

FORTH FOR THE HP-41

Here is the chronological list of primitives, that is in inverse order from VLIST (wich is not a primitive) :

Dear friends,

I am pretty proud to announce than the Toulouse chapter of PPC, by the way of one of his members, is able to propose to you FORTH for the HP-41C.

Let me first describe the author. FORTH FOR THE HP-41 is the work of Serge Vaudenay. Serge Vaudenay is a sixteen years old pupill, I think a great one. Last year he get a MLDL and begin writing his own FORTH. Recently some others PPC members could help him (that is Stéphane Barizien and Jean-Jacques Dhénin, authors of the PANAME ROM).

The result is a 4K ROM (actually at that time only an EPROM SET) with only one CAT 2 entry : "FORTH 41" is the name, "FORTH" is the entry. The description will follow.

Let me then speak about availability. I see two ways of delivery. We can spread the ROM on EPROM form for a price of approximately 400F (US\$40), but this limit the users to the owners of an EPROM box. We can also build a custom ROM. If we can find at least 150 members ready to buy the module, we must do it. But first, a custom ROM burned only at 250 copies can't be sold at less than 1000F (US\$100), and HP delays won't make it available before March 1985, I presume. Of course if many more than 150 members are interested, the price can be much less.

So I ask you to do the following. Write to me immediately. Don't send any money. Send only a letter, saying : I am interested by the FORTH FOR THE HP-41. I can take it in EPROM form (or I can't), I would buy it in custom rom (or I won't), I am able to help last debugging (or I am not able...).

Send this letter first class to Jean-Daniel Dodin, PPC-Toulouse, 77 rue du Cagire 31100 Toulouse, FRANCE.

You will be informed of the final decision. If a custom rom is to be done, we probably have to ask for payment before ordering the rom from HP. We hope you can trust us.

And then, a description of the module.

I work until now 5 month on a module making the HP-41 speak FORTH. This wonderfull module is ready.

This module's CAT 2 gives only "FORTH 41" as the name and "FORTH" as the only function. Apart this, the module is classical, it brings only 4K words and can be inserted in any of the ports of the HP-41, as any MATH module.

After XEQ "FORTH", the HP-41 displays 'OK' and ALPHA mode. The keyboard has been redefined, in order to acces all the essential characters as \$ and @. Pressing ALPHA gives acces to hex digit entry keys. PRGM key is BREAK and R/S is RETURN. USER key (as SHIFT USER) can be redefined by the user. If you key ON, the HP-41 shut off. At wake up (ON again), you are still in FORTH mode. To come back to the native operating system, you must key "HP-41" wich is a FORTH primitive.

To key in texts and FORTH words (no more than 40 characters), you have a classical editor. SST and BST move the cursor, CLX insert and the back arrow deletes. Any non shifted key is repeating if hold (and also BST).

After the keyboard, let's see the programming.

The initial set of primitives I am to describe will seem small for a FORTH expert. But don't forget this module is only 4K. May be I am to write an extra 4K to extend the ROM, but anyone can define his one words.

These 68 functions gives a pretty light FORTH, but all is here to gives a FORTH79, at least.

A word about the FORTH structure : FORTH 41 module takes off all the available space in main memory, up to 255 registers, and all the X-Memories (in 3 blocks in the better case). All this seems to do 5,8 Kbytes, is'nt it ?

In fact I hope this ROM will soon be an 8K one...

Serge Vaudenay

F41	name of primitive's vocabulary
HP-41	set the calculator in native mode
CURRENT USER-variable	
CONTEXT	"
BLK	"
SCR	"
BASE	"
SO	"
RO	"
>IN	"
PAD	"
HERE	"
ST	" (internal FORTH flags)
IP	"
RP	"
SP	"
@	2 bytes recall
!	2 bytes store
C@	1 byte recall
C!	1 byte store
>R	to return stack
R>	from return stack
DUP	duplication of the top of the stack
DROP	drop one level of the stack
SWAP	swap the two upper levels of the stack
OVER	put on the top the second level of the stack
ROT	rotation of the 3 first levels of the stack
+	addition
-	substraction
*	multiplication
/	integer division
*/	multiplication followed by division
MOD	Modulo
ABS	absolute value
NEGATE	changes the sign
=	equal test
<	inferior test
>	superior test
O=	test of zero
O<	less than zero
O>	more than zero
AND	
OR	
NOT	
HEX	mode
DEC	decimal mode
EMIT	send an ASCII char to the display
CR	carriage return
<#	display formatting start
#	digit in formatting string
SIGN	in formatting string
#\$	remaining of a number
#>	end of a formatting string
TYPE	send to the display a string
HOLD	ASCII character in a formatted string
?	display a cell content
.	display the top of the stack
ABORT	initialise the FORTH file
QUIT	set ligh sleep mode
FIND	search in the dictionary
BRANCH	relative jump
OBRANCH	conditional relative branch
'	search for the address of a word
KB@	pressed key code
,	store in the dictionary and modify HERE
."	display a string
C,	as , but on a byte
TONE	musical word (similar to TYPE).

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