Ambühler & Müller

Parallel/Floppy-Interface
Users Guide

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Introduction
The TRAMsoft Parallel/Floppy-Interface can be used as
- 16 bit parallel-input/output interface (using port A & B)
- Interface to any printer with CENTRONICS-standard-interface (port B)
- Interface to up to 4 COMMODORE VC 1541 floppy-drives (port A)

It is possible to connect the printer and the floppy-drives at the same time.

*** Power Up - sequence ***
To prevent hardware destruction or data-loss, follow always this power up-sequence:
1) Make sure, that no peripheral-device is switched on
2) Switch on the SHARP PC-1500/PC-1500A
3) Switch on all peripheral-devices in any order

*** Power Off - sequence ***
For the same reason follow this power off - sequence:
1) Switch off all peripheral-devices in any order
2) Switch off the SHARP PC-1500/PC-1500A

Anti-Auto-Power-Off - Feature (AAPO)
If the SHARP PC-1500/PC-1500A is switched off by its auto-power-off-feature all its peripheral-devices MUST be switched off, before the PC-1500/A is switched on again. To prevent this uncomfortable situation, the TRAMsoft Parallel/Floppy-Interface has a anti-auto-power-off-feature which prevents the PC-1500/A to switch off by issuing interrupts. This feature is disabled after a CLOAD- or CSAVE-operation. To start it again, CALL &E107 must be performed. The following message NEW 0 ... or CHECK: .. can be ignored. POKE &79DA,0 disables the AAPO-feature.
How to use the TRAMsoft Parallel-Interface-Software

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PCON Port, Direction, Control-Signal-1, Control-Signal-2

Controls the direction of the data-signals and the functions of the control-signals.
- Port: "A" or "B"
- Direction: "I" for input, "O" for output
- Control-Signal-1: "+", "-", "D" set flag if pulse pos., neg., disable flag
- Control-Signal-2: different use for port A and B

PFLAG Port

Represents the status of the control-signals (0 .. 3)
- Port: "A" or "B"

PGET (Port, Line) or PGET$ (Port, Line)

Represents the status of a certain line (0,1 or "L","H")
- Port: "A" or "B"
- Line: 0 .. 7

PREAD Port

Represents the status of the lines of one port or both ports together (0 .. 255 or 0 .. 65535).
- Port: "A" or "B" or "+"

PSET Port, Line, Value

Sets a certain line to the specified status.
- Port: "A" or "B"
- Line: 0 .. 7
- Value: 0 or 1

PWRITE Port, Value

Sets the line of one port or both ports together to the status specified by the value.
- Port: "A" or "B" or "+"
- Value: 0 .. 255 or 0 .. 65535

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How to use the TRAMsoft Printer-Software

OPN   Device-name

Specifies the device for LLIST and LPRINT commands (only necessary of more then one printer is connected, e.g. SHARP CE-150 and a printer via the TRAMsoft Parallel/Floppy-Interface).
- Device-name: "MGP" for CE-150, "PAR" for TRAMsoft Parallel/Floppy-Interf.

CONSOLE   Length , Endcode-1 , Endcode-2 , Edge

Specifies the number of characters per line, the endcode and the edge of the printer-signal.
- Length: 16 .. 255, 0 for no endcode
- Endcode-1, Endcode-2: Characters to be sent to the printer at the end of the line; 0 for "Carriage Return" (&OD), 1 for "Line Feed" (&OA).
- Edge: 0 if the printer has a BUSY-signal, 1 if it has an ACKNOWLEDGE-signal. But always use pin 10 at the interface.

LLIST   First line , Last line

Same function as LLIST of the CE-158 but always related to the "current module".

LPRINT   Expression

Same function as CE-158.

PROGRAM   Module-number or any label in the program-module

Sets the specified program-module as the "current module".

TAB / ZONE

Same function as CE-158.

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How to use the TRAMsoft Floppy-Standard-Software

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**DCHAIN** Program-name , Start

Loads a program from the floppy into memory and starts execution (same as the CHAIN operation of the CE-150).

**DCMD** Floppy-Command , Drive-number

Performs execution of a floppy-command (see VC 1541 manual)

- Floppy-Command: NEW, INITIALIZE, VALIDATE, COPY, RENAME, SCRATCH
- Drive-number: 8 .. 11 (default is 8)

**DEFDISK** Drive-number

Sets the specified floppy-drive to the default drive (drive-number 8). Applicable only if more then one floppy-drives are connected.

- Drive-number: 8 .. 10 (11 is used to swap the drive-numbers)

**DFRE** Drive-number

Represents the number of free blocks.

- Driver-number: 8 .. 11

**DIR** Drive-number

Lists the files on the disk. If there is no program in memory, the full directory is stored as a program in memory otherwise each entry is listed in the display. ENTER proceeds to the next entry (ENTER with autorepeat).

- Drive-number: 8 .. 11 (default 8)

**DIR$** Entry-number

Represents the specified entry of the directory as a character string.

- Entry-number: 0 .. number of files plus 1
How to use the TRAMsoft Floppy-Standard-Software (cont)

DLOAD / DLOAD I / DLOAD M / DLOAD P / DLOAD V

Performs LOAD operation.
- DLOAD: Same as CLOAD of the CE-150.
- DLOAD I: Same as CLOAD M of the CE-150, but for memory-bank with PV=1.
- DLOAD M: Same as CLOAD M of the CE-150.
- DLOAD P: Same as MERGE of the CE-150.
- DLOAD V: Same as INPUT # of the CE-150.

DSAVE / DSAVE I / DSAVE M / DSAVE P / DSAVE V

Performs SAVE operation.
- DSAVE: Same as CSAVE of the CE-150.
- DSAVE I: Same as CSAVE M of the CE-150, but for memory-bank with PV=1.
- DSAVE M: Same as CSAVE M of the CE-150.
- DSAVE P: Saves only the "current module", no equivalent instruction with the CE-150.
- DSAVE V: Same as PRINT # of the CE-150.

DSTAT$ Drive-number

Represents the status of the specified floppy-drive as a string.
- Drive-number: 8 .. 11

DVERIFY / DVERIFY I / DVERIFY M / DVERIFY P / DVERIFY V

Compares data on disk with data in memory (same syntax as DLOAD).
How to use the TRAMsoft Floppy-Extension-Software

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BACKUP  Drive-number-1  TO  Drive-number-2
Copies the contents of the disk in drive-1 to drive-2 (duration ca. 28 min.)
- Drive-number-1, Drive-number-2: 8 .. 11

CLOSE  Log. File-number
Closes an opened channel.
- Log. File-number: 0 .. 9

DRECP0S  Log. File-number , Record-number , Byte-number
Sets the read/write-pointer to the specified byte in the specified record
of a relative file.
- Log. File-number: 0 .. 9
- Record-number: 1 .. 65535
- Byte-number: 1 .. 254

DSHOW$  Log. File-number
Represents the contents of an OPEN-variable.
- Log. File-number: 0 .. 9

INPUT # - Device-number , Log. File-number , Variables-list
Loads data from disk into variables.
- Device-number: 15 for floppy-interface
- Log. File-number: 0 .. 9
- Variables-list: Variables where data is to be load into.

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How to use the TRAMsoft Floppy-Extension-Software (cont)


Opens a channel.
- Log. File-number: 0 .. 9
- Primary-address: Drive-number 8 .. 11
- Secondary-address: Channel-number 2 .. 14, 15 for commands
- File-descriptor: For sequential files: Filename,Filetype,Filemode
  For relative files: Filename,Filetype,Recordlength
  - Filename: up to 16 characters
  - Filetype: - "L" for relative files
    - "P" for program-files
    - "S" for sequential files
    - "U" for user-files
  - Filemode: - "A" append, add data at the end of the file
    - "R" open for read
    - "W" open for write
  - Recordlength: Number of bytes per record.

See also manual of the VC 1541.

PRINT # - Device-number, Log. File-number, Variables-list

Writes data from variables to the floppy.
- Device-number: 15 for floppy-interface
- Log. File-number: 0 .. 9
- Variables-list: List of variables or expressions

The OPEN-variable

The OPEN-variable contains all information about an opened channel. Each
OPEN-instruction creates an OPEN-variable (maybe even if an ERROR occurs).
A CLOSE command deletes the appertaining OPEN-variable.
OPEN-variables have the name 00 .. 09 and cannot be accessed from BASIC,
except with DSHOW$. Never use NEW 0 or CLEAR while files are opened, if a
files is not orderly closed, data might be lost !

Contents of an OPEN-variable: pp,ss,nnnnnnnnnnnnnnn,t,m,111

Where: p: Primary-address (2 characters)
  s: Secondary-address (2 characters)
  n: Filename (16 characters)
  t: Filetype (1 character)
  m: Filemode (1 character)
  l: Recordlength (3 characters)
Example with a sequential file
**************************************************************************

a) Open a new sequential file

OPEN 2,8,5,"Test1.DAT,S,W"

If the OPEN is successfull, the red LED will stay switched on.

b) Print the OPEN-variable

PRINT DSHOW$ 2
" 8, 5,Test1.DAT,S,W 0"

c) Write data to Test1.DAT

T$="SHARP PC-1500":DIM N(5):N(3)=1/7
PRINT #-15,2,"TRAMsoft",12345,T$,N(3)

d) Close the file Test1.DAT

CLOSE 2

The data temporary stored in the memory of the floppy is now written to the disk and the red LED is turned off.

e) Open the file Test1.DAT for read

OPEN 0,8,12,"Test1.DAT,S,R"

The red LED is switched on again.

f) Read data from the file Test1.DAT into variables

INPUT #-15,0,A$,B$,C$,D$ or
INPUT #-15,0,A,B,C,D

On disk, data is stored as a string, so it can be read always into string variables. If data is read into num. variables, a VAL operation is performed. If there is no translation into numerical value possible, the result is zero. There will never an ERROR occure.

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Example with a relative file

a) Open a new relative file

OPEN 9,8,10,"Test2.DAT,L,80"
If the OPEN is successful, the red LED will stay switched on.

b) Print the OPEN-variable

PRINT DSHOW$ 9
"8,10,Test2.DAT ,L, 80"

c) Write data into record 20 of the file Test2.DAT

VN$="Peter", NA$="Sample", ST$="Longstreet", PZ$="1234"
OT$="Ruemlang", TN$="123.45.67"

DRECPOS 9,20,1 :PRINT #15,9,VN$
DRECPOS 9,20,16:PRINT #15,9,NA$
DRECPOS 9,20,30:PRINT #15,9,ST$
DRECPOS 9,20,50:PRINT #15,9,PZ$
DRECPOS 9,20,55:PRINT #15,9,OT$
DRECPOS 9,20,70:PRINT #15,9,TN$

d) Read the just saved data into the variables A$ .. F$

DRECPOS 9,20,1 :INPUT #15,9,A$
DRECPOS 9,20,16:INPUT #15,9,B$
DRECPOS 9,20,30:INPUT #15,9,C$
DRECPOS 9,20,50:INPUT #15,9,D$
DRECPOS 9,20,55:INPUT #15,9,E$
DRECPOS 9,20,70:INPUT #15,9,F$

e) Close the file Test2.DAT

CLOSE 9

The data will now be stored on disk and the red LED turns off.

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