The New Breed of Disk Storage Systems

CORE Association of Users for Small IBM Computer Systems

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General Specifications

Storage Capacity — Formatted	
CORE 5115 Removable	10.6 MB
CORE 5116 Fixed	42.4 MB
CORE 5117 Fix/Remov	53.0 MB
Per sector:	256 Bytes
Sector/track:	48
Max Files/Disk:	2,000
Max Records/File:	65,535
Max File Size:	9,999 KB

Run Times	
Time to SORT 3,000 records:	1.34 min
Average Access:	40 MS
To Drive Ready:	45 sec
Average Increase in Computer Performance:	30%
Average Time to Copy 42 MB to removable:	15 min

Error Rates — Data Transfer	
Recoverable:	1 in 10^{10}
Non-Recoverable:	1 in 10^{12}
Seek errors:	1 in 10^{6}

Reliability & General Data	
Mean time between failures:	8,000 Hours
Voltages:	110 or 220 AC 6 or 3 Amps
Rotational Speed:	3600 RPM
Data Transfer:	875 K Byte/s
Max Drives/System:	4
Max Users/System:	8
Temperature:	50 to 104 F
Humidity:	20 to 80%
Memory Required:	1.5 KB
Installation Time:	3 min
IBM Service Required:	No

Regional Representatives

SAVE IBM 5110/20's

from the junk yards of the world!

YES, but . . .

Speed . . .

Most computer operators think the **IBM 5110/5120 Systems** run slow. Actually, they are very fast in internal operations when compared to other small computers. Much faster than even the newer computers like IBM's System 23 Datamaster. However, in daily use there are two things that slow them down. The first is BASIC, the language used to program the computer. Even though it runs faster than the Datamaster version, it could be improved. The second reason is due to slow machines like diskette drives. When running certain programs the "brain" of the computer can spend up to 50 seconds of every minute "waiting around" for the diskette to move data. That's right, up 85% of the time! Wouldn't it be wonderful if we could make a diskette faster? Think how much quicker **IBM 5110/5120** could run! Imagine the amount of time the operator would save when doing sorts, up-dates, postings and printing slow reports. The computer would have "instant" response when a customer's ID or inventory number is entered. Think of that "1 hour" sort that ties the computer up, running in only 10 minutes! With a fast diskette the operator would save a whole day's work each week.

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Storage Size . . .

The next biggest problem with **IBM 5110/5120's** is running out of room. Floppy diskettes just don't hold much information. Most computers have two drives with one used to store programs and one for data. A full diskette can only contain 1.2 million characters of information. At first this sounds like a lot, but it's not. For example, most General Ledger programs cannot hold more than a few thousand transactions. Diskette limitations are even more trouble for programs like Inventory, Accounts Receivable and Sales Analysis. As a company grows it is important to have instant access to billing information and customer files. This becomes very difficult if data is located some place across three diskettes. How do you find the right one? Sometimes it's necessary to end the program, change diskettes and restart the system. Ever think how long this takes? What's this time worth? Another misfortune of having many diskettes in a system is making back-ups and then later finding the right copy. Ever been on a computer and needed to change diskettes one after another? It can be a truly aggravating experience. Wouldn't it be great to have access to all the data at one time?

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Reliability . . .

Ever had a diskette go bad? Most computer operators have experienced losing data. This can be a minor problem or a major disaster depending on the way a program is designed. Back-up copies are nice, but they take a long time to make. Problems can occur at any time. Maybe not today, or tomorrow, but the next day. Diskettes are not very reliable. Errors develop because of the way diskettes work. The needles that read and write data are always touching the diskettes and cause the material to wear out. It's only a matter of time before the diskette or the needle becomes unusable. Wouldn't it be great to have a diskette that didn't wear out? Think of the time that could be saved. If they were more reliable fewer back-ups and maintenance calls will be required.

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Multiple Users . . .

Many organizations find they need two or even three computers in their office just to get the work done. IBM did not allow multiple **5110/5120's** to be connected together. Wouldn't it be great to connect up another display in your office? Imagine three computers in the office, each doing different jobs or the same job and all sharing the same information!

At last, all the performance you expected from an IBM small business computer and never got.

It's now possible to increase the speed and storage capabilities of all **IBM 5110** and **5120** Computer Systems. Programs can now run 25% faster. Run times for Sorts and Utility Functions are reduced 85%. Truly "instant" access is possible for tens of thousands of inventory items, customers, invoices, open orders, sales records and other information. Time savings mean an entire day's work can be eliminated each week. Storage can now be expanded to readily access over 170 million characters of information. That's 170 times the normal floppy diskette storage! Files can now contain over 65 thousand records used for Accounts Receivable, Payroll, Sales Analysis, General Ledger, Inventory Control and many other uses. All programs, data and other utilities can be recalled from storage whenever desired from any computer on the system. For the first time it's possible to connect multiple computers in the office and all share information. In the simplest of terms, at last, it's a dream come true for all **IBM 5110/5120** users!

Cost . . .

It's Simple Economics

The new hard disks offer the best method in solving computer problems. When you consider the increased storage, the reduction in processing time, the lack of programming changes and the option to connect multiple computers, the hard disks cannot be beat. The new drives make the **IBM 5110/20's** out perform the newer Datamaster and more like the larger IBM 34. The new hard disks provide growth at astonishing lower costs. Thousands of dollars in savings for new equipment, re-programming, re-training of office personnel and lost business due to new installation problems. Additional dollars come from saving the current investment in computer equipment and reducing the aggravation of starting a whole new system. The new hard disks make life a lot easier. Simply plug the drives in, copy your programs and data, change device codes and you are up and running within hours.

CORE's new hard disk drives are the result of five years hard work. These revolutionary disks make the IBM computer into one of the world's most powerful business systems. **CORE** designs, engineers, builds and supports all the new drives. No one else has a hard disk for these IBM machines. How come? Simply because IBM tries to design computers so no one can improve their performance. As a firm grows and exceeds the capability of a system, IBM assumes they would have a larger amount of money to spend. Rather than improve the old computer, planned obsolescences requires the firm buy the new more expensive model. After all, IBM is in the business of selling new computers. But, this time you have a choice. Attach the new hard disk and basically you have the new more expensive model. In the process you have saved $30,000 and countless headaches.

Floppy vs. Hard Disk

Function	Floppy Diskette	Hard Disk
Sorting 3000 records	12:35 min	1:40 min
Chain, Load & Save Programs	6.00 sec	3.00 sec
Average Number for A/R Customers	1,500 rec	25,000 rec
Average Number for Inventory Items	2,000 rec	35,000 rec
Largest File Available	1.2 MB	10.6 MB
Maximum Storage with 4 drives	4.8 MB	170.6 MB
Maximum Computers using same drive	1	8
Average Cost per M Byte (current prices)	$1,200	$206

Features . . .

The New Hard Disks offer you:

- Programs using hard disks run up to 25% faster. Time required for Sorts and other system utilities are reduced up to 85%.
- A choice of two drives and three models . . . The **CORE 5115** Removable 10.6 MB cartridge disk that is dimensionally the same as a standard IBM diskette. Or the **CORE 5116** fixed 42.4 MB capacity rigid drive. The **CORE 5117** combination fixed/removable 10.6 and 42.4 MB drives within the same cabinet.
- High performance 8″ Winchester Technology which provides increased data reliability, very fast data access and advanced microprocessor electronics.
- Compact in size, desk top cabinet that measures 12 inches high by 14 inches wide by 19 inches deep; weighs 58 lbs. Either one or two drives may be contained in one cabinet.
- Easy installation by a simple plug attachment into the computer. Expansion cables are available to increase the distance between computers, disks and printers.
- Supports attachments of up to 8 **IBM 5110/20** Computer Systems to a single Disk System which can contain up to 4 drives allowing shared data or program files.
- No programming changes necessary for operation. All programs, sorts, procedure files and other system utilities are directly compatible and require only device code changes. Only 1.5 KB of main memory is required for hard disk operation. Note: Certain memory tight programs may actually shrink when using the hard disk and provide the additional memory requirement.
- Warranty and Maintenance Services provided by local personnel and 24 hours "Total Exchange Service" available from **CORE** if necessary. Drives do not void IBM warranty or maintenance services. Hard disks are very reliable and require almost no maintenance. Worldwide, over 3,000 drives are in use without any service problems.
- Priced inexpensively and available from qualified programmers and software dealers worldwide.