TOOLS ON air

just:store

Storage for Professional Broadcast

Professional broadcast workflows place ultimate demands on a storage solution: speed, reliability, consistent bandwidth as well as easy scalability. just:store unites all of these requirements at a very competitive price.
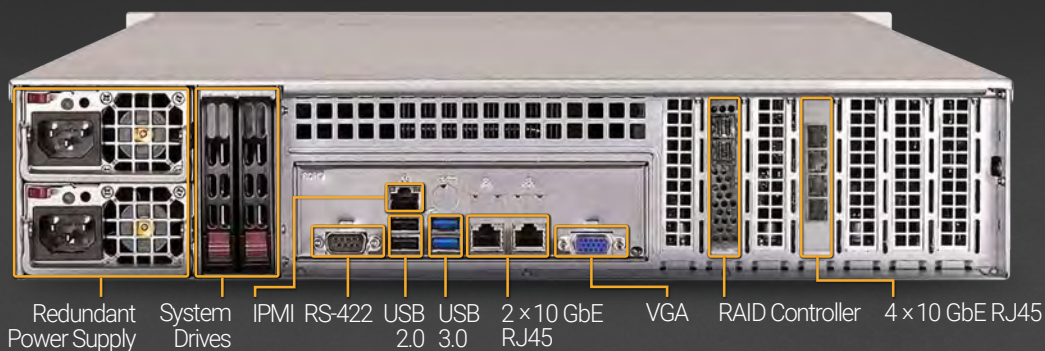
Overview

With just:store, ToolsOnAir offers a high-quality and reliable storage solution. Thoroughly fine-tuned and customised to your needs, just:store offers top-notch system performance, highest data transmission rates and splendid system responsiveness when running multitasked applications.

	Drives	Drive Options	Capacity RAID 6	/ RAID 60*	Dimensions	Weight**
just:store 12 2RU	12 HDD	4 TB 6 TB 8 TB 10 TB 12 TB 14 TB 16 TB	40 TB 60 TB 80 TB 100 TB 120 TB 140 TB 160 TB	32 TB 48 TB 64 TB 80 TB 96 TB 112 TB 128 TB	17.2 × 3.5 × 25.5 inch 437 × 89 × 648 mm (Width x Height x Depth)	55 lbs 23 kg (Gross)
just:store 24 4RU	24 HDD	4 TB 6 TB 8 TB 10 TB 12 TB 14 TB 16 TB	88 TB 132 TB 176 TB 220 TB 264 TB 308 TB 352 TB	80 TB 120 TB 160 TB 200 TB 240 TB 280 TB 320 TB	17.2 × 7.0 × 26.5 inch 437 × 178 × 673 mm (Width x Height x Depth)	77 lbs 35 kg (Gross)
just:store 24 Solid State Drive 2RU	24 SSD	960 GB 1.9 TB 3.8 TB 7.6 TB	21.12 TB 41.80 TB 83.60 TB 167.20 TB	19.20 TB 38.00 TB 76.00 TB 152.0 TB	17.2 × 3.5 × 24.8 inch 437 × 89 × 630 mm (Width x Height x Depth)	55 lbs 23 kg (Gross)
just:store 36 4RU	36 HDD	4 TB 6 TB 8 TB 10 TB 12 TB 14 TB 16 TB	136 TB 204 TB 272 TB 340 TB 408 TB 476 TB 544 TB	128 TB 192 TB 256 TB 320 TB 384 TB 448 TB 512 TB	17.2 × 7.0 × 26.5 inch 437 × 178 × 673 mm (Width x Height x Depth)	77 lbs 35 kg (Gross)

* Displayed capacity numbers are gross values. ** Final weight and dimensions reflect the chassis configuration only.
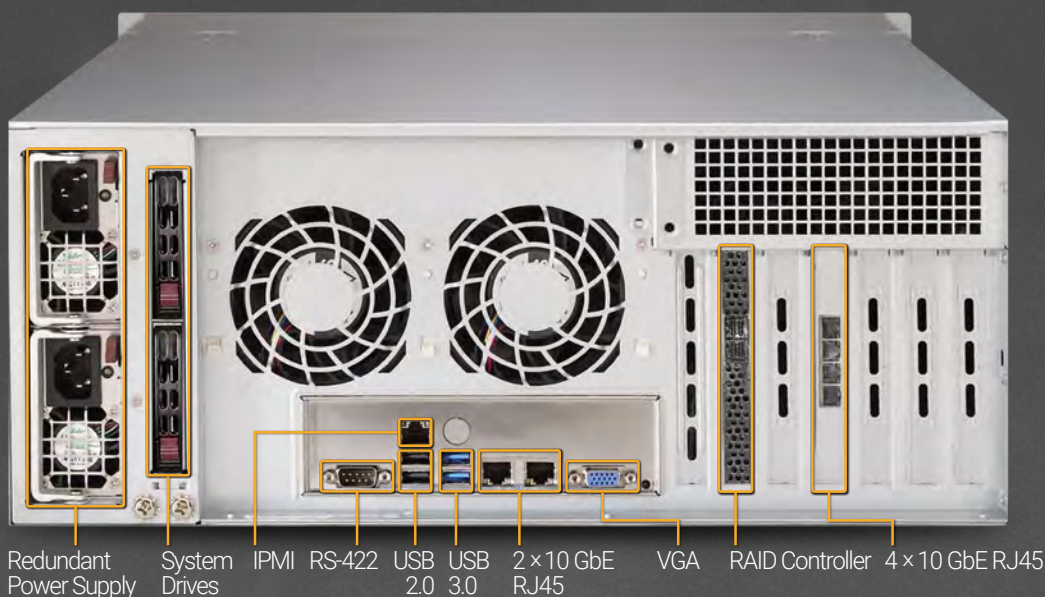
just: store 12

Redundant Power Supply | System Drives | IPMI | RS-422 | USB 2.0 | USB 3.0 | 2 × 10 GbE RJ45 | VGA | RAID Controller | 4 × 10 GbE RJ45

	Drives	Drive Options	Capacity	RAID 6/RAID 60*	Dimensions	Weight**
just: store 12	12 HDD	4 TB	40 TB	32 TB	17.2 × 3.5 × 25.5 inch	55 lbs
		6 TB	60 TB	48 TB	437 × 89 × 648 mm	23 kg
		8 TB	80 TB	64 TB		
		10 TB	100 TB	80 TB		
		12 TB	120 TB	96 TB		
		14 TB	140 TB	112 TB		
2 RU		16 TB	160 TB	128 TB	(Width x Height x Depth)	(Gross)

just: store 24

Redundant Power Supply | System Drives | IPMI | RS-422 | USB 2.0 | USB 3.0 | 2 × 10 GbE RJ45 | VGA | RAID Controller | 4 × 10 GbE RJ45

	Drives	Drive Options	Capacity	RAID 6/RAID 60*	Dimensions	Weight**
just: store 24	24 HDD	4 TB	88 TB	80 TB	17.2 × 7.0 × 26.5 inch	77 lbs
		6 TB	132 TB	120 TB	437 × 178 × 673 mm	35 kg
		8 TB	176 TB	160 TB		
		10 TB	220 TB	200 TB		
		12 TB	264 TB	240 TB		
		14 TB	308 TB	280 TB		
4 RU		16 TB	352 TB	320 TB	(Width x Height x Depth)	(Gross)

* Displayed capacity numbers are gross values. ** Final weight and dimensions reflect the chassis configuration only.

just: store 24
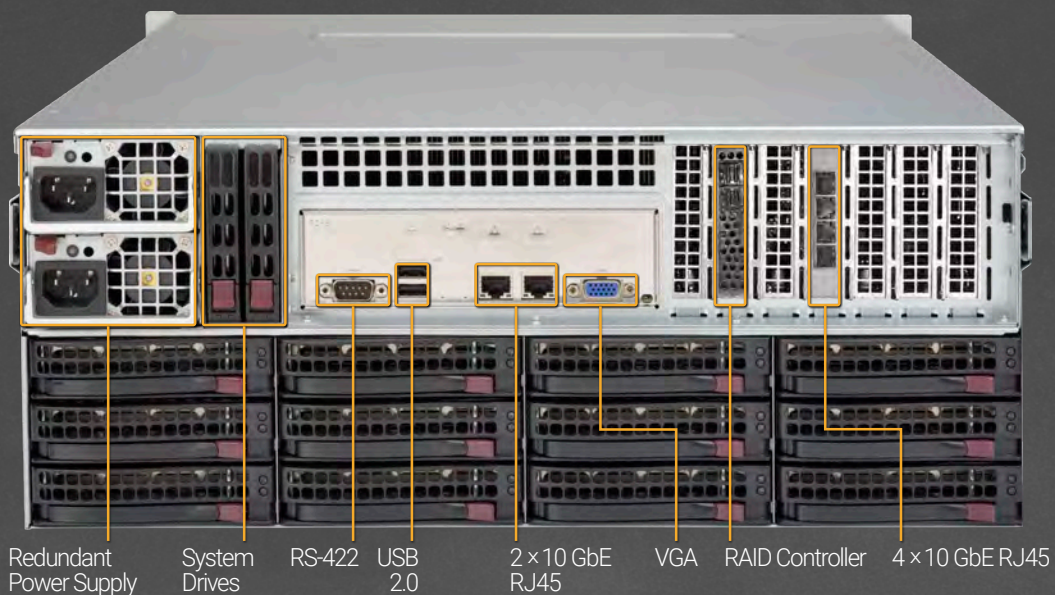## Solid State Drive

Redundant Power Supply | System Drives | IPMI | RS-422 | USB 2.0 | USB 3.0 | 2 × 10 GbE RJ45 | VGA | RAID Controller | 4 × 10 GbE RJ45

	Drives	Drive Options	Capacity RAID 6 / RAID 60*		Dimensions	Weight**
just: store 24 Solid State Drive [2RU]	24 [SSD]	960 GB 1.9 TB 3.8 TB 7.6 TB	21.12 TB 41.80 TB 83.60 TB 167.20 TB	19.20 TB 38.00 TB 76.00 TB 152.0 TB	17.2 × 3.5 × 24.8 inch 437 × 89 × 630 mm (Width x Height x Depth)	55 lbs 23 kg (Gross)

just: store 36

Redundant Power Supply | System Drives | RS-422 | USB 2.0 | 2 × 10 GbE RJ45 | VGA | RAID Controller | 4 × 10 GbE RJ45

	Drives	Drive Options	Capacity RAID 6 / RAID 60*		Dimensions	Weight**
just: store 36 [4RU]	36 [HDD]	4 TB 6 TB 8 TB 10 TB 12 TB 14 TB 16 TB	136 TB 204 TB 272 TB 340 TB 408 TB 476 TB 544 TB	128 TB 192 TB 256 TB 320 TB 384 TB 448 TB 512 TB	17.2 × 7.0 × 26.5 inch 437 × 178 × 673 mm (Width x Height x Depth)	77 lbs 35 kg (Gross)

* Displayed capacity numbers are gross values. ** Final weight and dimensions reflect the chassis configuration only.

Performance 101

The performance of a storage solution is determined by the speed of the installed drives and the used RAID level. RAID stands for **Redundant Array of Independent Drives**, which means that multiple drives "work together", providing high data throughput, while offering great reliability.

Your just:store storage solution can be configured to use either hard disk drives (HDD) or solid state drives (SSD). Hard disk drives offer the largest raw storage capacity – up to 16 TB – while delivering good data throughput. In contrast, solid state drives offer less storage capacity, and their cost per gigabyte is higher in comparison to HDDs, but their speed and access time is considerably faster than with HDDs.
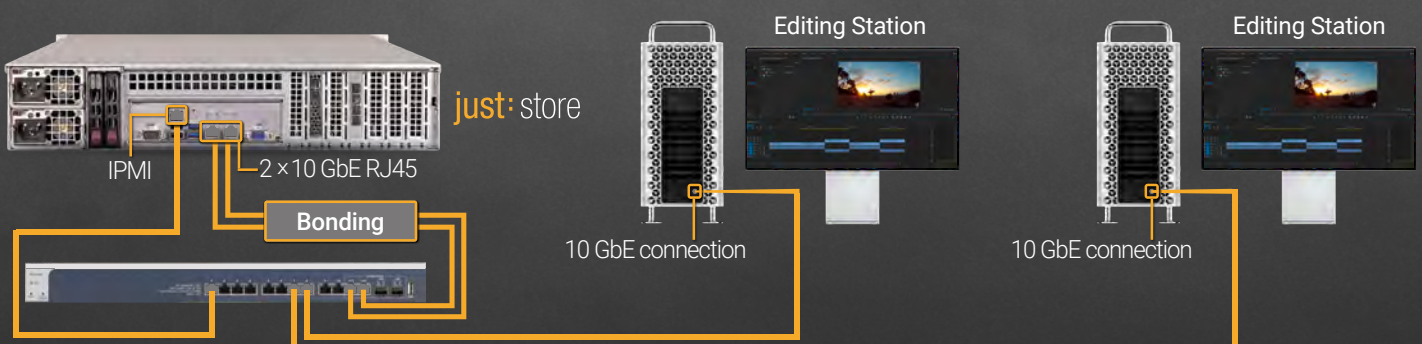
just:store RAID Levels

Drive performance and capacity vary with each RAID level, so it's important to know whether you prefer very high data integrity or system performance before deciding which RAID level you will use. In the following table, "N" is the total number of drives of the corresponding just:store. RAID Level 6 and 60 is also applicable to just:store 24 SSD.

RAID Level	Model	Max. Drive Failures	Gross Capacity	Pros	Cons
RAID 6	just:store 12 just:store 24 just:store 36	2 failed Drives	N-2	• Very good reliability and redundancy • Two drive failures without data loss • High read speed	• Data loss when more than two drives are failing • Slightly higher CPU impact for double parity bit calculation • Slightly lower write speed
RAID 60	just:store 12 just:store 24 just:store 36	4 failed Drives	N-4	• Very good reliability and redundancy • Four drive failures without data loss • High read and write speed	• Data loss when more than four drives are failing • Slightly higher CPU impact for double parity bit calculation

Network Optimisation

just:store comes with multiple 1 GbE and 10 GbE LAN connectivity to provide high-speed network communication. If you need even higher data throughput and network speed, just:store easily allows you to set up link aggregation (also called "bonding") by combining multiple LAN interfaces. This also provides enhanced failover in case a network connection goes down.

Editing Station   Editing Station

just:store

IPMI

2 × 10 GbE RJ45

Bonding

10 GbE connection   10 GbE connection

I/O Benchmarks

The following results have been acquired using a 10 GbE network. No additional load was on the network or the just:store system during the tests.

just: store 12	Sequential Throughput	Random Throughput	Sequential IOPS	Random IOPS
Read	5014 MB/s	1956 MB/s	4963	1865
Write	2349 MB/s	1978 MB/s	2239	1886

just: store 24	Sequential Throughput	Random Throughput	Sequential IOPS	Random IOPS
Read	5552 MB/s	2166 MB/s	5294	2065
Write	4867 MB/s	2190 MB/s	4641	2088

just: store 36	Sequential Throughput	Random Throughput	Sequential IOPS	Random IOPS
Read	6000 MB/s*	2500 MB/s*	5722*	2384*
Write	5200 MB/s*	2500 MB/s*	4959*	2384*

* Results for just:store 36 may vary.

just: store
Family of Products

	Height	Number of Drives	Max. Capacity (Gross)	Throughput	Drive Form Factor
just: store 12	2 RU	12	160.0 TB	up to 1.8 GB/s	3.5" HDD
just: store 24	4 RU	24	352.0 TB	up to 2.8 GB/s	3.5" HDD
just: store 24 Solid State Drive	2 RU	24	167.2 TB	up to 4.0 GB/s	2.5" SSD
just: store 36	4 RU	36	544.0 TB	up to 5.0 GB/s	3.5" HDD

Find a suitable storage configuration for your just:store using this link:
https://www.toolsonair.com/products/storage/raid-calculator