through multiple software blocks and hardware components, encountering propagation delays, transmission lags, and clock jitter along the way. As a result, measurement data often arrive at the recorder unit out of sync with their original timestamps, complicating accurate data fusion. However, precise temporal correlation is essential for correctly assigning sensor values and creating a complete system model. In order to meet these requirements for precise time stamping, the DATALynx supports the Universal Time Synchronization Services PTP and gPTP with the b-plus XTSS integration.

To counteract timing discrepancies, each data packet must be timestamped as early as possible, ideally at its point of creation. This allows transmission delays to be accounted for and ensures accurate data correlation. A unified time domain, maintained through continuous synchronization across all system clocks, is essential for safety-critical applications. It also forms the foundation for achieving safety certification in multi-sensor systems. With XTSS, we offer a widely configurable, plug-and-play capable and above all, highly accurate time synchronization solution.

TAI Clock Domain

The TAI clock (International Atomic Time) is taken into account as an external reference to events in the extended system network in the AD Validation Toolbox. This is synchronized via gPTP (IEEE802.1AS) or optionally via PTP (IEEE1588v2-Industrial Profile). The temporal assignment of the acquired measurement data can be done possible via the TAI clock. Thereby this domain 0 is used for a global temporal correlation of measurement data.

Working Clock Domain

The Working Clock Domain provides the time base for measurement and synchronization tasks and makes optimal use of hardware structures in the AVETO platforms. gPTP (IEEE 802.1AS) is used for synchronization over Ethernet based network connections. It additionally integrates into domain 1, defined in the IEEE 802.1AS-2020 standard. The clock of this domain runs continuously interference free from global influences, such as a GPS synchronization.

Efficient Data Handling at the Edge

Handling large amounts of data directly at the edge is a growing challenge, especially in real-time applications that generate continuous high-speed data streams. Storing, accessing, and transferring this data efficiently is crucial, yet traditional storage solutions often struggle with the limited space, power, and bandwidth constraints of edge environments. Without an optimized data management strategy, valuable insights can be lost, and system performance can suffer.

The DATALynx ATX4 overcomes these challenges with high-performance storage solutions and advanced data management tools. This system seamlessly and reliably offloads and manages data, supporting hot-swappable and hot-pluggable xSTORAGE devices, the Thunder Dock x8 docking station with Thunderbolt 3 connectivity, and the COPYLynx ATX4 for fully autonomous data ingestion. Ensuring seamless performance, even when running data-intensive applications.

xSTORAGE
Removable Storage Unit

Thunder Dock x8
Docking Station

COPYLynx ATX4
Data Copy Station

Reliable Data Security

One often overlooked, yet crucial aspect of edge computing is data security. By processing data closer to its source, edge systems become more vulnerable to physical attacks and unauthorized access. On the other hand, encryption is becoming increasingly important considering the constantly growing legal requirements of global data protection regulations such as the GDPR. That is where the b-plus Encryption Manager comes in.

A key feature of the Encryption Manager is password-protected encryption, which automatically activates when the storage unit is disconnected or powered off. This is especially valuable for mobile applications, where lost or stolen storage devices pose a security risk. Our encryption solution combines security with ease of use. Designed for effortless setup and management, it features an intuitive web interface that requires no technical expertise. For advanced users, a command-line interface allows full automation and script-based implementation. Built on the OPAL standard by the Trusted Computing Group (TCG), our technology integrates AES-256 hardware encryption directly into the storage devices. This ensures maximum security without compromising sustained write speeds on xSTORAGE units.

b-plus STORAGE Concept

Our latest video gives you an in-depth look at how the xSTORAGE system ensures fast, secure, and efficient data transfer for our BRICK and DATALynx recording systems. With its hot-plug and hot-swap capability, encrypted hardware protection, and user-friendly sliding mechanism, xSTORAGE allows for an uninterrupted workflow in demanding test environments.

The xSTORAGE solutions work seamlessly together with the Data Logger BRICK and the High-Performance Computer. DATALynx ATX4. As well as, the high performance copy station COPYLynx ATX4 and the brandnew docking station Thunder Dock x8

Take a look:

Looking Ahead to Part 2

The DATALynx ATX4 has proven itself as a high-performance, power-efficient, and secure solution, solving some of the most critical challenges in modern data processing. But edge computing does not stop there - ensuring long-term scalability, seamless integration, and cost efficiency is just as essential.

In Part 2, we will dive deeper into how the DATALynx ATX4 handles standardization and interoperability, intelligent system monitoring, scalability, durability, and cost efficiency - key aspects that ensure businesses are equipped for future technological demands. Stay tuned!

Featured Products

DATALynx ATX4

19" Vehicle Server

COPYLynx ATX4

Data Copy Station

x8 STORAGE Gen4 E1.S
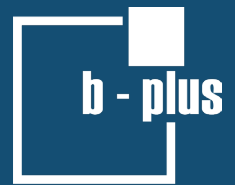
Removable Storage

Thunder Dock x8

Docking Station

TIME SENSITIVE NETWORK

XTSS

XTSS

Universal Time Sync Service

Democar MAX

Technology Carrier

PIONEERING
NEW MOBILITY

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