LEADING LIGHT

The BBC Micro is a computer that is severely limited by its memory size. For business use, the computer must be augmented. The Torch Disk Pack does this by adding an extra 64 Kbytes of RAM memory, two double-sided disk drives and a Z80 microprocessor that allows the BBC to run CP/M-style software.

The BBC Micro is capable of expansion to full business specification. Although this capability was built into the machine from the start, the first company to make use of the idea was not the manufacturer, Acorn, but Torch. The Torch Disk Pack allows the BBC user to run the vast range of software that uses the CP/M operating system. Yet at £804 the whole package costs only a little more than a pair of Acorn disk drives.

The CP/M operating system requires a Z80 microprocessor and disk drives. The BBC uses a 6502 as a microprocessor, but the Torch Disk Pack adds a Z80, leaving the BBC's 6502 to handle all input and output functions. The keyboard, screen and disk drives are all controlled by the 6502, while the Z80, with its 64 Kbytes of RAM, runs the CP/M programs and generally 'takes charge' of the system. Data is passed back and forth between the two microprocessors via the BBC's expansion port or 'tube'.

The Z80 processor and its 64 Kbytes of RAM are supplied on a small circuit board that fits inside the BBC. The BBC's power supply is not used by the combined system. Instead a new power supply, inside the main box of the Disk Pack, is connected to the BBC. The main Disk Pack box also contains the two disk drives. These are double-sided 80-track drives that are very similar to the 800 Kbyte drives available for the BBC from Acorn.

Torch also offers an alternative system. The ZEP 100 is essentially a Torch Disk Pack without the disk drives that is intended for BBC owners who already own disks. Torch also markets a range of business computers that are made up of a BBC Micro board and disk drives, with a built-in monitor and modem.

The Disk Pack is designed to fit underneath the BBC, with short cables connecting the two together. The box is exactly the same size as the computer, so the whole system has a neat appearance. Unfortunately, the Disk Pack raises the BBC keyboard about three inches off the desk, which can make typing on the complete system a little difficult.

The Torch Disk Pack comes supplied with all necessary parts to upgrade the BBC, with one important exception — it does not include the set of disk interface chips needed for the BBC to use a disk drive. A few people will have paid for these when they bought the BBC Micro, but most will have bought a standard BBC Micro Model B and so will have to pay £100 or so to add the interface chips. Model A BBC Micros must be upgraded to Model B standard to use the Torch Disk Pack.

Once the Disk Pack is correctly fitted and the system switched on, it starts up straight away (in display mode 3) as a CP/M computer. The disk operating system used is actually written by Torch and is called MCP. This is very similar to CP/M and will run most of the hundreds of CP/M programs. The main difference between the systems is that MCP is stored in a ROM inside the BBC and does not need to be loaded into the micro.

There are many commands available in MCP that will be familiar to BBC users. Different

CHRIS STEVENS

BBC Upgrade
The Torch Disk Pack turns the BBC Micro into a business computer because it includes a Z80 processor with 64K of memory that allows it to use an operating system similar to CP/M. It includes two 400K disk drives and yet the whole system costs £804, little more than a pair of Acorn disk drives