8BitCompany Laboratories

presents

MB-02+

Revolutionary Step Forward

Dear Spectrum-addicted friend,

Thank you for your interest in MB-02+, the best disk system designed for your ZX Spectrum. Welcome to the world of a perfect combination of your computer and a new disk system. The purpose of this leaflet is to give you an idea of MB-02+ possibilities, describe hardware and software currently available so that you can make a comparison to any other disk system for ZX Spectrum. You might have seen MB-02+ working before (maybe on some kind of an exhibition?); sure it was cool. Now let's take a look at it more closely:

Main features:

- **disk space:**   HD: 1.800K / DD: 840K
- **speed rate:**   HD: 40-50K/sec. / DD: 25K/sec.
- **internal memory size:**   EPROM 2K (maximum 64K)
                            SRAM 128K (maximum 512K)-backup
- **time measurement:**   Real Time Clock processor-backup
- **connect as many as 4 floppy disk drives**
- **Kempston joystick/Amiga mouse port available**
- **3-channel two-way parallel port** (via i8255)
- **tape-compatible system** (great advantage!)
- **full RAM-only mode**
- **first-rate DOS**
- **up to 256 directories on a single disk, each directory may contain as many as 65279 files!**
- **software system-RESET** (fully compatible with RESET button-doesn't work on ZX Spectrum +2A)

Software description and its possibilities:

Together with MB-02+ you will get standard software products: BS-ROM, BS-DOS and BS-BIOS developed by Busysoft+some support utilities (up-to-date MB-02+ is able to twist files between formats: BS-DOS, DP-DOS, M-DOS and, of course, MS-DOS).

- **BS-ROM:** classical ZX Spectrum ROM which contains BASIC and a software (interface) for a communication with BS-DOS. There is also some extra software improvements that make the work with BASIC much more easier & comfortable.
- **BS-DOS:** operation system software itself for a communication with disks assigned by BS-ROM or by a program directly.
- **BS-BIOS:** system core that arranges the communication between software and hardware of the system.

After connecting the MB-02+, you will be equipped by all functions which are usually available on any other system+some new features. The system's concept is based on an idea of a tape emulation which means that you can communicate with disk in exactly the same way as you did with a tape. Good thing about this cocept is that you do not have to modify the software (no matter if it is BASIC or machine code!). Obviously the communication speed rate is much

higher using disk. How does it work? The core of data transfer are two routines situated in ZX-ROM at addresses 1218 (for SAVE) and 1366 (for LOAD). Routines for the communication with disks (and tape as well) are attached to those addresses so that you can swap between use of disk or a tape. The system also stores the position where the disk is rewound to (the virtual-tape pointer-compare to tape). The system also recognizes headerless files. The utilities for data transmission from tape to disk are already available. In general, all of it means that MB-02+ together with BS-DOS is fully compatible with tape. MB-02+ also allows you to switch ZX Spectrum into full 64K RAM-only mode so there is no problem to modify memory area 0-16383 (for example, you can load here original ZX-ROM, make any changes (like installing new font) and then write-protect this memory area to emulate ROM). The system also allows to perform disk operations and simultaneously run any other operation (under IM 2-e. g. music); none of the processes will be interrupted. MB-02+ is also the only system for ZX Spectrum which allows the use of HD (high density) disk format; that is caused by a programmable Z80-DMA chip.

Hardware description and its possibilities:

What will you find inside the MB-02+?
- **WD2797A:** disk controller.
- **Z80-DMA:** Z80-chipset family member which arranges super fast data transfer between ports and a memory in all directions (Direct Memory Access); if you learn how to control this programmable chip, you will see unseen on your own Speccy! Check out DataGear profile. Some DMA-demos are supplied together with MB-02+.
- **EPROM 2K:** contains a software which is executed after Spectrum's turn-on or RESET. It allows to boot the DOS into the SRAM memory (see below) but also turn off the MB-02+ and use your Spectrum in a normal way. This chip is easily replaceable by an optional EPROM 64K which will include new user graphic system ZX-OS/3 Vision (in preparation).
- **SRAM 128K:** static RAM (under backup!) which is split into the pages organized in the memory area #0000-#3FFF (0-16383, i. e. instead of the original ROM); due to this fact it is possible to switch your Spectrum into 64K RAM-only mode. Also DOS is loaded into this memory (BS-ROM, BS-DOS, BS-BIOS). A software which organizes SRAM into an optional RAM-Disk is supplied together with MB-02+ so that you can use SRAM as yet another disk drive (backup!). It's only up to your choice what SRAM size you choose (128K/256K/384K/512K). Obviously, the more the better.
- **i8255:** a chip that arranges 3-channel two-way parallel data transfer. Using this chip you can connect Kempston joystick, Amiga-mouse, printers, A/D or D/A convertors etc. to your MB-02+.
- **FDD port:** floppy disk drives connection (2 drives); it's possible to connect as many as 4 external floppy disk drives (using a special 4-FDD adaptor - see below).
- **NMI button:** to execute the NMI menu.
- **RESET button:** to reset the entire system (both Speccy and MB-02+).

Further these accessories are available (optional):
- **Real Time Clock processor (RTC):** real time/date measuring chip. There are plenty of things to do with RTC (timing, measuring of a certain time period etc.). BS-DOS 400 also supports RTC information in all files (so that you know exactly when they were created). Of course, this chip is running even when the MB-02+ is turned off so it will not lose the track of the time (backup!).
- **floppy disk drive FDD 3.5" HD:** the best disk drive to use with MB-02+; this is the most common format used all around the world. We supply only the first-rate FDDs (Mitsumi, Sony, Teac) together with FDD cable to connect to MB-02+.
- **PC power supply:** supplies power to ZX Spectrum, monitor, MB-02+ and as many as 4 FDDs.
- **4-FDD adaptor:** if you choose to use 3 or 4 FDDs it's necessary to use this adaptor.

● **Centronics adaptor:** this adaptor is used to connect Centronics-compatible printer (the most common format).

● **bus expansion:** if you own ZX Spectrum +2A we recommend to use this expansion due to the lack of space in the area of the Spectrum's bus and a power connector.

● **Amiga-mouse:** the most common mouse to use with Spectrum.

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