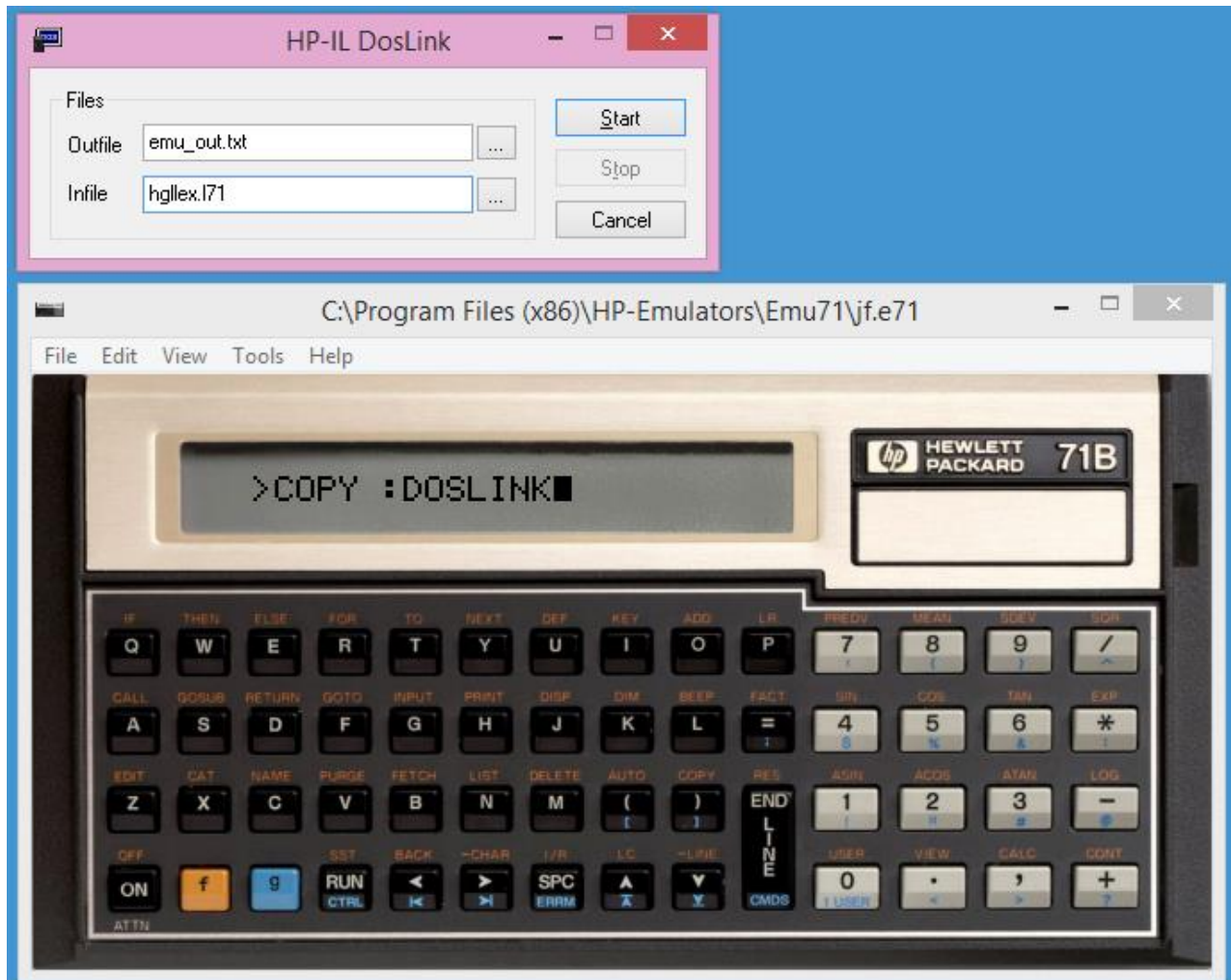# Using the DOSLink device for Emu71/Win

The DOSLink virtual device

- Modeled from the DOSLink device present in Emu41 and Emu71/DOS

- Provides a simple way to import/export files from/to the host OS file system (not necessary DOS ☺)

- Example: importing a program from a PC text file

- Example: importing a LEX file built on PC using the HP Saturn assembler / linker and the aLIFhdr utility.

Operation of DOSLink with the HP-71B

■ DOSLink is a virtual HP-IL device identified as a general interface: accessory ID=78 (=4E hex part of the interface class 4x)

■ The COPY command can be used with interface class devices:
  ■ "COPY file TO :device" encapsulates the file with a 32-byte LIF header
  ■ "COPY :device TO file" expects the device to send first a 32-byte LIF header that the HP-71B uses to create the right file type, size and attributes.

■ With DOSLink, HP-71B files can be load/saved as individual files on PC. Note that these files are not directly (or easily) managed on PC.

■ COPY can't be used to load a vanilla text file from an interface. A simple BASIC program can be used instead.

Importing/exporting text files

■ The easiest first: use
        PRINTER IS :DOSLINK
        PLIST file
to export programs as text files on PC. This works
also with HP-71 text files with editor ROM, Forth
ROM, JPC ROM or others.

■ The other way: use this simple loader program to
importing a text file,
and adds "*EOF" as the last line of the text file. This
avoids the HP-71B to hang at the end-of-file.

■ To get a BASIC program from a text file, just use:
        TRANSFORM file INTO BASIC

■ Example: importing the "REVERSI" program.

```
10 ! --- LOAD ---
20 DIM A$[120]
30 CREATE TEXT SRC
40 ASSIGN #1 TO SRC
50 ENTER :DOSLINK ;A$
60 DISP A$[1,4]
70 IF A$[1,4]="*EOF" THEN
GOTO 100
80 PRINT #1;A$
90 GOTO 50
100 ASSIGN #1 TO *
110 END
```

Loading LEX files created on PC

The build and transfer process is :
• assemble (and link if needed) the source file(s) with the HP tools,
• add the LIF header with the aLIFhdr utility,
• make DOSLINK point to the resulting file,
• "COPY :DOSLINK" on the HP-71B or Emu71/Win,
• turn the HP-71B or Emu71/Win off/on to register the new LEX file.

Example: build the HGLLEX Lex file
• adds the HGL$() - highlight string – fonction.
• DISP HGL$(string) displays the string in reversed video on a compatible display (HP82163, Mountain Computer 80-colomn display).
• Demo.

Notes:
• The Saturn HP assembler and linker were distributed in the HP48 tools. These are 16-bit DOS applications that must be run in a virtual environment (like DOSBox) on modern 64-bit OS.
• The aLIFhdr is a utility written by myself (JFG). It was created as a 16-bit DOS application; Christoph Giesselink recently made a 32-bit version that runs natively on 64-bit OS.
• The HGL$() keyword comes from the HP-71B Data Acq Pac ROM.

Source file hgllex.a

```
 TITLE HGLLEX LEX

* ********************************
* HGL$
* ********************************

=ARGSTA EQU    #0E90C
=POP1S  EQU    #0BD38
=EXPR   EQU    #0F23C

* **********************
* --LEX header--
* **********************
        CON(2) #FE      LEX ID
        CON(2) #1F       LOWEST TOKEN
        CON(2) #1F       HIGHEST TOKEN
        CON(5) 0         NEXT LINKED LEX
        NIBHEX F         NO SPEED TABLE
        REL(4) (TxTSt1)+1 OFFSET TO TEXT TABLE
        CON(4) 0          OFFSET TO MESSAGE TABLE
        CON(5) 0          OFFSET TO POLL HANDLER

* **********************
* ------MAIN TABLE------
* **********************
        CON(3) (HGLt)-(TxTSt1)
        REL(5) HGLe
        NIBHEX F

* **********************
* ---Text table---
* **********************
TxTSt1
HGLt   CON(1) #7
        NIBASC 'HGL$'
        CON(2) #1F
TxTEn1  NIBHEX 1FF
*
```

```
.*******************************
* HGL$ entry
* **************************
NIBHEX 8412
HGLe
        C=C-1  S
        ?C=0   S
        GOYES  o4C0F
        GOSBVL =ARGSTA
        SETHEX
        A=0    S
        C=0    S
        ?A=0   W
        GOYES  o4C0C
        C=C+1  S
o4C0C   D1=D1+ 16
o4C0F   ?C#0   S
        GOYES  o4C56
        CD1EX
        D1=C
        R0=C
        A=0    W
        GOSBVL =POP1S
        ASRB
        ASL    W
        ASL    W
        ASL    W
        LCHEX  #80
        D1=D1- 2
o4C3A   D1=D1+ 2
        A=A-1  M
        GOC    o4C50
        A=DAT1 B
        A=A!C  B
        DAT1=A B
        GONC   o4C3A

o4C50   C=R0
        D1=C
o4C56   GOVLNG =EXPR

=FiLeNd
        END
```

Command file bldhgl.bat:

```
rem build batch file
set SASM_LIB=.
sasm –x –H hgllex.a
alifhdr hgllex.o hgllex.l71
```

The end…

Thanks for your attention !