HP-72S AND HP-74S HANDHELD COMPUTERS

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Introduction

This short note provides some advanced information on the new HP-72S and HP-74S models to be introduced soon.

The HP-74S will be one of the world's most powerful handheld BASIC language computers. Optimized for calculations, the HP-74S has been designed to provide maximum flexibility in meeting a variety of applications.

The HP-72S: an Improved yet Compatible HP-71B

(except card reader)

Features:

- new display with 2 lines of 22 characters
- 64 KB RAM built-in, 4 times as much as the HP-71B
- new 2 MHz Saturn CPU, 3 times faster than the HP-71B
- 5 external ports (1-5), all compatible with the HP-71B including the HPIL
- revised and enhanced OS, but 100% HP-71B entry-point compatible, still in 64 KB
- revised HPIL and Math ROM modules, also usable with the HP-71B

Questions and Answers:

Q. The HP-72S seems to be to the HP-71B what the HP-42S is to the HP-41C (e.g. 2-line display), is that correct?

A: No. The 42S is a much faster 41C without I/O (except one-way printing), compatible with the 41C only at user RPN. The HP-72S is a 3x faster HP-71B with the same I/O capabilities, fully compatible at user BASIC language and assembly code levels with all the HP-71B applications including LEX files, ROM modules and HP-IL.

The HP-74S: the New High Performance Reference for BASIC Handhelds

Features:

- improved 4 MHz CPU with hardware arithmetic operations
- up to 20 times faster than the HP-71B
- 128 KB RAM (4 x 32 KB internal ports)
- new enhanced Math ROM built-in
- new HPIL-2 built-in
- wide display with 4 lines of 44 characters
- expanded 80 KB OS
- graphic functions using the optional HPIL-2 display.
- 2 front ports compatible with the HP-71B and HP-72S
- 1 back port with 4 MB capability (bank switching)

Questions and Answers:

Q. Is the HP-74S compatible with the HP-71B?

A. The 74S is largely compatible with the 71B BASIC language. Especially the enhanced Math ROM is 100% backward compatible with the 71B Math ROM 1A.
Custom assembly code applications (LEXs or ROMs) may need to be adapted and assembled again.
For customers who need full 71B compatibility, please advise to use the 72S.

Q. What is the positioning of the HP-74S against the HP-72S?

A: The 74S is the new flagship for HP BASIC Handhelds. It provides many improvements and supports the new high performance HPIL-2.
The 72S is for customers who need full 71B compatibility, with better performances.

The New HPIL-2 Standard

The HPIL-2 provides many improvements over the original HPIL:
- single 4-wire cable between devices (no need to "close the loop" anymore),
- provides power supply (20 mA max) for low-power devices (e.g. solid-state mass storage unit, interfaces)
- you can easily add/remove HPIL-2 devices
- 100 kB/s speed and burst mode for efficient data transfer, especially for mass storage.
- 100% compatible with older HPIL-1 devices using the HPIL-1/HPIL-2 adapter

Questions and Answers:

Q. What means: no need to close the loop?

A. With the original HPIL, you needed one cable between each device, plus one cable to go back to the controller, forming a loop. This is no more needed with HPIL-2. For instance, to connect a single device, you need only ONE cable !
This was the main complain about HPIL from the users.

Q. Is it still a loop?

A. At functional level yes. The loop takes place within the cable itself. We still benefit of the auto-addressing, device identification and simple speed synchronization between devices.
For the user, it doesn't look like a loop anymore, just add device in a daisy chain manner (a bit like HP-IB).

Q. Is 20 mA a bit too limited?

A. The goal is to avoid the need of an extra power supply for simple devices. 20mA is enough to supply one electronic drive and one LCD, which is the targeted typical configuration.
Since this supply comes from the 74S battery, we can't afford to drain more power.
Higher demanding devices (instrumentation, printers, legacy RS232/HPIB interfaces, etc.) will have their own supply.