

THE MULTI-FORMAT-BIOS 2 SYSTEM

First came the computer... then came the floppy disk... then came floppy disk incompatibility... then came the M-F-B... AND NOW COMES THE M-F-B 2 - NOT just 'another' microcomputer.

If you are the head of a Data Processing department seeking a solution to ever increasing incompatibility amongst departmental computers, or the M.D of a software house looking for a way to prevent further loss of sales due to the fact that you can not supply software on the required disk format, then look no further... The next microcomputer purchase that your company will make is that of a Gemini M-F-B 2 system.

One of the original benefits of CP/M was program and data portability which was achieved by the fairly universal use of the IBM3740 8 inch disk format. Unfortunately this standardisation has all but disappeared with the introduction of a proliferation of 5 inch disk format variations. Add to this the IBM PC, the increasing number of MSDOS formats, and the microfloppy 3.5" disks, and it is obvious that this variety has made it difficult and expensive for software houses, and others with a number of computer systems, to supply disks for all the possible formats.

Gone now however are the days of laborious machine to machine file transfer with cables, because Gemini introduce the M-F-B 2 range of systems with which it is our aim to provide the link between man and his preferred machine, and the other computer users in a business.

With the excellent success of the M-F-B in these areas now having been proved, Gemini now introduces the M-F-B 2.

The M-F-B 2 has come about due to the changing market requirements in the software industry caused by the abundance of IBM PC's and 'lookalikes'.

The M-F-B 2 provides the ability to format and transfer data between any of the microcomputer formats currently available within its library. These systems support hundreds of machine type and format combinations, and new ones being added the time.

The M-F-B 2 is two systems in one. When not being used as a disk copier, it is in its own right, like the full range of Gemini MultiBoard systems, a state-of-the-art 8 bit microcomputer, free to run a host of other tasks such as your Accounts or Word Processing, and even operate as a network workstation.

This system will copy files from one CP/M type to another such as CP/M-80, CP/M-86, CCPM/86, MP/M, MP/M-86 or Turbo Dos.

With ever continuing technological improvements being made in the computer industry, we have been able to take advantage of physically smaller disk drives, whilst maintaining or increasing the capacity. With the presence of half-height drives etc. we have been able to offer even more in the 'one box' than we have been able to previously.

Software provides the M-F-B 2 with the capacity to hold up to 700 format combinations.

Now also included with all systems is an MS-DOS suite of software thus enabling the M-F-B 2 to not only format and transfer data to the entire IBM PC (PC, XT and AT) family, but also the majority of IBM 'lookalikes'. This software is complemented by the new M-F-B 2 hardware configuration.

The M-F-B 2 now provides four disk drives in one box!

With the M-F-B 2 we have been able to increase the hard-disk capacity. We are currently offering 10 or 20 Megabyte Winchester options.

We have maintained the half-height drive style for all of the disk drives. The floppy drives in these systems comprise a 5 1/4" 96 TPI Dual-Speed 800k or 1.2 MB drive, a 5 1/4" 48 TPI 400k drive, and the newest addition being that of a 3.5" double sided, double density Microfloppy drive, which was previously incorporated with an 8" drive as an additional unit.

The dual-speed disk 96TPI disk-drive now allows the M-F-B 2 to read and write all IBM PC, XT and AT formats.

Coupled with the augmented CP/M operating system, this combination of drives cover the majority of drive permutations currently available on microcomputers. As 8" formats are also supported, an 8" disk drive can be easily added.

The system will support most current soft-sectored formats, but cannot handle those formats that depend on unique hardware features such as variable speed drives; nor will it handle hard sectored disks or disks from systems using non-standard recording techniques.

The M-F-B 2 is table-driven, there being a table entry for each logical drive on the system. These tables define the physical characteristics of each drive (size, tracks, step rate etc), together with the format to be used. To reconfigure the M-F-B system for alternative formats, only these tables need to be changed by the SET or SETUP programs.

With the M-F-B system comes a twelve-month free format update service.

Apart from the obvious uses for this system as mentioned, business uses for the M-F-B are more varied, an example could be the transfer of the Chairman's Secretary's output from her Osborne to the format used in the central Word Processing department, or the collection of area sales figures sent in by Regional Sales Managers (using various computers) for merging into one matrix.

Its simple. Read the disks on the M-F-B 2 and either use the data in a program running on the system, copy to the format of your in-house microcomputer, or copy to 1/2" magnetic tape for your mini or mainframe computer.*

The M-F-B 2 software includes:

To support the M-F-B, some programs (namely FORMAT, SET, SETUP, ANALYSE, WHIG and UPDATE) and a data file (FORMATS.DAT) are supplied. These allow the user to add new formats to the library; determine the physical characteristics of an unknown format; display the current system configuration; and enable the merging of two data files together. Alphabetic sorting of a file is performed automatically.

FORMATS.DAT

holds details of the disk formats, reserved tracks, number of directory entries, disk block allocation size etc. The main utility programs all pick up their data from this file.

FORMAT

is the utility that allows a disk to be formatted to any of the format types contained in the Formats.Dat library.

SETUP

is the main utility program and used to add new formats to FORMATS.DAT, to format disks, and set up a different configuration of formats within the M-F-B 2. This is the program that directly patches the drive and format tables within the M-F-B making system reconfiguration only a few seconds work.

WHIG

(What Have I Got) is a simple utility that displays the current configuration of the M-F-B system.

UPDATE

is a utility that will merge two disk format data files together.

ANALYSE

is provided to help determine the physical characteristics of an unknown format. When presented with a disk of unknown format, it will determine the recording density used, the number of tracks-per-inch, the number of sectors per track, the sector size, and a few other parameters relating to the physical format, number of tracks, single or double sided, and physical skew.

SET

is a utility that will set the configuration of the M-F-B system to a predetermined state as defined by the contents of the file specified when SET is run. E.g. if file EXAMPLE.CFG contains the data

GEMQDDDS
GEMDDDS
IBM3740
WANG PC

then the system will be set to those formats if SET EXAMPLE is entered.

M-F-B 2 Technical Specification

Processors	: Twin Z80 Main Processor - 4 MHz Video processor - 6 MHz (No wait states)	Monitor	: High Resolution 12" Monitor Green Phosphor
Memory - Z80-1	: 64K Dynamic RAM 2K Phantom ROM	Serial I/O	: RS232 Interface Programmable Baud Rates Cuts Cassette Interface
Memory - Z80-2	: 8K Monitor ROM 8K Screen/ Character/ Graphics RAM 2K Workspace RAM	Parallel I/O	: Centronics Parallel Interface
Keyboard	: 64 Character Input Buffer 87 ASCII Encoded n Key Rollover Caps-Lock Function Edit Key 60 User Definable Function Keys Numeric Key Pad	Other I/O	: Light-Pen Input 1V P-to-P Video Output
Video	: 80 x 25 or 40 x 25 Display Format Inverse, Blinking, Half Tone Video, Half Intensity Background 256 x 256 Pixel Graphics Programmable Character Sets Programmable Special Functions Line/ Circle Draw Polygon Fill Software Clock Foreign Character Sets	SYSTEMS	<p>GM 925 : 10MB Half-height Winchester Disk 5.25" 96TPI DS - 800k or 1.2 MBbytes 5.25" 48TPI DS - 400k 3.5" DSDD</p> <p>GM 926 : As above but 20 MByte Winchester Disk</p>
		OPTIONS	<p>GM 415 : 1 x 8" DS Drive Unit</p> <p>GM 416 : 2 x 8" DS Drive Unit</p> <p>GM 833 : 0.5 MByte "RAM-Disk" (Up to four can be supported)</p>
		GM 836 Network Interface	: RS422 Communication 250 Kbaud Data Transfer Rate
		SOFTWARE	: CP/M 2.2 Operating System and Utilities MF-B Software

Additional services offered by some of our worldwide dealer network include:

Magnetic tape drive unit and interface in both hardware and software to provide a completely integrated system for data transfer between 1/2" magnetic tape and most floppy disk formats.

Additional software to allow the reading and writing of mini and mainframe computemats.

Disk analysis services.

Hopper feeds for bulk copying.

A full range of 80-BUS products and peripherals.

- * This is not supplied with the M-F-B 2 as a standard option, and is available as an additional item.

The Gemini M-F-B 2 System offers a low-cost solution to the problems associated with disk incompatibility. Guaranteed for a year, built in England, maintained and supported by a nationwide network of experienced dealers, you can be assured of a system that will meet your needs for the foreseeable future. Expansion in the form of Network Systems, I/O interfaces, and a custom service for individual requirements adds up to a powerful argument for exploring M-F-B 2 in depth. You may find it more attractive than you could have believed.

Write or telephone us now for your local M-F-B dealer, and discover how Transferring with Gemini can best benefit you.

Please also ask for our latest MultiBoard Microsystem Catalogues and Price List.

Your local M-F-B 2 Dealer is:

GEMINI MICROCOMPUTERS LTD - MAKING DISKS COMPATIBLE

CP/M is a trademark of Digital Research Ltd.

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Gemini Microcomputers reserve the right to amend all specifications without notice.

GEMINI GALAXY MFB REVIEW

It isn't contagious. In fact it might even be good for you. But it is an epidemic. It starts with someone in the Finance Department and spreads through into Insurance, Property, Buying, Corporate Planning, Sales and Personnel. Regional offices become affected quite quickly. Suddenly it is evident that there has been an outbreak of small computers - and not only in the office, because senior executives have contrived one to use at home or have bought a portable model. Typewriters grow interfaces and computers masquerading as Word Processors are connected to them, and soon Secretaries can't do without them.

Then at a Board Meeting, under Any Other Reasonable Business, the Administration Director (the man who said last month that the head office photocopy output would stretch from London to Vladivostock if laid end to end) tables a paper showing that there are 78 microcomputers of fifteen different makes in Head Office alone and that they have been purchased without any attempt to ensure compatibility. The Computer Director reminds his colleagues that there are mainframe computers spread around the business and that anything a toy computer can do can be done more efficiently with a mainframe. The Chairman, slightly put out because he has just requisitioned a micro for one of his personal assistants, appoints a Study Group to report in four months time on the use of small computers in the business. A week later an IBM PC appears in, of all places, the Computer Department where it is passed off unsuccessfully as "just another VDU".

This might be an allegory but it is a fact that all over Britain managers with enough clout to sign a chit for the money involved are right now talking to dealers or consultants about requirements for problem-solving or improved efficiency which will end up with the delivery of a small computer, some software and maybe a printer. The average initial spend is about £3,000, and in most companies the purchases are uncoordinated and will result in a proliferation of different types of machines with different disk sizes and formats. Perhaps the only thing many of them will have in common is that they run or can run the CP/M family of operating systems or their lookalikes.

The time will come (and our allegorical Study Group will labour the point) when the inability to take a disk out of one computer and run it in another will be increasingly frustrating. The quality of general purpose programs, such as financial modelling and database management, is increasing rapidly and one can foresee perhaps in a year or two the emergence of really useful integrated programs of which Lotus 1-2-3 and the Perfect Software family are the current beginners. At this point, for the majority of uses, all small computers will be "the same" - but you can bet that disks won't be, particularly now that the 3.5 inch semi-rigid disk is becoming more widely available and laser-disks with a capacity of up to a gigabyte are around several corners.

The Galaxy MFB system, and its future developments, will provide the link between the man or woman and his/her preferred machine and the other computer users in a business. Human nature will dictate that no matter how desirable it may be to standardise on one machine in any organisation, it is always more fun to have the newest or most beautiful or most powerful or most easily portable machine. Moreover, with the present dynamic state of the market, whatever is "standard" today will be tomorrow's museum-piece because the time it takes to create a standard is just long enough to ensure its obsolescence.

The MFB is two things. In its own right it is a state-of-the-art 8-bit microcomputer with four disk drives - one 5 megabyte Winchester, two double-sided 5.25 inch mini-floppy drives and one single-sided 8 inch drive with an augmented CP/M operating system which allows the disks other than the Winchester to be used in many different formats and densities. It is also a powerful translator using the included software. Although there is a "standard" (sorry!) configuration, an MFB system can be ordered with any combination of 5.25", 8" and 3.5" drives (up to four in addition to the Winchester) plus a half-megabyte "memory disk" if required. A 16-bit combined processor and memory add-on card will be available soon as an option.

Although one can imagine someone wanting five disk drives all reading and writing different formats just for the hell of it (the sort of person who puts plastic Oldsmobile tail fins on a Bentley Mulsanne perhaps), the most obvious use for the MFB is in the computer industry for the production of software in many different formats. This is where many of the MFBs are already in use. Another obvious use is in publishers and literary agents offices to receive the incoming work from authors and to copy it across to the disk format used by the editorial staff or by the typesetting machines. In business, uses are not so clearly definable. Examples could be: Transfer of a capital project analysis created on a DEC PC by a project accountant to Altos 8" format for the Central Finance team to work up a series of "what if" analyses: Transfer of the Chairman's Secretary's output from her Osborne to the format used in the central Word Processing department: Collection of area sales analyses sent in by Regional Sales Managers (using various types of microcomputer) in a spreadsheet format to be merged into one matrix. Of course the MFB does not only function as a translator but will run programs utilising the physical disks in the predefined logical format.

The MFB software, so far as a commercial rather than a technical user is concerned, will set up the operating system to define up to four disk drives (in addition to the Winchester drive) as logical drives B through E using the Setup program. Setup uses a disk definition library which is supplied with the MFB which currently contains over 60 formats, and it is necessary only to consult an on-screen listing of the defined formats, select one as the logical drive and Setup will allocate the correct physical drive provided of course that you have the appropriate physical drive in the system. The "standard" configuration augmented by one 3.5" drive will cover substantially all requirements. The hardware requirement for a particular format will in several cases result in a physical drive being allocated to more than one logical drive. For example, Superbrain QD format and IBM PC standard format will both be allocated to a 48 track-per-inch double sided drive. IBM 3740 and IBM S34 formats will both be allocated to the 8" drive. Copying data or programs between logical drives assigned to the same physical device requires an intermediate transfer to the Winchester or the Memory Drive (if fitted). Copying can take place either by using CP/M's PIP program or by a byte transfer method. Several non-CP/M formats are currently supported.

With the MFB system comes a six-months free format update service supplied by Timeclaim Limited who are main distributors for the MFB system. Timeclaim intend to bring into the format library all formats with a reasonably wide use. However the MFB user is able to define new formats for the library. If the computer for which the format is required runs CP/M (either 80 or 86) and the MFB user has access to a running system then much of the information necessary to set up the format is available from CP/M's STAT program. The MFB software package also includes utilities which enable the user to have a high

percentage success rate in setting up a format for a disk which arrives with absolutely no information as to its origin (other than size of course). The Analyse program will supply details on number of tracks used, number of bytes per sector, sectors per track and whether single or double-sided and various other technical details necessary to set up the format. If Analyse produces incomplete or logically conflicting data then a further utility program can be used to examine the disk sectors to deduce the remainder of the required information.

There are of course limitations to the use of the MFB system. Disks created by controllers which do not use the FM or MFM recording formats are not supported. There are few of these around now but as an example the MFB cannot read or write Apple disks. The nearly-redundant Hard Sectored disk cannot be handled. The MFB Manual, which is very clear and well-written, points out that the Torch operating system cannot be supported nor can the Sirius since the disks rotate at varying speeds. There are also one or two systems in which the logical location of sectors ("skew") within tracks is different from track to track and this is not supported since the MFB software reads the skew for each format from a table and applies it to each track on the disk. However some naughty manufacturers which do not supply disk formatting programs with their operating systems will find that MFB users are happily formatting disks without having to pay a full price to the manufacturer or his distributors for Official formatted disks.

So, back to our business (four months later) by which time there are 89 microcomputers now of 20 different makes. Did the Computer Director or the Administration Director go to the Which Computer Show and did they see a Galaxy MFB in action? If they did then one of the 89 ought to be an MFB. Hopefully they did and the Study Group's report to the Chairman would simply consist of the sentence "We have solved the incompatibility problem so far as the majority of present (and all future) small computers is concerned". If they didn't, you can bet that a storm is brewing of considerably greater proportions than that when the Personnel Director proposed changes in the Company Car policy.....

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8th August 1985

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Dear Sirs

KENILWORTH COMPUTERS WOULD LIKE TO INTRODUCE YOU TO THE.....

G E M I N I

M F B - 2

The **MFB-2** is a logical development in the Gemini Multi Format Bios System which enables the conversion between any two of several-hundred different computer's floppy disk formats. It has already proved invaluable in Universities, Colleges, Businesses with a variety of machines on-site and people who gather data for further processing - eg: type-setters. The **MFB-2** has a wider range of disk drive hardware built in and can handle even more disk formats.

If you have problems with transferring information from one computer to another, almost certainly **MFB-2** can help you. When it is not in use for this specialised application, it can also be used as an amazingly flexible computer system in its own right.

If you are interested in the **MFB-2** and the efficiency benefits it can bring then I urge you to read the attached leaflet which identifies how it can solve an otherwise intractable problem.

In the meantime, please do not hesitate to contact myself or Philip Sherlock if you have any queries or require further information.

Yours faithfully

David Searle