



**Intercom**  
Computer  
Systems

## I-5590 "Chameleon" IBM 3490, 3480, 3420 Compatible Tape System

The I-5590 "Chameleon" is an integrated tape system for IBM Mainframes, Midrange Systems, Windows NT/2000 and UNIX providing full backward compatibility for 36- and 18- Track Tape Cartridges as well as for 9- Track Open Reel Tapes. The modern streaming devices provide higher availability, better connectivity and can save up to \$ 25,000 in maintenance and power costs, up to 48,000 KWh power consumption per year and up to 80 % floor space.

### One Size Fits All

There are still millions of 9 track open reel tapes in the archives and 9 track tapes are still used for data exchange. IBM terminated shipment 20 years ago. The existing field units are worn out, short of spare parts, expensive to maintain and consume costly floor space and power. The same is principally true for 18 and 36 track tape cartridge systems.

The I-5590 "Chameleon" is the first and only universal tape system, maintaining all common tape and optical disk formats. By consolidating multiple tape environments with the I-5590 tape system, the user will save a significant amount of money and floor space. Due to the fault tolerant control unit with modern streaming tape technology, the user will experience better reliability and higher availability.

Full backward compatibility is provided to IBM 3490, 3480 and 3420 compatible tapes. Other supported technologies include StorageTek 9840, LTO, DLT, AIT, IBM 3570, IBM 3570, 12 " Optical Disk, 5 1/4 " Magneto Optical Disk, DVD and CD.

Connectivity to Mainframes, Midrange Systems, UNIX and Windows NT/2000 is provided via ESCON, Block Multiplex Channel, FIPS 60 Channel and SCSI.

### 9 Track Open Reel Tape Drive

The I-5590 Model 420 is the only 9 track tape system available with an ESCON interface. It is IBM 3420 compatible and sup-



ports all common densities, including 6250, 1600 and 800 bits per inch. Tape speed is 125 inches per second. Modern streaming technology with automatic tape loading is incorporated.

### 18 Track Cartridge Tape Drive

The I-5590 Model 480 is the only true 18 track tape cartridge system, available with an ESCON interface. It is IBM 3480 compatible and meets the ANSI Standard for 18-



Track Tapes. IDRC data compression is a standard feature. The effective data rate depends on the compression ratio and ranges from 3 MB/s up to 9 MB/s.

## Highlights

### Supported Tape Systems

- Up to 16 or 32 Drives
- IBM 3490: 36 Track Cartridge
- IBM 3480: 18 Track Cartridge
- IBM 3420: 9 Track Open Reel
- StorageTek 9840
- FSC BS2000
- LTO, DLT, AIT, Exabyte
- IBM 3570/75
- Magneto Optical Disk
- DVD and CD

### Software Support

- IBM OS/390: MVS, VM/VSE
- IBM OS/400
- AIX
- FSC BS2000
- BULL GCOS 8
- UNIX, Windows NT/2000

### IBM S/390 Connectivity

- ESCON
- Block Multiplex Channel

### AS/400 Connectivity

- I/F 6501
- I/F 2621
- I/F 2420
- I/F 2644

### RS/6000 Connectivity

- I/F 2416
- I/F 2420

### UNIX and WINDOWS Connectivity

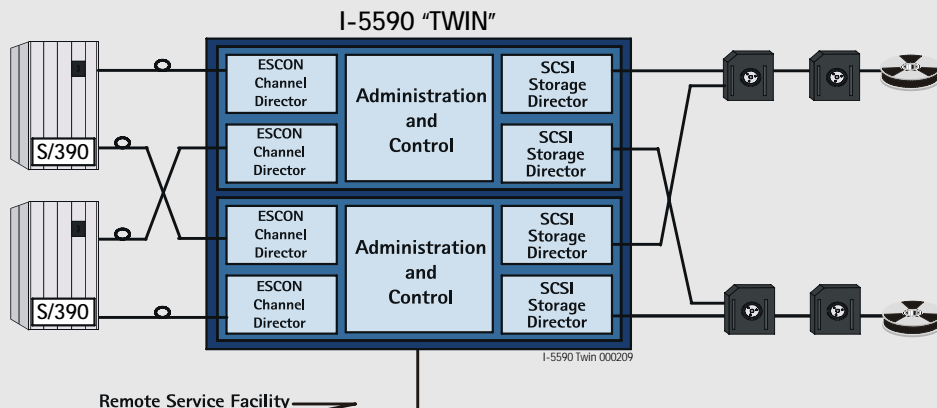
- SCSI narrow
- SCSI fast/wide

### Savings

- |              |                       |
|--------------|-----------------------|
| Maintenance: | up to \$ 25,000 p.a   |
| Power:       | up to 48,000 kWh p.a. |
| Floor Space: | up to 80 %            |



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The Cartridge capacity is 200 MB native and up to 600 MB compressed. A Cartridge Autoloader with removable magazine for 10 cartridges is available as an optional feature.

### 36 Track Cartridge Tape Drive

The I-5590 Model 490 is IBM 3490 compatible. It writes 36-Track Tape Cartridges and reads 36- and 18-Track Cartridges. IDRC data compression is standard. Sustained data rate is 6 MB/s native and up to 12 MB/s compressed. Cartridge capacity



ranges from 800 MB to 2.4 GB. A Cartridge Autoloader with removable magazine for 7 or 14 cartridges is available as an optional feature.

### DVD and CD Support

The I-5590 also supports Digital Versatile Disks and Compact Disks. DVD is a cost-effective storage media, providing faster access to data than the traditional tape systems. Supported are rewritable disks as well as "Write Once Read Multiple" (WORM) for long term archiving.

DVD systems are available as an array with up to 32 drives and as a library system with up to 16 drives and 600 DVD's with a near-online capacity of 5 TB native and up to 10 TB compressed.

The "Chameleon" also supports 5 1/4" inch magneto optical disks, 12 inch laser disks and CD for data distribution and the pre-press market.

### Universal Tape Control Unit

The I-5590 "Chameleon" provides an interface between the various tape units for one or more hosts. It is a multiprocessor control unit, which includes up to four microprocessor based Channel Directors, an Administration and Control Unit and one or two Storage Directors. Remote Diagnostics is a standard feature.

Two "Chameleons" can be connected to build one TWIN System, providing higher throughput, more connectivity and fault tolerance.

A Channel Director emulates one Control Unit Image (either IBM 3490, 3480 or 3420) and provides connectivity to the host system. Up to four Channel Directors in a Single System and up to eight Channel Directors in a TWIN System support multiple control unit emulations and maintain connectivity to one or more hosts. Supported interfaces include ESCON and





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Block Multiplex Channel. Both channel types can coexist in the same control unit.

The Administration and Control Unit controls I/O operation, executes error recovery and provides Remote Service Facility. Remote Service Facility can be accessed via analog or digital public network and via the Internet.

The Storage Director includes the device drivers and provides connectivity to the tape drives. A Single Control Unit can be equipped with up to two Storage Directors and each Storage Director supports up to eight tape drives. A TWIN Control Unit with four Storage Directors maintains up to 32 tape drives.

## Library Control

Magnetic Tape Libraries and Optical Disk Jukeboxes are supported by Intercom's I-5594 Control Unit. The I-5590 can be upgraded to an I-5594.

## Virtual Tape System

The I-5590 can also be upgraded to the I-6990 Enterprise Virtual Tape Server. The EVTS maintains up to 1 TB disk cache and supports up to 256 Virtual Tape Drives. The Virtual Tape Server utilizes the full cartridge capacity, increases data throughput, reduces tape mounts and manages peak loads with a reduced number of tape drives.

## IBM S/390 Connectivity

The "Chameleon" provides connectivity to S/390, Amdahl, HDS, FSC BS2000, Bull, Unisys and Tandem with up to four or eight ESCON and/or Block Multiplex Channel interfaces. Up to four cached Storage Directors maintain connectivity to a total of 32 tape drives. Tape drives for different tape formats can be supported by a single control unit.

## Connectivity to AS/400, RS/6000, UNIX and Windows NT/2000

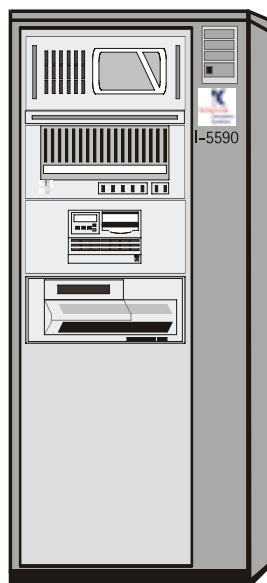
The tape system connects to AS/400 (Interface Feature 6501, 2621, 2420 and 2644), to RS/6000 (Interface Feature 2416, 2420), UNIX systems and Windows NT/2000 via SCSI.

## Flexibility

For example, one I-5590 "Chameleon" tape subsystem can include two Open Reel drives, two 18 track cartridge drives and two 36 track cartridge drives, all managed by the same control unit with ESCON and/or Block Multiplex Channel interface. It handles all the outside - of - the library needs of a data center.

## Significant Savings

This Tape System may save up to \$ 25,000 maintenance, up to 48,000 kWh power consumption per year and 80 % floor space.



### Interfaces:

ESCON  
Block Multiplex  
SCSI

### 36-Track Format:

IBM 3490 compatible  
FSC 3590 compatible

### 18-Track Format:

IBM 3480 compatible  
FSC 3580 compatible

### 9-Track Format:

IBM 3420 compatible  
FSC 3519 compatible



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## Specifications

Control Unit	Single	Twin
Total Number of Channels	4	8
Total Number of Storage Directors	2	4
Number of supported Devices	16	32
Control Unit Emulations	IBM 3490, IBM 3480, IBM 3420	
Supported Channel Types	ESCON, Block Multiplex, FIPS 60, SCSI	
Supported Tape Formats	36, 18 and 9 Track other tape formats on request	
Form Factor	19", 5 EIA high units	19", 9 EIA high units
Power	90 - 230 V, 200 W	90 - 230 V, 400 W
Heat output	680 BTU/h	1360 BTU/h
Weight	35 lb. (16 kg)	70 lb. (32 kg)

Cartridge Tape Drives	36 Track Unit	18 Track Unit
Write Format	36 Track	18 Track
Cartridges Read Format	36/18 Track	18 Track
Cartridge Capacity	800 MB to 2400 MB*	200 MB to 600 MB*
Sustained Data Rate	6 MB/s to 12 MB/s*	3 MB/s to 9 MB/s*
Tape Speed (read and write)	4 m/s	2 m/s
Tape Speed (rewind and locate)	4 m/s	4 m/s
Data Compression	IDRC	IDRC
Cartridge Loader	7/14 Cartridges	10 Cartridges
Removable Cartridge Magazine	yes	yes
Form Factor w/o Cartridge Loader	19", 5 EIA high units	19", 5 EIA high units
Form Factor with Cartridge Loader	19", 5 EIA high units	1/2 19", 12 EIA high units
Desk Top Unit	Option	Option
Weight w/o Cartridge Loader	31 lb. ( 14 kg)	23 lb. ( 10 kg)
Weight with Cartridge Loader	56 lb. ( 25 kg)	56 lb. ( 25 kg)
Heat output	476 BTU/h	374 BTU/h
Power	90 to 260V, 140W	90 to 260V, 110 W

\*Assuming 3:1 Data compression

### 9 Track Open Reel Tape Drive

Reel Size	6 inch to 10,5 inch diameter (1/2 inch tape - all reel sizes)	
Tape Loading	Auto Loading	
Tape Speed	125 inches per second, streaming	
Media	Computer grade half-inch magnetic tape ANSI-X3.40,1976	
Data Format and Data Rate	GCR 6250 bpi	625 KB/s
	PE 1600 bpi	160 KB/s
	NRZI 800 bpi	80 KB/s
Load Time	25 seconds maximum	
Rewind Time	180 seconds for 2400 foot tape	
Form Factor	19", 5 EIA high units	
Weight	77 lbs (37 kg)	
Heat output	680 BTU/h	
Power	110/220V, 50 - 60 Hz, 200 W	
Desk Top Unit	Option	

### Cabinet

Form Factor	19 Inch, 32 EIA High Units
Weight	154 lb. (70 kg)

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