

MODEL 7275/7276 REMOVABLE DISK STORAGE SYSTEM

The attached material contains the product description and prices of the Xerox Model 7275/7276 Removable Disk Storage system. These disk systems replace the Model 7265/7266 disk systems and their associated features.

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MODEL 7275, 7276, 7277, 7279 REMOVABLE DISK STORAGE SYSTEM

Description: Model 7275 – Disk Controller plus three 86MB disk drives
Model 7276 – Disk Controller plus seven 86MB disk drives
Model 7277 – 86MB Disk Drive
Model 1043 – Feature – Second Controller for 7275 Dual Access
Model 1044 – Feature – Dual Access for an 86MB disk drive
Model 7279 – Disk Pack

Model 7275 – Controls from 3 to 15 disk drives, providing from 259,387,392 up to 1,296,936,960 bytes of storage. The controller employs a 4-byte wide data path to minimize I/O bandwidth requirements.

Model 7276 – Controls from 7 to 15 disk drives providing from 605,237,248 up to 1,296,936,960 bytes of storage. The controller employs a 4-byte wide data path to minimize I/O bandwidth requirements.

Model 7277 – Accepts one 11 high disk pack with a capacity of 86,462,464 bytes. Additional 7277 disk drives may be added to either Model 7275 or Model 7276 to a total of 15 drives.

Model 1043 – Feature expands the Model 7275/7276 system to dual access capability. Any drive having a Model 1044 feature installed may then be controlled by either the Model 7275/7276 controller or Model 1043.

Model 1044 – Feature provides the capability of operating 7277 disk drives from either of two controllers. Devices not shipped as dual access devices will operate from Access A and remain reserved to that access. Field conversion is available.

Features and Benefits:

The system can be used on all Sigma 9 model computers when operating under CP-R or CP-V Operating Systems. The Model 7275/7276/7277 may be used for storage of data files and system residency. The controller transfers data in 4-byte parallel form. The IOP must have the appropriate 4-byte interface option installed.

The controller portion of the Model 7275 or 7276 permits the reading and writing of data, sensing of current cylinder and rotational position of the disk (for reducing access time), and for seeking a new cylinder (arm position), head (surface), and sector position for read/write operations.

Model 7275/7276/7277 disk mechanisms have a nominal average head positioning time of 30 msec and an average latency time of 8.3 msec, thus giving a total average access time of 38.3 msec. Multiple seek operations on separate drives can be initiated to overlap with a subsequent single read or write operation on a previously positioned mechanism. In addition the hardware is capable of cylinder and rotational position sensing. Also, to minimize IOP connect time a seek order can be issued to generate an interrupt when the requested sector becomes available. RBM and CP-R use this capability to perform seek-time and rotational latency overlapping on multi-spindle systems to optimize I/O throughput. CP-V goes one step further in performing arm movement optimization within an individual spindle via a single-sweep algorithm. Once reading or writing begins data is transferred at 806,000 bytes per second.

The Model 7279 disk pack, when used as the storage media on disk systems Model 7275/7276/7277, provides a total of 19 usable recording surfaces (19 read/write heads). Each surface of the removable pack has 404 data cylinders and seven spares. The cylinder density is 200 cylinders per inch. Each track contains eleven sectors of 1024 bytes each. A unit of data is addressed by cylinder number (arm position), head number (surface), and sector number.

The 1024-byte sector is the smallest addressable unit. The Model 7275 or 7276 controller allows any number of contiguous sectors of a cylinder to be treated as a single record of information.

If a track becomes flawed it is possible (under program control) to modify the header record preceding each sector of that track to indicate that the track is flawed and to specify an alternate track. Whenever the flawed track is referenced by the program the hardware will indicate a flawed track was encountered. The program must read the header and issue a seek to the indicated alternate.

Hardware contained within the Model 7277 Disk Drive is provided to offer maximum detection of data errors while reading. Provisions are also incorporated to exercise the drive for maintenance purposes off-line without the use of the controller.

**Special
Considerations:**

The Model 7279 Disk Packs are not compatible with any other Xerox disk packs. Sales orders must reflect the number of Model 7279's required. For

proper disk performance it is strongly recommended that only Xerox-supplied disk packs be used. If a customer uses a pack from a vendor other than Xerox and damage results to the drive unit the customer is liable for all parts and labor necessary to return the system to an operable condition.

Applicability: All Sigma 9 Models. Support for Sigma 5/6/7/8 and RBM on a Field Request basis only.

Prerequisites: The Sigma IOP must be equipped with the extended width interface feature.

Installation Data: Space - The Model 7275 includes a controller and three disk drives. The Model 7276 includes a controller and seven disk drives. The controller is mounted in a standard Sigma cabinet which is described below. The space requirements for the disk drives are as described for the Model 7277's (drives 4-15). If Model 1043 Dual Access Feature (second controller) is present the two controllers are mounted in a single cabinet. The dimensions of this cabinet are 63.5 in. high, 32 in. wide, 35 in. deep, and weight 770 lbs.

The Model 7277 cabinet houses the disk drive mechanism and device electronics. If the Model 1044 Dual Access Feature for the disk drive is present it is housed in the same cabinet. The cabinet dimensions are 39 in. high, 22 in. wide, 45 in. deep, and weighs 660 lbs.

Power - The Model 7265/66 operates on 120/208 volts $\pm 10\%$, 60 Hz $\pm 0.5\%$, three phase.

Cables - Maximum allowable cable lengths for the system are as follows: IOP to controller, 40 feet maximum. Controller to devices, 160 feet total cable length to farthest device.

Restrictions: The Model 7275/7276 may not be attached to Sigma 2/3, Xerox 530, or to a Sigma integral IOP. A Model 7275/7276 or Model 1043 may be attached to a Sigma 6/7 through an SIOP only. No other devices may be attached to the same SIOP. Further, the devices attached to an SIOP may not be operated through a peripheral switch.

Model 7277 Disk Drives cannot be connected to a Model 7270 Controller nor can a Model 7271 Disk Drive be connected to Model 7275/7276 Controller.

Under release A00 of the CP-V operating system, the capacity of the individual disk drives is reduced to 81,911,808 bytes of storage. The capacity of an individual drive is reduced by an additional 827,392 bytes if used for swapping. This restriction will be essentially removed with the release of version B00 of the CP-V operating system. At that time, the capacity of the individual drives will be increased to 86,048,768 bytes of storage. The total sectored capacity (86,462,464 bytes) is available under CP-R.

Arm movement optimization will be available with the B00 release of CP-V.

It is recommended that unassigned drive(s) be included in the configuration according to the following schedule:

Less than 12	Optional
12 to 35	1
36 to 75	2
Over 75	3

Configurations containing more than 12 drives should be reviewed and approved by Marketing headquarters for system assurance.

If a Model 7212 is present in a system with Model 7275/7276's, the following restrictions apply:

- 1) With one Model 7275/7276, 2-way memory interleaving is a minimum requirement; i.e., memory must be in multiples of 32K blocks on Sigma 5/7. Sigma 8/9 memory is always 2-way interleaved.
- 2) With two Model 7275/7276 controllers, submit a field request if memory is only 2-way interleaved; 4-way is recommended.
- 3) With more than two Model 7275/7276 controllers, 4-way memory interleaving is required; i.e., memory must be in multiples of 64K blocks.

Models 7275/7276 Removable Disk Storage System

FACT SUMMARY

● Pricing:

<u>Model</u>	<u>Description</u>	<u>Purchase</u>	<u>1-Yr.</u>	<u>Lease 4-Yr.</u>	<u>6-Yr.</u>	<u>MCR</u>	<u>FEC</u>
7275	Control + 3-86MB drives	112,000	2630	2470	2340	510	2000
7276	Control + 7-86MB drives	181,000	4360	4100	3880	950	4300
7277	Add-on 86MB drive	22,500	570	535	510	155	750
1043	Dual Access controller	45,000	1125	1055	1000	180	1000
1044	Dual Access for 86MB drive	4,380	110	100	85	20	100
7279	Disk pack	800	50	50	50	NA	NA

● Bandwidth Requirements for Sigma 9 MIOP:

<u>MIOP</u>	<u>Add for HSRIOP</u>	<u>Add for 7720</u>
65%	7%	7%

● Applicability:

Sigma 6/7/9 computers operating under CP-R or CP-V. Sigma 6/7 systems require a dedicated SIOP for each controller.

● Availability:

1st Quarter, 1974.

● Policy:

Customers having 7265/7266 on order will be allowed to convert their orders to 7275/7276/7277 equipment. On each one-for-one conversion there will be no quota point or commission effect.