

MICROPOLIS™

MetaFloppy™. Beyond the floppy.



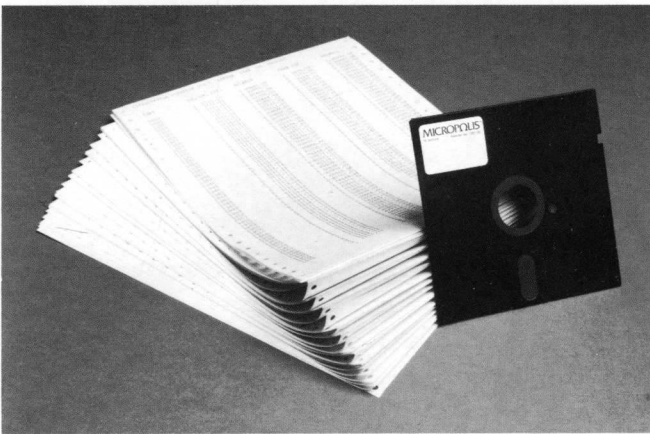
At Micropolis, we turn every MetaFloppy disk dollar into four times as many bytes.

At least. That's why we call this series the Meta-Floppy. From the Greek "meta," meaning "beyond, transcending." Take our new MetaFloppy:1054 million-byte system. It gives you more than 1,200,000 bytes of reliable on-line storage.

For less money than you'd believe possible.

But low cost per thousand bytes, by itself, isn't enough. You need low hardware prices, too. That's why the MetaFloppy:1054 comes complete with four drives in dual configuration, a controller, power supply, chassis, enclosure, all cabling, and a DOS and Disk Extended BASIC software package.

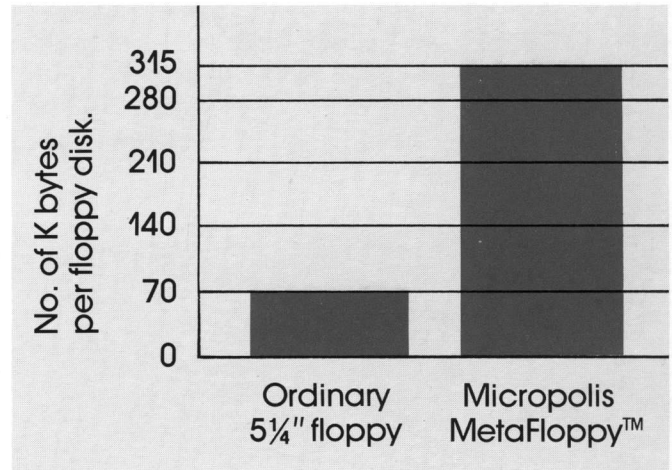
The :1054 also has file-protect circuitry. Other standard features include a disk-insertion interlock that prevents accidental damage to the diskette by preventing the user from closing the drive door unless the diskette is positioned properly. And large lighted numerals clearly show the logical address of each drive, to further prevent operating errors.



Each one of our floppy disks has a remarkable storage capacity, eliminating the need to keep bothersome stacks of paper.

MetaFloppy comes in a complete family of models. To fit today's needs exactly. And still allow for future growth. So, for maximum capacity, choose our four-drive MetaFloppy:1054 system with 1,200,000 bytes on-line.

Or, if that's more than you need now, try our dual-drive MetaFloppy:1053 system with 630,000 bytes on-line. Or our single-drive MetaFloppy:1043 system with 315,000 bytes on-line. Either way, you can expand to over a million bytes on-line in easy stages, when you need to.



The 70K (or so) bytes provided by most 5 1/4-inch floppies have never been enough. Especially today, when you need more high-speed random access storage than ever. To help you work with larger data files. And use programs bigger than your computer's memory. MetaFloppy gives you that needed storage. And more. And all so economically.

Imagine getting all the capacity of an 8-inch floppy in a 5 1/4-inch format.

MetaFloppy can give you this higher capacity because it packs more data into every disk. You get the capacity of larger 8-inch drives with the lower price and smaller packaging of 5 1/4-inch drives.

An ordinary 5 1/4-inch floppy provides just 35 tracks/disk and stores only 70K bytes. Not nearly enough for anything useful. So instead, we use 77 tracks — each with 16 sectors of 256 bytes/sector — to yield a capacity of 315K bytes/disk. That's more than four times an ordinary 5 1/4-inch floppy! And why we call this one "quad density."

Combine two of these drives in a compact dual module and you can copy diskettes from one drive to the other, or rearrange data files, or whatever. The dual unit stores 630K bytes. Enough for almost anything. But just in case that isn't enough, our controller can handle two duals (or four singles). That means your micro can have more than a million bytes of formatted disk storage.

If that still isn't enough, on special order you can add a second controller with up to four more drives. That will give you a grand total of over 2,500,000 bytes of storage on-line.

This means, if your application keeps growing, we've got you covered in easy steps. And you get all these bytes at surprisingly low cost.

At Micropolis, complete means complete.

Some suppliers offer only hardware and call that complete. At micropolis, complete means everything: hardware and software and documentation.

The hardware set is complete with S-100/8080/Z-80 compatible controller, drive(s), cable—even a built-in Autoload bootstrap ROM to eliminate tiresome button pushing.

Our full Disk Extended BASIC and DOS, assembler and editor software comes complete, too. On its own diskette, ready to go.

From us you'd expect powerful disk commands to simplify disk operations. And that's just what you get. Plus a powerful BASIC with many

language extras to make programming easier and more convenient.

To complete the package, we even include a comprehensive User's Manual that gives you the complete word.

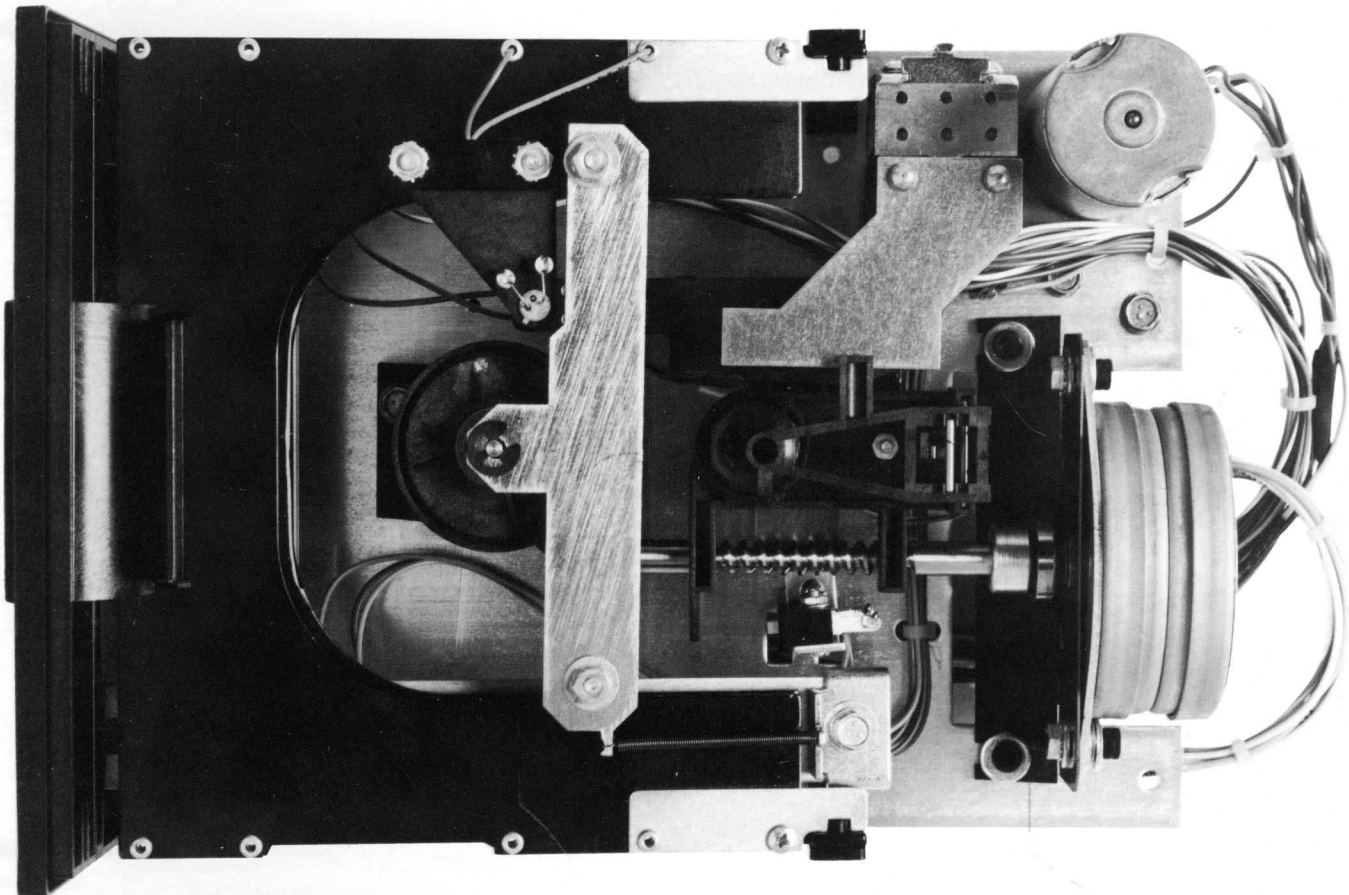
Because we know that you need it all. And, more importantly, you deserve it.

Faster than a speeding bullet.

At Micropolis, we don't skimp on performance to deliver maximum capacity. So you can expect professional operating speed and efficiency. Like checks and balances, such as automatic read verification after writing, that you would expect in a sophisticated data processing system.

Like fast track-to-track positioning time of only 30 milliseconds. And a data transfer rate of 250,000 bits per second.

Up, Up, and away!



The heart of all Micropolis subsystems is an innovative Micropolis designed and manufactured disk drive. Years of performance is assured through the use of a ferrite double density recording head, ground steel lead screw, and highest quality electrical and mechanical components. All subsystems make use of the proven MFM double density recording technique.

We build 'em right. Right from the start.

Reliability can't just happen. And it can't be pasted on later. But we knew you had to have it, so we designed it in. And we build it in every day. (Just because our drives are economical doesn't mean they're cheap.)

Most 5¼-inch drives use a cheaper, single-shot approach to recording. But not Micropolis. Even at our higher recording density, we made sure of data reliability by designing a data separator using a phase locked loop technique. More expensive. But immensely better and more reliable. Like an error rate of only 1 in 10^9 bits, ten times more reliable than conventional 5¼-inch disks.

To save unnecessary wear and tear on the diskette, we included an automatic deselection feature which relieves head pressure on the recording surface when the disk isn't in use. This produces longer operating life: more than 10^6 passes on one track.

And when unloading, the diskette is ejected automatically. Just pull it out.

To cap it all, we made disk speed independent of any fluctuations in line frequency. And that means solid operation, year after year.

Our secret's safe with you.

How can we offer so much for so little? No need to visit the oracle at Delphi. Our secret is simple—but powerful:

Micropolis is the only system builder who is completely integrated in manufacturing. We write our own software. We build our own controllers and cables. And, drawing on fifty man-years of hard experience in this field, we design and build the actual disk drive itself. To the highest level of performance. Without any arbitrary constraints.

This total integration means we control everything—from beginning to end. And can make much better design decisions because we operate across the entire system, not just the controller.

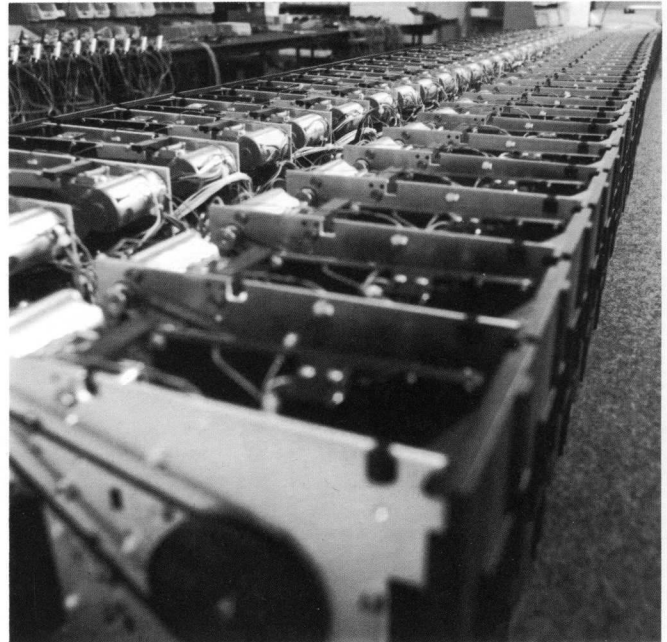
And the result is a better system from us. And a better deal for you.

Metafloppy gets along well with almost everyone.

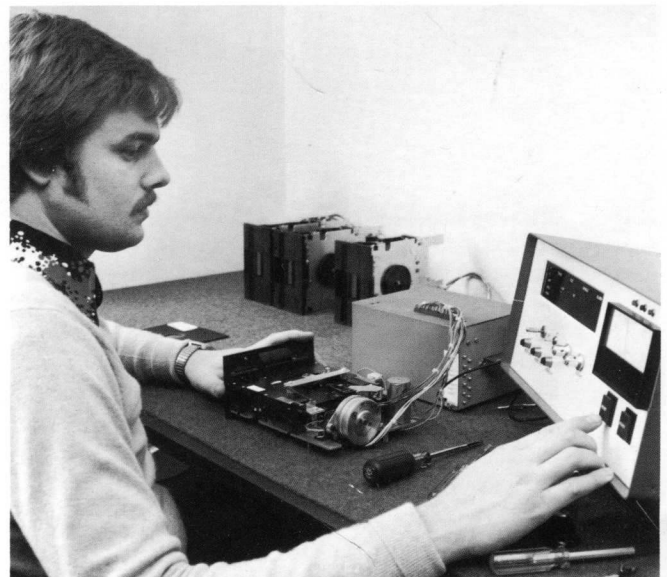
So choose the microcomputer you want. MetaFloppy's controller is completely compatible with the S-100/8080/Z-80 buss. It just plugs into your MITS 8800, IMSAI 8080, COMPAL-80, SOL-20,

Polymorphic 88, CROMEMCO, TDL, or similar micro and it's ready to go. The memory mapped controller/bootstrap may be originated at any 1K byte boundary in the 48K to 64K byte region of memory.

For small businesses, for engineers who want to develop their own software, or for the advanced hobbyist, MetaFloppy is ideal.



With hundreds of units produced each month, our assembly lines never have an opportunity to gather dust.



Each MetaFloppy is subjected to an array of rigorous tests, under various conditions, before it gets our okay.

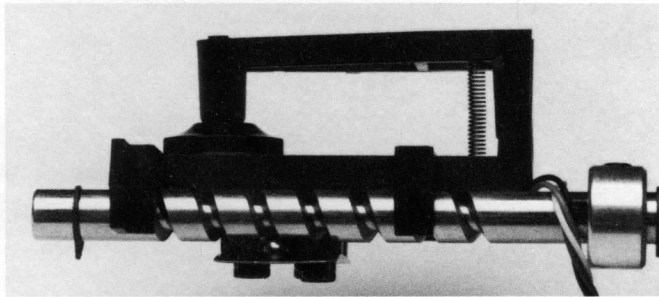
Start with a single drive, and add a single or dual later. Or vice-versa. Our controller handles up to four singles or two duals. Any mix.

What's a little technical superiority among friends?

Anyone can cut price by cutting out capacity or valuable features. But there's no long term advantage in it. Not for the user. Or the builder.

So at Micropolis, we take a better approach. Even though it's harder. Using advanced design to provide more capability while also lowering cost.

For example, most 5¼-inch floppy disks cut costs by using a cheap, less accurate plastic cam or cam follower to position the read/write head.



Another Micropolis innovation: the precision-ground lead screw. For greater speed, accuracy, and reliability.



Buy a dual drive MetaFloppy and see the light. With our built-in LED that instantly indicates the drive selected, drive address, and File Protect.

Most 8-inch floppy disks use a better approach, with a rolled steel lead screw for this function.

We go them one better and use an all-steel system, with a precision-ground steel lead screw and steel follower. It costs more but gives us greater storage capacity with lower cost per thousand bytes. Not so incidentally, our steel construction (compared to plastic) significantly increases reliability, too.

Another example: we include a built-in Auto

load Bootstrap ROM, at no extra cost. That means you won't have to key in a bootstrap loader manually, or buy a separate Bootstrap ROM board for your micro. Instead, you get fast and easy cold starts. Whenever you're ready.

There's even a built-in File Protect feature that prevents accidental loss of valuable data. (A file protected diskette cannot be written on.)

Finally, complete status information is shown on every dual drive.

A 7-segment LED display shows drive address. This address is switchable from one drive to the other.

An indicator shows whether the diskette is File Protected.

Another indicator shows whether the drive is currently selected.

Because at Micropolis, we not only make things better and less expensive, but more convenient, too.

Micropolis software is flexible and efficient.

Software from Micropolis includes a DOS and Disk Extended Basic designed for 8080/Z80-based microcomputers.

DOS is a complete package, including an assembler, editor, file management functions and utilities, which provides total support for 8080 programming. BASIC is a self-contained package which provides a powerful set of tools for developing, testing, executing, and maintaining BASIC programs.

BASIC is designed for microcomputers with at least 24K bytes of RAM and a Micropolis Meta-Floppy disk system. DOS can be used alone in a 16K byte memory system.

Activating the built-in Auto load ROM brings up the system under control of the DOS executive. Basic can be accessed by issuing a simple DOS command.

Both packages are designed for flexible, efficient programming. Both packages use the same file structure and file management scheme for total compatibility. 8080 programs created under DOS can be loaded and accessed from BASIC. Data files created under BASIC can be processed by user written application programs running under the DOS.

At Micropolis, complete means complete.

MetaFloppy™ Specifications

Format

Uses standard 5.25 inch (133 MM) diskettes
Hard-sectored: 16 sectors of 256 bytes
Tracks/surface: 77

Performance

Capacity/drive:
1043 (single drive): 315,000 bytes
1053 (dual drive): 630,000 bytes
1054 (quad drive): 1,200,000 bytes
Transfer rate: 250,000 bits/second
Average rotational latency time: 100 msec
Access time: Track-to-track: 30 msec
Settling time: 10 msec
Head load time: 75 msec
Drive motor start time: 1 second
Rotational speed: 300 RPM
Recording density: 5162 BPI
Recording code: MFM
Track density: 100 TPI

Electrical

Input power requirements: 115/230 VAC, 50/60 Hz
Standby: 30 VA single, 60 VA dual
Operating: 45 VA single, 78 VA dual

Environmental

MTBF: 8500 hours
MTTR: 0.5 hour
Diskette life: 3×10^6 passes, single track
Data validity:
Recoverable errors: 1 per 10^9 bits read
Nonrecoverable errors: 1 per 10^{12} bits
Seek errors: 1 per 10^6 seeks

Physical	Single	Dual
Height	4.0"	8.0"
Width	5.9"	9.2"
Depth	12.2"	13.0"
Weight (lbs.)	9.0	18.0

Shipping

For prompt service, we ship via United Parcel Service.

MICROPOLIS™

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