CoCo~123

Winter 2020 edition

Products, Services, and Content

https://boysontech.com/marketplace

http://cloud9tech.com/

maker of the switch-a-roo

http://cocoman.biz

http://cocovga.com/

http://store.go4retro.com/

The Zippster Zone

https://thezippsterzone.com/

http://cococrew.org/

http://cocotalk.live/

http://www.tindie.com/stores/fiscap0768/

http://lcurtisboyle.com/nitros9/nitros9.html

Memory Map

G.C.C.C. Meetings

GCCC meetings are the 3rd Thursday of each month and are being held virtually via Blue Jeans until further notice. Upcoming meetings: December 17th 2020, January 21st 2021, February 18th 2021.

G.C.C.C. OFFICERS

If you have questions about the association, contact one of the officers for the answers.

POSITION	NAME	E-MAIL	PRIMARY FUNCTION
President	Jim Brain	president@glensideccc.com	The buck stops here...
Vice-President	Terry Steege	vice-president@glensideccc.com	Meeting planning, etc.
Treasurer	Brian Goers	treasurer@glensideccc.com	Dues and Purchasing
Secretary	Rich Bair	secretary@glensideccc.com	Records and Reporting
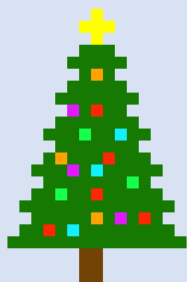
Jim Brain   Terry Steege   Brian Goers   Rich Bair

CoCo~123 Information

CoCo~123 is the newsletter of the Glenside Color Computer Club. Your annual contribution of $15.00 helps to keep our club going. Send your check to:

Brian Goers, Glenside Treasurer
PayPal to Brian7eg@gmail.com
Email treasurer@glensideccc.com

Our treasury provides newsletters and good times with fellow CoCo users at our Annual "Last" Chicago CoCoFEST! and our Annual Glenside Picnic.

Should you attend the Annual CoCoFEST! your annual contribution will be covered for that year.

CoCo~123 Contributors

Special thanks to our contributors this issue: R. Allen Murphy, Rick Adams, Rick Ulland, Tim Lindner, Chet Simpson, Eric Canales

TREA$URY NOTE$

September

Beginning Balance	$ 14,011,82
Deposits (PayPal)	$ 45.00
Interest	$ 0.57
Ending balance	$ 14,057.39

October

Beginning Balance	$ 14,057.39
Deposits (PayPal)	$ 45.00
Interest	$ 0.60
Ending balance	$ 14,102.99

November

Beginning Balance	$ 14,102.99
Deposits (PayPal)	$ 0.00
Interest	$ 0.58
Ending balance	$ 14,103.57

Brian Goers, Trea$urer
Glenside Color Computer Club

GCCC MEETINGS

The Glenside Color Computer Club meets the third Thursday of each month and are currently being held virtually through the BlueJeans video conference service.

https://bluejeans.com/889394355
Visit our website at:
http://glensideccc.com

The CoCo~123 Dream Team

This publication is a joint effort of R. Allen Murphey, Tim Lindner, Paul Thayer, L. Curtis Boyle, and Salvador Garcia. Arranged and edited by Steve Strowbridge.

From the Editor's Clipboard

2020 has been interesting to say the least! COVID-19 and real life caused the last newsletter to be about 2 months behind schedule, so my self-imposed penance was to make up for it on the next issue and end the year strong, hopefully, some of you may feel we've accomplished that goal.

Not only was the last issue late, but it was also improperly labeled, while being released "in the Fall", it was supposed to be referred to as the Summer issue. To maintain continuity to that faux pas, I'm naming this one the Winter issue, when it should be the Fall or Autumn one, it will be on time at least!

I've been lucky enough to recruit some talent and dedication to help bring this and future issues on time, and with increasing quality.

It is December, it's almost the end of the year, and I wanted to close the year with a great holiday themed cover, and do a hopefully admirable job covering a good cross-section of what happened this year in the community with a jam packed year-end news review.

I'm delighted in the team we've got working on this publication and I look forward to bigger and better issues in the future, which will rely on the continued contributions from people just like you!

Help us make CoCo~123 better each issue, send us submissions. Email you suggestions and contributions to newsletter@glensideccc.com

From the president's platen

I appreciate you taking an opportunity to peruse the latest Glenside newsletter in the midst of the holiday festivities. As the content illustrates, it has been a very productive year for the Color Computer, not only concerning new software and hardware but also the many written, audio, and video contributions sharing new insights on the platform. In my professional work environment, I've often stated that an understanding of machines of this era holds the key to excellence in today's hardware or software design efforts. And I believe machines like the CoCo were the last of the truly "fun" machines to own, one that you enjoyed for its own sake, not just as a means to an end.

In the past month, the Glenside leadership team has been busy finishing up some long gestating projects. With our thanks to Steve Bjork, who has managed the glensideccc.com domain name and web site for many years, we have migrated both the domain and web site to new providers and transferred ownership to the club directly. By the time you read this, the new Glenside web site will be operational at www.glenside.com. Eric Canales has worked tirelessly for quite some time to retheme and update the web site and we thank him for his efforts. As part of this transition and to promote continuity as roles shift within the club leadership, we've created a set of official Glenside officer email accounts for primary roles within the club. Finally, since Glenside now has access to a more powerful Internet server, potential new opportunities present themselves, like re-creating the Glenside BBS (potentially even running on a virtual CoCo3 using OS9) or connecting to the club software library using a cloud instance of DriveWire. With 2020 fast disappearing in the rear-view mirror, I hope 2021 will allow us to fully explore some of these ideas.

Please drop by the Glenside End of Year Virtual Open House, being held via our normal BlueJeans conference link on Sunday, December 20th , starting at 6PM Central and lasting until the last 2 folks sign off, I would guess. If you do drop by to say hi, be prepared to tell us about your favorite CoCo related event or item you enjoyed in 2020. And drop by with a glass full of your favorite relaxation beverage and tell us all about how you kick back and enjoy life.

Recent progress bodes well for all of us to once again congregate in Chicago in 2021 for the 29th Annual Last CoCoFEST!, where we will also belatedly celebrate the 40th anniversary of the Tandy Color Computer. Tony Podraza and Terry Steege are co-managing this year's event, and Terry has amassed a nice slate of physical and virtual speakers for the convention. Though April is a bit early in the year given all that needs to happen between now and then, we remain hopeful restrictions will be sufficiently lifted by then and we can safely gather and enjoy demos and presentations. However, I have spoken with the new venue and secured an alternate date later in 2021, should the need arise

Jim Brain
Glenside President 2020-2021
president@glensideccc.com

Secretary's Scroll

Greetings, time-travelers to the 1980s!

The big news from the last two membership meetings is that we elected a new president and vice-president for the GCCC. These new officers (Jim Brain as prez and Terry Steege as v.p.) have definitely hit the ground running, and I'm expecting a lot of good things to happen for the club over the next year.

The process of transferring our web site to a club-managed host is nearing completion. The site is undergoing a complete redesign, with the new version up for inspection and constructive criticism at the same URL as before. Jim Brain and Eric Canales have put a lot of time into this effort, so let them know your opinions of it.

The bylaws revision project has been on hold since Jim has been concentrating on the web site but expect progress in the next few months.

We mourn the loss of long-time club member George Schneeweiss. George joined the GCCC many years ago, was treasurer of the club for over a decade, hosted the September picnic on multiple occasions, and was an avid supporter of the CoCoFEST!s. He often bid on items at the FEST! auctions just for the sport of it since he usually had no real need for the particular object. Anyone who ever visited his house knows what I mean; he was a collector extraordinaire, with barns full of garage-sale merchandise.

The possibility that the pandemic may cause CoCoFEST! 2021 to be compromised or postponed was brought up at the November membership meeting, but because we cannot currently predict what the situation will be by next April no decisions were made. The topic is certain to be discussed in greater length at the upcoming December meeting, so attend and make your views known.

I wish you all a safe and happy holiday season.

Rich Bair, Secretary
Glenside Color Computer Club
mgdoc1@sbcglobal.net

2020 Webmaster Update

New website!

Hello, we've been hard at work for the last 6-8 months bringing a new and updated club website to everyone! I hope you can check it out at https://www.glenside.com. The old website is no longer available, but you can still access an archive of it at https://www.glensideccc.com/glenside-com-2020-archive/

There are many new features on this website. We have a shareable calendar hosted by Google, secure contact forms for the officers designed and provided by TandyList.com (thanks Randy Weaver!), and multi-user authentication allowing anyone who asks the ability to post on our website. You can contact me by phone or email if you need help getting logged in. My contact information is on the About Us page: https://www.glensideccc.com/about-us/

We also have updated CoCoFEST! 2021 information, so please check it out and get ready for this year's fest! We are also considering other web services for our members including the possibility of a BBS. Keep an eye out for many new changes coming down the line as we continue updating and improving the site and services!

Eric Canales
GCCC Webmaster
webmaster@glensideccc.com

Exploring the CoCo Joysticks

By R. Allen Murphey

1908 TO 1977: THE EARLY JOYSTICKS

The humble joystick got its start as a control system for aircraft, possibly as early as 1908.

However, the recorded joystick invention traces back to 1923's U.S. Patent 1,597,416 for an "Electrical Distant-Control System" by Carlos B. Mirick for the United States Naval Labs.

This was a four-direction signal transmitter to remotely control devices using a stick.

A four-direction stick triggered four switch closures that controlled analog radio signals to a remote device.

Electronic joysticks are born, even if it cannot fully decide if it is analog or digital by including both circuits in its design.

In the 1960s, the rise of the radio-controlled model aircraft hobby resulted in the 1964 release of Kwik-Fly by Phill Kraft, a direct ancestor of the Color Computer joystick designs by Kraft Systems. [1]

In 1967, Ralph Baer, better known for his later invention of the Magnavox Odyssey, first brings joysticks into arcade games.

But these joysticks did not have fire buttons.

Arcade joysticks with fire buttons would arrive in 1969 when Sega added the first fire button for the arcade game Missile.

Next in 1973, Taito adopted a 4-way stick for Astro Race, while in 1976 Prinztronic/Acetronic/Interton based their early game console on analog sticks.

Perhaps the most well-known development in joysticks came in 1977 with the release of the Atari VCS and its (in)famous digital stick.

The VCS digital switch design would be adopted by many others for years, becoming a de facto standard.

1980 THE COLOR COMPUTER ERA BEGINS

As more "serious" computers for education and business, the first Tandy/Radio Shack computers (the Models I-IV) did not include joystick ports.

However, 1980's release of the more home/hobbyist "Color Computer" would correct this in a big way by including a pair of analog joystick ports.

While it seemed foolish at the time for Tandy not to leverage the Atari VCS de facto standard which received a lot of adaptation such as paddles, a button board, and steering controllers, all of those and more were possible with the same Digital-to-Analog converter and comparator design used by the original Color Computer.

Also, given the close ties between the radio-controlled aircraft hobby and Radio Shack stores, it is easy to see how the Kraft Systems analog control stick design could become the standard for Tandy's new hobby computer.

The so-called "Black Beauty" joysticks were a popular add-on for the many games which also arrived for the Color Computer, and were clearly and cleverly described in even the original partially-completed *Getting Started with Color BASIC* book available in 1980.

Chapter 9 "Color the Screen" (pages 84-88) include a complete description of how to read the joysticks from Color BASIC, using custom BASIC keywords which were new and advanced for the time, even compared to BASIC languages being released years after.

To read the joystick in basic, you assigned the result of the JOYSTK() function to a variable, by calling JOYSTK() with a parameter from 0 to 3 describing which of the 4 axes you wanted to know.

Color BASIC would fill the variable with a number from 0 to 63 representing the current position of that axis.

The Axis parameter could be:
0 left horizontal
1 left vertical
2 right horizontal
3 right vertical

The variable value returned would fall into the following ranges.

Horizontal range: 0-63 with 32 in the middle

Vertical range: also 0-63 with 32 in the middle

Getting Started With Color BASIC also included two full joystick program listings.
The first listing would simply display the values of all four axes to the screen as numbers.

LISTING 1

```
10 CLS
20 PRINT@0,JOYSTK(0);
30 PRINT@5,JOYSTK(1);
40 PRINT@10,JOYSTK(2);
50 PRINT@15,JOYSTK(3);
60 GOTO 20
```

The second listing was built up in a series of interactive steps to develop a program using the joystick to paint colors on the screen.

LISTING 2

```
10 CLS(0)
20 H = JOYSTK(0)
30 V = JOYSTK(1)
40 IF V > 31 THEN V = V - 32
50 C = JOYSTK(2)
60 IF C < 31 THEN C = 3
70 IF C > = 31 THEN C = 4
80 SET(H,V,C)
100 P = PEEK(65280)
110 IF P = 126 THEN 10
120 IF P = 254 THEN 10
130 GOTO 20
```

An interesting sidebar note alludes to how the button circuits are wired through the keyboard input port.

"If you press the buttons when you're not RUNing the program you will get @ABCDEFG or HIJKLMNO." p. 88

The assembly language version of the Color BASIC JOYSTK() function is excerpted in Listing 3 below.

```
;****************************************************************
; LISTING 3: JOYSTK() FUNCTION
; Color BASIC Unravelled II pp B16-B17 1999 Walter Zydhek
; JSR [$A00A] or JSR [JOYIN]
;****************************************************************

* JOYSTK
JOYSTK JSR >LB70E EVALUATE JOYSTICK ARGUMENT
   CMPB #3 TWO JOYSTICKS MAXIMUM (HOR & VER FOR EACH)
   LBHI LB44A  'ILLEGAL FUNCTION CALL' IF >3
   TSTB    SET FLAGS
   BNE  LA9D4  GET NEW DATA ONLY IF JOYSTK(0)
   BSR  GETJOY GET NEW DATA FOR ALL JOYSTICKS
LA9D4  LDX #POTVAL  POINT X TO JOYSTICK DATA BUFFER
   LDB  FPA0+3 WHICH JOYSTICK DID YOU WANT?
   LDB  B,X  PUT ITS DATA INTO ACCB
   JMP  >LB4F3 CONVERT ACCB INTO FLOATING POINT NUMBER
*
* JOYSTK DATA AT:
* $15A $15B $15C $15D
* LEFT LEFT RIGHT RIGHT
* VERT HORIZ VERT HORIZ
** THIS IS A 6 BIT SOFTWARE A/D CONVERSION ROUTINE
GETJOY BSR  LA974  TURN OFF AUDIO
   LDX #POTVAL+4  POINT X TO JOYSTICK DATA BUFFER
   LDB #3 GET FOUR SETS OF DATA (4 JOYSTICKS)
LA9E5  LDA #10 10 TRIES TO GET STABLE READING
   STD  ,--S STORE JOYSTICK NUMBER AND TRY NUMBER ON THE STACK
   BSR  LA9A2  SET THE SELECT INPUTS ON ANALOG MULTIPLEXER
LA9EB  LDD #$4080 ACCA IS A SHIFT COUNTER OF HOW MANY BITS TO CONVERT
```

```
* AND WIlL BE $40 (6 BITS) FOR THE COLOR
* COMPUTER. ACCB CONTAINS A VALUE EQUAL TO 1/2
* THE CURRENT TRIAL DIFFERENCE. INITIALLY =$80 (2.5 VOLTS).
LA9EE  STA  ,-S TEMP STORE SHIFT COUNTER ON STACK
   ORB  #2 KEEP RS 232 SERIAL OUT MARKING
   STB  DA STORE IN D/A CONVERTER
   EORB #2 PUT R5232 OUTPUT BIT BACK TO ZERO
   LDA  PIA0 HIGH BIT IS FROM COMPARATOR
   BMI  LA9FF  BRANCH IF COMPARATOR OUTPUT IS HIGH
   SUBB ,S SUBTRACT 1/2 THE CURRENT TRIAL DIFFERENCE
   FCB  SKP2 SKIP NEXT TWO BYTES
LA9FF  ADDB ,S ADD 1/2 OF THE CURRENT TRIAL DIFFERENCE
   LDA  ,S+ PULL SHIFT COUNTER OFF THE STACK
   LSRA SHIFT  IT RIGHT ONCE
   CMPA #1 HAVE ALL THE SHIFTS BEEN DONE?
   BNE  LA9EE  NO
   LSRB YES - THE DATA IS IN THE TOP 6 BYTES OF ACCB
   LSRB PUT  IT INTO THE BOTTOM SIX
   CMPB -1,X IS THIS VALUE EQUAL TO THE LAST TRY?
   BEQ  LAA12  YES - GO SAVE THE VALUE
   DEC  ,S NO-DECREMENT TRIES COUNTER
   BNE  LA9EB  BRANCH IF YOU HAVEN'T TRIED 10 TIMES
* IF YOU FALL THROUGH HERE YOU HAVE TRIED TO GET THE SAME READING
* 10 TIMES AND NEVER GOTTEN A MATCH. AS A RESULT YOU JUST FALL
* THROUGH AND USE THE LAST VALUE READ IN.
LAA12  STB  ,-X SAVE THE DIGITIZED VALUE
   LDD  ,S++ GET THE NUMBER OF THE JOYSTICK JUST DONE
   DECB   DECR JOYSTK NUMBER
   BPL  LA9E5  BRANCH IF THE LAST ONE DONE WASN'T NUMBER 0
   RTS


;******************************************************************
; END OF JOYSTK
;******************************************************************
```

The core of the Color Computer controller port design is a digital-to-analog (DAC) circuit with a voltage comparator for sampling the voltage values of the potentiometers used for each axis of the two joysticks.

Joystick buttons were wired to the lowest keyboard lines of the first Peripheral Interface Adapter (PIA).

Retro Logic Lab covers the joystick hardware, circuit, and assembly code in detail in a fascinating Youtube video "How It Works In Detail - TRS-80/Kraft Deluxe Joystick Teardown, Circuit, and 6809 Assembly Code" [2]

While the DE-9 Atari VCS joystick became a de facto standard in the late 1970s and early 1980s, Atari themselves also experimented with the analog joystick on the Atari 5200 game console in 1982.

Unlike the TRS-80 Color Computer "Black Beauty" joysticks which are still favored by many CoCo gamers today, the Atari 5200 controllers left a lot to be desired by the gamers of the time, and still have an unlovely reputation.

But, Tandy was not done.

In 1983, the Color Computer 2 was introduced, along with the Deluxe Joystick and the Color Mouse.

The Deluxe Joystick featured a new "self-centering" or "free-floating" design adopted from United States Patent Number 4,490,710 "Control Stick Assembly" by Kraft Systems, Inc. of Vista California and filed November of 1982.

Leaving no stone unturned, Robert Lee Hawkins documented an "Atari Joystick Adapter" circuit in Color Computer Magazine February, 1984 starting on page 135.

This allows those de facto-standard Atari VCS digital joysticks to plug into the Color Computer and work with many existing Color Computer analog joystick games without change.

The introduction of the Color Mouse also underscored the versatility of the analog design, allowing "joystick ports" to become "controller ports" offering more options than just joysticks.

The default Color Computer design only offered six bits of resolution, or a numerical range of zero (0) to sixty-three (63) for each axis which is not enough to offer pixel-by-pixel positioning on high-resolution screens for graphics or user interfaces.

So the Color Mouse required tricks such as using a "key" to signal "high-resolution" mode and changing the scaling when detail positioning was needed.

To tackle this resolution issue Colorware introduced the CoCo Max graphics package in 1985 with a cartridge high-resolution joystick or mouse adapter offering much more detailed positioning.

Of course, Tandy was still not done yet.

In 1986, the Color Computer 3 brought in the next generation CoCo with another pin in the controller port allowing two buttons for all!

Tandy took advantage of that extra pin themselves with an upgraded Deluxe Joystick and Deluxe Mouse, both featuring two buttons.

Continuing on, Tandy also offered their own High-Resolution controller interface in 1987, which was also followed by Diecom's release of "The Rat" graphics and interface package.

The year 1987 also included another use for the venerable controller port through Gimmesoft's Maxsound software and cable which turned the Color Computer into a digital audio sampler, editor, and playback engine.

Adaptation, experimentation, and additional capabilities continue to be applied to the simple, clever joystick circuit of that original Color Computer.

In 2015, John "Sock Master" Kowalski, Robert Gault, and Nickolas Marentes brought us the Software Hi-Res Interface NEWJOY.ASM [3]

Using the original six-bit joystick interface from the 1980 Color Computer, they achieved the resolution available to a hardware high-resolution interface using software only.

Some of the original hardware high-resolution programs have subsequently been patched to use the NEWJOY driver successfully, opening those software packages to those who can no longer find the rare hardware interfaces.

In 2016, John Linville expanded on Robert Lee Hawkins Atari adapter design to bring Sega Master Control and Sega Genesis gamepads to the CoCo, with three buttons plus "Start" or six-button configurations now usable through the original CoCo controller ports. [4]

Not far behind, Ed Snider's CoCoPSG memory/sound/game card for the CoCo adds additional DE-9 game ports which are also programmable to work with Atari VCS or Sega controllers. [5]

These ports are in addition to the original CoCo ports, allowing four controllers to be connected to the same Color Computer at once.

In 2019, David Ladd prototyped a PS/2 mouse to Color Computer adapter, allowing even more controller types.

One thing many of these "retro" joystick controllers have in common could be described as an utter contempt for the concept of ergonomics and an "iffy" track record on reliability.

The Atari VCS joystick and the CoCo Deluxe Joystick can both take their toll on your hands during heavy gameplay.

Activision's Decathlon game is well known for its share of destroyed VCS controllers, and there is a thriving enterprise in 3D-printing replacement arms for the many broken CoCo Deluxe Joystick arms out there.

In 2020, Neil Blanchard tackled the ergonomic and reliability issues by offering "The Gamester" which is a high-quality digital joystick constructed of genuine arcade joystick parts and a sturdy cabinet with replaceable cable design.

2020 JOYSTICK PROGRAMMING FOR MYSELF

I thought it would be neat to add joystick control to a game which was only keyboard controlled when originally sold.

A key constraint is that the BASIC ROM joystick functions would not be available to me, since I mapped a high-resolution game screen over the ROM memory area.

This meant I had to find a standalone replacement routine or do it myself.

Given the rich history of the CoCo and its controller ports, there is no shortage of choices of available code.

But I decided to tackle it myself which usually turns out to be the better learning opportunity for me.

It turns out the heart of the CoCo ROM routine is an algorithm called "Successive Approximation" which is very similar to a binary search.

If you have ever played a "Guess The Number" computer game where you are only told if your guess is "higher" or "lower" than the hidden number, then you have performed your own successive approximation.

The Retro Logic Lab video reference shows an excellent walk through of how successive approximation works with the CoCo ROM routine code.

However, I have heard a number of people grumble about how inefficient that CoCo ROM routine is.

After working through it, I have to agree.

While a successive approximation is the most efficient way to find the value given only the presence of a comparator and digital-to-analog controller, the CoCo ROM implementation has a funny wrapper around it.

In effect, for each axis tested, the CoCo ROM will try up to ten times in a row to read the same value.

If it cannot, then it gives up and just uses the last value read anyway.

By now you are probably asking the same question I did, "why do the other nine reads, each taking six successive approximations, for a total of 54 tests, when you will just use the last one as a default if needed?"

The obvious optimization here is obvious: just successively approximate once and be done in six tests instead of sixty.

So that's what I do.
During my research into the digital-to-analog conversion for sound, I found Hal Chamberlin's original Byte Magazine article

from 1977 for digital to analog sound with 6502 assembly code for a KIM-1.

That also led me to his 1985 book "Musical Applications of Microprocessors" and a wonderful coverage of successive approximation, including source code for a 6502 microprocessor which I converted to 6809 and adapted to the CoCo.

One adaptation was to shift the testing value up two bits, since the CoCo DAC uses only the upper six bits of the PIA port.

The other two bits are used for cassette input and serial output, which requires a little bit of Boolean AND/OR bit masking to avoid sending junk values to the printer or modem.

After sending the test value to the DAC, two more shifts to move the test value back down to the lower six bits.

The code in listing 4 will put 4 inverse video boxes on the screen, one for each joystick axis.

The box is an inverse "space" character, CoCo character value 32.

As you move the sticks, the character for each axis will change from an inverse @ sign (value 0) to an inverse ? mark (value 63).

Pressing the buttons will vary the 5th block on the screen through several inverse characters, JKNMO, representing which bit of the CoCo keyboard input line went low.

Some additional code needed to work with the CoCo joystick, such as a clear screen, and the multiplexor control to switch through all four axes is included in this test as well.

Finally, I have also included a hint where the Sega gamepad button checks go, but I am unable to include or test those now with the version of the Linville adapter that I have.

LISTING 4

```
;**********************************************************************
;* Title: JOY.ASM
;**********************************************************************
;* Author: R. Allen Murphey
;*
;* Description: CoCo DAC Joystick input
;*
;* Assembler: lwasm 1.4.2
;* lwasm -o JOY.BIN JOY.ASM
;*   decb dskinit JOY.DSK
;* OR
;*   decb kill JOY.DSK,JOY.BIN
;* decb copy JOY.BIN JOY.DSK,JOY.BIN -2
;* LOADM"JOY":EXEC
;*
;* Revision History:
;* Rev #      Date      Who     Comments
;* -----   ----------  ------   -------------------------------------
;* 00      2020        RAM      Initial test code
;**********************************************************************


;**********************************************************************
;* EQUATES
;**********************************************************************

PIA0AD:     equ   $FF00
PIA0AC:     equ   $FF01
PIA0BD:     equ   $FF02
PIA0BC:     equ   $FF03

PIA1AD:     equ   $FF20
PIA1AC:     equ   $FF21
PIA1BD:     equ   $FF22
PIA1BC:     equ   $FF23

;**********************************************************************
; GLOBALS
;**********************************************************************

TRLBIT:     rmb   1

;**********************************************************************
; MAIN
;**********************************************************************

            org   $7000
MAIN:
            jsr   CLS         ; clear screen
            jsr   SOUNDOFF    ; disable sound while we mess with MUX
```

```
LOOP:
            jsr    MUX1AOFF      ; turn off MUX select 1/A
            jsr    MUX2BOFF      ; turn off MUX select 2/B
            jsr    ADC0          ; get joystick axis reading
            sta    $0400         ; put on screen

            jsr    MUX1AON       ; switch to joystick axis 1
            jsr    MUX2BOFF      ; switch to joystick axis 1
            jsr    ADC0          ; get joystick axis reading
            sta    $0402         ; put on screen

            jsr    MUX1AOFF      ; switch to joystick axis 2
            jsr    MUX2BON       ; switch to joystick axis 2
            jsr    ADC0          ; get joystick axis reading
            sta    $0420         ; put on screen

            jsr    MUX1AON       ; switch to joystick axis 3
            jsr    MUX2BON       ; switch to joystick axis 3
            jsr    ADC0          ; get joystick axis reading
            sta    $0422         ; put on screen

            lda    #$FF
            sta    PIA0BD        ; turn off keyboard strobes
            lda    PIA0AD        ; read keyboard
            anda   #$0F          ; strip off top 4 bits
            sta    $0440         ; put on screen

                                 ; TODO add SEGA serial port select here
                                 ; POKE 65312,0 a pair of buttons which?
                                 ; POKE 65312,2 the other pair which?
            jmp    LOOP

;***********************************************************************
;* ADC Successive Approximation Search
;* from Musical Applications of Microprocessors pages 262-269
;* by Hal Chamberlin, (c) 1985 Hayden Books
;* 6502 Successive Approximation Figure 7-31 page 264
;* Adapted and modified for 6809 / Color Computer by R. Allen Murphey
;***********************************************************************

ADC0:       lda    #$20          ; set 6th bit on for 6-bit dac
            sta    TRLBIT        ; save trial bit to memory
            clra                 ; free up A register for whats next
ADC1:       ora    TRLBIT        ; get bit to try
            lsla                 ; shift A left 1 bit
            lsla                 ; shift A left another 1 bit
            ora    #%00000010    ; set serial marking bit
            sta    PIA1AD        ; write Trial Bit and Serial Mark to DAC
            anda   #%11111101    ; set serial marking bit
            lsra                 ; shift A right 1 bit
            lsra                 ; shift A right another bit
            ldb    PIA0AD        ; high bit of keyboard in is comparator
            bmi    ADC2          ; if high bit then add
            eora   TRLBIT        ; subtract current trial bit
ADC2:       lsr    TRLBIT        ; shift trial bit right 1 place
            bcc    ADC1          ; not done with test bits, go back
            rts
```

```
;****************************************************************
;* CLEARSCREEN
;****************************************************************

CLS:
            ldx    #$0400      ; start of screen
            ldd    #$6060      ; space space
CLEAR:
            std    ,X++        ; write D to X, increment X twice
            cmpx   #$0512      ; end of screen?
            bne    CLEAR       ; no, keep clearing
            rts

;****************************************************************
;* SOUNDOFF
;****************************************************************

SOUNDOFF:
            lda    PIA1BC      ; get current SNDEN
            anda   #%11110111  ; switch off bit 3
            sta    PIA1BC      ; disable SNDEN
            rts

;****************************************************************
;* SOUNDON
;****************************************************************

SOUNDON:
            lda    PIA1BC      ; get current SNDEN
            ora    #%00001000  ; switch on bit 3
            sta    PIA1BC      ; enable SNDEN
            rts

;****************************************************************
;* MUX1AOFF
;****************************************************************

MUX1AOFF:
            lda    PIA0AC      ; get current MUX 1/A
            anda   #%11110111  ; switch off bit 3
            sta    PIA0AC      ; MUX 1/A off
            rts

;****************************************************************
; MUX1AON
;****************************************************************

MUX1AON:
            lda    PIA0AC      ; get current MUX 1/A
            ora    #%00001000  ; switch on bit 3
            sta    PIA0AC      ; MUX 1/A on
            rts
```

```
;******************************************************************
;* MUX2BOFF
;******************************************************************

MUX2BOFF:
          lda    PIA0BC       ; get current MUX 2/B
          anda   #%11110111   ; switch off bit 3
          sta    PIA0BC       ; MUX 2/B off
          rts


;******************************************************************
;* MUX2BON
;******************************************************************

MUX2BON:
          lda    PIA0BC       ; get current MUX 2/B
          ora    #%00001000   ; switch on bit 3
          sta    PIA0BC       ; MUX 2/B on
          rts

          end    MAIN

;******************************************************************
;* END OF JOY.ASM
;******************************************************************
```

The next bit of exploration for CoCo joysticks covers the Game Ports on Ed Snider's CoCoPSG card.

The CoCoPSG is built around a Yamaha YM2149 Software-controllable Sound Generator (SSG) which is an updated version of the General Instruments AY-3-8910 Programmable Sound Generator (PSG).

The SSG, and some models of PSG chips, include two I/O ports.

Ed Snider's documentation for the CoCoPSG includes the schematic of how the I/O ports of the YM2149 connect up to the Game Ports, and programming information needed to read digital Atari joysticks.

A careful read of the manual also includes the information needed to access the Game Port A and B "Select" signals needed to read the additional buttons of a Sega Genesis game pad.

I was able to program that and David Ladd tested and confirmed the button select was working for me.

Much like my previous test code, this example code simply "pokes" raw values to screen locations.

Since the direction controls are digital, you only see the extreme ends and center value.

The inverse @ sign for left or up, and the inverse ? mark for right and down.

There are two blocks showing the button bits status for when Game Port Select is high and low.

A careful read of the comments in the SSGSTICK subroutine will show where the buttons are read with and without select.

LISTING 5

```
;**********************************************************************
;* Title: TESTSSG.ASM
;**********************************************************************
;* Author: R. Allen Murphey
;*
;* Description: Support for Ed Snider's CoCoPSG Cart
;*
;* Documentation:
;* AY-3-8910    CHANNEL    OPERATION
;* R1/R0        A          Tone Generator Control 1-4095
;* R3/R2        B          Tone Generator Control 1-4095
;* R5/R4        C          Tone Generator Control 1-4095
;* R6           -          Noise Generator Control 1-31
;* R7           -          Mixer Control / I/O Enable
;*                         IOA|IOB|NOISEC|NOISEB|NOISEA|TONEC|TONE|TONEA
;* R8           A          Amplitude Control
;*                         x|x|x|M|L3|L2|L1|L0
;* R9           B          Amplitude Control
;*                         x|x|x|M|L3|L2|L1|L0
;* R10          C          Amplitude Control
;*                         x|x|x|M|L3|L2|L1|L0
;* R12/R11      -          Envelope Period Control 1-65535
;* R13          -          Envelope Shape / Cycle Control
;*                         x|x|x|x|CONT|ATT|ALT|HOLD
;* R14          PORTA      x|x|ALTBUTTON|FIRE|RIGHT|LEFT|DOWN|UP
;* R15          PORTB      x|x|ALTBUTTON|FIRE|RIGHT|LEFT|DOWN|UP
;* If select, buttons are A/START
;* Else buttons are FIRE/B/C
;*
;* Assembler: lwasm 1.4.2
;* lwasm -o TESTSSG.BIN TESTSSG.ASM
;*    decb dskinit TESTSSG.DSK
;* OR
;*    decb kill TESTSSG.DSK,TESTSSG.BIN
;* decb copy TESTSSG.BIN TESTSSG.DSK,TESTSSG.BIN -2
;* LOADM"TESTSSG":EXEC
```

```
;*
;* Revision History:
;* Rev #      Date      Who     Comments
;* -----   -----------  ------  ----------------------------------------
;* 00      2020         RAM     Initial test code
;****************************************************************************

skip2       equ    $8C            ; use CMPX # to skip next 2 bytes
SSGBANK0:   equ    $FF5A          ; FLASH or RAM in C000-DFFF
SSGBANK1:   equ    $FF5B          ; FLASH or RAM in E000-FDFF/FEFF
SSGCNTRL:   equ    $FF5D          ; Control Register
SSGYMREG:   equ    $FF5E          ; YM2149 Register Select
SSGYMDAT:   equ    $FF5F          ; YM2149 Data
SSGTONAL:   equ    $00
SSGTONAH:   equ    $01
SSGTONBL:   equ    $02
SSGTONBH:   equ    $03
SSGTONCL:   equ    $04
SSGTONCH:   equ    $05
SSGNOISE:   equ    $06
SSGMIXER:   equ    $07
SSGVOLA:    equ    $08
SSGVOLB:    equ    $09
SSGVOLC:    equ    $0A
SSGENVLO:   equ    $0B
SSGENVHI:   equ    $0C
SSGENVSH:   equ    $0D
SSGIOA:     equ    $0E
SSGIOB:     equ    $0F


;****************************************************************************
;* TESTSSG
;****************************************************************************
            org    $7000
TESTSSG:                          ; SETUP
                                  ; switch MPI to slot 1
            lda    $FF7F
            anda   #$F0
            sta    $FF7F

            jsr    CLS            ; clear screen
JOYLOOP:    jsr    SSGSTICK       ; read gamepad values
            lda    SSGPORTA
            sta    $0400
            lda    SSGPORTA+1
            sta    $0402
            lda    SSGPORTB
            sta    $0440
            lda    SSGPORTB+1
            sta    $0442
            bra    JOYLOOP
```

```
;******************************************************************
;* CLS
;******************************************************************
CLS:
            ldx    #$0400
            ldd    #$6060
CLSLOOP:    std    ,x++
            cmpx   #$0512
            bne    CLSLOOP
            rts


;******************************************************************
;* JOYSTICK TEST
;******************************************************************
SSGSTICK:
            lda    #SSGMIXER   ; bit 7 and 6 are IOA\  and IOB\ control
            sta    SSGYMREG    ; latch YM register 7 Mixer Control
            lda    SSGYMDAT    ; read what Mixer Control is set to
            anda   #%00111111  ; force bit 7 and 6 low to enable IOA/IOB
            sta    SSGYMDAT    ; write it back

                               ; Disable Game Port A and B Selects
            lda    SSGCNTRL    ; Read current SSG Control Setup
            anda   #%11111001  ; Turn off both Game Port Selects
            sta    SSGCNTRL    ; Write it back out

                               ; Read Game Port A without Select
            lda    #SSGIOA     ; YM Register 14 IOA
            sta    SSGYMREG    ; Latch Register 14
            lda    SSGYMDAT    ; Read YM IOA
            sta    SSGPORTA    ; Save it off for later processing

                               ; Enable Game Port Select A
            lda    SSGCNTRL    ; Read current SSG Control Setup
            anda   #%11111001  ; Turn off both Game Port Selects
            ora    #%00000010  ; Turn on only Game Port A Select
            sta    SSGCNTRL    ; Write it back out

                               ; Reread Game Port A with Select
            lda    #SSGIOA     ; YM Register 14 IOA
            sta    SSGYMREG    ; Latch Register 14
            lda    SSGYMDAT    ; Read YM IOA
            sta    SSGPORTA+1  ; Save it off for later processing

                               ; Enable Game Port B Select
            lda    SSGCNTRL    ; Read current SSG Control Setup
            anda   #%11111001  ; Turn off both Game Port Selects
            ora    #%00000100  ; Turn on only Game Port B Select
            sta    SSGCNTRL    ; Write it back out

         ; Read Game Port B with Select
            lda    #SSGIOB     ; YM Register 15 IOB
            sta    SSGYMREG    ; Latch Register 15
            lda    SSGYMDAT    ; Read YM IOB
            sta    SSGPORTB+1  ; Save it off for later processing

                               ; Disable Game Port A and B Selects
            lda    SSGCNTRL    ; Read current SSG Control Setup
```

```
        anda    #%11111001  ; Turn off both Game Port Selects
        sta     SSGCNTRL    ; Write it back out
                            ; Read Game Port B without Select
        lda     #SSGIOB     ; YM Register 15 IOB
        sta     SSGYMREG    ; Latch Register 15
        lda     SSGYMDAT    ; Read YM IOB
        sta     SSGPORTB    ; Save it off for later processing

        lda     #SSGMIXER   ; bit 7 and 6 are IOA\  and IOB\ control
        sta     SSGYMREG    ; latch YM register 7 Mixer Control
        lda     SSGYMDAT    ; read what Mixer Control is set to
        ora     #%11000000  ; force bit 7 and 6 high to disable IOA/IOB
        sta     SSGYMDAT    ; write it back
        rts
SSGPORTA:  rmb   2
SSGPORTB:  rmb   2

        END     TESTSSG
;*****************************************************************
;* END OF TESTSSG.ASM
;*****************************************************************
```

You should now have all the code you need to go forth and take control of the joysticks.

The possibilities abound!

I look forward to seeing the first 4-person game where everyone has SEGA Genesis controllers and all 4 buttons on each controller are used for something cool.

For example, the START button could be for each player to choose their character and pause in-game.

Buttons A, B, and C could each have different actions.

Could Gantelet, Dunjunz, or the Aliens game in development use these for 4-player-at-once action?

With a little bit of creative patching or design, it is very possible...and would be great fun at CoCoFEST!

Keep on CoCo'ing!

REFERENCES
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[3] https://nickmarentes.com/ProjectArchive/hires.html

[4]   https://retrotinker.blogspot.com/2016/06/sega-genesis-joypad-adapter-for-coco3.html

[5] https://thezippsterzone.com/2018/05/08/coco-psg/

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Joey High Res Adapter

NEW!

Joey Joystick Switch

Joey Serial Switch

Unretouched photo of Rick in his basement

Recently, while organizing some storage boxes in a forgotten corner of my basement, I found a box of documents from the years I developed games for Tandy and Activision. This treasure trove contained documents related to Temple of ROM, Shanghai, Omnistar, Bomb Threat and The Last Ninja. It was in a dusty far corner, at the very bottom of a stack of other boxes and hadn't been touched since we moved into my house 26 years ago.

The most important documents to me were the nine sheets of graph paper on which I had drawn out the maze for Temple of ROM, and the original instruction manual for the game. The original manual had a fantasy sword and sorcery theme, but Tandy changed this to a space exploration theme. I was glad to have the "real" manual back at last!

Sales figures for Temple of ROM were included, showing the game sold around 32,000 units.

The documents for The Last Ninja included the ridiculous timeline for development; I was to finish the project in four months. Well, that didn't happen, did it? What a happy nostalgic find this was!

Temple of ROM archive:
- Correspondence
  - sales data
  - contract
- Development notes
  - instruction manual!
  - map diagram
  - font diagram
- Program listing
- Original game had one enemy
- Not all rooms had treasures, some had two
  - One per room, location based on room data
- Crown sped up cursor movement
- Crystal ball enabled bat warning
- Cursor was white square -> little flailing man
- I added video mode keys
- Precious ruby changed to jade cross
- ~32,000 units sold at $1.50

Sales data – units sold

Year	Units
1984	589
1985	28,041
1986	2,146
1987	1,512
TOTAL	32,288

May 23, 1983

Rick Adams
1399 Springhill Road
Petaluma, CA 94952
(707) 778-0814

Software Evaluation
1500 Tandy Center One
Fort Worth, TX 76102

Dear Sir(s):

I am submitting an original arcade game for the Color Computer for evaluation. I am a senior programmer/analyst in the San Francisco Bay Area who also develops Color Computer software.

I am hoping that you will find the game acceptable for your Color Computer product line. Although the game is being sent to you via floppy disk, please note that it was designed to fit within an 8K game cartridge (8K ROM).

The game requires a 16K Color Computer. A floppy disk containing the game, and a one-page summary of game play, is enclosed.

Thank you for your consideration.

Sincerely,

Rick Adams

Radio Shack
COMPUTER MERCHANDISING   817-390-3155
A Division of Tandy Corporation   1500 ONE TANDY CENTER, FORT WORTH, TEXAS 76102

May 27, 1983

Rick Adams
1399 Springhill Road
Petaluma, CA 94952

Dear Mr. Adams:

Thank you for submitting your program, Temple of Rom, to Radio Shack for evaluation.

Thank you again for allowing us to look over your program. Your submission has been forwarded to the appropriate Product Line Manager, Barry Thompson, for review. He will contact you by letter within 60 days.

Sincerely

Ed Juge

Ed Juge
Director Computer Merchandising

EJ/kh

THE BIGGEST NAME IN LITTLE COMPUTERS

TEMPLE OF ROM
(C) Copyright 1983
By Rick Adams

— LOADING AND STARTING GAME:
    — Insert disk, load and start game via LOADM"ROM" and EXEC.
    Interrupt animated title page by pressing either joystick button.
    Select number of players by moving (right) joystick left or right.
    Push either joystick button to begin game play.

GAME PLAY:
    Move joystick to explore rooms and corridors in search of treasure.
    Screen scrolls in all directions.
    Push button to fire in direction of movement.
    — Shoot spiders and bats before they bite you. & fireballs
    Touch treasures with the cursor to obtain them (and their point value).
    — Scoring is doubled while bat pursues player.
    Obtaining some objects enables special abilities for a period of time.
    — The crystal ball warns of approaching bats via a double-"blip" sound.
    — The golden crown enables the player to move 25% faster.
    — The cursor flashes while the special ability is in effect.
    "Transfer portals" are represented by a white dot inside a blue circle.
    Entering a transfer portal teleports player to another portal far away.
    Use of a portal disables all portals for a period of time.

SCORING:
    Spider   1000 points
    Bat   1000 points   < Fireball
    Precious ruby   100 points
    Diamond ring   200 points
    Golden cup   500 points
    Crystal goblet 1000 points
    Crystal ball   1500 points   (enables advance warning of bats) —
    Silver pitcher 3000 points
    Golden crown   5000 points   (enables fast cursor movement) —

REQUIREMENTS:
    16K, 32K, or 64K Color Computer.
    Disk system or non-disk system (if produced as 8K game cartridge)
    Standard Color BASIC or Extended Color BASIC.

AUTHOR INFORMATION:
    Rick Adams
    1399 Springhill Road
    Petaluma CA, 94952
    (707) 778-0814

Tandy Corporation/Radio Shack
Executive Offices 1800 One Tandy Center Post Office Box 17180 Fort Worth, Texas 76102 Telephone (817)390-3700

February 3, 1984

Mr. Rich Adams
1399 Spring Hill Road
Petaluma, California 94952

Re: Computer Software License Agreement
     "Temple of ROM", File R250/907

Dear Mr. Adams:

Enclosed are two copies of the noted agreement for your review. If it meets with your approval, please attach program specifications as Exhibit A, sign and return both copies to me for execution by our management. Upon completion, one fully executed original will be returned for your records.

Thank you for your cooperation.

Sincerely yours,

Ronald A. Williams
Staff Attorney

RAW:mm
encl.
cc: L. Gradziel

84-2107

Tandy Corporation/Radio Shack

Executive Offices 1800 One Tandy Center Post Office Box 17180 Fort Worth, Texas 76102 Telephone (817)390-3700

March 19, 1984

Mr. Rick Adams
1399 Spring Hill Road
Petaluma, California 94952

Re: Computer Software License Agreement
     "Temple of ROM", File R250/907

Dear Mr. Adams:

Enclosed is one fully executed original of the noted agree-
ment for your records.

Sincerely yours,

Ronald A. Williams

Ronald A. Williams
Staff Attorney

RAW:mm
encl.
cc:w/encl. M. Yamagata
           L. Gradziel
           J. Gray

84-2444

Temple of ROM original instruction manual

--- Exhibit 'A' ---

Temple of Rom

Program Specifications

Table of Contents

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1. Introduction

        Centuries ago, the rightful occupants of the Temple of
Rom were displaced by a conquering army sent by an evil
empire. The rooms of the ancient temple were used to store
the empire's ill-gotten treasure, and infested with many
dangerous creatures who were charged with the task of guard-
ing these treasures from any intruders.

        Now, the descendents of the original occupants of the
Temple have vowed to re-take their ancestral home, the Tem-
ple of Rom. They have hired you, as a fearless and adven-
turous mercenary, to infiltrate the dark corridors of the
temple, steal as many treasures as you can, and destroy
these evil creatures.

        The odds seem insurmountable. You find your way
blocked by poisonous bats and fearsome spiders. Worst of
all, some treasures are protected by enchanted, hovering
fireballs of flame, which shoot through the air toward your
body the instant they sense your presence.

        But you are reassured by the surge of power from your
laser pistol, as you use your weapon to down one adversary
after another. And, thanks to some advice from your
employers in exile, you know some secrets about the Temple
of Rom that the evil empire does not...

2. Loading game

        If game is supplied as a Program Pak:
            make sure that computer is off.
            insert Program Pak.
            turn on computer.
        If game is supplied as a cassette tape:
            turn on computer.
            CLEAR 0, 2000
            ready tape in cassette tape player.
            CLOADM
            EXEC

The animated title display will begin.

        The Temple walls should be blue against a black back-
ground in the animated title display. If the Temple walls
are red, press the RESET button until they are blue.

3. Starting game play

        Press any joystick button, at any time, to interrupt
the animated title display.

        Choose one or two players with the right joystick: move
the joystick to the left for one player game, or move the

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- 3 -

joystick to the right for two player game.

        When the desired number of players has been displayed,
press any joystick button to start game play.

4. Game play

        Use the joystick to move your animated player figure in
any direction. Press your joystick button to fire your
laser in your direction of movement. The screen scrolls in
all directions. Only a small portion of the Temple is visi-
ble on the screen at any one time.

        Find and obtain treasures. Avoid and destroy monsters.
When the player has been destroyed three times, the game is
over.

        For two player games, separate Temple configurations
are maintained for each player.

4.1. Transfer portals

        The conquering agents of the evil empire were puzzled
to find five locations within the Temple at which a circle
was inscribed on the floor, with a glowing crystal gem of
unknown composition set at the center.

        What possible purpose these five inscribed circles
could have, they could not discover. They thought to remove
the gems, but found that they could not, and after numerous
attempts to do so, simply left them alone.

        But you know them to be "transfer portals", a means by
which the original occupants of the Temple were able to
travel great distances instantaneously.

        Enter a transfer portal to be teleported to one of the
other four portals. The destination transfer portal is
chosen at random.

        Transfer portals are represented within the Temple as
blue circles with a white dot in the center.

        Use of a portal disables all of the portals for a
period of time. A disabled portal is displayed as a blue
circle without a white center dot. The white dot reappears
when all portals are re-enabled.

        Luckily for you, bats and other monsters can't use the
transfer portals, as they do not know their true purpose.

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4.2. Treasures

Obtain treasures by touching them with the animated player figure. When a treasure is obtained, its point value is added to the player's score. But if you shoot a treasure, it shatters and is destroyed (for zero points!).

Both the crystal ball and the golden crown have other magical properties of which the evil empire is unaware.

Obtaining the crystal ball renders the player invisible for a period of time. The animated player figure flashes while the player is invisible. Bats, spiders and fireballs can't see you while you are invisible.

Obtaining the golden crown enables a higher-powered laser for a period of time. The high-powered laser causes a larger explosion when it hits something.

All of the Temple's treasures and monsters are regenerated when the last treasure is taken.

4.3. Score table

5000	Golden Crown	(enables high-powered laser)
3000	Silver Pitcher	
1500	Crystal Ball	(renders player invisible)
1000	Crystal Goblet	
500	Golden Cup	
200	Diamond Ring	
100	Ruby	
1000	Sentinel Bat	
1000	Fireball	
1000	Spider	

4.4. Monsters

Spiders, bats, and fireballs that you may meet in the Temple are deadly. Shoot them before they destroy you.

If a bat destroys you, your position will be unchanged for your next turn. If a spider or fireball destroys you, your next turn will begin at the center of the Temple, where your game began.

4.4.1.

Spiders

Some rooms in the Temple contain poisonous spiders. Shoot them before they bite you.

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if it is so large that not all of the room appears on the screen at any one time.

Similarly, be warned that some rooms contain more than one monster. Don't be fooled into relaxing your guard just because you have destroyed one monster. Another may be in hot pursuit!

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4.4.2. Fireballs

Some rooms are guarded by fireballs. Fireballs are faster than bats. If one engulfs you, you are cooked! Use the laser to disrupt fireballs and destroy them.

4.4.3. Bats

Watch out for patrolling sentinel bats. They have absolutely no sense of humor. Once a sentinel bat finds you, it won't give up. It will chase you relentlessly until either you or it are destroyed.

Bats can go through walls, but you cannot. Bats cannot go through transfer portals, but you can.

You earn double points for treasures taken while you are being chased by the bat. This double-scoring will be indicated by a double-"blip" sound when the treasure is obtained, instead of the usual single "blip".

The bats' bite is also deadly. Shoot them before they bite you.

5. Strategy

Once a bat finds you, confuse him for as long as possible. Touch a crystal ball to become invisible, or escape through a transfer portal. If you're lucky, the bat will take quite some time to find you, while you take advantage of the double-scoring bonus to gobble up as many treasures as you can.

Some sections of the Temple contain more of the higher-scoring treasures than others. Obviously, it would be to your advantage to find these sections so that you can explore them first.

When entering a room, slow down and fire your laser quite a bit. Perhaps you will find a spider within; you gain nothing by running into his grasp. On the other hand, a monster may try to attack you and instead run right into your fire, and wouldn't that be a shame?

Become familiar with the layout of the Temple rooms and corridors. Be systematic in your efforts to clear the Temple of all treasures and monsters. Otherwise, you may wander around quite a while in the nearly-empty Temple searching for that last treasure.

Some rooms contain many treasures, some contain only one, and some are empty. Don't assume that you have cleared the room of treasures simply because you have found only one. Make sure that you explore the entire room, especially

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One of the many hand drawn map diagrams on graph paper
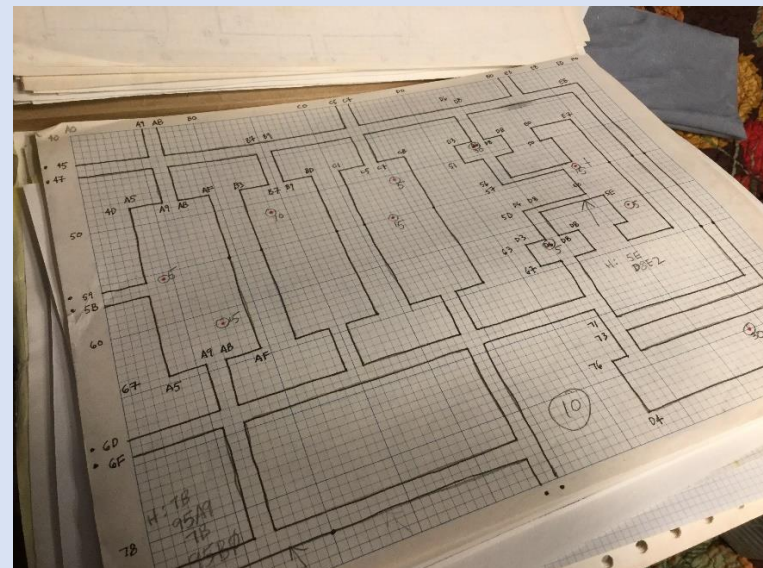
Font and character diagrams
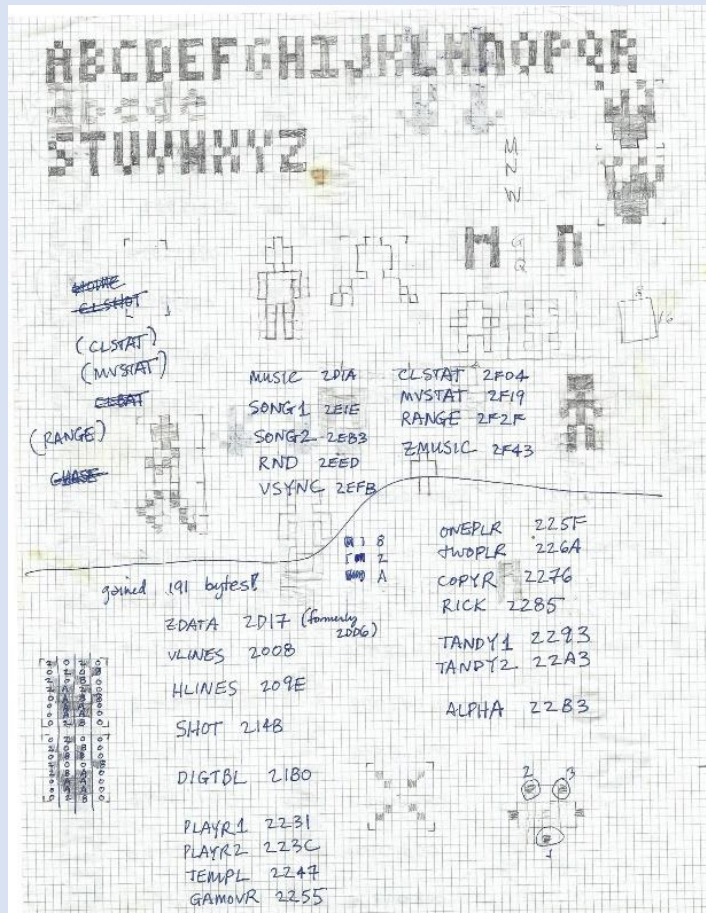
Shanghai:

Shanghai archives:
- Correspondence
  - Milestone payments
  - Contract
- Title Diagram
- Magazine review

Omnistar:

Unearthed Omnistar relics:
- development notes
- network diagram
- font diagram
- program listing

Omnistar features:
- Cool 5x7 OCR font
- DTMF keyclick sound
- More elaborate game

Oministar relics:
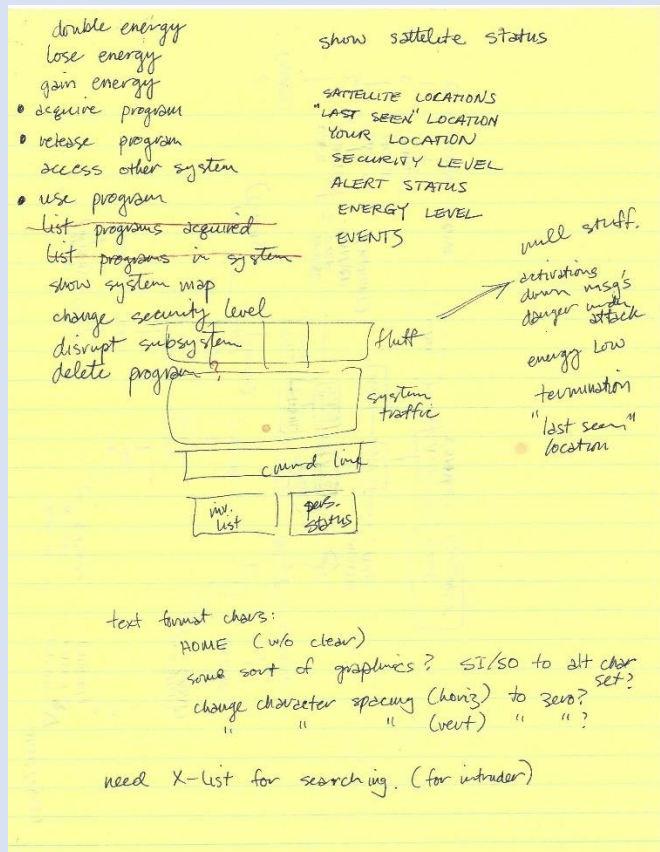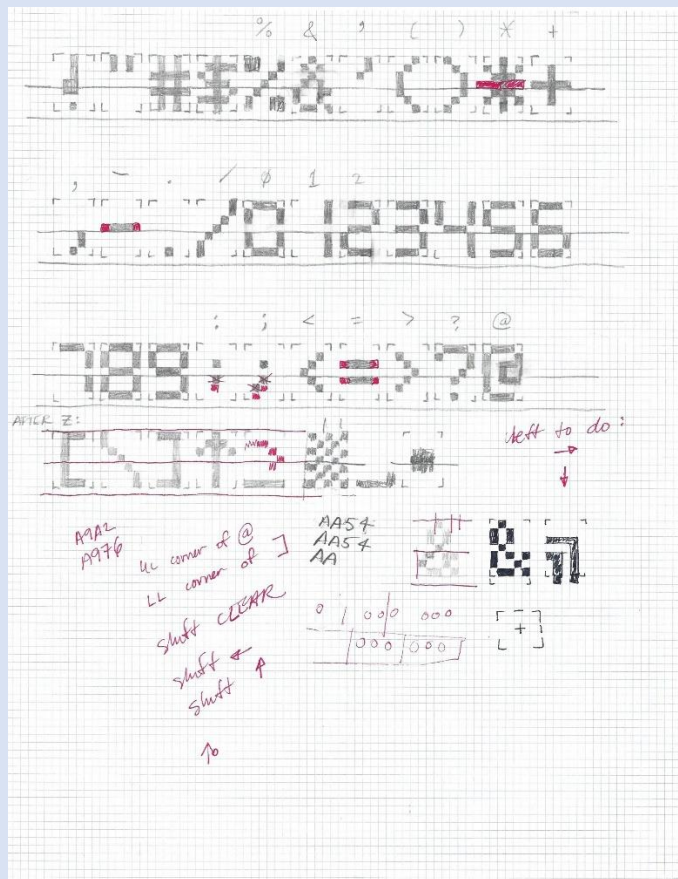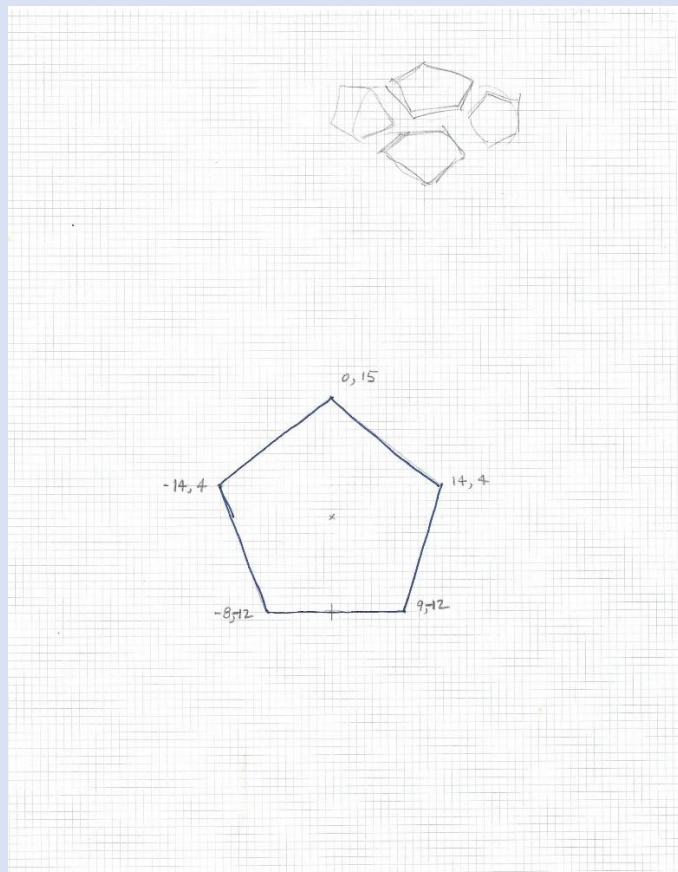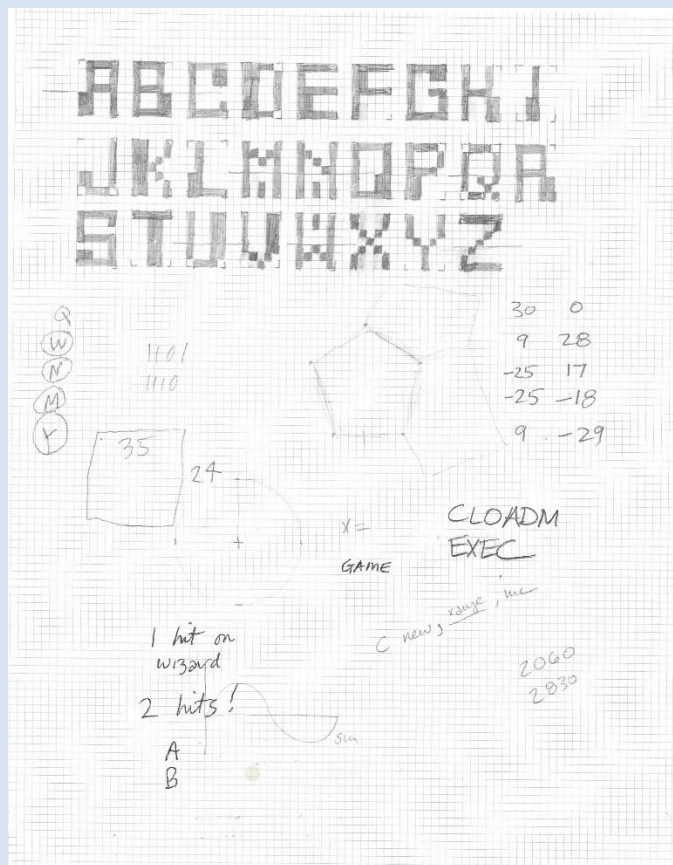
JOEL

- ENMEG — double energy
- ENMIN — lose energy
- ENMAX — gain energy
- LOAD — acquire program
- SAVE — save program
- ENTER — access other system → PORT1 PORT2 PORT3
- MAP — display system map
- change security level → RED / ORANGE / YELLOW / GREEN — I II III IV
- disrupt subsystem
- ERASE — delete program
- SSTAT — satellite status report
- NSTAT — network status report
- MARK — declare "home"
- GMARK — transfer to home
- GOSAT — access satellite — A B
- DCODE / CRACK — crack password
- announce location
- disable security module
- EXIT — exit omnistar network
- UNLOC — remove restriction on program access
- LOCK — restrict access to program

---

0   1

line
clear
shape
wait
(text?)

- 1–9 — number to register
- NSEW — co-ord change
- UD — pen up/down
- W — wait
- T — text follows (terminated by .)
- C — co-ords back to center

45EDUWWSSEENU

LOAD
SAVE
RUN (?)
ENTER

CRACK
LOCK
UNLOCK
STATUS
ZAP?   BLAZE
BLAST?
SHOCK?
STING?
POWER?   ENERGY?   FUEL?
MAP?
MAX, MIN?
MARK, HOME
VCHARGE?
HIDE
FIND
EXIT

26
26
52

EVENTS:

KEYBOARD:
ACQUIRE PROGRAM
RELEASE PROGRAM
USE PROGRAM

RANDOM:

get key
if key pressed
CR?
    do command
did command trigger event?
    do event
time for a random event?
    do event

The Last Ninja:

The Last Ninja archive:
- contract
  - development schedule
- 4-month timeline

SCHEDULE D

	Date	Event	Fee
1.	2/19/88	Contract execution	$1,000
2.	2/26/88	Technical, Product Specification and Production Schedule	
3.	3/14/88	Background Graphics Demo	
4.	3/28/88	Background Graphics and Animation Routine	$3,000
5.	4/18/88	First Playable Program	$3,000
6.	5/9/88	Graphics Completion	
7.	5/23/88	First Playable with Sound Effects	$3,000
8.	6/6/88	First version with Title Screen, Sound Effects and Music	
9.	6/20/88	Developer's Final	$4,000
10.	7/8/88	Activision/Tandy Acceptance	$4,000
		On-Time Completion Bonus	$5,000
		TOTAL	$23,000

Rick Adams 02/11/88

– 15 –

Editor's Note:

There's a lot of history with Rick Adams and Tandy, we're lucky to have experienced a few of his classics back in the day like Temple of ROM, and Shanghai.

A few of his project never made it to market, but lucky for us, updated versions like Temple of ROM II, Bomb Threat, and Omnistar are now available for digital download to run on real Color Computers and emulators on his web store: https://rickadams.itch.io/ you can also check out source code samples and other goodies on Rick's GitHub site https://github.com/yggdrasilradio/ thank you Rick for all you've done and continue to do for the CoCo and its community.

Digger III
The Saint's Ascension

The long-awaited follow-up to Digger II and the Gold Runner 2000 Challenge, Digger III is an arcade style platformer with high resolution graphics, smooth detailed animation, and over 30 levels of exciting action-packed game play. With the release of Digger III, HyperTech Gaming continues the legacy of Hyper-Tech Software originally formed by Eric Crichlow, Mike Haaland, and Chet Simpson to bring high quality software to the Color Computer and beyond.

Run, Climb, Fall, Dig, and Escape!

Take on the role of the man known only as *The Saint* as you infiltrate the hidden underground lair of the Gomer Clan to take back what is rightfully yours. Snatch back gold, jewelry, and other treasures while avoiding the Gomers as they patrol the caverns protecting their booty. Avoid bubbling lava, radioactive monsters, rabid bats, and deadly traps while digging holes to trap and kill Gomers. Collect all the treasure in each cavern to advance to the next level and pray you reach the exit to the surface.

Requirements
Tandy Color Computer III with 512k and disk Drive. Joystick optional but recommended.

Digger III is *absolutely FREE* and can be downloaded from
https://hypertechgaming.itch.io/digger3

Getting to know your MultiPack Interface

Rick Ulland

What does an MPI do, and why does that require it to be upgraded? Totally unrelated.

What it do:
Back in the day, small computer systems addressed everything as RAM. Great theory, but silicon was expensive in the eighties and a random subset of 16 address lines can be many logic gates. To support cheap external hardware, CoCo provides two signals denoting a preselected address range.

CTS $C000 - $FDFF   read only ROM software
SCS $FF40 – $FF5F   read/write hardware

The CoCo also accepts two related inputs from 'the' external device.

CART   A valid external ROM is present, run it.
SLEN   Iwannadrive (Disable CoCo's internal address decoding).

Connecting one external device is pretty simple. The device will need a few low order address lines, connect those and ignore the rest. Connect SCS to the chip select for your hardware, and/or CTS to the chip select for your ROM chip. Tie CART low to ask CoCo to run your ROM on startup. This lashup will 'ghost', or echo to every ignored address between your device and the top of the select range. But it's just you, no worries.

For multiple devices, we could just switch CTS and SCS to a specific slot, still allowing additional devices (that fully decode all 16 address bits) in others. Unless all of your expansion products use SCS/CTS select.

And that's what SLEN is for. Any external device can ask the SAM/GIME to kindly not put out the CTS and SCS signals. The addresses that would trigger those signals are still present on A0-A15, but no shortcuts.

When the MPI asserts this signal, it is assuming control of the SCS and CTS shortcuts to, and the CART response from, each slot. It does this job just fine on any model CoCo, nothing to see here.

Why it bad:
What we in Milwaukee call 'a little wiggle room'. The MPI needs room for itself, and as the new bus master, it can also reserve room for expansion beyond the CoCo's built in decoding. Old news first, we need to identify the CTS range $C000-$FDFF, which looks like this in binary:

C000   11000000   xxxxxxxx
FDFF   11111101   xxxxxxxx

Where all possible values in the xx positions will fall inside the range and can be ignored. For decoding work, we only have to consider a range of 8 bit numbers.

The end of SCS is more expensive, 12 significant bits to puzzle out FF40-FF5F. Why not cut one more bit off for expansion? Well, OKay. The MPI stops decoding at A5 so the SCS or read/write range is:

FF40   11111111   010xxxxx   Start of SCS
FF9F   11111111   100xxxxx   End of MPI range

This a problem for CoCo3, which wants $FF9x for the GIME. The oldest PAL units were actively hostile, letting $FF7x ghostwrite to related address $FF9x. Luckily, the 'big' MPI have an easy fix, replace the socketed PAL chip.

Newer MPI are more subtle, they don't echo writes AFAIK but do leave two amps live on open mic night. This could have been a BFD, ASICs are not as easy to replace as PALs, even if there was a socket. But somebody spotted a workaround.

FF7F   11111111   01101111   actual MPI slot select

Address table bit 7 is only set when CTS is active, or we are in the no-no range &FF9x. So all we need to do is hijack the MPI's internal select signal 'ENBUS' and disable it when CTS isn't active and address bit 7 is high (one). As luck would have it, this hijacking can be done outside the ASIC chip with a simple trace cut.

But as luck would have it, (first NAND joke) this must done inside the wonderful world of active low signals. Logic gates compare the ones. Active low signals are not ones and cannot simply be OR'ed together. Instead of asking our original question 'is CTS set or SLEN set or bit A7 = 0? you have to ask 'is CTS not set and SLEN not set and bit A7 = not 0 ?

And then, a NAND gate flips the output to again be active low. So once a second input stage determines ENBUS is not set we can finally compare if ENBUS isn't not set, CTS is not not active or SLEN is not not active or address A7 is not not zero. Resulting in an output ENBUS* signal with $FF9x chopped off that we can supply to the rest of the MPI on other side of the trace cut.

I might have dropped a clause there someplace, but I'm kinda dizzy now...

-rick

MAME Recap

2020 was a very busy year for me regarding MAME development.
A lot of bug fixes, but also some new features.

Back in April I discovered cartridges less than 16k would fail to load.

Then in May I extended the floppy disk emulation to support Disto's no-halt mode. This allows OS-9 to read and write disks without losing wall clock time. Also, I found the joystick label shown in the MAME UI was wrong. It said 1 for the #2 button.
Later in May it was reported to me MAME's 6309 emulation was executing the opcode $1120 as a Long Branch Always. But on the 6309 this opcode should trap to the Illegal operation vector. Rounding out the month of May I added the 2mb Disto RAM pack cartridge to the slot system. It makes a very nice RAM disk for use under OS-9. For the Dragon computer I reworked the built-in RS-232 port to use MAME expanded serial system. This allows it to communicate with the outside world. And finally, the last bug fix of May was to correct another ROM cartridge loading system error.

But one of the big May projects was to add a new driver for the MCX-128. This is Darren Atkinson added hardware for the MC-10. The other large May project was adding DragonDos support to Imgtool. This is the tool that allows you to read and write disk images for classic systems.

In June I added the analog input system to the LUA scripting engine. This allows anyone to script Color Computer Joystick movements.

In October I added a Stereo Composer cartridge. This device is very similar to the Orchestra 90 cartridge built by Speech Systems.

Then in November it was requested that I modify the way interrupts are handled in the CoCo driver and use the "merged Input" functionality. This allows signals to be ANDed or ORed together without writing extra code. I also fix a small debugger issue for the TMS7000 microcontroller. This is the chip used in the Speech/Sound Pak. I found a typo in the Dragon Alpha emulation that caused Disk I/O not to work. Then I added another new CoCo cartridge: The Symphony 12. This allows you to add four Programable Sound Generators to your Color Computer.

Later in November I fixed a bug with the Tandy hi-res joystick interface that kept OS-9 from allowing the mouse to be moved all the way to the right-hand side of the monitor. To top off the month, I fixed the Speech/Sound Pak emulation so the Pegasus and the Phantom Riders game would recognize its existence.

Overall a very productive year.

tim lindner

Adventures in Recapping
Salvador Garcia

The Tragic Discovery

My Windows 10 Development machine had been acting funny and it seemed that after an MS update, it got worse, so I took the plunge and reinstalled Windows. After the new install everything seemed to work fine, but Windows did not recognize my video card which was an NVIDIA Quadra. I couldn't remember the model, so I opened up the case to get that info. Lo and behold, on the motherboard (MB), I saw three electrolytic caps not looking good. Two had this dried goop and one was ever so slightly inflated. I knew that this would mean trouble down the road, so I decided to replace them. And so, the adventure began.

Easy as Pie

I've done recapping before. It is a trial of patience, but I had always been successful.

I first took a good look at the caps to get their specs. Two were 2700µF @ 6.3v and the third was 1500µF at the same voltage. I already had the latter and just ordered the 2700µF. I didn't immediately find caps at 6.3v, so I ordered the next highest which as 25v.

The computer sat there patiently until the caps arrived. And quite a shocker when they did because they were at least twice the circumference of the original caps. I wasn't going to be able to squeeze these huge components in the allotted space.

I went back and searched more diligently until I found these caps at 6.3v. Again, the computer sat there silently awaiting their arrival. When they arrived, I noticed that they were still fatter than the original, but thinner than the previous batch I ordered. I could work with these!

I calculated at most 10 minutes to desolder the three caps and put in the new ones. I got out my trusty soldering iron and got to work. After I knew the tip was hot, I touched it to the cap's solder pad. Uh… nothing happened. I tried it again, this time applying the hot tip for a longer time. After so many decades, one gets the "touch" which lets me know when the solder has melted, but this time around I did not feel any "touch".

I rocked the cap and soon it started to come loose. Finally, I removed the first cap, but not because the solder melted, rather because the leads going into the cap broke. One broke flush with the PCB and the other broke inside the cap, leaving a long post protruding from the MB. But the solder did not melt. No way was I going to attempt this same technique with the other caps.

My solution: Ask people that know more than I do. I went to Facebook and asked in the Vintage Computers group. Since my computer dates back to 2008, I could argue that it was vintage!

Someone there mentioned that some MB manufacturers used tin which has a higher melting point that your typical 60/40 lead solder. Sigh. Others offered suggestions, such as adding fresh solder and using flux. I tried these two techniques, but to no avail. My 25 and 30 Watt soldering irons weren't going to get this job done. Again, my computer sat there silently awaiting some epiphany on my part.

The Heavy Gun

I have been meaning to get a soldering station. I hadn't needed one, so I had been holding off. I have been following and participating in discussions about soldering stations on the CoCo list and wanted to get a nice one. Looks like the time had come. After doing some research, I found a Weller 1010 at the local Microcenter (for those of you who have been to a CoCoFEST! I am sure you know that store!). It was at $137 USD, but on sale for $99.

Image pilfered from weller-tools.com.

After hooking it up and (gasp!) reading the thick instruction manual (it was only about 7 pages of instructions, heavy on the images, but it came in a plethora of languages) , I was ready to take the station on its maiden voyage, hoping that it wouldn't do a Titanic on me. The read out told me that the tip heated to 750 °F (398 °C). Still the solder was not melting. I raised the temperature to 850 °F (454 °C) and the solder melted! I was able to remove one of the 2700µF caps and clear both through holes. I was excited. Now I had to remove the left over leads from the cap that I tore out and the other 2700µF cap. I managed to melt enough of the solder to get the third cap out. With a solder sucker I was able to clear one of the through holes, but that was as far as I got.

Image from Amazon.

I was not able to melt the solder on the left-over leads, nor was I able to clear the remaining through holes. Since one of the caps had been successfully removed, I decided to put in the new cap. This went well.

Now would have been a good time to panic, except I had a secret weapon: The CoCo List. I asked there and posted two pics of the MB so far and got lots of feedback (thanks guys!)
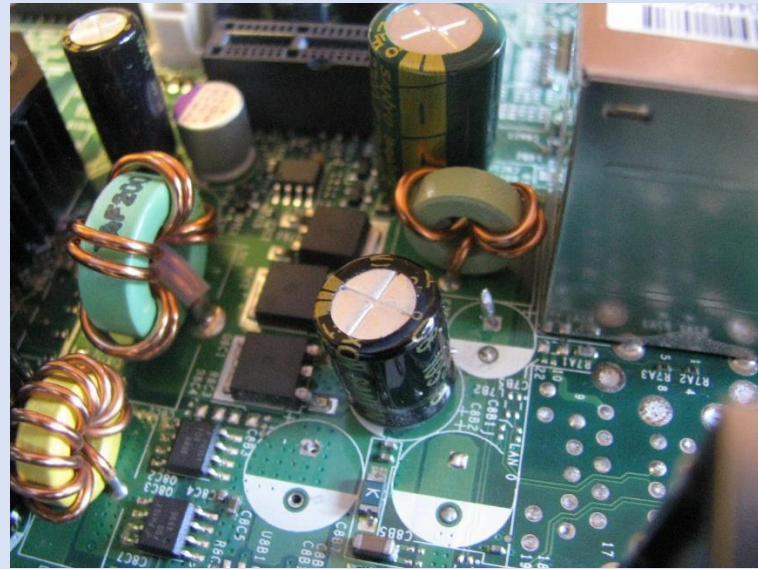
The fat green cap in the back is the one I had already replaced. You can see a post sticking out at the cap location just in front of the choke. You can see the cleared through hole of the third cap located at the front left. (The front right cap was never there, so I wasn't worried about it.)
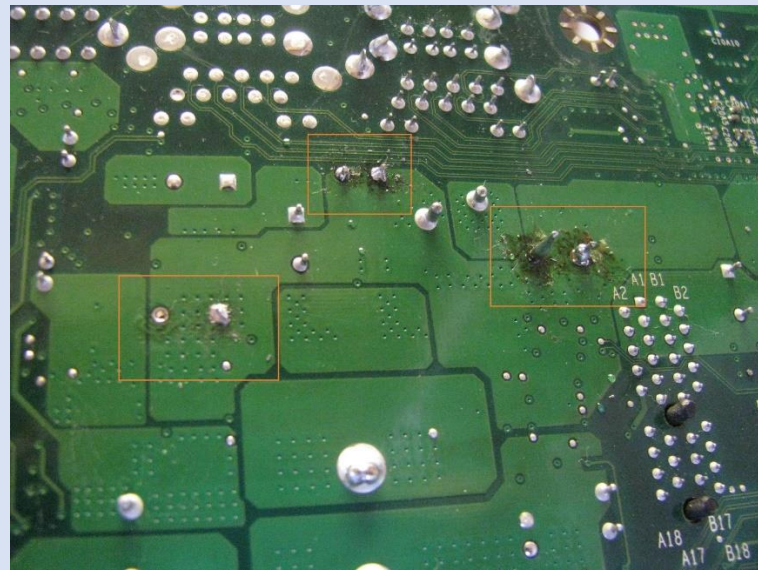
The three orange rectangles indicate the location of the three caps. Note the flux goop that was left-over.

Some of the feedback:

"I'd suggest a variation on what you mentioned with a "fabric pin" (commonly called a straight pin, I think) I have had success in similar situations holding the straight pin with a needle-nose pliers, grasping the pin with the thinnest part of the pliers so as not to siphon off too much heat, and heating the pin while pushing on it and pressing it into the hole. You want to grasp the pin well away from its point, again to avoid siphoning off too much heat into the pliers, holding the soldering iron tip against the end of the straight pin, while you push the point into the hole with the pliers. Possibly cutting off the point of the straight pin might be helpful, though I have not found this to be necessary." – Arthur Flexser

Note: He called it a "fabric pin" because I didn't know what they were called and initially used that term.

"That is a hot air rework station job, and you will likely need to heat at 375 to 400 °C in order to get in, do it and get back out before charring the board. The problem is that in many cases, the board was used as a heat sink to help cool the capacitors when the ripple current, particularly in switch mode supplies runs to many amps. IBM boards are some of the worst offenders, in that I charred the board getting the caps out because they had a large expanse of heavier copper fanning out on both sides of the board. Since it was my board, I said its junk and bought another board." – Gene Heskett

Hot air rework station? OK, I did some research to see how much that would cost. I found this article titled "The 5 Best Hot Air Rework Stations": https://tinyurl.com/ybs5jlu6

While the cost for some was not astronomical, I was unfamiliar with this technology and didn't want to take a chance, so I decided to hold off any further purchases.

"The problem is evident from looking at the photos. Your board has huge sections of ground plane around the capacitor pins that are sinking the heat away as you're trying to desolder them. The key is patience. The soldering iron will have to stay on the pin for a much longer time because the copper ground plane must be heated up sufficiently enough to get the pad up to the temperature where the solder will melt. If you're really having a hard time with it, one trick would be to cut the pad free from the ground plane by circumscribing it with something like an Exacto knife being sure to cut through the copper ground plane to the fiberglass board below. This will detach the huge 'heat sink' from the capacitor pad allowing it to be easily removed. After replacing the capacitor, remove some of the solder mask on each side of the cut, drop a piece of small diameter copper wire into the valley created by the cut, and flow solder over it reattaching the heat sink/ground-plane to the capacitor pin.

Also, the rosin from the solder is not permanently staining your board. When the job is all finished, use some flux remover to get it off. If you're using "no-clean" solder then that's not even necessary as the flux poses no long-term danger by staying on the board (doesn't look pretty but won't hurt anything)."
- Dave Philipsen

"If the board was designed with the intention that the ground planes would sink heat away from the electrolytic capacitors then it should have also been designed with additional heat sinking or cooling around the actual body of the capacitor. Relying solely upon the ground plane for that would probably be a design mistake." - Dave Philipsen

"Another thing to keep in mind: the board was assembled, and the capacitors were soldered in place to the large ground planes without physical damage to the board or the capacitors. The same amount of heat that was originally applied to the board to install the capacitors may also need to be applied to un-install them. If they could be installed without physical damage, then they can be un-installed without physically damaging the board too." - Dave Philipsen

Cutting into the ground planes was my last recourse. Nothing good ever came from combining me with an Exacto knife!

"Based on the photos, this is a multi-layer IBM clone PCB with possible internal ground and power planes.
The problem is that the heat is being dispersed onto the ground (or power) plane and not enough heat is being applied to the solder.

This kind of rework requires more than a 70W soldering iron.

You will need a rework station with a heat gun and possibly a variable convection type oven. A conventional oven could damage components on the PCB or melt some of the plastic parts. You will also need a soldering iron that is capable of reaching 900 °F and use a proper solder tip. Most consumer soldering irons usually reach 600 °F-650 °F.

I also recommend NOT to [use] sharp knives or force the leads out of the PCB. This could damage the internal connections on the PCB.

The dark (baked) flux can easily to remove with a good flux remover." – Richard Lorbieski

900 °F (482 °C)? That's hot! But then, my new soldering iron was reaching temperatures of 880 °F (471 °C), so I figured that was hot enough. I also appreciated the note about what not to use. Thank goodness I was right in that and have never used sharp objects in this fashion.

"The problem is not with the copper thickness or number of layers. Most IBM retro motherboards (1990 era) are 6 or more layers. The three most common problems that occur with DIP multi-layer rework:

1) Failure to get the lead(s) out of the thru hole ground/power plane.
2) Old solder clogged inside the thru-hole of via.
3) Damage to the thru-hole plating (most catastrophic).

I discourage the use of sharp objects or using brute force can lead to damage the plating and thus cut the connection between internal and surface pads of the PCB." — Richard Lorbieski

Yes to number 1 and 2. Thankfully, no to #3.

"I've got to admit, without tools I would probably just stick a new cap to the board with hot-snot and tack it to the remains of the old leads…. [Hot glue is not conductive and sets so fast you can hold your part a bit off the board to insulate it from the traces you have just glued it on top of.]" — Rick Ulland

This idea crossed my mind after the first attempts. My wife also recommended it. What kept me from doing this was twofold:

The cap was already larger than the original and piggybacking on the leads would have required more open area than I comfortably had.

Not knowing electronic in-depth, but knowing that 1GHz+ frequencies existed, I didn't know if the extra long leads might cause an antenna effect.
(OK, threefold.) Aside from that one lead post sticking out I didn't have any leads where to piggyback the caps.

Also, I believe someone mentioned that the hot glue would help keep the cap from moving. With various fans nearby, these could generate vibrations which could move the cap in ways that I would not want.

Success!

I decided to try it again. I got the Weller up to 880 °F (471 °C) and called in reinforcements (i.e. my wife). While she held the motherboard in place, I applied flux and the iron's tip to the solder pad and attempted to clear the clogged through holes and remove the remaining stuck leads. We took turns in using the iron and holding the motherboard and eventually the solder melted, and we were able to remove the solder and the leads. I let the soldering station rest since I didn't know how unhealthy a steady temperature of 880 °F (471 °C) was for the Weller station.

After the through holes were cleared, I put in the new caps without any difficulty.

I wanted to remove the flux goop so I did some research and found that many used acetone to remove it. Since I didn't have any flux remover, but I did have nail polish remover, I used that and an old toothbrush. Just to be clear, I don't use that brush anymore!

After carefully brushing the MB, the flux goop slowly began to come off and eventually all of it was gone. I hooked everything back up and powered up. The BIOS splash screen displayed, eventually followed by the ominous Windows 10 splash screen.

There was some added discussion at the CoCo List as to how to handle the acetone as this is a flammable substance and capable of blowing up the house, but that story is for another time.

My sincere appreciation goes out to everyone that provided help and motivation to keep going. I have enough experience to know that motherboards can be damaged easily, and I felt unsure what to do next at various times. Having the supportive feedback from the Facebook group and CoCo List helped. I was happy that I gave this computer a new lease on life. After successfully replacing those three capacitors, I ordered 4 more GB of RAM to bring it to its max capacity of 8 GB (yeah, it is **that** old).

CoCo News 2020 year-end review!

Curated by L. Curtis Boyle
Cherry picked by:
R. Allen Murphey
Tim Lindner & Salvador Garcia

January

John Laury did a 1-hour video showing him fixing a RAM chip with a busted pin and installing a CocoVGA.
https://youtu.be/8i8lunucKwg

Jim Gerrie did a port of an adventure game, "The Night of the Vampire Bunnies", which was originally written by 10-year-old Jason Dyer back in the 1980's:
https://youtu.be/wWYw8odR0FE

Ben Drakes has a video promo of his new game, called only "Project A" for now: https://youtu.be/nzGFpjR3J9M

Joey Serial Switch

Jason Reighard, of http://cocoman.biz released a new 3-way serial switch known as the Joey Serial Switch
https://www.facebook.com/groups/2359462640/permalink/10157815048357641

MIDI Maestro

Jim Brain (Retro Innovations) is the no longer secret manufacturer of the MIDI board that Brian Schubring has mentioned on our show. And he has schematics and some prototype photos to show what it looks like:
https://www.facebook.com/groups/2359462640/permalink/10157812384677641/

Jerry Stratton has made a Rainbow BASIC program preflight tool, that helps catch other errors beyond his original RCHECK program (which is based on RainbowCheck+ from Rainbow, which did rudimentary checksumming of each BASIC line):
 http://www.hoboes.com/Mimsy/hacks/coco/rainbow-magazine-basic-program-preflight-tool/

DLOAD Server

TJBChris has video showing how the DLOAD command on the Coco 1/2 works, and with a server program for it on his Model 16:
https://youtu.be/-RJNheNrPB4

Ed Snider has a video talking about his image converter to the VG6 (128x96x16 color) mode on the CocoVGA: https://youtu.be/h3Hcmeek6MY

February

Nick Marentes releases Gun Star for the Color Computer 3, requiring 512K and a Hitachi 6309 CPU replacement. The game will also run in emulators for those who don't have a 6309 in their CoCo. https://nickmarentes.com/ProjectArchive/gunstar.html
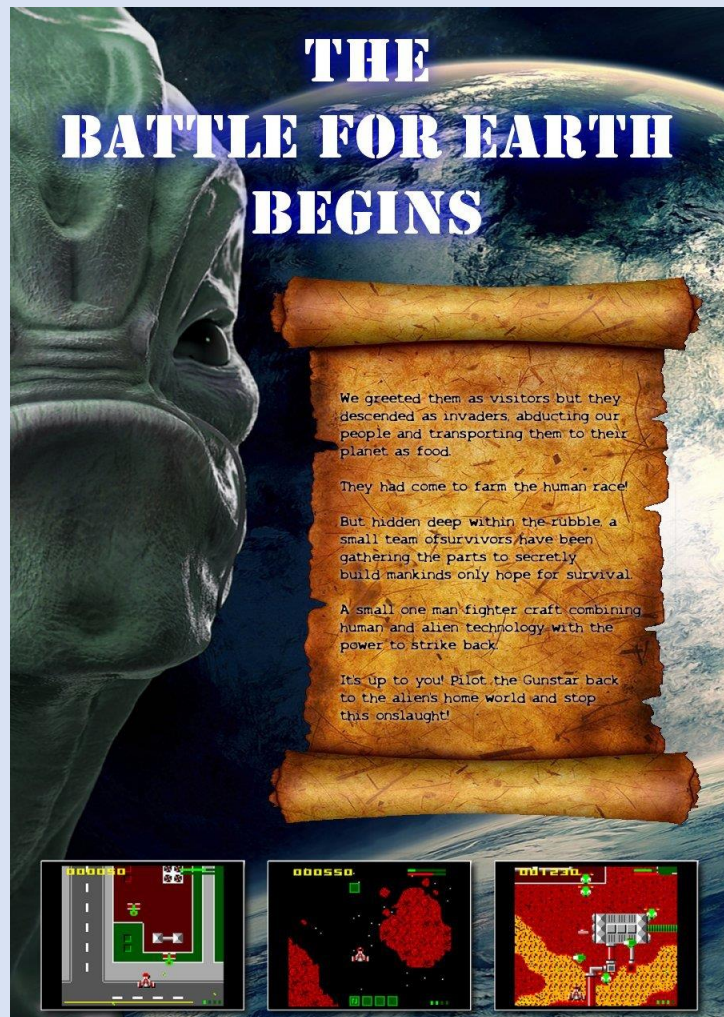
CoCo World Map
Steve Strowbridge has caught up on the world map of Coco/Dragon users, which now has just about 315 entries worldwide: http://map.cocotalk.live

Henry Reitveld has posted a video showing how to create physical disks from .WAV files for the Coco and Dragon: https://youtu.be/ZIRskBWM2xM

Henry also showed a video of a "Coco Cat Headroom" (based on Max Headroom) that was published in Rainbow in 1987, and uses the speech sound cartridge with some PMODE 4 graphics: https://youtu.be/jEluReHyz1Q

Diego Barizo released a video in Spanish showing how to use VCC for Coco 3 emulation. He also shows some of the real hardware (Coco 3, floppy drives, multi-pak: https://youtu.be/0VqKo8ht5f0 check out all of Diego's other CoCo offerings at http://yaccs.info/

Jim Gerrie has released Mini Solo Chess for the Coco, with a video showing it here: https://youtu.be/n5lS_lzNcuE
And also Alpha Force: https://youtu.be/oh1oA1zTf7E

Brian Palmer posted a link to Geronimus Vanden's video showing that an MC-10 will, when running a loop doing a PEEK(2) (after doing a POKE 0,0), will react to your hand moving close to the MC-10 itself (like a theramin does). John Laury tried this on his own real MC-10 - and it does work. He speculates that is has to do with the RF shielding in the MC-10: Original: https://youtu.be/o6zssRDSjuE
John Laury:
https://www.facebook.com/groups/2359462640/permalink/10157939309847641/

Nathan Lyke made a video showing how to do a 64k RAM UPGRADE on a Coco 1:
https://www.facebook.com/groups/dragon32/permalink/2539138523012468/

XRoar Linked to Dragon Archive
Simon Hardy announced that the direct link from the World of Dragon Archive to play Dragon software in XRoar is working. See the link in his Facebook post, pick a software company, then a program, and click "Play Now" on the far-right side (currently Cassette games work, I think cartridge ones still have an issue):
https://www.facebook.com/groups/dragon32/permalink/2539138523012468/
http://archive.worldofdragon.org/browse/

Dock Master

Diego Barizo just released Dock Master:
http://yaccs.info/PROGRAMAS/DOCK/dock.html

The CoCo Collector – New YouTube Series

The first episode of Coco Collector (by Boisy Pitre) (episode 0), is about the 64K Coco (from Fall 1983):
  https://youtu.be/8SqOAWQZr6w

Todd Wallace (LordDragon) has released the first version of SysInfo program for the Coco 3: Hardware Detection Program Demo For Tandy Color Computer 3
https://youtu.be/EDI1GafjxYU
To download:
https://tektodd.com/wp-content/CoCo-Downloads/sysinfo.zip

James Jones has written a blog post called "Towards a BASIC09 style", which gives some tips on writing BASIC09 programs, both in general and for legibility.
https://www.facebook.com/notes/james-jones/towards-a-basic09-style/10157067791432014/

Dave Philipsen has posted both a preliminary WIKI entry for his CocoDev hardware, and a video demonstrating it. CocoDEV is an FPGA based piece of hardware that implements the 6809, but is not meant to be fully Coco compatible. Rather, it is meant to be similar to a Coco and can be programmed the same way. He already has the Tandy BASIC ROM's and NitrOS9 level 2 with hard text windows working on it. Sounds to be the same spirit as The 8 Bit Guys C64 project.
http://www.davebiz.com/wiki/CoCoDEV
https://youtu.be/-XeEjg0m-gM
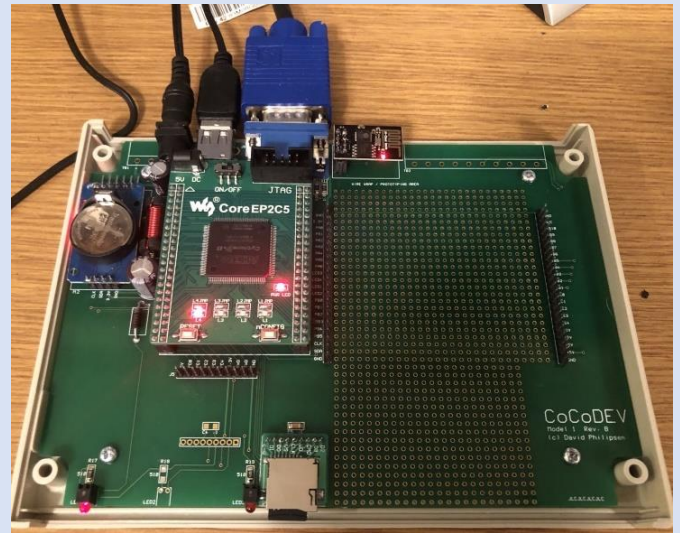
(CoCoDev)

Jim Gerrie has a blog up about programming for both the 2020 Basic 10 Liner contest, and the Asimov awards, and about porting some of his vast MC-10 work to the Coco 1/2 and Dragon:
https://jimgerrie.blogspot.com/2020/02/2020-basic-10-liner-entries-and-asimov.html

John Linville shared a photo of his populated 6809 SBC board (designed by Grant Searle). This is a small, 6 chip 1.84 MHz 6809 computer based on the ROM from the Coco 2 (with functions not supported on the SBC removed - ie graphics, cassette, joystick support), that has 16K ROM, 32K RAM, and a 115.2 Kbaud serial port:
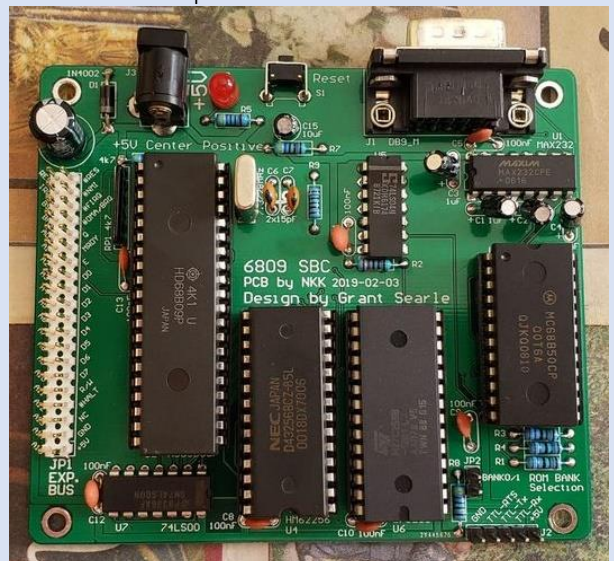
https://www.facebook.com/groups/2359462640/permalink/10157960748452641/
Link to Grant's original description:
http://searle.x10host.com/6809/Simple6809.html

Jim Brain at Retro Innovations has posted an article talking about the possibility of DMA on the Coco 1/2 on his site:
  http://www.go4retro.com/2020/02/26/direct-memory-access-possibilities-on-the-tandy-color-computer/
http://www.go4retro.com/2020/02/28/coco-dma-early-efforts/

March

PhantomRAM
Jim Brain has his next article in using DMA from the cartridge slot on a Coco 1/2, which has working code. He has it able to transfer memory between the Coco and RAM on the card, in both directions, and I/O port style access.
http://www.go4retro.com/2020/03/12/coco-dma-invisible-ram/
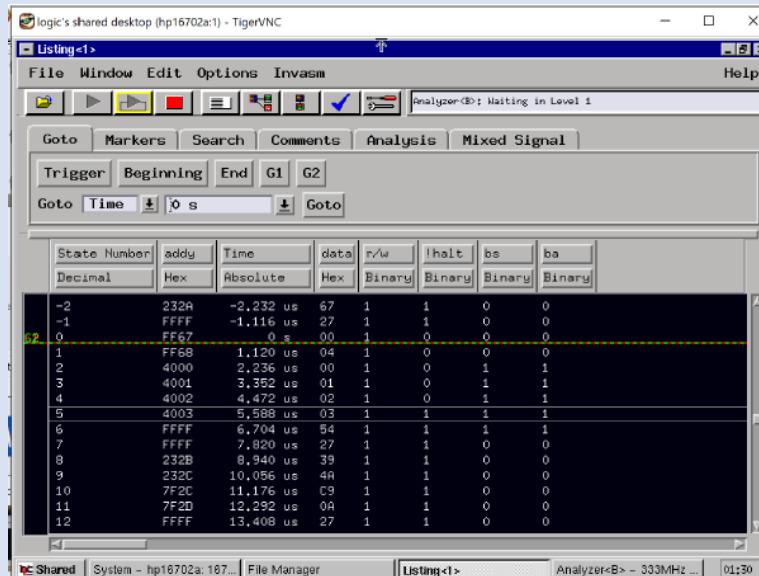
CoCo 1/2 Scrolling
Ciaran Anscomb (author of XRoar) has a blog up for a game concept for the Coco 1/2 and Dragons, that
uses some tricks on the VDG and SAM chips to achieve smooth vertical scrolling.
http://www.6809.org.uk/dev/tm002/

Nightmare Highway CoCoFEST! Edition
Ken Reighard is selling the DVD-ROM version of Nightmare Highway, special CocoFest edition (includes "the power of Terry", which adds some new gameplay elements), even though CocoFest has been postponed:
https://www.facebook.com/groups/2359462640/permalink/10158025437942641/
https://kenscococorner.itch.io/nightmare-highway-cocofest-edition
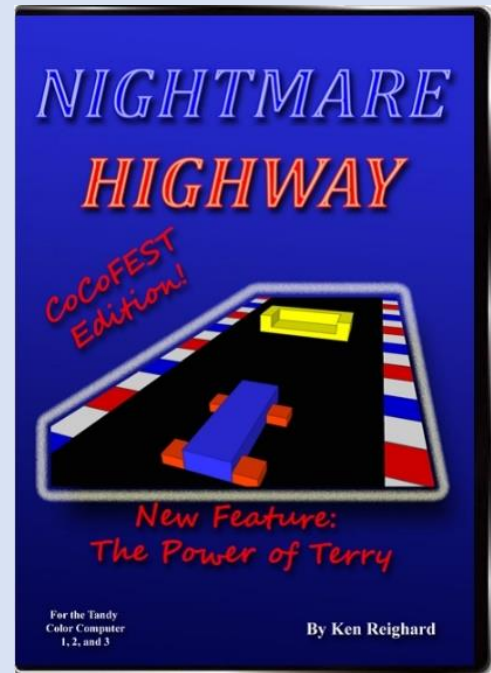
Xroar Linked to Color Computer Archive
Guillaume Major, speaking of XRoar Online, has now got experimental links for Coco 1/2 cartridge images on the Color Computer Archive, that you can immediately launch on XRoar Online (Show Downland 1.1, click on the "Play now!" button, and select right joystick=keyboard (arrows and left ctrl)):
https://colorcomputerarchive.com/coco/Cartridges/

Ron Klein posted some details on how to use the debugger in Ciaran Anscombe's XRoar emulator, which requires some addition companion applications be installed first.
https://www.facebook.com/groups/2359462640/permalink/10158017641002641/

After testing by **Brian Schubring** passed with flying colours, Jim Brain @ Retro Innovations has the MIDI Maestro card available for pre-order. It has MIDI In, Out and Through connectors, and is compatible with various MIDI supporting software already available for the Coco, like Lyra (Coco 1/2), Ultimuse III (Coco 3/(Nitr)OS-9, and Coco MIDI Pro. Price is $60.00, and it is expected to be released at CocoFest on April 18th. https://store.go4retro.com/tandy/midi-maestro/

Jim Brain has his next article in using DMA from the cartridge slot on a Coco 1/2, which has working code. He has it able to transfer memory between the Coco and RAM on the card, in both directions, and I/O port style access.
http://www.go4retro.com/2020/03/12/coco-dma-invisible-ram/

Dave Veary aka MrDave6309, has been doing some hacking on his Coco, to the VDG this time:
https://youtu.be/ZTau3m63GjQ
He got his Coco 2 on the internet via his Raspberry Pi controller (which is also running his keyboard):
 https://youtu.be/twmN56GtmE0
He also did a quick tutorial on hand coding machine language subroutines into BASIC programs:
 https://youtu.be/-omEvR8tdeU

Jim Brain has an update on his "quest for DMA" blogs:
  http://www.go4retro.com/2020/03/23/coco-dma-missing-without-a-trace/

Darren Ottery put up a video demoing some stuff he has been doing with Coco MIDI Pro:
https://www.facebook.com/groups/2359462640/permalink/10158053574347641/

David Ladd has detailed on Facebook and Discord a hack to the original 12V 26-3029 Radio Shack floppy controllers that allows the use of high density (1.2 and 1.44 MB) floppy disks.
https://www.facebook.com/groups/2359462640/permalink/10158050751572641/

The Home Computer Museum in the Netherlands did a live stream showing the entire museum (almost an hour), and the Coco pops in for a bit here:
https://youtu.be/tuVgoEJQ1Sw?t=2248
The Color Computer 3 makes an appearance at 47:30 (note: we have 64 colors, not 256)

Allen Huffman has a blog post up on "How random is RND in Color BASIC?"
http://subethasoftware.com/2020/03/27/how-random-is-rnd-in-color-basic/

April

SuperBASIC for CoCo
Jerry Stratton has release SuperBasic for the Coco, which allows using a modern looking scripting language to create the equivalent BASIC code:
https://www.hoboes.com/Mimsy/hacks/coco/superbasic-trs-80-color-computer/
Allen Huffman has a good summary and sample code on his blog:
https://subethasoftware.com/2020/03/18/jerry-strattons-superbasic-for-the-coco/

SDisk Sources for OS-9
David Wiens posted (with permission) D. P. Johnson's original source code & manuals for the SDisk and SDisk 3 (Coco 1/2 and Coco 3 respectively) drivers for OS-9. These were advance floppy drivers that supported sector sizes from 128 to 1024 bytes, single & double density, up to 80 tracks
https://www.facebook.com/groups/1929079184021683/permalink/2546348015628127/

Henry Reitveld put up a video showing his VHD image patched to work with the Sidekick menu, from VCC.
https://youtu.be/vrJPo8D7pZA

Allen Huffman has a really interesting article on his blog for speeding up multiple IF/THEN statements:
https://subethasoftware.com/2020/04/09/if-and-or-then-versus-if-then-if/

Dignified BASIC

Fred Rique has his take on a modern language that converts down to Extended BASIC (similar in concept to Jerry Stratton's SuperBasic that we covered recently) called Coco Basic Dignified:

https://www.facebook.com/groups/2359462640/permalink/10158109213282641/


Spetris

Eric Sperano has been learning 6809 assembly, and has a Tetris clone called Spetris! that is the result of his endeavors so far. He has a video up demonstrating it, as well as sourcecode on his github page:

https://www.facebook.com/groups/2359462640/permalink/10158119246892641/

Michael Pittsley has a complete playthrough video of Walt Disney's "Goofy Covers Government" educational game on the Coco: https://youtu.be/jIrnWTGGYGg

Xenocide

Alison DeNu released a little Coco 1/2/3 game this week that I haven't had a chance to look at, called Xenocide, available for download:

https://www.facebook.com/groups/2359462640/permalink/10158117390642641/
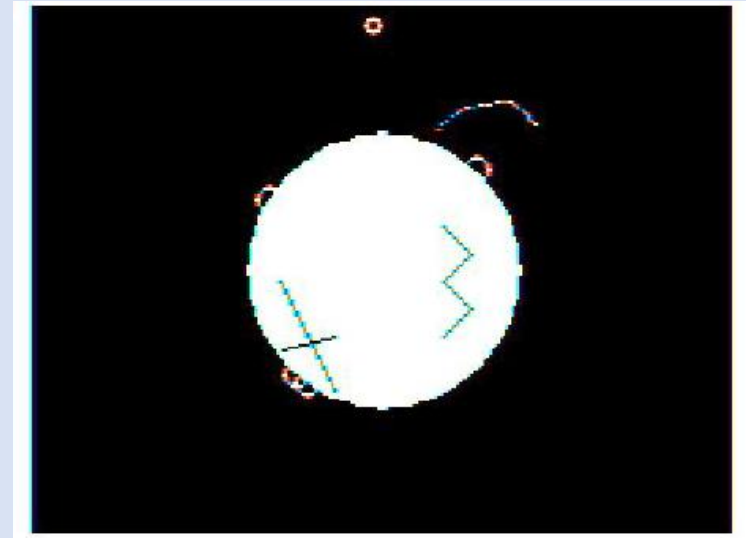
CoCo Keys2USB Kit

Paul Fiscarelli's Tindie store entry for his Coco Keys2USB kit, that he demoed during our virtual CocoFest last week, is now up and you can order:

https://www.tindie.com/products/fiscap0768/coco-keys2usb-kit/

Guillaume Major has released an update to Coco SDC Explorer, that now supports executing BASIC ASCII files, as long as the extension is .BAS. Available on the Color Computer Archive. https://colorcomputerarchive.com

April 18th 2020, **CoCoTALK!** hosts an un-official "virtual" CoCoFEST! on the same day the 29th Annual "Last" Chicago CoCoFEST! was supposed to take place. With over 5 hours of presentations and discussions, this literally is the next best thing to being there in person.
https://www.youtube.com/watch?v=t4qkRI1JyqU

Temple of ROM Level Editing
Rick Adams has his Temple of ROM level builder online, where one can design their own levels using Photoshop (or something compatible): http://templeofrom.com/build/level

The Outhouse
Erico Monteiro has released his "The Outhouse" for modern PC's, base on the sights and sound of the Coco 1/2 (and, of course, the game Outhouse). Trailer video here and ordering ($5.00 or more if wish to "tip" Erico) here:
https://ericomont.itch.io/the-outhouse
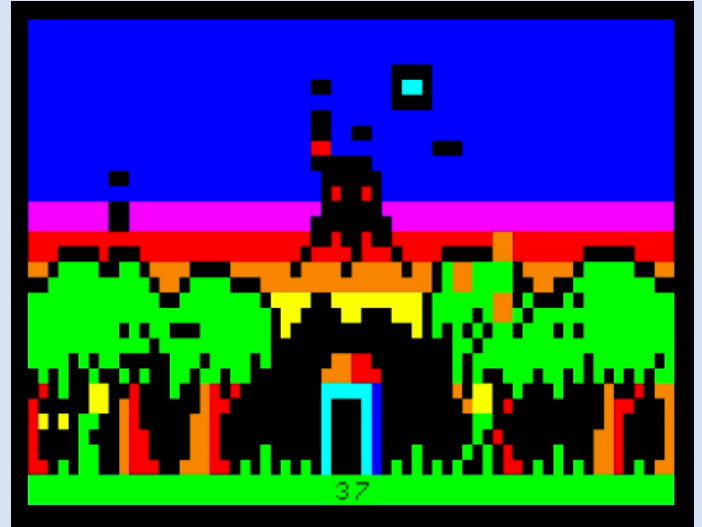
Henry Reitveld has a video up showing using a modified DC Modem pack connecting to the next using a WiFi modem:
https://www.youtube.com/watch?v=z5cOVfmA-cw

Boisy's first "real" episode 1 of The Coco Collector is on YouTube, in which he shows his Coco 1 with an HJL keyboard.
https://youtu.be/s_DJdQViQH0

Ben Drakes shows his 8th place entry in the 10 line programming contest, Divide by Zero
https://youtu.be/bPXwrX4GtRg

May

Tormod Volden has posted the latest CMOC release (0.1.65) for Windows without requiring the Cygwin environment:
  http://toolshed.sourceforge.net/cmoc/

Terry Steege has even posted a video showing how to install VCC (2.0.1e) and EOU, for those who want to try it without a Coco 3. And it's dead silent, so as not to bug your spouse and/or pets: https://youtu.be/JU8SIC-4Smw

NitrOS-9 Ease of Use Beta 5

"NitrOS-9 Ease of Use Edition, Beta 5" was released.
http://www.lcurtisboyle.com/nitros9/nitros9.html
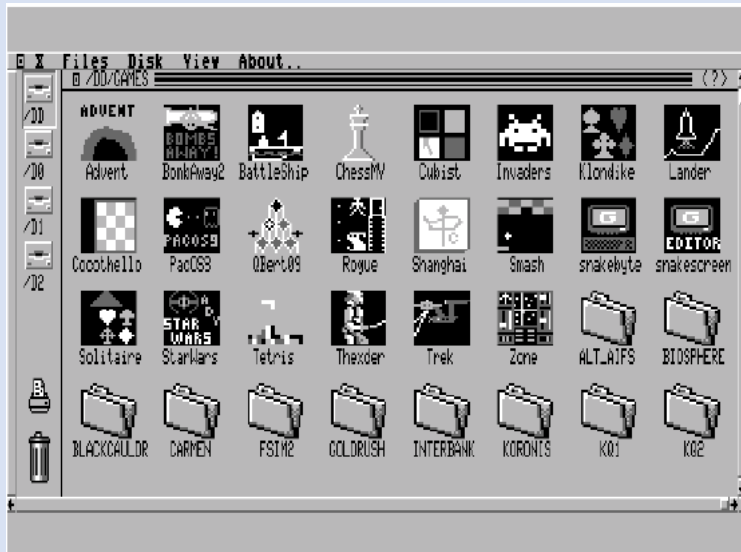
YA-DOS 0.5a and b

Ron Klein has a demo video for the new 0.5a version of YA-DOS, and a hard drive image is available for download. YA-DOS is a 16K DOS ROM with built in Drivewire support and other goodies, created by Brett Gordon:
https://www.youtube.com/watch?v=riNy1nA0_GI
https://github.com/mrgw454/CCHDD

R. Allen Murphey has a new blog post about him learning how Coco 3 graphics work for the game conversion of AX-2 Uchu Yusosen Nostromo game from the NEC PC-6001:
https://exileinparadise.com/nostromo:hitting_the_books

GIME-X Beta Begins

Ed Snider released two videos concerning the upcoming GIME-X Coco 3 upgrade (of which beta boards are being sent to developers very soon):
Basic Installation:
https://youtu.be/Ba3fBYJXwVE
Main Board overview:
https://youtu.be/Q8rA0fkvKeU

Sheldon MacDonald showed off some sample 3D prints of the final case designs for his Coco Gamepads:
https://www.facebook.com/groups/2359462640/permalink/10158235628302641/

Mr. Dash SALT Replacement

Terry Trapp has an update on his replacing the SALT chip project:
https://www.facebook.com/groups/2359462640/permalink/10158249875927641
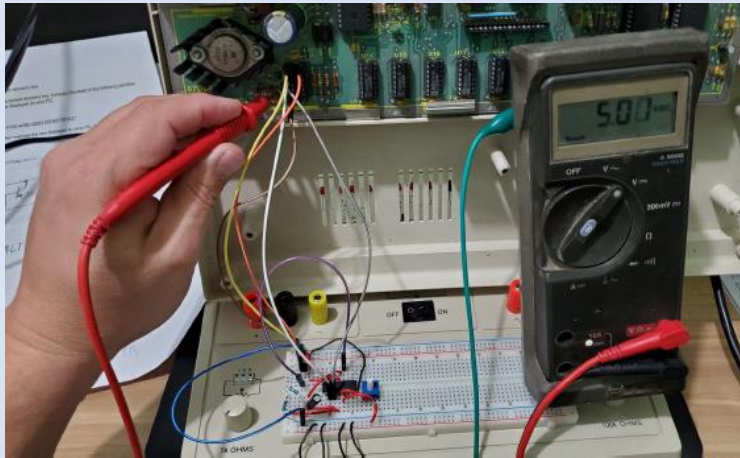
More helpful MAME Debugging

Eric Canales created a tool for running MAME in it's debug mode for the Coco, that lets you merge in your own assembly source code into the debugger (so instead of just seeing a raw disassembly while running, you get to see your labels, comments, etc.):
https://www.facebook.com/groups/2359462640/permalink/10158270853957641/
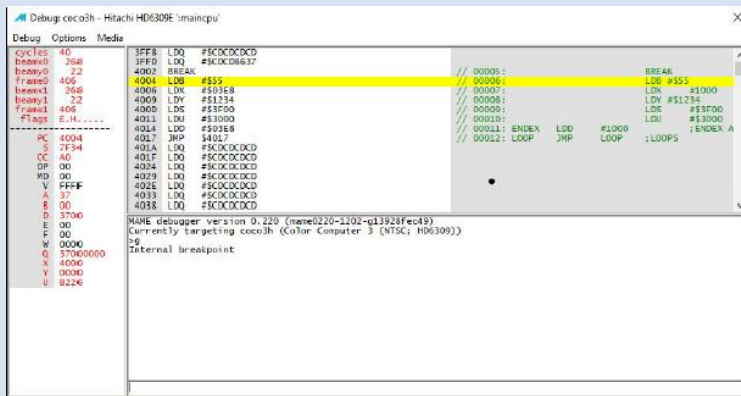
Richard Harding posted on the Dragon Facebook group about the Diagnostic Dragon board by Phil Harvey-Smith that we showed last month. He is very impressed with how it helped him fix a bad Dragon, and shows a screenshot of some of the stuff it checks for:
https://www.facebook.com/groups/dragon32/permalink/2608357592757227/
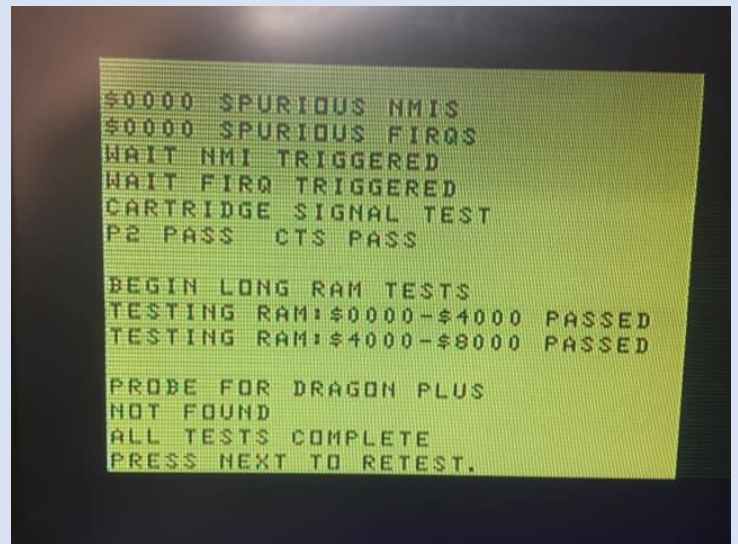
(Phil Harvey Smith's diagnostic board)

TJBChris posted a video showing OS-9 Level II booting from OS9 from ROM (from the Cloud9 ROM kit):
https://youtu.be/Sa_4xPc22eE

Canadian Retro Things has had a couple of videos released: Using an iPad to load cassette programs, and a technique he came up with with then started not working reliably:
https://youtu.be/4zPgcG6fqAU
Going over his retro collection (which includes both a Coco 2 and an MC-10)
https://youtu.be/m1PMwtOlWWg

Stevie Strowbridge posted a couple of "how to" videos, one for using a Wifi Card in the CocoSDC for development:
https://www.youtube.com/watch?v=rq7rR9lzi38
And another for using PyDrivewire, DWTerm and BBSing online: https://www.youtube.com/watch?v=coAa2qeFJoE
And a couple of videos for the CocoPi3:
How to set up the CocoPi3:
https://youtu.be/nQlnXzExOqQ
Setting up a CocoPi3 to become a full game console:
https://youtu.be/sPvzXV0HqoQ

Frank Hogg published on Facebook, his remembered history of creating the Tomcat computer (TC-9 & TC-70):
https://www.facebook.com/groups/2359462640/permalink/10158274266977641/

Pere Serrat has a full gameplay video now of his Coco 1/2/Dragon port of the AGD game "Foggy's Quest" running on the Wordpak2+ card (which adds sprite support, more colors, etc. though the V9958 chip). It looks quite impressive! https://youtu.be/XlTAVNvrf0Q

Noriko Miyagami has put up a video playthrough of the Adventure International Coco port of "Dog Star Adventure" by Lance Micklus, that was published in Soft Side magazine as a type in game. She also describes the history behind the game (she uses a port that Jim Gerrie did): https://youtu.be/Rocjx7kTt9w

Erik Gavriluk has released his new version of the 3D DISPLAY program from Hot Coco magazine. It features the original version, the optimized version (which is at least twice as fast, supports rotation on multiple axis simultaneously, and a Coco 3 version. Details here: https://github.com/milliluk/display/blob/master/README.md
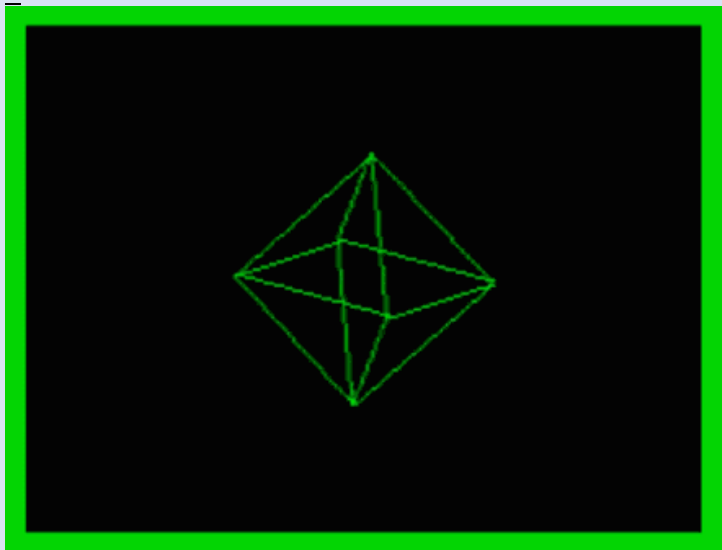
Stevie Strowbridge put up a video showing him (finally!) hooking up his MC-10 to his MCX1-128, and showing how much memory it gives to it's enhanced BASIC, and also showing off it's Emcee server capabilities (similar to Drivewire): https://youtu.be/OOSR2nZgi_s

June

Tim Halloran put up a video on how to take a Coco 2 keyboard apart, and clean it: https://youtu.be/u1S9KExR9jU

Guillaume Major has done some updates to the Color Computer Archive (including fixing a bug that cropped up when they were testing things). In addition to having added graphical tags for things like "Semi Graphics program", "Coco 3", "6309", "Sound Speech cartridge supported", etc., you can now search by those tags as well, via drop down menus: https://colorcomputerarchive.com/search

James Jones runs some BASIC09 performance tests with surprising results https://www.facebook.com/groups/1929079184021683/permalink/2597277030535225/

GIME-X 8MB
Ed Snider has announced that the GIME-X will also have an optional 8 MB RAM upgrade, set up similarly as Paul Barton's NoCan 3 was back in the 1990's. This means that 6 MB RAM disk drivers are already done and tested that are compatible with it. (And, like Paul, it can be expanded beyond 8 MB as well). Scroll down in the comments to zoom in the picture Ed provided of it fully installed in a Coco 3. https://www.facebook.com/groups/2359462640/permalink/10158318768477641/

Allen Huffman finds evidence that a Coco with Audio Spectrum Analyzer was used for the Knight Rider TV show display in KITT (for some of the cars that went "on tour" (And Chad Edward commented that he got to see it himself, and talked to William Daniels (the voice of KITT), and that he had confirmed that many Tandy programs were used):
https://youtu.be/twWVvMtnHi0?t=569

OPL3 / CCT Player for NitrOS-9
Todd Wallace (Lord Dragon) has released both a video, and software images, showing his new OPL / CCT player for NitrOS-9 that works with the OPL3 sound chip in the MegaMiniMPI from Zippster (Ed Snider) (He is also using his IBM CGA font in the demo video):
https://www.facebook.com/groups/2359462640/permalink/10158330794107641/

10-Liners
Davy Mitchell (Daftspaneiel on Github) posted a link to his disk image which contains multiple Coco games in BASIC that are 10 lines or less (as well as Ingress Island and Pig). NOTE: some games require Extended BASIC):
https://www.facebook.com/groups/2359462640/permalink/10158336836097641/
https://github.com/daftspaniel/daftspanielcoco3/tree/master/DiskImages

Christopher Hyzer (TJB Chris on YouTube) has released a video on how to replace the "3 mugateers" photo that shows up during a CTRL-ALT-RESET cold reboot.
https://youtu.be/Ezjx75N-m68

CoCoSDC Second Source
BoysonTech has announced availability of their version of the CocoSDC (currently board only on June 22 - ones with cases will be available by mid-July):
https://www.facebook.com/groups/2359462640/permalink/10158362863532641/
https://boysontech.com/marketplace/

3D Monster Maze

Neil Blanchard has a new cartridge game by Evan Wright called 3D Monster Maze, which is a Coco 1/2 version of the game of the same name that originally appears on the Sinclair ZX-81. The Coco 1/2/3 version features color and other enhancements as well. Also $30.00 and the cartridges are available in both deep blue and a new translucent color, with box and manual sheet. There appears to be two versions of the instruction manual art as well.

https://www.facebook.com/groups/1606095809633762/permalink/2636658969910769/?sale_post_id=2636658969910769

Evan also upload a video of the final version in action: https://youtu.be/4uqWLrzsd2U
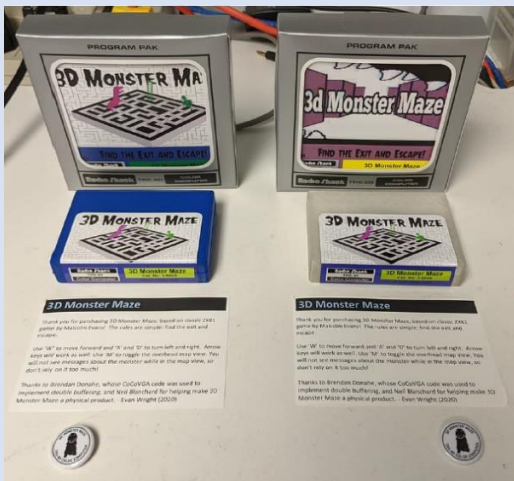
Email Neil@cococrew.org for pricing and availability

Ciaran Anscomb has released a new version of XRoar (0.36):
  http://www.6809.org.uk/xroar/

ChibiAkumas on YouTube is starting a video tutorial series on programming the 6809 (in his case, he wants to eventually program for the Vectrex, but it also works on the Dragon and Coco, and the Fujitsu FM-7): https://youtu.be/UIy0DgmVReY

John Whitworth shows his Dragon MSX 2+ prototype board he just received, and inserted a SCART socket: https://www.facebook.com/groups/dragon32/permalink/2642744715985181/

He also has a video up to show the graphics, along with music that Pere Serrat wrote for it: https://www.facebook.com/groups/dragon32/permalink/2643514192574900/

Ed Snider put up on article of a modification he did for Stevie for the MC-10 - a memory upgrade that also fixes the video circuit to allow >4K for video RAM (and thus allows PMODE 3 and PMODE 4 to work). His is an improvement over some of the originals, like Dennis Kitz's from the September 1983 issue of Color Computer Magazine, and uses less chips. Ed has plans to extend this mod for 32K of RAM plus the higher graphics modes supported.

https://thezippsterzone.com/2020/06/12/mc-10-8k-internal-mod/

Allen Huffman's new blog post is a bit different this week - he found an old handwritten disassembly that he had written decades ago, and then decides to try and figure out what it was doing:

https://subethasoftware.com/2020/06/04/coco-notebook-mystery-6809-assembly/
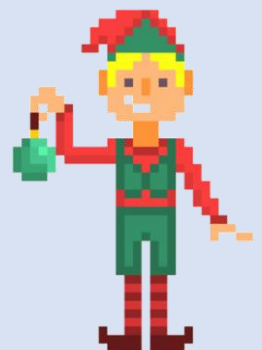
Ed Snider has a test CocoMECH keyboard using black keys:
https://www.facebook.com/groups/2359462640/permalink/10158358030137641/

Bart van den Akker of the Home Computer Museum in the Netherlands had his original Coco 2 (which would be the white Coco 1 to North Americans) as the Computer of the Day for June 16:
https://www.facebook.com/groups/2359462640/permalink/10158354120977641/

Todd Wallace has released his new DIR utility for NitrOS-9 that works similar to DIR in MS-DOS (his screenshot is even using his CGA PC font), and you can download it from his site:
https://www.facebook.com/groups/2359462640/permalink/10158353911262641/

Boisy Pitre has released The Coco Collector Episode 3 - which shows a Coco 3 that used to belong to Marty Goodman, so of course it has mods: https://youtu.be/4_v9WPeUvvw

The Trash Talk (TRS-80) podcast has game programming contest, that includes the Coco. Deadline is November 30. There are hardware prizes to be won:
http://www.trs-80.org.uk/2020competition.html

Tim Halloran has a video demonstrating him powering his Coco 2 - from USB: https://youtu.be/qfa4Db2OwE8

Ciaran has released an updated Coco version of the Dragon game ROTABB's –
http://www.6809.org.uk/tmp/da/coco_ports/

Ed Snider has some photos of his 32K RAM MC-10 board in the making which allows the higher resolution graphics modes.
https://www.facebook.com/groups/731424100317748/permalink/2969740209819448/
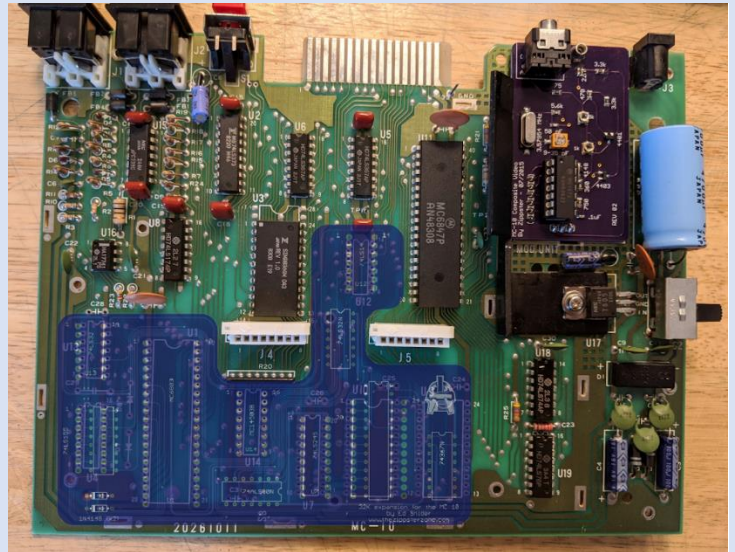
Nick Marentes has a video out to promote his Rally-SG game for all Coco's and the Dragon's (with at least 64K), which is getting released in August: https://youtu.be/9lUiwo7Zly4

July

Bill Garretson has a video of a Fireworks program he wrote for the Coco 1/2.
https://www.facebook.com/groups/2359462640/permalink/10158410702962641/

Nick Marentes releases a new CoCo game Rally-SG based on the Arcade game Rally-X and using a very nice 8 color Semi-graphics mode, hence the "SG" in the title.
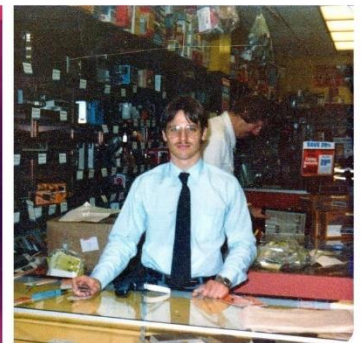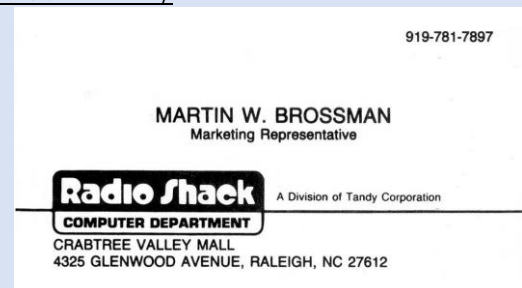https://nickmarentes.com/ProjectArchive/rallysg.html

Martin Brossman posted some photos from when he worked at Radio Shack in the 1980's, and also mentioned that helped start a Coco club in his area:
https://www.facebook.com/groups/2359462640/permalink/10158429775042641/

Pere Serrat shared a video showing his more advanced version of the AGD engine, now using the Wordpak2+ for additional sound effects and music:
https://youtu.be/zYMfmzttu3w

Eric Sperano has written a little launch program for his SDC, but it actually boots a graphic screen to allow you to select between NitrOS9, Fuzix, SDC Explorer and DECB, and report your basic system specs. It's still a work in progress, but it looks really good:
https://www.facebook.com/groups/2359462640/permalink/10158430713227641/

Alison DeNu has been recovering multiple programs that she wrote in the past for the Coco from old audio cassettes, and has been sharing them on Facebook: https://www.facebook.com/groups/2359462640/permalink/10158419718652641/

Jim McClellan posted how he got his DMP-105 working again, including the trick of replacing the ink sponge: https://www.facebook.com/groups/2359462640/permalink/10158421898857641/

Sheldon MacDonald is working on an RSDOS disk imaging tool for windows, and has some screenshots of his progress, and the features it supports: https://www.facebook.com/groups/2359462640/permalink/10158440446867641/

Greg Dionne posted a link to his GitHub account for MC-10 (6803/6847) assembly language programming. It includes a powerpoint slide show, as well as multiple small assembly source listings to try: https://github.com/gregdionne/tasm6801/tree/master/tutorial

"8bitsinthebasement" on YouTube has a video about his Coco 2, including a look under the hood and some overdue upgrades (his even has "Colour" spelled correctly, and is the SCART version!). He also does some upgrades: 16K to 64K, and adding Extended BASIC: https://youtu.be/VZnCd0ZGNBE

Paul Shoemaker has a very good full deck set of card graphics (with full face cards in 16 colors), that he has released a couple of video demos on Facebook, for use in upcoming card games. The latest one: https://www.facebook.com/groups/2359462640/permalink/10158448701372641/

James Jones is working on a book to help teach users BASIC09, coming from Disk BASIC. He is looking for some feedback and suggestions on how to approach the book. If you are interested in this, please give him some comments: https://www.facebook.com/groups/2359462640/permalink/10158476611857641/

https://docs.google.com/document/d/1DFWC0XAv6NENnqXc3AZGy_Gl6TcZDfPcHGAB34woQwg/edit

Chet Simpson has released the first public Beta of Digger III. This does have some minor known bugs, and only has the first 10 levels (and has hard mode disabled), but will give people with 512K (or higher) Coco 3's a chance to try the game out. It supports keyboard or joystick controls, features 4-way hardware scrolling graphics and digitized sound effects, and is one of the most impressive Coco 3 games out. The final version will add hard mode support, and 40 levels. https://www.facebook.com/groups/2359462640/permalink/10158495328987641/

Paul Thayer now has Timber Man available for paid download at itch.io:
Announcement:
https://www.facebook.com/groups/2359462640/permalink/10158493670122641/
Download link ($5.00 USD) - includes the DSK image and full color PDF manual:
https://pthayer100.itch.io/timber-man

Boisy has released The Coco Collector Part 4, which is about the Canadian French version of the Coco 2. In a twist, he actually does the episode in French, too! https://youtu.be/cU4vOGXS3eE

Guillaume Major has released an update to the "complete Coco SDC image", which now has 600+ new disk images of applications, games, demos, educational, etc. compared to the previous version.
https://colorcomputerarchive.com/repo/Disks/Coco%20SDC/Image/

Ed Snider just posted a video of his 8MB prototype board for the GIME-X:

Bill Pierce has released version 2.0.1f of VCC. This fixes the composite artifact colors to be much closer to what a real Coco displays: https://github.com/VCCE/VCC/releases
And **James Ross** put up a comparison of the new composite colors from the older versions and the new one:
https://www.facebook.com/photo/?fbid=10221468934546889&set=p.10221468934546889

Bill Nobel has released his new SDC2 utility, which is a more user friendly utility for accessing SDC disk images from NitrOS-9, using full word English commands, built in help and also works with ANY device descriptor name (it checks to make sure it is an SDC based device), which allows naming descriptors whatever you want. This will be included in EOU Beta 6, but you can get it now for standard NitrOS-9 and EOU Beta 5:
https://www.facebook.com/groups/1929079184021683/permalink/2661221124140815/
He also has uploaded a short video showing it in action:
https://www.facebook.com/groups/2359462640/?post_id=10158552162027641

Robert Sieg has been experimenting with a program to dither colors on the MC-10, with some pretty good results:
https://www.facebook.com/groups/731424100317748/?post_id=3152145568245577

Sheldon MacDonald has released his first beta release of his RSDOS Windows utility. It has some known bugs, but he wants people to test it and report any bugs to him so that he can fix them:
https://www.facebook.com/groups/2359462640/?post_id=10158561425997641

September

September 19th, 2020 **CoCoTALK!** hosts the first ever Glenside Color Computer Club "virtual" picnic. These usually take place in person, but, due to COVID-19, a virtual gathering was held.
https://www.youtube.com/watch?v=99m-DrPnKh0

Todd Wallace (Lord Dragon) has released a video showing his new OS9/NitrOS9 utility for formatting MSDOS disks on the Coco - up to 720K (so double density 5.25" or 3.5" disks):
https://www.facebook.com/groups/2359462640/permalink/10158575072022641/

Charlie (charlie2020 on Discord) has released version 1.3 of some OS9/NitrOS9 utilities that he wrote in BASIC09:
http://jechar.ca/coco/Download/

Stevie Strowbridge officially released his BASIC shoot em up Cosmic Aliens, and Rob Inman and David Ladd have started a port of it to RSB under NitrOS-9 as well:
http://cosmicaliens.com

#SepTandy is an annual event where retro YouTube channels feature Tandy computers all month long. 2020 was a huge CoCo year which brought a lot of great exposure to our computer and community. Each week L. Curtis Boyle brought some of these YouTube channels and videos to the weekly news segment of CoCoTALK! and we have managed to make new friends in the retro community this year, big score for the CoCo! Check out the content on YouTube:
https://www.youtube.com/results?search_query=%23septandy

"Mr. Lurchs Things" YouTube channel made a video showing his Coco 3 with upgrades (thanks to Nick Marotta for finding this one), and is part of the this year's "#SepTandy 2020" promotion between multiple YouTube pages. His upgrades include the 6309, SDC and 512K:
https://youtu.be/LsCZu4Z2KBU
Also part of #SeptTandy 2020 is **TheRetroChannel** showing his installing of a Coco 1 S-Video/composite mod on one of his Coco 1's, on YouTube: https://youtu.be/PNnAg8qFdzM
A 3rd "#SepTandy" video is from **Dinty's Hideaway** about the Coco is also out https://youtu.be/UbL84lYfPUQ
A 4th "#SepTandy" video is from "**Adrian's Digital Basement**", where he does a deep clean/restore of a Coco 3
https://youtu.be/wPtTv8yoBLc

DaveJustDave on YouTube released an interview with Ken Williams (who, with his wife Roberta created Sierra), and the interview even covers the Coco a bit for their ports of Disney games for the Coco 1/2 from around 1984/1985, and then Kings Quest III and Leisure Suit Larry for the Coco 3 in 1988. Ken has a new book out mentioned as well, which sounds interesting (Coco is mentioned around 19:00 in - and that is where it is mentioned that for some of the more "gutless" machines, the interpreter had to be rewritten in assembly; including the Coco). Thanks to Rob Inman for finding this one:
https://youtu.be/gdEYABhmVNo

AC's 8-Bit Zone, as part of #SepTandy 2020, shows off his giant Coco collection, much of which was in his storage for years, before his re-opening of many boxes:
https://youtu.be/k6z8J2K3o58
And a second video, showing how he made the cable to hook his Coco 3 up to his Magnavox 85CM15 monitor:
https://youtu.be/i73z0VZcMDU

VCFMW 15 went virtual
http://vcfmw.org/virtual.html

Chet Simpson has put up an official "#SepTandy" demo video for Digger III, which is out this weekend!
https://youtu.be/L4CvsAfSrcE
And he released the game a couple of days early, in full, for free, downloadable on Facebook (512K Coco 3 required, joystick optional):
https://www.facebook.com/groups/2359462640/permalink/10158595404992641/

Digger III is now available
https://hypertechgaming.itch.io/digger3

An awesome interview on **Dinty's Hideway** as part of #SepTandy: An interview with John Roach, who headed the computer part of Radio Shack during the creation of the Model 1, 2, 3 and Coco - Part 1:
https://youtu.be/jNYvRX2z518
Part 2 (remembering Charles Tandy):
https://youtu.be/1BicepDZjX8

Ken Reighard now has his Coco collection of games that he has written up on itch.io. Most are free, and his special CocoFest edition of Nightmare Highway is only $5.00 (I think he does need to add another screenshot to each to actually show what the game looks like, not just the title page):
https://cankenmakeit.itch.io

Paul Fiscarelli put up a couple of videos on Facebook demonstrating the current results of the sprite compiler he is working on for the Coco 3:
https://www.facebook.com/groups/2359462640/permalink/10158626255567641/


Richard Kelly has uploaded a new, faster, improved version of the Coco 1/2/3 platform game he wrote called Ladderman 2 (version 0.9W). He is looking for input on bug reports, feedback, etc. Download for free on Facebook, and screenshots in the comments:
https://www.facebook.com/groups/2359462640/permalink/10158630873287641/
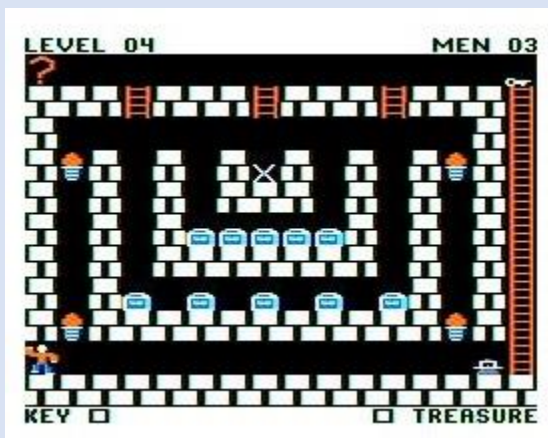
Paul Thayer put up a VLOG of his current progress in his Coco 3 puzzle game, CocoBan (loosely based on Sokoban, but with a lot of extra gameplay elements, some show in this VLOG):
https://www.facebook.com/groups/2359462640/permalink/10158629689597641/
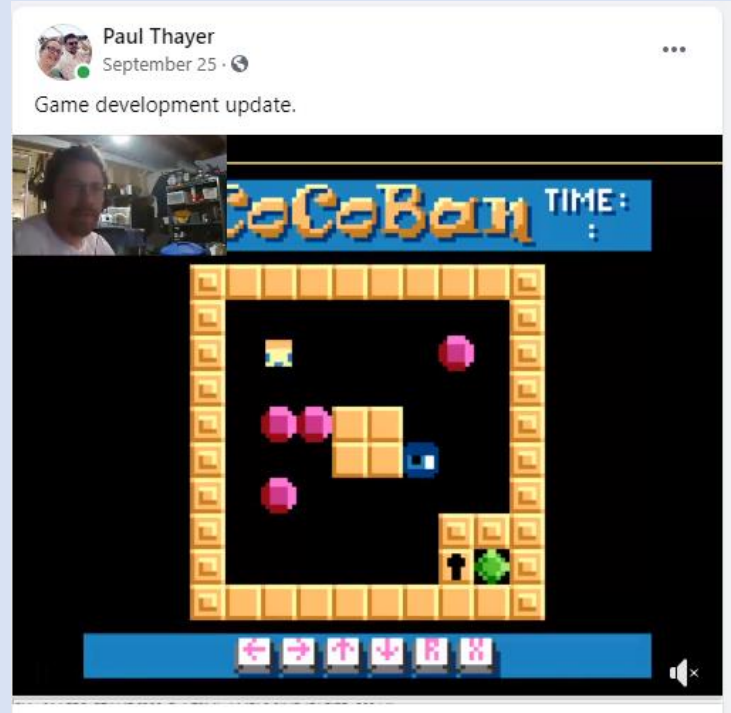
October

Tim Lindner has a video up on YouTube on how to use a Coco to control a Teensy (Arduino compatible):
https://youtu.be/RF1irLrpTtw

As part of #SepTandy, Aaron Newcomb @ Retro Hack Shack put up a different kind of SepTandy video - covering the comic collaborations Radio Shack did with DC Comics back in the 1980's (I have one or two of these myself), including Superman and other major DC figures working with the "Whiz Kids", who used different TRS-80 model computers to help save the day. The Coco is featured in some of these:
https://youtu.be/_6jmx9T-kis

Brian Schubring put up some videos on how to set up Drivewire 4 for VCC under Windows (including Windows 10):
https://www.facebook.com/groups/1929079184021683/permalink/2690143171248610/

Bill Pierce is working on a new version of MShell that will run on a hardware text screen, thus reducing it's RAM requirements. In the comments, he shows a mockup screen shot of what it may look like:
https://www.facebook.com/groups/1929079184021683/permalink/2694155670847360/
https://www.facebook.com/photo.php?fbid=10219181748483178&set=p.10219181748483178&type=3

James Rye posted a video called "Adventures in VCC #1", where he goes through the fun of adding 'paste' to VCC:
https://youtu.be/4V6cnMHGB1Y

Dave Shadoff has released the assembly source code for his Coco 1/2 game Star Spores (sold by Spectral Associates) on GitHub (Thanks to Ciaran Anscomb for providing the link). It even includes scans of hand written notes from back in it's time of development:
https://github.com/dshadoff/Star-Spores_CoCo

Jack Gurner posted a photo of an interesting bit of Coco history - a membership certificate from the International Color Computer Club (which used to advertise in Rainbow):

Allen Huffman shared with the community that he is brainstorming the possibility of recreating the Color Computer keyboard. He has been chatting with various suppliers on Alibaba about this. The keyboard is not a CoCo keyboard, but rather a PC USB keyboard with the CoCo keys labeled. Are you interested in such a product? If so, please contact Allen on the Color Computer group on Facebook or on the CoCo List. The complete thread link below:
https://pairlist5.pair.net/pipermail/coco/2020-October/175960.html

A 1 hour+ YouTube video by **ACs 8-bit Zone** discusses in detail a composite out mod for the CoCo 2:
https://youtu.be/tayGsz7Xs3A

Walter Zambotti announced that a new version of Open VCC (OVCC) is now available. Version 1.4.0 now supports the Tandy Hi res interface.
Video: https://youtu.be/3XZWaIBRwhA
Download: https://github.com/WallyZambotti/OVCC

ACs 8-Bit Zone posted another CoCo video. This video's topics discusses a method to transfer data from a real floppy disk on a CoCo to a virtual CoCo on the PC via DriveWire:
https://youtu.be/bFOGSQnscsc

More DriveWire goodness! **8BitsInTheBasement** posted a video that talks about this fantastic application:
https://youtu.be/KISNyh8TsGc

A question that come up frequently is how to connect a CoCo to a modern TV. Wagner's TechTalk on YouTube posted a video about this topic. Aside from the CoCo, it includes discussion about other vintage systems:
https://youtu.be/KWoK8YIA9cA

Joel Dare shared the news that he built an audio cable for a digital audio recorder and shared the diagram.
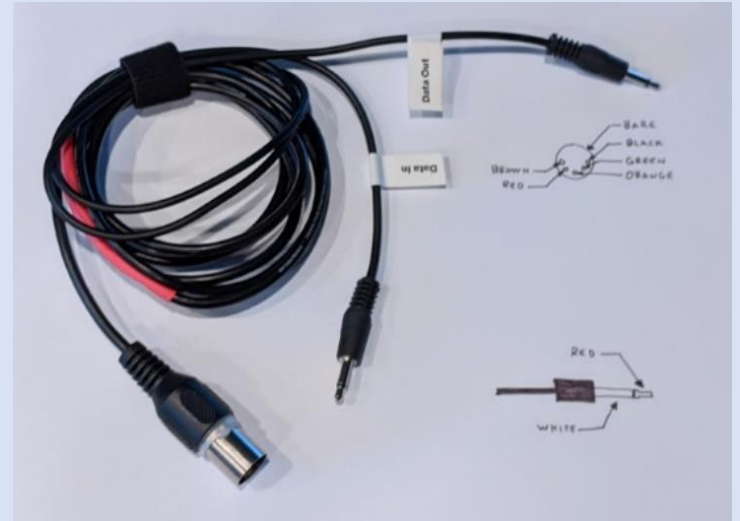
Richard Lorbieski announced that his Paragon Joystick Adapter is now in stock. This adapter allows the use of Atari style joysticks to be used with the Color Computer. https://boysontech.com/marketplace


Keith posted another CoCo 3 assembly tutorial to his **ChibiAkumas** channel. The topic this time is 16 color bitmap drawing: https://youtu.be/qk8jS4XAMKo

Carlos Camacho announced that he is selling Color Computer Extended BASIC 1.1. ROMs on eBay to upgrade existing Cocos 1, 2 and TDP100: https://tinyurl.com/yyn4oxv5

Peter Cetinski uploaded to github an archive of the Tandy Coco Tech bulletins: https://tinyurl.com/y2gkz8rd

ACs 8-Bit Zone posted another video. This he looks into repairing a CoCo that was sent to him: https://youtu.be/tChs-TzTAJ0

John Whitworth announced more MSX 2+ boards have been ordered. What board is this? Compatible with Oomajaflip, V9958 graphics chip, 128KB VRAM, expandible to 192KB, YM2149 sound chip, and a YM2413 FM Synthesis sound chip on board. More information here: https://tinyurl.com/yxmpk5lb
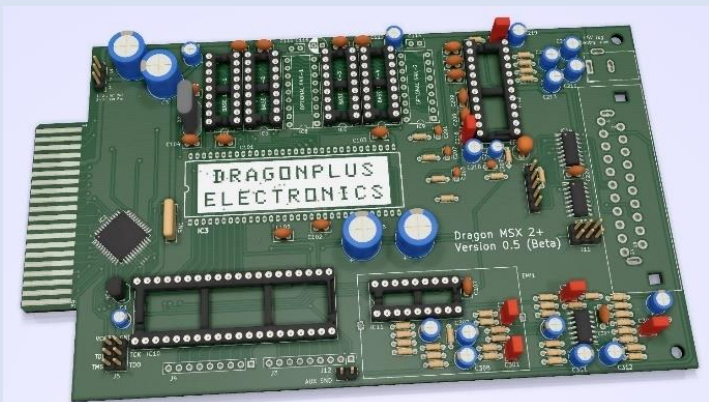
Chris Burke posted an update to the USB mouse adapter for the CoCo: https://tinyurl.com/y4jt33m8
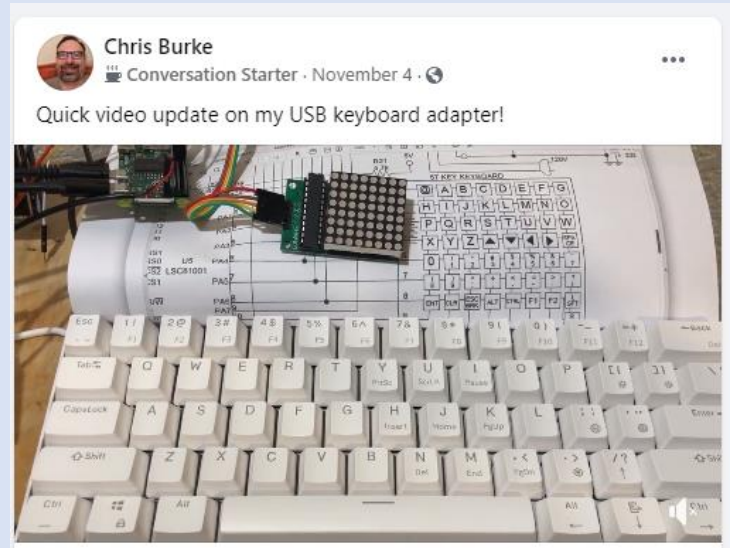
November:

Nick Marentes releases his 3rd game this year, PIPES for the CoCo 1/2/3 and Dragon! https://nickmarentes.com/ProjectArchive/pipes.html

Ciaran Anscomb (sixxie on Discord) has notified us that his index of Dragon User magazine has now been completed.
There is a PDF version available for download here:
http://www.6809.org.uk/dragon/dragonuser-bib.pdf
The BibTex database version is here:
https://gitlab.com/sixxie/dragonuser-bib
He is also is working on making a full KiCad file to make the entire Dragon 64 motherboard. Status here on the World of Dragon forums:
https://archive.worldofdragon.org/phpBB3/viewtopic.php?f=9&t=10893

Sign of the time. Neil Blanchard has a last call for his special run of 40th anniversary Coco masks.
Email Neil@cococrew.org for more information.

Dave Shadoff (author of Star Spores) pointed out that there is now a free MC-10/Alice core for the MiSTer):
https://github.com/MiSTer-devel/AliceMC10_MiSTer

Sheldon MacDonald, after asking if people would like an assembly language programming series done by somebody just learning it themselves, has had so much positive feedback that his first three episodes of his "Exploring assembly" series are already out this week. He also redid a couple of his earliest efforst with larger fonts & higher resolution to make them easier to read and follow along with:
https://youtu.be/cyAMkehYl7Y
(Setting up the work environment)
https://youtu.be/tAnM7vjLt_s
(processor loads/stores; memory variables)
https://youtu.be/wKQsIKTKsp8
(compares, subroutines and creating a mouse cursor on a semigraphics screen)
He also has DSK images available with source code, etc. so that you can follow along:
http://www.smotion3d.net/downloads/asm%20tutorials/

Simon Jonassen put up a video on Facebook demonstrating his 4-voice music player
https://www.facebook.com/groups/2359462640/permalink/10158729659987641/

Ed Snider announced the availability of Darren Atkinson's MCX-32 SD cartridge for the MC-10 computer. This cartridge provides an SD card-based file storage, 32KB or RAM, and 128KB of flash memory, that's sixteen 8KB banks.

Introductory video: https://youtu.be/ro9u7WIwUeU
User guide: https://mcxwares.blogspot.com/
And purchase here: https://tinyurl.com/y57qpcjq

ACs 8-bit Zone has debuted a video where he repairs a CoCo 2: https://youtu.be/6KrBYymqeAY

YouTube user **ChibiAkumas** posted an assembly language tutorial video for the Color Computer and Dragon. This lesson covers sound generation. https://youtu.be/Ef51PYT2VbM

Denis Bisson shared that he is working on a ROM based testing card. This is not a cartridge, rather it plugs into the Color BASIC ROM socket on the motherboard. It tests RAM and 6809 registers and outputs result through the serial port.
Video: https://youtu.be/zJWWcZIZkBM
Post on Facebook: https://tinyurl.com/yxhbhr6a

(RAM test program for CoCo using no RAM)

Jim Brain's RETRO Innovations is now selling the bare bone PCB for his Philarmonic-12, which is a clone of the original 1980's Symphony-12 from Speech Systems, capable of up to 4 percussion and 12 music voices simultaneously.
Order: https://tinyurl.com/y2hmo55d

Do you want to learn more about "alternate" color sets? Do you need more input? Fear not, Allen Huffman has you covered! He published a blog post where he discusses these that can be done on the 32x16 hardware text screen on all CoCos: https://tinyurl.com/y4afsbvl

Darren Ottery shared a video on his Facebook post. He discusses a cool visual trick that can be done in BASIC. The video applies to the MC10 and MCX-128; however, he posted a comment that references another video for the CoCo.
https://tinyurl.com/y3c9wu2x
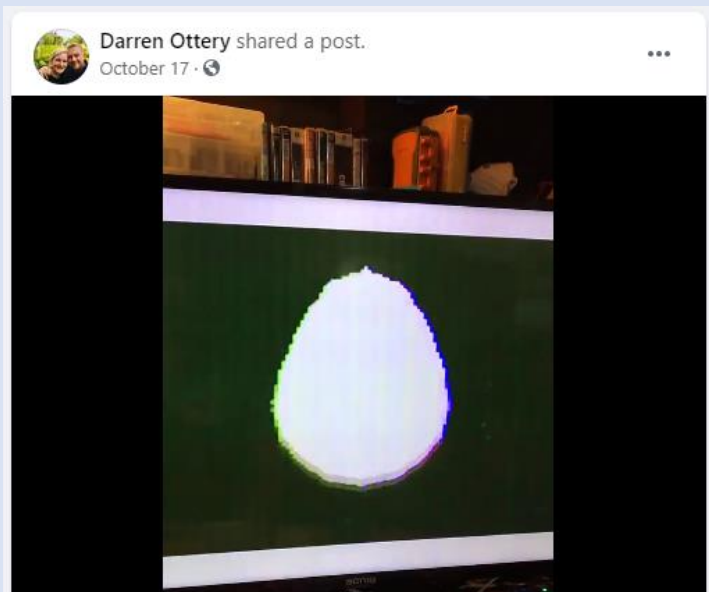
Ken Reighard is making his Inter-Planetary Trash Collector game available. This is a BASIC game where the player spends his or her time joyfully collecting space junk.
Into video: https://youtu.be/RKbPMRy_wp8
Download: https://tinyurl.com/yxffzkb9

Interested in self-modifying BASIC code? Is this a mythical beast, or can it be achieved? Erico Patricio Monteiro started a discussion about this topic on Facebook. Read the thread here: https://tinyurl.com/yyuxawlq

Bill Pierce announced the availability of the new release of VCC, version 2.1.0B. Among the new features, we can now copy and paste code directly into the VCC screen. Note that this is an open-source project which means that the source code is also available. Get it here:
https://tinyurl.com/yxpmmcgn

Boisy Pitre shared his new project with the community: Project Ghidorah. This consists of creating a token-ring-like network using CoCos connected via their serial port.
Information: https://tinyurl.com/y3oddr53
Video: https://youtu.be/oOvTy0aJffw
Code: https://github.com/boisy/ghidorah

Do you have a stock 16K CoCo 2? Want to know how to make it better? The YouTube Retro Channel posted video discussing how to do this: https://youtu.be/f6a0ZsV7OO8

Ciaran Anscomb announced to L. Curtis Boyle that the index he was working on and is now available in a PDF file or . The index is for the Dragon User magazine:
PDF: http://www.6809.org.uk/dragon/dragonuser-bib.pdf
BibTex DB: https://gitlab.com/sixxie/dragonuser-bib

ACs 8-Bit Zone posted the second part of the video where a viewer's CoCo is being repaired: https://youtu.be/NBw-KohzGIk

Looking for more CoCo goodness? Then let's all welcome a newcomer into the fold: https://8bitcoco.com/

Jim Brain of RETRO Innovations is offering the AT-3-8910 audio chip for $2 USD (plus shipping). More info: https://tinyurl.com/y6ll33cm

Tony Cappelinni shared a link to an article that talks about procedurally generated retrocomputer emulators that appeared on Hackaday: https://tinyurl.com/y3laq6ac

Richard Harding mentioned that he shared a Norwegian and Italian version of the Dragon BASIC manual. Download on the following link (scroll down): https://tinyurl.com/yxgzjh99

John W. Linville shared the news that the new CoCoCrew Podcast, episode 66, is now ready for our enjoyment. Go to the main CoCoCrew page to get it: http://cococrew.org/

Ed Snider announced the availability of his composite mod for the CoCo 2. This product provides composite A/V out for the CoCo 2. The RF modulator is replaced by this mod. Sorry, not a PAL product.
More info: https://tinyurl.com/y6kmnoaf
Order here: https://tinyurl.com/yxz2qovj
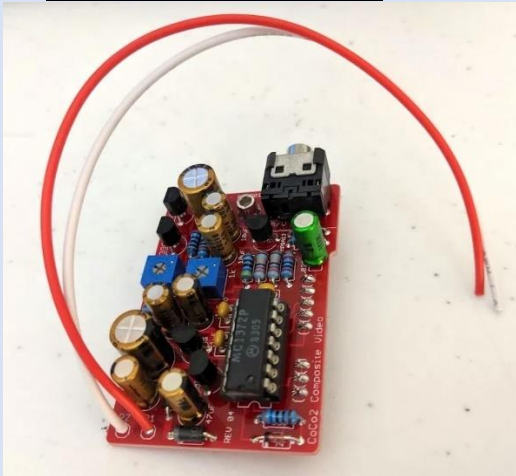
Dave Shadoff shared the news that there is now a free MC-10/Alice core for the MiSTer CoCo system: https://tinyurl.com/y28jn6bj

Rutherford Le Blang shared a trick for the CoCoSDC where you can specify a specific virtual drive number (0 – 255) as part of a larger DECB VHD in one command: https://tinyurl.com/y2duutgw

John Linville excitedly announced that the CoCo Crew Podcast has been downloaded 150,000 times! Way to go guys! https://tinyurl.com/y5mxqowb

Allen Huffman announced that an updated version of the article "Compressing BASIC DATA with Base-64 – Part 1" is now available: https://tinyurl.com/yxr2724e

Do you have a Realistic CTR tape recorder? Has it seen better times? If so, this video on YouTube by ScottyAnimation might help. He provides repair tips to CTR owners: https://youtu.be/u3CfccYPlI0

ACs 8-Bit Zone posted the third and final part of the video where he repairs a viewer's CoCo 2: https://youtu.be/t0jVmZdx_BI

Anxious? Can't sleep at night? Suffering from withdrawal symptoms because you are not hearing the soothing sound of the CoCo 2 keyboard? TechSMR has you covered! Watch and listen to 10 long relaxing minutes of the CoCo 2 keyboard! https://youtu.be/E__wI0WBUyk

Need a little help making RF cables to connect your vintage computer to a TV? This video on YouTube by Mike's Tech Rescue discusses this using a CoCo1: https://youtu.be/ujIywepPwx0

Interested in the techie details of a COM port? Interested in a cartridge with two COM ports? If so, this Facebook discussion started by Paul Barton will interest you: https://tinyurl.com/y5zaq5j5

Jim Gerrie posted a blog article titled "Key Debounce Delay POKEs" for the MC-10: https://tinyurl.com/y6cs9ofq

The Color Computer Archive uploaded a ZIP file with a plethora of games contained in 83 DSK images, ready to play. The file is called CoCo Games Collecton (CoCo SDC).zip. It is located at the following link: https://colorcomputerarchive.com/repo/Disks/Coco%20SDC/Games/

YouTuber You Make Robot posted a video demonstrating DRAGONUITAPE, the digital tape alternative. This allows loading CAS files stord in an SD card not the Dragon 32 computer.
Video: https://youtu.be/F2Is-S9vQd4
Info: http://dragonuitape.youmakerobots.com/

Mat Chy announced that his game Doodle Jump is now available for download. The download is free of charge, but he graciously accepts donations: https://matchygames.itch.io/jumpy
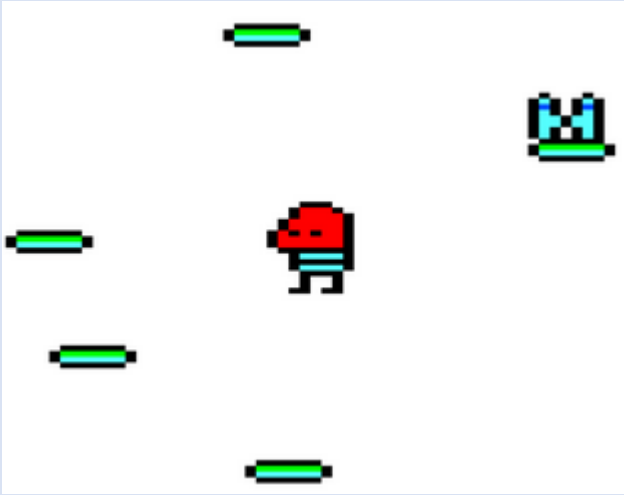

In memoriam: Richard Wadman, one of the Dragon's original designer, succumbed to the COVID-19 virus. The link is an 80s interview discussing the Christmas season: https://youtu.be/305o5qCkkgI

Can't get enough retro computing? Love to see others show what they have? Then this video is for you! YouTuber retrobits posted a 15-minute video where he presents various retro computers that he got. Spoiler: The video lin below goes directly to the CoCo 3 segment, but it is easy enough to restart the video: https://youtu.be/4wwv9npSTfg?t=114

ACs 8-Bit Zone is back with another CoCo repair video! Don't miss these, they provide important information on CoCo trouble shooting: https://youtu.be/lO78B_Ii0QY

Have you ever needed to connect some external device to the CoCo's keyboard connector that's on the motherboard? Chris Burke is working on an adapter board that breaks out the CoCo's KB connector. The wafer-thin device plugs into the CoCo's connector and has male headers that the tinkerer can use to connect his device. He is not making these explicitly for sale, but will sell his stock of the boards that he ordered. He says they should be available in December, so keep an eye out!
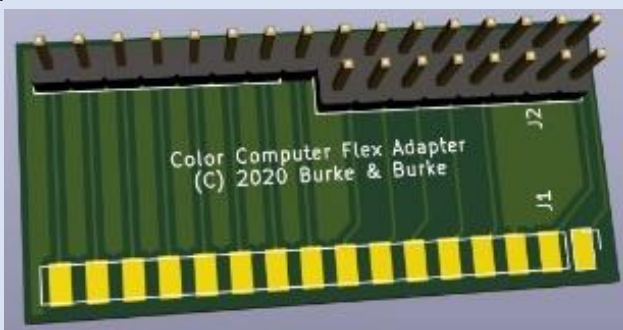
Can a Parallax Propeller be used to create a retro computer? If this interests you, then there is a video for that! Djamal.UK posted a video that discusses this: https://youtu.be/afM_AVus3y4

Robert Sieg has put up a color mixing chart for using the composite mode up on Facebook (no login or account needed):
https://tinyurl.com/y7z4z7cm

Dave Shadoff announced the availability of the CoCo2/Dragon cores for the MiSTer for download. These support 64K RAM, 2 analog joysticks, cassette, sound, and cartridge support: https://tinyurl.com/y93gp2gh
Video demo by NML32: https://youtu.be/z8AjtybilYM

Are you interested in a complete Dragon motherboard? If so, you are in luck! Ciaran Anscomb is working on creating the entire Dragon MB using KiCad. But don't expect to gift these for Christmas 2020, he still has a long way to go! More info: https://tinyurl.com/ycjrxqs8

Have you ever burned that latest version of firmware into your 2764 EPROM? So happy, and anxious to power ON, only to find that the CoCo (or other computer) has a 24 pin socket? Aaaargh! No fear, ACs 8-Bit Zone is back with another video on how to make those 28 pin EPROMs work with a 24 pin socket. https://youtu.be/NTbW1SEcX0A

Are you a Mandelbrot junkie? Does watching the fractals ever change sooth your inner savage beast? If so, YouTuber juncachran posted a video of a BASIC program running on the CoCo 3 emulator VCC that generates a Mandelbrot set: https://youtu.be/R8-s76CIYnM
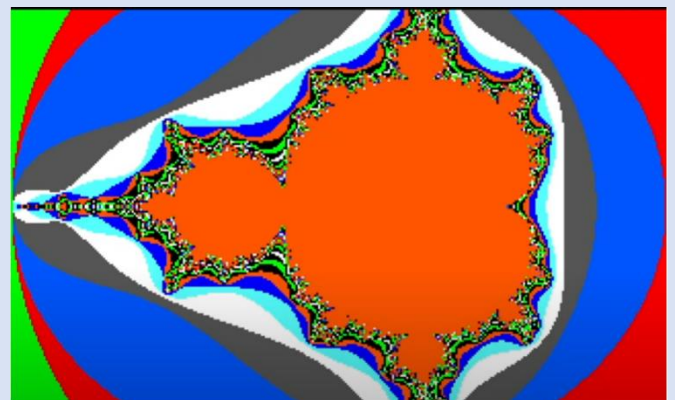
Do you take your color palettes seriously? If so, then this page is for you. Brian Joyce shares lots of information and charts on this topic: Courtesy of Brian Joyce.
https://tinyurl.com/y9quu3j3

Jim Gerrie has a port of "Save Spock: Battle At Vulcan" available for the MC-10. It can be downloaded as a WAV file.

Video: https://youtu.be/g-yynAliCOY
Download: https://tinyurl.com/ybnu72tz

Ready for Christmas? Just one thing missing under the tree: A CoCo playing seasonal music through the Orchestra-90! David Moak posted this short 20-second video of just this!
https://tinyurl.com/ybvp4vnr
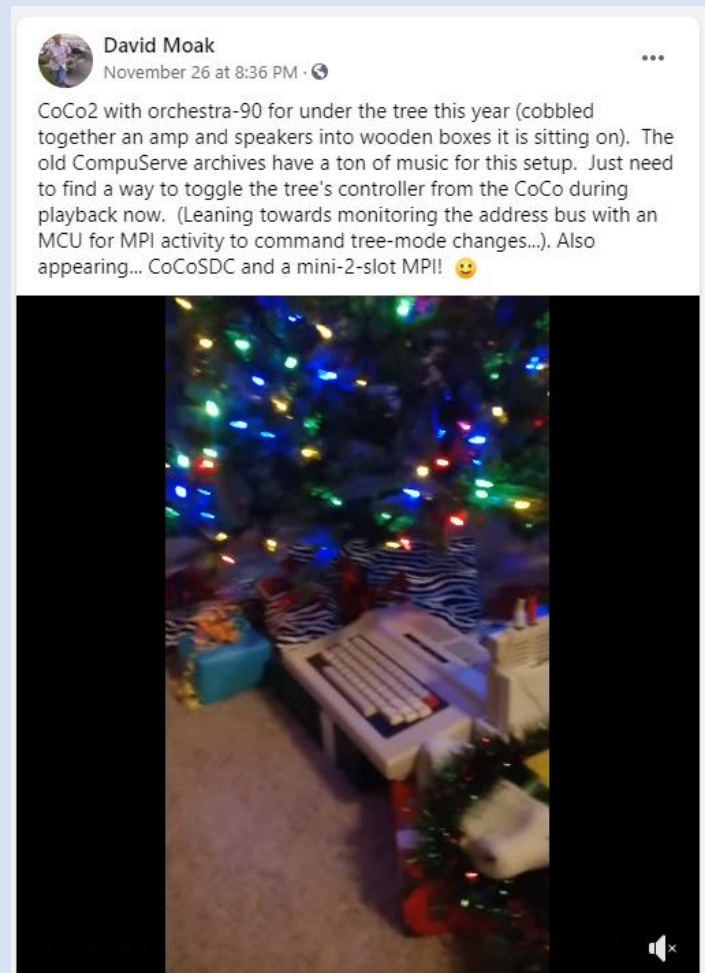
December

Chris Burke posted information on a project that he is working on. This is an adapter to allow the CoCo to use a wireless USB mouse and keyboard.
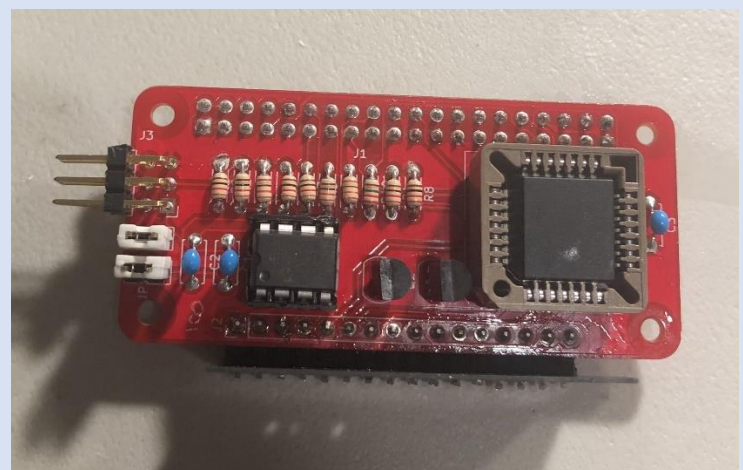
Paul Shoemaker provided an update on his progress working with "pseudo-SG6" blocks to create imagery. So far, he has put together a series of images that he will incorporate into a future game.

Ken Reighard announced that the game Nightmare HighwayCoCoFEST! Edition Digital copy is a buck off. Get it while supplies last!
Promo spot: https://youtu.be/9O8SSqz06ps
Order: https://tinyurl.com/y3wtoeku
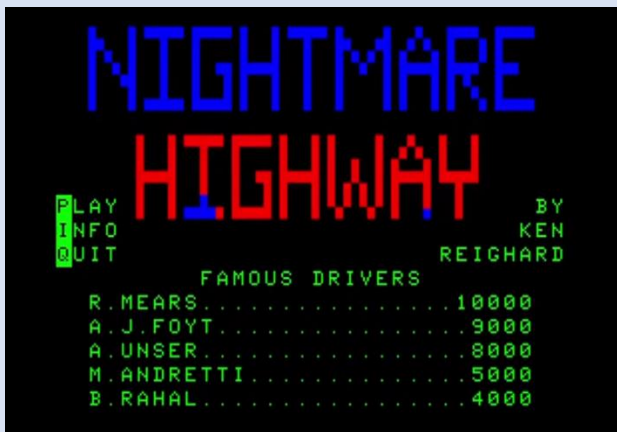
Allen Huffman publish another blog on his Sub-Etha Software Website titled "Color BASIC "DATA" quirk":
https://tinyurl.com/y8dsharh

Ed Snider is now offering CocoSDC cases by themselves (in black, white, or marble) for $20.00 (scroll until near the bottom): https://tinyurl.com/y9gvfgkd

Ben Manuel posted a video on YouTube that visually shows how a sorting algorithm works using code from the August 1988 Rainbow Magazine:
https://youtu.be/dC4Yqg9GaA4

Do you have a Radio Shack CCR-82 computer cassette recorder? Then this video is for you! It show the disassembly process of this device:
https://youtu.be/1TdS8IK5Pmg

L. Curtis Boyle announced that an update to the NitrOS-9 Technical Reference and Window manuals have been updated. Additional content was added to the latter discussing EOU Beta 6. Link to the documentation:
https://tinyurl.com/y643o9ga

In Curtis' own words:

"I released the first public release of the new Technical Reference manual for NitrOS-9. This includes a lot of previously undocumented system calls, 3rd party driver calls, corrections to the original manual, and highlights which ones are new to NitrOS-9 (vs. the original OS-9 Level II), and new to EOU. This is the 2nd section of the original Tandy/Microware OS-9 Level II manual that has been updated, and is about 100 pages longer than the original with all the new stuff."

Jim Brain, GCCC president, announced that the Glenside Color Computer Club will be inaugurating a new Website Any Day Now. Eric Canales has been working on authoring the new site on WordPress and has a sneak peek available. If the site is not live when you read this, the sneak peek link follows:
http://dev.glensideccc.com/
The site has since gone live on the usual link,
http://glensideccc.com

Antonio Carlos Jiménez Ely posted a link to the SDPak page.
http://www.sdpak.com/

The SD-Pak project takes label designs from the original CoCo Cartridges, and some re-designed and imagined ones to make very cool looking labels for SD cards to go in your CoCoSDC. The idea, is to get very low-cost SD cards and set them up to auto boot like the old ROM packs, hence the name SD-PAK. Lots of images have been posted to Facebook recently.

Joel Dare shared a project that he's worked on with Salvador Garcia. This is for enthusiasts who want to proudly display their vintage computers on the wall. Joel designed shelves that are affixed to a wall. The computer is then placed on the shelf. He is offering the files needed to 3D print the shelves. More info and order here:
https://gumroad.com/l/retro-shelf

Carlos Camacho has been busy! He created a CoCo calendar using Rainbow Magazine covers. As an added bonus, he included some fun news events from the community each month. Order yours today!
https://www.facebook.com/groups/2359462640/permalink/10158815403617641/

April • 2021
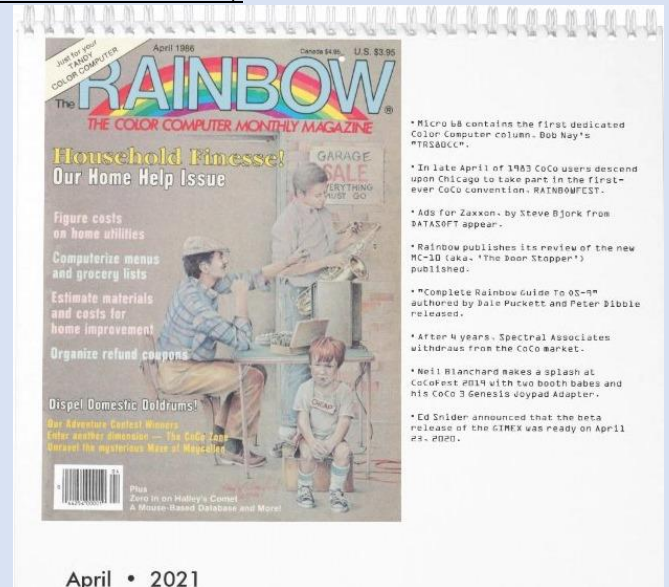
Chet Simpson posted an update about his KAOS cross platform development system for older machines with bitmapped graphics (including Coco's, Fujitsu FM-7/FM-77, PC with EGA, Atari ST and Amiga):
https://www.facebook.com/groups/2359462640/permalink/10158790617862641/

Jamie Cho found an interview with Craig Federighi, Sr. VP of Engineering for Apple, where he mentions that his first computers was a Coco, and that he thought that the 6809 was "decent processor" (it was also part of the first Mac prototypes, when Jef Raskin was still in charge of the project):
https://youtu.be/43sjym5ZS68?t=478

Just in time for Christmas, Neil Blanchard is offering the updated cartridge game Flood It!, by Evan Wright, in a new green cartridge case, for $30.00 (Neil@cococrew.org)

Breaking News! December 18th 2020
CoCoSDC Explorer (SDCX) Has been updated to 1.10 and published to the Color Computer Archive by Guillaume Major
https://colorcomputerarchive.com/repo/Disks/Utilities/Coco%20SDC%20Explorer%201.10%20(SDCX)%20(Guillaume%20Major).zip

Calendar of Events

Glenside Color Computer Club, Inc. Business Meetings

Upcoming meetings: December 17th 2020, January 21st 2021, February 18th 2021

Check the calendar on our site for updates

Third Thursday of each month.
7:30 PM to 9:30 PM Central Time

BlueJeans Video Conference - https://bluejeans.com/889394355

You can call in: Phone Dial-in
+1.408.740.7256 (United States)
+1.408.317.9253 (Alternate number) (Global Numbers)
Meeting ID: 889 394 355

Glenside Virtual Meetup
December 20th 7PM Eastern / 6PM Central / 5PM Mountain / 4PM Pacific
Hosted on the club's BlueJeans service
https://bluejeans.com/889394355

The 29th Annual "Last" Chicago CoCoFEST!
Date: Scheduled for April 24th and 25th 2021
Location: Holiday Inn Elk Grove, IL

http://glensideccc.com

Image courtesy of D. Bruce Moore

Tandy Assembly
October 1st – 3rd 2021
http://tandyassembly.com

The Year in CoCo Media

The CoCo Crew Podcast was the first podcast dedicated to the CoCo starting in 2015. Their mission back then was to try and reignite the CoCo community and generate interest in attending CoCoFEST! as it seemed attendance was on a steady decline.   Luckily, we had this initial catalyst to help jump start interest in the CoCo hobby, and in the years that followed, the community has been stronger and more vibrant than it has been in long time. 2020 brought 12 more great episodes, here are some highlights. You can download the individual episodes and read detailed show notes for each by visiting http://cococrew.org

Episode 56 – January – Interview with Dale Pucket.
Episode 57 – February – Interview with Phil Zwart.
Episode 58 – March – Interview with Carl England, Tech Talk with Mark McDougal part 1
Episode 59 – April – Interview with George Dorner – Tech Talk with Mark McDougal part 2
Episode 61 – June – Interview with Simon Jonassen & Paul Fiscarelli
Episode 62 – July – Interview with Fran Purcell – Tech segment regarding pseudo random numbers – Neil announces "The Gamester"
Episode 63 – August – Interview with Curtis Kaylor
Episode 64 – September – Interview with Nathaniel Lockhart
Episode 66 – November – Interview with Joe Scinta

The CoCo Show – by the Amigos Retro Gaming Group
John, Aaron, and Brett make up ARG, and this year they started featuring Color Computer shows on their live Twitch Streams, YouTube channel, and audibly as The CoCo Show Podcast. There are many shows to enjoy in both audio and video form, mostly focusing on CoCo gaming. Check out a great group of guys who are a valued asset to the CoCo community.

YouTube Channel: https://www.youtube.com/channel/UCtsK4QYe2tRdIxoZxwkX3Ww
CoCo Show games playlists: https://tinyurl.com/y9onm46x
The CoCo Show YouTube playlist: https://tinyurl.com/yddwyv9l
Twitch Channel: https://www.twitch.tv/amigosretrogaming
Podcast page: https://anchor.fm/thecocoshow

CoCoTALK! started in March of 2017 initially as a few weekends worth of talking about how excited we all were for the upcoming CoCoFEST! and what we were hoping to see and do. 3 years later, its evolved into an international "phenomenon" where the CoCo community come together each week in a global user group meeting and discuss all that's going on in the thriving community every Saturday. The show can be watched live and interactive on YouTube, Facebook, and Twitch, and episodes can be replayed on YouTube. You can also catch the show as both audio and video podcasts. Check out everything you'll never need to know about CoCoTALK! by visiting http://cocotalk.live

Entire playlist on YouTube: https://www.youtube.com/playlist?list=PLDfh7JjQaSYC1p7sxFIm4i8HU7-Yj0ssB
"Essential Viewing" Playlist: https://www.youtube.com/playlist?list=PLDfh7JjQaSYDZ1azQQskOjv8RiZsydDh-

Episode 141 started 2020 off with a Community celebration highlighting many of 2019's achievements
Episode 144 featured an interview with Christopher Mayeux
Episode 150 featured special guests, including Chris Hawks from HawkSoft
Episode 151 featured and interview with Greg Zumwalt and the world premiere of Nick Marentes' Gun Star
Episode 152 was their 3-year anniversary special
Episode 156 Virtual CoCoFEST!
Episode 158 NitrOS9 Ease of Use Beta 5 release
Episode 159 Bret Gordon's YA-DOS and Ron Klein's 3,000 disk image
Episode 163 Latest update to the CoCo-Pi project
Episode 164 Back to CoCo – info for anyone getting back into the CoCo hobby
Episode 166 The premiere of Nick Marentes' Rally-SG
Episode 170 Special guest Glen Dahlgren
Episode 171 Celebrating the CoCo's 40th birthday
Episode 173 Nick Marentes announced his newest CoCo game Pipes
Episode 175 MIDITALK! A show dedicated to discussing and demonstrating MIDI on the CoCo
Episode 178 The Glenside Color Computer Club virtual picnic
Episode 187 Interview with Dave Shadoff
Episode 188 MAME TALK! Tim Linder gives us updates on all the CoCo specific MAME work he's done this year
Episode 190 NitrOS9 Ease of use Beta 6 premier with live demos and Q&A section

Compiled by Steve Strowbridge

CoCo Community Corner

Source	Link(s)
Glenside Color Computer Club, host of CoCoFEST!	Website	Classic splash page	Facebook
The TRS-80 Color Computer Facebook Group	Facebook
The Color Computer Mailing List	Website
The TRS-80 MC-10 Facebook Group	Facebook
The Coco Crew Podcast	Website	Facebook
The Dragon 32/64 Communities	Website	Facebook
CoCoTALK! Weekly live Color Computer talk show	Website	Facebook
The Coco Community Discord server	Get Discord	Server Link
The CoCo Show Podcast	Website	YouTube
Looking for more CoCo Links? Visit I'm a CoCo Nut!	Website

(Closed Parentheses)

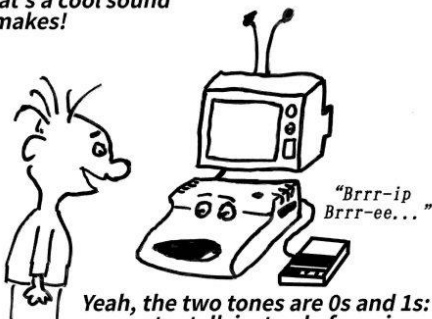Thanks to D. Bruce Moore for Joey & CoCo strip #6 "You Didn't" and Salvador Garcia's first entry of CoCo Chronicles