

## IBM® TotalStorage® Enterprise Tape Library 3494



The 3494 cartridge accessor with the dual gripper that provides increased performance and availability.

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### Highlights

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- **Designed to provide reliable, scalable tape automation**
- **Supports multiple IBM tape drive models**
- **Provides multiplatform connectivity**
- **Supports IBM Virtual Tape**

### Overview

The IBM TotalStorage Enterprise Tape Library 3494 consists of individual frames that can be configured to help address a variety of customer requirements. This flexible design enables organizations to install a solution that helps address current capacity requirements and to add capacity when required. Configurations include a Library Base Frame that may be

configured with drive frames, storage frames and up to two IBM TotalStorage Virtual Tape Servers. A high availability model and a dual active accessor feature are available to address the needs of mission-critical environments.

### Supports Consolidation

The 3494 Tape Library can be used for data consolidation to help achieve higher performance and reduced requirements for tape drives and cartridges, environmental controls and personnel. In addition, a tape library can be shared across multiple platforms such as the IBM @server zSeries™, IBM @server pSeries™, IBM @server iSeries™, and IBM @server xSeries™ servers, as well as various non-IBM platforms. The 3494 tape library has a small footprint, starting at two and one half feet wide by five feet deep. This size allows it to fit in many environments and makes it suitable for vaults. It can also provide a significant saving in floor space.

## Performance

The average mount-access time in a single-frame Enterprise Tape Library 3494 is only seven seconds. The Enterprise Tape Library 3494 can perform up to 265 cartridge exchanges per hour with a single gripper, up to 305 exchanges per hour with the optional dual gripper and up to 610 exchanges per hour with a dual gripper and dual active accessors<sup>1</sup>. Due to increased accessor travel, the exchange capability of the accessor can decrease as the number of frames increases. The time required to inventory tape cartridges in any single library frame (control unit, drive unit or storage unit) is approximately four minutes<sup>2</sup>.

## Multiplatform Attachment

The 3494 tape library supports multiplatform attachment to selected zSeries, pSeries, iSeries, and xSeries servers running IBM operating systems and Linux as well as selected open system servers from Sun Microsystems and Hewlett-Packard. The 3494 also supports Intel-based systems running Microsoft® Windows® NT, 2000 and 2003 operating systems.

## Enterprise Tape Drive Support

The 3494 tape library supports up to 32 open system attached IBM TotalStorage Enterprise Tape Drives 3592 Model J1A (3592 tape drive) or IBM TotalStorage Enterprise Tape Drives 3590 Model B1A, E1A or H1A (3590 tape drive). The 3494 tape library can also support up to 124 3592 tape drives, or up to 76 3590 tape drives in a zSeries environment when attached to IBM TotalStorage Enterprise Tape Controller 3592 Model J70, or 3590 Model A60. The 3494 can also support IBM 3490E tape drives.

## Storage Capacity

The 3494 tape library supports a maximum of 6, 240<sup>3</sup> cartridges which provide a native physical capacity of up to 1.87 PBs<sup>4</sup>. Actual capacity will vary according to the tape technology installed. The IBM TotalStorage Enterprise Tape Cartridge 3592 has a physical capacity of 300GB; the IBM TotalStorage 3590 High-Performance Cartridge Tape has a physical capacity of 30GB<sup>5</sup>, and the IBM TotalStorage Extended High-Performance Cartridge Tape 3590 has a physical capacity of 60GB<sup>5</sup>. The 3490 Standard length tape has a capacity of 400MB and the Enhanced-Capacity Cartridge System Tape has a native capacity of 800MB.



*The 3494 cartridge accessor with the dual gripper that provides increased performance and availability.*

## Virtual Tape Server support

The IBM TotalStorage Virtual Tape Server 3494 is designed to help reduce tape operating costs and improve overall tape library processing performance. The Virtual Tape Server uses virtual drives composed of RAID-5 disk arrays to cache data and then fill high-capacity 3590 tape cartridges. This can help reduce the requirements for tape drives, automation devices, media, floor space and operations personnel.

### **Cartridge Interchange**

Two optional convenience I/O stations make it possible to add or remove 10 to 30 cartridges at once without stopping the cartridge accessor. The operator can also add cartridges by opening the door of any frame and inserting cartridges in any available slot, but this will interrupt the tape robot. In the 3494 Control Unit frame, a high-capacity, user-defined output facility of up to 160 cartridges is available. An additional high-capacity, user-defined I/O facility of up to 200 cartridges is available for drive or storage frames.

### **Library components**

#### ***Tape Library Base Frame***

The IBM TotalStorage Tape Library 3494 Base Frame Models L12, L14, and L22 provide the library manager (that manages the robotic cartridge accessor, tape cartridge inventory and interfaces with attached hosts), library console, cartridge accessor and up to 240 cartridge storage cells. Optional features include a dual gripper to help improve performance and a convenience I/O station.

#### ***Tape Drive Expansion Frame***

The IBM TotalStorage Tape Drive Expansion Frame 3494 Models D12, D14, D22 and D24 provide the capability of adding tape drives and up to 400 cartridge storage cells. An IBM TotalStorage Enterprise Tape Controller 3592 Model J70 or 3590 Model A60 installed in a Model D14 or D24 Expansion Frame can provide ESCON® and FICON™ support for tape drives in an adjacent Model L12, L22, D12, or D22 frame.

#### ***High availability model***

The TotalStorage Enterprise High Availability Tape Frame 3494 Model HA1 provides a second cartridge accessor, library manager and two service frames. If the active accessor fails, the second accessor is capable of docking it in a service bay where it can be repaired non-disruptively, and then take over library operations. In addition, there is a dual active accessor feature that will allow both cartridge accessors to operate simultaneously to help improve mount/demount performance.

#### ***Tape Storage Frame***

The IBM TotalStorage Tape Storage Frame Model S10 provides the capability of adding up to 400 cartridge cells.

### **IBM TotalStorage 3494 Tape Library Specialist**

The IBM TotalStorage 3494 Tape Library Specialist is a Web-based user interface to the Library Manager. Using the Specialist, information such as current 3494 status and VTS statistics can be accessed from a Web browser by connecting to the Web server on the Library Manager PC. The Web server serves HTML pages to a remote Web browser over a LAN connection or through the Remote Service Access connection over a modem for service.

### **IBM TotalStorage Enterprise Tape Library Expert**

The IBM TotalStorage Enterprise Tape Library (ETL) Expert helps storage administrators manage the performance of the 3494 Tape Library. This management tool is designed to provide administrators with the storage asset, capacity, and performance information they need to centrally manage IBM tape libraries located anywhere within the enterprise. As a result, the ETL Expert can help simplify the management of tape libraries while helping to increase administrator productivity and reduce overall storage costs. Visit [ibm.com/storage/software](http://ibm.com/storage/software) for more information.

## 3494 performance—exchanges per hour (maximum)<sup>1, 6</sup>

| Number of units/drives | With single gripper | With dual gripper | With Dual Active Accessor/dual gripper |
|------------------------|---------------------|-------------------|--|
| 1/2                    | 265                 | 305               | 610                                    |
| 2/4                    | 235                 | 290               | 580                                    |
| 3/4                    | 215                 | 280               | 560                                    |
| 4/4                    | 200                 | 260               | 500                                    |
| 8/16                   | 160 <sup>6</sup>    | 225               | 450                                    |
| 16/16                  | 125 <sup>6</sup>    | 185               | 370                                    |

### TotalStorage Master Console

To improve serviceability, the IBM TotalStorage Master Console (TSMC) connects multiple supported tape controllers and Virtual Tape Servers on a dedicated, private local area network. Remote monitoring of all tape controllers and VTSs attached to the TSMC is designed to provide early detection of potential failure. The system can be enabled to automatically send the information to IBM when an event occurs.

### Software Support

Software offerings from various vendors provide storage and tape management software for the 3494 Tape Library and supported tape drives. For a list of compatible software, refer to the ISV Compatibility Matrix at [ibm.com/storage/tape/contrix](http://ibm.com/storage/tape/contrix). The IBM TotalStorage Proven® Program provides applications and hardware pre-tested for interoperability. Refer to [ibm.com/storage/proven](http://ibm.com/storage/proven) for more information.

### Competitive Financing Options

IBM Global Financing offers some of the industry's most competitive rates for a wide range of IBM products and services, including the Enterprise Tape Library 3494, for the duration of the financing term. For more information, please visit [ibm.com/financing](http://ibm.com/financing).

### Media

Tape media can be ordered via library feature codes or via the IBM TotalStorage Enterprise Tape Media 3599 models. For more information contact your IBM representative or IBM Business Partner or visit [ibm.com/storage/media](http://ibm.com/storage/media)

## IBM TotalStorage 3494 Tape Library at a glance

| Specifications                                 | Control unit frames |         |         |         | Drive unit frames |         |         |         |         | Storage units | VTS units     | HA1           |
|--|---------------------|---------|---------|---------|-------------------|---------|---------|---------|---------|---------------|---------------|---------------|
| Model number                                   | L10                 | L12     | L14     | L22     | D10               | D12     | D14     | D22     | D24     | S10           | B18, B10, B20 |               |
| Unit quantity (minimum)                        | 1                   | 1       | 1       | 1       |                   |         |         |         |         |               |               |               |
| Unit quality (maximum)                         | 1                   | 1       | 1       | 1       | 15                | 15      | 15      | 15      | 15      | 15            | 2             | 1(std 2 bays) |
| Library manager                                | 1                   | 1       | 1       | 1       |                   |         |         |         |         |               |               | 1             |
| Cartridge accessor                             | 1                   | 1       | 1       | 1       |                   |         |         |         |         |               |               | 1             |
| Cartridge grippers                             | 1/2                 | 1/2     | 1/2     | 1/2     |                   |         |         |         |         |               |               | 1/2           |
| Convenience I/O stations (10 or 30 cartridges) | 0/1                 | 0/1     | 0/1     | 0/1     |                   |         |         |         |         |               |               |               |
| Power KVA (excluding drives)                   | 0.3                 | 0.3     | 0.3     | 1       | 0.1               | 0.1     | 0.1     | 1.4     | 1.4     |               | 1.8           | 0.3           |
| Voltage (single phase)                         | 200/240             | 200/240 | 200/240 | 200/240 | 200/240           | 200/240 | 200/240 | 200/240 | 200/240 |               | 200/240       | 200/240       |
| BTU/hr (excluding drives)                      | 1000                | 1000    | 1000    | 2730    | 340               | 340     | 340     | 4100    | 4100    |               | 6550          | 1000          |

### Maximum cartridge storage cells, single gripper, no I/O station

|                            |                  |                    |                    |                   |      |                    |                    |                   |                     |                   |  |  |
|----------------------------|------------------|--------------------|--------------------|-------------------|------|--------------------|--------------------|-------------------|---------------------|-------------------|--|--|
| Zero tape drives           | NA               | 240 <sup>8</sup>   | 240 <sup>8</sup>   | 240               | 400  | 400                | 400                | 400               | 400                 | 400               |  |  |
| One tape drive             | 240 <sup>8</sup> | 240 <sup>8</sup>   | 240 <sup>8</sup>   | 240               | 300  | 335                | 345                | 335               | 345                 |                   |  |  |
| Two tape drives            | 240 <sup>8</sup> | 240 <sup>8</sup>   | 240 <sup>8</sup>   | 240               | 300  | 335                | 345                | 335               | 345                 |                   |  |  |
| Three to four tape drives  |                  |                    |                    | 240               |      | 290                | 305                | 335               | 345                 |                   |  |  |
| Five to six tape drives    |                  |                    |                    | 240               |      | 250                |                    | 290               | 305                 |                   |  |  |
| Seven to eight tape drives |                  |                    |                    |                   |      |                    |                    | 290               | 305                 |                   |  |  |
| Nine to twelve tape drives |                  |                    |                    |                   |      |                    |                    | 250               |                     |                   |  |  |
| Maximum capacity (TB)      | 0.57             | 4.32 <sup>10</sup> | 43.2 <sup>10</sup> | 216 <sup>11</sup> | 0.96 | 72.0 <sup>10</sup> | 72.0 <sup>10</sup> | 225 <sup>11</sup> | 274.5 <sup>11</sup> | 360 <sup>11</sup> |  |  |

### Maximum cartridge storage cells, dual gripper, no I/O station

|                            |                  |                    |                    |                     |     |                    |                    |                   |                     |                   |  |  |
|----------------------------|------------------|--------------------|--------------------|---------------------|-----|--------------------|--------------------|-------------------|---------------------|-------------------|--|--|
| Zero tape drives           | 216 <sup>9</sup> | 216 <sup>9</sup>   | 216 <sup>9</sup>   | 216                 | 360 | 360                | 360                | 360               | 360                 | 360               |  |  |
| One tape drive             | 216 <sup>9</sup> | 216 <sup>9</sup>   | 216 <sup>9</sup>   | 216                 | 270 | 305                | 305                | 305               | 305                 |                   |  |  |
| Two tape drives            |                  | 216 <sup>9</sup>   | 216 <sup>9</sup>   | 216                 | 270 | 305                | 305                | 305               | 305                 |                   |  |  |
| Three to four tape drives  |                  |                    |                    | 216                 |     | 260                | 275                | 305               | 305                 |                   |  |  |
| Five to six tape drives    |                  |                    |                    |                     |     | 230                |                    | 260               | 275                 |                   |  |  |
| Seven to eight tape drives |                  |                    |                    |                     |     |                    |                    | 260               | 275                 |                   |  |  |
| Nine to twelve tape drives |                  |                    |                    |                     |     |                    |                    | 230               |                     |                   |  |  |
| Maximum capacity (TB)      | 0.5              | 38.8 <sup>10</sup> | 38.8 <sup>10</sup> | 194.4 <sup>11</sup> | 0.8 | 64.8 <sup>10</sup> | 64.8 <sup>10</sup> | 207 <sup>11</sup> | 247.5 <sup>11</sup> | 324 <sup>11</sup> |  |  |

### Tape drive/control unit models

|                                       |     |     |     |     |     |     |     |      |     |  |  |  |
|---------------------------------------|-----|-----|-----|-----|-----|-----|-----|------|-----|--|--|--|
| 3490 Model F1A                        | 1/2 |     |     |     | 0/2 |     |     |      |     |  |  |  |
| 3590 Model B1A, E1A, H1A <sup>7</sup> |     | 0/2 | 0/2 |     |     | 0/6 | 0/4 |      |     |  |  |  |
| 3592 Model J1A                        |     |     |     | 0/4 |     |     |     | 0/12 | 0/8 |  |  |  |
| 3590 Model A60                        |     |     |     |     |     |     | 0/1 |      | 0/1 |  |  |  |
| 3592 Model J70                        |     |     |     |     |     |     | 0/1 |      | 0/1 |  |  |  |

### Physical characteristics

|                                |              |              |              |              |              |              |              |              |              |              |              |                            |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------------------|
| Width in centimeters (inches)  | 75.0 (29.3)  | 75.0 (29.3)  | 75.0 (29.3)  | 75.0 (29.3)  | 75.0 (29.3)  | 75.0 (29.3)  | 75.0 (29.3)  | 75.0 (29.3)  | 75.0 (29.3)  | 75.0 (29.3)  | 72.4 (28.5)  | 75.0 (29.3) <sup>12</sup>  |
| Depth in centimeters (inches)  | 152.5 (60.0) | 152.5 (60.0) | 152.5 (60.0) | 152.5 (60.0) | 152.5 (60.0) | 152.5 (60.0) | 152.5 (60.0) | 152.5 (60.0) | 152.5 (60.0) | 75.0 (28.5)  | 103.6 (40.8) | 152.5 (60) <sup>12</sup>   |
| Height in centimeters (inches) | 180.0 (70.9) | 180.0 (70.9) | 180.0 (70.9) | 180.0 (70.9) | 180.0 (70.9) | 180.0 (70.9) | 180.0 (70.9) | 180.0 (70.9) | 180.0 (70.9) | 180.0 (70.9) | 180.0 (70.9) | 180.0 (70.9) <sup>12</sup> |
| Weight in kilograms (pounds)   | 559.3 (1233) | 559.3 (1233) | 454 (1021.5) | 559 (1233)   | 418.7 (923)  | 320 (704)    | 320 (704)    | 320 (704)    | 320 (704)    | 281.0 (625)  | 540.0 (1188) | 444 (999) <sup>12</sup>    |

## For more information

For more information, contact your IBM representative or your IBM Business Partner. Or visit [ibm.com/totalstorage](http://ibm.com/totalstorage).



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IBM hardware products are manufactured from new parts, or new and used parts. In some cases, the hardware product may not be new and may have been previously installed. Regardless, IBM warranty terms apply.

- <sup>1</sup> These numbers reflect accessor capability and are limited in practice by the number of drives, application drive residency and other factors.
- <sup>2</sup> Performance values are based upon laboratory analysis and may differ from those realized by a user. These values do not constitute a guarantee of performance.
- <sup>3</sup> Maximum number of cartridges decreases as tape/control units are added.
- <sup>4</sup> Assumes Enterprise Tape Drive 3592 Model J1A
- <sup>5</sup> Assumes 3590 Model H drive
- <sup>6</sup> Actual customer performance may vary depending on library configuration, host platform and tape application.
- <sup>7</sup> Each 3590 Tape Drive contains one transport. If mounted in an L12 or a D12 and not attached to a Model A60 Controller, each 3590 Tape Drive counts as one tape control unit.
- <sup>8</sup> With a 10-cartridge I/O station, capacity is 210; with a 30-cartridge I/O station, capacity is 160.
- <sup>9</sup> With a 10-cartridge I/O station, capacity is 190; with a 30-cartridge I/O station, capacity is 140.
- <sup>10</sup> Assumes Enterprise Tape Drives 3590 Model H1A, High-Performance Cartridge Tapes, and 3:1 compression.
- <sup>11</sup> Assumes Enterprise Tape Drive 3592 Model J1A at 3:1 Compression.
- <sup>12</sup> Dimensions for each service bay.