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Research Notes
On
Previously Initiated Projects

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Abstract

Updates are provided for previously initiated projects which are continuing, but on which not too much direct progress has been made since last year.

In works of this complexity (at least for me) typos and other errors are bound to sneak in. Please let me know about any you discover so I can note and correct them.

This paper and its associated code are available online at:

<http://www.bds-soft.com/cocoPapers.php> .

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Chapter 01: Bare Metal Programming

Last year, re: going back to (almost) bare metal, The ML Foundation Core was presented as the beginning of a system for simplifying and organizing the development of 6809 Assembly Language Programs and Systems for the Radio Shack Color Computer; most specifically in the areas of non-graphic numerical computation and text processing, and primarily for the 64K CoCo 2.

In that paper, I reported:

Also, during the earliest part of this development project, I discovered that stuff I put into Graphic Page 1 memory, even after "PCLEAR 0", often became corrupted for no reason I could easily discern.

Since then, I've discovered that the problem was a heel-of-hand-smacking-forehead type of really embarrassing error: I had failed to note that the CoCo Disk System used RAM assigned to the Disk System from 0x0600 through 0x0DFF. Therefore, in Disk BASIC, the Graphics Memory starts at 0x0E00 instead of at 0x0600.

Here's the 64K CoCo 2 Disk System Memory Map, as modified (cf. the TRS-80 CoCo Wiki):

64K CoCo 2 DiskSystem Memory Map

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Decimal -----	Address Contents -----	Hex Address -----
SYSTEM RAM:		
0-1023	System Use	0000-03FF
1024-1535	Text Screen Memory	0400-05FF
1536-3583	Disk System RAM	0600-0DFF
	Graphic Screen Memory	
3584-5119	Page 1	0E00-13FF
5120-6655	Page 2	1400-19FF
6656-8191	Page 3	1A00-1FFF
8192-9727	Page 4	2000-25FF
9728-11263	Page 5	2600-2BFF
11264-12799	Page 6	2C00-31FF
12800-14335	Page 7	3200-37FF
14336-15871	Page 8	3800-3DFF

Assembly Language
15872-32767 Program Storage 3E00-7FFF

SYSTEM UPPER RAM BANK:

Assembly Language
32768-65279 Program Storage 8000-FEFF

SYSTEM UPPER ROM BANK:

Extended
32768-40959 Color BASIC 8000-9FFF

40960-49151 Color BASIC A000-BFFF

Disk Basic or
49152-57343 Cartridge Memory C000-DFFF

Super-Extended
57344-65279 (Enhanced) Basic E000-FEFF

**Hardware Registers, I/O,
and Interrupt Vectors:**

Registers
65280-65535 & Vectors FF00-FFFF

The previous development of various routines remains valid, except that all their “org” directives need to be revised upwards. While doing that, I intend to modify my original plan and keep all of the graphics memory intact for graphics purposes.

Starting at 0x3E00, I also plan to insert various buffers, registers, and routines for jumping into System ROM for Disk, Cassette and Joystick I/O etc. Accordingly, since I will be using several ROM routines, I will leave memory locations 0x0000 through 0x0DFF completely untouched.

This arrangement will allow a total of 49408 (0xC100) bytes of RAM for Assembly Language Program Storage.

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Chapter 02: VCC Bundle

Last year, a Plan was presented for developing a VCC Bundle, i.e. a collection of tutorials, manuals, and examples, built around the VCC Emulator, and suited to guiding even the most newbie of newbies into the wonders of computer programming and coding.

The development of Quiz Game and other BASIC programs during the past six months since CoCoFest 2021, while being presented as complete programs in their own right, are also intended to become components of the VCC Bundle as well.

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Works Cited

TRS-80 CoCo Wiki.

http://www.cocopedia.com/wiki/index.php/Color_Computer_2_Memory_Map .

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