

## INDUS CPM 2.2#

This document explains the specifics of your Indus GT based CPM 2.2 system. The CPM system runs in the Indus GT disk drive, which contains a Z80 microprocessor, and 64K of ram (thanks to the ram charger). The Indus drive in turn, communicates with your Atari computer. Most of the time, the Atari computer acts as a terminal, but is also used to send data to the printer, and also to operate a second disk drive. The basic nature of this environment is that the Indus is the boss, and the Atari is the slave processor in a network based system.

### Requirements:#

Indus GT disk drive with 64K ramcharger board, configured as drive 1; an Atari home computer with at least 48K. Optionally a second double density capable drive, and an Atari compatible printer (or 850 interface connected to a printer).

### Boot up:#

Insert the terminal disk into the Indus drive and boot the Atari (with Basic disabled if an XL or XE type computer). You will see a menu "A: TRM40", and "B: TRM80". TRM40 is a 40 column terminal program suitable for TV's, TRM80 is an 80 column usually requiring some type of monitor. Press the "A" key for TRM40 or "B" for TRM80.

After the terminal program has been booted, insert the CPM disk into the Indus and while holding down the "drive type" button, press the "error" button; this will boot up CPM, which will ask you to hit the return key to continue. At this point you are booted up and running CPM.

### Terminal emulation#

TRM40 emulates an ADM-31, and TRM80 emulates an ADM3A.

TRM40 control keys:

Key	Function	
<code>^bk sp</code>	screen toggle	
<code>^3</code>	cursor display lock/unlock	
<code>^;</code>	left shift screen	
<code>^.</code>	right shift screen	

### Second disk option#

A second drive may be used with CPM, this will be slow as data must pass thru the Atari computer. To use drive "2" as double density, specify CPM disk "B:". To use drive "2" as single density, specify CPM disk "C:". When transferring CPM files from a double density disk to another double density disk, it is faster if the destination disk is put in drive "1" (CPM "A:") and the source disk in drive "2" (CPM "B:"). Note drive "1" must always be used as a double density disk. Only drive "2" can be access as a single density drive (as CPM disk "C:").

### Printer option#

Any standard Atari printer (or printer hooked up via an Atari 850 interface) can be accessed using the standard CPM conventions.

## Commands#

### CPM.SUB #

This was the CPM procedure used to install all of the Digital Research patches for CPM 2.2, and to create EXSUB.COM. EXSUB is used to get out of XSUB state (refer to the CPM manual).

### INIT.COM#

INIT is used to initialize a floppy disk for Indus CPM. Init can format a disk, generate a bootable disk, and optionally erase a directory. Run the "INIT" program and remove your main disk, insert a fresh disk, and reply to the prompts as asked. You can optionally format a disk, and optionally erase the directory. INIT always will copy the boot information, creating a bootable disk.

### ICDS.COM#

ICDS is used to copy files to/from an Atari DOS compatible diskette. The Atari DOS diskette must be a double density (256 byte sectors) disk, such as XLDOS or MYDOS. ICDS is similar to Atari DOS, with the addition that CPM disks are supported. Run ICDS from drive "1" (CPM disk "A:") and place the Atari DOS disk in drive "2". To specify a CPM file, prefix the file name with "A:", to specify a DOS file prefix the name with "2:". The following commands can be used:

Key	Function	
A	display a directory (specify "A:", or "2:")	
C	copy a file (or files, wild cards supported)	
D	delete a file	
H	display help menu	

When transferring a file from Atari format to CPM format, or vice versa, you will be asked for text file translation, answer yes if the file is a text file. The conversion mainly involves converting the Atari end-of-line character into a CPM carriage return-line feed sequence (or vice versa).

As an example, the following would be entered after a "C" command to copy an Atari file named "TEST.TXT" to a CPM file of the same name:

```
2:TEST.TXT,A:
```

In this example, text translation would be desired (enter "Y"). Note: MYDOS style subdirectories are supported with ICDS.

The following tables describe the structures of the double density and single density disks used by Indus CPM. These tables are the disk parameter blocks used by CPM to organize the data on a disk. This information should be used to configure "alien" disk programs available on other non-Indus based CPM systems to transfer data to an Indus compatible CPM disk.

Double density: 40 tracks, 18 256-byte sectors per track

DW	36	;# CPM RECS/TRK
DB	3,7,0	;1K AU PARAMS
DW	170	;171*1K=171K DISK SIZE
DW	63	;64 DIR ENTRIES
DB	0C0H,000H	;DIR PARAMS
DW	16	;CSV SIZE

```
DW          2          ;TRACK OFFSET
; interleave = 1
```

Single density: 40 tracks, 18 128-bytes sectors per track

```
DW          18          ;# CPM RECS/TRK
DB          3,7,0       ;1K AU PARAMS
DW          84          ;85K DISK SIZE
DW          31          ;63 DIR ENTRIES
DB          080H,000H   ;DIR PARMS
DW          8           ;CSV SIZE
DW          2           ;TRACK OFFSET
;
DB          01,06,11,16
DB          03,08,13,18
DB          05,10,15
DB          02,07,12,17
DB          04,09,14
```