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Tandy CoCo OS-9 "C" Compiler


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TANDY COCO OS-9 "C" COMPILER

Author	Message
<p>SFischer1 Certified CoCo Tech  Joined: February 6th, 2011, 4:12 pm Posts: 191</p>	<p>Tandy CoCo OS-9 "C" Compiler</p> <p>After a short discussion with Dean, I am requesting that no posts be made to this thread except by me.</p> <p>I have created an additional thread "Tandy CoCo OS-9 "C" Compiler Comments" for those persons who wish to ask questions, make suggestions in public that are visible unlike PM's or e-mail's to me about this project. Your posts can be edited, the text replaced with "Message Deleted" and so on unlike the [CoCoList for Color Computer Enthusiasts] messages which are locked once you hit send.</p> <p>The ultimate home for these web pages and files:</p> <p>http://www.os9projects.com/C_Compiler/Compiler.html</p> <p>mailto:a_nani_mouse@mindspring.com or PM me here (Click "Members" on the top line)</p> <p>-----</p> <p>As comments are made, I will try and organize the information, the more help, the faster it will become useful.</p> <p>Please add your own posts with information please to the "Tandy CoCo OS-9 "C" Compiler Comments" thread!</p> <p>-----</p> <p>Quote:</p>

The Language Implementation

OS-9 C is implemented almost exactly as described in The C Programming Language by Kernighan and Ritchie (hereafter referred to as K&R).

Although this version of C follows the specification faithfully, there are some differences. The differences mostly reflect parts of C that are obsolete or the constraints imposed by memory size Limitations.

The group has several copies of this book but as of now no copy is on line (Waiting for someone to step up and agree to scan the book, the OCR process can be done by someone else.)

In the file clang.zip on RTSI and included in a disk file attached below is

"C Reference Manual by Dennis M. Ritchie"

which may be helpful until the K&R book becomes available. (There are copyright problems)

Quote:

ANSI "C" Version

A project was started to allow ANSI "C" programs to be compiled and has succeeded to the extent that ~ 80% of ANSI "C" programs can be compiled.

This does not mean that the Tandy CoCo OS-9 "C" Compiler is an ANSI "C" Compiler, it is not.

The compiler itself does not do the necessary checking that was added to the Second Edition of The C Programming Language as defined by the ANSI standard.

See "Appendix C - Summary of Changes" in the Second Edition of The C Programming Language.

It is currently online at the CoCoCoding! Website

[https://sites.google.com/a/aaronwolfe.c ... oding/home](https://sites.google.com/a/aaronwolfe.c...oding/home)

K&R's Second Edition is here:

[https://sites.google.com/a/aaronwolfe.c ... ects=0&d=1](https://sites.google.com/a/aaronwolfe.c...ects=0&d=1)

The documentation for the Ansifront beta release v0.12 when

compared with K&R's Second edition will show the differences.

Quote:

Improvements to "C" Compiler utilities:

These have replaced the original versions

SHF

Last edited by SFischer1 on September 3rd, 2011, 2:38 am, edited 6 times in total.

August 21st, 2011, 5:17 am

[PROFILE](#)

SFischer1

Certified CoCo Tech



Joined: February 6th, 2011,
4:12 pm
Posts: 191

Tandy CoCo OS-9 "C" Compiler

OS-9 "C" Compiler Parts

Work In progress

Known to be incomplete, perhaps incorrect

Make (Make_TK.lzh)

Make is a utility to help with large "C" project development.

If your program has been correctly functionally partitioned into perhaps eight source files with three header files, then a lot of time can be saved by using "Make".

For example, if you edit just one of the source files and wish to rebuild the executable, make will determine that only that one source file needs to be recompiled and then linked with the .r files for the other source files to build the executable.

Similarly, if you edit one of the header files, make will determine that only three source files depend on that header file and recompile only those source files before linking with the .r files for the source files that do not need to be recompiled.

This saves a lot of time.

CC (C executive) (cc_2_5_2.lzh)

"cc" is the C compiler executive.

"cc" invokes the appropriate phases of the C compiler in order to compile C source programs. This version is configured to use the two-pass Level 1 version of the compiler, and to use RMA and RLINK as the last two passes. It also puts temporary files in the first of /R, /R0, /DD/TMP, whichever it finds first.

c.prep (C macro preprocessor) cprep19b.lzh

ansifront (ansifront012.lzh)

The ansifront program takes a pre-processed ANSI C program from stdin and writes a

MW C program to stdout. This means you will need to run c.prep on your files first, then run Ansifront on the pre-processed file.

c.pass1 (Pass One of Two-pass Compiler)

c.pass2 (Pass Two of Two-pass Compiler)

c.opt (Assembly code optimizer)

rma (Assembler)

r63 (Assembler) rma_1_3_patch.lzh (rma_6309_Patch.lzh)???

rlink (Linker)

Quote:

Well, you need the MW C Compiler and the LII development system.

You can grab c.comp from Gene's web site but you didn't hear that from me! 😊

commands From RTSI:

```
ansifront012.lzh*
COpt2_1_1.lzh*
ansifront012.readme*
cc_2_5_2.lzh
rma_1_3_patch.lzh*
Make_TK.lzh*
cb_C_Beautifier.lzh*
cprep19.lzh
```

rma_6309_Patch.lzh*

defs from RTSI:

C_Defs.lzh*
 unixinclude.lzh

libraries from RTSI:

CLib_Krieder_91.lzh*
 Cgfx_7_src.lzh*
 clibt.ar*
 CLib_Krieder_91_doc.lzh*
 GUIlib_1_0.lzh*
 CStart_TK.lzh*
 Solve.lzh*
 regexp.lzh
 Cgfx_7.lzh*
 Termcap_Level2.lzh*
 unixlib.lzh
 Cgfx_7_doc.lzh*
 Window_SaveRestore_fncs.lzh*
 varargs.lzh*

My modest contribution:

<http://www.sdc.org/~goosey/os9/curses09.lzh>


That should bring you up to the Ultimate OS-9 C compiler.

Willard

I have to look at more posts and do a better job of formatting.

SHF

Attachments:

File comment: 09/05/2011 version
 CoCo OS-9 Climax C Compiler Parts Documentation - Candidates.zip
 [506.39 KiB]
 Downloaded 127 times

Last edited by SFischer1 on September 7th, 2011, 5:56 pm, edited 16 times in total.

August 21st, 2011, 5:20 am



SFischer1

Certified CoCo Tech



Joined: February 6th, 2011,
 4:12 pm
 Posts: 191

Re: "C" Compiler FAQ and notes

OS-9 "C" Compiler .dsk file

Work In progress

Known to be incomplete, perhaps incorrect

As it is Built, please report errors, additions, corrections, changes to file formats

I am just starting to collect the parts, many are placeholders for the final files, this is just what I have handy, unchecked and parts known not to appear in the final .dsk.

Attached is the Climax "C" Compiler Disk 1 (.dsk) which has the untested compiler parts.

It may be some time for more progress posted here as Disk 2 needs much more research.

Code:

```

HDirect log taked on 11/09/06 19:02:54          (CMD line control
91/03/05)

"CLIMAX CMDS 09062011" created on: 2011/09/06
Capacity: 1,440 sectors (1-sector clusters)
641 free sectors, largest block 641 sectors

                                         Last Modified
Size

CMDS                                         11/09/06 19:02
 160
   ansifront                               11/09/06 17:51
9FA9
   c.opt                                   83/09/17 23:27
2E2C
   c.pass1                                83/09/20 08:34
7B76
   c.pass2                                83/09/20 08:34
6444
   c_prep                                  11/09/06 18:19
55BE
   cc                                       11/09/06 17:29
297A
   make                                    11/09/06 18:36
3B00
   rlink                                   85/10/29 11:22
3944
   rma                                     86/02/06 17:44
4EAF
SYS                                         11/09/06 19:02
60
   make.default                            90/06/16 22:37
49F
    
```

CC_1.dsk

Part of clang.zip, contained within

"C Compiler .dsk file - ZIP Version.zip"

Which is currently attached to this post, it will be moved TBD.

<http://www.tandycoco.com/forum/viewtopic.php?p=529#p529>

Came from "<ftp://www.rtsi.com/RSDOS/incoming/clang.zip>"

Code:

```

HDirect log taked on 11/08/26 15:25:49          (CMD line control
91/03/05)

"COLOR COMPUTER DISK" created on: 1983/09/20
Capacity: 630 sectors (1-sector clusters)
109 free sectors, largest block 109 sectors

                                         Last Modified
Size

CMDS                                         11/08/26 15:20
 1C0
   ccl                                       83/09/07 08:14
1F52
   c.prep                                    83/09/07 08:14
27AC
   c.pass1                                   83/09/20 08:34
7B76
   c.pass2                                   83/09/20 08:34
6444
   c.opt                                     83/09/17 23:27
2E2C
   c.asm                                     83/09/06 14:28
505F
   c.link                                    83/08/31 11:09
3721
   copy                                      83/04/14 14:24
2DC
   del                                       83/01/14 09:11
A5
   dir                                       83/01/14 09:11
2A2
   echo                                      83/01/14 09:11
22
   list                                      83/01/14 09:11
4F
    
```

CC_2.dsk

Part of clang.zip, contained within

"C Compiler .dsk file - ZIP Version.zip"

Which is currently attached to this post, it will be moved TBD.

<http://www.tandycoco.com/forum/viewtopic.php?p=529#p529>

Came from "ftp://www.rtsi.com/RSDOS/incoming/clang.zip"

Code:

```

HDirect log taked on 11/08/26 15:24:42           (CMD line control
91/03/05)

"COLOR COMPUTER DISK" created on: 1983/09/20
Capacity: 630 sectors (1-sector clusters)
199 free sectors, largest block 199 sectors

                                         Last Modified
Size

LIB                                         11/08/26 15:24
80
   clib.1                                   00/00/00 02:19
5C5B
   cstart.r                                00/00/00 02:21
284
DEFS                                         11/08/26 15:24
1C0
   ctype.h                                 83/06/09 16:16
386
   direct.h                                83/05/17 16:39
2D1
   errno.h                                 83/05/17 16:40
AEE
   modes.h                                 83/05/17 16:40
247
   module.h                                83/05/17 16:40
B09
   os9.h                                   83/05/13 13:57
1865
   os9defs.a                               83/06/23 08:51
185F
   setjmp.h                                83/05/17 16:40
18

```


	sgstat.h	83/05/17 16:40
A4D		
	signal.h	83/05/17 16:41
13D		
	stdio.h	83/07/06 16:19
4A3		
	time.h	83/07/11 07:54
177		
SOURCES		11/08/26 15:24
E0		
	SYS	11/08/26 15:24
300		
	abort.a	83/04/24 16:44
257		
	access.a	83/09/07 14:10
49A		
	cfinish.a	83/05/16 17:44
157		
	change.a	83/06/23 08:52
6F0		
	comp.sys	83/09/06 13:00
D4		
	cstart.a	83/07/18 12:19
1832		
	dir.a	83/04/24 18:17
F4		
	id.a	83/06/28 14:00
2EB		
	intercept.a	83/04/29 12:37
42E		
	io.a	83/08/26 09:33
71F		
	make.sys	83/06/28 12:08
F9		
	mem.a	83/08/02 14:03
5E3		
	misc.a	83/04/24 18:12
291		
	mod.a	83/06/27 15:16
37E		
	process.a	83/07/14 11:12
715		
	profdummy.a	83/05/16 17:39
4D		
	signal.a	83/08/22 11:17
EC6		
	stat.a	83/07/22 12:32
42E		
	syscall.a	83/06/23 08:46
487		
	syscommon.a	83/04/24 18:35
CA		
	tidyup.a	83/04/20 14:42
32		

time.a	83/04/24 18:28
EC	
line.c	83/05/23 15:53
182	
prof.c	83/07/13 09:43
697	
rdump.c	83/05/18 11:56
19E7	

It will take some time to find the correct ones and build a real .DSK file.

SHF

Attachments:

File comment: 9/06/2011

 CoCo OS-9 Climax C Compiler - Disk 1 Candidates 09062011.zip [104.88 KiB]

Downloaded 125 times

File comment: 9/2/2011

 CoCo OS-9 Climax C Compiler .dsk file - Candidates.zip [888.74 KiB]

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Last edited by SFischer1 on September 6th, 2011, 10:53 pm, edited 5 times in total.

August 21st, 2011, 5:22 am



SFischer1

Certified CoCo Tech



Joined: February 6th, 2011, 4:12 pm
Posts: 191

Tandy CoCo OS-9 "C" Compiler

Tandy CoCo OS-9 "C" Compiler

Most recent 'C' Compiler modules., Libraries, DOC, etc.?

Unedited - To be totally reworked!

>From Dev Sys:

- lib/sys.l
- lib/cgfx.l
- defs/wind.h
- defs/stdmenu.h
- defs/mouse.h
- defs/buffs.h
- cmds/rma
- cmds/rlink
- cmds/rdump
- cmds/make

>From original C compiler

- cmds/cc1
- c.prep
- c.pass1

c.pass2
c.opt
c.asm
c.link
defs/
ctype.h
direct.h
errno.h
modes.h
module.h
os9.h
os9defs.h
setjmp.h
sgstat.h
signal.h
stdio.h
time.h
lib/
clib.l
cstart.r
sources/
line.c
prof.c
rdump.c
sources/sys
syslib.l obsoleted by Krieder clib?

cc252.lzh replaces cc1

c.comp LII compiler same as c.pass1 and c.pass2, with no intermediate file. Faster

cprep19a.lzh c_prep. replaces c.prep

solve.lzh solve.r arithmetic parser/solver for C code
expects to be linked against Krieder Clib

cstart.lzh replacement lib/cstart.r

clib_krieder_91.lzh Krieders newest clib
lib/clib.l Y2K issue in ctime()
clibt.l

c_defs.lzh header files for Krieders lib
These files don't end with newlines! MUST edit and add terminating
newlines.

replaces:

ctype.h
direct.h
errno.h
modes.h
module.h
os9.h
setjmp.h

sgstat.h
signal.h
stdio.h should have a prototype for FILE *fopen()
time.h

ansifront012.lzh
adds cmds/ansifront

cgfx7.ar has a horrible bug in getenv()
replaces lib/cgfx.l
defs/wind.h
defs/stdmenu.h
defs/mouse.h
defs/buffs.h
cocoskel.lzh prototype MultiVue app
src/cocoskel/mymenu.h
/skel.c
/skel.make

unixinclude.lzh
replaces defs/stdlib.h change the proto of atof to return double
adds defs/limits.h
defs/sys/cdef.h
defs/sys/types.h

cdefs.ar older Krieder headers, has files newer version doesn't have

termcap_level2.lzh
lib/termcap.l
defs/ttydefs.h
why, no it doesn't have a termcap.h, why do you ask?

varargs.lzh
lib/varargs.l
defs/varargs.h

guilib.lzh
lib/gui.l
defs/gui.h

copt2_12.lzh
cmds/copt2
cmds/rmxlab
sys/patterns.dat

regexp.lzh
lib/regexp.l
defs/regexp.h
defs/regmagic.h

defs/bdraw.h not sure where I got this
defs/graphi.h not sure where I got this
These are both cgfx replacements

defs/mathlib.h original MW math lib?
 lib/mathlib.l
 defs/graphics.h header for graflib
 lib/graflib.l LI VDG graphics lib
 These were merged with clib.l on a weird disk

 lb_C_Lib_splitter.lzh
 cmds/lb

 cntx_5.lzh sort of a mini-LINT. Very useful Gene's site
 cmds/cntx

 triglib high-precision math lib. Gene's site

 curses010.lzh experimental, has bugs, my site
 lib/curses.l
 defs/termcap.h can get this elsewhere, but this one matches
 defs/curses.h

 unixlib.lzh or unixlib.ar requires a setnuid() function
 lib/unix.l

 SHF80.zip SHF's site
 lib/debug.l
 lib/getargs.l
 lib/cos9.l
 lib/fcgfx.l
 defs/debug.h
 defs/cos9.h
 defs/getargs.h

 alib.lzh or alib.ar
 lib/alib.l AWESOME lib for assembly programming with rma
 No /dd/lib is complete without it!

 make_tk.lzh This is the make to use. It's that simple.

 rma_1_3.lzh patches rma into r63

 abandoned/unusable no docs, headers, or source
 dbg.l, mylib.l

Last edited by [SFischer1](#) on September 6th, 2011, 11:06 pm, edited 3 times in total.

August 21st, 2011, 5:24 am

 [PROFILE](#)

SFischer1
 Certified CoCo Tech



 **Tandy CoCo OS-9 "C" Compiler**

Joined: February 6th, 2011,
4:12 pm
Posts: 191

Tandy CoCo OS-9 "C" Compiler - History & Old Notes

1) ANSIFront also works around a number of nasty bugs in the compiler, such as the struct-element-name issue.

2) The original "c.prep" substitution in strings.

The spec says NO replace but I found this in the source of one of my programs.

```
-----  
#define EDITION 2 > 88/02/17
```

```
#define ARCHID fputs(" ARCHIVE ED= EDITION \n", stdout);  
/* note bug in compiler allows EDITION to be substituted, spec says no  
substitutions within quoted strings */
```

3) The patch to RMA used to produce R63 was the second one found on RTSI.

rma_6309_Patch 1/25/1993 was NOT used

rma_1_3_patch 10/25/1993

Last edited by SFischer1 on September 6th, 2011, 11:07 pm, edited 5 times in total.

August 21st, 2011, 5:27 am

[PROFILE](#)

SFischer1

Certified CoCo Tech



Joined: February 6th, 2011,
4:12 pm
Posts: 191

Re: "C" Compiler FAQ and notes

Tandy CoCo OS-9 "C" Compiler FAQ

1) How can I tell which version I have?

There's only one version from Tandy.

It was released for OS-9 Level-I and no changes were made for OS-9 Level-II.

2) do the latest patched versions etc that are out there still have it hardcoded to require certain libraries or include files to be on /DD in order to work?

The original Compiler was not hard coded for "/DD" as released from Tandy. Patches were made to change this.

What You Should Know About Your C Compiler
Originally in RAINBOW October 1989 Page 82

[ftp://www.rtsi.com/RSDOS/incoming/What% ... mpiler.txt](ftp://www.rtsi.com/RSDOS/incoming/What%20is%20the%20difference%20between%20cc252%20and%20c.comp)

EZGEN is located at:

ftp://www.rtsi.com/OS9/OS9_6X09/ezgen.lzh[/color]

As part of this work in progress, standard locations for how the compiler is to be used including where library and include files are to be placed will be defined.

While configurations different from using an emulator with a VHD (Virtual Hard Disk) and two (2) Megs of memory will be under discussion, that will be the initial target.

3) I've noted that cc252 calls c.pass1 and c.pass2. Is there any real difference between this and c.comp? How do I switch them?

As far as the code produced, there is no difference. Using c.comp will cause a slight speedup but not worth the effort. Using c.pass1 and c.pass2 loaded into memory and the work files on a ram disk on a 2 Meg system (Real CoCo or Emulator) or piped on a 512K system will show little slowdown.

Last edited by SFischer1 on October 28th, 2012, 7:47 pm, edited 3 times in total.

August 21st, 2011, 5:28 am

[PROFILE](#)

SFischer1

Certified CoCo Tech



Joined: February 6th, 2011,
4:12 pm
Posts: 191

Re: Tandy CoCo OS-9 "C" Compiler

Tandy CoCo OS-9 "C" Compiler Documentation

1) C Compiler User's Guide

[http://sourceforge.net/apps/mediawiki/n ... %27s_Guide](http://sourceforge.net/apps/mediawiki/n...%27s_Guide)

Question, do we want to convert this to PDF so it can be included in the C Compiler documentation disk?

2) C Reference Manual (The C Programming Language.pdf)

Dennis M. Ritchie
Bell Telephone Laboratories
Murray Hill, New Jersey 07974

This may NOT be the K&R Book!

Part of clang.zip, contained within

"C Compiler .dsk file - ZIP Version.zip"

Which is currently attached to this post, it will be moved TBD.

<http://www.tandycoco.com/forum/viewtopic.php?p=529#p529>

Came from "<ftp://www.rtsi.com/RSDOS/incoming/clang.zip>"

Last edited by SFischer1 on August 26th, 2011, 5:05 pm, edited 2 times in total.

August 21st, 2011, 7:43 pm

[PROFILE](#)

SFischer1

Certified CoCo Tech



Joined: February 6th, 2011, 4:12 pm
Posts: 191

Re: Tandy CoCo OS-9 "C" Compiler

Compiler Source Code Available (We have ALL Parts!)

Last edited by SFischer1 on August 21st, 2011, 8:26 pm, edited 1 time in total.

August 21st, 2011, 8:01 pm

[PROFILE](#)

SFischer1

Certified CoCo Tech



Joined: February 6th, 2011, 4:12 pm
Posts: 191

Re: Tandy CoCo OS-9 "C" Compiler

Links to other Sites, Bug lists and help.

There is a list of "C" Compiler bugs here:

ftp://www.rtsi.com/OS9/OS9_6X09/PROG/MWC_Bugs.lzh

Last edited by SFischer1 on October 28th, 2012, 7:48 pm, edited 3 times in total.

August 21st, 2011, 8:04 pm

[PROFILE](#)

SFischer1

Certified CoCo Tech



Joined: February 6th, 2011, 4:12 pm
Posts: 191

Re: Tandy CoCo OS-9 "C" Compiler

Suggested Configuration and Usage (Including Make and Shell Scripts)

Last edited by SFischer1 on August 21st, 2011, 8:45 pm, edited 1 time in total.

August 21st, 2011, 8:10 pm

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Tandy CoCo OS-9 "C" Compiler

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TANDY COCO OS-9 "C" COMPILER

Author	Message
<p>SFischer1 Certified CoCo Tech  Joined: February 6th, 2011, 4:12 pm Posts: 191</p>	<p>Re: Tandy CoCo OS-9 "C" Compiler Manual optimization and other advanced techniques</p> <p>COpt2_1_1.lzh</p> <p>Internal Compiler operation</p> <p>Tools / Utilities</p> <p>cb_C_Beautifier.lzh</p> <p>Last edited by SFischer1 on August 22nd, 2011, 3:27 am, edited 3 times in total.</p>
<p>August 21st, 2011, 8:16 pm</p>	<p>PROFILE</p>
<p>SFischer1 Certified CoCo Tech  Joined: February 6th, 2011, 4:12 pm Posts: 191</p>	<p>Re: Tandy CoCo OS-9 "C" Compiler Placeholder 11</p>
<p>August 21st, 2011, 8:20 pm</p>	<p>PROFILE</p>

SFischer1

Certified CoCo Tech



Joined: February 6th, 2011,
4:12 pm
Posts: 191

Re: Tandy CoCo OS-9 "C" Compiler

Placeholder 12

August 21st, 2011, 8:23 pm

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