Tantor XData 2B:

HIGH-PERFORMANCE DATABASE MACHINE BASED ON CPUs DESIGNED IN RUSSIA

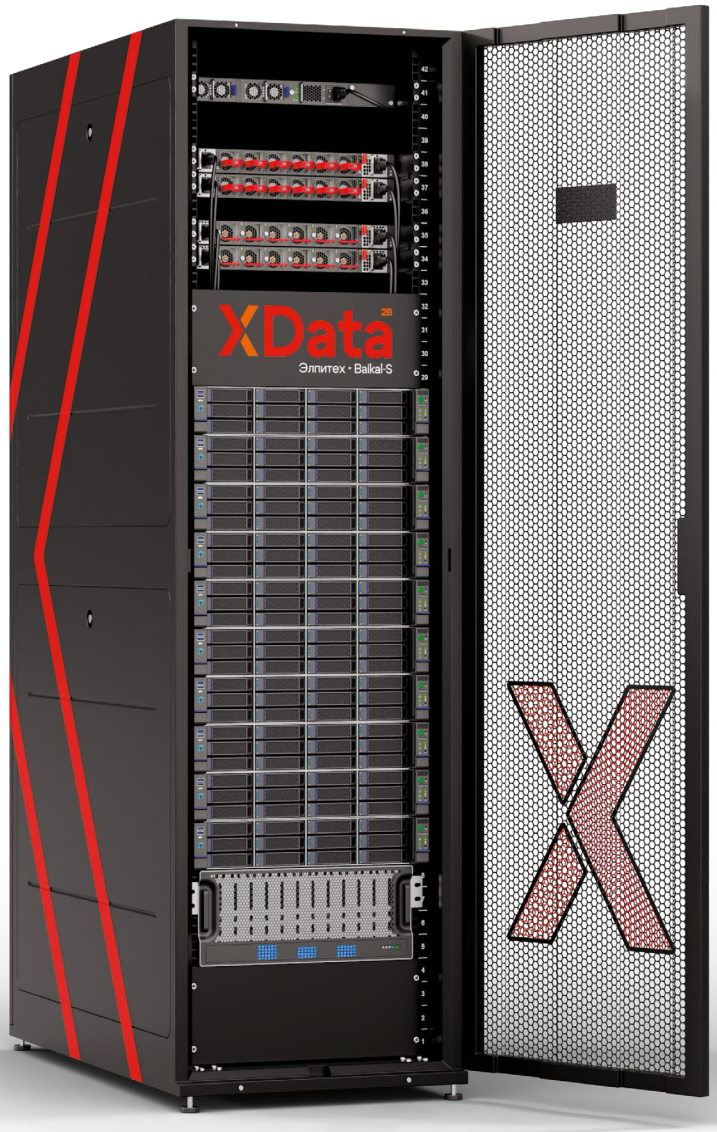
tantor XData 2B

- **Baikal-S** CPUs designed in Russia
- Performance, reliability, and scalability for OLTP workloads
- High-performance DBaaS service in your local data center
- API integration with the private cloud
- Intelligent maintenance management
- Reduced infrastructure and administration costs

ASTRA | Baikal ELECTRONICS | ЭЛПИТЕХ | CRYPTOPRO | BI TECH | Platformcraft РОССИЙСКОЕ ОБЪЕКТНОЕ ХРАНИЛИЩЕ

What is a database machine?

A database machine (DBM) is the next evolutionary step for businesses that have exhausted the capabilities of traditional DBMS and servers. If you already work with databases but face slow queries, scaling challenges, or unpredictable workloads, imagine a solution where hardware power and software logic are unified into a **single optimized system**.



Unlike standard systems, **a DBM is a specialized product designed for growing business demands**. It automatically allocates resources and processes tens of thousands of operations per second through **deep integration of hardware and software**. User-friendly management and maintenance let you focus on business goals instead of infrastructure issues.

The Tantor XData 2B DBM is built for high workloads, ensuring guaranteed performance, availability, and infrastructure security. Deploying Tantor XData 2B in corporate data centers or public clouds enhances operational efficiency, reduces administrative workloads, and lowers the total cost of ownership for IT environments.

Where are database machines used?

DBMs are widely used in systems where speed, reliability, and scalability are critical. Key applications include:

Financial sector and banking

- Real-time transaction processing (payments, transfers, stock trading)
- Anti-fraud and AML (Anti-Money Laundering) – rapid analysis of large transaction volumes
- Credit scoring and risk analytics – forecasting based on historical data

Tele-communications

- CDR (Call Detail Records) processing – call analysis and billing
- Personalized tariff recommendations – Big Data-driven insights
- Network load monitoring – predicting peak demand

Retail and eCommerce

- Recommendation engines
- Inventory management (demand forecasting)
- Customer behavior analysis – client segmentation

Public sector and security

- Social data monitoring and analytics
- Cybersecurity – real-time logs analysis

Industrial applications, IoT

- Predictive analytics (equipment failure forecasting)
- Sensor data collection
- Logistics and supply chain management

Tantor XData 2B hardware

The Tantor XData 2B is based on high-performance modern servers with Russian-designed Baikal-S CPUs (ARM Cortex-A75 architecture) manufactured using 16 nm technology. These CPUs are capable of supporting PCIe Gen4 expansion buses and up to 768 GB of DDR4 RAM running at 3200 MHz.

Compute subsystem	Switching subsystem	Management and storage subsystem
› Hosting database services (Tantor Postgres DBMS in various editions, supplied with an integrated management and monitoring platform) › Resource isolation for database services › Fault tolerance support › Built-in hardware-software streaming compression (3x)	Network segmentation by purpose: › Interconnect: 100 Gbit/s › External access and backups: 25 Gbit/s › Management: 1 Gbit/s	Based on the Tantor XData software suite: › Cluster resource management › Security enforcement for software component interactions › Fault tolerance support › Backup and data recovery management

Tantor XData 2B configurations

Configuration	Compute subsystem	Switching subsystem	Management and storage subsystem	Crypto protection subsystem (optional)
Minimal	3 compute servers: › 144 CPU cores total › 1.2–2.3 TB RAM › 20–90 TB data storage*	5 high-speed switches: › 2x100 Gbit/s (interconnect) › 2x25 Gbit/s (ext. access) › 1x1 Gbit/s (management)	› 1 or 2 management servers › 3 backup servers › disk shelf with 0.3–1.5 PB storage	HSM 2.0 modules
Optimal	6 compute servers: › 288 CPU cores total › 2.3–4.6 TB RAM › 40–180 TB data storage*			
Enterprise	18 compute servers: › 864 CPU cores total › 6.9–13.8 TB RAM › 130–540 TB data storage*	15 high-speed switches: › 6x100 Gbit/s (interconnect) › 6x25 Gbit/s (ext. access) › 3x1 Gbit/s (management)	› 2 management servers › 9 backup servers › 3 disk shelves with 0.3–1.5 PB storage each	

considering a replication factor of 3

Hardware-software cryptographic protection

In collaboration with CryptoPro, a joint effort is underway to integrate the CryptoPro HSM hardware-software cryptographic module into the Tantor XData database machine. This will ensure extreme security and performance for cryptographic operations.

Hardware specifications and software suite enable high performance metrics

In the minimal configuration:

up to 60 000 TPS
simultaneous transactions processing

up to 35 TB/hour
data backup speed

Tantor XData model range

- Tantor XData 2A (Aquarius servers)
- Tantor XData 2Y (YADRO servers)
- Tantor XData 2B based on Baikal-S processors designed in Russia (Elpitech servers)

DBaaS capabilities in any cloud or data center

- A ready-to-use high-performance solution combining user-friendly control interface with flexible hardware resource allocation for database services
- Integration with private cloud automation tools via API
- Ability to consolidate databases of any size upon given performance and availability requirements, enabling dynamic system scaling without service interruptions

Enhanced performance and scalability

- The Tantor XData 2B database machine is designed as a unified complex with deep optimization and adaptation of both hardware and software. This makes it possible to handle significantly higher workloads compared to conventional DBMS, delivering minimal latency for OLTP workloads and sufficient throughput for analytical queries

Automation and backup enhancements

- Reduced operational costs with automation of fault-tolerant cluster deployment, database configuration, maintenance, patching, and other routine administrative tasks
- The built-in backup system (time machine) is preconfigured and optimized for high workloads and large data volumes. Seamless integration with enterprise centralized backup systems is supported

Reduced costs for infrastructure and system administration

- Tantor XData 2B is delivered preconfigured, significantly saving deployment time and expenses
- Intuitive graphical interface for management and administration lowers the required skill level for personnel
- Dynamic resource allocation (more or less) optimizes infrastructure costs without impacting DBMS performance

User-friendly graphical interface for configuration and administration

tantor XData

info@tantorlabs.ru
www.tantorlabs.ru