

*IBM optical solutions providing low-cost, high-capacity,  
direct access storage—enhanced with IBM 5.2GB (8X)  
Extended Multifunction Optical Drives.  
The evolution continues . . .*



## Enhanced 3995 Optical Library C-Series for the AS/400

### Highlights

- Features IBM first-in-the-industry extended multifunction drives that include support for Permanent WORM, MO Rewritable, and CCW WORM optical cartridges
- Enhanced with 5.25 inch industry-standard 5.2GB (8X) internal optical drives doubling the capacity of previous 3995 C-Series Optical Libraries
- Provides five models for AS/400\* direct attachment to meet your individual storage capacity requirements
- Delivers from 104GB to 1341GB (1.341TB) of low-cost, online optical storage capacity
- Allows configuration flexibility by providing for additional internal optical drives without loss of storage capacity
- Optical Library Management support provided by OS/400\*
- Combines capacity, performance, flexibility, and technology to deliver a premier optical storage solution for your AS/400
- Provides investment protection through continued access to information on optical media created on any previous-generation 3995 Optical Library for the AS/400

### World-class flexibility

The enhanced IBM Optical Library C-Series models provide low-cost, high-capacity, direct access storage to enable innovative new business applications for your IBM AS/400 environment. Featuring IBM 5.2GB industry-standard 5.25 inch optical drives, these enhanced 3995 Optical Library C-Series models

deliver new levels of capacity at a reduced cost per megabyte.

With these optical library models, IBM has continued to enhance its innovative, first-in-the-industry extended multifunction optical drives. This technology provides support for Permanent Write-Once, Read-Many (WORM), Magneto-Optical (MO) rewritable, and Continuous Composite Write-Once (CCW) WORM using industry-standard 5.25 inch optical cartridges. All three technologies can be used within a single library, offering the most flexibility in meeting specific business requirements.

### Low cost, high capacity

Five models are available, ranging from 104GB to 1341GB (1.341TB) of online storage capacity, providing the granularity required for a wide range of business solutions. With a doubling of capacity

over the previous generation of optical technology, the enhanced IBM 3995 C-Series AS/400 models offer optical storage solutions at a significantly lower cost per megabyte.

### Enhanced performance

The 3995 C-Series Optical Library family has previously delivered improved optical drive data rates and faster cartridge exchange times. Most models offer a dual-gripper picker on the auto-changer, and two models offer optional additional internal drives for faster performance.

### Broad range of solutions

The enhanced 3995 is ideal for enterprise applications requiring centralized online storage with moderate performance. IBM extended multifunction support is designed to satisfy auditing and/or legal requirements for unalterable, permanent retention of data.



The 3995 also provides the flexibility of rewritable and CCW WORM optical storage.

Industry-leading software solutions for the 3995 are available from IBM, IBM Business Partners, and third-party solution providers. Solutions are available for such storage-hungry applications as image processing, records and document management, microfiche replacement, multimedia, and report distribution/online viewing. This broad range of applications allows you to select the solution which best meets your business needs.

IBM applications for the 3995 include ImagePlus VisualInfo for the AS/400 and OnDemand for AS/400, both of which are members of the IBM Electronic Document Management Suite of solutions (EDMSuite), Real Vision Document Imaging, Ultimedia/400, and others.

### Designed for the AS/400 and AS/400e system environments

Support for the 3995 C-Series AS/400 models is "built in" to AS/400 system software. These 3995 models are controlled and managed at the AS/400 through familiar commands and operations.

This enhanced OS/400 support allows easy integration of 3995 optical storage in your existing AS/400 environment. Support for AS/400 Hierarchical File System (HFS), Integrated File System (IFS), and Save/Restore commands is available depending on the OS/400 operating system level.

### Industry standards

The enhanced 3995 supports 5.25 inch optical cartridges that are compatible with the industry standards listed below:

- ISO/IEC DIS 15286 information technology: 130mm optical disk cartridges; capacity: 5.2GB per cartridge—for information interchange
- ISO/IEC 15486: 1998 data interchange on 130mm optical disk cartridges of type WORM (Write-Once, Read-Many) using irreversible effects; capacity: 2.6GB per cartridge
- ISO/IEC 14517: 1996 130mm optical disk cartridges for information interchange; capacity: 1.3GB per cartridge



Industry-standard 5.25 inch Optical Media Cartridges with 5.2GB capacity

### Optical Disk Cartridges

The following types of 5.25 inch optical disk cartridges are supported in the Enhanced 3995 C-Series AS/400 attached optical libraries. Please note that the application software used with the 3995 may have media-type support restrictions.

Capacity <sup>1</sup>	Magnetic Optical R/W	Permanent WORM	CCW WORM
5.2GB (2048 Bytes/Sector)	Read/Write	Read/Write	Read/Write
4.8GB (1024 Bytes/Sector)	Read/Write	N/A	Read/Write
2.6GB (1024 Bytes/Sector)	Read/Write	Read/Write	Read/Write
1.3GB (1024 Bytes/Sector)	Read	Read	N/A
650MB (1024 Bytes/Sector)	Read	Read	N/A

<sup>1</sup> Unformatted capacity

- ISO/IEC 13549: 1993 data interchange on 130mm optical disk cartridges; capacity: 1.3GB per cartridge
- ISO/IEC 11560:1992 information interchange on 130mm optical disk cartridges using the magneto-optical effect, for write once, read multiple functionality
- ISO/IEC 10089: 1991 130mm rewritable optical disk cartridge for information interchange

### Installation

These 3995 Optical Libraries are physically installed by IBM personnel and installation is estimated to take from 2 to 4 hours.

### IBM warranty

The enhanced 3995 C-Series models are warranted with the IBM limited one-year warranty. This warranty service is on-site customer service, 24 hours a day, 7 days a week.

### Media

IBM optical media can be ordered via feature codes, from IBM Media or

Supplies Distribution, or from authorized dealers. To order IBM media and supplies in the United States, call toll-free 1-888-IBM-MEDIA (1-888-426-6334) today.

### Let us tell you more

For further information on the IBM Enhanced 3995 Optical Library C-Series models, contact your IBM representative or IBM Business Partner. In the U.S. or Canada you can also call IBM Direct: 1-800-IBM-CALL (1-800-426-2255). Internet: [www.ibm.com/storage](http://www.ibm.com/storage)

## IBM Enhanced 3995 Optical Library C-Series at a glance

Model	C40	C42	C44	C46	C48
Maximum Storage Capacity (unformatted)	104GB	270GB	540GB	811GB	1341GB (1.341TB)
Maximum Cartridge Slots	20	52	104	156	258
Internal Drives	1 or 2	2	2 or 4	4 or 6	4 or 6
<b>Performance</b>					
Average Cartridge Move Time	2.8 seconds	2.6 seconds	2.8 seconds	2.8 seconds	31 seconds
Picker Type on Autochanger	Single Gripper	Dual Gripper	Dual Gripper	Dual Gripper	Dual Gripper
<b>Reliability</b>					
Mean Swaps Between Failure	1,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Mean Time to Repair	30 minutes	30 minutes	30 minutes	30 minutes	30 minutes
<b>Dimensions</b>					
Height-mm (in)	457 (18 in.)	991 (39 in.)	1029 (40.5 in.)	1029 (40.5 in.)	1480 (58.25 in.)
Width-mm (in) <sup>2</sup>	216 (8.5 in.)	355 (14 in.)	813 (32 in.)	813 (32 in.)	813 (32 in.)
Depth-mm (in)	737 (29 in.)	737 (29 in.)	762 (30 in.)	762 (30 in.)	762 (30 in.)
Weight-kg (lbs) (without media) <sup>3</sup>	28 (61 lb.)	69 (152 lb.)	120 (265 lb.)	125 (275 lb.)	193 (425 lb.)
<b>Electrical Power Consumption (Nominal) Watts</b>					
Assumes Maximum Drive Configuration	80 watts (275 BTU/Hr)	90 watts (310 BTU/Hr)	140 watts (475 BTU/Hr)	180 watts (614 BTU/Hr)	180 watts (614 BTU/Hr)
<b>Electrical</b>					
<b>All Models</b>					
Line Voltage (V ac)	100-127 Nominal or 200-240 Nominal				
Line Frequency (Hz)	50-60				
<b>Environmental Specifications (operating)</b>					
<b>All Models</b>					
Temperature	10°C to 38°C (50°F to 100.4°F)				
Relative Humidity	8 to 80%				
Maximum Wet Bulb Temperature	25.8°C (78.4°F)				
<b>OS/400 Requirements</b>					
<b>AS/400 Interface</b>					
OS/400 V3R2 with feature 1979 (5755-AS3 FC 1979) and PRPQ 5799-XBW (Optical Library Dataserver Support/400) with Group PTF SF99079 or	via FC 2621 Removable Media Device Attachment (supports a maximum of 4 internal optical drives on the Model C46 and the Model C48)				
OS/400 V4R2 with Group PTF SF99088 or OS/400 V4R3 with Group PTF SF99089 or OS/400 V4R4	via FC 2729 or FC 6534 (supports up to 6 internal optical drives on the Model C46 and the Model C48)				
<b>Hardware Interface Requirements</b>					
AS/400 Feature Code—Attachment	3995 Specify Feature Code				
FC 2621 Removable Media Device Attachment Feature	FC 9400 (12 meter cable)				
FC 2729 PCI Magnetic Media Controller	FC 9401 (12 meter cable)				
FC 6534 Magnetic Media Controller	FC 9401 (12 meter cable)				
<b>Year 2000</b>	Year 2000 Ready <sup>4</sup>				
<b>Warranty</b>	IBM limited one year warranty				
<b>Upgrade Options</b>					
3995 4X Drive to 3995 8X Drive upgrades available	Yes				
Model C44 to Model C46 field upgrades available	Yes				

### Optical Drive Performance

Rotation Speed	3000 RPM
Average Seek— MO Rewritable or CCW	25 ms
Average Seek— Permanent WORM	120 ms
Average Latency	10 ms
Average Load Time (including spin-up to ready)	5.5 sec
Average Unload Time (including spin-down)	3 sec

### Data Transfer Rate

Sustained	2.3 to 4.6MB/sec
Burst (synchronous)	10MB/sec
Burst (asynchronous)	6MB/sec

### Buffer Memory Capacity

Buffer Memory Capacity	2MB
------------------------	-----

### Reliability

Mean Loads Between Failure (MLBF)	1,000,000
Mean Time Between Failure (MTBF)	100,000 hours

<sup>2</sup> The width at the base, with stabilizers is 464mm (18.25 in.) for Model C42.

<sup>3</sup> The actual weight of the optical library will vary depending on the number of internal optical drives.

<sup>4</sup> When used in accordance with its associated documentation, it is capable of correctly processing, providing, and/or receiving data date within and between the 20th and 21st centuries, provided all other products (for example, software, hardware, and firmware) used with the product properly exchange accurate date data with it.



© International Business Machines Corporation 1999

IBM Storage Systems Division  
Department AYX  
9000 S. Rita Road  
Tucson, AZ 85744

Printed in the United States of America  
6-99

All Rights Reserved

Performance data herein was obtained, and failure rate data was projected based upon a specified process, in a controlled test environment. Actual results obtained may vary significantly.

References in this publication to IBM products, programs, or services do not imply that IBM intends to make them available outside the United States.

\* The following terms are trademarks or registered trademarks of the IBM Corporation in the United States, other countries, or both: AS/400, ImagePlus, IBM, and OS/400. Other company, product and service names may be trademarks or registered trademarks of their respective companies.

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, our warranty terms apply.