High-performance and high-capacity storage solutions

From components to a proven system with AIC, Celestica, Microsemi Adaptec, Open-E, TAROX and Toshiba.

Six leading hardware and software suppliers – AIC, Celestica, Microsemi Adaptec, Open-E, TAROX and Toshiba – joined forces to deliver a datacenter solution that is not only about high performance, but also excellent data security, cost-effectiveness and manageability. The combination of the high-quality hardware and software components results in storage solutions that are a perfect fit for cloud storage, backup and archiving, media streaming, video surveillance and other demanding IT environments.
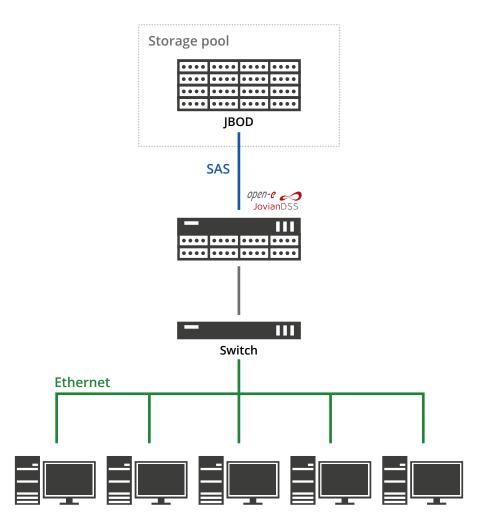
Hardware and software details

Server model:	TAROX ParX R2082i G5 Server
Mainboard:	Intel® S2600WTTR
Chipset:	Intel® C612
CPU:	2 x Intel® Xeon E5-2640v4
RAM:	128GB
JBOD:	AIC J4060-02 Celestica 4U-60bay Rainbow
HBA:	Microsemi Adaptec HBA Series 1000
Enterprise HDDs:	60 x Toshiba SAS Enterprise HDD for Datagroups
Enterprise Read Intensive SSDs:	2 x Toshiba PX04SRB048 (12G SAS eSSD 480GB) for Read cache 1 x Toshiba PX04PMC080 (NVMe eSSD 800GB) for Write logs

Basic setup

In this basic setup, the TAROX server is used as a central storage controller. Toshiba's high-end PX04S SAS Enterprise SSD serves as read-cache and the PX04P PCI-Express NVM-e SSD is used for write logging. AIC's J4060-02, as well as the Celestica 60-Bay high-density storage system RAINBOW are connected via a Microsemi Adaptec Series 1000 Host Bus Adapter, each equipped with 60 Toshiba SAS Enterprise hard disk drives.

The entire system is managed by Open-E JovianDSS data storage software. This uses shared storage, thus providing unlimited options to architect HA storage environments. Additionally, this full-service software-defined-storage (SDS) package can be easily customized according to specific needs.

The setup of the system clearly demonstrates how the six leading IT providers teamed up to not only give customers confidence that their individual products are fully interoperable, but also to deliver a system that guarantees the best possible function and performance.

Storage pool

JBOD

SAS

open-e
JovianDSS

Switch

Ethernet

Customer case

A similar solution is currently running in a data center used for video surveillance and security systems.
The customer required a high-availability solution capable of handling high capacities.

At the same time the system had to be flexible, scalable and easy-to-use and manage, as well as offering
a good price/performance ratio. The installed solution consists of 1.53PT of formatted usable capacity and 1.98PT
of RAW capacity set up in a single pool.

TOSHIBA
Leading Innovation >>>

HDDs and SSDs

Toshiba's MG04 enterprise capacity HDD models, available with SAS and SATA Interface combine capacities up to
6TB and 7,200 rpm performance in a robust design engineered for nearline business-critical workloads. The company's PX04SRB is optimized for read-intensive applications requiring one or less DWPD (Drive Writes Per Day).
The products deliver a unique and customer-tunable power and performance feature allowing optimization for power efficiency
or maximum performance.

✔ **High reliability and data protection** to support enterprise environments and applications
✔ **Light weight and low power** consumption for more energy efficiency
✔ **Support for both mission-** and **business-critical applications** that demand reliable performance in 24x7
operating environments

open-e   Open-E JovianDSS – Storage Management Software

Open-E JovianDSS is a ZFS- and Linux-based Data Storage Software designed especially for enterprise-sized Software Defined Storage environments. With its unique features, the product ensures highest data reliability and integrity – for optimal data storage, protection and recovery.

- ✔ **High reliability** for continuous operation in mission-critical applications
- ✔ **High flexibility** to address the specific requirements of different applications
- ✔ **High serviceability** to make installation and maintenance easier

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TAR●X   ParX Server

TAROX ParX R2082i G5 is a high-performing Enterprise platform that supports Private Cloud environments and datacenters. In a cluster setup with Open-E's ZFS- and Linux-based Software Defined Storage solution JovianDSS, the system is an ideal combination of performance and High Availability, at the same time offering exceptional efficiency and flexibility.

- ✔ **Power and availability** – optimal combination
- ✔ **Impressive expansion options** – through innovative technologies
- ✔ **High energy efficiency** – usage of smart components

AIC   JBOD

J4060-02, an entry level and cost effective 4U 60-Bay 12Gb/s JBOD, ideal for datacenter and warm/cold data storage. This JBOD enclosure with single expander supports 60 x 3.5" hot swap drives. Adopt new generation chips and optimized air flow design that offer you low power and energy saving solution. Comprehensive power supply solution helps you to deploy the JBOD everywhere and enlarge your business scope.

- ✔ **Intelligent Enclosure Management**
- ✔ **Individual drive power management**
- ✔ **Easy swap design for maintenance and management**
- ✔ **Optimized Thermal and Energy saving solution**

Microsemi   Host Bus Adapter
Power Matters.™

The Microsemi Adaptec® HBA 1000 is the first product in the new Microsemi Smart Storage Solutions family that is being forged through the convergence of Microsemi SAS/SATA protocol controller expertise, 30+ years of Adaptec board innovation, and acquired Smart IP technology.

- ✔ **Resiliency and efficiency** to provide a robust and stable solution that can handle the toughest system
- ✔ workloads and configurations
   Ease of use for problem-free implementation, scalability and manageability
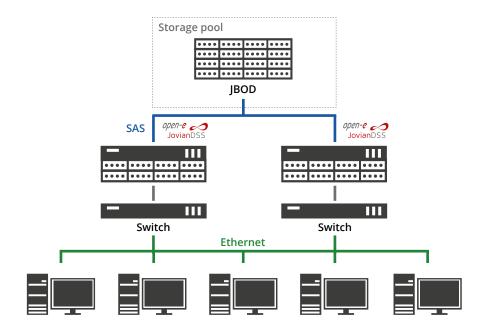- ✔ **Maximum performance** for next-generation data centers

High Density Storage System

Rainbow is a storage enclosure product based on SAS 12G technologies. It is a high density bulk storage system, housing two Expansion Storage Modules (ESMs) in one 4U chassis. Rainbow supports up to 60 3.5" or 2.5" SAS drives, including SSDs and HDDs, with excellent performance and high availability.

More setup options

Option with 1 JBOD

Option with more JBODs