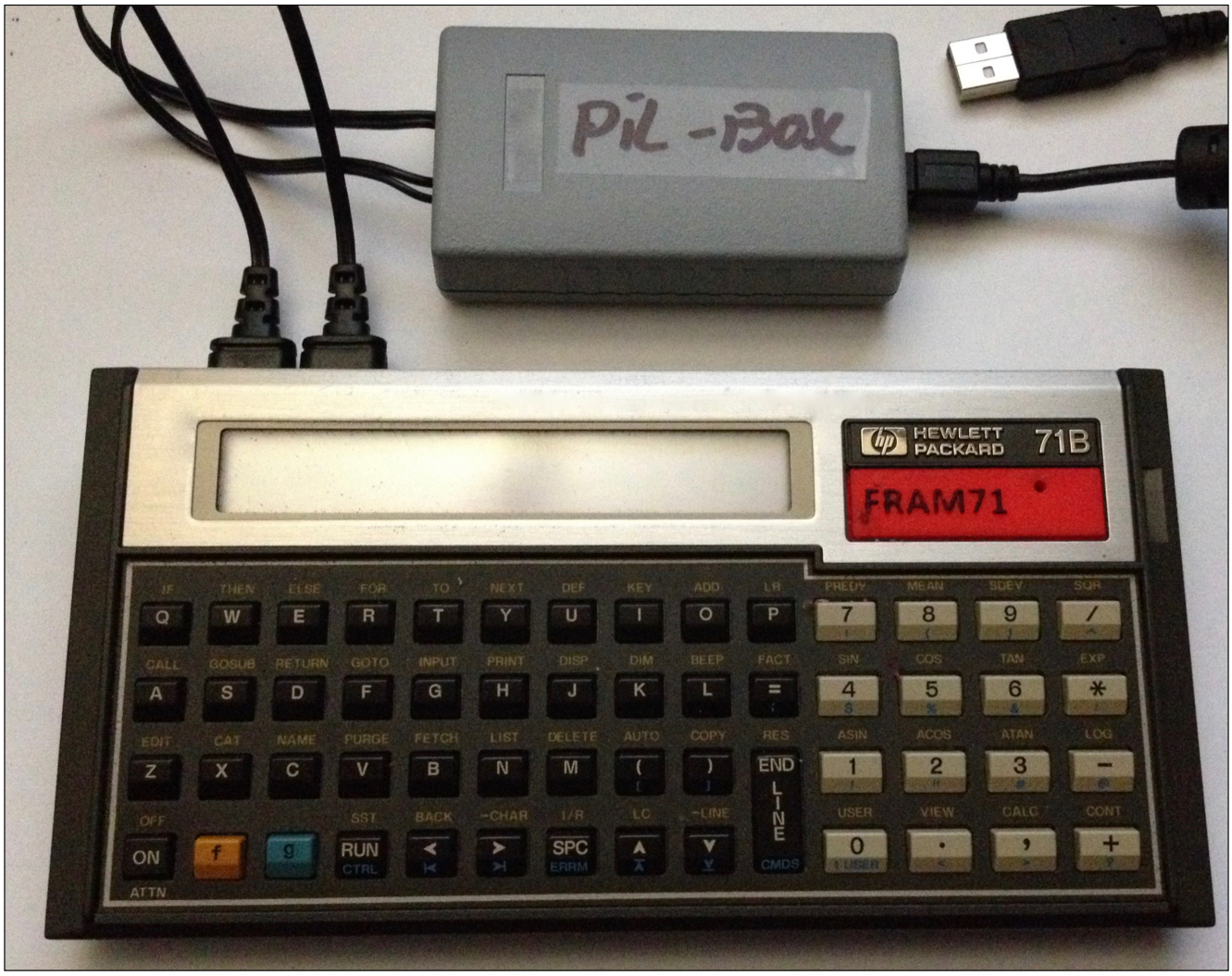
HP-71B Compendium

HP-71B Handheld Computer Compendium

Sylvain Côté - February 10, 2018



Keith Midson -> Top: 71B Slant View / Bottom: OS Versions + Clear Case

Table of Content

Preface

Introduction

The goal of this document, is to assemble all the information related to the Hewlett-Packard 71B handheld computer, including, computer, peripherals, modules, manuals, pamphlets, accessories, cases or any other product.

Disclaimer

It is my understanding that due to their age, the documents, softwares, ROM images, etc. referenced in this document may be shared for personal and non-commercial use, however, please contact me immediately if you are a copyright holder and my understanding is incorrect.

Acknowledgments

- To Hewlett-Packard and the calculator development team for having created the HP-71B Hand Held Computer.
- To Richard J. Nelson for his lifetime achievement in the calculator world, for creating calculator member clubs, journals (65 Notes, PPC/PPC-CA, PPC-CO, CHUU) and a place to share ideas & knowledge.
- To Joseph K. Horn for his pioneering efforts, for sharing his knowledge in the 1980s Journals (PPC, CHHU & HPX) and for his recent works on the LEX files.
- To Jakes Schwartz for his pioneering efforts and more importantly for his historian role by recording on tapes all HP events since its beginning.
- To David G. Hicks for creating the hpmuseum.org site and in doing so, following in spirit what was started by Richard J. Nelson, a place to share ideas & knowledge.
- To Jean-François Garnier for his Saturn processor emulator, his HP-71B emulator, his fantastic USB-to-HPIL PIL-Box, his extraction of the HP-71B Diagnostic ROM content and for putting together a new and updated version of the JPC-ROM.
- To Christoph Gießelink for his HP-71B emulator, his suite of HP-IL device emulators and for integrating the PIL-Box into his emulators.
- To Hans Brueggemann for his dedication to create the FRAM71 module and in doing so, pushing the HP-71B to it's extreme limits.

- To Robert Prosperi and Dave Frederickson for their continued support, their dedication to the HP-71B and more importantly, for their friendship.
- To all unnamed peoples who contribute in keeping the HP-71B alive ...

THANK YOU! THANK YOU! THANK YOU!

Contributors

- Christoph Gießelink :
  OS 2CCCC ROM Image, ROMs Information & Emu71/Win Corrections.
- Dave Frederickson : Compendium Reviewer & ROM Images.
- Garth Wilson (*WEB*) : CMT-CR-96R module internal pictures.
- Jean-François Garnier : Compendium Reviewer, Several ROM Images & Documents (most of them, not yet included in the compendium, sorry about that).
- Joseph K. Horn : ZenWand-71 Manual.
- Keith Midson : Great HP-71B Pictures.
- Matthias Wehrli : CMT-CR & HHP-71 M/M pictures.
- Robert Prosperi : Compendium Reviewer, ROM Images & CMT-71-64R Manual.

Notes

- All contributors are welcome.
- I should have started the "Contributors" section long ago, but this document is way bigger than I had anticipated and I did not kept a written track of all the contributors. So, if you have directly contributed to this document and you are not listed, please contact me and I will gladly add your name to it.
- If you find errors in any part of the document, please contact me and I will correct it and if the correction is incorrect do not hesitate to contact me as long as it need be, with some reserve of course.
- Original price is rounded to the nearest Euro or US dollar.
- Entries in italic are educated guess.
- External PDF & ZIP documents are identified as italic web links.

Updates

Revisions

Released	Updates	
2018-02-10	Updated:	Web links in PDF document.
2016-04-30	Added:	Contributor section, Card Reader Memory Modules section, Valentín Albillo 71B articles, Several PDF/WEB/IMG links.
	Updated:	Products prices & availability, Manufacturers & Distributors, Acknowledgments, HP-71B, Solutions Books.
2016-03-21	Added:	Brochures & Pamphlets PDF documents, Original prices. HP-71X Emulator, Images from Keith Midson, Notes section Prices column and new entries in References section
	Updated:	Expanded Emu71/DOS, Expanded Emu71/Win, Expanded Accessories, Document formatting Max. web page size reached again, web article is now in 3 parts.
	Removed:	Images from the reference section.
2016-01-11	Added:	Super Surveyor, WorkBook71, Software Developers' Handbook, Software Development Utility, Users' Library Software Catalogs
	Updated:	Solutions Books (math, games, utilities), Dual HP-IL Adapter OM, HP-IL Module OM/QRG, ZenWand-71 OM, HP-HEDS-3000, HP-AN-1013, CMT-71-32R/64R/32KE/64KE/P01 OM.
2016-01-02	New:	Initial release (pdf version).
	Updated:	Major update (web version).
2015-12-xx	Updated:	Several minor releases (web version).
2015-12-07	New:	Initial release (web version).

Upcoming

Upcoming

References:
> Add a contributors section
> More accessories (cases, etc)
> More pamphlets, brochures & manuals
> More clubs & journals

Handheld Computers
> 71B OS 0AAAA ROM image

Peripherals
> PIL-Box HP-IL to USB Interface
> HP-82164A HP-IL to RS-232C Interface
> Virtual-IL Peripherals Emulators

Applications in ROM Module
> JPC ROM (images/docs/links)
> AMP-House ROMS (images/docs/links)

Applications on Media
> HPAF Utilities (media-image/docs/links)
> SoftForth (media-image/docs/links)

Journals Articles References:
> PPC, PPC-CA, PPC-CO, CHHU, HPX, HPCC, JPC, PPC-T, etc
> CCD (I do not understand Deutsch/German, I will need help here)

References

Sites & Documents of Interest

Sites & Documents of Interest
All underline entries in this document points to external documents (pictures, manuals, etc)
HP-71B ROM Images from Sylvain Côté (ZIP)
HP-71B ROM Versions and Bugs from Jean-François Garnier (*WEB*)
HP-71B Emulator for MS-DOS from Jean-François Garnier (*WEB*)
HP-71B Emulator for Windows from Christoph Gießelink (*WEB*)
HP-71B Emulator for HP-48GX/49G/49G+/50G from Zeljko Hrastovcak (*WEB*)
HPIL-to-USB PIL-Box Interface from Jean-François Garnier (*WEB*)
Virtual HP-IL Peripheral Emulators from Christoph Gießelink (*WEB*)
FRAM71 Card Reader Module from Hans Brueggemann (*WEB*)
FRAM71 Tool Kit from Dave Frederickson (*WEB*)
3D Printed Parts for HP HHC published by Dave Frederickson on ShapeWays (*WEB*)
HP-71 Goodies from Joseph K. Horn (*WEB*)
HP-71 BASIC Made Easy Book from Joseph K. Horn (*PDF*)
Museum Document Sets from David G. Hicks (*WEB*)
HP Computer Museum from Jon Johnston (*WEB*)
HP-Collection from Matthias Wehrli (*WEB*)
HP Collection Pictures from Keith Midson (*WEB*)
My Calculator Database from Philippe Leckler (*WEB*)
VCalc Calculator Poster from Rick Furr (*WEB*)

Acronyms

Acronym	Description
B	Byte(s)
BASIC	Beginner's All-purpose Symbolic Instruction Code

Acronym	Description
BL	Bottom-left (image location)
BR	Bottom-right (image location)
CPLD	Complex Programmable Logic Device
CR	Card Reader
EPROM	Erasable and Programmable Read Only Memory
FPGA	Field Programmable Gate Arrays
FRAM	Ferroelectric Random Access Memory (FeRAM)
HDS	Hardware Design Specifications
HRD	HaRD configured address
IB	Interface Bus (HP-IB, IEEE-488 or GPIB)
IDS	Internal Design Specifications
IL	Interface Loop (HP-IL)
IMG	Image file
IMS	Internal Maintenance Specification
IRAM	Independent RAM (in HP-71B)
KB	Kilobyte(s) [Memory: 1024 Bytes] [Mass Storage: 1000 Bytes]
KML	Keyhole Markup Language
MB	Megabyte(s) [Memory: 1024 KB] [Mass Storage: 1000 KB]
OS	Operating System
OTP	One Time Programmable (Read Only Memory) (aka PROM)
PCB	Printed Circuit Board
PDF	Portable Document File/Format
PROM	Programmable Read Only Memory
RAM	Random Access Memory
ROM	Read Only Memory

Acronym	Description
TL	Top-left (image location)
TR	Top-right (image location)
WEB	Web page (or site)
ZIP	Zip compressed file

Manufacturers & Distributors

Manufacturer / Distributor
Corvallis MicroTechnology Inc. [CMT] (Corvallis, OR, USA) Founded: 1984 by David Lin (ex HP) & others
Éditions Du Cagire (Toulouse, FR) Founded: 198? by Jean-Daniel Dodin
EduCALC (South Laguna, CA, USA) Founded: 197? by Jim Carter
Firmware Specialists Inc. [FSI] (Corvallis, OR, USA) Founded: 198? by David R. Conklin (ex HP) & Steve Chou (ex HP)
Hand Held Products Inc. [HHP] (Charlotte, NC, USA) Founded: 1982 by Mike Weaver
Hewlett-Packard [HP] (Palo Alto, CA, USA) Founded: 1939 by William Redington Hewlett & Dave Packard
Oregon Digital Systems [ODS] (OR, USA) Founded:
Surveyors Module Inc. [SMI] (TN, USA) Founded: 1982 by Stanley Trent
Tripod Data Systems [TDS] (Corvallis, OR, USA) Founded: 1987 by Bernard E. Musch (ex HP) & Steve Chou (ex HP)
Zengrange (Leeds, UK) Founded:

Handheld Computers

Product #	Handheld Computer	Price € / $ US
HP-71B	Handheld Computer (64KB ROM, 17.5KB RAM)	$525 : 1985

Product #	Handheld Computer	Price € / $ US
Emu71/DOS	HP-71B Emulator for MS-DOS	FREE : 2016
Emu71/Win	HP-71B Emulator for Windows	FREE : 2016
HP-71X	HP-71B Emulator for HP-48/49/50	$100..$200 : 2016

Interfaces

Product #	Interface	Price € / $ US
HP-82400A	Card Reader	$165 : 1985
HP-82401A	HP-IL Interface (16KB ROM)	$125 : 1985
HP-82402A	Dual HP-IL Adaptor	$99 : 1985
ZENWAND-71	ZenWand-71 Barcode Reader (16KB ROM)	$449 : 1988

Card Reader Port Memory Modules

Product #	Card Reader Port Memory Module	Price € / $ US
FRAM71-512	512KB FRAM (config. as RAM, IRAM & ROM)	€299 : 2015
FRAM71-1024	1MB FRAM (config. as RAM, IRAM & ROM)	€399 : 2015
HHP-71 M/M 32KE	32KB EPROM Carrier	$99 : 1985
HHP-71 M/M 32KR /32KE	32KB RAM & 32KB EPROM Carrier	$495 : 1985
HHP-71 M/M 32KR	32KB RAM	$395 : 1985
HHP-71 M/M 64KR	64KB RAM	$695 : 1985
HHP-71 M/M 96KR	96KB RAM	$995 : 1985
HHP-71 M/M 128KR	128KB RAM	
HHP-71 M/M 160KR	160KB RAM	
CMT-CR-32/32	32KB RAM & 32KB EPROM Carrier	$245 : 1988
CMT-CR-32R	32KB RAM	$160 : 1987
CMT-CR-64R	64KB RAM	$295 : 1987
CMT-CR-96R	96KB RAM	$395 : 1987

Product #	Card Reader Port Memory Module	Price € / $ US
CMT-CR-128R	128KB RAM	$495 : 1988
CMT-CR-160R	160KB RAM	$595 : 1988

Front Port Memory Modules

Product #	Front Port Memory Module	Price € / $ US
HP-82420A	4KB RAM Module	$75 : 1985
CMT-71-32R	32KB RAM Module	$160 : 1987
CMT-71-64R	64KB RAM Module with Battery Backup	$295 : 1988
HP-82486A	8KB Custom ROM (Qty 100+) [-> HP-82491A]	
HP-82486B	16KB Custom ROM (Qty 100+) [-> HP-82492A]	
HP-82486C	32KB Custom ROM (Qty 100+) [-> HP-82493A]	
HP-82486D	64KB Custom ROM (Qty 100+) [-> HP-82494A]	
HP-82491A	8KB Custom ROM (Qty 100+)	
HP-82492A	16KB Custom ROM (Qty 100+)	
HP-82493A	32KB Custom ROM (Qty 100+)	
HP-82494A	64KB Custom ROM (Qty 100+)	
CMT-71-32K-OTP	32KB OTPROM	$95 .. $80 : 1987
CMT-71-64K-OTP	64KB OTPROM	$135 .. $118 : 1987
CMT-71-32KE	32KB EPROM	$115 : 1987
CMT-71-64KE	64KB EPROM	$175 : 1987
CMT-P01	CMT-71-xxKE EPROM Programmer	$495 : 1987

Applications in ROM Module

Product #	Application Module	ROM Size	Module #	Price € / $ US
	Diagnostic	16KB	5061-7246	
	Demonstration	16KB	5953-5622	
HP-82441A	Forth / Assembler	48KB	5061-7234	$150 : 1985

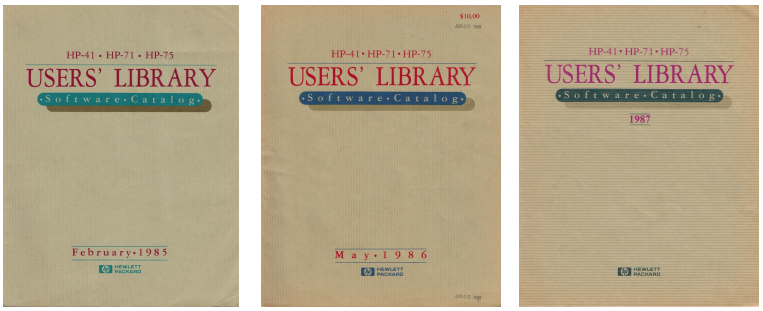
Product #	Application Module	ROM Size	Module #	Price € / $ US
HP-82478A	Forth / Assembler with Debugger	48KB	5061-7234	$175 : 1985
HP-82479A	Data Acquisition Pac	64KB	5061-7290	$195 : 1985
HP-82480A	Mathematics	32KB	5061-7226	$95 : 1985
HP-82481A	AC Circuit Analysis Pac	16KB	5061-7237	$75 : 1985
HP-82482A	Finance Pac	16KB	5061-7239	$75 : 1985
HP-82483A	Surveying Pac	16KB	5061-7238	$150 : 1985
HP-82484A	Curve Fitting Pac	32KB	5061-7241	$95 : 1985
HP-82485A	Text Editor	16KB	5061-7240	$75 : 1985
HP-82488A	Data Communications Pac	16KB	5061-7271	$150 : 1985
HP-82489A	AMPI Statistics Library Pac	32KB	5061-7270	$125 : 1985
HP-82490A	HP-41 Translator Pac	48KB	5061-7269	$125 : 1985
SUPER SURVEYOR	Super Surveyor	64KB		

Applications on Books & Media

Product #	Application on Book & Media	Medium	Price € / $ US
HP-00071-90064	Math Users' Library Solutions	Book	$15 : 1985
HP-00071-90065	Games Users' Library Solutions	Book	$15 : 1985
HP-00071-90066	Utilities Users' Library Solutions	Book	$15 : 1985
HP-00071-90066 B	Utilities Users' Library Solutions Rev. B	Book	$15 : 1985
HP-00071-90097	Software Developers' Handbook	Cassette	$50 : 1985
HP-82440A	Software Development Utility	Cassette	$35 : 1985
	Translator Pac Programmers' Toolkit	Floppy	$60 : 1988
HP-82477A	HP-IL Link	Floppy	$95 : 1985
HP-82478-60001	HP-71 Debugger Upgrade	Floppy	$80 : 1985
WorkBook71	WorkBook71	Floppy	$80 : 1985

Users' Library Software Catalogs

Product #	Users' Library Software Catalog	Date	Price € / $ US
HP-5957-8158	HP-41/71/75 Users' Lib. Soft. Catalog	1985	$10 : 1985
HP-5955-8679	HP-41/71/75 Users' Lib. Soft. Catalog	1986	$10 : 1986
HP-5955-8794	HP-41/71/75 Users' Lib. Soft. Catalog (PDF)	1987	



Users' Library Software Catalogs with HP-71 programs in it

Hewlett-Packard Accessories

Product #	Hewlett-Packard Accessory	Price € / $ US
HP-82461A	Hard Field Case	
HP-82462A	Blank Overlay Kit (Qty 5) (IMG)	$10 : 1985
HP-82463A	Vinyl Carrying Case (IMG)	$10 : 1985
HP-82487A	Custom Keyboard Overlays	
HP-82707A	Blank Magnetic Card Pac (Qty 30)	$30 : 1985
HP-82708A	Blank Magnetic Card Pac (Qty 100)	$70 : 1985
HP-82722A	Custom Magnetic Cards (Qty 250)	$1875 : 1985
HP-82715A	Notebook Magnetic Card Holder (Qty 5) (IMG)	$15 : 1985
HP-82167A	HP-IL Cable (.5 Meter, Qty 2)	$6 : 1985
HP-82167B	HP-IL Cable (1 Meter, Qty 2)	$8 : 1985
HP-82167D	HP-IL Cable (5 Meters, Qty 2)	$10 : 1985
HP-11340A	HP-IL Cable (20 Meters, Qty 2)	$40 : 1985
HP-11340B	HP-IL Cable (50 Meters, Qty 2)	$100 : 1985

Product #	Hewlett-Packard Accessory	Price € / $ US
HP-11340C	HP-IL Cable (100 Meters, Qty 2)	$200 : 1985
HP-82059D	Power Supply, 110v North-America	$12.50 : 1983
HP-82066B	Power Supply, 220v Europe	$25 : 1980
HP-82067B	Power Supply, 220v UK desktop	: 1980
HP-82067B 001	Power Supply, 220v UK with RSA plug	: 1980
HP-82068B	Power Supply, 220v Australia	: 1980
HP-82069B	Power Supply, 110v Europe	: 1980
HP-00071-90001	HP-71 Owner's Manual (English)	$15 : 1985
HP-00071-90010	HP-71 Reference Manual (English)	$25 : 1985
HP-00071-90019	HP-71 Quick Reference Guide (English)	$2 : 1985
HP-82401-90001	HP-71 HP-IL Interface Owner's Manual	$15 : 1985

Third Party Accessories

Product #	Third Party Accessory	Price € / $ US
CMT-71-TouchPad	CMT: TouchPad-71 (IMG)	$29 : 1988
CMT-71-CASE	CMT: Rugged Case	$185 : 1988
MultiCase-128	CMT: Rugged Case (LCD/HPIL/RS232/RAM Disk)	$925 : 1988
SerialPlus 71 Case	ODS: Rugged Case (with HP-IL & RS-232)	$395 : 1988

Internal Design Specifications

Product #	Internal Design Specifications	Price € / $ US
HP-00071-90068	IDS Vol.I: Detailed Design Description	$50 : 1985
HP-00071-90069	IDS Vol.II: Entry Point and Poll Interfaces (1BBBB)	$50 : 1985
HP-00071-90104	IDS Vol.II: Entry Point and Poll Interfaces (2CCCC)	$50 : 1986
HP-00071-90070	IDS Vol.III: Operating System Source (1BBBB)	$200 : 1985
HP-00071-90105	IDS Vol.11I: Operating System Source (2CCCC)	$200 : 1986
HP-00071-90071	IDS Hardware Design Specifications	$200 : 1985

Product #	Internal Design Specifications	Price € / $ US
HP-82401-90023	IDS HP-IL Internal Design Specifications	$50 : 1985
CHHU NOMAS	IDS & IMS HP-71 FORTH / Assembler ROM	

Users Clubs

Acronym	Country	Users Club	Lifetime
	US	HP-65 Users Club (renamed PPC)	1974-06 to 1977-12
PPC	US	Personal Programming Club / Center	1978-01 to 1987-07
CHHU	US	Club of Hewlett-Packard Handheld Users	1984-10 to 1986-02
HPX	US	Handheld Programming Exchange	1987-01 to 1990-05
PAHHC	US	Philadelphia Area HP Handheld Club (*WEB*)	198x-xx to [today]
PPC-UK	UK	PPC UK Chapter (renamed HPCC)	1982-07 to 1985-03
HPCC	UK	Handheld & Portable Computer Club (*WEB*)	1985-04 to [today]
CCD	DE	Computer Club Deutschland	1981-11 to 1993-XX
PPC-PC	FR	PPC Paris Chapter	1982-12 to 1994-09
PPC-T	FR	PPC Toulouse Chapter	1982-01 to 1987-06

Users Clubs Journals

Club	Users Club Journal	Lifetime
HP	HP-65 Key Note	1974-06 to 1976-07
HP	HP Key Notes	1977-01 to 1983-08
HP-65 Users Club	65 Notes	1974-06 to 1977-12
PPC	PPC Journal -> PPC-CA Journal -> PPC Journal	1978-01 to 1987-07
PPC	PPC-CO Journal	1982-09 to 1984-12
CHHU	Chronicle	1984-10 to 1986-02
HPX	Exchange	1987-01 to 1990-05

Club	Users Club Journal	Lifetime
HPCC	Datafile	1982-07 to [today]
CCD	Prisma	1982-01 to 1992-01
PPC-PC	JPC / Journal Paris Chapter	1983-01 to 1994-09
PPC-T	PPCJ-T -> PPC-T -> Micro-Revue -> PPC-T	1982-01 to 1987-06

Brochures & Pamphlets

Product #	Brochure / Pamphlet	Date
HP-5953-5575D	Complex Calculations Have Never Been So Easy... The HP-71	1983-12
HP-5953-5636	Custom Products From Hewlett-Packard (*PDF*)	1984-03
HP-5953-6987	HP-3421A Data Acquisition/Control Unit - Programming the HP-3421A with the HP-71B and the HP-75D (PDF)	1984-08
HP-5954-1059	HP-41 Advanced Programmable Calculators & HP-71 Handheld Computers (PDF)	1984-04
HP-5954-1166D	Calculator and Handheld Computer Products - Price List Addendum (PDF)	1984-05
HP-5954-1241	HP-71 Instrument Control Systems (*PDF*)	1985-02
HP-5954-1263	HP Handheld Computers in Instrument Control - A Guide to Selling and Demonstrating the HP-71B (*PDF*)	1985-02
HP-5954-1268	HP-71 to HP-3000 and HP-1000 File Transfers (PDF)	1985-02
HP-5954-1274	HP-71/HP Touchscreen and HP-71/HP-2392A Terminal Development Station (PDF)	1985-02
HP-5954-1277	Equip Yourself With The Professional Problem Solvers: HP-41 Advanced Programmable Calculators and HP-71 Handheld Computer (PDF)	1985-04
HP-5954-1307D	Calculator and Handheld Computer Products - U.S. Retail Price Guide (PDF)	1985-07

Product #	Brochure / Pamphlet	Date
HP-5954-1308D	The HP-71 in Manufacturing - A Guide to Selling and Demonstrating the HP-71B - Update! (*PDF*)	1985-10
HP-5954-1310	HP-71 Data Acquisition Pac (PDF)	1985-10
HP-5954-1311	Dual HP-IL Adapter (PDF)	1985-10
HP-5954-1312	Networking HP-71s to a Supervisory Computer (PDF)	1985-10
HP-5954-1313	The 71 In: Production Process Monitoring and Low-Cost Test (*PDF*)	1985-10
HP-5954-1315	HP-71 Handheld Computer System in Manufacturing (PDF)	1985-10
HP-5954-1316	Using the HP-71 for Production Process Monitoring (PDF)	1985-10
HP-5954-1317	Low-Cost Production Testing and Instrument Control (PDF)	1985-10
HP-5954-1318	HP-71/75 to HP-150/IBM PC/XT/AT File Transfers (PDF)	1985-10
HP-5954-1319D	HP-71B Control - U.S. Retail Price Guide (PDF)	1985-09
HP-5954-1320D	HP-71B Data Book (PDF)	1985-10
HP-5954-1343D	HP Custom Products - A Guide to Selling Custom Products (PDF)	1986-02
HP-5954-1384D	Calculator and Handheld Computer Products - U.S. Retail Price Guide (PDF)	1986-08
HP-5955-8624	A Wealth of Accessories to Complement - Series 10, the HP-41, HP-71 and Peripherals (PDF)	1986-01
HP-5955-8720	A Wealth of Accessories to Complement - Calculators, the HP-71 Handheld Computer and Peripherals	1987-02
HP-5955-9483	HP-71 Software & Accessories (PDF)	1983-11
CMT-MM-AD1	CMT Memory Modules Ad #1 (PDF)	1986
CMT-MM-AD2	CMT Memory Modules Ad #2 (PDF)	1986
CMT-PL-1986	CMT Price List (PDF)	1986
CMT-DR-1986	CMT Dealers Rebate (PDF)	1986
HHP-CRM-AD	HHP Card Reader Memory Products Ad (PDF)	1985

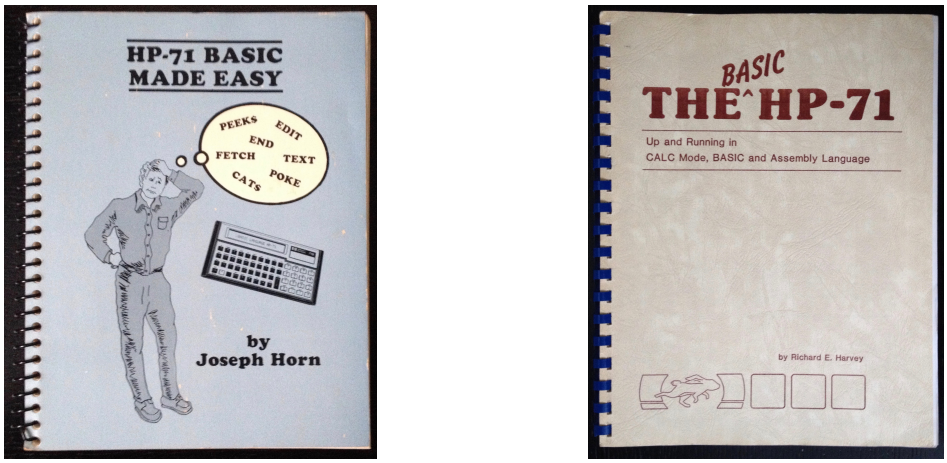
Product #	Brochure / Pamphlet	Date
FSI-CRM-AD	FSI Card Reader Memory Products (HHP) Ad (PDF)	1985
FSI-PL-1985	FSI Price List (PDF)	1985-06

Articles

Article
HP-71B Handheld Computer Dealer Sales Paper (Hewlett-Packard, 1985-04) (*PDF*)
HP-71B Handheld Computer Overview (HP Journal 1984-07 V35 N7 Issue) (PDF)
HP-75C Card Reader Overview (HP Journal 1983-06 V34 N6 P15-26) (PDF)
HP-82479A Data Acquisition Pac Overview (HP Journal 1986-03 V37 N3 P43-47) (PDF)
The HP-71B "Math Machine" 25 Years Old (J. Horn, R. Nelson, & D. Thorn) (PDF)
Article by Valentín Albillo
HP-71B Modest Matter (Valentín Albillo, Datafile V23 N4) (PDF)
HP-71B Math ROM Baker's Dozen, Vol. 1 (Valentín Albillo, Datafile V24 N1) (PDF)
HP-71B Math ROM Baker's Dozen, Vol. 2 (Valentín Albillo, Datafile V24 N2) (PDF)
HP-71B Short & Sweet Sudoku Solver (Valentín Albillo, Datafile V24 N2) (PDF)
HP-71B Fantastic FOUR (Valentín Albillo, Datafile V24 N3) (PDF)
HP-71B Sudoku Solver's Sublime Sequel (Valentín Albillo, Datafile V24 N3) (PDF)
HP-71B Minimax Polynomial Fix (Valentín Albillo, Datafile V24 N5) (PDF)
28 Years of Othello (Valentín Albillo, Datafile V24 N6) (PDF)
HP-71B Sudoku Generator ... & Coach ! (Valentín Albillo, Datafile V25 N2) (PDF)
Long Live the HP-71B! (Valentín Albillo, Datafile V25 N6) (PDF)
Small Fry - Primes A'counting (Valentín Albillo, Datafile V26 N2) (PDF)
Doldly Going ... Identifying Constants (Valentín Albillo, Datafile V26 N2) (PDF)
Packing Long Integers for the HP 71B [Assembler] (Valentín Albillo, hpmuseum.org) (*WEB*)

Books

Book
HP-71 BASIC Made Easy, 1985, by Joseph Horn (PDF)
HP-71 BASIC Made Easy, 2014, by Joseph Horn (updated & searchable) (*PDF*)
The BASIC HP-71: Up and Running in CALC Mode, BASIC and Assembly Language, 1986, by Richard E.Harvey (PDF)



Left: HP-71 BASIC Made Easy book / Right: The BASIC HP-71 book

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Handheld Computers

HP-71B Handheld Computer

HP-71B Front Side

Introduction (owner manual extract)

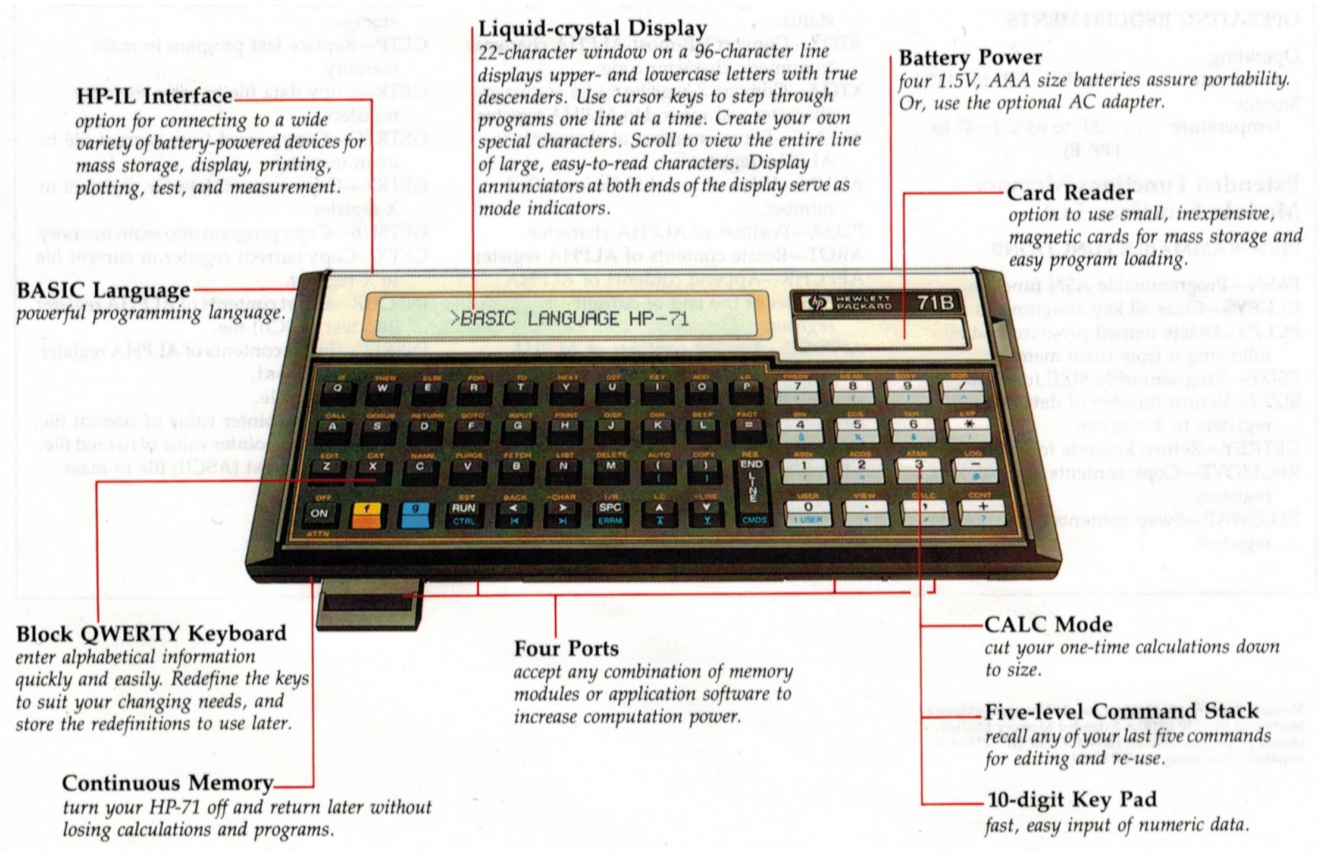
Congratulations! You have purchased the HP-71, an advanced computational tool that works as easy as a calculator but is as powerful as a computer. The rugged design and high performance of the HP-71 can substantially increase your productivity.

The HP-71 offers you the following features:

- Small sized and battery powered for maximum portability.
- A special calculator mode for performing sophisticated computations while viewing intermediate results.
- A powerful set of BASIC functions, statements, and operators - over 230 in all. Many larger computers don't have a set of BASIC instructions this complete.
- Advanced statistics functions that enable you to perform computations on up to 15 independent variables.
- Recursive subprograms and user-defined functions, which are usually found in other programming languages, now extend the power of BASIC in the HP-71.

- An advanced internal file system for storing your programs and data. The HP-71 has continuous memory. When you turn the computer off, it retains programs and data.
- A keyboard that can be easily customized for your specific applications.

Optional extensions for your HP-71 include application modules containing prerecorded, ready-to-run programs, a magnetic card reader for low-cost storage and retrieval, and an HP-IL interface that enables you to add printers, a digital cassette drive, a video interface, a modem, and other devices to your portable computing system.



HP-71B Description Summary

Specifications & BASIC Keywords

Physical Specifications

DIMENSIONS . . .19 cm (7.5 in) x 9.7 cm (3.8 in) x 2.5 cm (1.0 in)

WEIGHT . . . . . .340 g (12 oz) with batteries

POWER
Batteries . . . . . .four 1.5V, size AAA alkaline batteries (replaceable by user)
Battery current . . .10 mA (operating)
.75 mA (idle)
.03 mA (off)
Average alkaline battery life . . . .60 operating hours (battery life depends upon use)
AC adapter (82059D) optional. (Does not recharge batteries.)

OPERATING REQUIREMENTS
Operating temperature . . .0° to 45°C (32° to 113°F)
Storage temperature . . . −40° to 55°C (−40° to 131° F)
Humidity . . . . . .0% to 95% relative humidity

DISPLAY
Liquid-crystal display
Character font . . .6 x 8 dot matrix
Capacity . . . . . .96 characters per line
Window size . . . .22 characters (scroll to 96 characters)
Character set . . . .256 characters

CHARACTER RANGE
A-Z, a-z, 0-9, plus 65 special characters.

NUMBER RANGE
Real precision . . . −9.99999999999E499 to −1E-499, 0, 1E-499 to 9.99999999999E499
Short precision . . . −9.9999E499 to −1E-499, 0, 1E-499 to 9.9999E499
Integer precision . −99999 to 99999
Variable types . . .Numeric, String, Numeric array, String array
Numbers are shown with a maximum of 12 digits, or a 12-digit mantissa and a three-digit exponent. Calculations are accurate to 12 digits.

CLOCKS & TIMERS
Perpetual clock calendar; 24-hour format. Time function returns time to the nearest hundredth of a second.
Accuracy range . .15 seconds/month to 3 minutes/month
Adjustable clock speed . . . .±10%

BEEPER
The beeper is programmable with parameters for duration and tone. The frequency range is approximately 5 to 6200 Hz.

REDEFINABLE KEYS 159

MULTIPLE FILE STRUCTURE
The number of files in HP-71 memory is limited only by the amount of available RAM.
Seven different file types are supported:
BASIC—Contains BASIC programs.
BIN—Assembly language programs to be executed as programs or subprograms.
LEX—Add new BASIC keywords.
DATA—Store numeric and string data.
TEXT—Transfer or receive files from other computers as string data.
KEY—Store and retrieve redefined key assignments.
SDATA—Transfers data to and from an HP-41 Advanced Calculator.

LANGUAGE
Extended HP BASIC (over 240 instructions)

HP-71 Handheld Computer (cont.)

ROM/RAM
Built-in operating system ROM . . .64K bytes
Four 16K, 32K, 48K, or 64K byte plug-in ROMs make an additional 256K ROM possible.
Built-in user RAM 17.5K
Enhancement Memory Module (HP82420A) . . .4K bytes
Maximum system RAM (with four Memory Modules) . . . . .33.5K bytes

CONTINUOUS MEMORY
Retains data and programs even when the computer is turned off.

HP-71B HANDHELD COMPUTERS COME COMPLETE WITH:
- HP-71 Owner's Manual
- HP-71 Reference Manual
- Quick Reference Guide
- Blank Keyboard Overlay
- Four AAA Batteries
- Users' Library/Third Party Software Card
- Carrying Case

HP-71 FUNCTIONS LIST

PROGRAM ENTRY/EDITING
AUTO—Numbers lines automatically.
DELETE—Deletes program line(s) from current file.
EDIT—Assigns "current file" status to specified file.
FETCH—Displays any line of current program.
LIST—Displays listing of specified lines in a file.
TRANSFORM—Transforms BASIC file to TEXT file, or reverse.
UNSECURE—Clears file access restriction set by SECURE.
@—Appends a statement in a multiple-statement line.

PROGRAM EXECUTION
CALL—Transfers program execution to subprogram.
CHAIN—Purges current file, copies specified file into main RAM, and executes that file.
CONT—Continues execution of suspended program.
RUN—Executes a BASIC or binary program.

PROGRAM CONTROL
BYE—Turns computer off.
CALL—Transfers program execution to subprogram.
CHAIN—Purges current file, copies specified file into main RAM, and executes that file.
DEF FN—Indicates beginning of user-defined function definition.
END—Terminates a subprogram, user-defined function, or program.
END DEF—Causes normal return from a multiple-statement user-defined function.
END SUB—Causes normal return from subprogram invoked by CALL statement.
FN—Transfers program execution to specified user-defined function.
FOR . . . NEXT—Defines loop that is repeated until loop counter exceeds specified value.
GOSUB—Transfers program execution to subroutine.
GOTO—Transfers program execution to specified statement.
IF . . . THEN . . . ELSE—Provides conditional execution.
OFF—Turns computer off.
ON . . . GOSUB—Transfers program execution to selected subroutine.
ON . . . GOTO—Transfers program execution to selected statement or line.
ON . . . RESTORE—Selects which DATA statement will be used by next READ statement.
PAUSE—Suspends program execution.
POP—Cancels pending return of program execution from current subroutine.
RETURN—Returns program execution to statement following invoking GOSUB.
STOP—Terminates a subprogram, user-defined function, or program.
SUB—Identifies beginning of subprogram.
WAIT—Causes program execution to wait for specified number of seconds.

DEBUGGING
CONT—Continues execution of suspended program.
DEFAULT—Sets math exception traps to specific values.
ERRL—Returns line number of most recent error or warning.
ERRM$—Returns message text of most recent error or warning.
ERRN—Returns error number of most recent error or warning.
ON ERROR GOSUB—Executes specified subroutine when an error occurs.
ON ERROR GOTO—Executes specified branch when an error occurs.
PAUSE—Suspends program execution.
TRACE—Traces program flow and variables in a running program.

STORAGE ALLOCATION
CLAIM PORT—Returns independent RAM to main RAM status.
DESTROY—Deletes variables and arrays from memory.
DIM—Allocates memory for string or REAL variables and arrays.

NAME—Names the workfile.
PLIST—Prints listing of specified lines in a file.
PRIVATE—Limits access to file and restricts changes in its protection.
REM (!)—Enables entry of comments in program lines for program documentation.
RENUMBER—Renumbers lines in current file.
SECURE—Protects file from being altered or purged.

OFF ERROR—Disables any previous ON ERROR statement.
OFF TIMER—Deactivates corresponding ON TIMER # statement.
ON ERROR GOSUB—Executes specified subroutine when an error occurs.
ON ERROR GOTO—Executes specified branch when an error occurs.
ON TIMER #—Interrupts program at specified time and causes specified branching to occur.

FREE PORT—Switches a portion of main RAM to independent RAM status.
INTEGER—Creates INTEGER variables and arrays.
MEM—Returns number of bytes available in memory.
OPTION BASE—Specifies subscript's lower bound for arrays.
REAL—Creates REAL variables and arrays.
SHORT—Creates SHORT variables and arrays.

HP-71 Functions List (cont.)

SHOW PORT—Displays type and size of all plug-in memory devices and independent RAMs.
STAT—Selects or creates a statistical array.

LOGICAL AND RELATIONAL OPERATORS

AND—Performs logical And of its operands.
EXOR—Performs logical Exclusive Or of its operands.
NOT—Performs logical Not of its operand.
OR—Performs logical Or of its operands.
=—Performs Equality test on its operands.
#—Performs Inequality test on its operands.
<>—Performs Less Than or Greater Than test on its operands.
<—Performs Less Than test on its operands.
<=—Performs Less Than or Equal To test on its operands.
>—Performs Greater Than test on its operands.
>=—Performs Greater Than or Equal To test on its operands.
?—Performs Unordered Comparison test on its operands.

ARITHMETIC OPERATORS

+—Addition.
−—Subtraction.
*—Multiplication.
/—Division.
DIV—Divides one argument by another and returns integer portion of quotient.
^—Exponentiation.
%—Percent.

GENERAL MATH

ABS—Returns absolute value of its argument.
CEIL—Returns smallest integer greater than or equal to specified argument.
CLASS—Returns value indicating class of argument.
DVZ—Returns divide-by-zero flag number (−7).
EXPONENT—Returns exponent of its normalized argument.
FACT—Returns factorial of non-negative integer argument.
FLOOR—Returns greatest integer less than or equal to argument.
FP—Returns fractional part of numeric value.
INT—Returns greatest integer less than or equal to argument.
INX—Returns inexact result flag number (−4).
IP—Returns integer part of argument.
IVL—Returns invalid operation flag number (−8).
LET—Assigns value to variable.
MAX—Returns larger of two values.
MIN—Returns smaller of two values.
MOD—Returns remainder of modulo reduction.
OPTION ROUND—Selects roundoff setting.
OVF—Returns overflow flag number (−6).
RANDOMIZE—Specifies a "seed" for the RND function.
RED—Returns remainder of argument reduction.
RES—Returns value of most recently executed numeric expression.
RMD—Returns remainder of division.
RND—Returns next real number in a pseudo-random number sequence and updates current seed.
SGN—Returns −1, 0, or 1 if argument is less than zero, equal to zero, or greater than zero, respectively.
SQR—Returns square root of argument.
SQRT—Alternate spelling for SQR.
UNF—Returns underflow flag number (−5).

LOGARITHMIC OPERATIONS

EXP—Returns the number e = 2.718281828 . . . raised to power given by argument.
EXPM1—Returns value of $e^{argument} - 1$.
EXPONENT—Returns exponent of normalized x.
LGT—Alternate spelling for LOG10.
LN—Alternate spelling for LOG.
LOG—Returns natural logarithm (base e) of argument.
LOGP1—Returns ln(1 + *argument*).
LOG10—Returns logarithm (base 10) of argument.

TRIGONOMETRIC OPERATIONS

ACOS—Returns arccosine of its argument.
ACS—Alternate spelling for ACOS.
ANGLE—Returns polar angle determined by (x,y) coordinate pair.
ASIN—Returns arcsine of its argument.
ASN—Alternate spelling for ASIN.
ATAN—Returns arctangent of its argument.
ATN—Alternate spelling for ATAN.
COS—Returns cosine of its argument.
DEG—Converts argument in radians to degrees.
DEGREES—Sets unit of measure for expressing angles to degrees.
OPTION ANGLE—Selects unit of measure for expressing angles.
RAD—Converts arguments expressed in degrees to radians.
RADIANS—Sets unit of measure for expressing angles to radians.
SIN—Returns sine of its argument.
TAN—Returns tangent of its argument.

STATISTICS

ADD—Adds coordinates of a data point to data set represented by summary statistics in current statistical array.
CLSTAT—Clears all elements in current statistical array.
CORR—Returns sample correlation coefficient between a specified pair of variables.
DROP—Removes coordinates of a data point from the data set represented by summary statistics in current statistical array.
LR—Specifies current linear regression model and computes intercept and slope for that model.
MEAN—Returns sample mean of specified variable.
PREDV—Returns predicted value of dependent variable.
SDEV—Returns standard deviation of specified variable.
STAT—Selects or creates statistical array.
TOTAL—Returns total of specified variable.

CONSTANTS

EPS—Returns HP-71's smallest positive, normalized number (1.0 E−499).
INF—Returns machine representation of positive infinity.
MAXREAL—Returns maximum positive finite number that the HP-71 can represent (9.99999999999E499).
MINREAL—Returns smallest positive number that HP-71 can represent (0.00000000001E−499).
NAN—Returns signaling NaN.
PI—Returns 12-digit value representing π.

STRINGS

&—Concatenation operator.
CHR$—Converts numeric value into ASCII character.
LEN—Returns length of specified string.
NUM—Returns ASCII numeric code for first character of string.
POS—Returns position of given substring.
STR$—Returns string representation of value of argument.
UPRC$—Converts lowercase letters to uppercase.

HP-71 Functions List (cont.)

VAL—Converts a numeric expression within a string expression to a numeric value.
VER$—Indicates versions of system ROMs and LEX files.
PRINT #—Writes data items to data file in memory.
PUT—Enters a specified key code into key buffer.
PWIDTH—Defines line length of PRINT and PLIST statements.
PROTECT—Write-protects one track of a magnetic card.
PURGE—Deletes file from RAM.
RENAME—Changes name of file.
SECURE—Protects file from being altered or purged.

INPUT/OUTPUT

ASSIGN #—Associates symbolic channel number with specified file and opens that file.
BEEP—Causes specified tone to sound.
BEEP OFF—Disables beeper.
BEEP ON—Enables beeper.
CONTRAST—Adjusts display contrast.
COPY—Copies information from source file to destination file.
CREATE—Creates a data file.
DATA—Contains data that can be read by READ.
DELAY—Sets line and character scroll rates in display.
DISP—Displays numeric and string data.
DISP USING—Displays items according to specified format.
DISP$—Returns string containing all readable characters in display.
ENDLINE—Specifies end-of-line sequence used in PRINT and PLIST statements.
ENG—Selects engineering display format.
FIX—Selects fixed display format.
GDISP—Sets specified dot pattern in display.
GDISP$—Returns 132-character string reflecting dot pattern in display.
IMAGE—Controls format of displayed and printed output.
INPUT—Enables assigning values to program variables from keyboard.
KEYDOWN—Returns 0 or 1, depending on whether key is being pressed.
LC—Selects between uppercase and lowercase lock on keyboard.
LINPUT—Assigns display line to string variable.
LIST—Displays listing of specified lines in a file.
ON . . . RESTORE—Selects which DATA statement will be used by next READ statement.
PLIST—Prints on print device a listing of specified lines in a file.
PRINT—Causes print list to be sent to print device.
PRINT USING—Causes print list to be sent to print device according to specified format.
READ—Assigns values from DATA statements to variables.
READ #—Reads data items from data file.
RESTORE—Specifies which DATA statement will be used by next READ operation.
RESTORE #—Sets specified file pointer to indicated record number.
SCI—Selects scientific notation display format.
STD—Selects standard BASIC display format for numbers.
TAB—Moves DISP or PRINT position ahead to specified column. (Refer to the **DISP** or **PRINT** keyword entry.)
UPRC$—Converts lowercase letters to uppercase.
USER—Activates or deactivates user-defined key assignments.
WIDTH—Defines line length for DISP and LIST statements.
WINDOW—Sets display window size and location.

GRAPHICS

GDISP—Sets specified dot pattern in display.
GDISP$—Returns a 132-character string reflecting dot pattern in display.

FILE MANAGEMENT

ADDR$—Returns string representing hexadecimal address of specified file.
CAT—Gives catalog of file information.
CAT$—Returns catalog information for a specified file.
CLAIM PORT—Returns independent RAM to main RAM status.
COPY—Copies information from source file to destination file.
CREATE—Creates a data file.
EDIT—Assigns "current file" status to specified file.
FREE PORT—Switches a portion of main RAM to independent RAM status.
MEM—Returns number of bytes available in memory.
MERGE—Merges all or part of file into another file.
NAME—Names system workfile.
PRIVATE—Limits access to file and restricts changes in protection.
SHOW PORT—Dislays type and size of all plug-in memory devices and independent RAMs.
TRANSFORM—Transforms BASIC files into TEXT files, or the reverse.
UNPROTECT—Removes the write-protection from one track of a magnetic card.
UNSECURE—Clears file access restriction set by SECURE.

TIME AND DATE

ADJABS—Performs an absolute adjust on system clock.
ADJUST—Changes clock time and specifies clock speed correction.
AF—Returns current value of clock accuracy factor and gives option of setting new adjustment factor.
DATE—Returns current clock date as an integer (*YYDDD*).
DATE$—Returns current clock date in year/month/day format.
EXACT—Calibrates system clock and tells HP-71 that time currently stored is the correct time.
RESET CLOCK—Nullifies effect of executing EXACT.
SETDATE—Sets date on system clock.
SETTIME—Sets time on system clock.
TIME—Returns time of day in seconds since midnight.
TIME$—Returns time of day in *HH :MM :SS* format.

SYSTEM SETTINGS AND FLAGS

CFLAG—Clears specified user and/or system flags.
DEFAULT—Sets math exception traps to specific values.
DEGREES—Selects degrees as unit of measure for angles.
DELAY—Sets line and character scroll rates in display.
DVZ—Returns divide-by-zero flag number (−7).
FLAG—Returns current value (0 or 1) of specified flag, and optionally selects new flag setting.
INX—Returns inexact result flag number (−4).

HP-71 Functions List (cont.)

IVL—Returns invalid operation flag number (−8).
OPTION ANGLE—Specifies unit of measure for expressing angles.
OPTION BASE—Specifies subscript's lower bound for arrays.
OPTION ROUND—Specifies round-off setting.
OVF—Returns overflow flag number (−6).
RADIANS—Selects radians as unit of measure for angles.
RESET—Resets user and system flags and traps to their system default settings.
SFLAG—Sets specified user and/or system flags.
TRAP—Returns trap for specified flag number and optionally selects new trap setting.
UNF—Returns underflow flag number (−5).

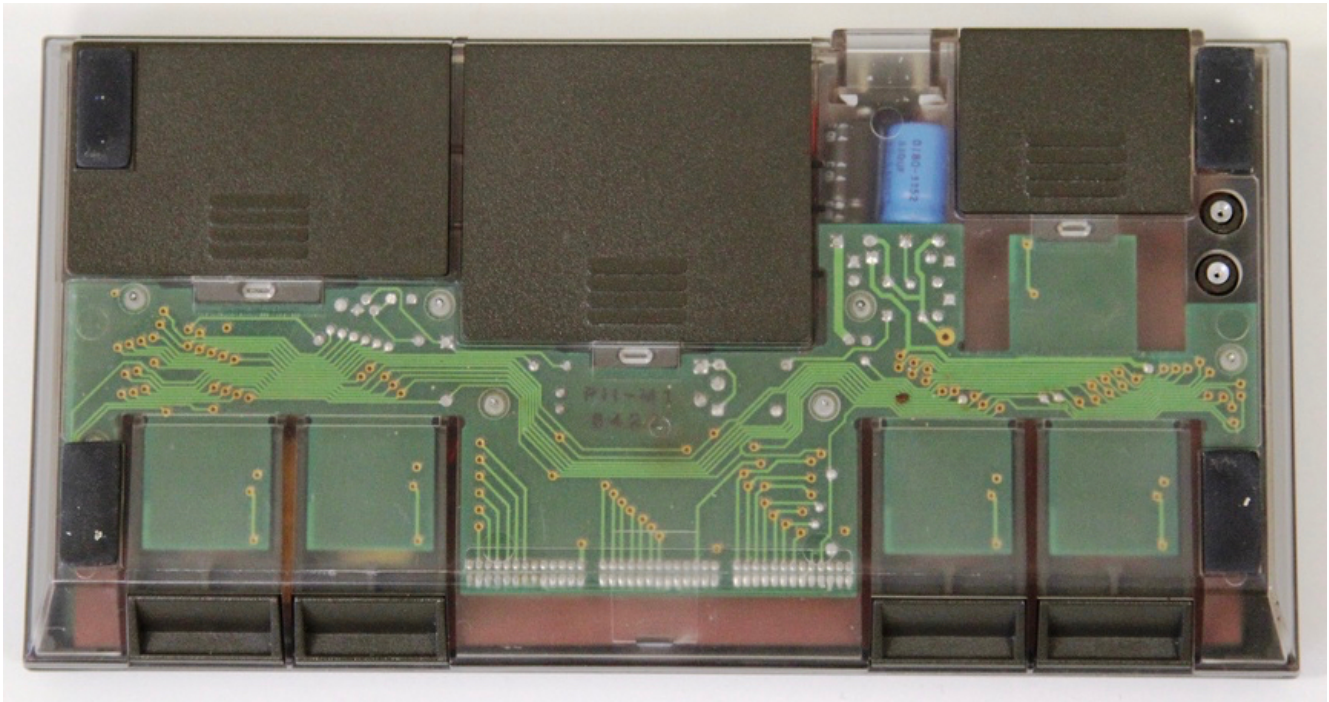
CUSTOMIZATION, KEYBOARD, AND DISPLAY CONTROL

ADDR$—Returns string representing hexadecimal address of specified file.
CHARSET—Specifies alternate character set in ASCII code range of 128 through 255.
CHARSET$—Returns string representing current alternate character set.
CONTRAST—Adjusts display contrast.
DEF KEY—Assigns character string to specified key.
DELAY—Sets line and character scroll rates in display.
DTH$—Converts decimal number to string representing its five-digit hexadecimal value.
FETCH KEY—Displays specified key assignment for editing.
FIX—Sets fixed display format and number of fractional digits to be displayed.
HTD—Converts string argument representing hexadecimal number to decimal number.
IMAGE—Controls format of displayed and printed output.
KEY—Assigns character string to specified key.
KEY$—Returns and deletes oldest key or keystroke combination from keyboard buffer.
KEYDEF$—Returns redefined value of a key.
KEYDOWN—Returns 0 or 1, depending on whether key is being pressed.
LC—Selects between uppercase and lowercase lock on keyboard.
LOCK—Sets password. Causes HP-71 to prompt for that password the next time computer is turned on.
PEEK$—Returns contents of specified section of memory.
POKE—Writes to memory at specified hexadecimal address.
PUT—Enters a specified code into key buffer.
STARTUP—Defines command string to be executed when HP-71 is turned on.
USER—Activates or deactivates user-defined key assignments.
WINDOW—Sets display window size and location.

HP-71B ACCESSORIES

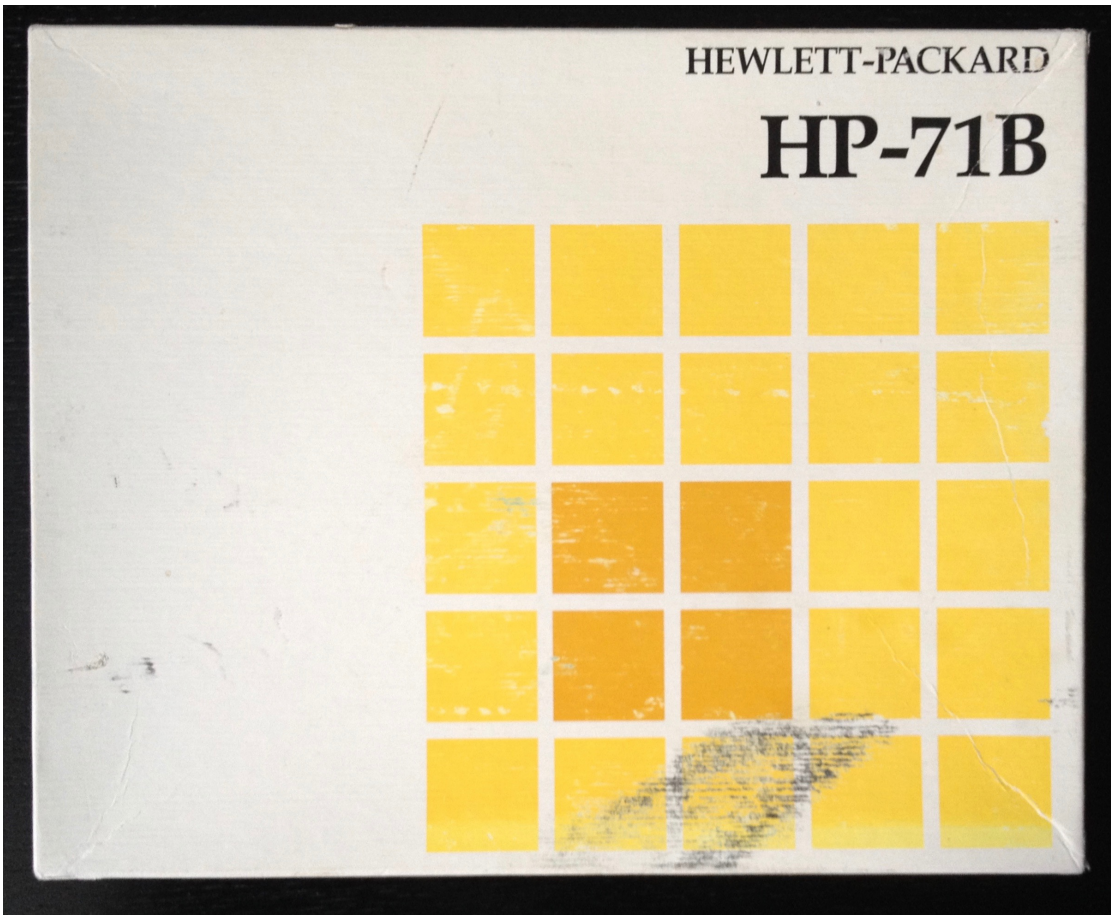
- Owner's Manual (00071-90001)
- Reference Manual (00071-90010)
- Quick Reference Guide (00071-90019)
- Blank Overlay Kit (five blank overlays) (HP 82462A)
- 30 Blank Magnetic Card Pack (HP 82707A)
- 100 Blank Magnetic Card Pack (HP 82708A)
- Carrying Case (HP 82461A)
- AC Adapter/Power Supply (HP 82059D)

HP-71B Rear View Normal Case



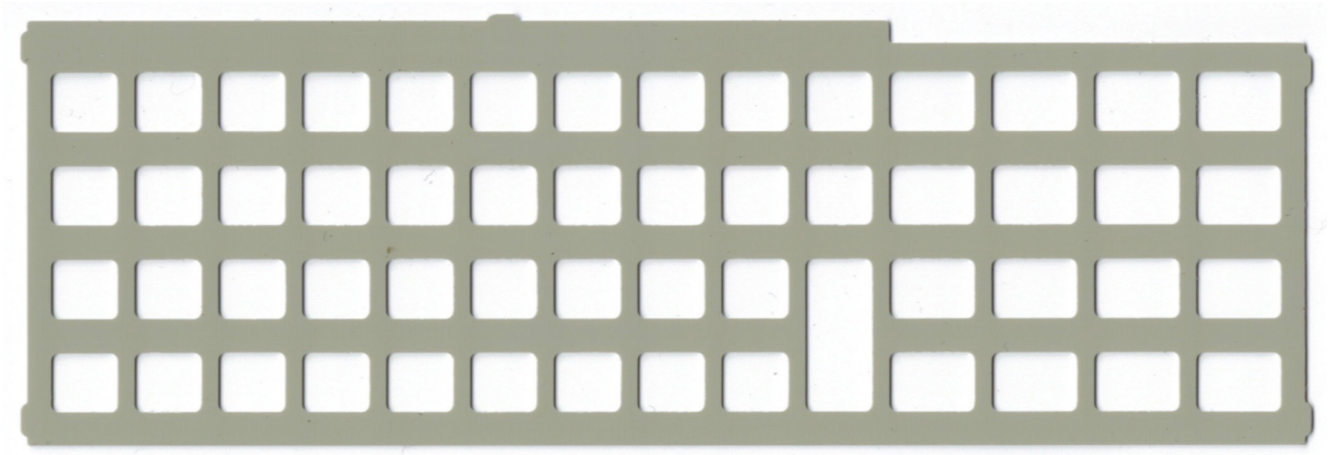
HP-71B Rear View Clear Case

Courtesy of Keith Midson



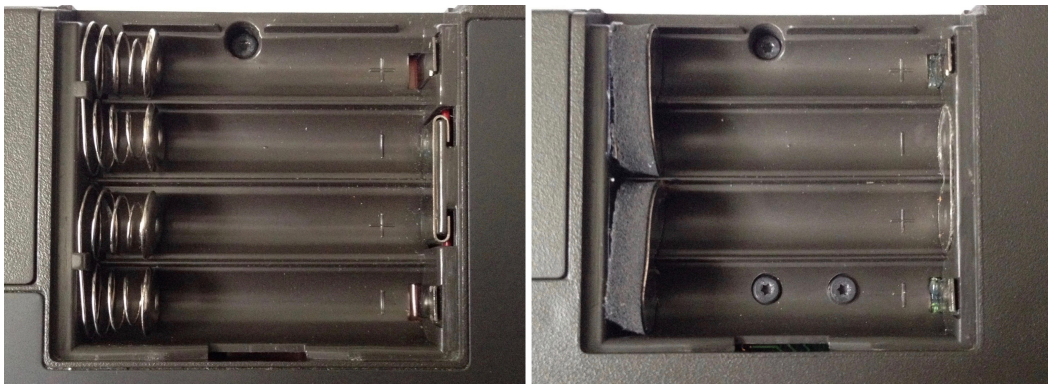
HP-71B Box

HP-71B Vinyl Case



HP-71B Blank Overlay

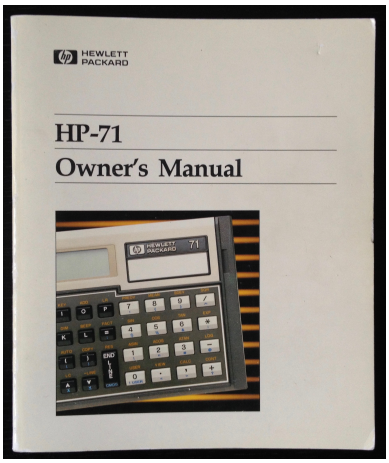
CMT-71-TouchPad

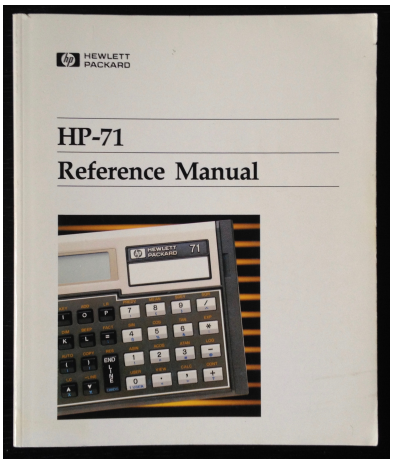


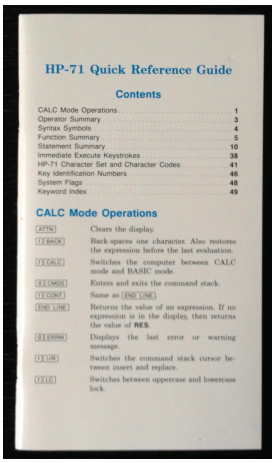
HP-71B battery holder -> Left: first generation / Right: second and last generation

HP-71B Handheld Computer Documentation

Product #	Product Name	Release
HP-00071-90001	HP-71 Owner's Manual, 1st Ed (*PDF*)	1983-10
	HP-71 Owner's Manual, 2nd Ed	
	HP-71 Owner's Manual, 3rd Ed	
HP-00071-90099	HP-71 Owner's Manual, 4th Ed	1985-02
HP-00071-90106	HP-71 Owner's Manual, 5th Ed	1987-03
HP-00071-90067	HP-71 Owner's Manual, 1st Ed Addendum (PDF)	1984-01
HP-00071-90072	HP-71 Owner's Documentation Addendum (PDF)	1984-02
HP-00071-90010	HP-71 Reference Manual, 1st Ed	1983-10
	HP-71 Reference Manual, 2nd Ed	1984-01
HP-00071-90087	HP-71 Reference Manual, 3rd Ed (*PDF*)	1984-05
HP-00071-90110	HP-71 Reference Manual, 4th Ed	1987-10
HP-00071-90019	HP-71 Quick Reference Guide	1983-10
HP-00071-90055	HP-71 Service Manual (*PDF*)	1983-12
HP-00071-90068	IDS Vol. I: Detailed Design Description (*PDF*)	1985-??
HP-00071-90069	IDS Vol. II: Entry Point/Poll Interfaces (1BBBB) (*PDF*)	1985-??
HP-00071-90104	IDS Vol. II: Entry Point/Poll Interfaces (2CCCC)	1986-??
HP-00071-90070	IDS Vol. III: Operating System Source (1BBBB)	1985-??
HP-00071-90105	IDS Vol. III: Operating System Source (2CCCC)	1986-??
HP-00071-90071	IDS Hardware Design Specifications (*PDF*)	1985-??







HP-71B > Left: Owner's Manual / Middle: Reference Manual / Right: Quick Ref. Guide

HP-71B Operating System Firmware Releases

Version	Comment	Release Date
0AAAA	Pre-release version	????-??-?? ??h??
1AAAA	First official release	1983-07-25 12h10
1BBBB	High standby current drain bug fixed	1983-09-02 12h11
2CCCC	Major update	1985-03-05 12h10
2CDCC	Array bug corrected	1985-03-05 12h10

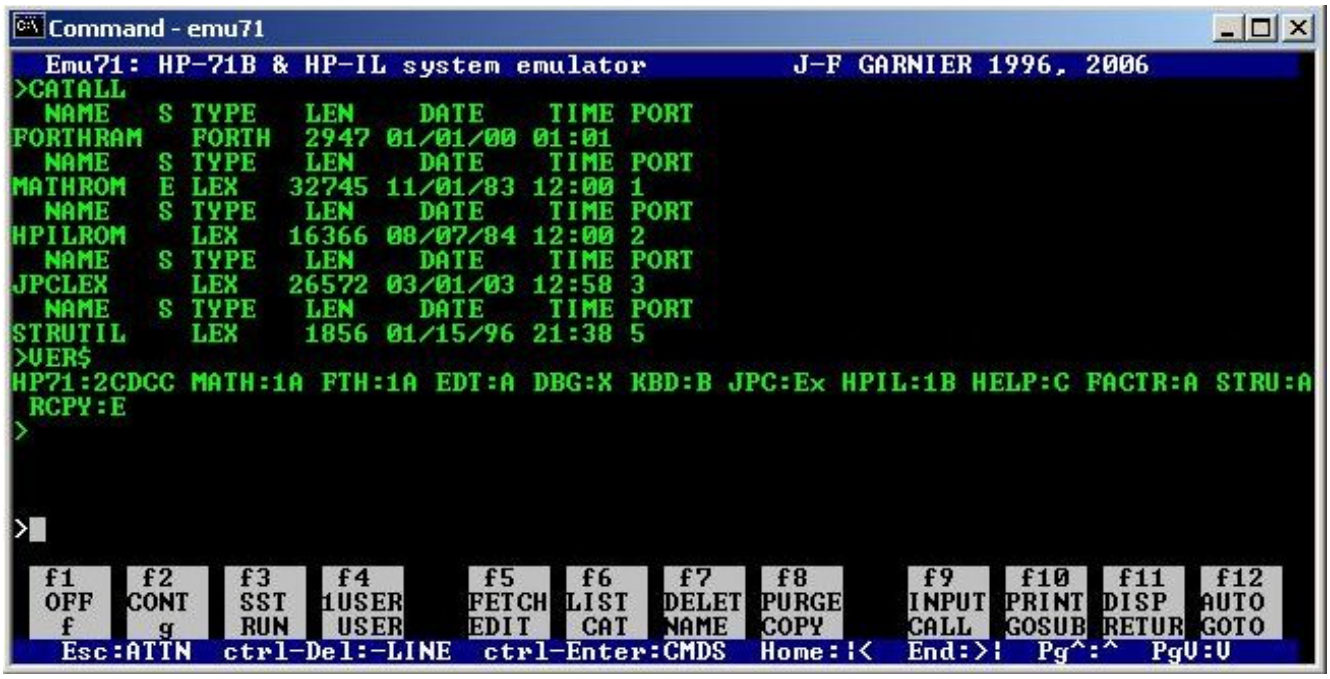
More details can be found on Jean-François Garnier HP-71B ROM Versions and Bugs page.

Operating System Images Distribution File (ZIP)

Filename	Description
HP-71B_OS1AAAA_ROM.BIN	Image for Emu71/DOS/Win
HP-71B_OS1BBBB_ROM.BIN	Image for Emu71/DOS/Win
HP-71B_OS2CCCC_ROM.BIN	Image for Emu71/DOS/Win
HP-71B_OS2CDCC_ROM.BIN	Image for Emu71/DOS/Win
HP-71B_SYSTEM_ROM.LIF	ILPER: LIF Mass Storage File / FRAM71
> OS1AAAA ASCII 135K	71B OS Version 1AAAA Memory Dump
> OS1AAAAL BASIC 159	71B OS Version 1AAAA Memory Dump Loader
> OS1BBBB ASCII 135K	71B OS Version 1BBBB Memory Dump
> OS1BBBBL BASIC 159	71B OS Version 1BBBB Memory Dump Loader
> OS2CCCC ASCII 135K	71B OS Version 2CCCC Memory Dump
> OS2CCCCL BASIC 159	71B OS Version 2CCCC Memory Dump Loader
> OS2CDCC ASCII 135K	71B OS Version 2CDCC Memory Dump
> OS2CDCCL BASIC 159	71B OS Version 2CDCC Memory Dump Loader

Emu71/DOS : HP-71B Emulator for MS-DOS

By Jean-François Garnier



Emu71/DOS main screen

Introduction

Emu71/DOS is a software emulator of the HP-71B machine and HP-IL system. It runs under DOS or in a command box under various 32-bit Windows (95,98,2000,NT,...). It can run on 64-bit OS using a virtual DOS environment.

Main features:

- Text mode application consistent with the HP-71B system look and feel
- Very fast: the emulation engine is written in optimized assembly language
- Runs correctly even on slow 186 (e.g. HP200LX), 286 systems at reduced speed
- Compatible with cut&paste operation in Windows environment
- Can emulate any number of ROM or RAM modules
- Support of 64K and 128K modules
- Emulation of the HP-IL loop and 8 HP-IL devices
- Support of the PIL-Box and of the ISA HP-IL board
- Direct access to LIF image file archives with support of disc volumes up to 16 MB
- Supports 43/50 lines video modes

- Support of the PC serial COM ports, even through USB bridge
- FREEWARE: free for non commercial usage

Some of the files included in the Emu71/DOS distribution package:

- EMU71ENG.PDF User documentation
- NEWS71.TXT Releases notes
- EMU71.EXE MS-DOS emulator
- EMU71.INI Initialization file
- HP71.ICO Windows icon file
- SYS71.DAT System file (CPU registers and I/O area backup)
- RAM00.BIN 32K main RAM module
- IRAM50.BIN 32K independent RAM (IRAM) module
- HDRIVE1.DAT Mass storage file (HDRIVE1 HP-IL device)
- SEP71.ADD HP-71 entry points

Files not-included in the Emu71/DOS distribution package:

- ROM71.BIN HP-71B 64K ROM image
- HPILROM.BIN HP-IL ROM image
- *.BIN RAM or Application (ROM/HRD) images

Limitations:

- The BEEP and GDISP commands do nothing (but the GDISP$ function works!)
- The KEYDOWN function always returns 0
- The ROM modules are not write protected (ROM image files are not affected)
- Cannot PASS CONTROL or be a HP-IL device (but it can give up CONTROL OFF)
- Multiple HP-IL is not supported ("NO LOOP" error for loop number 2 or 3)
- By default, Emu71 will shutdown itself after 10 minutes of inactivity, to avoid this, set flag -3 (SFLAG -3)

How-to's:

The following mini-configuration samples are for reference only, always refers to the emulator manual for complete and exact information.

To respect the original DOS FAT 8.3 filename limitation, we will rename the ROM files to have shorter names.

How-to's: first time operation

- At the DOS/CMD command line or with Windows Explorer
- Go to where the emulator application directory is located

- Backup initial configuration:
  - Copy EMU71.INI to EMU71REF.INI
- Backup initial RAM images:
  - Copy RAM00.BIN to RAMREF.BIN
  - Copy IRAM50.BIN to IRAMREF.BIN
- From where your ROM images are located, copy these files into the emulator application directory:
  - HP-71B_OS1BBBB_ROM.BIN
  - HP-82401A_HPIL1B_ROM.BIN
  - HP-82480A_MATH_ROM.BIN
  - HP-82478A_FORTH-ASSEMBLER_ROM.BIN
  - HP-82478A_FORTH-ASSEMBLER_HRD.BIN
- Rename the copied ROM files as follow:
  - Rename HP-71B_OS1BBBB_ROM.BIN to OS1BBBB.BIN
  - Rename HP-82401A_HPIL1B_ROM.BIN to HPIL1B.BIN
  - Rename HP-82480A_MATH_ROM.BIN to MATHROM.BIN
  - Rename HP-82478A_FORTH-ASSEMBLER_ROM.BIN to FORTHROM.BIN
  - Rename HP-82478A_FORTH-ASSEMBLER_HRD.BIN to FORTHHRD.BIN

How-to: select an operating system

- At the DOS/CMD command line or with Windows Explorer
- Go to where the emulator application directory is located
- Select which HP-71B OS image file you want to use (here: OS1BBBB.BIN)
- Copy OS1BBBB.BIN to ROM71.BIN
- Start or restart the emulator
- Validate the new configuration by typing: VER$ [ENDLINE]
  - You should see the version you have chosen (here: HP71:1BBBB)

How-to: add a RAM module

- At the DOS/CMD command line or with Windows Explorer
- Go to where the emulator application directory is located
- Extend the core memory by 64KB by adding two 32KB memory modules
  - Copy RAMREF.BIN to RAM01.BIN
  - Copy RAMREF.BIN to RAM02.BIN

- Edit the EMU71.INI file and add the new RAM modules to port 0

```
; ------------------------------------------------
; EMU71.INI
[MODULES]
0 RAM 32 RAM00.BIN
0 RAM 32 RAM01.BIN
0 RAM 32 RAM02.BIN
...
; ------------------------------------------------
```

- Save the file
- Start or restart the emulator
- Validate the new configuration by typing: MEM [ENDLINE]
  - You should see approximately 98700 Bytes of RAM

How-to: add the HP-IL Interface

- At the DOS/CMD command line or with Windows Explorer
- Go to where the emulator application directory is located
- Select which HP-IL image file you want to use (here: HPIL1B.BIN)
- Edit the EMU71.INI file
- Find an empty entry in the modules section (here: 1)
- Write the configuration entry as follow:

```
; ------------------------------------------------
; EMU71.INI
[MODULES]
...
1 ROM 16 HPIL1B.BIN
...
; ------------------------------------------------
```

- Save the file
- Start or restart the emulator
- Validate the new configuration by typing: VER$ [ENDLINE]
  - You should see the version you have chosen (here: HPIL:1B)

How-to: add a standard ROM module

- At the DOS/CMD command line or with Windows Explorer
- Go to where the emulator application directory is located
- Select which standard ROM image file you want to use (here: MATHROM.BIN)
- Edit the EMU71.INI file
- Find an empty entry in the modules section (here: 2)

- Write the configuration entry as follow:

```
; ------------------------------------------------------
; EMU71.INI
[MODULES]
...
2 ROM 32 MATHROM.BIN
...
; ------------------------------------------------------
```

- Save the file
- Start or restart the emulator
- Validate the new configuration by typing: VER$ [ENDLINE]
  - You should see the version you have chosen (here: MATH:1A)

How-to: add a hardwired ROM module

- At the DOS/CMD command line or with Windows Explorer
- Go to where the emulator application directory is located
- Select which hardwired ROM image files you want to use (here: FORTHROM.BIN and FORTHHRD.BIN)
- Edit the EMU71.INI file
- Find an empty entry in the modules section (here: 3)
- Write the configuration entry as follow:

```
; ------------------------------------------------------
; EMU71.INI
[MODULES]
...
3 ROM 16 FORTHROM.BIN
3 HRD 32 FORTHHRD.BIN
...
; ------------------------------------------------------
```

- Save the file
- Start or restart the emulator
- Validate the new configuration by typing: VER$ [ENDLINE]
  - You should see the version you have chosen (here: FTH:1A)

How-to: add an Independent RAM (IRAM) module

- At the DOS/CMD command line or with Windows Explorer
- Go to where the emulator application directory is located
- Extend the core memory by 64KB by adding two 32KB memory modules
  - Copy IRAMREF.BIN to IRAM00.BIN
  - Copy IRAMREF.BIN to IRAM01.BIN

- Edit the EMU71.INI file
- Find an empty entry in the modules section (here: 4)
- Write the configuration entry as follow:

```
; ------------------------------------------------------
; EMU71.INI
[MODULES]
...
4 RAM 32 IRAM00.BIN
4 RAM 32 IRAM01.BIN
...
; ------------------------------------------------------
```

- Save the file
- Start or restart the emulator
- Validate the new configuration by typing: SHOW PORT [ENDLINE]
  - You should see these ports

```
PORT  SIZE   TYPE (0=RAM, 1=IRAM, 2=ROM)
...
4     32768  1
4.01  32768  1
...
```

How-to's: summary

If you have followed all the above how-to's, you should have the following configuration:

```
; ------------------------------------------------------
; EMU71.INI
[MODULES]
0 RAM 32 RAM00.BIN
0 RAM 32 RAM01.BIN
0 RAM 32 RAM02.BIN
1 ROM 16 HPILROM.BIN
2 ROM 32 MATHROM.BIN
3 ROM 16 FORTHROM.BIN
3 HRD 32 FORTHHRD.BIN
4 RAM 32 IRAM00.BIN
4 RAM 32 IRAM01.BIN
...
; ------------------------------------------------------
```

The SHOW PORT command should give you the following list:

```
PORT   SIZE    TYPE   -> 0=RAM, 1=IRAM, 2=ROM
1      32768   2      -> ROM, HP-IL
2      32768   2      -> ROM, Math
3      32768   2      -> ROM, Forth (HRD part is invisible)
4      32768   1      -> IRAM
4.01   32768   1      -> IRAM
```

Not shown by version 1BBBB are the following main RAM modules:

```
0      32768   0      -> RAM
0.01   32768   0      -> RAM
0.02   32768   0      -> RAM
```

The MEM command should give you:

```
98702                 -> bytes of RAM (32KB+32KB+32KB)
```

Emu71/DOS Documentation

Description
Jean-François Garnier Web Site (*WEB*)
Emu71/DOS Emulator Home Page (*WEB*)
Emu71/DOS Emulator Documentation (*PDF*)
HP-71B ROM Images (ZIP)

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Emu71/Win : HP-71B Emulator for Windows

By Christoph Gießelink

Emu71/Win Computer Main Window

Introduction

Emu71 is based on the sources of Emu48 and is an emulator for the Hewlett Packard Titan calculator HP-71B hardware. This calculator emulation is based on the 1LK7 Saturn CPU, the 1LF3 display driver, the 1LG7 ROM and 1LG8 RAM chips. The calculator emulation can be expanded by the emulation of additional RAM and ROM modules and by simulations of the HP-IL module inside the ports 0 to 5. The emulator is running on all Win32 platforms and is published under GPL.

Main features:

- Pure Win32 program / sources could be compiled for pure x64 program
- Graphic mode application consistent with the HP-71B system look and feel
- Skins for different appearance (two included)
- Look&Feel and keyboard can be defined through KML
- Multi instance / multi session ability, each session is saved in an own document

- Slower than Emu71/DOS but of course a lot faster than the real calculator at calculations
- Simulated graphic display with possibility of contrast, blinking and row driver programming, but limited to the regular 22 characters display output is much slower than Emu71/DOS because scrolling and other relevant display output timings are controlled by the calculator firmware and so have the same speed than the original calculator
- Exact simulation of the original memory layout (16KB build with 16*1KB chips)
- No limitations in RAM / ROM configuration
- Can emulate any number of ROM (hard or soft configured) and/or RAM modules
- Diagnostic ROM works
- Emulation of the HP-IL loop with support for TCP/IP (v4 & v6) communication and for the PILBox
- Allowing multiple HP 82401A HP-IL Interface modules (HP 82402A Dual HP-IL Interface simulation, but not limited to only two interfaces)

Some of the files included in the Emu71/Win distribution package:

- EMU71.HTM User documentation
- EMU71.EXE Windows emulator
- REAL71BM.KML Real HP71B for 800x600 master configuration file
- REAL71BM.BMP Real HP71B for 800x600 image
- REAL71BL.KML Real HP71B for 1024x768 master configuration file
- REAL71BL.BMP Real HP71B for 1024x768 image
- KEYB71B.KMI Master keyboard layout loader
- KBD-??.KMI Language specific (US, UK, FR, GR) keyboard layouts
- HP71EP.O HP-71 entry points

Files not-included in the Emu71/Win distribution package:

- *.bin No ROM images is included in the package

How-to's:

The following mini-configuration samples are for reference only, always refers to the emulator manual for complete and exact information.

For document clarity purpose, we will rename the ROM files to have shorter name in order to see the complete information in the dialog boxes.

How-to: first time operation

- Using Windows Explorer, go to where the ROM files directory is located

- Backup initial configuration:
  - Copy *.KML to *.KML_REF
  - Copy *.KMI to *.KMI_REF
- From where your ROM images are located, copy these files into the emulator application directory:
  - HP-71B_OS1BBBB_ROM.BIN
  - HP-82401A_HPIL1B_ROM.BIN
  - HP-82480A_MATH_ROM.BIN
  - HP-82478A_FORTH-ASSEMBLER_ROM.BIN
  - HP-82478A_FORTH-ASSEMBLER_HRD.BIN
- Rename the copied ROM files as follow:
  - Rename HP-71B_OS1BBBB_ROM.BIN to OS1BBBB.BIN
  - Rename HP-82401A_HPIL1B_ROM.BIN to HPIL1B.BIN
  - Rename HP-82480A_MATH_ROM.BIN to MATHROM.BIN
  - Rename HP-82478A_FORTH-ASSEMBLER_ROM.BIN to FORTHROM.BIN
  - Rename HP-82478A_FORTH-ASSEMBLER_HRD.BIN to FORTHHRD.BIN

How-to: select an operating system

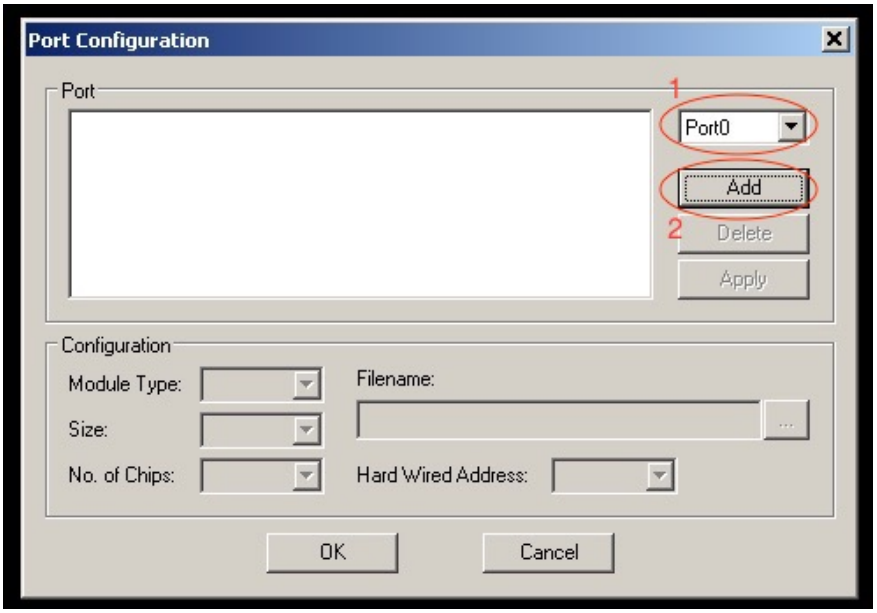
- Using Windows Explorer, go to where the emulator application directory is located
- Select which HP-71B OS image file you want to use (here: OS1BBBB.BIN)
- With your preferred text editor, open the configuration file (here: REAL71BL.KML)
- Find the "Global" section, then the "Rom" entry and replace the value inside the quotes with the desired ROM OS version:

```
# ------------------------------------------------
# REAL71BL.KML
...
Global
...
   Rom "OS1BBBB.BIN"
...
End
...
# ------------------------------------------------
```

- Save the file
- Start or restart the emulator
- Validate the new configuration by typing: VER$ [ENDLINE]
  - You should see the version you have chosen (here: HP71:1BBBB)

How-to: add the HP-IL Interface

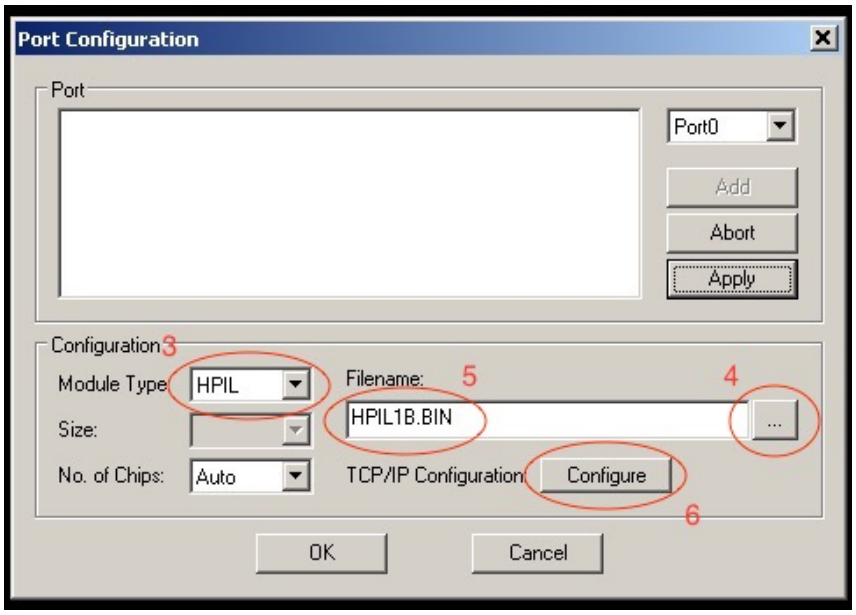
- Start Emu71/Win
- From the drop-down menu, select "Edit", then "Port Configuration"
  - You should see the "Port Configuration" dialog box
- In the "Port" section, select "Port0" (1)
- In the "Port" section, press "Add" (2) button



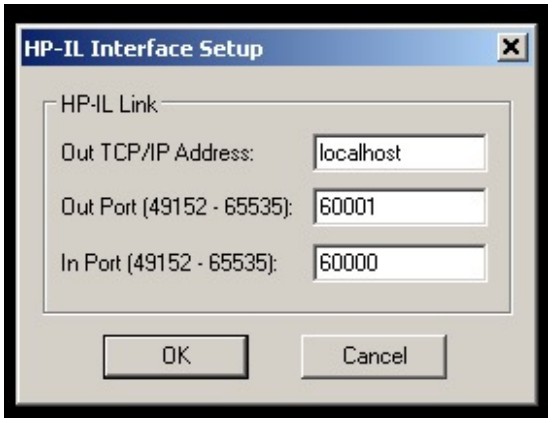
- In the "Configuration" section, select "HPIL" (3) as "Module Type"
- In the "Configuration" section, press the "..." (4) button
  - You should see the "Open" window
- In the open dialog box, select which HP-IL image file you want to use

(here: HPIL1B.BIN), then press the "Open" button

- You should be back to the "Port Configuration" dialog box, with the selected file in "Filename:" (5)

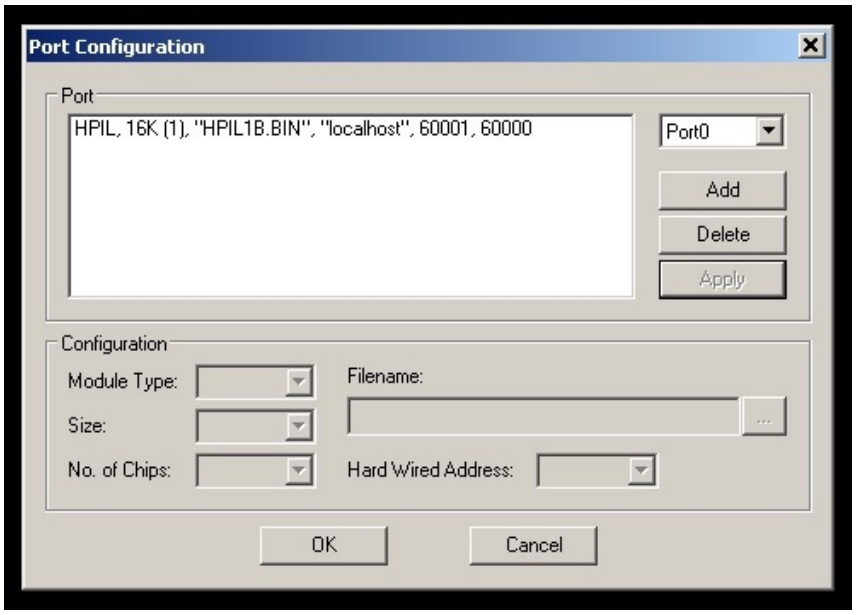


- In the "Configuration" section, press the "Configure" (6) button
  - You should see the "HP-IL Interface Setup" dialog box



- Enter the desired IP values
- Press the "OK" button
  - You should be back to the "Port Configuration" dialog box

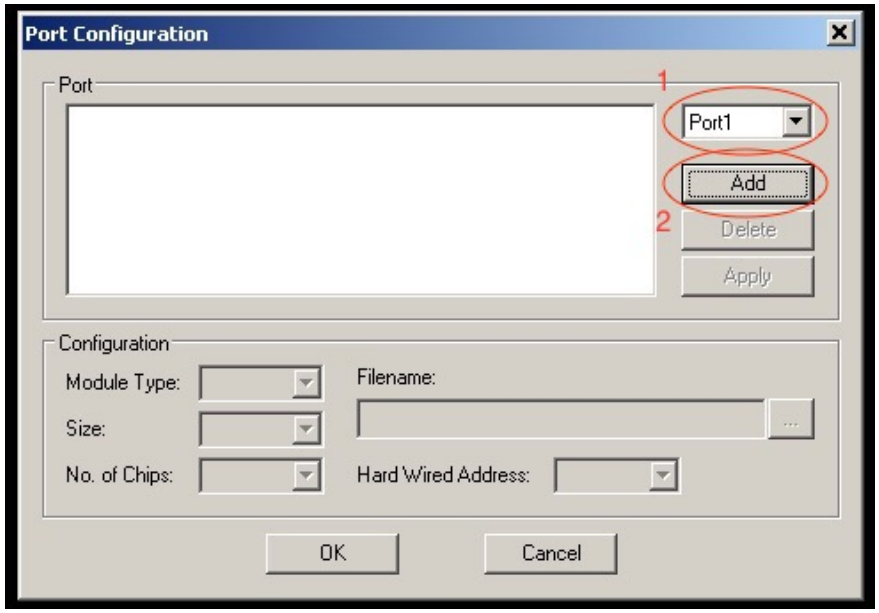
- In the port section, press the "Apply" button to add the module



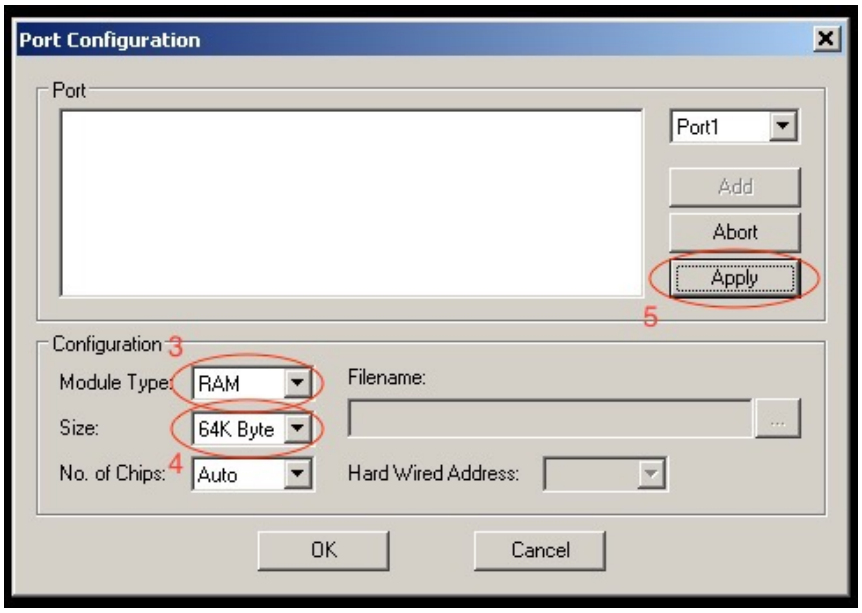
- At the bottom of the dialog, press the "OK" button to confirm the new configuration
  - You should be back to the application main window
- To validate the new configuration, type: VER$ [ENDLINE]
  - You should see the HP-IL version you have chosen (here: HPIL:1B)

How-to: add a RAM and an Independent RAM (IRAM) module

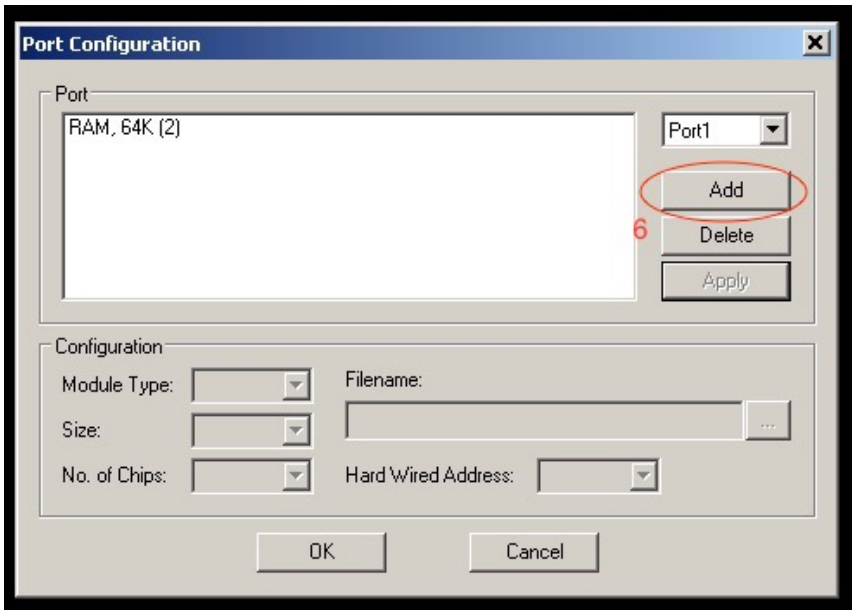
- Start Emu71/Win
- From the drop-down menu, select "Edit", then "Port Configuration"
  - You should see the "Port Configuration" dialog box
- In the "Port" section, select "Port1" (1)
- In the "Port" section, press "Add" (2) button



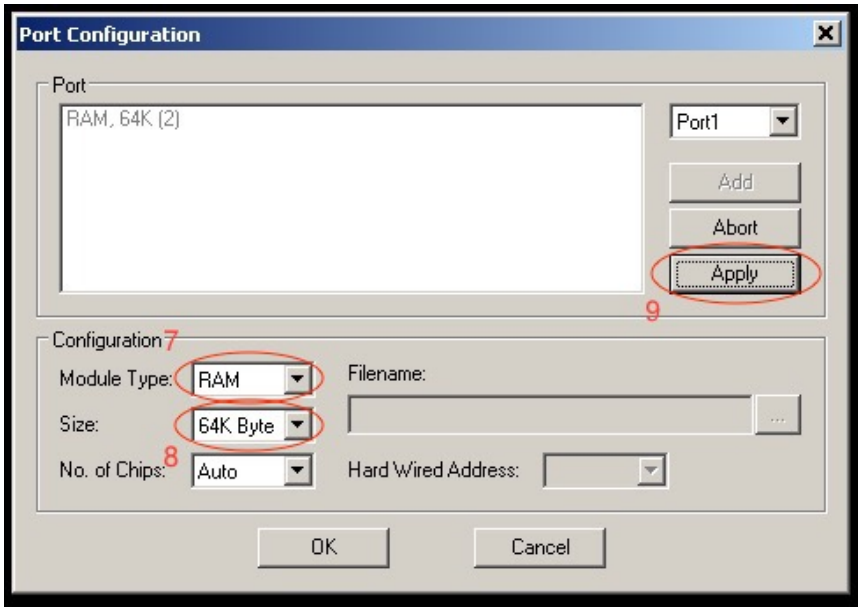
- In the "Configuration" section, select "RAM" (3) as "Module Type"
- In the "Configuration" section, select "64K Byte" (4) as RAM "Size"



- In the port section, press the "Apply" (5) button to add the module

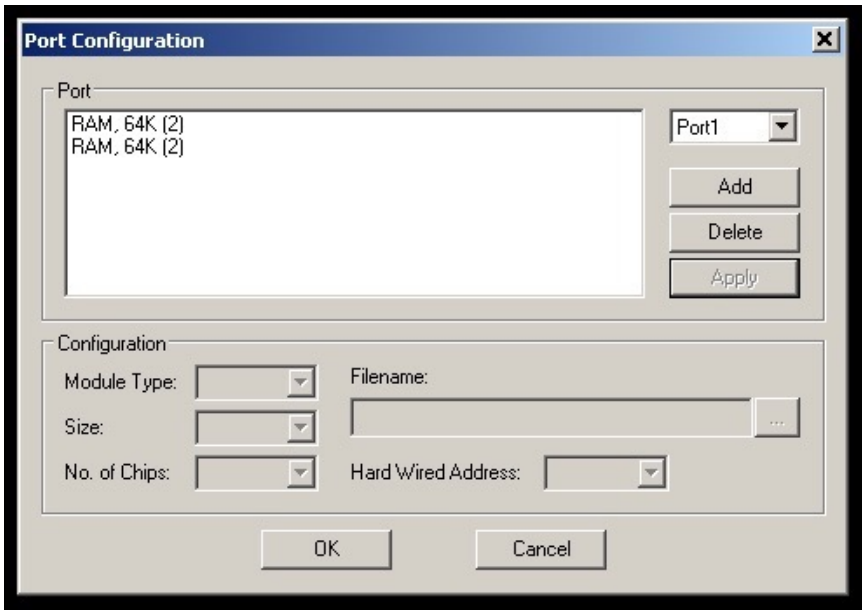


- In the "Port" section, press "Add" (6) button
- In the "Configuration" section, select "RAM" (7) as "Module Type"
- In the "Configuration" section, select "64K Byte" (8) as RAM "Size"



- In the port section, press the "Apply" (9) button to add the module

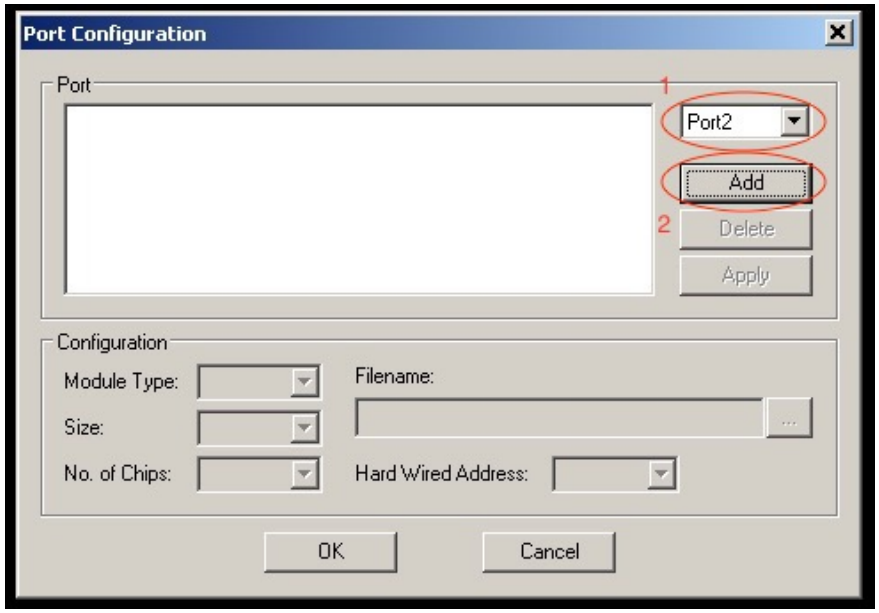
- The dialog box should look like the following picture



- At the bottom of the dialog, press the "OK" button to confirm the new configuration
  - You should be back to the application main window
- To validate the new configuration, type: MEM [ENDLINE]
  - You should see the new amount of memory (here: around 147855 bytes)
- Now to create a 64KB IRAM module, type: FREE PORT(1.01) [ENDLINE]
- To validate the new configuration, type: MEM [ENDLINE]
  - You should see the new amount of memory (here: around 82319 bytes)

How-to: add a standard ROM module

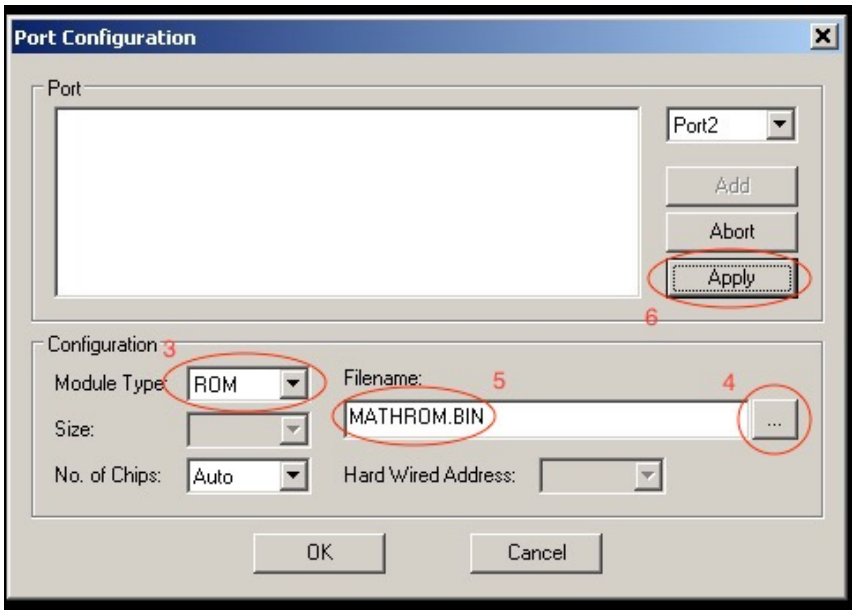
- Start Emu71/Win
- From the drop-down menu, select "Edit", then "Port Configuration"
  - You should see the "Port Configuration" dialog box
- In the "Port" section, select "Port2" (1)
- In the "Port" section, press "Add" (2) button



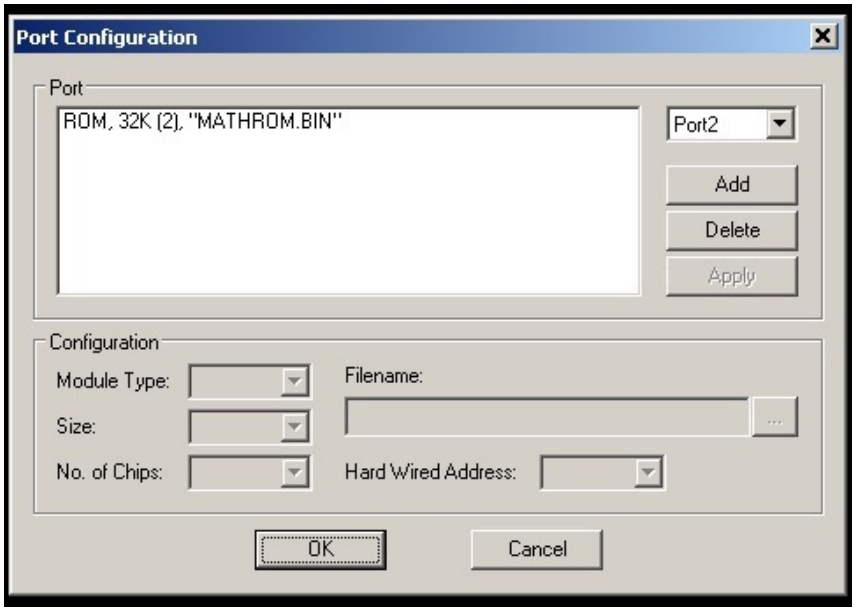
- In the "Configuration" section, select "ROM" (3) as "Module Type"
- In the "Configuration" section, press the "..." (4) button
  - You should see the "Open" window
- In the open dialog box, select which ROM image file you want to use

(here: MATHROM.BIN), then press the "Open" button

- You should be back to the "Port Configuration" dialog box, with the selected file in "Filename:" (5)



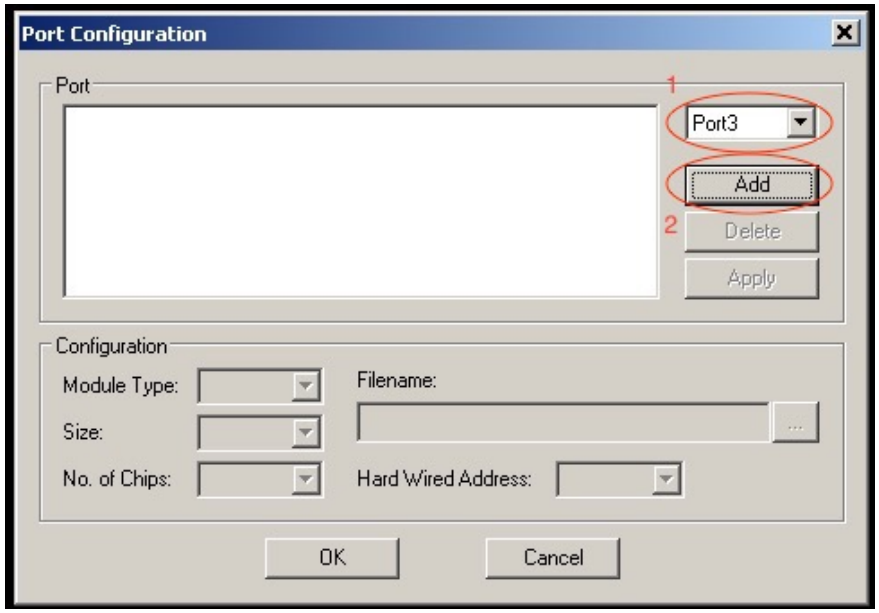
- In the port section, press the "Apply" (6) button to add the module
  - The dialog box should look like the following picture



- At the bottom of the dialog, press the "OK" button to confirm the new configuration
  - You should be back to the application main window
- To validate the new configuration, type: VER$ [ENDLINE]
  - You should see the module version you have chosen (here: MATH:1A)

How-to: add a hardwired ROM module

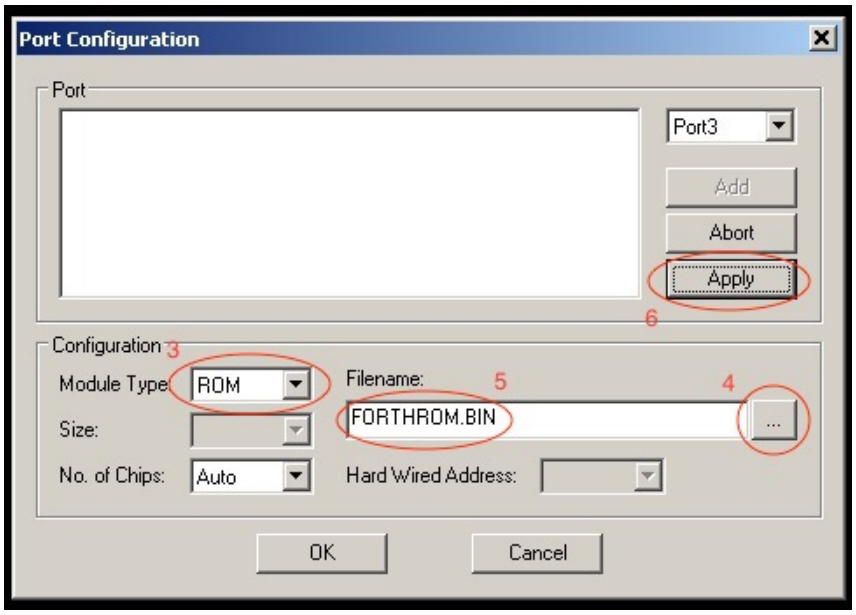
- Start Emu71/Win
- From the drop-down menu, select "Edit", then "Port Configuration"
  - You should see the "Port Configuration" dialog box
- In the "Port" section, select "Port3" (1)
- In the "Port" section, press "Add" (2) button



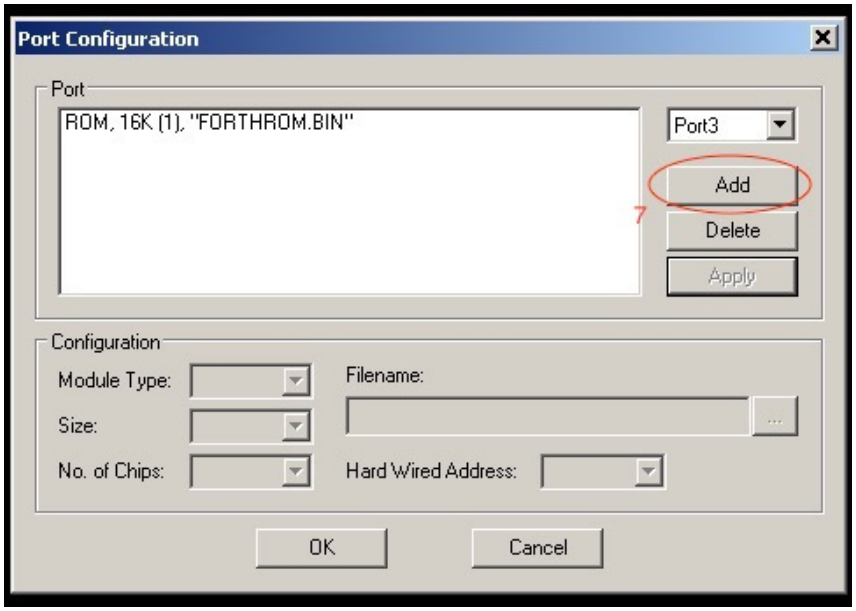
- In the "Configuration" section, select "ROM" (3) as "Module Type"
- In the "Configuration" section, press the "..." (4) button
  - You should see the "Open" window
- In the open dialog box, select which ROM image file you want to use

(here: FORTHROM.BIN), then press the "Open" button

- You should be back to the "Port Configuration" dialog box, with the selected file in "Filename:" (5)



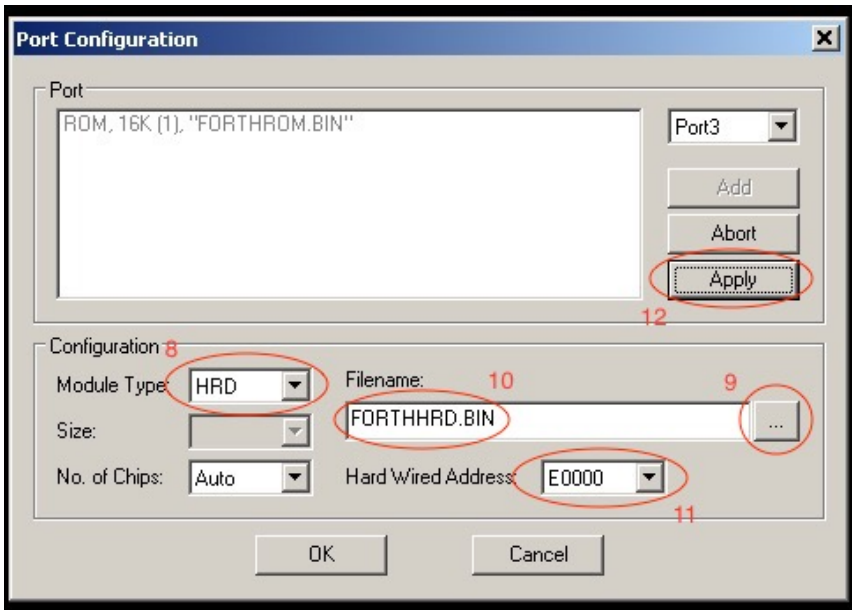
- In the port section, press the "Apply" (6) button to add the module
- In the "Port" section, press "Add" (7) button



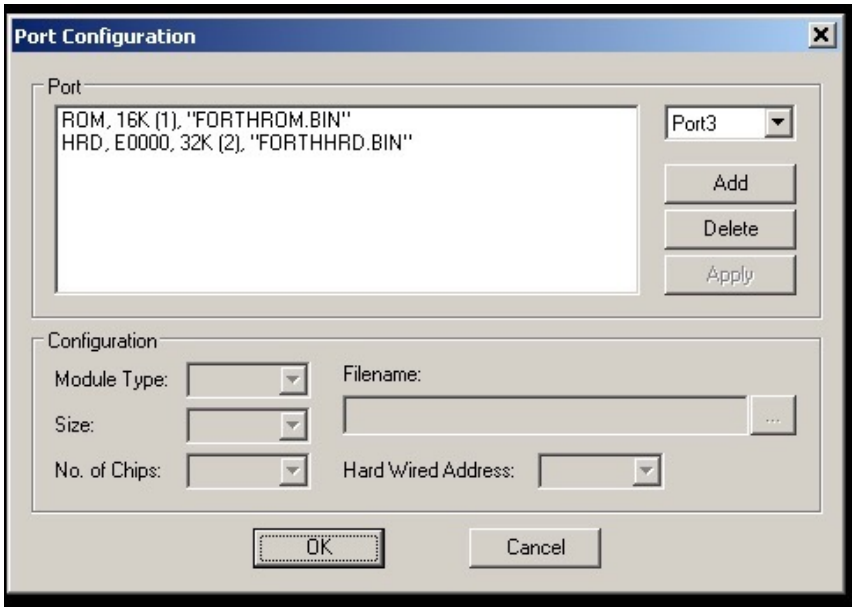
- In the "Configuration" section, select "HRD" (8) as "Module Type"
- In the "Configuration" section, press the "..." (9) button
  - You should see the "Open" window
- In the open dialog box, select which ROM image file you want to use

(here: FORTHHRD.BIN), then press the "Open" button

  - You should be back to the "Port Configuration" dialog box, with the selected file in "Filename:" (10)



- In the configuration section, select "E0000" (11) as "Hard Wired Address"
- In the port section, press the "Apply" (12) button to add the module
  - The dialog box should look like the following picture



- At the bottom of the dialog, press the "OK" button to confirm the new configuration
  - You should be back to the application main window
- To validate the new configuration, type: VER$ [ENDLINE]
  - You should see the module version you have chosen (here: FTH:1A)

How-to's: summary

If you have followed all the above how-to's, the SHOW PORT command should give you the following list:

```
PORT  SIZE   TYPE  -> 0=RAM, 1=IRAM, 2=ROM
0.05  16384  2     -> ROM, HP-IL
1.01  65536  1     -> IRAM
2     32768  2     -> ROM, Math
3     16384  2     -> ROM, Forth (HRD part is invisible)
```

Not shown by version 1BBBB are the following main RAM modules:

```
0      4096  0     -> RAM
0.01   4096  0     -> RAM
0.02   4096  0     -> RAM
0.03   4096  0     -> RAM
1     65536  0     -> RAM
```

The MEM command should give you:

```
82316              -> bytes of RAM (17.5KB + 64KB)
```

Emu71/Win Documentation

Description
Christoph Gießelink Web Site (*WEB*)
Emu71/Win Emulator Home Page (*WEB*)
Emu71/Win Emulator Documentation (*WEB*)
KML 2.0 & EmuXY documentation (*ZIP*)
HP-71B ROM Images (ZIP)

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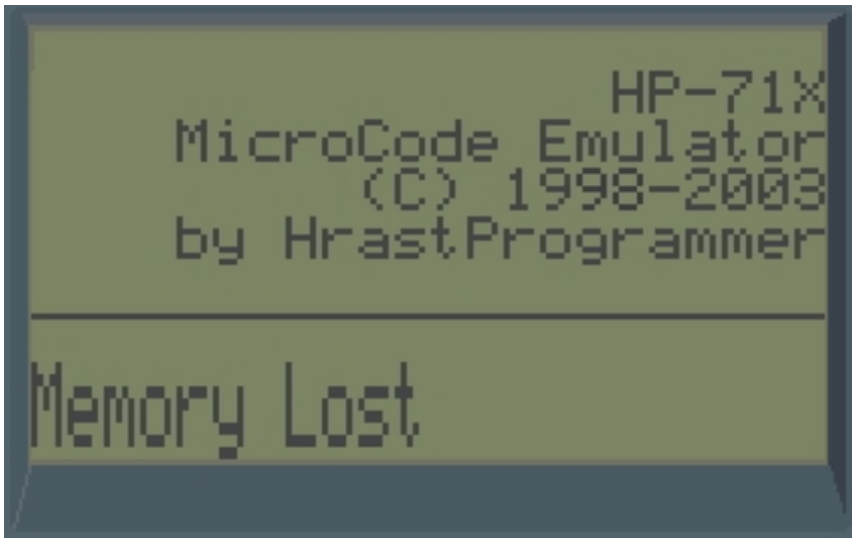
HP-71X : HP-71B Emulator for HP-48GX/49G/49G+/50G

By Zeljko Hrastovcak alias HrastProgrammer



HP-71X screen shots

Introduction

The HP-71X is an HP-71B Extended MicroCode Emulator for HP-48GX/49G calculators. This famous vintage calculator is fully recreated because I emulated the real CPU behaviour and the emulator executes a code from the real HP-71B ROMs. Beside the emulation, I added various advanced features to the original specifications.

There are four variations of HP-71X according to the various calculator configurations and different user needs.

These are:

- HP71X48: The EXTENDED version for HP-48GX with one or two 128K RAM cards in either Slot1 or Slot2 (card in Slot2 can be >=128K, of course). Uses one card for the HP-71B/Emulator ROM with 33.5K RAM (Port #0) and (eventually) the other card for additional 128K RAM (Ports #1..#4) giving the total of 161.5K freely configureable RAM. Forth/Assembler and HP-41 Translator ROMs can be loaded to Port0 of HP-48GX (Port #5 inside HP-71X). Furthermore, additional 64K of non-configureable RAM (Ports #5 and #6) and 32K ROM containing MATH ROM (Port #7) can be loaded to Port0 instead of Forth/Assembler/HP-41 Translator ROMs. The emulator automatically configures itself according to the installed components.

- HP71X48D: The DEMO (17.5K RAM) version for HP-48GX with only one >=128K RAM card in either Slot1 or Slot2. Uses this card for the HP-71B/Emulator ROM with 17.5K RAM (Port #0).
- HP71X49: The EXTENDED version for HP-49G. Uses Port1 for both the HP-71B/Emulator ROM with 33.5K RAM (Port #0) and (eventually) additional 128K RAM (Ports #1..#4) giving the total of 161.5K freely configureable RAM. Forth/Assembler and HP-41 Translator ROMs can be loaded to Port0 of HP-49G (Port #5 inside HP-71X). Furthermore, additional 64K of non-configureable RAM (Ports #5 and #6) and 32K ROM containing MATH ROM (Port #7) can be loaded to Port0 instead of Forth/Assembler/HP-41 Translator ROMs. The emulator automatically configures itself according to the installed components.
- HP71X49D: The DEMO (17.5K RAM) version for HP-49G. Uses Port1 for the HP-71B/Emulator ROM with 17.5K RAM (Port #0).

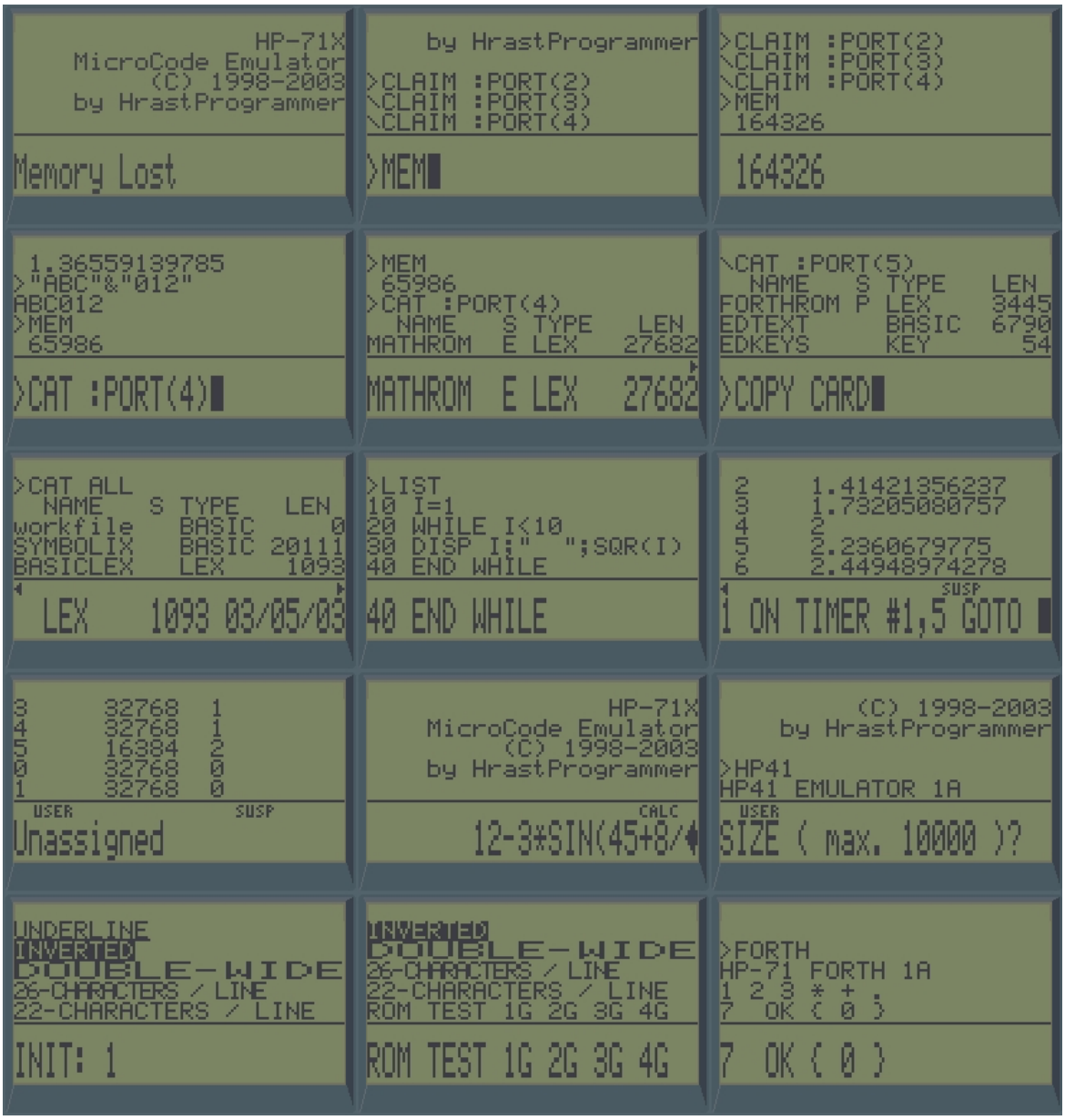
The number in the parenthesis is the total amount of the supported RAM.

Main features:

- Display and annunciators are refreshed
- The internal HP-71B timers are supported so you can use ON TIMER, WAIT and similar statements
- Auto power-off feature is supported
- Supports up to 5 main RAM ports (#0..#4 with 32K each) which can be used either as main or independent RAM
- Supports Forth/Assembler and HP-41 Translator ROMs installed as Port #5
- Big part of the JPC ROM is built into the emulator so it doesn't occupy any port
- Card reader and card writer are separated inside the emulator so you can read and write cards independently
- LIF files loading/extracting through CRD71/LIF71 utilities
- LCD device is able to respond to several escape CHR$(27) sequences
- Printer output works in 3 modes: RS-232 (Wire) serial mode, IR serial mode and IR LED mode
- Optional HP-IL Emulation is available

HP-71X Documentation

Description
Zeljko Hrastovcak Emulators Home Page (*WEB*)
HP-71X Emulator Home Page (*WEB*)
HP-71X Emulator Installation Procedure (*WEB*)
HP-71X Emulator Pricing & Buying (*WEB*)



HP-71X screen shots

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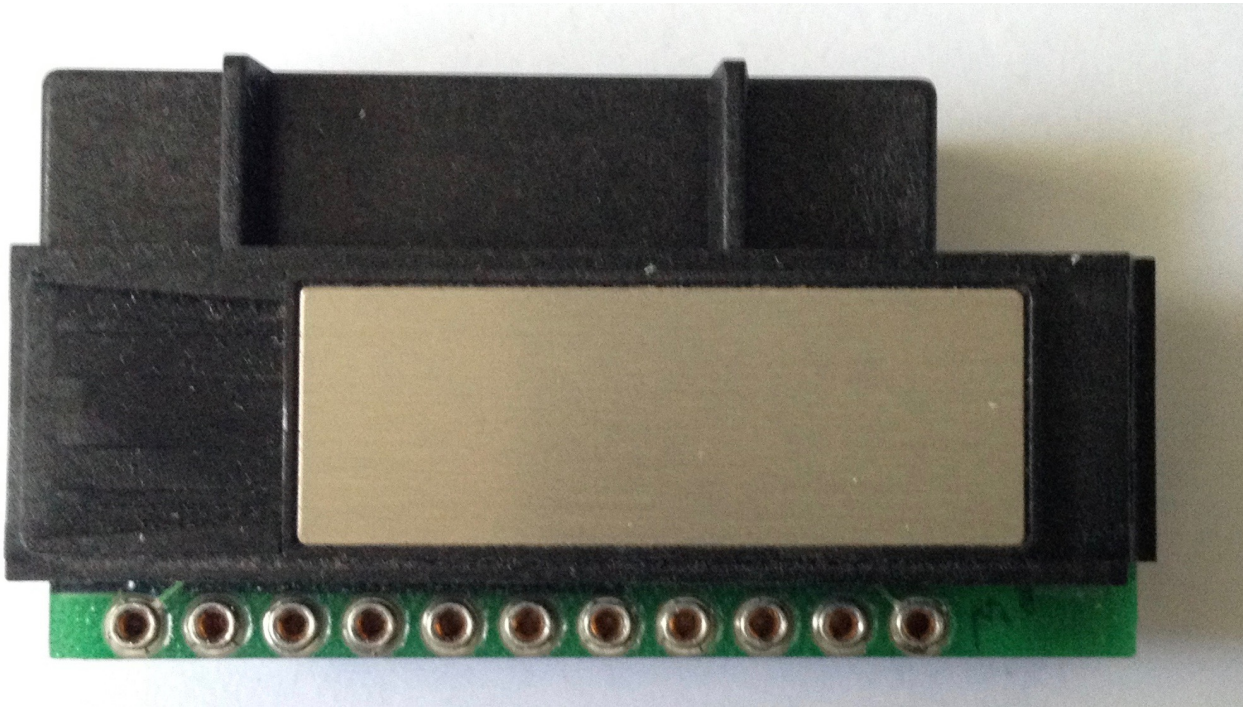
Interfaces

HP-82400A Magnetic Card Reader



HP-82400A Magnetic Card Reader Module

Owner Manual Introduction

The HP 82440A Magnetic Card Reader provides mass storage for the HP-71.

Modified extract from HP Journal June 1983 HP-75 Card Reader Article

The card reader uses the same technology as the HP-75 portable computer, the hand pulled magnetic card reader/writer can store 1.3K bytes of user data or programs per card. The cards are 10 inches long and 0.375 inch wide. Hand pulled refers to the lack of a motor for transporting the cards past the head. Instead, this function is performed by the user. The user initiates a card operation with the appropriate command, inserts the card into the card reader, tells the HP-71 that the card is ready by pressing the RTN key, and then pulls the card through the card reader

Specifications

HP 82400A Card Reader

The HP 82400A magnetic Card Reader offers an inexpensive means of storage for your programs and data. Snap it into a specially designed slot; the card reader will not change the external dimensions of the HP-71.

Encode your cards as a private file so that they can be copied and executed, but not viewed or edited. Automatic verification assures the accuracy of the information on the cards. And, simple encoding protects your cards from being overwritten.

Features	Benefits
• Powered by HP-71 batteries.	Allows small size and maximizes portability.
• Snaps into a special slot.	Leaves RAM/ROM ports free for memory and software modules. Outside dimensions of the HP-71 don't change.
• 1.3K-byte magnetic cards.	Programs and data are easily stored and modified. Cards are inexpensive to duplicate. Label contents on face of card. Store easily in a small space.
• Fits inside the HP-71 carrying case.	Compact, convenient, protected.

Physical Specifications

DIMENSIONS . . .5.3 cm (2.1 in) x 2.8 cm (1.1 in) x 2.2 cm (.9 in)

WEIGHT . . . . . .23 g (.8 oz)

COMPATIBILITY

Snaps into the HP-71. Cards are the same dimensions as those used in the HP-75; however, programs are not interchangeable.

OPERATING REQUIREMENTS

Supply voltage . . . . . .4.25 to 6.5 volts

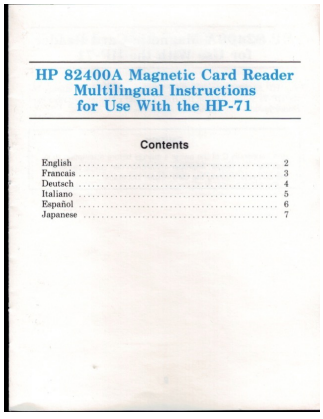
Current . . . . . .7 mA (RUN mode)
18 mA (WRITE mode)
1 mA (STANDBY mode)

Operating temperature . . .0° to 45° C (32° to 113° F)

Storage temperature . . .−40° to 65°C (−40° to 149° F)

HP-82400A Magnetic Card Reader Documentation

Product #	Product Name	Released
HP-82400-90001	Magnetic Card Reader Multilingual Instructions	
HP-82400-90001 Rev. B	Magnetic Card Reader Multilingual Instructions	
HP-82400-90001 Rev. C	Magnetic Card Reader Multilingual Instructions (PDF)	1984-06


HP 82400A Magnetic Card Reader
Multilingual Instructions
for Use With the HP-71

Contents

English 2
Francais 3
Deutsch 4
Italiano 5
Español 6
Japanese 7

Left: Multilingual Instructions / Right: Magnetic Card Reader Box

HP-82401A Hewlett-Packard Interface Loop

HP-82401A Hewlett-Packard Interface Loop Module

Owner Manual Introduction

The HP 82401A HP-IL Interface greatly expands the capabilities of the HP-71. It makes the HP-71 part of an HP-IL system-enabling the HP-71 to interact with a wide variety of HP-IL peripheral devices and perform numerous input/output operations.

The HP-IL interface provides the HP-71 with the following features:

- Convenient assignments for printer and display output.
- Mass storage statements that are extensions of those of the HP-71.
- Six methods for specifying HP-IL devices.
- Simple addressing (for convenience) or extended addressing (for more than 30 devices).
- Operation as an HP-IL controller or operation as an HP-IL device.

These features are combined into one product that lets you easily perform these types of input/output operations:

- Printer and display output operations.
- Mass storage operations.
- General-purpose I/O operations.

With the HP-IL interface, the HP-71 becomes a truly powerful component in your HP-IL system.

Specifications & New/Enhanced BASIC Keywords

HP 82401A
HP-71 HP-IL Interface

The HP-71 HP-IL Interface plugs into a specially designed port at the upper left corner of your HP-71, establishing a link to the world of instruments and peripherals. Connect directly to any HP-IL product, and to HP-IB, RS-232C and GPIO interfaces using converters.

The HP-IL Interface gives your HP-71 simultaneous control of up to 30 devices on the loop, and through secondary addressing, up to 930 devices. The 16K bytes of ROM in the Interface provide for printer, display, mass storage and general input/output (I/O) operations. Multiple HP-71s can be connected on the interface loop.

Physical Specifications

DIMENSIONS . . .5.2 cm (2 in) x 3.7 cm (1.5 in) x 1.3 cm (.5 in)

WEIGHT . . . . . .18 g (.7 oz)

OPERATING REQUIREMENTS

Operating temperature . . .0° to 45°C (32° to 113°F)

Storage temperature . . . –40° to 55°C (–40° to 131° F)

Relative humidity . . . . .0 to 95%

DATA TRANSFER RATE

5,000 bytes per second

HP-IL INTERFACE FUNCTIONS LIST

SYSTEM SETUP

ASSIGN IO—Associates assign codes with HP-IL devices.
LIST IO—Lists all defined assign codes and their HP-IL addresses.
OFF IO—Suspends I/O operation.
RESET HPIL—Resets the HP-IL interface to a known condition.
RESTORE IO—Enables I/O operations to occur on HP-IL.

PRINTER AND DISPLAY OPERATIONS

DISPLAY IS—Assigns one HP-IL device to be the display device.
PRINTER IS—Assigns one HP-IL device to be used for all printing operations.

MASS STORAGE OPERATIONS

ASSIGN #—Associates an I/O channel number with a file and opens the file.
CAT—Gives a catalog of file information.
CAT$—Returns a string containing catalog information.
CHAIN—Purges current file, copies specified file into RAM, and executes it.
COPY—Copies a file from one location to another.
CREATE—Creates a data file.
INITIALIZE—Initializes a mass storage medium.
PACK—Packs directory and storage space on a medium.
PACKDIR—Packs only directory space on a medium.
PRIVATE—Permanently prevents a file from being changed or inspected.
PURGE—Deletes a file.
RENAME—Changes the name of a file.
RUN—Copies specified file into RAM and executes it.
SECURE—Prevents a file from being altered or purged.
TRANSFORM—Creates new TEXT file from BASIC file, or new BASIC file from TEXT file.
UNSECURE—Cancels security for a file.

HP 82401A HP-IL Interface Functions List (Cont.)

GENERAL I/O OPERATIONS – DATA TRANSFER

ENTER—Reads data from HP-IL into numerical and string variables.
OUTPUT—Sends data from numeric and string expressions to HP-IL.

GENERAL I/O OPERATIONS – HP-IL INTERACTION

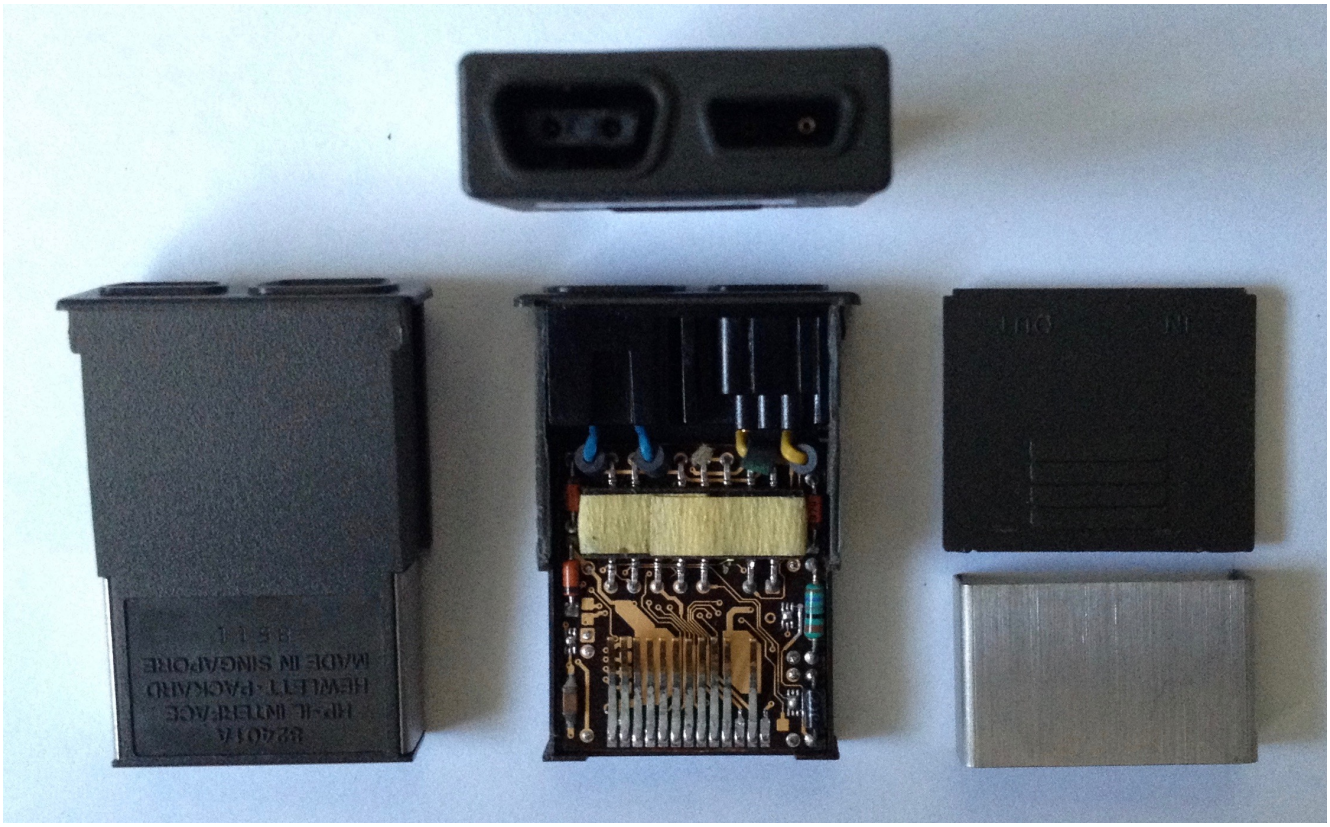
CLEAR—Clears an individual HP-IL device or all HP-IL devices.
DEVADDR—Returns the address of a device.
DEVAID—Returns the accessory ID of a device.
DEVID$—Returns a string containing the device ID of a device.
ENABLE INTR—Specifies the events that can cause an HP-IL interrupt.
LOCAL—Sets an individual HP-IL device or all HP-IL devices to Local mode.
LOCAL LOCKOUT—Sets all HP-IL devices to Local Lockout condition.
OFF INTR—Cancels HP-IL interrupt branching.
ON INTR—Defines how a program branches when an enabled HP-IL interrupt event occurs.
READDDC—Returns the number of the last HP-IL device-dependent command message received.
READINTR—Returns the value of the interrupt-cause byte.
REMOTE—Enables all HP-IL devices to change to Remote mode and can also set an individual HP-IL device to Remote mode.
REQUEST—Defines the HP-71 status byte that is sent when serially polled by an HP-IL controller.
SEND—Sends individual HP-IL messages on the loop.
SPOLL—Returns a value that represents one or more status bytes from an HP-IL device.
STANDBY—Sets the HP-IL timeout period and verify interval.
STATUS—Returns the HP-IL interface status.
TRIGGER—Triggers an event at an HP-IL device.

GENERAL I/O OPERATIONS – PASSING CONTROL

CONTROL OFF/ON—Sets the controller status of the HP-71.
PASS CONTROL—Gives control of the HP-IL system to another device.

BINARY FUNCTIONS

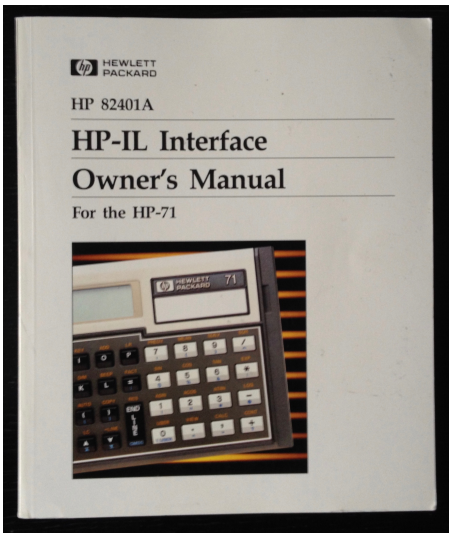
BINAND—Returns the value of the binary AND operation.
BINCMP—Returns the value of the binary complement.
BINEOR—Returns the value of the binary Exclusive-OR operation.
BINIOR—Returns the value of the binary Inclusive-OR operation.
BIT—Returns the value of one bit of an integer.

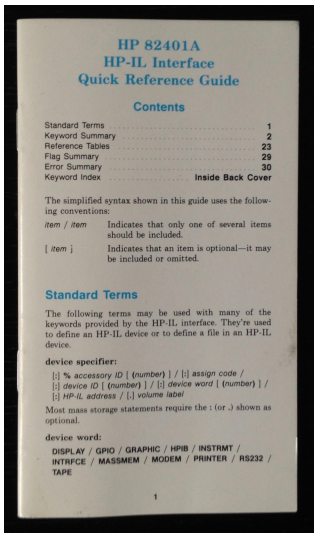


HP-82401A HP-IL Module Internals

HP-82401A HP-IL Module Documentation

Product #	Product Name	Released
HP-82401-90001	HP-IL Int. Owner's Manual, 1st Ed (PDF)	1983-11
HP-82401-90001 Rev B	HP-IL Int. Owner's Manual, 2nd Ed	1984-01
HP-82401-90031	HP-IL Int. Owner's Manual, 3rd Ed	1985-01
HP-82401-90019	HP-IL Int. Owner's Manual, 1st Ed Add. (PDF)	1983-12
HP-82401-90010	HP-IL Int. Quick Ref. Guide, 1st Ed	n/a
HP-82401-90010 Rev. B	HP-IL Int. Quick Ref. Guide, 2nd Ed (PDF#1 & PDF#2)	1984-01
HP-82401-90023	IDS HP-IL Internal Design Specifications	1985-??





HP-82401A HP-IL Interface > Left: Owner's Manual / Right: Quick Ref. Guide

HP-82401A HP-IL Images Distribution File (ZIP)

Filename	Description
`HP-82401A_HPIL1A_ROM.BIN`	Image for Emu71/DOS/Win
`> HPILROM LEX 16361`	[VER$ HPIL:1A]
`HP-82401A_HPIL1B_ROM.BIN`	Image for Emu71/DOS/Win
`> HPILROM LEX 16361`	[VER$ HPIL:1B]
`HP-82401A_HP-IL_ROM.LIF`	ILPER: LIF Mass Storage File
`> ROMCOPY LEX 1727`	[VER$ RCPY:E]
`> HPIL1A ROM 16384`	ROMCOPY HPIL1A:TAPE(#) TO :PORT(#)
`> HPIL1B ROM 16384`	ROMCOPY HPIL1B:TAPE(#) TO :PORT(#)

HP-82402A Dual HP-IL Adapter

HP-82402A Dual HP-IL Adapter populated with two (2) HP-82401A HP-IL modules

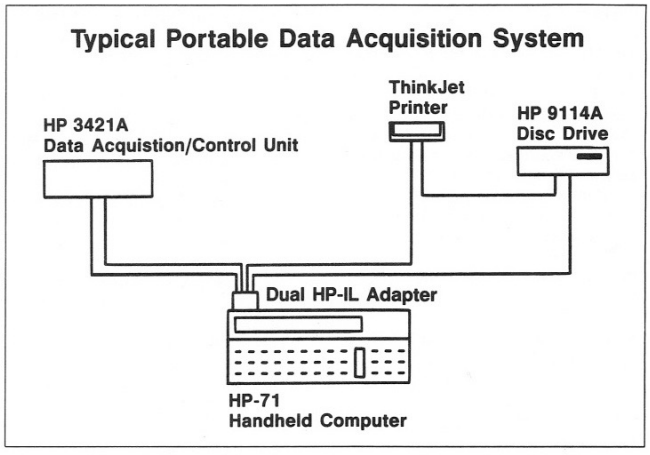
Owner Manual Introduction

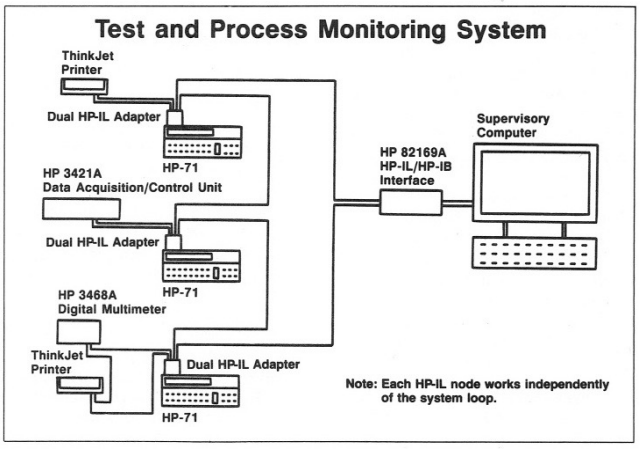
The HP-82402A Dual HP-IL Adapter allows two HP-82401A HP-IL modules to be plugged into the HP-71B simultaneously. When inserted into the HP-IL port of the HP-71B, the Adapter significantly expands the range of manufacturing and portable data acquisition settings in which the HP-71B and HP-71B systems can be used. The HP-71B treats each HP-IL module as a separate, and totally independent interface.

This allows the HP-71B to operate either as:

- A controller on both HP-IL loops.
- A controller on one HP-IL loop and a device on the other.
- Or, a device on both HP-IL loops.

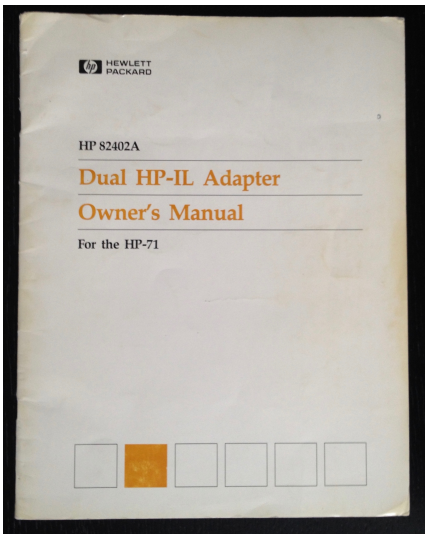
The Dual HP-IL Adapter is passive; all the firmware for controlling two HP-IL loops is already built into the HP-82401A HP-IL modules.



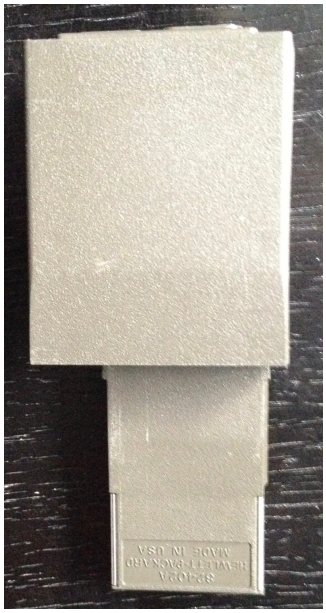


HP-82402A Dual HP-IL Adapter Documentation

Product #	Product Name	Released
HP-82402-90002	Dual HP-IL Adapter Owner's Manual (PDF)	1985-11

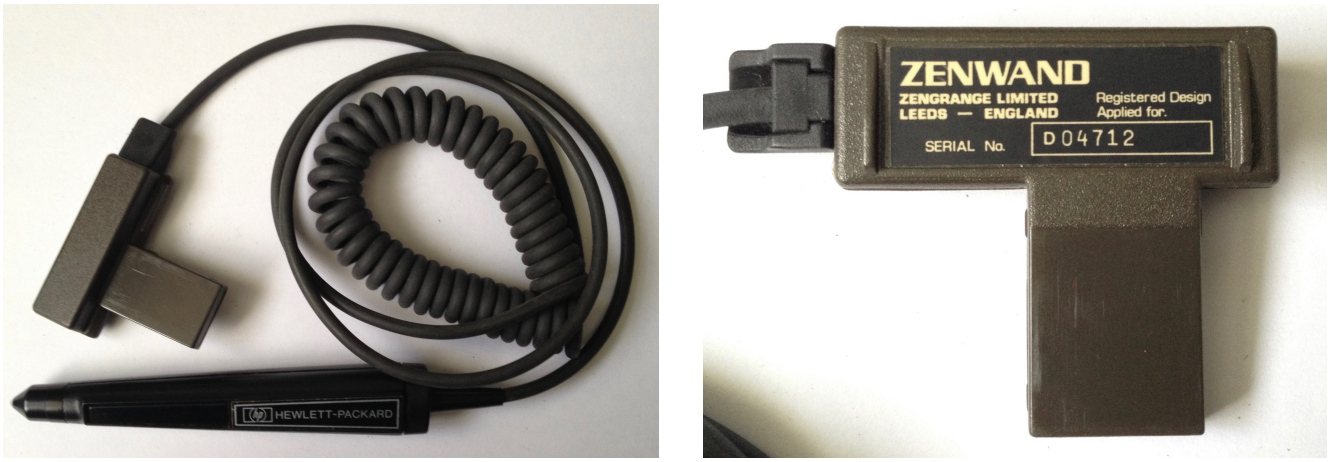


HP-82402A Owner's Manual



HP-82402A Dual HP-IL Adapter populated with two (2) HP-82401A HP-IL modules

ZenWand-71 Barcode Reader by Zengrange



ZenWand-71 -> Left: barcode reader / Right: 71B connector, back view

Owner Manual Introduction

A Barcode Reading, Analyzing and Printing System for the HP-71 Handheld Computer.

The Zengrange ZenWand has been designed for the Hewlett Packard HP-71 Handheld Computer to provide a completely portable bar coding system using the Hewlett Packard HBCS-2200 Barcode Reader wand. The product has been further enhanced by a powerful, but uniquely friendly operating system, designed by Zengrange Ltd. Not only does this operating system cope with current requirements, but it is also capable of being further extended as new barcode decoders and printer types become available.

As delivered, ZenWand decodes the following ten kinds of barcode:

- Codabar (USD-4)
- Code 11 (USD-8)
- Code 3-of-9 (USD-3)
- International Article Number Codes (EAN-13, EAN-8, UPC-A, UPC-E, UPC-E(1))
- Industrial 2-of-5
- Interleaved 2-of-5 (USD-1)

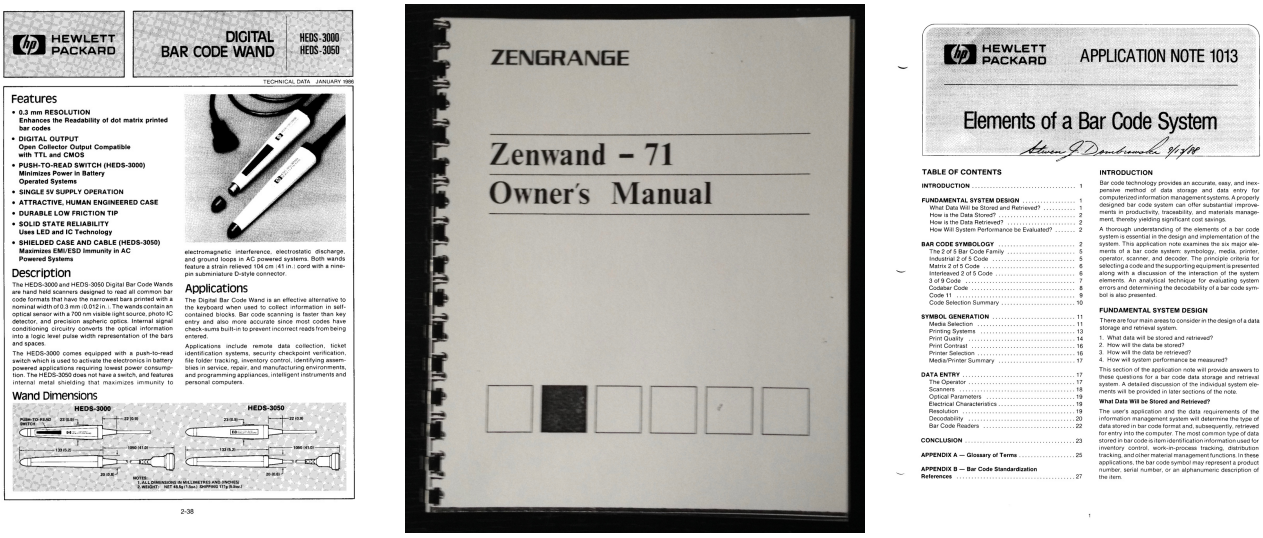
Each barcode type read by ZenWand is decoded by string functions, i.e. the barcode is returned as a text string. These functions permit the returned string values to be processed directly by the user's own application programs, stored in files in memory, transferred via HP's Interface Loop (HP-IL) to mass storage media or downloaded to host computer systems via IL-modems and IL-interfaces.

The ZenWand system is further enhanced by the inclusion of functions for:

- Automatic discrimination of barcode type
- Check digit verification
- Barcode analyzing
- Printing of barcodes on the HP-2225B Think Jet Printer

ZenWand-71 Documentation

Product #	Product Name	Released
ZENWAND-71	ZenWand-71 Owner's Manual (PDF)	1985-09
HP-HEDS-3000	Digital Barcode Wand, Technical Data Sheets (PDF)	1986-01
HP-AN-1013	Elements of a Bar Code System, App. Note (PDF)	



L: HP HEDS-300 Wand / M: ZenWand-71 Owner's Manual / R: Barcode Application Note

ZenWand-71 Image Distribution File (ZIP)

Filename	Description
`ZENGRANGE_ZENWAND-71_ROM.BIN`	Image for Emu71/DOS/Win
`> WandRom P LEX 6318`	[VER$ WAND:1A DHSS:1A]
`> BCPRINT P BASIC 6863`	Barcode printing program
`> HP2225B P BASIC 953`	ThinkJet driver sub-programs
`> WandCDC P BIN 278`	Barcode check-digit calculation sub-programs

Filename			Description
> CODE39	TEXT	158	Code 3 of 9 (BCPRINT support file)
> IND25	TEXT	106	Industrial 2 of 5 (BCPRINT support file)
> INT25	TEXT	102	Interleaved 2 of 5 (BCPRINT support file)
> DATA39	DATA	528	Code 3 of 9 (BCPRINT support file)
> DATA25	DATA	88	Ind./Int. 2 of 5 (BCPRINT support file)
> WANDKEYS	KEY	24	Keyboard template (BCPRINT support file)
ZENGRANGE_ZENWAND-71_ROM.LIF			ILPER: LIF Mass Storage File
> ROMCOPY	LEX	1727	[VER$ RCPY:E]
> ZENWAND	ROM	16384	ROMCOPY ZENWAND:TAPE(#) TO :PORT(#)

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Card Reader Memory Modules

CMT-CR Memory Modules

CMT CR Memory Module Series

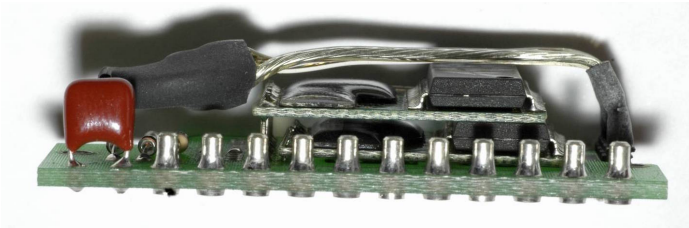
Introduction

Starting in 1987, CMT introduced several card reader memory modules for the HP-71B. The following models was made available:

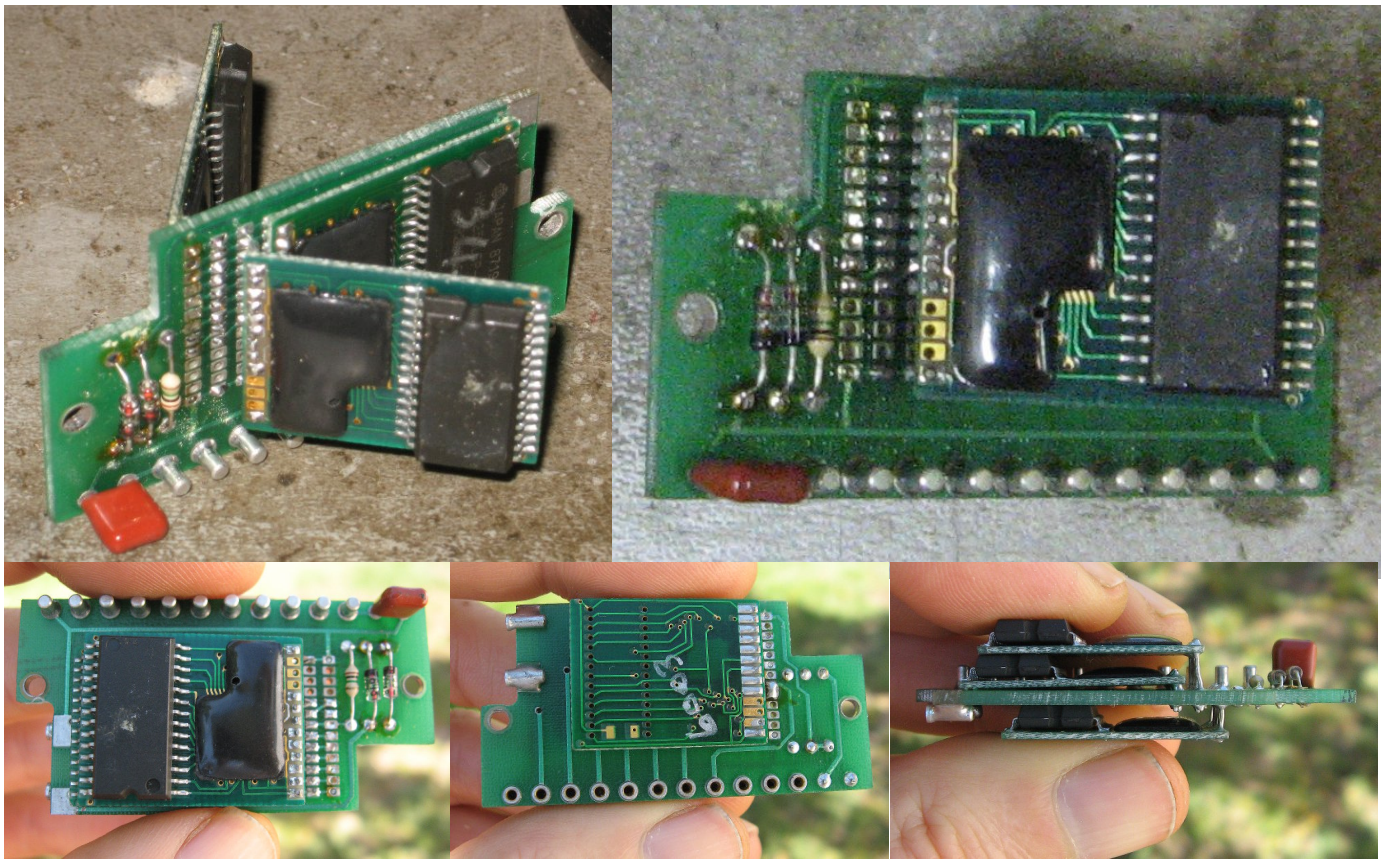
- CMT-CR-32/32 32KB RAM + 32KB EPROM
- CMT-CR-32R 32KB RAM (option: battery backup)
- CMT-CR-64R 64KB RAM (option: battery backup)
- CMT-CR-96R 96KB RAM (option: battery backup)
- CMT-CR-128R 128KB RAM (option: battery backup)
- CMT-CR-160R 160KB RAM (option: battery backup)

When plugged into the card reader port of the HP-71, the CMT-CR Module add the module specified kilobytes of RAM to the 17.5K bytes of HP-71 internal RAM. Up to 160K bytes of extra RAM can be thus installed in your HP-71. Like the HP-71 RAM, the CMT-CR RAM can be used as Main RAM or Independent RAM.

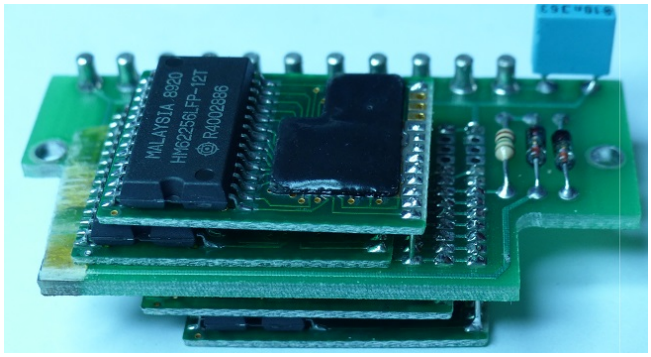
From the pictures below, we can clearly see that CMT decided to reuse their 32KB RAM front port printed circuit boards (PCB) soldered on a custom made PCB to create their RAM card reader modules. Also, some models had battery backup to preserve their data when unplugged.

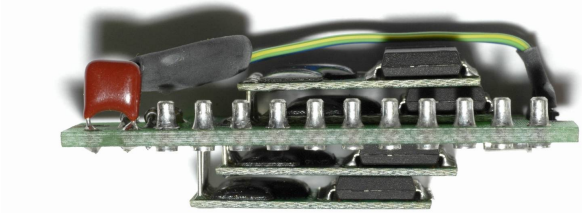


CMT-CR-64R Module Internals (Courtesy of Matthias Wehrli)



CMT-CR-96R Memory Module Internals (Courtesy of Garth Wilson)





CMT-CR-128R Module Internals

Courtesy of Jean-François Garnier (left) and Matthias Wehrli (right)

HHP 71 M/M Memory Modules

HHP 71 M/M Module Series

Introduction

Somewhere in 1984 HHP introduced several card reader memory modules for the HP-71B. The following models was made available:

- HHP 71 M/M 32K EPROM
- HHP 71 M/M 32K RAM/32K EPROM
- HHP 71 M/M 32K RAM (option: battery backup, duration: 29 months)
- HHP 71 M/M 64K RAM (option: battery backup, duration: 13 months)
- HHP 71 M/M 96K RAM
- HHP 71 M/M 128K RAM
- HHP 71 M/M 160K RAM

When plugged into the card reader port of the HP-71, the HHP 71 M/M RAM module add the module specified kilobytes of RAM to the 17.5K bytes of HP-71 internal RAM. Up to 96K bytes of extra RAM can be thus installed in your HP-71. Like the HP-71 RAM, the HHP 71 M/M RAM can be used as Main RAM or Independent RAM.

For the RAM/EPROM & EPROM card reader modules, only the socket is present for the EPROM side, the user must insert his pre-programmed 8KB, 16KB or 32KB EPROM chip into the socket. Supported EPROMs are Intel compatible CMOS 2764, 27128, 27256 chips with 200 nanoseconds or faster of access time.

All HHP 71 M/M modules are build with the same internal components. The RAM modules are build with one, two or three PCBs which contain the following part:

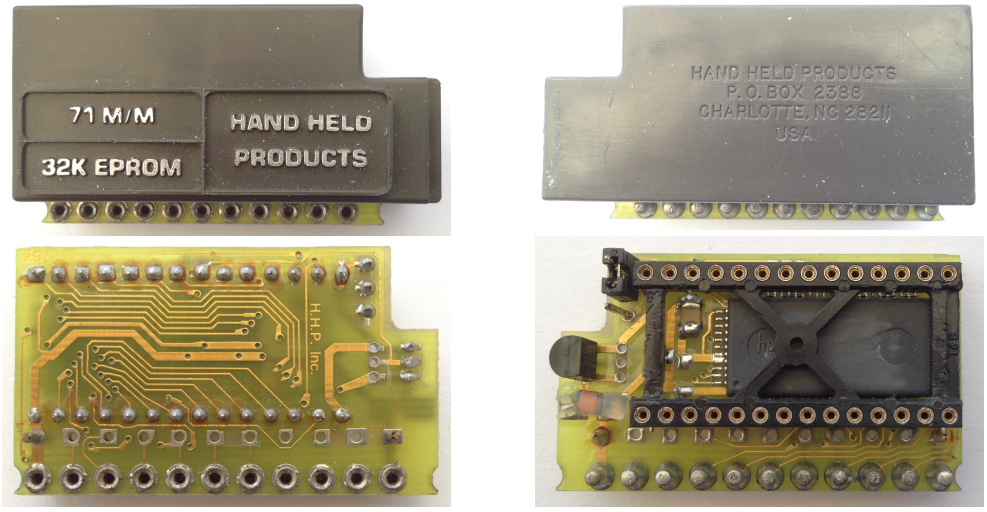
- 1 x HHP designed printed circuit board
- 1 x HP 1LJ4-0301 custom memory controller chip
- 4 x Hitachi HM6264LFP-15 (8KB RAM @ 150 ns)

The EPROM and RAM/EPROM modules are build with at least one module EPROM PCB which contain the following part:

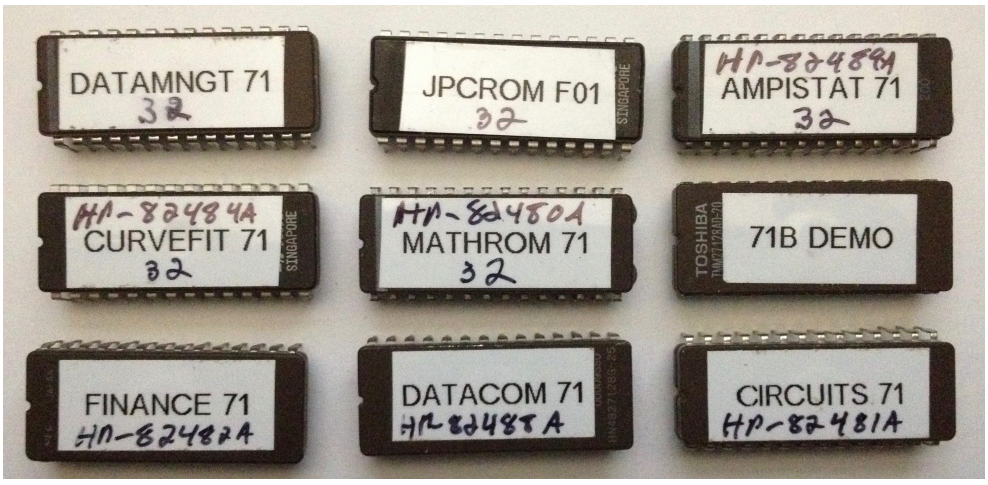
- 1 x HHP designed printed circuit board
- 1 x HP unmarked custom memory controller chip (probably 1LJ4-0301 as well)
- 1 x EPROM socket

HHP 71 M/M Modules Documentation

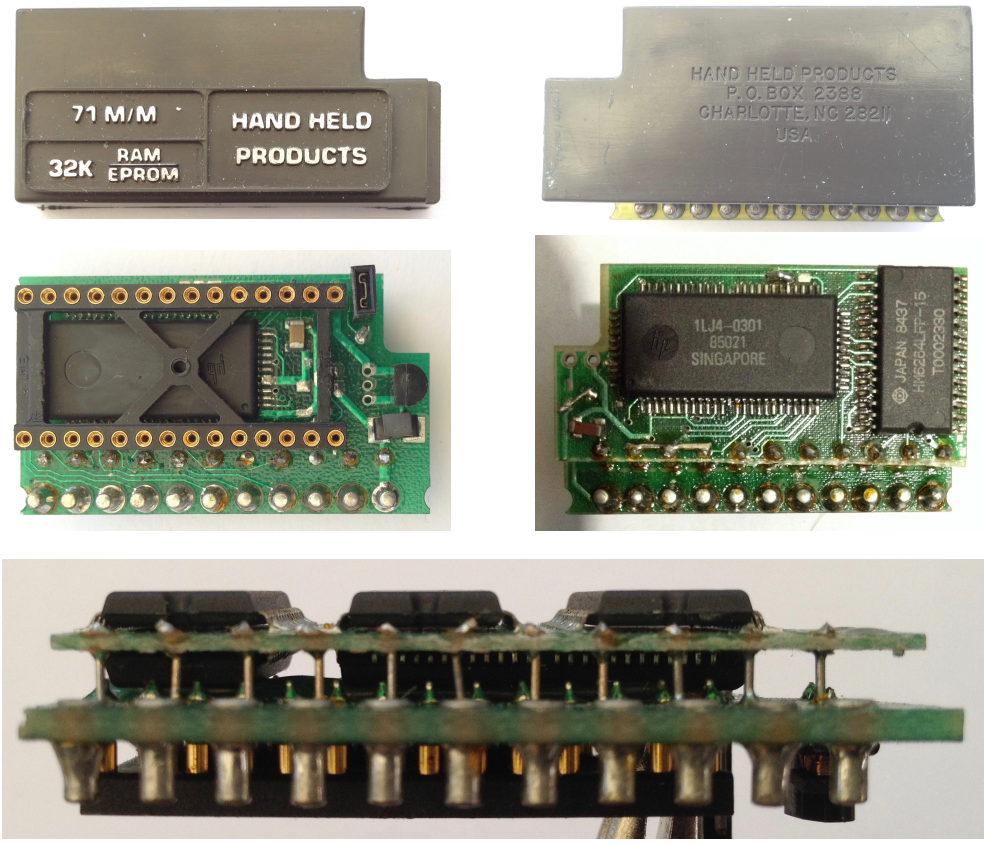
Product
HHP 71 M/M Owner's Manual (PDF)



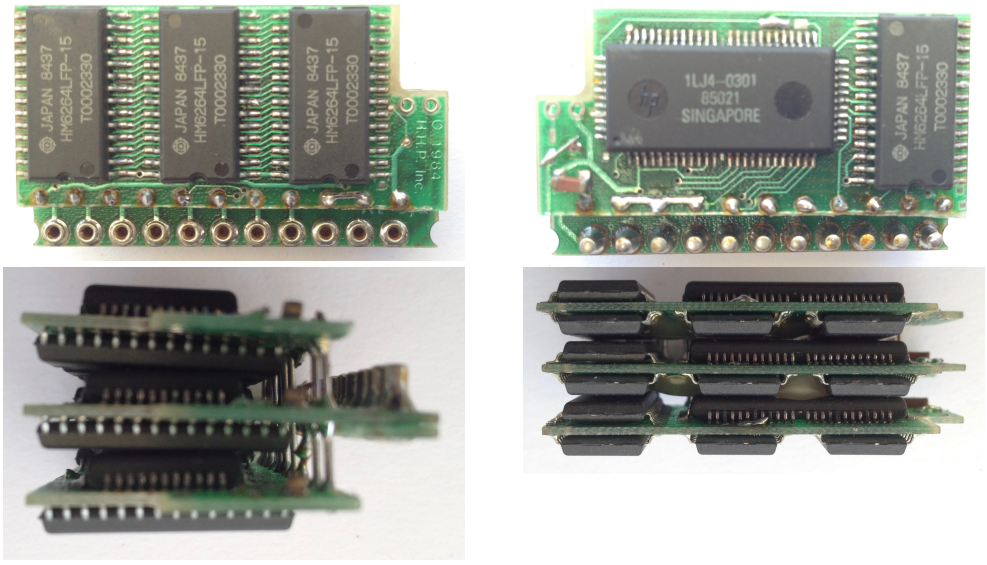
HHP 71 M/M 32K EPROM Module



ROM Images burned on 27256 & 27128 CMOS EPROMs



HHP 71 M/M 32K RAM / 32K EPROM Module

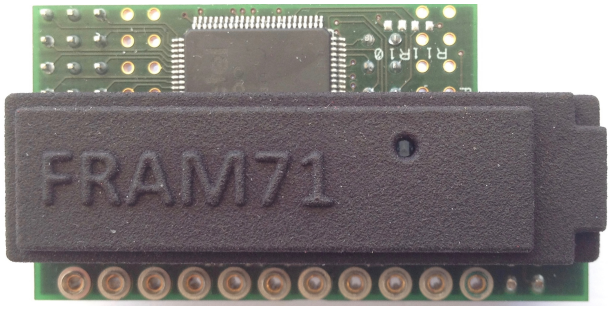


HHP 71 M/M 96K RAM Module Internal View

HHP 71 M/M First Generation Box (Courtesy of Matthias Wehrli)

HHP 71 M/M Second Generation Box (Courtesy of Matthias Wehrli)

FRAM71 Memory Module



FRAM71 Module

Introduction

The FRAM71 module is the result of a personal multi-years project of Hans Brueggemann. The module can be configured to add core RAM, independent RAM (IRAM) or ROM simulation. This module pushes the HP-71B to its limit and is a must have for any HP-71B fan.

Users' Manual Introduction

FRAM71 is an FRAM memory extension for use in your Hewlett-Packard HP-71B Pocket Computer. When plugged into the Card Reader Port, it will provide your HP-71B with up to 16 additional RAM modules of user selectable sizes and 64 KB of system RAM. With FRAM71, you can:

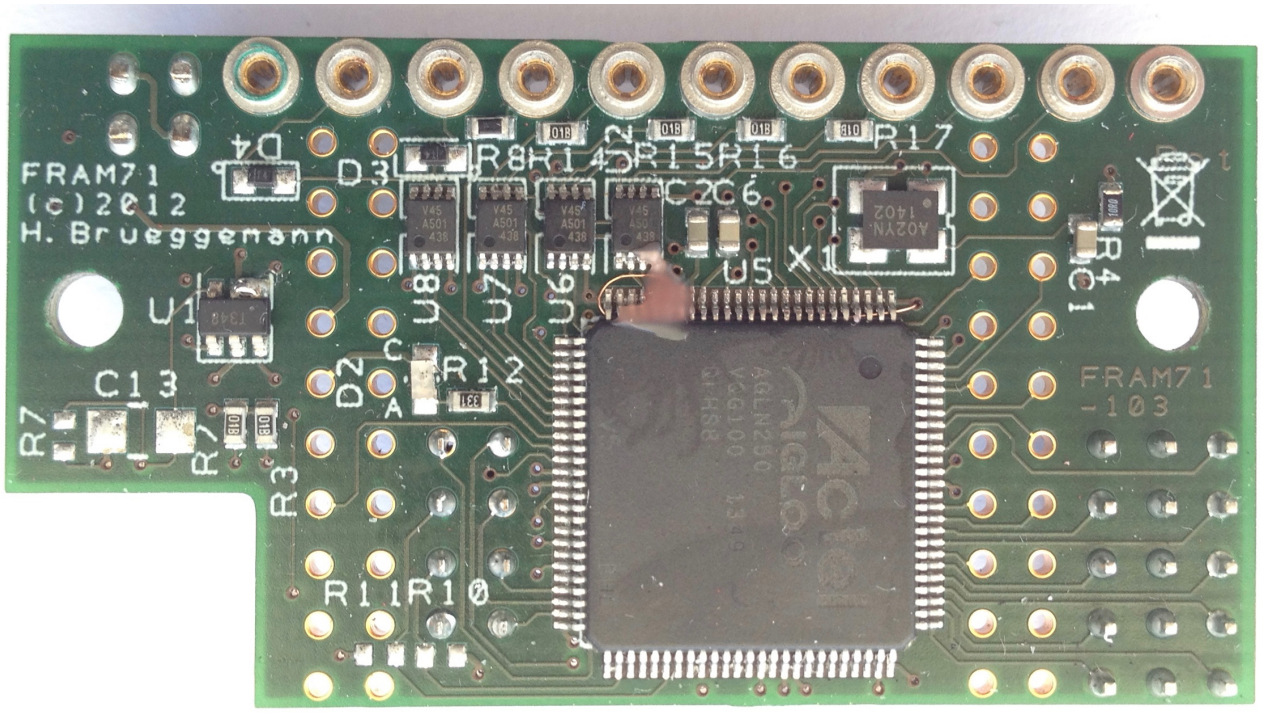
- Adopt the memory size to existing hardware configurations (plug-ins)
- Maximize independent RAM for data / program storage
- Use FRAM71 as an archive facility
- Use ROM images instead of plug-in Modules
- Declare RAM inside FRAM71 as hard-configured ROM at E0000
- Upgrade your HP-71B to the latest operating system
- Refurbish an HP-71B that has defective internal ROM / RAM chips
- Let "Take-Over"-software reside parallel to your HP-71B's internal O/S
- Implement new hardware features previously not available on the HP-71B

Special Acknowledgment

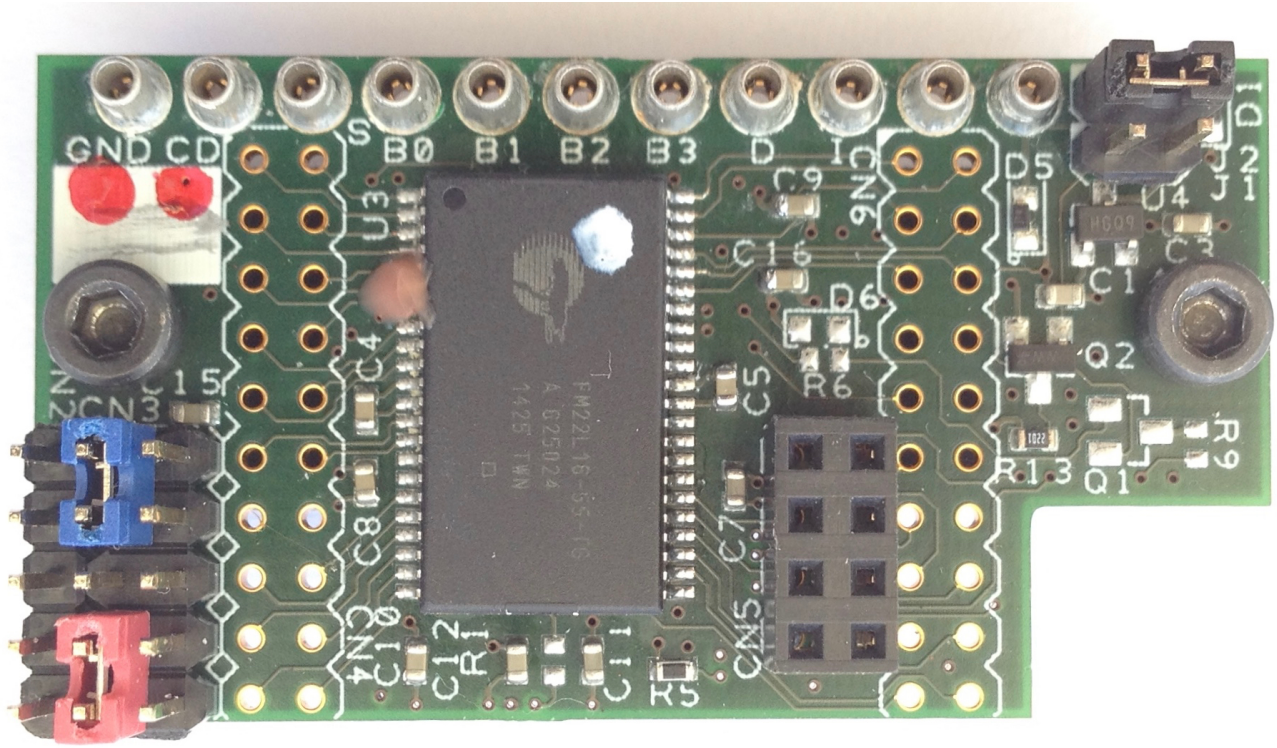
A special mention should go to Dave Frederickson and to Robert Prosperi for the countless hours they spent experimenting, trying things, documenting and helping others using their FRAM71 module.

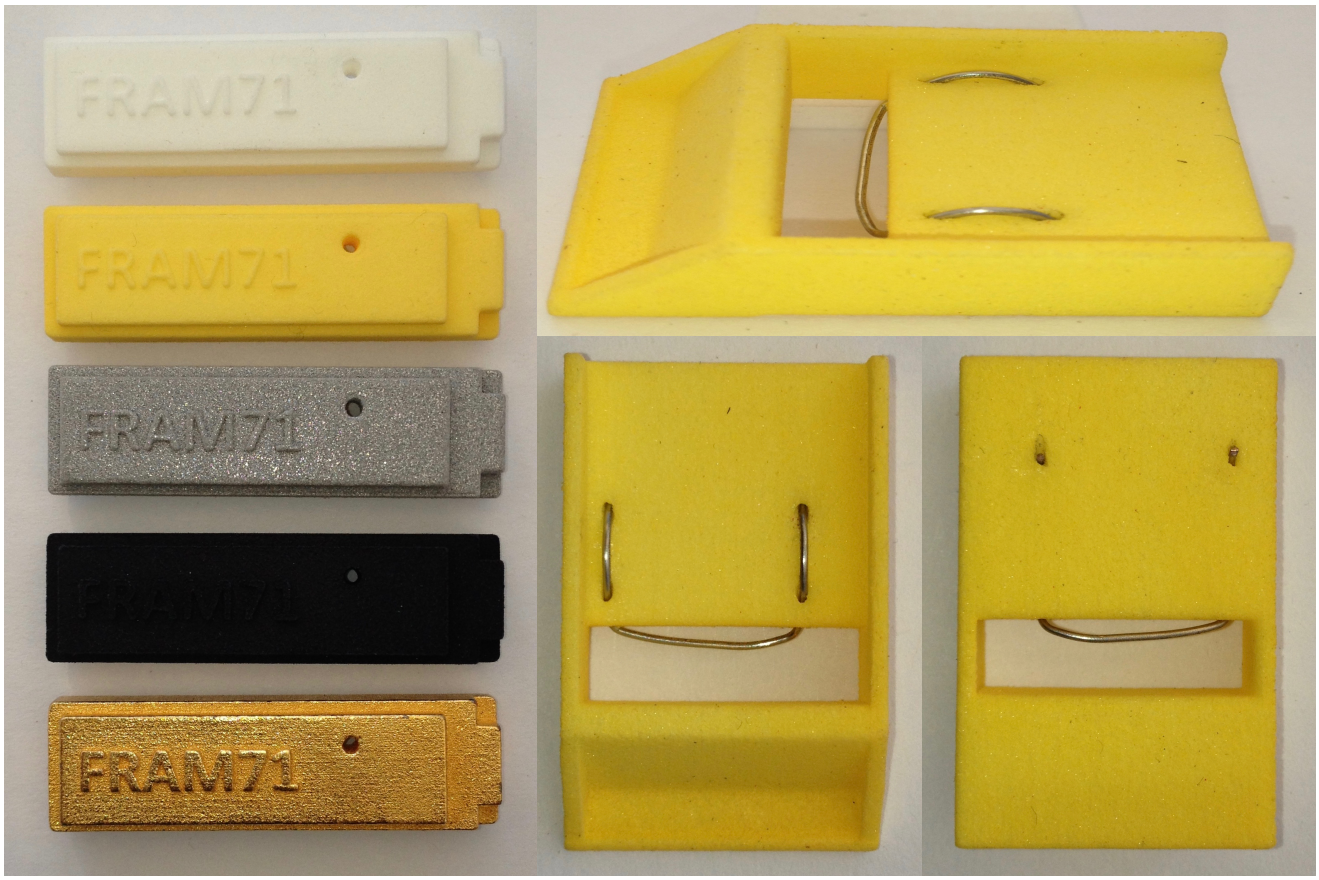
FRAM71 Documentation

Product	Last Update
FRAM71 Home page by Hans Brueggemann	(WEB) 2015-10-04
FRAM71 Manufacturing version B batch pre-order	(WEB) 2016-04-30
FRAM71 User's manual for firmware v5.11 by Hans Brueggemann	(PDF) 2015-09-01
FRAM71 Configuration sheet by Hans Brueggemann	(DOC & PDF) 2015-07-19
FRAM71 Initialization article by Sylvain Côté	(WEB) 2015-10-31
FRAM71 Configuration article by Sylvain Côté	(WEB) 2015-11-03
FRAM71 Tool Kit article by Dave Frederickson	(WEB) 2015-10-02
FRAM71 FlashPro4/5 programming cable	(PDF) 2015-07-05
FRAM71 Firmware v5.11 for hardware v1.03 & v1.04	(ZIP) 2015-10-04
FRAM71 & HP-71B 3D printed accessories by Dave Frederickson	(WEB) 2016-04-30
PIL-Box HP-IL/USB Interface by Jean-François Garnier	(WEB) 2016-04-30
Virtual HP-IL Windows Softwares by Christoph Gießelink	(WEB) 2016-04-30
Virtual HP-IL Python Software (Win/Linux/OSX) by Joachim Siebold	(WEB) 2016-04-30



FRAM71 Internal View (1MB version)

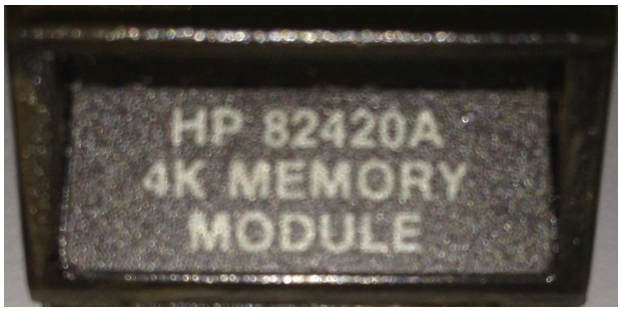




3D Printed FRAM71 Bezel & OE Module (for take over modules)

Front Port Memory Modules

HP-82420A 4KB RAM Module



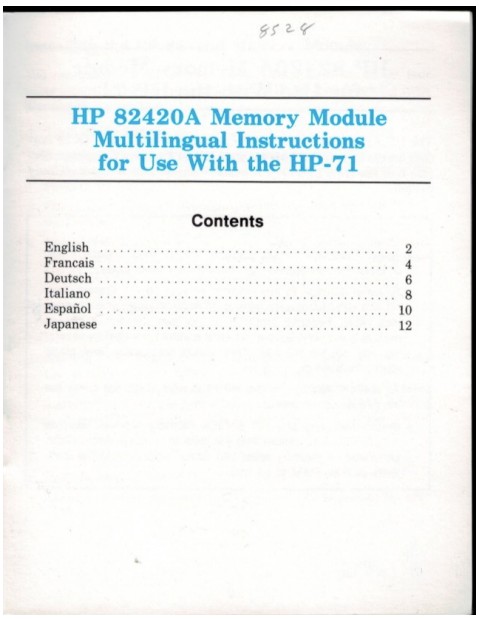
HP-82420A 4KB RAM Module

Owner Manual Introduction

The HP 82420A Memory Module provides an additional 4K of random access memory (RAM) for your HP-71 Portable Computer.

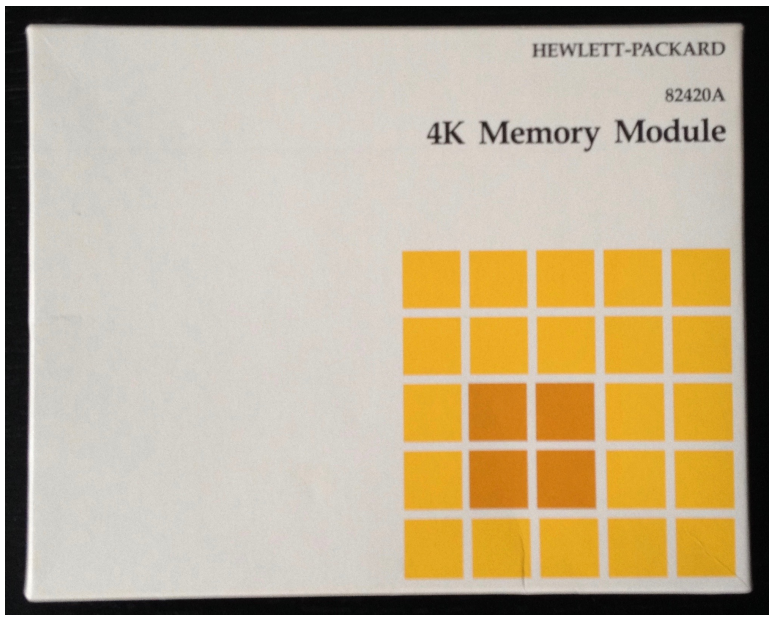
HP-82420A 4KB RAM Memory Module Documentation

Product #	Product Name	Released
HP-82420-90001	Memory Module Multilingual Instr., 1st Ed	
HP-82420-90001 Rev B	Memory Module Multilingual Instr., 2nd Ed (PDF)	1984-02

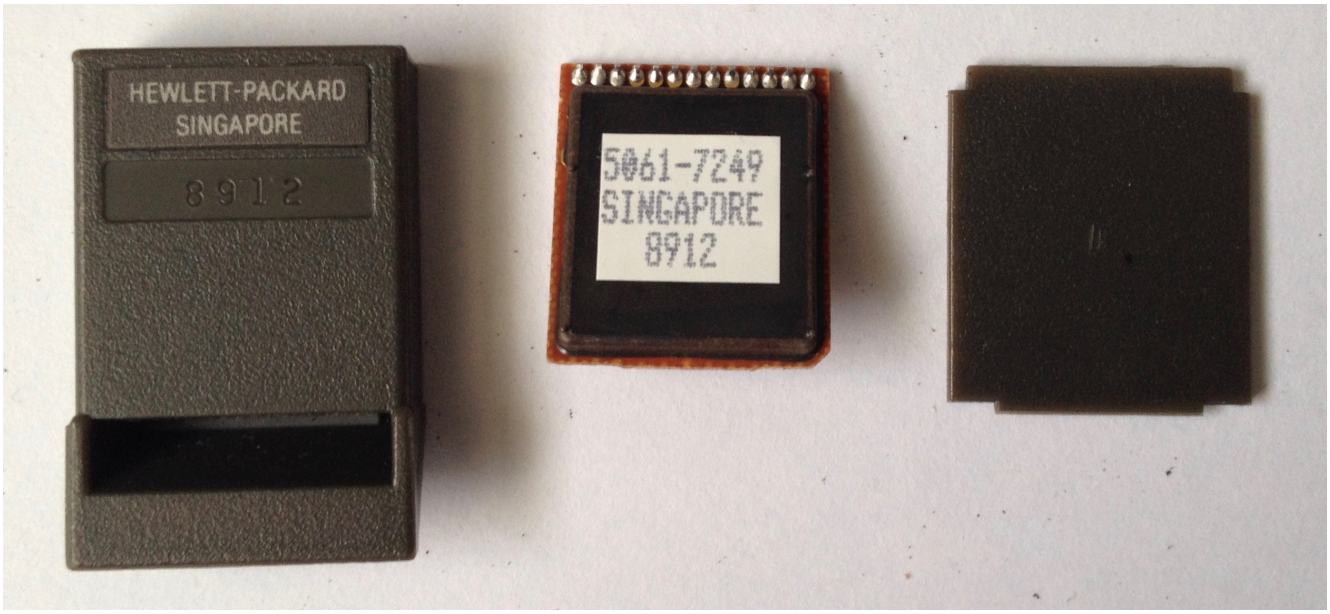

8524

HP 82420A Memory Module
Multilingual Instructions
for Use With the HP-71

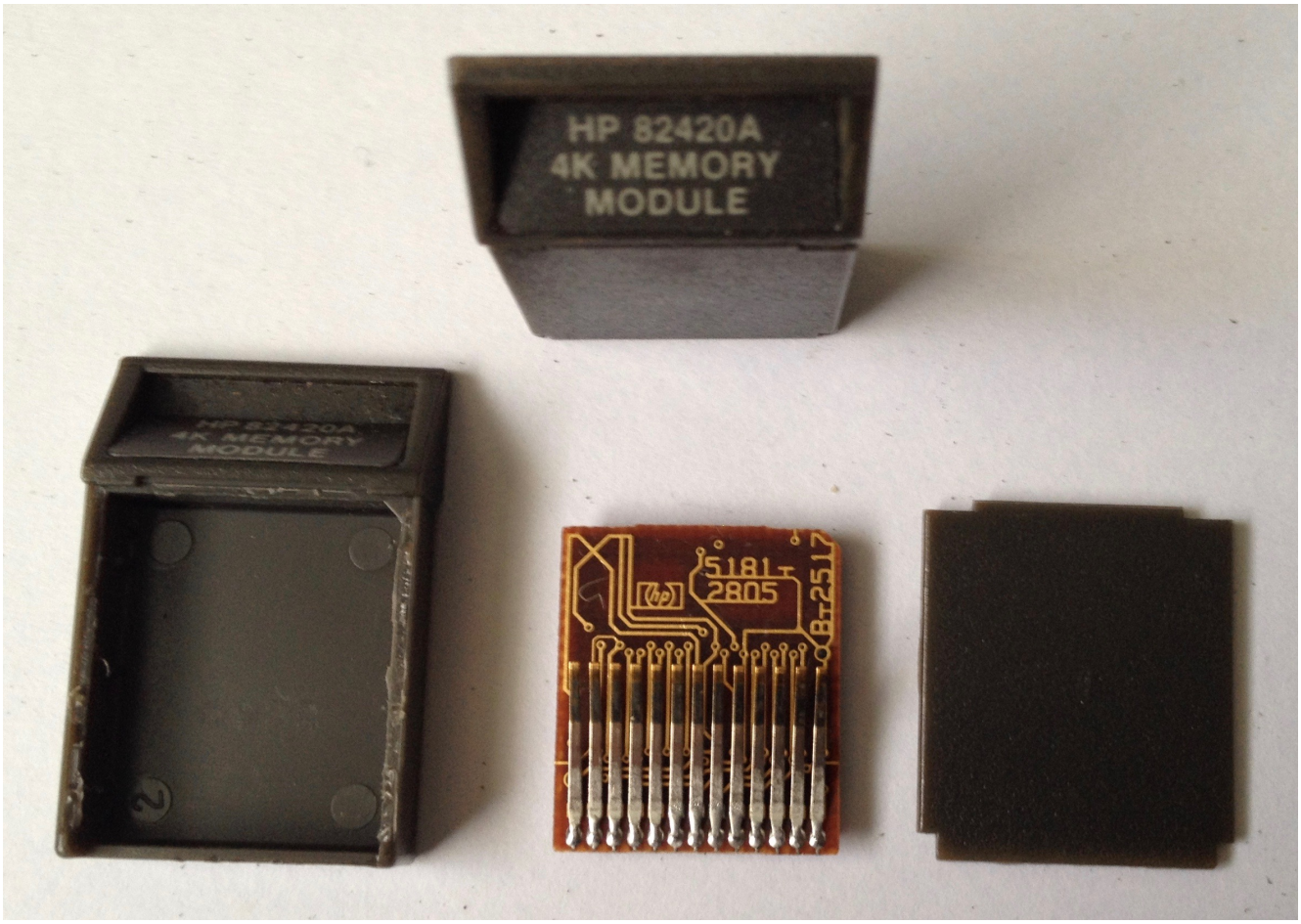
Contents



HP-82420A 4KB RAM Module-> Left: Multilingual Instructions / Right: Box



HP-82420A 4KB RAM Module Internal View 1



HP-82420A 4KB RAM Module Internal View 2

CMT-71-32R 32KB RAM Module

32KB RAM Module

Owner Manual Introduction

When plugged into a front port of the HP-71, each CMT-71-32R Module adds 32K bytes of RAM to the 17.5K bytes of HP-71 internal RAM. Up to 128K bytes of extra RAM can be thus installed in your HP-71. Like the HP-71RAM, the CMT-71 RAM can be used as Main RAM or Independent RAM.

CMT-71-32R : 32KB RAM Memory Module Documentation

Product #	Product Name	Released
CMT-71-32R	32KB RAM Module Instructions (PDF)	1986

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CMT-71-64R 64KB RAM Module

64KB RAM Module

Owner Manual Introduction

When plugged into a front port of the HP-71, each CMT-71-64R Module adds 64K bytes of RAM to the 17.5K bytes of HP-71 internal RAM. Up to 256K bytes of extra RAM can be thus installed in your HP-71. Like the HP-71RAM, the CMT-71 RAM can be used as Main RAM or Independent RAM. The battery in the CMT-71-64R will retain the contents of the module for six months if the module is removed from the HP-71B. While the module is in the HP-71B, it will draw its required power from the HP-71B Batteries.

CMT-71-64R : 64KB RAM Memory Module Documentation

Product #	Product Name	Released
CMT-71-64R	64KB RAM Module Instructions (PDF)	1990

Module with lithium battery -> Left: removed / Right: inserted

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CMT-71-32KE/64KE 32KB/64KB EPROM Modules

CMT-71-32/64KE EPROM Module

Owner Manual Introduction

The CMT-71 EPROM Modules come in two versions:

- CMT-71-32KE with 32K bytes of CMOS EPROM
- CMT-71-64KE with 64K bytes of CMOS EPROM

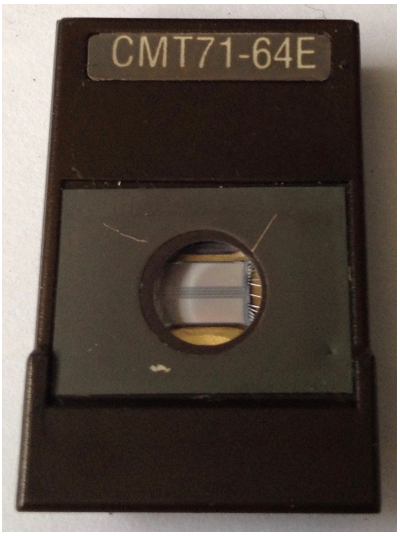
Up to four CMT-71 EPROM Modules may be inserted into the front ports of the HP-71. The CMT-71-32KE is organized as one 32K byte block of memory, while the CMT-71-64KE is organized as one 64K byte block of memory. Typically, the CMT-71 EPROM Modules are used to store custom application programs. You can run programs stored in these modules as well as read data from them. The CMT-71 EPROM Modules retain their contents when removed form the HP-71.

To see the amount of external EPROM provided by your CMT-71 EPROM Module, follow the instructions given in Section 1 to plug the module into a front port of the HP-71, then execute SHOW PORT. The port number, the memory capacity in bytes and the memory type will be displayed for each port containing Independent RAM or plug-in ROM. The CMT-71 EPROM has a memory type of "2".

Inserting a blank CMT-71 EPROM Module into the HP-71 will not disrupt its operations.

CMT 32K/64K EPROM Memory Modules Documentation

Product #	Product Name	Released
CMT-71-32KE	32KB/64KB EPROM Module Instructions (PDF)	1986
CMT-71-64KE	32KB/64KB EPROM Module Instructions (PDF)	1986



Left: 32KB EPROM Module / Right: 64KB EPROM Module

CMT Tools Image Distribution File: (ZIP)

Filename	Description
CMT_CMTTOOLS_ROM.BIN	Image for Win71/DOS/Win
> CLONE BASIC 439	
> EPRMSTWR LEX 498	[VER$ EPRM:C]
> EPRMCOPY LEX 1727	[VER$ ECPY:F]
> TEST32KE LEX 111	[VER$ n/a]
> TEST64KE LEX 117	[VER$ n/a]
CMT_CMTTOOLS_ROM.LIF	ILPER: LIF Mass Storage File
> ROMCOPY LEX 1727	[VER$ RCPY:E]
> CMTTOOLS ROM 16384	ROMCOPY CMTTOOLS:TAPE(#) TO :PORT(#)

CMT-71-P01 EPROM Programmer

CMT 32K/64K EPROM Programmer

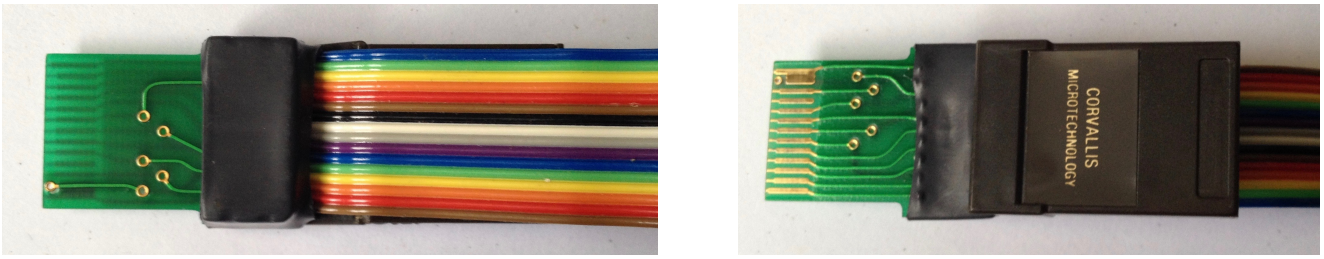
Owner Manual Introduction

The CMT 71-P01 EPROM Programmer is a completely self-contained device that allows you to program CMT-71-32KE EPROMS or CMT-71-64KE EPROMs. There is no requirement for special socket adapters or personality modules. The programmer contains 64K bytes of CMOS RAM that is used to store the image that will be programmed into the EPROM modules. The programmer connects to the HP-71 through a front port. The programmer's RAM is accessible through the commands in the HP-71. To use the programmer in the 64K mode, a FORTH/ASSM ROM needs to be inserted into another HP-71 port. Additional software to help build the EPROM image is supplied on the CMT-71 EPROMs along with self-test programs. The EPROMs will need to be erased with ultraviolet light before programming. It is therefore highly recommended that you store these programs and functions on another mass storage medium so they will be available for use when needed. This manual contains the instructions necessary for operating the CMT-71-P01 programmer. Generally, you will not have to understand the internal operation of the HP-71 operating system to create custom EPROMs. If you would like to know more about the HP-71 operating system and its file structures, consult the HP-71 software IDS published by HP. The

programmer can be inserted into ports 2, 3, or 4. The programmer will not function properly in Port (1) owing to different system control lines available. For simplicity, this manual assumes that the programmer is plugged into Port(4). An intelligent programming algorithm is used to program both the 32K and 64K EPROMs. Typically the length of time to burn a 32K EPROM is less than 5 minutes. The 64K EPROM will require generally less than 15 minutes.

CMT EPROM Programmer Documentation

Product #	Product Name	Released
CMT-71-P01	EPROM Programmer Instruction Manual (PDF)	1986-09



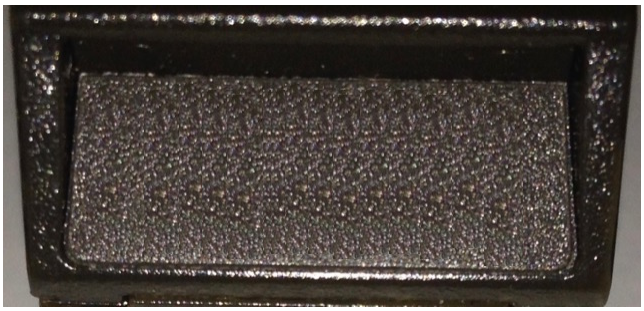
CMT-71-P01 71B connector-> Left:top view / Right: bottom view

CMT Tools Image Distribution File: (ZIP)

Filename	Description
`CMT_CMTTOOLS_ROM.BIN`	EMU71: directly map as ROM to port #
`> CLONE BASIC 439`	
`> EPRMSTWR LEX 498`	[VER$ EPRM:C]
`> EPRMCOPY LEX 1727`	[VER$ ECPY:F]
`> TEST32KE LEX 111`	[VER$ n/a]
`> TEST64KE LEX 117`	[VER$ n/a]
`CMT_CMTTOOLS_ROM.LIF`	ILPER: LIF Mass Storage File
`> ROMCOPY LEX 1727`	ROM copy utility [VER$ RCPY:E]
`> CMTTOOLS ROM 16384`	Usage: ROMCOPY CMTTOOLS:TAPE(#) TO :PORT(#)

Applications in ROM Module

HP-5061-7246 Diagnostic ROM



HP-5061-7246 Diagnostic Module

Service Manual Introduction

The diagnostic ROM is a preprogrammed ROM (read only memory) module designed to be inserted into port number one (the left front port) of the HP-71. It is designed to take control of the HP-71 by disabling the system ROM. It will detect most hardware failures by exercising all of the ICs and the bus. It can not, however, determine if software is operating properly except when certain software responses are expected in a particular test and are not received.

Special Acknowledgment

The 16KB diagnostic ROM is a take over module that take control of the machine as soon as its plugged into the computer. Because of its nature, its not an ROM easy to clone, but thanks to Jean-François Garnier, who has the skills, took the time to do it. He created a 64KB image to make it easier for emulators its Emu71/DOS to run it.

Diagnostic ROM Key Assignments: (will not execute in 'AUTO' mode)*

Key(s)	Description
`[ON]`	On/Off
`[H]`	Test Directory (Help List)
`[A]`	Auto Repeat Testing
`[A] [C]`	Test Status Listing
`[B]`	Battery Indicator Check
`[M]`	Directed Multiple Testing
`[0]`	Self-Check Rom Test

Key(s)	Description
[1]	CPU Test
[2]	Mainframe RAM Test
[3]	Plug-in ROM Test
[4]	Plug-in RAM Test (soft configured)
[5]	Display Test
[6]	Keyboard Test (*)
[7]	Key-Bounce Test (*)
[8]	Sleep Test (*)
[9]	Electrostatic Discharge (ESD) Test (*)
[*]	Card Reader Test
[/]	HPIL Module Test
[+] [+]	Configure
[-] [-]	Configure Report
[Q] [Q]	Debugger

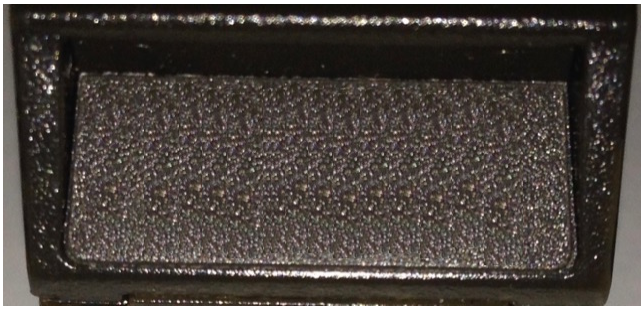
Diagnostic ROM Documentation

Product #	Product Name	Release
HP-00071-90055	HP-71 Service Manual	1983-12

HP-5061-7246 Diagnostic ROM Image Distribution File (ZIP)

Filename	Description
HP-5061-7246_DIAGNOSTIC_ROM.BIN	Image for Emu71/DOS/Win
HP-5061-7246_DIAGNOSTIC_ROM.LIF	ILPER: LIF Mass Storage File / FRAM71
> DIAG71 ASCII 135K	ROM Memory (00000-0FFFF) Dump
> DIAG71L BASIC 158	ROM Memory (00000-0FFFF) Dump Loader

HP-5953-5622 Demonstration ROM



HP-5953-5622 Demonstration Module

HP-5953-5622 Demonstration ROM Distribution File (ZIP)

Filename			Description
HP-5953-5622_DEMONSTRATION_ROM.BIN			Image for Emu71/DOS/Win
> DEMOLX71	LEX	967	[VER$ DEMO:A]
> DEMO	BASIC	2086	
> DEMOSUBS	BASIC	3144	
> DEMODATA	DATA	8120	
HP-5953-5622_DEMONSTRATION_ROM.LIF			ILPER: LIF Mass Storage File
> ROMCOPY	LEX	1727	[VER$ RCPY:E]
> DEMO71	ROM	16384	ROMCOPY DEMO71:TAPE(#) TO :PORT(#)

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HP-82441A FORTH/Assembler ROM

HP-82441A FORTH/Assembler Module

Owner Manual Introduction

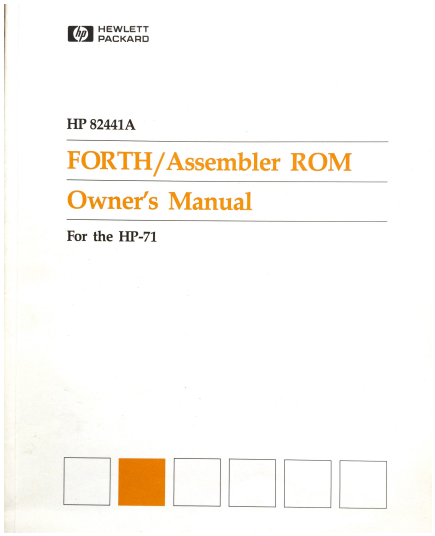
The FORTH/Assembler ROM provides an extended software development environment for the HP-71.

It contains the following major features:

- A FORTH operating system. This system allows you to write application programs for the HP-71 in FORTH, with a significant advantage in speed over programs written in BASIC. The FORTH operating system coexists with the native HP-71 BASIC operating system, so you can switch between the BASIC and FORTH environments without program or data loss and without having to reconfigure the HP-71. Programs written in either language can execute routines written in the other language. HP-71 FORTH includes string and floating-point operations.
- An assembler. This assembler, written in FORTH, provides nearly the same command set as the assembler used to develop the HP-71 operating system. You can use it to create HP-71 binary files, LEX files to extend the BASIC language, or FORTH primitives.
- A text editor. The editor enables you to create and edit text files, which can be used as source tiles for BASIC, FORTH, or assembly language programs, or for many purposes unrelated to programming.
- Remote keyboard capability. By using the BASIC keyword KEYBOARD IS (along with the keyword DISPLAY IS provided in the HP 82401A HP-IL Interface), you can use a terminal as an external keyboard and display.

HP-82441A FORTH/Assembler ROM Documentation

Product #	Product Name	Release
HP-82441-90001	FORTH/Assembler ROM Owner's Manual	1984-01



HP-82441A FORTH/Assembler Owner's Manual

Note

This product has been superseded by the HP-82478A FORTH/Assembler ROM with Debugger.

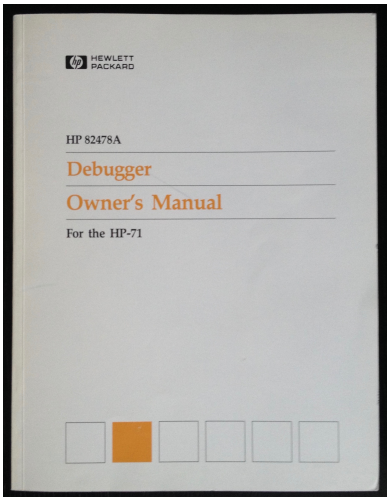
HP-82478-60001 Debugger

Owner Manual Introduction

The debugger offers programmers the ability to simulate assembly language on the HP-71B handheld computer. If your programming experience is in BASIC, you may be drawn to assembly language by its promise of greater speed and flexibility. Software development at this level requires the same approach to inspection and proof - the tempering of logic often referred to as the debugging stage. In assembly language this process is much more focused since execution flow and register usage is at the lowest level, in the Central Processing Unit (CPU), where the built-in protections afforded by an operating system are not available. In many cases the best method to certify programming logic is by direct testing. You need a tool which allows you to follow execution and register contents at each step - a debugger. In tandem with the FORTH/Assembler ROM or with PC-based Saturn Assemblers, the debugger provides an accurate, affordable, and portable tool for assembly language development on the HP- 71. Its many options allow you to customize its operation, even midway through a debugging session. Its modularity is designed to allow the addition of more features through assembly language enhancements.

HP-82478-60001 Debugger Documentation

Product #	Product Name	Release
HP-82478-90001	Debugger Owner's Manual	1986-07



HP-82478-60001 Debugger Owner's Manual

Note

This product was a temporary upgrade to the HP-82441A FORTH/Assembler ROM to bring it to the same level has the HP-82478A FORTH/Assembler ROM with Debugger.

This product has been superseded by the HP-82478A FORTH/Assembler ROM with Debugger.

HP-82478A FORTH/Assembler ROM with Debugger

HP-82478A FORTH/Assembler Module

Owner Manual Introduction

The FORTH/Assembler ROM provides an extended software development environment for the HP-71.

It contains the following major features:

- A FORTH operating system. This system allows you to write application programs for the HP-71 in FORTH, with a significant advantage in speed over programs written in BASIC. The FORTH operating system coexists with the native HP-71 BASIC operating system, so you can switch between the BASIC and FORTH environments without program or data loss and without having to reconfigure the HP-71. Programs written in either language can execute routines written in the other language. HP-71 FORTH includes string and floating-point operations.
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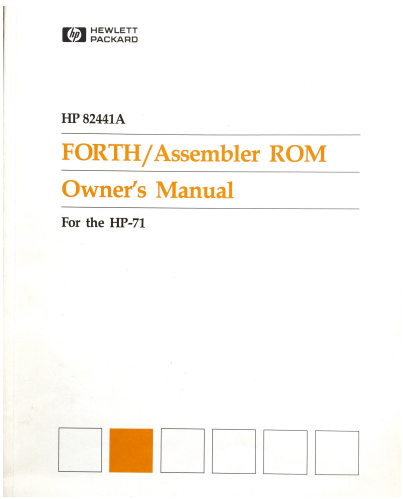
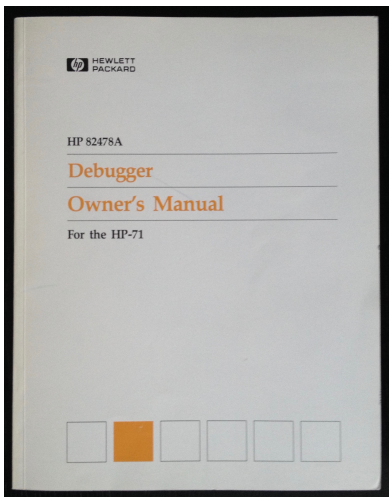
of logic often referred to as the debugging stage. In assembly language this process is much more focused since execution flow and register usage is at the lowest level, in the Central Processing Unit (CPU), where the built-in protections afforded by an operating system are not available. In many cases the best method to certify programming logic is by direct testing. You need a tool which allows you to follow execution and register contents at each step - a debugger. In tandem with the FORTH/Assembler ROM or with PC-based Saturn Assemblers, the debugger provides an accurate, affordable, and portable tool for assembly language development on the HP- 71. Its many options allow you to customize its operation, even midway through a debugging session. Its modularity is designed to allow the addition of more features through assembly language enhancements.

HP-82478A FORTH/Assembler ROM with Debugger Documentation

Product #	Product Name	Release
HP-82441-90001	FORTH/Assembler ROM Owner's Manual	1984-01
HP-82478-90001	Debugger Owner's Manual	1986-07
CHHU NOMAS	IDS & IMS HP-71 FORTH/Assembler ROM	





Left: FORTH/Assembler Owner's Manual / Right: Debugger Owner's Manual

HP-82478A FORTH/Assembler ROM with Debugger Distribution File (ZIP)

Filename	Description
HP-82478A_FORTH-ASSEMBLER_HRD.BIN	Image for Emu71/DOS/Win
HP-82478A_FORTH-ASSEMBLER_HRD-FIX.BIN	Image includes JFG fixes
HP-82478A_FORTH-ASSEMBLER_ROM.BIN	Image for Emu71/DOS/Win
> FORTHROM P LEX 3445	[VER$ FTH:1A]
> EDTEXT BASIC 6790	
> EDKEYS KEY 54	
> EDLEX LEX 2557	[VER$ EDT:A]
> DBGLEX LEX 141	[VER$ DBG:A]
> KEYBOARD LEX 1277	[VER$ KBD:B]
HP-82478A_FORTH-ASSEMBLER_ROM.LIF	ILPER: LIF Mass Storage File / FRAM71
> ROMCOPY LEX 1727	[VER$ RCPY:E]
> FORTHROM ROM 16384	ROMCOPY FORTHROM:TAPE(#) TO :PORT(#)
> FORTHHRD TEXT 67840	ROM Memory (E0000-EFFFF) Dump
> FORTHLDR BASIC 160	ROM Memory (E0000-EFFFF) Dump Loader
HP-82478A_DEBUGGER_MEDIA.LIF	ILPER: LIF Mass Storage File
> DBGMAINA LEX 705	Debugger keywords [VER$ DBG:A]
> DBGLEX1A LEX 4058	Debugger runtime #1 core
> DBGLEX2A LEX 4066	Debugger runtime #2 core
> DBGLEX3A LEX 2881	Debugger runtime #3 optional

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HP-82479A Data Acquisition Pac

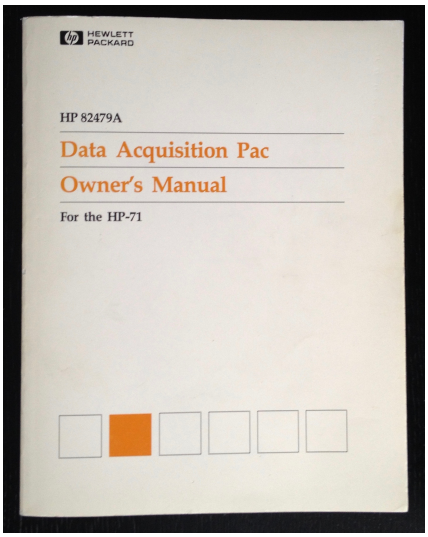
HP-82479A Data Acquisition Module

Owner Manual Introduction

The HP 82479A Data Acquisition Pac, together with the HP-71B Handheld Computer and the HP 3421A Data Acquisition/Control Unit, provide a powerful, low-cost data acquisition system. These devices may be used in the laboratory, the field, or on the production line to gather data, control devices, or report on equipment status. When combined with devices such as the ThinkJet printer or an 80-column video interface, the data acquisition system provides system capabilities equivalent to larger, more expensive systems at a fraction of the cost. Also, in space-critical environments the HP-71 takes less space than the keyboard of a standard personal computer, leaving room for production or test equipment.

HP-82479A Data Acquisition Pac Documentation

Product #	Product Name	Release
HP-82479-90003	Data Acquisition Pac Owner's Manual	1985-11
HP-82479-12001	Data Acquisition Pac Supplemental Disk	
OVERLAY	Data Acquisition Pac Overlay (IMG)	



HP-82479A Data Acquisition Pac Owner's Manual

HP-82479A Data Acquisition Pac Overlay

HP-82479A Data Acquisition Pac Distribution File (ZIP)

Filename			Description
`HP-82479A_DATA-ACQUISITION_ROM.BIN`			Image for Emu71/DOS/Win
`> LEX3421`	`LEX`	`7520`	[VER$ INST:A]
`> BIN3421`	`BIN`	`356`	
`> TCONV`	`LEX`	`243`	[VER$ TCNV:A]
`> FMTLEX`	`LEX`	`597`	[VER$ FMT:A]
`> KEYSLEEP`	`LEX`	`62`	[VER$ n/a]

Filename			Description
> MERGEBUF	BASIC	543	
> UTILITY	BASIC	3644	
> STATUS	BASIC	3489	
> FRONT	BASIC	2637	
> CK1	SDATA	8	
> STRIP	BASIC	8542	
> MONITOR	BASIC	11925	
> CK2	SDATA	8	
> SETUP	BASIC	9673	
> LOG	BASIC	6544	
> REPORT	BASIC	5739	
> TRANSFER	BASIC	2349	
> VERIFY	BASIC	964	
HP-82479A_DATA-ACQUISITION_ROM.LIF			ILPER: LIF Mass Storage File
> ROMCOPY	LEX	1727	[VER$ RCPY:E]
> DATAACQ	ROM	65536	ROMCOPY DATAACQ:TAPE(#) TO :PORT(#)
HP-82479A_SUPP-DISK_MEDIA.LIF			ILPER: LIF Mass Storage File
> XFER200	BASIC		Note: file is currently missing from media
> FROM71	BASIC		Note: file is currently missing from media
> MSDOSXFR	BASIC	7263	
> FATLEX	LEX	955	[VER$ FAT:B]
> MON2392	BASIC	337	
> PRT82905	BASIC	152	
HP-82479A_ROM-MEDIA-MERGED.LIF			ILPER: ROM and MEDIA merged

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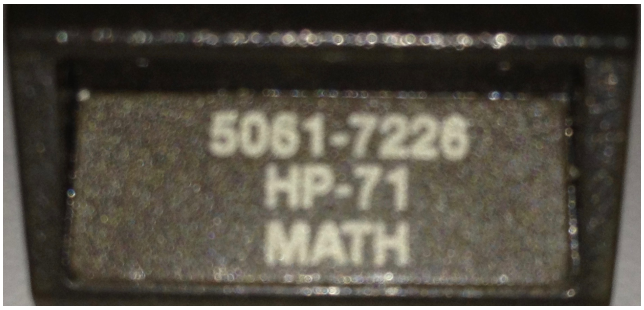
HP-82480A Math Pac



HP-82480A Math Module

Owner Manual Introduction

The Math Pac is a set of powerful tools for solving a wide range of mathematical, scientific, and engineering problems. These tools are provided in the convenient and flexible form of BASIC keywords. Once the math module is plugged into the HP-71 Computer, these keywords are instantly available: no program to load, no waiting. You can use these keywords in any program as often as needed; you avoid the restrictions that would apply to program calls and save the memory that subroutines would require.

The Math Pac adds the following capabilities to the HP-71:

- Complex variables and arrays.
- Advanced real- and complex-valued functions.
- Real and complex array operations.
- Solutions to systems of equations.
- Roots of polynomial equations and user-defined functions.
- Numerical integration.
- Finite Fourier transform.

New/Enhanced BASIC Keywords

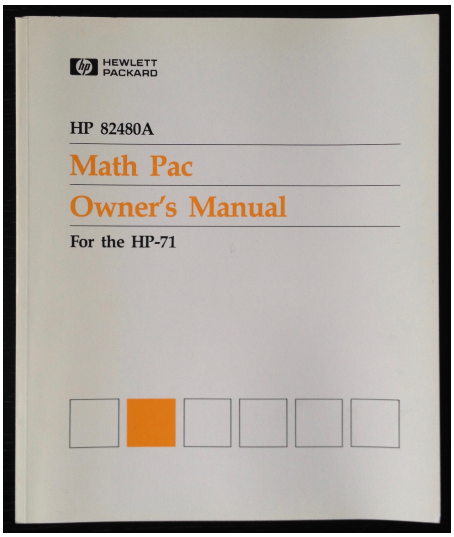
Keyword	Page	Description
ABS	41	Absolute value of a complex number.
ACOSH	28	Inverse hyperbolic cosine.
ARG	41	Argument of a complex number.
ASINH	28	Inverse hyperbolic sine.
ATANH	28	Inverse hyperbolic tangent.
BSTR$	16	Decimal to binary/octal/hexadecimal conversion.
BVAL	15	Binary/octal/hexadecimal to decimal conversion.

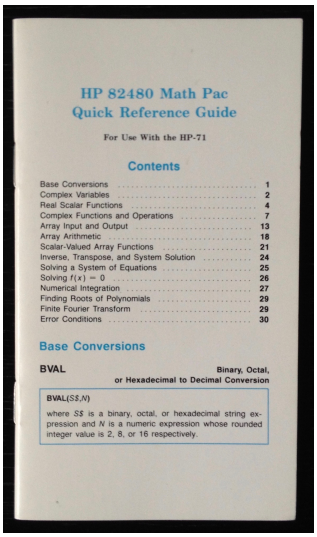
C(,)	22	Complex IMAGE field.
CNORM	70	One-norm (column norm) of an array.
COMPLEX	19	Complex variable creation.
COMPLEX SHORT	19	Complex short variable creation.
(,)	21	Conversion, real to complex.
CONJ	42	Complex conjugate.
COS	38	Complex cosine.
COSH	27	Hyperbolic cosine.
COSH	39	Complex hyperbolic cosine.
DET	69	Determinant of a matrix.
DET (no operand)	69	Determinant of last real matrix used as operand of INV or first operand of SYS.
DETL	69	Same as DET (no operand).
DOT	71	Dot (inner) product.
EXP	37	Complex exponential (e^Z)
FGUESS	90	Second-best guess to value returned by last FNROOT.
FNORM	70	Frobenius norm.
FNROOT	89	Rootfinding for functions.
FVALUE	90	Functional value of last FNROOT.
FVAR	90	Variable to solve for in FNROOT.
GAMMA	28	Gamma function.
IBOUND	103	Uncertainty of last INTEGRAL.
IMPT	21	Imaginary part of complex number.
INTEGRAL	101	Integration of functions.
IROUND	30	Integer round.
IVALUE	102	Current approximation to an INTEGRAL.
IVAR	102	Variable of integration in INTEGRAL.
LBND	72	Array subscript lower bound.
LBOUND	72	Same as LBND.
LOG	37	Complex natural logarithm.
LOG2	29	Log base 2.
MAT DISP	54	Array display (unformatted).
MAT DISP USING	55	Array display (formatted).
MAT INPUT	53	Interactive array input.
MAT...CON	52	Constant array with redimensioning.
MAT...IDN	52	Identity matrix with redimensioning.
MAT...ZER	53	Zero array with redimensioning.
MAT...ZERO	53	Same as MAT...ZER.
MAT...PRINT	55	Array printing (unformatted).
MAT PRINT USING	56	Array printing (formatted).
MAT =	51	Array copying (simple assignment).
MAT =-	63	Array negation.
MAT =...+	64	Array addition.
MAT =...-	64	Array subtraction.
MAT =...*	65	Array multiplication.
MAT =()	52	Scalar to array assignment (numeric expression assignment).
MAT =()*	65	Scalar multiplication.
MAT = FOUR	135	Finite Fourier Transform.

MAT = INV	77	Matrix inversion.
MAT = PROOT	120	Polynomial rootfinding.
MAT = SYS	79	System solution.
MAT = TRN	77	Transpose or conjugate transpose.
MAT = TRN... *	66	Transpose or conjugate transpose multiply.
NAN$	30	NaN diagnostic function.
NEIGHBOR	30	Successor/predecessor function.
POLAR	40	Rectangular to polar conversion.
PROJ	42	Conversion of complex infinities to projective infinities.
RECT	40	Polar to rectangular conversion.
REPT	21	Real part of complex number.
RNORM	70	Infinity (row) norm of an array.
SCALE10	29	Exponent scaling function.
SGN	41	Complex unit vector.
SIN	38	Complex sine.
SINH	27	Hyperbolic sine.
SINH	39	Complex hyperbolic sine.
SQR	40	Complex square root.
SQRT	40	Same as SQR.
TAN	38	Complex tangent.
TANH	27	Hyperbolic tangent.
TANH	39	Complex hyperbolic tangent.
TYPE	31	Data type function.
UBND	71	Array subscript upper bound.
UBOUND	71	Same as UBND.
+	35	Complex addition.
-	35	Complex unary minus.
-	36	Complex subtraction.
*	36	Complex multiplication.
/	36	Complex division.
^	36	Complex exponentiation (Z^W)
=, <, >, #, ?	43	Complex relational operators.

HP-82480A Math Pac Documentation

Product #	Product Name	Release
HP-82480-90001	Math Pac Owner's Manual, 1st Ed	1984-03
HP-82480-90015	Math Pac Owner's Manual, Update	1984-08
HP-82480-90016	Math Pac Owner's Manual, 2nd Ed	1984-09
HP-82480-90002	Math Pac Quick Reference Manual	1984-03



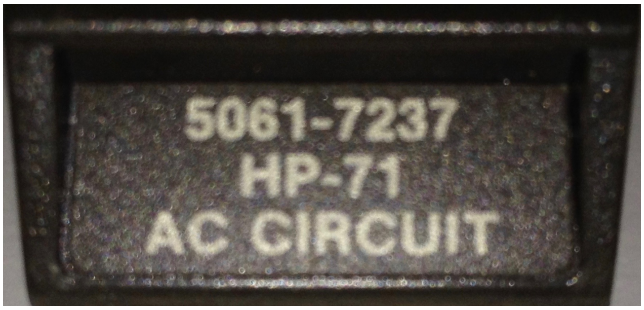


HP-82480A Math Pac -> Left: Owner's Manual / Right: Quick Ref. Guide

HP-82480A Math Pac Distribution File (ZIP)

Filename	Description
HP-82480A_MATH-P_ROM.BIN	Image for Emu71/DOS/Win (Private ROM)
> MATHLEX E LEX 32745	[VER$ MATH:1A]
HP-82480A_MATH_ROM.BIN	Image for Emu71/DOS/Win
> MATHLEX LEX 27682	[VER$ MATH:1A]
HP-82480A_MATH_ROM.LIF	ILPER: LIF Mass Storage File
> ROMCOPY LEX 1727	[VER$ RCPY:E]
> MATHLEX LEX 27682	COPY MATHLEX:TAPE(#) TO :PORT(#)
> MATHROM ROM 32768	ROMCOPY MATHROM:TAPE(#) TO :PORT(#)
> MATHROMP ROM 32768	ROMCOPY MATHROMP:TAPE(#) TO :PORT(#)

HP-82481A AC Steady-State Circuit Analysis Pac



HP-82481A AC Steady-State Circuit Analysis Module

Owner Manual Introduction

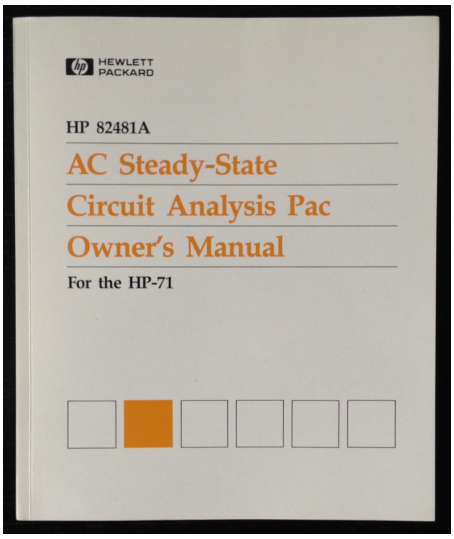
The HP AC Steady-State Circuit Analysis Pac contains a general purpose Computer Network Analysis Program called CNAP. The building blocks that are available to construct circuit models are resistors, capacitors, inductors, voltage-controlled current sources (VCCS), lossless transmission line segments, open transmission line stubs, and shorted transmission line stub. The program can output the complex ac voltage at any node in the network. Optionally, group delay is calculated. CNAP provides rapid ac study-state analysis of virtually any type of electronic network.

Numerous use include:

- Active filter simulation.
- Analysis of LC filters containing transformer and coupled inductors.
- General transistor amplifier circuit analysis.
- Operational amplifier circuit analysis.
- High-frequency amplifier analysis (including transmission line segments).

HP-82481A AC Steady-State Circuit Analysis Documentation

Product #	Product Name	Release
HP-82481-90001	AC Steady-State Circuit Analysis Pac Owner's Manual	1983-12



HP-82481A AC Steady-State Circuit Analysis Pac Owner's Manual

HP-82481A AC Circuit Pac Distribution File (ZIP)

Filename	Description
`HP-82481A_AC-CIRCUIT_ROM.BIN`	Image for Emu71/DOS/Win
`> Circuit LEX 43`	[VER$ CIRC:A]
`> KEYWAIT LEX 55`	[VER$ n/a]
`> CNAP BASIC 9887`	
`> CNAPOUT BASIC 946`	
`> CNAPHEAD BASIC 261`	
`HP-82481A_AC-CIRCUIT_ROM.LIF`	ILPER: LIF Mass Storage File
`> ROMCOPY LEX 1727`	[VER$ RCPY:E]
`> CIRCUIT ROM 16384`	ROMCOPY CIRCUIT:TAPE(#) TO :PORT(#)

HP-82482A Finance Pac

HP-82482A Finance Module

Owner Manual Introduction

The HP-71 Finance Pac programs have been designed to easily perform the functions of a powerful financial calculator while offering the computer advantages of continuous memory, file creation and storage, and the potential use of peripherals. One program, the time value of money program (TVM), solves a wide range of problems for any person who works with financial contracts of any type: borrowers, lenders, lessors, lessees, accountants, real estate brokers, automobile dealers, and investors, to name a few.

Here are some of the things you can do with the program:

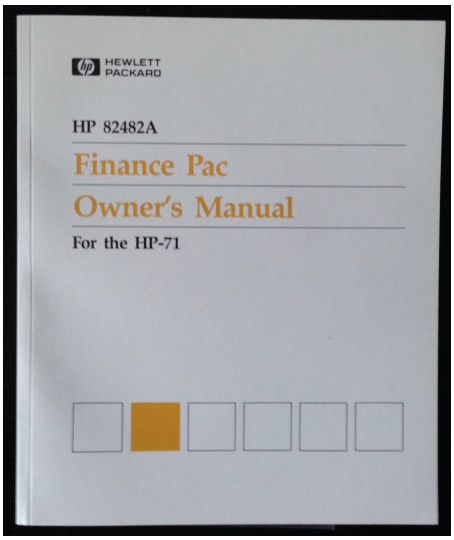
- Solve for the number of periods, the interest rate, the present value, the payment amount, or the future value of a uniform series of payments.
- Calculate an amortization schedule of a loan.
- Enter an uneven series of cash flows from the keyboard or from data files in memory. The cash flows may be grouped or ungrouped.
- Review or edit an uneven cash flow series.
- Calculate the internal rate of return (IRR) or the net present value (NPV) of an uneven cash flow series.
- Store an uneven cash flow series as a data file in memory.

The other Finance Pac program, the depreciation program (DEP), enables you to calculate, display, print, and store depreciation schedules in memory. You can choose from five different methods to calculate depreciation.

HP-82482A Finance Pac Documentation

Product #	Product Name	Release
HP-82482-90001	Finance Pac Owner's Manual	1983-12

Product #	Product Name	Release
OVERLAY	Finance Pac Overlay (IMG)	



HP-82482A Finance Pac Owner's Manual

HP-82482A Finance Pac Overlay

HP-82482A Finance Pac Distribution File (ZIP)

Filename	Description
HP-82482A_FINANCE_ROM.BIN	Image for Emu71/DOS/Win
> Finance LEX 42	[VER$ FIN:A]
> TVMKEYZ KEY 132	
> TVMHELP TEXT 1536	
> TVM BASIC 10378	
> DEP BASIC 3474	
> KEYWAIT LEX 55	[VER$ n/a]
HP-82482A_FINANCE_ROM.LIF	ILPER: LIF Mass Storage File
> ROMCOPY LEX 1727	[VER$ RCPY:E]
> FINANCE ROM 16384	ROMCOPY FINANCE:TAPE(#) TO :PORT(#)

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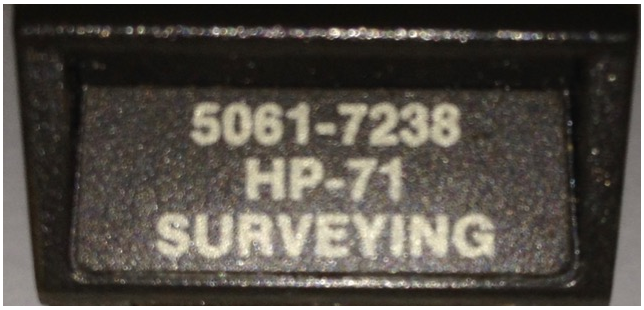
HP-82483A Surveying Pac



HP-82483A Surveying Module

Owner Manual Introduction

The Surveying Pac is a tool to aid the engineer and surveyor in solving many of the common surveying problems. Because it is one large integrated program, and not merely a collection of individual routines, the Surveying Pac exhibits power beyond what you may expect.

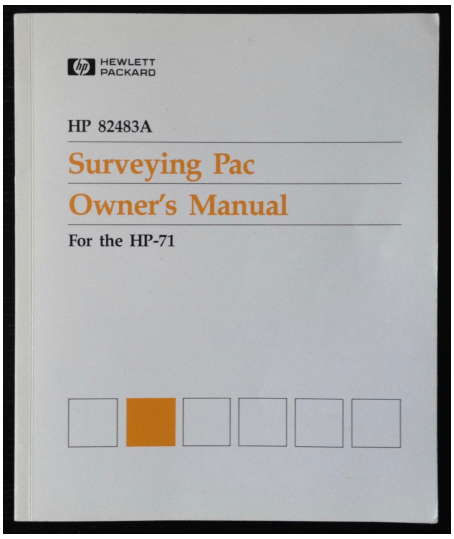
It simply and easily handles all the calculations involved in:

- Traversing.
- Inversing.
- Curve layout.
- Radial staking.

Its unique data entry system allows inputs to be made in a variety of ways: by using bearings, north and south azimuths, angles left ot right, and horizontal deflections left or right. You can choose your input modes regardless of the mode of output you desire. If entries are unknown, the program will ask other questions until enough is known about the situation for an answer to be computed.

HP-82483A Surveying Documentation

Product #	Product Name	Release
HP-82483-90001	Surveying Pac Owner's Manual	1983-12

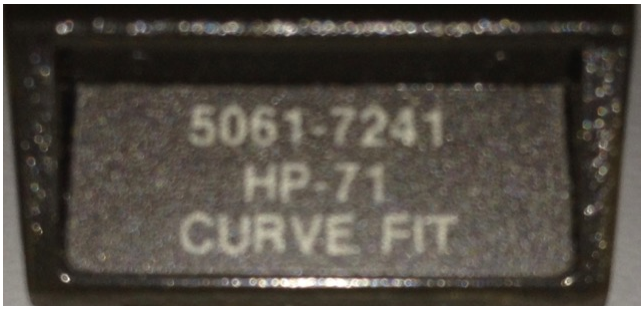


HP-82483A Surveying Pac Owner's Manual

HP-82483A Surveying Pac Distribution File (ZIP)

Filename	Description
`HP-82483A_SURVEYING_ROM.BIN`	Image for Emu71/DOS/Win
`> SURVEY BASIC 20`	
`> SURVEY71 BASIC 15847`	
`> SURV3 BASIC 56`	
`> SurveyV LEX 43`	[VER$ SURV:A]
`> KEYWAIT LEX 55`	[VER$ n/a]
`HP-82483A_SURVEYING_ROM.LIF`	ILPER: LIF Mass Storage File
`> ROMCOPY LEX 1727`	[VER$ RCPY:E]
`> SURVEY ROM 16384`	ROMCOPY SURVEY:TAPE(#) TO :PORT(#)

HP-82484A Curve Fitting Pac



HP-82484A Curve Fitting Module

Owner Manual Introduction

The HP 82484A Curve Fitting Pac is a powerful tool that enables you to perform functions that are not common to portable computing devices.

The Curve Fitting Pac permits you to:

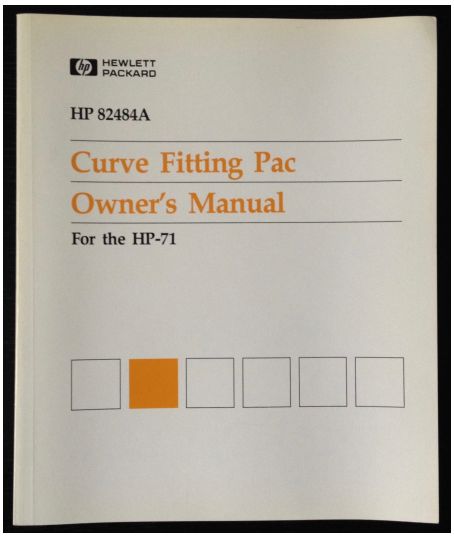
- Fit a general model function (linear or non-linear) to a set of data using the CFIT program.
- Analysis of LC filters containing transformer and coupled inductors.
- Determine local maxima and minima of a large class of real-valued functions using the OPTIMIZE program.
- The Curve Fitting Pac allows you to quickly and easily choose a model, fit a curve to your data, choose another model, and fit the curve again - all in a matter of seconds.

Features of the pac include:

- A matrix editor that makes entering and editing data easy.
- A built-in library of commonly-used fit models.
- The ability to store data and then retrieve it for later use.
- The ability to direct all intermediate and final results to a peripheral printer.

HP-82484A Curve Fitting Documentation

Product #	Product Name	Release
HP-82484-90001	Curve Fitting Pac Owner's Manual	1984-03



HP-82484A Curve Fitting Pac Owner's Manual

HP-82484A Curve Fitting Pac Distribution File (ZIP)

Filename			Description
HP-82484A_CURVE-FITTING_ROM.BIN			Image for Emu71/DOS/Win
> CurveFit	LEX	41	[VER$ FIT:A]
> CFIT	BASIC	14219	
> OPTIMIZE	BASIC	5068	
> MODELS	BASIC	5789	
> PCENTCHI	BASIC	727	
> FITLEX	LEX	415	[VER$ n/a]
> FITLIB	BIN	5545	
> CFKEYZ	KEY	83	
HP-82484A_CURVE-FITTING_ROM.LIF			ILPER: LIF Mass Storage File
> ROMCOPY	LEX	1727	[VER$ RCPY:E]
> CURVEFIT	ROM	32768	ROMCOPY CURVEFIT:TAPE(#) TO :PORT(#)

HP-82485A Text Editor Pac

HP-82485A Text Editor Module

Owner Manual Introduction

Your HP 82485A Text Editor can be used to create, view, change, and print source program listings, text files, memos, form letters, personal letters, short reports, and other documents. In fact, the Text Editor enables you to manipulate any text file in your HP-71 memory.

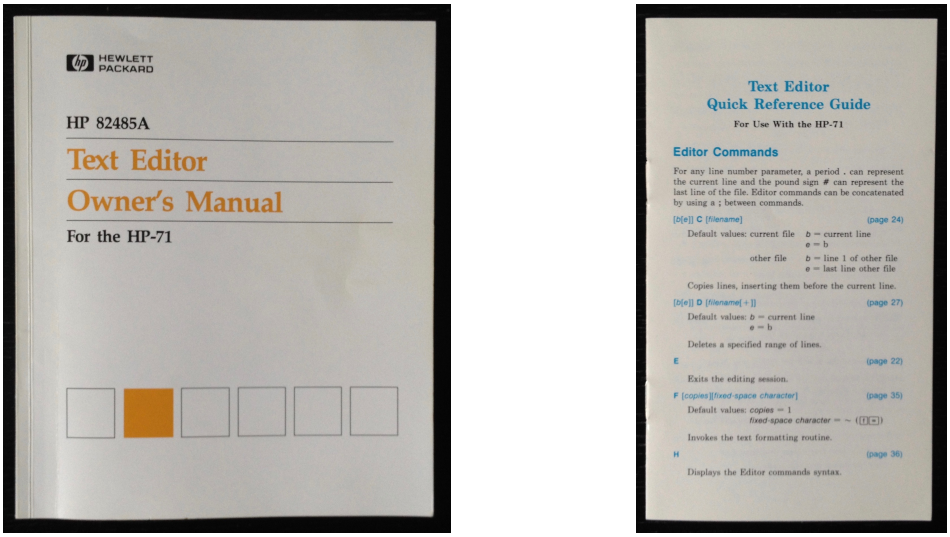
Using the Text Editor, you can:

- Create new text file.
- Update text files by editing, deleting, and inserting lines of text.
- Search for and edit text.
- Copy or move sections of one file to another file.
- Print or list text files.

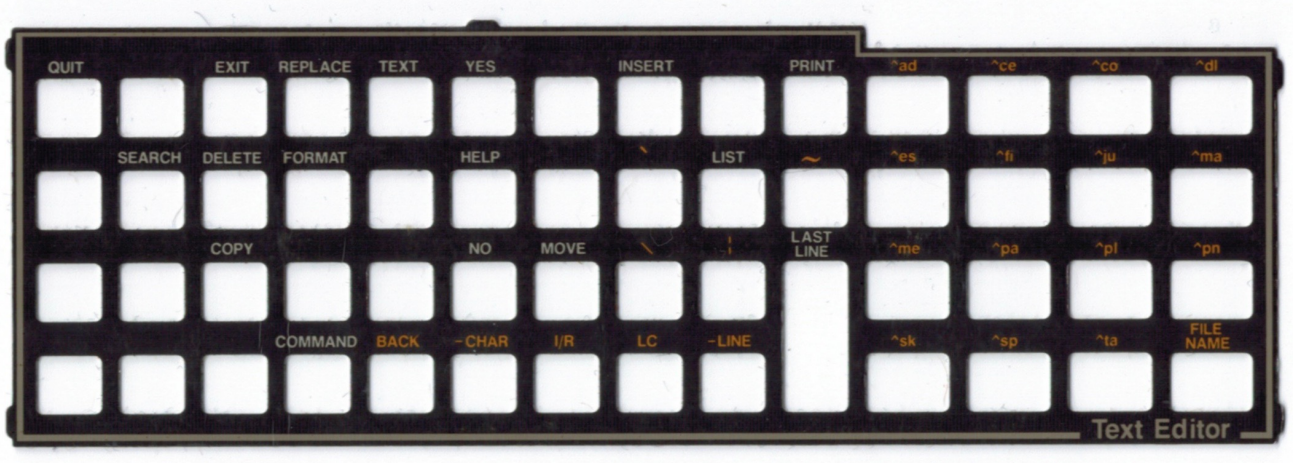
As you compose a text file, you can include (embed) text formatting commands in it. When you execute the format command, these embedded commands determine how your formatted, printed document will look.

HP-82485A Text Editor Documentation

Product #	Product Name	Release
HP-82485-90001	Text Editor Pac Owner's Manual, 1st Ed	1984-03
HP-82485-90005	Text Editor Pac Owner's Manual, 1st Ed	1984-03
HP-82485-90007	Text Editor Pac Owner's Manual, 2nd Ed	1984-08
HP-82485-90002	Text Editor Pac Quick Reference Manual	1984-03
OVERLAY	Text Editor Pac Overlay (IMG)	



HP-82485A Text Editor Pac -> Left: Owner's Manual / Right: Quick Ref. Guide



HP-82485A Text Editor Overlay

HP-82485A Text Editor Pac Distribution File (ZIP)

Filename				Description
HP-82485A_TEXT-EDITOR_ROM.BIN				Image for Emu71/DOS/Win
> EDTEXT	BASIC	13080		
> EDLEX	LEX	2799		[VER$ EDT:A]
> EDKEYS	KEY	142		
> EDRDPR	BASIC	250		
HP-82485A_TEXT-EDITOR_ROM.LIF				ILPER: LIF Mass Storage File
> ROMCOPY	LEX	1727		[VER$ RCPY:E]
> TEXTEDIT	ROM	16384		ROMCOPY TEXTEDIT:TAPE(#) TO :PORT(#)

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HP-82488A Data Communications Pac

HP-82488A Data Communications Module

Owner Manual Introduction

The Data Communications Pac provides a versatile terminal emulator software package, the DATACOMM program, for the HP-71 Portable Computer. With this program you can communicate with other computer systems over a phone line to access a variety of information. You can connect to systems such as The Source, Dow Jones News/Retrieval, and other host computer systems via a modem. It is quite easy to obtain stock quotes, send or receive electronic mail, or make airplane reservations using one of these data base services.

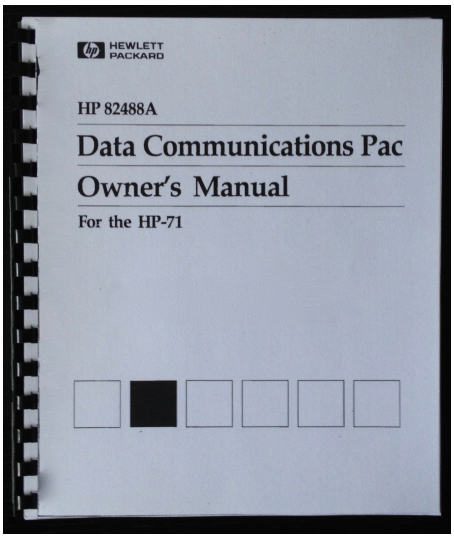
A few of the features provided by the system are:

- Incoming and outgoing data can be sent to the HP-71 display, a printer, and/or a video interface.
- Special code words can be created that simplify log on procedures.
- Text files that have been written off-line can be transferred to another host computer system.
- Incoming data can be saved in a text file for later review or printing.
- A 500-character input buffer is provided for reviewing information when using the HP-71 display.
- Command files allow easy implementation of repetitive operations.
- User programs can call and use DATACOMM'S features.

The DATACOMM program is entirely menu-driven. Most operations can be accessed from the menu by typing a single key.

HP-82488A Data Communications Documentation

Product #	Product Name	Release
HP-82488-90001	Data Communications Pac Owner's Manual	1984



HP-82488A Data Communications Pac Owner's Manual

HP-82488A Data Communications Pac Distribution File (ZIP)

Filename	Description
`HP-82488A_DATA-COMMUNICATIONS_ROM.BIN`	Image for Emu71/DOS/Win
`> DCLEX P LEX 904`	[VER$ DC:A]
`> DATACOMM P BASIC 15421`	
`HP-82488A_DATA-COMMUNICATIONS_ROM.LIF`	ILPER: LIF Mass Storage File
`> ROMCOPY LEX 1727`	[VER$ RCPY:E]
`> DATACOMM ROM 16384`	ROMCOPY DATACOMM:TAPE(#) TO :PORT(#)

HP-82489A AMPI Statistics Library Pac

HP-82489A AMPI Statistics Library Module

Owner Manual Introduction

The AMPI Statistics Library Pac provides two main capabilities:

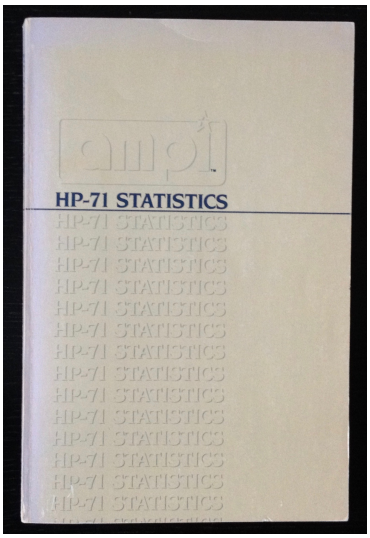
- Statistical tools that include descriptive statistics procedures and statistical inference procedures.
- These tools allow you to make statistical inferences, not statistical conclusions.

The AMPI Statistics Library Pac provides the following statistical tests:

- Descriptive statistics: Means & Moments, Histogram, Multiple Linear Regression.
- t-Statistics: Paired t-Test, Unpaired t-Test.
- F-Statistics: One-way Analysis of Variance, Two-way Analysis of Variance.
- Chi-Square: Contingency Table.
- Rank Statistics: Mann-Whitney U Test, Kruskal-Wallis test.
- Sampling Distribution: Student's t-Distribution, F-Distribution, Chi-Square Distribution.
- Probability Distribution: Normal Distribution, Weibull Distribution, Exponential Distribution, Binomial Distribution, Poisson Distribution.

HP-82489A AMPI Statistics Library Documentation

Product #	Product Name	Release
HP-82489-90001	AMPI Statistics Library Pac Owner's Manual	1984-12



HP-82489A AMPI Statistics Library Pac Owner's Manual

HP-82489A AMPI Statistics Library Pac Distribution File (ZIP)

Filename	Description
HP-82489A_AMPI-STATISTICS_ROM.BIN	Image for Emu71/DOS/Win
> AMPILEX P LEX 2620	[VER$ AMPISTAT:A]
> STKEYZ KEY 83	
> AMPISTAT BASIC 19171	
> STP BASIC 7253	
> DIST BASIC 3032	
HP-82489A_AMPI-STATISTICS_ROM.LIF	ILPER: LIF Mass Storage File
> ROMCOPY LEX 1727	[VER$ RCPY:E]
> AMPISTAT ROM 32768	ROMCOPY AMPISTAT:TAPE(#) TO :PORT(#)

HP-82490A HP-41 Translator Pac

HP-82490A HP-41 Translator Module

Owner Manual Introduction

The HP 82490A HP-41 Translator Pac consists of:

- The HP-41 Translator Pac module, which contains a system of programs for the HP-71 designed to allow you to convert programs written for the HP-41 for use on the HP-71. You can then run the "translated" programs on your HP-71, taking advantage of the HP-71's enhanced speed and accuracy.
- A keyboard overlay, designed to customize your HP-71 keyboard for use with the HP-41 Translator Pac.

With the HP-41 module installed in your HP-71, you can:

- Use the HP-71 as an HP-41 calculator for keyboard operations and program execution. All HP-41 calculator features, including the alpha register, are available from the HP-71 keyboard.
- Write programs on the HP-71 in HP-41 user-programming language.
- Transfer programs automatically from the HP-41 to the HP-71 via HP-IL. (This requires HP-IL modules for both calculators.)
- Extend the HP-41 user language, either by adding HP-41 extension module functions not included in the HP-41 Translator Pac, or by adding new functions of your own design.

In short, the HP-41 Translator Pac allows you to retain the calculator and programming features of the HP-41, and to use your HP-41 programs, as you move into the more sophisticated and powerful world of the HP-71.

The HP-41 function set included in the HP-41 Translator Pac includes:

- All functions built into the HP-41C and HP-41CV calculators.
- Additional numeric, flag, and alpha data manipulation functions from the HP-41CX and the HP 82180A Extended Functions/Memory Module.

- All of the HP-IL printer functions from the HP 82160A HP-IL Module for the HP-41 except the special graphics functions.

Not included in the HP-41 Translator Pac are the time (TIME is included), date, stopwatch, alarm, and extended memory functions from the HP-41CX, or any other functions from HP-41 extension modules. Any HP-41 program that uses functions included in the pac can be translated and run on the HP-71.

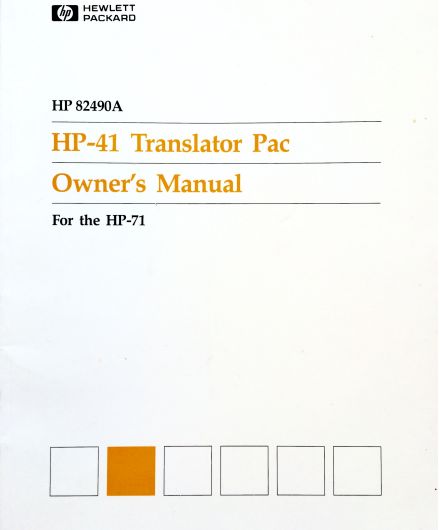
HP-41 programs and keyboard operations that are executed on the HP-71 yield the same results as those obtained with the HP-41, except that:

- The HP-71 provides two additional mantissa digits and and one more exponent digit than the HP-41. This affects both the accuracy of numeric results and the allowed range of numbers.
- Unlike the HP-41, The HP-41 Translator Pac does not provide the ability to choose the digit separator and radix format.
- There are some differences in keyboard entry methods that arise from the different keyboards of the two computers and from the somewhat different styles of RPN arithmetic associated with HP-71 FORTH and the HP-41.

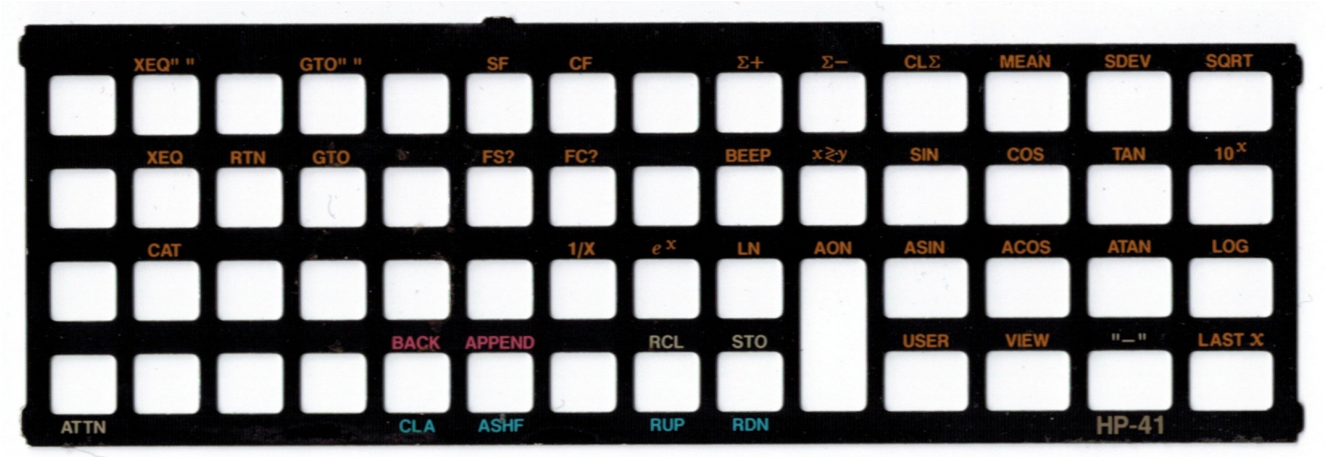
Appendix E contains a list of the HP-41 functions provided by the HP-41 Translator Pac, and description of the differences between the HP-41 and the HP-41 Translator Pac. The HP-41 Translator Pac is based on a FORTH language system built into the pac. FORTH is a computer language that shares many characteristics with the HP-41 user programming language, but is more widely recognized and applied to a greater variety of computers. You do not need to learn FORTH to use the HP-41 translator, but programmers familiar with FORTH can use the system to write HP-71 applications entirely in FORTH.

HP-82490A HP-41 Translator Documentation

Product #	Product Name	Release
HP-82490-90001	HP-41 Translator Pac Owner's Manual	1985-01
OVERLAY	HP-41 Translator Pac Overlay (IMG)	



HP-82490A HP-41 Translator Pac Owner's Manual

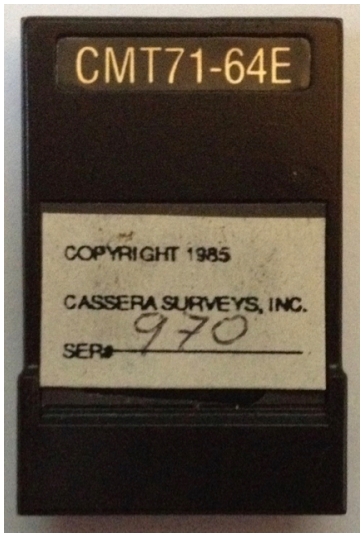


HP-82490A HP-41 Translator Pac Overlay

HP-82490A HP-41 Translator Pac Distribution File (ZIP)

Filename			Description
HP-82490A_HP-41-TRANSLATOR_HRD.BIN			Image for Emu71/DOS/Win
HP-82490A_HP-41-TRANSLATOR_ROM.BIN			Image for Emu71/DOS/Win
> FTH41ROM P	LEX	894	[VER$ FTH41:1A]
> TRANS41	BASIC	3467	
> READ41	BASIC	1071	
> KEYS41	KEY	282	
> EDTEXT	BASIC	6790	
> EDKEYS	KEY	54	
> EDLEX	LEX	2557	[VER$ EDT:A]
HP-82490A_HP-41-TRANSLATOR_ROM.LIF			ILPER: LIF Mass Storage File / FRAM71
> ROMCOPY	LEX	1727	[VER$ RCPY:E]
> FTH41ROM	ROM	16384	ROMCOPY FTH41ROM:TAPE(#) TO :PORT(#)
> FTH41HRD	TEXT	67840	ROM Memory (E0000-EFFFF) Dump
> FTH41LDR	BASIC	160	ROM Memory (E0000-EFFFF) Dump Loader

Super Surveyor



Super Surveyor Module by Cassera Survey

Owner Manual Introduction

The SUPER SURVEYOR software was initially developed to fill the need for a data collector which would support the HP-3820A Electronic Total Station. It is now a field measurement system capable of supporting all Electronic Total Stations.

The process of field measurement is facilitated by the SUPER SURVEYOR in its simplicity of concept and use. The functions are kept to a minimum to avoid distracting the user.

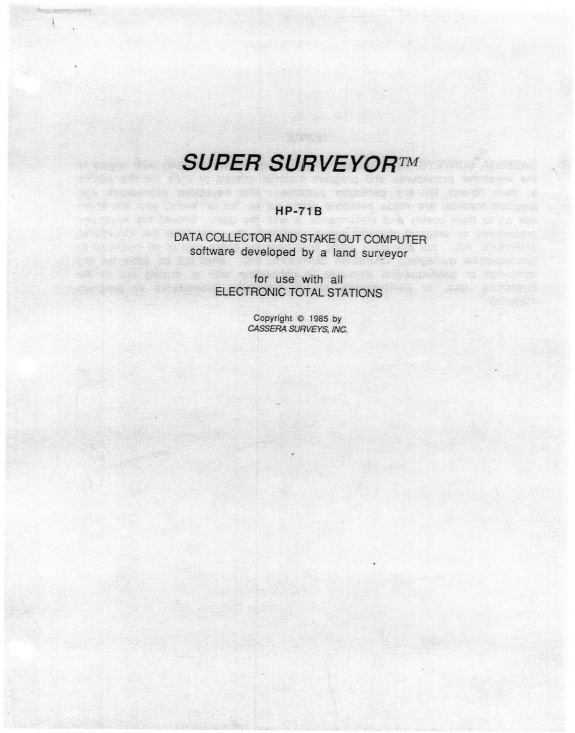
The system represent the minimum effort required to perform a data collection or stake out survey. The user is reminded that he is free and possibly obligated to employ any additional methods or techniques which he might judge necessary in the performance if his duty as a Land Surveyor or subordinate.

The minimum hardware required by the system is:

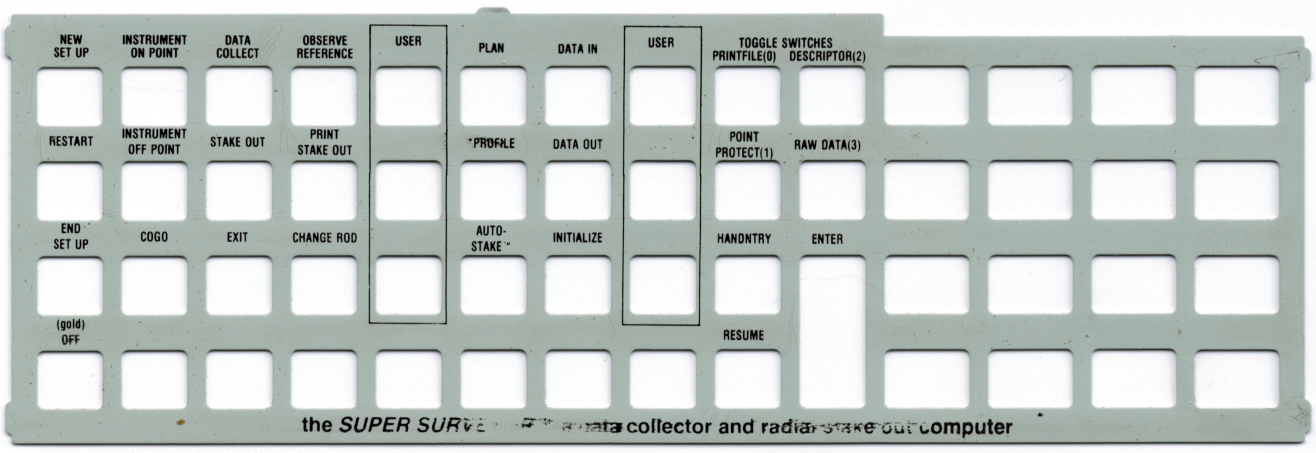
- TOTAL STATION (may be semi-auto and used with HANDNTRY)
- HP-71B Computer
- HP-82401A HP-IL Module
- Field Interface (not necessary for HANDNTRY)
- SUPER SURVEYOR firmware
- HP-82483A Surveying Pac
- Optional: Memory Modules or Portable Disk (HP-9114)
- Optional: ThinkJet (through the use of 'PRINTFILE(0)')

Cassera Super Surveyor Documentation

Product #	Product Name	Release
SUPER SURVEYOR	Super Surveyor Owner's Manual (PDF)	1985
OVERLAY	Super Surveyor Overlay (IMG)	



Cassera Super Surveyor Owner's Manual



Cassera Super Surveyor Overlay

Cassera Super Surveyor Module Distribution File Listing (ZIP)

Filename			Description
CASSERA_SUPER-SURVEYOR_ROM.BIN			Image for Emu71/DOS/Win
SUPRSURV	E	BASIC 24064	
CAT		BASIC 179	
AUTOSTAK	E	BASIC 8795	
HANDSHAK		BASIC 46	
SITEST		LEX 63	[VER$ n/a]
SEVENBIT		LEX 133	{VER$ SEV:A]
VERSION		LEX 43	[VER$ SUPR:E]
SSILEX		LEX 285	[VER$ n/a]
SRLTC1		LEX 1396	[VER$ STC:A2]
AVE		BASIC 65	
FILEFIX		BASIC 914	
LIST		BASIC 166	
INST	E	BASIC 12324	
CHA		BASIC 203	
KEYS		KEY 613	
MULTI		BASIC 1727	
COPYALL		BASIC 182	
LOGO		DATA 498	
CASSERA_SUPER-SURVEYOR_ROM.LIF			ILPER: LIF Mass Storage File
ROMCOPY		LEX 1727	[VER$ RCPY:E]
CSSURVEY		ROM 65536	ROMCOPY CSSURVEY:TAPE(#) TO :PORT(#)

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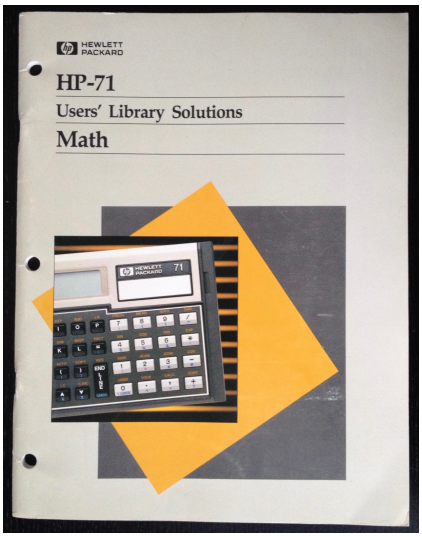
Applications on Books & Media

HP-00071-90064 Math Users' Library Solutions



Introduction

HP-71 Solutions Books provide complete step-by-step keystroke listings to help equip you with answers to your general or specialized programs. Solutions Books are available on magnetic cards and mini data cassettes.

Solutions Book Content

Math Users' Library Solutions Book cover the following subjects:

- Vector Operations

  This program provides solutions to the most common vector operations, such as addition, subtraction, dot and cross products, included angle, multiplication of a vector by a scalar, finding the length of a vector, and determining unit vectors.

- Numerical Integration

  This program will perform numerical integration whether a function is known explicitly or at a finite number of equally spaced points.

- Solution to F(x)=0 on an Interval

  This program provides two methods to find a real root of the equation f(x) = 0. They are Newton's Method and the Pegasus Method. In addition, the program allows the user to find the value of the function for an input x.

- Matrix Operations

  This program allows the user to calculate the determinant of a real valued matrix and find the inverse or solve a system of equations for real or complex valued systems. The method used is Gaussian elimination with partial pivoting.

- Fast Fourier Transform

  This program calculates a fast Fourier transform from a set of time domain points to a set of frequency domain points. The inverse fast Fourier transform, calculating the set of time domain points from a set of frequency domain points, may also be calculated. The method used is a modification of the basic FFT algorithm.

- Polynomial Solutions

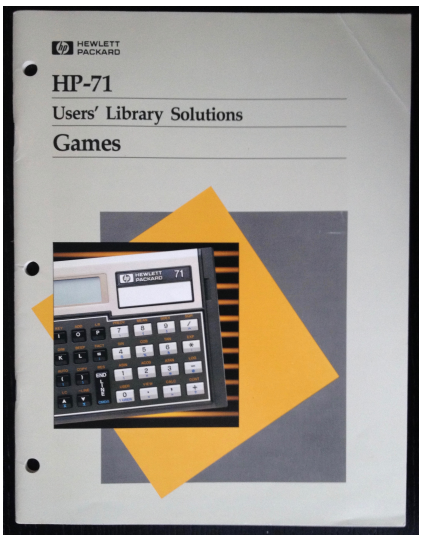
  This program finds all solutions, both real and complex, of P(x)=0, where P is a polynomial of the form:

  $$P(x)=a(n)x^n + a(n-)x^(n-1) + ... + a(1)x + a(0) = 0$$

HP-00071-90064 Math Users' Library Solutions Documentation

Product #	Product Name	Release
HP-00071-90064	Math Users' Library Solutions (PDF)	1984

HP-00071-90065 Games Users' Library Solutions



Introduction

HP-71 Solutions Books provide complete step-by-step keystroke listings to help equip you with answers to your general or specialized programs. Solutions Books are available on magnetic cards and mini data cassettes.

Solutions Book Content

Games Users' Library Solutions Book cover the following subjects:

- Code Crack

  The object of this games is to guess the random sequence of colors the HP-71 has selected. Initially, the player must specify the number of elements in the sequence (4 to 9), the number of colors used to generate the sequence (4 to 9), and whether a color may appear more than once in the sequence. Once the sequence is generated, the player must enter a guess. The program accepts the guess one character at a time with no correction of errors. Once the last color is entered, the program compares the input with the stored sequence and tells you how close you were.

- Craps

  In this game of craps, the HP-71 is the 'house', using simplified casino rules. The game begins with the player specifying his bank limit, a value that will be rounded to the nearest dollar amount. Next the player must place his bet, which may be as much or all of his bank as he wishes (to end game enter 0). On the players first roll after a bet, the dice are automatically rolled, and the value of each, along with their total, is displayed by the HP-71. If the total of the dice equals 7 or 11 on the fist roll,

the player wins and his bet is added to his bank. If the total of the dice equals 2,3 or 12 on the first roll, the amount of his bet is subtracted from his bank. Any other total on the first roll becomes the players "point". The player then continues to roll until the total of the dice equals his "point" (the player wins) or the total equals 7 or 11 (the player loses).

- Hangman

  Hangman is a word guessing game. This game is a version of the popular word game "hangman". The first player selects a word or phrase that is as many as 19 characters in length and keys it into the computer. The second player guesses various characters until he completes the word or gets hanged.

- Blackjack

  In this card game, the HP-71 is the dealer and up to eight people may play. Each player begins with $200 and may bet as much or all of it as he wishes up to $200.

- Hammurabi

  This game allows a player to control a country's economy through the buying and selling of land. The more efficiently he uses the land, the better a governor he is.

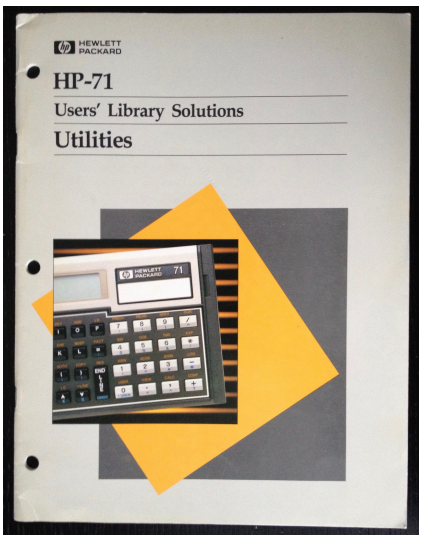
- Space War

  "Space War" sets up a two-dimensional playing area where you do battle with from 16 to 30 enemy ships. Your ship is equipped with long- and short-range sensors, shields, and 20 torpedoes. You also have 5 star bases at which you may effect repairs to your ship. The object of the game is to destroy all of the enemy ships before they destroy you.

HP-00071-90065 Games Users' Library Solutions Documentation

Product #	Product Name	Release
HP-00071-90065	Games Users' Library Solutions (PDF)	1984

HP-00071-90066 General Utilities Users' Library Solutions



Introduction

HP-71 Solutions Books provide complete step-by-step keystroke listings to help equip you with answers to your general or specialized programs. Solutions Books are available on magnetic cards and mini data cassettes.

Solutions Book Content

General Utilities Users' Library Solutions Book cover the following subjects:

- General System Utilities

  The subprograms provided in this section are intended to function as enhancements to the HP-71 BASIC language. The majority of the twenty-three routines are complementary to HP-71 keywords.

- Time and Date Utilities

  The purpose of these thirteen routines is to allow the user to perform numeric calculations based on time and date.

- Conversion Utilities

  The purpose of these seven subprograms is to provide a base of generic conversions that can be used both from the keyboard and from within a program.

- HP-IL Utilities

  The purpose of these three routines is to provide a mechanism by which the volume label of a mini data cassette may be accessed and by which information about the device type and location of the PRINTER IS device may be obtained.

- Variable Cross Reference

  The purpose of this program is to provide a listing of all variables contained in a program, and their respective line numbers. Such a listing is very useful in the debugging stages of program development.

- System Catalog

  The purpose of this subprogram is to provide a catalog of all LEX files and their entries. Since the HP-71 system ROM's are treated as LEX files, they are included in the catalog.

HP-00071-90066 General Utilities Users' Library Solutions Documentation

Product #	Product Name	Release
HP-00071-90066	General Utilities Users' Library Solutions (PDF)	1984

HP-82440A Software Development Utility

HP-82440A Software Development Utility Cassette

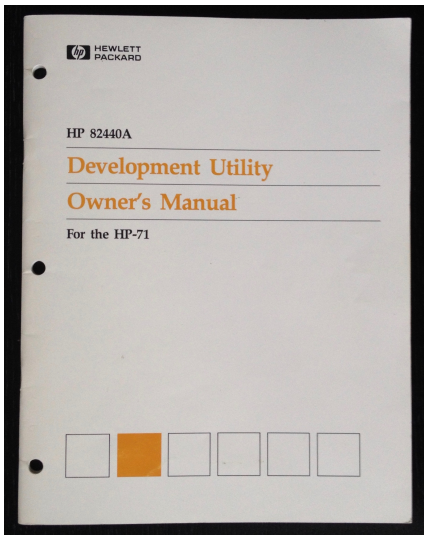
Introduction

The HP-71 Development Utility is a program that runs on the HP-71 and allows you to transfer files between the HP-71 and another computer called the "host.".

An HP-71 Development Utility work station is the equipment and software that allow you to transfer files between the HP-71 and a host.

HP-82440A Software Development Utility Documentation

Product #	Product Name	Release
HP-82440-90001	Software Development Utility Owner's Manual	1984-02



HP-82440A Software Development Utility Owner's Manual

HP-82440A Software Development Utility Distribution File (ZIP)

Filename			Description
HP-82440A_DEV-UTILITY_MEDIA.LIF			ILPER: LIF Mass Storage File
> XFERNC	BASIC	6459	HP-71 transfer program with comments
> XFERN	BASIC	3565	HP-71 transfer program without comments
> XFER	BASIC	3565	Same as XFERN

HP-00071-90097 Software Developers' Handbook

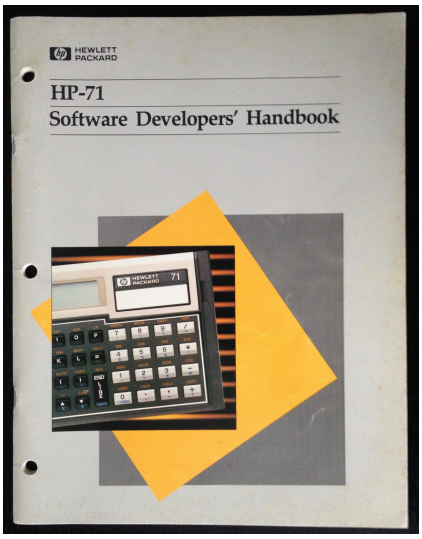
HP-00071-90097 Software Developers' Handbook Cassette

Introduction

This document is a 'cookbook' for applications programmers working with the HP-71. Two goals are envisioned: first to serve as a timesaver, and second to suggest a measure of consistency among programs written for the HP-7I. While there is no hope of addressing all possible applications on the HP-71, common subjects such as user interface, environment preservation, and error trapping are discussed. The specifics of each application are left to the programmer.

HP-00071-90097 Software Developers' Handbook Documentation

Product #	Product Name	Release
HP-00071-90097	Software Developers' Handbook (PDF)	1984

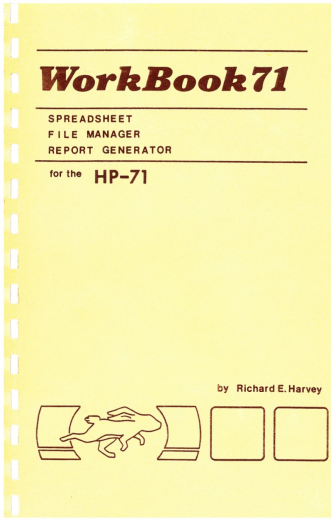


HP-00071-90097 Software Developers' Handbook

HP-00071-90097 Software Developers' Handbook Distribution File (ZIP)

Filename			Description
HP-00071-90097_SOFT-DEV-HANDBOOK_MEDIA.LIF			ILPER: LIF Mass Storage File
> STRINGLX	LEX	837	[VER$ STR:A]
> PATTERN	LEX	171	[VER$ PAT]
> CUSTUTIL	LEX	1007	[VER$ CSTU:A]
> BREAKPT	LEX	365	[VER$ BRK:A]
> KEYBOARD	LEX	1277	[VER$ KBD:B] (source FORTH/ASM module)
> KBD150	BASIC	1088	
> GEDIT	BASIC	1085	
> KBD264	BASIC	932	
> FTHUTILA	TEXT	7424	
> FTHUTILC	FORTH	4608	
> FTHUTILF	TEXT	11520	

WorkBook71 : Spreadsheet, File Manager & Report Generator



WorkBook71 : Spreadsheet, File Manager & Report Generator by Richard Harvey

Introduction

WorkBook71 is a data-gathering, analysis-and report-generating tool for the Hewlett-Packard HP-71 Portable Computer. Modules of the system include Editor, data format converter, searching, and Report Formatter. Each module can operate separately of others in the group and, by virtue of data format conversion, other programs you may have can be used interactively. The goal has been to provide a versatile package in which data can flow between applications with minimal hassle.

This manual is in several sections. "Getting Started" should be read before investigating the programs in this package. "Using the HP-71" is as much about a philosophy of using the computer in general as it is about using it with this package. There is a section on each of the programs with a discussion of their purpose, usage, and a list of commands. Part 5 explains the structure of WorkBook files and discusses methods for using the data in your Basic programs. Part 5 need only be read if you plan on writing your own programs. The inevitable Addendum is in the last section, listing some cautions and hints. A glossary is at the back of this manual.

WorkBook71 Manual

Product #	Product Name	Release
WorkBook71	WorkBook71: Spreadsheet, File Manager & Report Generator for the HP-71 by Richard Harvey (PDF)	1986

WorkBook71 Distribution File (ZIP)

Filename			Description
WORKBOOK71_MEDIA.LIF			ILPER: LIF Mass Storage File
> WBLEX	LEX	832	[VER$ WB:C]
> WB	BASIC	5808	Spreadsheet editor
> PRINTWB	BASIC	2176	Spreadsheet printer
> FNS	BASIC	192	
> REPORT	BASIC	4907	Text formatter
> PORTER	BASIC	1835	File converter
> UTIL	BASIC	2450	Spreadsheet utilities
> MACRO	BASIC	346	
> LABEL	TEXT	256	
> FINDER	BASIC	2350	Search program
> PRINTCEL	BASIC	1494	
> WBFNS	BASIC	5994	
> TED2	BASIC	2362	Text editor
> MENU	BASIC	789	Operating system shell
> CHARSET	BASIC	329	Create alternate character set
WORKBOOK71_ROM.BIN			Image for Emu71/DOS/Win
> ...			Same content as WORKBOOK71_MEDIA.LIF
WORKBOOK71_ROM.LIF			ILPER: LIF Mass Storage File
> ROMCOPY	LEX	1727	[VER$ RCPY:E]
> WORKBK71	ROM	32768	ROMCOPY WORKBK71:TAPE(#) TO :PORT(#)