

VG5000

NOTES ON CP/M

1. HISTORY

- 1.1 CP/M stands for Control Program/Microcomputer and was written in the late 70's (version II) by Digital Research.
- 1.2 Due to the enormous installed user base it is the de facto 8 bit disk operating system.
- 1.3 It runs on 8080 Z80 and 8085.
- 1.4 Its original use was to provide a control program for a homebrew, or kit, microcomputer. Because peripherals did not exist in this market, second-hand professional equipment (Teletype 33) was used, with 8" disk drives.
- 1.5 Because of the 'professional' nature of its background, it was quickly used for the "serious" computing applications.
- 1.6 Many different versions (8 and 16 bit) now exist. For 8 bit there is:

CP/M II	Standard ram
CP/M PLUS	Banked ram
PERSONAL CP/M	Rom based

The filing systems are all CP/M II compatible.

- 1.7 Microsoft and IBM products PC-DOS and MS-DOS grew out of CP/M II and have a broad compatibility. Microsoft and Digital Research keep "leapfrogging" each other in the market place with improved 16 bit offerings. Microsoft are trying to fight back in 8 bit systems with MSX-DOS. Digital Research are now going to compete by providing MSX PERSONAL CP/M.

2. CP/M REQUIREMENTS

2.1 CP/M's requirements are the minimum needed to actually run CP/M. Application programs are listed at in 3) below.

2.2 The minimum configuration for CP/M is:

- Keyboard with ASCII codes
- Screen with 64 columns (one line minimum!)
- 22K of free ram after loading CP/M
- One disk drive
- Bootstrap ROM, or switch
- RAM starting at address 0000, with the addresses below 0100 reserved for CP/M

3. CP/M APPLICATION PROGRAMS

3.1 CP/M was initially used on 'black box' computers, together with an ASCII terminal. A superset of CP/M has been adopted which should run 99% of application software. Note that some applications have a lower requirement:

- Keyboard with ASCII codes - function keys are nice
- Screen with 80 columns and 24 lines - the features of an ADM3A terminal are the minimum requirement
- 54 K of free ram after loading CP/M
- Two disk drives, with 500K on-line
- Bootstrap ROM
- Ram starting at address 0000, with the addresses below 0100 reserved for CP/M
- Printer port - optionally Centronics
- Serial port - some programs only.

3.2 The software is usually published on 5 1/4" diskette, together with an INSTALL program. A utility may be provided by the computer manufacturer to read some other "foreign" disk formats, if the computer uses a proprietary format. To set up the software, the utility is run to copy the software master copy to a fresh disk. The INSTALL program is then run, when questions will be answered by the user regarding keyboard and screen features. The software can then be copied to the working disks.

4. CP/M ON VG8000

- 4.1 The first, and major, drawback is the poor screen size. Virtually no "off the shelf" software will run properly, or will be difficult to use.
- 4.2 The initial writer of the application program will have to modify it to run under MSX-DOS as it is not 100% CP/M compatible.
- 4.3 MSX-DOS uses a different disk format, so a utility is required to copy CP/M disks - the resultant disk is not CP/M compatible.
- 4.4 Because of the above points, existing semi-professional / professional software will not be transferred to MSX.
- 4.5 A "true" CP/M system could be loaded under MSX-DOS (the Digital Research solution), but the screen problem remains.

5. CP/M ON VGS000

- 5.1 A 16K ram to replace the BASIC rom is needed. The hardware features to support this are standard. A full 64K ram-based memory is recommended, together with an EPROM for booting, keyboard and screen software.
- 5.2 80 column mode on the VGP II is a standard feature.
- 5.3 Application programs published in the marketplace on 3 1/2" disk, suitable for 8080/8800, could be run with no problem. The only problem would be to find distributors who distribute on 3 1/2" (any format).